

# Repairing Deck Leaks

## How to find them, how to fix them

STORY AND PHOTOS BY DIANE SELKIRK

I woke to the drumming of a light rain. The sound was soothing, and I'd begun to doze back off when it hit me—a large chilly drop. It fell from a place on the overhead where large chilly raindrops do not normally come from. The second splash had me wide awake and examining the ceiling closely. After watching several more drops fall, I came to the groggy conclusion that we were leaking.

Boats leak. They are large, flexible structures that experience considerable stresses and loads. Most of these loads occur at the points where hardware is attached to the deck. And as time goes on, the sealant compound used to bed the hardware loses flexibility and breaks down, then the deck flexes just enough to break the seal and one morning you are awakened from a sound sleep by a very unwelcome drop of water.

**SLEUTHING FOR LEAKS** The problem with leaks is that, unless you are lucky, the point where the water first penetrates the deck or cabin structure is rarely close to the place where the annoying drip finally emerges inside the cabin. Once the water breaches the top skin of the fiberglass it travels the path of least resistance. With improperly sealed holes, the water can travel along the core (turning it into a soggy mess), then it may take a detour through the interior liner before making an appearance inside the cabin. So, the first step in fixing a leak is to find the leak—a task that isn't as straightfor-

ward as you might think.

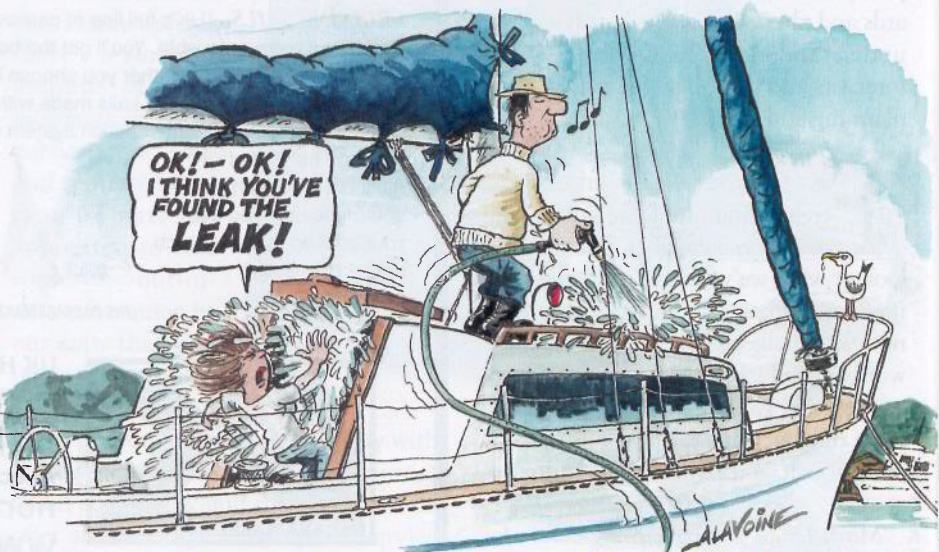
In our case, the water that woke me was dripping from a light fixture. A quick scan of the deck confirmed that there was no deck hardware directly above the light, so the hunt was on.

We first needed to determine all the possible sources of the leak. To do this, we had to check all the hardware for signs of

rust, as leaky fittings often rust around their edges above deck, or weep rust below deck. If nothing is obvious, then the next step is to check the slope of the deck around where the leak has been detected, and try to isolate the most likely culprits. If the source is still not obvious, there are a variety of ways that boaters find leaks:

**Give it the hose:** Have one person up on deck with a hose and one person below watching the leak. Starting at the lowest possible leak source, work your way up. Spray each piece of hardware for a minute or two, continuing upward until the person below sees water appear.

**The washable marker trick:** Have a persistent wet bunk, but you never seem to be around while it's raining to find out where the water is coming from? Draw



a series of horizontal lines with a washable marker on the inside of your cabin, starting from the wet area and moving upwards. Rainwater running down the cabin sides will leave a track through the lines, leading you upwards to the source of water entry.



Water ingress has caused the veneer to lift and the wood to stain around this porthole.

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## **COMMON LEAK SITES AND THEIR FIXES**

**Pre-existing holes:** Many boats have holes that were drilled in the deck for one purpose or another and that later were never repaired properly. Often they are filled with putty or caulking, which over time cracks and loosens. These holes may be quite obvious (like one that puzzled us: it was smack in the middle of a big expanse of clear deck) or they might be hidden under newly installed deck hardware.

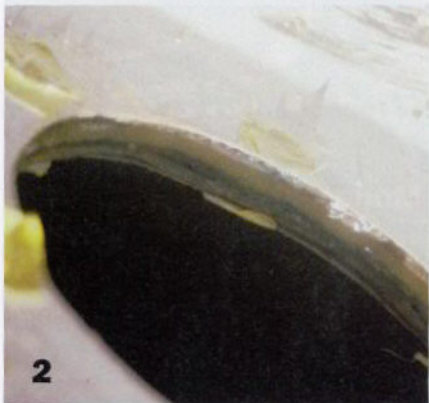
The first step is to dig out all the old caulking and drill a slightly larger hole to expose new deck material. Check the core to make sure it is dry. If there is minor dampness, dig out that core material from



Leaks can occur via unused bolt holes that have been caulked over.



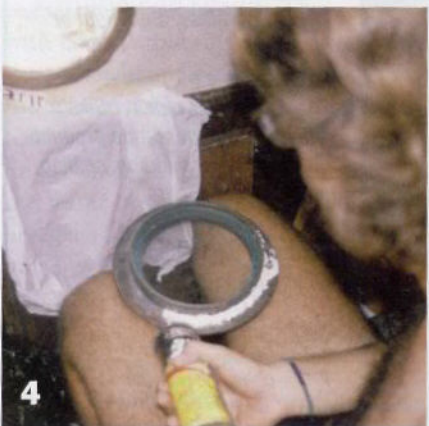
**1**  
To repair a porthole leak, first remove the balsa core from around the portlight opening.



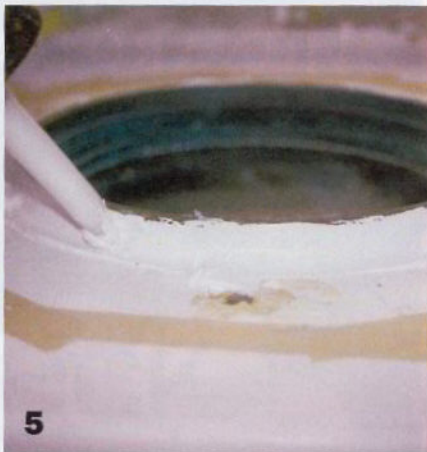
**2**  
Seal the core with thickened epoxy. Taping over the bolt holes helps prevent the thickened epoxy from oozing out.



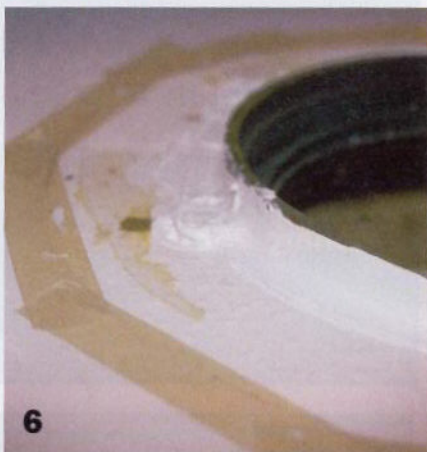
**3**  
Clean the porthole before re-installing.



**4**  
Apply a thick layer of caulking to rebed the porthole.



**5**  
Apply another bead of caulking to the porthole exterior.



**6**  
Bolt the porthole in place and add an extra layer of caulking to the bolt heads. The bolt heads will be hidden by the wooden trim ring.



**7**  
With the wooden trim ring back in place, the porthole is watertight once again.

between the upper and lower fibreglass skins. Let dry completely. Clean the area with acetone then tape off the bottom of the hole. Slowly fill the hole with epoxy thickened with colloidal silica. Apply a dot of paint on the cured resin to match the gelcoat colour as best you can (gelcoat doesn't stick well to cured epoxy).

**Hatches, windows and ports:** Hatches, windows and ports often begin to leak over time. Before you look for other causes of leaks, first check the gasket. If the gasket is old it won't compress and seal. If it is damaged, you may have found the leak source. Also, check for hatch dogs or hinges that go through the lens. Some dogs have O-rings that allow the dog to rotate. Remove the dog and re-lubricate the O-ring with silicone grease.

Another cause of leaking hatches and ports is when the caulking that the hatch is bedded in has gotten old (or the caulking was not a good adhesive to start with). It can be difficult to isolate these leaks if the builder has installed the inside frame of the hatch or port over top of the cabin liner. When this type of installation begins to leak, the water wicks under the liner and into the cabin, making it difficult to pinpoint the leak.

The least likely reason for a leak is that the caulking that holds the clear plastic hatch pane in the hatch frame has failed—this is usually an obvious leak to find.

A more serious type of leak can happen because the underlying deck or cabin structure is not strong enough to support the opening. If you repair a hatch or window frame leak and discover that it quickly reappears, consult a surveyor or naval architect for additional advice.

If water is leaking in from around the hatch or window frame, you'll need to unbolt the entire assembly. Next, scrape off the old caulking from the deck and frame. Use an oversized drill and drill out the fastener holes. Make sure the core has been sealed with thickened epoxy. If unsealed core is visible, dig it out to a depth of 10 millimetres and fill the space with thickened epoxy. Be sure to fill the bolt or screw holes with epoxy, too. When the epoxy is set, set the new hatch or port in place and drill for the fasteners.



Chainplates that pass through the deck are a common source of leaks.

Caulk the hatch and deck with a generous amount of caulking after tapping off the surrounding deck. Set the hatch or port in place and bolt it down without fully tightening the bolts. Only after the caulking has set and formed a waterproof gasket, should you tighten the bolts fully.

If the clear plastic hatch pane is leaking, you'll need to remove the pane for rebedding. This can be challenging—if only because getting out the old plastic pane can be tricky. Hatch panes are often floated in a thick layer of caulking and don't use mechanical fasteners. Use a thin piano wire to cut the pane out of the hatch frame and then remove the old caulking. Consult the hatch manufacturer about the correct material to rebed the pane. One large manufacturer, Bomar, recommends GE's "Silpruf" for re-bedding the pane on their hatches.

**Chain plates:** Chain plates are hard to make leak proof. These hefty chunks

## TIPS AND TRICKS

- The most important time to check a boat for leaks is during the first heavy autumn rain. A summer of sun and sailing can often weaken old caulking, but the leaks don't appear until that first chilly rain.
- Don't apply new caulking around a leaky fitting. It seldom works. Remove the fitting and use new caulking.
- When possible use nuts and bolts and not screws. Screws are more difficult to get a good leak-proof seal and are not as strong as nuts and bolts for holding down hardware. —DS