

TRUPHONIC AW5B THREE BAND

CIRCUIT.—The aerial coupling to the grid of V1, a triode-hexode frequency changer, is either *via* a series aerial condenser or direct to a set of band-pass coils.

The output of V1 passes *via* an I.F. transformer to the grid of V2, an H.F. pentode, the intermediate frequency being 127 kc. Another transformer leads to the strapped diodes of V3, a double diode triode, which also provides A.V.C.

A variable resistance and a fixed condenser connected between the anode of V3 and chassis give tone control. V3 is resistance capacity coupled to V4, an output pentode.

Mains equipment consists of a mains transformer, a full-wave rectifying valve V5, electrolytic condensers and a smoothing choke (field). It will be noticed that the connections to the speaker transformer and smoothing choke (field) are made through a four-pin plug and socket.

Chassis Removal.—Remove the four

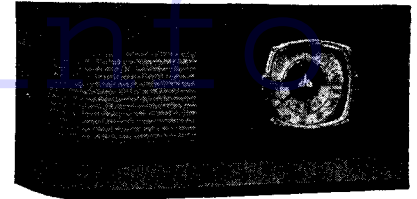
control knobs (grub screws) from the front of the cabinet and then the back of the cabinet (sliding clips). After the four bolts have been taken from the base of the receiver the chassis can be removed.

Special Notes.—In our particular chassis R1 was found to be one megohm, R6 to be 300 ohms, R12 30,000 ohms, R16 650 ohms, and C18 0.02 mfd. Two condensers formed by twisted wires will be found between switch one and switch two. These should not be disturbed.

The mains adjustment device on the mains transformer takes the form of a bridging contact consisting of a 1-amp. fuse and three sets of holders marked with voltage values.

Two dial lights are mounted in screw-in holders. They are fitted with M.E.S. bases and are rated at 6.2 volts 0.3 amp.

An insulating panel at the rear of the chassis provides connections for a pick-up. A socket marked AE enables a series aerial condenser to be brought into circuit and a flying lead terminating in a wander plug



The AW5B, marketed by Truphonic Distributors Ltd., is a four-valve plus rectifier superhet covering three wavebands.

permits the mains wiring to be used as an aerial. When not in use the mains aerial condenser operates as a mains suppressor.

A pair of terminals will be found on the speaker frame. These are for connecting an extension permanent-magnet speaker with a speech coil resistance of 2 ohms.

RESISTANCES

R.	Purpose.	Ohms.
1	V1 A.V.C. feed	2 meg.
2	V1 cathode bias	100
3	V1 screen decouplings	25,000
4	Osc. grid leak	25,000
5	V2 A.V.C. decoupling	1 meg.
6	V2 cathode bias	250
7	Osc. anode load	25,000
8	Osc. anode decoupling	1,000
9	V2 screen decouplings	25,000
10	V2 anode decoupling	10,000
11	V3 anode decoupling	5,000
12	V3 anode load	25,000
13	H.F. stopper	50,000
14	H.F. stopper	100,000
15	Volume control	1 meg.
16	V3 cathode bias	1,000
17	Tone control	100,000
18	V4 cathode bias	500
19	V4 grid leak	1 meg.
20	V3 grid stopper	250,000
21	Demodulating diode load	250,000
22	Pickup filter	1,000

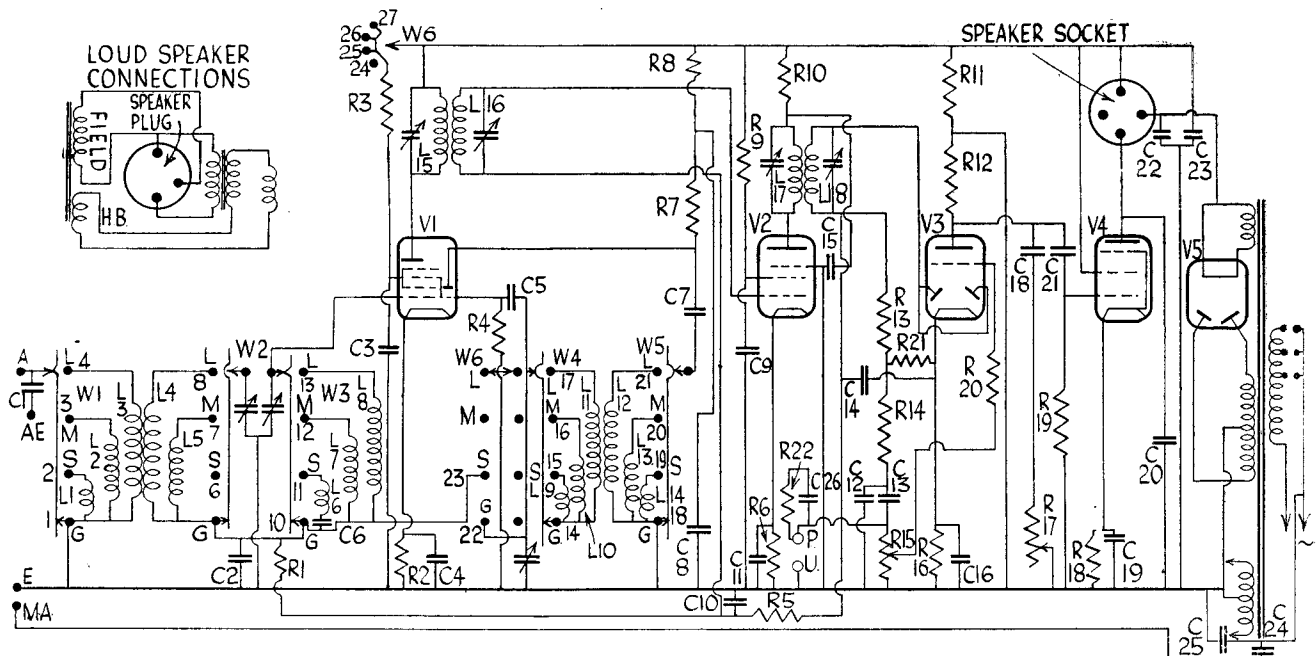
WINDINGS

Winding.	Ohms.	Winding.	Ohms.
L1 .. ..	.1	L13	1
L2	1	L14	27
L3	6	L15	4.5
L4 .. ..	.14	L16	4.9
L5	3	L17	4.2
L6 .. ..	.1	L18	4.4
L7	2	Field	2,600
L8	15	Speaker trans.	660
L9 .. ..	.1	prim.	24
L10	inacc.	Mains trans.	566
L11	inacc.	prim.	
L12	3	Total H.T. sec.	

VALVE READINGS

No signal. Volume maximum. M.W. min cap. 200 volts. A.C. mains.

V.	Type.	Electrode.	Volts.	Ma.
1	Mullard TH4A (7)	Anode ..	210	2.8
		Screen ..	75	6
		Osc. anode ..	80	6
2	Mullard VP4B (7)	Anode ..	143	6
		Screen ..	145	2.3
3	Mullard TDD4 (7)	Anode ..	85	3.5
4	Mullard Pen.4 VA (7)	Anode ..	190	32
		Screen ..	215	3.2
5	Brimar R2 (4)	Filament	380	—



A conventional circuit arrangement is found in the AW5B. On medium and long waves the input to the frequency changer is through band-pass coils.

Circuit Alignment Notes

Connect an output meter across the primary of the speaker transformer and a service oscillator between the top grid cap of V1, via a small condenser, and chassis. Switch receiver to medium waves, set gang to maximum capacity, tone control to "high" position and volume control to maximum.

Tune the oscillator to 127 kc. and adjust first the trimmers of I.F.T.2 and then I.F.T.1 for maximum response, reducing the input from the service oscillator as the circuits come into line to render the A.V.C. inoperative.

Signal Circuits.—Connect the service oscillator to the A and E sockets, preferably via a dummy aerial. Only feed sufficient input from oscillator to obtain definite peaks in the output meter.

Short Waves.—Tune set and oscillator to 16 metres (18.7 mc.) and adjust the trimmers T1 and T2 for maximum response.

The short wave padding is fixed.

Medium Waves.—Tune set and oscillator to 200 metres (1,500 kc.) and adjust T3 and then T4 and T5 for maximum.

Tune set and oscillator to 500 metres (600 kc.) and check for maximum response on T4 and T5, afterwards rechecking at 200 metres.

Long Waves.—Tune set and oscillator to 2,200 metres (136 kc.) and adjust P1 for maximum.

Tune set and oscillator to 1,000 metres (300 kc.) and adjust T6, T7 and T8 in that order for maximum.

Replacement Condensers

EXACT replacement condensers for the AW5B are available from A. H. Hunt, Ltd., Garratt Lane, Wandsworth, London, S.W.18. The condensers used by the makers are Hunts.

For the block containing C22 and C23, there is unit 2939 at 6s. 9d.; C19 is unit 2918, 1s. 9d.; C17, unit 3675, 2s. 6d.; and C16 is unit 2915, 1s. 9d.

H.M.V. Colour Code

FOLLOWING are details of the wiring colour code employed in sets by the Gramophone Co., Ltd.:

H.T. positive wires are red; connections to anodes, red-yellow; to screens, red-black; to grids, green; earth, black; heaters, filaments and cathodes, brown; mains, red-brown.

Colours used for L.F. components are: Transformers, high impedance side and L.F. chokes, outers yellow and red, tapping red-yellow; transformers, low impedance side, outers green and black, tapping black-green; extra windings, outers brown and yellow-black, tapping brown-yellow. An extra tapping is red-black.

Mains transformer primaries and mains chokes are yellow and yellow-black; H.T. secondaries, outers red, centre tap red-yellow; rectifier filament, green.

Truphonic AW5B on Test

MODEL AW5B.—Standard model for A.C. mains operation, 200-250 volts, 40-80 cycles. Price, 11 gns.

DESCRIPTION.—Four-valve, plus rectifier, three-band table superhet, with speaker at corner of cabinet.

FEATURES.—Full-vision, airplane dial calibrated in metres and station names. Controls for tuning, wave selection, tone, combined volume and switch. Sockets for pick-up and speaker. Provision for mains aerial.

LOADING.—65 watts.

Sensitivity and Selectivity

SHORT WAVES (16-49 metres).—Good gain and adequate selectivity with very easy handling.

MEDIUM WAVES (200-560 metres).—Excellent gain and selectivity, with local stations spreading on adjacent channels only. Good background and well-maintained sensitivity.

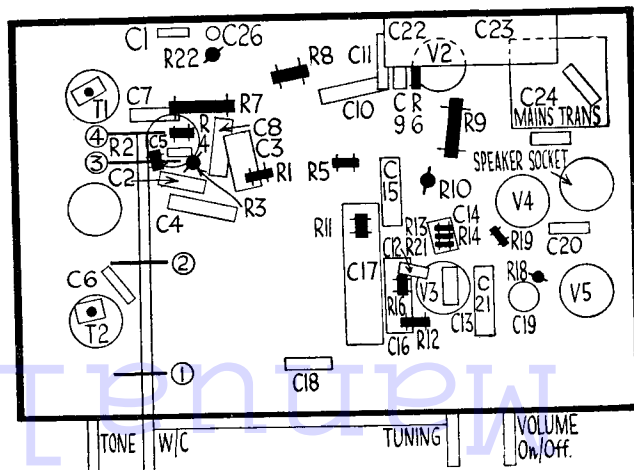
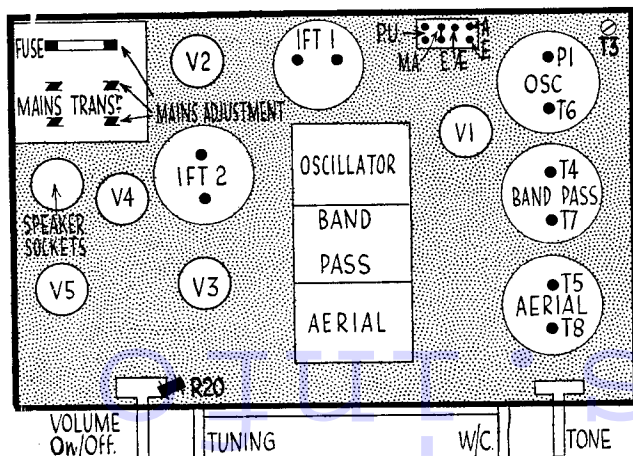
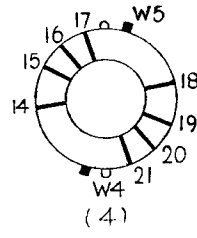
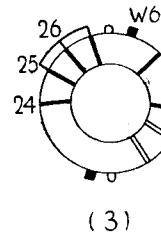
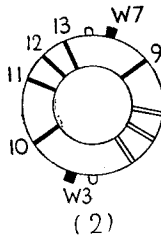
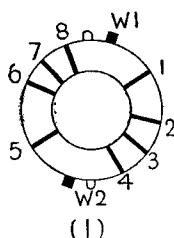
LONG WAVES (900-2,200 metres).—Good gain and selectivity, with main stations easily received. Only slight interference on Deutschlandsender.

Acoustic Output

Representative tone with good top-note response, reasonable crispness, and slight colouration on speech. General musical balance pleasing and tone control not too vigorous. Ample output for any ordinary room.

CONDENSERS

C.	Purpose.	Mfds.
1	Series aerial . . . . .	.0001
2	Bottom band-pass coupling . . . . .	.02
3	C1 screen decoupling . . . . .	.1
4	V1 cathode bias shunt . . . . .	.1
5	Oscillator grid . . . . .	.00005
6	Short wave fixed padder . . . . .	.003
7	Osc. anode coupling . . . . .	.003
8	Osc. anode decoupling . . . . .	.1
9	V2 screen decoupling . . . . .	.1
10	V3 A.V.C. decoupling . . . . .	.1
11	V2 cathode bias shunt . . . . .	.1
12	H.F. by-pass . . . . .	.0001
13	L.F. coupling . . . . .	.01
14	H.F. by-pass . . . . .	.0001
15	V2 anode decoupling . . . . .	.1
16	V3 cathode bias shunt . . . . .	.50
17	V3 anode decoupling . . . . .	.4
18	Tone control . . . . .	.05
19	V4 cathode bias shunt . . . . .	.25
20	Pentode compensator . . . . .	.003
21	L.F. coupling . . . . .	.1
22	H.T. smoothing . . . . .	.8
23	H.T. smoothing . . . . .	.8
24	Mains aerial . . . . .	.0002
25	Mains suppressor . . . . .	.01
26	Pick-up filter . . . . .	.0003



These diagrams show the orderly layout of the Truphonic chassis. The switch bank diagrams at top are numbered to correspond with the under-chassis drawing (right).