Westinghouse

6HL5
12HL5
60HL5

August 1, 1964

BEAM-POWER AMPLIFIER TYPES 6HL5, 12HL5 AND 60HL5

The 6HL5, 12HL5 and 60HL5 are high perveance 9-Pin miniature beam power pentodes designed for service as the output stage in audio amplifiers. Their special feature is very high power sensitivity, resulting in low drive required for full power output.

ELECTRICAL

Cathode	Coated Unipotential			
Heater:	6HL5	12HL5	60HL5	
Voltage (ac or dc)	6.3	12.6	60	Volts
Current	0.95	0.45	0.10	Ampere

MECHANICAL

Bulb	T-6½
Base	9-Pin Miniature (JEDEC E9-1)
Outline	6-4
Basing	9QW
Mounting Position	Any

MAXIMUM RATINGS

Design Maximum Values

Plate Voltage	330 max.		Volts
Grid 2 Voltage (Screen)	250 max.		Volts
Plate Dissipation	12 max.		Watts
Grid 2 Dissipation (Note 1)	2.5 max.		Watts
DC Cathode Current	110 max.		Ma.
Heater-Cathode Voltage:			
Heater Negative with Respect to Cathode			
Total DC + Peak	200 max.		Volts
Heater Positive with Respect to Cathode			
DC Component	100 max.		Volts
Total DC + Peak	200 max.		Volts

MAXIMUM CIRCUIT VALUES

Grid 1 Circuit Resistance			
For Fixed Bias	0.1 max.		Megohm
For Cathode Bias	0.5 max.		Megohm

CHARACTERISTICS

Plate Voltage	130	Volts
Grid 2 Voltage	130	Volts
Bypassed Cathode Bias Resistor	56	Ohms
Plate Current	70	Ma.
Grid 2 Current	5	Ma.
Plate Resistance (Approx.)	7500	Ohms
Transconductance	17000	μmhos
Triode Amplification Factor	13	–
Grid 1 Cutoff Bias (Note 2)	–33	Volts

TYPICAL CLASS A AMPLIFIER OPERATION

	Cathode Bias (Note 3)	Cathode Bias (Note 4)	Fixed Bias	
Plate Voltage	130	140	140	Volts
Grid 2 Voltage	130	140	140	Volts
Grid 1 Voltage	–	–	–5.7	Volts
RMS A.F. Grid 1 Voltage	3.3	7.3	4.0	Volts
Cathode Bias Resistor	56	68	–	Ohms
Zero Signal Plate Current	70	72	71	Ma.
Zero Signal Grid 2 Current	5	4	4	Ma.
Max. Signal Plate Current	68	67	68.5	Ma.
Max. Signal Grid 2 Current	15	13.5	14.5	Ma.
Load Resistance	2000	2000	1700	Ohms
Power Output	3.0	3.5	4	Watts
Total Harmonic Distortion	8	8	9	Per Cent

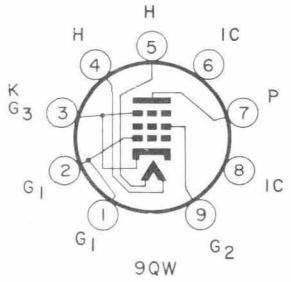
TYPICAL CLASS AB1 PUSH-PULL OPERATION

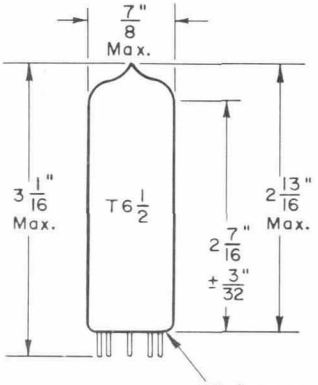
(Values are for 2 Tubes)

Plate Voltage	260	Volts
Grid 2 Voltage	130	Volts
Cathode Bias Resistor (Bypassed)	69	Ohms
Peak AF Grid 1-to-Grid 1 Voltage	16.5	Volts
Zero Signal Plate Current	90	Ma.
Zero Signal Grid 2 Current	3	Ma.
Max. Signal Plate Current	106	Ma.
Max. Signal Grid 2 Current	15	Ma.
Plate-to-Plate Load Resistance	5500	Ohms
Power Output	16.5	Watts
Total Harmonic Distortion	1.5	Per Cent

NOTES

1. Screen dissipation may be permitted to reach 4-watts during the periods of maximum input of speech and music signals.
2. For plate current of 100 microamperes.
3. Cathode resistor bypassed.
4. Cathode resistor not bypassed.





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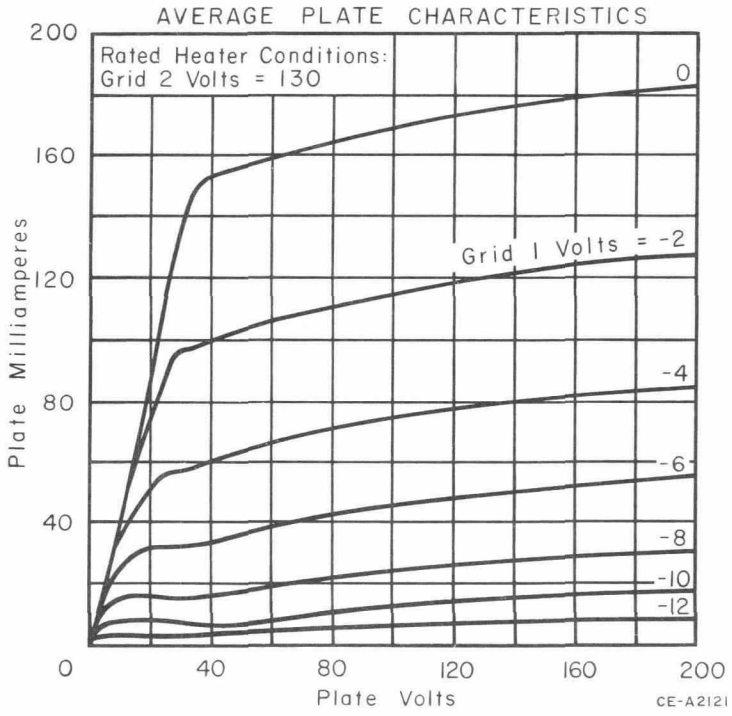

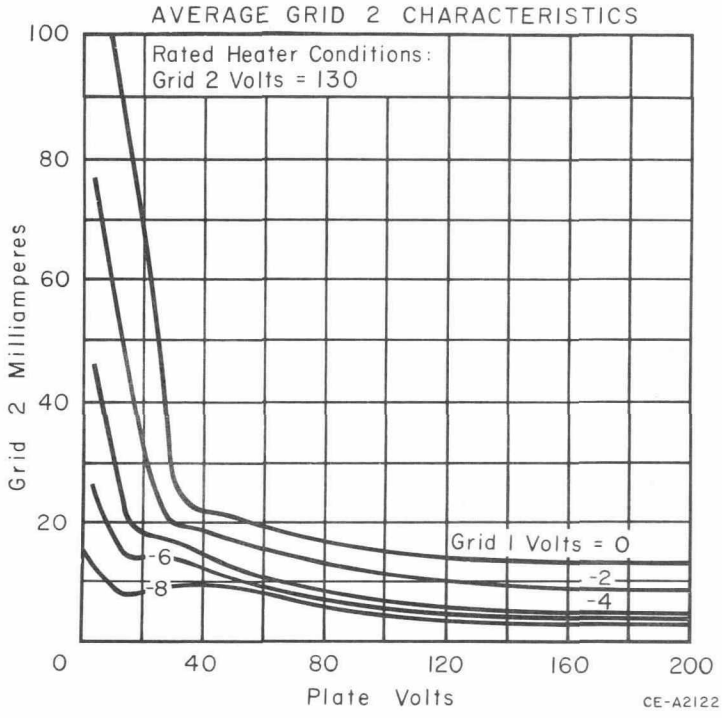

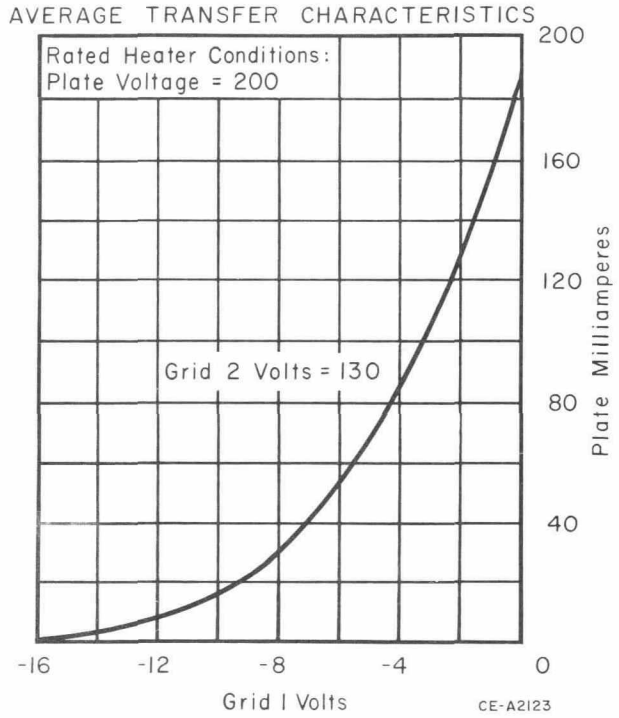

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