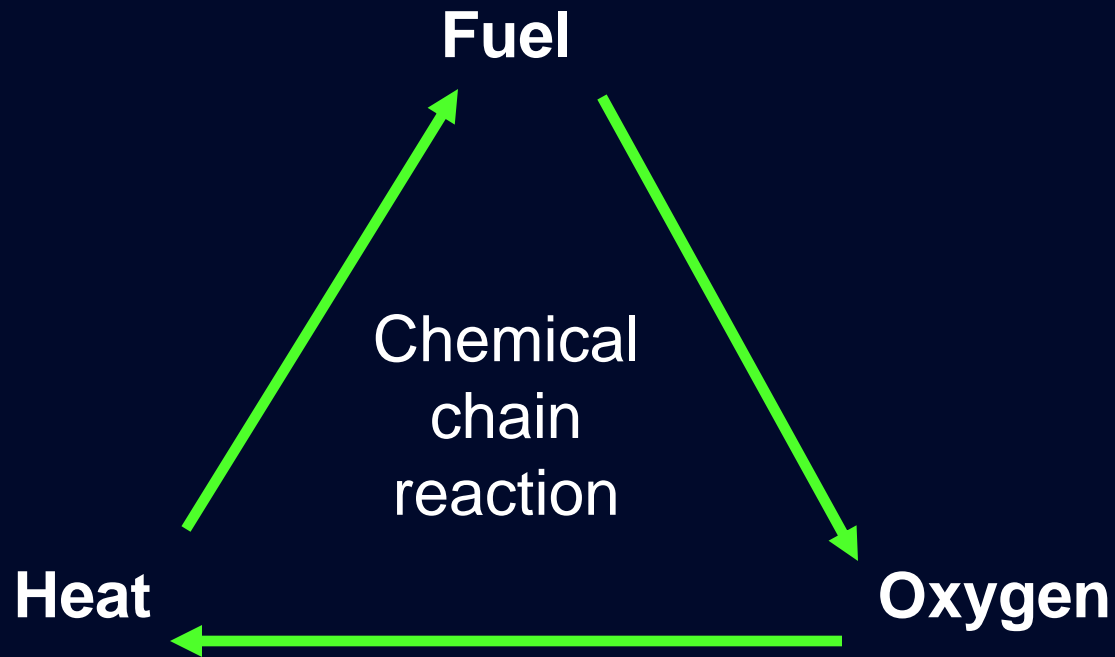


Fire Fighting and Prevention

Kaneohe Yacht Club
Safety at Sea Seminar

For a fire to exist, it has to have:



Remove one of these, and you can put out a fire

Types of Fires: Class A

- Materials which leave an Ash
 - Wood, cotton, fiberglass, cushion, sails
- Effective extinguishers
 - Water
 - Tri-class
 - Carbon Dioxide
- Concerns
 - Fire may be deeply embedded in materials

Types of Fires: Class B

- Flammable liquids (things that Boil)
Oil, gasoline, resin, paint, kerosene, diesel
- Effective extinguishers
 - Sodium Bicarbonate (baking soda)
 - Tri-class
 - Carbon Dioxide
 - Halon replacements
- Concerns
 - Water may spread the fire
 - Liquids with low flashpoint may re-ignite





BoatU.S. Insurance







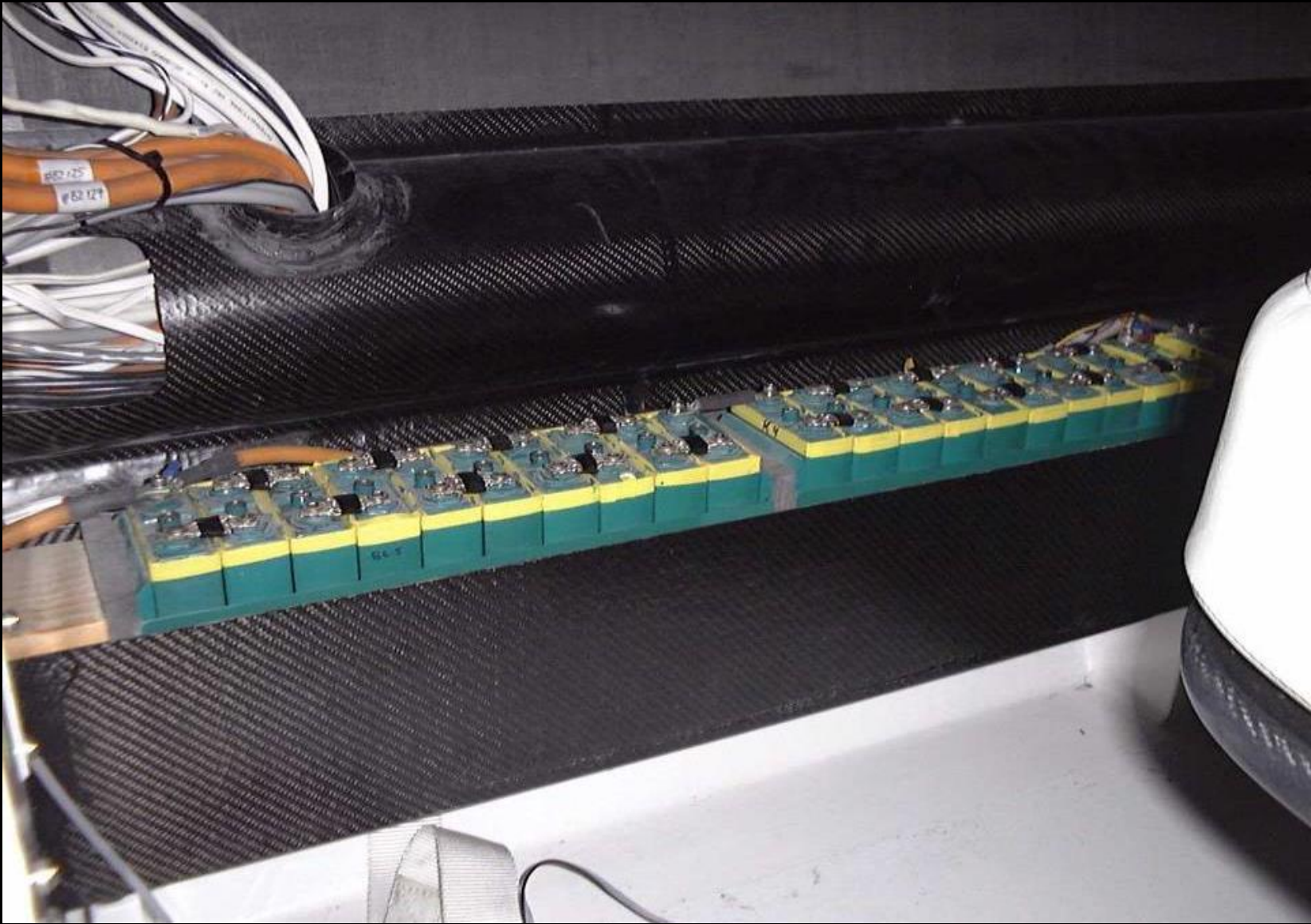
Types of Fires: Class C

- Fires caused by the heat of an electrical short (Charge)
 - Wire insulation and adjacent materials
- Tactic
 - Break circuit, turn off main switch, have circuit protection
 - Then extinguish according to what materials are involved
- Concerns
 - Shock hazard, especially with salt water



Types of Fires: Class D

- Fires caused by burning metals
 - Flares and batteries are common sources
 - Nickel Metal Hydride batteries (PlayStation)
- Tactic
 - Get it off the boat
 - May use dirt or other material to try to cool and isolate
- Concerns
 - China syndrome
 - Toxic smoke



Blaze casts pall over catamaran's racing schedule

Fire ripped through the hull of the world's biggest ocean racing catamaran in Auckland yesterday afternoon, sending crew scrambling for safety and putting the immediate racing plans of the \$8 million vessel in doubt.

Fire broke out aboard PlayStation while it was moored on the eastern side of the Viaduct Basin, the Team New Zealand command. The extent of damage was unclear last night.

Rupert Kirby, a tourist catching the sun with his wife, said he heard two small explosions, then saw crew members scrambling from the starboard cockpit and forward hatch, seconds before flames shot out.

The crew tried to fight the blaze with extinguishers but were forced back by the heat.



Steve Fossett

Senior Station Officer Bar-

fox of the Fire Service said it took firefighters about 10 minutes to bring the fire under control. They then flooded the hull.

The catamaran, owned by American adventurer Steve Fossett, was built in Auckland last year with the goal of taking on ocean racing records.

In March, it set the record for the greatest distance travelled in 24 hours, 680 nautical miles.

An attempt to break the record, crossing the Atlantic, scheduled for June, may have to be put off because of the fire.

The catamaran was due to be shipped to America next weekend.



FLASH FIRE: The \$8 million catamaran that caught fire in Auckland yesterday holds the world record for sailing the longest distance in 24 hours. The New



Sources of fires on boats #1

- 55% Poorly installed electrical systems (C)
 - 30% DC shorts and wiring
 - 12% DC engine voltage regulator
 - 4% AC appliance/heater
 - 4% AC shore power system
 - 2% AC wiring/panel
 - 2% DC battery charger

Sources of fires on boats #2

- 24% Engine and Transmission Overheating
 - 19% engine overheating
 - 2% turbocharger overheat
 - 2% transmission overheat
 - 1% backfire
- 8% Gasoline fuel leak (B)
 - 95% of fuel-related fires involve gasoline
- 1% Galley stoves (B)
 - Declining compared to when alcohol stoves were popular
- 12% Unknown or miscellaneous





BoatU.S. Insurance





BARNA



Portable Extinguishers

- Sodium Bicarbonate
 - Low toxicity
 - Inexpensive
 - Excellent for Class B
 - Messy clean up



Inexpensive Portables

Portable Extinguishers

- Tri-Class or Multipurpose Dry Chemical
 - No worry about selecting the right extinguisher
 - Forms a crust on Class A fires, making clean up challenging



Tri-Class Portable





Portable Extinguishers

- Carbon Dioxide
 - Cools and suffocates
 - Pretty ineffective - Large extinguishers!
 - Leaves no residue
- Halon and its derivatives
 - Halon 1211 and 1301
 - cannot be bought, but can be refilled
 - Halotron 1 is a replacement



Halotron Portables

Fixed-Mount Extinguishers

- FM-200 Halon replacement
 - Mounted in the engine room
 - Heat causes “stinger” to burst
 - Activated at 175 deg F
 - From 25 to 150 cu ft



Stinger FM-200

Fire fighting tips

- Have extinguishers located in all occupied spaces of the boat, plus the cockpit, plus the engine room
- Fight a fire quickly; they are virtually impossible to put out if given a head start
 - Fire volume can double every 7 seconds
- Use extinguishers to allow you to escape from below
 - How could you get out of every stateroom, head?
- PASS – Pull-Aim-Squeeze-Sweep
 - Aim extinguisher low and sweep across base of flames

Fire fighting tips

- Install extinguishers above floor - keep them away from water!
- Have a back-up person assist ; close at hand with the extra extinguishers!
- Stay low - avoid smoke
- Have an exit plan!