FILLING AND PURGING THE SYSTEM

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.

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.

Bleeding this system can be made easier with the purchase of bleed fitting kit# HA5457. Refer to page 44 for details.

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.

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.

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.

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.

Hydraulic Fluid

Acceptable and recommended oils for your steering systems are:

SEASTAR 1.7, 2.0, 2.4 in³/rev. HELM PUMPS

SEASTAR HYDRAULIC FLUID,
(Part # HA5430 – 1 quart, HA5440 – 1 US gallon.)
TEXACO HO15
SHELL AERO 4
ESSO UNIVIS N15 OR J13
CHEVRON AVIATION FLUID A
MOBIL AERO HFA
FLUIDS MEETING MIL H5606C SPEC.

⚠ CAUTION

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

Automatic transmission fluid Dexron II may be used in an emergency.

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

Seastar hydraulic oil is not available from your local gas station. Order a spare bottle from your SeaStar Solutions dealer.

CAPILANO 1250V and 1275V

DEXTRON II OR III AUTOMATIC TRANSMISSION FLUID OR EQUIVALENT.

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.

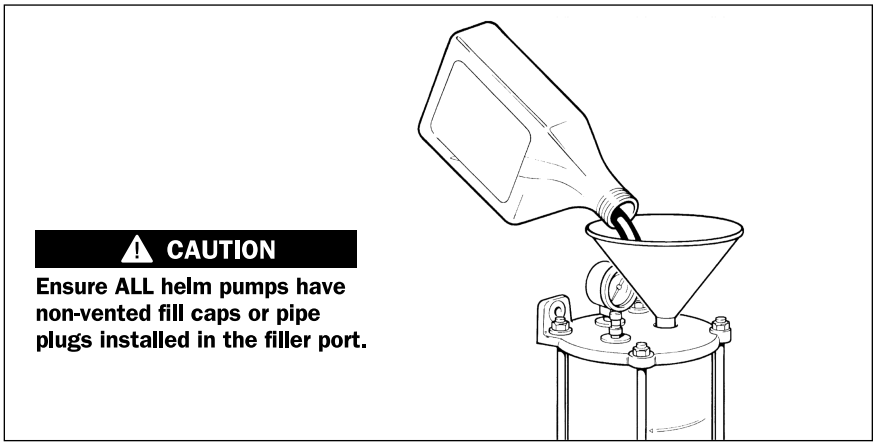

Figure 28.

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.

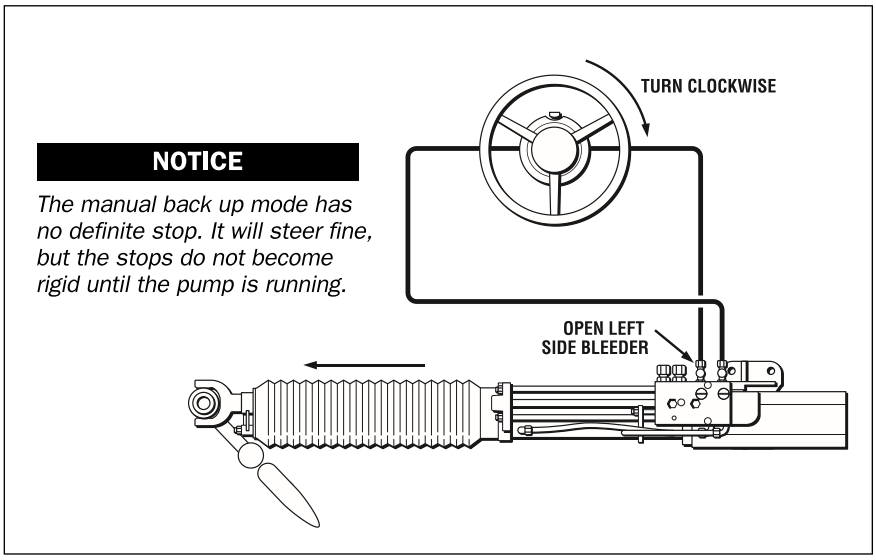

Figure 29.

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 and let go.

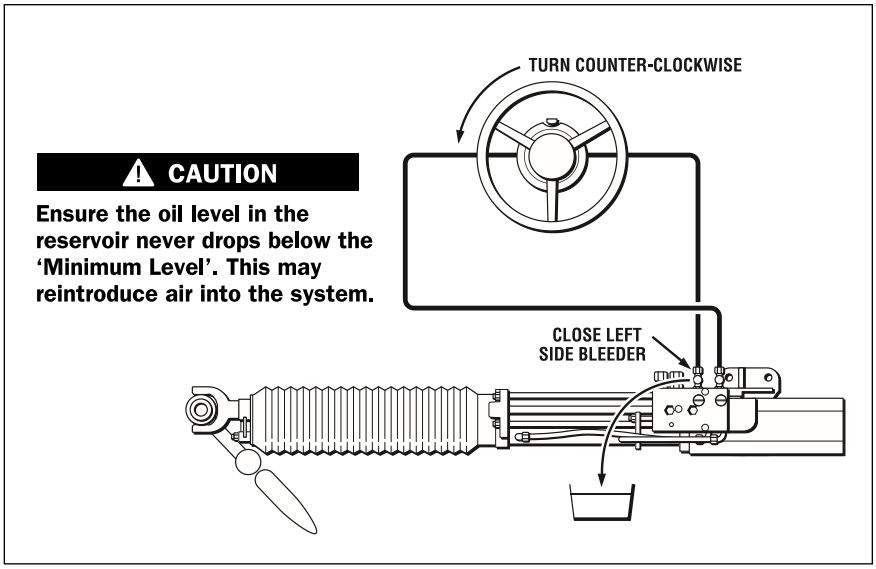

Figure 30.

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.

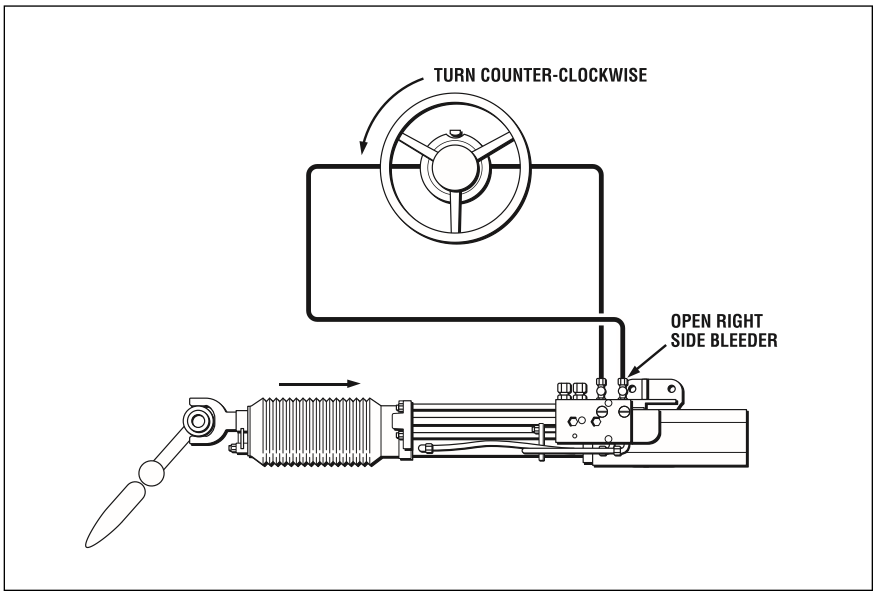

Figure 31.

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.

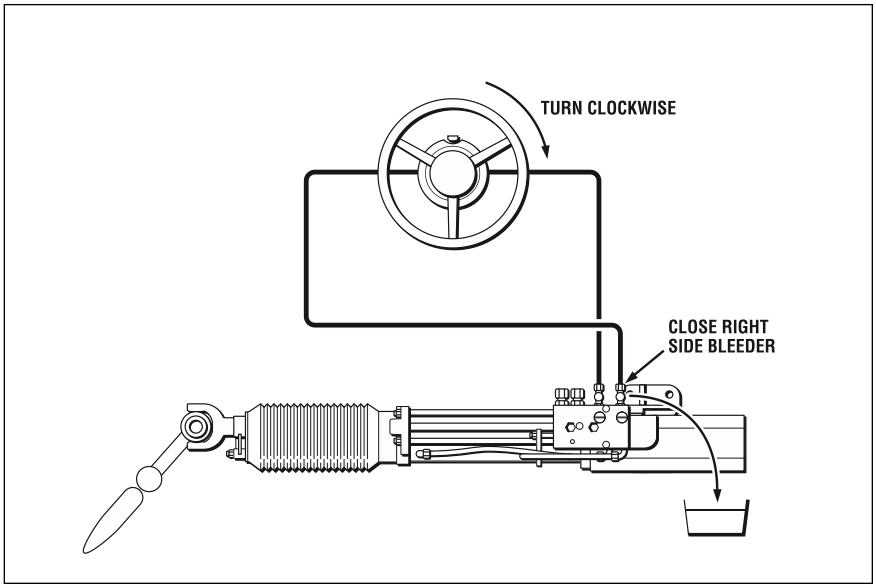

Figure 32.

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 (refer to page 27).

⚠ CAUTION

In pressurized systems, ALL steering stations require the use of a non-vent plug (part # HA5432).

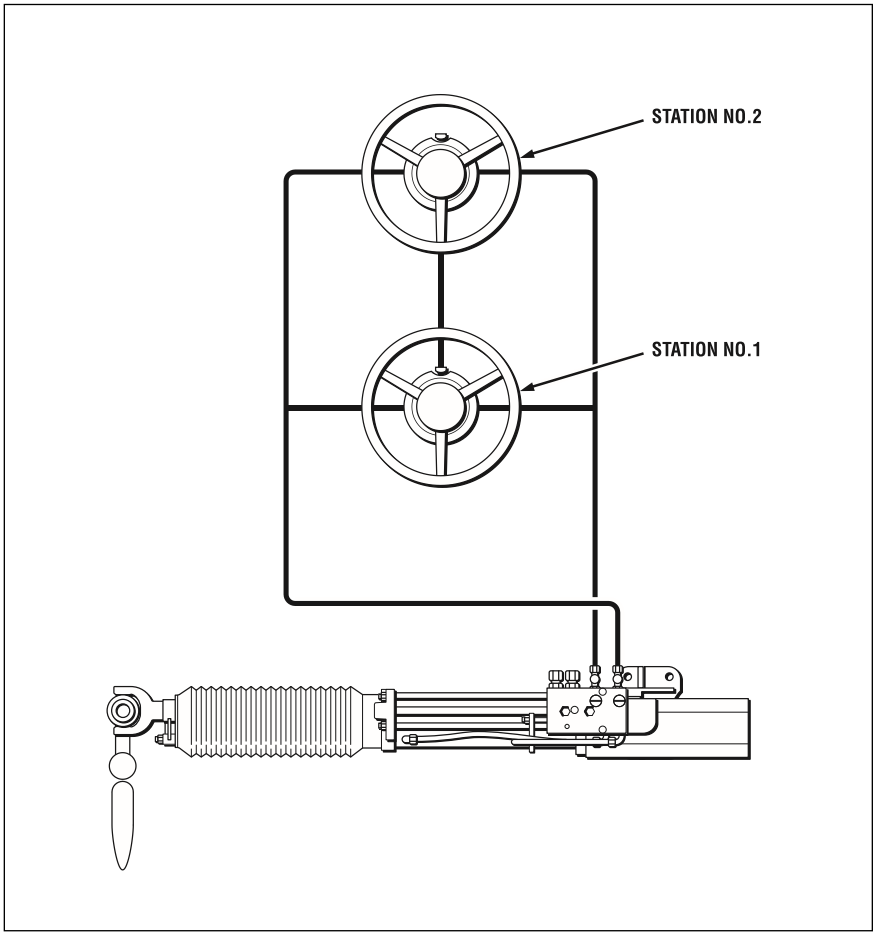

Figure 33.

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 wheel turns from hard over to hard over. Consult the table below to ensure that your wheel turns are the same as noted.

SYSTEM	HC5801	HC5803	HC5805
SeaStar 1.4	4.3 turns	5.3 turns	4.3 turns
SeaStar 1.7	3.6 turns	4.4 turns	3.6 turns
SeaStar 2.0	3 turns	3.7 turns	3 turns
SeaStar 2.4	2.5 turns	3.1 turns	2.5 turns
Capilano 1250V	1.75 to 3.6 turns	2.4 to 4.4 turns	1.75 to 3.6 turns
Hynautic H-21	2.2 turns	2.7 turns	2.2 turns
Hynautic H-22	3 turns	3.7 turns	3 turns
Hynautic H-41	1.1 turns	1.35 turns	1.1 turns
Hynautic H-42	1.5 turns	1.8 turns	1.5 turns

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.

- If your turns are not within 1/8 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.

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.