

Heavy Vehicle Electrical Fires

During the winter months and snow plowing season, heavy vehicles such as dump trucks are at an increased risk of catching fire. Typical causes include tire, brake, and wheel bearing fires, exhaust system fires, dump bed fires, and electrical-related fires. In this guide, we will be focusing on electrical related fires.

The causes of these fires can include the following:

- Faulty wiring, sometimes due to an improper install of aftermarket additions
- Corrosion or wear and tear causing a failure in the insulation and arcing
- Components get hot and ignite combustible material such as spilled oil/gas, or carbon dust build-up
- Poor electrical connections on terminals



Most fires can be prevented with proper preventative maintenance, which in the winter months when dump trucks are pushed to the limit is critical. Long hours in use, heavy loads from road applications, torque from pushing snow, and exposure to elements will require more frequent preventative maintenance and inspections of your fleet.

Tips to Help Prevent Electrical-Related Heavy Vehicle Fires

Use Qualified Mechanics

As you purchase new equipment or make modifications to existing equipment, make sure the mechanics you are using (in-house or external) are capable of identifying electrical issues and performing regular maintenance on the electrical components of your vehicles. If not, provide regular training for your mechanics specific to the equipment they are working on so they can perform daily inspections and contract out maintenance that they are not comfortable with. Be sure to document all maintenance and inspections.

Evaluate Your Winter Fleet Management Program

Determine what additional preventative maintenance may be required during the winter months and how you can accommodate or adjust your staff and vehicle inspection efforts. Increase your inspection frequency as needed depending on how much plowing you are doing. Inspections should be conducted daily at a minimum and should not take a back seat during plow season. Adjust your inspections to include electrical components.

Shutdown Procedures and Vehicle Storage

Evaluate your end-of-day shutdown procedures. Be sure to allow the vehicles to cool down (outside if possible), for at least 30 minutes and away from other vehicles. Once cooled, make sure to clean out any debris such as leaves and spilled oil/fuel/grease out of the engine and mechanical compartments. Pressure wash or steam clean as needed. Inspect electrical wiring and connections. Disconnect the battery switch if available. Keep in mind that if you smell any burning look into the root cause of that smell. It could be electrical wiring insulation or faulty circuits. Keep fire extinguishers accessible and on hand, in case a fire does start. Train your staff on what to do if there is a vehicle fire at your garage and on the road.

Install a Disconnect Switch

When purchasing new equipment, ensure that the battery is equipped with a disconnect switch. For existing equipment consider installing one. Use of this switch will help protect your battery's life span, perform better and protect your employees while performing maintenance. A disconnect switch will isolate power entirely from the battery and help prevent electrical vehicle fires by doing so. For newer equipment, a circuit breaker may be installed on your battery which will help detect an overload or faults and thus trip the breaker.

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