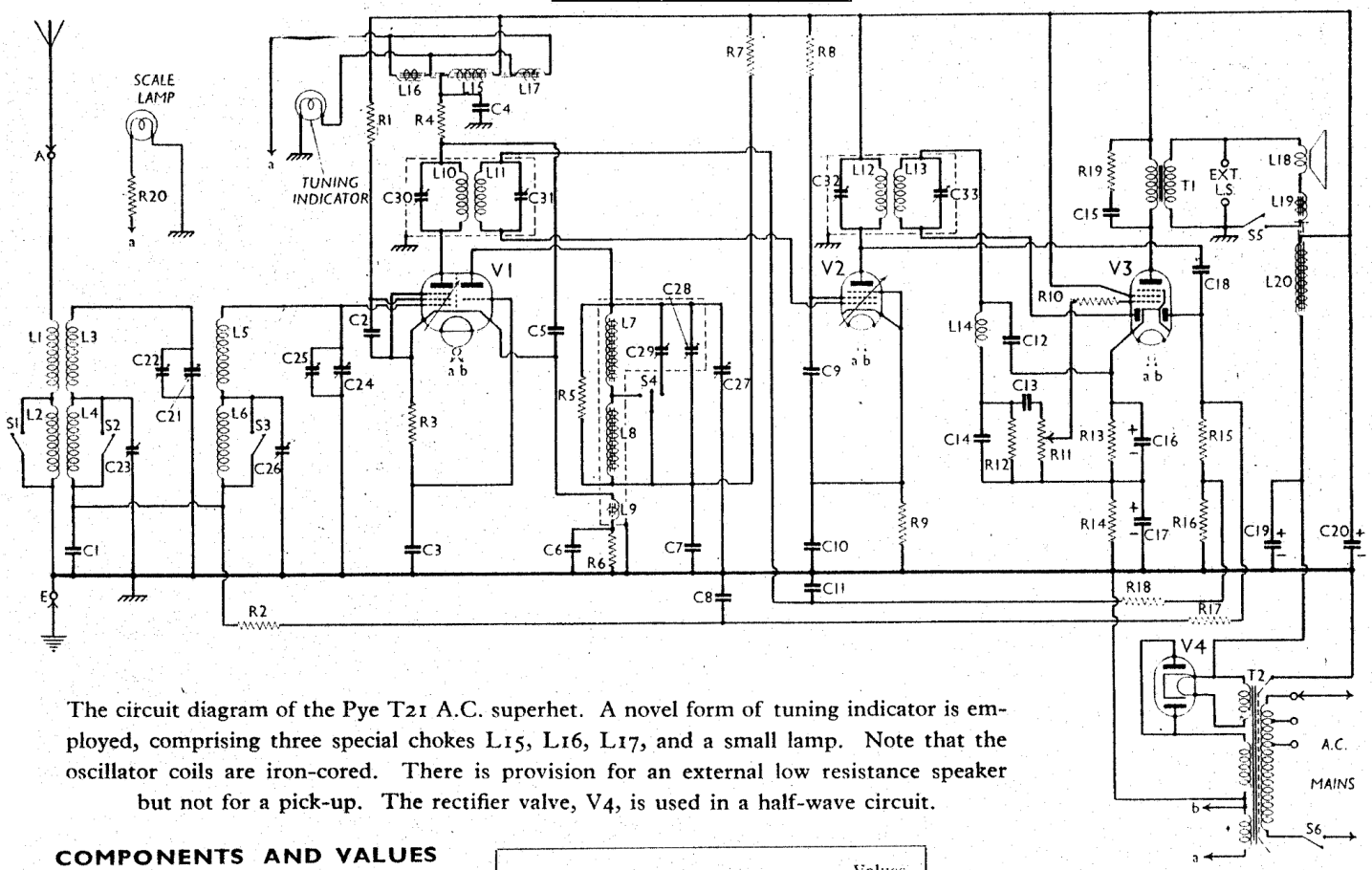
PYE - T21



The circuit diagram of the Pye T21 A.C. superhet. A novel form of tuning indicator is employed, comprising three special chokes L15, L16, L17, and a small lamp. Note that the oscillator coils are iron-cored. There is provision for an external low resistance speaker but not for a pick-up. The rectifier valve, V4, is used in a half-wave circuit.

COMPONENTS AND VALUES

	Resistances	Values (ohms)
R1	V1 S.G. H.T. feed	25,000
R2	V1 pent. cont. grid decoupling	250,000
R3	V1 osc. grid resistance	100,000
R4	V1 pent. anode decoupling	2,000
R5	L7, L8 artificial damping	40,000
R6	V1 cathode resistance	1,000
R7	V1 osc. anode decoupling	100,000
R8	V2 S.G. H.T. feed	25,000
R9	V2 fixed G.B. resistance	500
R10	V3 grid H.F. stopper	25,000
R11	Manual volume control	250,000
R12	Rect. diode load	250,000
R13	V3 G.B. and A.V.C. delay voltage resistances	150
R14		750
R15	A.V.C. diode load	500,000
R16		250,000
R17	A.V.C. circuit decoupling	500,000
R18	V2 cont. grid decoupling	500,000
R19	Part of tone comp. filter	8,500
R20	Scale lamp ballast resistor	3

	Condensers	Values (μF)
C1	Band-pass coupling condenser	0·1
C2	V1 S.G. by-pass	0·1
C3	V1 osc. grid condenser	0·0002
C4	Tuning indicator by-pass	2·0
C5	V1 pent. anode decoupling	0·1
C6	V1 cathode by-pass	0·1
C7	V1 osc. anode decoupling	0·1
C8	A.V.C. circuit decoupling	0·01
C9	V2 S.G. by-pass	0·1
C10	V2 cathode by-pass	0·1
C11	V2 cont. grid decoupling	0·1
C12	I.F. by-pass	0·0001
C13	L.F. coupling, diode to pent.	0·1
C14	I.F. by-pass	0·0001
C15	Part of tone comp. filter	0·01
C16	V3 cathode by-passes	50·0
C17		25·0
C18	Coupling to A.V.C. diode	0·0002
C19	H.T. supply smoothing	8·0
C20		16·0
C21	Band-pass primary tuning	—
C22	Band-pass primary trimmer	—
C23	Band-pass pri. L.W. trimmer	—

	Condensers (cont.)	Values (μF)
C24	Band-pass secondary tuning	—
C25	Band-pass secondary trimmer	—
C26	Band-pass sec. L.W. trimmer	—
C27	Oscillator tuning	—
C28	Oscillator M.W. trimmer	—
C29	Oscillator L.W. trimmer	—
C30	1st I.F. trans. pri. tuning	—
C31	1st I.F. trans. sec. tuning	—
C32	2nd I.F. trans. pri. tuning	—
C33	2nd I.F. trans. sec. tuning	—

	Other Components		Values (ohms)
L1	Aerial coupling coils		26·5
L2			20·0
L3	Band-pass primary coils		2·4
L4			8·9
L5	Band-pass secondary coils		2·2
L6			8·5
L7	Oscillator tuning coils		1·3
L8			58·7
L9	Oscillator reaction coil		0·7
L10	1st I.F. transformer	Pri.	110·0
L11		Sec.	110·0
L12	2nd I.F. transformer	Pri.	51·0
L13		Sec.	51·0
L14	I.F. filter choke		550·0
L15	Tuning ind. chokes	D.C. coil	2,850·0
L16		A.C. coil	10·0
L17		A.C. coil	10·0
L18	Speaker speech coil		1·23
L19	Speaker hum balancing coil		0·2
L20	Speaker field winding		1,650·0
T1	Output transformer	Pri.	740·0
		Sec.	0·3
T2	Mains trans.	Pri. total	16·0
		Heater sec.	0·08
		Rect. heater sec.	0·12
		H.T. sec.	82·0
S1-S4	Waveband switches, ganged		
S5	Internal speaker switch		
S6	Mains switch		

VALVE ANALYSIS

The voltage readings in the table below were obtained with a high resistance voltmeter, connected from the anodes or screens of the valves to chassis. Readings were taken with no signal input.

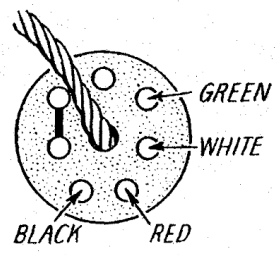
In the case of **V1** (pentode section) and **V2**, it is advisable to stabilise the valve by connecting a 0.25μF, or larger, condenser from control grid to chassis and from anode to chassis respectively.

The readings obtained should agree with those in the table within plus or minus 10 per cent., providing the smoothed D.C. voltage is roughly 275 V. This voltage is normal when the maximum mains voltage is applied to any particular primary tapping of **T2**, for example, 235 V A.C. applied to the 216-235 V tapping.

The smoothed D.C. voltage is equal to the screen voltage of **V3**.

Valve	Anode Volts	Anode Current (mA)	Screen Volts	Screen Current (mA)
V1 AC/TP*	248	4·3	212	1·6
V2 AC/VP1	275	7·1	220	1·3
V3 AC2/PenDD	250	29·0	275	6·0
V4 IW3	370†	—	—	—

* Triode osc. anodes strapped together. † A.C.



Plan diagrammatic view of the speaker plug, showing the colour coding of the wires to the pins.