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71

SEVENTY ONE
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INSTALLATION INSTRUCTIONS

AND OWNER'S MANUAL

www.seastarsolutions.com




SEASTAR[™]

Kicker Cable Tiebar
Part # HO61xx






*Before you do it your way,
please try it our way*

Notice to Boat Manufacturer or Installer

Throughout this publication, Warnings and Cautions (accompanied by the International Hazard Symbol ) are used to alert the manufacturer or installer to special instructions concerning a particular service or operation that may be hazardous if performed incorrectly or carelessly.

Observe Them Carefully!

These “safety alerts” alone, cannot eliminate the hazards that they signal. Strict compliance to these special instructions when performing the installation and maintenance plus “common sense” operation are major accident prevention measures.

 DANGER	 WARNING	 CAUTION	NOTICE
Immediate hazards which WILL result in severe personal injury or death.	Hazards or unsafe practices which COULD result in severe personal injury or death.	Hazards or unsafe practices which COULD result in minor injury or product or property damage.	Information which is important to proper installation or maintenance, but is not hazard-related.

WARNING

Cleaning fluids containing ammonia, acids or any other corrosive ingredients MUST NOT be used for cleaning any part of this Hydraulic Steering System. Failure to comply will cause serious damage to the steering system, resulting in possible loss of steering, causing property damage, personal injury and/or death.

NOTICE

Marine Canada Acquisition Inc. DBA SEASTAR SOLUTIONS is referred to as SeaStar Solutions throughout this publication.

Don't compromise performance... use genuine SeaStar parts only!

- SeaStar Helms
- SeaStar Hoses
- SeaStar Cables
- SeaStar Cylinders
- SeaStar Fluid

Substituting non SeaStar parts in any part of the SeaStar hydraulic steering system, may seriously compromise system performance.

INTRODUCTION

The SeaStar Kicker Cable Tiebar has been designed for normal pleasure use where standard rigging arrangements are used. Before proceeding with the installation of this product, read and understand ALL instructions thoroughly. SeaStar Solutions cannot accept responsibility for installations where instructions have not been followed, where substitute parts have been used, where modifications have been made to our products. When properly installed, this SeaStar Kicker Cable Tiebar will connect to kicker engines with ABYC standard tilt tubes, using the engine manufacturer's drag link arms.

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CAUTION

The Kicker Cable Tiebar Kit is designed for use with new, or existing SeaStar Steering Cylinders, part numbers HC5345 and HC5358 and is to be used on kicker engines up to 20HP MAX. This kit is NOT to be used on kicker engines that exceed 20HP.

NOTICE

All linkages for the kicker motor (tilt tube, drag link, etc.) are to be obtained by the installer, builder and/or owner and are required to complete the installation of the SeaStar Kicker Cable Tiebar.

BEFORE OPERATING YOUR BOAT FOR THE FIRST TIME

Ensure that the following check list is carried out.

1. Perform system pressure test by turning helm all the way hard over and then forcing the helm another 1/4 – 1/2 turn. This must be completed in both directions. This will pressurize the system. Any weakness (faulty hose, leaks, etc.) will be seen at this time
2. Confirm that there is NO interference between the steering cylinder(s), or the Kicker Cable Tiebar with the transom, splashwell or any other object by performing the following steps;
 - With engine fully tilted, turn steering wheel from hard over to hard over, confirming that there is no interference. If using a hydraulic jack plate this also must be performed at the top and bottom position of the jack plate. (If interference is present, it MUST be eliminated with trim limiting switches and/or jack plate lift restrictors. Contact jack plate manufacturer for advice if required).
 - Confirm that the steering cylinder can be fully stroked in both directions, as well as full tilt/trim without stretching and/or kinking the hydraulic hoses, or, Kicker Cable Tiebar.
 - Confirm that the hydraulic hoses and/or Kicker Cable Tiebar are not subject to chafing or rubbing.

NOTE: Stretched or kinked hose/cables will fail over a period of time.

NOTICE

Prior to 'every use', please refer to page 12 for important safety checks.

⚠ WARNING

Failure to comply with the above and ANY other warning, notice or caution may lead to loss of steering control. Loss of steering control may result in unpredictable boat behaviour leading to ejection from boat, property damage and/or personal injury or death.

⚠ WARNING

To maximize component life and performance—when the boat is being transported on a trailer, ensure that one of the following steps is performed.

- Turn steering wheel hard over so that the cable exiting the 'kicker motor' is fully EXTENDED" (see figure 2, page 3 for details).
- Center the engine and use steering-stops to prevent the engine from falling over.
- Disconnect the Kicker Cable Tiebar from the main steering cylinder (see page 11 for details).

PRODUCT OVERVIEW

Before starting with this installation, ensure you have the following components, all of which will be required to complete the installation.

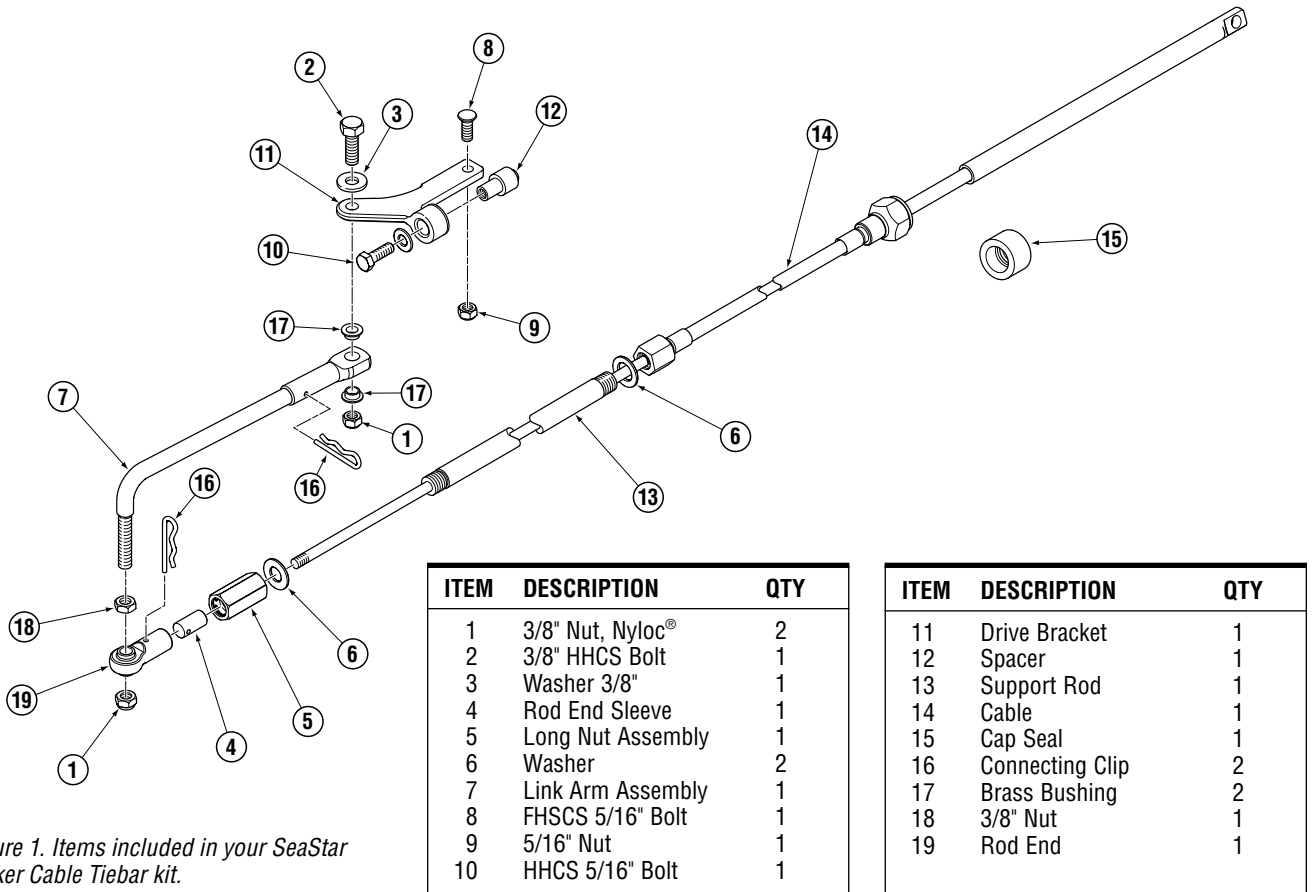


Figure 1. Items included in your SeaStar Kicker Cable Tiebar kit.

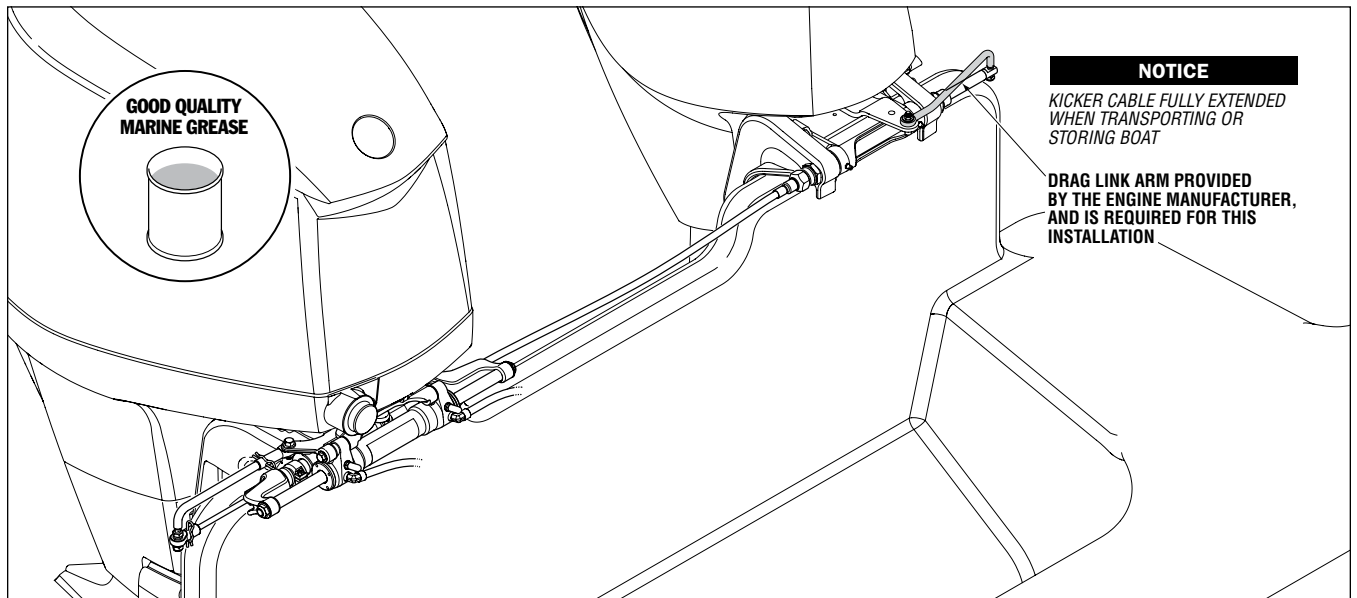


Figure 2. Additional parts required to complete installation.

INSTALLATION

STEP 1:

Existing Cylinder Installation – Parts Removal

- Note location of ALL spacers on your current set up (refer to Figure 3).
- Remove cylinder support brackets
- After noting spacer location, remove spacers and support rod completely. At this time you will be left with the cylinder mounting plate attached to the steering arm only. (See Figure 4.)

⚠ WARNING

DO NOT discard any of the spacers, support brackets, washers or mounting nuts as they will be required to complete the installation.

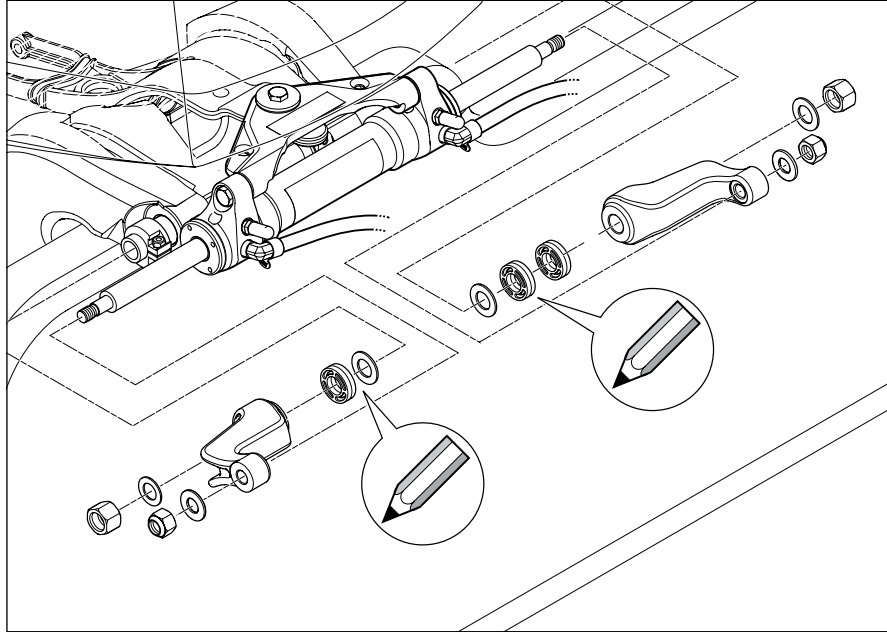


Figure 3.

STEP 2:

New Cylinder Installation – Tiller Bolt Mounting

- Mount cylinder to engine steering arm as directed in Book #1.1 included with your steering cylinder. **DO NOT** INSTALL support rod, or support brackets. (See Figure 4.)

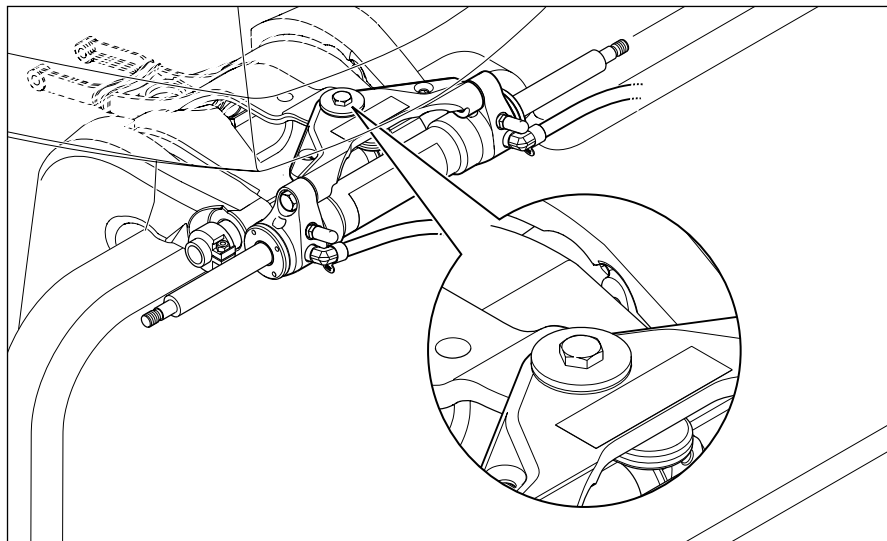


Figure 4.

STEP 3:Sub-Assembly
(Rod/Bracket/Cable)

- Slide support bracket over support rod
- Hand tighten cable nut to the support rod

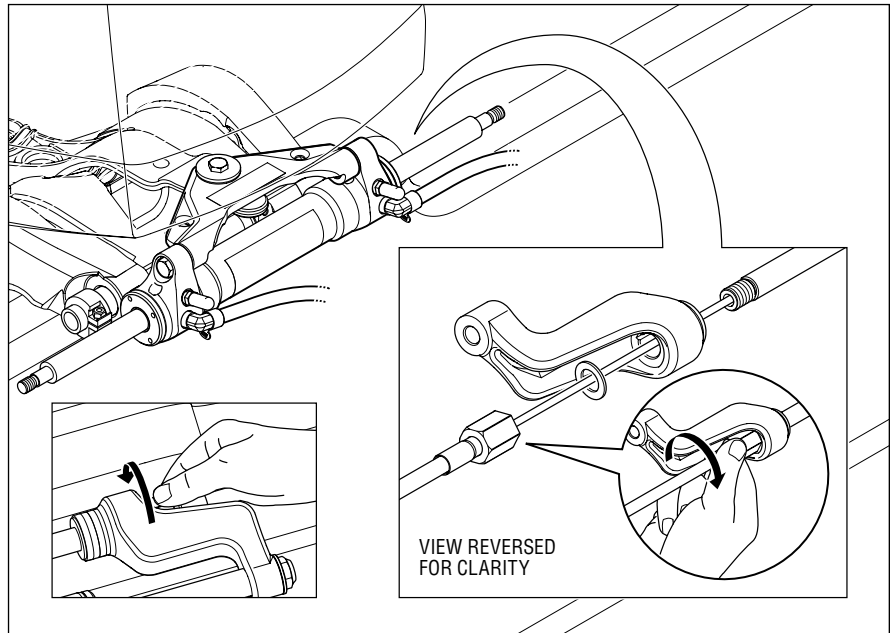


Figure 5.

STEP 4:

Spacer Installation

- Install spacers as previously noted (existing cylinder), or, as per your engine application as noted in Book #1.1 (new cylinder installation).
- Using good quality marine grease, lubricate the support rod in the area shown in Figure 6.

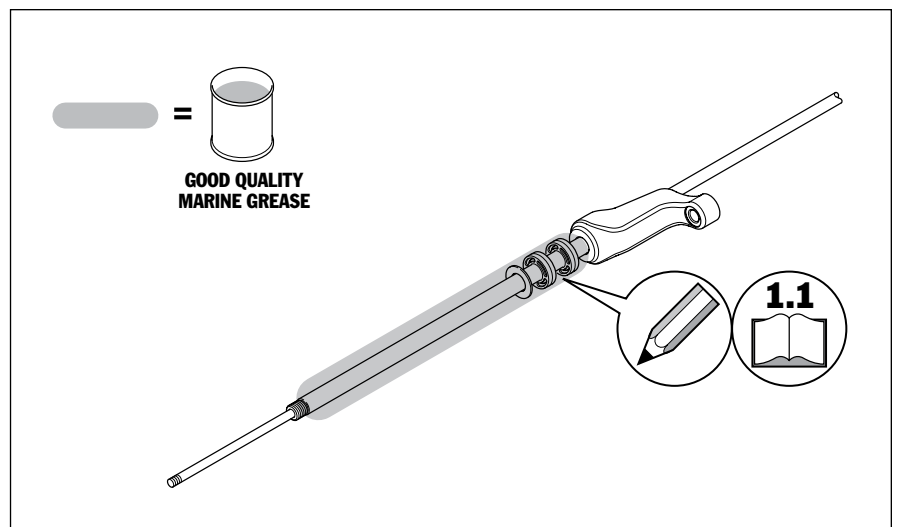


Figure 6.

STEP 5:

**Sub-Assembly Installation
(Rod/Bracket/Cable)**

- Slide greased sub-assembly through main engine steering/tilt tube.

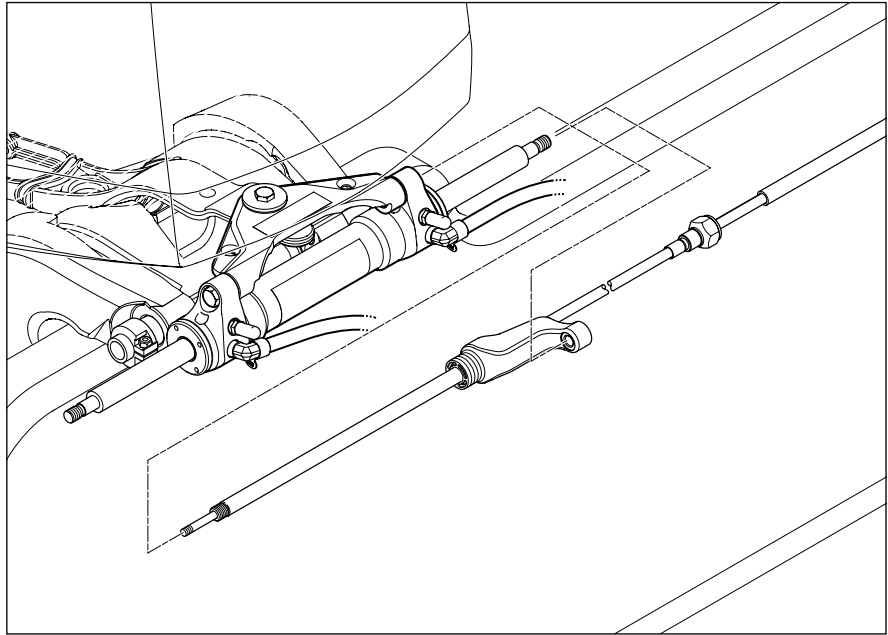


Figure 7.

STEP 6:

**Spacers/Adjusting Nut
Installation**

- Install spacers/adjusting nut as noted, or, as per Book #1.1.

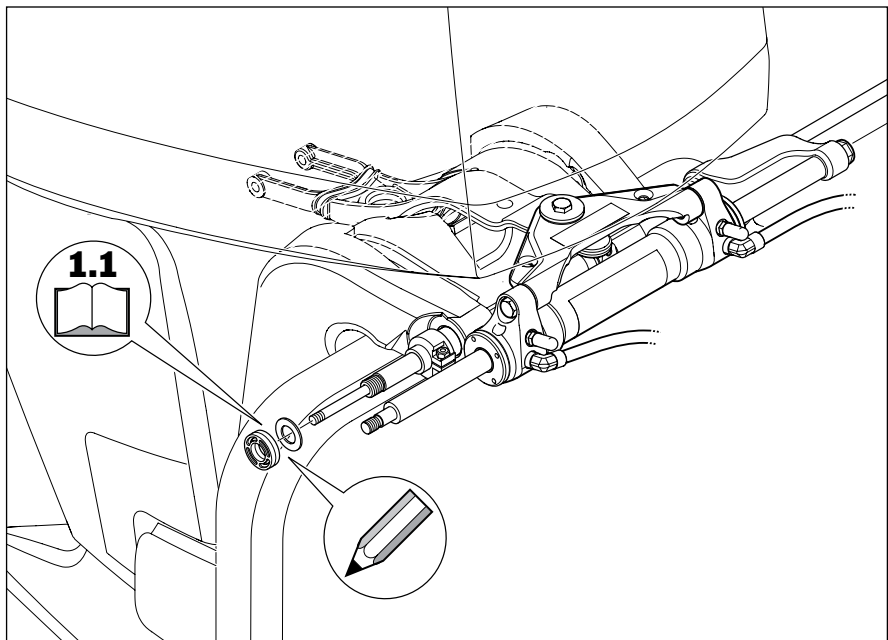


Figure 8.

STEP 7:**Support Bracket/Sub-Assembly Final Install****⚠ CAUTION**

Failure to grease cable rod may result in premature wear, leading to irreparable damage.

- Using a good quality marine grease, lubricate the telescoping, 5/16" cable rod.
 - Using a 7/8" open ended wrench, and a 7/8" deep socket, tighten support bracket nuts and torque to 50 ft-lb (see figure 9 for placement of wrench and socket).
- NOTE:** cable may need to be retracted to allow the socket to reach the threads of the nut.
- Using a 5/8" socket, tighten and torque 5/8" cylinder shaft nuts to 33 ft-lb.

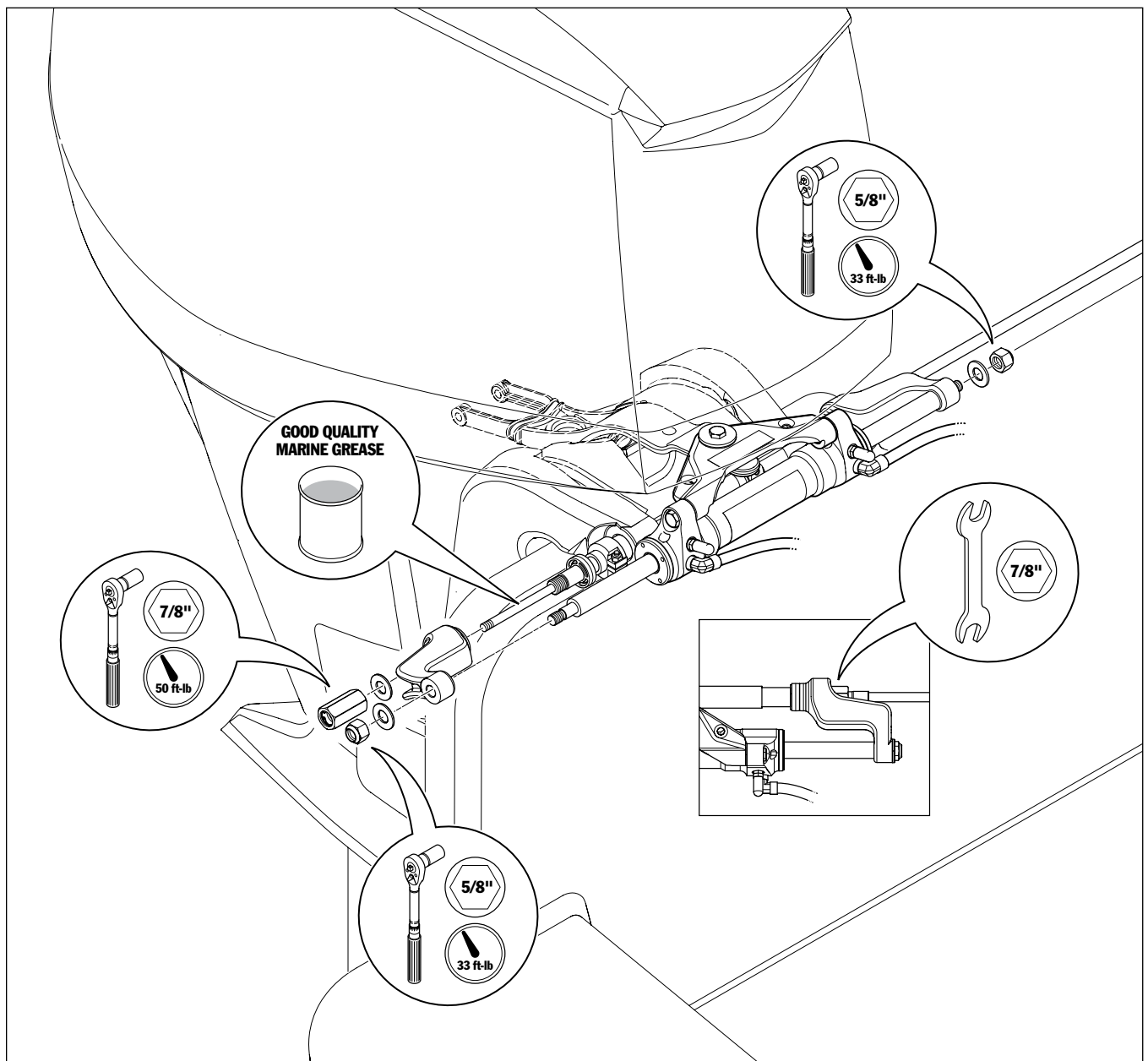


Figure 9.

STEP 8:

Drive Plate Installation

- Remove bolt and stem washer as shown in Figure 10.
- Install drive bracket onto cylinder ear as shown in Figure 10.
- Tighten and torque 1/2" bolts to 11 ft-lb.

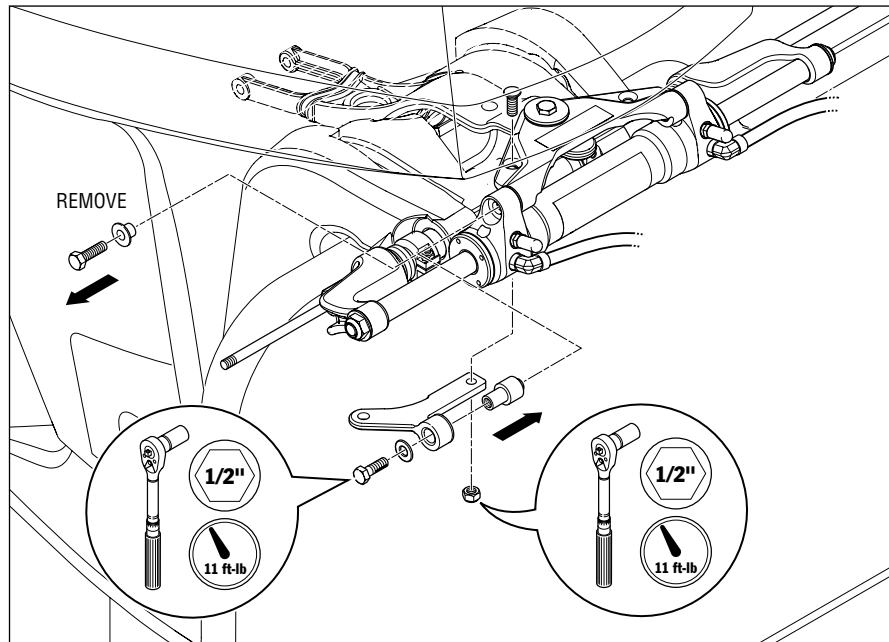


Figure 10.

STEP 9:

Link Arm Installation

- Install drag link onto drive plate ensuring that the brass bushings are installed on top of and below drag link, tighten and torque to 22 ft-lb (see Figure 11).

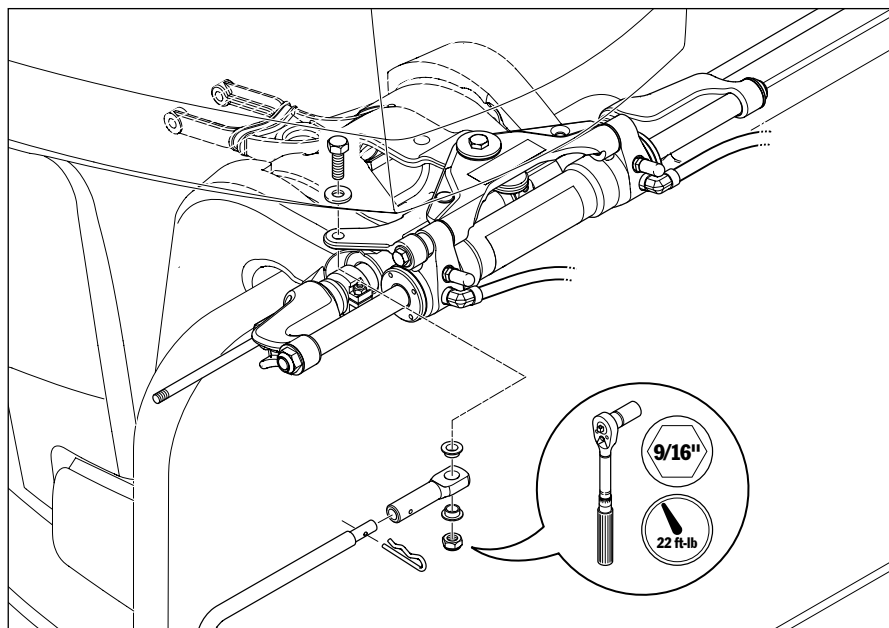


Figure 11.

STEP 10: Link Arm Installation and Inspection

- Install Rod End Sleeve onto 5/16" cable rod leaving 1–2 threads visible (DO NOT tighten completely). See Figure 12a.
- Install remaining components as per Figure 12.
- Physically inspect the two shafts (kicker cable shaft and link arm) confirming that they are **Parallel** with each other (not binding, twisting or any other mechanical interference). See Figure 12b.

NOTICE

*If the two shafts are not **parallel**, adjust the 3/8" nuts on the drag link assembly until the two shafts are parallel with each other.*

- Physically inspect to ensure that 1–2 threads of the 5/16" cable rod showing.

CAUTION

Failure to ensure 1–2 threads are showing may lead to binding of the Kicker Cable Tiebar.

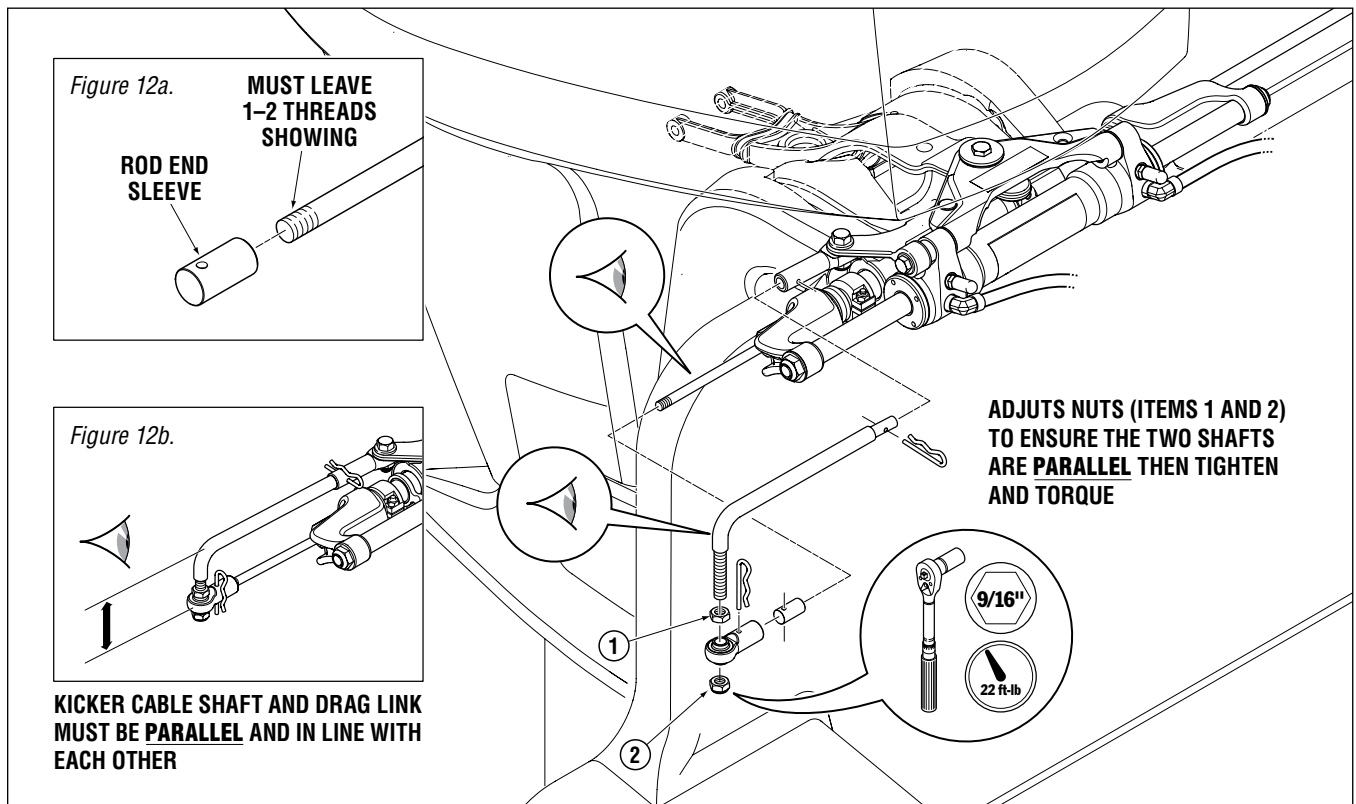


Figure 12.

STEP 11: Final Connections

- Grease and install Kicker Cable through the kicker engine steering/tilt tube.
- Ensure the cap seal is installed to prevent contamination in the steering/tilt tube area. (See Figure 13 on page 10.)
- Install kicker engine drag link.

NOTE: SeaStar Solutions does NOT provide the drag link required for the final connection, contact your engine manufacturer for this item.

HYDRAULIC STEERING

KICKER CABLE TIEBAR

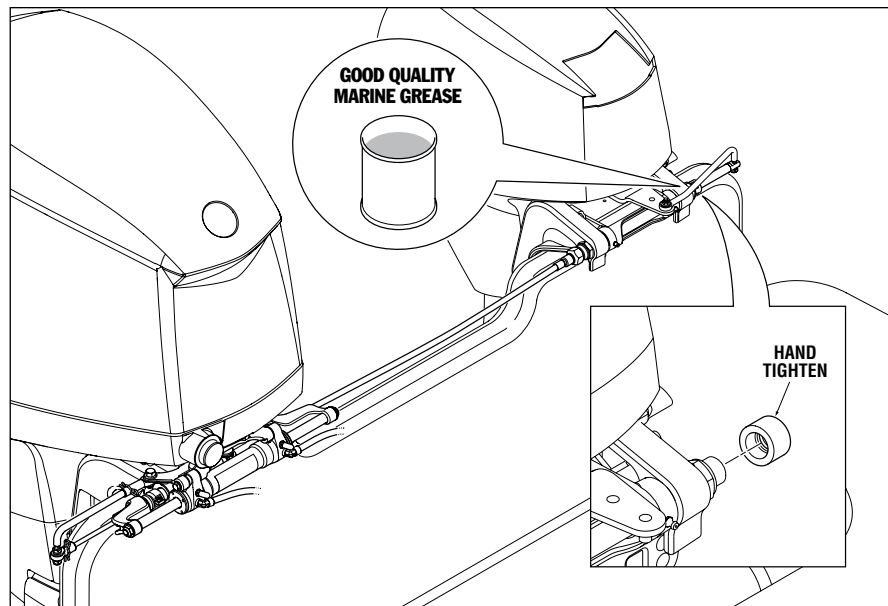


Figure 13. Cap Seal Installation.

STEP 12:

System Check

⚠ CAUTION

If the main steering cylinder is **NOT** fully stroking out, in **BOTH** directions, stop installation and check for mechanical interference, contact SeaStar Solutions Technical Support.

- Ensure the main steering cylinder (HC5345 or HC5358) can hit hard over in **BOTH** directions.
 - If steering cylinder **HITS HARDOVER**, in **BOTH DIRECTIONS**, continue with points i. and ii. shown below.
If steering cylinder **DOES NOT** hit hard over in **BOTH** Directions, consult with Trouble Shooting details shown on page 12
 - i Turn steering wheel from hard over to hard over. While turning, visually watch for any signs of binding or interference with any other object. If interference occurs it **MUST** be prevented prior to use of the vessel.
 - ii Complete the above noted step in **ALL** trim/tilt ranges and throughout the steering arc of the engine.

⚠ CAUTION

If kicker engine is mounted on an adjustable jack plate or bracket you **MUST** inspect at **ALL** points in **UP/DOWN** range.

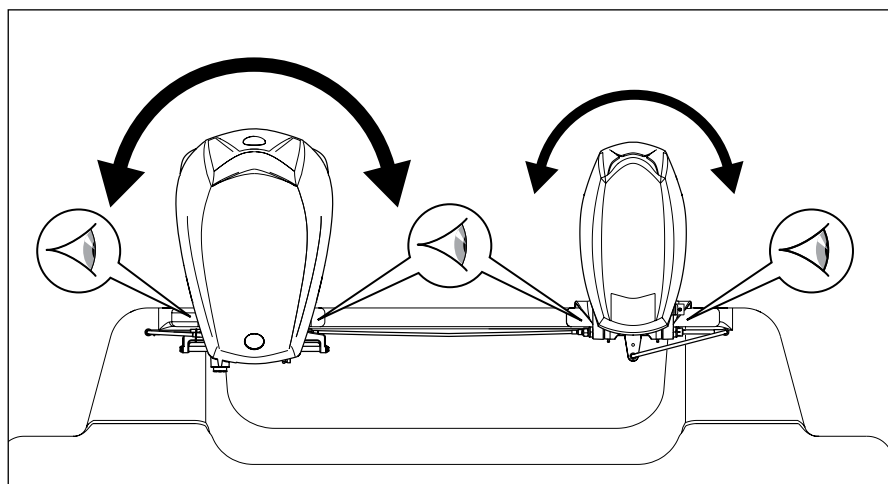


Figure 14.

QUICK CONNECTION INSTRUCTIONS

The SeaStar Kicker Cable Tiebar is designed to allow a quick connection/disconnection that can assist in the following areas;

- If kicker engine is bound/seized, quick disconnect will allow the continued use of the main steering gear.
- Troubleshooting.
- When transporting boat on a trailer.

NOTICE

Before, during and after making a quick connection, ensure that you do NOT lose any parts. The parts being removed will be left loose and may fall overboard, thus, not allowing the re-connection if required.

Connecting

- Line up hole in rod end with hole in link arm (both sides)
- Push connector clip straight through
- Ensure the connector is fully installed prior to use.

Disconnecting

- Pull connector straight out.
- Store in an area where the connector will not be lost or forgotten

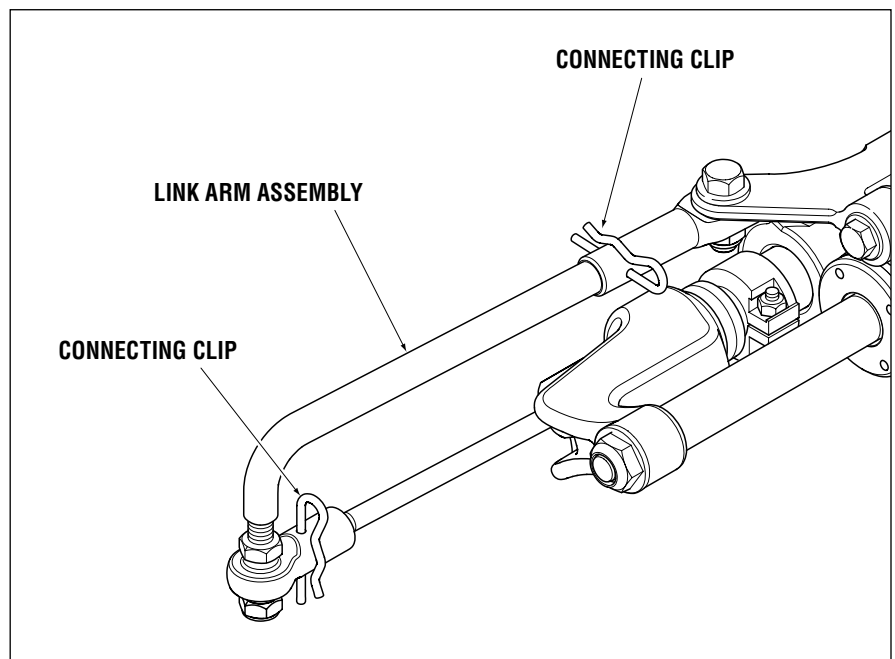


Figure 15.

ROUTINE MAINTENANCE

Following the routine maintenance schedules below in the time frame noted will ensure years of great service from your SeaStar Kicker Cable Tiebar, as well as keep you and your passengers safe from the dangers that are present while on the water.

NOTICE

The following schedules cover the SeaStar Kicker Cable Tiebar System ONLY. You are required to inspect your 'main steering system' as per your routine maintenance included with that system.

1. Owner

Prior to every use

- Check fluid level in helm pump
- Check for loose, worn or damaged components (helm pump, steering cylinder(s), tiebars etc.)
- Turn steering wheel hard over to hard over to ensure response at engine
- Turn steering wheel hard over to hard over to ensure there is no binding or interference

2. Qualified Marine Mechanic

First 20 hours of use

- Turn steering wheel hard over to hard over to ensure there is no binding or interference.
- Check torque of ALL fasteners
- Check for mechanical play or slop

3. Qualified Marine Mechanic

Every 100 hours

- ALL Points noted in #1 and #2 shown above
- Remove cable from kicker engine.
 - Clean engine steering/tilt tube thoroughly
 - Grease engine steering/tilt tube thoroughly
 - Grease kicker cable thoroughly
- Inspect Cable Rod for any signs of
 - Wear
 - Scoring

REPLACE AS NEEDED.

- Grease telescoping cable end.

TROUBLESHOOTING GUIDE

FAULT	CAUSE	SOLUTION
<p>1. Steering is stiff</p>	<ul style="list-style-type: none"> • Mechanical interference. • Cable rod and link arm are out of alignment. • Corrosion or debris inside the telescoping end or cable rod. • Normal. 	<ul style="list-style-type: none"> • Disconnect Kicker Cable Tiebar from main steering cylinder. If problem persists, consult steering cylinder installation. If problem does not persist, check ALL areas of the Kicker Cable Installation. • Visually inspect and correct as required. • Clean area and grease, or replace cable assembly. • It can be expected that a slight effort increase will be noticed when using the SeaStar Kicker Cable Tiebar. If effort is too great when attached, consult with all above points to ensure installation is true and correct.
<p>2. Steering wheel is locked (wheel cannot be moved)</p>	<ul style="list-style-type: none"> • 5/16" cable rod is binding or bent). 	<ul style="list-style-type: none"> • Check for binding, or bent 5/16" cable rod. If bent, disconnect link arms, replace cable and any other damaged part.
<p>3. Steering remains locked after disconnecting link arm</p>	<ul style="list-style-type: none"> • Main steering hardware fault. 	<ul style="list-style-type: none"> • Refer to Book #1.1 trouble shooting, or, contact SeaStar Solutions Technical Support.

REPLACEMENT PARTS

⚠ CAUTION

Any damaged cable and/or kicker cable tiebar parts **CANNOT** be repaired and **MUST** be replaced with a new part.

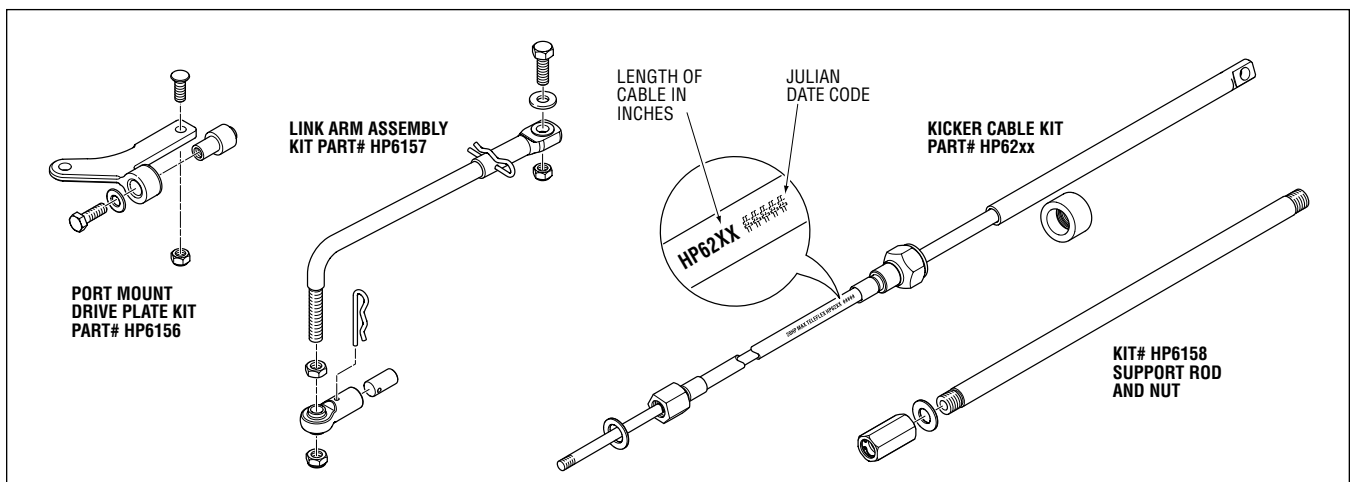


Figure 16.

Statement of Limited Warranty

We warrant to the original retail purchaser that **Marine Canada Acquisition Inc. DBA SEASTAR SOLUTIONS** (herein forward referred to as **SeaStar Solutions**) products have been manufactured free from defects in materials and workmanship. This warranty is effective for two years from date of purchase, excepting that where **SeaStar Solutions** products are used commercially or in any rental or income producing activity, then this warranty is limited to one year from the date of purchase.

We will provide replacement product without charge, for any **SeaStar Solutions** product meeting this warranty, which is returned (freight prepaid) within the warranty period to the dealer from whom such product were purchased, or to us at the appropriate address. In such a case **SeaStar Solutions** products found to be defective and covered by this warranty, will be replaced at **SeaStar Solutions'** option, and returned to the customer.

The above quoted statement is an extract from the complete **SeaStar Solutions** products warranty statement. A complete warranty policy is available in our **SeaStar Solutions** products catalogue.

Return Goods Procedure

Prior to returning product to **SeaStar Solutions** under warranty, please obtain a *Return Goods Authorization number* (claim number).

Be sure to label the goods with:

- a) the name and address of the sender, and
- b) the return goods authorization number (claim number)

Please address the returned goods as follows:

From U.S.A.

RGA # ?
SeaStar Solutions
c/o UPS-SCS
19308 70th Ave S.
Kent, WA 98032

From Canada

RGA # ?
SeaStar Solutions
3831 No.6 Road
Richmond, B.C.
Canada V6V 1P6

Technical Support

Phone: 604-248-3858

email: seastar@seastarsolutions.com

Hours: Monday to Friday 05:00 – 15:30 PST

Web: www.seastarsolutions.com

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