PENTAGRID CONVERTER

Filament
Voltage 1.4 d-c volts
Current 0.05 amp.

Direct Inter-electrode Capacitances:
Grid #4 to Plate 0.5 max. µf
Grid #4 to Grid #2 0.4 max. µf
Grid #5 to Grid #1 0.2 max. µf
Grid #1 to Grid #2 0.9 µf
Grid #4 to All Other Electrodes (R-F Input) 7.0 µf
Grid #2 to All Other Electrodes Except Grid #1 (Osc. Output) 1.4 µf
Grid #1 to All Other Electrodes Except Grid #2 (Osc. Input) 3.8 µf
Plate to All Other Electrodes (Mixer Output) 10 µf

Maximum Overall Length 3-5/16"
Maximum Seated Height 2-3/4"
Maximum Diameter 1-5/16"

Bulb T-9

Cap Skirted Miniature

Base Small Wafer Octal 8-Pin, Sleeve
Pin 1 - Base Sleeve
Pin 2 - Filament +
Pin 3 - Plate
Pin 4 - Grids #3 & #5
Pin 5 - Grid #1
Mounting Position Any

BOTTOM VIEW (GT-12)

Maximum Ratings Are Design-Center Values

CONVERTER SERVICE

Plate Voltage 110 max. volts
Screen (Grids #3 & #5) Voltage 60 max. volts
Screen Supply Voltage 110 max. volts
Anode-Grid (Grid #2) Voltage 110 max. volts
Total Zero-Sig. Cathode Current 4 max. ma.

Typical Operation:
Plate 90 volts
Screen 45 volts
Anode-Grid 90 volts
Control-Grid (Grid #4)* 0 volts
Oscillator-Grid (Grid #1) Resistor 200000 ohms
Plate Res. 0.6 megohm
Conversion Transcond. 250 µmhos
Conversion Transcond. with Grid #4 bias of -3 volts 5 approx. µmhos
Plate Cur. 0.6 ma.
Screen Cur. 0.7 ma.
Anode-Grid Cur. 1.2 ma.
Oscillator-Grid Cur. 0.035 ma.
Total Cathode Cur. 2.5 ma.

NOTE: The transconductance of the oscillator portion (not oscillating) is 550 microhmhos under the following conditions: plate volts, 90; screen volts, 45; control-grid volts, 0; anode-grid volts, 90; oscillator-grid volts, 0. (With external shield connected to negative filament terminal.)

** Obtained preferably by using a properly by-passed 45000- to 75000-ohm voltage-dropping resistor in series with the 90-volt supply.

* A resistance of at least 1.0 meghm should be in the grid return to negative filament pin. Indicates a change.

Typical Pentagrid Converter Circuit is shown under Type IAG.

Jan. 1, 1943
\( E_f = 1.4 \text{ VOLTS D.C.} \)
\( \text{PLATE VOLTS} = 90 \)
\( \text{GRIDS N° 3 & N° 5 (SCREEN) VOLTS} = 45^* \)
\( \text{GRID N° 4 (CONTROL GRID) VOLTS} = 0 \)
\( \text{GRID N° 2 (ANODE GRID) VOLTS} = 90 \)
\( \text{GRID N° 1 (OSCILLATOR GRID)} \)
\( \text{RESISTOR - OHMS} = 200000 \)

*OBTAINED THROUGH 70000-OHM DROPPING RESISTOR FROM 90-VOLT SUPPLY

**Diagram**

- **Axes:**
  - Y-axis: Conversion Transconductance - Microhmhos
  - X-axis: Oscillator-Grid Milliamperes

**Graph Characteristics:**
- The graph shows a curve indicating the relationship between conversion transconductance and oscillator-grid milliamperes.
- The curve peaks at a certain point and then decreases as the milliamperes increase.

**Date:**
- OCT. 23, 1939