

LPG is a common and useful fuel used by boaters...

... but if basic safety rules are abused, the consequences can be horrific. Every year escaping gas causes fires and explosions on boats that could have been avoided. This leaflet offers pointers, advice and a guide to the safe use and storage of LPG.



You may have Liquefied Petroleum Gas (LPG) onboard in the form of butane or propane, perhaps in interchangeable blue or red cylinders. These are likely to be connected to a fixed system supplying, for example, a cooker and water heater. Or, you could be carrying disposable gas cartridges for a 'camping' stove. Some craft have fixed, refillable LPG tanks for gas burning engines. But whatever form of gas you have onboard, remember...

LPG can be a hazard. Here's why...

... it is **highly flammable** and readily combines with air to form an explosive mix. If this explosive mix is exposed to a naked flame the resulting explosion may cause life threatening injuries and intense fire.

Because they are watertight, boat hulls also act as good containers for escaped gas. LPG sinks in air and will spread into low level, enclosed spaces such as cabins, cockpits, engine and bilge areas. Even 'small' spaces such as cupboards or lockers can contain dangerous amounts of explosive vapour.

LPG does not disperse easily from such spaces and so the cabin and hull can hold large volumes of the explosive gas/air mix without people being aware of any leaks. If this ignites, the situation could get worse, as a fire will readily flashback to the source of the leak.

An LPG cylinder exposed to fire can be pressurised to the point where the pressure relief valve opens causing a dangerous jet of burning gas. Cylinders can also explode in the extreme heat of a fire and are known to throw debris far and wide.

Another hazard...

... comes from faulty burners, blocked flues and insufficient ventilation leading to carbon monoxide poisoning. Read the companion leaflet **Avoiding the Silent Killer** for advice.

Leaks or accidental gas escapes can be dangerous

They can occur due to equipment failure, by hob burners being blown out, when changing cylinders or even by children playing with gas burner taps.

Gas suppliers add a harmless, but pungent chemical to LPG allowing many people to smell escaped gas in the air at very low concentrations, so alerting them to take early action to deal with the leak before it gets critical.

Prevention is better than cure

If possible, isolate cylinders by closing the cylinder valve whenever you are not using appliances, at night or whenever you leave the boat.

Don't leave a hob burner unattended - a draught could extinguish the flame and the hob will fill your cabin with an explosive gas/air mix.

Supervise children on boats closely. Don't allow them to play with gas burner taps or cylinders.

Regular checks that will help keep you safe

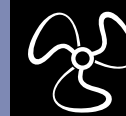
Make sure any changes on your gas system meet the latest British Standards and are maintained to Boat Safety Scheme requirements; e.g. select replacement or new appliances that have flame supervision devices on all burners.

Ensure new appliances and components are fitted in accordance with manufacturers' recommendations. Don't use appliances that are not designed or intended for use in boats.

Follow manufacturers' recommendations in operating, maintaining and servicing appliances. Have your system checked-over regularly and replace regulators that are more than ten years old.

Don't allow any bodge jobs! Only use components that are suitable for use with LPG and ALWAYS USE A COMPETENT PERSON TO CARRY OUT WORK ON YOUR LPG SYSTEM. Ask your local boatyard or contact CORGI for details (see back page).

Please also read the other "Go Boating, Stay Safe" leaflets in this companion series to help you and your crew stay safe and avoid harming others. Copies are available from the BSS Office and partner organisations.

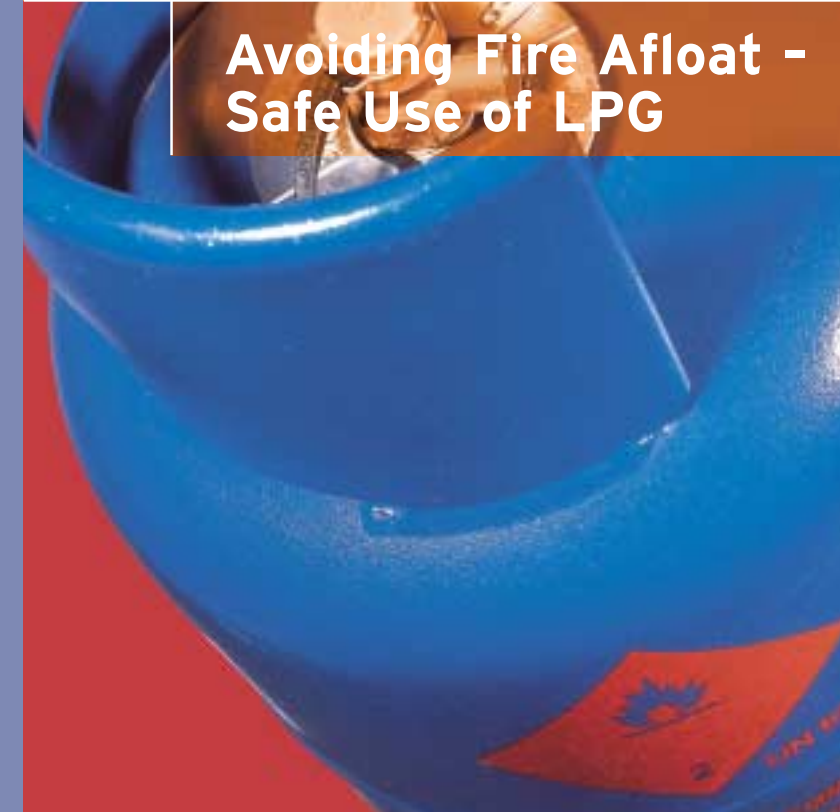


Boat Safety Scheme

Go boating - Stay safe



Avoiding Fire Afloat - Safe Use of LPG



This leaflet contains important information about keeping you, your family and friends safe from the risk of fire and explosion. Please read this leaflet, it could make a difference - it could save your life.



Safety first - treat gas escapes seriously



When changing cylinders or if you suspect a leak!

- Stop the engine.
- Turn off all burner taps on cooking, heating and lighting appliances and extinguish all other naked flames.
- Turn off ignition systems on all appliances.
- Don't operate electric switches (apart from the above).
- Don't smoke or allow anyone else nearby to smoke until the area is safe from the threat of escaped gas.
- Don't use your mobile phone - keep it in your pocket or bag and never touch any of its buttons if you can smell gas.

Before changing LPG cylinders...

... check that the valves on the empty and full cylinders are turned off. If you need to use a spanner, make sure it's the correct size for the connections. Remember to tighten firmly.

Once you have replaced the cylinder...

... refit the plastic safety cap or plug on the disconnected cylinder.

... if a leak is suspected after changing a cylinder and opening the valve, check the cylinder valve with **ammonia-free** soapy water or leak detection fluid and watch for bubbles to detect the leak. **Never** use a naked flame.

... if a leak at the cylinder cannot be stopped, move it to a safe place in the open, well away from the boat, and ensure that people in the area are warned of the danger. Call your supplier and keep people safely away from the cylinder until it has either stopped leaking or your supplier has made it safe.



Boat Safety Scheme

If you detect or suspect a leak, don't panic, but follow the safety first points and then...

... try to get as much through-flow of fresh air as possible by opening doors, hatches and windows and raising deck boards.

... tie up or anchor - keeping a safe distance from other craft. If possible get everyone off the vessel and warn other people in the immediate area. Try to inform the local harbour, navigation authority or moorings staff.

If you are in any doubt, call the fire brigade using a land-line or a mobile phone well away from the risk area.

Don't use the LPG system until it is checked and the cause of the leak rectified by a competent person.

And remember...

... an 'empty' cylinder may still contain some LPG vapour and is still potentially dangerous - treat it as if it were full.

... always ensure **all** cylinders, empty or full, spare or in use, are secured vertically on deck away from openings, or are in a drained cylinder locker.

... beware - 'empty' butane cartridges of portable camping appliances will still contain some gas - dispose of them in a safe place. They must **never** be discarded or stored within the vessel because gas will continue to seep out.

... using unsecured 'camping' style cooking, heating or lighting appliances in the cabin space is risky - why put yourself in danger?

What to do if you suspect a leak

Do these regularly to keep yourself safe

- Check the cylinder locker drain is not blocked with leaves, spiders' nests, etc. Be careful not to store items in the gas locker that could block vents, damage gas equipment or cause a spark.
- Check flexible hoses for damage or deterioration. If you're in any doubt about their good condition, get them professionally checked and renewed.
- Check your LPG system for leakage by routine observation of a bubble tester installed in the cylinder locker, or by testing all joints with leak detection fluid.

Further to the advice in this leaflet, we recommend

- Reading more about keeping yourself safe and meeting the Boat Safety Scheme requirements in the BSS Guide or visiting www.boatsafetyscheme.com.
- Fitting specialist flammable gas and vapour detectors designed for boats. The Council of Gas Detection and Environmental Monitoring, CoGDEM offers advice. Tel: 01462 434322 or visit www.cogdem.co.uk
- Contacting CORGI (Council of Registered Gas Installers) on 01256 372300 or visit www.corgi-gas.com to find its list of registered fitters.
- Visiting the British Marine Federation website at www.britishmarine.co.uk to find your local boatyard.
- Taking safety equipment advice from an RNLI Safety Equipment Adviser. Call 0800 328 0600 for further information or to arrange an appointment.
- RYA training for good advice, practical knowledge and to get more pleasure safely out of your boating experience. Call 02380 604100 or visit www.rya.org.uk for details.



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