



2D21

THYRATRON

GAS TETRODE, MINIATURE TYPE

GENERAL DATA

Electrical:

	<u>Min.</u>	<u>Av.</u>	<u>Max.</u>	
Heater, for Unipotential Cathode:				
Voltage (AC or DC)	5.7	6.3	6.9	volts
Current, with heater volts = 6.3	0.54	0.60	0.66	amp

Cathode:

Heating Time, prior to tube conduction. 10 - - sec

Direct Interelectrode Capacitances (Approx.):^o

Grid No.1 to Anode.	0.026	μ f
Input	2.4	μ f
Output.	1.6	μ f

Ionization Time (Approx.):

For conditions: dc anode volts = 100; grid-No. 1 square-pulse volts = 50; peak anode amp. during conduction = 0.5 0.5 μ sec

Deionization Time (Approx.):

For conditions: dc anode volts = 125; grid-No. 1 volts = -100, grid-No. 1 resistor (ohms) = 1000; dc anode amp. = 0.1 35 μ sec

For conditions: dc anode volts = 125; grid-No. 1 volts = -10; grid-No. 1 resistor (ohms) = 1000; dc anode amp. = 0.1 75 μ sec

Maximum Critical Grid Current, with ac anode-supply volts (rms) = 460, and average anode amp. = 0.1 0.5 μ amp

Anode Voltage Drop (Approx.). 8 volts

Grid-No. 1 Control Ratio (Approx.) with grid-No. 1 resistor (megohms) = 0; grid-No. 2 volts = 0 250

Grid-No. 2 Control Ratio (Approx.) with grid-No. 1 resistor (megohms) = 0; grid-No. 2 resistor (megohms) = 0; grid-No. 1 volts = 0 1000

^o Without external shield.

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" \pm 3/32"

Maximum Diameter. 3/4"

Bulb. T-5-1/2

Base. Small-Button Miniature 7-Pin

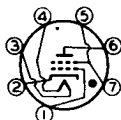
Basing Designation for BOTTOM VIEW. 7BN

Pin 1 - Grid No. 1

Pin 2 - Cathode

Pin 3 - Heater

Pin 4 - Heater



Pin 5 - Grid No. 2

Pin 6 - Anode

Pin 7 - Grid No. 2

← Indicates a change.

JUNE 15, 1948

TUBE DEPARTMENT

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

DATA



THYRATRON

RELAY and GRID-CONTROLLED RECTIFIER SERVICE

Maximum Ratings, Absolute Values:

PEAK ANODE VOLTAGE:		
Forward	650 max.	volts
Inverse	1300 max.	volts
GRID-No.2 (SHIELD-GRID) VOLTAGE:		
Peak, before anode conduction	-100 max.	volts
→ Average, during anode conduction [■]	-10 max.	volts
GRID-No.1 (CONTROL-GRID) VOLTAGE:		
Peak, before anode conduction	-100 max.	volts
→ Average, during anode conduction [■]	-10 max.	volts
CATHODE CURRENT:		
Peak	0.5 max.	amp
Average [■]	0.1 max.	amp
→ Surge, for duration of 0.1 sec. max.	10 max.	amp
GRID-No.2 CURRENT:		
→ Average [■]	+0.01 max.	amp
GRID-No.1 CURRENT:		
→ Average [■]	+0.01 max.	amp
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	100 max.	volts
Heater positive with respect to cathode	25 max.	volts
→ AMBIENT TEMPERATURE RANGE	-75 to +90	°C

→ Typical Operating Conditions for Relay Service:

RMS Anode Voltage	117	400	..	volts
Grid-No.2 Voltage	0	0	..	volts
RMS Grid-No.1 Bias Voltage [□]	5	-	..	volts
DC Grid-No.1 Bias Voltage	-	-6	..	volts
Peak Grid-No.1 Signal Voltage	5	6	..	volts
Grid-No.1-Circuit Resistance	1.0	1.0	..	megohm
Anode-Circuit Resistance [#]	1200	2000	..	ohms

Maximum Circuit Values:

Grid-No.1-Circuit Resistance	10 max.	megohms
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■ Averaged over any interval of 30 sec. max.

□ Approximately 180° out of phase with the anode voltage.

Sufficient resistance, including the tube load, must be used under any conditions of operation to prevent exceeding the current ratings.

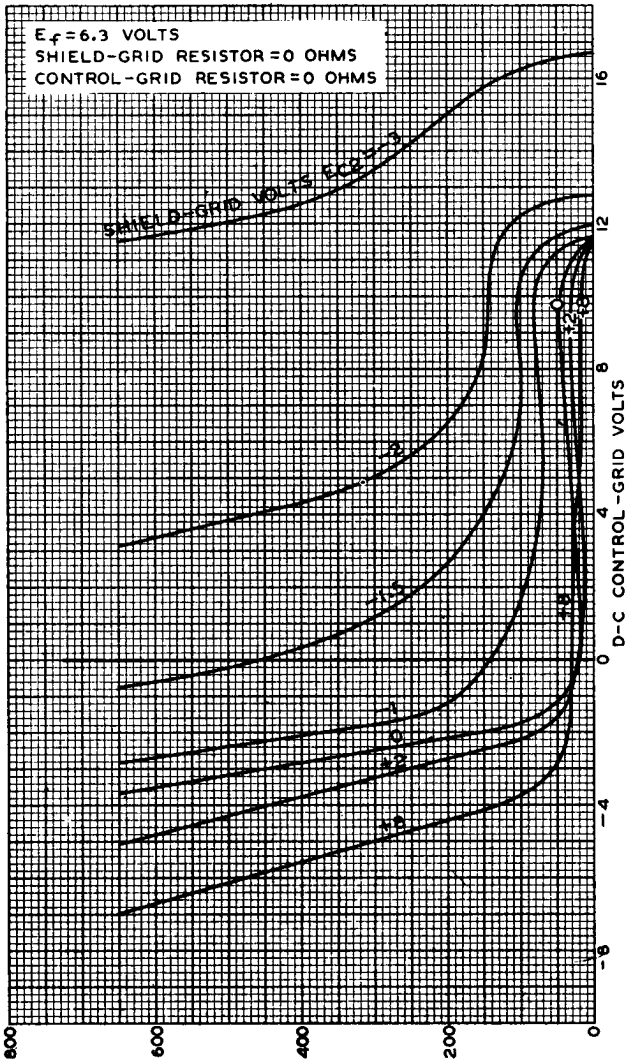
→ Indicates a change.



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AVERAGE CONTROL CHARACTERISTICS



MAY 2, 1944

D-C ANODE VOLTS

RCA VICTOR DIVISION

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-6531R1

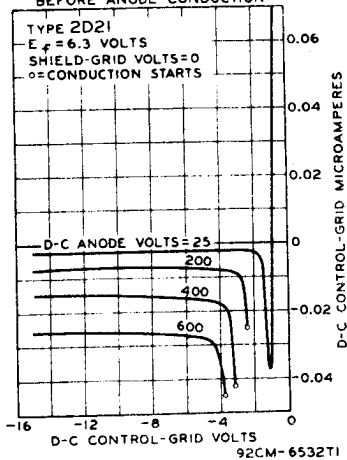
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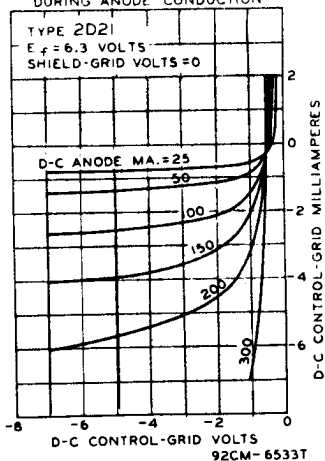
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THYRATRON

AVERAGE GRID CHARACTERISTICS
BEFORE ANODE CONDUCTION



AVERAGE GRID CHARACTERISTICS
DURING ANODE CONDUCTION



APRIL 1, 1944

RCA VICTOR DIVISION
 RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-6532T1
 92CM-6533T



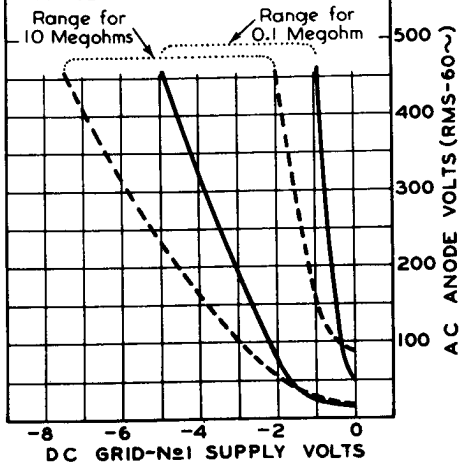
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OPERATIONAL RANGE OF CRITICAL GRID VOLTAGE

TYPE 2D21 SHIELD-GRID VOLTS=0
RANGES SHOWN ARE FOR TWO VALUES
OF GRID RESISTOR - 0.1 MEG. AND 10
MEG. - AND TAKE INTO ACCOUNT INITIAL
DIFFERENCES BETWEEN INDIVIDUAL
TUBES & SUBSEQUENT DIFFERENCES
DURING TUBE LIFE, FOR A HEATER-
VOLTAGE RANGE OF 5.7 TO 6.9 VOLTS



92CM-6534T2