



IR5

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**PENTAGRID CONVERTER**

MINIATURE TYPE

|          |        |           |
|----------|--------|-----------|
| Filament | Coated |           |
| Voltage  | 1.4    | d-c volts |
| Current  | 0.05   | amp.      |

Direct Interelectrode Capacitances:<sup>0</sup>

|                                              |          |    |
|----------------------------------------------|----------|----|
| Grid #3 to All Other Electrodes (R-F Input)  | 7.0      | μf |
| Plate to All Other Electrodes (Mixer Output) | 7.5      | μf |
| Grid #1 to All Other Electrodes (Osc. Input) | 3.8      | μf |
| Grid #3 to Plate                             | 0.4 max. | μf |
| Grid #3 to Grid #1                           | 0.2 max. | μf |
| Grid #1 to Plate                             | 0.1 max. | μf |

Maximum Overall Length

2-1/8"

Maximum Seated Height

1-7/8"

Maximum Diameter

3/4"

Bulb

T-5-1/2

Base<sup>▲</sup>

Miniature Button 7- Pin

Pin 1-Filament -

Pin 5-Filament -

Pin 2-Plate

Pin 6-Grid #3

Pin 3-Grids #2 &amp; #4

Pin 7-Filament +

Pin 4-Grid #1



Mounting Position

BOTTOM VIEW (7AT)

Any

*Maximum and minimum Ratings Are Design-Center Values*CONVERTER SERVICE

|                                 |           |       |
|---------------------------------|-----------|-------|
| Plate Voltage                   | 90 max.   | volts |
| Grids #2 & #4 Voltage           | 67.5 max. | volts |
| Grids #2 & #4 Supply Voltage    | 90 max.   | volts |
| Grid #3 Voltage                 | 0 min.    | volts |
| Total Zero-Sig. Cathode Current | 5.5 max.  | ma.   |

*Typical Operation and Characteristics:*

|                       |     |      |     |      |                |
|-----------------------|-----|------|-----|------|----------------|
| Plate Voltage         | 45  | 67.5 | 90  | 90   | volts          |
| Grids #2 & #4 Voltage | 45  | 67.5 | 45  | 67.5 | volts          |
| Grid #3 Voltage       | 0   | 0    | 0   | 0    | volts          |
| Grid #1 Resistor      | 0.1 | 0.1  | 0.1 | 0.1  | megohm         |
| Plate Resistance      | 0.6 | 0.5  | 0.8 | 0.6  | approx. megohm |
| Conversion Transcond. | 235 | 280  | 250 | 300  | μmhos          |

Grid #3 Bias for Conver.

Transcond. of approx.

|                       |      |      |      |      |       |
|-----------------------|------|------|------|------|-------|
| 5 μmhos               | -9   | -14  | -9   | -14  | volts |
| Plate Current         | 0.7  | 1.4  | 0.8  | 1.6  | ma.   |
| Grids #2 & #4 Current | 1.9  | 3.2  | 1.9  | 3.2  | ma.   |
| Grid #1 Current       | 0.15 | 0.25 | 0.15 | 0.25 | ma.   |
| Total Cathode Current | 2.75 | 5    | 2.75 | 5    | ma.   |

NOTE: The transconductance between Grid #1 and Grids #2 & #4 tied to plate (not oscillating) is approximately 1400 μmhos under the following conditions: Grid #1 & #3 at 0 volts; Grids #2 & #4 and plate at 67.5 volts.

<sup>0</sup> With no external shield.

<sup>▲</sup> The center hole in sockets designed for this base provides for the possibility that this tube type may be manufactured with the exhaust-tube tip at the base end. For this reason, it is recommended that in equipment employing this tube type, no material be permitted to obstruct the socket hole.

← Indicates a change.

May 1, 1942

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RCA MANUFACTURING COMPANY, INC.

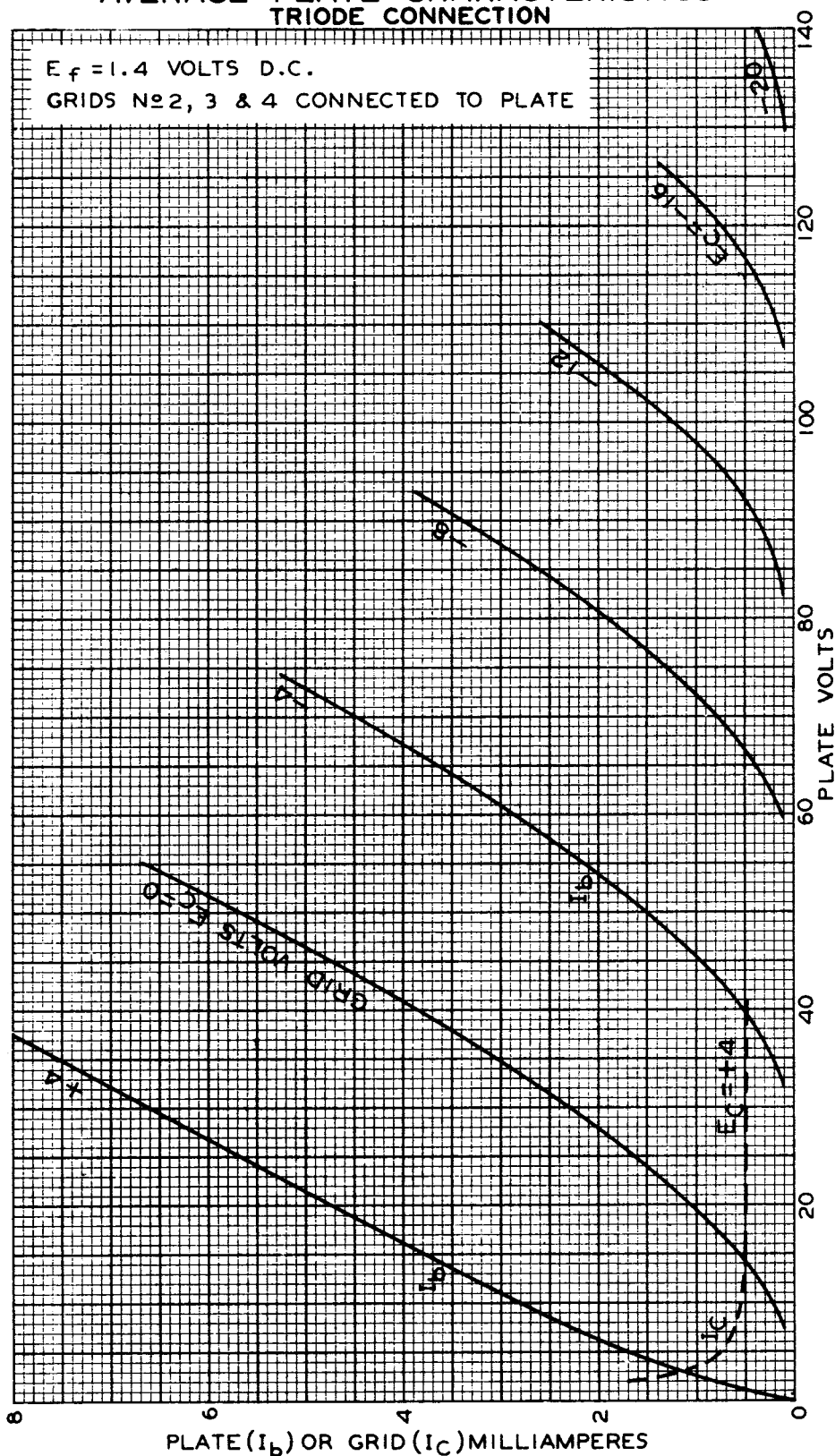
DATA

1R5



1R5

# AVERAGE PLATE CHARACTERISTICS TRIODE CONNECTION



MAY 4, 1942

RCA RADITRON DIVISION  
RCA MANUFACTURING COMPANY, INC.

92C-6350R1



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## OPERATION CHARACTERISTICS

 $E_f = 1.4$  VOLTS D.C.

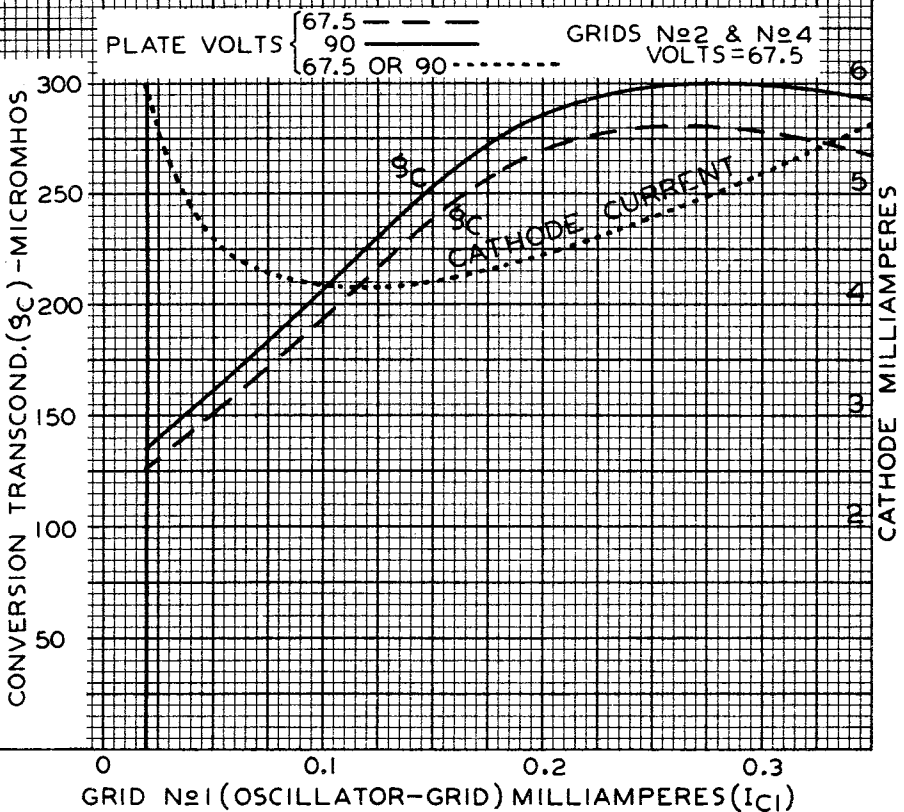
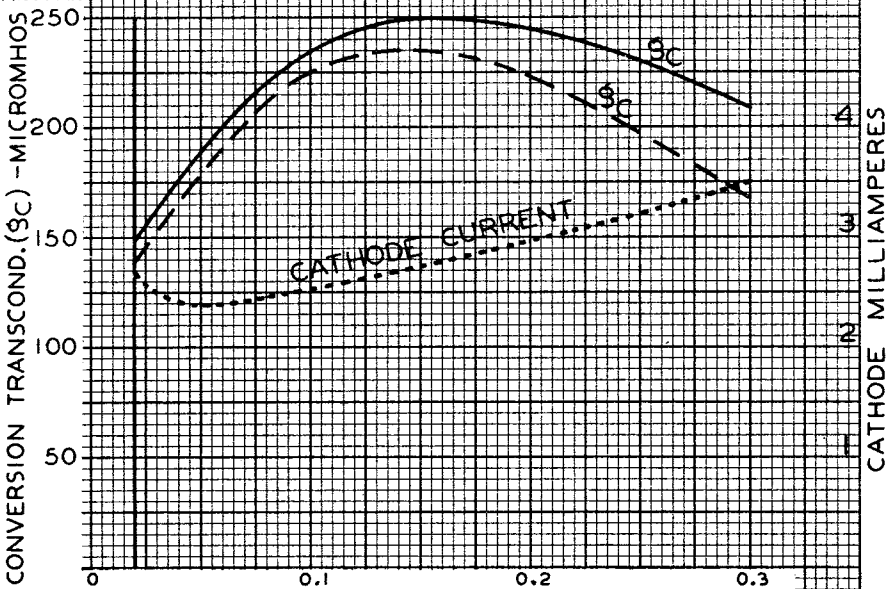
GRID No 3 VOLTS = 0

GRID No 1 RES. = 100 000 OHMS; RECOMMENDED MIN.  $I_{C1} = 0.02$  MA.

GRID No 1 CUR. VARIED BY ADJUSTMENT OF OSC. VOLTAGE

OSC. VOLTS ON GRIDS No 2 &amp; No 4 &amp; ON FILAMENT = 0

PLATE VOLTS  $\begin{cases} 45 \text{ ---} \\ 90 \text{ ---} \\ 45 \text{ OR } 90 \text{ - - - -} \end{cases}$  GRIDS No 2 & No 4 VOLTS = 45



MAY 30, 1940

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92C-6098R I

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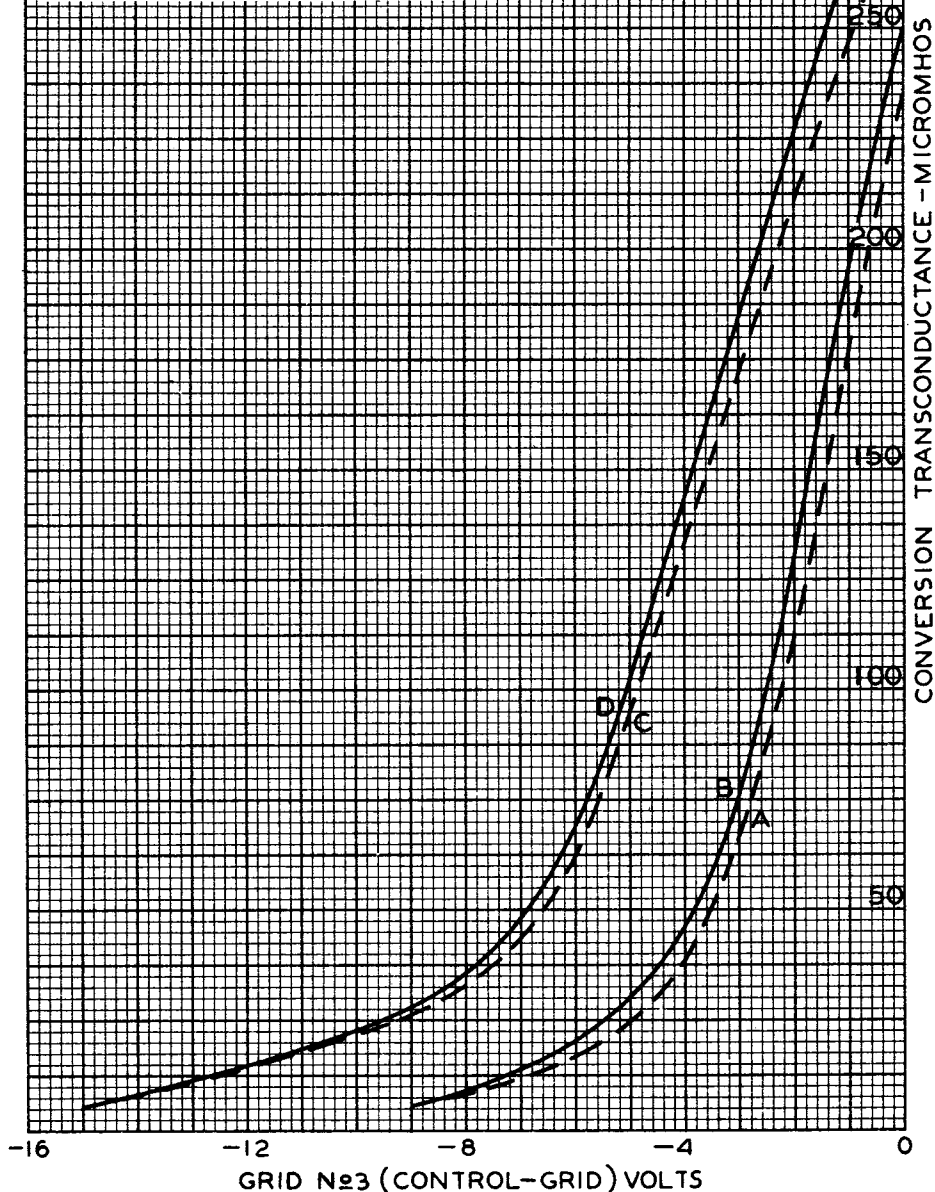
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## OPERATION CHARACTERISTICS

 $E_f = 1.4$  VOLTS D.C.

| CURVE | PLATE VOLTS | GRID No2 & No4 VOLTS | GRID No1 RESISTOR OHMS | GRID No1 CURRENT* $\mu A$ |
|-------|-------------|----------------------|------------------------|---------------------------|
| A     | 45          | 45                   | 100000                 | 150                       |
| B     | 90          | 45                   | 100000                 | 150                       |
| C     | 67.5        | 67.5                 | 100000                 | 250                       |
| D     | 90          | 67.5                 | 100000                 | 250                       |

\*OBTAINED BY ADJUSTMENT OF OSC.-GRID  
(GRID No1) VOLTS TO GIVE INDICATED VALUES  
OSC. VOLTS ON GRIDS No2 & No4 & ON FILAMENT = 0



MAY 29, 1940

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92C-6097R1