Pretoria - Tech Talk # 3

Date: 11/17/2006

Topic: Fluorescent Lamp Tube “Colored” Sleeves

Pretoria Transit Interiors has issued this Tech Talk to keep our customers informed on issues pertaining to passenger interior fluorescent light systems.

The fluorescent lamp tube sleeves that Pretoria Transit Interiors utilizes in their interior light systems are extruded Polycarbonate (PC). Although PC has a high heat deflection temperature which is critical in this application, like most polymers it has a very high coefficient of expansion. In other words as the PC gets warm from the lamp tubes in normal operation, being closed up in a hot bus, or at the lamps end of life, the sleeves will expand or lengthen.

If the sleeves are cut in length longer than the length of the glass tube it is possible for the sleeves to bottom out on the sockets during this expansion phenomenon. When this happens, the spring socket can be pushed away from the lamp pins causing arcing which will compound the "heat" issue making the sleeves lengthen even more. The result of exceeding the deflection temperature may cause the sleeve to soften, bubble and possibly melt and fuse to the lamp. This is not a defect in the plastic, but rather exceeding the operating temperature of any optically clear polymer available for manufacturing sleeves.

Also, the fluorescent lamps metal ends may reach very high temperatures at the end of the lamps life for a short period of time; these temperatures are above the operating temperatures of PC.

For a nominal 72” lamp tube, we cut the sleeves cut to 68 3/8", the length of the lamps glass. At this length, the sleeve will be able to slide freely with room for expansion without fear that the socket can be pushed away from the lamps ends. When the sleeve is up against one socket, the opposite end will show approximately 1/4” - 3/8” of lamp tube. This is normal and safe; exposing this small amount of the lamp tube should pose no refection issues for the driver and no issues for the patrons.

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