TOP FIVE CAUSES OF FORESTRY EQUIPMENT FIRES—AND AVOIDING THEM

INTRODUCTION: Equipment fires can be expensive, in terms of employee injuries, property damage, and lost production. Unfortunately, equipment fire losses in the forestry industry have increased as the industry has struggled through the downturn.

“Loggers appear to be doing more with less,” says Chris Colello of Acadia Insurance, a major insurer of logging operations. “This may involve ‘double shifting’ and putting more hours on machines over a shorter period of time.” Aging equipment, fluid leaks, and worn electrical systems are resulting in more fires, Colello notes.

While forestry machines are generally equipped with fire suppression systems (often at insurers’ request), ultimately it is up to the equipment operator to prevent fires. “The problem with forestry is that you’re working in an environment that is as dirty as, if not dirtier than, an agricultural harvesting environment,” says John Walker of Walker Fire Forensics. “Every time you move a tree, there is debris that falls from the crown. Then processing with a chain saw or chipper creates more debris. A lot of this ‘forestry trash’ finds its way into the engine compartment.”

Debris accumulation is the top cause of forestry equipment fires, he points out. But it’s not the only one. Here are the top five causes of logging equipment fires and what operators should know—and do—to avoid them:

1) Debris in the Engine Compartments
Dry leaves, needles, branches, sawdust, and twigs can build up on equipment, particularly in the engine compartment. This debris is highly combustible and must be removed frequently. Cleaning out debris once a day or before a shift may not be enough. Get in the habit of checking for debris buildup at lunch breaks, coffee breaks, and whenever time allows.

2) Hotter-Running Tier 4 Engines
New Tier 4 engines run hotter than the earlier ones did. Be aware of higher engine temperatures, and take care to prevent debris build-up on or around these areas.
3) Debris Ignited by Rotating Components
Like a camper rubbing two sticks together, rotating components such as drive shafts can rub on debris caught against these moving parts until it ignites. Remove such debris frequently to prevent fires.

4) Altered Electrical Systems
Unauthorized and inadequate modifications to electrical systems frequently lead to shorts, overloading, and fires. Never add unauthorized electrical components to machines. Only use power outlets provided by the manufacturer.

5) Ultra Low Sulfur Diesel Ignition Hazard
Loggers need to be aware of the risks associated with Ultra Low Sulfur Diesel (ULSD) during refueling. ULSD poses a greater static ignition hazard than do earlier diesel formulations with a higher sulfur content. Static charges can build up in diesel fuel delivery systems, such that a small spark can ignite the combustible vapors and result in a fire or explosion.

Proper bonding and grounding of the complete fuel delivery system is important during refueling. A simple wire connection between two machines will create a bonding connection. Fuel systems need an electrical path between the tank and the ground, to dissipate static electricity and minimize the potential of creating a spark.

If you have any questions about proper fuel system bonding and grounding, consult with your fuel system supplier before refueling. Review the Association of Equipment Manufacturers’ Best Practices bulletin on the topic at [www.aem.org/ulsd/](http://www.aem.org/ulsd/)

CONCLUSION: Safety is everyone’s job. Hazard awareness and reduction to help prevent equipment fires keeps everyone working, minimizes injuries and property losses while optimizing working conditions for all.

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Fig. 2: Clear combustible debris in forestry equipment as it accumulates, even several times a day.

Fig. 3: Blocked radiator can cause overheating, leading to fire.