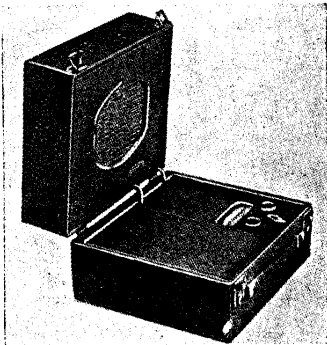


"TRADER" SERVICE SHEET

634

REVISED ISSUE OF SERVICE SHEET No. 289



The Burndept 274.

TWO RF hexodes are employed in the Burndept 274, a 3-valve, 2-band TRF portable receiver housed in a suitcase-type carrier in which front and rear apertures are provided in the lid for the speaker.

The Vidor 272 employs a similar chassis, but this Service Sheet was prepared from the Burndept version.

Release dates and original prices: Burndept 274, April, 1937; £7 2s. 6d.; Vidor 272, March, 1937, £6 19s. 6d., complete with batteries in each case.

CIRCUIT DESCRIPTION

Tuned frame aerial input L1, L2, C12 to RF hexode valve (V1, Mullard metallised VP2B) which operates as RF amplifier with fixed negative grid potential.

BURNDEPT 274

AND VIDOR 272

Tuned anode coupling by L5, L6, C15 between V1 and detector valve (V2, Mullard metallised VP2B), a second RF tetrode, operating on grid leak system with C4 and R2. Reaction is applied from anode by coils L3, L4 and controlled by variable condenser C13. RF filtering in anode circuit by C6, L7 and C7.

Resistance-capacity coupling by R4, C8 and R5, via RF stopper R6, between V2 and pentode output valve (V3, Cossor 220HPT). Fixed tone correction in anode circuit by condenser C9.

HT circuit decoupling by dry electrolytic reservoir condenser C3.

OTHER COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R1	V1 CG resistance ...	500,000
R2	V2 CG resistance ...	2,000,000
R3	V2 SG HT feed ...	500,000
R4	V2 anode load ...	250,000
R5	V3 CG resistance ...	500,000
R6	V3 CG RF stopper ...	100,000

CONDENSERS		Values (µF)
C1	V1 CG condenser ...	0.0001
C2	V1 SG decoupling ...	0.1
C3*	HT reservoir condenser ...	8.0
C4	V2 CG condenser ...	0.0001
C5	V2 SG decoupling ...	0.1
C6	V2 anode RF by-pass ...	0.0002
C7	V2 anode RF by-pass ...	0.0002
C8	V2 to V3 AF coupling ...	0.01
C9	Fixed tone corrector ...	0.001
C10†	Frame LW trimmer ...	—
C11†	Frame MW trimmer ...	—
C12†	Frame aerial tuning ...	—
C13†	Reaction control ...	0.0005
C14†	V1 anode LW trimmer ...	—
C15†	V1 anode tuning ...	—
C16†	V1 anode MW trimmer ...	—

OTHER COMPONENTS		Approx. Values (ohms)	
L1	Frame aerial windings ...	3.0	
L2		17.5	
L3		Reaction coils, total ...	5.25
L4			—
L5	RF MW tuning coil ...	2.25	
L6	RF LW tuning coil ...	19.5	
L7	V2 anode RF choke ...	170.0	
L8	Speaker speech coil ...	2.5	
T1	Speaker input (Pri. trans) ...	680.0	
S1, S2	Waveband switches ...	—	
S3	LT circuit switch ...	—	
S4	Scale lamp switch ...	—	

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating with an HT battery reading 108 V overall, on load. The receiver was tuned to the lowest wavelength on the MW band and the reaction control was at minimum, but there was no signal input as the frame connections were shorted.

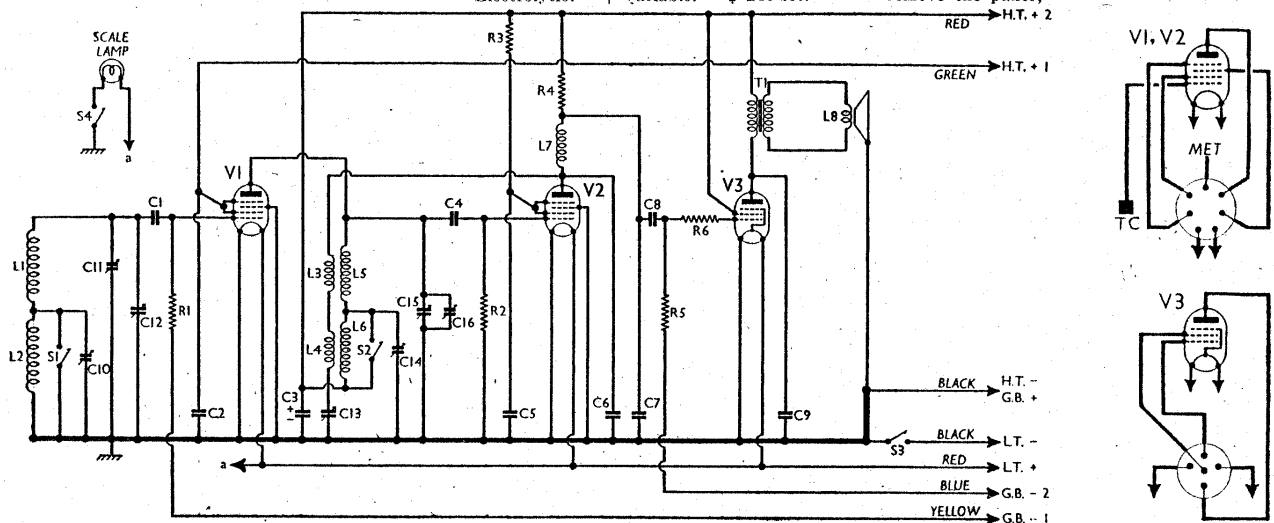
Voltages were measured on the 400 V scale of a model 7 Universal Avometer, chassis being negative.

If, as in our case, V1 should become unstable when its anode current is being measured, it can be stabilised by connecting a non-inductive condenser of about 0.1 µF from that electrode, or control grid (top cap), to chassis.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 VP2B	105	2.6	67	1.0
V2 VP2B	25	0.3	18	0.1
V3 220HPT	102	4.0	105	0.7

DISMANTLING THE SET

Removing Chassis.—Remove the valves, batteries and the partition between chassis and the battery compartment; remove the three control knobs (recessed grub screws) and the scale lamp switch knob (unscrew); remove the two round head screws holding the front of the control panel to the chassis, and remove the panel;



Circuit diagram of the Burndept 274 and Vidor 272 battery portable TRF receivers. Valve base diagrams are on the right.

* Electrolytic. † Variable. ‡ Pre-set.

remove the countersunk-head screws (with nuts) holding the chassis to the bottom of the cabinet, and the two round-head screws (with distance pieces) holding the front of the chassis to the wooden fillets in the cabinet; remove the cleat holding the frame aerial leads to the side of the cabinet (round-head screw). The chassis can now be withdrawn to the extent of the speaker and frame aerial leads, which should be sufficient for normal purposes.

To free the chassis entirely, unsolder the speaker and frame aerial leads. When replacing, connect the leads as follows, numbering the tags from top to bottom: right-hand panel: 1, black frame lead; 2, red; left-hand panel: 1, black speaker lead; 2, red; 3 (chassis) lead in yellow insulating sleeving.

Removing Frame Aerial.—To remove the frame aerial from the lid of the cabinet, remove the four countersunk-head wood screws holding it to the lid.

Removing Speaker.—Remove the frame aerial as described above, then unsolder the speaker leads and remove the nuts and lock washers from the three screws holding the speaker to the lid.

When replacing, connect the speaker to the outer tags on the transformer terminal panel and do not omit to replace the "earthing" lead on the tag on the bottom speaker fixing screw.

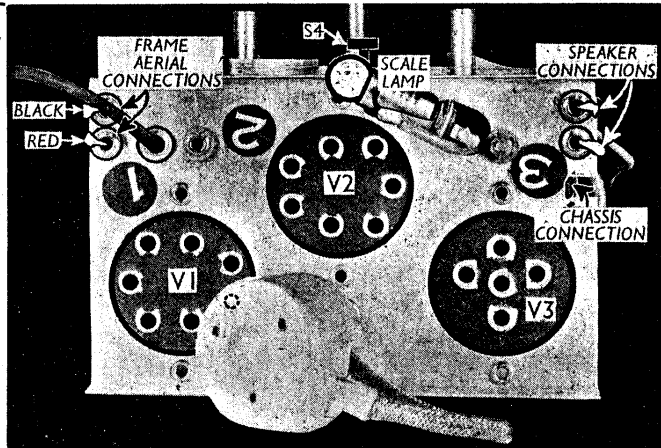
GENERAL NOTES

Switches.—S1, S2 are the waveband switches, in a simple form of rotary unit, which also contains the LT circuit switch S3, beneath the chassis. These switches are indicated in our under-chassis view. On MW, S1 and S2 are closed, and on LW they are open. S3 is closed on MW and LW, and open in the "off" position.

S4 is the scale lamp switch, of the screw type, just below the tuning scale.

Coils.—L1 and L2 are the frame aerial windings. The chassis end of L2 is connected to the speaker earthing lead which emerges from the lid with the two speaker wires. The junction of L1, L2 (black), and the top of L1 (red) are brought out

Plan view of the chassis. The frame aerial, speaker and earthing connections are all indicated. S4 is a screw type of switch.



by a cable, the ends of the leads being connected to the two tags marked "black" and "red" in our plan chassis view.

L3-L6 are in an unscreened unit beneath the chassis, the individual coils being indicated in our under-chassis view. The choke L7 is also beneath the chassis, just above C13.

Scale Lamp.—This is an MBS type, rated at 2.6 V, 0.3 A. It can be switched on or off by S4.

Trimmers.—C10 and C11, the frame aerial trimmers, are inside the frame aerial unit, and are adjusted by screws beneath the name tab on the speaker baffle. The screw to the right (looking at the front of the set) adjusts C11. C14 is mounted on a lug beneath the chassis,

while C16 is on the rear section of the gang condenser.

Batteries.—LT, Vidor 2 V, 16 AH celluloid-cased jelly-acid cell. HT and GB, special Vidor 108 V HT and GB battery, No. 17872. The socket marked blue is the negative end; that marked yellow is 1.5 V positive; that marked black, 3 V positive; that marked green, 72 V positive, and that marked red, 108 V.

Battery Leads and Voltages.—Black lead, black spade tag, LT negative black lead, red spade tag, LT positive 2 V; black lead and plug, HT negative and GB positive, in black socket; green lead and plug, HT positive 1, in green socket; red lead and plug, HT positive 2, in red socket; yellow lead and plug, GB negative 1, in yellow socket; blue lead and plug, GB negative 2, in blue socket.

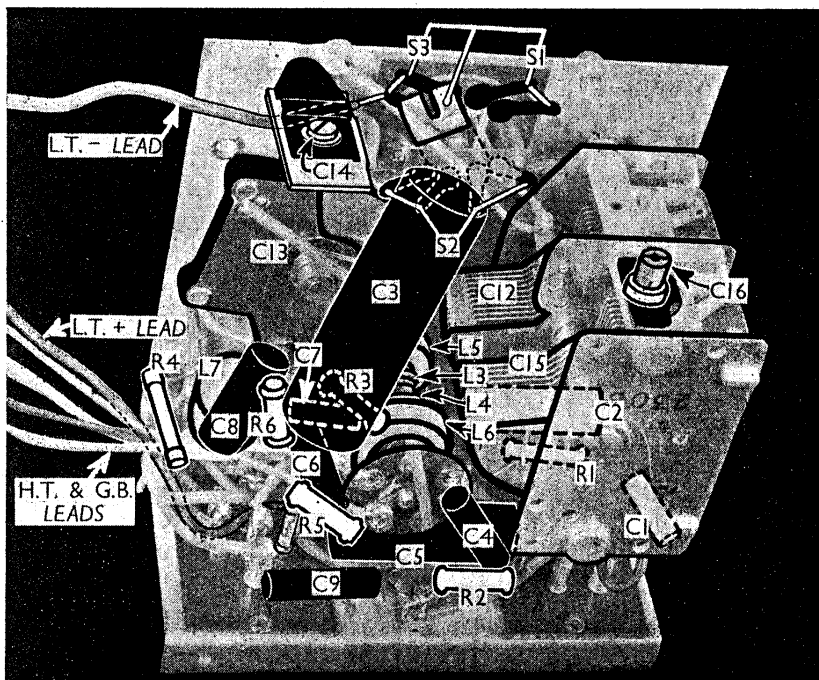
CIRCUIT ALIGNMENT

The signal generator must be coupled to the receiver by being connected to the ends of a 60-turn coil, which is stood on edge facing the frame aerial, and some distance from it.

Remove the knobs of the receiver and also the top cover of the chassis. Undo the bolts holding the chassis in the cabinet. Replace the knobs. See that pointer travels to last division on scale (580 m on MW) when gang is fully meshed. If not, adjust it by loosening grub screw holding the drum and rotating the drum.

MW.—Switch set to MW, tune to 270 m on scale, feed into the coupling coil a 270 m (1,100 kc/s) signal and advance the reaction control to a point just short of oscillation. Now adjust C16 for maximum output, reducing reaction if necessary to keep set stable. C11 (right hand screw under name tag on speaker baffle) should then be adjusted for maximum output, keeping reaction advanced to a point just short of oscillation. Check the calibration over the scale.

LW.—Switch set to LW, tune to 1,300 m on scale, feed in a 1,300 m (230 kc/s) signal, and adjust C14, then C10 (left hand screw under name tag on speaker baffle) for maximum output, keeping reaction advanced to a point just short of oscillation. Check calibration at various points on the scale.



Three-quarter view of the under-chassis compartment. R1, C1 and C2 are mounted behind the gang, and are shown here dotted through it. L7 is seen just below C13 in this view.