

# 31-Open



Figure: 1 is showing the boat on the truck as it arrives at your dealership. The boat will be shrink-wrapped with netting over it. The shrink wrap and netting will have to be removed before rigging the boat. Look the underside of the boat over for any shipping damage that might have happened during delivery and document if any is found.

Figure: 1

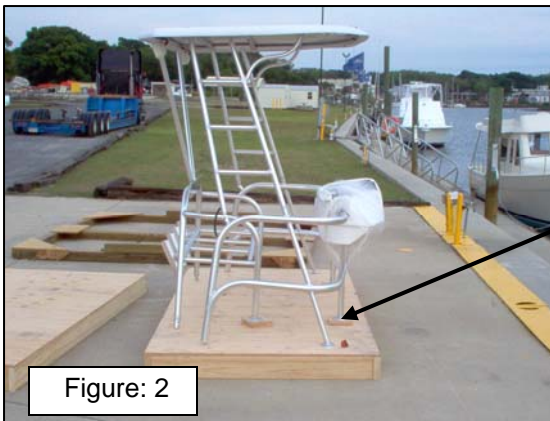
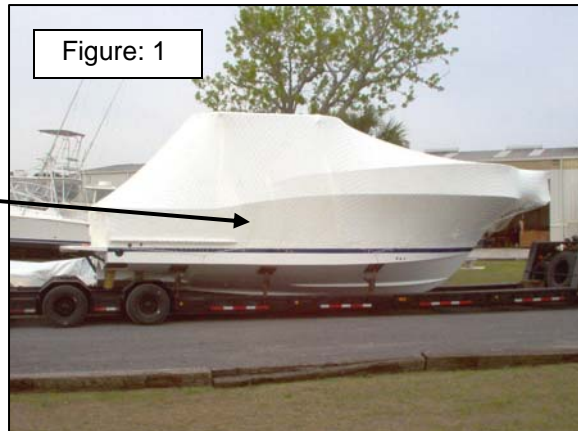


Figure: 2

In figure: 2 you notice that the sunshade and console are shipped separately from the boat on its own cradle. This will be secured on the front of the truck. Look over sunshade and console for any shipping damage and document. The sunshade needs to be unsecured from cradles before setting on top of hardtop.

Figure: 3 is showing the tube that the steering lines and the electronic control cable and nav light harness come up from the engine room to the upper console. They will be inside the ladder tubing for shipment. There is a retrieving line tied to them that gets pull and will pull up the steering lines and cable from the engine room. It is requested that a second person goes into the engine room and helps feed lines to insure that the lines don't get kinked while pulling into tube.

Figure: 3

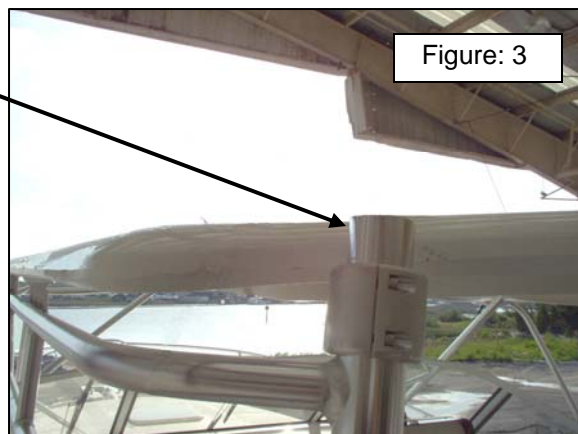
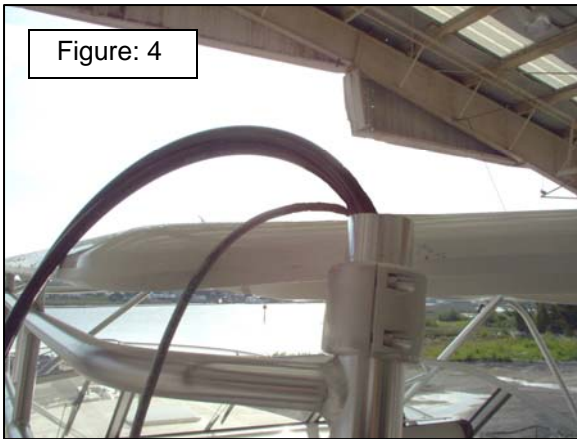


Figure: 4



Once all lines are pulled snug as shown in figure: 4. The console and sunshade are ready to be put on top of the hardtop. The whole upper station can be picked up as one piece. Make sure to support the console when lifting. Best procedure is to use a forklift and pick up the upper station while still on the cradle and slide upper station off cradle once you get it

Figure: 5 is showing how to connect the aft legs of the upper tower to the ladder after the upper station is in place. The outside leg has a collar that tightens with allen bolts and the inside tube connects with allen bolts into each other. Both the collar and allen bolts are provided in the loose gear kit. This will be the same on both the Port & Starboard aft legs.

Figure: 5

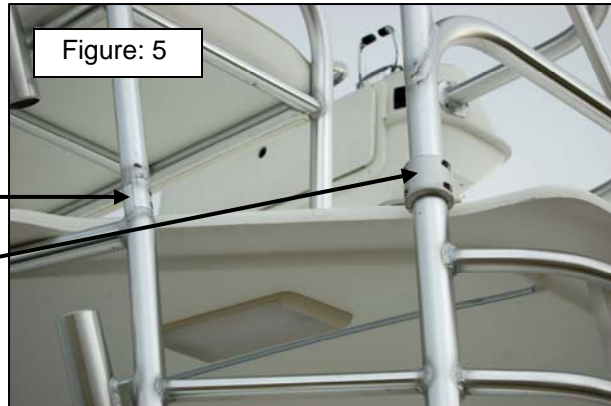


Figure: 6

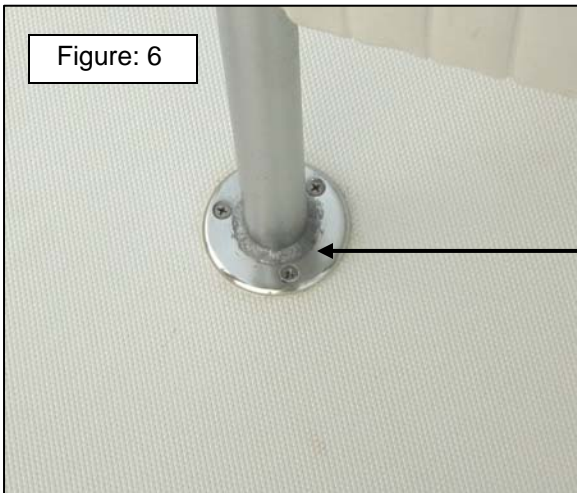


Figure: 6 is showing the base of the seat pad. Install using  $\frac{1}{4} \times 20 \times 1$ " f/h screws provided in rigging kit to secure seat. There will be pre-drilled holes that have been pre-tapped at the factory that you line holes in pad up with for ease of installation. Make sure to use 5200 sealant provided in loose gear to get a water tight seal. Do this with both pads that are under upper bench seat.

Figure: 7 is showing the foot pad under the console. To secure use  $\frac{1}{4}$  x 20 x 1" f/h screws to pre-drilled and pre-tapped holes done at the factory. Line holes up on hardtop with pad holes and secure. Remember to use 5200 sealant for a water tight seal. This will be done on all 4 pads under to upper console.

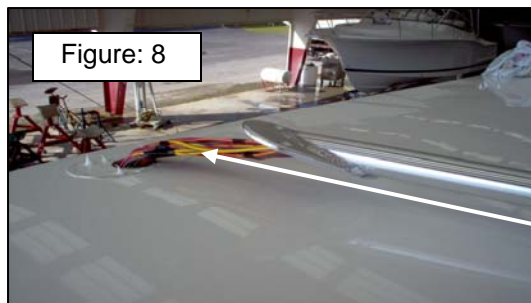
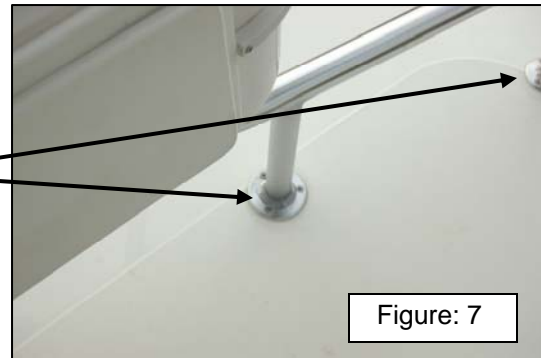


Figure: 8 & 8a shows a picture of the starboard fwd console tube with all the harnesses already ran through it. It will be secured to the Fwd hardtop leg for shipment. Undo and feed harnesses through the hole in the console in figure: 9. Use  $\frac{5}{16}$ " x 1" f/h machine screws to secure fwd leg to hardtop into pre-drilled and pre-tapped holes that were set up at the factory. Remember to use 5200 for water tight seal. Port fwd leg will secure the same way.

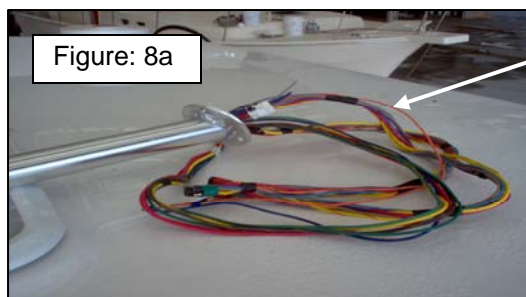


Figure: 9 shows the hole into the console in which all the harness feed into the upper console through the starboard console tube. Secure tube with  $\frac{1}{4}$  x 20 x 1-1/4" f/h screws with a  $\frac{1}{4}$ " washer, lock washer & hex nut. Tighten and then use  $\frac{1}{4}$ " cap nut to dress it off. Make sure to use 5200 sealant for water tight seal.

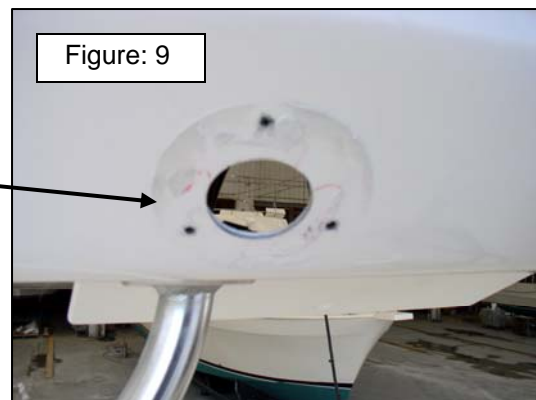


Figure: 10 shows the harness connections. The harnesses will plug together by size of plug and color to color plug ins. Once plugged together, put a tie wrap around plug to help from possibility of coming apart.

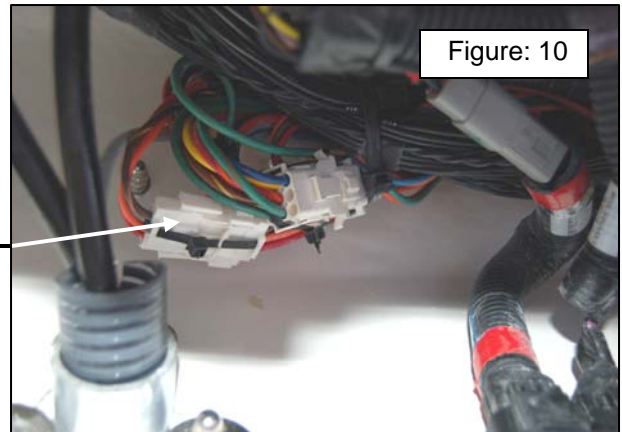


Figure: 10

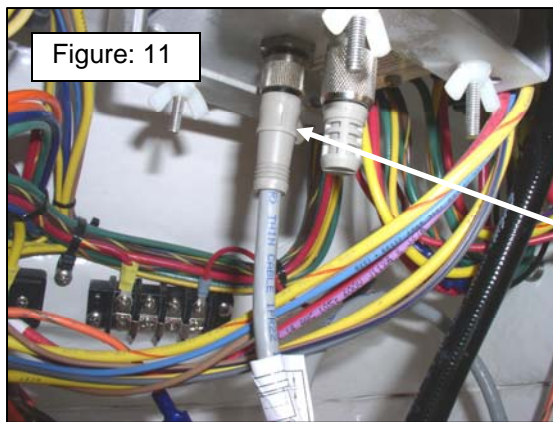


Figure: 11

Figure: 11 is showing the Glendinning electronic control hook up.

Figure: 12 is showing the steering lines hook up. The Port line will be marked with Red tape and the Starboard will be marked with Green tape. Station to Station will be black.

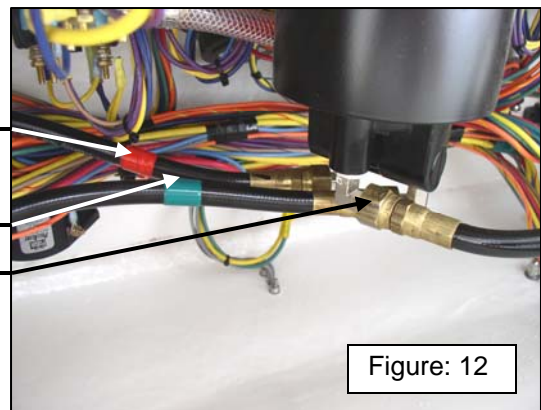


Figure: 12

## PROPELLER INSTALLATION

**The proper procedure regarding the installation of marine propellers is detailed here for the benefit of dealers, service people, and customers alike. This is to insure proper installation in accordance with the A.B.Y.C. and good industry practice.**

- A. Inspect propeller for shipping damage when removing from box. If the box is damaged, check the propeller carefully.
- B. Clean any burrs, tape residue, or any other foreign material from the propeller end of the shaft, and key seat.
- C. Carefully slide the propeller onto the shaft as far as it will go **without the key installed**. Mark the shaft with a pencil. Check the fit of the taper by attempting to rock the propeller while tight on the shaft. No rocking should occur.

***Note: If Rocking occurs, contact Luhrs / Mainship Corporation customer service for corrective action.***

- D. Carefully remove the propeller and set aside. Fit the key into the key seat on the shaft and within the propeller hub with a fine mill file or fine Emory on a flat surface. File only the key. The key seat width may vary from nominal to minus .001" (nominal + .000/- .001"). In good practice this means that the key seat width in the propeller can vary from the key seat width in the shaft by as much as .001". The key must be filed (lengthwise) to achieve a good fit for each key seat. A good fit has been achieved when the key can be slid into position with no slack in the key seat, and with no hammering. A key that is too tight or too loose can damage the shaft or propeller hub, or both.

### Proper Method of Propeller Shaft Key Stock Installation.

The A.B.Y.C. and the S.A.E. standards specify an allowable tolerance in key seat width for 1 ½" and 1 ¾" diameter shafts of nominal to minus .001 (nominal +.001"/-. 001"). The following table lists allowance minimum and maximum key seat widths for each shaft size.

Shaft Size	Maximum Key Seat Width	Minimum Key Seat Width
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**1 ½"**  
**1 ¾"**

**.3750"**  
**.4365"**

**.3740"**  
**.4375"**

The problem that presents itself here is the probability of the various key seat widths encountered when installing a propeller.

- A. Place the key into the key seat on the shaft. Be sure the key is correctly oriented.
- B. Slide the propeller up onto the shaft, making sure the key does not ride up and forward within the key seat. The propeller hub should position itself to the mark previously made. If the hub does not align itself with the mark, the key has not been properly fit. Refit the key.
- C. While holding the propeller in place, start the large nut (**Chamfered Side of Nut towards Propeller, see figure #13**) until hand tight to prevent movement and keep the propeller from falling off.
- D. Place a wood block between the blade and the ground, then tighten the large shaft nut. Install and tighten the smaller jam nut, see figure #14 (**Chamfered Side of Nut Away From Propeller**). Insert and bend over the cotter pin. Remove the block of wood.

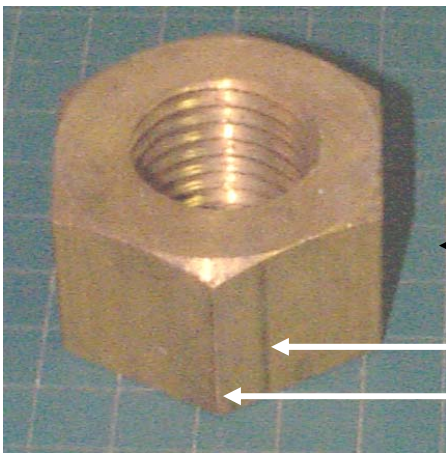


Figure #13

**Large propeller nut.** Install first with chamfered side towards to propeller.

Chamfered side of nut.

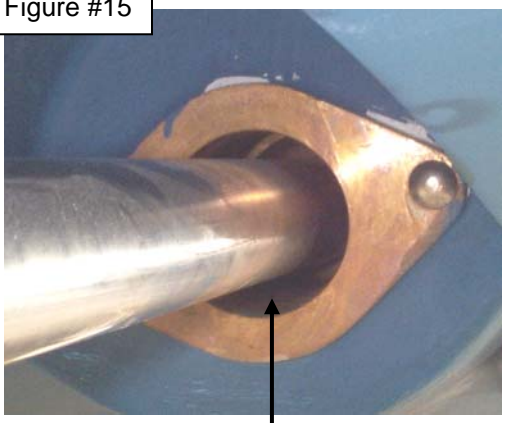


Figure #14

View of the **jam nut**. Install with the chamfered away from the propeller. After nuts is tight insert cotter pin to prevent nuts from coming loose.

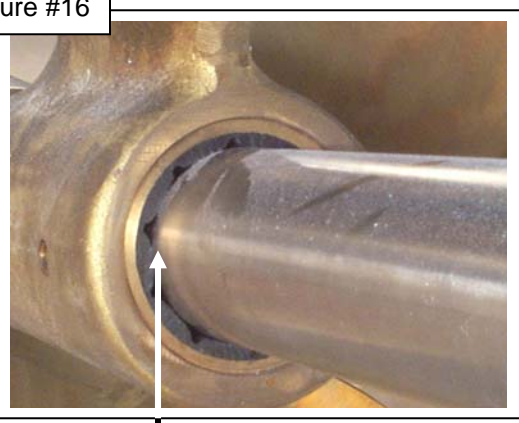
- E. Cut the plastic tie wraps holding the coupling faces together. Slide the shaft coupler and the transmission coupler together, **do not install bolts at this time**. Look at the cutless bearing (figure #16), and the shaft log, (figure #15), check to see if the shaft is sitting in the center.

Figure #15



Check to see that the shaft is in the center of the shaft log. If it isn't call Luhrs Corporation customer service department for corrective action.

Figure #16



Check to see that the shaft is in the center of the cutless bearing. If the bearing looking to be pinched call Luhrs Corporation customer service department for corrective action.

## BATTERIES

- A. Assure that **All** switches are turned off (including battery switches and switch inside refrigerator).
- B. Check to see if batteries are charged and install into battery boxes. Connect battery cables.
- C. Install protective positive battery boot over the positive battery terminal.

***Note: There should be No spark when the battery cable touches the battery Terminal.***

## Check Trim Tab Operation

- A. Check operation of trim tab switches.
- B. Press the Stbd/Bow up switch. The port trim tab should go up.
- C. Press the Stbd/Bow down switch. The port trim tab should go down.
- D. Press the Port/Bow up switch. The starboard trim tab should go up.
- E. Press the Port/Bow down switch. The starboard trim tab should go down.

## Launching Boat

*Launch the boat, leaving it in the sling until the following initial checkout is complete.*

Initial Checkout:

- A. Check the shaft logs (2) where applicable, rudders, shaft strut mounting bolts (12) where applicable, garboard drain plugs, and through hull exhaust for leaks.
- B. Check the following through hull fittings for leaks: Refer to owner manual for the location of through hulls.

Cooling water inlet (2) where applicable.  
Exhaust outlet (2) where applicable  
Generator water inlet (1) where applicable  
Air Conditioning inlet (1) where applicable  
Toilet inlet (1)  
Macerator outlet (1)

- C. Open through hull valves and check for leaks.
- D. Check drain plugs on mufflers.

## Shaft Coupling Installation

**Warning;** Make sure that the battery cables are disconnected before proceeding to prevent the possibility of anyone accidentally starting the engine and engaging it in gear.

**Note:** Final engine alignment must be done in the water and the fuel tanks full.

Inspect the mating faces of the coupling flanges to be sure they are clean and have no nicks that will prevent the couplings from mating properly.

Check to be sure that the coupling flanges are aligned by pulling the propeller shaft coupling against the engine coupling. The shoulder on the shaft coupling should mate with the recess in the engine coupling with minimum resistance.

**Note:** If the couplings do not mate properly, contact the service department at Luhrs-Mainship Corporation for corrective action.

Check the coupling flanges for any angular misalignment. Holding the coupling flanges together by hand check for misalignment by trying to insert a 0.004" feeler gauge between them.

Check the coupling flanges faces again after turning the shaft coupling 180 degrees. If the location of the clearance gap changes 180 degrees, a bend in the shaft or a faulty coupling is indicated.

**Note:** If the coupling flange faces will accept a feeler gauge larger than 0.004", contact the service department at Luhrs Corporation for corrective action.

Insert and tighten the coupling bolts to a torque of 50 LB-ft. Successively tighten bolts in a cross pattern to prevent warping a coupling flange.

## Check Fluid Levels

- A. Check fluid levels in marine gear(s) and engine(s) per manufactures specifications.

### Engine oil level

Engine coolant level  
Marine gear oil level

- B. Check fluid levels again after engine(s) have been warmed up,

## Fueling Boat

**Warning; Shut off electrical power, and disconnect shore power before proceeding.**

- A. Shut off all fuel valves. Check owner manual for location of valves.
- B. Check fuel tank grounds.
- C. Close all windows deck hatches, port lights, bilge hatches, and entry door.
- D. Fuel boat, watch fuel vent for spillage. Wash off any spillage immediately after tanks are full.
- E. Open all fuel valves and checks for fuel leaks. Check tanks, fill tubes, and vent hoses.

## Start Engines

**Warning; Run bilge blowers and check bilge for fumes before attempting to start engines.**

- A. Open fuel valves per engine manufactures procedure.
- B. Start engine(s) per manufacture procedure.
- C. Check engine / exhaust for water flow.
- D. Check for proper linkage operation. Throttle and gear levers should operate smoothly and without excessive force. The neutral decent should be distinct on the gear levers. **Remember to check that gear levers are adjusted properly, it is important that transmission is fully engaged or transmission failure may occur.**

## TEST RUN BOAT

- A. Check for maximum RPM from each engine (where applicable) per the engine manufactures specifications.
- B. Check forward / reverse action of marine gear.
- C. Check steering. (No more then 7 turns in either direction).
- D. Check gauges and instruments.
  - Tachometer
  - Engine Oil Pressure
  - Engine Temperature
  - Volts
  - Fuel Level
  - Engine Hours
- E. Check for proper operation of trim tabs with boat under way.
- F. After returning to the slip, check for fuel leaks, fumes in bilge, hull leak, and hose leaks.

## GROUND FAULT CIRCUIT INTERRUPTER

**Warning; Do not use the ground faults circuit interrupter (GFCI) or other standard receptacles on the circuit until the GFCI has been fully tested and successfully tested.**

- A. At the circuit breaker fuse panel, turn power ON to circuit.
- B. Test as follows. Push black TEST button. Red RESET button should pop out from inner surface. This should result in power being OFF at all outlets protected by the GFCI. Verify by plugging test lamp into every such outlet. Test with test lamp to determine condition of circuit and proper operation of indicator light.

**Caution: If reset button does not pop out or test lamp remains lit RESET button DOES pop- out, DO NOT USE ANY OUTLETS ON THE CIRCUIT. CALL LUHRS-MAINSHIP CUSTOMER SERVICE DEPARTMENT FOR CORRECTIVE ACTION.**

- C. If the **GFCI** tests okay, restore power by pushing the **RESET** button back in. **THE RESET BUTTON MUST BE PUSHED FIRMLY AND FULLY INTO PLACE UNTIL IT LOCKS AND REMAINS REPRESSED AFTER PRESSURE HAS BEEN REMOVED. IF THE GFCI FAILS TO RESET PROPERLY, DO NOT USE-CALL LUHRS-MAINSHIP CUSTOMER SERVICE FOR CORRECTIVE ACTION.** Test lamp should light again.
- D. If **GFCI TRIPS BY ITSELF** at any time during or after installation, reset and perform test procedures B and C above. **IF RESET BUTTON DOES NOT POP OUT WHEN TEST BUTTON IS DEPRESSED, DO NOT USE GFCI. CALL LUHRS-MAINSHIP CUSTOMER SERVICE DEPARTMENT FOR CORRECTIVE ACTION.**

## Systems Function Test

- A. If boat has been winterized flush all water systems before going any further.
- B. *Test fresh water system (operation, leakage, drainage,) including dockside water hookup. Fill and fully charge the system. Close all facets; listen to see if the fresh water pump comes on. If it does there could be a leak in the system.*
- C. Test water heater. Be sure the fresh water system is fully charged. Open the relief valve and discharge a small amount of water to assure the heater is charged with water. Be sure that the shore power cable is plugged in and the main circuit breaker is on. Turn on hot water heater circuit breaker in the 120-volt panel.

**Warning; Do not turn on the hot water heater if the unit is not filled with water or burnout of the heating elements could occur.**

Wait (1) hour, and then check for hot water at each faucet unless boat has been run. If boat has been run water will already be hot from the engine heat exchanger.

- D. Check the toilet, (operation per manufacture specifications).
- E. Check 120- volt system. Turn on circuit breakers in the main panel. Test each outlet, master breaker switch, and accessories. Check cabin lights, running lights, anchor lights, and courtesy lights.
- F. Check shower sump and bilge pumps, including automatic switches.
- G. Check stove operation.
- H. Test AC and DC operation of refrigerator.
- I. Check horn.
- J. Check wash downs.
- K. Check live wells.

## **CLEAN INTERIOR**

- A. *Vacuum carpet, bilge, hatchways, draws, lockers, etc.*
- B. Clean windows, counter tops, fiberglass surfaces. REFER TO OWNER MANUAL FOR PROPER MAINTENANCE PROCEDURES.
- C. Operator draws and Doors. Check each for warping, smoothness of operation, and proper catch and lock operation.
- D. Check operation of windows and hatches, including locks.

## **FINAL EXTERIOR WASH**

- A. *Wash exterior of boat thoroughly.*
- B. *Clean windows.*

## **COMPLETE PRE-DELIVERY SERVICE RECORD**

- A. *Complete the pre-delivery service record see "Delivery Procedures"*
- B. *Submit original to Luhrs Corporation 255 Diesel Road St. Augustine, FL 32086*
- C. *File remaining two (2) copies in customer's file.*

## 31-Open Rigging Kit

1. 18- ¼ x 20 x 1" F/H machine screw- Part #1000284
2. 3- ¼ x 20 x 1-1/4" F/H machine screws- Part #1000285
3. 4- 5/16" x 1-1/4" allen head bolts- Part #1002913
4. 3- ¼ x 20 hex nuts- Part #1000205
5. 3- ¼" x 5/8 flat washers- Part #1000604
6. 3- ¼" lock washers- Part #1000609
7. 3- ¼ x 20 cap nuts- Part #1000193
8. 6- 3/8" x 1" F/H machine screw- Part #1000302
9. 1- tube of 5200- Part #1006371