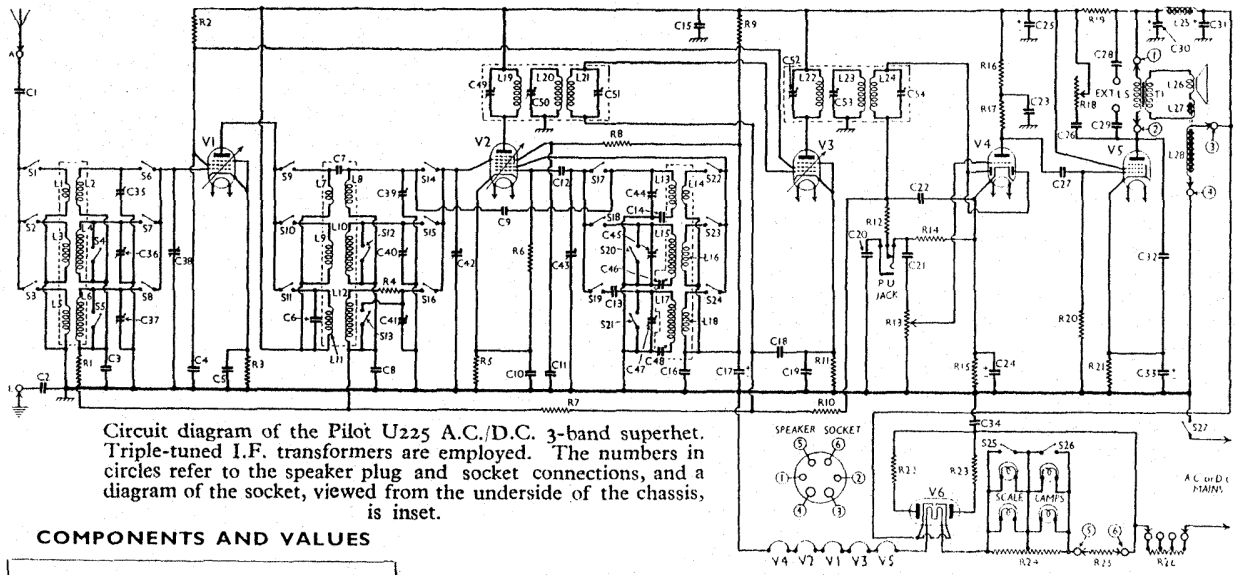
PILOT - U 225 & CU 225 & RU 225



Circuit diagram of the Pilot U225 A.C./D.C. 3-band superhet. Triple-tuned I.F. transformers are employed. The numbers in circles refer to the speaker plug and socket connections, and a diagram of the socket, viewed from the underside of the chassis, is inset.

COMPONENTS AND VALUES

	RESISTANCES	Values (ohms)
R1	V1 C.G. decoupling	100,000
R2	V1 and V2 S.G.'s H.T. feed	6,000
R3	V1 fixed G.B. resistance	400
R4	H.F. trans. L.W. sec. series	250
R5	V2 fixed G.B. resistance	400
R6	V2 osc. C.G. resistance	50,000
R7	V1 and V2 A.V.C. line de coupling	100,000
R8	V2 S.G.'s H.T. feed	6,000
R9	V2 osc. anode decoupling	3,000
R10	Main A.V.C. line decoupling	1,000,000
R11	V3 fixed G.B. resistance	400
R12	I.F. stopper	50,000
R13	Manual volume control	750,000
R14	V4 diode load	300,000
R15	V4 G.B. resistance	12,000
R16	V4 triode anode decoupling	50,000
R17	V4 triode anode load	500,000
R18	Variable tone control	100,000
R19	H.T. smoothing	2,500
R20	V5 C.G. resistance	500,000
R21	V5 G.B. resistance	600
R22, R23	V6 anode resistances	100 each
R24	Scale lamps shunt	80*
R25	Fixed ballast resistance	450
R26	Tapped ballast resistance	72†

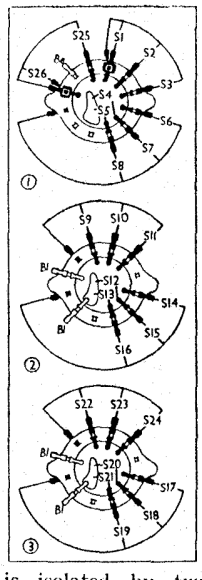
* 40+40 Ω. † 24+24+24 Ω.

	CONDENSERS	Values (μF)
C1	Aerial series condenser	0·0005
C2	Earth blocking condenser	0·005
C3	V1 C.G. decoupling	0·05
C4	V1, V2 S.G.'s by-pass	0·05

	CONDENSERS—*Continued*	Values (μF)
C5	V1 cathode by-pass	0·1
C6	L.W. H.F. trans. pri. trimmer	0·00025
C7	S.W. H.F. trans. cap. coupling	0·00001
C8	V2 tetrode C.G. decoupling	0·05
C9	Neutralising condenser	Very low
C10	V2 cathode by-pass	0·1
C11	V2 S.G.'s by-pass	0·05
C12	V2 osc. C.G. condenser	0·00005
C13	V2 osc. L.W. C.G. condenser	0·01
C14	Oscillator S.W. tracker	0·0025
C15	H.T. supply R.F. by-pass	0·1
C16	V2 osc. anode decoupling	0·05
C17*		4·0
C18	V3 C.G. decoupling	0·05
C19	V3 cathode by-pass	0·1
C20	Gram. P.U. isolating	0·5
C21	L.F. coupling to V4 triode	0·01
C22	I.F. by-pass	0·00025
C23	V4 triode anode decoupling	0·1
C24*	V4 cathode by-pass	10·0
C25*	H.T. smoothing	4·0
C26	Part of T.C. filter	0·05
C27	V4 to V5 L.F. coupling	0·01
C28	External speaker coupling	0·05
C29		0·05
C30*	H.T. smoothing	12·0
C31*		16·0
C32	Fixed tone corrector	0·005
C33*	V5 cathode by-pass	10·0
C34	Mains circuit R.F. by-pass	0·01
C35‡	Aerial circuit S.W. trimmer	—
C36‡	Aerial circuit M.W. trimmer	—
C37‡	Aerial circuit L.W. trimmer	—
C38†	Aerial circuit tuning	—
C39‡	R.F. trans. S.W. sec. trimmer	—
C40‡	R.F. trans. M.W. sec. trimmer	—
C41‡	R.F. trans. L.W. sec. trimmer	—
C42†	R.F. trans. secs. tuning	—
C43†	Osc. circuit tuning	—
C44‡	Osc. circuit S.W. trimmer	—
C45‡	Osc. circuit M.W. trimmer	—
C46‡	Osc. circuit M.W. tracker	0·00046
C47‡	Osc. circuit L.W. trimmer	—
C48‡	Osc. circuit L.W. tracker	0·000125
C49‡	1st I.F. trans. pri. tuning	—
C50‡	1st I.F. trans. tertiary tuning	—
C51‡	1st I.F. trans. sec. tuning	—
C52‡	2nd I.F. trans. pri. tuning	—
C53‡	2nd I.F. trans. tertiary tuning	—
C54‡	2nd I.F. trans. sec. tuning	—

* Electrolytic. † Variable. ‡ Pre-set.

	OTHER COMPONENTS	Approx. Values (ohms)
L1	Aerial S.W. coupling coil	1·5
L2	Aerial S.W. tuning coil	0·05
L3	Aerial M.W. coupling coil	25·0
L4	Aerial M.W. tuning coil	3·5
L5	Aerial L.W. coupling coil	125·0
L6	Aerial L.W. tuning coil	20·0
L7	S.W. R.F. trans. pri.	4·8
L8	S.W. R.F. trans. sec.	0·05
L9	M.W. R.F. trans. pri.	100·0
L10	M.W. R.F. trans. sec.	3·5
L11	L.W. R.F. trans. pri.	125·0
L12	L.W. R.F. trans. sec.	20·0
L13	Osc. S.W. tuning coil	0·05
L14	Osc. S.W. reaction coil	0·8
L15	Osc. M.W. tuning coil	7·0
L16	Osc. M.W. reaction coil	3·3
L17	Osc. L.W. tuning coil	14·0
L18	Osc. L.W. reaction coil	6·0
L19	1st I.F. trans. Primary	9·0
L20	1st I.F. trans. Tertiary	9·0
L21	1st I.F. trans. Secondary	13·0
L22	2nd I.F. trans. Primary	13·0
L23	2nd I.F. trans. Tertiary	9·0
L24	2nd I.F. trans. Secondary	9·0
L25	H.T. smoothing choke	460·0
L26	Speaker speech coil	1·8
L27	Hum neutralising coil	0·1
L28	Speaker field coil	5,000·0
T1	Speaker input trans. Pri.	320·0
	Speaker input trans. Sec.	0·2
S1-24	Waveband switches	—
S25-26	Scale lamp switches	—
S27	Mains circuit switch, ganged R13	—



Switch unit diagrams, seen from the underside of the chassis, in the direction of the arrows in the under-chassis view. Be indicates "bearer" and Bl "blank." Note the large contact on each rotor forming extra switches.

Switch	L.W.	M.W.	S.W.
S1	O	O	C
S2	O	C	O
S3	C	O	O
S4	O	O	C
S5	O	C	C
S6	O	C	C
S7	O	C	O
S8	C	O	O
S9	O	O	C
S10	O	C	O
S11	C	O	O
S12	O	O	C
S13	O	C	C
S14	O	C	C
S15	O	C	O
S16	C	O	O
S17	O	O	C
S18	O	C	O
S19	C	O	O
S20	O	O	C
S21	O	C	C
S22	O	O	C
S23	O	C	O
S24	C	O	O
S25	C	O	O
S26	O	O	C

L25 is an iron-cored choke beneath the chassis.

Scale Lamps.—These are four 6·3 V 0·15 A types, fitted with miniature centre contact bayonet caps. Pilot spares No. U72151.

External Speaker.—Two sockets are provided at the rear of the chassis for a high resistance external speaker. This is isolated by two fixed condensers, **C28** and **C29**.

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 225 V. The receiver was tuned to the lowest wavelength on the medium band and the volume control was at maximum, but there was no signal input.

Voltages were measured on the 1,200 V scale of an Avometer, chassis being negative.

If the S.G. circuit of **V3** should become unstable when measurements are being made, as in our case, it can be stabilised by connecting a 0·1 μF non-inductive condenser from S.G. to chassis.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 6D6	110	5·1	95	1·5
V2 6A7*	110	1·2	75	3·4
V3 6D6	110	5·6	95	1·5
V4 75	30	0·1	—	—
V5 43	170	23·0	110	3·9
V6 25Z5†	—	—	—	—

* Oscillator anode (G2) 95 V, 2·4 mA.
† Cathode to chassis, 195 V, D.C.

GENERAL NOTES

Switches.—**S1-S26** are in three ganged rotary units beneath the chassis, indicated by numbers in circles and arrows in our under-chassis view. The arrows show the directions in which the units are viewed in the diagrams on this page. The letters "Be" and "Bl" stand for "Bearer" and "Blank" respectively.

The table below gives the switch positions for the three control settings, starting from fully anti-clockwise.