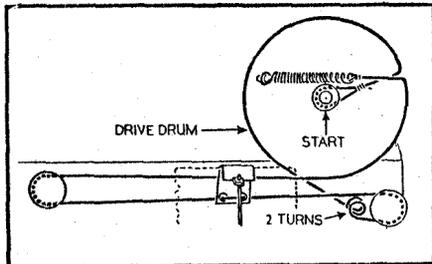


# INVICTA - 20

**Chassis Divergencies.**—In a few early receivers, C2 will be 0.000047  $\mu$ F (47 pF) instead of



Sketch showing the tuning drive system, as seen from the front when the gang is at maximum capacitance.

0.000022  $\mu$ F. Although some receivers are fitted with a carrying handle on top, most of them are not.

**Drive Cord Replacement.**—This requires about 50 inches of cord (Cutty Hunk fishing twine will do) which should be fitted as shown in the sketch above, where the system is viewed from the front of the chassis with the gang at maximum.

Valves	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 DK32	85	0.5	31	1.0
V2 DF33	85	1.6	85	0.2
V3 DAC32	7.5	0.04	—	—
V4 DL35	81	4.7	85	1.0

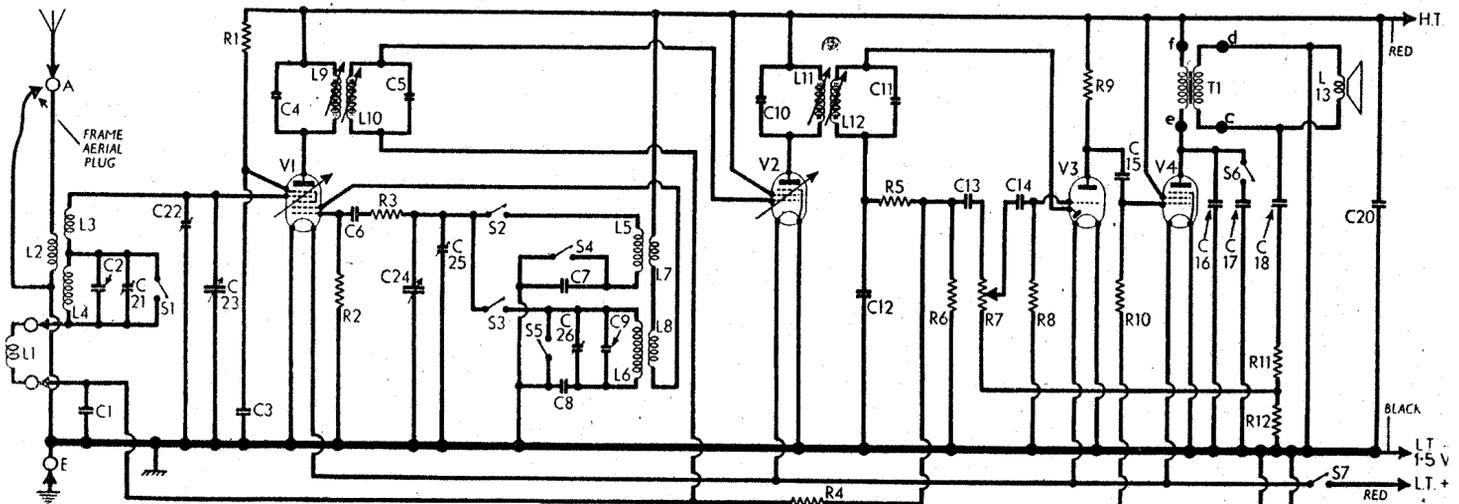
CAPACITORS		Values ( $\mu$ F)	Locations
C1	A.G.C. decoupling	0.05	G4
C2	Aerial L.W. trim ...	0.000022	B1
C3	V1 S.G. decoup. ...	0.05	H3
C4	1st I.F. trans- former tuning	0.00007	A2
C5	V1 osc. C.G. ...	0.00015	H3
C6	Osc. M.W. tracker...	0.00056	G3
C7	Osc. L.W. tracker...	0.00018	G3
C8	Osc. L.W. trimmer	0.000047	H3
C9	2nd I.F. trans- former tuning	0.00007	B2
C10	L.F. by-pass ...	0.0001	G4
C11	A.F. coupling capacitors	0.01	F4
C12	A.F. coupling capacitors	0.005	F4
C13	A.F. coupling capacitors	0.01	G3
C14	Tone corrector ...	0.005	F3
C15	Tone control ...	0.01	D3
C16	F.-B. coupling ...	0.05	B3
C17	V4 G.B. by-pass ...	50.0	G3
C18	H.T. reservoir ...	1.0	B1
C19*	Aerial L.W. trim	0.00003	B1
C20†	Aerial M.W. trim	0.00003	B1
C21†	Aerial tuning	0.0005	A2
C22†	Oscillator tuning	0.0005	A1
C23†	Osc. M.W. trim	0.00003	H4
C24†	Osc. L.W. trim	0.00003	H3
C25†	Osc. L.W. trim	0.00003	H3
C26†	Osc. L.W. trim	0.00003	H3

RESISTORS		Values (ohms)	Locations
R1	V1 S.G. H.T. feed	47,000	H4
R2	V1 osc. C.G. ...	100,000	H4
R3	Osc. stabilizer ...	2,200	H4
R4	A.G.C. decoupling	5,000,000	G4
R5	I.F. stopper ...	22,000	F4
R6	Diode load ...	560,000	F4
R7	Volume control ...	1,000,000	D3
R8	V3 grid resistor	5,000,000	F4
R9	V3 triode load ...	560,000	F4
R10	V4 C.G. resistor...	1,000,000	F3
R11	Negative feed- back potential divider	22,000	D3
R12	Negative feed- back potential divider	4,700	D3
R13	V4 G.B. resistor	680	G3
R14	Filament ballast	2	E3

OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	Frame aerial ...	0.6	—
L2	Aerial coupling ...	68.0	B1
L3	Aerial tuning coils	2.2	B1
L4	Aerial tuning coils	13.0	B1
L5	Oscillator tuning coils	2.0	G3
L6	Oscillator tuning coils	4.0	G3
L7	Oscillator reaction coils	180.0	G3
L8	Oscillator reaction coils	total	G3
L9	1st I.F. trans. { Pri. ...	10.0	A2
L10	1st I.F. trans. { Sec. ...	9.0	A2
L11	2nd I.F. trans. { Pri. ...	10.0	B2
L12	2nd I.F. trans. { Sec. ...	9.0	B2
L13	Speech coil	3.0	—
T1	Output trans { Pri. ...	640.0	F3
	Output trans { Sec. ...	0.1	—
S1- S5	W/bandswitches ...	—	H3
S6	Tone switch ...	—	D3
S7	L.T. circ. switch ...	—	D3

Intermediate frequency 465 kc/s.

\* Electrolytic † Variable ‡ Pre-set



## CIRCUIT ALIGNMENT

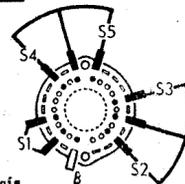
Before removing chassis from cabinet to carry out the operations described below, check that with the gang closed the cursor coincides with the 550 m calibration mark on the scale. It may be adjusted in position by slackening the two drive drum screws and rotating the drum on its spindle. Next, tune to 1,200 m on scale and mark the position of the left-hand edge of the cursor carriage in pencil on the rear of the scale backing plate, and repeat this operation at 200 m on scale.

**I.F. Stages.**—Switch set to M.W., turn gang and volume control to maximum, connect signal generator (via an 0.1  $\mu$ F capacitor in the "live" lead) to control grid (top cap) of V1 and the E socket, feed in a 465 kc/s (645 m) signal, and adjust the cores of L12, L11, L10, L9 (location references B2, F4, A2, H4) for maximum output.

**R.F. and Oscillator Stages.**—Set up the chassis with the frame aerial in its correct position, and couple signal generator by means of a few turns of wire set up on the bench at a short distance from the frame winding.

**M.W.**—With set still switched to M.W., turn gang until the left-hand edge of the cursor carriage coincides with the 200 m pencil mark on the scale backing plate, feed in a 200 m (1,500 kc/s) signal, and adjust C25 (H4) and C22 (B1) for maximum output.

**L.W.**—Switch set to L.W., tune to 1,200 m pencil mark on scale backing plate, feed in a 1,200 m (250 kc/s) signal, and adjust C26 (H3) and C21 (B1) for maximum output.



**Switches.**—S1-S5 are the waveband switches in a single rotary unit beneath the chassis. The unit is indicated in our under-chassis view, and shown in detail in the diagram inset above, where it is viewed from the rear of an inverted chassis. In the M.W. (anti-clockwise) position of the control knob, S1, S2 and S5 close; in the L.W. position, S3 and S4 close.

S6 is the tone control switch, in a small two-position rotary unit beneath the chassis. S7 is the Q.M.B. L.T. circuit switch, ganged with the volume control R7.

