

PILOT 404

Four-valve battery-operated table-type superhet covering three wavebands. Made by Pilot Radio, Ltd., 31-33, Park Royal Road, London, N.W.10.

Circuit.—Transformer coils couple the aerial to V1 on each waveband. It will be noted that the S.W. circuit remains in series with the M.W. and L.W. circuits. This does not affect the operation in any way. A.V.C. is applied on all bands.

V1 is the frequency-changer. The oscillator section is tuned grid and very similar to the aerial tuning arrangement except that on L.W. reaction from the anode is obtained by the reactance of

T3, the padder, being common to both anode and grid circuits.

A similar system, plus a coupling winding, is used on M.W. C12 is the S.W. padder.

All the switches contain earthed shorting sections which prevent absorption effects by the coils not in use.

The first I.F. transformer is iron-dust cored but, like the second I.F.T., trimmer tuned. V2 is the I.F. amplifier, and V3, a double-diode triode.

R6 is the signal demodulation diode load and also the volume. C16 is an I.F. by-pass.

The A.V.C. diode, fed by C19, has R12 for its load and is taken back to the junction of R13, R14 for delay bias. C17 isolates the steady demodulation voltage from V3 grid circuit while introducing the L.F. to the top of R8, the grid leak.

C25 is another I.F. by-pass, R7 being a stabiliser. C20 and R9 form a tone control across the anode circuit.

Resistance and capacity coupling leads to V4. This is biased by returning R10 to H.T. negative. The filament is positive due to the voltage drop of the main H.T. return current through R13 and R14. C18 is an electrolytic decoupling the H.T. battery.

A switched connection is provided for a low-impedance extension speaker.

GANGING

I.F. Circuits.—Inject 451 kc. to V1 grid and adjust the I.F. trimmers for maximum on an output meter. Reduce the signal as the circuits come into line to prevent the A.V.C. operating.

L.W. Band.—Inject and tune to 1,100 m. and adjust T1 and T2.

Inject and tune to 1,980 m. and adjust T3 while rocking gang slightly.

M.W. Band.—Inject and tune to 214 m. and adjust T4 and T5.

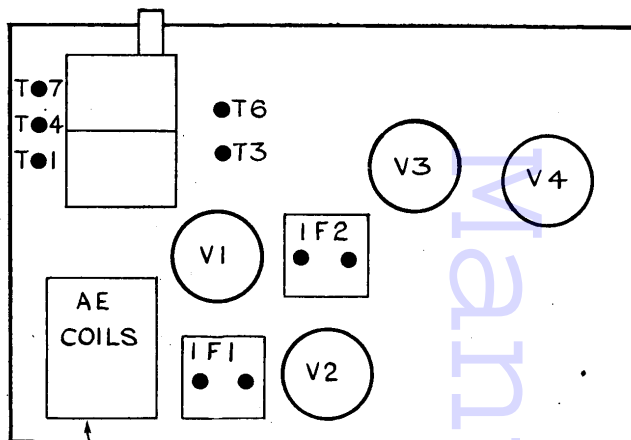
Inject and tune to 580 m. and adjust T6 while rocking gang slightly.

S.W. Band.—Inject and tune to 16.8 m. and adjust T7 and T8. Padding is fixed.

VALVE VOLTAGES

V	Type	Electrode	Volts
1	TP25	Anode	114
		Screen	44
		Osc. anode	44
		Bias	1.5
2	VP23	Anode	114
		Screen	44
		Bias	1.5
		Screen	44
3	HL23DD	Anode	30
		Screen	104
4	Pen.25	Anode	114
		Bias	6

Measured with 120 v. battery.



The chassis is very accessible with all the trimmers available either from above or the rear.

T2 T5 T8 (TOP TO BOTTOM)

RESISTANCES

R	Ohms.	R	Ohms.
1	10,000	8	9.5 meg.
2	33,000	9	1 meg.
3	100,000	10	1 meg.
4	47,000	11	1 meg.
5	2,700	12	1 meg.
6	1 meg.	13	120
7	47,000	14	200

CONDENSERS

C	Mfds.	C	Mfds.
4	.00015	19	.00015
6	.00015	20	.01
9	.05	21	.01
12	.006	22	.002
15	.05	23	.0004
16	.00015	24	.0004
17	.002	25	.00015
18	8		

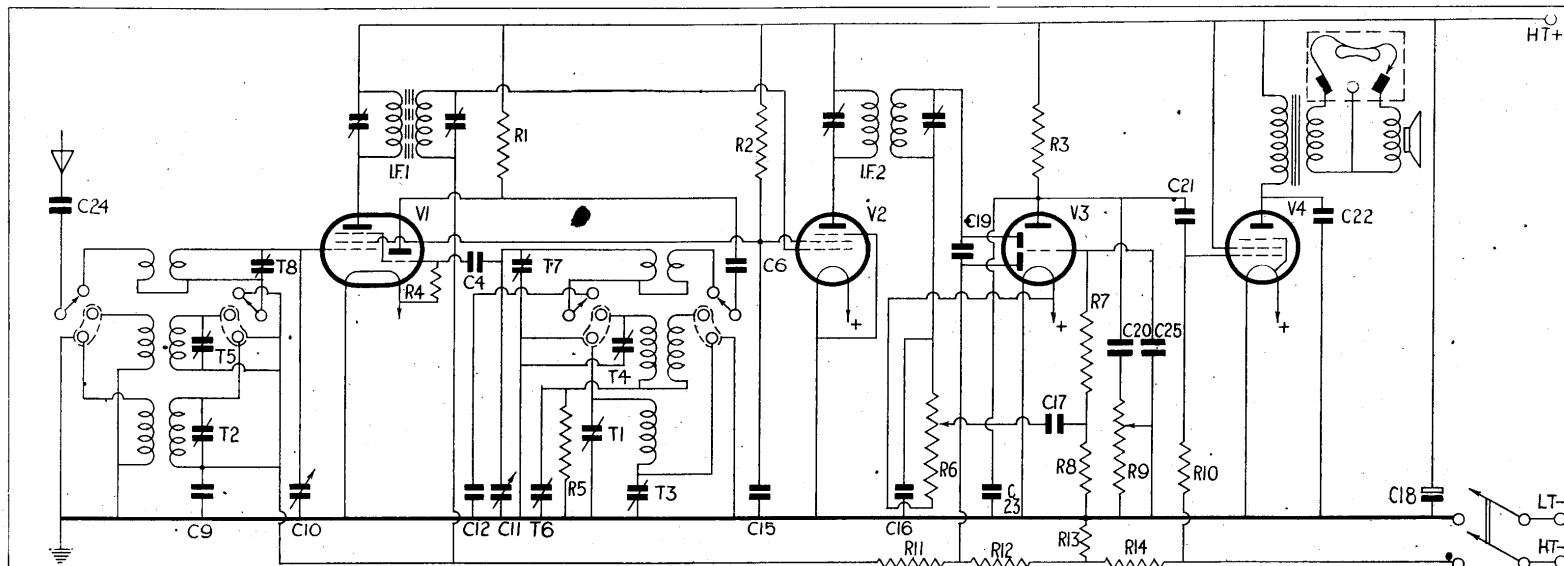
Short-Wave "Wangle"

AN all-wave receiver was brought into the workshop for retrimming. The order of trimming was S.W., M.W., and lastly, L.W. The trimmers were adjusted by screws, and it was found that these were so tight that the ordinary soft material of the trimming tools would not turn them without tearing.

A tool with a metal blade and insulated handle was next tried and this worked satisfactorily on the M.W. and L.W. sections, but due to capacity effects on the higher frequencies it would not work satisfactorily on the oscillator section of the S.W. band.

The set was trimmed as follows. The S.W. band was aligned in the ordinary way, i.e., oscillator, grid and aerial circuits, and these were tuned as accurately as possible with the metal-bladed tool.

To get the oscillator and the other two circuits exactly in tune the sub-chassis S.W. wiring was shifted slightly with the aid of the non-metal trimmer tool. The change of wiring capacity was sufficient to enable a point to be found where the circuits were perfectly in tune.—D. L.



The Pilot 404 is the battery equivalent of the 405. The tuned circuits and general valve arrangement are very similar. The set is driven by accumulator and H.T. battery, bias being automatic.