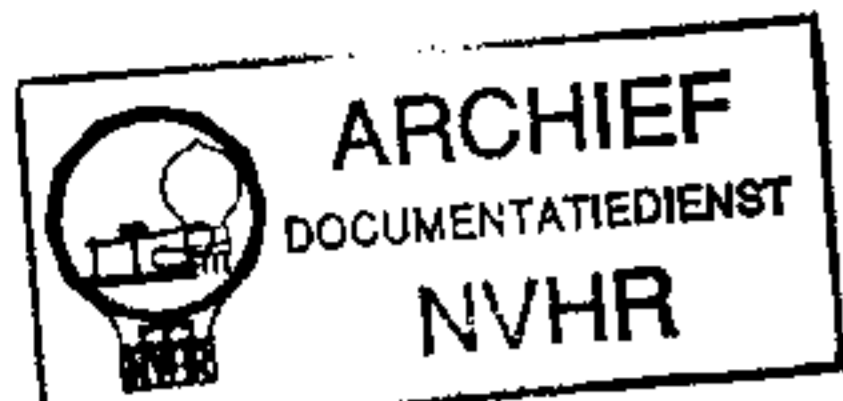
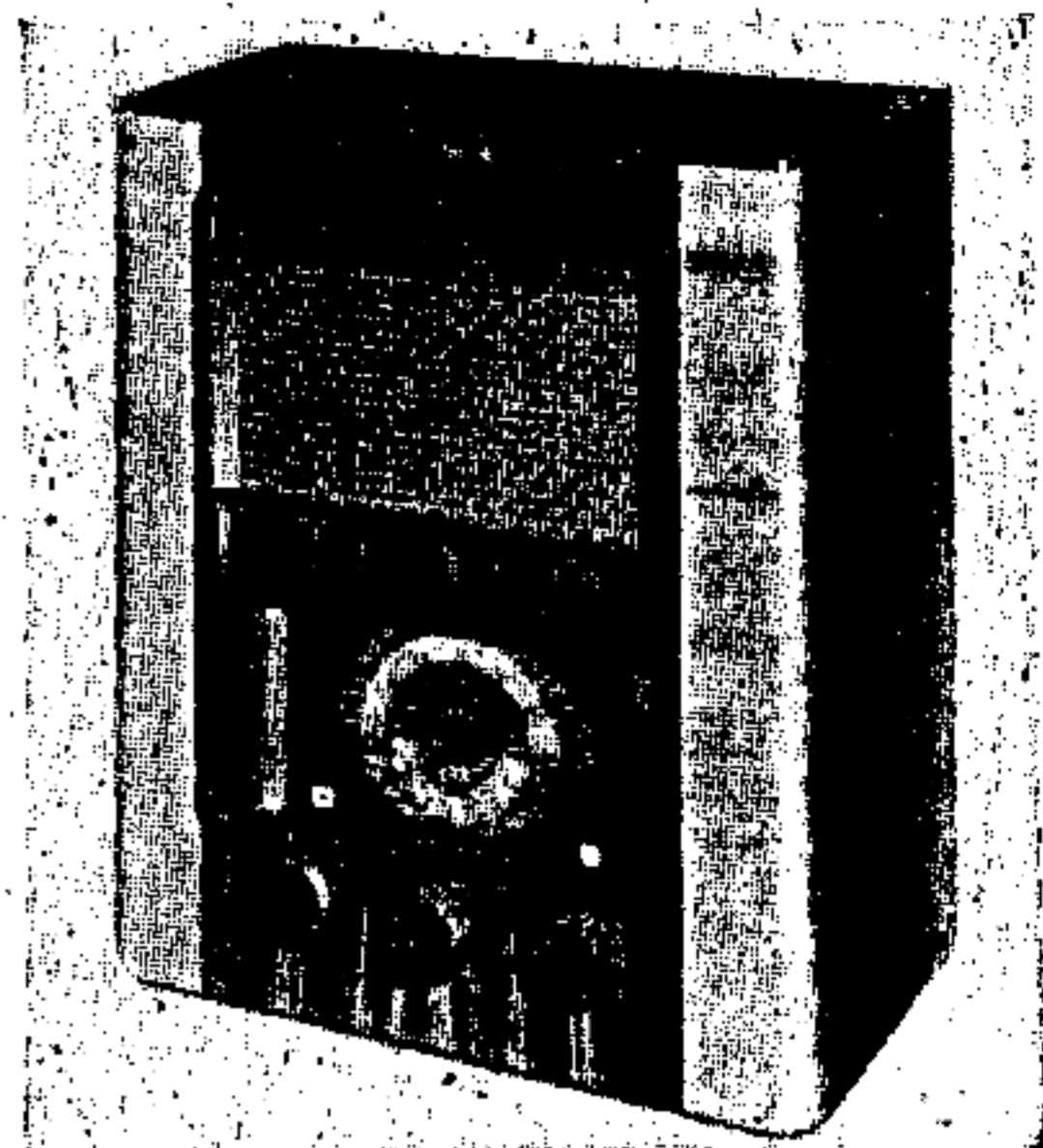


Ned. Ver. v. Historie v/d Radio



BURNDEPT 266

AND VIDOR 275



The Burndept 266 4-band superhet.

REVISED ISSUE OF SERVICE SHEET No. 239

TWO SW ranges, 15-51m (referred to here as SW1) and 50-180m (referred to as SW2) are covered in the Burndept 266 5-valve 4-band battery superhet.

The Vidor 275 employs an identical chassis, but this Service Sheet was prepared from a Burndept 266.

Release date, both models, 1937.
Original prices: Burndept 266, £11 0s. 6d. complete with batteries; Vidor 275, £8 8s. without batteries.

CIRCUIT DESCRIPTION

Aerial input is via coupling coils L1, L3, L5 and L7 to single-tuned circuits L2, C22 (SW1), L4, C22 (SW2), L6, C22 (MW) and L8, C22 (LW), which precede variable-mu RF hexode valve (V1, Mullard Metallised VP2B) operating as mixer, with suppressor grid injection, with separate triode oscillator valve (V2, Gossor metallised 210 DET).

Oscillator grid coils L9 (SW1), L11 (SW2), L13 (MW), L15 (LW) are tuned by C23; parallel trimming by C24, C25, C26 and C6, C27 respectively; series tracking by C7, C28, C29 and C30 respectively. Reaction coupling by coils L10 (SW1), L12 (SW2), L14 (MW) and L16 (LW).

Third valve (V3, Mullard metallised VP2B) operates as pentode intermediate frequency amplifier with tuned coupling transformers C31, L17, L18, C32 and C33, L19, L20, C34.

Intermediate frequency 473 kc/s.
Diode second detector is part of double diode triode valve (V4, Mullard metallised TDD2A). Audio frequency component in rectified output is developed across load resistor R8 and passed via IF filter C9, R9, C11, AF coupling capacitor C12 and manual volume control R10 to CG of triode section. Provision for connection of gramophone pick-up across R10.

Second diode of V4, fed from V3 anode via C10, provides DC potentials which are developed across load resistors R12, R13 and fed back through decoupling circuits as GB to mixer and IF stages, giving automatic volume control.

Resistance-capacitance coupling by R11, C14 and R14 between V4 triode and pentode output valve (V5, Mullard PM22A). Provision for connection of high impedance external speaker in anode circuit. Fixed tone correction by C15 in anode circuit. HT circuit RF filtering by C3, C4 (HT+1) and C16, C17 (HT+2).

VALVE ANALYSIS

Valve voltages and currents in the table (next, col.) are those measured in our receiver when it was operating with a new HT battery reading 138 V on the HT section on load. The receiver was tuned to the lowest wavelength on the MW band and the volume control was at maximum, but there was no signal input.

Switch Table

Switches	Gram. (G)	SW1 (1)	SW2 (2)	MW (3)	LW (4)
S1	—	○	—	—	—
S2	—	—	○	—	—
S3	—	—	—	○	—
S4	—	—	—	—	○
S5	—	○	—	—	—
S6	—	—	○	—	—
S7	—	—	—	○	—
S8	—	—	—	—	○
S9	○	—	—	—	—
S10	—	○	—	—	—
S11	—	—	○	—	—
S12	—	—	—	○	—
S13	—	—	—	—	○
S14	○	—	—	—	—
S15	—	○	—	—	—
S16	—	—	○	—	—
S17	—	—	—	○	—
S18	—	—	—	—	○

Voltages were measured on the 1,200 V scale of an Avometer, chassis being negative.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 VP2B	138	0.7	55	0.9
V2 210DET	138	5.3	—	—
V3 VP2B	138	1.7	55	0.6
V4 TDD2A	78	0.5	—	—
V5 PM22A	133	5.2	138	0.8

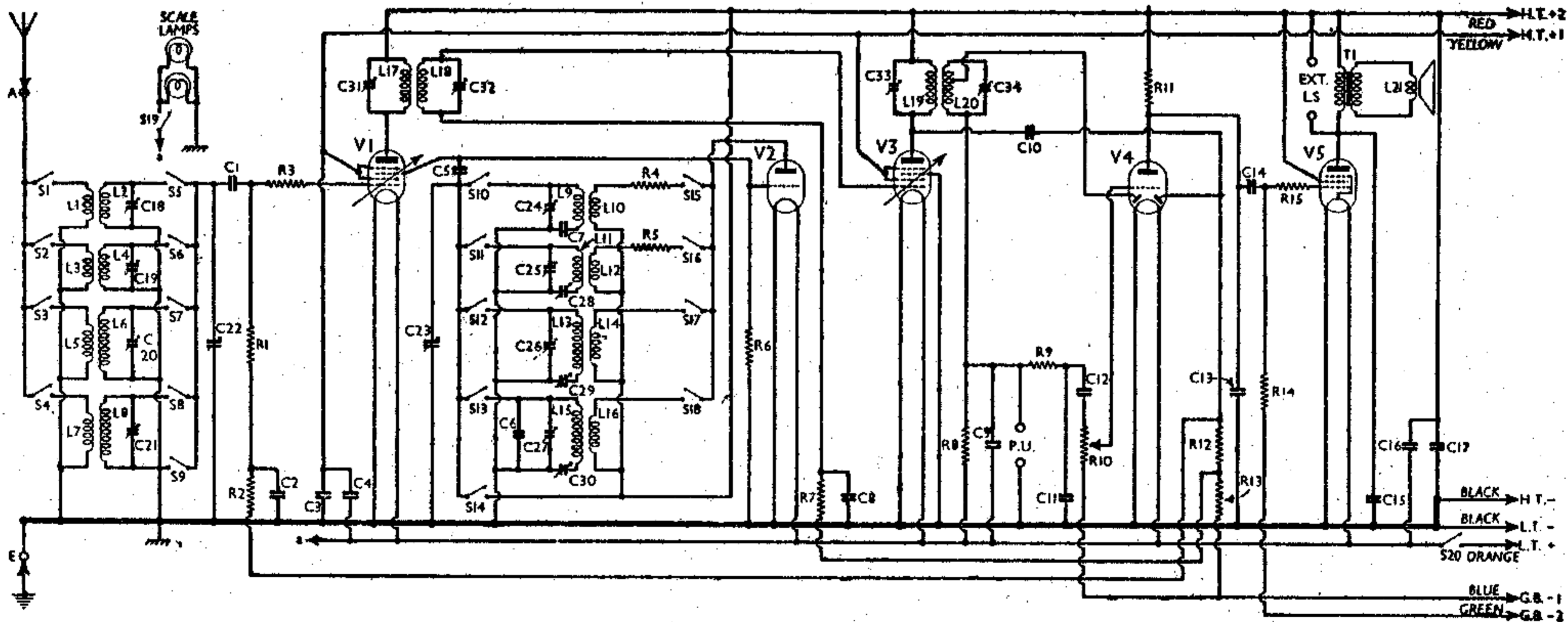
DISMANTLING THE SET

If the detachable bottom is removed (four countersunk wood screws) access may be gained to most of the components beneath the chassis.

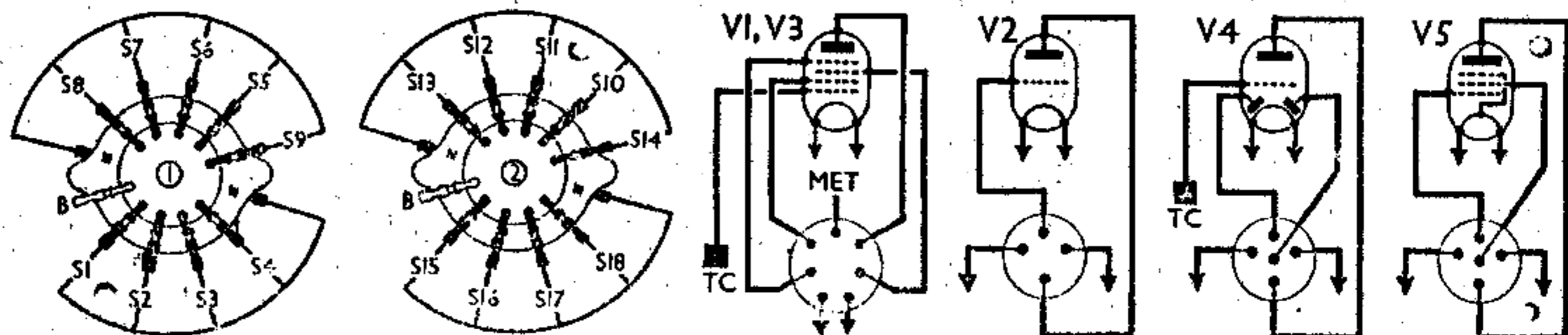
Removing Chassis.—Remove the three control knobs (recessed grub screws), unsoldering the scale lamp lead from the tag of S19 on the volume control knob; remove the four bolts (with washers) holding chassis to bottom of cabinet, first lifting felt pads covering heads of two rear bolts.

If the speaker leads are now freed from their cleats the chassis may be withdrawn sufficiently far for most purposes; or, if these are unsoldered, it can be freed entirely.

When replacing, do not omit to thread the



Circuit diagram of the Burndept 266 and Vidor 275 4-band battery superhets. Below (centre) are diagrams of the switch units as seen from the rear. In col. 2 (above) is the associated switch table.



scale lamp lead through the volume control aperture before fitting chassis in cabinet. Connect the two black speaker leads to the two tags on the transformer terminal strip, and the green one to one of the eyelets holding the strip to the transformer.

Removing Speaker.—Remove the nuts (with lock-washers) from the four screws holding speaker to sub-baffle.

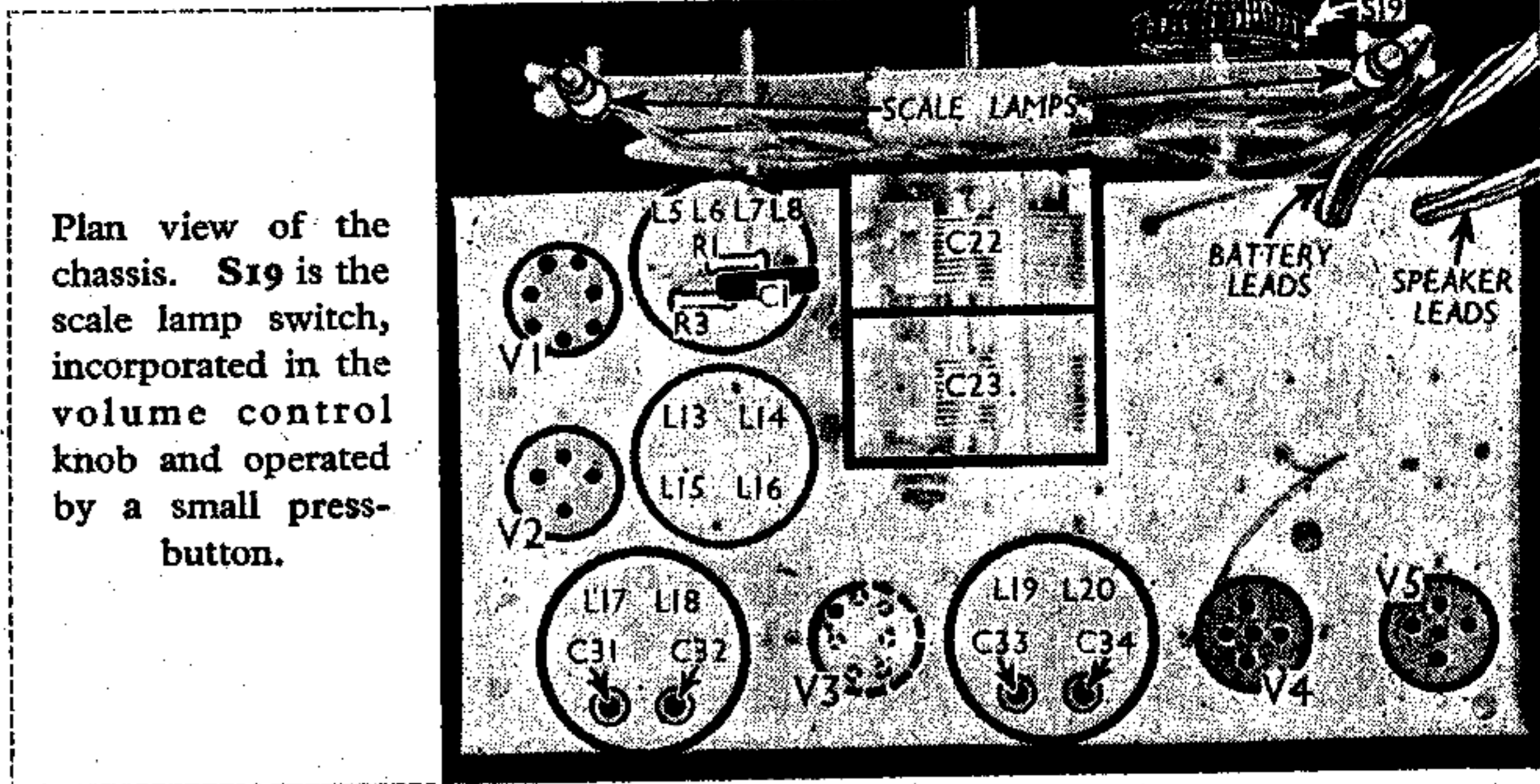
When replacing, the transformer goes on the left, and the leads are connected as described previously.

COMPONENTS AND VALUES

RESISTORS		Values (ohms)
R1	V1 CG resistor ...	500,000
R2	V1 CG decoupling resistor ...	500,000
R3	V1 CG stabiliser ...	50
R4	Osc. reaction damping resistors ...	50
R5		250
R6	V2 CG resistor ...	50,000
R7	V3 CG decoupling ...	500,000
R8	V4 signal diode load ...	500,000
R9	IF stopper ...	50,000
R10	Manual volume control ...	500,000
R11	V4 triode anode load ...	100,000
R12	V4 AVC diode load resistors ...	1,000,000
R13		500,000
R14	V5 CG resistor ...	1,000,000
R15	V5 CG IF stopper ...	50,000

CAPACITORS		Values (µF)
C1	V1 CG capacitor ...	0.0001
C2	V1 CG decoupling ...	0.1
C3	V1, V3 SG's decoupling ...	0.1
C4		0.1
C5	V2 CG capacitor ...	0.0001
C6	Osc. LW fixed trimmer ...	0.00004
C7	Osc. SW1 tracker ...	0.005
C8	V3 CG decoupling ...	0.1
C9	IF by-pass ...	0.0001
C10	Coupling to AVC diode ...	0.0001
C11	Fixed tone corrector ...	0.001
C12	Coupling to V4 triode ...	0.05
C13	IF by-pass ...	0.0005
C14	AF coupling to V5 ...	0.05
C15	Fixed tone corrector ...	0.001
C16	HT circuit RF by-pass capacitors ...	0.1
C17		0.25
C18†	Aerial SW 1 trimmer ...	—
C19†	Aerial SW 2 trimmer ...	—
C20†	Aerial MW trimmer ...	—
C21†	Aerial LW trimmer ...	—
C22†	Aerial circuit tuning ...	—
C23†	Oscillator circuit tuning ...	—
C24†	Osc. SW1 trimmer ...	—
C25†	Osc. SW2 trimmer ...	—
C26†	Osc. MW trimmer ...	—
C27†	Osc. LW trimmer ...	—
C28†	Osc. SW2 tracker ...	—
C29†	Osc. MW tracker ...	—
C30†	Osc. LW tracker ...	—
C31†	1st IF trans. pri. tuning ...	—
C32†	1st IF trans. sec. tuning ...	—
C33†	2nd IF trans. pri. tuning ...	—
C34†	2nd IF trans. sec. tuning ...	—

† Variable. ‡ Pre-set.



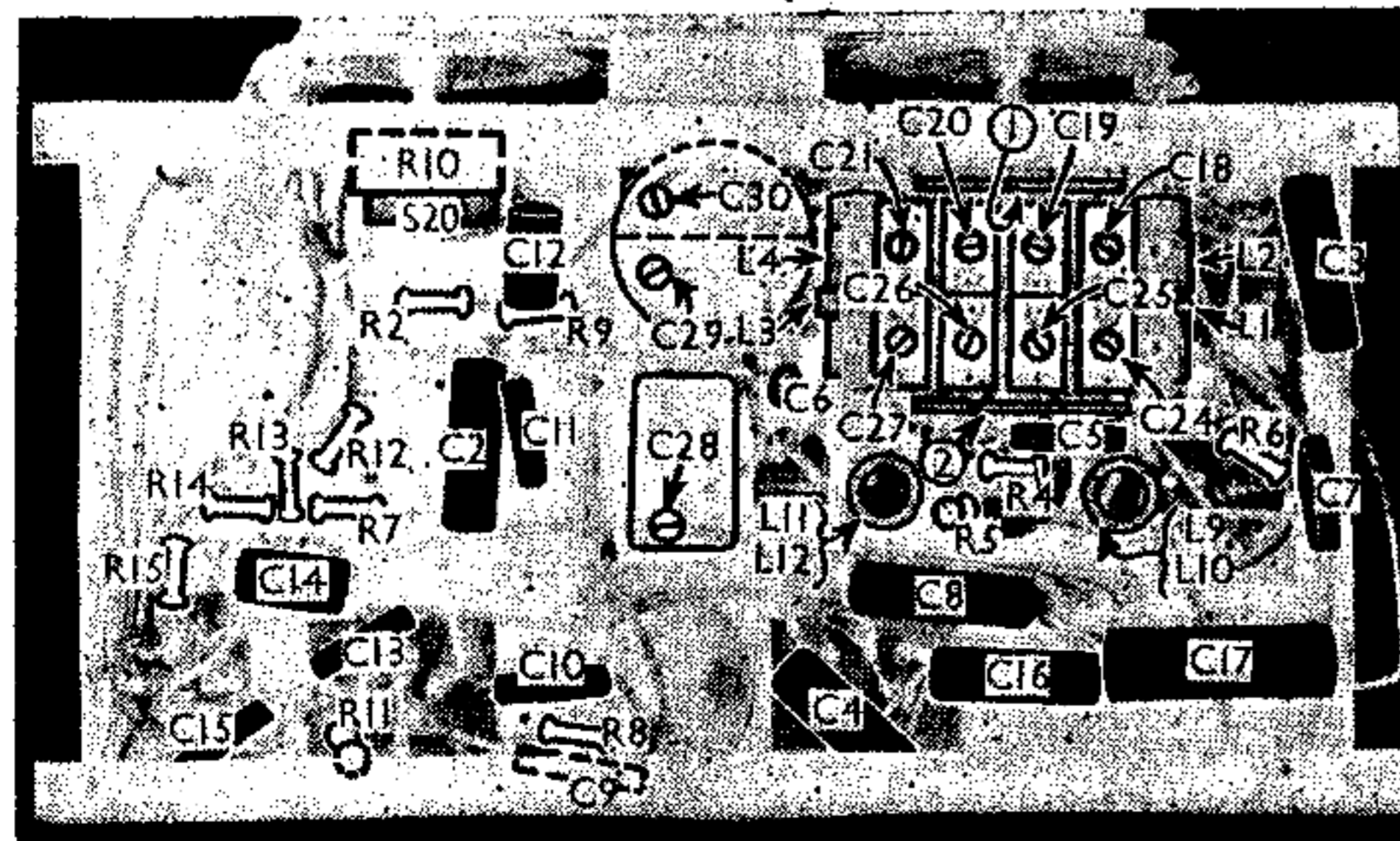
Plan view of the chassis. S19 is the scale lamp switch, incorporated in the volume control knob and operated by a small press-button.

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial SW1 coupling coil ...	1.4
L2	Aerial SW1 tuning coil ...	0.05
L3	Aerial SW2 coupling coil ...	0.4
L4	Aerial SW2 tuning coil ...	0.4
L5	Aerial MW coupling coil ...	1.2
L6	Aerial MW tuning coil ...	2.1
L7	Aerial LW coupling coil ...	100.0
L8	Aerial LW tuning coil ...	9.0
L9	Osc. SW1 tuning coil ...	0.05
L10	Osc. SW1 reaction ...	0.4
L11	Osc. SW2 tuning coil ...	0.3
L12	Osc. SW2 reaction ...	34.0
L13	Osc. MW tuning coil ...	3.8
L14	Osc. MW reaction ...	60.0
L15	Osc. LW tuning coil ...	4.6
L16	Osc. LW reaction ...	1.5
L17	1st IF trans. { Pri. ...	5.0
L18		{ Sec. ...
L19	2nd IF trans. { Pri. ...	5.0
L20		{ Sec., total ...
L21	Speaker speech coil ...	2.5
T1	Speaker input { Pri. ...	700.0
	{ Sec. ...	0.4
S1-S18	Waveband switches ...	—
S19	Scale lamp switch ...	—
S20	LT switch, ganged R10 ...	—

GENERAL NOTES

Switches.—S1-S18 are the waveband and radio/gramophone switches, ganged in two five-position rotary units, indicated either side of the coil and trimmer assembly in our under-chassis view and shown in detail in the diagrams beneath the circuit diagram overleaf.

The table (col. 2 overleaf) gives the switch positions for the five control settings, starting from gram and turning the control clockwise. A dash indicates open, and C, closed. Actually there are eighteen more switches, formed by an earthed metal plate on each unit, which makes to all contacts that are not in use.



Under-chassis view. Most of the SW tuning components are grouped with the trimmer bank between the two waveband switch units, which are indicated by numbers in circles and arrows. Diagrams of the switch units appear beneath the circuit overleaf.

but these are omitted from our diagrams for the sake of clarity.

S19 is the scale lamp switch, incorporated in the volume control knob. It closes only while its button is being pressed.

S20 is the QMB LT circuit switch, ganged with the volume control R10.

Coils.—L1, L2; L3, L4; L9, L10 and L11, L12 are on four tubular unscreened units beneath the chassis. L5-L8, L13-L16, and the IF transformers L17, L18 and L19, L20 are in four screened units on the chassis deck.

Scale Lamps.—These are two Osram MES types, rated at 2.5 V, 0.2 A. They are switched in circuit by S19.

External Speaker.—Two sockets are provided at the rear of the chassis for a high impedance 18,000-20,000Ω external speaker.

Batteries.—LT, 2 V cell; HT and GB, Vidor combined HT and GB battery, 135 V HT plus 9 V GB (Type L5014-18496).

Battery Leads and Voltages.—Black lead, spade tag, LT negative; orange lead, red spade tag, LT positive 2 V; black lead and plug, HT negative; yellow lead and plug, HT positive 1, + 54 V; red lead and plug, HT positive 2, + 135 V; blue lead and plug, GB negative 1, - 1.5 V; green lead and plug, GB negative 2, - 4.5 V.

CIRCUIT ALIGNMENT

For alignment the volume control should be at maximum. With the gang fully meshed the pointer should coincide with the two ends of the scales.

IF Stages.—Remove the grid connector from the top of V1, and connect signal generator to top cap of the valve and chassis, with a 250,000Ω resistor across these two points. Short-circuit C23.

Feed in a 473 kc/s (634.2 m) signal, and adjust C34, C33, C32 and C31 in that order for maximum output. Repeat with low signal input, and check by swinging generator from 468 to 478 kc/s, noting that resonance occurs exactly at 473 kc/s. Remove short from C23 and replace normal top cap of V1.

RF and Oscillator Stages.—Transfer signal generator to A and E sockets via a suitable dummy aerial on each band.

LW.—Switch set to LW, tune to 750 m on scale, feed in a 750 m (400 kc/s) signal, and adjust C27, then C21 for maximum output. Feed in a 2,000 m (150 kc/s) signal, tune it in on receiver, and adjust C30 for maximum output, rocking the gang slightly for optimum results. Re-trim C27 and C21 and re-track C30 until no further improvement results.

MW and SW2.—On the MW (3) band and SW2 (2) band a similar procedure is adopted. On MW, adjust C26 and C20 at 200 m (1,500 kc/s) and C29 at 550 m (545.4 kc/s). On SW2 adjust C25 and C19 at 50 m (6 Mc/s), and C28 at 170 m (1,765 kc/s).

SW1.—Switch set to band 1, tune to 13.5 m on scale, feed in a 13.5 m (22.22 Mc/s) signal, and adjust C24 and C18 for maximum output, replacing the dummy aerial with a 40 µF capacitor. There is no tracking adjustment.

Trimming is very critical on this band, and care must be taken to see that the pressure of the trimming tool is not affecting the process.