

FILLING AND PURGING THE SYSTEM

Read First

These instructions show how to fill and purge a Single Station Front Mount Cylinder System. The same steps apply to Single Station Side Mount / Splashwell Mount Systems, the difference being which bleeder to open and close and the direction the cylinder rod moves. These variations are shown in inset diagrams at each step. For twin station and/or twin cylinder filling and purging instructions refer to instructions on page 50 first and then proceed with instructions on this page.

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 **must** be visible in the filler tube. **Do not** allow the oil level to disappear into the helm pump, as this may introduce air into the system and increase your filling time.

Hydraulic Oil Requirements

2 bottles (2 quarts or liters) for single station and single cylinder systems.

1 additional bottle for each additional helm, cylinder, or auto pilot.

NOTICE

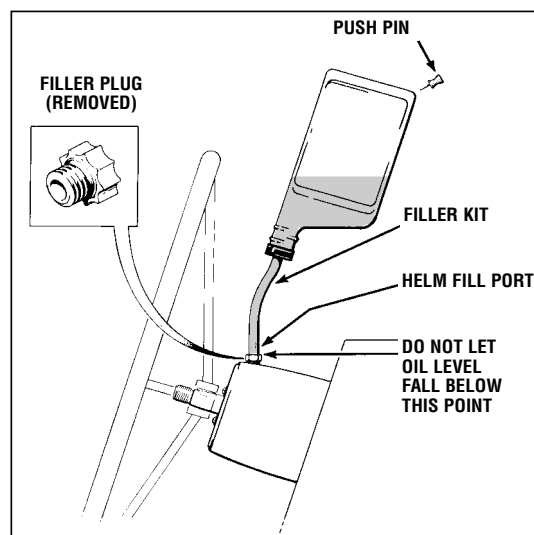
Oil can be re-used if filtered through a fine mesh screen such as used for gasoline. If unable to filter oil, an additional bottle of oil is required.

NOTICE

"Bleeder" may refer to cylinders fitted with bleed tee fittings or bleed screws. If fitted with bleed tee fitting, open bleeder by unscrewing bleed nipple nut two turns.

NOTICE

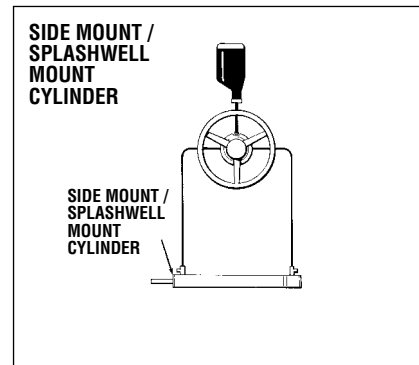
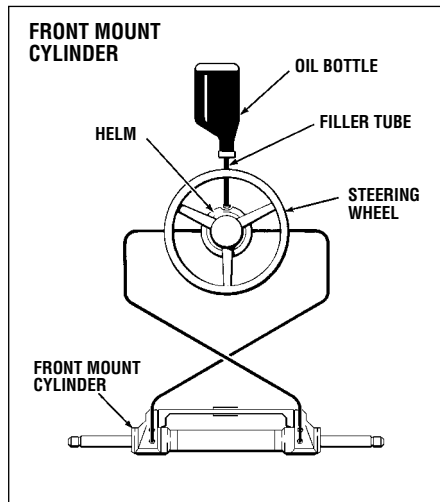
Filling the helm full of oil can be done faster if oil is poured into the helm prior to connecting filler tube and oil bottle to the helm. Part #HA5438.



Single Station One Cylinder

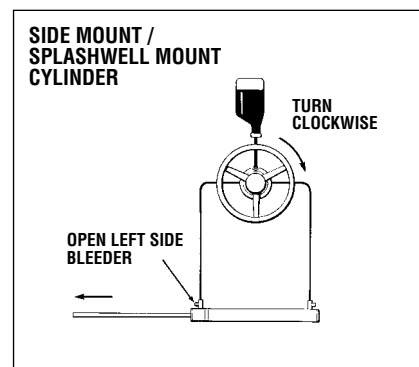
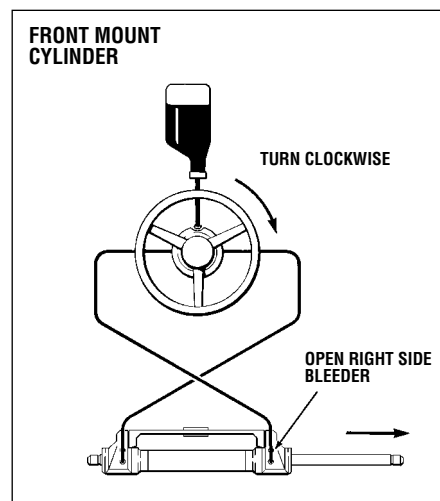
Step 1

- Screw the threaded end of the filler tube into the helm filler port.
- 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.
- Fill the helm pump full of hydraulic oil so that it is visible in the filler tube. Oil should always be visible in the filler tube. Use the next bottle of fluid at any time during the procedure in order to maintain the oil level. Do not proceed with step two until helm is full.



Step 2

- Turn the steering wheel clockwise until the cylinder rod is fully extended on the right side of the cylinder.
- Open right side bleeder.

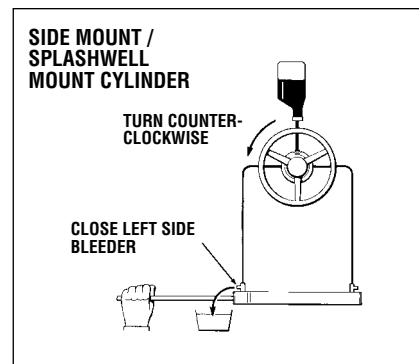
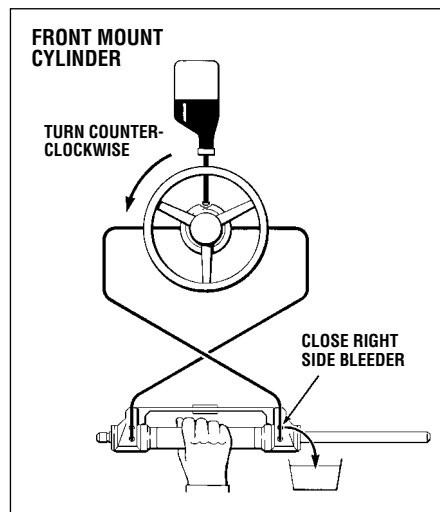


Step 3

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

Do not use anything other than your hands to restrain the cylinder body/rod.

- While continuing to turn the wheel close the right side bleeder and let go of the cylinder body/rod.

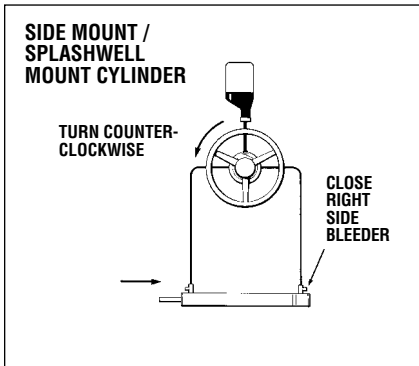
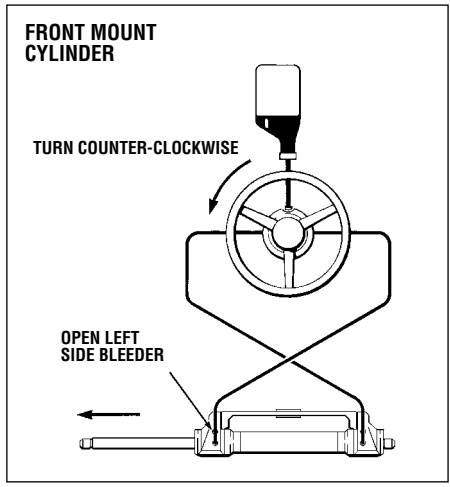


HYDRAULIC STEERING

FILLING AND PURGING

Step 4

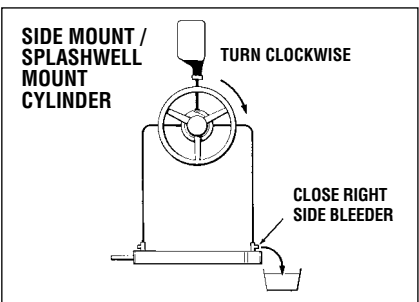
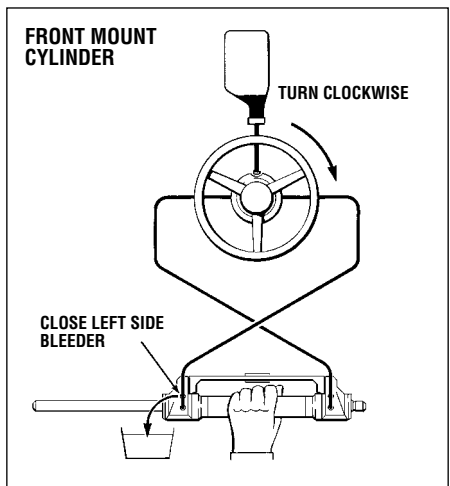
- Continue turning the steering wheel counter-clockwise until the cylinder rod is fully extended to the left. (Steering wheel will come to a stop).
- Open the left bleeder.



Step 5

- Holding the cylinder body (Front Mount cylinder) or rod (Side Mount cylinder) to prevent the body/rod from moving, turn the steering wheel clockwise until a steady stream of air free oil comes out of the bleeder.
- While continuing to turn the wheel close the left side bleeder and let go of the cylinder body/rod.

⚠ CAUTION
Prior to operating system, perform Oil Level System Check, refer to page 51.



When steering system has been properly bled, steering wheel turns will be as shown in the chart.

No. Steering Wheel Turns	Front Mount	Side Mount	Splashwell Mount
SeaStar 1.7	4.5	4.9/5.8	5.5/6.5
SeaStar 2.4	3.25	3.5/4.1	3.9/4.6
SeaStar Pro 2.0	4.0	N/A	N/A

HYDRAULIC STEERING

FILLING AND PURGING

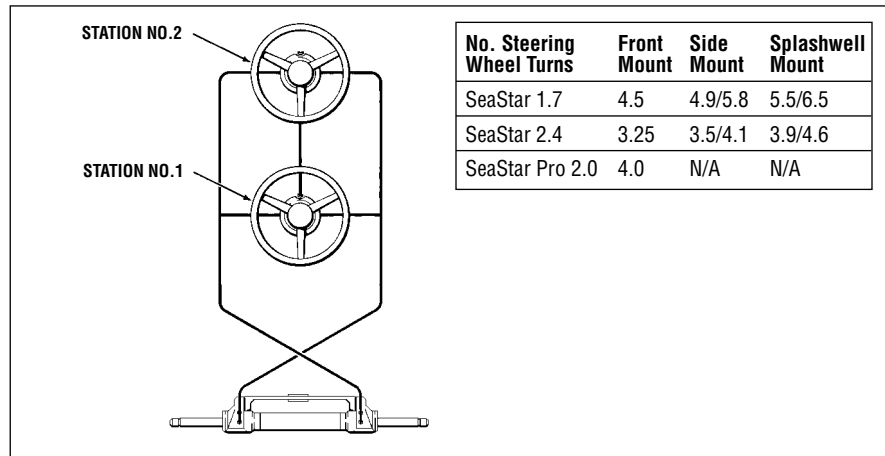
Twin Station Single Cylinder

Perform steps 1 through 5 at station no. 1. Then repeat steps 1-5 at station no. 2.

Oil requirements 4-5 bottles.

Note: Refer to Oil Level and System Check page 51.

When properly bled, steering wheel turns will be as shown in the chart.

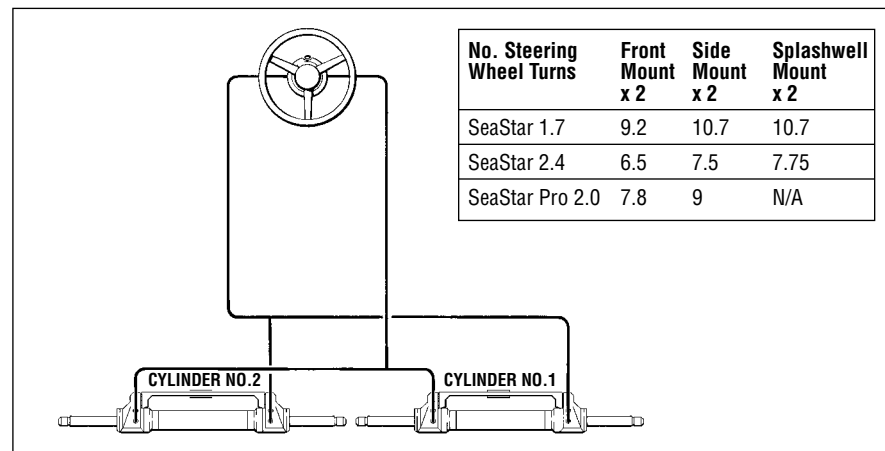


Single Station Twin Cylinder

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.

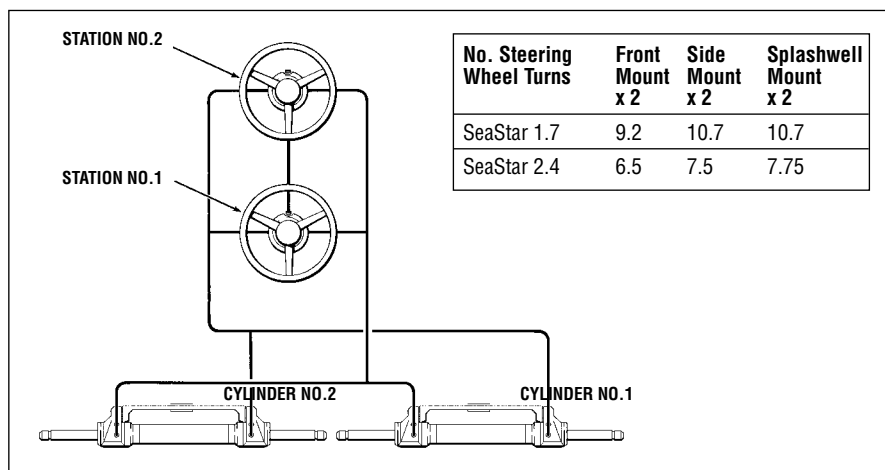
Note: Refer to Oil Level and System Check on page 51. Steering wheel turns will be as shown in the chart.



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.

Note: When properly bled, steering wheel turns will be as shown in the chart.



OIL LEVEL AND SYSTEM CHECK

CAUTION

Side mount/splashwell mount cylinders are unbalanced. The oil level in the helm must be set with the cylinder rod fully retracted. Failing to observe this caution will result in a oil spill at the helm. Turning the wheel to port (left) will retract the cylinder rod.

CAUTION

Ensure that the cylinder can be fully stroked in both directions and in all tilt and trim positions without stretching or kinking the hydraulic hoses.

CAUTION

Failure to check for interference may result in cylinder, splashwell and/or engine damage.

Helm mounted with wheel shaft completely horizontal must be filled to bottom of filler hole at all times. Do not allow oil level to drop more than 1/4" (6.3mm)

Helms mounted on a 20° angle or with wheel shaft vertical, oil level should be within 1/2" (12.7mm) of hole. Check oil level periodically.

At this time the steering system must be checked for proper connections of hose, tube and fittings, possible leaks, and air removal. To do so, turn steering wheel (any one on a multi-steering station) and pressurize very hard to port.

Apply enough force to the wheel to exceed pressure relief valve pressure. You will not harm the system. While pressure is maintained on steering wheel, check all port (left) fittings and line connections for leaks. If no leaks are obvious your steering system is ready for use. If leaks are found, correct before using. Failure to correct leak will lower oil level in system and could result in loss of steering. Repeat procedure by turning wheel to starboard. Watch the oil level in the helm pump when the steering wheel reaches either hard over positions. If there is no obvious drop in oil level, air has been removed. If there is an obvious drop in oil level, you are compressing air and further filling and purging is required. Repeat Steps 1 through 5.

If interference occurs during engine tilt or trim between steering cylinder and splashwell or jackplate, contact your engine manufacturer for trim restrictors or a Tilt Stop Switch.