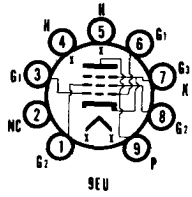
Grid No. 2 Input:	
Ec2 up to 165 V (Max.)	1 Watt
Ec2 from 165 V to 330 V	See Rating Chart (Gen. Info. Sec.)
Grid No. 1 Circuit Resistance:	
Fixed Bias (Max.)	0.1 Megohm
Cathode Bias (Max.)	0.25 Megohm
CHARACTERISTICS AND TYPICAL OPERATION	
Plate Supply Voltage	200 Volts
Grid No. 3 Voltage	0 Volt
Grid No. 2 Supply Voltage	135 Volts
Grid No. 1 Supply Voltage	0 Volt
Cathode Resistor	47 Ohms
Plate Resistance (Approx.)	40 K Ohms
Transconductance	30,000 μmhos
DC Plate Current	30 Ma
DC Grid No. 2 Current	5.2 Ma
Cutoff DC Grid No. 1 Voltage for Ib = 100 μa	−4.5 Volts

AUDIO OUTPUT AMPLIFIER

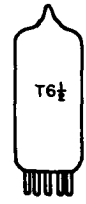
12AB5

Beam Power Pentode

Construction	Miniature T-6½
Base	Button 9 Pin, E9-1
Basing	9EU
Outline	*6-3*
Maximum Diameter	0.875 In.
Maximum Seated Height	2.375 In.
Maximum Overall Height	2.625 In.



9EU



ELECTRICAL DATA

HEATER OPERATION	
Heater Voltage(1)	12.6 Volts
Heater Current	200 Ma
Maximum Heater-Cathode Voltage	
Heater Negative with Respect to Cathode	
Total DC and Peak	200 Volts
Heater Positive with Respect to Cathode	
DC	100 Volts
Total DC and Peak	200 Volts
DIRECT INTERELECTRODE CAPACITANCES (Unshielded)	
Grid to Plate	0.7 Pf
Input: g1 to (h + k + g2 + g3)	8.0 Pf
Output: p to (h + k + g2 + g3)	8.5 Pf
RATINGS (Design Center Rating System)	
Class A1 Amplifier	
Plate Voltage (Max.)	315 Volts
Plate Dissipation (Max.)	12 Watts
Grid No. 2 Voltage (Max.)	285 Volts
Grid No. 2 Dissipation (Max.)	2 Watts
Grid No. 1 Circuit Resistance	
Fixed Bias (Max.)	0.1 Megohm
Cathode Bias (Max.)	0.5 Megohm

CHARACTERISTICS AND TYPICAL OPERATION			
Class A1 Amplifier (Single Tube)			
Plate Voltage	180	250	250 Volts
Grid No. 2 Voltage	180	200	250 Volts
Grid No. 1 Voltage	−8.5	—	−12.5 Volts
Cathode Bias Resistor	—	270	— Ohms
Peak AF Grid No. 1 Voltage	8.5	10.5	12.5 Volts
Zero Signal Plate Current	29	33.5	45 Ma
Maximum Signal Plate Current	30	36.0	47 Ma
Zero Signal Grid No. 2 Current	3.0	1.6	4.5 Ma
Maximum Signal Grid No. 2 Current	4.0	3.2	7.0 Ma
Plate Resistance (Approx.)	50,000	—	50,000 Ohms
Transconductance	3700	4000	4100 μmhos
Load Resistance	5500	6000	5000 Ohms
Maximum Signal Power Output	2.0	3.3	4.5 Watts
Total Harmonic Distortion	8	12	8 Percent

Class A1 Push-Pull Amplifier (Values are for Two Tubes)

Plate Voltage	250 Volts
Grid No. 2 Voltage	250 Volts
Grid No. 1 Voltage	−15 Volts
Peak AF Grid No. 1 Voltage	30 Volts
Zero Signal Plate Current	70 Ma
Maximum Signal Plate Current	79 Ma
Zero Signal Grid No. 2 Current	5 Ma
Maximum Signal Grid No. 2 Current	13 Ma
Plate to Plate Load Resistance	10,000 Ohms
Maximum Signal Power Output	10 Watts
Total Harmonic Distortion	5 Percent

NOTE:

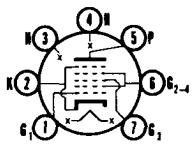
(1) This tube is intended to be used in automotive service from a nominal 12 volt battery source. The heater is therefore designed to operate over the 10.0 to 15.9 voltage range encountered in this service. The maximum ratings of the tube provide for an adequate safety factor such that the tube will withstand the wide variation in supply voltages.

12AD6

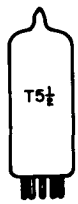
OSCILLATOR and MIXER

Pentagrid Converter

Construction	Miniature T-5½
Base	Button 7 Pin, E7-1
Basing	7CH
Outline	5-2
Maximum Diameter	0.750 In.
Maximum Seated Height	1.875 In.
Maximum Overall Height	2.125 In.



7 CH



ELECTRICAL DATA

HEATER OPERATION

Heater Voltage(1)	12.6 Volts
Heater Current	150 Ma
Maximum Heater-Cathode Voltage	
Heater Negative with Respect to Cathode	30 Volts
Heater Positive with Respect to Cathode	30 Volts

DIRECT INTERELECTRODE CAPACITANCES

	Shielded(2)	Unshielded
Grid No. 3 to Plate (Max.)	0.26	0.30 Pf
Grid No. 3 to Grid No. 1 (Max.)	0.15	0.15 Pf
RF Input: g3 to (h + k + g1 + g2 and g4 + g5 + p)	7.0	7.0 Pf
Oscillator Input: g1 to (h + k + g1 + g2 and g4 + g3 + g5)	3.2	3.2 Pf
Mixer Output: p to (h + k + g1 + g2 and g4 + g3 + g5)	12.0	7.0 Pf
Oscillator Output: k to (h + g2 and g4 + g3 + p)	11	11 Pf
Oscillator Grid No. 1 to Plate (Max.)	2.2	2.2 Pf

RATINGS (Design Center Rating System)

Plate Voltage (Max.)	16 Volts
Grid No. 2 and No. 4 Voltage (Max.)	16 Volts
Grid No. 2 and No. 4 Supply Voltage (Max.)	16 Volts
Negative DC Grid No. 3 Voltage (Max.)	16 Volts
Positive DC Grid No. 3 Voltage (Max.)	0 Volt
Cathode Current (Max.)	20 Ma
Grid No. 3 Circuit Resistance (Max.)	10 Megohms

CHARACTERISTICS AND TYPICAL OPERATION

Converter—Self Excitation

Plate Voltage	12.6 Volts
Grid No. 2 and 4 Voltage	12.6 Volts
Grid No. 3 Voltage(3)	0 Volt
Grid No. 3 Resistor	2.2 Megohms
Plate Voltage	350 μa
Grid No. 1 Resistor (Oscillator Grid)	33,000 Ohms
Grid No. 1 Voltage (Oscillator Grid) Pk to Pk	4.5 Volts
Grid No. 1 Current (Oscillator Grid)	60 μa
Conversion Transconductance	320 μmhos
Plate Resistance (Approx.)	0.4 Megohm
Cathode Current	1600 μa
Grid No. 3 Voltage for Gc = 5 μmhos (Approx.)	−3 Volts
Grid No. 3 Voltage for Gc = 0.5 μmhos (Approx.)	−4 Volts