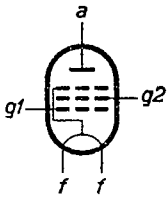
F 443 N Pentode



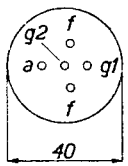


Fig. 2
Arrangement of electrodes and base connections.

This is a directly-heated 25 W output pentode, fitted with a 5-pin base and suitable for a maximum anode potential of 550 V; the maximum screen voltage is 300 V.
On an anode voltage of 300 V the same potential may be applied to the screen, thus avoiding the necessity for potential divider feeding, possibly with voltage stabilization. In balanced circuits, however, the maximum output power is then considerably lower than in the case of operation with an anode voltage of 550 V and a screen voltage of 250 V; a Class AB output stage employing two of these valves at the last-mentioned rating and with automatic bias will yield 41 W with 4.3 % distortion.

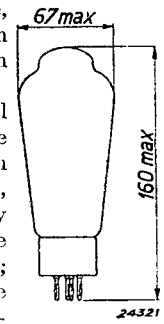


Fig. 1
Dimensions in mm.

FILAMENT RATINGS

Heating: direct, A.C., parallel supply.

Filament voltage	$V_f = 4$ V
Filament current	$I_f = 2$ A

CAPACITANCES

$C_{ag_1} < 3\ \mu\mu F$

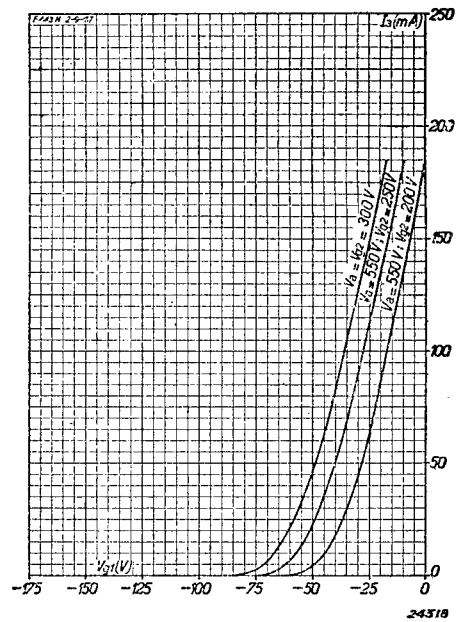


Fig. 3
Anode current as a function of the grid bias, with $Va = 550$ V, $Vg_2 = 250$ V; $Va = 550$ V, $Vg_2 = 200$ V and $Va = Vg_2 = 300$ V.

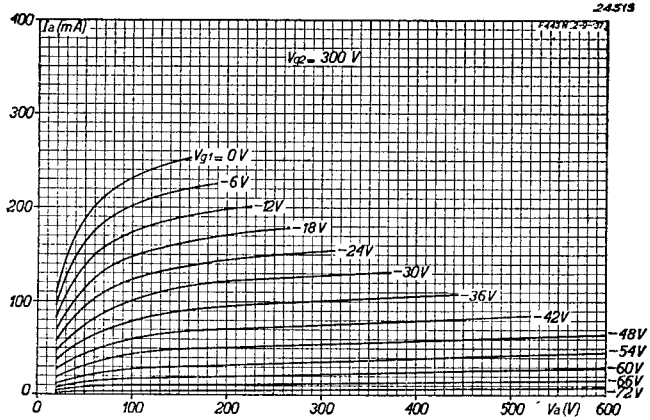


Fig. 4
Anode current as a function of the anode voltage for different values of grid bias. $Vg_2 = 300$ V.

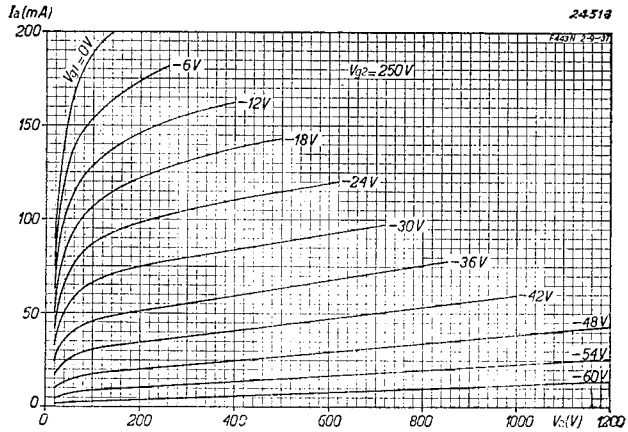


Fig. 5
Anode current as a function of the anode voltage for different values of grid bias. $Vg_2 = 250$ V.

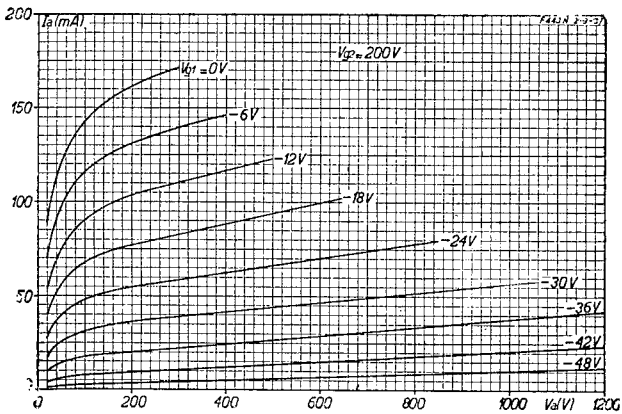


Fig. 6
Anode current as a function of the anode voltage for different values of grid bias. $Vg_2 = 200$ V.

OPERATING DATA

		Single amplifier (Class A)	Single amplifier (Class A)	Class AB output with auto. bias (two valves)	Class AB output with fixed bias (two valves)	Class AB output with auto. bias (two valves)
Anode voltage	V_a (V)	550	300	500	300	300
Screen voltage	V_{g2} (V)	200	300	250	300	300
Fixed grid bias	V_{g1} (V)	—30	—40	—	—63	—
Common cathode resistor for auto. bias	R_k(ohms)	647	455	445	—	330
Anode current (without signal)	I_{a0} (mA)	45	83	2 × 45	2 × 15	2 × 64
Anode current at max. modulation	$I_{a\ max}$ (mA)	—	—	2 × 53	2×72.5	2×72.5
Screen current (without signal)	I_{g20}(mA)	1.4	4.6	2 × 0.8	2 × 0.4	2 × 2.0
Screen current at max. modulation	$I_{g2\ max}$ (mA)	—	—	2 × 7.4	2×14.3	2×11.9
Mutual conductance	S (mA/V)	3.2	3.9	—	—	—
Internal resistance	R_i(ohms)	30,000	20,000	—	—	—
Load resistor (between anodes)	R_{aa}(ohms)	12,000	3,600	12,000	4,500	4,000
Power output	W_o (W)	12	10.3	41	26.5	24
Distortion at max. output	d_{tot} (%)	10	10	4.3	4.5	2.9
Alternating grid voltage at max. modulation	V_i (V_{eff})	15.5	20	37	46	39

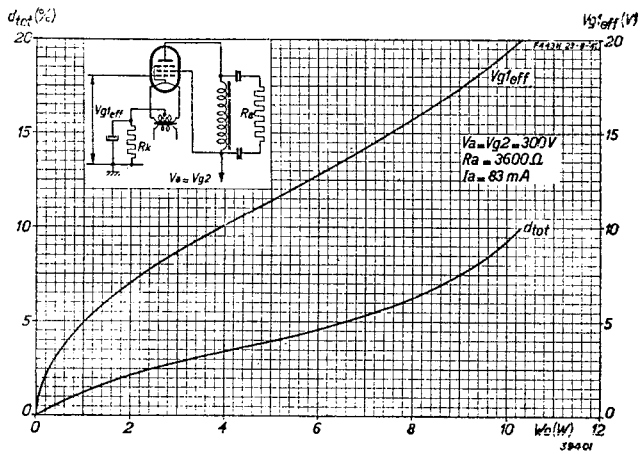


Fig. 7
Total distortion and alternating grid voltage as functions of the output power with $Va = Vg_2 = 300$ V. F 443 N used as a single output valve.

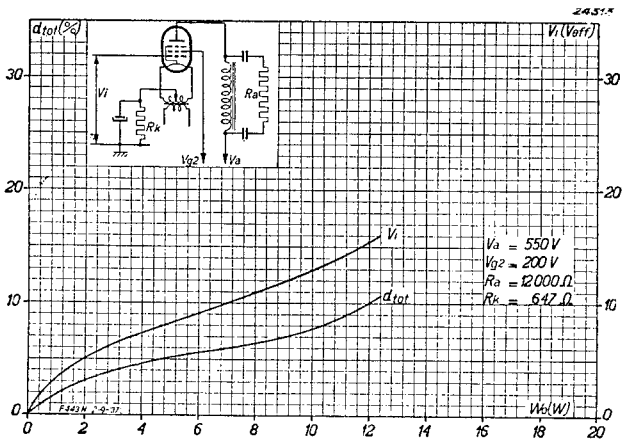


Fig. 8
Total distortion and alternating grid voltage as functions of the output power, with $Va = 550$ V and $Vg_2 = 200$ V. F 443 N used as a single output valve.

MAXIMUM RATINGS

V_{ao}	= max. 900 V	I_k	= max. 100 mA
V_a	= max. 550 V	V_{g1} ($I_{g1} = +0.3\ \mu A$)	= max. —2 V
W_a	= max. 25 W	R_{g1k} (*auto. bias*)	= max. 0.3 M ohm
V_{g2o}	= max. 500 V	R_{g1k} (*fixed bias*)	= max. 0.1 M ohm
V_{g2}	= max. 300 V		
W_{g_2} ($V_i = 0$)	= max. 1.5 W		
W_{g_2} (W_o = max)	= max. 4.3 W		

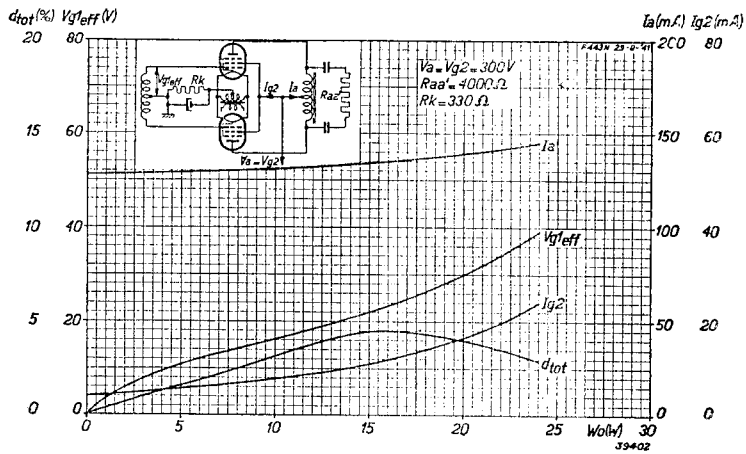


Fig. 9
Total distortion, total anode and screen-grid current and alternating grid voltage as functions of the output power. Two F 443 N valves in a balanced output stage with automatic bias. $Va = Vg_2 = 300$ V.

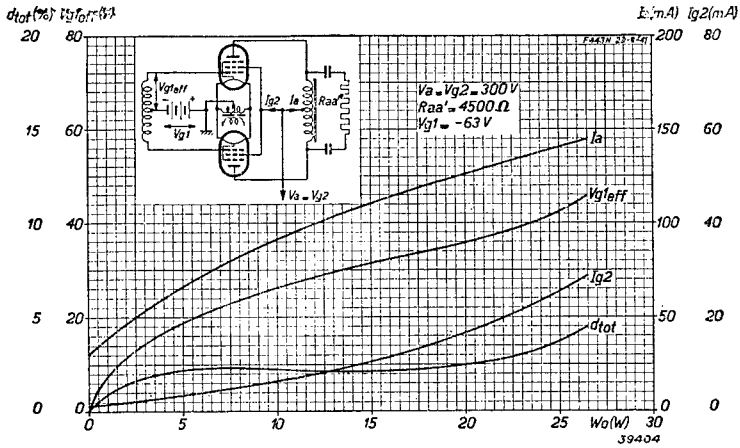


Fig. 10
Total distortion, total anode and screen-grid current and alternating grid voltage as functions of the output power. Two F 443 N valves in a balanced output stage with fixed bias. $Va = Vg_2 = 300$ V.

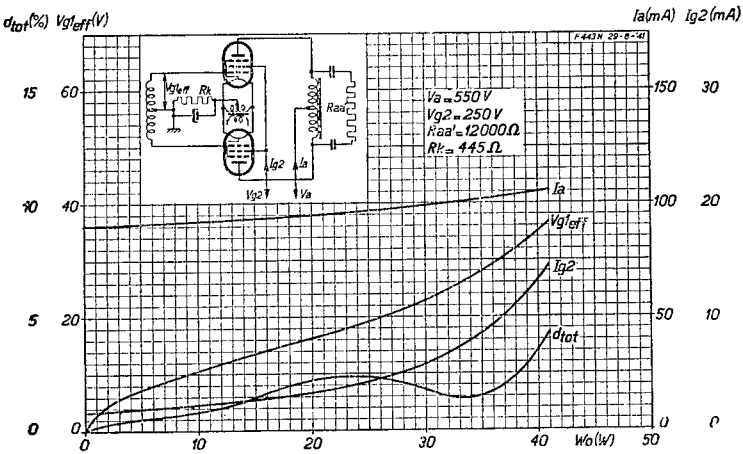


Fig. 11
Total distortion, total anode and screen-grid current, and alternating grid voltage as functions of the output power. Two F 443 N valves in a balanced output stage with automatic bias. $Va = 550$ V, $Vg_2 = 250$ V.