

### **INSTALLATION INSTRUCTIONS**

### **AND OWNER'S MANUAL**

www.seastarsolutions.com



# BAYSTAR<sup>M</sup> SEASTAR

Side Mount & Splashwell Mount Steering Cylinders



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

FORTY SEVEN ISO 9001

BAYSTAR<sup>®</sup> CAPILANO<sup>®</sup> SEASTAR<sup>®</sup>

## To the Installer and End User (Owner)

Thank you for choosing SeaStar Steering Systems by SeaStar Solutions. This Installation and Owner's Manual contains all the information that you and others will require for the safe installation and use of your steering system and MUST remain on board the boat. Throughout this manual, information for the safe installation and operation of the steering system will be distinguished in one of the following ways;

	Hazards or unsafe practices which could result in severe personal injury or death.
	Failure to adhere to a warning may lead to loss of steering control. Loss of steering control may result in unpredictable boat behavior, leading to ejection from boat causing property damage, personal injury and/or death.
	Hazards or unsafe practices which could result in minor injury or product or property damage.
NOTICE	Important information in regards to installation, use and maintenance of the steering components.
NOTICE	Marine Canada Acquisition Inc. DBA SEASTAR SOLUTIONS is referred to as SeaStar Solutions throughout this publication.

These safety alerts alone cannot eliminate all of the hazards that may be present while on the water. SeaStar Solutions recommends that all users of the steering system take an accredited 'boating safety course', follow safe boating practices and are made aware of the environment that they will be in.

## **Safety Information**

	The safety information provided below is intended to inform you of the dangers that may be present before, during and after the installation. It is critical that you read and understand ALL the points noted.	
	The safe operation of the steering system is dependant upon proper installation and maintenance, common sense, safe judgment and the knowledge/expertise of the operator. Every installer/user of the steering system should know the following requirements 'before' installing/using the steering system. If you have any questions regarding any of these warnings, contact SeaStar Solutions. To reduce risk of severe injury or death. Always wear a Coast Guard Approved personal flotation device (PFD) and use an engine shut-off cord (lanyard).	
Before installation	<ol> <li>Read and understand the Installation and Owner's Manuals provided with your steering components.</li> <li>Ensure that all components required to complete the installation are on hand (including hoses, fittings, oil and the proper tools required for the installation).</li> <li>SeaStar components are highly engineered and safety tested to ensure system integrity, DO NOT substitute any component with non-SeaStar components as this may compromise system performance/reliability.</li> </ol>	
Installation	<ol> <li>Install components as directed in all Installation Manuals (including helm pumps, hoses and fitting kits).</li> <li>DO NOT modify or substitute any component in any way without written consent from SeaStar Solutions.</li> <li>Comply with all system ratings/regulations (boat/engine, U.S.C.G.).</li> <li>Cylinder MUST be compatible with engine(s) installed.</li> <li>Cylinder MUST be rated for use on the engine(s) installed.</li> <li>Confirm that there is no interference between the steering cylinder(s), tiebars and the transom, splashwell, outboard engine or jackplate or any combination of these parts by performing the following steps;</li> <li>a) With engine fully tilted DOWN, turn steering wheel from hard over to hard over and confirm that no interference occurs.</li> <li>if using a hydraulic jack plate the above must also be performed at all the positions of the jack plate.</li> <li>Bepeat step 4a) with engines tilted UP.</li> <li>C) Perform step 4a) with each engine in DOWN/UP positions confirming that <u>independent</u> TRIM/TILT can be done without any interference.</li> </ol>	
	<ol> <li>Confirm that the steering cylinder can be fully stroked in both directions as well as full tilt and trim without stretching, chafing, rubbing and/or kinking of the hydraulic hoses.</li> <li>Confirm that extruded nylon tubing has NOT been substituted</li> </ol>	
	<ul><li>for SeaStar Steering Hose.</li><li>7. DO NOT use a wire coil type trim switch with a hydraulic steering system as the wire can wind up tight around the steering wheel shaft and prevent further steering.</li></ul>	
	<b>8.</b> Conduct Oil Level and System Proof Check as outlined on page 12 of this manual.	

## Safety Information Continued

Prior to every use	<ol> <li>Check Fluid level in highest helm pump (see page 12 for proper fluid level setting).</li> <li>Verify immediate steering response when turning steering wheel(s). (Ensure drive(s)/rudder(s) turns when steering wheel is turned.)</li> <li>Visually inspect all steering hoses and fittings for wear, kinking and/or leaks.</li> <li>Check for binding, loose, worn or leaking steering components.</li> <li>Ensure operator(s) have taken an 'accredited boating course'.</li> <li>DO NOT OPERATE BOAT IF ANY COMPONENT IS NOT IN PROPER WORKING CONDITION.</li> </ol>
During use	<ol> <li>WEAR A COAST GUARD-APPROVED PERSONAL FLOTATION DEVICE (PFD).</li> <li>ATTACH ENGINE SHUT-OFF CORD (LANYARD) TO YOUR PDF.</li> <li>Never allow anyone not familiar with the operation of the steering system operate the boat at any time.</li> <li>Know and adhere to the operator restrictions for your area including;         <ul> <li>Federal Laws/Regulations,</li> <li>State Laws/Regulations and</li> <li>Municipal Laws/Regulations.</li> </ul> </li> <li>DO NOT OPERATE BOAT IF ANY COMPONENT IS NOT IN PROPER WORKING CONDITION.</li> </ol>
After use	<ol> <li>Rinse off steering system thoroughly using 'fresh, clean water only'.</li> <li>Cleaning fluids containing ammonia, acids or any other corrosive ingredients <u>MUST NOT</u> be used for cleaning any part of the hydraulic steering system.</li> </ol>
Maintenance	<ol> <li>Maintain steering system at a minimum of twice per year.</li> <li>See Routine Maintenance, page 13 of this manual.</li> </ol>

Keep our waters clean for all current and future users. Dispose of ALL fluids in accordance with your local regulations.

# INTRODUCTION

#### NOTICE

Help protect your boating environment by ensuring that all used oil is disposed of properly. The BayStar/SeaStar Steering Systems are the smoothest and most efficient hydraulic steering systems available today. They have been designed for normal pleasure and commercial use where standard rigging arrangements are used. Before proceeding with the installation of these cylinders, read these instructions thoroughly. SeaStar Solutions cannot accept responsibility for installation where instructions have not been followed, where substitute parts have been used or where modifications have been made to our products.

This Installation manual covers the following Cylinders. HC5370-3, HC4670-3 and HC5380-3.

## Index

Safety Information	i
Introduction	1
Side Mount Cylinders	2
Splashwell Mount Cylinders	4
Plumbing Diagram	5
Hose and Tubing Installations	5
Filling & Purging the System	
Oil Level and System Proof Check	12
Routine Maintenance	13
Troubleshooting	14
Statement of Limited Warranty	15
Return Goods Procedure	15

	The SeaStar/BayStar Side Mount and Splashwell Mount cylinders are "unbalanced". DO NOT use with SeaStar PRO helm pumps.
A WARNING	The Side Mount and Splashwell Mount cylinders are for use with outboard engine(s) ONLY. Use of these cylinders in any other application is NOT recommended by SeaStar Solutions and may lead to loss of steering control. Loss of steering control may lead to unpredictable boat behavior resulting in ejection from boat, property damage, personal injury and/or death.
NOTICE	All linkages (drag link, steering link arms etc.) are to be purchased by the installer, builder and/or owner. These linkages are available from your engine manufacturer and are required to complete the installation of your steering cylinder.
NOTICE	These unbalanced cylinders can exert greater force while pushing the cylinder rod out of the body (extending).
	By mounting the cylinder(s) on the appropriate side, engine torque and steering loads can be balanced.
Olda Marriet & Orda alexa II Marriet Ordinala in	

## SIDE MOUNT CYLINDERS HC5370-3 & HC4670-3

#### NOTICE

The side mount cylinder is installed in the same fashion as a steering cable.

- **1**. Slide well greased extension rod into thoroughly cleaned and rust free engine steering/tilt tube. (item 1, figure 1).
- **2.** Attach the cylinder rod end to the extension rod by inserting it into the mating hole of the extension rod (Item 2, figure 1).
- **3.** Align holes in cylinder rod & extension rod, then insert special pin (item 3, figure 1) through the hole joining both rods together. If the holes do not line up properly, rotate the extension rod 180°.
- **4.** While holding pin in place, slide the rod and pin assembly into the steering/tilt tube.
- Thread cylinder onto steering/tilt tube and torque to 50–75 ft-lbs.
   Note: Resistance will be felt; this is due to the anti-vibration pellet.
- **6.** Confirm no interference with any other equipment throughout the engine steering range, and in ALL trim/tilt positions, if interference is noticed it MUST be corrected prior to use.
- **7.** If applicable, connect tiebar (Part# H05009A) to the tiller arms of both engines.
- **8.** Bleed steering system as outlined in the Filling and Purging section of this document.

#### A WARNING

DO NOT modify or change the pin, or, the hole in the cylinder rod and/or extension rod. Any modification can drastically reduce the strength and integrity of this attachment point. Failure to adhere to this warning may result in component separation. Separation of components may lead to unpredictable boat behavior and/or ejection from boat leading to property damage, personal injury and/or death.

SIDE MOUNT CYLINDER

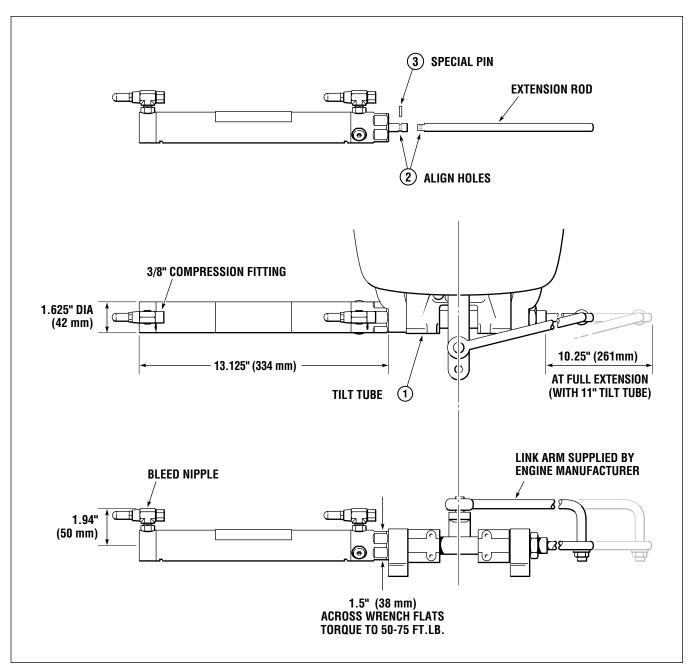


Figure 1. HC5370-3 SeaStar Side Mount Cylinder shown, BayStar similar.

## **SPLASHWELL MOUNT CYLINDER HC5380-3**

#### NOTICE

BEFORE attempting installation of this Splashwell Mount Cylinder, consult the mounting configuration below for proper position of the mounting foot to the transom. As the Splashwell cylinder requires through bolting on the transom it will be necessary to contact the boat manufacturer for proper preparation of the transom holes.

- **1**. Draw out the mounting configuration of the cylinder, including the 3/8" holes on the transom.
- **2.** Drill and prepare through transom holes as recommended by boat manufacturer.
- **3.** Secure cylinder to transom using Grade 5, or better, stainless steel bolts. DO NOT use lag bolts to secure cylinder to transom.
- **4.** Connect cylinder to the steering arm of the outboard motor using the provided nut/bolt. Torque to 20 ft-lb.
- **5.** Bleed steering system as outlined in the Filling and Purging section.
- **6.** Confirm no interference with any other equipment throughout the engine steering range, and in ALL trim/tilt positions, if interference is noticed it MUST be corrected prior to use.

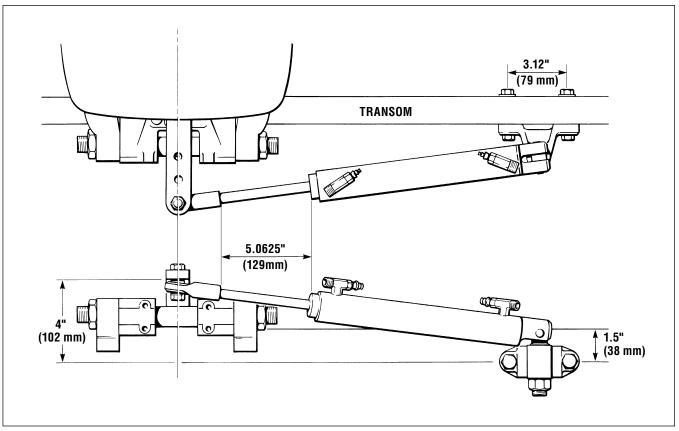


Figure 2. HC5380-3 Splashwell Mount Cylinder.

# **PLUMBING DIAGRAM**

#### A WARNING

DO NOT use extruded nylon tubing in a 'SeaStar Outboard Steering System', only use SeaStar Outboard Hoses. Use of extruded nylon tubing may lead to hose failure resulting in loss of steering control. Loss of steering control may lead to unpredictable boat behavior and/or a collision with an obstacle and/or ejection from boat, resulting in property damage, personal injury and/or death.

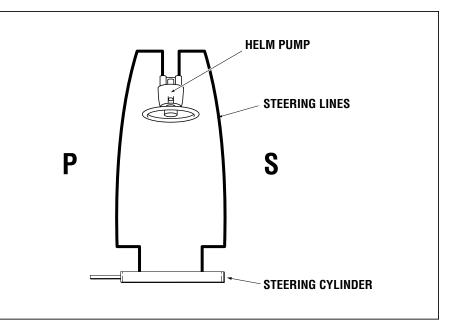


Figure 3. HC4670-3, HC5370-3 and HC5380-3 Plumbing Diagram.

## HOSE AND TUBING INSTALLATIONS

**General** Proper steering hose/tube is required for the best performance and safe operation of your steering system. Use of a hose/tube other than that recommended by SeaStar Solutions may drastically change performance and the safe operation of your system. SeaStar Solutions cannot be responsible for ANY consequences resulting from the use of a substitute tube or hose.

#### 

Use of a substitute hose and/or tube may lead to hose breakage or rupture resulting in loss of steering control. Loss of steering control may lead to unpredictable boat behavior and/or a collision with an obstacle and/or ejection from boat, resulting in property damage, personal injury and/or death.

#### 

DO NOT CUT SeaStar Outboard, flexible, hoses. Cutting these will render them useless and a new hose will need to be ordered. The following considerations MUST be taken into account when planning and routing steering hose/tubes.

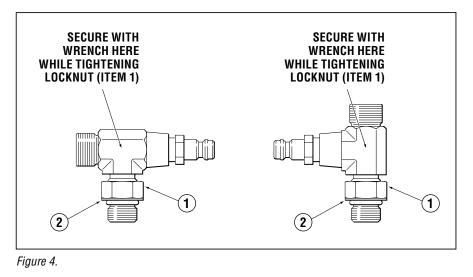
- a) Cut nylon/copper tubing using an appropriate tube cutter. A straight and level cut is required for proper sealing.
- b) Do not allow hose/tube to come into contact or come too close to any source of extreme heat. Extreme heat WILL lower burst pressure and/or melt hose/tubing resulting in the immediate

#### HOSE AND TUBING

	loss of steering control. Loss of steering control may lead to a collision with an obstacle and/or ejection from boat resulting in property damage, personal injury and/or death.
	c) Hose/Tube must be routed so that it will not interfere with any other functional equipment; (such as, hatches, doorways or in a walking path where it may become a tripping hazard).
	d) Hose/Tube MUST be installed with a gradual rise from the steering cylinder to the helm pump(s). If hose/tube is not installed with a gradual rise, air removal from system will be difficult.
	<ul> <li>e) Hose/tube should be secured at regular intervals using non- metallic type ties.</li> </ul>
	f) Do not allow tubing to rest or chafe against any abrasive material.
NOTICE	Fiberglass although soft to the touch can be extremely abrasive. Care MUST be taken when securing hose/tubing.
	g) Ensure that hose/tube ends are covered prior to passing through bulkheads, cable tubes and any other blind area. Failure to do so may allow contamination to enter the steering system.
	cut and must be replaced with a new hose completely. SeaStar extruded nylon tubing can have the damaged section removed and a union fitting put into place. Failure to replace any damaged hose/tube may result in loss of steering control. Loss of steering control may lead to unpredictable boat behavior and/or a collision with an obstacle and/or ejection from vessel, resulting in property damage, person injury and/or death.
Positional O-Ring Horizontal and Vertical Tee Fitting Installation/Realignment (if required)	<ol> <li>Back off lock nut (item 1, figure 4), counter-clockwise, until it stops.</li> <li>Thread fitting into cylinder body until fitting washer (item 2, figure 4) contacts the face of the cylinder port. Tighten hand tight, DO NOT TORQUE FITTING INTO GLAND.</li> </ol>
(ii roquirou)	<b>3.</b> Position fitting to desired orientation by turning it counter- clockwise to a MAXIMUM of 1 full turn.
	<ul> <li>4. While holding fitting with a wrench, tighten the locknut (item 1, figure 4) and torque to 40–43 ft-lb.</li> </ul>
	5. Purge system as per your cylinder instruction manual.
A WARNING	Failure to properly tighten the locknut (item 1, figure 4) may lead to loss of steering control. Loss of steering control may result in unpredictable boat behavior, collision with an obstacle and/or ejection from vessel, leading to property damage, personal injury and/or death.

HOSE AND TUBING

SeaStar Solutions recommends that the hose and hose fittings are checked on a regular basis to ensure the safe operation of the steering system.



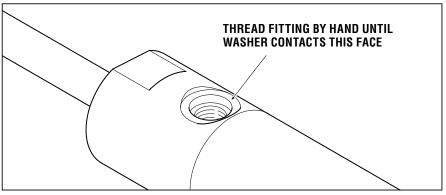


Figure 5.

System Connection	<ol> <li>Refer to figure 6 on page 8 for hose/tube to fitting connection.</li> <li>If not already completed, install fittings into helm as per specific instructions suppled with your helm pump.</li> </ol>	
A WARNING	There is NO requirement for pipe sealant of any kind when using an ORB fittings. A "LIQUID" Teflon based pipe sealant IS required when using NPT type fittings. DO NOT use Teflon Tape or any other tape type sealers.	
	3. Helm Pump Connection	
	<ul> <li>a) SeaStar Outboard Hose - While holding the fitting body securely with a wrench, torque the hose end nut to 15 ft-lbs.</li> </ul>	

HOSE AND TUBING

#### 

Ensure that the tubing is pushed ALL the way in.

- b) BayStar Nylon Tubing.
  - Slide tube not over tubing.
  - Push tubing into bottom of component fittings.
  - Hand tighten tube nut, ensuring that the tube is bottomed out against the fitting while tightening.
  - After hand tightening, hold the fitting with a wrench, turn an additional 1-1/2 turns with a 5/8" wrench.

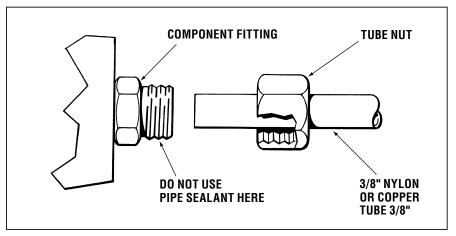


Figure 6. Connection to Helm Pump shown.

# FILLING & PURGING THE SYSTEM

NOTICE	<b>Power Purge Users.</b> Please refer to the instructions included with your power purge unit.		
NOTICE	<b>Power Assist Users.</b> You MUST refer to the bleeding instructions included with your SeaStar Power Assist Unit.		
Read First	Steps 1 – 5 noted on page 10 refer to a single station, single cylinder installation. For twin station and/or twin cylinder installations you MUST perform steps 1 – 5 first, then, see page 11 to complete the removal of air from the system.		
NOTICE	This procedure requires two people. One person may not be able to remove all the air from the system which will result in spongy, unresponsive steering.		
	During the entire filling procedure, oil <b>must</b> be visible in the filler tube. <b>Do NOT</b> allow the oil level to disappear into the helm pump, as this may introduce air into the system and increase your filling time.		
Hydraulic Fluid	SeaStar Solutions recommends the use of <b>SeaStar Steering Fluid ONLY</b> . SeaStar Steering Systems have been engineered and validated using our proprietary SeaStar Hydraulic Fluid.		
	Any non-approved fluid may cause serious damage to the steering system resulting in possible loss of steering, causing property damage, personal injury and/or death.		
Emergency Use Fluids WARNING Never fill or mix brake fluids,	In an emergency, SeaStar EPS Fluid, any MD-3/4 rated ATF or MIL-PRF- 5606H equivalent fluid that is filtered through a fine mesh screen can be used. The system MUST be thoroughly flushed as soon as possible with genuine SeaStar Steering Fluid after using an emergency fluid. <i>In</i> <i>an EXTREME emergency, any non-toxic, non-flammable fluid that is</i> <i>filtered through a fine mesh screen may provide temporary steering.</i>		
trigycerides or polyalkylene glycols within a hydraulic steering system.	FILLER PLUG (REMOVED)		
<b>NOTICE</b> Filling the helm full of oil can be done faster if oil is poured into the helm prior to connecting filler	FILLER KIT		
tube and oil bottle to the helm.	OIL LEVEL FALL BELOW THIS POINT HELM FILL PORT		

FILLING AND PURGING

#### **Single Station One Cylinder**

#### Step 1

Step 2

- Screw the threaded end of the filler tube into the helm filler hole.
- Remove the cap from the oil bottle and holding upright, screw into the filler tube bottle cap. Poke hole in the bottom of the bottle.

• When air bubbles have

is fully extended on one side of the cylinder.

stopped coming out of the

helm, turn the steering wheel

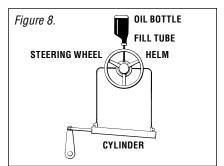
clockwise until the cylinder rod

Fill the helm pump full of oil (refer to figure 4). Oil should always be visible in the filler tube. Use the next bottle at any time throughout the procedure when the oil level drops in the filler tube. DO NOT proceed with step two until helm is full of oil.

Open left side bleeder as

indicated

in the diagram.



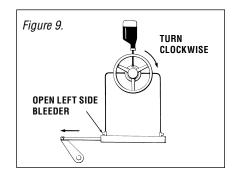


Figure 10.

Figure 11.

TURN COUNTER

CLOCKWISE

CLOSE LEFT SIDE BLEEDER

TURN COUNTER

CLOCKWISE



- Holding the cylinder rod (to prevent it from moving back into the cylinder) turn the steering wheel counter-clockwise until a steady stream of air free oil comes out of the bleeder. (Drain out approx. 1/2 bottle of oil or as required.)
- as re

#### Step 4

 Continue turning the steering wheel counter-clockwise until the cylinder rod is fully extended at other side of cylinder.

(Steering wheel will come to a stop)

wheel, close the bleeder and let go of the cylinder rod.

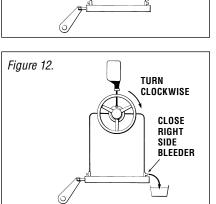
While continuing to turn the

• Fill and Purge is now complete, continue to Oil Level and System Check.

#### Step 5

- Holding the cylinder rod (to prevent it from moving back into the cylinder) turn the steering wheel clockwise until a steady stream of air free oil comes out of bleeder.
- While continuing to turn the wheel, close the bleeder and let go of the cylinder rod.

Fill and purge is now complete.



OPEN

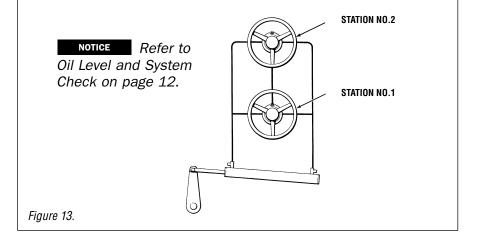
RIGHT

BLEEDER

FILLING AND PURGING

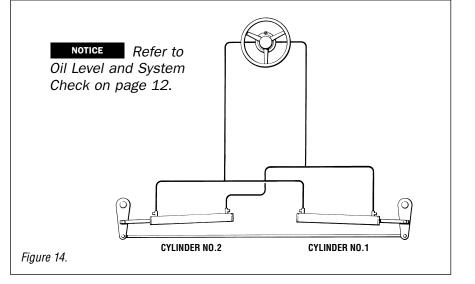
#### **Twin Station Single Cylinder**

- Perform steps 1 through 5 at station no. 1.
- Then repeat steps 1 5 at station no. 2.
- Oil requirements 4 5 bottles.



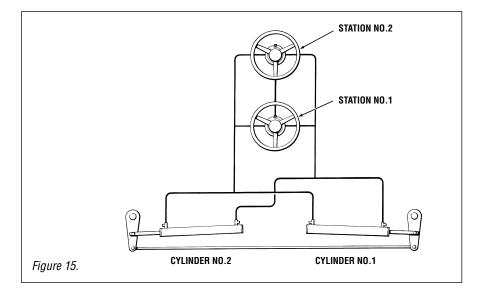
#### **Single Station Twin Cylinder**

- When performing steps 1 through 5, perform instructions in each step first on cylinder no. 1 and then on cylinder no. 2, before proceeding to the next step. ie: Perform instructions referring to right side of cylinder first on cylinder no. 1 and then on cylinder no. 2.
- Oil requirements 4 5 bottles.



#### **Twin Station Twin Cylinder**

• Follow same procedure as instructed for single-station/ twin-cylinders, beginning at station no. 1, and repeat entire procedure at station no. 2.



# OIL LEVEL AND SYSTEM PROOF CHECK

#### STEP 1

#### WARNING

#### 

When setting fluid level in a system fitted with an unbalanced cylinder, the cylinder shaft MUST be fully retracted (IN). Failure to have cylinder shaft retracted (IN) will lead to very stiff steering and/ or oil spillage at the helm pump.

WARNING

#### Oil Level Setting

The oil level MUST be checked and maintained BEFORE each use to ensure the safe operation of your steering system. Failure to adhere to this warning may lead to loss of steering control. Loss of steering control may result in unpredictable boat behavior, collision with an obstacle and/or ejection from vessel, leading to property damage personal injury and/or death.

- For helms mounted with the wheel shaft completely horizontal MUST be filled to the bottom of the filler hole AT ALL TIMES. DO NOT allow oil level to drop more than 1/4" below the filler port threads with the cylinder shaft "fully retracted (IN)".
- For helms mounted on a 20° angle, or, with wheel shaft in the vertical position the oil level must be no lower than 1/2" below filler port threads and no higher than 1/8" below filler port threads with the cylinder shaft "fully retracted (IN)".

#### STEP 2 System Proof Check

The System Proof Check MUST be completed after installation. Doing so will ensure the safe operation of your steering system. Any fault (leaks or malfunction) will present itself during this check. Failure to adhere to this check may result in loss of steering control. Loss of steering control may lead to unpredictable boat behavior, leading to a collision with an obstacle and/or ejection from the boat, resulting in property damage personal injury and/or death.

• Turn steering wheel hard over to hard over to confirm unrestricted movement of steering components.

NOTICE

- If equipped with a tilting helm, repeat this step in "EVERY" tilt position.
  - Confirm that engine(s) are turning to the proper direction.
  - If no interference is noticed and engine(s) are turning to the proper direction, go to next point
  - Take steering wheel hard over to starboard. Once the wheel reaches its stop point, force the wheel another 1/4 – 1/2 turn past stop. Leave wheel in this position while you inspect ALL fittings, helms and hose/tubes for any signs of a leak.
  - Repeat above step to the starboard side of each steering station
  - Repeat above steps to the port side of each steering station.
  - If ANY leaks are noticed they MUST be repaired BEFORE operating your boat.

#### 

Failure to correct ANY problem that becomes present during the 'System Proof Check' may lead to loss of steering control. Loss of steering control can lead to unpredictable boat behavior and/or collision with obstacle and/or ejection from vessel resulting in property and/or personal injury or death. 

## **ROUTINE MAINTENANCE**

Following the routine maintenance schedules as outlined below, in the time frame noted will ensure years of service from your SeaStar Steering System, as well as keep you and your passengers safe from the dangers that are present on and off the water.

1. Owner(s) (End Users)	Prior to every use.		
	<ol> <li>Check fluid level in highest helm pump (see page 12 for proper fluid level setting).</li> </ol>		
	<b>2.</b> Verify immediate steering response when turning steering wheel(s). Ensure engine(s) move when steering wheel(s) are turned.		
	<b>3.</b> Visually inspect all steering hoses and fittings for wear, kinking and/or leaks.		
	4. Check for binding, loose, worn or leaking steering components.		
	DO NOT operate boat if any component is not in proper working condition.		

#### 2. Qualified Marine Mechanic

## After first 20 hours, then every 100 hours or 6 months thereafter (which ever comes first).

- All points noted above.
- Check tightness of ALL fasteners throughout the steering system. Tighten as required.

#### 

Any work being performed with the steering system MUST be completed by a qualified mechanic with the working knowledge of the system. • Check for mechanical play or slop throughout steering system, correct as required.

#### After every 200 hours or 12 months (which ever comes first).

- All points noted above.
- Side Mount cylinders.
  - Remove steering cylinder from engine steering tube. Clean steering tube and re-grease using a good quality marine grease.
- Splashwell Mount cylinders.
  - Grease ball joint using a good quality marine grease.
- Remove steering wheel and re-grease wheel shaft using a good quality marine grease.
- Inspect hydraulic oil for cleanliness, flush if required.

# **TROUBLESHOOTING GUIDE**

FAUL	T	CAUSE	SOLUTION
1. He	elm locks up completely.	<ul><li>PRO helm used with an unbalanced cylinder.</li><li>Collapsed hose/tube.</li></ul>	<ul><li>Replace helm with a non-Pro helm pump.</li><li>Replace section with new length.</li></ul>
2. Oil keeps pouring out of helm pump.	<ul> <li>Incorrect setting of fluid level.</li> </ul>	<ul> <li>The cylinder shaft MUST be fully retracted when setting fluid level</li> </ul>	
		Helm overfilled.	<ul> <li>Fluid level should be set no higher than 1/4" BELOW the filler port.</li> </ul>
	e direction.	Unbalanced cylinder will prove to turn easier one direction vs. the other.	• Not a fault.
the	4. System is hard to turn all the time and to both directions.	<ul> <li>Cylinder shaft is frozen/ seized in steering tube (side mounts).</li> </ul>	See maintenance, clean and re-grease engine steering tube.
	<ul> <li>Pinched/collapsed steering line.</li> </ul>	<ul> <li>Insect entire length of steering hose. Replace entire length with new one if pinched or collapsed.</li> </ul>	
		<ul> <li>Engine(s) are not articulating freely.</li> </ul>	<ul> <li>Disconnect steering cylinder from engine. If effort decreases inspect engine to confirm proper articulation.</li> </ul>
		<ul> <li>Incorrect steering fluid being used.</li> </ul>	<ul> <li>Flush and purge system using SeaStar Fluid ONLY</li> </ul>
		<ul> <li>Steering wheel too small.</li> </ul>	<ul> <li>Install larger wheel if possible.</li> </ul>

## **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

10013. Monday to Thiday 03.00 = 13.00 + 3

Web: www.seastarsolutions.com



SEASTAR SOLUTIONS 3831 NO.6 ROAD RICHMOND, B.C. CANADA V6V 1P6

FAX 604-270-7172

#### www.seastarsolutions.com

150 10592 ( (



© 2009 MARINE CANADA ACQUISITION INC. DBA SEASTAR SOLUTIONS

PRINTED IN CANADA 04/18

Please scan this QR code and watch our latest **Boating Safety** video.

