

BURNDEPT 270

AND VIDOR 268

A SIMPLE 3-valve battery-operated circuit is employed in the Burndept 270 4-band receiver, the two short-wave ranges being 13.5-48.5 metres (referred to below as S.W.1) and 75-210 metres (S.W.2). Two alternative aerial sockets are fitted, one having a pre-set aerial series condenser.

An identical chassis is incorporated in the Vidor 268 receiver, but this *Service Sheet* was prepared on a Burndept 270.

CIRCUIT DESCRIPTION

Two alternative aerial connections, **A1** direct, and **A2** via pre-set series condenser **C23**, to coupling coils **L1** (S.W.1), **L3** (S.W.2) and **L5** (M.W. and L.W.). On S.W.1 and S.W.2 coupling is to single-tuned circuit **L2**, **L4**, **C17**. On M.W. and L.W., coupling is to band pass filter, with primary **L6**, **L7** tuned by **C12** and secondary **L8**, **L9** tuned by **C17**. Capacitive coupling by **C1** and **C2**.

First valve (**V1**, Mullard metallised **VP2**) is a variable- μ pentode R.F. amplifier, with gain control by potentiometer **R2**.

Tuned anode coupling **L11**, **L13** (S.W.1 and S.W.2) and **L15**, **L16** (M.W. and L.W.), **C22**, to triode detector (**V2**, Mazda metallised **HL2**) operating on grid leak system with **C4** and **R4**. The latter is returned to centre-tapped potentiometer **R5**, **R6** across **V2** filament.

Reaction is applied from anode of **V2** by coils **L10**, **L12** (S.W.1 and S.W.2) and **L14** with series resistance **R3** (M.W. and L.W.); control is by variable condenser **C18**. R.F. filtering by choke **L17** and condensers **C5**, **C6**.

Transformer coupling by **T1** between **V2** and pentode output valve (**V3**, Mullard **PM22D**). Fixed tone correction in anode circuit by condenser **C8**.

Bias for **V3** obtained by drop along

resistance **R8** in H.T. negative line. Electrolytic condenser **C7** acts as H.T. reservoir.

COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R1	Gain control fixed min.	500
R2	V1 gain control	15,000
R3	Series reaction (M.W. and L.W.)	300
R4	V2 C.G. resistance	1,000,000
R5	V2 filament potentiometer	200
R6		200
R7	T1 secondary shunt	150,000
R8	V3 G.B. resistance	150

CONDENSERS		Values (μ F)
C1	Band-pass bottom coupling	0.1
C2	Band-pass top coupling (L.W.)	0.000009
C3	V1 S.G. by-pass	0.25
C4	V2 grid condenser	0.0001
C5	V2 anode filter condensers	0.00005
C6		0.0002
C7*	H.T. reservoir	8.0
C8	Fixed tone corrector	0.005
C9*	V3 G.B. by-pass	50.0
C10†	Aerial circuit trimmer (S.W.2)	0.00003
C11‡	Band-pass pri. trimmer (L.W.)	—
C12‡	Band-pass pri. tuning (M.W. and L.W.)	—
C13†	Band-pass pri. trimmer	—
C14†	Band-pass pri. extra trimmer	0.00003
C15†	Band-pass sec. trimmer (L.W.)	0.00003
C16‡	Band-pass sec. trimmer (M.W. and L.W.)	0.00006
C17†	Band-pass sec. and grid circ. (S.W.1 and S.W.2) tuning	—
C18†	Reaction control	0.0005
C19†	V1 anode circ. trimmer (S.W.2)	0.00003
C20†	V1 anode circ. trimmer (L.W.)	0.00003
C21†	V1 anode circ. trimmer (M.W. and L.W.)	0.00006
C22†	V1 anode circuit tuning	—
C23†	Aerial series condenser	—

* Electrolytic. † Variable. ‡ Pre-set.

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial coupling coil (S.W.1)	0.15
L2	Aerial tuning coil (S.W.1)	Very low
L3	Aerial coupling coil (S.W.2)	0.35
L4	Aerial tuning coil (S.W.2)	1.2
L5	Aerial coupling coil (M.W. and L.W.)	3.7

OTHER COMPONENTS (Continued)		Approx. Values (ohms)
L6	Band-pass pri. coils (M.W. and L.W.)	4.5
L7		19.5
L8	Band-pass sec. coils (M.W. and L.W.)	4.5
L9		19.5
L10	Reaction coil (S.W.1)	0.15
L11	V1 anode tuning coil (S.W.1)	Very low
L12	Reaction coil (S.W.2)	0.35
L13	V1 anode tuning coil (S.W.2)	1.2
L14	Reaction coil (M.W. and L.W.)	2.8
L15	V1 anode tuning coil (M.W.)	4.5
L16	V1 anode tuning coil (L.W.)	19.5
L17	V2 anode circuit choke	170.0
L18	Speaker speech coil	2.5
T1	A.F. coupling trans.	Pri. 1050.0
		Sec. 5750.0
T2	Speaker input trans.	700.0
S1-S4	Waveband switches	—
S12	L.T. circuit switch	—
S13	G.B. circuit switch	—
S14	Scale lamps switch	—

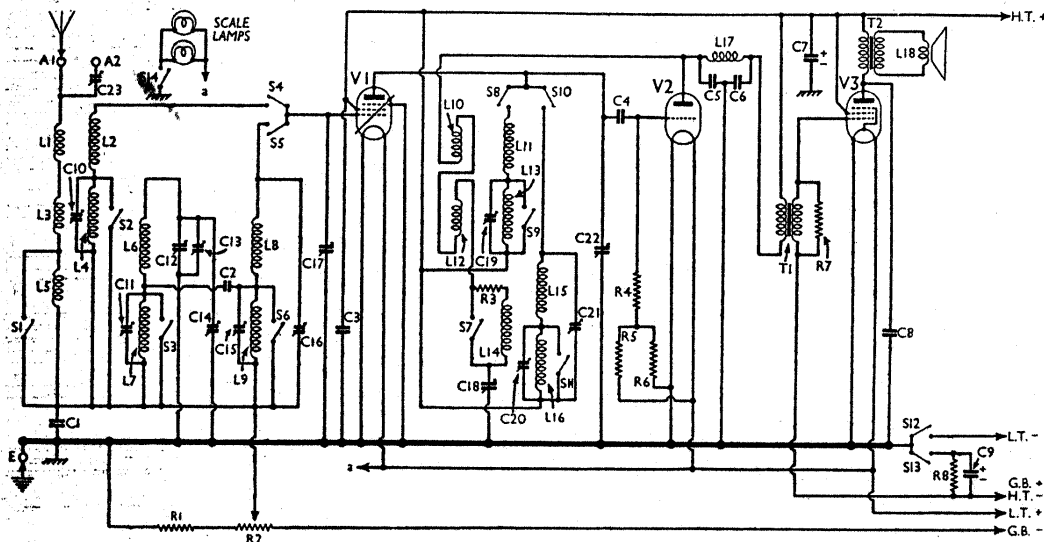
DISMANTLING THE SET

A detachable bottom is fitted to the cabinet and upon removal (four counter-sunk head wood screws) gives access to most of the under-chassis components.

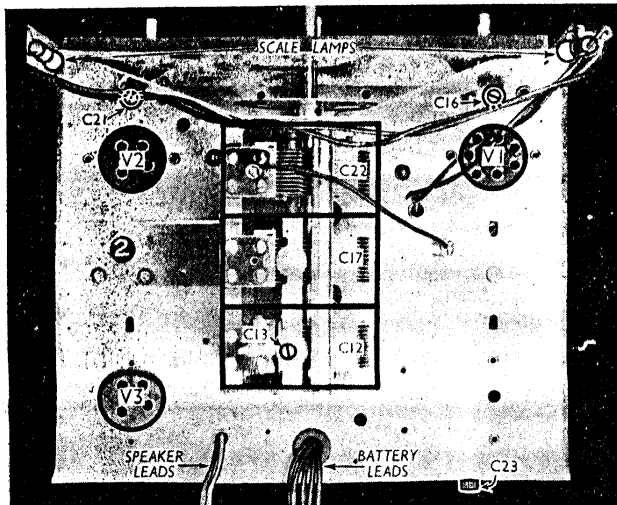
Removing Chassis.—If it is necessary to remove the chassis from the cabinet, first remove the four control knobs (recessed grub screws) and the four bolts (with washers) holding the chassis to the bottom of the cabinet. Now free the battery leads from the two cleats holding them to the battery platform. The chassis can now be withdrawn to the extent of the speaker leads, which is sufficient for normal purposes.

To free the chassis entirely unsolder the speaker leads.

Removing Speaker.—To remove the speaker from the cabinet remove the nuts and lock-washers from the four bolts holding it to the sub-baffle. When replacing, see that the transformer is on the left.



Circuit diagram of the Burndept 270 4-band battery receiver. Band-pass input circuits are used on M.W. and L.W. only.



Plan view of the chassis. Note the trimmers C16 and C21, reached through holes in the chassis deck.

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating from a new battery reading 128 V on load. The receiver was tuned to the lowest wavelength on the medium band, and the volume control was at maximum, but the reaction control was at minimum. There was no signal input.

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 VP2 ..	118	1.6	118	0.5
V2 HL2 ..	110	2.9	—	—
V3 PM22D ..	110	5.5	118	0.9

GENERAL NOTES

Switches.—S1-S11 are the wavechange switches, in a single unit beneath the chassis, shown in detail in our under-chassis view. The table below gives the switch positions for the four control settings. The control knob can be continuously rotated, and there are no markings on the knob, apart from a white dot, so that if the knob is removed, the ranges will have to be identified by the switch positions. S.W.1 is the lowest wavelength range.

Switch	S.W.1	S.W.2	M.W.	L.W.
S1	C	C	O	O
S2	C	O	O	O
S3	C	O	C	O
S4	O	O	C	O
S5	O	O	C	C
S6	O	O	C	O
S7	C	C	O	O
S8	C	C	O	O
S9	C	O	O	C
S10	O	O	C	C
S11	O	O	C	O

S12 and S13 are the battery circuit switches, ganged with the gain control R2. One tag of each is common, and the tag to which the L.T. negative lead is connected is the other connection of S12.

S14 is the scale lamp switch, formed by the end of the wave-change switch spindle and a flat leaf contact. It is closed when the switch knob is pushed in.

Coils.—These are all beneath the

chassis, on tubular formers, and are unscreened. The positions of L5-L9 and L14-L16 are clearly indicated. L1-L4 and L10-L13 are on two vertically-mounted formers. L1 is wound between the turns of L2, while L3 is wound over L4. L10 is between the turns of L11, and L12 is over L13.

L17 is an H.F. choke near the L14-L16 coil unit.

External Speaker.—No provision is made for this, but a high resistance type could be connected across the tags of the primary of T2.

Scale Lamps.—These are two M.E.S. types, marked 2.6 V, 0.3 A. They are only switched on when the wave-change knob is pushed in.

Batteries.—L.T., Vidor Triplate 2 V

glass cell, 25 AH on slow discharge. H.T. and G.B., Vidor 120V H.T. battery, No. 18580.

Battery Leads and Voltages.—Black spade tag, L.T. negative; red spade tag, L.T. positive 2 V; black plug, G.B. negative 9 V, in negative socket of H.T. battery; green plug, H.T. negative and G.B. positive, in 9 V positive socket of H.T. battery; red plug, H.T. positive, in 120 V positive socket of H.T. battery.

Trimmers.—C16 and C21 are adjusted through rubber bushed holes in the chassis deck. The remainder are reached from beneath the chassis, except C13, which is on the gang condenser.

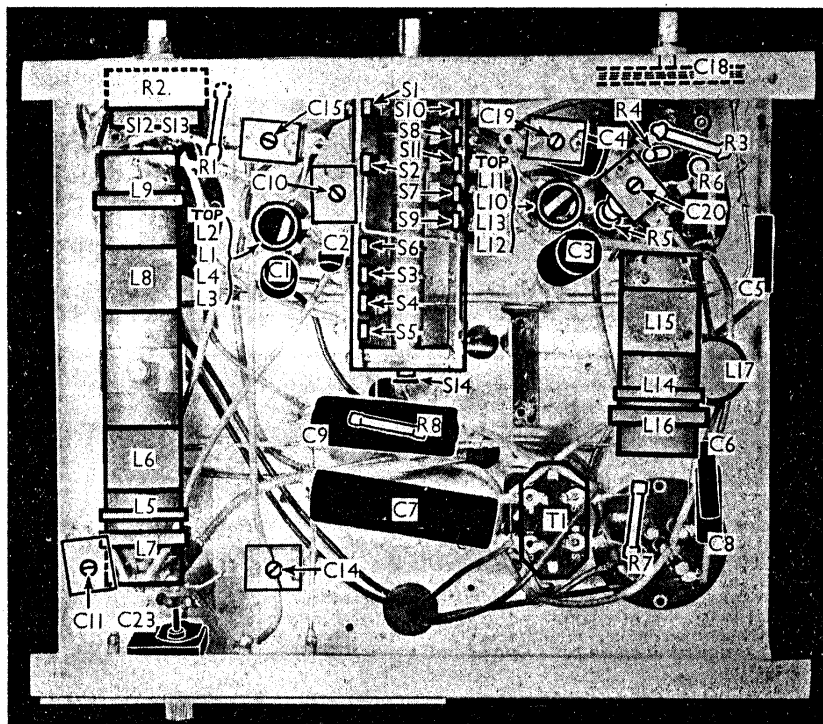
CIRCUIT ALIGNMENT

Inject a 250 m. signal into AN and M sockets, with C23 near its maximum. Switch set to M.W., tune to 250 m. on scale, and with gain control at maximum and reaction well advanced, adjust C21 for maximum output. Then adjust C16 similarly. C13 will probably be screwed up fully, but if not, adjust for maximum output. If it is already at maximum, then adjust C14. Reaction should be kept advanced to a point just short of oscillation.

Switch set to L.W., feed in a 1,000 m. signal, tune to 1,000 m. on scale, and adjust C20, C15 and C11 for maximum output, keeping reaction advanced as before.

Switch set to S.W.2 (range 2), and feed in a 75 m. signal. Tune to 75 m. on scale, and adjust C19 and C10 for maximum output, with reaction advanced as before.

The S.W.1 band has no separate trimmers, but slight adjustments may be made by alterations in the leads to the grid and anode of V1 relative to the rest of the wiring beneath the chassis.



Under chassis view. The individual switches, and the various trimmers are clearly indicated.