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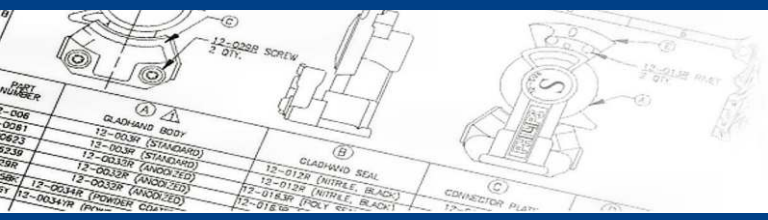

TECH TIPS

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7-Way Receptacle and Pin Degradation

What is pin degradation?

Pin degradation is the wearing down of the brass pin receptacles in a plug, and/or the pins inside a socket. When the contact between the pins in the socket and plug become weak it can lead to flickering or non-operable lights on a trailer. This can lead to unnecessary downtime trying to locate the problem and CSA violations for inoperable lights.

Splitting the socket pins

How does it happen?

The 7-way electrical cable carrying power to a trailer gets plugged and unplugged from the trailer socket numerous times during its life. Each time this connection is coupled and uncoupled, microscopic amounts of brass get shaved off. Over time, the connection between each pin weakens as the plug receptacles become wider and the socket pins become thinner.

The 7-way connection also requires regular maintenance to keep it in good working order. If left untouched corrosion can accumulate on the pins, which also breaks down the brass contacts much faster then the wear and tear of coupling and uncoupling. And worse yet, corrosion doesn't just stop at the coupled connection, it travels past the socket and plug and into the electrical system.

Phillips QCS2® with split pins

Solutions to increase the life of the connection

Install sockets with split pins. The split pin design, versus solid pin, allows for the pins to be spread when the connection between the plug and socket have deteriorated, allowing a short term fix. To keep the plug and socket connection as robust as possible, the insertion of a screwdriver into the "split-pin" will create a snugger fit between the plug and socket. (Note: Sockets will have to be replaced at some point as a repeated spreading of the pins will weaken their integrity.)

Perform routine maintenance on the plug and socket connection. Many states have increased the use of magnesium and calcium chlorides as a road de-icer. These chemicals are found to be highly corrosive to brass and copper, which is the base material for the contact pins used in plugs and sockets.

- It is recommended that the 7-way plug and socket connection be cleaned at every preventative maintenance interval. Phillips suggests performing preventative maintenance intervals every 3-6 months, or more often if the vehicle is excessively exposed to magnesium or calcium chloride.
- Clean the 7-way plug and socket connection with a plug and socket brush with water, (NOT SOAP). Make sure the plug and socket are completely dry after each cleaning.
- After every cleaning, apply dielectric grease to both the plug and socket pins before inserting the plug back into the socket.

Phillips QCP™ with plug-in insert

Replace sockets and plugs

When lights flicker due to pin degradation, and it's no longer something that can be resolved with splitting the socket pins or maintenance, it's time to replace the socket, plug insert, or entire plug. Selecting sockets with split pins will continue to serve as an extended temporary solution. Choosing plugs and sockets with anti-corrosive properties such as GFN, composite, or nylon bodies, and "plug-in" features, reduce downtime and labor costs. Phillips' QCP™ (Quick-Change Plug) assembly offers a plug-in insert that is easily replaced, without re-wiring the plug or replacing the entire assembly. The Phillips QCS2® socket is also easily removed and replaced from a harness boot, without any re-wiring.

TIPS

Have technical questions? Get the latest tips from a skilled Phillips engineer!
Call:888-959-0995 OR e-mail:techtips@phillipsind.com

- Pin degradation is the wearing down of the brass pin receptacles in a plug, and/or the pins inside a socket.
- Pin degradation happens from the constant coupling and uncoupling of the connection, as well as corrosion build-up.
- Sockets with split pins and routine preventative maintenance can help reduce the progression of a weak connection due to pin degradation.
- Replacing plugs and sockets with those that have anti-corrosive properties, and "plug-in" features will reduce downtime and possible CSA violations for lighting issues.

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