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1.1 Important Information

⚠️ ATTENTION:

The vacuum pump is energized by vacuum level and starts automatically!
Shut off the electrical power to the system before servicing, prevent unintentional restart!
Works on electrical and electronical components must be carried out by qualified personnel only.

The use of personal protective equipment is recommended when in contact with wastewater.

These rules apply to all servicing and repair works to vacuum sanitation systems on principle.
2.1 Maintenance Schedule

<table>
<thead>
<tr>
<th>Maintenance</th>
<th>Recomm. date of Service</th>
<th>Parts Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>all Systems</td>
<td>Routine Maintenance monthly</td>
<td>SeaLand Bowl and Seal Cleaner</td>
</tr>
<tr>
<td>only VacuFlush, see also exploded views on following pages</td>
<td>Major System Maintenance every 3 years</td>
<td>Duckbill Valve Kit Part no.: 86000 385 31 00 76 / 9</td>
</tr>
<tr>
<td>Toilet flush ball seal</td>
<td></td>
<td>Toilet flush ball seal flush ball (if required)</td>
</tr>
<tr>
<td>Replace duckbill valve in vacuum pump</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Replace Toilet flush ball seal and Toilet flush ball (if required)</td>
<td>every 3 years</td>
<td></td>
</tr>
</tbody>
</table>

Maintenance intervals and replacement of normal parts vary widely depending on numerous factors such as frequency of system use, quality of flushing water, etc. The following chart is intended strictly as a general guide in keeping the sanitation system 100% ready for any conditions of use.

2.1 Maintenance

**ATTENTION:**

Pump starts automatically!  
Turn off electrical power!

1. Shut off water supply and power to vacuum pump.

2. Apply cleanser onto a cleaning brush, open the flush ball (fig. B) by pressing on flush pedal, and scrub under the seal. Make sure to push brush bristles between bottom of seal and top of flush ball surface to scrub all parts of seal that come into contact with flush ball.

3. Close ball and wait 2 – 3 minutes.

4. Open flush ball. Use brush and water to rinse away cleanser and loosened deposits.

5. After cleaning, turn on water and electrical power to the toilet system.
### 3.1 Troubleshooting VT 2500

**REMARK:**
Chapter "3.1" describes VT 2500 related problems, whereas Chapter "3.2" describes problems related to SeaLand Vacuum Sanitation Systems.

<table>
<thead>
<tr>
<th>Failure</th>
<th>Possible cause</th>
<th>Remedies</th>
</tr>
</thead>
</table>
| **1– 1.01** Pump starts, without toilet having been used.  
(disturbing noise)  
Function available. | System sealing damaged. | In general the following three areas are to be inspected for damaged sealing:  
Toilet (A)  
Especially check the seal placed on top of the flush ball.  
Connection pipes (B)  
Base station (C) with cassette (D) (removable tank). |
| **1– 1.02** Pump starts, without toilet having been used.  
(disturbing noise)  
Function available. | Flush ball seal | Check whether water stays in the toilet bowl.  
**YES:**  
see item 1–1.03  
**NO:**  
Keep flush pedal pressed down and clean the seal.  
**WARNING!**  
**Danger of crushing,** if the pedal is not kept in position and is snapping back by spring tension.  
(If required, disassemble upper part of the toilet to clean or replace the seal). |
| **1– 1.03** Pump starts, without toilet having been used.  
(disturbing noise)  
Function available. | Leakage of pipes and connection points. | Check all connection lines between toilet and base station. Are connection lines fit properly?  
**YES:**  
see item 1–1.04  
**NO:**  
Push pipes fully into fitting! (B)  
All pipes and elbows must be installed free of unintentional stress. O–ring seals depressed on one side may leak.  
O–ring seals must be free from damage and should be lubricated with vacuum grease. Apply all straight pipes exceeding 0.75 m with fixations, if not provided. |
3.1 Troubleshooting VT 2500

1– 1.01

1– 1.02

1– 1.03

Apply all straight pipes exceeding 0.75 m with fixations
<table>
<thead>
<tr>
<th>Failure</th>
<th>Possible cause</th>
<th>Remedies</th>
</tr>
</thead>
</table>
| **1– 1.04** Pump starts, without toilet having been used. (disturbing noise) Function available. | Cassette in correct position?                                                 | **YES:** see item 1–1.05  
**NO:** Remove cassette and insert again. Observe the display panel to see whether the system will restart operation and the vacuum pump will stop after approx. 1 minute. |
| **1– 1.05** Pump starts, without toilet having been used. (disturbing noise) Function available. | Does the seal at the connection pipe for waste transfer to the base station still exist, is it undamaged? | **YES:** Clean seal and apply grease.  
**NO:** Insert new seal. |
| **1– 1.06** Pump starts automatically, although the system is leakproof. | Have there been high temperature changes while moving the vehicle? (e.g. in winter coming from outside into a heated hall) | For reasons of physics temperature changes also cause changing in pressure, which may cause the pump to start. |
| **1– 2.01** Pump noise appears too loud. | Did the vehicle manufacturer provide noise insulation or protection? | **Recommendation:**  
Cover the area round the base station *Molan Stabitec*.  
Proper noise protection can reduce noise to below 50 dB A. |
| **1– 3.01** Pedal difficult to push one time. | Have there been high differences in altitude during a trip? | Push the toilet flush from time to time when descending down-valley for significantly more than 1,000 m in altitude. This will help reach vacuum compensation in the system. |
| **1– 3.02** Pedal always difficult to push. | Pedal's fastening bolts too tight.  
Flush ball sluggish? | Check pedal's fastening bolts. Untighten bolts and tighten again until pedal is sufficiently fixed without clamping. Clean pedal seat and lubricate with Vaseline \(^1\).  
Check flush ball. Clean flush ball and seals. Then apply silicon spray. *(Check material's compatibility)* |
**1- 1.04**

Green  ready

Red  cassette full

Yellow  pump is running

**1- 1.05**

a) push back upper part of discharge port and hold tight

b) location of seal rings

**1- 3.02**

location of pedal fastening bolts

---

1) Never lubricate with grease on mineral base.

**Recommendation:**
Dometic Grease, tube 50 g
Part-No. 242 600 276
<table>
<thead>
<tr>
<th>Failure</th>
<th>Possible cause</th>
<th>Remedies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1- 4.01</strong> Cassette can only be inserted with increased level of force.</td>
<td>Connecting pipe for waste transfer at the base station soiled?</td>
<td>Clean the connecting pipe and lubricate with grease. Do the seals of the connecting pipe sit correctly? Mount the seals correctly, if necessary.</td>
</tr>
<tr>
<td><strong>1- 5.01</strong> Cassette overfills without display panel indicating &quot;cassette full&quot;.</td>
<td>Too much toilet paper may be clogging the tank full float.</td>
<td>Clean cassette inside and flush several times with clear water. Make sure that inside the cassette a (clacking) noise similar to loose parts can be heard.</td>
</tr>
<tr>
<td><strong>1- 6.01</strong> Pump will not start.</td>
<td>Cassette full. (Does red LED illuminate?)</td>
<td>Empty cassette and insert again.</td>
</tr>
<tr>
<td><strong>1- 6.02</strong> Pump will not start.</td>
<td>Tripping of thermal motor protection. This may happen in case of excessive (uninterrupted) actuation of toilet (e. g. by playing children).</td>
<td>Shut off the power supply. Pull off the cassette from the base station, insert again after approx. 1 minute. Via the switch &quot;cassette recognition&quot; the power circuit is opened and closed again (reset).</td>
</tr>
<tr>
<td><strong>1- 6.03</strong> Pump will not start.</td>
<td>Minimum of 11V on-board voltage available?</td>
<td>If not, correct the on-board voltage. &gt;&gt; Please find further information in the vehicle's manual!</td>
</tr>
<tr>
<td></td>
<td>(Measure voltage always under load).</td>
<td>Works on electrical components and equipment must be carried out by qualified personnel only.</td>
</tr>
<tr>
<td><strong>1- 6.04</strong> Pump will not start.</td>
<td>Power supply interrupted.</td>
<td>Check the board voltage. Check wiring. &gt;&gt; Please find further information in the vehicle's manual!</td>
</tr>
<tr>
<td><strong>1- 6.05</strong> Pump will not start.</td>
<td>Cassette not in correct position. The switch for cassette recognition is not actuated.</td>
<td>Remove the cassette and insert again correctly. Pay attention to possible obstructions. If mounted in storage rooms: Does shifted freight cause incorrect location of cassette?</td>
</tr>
</tbody>
</table>
1- 4.01
a) push back upper part of discharge port and hold tight
b) location of seal rings

1- 5.01

1- 6.01
Red Cassette full or removed

Dometic
<table>
<thead>
<tr>
<th>Failure</th>
<th>Possible cause</th>
<th>Remedies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1– 7.01 Pump is constantly running.</td>
<td>Leakage in components and/or connection pipes.</td>
<td>For leakage search, please follow the instructions under item 1–1.0x.</td>
</tr>
<tr>
<td>1– 8.01 Malodours in the vehicle. <em>Due to the permanent vacuum in an intact system malodours are generally not expected.</em></td>
<td>Activated carbon filter available?</td>
<td>Is filter (A) correctly inserted, or is replacement needed? Filter replacement varies depending on the frequency of toilet use, however, it should be replaced after a period of 3 years at the latest.</td>
</tr>
<tr>
<td>1– 8.02 Malodours in the vehicle.</td>
<td>Vent pipe clogged.</td>
<td>Keep the vent pipe (C) of the activated carbon filter unclogged. Should the pipe be defective (bent or similar) or clogged, replace it.</td>
</tr>
<tr>
<td>1– 9.01 Water leaking from toilet.</td>
<td>Water valve damaged.</td>
<td>Has omitting dewatering during the frost period caused expanding water to damage the water valve?</td>
</tr>
<tr>
<td>1– 9.02 Water leaking from toilet.</td>
<td>Vehicle-related problem with water supply line.</td>
<td>Make sure that the hose clamps and other fittings are in correct position and fixed properly. If necessary, replace connections or tighten loose connections.</td>
</tr>
<tr>
<td>1– 10.01 Water does not stay in the bowl. <em>The seal (flush ball) should always be covered by a small amount of water.</em></td>
<td>Flush ball not correctly shut.</td>
<td>Check whether the pedal is in position &quot;0&quot; and the flush ball is completely closed.</td>
</tr>
<tr>
<td>1– 10.02 Water does not stay in the bowl.</td>
<td>Pedal not in position &quot;0&quot; and flush ball not shut.</td>
<td>Is the spring cartridge defective? If damaged, replace spring cartridge.</td>
</tr>
<tr>
<td>1– 10.03 Water does not stay in the bowl.</td>
<td>Flush ball faulty.</td>
<td>Check the shaft between spring cartridge and flush ball for damage. If damaged, replace shaft.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If seal or flush ball are faulty (scratched), replace both components.</td>
</tr>
<tr>
<td>Failure</td>
<td>Possible cause</td>
<td>Remedies</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| 1– 11.01 Flush ball does not open. | Malfunction of transmission from pedal to flush ball.                          | a) Replace shaft between spring cartridge and flush ball.  
|                                 |                                                                               | b) Check spring cartridge for correct position to the pedal, check for damage. Disassemble spring cartridge and assemble correctly. Replace, if needed. |
| 1– 12.01 Toilet flush insufficient. (Is the toilet bowl flushed all-round with fresh water?) | Vehicle related water supply amiss.  
*The incoming water supply must provide a minimum flow of 7 litres/minute.* | a) Check the vehicle–related supply line for clogging or damage.  
|                                 |                                                                               | b) Check the vehicle–related water pump for sufficient capacity.  
|                                 |                                                                               | c) Replace the toilet.                                                                                                                                 |
| 1– 13.01 Toilet does not flush. | No vacuum                                                                     | Check the entire system for clogging.  
|                                 |                                                                               | Check whether the funnel beneath the flush ball is obstructed.  
|                                 |                                                                               | Remove the clogging.  
|                                 |                                                                               | Check pipes and hose connections for further obstructions and remove them.  
|                                 |                                                                               | If the base station or the cassette is affected, remove the obstruction in that range. |
| 1– 13.02 Toilet does not flush. | Cassette full. (Does red LED illuminate?)                                    | Empty cassette and insert again.  
|                                 |                                                                               |
3.1.1 VT 2500 Wiring diagram

1. = sensor (Reed contact)
2. = switch cassette
3. = vacuum switch
4. = motor to vacuum pump

Fuse 7.5 Amp. (slow) in vehicle

12 Volt DC

control panel (display)

12 Volt DC

VT2500 with micro switch

external water pump
## 3.2 Troubleshooting VacuFlush and HTS–EC

### Water does not stay in the bowl.

<table>
<thead>
<tr>
<th>Failure</th>
<th>Possible cause</th>
<th>Remedies</th>
</tr>
</thead>
<tbody>
<tr>
<td>2– 1.01</td>
<td>a. Loose clamp ring.</td>
<td>a. Tighten clamp ring adjusting screw.</td>
</tr>
<tr>
<td></td>
<td>b. Improper seal around flush ball due to dirt or debris on underside of ball seal.</td>
<td>b. Inspect flush ball and under side of seal for (foreign objects), clean as needed.</td>
</tr>
<tr>
<td></td>
<td>c. Worn or damaged seal.</td>
<td>c. Replace seal.</td>
</tr>
<tr>
<td></td>
<td>d. Worn or damaged flush ball.</td>
<td>d. Replace flush ball.</td>
</tr>
</tbody>
</table>

### Flush ball does not close completely.

<table>
<thead>
<tr>
<th>Failure</th>
<th>Possible cause</th>
<th>Remedies</th>
</tr>
</thead>
<tbody>
<tr>
<td>2– 2.01</td>
<td>a. Clamp ring is overtightened, causing too much tension on seal and flush ball.</td>
<td>a. Loosen clamp ring.</td>
</tr>
<tr>
<td></td>
<td>b. Weak or defective flush pedal return spring.</td>
<td>b. Check spring tension by letting up on flush pedal suddenly. If pedal does not snap back, replace spring cartridge assembly.</td>
</tr>
</tbody>
</table>

### Water does not shut off in toilet (toilet overflows).

<table>
<thead>
<tr>
<th>Failure</th>
<th>Possible cause</th>
<th>Remedies</th>
</tr>
</thead>
<tbody>
<tr>
<td>2– 3.01</td>
<td>a. Dirt lodged in water valve seat.</td>
<td>a. Disassemble and clean water valve.</td>
</tr>
<tr>
<td></td>
<td>b. Flush pedal cam strap is bent down, holding water valve open.</td>
<td>b. Bend front of cam strap up about 2 mm. (model 1606 only)</td>
</tr>
<tr>
<td></td>
<td>c. Worn or defective water valve.</td>
<td>c. Replace water valve.</td>
</tr>
<tr>
<td></td>
<td>d. Worn or defective flush pedal return spring.</td>
<td>d. Replace spring cartridge.</td>
</tr>
</tbody>
</table>

### Water does not enter toilet bowl properly.

<table>
<thead>
<tr>
<th>Failure</th>
<th>Possible cause</th>
<th>Remedies</th>
</tr>
</thead>
<tbody>
<tr>
<td>2– 4.01</td>
<td>a. Low water pressure.</td>
<td>a. Check incoming water pressure</td>
</tr>
</tbody>
</table>

### Water leaking from water valve.

<table>
<thead>
<tr>
<th>Failure</th>
<th>Possible cause</th>
<th>Remedies</th>
</tr>
</thead>
<tbody>
<tr>
<td>2– 5.01</td>
<td>a. Loose hose connection.</td>
<td>a. Tighten hose clamp.</td>
</tr>
<tr>
<td></td>
<td>b. Worn or defective water valve.</td>
<td>b. Replace water valve.</td>
</tr>
<tr>
<td></td>
<td>c. Water line connection not seated properly.</td>
<td>c. Remove water line and assemble correctly.</td>
</tr>
</tbody>
</table>

### Water leaking from rear of toilet bowl.

<table>
<thead>
<tr>
<th>Failure</th>
<th>Possible cause</th>
<th>Remedies</th>
</tr>
</thead>
<tbody>
<tr>
<td>2– 6.01</td>
<td>a. Loose hose connection.</td>
<td>a. Tighten hose clamp.</td>
</tr>
<tr>
<td></td>
<td>b. Loose vacuum breaker.</td>
<td>b. Check vacuum breaker/bowl connection. If loose, push breaker into bowl.</td>
</tr>
<tr>
<td></td>
<td>c. Defective vacuum breaker</td>
<td>c. Replace vacuum breaker.</td>
</tr>
<tr>
<td></td>
<td>d. Cracked or defective toilet bowl.</td>
<td>d. Replace toilet bowl.</td>
</tr>
</tbody>
</table>
3.2 Troubleshooting VacuFlush and HTS–EC

Sealand

Model 1606 / Base Assembly

Model 1609 + 1648 / Base Assembly

Rear View, Vacuum Toilet
<table>
<thead>
<tr>
<th>Failure</th>
<th>Possible cause</th>
<th>Remedies</th>
</tr>
</thead>
</table>
| 2– 7.01 Vacuum pump running too much between flushes.  
(See Vacuum Tester information, chapter 4) | a. Flush ball leaks.  
b. Vacuum line leaks.  
c. Duckbill valves in pump not sealing. (This problem occurs gradually. The pump takes longer periods of time to shut off between flushes.)  
d. Pump bellows worn or damaged. | a. Fill water into the bowl. If water is sucked from bowl, see problems (2–1.01) and (2–2.01).  
b. Check all piping connections between toilet and vacuum tank.  
c. Disassemble pump. Inspect duckbill valves. Replace damaged or worn valves. If worn replace all.  
d. Inspect bellows in pump for small hole or rip. Replace if necessary. |
| 2– 8.01 Toilet will not flush.  
(No vacuum) | a. Vacuum pump will not run.  
b. Plugged vacuum line between toilet and vacuum breaker.  
c. Duckbill valves or vacuum pump installed backwards.  
d. Vacuum pump inlet or outlet lines plugged.  
e. Plugged vacuum tank or vacuum generator. | a. See problem 2–9.01.  
b. Disconnect line and clear plug.  
c. Make certain pump and duckbill valves are installed correctly. Replace valves if stuck open.  
d. Disassemble and clean.  
e. Unplug vacuum tank or vacuum generator. |
| 2– 9.01 Vacuum pump will not run. | a. No electrical power.  
b. "Tank full" float switch is stuck  
c. Loose or broken electrical wiring.  
d. Faulty vacuum switch.  
e. Faulty motor. | a. Check input power and circuit breaker.  
b. Remove switch and clean or replace.  
c. Tighten loose connections.  
d. Replace vacuum switch.  
e. Replace motor. |
| 2– 10.01 Vacuum pump is constantly running. | a. Excessive vacuum leak.  
b. Faulty vacuum switch.  
c. Duckbill valves in vacuum pump are defective.  
d. Vacuum pump or vacuum generator needs primed.  
e. Improper wiring. | a. See problem 2–7.01.  
b. Replace vacuum switch.  
c. Replace valves.  
d. Prime pump by charging system with water.  
e. Check wiring, refer to wiring diagram. |
| 2– 11.01 Vacuum pump emits malodour. | a. Loose or defective hose connections on pump.  
b. Torn pump bellows. | a. Tighten hose connections.  
b. Replace pump bellows. |
2– 7.01 Vacuum Pump
<table>
<thead>
<tr>
<th>Failure</th>
<th>Possible cause</th>
<th>Remedies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2– 12.01</strong> Vacuum pump running too slow, overheating, or tripping circuit breaker.</td>
<td>a. Low voltage. &lt;br&gt;b. Loose or corroded wiring. &lt;br&gt;c. Wire cross-sectional area is too small. &lt;br&gt;d. Discharge hose is blocked between vacuum pump and waste holding tank. &lt;br&gt;e. Plugged or defective duckbill valve in vacuum pump. &lt;br&gt;f. Plugged holding tank vent pipe. &lt;br&gt;g. Pump motor worn or defective. &lt;br&gt;h. Pump bellows clogged with tissue.</td>
<td>a. Check voltage. &lt;br&gt;b. Tighten loose connections, replace corroded wiring. &lt;br&gt;c. Replace with proper cable size. &lt;br&gt;d. Disassemble and clean hose. &lt;br&gt;e. Disassemble and clean valve, replace if needed. &lt;br&gt;f. Disassemble and clean hose. &lt;br&gt;g. Check motor and replace if necessary. &lt;br&gt;h. Remove and clean. Use more water during flushing.</td>
</tr>
<tr>
<td><strong>2– 13.01</strong> Blockage between toilet and vacuum generator or vacuum tank.</td>
<td>a. Pinched vacuum line. &lt;br&gt;b. Too many bends in vacuum line. &lt;br&gt;c. Improper operation of toilet. &lt;br&gt;d. Flushing non-dissolving items objects down toilet.</td>
<td>a. Replace vacuum line. &lt;br&gt;b. Reconfigure vacuum line to reduce number of elbows. &lt;br&gt;c. Make sure toilet is being operated correctly. &lt;br&gt;d. Do not flush any non-dissolving items (i.e. sanitary napkins, facial tissue, paper towels etc.) or excessive toilet tissue down toilet. &lt;br&gt;Rapid-dissolving SeaLand® toilet tissue is suited best.</td>
</tr>
</tbody>
</table>
### 3.2.1 Exploded views and Parts Lists

#### Toilet model 1606

1. Seat assembly
2. China bowl kit
3. Ring and half clamp kit
4. Teflon® and rubber seal kit
5. Floor bolt mounting kit
6. Pedestal cover kit
7. Floor flange seal
8. Funnel kit (includes item 7)
9. Flush ball, shaft and cartridge kit
10. Pedal cover
11. Water valve (kit)
12. Spring cartridge kit
13. Flush lever
14. Base kit (includes items 3 – 13)
15. (Water–) Supply hose
16. Vacuum breaker kit
17. Vacuum breaker cover kit

#### Toilet model 1609

1. Seat assembly
2. China bowl kit
3. Ring and half clamp kit
4. Teflon® and rubber seal kit
5. Base kit (includes items 3 – 11)
6. Flush ball, shaft and cartridge kit
7. Floor flange seal
8. Funnel kit (includes item 7)
9. Flush pedal kit
10. Water valve (kit)
11. Spring cartridge kit
12. Mounting kit
13. (Water–) Supply hose
14. Vacuum breaker kit
15. Vacuum breaker cover kit
3.2.1 Exploded views and Parts Lists

**Toilet model 1648**

1. Seat assembly
2. China bowl kit
3. Ring and half clamp kit
4. Teflon® – and rubber seal kit
5. Base kit (includes items 3–11)
6. Flush ball, shaft and cartridge kit
7. Funnel kit
8. Flush pedal kit (includes item 12)
9. Water valve (kit)
10. Water valve (kit)
11. Mounting kit
12. (Water–) Supply hose
13. Vacuum breaker kit
14. Vacuum breaker cover kit

**HTS–EC Holding tank system (Example 60 HTS–EC)**

1. Discharge pump
2. Securing nut
3. Washer
4. Quick connect, 38mm, elbow
5. Slip nut seal
6. Dip tube kit
7. 51 mm UNISEAL®
8. 19 mm Inlet pipe, elbow
9. 19 mm UNISEAL®
10. Holding tank
11. Tank full float
12. Kit, Empty level probe
13. Kit, Empty mid level probe
14. 38 mm UNISEAL®
15. Elbow outlet vacuum pump to tank
16. Kit, Mounting insert for vacuum pump
17. Washer
18. Vacuum generator, 12V DC
19. Inlet elbow (from toilet)
Vacuum pump

1. Pan Phillips head screw, flat washer
2. Motor cover, switch
3. Hex washer head screw, flat washer
4. O-ring kit
5. Bushing
6. Shoulder screw
7. Bellows assembly
8. Bellows clamp
9. Screw clamp
10. O-ring
11. Diptube assembly kit (includes it. 10)
12. Duckbill valve kit (2x)
13. Close nipple
14. Hex head screw, flat washer
15. Vacuum switch kit (includes it. 16,17)
16. O-ring
17. Screw clamp
18. Mounting–spindle
19. Vacuum pumpe
20. UNISEAL® nozzle
21. Inlet elbow kit (includes item 20)
22. Valve nipple
23. Valve adapter
24. Pump body, bottom section
25. Adjusting screw
26. Pump eccentric
27. Round Philips head screw, external tooth lock washer
28. Motor mounting bracket
29. DC–Motor, 12V oder 24 V
30. Pump top closure
31. Hex washer head screw, washers
## Discharge pump

<table>
<thead>
<tr>
<th>Number</th>
<th>Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pan head screw</td>
</tr>
<tr>
<td>2</td>
<td>Pump cover kit</td>
</tr>
<tr>
<td>3</td>
<td>Pump top closure</td>
</tr>
<tr>
<td>4</td>
<td>Hex head screw</td>
</tr>
<tr>
<td>5</td>
<td>O-ring</td>
</tr>
<tr>
<td>6</td>
<td>bushing</td>
</tr>
<tr>
<td>7</td>
<td>Shoulder screw</td>
</tr>
<tr>
<td>8</td>
<td>Bellows clamp</td>
</tr>
<tr>
<td>9</td>
<td>Valve nipple</td>
</tr>
<tr>
<td>10</td>
<td>Duckbill valve</td>
</tr>
<tr>
<td>11</td>
<td>Pump body, bottom section</td>
</tr>
<tr>
<td>12</td>
<td>Bellows assembly</td>
</tr>
<tr>
<td>13</td>
<td>Screw set</td>
</tr>
<tr>
<td>14</td>
<td>Eccentric</td>
</tr>
<tr>
<td>15</td>
<td>Phillips head screws</td>
</tr>
<tr>
<td>16</td>
<td>Motor mounting bracket</td>
</tr>
<tr>
<td>17</td>
<td>DC Motor, 12V oder 24 V</td>
</tr>
<tr>
<td>18</td>
<td>external tooth lock washer</td>
</tr>
<tr>
<td>19</td>
<td>Hex washer head screw, with washer</td>
</tr>
<tr>
<td>20</td>
<td>Reducing adapter</td>
</tr>
</tbody>
</table>
3 TROUBLESHOOTING

Vacuum generator VG4

1 Union nut
2 Hose connection piece (with it 1 & 3)
3 O–ring
4 Reducing adapter
5 Duckbill valve
6 Valve adapter piece
7 Pump (12V or 24V version)
8 Screw with washer
9 O–ring
10 Duckbill valve sleeve
11 Vacuum switch caver
12 Kit, vacuum switch (with item 11)
13 Tank housing kit
14 Elbow kit (with item 1 & 3)

*not shown*
Tank seal
Discharge pump VG4

1. Pump cover
2. Motor mounting bracket, screw with washer
3. Pump top closure
4. Eccentric, Kit
5. Bushing
6. Bushing clamps
7. Bushing kit (with item 5)
8. O-ring
9. Pump motor DC (12V or 24V version.)
10. Pump body, bottom section
11. Pump mounting parts
12. O-ring
3.2.2 Wiring diagrams

Holding tank system

* Indicates electrical components supplied by vehicle manufacturer.

Holding tank system with VACUSTAT PANEL

* Indicates electrical components supplied by vehicle manufacturer.
3.2.2 Wiring diagrams

Discharge pump

* Indicates electrical components supplied by vehicle manufacturer.
4.1 System Check and Vacuum Test

The following section provides instructions on how to carry out a vacuum test.

For that purpose, Dometic offers a vacuum tester. This gauge recognises pressure differences, gauge resolution of 1/100” HG (approx. 0.34 mbar). The conically shaped rubber plug allows measuring different bore diameters.

Digital display
Power supply: 9V monobloc battery

Dometic article no.: 318530003

To check the vacuum, push the flush pedal down and insert the conical rubber plug into the bore.

Leave the test gauge for at least 15 minutes in this position.

After 15 minutes, read test results and compare with vacuum test chart on page 34.

The illustration at the right shows how the test plug is positioned correctly in the bore.
4.1 System Check and Vacuum Test

To check the cassette and vacuum pump, remove the cover and insert the test plug as shown.

If a base station is installed, disconnect the piping before.

After the test, mount cover again and reconnect piping properly.

The piping may be tested at any desired position by inserting the test plug.
NOTE:
This is a typical pressure/time chart of a vacuum toilet. After a period of approx. 8 – 10 hours, the pump restarts automatically and produces the preset vacuum level within approx. 60 seconds (principle diagram)

### Vacuum Test Comparison Chart

<table>
<thead>
<tr>
<th>Measurement results (15 minutes)</th>
<th>Drop in vacuum (15 minutes)</th>
<th>Hours of density</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,05 In Hg = 1011,31 mBar</td>
<td>1,69 mBar</td>
<td>15 h</td>
<td>very good</td>
</tr>
<tr>
<td>0,08 In Hg = 1010,46 mBar</td>
<td>2,54 mBar</td>
<td>10 h</td>
<td>very good</td>
</tr>
<tr>
<td>0,10 In Hg = 1009,61 mBar</td>
<td>3,39 mBar</td>
<td>7,5 h</td>
<td>good</td>
</tr>
<tr>
<td>0,15 In Hg = 1007,92 mBar</td>
<td>5,08 mBar</td>
<td>5 h</td>
<td>good</td>
</tr>
<tr>
<td>0,20 In Hg = 1006,22 mBar</td>
<td>6,78 mBar</td>
<td>3,75 h</td>
<td>acceptable</td>
</tr>
<tr>
<td>0,30 In Hg = 1002,84 mBar</td>
<td>10,16 mBar</td>
<td>2,5 h</td>
<td>acceptable</td>
</tr>
<tr>
<td>0,40 In Hg = 999,45 mBar</td>
<td>13,55 mBar</td>
<td>1,875 h</td>
<td>not acceptable</td>
</tr>
<tr>
<td>0,50 In Hg = 996,06 mBar</td>
<td>16,94 mBar</td>
<td>1,5 h</td>
<td>not acceptable</td>
</tr>
<tr>
<td>1,00 In Hg = 979,12 mBar</td>
<td>33,88 mBar</td>
<td>0,75 h</td>
<td>not acceptable</td>
</tr>
</tbody>
</table>