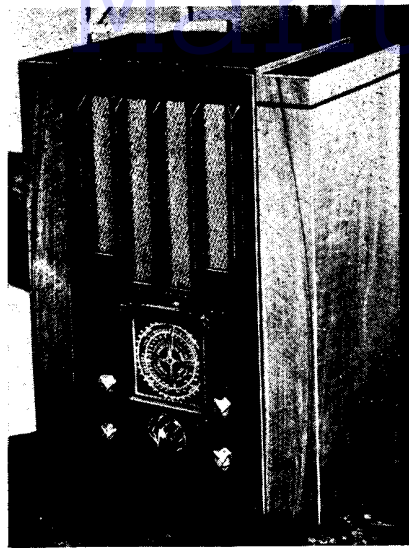


PYE T10 ALL-WAVE A.C. SUPERHET



The T10 receiver by Pye Radio Ltd. is a 6-valve A.C. mains superhet which covers the short-waves in two bands as well as the usual wavelengths.

CIRCUIT.—The H.F. valve (V1) operates on the short waveband only, the grid coil being coupled to the short-wave aerial coil. For M.W. and L.W. the aerial is switched to the band-pass

filter L8-L9 in the grid circuit of V2. On M.W. and L.W., R3 is placed in the cathode lead and the condenser C23 is connected between anode and chassis. This silences V1. The normal bias is by cathode resistance R2.

The combined first detector-oscillator (V2) has the tuning in the grid circuit of the oscillator. Bias is by A.V.C. with limiting cathode resistance and coupling to the following valve is by a band-pass I.F. transformer. (Intermediate frequency 465 kc.) The sensitivity control R6 is in series with the cathode resistance.

The I.F. valve (V3) is also biased by A.V.C. and cathode resistance, and is followed by a second band-pass I.F. transformer. The selectivity control varies the I.F. coupling.

The second detector and L.F. amplifier (V4) is used for Q.A.V.C. and for L.F.

purposes, the triode section being resistance capacity coupled to the output valve.

This (V5) has a grid stabilising resistance, R31, and is tone compensated by a resistance and condenser.

Mains equipment is in a separate unit and consists of: Transformer, full-wave indirectly heated rectifier, electrolytic condensers and the speaker field in the positive H.T. lead.

Special Notes.—The external speaker is connected on the low-resistance side of the transformer and should have an impedance of between 2 and 4 ohms. The special plugs allow the speakers to be used separately or together.

The pilot lamps are 3.5 v. .3 amp type. To reach them, turn the support brackets until the lamps project above the dial.

To reach the waveband indicator lamps, which are mounted in pairs, lay the cabinet on its face and loosen the knurled-headed nuts holding the brackets visible through the apertures in the scale-supporting back plate. If both are removed together make sure that they are replaced in the correct positions—i.e., with green and red leads for medium and short, and black and white leads for long and ultra short.

Do not interfere with the plate above I.F.T.1 and I.F.T.2. This forms the selectivity control.

Note that the two projecting springs at the rear left-hand side of the chassis are S9, the gram. switch.

(Continued on next page.)

VALVE READINGS

No Signal and Sensitivity Control fully clockwise.

V.	Type.	Electrode.	Volts.	M.a.
*1	(All Ever Ready.) A 50 N met (7) ..	anode ..	261	1.6
		screen ..	56	1.2
2	A 80 A met (7) ..	anode ..	261	1.3
		screen ..	53	.2
3	A 50 N met (7) ..	osc. anode ..	98	2.1
		anode ..	152	4.3
4	A 23 A met (7) ..	screen ..	74	1.9
		anode ..	106	2.1
5	A 70 C (7) ..	anode ..	234	35
		aux. grid ..	261	4

* V1 is operative on short waves only.

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0-10	0-10
0-20	0-20
0-50	0-50
0-100	0-100
0-500	0-500
0-1,000	0-1,000

CURRENT	RESISTANCE
0-2 mA	0-1,000 ohms
0-10 "	0-100,000 "
0-100 "	0-1 meg ohm

CAPACITY

.05 mfd. to 4 mfd.

INDUCTANCE

5 to 120 Henries
Directly Calibrated.



PRICE **£6.17.6**

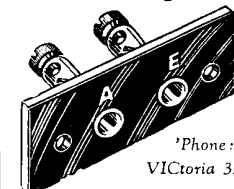
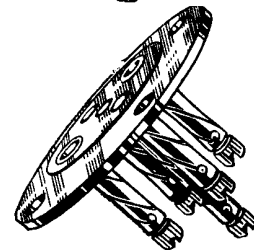
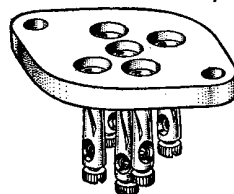
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PYE T10 ALL-WAVE SUPERHET (Continued)

Exposing Chassis.—Practically all the work likely to be necessary can be done without removing the chassis. Simply remove the board underneath the cabinet.

To remove the chassis: Pull off the knobs, remove the seven-pin power supply plug from the underside of the power pack and untwist the cleat holding the cable. Unsolder the two red leads from the speaker field and withdraw the speech coil plugs. Unscrew the nut holding the neon tube holder and remove the four holding screws from underneath the cabinet.

To remove the power pack: Undo the two bolts holding it to the platform. The pack contains only the mains transformer and smoothing condenser block, C51 and C52.

QUICK TESTS

In this receiver there are no accessible points at which test measurements may be made rapidly. The normal routine valve tests provide the best check of the operating conditions of the receiver.

RESISTANCES

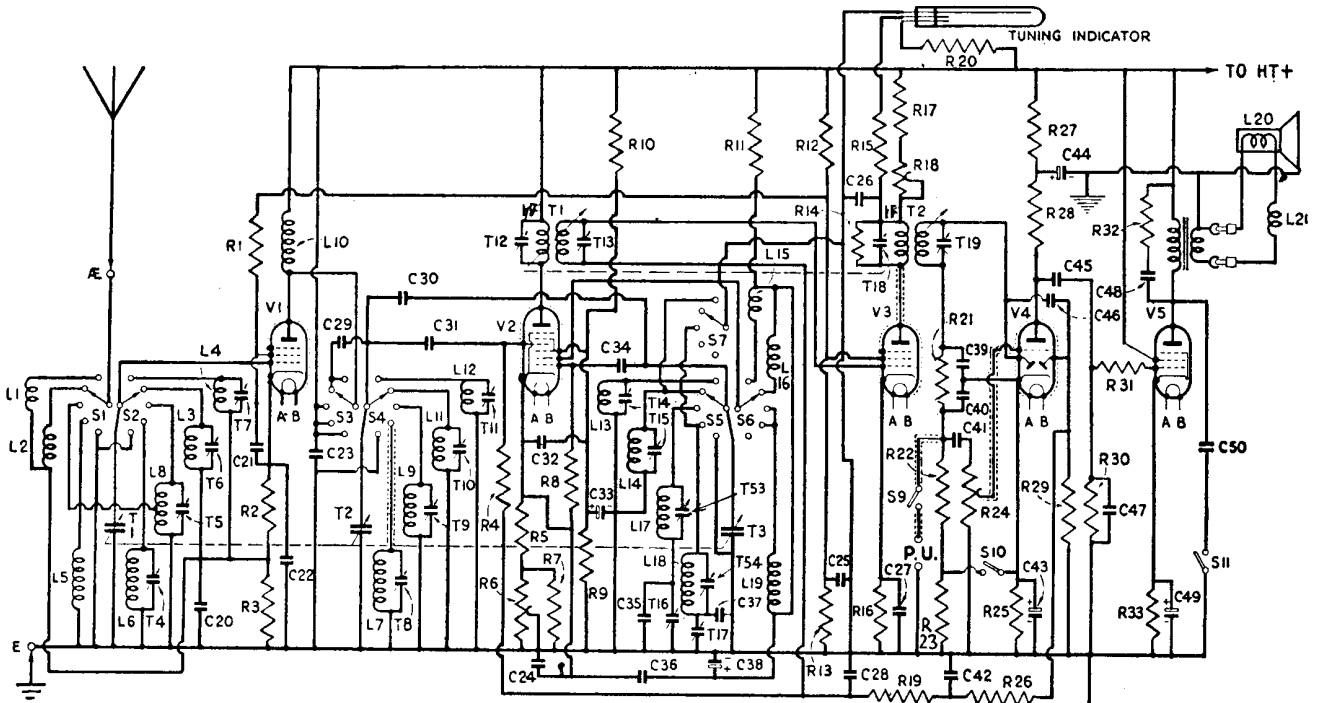
R.	Purpose.	Ohms.
1	V1 screen feed	5,000 (4)
2	V1 cathode bias	200 (4)
3	V1 cathode bias (silencing) ..	5,000 (4)
4	V2 grid leak	510,000 (4)
5	V2 cathode bias	150 (4)
6	Sensitivity control	2,000
7	Across R6	2,100 (4)
8	Osc. grid leak	51,000 (4)
9	Screen ptr.	40,000 (4)
10	Screen ptr.	65,000 (1)
11	Osc. anode decoupling	80,000 (4)
12	V3 screen ptr.	65,000 (1)
13	V3 screen ptr.	100,000 (4)
14	Across I.F.T. 2 primary	510,000 (4)
15	Neon tube anode feed	50,000 (4)
16	V3 cathode bias	200 (4)
17	V3 anode decoupling	15,000 (4)
18	Neon tube voltage adjust. ..	14,500
19	A.V.C. decoupling	510,000 (4)
20	Neon tube pilot feed.	2 meg. (4)
21	H.F. stopper	110,000 (4)
22	Diode load	110,000 (4)
23	Q.A.V.C. bias	11,000 (4)
24	V.C.	250,000
25	V4 cathode bias	1,000 (4)
26	A.V.C. decoupling	510,000 (4)
27	V4 anode decoupling	25,000 (4)
28	V4 anode L.F. coupling	50,000 (4)
29	A.V.C. diode load	510,000 (4)
30	V5 grid leak	260,000 (4)
31	V5 grid stabiliser	26,000 (4)
32	V5 tone compensating circuit ..	11,000 (4)
33	V5 cathode bias	150 (4)

Bracketed figures denote wattage rating.

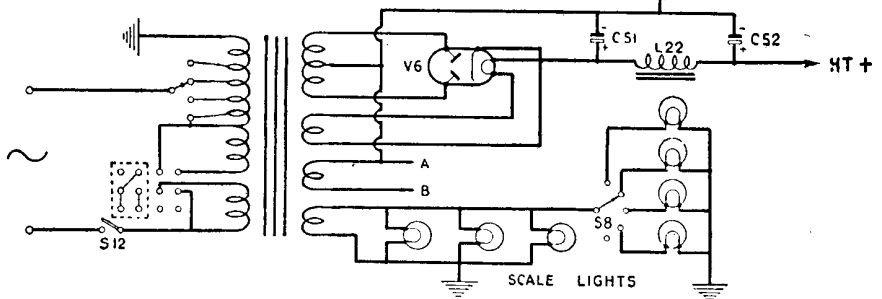
CONDENSERS

C.	Purpose.	Mfd.
20	V1 grid H.F. return .. ..	.1 (450 v)
21	V1 screen by-pass .. ..	.04 (450 v)
22	V1 cathode by-pass	*.1
23	V1 anode silencing	*.1
24	V2 cathode by-pass	*.1
25	V2 screen by-pass	*.1
26	V3 anode decoupling	*.1
27	V3 cathode by-pass	*.1
28	Decoupling AVC line	*.025
29	S.W. coupling to V2 .. ..	.0001
31	V2 grid .. ..	.0001
32	V2 screen by-pass .. ..	.04 (450 v)
33	V2 screen by-pass	2 (350 v)
34	Osc. grid reservoir .. ..	.0001
35	M.W. osc. pad .. ..	.0005
36	V2 osc. anode by-pass .. ..	.04 (450 v)
37	L.W. osc. pad .. ..	.0002
38	Osc. anode decoupling	2 (350 v)
39	H.F. by-pass from diode .. ..	.0001
40	H.F. by-pass from diode .. ..	.0001
41	L.F. coupling to V4 grid .. ..	.05 (450 v)
42	Decoupling A.V.C. .. ..	.40 (450 v)
43	V4 cathode by-pass	10 (20 v)
44	V4 anode decoupling	2 (350)
45	L.F. coupling V4 to V5 .. ..	.05 (450)
46	L.F. feed to diode .. ..	.0001
47	V5 grid H.F. by-pass .. ..	.001 (450 v)
48	V5 anode tone-compensating ..	.01
49	V5 cathode by-pass	50 (12 v)
50	V5 anode by-pass (tone) .. ..	.01 (450 v)
51	H.T. smoothing	8
52	H.T. smoothing	16

* In condenser block.



The valve arrangement of the T10 comprises a first H.F. amplifier, a frequency changer, an I.F. amplifier, a double diode triode and an output pentode. On the whole the receiver is straightforward, the apparent complexity of the circuit being due to the four coils and associated switching in each tuned stage. Detail diagrams of the switches are given on the opposite page.



ALIGNMENT NOTES FOR T10

To avoid confusion, only the trimmers have been indicated in the layout diagram. When the receiver is below standard on only one waveband the trimmers for that one alone should be adjusted. If sensitivity is down on all bands some valve or component will be the probable cause.

Before commencing: (1) Turn V.C. to maximum; (2) turn selectivity control fully clockwise for I.F., L.W. and M.W., and fully anti-clockwise for S. and U.S. bands; (3) turn sensitivity control fully clockwise.

When trimming, remember: (1) To turn

tuning to stated position before moving the trimmers; (2) in using the modulated oscillator the output to the set should be kept below the A.V.C. level; and (3) on the oscillator trimmers T54, T53, T15 and T14, when the signal can be tuned in at two settings, the position of minimum capacity is the correct one.

Calibration.—(The glass dial is held by three spring cleats.) Rotate the tuning fully anti-clockwise and, with the disc drive against the stop, release the set screw in

the bush securing the spindle. Turn spindle to maximum capacity of condensers and tighten the screw. Move the pointer so that the four ends are in line with quadrant lines, and move the single pointer to zero on the outer dial.

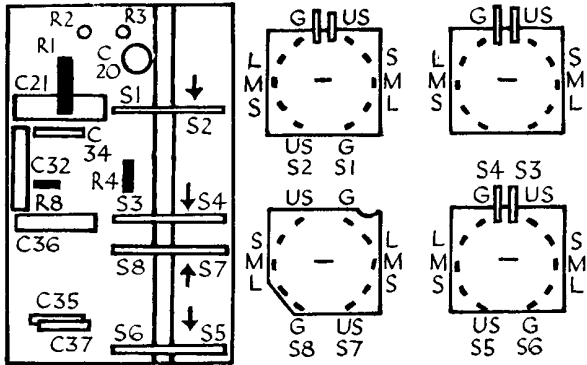
I.F. Circuits.—Inject on 465 k.c. (645 m.) between V2 grid and chassis via .002-mfd. condenser. Remove the existing grid connection and connect a .5-megohm grid leak to chassis. Prevent the oscillator section from oscillating by connecting a .25-mfd. condenser between anode and chassis. Then adjust the trimmers in this order: T19, T18, T13, T12.

Long Waveband.—Reconnect V2 for normal working and inject on 342.5 k.c. (876 m.) to A. and E. Turn receiver to this and adjust T54, T8 and T4 in this order. Inject on 168 kc. (1,780 m.), and trim T17.

Medium Waveband.—Inject to A. and E. on 1,515 k.c. (198 m.) and adjust T53, T9 and T5 in this order. Inject on 580 kc. (520 m.) and adjust T16.

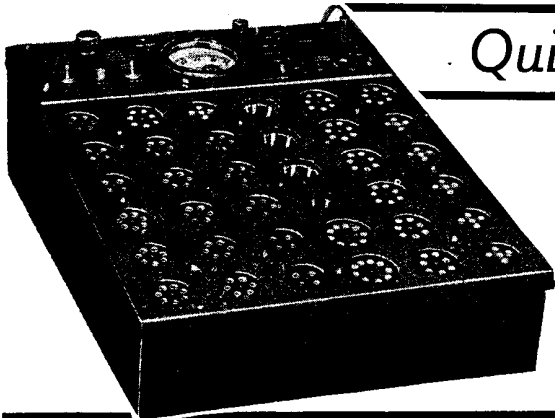
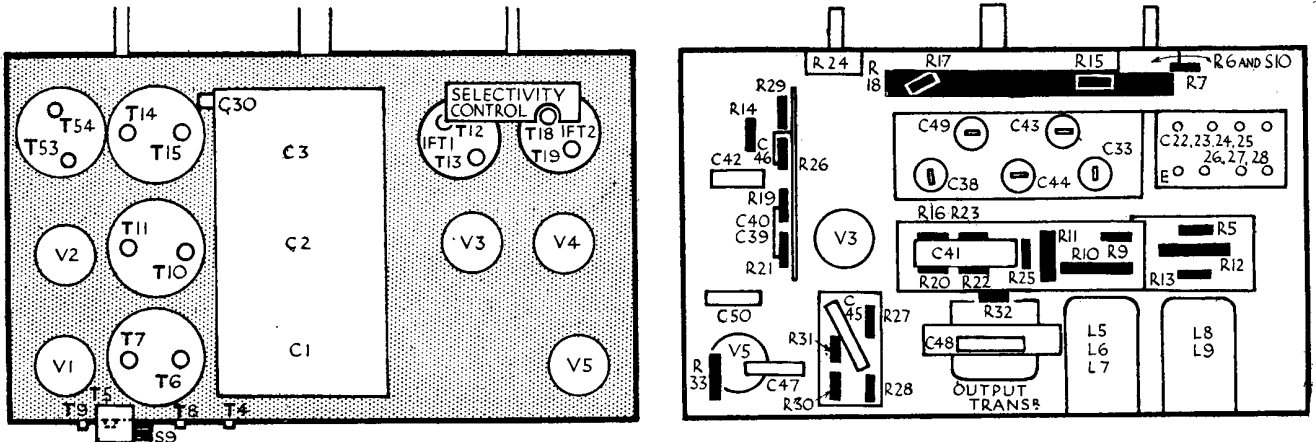
Short Waveband.—Inject on 10 megacycles (30 m.) and adjust T15, T10 and T6, checking these when T6 is done.

Ultra-Short Waveband.—Inject on 21 megacycles (14.3 m.) and adjust T14, T11 and T7, checking these when T7 is done.



On the extreme left is a diagram showing components contained in the switch compartment of the T10. The four small diagrams show the switch contacts looking in the direction of the arrows in the compartment diagram.

Below are the layout diagrams of the T10. In the under chassis diagram (right) all resistors are shown in black.



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