



Customer Focus on Loss Control

Innovative Safety and Health SolutionsSM

Heavy Motorized Equipment and Lightning

What happens when lightning strikes a piece of heavy equipment, such as a backhoe?

Electrically speaking, currents are carried mostly on the outside of conducting objects. The outer surface carries most of the electricity. The conditions inside the steel cab can be likened to protection by a partial Faraday Cage.

The hazard depends on the conditions. For example, is the cab dry or wet? If the cab is made of fiberglass (a poor conductor) or if it is open, the “skin effect” principle described above may not apply.

Backhoes, bulldozers, loaders, graders, scrapers, mowers, etc. which have enclosed cabs (ROPS) are generally safe during nearby electrical storms. Shut down the equipment, close the doors, and sit with your hands in lap to wait out the storm. Do not touch anything that may be connected to the outside. During close lightning, never attempt to step off the equipment to ground. Should you do so, you establish a "dual pathway to ground," which creates a very dangerous “step voltage” and “touch voltage” situation. In their attempt to equalize themselves, the lightning voltages may go right through *you*.

Smaller equipment without ROPS is not safe during electrical storms. Riding mowers, golf cars, utility wagons, compactors, and other equipment are examples. Rubber tires do not provide protection from lightning. Should an electrical storm approach while you are using this type of equipment, abandon the machine and get into a safe, substantial shelter.

A person who has been struck by lightning will not retain an electrical charge. Call 911 or send for help. Apply First Aid if you are qualified to do so.

