REFIT INSTALLATION REPORT

CONTENDER 31 – SEAKEEPER 2 INSTALLATION

INTRODUCTION

This document provides an overview of a Seakeeper 2 installation on a Contender 31. The unit was mounted in the bilge directly under the console. This document is not meant to be a work instruction but is a resource to understand the scope of work and process flow for this installation. Please reference the Seakeeper 2 Technical Library page for the current model specific Installation Manual, Drawings, and Schematics.

OVERVIEW

The installation of this Seakeeper 2 used custom aluminum mounts to fix the Seakeeper to the longitudinal stringer grid and hull deadrise. The mounts were bonded to the existing hull structure, and the Seakeeper was fixed to the mounts with via the bolt-in method. A Victron Energy 60-amp battery charger and one 200Ah Victron Energy AGM battery was installed to provide power to the DC Seakeeper 2.

INSTALLATION SPECIFIC MATERIALS AND TOOLS

1. Custom Aluminum Mounts
2. Orbital Sander or angle grinder with wire wheel
3. Adhesive (Plexus MA590), Mixer/Stirrer, and Applicator
4. Seakeeper 2 Unit, Hardware, Lifting Bar or Cables
5. Overhead Hoist
6. Anti-Seize Compound and Calibrated Torque Wrench
7. Simrad (Navico) Ethernet Cable (P/N 20346)
8. NMEA 2000 Backbone and cables
9. Seakeeper Seaflo Pump Assembly (P/N 30331) and 3/4” marine water hose
10. 60 Amp Victron Battery Charger
11. Battery – Victron Energy AGM 200Ah
12. Battery Cable and Circuit Materials

SEAKEEPER 2 INSTALLATION PROCESS

1) Project Planning
   a) A survey of the vessel was completed by the installer to determine the best strategy of mounting the Seakeeper 2. The unit produces large loads when in operation, and proper structure must be present to ensure product performance and safe operation.
   b) The survey included observations of the build structure above and below deck. Careful attention was given to the measurement process to ensure required clearances would be met.
   c) Following a thorough deck survey, the installation team concluded the vessel did not need structural modification, however, the deck liner would need to be cut to create access for the Seakeeper.

d) The longitudinal stringer span and deadrise of the vessel made this boat an excellent candidate for stringer/hull mounted aluminum brackets. The installer chose to design custom brackets in-house to ensure proper fit and an ideal finish.

2) Vessel Preparation (6 - 8 man-hours, not including bracket manufacturing)
   a) To create bilge access and clearance for the Seakeeper, the deck liner beneath the console had to be cut. Longitudinal cuts were made from the back of the battery compartment aft to the forward fuel tank bulkhead. Vertical cuts were made from the top deck down to the bilge.
   b) Two aluminum mounts were designed to match the angle formed by the longitudinal stringers and the vessel's deadrise. The mounts were manufactured out of aluminum flat bar and welded with a center gusset for increased strength.
   c) Surface preparation was carried out according to Plexus recommendations. This included sanding the fiberglass bonding surface and sanding the aluminum plate adhesion surface with 80 grit sandpaper.

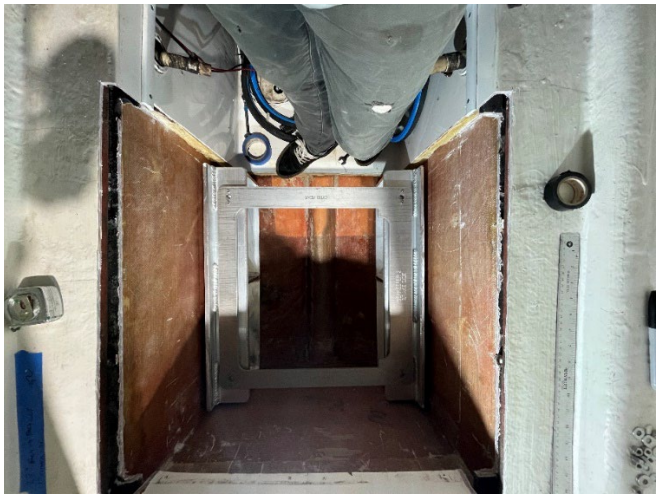

Figure 1: Hull Access and Mount Dry Fit

3) Mounting Bracket Installation (2 - 4 man-hours)
   a) Plexus MA590 was selected as the structural adhesive due to its high shear strength and long working time. The surfaces of the deck and the adhesion side of the aluminum deck plate were cleaned once more with a solvent solution and given ample time to dry.
   b) Measurements were validated using fixed points such as the forward and aft bulkheads. The plates were dry fit to ensure there were no issues with either mounting surface.
   c) Plexus 590 was applied liberally and evenly to both mounting surfaces and the brackets were pressed in place. The brackets were left undisturbed for a minimum of 250 minutes as recommended by Plexus.

d) A Seakeeper 2 Installation Fixture Kit (P/N 90473) was used to locate and drill mounting holes. Helicoils were then inserted into the mounts for future bolt installation.

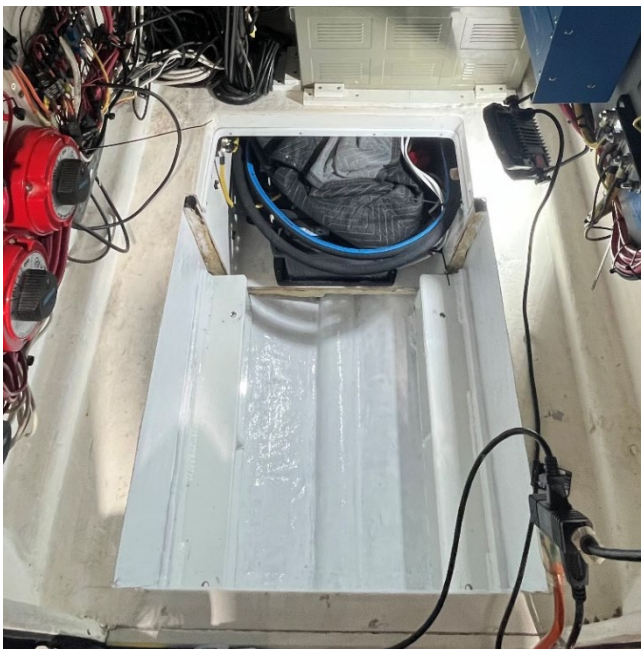

Figure 2: Final Installation of Seakeeper Mounts

4) Preliminary Cooling Installation (2-3 man-hours)
   a) The Sea Water connection was plumbed from a dedicated high-speed water pickup with a Seakeeper Seaflo Pump Assembly (P/N 30331) and Seaflo raw water intake strainer. ¾" hard wall marine rated water hose was used for all water connections. It is recommended that seawater pumps be installed below the waterline with a vented loop installed above the waterline.
   b) Seawater discharge hose was plumbed from the Seakeeper install location to an existing overboard discharge.
   c) Reference materials for seawater plumbing are found in the Seakeeper 2 Cooling Water Schematic (90490).

5) Preliminary Electrical Installation (3-4 man-hours)
   a) High current leads were run using 2 AWG tinned copper wire and were overcurrent protected with a 100-amp fuse. Low current and Seawater pump leads were run with 16 AWG tinned copper wire and were overcurrent protected with 15-amp fuses.
   b) The boat's house batteries were connected to the Seakeeper battery with an Automatic Charge Relay (ACR), and a Victron 60 Amp battery charger was added to charge the house and Seakeeper batteries.

c) The fuses, ACR, battery switch, buss bars, charger, and the Seakeeper 5" display were mounted to a piece of Starboard, which was attached to the console wall using adhesive studs.
d) The Seakeeper 5" display was connected to the vessels existing Simrad MFD. The correct adapter cable must be used as specified by the manufacturer of the MFD.
e) Reference materials for electrical and display configurations are found in the Seakeeper 2 Gyro Cable Block Diagram (90470).

Figure 3: Seakeeper Electrical Panel with Charger

6) Seakeeper 2 Mechanical Installation (2-3 man-hours)
   a) The gyro was unpacked from the shipping crate according to the Seakeeper 2 Unpacking Instructions (90493).
   b) A Seakeeper Small Gyro Lifting Bar was used to lift the gyro. Any lifting bar or long lift slings with an adequate load capacity may be used in place of the Seakeeper lifting bar.
   c) The Seakeeper was carefully lifted from the shipping cradle and held just above the Seakeeper installation plate. Using the lift to support the gyro, the Seakeeper 2 bolt-in kit assemblies (P/N 90474) were treated with anti-seize and threaded into the installation plate helicoils by hand. See the Seakeeper 2 Bolt-in Installation Details (90487) for bolt material and thread engagement requirements.
   d) The gyro was then lowered on to the installation plate and, mounting bolts were torqued with a calibrated torque wrench to 135 FT-LBS.

9) Seakeeper 2 Plumbing and Wiring Final Installation (1-2 man-hours)
   a) Seawater feed and discharge hoses were routed through the access port in the side of the Seakeeper 2 side cover. The hoses were secured to ¾" barbs on the inlet (bottom) and outlet (top) of the heat exchanger.

b) High current, low current, and seawater cables were terminated to their respective fuses.
c) Connections for the Seawater pump and low current power were connected at the Seakeeper with 2-pin Deutsch connectors.
d) A final check of all electrical connections was performed to confirm adherence to the Seakeeper 2 Gyro Cable Block Diagram (90470)

Figure 4: Seakeeper Installation and Final Wiring

10) Seakeeper Commissioning (1-2 man-hours, not including spool up)
    a) The Seakeeper 2 was commissioned by completing the Seakeeper Commissioning Form prior to returning the boat to the owner. The completed Commissioning Form was included with the Warranty Registration on the Partner Center.
    b) During the course of commissioning, all Seakeeper subsystems were tested and the unit was spooled up to full RPM.
    c) Following a successful commissioning, a Starboard cover was placed over the Seakeeper and the boat was cleaned for delivery.

This installation followed the instructions outlined in the Seakeeper 2 Installation Manual (90488) on the Technical Library. This guide specifically applies to the installation of a Seakeeper 2 on a Contender 31 Center Console and is not meant to cover the installation process on other boats. All boats should be inspected prior to installation to ensure that variability in build, boat-specific options, or otherwise will not interfere with a potential Seakeeper installation. All installations should be conducted by a Seakeeper Certified Dealer. Additional installation photos can be found at the following DropBox link: Contender 31 Seakeeper 2 Installation, October 2022.