Avoiding Hot Shock with Halogen and Halogen Infrared (HIR) Lamps

The most advanced technology used in today’s incandescent family of Halogen and Halogen Infrared (HIR) lamps utilizes unique filament designs, specialized fill gases and sophisticated capsule coatings that result in high lumen output, reduced wattage and long life not achieved with standard incandescent lamps. These high performance lamps are essential to achieving energy savings and long life not attainable with conventional incandescent offerings.

To accommodate unusual rough or vibration situations, specialized incandescent lamps are designed with one or more filament supports that reduce the effects of vibration and mechanical jolts to the bulb. While the supports are effective in reducing the results of vibration and rough service, they also cause a reduction in lumen output because the supports draw heat and subsequently light away from the filament. A tradeoff is made between incandescent lamp life, lumens and other performance variables in lieu of its ability to handle the rough service or vibration.

Unlike incandescent rough service or vibration service lamps, Halogen and HIR lamps are not equipped with filament supports because they would result in the de-rating of the life and lumens, and thusly defeat the purpose of providing extremely long life, energy savings and high lumen output. These features differentiate Halogen and HIR lamps from similar incandescent counterparts. However, these high performance lamps require more consideration and education when installing and aiming them.

The benefits of energy savings, higher lumens and longer life provided by Halogen or HIR lamps require that the electrical power always be turned off when installing or removing the lamps from their sockets. When opening the lamp package, read and follow all the instructions provided so that performance problems can be avoided.

Halogen and HIR lamps can fail prematurely under “power on” conditions when subjected to rough handling or vibration. Short life problems include arcing of the lamp base within the socket, which may cause permanent damage to it. Subsequently, when a replacement lamp is installed, the damaged socket may not make electrical contact and the new lamp base can be damaged.

Halogen or HIR lamp filament damage, referred to as “Hot Shock”, can occur when severe bumping, vibration or jolting the lamp while installing it into the socket or aiming the lamp while in an energized socket. The high performance filament within the capsule does not have filament supports, and the vibration introduced during energized installation may cause the filament to arc out prematurely. Therefore, avoid shocking the lamp or fixture while installing or aiming it if the power is on.

Parabolic Aluminized Reflector (PAR) lamps can result in hot shock when the electrical power is on because of rotational torque applied by the person installing the lamp. When rapidly screwing the lamp into an energized socket, the spinning motion of the hot filament whips it around and causes it to short out filament turns. Depending on how many turns are shorted, different life reductions will be experienced. The more shorted turns there are, the shorter the life will be. Also, the greater the spinning torque that is applied in an energized socket, the more likely it will short out filament turns and result in short life. So, do not install any PAR lamps into an energized socket or else you may introduce hot shock and experience short lamp life.

Cold, non-energized filaments during shipping or installation are not as ductile as hot energized ones and therefore not likely to short out with one another, but will indeed break open if handled roughly. While rough handling of any used lamp can cause the now brittle filament to break open, this type of filament failure is not considered hot shock but more so cold filament breakage and can occur with all tungsten filament lamps.
In summary, to avoid unnecessary self induced short life problems with Halogen and HIR lamps, follow these simple guidelines and you will receive the extraordinary benefits derived by their use:

- Avoid striking, jolting or rough handling of the lamp when installing it or aiming it.
- During operation, lamps are extremely hot and should not be touched to adjust or aim them.

**Additional Warnings** (provide within the lamp packaging)

**Risk of electric shock**
- Turn power off before inspection, installation or removal

**Risk of fire**
- Keep combustible materials away from lamp.

**Pressurized lamp – unexpected rupture may cause injury, fire or property damage.**
- Do not use lamp if outer glass is scratched or broken.