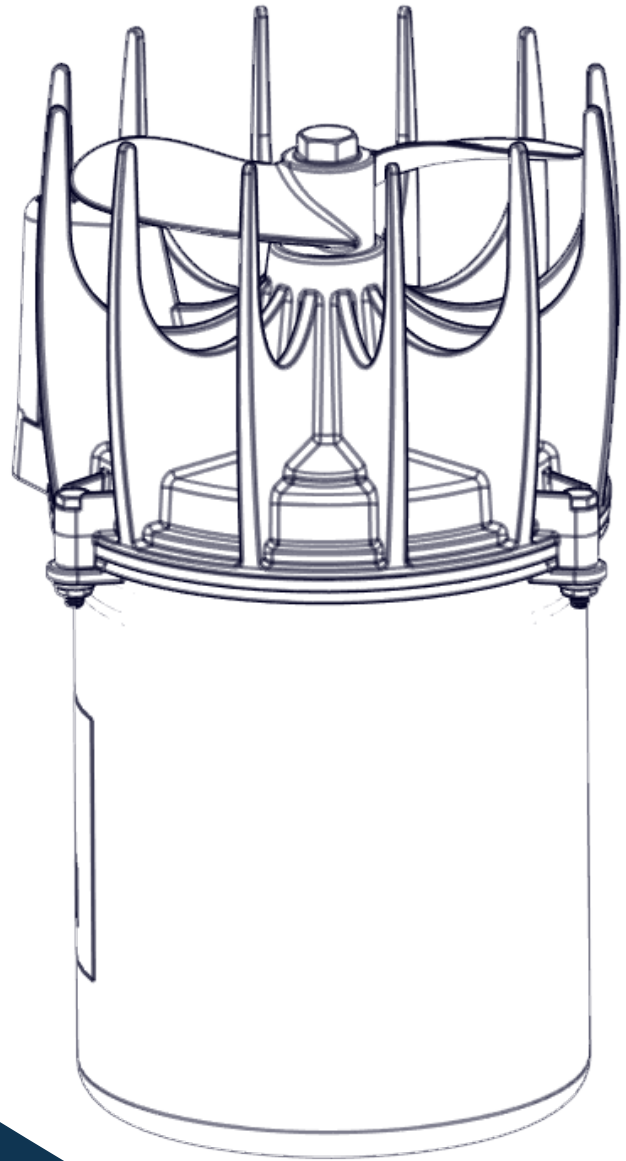




MOVING WATER FORWARD, SINCE 1968

# AquatiClear CIRCULATOR



## Operation & Maintenance Manual



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## QUESTIONS?



715.262.4488



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# SAFETY FIRST

**IMPORTANT: PLEASE READ THIS MANUAL AND SAVE FOR FUTURE REFERENCE**

## WARNINGS:



Moving Machinery



Shock Hazard

Please read and follow these extremely important safety and handling instructions for your Kasco equipment. Following these instructions will help ensure your safety and the quality performance of your equipment.

- Under NO circumstances should anyone enter the water with the electrical equipment plugged in and/or in operation.
- Use caution when dealing with any electrical and/or moving equipment.
- NEVER run the unit out of water. It will damage the seals and create a dangerous situation for the operator.
- Use extreme caution around water, especially cold water, such as in spring, fall, and winter, which poses a hazard in itself.
- NEVER lift or drag the AquatiClear Circulator by the power cord. If you need to pull the unit to the side of the pond, use the anchoring ropes or mount apparatus.
- Do not use waders in deep water or ponds/lakes with drop-offs, drastic slopes, or soft bottom material.
- Do not use boats that tip easily, such as canoes, for installation, and follow all boating safety rules and regulations, including wearing a PFD (Personal Flotation Device).
- Single-phase units are supplied with an internal grounding conductor and a grounding-type attachment plug. To reduce the risk of electrical shock, be certain that the unit is plugged into a GFCI-protected circuit.
- Control panels must be installed a minimum of 5ft (3m) from the inside wall of the pond, unless separated from the body of water by a fence wall, or other permanent barrier that will make the unit inaccessible to persons in the water.
- Control panels must be installed by a qualified electrician.
- Ground Fault Circuit Interrupters (GFCI) should be tested upon each installation and every month thereafter to ensure proper operation.

# OVERVIEW

## Inspect the Shipment

Immediately inspect your Kasco AquatiClear shipment for any visible damages. Any damage should be reported immediately to your carrier and Kasco.

## Assembly & Installation

Assembly and installation instructions are included with your Kasco float or mount kit. Note: It is extremely important to test the GFCI breaker in the control panel upon each installation/re-installation of the unit to ensure proper functioning.

## Warranty

Kasco Circulators are the result of more than 35 years of design and engineering. Our products are built to withstand the toughest conditions. Kasco Marine backs each AquatiClear unit with a 2 Year Warranty. This warranty covers any and all manufacturers defects within the warranty period from the date of purchase.

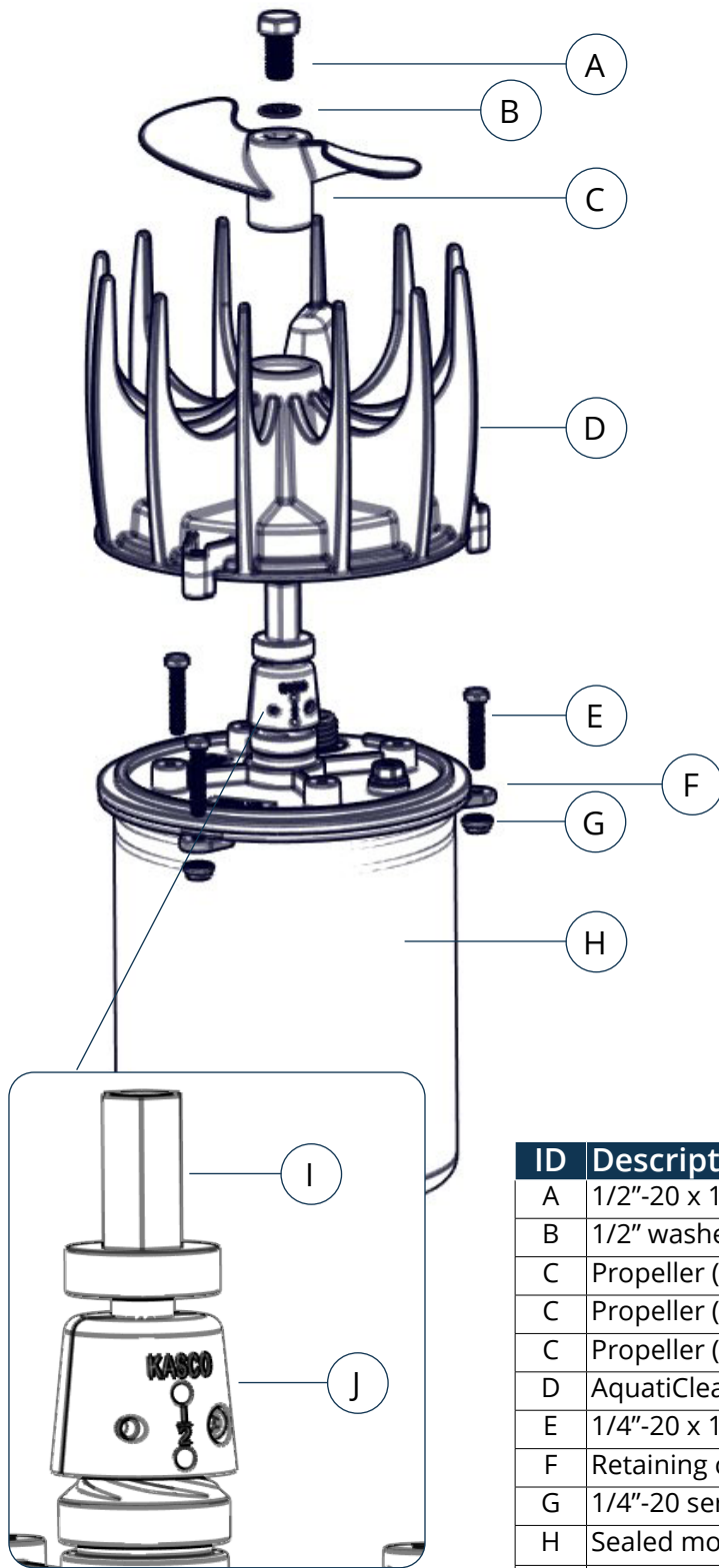
## Use and Operation

Kasco Circulators are designed and engineered for continuous duty. Upon installation, your Kasco AquatiClear is ready for immediate use. Make sure to keep the motor housing clean from hard water deposits and/or algae. Kasco Circulators are lightweight, energy efficient, and easy to install and operate.

# UNIT SPECIFICATIONS

Model	HP	Voltage	Operating Amps	Locked Rotor Amps	Thrust
60 HZ Units					(lbs.)
2400C	1/2	120V	5.4	12	30 lbs.
3400C	3/4	120V	6.6	18	36 lbs.
3400HC	3/4	208-240V	3.1	9	36 lbs.
4400C	1	120V	9.1	40	41 lbs.
4400HC	1	208-240V	4.5	20	41 lbs.

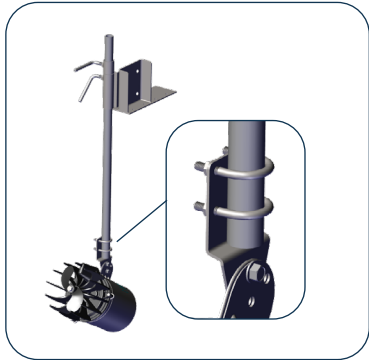
# PARTS OVERVIEW



ID	Description	Qty	Part No.
A	1/2"-20 x 1" hex head screw	1	243410
B	1/2" washer	1	241024
C	Propeller (2400)	1	240180
C	Propeller (3400)	1	340135
C	Propeller (4400)	1	440435
D	AquaticClear prop guard	1	993210
E	1/4"-20 x 1-1/2" hex head screw	3	475695
F	Retaining clip	3	140312
G	1/4"-20 serrated flange nut	3	840538
H	Sealed motor unit	1	N/A
I	Prop stop	1	440630
J	Sacrificial anode assembly	1	243474

# MOUNT OPTIONS

Pictured here with an AquatiClear Circulator, Kasco offers a variety of mounting options to best position units for optimal water flow.



## Dock Mount

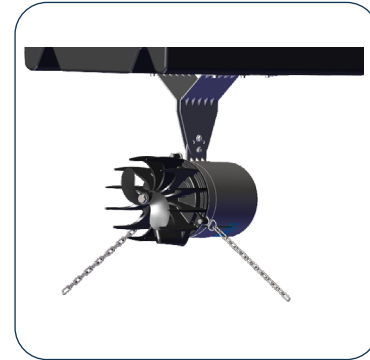
For pipe diameter: 1 inch

Easily lower, angle, and position units for proper water movement. Mount to a dock, piling, wall, or other in-water property. Packages include upper and lower mount assemblies; pipe supplied by customer.

## Upper mount features

Two pipe brackets secure dual handles for easy maneuvering, making installation and maintenance simple.

The upper mount can be secured horizontally, as shown above, or vertically (right), allowing installation options for a variety of shoreline structures.



## Float Mount

Kasco's Horizontal Float suspends the unit in the water via stainless steel components and offers three angles of unit orientation. This mount is well suited for shallow water applications.

# CONTROL PANEL OPTIONS

## C-25

- 15 Amps
- 110-120 Volts
- 24-hour timer
- GFCI protection
- Photocell outlet for optional lighting control

## C-220

- 20Amps
- 208-240 Volts
- 24-hour timer
- GFCB protection
- Surge protector

# MAINTENANCE RECOMMENDATIONS

**UNDER NO CIRCUMSTANCES SHOULD ANYONE ENTER THE WATER WHILE A CIRCULATOR IS OPERATING.**

Please keep the original box for maintenance shipping.

The following maintenance procedures will many years of quality performance from your Kasco AquatiClear and reduce the need for more costly repair work.

## **Proper Installation**

Proper installation of Kasco equipment will include a power source with Ground Fault Circuit Interruption (GFCI). Ground fault circuit interrupters are a safety feature that can also alert you to electrical leaks in the equipment. It is extremely important to test the GFCI upon installation, after each re-installation, and monthly thereafter to ensure proper operation. If you have repeat, consistent trips on your ground fault, disconnected the equipment and removed from the water. Inspect the power cord for damage and call Kasco Marine at 715- 262-4488 for further instructions.

## **Observation**

Observe operating equipment on a regular basis (daily, if possible) for any reduction or variation in performance. If you observe a change in performance, disconnect the equipment from its power source and inspect for any material that may have clogged the system or wrapped around the shaft of the motor, especially plastic bags and fishing line. Even though Kasco circulators are among the most clog-resistant on the market, it is impossible to protect against all items that can clog equipment and still maintain a flow of water. These materials can be very damaging to the equipment under continuous operation and must be removed as soon as possible.

**ALWAYS UNPLUG THE UNIT BEFORE ATTEMPTING TO REMOVE CLOGS.**

## **Winter Storage**

In regions where there is significant freezing in the wintertime, remove the circulator from the water to protect it from the expansion pressure caused by ice. Storage over winter is best in a location that is out of the sun and cool, but above 32 °F. During the offseason, it is important to store units horizontally if they are going to be sitting for long periods of time. Units that sit upright on a shelf for many months, or even years, have a greater likelihood of seals drying out, and setting them with the propeller and guard down risks damaging the tines. Storing the unit on its side will help to ensure oil is lubricating the seals without damaging the propeller guard.

## **Cleaning**

Circulators should be removed from the water at least once per year (at the end of the season in cold climates) to clean the exterior of the system, especially the stainless steel motor housing (can). The motor housing is the surface that dissipates heat into the water, and any algae, calcium, or other build-up will become an insulator that blocks heat transfer. In warmer regions, Kasco recommends removing the motor and cleaning it at least two to three times per year, depending on conditions. In most cases, a power washer will be sufficient if the unit and algae are still wet.

## **Seal & Oil Replacement**

This is a sealed motor assembly, and seals will wear out over time (similar to brake pads on a car). Replacing the seals and changing the oil after three years may add longevity to the operation of the motor, saving you the cost of more expensive repairs. In warmer climates where the circulator runs most or all of the year, it is a good idea to replace seals more regularly than you would need to in colder climates where the unit is removed from the water for several months.

## **Sacrificial Anode**

A sacrificial anode is supplied on the shaft of all circulators for protection of the equipment from corrosion and electrolysis. The anode should be updated (replaced) if reduced to half the original size or if white in color. Corrosion from electrolysis is more commonly associated with salt water or brackish water, but as a matter of precaution, it is important to periodically check the anode in all installations (at least every two to three months). Seal replacement and all other repair services should be performed by Kasco Marine or a Kasco trained Authorized Repair Center. Any alterations or changes made to Kasco units by an unauthorized source will void the warranty. This includes tampering with the unit, power cord, and/or control box. Please contact Kasco at 715-262-4488 for your nearest Authorized Repair Center.

# TROUBLESHOOTING TIPS

Below are some helpful troubleshooting tips. If a problem occurs, please double check the assembly and installation instructions as well as the instructions for the proper control panel. More troubleshooting tips can be found at [www.kascomarine.com](http://www.kascomarine.com).

## ***“My circulator trips the ground fault circuit interrupter in the C-85 or C-95.”***

This is the most common symptom of several possible problems. To correctly diagnose the problem, you will need to collect more information. A Ground Fault Circuit Interrupter (GFCI) breaker that trips can indicate an electrical service problem, water contamination in the unit and/or cord, bad breaker, control box problems, motor problems, etc. Try to find out the answers to these questions before you contact Kasco to narrow down the problem.

- How long does it take to trip the breaker?
- Does it always take the same amount of time to trip?
- How many times has it tripped?
- Have there been any recent electrical problems in the area?

## ***“My circulator seems to run slowly.”***

This can also be a symptom of several possible problems. There could be an electrical problem where the unit is not getting the proper voltage. This could also indicate a problem with the motor of the unit, which needs to be looked at by an Authorized Repair Center. Check that the unit is receiving the proper voltage, and, if so, contact Kasco for further steps.

## ***“My circulator hums, but will not start. When I spin the prop with a stick, it starts up.”***

(for single phase units only) This indicated a problem with the Starting Capacitor. Each Kasco AquatiClear is equipped with a Starting Capacitor to get the unit going when it is first plugged in. If it is operating, but not spinning and can be started by spinning the prop with a stick, the Starting capacitor needs to be replaced by an Authorized Repair Center.

## ***“My circulator turns itself off and back on without the timer and without tripping the GFCI breaker.”***

(for single phase units only) Each Kasco unit has a Thermal Overload built in that will turn the unit off when it overheats. Once the unit has cooled down, it will start back up. If you are noticing these symptoms, the unit should be unplugged immediately because the Thermal Overload will continue to turn on and off until it burns out and damages the motor. The unit should be unplugged and taken out of the water to find the cause of the problem. The problem could be one of many, such as, low water levels, build-up on the unit to prevent heat dissipation, something inhibiting the free rotation of the shaft, etc. If something is caught in the unit or there is a build-up on the unit, remove the debris and, if caught early enough, the unit should be fine. Contact a Kasco representative before restarting the unit.

## ***“My circulator flow seems to fluctuate and/or be less than usual.”***

This can occur because of a few different reasons. Most of the time, this symptom is caused from unit being clogged with debris. A mat of weeds, many leaves, plastic bags, etc. can clog up the unit and cause it to be starved of water. If the unit does not have the proper amount of water, the flow or pattern will fluctuate up and down and look sporadic. If you are seeing these symptoms, first try turning off the unit and/or unplugging it for 10 seconds, allowing debris to fall away. If the problem persists, unplug the unit and clean away any debris that is clogging up the guard. Another possibility if these symptoms are present, is a chipped or damaged prop that is causing the unit to wobble and not pump properly. When the unit is unplugged, check the prop for damages and replace if damage is found.

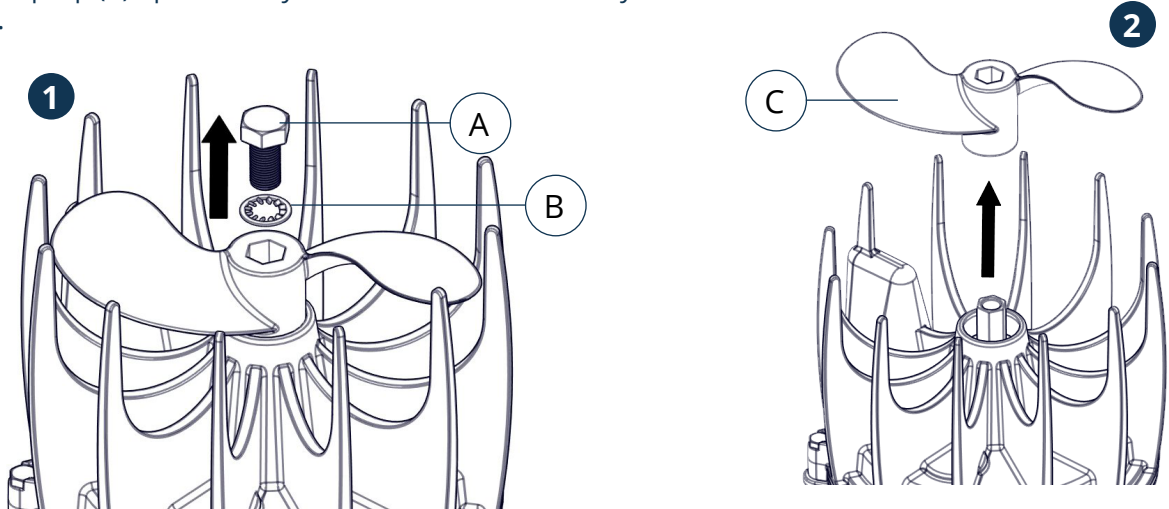
## ***“The GFCI breaker trips randomly and sporadically. Sometimes it is a few hours of operation, other times it can be days or weeks.”***

This is referred to as a Nuisance Trip. This usually occurs where the unit is installed a great distance from the initial electric service on the property where the ground stake is placed. It is caused by either induced current in the ground wire or a base voltage difference due to soil pH levels. A possible resolution to the problem, contact an electrician and install a local grounding stake. This may eliminate the induced current and any base voltage differences.

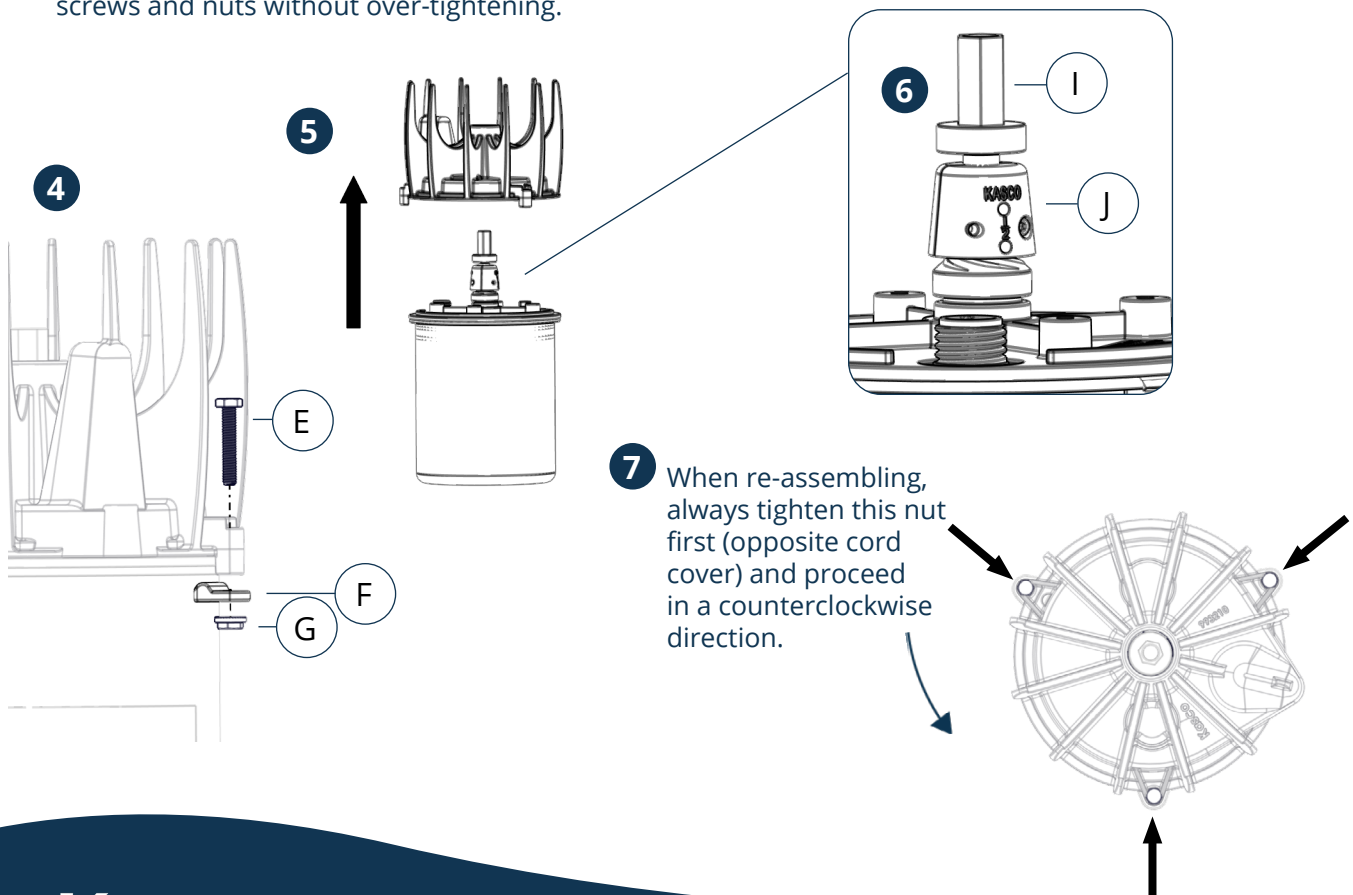


# SACRIFICIAL ANODE REPLACEMENT

1. Carefully holding onto the prop (C), loosen and fully remove the 1/2"-20 x 1" screw (A) using a 3/4" socket or wrench.
2. Remove the 1/2" washer (B).
3. Slip the prop (C) up and away from the unit and carefully set it aside.



4. Using a 7/16" socket or wrench, loosen the three 1/4"-20 serrated flanged nuts (G) and remove them from the three retaining clips (F) and 1/4"-20 x 1.5" screws (E) holding the guard (D) to the top of the unit.
5. Remove the guard (D) from the unit (H) by slipping it up and over the shaft.
6. If the anode (J) requires replacement, you may need to loosen the screws in the assembly using a 9/64" Allen wrench and/or lift the prop stop (I) away to remove it.
7. Following any maintenance, carefully reverse these steps to replace all parts, being sure to secure screws and nuts without over-tightening.



# WARRANTY

Warranty period: 2400C, 3400C, 3400HC, 4400C, 4400HC= 2 years

Kasco® Marine, Inc. warrants this water circulator to be free from defects in material or workmanship (except for the ropes, power cord, and propeller) under normal use and service. The Kasco Marine, Inc. obligation under this warranty is limited to replacing or repairing free of charge any defective part within the warranty period. Customer shall pay shipping charges for returning the unit to Kasco or an Authorized Repair Center.

THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, AND ANY OTHER OBLIGATION OR LIABILITY WHATEVER ON THE PART OF KASCO MARINE, INC. AND IN NO EVENT SHALL KASCO MARINE, INC. BE LIABLE FOR ANY SPECIAL OR CONSEQUENTIAL DAMAGES.

Warranty is void if:

- The circulator is not maintained properly according to the Maintenance Recommendations supplied in this manual.
- The circulator is returned for repair without the power cord or if the unit, control box, or power cord are altered in any way from original shipment. Cuts in the power cord are not covered under warranty.
- The circulator is not used with the supplied GFCI control box.
- The circulator is damaged by unauthorized tampering.
- The sacrificial anode around the propeller shaft shows significant deterioration. (The anode must be inspected periodically and replaced if necessary.)

## Warranty Claim Procedure

Warranty period is established by the original receipt. For efficient service, please register the unit online [www.kascomarine.com](http://www.kascomarine.com).

Once warranty coverage has been established, you may send the unit to Kasco for evaluation and repair.



Kasco only accepts complete assemblies for warranty repair. We must receive the power cord and all other components with the motor as originally assembled without the float or mount. Kasco will bill the customer to replace any missing parts necessary for repair. It is not necessary to return the control panel, mount, or other parts with the motor assembly, unless specifically requested by a Kasco representative.

Please attach a repair form with the shipment. The repair form must include a name, physical address (for return delivery of the repaired unit), daytime phone number, and an e-mail address for correspondence regarding the warranty claim.

Any expedited shipping method for the return of the unit is at the customer's expense. Kasco will return units repaired under warranty at our expense via ground freight within the continental United States.

# NON-WARRANTY REPAIRS

You can often repair failed equipment at a lower cost than replacement. Kasco estimates repairs at the request of the customer. This request should include a daytime phone number and e-mail address.

Estimate options are as follows:

- Kasco contacts the customer with a repair total after we evaluate the unit, but before we perform the work quoted.
- Customer pre-approves repair of the unit if costs are below a stated dollar amount. Example: "Please repair if total is under \$150.00 before shipping charges."

Kasco will recycle any unit we receive for estimate but which the customer declines to repair, unless the customer specifies otherwise. If the customer would like the product returned, Kasco will return the unit to the condition in which we received it, and we will ship it at the customer's expense.

## Billing

Contact Kasco to arrange payment for any non-warranty repairs. We will request payment information upon customer approval of the estimate.

## CONTACT US



Kasco Marine  
800 Deere Road  
Prescott, WI 54021



715.262.4488



[kascomarine.com](http://kascomarine.com) | [sales@kascomarine.com](mailto:sales@kascomarine.com)



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# REPAIR CONTACT FORM

- Kasco requires that all equipment sent for repair MUST be accompanied by this form and marked to Repairs attention.
- Unit should be cleaned before shipping.
- Kasco is NOT responsible for shipping damage accrued in return shipment.
- It is the responsibility of the customer to ship and pay freight to Kasco.

Kasco Marine  
800 Deere Road  
Prescott, WI 54021  
Attn: Repairs

Note: Contact information should be that of the person or company to contact for repair information.

Company name			
Contact name	First name	Last name	
Address	Street		
	City		
	State		
	ZIP code		
Phone number	Primary	Alternate	
Email address			
Preferred method of contact (circle one)	Phone	Email	
Purchase order number			
Additional product information	Serial Number	Cord Length	
Information for Repair Technician			
Was this unit used in a chemical treatment or wastewater application? (circle one)	Yes	No	
Additional notes			