

Stoves: what's hot in the galley

COOKING ON BOARD HAS COME A LONG WAY BUT A LOT OF THE OLD METHODS ARE STILL AROUND.

HEATHER FRANCIS

IT HAS been said that, next to the mast, the stove is the most used piece of equipment on board. On my boat this is certainly true.

After almost nine years of sailing I know the most important thing about a boat stove is not the delicious meals that are made on it but that it is installed correctly and maintained properly. Whether you are tied to a dock or rolling around at sea the galley must be a safe working environment and the stove is the first place to start.

TYPES OF EQUIPMENT

Forty years ago if you took a survey in an average anchorage about what kind of stoves people had onboard you would most likely hear a variety of responses.

Back then stoves that burnt kerosene, alcohol or methylated spirits were popular. Many models were fixed into the countertop and not all came with an oven. If the boat spent time plying the waters of the high latitudes they might have a diesel stove that functioned both as a cooker and cabin heater. Boats fitted with liquid propane gas (LPG) stoves would certainly have been in the minority.



These days the opposite is true. Alcohol stoves are still in production and although they have a loyal following it is a small one. A few vessels are still using stoves that run on various other fuels, but mostly likely they are old and it is the sheer cost of replacement that is preventing the user from switching. These days most modern sailboats come standard with an LPG stove and oven combo.

There is a long standing debate among sailors about the safety, efficiency and economy of whatever type of stove and fuel is used onboard, with the pros and cons of each side staunchly defended.

ALCOHOL/METHYLATED SPIRITS

I have no personal experience with alcohol stoves but during my research I came across several stories that involved the older, manually pressurised types having dangerous flare-ups and eruptions. Like so many other pieces of equipment onboard, alcohol stoves have improved in design and safety over the years; today's versions are no longer pressurised and are much safer.

The popular brand Origo is still in production and offers both single and

two burner stationary models plus a two burner stove and oven combination that is mounted on gimbals. Alcohol stoves use denatured alcohol which is poured into a removable metal canister and absorbed into a non-flammable material. The flame is produced by opening the canister and igniting the vapours that are released.

Denatured alcohol is ethanol with various other chemicals added to it. A traditional additive is ten per cent methanol, which is also commonly known as methylated spirits or metho. Other additives are isopropyl alcohol, acetone and methyl ethyl ketone (MEK), none of which are suitable for use in stoves.

Despite denatured alcohol and methylated spirits being toxic for human consumption, in Australia as well as many other countries, people still drink it as cheap alcoholic beverage. To deter such lethal behaviours a skin staining dye, usually purple, is added.

Denatured alcohol or metho can be found in hardware and farm supply stores fairly cheaply. The same product marketed for marine use can cost up to four times the price. Outside Australia, however, it can be hard to find and very expensive. We recently bought methylated spirits in the Solomon Islands for SB\$180, or AU\$30 a litre. So it pays to shop around and stock up before leaving on an extended cruise.

A common complaint from users is that alcohol stove canisters are hard to fill, which often caused spillage. Not only does this mean precious fuel is wasted but if not properly cleaned up spills can be very dangerous. Alcohol is a clean burning; light-blue flame that can be hard to see with the naked eye and a spill could ignite without notice while the burner is being lit.

Some boaters say that alcohol and metho stoves give off unpleasant odours, but how much you can detect it or how much it bothers you varies from person to person. People also complain that alcohol does not burn as hot as LPG and so average cooking times are longer, making alcohol not only more time consuming but less economical. This criticism is actually true, but the sailors I spoke to who cook with alcohol and metho reported that times are not increased substantially, certainly not enough to deter them from having such stoves onboard.

MAIN: Author at work on a powerboat galley, note moveable fiddles and rails.

RIGHT: Exterior gas locker, onboard SV *Kaitoro*, with ID tag and tank tie-downs to comply with Australian Standard.

BELOW: A good old stove on SY *Kate*.

BELOW RIGHT: Aluminium LPG tank, well used.

BOTTOM: Fixed stove on catamaran, SV *Chemisty*.





LEFT TO RIGHT: Metho canisters inside the stove, onboard SY *Inti*; Metho stove and a U-shaped galley, SY *Inti*; Old LPG burners that should be replaced.



LIQUID PETROLEUM GAS

The main argument against carrying LPG is that it poses one very important safety issue; it is heavier than air.

If improperly installed or vented this water-like characteristic can allow LPG to pool in low points such as bilges, turning your boat into a potential bomb with all that is needed is a stray spark to blow your dreams to smithereens. Because of this Australia and New Zealand have strict laws about the installation of LPG systems on boats.

LPG boat stoves work exactly like the typical family barbeque. A special cylinder pressure filled with liquid petroleum gas is threaded onto a regulator which is fitted to a length of hose that is attached to the cooking unit. When the valve on the tank is opened the gas flows freely to the cooker and is ignited either with an open flame or push button electric sparker.

Because the tanks and fittings are the same as household LPG systems it is easy to find facilities to refill or exchange gas cylinders when sailing in Australia and New Zealand. LPG is also a popular cooking fuel throughout the world, so chances are you will never be too far from getting a refill. Be aware that fittings do change from country to country so it may be necessary to carry an adaptor to prevent someone damaging your tank while trying to do a jury rig fill.

LPG is a quick and hot heat to cook over. It is usually economical although, in some of the islands we have recently sailed, it was more expensive than usual

as the majority of the local population cook over open wood fires.

We carry a standard nine kilogram tank onboard and usually get seven to eight weeks of unbridled cooking out of it, including using our old and inefficient oven and cooking on our rail-mounted BBQ.

THE OTHERS

Kerosene was used as a fuel source for cooking stoves for several years but has lost popularity among sailors.

Diesel stoves are well-liked among high latitude explorers, both for heating and for cooking. In cold and remote destinations diesel is probably one of the easiest fuels to find, which pretty much guarantees you can be well fed and live in relative comfort even if it is a howling gale outside.

Not only is diesel relatively cheap, it is not highly combustible, so it is easily stored. Big benefit in having a diesel stove also means that you only have to bunker one fuel source.

Long range power boats have the option of electric galley appliances, the power consumption of electric equipment is not of the same concern as is it on a small sailboat.

SAFETY FIRST

Regardless of what kind of system you use onboard, your first priority should always be safety.

Alcohol and methylated spirits are definitely less volatile than LPG but that does not mean there are not risks involved,

after all they are still flammable liquids. As such, care should be taken when handling and storing your fuel.

It is important to read your user manual and only use the recommended type of fuel for your particular stove. The Origo alcohol stove user manual suggests that you should 'never fill the canisters while still in the stove. Never pour fuel through the burner openings in top of the stove.'

It is important to fill the canister to the maximum fill mark only, as it warns that 'alcohol expands in the canister when heated. Overfilled alcohol can cause uncontrollable burning inside the stove.'

As mentioned before, the flame produced while alcohol is burning can be very difficult to see so care should always be taken when fuel is split. Alcohol, kerosene and all other stove fuels should be stored in a well ventilated compartment well away from the stove in certified storage containers. In case of an accidental fire this eliminates combustibles in the area that could feed the blaze.

Of course, smoking while handling alcohol, filling or using a metho stove is never a good idea.

The Australia/New Zealand Standards document, AS/NZ:5601, is a weighty tome outlining the criteria for proper installation of LPG systems on a boat or caravan, including cylinders, lines, storage lockers and stoves. To start it stipulates that a qualified gas fitter is required to install and approve any LPG systems fitted on board.

Licences and qualification vary from state to state so fellow boater Darren Hinton, owner and operator of Ideal Plumbing



and Gas in Airlie Beach, Queensland says “when hiring a gasfitter check they hold the required licences and insurances for the work you would like carried out, as there are different levels of licence for different types of gas works.”

Newer LPG stoves come standard with a failsafe; a temperature sensitive thermocouple that stops the flow of gas within a few seconds of the flame being extinguished. This prevents an accumulation of gas if the burner is blown out by a gust of wind; however it does nothing to inhibit the flow of gas from a chafed hose or improperly tightened regulator. As an extra precaution, systems should also be properly fitted with an electric solenoid. This allows for the user to manually shut off the gas without accessing the tank should a problem occur between the tank and the burner.

There are precise requirements in AS/NZS:5601 regarding the storage of gas cylinders onboard. A separate locker with adequate space and ventilation to house only gas cylinders should be installed. Inside the locker, cylinders must be restrained with anchor straps. Section 2.11.4 states: ‘to prevent corrosion of cylinders under anchor straps, a rubber strip or similar protection shall be positioned between cylinders and anchor straps.’ It also says: ‘cylinders shall be restrained by attachments designed, constructed and secured in place so they shall withstand a load equal to 4 times the weight of the full cylinder and fittings in all directions.’ Proper labelling of storage areas is also suggested.

There are no specification regarding the type or size of tank a vessel is permitted to carry but it is preferable to carry aluminium cylinders. These tanks are more expensive and mean that you must refill when empty instead of taking advantage of the convenient ‘Swap-n-go’ service offered at many petrol stations. Household steel tanks, however, are prone to corrosion when exposed to salty

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environments and trouble spots can often be hidden under paint.

Maintenance checks should be part of your regular onboard safety routine. I asked Darren what the average yachting could do to check their LPG system for problems: “a good way is a spray bottle of soapy water,” he said, “you can spray fittings and connections and check for leaks by looking for growing bubbles or foam forming around the fittings.

“Small leaks turn to foam whereas larger ones ‘blow bubbles’.” If your stove is gimbaled it is important to check for chafe and leaks at any point where the hose encounters friction or passes through a bulkhead.

If anything looks suspicious or you find perished, cracked or corroded hoses or fittings make sure you have them replaced by a qualified gas fitter.

Darren also recommends that users “turn gas off at the cylinder when not in use. Check for leaks after each passage and every time a new gas cylinder is fitted. And never check for leaks with an open flame.”

Of course basic fire and safety practices should be followed in the galley. An open flame, no matter what the fuel source, requires oxygen to burn. This means that every time you light your stove you are stealing oxygen from the surrounding environment. Make sure the cabin is well ventilated, this is especially important if you are underway sailing in cold or inclement weather that requires the boat to be closed up.

A fire extinguisher should be installed in an easy to reach place near the galley but far enough away from the stove that it can be safely reached if a fire should break out. It is necessary to carry the correct type of fire extinguisher for the type of fuel that you are using and service them regularly.

Most importantly make sure everyone onboard is familiar with how to use them. Power boats or larger sailboats could also consider installing a fixed fire-fighting system if they have an exhaust hood fitted over the range. Perhaps the most

inexpensive but extremely effective way to douse accidental flare ups is a fire blanket.

Gas alarms or sniffers are available if you have an LPG system. Similar to a smoke detector, installed in low points and bilges where they alarm when ambient gas levels exceed a safe concentration. They vary from small battery operated units to totally wired-in systems, with different visual and acoustic alarms. They can have alarm only or alarm and shutoff valve.

Talk to a qualified gas fitter about what is best for your vessel and budget.

THE GALLEY UNDERWAY

Sometimes it feels like cooking underway requires four hands; two to deal with the meal and two more to keep stable and upright.

The standard 'U-shaped' galley on a monohull sailboat was designed to be practical, but not necessarily spacious. Everything is within arm's reach and there are lots of places to hold onto or brace yourself against, making it a comfortable space to work in.

Multihull sailors may not have to contend with heel but they do get tossed around. So if you are constantly reaching for a handhold that is not there, install one. Mine doubles as a place to hang a tea towel.

On a sailboat a stove with good fitting rails and fiddles is your best friend when it comes to cooking underway. Stoves that are gimballed should be installed facing athwartships not fore and aft, allowing the unit to swing as the boat heels, ensuring the cooking surface stays level.

Fiddles, or pot restraints, keep pots securely over the burners while cooking and a high rail on all four sides will stop pots from falling to the floor if the boat rolls unexpectedly. A lock on the oven door will make all the difference if you plan on baking or roasting meals underway.

If you have a new model boat or stove these things come standard. But, if

you are like me and have purchased a boat with an older stove, you might have to think outside the pot, so to speak, to make the stove a safer place to be underway.

I have scrounged fiddles from abandoned stoves in boatyards until I found a mismatched set that was up to the task. We installed a simple sliding bolt lock to the oven door and modified the railings so that pans could not slip under them.

These changes have made a tremendous difference; I can now momentarily step away from the stove without worrying about getting injured when a pot slips off the burner or scalding hot food goes airborne.

Invest the time and, if necessary, money to make your stove a functioning piece of equipment at sea. It will make cooking easier and safer.

Powerboats do not travel on a constant heel and often have the benefit of stabilisers, so the galley layout can be more spacious with stoves that do not have to be gimballed. However, grab rails come in handy when the boat encounters rough conditions and rails and fiddles are still necessary with flat electric burner plates.

Whenever working down below, stand with your feet wide, this will give you

better balance and stability. Make sure there is a stable handhold near the stove so that you do not accidentally grab the stove when thrown off balance.

Choosing a pot that has a tight fitting lid and is slightly larger than needed to make sure hot food and liquids have adequate space to slosh around as the boat moves. If conditions deteriorate and standing near the stove feels too dangerous, try

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easing the motion of the boat by altering course or heaving-to while cooking.

Some people like to use a galley belt, a type of harness that is worn around the back and tethered to a fixed point near the stove. These can give you hands-free stability and prevent an accidental fall, but they can also be dangerous. Tethering yourself close to the hot working area means that if a scalding liquid spills or a pot jumps off the burner you may not be able to move out of the way. When sailing offshore, where medical help is often several days away, injuries are not only an inconvenience they can quickly become life threatening.

No matter where you go or how you voyage the crew will always need to be fed. The galley on any vessel should be a secure and practical place to prepare meals and the stove deserves a little special consideration. Investing a little time and attention into your galley set up and equipment will not only ensure everything performs and lasts for many years, but will keep the cook safe whether at anchor or offshore. ≈



Powerboat galley, note no need for deep fiddles on the benchtops but guardrails on the flat hob stove.



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Heather Francis is originally from Nova Scotia, Canada but has lived and worked on the ocean for over a decade. She has cooked professionally on land and on yachts. These days you'll find her in the galley of *Kate*, the Newport 41' sloop she and her Aussie partner, Steve, have been sailing since 2008. They are currently looking for wind in the Philippines. To follow their adventures log onto www.yachtkate.com