

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



SEASTAR SOLUTIONS®

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INSTALLATION INSTRUCTIONS

SUPPLEMENTAL

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Now with
positionable O-ring
hose fittings



SEASTAR™ BAYSTAR™
SEASTAR™ PRO™ BAYSTAR™ PLUS™

Hydraulic Steering



SEASTAR SOLUTIONS®

NOTICE

This helm pump is fitted with Re-positional O-ring hose fittings (ORB).

CAUTION

If a 20° mounting wedge is used, cut out dash as per mounting wedge template and mount helm directly to the 20° wedge.

WARNING

DO NOT use ANY SeaStar PRO helm pump with "unbalanced" steering cylinder as a steering lock up WILL result.

SAFETY INFORMATION

WARNING

The safety information provided below is intended to inform you of the dangers that may be present before, during and after use. It is critical that you read and understand ALL the points noted.

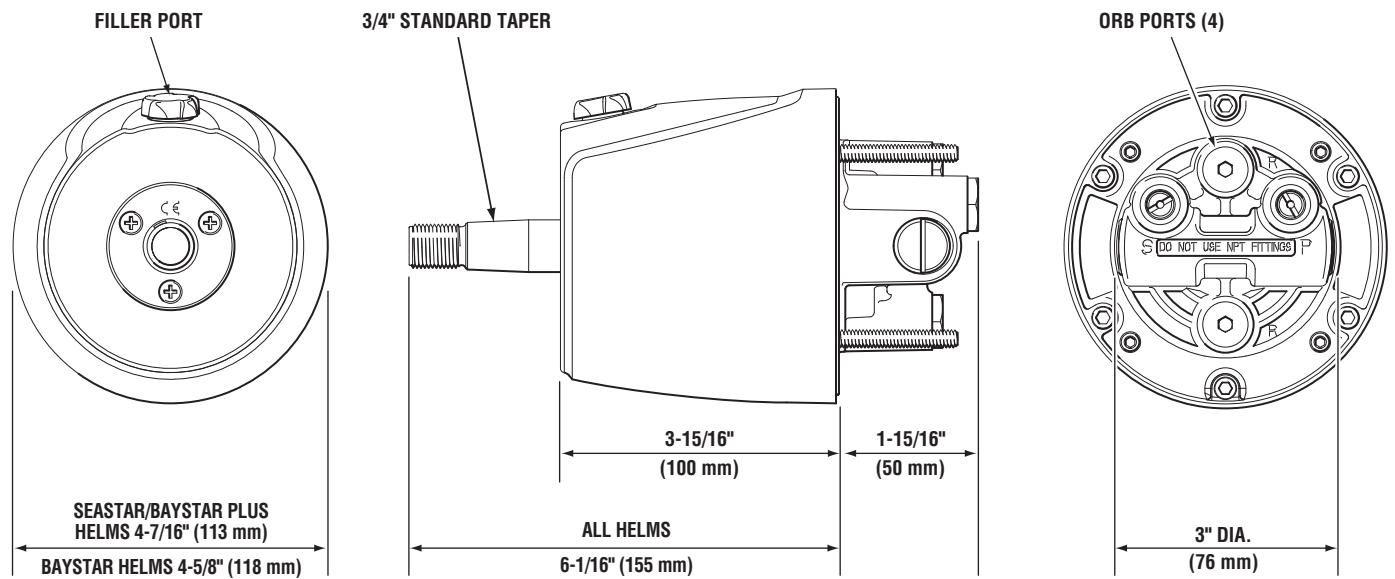


Figure 1. SeaStar helm shown, BayStar and BayStar Plus similar.

PRIOR TO EVERY USE

1. Check Fluid level in highest helm pump (see page 2 for proper fluid level setting).
2. Verify immediate steering response when turning steering wheel(s). Ensure engine(s), rudder(s) and/or outdrive(s) turn when all steering wheels are turned.
3. 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.

DURING USE

1. WEAR A COAST GUARD-APPROVED PERSONAL FLOTATION DEVICE (PFD).
2. ATTACH ENGINE SHUT-OFF CORD (LANYARD) TO YOUR PFD.
3. Never allow anyone not familiar with the operation of the steering system operate the boat at any time.
4. Know and adhere to the operator restrictions for your area including:
 - Federal Laws/Regulations,
 - State Laws/Regulations and
 - Municipal Laws/Regulations.

DO NOT OPERATE BOAT IF ANY COMPONENT IS NOT IN PROPER WORKING CONDITION.

AFTER USE

1. Rinse off steering system thoroughly using 'fresh, clean water only'.

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.

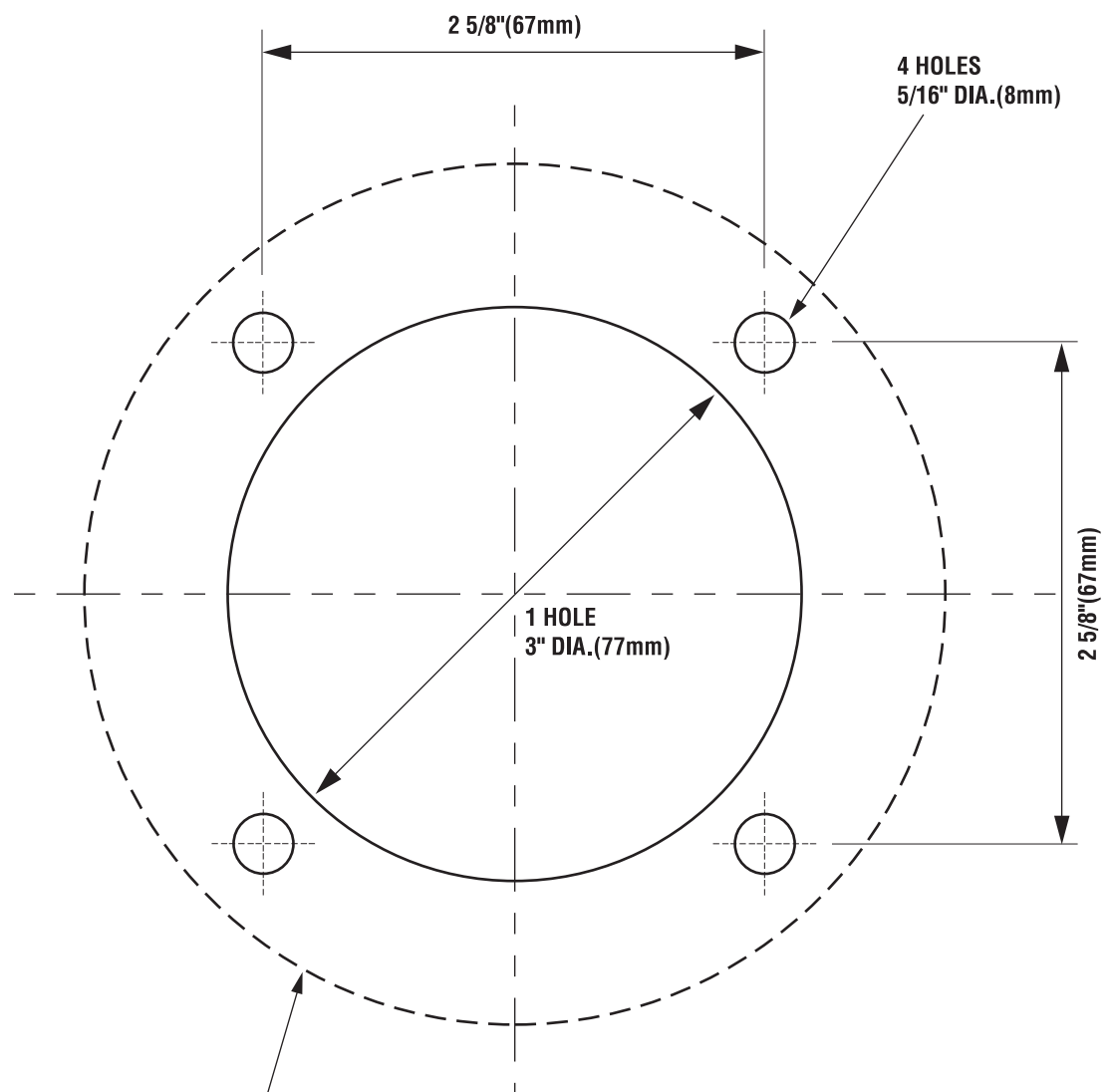
MAINTENANCE

1. Maintain steering system at a minimum of twice per year.
 - Due to the many different systems these helm pumps are used in, please refer to your Installation and Owner's Manual provided with your steering cylinder.

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

DASHBOARD MOUNTING TEMPLATE

Mounting template for Standard Front Mount applications only.



HELM FLANGE OUTLINE (for reference only)
4 1/2" (115mm) DIA. MAXIMUM COVERAGE

CAUTION

If photocopied check ALL measurements using a measuring device to ensure accuracy.

Figure 2.

MOUNTING THE HELM

Ensuring that the steering wheel will not interfere with any other functional equipment and you have adequate space "behind" the dash for fittings and steering line connections, determine your desired mounting position.

NOTICE

The helm may be mounted with the helm shaft horizontal, vertical or any angle between.

At ALL times the fluid cap MUST be in the uppermost position.

Installation

- Tape mounting template to dash and use a center punch for locating required holes.
- Drill the 3" diameter hole and the four 5/16" diameter mounting holes, positioned as shown.
- To ease installation, install your helm hose fittings into the helm pump prior to mount.
See Positionable ORB Hose Fitting Installation.
- Ensuring the fill port is in the uppermost position, install helm pump onto dash.
- Install the four washers and four nuts onto the mounting studs of the helm pump. Torque nuts to 110 in-lb.

- Using a good quality marine grease, lightly grease taper of the helm pump shaft and mount steering wheel to helm. Tighten wheel shaft nut to 150 in-lb.
- Install hoses as directed in your steering cylinder installation manual.
- Fill and Purge steering system as outlined in your steering cylinder installation manual.

CAUTION

-3 helm pumps are fitted with positionable O-ring style hose fitting ports (referred throughout this manual as ORB). Do NOT attempt to install an NPT pipe fitting into a -3 helm hose fitting port. Doing so will lead to irreparable damage to the helm. ONLY use SeaStar Solutions O-ring style hose fittings (ORB).

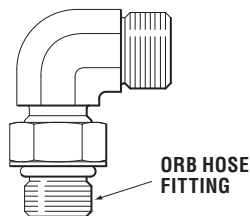


Figure 3.

POSITIONABLE ORB HOSE FITTING INSTALLATION/REALIGNMENT

Re-Positionable Pump Fitting Installation (if required.)

NOTE: for straight ORB fittings simply torque fitting to 18 ft-lbs. Fitting re-orientation not required.

1. Back off lock nut (item 1), counter-clockwise, until it stops. **NOTE: O-ring must be fully on sealing surface and cannot contact any threads. Do not use Teflon tape or any liquid pipe sealant with ORB fittings.**
2. Thread fitting into helm port until fitting washer (item 2) contacts the face of the helm port. Tighten hand tight. **DO NOT USE A WRENCH.**

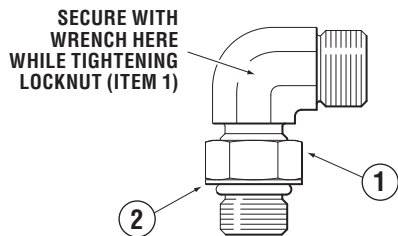


Figure 5.

3. Re-position fitting to desired orientation by turning it counter-clockwise to a MAXIMUM of 1 full turn.
4. While holding the fitting body securely with a wrench, torque the lock nut (item 1) to **18 ft-lbs.**
5. While holding the fitting body securely with a wrench, torque the hose end nut to **15 ft-lbs.**
6. Purge system per applicable instruction manual.

WARNING

Failure to properly tighten the lock-nut (item 1) 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.

WARNING

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

HYDRAULIC FLUID

Recommended oils for your steering system are;

- SeaStar Hydraulic Fluid, part# HA5430
- Texaco H015
- Shell Aero Fluid #41
- Esso Univis N15
- Chevron Aviation Fluid A
- Mobil Aero HFA
- Fluids meeting MIL-PRF-5606H specifications.
- Automatic transmission fluid Dexron II may be used in an emergency.

WARNING

Never use brake fluid. Any non-approved fluid may cause irreparable damage, loss of steering, and cancellation of warranty.

In cases of extreme emergency any non-toxic, non-flammable fluid may provide temporary steering.

NOTICE

Filling the helm full of oil can be done faster if oil is poured into the helm prior to connecting filler tube and oil bottle to the helm.

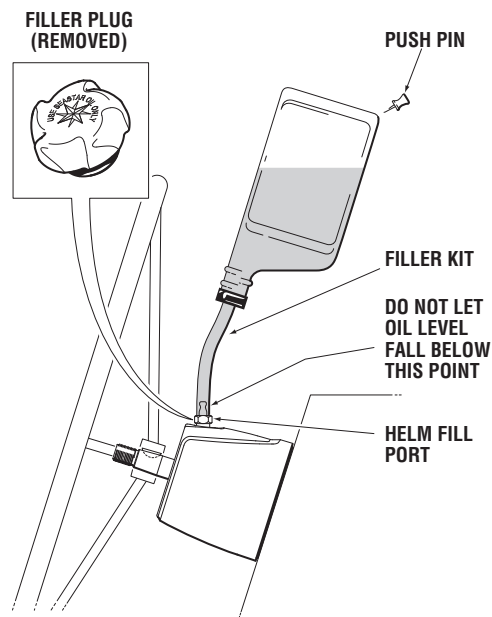


Figure 4.

OIL LEVEL & SYSTEM CHECK

STEP 1 – Oil Level Setting

WARNING

The oil level **MUST** be checked and maintained **BEFORE EACH** use to ensure safe steering operation. Failure to adhere to this warning may lead to loss of steering control resulting in persons being ejected from vessel or collision with an obstacle, leading to property damage, personal injury and/or death.

CAUTION

Side mount and Splashwell mount cylinders are unbalanced. To set the oil level in the helm pump the cylinder rod **MUST** be fully "retracted" (cylinder shaft all the way in the cylinder body). Failure to adhere to this caution **WILL** result in oil spillage at the helm filler port and/or stiff steering operation.

- Helms mounted with the wheel shaft completely horizontal **MUST** be filled to the bottom of filler hole **AT ALL TIMES**. **DO NOT** allow oil level to drop more than 1/4" below filler threads.
- For helms mounted on a 20 degree angle, or, with wheel shaft in the vertical position, oil level should be within 1/2" of filler hole.

THREAD FITTING BY HAND UNTIL WASHER CONTACTS THIS FACE

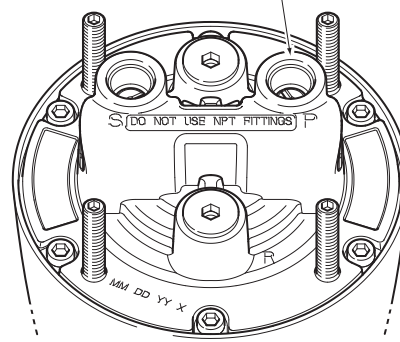


Figure 6.

STEP 2 – System Check

WARNING

The system check **MUST** be completed after installation. Doing so will ensure the safe operation of your steering. Any fault/leak will be shown during this check. Failure to adhere to this warning/check may result in loss of steering control resulting in persons being ejected from vessel or collision with an obstacle, leading to property damage, personal injury and/or death.

- Turn steering wheel hard over to hard over to confirm unrestricted movement of the steering system and hoses. Repeat this procedure in ALL trim/tilt positions of the engine(s). If interference occurs, or, hoses are being stretched this **MUST** be removed prior to operating your boat.
- Confirm that engine(s) are steering to the proper direction when steering wheel is turned.
- If no interference is noticed, or, any interference is corrected, go to next step.

NOTICE

This step will **NOT** harm the system and any noise made during this step should not be considered a fault in the steering system.

- Take steering wheel hard over to starboard (any helm can be used on a multi-station boat). Once the wheel reaches its stop point (cylinder is fully stroked out), continue to force the wheel one (1) full turn past stop. Leave wheel in this position while you check all connections, fittings, seals and hoses for leaks.
- Repeat to the Port direction and inspect ALL connections, fittings, seals and hoses for leaks.
- If leaks are noticed they **MUST** be repaired prior to operating boat. After repair repeat bleeding procedures as outlined in the steering cylinder manual.

WARNING

Failure to complete the above noted step or, failure to correct a problem may result in loss of steering control leading to ejection from the vessel or collision with an obstacle resulting in property damage, personal injury and/or death.

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