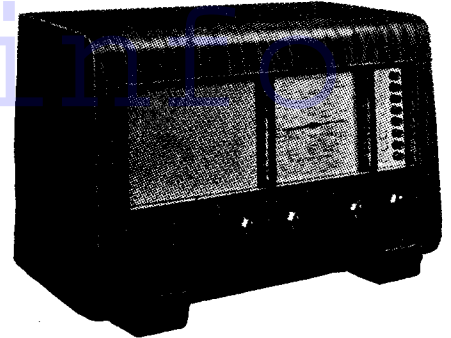


# EVER READY 5101 BATTERY P.B.



A four-valve battery-operated super-het, the Ever Ready 5101 includes push-buttons for seven stations.

**CIRCUIT.**—On the short waves the input to the first valve, which is the frequency changer, is by a single-tuned circuit with a separate A.V.C. decoupling network. On medium and long waves the input is by an inductively coupled band-pass circuit. These circuits are controlled by the usual type of switch, which also provides for special push-button coils.

Equally orthodox is the oscillator section of V1, which utilises a tuned grid winding and separate feed resistances on the anode circuit for the various bands.

Use is made of trimmer-tuned I.F. transformers for coupling V2, the amplifier. The diode load of the signal diode of V3 is returned to the positive side of the filament. The other diode is for A.V.C., and has a split load taken to a delay voltage on a common bias potentiometer.

Resistance coupling is used between the anode circuit of V3 and the input of V4, the output pentode. The bias is obtained from the common potentiometer.

**Chassis Removal.**—The baffle, which is screwed to the chassis, is anchored at the

## RESISTANCES

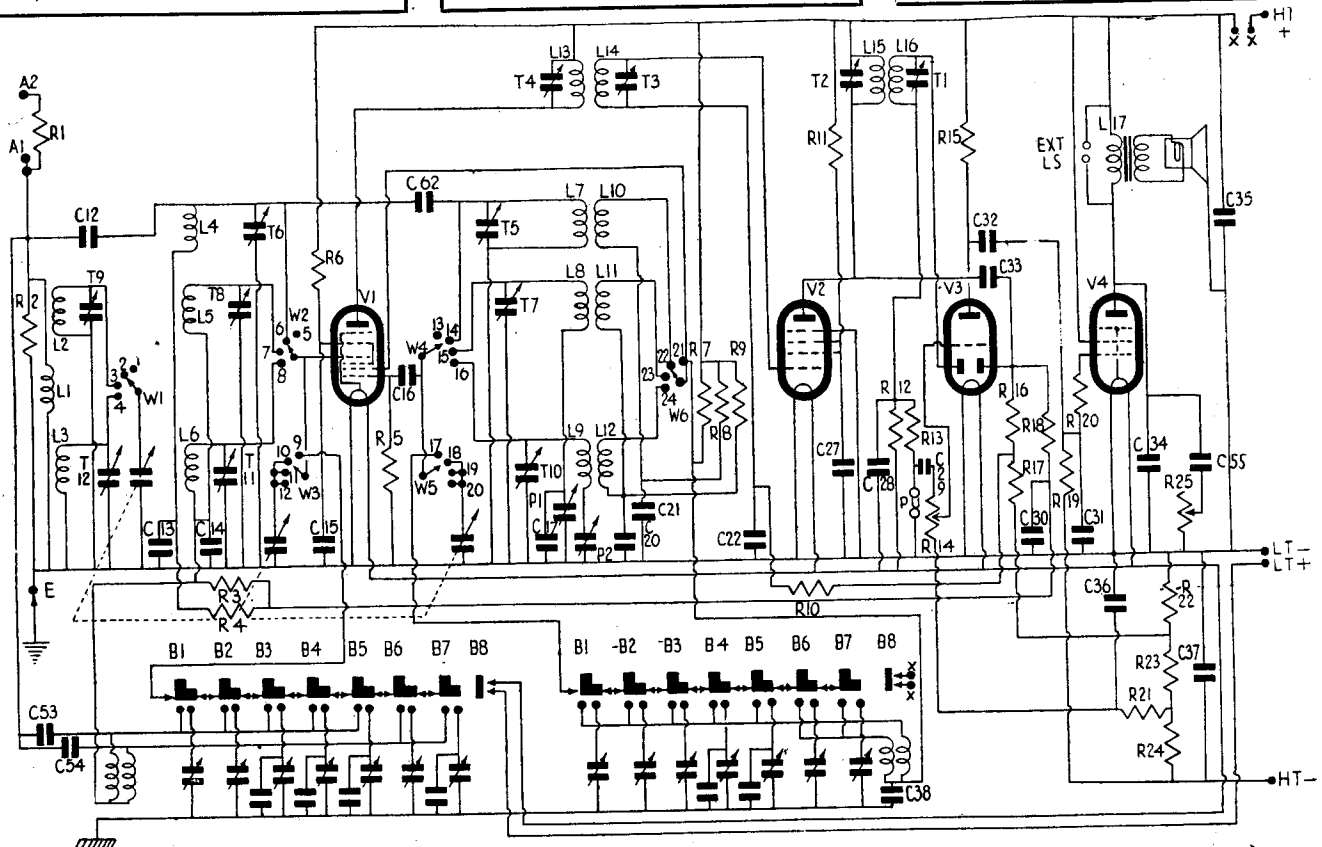
R.	Purpose.	Ohms.
1	Aerial pot. part .. ..	110,000
2	Aerial pot. part. .. ..	11,000
3	V1 A.V.C. decoupling .. ..	110,000
4	V1 A.V.C. decoupling .. ..	110,000
5	Oscillator grid leak .. ..	26,000
6	V1 screen decoupling .. ..	51,000
7	Push-button osc. circuit anode feed. .. ..	40,000
8	S.W. osc. circuit anode feed .. ..	11,000
9	M. & L.W. osc. circuit anode feed. .. ..	110,000
10	V2 A.V.C. decoupling .. ..	110,000
11	V2 screen decoupling .. ..	260,000
12	Signal diode load .. ..	510,000
13	I.F. stopper .. ..	110,000
14	Volume control .. ..	500,000
15	V3 anode load .. ..	51,000
16	A.V.C. diode load part .. ..	510,000
17	A.V.C. diode load part .. ..	260,000
18	A.V.C. decoupling .. ..	510,000
19	V4 grid leak .. ..	510,000
20	V4 grid stopper .. ..	110,000
21	V3 grid decoupling .. ..	51,000
22	Bias pot. part .. ..	100
23	Bias pot. part .. ..	350
24	Bias pot. part .. ..	50
25	Tone control .. ..	50,000

## VALVE READINGS

V.	Type.	Electrode.	Volts.	Ma.
1	All Ever Ready. K80 B ..	Anode ..	144	0.6
		Screen ..	63	1.6
		Osc. anode ..	34	1.0
2	K50 N ..	Anode ..	144	.8
		Screen ..	92	.2
3	K23 B ..	Anode ..	94	1
		Screen ..	138	4.8
4	K70 B ..	Anode ..	144	.8
		Screen ..	144	.8

## WINDINGS (D.C. Resistances)

L.	Ohms.	Range.	Where measured.
1	12	—	A1 and chassis.
2	2.3	M.W.	Aerial gang and chassis.
3	11.1	L.W.	Aerial gang and chassis.
4	Very low	S.W.	V1 grid and C13+R4.
5	2.6	M.W.	V1 grid and C14+R4.
6	11.2	L.W.	V1 grid and C14+R4.
7	Very low	S.W.	W4+W5 and chassis.
8	1.8	M.W.	W4+W5 and P1.
9	4.9	L.W.	W4+W5 and P2.
10	.4	S.W.	W6 and C21+R8.
11	6.3	M.W.	W6 and C20+R9.
12	9.2	L.W.	W6 and C20+R9.
13	6.7	—	On tags.
14	13	—	V2 grid and tag.
15	7.4	—	On tags.
16	7.4	—	On tags.
17	630	—	Ex. spkr. sockets.



Pre-set condensers are switched across aerial and oscillator coils for two long wave and five medium wave stations.

FOR more information remember

www.savoy-hill.co.uk

top of the cabinet by three T plates. These should be unscrewed from the inside of the cabinet, and the knobs should be withdrawn from the four control shafts on the front. These knobs are extremely tight and great care is necessary in removing them. The release of the four retaining bolts then enables the chassis to be completely withdrawn without the disconnection of any leads.

**Special Notes.**—In examining our model no deviations from the makers' specifications were noted.

There is only one point which requires special care, and this is the neutralising condenser used between the oscillator grid and the main-control grid of the mixing valve. This condenser is composed of two pieces of wire twisted together and will be found between the first two switch wafers.

It is very important not to disturb this as not only may the ganging be upset, but the neutralisation will be imperfect. If it is necessary to make any repairs in the

region of this condenser, the positions of the wires should be carefully noted.

**Wave-change Switches.**—All the switching is carried out by two banks, each carrying three wipers. The wafer nearer the "click" plate controls the oscillator circuit and the other is associated with the aerial or input circuits.

One wipe on each bank, actually W3 and W5, is for the purpose of removing the gang condenser from the tuned circuits when push-button tuning is used. In this position the control and oscillator grids are taken direct to the special push-button circuits.

Wipes W4 and W6 select the ordinary oscillator circuits and W1 and W2 control the input on the three wavebands.

### Alignment Notes

**I.F. Circuits.**—Short circuit the gang condenser across the oscillator section (front). Switch to the M.W. position and apply a signal of 452 kcs. through a condenser of 0.1 mfd. across the signal grid of V1 and chassis. Connect an output meter to the receiver.

Trim the I.F. circuits in the following order: T1, T2, T3 and T4. The circuits should be trimmed to a single peak.

Check each circuit by going over the trimmers in the same order again. As the circuits are brought into line the level of the 452-kc. signal should be reduced to prevent the A.V.C. from coming into action and giving misleading results. Remove the short circuit from the gang.

The three bands, long, medium and short waves, and also the automatic position, are

(Continued on page 16)

## Ever Ready 5101 on Test

**MODEL 5101.**—For battery operation, requiring Winner 144 volt H.T. and GZ24 accumulator (both Ever Ready). Price, £10 19s. 6d., including batteries.

**DESCRIPTION.**—Four-valve battery-operated three-waveband superhet, with manual and press-button control.

**FEATURES.**—Full-vision scale calibrated in names and wavelengths, with an aeroplane type pointer. Controls for volume, tone, range, and tuning. Provision for five medium and two long wave press-button operated stations, the buttons controlling trimmer condensers. The eighth button works a master switch. Sockets for extension speaker, pick-up and optional aeriels and earth.

**LOADING.**—L.T., .55 amp.; H.T., 10 ma.

### Sensitivity and Selectivity

**SHORT WAVES (16-52 metres).**—Very good gain for a battery set, with adequate selectivity. No drift trouble and easy handling.

**MEDIUM WAVES (197-575 metres).**—Good gain and selectivity, with small local station spread. Gain well maintained and a quiet background.

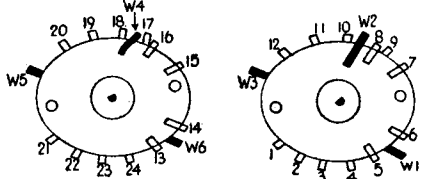
**LONG WAVES (860-2,000 metres).**—Adequate selectivity and gain. All main stations easily received and a good clean background.

### Acoustic Output

A very well-balanced tone with crisp clean upper notes, good attack, and little colouration on speech. Orchestral reproduction is well balanced and the tone control is not too vigorous in action.

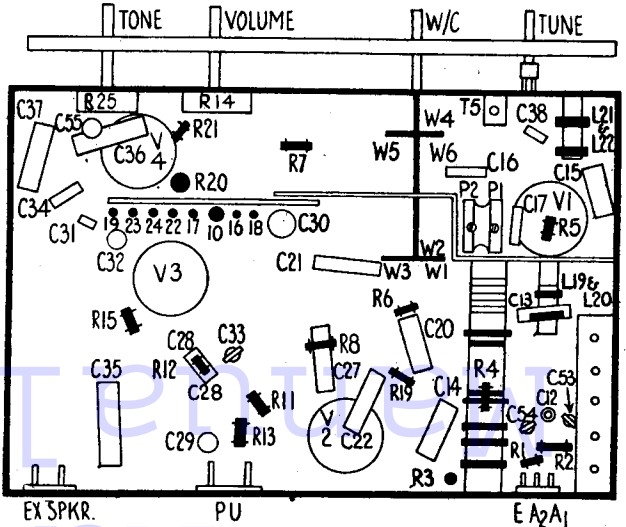
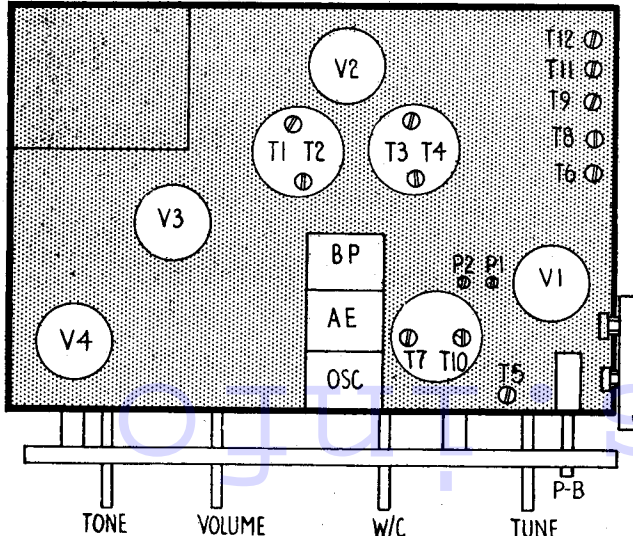
### CONDENSERS

C.	Purpose.	Mfds.
12	S.W. aerial coupling	.00001
13	S.W. tracking	.01
14	V1 A.V.C. decoupling	.1
15	V1 screen decoupling	.1
16	Oscillator grid	.0001
17	M.W. fixed padder	.0005
20	M. & L.W. osc anode decoupling	.1
21	S.W. oscillator anode decoupling	2.
22	V2 A.V.C. decoupling	.1
27	V2 screen decoupling	.1
28	Signal diode load bypass	.0001
29	L.F. coupling	.05
30	A.V.C. decoupling	.1
31	H.F. bypass	.0001
32	L.F. coupling	.05
33	A.V.C. coupling	.00001
34	Tone correction	.0005
35	H.T. bypass	2.
36	V3 grid bias decoupling	50
37	Bias pot. bypass	50
38	Push button osc. circuit coupling	.0002
53	M.W. aerial push-button coupling	.00001
54	L.W. aerial push-button coupling	.00001
55	Tone control	.01
62	S.W. neutralising condenser	Twisted wires.



Switch banks, with one nearer "click" plate on left, lettered in accordance with the circuit.

**EXACT** replacement condensers are available from A. H. Hunt, Ltd., Garratt Lane, Wandsworth, London, S.W.18, for the 5101. The original condensers are by Hunts. For either C36 or C37 there is unit 2915, price 1s. 9d., and for either C21 or C35, unit 2964, price 1s. 10d.



These diagrams identify components both on top ("tinted" diagram on left) and underneath the chassis.

## Ever Ready 5101 Battery P.B.

(Continued from page 15)

independent of each other, and any adjustment to the trimmers or padders of any one band does not influence other bands.

**Long Waves.**—See that the pointer registers with the 180 deg. line on the scale with the gang at maximum capacity. Set the long-wave padder, P2, approximately three quarters in.

Set the pointer against the 1,200-metre mark on the scale. Apply a modulated signal of 1,200 metres to the A. and E. sockets. Adjust the long-wave oscillator trimmer, T10, to receive this signal. Then adjust T11 and T12 to give maximum output.

Set the pointer to the 1,700-metre mark on the scale and apply a signal of 1,700 metres. Adjust P2 for maximum.

Readjust T10, T11 and T12 at 1,200 metres.

Check again at 1,700 metres and see that the pointer is at the 1,700-metre mark. If it is not, make slight adjustment to P2.

**Medium Waves.**—See that the pointer registers with the 180 deg. line on the scale with the gang at maximum capacity. Set P1 two-thirds in.

Set the pointer against the 214-metre mark on the scale and apply a 214-metre signal to the A. and E. sockets. Adjust T7, then T8 and T9 for maximum.

Set the pointer and oscillator to 500 metres and adjust P1 for maximum.

Readjust at 214 metres. Check again at

500 metres and see that the pointer is at the 500-metre mark. If it is not, make a slight adjustment to P1.

**Short Waves.**—See that the pointer registers with the 180 deg. line with the gang at maximum capacity. Set the pointer against the 15-mcs. mark on the scale.

Screw T5 in fully. Apply a 15-mcs. signal to the A. and E. sockets and slowly unscrew T5 until this signal is heard. Care should be taken that the right peak is selected. Two peaks will be found on this trimmer; the correct one is the one with the trimmer at the higher capacity, that is the first one heard when unscrewing the trimmer.

Having selected the correct peak, adjust T6 for maximum.

Apply a signal of 7.5 mcs. and tune the receiver to this signal. Adjust the top turn of the S.W. oscillator coil (L7) and the gang simultaneously to give maximum.

Reset the pointer to the 15-mcs. mark and readjust T5 and T4 to give maximum output.

### Push-Button Adjustment

The wavelength of each of the 7 push buttons is adjustable within certain limits by means of the pairs of trimmers. These may be reached by removing the small panel from the right-hand side of the receiver.

The adjustment range of each button, as

shown on the trimmer board, is as follows:—

Button 1	...	200-300 m.
" 2	...	200-300 m.
" 3	...	290-445 m.
" 4	...	350-480 m.
" 5	...	470-535 m.
" 6	...	850-1,460 m.
" 7	...	1,300-1,665 m.
" 8	...	on-off switch.

To receive a certain wavelength on a push button, apply that signal to the A. and E. sockets of the receiver. With the appropriate button pressed, adjust the corresponding oscillator trimmer, which is on the left of the panel, till the signal is heard. Then adjust the aerial trimmer.

### E.R.S. Trimming Tools

**A**N excellent kit of 10 trimming tools is produced by E.R.S. Tools, of 1, Pine Parade, High Road, Wallisdown, Bournemouth.

The tools are contained in a strong Pegamoid roll. They comprise 3-in. vest-pocket turn-screw, 6-in. turn-screw, 8-in. turn-screw, special Ferranti tool. There are six hexagon tools as follows: 5 B.A. for Ekco, etc., 6 mm. for Philips, ¼ in. for Philco, 8 mm. for Philips, 4 B.A. for Portadyne, and 1 B.A. for Marconiphone.

The tools are constructed of best-quality ebonite and a minimum quantity of tempered steel is used for the tips. The majority are 3 in. in length, a good feature, as this size enables many jobs to be undertaken without removing the chassis from the cabinet.

## Marconiphone 871 Four-band Six

(Continued from page 7)

changer alone, to disconnect some of the leads between the chassis and the sockets at the back. Remove the three nuts on the underside of the mechanism carriers when the complete unit can be lifted out.

If it is necessary to remove the complete motor board carrying the changer mechanism, the following procedure must be adopted:—

Set jaws to 12 in. position, depress record controller and carefully rotate turntable by hand until pick-up lands in playing position. Swing pick-up in and again rotate turntable so that record jaws occupy minimum space, but not so that pick-up swings back across turntable.

Remove jaw knob, auto switch knob, and speaker switch knob, remove turntable spindle and turntable, and unscrew the metal plate round the base of the pick-up.

Remove seven flat-headed screws securing motor board and lift the board carefully off.

**Special Notes.**—The receiver examined was found to adhere very closely to the nominal specification. There were, however, one or two minor differences. The cathode bias for V4, having a value of 750 ohms, was found to consist of two 1,500 ohm resistances.

Some alteration has been made to the network which is in shunt with the pick-up. The circuit shows a simple resistance and condenser connected in shunt with the pick-up transformer. Originally this had a value of 100,000 ohms and .01 mfd. The manufacturers state that the values

are now 50,000 ohms and 0.2 mfd. Actually in the chassis examined the original values were found to be used in addition to a further shunt condenser of .0005 directly between the pick-up socket and earth.

Certain of the components may be difficult to locate, and it will be noticed that six of the main smoothing and decoupling condensers are in the large condenser block on the top of the chassis. In addition, the grid coupling and return resistances R7 and C25, R27 and C28 are also on the top of the chassis.

The tuning indicator feed resistance is at the back of the socket, and this is also used to carry the lamp circuit resistance for adjusting the press buttons. This resistance is a wire-wound unit, R25, having a value of 50 ohms.

Some of the resistances and condensers are also in the coil cans, and those which will not be seen are R13, R31, R32 and R33. The condensers are C11, C27 and C49.

**Wave-change Switches.**—The switches and the leads to them are all very accessible; the sketch shows how the contacts and wiper appear when viewed sideways with the chassis inverted.

The first wafer controls the signal input tuned circuits, W1 and W2 being joined together to provide a five-position switch. The other half of the wafer is devoted to W7 and W8, which are similarly joined and control the pick-up switching.

The next wafer carries W4 and W5, controlling the two portions of the H.F. cir-

cuit on each band. The third wafer carries W9 and W10, controlling the tuned and untuned windings of the oscillator coil.

Earthing or short-circuit wiper are provided on certain of the switches, but these are not shown in detail in the circuit or the diagram.

### Working Voltage Test

**W**HEN testing for "point to point" resistance, an ohmmeter may give a lower reading than that expected. This may be due to electrolytic condensers whose leakage current (when set is off) is large, or where this has increased due to age. The condensers may work perfectly well when the set is operating.

In such a case the best method of testing is to use a D.C. source which has a number of variable voltage outputs, and connect this (with the proper polarity) in series with a milliammeter and the circuit or component under test. Then take readings of voltage and current, and from these compute the actual resistance of the component under working conditions.

The D.C. source is made as near as possible in value to that which is normally across the circuit or component when the set is operating.

These methods may appear rather complicated for a number of tests on a receiver, but, with suitable apparatus, which is simply constructed, and a little practice, the engineer will find they take a very short time and are a very positive method of making a decision.—F.D.L., Dublin.