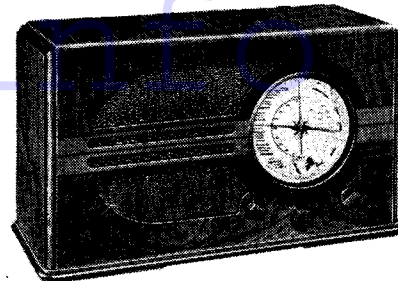


DECCA 66 THREE BAND SUPERHET FIVE



The Decca Model 66 A.C.-D.C. superhet is housed in an attractively designed table cabinet. Five valves and an easy-to-read tuning scale are employed.

CIRCUIT.—The aerial is inductively coupled to the grid of V1, a triode-hexode frequency-changer. The signal, converted to the I.F., then passes through a transformer to V2, an H.F. pentode, the I.F. amplifier of the receiver. Another I.F. transformer links this valve to the demodulating diode of V3, a double diode.

The other diode of V3 provides a D.C. potential which is fed back to give automatic volume control actuating V1 and V2.

The output of V3 passes to V4, an output pentode, through a resistance capacity network incorporating the volume control. A fixed condenser operating as a pentode compensator is connected between the anode of V4 and chassis.

Mains equipment consists of a half-wave rectifying valve V5, electrolytic smoothing condensers and a smoothing choke (not the speaker field).

The heaters of the valves are connected in series as is usual in universal sets. The wavelength indicating light is wired across the heater of V3, and the dial illuminator across the mains supply.

Special Notes.—The dial light is mounted in a screw-in holder attached to the cabinet above the wavelength dial. This bulb is rated at 200/250 volts .06 amp. The wavelength indicating lamp is mounted in a screw-in holder and located at the front of the chassis deck. This bulb is rated at 6 volts .04 amp.

Sockets on the top back of the cabinet enable an external speaker to be used. This should be of the permanent magnet moving coil type with its own matching transformer having an impedance of some 7,000 to 10,000 ohms.

Another pair of sockets also on the top back of the cabinet are for connecting a pick-up.

In our particular chassis fixed condenser C20 was found to be connected across the long wave oscillator coil and not as in the circuit. The aerial coupling

condenser C26 is on the bakelite aerial and earth terminal strip.

A fuse rated at 750 m.a. is connected between one of the mains chokes and the barretter.

Chassis Removal.—It may be noted that the cabinet has a false bottom for inspection and small replacements.

Remove the back of the cabinet by rotating the three sliding clips and also the three control knobs on the front. These are fixed by grub screws.

Turn up the set on one side and remove the two fixing bolts securing the chassis. These fixing bolts are to be found underneath insulating strips on the base of the cabinet. Note that these strips must be replaced when the service work is completed. This is important, as the chassis and mains would short to earth under certain conditions if these screws should touch a metallic earthing contact.

The chassis can now be taken out of the

cabinet and is free to the extent of sundry leads. For complete removal the various bakelite socket strips, dial light holder, and also the speaker must be removed.

Circuit Alignment Notes

I.F. Circuits.—Connect a service oscillator between the top grid cap of V1 and chassis, and an output meter across the primary of the speaker transformer with a condenser in one lead. Connect a fixed condenser with a capacity of 1 mfd. between the oscillator section of the gang and chassis.

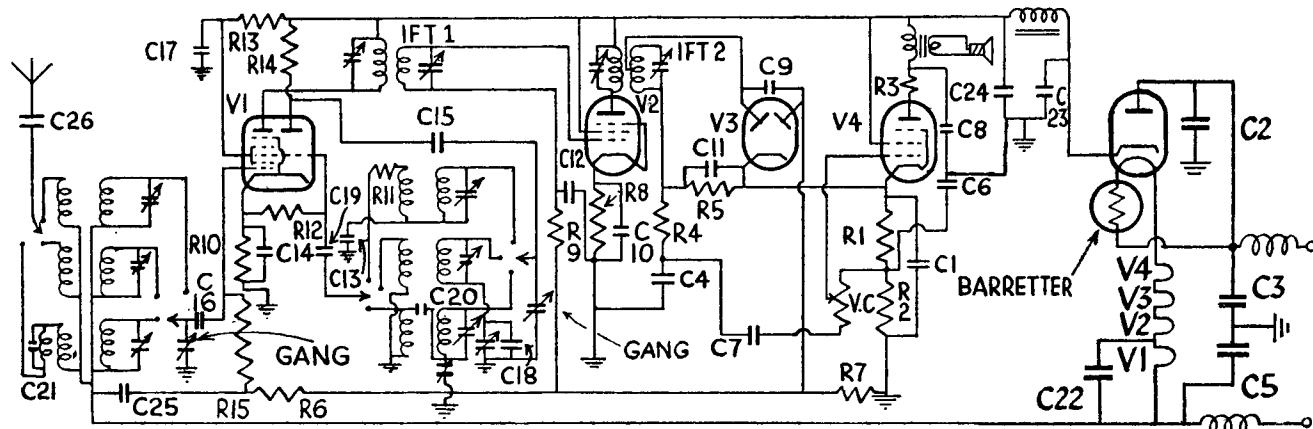
Tune the service oscillator to 465

CONDENSERS

C.	Purpose.	Mfd.
1	V4 cathode bias shunt	.50
2	Mains suppressor	.006
3	Mains suppressor	.02
4	H.F. filter	.0001
5	Mains suppressor	.02
6	V4 cathode shunt	.02
7	V4 L.F. coupling	.02
8	Pentode compensator	.006
9	A.V.C. diode coupling	.0001
10	V2 cathode shunt	.1
11	H.F. bypass	.0001
12	V2 A.V.C. decoupling	.02
13	S.W. osc. padding	.006
14	V1 cathode shunt	.1
15	Osc. anode coupling	.0001
16	V1 grid...	.0001
17	V1 screen decoupling	.1
18	L.W. padder	.0003
19	Oscillator grid	.0002
20	L.W. oscillator shunt	.00005
21	L.W. aerial shunt	.00012
22	V1 heater shunt	.01
23	H.T. smoothing	8
24	H.T. smoothing	16
25	V1 A.V.C. decoupling	.02
26	Aerial coupling	.0005

RESISTANCES

R.	Purpose.	Ohms.
1	V4—cathode bias (part)	140
2	V4—cathode bias (part)	160
3	V4—anode stabiliser	150
4	V4—H.F. filter	70,000
5	Demodulating diode load	300,000
6	V1—A.V.C. decoupling	500,000
7	A.V.C. diode load	500,000
8	V2—cathode bias	200
9	V2—A.V.C. decoupling	500,000
10	V1—cathode bias	200
11	Oscillator regeneration modifier	75
12	Oscillator grid leak	50,000
13	V1—screen decoupling	25,000
14	Oscillator anode load	40,000
15	V1—A.V.C. feed	500,000



The circuit arrangement of the Decca 66 A.C.-D.C. all-wave superhet follows orthodox lines for a universal receiver. Notes on the pilot and dial lamps and on C20 are contained in the text.

kc. and adjust the trimmers of the second I.F. transformer for maximum response. Repeat with the first I.F. transformer reducing the input from the oscillator as the circuits come into line to render the A.V.C. inoperative. It may be noted that the trimmers are sealed by paper strips.

Signal Circuits.—Leave the output meter connected as before but connect the oscillator to the aerial and earth terminals of

QUICK TESTS

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

- Red lead, 200 volts, smoothed H.T.
- Black lead, 180 volts, smoothed H.T.

VALVE READINGS

No signal. Volume maximum. 200 volts A.C. mains.

V.	Type.	Electrode.	Volts.	Ma.
1	Mazda TH2320 (met. 7)	Anode ...	185	Inaccessible.
		Screen ...	67	
		Osc. anode ...	70	
2	Mullard VP13C (met. 7)	Anode ...	185	9.8
		Screen ...	90	3.6
3	Brimar 10D1(5)	Double diode.	—	—
4	Brimar 7 DC(7)	Anode ...	180	25
		Screen ...	190	5
5	Mullard Ur1c(5)	Filament	200	—

the receiver through a .0002 mfd. fixed condenser or a dummy aerial. Only feed sufficient input from the oscillator to obtain a half-scale reading on the output meter so as to keep the A.V.C. inoperative.

Short Waves.—Tune set and oscillator to 19 metres (15,789 kc.) and adjust S.W. oscillator trimmer and S.W. aerial trimmer for maximum response (in that order).

Medium Waves.—Tune set and oscillator to 220 metres (1367 kc.) and adjust M.W. oscillator trimmer and M.W. aerial trimmer respectively for maximum.

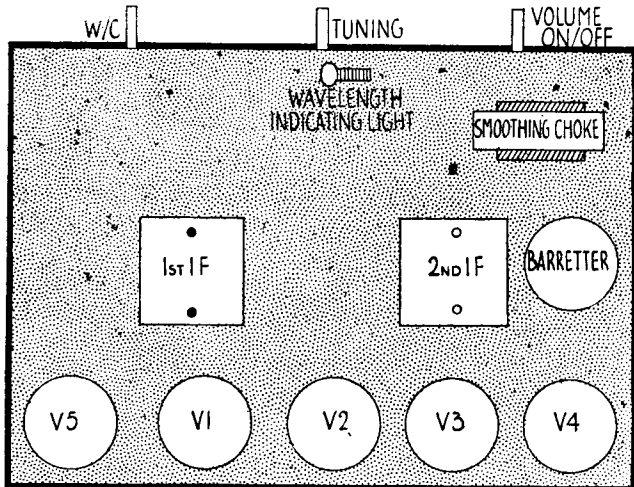
Tune set and oscillator to 500 metres (600 kc.) and adjust M.W. padding condenser for maximum response, simultaneously rocking the gang to ensure optimum results.

Long Waves.—Tune set and oscillator to 1,200 metres (250 kc.) and adjust L.W. oscillator trimmer for maximum.

Tune set and oscillator to 1,875 metres (160 kc.) and adjust the L.W. padding condenser for maximum, simultaneously rocking the gang to ensure optimum results.

Replacement Condensers

Two condensers by A. H. Hunt, Ltd., are available for replacements in this set. They are: unit number 2933, containing C's 23 and 24, price 8s. 6d., and unit number 2918, for C1, price 1s. 9d.



As the top deck chassis diagram on the left shows the Decca 66 is remarkably "clean." The valves are accessible and even the gang is out of sight.

Decca 66 on Test

MODEL 66.—Standard model for A.C. or D.C. mains, 200-250 volts, 50-60 cycles. Price 9½ gns.

DESCRIPTION.—Four valve, plus rectifier and barretter, three-waveband A.C.-D.C. transportable in walnut horizontal-type table cabinet. For use with external aerial.

FEATURES.—Full-vision scale with names and wavelengths. Dual-ratio tuning. Colour wave-band indication. P.U. and E.S. sockets are provided.

LOADING.—95 watts.

Sensitivity and Selectivity

SHORT WAVES (19-49 metres).—Good sensitivity and reasonable selectivity. Easy handling and no appreciable frequency drift.

MEDIUM WAVES (200-550 metres).—Average performance for the valve arrangement. Good programme strength available on all main stations using average size aerial.

LONG WAVES (900-2,000 metres).—All main stations well received.

Acoustic Output

Reproduction is good in view of the size of the receiver. Balance is attractive on both speech and music and colouration is very slight. Adequate volume for average room.

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grid cap of V2 and earth and an output meter across the primary of the speaker transformer.

Tune the service oscillator to 465 kc. and adjust IFT1, IFT2, IFT3 and IFT4, in that order, for maximum response in the output meter. Reduce the input as the circuits come into line to render the A.V.C. inoperative.

Signal Circuits.—First check the setting of the tuning pointer with relation to the gang condenser. With the vanes of the gang condenser fully disengaged, the tuning pointer should be just below 200 metres. If this is not the case, slacken the screws holding the double-ended spring and slide until the correct reading is obtained, then tighten the screws.

Long Waves.—Set the tone and volume controls as for I.F. circuits, but connect the service oscillator leads to the aerial and earth sockets via a .0002 mfd. fixed condenser.

Set the condenser vanes to minimum and then turn to six degrees on the vernier scale. Tune the oscillator to 725 metres (413.8 kc.) and adjust T6 and T3 in that order for maximum.

Set the oscillator to 1,900 metres (157.9 kc.) and tune the set to 1,900 metres. Adjust P1 for maximum response, simultaneously rocking the gang.

Repeat all the above long-wave operations to ensure correctness of trimmer settings.

Medium Waves.—Set the gang condenser to minimum and tune the oscillator to 197 metres (1,522 kc.). Adjust T5 for maximum.

Set the receiver and oscillator to 240 metres (1,247 kc.) and adjust T2.

Tune the set and oscillator to 550 metres (545 kc.) and adjust P2 for maximum, simultaneously rocking the gang condenser.

Switch set back again to the long-wave band and, setting oscillator to 725 metres (413.8 kc.) and receiver to 725 metres position, adjust T6 for maximum.

Switch the set back to medium waves and tune the set and oscillator to 197 metres (1,522 kc.), and finally adjust T5 very carefully.

Short Waves.—Connect the oscillator leads between the top grid cap of V1 and chassis via a 1 mfd. condenser and tune the oscillator and set to 16.8 metres (17,804 kc.). Adjust T4 for maximum, at the same time rocking the gang.

Connect oscillator to the aerial and earth sockets via a 400-ohm resistance. With the oscillator tuned to 16.8 metres, adjust T1 for maximum, whilst rocking the gang condenser.

Repeat the above operations.

Right are practical details of the layout adopted by Decca for the underside of their chassis for the Model 66. The trimmers are arranged in a logical and accessible manner.

