



by Vincent Pica

### [Fire in the hold!](#)

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We often hear of boats that catch on fire. The mariners rarely, if ever, burn with the boat since anybody would take their chances in the cold and unforgiving water than submit to fire. The boat then burns to the waterline and sinks to the bottom.

The mariners may — or may not — survive their escape.

Thus, it would seem appropriate to review what one does when someone yells, “Fire in the hold!”

It seems to me that one of the most frightening circumstances to be caught in is a boat fire. It is loaded with high-octane fuel that creates toxic smoke; using water to fight the fire can sink the boat; and, as noted above, 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 say 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 is 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 BoatUS, 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” — 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 than 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 is a type “D” for chemical/combustible metals fires such as would be created by the magnesium in a flare, but I have never seen it successfully used before the flare involved surrounding materials — if you can, get the flare off the boat (let the fish below deal with it) and then deal with the fire. The easiest way to remember what they are used for is thus:

- “A” — the fire creates ash — paper, bedding, clothes, wood, etc.
- “B” — the subject afire can boil — “POLs” or petroleum, oils and lubricants
- “C” — a charge runs through it — electronic equipment

Extinguishers also come in 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:

- All power boats, except those with outboards, less than 26 feet and of open construction must carry one B-I, U. S. Coast Guard-approved fire extinguisher.
- All power boats 26 feet to less than 40 feet must carry two B-I or one B-II U. S. Coast Guard-approved fire extinguishers.
- Boats from 40 feet to less than 65 feet must carry three B-I or one B-II and 1 B-I U. S. Coast Guard-approved fire extinguishers.

- Larger vessels must adhere to federal regulations about automatic fire-suppression systems in enclosed spaces.

Well, “What are suppressants?” and “What is best for my boat?” might be the next set of logical questions. As would seem obvious to even the casual reader, carbon dioxide (CO<sub>2</sub>) is one suppressant.

It smothers the fire by withholding oxygen from the “fuel-oxygen-heat” equation. But CO<sub>2</sub> has one not so obvious drawback. If you use it on a type B fire, the high pressure of the CO<sub>2</sub> coming out of the canister may very well spread the fire. So, hold CO<sub>2</sub> aside.

Another suppressant type is “dry chemical.” It can handle A, B and type 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 be best, at least for A and B fires, is foam. It smothers the fire like a blanket. The foam is water-based so the use of it on an electrical fire (C) can be problematic as it may give a medium for the electricity to reach the salver – you!

Of course, on a private boat a foam extinguisher will work just fine for your chartplotter 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?**

Where you can get to them — plus 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.

### **The Boat’s Afire – Now What??!**

Act quickly. If you have help aboard, use it. Have someone turn the boat so the fire is downwind and proceed ahead “on a slow bell” — as slowly as possible to maintain steerage. This will buy you time as the fire can’t fight its way upwind easily.

While reaching for the fire extinguishers, yell, “Everybody into life jackets!” If you do have to abandon ship, you are prepared. 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. 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.

And be sure to call the Coast Guard ASAP on VHF Channel 16. Get the “rescue-starts-now” clock started as soon as possible. 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.

BTW, if you are interested in being part of USCG Forces, email me at [JoinUSCGAux@aol.com](mailto:JoinUSCGAux@aol.com) or go direct to the D1SR Human Resources department, who are in charge of new members matters, at [DSO-HR](#) and we will help you “get in this thing...”