

# PHILLIPS

## Qwik Tech Tips

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### FEATURED PRODUCT

#### V-CHECK™ II

- Provides a digital display of the battery voltage (9-15 volts), and the battery state of charge
- Features the 'GO/NO-GO' LED – know instantly if your battery is ready for the ride!
- Easy to install
- Measurements 2.25" x 2.25"



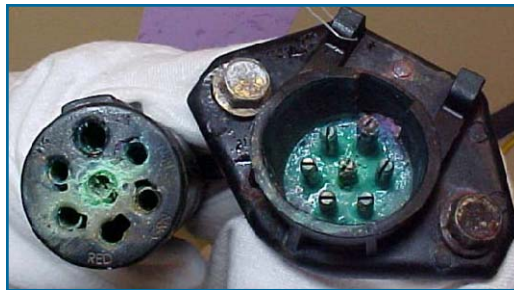
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PAST ISSUES

### Corrosion & the 7- Way Connection

Corrosion has been one of the industry's top concerns for many years now. Electrical connection resistance to corrosion has been cited as a major headache at the fleet maintenance level. And not surprisingly the recurring theme seems to be deicing chemicals.



The most common warranty claim for a 7-way connector is because of loss of power to the blue circuit.

Why? Corrosion buildup caused by several things...

1. Chemical deicers, the most talked about problem.
2. Constant current running through the blue pin at all times when the tractor is on. Constant power on the blue pin and the ground cause these terminals to be affected at a faster rate than the other terminals. Electricity creates an electrical current that magnifies the reaction known as corrosion.
3. Lack of maintenance on the tractor side.

What's rather interesting is the power loss more commonly located at the tractor union versus the trailer.

According to top fleets, the 7-way is disconnected 99% less on the tractor side than on the trailer



- Corrosion occurs most often at the 7-way union on the tractor side due to lack of routine maintenance.
- Because there is constant power on the blue pin and the ground, corrosion is attracted to those areas.
- It is recommended that the 7-way plug and socket be cleaned and greased at every preventive maintenance interval, on both the tractor and the trailer sides.

side. This means the connection is cleaned only 1% of its life on the tractor, causing it to corrode faster due to lack of proper maintenance.

The typical 7-way connection starts with the socket which provides a connection from the tractor to the plug and assembly and then on to the trailer. Because all regular plug and sockets are interchangeable by competitors, it makes the union more prone to size differences. Meaning in a best case scenario you have .3mm of extra diameter space between the unions, leaving it vulnerable to contaminants. Over 90% of water intrusion occurs around the front of the plug, between the connection.

In a test study conducted by Phillips on corrosion at the 7-way connection, samples were placed in a controlled environment and constantly sprayed with a brine solution through an irrigation system. At the same time, an electric current was passed through the product. This test reproduced field results at 120 hours of a traditional 7-way connection. The results were shocking, as corrosion had already begun to completely overwhelm the connection.

At this point it's obvious that interchangeable plugs and sockets will always experience a certain amount of contamination leaking into the connection. So how do we stop this intrusion of water and contaminants? With traditional plugs and sockets it's impossible to stop it all together, but with proper maintenance the life of the 7-way can be prolonged.

It is recommended that the 7-way plug and socket be cleaned and greased at every preventive maintenance interval, on both the tractor and the trailer sides. Use a 7-way plug and socket brush with water only. Do not use soap. Phillips recommends 3-6 month intervals, or more often if the vehicle is excessively exposed to winter like conditions where deicers are commonly used on the road. After every cleaning, re-apply dielectric grease. This prevents the moisture deposited during the cleaning process from collecting and eventually causing corrosion.