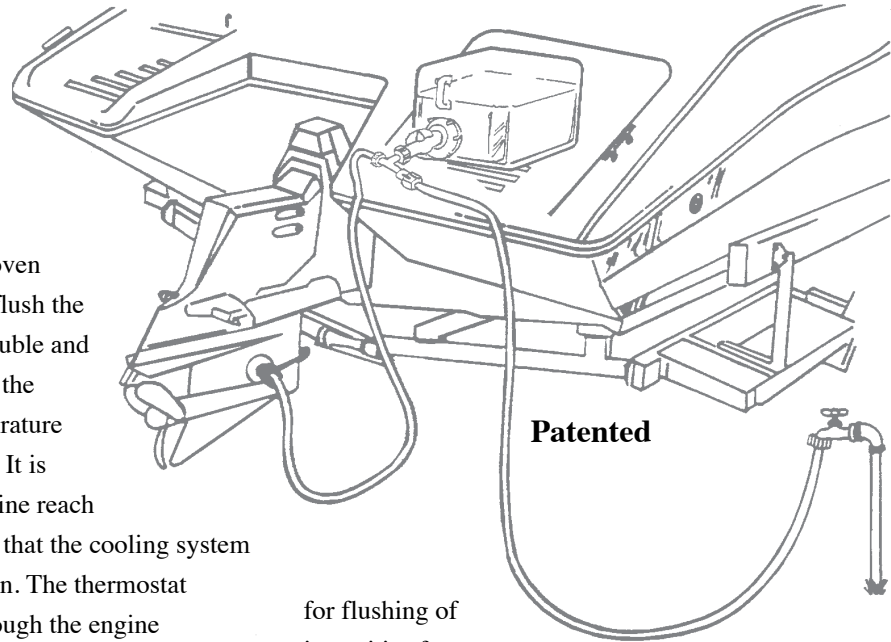


Do-It-Yourself Boat Winterizer 65501

D-I-Y principle of operation:

The D-I-Y provides an easy, proven method of using fresh water to flush the raw water cooling system of soluble and loose impurities while allowing the engine to reach operating temperature in preparation for winterization. It is absolutely essential that the engine reach operating temperature to ensure that the cooling system thermostat is in the open position. The thermostat controls the flow of coolant through the engine block itself. Operating temperature is an indicator of the open position of the thermostat because the thermostat regulates this operating temperature. No coolant—water nor antifreeze—will flow freely through the engine block until operating temperature is maintained. The D-I-Y is unique in that, once operating temperature is reached and then some time allowed



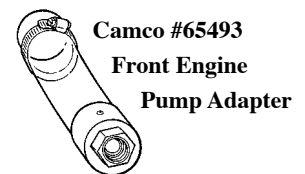
for flushing of impurities from the engine with fresh water, the fresh water supply is replaced with antifreeze to winterize the engine for storage. For additional insurance the thermostat may be removed. Thermostat removal is not necessary if the following step-by-step instructions are followed explicitly.

APPLICATIONS:

METHOD #1: The conventional “muff” type flusher method works well with the D-I-Y for drives that have the raw water pump mounted inside the outdrive (illustrated above). **DO NOT ATTEMPT TO WINTERIZE A FRONT ENGINE MOUNTED RAW WATER PUMP SYSTEM USING THIS METHOD. USE METHOD #2 (RIGHT).**

METHOD #2: For front engine mounted raw water pumps (including most Volvos and inboards) an adapter is required to connect directly to the suction side of the raw water pump. Use Camco #65493 Front Engine Pump Adapter.

NOTE: If you are unsure as to which type raw water pump your unit contains, consult your dealer or owner’s manual.



IMPORTANT: Read all instructions before beginning.

Stock #65501 Do-It-Yourself Boat Winterizer instructions

Review illustrations

I. Assemble D-I-Y

1. Remove fill cap from tank.
2. Punch out plastic insert at base of threaded hole in cap. Discard insert. Replace fill cap on tank.
3. Remove small vent cap. **Puncture for air vent in area provided.-Make sure air vent is open.** Replace vent cap.
4. Screw fine thread end (1/2" MPT) of ball valve into fill cap and tighten. Be sure valve is in closed (clockwise) position.
5. Attach center of winterizing tee to faucet valve.

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II. Select antifreeze

1. Select the appropriate propylene glycol antifreeze using the following guidelines.

Never use an antifreeze with a burst protection level of less than -50°F.

- Allow antifreeze to stand in container(s) at room temperature (60+ degrees F) for several hours prior to winterizing. Warmer antifreeze will flow more readily through the D-I-Y, pump and engine.
- Careful dilution of stronger concentrations is permissible. These very high quality materials are very viscous when cool. Some Alpha I and Alpha II pumps experience difficulty in pulling these solutions from the D-I-Y and into the engine. In most applications dilution according to label charts/ instructions will allow antifreeze to flow more freely, eliminating this problem. (Never dilute to a burst protection level of less than -50°F.)
- Dilution of antifreeze by the customer to a burst protection level of less than -60°F (i.e., -55°F, -50°F, etc.) is not recommended unless final dilution is verified by use of a Camco Freeze Check Refractometer #65401, available from your Marine dealer.

Thoroughly and vigorously agitate all dilutions for 3–4 minutes.

- Examples of antifreezes which **can be diluted**:
Camco Winter Ban -100
- Examples of antifreezes which **should be diluted**:
Camco Premium Ban Frost 2000®
Ban Frost® Marine Engine Antifreeze and Coolant

NOTE: DO NOT use these products full strength with the D-I-Y because they can be too viscous to flow freely to the raw water pumps of most engines and outdrives. Dilute to 50% antifreeze/50% water. (i.e., 1 gallon Ban Frost to 1 gallon water: see antifreeze label)

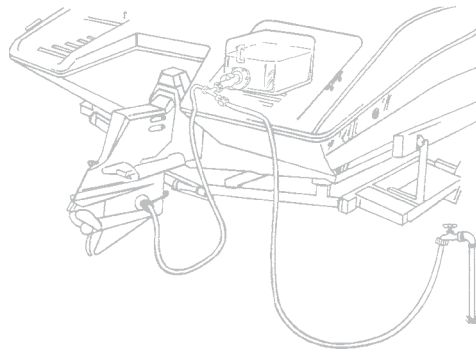
- Examples of antifreezes designed to be used **full strength**.
Camco Freeze Ban (Do Not Dilute)
- Propylene glycol antifreezes with burst protection levels of -50°F will begin to form a “slushy” appearance at +10 to +13°F. These same antifreezes will continue to “harden” when cooled further but will not pose a threat to equipment until the temperature approaches -50°F. A minimum -50°F burst protection level is extremely important in order to overcome the dilution that may occur in small cavities inside the engine during the winterization process.
- Always double check burst protection levels with the Camco Freeze Check Refractometer if one is available. (See your Marine dealer for camco part #65401.)

2. Remove fill cap from tank.
3. Pour in at least 5 gallons of the antifreeze you have selected.
4. Replace fill cap. Be sure ball valve is in closed (clockwise) position.

When using Camco Freeze Ban, it is recommended to remove the engine thermostat while winterizing.

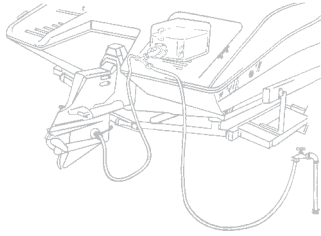
NOTE: If for added protection you choose to remove the engine thermostat, do so now.

1. Remove thermostat housing.
2. Lift out thermostat.
3. Replace thermostat housing.



III. Connect D-I-Y to outdrive

1. Attach male fitting of clear hose to your engine flusher (**Method #1**) or Front Engine Pump Adapter (**Method #2**).
2. Attach one end of garden hose to fresh water faucet. Attach other end to yellow water shut-off valve. Turn yellow valve off and water faucet on. **Yellow valve must not leak.**



3. **METHOD #1:** Attach flusher to lower unit intake.
-or-
METHOD #2: Remove suction hose from front engine pump and attach Front Engine Pump Adapter in its place. Tighten clamp.
4. Place winterizing tank on its side on swim platform or rear portion of boat, making sure tank is above flusher (or engine adapter).
5. Remove vent cap from tank.
6. Attach flusher hose to male side of tee. Route hose clear of propeller or engine belts and pulleys.
7. Attach yellow valve to female side of tee.

IV. Winterize engine and outdrive

Familiarize yourself with all of the following before continuing.

CAUTION: Stay clear of propeller and all moving engine parts at all times while engine is running to avoid bodily injury.

NOTE: The outdrive discharge may be tested during the winterizing procedure using the Camco Freeze Check Refractometer #65401 available from your Marine dealer. This refractometer easily and accurately confirms actual burst protection of the liquid being discharged at the outdrive, which is an indication of the burst protection of the liquid distributed throughout the engine.

1. Turn on fresh water by opening yellow valve. After water begins squirting from around flusher attached to outdrive (or pressure is seen at engine pump adapter) disengage propeller and start engine. Allow engine to warm up to operating temperature and engine thermostat to open. Verify by engine temperature gauge.
2. Close the yellow fresh water valve, and **IMMEDIATELY** open the antifreeze tank valve (CCW).
3. Pink color of the antifreeze will appear in the clear hose attached to the flusher.
IF PINK DOES NOT APPEAR OR IF ENGINE OVERHEATS—STOP ENGINE. Close antifreeze tank valve. Recheck above steps and try again.
4. When the antifreeze level drops to within 2" of the tank spout prepare to stop engine. Tilt tank toward spout if necessary. Keep spout covered with antifreeze.

5. Stop engine just before antifreeze tank is emptied. There must be no more than 1 quart of antifreeze remaining of the initial 5 gallons. The 4 $\frac{3}{4}$ + gallons are required to ensure full distribution and circulation of burst protection antifreeze throughout the engine.
6. The raw water cooling system from flush point attachment through discharge point in your boat is now completely winterized. Leave outdrive in down (running) position to prevent rain from accumulating in exhaust and freezing.
7. **METHOD #1:** Remove flusher from outdrive.
METHOD #2:
 - A. Drain any water remaining in previously disconnected pump suction line. Drain any power steering coolers or other equipment supplied by this suction line by removing or opening plugs or disconnecting lines. (Consult owner's manual.)
 - B. Pour antifreeze into these lines and equipment.
 - C. Remove pump adapter from pump and reattach suction line to pump.
8. Replace vent cap. Turn off fresh water faucet. Disconnect garden hose from yellow valve. Store winterizer for future use.
NOTE: If for added protection you chose to remove the engine thermostat, replace it now.
 1. Remove thermostat housing.
 2. Replace thermostat.
 3. Install new thermostat gasket.
 4. Replace thermostat housing.

Consult your owner's manual and dealer for other winterizing steps to prolong engine life and your boating enjoyment (i.e., fuel stabilizer, corrosion guard, engine fogging, etc.).