AUDIO-OUTPUT BEAM-POWER AMPLIFIER TYPES
6CU5, 12C5, 12CU5, 17CU5, 25C5 and 50C5

The 6CU5, 12C5, 12CU5, 17CU5, 25C5 and 50C5 are 7-pin miniature beam-power pentode types designed for service as the audio output amplifier tube in amplitude-modulated, frequency-modulated and television receivers. These types are characterized by high power sensitivity and high plate efficiency at the comparatively low plate and grid 2 voltage normally available in power-transformerless receivers.

The 12C5, 12CU5 and 17CU5 have been designed for use in receivers which employ series connected heaters, especially in television receivers where the picture-tube heater is in series with other heaters. When each is employed in this type of circuit with other tubes similarly designed having the same heater current rating, heater voltage surges across individual tubes are minimized inasmuch as heater warm-up characteristic is controlled.

GENERAL DATA

ELECTRICAL:

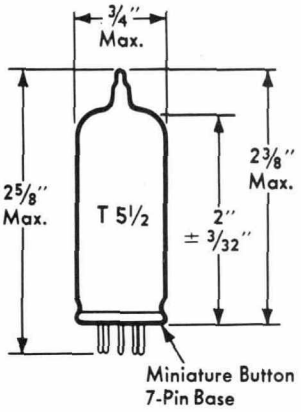
Cathode			Coated Unipotential			
Heater:	6CU5	12C5 12CU5	17CU5	25C5	50C5	
Voltage (ac or dc)	6.3	12.6	16.8	25.0	50.0	Volts
Current	1.2	0.60♦	0.45♦	0.30	0.15	Ampere
Warm-up Time (Approx.)▲	-	11	11	..	..	Seconds

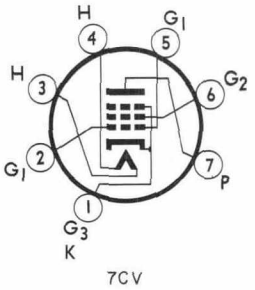
Direct Interelectrode Capacitances (Unshielded):

Grid 1 to Plate	0.6	μμf
Input	13	μμf
Output	8.5	μμf

MECHANICAL:

Bulb	T-5-1/2
Base	Miniature 7-Pin (JETEC E7-1)
Outline	5-3
Basing	7CV
Mounting Position	Any





AF POWER AMPLIFIER - CLASS A

MAXIMUM RATINGS:

Design-Center Values

Plate Voltage	135	max.	Volts
Grid 2 (Screen) Voltage	117	max.	Volts
Plate Dissipation	6.0	max.	Watts
Grid 2 Dissipation	1.25	max.	Watts
Heater-Cathode Voltage:			
Heater Negative with Respect to Cathode			
Total DC + Peak	200	max.	Volts
Heater Positive with Respect to Cathode			
DC Component	100	max.	Volts
DC + Peak	200	max.	Volts
Bulb Temperature at Hottest Point on Bulb Surface*	220	max.	°C
Grid 1 Circuit Resistance:			
Cathode Bias Operation	0.5	max.	Megohm
Fixed Bias Operation	0.1	max.	Megohm

TYPICAL OPERATION AND CHARACTERISTICS:

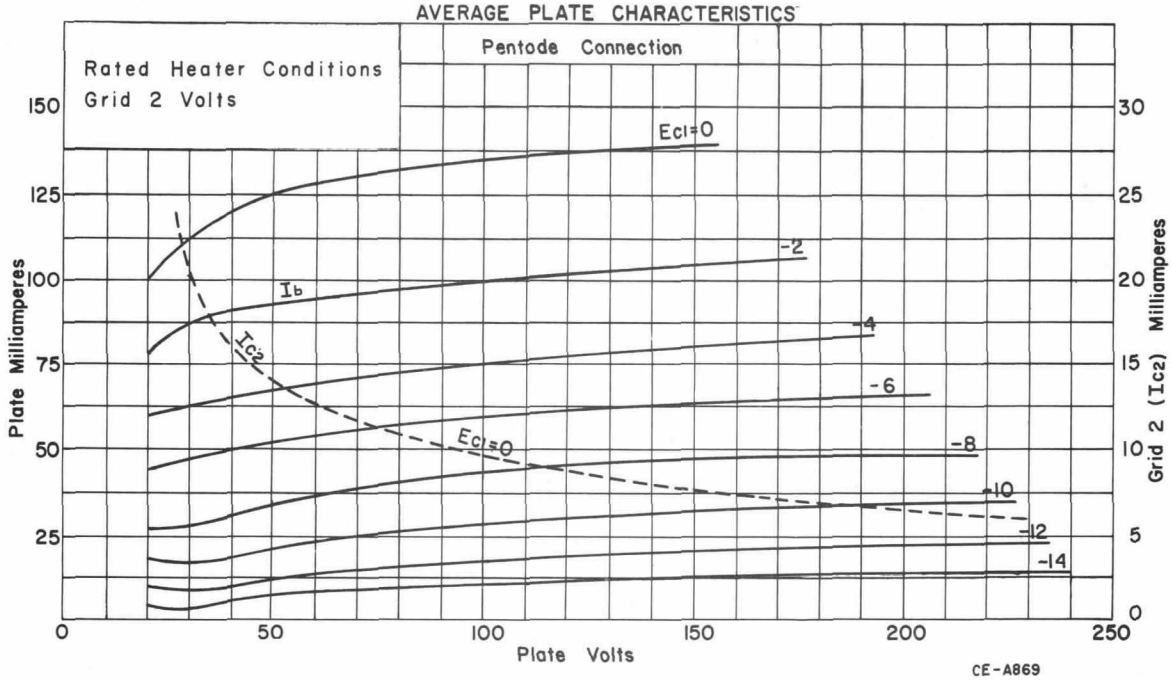
Plate Voltage	120	Volts
Grid 2 Voltage	110	Volts
Grid 1 (Control Grid) Voltage	-8.0	Volts
Peak AF Grid 1 Voltage	8.0	Volts
Plate Resistance (Approx.)	10000	Ohms
Transconductance	7500	umhos
Zero Signal Plate Current	49	Ma.
Max. Signal Plate Current	50	Ma.
Zero Signal Grid 2 Current	4	Ma.
Max. Signal Grid 2 Current	8.5	Ma.
Load Resistance	2500	Ohms
Total Harmonic Distortion	10	Per Cent
Max. Signal Power Output	2.3	Watts

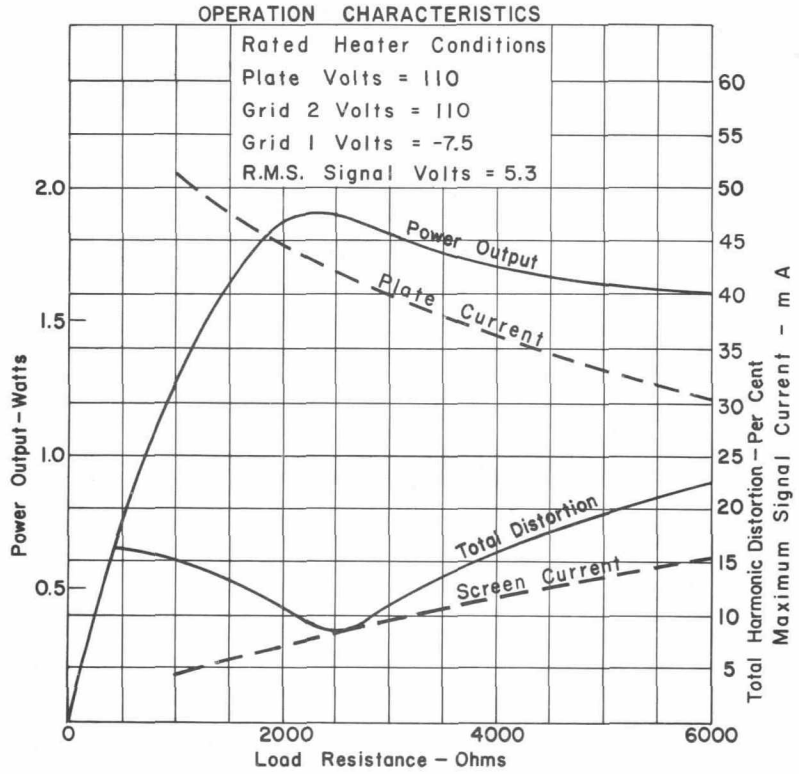
* High ambient temperature and shielding may necessitate a reduction in operating dissipation. When tube shields are used it is advisable to paint both inside and outside surfaces of the tube shield a dull black and to provide ventilation slots to reduce operating temperature.

▲ Heater Warm-up Time is defined as the time required for the voltage across the heater to reach 80% of its rated value after applying four times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to three times rated heater voltage divided by rated heater current.

♦ ± 6%

Supersedes 12C5 Sheet Dated October 15, 1954 and
50C5 Sheet Dated July 1, 1954


AVERAGE PLATE CHARACTERISTICS
Pentode Connection
Rated Heater Conditions
Grid 2 Volts
Ec1=0
-2
-4
-6
-8
-10
-12
-14
Ib
Ic2
Ec1=0
Plate Milliamperes
Grid 2 (Ic2) Milliamperes
Plate Volts
0
50
100
150
200
250
25
50
75
100
125
150
5
10
15
20
25
30
CE-A869


OPERATION CHARACTERISTICS
Rated Heater Conditions
Plate Volts = 110
Grid 2 Volts = 110
Grid 1 Volts = -7.5
R.M.S. Signal Volts = 5.3
Power Output
Plate Current
Total Distortion
Screen Current
Power Output-Watts
Total Harmonic Distortion-Per Cent
Maximum Signal Current - m A
Load Resistance - Ohms
0
2000
4000
6000
0.5
1.0
1.5
2.0
5
10
15
20
25
30
35
40
45
50
55
60
CE-A868