

# PYE 15A

Three valve, plus rectifier, three waveband superhet for operation from AC mains of 200-240 volts, 50 cycles. Provision is made for crystal pick-up. Marketed by Pye, Ltd., Cambridge. November, 1945.

**A** PERIODICALLY tuned aerial coupling coils, L1 and L3, feed signals to the triode-hexode grid circuit which comprises L2 (SW), L4 (MW) and L5 (LW). C5 is the main tuning condenser with C31 and C32 as SW and MW trimmers respectively, and C3 as fixed trimmer on LW.

C1 provides coupling between L1 and L4 on MW only.

Grid return to chassis is via AVC line, C2 being an isolating capacitor. This stage utilises cathode bias from R1 decoupled by C6.

Oscillator derives its HT via R3 and is used with a tuned-anode circuit comprising L7 (SW), L9 (MW), L11 (LW), with fixed padder C9, and C16 as the tuning condenser.

Trimmers for SW, MW, and LW respectively, are C11, C12, and C13. C14 is a fixed trimmer for LW. Oscillator grid coupling coils are L6, L8,

and L10. Automatic bias is derived from C8 and R2.

Permeability-tuned IF transformer forms anode circuit of the hexode valve and the grid circuit of V2. Cathode bias for this valve is obtained from R5, decoupled by C20.

Screen potentials for both V1 and V2 are common via R4 decoupled by C17.

Second IF transformer passes signal to demodulation diode of double-diode-pentode V3 whose load resistance is R7. An IF filter is formed by C21, C22, and R6.

AF signals are fed to the pentode portion grid via C24 and the volume control; R8 acts as grid stopper. Pickup sockets are provided across R7.

IF volts are fed via C27 to second diode and AVC voltages appear across R16. R17 and C2 provide a low pass filter.

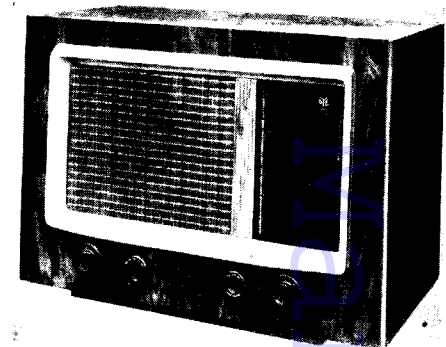
Continued overleaf.

## INDUCTANCES

L	Ohms	L	Ohms
1	13	13	13
2	14	14	14
3	59.15	14	1,000
4	2.7	16	9.4
5	15.7	17	6.7
6	21.5	18	6.7
7	19	19	500
8	4	20	—
9	2.4	21	18.5
10	4.5	22	398
11	—	—	—
12	—	—	—

## CAPACITORS

C	Type	Tolerance	Mfds	Volts
1	Mica	±20%	5pf	350v
2	Tubular	±20%	.1	350v
3	Mica	±10%	60pf	
4	Mica	±2%	70pf	
5	Ae Tuning gang cond.			
6	Tubular	±20%	.1	350v
7	Mica	±2%	70pf	
8	Mica	±10%	50pf	
9	Mica	±1%	570pf	
10	Mica	±5%	5000pf	
11	Trimmer		3-50pf	
12	Trimmer		3-50pf	
13	Trimmer		3-50pf	
14	Mica	±5%	330pf	
15	Mica	±10%	50pf	
16	Osc. Tuning gang cond.			
17	Tubular	±20%	.1	500v
18	Tubular	±20%	.02	750v
19	Mica	±2%	140pf	
20	Tubular	±20%	.1	350v
21	Mica	±10%	100pf	
22	Mica	±10%	100pf	
23	Mica	±2%	140pf	
24	Tubular	±25%	.01	1000v
25	Tubular	±25%	.01	1000v
26	Tubular	±10%	.02	750v
27	Mica	±10%	10pf	
28	Electrolytic	+50% -0%	25	25v
29	Electrolytic	+50% -0%	8+16	450v
31	Trimmer		3-50pf	
32	Trimmer		3-50pf	



Lighted four-colour dial, fly-wheel tuning and "Tonemaster" control are sales features. For engineers, there is a patented quick-release chassis of robust construction.

## RESISTORS

R	Ohms	R	Ohms
1	220	10	15,000
2	47,000	11	150
3*	47,000	12*	470
4*	39,000	13	47,000
5	330	14	22,000
6	47,000	15	27,000
7	470,000	16	1 meg
8	47,000	17	1 meg
9	4,700	18	1 meg

\* Half watt : all others quarter watt. All ± 10% tolerance.

## VALVE READINGS

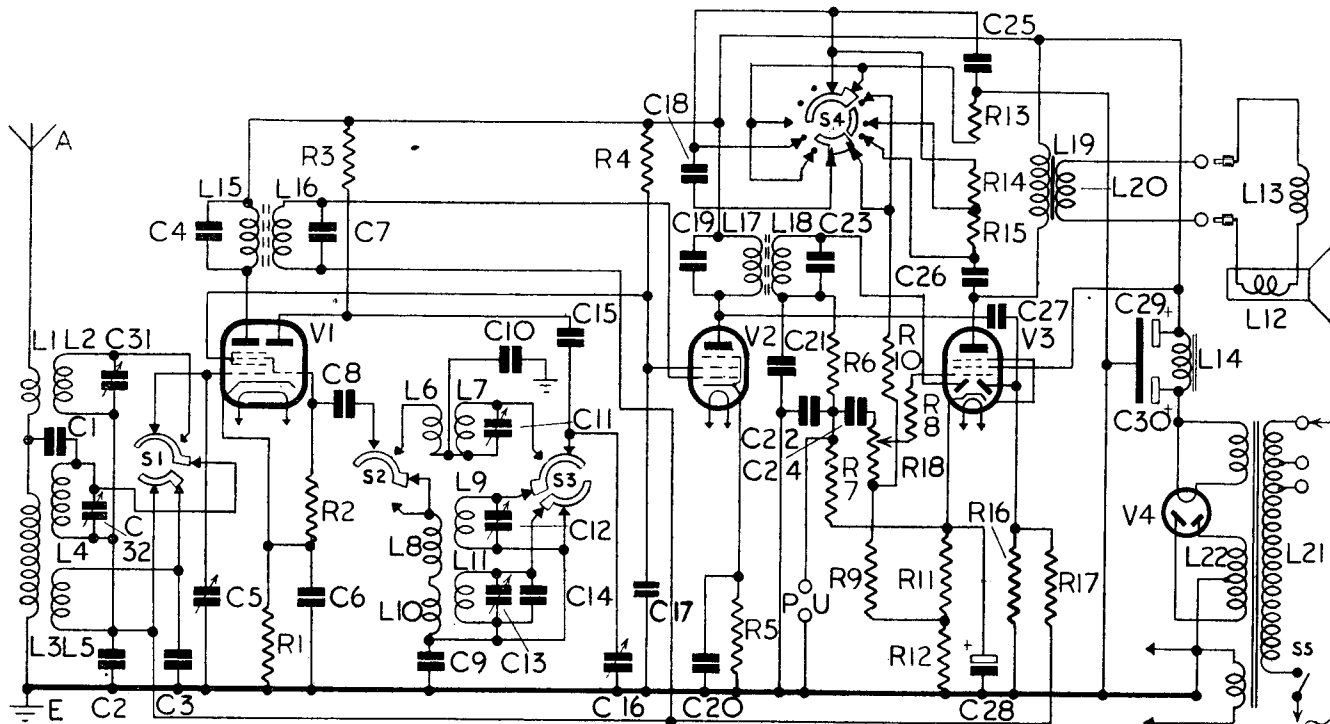
Valve	Mullard	Osc.							
		EA	IA	Es	Is	EA	IA	Ec	Ic
V1 Freq. Changer	ECH 35	265	2.1	76	2.9	90	3.4	2.25	8.4
V2 IF Amplifier	EF 39	265	5.2	76	1.6	—	—	2.2	6.8
V3 Output stage	EBL 31	248	35	265	4.2	Bias V <sub>0</sub> ts 5.9		24.2	39.2
V4 Rectifier	AZ 31	Anode to Anode 635v A.C.						320	

Readings ± 10%



## VALVE BASE CONNECTIONS

	1	2	3	4	5	6	7	8	Top Cap
V1	M	H	A	G2 G4	GT G3	AT	H	K	G1
V2	M	H	A	G2	G3	—	H	K	G1
V3	M	H	A	D1	D2	G2	H	K G3	G1
V4	—	F	—	A	—	A2	—	F	—



The circuit is that of a reasonably conventional three waveband superhet. Tuned circuits are simple, but give high gain. A switched tone circuit associated with the output anode circuit constitutes the "Tonemaster."

## PYE 15A—Continued

Cathode bias for AF portion is obtained from R11 via R9 and AVC delay is provided by R11 plus R12. C28 by-passes both these resistors.

Anode circuit of output valve comprises the output transformer feeding the speaker via the hum coil L13. A four-position tone-switch (Pye Tonemaster) labelled M1, M2, Brilliance and Fidelity, incorporates a resistance-capacity network in this anode circuit.

V4, the full-wave rectifier supplies HT and smoothing utilises speaker field L14 and electrolytic capacitors C29 and C30.

Power consumption: 47 watts; output: 2.3 watts.

Valve heater volts are 6.3 AC excepting rectifier which is 5 volts AC.

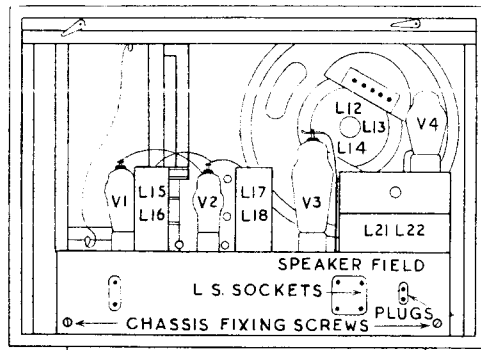
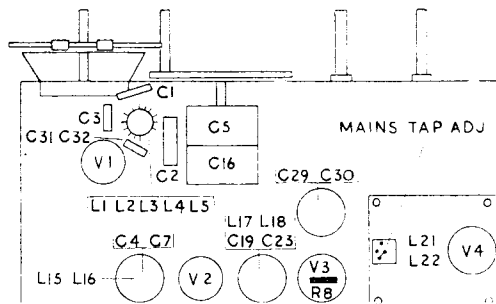
**Chassis removal.**—Pull off knobs. Pull out speaker speech and field coil plugs. Remove two rear chassis fixing screws. Withdraw chassis approximately 2 in., tip up and lift out.

Access to the underside of chassis can alternatively be obtained by removing card base.

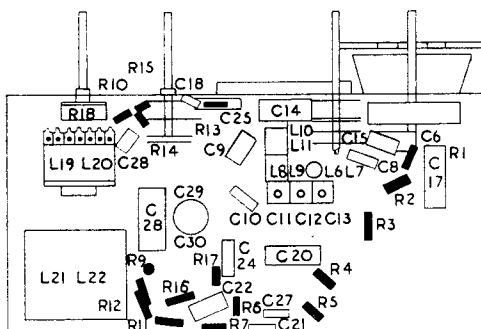
**Notes.**—External speaker should be of 2-4 ohms impedance. External LS has to be connected in parallel with internal speaker as extra sockets are not fitted. Dial bulbs are 6.5 volts, 0.3 amp MES.

### ALIGNMENT INSTRUCTIONS

Apply Signal as Below	Tune Receiver to	Adjust in Order stated for Max. Output
1) 465 k/cs. between control grid of V1 & Chassis via .1mfd condenser. Remove Grid Lead and connect $\frac{1}{2}$ megohm resistance between Grid and AVC Line (i.e., common connection of Aerial Coil Trimmers)	M.W. 570 metres	Iron Dust Cores of I.F. Transformers
2) 200 metres between Aerial and Earth sockets via Dummy Aerial	M.W. 200 metres	C.12, C.32
(3) As (2) but 500 metres	M.W. 500 metres	Check Calibration
(4) as (2) but 1200metres	L.W. 1200 metres	C.13
(5) as (2) but 1800metres	L.W. 1800	Check calibration
(6) 17.5 metres between Aerial and Earth Sockets via 400 ohm Dummy Aerial	S.W. 17.5 metres	C11 C31
(7) as (6) but 43 metres	S.W. 43 metres	Check Tracking and if necessary, adjust S.W. Aerial Coil Turns (L.2). Correct calibration by adjusting S.W. Osc. Coil Turns. Repeat (6) & (7)



Two diagrams above identify the parts on the deck of the Pye 15A chassis.



In the under-chassis layout (above) condensers and resistors are distinctly drawn to facilitate reference.

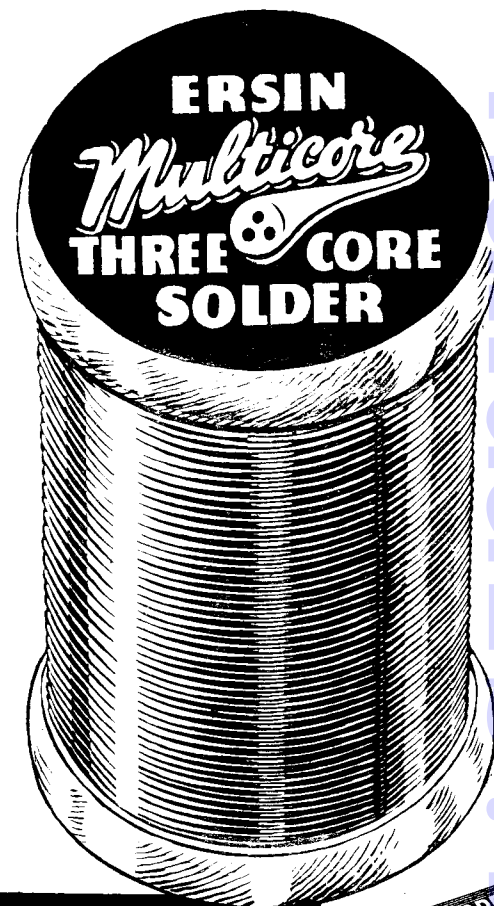
THE DRIVE CORD SHOULD BE 40 LONG OF FIRST QUALITY SILK SOLID PLATED LINE PARUM WAXED, SIZE 3/5

START HERE

THIS LENGTH TO PASS IN FRONT OF VERTICAL LENGTH BUT BEHIND OTHER ONE AS SHOWN

3 COMPLETE TURNS

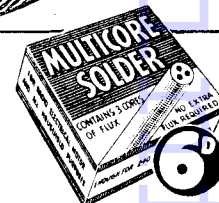
(Right): details for replacement of dial drive cord.



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