

TYPE 872-A

HALF-WAVE MERCURY RECTIFIER

ENGINEERING INFORMATION

GENERAL RATINGS

Number of Electrodes.....	2
Filament:	
Voltage	5.0 volts
Current	6.75 amperes
Type	Shielded Coated
Heating Time	30 seconds
Condensed Mercury Temperature Range 20° to 70° C	
Maximum Peak Inverse Voltage.....	5000 volts
Maximum Peak Plate Current.....	5.0 amperes
Supply Frequency up to.....	150 cycles
Condensed Mercury Temperature Range 20° to 60° C	
Maximum Peak Inverse Voltage.....	10000 volts
Maximum Peak Plate Current.....	5.0 amperes
Supply Frequency up to.....	150 cycles
Maximum Average Plate Current (Averaged over period of 15 seconds).....	1.25 amperes
Approximate Tube Voltage Drop.....	10 volts
Maximum Overall Dimensions:	
Length	8 1/2 inches
Diameter	2 5/16 inches
Bulb	T-18
Cap	Medium Metal
Base*	Jumbo 4-Large Pin
Type of Cooling	Air
Net Weight	8 oz.

*Base shell not connected to any element of the tube.

INSTALLATION

The base of the UNITED 872-A is designed for mounting in a standard "50 watt" socket of the four-pin, bayonet type. The tube should always be mounted vertically with ample air space provided for ventilation. The condensed mercury temperature should not be less than 20° C. (68° F.) and not more than 60° C. (140° F.) to 70° C. (158° F.) depending on the peak inverse voltage used. When the maximum condensed mercury temperature exceeds these limits, forced ventilation should be used.

The filament of the 872-A should be operated on alternating current at the rated value of 5.0 volts. The socket should make good contact to the tube pins and adequate current-carrying capacity leads to the secondary winding of the power transformer should be used. Operation of the filament at less than the rated voltage may result in a high internal voltage drop with subsequent loss of emission. A filament voltmeter should be connected permanently across the filament circuit at the socket terminals in order that the filament voltage can be maintained at 5.0 volts. **Caution—The filament winding is at high potential.**

Because the mercury may be splashed on the tube elements due to shipment or handling, the filament of the 872-A should be operated at rated voltage for approximately 15 minutes without plate voltage in order to distribute the mercury properly when the tube is first placed in service. The above procedure need not be repeated unless the tube is removed from the socket and during handling the mercury becomes splashed on the tube elements.

The condensed mercury temperature should be at least 15° C. before the plate voltage is applied. This may be ordinarily accomplished by introducing a time lag of at least 30 seconds between the application of the filament and the plate voltages. It is advisable, however, to pre-heat the filament for 15 minutes before placing the 872-A in operation. During "standby" periods, the filament should be kept at rated voltage.

When the 872-A is subjected during operation to external high voltage or high frequency fields, shielding and r-f filter circuits should be provided.

DESIGN AND CHARACTERISTIC FEATURES

The UNITED type 872-A is a tube of exceptional physical ruggedness. This design not only takes into account important electrical and thermal considerations, but end use conditions involving vibration and shock such as encountered in industrial electronic equipment.

All ratings given are for continuous service. Higher ratings are permissible for intermittent operation. Additional data will be furnished upon request.



The above illustration shows the large shield of proportions scientifically determined as necessary in this class of tube. Proper relation between condensed mercury and ambient temperature is maintained. The cylindrical element shields the filament adequately and at the same time permits the needed thermal radiation to assure long service life.

