

BURNDEPT 271 A.C.-D.C. ALL-WAVE FOUR

CIRCUIT.—The aerial is coupled to the first valve, an H.F. pentode, through a band-pass filter for long and medium waves, and is inductively coupled on the two short-wave ranges.

On all ranges, V1 is directly coupled to V2, an H.F. pentode detector, through a tuned anode coil. Reaction is fed back from the anode of V2 in the orthodox manner.

The output from V2 is fed to V3 through an H.F. filter and a resistance capacity coupling network.

The amplified output of V3, the output pentode, is fed to the energised moving-coil speaker through a special matching transformer. The speech coil is connected in series with a humbucking coil.

Mains equipment consists of half-wave rectifier, speaker field, and electrolytic smoothing condensers. A small condenser C17 is connected across the rectifier to reduce ripple.

Two chokes and a condenser are connected in the mains input circuit to reduce interference.

Special Notes.—The on-off switch is connected in the negative mains lead and is ganged to the volume control.

As is usual in universal receivers, the valve heaters are in series. They are also in series with dial lights and the mains voltage dropping resistance.

The dial lamps holders are fitted to clips, which grip the brackets on the dial assembly. It is therefore a simple matter to remove these for renewal by simply pulling the holder from the bracket. The bulbs are of the screw-in type and are rated at 6.2 volts .3 amp.

The smoothing condensers are mounted on the side of the cabinet.

In this model, C3 and R6 have been omitted.

Removing Chassis.—The cabinet is

fitted with a false bottom, so it should not be necessary in most cases to remove the chassis.

If it is necessary to do this, first remove the four control knobs on the front of the cabinet. These are held by grub screws. Next take out the four screws holding the chassis to the cabinet. The chassis can then be moved to the extent of the speaker leads.

The speaker can be taken out by undoing the four nuts securing it to the baffle board. The smoothing condensers must be removed by unscrewing the metal bracket.

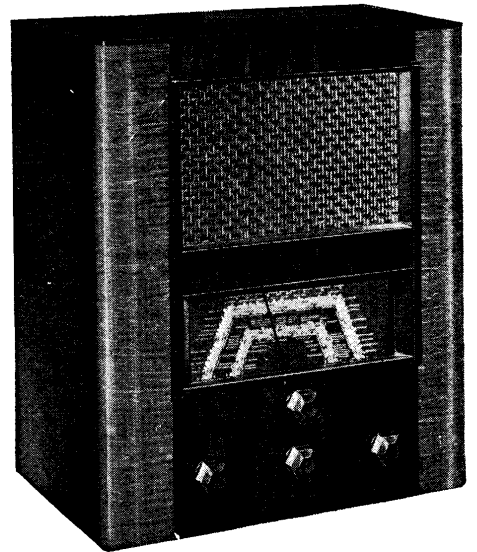
Circuit Alignment Notes

After noting that the pointer travels fully to each end of the scale, proceed as follows:—

Medium Waves. — With input control

CONDENSERS

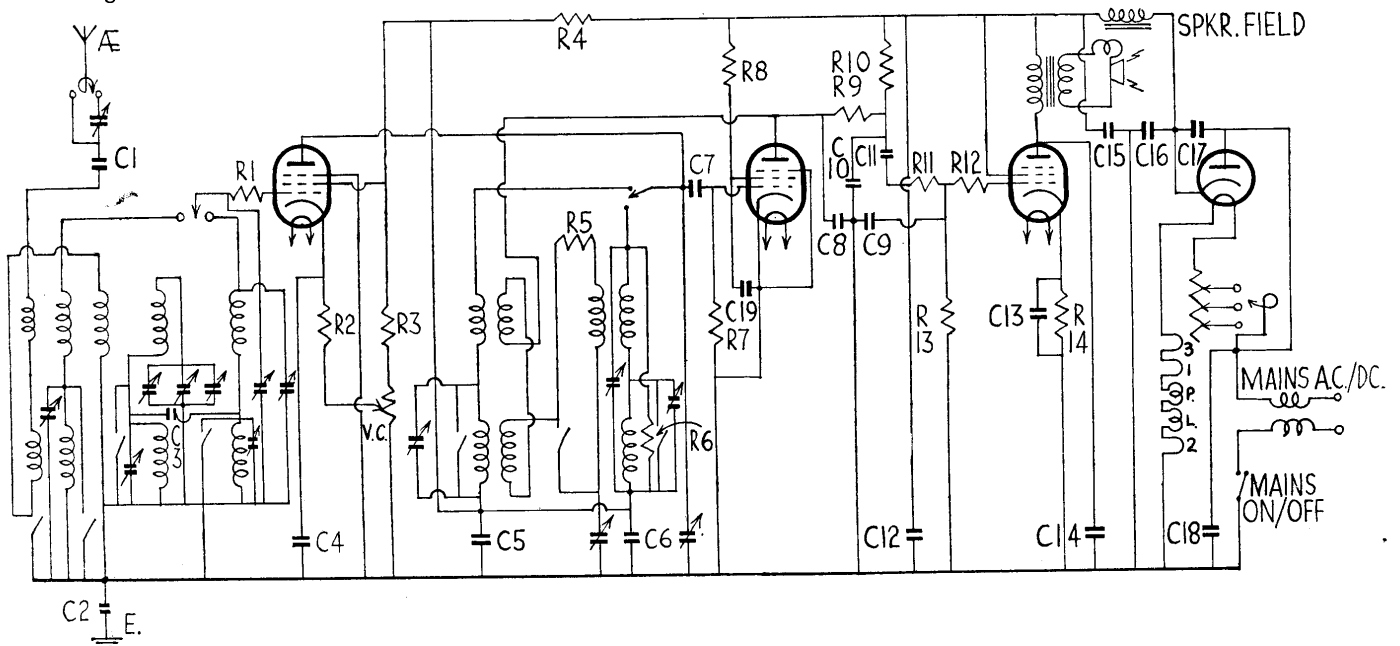
C.	Purpose.	Mfd.
1	Aerial series .. .. .	.0005
2	Chassis isolating .. .. .	.02
3	Top band-pass coupling .. .. .	.00009
4	V1 cathode bias shunt .. .. .	.1
5	V1 screen and anode decoupling .. .. .	.25
6	V1 screen and anode decoupling	8
7	V2 grid condenser .. .. .	.0001
8	H.F. filter .. .. .	.00005
9	H.F. filter .. .. .	.002
10	H.F. filter .. .. .	.0003
11	L.F. coupling .. .. .	.01
12	H.T. shunt .. .. .	.5
13	V3 cathode bias shunt .. .. .	.25
14	Pentode compensator .. .. .	.005
15	Smoothing	24
16	Smoothing	16
17	Interference suppressor .. .. .	.02
18	Mains suppressor .. .. .	.01
19	Reaction condenser .. .. .	.0005



The Burndept model 271 is a four wave-band, straight three instrument for operation from either A.C. or D.C. mains. It retails at 9 gns.

RESISTANCES

R.	Purpose.	Ohms.
1	V1 series grid	100
2	V1 cathode bias (part)	150
3	V1 bias pot. (part)	50,000
4	V1 anode and screen decoupling	5,000
5	Regeneration modifier	500
6	L.W. and M.W. shunt	50,000
7	V2 grid leak	1 meg.
8	V2 screen decoupling	750,000
9	H.F. filter	50,000
10	V2 anode load	250,000
11	H.F. filter	50,000
12	V3 grid stopper	100,000
13	V3 grid leak	250,000
14	V3 cathode bias	150
15	Mains voltage dropper	—
VC	Volume control	10,000



Theoretical circuit diagram of Burndept's 271. Note that C3, top band-pass coupling condenser, and R6, long and medium wave shunt, are not fitted in all models.

screwed up moderately tight, inject a signal of 250 metres (1,200 kc.) to the terminal A2.

Switch the set to medium waves (range 3). Turn the pointer to 250 metres on the scale, and with the volume control turned to maximum and reaction advanced, adjust the main anode trimmer until the signal is tuned in at maximum strength. Then adjust the main grid trimmer likewise.

Both of these trimmers are placed under the chassis in front of the receiver, and access to them is obtainable through holes in the chassis top near the scale ends. Next adjust the aerial trimmer on the gang condenser. If this is found to be screwed up tightly, adjust the additional aerial trimmer under the chassis.

During this process reaction should be kept advanced as far as possible without oscillation actually taking place.

Inject various signals from 250-500 metres (1,200-600 kc.) for checking calibration.

Long Waves.—Switch the set to long waves (range 4) and inject a signal of 1,000 metres (300 kc.). Turn the pointer to 1,000 metres on the scale and adjust the long-wave anode trimmer, then the long-wave grid trimmer, and finally the long-wave aerial trimmer, keeping the reaction advanced as before.

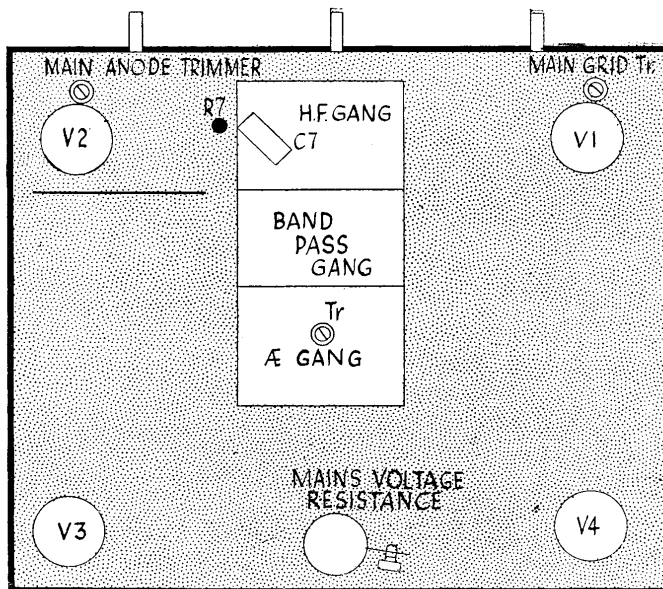
Check the calibration at various points on the long-wave band.

Short Waves.—Switch the set to short waves (range 2) and inject at 75 metres. Set the pointer to the 75-metre (4 megacycle) calibration and adjust the short-wave anode and short-wave grid trimmers, again with the reaction well advanced.

Calibration over the rest of the waveband should then be checked.

Ultra-Short Waves.—The ultra-short wave (range 1) has no separate trimmers and calibration should be correct, but slight adjustments may be made by altering the position of the leads to the grid and anode relative to the rest of the wiring under the chassis.

Diagram on the right shows the components on the top of the chassis of the Burndept 271. Three trimmers are on top, two near the front; all other trimmers are underneath, as shown on the diagram below.



Burndept 271 on Test

MODEL 271.—Standard model for A.C. or D.C. mains operation, 200-260 volts, 50-100 cycles. Price 9 gns.

DESCRIPTION.—A four-waveband, straight three, table receiver.

FEATURES.—Walnut cabinet, full-vision wavelength and name scale. Double ratio tuning control, volume and reaction adjustments.

LOADING.—65 watts.

Sensitivity and Selectivity

SHORT WAVES (13.8-49 and 75-210 metres).—Reasonable gain for the valve combination employed with easy adjustment and well controlled reaction over both wavebands. Selectivity adequate for ordinary purposes. Unusual waveband coverage should be noted.

MEDIUM WAVES (200-550 metres). Good gain. Aerial coupling is such that the local stations spread appreciably with a big aerial, but careful use of volume and reaction controls enables useful separation to be obtained.

LONG WAVES (900-2,200 metres).—Good selectivity and sufficient gain with an average aerial for an ordinary room.

Acoustic Output

The quality is representative of a mains pentode, with good correction and no marked colouration on speech or music.

General balance is pleasing and the output is sufficient for any ordinary room.

EXACT replacements for four condensers in the Burndept 271 are available from A. H. Hunt, Ltd., of Garratt Lane, Wandsworth, London, S.W.18.

There are three units, one containing two condensers. For C13, 25 mfd., 25 volt (V3 cathode bias shunt) is type 2918, listed at 1s. 9d.; for C6, 8 mfd. 200 volt (V1 screen and anode decoupling) is type 3490, listed at 2s. 6d.; covering C15, 24 mfd. and C16, 16 mfd., smoothing condensers is a unit, type 2851, at 11s.

QUICK TESTS

Quick tests are available on this receiver on the speaker transformer. Volts measured between this and the chassis should be:—

- Red condenser lead, 133 volts, smoothed H.T.
- Yellow condenser lead, 210 volts, unsmoothed H.T.
- Blue lead, 103 volts, smoothed H.T.

VALVE READINGS

No signal, no reaction. Volume maximum. 200 volt. A.C. mains.

V.	Type.	Electrode.	Volts.	Ma.
1	Mazda VP1321 met. (7)	Anode ..	125	5.1
		Screen ..	125	1.4
2	Mullard SP13C met. (7)	Anode ..	25	Inaccessible.
		Screen ..	40	—
3	Mullard Pen. 13C (7)	Anode ..	103	58
		Screen ..	133	10
4	Brimar ID5 (5)	Cathode	210	—

The underside view of the chassis of the Burndept 271. A false bottom to the cabinet gives access to the beneath-chassis components. Note that C3 and R6 are not shown, as they were not fitted to our particular instrument. (See Special Notes on the opposite page)

