Connecting Raritan's Lectra/San® MC and electro-scan Type I MSD's to the VacuFlush® Marine Toilet System .

-- Application Note --

> **⚠ WARNING:** *Raritan Engineering Company, Inc. recommends that a qualified person or electrician install this product. Equipment damage, injury to personnel or death could result from improper installation. Raritan Engineering Company, Inc. accepts no responsibility or liability for damage to equipment, or injury or death to personnel that may result from improper installation or operation of this product.*

INTRODUCTION

Raritan's Lectra/San® MC (LST/MC™) or electro-scan™ Type I sewage treatment systems can be installed in conjunction with the VacuFlush® marine toilet manufactured by Sealand Technology, Inc. The treatment unit must be mounted in the discharge line between the output from the vacuum pump or vacuum generator of the VacuFlush® toilet system and the boat's discharge seacock/thru-hull fitting or holding tank. Treatment system should be installed within a six foot (max.) hose run from the output of the vacuum pump or vacuum generator (Figs. #1 and #2). The VacuFlush® operates on pressurized fresh water and the Lectra/San® system requires salt water, thus the Raritan Four Gallon Salt Feed System with Pump #32-3003 (12V) or 33-3003 (24V) volt must also be added to the installation in order to bring the water inside the treatment unit to the same salinity as seawater. Only the four gallon salt feed system **with pump** will work with a VacuFlush installation. A vented loop in the discharge line between the outlet from the treatment unit and the discharge thru-hull fitting is recommended if any of the system components will be installed at or below the waterline of the boat, refer to treatment system Owner's Manual for typical installations.

OPERATION

Push "PUSH TO FLUSH" on the Lectra/San® MC or "START/STOP" on the electro-scan control panel, then flush your VacuFlush toilet (step on pedal).
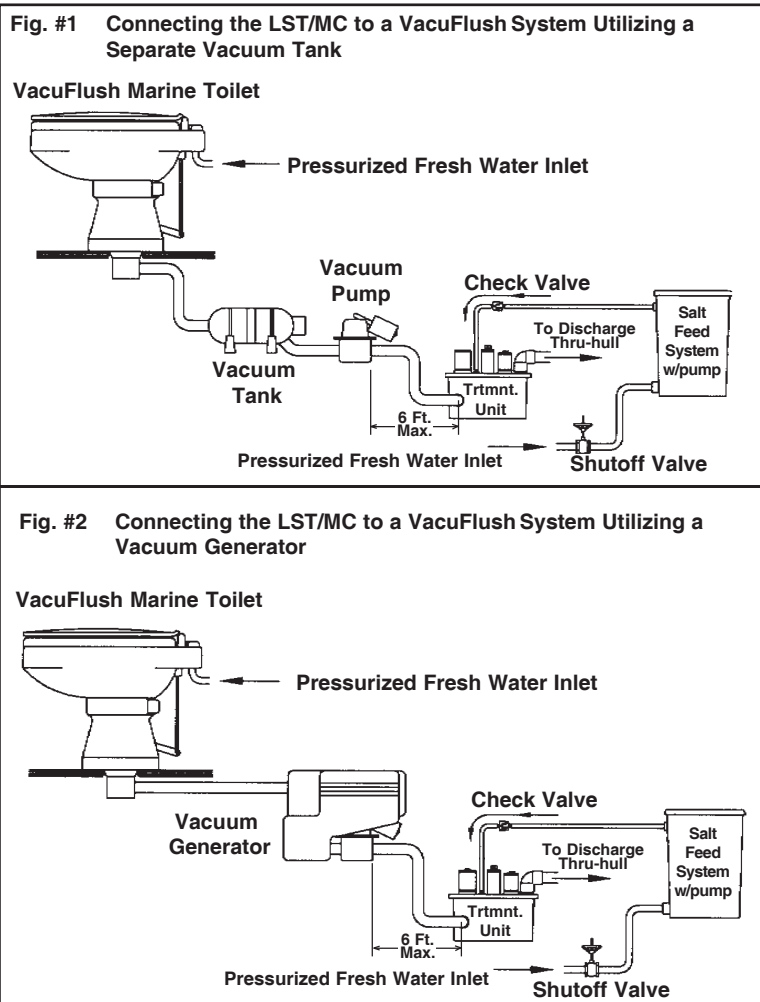
VacuFlush® ia a registered trademark of Sealand Technology, Inc.
Lectra/San® is a trademark of Exceltec.
LST/MC™ is a trademark of Raritan Engineering Co., Inc.
electro-scan™ is a trademark of Raritan Engineering Co., Inc.

MAINTENANCE

TREATMENT TANK / ELECTRODE

CLEANING

WARNING: Do not follow the cleaning instructions as outlined in the treatment system's Installation and Maintenance Instructions when using the VacuFlush marine toilet system from Sealand Technology, Inc. DO NOT pour acid

Fig. #1 Connecting the LST/MC to a VacuFlush System Utilizing a Separate Vacuum Tank

VacuFlush Marine Toilet
Pressurized Fresh Water Inlet
Vacuum Pump
Check Valve
Vacuum Tank
To Discharge Thru-hull
Salt Feed System w/pump
Trtmnt. Unit
6 Ft. Max.
Pressurized Fresh Water Inlet
Shutoff Valve

Fig. #2 Connecting the LST/MC to a VacuFlush System Utilizing a Vacuum Generator

VacuFlush Marine Toilet
Pressurized Fresh Water Inlet
Vacuum Generator
Check Valve
To Discharge Thru-hull
Salt Feed System w/pump
Trtmnt. Unit
6 Ft. Max.
Pressurized Fresh Water Inlet
Shutoff Valve

solution into the toilet.

To clean out the treatment tank and electrodes you must:

1. Fill the bowl three-fourths full using flush pedal, then flush toilet. Do this four times, waiting 30 seconds between flushes. Run one treatment cycle.

2. If the Treatment Unit is mounted below the waterline, disconnect the hose from the vented loop on the Treatment Unit side of the loop. Drain any excess from the hose into a pan for disposal. Clean out vent line.

3. Remove the discharge hose and use a pump to remove as much liquid as possible. Allow time for liquid to drain past electrode pack partition.

4. Remove Treatment Unit cover and electrode pack. Clean plates with a stiff nylon or bristle brush - DO NOT use a metal brush or tool, refer to Owner's Manual for treatment unit.

WARNING: Before using acid, observe safe handling instructions on container.

5. If cleaning with a brush does not remove mineral deposits, immerse electrodes (fins) in a solution of one pint commercial muriatic acid (30-35%) to two gallons of water. Use a plastic bucket rather than a metal one. Allow the electrodes to remain immersed until all bubbling stops and the electrodes are clean. Rinse with clean water and reassemble. The purpose of the acid treatment is to remove calcium carbonate deposits which may build up in the treatment system and reduce conductive surface area on the electrode plates.

Treatment Tank Pre-fill Instructions

Before mounting the treatment unit, add 6 oz. of table salt to each side of the treatment tank through inlet and outlet fittings. Note that adding too much salt will cause fuse to blow in first start up and not adding enough salt will stop cycle due to low treatment.

PLUMBING

Mount the treatment unit to solid deck construction, following the directions in the appropriate owner's manual. Install Four Gallon Salt Feed System with Pump following the directions in the Owner's Manual. The treatment unit must be within a six foot hose run from the vacuum pump or vacuum generator of the VacuFlush toilet system. Plumb the discharge from the vacuum pump or vacuum generator of the Sealand VacuFlush marine toilet to the treatment using the supplied fittings. Hose clamps that are all-stainless steel are recommended; double-clamp all joints below the waterline for safety.

ELECTRICAL

Follow the electrical wiring instructions in the appropriate Owner's Manual for the treatment system, and also the Four Gallon Salt Feed System with Pump Owner's Manual.

START UP

Before start up check all electrical and plumbing connections.

1. Remove crossover plug in the center of the treatment unit (see Installation and Maintenance Instructions for Four Gallon Salt Feed Tank with Pump [Fig. #2]) and manually fill the treatment tank with fresh (dockside) water. If treatment prefill instructions were not done, add 6.5 oz. of table salt in each side of treatment tank.

2. Start the treatment cycle by pressing the "PUSH TO FLUSH" or "START/STOP" button on treatment system control panel.

3. Normal operation will be indicated by green light on or blinking.

4. If warning lights come on; see troubleshooting section in the treatment system Owner's Manual.