How safe is your heater?

Most marine diesel heaters are safe, but a poorly installed one can be lethal. As Ben Sutcliffe-Davies explains

PHOTOS: GRAHAM SNOOK/YM UNLESS OTHERWISE STATED

Ensure your heater has the correct mounting bracket and that nothing can come in contact with the heater or it's exhaust – which get very hot

PHOTO: BEN SUTCLIFFE-DAVIES

A potential disaster! An unsecured and uninsulated exhaust next to a petrol can, a dangerous silencer and a water container used for fuel

On the whole, marine diesel heaters provide a very safe means of heating a yacht, but the desire to save money can often lead to dangerous installations. When surveying craft at pre-purchase or for owner condition reports for insurance, I find inappropriate and cheap fittings are used to cut corners.

Problems most often occur when a second-hand unit has been installed or, worse still, a diesel truck heater kit! Truck heaters, I can't stress enough, should never be used on board.

PHOTO: BEN SUTCLIFFE-DAVIES

The heater should have good ventilation surrounding it – unlike this installation

Although cheap, they differ significantly: from operating voltage to the fittings supplied. This year I saw a horrendous installation (see above). By luck the owner had never used it, a saving grace for him, his family and his insurance underwriter.

In the hope of passing on some important safety tips, I sat down with Peter Scott Rosoman, design engineering manager at Eberspächer, to compile a list of common errors that we both see regularly. If you have a heater on board, please check that none of these occur on board your boat.

Correct position

Most heaters are fitted within a cockpit locker or in the transom void where possible, both are fine to a point but it is essential that wherever the heater is fitted, it is never obstructed and nothing can come into contact with it – even when sailing. Unbelievably I've seen more than one spare gas canister and a few petrol cans stowed next to heaters! Flammable materials should never be stowed in cockpit lockers that have no direct overboard drainage. Use the proper, supplied mounting

The exhaust outlet should be fitted where the hot gas won't come in contact with fenders or dinghies. A correct exhaust outlet is insulated.

bracket to ensure proper air space around the heater and don't fit it directly onto a wooden shelf.

Fuel Supply issues

Most heaters run from the boat's main fuel tank, this is acceptable but can cause a problem of keeping tanks full, especially during the winter if they're running on a timed or thermostatic control. Some yachts do have a small, separate tank but if this method is adopted it is important to ensure this tank is also properly fitted and vented and not just chucked in a locker. Fuel lines should be supported to prevent vibration and abrasion. I have seen a few installations where the new fuel line was cut into the boat's main fuel tank and the aperture hadn't been properly sealed. If you drill into a plastic fuel tank, the swarf could end up inside and contaminate the fuel pick-up unless you diligently suck it all up with a vacuum cleaner.

Exhaust insulation

You've no worries here if the marine heater parts supplied with the unit have been used. However, if someone has fitted an inappropriate truck heater exhaust it will not be properly insulated and they do get hot enough to start fires. Also very important, their silencers are not gas-tight, so the risk of carbon monoxide poisoning when fitted inside a boat will be quite high.

Marine exhausts are insulated to prevent them igniting anything they come in contact with

PHOTO: BEN SUTCLIFFE

Silencers used on vehicle heaters are not gas tight and can leak carbon monoxide inside the boat

Exhaust discharge horrors

Most folks who install heaters try never to fit the exhaust discharge to the boat's topsides. Instead, fitting it through a suitable area of the transom or tuck it under the counter. Either way, it should be more than 30cm above the waterline. Last winter I attended two claims, both were caused by the heaters on unattended boats starting by thermostat. In the one, a fender laid over the exhaust discharge ignited, making a ghastly mess of the topsides. The other was an inflatable dinghy tied astern that rode up and got burnt! Both seem obvious once they've happened, but the point is that you must know where the exhaust exits, and check that it's clear at all times. Why not mark its position on deck to prevent a mishap?

Another area to check is the skin fitting for the exhaust discharge. A proper marine-spec fitting is insulated and won't burn the hull and the sealant used should be a low-modulus, silicone-based sealant. Again dangerous truck heaters differ; the exhaust fitting isn't insulated and can quickly scorch the hull.

The heater exhaust also needs a good swan neck prior to discharge and must be kept away from other contents of the locker and wiring. Marine kits have the correct hoses and ducting provided, if extension hoses are needed consult the manufacturer's agent. Some hoses, if incorrectly fitted, can cause a heater to overheat badly.

Check the ducting

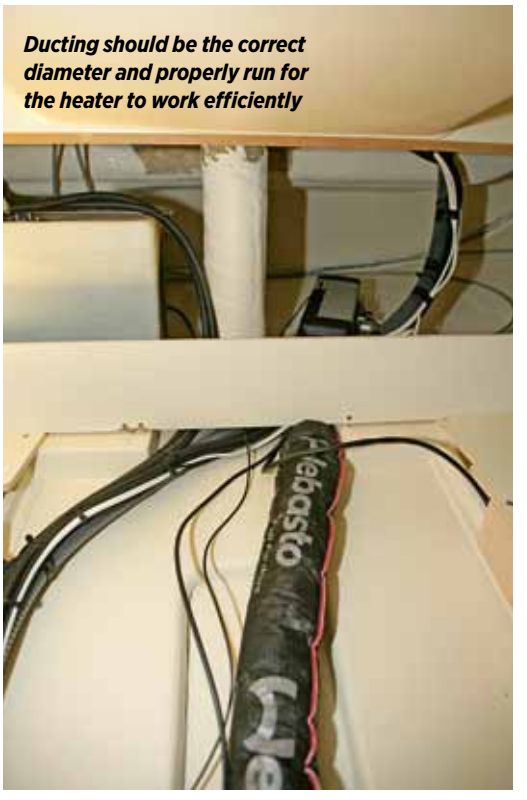
All ducting used for both heater intake and circulation must be of the correct size and properly run, hopefully as straight as possible for efficiency. On one boat I surveyed, the ducting was run down into part of the bilge that was quite wet. When the yacht was out sailing, water had managed to run into part of the hose through a joint. Back on her mooring the water became trapped and blocked the ducting, preventing proper circulation and gently steaming the cabin!

Annual service

Most manufacturers don't seem to give precise servicing requirements, but they all recommend a maintenance inspection seasonally and ideally before use in winter

This is not an exhaustive checklist but it covers common faults. Hopefully it will encourage you to inspect your heater. If it doesn't look right, it generally isn't. The most problematic heaters are the ones that a 'mate of a mate' has fitted on the cheap, using incorrect parts. For you and your crew's safety, it's not worth cutting corners. Please check your heater is appropriate and if in doubt call an installer.

Make sure the ducting is led through areas where is can't be crushed



Ducting should be the correct diameter and properly run for the heater to work efficiently