

WWT LAMPS

The WWT series of lamps are integral assemblies consisting of a lamp, base and contact terminals, Figure #1. The lamp used in the assembly is a high vacuum wire terminal type. Most competitive integral (lamp + base) assemblies provide a lamp manufactured using wedge based methods.

Wedge based lamp manufacturing is characterized by a "floating" internal glass bead on the electrodes which holds a filament and a small diameter vacuum exhaust port, Figure #2. Wire terminal lamp manufacturing produces a lamp with no "floating" bead, but the bead becomes the sealing portion of the lamp and the larger exhaust port area in manufacturing is used to improve lamp life. The shorter internal structure of the wire terminal lamp increases the filament vibration endurance.

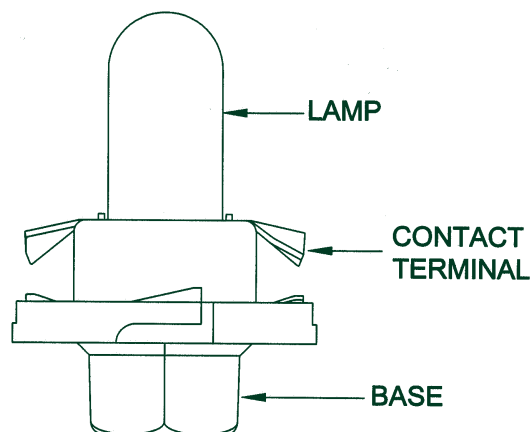


Figure #1

WIRE TERMINAL (MANUFACTURING)

WEDGE (MANUFACTURING)

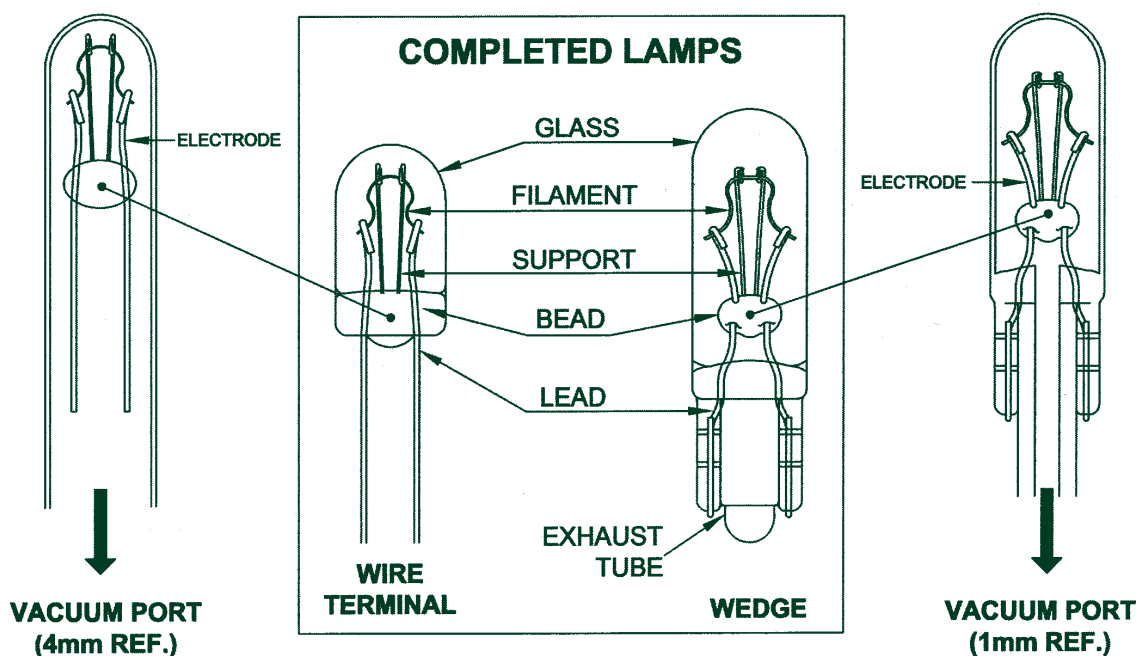


Figure #2

The larger exhaust port of the wire terminal lamp manufacturing process allows a greater vacuum to be drawn as the lamp is made. The greater the vacuum the less atmosphere (oxygen + other residual gasses) present to degrade the filament shorting lamp life. Comparative life data of 14 volt, 125ma, 0.7 MSCP wedge base and wire terminal lamps are provided in Figure #3. Data for the projections of life hours and failures are Average, 10%, 3% and 1% of the population. As seen from the graph and data, the wire terminal manufacturing method yields a lamp with substantially longer life hours.

ACCELERATED LIFE TESTING

LAMP FAILURES	HOURS WEDGE	HOURS WIRE TERMINAL
Average	3,677	13,669
10%	1,985	9,574
3%	1,329	7,383
1%	929	5,853

DATA CALCULATED FOR 14.0 VOLTS DC OPERATION

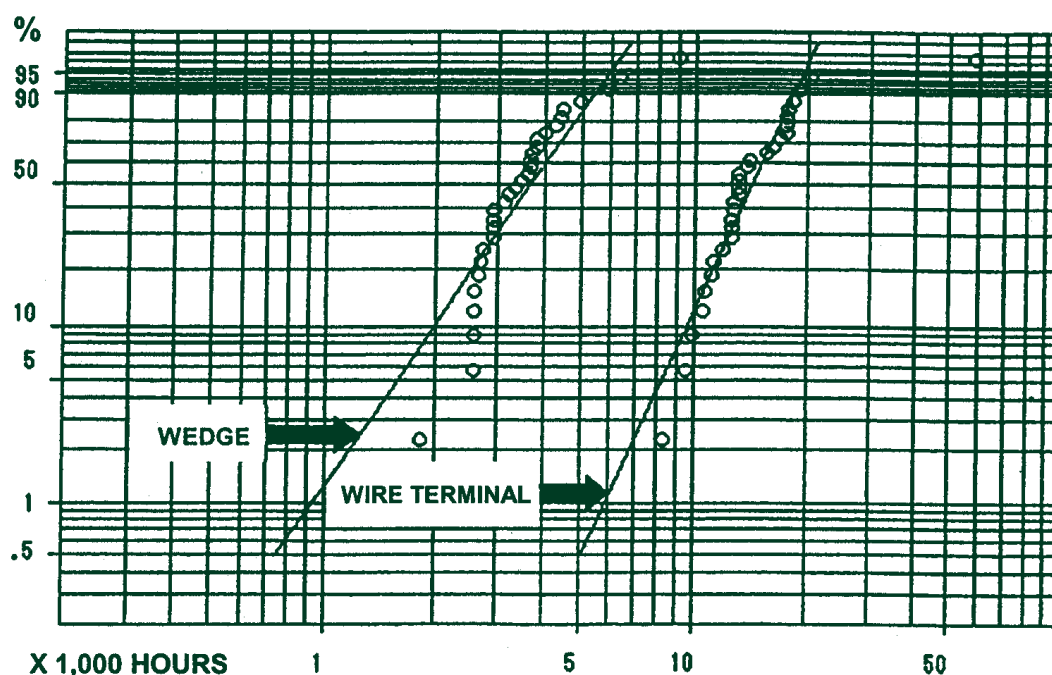


Figure #3

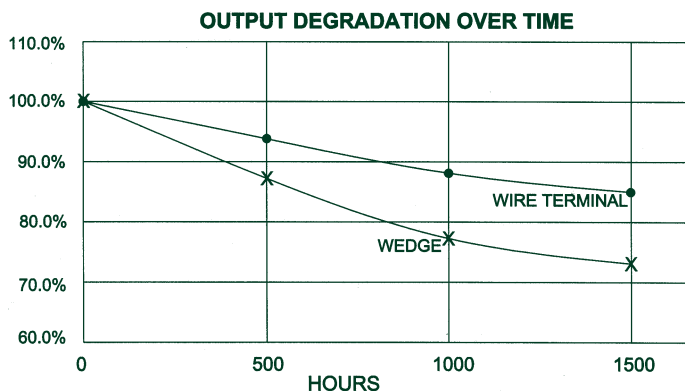


Figure #4

The greater vacuum drawn in the wire terminal lamp lessens the output degradation over the operational life of the lamp, Figure #4. Excessive residual atmosphere in the wedge base type lamp results in a depletion of the filament and tungsten deposits on the glass envelope causing lamp "blackening" and a reduction in light output.