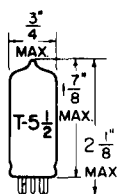


TUNG-SOL
HEPTODE
 MINIATURE TYPE
**GLASS BULB**

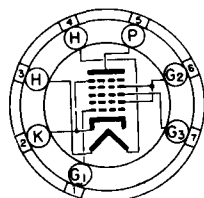
COATED UNIPOTENTIAL CATHODE

HEATER

12.6 VOLTS 0.15 AMP.

AC OR DC

ANY MOUNTING POSITION

**BOTTOM VIEW**MINIATURE BUTTON
7 PIN BASE

7CH

THE 12AF6 IS A PENTAGRID CONVERTER WITH A UNIPOTENTIAL CATHODE IN THE 7 PIN MINIATURE CONSTRUCTION. IT IS INTENDED AS A COMBINED OSCILLATOR AND MIXER IN SUPERHETERODYNE RECEIVERS WHERE THE HEATER, PLATE AND SCREEN GRID POTENTIALS ARE OBTAINED DIRECTLY FROM AN AUTOMOTIVE BATTERY.

DIRECT INTERELECTRODE CAPACITANCES

WITH EXTERNAL SHIELD #316 CONNECTED TO PIN #2

MIXER GRID TO PLATE: (G ₃ TO P) MAX.	0.25	μf
MIXER GRID TO OSCILLATOR GRID: (G ₃ TO G ₁) MAX.	0.15	μf
RF INPUT: G ₃ TO (H+K+G ₁ +G ₂ +G ₄ +G ₅ +P)	7.2	μf
OSCILLATOR INPUT: G ₁ TO (H+K+G ₁ +G ₂ +G ₄ +G ₃ +G ₅)	7.2	μf
MIXER OUTPUT: P TO (H+K+G ₁ +G ₂ +G ₄ +G ₃ +G ₅)	12.0	μf
OSCILLATOR GRID TO CATHODE: (G ₁ TO K+G ₅)	5.0	μf
OSCILLATOR OUTPUT: K TO (H+G ₂ +G ₄ +G ₃ +P)	20	μf
OSCILLATOR GRID TO PLATE: (G ₁ TO P) MAX.	.05	μf

RATINGS

INTERPRETED ACCORDING TO DESIGN CENTER SYSTEM

MAXIMUM HEATER-CATHODE VOLTAGE	±30	VOLTS
MAXIMUM PLATE VOLTAGE	30	VOLTS
MAXIMUM GRIDS #2 & #4 VOLTAGE	30	VOLTS
MAXIMUM GRIDS #2 & #4 SUPPLY VOLTAGE	30	VOLTS
MAXIMUM NEGATIVE DC GRID #3 VOLTAGE	30	VOLTS
MAXIMUM POSITIVE DC GRID #3 VOLTAGE	0	VOLTS
MAXIMUM CATHODE CURRENT	20	MA.
MAXIMUM GRID #3 CIRCUIT RESISTANCE	10	MEG OHMS

CONTINUED ON FOLLOWING PAGE

TUN6-SOL

CONTINUED FROM PRECEDING PAGE

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

CONVERTER SERVICE - SELF EXCITATION ^A

HEATER VOLTAGE	12.6	VOLTS
PLATE VOLTAGE	12.6	VOLTS
GRID #3 VOLTAGE	0.50 ^B	VOLTS
GRIDS #2 & #4 VOLTAGE	12.6	VOLTS
GRID #1 VOLTAGE (OSCILLATOR GRID) RMS	2.5	VOLTS
GRID #1 RESISTANCE (OSCILLATOR GRID)	33 000	OHMS
PLATE RESISTANCE (APPROX.)	0.8	MEGOHMS
GRID #1 CURRENT (OSCILLATOR GRID)	60	μ A
CONVERSION TRANSCONDUCTANCE	320	μ MHOS
PLATE CURRENT	450	μ A
GRIDS #2 & #4 CURRENT	1 000	μ A
CATHODE CURRENT	1 500	μ A
GRID #3 VOLTAGE FOR $G_c = 5 \mu$ MHOS (APPROX.)	-3.5	VOLTS
GRID #3 VOLTAGE FOR $G_c = 20 \mu$ MHOS (APPROX.)	-3.0	VOLTS

CONVERTER SERVICE - EXTERNAL EXCITATION

HEATER VOLTAGE	12.6	VOLTS
GRID #3 VOLTAGE	0	VOLTS
GRID #1 VOLTAGE (OSCILLATOR GRID) RMS	0.85	VOLTS
GRIDS #2 & #4 CONNECTED TO PLATE	12.6	VOLTS
CONVERSION TRANSCONDUCTANCE	300	μ MHOS
CATHODE CURRENT	1 900	μ A
GRIDS #2 & #4 CURRENT	1 200	μ A
PLATE CURRENT	670	μ A
GRID #1 CURRENT	45	μ A
GRID #3 VOLTAGE FOR $G_c = 10 \mu$ MHOS	-3.2	

OSCILLATOR CHARACTERISTICS - NOT OSCILLATING

GRID #3 VOLTAGE	0	VOLTS
GRID #1 VOLTAGE (OSCILLATOR GRID)	0	VOLTS
GRID #2 & #4 CONNECTED TO PLATE	12.6	VOLTS
TRANSCONDUCTANCE BETWEEN GRID #1 & GRID #2 & #4 CONNECTED TO PLATE	4 000	μ MHOS
AMPLIFICATION FACTOR BETWEEN GRID #1 & GRID #2 & #4 CONNECTED TO PLATE	9	
CATHODE CURRENT	4.5	MA.
GRID #1 VOLTAGE (APPROX.) FOR $I_b = 10 \mu$ A.	-3.5	VOLTS

* THIS TUBE IS INTENDED TO BE USED IN AUTOMOTIVE SERVICE FROM A NOMINAL 12 VOLT BATTERY SOURCE. THE HEATER IS THEREFORE DESIGNED TO OPERATE OVER THE 10.0 TO 15.9 VOLTAGE RANGE ENCOUNTERED IN THIS SERVICE. THE MAXIMUM RATINGS OF THE TUBE PROVIDE FOR AN ADEQUATE SAFETY FACTOR SUCH THAT THE TUBE WILL WITHSTAND THE WIDE VARIATION IN SUPPLY VOLTAGES.

^A SCREEN FEEDBACK. G_{2-4} TO CATHODE VOLTAGE APPROXIMATELY 13% OF G_1 TO CATHODE VOLTAGE.

^B AVERAGE CONTACT POTENTIAL DEVELOPED ACROSS A 2.2 MEGOHM GRID RESISTOR.