



## **Safety Thursday - Fire**

**May 23, 2013**

One of the greatest fears of most mariners is fire aboard ship. Tight quarters, a ready supply of flammable materials, and difficulty in evacuation make fire on a ship a dangerous situation.

Any fire aboard a boat is a dangerous emergency and justifies a 'mayday' call on the radio and/or DSC emergency alert. Calling for outside help promptly can make the difference between safety and injury or death for crew members. Small fires can quickly spread onboard and can damage electrical systems, so it is important to immediately call for help while you can. You can cancel the 'mayday' call if you succeed in putting out the fire with your crews' resources.

The best defense to fire is stopping it before it ever starts. Take commonsense steps to prevent fires. See <http://www.seattle.gov/fire/pubEd/marine/boatOwners.htm> and <http://www.boatsafe.com/nauticalknowhow/091098tip.htm>. Those with alcohol-fueled stoves should take extra precautions.

Boat US did a study of the causes of boat fires, which is very illuminating. See <http://www.boatus.com/seaworthy/fire/>. The most common cause was electrical (55%), with the second most common engine issues (24%).

## **Fire extinguishers**

If a fire starts, a fire extinguisher is the best resource onboard to stop it. Fire extinguishers are classified by the type of fire they are intended to put out:

- Class A: Normal combustibles like paper, wood, cloth
- Class B: Combustible liquids like alcohol and fuel
- Class C: Electrical fires
- Class D: Combustible metals

For example, an extinguisher rated for ABC would be effective for class A, B and C fires, but not D. A number preceding the letter indicates relative effectiveness. An extinguisher labeled 20BC would be twice as effective as a 10BC (generally because it has more chemical

suppressant). 'US Coast Guard Approved' extinguishers are designed for a wet marine environment and must come with a mounting bracket. The USCG also refers to sizes differently - Size I or Size II.

US Coast Guard regulations (46 CFR 25) establish minimum requirements for fire extinguishers on board. For boats in the 26-40' range, the minimum is two type B-I or one type B-II. For boats between 45 and 65 feet, the minimum is three type B-Is or one type B-II and one type B-I.

These should be viewed as minimums. Extinguishers should be mounted in easily-accessible locations near stoves, engines, grills and other locations where fire is likely. They should be mounted so that you don't have to reach through a potential fire to get them.

The Boat US Foundation has done extensive testing of fire extinguishers. It is worth visiting their site at <http://www.boatus.com/foundation/findings/46/>. They recommend carrying tri-class extinguishers (1A:10BC) and carrying more than the minimum required by the USCG.

The Mac Safety Regulations (MSRs) require at least two operable fire extinguishers, readily accessible in different parts of the boat.

Another tool for fighting fires is a fire blanket. (An example is here: <http://www.fbdusa.com/>). These can be used to smother small fires. They are a useful supplement to a fire extinguisher.

## **Fighting the Fire**

If a fire starts, your first step should be to immediately cut off the fuel to the fire. If it is a stove fire, cut the solenoid or turn off the propane tank. If an engine fire, turn off the engine, which will cut the fuel pump. If an electrical fire, cut off the circuit breakers to the affected system.

Simultaneously, all crew should put on PFDs if not already on, and a distress call should be made via either DSC emergency button or VHF-16 'mayday.'

Your next step depends on the type of fire. If a Class A fire (wood, paper, etc), you can douse with water or with an A-rated fire extinguisher. If a Class B (liquid) or C (electrical) fire, however, do NOT douse with water. Water would just spread the flames for a Class B fire and can risk electrocution in a class C fire. Use a BC rated fire extinguisher (or ABC rated) to put out the fire.

Be careful in fighting Class A fires with extinguishers rated for only Class BC. BoatUS Foundation testing has shown that such fires, when fought with the incorrect BC extinguishers, tend to flare up again once apparently out.

Boat US Foundation has an instructive video on fire extinguisher use, located at <http://www.boatus.com/foundation/findings/46/>. Take a few minutes to watch it now. Their testing found that many people did not use an extinguisher properly. Remember P-A-

S-S. Pull the Pin. Aim the nozzle at the base of the fire. Squeeze the handle. Sweep the contents from side to side at the base of the fire.

If the fire is in the engine, aim the extinguisher through the smallest possible access hole to the engine compartment. This helps confine the fire to the engine compartment while at the same time reducing the amount of oxygen available for the fire. Most newer boats have a port specifically designed for this. Locate it now.

## **Final thoughts**

Be sure that you check your fire extinguishers periodically (at least annually). Check according to manufacturer's recommendation, including checking the firing mechanism for signs of damage or decay; checking the gauges to determine if the extinguisher is properly charged; and check the mounting to be sure it is properly located and that the extinguisher is firmly in the mounting but can be easily released.

Also watch for recalls of extinguishers. Like any mechanical product, they can be defective. There is even a recent USCG alert about counterfeit extinguishers. The USCG has a section on its Safe Boating site that list recalls - [www.uscgboating.org](http://www.uscgboating.org). See also:

<http://www.uscgboating.org/news/default.aspx?ArticleId=671>

<http://www.uscgboating.org/news/default.aspx?ArticleId=26>

*Note: The purpose of this article is to highlight some of the Mac Safety Regulations and how your crew can race the Mac as safely as possible. As always, ultimate responsibility for the safety of the crew and the decision whether to race or to stop racing is that of the skipper (RRS4, MSR2). This email is meant as a courtesy only and you should always refer to the Race Documents section of the website for the Notice of Race, Sailing Instructions and Mac Safety Regulations, which govern the race. Safety Thursday emails are (c) 2013 Chicago Yacht Club and its Race to Mackinac Committee unless otherwise noted. They may be used or shared pursuant to the terms of the Creative Commons Attribution-NonCommercial-NoDerivs 3.0 license as set out at <http://creativecommons.org/licenses/by-nc-nd/3.0/>*