

# When Your Diesel Gets the Bends: How to Fix Air Locks



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Most of us have heard of the diver's decompression sickness called "the bends." This is a serious condition caused by the formation of bubbles of gas in the bloodstream; it occurs with changes in pressure during diving. It's called the bends because the bubbles often lodge in places like elbows and knees. In extreme cases, the gas bubbles become lethal when they block the flow of blood to the brain.

Diesel engines on your [motor yacht or powerboat](#) can experience their own version of the bends. In order to run properly, diesels need huge amounts of ambient air for combustion and an uninterrupted supply of good, clean fuel. But if air is introduced into the fuel line system, an air bubble can stop the flow of fuel to the engine and shut it down unexpectedly, with potentially disastrous results, depending on where you are and what the sea conditions are like when it happens.



No matter how big and powerful a diesel is – even when it comes to the 10,000 HP powerplants found on a San Antonio Class US Navy ship – a simple air bubble can stop it cold.

Air is normally introduced into the fuel lines after you change fuel filters. You can prevent air lock by filling the new filter(s) completely with fuel and topping off a few minutes later once the fuel is absorbed by the filters. Run a ring of diesel fuel around the gasket with your finger before reinstalling the filter and you should be good to go.

But what happens if you run the tank dry, or if you have a small leak in the fuel line or at any of the connection fittings? In these situations, air can enter the system and cause air

lock. You must identify how and where the air got into the lines in the first place, and then remedy the cause before proceeding to the fix.

Fortunately, it's a lot easier to cure an air lock situation in a diesel than for a diver to recover from the bends. (The diver gets re-pressurized in a hyperbaric chamber; the diesel requires a few good crescent wrenches and lots of rags.) The key is to "bleeding the engine" so that all of the air in the lines is expelled. This is a tedious task, but not too difficult. In many cases, you can do the job yourself without the help of a professional mechanic.

To start the process, locate the manual fuel pump primer on the engine. This may be a small lever you pump up and down, or a plunger-type you push in. Open up the bleed screw on top of the secondary fuel filter, and start pumping the primer pump. You will likely see both fuel and bubbles coming out of the bleed screw. Continue pumping the primer until nothing but pure, bubble-free fuel comes out of the top of the secondary filter. (If you have two filters, do this procedure for both.) At that point, close the bleed screw and crank the engine to see if it starts, and then run it at speed for at least 10 minutes, listening for any anomalies.

If the engine starts right up and runs smoothly, you're one of the lucky ones. In many cases, though, there are more air bubbles downstream in the system. Thus, if the engine quits again, repeat the bleeding process using the bleed screw on the injector pump, and then on the top of each injector one at a time (this is the tedious part), closing each tightly once fuel runs out bubble-free.