

INVICTA 570

SCALE LAMPS

COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R ₁	V ₁ hexode CG stabiliser ..	50
R ₂	V ₁ hexode CG resistance ..	250,000
R ₃	V ₂ SC HT feed ..	20,000
R ₄	V ₁ fixed GB resistance ..	200
R ₅	V ₁ osc. CG resistance ..	20,000
R ₆	V ₁ osc. CG stabiliser ..	50
R ₇	V ₁ osc. anode HT feed ..	20,000
R ₈	V ₂ fixed GB resistance ..	150
R ₉	V ₃ signal diode load ..	50,000
R ₁₀	resistances ..	500,000
R ₁₁	Part of tone compensator ..	60,000
R ₁₂	Manual volume control ..	1,000,000
R ₁₃	V ₃ pentode grid stopper ..	100,000
R ₁₄	V ₃ pentode GB and AVC ..	200
R ₁₅	delay resistances ..	300
R ₁₆	AVC line decoupling ..	1,000,000
R ₁₇	V ₃ AVC diode load ..	1,000,000
R ₁₈	Part of tone control ..	60,000

CONDENSERS		Values (μ F)
C1	MW aerial coupling ..	Very low
C2	V1 hexode CG condenser ..	0.00015
C3	V1 SG decoupling ..	0.1
C4	1st IF transformer fixed ..	0.00015
C5	tuning condensers ..	0.00015
C6	V1 cathode by-pass ..	0.1
C7	V1 osc. CG condenser ..	0.00015
C8	AVC line decoupling ..	0.1
C9	Osc. circuit LW fixed trimmer ..	0.00025
C10	Osc. circuit SW tracker ..	0.005
C11	Osc. circuit MW and LW tracker ..	0.000657
C12	V1 osc. anode coupling ..	0.00015
C13	2nd IF transformer fixed ..	0.00015
C14	tuning condensers ..	0.00015
C15	V2 cathode by-pass ..	0.1
C16	IF by-pass condensers ..	0.00015
C17	AF coupling to V3 pentode ..	0.00015
C18	Part of tone compensator ..	0.05
C19	Part of tone compensator ..	0.005
C20	Coupling to V3 AVC diode ..	0.00002
C21*	V3 cathode by-pass ..	20.0
C22	Part of tone control ..	0.01
C23*	HT smoothing condensers ..	8.0
C24*	HT smoothing condensers ..	16.0
C25	Mains aerial coupling ..	0.001
C26†	Aerial circuit SW trimmer ..	0.00003
C27†	Aerial circuit MW trimmer ..	0.00003
C28†	Aerial circuit manual tuning ..	0.00054
C29†	Osc. circuit MW trimmer ..	0.00003
C30†	Osc. circuit LW trimmer ..	0.00003
C31†	Osc. circuit manual tuning ..	0.00054
C32†	Aerial circuit automatic tuning trimmers ..	0.00012
C33†	Aerial circuit automatic tuning trimmers ..	0.000375
C34†	Aerial circuit automatic tuning trimmers ..	0.0006
C35†	Aerial circuit automatic tuning trimmers ..	0.000375
C36†	Aerial circuit automatic tuning trimmers ..	0.0006
C37	Osc. circuit automatic fixed tuning condensers ..	0.0003
C38	Osc. circuit automatic fixed tuning condensers ..	0.0003

S9 is a supplementary shorting switch, built on to the side of the unit nearer the chassis deck (lower diagram). It is operated by any of the MW auto buttons, or the MW manual button, and is *closed* when the button is pressed, due to a projection on the button plunger making contact with spring projections on a metal strip fixed to the body of the press-button switch unit. Since the plungers are at chassis (earth) potential, **S9** connects the top of **L5** to chassis when it closes.

OTHER COMPONENTS

		(ohms)
L1	Aerial SW coupling coil	0.45
L2	Aerial MW and LW coupling coil	65.0
L3	Aerial SW tuning coil	Very low
L4	Aerial MW tuning coil	2.25
L5	Aerial LW tuning coil	12.0
L6	Oscillator SW reaction coil*	13.0
L7	Oscillator MW reaction coil	16.0
L8	Oscillator LW reaction coil*	21.0
L9	Osc. circuit SW tuning coil	Very low
L10	Osc. circuit MW tuning coil*	1.5
L11	Osc. circuit LW tuning coil*	2.2
L12	1st IF trans. { Pri. . .	7.5
L13	Sec. . .	7.5
L14	2nd IF trans. { Pri. . .	7.5
L15	Sec. . .	7.5
L16	Speaker speech coil	1.7
L17	Hum neutralising coil	0.25
L18	Speaker field coil	3,000.0
L19		1.0
L20	Osc. circuit automatic	1.0
L21	tuning coils	1.4
L22		4.0
L23		3.25
T1	Speaker input { Pri. . .	420.0
	trans. { Sec. . .	0.2
	{ Pri., total	23.0
T2	Mains { Heater sec. . .	0.05
	trans. { Rect. heat. sec. . .	0.1
	HT sec., total	750.0
S1a, b, x	Aerial circuit waveband	—
to S3a	switches	—
S4a, b	Aerial circuit automatic	—
S8a, b	tuning selector switches	—
S4x to	Manual tuning cut-out	—
S8x	switches	—
S9	Aerial LW shorting switch	—
S10a, b,	Oscillator circuit manual	—
x to	waveband switches	—
S12a, b		—
S13a, b	Oscillator circuit automatic	—
to	tuning selector switches	—
S17a, b	Manual tuning cut-out	—
S13x to	switches	—
S17x		—
S18, S19	Tone control switches	—
S20	Mains switch, ganged R12	—

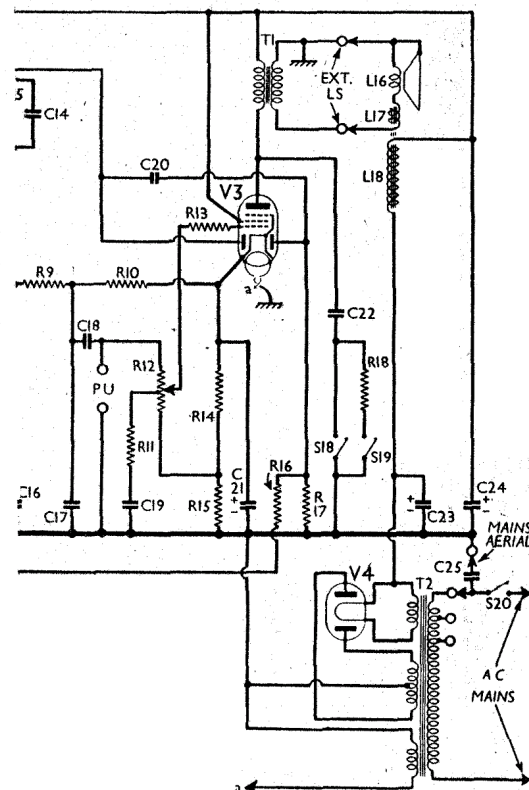
***Manual tuning only.**

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 227 V, using the 216-235 tapping on the mains transformer. 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 400 V scale of a model 7 Universal Avometer, chassis being negative.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 6X4	215	1.2	82	1.2
V2 6X4	100	4.8	—	—
V3 6X4	215	11.0	215	3.7
V4 6X4	205	21.0	215	3.9
V5 6X4	365†	—	—	—

† Each anode, AC.



Switches.—The eight buttons control the whole of the manual wavechange, manual/auto and auto-selector switches, which are mounted in a double-sided unit behind the front of the chassis. This unit is indicated in our under-chassis view, and both sides are shown in diagrammatic form in cols. 5 and 6. The upper view in this diagram shows the side of the unit seen when looking at the underside of the chassis, while the lower view shows the side nearer the chassis deck, as seen when the switch unit is unbolted from the front of the chassis, turned over, and viewed from the front of the underside of the chassis.

Each button controls switches with two different numbers, and various suffixes. Thus the SW manual button controls **S1a, b, x** and **S10a, b, x**; the LW manual button controls **S3a** and **S12a, b**.

The purposes of the various switches are given in the Other Components table, while their position and operation are explained in the Circuit Description.

It is important to note that when any button is depressed the "a" and "b" switches associated with it *close*, while the x switches *open*, and vice-versa.

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S20 is the QMB mains switch, ganged with the volume control **R12**.

Coils.—**L1, L3** and **L2, L4, L5** are in two unscreened tubular units on the chassis deck, each supporting an associated trimmer. **L6, L9** and **L7, L8, L10, L11** are in two unscreened tubular units beneath the chassis, the latter supporting two trimmers.

L3 and **L9** are the thick wire windings in their respective units.

The first IF transformer **L12, L13** is unscreened, and mounted on the chassis deck, while the second, **L14, L15**, is a similar unit beneath the chassis. These transformers are fixed-tuned by suitable condensers mounted on them.

L19-L23 are the oscillator circuit auto-tuning coils, one being associated with each of the five pre-set station buttons. They are mounted in a row beneath the chassis. **L19, L20** and **L21**, associated with buttons 1, 2 and 3, are for MW use in models 570A, B, C and D, while **L22** and **L23** (buttons 4 and 5) are for LW use. In 570 S models, the arrangement may be different, these sets being non-standard.

Each of these five coils has an adjustable iron core for permeability tuning to the correct frequency for the required station, the adjusting screws being indicated in our under-chassis view.

External Speaker.—Two sockets are provided at the rear of the chassis to take the leads from the internal speaker. If an external speaker is to be used as well, a 2 O type should be plugged into the socketed plugs of the internal speaker. If the external speaker only is required, the internal speaker plugs are removed and the external speaker plugged directly into the sockets in the chassis.

Internal Speaker.—In order that the speaker frame shall be directly earthed, the black lead should be in the top socket (nearer the chassis deck).

Scale Lamps.—These are two Rival MES types, rated at 6.2 V, 0.3 A.

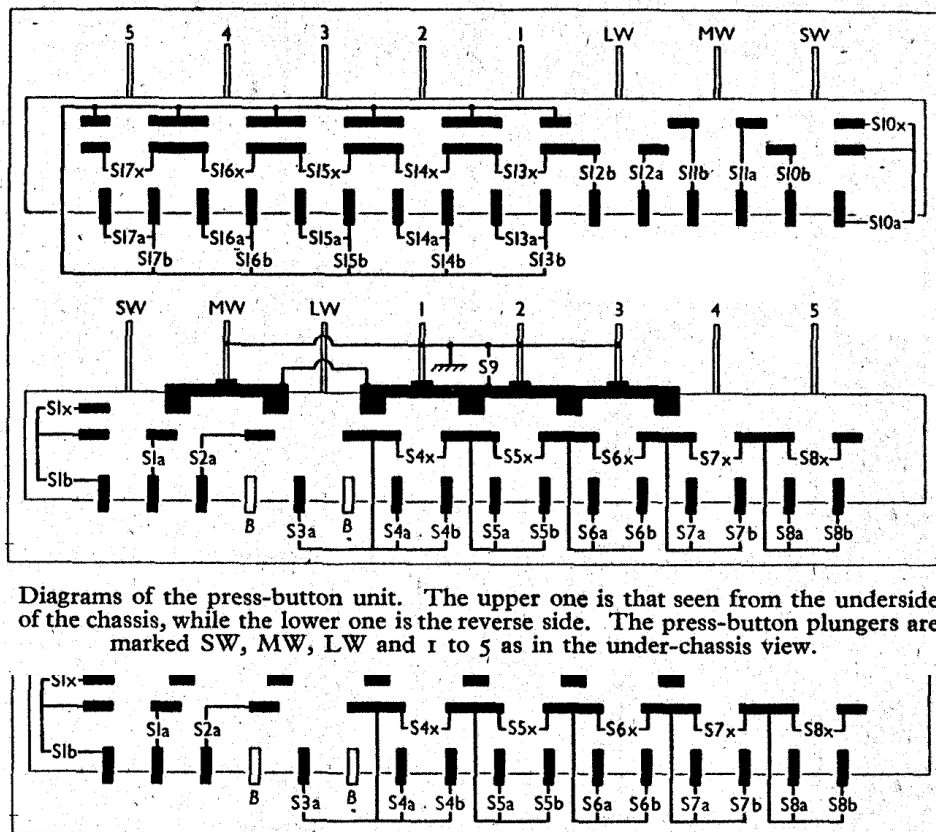
Condensers C23, C24.—These are two dry electrolytics (550 V peak) in a single carton beneath the chassis, having a common negative (black) lead. The yellow lead is the positive of **C23** (8 μ F) and the red the positive of **C24** (16 μ F).

Chassis Divergencies.—**R1** and **R6**, and **C1, C9** are not in the maker's diagram.

CIRCUIT ALIGNMENT

IF Stages.—The transformers are permanently adjusted at the works, and must not be altered.

RF and Oscillator Stages.—See that the scale is correctly fitted. The cross in the



Diagrams of the press-button unit. The upper one is that seen from the underside of the chassis, while the lower one is the reverse side. The press-button plungers are marked SW, MW, LW and 1 to 5 as in the under-chassis view.

Diagrams of the press-button unit. The upper one is that seen from the underside of the chassis, while the lower one is the reverse side. The press-button plungers are marked SW, MW, LW and 1 to 5 as in the under-chassis view.

middle of it must be over the centre of the spindle, and the bottom edge of the scale must be horizontal. With gang at maximum, pointer should be horizontal. Connect signal generator to A and E sockets.

MW.—Switch set to MW by pressing MW manual button. Tune to 250 m on scale, feed in a 250 m (1,200 KC/S) signal, and adjust **C29**, then **C27**, for maximum output.

LW.—Switch set to LW by pressing LW manual button. Tune to 1,200 m on scale, feed in a 1,200 m (250 KC/S) signal and adjust **C30** for maximum output.

SW.—Switch set to SW by pressing SW manual button. Feed in a 14 m (21.4 MC/S) signal and tune it in. Calibration should be correct, but if it is not, slightly adjust the top end turn of **L9**, as there is no oscillator trimmer on this band. Then adjust **C26** for maximum output. Check at 50 m (6 MC/S).

PRE-SET STATIONS

The five buttons numbered 1 to 5 control pre-set stations, buttons 1 to 3 being for MW stations, and 4 and 5,

LW stations. The wavelength coverages for the various buttons in models 570 A, C and B, D are in the table below. Models with the suffix S are specials, with different coverages.

Button	570 A 570 C	570 B 570 D
1	203- 300 m	203- 300 m
2	203- 300 m	380- 540 m
3	290- 420 m	380- 540 m
4	1,100-1,450 m	1,100-1,450 m
5	1,400-1,900 m	1,400-1,900 m

Adjustment of any particular station setting, or station changing (within the limits of the waveband coverage of each button) is achieved by adjusting the iron core of the associated oscillator coil in the group **L19-L23**, and the associated trimmer in the group **C32-C36**, either to the station itself, or to a signal generator accurately adjusted to the correct wavelength. In any case it is desirable to make final adjustments on the actual station.

Note that turning a core adjusting screw clockwise increases the wavelength. The same, of course, applies to the pre-set condenser adjusting screws.