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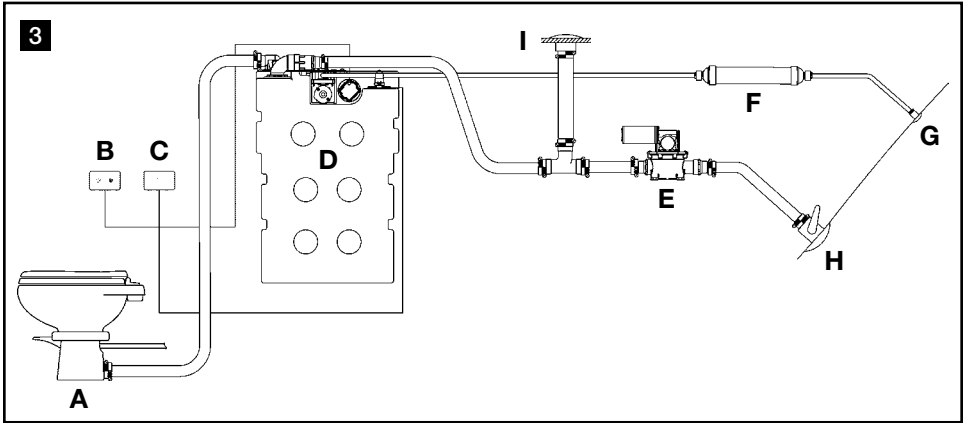
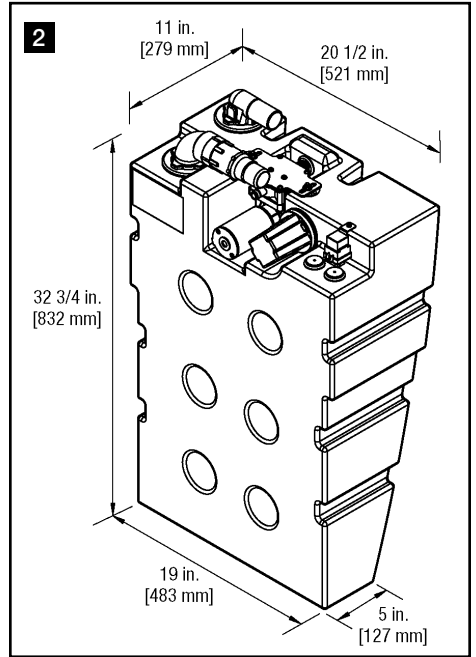
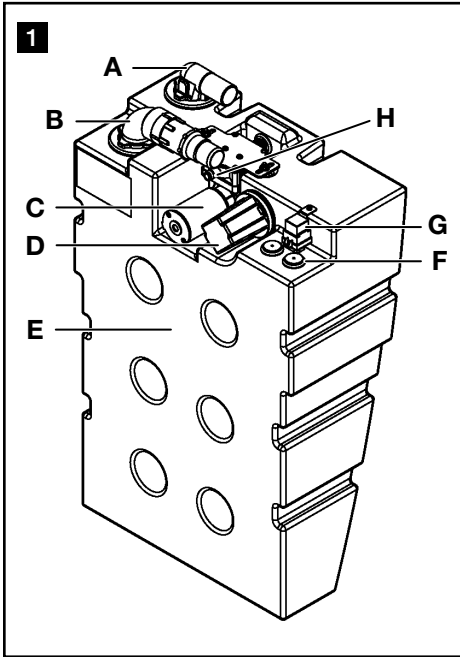
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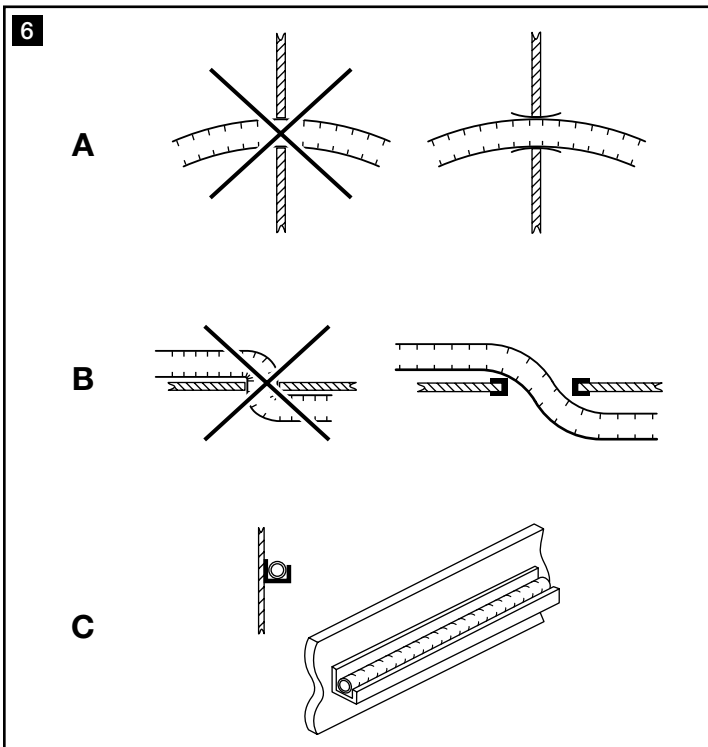
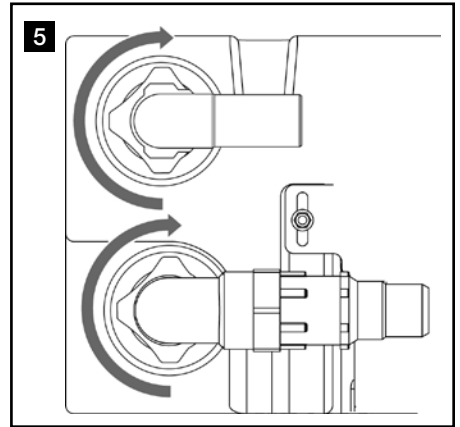
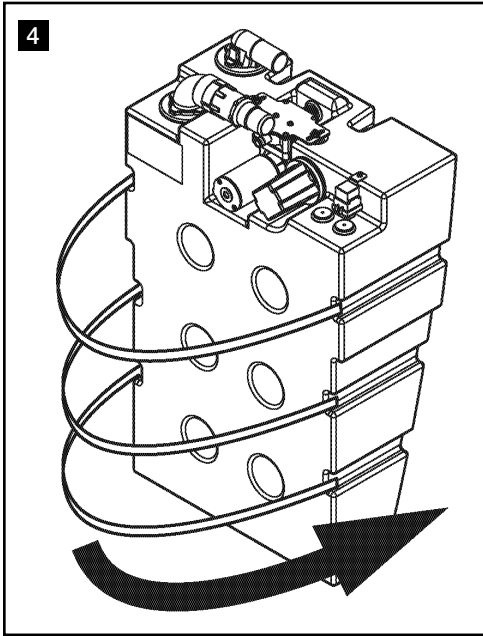
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Vacuum Holding Tank System
Instruction manual



SailVac[™] **VHT 5200 Series** **Vacuum Holding** **Tank**





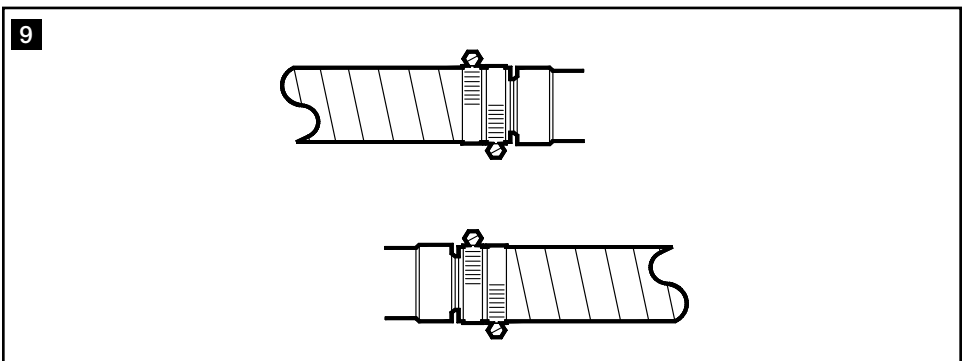
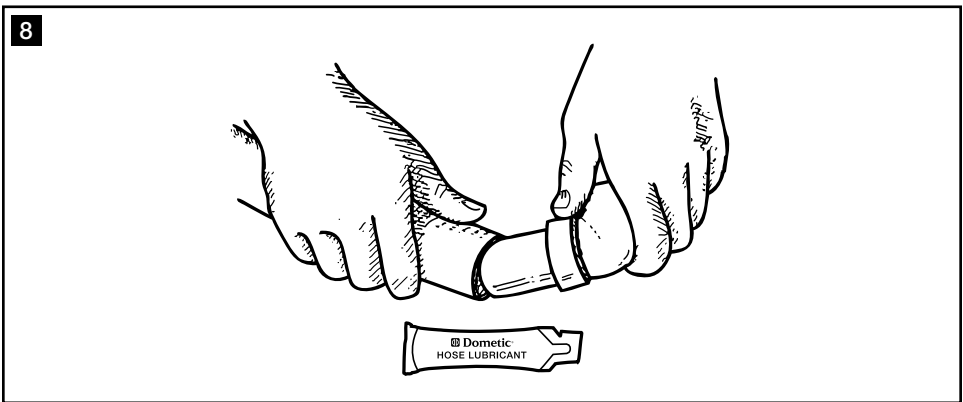
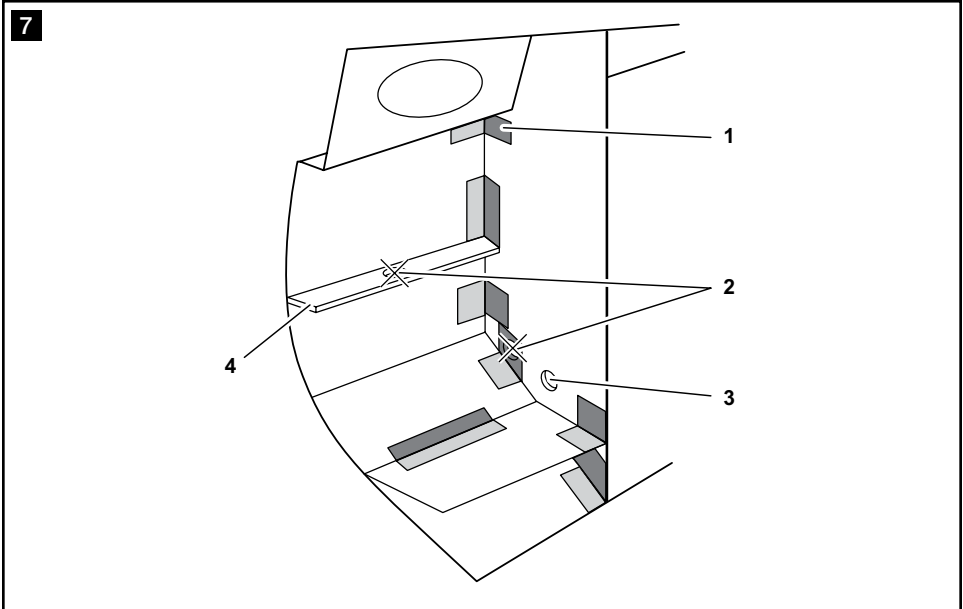


Table of contents

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1	Notes on using the manual	5
2	General safety instructions	5
3	Intended use	6
4	Components	6
5	Specifications	7
6	Installation	7 - 9
7	Operation	9 - 10
8	Cleaning and winterizing	10
9	Troubleshooting	10 - 11
10	Warranty	12 - 13
11	Customer service	13

1 Notes on using the manual



Caution!

Safety Instruction: Failure to observe this instruction can cause material damage and impair the function of the device.



Note

Supplementary information for operating the device.

fig. **1** A, page 2 : This refers to an element in an illustration. In this example, item A in figure 1 on page 2.

2 General safety instructions

Read all instructions before use or installation.

The manufacturer will not be held liable for claims for damage resulting from the following:

- Faulty installation or connection
- Damage to the unit from mechanical influences, misuse or abuse
- Alterations to the unit without express written permission from the manufacturer
- Use for purposes other than those described in this manual

When using electrical devices to install this system, follow safety measures to protect against:

- Electric shock
- Fire hazards
- Injury



Caution!

Before working on any part of an existing or newly installed component of a sanitary system, be sure all electrical power to system is turned off and all seacocks are in CLOSED or OFF position. Failure to do so can result in flooding, which can cause the loss of life or property.

3 Intended use

The SailVac™ VHT 5200 series vacuum holding tank provides a 14-gallon (53 liter) capacity holding tank with built-in vacuum-generating capability for exclusive use with any VacuFlush toilet. The holding tank is specially shaped to install in the outboard space of a typical sailboat head. By virtue of the extreme low water use of VacuFlush toilets, the VHT 5200 provides enough holding tank capacity for two people for four days.

3.1 Features

Odor-proof toilet system operation. Vacuum action keeps toilet discharge line clear of effluent to prevent possible hose permeation of odor. Heavy-wall polyethylene tank prevents odor permeation and corrosion.

Leakproof performance. Vacuum holding tank fittings are connected on top of the tank, eliminating the possibility of leaking due to faulty connections below the level of the tank contents.

As little as 1 pint (0.5 l) water consumption per flush. Extends freshwater tank supply. Holds three times more flushes between pump-outs than standard electric marine toilet systems.

Energy efficient. Draws only 3 amps per flush (12V DC).

“3/4” and “full” tank level sensors. Connects to SeaLand or other tank monitor to warn when tank is nearing capacity.

“Full tank” shutdown relay. When tank reaches “full”, relay turns off power to toilet system to prevent possible tank overflow.

Implosion protection. Heavy-duty tank and reinforcing ribs combine to prevent potential damage from dockside pumps that may operate at high levels of vacuum.

Thorough tank discharge. Top-mounted diptube design provides most efficient pump-out of effluent.

4 Components

4.1 VHT 5200 vacuum holding tank (fig. 1, page 2)

Ref	Description
A	Inlet fitting from toilet
B	Discharge fitting
C	Vacuum pump
D	Vacuum switch

Ref	Description
E	Holding tank
F	“3/4” and “full” tank probes
G	“Full tank” shutdown relay
H	Vent hose fitting

4.2 Typical SailVac toilet system (fig. 3, page 2)

Ref	Description
A	VacuFlush vacuum toilet
B	Vacuum status panel
C	Tank level monitor
D	SailVac vacuum holding tank
E	Discharge pump

Ref	Description
F	Vent filter
G	Thru-hull vent fitting
H	Overboard discharge
I	Dockside discharge

5 Specifications

5.1 Materials

Holding tank: polyethylene; 0.25 in. / 6.3 mm nominal wall thickness. Natural color.

Fittings: polyvinyl chloride, ABS. White color.

Sealing grommets: cross-linked EPDM rubber/polypropylene. White color.

5.2 System requirements

Electrical	Power draw (average)	3 amps / 12 V DC
	Circuit breaker/fuse	5 amps / 12 V DC
Inlet plumbing	ID	1.5 in./38 mm sanitation hose or PVC pipe
	Horizontal run	20 ft./6.1 m max. from toilet discharge
	Vertical run	5 ft./1.5 m max. from toilet discharge
Discharge plumbing	ID	1.5 in./38 mm ID sanitation hose or PVC pipe
Vent hose	ID	5/8 in./16 mm sanitation hose
Required components	VacuFlush vacuum toilet *	

* Purchased separately.
Specifications subject to change without notice.

5.3 Dimensions (fig. **2**, page 2)

6 Installation

6.1 Choose a location for the VHT

The VHT 5200 series tank is specially shaped to install against the hull just outboard of a boat's head compartment. Follow these criteria when determining a location:

1. The inlet fitting (fig. **1** A, p. 2) must be no more than 20 ft. (6.1 m) horizontally from, and no more than 5 ft. (1.5 m) above, the toilet discharge fitting. (The closer the VHT is located to the toilet, the better the system efficiency).
2. The VHT must be installed vertically.
3. Do not expose VHT to temperatures above 120° F (49° C). Do not place VHT near heat sources such as engine manifolds, water heaters, generators, etc. Allow free air flow around VHT.

6.2 Install VHT on mounting surface

Bottom mounting surface must support the entire bottom of the tank. If a mounting surface needs to be fabricated, use marine grade plywood at least 0.5 in. / 13 mm thick.



Note

Fasteners (lag bolts, screws, washers, etc.) and restraining straps are not supplied with vacuum holding tank.

Restraining Strap Installation (fig. **4**, page 3)

With restraining straps of 31 mm (1.25 in.) maximum width fastened to hull brace or bulkhead, wrap straps around front of tank to both sides of tank, positioning the straps within the channels on the tank. Tighten and secure straps to keep VHT from moving.

**Caution!**

Do not install tank on projections, such as fastener heads, which could puncture the tank. Do not allow holding tank to block free flow of bilge water.

6.3 Install sanitation hose

SeaLand vacuum holding tanks are pre-assembled with 38 mm (1.5 in.) and 16 mm (0.625 in.) ID hose connection fittings. SeaLand OdorSafe® Plus sanitation hose provides the best protection against hose odor permeation for toilet and holding tank discharge lines, and is available in 38 mm (1.5 in.) ID only. SeaLand MaxFlex™ hose is recommended for 5/8-in. ID vent hose fitting installation as it provides high-quality odor-resistance.

Routing Sanitation Hose

- Protect hose when routing through walls or other barriers (fig. **6** A, page 3).
- Avoid binding corners and sharp bends in hose (fig. **6** B, page 3).
- Do not use wire ties to secure hose or pipe. Support flexible hose every 0.3 m (12 inches) and support rigid pipe every 1.5 m (5 feet). Where possible use a support trough under the hose or pipe (fig. **6** C, page 3).

Bulkhead Penetrations (fig. **7**, page 4)

Check each side of a bulkhead to ensure that there will be no cutting into:

- fuel or water tanks
- wiring or pipes
- reinforcement stringers (4) that support the hull

When creating new holes, avoid tabs (1) and stringers (4) that hold bulkheads or partitions in place. Provide additional reinforcement so that structural integrity is not compromised.

- avoid (2)
- possible (3)

Hose and Heat Sources

The operating temperature of flexible hose prohibits exposure to sources of high or direct heat, such as light bulbs or engine manifolds. If any part of the hose system must be run close to a heat source, use rigid pipe instead of hose.

6.4 Make connections

1. Route 1.5 in./38 mm ID sanitation hose from toilet to VHT inlet, and from VHT outlet to the boat's discharge fitting(s) (see previous section for hose routing guidelines). VHT inlet and outlet fittings swivel to allow connection from virtually any direction (fig. **5**, p. 3).
2. Route 5/8 in./16 mm vent hose from vacuum pump discharge to vent filter or thru-hull vent fitting.
3. Place two hose clamps on hose near each end that attaches to fittings. Use Dometic Hose Lubricant (fig. **8**, p. 4) or liquid dishwashing soap on fitting and inside ends of hose, then twist hose onto fitting. Make sure hose end is flush against fitting shoulder.
4. Tighten hose clamps at ends of sanitation hose with screws positioned as shown (fig. **9**, p. 4). Vent hose requires only one hose clamp at each connection.

5. With electrical power off, make electrical connections according to the wiring schematic shown on the parts list provided with this unit. Electrical installation must follow ABYC standards and should be performed by qualified personnel only.

**Caution!**

Failure to follow the procedures above may result in vacuum leaks or inefficient flushing.

**Caution – Flooding Hazard!**

If the toilet, holding tank or any components are connected to **any** through-hull fittings, properly installed seacocks **must** be installed in all piping connected to the through-hull fittings. Seacocks **must** be easily accessible to all users of the system. All valves **must** be full-bore valves and of marine (corrosion resistant) quality. Screw-to-close gate valves are not recommended. Failure to do so can result in flooding, which can cause the loss of life and property.

**Caution – Flooding Hazard!**

Some marine practices and/or standards require the installation of a properly positioned ventilated (vented) loop in the discharge piping to prevent back-siphonage of seawater into the holding tank. It is up to the system installer and boat owner to select appropriate means of preventing backflow into the holding tank.

7 Operation

7.1 System start-up

1. Fill freshwater tank, then turn on inlet water supply to VacuFlush toilet.
2. Turn on electrical power to vacuum holding tank (VHT).
3. VHT unit may take up to three minutes to initially charge vacuum level and recharge between flushes.

7.2 Normal operation

VACUUM FLUSHING ACTION

Every time the VacuFlush toilet is flushed, the VHT unit pulls wastewater from the toilet to the holding tank. The vacuum pump then runs until the proper vacuum level is achieved for the next flush. Follow flushing instructions in VacuFlush toilet operation manual.

“3/4” and “FULL” TANK PROBES

When the holding tank contents activate the “3/4” tank probe, a signal is sent to a yellow warning light on the SeaLand tank monitor panel (optional). When the tank reaches “full”, a signal is sent to the red light on the panel, and to a shutdown relay which turns off electrical power to the toilet system. This prevents the VacuFlush toilet from flushing and overflowing the VHT. The VHT must be emptied before electrical power is restored for normal VacuFlush toilet operation.

7.3 Holding tank pump-out operation

To assure thorough discharge of vacuum holding tank, follow these steps:

1. Turn off electrical power to VHT at circuit breaker and water supply to VacuFlush toilet. This prevents vacuum pump from starting during pump-out operation.

(continued on next page)

2. For foot-pedal VacuFlush toilets with built-in pedal lock, follow instruction in toilet operation manual to keep flush ball in toilet open for holding tank pump-out operation. For electronic VacuFlush toilets, follow Service Mode instructions for keeping the flush ball open. For all other VacuFlush toilets, make sure flush ball stays open to allow air into VHT unit during pump-out operation.
3. Pump out holding tank through dockside or overboard discharge fitting.
4. After pump-out, close flush ball in toilet and resume normal VacuFlush toilet operation.



Caution!

Boat operator must know local sewage discharge regulations.

8 Cleaning and winterizing

8.1 Cleaning

A small amount of water remains in vacuum holding tank at all times, so it is good practice to rinse the VHT completely after contents have been discharged.

1. After initial pump-out, add holding tank deodorant or cleaner to toilet bowl, and flush with water.
2. Continue flushing and pumping out tank until holding tank discharge is clear.

8.2 Winterizing

Use only propylene glycol freshwater antifreeze to winterize the holding tank. **Make sure the antifreeze does not contain alcohol.**

1. Pump out the holding tank.
2. Add propylene glycol freshwater antifreeze to the holding tank.



Caution!

Never use ethylene glycol automotive antifreeze in freshwater systems.

9 Troubleshooting

Problem	Possible Cause	Service Instruction
1. Vacuum pump running too much between flushes.	a. Flush ball in toilet leaks. b. Vacuum line leak. c. Foreign material has fouled vacuum pump valves. d. Pump diaphragm worn or damaged. e. Duckbill valve in discharge fitting stuck open.	a. Refer to VacuFlush toilet manual for information. b. Tighten all hose connections at vacuum holding tank and toilet. c. Disassemble vacuum pump and inspect under the two flat disk valves. If foreign material is present, remove it and reassemble pump. d. Inspect diaphragm in pump for small hole or rip. Replace if necessary. e. Disassemble discharge outlet and inspect duckbill valve. Clean or repair if necessary.
2. Toilet will not flush (no vacuum).	a. Vacuum pump will not run. b. Plugged vacuum discharge line. c. Plugged vacuum pump valve. d. Vacuum pump discharge or intake lines are plugged.	a. See problem 3. b. Blockage usually at base of toilet below flush ball. Disconnect line and clear. c. Inspect and clean pump valves. Replace if needed. d. Disassemble lines and clean.

Problem	Possible Cause	Service Instruction
3. Vacuum pump will not run.	<ul style="list-style-type: none"> a. No electrical power. b. Loose or broken electrical wiring. c. Improper electrical connections. d. Faulty vacuum switch. e. Faulty pump motor. 	<ul style="list-style-type: none"> a. Check input power, circuit breaker and fuse. b. Tighten or reconnect wires at vacuum holding tank. c. Make certain wires at vacuum switch are connected to the "B" terminals. (Refer to Wiring Schematic included with parts list.) d. To check vacuum switch, short across "B" terminals with jumper wire. e. Replace motor.
4. Vacuum pump will not shut off.	<ul style="list-style-type: none"> a. Insufficient vacuum. b. Excessive vacuum leak. c. Faulty vacuum switch. d. Improper wiring. 	<ul style="list-style-type: none"> a. Verify pump pulls minimum 10 in. Hg of vacuum. b. See problem 1. c. To check switch, remove one "B" terminal wire. d. Check wiring. Refer to Wiring Schematic included with parts list.
5. Vacuum pump is making a loud noise.	<ul style="list-style-type: none"> a. Loose set screw in crank assembly. b. Pump bearing is worn. c. Dirt or debris in pump body. d. Worn or defective motor. e. Motor loose from mounting bracket. 	<ul style="list-style-type: none"> a. Remove cover from pump and check crank assembly setscrew for tightness. b. Check pump bearing for wear. Replace if needed. c. Disassemble vacuum pump assembly and inspect inside of pump body for foreign objects. d. Replace motor assembly. e. Tighten the four screws that secure the motor to the mounting bracket.
6. Vacuum pump is running too slow, overheating, blowing fuses or tripping circuit breakers.	<ul style="list-style-type: none"> a. Improper voltage. b. Loose or broken electrical wiring. c. Improper wire size. d. Motor worn or defective. e. Tank is overfilled – vacuum pump forced to pump water. 	<ul style="list-style-type: none"> a. Check input power for low voltage. b. Tighten or reconnect wires. c. Wire size too small – check electrical diagram for proper wire size for voltage of pump used. d. Check motor and replace if necessary. e. Disassemble vacuum pump and empty out water.
7. Difficulty in emptying waste from holding tank.	<ul style="list-style-type: none"> a. The toilet pedal is not open during holding tank pump-out. 	<ul style="list-style-type: none"> a. Keep the toilet pedal open (see "Holding Tank Pump-out Operation", page 7).
8. Vacuum pump emits odor.	<ul style="list-style-type: none"> a. Worn, torn or punctured pump diaphragm. 	<ul style="list-style-type: none"> a. Replace pump diaphragm.
9. Toilet system emits odor.	<ul style="list-style-type: none"> a. Check for improper flexible sanitation hose. 	<ul style="list-style-type: none"> a. Replace hose where necessary.

10 Warranty and product liability

North America

Manufacturer's One-Year Limited Warranty

Dometic Corporation, Sanitation Division (Dometic) warrants to the original purchaser only that this product, if used for personal, family or household purposes, is free from defects in material and workmanship for a period of one year from the date of purchase.

If this Dometic product is placed in commercial or business use, it will be warranted to the original purchaser only to be free of defects in material and workmanship for a period of ninety (90) days from the date of purchase.

Dometic reserves the right to replace or repair any part of this product that proves, upon inspection by Dometic, to be defective in material or workmanship. All labor and transportation costs or charges incidental to warranty service are to be borne by the purchaser-user.

EXCLUSIONS

IN NO EVENT SHALL DOMETIC BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, FOR DAMAGES RESULTING FROM IMPROPER INSTALLATION, OR FOR DAMAGES CAUSED BY NEGLIGENCE, ABUSE, ALTERATION OR USE OF UNAUTHORIZED COMPONENTS. ALL IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, ARE LIMITED TO A PERIOD OF ONE YEAR FROM DATE OF PURCHASE.

IMPLIED WARRANTIES

No person is authorized to change, add to, or create any warranty or obligation other than that set forth herein. Implied warranties, including those of merchantability and fitness for a particular purpose, are limited to one (1) year from the date of purchase for products used for personal, family or household purposes, and ninety (90) days from the date of purchase for products placed in commercial or business use.

OTHER RIGHTS

Some states do not allow limitations on the duration of an implied warranty and some states do not allow exclusions or limitations regarding incidental or consequential damages; so, the above limitations may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

To obtain warranty service, first contact your local dealer from whom you purchased this product or go to <http://www.dometic.com/enus/Americas/USA/Customer-Support/> for a dealer near you.

Europe:

Warranty and Customer Service

Warranty arrangements are in accordance with EC Directive 44/1999/CE and the normal conditions applicable for the country concerned. For warranty or other service, please contact our Dometic Service department listed elsewhere in this manual. Any damage due to improper use is not covered by the warranty.

The warranty does not cover any modifications to the product or the use of non-original Dometic parts; the warranty does not apply if the installation and operating instructions are not adhered to and no liability shall be entertained.

(continued on next page)

Product Liability

Product liability of Dometic Group and its subsidiary companies does not include damages which may arise from: faulty operation; improper alterations or intervention in the equipment; adverse effects from the environment which may impact the equipment itself or the direct vicinity of the equipment or persons in the area.

To obtain warranty service, first contact your local dealer from whom you purchased this product or go to <http://www.dometic.com> to locate a dealer near you.

11 Customer service

There is a strong, worldwide network to assist in servicing and maintaining your toilet system. For the Authorized Service Center near you, please call from 8:00 a.m. to 5:00 p.m. (ET) Monday through Friday.

You may also contact or have your local dealer contact the Parts Distributor nearest you for quick response to your replacement parts needs. They carry a complete inventory for the SeaLand product line.

Telephone:	1-800-321-9886	U.S.A. and Canada
	330-496-3211	International
Fax:	330-496-3097	U.S.A. and Canada
	330-496-3220	International
Web site:	http://www.Dometic.com	

Dometic Group is a customer-driven, world-leading provider of leisure products for the RV, automotive, truck and marine markets. We supply the industry and aftermarket with a complete range of air conditioners, refrigerators, awnings, cookers, sanitation systems, lighting, mobile power equipment, comfort and safety solutions, windows, doors and other equipment that make life more comfortable away from home.

Dometic Group supplies a wide range of workshop equipment for service and maintenance of built-in air conditioners. Dometic Group also provides specially designed refrigerators for hotel rooms, offices, wine storage and transport and storage of medical products.

Our products are sold in almost 100 countries and are produced mainly in wholly-owned production facilities around the world.

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DOMETIC CORPORATION
SANITATION DIVISION
13128 SR 226 | PO BOX 38
BIG PRAIRIE, OHIO 44611 USA
www.dometic.com