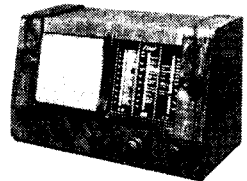


PILOT SH545



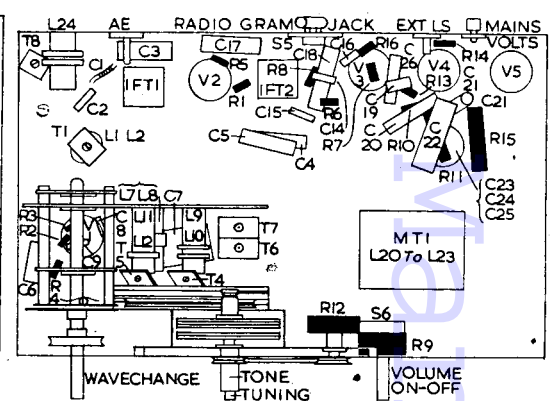
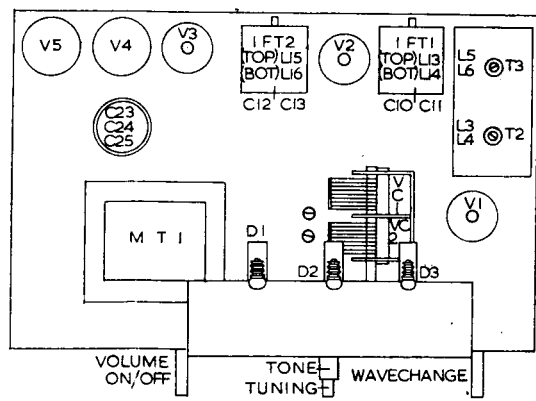
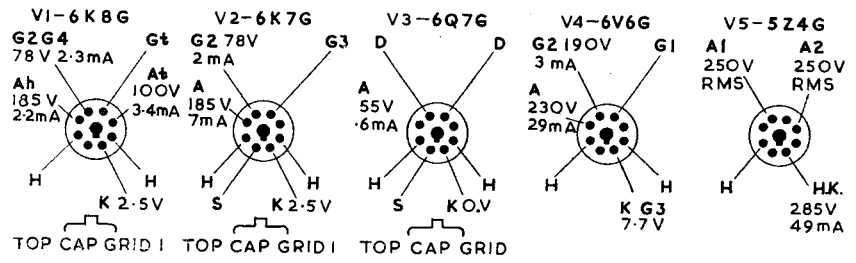
Five-valve, three-waveband superhet for AC mains, 110-130 and 200-250 volts, 40-100 c/s. Sockets are provided for connection of aerial, earth and extension loudspeaker; a switch-plug for gramophone pick-up. In walnut veneer cabinet. Made by Pilot Radio, Ltd., 31-37, Park Royal Road, London, NW10.

RESISTORS

R	Ohms	Watts	R	Ohms	Watts
1	22 k	1W	9	500 k Potentiometer	
2	22 k	1W	10	220 k	1/2W
3	47 k	1W	11	2.2 k	1W
4	220	1W	12	1 m Potentiometer	
5	220	1W	13	1 m	1W
6	1 m	1W	14	270	1W
7	1 m	1W	15	1 k	2W
8	47 k	1W	16	10 m	1W

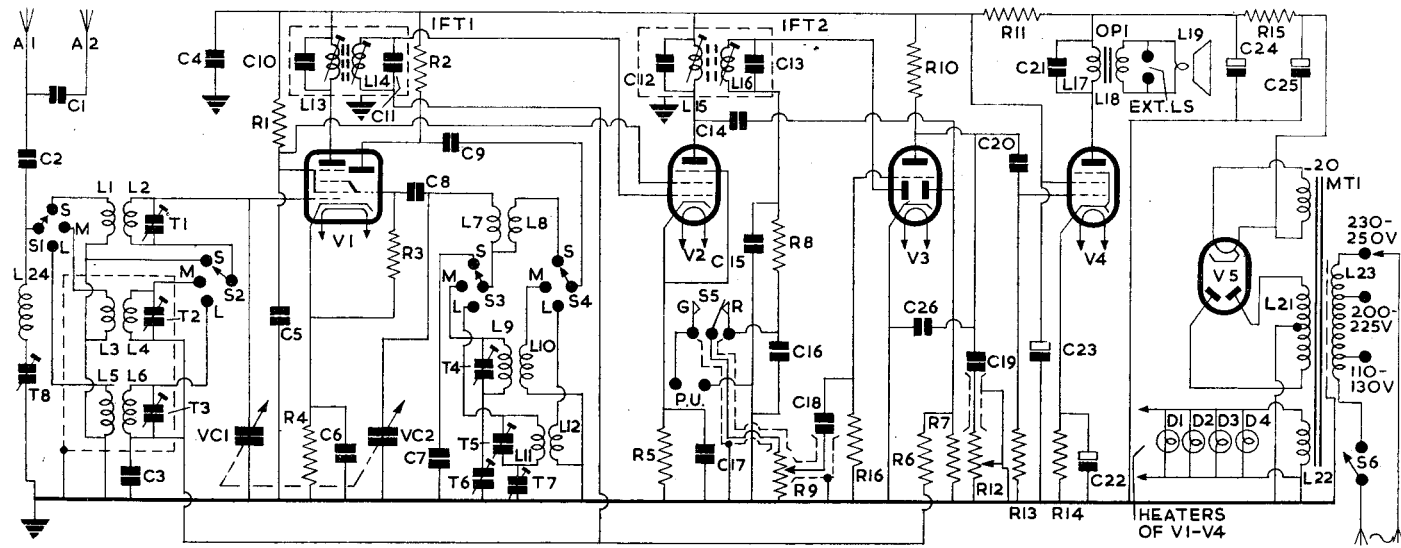
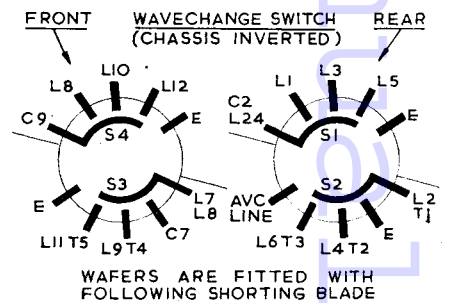
CAPACITORS

C	Capacity	Type	C	Capacity	Type
1	Formed with wire and insulated sleeving		13	100pf ceramic	
2	500pf mica		14	60pf ceramic	
3	.1 tubular 350V		15	100pf ceramic	
4	.1 tubular 350V		16	100pf ceramic	
5	.1 tubular 350V		17	.05 tubular 500V	
6	.05 tubular 500V		18	.005 tubular 450V	
7	6000pf silver mica		19	.01 tubular 500V	
8	100pf ceramic		20	.05 tubular 500V	
9	100pf ceramic		21	.005 tubular 450V	
10	100pf ceramic		22	25 electrolytic 25V	
11	100pf ceramic		23	16 electrolytic 400V	
12	100pf ceramic		24	16 electrolytic 400V	
			25	8 electrolytic 400V	
			26	300pf ceramic	



INDUCTORS

L	Ohms	L	Ohms
1	213	7	7
2	very low	14	7
3	13.5	15	7
4	2.5	16	7
5	115	17	230
6	14	18	very low
7	very low	19	2
8	.320	20	very low
9	3.5	21	650
10	70	22	very low
11	8	23	27
12	2.25	24	8.5



CIRCUIT consists of a triode-hexode frequency changer V1 coupled by a permeability-tuned IF transformer to a variable-mu RF pentode IF amplifier V2. A second permeability-tuned IF transformer couples V2 to the signal rectifier, AVC and AF amplifier V3, a double-diode-triode. Resistance-capacity coupling is employed between anode V3 and grid V4, the beam tetrode output valve. Output is fed into an 8-inch PM loudspeaker. HT is provided by an indirectly-heated full-wave rectifier V5.

Aerial. Two sockets are provided for connection of an external aerial. A1 socket feeds signal through C2 to S1 when maximum signal input is required. When aerial is connected to A2, signal is attenuated by passing through C1 and C2 to S1 to prevent overloading of V1.

C1 is formed by a few turns of wire wrapped around another wire covered by Systoflex sleeving. S1 switches aerial to coupling coils L1 (SW), L3 (MW) and L5 (LW). An IF filter consisting of L24 and T8 is connected across the input circuit. L2 (SW), L4 (MW), L6 (LW) are grid tuning coils. S2, when in SW position, connects bottom end of L2 to chassis cutting out AVC voltages to G1 of V1 on SW. When in MW and LW position, S2 connects to L4 and L6 respectively through L2 to G1.

VCI is grid tuning capacitor and T1 (SW), T2 (MW), T3 (LW) are trimmers. AVC is applied to G1 on MW and LW bands through L4 and L6 decoupled by C3. Cathode bias is provided by R4 decoupled by C6. Screen (G2 G4) voltage is obtained from R1 decoupled by C5. L13 and C10 form the primary of IFT1.

(Continued overleaf.)

PILOT SH545—Continued

Oscillator is connected in a tuned-grid parallel-fed HT circuit. L7 (SW), L9 (MW), L11 (LW) are the grid coils. VC2 is the oscillator tuning capacitor and T4 (MW), T5 (LW) trimmers. C7 (SW), T6 (MW), T7 (LW) are padders.

When S3 is switched to SW position it connects bottom end of L7 to its padder C7. In the MW and LW positions it switches L9 and L11 respectively through L7 and C8 to oscillator grid (Gt). C8 is grid coupling capacitor and R3 oscillator grid leak. Reaction voltages are developed on L8 (SW), L10 (MW), L12 (LW) and are switched by S4 to oscillator anode (At) through C9. R2 is oscillator anode load resistor.

IF Amplifier operates at 451 kc/s. L14 and C11, the secondary of IFT1 feeds signal to G1 of the variable-mu RF pentode IF amplifier V2. AVC is applied through L14 to grid. Cathode bias is provided by R5 decoupled by C17. Screen (G2) voltage for this valve as well as V1 is obtained from R1 decoupled by C5. L15 and C12 form the primary of IFT2 in the anode circuit of V2.

Signal Rectifier. L16 and C13, the secondary of IFT2, feed signal to one diode of V3. R9, the volume control, is the signal diode load resistor and R8, C15 and C16 constitute an IF filter. R9 is switched by S5 to either radio or gramophone input.

AVC. C14 feeds signal from primary of IFT2 to the second diode of V3. R7 is the diode load and R6 with C3 decouple the AVC line to G1 of V1 and V2. No delay voltage is provided as cathode is at chassis potential.

AF Amplifier. C18 feeds signal to grid of triode section V3. R16 is its grid leak and bias for grid is developed on C18. R10 is the anode load and C26 anode RF bypass. C19 and R12 provide top cut tone control.

Output Stage. C20 feeds signal to G1 of beam tetrode output valve V4. R13 is its grid resistor. Cathode bias is provided by R14 decoupled by C22. Screen (G2) voltage is obtained from R11, which supplies HT for V1 to V3 decoupled by C23. L17, the primary output matching transformer OPI, is in the anode circuit of V4. C21 prevents rise in impedance of L17 at higher audio frequencies. L18, the secondary of OPI, feeds into an 8-inch PM speaker L19. Extension loudspeaker sockets are fitted to the secondary for connecting a low impedance external speaker in parallel.

High Tension. An indirectly heated full-wave rectifier V5 provides the HT supply. L21, the HT secondary of mains transformer MT1, supplies its anode voltages and L20 heater current. R15, C24 and C25 provide resistance—capacity smoothing of HT.

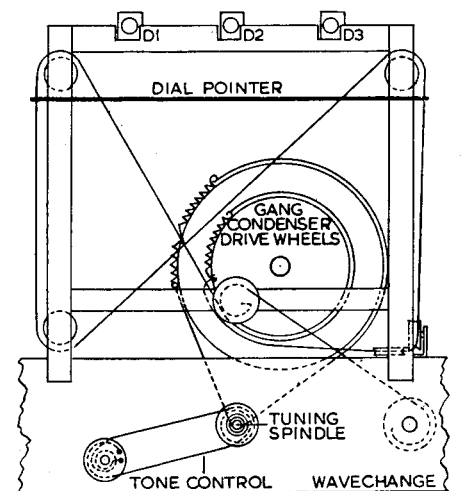
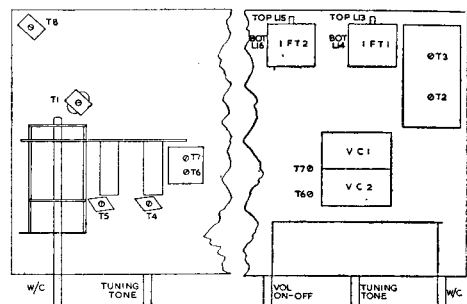
Heaters of V1 to V4 and Dial Lamps obtain their current from L22. L23, the primary of MT1, is tapped for mains input of 110-130, 200-250 volts AC 40-100 c/s. S6, ganged to volume control, is the ON/OFF switch.

Removal of chassis from cabinet. Remove the four push-on control knobs and rear panel of cabinet. Chassis may now be withdrawn to extent of LS connecting leads. LS is held in position by four clamps—which may be removed for complete withdrawal of chassis and LS from cabinet.

Renewal of Cord Drive. When repairing or replacing cord the metal plate carrying frequency calibration marks should be removed to give free access to drive wheels and pulleys.

TRIMMING INSTRUCTIONS

Apply signal as stated below	Tune receiver to	Trim in order stated for max. output
1) 451 kc/s to grid of V1 via .01 capacitor	—	Core of L16, L15, L14 and L13
2) With gang at maximum capacity adjust dial pointer to coincide with "set point" calibration mark on dial plate.	—	Just dial pointer on calibration mark on dial plate.
3) 18.75 mc/s to AE socket via dummy aerial	16 metres	T1 and then check alignment on 4.5 metre mark
4) 1.364 mc/s as above	220 metres	T4 and T2
5) 600 kc/s as above	500 metres	Core L9 and L4 Repeat (4) and (5)
6) 300 kc/s as above	1000 metres	T5 and T3
7) 150 kc/s as above	2000 metres	Core L11 and L6 Repeat (6) and (7)

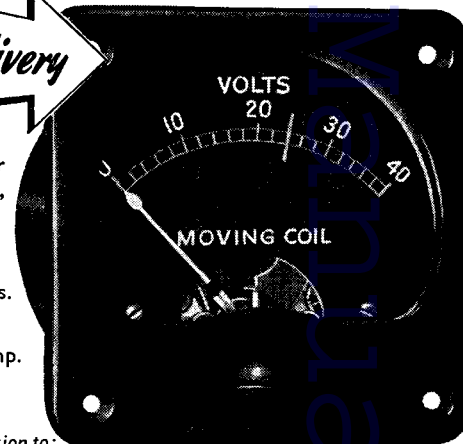


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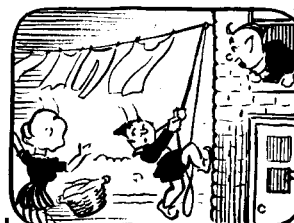


Panel-mounting moving-coil meter illustrated is in Black Bakelite case, 2 1/4" x 1 1/2", 0-40 volts.

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 - Voltmeter 2 7/8" x 1 1/2" 0-600 Volts.
 - Milliammeter 3" x 1 1/4" 0-50 M.A.
 - Milliammeter 1 1/2" x 1 3/8" 0-75 M.A.
 - Ammeter 2 1/4" x 1 7/8" 50-0-50 Amp.
 - Oil Pressure Gauge 2 1/4" x 2 1/2" 0-160 lbs.

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