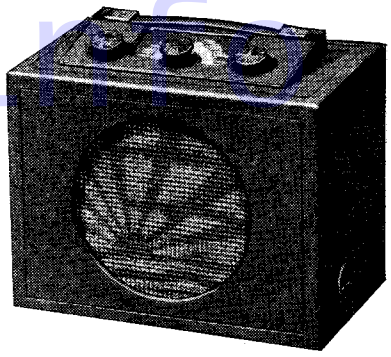
PYE BABY QU MAINS PORTABLE FOUR



This Pye portable, the Baby QU, is designed to operate on all standard mains supplies.

CIRCUIT.—The receiver incorporates a frame aerial that constitutes the aerial coils of V1, which is an H.F. pentode operating as an H.F. amplifier. The volume control is a potentiometer between the H.T. negative lead and chassis earth line and controls the bias applied to the H.F. amplifier.

The amplifier can be made to oscillate with this control thereby increasing the sensitivity of the receiver. An external aerial can be connected if desired.

V1 is tuned anode coupled to V2, another H.F. pentode operating as the demodulating stage of the receiver.

The rectified output passes *via* an H.F. filter and a resistance coupling arrangement to the output valve V3, an output pentode. A compensator condenser is connected between the anode of this valve and chassis.

The speaker-matching transformer in the anode circuit of V3 has connections brought out to sockets (across the secondary) whereby either headphones or an external speaker may be operated.

Mains equipment consists of a tapped adjustment resistance, a half-wave rectifying valve V4, electrolytic smoothing condensers and a smoothing choke consisting of the speaker field. Fuses and a chokes-condensers suppressor arrangement are included in the mains leads.

Chassis Removal.—First disconnect the mains lead and remove the back of the cabinet. Remove the four valves and disconnect the black lead from the electrolytic condenser to the mains input panel. The two nuts on the bolts securing the mains input bracket to the cabinet should then be removed and the panel withdrawn.

Next take out the volume control screen (secured by two screws). The frame aerial leads, on the top of the inside of the cabinet, must be undone. These are coloured leads terminating in tags. Looking from the back, from left to right, the colours of the three leads are yellow, black and white.

Remove the nuts and bolts holding the strap handle and the two bolts which are screwed in the escutcheon plate from the inside of the cabinet. Take off the three

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RESISTANCES

R.	Purpose.	Ohms.
1	V1 cathode bias	1,000
2	V1 screen feed and V1 anode decoupling.	5,000
3	V2 grid leak	510,000
4	V2 screen decoupling	260,000
5	V2 anode decoupling	20,000
6	V2 anode load	110,000
7	HF stopper	110,000
8	V3 grid leak (part)	1.1 meg.
9	V3 grid stopper	50,000
10	Volume control	250
11	V3 grid leak (part)	1.1 meg.
12	Mains adjustment resistance	840

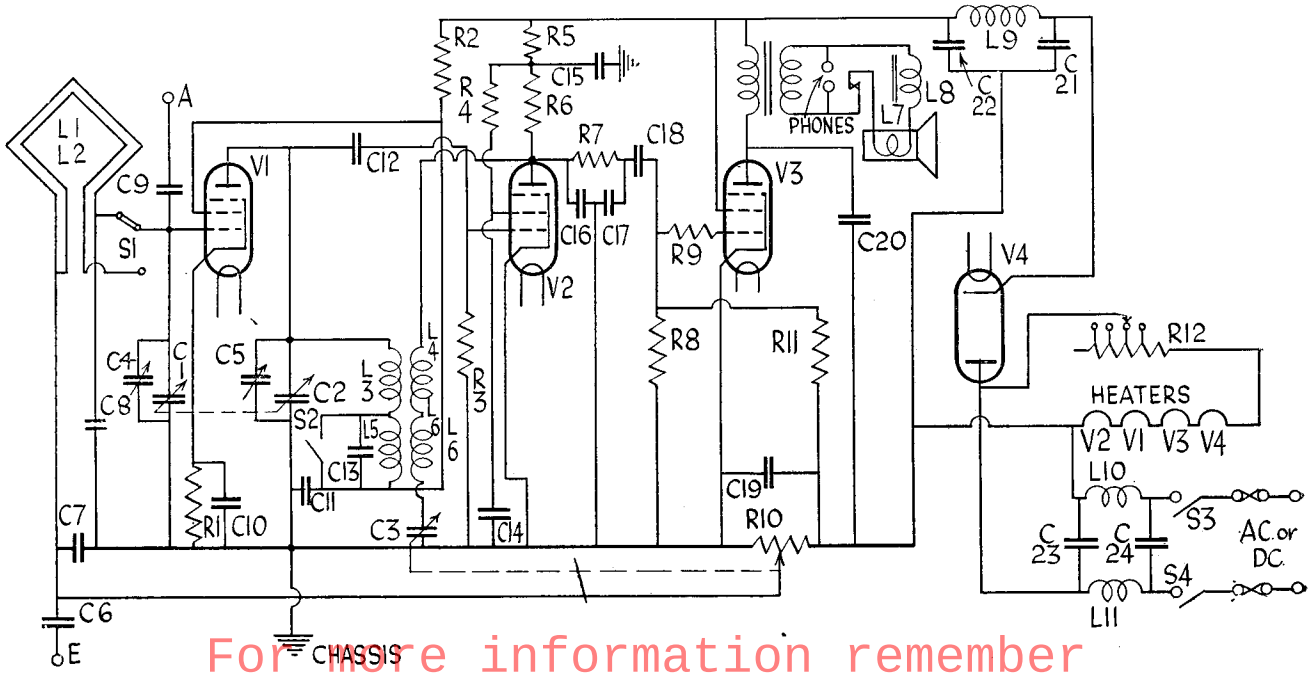
CONDENSERS

C.	Purpose.	Mfds.
6	Chassis isolating	.05
7	V1—grid bias decoupling	10
8	MW aerial fixed trimmer	.00002
9	External aerial coupling	.000005
10	V1—Cathode bias shunt	.1
11	V1—Anode decoupling	2
12	V2—grid coupling	.0001
13	L.W. anode fixed trimmer	.00002
14	V2—screen decoupling	.1
15	V2—anode decoupling	2
16	HF bypass	.0002
17	HF bypass	.001
18	LF coupling	.01
19	V3—bias decoupling	10
20	Pentode compensator	.003
21	HT smoothing	8
22	HT smoothing	16
23	Mains suppressor	.1
24	Mains suppressor	.1

VALVE READINGS

No signal. Volume maximum. 230 volts A.C. mains.

V.	Type.	Electrode.	Volts.	Ma.
1	Ever Ready C50B or Mullard SP13C	Anode	148	1.4
		Screen	148	.5
2	Ever Ready C50B or Mullard SP13C	Anode	25	.8
		Screen	30	.3
3	Ever Ready C70D or Mullard Pen 36C.	Anode	144	37.5
		Screen	160	6.6
4	Ever Ready C10B or Mullard URIC	Cathode.	215	—



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control knobs (spring fixing), the escutcheon plate and also the pointer from the tuning control shaft.

Uncleat the leads from the wavechange switch from the side of the cabinet and remove the tagged leads to the speaker transformer. For the reverse process, from top to bottom, the black lead is connected to the top bolt, the systoflex lead to the next but one, the two red leads to the next, and the two white leads to the remaining bolt.

Remove the four chassis securing bolts and the green lead attached to the bolt at the top rear of the chassis and the yellow lead connected to the right end bolt on the speaker panel.

The chassis can then be withdrawn.

Special Notes.—The mains adjustment resistance is located at the rear of the chassis to enable alterations to be easily effected. A choice of six voltage tappings is available, the flying lead being connected to the desired terminal. A twin choke and two condenser arrangement is fixed on a metal bracket that also supports the mains resistance.

The mains plug contains two fuses rated at one amp. These can be replaced by taking the plug to pieces.

Two marked sockets on the side of the cabinet enable an earth and an external aerial to be connected for use in screened buildings and remote localities.

A similar pair of sockets on the opposite side of the chassis enable either headphones or an external speaker to be operated. If headphones are used they should be of the low impedance type of D.C. resistance approximately 50 ohms. If special plugs are used and pushed right home then the internal speaker is cut out.

WINDINGS

Winding.	Ohms.	Winding.	Ohms
L1 ..	.. 1.72	L7 ..	below 1
L2 ..	.. 26	L8 ..	below 1
L3 ..	.. 3	L9 ..	.. 1,000
L4	below 1	L10 ..	.. 2
L5+L3	.. 12.5	L11 ..	.. 2
L6+L4	.. 2.7	T1 prim	.. 450

When these plugs are not pushed right home the internal speaker and headphones work simultaneously.

If an external speaker is used then this should be of the permanent magnet type with a speech coil impedence of 2 to 4 ohms.

Electrolytic condensers C21 and C22 are mounted on the side of the cabinet. Mains suppressor condensers C23 and C24 with filter chokes are mounted on the mains panel bracket with the associated mains resistance R12. C6 and C9 are located near the A and E sockets. R3 is inside the screening cap of V2.

The wavechange switch is of the enclosed contact type.

Circuit Alignment Notes

Connect a low impedance output meter to the headphones socket on the side of the cabinet or a high impedance output meter, in series with a condenser of suitable voltage rating, across the primary of the matching transformer.

Connect a modulated oscillator between the external aerial and earth sockets, preferably via a dummy aerial or fixed condenser. Set the volume control to midway between maximum and minimum positions. Alignment should be carried out with the receiver in the cabinet.

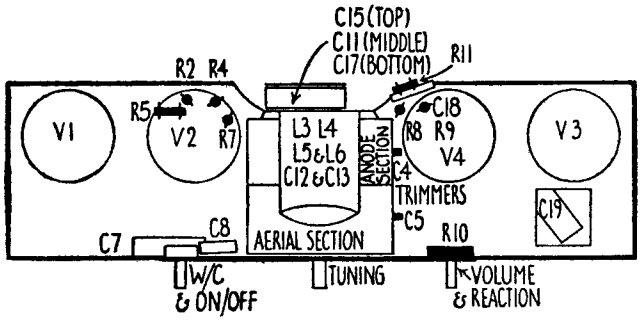
Switch the receiver to the medium band and set the pointer to read 210 metres on the wavelength scale. Tune the oscillator to 210 metres (1,425 kc.), and adjust the trimmers on the gang condenser, C4 and C5 for maximum response. As these are inaccessible with an ordinary screwdriver, they should be adjusted by a flat spanner. A suitable one is supplied in the Trim-kit service aid supplied by the makers.

For the long waves no further trimming is required, but the usual calibration checks should be made at 550, 900 and 1,900 metres.

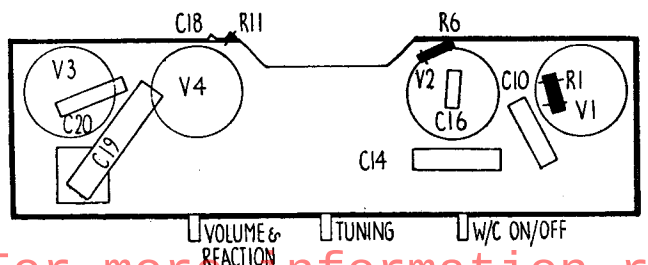
Replacement Condensers

Exact replacement condensers for the Baby QU are available from A. H. Hunt, Ltd., Garratt Lane, Wandsworth, London, S.W.18. For the block containing C21 and C22 there is unit 3,915, at 7s. 6d.; for C7 or C19, unit 2,985, at 1s. 3d.; and for either C11 or C15, unit 2,964, at 1s. 10d.

A Hunt's block is used in the BTA2. The list number is 3475 and the price 8s. 9d.



Left is the top view of the chassis, and below the underneath arrangement.



A simple layout has been secured in the design of the Pye Baby QU, the chassis being mounted towards the top of the cabinet.

Pye Baby QU on Test

MODEL Baby QU.—Standard model for universal A.C./D.C. operation, 200-250 volts, 40-100 cycles. Price 8 gns.

DESCRIPTION.—Two-band, four-valve, including rectifier, universal transportable.

FEATURES.—Self-contained frame aerials. Turntable on base of cabinet. Full-vision scale marked in station names and metres. Combined wave selection and master switch. Combined volume and reaction. Sockets for external earth and aerial and for headphones or external speaker. Mounted in leatherette case with carrying strap.

LOADING.—58 watts.

Sensitivity and Selectivity.

MEDIUM WAVES (200-550 metres).—Excellent gain and adequate selectivity helped by the directional properties of the aerial. Reaction control very smooth and free from overlap.

LONG WAVES (900-2,000 metres).—Similar performance to medium waves, with adequate selectivity. Complete separation of all the usual stations, with very good sensitivity.

Acoustic Output

Very well balanced tone for a small portable, with crisp, clean attack and reasonable medium- and low-note radiation. Speech only slightly coloured and sufficient volume for an ordinary room.

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Tune the oscillator to 456 kc. and adjust T3 and T4 and then T1 and T2 for maximum, reducing the input from the oscillator as the circuits come into line to render the A.V.C. inoperative. The I.F. trimmers are initially sealed by red paper strips.

Signal Circuits.—Remove the short-circuit from the oscillator section of the gang. Leave the output meter connected as before, but feed the oscillator to the aerial and earth terminals, via either a dummy aerial or fixed condenser. Only feed sufficient input from the oscillator to obtain definite peaks in the output meter, so as to keep the A.V.C. inoperative.

Medium Waves.—Tune the set and oscillator to 200 metres (1,500 kc.) and adjust first T5 and then T6 and T7 for maximum.

Tune the set and oscillator to 550 metres (545 kc.) and adjust P1 for maximum simultaneously rocking the gang to ensure optimum results. Repeat both operations.

Long Waves.—Tune the set and oscillator to 1,000 metres (300 kc.) and adjust first T8 and then T9 and T10 for maximum.

Tune the set and oscillator to 2,000 metres (150 kc.) and adjust P2 for maximum, simultaneously rocking the gang to ensure optimum results. Repeat both operations.

Short Waves.—Tune set and oscillator to 35 metres (8,571 kc.) and adjust first T11 and then T12 and T13, and then finally retrim T11 for maximum response.

The padding is fixed, but check at 40 and 80 metres. Tune the set and oscillator to 13 metres (23,077 kc.) and adjust first T14 and then T15 and T16; finally retrim T14 for maximum response.