

**Even if you don't need to fully winterize the boat, take some steps to ensure the system with the most potential for unpleasantness is ready for storage.**

# **SANITATION SYSTEM SHUTDOWN:**

## **10 THINGS TO KNOW**

**LIKE WITH PACEMAKERS** and vehicle air bags, the true importance of a boat's sanitation system is only realized when it's not working. Proper routine maintenance is crucial in the never-ending battle to keep things flowing smoothly, but no more so than properly decommissioning the system at the end of the cruising season. There are crucial steps to take when prepping a sanitation system for long-term downtime, but before getting to those, it's important to understand the four basic types of sanitation systems found aboard most midsize and larger vessels — including knowing which is on your vessel — along with major system components owners should know.

- **Manual pump toilets** utilize an integral hand pump to bring flush water into the bowl, where it mixes with the waste and is then pumped clear. If the system utilizes an electric pump instead of a manual one, it includes additional parts, such as wiring to the pump and circuit protection.

If the toilet is plumbed to draw flush water from the boat's freshwater system, the installation will include a tie-in to that system, a holding tank, pumpout options (deck fitting and/or overboard, depending on the vessel's area of operation), as well as the various hoses and fittings needed to connect it all together.

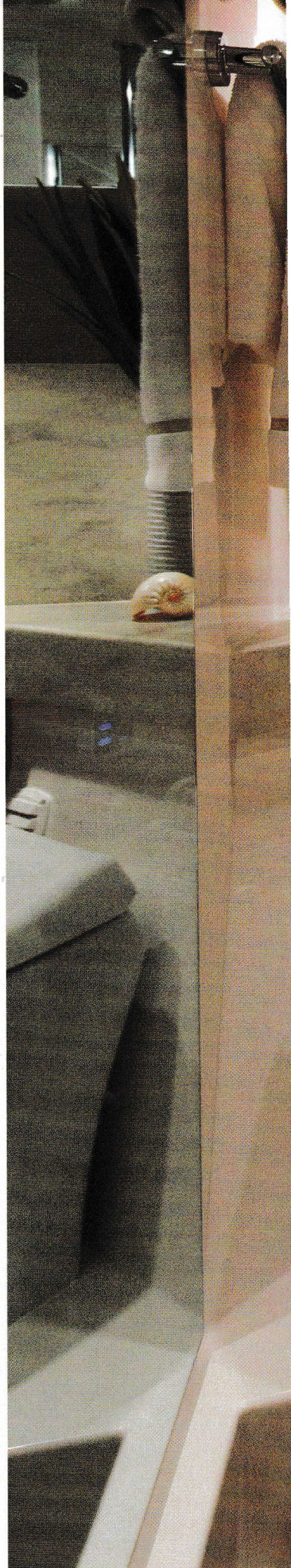
Systems utilizing raw water for flushing (i.e., the water the boat is floating in) will additionally have a below-the-waterline through-hull fitting, a seacock and plumbing from the seacock to the toilet flush-water intake.

- **Macerating toilets** are designed to puree solid waste, much like a garbage disposal.

The action is typically accomplished by an electric-powered "grinder" (aka macerator) that uses blades to simultaneously chop and pump waste clear of the bowl. Jet-action heads accomplish the same thing but use pressurized water jets to macerate waste. Flush water for both types can be raw water but will more commonly be drawn from the vessel's freshwater system.

- **Vacuum toilets** use an electric or manual pump to generate a vacuum in the system, which pulls waste from the bowl to a holding tank when the toilet is flushed. In most all cases, vacuum systems will be plumbed to the freshwater system.
- **Composting toilets** utilize peat-moss to turn waste into compost. As they're completely self-contained, they don't have the plumbing needed for traditional systems; however, they do require installation of a fan and a vent pipe. →

**BY**





## THE TASK

WHILE THE TYPE of sanitation system on board will dictate specific decommissioning requirements, consider the following list of steps when making your own long-term storage task list. Just keep in mind that larger boats will likely have more than one system, each of which will need to be properly decommissioned to avoid problems later on.

**1/** Flush the head sufficiently to push sewage from the hoses and rinse behind

it. If the boat is in salt water and the toilet uses raw water for flushing, pour a few gallons of fresh water into the bowl and flush it through the system. Salt water contains tiny organisms that will die, decay and start to stink.

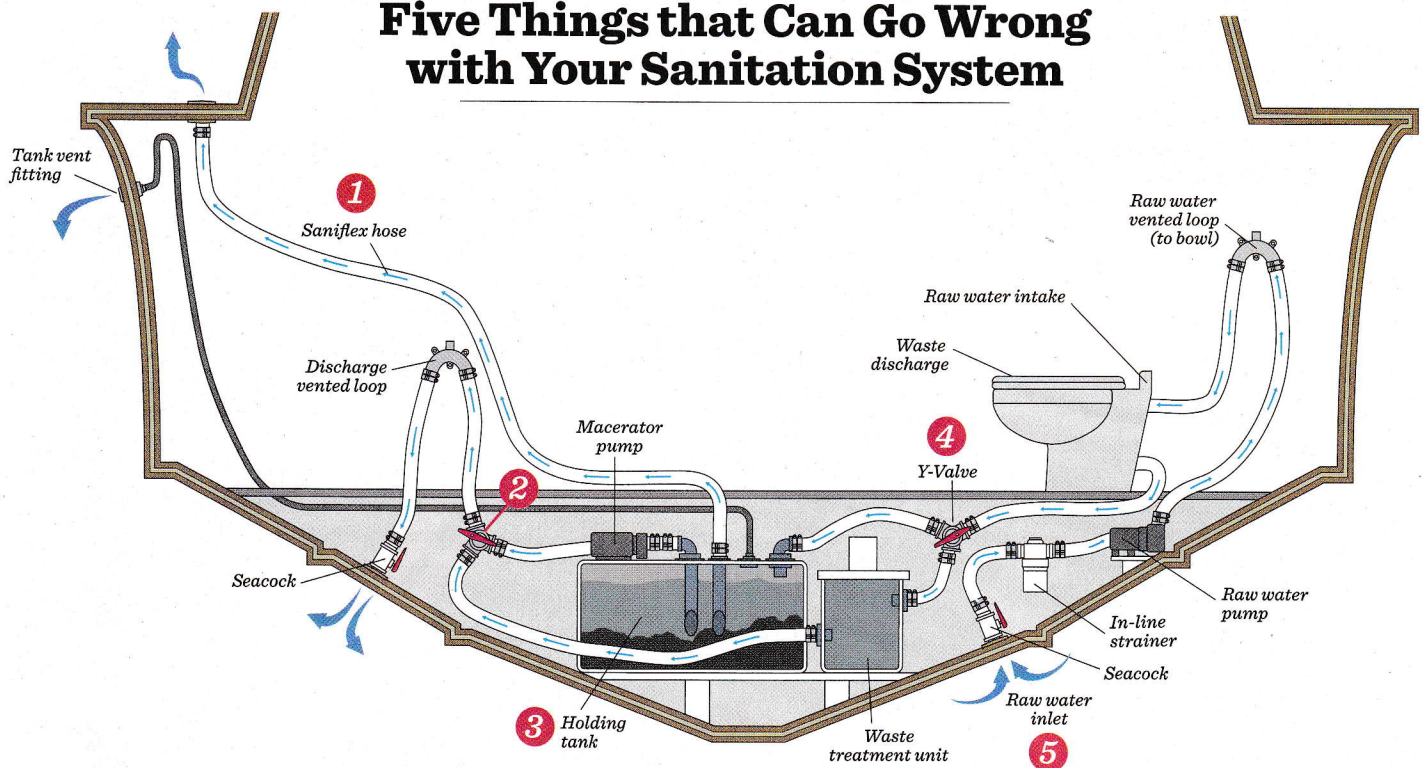
If the system will be exposed to freezing temperatures, drain it completely or do a final flush with an appropriate, environmentally friendly antifreeze. Don't forget to include intake components (e.g., seacocks, hoses, strainers) in the above process, as well as any overboard discharge systems, such as macerators.

**2/** Shock the holding tank and flush the

system prior to storage or a planned period away from the boat. Shock treatments, such as the Head-O-Matic Shock Treatment, both descale the system and help prevent odor buildup. Add shock treatment a week or so before pumping out the system for long-term storage (while still using the boat). Doing so gives the treatment time to slosh around in the holding tank to help descale the tank and ensure a clean last pumpout.

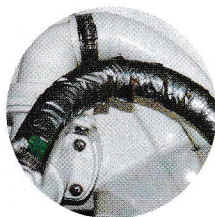
**3/** To help preserve rubber components and keep toilet pumps operating smoothly, flush a treatment of pump-lubricating oil through the toilet. The best choice is a

## Five Things that Can Go Wrong with Your Sanitation System



***Keep in mind that larger boats will likely have more than one system, each of which will need to be properly decommissioned to avoid problems later on.***

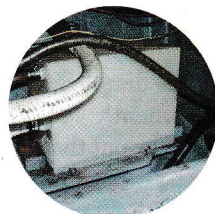




- 1** Even duct tape won't solve the odor issue if a hose is old or the wrong kind was used. Spend the money for proper sanitation hose.



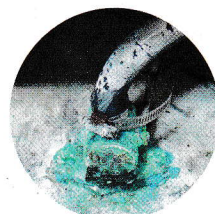
- 2** It's not just the valves that should be checked. Make sure the handles on valves and seacocks are in working order.



- 3** The holding tank should be pumped out and cleaned. The end-of-season inspection might be a good time to make sure it's properly secured, too, so unintended shifting doesn't cause problems next season.



- 4** Seems like there's a hose missing here. Check that all the Y valves are properly affixed and that the hoses that should lead to them are there.



- 5** Seacocks, whether they are for intake or outflow, are potential catastrophe causers, so make sure they don't get corroded. The hose on this one doesn't look too good either.

lubricant specifically designed for use in marine toilets, which not only lubricates the pump wall (for easier pumping) but also keeps the internal rubber parts oiled and supple. Follow the instructions for the specific lubricant used, but the general treatment method is to add a bit of water to the bowl, pour in a couple of ounces of lube and pump the mixture through the toilet. The problem is that this method only lubricates the discharge side of the pump. A better option is to disconnect the head intake hose and pour the oil into the hose. Don't forget to close the seacock for raw-water flush systems before disconnecting the hose. Pumping the head will then lubricate both the intake and discharge chambers of the pump. For pumps with piston rods, add a light coat of Teflon grease to the rod to help protect the piston-rod seal.

**4/** Pump out the holding tank, rinse it with fresh water and then conduct a final pumpout.

**5/** Inspect all sanitation system hoses for deterioration, corroded or missing hose clamps, and other signs of leaks and weakness. Leaks are one of the most common sources of head odors, so start at one end of the sanitation system and check each hose joint for leaks, ensuring all hose clamps are tight and corrosion free. Install double hose clamps where possible, but only if you have sufficient hose barb to allow it — otherwise, you'll simply damage the hose and cause even more leaks.

Check the system for places where raw sewage can collect. Hose runs should be kept as short and straight as possible. Holding tank discharge hoses should also be self-draining — deck pumpout fitting hoses should drain back into the holding tank, while overboard discharge hoses should drain to the discharge seacock without loops or low spots.

Sewage can permeate older sanitation system hoses and cause odor issues. To see if a hose is permeated, wipe a section with a warm, damp cloth, drop it in a Ziploc bag, carry it out into the fresh air, open the bag and sniff it.

If a hose needs replacing, now's the time to do it. Be sure to use proper sanitation

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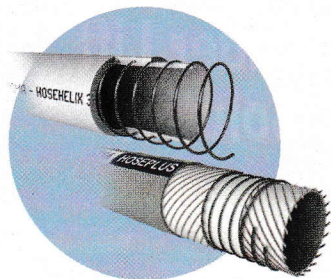
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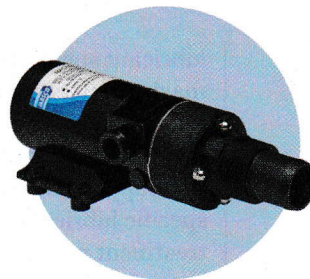




Quality sanitation hose, such as Tecma HosePlus 38 and HoseHelix 38, is worth the cost.



Macerator pumps need to be checked to verify their operation, whether from Raritan or another manufacturer.



Jabsco's macerator pump is no different from others in that it needs at little TLC at the end of the season.



A holding tank deodorizer used regularly can help make a whole-system cleaning easier.

## YEAR-ROUND CARE

Good head care isn't just an end-of-the-season chore. Throughout the year, keep a few chores in mind.



**COMPARED TO THEIR TERRESTRIAL BRETHREN**, marine toilets use very little water during flushing — one reason clogs are such a common problem. Always flush enough to move the waste out of the bowl, up the hose and past the high point of the hose (typically a vented loop), so it flows “downhill” into the holding tank and not the bowl. Flushing enough not only dilutes the waste but makes pumping the holding tank easier. How much extra flushing do you need? Two strokes per every foot of discharge hose is a common rule of thumb. If you're worried about filling the holding tank too soon, clear the hose once at the end of the day or before leaving the boat.



**CALCIUM DEPOSITS** can form on the inside of sanitation hoses, valves and seacocks, to the point the system becomes hard to flush, experiences leaking back into the bowl or simply clogs up. An ounce of prevention is worth a pound of cure, but in this case pumping two cups of white vinegar through the toilet monthly will help prevent calcium buildup.



**SHOCK THE HOLDING TANK** at least once a year as a routine maintenance item, regardless of any long-term storage plans.



**USING FRESH WATER** for flushing will eliminate a lot of the smell associated with saltwater flush systems. Give the system a final flush at the end of the day or prior to leaving for a while.

hose. Yes, it's expensive, but it's imperative to control head odors. That red heater hose may have been a bargain, but your nose will soon inform you it wasn't such a good choice to plumb the toilet and holding tank. Premium rubber sanitation hose has a thicker wall and features two-ply reinforcement and a wire helix. It may sound like overkill, but remember it has to handle human waste that's roughly 30 times more concentrated than typical residential sewage.

**6 /** Inspect all sanitation system seacocks to ensure they are operating properly. Keep an eye out for anything unusual, such as leaks, broken hose clamps, deteriorated (or insufficiently sized) backing plates, damaged or missing components (e.g., handles), and corrosion. If seacocks are connected to the boat's grounding system, check to make sure all the connections are tight and corrosion free, for proper operation.

If the boat will be stored in the water,

shut all the sanitation system seacocks to prevent back siphoning and flooding.

**7 /** Check the operation of macerators or overboard discharge pumps and systems. Depending on your cruising area, this may be one of the infrequent times you get to test and verify their operation. Macerator pumps that sit idle for long periods can seize up due to lack of use. You'll also want to check the condition of the hose, hose clamps, seacocks, discharge through-hulls and other components.

**8 /** Replace or blow out the vent hose. Mud daubers and other such insects love to build nests in hoses, and if the tank is filled to overflowing, bits of sewage can also clog the vent line. A clogged vent hose can promote smells and damage the system due to the buildup of pressure each time the head is flushed. A clogged vent also creates negative pressure during pumpouts, which can cause damage and possibly collapse the holding tank.

**9 /** Inspect flush-type toilets for leaks and component failure. The soft parts of a toilet — gaskets, seals, valves, impellers — will eventually dry out and become brittle, which leads to cracks and leaks. By replacing these parts on your own terms before they have a chance to fail, you've eliminated one of a boat owner's key nightmares: toilet failure. It never happens at a good time or before the deed is done.

**10 /** Clean the exterior of the toilet, as well as the entire head. Giving sinks, counters, and the areas around and behind the toilet — particularly if you have boating friends with bad aim — a good cleaning with disinfecting wipes or other such cleaners will leave Neptune's throne room smelling clean and ready for the next adventure. 🐙