Blagdon liberty® mains free

pond oxygenator

Solar Powered

Lithium Battery Backup

HOW TO MAINTAIN YOUR POND OXYGENATOR

www.blagdonwatergardening.co.uk

Blagdon

INNOVATIVE DESIGN

Liberty Mains Free Features have been designed by Blagdon, a leading British water gardening company. Over half a century in fish keeping and water gardening are brought together in this product, so you can be assured of a successful, creative water feature.

Blagdon liberty® mains free

pond oxygenator

Congratulations on buying a Liberty Mains Free Pond Oxygenator.

Fish and other pond life require oxygen rich water to remain healthy. Oxygen levels drop during hot sunny weather. The Liberty Pulse Oxygenator creates circulation that introduces oxygen to your pond environment, when it's needed most.

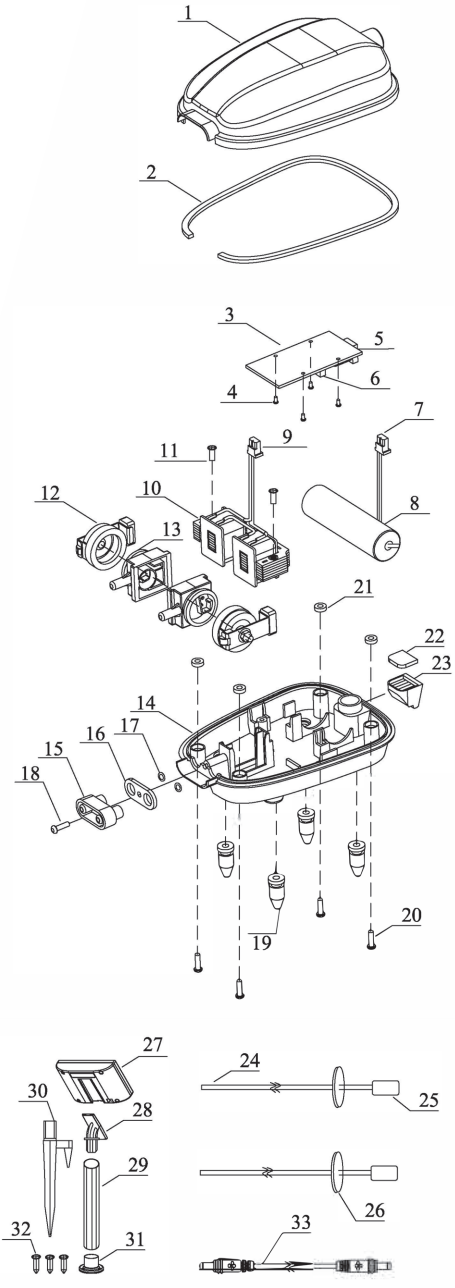
IMPORTANT Please attach proof of purchase to this manual and file in a safe place.

CONTENTS

GETTING TO KNOW YOUR SOLAR AIR PUMP

1. SOLAR AIR PUMP PARTS

No	Description	Qty	Spares Code
1	Pump cover lid	1	-
2	Cover lid seal	1	-
3	PCB	1	-
4	PCB screws	4	-
5	Battery female connector in PCB	1	-
6	Motor female connector in PCB	1	-
7	Battery male connector	1	-
8	Battery	1	1056021
9	Motor male connector	1	-
10	Motor	2	-
11	Motor fixing screw	2	-
12	Rubber diaphragm with magnet	2	1056014
13	Chamber with flapper valve	2	1056014
14	Pump base	1	-
15	Pump outlet cover	1	-
16	Outlet foam seal	1	-
17	Outlet O ring seal	2	-
18	Outlet cover screw	1	-
19	Rubber base feet	4	-
20	Base screw	4	-
21	Base screw hole seal	4	-
22	Air intake filter	1	1056014
23	Air intake cover	1	-
24	Air line	2	-
25	Air stone	2	-
26	foam float	2	-
27	Solar panel	1	-
28	Solar panel bracket	1	-
29	Tube	1	-
30	Ground Spike	1	-
31	Wall mounting bracket	1	-
32	Wall bracket screw	3	-
33	Cable	1	-



2. TECHNICAL SPECIFICATION

Pump working voltage: DC3.3V-4.2V
Pump working current: 150MA-214mA
Pump working power: 0.5W-0.9W
Pump maximum flow: 60UH
Pump maximum pressure: 5.5Kpa
Maximum Pumping Depth: 50cm
Number of air stone: 2pc
Air line: 2 meters x2pc

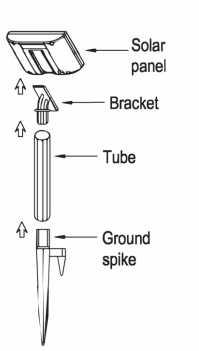
Solar panel: 0.8Watts-5Vlot-160mA
Backup Battery: Li-ion 3.7V/1.2Ah
Low voltage cable: 500cm

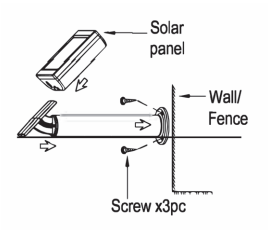
Protection grade of pump: IP44
Protection grade of solar panel: IP44

INSTALLATION

3. INSTALLATION OF SOLAR PANEL

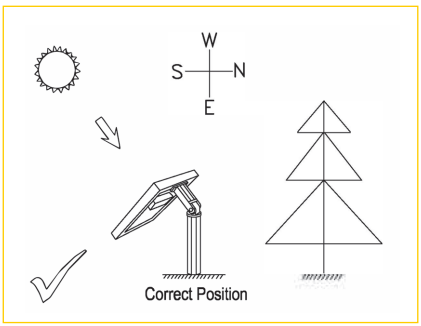
Join the bracket, tube and ground spike together and then attach the solar panel to the bracket. Slide the bracket into the bracket slot in the backside of the solar panel. A wall mounting bracket with 3pc wall mounting screws are included in pack. You can install the solar panel onto the wall/fence *(see fig. 2)*.

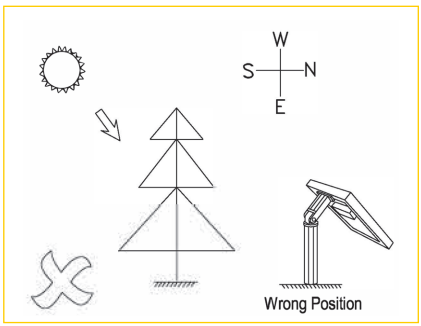




IMPORTANT!

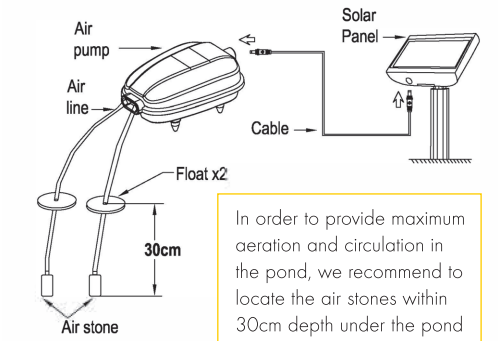
Make sure you position the solar panel to face south as much as possible to make the most of the daylight hours. It is important to angle the solar panel to face the sun when it is at its highest point. Ensure the solar panel is not shaded by trees, shrubs or buildings.





4. ASSEMBLY OF SOLAR AIR PUMP

Feed the air line through the hole in the foam float then connect one end of the air line to one outlet of the air pump, connect the other end of the air line to the air stone. Repeat above assembly for the other outlet. Connect the air pump to the solar panel with the provided cable.



In order to provide maximum aeration and circulation in the pond, we recommend to locate the air stones within 30cm depth under the pond water level by using the provided floats.

INSTALLATION

5. INSTALLATION OF AIR PUMP

Install the pump in a dry place. Although the air pump is designed to be rain proof, we recommend to place the air pump in a dry weatherproof covered area.

We recommend to place the pump above the pond water level to avoid back siphoning of the pump water into the air pump. The pump should be located on a firm surface that will not vibrate and act as a sounding board, a concrete floor or patio slab is ideal.

Position the pump in a clean and dust free environment. Excessive dirt will block the air filter reducing the air pump's performance and speed the wear of replaceable parts.

6. FUNCTION OF PRODUCT

After you have assembled the air pump and solar panel *(see sections 3, 4 & 5)*, your air pump will begin to work as soon as the solar panel receives direct sunlight, or when the back up battery has enough charge.

This solar powered air pump is designed mainly for use in Summer but will also work in Spring and Fall as long as the sunlight is strong enough in your region. The solar powered air pump, in common with all solar powered air pumps, needs good direct sunlight to drive the pump and charge the backup battery. The pump's performance depends on the orientation of the solar panel toward the sun (see section 3) and the strength of sunlight.

Solar Powered Pulse Timing Function:

The product is designed to work at a pulse timing mode of approximately 5 seconds on and 12 seconds off as long as the pump is connected to the solar panel, and the battery has received enough charges from the solar panel. The pump will shut down to save the battery power when night falls, and will restart when the sun rises in the following morning.

MAINTENANCE

7. REPLACING BATTERY

The rechargeable battery will become less efficient with repeated charge and discharge cycles. The capacity of the battery may also reduce over time, therefore it is advised to replace the battery every 12 months as a minimum or more frequently depending on daily using conditions.

1. Remove the base screws from the pump base.
2. Slightly remove the pump cover lid
3. Slightly Disconnect the battery lead from the pump cover lid, then remove and replace the battery.

Repeat the step 1 and 2 and 3 in reverse order to reassemble.

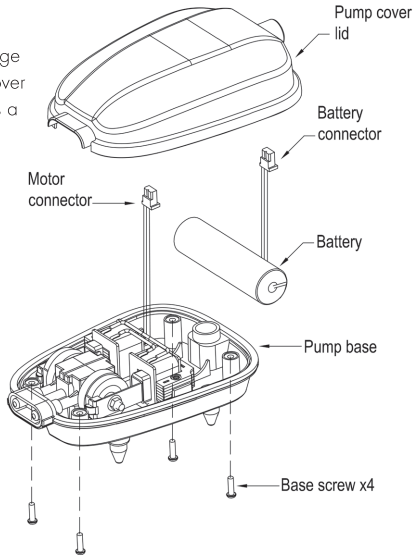
Tools Needed:

Small sized Philips head screwdriver.

Dispose of old battery according to your local regulations, recycle when possible.

IMPORTANT!

Only an original battery should be used for replacement as other alternatives may damage the product and will void the guarantee.



MAINTENANCE

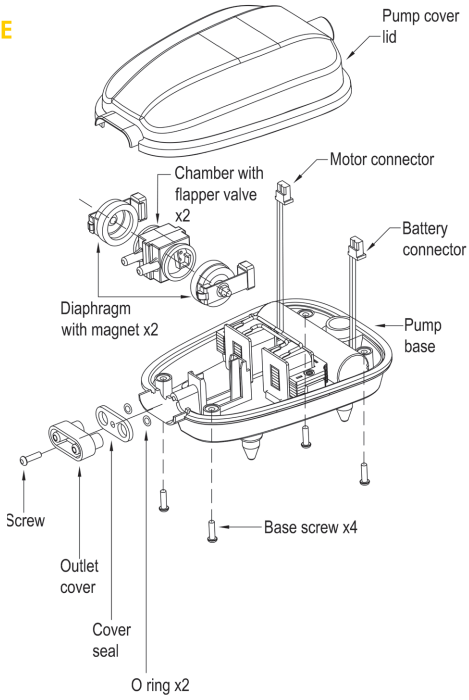
8. REPLACING DIAPHRAGM/FLAPPER VALVE

Diaphragms are perishable rubber parts that have a limited life span, they may become worn over time. The worn diaphragms will reduce the pump performance, causing noises and finally stop the pump from working. You may need to check and replace the diaphragms after 12 or 18 months use.

1. Remove the base screws from the pump base.
2. Slightly remove the pump cover lid
3. Disconnect the battery's lead and motor's lead from the PCB in the pump cover lid
4. Remove the outlet cover screw from the outlet cover, then remove the outlet cover, foam seal and O-rings.
5. Remove the chambers and the diaphragms with magnets from the chamber brackets, it may need some force to remove them.
6. Remove the diaphragms from the chambers and replace the diaphragms.
7. Or replace the chambers with flapper valve inside.

Repeat above 7 steps in reverse order to reassemble.

Tools Needed:
Small sized Philips head screwdriver.

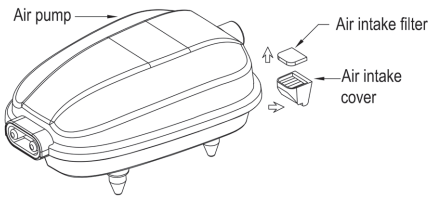


9. REPLACING AIR INTAKE FILTER

The air intake filter will become blocked and start to reduce the performance of the pump over time, therefore it is necessary to check it frequently and replace it when you find it blocked or dirty.

1. Simply remove the air intake cover in rear of the pump base.
2. Remove and replace the air intake filter

Repeat step 1 and 2 in reverse order to reassemble.



TROUBLESHOOTING

10. LOW AIR OUTPUT/ NOISY OPERATION

1. Is the pump on a sounding board, such as a wooden shed floor, if so place the pump on a patio slab that will reduce the effect *(see section 5)*
2. Are the air lines kinked
3. Placing the air stones deeper in the water increases the back-pressure on the pump, as it must work harder it may become noisy *(see section 4)*
4. Check and replace old blocked and dirty air stones
5. Check and replace blocked and dirty air intake filter *(see section 9)*
6. Check and replace worn/torn diaphragms *(see section 8)*

11. NO AIR OUTPUT/ PUMP STOPPED

1. Check connections between pump and solar panel
2. Check solar panel positioned correctly to receive direct sun light *(see section 3)*, leave it charging under good direct sun light for a while and recheck later.
3. Both diaphragms may have failed *(see section 8)*
4. Both flapper valves may have failed *(see section 8)*
5. Intake filter may be severely blocked, need to replace the air intake filter *(see section 9)*
6. Battery may have reached its life span, need to replace the battery *(see section 7)*

IMPORTANT INFORMATION

12. WINTER PROTECTION

Indoors storage is recommended in winter.

IMPORTANT!

The temperature range within which the battery can be re-charged is 0°c to 45°C. Charging the battery at temperatures outside of this range may cause damage to the battery or reduce the battery life span.

IMPORTANT!

In order to keep the battery healthy during storage in winter, please make sure the battery is re-charged before you store it indoor.

13. SAFETY WARNINGS FOR LITHIUM BATTERY

1. Lithium-Ion cells and battery may get hot, explode or ignite and cause serious injury if exposed to abuse conditions. Be sure to follow the safety warnings listed below:

- Do not place the battery in fire or heat the battery
- Do not install the battery backwards so the polarity is reversed
- Do not connect the positive terminal and negative terminal or the battery to each other with any metal object (such as wire)
- Do not carry or store battery together with necklaces, hairpins or other metal objects.
- Do not pierce the battery with nails strike the battery with a hammer, step on the battery or otherwise subject it to strong impacts or shocks
- Do not solder directly onto the battery
- Do not expose battery to water or salt water, or allow the battery to get wet

2. Do not disassemble or modify the battery. The battery contains safety and protection devices, which, if damaged, may cause the battery to generate heat, explode or ignite

IMPORTANT INFORMATION

SAFETY WARNINGS FOR LITHIUM BATTERY *continued*

3. Do not place the battery in or near fire, on stoves or other high temperature locations. Do not place the battery in direct sunlight or use or store the battery inside cars in hot weather. Doing so may cause the battery to generate heat, explode or ignite. Using the battery in this manner may also result in a loss of performance and shortened life battery life span.
4. If the device is to be used by small children, the caregiver should explain the contents of this document to the children and provide adequate supervision to ensure the device is being used appropriately .
5. When the battery is worn out, insulate the terminals with adhesive tape or similar materials before disposal.
6. Immediately discontinue use of the battery if, while using, charging or storing the battery, the battery emits an unusual smell, feels hot, changes colour or shape, or appears abnormal in any other way.
7. Do not place the battery in microwave ovens, high-pressure containers or on induction cookware. In the event the battery leaks and the fluid gets into one's eye, do not rub the eye. Rinse well with water and immediately seek medical care. If left untreated, the battery fluid could cause damage to the eye.

BATTERY CHARGING

Be sure to follow the warnings listed below while charging the battery. Failure to do so may cause the battery to become hot, explode or ignite and cause serious injury.

- When charging the battery, ONLY use the provided solar panel/battery charger.
- Do not attach the battery to a power supply plug or directly to a car's cigarette lighter
- Do not place the battery in or near fire, or in direct sunlight. Heating the battery can damage the safety circuitry, which can cause additional heating, rupture or ignition of the battery.

The temperature range within which the battery can be charged is 0°C to 45°C. Charging the battery at temperatures outside of this range may cause severe damage to the battery or reduce battery life span.

BATTERY DISCHARGING

Do not discharge the battery using any device except for the specified device. When the battery is used in devices other than the specified device, it may damage the battery or reduce its life expectancy. If the device causes an abnormal current to flow, it may cause the battery to become hot, explode or ignite and cause serious injury.

The temperature range within which the battery can be discharged is 0°C to 60°C. Use of the battery outside of this temperature range may damage performance of the battery or may reduce the battery life span

14. GUARANTEE

This product is guaranteed against defects in material and workmanship for 3 years from the date of purchase, under normal usage.

This guarantee DOES NOT APPLY in case of improper use, negligence, and lack of maintenance or accidental damage either to the pump or the replaceable parts. If the pump fails due to a manufacturing fault within this period it will be either repaired or replaced free of charge. Liability is limited to replacement of the faulty product only; no other costs will be reimbursed.

This guarantee is not transferable and does not affect your statutory rights. This guarantee does not confer any rights other than those expressly set out above. Excludes air intake filter, diaphragms with flapper valves and Battery, which may require replacing annually. If any parts need replacing, spares are available from your retailer.

Product Description: Blagdon Liberty Pond Oxygenator **Product Code:** 1055741
Interpet Ltd. Vincent Lane, Dorking, Surrey RH4 3YX, England **www.libertyfeatures.co.uk**

Blagdon

INNOVATIVE DESIGN

Liberty Mains Free Features have been designed by Blagdon, a leading British water gardening company. Over half a century in fish keeping and water gardening are brought together in this product, so you can be assured of a successful, creative water feature.