



12AB5

BEAM POWER TUBE

For Use in Automobile Radio Receivers Operating From 12-Volt Storage Batteries

9-Pin Miniature Type

TENTATIVE DATA

RCA-12AB5 is a beam power tube of the 9-pin miniature type designed for use as the output amplifier in automobile radio receivers operating from a 12-volt storage battery.

The 12AB5 can provide high power output because of its high power sensitivity and high efficiency. For example, in class A₁ amplifier service, a single 12AB5 operated with a plate voltage of 250 volts, and a grid-No.2 voltage of 250 volts, can deliver a maximum-signal power output of 4.5 watts with a peak driving voltage of only about 12.5 volts. This performance, together with relatively low plate-current drain, make the 12AB5 especially suitable for use in the output stage of automobile receivers.

Design features of the 12AB5 include a large plate structure to allow for greater heat dissipation, a heater specially processed to withstand these severe operating conditions encountered during battery charging and discharging, and double base-pin connections for grid No.1 and grid No.2 to provide for cooler grid operation and greater flexibility of circuit connection.

GENERAL DATA

Electrical:

Heater for Unipotential Cathode:

Voltage Range 10.0 to 15.9 volts

This voltage range is on an absolute basis. For longest life, it is recommended that the heater be operated within the voltage range of 11 to 14 volts.

Current (Approx.), at 12.6 volts 0.2 amp

Direct Interelectrode Capacitances (Without external shield):

Grid No.1 to plate 0.7 max. μ f

Grid No.1 to heater, cathode & grid No.3, and grid No.2 8 μ f

Plate to heater, cathode & grid No.3 and grid No.2 8.5 μ f

Mechanical:

Mounting Position Any

Maximum Overall Length 2-5/8"

Maximum Seated Length 2-3/8"

Length from Base Seat to Bulb Top (Excluding tip) 2" $\pm$ 3/32"

Maximum Diameter 7/8"

Bulb T-6-1/2

Base Small-Button Noval 9-Pin (JETEC No.E9-1)

SINGLE-TUBE CLASS A₁ AMPLIFIER

Maximum Ratings, Design-Center Values:

For application of these design-center ratings to storage-battery operation, see Operating Considerations.

PLATE VOLTAGE 315 max. volts

GRID-No.2 (SCREEN) VOLTAGE 285 max. volts

PLATE DISSIPATION 12 max. watts

GRID-No.2 INPUT 2 max. watts

PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode 90 max. volts

Heater positive with respect to cathode 90 max. volts

BULB TEMPERATURE (At hottest point on bulb surface) 250 max. °C

Characteristics with 12.6 volts on heater:

Plate Voltage 250 volts

Grid-No.2 Voltage 200 250 volts

Grid-No.1 Voltage - -12.5 volts

Cathode-Bias Resistor 270 ohms

Peak AF Grid-No.1 Voltage 10.5 12.5 volts

Zero-Signal Plate Current 33.5 45 ma

Max.-Signal Plate Current 36 47 ma

Zero-Signal Grid-No.2 Current (Approx.) 1.6 4.5 ma

Max.-Signal Grid-No.2 Current (Approx.) 3.2 7.0 ma

Plate Resistance (Approx.) 75000 50000 ohms

Transconductance 4000 4100 μ mhos

Load Resistance 6000 5000 ohms

Total Harmonic Distortion 8 8 %

Max.-Signal Power Output 3.3 4.5 watts

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:

For fixed-bias operation 0.1 max. megohm

For cathode-bias operation 0.5 max. megohm

PUSH-PULL CLASS AB₁ AMPLIFIER

Values are for two tubes

Maximum Ratings, Design-Center Values:

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PLATE VOLTAGE 315 max. volts

GRID-No.2 (SCREEN) VOLTAGE 285 max. volts

PLATE DISSIPATION 12 max. watts

GRID-No.2 INPUT 2 max. watts

PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode 90 max. volts

Heater positive with respect to cathode 90 max. volts

BULB TEMPERATURE (At hottest point on bulb surface) 250 max. °C

Characteristics with 12.6 volts on heater:

Plate Voltage 250 volts

Grid-No.2 Voltage 250 volts

Grid-No.1 Voltage -15 volts

Peak AF Grid-No.1-to-Grid-No.1 Voltage 30 volts

Zero-Signal Plate Current 70 ma

Max.-Signal Plate Current 79 ma

Zero-Signal Grid-No.2 Current (Approx.) 5 ma

Max.-Signal Grid-No.2 Current (Approx.) 13 ma

Plate Resistance (Approx.) 60000 ohms

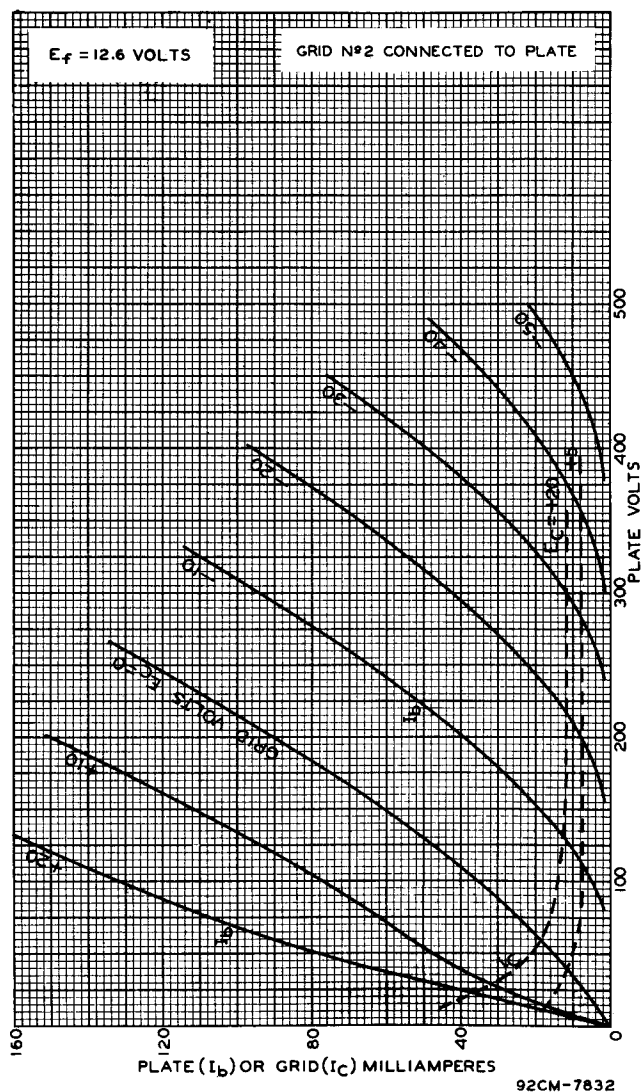


Fig-2 - Average Plate Characteristics of Type 12AB5 Connected as Triode.

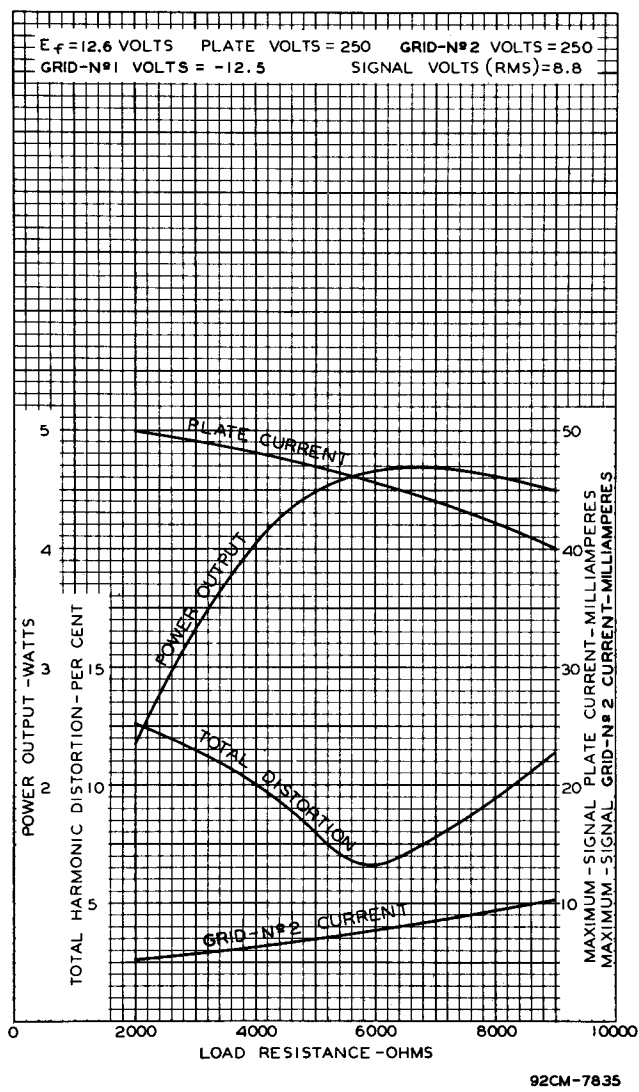
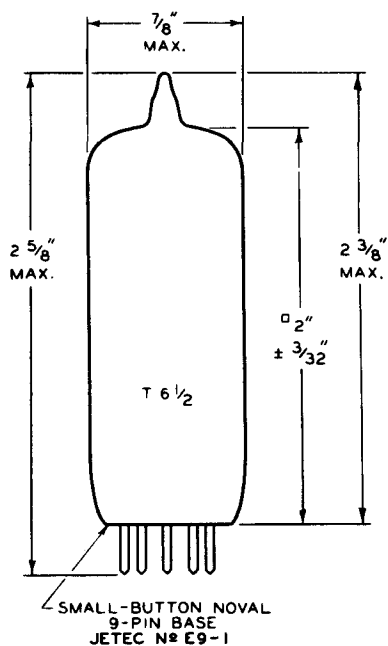


Fig.3 - Operation Characteristics of Type 12AB5.

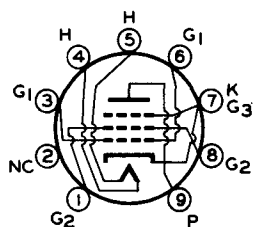


DIMENSIONAL OUTLINE



□ MEASURED FROM BASE SEAT TO BULB-TOP LINE AS DETERMINED BY RING GAUGE OF 7/16" I.D.

SOCKET CONNECTIONS Bottom View



PIN 1: GRID No.2
 PIN 2: NO CONNECTION
 PIN 3: GRID No.1
 PIN 4: HEATER
 PIN 5: HEATER
 PIN 6: GRID No.1
 PIN 7: CATHODE, GRID No.3
 PIN 8: GRID No.2
 PIN 9: PLATE

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