

PYE TP/B BATTERY FIVE PORTABLE

CIRCUIT.—This receiver is a five-valve battery portable operating on the usual medium and long wavelengths.

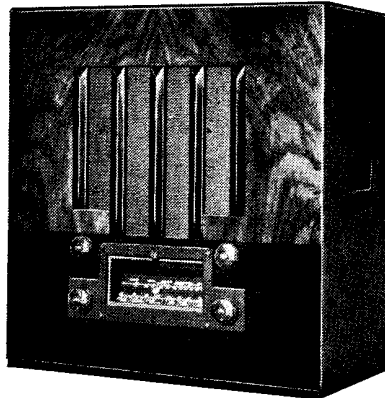
The input to V1, an H.F. pentode, is a tuned frame aerial. Signals are then fed through an H.F. coil, using capacitive coupling to the frequency changer V2.

An I.F. transformer tuned to 127 kc., forms the coupling to V3, an H.F. pentode. This is linked to V4, a double-diode triode, through a second I.F. transformer, a coupling choke, and the volume control.

The L.F. output of V4 passes to V5, a double pentode, *via* a driver transformer, the secondary of which is shunted by a variable condenser acting as a tone control.

A.V.C. is obtained from one diode of V3 and applied to the preceding valves in the orthodox manner.

H.T. and grid bias are derived from a



secures the holder in position and makes replacement of the lamp an easy matter.

Exposing Chassis.—To reach the underside of the chassis there is no need to remove it from the cabinet. Simply remove the false bottom, which is held in place by four wood screws.

To remove the chassis the procedure is as follows:—

Remove the four knobs from the front of the cabinet (spring clips), disconnect the frame aerial and the speaker leads. The frame aerial terminals are on the right-hand side of the chassis. The order of reconnection reading from the front of the chassis, is: Green, black, white, red.

Free the battery leads from the cleat, and remove the four fixing bolts from underneath the cabinet. The chassis will then be free.

(Continued on opposite page.)

RESISTANCES

R.	Purpose.	Ohms.
1	V1 screen decoupling ...	2,000
2	V1 A.V.C. decoupling ...	260,000
3	V2 screen decoupling ...	160,000
4	V2 osc. grid stopper ...	2,500
5	V2 osc. grid leak ...	100,000
6	V2 anode decoupling ...	2,000
7	V2 osc. anode decoupling ...	50,000
8	V3 screen decoupling ...	160,000
9	V1 and V2 A.V.C. decoupling	1 meg.
10	Part A.V.C. diode load ...	1.1 meg.
11	V3 A.V.C. decoupling ...	1.1 meg.
12	Part A.V.C. diode load ...	510,000
13	Demodulator diode load ...	510,000
14	Volume control ...	500,000
15	Bias potentiometer ...	630
16	Bias potentiometer ...	630
17	Bias potentiometer ...	100
18	V4 anode decoupling ...	30,000
19	V5 grid bias ...	160,000
20	Pentode compensating ...	15,000

Self-contained with frame aerial and batteries, the TP/B utilises a five valve superhet chassis. Good volume is obtained from a Q.P.P. output stage.

Diagrams identifying the components above and below the chassis are given on the opposite page.

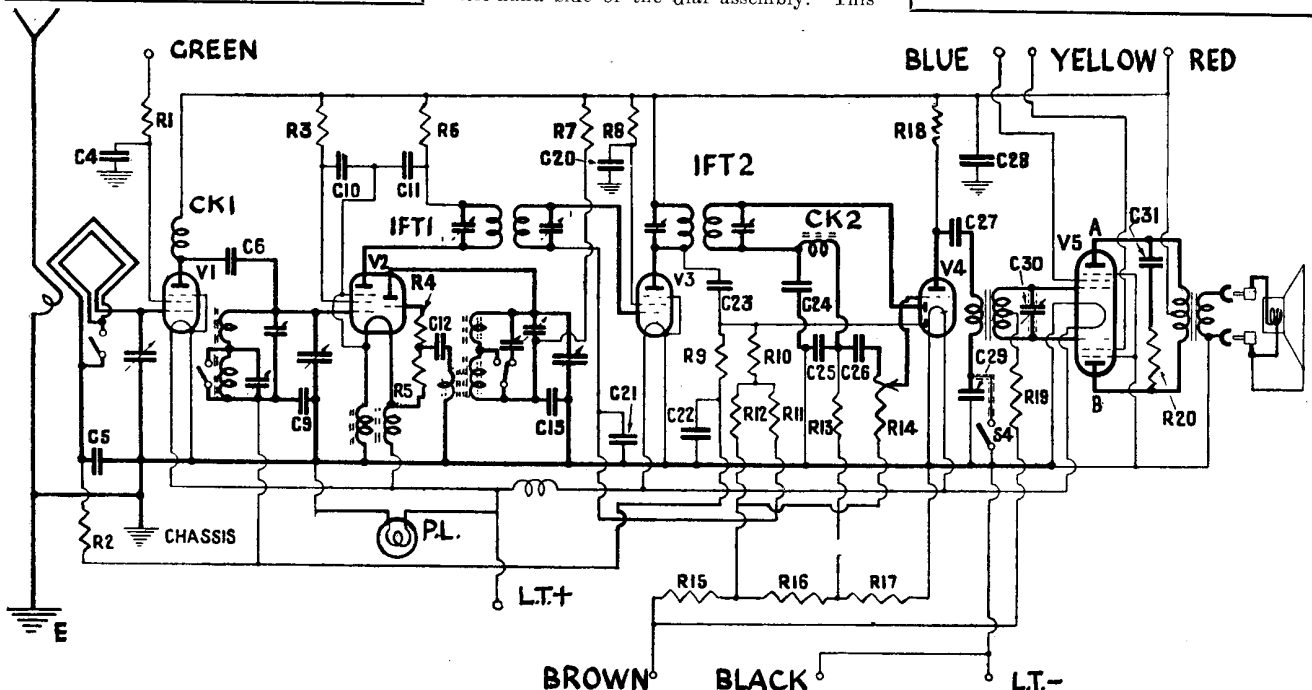
combined battery and L.T. from an accumulator.

Special Notes.—The extra speaker connections are on the secondary of the output transformer. An extension speaker should have a speech coil impedance of about 2 ohms.

The dial lamp is rated at 2.5 volts, .2 amps. A knurled nut will be found on the left-hand side of the dial assembly. This

CONDENSERS

C.	Purpose.	Mfd.
4	V1 screen decoupling ...	.1
5	V1 A.V.C. decoupling ...	.1
6	H.F. coupling ...	.000025
9	H.F. coupling ...	.1
10	V2 screen decoupling ...	.1
11	V2 anode decoupling ...	.1
12	V2 osc. grid ...	.0002
15	V2 osc. anode decoupling ...	.1
20	V3 screen decoupling ...	.1
21	V3 A.V.C. decoupling ...	.1
22	V2 A.V.C. decoupling ...	.05
23	Diode coupling ...	.0002
24	H.F. by-pass ...	.00005
25	H.F. by-pass ...	.00005
26	L.F. coupling ...	.01
27	L.F. coupling ...	.1
28	H.T. shunt ...	.8
29	Tone control ...	.01
30	Tone control ...	.00075
31	Pentode compensating ...	.0025



On the whole the TP/B circuit is conventional. A signal frequency amplifier precedes the frequency changer, one I.F. amplifier is used and the fourth valve is a double-diode triode. The double pentode output valve is fed by a driver transformer.

For more information remember

www.savoy-hill.co.uk

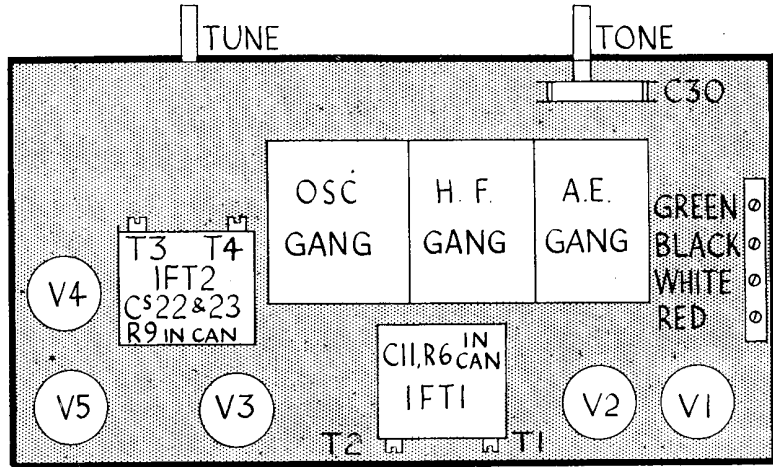
PYE TP/B BATTERY FIVE PORTABLE (Continued)

Battery Connections.—A 136½-volt. battery should be used and the voltages at the leads should be: H.T.+, green lead, 88½ v.; H.T.+, red lead, 136½ v.; G.B.—, brown lead, -10½ v.; H.T.—, black lead, to H.T.—; yellow and blue, see markings on Q.P.P. valve and the battery.

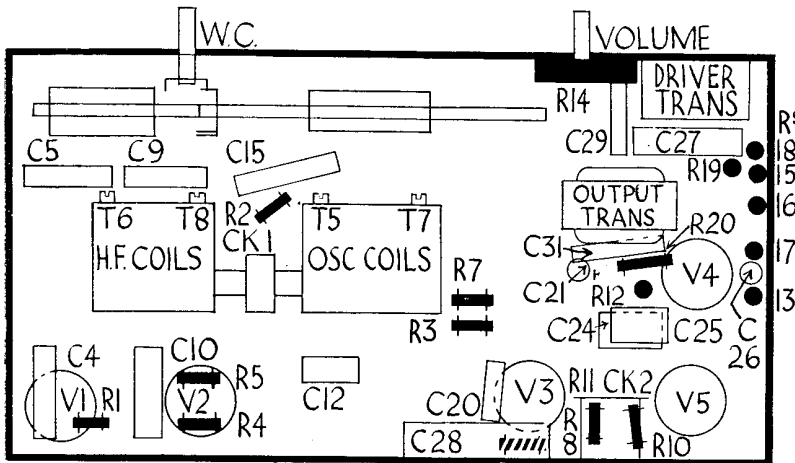
ALIGNMENT NOTES

I.F. Circuits.—Short out the frame aerial terminals and connect a modulated oscillator tuned to 127 kc. to the grid of V2 and the chassis *via* a .002 mfd. condenser. Connect a .25 mfd. condenser between the oscillator anode and the chassis and an output meter across the speaker terminals.

Adjust T1, T2, T3, T4 for maximum reading on the output meter.
A 65,000 ohms resistance is required while trimming these transformers. While adjusting the primary of each transformer



This diagram of the top of the Pye TP/B chassis shows how the components are arranged and identifies the trimmers on the I.F. transformers.



Tracing components in this under-chassis layout drawing is facilitated by remembering that resistances are shown in solid black while condensers are indicated in outline.

the resistance should be shunted across the secondary, and while adjusting the secondary it should be placed across the primary. Points are provided on the trimmers for easy connection of this resistance.

Medium Waves.—Remove the frame aerial from the cabinet and reconnect it to the chassis. Adjust the gang condenser to minimum capacity and couple the modulated oscillator, tuned to 196 metres, *via* a coupling coil to the frame aerial. Trim T5 and T6 for maximum reading on output meter.

Repeat at 500 metres for a check of the accuracy of the above.

If more than one peak is found when adjusting T5, the one nearer minimum capacity is correct.

Long Waves.—With condenser at minimum capacity as before, couple a signal of 775 metres to the frame aerial, and trim T7 and T8 for maximum.

Inject and tune in a signal of 846 metres, and readjust T7. If two peaks are found, the one nearer maximum capacity is correct.

the pointer drive cable. Free this by means of the wood screws in each end, unsolder the leads on the terminal strip on the speaker, and the chassis will then be free.

ALIGNMENT NOTES

I.F. Circuits.—Connect a modulated oscillator to the grid cap of V1 and an output meter across the external speaker terminals.

Shunt C24 with a 25,000 ohm resistance and turn the selectivity control fully clockwise. Inject a signal of 128 kc., trim C25 for maximum reading on the output meter. Remove the shunt.

Shunt C23 with a 10,000 ohm resistance and a .1 mfd. condenser in series. Trim C22 for maximum reading on output meter. Remove the shunt.

Shunt C25 with a 25,000 ohm resistance. Trim C24 for maximum reading. Remove the shunt. Shunt C22 with a 10,000 ohm resistance and a .1 mfd. condenser in series. Trim C23 for maximum reading. Remove shunt.

Medium Waves.—Inject a signal of 208 metres *via* a dummy aerial to the aerial and earth terminals and tune it in. A template is available from the manufacturers so that correct adjustment of the tuning condenser may be made. Adjust C17, C14 and C15 for maximum reading on output meter.

If the oscillator coils are badly out of gang, then for best results use should be made of an amplifier connected to the anode of V1 *via* a .00025 mfd. condenser and to the chassis.

VALVE READINGS				
No signal. Volume maximum. New batteries.				
V.	Type.	Electrode.	v.o.t.	M/a.
1	All Mazda. VP215 Met. (7)	Anode	130	.6
		Screen	90	.3
2	TP22 Met. (9)	Anode	128	.6
		Screen	85	.25
3	VP215 Met. (7)	Osc. anode	75	.15
		Anode	130	.6
4	L21DD Met. (5)	Anode	82	.25
		Screen	104	.75
5	QP240 (9)	Anode (1)	130	.25
		Screen	118	.45
		Anode (2)	130	.25
		Screen	118	.45

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The amplifier may be the gramophone side of any reliable receiver, and care should be taken to see that the amplifier grid lead is taken to the anode of V1. The anode lead of V1 is bared and can be reached through a hole in the chassis to the right of the valve.

Having satisfactorily connected the amplifier the procedure is as follows: Shunt C22 with a 2,000 ohms resistance and a .1 mfd. condenser in series and inject a strong signal of 545 metres to the aerial and earth terminals. Tune the receiver until it is heard from the amplifier, remove the amplifier and shunt and trim C20 for maximum reading on output meter.

The above should be repeated until the best results are obtained.

Long Waves.—Inject and tune in a signal of 760 metres (using template if available). Adjust C18 for maximum response.

Connect up with the amplifier as before and the shunt across C22; inject a strong signal of 1.875 metres and tune it in. Then remove the amplifier and shunt and trim C19 for maximum reading.

Short Waves.—Inject and tune in a signal of 17.6 metres (if the template is available the condenser should be adjusted against it), and trim C16 for maximum reading on the output meter.

Aerial Filter.—Switch the receiver to long waves and tune the condenser to maximum. Apply a strong signal of 128 kc. (the intermediate frequency) and trim C13 for minimum reading on the output meter.

Image Filter.—Inject a signal of 403 metres and tune it in. Leaving the tuning condenser at this setting, inject a strong signal of 300 metres and adjust C46 for minimum.