



NWCG Equipment Technology Committee

Equipment Bulletin



Date: August 19, 2016

ETC-EB-2016-02

Subject: Steps for Safe Chainsaw Fuel Handling

Issue: Fire personnel have experienced fuel geysering incidents with chainsaws. In the last two years some of these incidents have resulted in serious injury to firefighters from ignition of sprayed fuel and vapor. Geysering has also been encountered while opening fuel transport containers (e.g. fuel cans, bottles, and dolmars) as well as small gasoline powered engines including leaf blowers.

Geysering describes the rapid energetic expulsion of fuel. It occurs when the fuel in a closed (non-vented) system becomes superheated and pressurized. Once heated and pressurized, removal of the fuel cap from a partially filled tank can result in rapid depressurization and unintended discharge of vaporous fuel.

Seven (7) Steps for Safe Chainsaw Fuel Handling:

1. **Move 20 feet or more from any heat source** before removing the fuel cap. Remember a hot chainsaw engine or exhaust can potentially ignite spilled fuel.
2. **Check the fuel level** by looking through the side of the translucent tank before removing the fuel cap.
3. If fuel level is above ½ tank and the equipment has been running poorly, **allow the engine to cool for 15 minutes before removing fuel cap**. A vapor-locked chainsaw has a higher probability of geysering. Indications of vapor lock include but are not limited to: a) engine running poorly, 2) engine acts like it is running out of fuel, and 3) engine stops but still has fuel.
4. **Expect a fuel release** any time a fuel cap is removed and plan accordingly. Remember fuel can be sprayed from the tank in a 360 degree radius as it is opened. This applies to all caps but in particular tool-less (quarter turn) chainsaw caps.
5. **Open cap slowly**. Stop rotation and hold at the first detent on chainsaws with the tool-less (quarter turn) fuel cap.
6. **Use fresh fuel mix** – Do not use fuel older than one month. Gasoline purchased in winter months is more volatile and boils at a lower temperature. Do not use fuel that has a strange odor.
7. **Ensure and double-check** that the chainsaw cap is correctly installed before returning to operation.

ALWAYS ASSUME ALL FUEL TANKS AND CONTAINERS ARE PRESSURIZED BEFORE REMOVING THE FUEL CAP

Additional Information:

Watch the: [WFSTAR Fuel Handling Training Video](#) (May 2016)

Read the: [Six Minutes for Safety Fuel Handling Part 2](#)

Review the July 2016: [Pioneer Fire Burn Injury](#)