

PYE RADIO'S P/B FIVE VALVE PORTABLE

Circuit.—Tuned frame aerial precedes V1 (S215V.M.) H.F., which is tuned anode coupled to the first detector oscillator, V2 (S215V.M.). The oscillator coil is in series with the primary of the first I.F. transformer and reaction is by coupling to coil in series with filament lead. Band-pass intermediate transformers tuned to 114 kc. are used between V2 and V3 and between V3 and the second detector a Westinghouse metal rectifier W6. Another metal rectifier, W2, is used for A.V.C. The rectified output passes through a filter L7, C18 and C19 to a potentiometer R5 acting as a manual V.C. on radio and gram, which is also part of A.V.C. system. The driver valve V4 (L2) is coupled by driver transformer to V5 a "B" valve (PD220). This is corrected by a resistance and condenser in series between the anodes.

Before deciding that there is something wrong with the set, remove the P.U. plug. (This, if left in, may short-circuit the V.C. (R5).)

Battery Switching and Connections.

L.T.—, G.B.+ and H.T.— are all open-circuited with switch in off position. H.T.—, blue lead; black plug, H.T.—. H.T.+1, green lead; green plug, see note. H.T.+2, pink lead; red plug + 66 volts. H.T.+3, yellow lead; red plug + 130 volts. G.B.—, brown lead; black plug, — 4½ volts.

Note.—H.T.+1 gives screening grid potential of det. osc. and the voltage is critical for best conditions. Too high a voltage makes receiver insensitive. It should be plugged into about 3 volts above tapping which allows stability at top of LW dial. The lead must be kept away from the frame aerial.

Preliminary Tests.—Battery 130v. and 100v.

To get the PD220 current readings remove other valves and connect ma. meter in H.T.+3 lead. Current for both anodes together should be (130 v.) 1 ma. and (100 v.) .7 ma.

Extra L.S.—A low-impedance extra L.S.

(3 to 5 ohms) is required. Plug into speaker plugs if wanted in parallel. If separate, remove internal speaker plugs and insert external speaker plugs.

Removing Chassis.—Remove batteries and valves and pull off the knobs (these are held on by springs). Undo four holding bolts from underneath cabinet and slacken the two

Chassis Layouts on Facing Page.

screws which hold the valve screen in place and slip the screen out. Remove two wood screws holding on-off switch; remove cleat holding battery cable. Take out L.S. plugs next PD220 and slacken the three screws holding the frame aerial leads and slip the leads out. Remove chassis.

Removing Speaker.—Take out four wood screws holding battery platform

VALVE READINGS

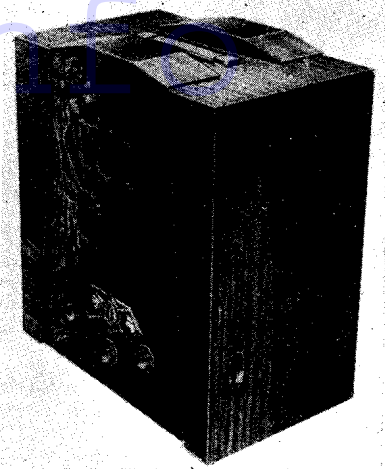
Valve.	Connection.	Volts.		M.A.	
		A	B	A	B
V1 S215VM	anode ...	127	98	1.1	.8
	screen ...	66	51		
V2 S215VM	anode ...	127	98	1	.7
	screen ...	see note	above.		
V3 S215VM	anode ...	130	100	1.1	.8
	screen ...	66	51		
V4 Driver L2	anode ...	129	1.5	1.5	1.2
	anode ...	129	99	1	.7

Total set current—no signal 6 M.A.

brackets to cabinet and remove platform to which speaker is attached.

Removing Frame Aerial.—Take out four wood screws on frame-aerial brackets and remove top door fastener. Remove frame carefully.

Pilot Lamps (3.5 v., .15 a.).—*Important:* Do not attempt to change pilot lamps while the H.T. battery is connected, as there is danger of a short since the bracket acts as a stop to the rotors of the condenser. To



Westinghouse rectifiers for detection and A.V.C. and Class B output are provided in the 14 gns. Pye P/B receiver.

change lamps: remove H.T.— lead and unscrew fixing screw from front of ganged condenser. Lift the bracket out.

Connections and Terminals.

- Panel on T4: (1) G2 of PD220.
 (2) CT of secondary.
 (3) G1 of PD220.
 (4) Junction of R6 and C21.
 (5) A of driver.
 (6) HT + 3.

Panel on Support Bracket.

- (1) Junction of R8 and R9.
 (2) Junction of R4 and R7.
 (3) to A.V.C. valves.
 (4) Junction of R8 and R10.

Adjustments.—The transformers T1 and T2 have sealed trimmers. These should not be adjusted unless special I.F. ganging equipment is available.

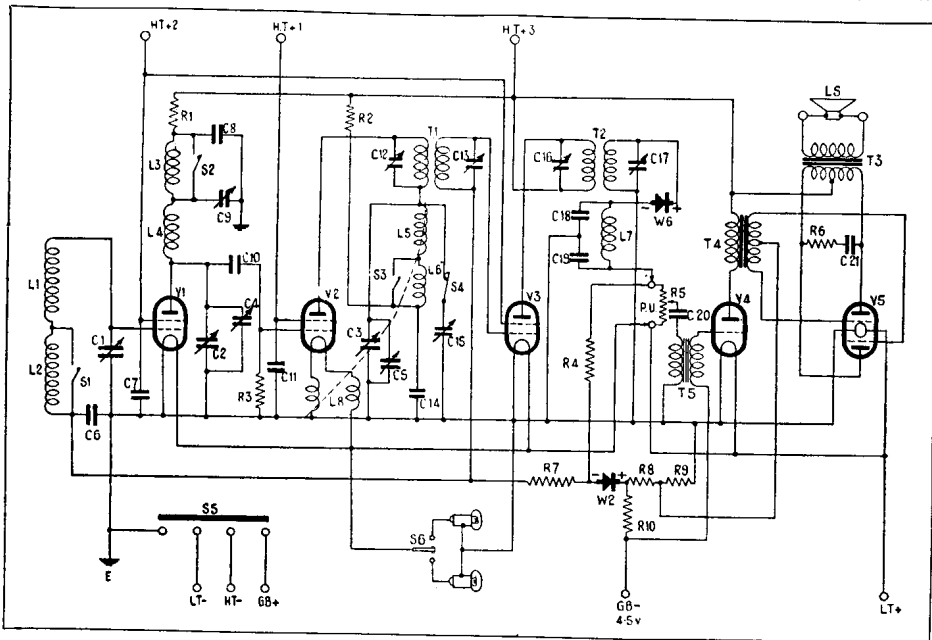
The only adjustment recommended when necessary is that of C15, the long-wave padding condenser on the oscillator coil.

Symptoms of maladjustment:—

- (1) Very faint or no reproduction on L.W.
 (2) Harsh oscillation at one part of the scale.

Replacing Frame, Speaker and Chassis.

Great care must be taken to ensure that the L.W. aerial is not damaged in replacing the frame. If in doubt, test continuity across red and white leads before replacing battery platform and speaker. In replacing the knobs the springs clip over the rounded sides of the spindles.



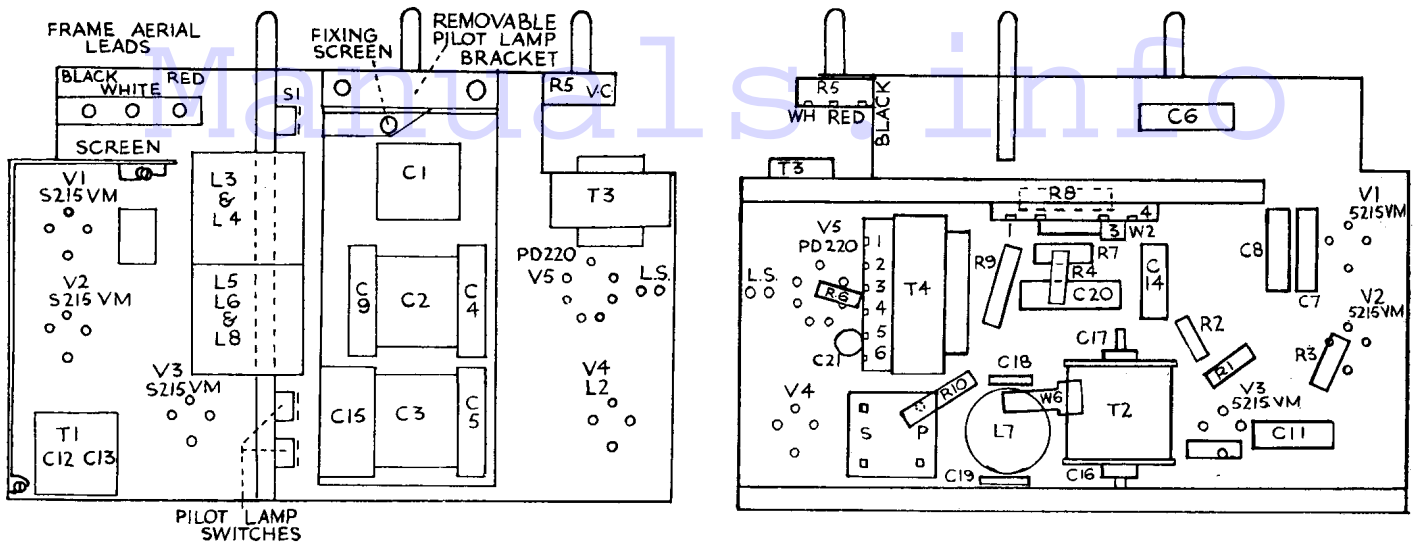
If voltages are applied to certain components when testing, care should be taken to see that the Westinghouse rectifiers are isolated. Comparatively low voltages will ruin these components.

RESISTANCES

R.	Purpose.	Ohms.
1	V1 anode decoupling ...	2,000
2	V2 anode decoupling ...	2,000
3	V2 grid leak ...	.25 meg.
4	Part of AVC system ...	.1 meg.
5	Manual VC ...	40,000
6	V5 anode compensating ...	5,000
7	Part of AVC system ...	20,000
8	Delay section AVC system ...	118 or 77
9	Delay section AVC system ...	77
10	Decoupling grid V4 ...	182 or 223

CONDENSERS

C.	Purpose.	Mfd.
6	Bias circuit for AVC to V1 ...	.1
7	V1 screen ...	.1
8	Decoupling anode V1 ...	.1
10	Coupling V1, V2 ...	.00002
11	V2 screen ...	.1
14	Decoupling anode V2 ...	.1
18	H.F. filter ...	.0001
19	H.F. filter ...	.002
20	Coupling W6 to L.F. transformer ...	.25
21	Tone compensating anodes V5 ...	.0025



On the left is shown the layout of the components mounted on the top of the chassis of the Pye P/B battery receiver. Most of the smaller parts are situated beneath the chassis as shown on the right.

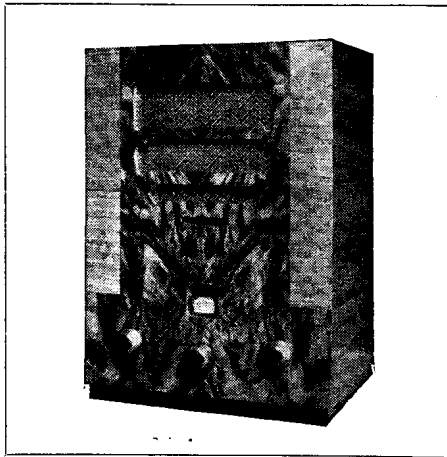
FERRANTI A.C. LANCASTRIA PARVA

Circuit.—A band-pass tuner is used in the control grid circuit of the *heptode first detector oscillator V1 (VHT4)*. Oscillator anode is coupled to the oscillator grid by oscillator transformer. The first I.F. transformer (*I.F. 125 kc.*) is directly in the anode circuit of *V1*, with H.F. decoupling, and couples it to grid of the *I.F. valve V2 (VPT4)*. A similar transformer IFT2 couples *V2* to the paralleled anodes of the diode section of the *double diode triode V3 (H4D)*. Gramophone P.U. connections are to grid of triode section. Triode anode is coupled to grid of *directly heated triode output valve V4 (LP4)* by resistance capacity, and the grid of the output valve is decoupled.

Full-wave rectification is used and the L.S. field with two 8 mfd. electrolytic condensers is used in the negative H.T. lead as smoothing. A hum-bucking coil is connected in series with the speech coil.

External speaker of 10 ohms impedance across terminals on L.S.

Special Notes.—Remember that the ter-



The Ferranti five-valve Lancastria Parva superhet. Below are given the chassis layouts for the top (left) and underneath (right).

minals on the tops of the heptode and double diode triode valves are grid terminals.

Volume control is obtained by varying the bias of both *V1* and *V2* through a potentiometer *R16* across the bias resistor for *V4*, which is part of the potentiometer across the L.S. field.

Colour Codes.—The wires are of different colours, but this does not indicate a definite colour code.

Resistances are coloured in R.M.A. code.

Condensers are "spotted" as follows:—

Red, .05 mfd.

Yellow, .02 mfd.

Black, .06 mfd.

Blue, .004 mfd.

Green, .01 mfd.

Pilot Lamp.—3.5 volts, .15 amp.

Removing Chassis.—Pull off the spring knobs. Undo four holding screws from underneath. Remove nuts from bolts on speaker frame. (One requires a long 4BA box spanner.) Lift chassis out, taking care of the

(Continued on next page.)

