



2D21

THYRATRON

GAS TETRODE, MINIATURE TYPE

2D21

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:	<u>Min.</u>	<u>Av.</u>	<u>Max.</u>	
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.):⁰

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

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
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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

⁰ Without external shield.

Mechanical:

Mounting Position	Any
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Maximum Overall Length	2-1/8"
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Maximum Seated Length	1-7/8"
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Length, Base Seat to Bulb Top (excluding tip)	1-1/2" $\pm$ 3/32"
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Maximum Diameter	3/4"
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Bulb	T-5-1/2
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Base	Small-Button Miniature 7-Pin
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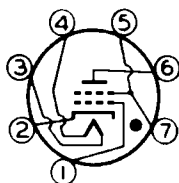
Basing Designation for BOTTOM VIEW	7BN
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Pin 1-Grid No.1

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

2D21



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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
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GRID-No.1 CURRENT:

Average [■]	+0.01 max.	amp
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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
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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.

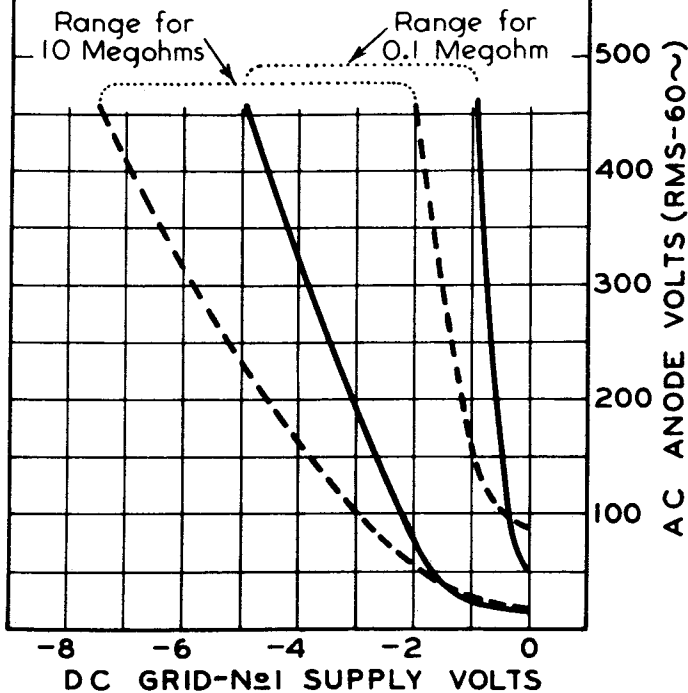


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OPERATIONAL RANGE OF CRITICAL GRID VOLTAGE

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



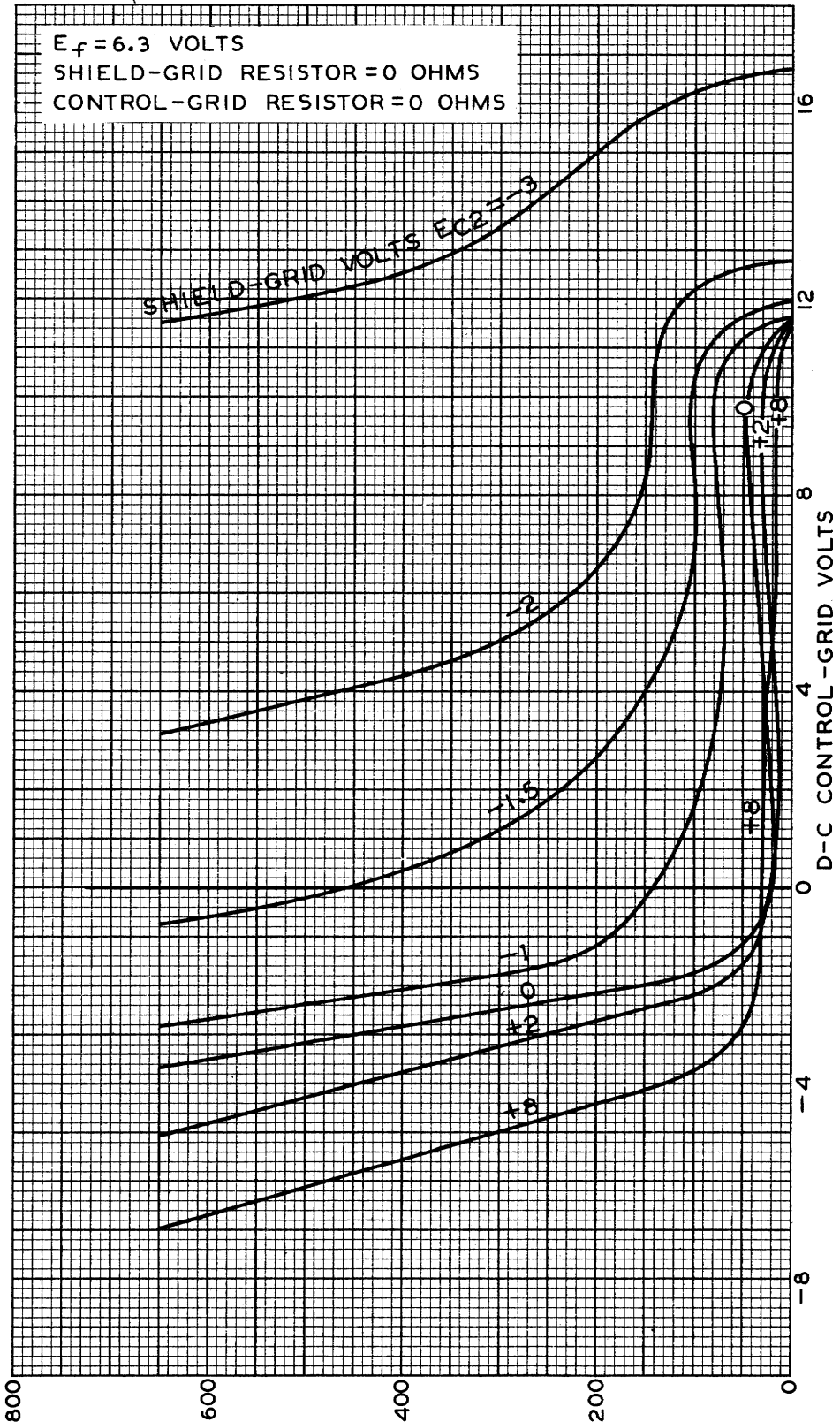
92CM-6534T2



2D21

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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-6531RI

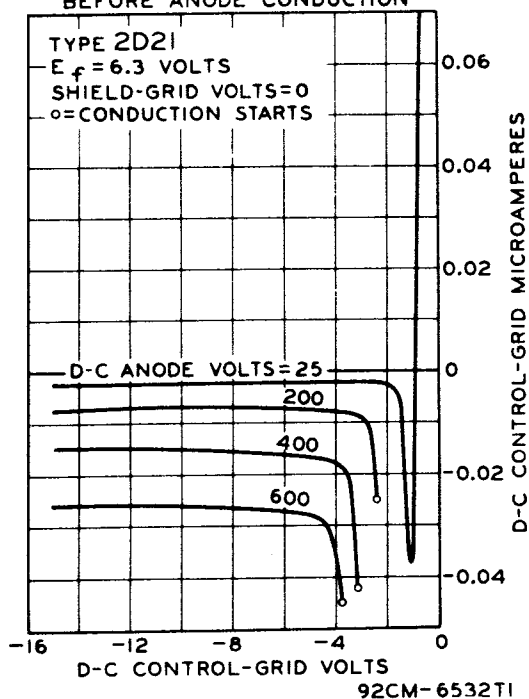
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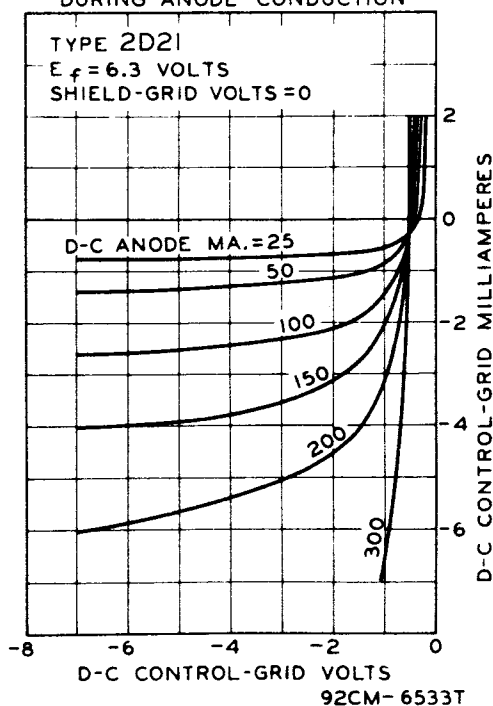
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THYRATRON

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