



CertiSafe™ TANK MIXER



Operation & Maintenance Manual



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QUESTIONS?



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SAFETY FIRST

IMPORTANT: PLEASE READ THIS MANUAL AND SAVE FOR FUTURE REFERENCE

WARNINGS:



Moving Machinery




Shock Hazard

- Under NO circumstances should anyone enter the water with the mixer connected or in operation.
- Running the unit out of water will create a dangerous situation and damage the seals.
- NEVER lift the unit by the power cord. If you need to remove the mixer, use the installation or mount apparatus.
- The unit must be connected to a GFCI-protected circuit.
- Comply with local and national wiring standards during any electrical service disconnect.
- Consult a qualified professional for electrical installation.
- Use all Personal Protective Equipment necessary for safe ingress, installation, and egress from the work site.
- Refer to applicable national and local laws and standards to facilitate the safe installation of a CertiSafe Tank Mixer. These may include but are not limited to OSHA, CCOHS, and other regulations related to:
 - Working over or near water
 - Fall protection systems
 - Falling object protection systems
 - Electrical standards
 - Illumination
 - Ventilation
- Installation of CertiSafe™ Tank Mixers requires entry into environments that pose potential hazards, such as those described in section 1910.146 of OSHA's Occupational Safety and Health Standards for Permit-required confined spaces. As such:
 - Observe any applicable pre-entry measures required by the entry supervisor.
 - Only those authorized via the permit system in place at the installation site should participate in installation.
 - Any authorized entrant should be accompanied by at least one authorized attendant to monitor conditions inside and outside the permit spaces during installation.
 - Prior to installation, be aware of all potential fall, trip, and atmospheric hazards in the permit space, both before and after an entrance cover is removed.

MOUNT OPTIONS

Kasco offers a variety of mounting options to best position a CertiSafe™ mixer in any tank environment, all featuring durable stainless steel. There are also several optional control panels.

NOTE  These mounting kits are designed for proper placement AND retrieval of CertiSafe™ mixers. Once installed, ONLY remove mixers via the retrieval method specific to the mount.



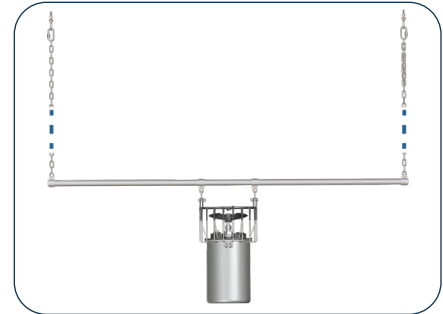
PM-100 Pipe Mount

The PM-100 makes use of other structures in the tank to position the mixer. Use the upper mount parts above the water line to adjust the unit's vertical position and to swivel the lower mount parts and the attached mixer. (Pre-cut stainless steel pipe not included.)



RM-100 Floor Mount

The RM-100 positions the mixer stably on the tank floor and comes with a retrieval chain to safely lift the unit for observation and maintenance. Protective feet on each of the legs are designed to prevent any damage to the tank. (Note: minimum clearance is 24" for square hatches, 25" for round hatches.)



Suspended Mount

Suspended from the tank roof, the SM-100 uses a 60" stretcher bar to support the mixer in a raised position within the tank. Two chains adjust the unit's elevation and facilitate safe removal for observation and maintenance. The ASM-100 accessory kit includes an additional 60" stretcher bar. The SM-50 Suspended Mount includes a 30" stretcher bar.

CONTROL PANEL OPTIONS

Standard CS-100, CS-200

- Motor contactor
- HOA, Manual or Automatic control through SCADA input
- Low water automatic shutoff
- UL 4X/3R enclosure
- 120V panel uses a 20A single pole circuit breaker
- 240V panel uses a 30A single pole circuit breaker

Advanced CS-150, CS-250

All standard features PLUS:

- Ground fault protection
- HOA, Hand and Auto position dry contacts for SCADA
- Mixer fault dry contact for SCADA
- Mixer running dry contact for SCADA
- Larger 4X/3R enclosure

Advanced models are also available in stainless steel (CS-150SS & CS-250SS)


SYSTEM OVERVIEW

The Kasco CertiSafe™ Tank Mixer is part of a submerged active mixing system. It is intended for potable water tanks (20,000 gallons and larger) to eliminate thermal stratification and ice formation, as well as maintain residual disinfectant uniformity.

CertiSafe™ mixers are shipped prepared for use. The motor is equipped with thermal overload protection; however, the mixing unit must be continuously submerged to ensure safe operation. It is important that the installation provides appropriate voltage to the motor.

Operating the mixer continuously provides maximum water circulation in your tank. Optional system controls are available from Kasco for mixer units (see page 4).

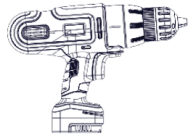
CertiSafe™ systems have a maximum operating depth of 50 feet. Effective mixing can be achieved in deeper tanks with mounting at or above this depth.

NOTE  This manual will cover the tank penetration process necessary to pass the power cable through the tank roof during installation. Individual mount manuals contain information on additional tank penetration and unit installation.

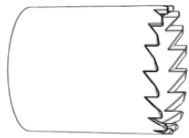
SYSTEM SPECIFICATIONS

Model	Voltage	Phase	Amps	Locked Rotor Amps	Cord Gauge		
					50' cord	100' cord	200' cord
2400C61	120	1	5.7	12	16	14	12
3400C61	120	1	7	18	16	14	12
3400H61	208-240	1	3.5	9	14	14	12
4400C61	120	1	9.1	40	14	12	10
4400HC61	208-240	1	4.5	20	14	14	12
8400C61	208-240	1	9.0	40	14	12	12

SUGGESTED TOOLS AND SUPPLIES



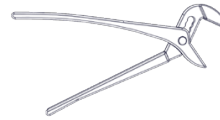
Electric or cordless drill



7/8" hole saw (or 1-7/64" for 10 AWG cable)



Half-round metal file



Adjustable pliers

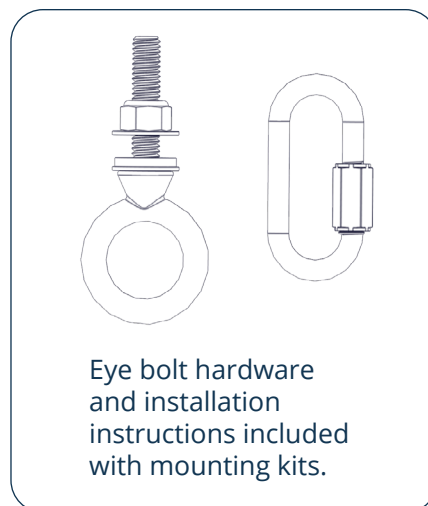
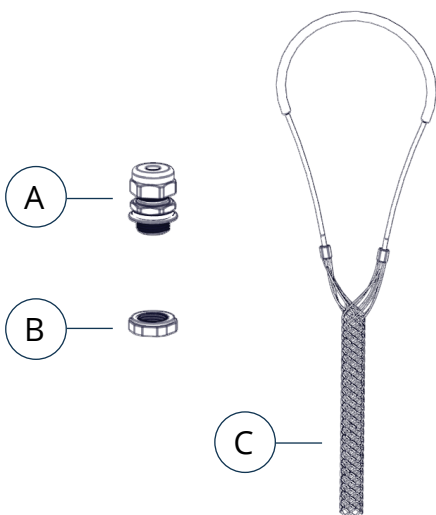


Pan to catch shavings

CABLE INSTALLATION PARTS INCLUDED

Description	Item	Qty.	Part No.	For use with Cord AWG
Cord grip	A	1	997210	14-16 AWG
			997211	12 AWG
			997212*	10 AWG
Cord grip nut	B	1	997215	12-16 AWG
			997216	10 AWG
Cable support	C	1	997220	10 AWG
			997221	12-16 AWG

* Requires larger hole in tank roof (1-7/64")



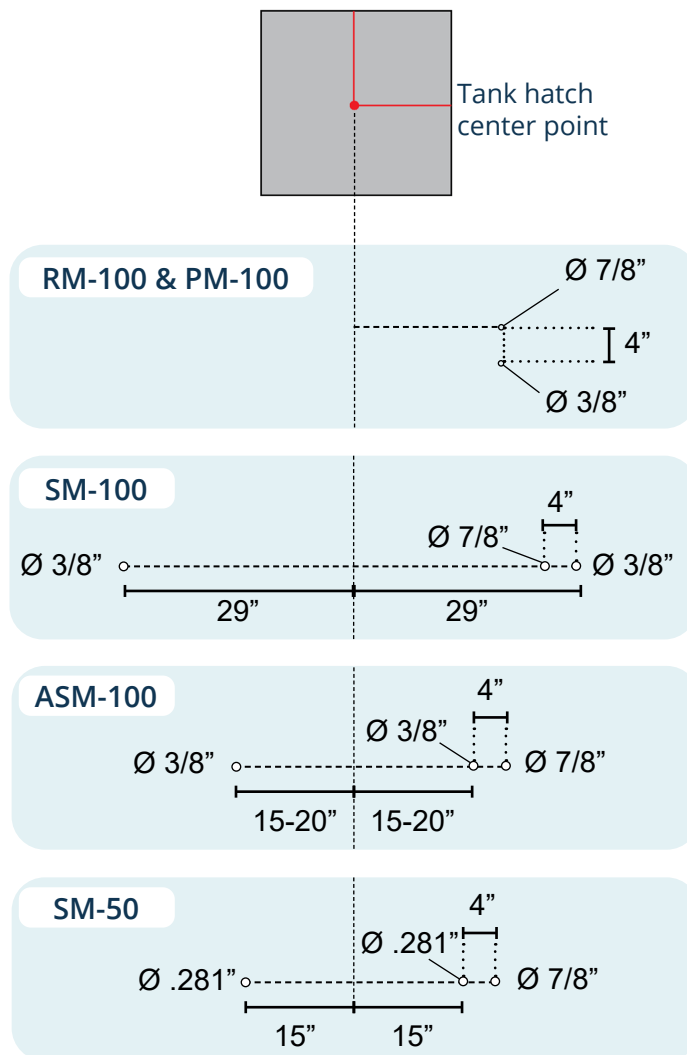
SUGGESTED TANK PENETRATION

Depending on the mount option you choose, two or three tank penetration holes will be required. The first is either a 7/8" or 1-7/64" diameter hole, depending on the cord gauge. This is for the cord grip, shipped with the CertiSafe™ Tank Mixer. Others are 3/8" in diameter (.281" for SM-50 Suspended Mount), for eye bolts that hold the cable support and any chains included with the mount.

For reference, all tank penetration measurements are detailed below, followed by instructions for the cord grip pass-through. Instructions and equipment for additional tank penetration are included with the CertiSafe™ mounting kits.

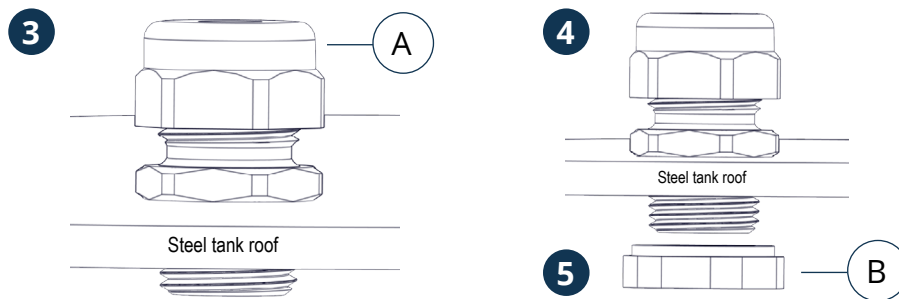
To prevent galling, we recommend a moisture-cured, polyurethane compound sealant suitable for contact with potable water and certified to meet the shrinkage for interior and exterior use. Refer to NSF/ANSI Standard 61 for indirect additives.

- NOTE** • The maximum tank roof thickness accommodated by the tank penetration parts included is 1/8".
- Suggested measurements are based on a 24" square access hatch.

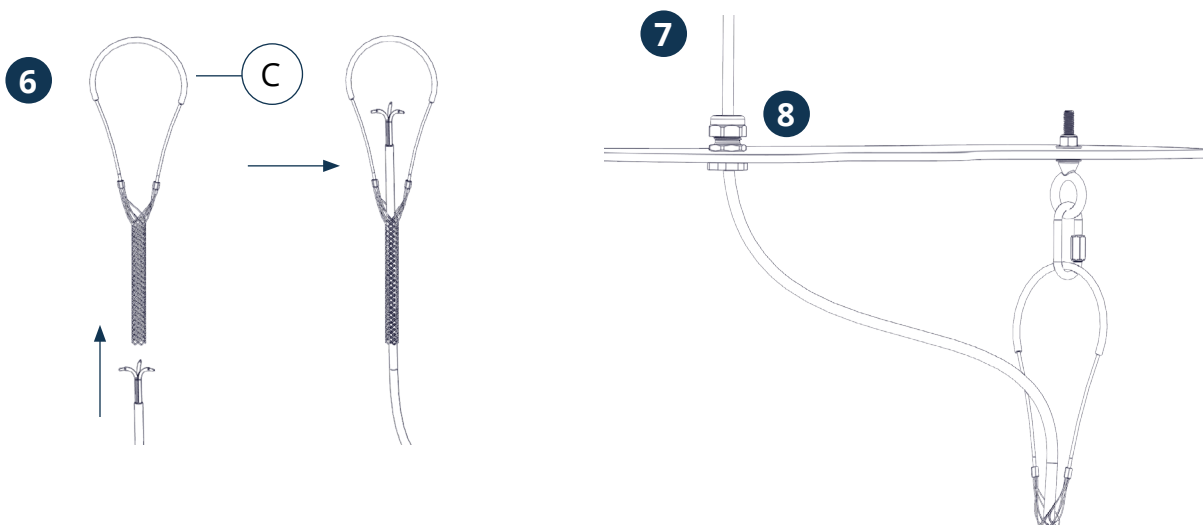


SUGGESTED TANK PENETRATION (CONT.)

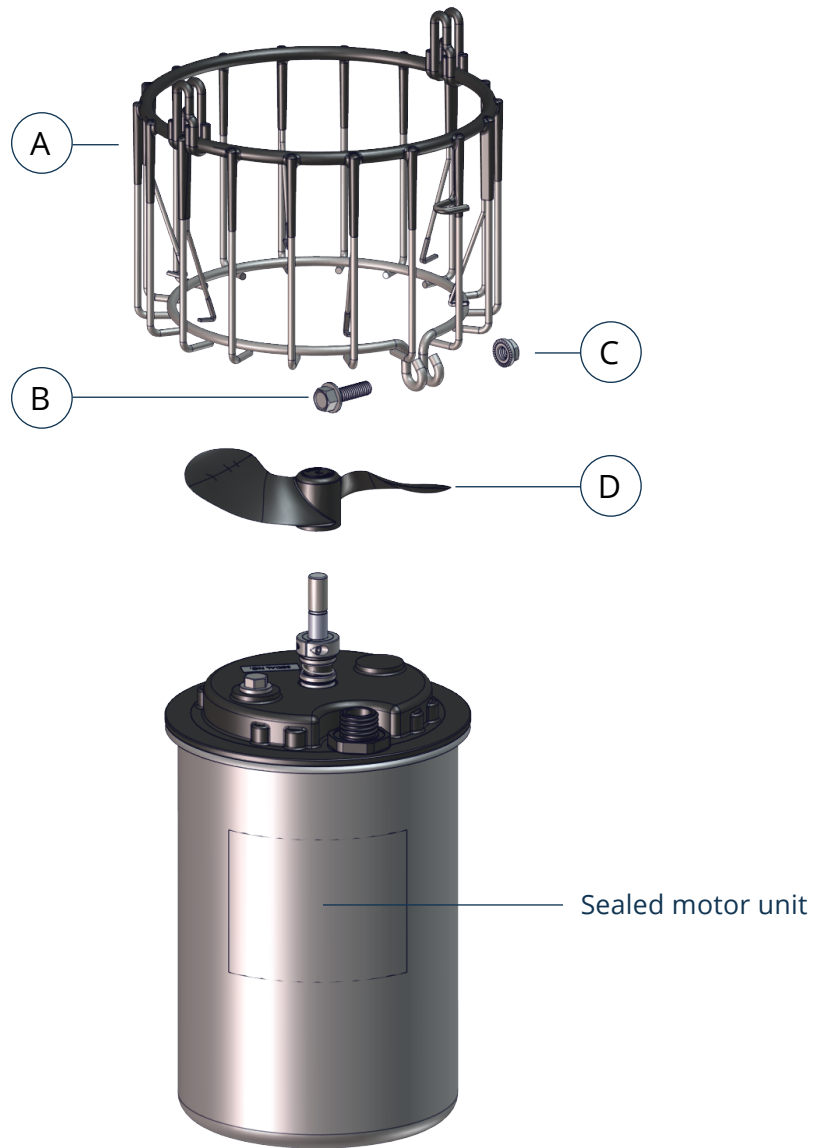
1. Drill a 7/8" hole (or 1-7/64" hole for 10 AWG cable) at the distance suggested for your mount.
See page 6 for details.
2. Deburr both sides of the hole. This is for the cord grip.
3. From the tank exterior, pass the cord grip (A) through the clearance hole, with the O-ring outside the tank roof.
4. From the tank interior, fit the cord grip nut (B) on the threads protruding into the tank.
5. Tighten the nut (B) until snug, being careful not to over-tighten.



6. Feed the power cable through the cable support (C).
 - The cable support hangs on a connecting link suspended from an eye bolt. The connecting link and eye bolt are included with CertiSafe™ mounting kits.
7. Continue to feed power cable through the cord grip (A) and out of the tank until all excess cord length has been taken up, only leaving enough so that there is no strain on the cable.
8. Tighten the top nut on the cord grip to seal the power cable penetration.
9. Terminate the power cable into an exterior junction box (not supplied by Kasco).



UNIT PARTS

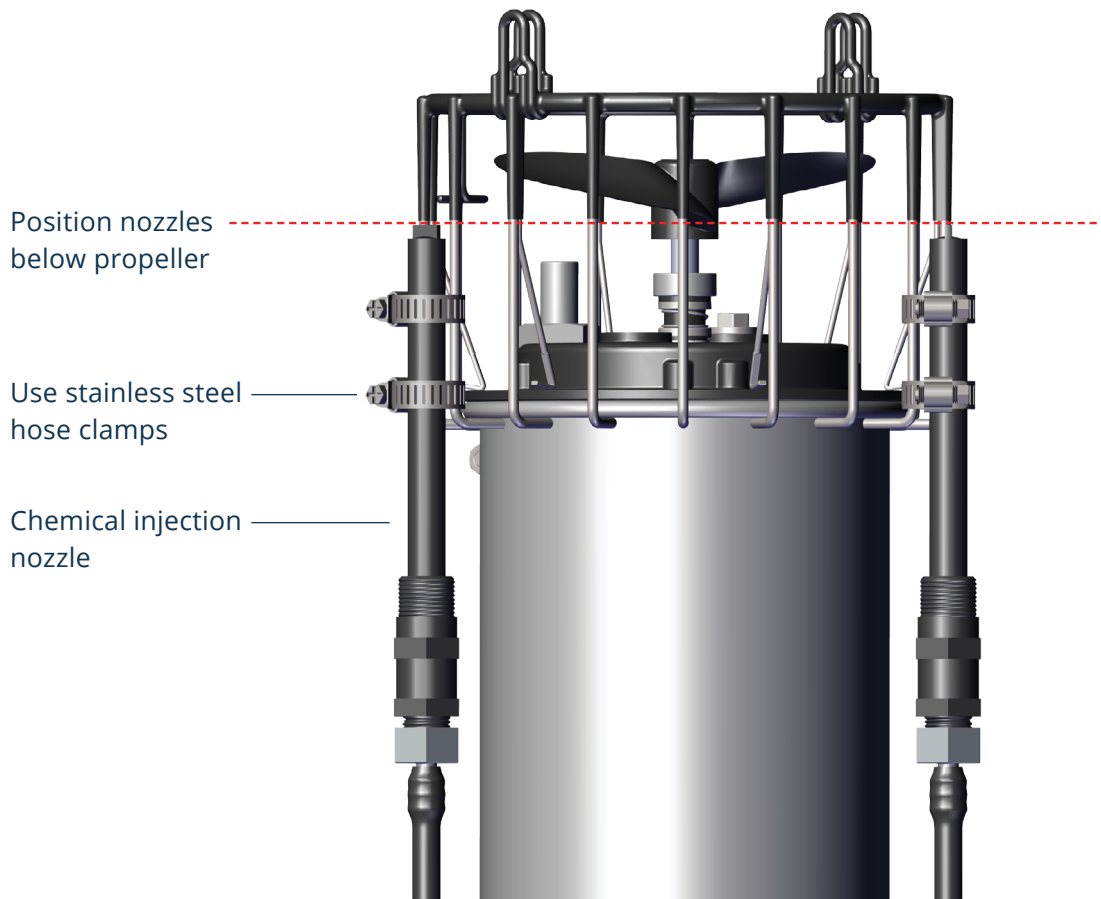


Item	Description	Qty.	Part No.
A	CertiSafe™ cage	1	993205
B	Serrated screw	1	840543
C	Serrated nut	1	840532
D	2400K propeller	1	240170
	3400J propeller	1	340125
	4400M propeller	1	440430
	8400 propeller	1	820505

INJECTION NOZZLE PLACEMENT

Once installed, its placement within the tank and powerful active mixing capabilities make Kasco's CertiSafe™ Tank Mixer an ideal anchor point for common third-party NSF-approved chemical injection nozzles.

- For this purpose, we recommend that you fix any nozzles (not supplied by Kasco) to the unit's cage, spaced as shown below.
- Use stainless steel hose clamps to secure the nozzle body to the cage, ensuring that the nozzle is snug against the cage and that the tip is below the propeller.
- Shown here with two nozzles, solutions will be mixed together with the water pulled through the propeller.



MAINTENANCE RECOMMENDATIONS



IMPORTANT: disconnect electrical power prior to any maintenance or servicing!

GFCI

GFCI (Ground Fault Circuit Interrupter) is a safety feature that can alert you to problems with the mixer. It is important to test the GFCI upon installation, after each re-installation, and regularly thereafter to ensure consistent operation. If you experience repeat interruptions, disconnect and remove the equipment. Inspect the power cord and unit (mixer) for damage. If no damage is apparent, please contact your Kasco distributor or representative for further instruction.

Observation

- Monitor the operating mixer for any reduction or variation in performance.
- Inspect the mixer annually and clean as needed to allow for heat dissipation and to verify that the propeller is clean and free of nicks.
- Inspect the power cable annually for damage or abrasion and replace as necessary.
- Regularly clean all external rotating parts and examine them for wear.
- If you note a deficiency in performance, remove the equipment from service and inspect for any damage or failure. If you observe any canister leakage during annual inspection, send the mixer to Kasco’s factory for service and repair.

Cleaning

The stainless-steel motor housing needs to be kept clean in order to allow heat to effectively dissipate.

Seal and Oil Replacement

- Replacing the seal and changing the oil every 3-5 years will add reliability and longevity to the mixer.
- Seal replacement and all other repair services should be performed by Kasco Marine.

Electrical Troubleshooting

- If a unit fails to operate, you can use a series of simple checks to determine the general cause.
- Once you’ve located the fault, please contact your distributor for information on how to proceed with repair.

Is the GFCI Tripped?	<ol style="list-style-type: none"> 1. If yes, reset the GFCI and check operation. 2. If the GFCI continues to trip, disconnect the unit in the panel and reset the GFCI. <ul style="list-style-type: none"> • If the GFCI doesn’t trip, the fault lies in the unit or its cord. • If the GFCI continues to trip, the fault lies in the control panel power source.
Is the cord damaged?	With the power off, perform a visual inspection of the power cord. If there is visible damage, contact your distributor for repair options.
What happens with an alternate power source?	<p>If the power cord and unit appear to be in good condition, safely plug it into an alternate GFCI-protected power source.</p> <ul style="list-style-type: none"> • If the unit starts and runs, fault lies in the control panel or power source. • If the alternate GFCI continues to trip, fault lies in the unit or cord.

WARRANTY

Kasco offers a standard 3-year warranty with the following models:

- 2400C61
- 3400C61 / 3400HC61
- 4400C61 / 4400HC61
- 8400C61

At the time of purchase, a 5-year warranty is available for packages including Advanced model control panels.

Warranty must be purchased at the same time as the mixer package. (Mixer package consists of the mixer, mount, and control panel.)

Control panel MUST have GFCI protection.

Kasco® Marine, Inc. warrants this CertiSafe™ mixing system to be free from defects in material or workmanship under appropriate use and service. The Kasco Marine, Inc. obligation under this warranty is limited to replacing or repairing, without charge, proven defective part while within the warranty period. Customer shall pay shipping charges for returning the unit to Kasco.

THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED. IN NO EVENT WILL KASCO MARINE, INC. BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES.

Warranty is void if:

- The mixer is not maintained according to the recommendations supplied in this manual.
- The mixer is returned for repair without the power cord.
- The unit, control box, or power cord are altered in any way from original shipment.
- The power cord is nicked or cut.
- The mixer is damaged by unauthorized service

Warranty Claim Procedure

Warranty period is established by the original receipt. For efficient service, please register the unit online at: kascomarine.com/warranty-registration.

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

Kasco Marine, Inc.
800 Deere Rd.
Prescott, WI 54021
Attn: Repairs



Kasco only accepts complete assemblies for warranty repair. We must receive the power cord and all other components with the motor as originally assembled. 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 Marine 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 Marine 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 | 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			