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Vessel Afire!

By Vincent Pica

It seems to me that one of the most frightening circumstances to be caught in is a boat afire. A boat is loaded with high-octane fuel, creating toxic smoke; using water to fight the fire can sink the boat; leaving the boat may entail going into another hostile environment – cold and unforgiving water. It doesn't sound like there are many, if any, good alternatives. Also, fire prevention professionals quote that on average a fire will double in area every five minutes. At that rate, it wouldn't take long to engulf an entire boat. So time is of the essence and it's highly unlikely that anyone can get to you in time to assist in the fire suppression. You and your crew, most likely, are it.

Causes of Fires

According to many studies such as those conducted by entities such as BOAT/US, surprisingly, the engine is not the most likely source of fires on boats – electricity is. More than half of boat fires (55 percent) start with wiring or appliance failures. Next come fires started by an overheated engine but they are less than half as likely (24 percent). Less than 10 percent of boat fires (8 percent) start with a fuel leak. Of course, those can reach catastrophic proportions if the fire backs up into the tank itself. The rest is a mixed bag of "miscellaneous" – a dropped match, stove spills, flare "slag" landing on the boat, etc.

An electrical fire such as the one that starts from a frayed/chafed wire is very different from one which is fed by a malfunctioning inverter or generator. The first is going to act like someone was smoking in bed – material is aflame but not being fed by the electricity itself. But it counts as the cause of the fire.

Types of Fire Extinguishers and Who Needs What

First, fire extinguishers themselves are classified into "A," "B" and "C" types. (There's a type "D" for chemical/combustible metals fires such as would be created by the magnesium in a flare, but I've never seen it successfully used before the flare involved surrounding materials – get the flare off the boat [let the fish deal with it] and then deal with the fire.) Here's an easy way to remember which extinguisher works with which fire:

1. Use an "A" fire extinguisher if the fire creates ash, from burning paper, bedding, clothes or wood, etc.
2. Use a "B" if the substance on fire can boil, e.g., "POLs" or petroleum, oils and lubricants.
3. Use a "C" if the fire involves electronic equipment and therefore a charge runs through it.

Fire extinguishers also come in different sizes (pounds of suppressant). For the private boater, size 1 (I) or 2 (II) are the most common and manageable. The question is really, "How many do I need for my size boat?" And the answers are:

1. All power boats, except outboards, less than 26 feet and of open construction must carry **one B-I**, US Coast Guard approved fire extinguisher.
2. All power boats 26 feet to less than 40 feet must carry **two B-Is** or **one B-II** US Coast Guard approved fire extinguishers.
3. Vessels 40 feet to less than 65 feet in length must carry **three B-I** or **one B-II** and **1 B-I** US Coast Guard approved fire extinguishers.
4. Larger vessels must adhere to federal regulations about automatic fire-suppression systems in enclosed spaces.

What those suppressants are and what's best for your boat are the next logical questions. As would seem obvious to even the casual reader, carbon dioxide (CO₂) is one suppressant. It smothers the fire by withholding oxygen from the "fuel-oxygen-heat" equation. CO₂ has one not-so-obvious drawback. If you use it on a type-A fire, the high pressure of the CO₂ coming out of the canister may very well spread the fire. So, hold CO₂ aside.

Another type of suppressant is "dry chemical." It can handle type A, B and C fires but it also has a problem. The chemical suppressant tends to be corrosive in a marine environment. Yikes! So hold that dry chemical aside too.

What tends to work best, at least for A and B fires, is foam. It smothers the fire like a blanket. The foam is water-based so using it on an electrical fire (C) can be problematic as it may give a medium for the electricity to reach the saver – you! Of course, in a private boat such as found in our area, a foam extinguisher will work just fine for your chart plotter that shorted out. I just wouldn't use it in an environment where a generator is putting out high-voltage power to a large vessel with a myriad of electronic needs such as A/C, TV, radar, microwave oven, refrigerator, etc. That much juice is clearly something you don't want to be in the middle of!

Where Do I Keep the Extinguishers?

Keep them where you can reach them easily and in the sleeping berths. If you awake to a fire, you may have to fight your way out of it. Every other extinguisher should be kept in a convenient place – near the galley but not in it, near the engine but not within the engine space, etc. Use common sense.

Boat's Afire – Now What!??

1. Act quickly. If you have help aboard, use it.
2. Have someone turn the boat so the fire is downwind and proceed ahead as slowly as possible to maintain steerage. This will buy you time as the fire can't fight its way upwind easily.
3. Have the helmsman call the USCG on VHF-16. Get the "rescue starts now" clock going NOW.
4. While reaching for the fire extinguishers, yell – "Everybody into life-jackets!" If you do have to abandon ship, you'll be prepared.
5. Aim the fire extinguisher at the base of the flame, not the flames themselves. You are seeking to smother the source of the fire, not the flames per se.
6. Move the fire extinguisher back and forth across the source of the flame to spread the coverage. If the fire has a source such a flowing charge or liquid and you can get to a shut-off valve, shut it off and starve the fire.



Remember, call the Coast Guard asap. They won't get there in time to stop the fire – but they will task someone or something to get there in time to fish you out of the water if you have to abandon

ship.

About the Author: *Vincent Pica is a coxswain and the Commander of Flotilla 18-06 East Moriches. He was a navigator in a brown-water and blue-water sailboat racing crew for eight seasons. From the "iron sails" side, he is a licensed US Coast Guard Master of Steam and Diesel Powered Vessels, carries a Radar Observer endorsement, Unlimited, on his license and is certified in Marine Diesel Engine Operation and Maintenance.*

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