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E-SERIES SILENT POWER MUFFLERS

Model # ESMST4

Installation Instructions

IMPORTANT: Review applicable marine engine service manual section for your engine model for muffler installation. Follow all advisements. Also follow advisemantes pertaining to safety and other cautions while performing this installation. This installation should be considered an engine related service procedure. It is also necessary to contact the boat manufacturer for advisements and instructions for muffler installation. This installation should be performed by a trained, experienced and competent marine engine technician or a trained, experienced and competent marine-rigging technician.

Warning: Failure to follow special instructions concerning "SAFTEY ALERTS" and "HAZARD ALERTS" found in the applicable marine engine service manual could result in severe personal injury, death and damage to property.

Read these instructions entirely before starting the installation of the Muffler.

Caution: Consideration should be given so that the mufflers are compatible with existing equipment already in place on the boat. Items such as but not limited to steering cylinders, railings, ladders, platforms, wiring and lines should be checked for interference or other problems.

Each muffler is accompanied by two band clamps and three T-head ¼-20 x 3" cap screws with nuts and washers. CAUTION: This muffler is intended to mount flush on the flat surface of the boat transom. This muffler weighs approximately 12 pounds.

The boat flat surface that will be used to mount this muffler to should be checked to insure that it will continually support the weight of the muffler during all running conditions. The muffler and the exhaust tubes leading up to it should be checked for proper condition prior to each time the vessel is used.

Muffler shown with correct installation accessories.

Caution: This marine muffler is designed to be cooled by the sea water that is used to cool the engine. All the cooling sea water expelled from the engine must enter the exhaust stream before each muffler. This muffler needs a minimum sea water flow into the exhaust stream of 21 gallons per minute at engine maximum operating RPM. Failure to provide adequate sea water cooling flow will result in damage to the muffler. Use of the sealer compound in the through holes will be necessary when the material used in the substrate of the muffler mounting surface will be damaged or degraded by moisture. Contact boat manufacturer for information concerning the substrate material. Sealer will also be required on the wall of the through hole that is cut for the exhaust tube of the muffler.

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INSTALLATION INSTRUCTIONS:

1. The ¼ inch diameter x 3 inch long fasteners that secure the muffler to the surface of the boat are placed in the muffler on a 5 & ½ inch circle and occur every 120 degrees. Mark a 5 & ½ inch circle on the boat surface where the mufflers are going to be mounted. With a center punch, or other similar device, place three indents along the 5 & ½ inch circle to index with the mounting fasteners occurrence on the muffler. The indents should index with the mounting fasteners on the muffler so that the North Star Logo on the end of the muffler will be in the normal upright position.

2. With a new sharp ¼ inch diameter drill bit place a hole at each of the three indents. The holes should be placed so that they go into and through the mounting surface at an exact 90-degree perpendicular angle to the mounting surface.

3. In some cases it may be necessary to place a rubber type gasket between the muffler and the boat-mounting surface. Use the muffler as a pattern to make the gasket. It is also possible to bed the muffler in a type of bedding compound. It is also advisable that a sealer type compound (such as silicone) be placed into the three attaching holes just prior to installing the muffler.

4. This instruction is for cutting the hole for the muffler exhaust conduit tube. Using the previously marked circle and a straight edge, find the exact center of the boat muffler-mounting surface. Using the center punch, or other similar device, place an indent at the established exact center of the boat muffler-mounting surface. Using a conventional type 4 inch outside diameter hole saw, place the hole saw pilot into the indent and cut a 4 inch outside diameter hole through the boat's muffler mounting surface at a 90 degree perpendicular angle.

Photo at right is muffler in normal upright position. Suggested position is for aesthetics. Muffler will function correctly when attached to the boat in any position around the 360 degree mounting fastener placement circle

5: Place the bedding compound and/or gasket (if required) onto the boat muffler-mounting surface. Place sealer into through holes and on the wall of the 4 inch diameter through hole.

6: Install the muffler so that the North Star Logo on the end of the muffler will be in the normal upright position. Place the supplied washers and nuts onto the three T-head attaching screws and tighten to an amount that will hold the muffler in place. The amount of torque that is applied to the fasteners will be governed by the boat muffler mounting surface and the substrate components. The amount of torque must be enough to adequately retain the muffler in place but not to the point where boat material crushing occurs. Install the exhaust conduit hose onto the muffler exhaust conduit tube. Install the two supplied exhaust conduit hose clamps over the hose. Clamps must occur so that they are clamping on the muffler exhaust conduit tube. Tighten the clamps to 18 foot pounds of torque. Alternate between the two clamps, at a rate of 3 foot pounds, gradually bringing the clamping nut up to the required torque amount. Recheck for correct torque amount after boat has been run for one hour. Recheck torque thereafter every 10 hours of boat operation.

Warning: Failure to correctly install and monitor the torque applied to the clamping nut of the two clamps that attach the muffler could result in the damage and loss of equipment. There will also be the possibility of consequential damage and injury or death.