PHILCO AC People's Set 269, 444

Three-valve, plus rectifier, superhet for M and LW and 200–250-volt, 40–100 cycle AC. Model 444 has a bakelite cabinet and model 269 a wood cabinet. Made by Philco Radio and Television Corporation of Great Britain, Ltd., Perivale, Greenford, Middx.

THE aerial circuit contains an IF filter, WT1 and VC3-2 and C11 feeds transformer coils for both medium and ong waves. V1, the heptode frequency-changer, has tuned grid oscillator circuits. Reaction is fed back through C7 and applied across the padding capacities VC2-2 and VC2-3.

A trimmer tuned IF coil leads to V2, the IF amplifier, and a second IF transformer feeds V3, the double-diode output pentode.

The diodes are strapped. VR1, the volume control, is the diode load. R3, C2-3 and C2-2 are an IF filter. C3 feeds LF to the pentode which has R2A for an oscillation stopper and is biased by R6. C1 and R1 are for bias-grid decoupling.

AVC is taken from the DC across VR1 and is applied through R11 and R12 to V1 and V2 in the usual way.

The HT section is a straightforward full-wave rectifier arrangement with the speaker field for smoothing.

GANGING

With gang closed see that pointer reads on index line. Set switch to MW, fully open gang, turn VC to maximum.

IF Circuits.—Inject 451 kc to V1 grid, with grid lead disconnected, and adjust VC's 1, 4 and 5 for maximum on output meter. Keep input low to avoid operating AVC.

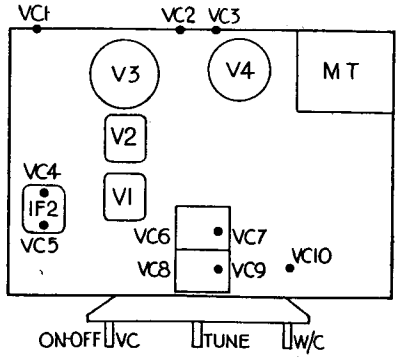
IF Trap.—Inject 451 kc through dummy aerial to aerial socket and adjust VC3 (screw) for *minimum*.

Medium Waves.—Tune to 1,400 kc, inject 1,400 kc and adjust VC8 and VC6 for maximum.

Tune to 600 kc. Inject 600 kc and adjust VC2 (screw) while rocking gang.

Repeat all adjustments.

Long Waves.—Tune to 290 kc. Inject 290 kc and trim VC3 (nut) and VC10 for maximum.



The compact chassis with trimmers accessibly placed.

VALVE READINGS

V	Type	Electrode	Volts
1	6A7	Anode	250
		Screen	100
		Osc anode	200
		Cathode	6.5
2	78E	Anode	250
		Screen	100
		Cathode	6.5
3	PEN DD61	Anode	245
		Screen	250
		Cathode	5.5
4	80	Anode	350AC
		Total DC	360

Tune to 160 kc. Inject 160 kc and adjust VC2 (nut) while rocking gang.

Repeat adjustments.

CONDENSERS

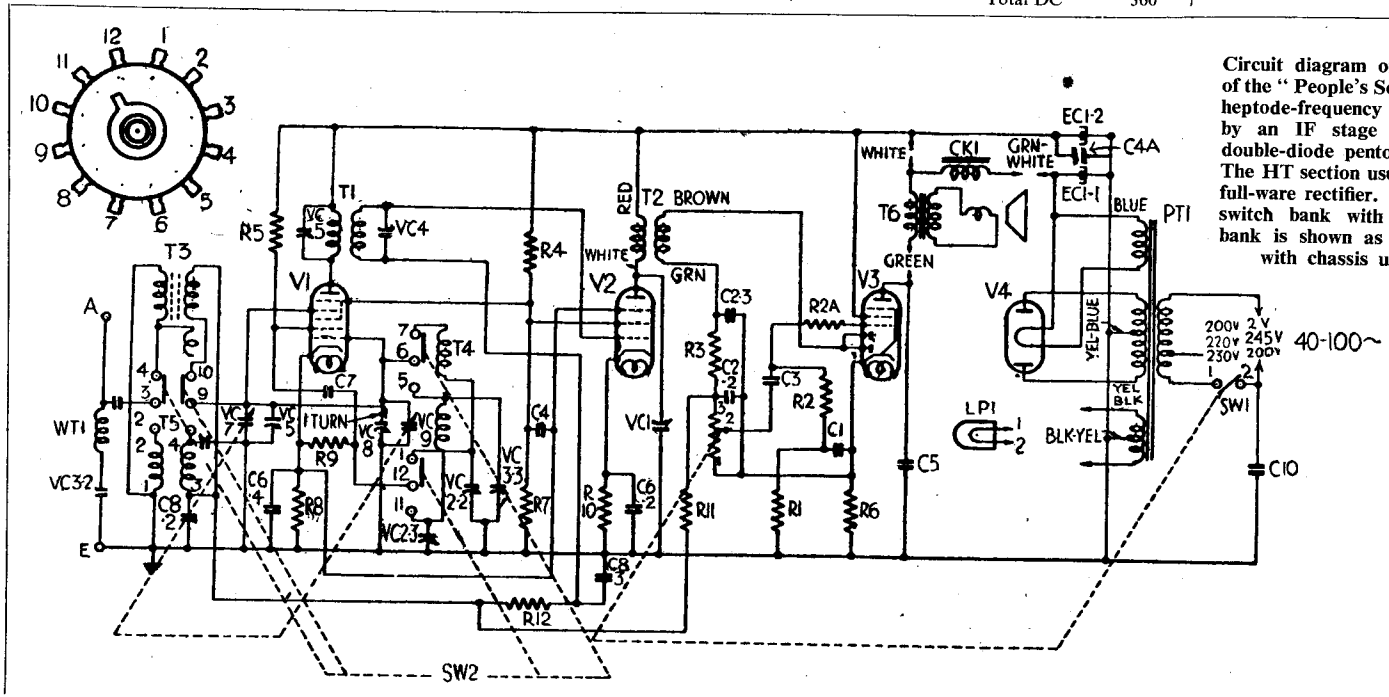
C	Mfd	C	Mfd
VC1	15-80 mmfd.	4	.05
VC2	240+500 mmfd.	4A	.1
VC3	50+125 mmfd.	5	.003
VC10	15-80 mmfd.	6	.09+.09
EC1	8+8	7	800 mmfd.
1	.1	8	.05+.05
2	110+110 mmfd.	10	.015
3	.01	11	250 mmfd.

RESISTANCES

R	Ohms	R	Ohm
1 ..	490,000	7 ..	51,0000
2 ..	490,000	8 ..	700
2A ..	100,000	9 ..	51,000
3 ..	51,000	10 ..	800
4 ..	25,000	11 ..	2 meg.
5 ..	10,000	12 ..	2 meg.
6 ..	140	VR1 ..	330,000

WINDINGS

L	Ohms	L	Ohms
WT1 ..	20	T2 Sec. ..	80
T3 Prim. ..	25	PT1 Prim. ..	35, 30
T5 Prim. ..	120	HT Sec. ..	240, 240
T3 Sec. ..	2.5	Rect. LT ..	.1
T5 Sec. ..	40	Heaters ..	.2
T1 Prim. ..	8	CK1 ..	2,000
T1 Sec. ..	12	T6 Prim. ..	230
T4 MW ..	2.5	T6 Sec. ..	.2
T4 LW ..	17	Speech coil ..	2
T2 Prim. ..	30		



Circuit diagram of the AC version of the "People's Set." It employs a heptode-frequency changer followed by an IF stage and a combined double-diode pentode output valve. The HT section uses a conventional full-ware rectifier. Inset left: The switch bank with contacts. The bank is shown as seen from front with chassis upside down.

Trouble with Battery-Vibrator Set

THIS is a battery receiver using a vibrator unit for the HT supply, operated from two 2V accumulators in series, and with series/parallel filaments

An unusual failure occurred in one of these models. Reception was weak from the second detector onwards and tests showed that where 4V should exist in the filament network, only 2v was present.

The fault was traced to the LT switch, which on testing, showed a resistance of 25 ohms across the contacts. T. J. P.

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A SIMPLE conversion was successfully carried out in a Marconi 236 (AC/DC) receiver in which the X30 frequency changer was faulty, and a new one was unobtainable.

After consulting valve data a FC13C was decided on, thus necessitating no change in the valveholder. Since the valve requires a heater current of 0.2A in place of 0.3A supplied to the X30, a shunt resistance (13V/0.1A = 130 ohms) to by-pass the extra current was fitted across the heater pins of the valveholder.

In another instance the U30 rectifier was faulty, and here a UR3C was fitted without changing the valveholder, but with a shunt resistance (30V/0.1A = 300 ohms) to by-pass the extra current as before.

Cossor model 535 in which the 42MP/PEN had gone required different treatment. In this case a 420T was used without alteration to the base connections, but the 50,000 ohms grid-stopper had to be replaced with 100,000 ohm resistance; also, a .0002 mfd. had to be fitted between control grid socket of V4 and chassis and the loudspeaker chassis earthed.

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IF distortion is encountered in the Philco A2258 model, the engineer will naturally set out to check all voltages, especially bias, in the AF amplifier. Owing to the size of the AF chassis, some time may be spent before discovering a likely fault, and to save time the following check should be made first :—

Check the feed-back condenser which is in the grid of the driver valve.

Leakage of HT will probably be sufficient to neutralise the bias, thus causing the distortion.

Should the complaint also include poor bass control, examine the bass choke for continuity. Do not be misled by a reading on the ohmmeter, which is obtained in any case, since the choke is shunted by a 5,000 ohm resistor. One end of this should be disconnected.