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THYRATRON

MERCURY-VAPOR TRIODE

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GENERAL DATA

Electrical:

Filament, Coated:

Voltage. 5 volts

Current. 10 amp

Minimum Heating Time:

At initial installation without anode voltage, for proper distribution of condensed mercury 15 minutes

During subsequent operation and prior to conduction, for bringing condensed-mercury temperature within operating range. } { Not less than 60 seconds to provide adequate filament heating; longer, if required by low ambient temperatures.

Direct Interelectrode Capacitances:⁰Grid to Anode. 10 max. μ mfGrid to Cathode. 20 max. μ mfIonization Time. 10 approx. μ secondsDeionization Time 1000 approx. μ seconds

Anode Voltage Drop 15 approx. volts

Grid Control Ratio[▲] 200 approx.⁰ With no external shield.

Mechanical:

Mounting Position. Vertical, base down

Overall Length 10-1/8" to 11-1/16"

Maximum Diameter 3-7/8"

Cooling. Convection

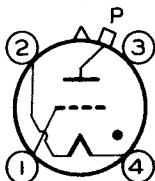
Bulb T-24

Cap Skirted Medium No. 3985

Base Medium-Metal-Shell Jumbo 4-Pin, Bayonet

BOTTOM VIEW

Pin 1-Grid
Pin 2-Filament,
Internal
Shield



Pin 3-No
Connection
Pin 4-Filament
Cap - Anode

Maximum Ratings, Absolute Values:

For Anode-Supply Frequencies between 25 and 150 cps

COND. MERCURY TEMP. RANGE[□] 25-55 25-50 °C

PEAK ANODE VOLTAGE:

Forward. 10000 max. 15000 max. volts

Inverse. 10000 max. 15000 max. volts

GRID VOLTAGE:

Before Anode

Conduction (Peak or DC) -500 max. -500 max. volts

During Anode

Conduction (Average)[●] -10 max. -10 max. volts

▲, □, ●: See next page.

JUNE 20, 1947

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TENTATIVE DATA

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CATHODE CURRENT:

Peak	10 max.	6.4 max.	amp
Average	1.8 max.	1.6 max.	amp
Surge, for max. duration of 0.1 second . . .	200 max.	200 max.	amp
Averaging Time	1	1	cycle

GRID CURRENT:

Peak	+1 max.	+1 max.	amp
Average	+0.1 max.	+0.1 max.	amp
Averaging Time	1	1	cycle

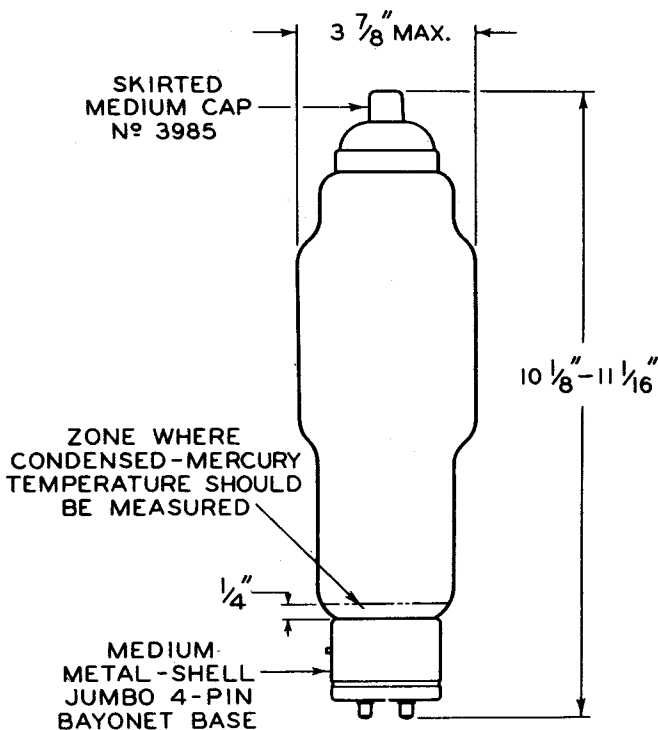
Maximum Circuit Values:

Grid-Circuit Resistance. . .	0.1 max.	0.1 max. megohm
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▲ For conditions with 0.1-megohm grid resistor, circuit returns to pin No. 2 as datum of potential, and filament voltage at pin No. 4 180° out of phase with the anode voltage.

□ Recommended operating value is $40^{\circ} \pm 5^{\circ}\text{C}$.

● Averaged over one conducting cycle.



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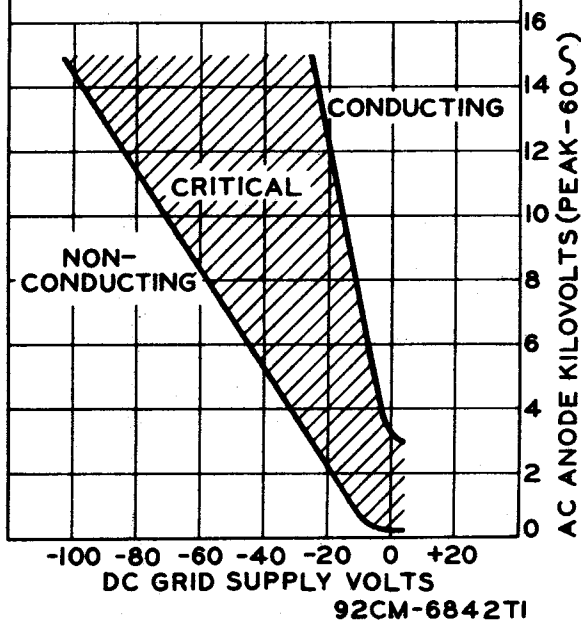
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OPERATIONAL RANGE OF CRITICAL GRID VOLTAGE

TYPE 5563

RANGE IS FOR CONDITIONS WHERE:

$E_f = 5$ VOLTS AC $\pm 5\%$; CIRCUIT RETURNS TO PIN N $\circ$ 2; FIL.VOLTAGE AT PIN N $\circ$ 4 IS (-) WHEN ANODE VOLTAGE IS (+). THE RANGE INCLUDES INITIAL & LIFE VARIATIONS OF INDIVIDUAL TUBES. GRID RESISTOR = 10000 TO 100000 OHMS. COND. MERCURY TEMPERATURE = 25° TO 50°C.





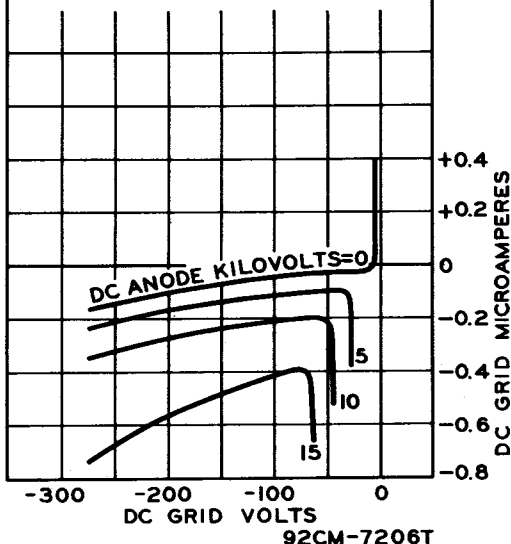
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AVERAGE GRID CHARACTERISTICS BEFORE ANODE CONDUCTION

TYPE 5563

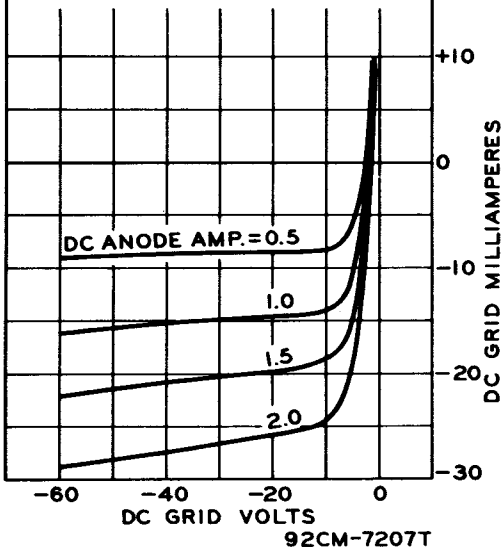
$E_f = 5$ VOLTS AC; CIRCUIT RETURNS TO
PIN N^o2; FILAMENT VOLTAGE AT PIN
N^o4 IS (+) WHEN ANODE VOLTAGE IS (+);
GRID RESISTOR (OHMS)=0; CONDENSED-
MERCURY TEMPERATURE = 46°C.



AVERAGE GRID CHARACTERISTICS DURING ANODE CONDUCTION

TYPE 5563

$E_f = 5$ VOLTS AC; CIRCUIT RETURNS TO
PIN N^o2; FILAMENT VOLTAGE AT PIN
N^o4 IS (+) WHEN ANODE VOLTAGE IS (+);
GRID RESISTOR (OHMS)=0; CONDENSED-
MERCURY TEMPERATURE = 46°C.





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AVERAGE CONTROL CHARACTERISTICS

 $E_f = 5$ VOLTS AC

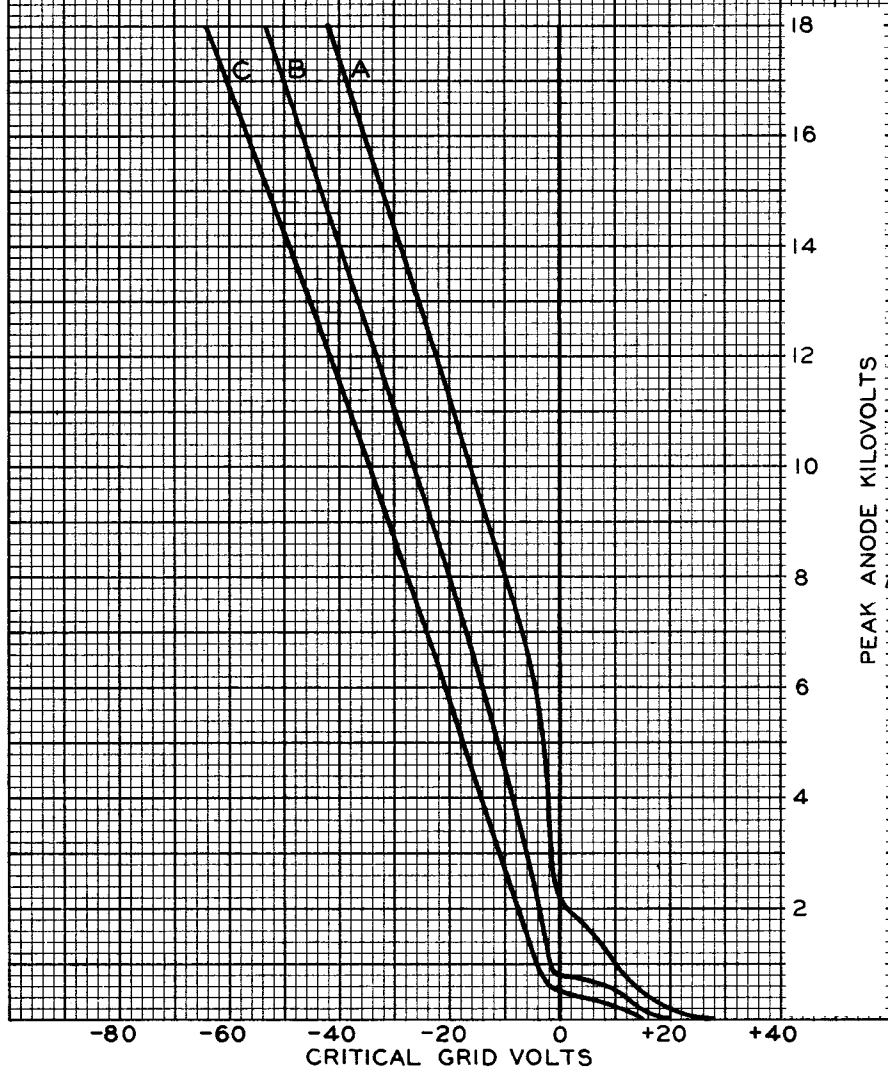
CIRCUIT RETURNS TO PIN №2.

FILAMENT VOLTAGE AT PIN №4

IS (+) WHEN ANODE VOLTAGE IS (+).

GRID RESISTOR=25000 OHMS.

CURVE	CONDENSED MERCURY TEMPERATURE
A	25°C
B	40°C
C	55°C



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SHIFT OF AVERAGE CONTROL CHARACTERISTICS WITH CHANGE IN FILAMENT PHASING AND CIRCUIT RETURN

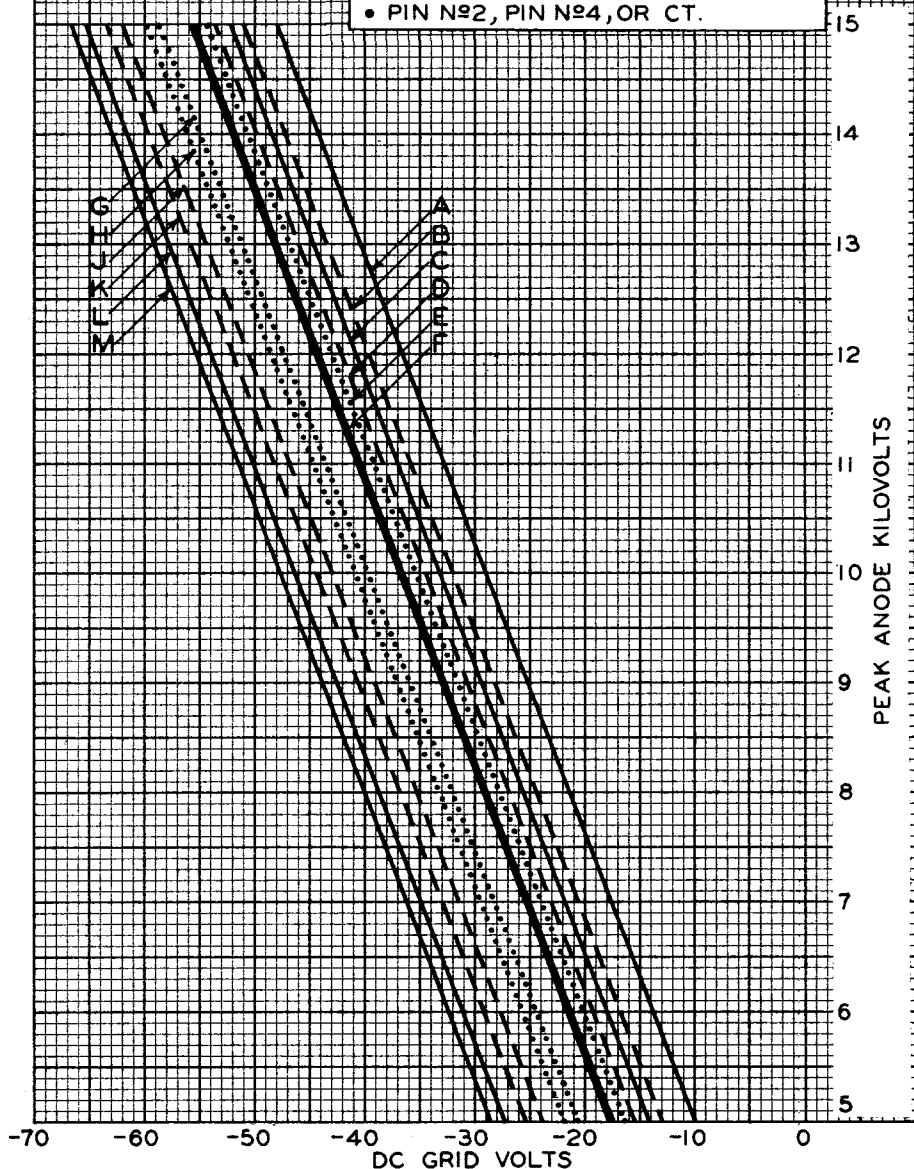
 $E_f = 5 \text{ VOLTS AC}$

CURVE	PHASE ANGLE DEGREES*	CIRCUIT RETURN	CURVE	PHASE ANGLE DEGREES*	CIRCUIT RETURN
A ———	0	PIN N ^o 2	G 135	135	PIN N ^o 4
B - - - -	0	CT ^o	H 180	180	PIN N ^o 4
C ———	45	PIN N ^o 2	J - - - -	135	CT ^o
D - - - -	45	CT ^o	K - - - -	180	CT ^o
E 0	0	PIN N ^o 4	L ———	135	PIN N ^o 2
F ———	90	ANY ^o	M ———	180	PIN N ^o 2

* BETWEEN FILAMENT VOLTAGE AT
PIN N^o4 AND ANODE VOLTAGE

• CENTER TAP OF FILAMENT
TRANSFORMER

• PIN N^o2, PIN N^o4, OR CT.



MAY 17, 1949

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92CM-7285

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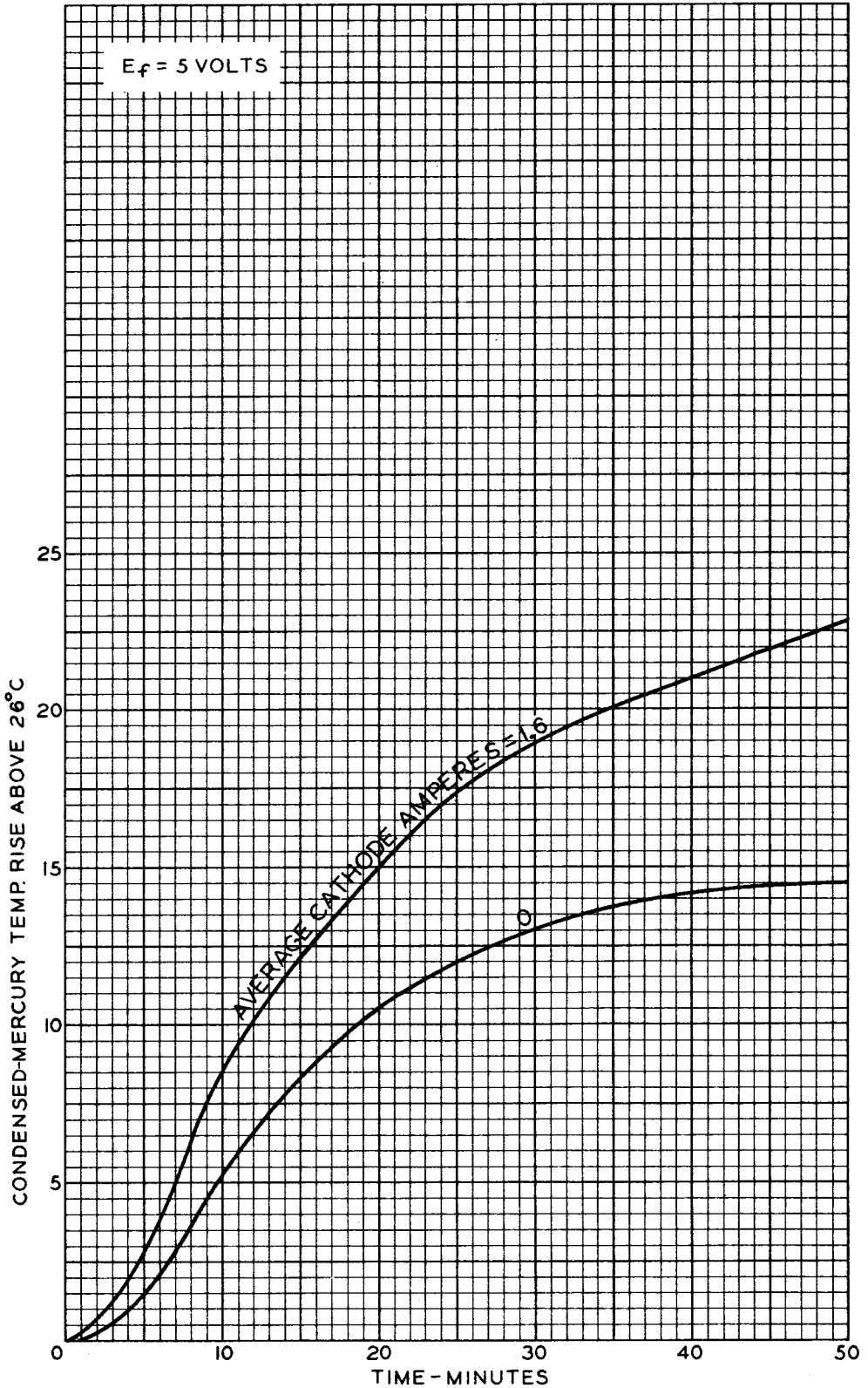


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OPERATION CHARACTERISTICS

$E_f = 5$ VOLTS



MAY 4, 1949

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