The PURASAN® EX is a U. S. Coast Guard Certified Type I Marine Sanitation Device for use on un-inspected 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.
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.

Independent 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.

FIG 2

SWITCH PANEL

Error LED:
- Flashing: Check tablet cartridge
- Solid: Check motor fuse

Empty:
- Activates Drain Solenoid and air pump momentarily

Treatment LED
- Activates Water valve and fills tablet dispenser momentarily

FIG 3

TABLET DISPENSER

Start/Stop

Overfill sensor

Low Tablet sensor

Tablet Holder

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

Recommended Wire and Fuse/Circuit Breaker Size

<table>
<thead>
<tr>
<th>Units Voltage</th>
<th>Circuit Breaker/ fuse size (amps)</th>
<th>Amp. draw @ nominal voltage</th>
<th>10 feet</th>
<th>15 feet</th>
<th>20 feet</th>
<th>25 feet</th>
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<td>20</td>
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<td>12 AWG</td>
<td>12 AWG</td>
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<td>8 AWG</td>
<td>6 AWG</td>
<td></td>
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<tr>
<td>24 VDC</td>
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<td>8</td>
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<td>14 AWG</td>
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<td>12 AWG</td>
<td>12 AWG</td>
<td>10 AWG</td>
<td>10 AWG</td>
</tr>
</tbody>
</table>

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 mm²

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<th>AWG</th>
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<th>14</th>
<th>12</th>
<th>10</th>
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<th>6</th>
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<tr>
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Feet to Meters

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<th>50</th>
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<tr>
<td>Meter</td>
<td>3.1</td>
<td>4.6</td>
<td>6.1</td>
<td>7.6</td>
<td>9.2</td>
<td>12.2</td>
<td>15.2</td>
</tr>
</tbody>
</table>

† SWITCH PANEL DIMENSIONS

3 1/4” (8.3 cm)

4 3/4” (12 cm)

TREATMENT UNIT DIMENSIONS

Height: 13 1/2” (34.3 cm)

Width: 16” (40.6 cm)

Depth: 8 3/4” (22.3 cm)

TABLET DISPENSER DIMENSIONS

7 1/4” (18.4 cm)

9 ¾” (24.8 cm)

6” (15.2 cm)

Diameter
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
- Air Pump
- Plug with barbed fitting for air pump
- 18’ 1/4” ID tubing
- 12’ 3/8” ID tubing
- Clamps
- 16’ of cable to connect Switch Panel to Control Box
- Switch Panel
- Switch Panel Gasket
- Control Box (SPC)
- Tablet Dispenser
- Drain Manifold
- Water valve
- 6’ black, red and orange wire to connect tank to Drain Manifold
- Fittings for Treatment Tank
- 3’ black and orange wire to connect tank 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 page 2).

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

Purasan Treatment Unit

FIG 10
Fig 10

Electric toilet activates
PURASAN® EX

FIG 11
FIG 12
Atlantes or Marine Elegance activates PURASAN® EX

H1

FIG 13
PURASAN® EX activates Electric toilet

FROM BATT. NEG.

FROM BATT. POS. BREAKER
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](image-url)
# PURASAN PARTS LIST

<table>
<thead>
<tr>
<th>Item</th>
<th>Part #</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>32-102AW</td>
<td>Mixer Motor 2 1/2” Dia. 12 V DC</td>
</tr>
<tr>
<td>1</td>
<td>33-102AW</td>
<td>Mixer Motor 2 1/2” Dia. 24 VDC</td>
</tr>
<tr>
<td>1</td>
<td>34-102AW</td>
<td>Mixer Motor 2 1/2” Dia. 32 V DC</td>
</tr>
<tr>
<td>2</td>
<td>31-121</td>
<td>Hose Fitting (2)</td>
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<td>3</td>
<td>31-120</td>
<td>Discharge Elbow 90°</td>
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<td>6</td>
<td>31-106</td>
<td>Cover Hold down Bolt, 10-32 x 7/8”, S/S (16)</td>
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<td>7</td>
<td>31-103</td>
<td>Motor Shaft Bushing (2) (see 62)</td>
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<td>8</td>
<td>31-113-3</td>
<td>Motor Hold down Bolt, 10-32x1”, S/S (4)</td>
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<td>9</td>
<td>31-109</td>
<td>Impeller Motor Shaft Bushing (2)</td>
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<td>31-110-1</td>
<td>Impeller Bolt, 12-24 x 5/8”, S/S (2)</td>
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<tr>
<td>11</td>
<td>31-110-2</td>
<td>Impeller Lock Washer, #12, S/S (2)</td>
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<td>12</td>
<td>31-114</td>
<td>Cover Hold down Nut, 10-32 (18)</td>
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<tr>
<td>13</td>
<td>31-115PS</td>
<td>Treatment Tank</td>
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<tr>
<td>14</td>
<td>31-122</td>
<td>Intake Plug</td>
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<td>15</td>
<td>41-102</td>
<td>Tank Divider</td>
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<td>16</td>
<td>31-111</td>
<td>Cover Gasket</td>
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<td>17</td>
<td>31-108</td>
<td>Macerator Set Screw</td>
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<td>18</td>
<td>31-107</td>
<td>Macerator Impeller</td>
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<td>41-101W</td>
<td>Treatment Cover (includes 62,56, 25,26)</td>
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<td>Macerator Motor for 12 V DC unit</td>
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<td>Terminal Block</td>
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<td>31-104CW</td>
<td>Crossover Plug</td>
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<td>31-105</td>
<td>O-Ring</td>
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<td>51</td>
<td>M31</td>
<td>#14 Brass Flat Washer (4)</td>
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<td>52</td>
<td>M30</td>
<td>1/4”-20 Brass Nut (4)</td>
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<td>31-325A</td>
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<td>57</td>
<td>41-144</td>
<td>Check Valve with hose</td>
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<td>58</td>
<td>41-159</td>
<td>Connector 3/8” x 1/2” insert</td>
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<td>41-145</td>
<td>Pull Solenoid</td>
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<td>41-137</td>
<td>Drain Manifold assy.(with check valve)</td>
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<td>41-151</td>
<td>1/4” Barbed nipple with check valve(2)</td>
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<td>41-141</td>
<td>1/4” NPT x 1/2” barbed adapter</td>
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<td>41-176</td>
<td>1/2”NPT to 1/4” barbed adapter</td>
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<td>41-139</td>
<td>Cap, manifold</td>
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<td>41-138C</td>
<td>1/4” x 3/4” U cup seal</td>
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<td>34</td>
<td>41-138</td>
<td>Plunger</td>
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<tr>
<td>35</td>
<td>41-138A</td>
<td>Washer for plunger</td>
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<td>36</td>
<td>F202</td>
<td>6-32 x 1/4” Flat head machine screw</td>
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### TABLET DISPENSER (41-100AW)

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<tr>
<td>37</td>
<td>LWS</td>
<td>Spring</td>
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<tr>
<td>38</td>
<td>F203</td>
<td>Washer 5/16” x 3/4”</td>
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<td>39</td>
<td>1305D</td>
<td>Clevis pin</td>
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### WATER SOLENOID

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<tr>
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<td>221351</td>
<td>Water Solenoid 12V</td>
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<td>67</td>
<td>221352</td>
<td>Water Solenoid 24V</td>
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<td>68</td>
<td>221335</td>
<td>1/2” Hose</td>
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<td>69</td>
<td>41-158</td>
<td>1/2” x 1/4” Reducer Connector</td>
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<td>221355</td>
<td>Cable for Float sensor</td>
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### AIR PUMP for tablet dispenser

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<td>166024A</td>
<td>Motor</td>
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<td>162000WA</td>
<td>Intake Pump Assembly, air pump</td>
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<td>162415A</td>
<td>Plug with barbed fitting</td>
</tr>
</tbody>
</table>

### DIPUMPKRK Diaphragm Pump Repair Kit

### CONTROLS

<table>
<thead>
<tr>
<th>Item</th>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>SPC12</td>
<td>Purasan Control 12V</td>
</tr>
<tr>
<td>80</td>
<td>SPC24</td>
<td>Purasan Control 24V</td>
</tr>
<tr>
<td>81</td>
<td>41-500</td>
<td>Wall Panel circuit board</td>
</tr>
<tr>
<td>82</td>
<td>221514</td>
<td>ME: wall panel cover, white</td>
</tr>
<tr>
<td>83</td>
<td>221525</td>
<td>ME: wall panel gasket</td>
</tr>
<tr>
<td>84</td>
<td>31-618</td>
<td>Cable for SPC wall panel</td>
</tr>
<tr>
<td>86</td>
<td>FUSE10</td>
<td>ATO fuse 10A</td>
</tr>
</tbody>
</table>

### OTHER (Not shown)

<table>
<thead>
<tr>
<th>Item</th>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td>135A</td>
<td>Purasan Tablets (Refill)</td>
</tr>
<tr>
<td>42</td>
<td>1000A</td>
<td>Treatment Unit Complete 12V</td>
</tr>
<tr>
<td>43</td>
<td>1000A</td>
<td>Treatment Unit Complete 24V</td>
</tr>
<tr>
<td>43</td>
<td>PSTDCEX</td>
<td>Purasan Dual Control</td>
</tr>
<tr>
<td>41</td>
<td>137W</td>
<td>Drain manifold assembly</td>
</tr>
</tbody>
</table>

* Specify Voltage (12, 24 and 32 VDC)
**Cycle sequence**

<table>
<thead>
<tr>
<th>Cycle sequence</th>
<th>Motor</th>
<th>Drain Solenoid</th>
<th>Water Solenoid</th>
<th>H1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start</td>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
<td>ON (1 second)</td>
</tr>
<tr>
<td>Fill cycle</td>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>Hold cycle (20 seconds)</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Empty cycle</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Treatment cycle</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
</tbody>
</table>

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

**TIME SEQUENCE**

**Fig15**

- Water valve
- Dispenser
- Drain manifold
- Air pump
- Treatment tank

**Drain manifold ports**

- **FILL CYCLE**
  - A - B - C - E - F
- **HOLD CYCLE**
  - A - B - C - E - F
- **EMPTY CYCLE**
  - A - B - C - E - F

**SYMBOL** CHECK VALVE

**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, reprogramming 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, reprogramming 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

<table>
<thead>
<tr>
<th>Error LED</th>
<th>Start button</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>Does not work</td>
<td>Motor fuse blown</td>
</tr>
<tr>
<td>flashing</td>
<td>Works</td>
<td>Tablets need refill</td>
</tr>
<tr>
<td>flashing</td>
<td>Does not work</td>
<td>Dispenser overfilled with water</td>
</tr>
</tbody>
</table>
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, 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)