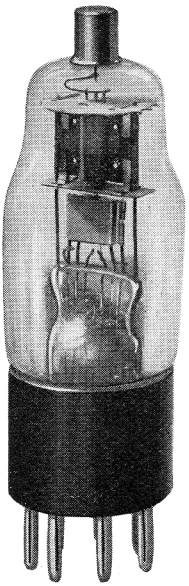


DOUBLE DIODE TRIODE
TYPE 11D.3

The BRIMAR 11D.3 is an indirectly heated double diode triode valve suitable for use in A.C., universal or automobile receivers. It is designed for performing simultaneously the functions of automatic volume control, detection and amplification.

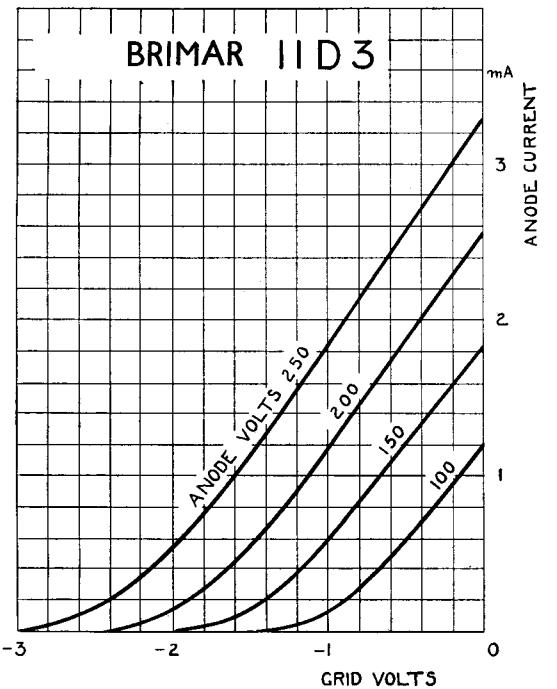
Full-wave or half-wave rectification together with delayed A.V.C., or delayed and amplified A.V.C. may be employed.

To prevent R.F. or I.F. voltages causing instability, by passing into the L.F. stages, the diodes are efficiently screened from the triode portion by an electrostatic screen connected to the cathode.

Operating details and characteristics are given overleaf.

The valve is fitted with a seven-pin base, connections being as shown on page 51.

CHARACTERISTICS



Heater Voltage	13·0 volts
Heater Current	0·2 amp.
Anode Voltage (maximum)	250 volts
*Mutual Conductance (mA./V.)	1·2
†Mutual Conductance (mA./V.)	1·1
†Impedance (ohms)	90,000
†Amplification Factor	100

* *Taken at anode volts* 100, *grid volts* 0.

† *Taken at anode volts* 250, *grid volts* —2.

INTER-ELECTRODE CAPACITIES

Anode to Grid...	2·0 m.mf.
Anode to Cathode	4·0 m.mf.
Grid to Cathode	2·0 m.mf.
Diode to Cathode	4·0 m.mf. each

OPERATION

The Standard BRIMAR Valve type 11D.3 is intended for use in A.C., Universal or car receivers as a diode detector and L.F. amplifier. The heater should be wired up in parallel with other valves of the same class in the case of A.C. or car receivers or in series with others of the Brimar A.C./D.C. series in the case of A.C./D.C. receivers. The heater is so designed that it introduces no hum into the circuits, while its heater-cathode insulation is capable of withstanding 240 volts.

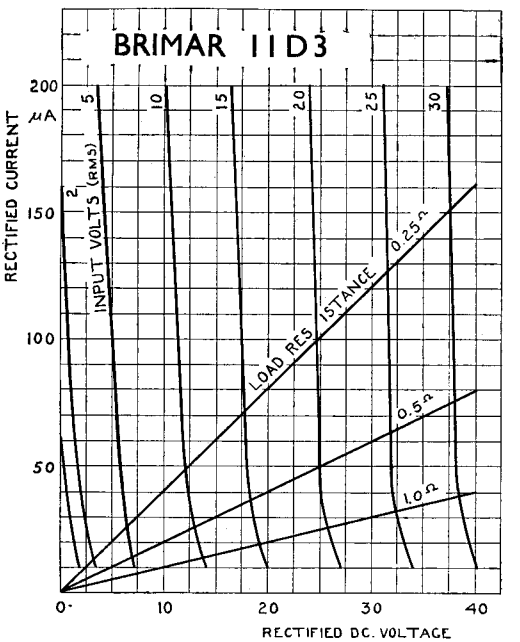
The valve is primarily designed for use as a second Detector and first L.F. Amplifier in superheterodyne receivers employing automatic volume control, the double diodes may be used in any circuit where diodes can be employed, while the triode may be utilised as a high gain amplifier stage for L.F. or A.V.C. voltage or both.

In operation the triode should be resistance capacity coupled to the output stage and an anode resistance of from 100,000 ohms to 250,000 ohms used. The auto bias resistance where used being between 5,000 and 10,000 ohms. The diodes may be used either as a half-wave or full-wave rectifier, in both cases the load resistance should be about $\frac{1}{4}$ to $\frac{1}{2}$ megohm and the shunting condenser have a value of about ·0003 m.mf. The curve Fig. 1 shows the rectification characteristic of one diode; load lines for various valves of load resistance are shown.
Fig. 2 shows a typical circuit using a Brimar Type 11D.3 valve suitable for an A.C./D.C. or car receiver. In this circuit one diode is used for obtaining the L.F. output and the other the A.V.C. voltage, the latter is delayed by the bias voltage existing across the auto bias resistance R.7.

The modulated I.F. carrier is rectified for the L.F. output by diode D.1, the L.F. voltage being set up across the resistance R.1. The resistance R.2 and condenser C.3 provide a filter to remove any carrier from the L.F. output. The filtered L.F. reaches R.3 the manual volume control, *via* the switch S.1 and the condenser C.4. The switch S.1 in the alternative position connects the Pick Up to R.3 through C.4. It is necessary when using a Pick Up with an A.C./D.C. receiver to have a condenser in each lead (C.4 and C.5) to eliminate the possibility of shock. The other diode D.2 receives I.F. carrier through C.1, whose capacity is determined by experiment depending on the magnitude of A.V.C. voltage required and the damping allowable on the I.F. transformer. The rectified carrier sets up the A.V.C. voltage across R.4, R.5 and C.7 being a decoupling circuit.

OPERATING DATA

Anode Voltage	250	250	150	150
Anode Resistance (ohms)	250,000	100,000	250,000	100,000
Grid Voltage	1·7	2·0	1·5	1·7
Auto Bias Resistance (ohms)	5,000	5,000	10,000	10,000
Anode Current (mA.) ...	0·35	0·4	0·15	0·17


BRIMAR 11D3
RECTIFIED CURRENT
μA
200
150
100
50
INPUT VOLTS (RMS)
5
10
15
20
25
30
2
LOAD RESISTANCE
0.25Ω
0.5Ω
1.0Ω
0
10
20
30
40
RECTIFIED DC. VOLTAGE

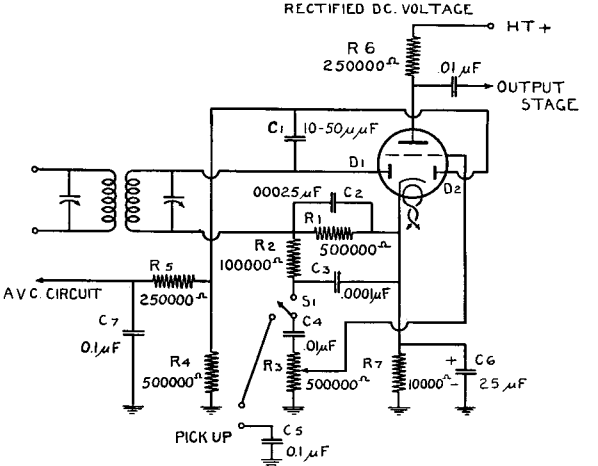
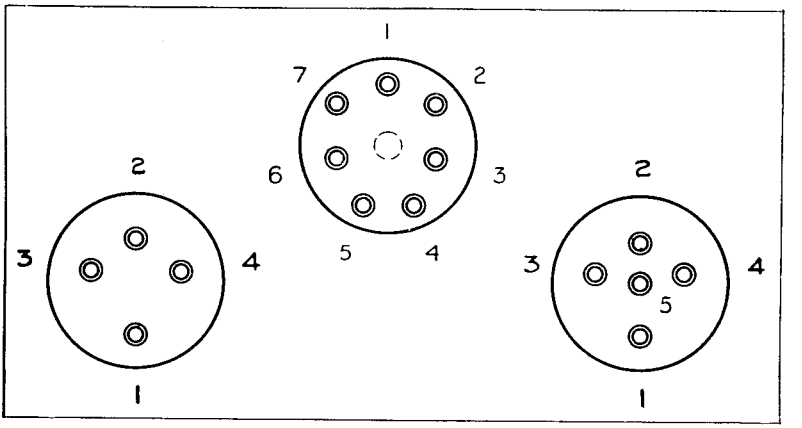

HT+
R 6
250000Ω
.01 μF
OUTPUT STAGE
C1
10-50μμF
D1
D2
.00025μF
C2
R1
500000Ω
R2
100000Ω
C3
.000μF
R5
250000Ω
AVC CIRCUIT
S1
C7
0.1μF
C4
.01μF
R4
500000Ω
R3
500000Ω
R7
10000Ω
C6
25 μF
PICK UP
C5
0.1 μF

Fig. 2.

BASE CONNECTIONS OF VALVES



UNDERSIDE VIEW OF BASES

4-PIN VALVES

TYPE	1	2	3	4
HLB.1, PB.1	A	G	F.M	F
R.1, R.2, R.3, 1A.7	A1	A2	H	H.C
4037A.	A	—	F	F

5-PIN VALVES

TYPE	1	2	3	4	5	Top Cap
8A.1, 9A.1 ...	G2	G1	H	H	C.M	—
HLA.2, PA.1 ...	A	G	H	H	C.M	—
PenB.1, PenA.1 ...	A	G1	F	F	G2	—
4039A	A	G	H	H	C	—
1D5	A	—	H	H	C	—

7-PIN VALVES

TYPE	1	2	3	4	5	6	7	Top Cap
4D.1 ...	—	—	—	H	H	C	A	G
7A.3, 7D.8, 7D.6, 7A.2, & 7D.3 ...	—	G1	G2	H	H	C	A	—
9D.2 ...	—	A	G3	H	H	C	G2	G1
11A.2, 11D.3	D1	M	D2	H	H	C	A	G1
15A.2, 15D.1	G2	G1	G3.G5	H	H	C	A	G4

A. *Anode.* G1, G2, G3, G4, 1*st*, 2*nd*, 3*rd and* 4*th Grids.*
F. *Filament.* H. *Heater.* C. *Cathode.* D1, D2, *Diodes.*
M. *Metallising.*