SuperTech™
TRAINING PROGRAM
SERVICE

Comprehensive Training for Service, Installation and Sales of VacuFlush® Toilet Systems.

SeaLand TECHNOLOGY, INC.

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SeaLand Hotline (800) 321-9886
(8:00 A.M. - 5:00 P.M. E.T.)

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What is a vacuum?
A vacuum is a space which has no matter in it. Strictly speaking, there is no such thing as an **absolute vacuum**, because all space contains some matter. In practice, we speak of a vacuum as a space from which most of the air or gas has been taken. But this is only a **partial vacuum**.

The important thing about a vacuum is that it can be a very useful emptiness. For example, if we create a partial vacuum in any space, water or any other fluid may enter it. We make use of this principle in drinking lemonade through a straw. We do not pull the liquid up through the straw. Instead, by sucking on one end of it, we take out some of the air that is in the straw. The air outside exerts pressure on the liquid and forces it up and through the partial vacuum in the straw.

Atmospheric pressure: In the air we breathe, there are about 400 billion billion molecules of gas per cubic inch (25 billion billion per cubic centimeter). The force on a surface produced by the weight of the air above it is called **atmospheric pressure**. Thus, atmospheric pressure decreases with height. The standard value of atmospheric pressure at sea level is one **atmosphere** or 14.7 pounds per square inch or about 100 kPa per square meter.

Returning to our example of drinking lemonade through a straw, what is the maximum vertical distance the straw can be used to lift the lemonade, no matter how much suction is applied to the upper end? It is the equivalent of the weight of the atmospheric gases pushing on the surface of the lemonade. Therefore, if one psi will raise a column of water (lemonade) 2.3-feet (0.7m), the maximum height that water can be sucked up a straw is 33.8-feet (10.3m). 2.3 X 14.7 = 33.8.

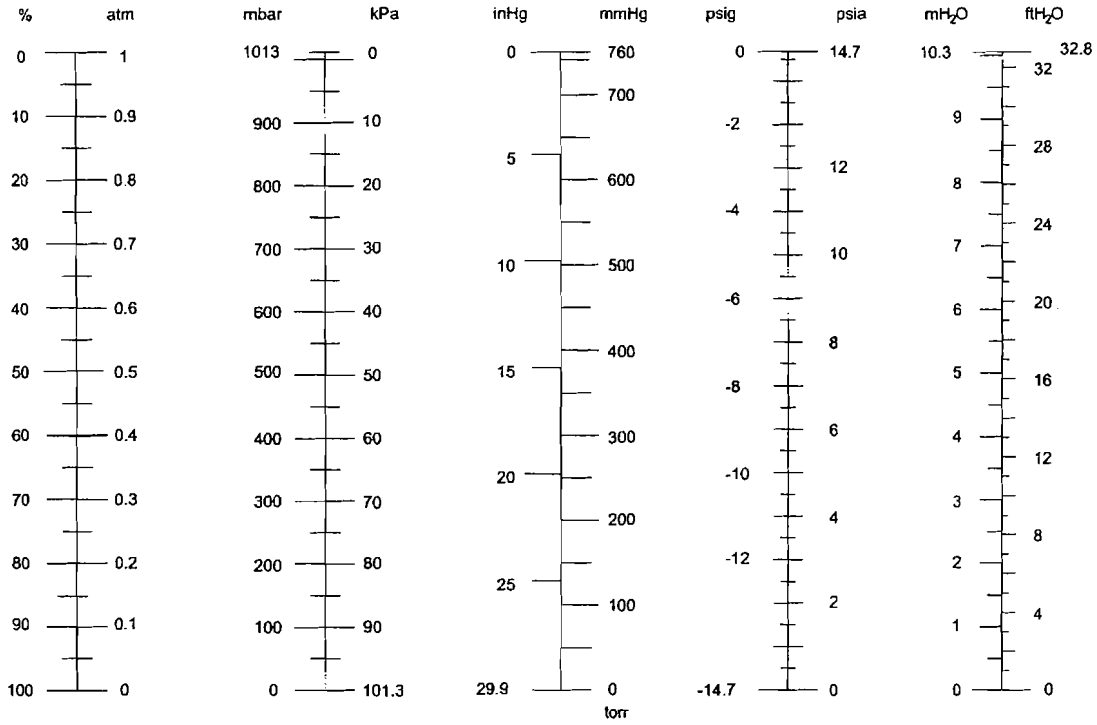
How vacuum is measured?
One can determine the level of vacuum stored in a vessel by connecting it to a vertical pipe at least 33.8-feet long with one end of the pipe in a container of water and the other connected to the vessel storing the vacuum. By measuring how high the water is sucked up the pipe, one can determine the level of vacuum stored in the tank. For instance, if the water column was sucked up 17- feet (5.2m), we can determine the level of vacuum in the container to be –7.4 psi or about one half atmosphere of vacuum pressure.

It would be more convenient to use a more dense liquid for measurement to avoid having to carry around long sections of pipe. Mercury is the most dense liquid and, therefore, commonly used for this purpose. The chemical symbol for mercury is Hg. One will frequently see vacuum measurement expressed in inches or millimeters of mercury (**inHg** or **mmHg**). See the table on the next page which lists several different scales for vacuum measurement.

Psia versus psig:
These are abbreviations for pounds per square inch absolute (psia) and pounds per square inch gage (psig). Some gages used for measuring pressure are set with the zero point at the equivalent of one atmosphere or 14.7 psi of pressure. In other words, these gauges measure vacuum starting with zero at one atmosphere of pressure. This type of pressure measurement is referred to as **psig**. Other gauges are set differently, zero is actually set at a level which would be the equivalent of an absolute vacuum. These readings are referred to as **psia**. By comparison, 10 inHg of vacuum is the equivalent of about –5 psig or +9.7 psia.

WORKING WITH VACUUM (continued)

VACUUM PRESSURE EQUIVALENTS



Abbrev. = Unit of Measure

% = Percentage of perfect vacuum
mbar = millibar
kPa = Kilopascals
mH_20 = meters of water column
ftH_20 = feet of water column
psig = Pounds per square inch gage
psia = Pounds per square inch absolute
mmHg = Millimeters of mercury
inHg = inches of mercury
torr = mmHg

VACUUM OPERATING LEVELS AND LEAK RATES

Principle of Operation:

A vacuum toilet uses the pressure differential between the normal outside atmosphere pressure and an artificially created internal vacuum. This pressure differential can propel waste over a horizontal distance or upward. The SeaLand system is designed to operate at sea level in terms of outside atmospheric pressure and 10-inches of mercury (inHg) vacuum pressure. Other systems are designed to operate at very high altitudes (Boeing 757) or at much higher levels of vacuum (cruise ship systems).

SeaLand's VacuFlush system also incorporates a funnel with a 1-inch (25mm) orifice in the base of the toilet. This orifice causes material leaving the bowl to fragment because of the very high velocity of the in rushing air. This orifice also prevents any foreign material larger than 1-inch (25mm) from entering the system.

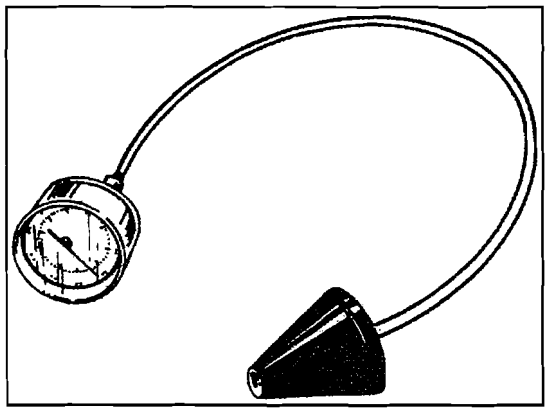
VACUUM OPERATING LEVELS AND LEAK RATES (continued)

On / Off Levels
The VacuFlush pump is controlled by a pressure differential switch mounted in the vacuum tank or generator which stores a volume of vacuum pressure in the same manner that an accumulator tank or an air compressor stores positive air pressure. The differential switch is pre-set at the factory to turn on the pump when the vacuum level drops below 8 inHg and turns off the pump when it reaches 10 inHg of vacuum.

Leak Rate
Inherent in the design of any system which utilizes vacuum energy is the possibility of leaks. One advantage of vacuum is that leakage is air into the system not water out of the system. The leak rate of a VacuFlush system is the time it takes for the vacuum level to drop off from 10 to 8 inHg. A leak rate of three hours is an acceptable level of system integrity. Always determine leak rate before starting troubleshooting procedures. Frequent running is generally only a problem if the noise of the running pump is disturbing the boat owner. A running pump can be especially disconcerting if it automatically starts in the middle of the night.

Audible Vacuum Leaks: A leak which causes the pump to run once an hour is generally audible, providing background noise is minimal. Shutting down all other shipboard equipment and carefully listening to each major component can be the most efficient way to find a leak.

Vacuum Tester
SeaLand has developed a simple tool to assist in identifying the location of vacuum leaks. The vacuum tester consists of a vacuum gauge and a cone-shaped plug. Inserting the plug in the inlet of the vacuum tank or generator isolates the toilet from the system. In this way a troublesome leak can easily be located in either the toilet, vacuum generator, vacuum tank or vacuum pump.

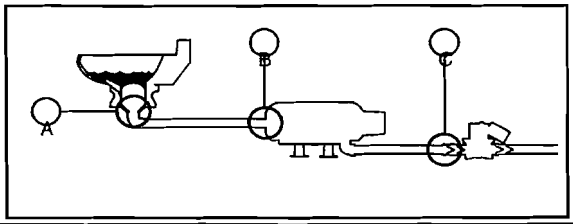


Order only the Vacuum Tester (part number 530002) or as part of the complete system maintenance kit (part number 310228).

VACUUM TESTER USAGE

The vacuum tester can be used to check for leaks in the vacuum toilet, vacuum tank or generator and for worn duckbill valves in the vacuum pump. Follow these steps:

A. Vacuum Toilet
Turn off water supply. Insert plug into funnel inside toilet base through open flush valve. Wait until pump stops and compare leak rate time to previous leak rate. (Note if pump does not shut down after five minutes, the leak is probably down stream from this point.)



B. Vacuum Tank
Checking at the inlet of the vacuum tank effectively splits the system to quickly isolate the location of a vacuum leak. Wait until pump stops and compare leak rate as above.

C. Vacuum Pump
Due to the small volume of the pump inlet, the vacuum gauge will fluctuate radically with every revolution of the pump. Insert the plug end of tester into the pump. Allow it to operate for two to three minutes. Shut off power to pump. Note position of vacuum gauge indicator. (It will probably not show more than 7 or 8 inHg.) If there is no movement in the indicator after ten minutes, the valves are probably sealing satisfactorily and do not need to be changed.

NIGHT SWITCHES

One solution to pump noise in the dead of night is shutting off electrical power by tripping the "head" breaker or some other in-circuit switch. The problem a night switch creates is that if someone uses a toilet with the switch off and insufficient vacuum is stored in the system, a clog will occur at the toilet funnel. The solution is the VacuFlush Status Panel which is described below.

VacuFlush Status Panel: An ideal add-on to any VacuFlush system. The status panel is mounted in the bathroom compartment. A green light indicates sufficient vacuum is available for the next flush. A red light indicates the vacuum level is building and the pump is running. Each panel has an integral circuit breaker which allows the system to be shut down at night. Order part number 500012.

NEW VERSUS EXISTING INSTALLATIONS

It is very important to know if the system is a new installation which is just going into service versus an older system which was operating satisfactorily at one point in the past. The difference is that a new installation is probably suffering from a loose clamp or improper solvent bonded joint.

In the case of the latter problem, a cotton swab dipped into PVC pipe cement is a simple solution. Apply a small amount of PVC cement to a suspected joint. The vacuum in the system will cause the cement to be sucked into the leak. Remember to never cement hose to an insert fitting.

For older systems, consider checking for worn parts (duckbills) first, especially if the leak rate has increased gradually over time.

PEDESTAL COVER INSTALLATION

The following procedure should be used for installing the pedestal cover. With the pedestal cover hinged open, place the back half against the side of the base opposite the flush lever. Rotate the pedestal cover counterclockwise around the back of the base, then move the front half into place. Secure the high profile pedestal cover with mounting screw provided. The low profile cover locks in place and does not require a mounting screw. Lock the pedestal cover in place using the tabs on the base located under the water valve.

MODEL IDENTIFICATION

The following label is located on the toilet base and will show the model number and serial number (S/N).

SEALAND TECHNOLOGY, INC.
PO BOX 38, 13128 STATE RT 226 (800) 321-9886
BIG PRAIRIE, OH 44611 USA
800/321-9886
MODEL NO. **000**
SERIAL NUMBER
000000000

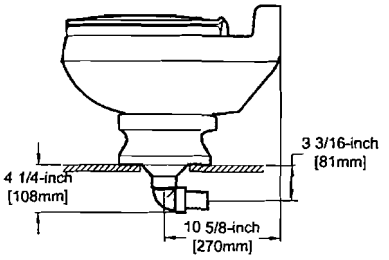
TOILETS –

SeaLand offers a variety of bowl shapes (100, 500, 800 and 1000 series), seating heights (household height and low profile) and discharge outlet configurations (rear outlet above the floor, side outlet above the floor (model 847) and below floor)

In addition, toilets are available in five distinctive colors along with five matching lavatory shapes.

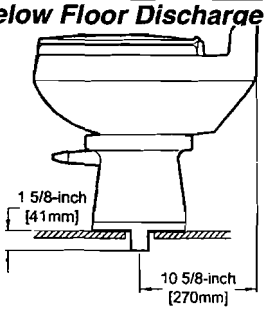
LOW PROFILE

Below Floor Discharge

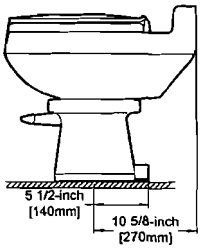


STANDARD HEIGHT

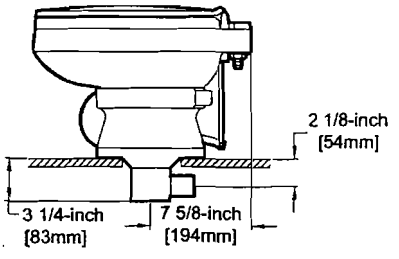
Below Floor Discharge



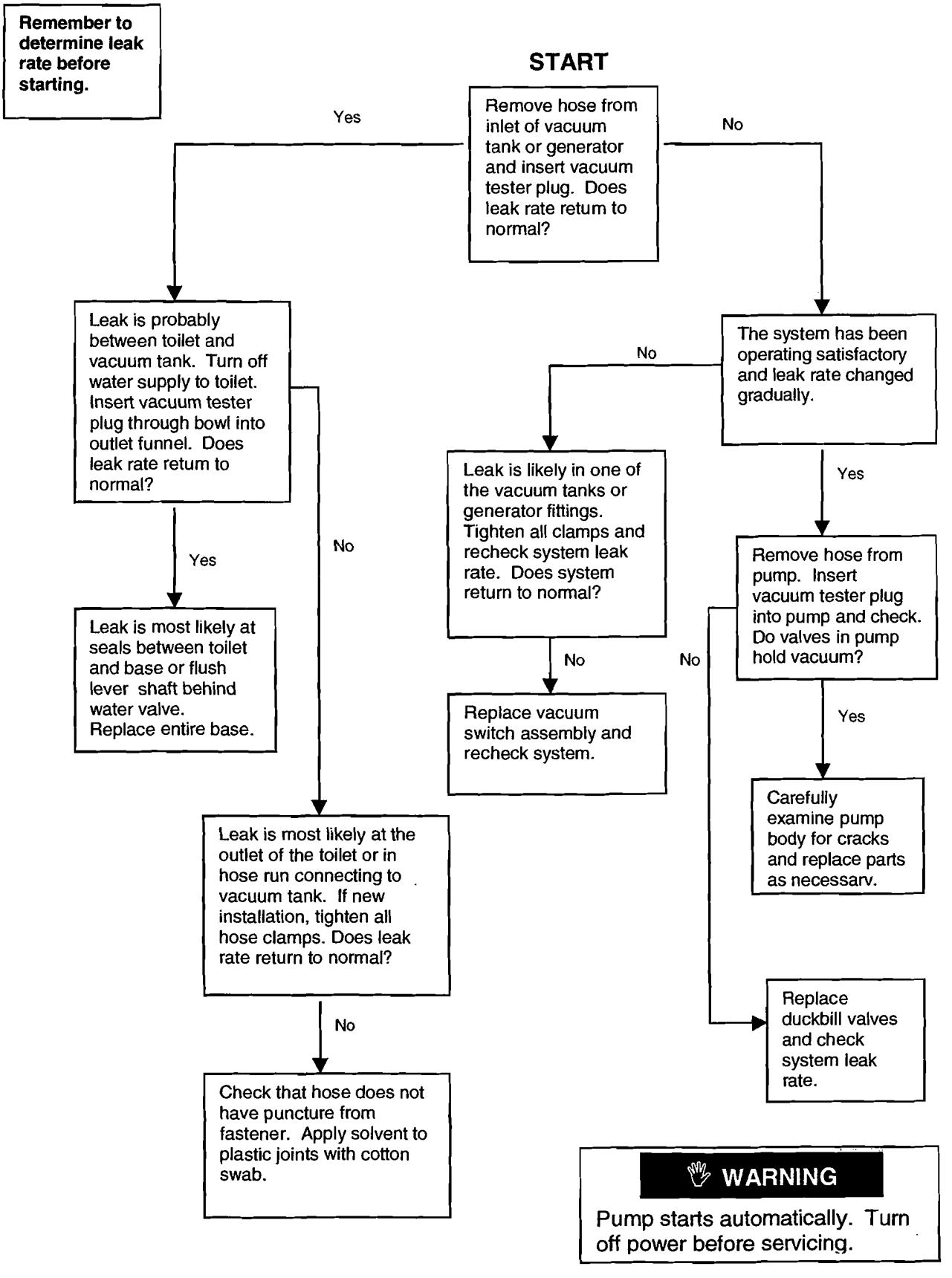
Standard Height
Above Floor Rear Discharge



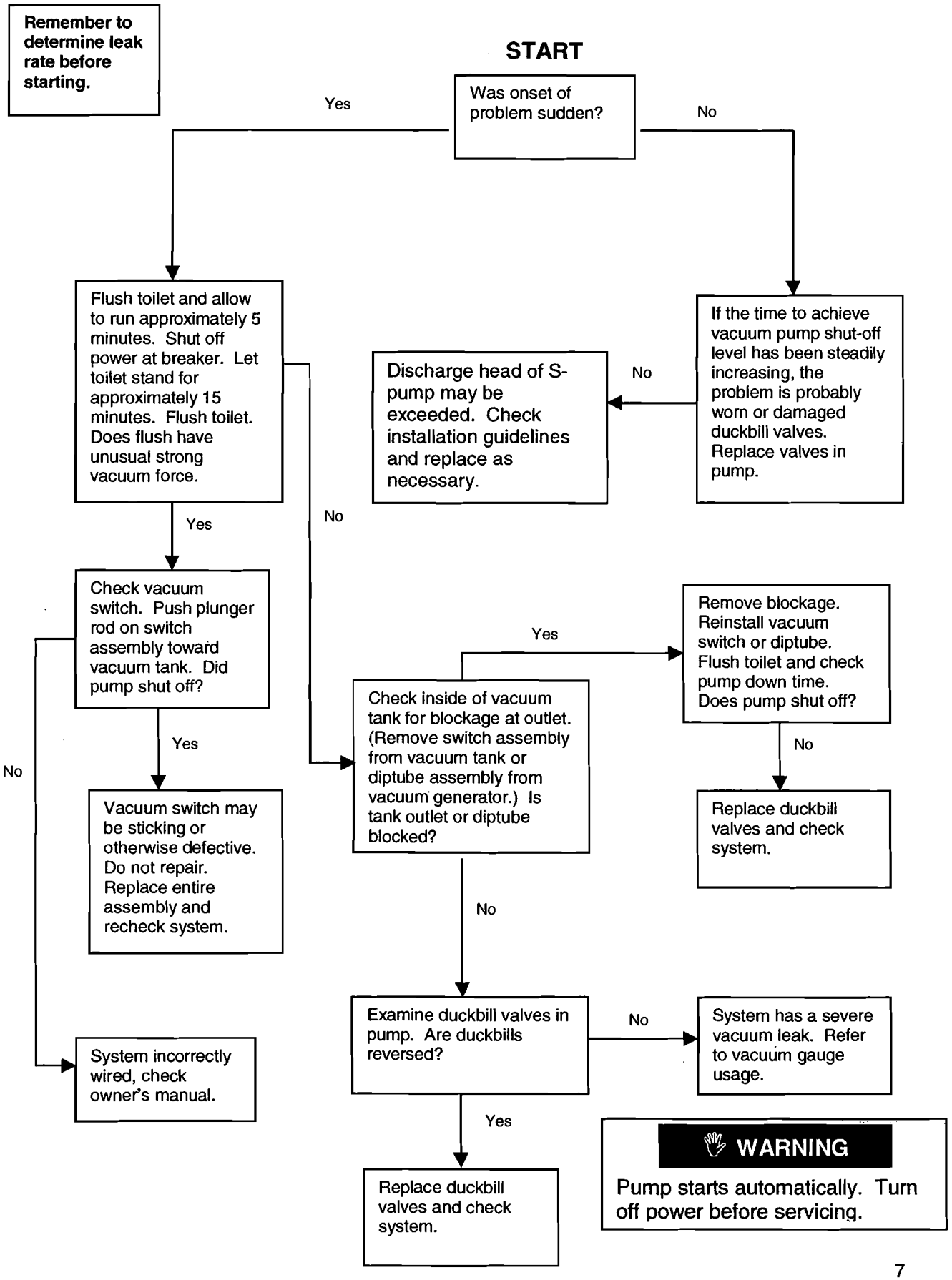
Model 106 Low Profile
Below Floor Discharge



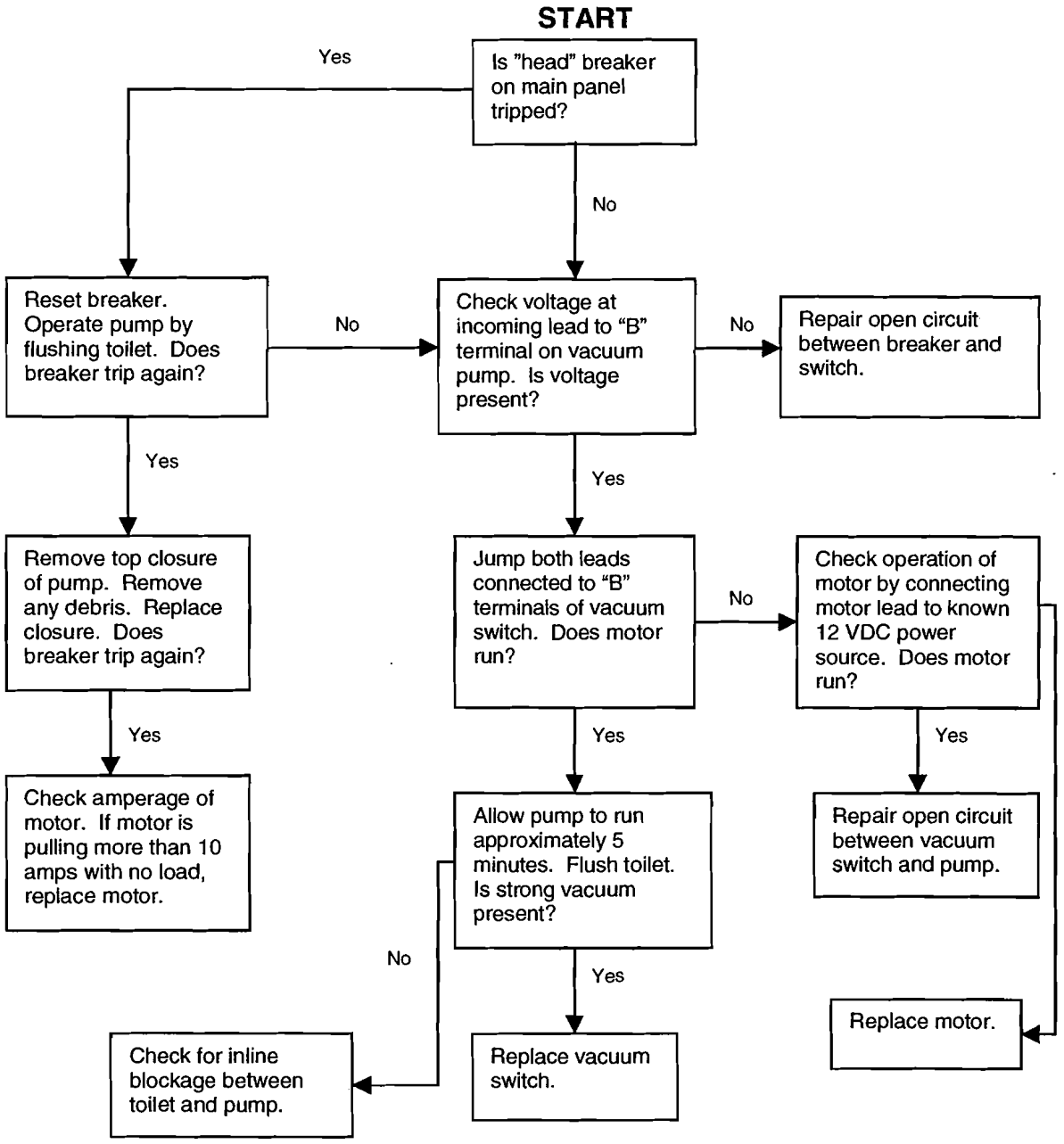
VACUUM PUMP RUNS TOO MUCH BETWEEN FLUSHES (WATER STAYS IN THE BOWL)



VACUUM PUMP WILL NOT SHUT OFF



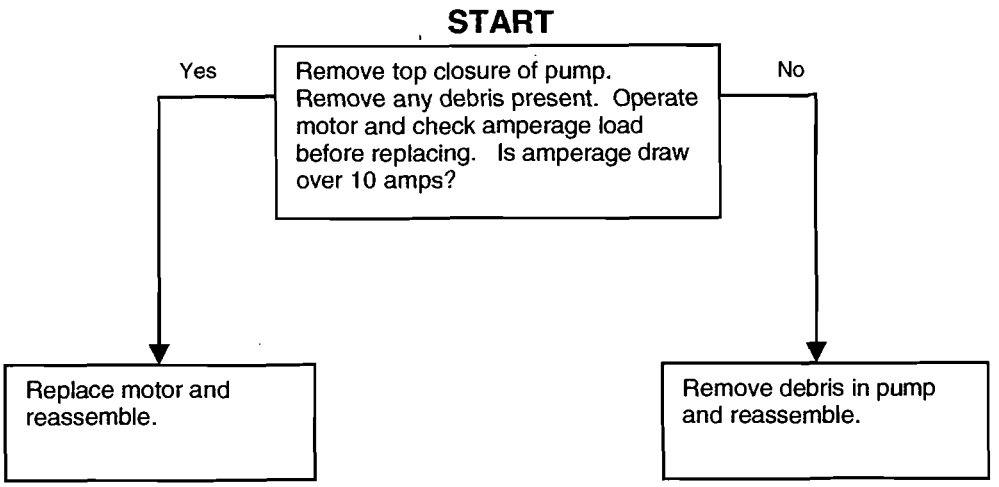
VACUUM PUMP WILL NOT RUN / TOILET WILL NOT FLUSH



WARNING

Pump starts automatically. Turn off power before servicing.

VACUUM PUMP RUNS TOO SLOWLY, VERY HOT OR BLOWS FUSES FREQUENTLY

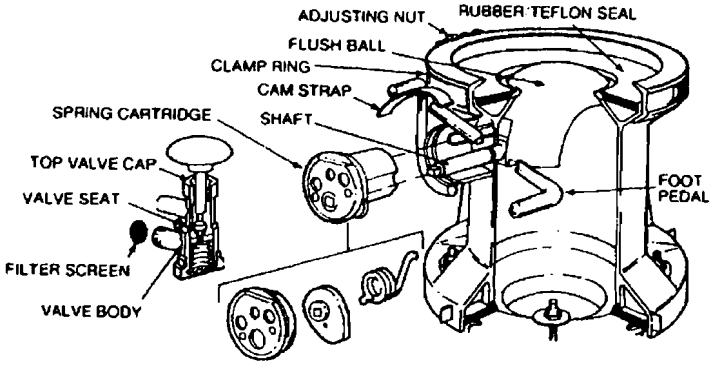


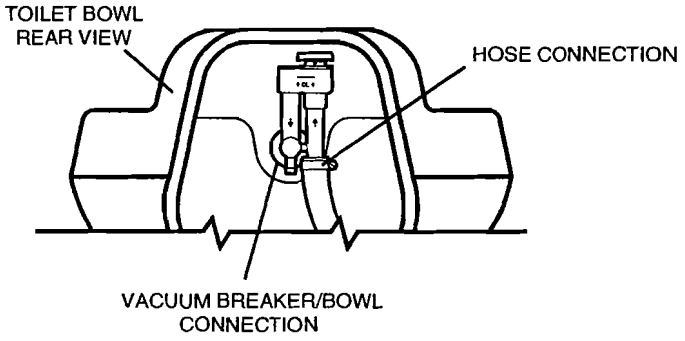
WARNING

Pump starts automatically. Turn off power before servicing.

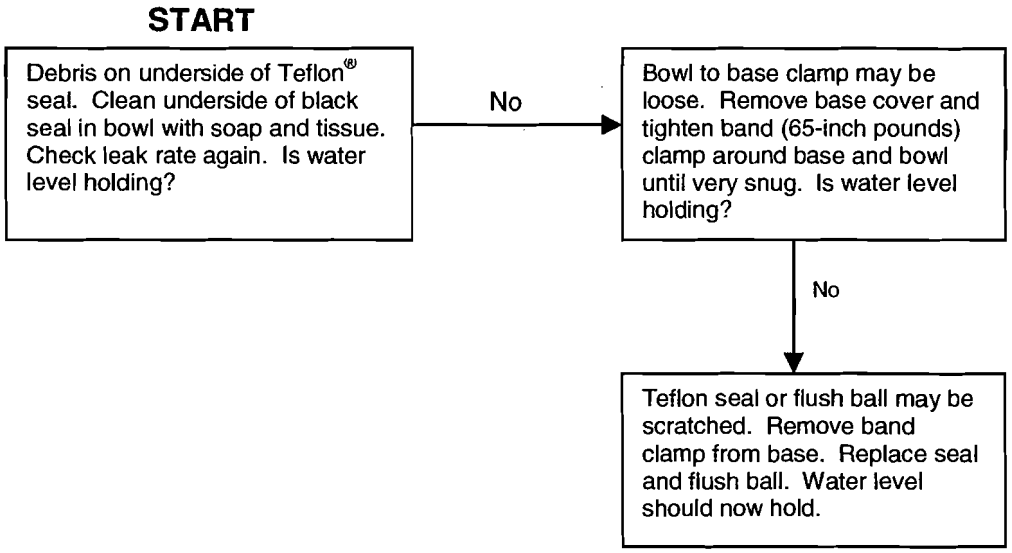
SERVICE TIP: FINDING WATER LEAKS

Finding Water Leaks: Checking for leaks behind or under toilets or other appliances can make it difficult to locate the source. Dripping water at room temperature makes it difficult to feel wetness. Taking four or five sheets of toilet tissue and wiping all seams and waterline connections offers a simple means of locating the general area of the leakage. Start at the top of the unit since gravity will cause a leak to run downward. (See diagram below.) When the tissue comes in contact with the leaking water, it will immediately change its texture.



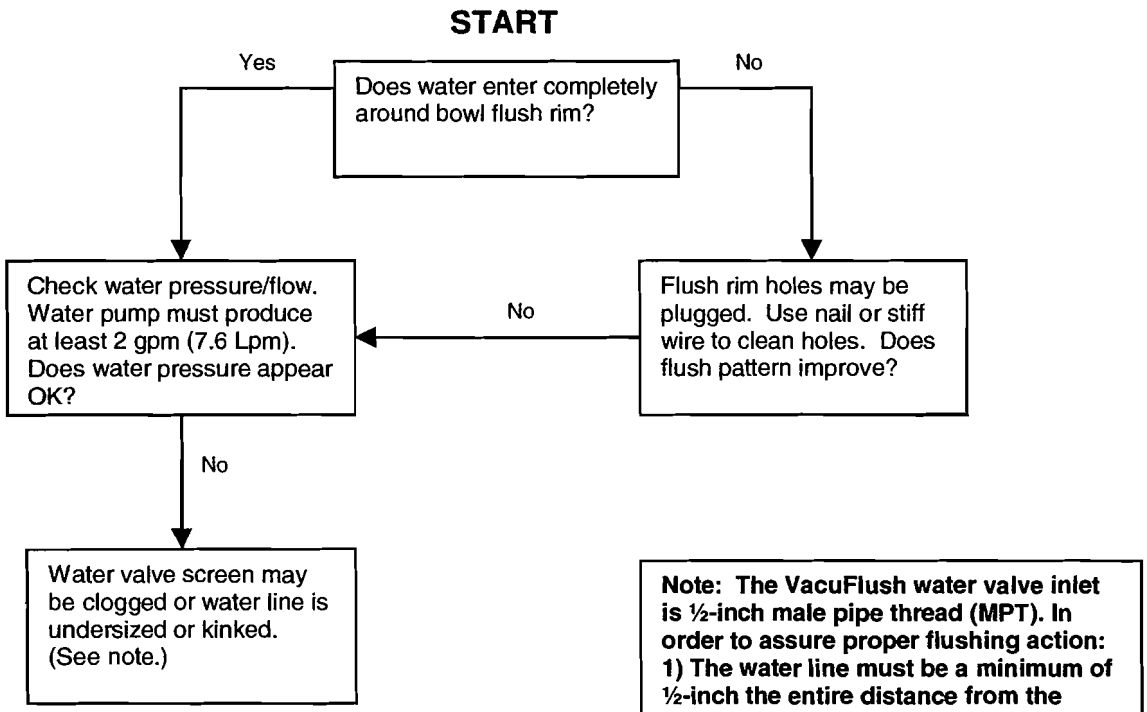


WATER WILL NOT STAY IN BOWL



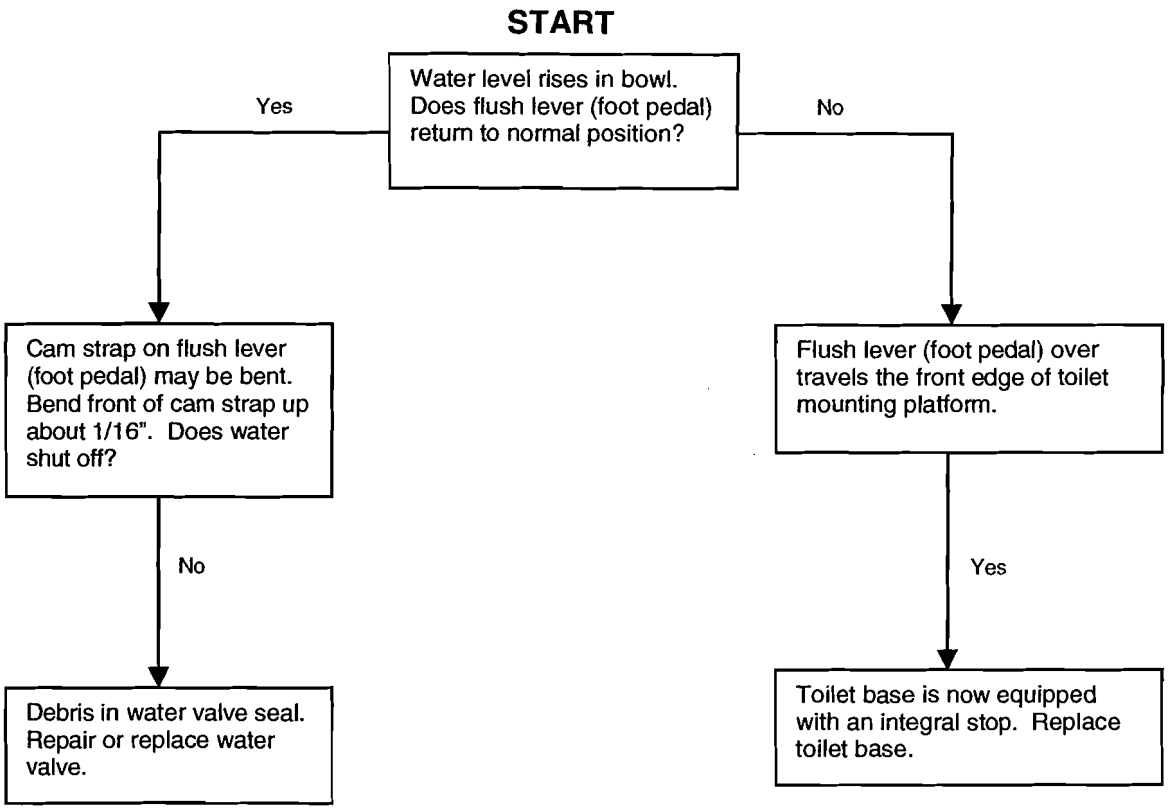
® Teflon is a registered trademark of the DuPont Co.

WATER DOES NOT ENTER BOWL PROPERLY



Note: The VacuFlush water valve inlet is ½-inch male pipe thread (MPT). In order to assure proper flushing action: 1) The water line must be a minimum of ½-inch the entire distance from the demand water pump. 2) In-line restrictions should be kept to a minimum. 3) The water pump must be sized to deliver at least 2-gallons (7.6 liters) per minute flow to the water valve on the toilet.

WATER DOES NOT SHUT OFF AFTER FLUSH



START

Water leak may be constant or intermittent (only leaks when toilet is in use). Is leak constant?

Yes

If leak is constant, it must originate on pressure side of closed water valve. Check water supply line connection. Leak will either be from cross threaded water supply connection or cracked water valve. A cracked water valve is caused by frost damage.

No

With toilet flushing, use tissue to check vacuum breaker assembly in rear of toilet. Is leakage at vacuum breaker?

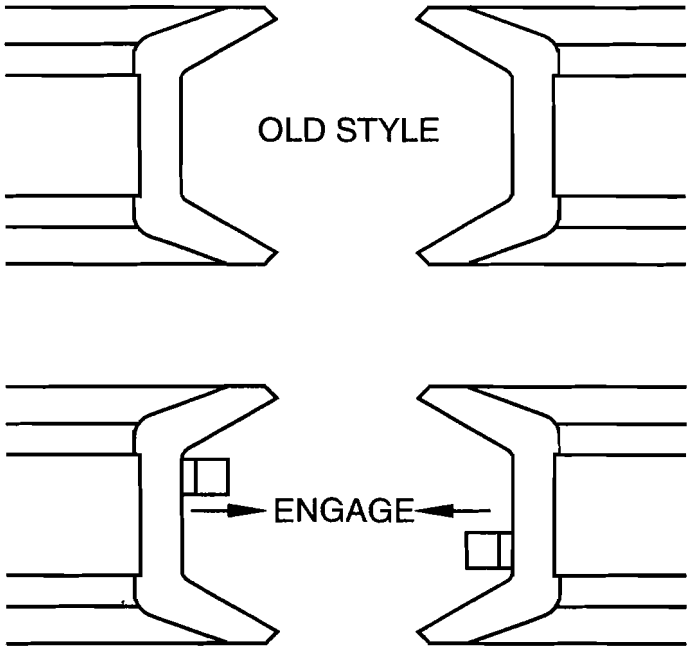
Yes

Replace vacuum breaker.

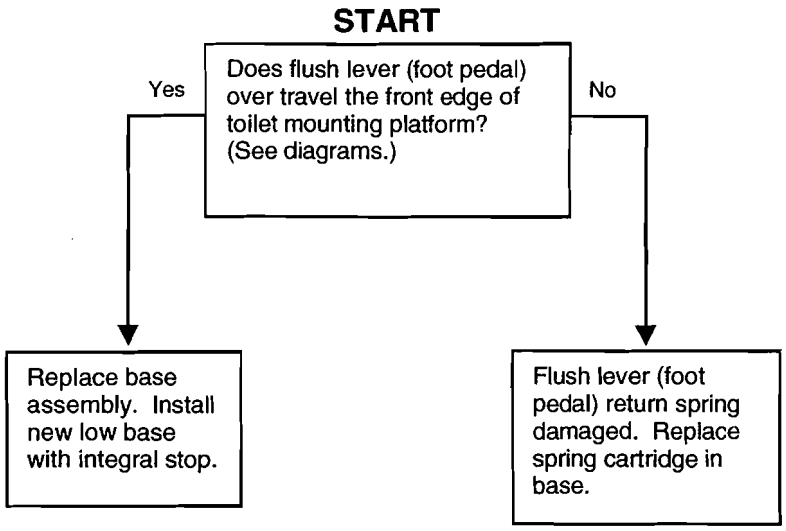
No

Check if band clamp around bowl and base is tight. See note regarding clamp support rings.

Note: Since 1990, all VacuFlush units have been produced with modified clamp support rings. (See Figure.) Occasionally an external leak might occur at the rear of the toilet while the customer is seated on the unit. This modification consists of a tab molded into the interior surface of the clamp support. The tab is in an offset on the toilet, the tabs prevent shifting of the clamp supports during excessive loading conditions on the front of the bowl.

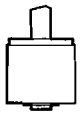


PLASTIC FLUSH BALL WILL NOT OPEN OR CLOSE FULLY

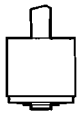


EMPTY LIGHT STAYS ON WHEN TANK FULL OR FULL / MID LIGHT STAYS ON WHEN TANK IS EMPTY

TankWatch float switches can be set to indicate the presence or absence of liquid by reversing the position of the imbedded magnets in the float assembly. See diagram.



FULL INDICATOR



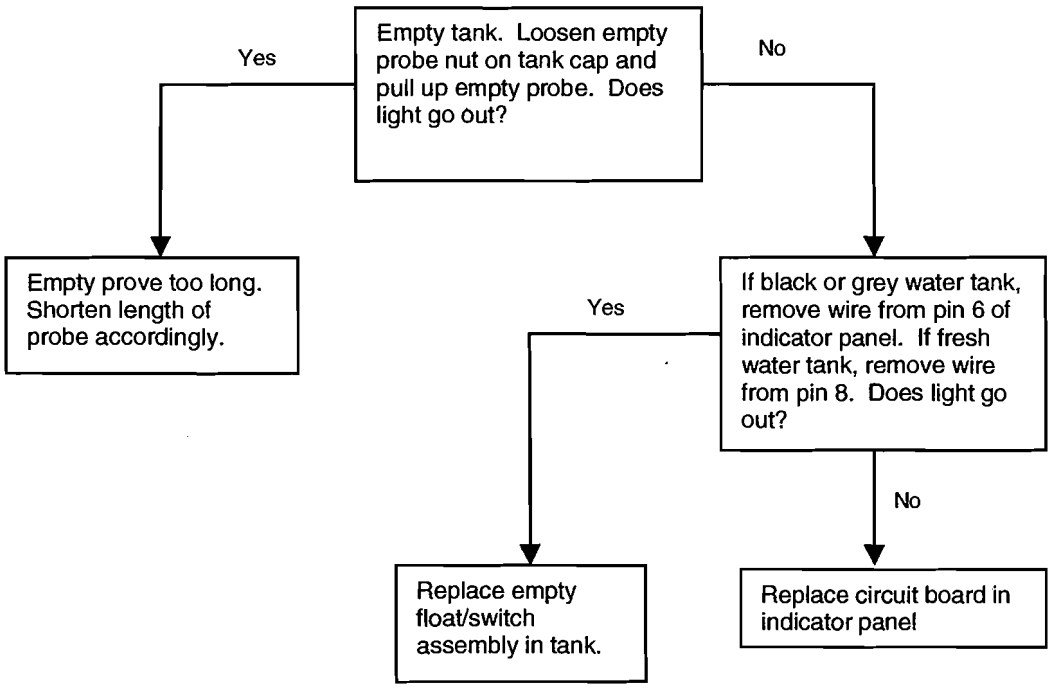
EMPTY INDICATOR

FLOAT POSITION

LIGHT OFF WHEN FLOAT DOWN

LIGHT ON WHEN FLOAT DOWN

EMPTY LIGHT WILL NOT GO OUT

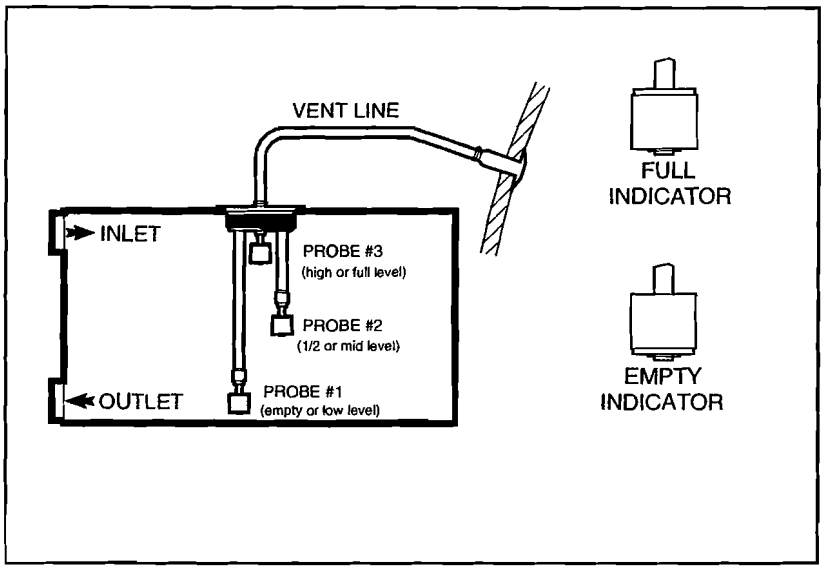


This procedure assumes that TankWatch is correctly wired. See Owner" Manual for wiring diagram.

LIGHTS NOT INDICATING LOWER END OF MID-RANGE

START

TankWatch level monitor system has three fixed points at which lights function. With existing circuit a dead zone in the lower end of the mid-range exists and is considered normal operation. See diagram.



INDICATOR LIGHT WILL NOT COME ON

START

Red Light: Jump across pins 4 to 8 of indicator panel.

Amber Light: Jump across pins 4 to 7 of indicator panel.

Green Light: Jump across pins 4 to 6 of indicator panel.

Does light come on?

Yes

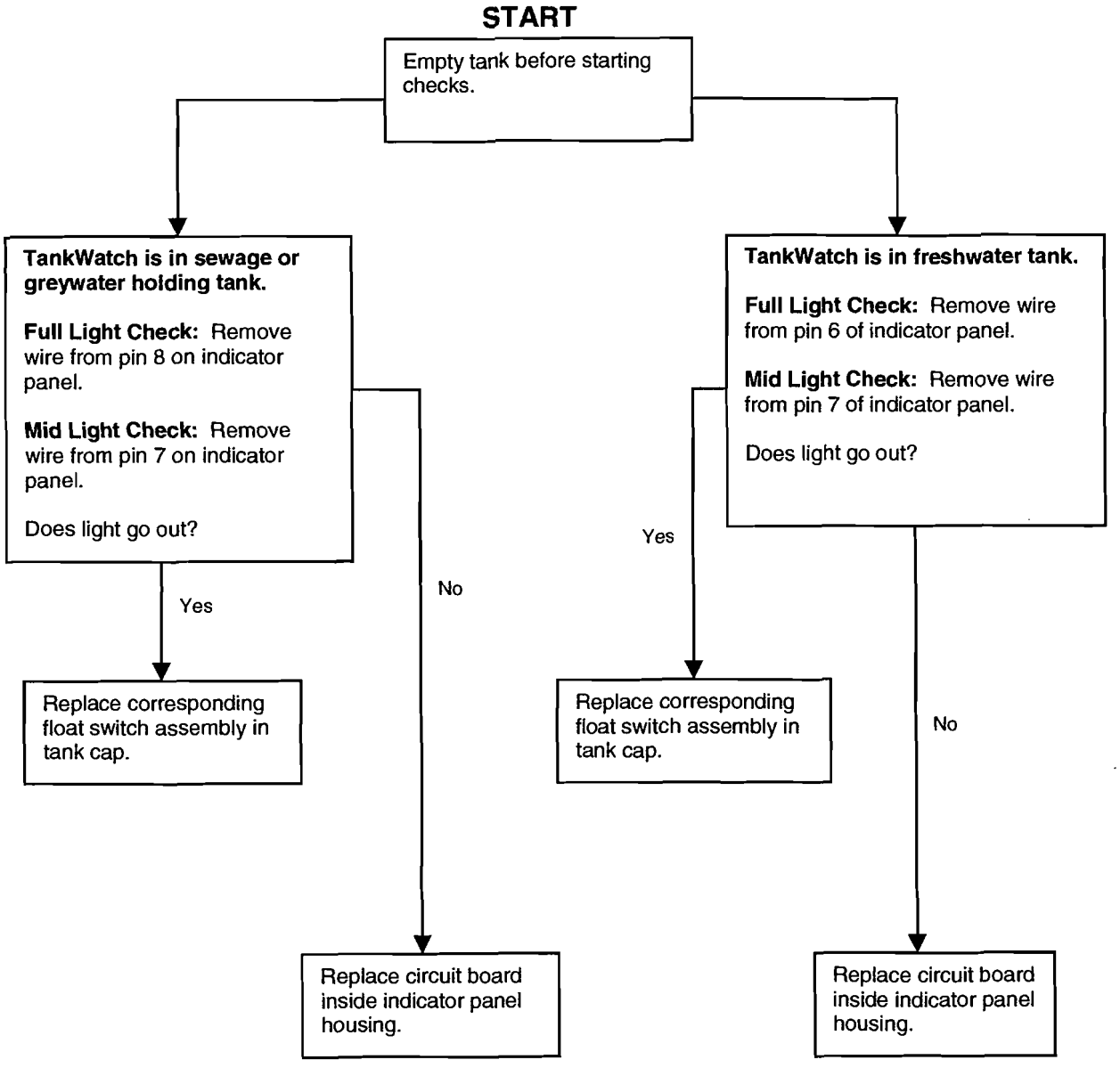
Corresponding float switch and/or wiring is defective. Repair wiring or replace float switch assembly.

No

Replace circuit board assembly inside indicator panel housing.

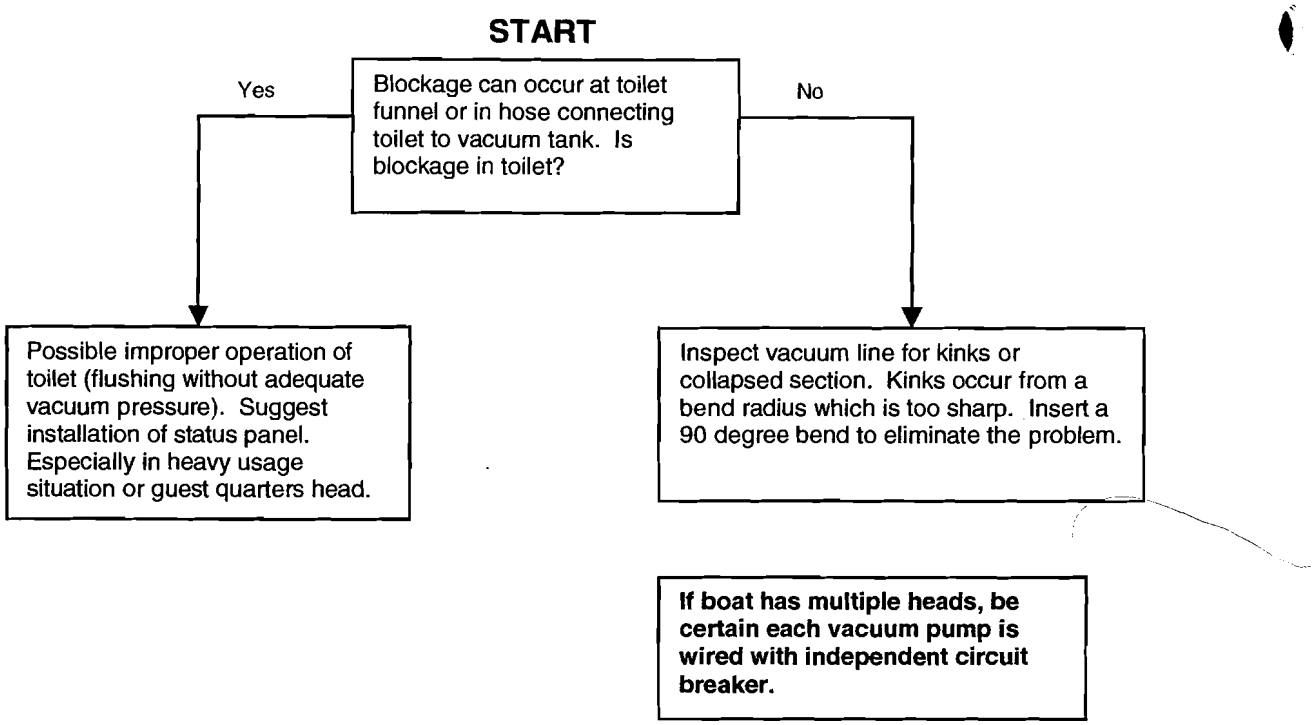
This procedure assumes that TankWatch system is wired correctly. See Chapter 7 for wiring diagram.

FULL OR MID INDICATOR LIGHT WILL NOT GO OUT

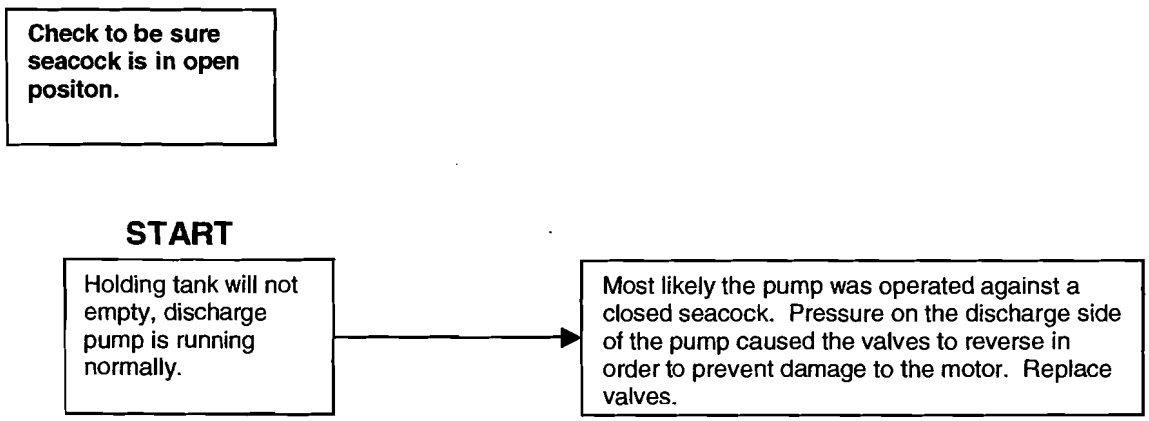


This procedure assumes that TankWatch system is wired correctly. See Chapter 7 for wiring diagram.

BLOCKAGE BETWEEN TOILET AND VACUUM TANK



HOLDING TANK WILL NOT EMPTY, DISCHARGE PUMP OPERATES



SERVICE TIP: FINDING MALODOR SOURCES

Your nose can detect odor at very low concentrations (even in the parts per billion range). Begin by closing all exterior hatches or doors and turning off the air conditioning system. This procedure will concentrate the odiferous gases near their source. Slowly walk through the entire boat, noting which compartments tend to have more apparent odor levels. Your nose can easily become sensitized to a particular malodor in higher concentrations, stepping into fresh air for three to five minutes will usually return its normal acuity. Here are some common sources of malodor:

Air Conditioning or Refrigeration Condensate Drain Pans
A clogged drain will cause water not to drain and become stagnant. Use a mild solution of hydrogen peroxide to clean.

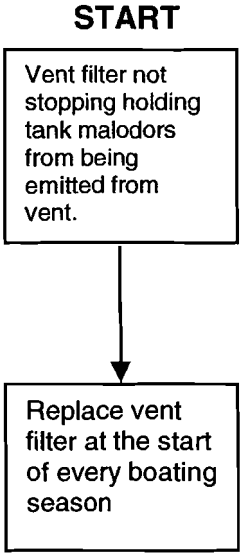
Fuel System Leaks
A small leak in the top of a fuel tank can be very difficult to detect. Fuel spilled into a remote recess of the bilge will turn rancid if not removed.

Vinyl Adhesives
Sometimes the source is not microbial, but adhesive compounds used to apply vinyl wall or overhead coverings. These adhesives release gases as they set up. The permeated surface can be confirmed by a simple procedure. Use a clean cloth to wipe all suspected areas. Sniff the cloth at frequent intervals. Where molecules of the malodor have permeated the surface material, the malodor will be transferred to the cloth.

Sewage Hose Permeation
This problem is caused by sewage standing in the hose for sufficient time to allow anaerobic decomposition to begin. Use the clean cloth technique described above to determine hose lengths which must be replaced. When replacing hose, avoid routing hose so liquid is left standing in it. Use rigid PVC pipe where this condition cannot be avoided.

Shower or Sink Traps or Sumps
These areas are frequent sources of malodor. SeaLand Secure (see label) will effectively control odors in these areas with standing water.

VENT FILTER ALLOWING MALODOR TO ESCAPE



Your VacuFlush sanitation system requires the regular addition of a deodorant product to reduce malodors and to help breakdown holding tank contents. Several factors should be considered in selecting a deodorant product.

Liquid or Dry
Liquid products obviously work more quickly by readily going into solution. Dry powder formulations, on the other hand, have the advantage of requiring less storage space and are less likely to leak if the package is inadvertently damaged.

Formaldehyde versus Non-Formaldehyde
SeaLand manufactures both types of deodorants. Generally speaking, formaldehyde formulas (such as SeaLand® brand) control odor very effectively at all temperatures and with all degrees of water hardness. Secure® brand, which is formaldehyde free and also manufactured by SeaLand, is similarly effective, but may cost a bit more.

How Much Deodorant and How to Add It
The deodorant is added directly into the toilet bowl, then flushed over into the holding tank. Follow bottle or package instructions. Conditions of extremely warm weather, longer waste holding time and larger tank capacities may require more deodorant treatment. Bacterial activity doubles for every ten degrees of temperature increase. In climates with higher temperature, deodorant dosage has to be increased to allow the same level of odor control. Also, to maintain optimum efficiency in odor control, the waste holding tank should be cleaned thoroughly at least once or more each season depending on use.

Why Not Use Household Toilet Paper in Your VacuFlush Toilet?
You can, providing the household tissue you select readily breaks up in water. Household tissues often contain adhesives which bond together the paper fibers from which the tissue is made. These adhesives prevent the tissue from breaking apart, and their use in "ultra-low flow" systems can cause system clogging. SeaLand tissue is especially designed for use in marine toilet systems. Its rapid dissolving properties minimize the amount of residual paper in the holding tank and allow deodorizers to work more efficiently.

Homemade Concoctions
Never mix chemical compounds even if they are commonly available household products. Never mix ammonia with chlorine bleach or holding tank deodorants with toilet bowl cleaners containing hydrochloric acid.

CLEANING FIXTURES

Toilet Bowl

Everyday cleaning of a VacuFlush toilet bowl may be accomplished by using liquid dish washing soap and water. Do not use chlorine based cleaners or caustic chemicals, such as drain opening products, as they may damage the system's seals.

For stubborn stains, use Brilliance® liquid toilet bowl cleaner manufactured by SeaLand especially for use with VacuFlush systems.

In certain areas where water is hard, a build-up of lime may dull the toilet bowl finish. Restore the shine with a cleansing of Brilliance cleaner. If Brilliance cleaner is not available, use Barkeepers Friend®Cleanser for best results. Note that it is not necessary to vigorously scrub with either product. Follow the label instructions.

Holding Tank

A small amount of water remains in all marine holding tanks. It is good practice to rinse the tank after the contents have been discharged. This can be accomplished by lifting up on the toilet foot pedal and letting water flow into the toilet bowl. Add 8-ounces (236.6ml) of Secure Holding Tank Deodorant and Cleaner to the bowl. Release the foot pedal when the bowl is near full. Flush the entire contents into the holding tank and continue flushing until the discharge from the holding tank is clear.

DEALING WITH SPILLS AND LEAKS

Deodorant Stains

A commonly available household product called Resolve® carpet cleaner has been used with effective results for cleaning spills of this type. If not available, use the following procedure: Mix ¼ cup of color-safe laundry bleach to one gallon cool water. Apply generously to the stained area and let stand. Blot dry and repeat until the stain is removed.

Holding Tank Contents

Wear protective gloves. Blot area of the spill with a paper towel. Disinfect the area with the same procedure as for deodorant stains. Residual urine odors can be removed by flooding the area with a solution of one cup vinegar to one gallon warm water. Let stand as long as possible and blot dry. When finished wash hands with soap and hot water.

Formaldehyde-Based Deodorants

Ventilate the area immediately. Open windows, doors, hatches, etc. If possible, set up fans to move extra air into the space. Work in short periods (fifteen minutes or less). If needed, respirators are available with cartridge/filters for formaldehyde. Note that proper respirator use may require special training in their use. Two sources are listed below.

Cover the spill with a generous amount of dry absorbent material such as baking soda, cat litter or even earth. Allow the absorbent material to soak up as much as possible then sweep up. Dispose of the residue in a plastic bag.

If the spill has traveled into an inaccessible area, mix a solution of one cup baking soda to one gallon warm water and flood the entire area. Repeat several times to dilute the residual. Later, follow the instructions for removing stains if needed.

Champion America, Inc. 1 800 521 7000, M-F, (8:00a.m. to 6:30p.m. ET)

LabelMaster 1 800 621 5808, M-F, (7a.m. to 6:00 p.m. CST)

MAINTENANCE

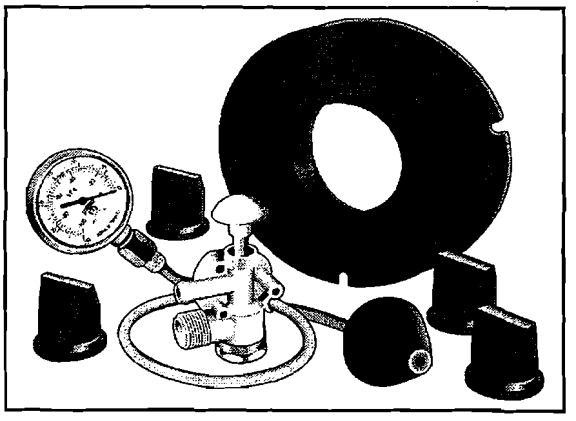
Maintenance intervals and normal parts replacement vary widely depending on numerous factors such as: type of vessel, frequency of system use, quality of flushing water, etc. The chart below is intended strictly as a general guideline. Owner discretion and consideration of actual usage must be the first basis for determining proper maintenance levels.

Maintenance Procedure	Part No.	Approximate Maintenance Level
Follow cleaning procedure above.	-----	Monthly
Tighten all clamps, including base clamp ring.	-----	Annually
Check all wire connections.	-----	Annually
Check & tighten water valve mounting screws.	-----	Annually
Clean filter screen in water valve.	-----	Annually
Check pump and in-line valves.	347802	2-3 years or as needed
Check toilet seals.	316140	3-5 years or as needed
Check vacuum breaker.	316906/318065	3-5 years or as needed
Check water valve.	314349	3-5 years or as needed

VACUFLUSH MAINTENANCE KIT

The VacuFlush Maintenance Kit contains replacement parts used in routine maintenance of VacuFlush toilets. A "must" for those who cruise to remote locations. The kit includes vacuum tester, water valve, seal kit, duckbill valves (4) and an owner's manual.

Product No.	Description
310228	VacuFlush Maintenance Kit



WINTERIZING

At the end of each boating season, the VacuFlush system must be winterized for storage.
The following procedure should be used.

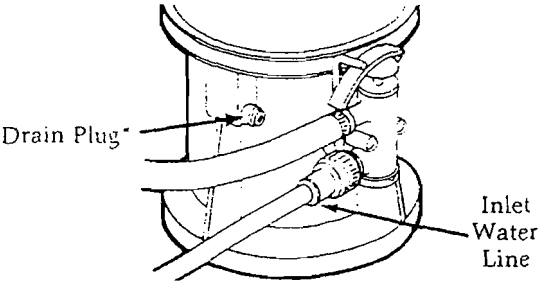
1. Pump out holding tank.
2. Thoroughly flush system with fresh water.
3. Shut off water supply to toilet, remove waterline.
4. Press flush lever until all water is drained from toilet.
5. Turn off electrical power.

To use antifreeze, repeat Steps 1 and 2 above and continue as follows:

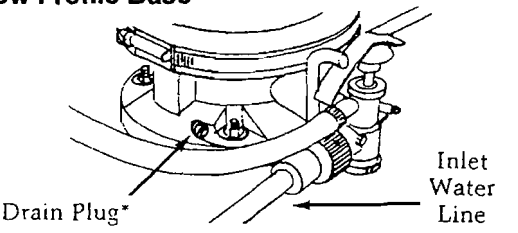
CAUTION: The use of freshwater antifreeze that contains alcohol will result in damage to your sanitation system. Only use propylene glycol freshwater antifreeze that does not contain alcohol.

6. Drain potable water tank.
7. Add freshwater antifreeze to potable water tank.
8. Flush potable water antifreeze and water mixture through toilet and into the waste holding tank. Each installation is different so amounts may vary. User discretion is required to assure adequate protection.
9. Turn off electrical power.

Standard Base



Low Profile Base

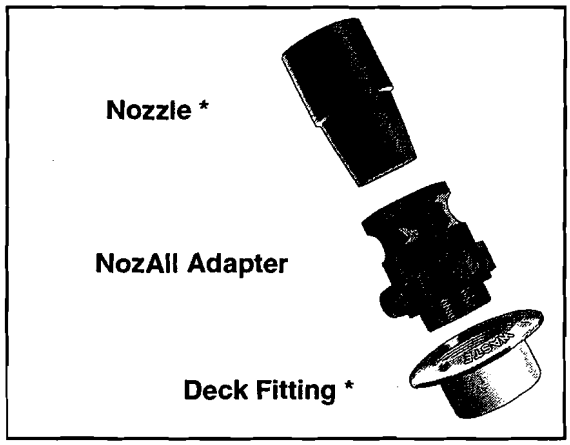


*Note: It is not necessary to remove drain plug to winterize toilet.

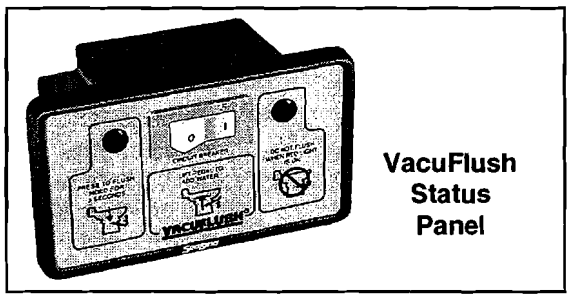
NozAll™ Pumpout Adapter: The NozAll heavy-duty, chrome-plated adapter provides an airtight seal between your boat's deck waste fitting and umpout station nozzle. Just screw your personal NozAll adapter into your deck fitting, and be assured of an airtight connection for pumping out holding tank contents. Each adapter contains a chrome-plated NozAll Adapter, gasket and vinyl cap. Order part number:

343502	1 ½ -inch, 11.5 t.p.i (4.5 tpcm)
343503	1 ½ -inch, 11.5 t.p.i (4.5 tpcm)
343504	1 ¼ -inch, 16.0 t.p.i (6.3 tpcm)

* Not included



VacuFlush Status Panel: An ideal add-on to any VacuFlush system. The status panel is mounted in the bathroom compartment. A green light indicates sufficient vacuum is available for the next flush. A red light indicated the vacuum level is building and the pump is running. Each panel has an integral circuit breaker which allows the system to be shut down at night. Order part number 500012.



TankWatch 4 Option Relay: This relay can be added to the TankWatch 4 panel to automatically shut down power to the VacuFlush toilet system to prevent overfilling of the onboard holding tank. Order part number:

341292	TankWatch 4 Relay – 12 Volt
342490	TankWatch 4 Relay – 24 Volt

NEED HELP ?

We have developed a strong, worldwide network to assist in servicing and maintaining your VacuFlush system. For the name of an Authorized Service Center near you, please call from 8:00 a.m. to 5:00 p.m. (Eastern Time) Monday through Friday. You may also write us at P. O. Box 38, Big Prairie, Ohio 44611.

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

Telephone: 800-321-9886 USA and Canada
330-496-3211 International

Fax: 330-496-3097 USA and Canada
330-496-3220 International

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or Pablo Villar

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12-A Leslie Street
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Fax: 90 (0) 216 337 44 92
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Contact: Isik Aylan

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Contact: Chris Coburn

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Fax: 810-778-6108
Contact: Bob Kennedy

U.S.A. - Northeast

Northeast Marine Sanitation
69 Florida Street
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800-352-4323
Fax: 631-752-7615
888-283-7606
E-mail: northeast@
northeastsanitation.com
Contact: Mike Starito

U.S.A. - Northwest

Marine Sanitation, Inc.
1900 N. Northlake Way, Suite
121
Seattle, WA 98103
Tel: 206-633-1110
800-624-9111
Fax: 206-633-0317
E-mail: marinesan@
minespring.com
Contact: Ric Kolb

U.S.A. - South Central

AER Supply
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2301 Nasa Road #1
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800-767-7606
Fax: 281-474-2714
E-mail: aersupplyinc@msn.com
Contact: Richard Miller

U.S.A. - Southeast

Environmental Marine
111 S.W. 23rd Street, Suite A
Fort Lauderdale, FL 33315
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800-522-2656
Fax: 954-522-5152
E-mail: hopto91@aol.com
Contact: John or Jill Hopkins

U.S.A. - Southwest

Ardemco Marine Specialties
778 West 17th Street
Costa Mesa, CA 92627
Tel: 949-722-7672
800-253-0115
Fax: 949-642-9582
E-mail: ardemco@earthlink.net
Contact: Rick Glasser

U.S.A. – Upper Midwest

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Contact: Dave Tucker

U.S.A. – Northern California

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