The 12EA6 is a miniature pentode intended for use as an intermediate-frequency amplifier in automobile radio receivers. The tube is specially designed to operate with its plate and screen voltages supplied directly from a 12-volt storage battery.

**GENERAL**

**ELECTRICAL**
- Cathode—Coated Unipotential
- Heater Voltage, AC or DC: 12.6* Volts
- Heater Current: 0.175 Amperes
- Direct Interelectrode Capacitances†
  - Grid-Number 1 to Plate, maximum: 0.04 μF
  - Input: 0.11 μF
  - Output: 4.0 μF

**MECHANICAL**
- Mounting Position—Any
- Envelope—T-5½, Glass
- Base—E7-1, Miniature Button 7-Pin

**MAXIMUM RATINGS**

**DESIGN-MAXIMUM VALUES**
- Plate Voltage: 16 Volts
- Screen Voltage: 16 Volts
- Positive DC Grid-Number 1 Voltage: 0 Volts
- Heater-Cathode Voltage
  - Heater Positive with Respect to Cathode: 16 Volts
  - Heater Negative with Respect to Cathode: 16 Volts
- Grid-Number 1 Circuit Resistance: 12 Megohms

Design-Maximum Ratings are the limiting values expressed with respect to bogie tubes at which satisfactory tube life can be expected to occur for the types of service for which the tube is rated. Therefore, the equipment designer must establish the circuit design so that initially and throughout equipment life no design-maximum value is exceeded with a bogie tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, and environmental conditions.
CHARACTERISTICS AND TYPICAL OPERATION

CLASS A1 AMPLIFIER
Plate Voltage .................................................. 12.6 Volts
Suppressor Voltage ........................................... 0 Volts
Screen Voltage .................................................. 12.6 Volts
Grid-Number 1 Resistor (bypassed) .......................... 10 Megohms
Plate Resistance, approximate ............................. 32,000 Ohms
Transconductance ............................................. 3800 Micromhos
Plate Current .................................................. 3.2 Milliamperes
Screen Current .................................................. 1.4 Milliamperes
Grid-Number 1 Voltage, approximate
1b = 10 Microamperes ....................................... -3.4 Volts

* When used in automotive service from a 12-volt source, under no circumstances should the heater voltage be less than 10.0 volts or more than 15.9 volts. These extreme variations in heater voltage may be tolerated for short periods; however, operation at or near these absolute limits in heater voltage necessarily involves sacrifice in performance at low heater voltage and in life expectancy at high heater voltage. Equipment reliability can be significantly increased with improved supply-voltage regulation.
† Without external shield.
AVERAGE TRANSFER CHARACTERISTICS

- $E_t =$ RATED VALUE
- $E_b =$ 12.6 VOLTS
- $E_c3 =$ 0 VOLTS
- $E_c2 =$ 12.6 VOLTS
- $R_g1 =$ 10 MEGOHMS (BYPASSED)

SCREEN CURRENT ($I_{c2}$) IN MILLIAMPERES
PLATE CURRENT ($I_t$) IN MILLIAMPERES

GRID-NUMBER 1 VOLTAGE IN VOLTS

TRANSCONDUCTANCE ($g_m$) IN MICROHMS