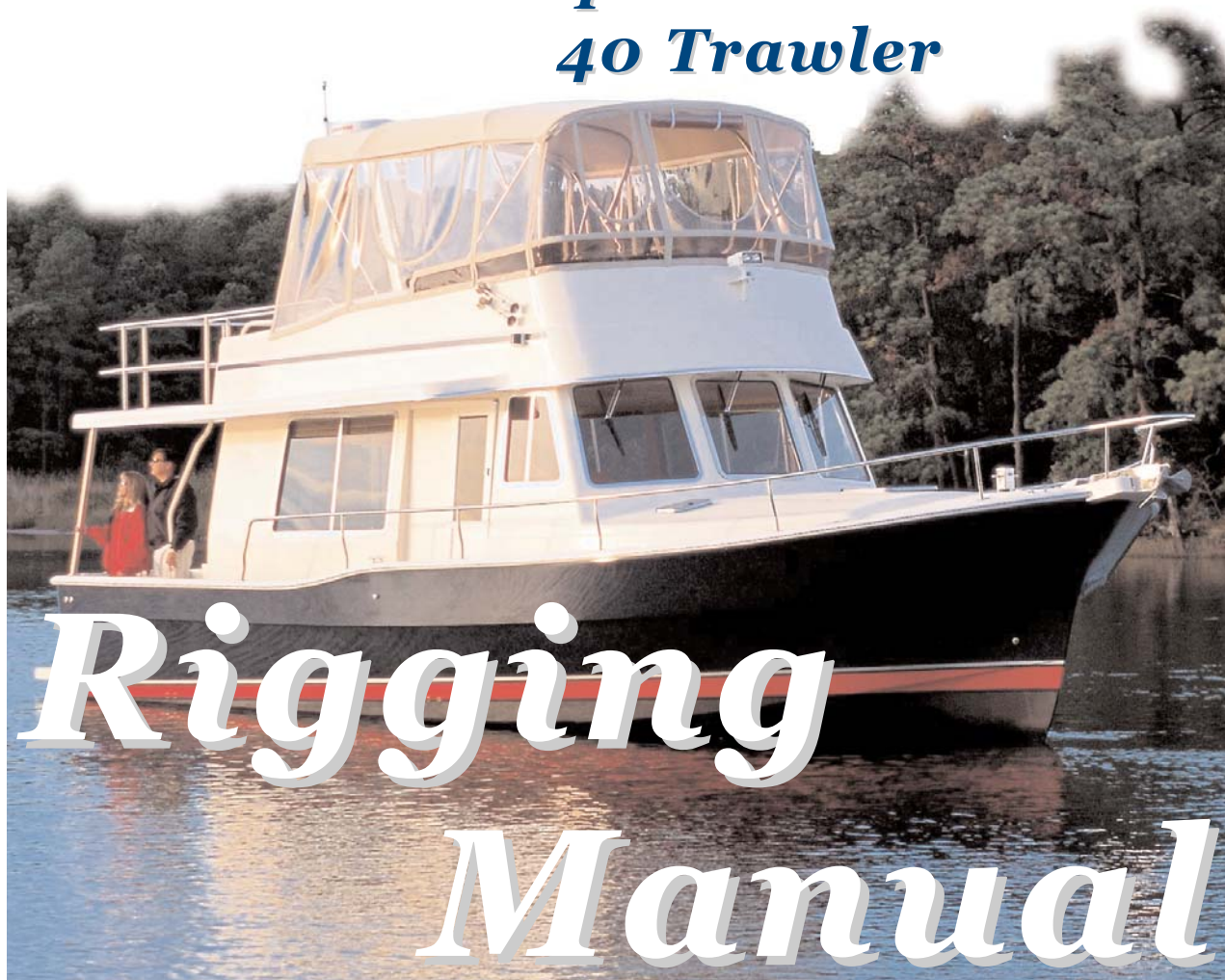


# Mainship<sup>®</sup>

## TRAWLERS

AN EMPLOYEE OWNERSHIP COMPANY

### *Mainship* *40 Trawler*



## **Introduction**

### **Purpose of your personal 'Rigging Manual'**

This manual has been compiled to help you rig the 40 Trawler. Each step has been laid out to guide you through the whole process of rigging the boat. All the steps are the way the boat would be put together as if it was being delivered right from the factory. The illustrations and images are what we recommend in the commissioning of this boat. Any other way or procedures may result in problems for the owner, or the voiding of warranties due to water leaks or a poor running boat.

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Step 1. Remove aft bridge rail from bow of boat. The bridge rails are secured to bow for shipment.



Step 2. Secure aft bridge rail with 1/4" - 20 x 1" f/h m/h bolts into pre-drilled tapped holes from factory. Use 5200 for watertight seal.



Step 3. Fit and secure port forward bridge rail with #10 x 1" f/h screws into pre-drilled holes from factory. Use 5200 for water tight seal.



Step 4. Same as step 3 for port side.



Step 5. Install compass with a quick disconnect that is already for connecting. You will find compass bubble wrapped and in the loose gear box.



#### Step 6. WINDSCREEN INSTALLATION

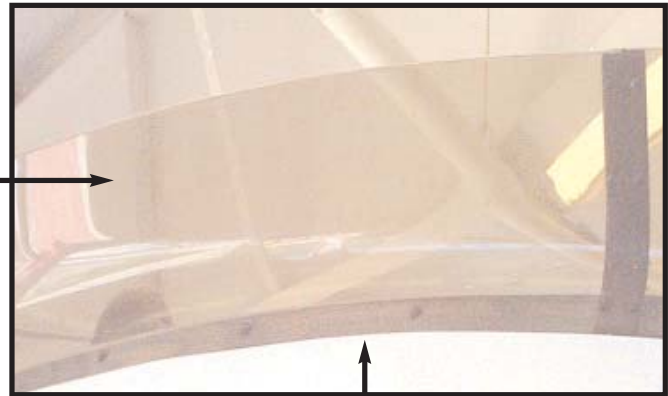
- A. Windscreen comes in a total of (3) sections of plexiglass complete with special mounting screws that are packaged with the windscreen. Installing the windscreen will require (2) or more people. These screws can be found in a bag in the loose gear box.
- B. Starting at the rear of fly bridge on port or starboard side hold your first section over factory pre drilled holes. Screw in only (1) screw at this time. Move to the center section of the windscreen and insert another screw.
- C. Insert center windscreen into bracket supplied by manufacture. Start (2) screws in the pre drilled center holes at this time.
- D. Now repeat item C for the last section of the windscreen. Once all sections are mounted you can continue to install the remaining screws on all sections of the windscreen.

\*On the following page you will find the images and notes to correspond with these instructions..



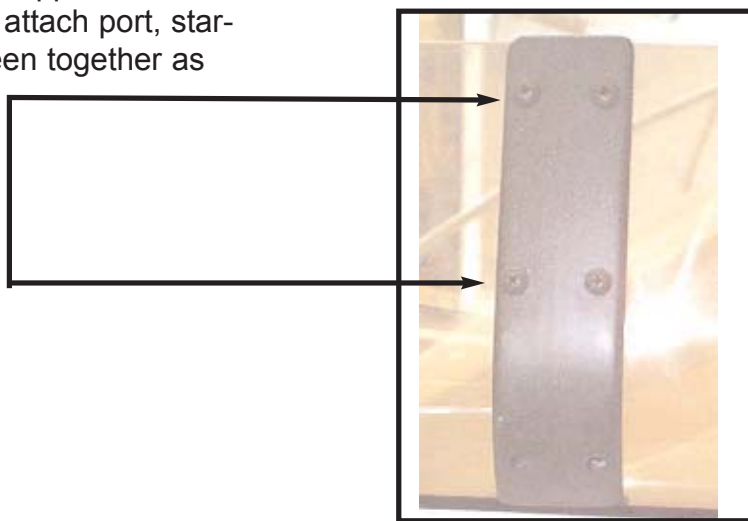
Windscreen cont.

Use special screw with inserting nut to attach center windscreen to port and star-board windscreens.



Use special self-tapping screws with rubber washers to secure windscreen to fly bridge. Screws are supplied with windscreen.

Use special manufactures supplied screw with inserting screw nut to attach port, star-board and center windscreen together as shown here in figure #15.



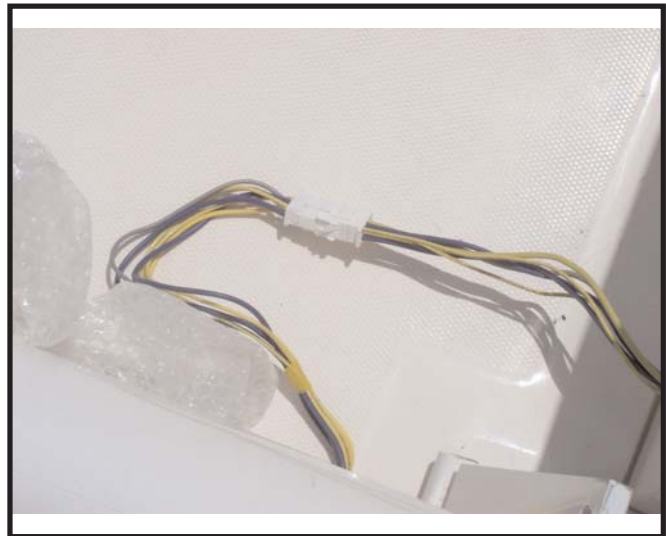
*Note: Luhrs-Mainship Corporation will not be held responsible for any damage caused by water penetration from dealer installed items.*

### Mast Installation and wiring connection

Step 7. Mast Plate is preinstalled at Mainships' facility. Mast will be stored inside cabin, install using hinge pin as shown in the image. Hinge pin is provided.



Once mast is installed connect wire harness for all around lights from mast to harness provided at aft seat, as shown.





Step 8. Mount aft bridge table pedestal with three 3/8" x 1" allenhead bolts into pre-installed pedestal plate. Table will set on top of pedestal.



Step 9. Mount helm chair pedestal onto pre-installed with three 3/8" x 1" allenhead bolts. Helm seat will set on top of pedestal.



\* Allenhead bolts will be found in rigging kit, in the loose gear.

### Bridge Cushion Installation

Step 10. Seat cushions will install with pre-mounted snap screws. Seat backs will install by sliding the pre-attached brackets together.



## 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.

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
1 ½"	.3750"	.3740"
1 ¾"	.4365"	.4375"

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

E. Place the key into the key seat on the shaft. Be sure the key is correctly oriented.

F. 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.

G. While holding the propeller in place, start the large nut (Chamfered Side of Nut Towards Propeller) until hand tight to prevent movement and keep the propeller from falling off. (See figure #29).

H. Place a wood block between the blade and the ground, then tighten the large shaft nut. Install and tighten the small jam nut (Chamfered Side of Nut Away From Propeller). Insert and bend over the cotter pin. Remove the block of wood. (See figure #30).

### **SHAFT COUPLING INSTALLATION**

A. Disconnect the shaft coupling from the engine by cutting the plastic tie wraps holding the coupling faces together.

B. 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.

C. 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.

D. 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.

E. 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.

F. 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.

## 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 safety boot over positive 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.

- A. Check the shaft log, (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: (See owners manual for the through hull location's.)
  - 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. Install drain plugs into all mufflers.

### **CHECK FLUID LEVELS**

A. Check fluid levels in marine gear(s) and engine(s) per manufactures specifications. (Refer to owner manual for more information on fluid level's).

Engine oil level

Engine coolant level

Marine gear oil level

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

### **FUELING BOAT**

A. Shut off all fuel valves. (See owner manual for locations).

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 ENGINE(S)**

A. Open fuel valves per engine manufactures procedure.

B. Start engine(s) per manufacture procedure.

C.C heck 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 manufacturer's specifications.

B. Check forward / reverse action of marine gear.

C. Check steering. (No more than 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 leaks, and hose leaks.

## GROUND FAULT CIRCUIT INTERRUPTER

A. At the circuit breaker fuse panel, turn power ON to circuit. One of the (GFCI) can be found on the outlet mounted at the computer table. This (GFCI) controls all the outlets on the starboard side of the boat. The other (GFCI) is located in the outlet mounted in the galley, it controls all the outlets on the portside of the boat.

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 a lamp into every such outlet. Test with a lamp to determine condition of circuit and proper operation of indicator light.

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 DEPRESSED 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 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.

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

D. Check the toilet, check for leaks and proper operation.(See owner manual for proper manufacture's 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.

### **CLEAN INTERIOR**

- A. Vacuum carpet, bilge, hatchways, draws, lockers, etc.
- B. Clean windows, counter top, fiberglass surfaces. (See owner manual for proper maintenance procedure).
- 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. (See owner manual for proper maintenance procedure).
- 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.

### **40 Trawler Rigging Kit**

6 #14x1" Flathead screws  
6 3/8"x1" Allenhead bolts  
30 1/4" x 20 x 1" Flathead bolts  
6 3/8" Snap Studs  
2 Tubes 5200