

# COMBO-SEP™

## Gasoline Engine Version



1. The Combo-Sep™ is a WET marine exhaust muffler.
2. The Combo-Sep™ is designed for gas/water to flow in one direction only. Please note labels on muffler carefully
3. Allow sufficient distance between the water injection point and the Combo-Sep™ to adequately cool the exhaust gases. We recommend a minimum of two feet (61 cm). Maximum operating temperature should not exceed 350° F (176° C). A typical well designed system should run between 120-188° F (49-87° C).
4. The Combo-Sep™ is designed to be installed at or above the loaded waterline (LWL) only. The base of the Combo-Sep™ must be above the waterline so that the separation chamber drains upon engine shutdown. Do not install the Combo-Sep™ below the waterline. See Figure 1. For below water line installations, we recommend the use of a Vernalift™ in combination with a Gen-Sep™. The water drain line should be as short as possible.
5. The bottom portion of the Combo-Sep™ is a lift muffler. The inlet on the muffler must be installed at least 12" (305 mm) below the engine elbow to prevent the reverse flow of water. When space constraints do not allow for this height difference, it is strongly recommended that a riser ("gooseneck") be installed in the system.
6. Install the Combo-Sep™ as close to the centerline of the engine as possible. This will minimize the possibility of cooling water return to the engine in severe angles of heel.

### 7. Making connections:

- A) Use approved marine exhaust hose for all connections. This will help isolate the muffler and other components from vibration. Do not connect other components to the muffler in a rigid fashion by using adhesives and/or FRP reinforcements. **Do not over torque or over tighten in any direction as this can cause leaking over time.**
  - B) DO NOT coat hose or muffler with oil or grease – use water for lubrication.
  - C) Use a minimum of two stainless steel hose clamps per end connection. Tighten clamps by hand with a screwdriver or small wrench. Do not use air wrenches.
8. The Combo-Sep™ will separate nearly 98% of engine cooling water. However, due to condensation, it is strongly recommended that the outlet hose should run continuously downhill for self-draining of remaining water and condensate. **Under no circumstances should there be a loop in the outlet hose that could collect condensation and impede the exhaust flow.** For uphill or "dry-stack" installations, special provisions are necessary.

**WARNING!** Should a back-fire occur, an immediate and thorough inspection of the entire exhaust system is recommended.



**WARNING – These are GUIDELINES ONLY and are NO GUARANTEE of a properly designed and installed exhaust system. Centek's products are used in a variety of systems and applications. Therefore, it is impossible for Centek to provide specific installation instructions for all possible configurations of exhaust systems that may be incorporated on a marine vessel by the vessel manufacturer.**

**IT IS THE RESPONSIBILITY OF THE BOAT MANUFACTURER TO PROPERLY DESIGN AND INSTALL AN EXHAUST SYSTEM APPROPRIATE FOR THE VESSEL IT MANUFACTURES.**



Warning! Gasoline engines produce dangerous levels of carbon monoxide that will pass through this product as part of a properly designed and installed exhaust system. Per ABYC A-24 Standards, this product must be used in conjunction with working carbon monoxide detectors installed in the boat's living quarters.

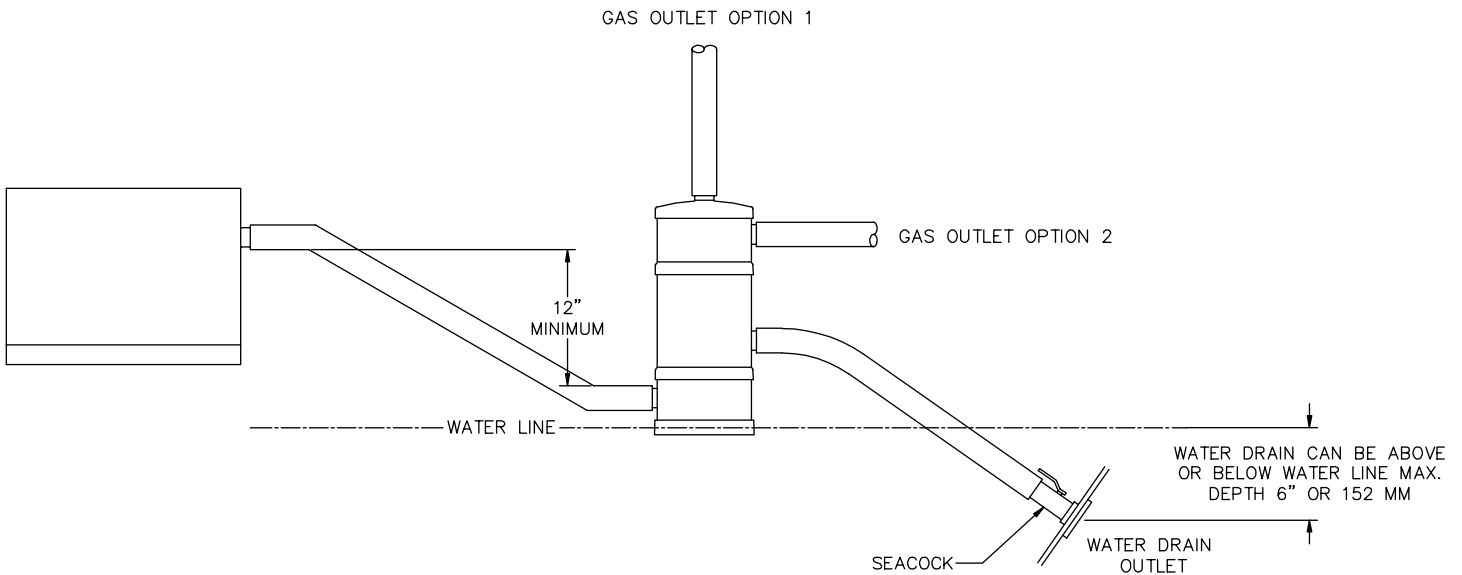
# COMBO-SEP™ GASOLINE ENGINE VERSION

## Installation Guidelines

COMBINATION WATERLIFT / EXHAUST GAS-WATER SEPARATOR

NOTE:

1. DEWATERED EXHAUST GAS PIPE OR HOSE MUST BE INSTALLED SUCH THAT WATER TRAPS DO NOT OCCUR.



Please call our support line if we may assist you in any way. (229) 228-7653



Unless otherwise specified, Centek warrants its products for a period of five years from the date of original sale. This limited warranty is in lieu of all other expressed or implied warranties such as warranty of merchantability or fitness for a particular use or the results or effects of such use. ***Centek's liability is limited to the replacement or repair of the Products, and such liability will not exceed the original purchase price.*** A full copy of all the terms and conditions of Centek's warranty is available online at [www.centekmarine.com/warranty](http://www.centekmarine.com/warranty) or will be furnished upon request.