

# PYE QPAC TRANSPORTABLE

**CIRCUIT.**—The input applied to the grid of V1, an H.F. pentode, is obtained from self-contained frame aerials that constitute the tuned grid circuit. The short-wave frame is arranged at right angles to the L.W. and M.W. aerials.

A static screen is fitted to reduce pick up from the mains, and arrangements are made whereby an external aerial and earth may be used if desired.

V1 is coupled to V2, a triode-hexode frequency changer, by special couplers designed to give maximum sensitivity. Here the signal is converted to the I.F. It passes via a variable band-width iron-cored transformer tuned to 465 kc. to the I.F. amplifying valve V3. A fixed transformer leads to the demodulating diode of V4, a double diode triode.

A tapping from the signal diode load also feeds the visual tuning indicator. A quenching bias controlled by a switch enables inter-station quieting to be obtained on the medium and long bands.

The other diode of V4, fed by C36, provides a D.C. potential for A.V.C. The coupling arrangements to the grid of the triode section of V4 include a manual volume control.

V4 is resistance capacity coupled to V5, an output pentode. Across the primary of the speaker transformer is connected a choke in series with a fixed condenser, whilst a three-position tone switch enables extra condensers to be connected between the anode of V5 and chassis thereby modifying the tone. A pentode compensator condenser is also fitted.

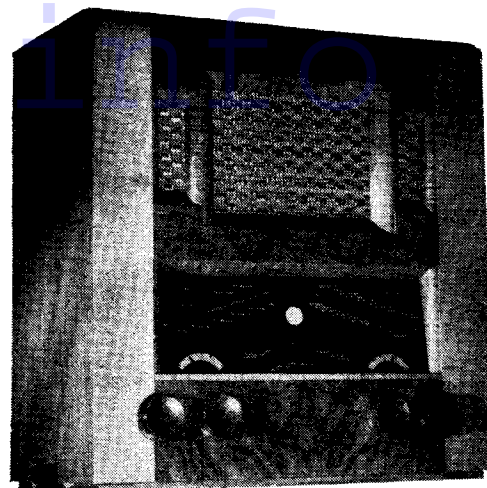
Mains equipment consists of a mains transformer, a full-wave rectifying valve, V6, electrolytic smoothing condensers and a smoothing choke (the field coil). A mains suppressor condenser is connected between one side of the mains and chassis.

**Chassis Removal.**—The cabinet has a false bottom that may be removed for inspection of the underside of the chassis.

First remove the back of the cabinet, the four spring-fixed control knobs, and remove the four chassis securing bolts.

Remove the 10 wood screws that secure the false bottom. Near the wavechange switches will be noticed a paxolin strip. The tagged leads to these must be removed. When reconnecting, the two black leads go to the terminal nearest to the wavechange switches, the white lead to the next and the yellow lead to the remaining terminal.

Remove the two wood screws from the top ends of the dial assembly. Pull out the multi-cable plug from its socket on the chassis deck. Remove the speaker leads from the rear of the chassis and



The QPAC by Pye, Ltd., is a five-valve plus rectifier A.C. superhet with built-in aerials. Three bands are covered.

the frame aerial tags from the opposite side. When replacing the frame aerial leads connect the green lead to the upper terminal. Remove A and E panel.

C30 and C31 are inside the oscillator coils can, C27 inside I.F.T1 and C38 and R16 in I.F.T2. C50 and C51 are mounted on the top of the cabinet, and C17 on the aerial and earth strip.

**Special Notes.**—A pair of sockets at the rear of the chassis, near the output valve, have "socketed" plugs therein, whereby an external speaker may be connected to the receiver. For simultaneous operation the additional speaker plugs are inserted into the sockets of the "socketed" plugs whilst for independent operation the "socketed" plugs are removed and the additional speaker plugs are inserted in the sockets on the chassis.

A low impedance (2 to 4 ohms) permanent magnet speaker should be used.

A muting switch at the rear of the chassis enables inter-station "quieting"

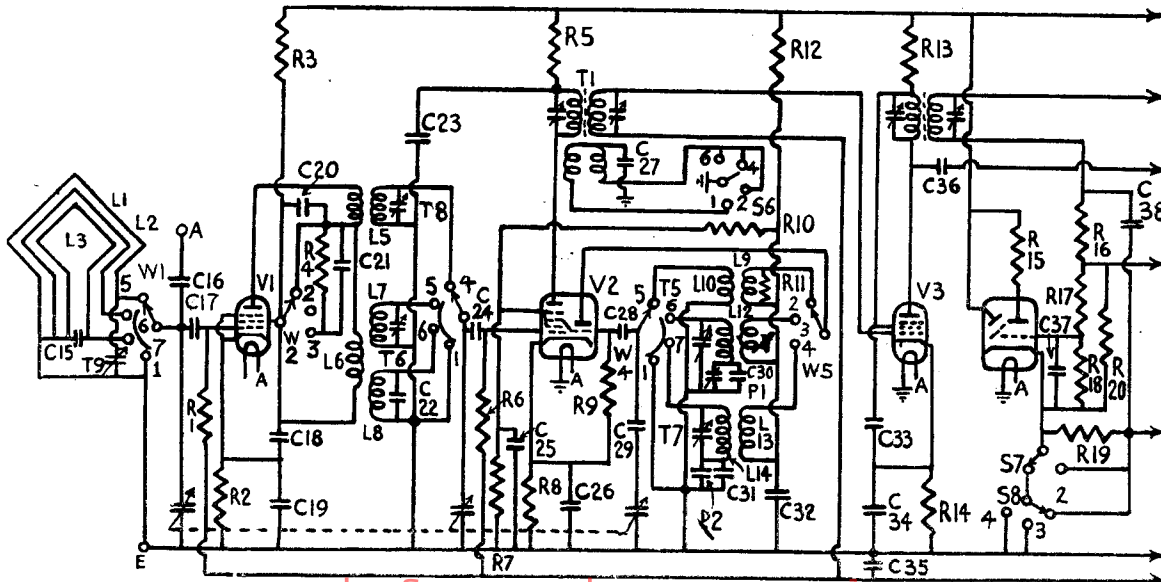
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## VALVE READINGS

No signal. M.W. band, min cap. Volume maximum 200 volts. A.C. mains.

V.	Type.	Electrode.	Volts.	Ma.
1	EverReady 50P or Mullard VP4B (7)	Anode ..	145	7.5
		Screen ..	145	2.8
2	Ever Ready A36A or Mullard TH4 (7)	Anode ..	230	5
		Screen ..	40	2.5
		Osc.anode	90	6
3	Ever Ready 50P or Mullard VP4B (7)	Anode ..	195	9.2
		Screen ..	195	3.5
4	Ever Ready A2A or Mullard TDD4(7)	Anode ..	100	2.8
5	Ever Ready A70D or Mullard Pen. A4 (7)	Anode ..	240	27
		Screen ..	260	4.4
6	Ever Ready A11D or Mullard IW4/350 (4)	Cathode..	355	—

A first stage of R.F. provides the QPAC with the high gain and low "noise" necessary with a frame-aerial receiver. The I.F. transformers are iron-cored.



For more information remember [www.savoy-hill.co.uk](http://www.savoy-hill.co.uk)

### CONDENSERS

C.	Purpose.	Mfds.
15	Frame aerial fixed trimmer	.00005
16	External aerial coupling	.000005
17	V1 grid isolator	.0001
18	V1 anode and screen decoupling	.1
19	V1 cathode bias shunt	.1
20	H.F. shunt	.00001
21	H.F. primary shunt	.0001
22	L.W. H.F. fixed trimmer	.00007
23	V2 anode decoupling	.1
24	V2 grid isolator	.0001
25	V2 screen decoupling	.1
26	V2 cathode bias shunt	.1
27	Band width control	.001
28	Oscillator grid	.001
29	Oscillator fixed padder	.005
30	M.W. osc. fixed padder	.0055
31	L.W. osc. fixed padder	.0002
32	Oscillator anode decoupling	2
33	V3 screen and anode decoupling	.1
34	V3 cathode bias shunt	.1
35	V3 A.V.C. decoupling	.05
36	A.V.C. diode decoupling	.00005
37	T.I. grid decoupling	.1
38	H.F. by-pass	.00005
39	H.F. by-pass	.0001
40	L.F. coupling	.025
41	V4 anode decoupling	2
42	V4 cathode bias shunt	20
43	L.F. coupling	.05
44	H.F. by-pass	.0005
45	Tone modifier	.002
46	V5 cathode bias shunt	50
47	Pentode compensator	.001
48	Tone control	.025
49	Tone control	.01
50	H.T. smoothing	16
51	H.T. smoothing	8
52	Mains suppressor	.005

### RESISTANCES

R.	Purpose.	Ohms.
1	V1 A.V.C. feed	1.1 meg.
2	V1 cathode bias	300
3	V1 screen and anode decoupling	10,000
4	H.F. primary shunt	15,000
5	V2 anode decoupling	5,000
6	V2 A.V.C. feed	510,000
7	V2 screen potr. (part)	50,000
8	V2 cathode bias	300
9	Osc. grid leak	25,000
10	V2 screen potr. (part)	10,000
11	Regeneration modifier	5,000
12	V2 screen and osc. anode decoupling	15,000
13	V3 screen and anode decoupling	5,000
14	V3 cathode bias	300
15	T.I. anode feed	2.1 meg.
16	H.F. stopper	110,000
17	Demodulating diode load (part)	2.1 meg.
18	Demodulating diode load (part)	2.1 meg.
19	Quenching bias	110,000
20	Demodulating diode load (part)	510,000
21	Volume control	1 meg.
22	V4 cathode bias	600
23	V3 A.V.C. decoupling	1.1 meg.
24	V4 anode decoupling	20,000
25	V4 anode load	30,000
26	A.V.C. diode load	1.1 meg.
27	V5 grid leak	260,000
28	V5 grid stopper	25,000
29	V5 cathode bias	200

## Pye QPAC on Test

**MODEL QPAC.**—Standard model for A.C. mains operation, 200-250 volts, 40-100 cycles. Price, 16 gns.

**DESCRIPTION.**—Five-valve, plus rectifier, three-band transportable superhet, with frame aerials.

**FEATURES.**—Separate scales for each waveband, calibrated in metres and station names. Visual tuning indicator. Controls for tone and combined volume and master switch operate indicators on dial. Other controls for tuning and wave selection. Muting switch at rear of chassis. Sockets for extension L.S.

**LOADING.**—74 watts.

#### Sensitivity and Selectivity

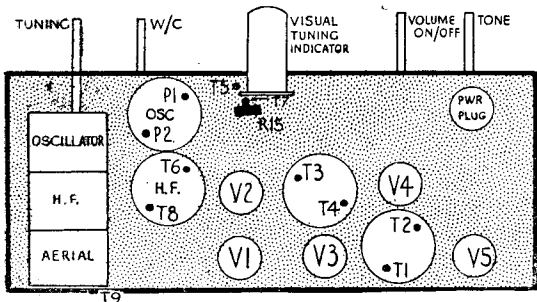
**SHORT WAVES (17.5-52.6 metres).**—Very good sensitivity for a frame aerial receiver, with excellent selectivity and easy handling. Gain fairly well maintained over band. With an outside aerial, gain is very high.

**MEDIUM WAVES (196-657 metres).**—Ample gain and excellent selectivity, with local stations spread extremely small. Gain well maintained and background good.

**LONG WAVES (900-2,060 metres).**—Excellent sensitivity and good gain. All main stations easily received. Deutschlandsender receivable free of interference.

#### Acoustic Output

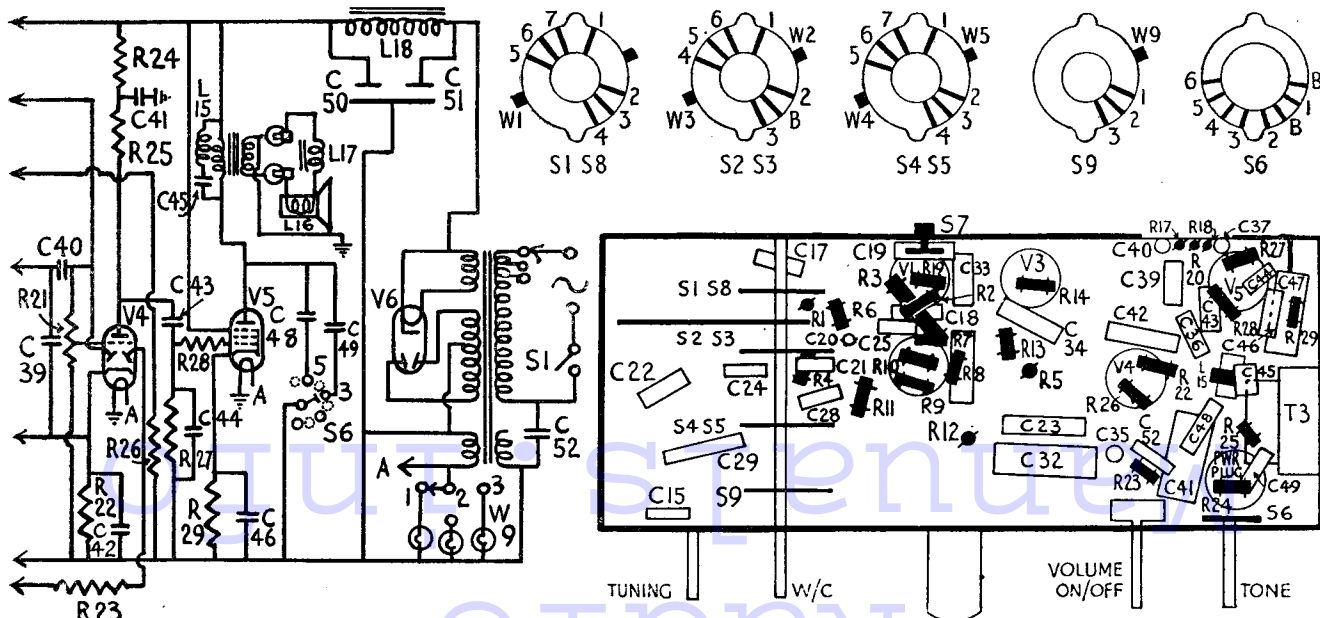
In high fidelity position the tone has good low-note radiation and clean, crisp attack. General effect is exceptionally pleasing.



On this page are shown the constructional details of the Pye chassis. It should be noted that the circuit is shown split only for convenience in printing.

Below are the switch banks numbered according to both circuit and under-chassis diagram. Switch number six is operated by the tone control.

**EXACT** replacements available from A. H. Hunt, Ltd., are: for either C32 or C41, unit 2964, 1s. 10d.; block containing C50 and C51, 3990, 9s. 3d.; C42, 2971, 1s. 6d.; and C46, 2915, 1s. 9d.



## Decca Model PT/AC Prestomatic

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tuning assembly. The assembly may then be completely removed from the chassis.

When replacing, connect the black and black-and-white wires from nearest the trimmer end and nearest the front of the chassis to the first and second top tags respectively, and the next set of black and black-and-white wires to the first and second bottom tags respectively, the black wires going to the first tag of each set in both cases. There now remain three wires to connect up. The black lead goes to the trimmer earth line wire connected to the "scratch" type condenser; the brown to the other tag of the condenser; and the black-and-white lead to the tag nearest the back of the chassis connected to the largest of the auto-tune trimming condensers (P2).

It is considered advisable to either solder or loop each of the black and black-and-white sets of wires together to avoid confusion when replacing.

**Special Notes.**—A pair of sockets on the back of the cabinet near the speaker enable a P.M. M.C. speaker of some 7,000 to 10,000 ohms impedance to be operated. A pair of sockets at the rear of the chassis near the base are for a pick-up.

Mains voltage adjustment consists of three sockets, two of which are marked with voltage values. A bridging member containing a fuse wire connects the desired sockets together. The fuse may be replaced by unscrewing the metal pins, feeding 1-amp. fuse wire through the hole provided and then screwing up the pins.

There are three dial lights, one of which is a waveband indicator. These are located in screw-in holders each side and behind the dial assembly, and are rated at 6 volts 0.3 amp.

In our particular chassis R2 was not included. C38 is located on the speaker panel.

### Alignment Notes

**I.F. Circuits.**—Connect an output meter across the primary of the mains transformer and a service oscillator between the grid of V1 and chassis. Switch the

receiver to medium waves and the manual tuning switch to "on" position. Short-circuit the oscillator section of the gang; turn volume control to maximum.

Tune service oscillator to 456 kc. and adjust the trimmers first of IFT2 and then of IFT1 for maximum, reducing the input from the service oscillator as the circuits come into line to render the A.V.C. inoperative.

**Signal Circuits.**—Remove short from oscillator section of gang. Leave auto-manual switch in "on" position. Connect the service oscillator to A and E sockets via a dummy aerial, feeding only sufficient input to obtain reliable peaks and reducing input as the circuits come into line.

**Long Waves.**—Tune set and oscillator to 1,000 metres (300 kc.) and adjust T1 and

then T2 for maximum. Tune set and oscillator to 200 metres (150 kc.) and adjust P1 for maximum, simultaneously rocking the gang. Repeat both operations until no further improvement results.

**Medium Waves.**—Tune set and oscillator to 200 metres (1,500 kc.) and adjust T3 for maximum. T3 is a "scratch" type trimmer. Tune set and oscillator to 550 metres (545 kc.) and adjust P2 for maximum, simultaneously rocking the gang. Repeat both operations until no further improvement results.

**Short Waves.**—Tune set and oscillator to 20 metres (15 mcs.) and adjust T4 and then T5 for maximum response. The short wave padding is fixed.

### "Push-button" Alignment

Alignment procedure is best carried out on the actual stations themselves, as unless an extremely accurate signal generator is used the eventual results will not prove satisfactory.

Connect an external aerial and earth system to the receiver, switch set to medium waves and auto-manual control to its operable position. Push the button so as to obtain reception of any station—London Regional, for example—and adjust first the corresponding oscillator trimmer and then the aerial trimmer for maximum response, making sure that the station is accurately tuned in.

Then proceed with the remainder of the medium-wave stations, and then the long-wave station with the wave-change switch in the long-wave position.

If, when aligning this final trimmer circuit, exact tuning cannot be accomplished on both stations, adjust P1 and/or P2 to compensate, even if in doing this the calibration of the ordinary scale is put out slightly.

### Replacement Condensers

Exact replacement condensers for the Decca P.T./A.C. are available from A. H. Hunt, Ltd. For the block containing C29, C30 and C26, there is unit 3567 at 8s. 6d., and for C5 there is unit 3949 at 2s. The original condensers are by Hunts.

### WINDINGS (D.C. Resistances)

Coil.	Ohms.	Range.	Between.
L1	.2	SW	W1/chassis.
L2	14	MW	W1/chassis.
L3	89	LW	Coil end of C2 chassis.
L4	.2	SW	Wire to W2 chassis.
L5	3	MW	Wire to W2 chassis.
L6	16	LW	Wire to W2 chassis.
L7	.2	SW	Wire to W3 coil end of C11.
L8	2.2	MW	Wire to W3 black-and-white wire to L8.
L9	4	LW	Wire to W3 padder side of C3.
L10	.2	SW	Coil end of C11 coil end of R8.
L11	1	MW	W4 chassis.
L12	6	LW	W4 chassis.
L13	6	Optional.	Anode of V1 H.F. line (past R9).
L14	6	—	Top-grid V2 coil end of R10
L15	8	—	Anode V2 H.T. line.
L16	5	—	I.F. leads brown and black.
L17	1760	—	Blue and red lead tags on speaker panel.
L18	310	—	Tags to which speaker leads connect.
L19	6	—	Across C2.
T1	29	—	Mains plug pins.
prim. HT sec. total	225	—	V5 holder anode pins.

## QPAC Transportable by Pye

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to be obtained, thereby reducing background noises.

A pair of sockets at the side of the cabinet enable an external aerial and earth to be connected.

The mains voltage adjustment is located near the top of the cabinet in a metal shielding member.

There are three combined dial illuminating and waveband indicating pilot lamps. These are Ever-Ready bulbs rated at 6 volts .5 amp. and have M.E.S. bases. Replacements are effected by unscrewing the knurled nuts located on the respective holders.

### Alignment Notes

**I.F. Circuits.**—Connect an output meter across the primary of the speaker transformer. Turn volume control to maximum, selectivity control to maximum, and wave selection switch to medium waves.

Connect a service oscillator between the

top grid cap of V2 and chassis via a .002 mfd. condenser, and connect a 500,000 ohm resistance between the top grid cap of V2 and chassis, the lead to the grid being removed. Turn gang condenser to maximum capacity.

Tune the service oscillator to 465 kc. and adjust T1, T2, T3 and T4 in that order for maximum, reducing the input from the oscillator as the circuits come into line to render the A.V.C. inoperative.

**Signal Circuits.**—Connect service oscillator between the stator of the aerial section of the gang and chassis, replacing grid connection to top cap of V2.

Only feed sufficient input from the service oscillator to obtain definite peaks in the output meter to prevent the A.V.C. working.

**Medium Waves.**—Tune set and oscillator to 210 metres (1,425 kc.) and adjust T5 and then T6 for maximum.

Tune set and oscillator to 520 metres (580 kc.) and adjust P1 for maximum simultaneously rocking the gang.

Repeat both operations until no further improvements result.

**Long Waves.**—Tune set and oscillator to 1,000 metres (300 kc.) and adjust T7 for maximum.

Tune set and oscillator to 1,800 metres (166.7 kc.) and adjust P2 for maximum, simultaneously rocking the gang.

Re-check at 1,000 metres.

**Short Waves.**—Tune set and oscillator to 20 metres (15 mc.) and adjust T8 for maximum, simultaneously rocking the gang.

When the receiver has been replaced in the cabinet, feed the service oscillator into the frame aerial not directly but inductively by means of a coupling coil. Tune set and oscillator to 20 metres (15 mc.) and adjust T9 for maximum whilst rocking the gang.

Tune set and oscillator to 50 metres (6 mc.) and adjust T9 once more, and if by adjusting this trimmer sensitivity is improved at 50 metres, obtain a compromise adjustment.