



12BE6

Description and Rating
PENTAGRID CONVERTER

GENERAL DESCRIPTION

Principal Application: The 12BE6 is a miniature pentagrid converter designed to perform simultaneously the combined functions of the mixer and oscil-

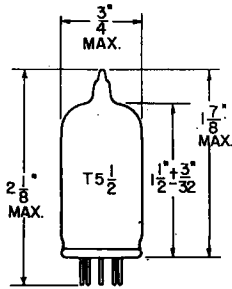
lator in superheterodyne receivers. The tube is suitable for use in the standard broadcast and FM bands.

Cathode: Coated Unipotential
 Heater Voltage (A-C or D-C) 12.6 Volts
 Heater Current 0.15 Ampere
 Envelope: T-5½, Glass
 Base: E7-1, Miniature Button 7-Pin
 Mounting Position: Any

Direct Interelectrode Capacitances:

	With Shield*	Without Shield
Grid 3 to All	7.0	7.0 μμf
Plate to All	13	8.0 μμf
Grid 1 to All	5.5	5.5 μμf
Cathode to All Except Grid 1	20	15 μμf
Grid 3 to Plate (Max)	0.25	0.30 μμf
Grid 3 to Grid 1 (Max)	0.15	0.15 μμf
Grid 1 to Plate (Max)	0.05	0.1 μμf
Grid 1 to Cathode	3.0	3.0 μμf

PHYSICAL DIMENSIONS

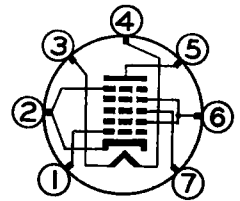


RTMA 5-2

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)

BASING DIAGRAM



RTMA 7CH
BOTTOM VIEW

MAXIMUM RATINGS

DESIGN CENTER VALUES:

Plate Voltage	300	Volts
Screen Supply Voltage	300	Volts
Screen Voltage	100	Volts
Positive D-C Grid Number 3 Voltage	0	Volts
Negative D-C Grid Number 3 Voltage	50	Volts
Plate Dissipation	1.0	Watt
Screen Dissipation	1.0	Watt
Cathode Current	14	Milliamperes
Heater-Cathode Voltage	90	Volts

With external shield #316

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	20000	20000	Ohms
Plate Resistance (Approx)	0.4	1.0	Megohm
Conversion Transconductance	455	475	Micromhos
Plate Current	2.6	2.9	Milliamperes
Screen Current	7.0	6.8	Milliamperes
Grid Number 1 Current	0.5	0.5	Milliampere
Cathode Current	10.1	10.2	Milliamperes
Grid Number 3 Voltage (Approx) for $G_c = 10$ Micromhos	-30	-30	Volts
Grid Number 3 Voltage (Approx) for $G_c = 100$ Micromhos	-6	-6	Volts

OSCILLATOR CHARACTERISTICS (NOT OSCILLATING)

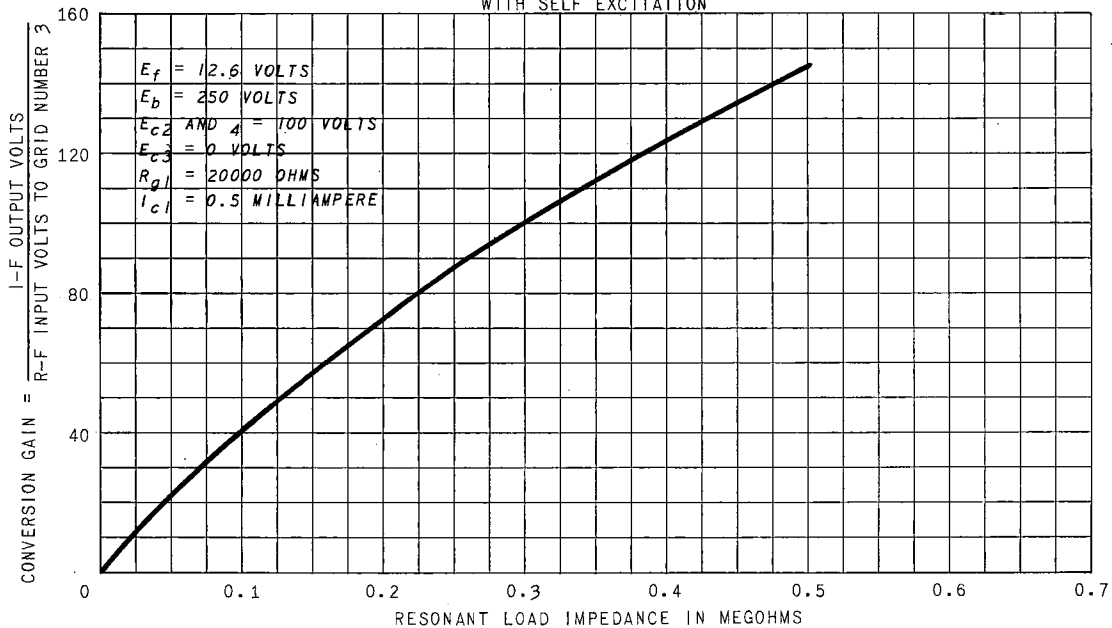
Grid Number 3 Voltage	0	Volts
Grid Number 1 Voltage	0	Volts
Grid Number 2 and 4 Connected to Plate	100	Volts
Cathode Current	25	Milliamperes
Transconductance **	7250	Micromhos
Amplification Factor	20	
Grid Number 1 Voltage (Approx) for $I_b = 10$ Microamperes	-11	Volts

* Characteristics shown are obtained in the standard RTMA 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.

** Transconductance between grid number 1 and grid number 2 and 4 connected to plate.

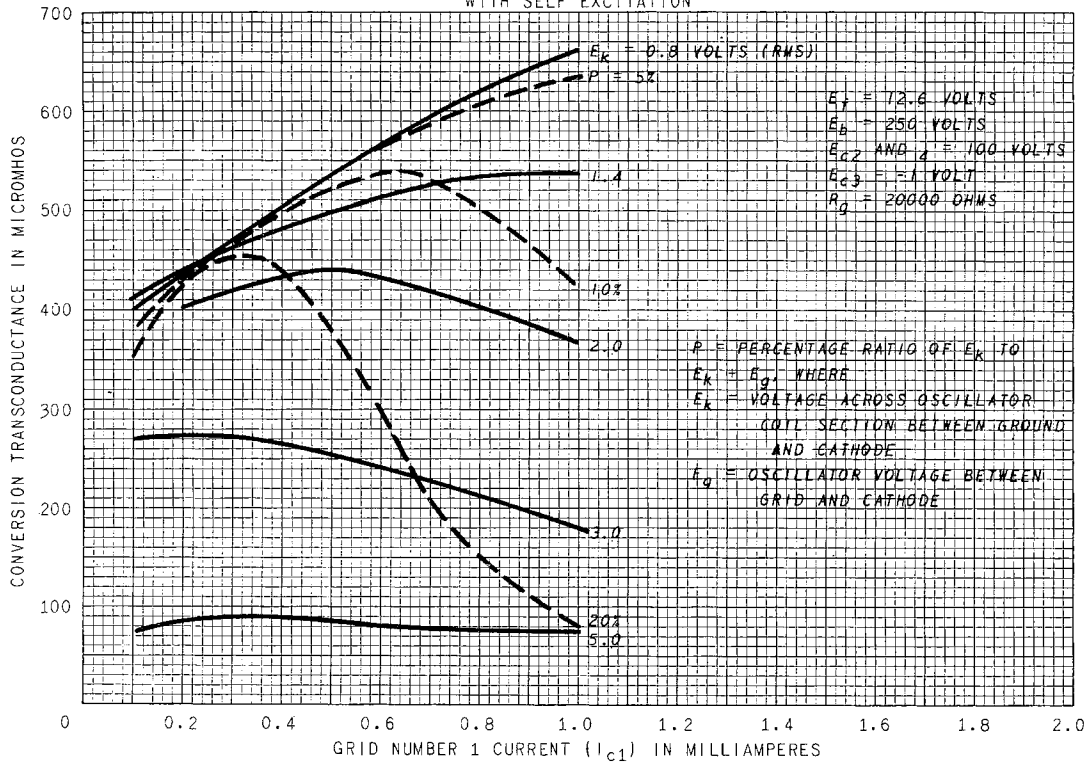
OPERATION CHARACTERISTICS

WITH SELF EXCITATION



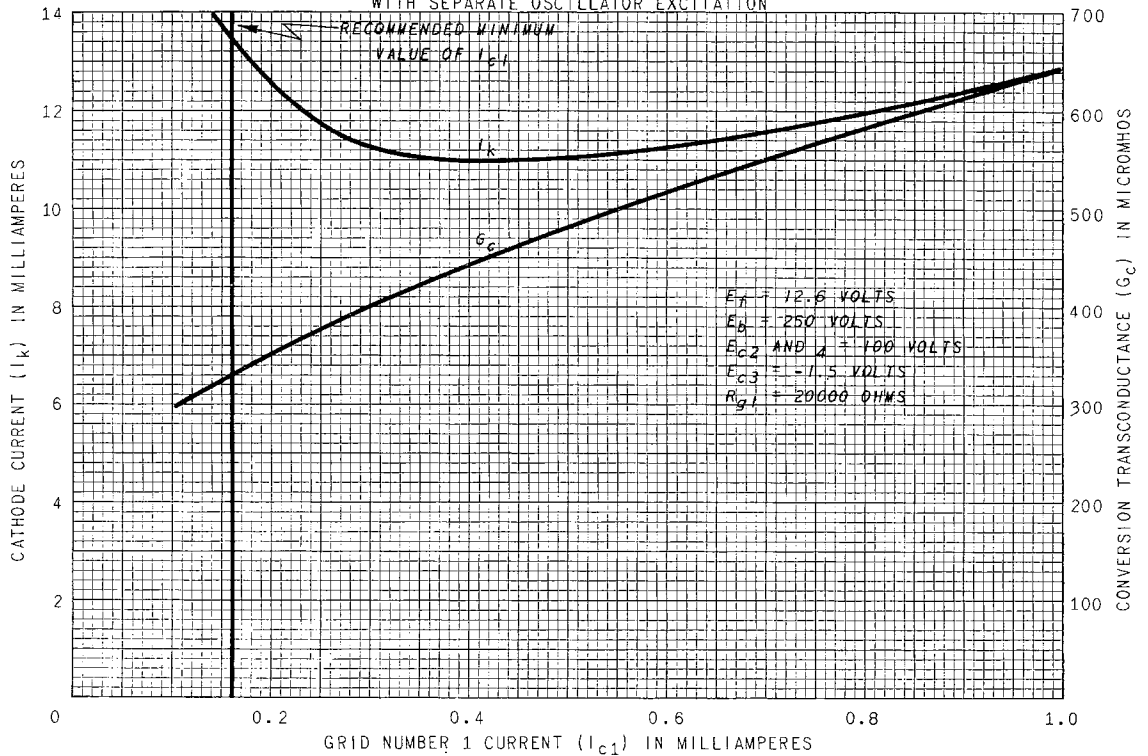
OPERATION CHARACTERISTICS

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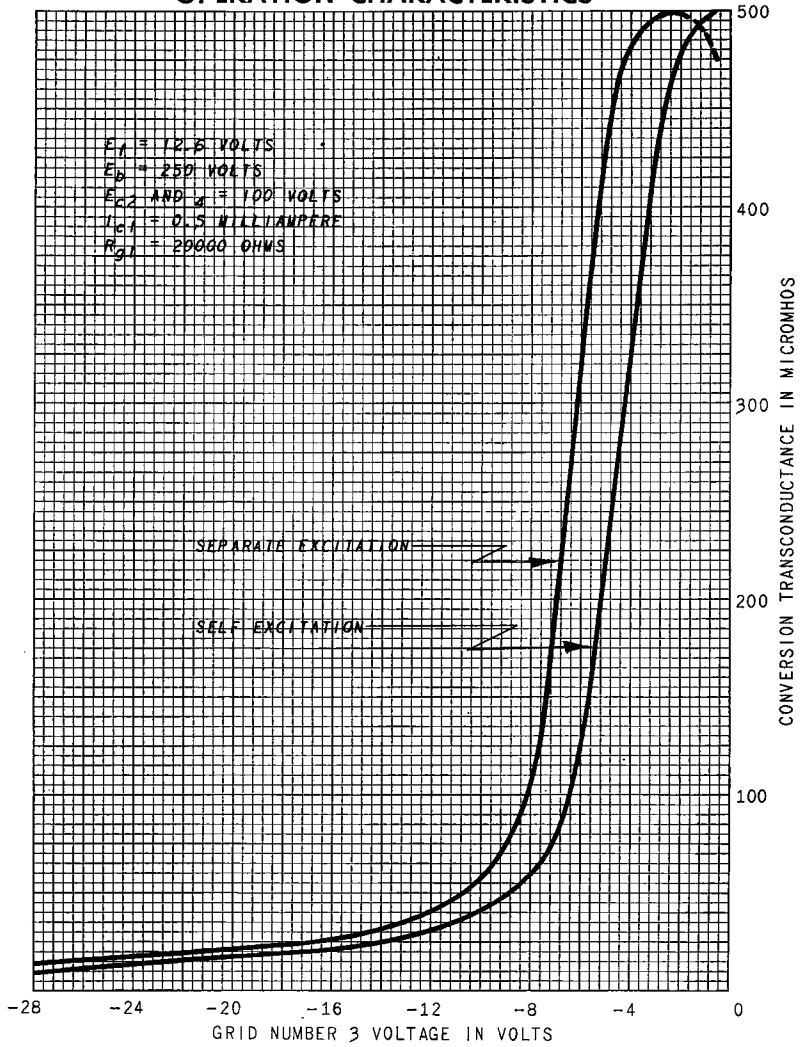


OPERATION CHARACTERISTICS

WITH SEPARATE OSCILLATOR EXCITATION



OPERATION CHARACTERISTICS



Tube Divisions, Electronics Department



Schenectady, N. Y.