PENTAGRID AMPLIFIER
FOR "ON-OFF" CONTROL APPLICATIONS INVOLVING
LONG PERIODS OF OPERATION UNDER CUTOFF CONDITIONS

GENERAL DATA

Electrical:
Heater, for Unipotential Cathode:
Voltage ................................ 6.3 ± 10% ac or dc volts
Current .................................. 0.3 amp
Microphonism ............................ Not Tested
Direct Interelectrode Capacitances (Approx.,):°
Grid No.1 to Plate ........................ 0.08 max. μμf
Grid No.3 to Plate ........................ 0.35 max. μμf
Grid No.1 to Grid No.3 ................... 0.15 max. μμf
Grid No.1 to All Other 
Electrodes and Heater .................... 5.4 μμf
Grid No.3 to All Other 
Electrodes and Heater .................... 6.9 μμf
Plate to All Other 
Electrodes and Heater .................... 7.6 μμf
° with no external shield.

Characteristics, Class A Amplifier:
Plate Voltage ................................ 67.5 67.5 volts
Grids-No.2 and No.4 Voltage .............. 67.5 67.5 volts
Grid-No.3 Voltage .......................... 0 4 volts
Grid-No.1 Voltage .......................... 0 0 volts
Grid-No.1-to-Plate 
Transconductance ......................... 2000 1100 μmhos
Grid-No.3-to-Plate 
Transconductance ......................... 1100 μmhos

Mechanical:
Mounting Position ........................ Any
Maximum Overall Length .................... 2-1/8"
Maximum Seated Length .................... 1-7/8"
Length; Base Seat to Bulb Top (Excluding tip) 1-1/2" ± 3/32"
Maximum Diameter ......................... 3/4"
Bulb ....................................... T-5-1/2
Base ....................................... Small-Button Miniature 7-Pin
Basing Designation for BOTTOM VIEW ........ 7CH

GATED AMPLIFIER IN COMPUTER SERVICE
& "ON-OFF" CONTROL SERVICE

Maximum Ratings, Absolute Values:
PLATE VOLTAGE .......................... 250 max. volts

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PENTAGRID AMPLIFIER

GRIDS-No.2 and No.4 VOLTAGE: See Curve
GRIDS-No.2 and No.4 SUPPLY VOLTAGE: 250 max. volts
GRID-No.3 SUPPLY VOLTAGE:
  Negative bias value: 100 max. volts
  Positive bias value: 0 max. volts
  Peak negative value: 200 max. volts
  Peak positive value: 90 max. volts
GRID-No.1 SUPPLY VOLTAGE:
  Negative bias value: 100 max. volts
  Positive bias value: 0 max. volts
  Peak negative value: 200 max. volts
  Peak positive value: Limited in any application by the peak cathode current and the grid-No.1 input
PLATE DISSIPATION: 1 max. watt
GRID-No.3 INPUT: 0.5 max. watt
GRIDS-No.2 and No.4 INPUT: 1 max. watt
GRID-No.1 INPUT: 0.5 max. watt
DC CATHODE CURRENT: 20 max. ma
PEAK CATHODE CURRENT: 70 max. ma
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): 120 max. °C

Typical Operation:

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<tr>
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<th>CUTOFF CONDITION</th>
<th>ZERO-BIAS CONDITION</th>
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<tr>
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<td>Grid-No.1 Control</td>
<td>Grid-No.3 Control</td>
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<tr>
<td>Plate-Supply Voltage</td>
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<td>150</td>
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<tr>
<td>Grid-No.3 Supply</td>
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<tr>
<td>Voltage</td>
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<td></td>
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<tr>
<td>Grids-No.2 &amp; No.4</td>
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<tr>
<td>Supply Voltage</td>
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<td>75</td>
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<tr>
<td>Grid-No.1 Supply</td>
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<tr>
<td>Voltage</td>
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<tr>
<td>Plate-Circuit</td>
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<tr>
<td>Resistance</td>
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<tr>
<td>Grids-No.2 &amp; No.4</td>
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<tr>
<td>Series Resistor</td>
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<tr>
<td>Grid-No.1 Circuit</td>
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<td>Grids-No.2 &amp; No.4</td>
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<td>Current</td>
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TENTATIVE DATA 1
Maximum Circuit Values:

Grid-No.1 or Grid-No.3—Circuit Resistance:
  For fixed-bias operation . . . . . . . . . . 0.5 max. megohm
  For cathode-bias operation . . . . . . . . . 1.0 max. megohm

RANGE VALUES FOR EQUIPMENT DESIGN

<table>
<thead>
<tr>
<th>Cutoff Condition</th>
<th>Note</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Current. . . .</td>
<td>1a and 1b</td>
<td>-</td>
<td>0.2  ma</td>
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</tbody>
</table>

Zero-Bias Condition

| Plate Current. . . . | 2             | 5.0  | 6.5  ma |

Note 1a: For conditions with grid No.1 as control electrode: 6.3 volts on heater, plate-supply volts = 150, grid-No.3 supply volts = 0, grids-No.2 & No.4 supply volts = 75, grid-No.1 supply volts = -10, plate—circuit resistance (ohms) = 20000, grid-No.3 circuit resistance (ohms) = 47000, grids-No.2 & No.4 series resistor (ohms) = 470, and grid No.1—circuit resistance (ohms) = 47000.

Note 1b: For conditions with grid No.3 as control electrode: values are same as for Note 1a except that grid-No.3 supply volts = -10 and grid-No.1 supply volts = 0.

Note 2: For conditions with 6.3 volts on heater, plate-supply volts = 150, grids-No.2 and No.4 supply volts = 75, grid-No.3 supply volts = 0, grid No.1 supply volts = 0, plate—circuit resistance (ohms) = 20000, grid-No.3—circuit resistance (ohms) = 47000, grids-No.2 and No.4 series resistor (ohms) = 470, and grid-No.1—circuit resistance (ohms) = 47000.
AVERAGE OPERATION CHARACTERISTICS
WITH ECC1 AS VARIABLE

E_c = 6.3 VOLTS
GRID N°3 SUPPLY VOLTS = 0
GRIDS N°2 & N°4 SUPPLY VOLTS = 75
GRID N°3 - CIRCUIT RESISTANCE (OHMS) = 47000
GRIDS N°2 & N°4 SERIES RESISTOR (OHMS) = 470
GRID N°1 - CIRCUIT RESISTANCE (OHMS) = 47000

GRIDS N°2 & N°4 (IC2 + 4) MILLIAMPERES

PLATE (I_b) MILLIAMPERES

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