

# PURASAN® EX

## OPERATION, MAINTENANCE AND INSTALLATION INSTRUCTIONS

(Models PST\*EX [\*specify 12,24] Manufactured after August 2012)

### THE FOLLOWING ARE CAUTIONARY STATEMENTS THAT MUST BE READ AND FOLLOWED DURING BOTH INSTALLATION AND OPERATION

**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.*



**WARNING: HAZARD OF SHOCK AND FIRE**

Always use recommended fuse or circuit breaker and wire size.

**WARNING: HAZARD OF FLOODING** - When leaving the boat unattended always be sure seacocks are closed. Any installation made below waterline should have double hose clamps securing lines. **The halogen disinfectant is corrosive to aluminum, copper and steel. The plumbing system must not include any aluminum, copper or steel fittings, piping or holding tanks.**



### IMPORTANT SAFETY INSTRUCTIONS FOR HANDLING PURASAN® TABLETS AND SOLUTION

**WARNING:** PURASAN® disinfecting tablets are a strong oxidizing agent and highly corrosive. Use or contact with oil acids, petroleum products, reducing agents or other chlorine compounds such as swimming pool tablets, is extremely dangerous

**WARNING:** Fire or explosion could result. Improper use of this tablet may cause personal injury or property damage. Tablets may be fatal if swallowed and tablet dust is irritating to the eyes, nose and throat. Keep out of reach of children and do not allow tablets or solution of tablets to contact skin, eyes or clothing. Handle and store tablets and solution of tablets as per instruction provided with packaging of tablets for handling and storage. Contact Raritan if handling instructions are missing. Store only in sealed original container in well-ventilated area. Read tablet container label carefully prior to use. It is unsafe and violation of Federal law to use tablets in a manner inconsistent with its labeling.



The PURASAN®EX is a U. S. Coast Guard Certified Type I Marine Sanitation Device for use on uninspected vessels 65 feet and under. It must be operated within navigable waters inside the three mile limit that are not declared Federal No Discharge Zones (NDZ) by the U.S. Environmental Protection Agency (EPA). Other countries - check with local authorities.

The PURASAN®EX is designed for recreational use and accommodates most marine toilets. It can be used with up to two toilets. The PURASAN®EX is available in 12 or 24 VDC.

### DESCRIPTION:

Each time the toilet is flushed an equal amount of previously treated waste is discharged. The flushing action of the toilet pump moves the waste through the Purasan and out.

Water is diverted to the tablet dispenser during the flush cycle, creating a halogen solution during hold time. After the hold time, drain solenoid and air pump turn on and solution drains into the treatment unit. The first chamber macerates to reduce particle size and uniformly mix the waste with injected halogen solution. The second chamber mixes to ensure uniform treatment of contents.



**RARITAN**

*The Most Dependable Name on the Water*

856-825-4900

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## OPERATION

### Single Button Operation -

Both toilet and PURASAN®EX are operated by one of the following options:

#### Option #1: (recommended)

##### Toilet Push Button -

Flushing toilet will activate treatment cycle.

**Note:** Toilet may be flushed as often as necessary during first 30 seconds. Do not exceed recommended flush volume of 1.5 Gallons (5.7) liters per flush.

Two toilets can activate one PURASAN®EX.

#### Option #2:

##### PURASAN®EX Switch Panel

Start/Stop button activates both the toilet and treatment cycle.

**Note:** Toilet flush time is programmable. Only one toilet can be activated by PURASAN®EX panel.

Pressing Start/Stop during the cycle will stop the cycle.

#### Independant Operation (toilet and treatment)

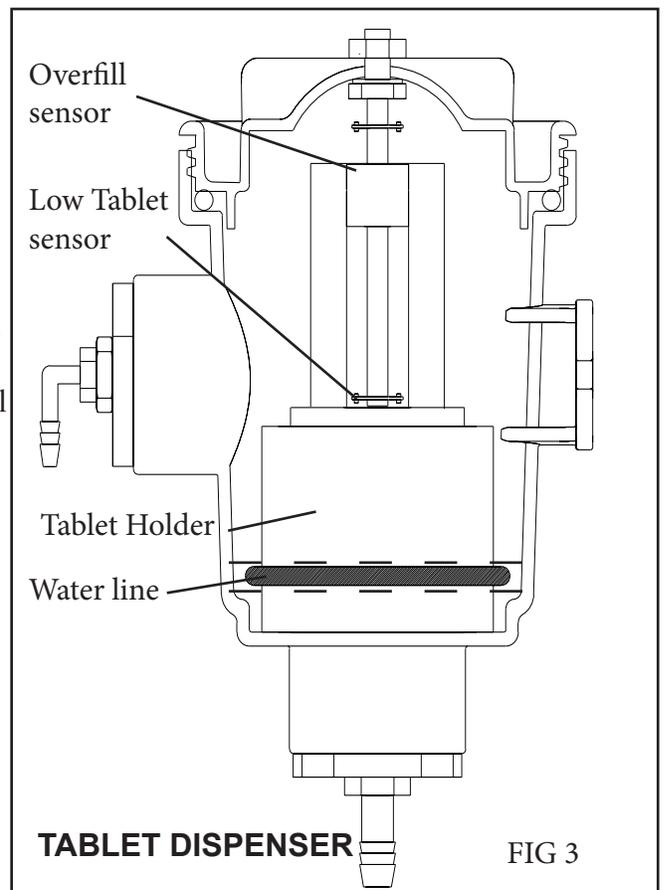
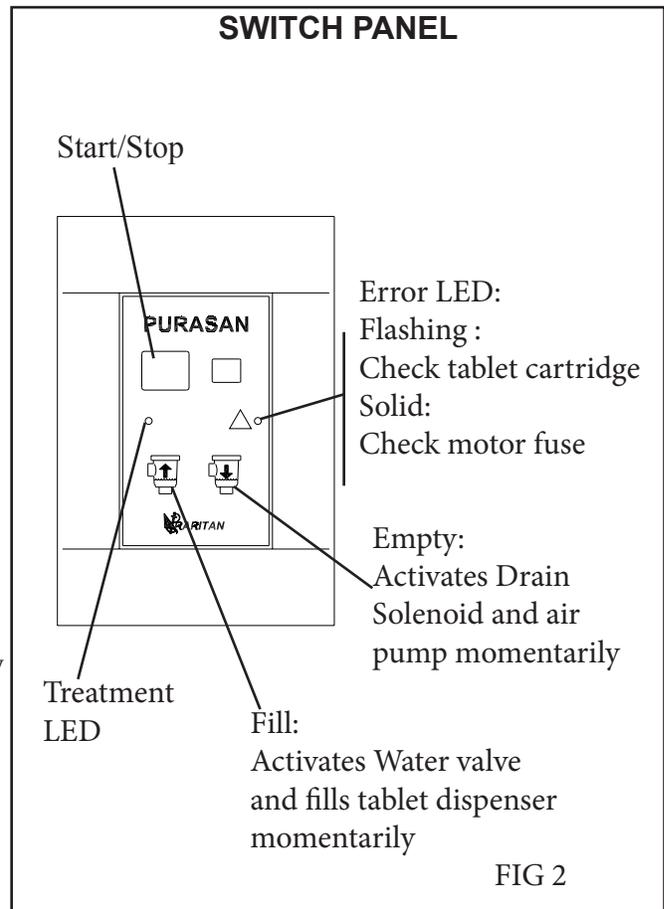
1. Press Start/Stop button.
2. Flush toilet as often as necessary. Do not exceed recommended flush volume.

#### After cycle is started:

- Water is diverted to the tablet dispenser and must rise to the water level line (dotted lines) but no higher. (See programming to adjust)
- The PURASAN®EX should not be activated again until the cycle is complete.

**Note:** Pressing Start/Stop during the cycle will stop the cycle. If water is in the dispenser the air pump will activate to remove water after stop button is pressed.

- Flashing Treatment LED indicates treatment cycle in process.
- Flashing Error LED indicates that tablet dispenser is either overfilled with water or tablet refill is needed
- Solid Error LED indicates motor fuse is blown.



**Use ONLY PURASAN® Tablets.**

DO NOT add any other chemicals or cleaning products to the toilet or the treatment system. Raritan C.P. (part # 1PCP22) - Cleans Potties is the only factory-recognized cleaning product that may be used in the toilet.

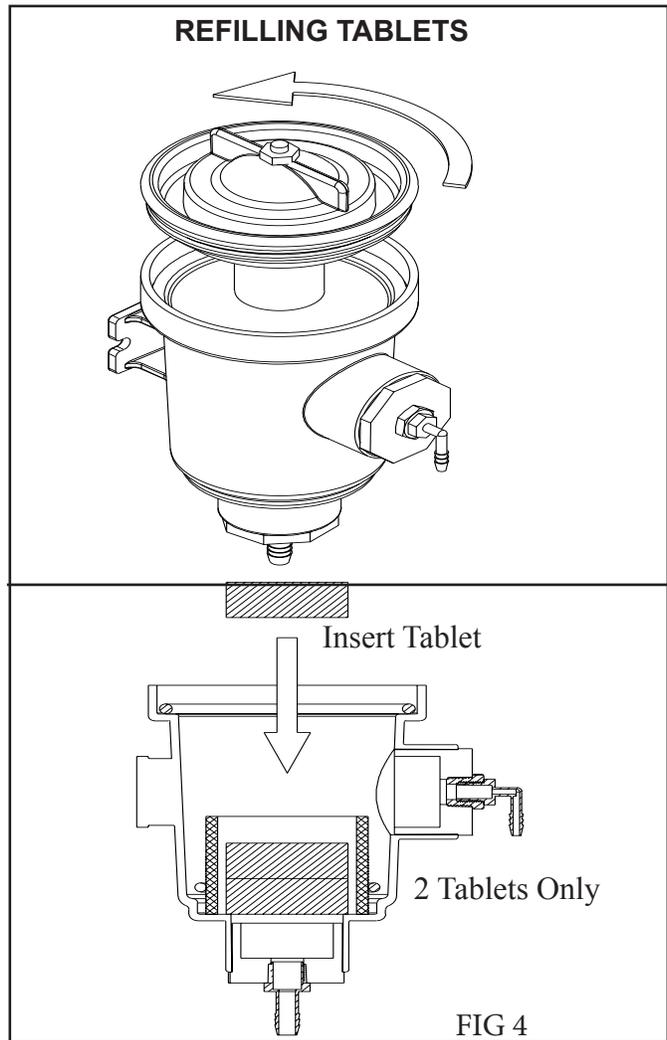
**MAINTENANCE**

**REFILLING TABLET CARTRIDGE (#41-135A)**

When Error LED is flashing it is an indication tablets in the dispenser are depleted to less than one tablet and refill is needed.

1. Remove all water by pressing “empty” button on the panel before opening lid.
2. Turn off power.
3. With adequate ventilation available, unscrew tablet dispenser lid.
4. Reload with two tablets into the cartridge.
5. Replace lid on tablet dispenser.
6. Turn on power

**CLEANING:** Do not add any other chemicals or cleaning products to the toilet or the treatment system.



**INITIAL START-UP - AFTER ALL INSTALLATION STEPS ARE COMPLETE**

**CAUTION:**

Do not load tablets into dispenser until Steps 1-6 are completed.

Unplug dispenser sensor cable from control (SPC)

1. Remove crossover cap from treatment unit tower. Pour 3 gallons (11.5 liters) of water into treatment unit. Replace crossover cap.
2. Turn on water to the water solenoid valve.
3. Turn on power to unit.
4. Priming : Press and hold “FILL” button until water reaches to the water line on the dispenser. Press and hold “EMPTY” button until dispenser and 1/2” tube to treatment tank is empty.
5. Operate the system . check water level in the cartridge and make sure water is rising to the mark. If starting for first time or if water does not rise to the mark, see instruction in Programming section to adjust timing.
6. Check for leaks.
7. Load the Tablet ( see refilling tablet section) and plug the sensor cable into the controller.

## Tablet Dispenser

1. Disconnect water solenoid and flush toilet. Activate treatment cycle several times to leave only water in tank.
2. Press “EMPTY” button to drain out all water from dispenser and tube.
- 4.. Water Solenoid Valve
  - Shut off water to valve
  - Remove and drain water from tube
  - Drain water from valve, hoses and strainer

## Treatment Unit

**WARNING:** Do not use anti-freeze of any kind to winterize the PURASAN® system.

1. Turn off power and disconnect wires to PURASAN®
2. Close seacocks.
3. Slowly open crossover plug( part #31-104C)

**Caution:** If treatment tank is at the lowest point of plumbing, water will spill out open plug slowly.

4. Using a pump, remove water from both sides of the treatment tank through crossover cap.
5. Disconnect and drain hoses.

**Winterizing the Toilet** - Follow the instructions in the Owner’s Manual for that particular toilet.

## Recommissioning

### IMPORTANT:

- Do not connect tablet dispenser water valve until treatment tank is full.
- Do not operate PURASAN® until Treatment Unit is filled with water.

### Treatment Tank

1. Reconnect hoses and open seacocks.
2. Reconnect wires (except water solenoid and turn power on.

NOTE: Purasan treatment tank must be full before activating a cycle.

3. Fill the treatment tank: (Depends on how unit is activated)
  - Single button operation - Remove crossover plug from treatment unit and fill with a minimum of three gallons of water, replace crossover plug and o-ring.
  - Independent operation - flush toilet allowing three gallons of water to pass into Purasan
4. Turn on power to Purasan. Reconnect water solenoid to dispenser
5. Check for leaks.

## U.S.C.G. Type I MSD Certification #159.015/106/0

Maximum Roll/Pitch Angle: 30°

Maximum Temperature Exposure: 120° F (49° C)

Maximum Total Flush Volume: 1.5 gallons/flush (5.7 liters/flush)

Water - fresh, salt or brackish Approximate Number of flushes per tablet--150

### NOTES: for Wiring

- Distances are from source to unit and back to source
- Recommended conductor wire minimum AWG (mm) for 3% voltage drop.
- Recommended conductor sizes are based on 105°C rated unsulation. Refer to ABYC standards for other insulation ratings.

### Recommended Wire and Fuse/Circuit Breaker Size

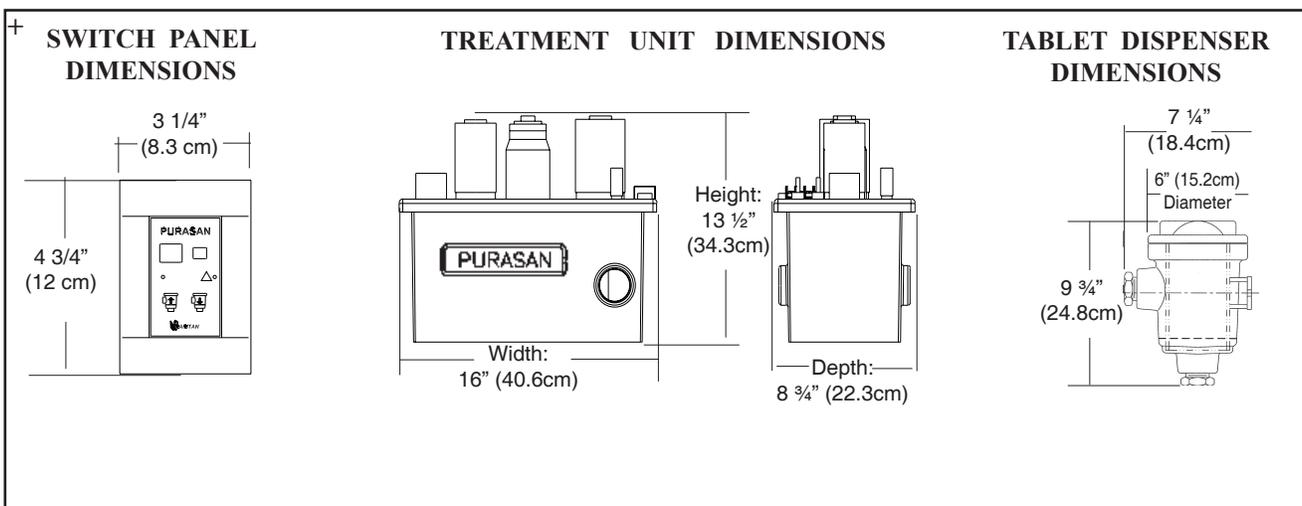
Units Volt-age	Circuit Breaker/ fuse size (amps)	Amp. draw @ nominal voltage	10 feet	15 feet	20 feet	25 feet	30 feet	40 feet	50 feet
12 VDC	20	10	12 AWG	12 AWG	10 AWG	10 AWG	10 AWG	8 AWG	6 AWG
24 VDC	15	8	14 AWG	14 AWG	14 AWG	12 AWG	12 AWG	10 AWG	10 AWG

### Fuse Specifications:

Fuse F1 for Motors (12V and 24V) Located in the SPC Control Box:  
ATO 10 AMPS, Maxi blade type.

### CONVERSIONS

Wire - AWG to mm <sup>2</sup>								
AWG	16	14	12	10	8	6	4	2
mm <sup>2</sup>	1.5	2.5	4.0	6.0	10.0	16.0	25.0	35.0
Feet to Meters								
Feet	10	15	20	25	30	40	50	
Meter	3.1	4.6	6.1	7.6	9.2	12.2	15.2	

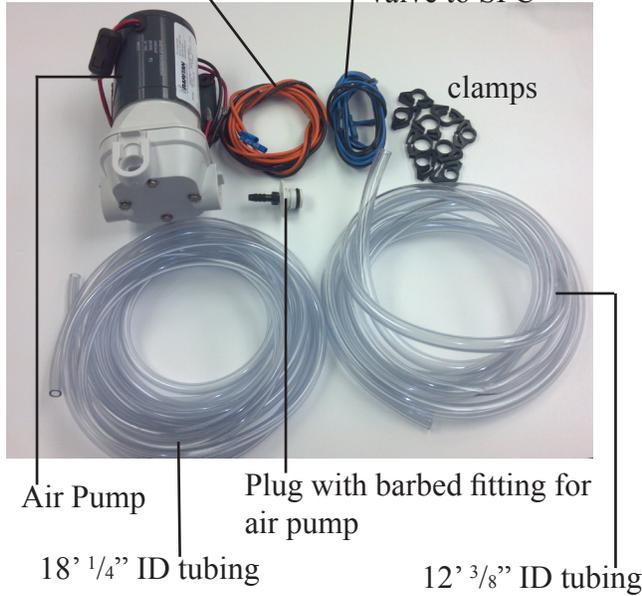


# INSTALLATION

## Parts Included in the Box:

6' black and orange wire to connect air pump to SPC

6' black and blue wire to connect Water Valve to SPC



## LOCATION AND MOUNTING

### Treatment Tank:

**WARNING:** Do not locate in an area where ambient temperature exceeds 120° F (49° C).

1. Locate top of treatment tank at or below discharge of toilet and within six feet (1.5 m) of toilet.

**Note:** If mounting treatment tank higher than discharge, a vented loop must be used between toilet and treatment tank.

2. Make and secure mounting frame to flat surface. (FIG 5)
3. Secure tank to frame using 3/4" (1.9 cm) mounting straps.

**Note:** Placing a 3/8" (.9 cm) rubber pad under tank will help to reduce vibration and noise.

### Drain Manifold:

**Note:** Wires supplied are 6 feet between tank and manifold.

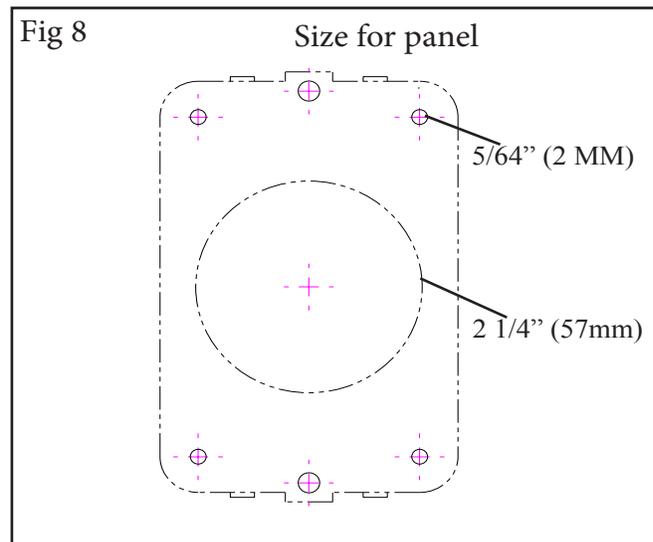
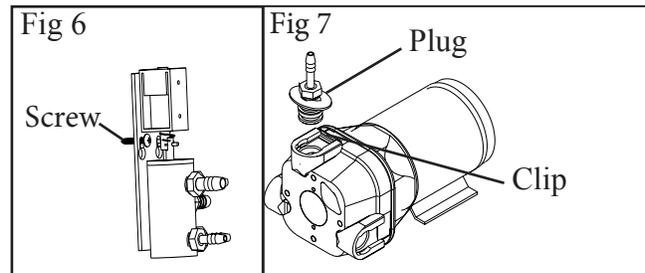
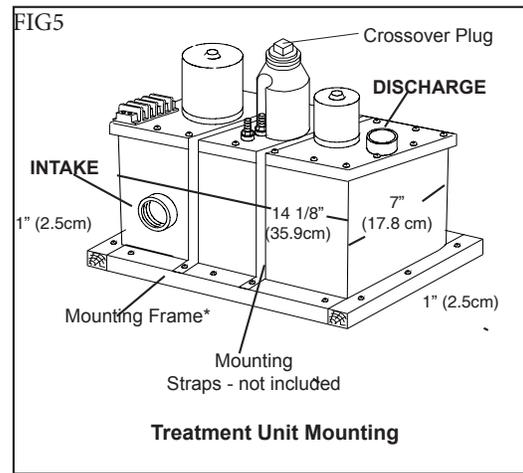
1. Locate drain manifold between dispenser and treatment tank. Vertical mounting with solenoid up is recommended (FIG 6)
2. Using screws supplied secure manifold to the wall (FIG 6).

**Air Pump:** Wire from Pump to Control Box is 6 feet and can be extended if necessary.

1. Slide the clip to open position. Insert 162415A plug with barbed fitting into the port. Slide clip to close position. (see FIG 7)
2. Mount air pump in dry location and outside engine compartment.

**Switch Panel:** Cable Supplied is 16 feet

1. Locate in head compartment where indicator lights will be visible.
2. Using base plate, mark the cutout for the panel. (See Fig 8)
3. Route cable between switch panel and PURASAN® control unit.
4. Attach cable to back of switch panel.
5. After wiring and testing entire system: Mount panel using 4 screws. Apply a bead of nonpermanent sealant around rear edges of panel if located in shower area.



**Control Box:** Cable supplied is 3 feet.

1. Locate and mount control box in a dry and "drip free" location.

### Water Solenoid:

**Note:** Wires supplied are 6 feet between control and solenoid and can be extended if needed.

1. Mount water solenoid in a dry location between water supply source and treatment tank.

## PURASAN® Tablet Dispenser

1. Locate tablet dispenser in a location where refill of tablet is convenient. (To easily remove lid and refill tablets a clearance of 8" from top of lid is recommended.)
2. Attach to wall or suitable structure using 1/4" (6 mm) bolts.

**NOTE:** Do Not load tablets into tablet dispenser at this time. Load tablets after completing start up procedure.

### PLUMBING

#### WARNINGS:

- All installations made below the waterline **MUST** be protected by installing vented loops
- Always double clamp fittings below waterline
- Do Not use metal fittings

#### A. Pressurized water for tablet dispenser:

1. Install a strainer between pressurized water source and water solenoid.
2. Connect hoses to drain manifold and dispenser and air pump as per Fig 9 .
3. A shutoff valve between source and water valve assembly is recommended.

#### B. Treatment Tank:

**NOTE:** Use PTFE tape or nonpermanent thread sealing compound on threaded PVC fittings and connections. Avoid low areas in hose that would allow untreated waste to collect.

1. Connect discharge of toilet to one intake port.
2. Insert plug or second toilet discharge into other intake port.
3. Determine position and glue discharge elbow to top of tank using PVC cement.

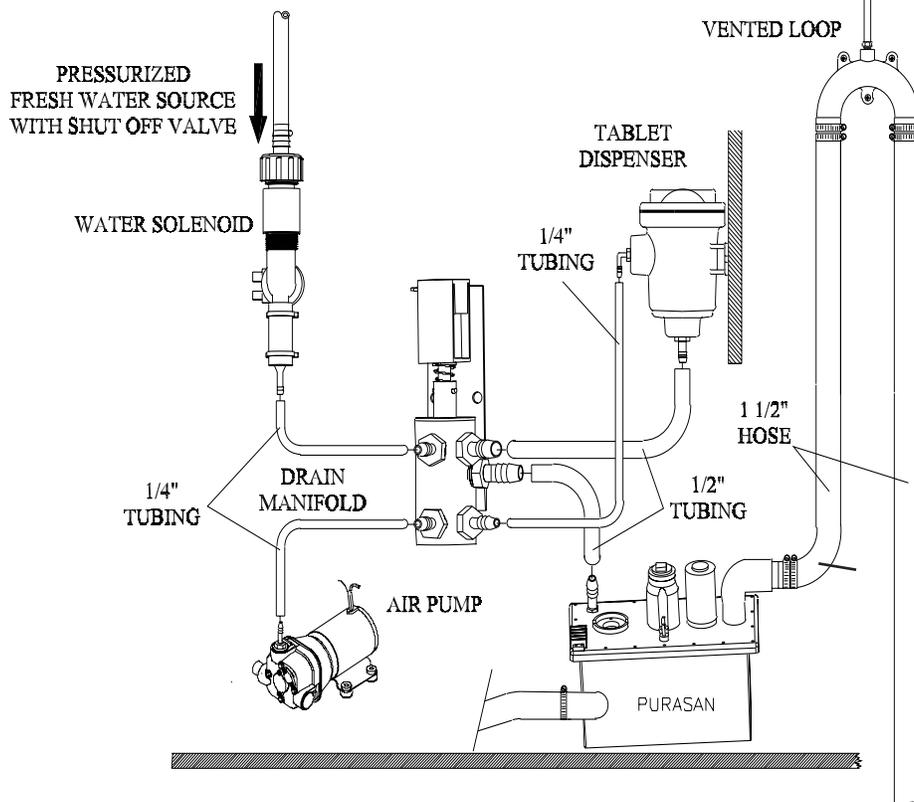
**Note:** Be certain that the discharge elbow is in the correct position before gluing.

4. Connect discharge hose from elbow to thru hull fitting.

#### C. Drain Manifold:

1. Connect 3/8" and 1/4" tubes to dispenser from drain manifold assembly.
2. Connect 3/8" tubes between drain manifold and treatment tank.
3. Connect 1/4" tubes between air pump and water solenoid.
4. Use hose clamps for all connections.

FIG 9 Plumbing: Pressurized fresh water to Dispenser



## WIRING

### **WARNING: Hazard of Shock and Fire**

- Always use proper wire, connectors and fuse/circuit breaker. See Specification Chart.
- Secure wire properly.
- Do not connect other appliances to PURASAN®circuit.
- Make sure power is off before proceeding.
- Improper wiring can damage the circuit board and void warranty.
- Motors used with this product are “Ignition Protected”. They are not however, explosion-proof as defined in 46CFR 110.15-65(e), Subchapter J-Electrical Engineering.

**NOTE: Raritan recommends that the electric toilet be installed for single touch operation (Option #1 page2).**

### **SEE FIG. 10 FOR CONNECTIONS:**

#### **Treatment Unit**

1. Determine proper wire size from wire chart on specifications page.
2. Run supply wire from source to Negative (NEG) terminals on treatment tank.

#### **SPC Control:**

1. Determine proper wire size from wire chart on specifications page.
2. Run supply wire from source to Positive (POS) terminal on SPC.
3. Fuse or circuit breaker must be installed between source and SPC on positive wire.
4. Connect three wire cable between treatment tank terminal block and SPC per wiring diagram.

#### **Switch Panel**

1. Connect cable from switch panel to SPC

#### **Drain Manifold Solenoid:**

1. Run wires from drain manifold solenoid to the terminal block on the treatment tank .

#### **Water solenoid valve:**

1. Run wires from water solenoid to Valve+ and valve- on SPC terminal block.

#### **Air Pump:**

1. Run wire from air pump to AIR PUMP+ and AIR PUMP- on SPC terminal block.

#### **Dispenser:**

1. Run sensor cable from dispenser to SPC. Using cable clamp - secure cable on the wall near dispenser.
2. Connect sensor cable to SPC.

**CAUTION:** If wiring per Fig. 12, use only the Raritan #CDS (failure to do so will damage to the control board, voiding warranty).

#### **Flushing Option #1: (Recommended)**

##### **Toilet Push Button -**

Flushing toilet will activate treatment cycle.

**Note:** Toilet may be flushed as often as necessary, do not exceed recommended flush volume.

1. Mount switch panel near toilet.
2. See Figure 11 for toilets with STC control.
3. See Figure 12 for standard electric toilets.

**NOTE:** Contact Raritan Tech Support if you have any questions regarding wiring of control.

#### **Flushing Option #2:**

##### **PURASAN®EX Switch Panel**

Start/Stop button activates both the toilet and treatment cycle.

**Note:** Toilet flush time is programmable. Only one toilet can be activated by PURASAN®EX panel.

Pressing Start/Stop during the cycle will stop the cycle.

#### **Toilets not utilizing an STC control:**

1. See Figure 13 for standard electric toilets.

#### **Toilets utilizing STC control:**

1. Run wire from the H1 on SPC to FROM MSD on the STC control.

#### **Dual installation:**

Dual installation kit PSTEXDC includes instruction for wiring second switch panel

# WIRING

Fig 10

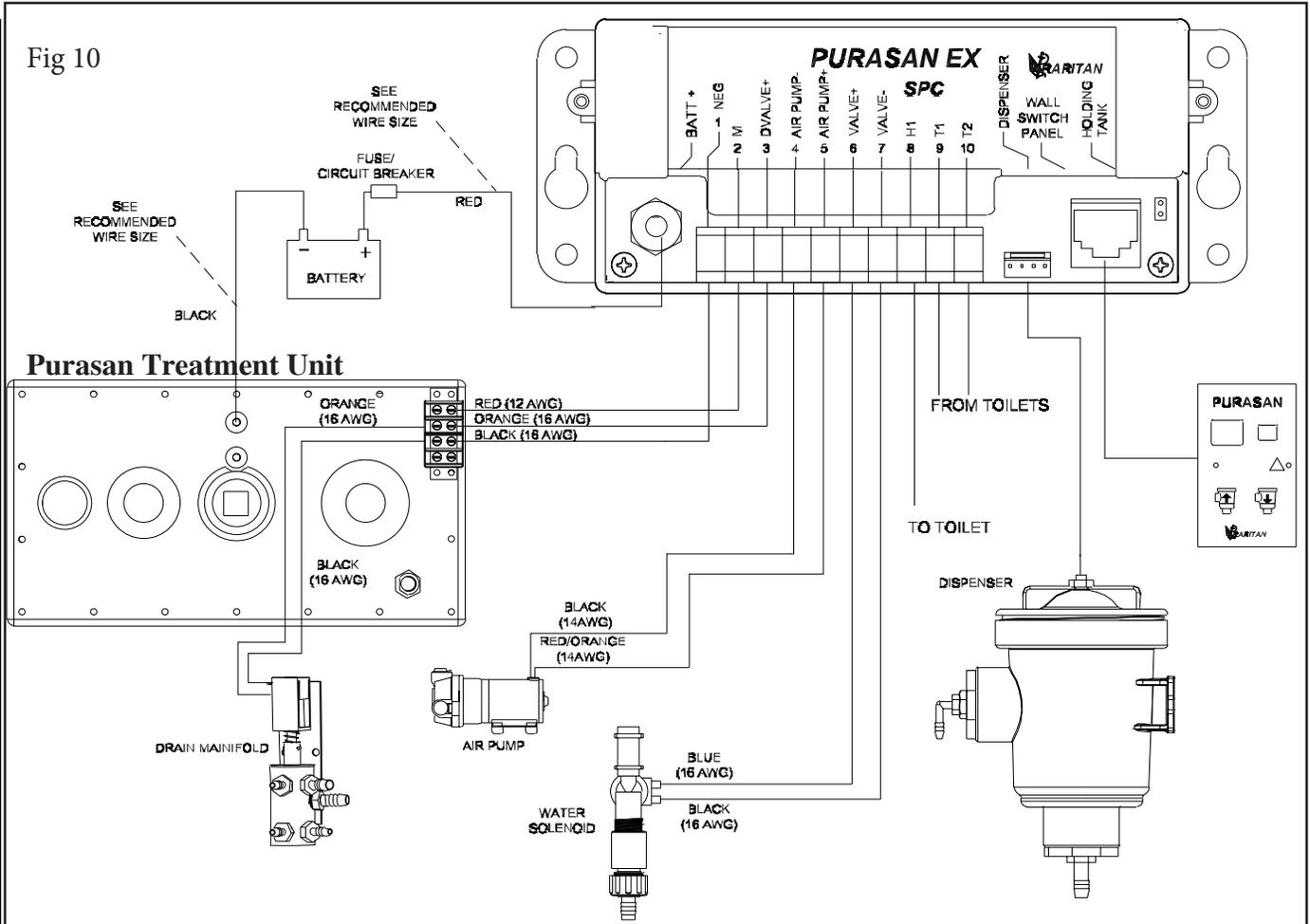


FIG 11

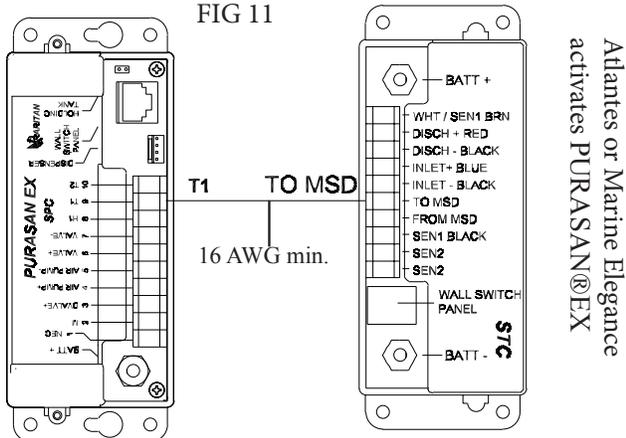


FIG 13 PURASAN®EX activates Electric toilet

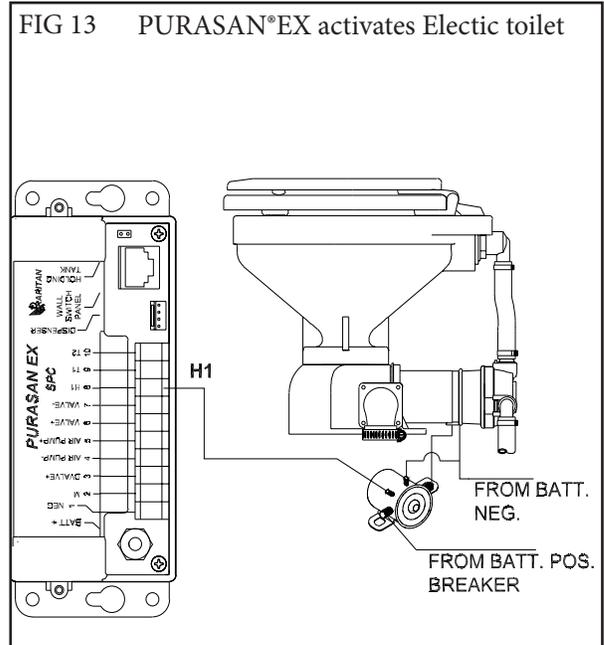
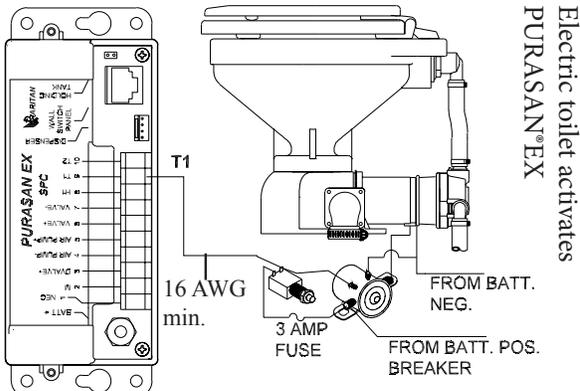


FIG 12



## INITIAL SETTING OF “FILL” and “EMPTY”

Must be completed during installation to be sure water reaches level mark on dispenser.

1. Dispenser must not contain tablets during initial set-up. Unplug sensor cable.
2. With power on, press “fill “ and count seconds until water reaches to water level mark on dispenser. Record seconds as fill
3. Empty water below tablet dispenser bottom and the 3/8” tube while pressing “empty” button and counting seconds. Record seconds as empty

### 4. SET “FILL” time:

- Hold the EMPTY & FILL buttons down together for three seconds. The error LED will give three quick flashes indicating you have entered program mode - release both buttons.
- Press “FILL “ button as many times as fill seconds recorded in step 2. example: 8 seconds press 8 times. Note: maximum is 20 and minimum is 2.
- Push the “START” button to store this value (the unit will flash three times indicating the time has been set and you have left program mode).

### 5. Set “EMPTY” time:

- Hold the EMPTY & FILL buttons down together for three seconds. The error LED will give three quick flashes indicating you have entered program mode - release both buttons.
- Press “EMPTY “ button as many times as empty seconds recorded in step 3. Note: maximum is 20 and minimum is 2.
- Push the “START” button to store this value (the unit will flash three times indicating the time has been set and you have left program mode).

### 6. Test settings:

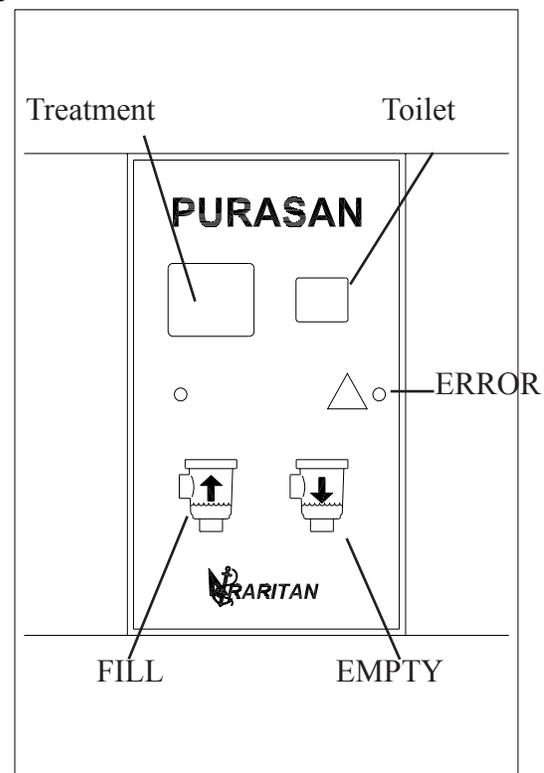
- Press “START” button, water should fill up to the level line . Hold time of water is 20 seconds and not programmable.
- After hold time air pump and drain valve will drain solution to the bottom of tablet dispenser. IF timing is not correct , reprogram using steps 2 to 6.
- Note: Cycle can be stopped by pressing stop button at any time.

- Follow start up procedure. Load tablet and plug sensor cable.

### Setting of Toilet flush time :

- Hold the EMPTY & FILL buttons down together for three seconds. The error LED will give three quick flashes indicating you have entered program mode - release both buttons.
- Press small button (see Fig 14)marked “□” (next to start /stop button) as many times as needed set toilet flush time.(One push = 1 sec’s, two = 2 sec’s, three= 3 sec’s etc.) The LED will flash once indicating a valid key push. Note: Maximum is 12 seconds.
- Push the “START” button to store this value (the unit will flash three times indicating the time has been set and you have left program mode).

Fig 14



# EXPLODED PARTS

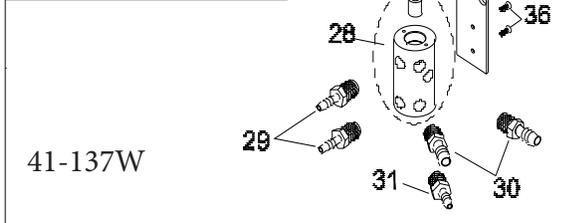
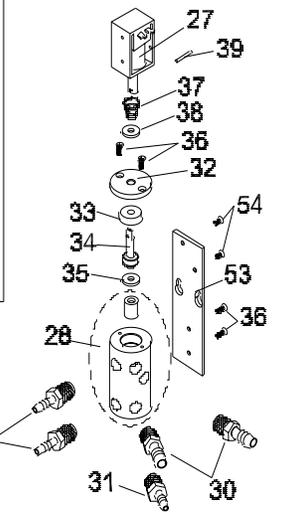
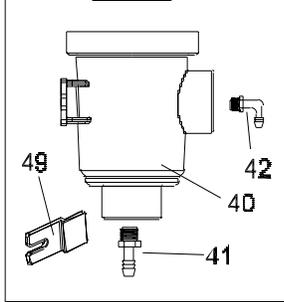
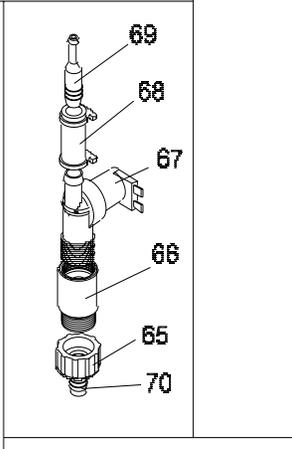
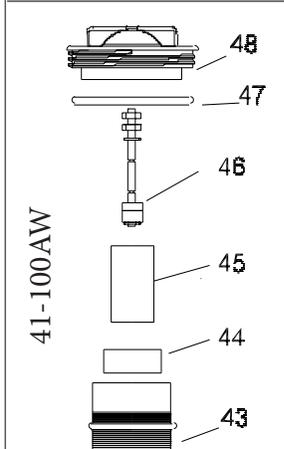
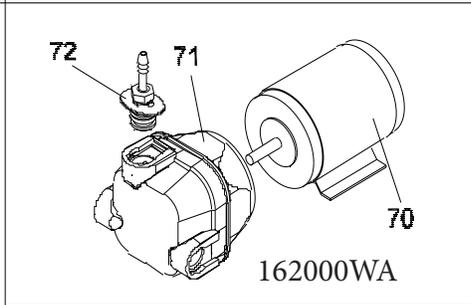
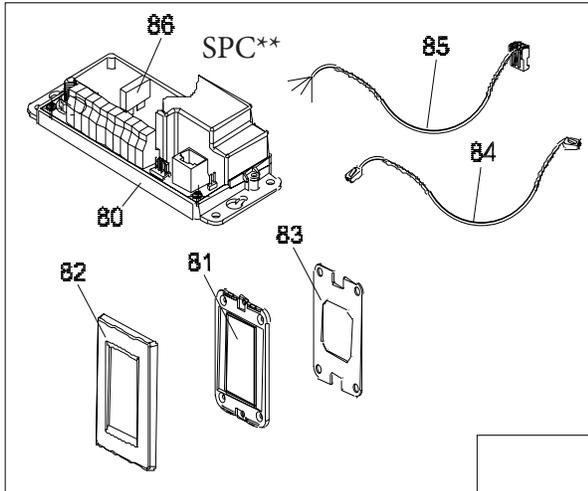
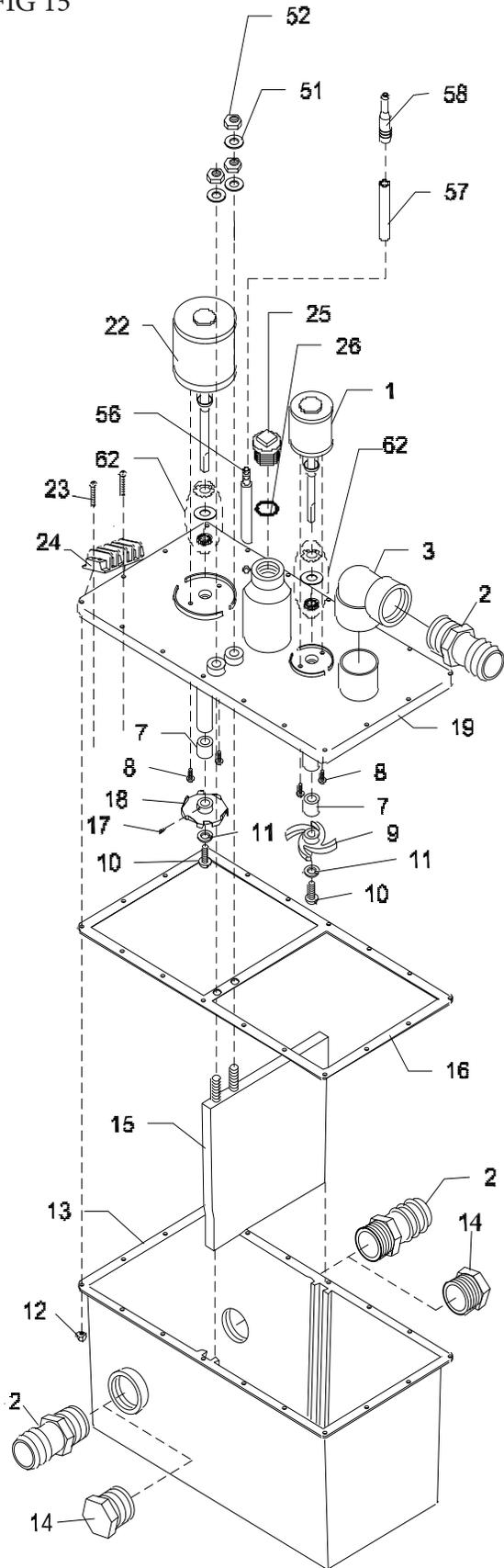


FIG 15

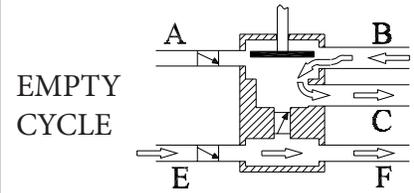
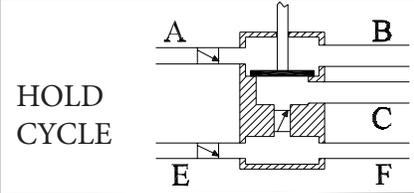
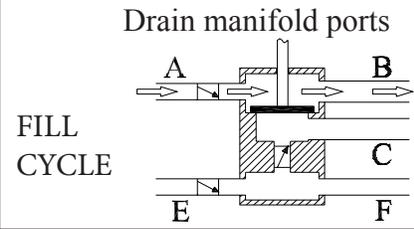
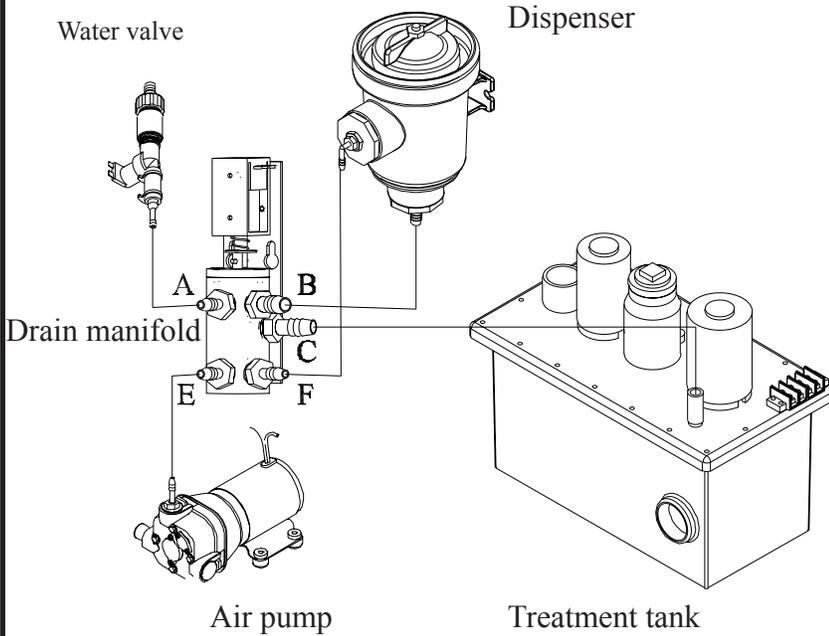


## PURASAN PARTS LIST

<b>Item</b>	<b>Part #</b>	<b>Description</b>
1	32-102AW	Mixer Motor 2 1/2" Dia. 12 V DC
1	33-102AW	Mixer Motor 2 1/2" Dia. 24 VDC
1	34-102AW	Mixer Motor 2 1/2" Dia. 32 V DC
	(1)	includes shaft seals and bushing for mixer motor)
2	31-121	Hose Fitting (2)
	(Not shown)	90° hose fitting (PLA401)
3	31-120	Discharge Elbow 90°
6	31-106	Cover Hold down Bolt, 10-32 x 7/8", S/S (16)
7	31-103	Motor Shaft Bushing (2) (see 62)
8	31-113-3	Motor Hold down Bolt, 10-32x1", S/S (4)
9	31-109	Mixer Impeller
10	31-110-1	Impeller Bolt, 12-24 x 5/8", S/S (2)
11	31-110-2	Impeller Lock Washer, #12, S/S (2)
12	31-114	Cover Hold down Nut, 10-32 (18)
13	31-115PS	Treatment Tank
14	31-122	Intake Plug
15	41-102	Tank Divider
16	31-112	Cover Gasket
17	31-108	Macerator Set Screw
18	31-107	Macerator Impeller
19	41-101W	Treatment Cover (includes 62,56, 25,26)
22	33-101AW	Macerator Motor for 12 V DC unit
22	34-101AW	Macerator Motor for 24, 32 V DC
	(22)	includes shaft seal and bushing for Macerator motor
23	31-113-2	Terminal bolt 10-32 x 1" (2)
24	ETB2	Terminal Block
25	31-104CW	Crossover Plug
26	31-105	O-Ring
51	M31	#14 Brass Flat Washer (4)
52	M30	1/4"-20 Brass Nut (4)
56	31-325A	Adapter Tank Lid
57	41-144	Check Valve with hose
58	41-159	Connector 3/8" x 1/2" insert
62	ESTRK	EST/PST Repair Kit includes following
		31-102 Motor Shaft Seal(2)
		31-102-1 Macerator Seal Washer
		31-102-2 Macerator Retaining Ring
		31-102-3 Mixer Seal Washer
		31-102-4 Mixer Retaining Ring
		31-103 Motor Shaft Bushing(2)
		31-105 O-Ring
		31-106 10-32x 7/8" Screws (4)
		31-112 Cover Gasket
<b>DRAIN MANIFOLD ASSEMBLY(41-137W)</b>		
27	41-145	Pull Solenoid
28	41-137	Drain Manifold assy.(with check valve)
29	41-151	1/4" Barbed nipple with check valve(2)
30	41-141	1/4" NPT x 1/2" barbed adapter
31	41-176	1/2"NPT to 1/4" barbed adapter
32	41-139	Cap, manifold
33	41-138C	1/4" x 3/4" U cup seal
34	41-138	Plunger
35	41-138A	Washer for plunger
36	F202	6-32 x 1/4" Flat head machine screw
<b>TABLET DISPENSER (41-100AW)</b>		
37	LWS	Spring
38	F203	Washer 5/16" x 3/4"
39	1305D	Clevis pin
<b>TABLET DISPENSER (41-100AW)</b>		
40	41-130A	Dispenser Body.
41	41-177	Adapter 1/2"NPT x 1/2" barb
42	PLA3	Adapter 1/4"NPT x 1/4" barb
43	41-172	Tablet holder assembly.
44	41-135A	Purasan Tablets (sold separately)
45	41-179	Float extension pipe
46	41-178W	Float sensor
47	RWS5	"O" Ring
48	41-131M	Dispenser Cap (machined)
49	41-198	Hold down Bracket
85	41-505	Cable for Float sensor
<b>WATER SOLENOID</b>		
65	221356	Adapter nut
66	SF50W	Double Check Valve assembly
67	221351	Water Solenoid 12V
67	221352	Water Solenoid 24V
68	221335	1/2" Hose
69	41-158	1/2" x 1/4" Reducer Connector
70	221355	Inlet Hose Adapter (straight) includes 65
<b>AIR PUMP for tablet dispenser</b>		
70	166024A	Motor
71	162000WA	Intake Pump Assembly,air pump
72	162415A	Plug with barbed fitting
<b>DIAPUMPRK Diaphragm Pump Repair Kit</b>		
<b>CONTROLS</b>		
80	SPC12	Purasan Control 12V
80	SPC24	Purasan Control 24V
81	41-500	Wall Panel circuit board
82	221514	ME: wall panel cover,white
83	221525	ME; wall panel gasket
84	31-618	Cable for SPC wall panel
86	FUSE10	ATO fuse 10A
<b>OTHER (Not shown)</b>		
	41-135A	Purasan Tablets (Refill)
	42-1000A	Treatment Unit Complete 12V
	43-1000A	Treatment Unit Complete 24V
	PSTDCEX	Purasan Dual Control
	41-137W	Drain manifold assembly

\* Specify Voltage (12, 24 and 32 VDC)

Fig15



SYMBOL CHECK VALVE

### TIME SEQUENCE

Note: Fill time and Empty times are programmable, Total treatment time is 120 seconds

Cycle sequence	Motor	Drain Solenoid Air pump	Water Solenoid	H1
Start	ON	OFF	ON	ON (1 second)
Fill cycle	ON	OFF	ON	OFF
Hold cycle (20 seconds)	ON	OFF	OFF	OFF
Empty cycle	ON	ON	OFF	OFF
Treatment cycle	ON	OFF	OFF	OFF

## TROUBLESHOOTING

**WARNING:** After the tablet dispenser has had water added, it contains a very strong halogen solution. Always wear protective gloves and ventilate well to work on tablet dispenser. Before doing any maintenance or repairs, follow WINTERIZING/STORAGE procedures .

**CAUTION:** Tablet Dispenser may be under pressure. Open lid slowly to relieve pressure.

See exploded part view for location of parts

### No water to tablet dispenser

- **Control malfunction**  
Check voltage from control to water solenoid valve. Press fill button and check voltage on the terminal for water solenoid
- **Clogged line, check valve or fitting**  
Check for clog between solenoid and tablet dispenser. Clean or replace clogged part. Check valve is located inside the fitting 41-151 (#29).
- **Empty time not programmed correctly**  
If drain manifold and air pump is energized too short to fill the dispenser, re programming is needed. See page 11.

### Nothing happens when button is pushed

- **Fuses blown**  
Check fuse on circuit board
- **Water level is too high**  
If water level is high , start and fill button are disabled. Empty button will continue to function.
- **Cable connection:**  
Check if cable for switch panel is corroded or loose.

### Overflow or water level too high in dispenser

- **Clogged discharge fitting in tablet dispenser**  
Press empty button to run air pump and clear any clog.
- **Clogged Check valve (treatment tank adapter)**  
Clean or replace check valve (41-144) located inside the tube connected to tank adapter (#57)
- **Water fill time not programmed correctly**  
If water solenoid is energized too long to overfill the dispenser, re programming is needed. See page 11.
- **Air pump malfunction:**  
Press empty button and check voltage on the air pump terminals. Check the pressure of air pump (should be at least 5 PSI). Check valve for air pump is located inside the fitting 41-151(#29).
- **Float sensor malfunction:**  
If error LED indicates water level high and actual water level is not high , check float sensor for proper operation.

### Error LED

Error LED	Start button	Cause
ON	Does not work	Motor fuse blown
Flashing	Works	Tablets need refill
	Does not work	Dispenser overfilled with water

**NOTE:**

**Discharge of raw, untreated sewage is prohibited in all U.S. waters inside the three mile limit except in the Gulf of Mexico where the limit is nine miles. "Y" valves, if installed, must direct toilet discharge to a U.S.C.G. approved treatment system or holding tank and must be secured in that position while inside the three-mile limit.**

The EPA standards state that in freshwater lakes, freshwater reservoirs or other freshwater impoundments whose inlets or outlets are such to prevent the ingress or egress by vessel traffic subject to this regulation, or in rivers not capable of navigation by interstate vessel traffic subject to this regulation, marine sanitation devices certified by the U.S. Coast Guard installed on all vessels shall be designed and operated to prevent the overboard discharge of sewage, treated or untreated, or any waste derived from sewage. The EPA standards further state that this shall not be construed to prohibit the carriage of Coast Guard-certified flow-through treatment devices which have been secured so as to prevent such discharges. They also state that waters where a Coast Guard-certified marine sanitation device permitting discharge is allowed including coastal water estuaries, the Great Lakes and interconnected waterways, freshwater lakes and impoundments accessible through locks, and other flowing waters that are navigable interstate by vessels subject to this regulation (40 CFR 140.3)

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## LIMITED WARRANTY

Raritan Engineering Company warrants to the original purchaser that this product is free of defects in materials or workmanship for a period of one year from the product's date of purchase. Should this product prove defective by reason of improper workmanship and/or materials within the warranty period, Raritan shall, at its sole option, repair or replace the product.

1. TO OBTAIN WARRANTY SERVICE, Consumer must deliver the product prepaid, together with a detailed description of the problem, to Raritan at 530 Orange St., Millville, N.J. 08332, or 3101 SW 2nd Ave. Ft. Lauderdale, FL 33315. When requesting warranty service, purchaser must present a sales slip or other document which establishes proof of purchase. THE RETURN OF THE OWNER REGISTRATION CARD IS NOT A CONDITION PRECEDENT OF WARRANTY COVERAGE. However, please complete and return the owner Registration Card so that Raritan can contact you should a question of safety arise which could affect you.
2. THIS WARRANTY DOES NOT COVER defects caused by modifications, alterations, repairs or service of this product by anyone other than Raritan; defects in materials or workmanship supplied by others in the process of installation of this product; defects caused by installation of this product other than in accordance with the manufacturer's recommended installation instructions or standard industry procedures; physical abuse to, or misuse of, this product. This warranty also does not cover damages to equipment caused by fire, flood, external water, excessive corrosion or Act of God.
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