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Thank you for choosing Boat Steering Solutions!

The hydraulic fluid circulating through the system contains rust, moisture, and other contaminants it picks up throughout the system. This results in crystalline/gritty deposits inside the helm, cylinder, and all other connected components.



Installing a new component without ensuring the rest of the system is clean not only immediately contaminates the new unit, **it voids the warranty**. This is true not only for our warranty, but for the factory warranty on new units as well.

To extend the life of your hydraulic steering, (and preserve the warranty that comes with your unit) you need to flush the system prior to reinstalling the new unit. Do not run any solvent through the hoses.

The factory recommendation for flushing the system is every 12 months or 200 hours, whichever comes first.

The following steps were written for a single helm / single cylinder installation. If you have questions on how to best flush YOUR particular system, please contact us and a tech will be happy to advise.

What you need:

Bucket for dirty oil

Quart of clean hydraulic oil

Towels/rags

Clear tubing to fit over bleeders on cylinder (about 2 feet of 5/16 clear tubing)

If installing a new helm, a coupler for the hoses (3/8 compression, HF5527)

New Helm: Install the m/m 3/8" coupler to connect your port and starboard hoses at the helm.

HF5527:



Connected:



- 1) Physically grab the motor and move it fully to one side. This will extend the cylinder rod fully, seating the piston all the way to that end of the cylinder. *(fig 1)*
- 2) On the cylinder end with the LONG length of rod, remove the hydraulic line from the cylinder and place it into a waste oil bucket. *(fig 1)*

(fig 1)



- 3) Move the motor fully to the other side, forcing the fluid up that hose, through the connector and out the end you just disconnected. This will squirt fluid into the bucket. *(fig 2)*

(fig 2)



- 4) Now the LONG end of the rod is extended from the other side of the cylinder. Attach the clear tubing to the bleeder valve on that side. *(fig 3)*
- 5) Put the end of the clear tubing into a quart of clean fluid. NO SOLVENTS. *(fig 3)*
- 6) Open the bleeder
- 7) Hold the disconnected end of the hydraulic line so that your thumb blocks the fluid/air flow. *(fig 3)*

(fig 3)



- 8) Move the motor fully to the other side – this will suck clean fluid from the quart through the clear tubing. (fig 4)

(fig 4)



- 9) Close the bleeder, remove your thumb from the hydraulic hose and point back into waste oil bucket.
- 10) Move the motor fully to the other side to discharge the fluid
- 11) Repeat steps 5-10 once or twice more to get clean fluid out of the end of the hose. Ending with the rod extended on the opposite side of the detached hose.
- 12) Reattach the hydraulic hose to the cylinder, swap the clear hose to the other bleeder (leaving bleeder valve closed for now)
- 13) Detach the other hydraulic hose, pointing it into the bucket
- 14) Move the motor fully to the other side –this will discharge fluid from the other side of the cylinder. (fig 5)
- 15) Put the end of the clear tubing into a quart of clean fluid. NO SOLVENTS. (fig 5)
- 16) Open the bleeder
- 17) Hold the disconnected end of the hydraulic line so that your thumb blocks the fluid/air flow. (fig 5)

(fig 5)



- 18) Move the motor fully to the other side – this will suck clean fluid from the quart.
- 19) Close the bleeder, remove your thumb from the hydraulic hose and point back into waste oil bucket.
- 20) Move the motor fully to the other side to discharge the fluid

- 21) Repeat steps 16-20 once or twice more to get clean fluid out of the end of the hose. Ending with the rod extended on the opposite side of the detached hose. This should use the remaining half of a quart of fluid.
- 22) Reattach the hydraulic hose to the cylinder.
- 23) Remove the clear tubing from the bleeder (retain for use during the air purge process)
- 24) You are now ready to install your sparkling clean helm!
- 25) Remove the coupler from the helm end of the hoses and install on new helm.

New Cylinder:

Important Note: You cannot truly “flush” a helm clean. Rust and sediment settles into the bottom, well below the pickup. This is intentional, to help prevent sucking up particles that could cause issues in the small oil passageways and valve system. Dislodging that material while trying to flush the system can cause helm failure. If the fluid in your system is translucent, but dark or discolored, simply flushing the fluid out should be sufficient (again, this should be done annually at a minimum). If, however, the fluid is cloudy or milky, the helm unit should be replaced.

- 1) Do NOT connect the hoses to your new cylinder yet!
- 2) Put the ends of the hoses into a waste oil bucket
- 3) Turn the steering wheel slowly – alternating turns in EACH direction to push the old fluid from the helm to the ends of the disconnected hoses.
- 4) Fill helm with 10 oz of clean hydraulic fluid and repeat: One full rotation to starboard, then one full rotation to port, alternating for about 6 turns or until no more fluid comes out.
- 5) If fluid coming from hoses is still “dirty”, repeat step 4.
- 6) You are now ready to install your sparkling clean cylinder.

Fill and purge the air from the system with the appropriate instructions
Please let us know if you have any questions.