

# TECHNICAL BULLETIN

**Instructions to maintain your  
TSURUMI pond pump for maximum pump life**

No. : VPA-001TAI

Date : July 06, 2015

\*Please read this, as well as pump's operation manual carefully and use after understanding the contents thoroughly.

## - Running water level and water temperature

Pump is designed to be operated only when FULLY SUBMERGED.

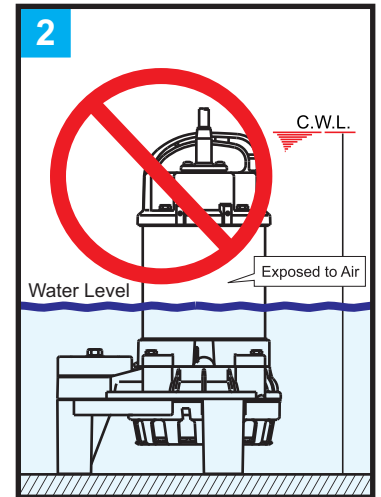
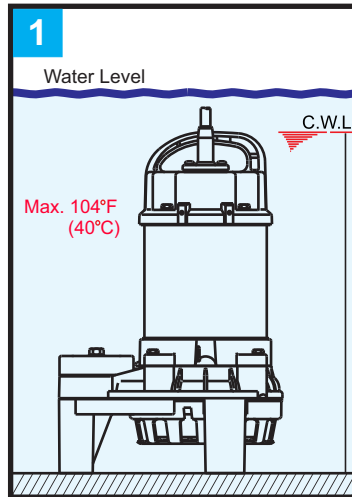
Serious damage will occur if pump is run out of water for extended periods, which will **void pump warranty**.

**DO NOT** operate the pump below the C.W.L. (Continuous running Water Level) as shown in figure 1, 2 and described in Table-A. Failure to observe this condition may result in damage to the pump, including capacitor failure, electrical leakage or electrical shock. Avoid using the pump in high temperature water. Usable water temperature range : 32-104°F (0-40°C)

**1** : Pump operating while completely submerged (Water level above C.W.L.)

**2** : Pump running exposed to air. This will cause premature pump failure (Water level below C.W.L.)

C.W.L. varies by pump model. Refer to Table-A for C.W.L. of each model.



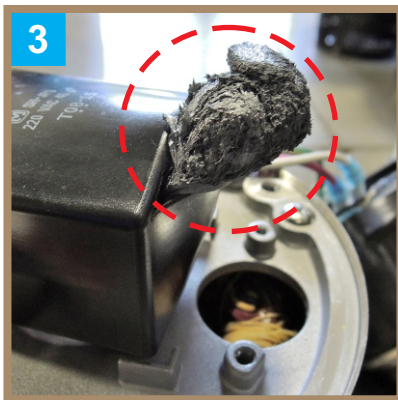
C.W.L. : Continuous running Water Level

Table-A

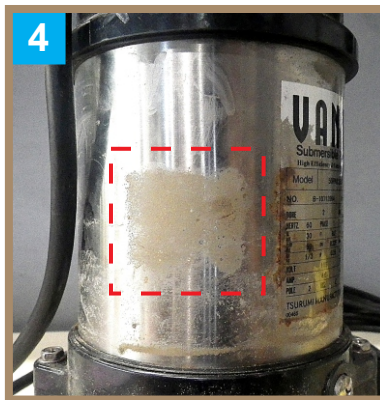
| Model            | C.W.L. |     |
|------------------|--------|-----|
|                  | inch.  | mm  |
| OM3 (2-OM)       | 11     | 280 |
| 50PU2.15S (2-PU) | 13 3/8 | 340 |
| 50PN2.25S (3-PN) | 12 3/4 | 325 |
| 50PN2.4S (4-PN)  | 12 3/4 | 325 |
| 50PN2.75S (8-PN) | 13 5/8 | 345 |
| 12-PN            | 13 3/4 | 350 |

**IMPORTANT NOTICE** : Please always be sure to check pump running water level and temperature. The following photographs illustrate( 3 , 4 and 5 ) the result of running your pump at water levels below C.W.L. Running your pump in water levels less than C.W.L., or at temperatures in excess of 104°F will **void the pump's warranty**.

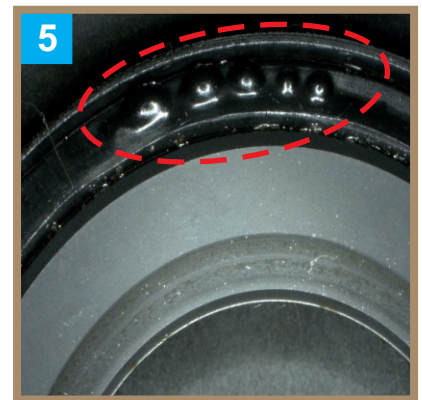
## - Fault caused by running dry and/or exposure to high temperature.



Capacitor failure due to over heating.



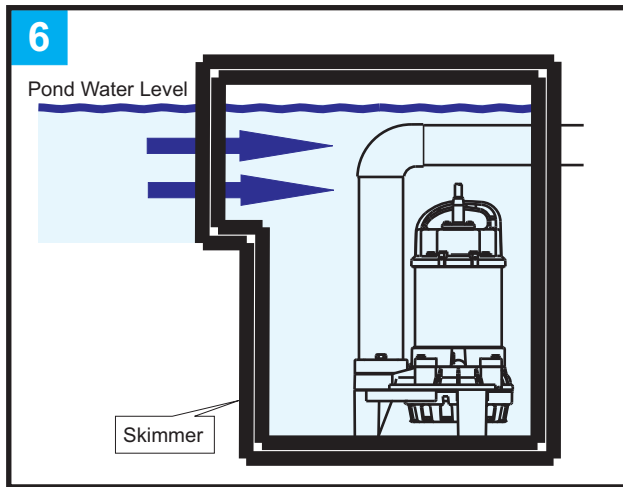
Burn marks, dried mud, algae and leaves stuck to motor housing are evidence of a pump being run in water less than C.W.L.



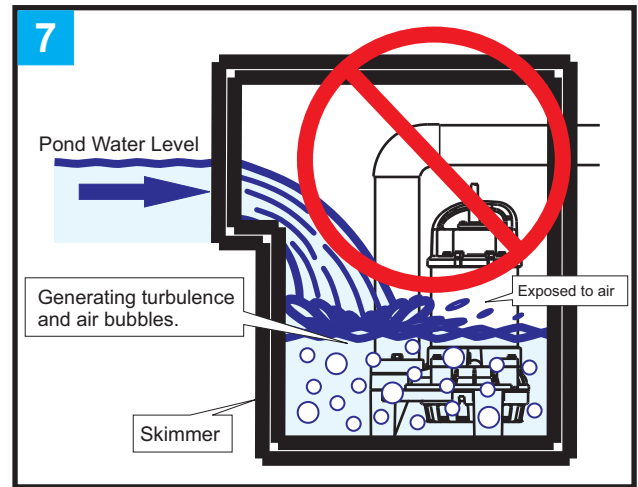
Blistering of rubber face of lower mechanical seal is evidence of over heating.

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### - Pond Skimmer (Filter)



Tsurumi VANCS pump motor are kept cool by the surrounding water. It is required that the pump be fully submerged at all times when pumping. Having any part of the motor exposed to air can cause the motor to overheat and cause damage to the capacitor and/or motor windings.



It is important to avoid turbulence in the pump chamber of the skimmer box. This turbulence can cause the pump to suck air into impeller and cause damage to the bearing and/or mechanical seal. This will cause bearing noise and shaft vibration, which will eventually cause mechanical seal failure which will allow water into the motor and cause catastrophic damage. Please refer to Table-B for troubleshooting help.

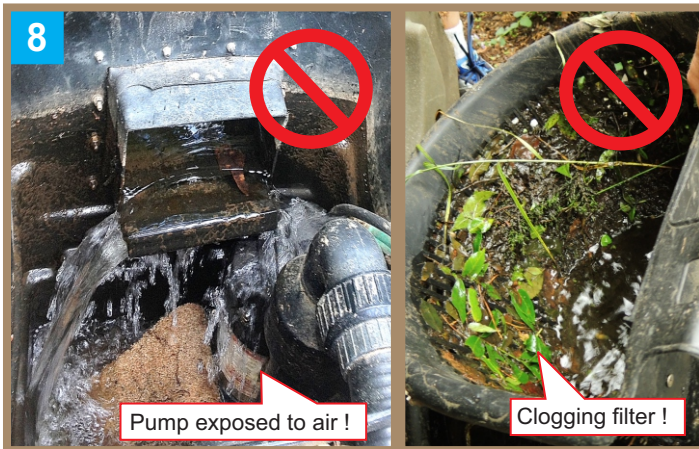


Photo showing a pond level that is too low, and a clogged filter, both preventing adequate water from reaching the pump. **Warranty will be voided** in both of these scenarios.

Table-B

| Possible cause                                   | Solution   |
|--|--|
| Filter clogged with algae, leaves, etc.          | -Remove debris clogging filter.<br>-Check for clogging of filter pad every day.  |
| Low pond water level.                            | -Maintain proper water level in the pond.<br>Consider installing auto-fill valve if a low water level occurs frequently.<br>-Check pond water level every day.   |
| Pump's discharge rate is faster than inlet rate. | -Properly size the skimmer for the size of the pump. Inflow to the skimmer should match the outflow of the pump to assure the pump stays submerged.<br>-Change to larger capacity skimmer or install ball valve to adjust flow rate. (See <a href="#">11</a> ) |



Remove debris from bottom of the skimmer after disconnecting power cord. (See [9](#))

Rocks and other foreign debris can damage the pump's impeller, casing, and mechanical seal. (See [10](#)) It may cause a motor lock, flooded motor, and bearing noise. Pump efficiency will also be dramatically worse.

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### - Installing Ball Valve.

Ideally, a submersible pump should run at a range that is within 70%-120% of the point what it is most efficient, or its BEST EFFICIENCY POINT (BEP). To maintain this operating range, we recommend installing a ball valve and pressure gauge on the discharge of the pump and 'dialing in' the correct pressure by adjusting the valve to adjust the pressure to a level that the pump needs to run at to ensure continuous, trouble-free pumping. Our recommended pressure ranges are shown in the following Table-C:

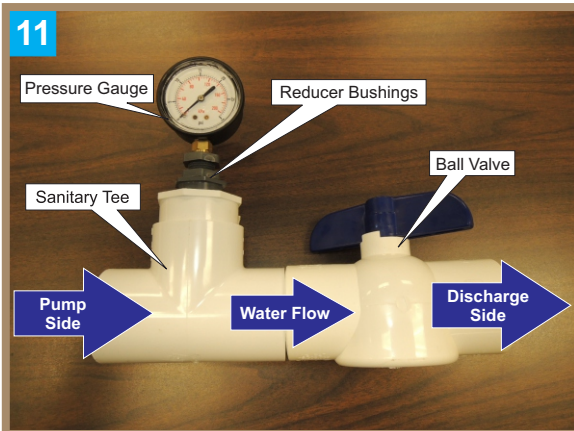


Table-C

| Model            | Recommended Pressure Range |           |
|------------------|----------------------------|-----------|
|                  | Pressure (PSI)             | Head (ft) |
| OM3 (2-OM)       | 5 - 10                     | 11 - 23   |
| 50PU2.15S (2-PU) | 4 - 7                      | 9 - 17    |
| 50PN2.25S (3-PN) | 5 - 10                     | 11 - 22   |
| 50PN2.4S (4-PN)  | 6 - 13                     | 14 - 31   |
| 50PN2.75S (8-PN) | 9 - 17                     | 20 - 40   |
| 12-PN            | 3 - 8                      | 7 - 17    |

### - Maintenance and Inspection

Regular maintenance and inspections are a necessity for continued efficient functioning of the pump. If any abnormal conditions are noticed, refer to the **Instruction manual “Troubleshooting” and “Inspection chart”** bundled with the product and take corrective measures immediately. It is recommended that a spare pump be kept ready in case of any problems.

#### Prior to inspecting the pump.

1. Detach the power cable from the receptacle or terminals, after making certain the power supply (circuit breaker, etc.) is turned off. Failure to follow this precaution may result in electrical shock or unexpected starting of the pump motor.

#### 2. Washing the pump

Remove debris from the surface of the pump and rinse it with clean water. Remove any debris from the strainer and impeller. (See **13**)

#### 3. Inspecting the pump exterior

Check for any cracked or broken parts, and make sure all hardware is fastened tightly. Any broken parts should be replaced immediately.



#### Storage/Winterization

When the pump is out of use for an extended period, flush with clean water, then store it indoors in a dry environment in non-freezing temperatures. Before you plug it in again, manually turn the impeller 10 times to lubricate the mechanical seal faces.

#### Lubricant Inspection and Change

##### Inspecting Lubricant (Every 6mo. or after 3,000hr. use)

Remove the Oil plug (See **14**) and tilt the pump to drain a small amount of lubricant. If the lubricant is milky white or has water mixed in with it, the mechanical seal may be faulty. In this case the pump will need to be disassembled and repaired.

##### Replacing Lubricant (Every 12mo. or after 4,500hr. use)

Remove the Oil Plug and drain all the lubricant, then replace it with the specified amount. The oil plug gasket should be replaced each time the lubricant is inspected or changed. Refer to Table-D for Lubricant capacity of each models.

**Lubricant : White Mineral Oil ISO VG-32**



Table-D

| Model            | Lubricant Capacity |     |
|------------------|--------------------|-----|
|                  | fl.oz.             | ml  |
| OM3 (2-OM)       | 5.1                | 150 |
| 50PU2.15S (2-PU) | 8.1                | 240 |
| 50PN2.25S (3-PN) |                    |     |
| 50PN2.4S (4-PN)  |                    |     |
| 50PN2.75S (8-PN) |                    |     |
| 12-PN            |                    |     |