

# EKCO PICK-ME-UP P149 PORTABLE

**CIRCUIT.**—Signal frequency amplification is carried out by an H.F. pentode, V1, the gain of which is controlled by the filament current, the bias being fixed and derived from a common bias potentiometer.

The input to this valve takes the form of the medium- and long-wave frame windings, controlled by a two-position switch. An alternative connection can be made through a fixed condenser to an outside aerial.

Further control of the gain of the first valve for local and distant working is effected by varying the screen voltage, the local distance switch shorting out part of the screen-decouple resistance.

Radio-frequency amplification is carried out by tuned-anode coupling with capacity-controlled reaction. The reaction condenser is mechanically ganged with the filament-control resistance, which, of course, is a well-known system.

The detector valve is an ordinary reactive triode with simple resistance coupling to the next valve, V3, a triode L.F. amplifier. This is fitted with a series grid stopper. The anode load of V3 is a resistance which feeds a small L.F. transformer through a coupling condenser.

Grid bias for both V3 and V4 is obtained from a potentiometer consisting of a resistance net work in the common H.T. return, the bias for V3 being decoupled through a resistance and condenser.

For the output use is made of a small pentode, V4, which is connected to the

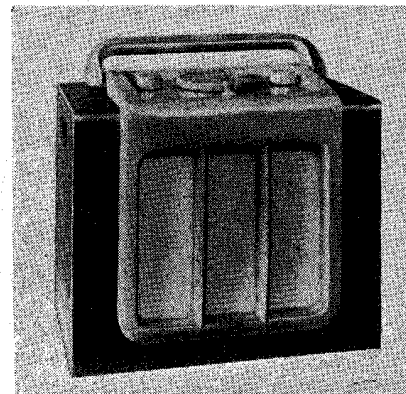
speaker transformer with the usual anode shunt condenser. The H.T. supply is obtained from an H.T. battery with a shunt condenser. Disconnection of the filament circuit forms the means of switching off the set.

**Chassis Removal.**—After removing the batteries and valves, release the two control knobs. These are fixed by grub screws. The dial is removed by releasing the central boss, removing the celluloid plate and printed metal scale. This discloses the two grub screws which hold the dial boss on the condenser shaft.

Next unsolder the two speaker leads. These are coloured red and blue, and are connected to the red and blue leads which go to the phone terminals. Taking the tags in order from the top, the connections are as follows:—No. 1, bare earth wire; No. 2, blank; No. 3, red; No. 4, blue; and No. 5, lead to cut-out switch (also blue).

The frame connections must now be unsoldered. Remove the blue lead from the M.W. frame at the right of the set and white and green leads from the long-wave frame.

Great care must be taken with a short bare lead from the external aerial socket. This will be found projecting from the sleeving on the grid lead of V1.



The "Pick-me-Up" battery portable, model P149, by E. K. Cole, Ltd., is a compact four-valve "straight" receiver with frame aeriels.

Finally remove the snap switch from the control panel by releasing the locking ring and then remove the four retaining bolts. The chassis can now be withdrawn by tilting it from the output end.

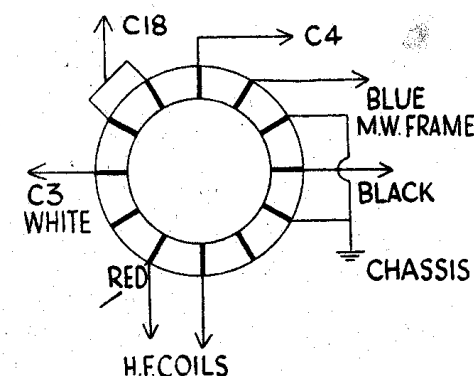
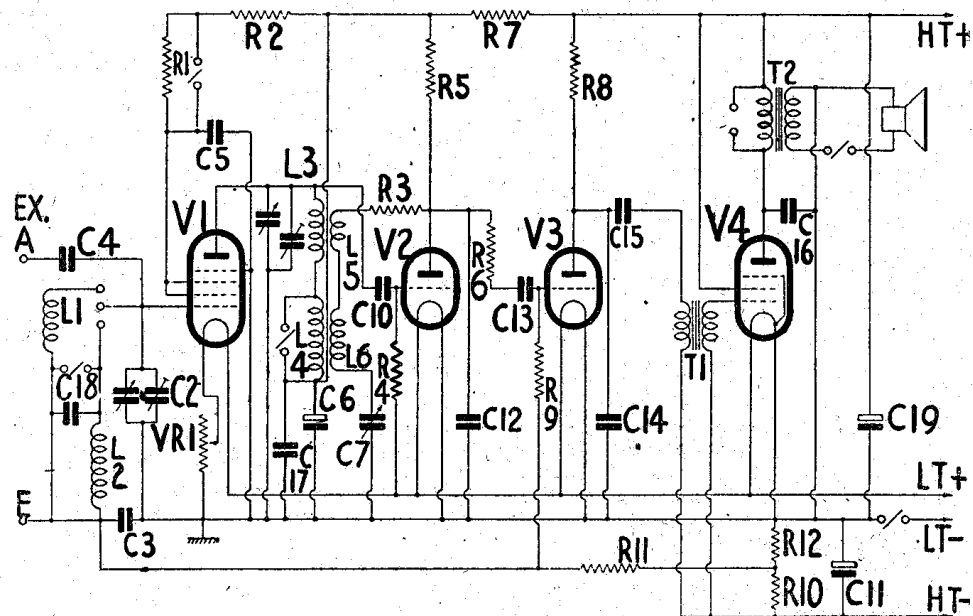
**Special Notes.**—There should be very little difficulty in locating any of the components as they are quite easy to find once the chassis has been removed. It must be remembered that C4 and C18 are twisted wire condensers to be found on two of the leads going to the wave-change switch.

In carrying out any valve readings notice

VALVE READINGS				
V.	Type.	Electrode.	Volts.	Ma.
1	All Mullard. VP2B	Anode ..	75	.8
		Screen ..	55	.2
2	PM2HL	Anode ..	70	.5
3	PM2HL	Anode ..	65	.5
4	PM22A	Anode ..	85	4.2
		Screen ..	90	1

RESISTANCES		
R.	Purpose.	Ohms.
1	V1 screen decouple, local working.	3 meg.
2	V1 screen decouple .. ..	100,000
3	Reaction stabiliser .. ..	200
4	V2 grid leak .. ..	8 meg.
5	V2 anode load .. ..	30,000
6	V3 grid stopper .. ..	150,000
7	V1 and V2 anode decouple ..	10,000
8	V3 anode load .. ..	50,000
9	V3 grid leak .. ..	1 meg.
10	Bias pot. (part) .. ..	200
11	Bias decoupling .. ..	1 meg.
12	Bias pot. (part) .. ..	100

CONDENSERS		
C.	Purpose.	Mfds.
3	V1 A.V.C. decouple .. ..	.1
4	Aerial series .. ..	Twisted wires.
5	V1 screen decouple .. ..	.1
6	V1 and V2 anode decouple ..	2
10	V2 grid .. ..	.0001
11	Bias shunt .. ..	20
12	V2 anode bypass .. ..	.0002
13	V3 grid .. ..	.01
14	V3 anode shunt .. ..	.002
15	Transformer primary coupling.	.1
16	Pentode compensating .. ..	.002
17	V1 and V2 anode H.F. decouple.	.1
18	L.W. aerial coil shunt .. ..	Twisted wires.
19	H.T. shunt .. ..	8



Screen-grid, reactive detector and two L.F. valves form the P149 circuit. Switching is simple and all details of the single bank are given by the above diagram and in the text on the opposite page. The local-distant switch is across R1.

must be taken of the presence of a very high screen resistance for V1 in the local position. With this resistance, which is three megohms, in circuit, the current is so small that it will not show on an ordinary milliammeter, and it might be thought that the valve or circuit was defective.

**Switching.**—All the switching is accomplished on a single wafer, which performs three functions. First of all there are contacts for the filament supply. These form the main control switch of the set.

One pair of contacts is used to short-circuit the long-wave H.F. coil in the M.W. position. One wipe is used to

select either the M.W. or L.W. frame aerial coil, but shorting contacts are also provided to short out the L.W. frame coil in the M.W. position. The drawing should make the whole arrangement perfectly clear.

### Circuit Alignment Notes

Set the local distance switch to the distant position and tune in a weak station between 220 and 300 metres.

Adjust the aerial trimmer condenser for maximum. This is located on the top of the gang nearest to the control shaft.

Then adjust the H.F. trimmer for maximum. This is located on the top of the second gang.

In carrying out the trimming adjustment care must be taken that the set does not rotate on the turntable, as otherwise the results will be inaccurate.

Reaction should be advanced, but not to the oscillation point.

If desired the circuits can be aligned in the workshop by injecting a signal from a service oscillator by means of a loop of wire brought near the frame aerial.

WINDINGS (D.C. Resistances)			
L.	Ohms.	Range.	Where measured.
1.. ..	1	M.W.	On tags.
2.. ..	24	L.W.	On tags.
T2 prim.	1,320	—	On 'phone sockets.
T1 prim.	590	—	V3 pin and +C15 and C11 + R10.
T1 sec. . .	2,500	—	V4 grid and C11 + R10.
5 + 6	5	—	V2 pin and reaction condenser.
3	5	M.W.	V1 anode and C6.
4 + 3	23	L.W.	V1 anode and C6.

## Ekco P149 on Test

**MODEL P149.**—Standard portable receiver for battery operation, requiring an Exide J5K2 accumulator and a Drydex H1146 (90-volt) H.T. battery. Price, with batteries, £7 19s. 6d.

**DESCRIPTION.**—Four-valve, two-band straight battery portable.

**FEATURES.**—Full-vision, protected, circular metal scale calibrated in names and wavelengths. Combined range and master switch and combined volume and reaction control. Sockets for phones and external aerial. Screw switch for cutting out internal speaker.

**LOADING.**—H.T., 7.2 ma.; L.T., .48 amp.

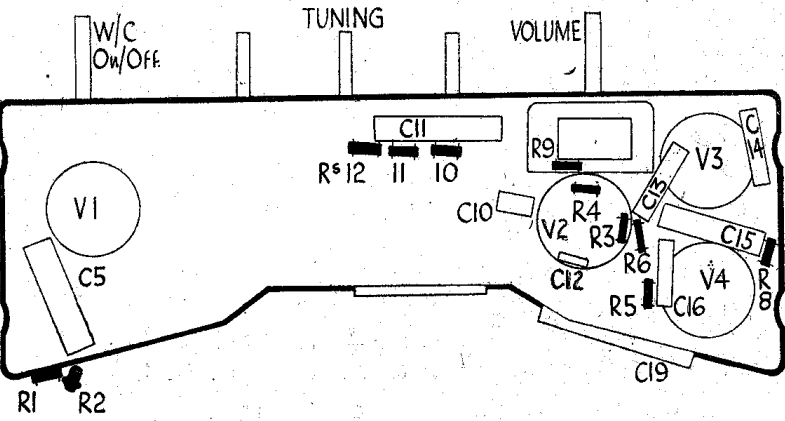
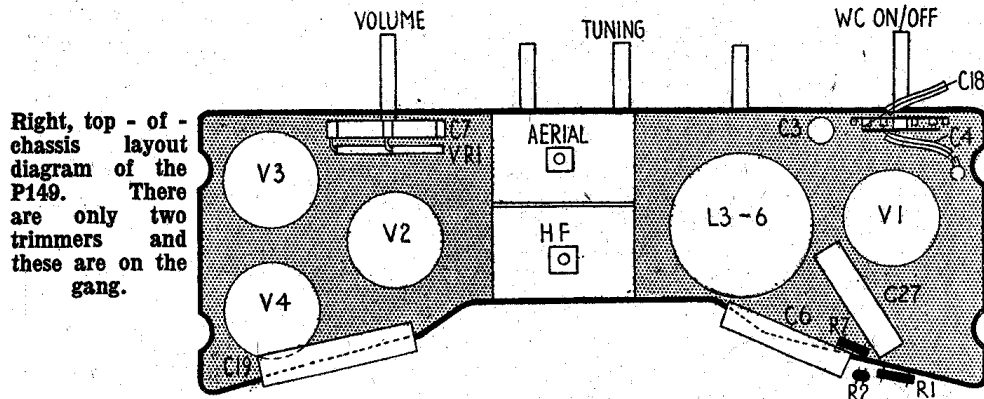
### Sensitivity and Selectivity

**MEDIUM WAVES (200-550 metres).**—Excellent gain and good selectivity. All main stations easily received in daylight. Reaction control free from overlap and nicely balanced.

**LONG WAVES (350-2,200 metres).**—Very good performance, with easy reception of main stations. Deutschlandsender received with little interference by making use of the directional properties of the aerial.

### Acoustic Output

Good volume for a small battery set with a very well balanced tone. No badly marked colouration on speech, good attack and crispness and generally pleasing performance.



Underneath the chassis construction is very simple and straightforward (see layout diagram on left).