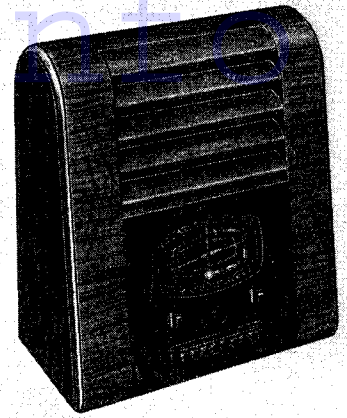


DECCA PRESTOMATIC SUPERHET FIVE



CIRCUIT.—Aerial input to the grid of V1, a triode hexode frequency changer, is via a series aerial condenser to a set of H.F. transformer aerial coils, and also via an I.F. wavetraps on the long wave band.

V1 is the key valve around which the press-button tuning system operates. Connection from the signal and oscillator grids are brought to the auto-manual switch assembly, whereby the coils may be tuned either by the gang condenser or by a bank of pre-tuned trimmers. The pre-tuned circuits are, of course, selected one at a time, and where two stations on different waveranges are shown the same capacity

setting is utilised to tune to both stations. The auto-manual closes the contacts of the corresponding aerial and oscillator pre-tuned circuits according to the station selected.

Converted to the I.F., the signal passes via an I.F. transformer, tuned to 456 kc., to the grid of the I.F. amplifier V2, an H.F. pentode.

Another I.F. transformer has a tapped secondary, with the tapping point taken to the demodulating diode of V3, a double-

Eight push buttons, giving seven pre-tuned stations and "manual," are fitted below the orthodox dial of the Prestomatic Touch Tuning receiver by Decca.

diode. The other diode of V3, fed by C25, provides a D.C. potential that operates the A.V.C. network on V1 and V2.

The output pentode, V4, is fed from the top of the demodulating diode load through an H.F. stopper resistance, L.F. coupling condenser, and manual control operating, so as to vary the input to the grid of the valve. A pentode compensator is connected between the anode and chassis. A variable resistance and condenser in series

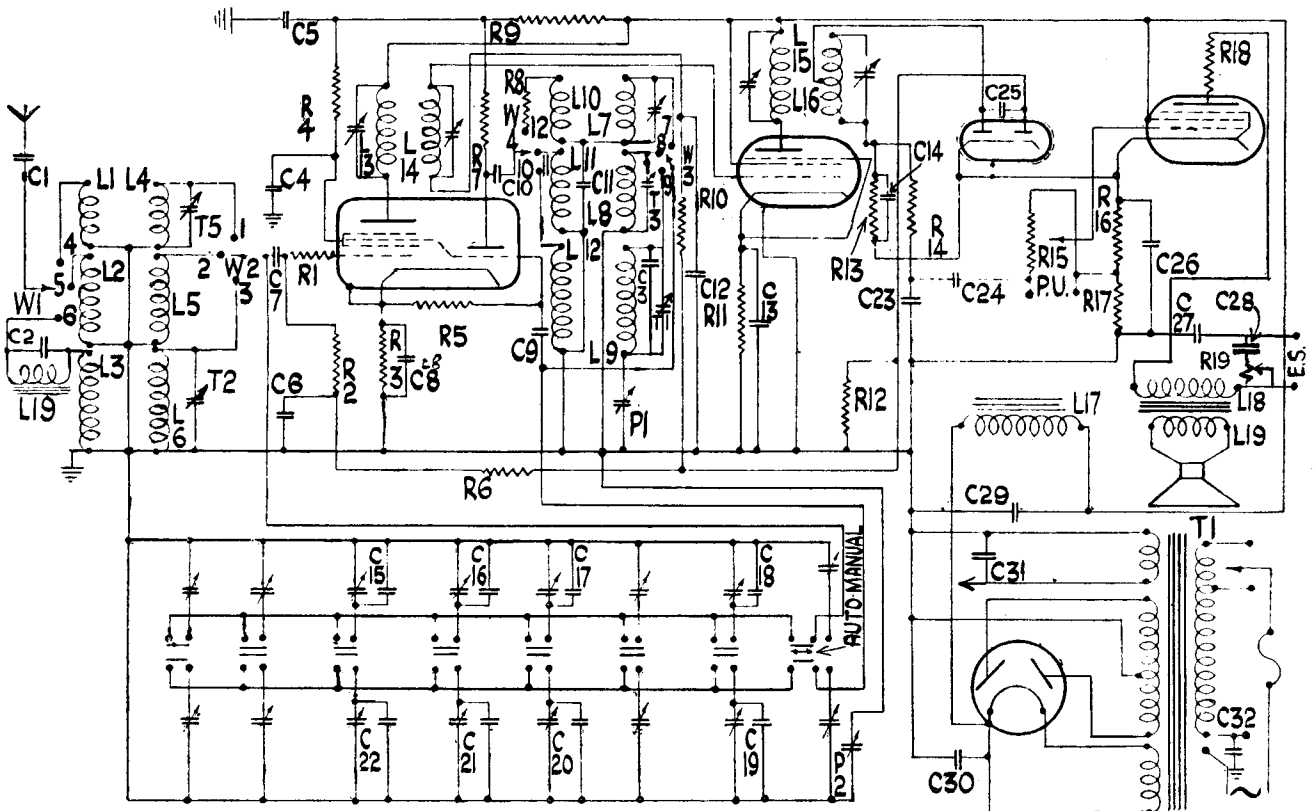
VALVE READINGS

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

V.	Type.	Electrode.	Volts.	Ma.
1	Mazda ACTH1 (7 met)	Anode ..	183	2.3
		Screen ..	70	4.5
		Osc. anode ..	42	3
2	VP4B or ACVP2 (7 met)	Anode ..	195	8
		Screen ..	185	3.2
3	Mullard 2D4A (5 met)	Diodes only	—	—
4	AC5 Pen (7)	Anode ..	172	28
		Screen ..	185	5
5	R2 or 1W4350 (4)	Cathode ..	288	—

RESISTANCES

R.	Purpose.	Ohms.
1	V1 grid stabiliser ..	40
2	V1 A.V.C. feed ..	500,000
3	V1 cathode bias ..	200
4	V1 screen decoupling ..	15,000
5	Oscillator grid leak ..	50,000
6	V1 A.V.C. decoupling ..	500,000
7	Oscillator anode load ..	30,000
8	Regeneration modifier S.W. ..	40
9	V1 screen and osc. anode decoupling ..	5,000
10	V2 A.V.C. decoupling ..	500,000
11	V2 cathode bias ..	200
12	A.V.C. diode load ..	500,000
13	Demodulating diode load ..	300,000
14	H.F. stopper ..	70,000
15	Volume control ..	500,000
16	V4 cathode bias (part) ..	140
17	V4 cathode bias (part) ..	160
18	V4 anode stabiliser ..	150
19	Tone control ..	50,000



In the bottom left corner of the circuit are seen the condenser and switch arrangements for the pre-tuned stations. The pre-set condensers are simply substituted for the gang condenser; they are connected across the aerial and oscillator coils.

For more information remember

across the primary of the speaker transformer provide tone control.

Mains equipment consists of a tapped-primary mains transformer, a full wave rectifying valve, electrolytic smoothing condensers and smoothing choke (speaker field).

Chassis Removal.—A false cabinet bottom enables all trimming operations to signal circuits (not I.F. circuits) to be carried out with the chassis *in situ*.

Remove the cabinet back (secured by wood screws) and the three control knobs (grub-screw fixing). Remove the eight push-button control knobs; these are of the spring-fixing type. Next turn the cabinet on its side and remove the two chassis-securing bolts and washers from the base, holding the chassis so that it does not fall.

Place the cabinet upright and unsolder the four leads to the A and E pick-up panel. When replacing connect the black and white lead to the A socket, black to E socket, and the red and black flex leads to the pick-up sockets.

The chassis may now be withdrawn sufficiently for service work. The speaker,

(Continued in column three)

Prestomatic Tuning on Test

MODEL PT/AC.—Standard model for A.C. mains, 200-250 volts, 50-60 cycles. Price, 12½ gns.

DESCRIPTION.—A four-valve, plus rectifier, superhet receiver covering three waveranges and incorporating press-button automatic tuning as well as ordinary tuning.

FEATURES.—Aeroplane dial calibrated in station names and metres and also in megacycles on the short wave bands. Controls for manual and press-button tuning, combined volume and master switch, tone, and wave selection switch that operates an illuminated indicator on the dial. Sockets for pick-up and extension speaker; mains supply fuse.

LOADING.—62 watts.

Sensitivity and Selectivity

SHORT WAVES (19-49 metres).—Average gain and selectivity. Easy handling and no drift.

MEDIUM WAVES (200-550 metres).—Representative gain and selectivity, with a fairly quiet background and no pronounced whistles. Local stations spread on adjacent channels.

LONG WAVES (900-2,000 metres).—A similar performance to medium wave band. All main stations easily re-

ceived; slight overlap on Deutschlandsender.

Prestomatic Tuning

Every station was found to be substantially correct when checked against the manual position, there being only a slight discrepancy on two push buttons. After running the receiver for sufficient time to ensure a final temperature being reached, the setting was checked and no noticeable difference was found.

After completely removing the trimmer unit in order to investigate the interior of the receiver, it was found on reassembly that a slight variation had occurred on certain trimmers. This is only to be expected and is mentioned as a reminder to service engineers that the actual settings should be carefully checked if it is necessary to remove this unit.

Acoustic Output

Representative balanced tone with adequate volume for an ordinary room. With minimum tone-control there is reasonable upper register with good attack, and the tone is quite full. Middle and lower registers radiate well

(Continued from column one.)

secured by four nuts, may be removed or alternatively the leads to the speaker panel unsoldered. The tone control on the side of the cabinet will also have to be removed and the leads to the extension L.S. sockets unsoldered.

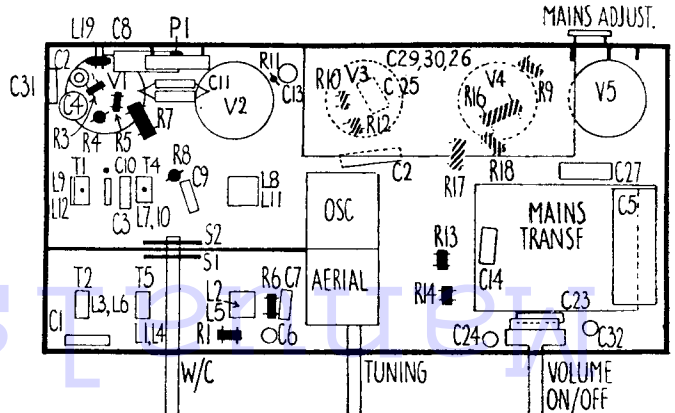
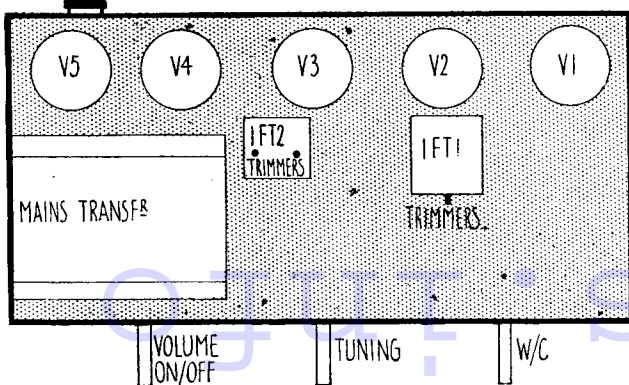
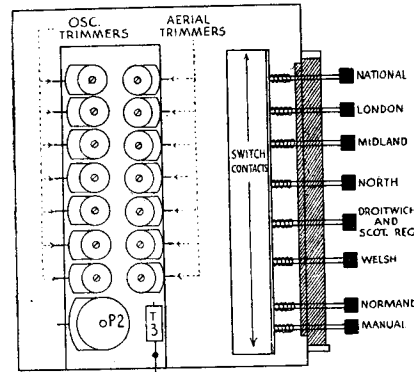
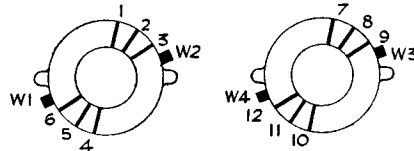
When replacing, from left to right of the speaker panel the leads are connected as follows: Black lead from tone control to the first tag; red lead from tone control, red lead from extension speaker sockets and red lead from cable to side of chassis to the second tag; black lead from extension speaker sockets and black lead from chassis cable to the third tag; blue lead from chassis cable to last tag.

To gain access to the underside of the chassis the press-button trimmers assembly must first be removed. Remove the four metal screws from the front and back of the chassis securing the assembly plate and then unsolder the seven wires to the auto-

(Continued on page 37)

CONDENSERS

C.	Purpose.	Mfds.
1	Series aerial . . . . .	.0004
2	I.F. wavetrap fixed trimmer . . . . .	.000012
3	L.W. Osc. fixed trimmer . . . . .	.00006
4	V1 screen decoupling . . . . .	.1
5	V1 screen and osc. anode decoupling	4.
6	V1 A.V.C. decoupling . . . . .	.02
7	V1 grid isolator . . . . .	.0001
8	V1 cathode bias shunt . . . . .	.1
9	Oscillator grid . . . . .	.0001
10	Osc. anode coupling . . . . .	.0002
11	S.W. osc. fixed padder . . . . .	.003
12	V2 A.V.C. decoupling . . . . .	.02
13	V2 cathode bias shunt . . . . .	.1
14	H.F. bypass . . . . .	.0001
15	Osc. fixed trimmers . . . . .	.00003
16	Osc. fixed trimmers . . . . .	.00019
17	Osc. fixed trimmers . . . . .	.00003
18	Osc. fixed trimmers . . . . .	.00003
19	Aerial fixed trimmers . . . . .	.00003
20	Aerial fixed trimmers . . . . .	.00003
21	Aerial fixed trimmers . . . . .	.00019
22	Aerial fixed trimmers . . . . .	.00003
23	H.F. bypass . . . . .	.0001
24	I.F. coupling . . . . .	.02
25	A.V.C. diode coupling . . . . .	.0001
26	V4 cathode bias shunt	50.
27	Pentode compensator . . . . .	.006
28	Tone control . . . . .	.05
29	H.T. smoothing	8.
30	H.T. smoothing	8.
31	Heater bypass condenser . . . . .	.01
32	Mains suppressor . . . . .	.006



Left and right are the layout diagrams identifying the components on the PT/AC chassis. Above is a diagram of the trimmer condenser unit which is easily removed from under the chassis. At the top are the switch banks (1) left and (2) right.

Decca Model PT/AC Prestomatic

(Continued from page 31.)

tuning assembly. The assembly may then be completely removed from the chassis.

When replacing, connect the black and black-and-white wires from nearest the trimmer end and nearest the front of the chassis to the first and second top tags respectively, and the next set of black and black-and-white wires to the first and second bottom tags respectively, the black wires going to the first tag of each set in both cases. There now remain three wires to connect up. The black lead goes to the trimmer earth line wire connected to the "scratch" type condenser; the brown to the other tag of the condenser; and the black-and-white lead to the tag nearest the back of the chassis connected to the largest of the auto-tune trimming condensers (P2).

It is considered advisable to either solder or loop each of the black and black-and-white sets of wires together to avoid confusion when replacing.

Special Notes.—A pair of sockets on the back of the cabinet near the speaker enable a P.M. M.C. speaker of some 7,000 to 10,000 ohms impedance to be operated. A pair of sockets at the rear of the chassis near the base are for a pick-up.

Mains voltage adjustment consists of three sockets, two of which are marked with voltage values. A bridging member containing a fuse wire connects the desired sockets together. The fuse may be replaced by unscrewing the metal pins, feeding 1-amp. fuse wire through the hole provided and then screwing up the pins.

There are three dial lights, one of which is a waveband indicator. These are located in screw-in holders each side and behind the dial assembly, and are rated at 6 volts 0.3 amp.

In our particular chassis R2 was not included. C38 is located on the speaker panel.

Alignment Notes

I.F. Circuits.—Connect an output meter across the primary of the mains transformer and a service oscillator between the grid of V1 and chassis. Switch the

receiver to medium waves and the manual tuning switch to "on" position. Short-circuit the oscillator section of the gang; turn volume control to maximum.

Tune service oscillator to 456 kc. and adjust the trimmers first of IFT2 and then of IFT1 for maximum, reducing the input from the service oscillator as the circuits come into line to render the A.V.C. inoperative.

Signal Circuits.—Remove short from oscillator section of gang. Leave auto-manual switch in "on" position. Connect the service oscillator to A and E sockets via a dummy aerial, feeding only sufficient input to obtain reliable peaks and reducing input as the circuits come into line.

Long Waves.—Tune set and oscillator to 1,000 metres (300 kc.) and adjust T1 and

then T2 for maximum. Tune set and oscillator to 200 metres (150 kc.) and adjust P1 for maximum, simultaneously rocking the gang. Repeat both operations until no further improvement results.

Medium Waves.—Tune set and oscillator to 200 metres (1,500 kc.) and adjust T3 for maximum. T3 is a "scratch" type trimmer. Tune set and oscillator to 550 metres (545 kc.) and adjust P2 for maximum, simultaneously rocking the gang. Repeat both operations until no further improvement results.

Short Waves.—Tune set and oscillator to 20 metres (15 mcs.) and adjust T4 and then T5 for maximum response. The short wave padding is fixed.

"Push-button" Alignment

Alignment procedure is best carried out on the actual stations themselves, as unless an extremely accurate signal generator is used the eventual results will not prove satisfactory.

Connect an external aerial and earth system to the receiver, switch set to medium waves and auto-manual control to its operable position. Push the button so as to obtain reception of any station—London Regional, for example—and adjust first the corresponding oscillator trimmer and then the aerial trimmer for maximum response, making sure that the station is accurately tuned in.

Then proceed with the remainder of the medium-wave stations, and then the long-wave station with the wave-change switch in the long-wave position.

If, when aligning this final trimmer circuit, exact tuning cannot be accomplished on both stations, adjust P1 and/or P2 to compensate, even if in doing this the calibration of the ordinary scale is put out slightly.

Replacement Condensers

Exact replacement condensers for the Decca P.T./A.C. are available from A. H. Hunt, Ltd. For the block containing C29, C30 and C26, there is unit 3567 at 8s. 6d., and for C5 there is unit 3949 at 2s. The original condensers are by Hunts.

WINDINGS (D.C. Resistances)

Coil.	Ohms.	Range.	Between.
L1	.2	SW	W1/chassis.
L2	14	MW	W1/chassis.
L3	89	LW	Coil end of C2 chassis.
L4	.2	SW	Wire to W2 chassis.
L5	3	MW	Wire to W2 chassis.
L6	16	LW	Wire to W2 chassis.
L7	.2	SW	Wire to W3 coil end of C11.
L8	2.2	MW	Wire to W3 black-and-white wire to L8.
L9	4	LW	Wire to W3 padder side of C3.
L10	.2	SW	Coil end of C11 coil end of R8.
L11	1	MW	W4 chassis.
L12	6	LW	W4 chassis.
L13	6	Optional.	Anode of V1 H.F. line (past R9).
L14	6	—	Top-grid V2 coil end of R10
L15	8	—	Anode V2 H.T. line.
L16	5	—	I.F. leads brown and black.
L17	1760	—	Blue and red lead tags on speaker panel.
L18	310	—	Tags to which speaker leads connect.
L19	6	—	Across C2.
T1	29	—	Mains plug pins.
prim. HT sec. total	225	—	V5 holder anode pins.

QPAC Transportable by Pye

(Continued from page 28.)

to be obtained, thereby reducing background noises.

A pair of sockets at the side of the cabinet enable an external aerial and earth to be connected.

The mains voltage adjustment is located near the top of the cabinet in a metal shielding member.

There are three combined dial illuminating and waveband indicating pilot lamps. These are Ever-Ready bulbs rated at 6 volts .5 amp. and have M.E.S. bases. Replacements are effected by unscrewing the knurled nuts located on the respective holders.

Alignment Notes

I.F. Circuits.—Connect an output meter across the primary of the speaker transformer. Turn volume control to maximum, selectivity control to maximum, and wave selection switch to medium waves.

Connect a service oscillator between the

top grid cap of V2 and chassis via a .002 mfd. condenser, and connect a 500,000 ohm resistance between the top grid cap of V2 and chassis, the lead to the grid being removed. Turn gang condenser to maximum capacity.

Tune the service oscillator to 465 kc. and adjust T1, T2, T3 and T4 in that order for maximum, reducing the input from the oscillator as the circuits come into line to render the A.V.C. inoperative.

Signal Circuits.—Connect service oscillator between the stator of the aerial section of the gang and chassis, replacing grid connection to top cap of V2.

Only feed sufficient input from the service oscillator to obtain definite peaks in the output meter to prevent the A.V.C. working.

Medium Waves.—Tune set and oscillator to 210 metres (1,425 kc.) and adjust T5 and then T6 for maximum.

Tune set and oscillator to 520 metres (580 kc.) and adjust P1 for maximum simultaneously rocking the gang.

Repeat both operations until no further improvements result.

Long Waves.—Tune set and oscillator to 1,000 metres (300 kc.) and adjust T7 for maximum.

Tune set and oscillator to 1,800 metres (166.7 kc.) and adjust P2 for maximum, simultaneously rocking the gang.

Re-check at 1,000 metres.

Short Waves.—Tune set and oscillator to 20 metres (15 mc.) and adjust T8 for maximum, simultaneously rocking the gang.

When the receiver has been replaced in the cabinet, feed the service oscillator into the frame aerial not directly but inductively by means of a coupling coil. Tune set and oscillator to 20 metres (15 mc.) and adjust T9 for maximum whilst rocking the gang.

Tune set and oscillator to 50 metres (6 mc.) and adjust T9 once more, and if by adjusting this trimmer sensitivity is improved at 50 metres, obtain a compromise adjustment.