



GL-5750
HEPTODE
 Five-Star Tube
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GL-5750
 ET-T1091
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FOR PENTAGRID CONVERTER APPLICATIONS

**7-PIN MINIATURE
 HEATER-CYCLING RATING**

**SHOCK, VIBRATION RATINGS
 PROTOTYPE—6BE6**

DESCRIPTION AND RATING

The GL-5750 is a miniature pentagrid converter designed for use as a combined mixer and oscillator in superheterodyne circuits. Analysis of the electrical characteristics of this tube with those of the 6BE6 will indicate that the GL-5750 is essentially similar.

The GL-5750 is a special-quality tube intended for use in critical industrial and military applications in which operational dependability is of primary importance. Features of the tube include a high degree of mechanical strength and a heater-cathode construction capable of withstanding many-thousand cycles of intermittent operation.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential

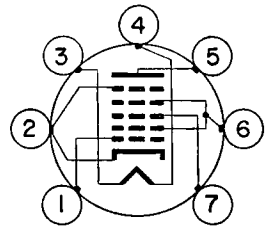
Heater Voltage, AC or DC	6.3 ± 10%	Volts
Heater Current	0.3	Amperes
Direct Interelectrode Capacitances*		
Grid-Number 3 to All	7.1	μμf
Plate to All	7.6	μμf
Grid-Number 1 to All	5.5	μμf
Cathode to All Except Grid-Number 1	15	μμf
Grid-Number 3 to Plate, maximum	0.30	μμf
Grid-Number 3 to Grid-Number 1, maximum	0.15	μμf
Grid-Number 1 to Cathode	3.0	μμf

*Without external shield.

MECHANICAL

Mounting Position—Any
 Envelope—T-5½, Glass
 Base—E7-1, Miniature Button 7-Pin

BASING DIAGRAM

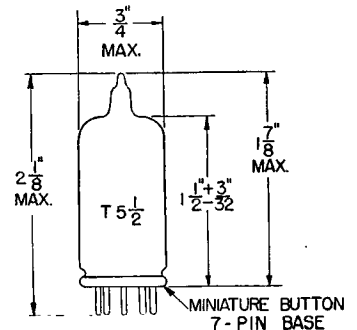


RETMA 7CH

TERMINAL CONNECTIONS

- Pin 1—Grid Number 1 (Oscillator Grid)
- Pin 2—Cathode and Grid Number 5
- Pin 3—Heater
- Pin 4—Heater
- Pin 5—Plate
- Pin 6—Grids Number 2 and 4 (Screen)
- Pin 7—Grid Number 3 (Mixer Grid)

PHYSICAL DIMENSIONS



RETMA 5-2



MAXIMUM RATINGS

DESIGN-CENTER VALUES

Plate Voltage	300 Volts
Screen-Supply Voltage	300 Volts
Screen Voltage	100 Volts
Positive DC Grid-Number 3 Voltage	0 Volts
Negative DC Grid-Number 3 Voltage	50 Volts
Plate Dissipation	1.0 Watts
Screen Dissipation	1.0 Watts
DC Cathode Current	14 Milliamperes
Heater-Cathode Voltage	
Heater Positive with Respect to Cathode	90 Volts
Heater Negative with Respect to Cathode	90 Volts

Bulb Temperature at Hottest Point † 165 C

† The indicated maximum bulb-temperature rating should never be exceeded under any circumstances. Tube life and reliability of performance will be enhanced by operation at lower temperatures.

CHARACTERISTICS AND TYPICAL OPERATION

CONVERTER SERVICE ‡

Plate Voltage	100	250 Volts
Screen Voltage	100	100 Volts
Grid-Number 3 Voltage	-1.5	-1.5 Volts
Grid-Number 1 Voltage, RMS	10	10 Volts
Grid-Number 1 Resistance	20,000	20,000 Ohms
Plate Resistance, approximate	0.4	1.0 Megohms
Conversion Transconductance	455	475 Micromhos
Plate Current	2.6	2.6 Milliamperes
Screen Current	7.5	7.5 Milliamperes
Grid-Number 1 Current	0.5	0.5 Milliamperes
Cathode Current	10.6	10.6 Milliamperes
Grid-Number 3 Voltage, approximate		
$G_c = 10$ Micromhos	-30	-30 Volts
Grid-Number 3 Voltage, approximate		
$G_c = 100$ Micromhos	-6	-6 Volts

‡ Characteristics shown are obtained in the standard RETMA conversion conductance test set which uses separate excitation. The characteristics under these conditions correspond very closely with those obtained in a self-excited oscillatory circuit operating with zero bias.

OSCILLATOR CHARACTERISTICS (NOT OSCILLATING)

Plate Voltage	100 Volts
Screen-connected to Plate	
Grid-Number 3 Voltage	0 Volts
Grid-Number 1 Voltage	0 Volts
Amplification Factor §	22.5
Transconductance §	7800 Micromhos
Cathode Current	25 Milliamperes
Grid-Number 1 Voltage, approximate	
$I_b = 10$ Microamperes	-11 Volts

§ Between grid-number 1 and grids-number 2 and 4 connected to plate.

SPECIAL TESTS AND RATINGS

Inoperatives Control

Minimum continuous operating time under life-test conditions or equivalent for all tubes prior to characteristics testing. 46 Hours

Heater-Cycling Rating

Cycles of Intermittent Operation, minimum 2000 Cycles
 $E_f = 7.5$ volts cycled for one minute on and one minute off.
 $E_b = E_{c3} = E_{c2+4} = E_{c1} = 0$ volts. $E_{hk} = 135$ volts with heater positive with respect to cathode.

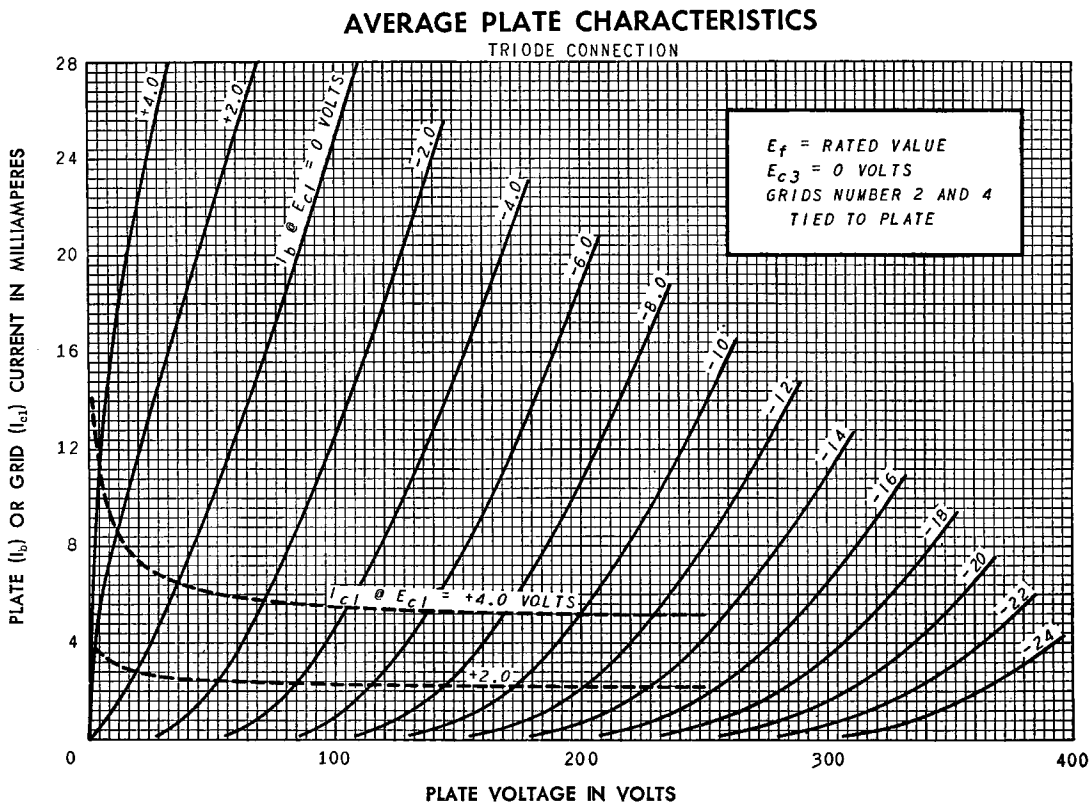
Shock Rating

Impact Acceleration in Any Direction. 450 G
 Forces as applied by the Navy-type, High Impact (flyweight) Shock Machine for Electronic Devices or its equivalent.

Fatigue Rating

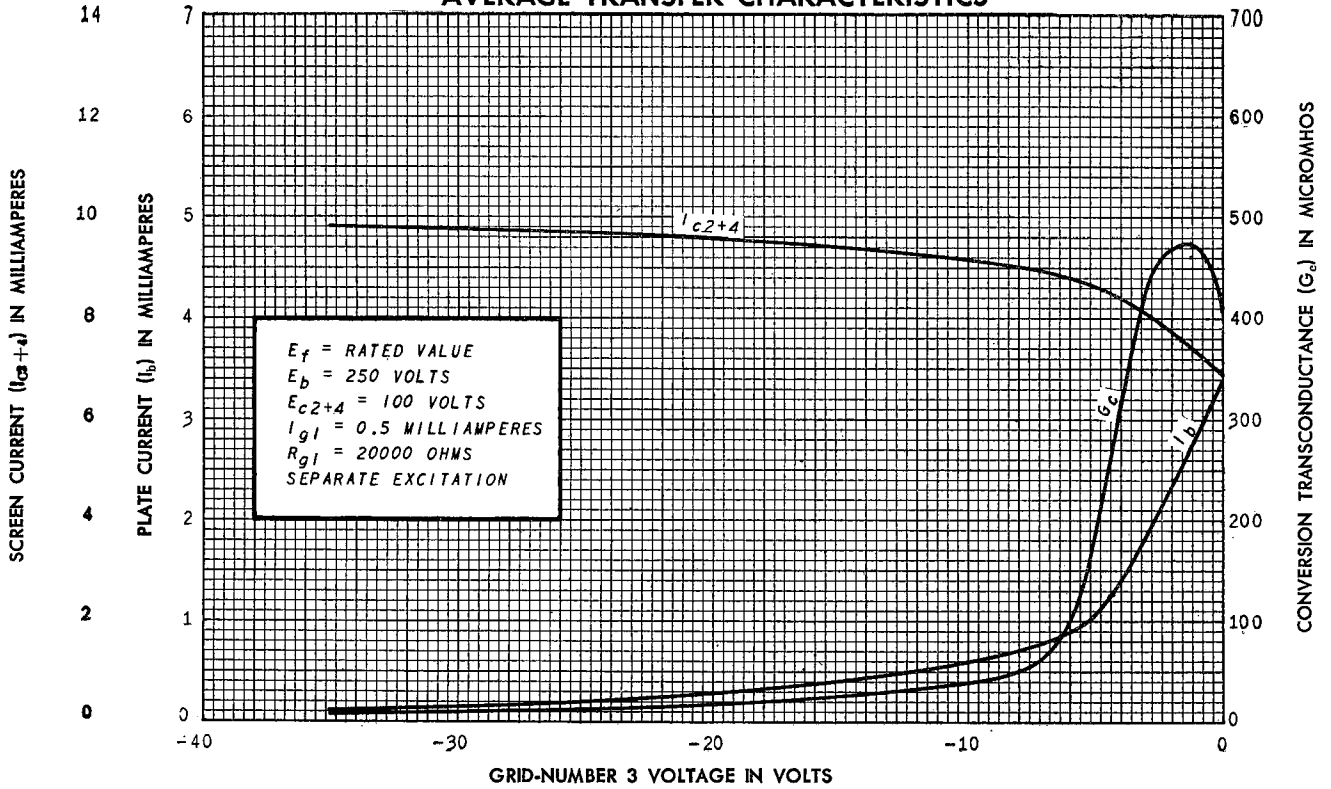
Vibrational Acceleration in Any Direction. 2.5 G
 Vibrational forces for a period of at least 100 hours at a frequency of 25 cycles per second.

Note: In the design of military equipment employing this tube type, reference should be made to the appropriate MIL-E-1B specification.



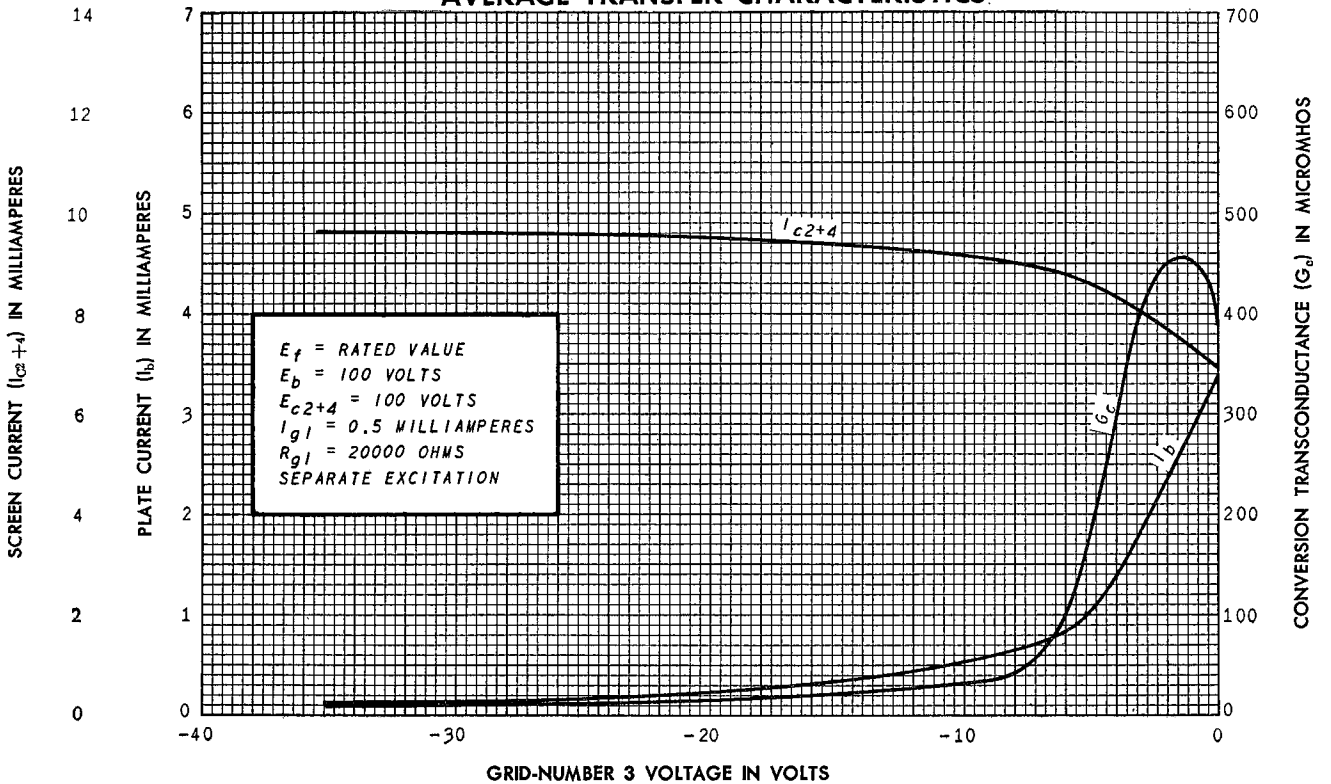
JUNE 3, 1954

AVERAGE TRANSFER CHARACTERISTICS



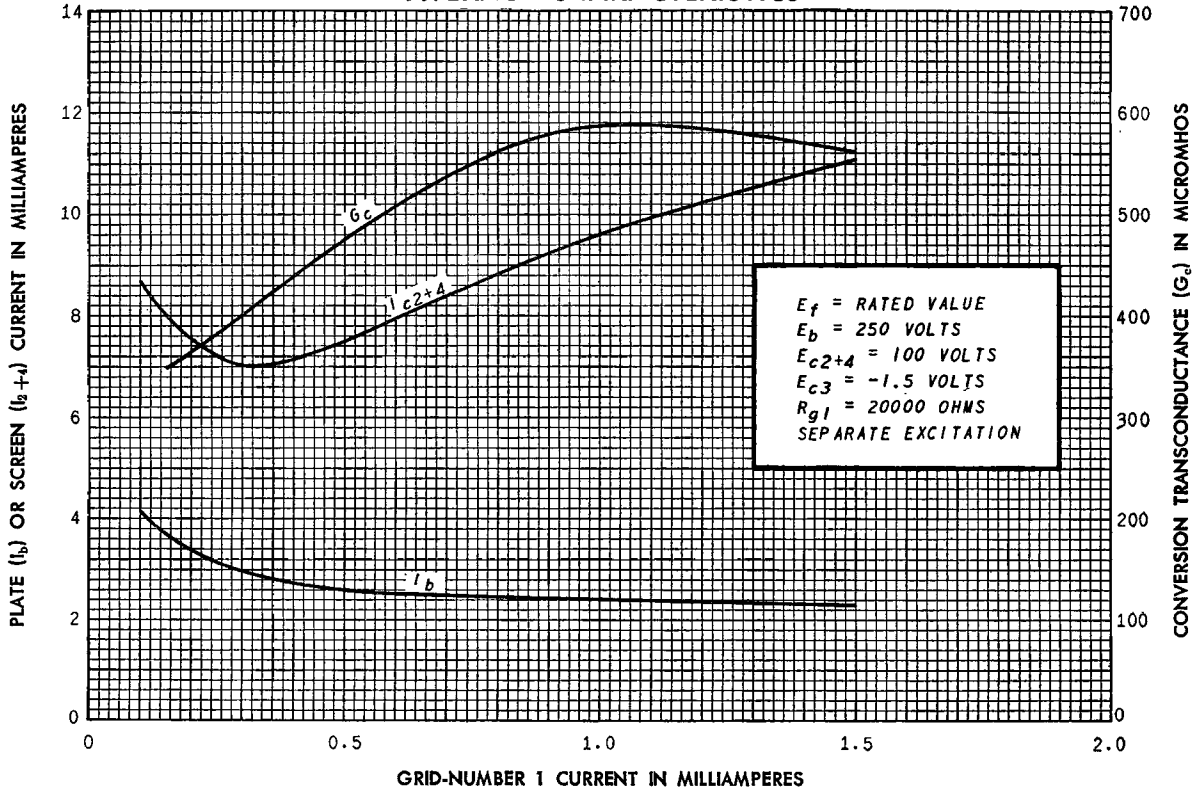
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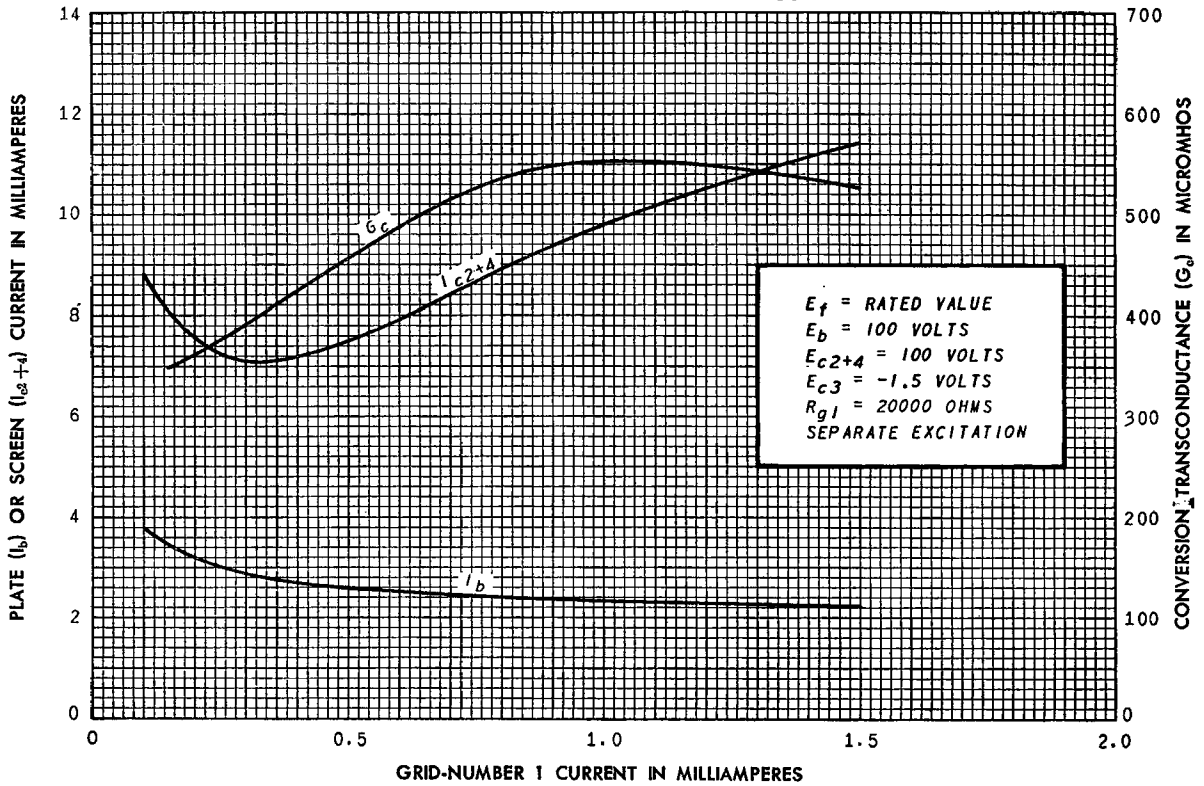
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TUBE DEPARTMENT
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