

SERVICE ENGINEER

PYE T17 BAND-PASS SUPERHET A.C. MAINS FIVE

CIRCUIT.—A five valve A.C. mains superhet for use with an external aerial and working on the usual medium and long wavelengths.

The frequency changer V1 is preceded by a band-pass filter designed to give adequate second channel suppression.

Signals are fed to V2, an H.F. pentode, through an air-cored I.F. transformer tuned to 127 kcs.; a second I.F. transformer couples V2 and V3, a double diode triode, one diode of which is used for demodulation. The second diode obtains a small portion of the signal current from V2 *via* C20, and applies it as AVC bias to the preceding valves in the orthodox manner.

The triode section of this valve acts as an L.F. amplifier, rectified signals being fed to the grid *via* the volume control, from the demodulator diode.

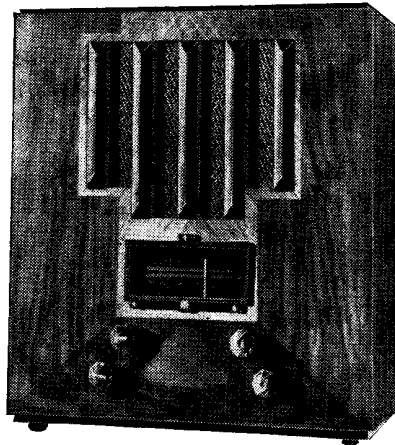
The output of V3 is passed to the output pentode V4 through C27 and R20, and after amplification is passed to the moving coil loudspeaker through a matching transformer.

Tone control is by means of C31 and R22. The action of the switch can be clearly seen from the theoretical diagram.

Mains equipment consists of transformer, full wave rectifier, electrolytic condensers, and the speaker field.

Special Notes.—Speaker connections on the back of the chassis are taken from the secondary of the output transformer; any additional speaker should have a speech coil impedance of about 2 ohms.

Dial lights are rated at 6.2 volt .3 amps. To remove them loosen the two milled nuts that will be found one on either side of



Pye Radio's Model T17 is a four-valve and rectifier superhet for A.C. mains operation. It covers the usual medium and long wavebands and uses an external aerial.

chassis may be exposed by removing the false fibre bottom, held in place by wood screws, making it unnecessary to actually remove the chassis.

Procedure for complete removal of the chassis is as follows: Remove the control knobs, which are secured by spring clips, and disconnect the speaker field leads from the terminal strip on the back of the speaker. Next unplug the speech coil leads from the sockets on the back of the chassis; then remove four fixing bolts from underneath the cabinet, which will leave the chassis free to be removed.

ALIGNMENT NOTES

Calibration.—When the condenser vanes are fully meshed, the scale pointer should be at the end of the horizontal lines on the scale. If it is not, slacken the two grub screws behind the driving disc, move the pointer to the correct position by means of the tuning knob, and tighten up the two grub screws.

I.F. Circuits.—Connect a modulated oscillator to the grid cap of V1 and to the chassis *via* a .002 mfd. condenser (the grid lead being removed and in its place a 1/2-meg. resistance connected; the other end of the resistance going to the chassis). A .25 mfd. condenser must be connected between the oscillator anode and the chassis to stop the valve from oscillating.

Connect an output meter to the speaker terminals, inject a signal of 127 kcs., and trim T1, T2, T3 and T4 for maximum reading on the output meter.

During the adjustment of either primary, a loading resistance of 50,000 ohms must

the dial assembly, and the bracket which holds them may then be removed far enough to get at them.

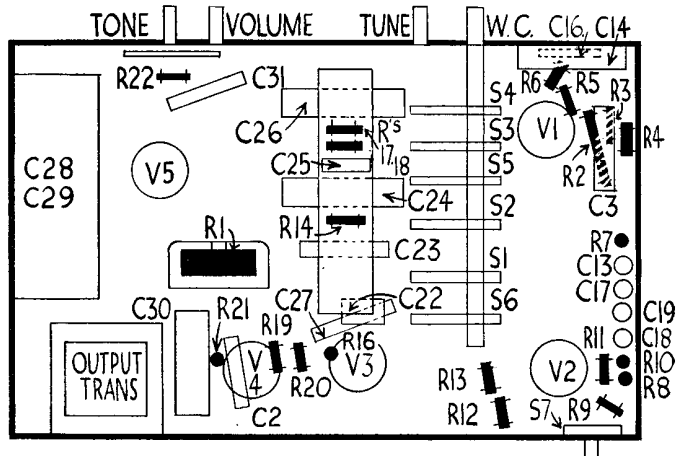
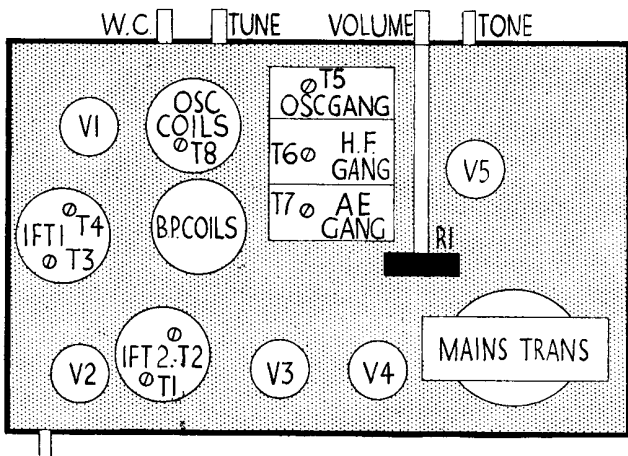
Exposing Chassis.—The underside of the

QUICK TESTS

Quick tests are available on this receiver at the terminal strip on speaker chassis.

Volts measured between this and the chassis should be:—

- Red 420 Unsmoothed H.T.
- Black 232 Smoothed H.T.



Chassis layouts of the Pye T17. That on the left, shown "tinted," is the top view; on the right is the underside arrangement. Resistors are in solid black.

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PYE T17 BAND-PASS SUPERHET A.C. MAINS FIVE

be connected across the secondary, and while trimming the secondary it must be shunted across the primary.

Medium Waves.—Inject a signal of 196 metres to the aerial and earth terminals via a .002 mfd. condenser and adjust the gang condenser to minimum capacity. Adjust T5—the peak nearer minimum capacity being the correct one—then T6 and T7 for maximum output.

Inject a signal of about 500 metres and

tune it in. If the dial reading is 15-20 metres too low, then T5 is adjusted to the wrong peak; return to 196 metres and readjust all the trimmers.

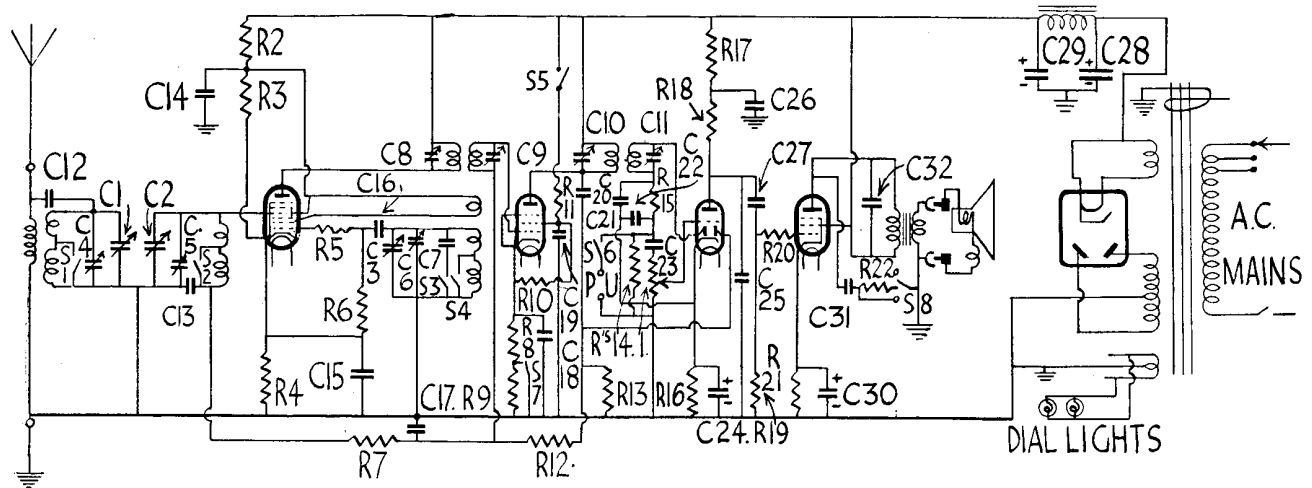
Long Waves.—Inject and tune in a sig-

nal of 1,300 metres and trim T8. Two or more peaks will be found while rotating the trimmer, and it should be adjusted to a position midway between two consecutive peaks.

VALVE READINGS				
No signal. Volume maximum. 200 volts A.C. mains.				
V.	Type	Electrode.	Volts.	M/a.
1	All Ever Ready. A80A Met (7)...	Anode ...	230	2.1
		Screen ...	50	2
		Osc. anode ...	50	1.4
2	A50P Met. (7)	Anode ...	232	6.7
		Screen ...	138	2.5
3	A23A Met. (7)	Anode ...	65	2.6
4	A70C (7)	Anode ...	205	27
		Screen ...	232	3
5	A11B (4)	Filament ...	420	—

RESISTANCES		
R.	Purpose.	Ohms.
1	Volume control ...	500,000
2	V1 screen decoupling potr. ...	30,000
3	Do. do. ...	40,000
4	V1 cathode bias ...	200
5	V1 osc. grid stopper ...	1,000
6	V1 osc. grid leak ...	51,000
7	V1 A.V.C. decoupling ...	110,000
8	V2 cathode bias ...	200
9	Sensitivity control ...	8,000
10	V2 screen decoupling potr. ...	100,000
11	Do. do. ...	20,000
12	V2 A.V.C. decoupling ...	510,000
13	A.V.C. diode load ...	510,000
14	Demodulator diode load ...	260,000
15	H.F. filter ...	260,000
16	V3 cathode bias ...	600
17	V3 anode decoupling ...	30,000
18	V3 anode load ...	30,000
19	V4 grid leak ...	260,000
20	V4 grid stopper ...	260,000
21	V4 cathode bias ...	200
22	Tone control ...	11,000

CONDENSERS		
C.	Purpose.	Mfds.
12	Top coupling ...	.000005
13	V1 A.V.C. decoupling ...	.1
14	V1 screen decoupling ...	.25
15	V1 cathode bias shunt ...	.1
16	V1 osc. grid ...	.001
17	V2 A.V.C. decoupling ...	.1
18	V2 cathode bias shunt ...	.1
19	V2 screen decoupling ...	.1
20	A.V.C. diode decoupling ...	.0001
21	H.F. filter ...	.0001
22	Do. ...	.0001
23	L.F. coupling ...	.025
24	V3 cathode by-pass ...	10
25	V3 anode by-pass ...	.001
26	V3 anode decoupling ...	2
27	L.F. coupling ...	.025
28	H.T. smoothing ...	8
29	Do. ...	8
30	V4 cathode bias shunt ...	50
31	Tone control ...	.02
32	Pentode compensating ...	.0025



The circuit of the Pye T17. Note the tone control switch, controlling C31 and R22. Component values are also given on this page so that they can be used in conjunction with this circuit.



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For measuring D.C. Volts, Milliamperes and Ohms.

RANGES:

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- 0-25, 0-100, 0-250 milliamperes.
- 1 ohm to 1,000 ohms.

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