Electronic TUBES

6BZ7—4BZ7

TWIN TRIODE

FOR VHF CASCODE AMPLIFIER APPLICATIONS

DESCRIPTION AND RATING

The 6BZ7 is a miniature, medium-mu twin triode designed primarily for use as a cascode radio-frequency amplifier in very-high-frequency television tuners. In this application, its performance is characterized by high gain and low noise figure. An internal shield provides isolation between the two triode sections.

Except for heater ratings, the 4BZ7 is identical to the 6BZ7. In addition, as a result of its controlled heater warm-up characteristic, the 4BZ7 is especially suited for use in television receivers that employ 600-milliampere, series-connected heaters.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential	4BZ7	6BZ7	
Heater Voltage, AC or DC	4.2	6.3	Volts
Heater Current	0.6	0.4	Amperes
Heater Warm-up Time*	11	....	Seconds
Direct Interelectrode Capacitances†	Section 1	Section 2	
Grid to Plate	1.2	1.2	μμf
Input	2.6	....	μμf
Output	1.2	....	μμf
Heater to Cathode	2.6	2.6	μμf
Plate to Plate, maximum	0.01		μμf
Plate (Section 2) to Plate and Grid (Section 1), maximum	0.024		μμf
Plate to Cathode	0.12	0.12	μμf
Grounded-Grid Input	....	5.0	μμf
Grounded-Grid Output	....	2.2	μμf

MECHANICAL

Mounting Position—Any
Envelope—T-6½, Glass
Base—E9-1, Small Button 9-Pin

MAXIMUM RATINGS

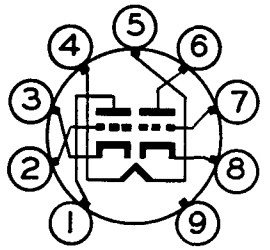
DESIGN-CENTER VALUES, EACH SECTION

Plate Voltage	250‡	Volts
Plate Dissipation	2.0	Watts
DC Cathode Current	20	Milliamperes
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200‡	Volts
Grid Circuit Resistance	0.5	Megohms

GENERAL ELECTRIC

Supersedes ET-T853, dated 4-54

BASING DIAGRAM



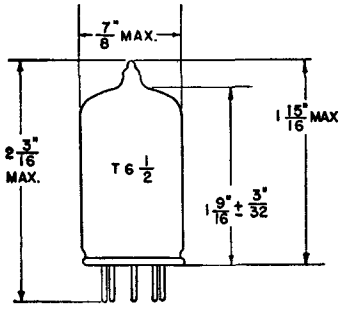
RETMA 9AJ

TERMINAL CONNECTIONS

Pin 1—Plate (Section 2)
Pin 2—Grid (Section 2)
Pin 3—Cathode (Section 2)
Pin 4—Heater
Pin 5—Heater
Pin 6—Plate (Section 1)
Pin 7—Grid (Section 1)
Pin 8—Cathode (Section 1)
Pin 9—Internal Shield

It is recommended that pin 7 be grounded.

PHYSICAL DIMENSIONS



RETMA 6-2

CHARACTERISTICS AND TYPICAL OPERATION

CLASS A_1 AMPLIFIER, EACH SECTION

Plate Voltage	150	Volts
Cathode-Bias Resistor	220	Ohms
Amplification Factor	36	
Plate Resistance, approximate	5300	Ohms
Transconductance	6800	Micromhos
Plate Current	10	Milliamperes
Grid Voltage, approximate Ib = 100 Microamperes	−7	Volts

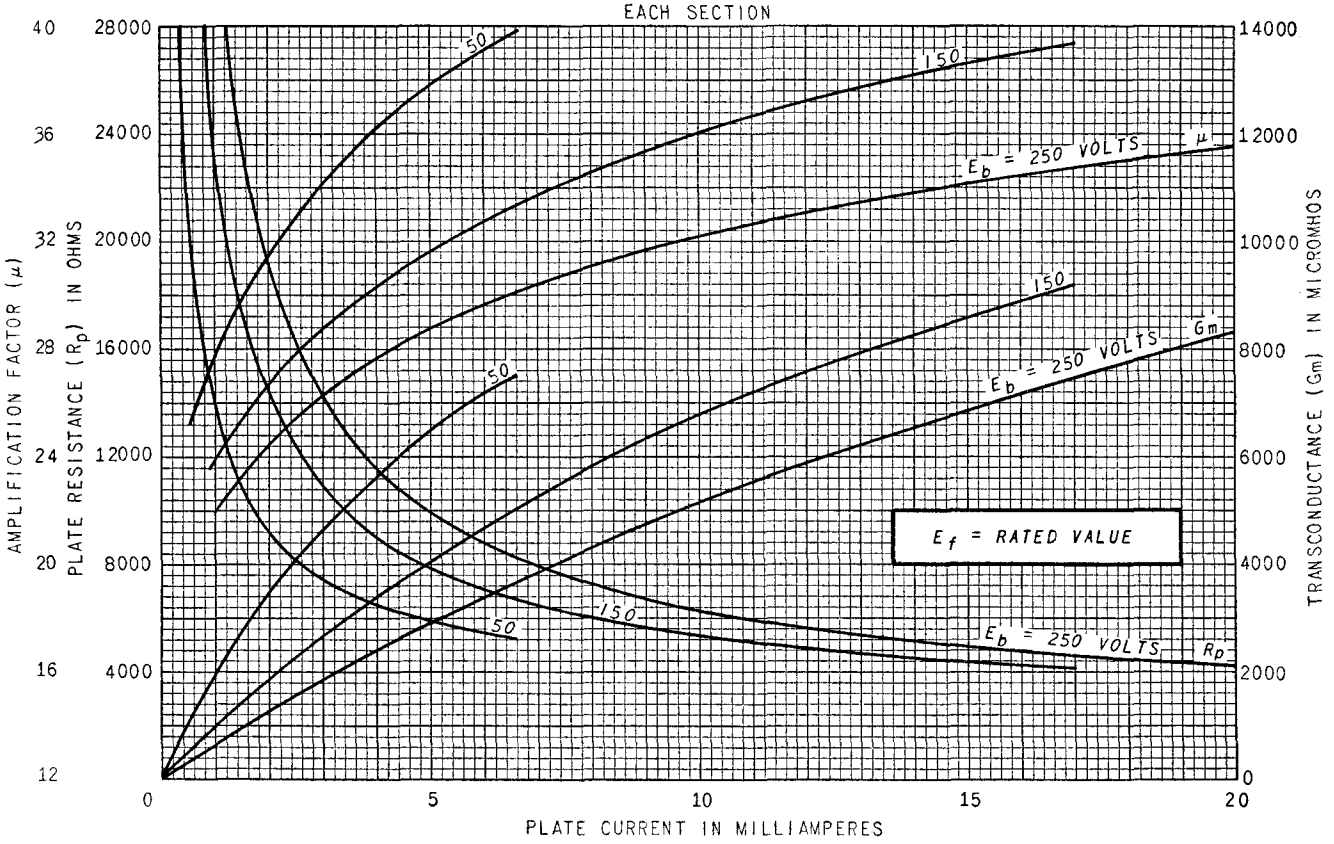
* The time required for the voltage across the heater to reach 80 percent of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.

† With external shield (RETMA 315) connected to pin 9.

‡ When the tube is used as a cascode amplifier and the two sections are connected in series, this voltage may be as high as 300 volts maximum under cutoff conditions.

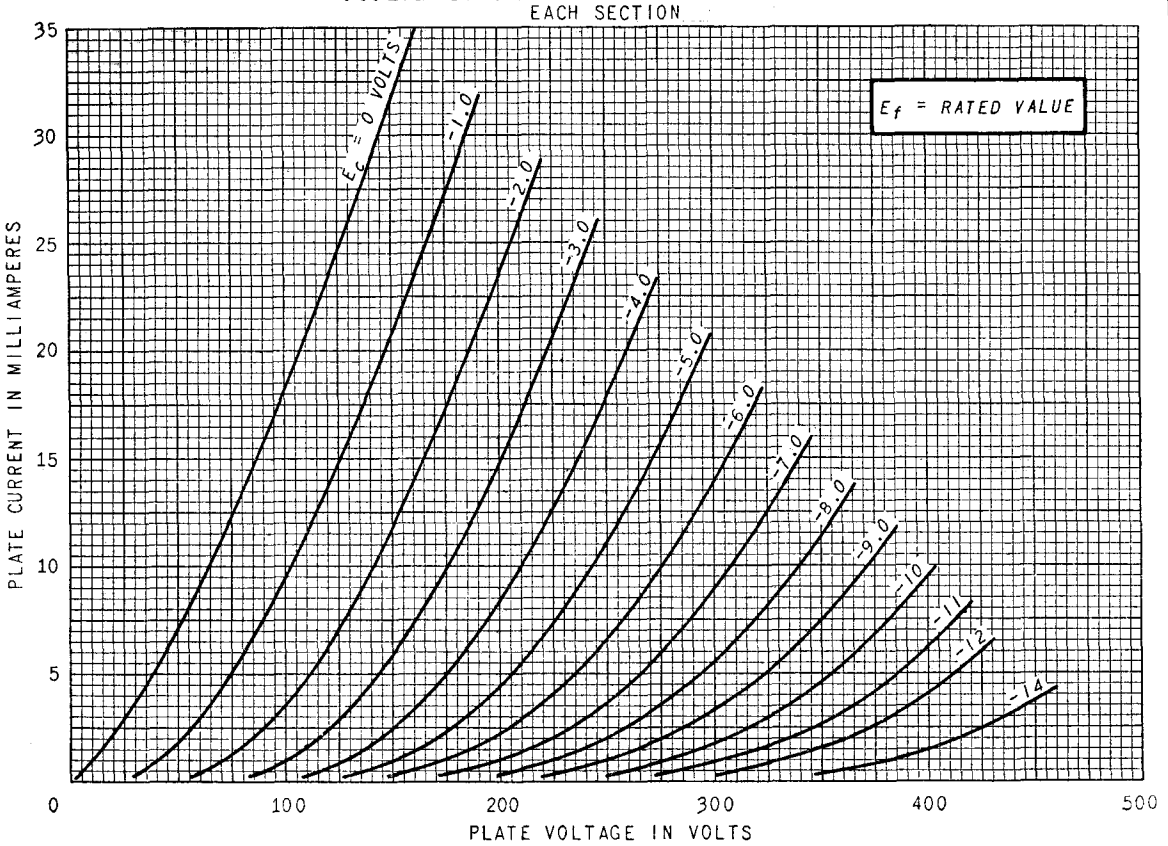
AVERAGE CHARACTERISTICS

EACH SECTION



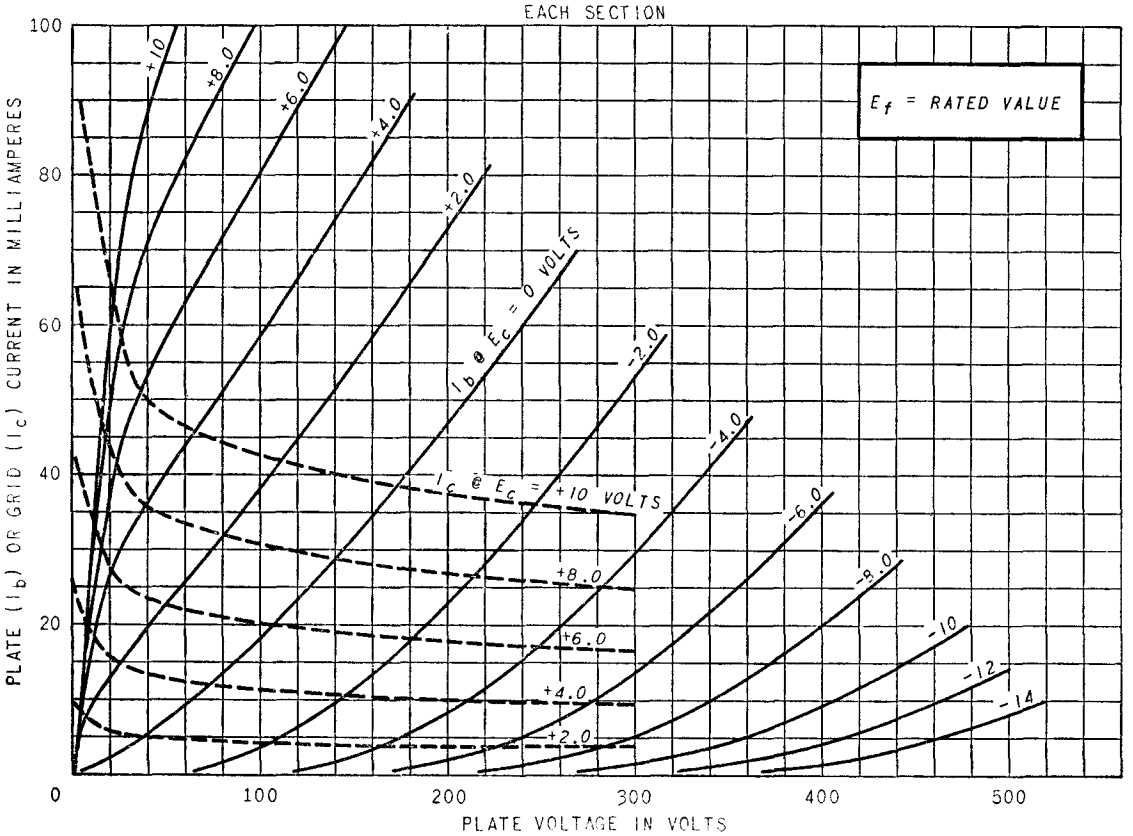
AVERAGE PLATE CHARACTERISTICS

EACH SECTION



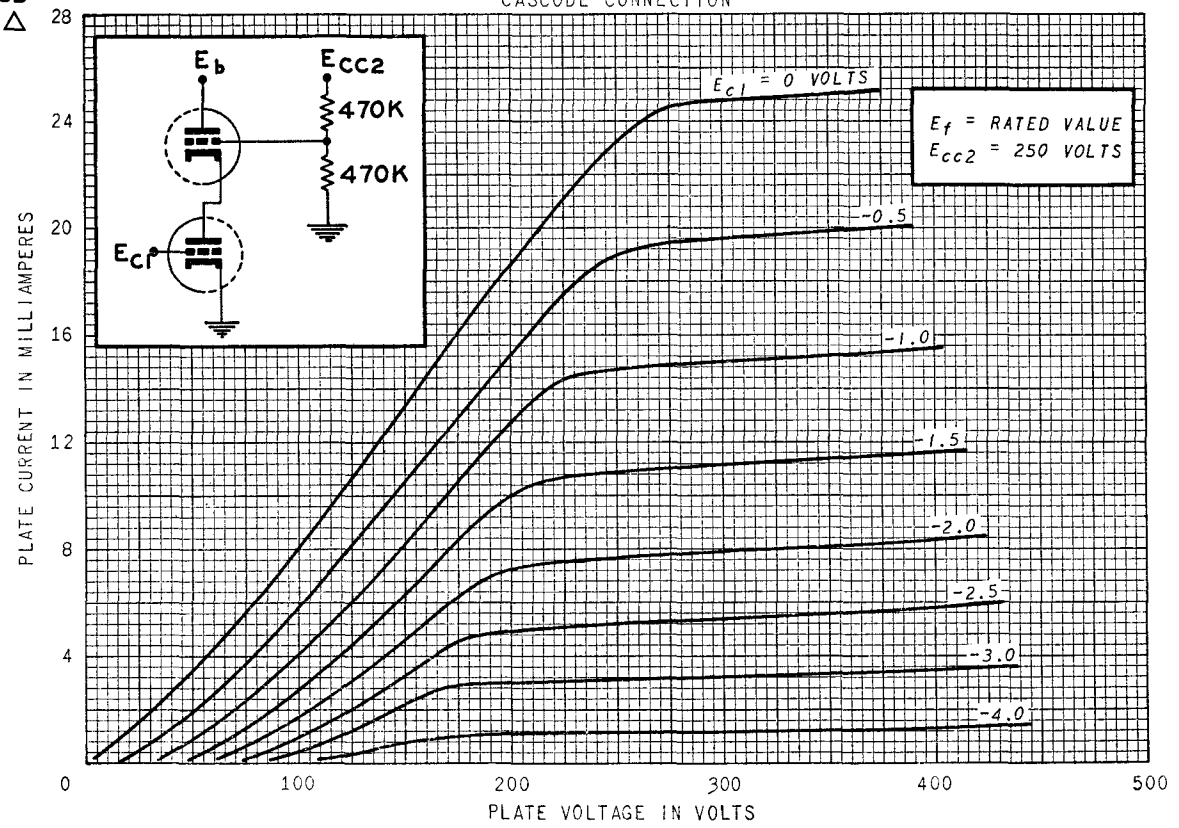
AVERAGE PLATE CHARACTERISTICS

EACH SECTION



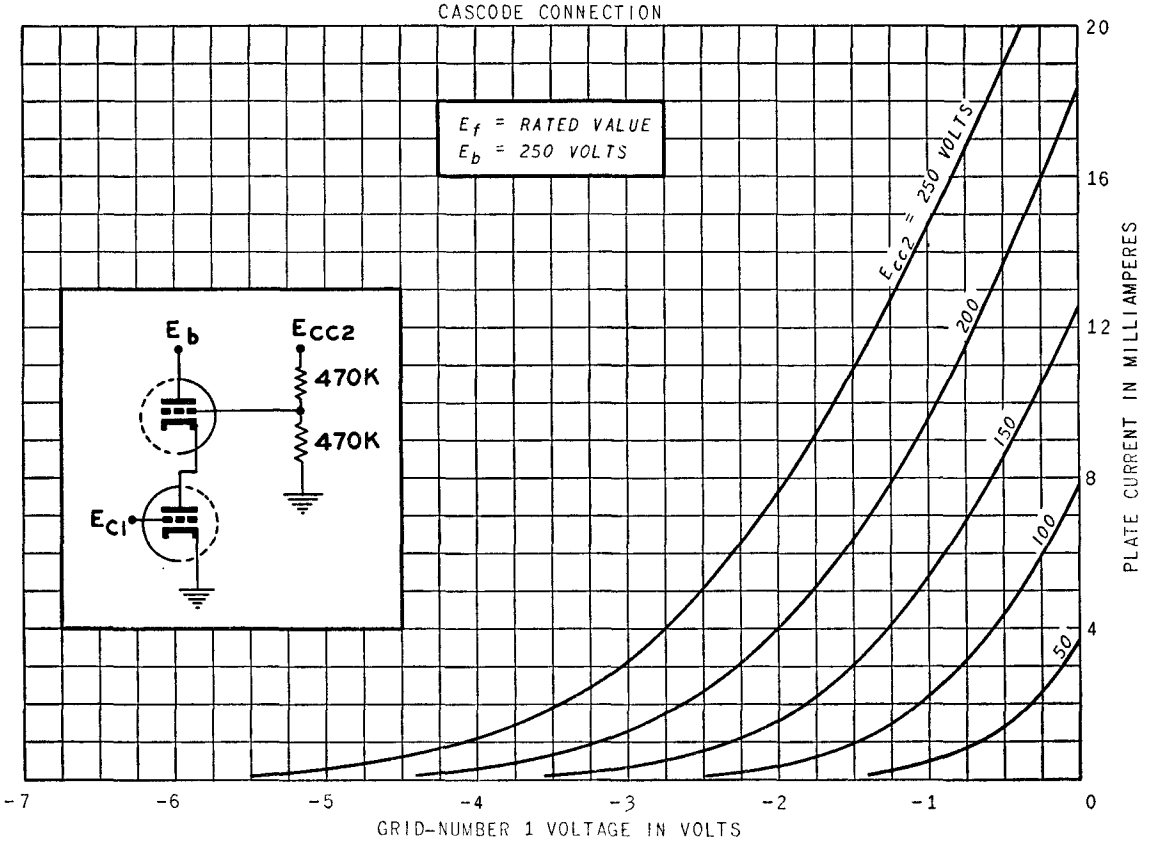
AVERAGE PLATE CHARACTERISTICS

CASCODE CONNECTION



AVERAGE TRANSFER CHARACTERISTICS

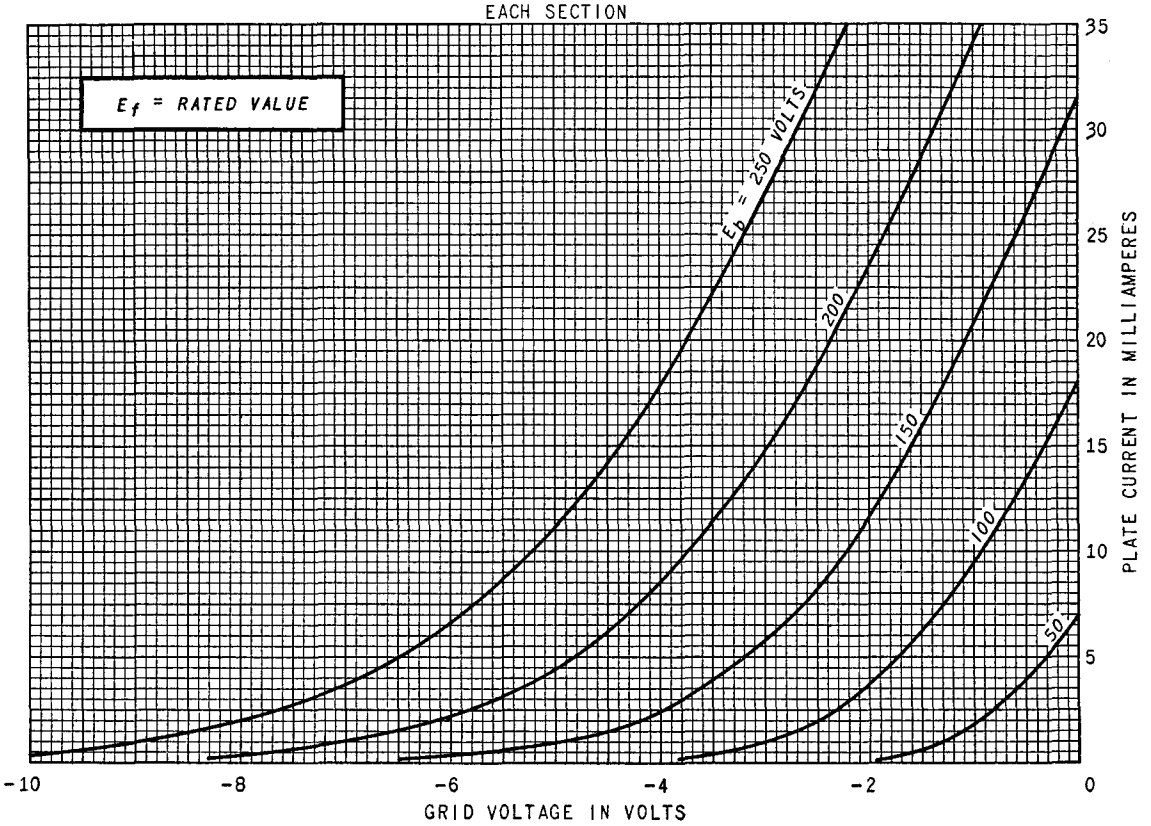
CASCODE CONNECTION



△ *Supersedes pages 3 and 4, dated 12-56*

AVERAGE TRANSFER CHARACTERISTICS

EACH SECTION



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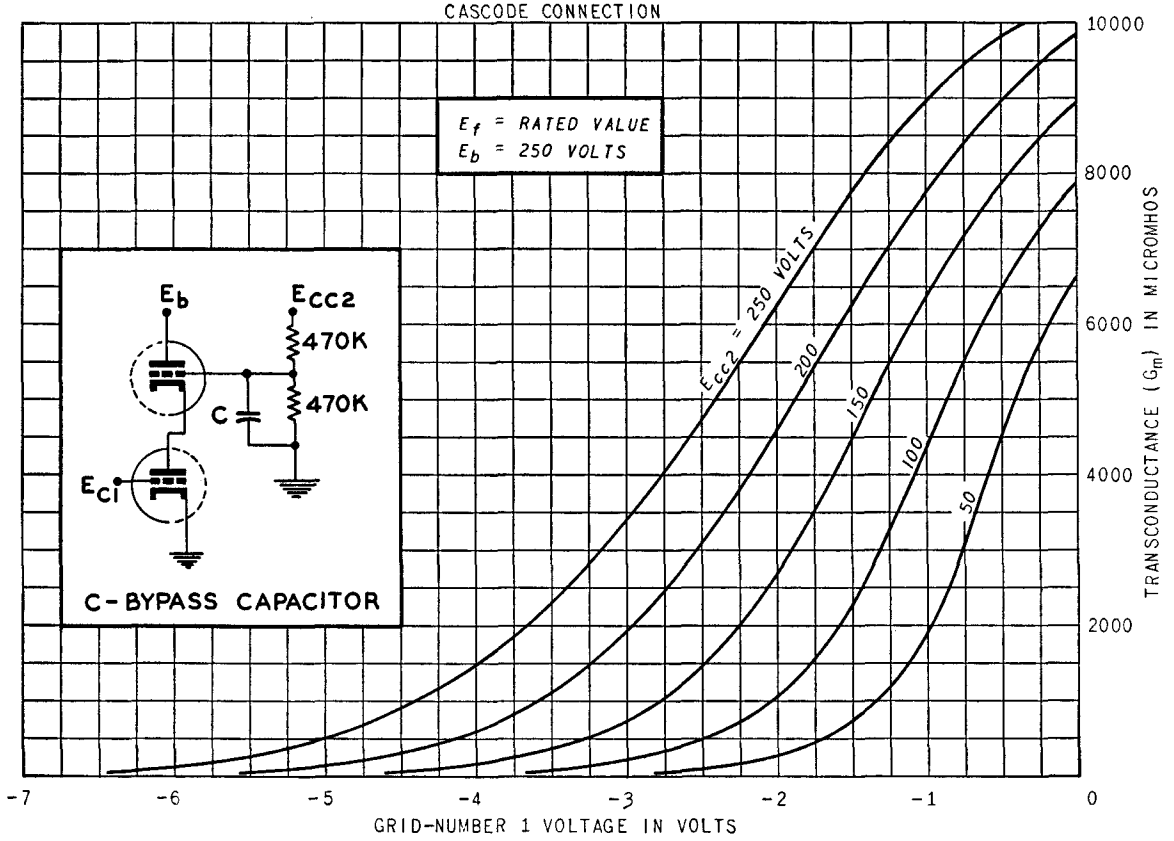
CASCODE CONNECTION