

## Section 8

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## WINTERIZING THE BOAT

### WINTERIZATION

Start the winterization process by draining and winterizing the following systems:

#### Engines

Proper procedures must be followed to prepare the boat's engines for winter storage. Detailed winterizing instructions are included in the engine operators manual.

#### Fresh Water System



**Your boats fresh water system INCLUDING THE WATER HEATER AND ENGINE HEAT EXCHANGER must be drained prior to winter lay-up. Failure to winterize the water system could lead to damaged pipes, valves, faucets, tanks or a ruptured water heater.**

To drain the water system:

- 1) Provide power to the 12 volt pressure water pump by switching the appropriate circuit breakers to the "ON" position.
- 2) Open all faucets and let the water drain through the sinks.
- 3) Drain the water heater.

To winterize the onboard water system:

- 1) Purchase 10 gallons of NON-TOXIC recreational vehicle antifreeze from your Carver Dealer.
- 2) Pour this non-toxic antifreeze into your boat's fresh water tank through the water fill deck fitting. Refer to **Section 9, Fill Plate/Pumpout** for the water fill plate location.
- 3) Provide power to the 12 volt pressure water pump by switching the appropriate circuit breakers to the "ON" position.
- 4) Open the galley sink cold water valve and purge the system until a steady stream of antifreeze flows from the faucet. Repeat for the hot water valve. Repeat this process for the head sinks and the showers.
- 5) Pour a quart or two of non-toxic antifreeze into each shower basin drain until the shower sump pump turns ON and a stream of antifreeze flows from the shower drain discharge fittings. Refer to the **Above the Waterline Thru-Hull Fittings** portion of **Section 9** for the exact location of the discharge fittings.

## WINTERIZING THE BOAT

### **WARNING**

Using the wrong type of antifreeze could damage your boat's grey water sanitation system. Refer to Technical Bulletin #VF-005 supplied by SeaLand Technologies for more information regarding the proper type of antifreeze to use. This technical bulletin can be found at the end of this section. Damage caused by using improper antifreeze IS NOT covered by Carver or the OEM supplier of the boat's sanitation components.

The engine heat exchanger will also need to be included in the winterization process. A 5/8" heater hose runs from an engine to the water heater and back to the engine. This heater hose must be drained prior to winter storage. Remove both heater hose connections from the engine and use air pressure to blow water from the line. Antifreeze can then be poured into the hose.

### **Spring Commissioning**

Flush the complete water system with fresh water during spring commissioning. Nontoxic antifreeze is colored, so your system is adequately flushed when uncolored water flows from the faucets and shower.

### **Transom Shower (optional equipment)**

The transom shower is an integral part of your boat's fresh water system. Winterize the transom shower along with the boat's fresh water system. As you winterize the water system, turn the shower cold water valve on until a stream of antifreeze flows from the shower head. Repeat this procedure for the hot water valve.

### **Fresh Water Washdown (optional equipment)**

Fresh water washdown is an integral part of the boat's fresh water system. Winterize the fresh water washdown system along with the boat's fresh water system.

Remove the hose and nozzle from the washdown fitting. Turn the washdown pump on until a stream of antifreeze flows from the washdown fitting. Catch this antifreeze in a bucket.

### **Raw Water Washdown (optional equipment)**

- 1) Locate and close the thru-hull valve that supplies the washdown pump with sea water. This valve is located within the hatch immediately below the stairway in the aft cabin.
- 2) Remove the hose that is connected to this valve. Put this end of the hose into a bucket that contains about a gallon of antifreeze.
- 3) Remove the washdown hose from the cockpit mounted washdown fitting.

## WINTERIZING THE BOAT

- 4) Place a bucket under the cockpit mounted washdown fitting. Turn the washdown pump on and leave it on until a stream of antifreeze flows from the washdown fitting.
- 5) Turn the washdown pump off and re-secure the hose to the washdown supply valve.

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#### **Bilge**

Open the garboard drain. Leave the drain open throughout the storage period.

Clean the bilge, removing all dirt, oil, etc. Remove all water from the bilge.

#### **Sanitation System**

To winterize the sanitation system:

- 1) Empty the contents of the waste holding tanks and thoroughly flush the system with FRESH water. Remove as much of the water used in flushing as possible in the final pumping of the tanks.
- 2) Shut off the water supply to the heads by closing the head water pickup valve. Refer to the **Below the Waterline Thru-Hull Fittings** portion of **Section 9** for the exact location of the head water pickup valves. Remove the water pickup hose from the valve.
- 3) Flush the heads until all water is drained from the water pickup hoses. Attach the water pickup hoses to the valves and leave the valves in the closed position.
- 4) Purchase at least 4 gallons of antifreeze from your Carver Dealer. Refer to Technical Bulletin #VF-005 issued by SeaLand Technology for their recommendations concerning the proper type of antifreeze to use. This technical bulletin can be found at the end of this section. Mix the antifreeze following the instruction supplied on the antifreeze container's label.
- 5) Flush the antifreeze through the heads and leave it remain in the waste holding tanks during storage.

## WINTERIZING THE BOAT

### **WARNING**

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- 6) In spring pour 5 gallons of fresh water through the heads and pump the waste holding tanks. Open the water pickup valves. Flush the heads a few times to prime the systems.
- 7) Charge the waste tank by adding deodorizer. Use the brand of deodorizer recommended by your Carver dealer.

### **OPTIONAL SANITATION SYSTEMS**

#### **Grey Water System**

- 1) Empty each waste holding tank using a dockside pump out facility.

**NOTE: Your grey water system and sanitation system use the same holding tanks.**

- 2) Pour 2 quarts of nontoxic antifreeze into the galley sink drain, one quart into the forward head compartment sink and one more quart into the forward shower drain. This antifreeze will drain into the forward sump which will transfer the antifreeze to the forward waste tank.
- 3) Pour 2 quarts of antifreeze down the "WASTE" deck fittings used to empty the forward waste tank.
- 4) Winterize the aft waste tank by pouring 1 quart of antifreeze down the aft shower drain and another quart down the aft sink drain. This antifreeze will drain into the shower sump and will be transferred into the aft waste tank.
- 5) Pour 2 quarts of antifreeze down the WASTE deck fitting used to empty the aft waste tank.
- 6) In spring pour a gallon of fresh water into each sink and shower. Allow the shower sump to pump this water into the waste tanks. Empty the waste tanks using a dockside pump-out facility. Charge the tanks by adding deodorizer.

## WINTERIZING THE BOAT

### **WARNING**

Using the wrong type of antifreeze could damage your boat's grey water sanitation system. Refer to Technical Bulletin #VF-005 supplied by SeaLand Technologies for more information regarding the proper type of antifreeze to use. This technical bulletin can be found at the end of this section. Damage caused by using improper antifreeze IS NOT covered by Carver or the OEM supplier of the boat's sanitation components.

#### Overboard Discharge

**NOTE:** The boat must be pulled from the water and stored on land to perform the following procedure. The following instructions serve as an overview. Please refer to the owner's instructions supplied by the head manufacturer for more information about winterizing the sanitation system.

- 1) Empty the waste holding tanks. Flush the tanks with FRESH water and empty the tanks again.
- 2) Close the water pickup valves. Remove the water pickup hose from the valve fittings. Flush the heads until all water is removed from the water pickup hoses. Reinstall the water pickup hoses onto the water pickup valves.
- 3) Purchase 20 gallons of nontoxic antifreeze from your Carver Dealer. Follow the recommendations provided in Technical Bulletin #VF-005 by SeaLand Technology regarding the type of antifreeze to use to avoid damaging the lining of the sanitation hose. This technical bulletin can be found at the end of this section.
- 4) Position the forward and aft 3-way valves in the "WASTE HOLDING" position. Flush 10 gallons of antifreeze through each head and into the holding tanks.
- 5) Open the forward thru-hull overboard discharge valve. Turn the forward waste transfer pump "ON" and let it run until a stream of antifreeze flows from the overboard discharge fitting. Turn off the pump but leave the valve open. Repeat for the aft discharge valve and transfer pump.
- 6) Turn the forward and aft 3 way valves to the "OVERBOARD DISCHARGE" position. Pour antifreeze in each head and flush the heads until a stream of antifreeze flows from the thru-hull overboard discharge valves. Close the valves.
- 7) In spring, flush and pump the holding tanks to remove the antifreeze and continue to use the system in the normal fashion.

## WINTERIZING THE BOAT

### **WARNING**

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#### Direct Overboard Discharge

**NOTE:** The following information serves as an overview. Please refer to the instruction manual provided by the head manufacturer for more information about winterizing the sanitation system.

- 1) Close the water pickup valves. Open the overboard discharge thru-hull valves. Remove the end of each water pickup hose from the thru-hull valve. Flush each head until all water is removed from the pickup hose.
- 2) Fill a bucket with 1 gallon of nontoxic antifreeze and put the end of the pickup hose for each head into the bucket. Flush each head until all antifreeze is removed from the bucket.
- 3) Reattach the water pickup hoses to the water pickup thru-hull valves.
- 4) Close the overboard discharge thru-hull valves.

### **WARNING**

Using the wrong type of antifreeze could damage your boat's grey water sanitation system. Refer to Technical Bulletin #VF-005 supplied by SeaLand Technologies for more information regarding the proper type of antifreeze to use. This technical bulletin can be found at the end of this section. Damage caused by using improper antifreeze IS NOT covered by Carver or the OEM supplier of the boat's sanitation components.

**NOTE:** Follow the instructions provided by the maker of the antifreeze.

#### Exterior

The boat should be cleaned prior to winter storage. This will make preparing the boat for the next season that much easier. Wash the exterior of the boat, particularly the underwater portions. Remove as much aquatic growth as possible while it is still wet. Once it has dried it will be more difficult to remove.



## **WINTERIZING THE BOAT**

Check the zinc sacrificial anodes for deterioration. If the zincs show signs of deterioration have them replaced before spring launch. Check stainless steel rails and fittings for signs of rust. Remove rust prior to winter lay-up.

Inspect the underwater portions of the hull. Review anything that looks out of the ordinary with your Carver Dealer.

If you intend to cover your boat for the winter, do not use the bridge enclosure, aft deck enclosure or bimini camper. These are not designed for long-term storage purposes. If you shrink-wrap your boat for storage, make sure that the cover is properly vented as moisture can collect beneath it and promote the growth of mildew or mold.

### **Interior**

The boat's interior should be cleaned prior to winter lay-up. Air out the cushions and make sure they are dry. Storing damp cushions will lead to mildew. Position the cushions so air can circulate around them. Purchase and position moisture accumulators throughout the boat. This will help reduce the amount of moisture that accumulates during storage. Remove everything from the boat that could spoil or freeze during winter storage. Also remove all dried food. Food attracts mice and insects.

### **Storage**

#### **Cradle Requirements**

Carver has designed a cradle made specifically for use with the 500 COCKPIT. We recommend using this cradle to support the boat during off-season storage.

The forward end of the cradle should be slightly elevated to position the boat in a bow high attitude. This will allow water to flow to the back of the aft bilge compartment and drain through the garboard drain. Always store the boat with the garboard drain plug removed.

Protecting the boat from the elements during winter storage is advised. Have your marina shrink wrap the boat or have a winter storage cover made. Check on the boat throughout the storage period to make sure that it is in good condition.

#### **Covering your Boat**

If your boat will be in outside storage, properly support a storage cover and secure it over the boat. Do not secure the cover to the boat too tightly. Allow adequate ventilation to protect against dry rot. Do not store the boat in a damp storage enclosure. Excessive dampness can lead to electrical problems, corrosion and dry rot.

Do not use the bimini top or convertible top canvas in place of a winter storage cover. The life of these canvasses may be significantly shortened if exposed to harsh weather elements for prolonged periods.

# WINTERIZING THE BOAT

## **Wet Storage**

Wet storage procedures vary from region to region. Consult your dealer before preparing to leave your boat in the water over the winter.

## **LIFTING AND DRY STORAGE**

### **Lifting And Dry Storage**

#### **Lifting**

Proper support of the hull during lifting is imperative. Improper lifting can lead to serious and permanent hull deformation. Only people experienced and trained in lifting yachts should perform the lifting operation. Use proper lifting straps. "SLING" tags have been installed on the side-deck of the boat. These are the only places where slings should be positioned for lifting. Caution must be taken not to position a lifting sling around the boat's shaft or any other underwater gear component. Never stand, sit or crawl under a boat that is suspended in a lift.

#### **Dry Storage**

Carver has designed a cradle made specifically for use with the 500 COCKPIT. We recommend using this cradle to support the boat during off-season storage. The forward end of the cradle or trailer should be slightly elevated to position the boat in a bow high attitude. This will allow water to flow to the back of the aft bilge compartment and drain through the garboard drain. Always store the boat with the garboard drain plug removed.

Protecting the boat from the elements during winter storage is advised. Have your marina shrink wrap the boat or have a winter storage cover made. Check the boat throughout the storage period to make sure that it is in good condition.

#### **Blocking**

When storing the boat for the winter it is important to block and support the boat's hull correctly. Failure to block and support your boat properly can cause damage to your boat's hull. You can construct a single blocking support with (4) three-foot 4x4's and one 2' section of 2"x8" (see illustrations below).

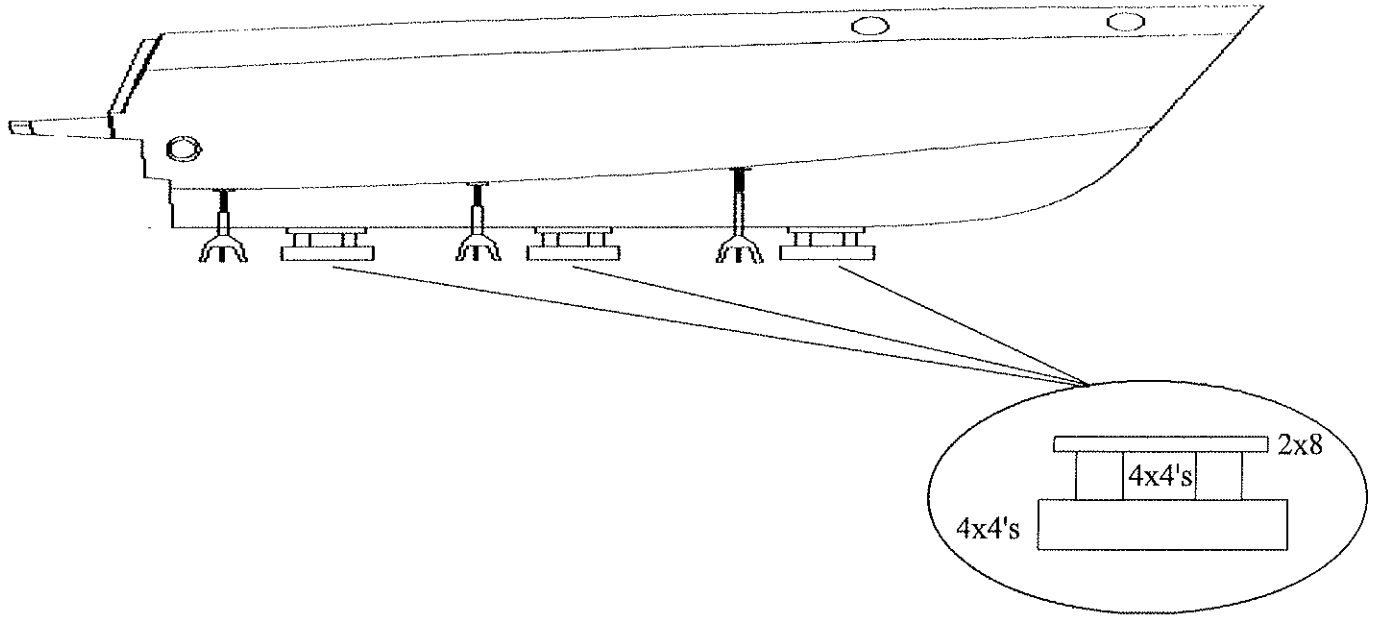


Position the blocking support under the boat's keel beneath a transverse stringer in three locations: forward, amidship and aft. Position additional side supports on each side of the boat adjacent the keel blocking. These supports prevent the boat from shifting during storage. Refer to the general illustrations on the following pages.

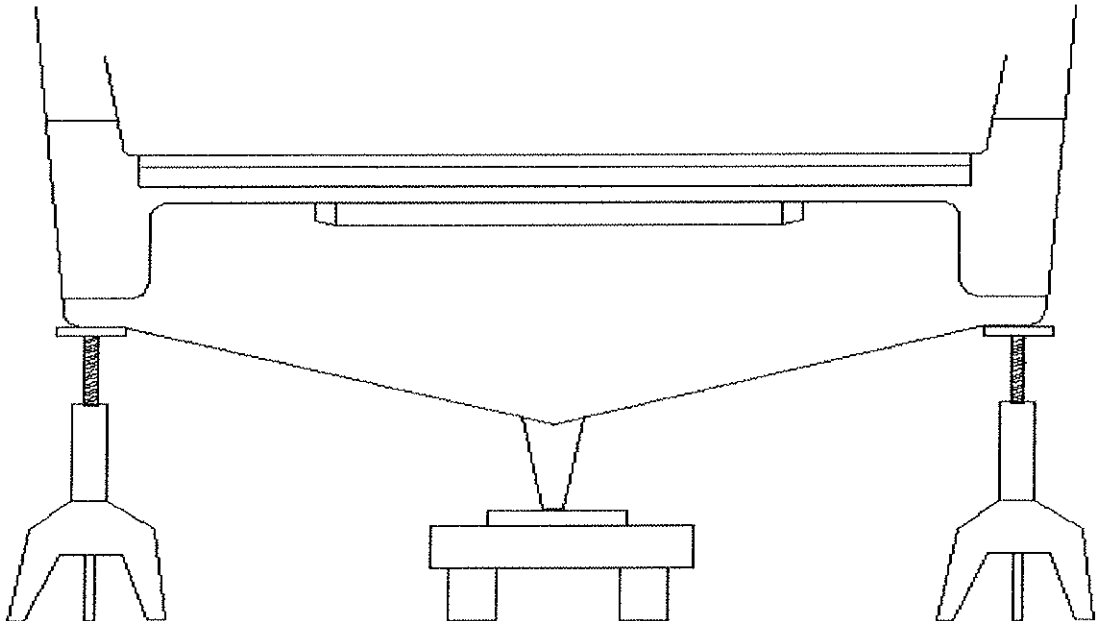
# WINTERIZING THE BOAT

## BLOCKING

### BLOCKING PROFILE



### BLOCKING STERN VIEW



# WINTERIZING THE BOAT

## Important Antifreeze Bulletin



### Technical Bulletin

P.O. Box 38, Fourth Street, Big Prairie, Ohio 44611 • Telephone: 216/496-3211 In Ohio • 800/321-9889 • Fax: 216/262-1727

Bulletin Number: VF-005  
Effective: February 15, 1990

#### SANITATION HOSE MALODOR: ALCOHOL ANTIFREEZE

**Affected Installations:** Any pleasure craft sanitation systems utilizing SeaLand heavy duty, smooth wall hose (identified with "SeaLand" marked in blue on outer surface).

**Symptoms:** A strong malodor is evident from a non-specific source. No indication of leakage or a loose fitting is present.

**Cause:** SeaLand heavy duty, smooth wall sanitation hose is especially formulated with a malodor resistant ingredient. This ingredient is designed to prevent malodor molecules from permeating the hose wall. If an alcohol based antifreeze is used, the malodor resistant ingredient in the hose is removed and failure will result sometime later.

One brand which has been found to definitely cause this type of failure is **ARTIC BAN** from Camco Manufacturing Company. This statement is supported by gas chromatography and scanning electron microscopy studies at the Institute of Polymer Science, University of Akron.

**Note:** Other liquids such as petroleum solvents, fuels and pine oil cleaners will also produce similar results.

**Troubleshooting:** 1.) Carefully inspect all fittings and joints to assure malodor is not coming from a loose fitting or hose joint. 2.) With a clean paper towel or cloth, rub the outside of the hose. At regular intervals check the cloth to determine if malodor has been transferred to cloth or paper. 3.) Determine if boat has been winterized using antifreeze, and if so, determine the type. SeaLand can verify if the hose has failed due to chemical attack by examination of a small sample.

**Corrective Action:** Once a hose has been degraded by exposure to an alcohol based antifreeze, it cannot be repaired. The only remedy is to replace the contaminated hose. It is clearly stated in the SeaLand Owner's Manuals that alcohol based products should never be used (see exhibit on reverse side). Hose failure for this reason is considered misuse and is not covered by SeaLand's warranty policy.

The recommended antifreeze is propylene glycol base without alcohol. Brands recommended by SeaLand are listed on the reverse side.

Information concerning proper hose care should be given to all boat owners. An information card with this information is enclosed. Instructions for ordering copies are on the card.

# WINTERIZING THE BOAT

## Important Antifreeze Bulletin

### Winterizing

At the end of each boating season, the VacuFlush® system must be winterized for storage. The following procedure should be used:

**CAUTION: DO NOT** use chlorine, alcohol or alcohol based products in the system.

1. Thoroughly flush system with fresh water.
2. Pump out holding tank.
3. Shut off water supply to toilet(s), remove water line.
4. Press flush lever until all water is drained from toilet.
5. For each toilet, flush 4 gallons of permanent type anti-freeze and water in a 50:50 mixture through toilet. Each installation is different so amounts may vary. User discretion is required to assure adequate protection.
6. Turn off electrical power.

### Maintenance

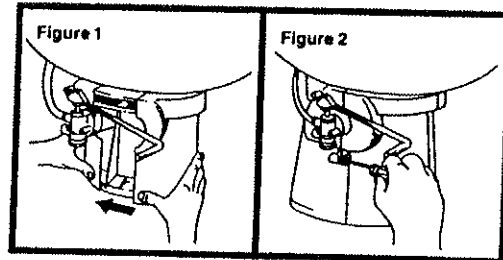
SeaLand Technology has endeavored to provide the boatowner with a toilet system which provides "at home" convenience and reliability. As with any quality product, satisfactory use depends on proper maintenance.

Maintenance intervals and normal parts replacement vary widely depending on numerous factors such as; type of vessel, frequency of system use, quality of flushing water, etc. The chart below is intended strictly as a general guideline. Owner discretion and consideration of actual usage must be the first basis for determining proper maintenance levels.

### Pedestal Cover Installation

Before installing pedestal and pedal covers, unit must be mounted to floor flange and water supply line connected.

1. Install pedestal cover around base and snap bottom into place (see Figure 1).
2. **Tall base unit only.** Install (2) mounting screws (see Figure 2).
3. Slide pedal cover onto foot pedal rod (see Figure 3).
4. Attach pedal cover side plate and secure with (2) mounting screws (see Figure 4). For short base units, secure front screw, then press foot pedal down completely to secure second screw.
5. To remove, reverse above procedure.



## RECOMMENDED ANTIFREEZE PRODUCTS

### "WINTER-PRUF"

CENTURY CHEMICAL PRODUCTS  
28790 C.R. 20 W.  
P.O. Box 1442  
Elkhart, IN 46515

219/293-9521  
800/348-3505 (Outside Indiana)

Fax: 219/522-5723

### "FREEZE BAN"

CAMCO MANUFACTURING, INC.  
121 Landmark Dr.  
Greensboro, NC 27409-9626

919/668-7661  
800/334-2004

Fax: 919/668-2049

## WINTERIZING YOUR BOAT

### SPRING RECOMMISSIONING CHECKLIST

#### Pre-Launch

##### Hull

- Remove old antifouling bottom paint
  - Fill nicks and gouges
  - Inspect props, struts, rudders
  - Inspect through hull fittings
  - Apply new antifouling bottom paint
  - Buff out minor hull scratches
  - Remove dirt, stains
  - Apply wax
- Inspect connections for corrosion

##### Plumbing

- Purge antifreeze
- Replace taste/ odor filters
- Inspect, lube sea valves
- Inspect, repair marine head
- Chemically charge holding tank
- Fill potable water tanks

##### Safety equipment

##### Deck and Cabin

- Inspect hatches and windows for leaks
  - Wax non-walking surfaces
- Inspect PFDs
  - Replace old distress signals
  - Inspect fire extinguishers
  - Inspect, test bilge pump

##### Engines

- Follow manufacturer's recommissioning guidelines
  - Check crankcase, transmission oil levels
- Inspect mooring lines, fenders

##### After Launching

- Inspect belts, hoses
  - Tune-up engine
  - Replace fuel filters
- Check for engine cooling water flow
  - Check propshaft alignment
  - Check stuffing box adjustment
  - Have compass professionally readjusted

##### Electrical System

- Check battery water level
- Charge batteries