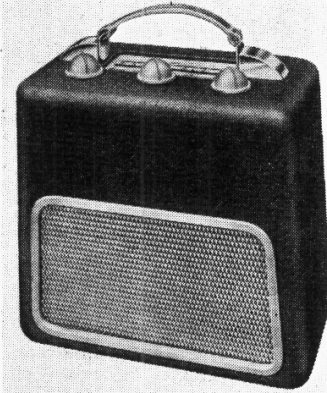


"TRADER" SERVICE SHEET

965

INVICTA 25

All-dry Battery Portable



A SELF-CONTAINED all-dry battery portable, the Invicta 25 is a 4-valve, 2-band superhet employing B7G-based valves and a 6-inch speaker. Negative feedback is introduced between the last two valves. The waveband ranges are 200-550m and 1,000-2,000m. The makers state that it must not be connected to an external aerial or earth.

Release date and original price: August, 1949; £11 2s. 5d. without batteries. Purchase tax extra.

CIRCUIT DESCRIPTION

Tuned frame aerial input **L1**, **C21** (M.W.) or **L1**, **L2**, **C21** (L.W.) precedes a heptode valve (**V1**, Mullard DK91) operating as frequency changer with electron coupling.

Oscillator grid coils **L3** (M.W.) and **L4** (L.W.) are tuned by **C22**. Parallel trimming by **C23** (M.W.) and **C5**, **C24** (L.W.); series tracking by **C6** (M.W. and L.W.). Inductive reaction coupling by oscillator anode coil **L5** (M.W. and L.W.).

Second valve (**V2**, Mullard DF91) is a variable-mu R.F. pentode operating as intermediate frequency amplifier with tuned transformer couplings **C2**, **L6**, **L7**, **C3** and **C9**, **L8**, **L9**, **C10**.

Intermediate frequency 470 kc/s.

Diode signal detector is part of single diode pentode valve (**V3**, Mullard DAF91). Audio frequency component in rectified output is developed across manual volume control **R7**, which is also

the diode load resistor, and passed via A.F. coupling capacitor **C13** to control grid of pentode section, which operates as A.F. amplifier. I.F. filtering by **C11**, **R5** and **C12**.

D.C. potential developed across **R7** is fed back via decoupling resistor **R6** as bias to the F.C. and the I.F. valves, giving automatic gain control.

Resistance-capacitance coupling by **R9**, **C16** and **R11** between **V3** pentode and pentode output valve (**V4**, Mullard DL92). Fixed tone correction in anode circuit by **C17** and **R13**. **V3** C.G. resistor **R8** is returned to chassis via **T1** secondary, giving negative feedback. Grid bias potential for **V4** is obtained from the drop across **R15** in the H.T. negative lead to chassis.

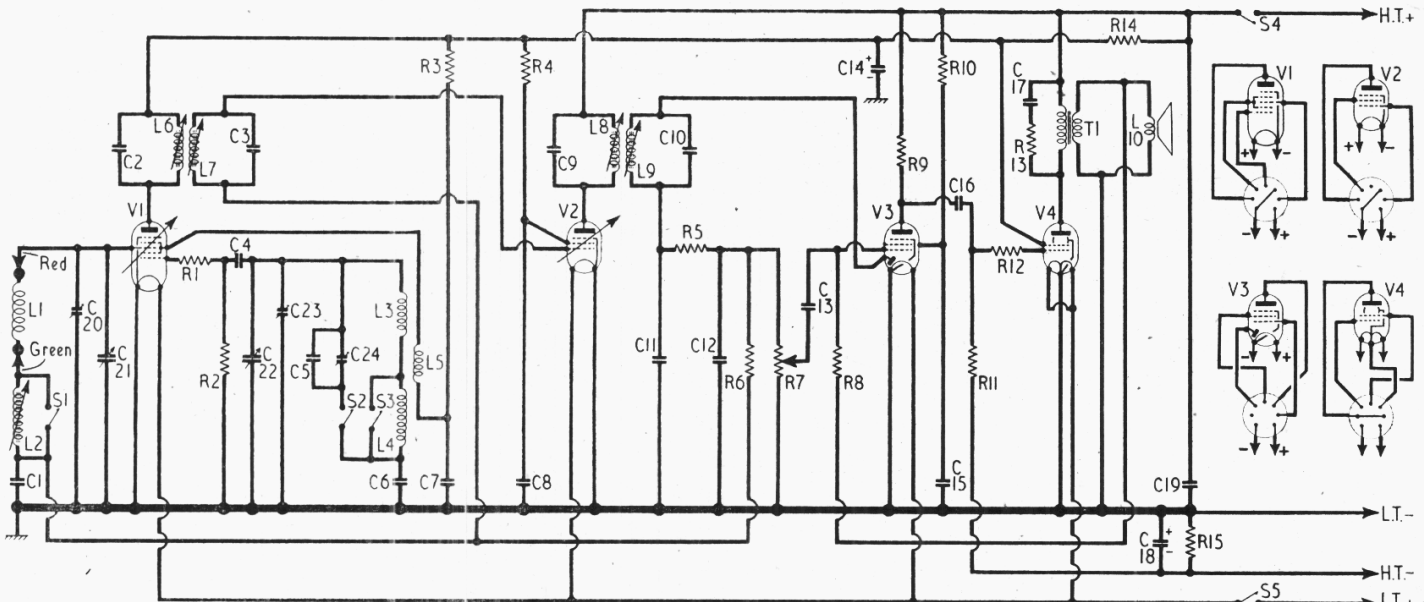
COMPONENTS AND VALUES

RESISTORS		Values	Locations
R1	Osc. C.G. stopper	10kΩ	F3
R2	V1 osc. C.G.	100kΩ	F3
R3	Osc. H.T. feed	10kΩ	F4
R4	V2 S.G. feed	100kΩ	G4
R5	I.F. stopper	47kΩ	G4
R6	A.G.C. decoup.	2.2MΩ	F3
R7	Volume control	1MΩ	E3
R8	V3 C.G.	4.7MΩ	G3
R9	V3 pentode load	330kΩ	G4
R10	V3 S.G. feed	3.3MΩ	G4
R11	V4 C.G.	1MΩ	H4
R12	V4 grid stopper	27kΩ	H4
R13	Tone corrector	27kΩ	A2
R14	H.T. decoupling	4.7kΩ	G4
R15*	V4 G.B.	910Ω	H4

* Made up of 1,000Ω and 10,000Ω resistors, in parallel.

CAPACITORS		Values	Locations
C1	A.G.C. decoupling	0.05μF	F3
C2	1st I.F. trans. tun.	100pF	C2
C3	V1 osc. C.G.	150pF	C2
C4	V1 osc. C.G.	150pF	C2
C5	Osc. fixed trim.	300pF	C1
C6	Oscillator tracker	500pF	D1
C7	Osc. H.T. decoup.	0.002μF	C1
C8	V2 S.G. decoupling	0.05μF	F4
C9	2nd I.F. trans. tun.	100pF	B2
C10	2nd I.F. trans. tun.	100pF	B2
C11	I.F. by-passes	100pF	G4
C12	I.F. by-passes	100pF	G4
C13	A.F. coupling	0.01μF	G3
C14*	H.T. decoupling	8μF	G3
C15	V3 S.G. decoup.	0.01μF	H4
C16	A.F. coupling	0.002μF	H4
C17	Part tone correction	0.01μF	A1
C18*	V4 G.B. by-pass	25μF	H4
C19	Battery by-pass	0.01μF	A1
C20†	M.W. aerial trim.	30pF	D1
C21†	Aerial tuning	—	D2
C22†	Oscillator tuning	—	D1
C23‡	M.W. osc. trimmer	30pF	D1
C24‡	L.W. osc. trimmer	170pF	C1

* Electrolytic. † Variable. ‡ Pre-set.



Circuit diagram of the Invicta 25 all-dry portable superhet. **L1** is the frame aerial winding. The speech coil circuit is included in the return path of **V3** pentode C.G. resistor, introducing inverse feedback.

