

PHILIPS

Qwik Tech Tips

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FEATURED PRODUCT

QWIK-REPAIR™ KIT for Damaged Rubber Air Lines

- For 3/8" I.D. rubber air lines
- Easy to install
- Contents will make two repairs
- Includes Installation Instructions



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PAST ISSUES

Voltage Drop Test Procedures - Sealed Harness

Voltage drop is one of the easiest testing procedures for diagnosing electrical problems. Completing a voltage drop test is quick, easy and will eliminate costly replacement of non-failed parts. If you encounter any of the following it could be a symptom of possible circuit issues and a voltage drop test should be performed.

- Non-working electrical components
- Sluggish components, dim lights
- Intermittent failure of component
- Warm to hot electrical lines
- Radio interference
- Damaged cables or wiring
- Repeat failures of the same electrical component
- Hard starting or no start issues
- Sensor failures or inaccurate readings
- False codes

To determine how much voltage drop is acceptable in a cable you can use any of the calculators on the internet to help you determine the range of allowable drop.

To perform a voltage drop test on a sealed harness system use a multimeter and the following steps.

Caution: Never cut or pierce a sealed harness to test it, unless you have no other choice. If you ever cut into a sealed harness, backlog the repair to have the harness replaced as soon as possible to avoid future issues.

1. Power up the tractor or trailer circuit you are testing by turning on the ignition and making sure you have power to the components.

2. Take the voltage at the power source for the component. On tractors it will usually be at the batteries, the alternator, or power distribution panel. On trailers, unplug the 7 way cord at the trailer and measure the voltage at the plug on the cable of the circuit you are testing, (running lights, clearance, brake, etc.). If the voltage is acceptable, then plug the cable back in.
3. With the power on, test the voltage from the sealed harness beginning at the component that appears to be faulty. If the voltage is good, the component is bad and needs to be replaced. If the voltage is outside of the range of expected drop, then work your way back at each harness connection and take the voltage to determine which section of the harness the issue is in.
4. If you find corrosion in a connection, you can try to clean the male and female terminals up using a wire brush. Once the connectors are clean, place non-conductive grease in the connector, and plug the connection together. Go back to the component and take the voltage to confirm the voltage drop is resolved.
5. If the corrosion is beyond cleaning or if the problem is internal to the harness, replace the harness or harness module. Do not attempt to cut, splice or repair a harness as it almost always will lead to a future problem. It is always recommended to replace the harness. The cost to cut splice and repair a section is almost always more expensive than replacing the harness and replacement avoids potential future issues.

Next month we will cover how to perform a voltage drop test on exposed wiring.



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- One of the biggest issues with diagnosing voltage drop is it cannot be completed with a visual inspection. A visual inspection of the wiring or cable will almost always miss the problem since damaged wiring inside a wire jacketing cannot be seen.
- Proper grounding can easily be missed, and many times is the issue creating the voltage drop. Today's electrical systems use complex and sophisticated components. Proper grounding is essential for the components to work correctly.

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