

OPERATION AND MAINTENANCE OF THE STEERING SYSTEM

CAUTION: It is possible to overtrim the engine and increase the steering torque to the point that the steering wheel cannot be turned. Even though the torque is not felt at the wheel, this may give the impression that the steering is “locked”. This condition can occur more when jack plates are used to raise the engine on the transom, and can only be overcome by reducing the boat speed or engine trim out position. Until you are completely familiar with the boat and the effects of power trim, make all adjustments of trim with extreme caution.

1. After a few hours of operation and at frequent intervals thereafter, check all fasteners and the complete steering system for security and integrity

DANGER

Loosening or loss of one or more fasteners may cause steering system failure, resulting in loss of steering control. This could cause personal injury or property damage.

2. Keep all moving parts free from build-up of salt and other material. This will affect their operation and create steering problems. Pay particular attention to the hinge tube of outboard motors. Periodically remove the cable, clean hinge tube thoroughly and lubricate both the hinge tube and telescopic end of the cable with waterproof grease.
3. Periodically inspect all visible parts for corrosion. Any parts affected by corrosion must be replaced. When replacing hardware, self-locking hardware must be used.
4. Inspect steering cable periodically for cracks or other damage. If any is found the cable must be replaced.

Note: If steering gets harder (stiffer) to operate, the cable must be replaced.

DANGER

Do not cover cracks with tape or other sealants; this will create a hazard in which the cable can fail suddenly without warning.

Proper care and maintenance preserve the value of your investment. This chapter explains how to keep your boat looking new as the years go by.

WARNING

Fire Hazard! Spontaneous combustion can ignite rags moistened with acetone, cleaning fluids, fuel, or other solvents. Never store wet rags on board. Dispose of them properly on shore.

Use cleaning agents sparingly. Never discharge cleaning solutions into the waterways. Do not use products containing phosphates, chlorine, solvents, or non-biodegradable or petroleum-based products.

Your new boat is designed to provide you with years of enjoyment and satisfaction. In order to maintain the sharp, new appearance of your boat, we recommend the use of a high quality marine surface-care product. Washing and waxing a new boat is simple, and it will make ongoing maintenance much easier.

ALUMINUM SURFACES

Salt Water Information

Princecraft's aluminum boat hulls are made of high quality 5052-H36 marine aluminum, recommended for salt-water use by the Aluminum Association. However, care must be taken in both salt water and fresh water to avoid creating galvanic corrosion. Do not install brass, bronze, or copper fittings in direct contact with the aluminum. (See Galvanic Series of Metals in section 4). A thorough fresh water bath after every use is recommended by Princecraft and will prolong the life of your boat.

Cleaning

The natural aluminum portions of most aluminum boats may be treated with a clear protective coating to reduce natural oxidation. Rinse occasionally with clear water or mild detergent to keep those portions of the boat clean. On painted aluminum surfaces, use water and mild detergent for cleaning and protect the surface with a liquid cleaner or wax. Do not use harsh chemicals or abrasives.

Remove stains or light corrosion with a good metal polish. Buff with a fine rubbing compound only if necessary. Remove algae, scum, or

other marine growth while they are still wet. They will be much harder to remove if they have had a chance to dry out.

Corrosion

Modern boatbuilding techniques minimize corrosion problems on aluminum models; nevertheless, corrosion may occur when dissimilar metals come into contact with contaminated water. In general, saltier water leads to faster corrosion. To minimize this problem, use a marine-grade caulking compound when mounting non-aluminum fixtures or hardware to aluminum. Never use an aluminum boat as the ground wire for an electrical circuit. Electrical equipment should be completely insulated from the vessel to eliminate electrolysis and corrosion.

If your boat is in daily contact with salt water, remove it from the water every three months and rinse inside and out with fresh water.

Repairs

Knock out minor dents with a rubber mallet or use automotive body tools. Have your dealer or an experienced body mechanic repair punctures, skin fractures, loose rivets, and bent or broken reinforcing members (ribs).

Loose Rivets

Clean head around rivets with a wire brush. Pour on a marine sealer around the head for a temporary repair. To retighten, use a steel hammer and a bucking tool (steel block) shaped to fit the head of the rivet. Place bucking tool against rivet head and strike flattened end of rivet inside hull with a steel hammer.

Broken Rivets

Drill out the remaining part of the rivet using a drill bit slightly smaller than the original rivet. Install a solid aluminum rivet. (For a temporary repair, dip a stainless steel sheet metal screw in sealer and insert.)

Pop Rivets

Pop rivets are used to fasten floors, castings, and other trim. Remove by inserting a small punch through the center hole and tapping out the core. Once the core is removed, drill out the rest of the rivet and install a new pop rivet. If pop riveting equipment is not available, you may install a stainless steel sheet metal screw instead.

IMPORTANT: Do not use pop rivets where a watertight seal or a structural fastener is needed.

Cracked Aluminum

Ask your dealer for advice on patching cracked aluminum. Aluminum must be of similar thickness and alloy.

Hull Bottom Maintenance

If a film of algae or scum builds up on the bottom of your boat, it will be easier to remove if it is not allowed to dry out. If your boat will remain in the water for more than three months, check with your dealer about the best bottom coating to use for cleaning and preventing algae or scum build-up.

CLEAR PLASTIC, PLEXIGLAS, POLYETHYLENE AND FIBERGLASS

- Never use ammonia products
- Use fresh water and a natural soap.

If you have any doubts, ask your dealer about the products you can use.

ANTIFOULING BOTTOM PAINT

If your boat will be in the water or docked for extended periods of time, it is recommended to have your dealer apply antifouling bottom paint. Your dealer may choose a paint that will help prevent the development of marine growth. You must use a good quality anti-fouling paint that **does not** contain copper, tin or any other material that could cause corrosion. This paint is designed to dissolve slowly, preventing marine growth. **Do not paint any engine surfaces. See your engine operation and maintenance manual for engine care.** Your boat's hull bottom may need to be repainted at the beginning of the next boating season.

PONTOONS

If a rock, log, or other obstacle punctures a pontoon, the pontoon will not fill completely with water. A bulkhead system inside the pontoon contains the water in confined areas. If water enters a portion of the pontoon, the boat will list, but it will not sink. Contact your dealer for pontoon repairs. Do not attempt to repair the pontoon yourself, as this requires technical knowledge and training.

WINDSHIELDS

Some windshields are made of tempered safety glass. Salt water can etch safety glass. Clean glass with soap and water and a glass cleaner. Flush with plenty of clean water.

Some windshields are made of Plexiglas. Wash Plexiglas with fresh water. Ask your dealer to recommend a Plexiglas cleaning agent.

Vibration may loosen windshield fasteners and braces during normal use. Tighten all loose fasteners.

IMPORTANT: Never use acetone, benzene, carbon tetrachloride, lacquer thinner, or similar type solvents. They penetrate the glass and/or Plexiglas surfaces and cause hazing which obstructs visibility. Do not wipe dirt from a dry windshield.

BILGE

Your bilge accumulates oil and greasy dirt over a period of time and should be cleaned out. Most models of bilge pumps are equipped with an easy-removal pump system for easy inspection and servicing. Inspect the bilge pump system on a regular basis and clean it if necessary. Usually, natural soap and water does not remove the accumulation, and something stronger is necessary. Consult your dealer for his recommendations.

HOSES

Fuel lines, vent hoses, and drain hoses should be checked frequently for leaks. If this is occurring around the fitting, then tightening of the hose clamps may be all that is necessary. However, if the leak continues, replacement of the hose should be done immediately to prevent a build-up of fluids or gases. Surface cracking on the hoses indicates wear, and replacement is recommended. Use only fuel system parts certified for marine use. Do not substitute automotive parts. Their design is not suitable for marine use. Consult your dealer.

ELECTRICAL

Your boat is equipped with marine 12-volt batteries. A non-metallic tray is provided to help contain spills and prevent corrosion.

Check your battery terminals frequently for corrosion. Clean terminals with a baking soda and water solution and a wire brush. Also, check the fluid levels in the cells. Usually, a level approximately 1/4 to 1/2 inch above the plates is sufficient. If needed, fill with distilled water. However, some batteries are sealed, and this process is not necessary. Also, read directions when applicable.

If you operate your boat infrequently, you may want to charge your battery occasionally. To recharge, disconnect the cables and remove the battery from the boat. Recharge the battery according to the directions enclosed with your battery charger.

Note: Your boat might be equipped with an optional battery charger. Remember that this battery charger is installed to charge your trolling motor deep cycle battery only. It is not designed to charge the engine battery.

LIVEWELL SYSTEM

Check the livewell system often to assure that it is free of leaks. Hose connections should be taut and watertight. Clean livewells periodically with fresh water only, do not use cleaning agents, as they may harm fish later added to the livewell.

VINYL

The vinyl we use is able to withstand scuffing, cracking, peeling, hard use, and soiling. In general, most household soil may be cleaned easily with warm soapy water and several clear rinses. Moderate scrubbing with a medium bristle brush will help to loosen the soiling agent from the depressions of embossed surfaces. Certain specialized products clean routine household spills from vinyl very effectively. **Check the label on the product to see if it is recommended for this use.** Certain household cleaners could cause damage or discoloration of the vinyl product and should be avoided. Certain stains may become permanent if they are not removed immediately. Several stains and suggestions for removal (subject to manufacturer's instructions for stain removal) are discussed below.

Ballpoint Ink

Ink spots usually stain plastic products permanently, but much of the stain may be removed by immediate wiping with rubbing alcohol.



Paint stripper will probably remove the printed patterns on plastic surfaces.

Oil Base Paint

Turpentine will remove fresh paint. Dried paint must be sparingly moistened with a semi-solid stripper so that the softened paint may be gently scraped away.

Latex Paint

Fresh paint may be wiped off with a damp cloth. Follow the instructions for dried oil paint if the latex has dried.

Surface Mildew

Wash with a bleach solution of one tablespoon of bleach to one quart of water, then rinse several times with clear water.

Tar and Asphalt

Remove immediately. Lengthy contact will cause a permanent stain. Using a cloth dampened with kerosene or mineral spirits, rub gently from outside edge of stain to the center. This will prevent the stain from spreading. Rinse with soap and water.

Chewing Gum, Car Grease and Shoe Polish

Scrape off as much as possible (chewing gum will come off more easily if rubbed with an ice cube) and go over lightly with mineral spirits to remove the remainder. No time should be wasted in removing shoe polish, because it contains dye which may cause permanent staining. Rinse thoroughly.

Note: Powdered abrasives, steel wool, and industrial strength cleaners are not recommended. They will cause dulling of glossy surfaces. Dry cleaning fluids and lacquer solvents are not recommended because they will attack the vinyl and remove or destroy the printed patterns on the surface.

Wax should only be used on the vinyl if the manufacturer of the product recommends it. Many waxes contain dyes, and dyes will stain.

Remember: Always follow manufacturer's directions prior to using any product on your boat.

CARPETING

Your boat may be equipped with a top-quality, all-weather marine carpet. It is essentially waterproof and fade-resistant. To clean, scrub

with soap and water, and rinse thoroughly. Occasional vacuuming will remove imbedded dirt and grit.

If you spill gasoline or any other solvent on the carpet (including fish scents), WASH IMMEDIATELY to reduce possible damage to the carpet fibers and backing. Also, gasoline fumes are highly volatile and could cause an explosion.

HARDWARE

Most of the metal hardware on your boat consists of aluminum, chrome, brass, and stainless steel, and should be cleaned on a periodic basis. Natural soap and water is usually sufficient, but metal cleaners are available on the market. Your dealer may be able to recommend a product.

After a good cleaning, a coat of metal polish or paste wax will improve the luster of the hardware.

Your hardware has designated uses and, as a reminder, cleats are for mooring lines and not for towing skiers or other boats. Also, periodically check screws, bolts, and fittings for tightness, and replace broken or damaged hardware.

Your Princecraft boat may be equipped with top-quality marine-grade key locks to secure your storage areas. Should your boat be subjected to use in or near salt water, care should be taken to flush the locks out thoroughly with fresh water to prevent corrosion. Lubricating your key locks periodically is also recommended.

CANVAS

Boat canvas is subject to severe punishment. Moisture may cause canvas to shrink and may promote the formation of mildew, especially if the canvas is dirty. Temperature changes and exposure to sunlight may cause plastics to stiffen and crack. Exposure to chemicals in the air may, over time, cause plastics and fabrics to decay.

Canvas is water repellent; it is not waterproof. When it is raining, some leakage may occur. Keep objects from touching a canvas interior. It may begin leaking at the point of contact. If canvas begins leaking at a seam, apply a seam-sealer compound or rub a stick of paraffin along the affected area. Repellence to water at the seam will also increase with time as the thread will expand after a few rains.

When installing canvas, be sure to adjust it properly. Your dealer can show you how to do this. Water pockets may form in the roof of loose

canvas. The added weight of this water adds to the load on the frame supports and may cause a broken frame. (See the canvas installation sheet provided with your canvas top for illustration and installation.)

WARNING

Canvas is not to be installed and upright under the following conditions:

- **While under motor power.** Hazardous fumes can collect inside complete canvas enclosure. Death or serious injury may result. Keep sides and aft canvas open for ventilation. Read safety information supplied with canvas.
- **While exposed to high winds.** Supporting framework may lift from mountings. Falling framework can cause injury.
- **While trailering.** Canvas and framework can be damaged. Falling framework and canvas can obstruct vision of nearby motorists and damage vehicles.

Canvas tops are designed to protect the helm seating areas from the sun. Although these tops provide ample weather protection for the helm, they are not completely weather tight as a winter storage cover.

Please review the following recommendations:

Moisture: May cause shrinkage and mildew if fabric is not properly stored. Always allow canvas to dry thoroughly while mounted before storing. Allowing canvas to dry unmounted may cause shrinkage. Make sure top is properly adjusted avoiding areas of looseness. Proper adjustment will decrease any chances of shrinkage.

Keeping top clean, well ventilated and stored properly will help avoid mildew.

Dirt: Creates a starting point for mildew when moisture is present. Cleaning periodically with **soap** and water when unit is mounted on the boat will extend canvas life and provide better appearance. Cleaning may be accomplished with a sponge or soft scrub brush. Canvas should always be fully mounted and adjusted to a tight, smooth appearance before washing. Allow canvas unit to air-dry thoroughly before removing or loosening.

Heat: Under certain conditions heat may cause plasticizer migration. Any vinyl coated fabric when enclosed in a polyethylene container and under direct sunlight is subject to potential migration of the vinyl plasticizers. This will result in cracks appearing on the vinyl components and may have a stiffening effect on the fabric.

Polyethylene bags or tubes are meant only for protection during shipping and handling. **DO NOT USE THEM FOR STORAGE.**

Ultraviolet degradation: Most synthetic fabrics are UVR treated to resist ultraviolet effects. The best protection, however, is to avoid long periods of storage in areas subjected to direct sunlight.

Salt water: The corrosive effects of salt water may erode aluminum or stainless fittings and fasteners. Your canvas has fittings and fasteners made of these materials. These may be protected by keeping them clean, occasionally lubricating them and waxing the chromed brass or stainless fittings and tubing periodically with an appropriate wax.

In short, here are a few tips to help you protect your investment and give you years of enjoyment:

1. Keep it clean. **DO NOT** use harsh cleaners. Never use any form of bleach.
2. Clear vinyl curtains and windows demand extra care to prevent scratching. Ideally, they should be washed with clear water, preferably hosed off, wiping them with your hand at the same time. Do not use a cloth or chamois skin. Any dirt or grit in the cloth may result in scratches. Clear water and a clean hand is the safest way. When storing, never fold these items: they should be rolled to prevent cracking.
3. Be sure that top is completely dry before storage.
4. Keep unit well ventilated when stored. **DO NOT STORE IN PLASTIC OR POLY BAGS.**
5. Keep fittings and fasteners clean and lubricated.
6. Never trailer your boat with the canvas unit mounted or expose the unit to severe winds.
7. Do not use a mooring cover as a travel cover.

The materials used to produce your boat top and curtains are the finest obtainable. Reasonable care will assure you many years of service.

CARING FOR YOUR TRAILER

Paint maintenance:

1. Residues left from trailering such as tar, calcium, etc. may damage the finish and appearance of your trailer; they must be removed.
2. It is recommended that the trailer be waxed at least once a year with non-abrasive wax similar to that used in the automobile industry.
3. Trailer should be washed down whenever possible after each use and should be rinsed thoroughly after use in salt water.
4. Storing for a prolonged period of time should be in a cool dry area.
5. Improper use, storage, care or overloading of trailer may void warranty.

Bearings:

Make sure all bearings are always properly lubricated using waterproof grease.

WINTERIZATION AND STORAGE

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When cold weather has arrived or if you will be placing your boat in storage for a longer period of time, we suggest using the following guidelines to prepare it for storage. If you live in an area that does not require seasonal storage, we recommend a thorough inspection once a year.

PREPARATION FOR STORAGE

Trailer

When you are preparing the boat for winter storage, it's also a good time to check the trailer thoroughly.

Check the electrical system as to condition or loose connections, and repair if necessary. Inspect running lights' lenses and inspect bulbs and sockets for corrosion. Coat metal base of bulb with a die-electric grease.

Examine the entire trailer and running gear for signs of cracking or metal fatigue. Welds and cracks should be repaired by a qualified person, and any loose bolts and screws tightened. Overloading may cause structural deformations of your trailer. Regularly inspect your trailer. If rust has formed on the trailer, remove it by sanding and paint the bare spots to match the trailer. Repair or replace worn or misadjusted bunks or rollers.

Inspect the winch and fastening hook for wear. Check tie-downs for fraying. Loosen or remove tie-downs. Lubricate the winch, the coupler, all rollers and pivot points. Check the safety chains for weak links, the safety cables for frayed wire and faulty hooks.

Boat

Note: Remove the bilge drain plug immediately after taking the boat out of the water. After washing, raise the bow to allow as much water as possible to drain while performing other storage preparations.

If you are placing the boat in dry storage, clean any barnacles and other growth off the hull. Scrub the hull and deck thoroughly to remove marine growth and scum. Inspect the underwater gear and propellers for excessive wear or damage. Check whether the bottom needs repainting.

Note: Clean the hull right after the boat is hauled out of the water. Marine growth and barnacles are easier to remove while they are still wet.