

# MIRAGE AERATORS



1/2, 1, 1.5, 2, 3 HP  
Floating Aerators



Intertek  
FILE# 3179195

Congratulations on choosing the Arbrux Limited Mirage Aerator. We at Arbrux Limited appreciate your decision for choosing our leading aerating equipment. The following is a manual regarding the installation, usage, care and storage of your Mirage Aerator. Please store this manual in an easily accessible location. DO NOT DESTROY.

### General Information

The following is provided to inform persons of potential injury hazards inherent with this product.

#### IMPORTANT SAFETY INSTRUCTIONS

- Under no circumstances should anyone enter the body of water when the Mirage Aerator is plugged in and/or in operation. It is NEVER recommended to enter water when any type of electrical equipment is in use. Also, the rotating propeller could result in serious injury. Turn off power and lock out before installing or servicing.
- Before attempting installation, service or maintenance to the Mirage Aerator in any body of water a coast guard approved flotation device must be worn.
- Always use a Ground Fault Protected circuit to power your Mirage Aerator. The unit must be grounded. Failure to connect to a proper ground fault protected circuit could result in injury or death. Ground Fault Circuit interrupters must be tested upon installation and monthly thereafter.
- Attempting to install or service the Mirage Aerator from an unstable work platform could result in injury or death. Installation and/or service work must be done from a stable work platform to avoid the possibility of capsizing.
- Control Panels must be installed by a qualified electrician.
- Do not operate the Mirage Aerator out of water.
- 3 Phase aerators require a startup test to ensure correct rotation. If rotating in the opposite direction damage to the unit may occur.
- Arbrux Limited recommends that precautions be taken around open water and thin ice. Please install appropriate signage, lights, fencing or other safety notices to inform the general public of potential danger. Alternate safety measures may be required by law in your area.

When inherent overheating protection is provided: USE WITH APPROVED MOTOR CONTROL THAT MATCHES MOTOR INPUT IN FULL LOAD AMPERES.

**UTILISER UN DÉMARREUR APPROUVÉ CONVENANT AU COURANT À PLEINE CHARGE DU MOTEUR.**

Units supplied with SJOOW/SJTOW power cables are intended for household use, other applications require SOOW/STOW.

Les unités fournies avec les cordons d'alimentation de SJOOW/SJTOW sont voulues pour l'usage de ménage, les autres applications exigent SOOW/STOW.

Immediately inspect the shipment upon arrival. Any external evidence of loss or damage must be noted on the freight bill or express receipt, and signed by the carrier's agent. Failure to adequately describe such external evidence of loss or damage may result in the carrier refusing to honour a damage claim. The form required to file such a claim will be supplied by the carrier. *If an order has a short shipment, you must notify Customer Service within 5 days of receipt along with appropriate proof of short shipment. Otherwise shipment will be considered accepted as delivered.*

## Installation, Operation & Maintenance

### Components

Standard Mirage Aerators are packed with

- Power unit including choice of power cord
- Control Panel (If required)(Optional on some models)
- Mooring Rope (2x15 meters)
- Optional water deflector if purchased
- **32" or 40" Float (depending on unit)**

### Mooring

Mooring rope included is appropriate for this installation. (In some applications additional mooring rope may be required). A sufficient length of rope should be used to allow the float to rise and fall with changes in water level. If major water level changes are expected, a small weight fixed part way down each rope will accommodate the line slack during low water. In smaller ponds, the ropes may be tied off to opposite sides, or as is commonly done in larger areas, anchored using concrete blocks or similar. The maximum distance between anchors should give the mooring line a slope of approx 3:1. (ie. In 10 feet of water, the anchors would be placed 50-60 feet apart.) Take care when placing the unit in position so that the power cord falls directly to the bottom. (Do not use power cord as a "mooring line").

If there is any probability of animals being present that could cause damage to the electrical cord, it is suggested that a protective poly split loom (that can be supplied by Arbrux Limited for an additional cost,) be wrapped around the **exposed cable**. This will minimize any possible damage to the unit's electrical cable.

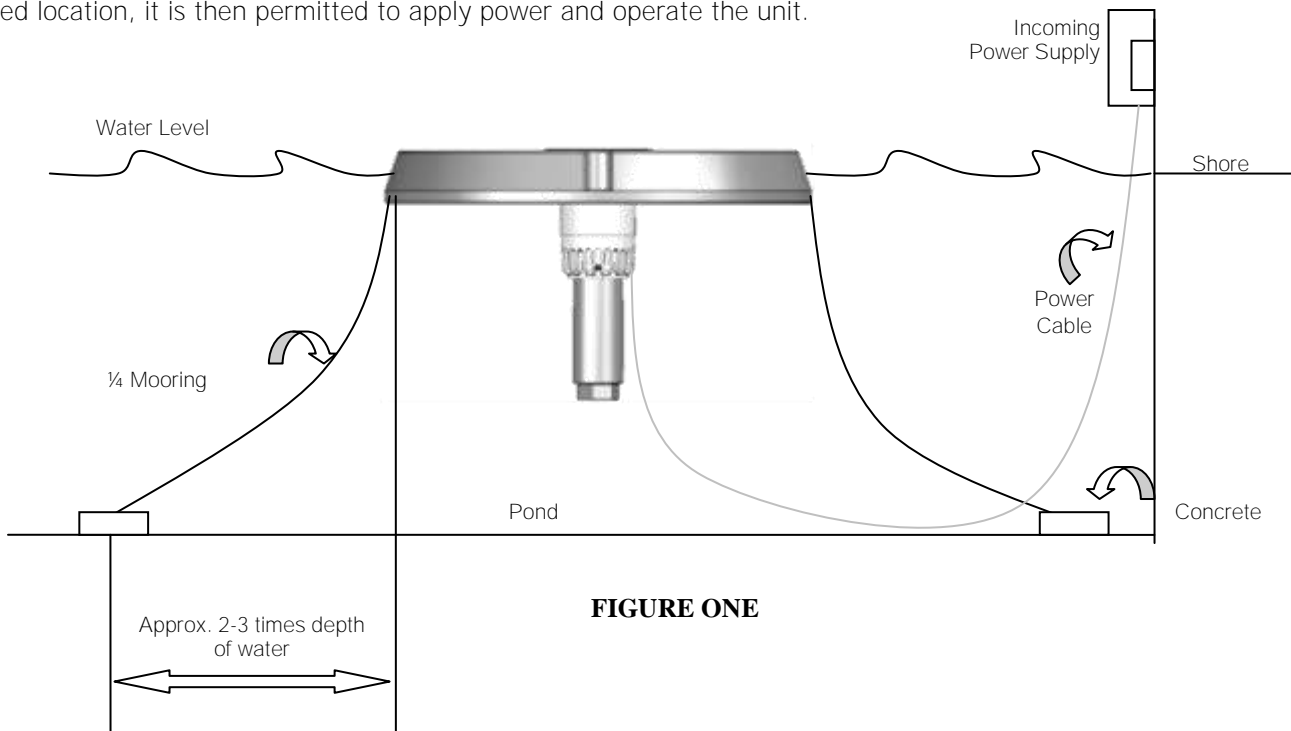
Place unit into flotation by putting the drive structure into the molded lip of the float. (figure 2) Make sure to place the unit so the slots in the float and drive structure line up. No mounting hardware is needed as the motor thrust and weight of the unit developed when under power, prevent movement.

The power cable is to run along the side of the motor, (being attached by the supplied tyrap/clamp) to ensure the cable does not become entangled in the propeller.

After the wiring is complete, unit is installed as per applicable diagram (Figure 1) and the flotation is secured in the desired location, it is then permitted to apply power and operate the unit.



**FIGURE TWO(2)**



**FIGURE ONE**

## Ice Melting

The Mirage Aerator can also be used in the winter months as a De-Icer. A De-Icing Kit must be purchased if you wish to utilize your Mirage Aerator in the winter months to keep an area of water clear of ice. (Figure 3) The unit should be placed at least 2 feet below the surface to bring the warmer water to the surface preventing the formation of ice.



**FIGURE THREE(3)**

## De-Icing and Grommet Installation

Insert the two (2) rubber grommets into the two (2) adjacent holes along the top edge of the drive structure. Angle the grommet as in fig 4. Press grommet firmly through the hole in the lip of the drive structure as in fig 5. Check to make sure that the grommet is seated snugly on both the top and bottom side of the drive structure lip as in fig 6.



**FIGURE FOUR (4)**



**FIGURE FIVE (5)**

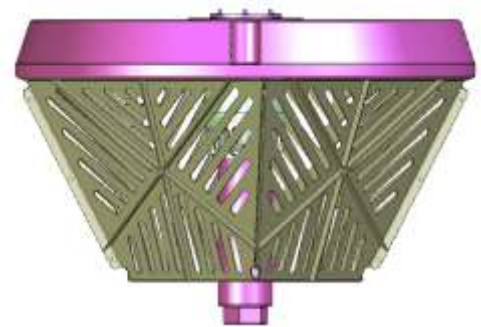


**FIGURE SIX (6)**

## Debris Management Information

The Mirage Aerator is equipped with an intake shroud at the bottom of the drive structure to minimize the chance of debris fouling the unit. It is designed in such a way that it will maintain a maximum flow of water through the pump. The pump shroud is not to be considered a safety device and in certain situations it may be desired to add additional debris barriers to the aerator equipment.

The 2 & 3 HP Mirage Aerator has an optional intake screen that provides extra debris management for areas where large amounts of debris is an issue. It will help keep foreign objects from becoming in contact with the intake area and/or the propeller of the unit. Contact the factory for more information. See Fig 4.



**FIGURE FOUR(4)**

## Minimum Water Depths

- 1/2 HP Vertical Mount - 24"
- 1 HP Vertical Mount – 32"
- 2 HP Vertical Mount- 36"
- 3 HP Vertical Mount – 40"

## Time Clock Programming

### Electrical Control Panel Warranty

All electrical panel & onshore components have a one year warranty should they fail due to defects in materials or workmanship.

### Control Panel Installation

The electrical control panel must be installed in accordance with the installation instructions, in compliance with all local and National Electrical Code requirements. This should be done by a licensed electrical contractor. Any alterations to or substitution for items in this system, unless allowed by the installation instructions, will void the CSA & UL Listing and will void the product warranty. It may also create a hazardous installation. Read the instructions thoroughly before starting the installation and follow them carefully throughout. The electrical drawings for your appropriate unit may be found in the control panel.

- Power supply to control panel must be sized for 3% or less voltage drop and match voltage and phase supplied on front of control panel. Test before energizing aerator and when aerator is running to ensure correct voltage
- Power supply terminates on lower left terminals and ground connection to ground lug.
- Mount control panel in a shaded location to prevent excessive heat buildup
- Connect motor leads to appropriate terminals as per wiring diagram
- Connect optional light kit to a GFCI protected 120V A.C Supply.
- Check motor overload setting matches panel nameplate rating (3 Phase Models Only)
- Test main ground fault circuit interrupter and test monthly after
- Manually start aerator for a few seconds with timer manual control when it is in water (do not run dry) to check rotation (3 Phase Models). If rotating backwards spray pattern will be very small. Lockout power and then change motor lead phasing if necessary.
- Adjust time clock settings and set for automatic operation

Record the following

When the unit is running in the water under load

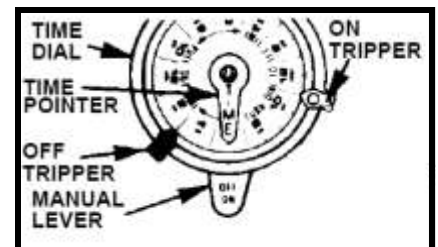
VOLTAGE	AMPERAGE
L1-L2_____	L1_____
L1-L3_____	L2_____
L2-L3_____	L3_____

### Time Clock Programming (for units equipped with a timer)

1. **TO SET "ON" and "OFF" TIMES:** Hold trippers against edge of CLOCK-DIAL, pointing to time (AM or PM) when ON and OFF operations are desired, tighten tripper screws firmly. For additional tripper pairs on CLOCK-DIAL order 154T1978A.
2. **TO SET TIME-OF-DAY:** Pull CLOCK-DIAL outward. Turn in either direction and align the exact time-of-day on the CLOCK-DIAL (the time now, when switch is being put into operation) to the pointer. DO NOT MOVE THE POINTER

### OPERATING INSTRUCTIONS

- **TO OPERATE SWITCH MANUALLY:** Move MANUAL LEVER below CLOCK-DIAL left or right as indicated by arrows. This will not effect next operation.
- **IN CASE OF POWER FAILURE** reset CLOCK-DIAL to proper time-of-day. See programming instructions.



## Electrical Connections

All electrical connections shall be wired per local electrical codes. Determine the voltage of the unit 120 or 240V Single phase, 208,230,460 or 575V 3 phase. Ground fault protection is strongly suggested on any electrical device. Ground fault devices are not to be confused with or used as a circuit breaker or switch. Units that come complete with a supplementary ELCI are as follows:

1/2 HP, 208V 3P, 1/2 HP, 230V 3P, 1/2 HP, 460V 3P, 1 HP, 208V 3P, 1 HP, 230V 3P, 1 HP, 460V 3P, 2 HP 240V, 1P., 2 HP 208V, 3P., 2 HP 230V, 3P., 2 HP 460V, 3P., 3 HP 208V, 3P., 3 HP 240V, 1P., 3 HP 230V, 3P., 3 HP 460V, 3P.,

Motor Prefix	H.P	Volts	Maximum S.F Amps	Watts	Line to Line Resistance	Circuit Breaker Amp Size Standard	Fuse Amp Size Time Delay
244301	0.5	120	12A	1000	1.0-1.3	30	15
244505	0.5	240	6A	1000	4.2-4.5	15	8
234501	0.5	208	3.4A	1000	6.6-8.4	8	4
234551	0.5	230	2.9A	1000	9.5-10.9	6	4
234521	0.5	460	1.4A	1000	38.4-44.1	3	2
214508	1	240	9.8A	1500	2.2-2.7 M 10-1-12.3 S	25	25
234503	1	208	5.4A	1500	3.8-4.5	15	6
234553	1	230	4.7A	1500	4.9-5.6	10	6
234523	1	460	2.4A	1500	19.9-23.0	5	3
234534	1.5	575	2.4A	1460	20.3-25.0	15	3
224301	2	240	13.2A	2100	M1.8-2.3 S5.8-7.2	25	15
234305	2	208	9.3A	2150	1.8-2.4	20	11
234315	2	230	8.1A	2150	2.3-3.0	20	10
234325	2	460	4.1A	2150	9.2-12.0	15	5
234335	2	575	3.2A	2150	14.6-18.7	15	5
224302	3	240	17A	3020	M1.0-1.5 S4.0-4.9	40	20
234306	3	208	12.5A	2980	1.3-1.7	30	15
234316	3	230	10.9A	2980	1.8-2.2	25	12
234326	3	460	5.5A	2980	7.2-8.8	15	6
234336	3	575	4.4A	2980	11.4-13.9	15	5

Note: Each Mirage Aerator is tested under operating conditions at the factory before packaging and shipment to verify operational characteristics at specific voltages.

## Aerator Power Cable Runs

This table shows the maximum cable runs that can be obtained for each gauge of cable up to 180 meters.

Aerator Cable Runs							
Horsepower	Volts	Phase	14 Gauge	12 Gauge	10 Gauge	8 Gauge	6 Gauge
0.5	115	1	30	45	75	105	180
	240	1	120	180			
	208	3	180				
	230	3	180				
	460	3	180				
1	240	1	75	120	180		
	230	3	165	180			
	208	3	120	180			
	460	3	180				
1.5	575	3	180				
2	240	1	45	75	120	180	
	230	3	90	150	180		
	208	3	60	105	180		
	460	3	180				
	575	3	180				
3	240	1		45	90	135	180
	230	3	60	105	180		
	208	3	45	75	135	180	
	460	3	180				
	575	3	180				

Note: Lengths shown are in meters. Cable size must be maintained from electrical panel to the aerator. Confirm with your local electrical code to insure cable sizes are appropriate for your area.

## Insulating & Winding Resistance Values

CONDITION OF MOTOR AND LEADS	OHM VALUE	MEGOHM VALUE
A used motor which can be reinstalled	10,000,000 (or more)	10
MOTOR IN WATER. OHM readings are for drop cable plus motor.		
A motor in the water in reasonably good condition	50,000- 2,000,000	0.5-2.0
A motor which may have been damaged by lightning or with damaged leads. Do not pull unit for this reason.	20,000- 500,000	0.02-0.5
A motor which definitely has been damaged or with a damaged cable. The unit should be pulled and repairs made to the cable/motor replaced. The motor will not fail for this reason alone, but it will probably not operate for long.	10,000- 20,000	0.01-0.02
A motor which has failed or with completely destroyed cable insulation. The unit must be pulled and the cable repaired/motor replaced.	less than 10,000	0.0-0.1
Insulation resistance does not vary with rating. Motors of all HP, voltage and phase rating have the same value of insulation resistance		

### Important

Disassembly of the motor by anyone other than an authorized service centre or by the factory will void the warranty. There are no user serviceable parts in the motor.

The Mirage Aerator uses a super stainless submersible motor. These motors are filled with water therefore being water-cooled and the bearings are water-lubricated. For this reason in the winter months if it is not in use, it is recommended that you store your Mirage Aerator in an upright position. Do not expose to temperature below 2°C and avoid exposure to temperatures over 49°C. It is recommended that the unit be removed from freezing conditions unless the unit is being utilized as a Mirage Aerator for the winter months.

### Maintenance

The Mirage Aerator is virtually maintenance Free. We recommend that you remove the unit from the water periodically to visually inspect and clean any debris and build up on the motor and drive structure assembly. Be sure to check the propeller/impeller for wear. **DO NOT TAMPER WITH OR DISASSEMBLE THE MOTOR. SUCH TAMPERING WILL BE EVIDENT AND WILL VOID THE WARRANTY.**

## Troubleshooting Tips

Motor will not run.	<ol style="list-style-type: none"> <li>1. Disconnect switch is off</li> <li>2. Fuse is blown/breaker tripped (if applicable)</li> <li>3. Overload tripped</li> <li>4. Incorrect or no voltage</li> <li>5. Motor winding open, shorted or grounded.</li> <li>6. Low voltage</li> <li>7. Pump Stuck or Binding</li> </ol>	<ol style="list-style-type: none"> <li>1. Place on "ON" position</li> <li>2. Replace with proper size fuse.</li> <li>3. Reset overload</li> <li>4. Determine why voltage not available - broken wires, blown fuses, or disconnect switch off. If voltage is incorrect (ref. 120V Service and 230V Pump), customer must purchase proper voltage pump, or change power supply voltage to match pump.</li> <li>5. Pull pump and replace motor or complete unit.</li> <li>6. Check with Power Company. Install heavier wiring if wire size is too small. See wiring instructions.</li> <li>7. Pump may be bound from debris. It may be necessary to pull pump and flush out the inside to free it up.</li> </ol>
GFCI trips.	<ol style="list-style-type: none"> <li>1. Problem with electrical service</li> <li>2. Water contamination to wire</li> <li>3. Bad Breaker</li> <li>4. Control Box/Motor Problems</li> </ol>	<ol style="list-style-type: none"> <li>1. Have a certified electrician diagnose the problem and contact Arbrux Limited for further instructions.</li> </ol>
Motor runs hot and overload kicks off.	<ol style="list-style-type: none"> <li>1. Motor is wired incorrectly.</li> <li>2. Voltage is too low.</li> </ol>	<ol style="list-style-type: none"> <li>1. Refer to motor I.D. label for instructions on wiring.</li> <li>2. Check with Power Company. Install heavier wiring if wire size is too small. See wiring instructions.</li> </ol>
Motor runs but no water is delivered.	<ol style="list-style-type: none"> <li>1. Intake area may be plugged.</li> <li>2. Propeller/Impeller make be damaged</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean intake screen.</li> <li>2. Repair Pump</li> </ol>
Little or no water delivered.	<ol style="list-style-type: none"> <li>1. Shorted run winding in motor.</li> <li>2. Low voltage.</li> <li>3. Intake screen plugged.</li> <li>4. Pump parts worn.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace motor or complete pump.</li> <li>2. Contact Power Company for corrective action. Install heavier wiring if too small.</li> <li>3. Pull pump and clean screen.</li> <li>4. Replace pump end or complete unit.</li> </ol>

Note: The Mirage Aerator is built to move a great amount of water to sufficiently aerate your pond. It is not unlikely that you will hear the splashing of water when the unit is running.

End of Mirage Aerator Instructions

## GFCI Nuisance Tripping

Arbrux Limited control panels are manufactured with class A (GFCI) ground fault circuit interrupters. These are designed to shutoff the supply of power to equipment if there is a leakage current to ground.

Class A GFCI devices are very sensitive and occasionally may experience nuisance tripping. This may occur every minute, hour, day, week or longer. This can occur for many reasons. The most common cause of nuisance tripping is longer cable runs over 60 m (200 feet) in single phase applications. Three phase applications are also affected by nuisance tripping in longer cable lengths. Other causes in all applications may be caused by power spikes or surges from the local utility, VFD drives and high power signals.

In order to determine the cause of the nuisance tripping the complete pump and cable assembly should be Meggered or Hi Pot tested to ensure that they are not the cause of the tripping. The reading for a megger test should be greater than 30 M ohm. Hi Pot testing at 1.2 KV should have a leakage current of less than 20mA.

If the pump and cable assembly are in good condition then one option to correct the problem is to shorten the cable length if possible to reduce the cause of nuisance tripping. If shortening the cable is not possible then installing a GFCI with a higher trip setting may be an option. The class A GFCI interrupter supplied by the factory is set to trip at less than 6 mA, higher trip settings are typically at 10 and 30 mA. If a higher trip setting GFCI is installed by the customer then it may not meet local or national codes and all subsequent liability is assumed by the owner. A higher leakage setting GFCI if necessary is still better than no ground fault leakage protection at all.

## 2 Year Limited Warranty

This warranty is the only warranty that Arbrux Limited makes for your Mirage Aerator and it is in lieu of any other warranties, express or implied and any other obligation or liability whatever on the part of Arbrux Limited. Arbrux Limited warrants the Mirage Aerator should it fail due to defects in materials or workmanship for 24 months from date of shipment to the original purchaser. This warranty applies when given normal and proper usage as determined by the manufacturer upon examination and when owned by the original purchaser who has registered the warranty. In no event shall Arbrux Limited be held liable for any special or consequential damages.

## Warranty Claim Procedure

Warranty determination will be made by our technical service department in accordance with the appropriate warranty policies. All warranties must be accompanied by a valid RMA number. This can be obtained by contacting Arbrux Limited Customer Service. A copy of original proof of purchase including serial number is required for all warranty returns. Please Mark RMA number prominently on outside of the box being shipped. Items returned for warranty will be FOB Arbrux Limited and should be returned in the original packaging to ensure minimal return shipping costs. If the original packaging is not retained and used by the customer, Arbrux Limited will supply replacement packaging (at a nominal charge) upon return of the equipment to the customer. Only complete assemblies including power cable will be considered for warranty repair. It is not necessary to return control box or float unless your electrician has determined the control box needs repair

## Repair Returns

**To avoid any delays in the repair of equipment in question, it's best to call the factory at 888-211-3548** to determine what portion or portions of the equipment in question should be returned. The Mirage Aerator is to be returned completely assembled. Do not disassemble any portion without prior authorization. A copy of original proof of purchase including serial number is required for all repair returns.

Shipping is FOB Arbrux Limited and all items should be returned in the original UPS approved packaging to ensure minimal shipping charges. If the original packaging is not retained and used by the customer, Arbrux Limited will supply replacement packaging (at a nominal charge) upon return of the equipment to the customer.

Upon the inspection of the returned equipment, whether in warranty or not, contact by Arbrux Limited to proceed with repair will be made to the owner or agent with an explanation of the repairs and charges if any. **NO REPAIRS WILL BE MADE UNLESS AUTHORIZED BY THE OWNER OR AGENT.** If Arbrux Limited is **unable to contact the owner/agent within 30 days after receipt of the equipment for repair, a "signature Required" notice will be forwarded to the owner/agent stating that disposal of the equipment will be made 30 days from the date of this notice.**

You may Contact:  
Arbrux Limited  
33 Alliance Blvd, Unit 6  
Barrie, ON  
L4M 5K2  
1(888)211-3548

Customer Registration Copy

Owner Name: \_\_\_\_\_

Date Purchased: \_\_\_\_\_

Owner Address: \_\_\_\_\_

City: \_\_\_\_\_ Prov/State: \_\_\_\_\_

Model #: \_\_\_\_\_ Serial #: \_\_\_\_\_

Dealer Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ Prov/State: \_\_\_\_\_

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Mail In form  
Warranty Registration

Purchase Date: \_\_\_\_\_

Model #: \_\_\_\_\_ Serial #: \_\_\_\_\_

Owner Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ Prov/State: \_\_\_\_\_ PC/Zip: \_\_\_\_\_

Dealer Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ Prov/State: \_\_\_\_\_ PC/Zip: \_\_\_\_\_

# MIRAGE AERATOR PARTS LIST

TBD

