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PHILCO 581

Four-valve, plus rectifier, two waveband superhet receiver for operation from AC mains, 200-260 volts, 40-100 cycles. A continuously variable tone control is incorporated and provision is made for the connection of a pick-up and extra loudspeaker. Made by Philco Radio, Perivale, Greenford, Middlesex.

EITHER an open aerial or the Philco all-purpose aerial may be connected to the input sockets which connect to the coupling coils, L1 (LW), L2 (MW). These transfer the signal to the single tuned grid circuit comprising L3 (LW), L4 (MW). The LW circuit incorporates a rejector coil, L5, with R1 in shunt and a

filter condenser, C1. VC1 section of the twin-gang condenser tunes the grid circuit which is connected directly to the control grid of the heptode frequency changer valve, V1.

The oscillator anode is fed from the HT line through R2 and R3 decoupled by C3, while the HF feedback to the tuned grid circuit is via C4 and R4, the latter being common to the grid circuit and thus supplying the required coupling.

The oscillator coils which are tuned by the VC2 section of the gang are L6 (LW), L7 (MW). The screen of V1 is fed from the potential divider comprising R5 and R6 decoupled by C5.

The IF signal is transferred by the first IF transformer L8, L9 to the grid of the variable-mu HF pentode V2. The screen of this valve is also fed from the junction of R5 and R6.

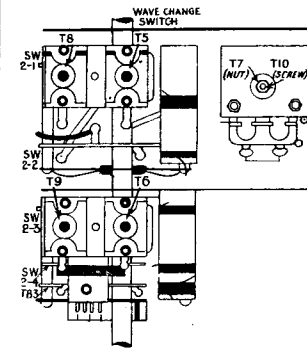
A second IF transformer, L10, L11, feeds the signal diode of the double diode triode, V3. R7, C6, and C7 filters the signal which is built up across the load resistance, R8. C8 passes on the signal to the volume control, VR1. R9 and C9 are connected to the tapping on the volume control in order to maintain a high level of bass output on low volume.

Contacts on the wavechange switch connect the pick-up, via C22, to the volume control when gram reproduction is desired.

C10 couples the signal from the volume control to the grid of the triode section of V3 with R10, the grid resistance, and R11, C11, grid decoupling components in the bias circuit, which is fed from the first tapping on the wire-wound bias resistance, R12, which is connected between HT negative and chassis.

The AVC diode of V3 is fed from L11 via C12, the load resistance being R13. This resistance is connected to the second tapping on R12 to provide delay volts. AVC is applied to the grid circuit of V1 and V2 through the decoupling resistance, R14. R15 is the LF load resistance in the V3 anode circuit with HF filtering by C13. R16 and C14 are the anode circuit decouplers.

The LF coupling condenser is C15, and this feeds the grid of the pentode output valve, V4, with R17, the grid leak, which connects to the extreme end of R12, thus deriving full bias voltage. C16 provides permanent tone correction for V4, while variable tone control is obtained by VR2 and C17 across the primary, L12,



The top-of-chassis layout diagram of the Philco receiver, indicating valve and some trimmer positions. The location of the remaining trimmers is below deck, and they are grouped above the wavechange switchbanks as shown in the diagram on the left.

of the output transformer. L13 is the secondary winding of this transformer and is coupled via the humbucking coil to the speech coil, L14, of the energised loudspeaker.

The HT supply from the filament of the full wave rectifying valve, V5, incorporates the loudspeaker field, L15, as a smoothing choke, with C18 as the reservoir condenser and C19 the reservoir condenser. The mains input is filtered by C20 and C21.

GANGING

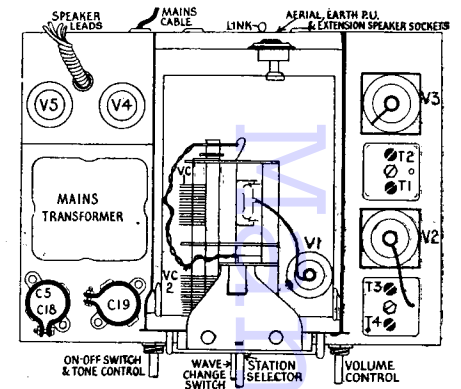
IF Circuits.—Inject a 451 kcs signal to the grid cap of V1, removing the grid lead. Adjust T1, T2, T3 and T4 in that order for maximum output.

LW Circuit.—Inject a signa via a dummy aerial to the aerial sockets of the receiver after replacing grid lead on V1. Switch to LW and tune receiver to 290 kcs. Inject a 290 kcs signal and trim T5 and T6 (which are underneath the chassis) for maximum output.

Inject and tune in a 160 kcs signal and adjust T7 (nut) for maximum output while rocking gang. Check T5 and T6 adjustments and readjust T7.

MW Band.—Switch to MW and tune to 1,750 kcs. Inject a signal of 1,750 kcs and adjust T8 and T9 for maximum output.

Inject and tune in a signal of 600 kcs and adjust T10 (screw) for maximum output while rocking gang. Check T8 and T9 adjustments and finally readjust T10 if necessary.



VALVE READINGS

V	Type	Electrode	Vo H
1	6A7	Anode .. 250	
		Osc anode .. 150	
		Screen .. 100	
2	78E	Anode .. 250	
		Screen .. 100	
3	75	Anode .. 100	
4	42E	Anode .. 240	
		Screen .. 250	
		Grid .. 15	
5	80	Anodes (AC) .. 330	

Pilot lamp 6.3 v, .3 amps.

RESISTANCES

R	Ohms	R	Ohms
1	490,000	11	490,000
2	15,000	12	200 + 8 + 35
3	10,000	13	1 meg
4	51,000	14	1 meg
5	25,000	15	240,000
6	51,000	16	99,000
7	51,000	17	1 meg
8	330,000	VR1	1 + 1 meg
9	51,000	VR2	200,000
10	1 meg		

CONDENSERS

C	Mfds	C	Mfds
1	.03	12	110 mmfd
2	.05	13	110 mmfd
3	.5	14	.1
4	250 mmfd	15	.015
5	4	16	.003
6	110 mmfd	17	.02
7	110 mmfd	18	.8
8	.01	19	.8
9	.01	20	.015
10	.01	21	.015
11	.1	22	.01

WINDINGS

L	Ohms	L	Ohms
1	80	11	8
2	2	12	240
3	5	13	.2
4	5	14	2
5	20	15	1,140
6	16.5	16	.1
7	8	17	240 - 240
8	8	18	.2
9	12	19	35
10	12		

