

# FILLING AND PURGING THE SYSTEM

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## Read First

These instructions show how to fill and purge a Single Station One Cylinder System. For twin station and/or twin cylinder filling and purging instructions read instructions on page 26.

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## 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 **must** be above minimum mark on reservoir. **Do not** allow the oil level to fall below the minimum mark, as this may introduce air into the system and increase your filling time.

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## Hydraulic Oil Requirements

2 bottles HA5440 (1 US gal. each) for single station and single cylinder systems.

1 additional bottle HA5430 (1 quart) for each additional helm, cylinder, or auto pilot.

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## NOTICE

*These instructions will result in hydraulic oil flushed in and out of the system. 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.*

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## NOTICE

*“Bleeder” refers to cylinders fitted with bleed tee fittings. If fitted with bleed tee fitting, open bleeder by unscrewing bleed nipple nut two turns.*

**If cylinder is not fitted with bleed tee fittings, disconnect hydraulic line from the cylinder fitting. Loosening the hose or tube fitting only, may not cause sufficient oil flow to purge the system.**

# Single Station One Cylinder

## Step 1

- Open the hex fill plug on the top of the reservoir.
- Fill the reservoir to the top and replace the plug.
- Using a bicycle pump or similar, pressurize reservoir to 30 psi.
- Refill and pressurize until the level does not drop below the **maximum level** marked on the front of the reservoir.

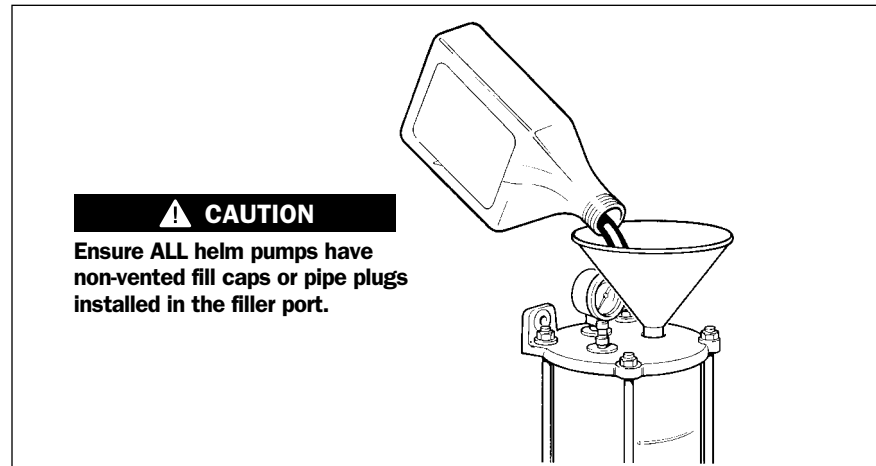


Figure 34

## Step 2

- Turn the helm station steering wheel clockwise until the cylinder shaft is fully extended or retracted (depending on installation geometry, this will vary).
- Open the left side bleeder.

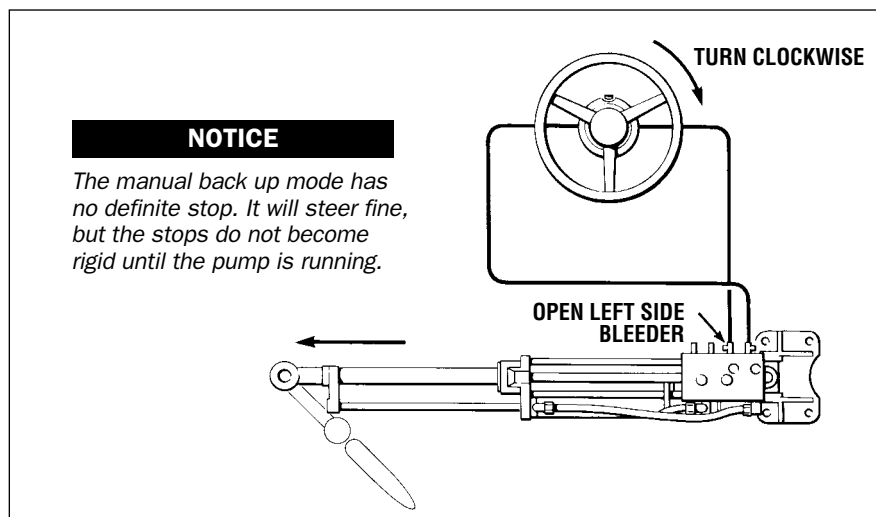


Figure 35

## Step 3

- Making sure the cylinder shaft does not retract into the cylinder, turn the steering wheel counter-clockwise until a steady stream of air free oil comes out of the bleeder.
- While continuing to slowly turn the wheel, close the left side bleeder.

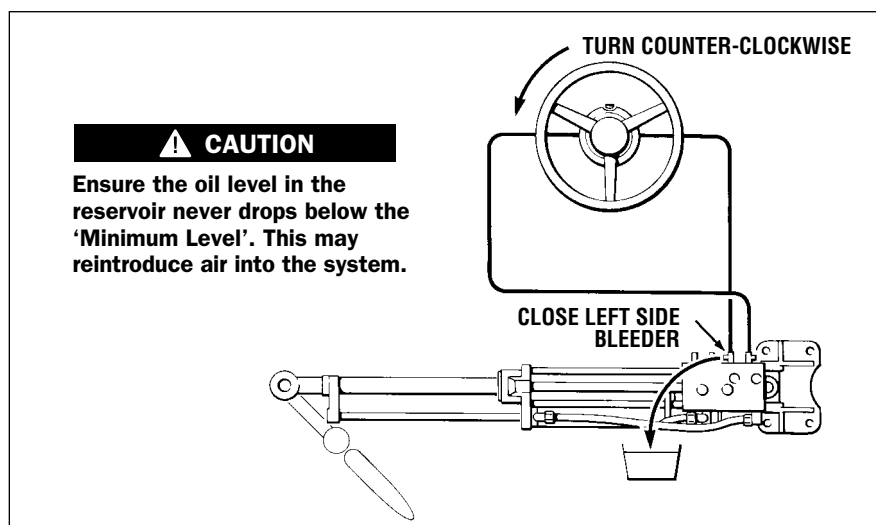


Figure 36

**Step 4**

- Continue to turn the steering wheel counter-clockwise until the cylinder shaft is fully extended or retracted (depending on installation geometry, this will vary).
- Open the right bleeder.

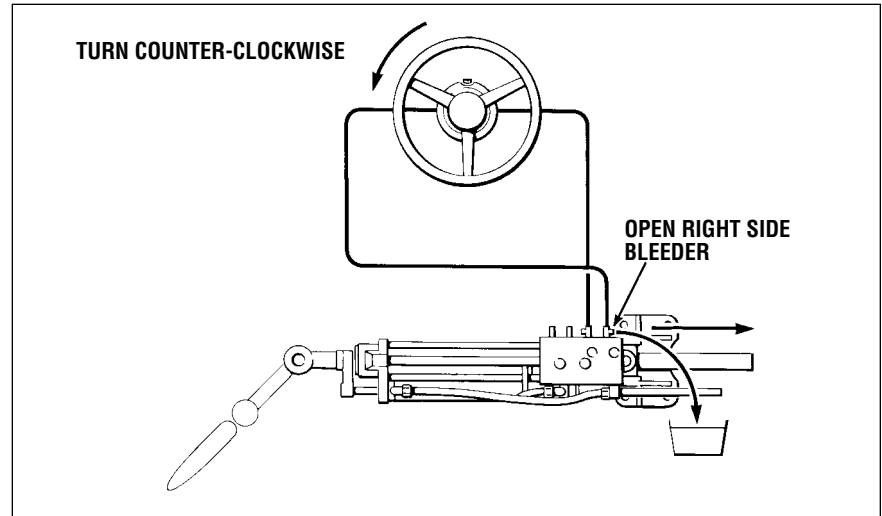


Figure 37

**Step 5**

- Making sure the cylinder shaft does not retract 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 right side bleeder and let go of the cylinder rod.
- Check the level in your reservoir and fill to maximum level and repressurize to 30 psi.

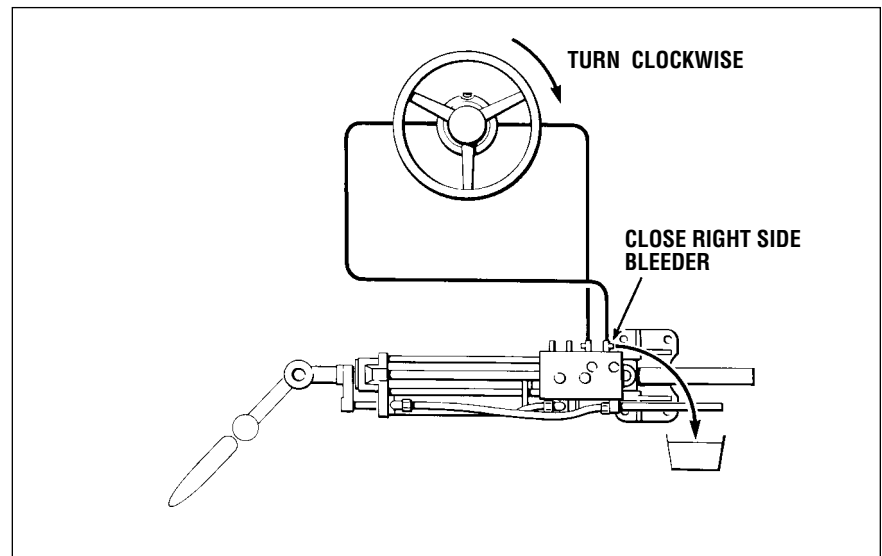


Figure 38

**NOTICE**

*Most of the air is now purged and you are ready to purge the power circuit.*

# Twin Station Single Cylinder

- Repeat steps 1 through 5 on station one then 1 through 5 on station two.

**NOTICE**

*If you have an add-on power cylinder, this will be purged in the power circuit (see page 27).*

**CAUTION**

**If using a pressurized reservoir there must be a non-vent or pipe plug in ALL helm filler ports.**

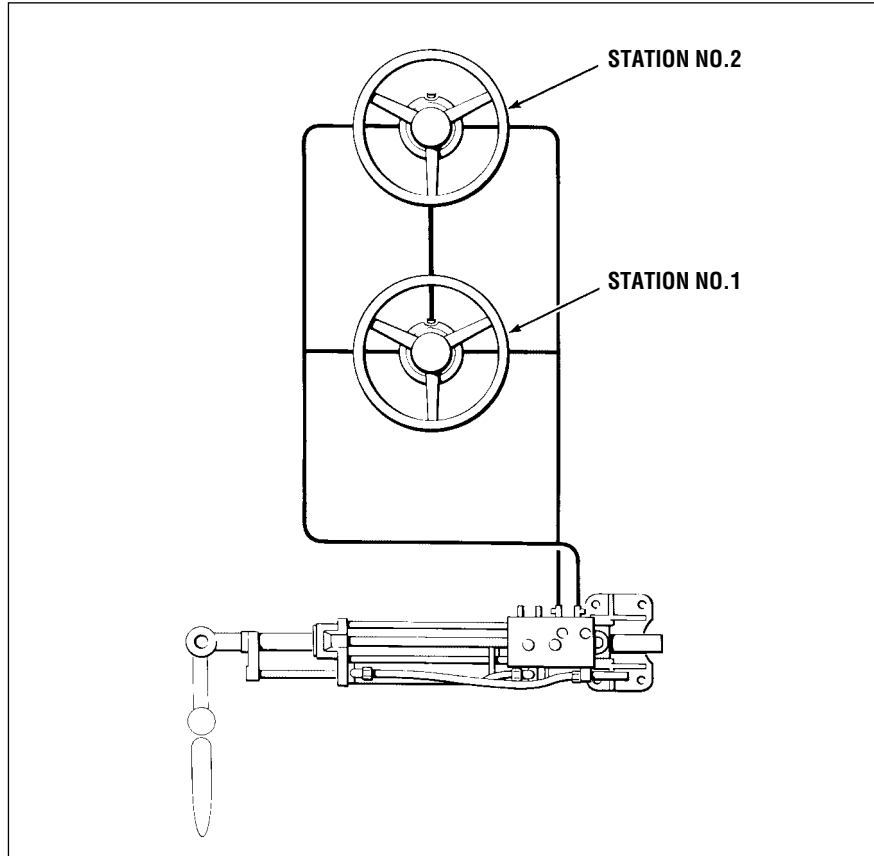


Figure 39

**NOTICE**

*Most of the air is now purged and you are ready to purge the power circuit.*

## Purging the Power Circuit

- **Before starting engines or electric motor, ensure that all hoses and connections are tight and installed correctly.**
- Start engines and idle at 600 to 800 RPM.
- Start turning either helm one revolution to the left then back to center and then one revolution to the right.
- Continue to do this adding one revolution each time until you are steering from hard-over to hard-over.
- Bring your engine speed to 1200 RPM and count the number of turns. From hard-over to hard-over the standard number of turns should be 3 ½ to 3 ¾ turns. Consult table for your system.

SYSTEM	HC5801	HC5803
SSI SSII 1250V	3.6 turns 2.5 turns 3.6 to 1.75 turns	4.4 turns 3.1 turns 4.4 to 2.2 turns

- If your turns are not within ⅛ of a turn of these, **stop engines.**
- Turn your wheel to the right and continue to turn for 10 to 15 revolutions. You will be able to turn through hard-over because the engine is not running.
- Turn your wheel to the left for 10 to 15 turns.
- Start your engines and your turns should be correct. If not, repeat.

### NOTICE

*If using a 1250V helm, it may be necessary to open the uppermost filler plug in the top helm to allow the trapped air to escape.*

## Oil Level & System Check

- Check to ensure the oil level in reservoir is at the maximum level. Re-pressurize to 30 psi if required.
- The maximum level allows sufficient room for thermal expansion.
- Check all fittings and components for leaks. Tighten loose fittings. If you find oil on a component, wipe it down thoroughly. If no more oil appears after a few minutes it is probably spilled oil.