

Mullard

MAINTENANCE

MANUAL

PREPARED BY
TECHNICAL SERVICE DEPARTMENT
MULLARD LIMITED
CENTURY HOUSE, SHAFTESBURY AVENUE, LONDON, W.C.2

TP270

OUTPUT PENTODE (OBSOLETE)

EL5

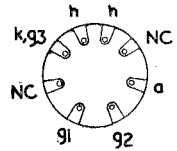
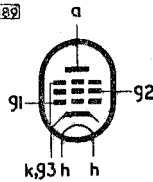
HEATER

V_h	6.3	V
I_h	1.35	A

LIMITING VALUES

V_a max.	250	V
p_a max.	18	W
V_{g2} max.	275	V
p_{g2} max.	3.0	W
I_k max.	90	mA
V_{h-k} max.	50	V

8889



Side Contact

DIMENSIONS

Max. Overall Length	117	mm
Max. Diameter	51	mm

OPERATING CONDITIONS

(As single valve class "A" amplifier)

V_a	250	V
V_{g2}	275	V
I_a	72	mA
I_{g2}	7.0	mA
R_a	3.5	k Ω
R_k	175	Ω
P_{out}	8.8	W
D_{tot}	10	%
$V_{in(r.m.s.)}$	9.1	V

CHARACTERISTICS

V_a	250	V
V_{g2}	275	V
V_{g1}	-14	V
I_a	72	mA
I_{g2}	7.0	mA
g_m	8.5	mA/V
r_a	22	k Ω

REPLACED BY: EL37—Change base. May require some alteration in push-pull stages.

OUTPUT PENTODE (OBSOLETE)

EL6

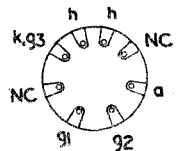
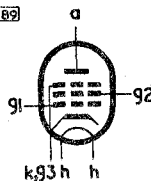
HEATER

V_h	6.3	V
I_h	1.2	A

DIMENSIONS

Max. Overall Length	121	mm
Max. Diameter	52	mm

8889



Side Contact

For characteristics, operating data and limiting values see type EL36. Except for base and dimensions, the EL6 and EL36 are identical.

REPLACED BY: EL37—Change base. May require some alteration in push-pull stages.



OUTPUT PENTODE (OBSOLETE)

EL35

HEATER

V_h	6.3	V
I_h	1.35	A

DIMENSIONS

Max. Overall Length	125	mm
Max. Diameter	47	mm

LIMITING VALUES

V_a max.	375	V
P_a max.	18	W
V_{g2} max.	250	V
P_{g2} max.	3.5	W
I_k max.	90	mA
V_{h-k} max.	50	V

CHARACTERISTICS

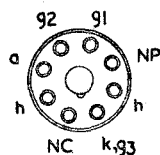
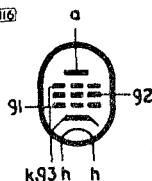
V_a	250	V
V_{g2}	250	V
V_{g1}	-15.5	V
I_a	72	mA
I_{g2}	8.0	mA
g_m	5.0	mA/V
r_a	15.5	k Ω
μ_{g1-g2}	8.0	

OPERATING CONDITIONS

(As single valve class "A" amplifier)

V_a	250	V
V_{g2}	250	V
R_k	180	Ω
I_a	72	mA
I_{g2}	8.0	mA
P_a	2.5	k Ω
P_{out}	6.0	W
$V_{in(r.m.s.)}$	13	V
D_{tot}	10	%

8316



Octal

OPERATING CONDITIONS

Two Valves in Class "AB" Push-pull (Self Bias)

V_a	270	360	V
V_{g2}	270	270	V
$*R_k$	135	250	Ω
$I_{g2(o)}$	2×8	2×4.25	mA
I_{g2} (max. sig.)	2×12.5	2×8.75	mA
$I_{g2(o)}$	16	8.5	mA
I_{g2} (max. sig.)	25	17.5	mA
R_{a-a}	5.0	7.0	k Ω
P_{out}	17	21	W
$V_{in(g1-g1)r.m.s.}$	31	46	V
D_{tot}	6.0	<3.0	%

*Common cathode bias resistor.

Two Valves in Class "AB" Push-pull (Fixed Bias)

V_a	360	V
V_{g2}	270	V
V_{g1}	-26	V
$I_{a(o)}$	2×44	mA
I_a (max. sig.)	2×70	mA
$I_{g2(o)}$	2×4.25	mA
I_{g2} (max. sig.)	2×9.75	mA
R_{a-a}	6.25	k Ω
P_{out}	26	W
$V_{in(g1-g1)r.m.s.}$	36	V
D_{tot}	<3.0	%

REPLACED BY: EL37—No alteration necessary in single valve output stages, but may be necessary in push-pull stages.



EL36

OUTPUT PENTODE (OBSOLETE)

HEATER

V_h	6.3	V
I_h	1.2	A

DIMENSIONS

Max. Overall Length	143	mm
Max. Seated Height	129	mm
Max. Diameter	52	mm

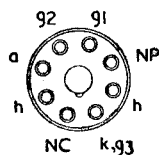
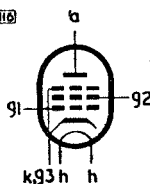
LIMITING VALUES

V_a max.	250	V
p_a max.	18	W
V_{g2} max.	275	V
p_{g2} max.	3.0	W
I_k max.	90	mA
V_{h-k} max.	50	V

CHARACTERISTICS

V_a	250	V
V_{g2}	250	V
V_{g1}	-7.0	V
I_a	72	mA
I_{g2}	8.0	mA
g_m	14.5	mA/V
r_a	20	k Ω
μ_{g1-g2}	20	

(8316)



Octal

OPERATING CONDITIONS

(As single valve class "A" amplifier)

V_a	250	V
V_{g2}	250	V
R_k	90	Ω
I_a	72	mA
I_{g2}	8.0	mA
R_a	3.5	k Ω
P_{out}	8.0	W
$V_{in(r.m.s.)}$	4.8	V
D_{tot}	10	%

OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL

(Self Bias)

V_a	250	V
V_{g2}	250	V
$*R_k$	90	Ω
$I_{a(0)}$	2×45	mA
I_a (max. sig.)	2×53	mA
$I_{g2(0)}$	2×5.1	mA
I_{g2} (max. sig.)	2×8.5	mA
R_{a-a}	5.0	k Ω
P_{out}	14.5	W
D_{tot}	2.2	%
$V_{in(g1-g1)r.m.s.}$	14.5	V

*Common cathode bias resistor.

REPLACED BY: EL37—Direct substitute in single valve output stages, but may require some alteration in push-pull stages.

Note by FP: This Mullard EL36 was the EL6 with Octal base.

Later the EL36 became the Line Output Pentode, the 6.3V version of the PL36.

