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

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ISO 10592

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MEMBER ABYC
Setting Standards for Safer Boating

CAPILANO 1250V/1275V HELMS

FOUR POINT ONE
ISO 9001

BayStar™
Capilano™
SeaStar®

4.1

INSTALLATION INSTRUCTIONS
SUPPLEMENTAL

www.seastarsolutions.com

Capilano™
HYDRAULIC STEERING

⚠ WARNING

Cleaning fluids contain ammonia, acids or any other corrosive ingredients MUST NOT be used for cleaning any part of the hydraulic steering system. Failure to adhere to this warning may result in loss of steering control, leading to possible ejection from vessel causing property damage, personal injury and/or death.

MOUNTING THE HELM

Helms can be mounted with the helm shaft horizontal, vertical or any angle in between.

The helm pumps must always be mounted with the fill port in the uppermost position.

⚠ WARNING

EXTREME care must be exercised to avoid any dirt or foreign matter to enter the steering system. Dirt or foreign matter may result in damage to steering components. Failure to adhere to this warning may result in loss of steering control, leading to possible ejection from vessel causing property damage, personal injury and/or death

Figure A.

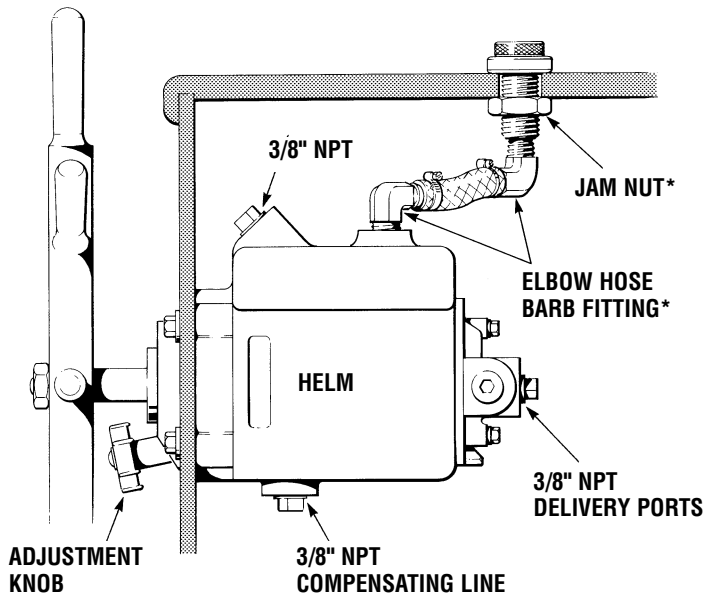
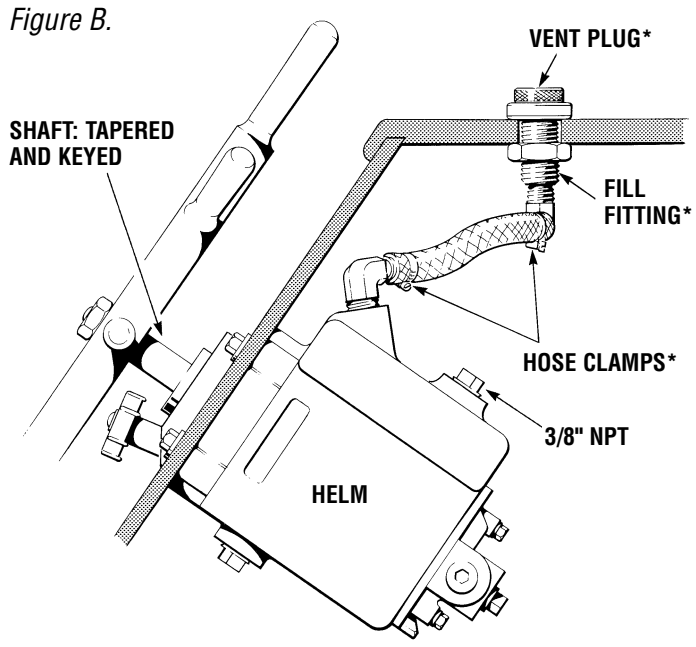


Figure B.



** Optional Remote Fill & Vent Kit. Check our web-site for the distributor nearest you.*

Determine desired mounting location(s) for the helm pump(s).
Check for adequate space behind dash for the helm pump, fittings and line connections.

⚠ WARNING

Do Not use STEEL fittings with Capilano Helm Pumps. Use Brass fittings ONLY.

NOTICE

Provision should be made for proper filling and air removal of the system. Fill and vent plug kit part no. HA5450 will provide a through dash fill and vent capacity. Refer to Filling & Purging instructions overleaf.

Use the relevant helm mounting template for your application, drill and cut out as indicated. Mount the helm pump, bezel and adjusting knob, as required.Remove all red plastic shipping plugs from the helm pump.

Insert desired fittings and torque to 15 ft-lbs (20.4 Nm), then orientate. DO NOT orientate past 360° at 15 ft-lbs (20.4 Nm).

⚠ WARNING

DO NOT exceed 110 in-lbs. (12N-m) torque on helm nuts and bolts.

⚠ WARNING

Use self-locking fasteners only. Substituting with non-self locking fasteners may result in separation of steering components which may lead to loss of vessel control. Failure to adhere to this warning may result in loss of steering control, leading to possible ejection from vessel causing property damage, personal injury and/or death.

DASHBOARD MOUNTING TEMPLATE

⚠ WARNING

DO NOT attempt the installation of this helm pump without first reading ALL the Installation Instructions. Failure to adhere to this warning may result in loss of steering control, leading to possible ejection from vessel causing property damage, personal injury and/or death.

If instructions are missing please contact SeaStar Solutions for a new copy.

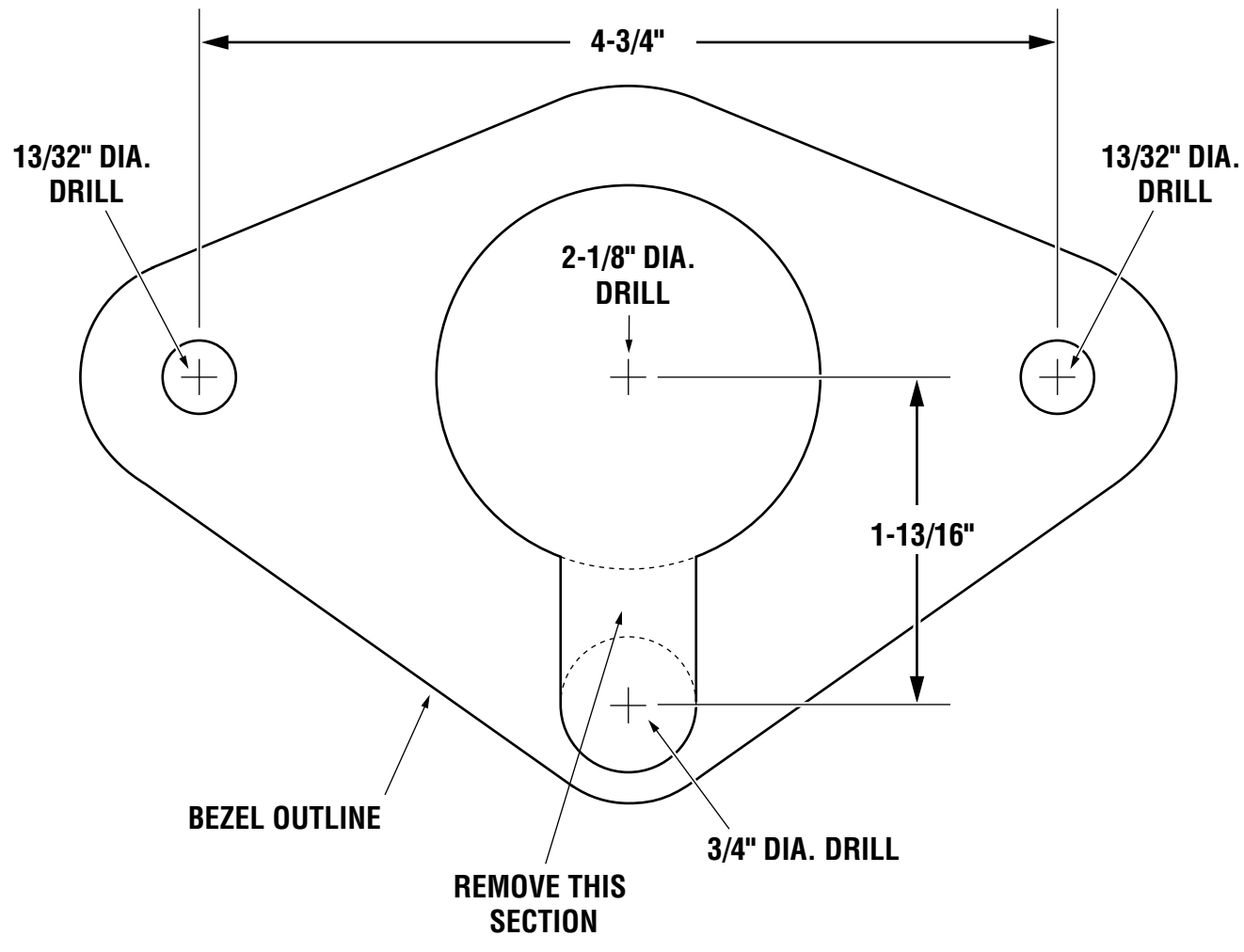
NOTICE

Important information on reverse side, ***DO NOT*** *cut out.*

1. Tape to dash and use center punch for locating holes on dash, or photocopy if required to use as a drilling template.
2. Before drilling holes, check that helm location will allow unrestricted movement of the steering wheel.
3. Drill the 2-1/8" and 3/4" diameter center holes and the two 13/32" diameter mounting holes, positioned as shown.

⚠ CAUTION

If a photocopy of this template is used, ensure size is 100% by checking all dimensions before use.



FILLING & PURGING THE SYSTEM

READ FIRST

1250V, 1275V systems are designed to operate with ATF, automatic transmission fluid type A or Dextron II or III as used in automobiles.

NOTICE

Provision should be made for proper filling and air removal of the system. Fill and vent plug kit part no. HA5450 will provide a through dash fill and vent capacity.

The filling and purging procedure is best accomplished by two people. One person to fill the steering system and one person to open and close the bleed fittings on the cylinder(s), as required.

During the entire filling and purging procedure, the fill and vent helm (upper helm in multi station systems) must always be full of oil. If the oil level inside the helm is too low, air will automatically be reintroduced into the steering system. This will needlessly prolong the filling procedure.

The female thread of the filler-vent plug kit is 1/4" NPT (national pipe thread).

Connect a large funnel or filling container to the filler-vent fitting as illustrated below. SeaStar filler kit part # HA5438 may also be used. It is a short piece of vinyl tube with a 1/4" NPT male fitting on one end, and a bottle cap that will accept the threaded bottle spout of the plastic type ATF Dextron II automatic transmission fluid bottles. (North America only.)

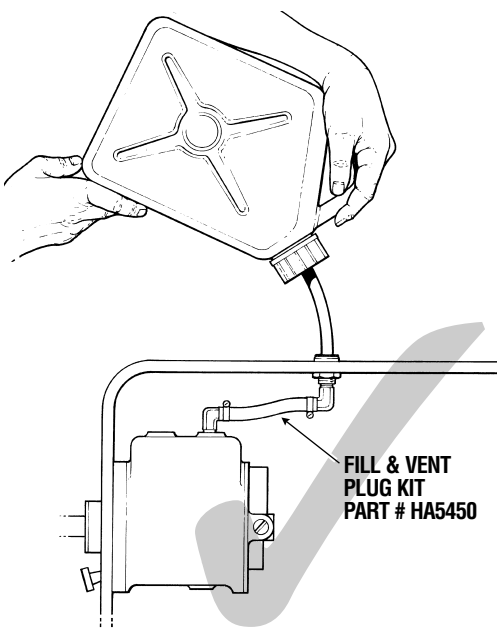
NOTICE

On occasion, air purged out of the system may cause a sudden rise or spurting of oil. A funnel or filling container will prevent spillage of oil.

To fill and purge the system proceed as follows:

Step 1

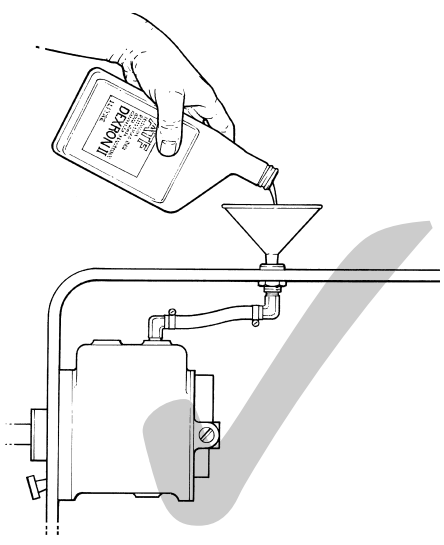
Fill the helm pump with oil (upper helm on multi station systems).



As the system fills with oil and air bubbles rise up into the funnel or filling container add more oil as required.

NOTICE

Each helm pump reservoir has an approximate oil capacity of 3/4 of a quart (0.75 liters).

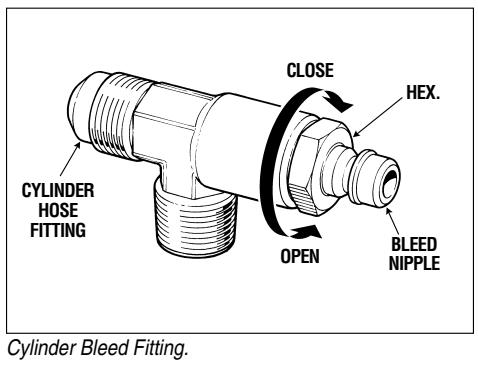


Slide vinyl bleed tubes onto cylinder bleed fitting nipples and place other end of bleed tube into container. Container should be large enough to hold at least one gallon (4 liters).

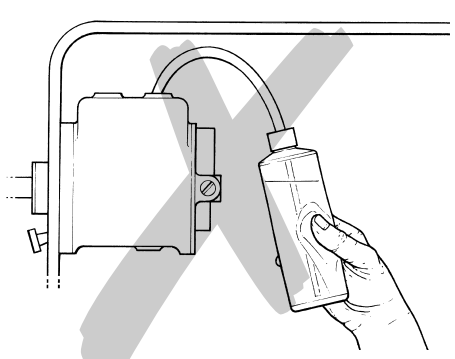
Now open starboard bleed fitting nipple by turning bleed nipple by turning hex. 1-1/2 turns counter clockwise.

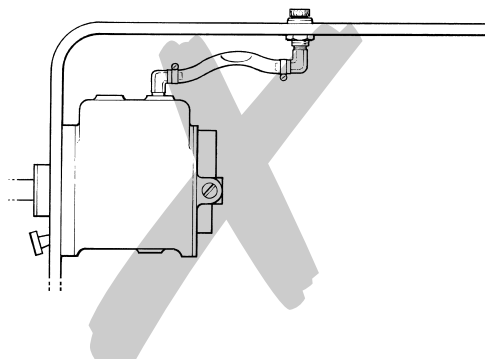
NOTICE

Before proceeding, make certain that 1250V & 1275V helm pumps are set at their highest displacement. Adjusting knob below helm pump steering wheel shaft must be turned clockwise as far as it will go.



Cylinder Bleed Fitting.





Step 2

Turn the steering wheel at upper station helm to starboard (right) until a steady stream of oil comes out of the starboard bleed tube. Then turn the steering wheel to port (left) until a steady stream of oil comes out of the port bleed tube.

For single station steering systems proceed to step 3.

For multi station steering systems repeat step 2 at the next lower helm and again at the lowest helm, if more than two helm stations are installed. An autopilot must also be considered as a steering station. The autopilot hydraulic power pump must be turned on to pump oil out of the cylinder bleed fittings in the correct sequence, depending on where the autopilot power pump is connected into the steering system.

Step 3

Close cylinder bleed fitting nipples by turning bleed nipple hex. clockwise. See diagram above.

Step 4

Starting at the upper steering station turn the steering wheel to hard over starboard (right). With as much force as possible, continue to turn the wheel to starboard and leave it in this position for one minute.

NOTICE

If pressure build up exceeds 1,000 PSI (70 Bar), the steering wheel will slip due to opening of the pressure relief valve. This will not harm the helm pump.

When the steering wheel is forced into the hard over position, air bubbles will once again rise up into the filling container.

Now force the steering wheel hard over to port (left) and leave in this position for one minute.

Alternating between port and starboard, repeat this procedure about 6 to 10 times at the upper station helm.

Step 5

Repeat step 4 at each at each additional helm in multi station steering systems.

Step 6

Check steering system for complete air removal by forcing the steering wheel into both hard over positions at the upper steering station. If there is no noticeable drop and rise of the oil in the filling container, the steering system is correctly filled and purged. A noticeable drop and rise of the oil level indicates that air is still in the system. If so repeat steps 4, 5 & 6.

⚠ CAUTION

DO NOT re-use oil that has been circulated through the system unless it has been properly filtered. Automotive type gasoline, oil type fine mesh funnel filters are acceptable to filter oil.

Oil Level Setting and System Check

To set the correct oil level in the fill and vent fitting proceed as follows:

- Open starboard bleed nipple on cylinder (only open one on twin cylinder installations).
- Turn steering wheel to starboard until oil level from filling container has reached the fill and vent fitting.
- Now continue to turn the steering wheel to starboard 1-1/2 turns for 1250V helm and 1 turn for 1275V helm.
- Close starboard bleed fitting.

This procedure will provide for sufficient air space to accommodate fluid expansion.

At this time the steering system should be checked for correct connection of hose, tube and fittings, and possible leaks. To do so, turn steering wheel (any one on multi steering station systems) and pressurize very hard to port. Apply enough force to the wheel to exceed pressure relief valve pressure. You will not harm the helm or system. While pressure is maintained on the steering wheel, check all port (left) fittings and line connections. Repeat procedure by turning wheel to starboard.

If no leaks are obvious, your steering system is ready for use.

⚠ WARNING

If a leak is found it <u>MUST</u> be corrected prior to use. Failing to correct a leak may lead to loss of steering and loss of vessel control. Failure to adhere to this warning may result in loss of steering control, leading to possible ejection from vessel causing property damage, personal injury and/or death.

Filling and Purging improvement for twin station 1250V and 1275 hydraulic steering systems.

Removing the air from the lower helm station reservoir and a non gradual rise compensating line is the most difficult and time consuming part of the purging and filling procedure!

The installation of a SeaStar Solutions Bleed Valve part # HA5404 as shown right, will aid in the removal of trapped air more efficiently.

- With the ball valve in the closed position, purge the steering system as per instructions supplied with steering system.
- Open ball valve.
- Turn the upper station steering wheel CLOCKWISE for approx. 1 to 2 minutes. Turn the steering wheel at approx. 50 turns per minute. **DO NOT turn too slowly**.
- Close ball valve.
- REMOVE ball valve handle and store. See warning.

A permanently installed valve will simplify servicing the system in the future.

For reasons of liability, ball bleed valves are supplied with a non-permanently attached handle which must be removed to prevent accidental opening during steering system use.

Instructions are supplied with each kit.

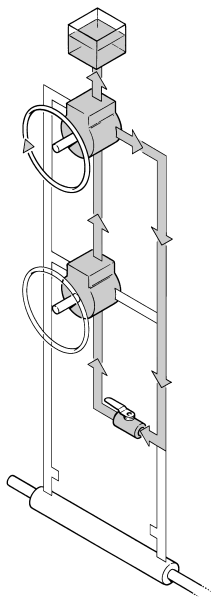
⚠ WARNING

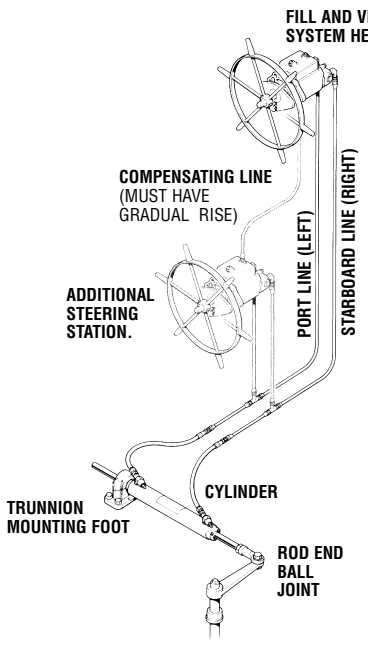
Once system is bled free of air the valve must be placed into the "CLOSED" position and the ball valve handle removed and stored. Failure to adhere to these warnings may result in loss of steering control, leading to possible ejection from vessel causing property damage, personal injury and/or death.

⚠ WARNING

For normal steering bleed valve must be in "CLOSED" position.

TYPICAL TWIN STATION SYSTEM





TYPICAL TWIN STATION SYSTEM & AUTOPILOT