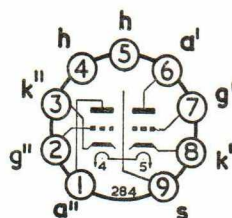


DOUBLE TRIODE



B9A Base

GENERAL

This valve is a double triode primarily intended for use as an R.F. amplifier and self-oscillating mixer in F.M. receivers.

Heater Current	I_h	0.1	A
Heater Voltage	V_h	26	V

RATINGS

Maximum Anode Voltage	$V_a(\text{max})$	250	V
Maximum Anode Dissipation (either section)	$P_a(\text{max})$	2.5	W
Maximum Total Anode Dissipation	$P_a(\text{tot})\text{max}$	4.5	W
Maximum Heater to Cathode Voltage (R.M.S.)	$V_{h-k(\text{max})}\text{r.m.s.}$	90	V
Maximum Cathode Current	$I_k(\text{max})$	15	mA
Maximum Grid to Cathode Resistance	$R_{g-k(\text{max})}$	1	MΩ

INTER-ELECTRODE CAPACITANCES

	*	†	‡	
Anode' to Grid'	$C_{a'-g'}$	1.5	1.6	1.8
Anode'' to Grid''	$C_{a''-g''}$	1.5	1.6	1.6
Anode' to Cathode', Heater, Shield	$C_{a'-k',h,s}$	1.2	1.6	2.5
§ Anode' to Cathode'', Heater, Shield	$C_{a'-k'',h,s}$	1.9	2.0	2.8
Anode'' to Cathode', Heater, Shield	$C_{a''-k',h,s}$	1.2	1.6	2.4
§ Anode'' to Cathode'', Heater, Shield	$C_{a''-k'',h,s}$	1.9	2.1	2.8
Grid' to Cathode', Heater, Shield	$C_{g'-k',h,s}$	3.0	3.3	4.2
Grid'' to Cathode'', Heater, Shield	$C_{g''-k'',h,s}$	3.0	3.4	4.2
Anode' to Anode''	$C_{a'-a''}$	.028	.032	.033
§ Anode' to Anode''	$C_{a'-a''}$	.003	.0067	.0081
Anode'' to Cathode'	$C_{a''-k'}$	.006	.014	.02

CHARACTERISTICS (Each Section)

Anode Voltage	V_a	170	200	V
Anode Current	I_a	10	10	mA
Grid Voltage	V_g	-1.5	-2.1	V
Mutual Conductance	g_m	6.2	5.8	mA/V
Amplification Factor	μ	50	48	
Valve Anode Resistance ($\delta V_a/\delta I_a$)	r_a	8.1	8.3	kΩ

NOTES

* Measured in fully-shielded socket. Without can, except where stated otherwise.

† Measured with holder capacitance balanced out. (Holders as below).

‡ Total capacitance including, where applicable, Plessey B9A ceramic type holders CP180900/1 (without can) or CP180024/3 (with can).

§ Measured with can.

TYPICAL OPERATION AS R.F. AMPLIFIER

Supply Voltage	V_b	170	170	V
Anode Load Resistance	R_a	1.5	1.3	k Ω
Anode Voltage	V_a	155	160	V
Anode Current	I_a	8.7	6	mA
Grid Bias Voltage	V_g	-1.4	-2	V
Mutual Conductance	g_m	6	4.7	mA/V
Valve Anode Resistance ($\delta V_a / \delta I_a$)	r_a	8.4	10.5	k Ω
Equivalent Grid Noise Resistance	R_{eq}	500	650	Ω
Input Loss at 100 Mc/s	r_g (100 Mc/s)	6	8	k Ω

TYPICAL OPERATION AS SELF-OSCILLATING MIXER ¶

Supply Voltage	V_b	170	200	V
Anode Load Resistance	R_a	4.7	8.2	k Ω
Grid to Cathode Resistance //	R_{g-k}	1	1	M Ω
Anode Current	I_a	4.8	5.2	mA
Peak Heterodyne Voltage	$V_{(pk)het}$	4	4	V
Conversion Conductance	g_c	2.2	2.3	mA/V
Valve Anode Resistance ($\delta V_a / \delta I_a$)	r_a	16	15	k Ω

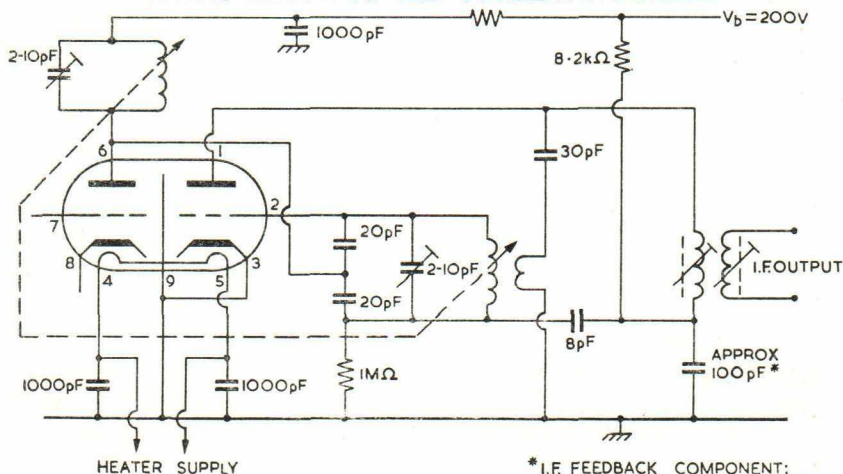
NOTES

The triode on pins 6, 7 and 8 should be used as the R.F. amplifier and that on pins 1, 2 and 3 as the self-oscillating mixer.

¶ For typical circuit as self-oscillating mixer see circuit below.

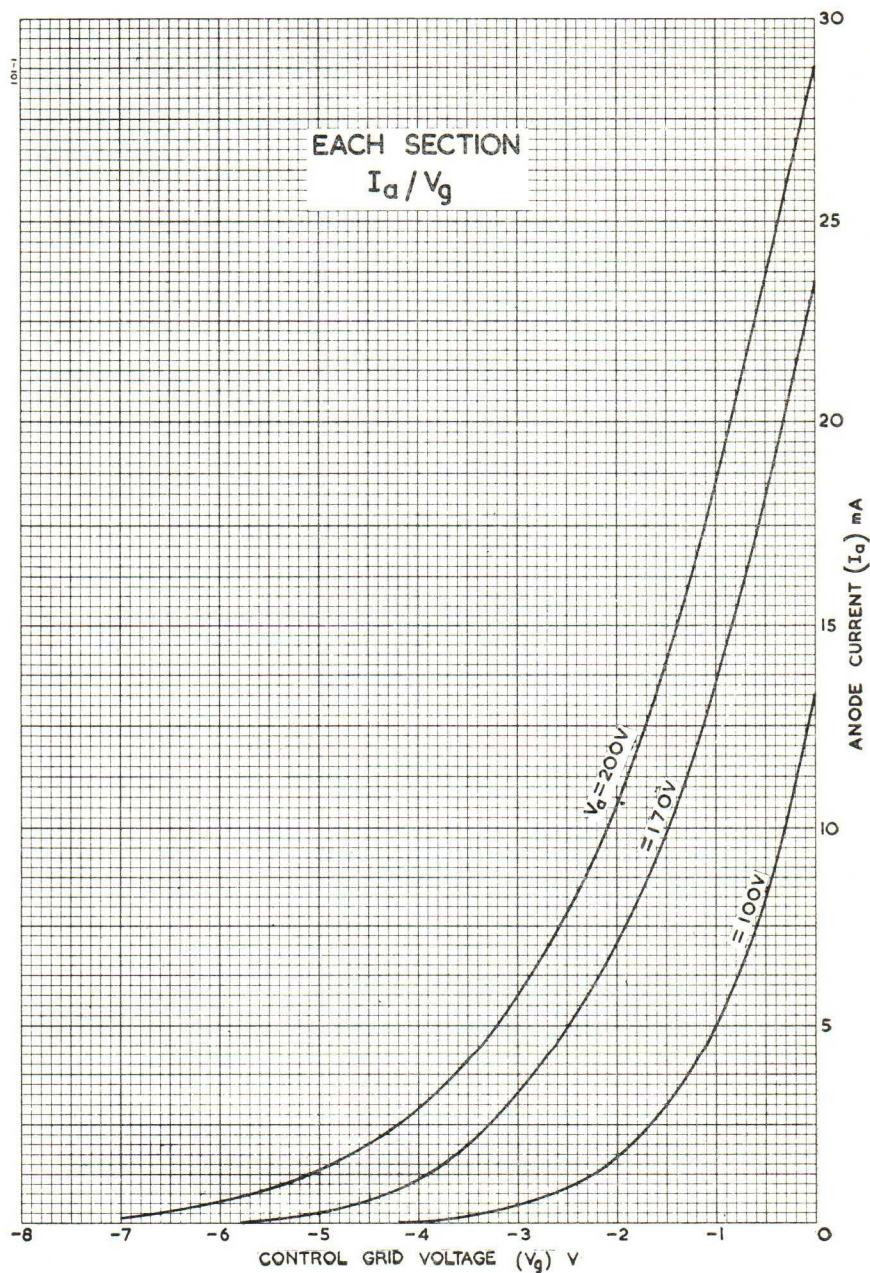
// I.F. feedback voltage tends to stabilise oscillator performance and permits this relatively high grid leak.

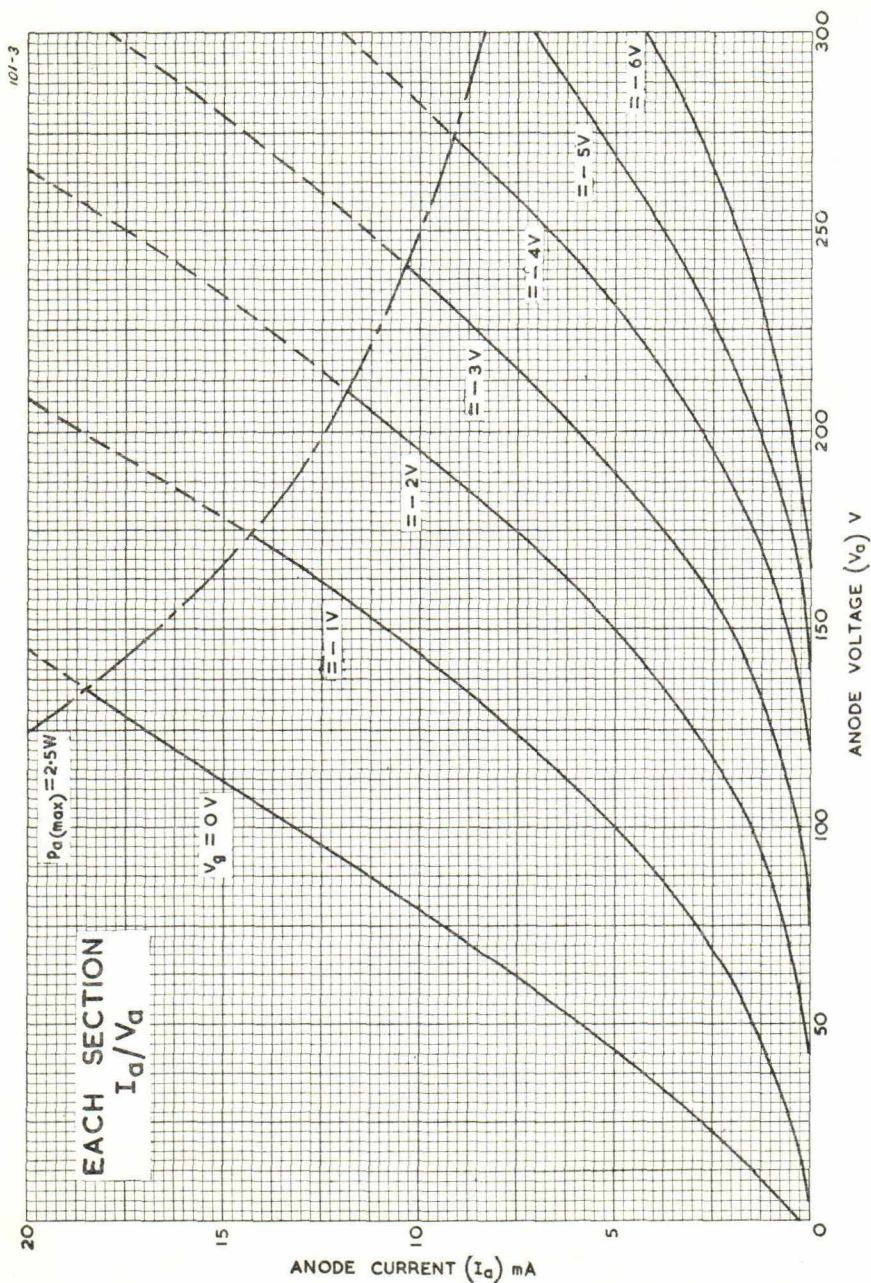
TYPICAL CIRCUIT AS SELF-OSCILLATING MIXER



* I.F. FEEDBACK COMPONENT;
VALUE DEPENDENT ON
LAYOUT & TOLERANCES.

MOUNTING POSITION—Unrestricted





MUTUAL CONDUCTANCE (g_m) mA/V CONTROL GRID VOLTAGE ($-V_g$) V

