PYE PPB

Four - valve, two - waveband battery receiver with self-contained frame aerial, PB and manual tuning. 11 push buttons give 6 stations, wavechange, tone control and "on-off." Provision for external aerial and earth and extra loudspeaker. Released in April, 1939, by Pye, Ltd., Cambridge.

Circuit.—On medium waves the frame aerial is connected directly across tuning condenser VC1 and to the grid of V1, the octode frequency changer. On long waves a loading coil, L1, is connected in series with the frame aerial. Originally a small loading condenser, C2, was connected across L1, but in later models this condenser has been omitted.

When using an external aerial and earth the aerial signals are fed to the grid tuning circuit via C1. The press button circuits incorporate trimmer condensers which are connected across the frame aerial as desired, the long wave buttons automatically bringing into circuit the loading coil, L1.

The oscillator section of V1 employs L3 for the medium wave oscillator coil and L4 for the long wave band.

Reaction between the grid and anode circuits of the oscillator section is effected by C11 and C17, which are in the common part of the grid and anode circuits. L2 gives additional reaction on medium waves. R1 is the grid leak, with C10 the grid condenser, while R2 is the voltage dropping resistance for the oscillator and anode circuits.

On press button tuning, coils L5 to L10 are placed into circuit as required, each coil being inductively tuned by a pre-set adjustment of its core.

In the anode circuit of V1 is the primary L11 of the first intermediate frequency transformer, the secondary being L12. The transformer is inductively tuned and has fixed trimmers C14 and C15. The anode is fed through R3 from the main HT line with C13 for decoupling.

L12 feeds the grid of V2, the IF amplifier pentode which has a second intermediate frequency transformer in its anode circuit, L13, C21, and L14, C22.

The screens of V1, V2 are fed from the HT line through R4, which is decoupled by C19.

AVC is obtained by feeding a signal from the anode circuit of V2 via C24 to the AVC diode of the double diode triode V3, the AVC load being R7 and R8.

R8 is connected to the network, R12 and R15, which is across the grid bias section of the HT battery. This connection provides a delay voltage for the AVC diode. AVC is fed to V1 grid circuit via R5 decoupled by C3, while V2 grid obtains less AVC bias via R6 and C20 to the junction of R7 and R8.

The signal diode of V3 is fed from L14. R10 is the load resistance with R9, C23, and C27 as the IF filter. The signal is fed from R10 via C25, C26, and R18 to the manual volume control R11.

The control has a tapping which is connected to R13 and C28; this maintains balance of tone at low volume. C26 may be shorted by S18 to give increased bass response.

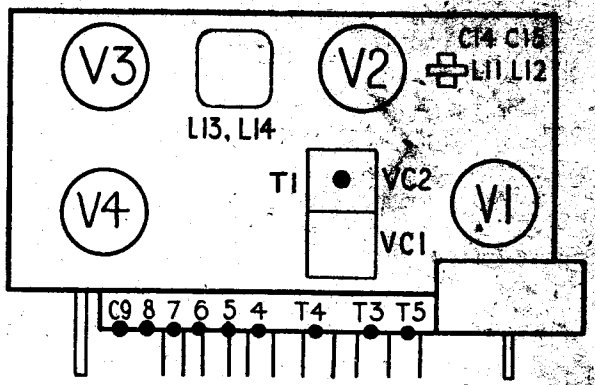
The slider of R11 feeds the signal to V3 grid which is biased by reason of R11 being connected to the bias potential divider R12, R15.

The LF signal is fed from V3 to the primary L15 of the intervalve transformer by the resistance R14 and coupling condenser C29. The centre tapped secondary L16 of the transformer feeds the two grids of the QPP valve V4 which is biased via R16 to the maximum negative tapping on the HT battery. C30 and switch S19 attenuate high notes when desired.

The anodes of V4 are fed through the primary of the output transformer L17 across which is connected a permanent tone correction network C32 and R17.

The secondary L18 of the output transformer feeds the low resistance PM speaker which has a speech coil resistance of 2.5 ohms.

GANGING



IF Circuits.—Switch receiver to MW and tune to 500 metres. Inject a signal of 467 kc by radiation into the frame aerial. Adjust the cores of L14, L13, L12 and L11 with an insulated screwdriver for maximum output. Repeat for maximum sensitivity keeping input signal low.

MW Band.—With receiver switched to MW and tuned to 210 metres, inject a signal of 210 metres and adjust T1 and T2 for maximum output. Inject and tune in a signal of 520 metres and adjust T3 for maximum output while rocking gang. Repeat both adjustments.

LW Band.—Switch receiver to LW; inject and tune in a signal of 1,800 metres. Adjust T4 for maximum output.

Inject and tune in a 1,300 metre signal and adjust T5 while rocking gang. Repeat the adjustments for maximum sensitivity.

RESISTANCES

R		Ohms	R		Ohms
1	..	100,000	10	..	470,000
2	..	22,000	11	..	1 meg
3	..	1,000	12	..	100
4	..	47,000	13	..	27,000
5	..	1.1 meg	14	..	68,000
6	..	1.1 meg	15	..	820
7	..	470,000	16	..	47,000
8	..	470,000	17	..	27,000
9	..	100,000	18	..	500,000

VALVE READINGS

(using 1,000 o-p-v meter).

V	Type	Electrode	Volts	Ma
1	FC2A	Anode	125	.8
		Osc. anode	100	1.2
		Screen	46	.7
2	VP2B	Anode	127	1.7
		Screen	46	.8
3	TDD2A	Anode	80	.8
4	QP22B	Anodes	127	3.0 (total)
		Screens	103	.5 (total)

Pilot lamp 2.5 v., .1 amp.

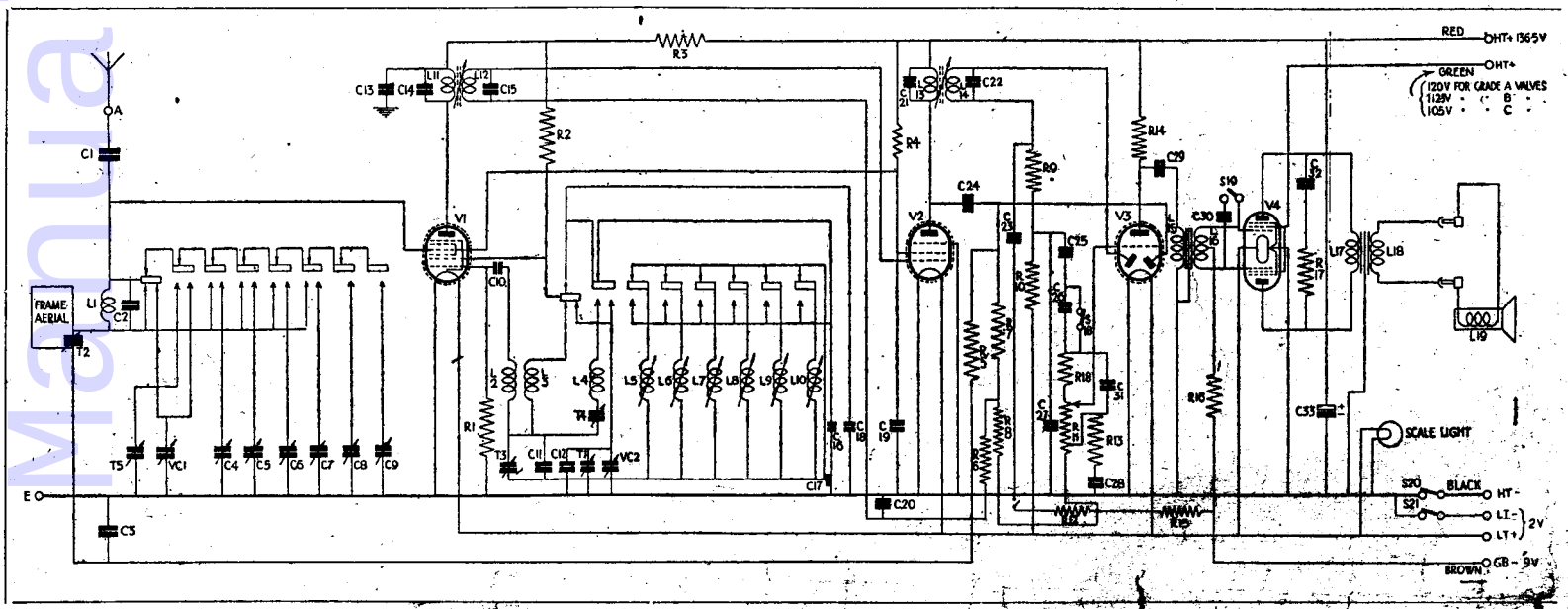
WINDINGS

L		Ohms	L		Ohms
1	..	13.8	11	..	10.5
2	..	2.25	12	..	10.5
3	..		13	..	10.5
4	..	4.5	14	..	10.5
5	..	.5	15	..	950
6	..	.5	16	..	8,400
7	..	2.15	17	..	950
8	..	2.15	18	..	.2
9	..	5.4	19	..	2.5
10	..	5.4	Frame Aerial		1.0 approx

CONDENSERS

C		Mfds.	C		Mfds.
1	..	5 mmfds	18	..	.00003
2*	..	—	19	..	.1
3	..	.1	20	..	.1
4	..	Preset	21	..	.00006
5	..	,,	22	..	.00008
6	..	,,	23	..	.0001
7	..	,,	24	..	.00002
8	..	,,	25	..	.05
9	..	,,	26	..	.0005
10	..	.0002	27	..	.0001
11	..	.0009	28	..	.01
12	..	.00003	29	..	.1
13	..	.1	30	..	.0001
14	..	.00007	31	..	.0002
15	..	.00007	32	..	.001
16	..	.00003	33	..	8
17	..	.001			

* Omitted in later models.



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