Qwik Tech Tips

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Staying Grounded

All heavy duty trucks run a 12 or 24 volt DC electrical system. Direct current or DC electricity is the continuous movement of electrons from an area of negative (-) charges to an area of positive (+) charges through a conductive material. A DC current requires a source of energy, which in this case is the battery, or batteries, and wiring running from the positive source of the energy to the negative terminal on the power source. On a truck, electrical devices, such as safety lights or add-ons, are included somewhere between the beginning and the end of the circuit. The neutral, or ground wire, is the return for the completion of the circuit. If there is no ground, there is no electrical current. When the circuit is interrupted, or broken, power is no longer provided to these devices, or is only provided intermittently. Flickering tail lights are one example of this. There is more than one reason why interruptions in the circuit may occur, but one cause that is often times found to be the culprit is the ground.

So what causes the ground to fail? There are many reasons as to why the ground in the electrical system might fail, such as improper wire gauge size, corrosion build up, and improper grounding. To maintain a good ground we recommend taking the following steps:

Proper Wire Gauge Size – The ground wire needs to be able to handle the total maximum amps drawn on all circuits simultaneously. If additional trailer add-ons are included on the truck (post OE), then the wire gauge needs to be taken into consideration and either increased accordingly, or additional ground wiring needs to be added.

Keep Corrosion Out – The ground wiring should be treated with the same care as any other wiring on the vehicle.

- Use heavy duty heat shrink tubing or heat shrink connectors when making repairs or including new trailer add-ons.
- Never pierce or puncture a hole in the wire jacketing which will allow contaminants to enter the wiring system.
- The ground is part of the electrical assembly between the tractor and trailer. Be sure to keep your connectors clean by using a plug and socket brush every 6 months with water (NOT SOAP). After cleaning, re-apply dielectric grease to the plug and socket pins.
- Because the ground is linked to the negative post(s) on the battery (batteries), always protect battery posts and terminals with anti-corrosive spray and clean them regularly. This will keep corrosion from building up on the posts which creates poor contact as well as keeps corrosion out of the battery cable(s) which are necessary to maintain a good electrical current.

Properly Mounting the Ground

- Always make sure the ground leads directly to the negative battery post. The negative battery post on a battery should always be grounded to a ground stud, which is typically located nearby.
- Grounding to the chassis or engine is not recommended as it will lead to corrosion, which leads to poor contacts, which leads to faulty electrical operations.
- When grounding to the fifth wheel, a fifth wheel ground strap may be used for added protection.
- Rather than relying on metal to metal contact across the fifth wheel, consider converting your single pole socket set up to a dual pole socket for an improved ground.

By following these suggested recommendations, you can maintain a good solid ground.

TIPS

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- Be sure the ground/neutral wiring is large enough to handle the total maximum amps drawn on all circuits simultaneously.
- Corrosion acts as a road block for electricity on any current. Be sure to make proper repairs and clean/maintain the plugs, sockets and battery on a regular basis.
- Always make sure the ground leads to the negative battery post and not the positive.
- When grounding the fifth wheel, use a fifth wheel ground strap or consider converting the single pole socket set up to a dual pole for improved ground.

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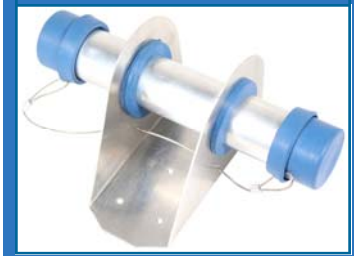

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