RCA

obsolete 6BQ7

6BQ7

MEDIUM-MU TWIN TRIODE

LOW-NOISE 9-PIN MINIATURE TYPE

For Driven Grounded-Grid Circuits

GENERAL DATA

Electrical:

Heater, for Unipotential Cathodes:

Voltage	6.3	ac or dc volts
Current	0.4	amp

Direct Interelectrode Capacitances (According to RTMA Standard ET-109-A with external shield No.315):

	Unit No.1	*Unit No.2*	
Grid to Plate	1.15	1.15	μμf
Input	2.85	–	μμf
Input *(Grounded Grid)*	–	4.95	μμf
Output	1.35	–	μμf
Output *(Grounded Grid)*	–	2.27	μμf
Plate to Cathode	0.15 max.	0.15 max.	μμf
Heater to Cathode	2.20	2.30	μμf
Plate of Unit No.1 to Plate of Unit No.2	0.010 max.		μμf
Plate of Unit No.2 to Plate & Grid of Unit No.1	0.024 max.		μμf

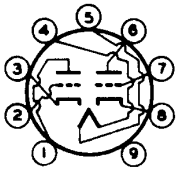
Characteristics, Amplifier Class A:

Plate Voltage	150	volts
Cathode-Bias Resistor	220	ohms
Amplification Factor	35	
Plate Resistance	5800	ohms
Transconductance	6000	μmhos
Plate Current	9	ma
Grid Volts (Approx.) for plate current of 10 μamp	-10	volts

Mechanical:

Mounting Position	Any
Maximum Overall Length	2-3/16"
Maximum Seated Length	1-15/16"
Maximum Diameter	7/8"
Bulb	T-6-1/2
Base	Small-Button Noval 9-Pin (JETEC No.E9-1)
Basing Designation for BOTTOM VIEW	9AJ

Pin 1 – Plate of Triode No.2
Pin 2 – Grid of Triode No.2
Pin 3 – Cathode of Triode No.2
Pin 4 – Heater
Pin 5 – Heater
Pin 6 – Plate of Triode No.1
Pin 7 – Grid of Triode No.1
Pin 8 – Cathode of Triode No.1
Pin 9 – Internal Shield



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AMPLIFIER - Class A

Values are for Each Unit

Maximum Ratings, *Design-Center Values:*

PLATE VOLTAGE	250▲	max.	volts
PLATE DISSIPATION	2	max.	watts
CATHODE CURRENT	20	max.	ma
PEAK HEATER–CATHODE VOLTAGE:			
Heater negative with respect to cathode	200▲	max.	volts
Heater positive with respect to cathode	200	max.	volts

Typical Operation in Push-Pull Grounded-Grid Circuit:

Values are for Each Unit

Plate Voltage	150	volts
Grid Voltage*	−2	volts
Cathode Resistor (Common to both units)	100	ohms
Plate Current	10	ma

Typical Operation in Grounded-Grid Circuit with Direct-Coupled Drive:

Unit No. 1 (driver tube) is directly coupled to Unit No. 2 (driven grounded-grid amplifier tube) as shown in accompanying circuit

	Unit No. 1	*Unit No. 2*	
Plate Supply Voltage	250	250	volts
Plate Voltage	135	115	volts
Grid Voltage	−1	−	volt
Grid Resistor	−	0.5	megohm
Plate Current	10	10	ma
Grid Current	0	0	ma
Grid Voltage (Approx.) for plate current of 10 μamp	−14	−	volts
Peak Heater–Cathode Voltage:			
Heater negative with respect to cathode	1	250	volts

Maximum Circuit Values (Each Unit):

Grid-Circuit Resistance	0.5 max.	megohm

* Obtained from cathode resistor.

▲ Under cutoff conditions, in grounded-grid circuits with direct-coupled drive, it is permissible for this voltage to be as high as 300 volts.

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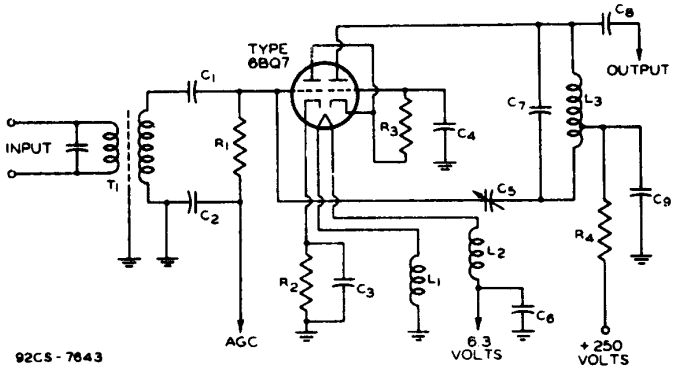
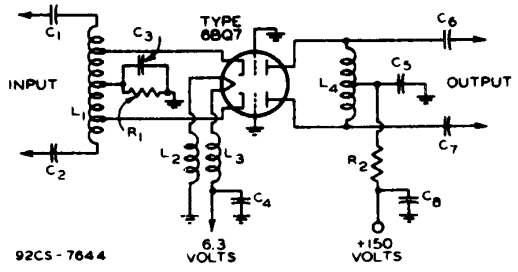
RCA-6BQ7 in Driven Grounded-Grid Amplifier Circuit with Direct-Coupled Drive.



C1: 33 μμf, 400 volts
C2: 1000 μμf, 400 volts
C3: 1000 μμf, 400 volts
C4: 1000 μμf, 400 volts
C5: 0.5 to 1.5 μμf, 400 volts
C6: 1000 μμf, 400 volts
C7: 2 μμf, 400 volts
C8: 33 μμf, 400 volts
C9: 1000 μμf, 400 volts
R1: 10000 ohms, 0.5 watt
R2: 100 ohms, 0.5 watt
R3: 500000 ohms, 0.5 watt
R4: 100 ohms, 0.5 watt

L1, L2: Bifilar chokes, each 10 turns No.18 enamel wire, 1/4" coil form
L3: Tuned circuit element of tuner. Value depends on distributed circuit capacitances. To determine tap point, tap down to 80 to 90% of total number of turns
T1: Tuned circuit element of tuner. Value depends on distributed circuit capacitances.

RCA-6BQ7 in Push-Pull Grounded-Grid Circuit.



C1 C2 C3 C4 C5: 1000 μμf, 400 volts
C6 C7: 100 μμf, 400 volts
C8: 1000 μμf, 400 volts
R1 R2: 100 ohms, 0.5 watt

L1 L4: Tuned circuit elements of tuner. Values depend on distributed circuit capacitances.
L2 L3: Bifilar chokes, each 10 turns of No.18 enamel wire, 1/4" coil form.

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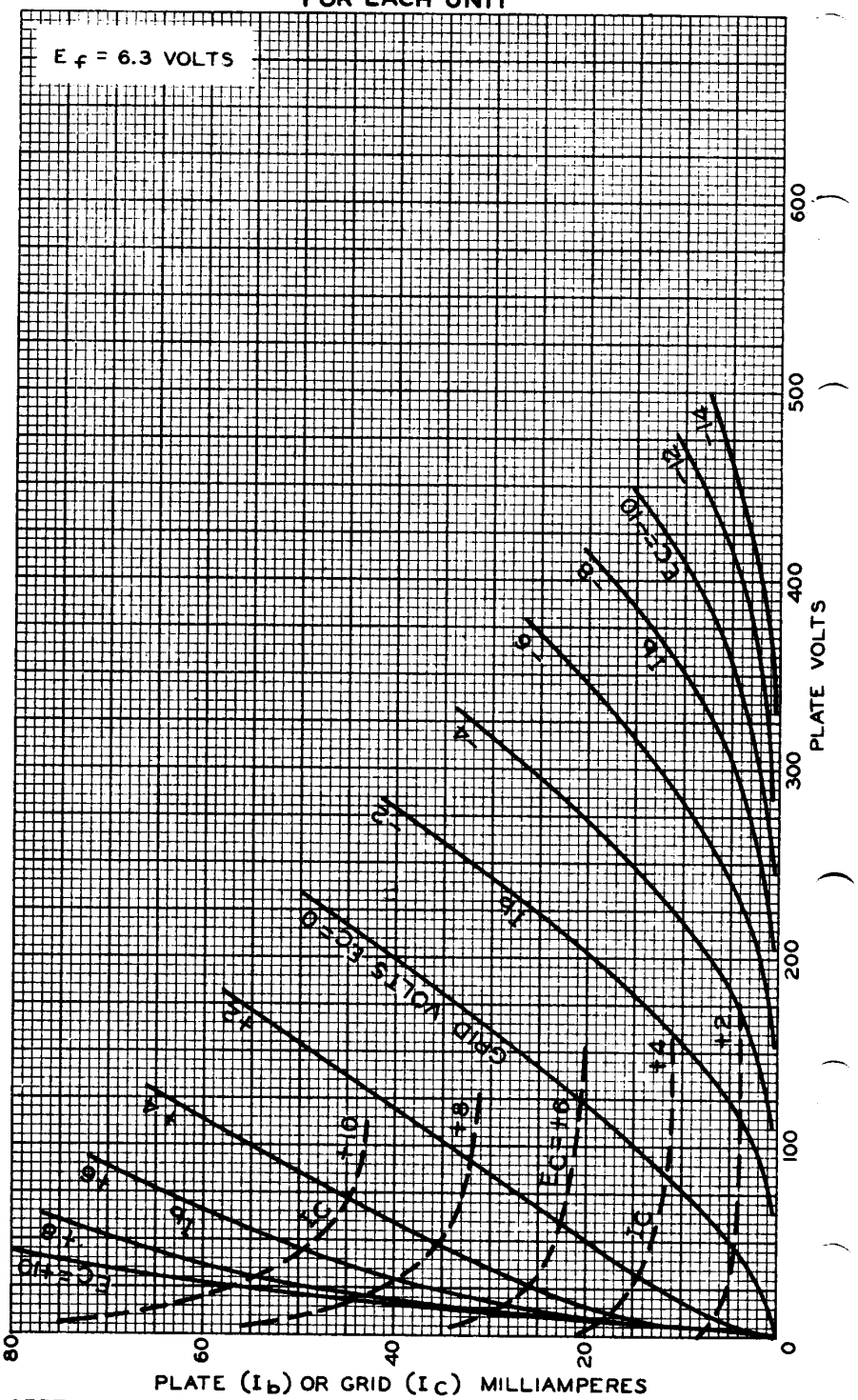
AVERAGE PLATE CHARACTERISTICS
FOR EACH UNIT



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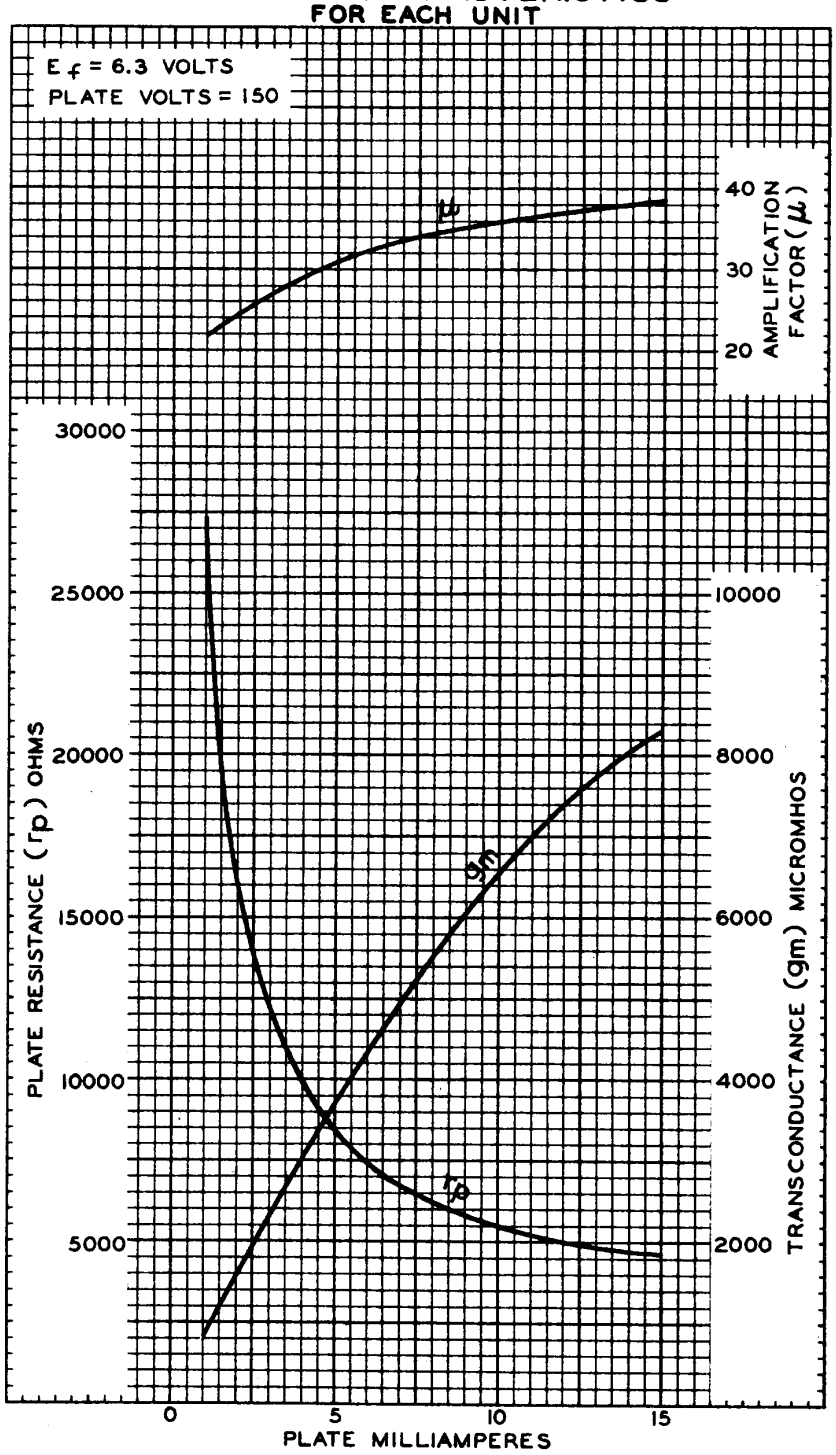
AVERAGE CHARACTERISTICS
FOR EACH UNIT



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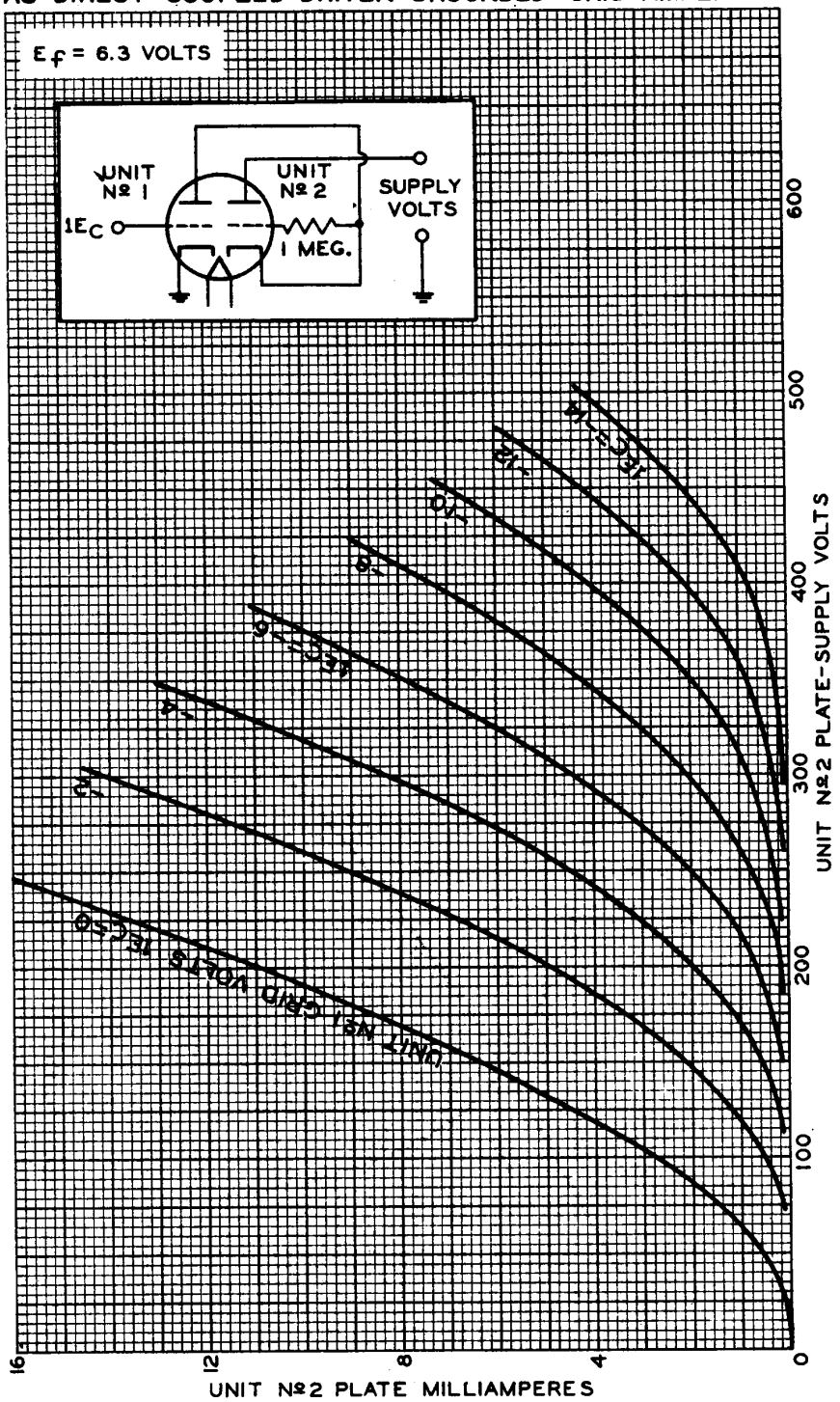
AVERAGE PLATE CHARACTERISTICS

AS DIRECT-COUPLED DRIVEN GROUNDED-GRID AMPLIFIER



OCT. 3, 1950

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AVERAGE CHARACTERISTICS