

# Pretoria - Tech Talk # 2

12/8/2006

Topic: Extinguishable & Dimmable Ballast / High Output (HO) Lamp Tubes

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

Many transit bus operators specify that a certain number of interior lights extinguishable or dim when the front door is closed and power up when the door is opened. This switching action with the doors is commonly requested as it aids in reducing bus drivers windshield glare, especially at night. Standard single pin lamp tubes and standard ballast are not designed for this constant on-off cycle. The operational life of single pin lamp tubes may be dramatically reduced if used in fixtures required to switch with the doors.

The use of extinguishing or dimming ballast in combination with HO (high output) lamp tubes is recommended to extend the operational life of lamp tubes required to switch with the doors. This topic is addressed in the APTA – Standard Bus Procurement Guidelines (SBPG) in the Passenger Interior Lighting section.

Ho lamp tubes are used in conjunction with extinguishing and dimmable ballast; HO lamp tubes are bi-pin as shown below rather than single pin. Bi-pin configurations are used in order to provide a limited but constant amount of power to the lamp tube filaments keeping them warm and ready for full power when required.



HO Lamp End



HO Socket Receptacles

The installation of an HO lamp tube into a HO socket must be done with care by properly aligning the lamp end with the socket. It is important when installing lamp tubes to inspect both the lamp ends for damage and the lamp sockets for debris or bent contact pins before installation. Always insert the lamp tube in the floating (push-spring) socket first and then the fixed socket. Never force or twist an HO lamp tube into the socket as these actions may crack the RDC Bay (recessed double contact bay).

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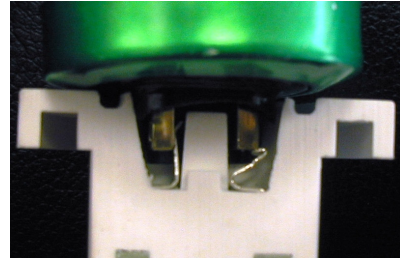
TRANSIT INTERIORS, INC.  
1975 Joe B. Jackson Pkwy  
Murfreesboro, TN 37127

Tel. 615.867.8515  
Fax 615.867.8790  
[www.PretoriaUSA.com](http://www.PretoriaUSA.com)

The RDC Bay is normally molded from Phenolic resins due to their good dielectric properties, heat resistance and flammability characteristics. Unfortunately, molded Phenolic resins are inherently brittle. The RDC Bay not only protects the pins from damage, but most importantly they aid in keeping the lamp ends seated properly in the socket. HO lamp tubes with a cracked RDC Bay should not be used as the lamp will easily turn in the fixture causing intermittent or no contact with the lamp pins and socket receptacles.

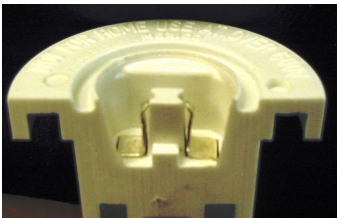


Damaged RDC Bay

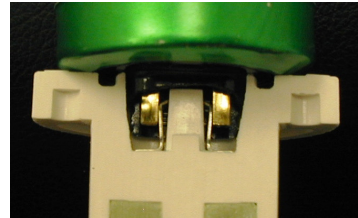


Damaged RDC Bay and Damaged Socket Receptacle

Debris of the HO lamps RDC Bay can become lodged in the HO socket, any pieces of broken RDC Bay should be completely removed from the socket before installation of a new HO lamp tube. Inserting a new HO lamp in an HO socket with RDC Bay debris left in the socket can damage the new lamp tubes RDC Bay and HO socket receptacle pins causing a poor or non-existent connection. Never force or twist HO lamp tubes into their mating sockets and always inspect both the lamps ends and socket before installation.



HO Socket proper contact receptacles



although the RDC Bay is damaged this picture illustrates proper pin contact

We ask that if you suspect that extinguishing or dimming ballast is malfunctioning that you shut off the power to the lights, remove the HO lamp completely from the sockets and inspect both the lamps ends and socket pins for any damage. If damage is present, replace the HO lamp or socket before changing the ballast.

When our arc-safe extinguishable ballast (BAL-026) goes into extinguish mode, its Red LED glows as the output power to the lamps ends is minimal. As we know that HO lamp tubes and sockets may not remain seated properly with a cracked RDC Bay it is important to use an HO lamp that does not have a damaged RDC Bay as an improperly installed HO lamp tube will cause the ballast to act as it has malfunctioned.

We appreciate your efforts in helping Pretoria Transit Interiors, Inc. provide a high quality high end aesthetically pleasing and long lasting passenger interior light system for the transit market. Should you have any questions, please call Pretoria at (615) 867-8515.

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1975 Joe B. Jackson Pkwy  
Murfreesboro, TN 37127

### BALLAST DIAGNOSIS AND LED INDICATORS

<u>Model</u>	<u>Condition</u>	<u>Red LED</u>	<u>Green LED</u>	<u>Operation</u>
<b>BAL-026</b>	Normal	OFF	ON	N/A
	Extinguished	ON	ON	N/A
	No Light	ON	ON	Remove lamp tube, check lamp ends and sockets for damage, replace both if necessary. Ensure that all 4 pins make good contact.
	Malfunction	ON	OFF	Restart the ballast, if Red LED is still on, try a new lamp tube to ensure that the lamps pre-heat filaments are working, otherwise replace the ballast.

<u>Model</u>	<u>Condition</u>	<u>Red LED</u>	<u>Green LED</u>	<u>Operation</u>
<b>BAL-028</b>	Normal	OFF	ON	N/A
	Lower Level	OFF	ON	N/A
	No Light	ON	ON	Remove lamp tube, check lamp ends and sockets for damage, replace both if necessary. Ensure that all 4 pins make good contact.
	Malfunction	ON	OFF	Restart the ballast, if Red LED is still on, try a new lamp tube to ensure that the lamps pre-heat filaments are working, otherwise replace the ballast.

This Tech Talk has been developed to assist maintenance personnel to diagnose and repair Interior Lighting Systems in the most efficient and effective manner. The tips and suggestions contained in this Tech Talk are the result of many years of combined experience by Pretoria and maintenance persons across North America.

The suggestions and product information are based on information which is, in our opinion, reliable. However, since skill, judgment and quality of equipments and tools are involved, and since conditions and methods of using Interior Lights and parts thereof are beyond our control, the suggestions contained in this Tech Talk are provided with no guarantee. In no event shall Pretoria Transit Interiors, Inc., have any liability in any way related to or arising out of said suggestions and product data for direct, special, consequential or any other damages of any kind regardless whether such liability is based on breach of contract, negligence or other tort, or breach of any warranty express or implied.

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