

# OWNER'S MANUAL



# ONGA®



For the Installation, Operation and Service of the

# PANTERA

e v o l u t i o n

Dual Speed Pool Pump



Should the installer or owner be unfamiliar with the correct installation or operation of this type of equipment you should contact the distributor/manufacturer for the correct advice before proceeding with the installation or operation of this product. The pump operator or owner must be provided with this owner's manual.

## Onga and Pentair

Onga has been servicing the Australian and New Zealand markets with the highest quality water movement products for 47 years. Established in 1967, Onga has a product to meet your every water need.

Onga is part of the Pentair group, a global leader in swimming pool, spa and aquatic equipment. The business has built a reputation as an innovation leader, providing high performance, reliable and energy-efficient filters, controls, sanitizers, pumps, heaters, cleaners, and accessories for residential and commercial pool owners and operators.



## Eco Select®

### The Eco Select® brand identifies our most eco-friendly products

As the global leader in pool and spa equipment, we've made a strong commitment to develop and offer the most environmentally responsible products available.

When you see the Eco Select® brand on one of our products, you'll know it is our "greenest" and most efficient product in that equipment category.

These products do the best job of saving energy, conserving water, reducing noise, or otherwise contributing to a more environmentally responsible equipment system. In every case, a product that earns the Eco Select brand is clearly our "greenest" and most efficient choice.



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## Features & Benefits



The Pantera Evolution is the ideal pump for new or existing pools. Utilising efficient hydraulic design and the latest technology in permanent magnet, electronic control two speed motors, the Pantera Evolution has the perfect combination of efficiency and performance. The Pantera Evolution delivers energy savings and the power when you need it. You will also have the peace of mind that you are doing your bit for the environment and reducing your carbon foot print.

- ▶ Dual speed pump, with 2 fixed speeds, allows you to efficiently filter your pool, saving energy with the low speed mode and delivering extra power with the high speed mode for backwashing and vacuuming.
- ▶ 2 pole / 4 pole induction motor delivers high efficiency and low noise levels.
- ▶ Fault protected motor prevents damage by automatically shutting down the motor in the event of a locked rotor or over current condition.
- ▶ Low speed operation and efficient fluid dynamics make pump operation incredibly quiet.
- ▶ Constructed of our durable, Australia made plastic pump components, so you can be sure it will stand up to the harshest conditions.
- ▶ A heavy-duty construction and a motor rated for continuous operation make the Pantera Evolution a tough, long-lasting performer.
- ▶ The high-capacity trap holds a large amount of debris, so you clean less often.
- ▶ The transparent lid, features a self lubricated o-ring, so it can be hand tightened, making inspection and cleaning a breeze.
- ▶ Quick-disconnect plumbing unions.
- ▶ Electronic control features high speed priming and 2hour high speed boost modes, for added functionality.
- ▶ Drop in replacement for all LTP (Leisuretime) and PPP (Pantera) pool pumps.

## Technical Information

**Model:** Pantera Evolution

**RPM:**  
Low 1450RPM (default factory setting)  
High 2800RPM (default factory setting)

**Electrical Rating:** 230-240V 50Hz single phase

**Rated Current:**  
Low: 1.0A  
High: 5.2A

**Input Power (P1):**  
Low: 223W  
High: 1180W

**Pump Power (P2):**  
Low: 118W  
High: 950W

**IP Rating:** IP25

**Inlet (Suction):** PVC Barrel Union to suit 40mm PVC pressure pipe to AS/NZS 1477 or 50mm spigot

**Outlet (Discharge):** ABS Barrel Union to suit 40mm PVC pressure pipe to AS/NZS 1477 or 50mm spigot

**Max Total Head:** 20m

**Water Temperature Range:** 5°C – 40°C

**Maximum Ambient temperature:** 55°C

**Recommended pH Range:** 7.2 - 7.8 (Guide Only)

**Sound Power Level (Lwa):**  
Low: 53dB  
High: 69dB

**Motor:** 2 pole / 4 pole induction motor

**Supply cord:** 10A, H07RNF, 2m.

**Note:**

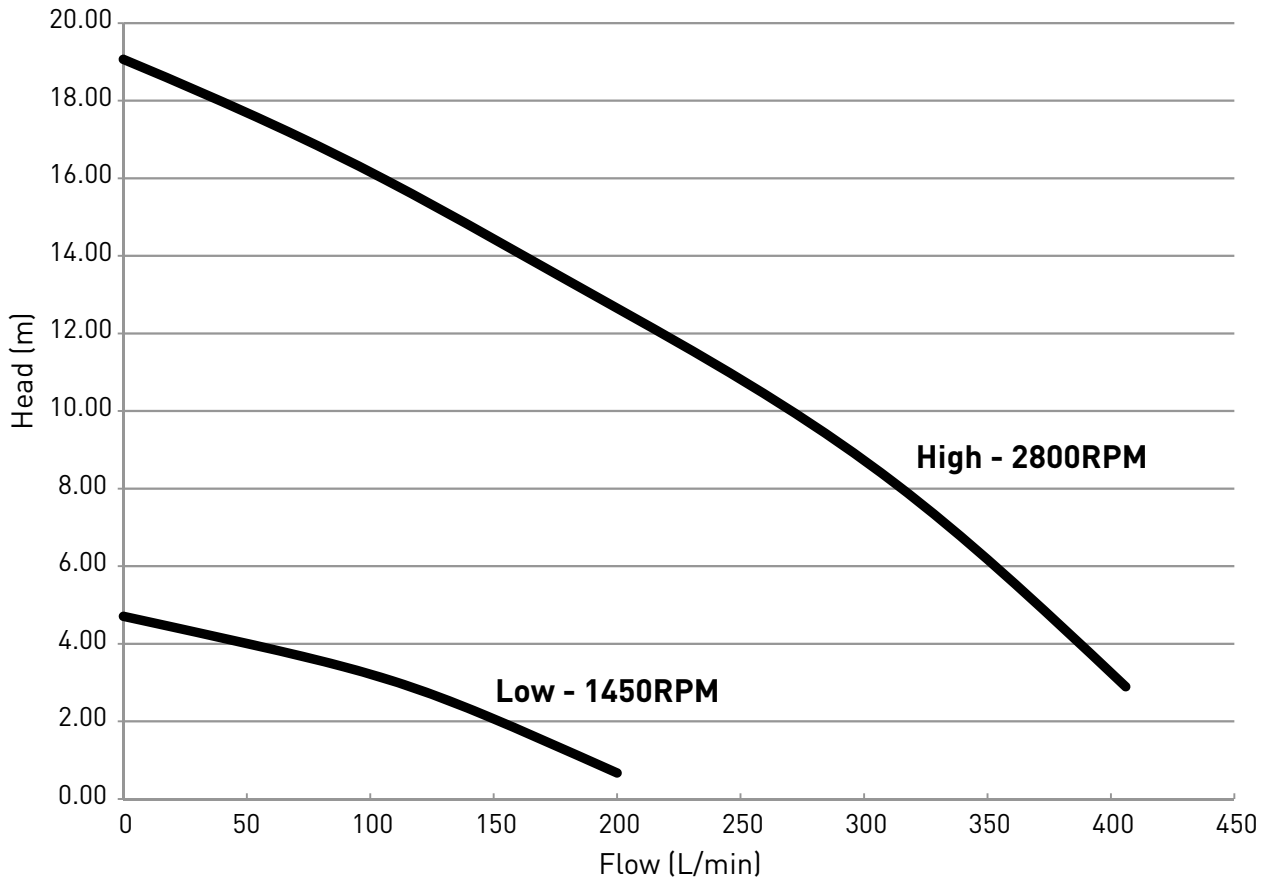
The Low speed of the Pantera Evolution is not adjustable.

It is not recommended to use the Pantera Evolution where there is a suction lift greater than 10m, where there are excessive pipe runs from pool to pump location, where the pool is greater than 50,000L and where the sand filter is greater than 25" size.

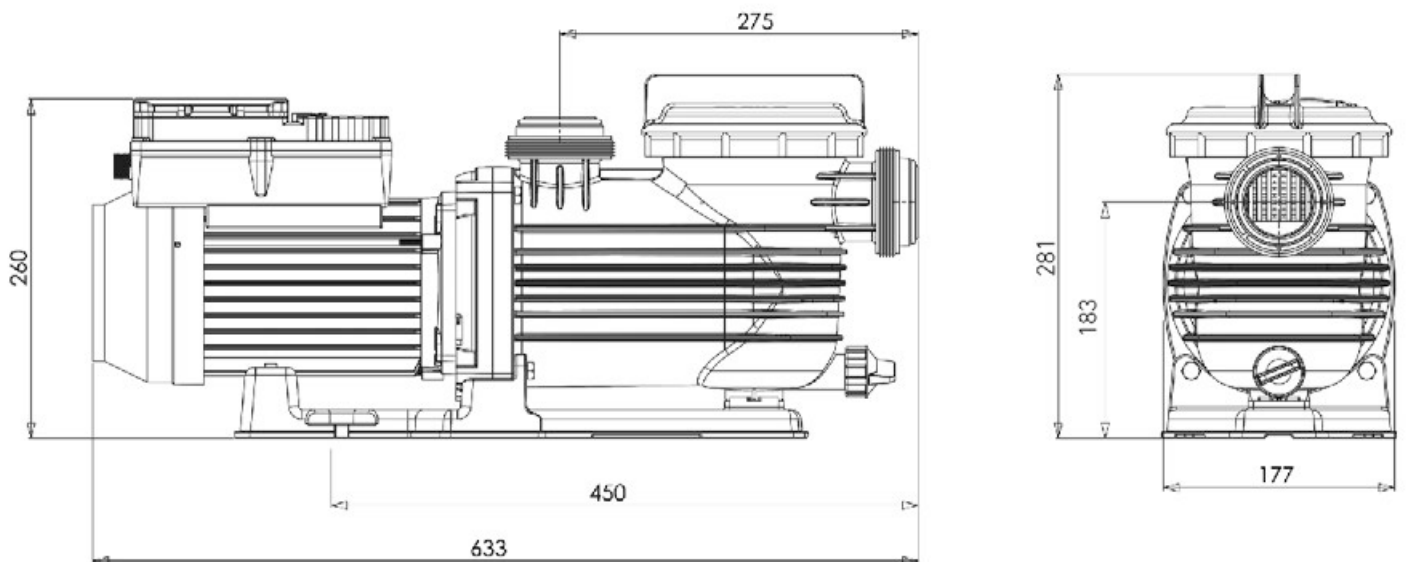
# Technical Information

## Hydraulic Performance

### Pantera Evolution - Performance Chart



## Dimensions





The pump must be installed and serviced by a suitably qualified person in order to avoid hazard. Incorrectly installed or tested equipment may fail, causing severe injury or property damage.



These instructions are a guide only. Should you the installer or owner of the product be unfamiliar with the correct installation or operation of this product you should contact a suitably qualified person for advice.



Do not connect system to high pressure or mains water system.



This pump is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.



Children should be supervised to ensure that they do not play with the pump.



The Pantera Evolution is electrically connected. Ensure that it is isolated from electrical supply during installation and any subsequent service work.

### 1. Plan the position of the pump



**For best performance, allow pump suction inlet height to be as far below water level as possible and allow the use of short, direct suction pipe with minimum bends (to reduce friction losses).**

- Have enough ventilation to keep ambient temperature below the motor's rated ambient temperature whenever the pump is running. If installed in an enclosure/pump house, the enclosure must have adequate ventilation (200sq.cm min, inlet & outlet) and air circulation Allow 200mm to keep rear of motor clear.
- Have adequate floor drainage to prevent flooding and be protected from excess moisture.
- Be solid, level, rigid and vibration free.
- To reduce vibration and pipe stress, bolt pump to mount. Fixing holes accept 12mm fasteners.
- Be within 2m of a power outlet for electrical connection (refer to AS/NZS 3000 for rules regarding connection of electrical equipment in pool zones).
- Allow adequate access for servicing pump and piping.

### 2. Piping



**For best performance, allow pump suction inlet height to be as far below water level as possible and allow the use of short, direct suction pipe with minimum bends (to reduce friction losses).**

- Use only Australian Standard PVC pressure pipe. For best performance use at least 50mm diameter pipe for all connections to the pump. Never use a suction pipe smaller than pump suction connections (50mm) and use larger pipe for long suction distances.
- To avoid stress on the pump, support both suction and discharge pipes independently. Place these supports as close to the pump as possible.
- To avoid a strain left by a gap at the last connection, start all piping at the pump and run pipe away from the pump.

## 3. Pool Outlets



### **Hazardous suction.**

Can trap hair or body parts, causing severe injury or death.

**Do not block suction.**

- a) The pump suction system must provide protection against hazard of suction entrapment or hair entrapment/entanglement. The pool outlet piping must be in accordance with the latest AS1926.3 standard
- b) Suction outlet covers and skimmers must have been tested and found to comply with the latest AS1926.3 standard or ASME/ANSI specification for Suction Fittings.

## 4. Electrical



**Do not use extension leads as they are unsafe in and around the Pool Zone.**



**Hazardous voltage. Can shock, burn or cause death.**



**To avoid dangerous or fatal electrical shock, turn OFF power to pump and remove plug from outlet before working on electrical connections.**

- a) Electrical installation shall be in accordance with the national wiring rules (AS/NZS 3000) taking into account its ratings (Class I, IPX5). The pump is supplied with a standard Australian 10 amp plug and 2 metres of cord. Select the correct Pool Zone for installation.
- b) An RCD with maximum rated residual current of 30mA is required for the power supply to the pump. Additionally, if a suitable socket outlet is not available a weatherproof socket must be installed by an electrician in a suitable location. RCD tripping indicates an electrical problem. If RCD trips and will not reset have a qualified electrician inspect and repair electrical system.
- c) Incorrect voltage can cause fire or seriously damage pump and voids warranty.
- d) Voltage at pump must not be more than 6% above or 10% below motor nameplate rated voltage or pump may overheat, causing overload tripping and reduced component life. If voltage is less than 90% or more than 106% of rated voltage when pump is running at full load, consult the power company.
- e) If supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified person in order to avoid hazard.

## 5. Equipotential bonding

If equipotential bonding is required (refer to local statutes and regulations), connect all metal parts of the swimming pool or spa structure and to all electrical equipment, metal conduit, and metal piping in accordance with the wiring rules. Run a wire from the equipotential bonding terminal on the pump (bottom, left motor bolt with serrated washer) to the pool bonding structure.



## Operation



NEVER run pump dry. Running pump dry may damage seals, causing leakage and flooding. Fill pump with water before starting motor.



Freezing conditions will damage the unit, as water expands as it freezes. Ensure that the Pantera Evolution is located so that it is not prone to freezing, or ensure that the product is disconnected and dried of water during cold conditions.



Trapped air in system can cause explosion. Ensure all air is out of the system before operating or testing equipment



Fire and burn hazard. Modern motors run at high temperatures. To reduce the risk of fire, do not allow leaves, debris, or foreign matter to collect around the pump motor. To avoid burns when handling the motor, let it cool for at least 20 minutes before trying to work on it.



Small children using pool must ALWAYS have close adult supervision



Pump suction is hazardous and can trap and drown or disembowel bathers. Do not use or operate pump, pool/spas if a suction outlet cover is missing, broken, or loose. Follow the guidelines below for a pump installation which minimises risk to users of pool and spas.



NEVER tighten or loosen trap lid while pump is operating.

### 1. Priming the pump






**It is not necessary to lubricate the o-ring. The original equipment O-ring contains a permanent internal lubricant.**


- a) Before removing trap lid, SWITCH OFF POWER SUPPLY to pump.
- b) CLOSE SHUT-OFF VALVES on suction and discharge pipes, if present.
- c) Remove the trap lid (turn anti-clockwise)
- d) Fill trap tank with water.
- e) Check the lid o-ring and sealing surface, ensure there is no dust or debris on either, and replace the lid (turn clockwise to tighten by hand only - no wrenches!).
- f) Open the shut-off valves on the suction and discharge pipes, if present.
- g) Release all air from filter, pump and piping system (refer filter owner's manual). In a flooded suction system (water source higher than pump), pump will prime itself when suction and discharge valves are opened and air is released.
- h) Switch on power to the pump to start.
- i) Pump should start to prime now. Priming time will depend on vertical height of suction lift and horizontal length of suction piping but is generally between 30 seconds to 2 minutes under normal installation conditions.
- j) The Pantera Evolution will start slowly but ramp up to high speed for the first 2 minutes to assist priming. It will then switch to the selected speed.

**\* Should the pump not prime, ensure that all valves are open, lint trap is clear of debris and suction pipe end is submerged in water, and that there are no leaks in suction pipe. See troubleshooting guide.**

## 2. Speed selection







The Onga Pantera Evolution comes pre-programmed with the following default speeds:

	<p><b>Press for low speed</b></p> <p> <b>1450RPM</b></p> <ul style="list-style-type: none"> <li>• Filtration and water circulation</li> </ul>	<p><b>Press for high speed</b></p> <p> <b>2800RPM</b></p> <ul style="list-style-type: none"> <li>• Cleaning with a suction cleaner</li> <li>• Backwashing filter.</li> <li>• Operating some water features such as jets or waterfalls.</li> <li>• Solar heating</li> </ul>
	<h3>Speed / Application</h3>	

-  **Off button**  
 Press to turn power on/off.  
 If power is removed, motor will return to the last speed selected when power is restored.  
 Motor will remember ON/OFF state.

## 3. Other modes

If the default speed settings do not perfectly match the particular installation. They can be adjusted as follows.

1.	<p><b>2-Hour High Speed Boost</b></p> <p> <b>5 sec</b></p>	<p>Press &amp; hold <b>HIGH SPEED</b> button for 5 seconds. Pump will go to high speed for 2 hours then automatically will return to low.</p>
2.	<p><b>Low/High Alternating Mode</b></p> <p> +  <b>5 sec</b></p>	<p>Press &amp; hold <b>LOW SPEED, HIGH SPEED</b> buttons simultaneously for 5 seconds. On each power cycle the pump will power up to low-high-low-high, etc. This allows for different automated schedules via chlorinator time clock.</p>
3.	<p><b>2-Hour High Speed Start</b></p> <p> <b>5 sec</b> +  <b>5 sec</b></p>	<p>Once <b>2Hour high speed boost mode</b> (No.1 above) is activated, press &amp; hold <b>HIGH SPEED</b> button for another 5 seconds. Pump will start at high speed for 2 hours every time. Press either <b>LOW SPEED</b> or <b>OFF</b> button to cancel this mode.</p>
4.	<p></p>	<p>Will cancel the change and revert back to the original speed and return to normal operation mode</p>

4. Automation control



Warning! This procedure should only be undertaken by a trained technician.



Warning! Turn off pump power and remove plug from outlet prior to making connection.

1. Turn off pump power and remove plug from electrical outlet
2. Undo all six screws securing the cover of the electrical enclosure on top of the pump.
3. Undo the blank gland nut next to the power cord entry as shown in **Figure 1**.
4. Pierce the rubber gland with a screwdriver or drill bit.
5. Feed the control cable through the gland nut and then through the gland as shown in **Figure 2**.
6. Connect the control cable to the circuit board connectors marked "High Speed" and "Low Speed" as shown in **Figure 3**.
7. Connect the other end of the control cable to the automation control panel as indicated in **Figure 4**. The High Speed connector is to connect to the "2-SPD" terminal and the Low Speed connector is to connect to the "Filter Pump" terminal.
8. On the control system menu, select the "2-Speed" menu as shown in **Figure 5**.
9. In the solar menu, define all the circuits which require the pump to be in High Speed mode (up to 4 circuits can be defined) as shown in **Figure 6**.

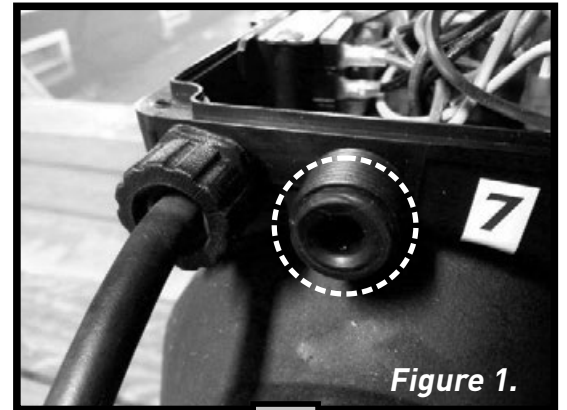


Figure 1.

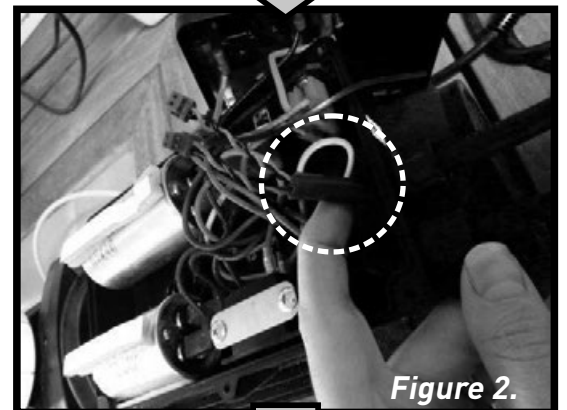


Figure 2.

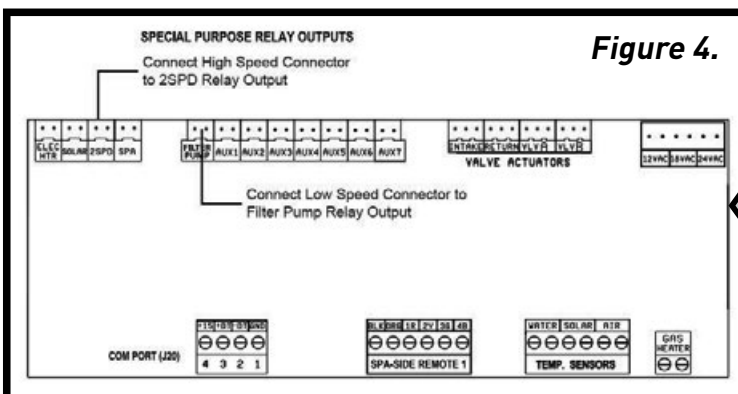


Figure 4.

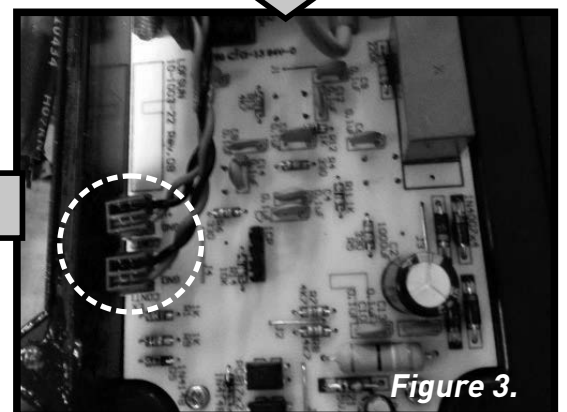


Figure 3.

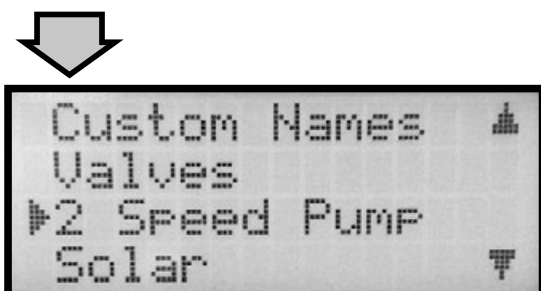


Figure 5.

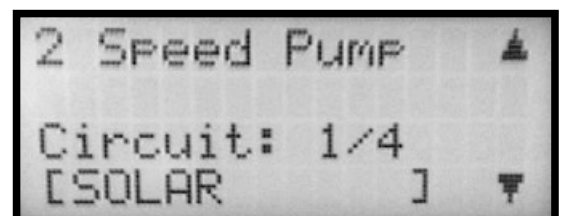


Figure 6.

## Service & Maintenance



To avoid dangerous or fatal electrical shock hazard, turn OFF power to pump and remove plug from power outlet before working on pump.



Do not operate pump with trap basket missing or damaged.

It is essential for the longevity of the pump that regular service and maintenance be carried out. The Onga Eco800 incorporates high velocity moving parts and is pumping water containing harsh pool chemicals. Some parts which will wear during the normal operation and expected life of the pump.

### FREQUENCY

Once per week

Once per month

### CHECK

✓ Inspect trap basket, and empty of any leaves and other debris. Leaves and other debris that collects in basket will choke off water flow through the pump and reduce efficiency and performance. See below instructions on cleaning the trap.

✓ Check the pump to ensure no water is leaking from inlet and outlet joints, whilst pump is operating. If leaks are noticed, clean and grease the o-rings or replace if necessary.

✓ Clean area around pump and ensure there are no leaves or debris which could become a fire hazard or choke the motor fan.

✓ Check that there are no leaks from under the pump. If there are, this could be a sign of a leaking mechanical seal. Call a Pentair Service Agent immediately, to prevent damage to the motor.

✓ Check pump and motor for insects and pest infestations and ensure that motor fins are clean of dust and dirt. Clean if necessary.

#### Follow instructions below to clean trap:

1. Switch off power to pump, close valves in suction and discharge, and release all pressure from system before proceeding.
2. Remove trap cover (turn counter clockwise). If necessary, tap handles gently with a rubber mallet.
3. Remove strainer basket and clean. Ensure all holes in basket are clear, flush basket with water and replace in trap with large opening at pipe connection port (between ribs provided). If basket is replaced backwards, the cover will not fit on trap body.  
To clean transparent cover, use water and neutral soap only. Do not use solvents.
4. Clean and inspect lid o-ring; reinstall on trap. Clean O-ring groove on trap body and replace cover. To help keep cover from sticking, tighten hand tight only.
5. Prime pump (refer priming instructions).

## Troubleshooting



The Onga Pantera Evolution should only be serviced by certified Pentair service agents. For best results and to ensure warranty is not void, insist on use of only genuine Pentair service parts.



To avoid dangerous or fatal electrical shock hazard, turn OFF power to pump and remove plug from power outlet before working on pump.



The power supply cord has a type 'Y' attachment and if service is required to the power cord, it must be replaced with the specialised power cord assembly by Pentair Water service agent or similarly qualified personnel in order to avoid a hazard. Warranty is void if unauthorised modifications are made to any component.

### TROUBLESHOOTING GUIDE

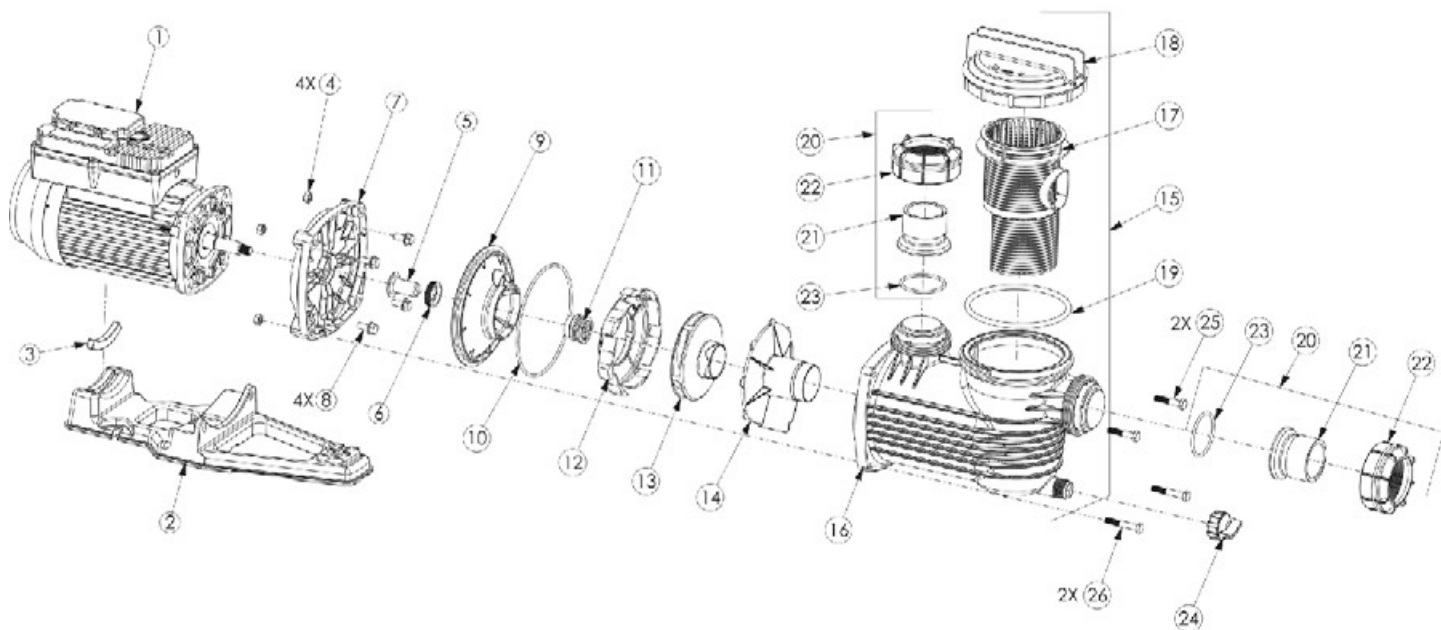
SYMPTOM	CAUSE	REMEDY
<p><b>Low water pressure, low flow from pump.</b></p>	<p><b>Suction leaks / lost prime.</b></p>	<p>Pump must be primed; make sure that the pump casing and strainer are full of water. Refer priming instructions.</p> <p>Make sure there are no leaks in suction piping and ensure all o-rings are present and clean.</p> <p>Make sure suction pipe inlet is well below the water level to prevent pump from sucking air.</p> <p>Suction lift of 3 to 6 metres will reduce performance. Suction lift of more than 6 metres will prevent pumping and cause pump to lose prime. In either instance, move the pump closer (vertically) to water source. Ensure that the suction pipe diameter is large enough.</p>
	<p><b>Low speed setting.</b></p>	<p>Check speed setting. Refer to speed selection section of this manual.</p>
	<p><b>Clogged pipe / strainer / impeller / filter system.</b></p>	<p>Ensure trap is not clogged with debris; clean basket and/or filter.</p> <p>Make sure that the impeller is not clogged. This should be checked by qualified personnel only.</p> <p>Pump may be trying to push too high a column of water. If so, a higher pressure pump is required.</p>

## TROUBLESHOOTING GUIDE (continued)

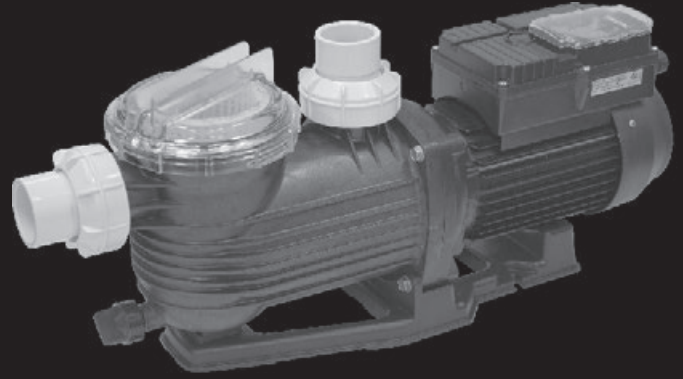
SYMPTOM	CAUSE	REMEDY
<b>No water coming from pump (pump is working).</b>	<b>Air ingress to system.</b>	Prime the pump. Check that there are no air leaks in the suction piping or fittings. Ensure the strainer lid is airtight and fitted securely. Ensure all o-rings are present.
<b>Pump does not work.</b>	<b>Motor fault.</b>	Refer to motor fault codes.
	<b>No power at outlet.</b>	Use another electrical appliance that is known to work to check power outlet.
	<b>Blown fuse / Circuit breaker.</b>	Check and call electrician if necessary.
<b>Pump running too slow.</b>	<b>Low speed setting.</b>	Check speed setting. Refer to speed selection section of this manual.
	<b>Motor high temperature limit exceeded.</b>	Ensure motor fins are clean and fan is intact and free from blockages. Ensure adequate ventilation and reduce ambient temperature.
<b>Water leaking from between the casing and motor.</b>	<b>Casing bolts are not tightened sufficiently; worn mechanical seal requires replacing.</b>	Switch off the power to the pump. Tighten the casing bolts or replace the mechanical seal as required.

Should problems persist, contact your nearest Pentair Service Agent.

## Spare Parts



Item	Description	Part No.
1	MOTOR	801956
2	BASE	702509
4	NUT 5/16inW HEX ST/ST	SEE FASTENERS KIT
5	SHAFT SLEEVE	SEE SEAL KIT
6	ORING SHAFT SLEEVE	SEE SEAL KIT
7	YOKE AND LIP SEAL	412050
8	SCREW 5/16inW x 3/4in HWF S/S	702770
9	BAFFLE	305300
10	ORING CASING	305300
11	MECHANICAL SEAL	SEE SEAL KIT
	SEAL KIT (INCLUDES ITEMS 5,6,10&11)	800583K
	MECHANICAL SEAL (PACK OF 25)	801303
12	DIFFUSER	303460K
13	IMPELLER	506840K
14	SEPERATOR PLATE	408730
15	CASING ASSEMBLY (INCLUDES ITEMS 16,17,18&19)	801200
16	CASING PANTERA POOL	SEE CASING ASSEMBLY
17	STRAINER BASKET	302310
18	LID	SEE CASING ASSEMBLY / LID & O-RING KIT
19	O-RING CASING & LID	SEE CASING ASSEMBLY / LID & O-RING KIT
	LID & O-RING KIT (INCLUDES ITEMS 18&19)	800897K
20	BARREL UNION KIT(INCLUDES ITEMS 21,22&23)	800714
23	O-RING TAIL & NUT	702193
24	DRAIN PLUG 3/4" BSP FEMALE	504605
25	SCREW 5/16inW x 1.1/2in HWF SS	SEE FASTNERES KIT
	FASTENERS KIT (INCLUDES ITEMS 4&25 x4)	801278



**IMPORTANT**

Please attach your sales invoice/docket here as proof of purchase should warranty service be required.

Please do not return Warranty Form to Pentair Australia - please retain for your records.

**Purchased From .....**

**Purchase Date..... Serial No..... Model No.....**



1-21 Monash Drive,  
Dandenong South, Vic 3175

**Australia**

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Fax: 1800 006 688  
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Email: au.sales@pentair.com  
Web: www.pentairpool.com.au

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Fax: 0800 806 642  
National Dealer Locator: Phone: 0800 664 269  
Email: nz.sales@pentair.com  
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