

Diagram of the waveband switch unit drawn as seen from the rear of the chassis.

## INVICTA - 200

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 12K8GT	82	1.5	64	3.3
V2 12C8GT	43	1.1	64	0.6
V3 35L6GT	56	2.5	82	1.7
V4 35Z4GT†	234	—	—	—

† Cathode to chassis, 245 V, D.C.

### DRIVE CORD REPLACEMENT

Two cords are employed: the cursor drive, and the permeability-tuning drive.

The course of the cursor drive cord is indicated in our rear view of the chassis deck, where it is seen with the tuning knob turned fully clockwise. The nylon braided glass cord is first looped at each end, when it should measure 23½ in. if stretched between two pins, and then the frayed ends should be dipped in a suitable cement to prevent the glass core from pulling back inside the nylon braiding. The cord must be fitted as indicated, passing over the groove nearer to the chassis in the case of each of the four idler pulleys.

The course of the permeability-tuning drive

CAPACITORS		Values (μF)	Location
C1	Earth isolator ...	0.01	C4
C2	Aerial coupling ca- pacitors ...	0.0003	A4
C3	Aerial L.W. trim...	0.0005	A4
C4	A.V.C. decoupling	0.001	A4
C5	1st I.F. transformer	0.1	H9
C6	tuning ...	0.00006	A1
C7	V1 osc. C.G.	0.0001	J7
C8	V1 cath. by-pass ...	0.05	I7
C9	Osc. L.W. trim...	0.0001	A3
C10	Reaction coupling	0.0004	J6
C11	capacitors ...	0.0004	J7
C12	V2 C.G. I.F. by- pass ...	0.0003	I6
C13	S.G.'s decoupling ...	0.1	H5
C14	A.V.C. coupling ...	0.00005	G6
C15	2nd I.F. trans- former tuning ...	0.00006	B2
C16	A.F. coupling ...	0.01	E7
C17	I.F. by-passes ...	0.0001	F6
C18	A.F. coupling ...	0.0001	G5
C19	V3 cath. by-pass ...	0.001	F6
C20	H.T. smoothing ca- pacitors ...	50.0	F5
C21	H.T. smoothing ca- pacitors ...	16.0	D2
C22	Mains R.F. by- passes ...	16.0	D2
C23	Aerial M.W. trim...	0.1	B4
C24		0.1	C3
C25		0.00008	A3

\* Electrolytic.

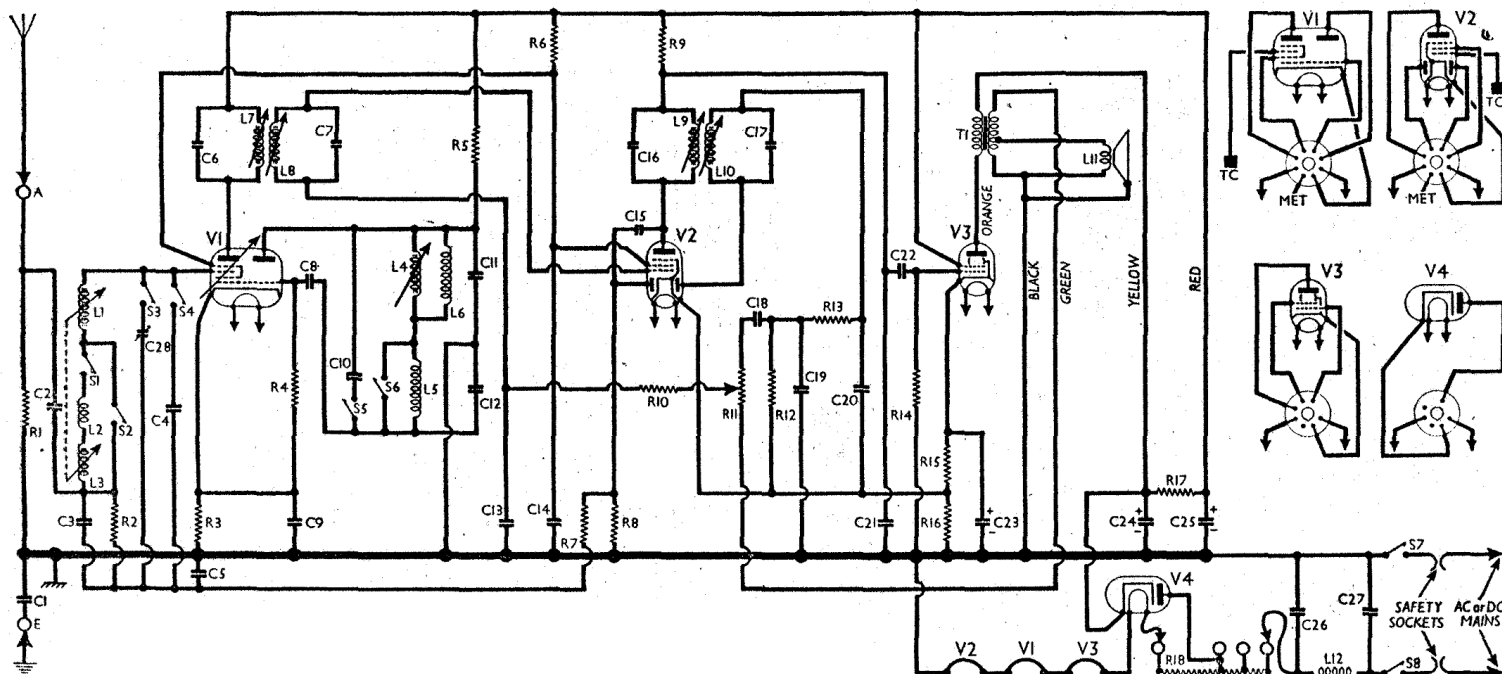
† Pre-set.

RESISTORS		Values (ohms)	Location
R1	Aerial shunt ...	500,000	A4
R2	Aerial coupling ...	47,000	I9
R3	V1 fixed G.B. ...	830	J7
R4	V1 osc. C.G. ...	47,000	J6
R5	Osc. H.T. feed ...	33,000	I6
R6	S.G.'s H.T. feed ...	4,700	H5
R7	A.V.C. decoupling	1,000,000	G6
R8	A.V.C. diode load ...	1,000,000	G6
R9	V2 pent. anode load	10,000	F6
R10	I.F. stopper ...	470,000	H6
R11	Volume control ...	600,000	C3
R12	Signal diode load ...	470,000	F6
R13	I.F. stopper ...	47,000	F5
R14	V3 C.G. resistor ...	220,000	E6
R15	V2, V3 G.B. and A.V.C. delay re- sistors	100	F7
R16		100	F8
R17	H.T. smoothing ...	15,000	D1
R18	Heater ballast ...	880*	B3

\* Tapped at 750 Ω + 65 Ω + 65 Ω from V4 heater.

OTHER COMPONENTS		Approx. Values (ohms)	Location
L1	M.W. tuning coil ...	11.5	J8
L2	L.W. loading coil ...	10.0	I9
L3	L.W. tuning coil ...	10.0	J8
L4	Osc. tuning coil ...	6.8	I7
L5	L.W. loading coil ...	7.5	J8
L6	M.W. tracking coil	10.5	A3
L7	1st I.F. trans. { Pri.	20.0	A1
L8		20.0	A1
L9	2nd I.F. trans. { Pri.	20.0	B2
L10		20.0	B2
L11	Speech coil ...	3.0	B4
L12	Mains R.F. filter ...	3.7	D1
T1	Speaker/ { Pri.	450.0	D1
	trans. { Spkr. sec.	0.6	D1
		2.7	D1
S1-S6	W/band switches ...	—	A3
S7, S8	Mains sw, g'd R11 ...	—	C3

Intermediate frequency 465 kc/s.



cord is indicated in our front view of the chassis deck, where it is seen with the tuning knob turned fully clockwise

The cord should be fitted by inserting one core into the right-hand end of each former. The end of the cord associated with L4 core should be passed over the groove farther from the chassis on the idler pulley, and then taken once round the drive wheel and anchored in the slot provided, with the knot facing the chassis deck. The end of the cord associated with L1, L3 core should be passed for half a turn clockwise round the drive wheel, pulled to take up any slack, and then anchored in the slot provided, with the knot facing the control knob. When the cord has been fitted the left-hand end of L4 core should be flush with the left-hand end of its former, and the right-hand end of L1, L3 core should be flush with the right-hand end of its former. Finally, the cord should be cemented in the drive wheel slots.

### CIRCUIT ALIGNMENT

**I.F. Stages.**—Switch set to M.W., tune to 560 m on scale, turn volume control to maximum, and connect signal generator, via an 0.1 μF capacitor, to control grid (top cap) of V1 and the E socket, removing the existing top cap connector but connecting a 500,000 Ω resistor between the top cap of the valve and the A.V.C. line. Feed in a 465 kc/s (645.16 m) signal and adjust the cores of L10, L9, L8 and L7 (location references B2, F6, A1, H6) for maximum output.

**R.F. and Oscillator Stages.**—With the tuning control turned fully clockwise the cursor should coincide with the high wavelength ends of the scales. Transfer "live" signal generator lead to A socket, via a suitable dummy aerial.

**M.W.**—With set still switched to M.W., tune to 193.6 m (spot on scale), feed in a 193.6 m (1,550 kc/s) signal and slide the former carrying L4 (I7) back and forth in its supports, after loosening the compound which normally fixes it in position, until maximum output is obtained. Then adjust C28 (A3) for maximum output.

Tune to 300 m on scale, feed in a 300 m (1,000 kc/s) signal, and adjust the position of L1 (J8) for maximum output. Repeat these operations until optimum results are obtained and then reseat the coil formers in position.

**L.W.**—Switch set to L.W., tune to 1,200 m on scale, feed in a 1,200 m (250 kc/s) signal, and check calibration. Tune to 1,067 m (spot on scale), feed in a 1,667 m (180 kc/s) signal, and check calibration. If any errors are present they will, in all probability, be due to incorrect M.W. alignment or a change in the capacity of the L.W. fixed trimmer C10, or the Colpitts reaction capacitors C11, C12.