PYE "BABY Q" PORTABLE

CIRCUIT.—A tuned frame precedes V1, which is an H.F. pentode. An external aerial tap is provided which connects it through a series condenser to the grid of V1.

Coupling to V2, a triode, is through a direct coupled tuned anode coil, reaction being fed back from the anode through a modifying resistance.

Signals are fed to V3, which is also a triode, through a resistance and capacity network, and this valve is in turn coupled to V4, through a resistance-fed high permeability auto-transformer.

The amplified output of V4 passes to the moving-coil speaker through a matching transformer. Phone sockets are provided, and one of these operates a jack cutting out the internal speaker.

H.T. is obtained from a Pye-type "Baby Q" battery, which is specially made for this set: and the L.T. from a Pye "Baby Q" unspillable accumulator, also specially made. Auto-bias is obtained from R9.

Special Notes.—In the diagram of the chassis, for the sake of simplicity, the resistance-capacity strip has been shown as though bent parallel to the top of the chassis.

C11 is formed of two pieces of enamelled wire wound round each other. It is situated on the frame aerial terminal strip. C2 will be found inside the H.F. coil can.

The volume control and reaction condenser are ganged together, the volume control being in the negative L.T. lead of the H.F. pentode.

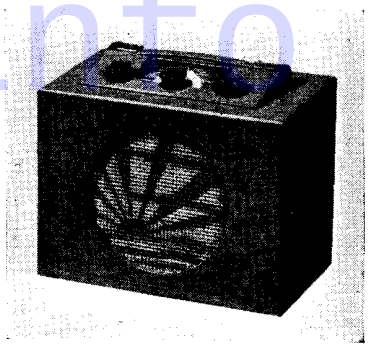
Removing Chassis.—Remove back and the batteries. The knobs are held on by spring clips and should be pulled off. Next remove the four screws holding the chassis to brackets on the sides of the cabinet.

The escutcheon must also be removed by undoing its four screws, two through the handle and two on the underside. The pointer should then be pulled off the condenser spindle and the set disconnected from the frame aerial.

When reconnecting, the coloured wires from left to right should be: Black, yellow and green.

The speaker may be removed by unscrewing the holes holding the baffle to the front. The phones socket strip must be unscrewed from the side of the cabinet.

Replacement condensers for this set, made by A. H. Hunt, Ltd., Garratt Lane, Wandsworth, London, S.W.18, are: For C's 1 and 4, type 3478 (1s. 8d.); for C8, type 2971 (1s. 3d.).



The Pye "Baby Q," a lightweight battery portable selling at 8 gns.

Circuit Alignment Notes

Medium Waves.—The modulated oscillator should be set to about 220 metres (1,360 kc.), the signal tuned in and the trimmers T1 and T2 adjusted to give maximum output.

This should be repeated on about 500 metres (600 kc.) and a compromise obtained.

There are no long-wave trimmers.

VALVE READINGS

No signal. Volume maximum. New batteries.

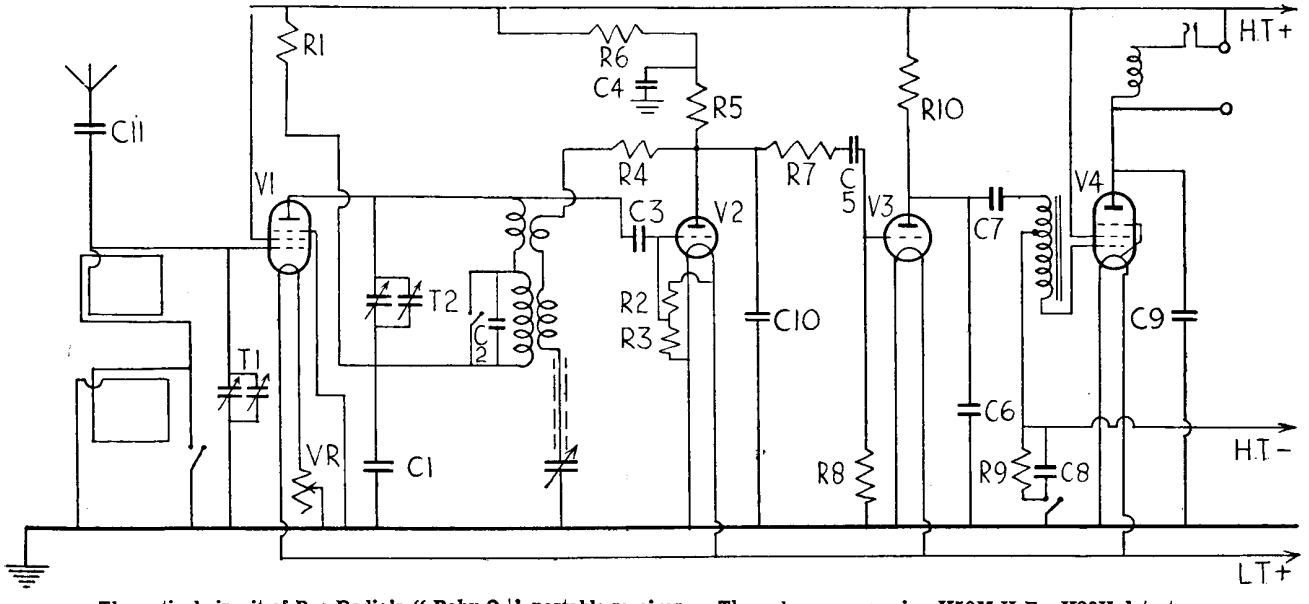
V.	Type.	Electrode.	Volts.	Ma.
1	K50M met. (7)	Anode ..	70	1.4
		Screen ..	85	.6
2	K30K met. (4)	Anode ..	50	.5
3	K30K met. (4)	Anode ..	53	.7
	The above are all Ever-Ready.			
4	Pen. 220 (5) Mazda	Anode ..	80	4.6
		Screen ..	85	1

RESISTANCES

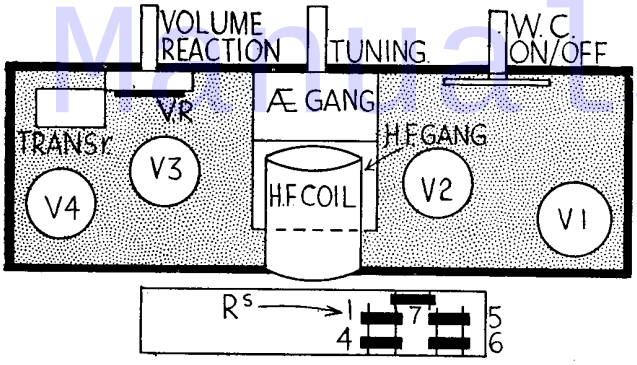
R.	Purpose.	Ohms.
1	V1 anode decoupling	10,000
2	V2 grid leak potentiometer ..	2 meg.
3	V2 grid leak potentiometer ..	2 meg.
4	Regeneration modifier ..	10,000
5	V2 anode load	30,000
6	V2 anode decoupling	30,000
7	V3 grid stopper	100,000
8	V3 grid leak	1 meg.
9	V4 series bias	300
10	V3 anode load	50,000
VR	Volume control	—

CONDENSERS

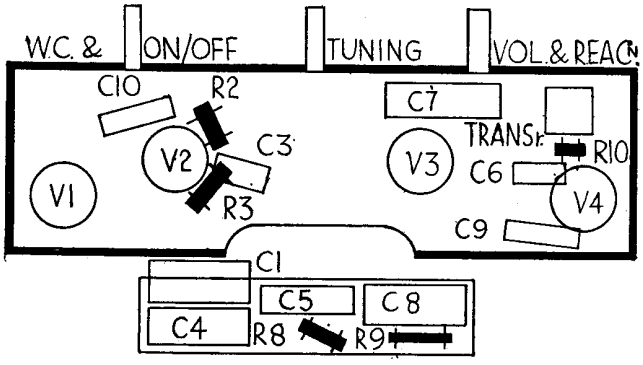
C.	Purpose.	Mfd.
1	V1 anode decoupling	2
2	Long-wave shunt	.00003
3	V2 grid condenser	.0002
4	V2 anode decoupling	2
5	V3 L.F. coupling	.01
6	Anode shunt	.003
7	V4 L.F. coupling	.1
8	Series bias shunt	20
9	Pentode compensator ..	.003
10	H.F. by-pass	.0002
11	Aerial coupling	—
12	Reaction condenser	—



Theoretical circuit of Pye Radio's "Baby Q" portable receiver. The valve sequence is: K50M H.F.; K30K detector; K30K first L.F.; Pen 220 output. The first three are Ever Ready, the last a Mazda.



Top view of the "Baby Q" chassis. Only the large components and valves are on the top; small components are underneath—



—and on the resistance-capacity strip. In the top view and this, the underside view, this strip is shown parallel with the chassis for the sake of clarity.

TIME-SAVING TIPS FOR THE WORKSHOP

by Mander Barnett

WHEN replacing combined volume and on/off controls where the volume control has become faulty the switch section can generally be removed. These sections can be used again, and will make handy replacements where the switch of a combined control has broken down. Many types of combined controls use a switch of similar size and type.

* * *

MANY cheaper sets are turned out without any form of felt or rubber padding to protect the surface on which the set stands. Small rubber feet with fasting pins can be obtained for a copper or two, and get over this difficulty.

Where it is obvious that the set has already caused damage by scratching the table on which it is standing, a set of four of these feet could be fitted free of charge as an extra service which the customer would highly appreciate.

* * *

WHERE a customer is likely to make use of the mains aerial device on an all-mains receiver, a few words concerning its correct use are not out of place.

The majority of receivers require an earth connection in order to obtain the best results from a mains aerial.

Generally, a receiver is installed more or less permanently in one room, complete with efficient aerial and earth connections, and is only required occasionally in some other room where no aerial is available.

It is a good plan, when installing a set, to inquire whether the customer will require to use it in another room on any future occasions, and, if so, to install a suitable earth connection. Thus, whenever the receiver is moved to this room, the earth wire can be connected up to obtain the best results from the mains aerial.

* * *

RECENTLY I came across a case where the earthed pin on a three-pin wall socket was being used for the earth connection of a set. This would appear to be a rather unsatisfactory practice, even if regarded only from the point of view of aerial safety.

After all, aerials *do* sometimes receive pretty heavy lightning discharges, and it would surely be highly preferable to have these conducted to earth *via* a direct earth wire outside the house, plus a lightning arrestor or earthing switch.

Moreover, the mains earth would be liable to introduce sundry clicks and other noises which would not be heard with a separate earth.

* * *

OCCASIONALLY it is found that hum in a mains set is due to the energised speaker itself.

The trouble can be cured by the addition of a second choke. It is important, however, to connect this on the rectifier side of the energised speaker.

An extra electrolytic condenser is also required, and is connected between the rectifier side of the extra choke and chassis.

It should not be assumed too readily, however, that the speaker is necessarily defective, and before adding another choke the hum-bucking arrangements of the speaker should be examined. The coil may be connected in the wrong direction.

When a further choke is employed, it need have only a low inductance. As the full H.T. of the set will pass through it, it is also important that the resistance should be low, otherwise the voltage drop will be considerable.

* * *

WITH the increasing popularity of the really small portable battery-operated receiver, a number of these have appeared recently which, owing to their compactness, present some difficulties when the need for servicing arises.

With at least two models, it is necessary to unsolder nearly half a dozen leads between the chassis and the case, in order to withdraw the chassis. These leads connect the frame aerial, speakers and, in some cases, the batteries. Furthermore, it is necessary, in order to test the receiver, to connect the chassis to these points again, while it is out of the case.

A speedy method of making these connections is essential for efficient servicing, and the use of lengths of flexible wire equipped with clip connectors will be found very helpful in cases like this, as well as being useful in many other service jobs.

Cut some flexible rubber-covered wire into about a dozen one-foot lengths and fasten some type of clip connector on all the ends. These connectors can then be used to connect the chassis to the various speaker and frame points.

Pye "Baby Q" on Test

MODEL "Baby Q."—A portable battery receiver, using a Pye "Baby Q" battery for H.T. and a Pye "Baby Q" unspillable accumulator for L.T. Price, 8 gns.

DESCRIPTION. — A four-valve frame-aerial battery portable, arranged for two waveband working with ganged volume and reaction.

LOADING.—H.T., 8.7 ma.; L.T., .6 amp.

Sensitivity and Selectivity

MEDIUM WAVES (200-550 metres). —Selectivity, with the aid of the frame aerial, is exceptionally good, and sensitivity is sufficient to give a useful number of stations in daylight.

Reaction control stable and free from overlap. Tuning reasonably easy.

LONG WAVES (890-2,100 metres).—Selectivity again excellent by use of directional properties of the aerial. Deutschlandsender can be obtained with reasonable strength. Sensitivity sufficient to give all the usual stations.

Acoustic Output

Sufficient for small room, with fair quality. Colouration is present and the low note radiation is limited, as must be expected with a set of the size.