Triode *Type BW 137*

HF AMPLIFIER AND OSCILLATOR

General. The BW 137 is a single-ended cooled-anode transmitting triode fitted with a tungsten filament.

Cooling. The anode forms part of the valve envelope and is designed for cooling by water circulated in direct contact with the envelope. The rated flow of cooling water is approximately 20 gallons per minute. The temperature of the cooling water at the outlet must not be greater than 65°C and the temperature rise across the jacket should not exceed 15°C.

The external grid and filament seals require air cooling. The volume of air necessary is approximately 20 cu. ft. per minute and should be directed on to the grid and filament seals from above through a 1 in. nozzle. The temperature of the seals must not exceed 140°C.

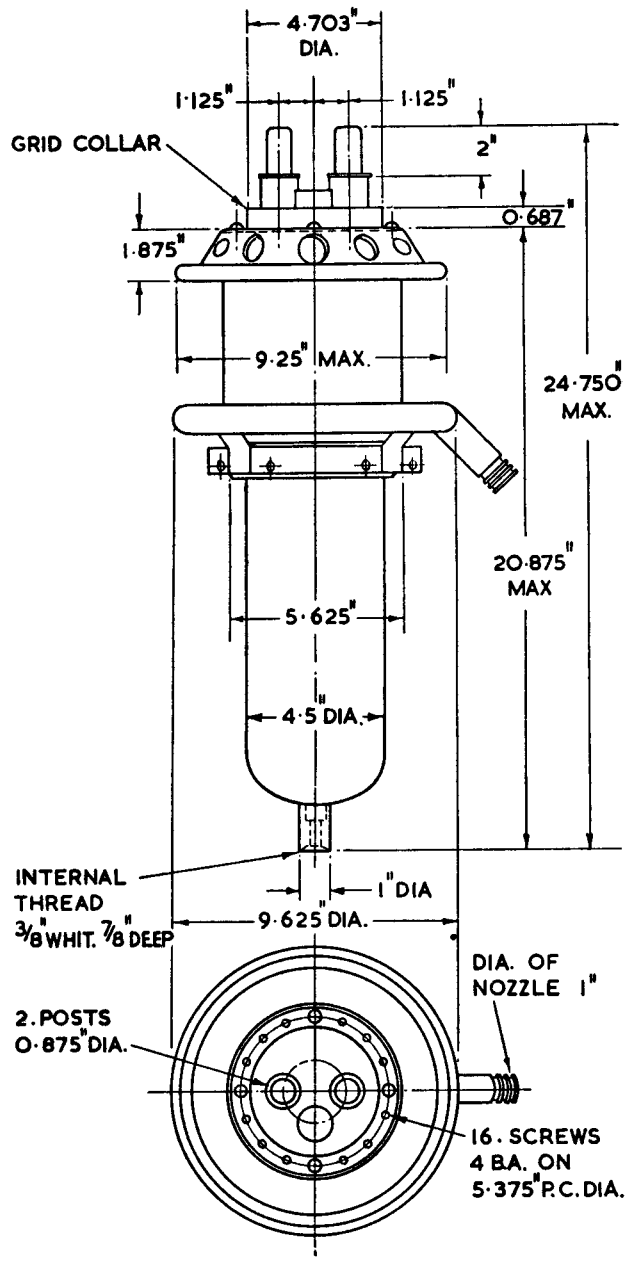
The anode seal also requires air cooling. An air blast should be connected to the corona ring which is fitted to the valve. The pressure at the ring is required to be 1 in. water gauge. The temperature of the anode must not exceed 180°C.

Filament Starting. The cold filament resistance is approximately 0·0039 Ω. The filament current must not exceed 600 A at any time during the switching-on period.

APPROXIMATE DATA

V_f		18	V
I_f		400	A
$V_{a\ (max)}$		15	kV
$p_{a\ (max)}$		40	kW
$p_{g1\ (max)}$		3	kW
μ	(taken at V_a 9 kV, I_a 2 A)	40	
g_m	(taken at V_a 10 kV, I_a 2 A)	30	mA/V
$f_{(max)}$ (at full ratings)		50	Mc/s
C_{a-g1}		55	pF
C_{a-k}		2	pF
C_{g1-k}		80	pF

Marked Voltage. Each valve is marked with the filament voltage required to give 45 A peak emission at 90% saturation.



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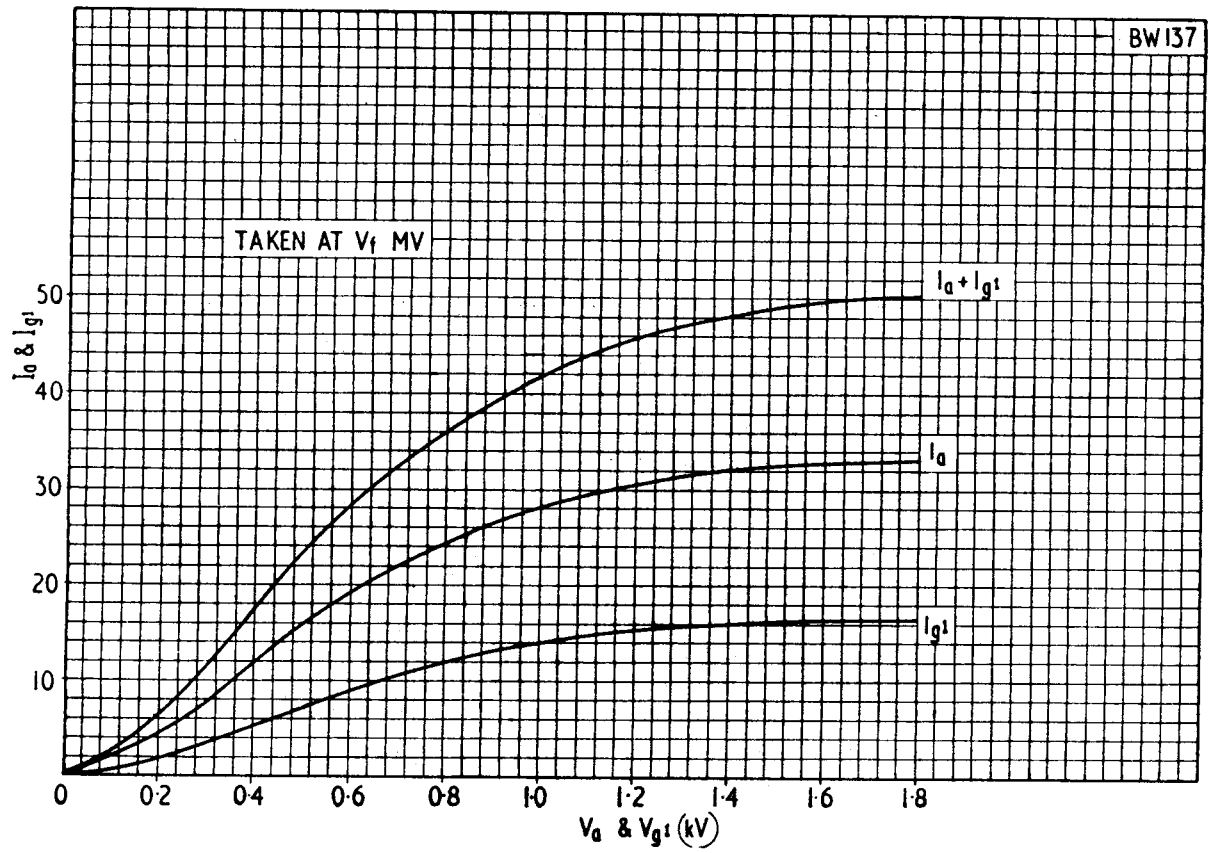
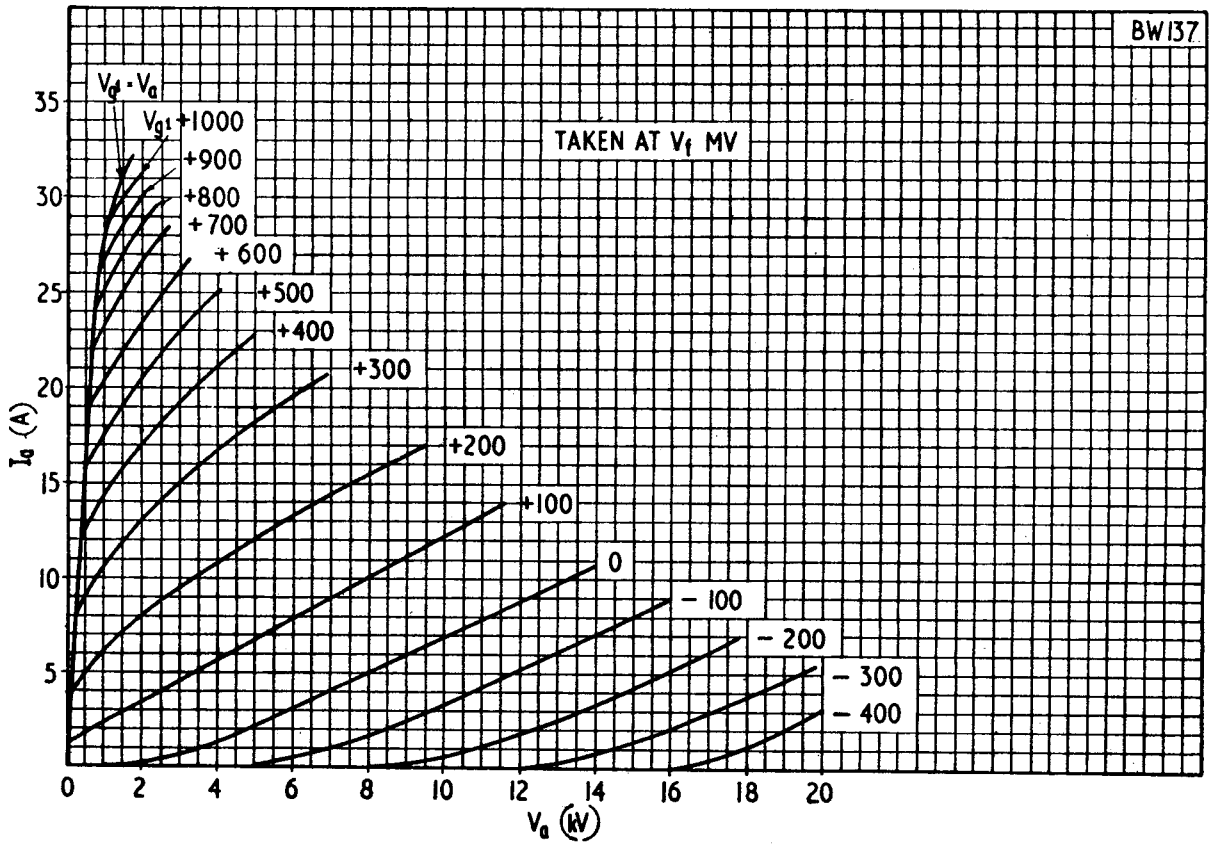
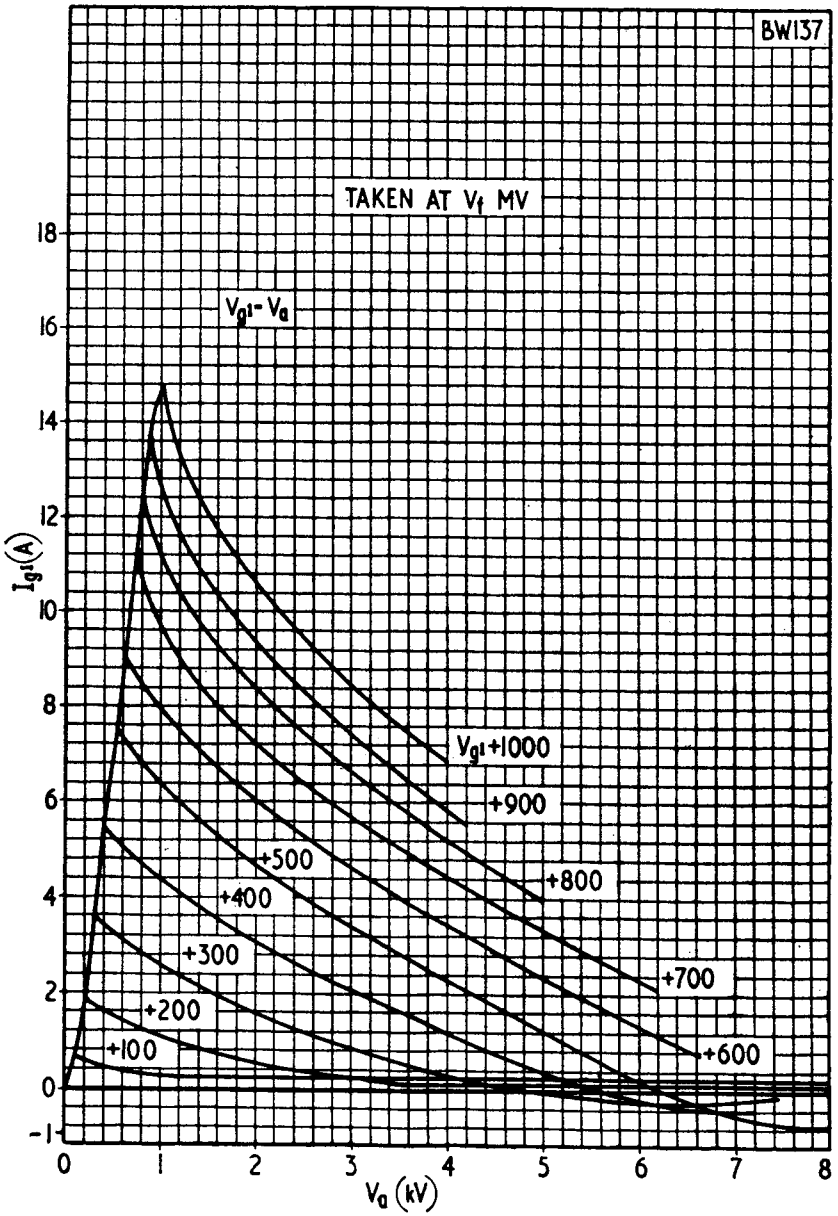
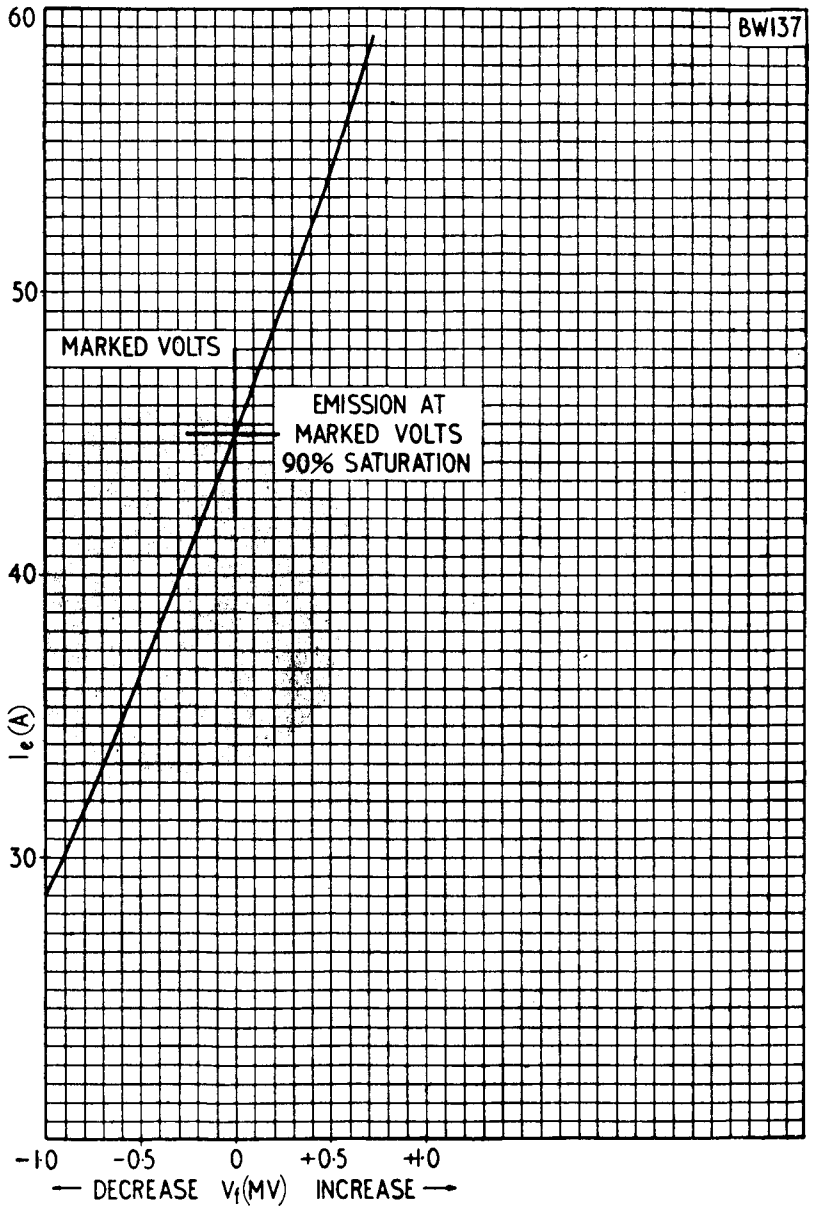

BW137
TAKEN AT V_f MV
$I_a + I_{g1}$
I_a
I_{g1}
I_a & I_{g1}
50
40
30
20
10
0
0·2
0·4
0·6
0·8
1·0
1·2
1·4
1·6
1·8
V_a & V_{g1} (kV)


BW137
TAKEN AT V_f MV
V_{g1} - V_a
V_{g1} +1000
+900
+800
+700
+600
+500
+400
+300
+200
+100
0
− 100
− 200
− 300
− 400
I_a (A)
35
30
25
20
15
10
5
0
2
4
6
8
10
12
14
16
18
20
V_a (kV)


BW137
TAKEN AT V_f MV
V_{g1} - V_a
V_{g1} +1000
+900
+800
+700
+600
+500
+400
+300
+200
+100
I_{g1}(A)
V_a (kV)
18
16
14
12
10
8
6
4
2
0
-1
0
1
2
3
4
5
6
7
8


BW137
MARKED VOLTS
EMISSION AT
MARKED VOLTS
90% SATURATION
I_e(A)
60
50
40
30
-1·0
-0·5
0
+0·5
+1·0
← DECREASE V_f(MV) INCREASE →

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