

The manual ball valve in this kit can be used to partially close the bypass loop if operating conditions require, or to help with troubleshooting or seasonal flushing. The kit will work on freshwater cooled and raw water cooled engines. Use any good quality sealer on the threaded fittings except for Teflon tape which tends to shed small pieces of tape into the cooling system.

**STEP 1:** Remove the factory bypass hose where it attaches to the inlet of the thermostat housing and the water jacket side plate tee fitting.

**STEP 2:** Remove the factory 90 degree hose barb from the inlet of the thermostat housing and replace it with the 90 degree street el provided in kit. Turn the street el so it's opening is facing the flywheel end of the engine. Cut the supplied cooling hose down to 2-3/4", and insert the hose over the water jacket side plate tee fitting. Slip on the supplied hose clamps, leave loose at this time (as per photo).

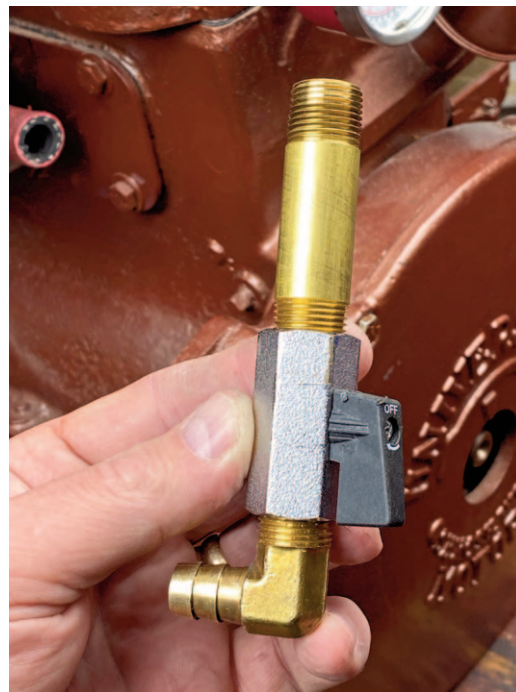
**STEP 3:** Preassemble the remaining brass fittings as shown in the photo.

**STEP 4:** Tighten the preassembled brass fittings into the street el on the thermostat housing until tight so that the hose barb is facing the cooling hose opening. Fine tune the entire assembly by wrenching from the street el and from the ball valve so the hose barb is properly lined up with the hose opening. Turn the entire assembly until the hose barb is fully seated in the cooling hose. Slip clamps into positing and tighten. (as per photos).

**STEP 5:** Start engine and check for normal flow of water exiting the exhaust system and a temperature in the range of 160 to 175 degrees, depending on raw water temperature.



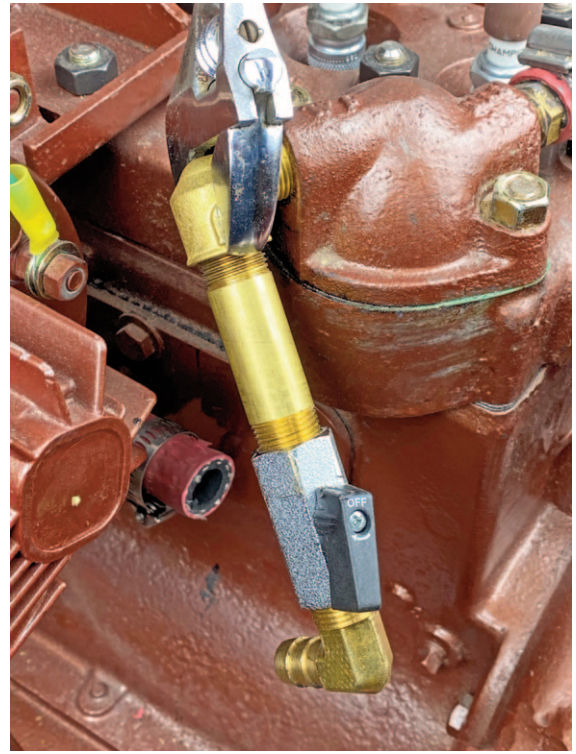
Street el facing flywheel end of engine



Brass fittings preassembled



Tighten preassembled fittings into street el



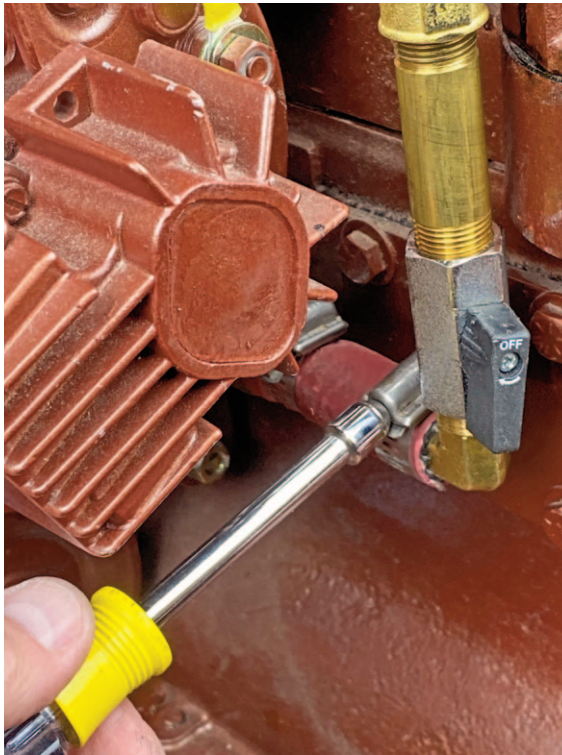
Turn fittings clockwise toward hose



Fine tune hose barb angle to line up with hose



Turn fittings to fully seat hose barb in hose



Tighten hose clamps



Kit fully installed

**Kit contents:**

- (1) 3/8" brass street el (90 degree)
- (1) 3/8" ball valve
- (2) 3/8" x 2.5" brass nipple
- (1) 3/8" by 1/2" 90 degree hose barb
- (2) hose clamps
- (4") rubber hose