

PHILCO A535

Four-valve, plus rectifier, three waveband superhet, for AC supplies of 200-250v, 50-100 cycles. Provision for external speaker and PU sockets. Marketed by Philco Radio and Television Corporation (Great Britain), Ltd., Donington House, Norfolk Street, London, WC2. Released December, 1945 Retail price, £16. plus £3 8s. 10d.

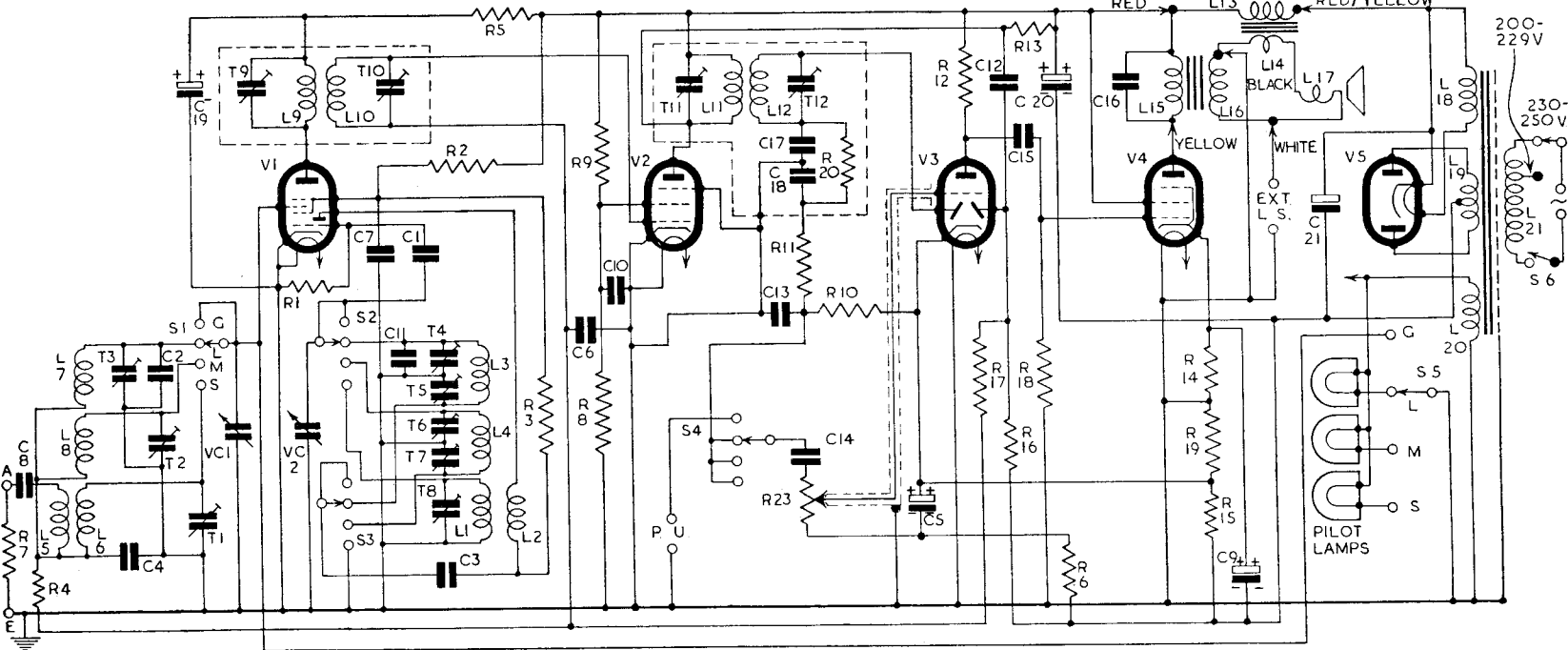
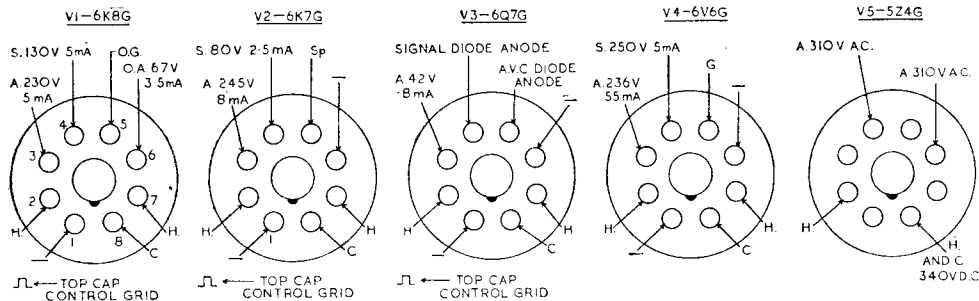
L5 is used, L6 inductively coupling the grid. A Trimmer T1 is used, together with a fixed padder C4, which also acts as AVC decoupler.

On MW position, L8 is used with trimmer T2 while LW utilises L7, variable trimmer T3 and a fixed trimmer C2; AVC and standing bias are series fed to V1 grid by R4 decoupled by C4. Screen potential for V1 is derived from R2 decoupled by C7.

Oscillator anode current passes via the resistor R2 and is further limited by R3. Inductive coupling between oscillator anode and grid circuits is used on SW. L2 is the anode coil and L1 and trimmer T8 are in the grid circuit. Switching is by S3 for the anode circuits and S2 for the grid circuits.

On MW capacitive coupling by C3 is used, L4 and trimmers T6-T7 forming a Colpitts oscillator circuit. A similar circuit is used on LW making use of L3 and trimmers T4 and T5. C11 is a fixed trimmer across T4 to reduce the resonant frequency

A STATIC drain R7 and a matching condenser C8 pass signals to the grid circuits of V1, the frequency-changer. On SW a separate aerial coil



to the LW waveband. Automatic bias for the oscillator is secured by C1 and R1.

The hexode portion of V1 uses a conventional 465 KC capacity-tuned IF transformer for its load.

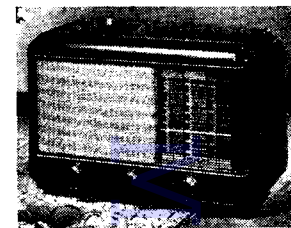
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TRIMMING INSTRUCTIONS

Rotate VC fully clockwise, maintain input as low as possible in order to avoid AVC action. The use of an output meter is strongly recommended.

Apply Signal as Below.	Tune Receiver to	Adjust in Order stated for Max. Output.
(1) 465 KC to V1 grid, leaving existing lead connected	LW 2,000 metres	T12, T11, T10, T9
(2) 1.5 MC between A and E via MW dummy aerial	MW 200 metres	T7, T2
(3) 600 KC as in (2)	MW 500 metres	T6
(4) 18 MC to A and E, via SW dummy aerial	SW MC 18	T8, T1
(5) 6 MC as in (4)	SW 6 MC	Check calibration as compared with (4)
(6) 300 KC to A and Earth, via dummy LW aerial	LW 1,000 metres	T5, T3
(7) 150 KC as in (6)	LW 2,000 metres	T4

Philco A535 three-band AC superhet.



RESISTORS

R	Ohms
1	47,000
2	15,000
3	10,000
4	470,000
5	4,700
6	100,000
7	10,000
8	47,000
9	47,000
10	330,000
11	47,000
12	220,000
13	330,000
14	220
15	15
16	1 megohm
17	1 megohm
18	470,000
19	33
20	47,000
21	2,000
22	1,000
23	V/C

CAPACITORS

C	Mfd
1	.300 pf
2	35 pf
3	300 pf
4	2,500 pf
5	50
6	.1
7	.1
8	.01
9	25
10	.01
11	35 pf
12	100 pf
13	300 pf
14	.01
15	.01
16	.01
17	100 pf
18	100 pf
19	2
20	16
21	8
22	PM spkrs only 8

INDUCTORS

L	Ohms
1	very low
2	very low
3	21
4	2.5
5	very low
6	very low
7	34
8	3
9	7
10	11
11	11
12	7
13	1,100
14	very low
15	225
16	very low
17	2.1 DC
18	very low
19	240 plus 240
20	very low
21	32 max.

PHILCO A535—Continued

The primary is L9, T9 and the secondary is made up by L10 and T10. Decoupling by R5, C19 is employed in the primary circuit. AVC voltages and some standing bias are fed to V2 grid via the secondary of the transformer, R17 and C6 isolate the IF stage. A potential divider R9, R8 gives screen potential for V2, C10 acting as decoupler.

L11, T11 form the primary of the second IFT in the anode circuit of V2. The secondary L12, T12 passes signals to the diode of V3. C17 by C18, R20 form the usual IF filter, R11 and C13, giving further filtering and a measure of tone correction. R10 is the signal diode load.

S4 provides for either the AF products of rectification or a PU input to be fed via C14 to the volume control R23 and hence to V3 grid. R6 is the usual grid resistor allowing bias from R15, by-passed by C5 in the HT negative line, to be applied to the triode grid.

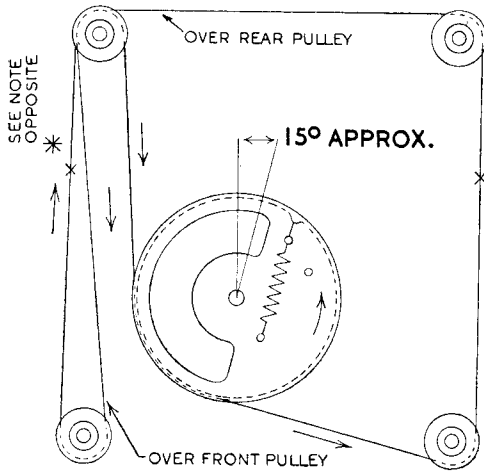
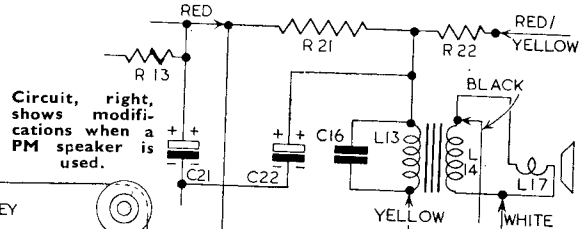
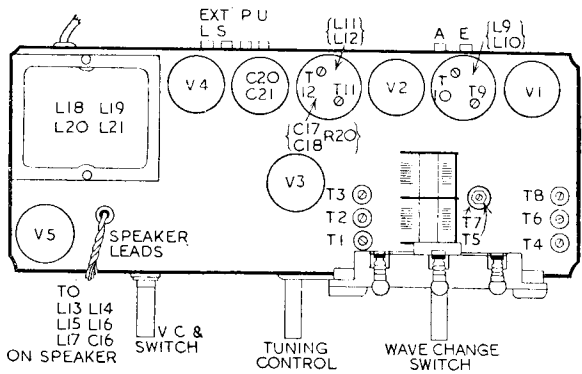
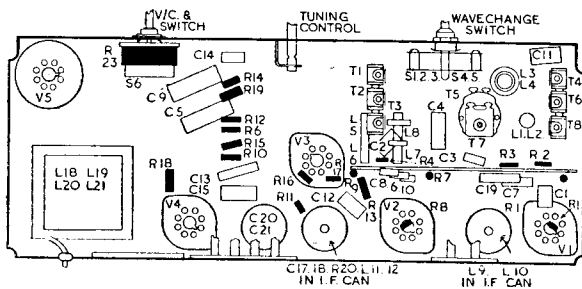
AVC diode drive is taken from the IF valve anode via C12, R16 is the AVC anode load. A delay is obtained from the volts drop across R15 in the HT negative line. R17 and C6 are the usual low-pass filter. V3 is resistance-capacity coupled by R12, C15, R18 to the output valve V4.

Cathode bias from R14 is augmented by R19, R15 in the HT negative line, all by-passed by C9. Full HT is used on the screen of this stage.

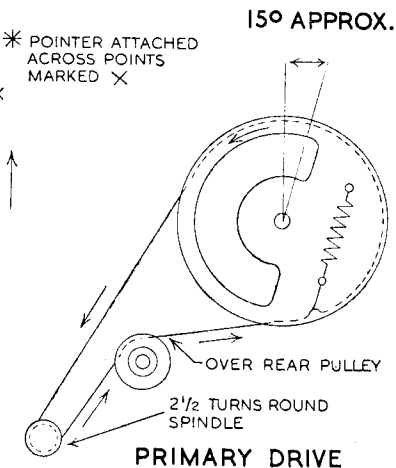
A fixed tone control condenser C16 across the primary of the output transformer L15 gives treble tone correction. The secondary L16 feeds the mains-energised speaker speech coil L17 via hum coil L14.

Mains transformer primary L21 has tappings for 200—229 and 230—250v, 50—100 cycles, mains input. An earthed screen electrostatically isolates the three secondary windings L18, L19 and L20. A 6.3v heater winding provides an additional voltage for one pilot lamp on each waveband

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SECONDARY DRIVE



PRIMARY DRIVE

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Radio Catchphrases No. 2

ACE A50—Continued

The Ace A50 has a straight forward layout as these top and underside chassis views show.

oscillator switching is by S4, and S5 brings in the main tuning capacitor VC2. The automatic bias components are C9, R5.

A capacity-tuned iron-cored IF transformer passes the signal to V2 grid. The primary is formed by T8, L12 while T9, L13 comprise the secondary. AVC is series fed to V2 grid via the transformer secondary from R1, C1. Cathode bias is utilised for V2 from R6, C10.

IFT2 is similar to IFT1 with T10, L14 forming the primary and T11, L15 the secondary.

C11, R7, C25 form the usual IF filter. R8 is the signal diode load to V3. C12 passes the AF products of rectification to the volume control R9 and hence to grid of V3 triode portion. S6 allows a PU input to be applied to the remote end of R9. Cathode bias for V3 is secured by R10, C13.

The AVC diode of V3 is fed from V2 anode via C14, its load being R11. R12, C15 form the usual low-pass filter. AVC delay is obtained from R10 in the cathode lead.

An unusual feature of V3 triode anode circuit is the use of decoupling by R13, C17. R16 is the anode load and C18 is a fixed tone control from anode to earth. The AF coupling condenser is C19, R17 being the usual grid leak allowing cathode bias from R14, C20 to be applied to V4.

Full HT is used on the screen of V4. Variable tone control is effected by C21 and R15 across the output transformer primary L16. C24 across the primary gives further treble cut.

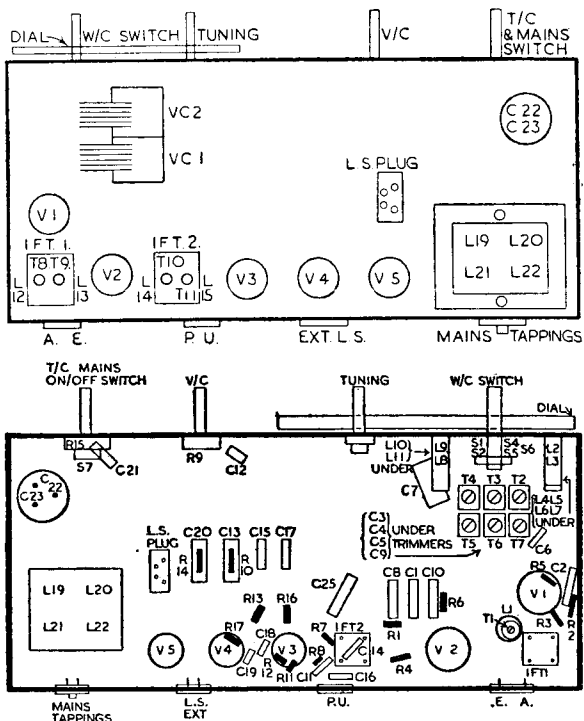
OPT secondary L17 feeds the mains-energised speaker speech coil L18 via the hum coil L24. An external output transformer may be used to feed an external speaker as the external speaker sockets are in parallel with OPT primary.

Mains transformer primary L19 has tapplings for 200—215, 216—235, 236—250v (50—100 cycles) switched by S7 on the tone control. A 6.3v valve heater winding L22, which also supplies pilot lamp, is used, earthed on one side. A full-wave HT unit uses an earthed centre tapped secondary winding L20 and a 5v rectifier heater winding L21. Smoothing is accomplished by C22, L23, C23.

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controlled by S5. S5 also shorts the V1 grid to earth on gram position to mute the radio.

A full-wave HT circuit uses an HT winding L19 whose centre tap is returned to earth via R15, R19 to provide AVC delay voltage and some standing bias for all valves. Smoothing is accomplished by C21, L13 and C20 when a mains-energised speaker is used and by C21, R22, C22, R21, C20, when a PM speaker is employed. In the latter case the V4 HT supply is taken from the final stage of smoothing.



TRIMMING INSTRUCTIONS

The use of a signal generator and output meter is strongly recommended. Output meter to be connected across OPT secondary. Chassis should be removed whilst trimming is in progress. Maintain input as low as possible to eliminate AVC action.

Apply Signal as Below	Tune Receiver to	Trim in Order stated for Max. Output
(1) 465 KC to top cap V1, leaving existing lead connected	LW 2,000 metres	T11, T10, T9, T8
(2) 465 KC to A	LW 2,000 metres	T1 for Minimum
(3) 1,200 KC to A, via MW dummy A	MW 250 metres	T6, T3
(4) 600 KC as in (3)	MW 500 metres	Check as compared with (3)
(5) 17 MC to A, via SW dummy A	SW 17.6 metres	T5, T2
(6) 6 MC as in (5)	SW 50 metres	Check as compared with (5)
(7) 247.6 KC to A, via LW dummy A	LW 1,200 metres	T7, T4
(8) 166.6 KC as in (7)	LW 1,800 metres	Check as compared with (7)

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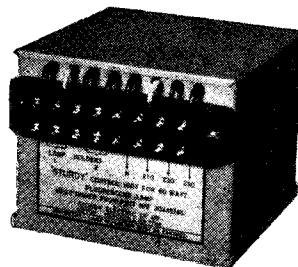
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