

Replacing the Instruments on *Sea Dragon*

REPLACING THE INSTRUMENTS ON SEA DRAGON

When we purchased Sea Dragon it was equipped with the instruments that were originally installed at the time of commissioning on the 24th of June, 1981. The list included:

1. Datamarine
 - a) Wind,
 - b) Speed,
 - c) Depth
2. Raytheon RAYNAV-570 Loran-C Navigator,
3. Furuno 1800 24 NM Radar with a 9 inch Raster Scan CRT,
4. ICOM IC-M100 Marine VHF Radio,

While each of the items above represented top-of-the-line, state-of-the-art technology in 1981, many advancements have taken place in the last 25 years and the time has come to update all of the electronics on board Sea Dragon.

The plan is as follows:

1. Replace the Datamarine instruments with Raymarine ST60 Wind, Depth, and Speed. (same location),
2. Add a Raymarine ST60 Graphic Display and Repeater at the NAVStation,
3. Add a Raymarine 6001 Autopilot at the helm ([Completed Last season](#)),
4. Replace the Raytheon RAYNAV Loran C with a Raymarine C80 Multifunction Display with a Raymarine at the the Helm
5. Add a Raymarine 125 GPS antenna
6. Replace the Furuno 24", 1800 Radome antenna and 9" CRT with a Raymarine 24 NM (18") Radome Antenna connected with the Raymarine C80 multi function display at the helm (sometime in the future).
7. Replace the ICOM IC-M100 with an ICOM IC-M502 with a remote mic at or near the helm.
8. Link all the above together via SEATALK network



The original instruments were mounted on the port bulk head so that they can be seen from anywhere in the cockpit.

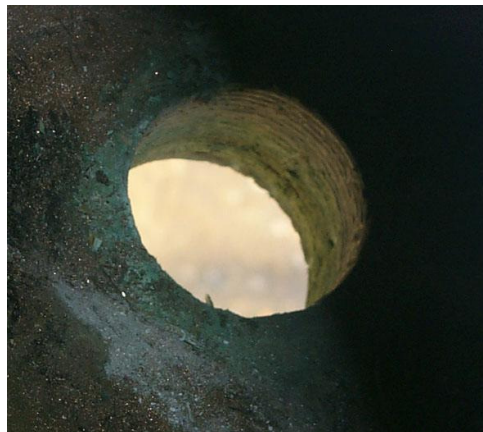
Not a bad location.

I removed the instruments on New Years Day 2006 and it was cold. As I removed the instruments they took with them part of the gelcoat, BUMMER!

This is not as big of deal as you might first think. Since the Datamarine instruments required a 4" cut out and the Raymarine require a 3.5" cut out, I will need to do something to cover the openings.



I had three (3) white plates made from a UV stable material - Starboard The backing plates will provide a strong, clean, water tight, installation of the instruments

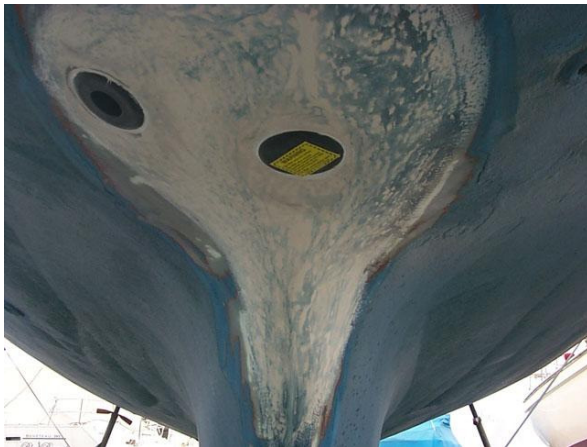


Pearson hulls are solid glass NOT cored. As you can see the hull on *Sea Dragon* is rather thick.

Sea Dragon's hull thickness at the Speed Transducer. On the centerline, the location of the depth transducer, the hull is about 3.5 inches thick.



Note: the Raytheon Transducer is only 3.5 inches long. Therefore I had to counter sink the cut out on both the inside & outside so that the plastic nut could be installed.



The original installation was very well done with the depth transducer faired into Sea Dragon. This required cutting the transducer out. Since I was facing the expense of having the hull repaired, I decided to have the new transducer faired into the hull on the center line just forward of the keel.

This time I will start at the end first..... The new Pedestal Guard and charter plotter with the old Autopilot head.

The Raymarine C-80 Chartplotter installed on a new [Navpod AG10](#) 1" off-set Pedestal Guard. It is installed in [NAVPOD CP10RC](#) pre-cut unit.

This project, like every other project was far more involved than I expected. The Raymarine Seatalk information is less than I would have expected for anything other than the basic configuration (more on this latter).

The NAVPOD unit came pre-drilled & pre-cut but the Pedestal Guard was not. But this was not that big of deal just more time than I had planned.



Drilling Holes in the Pedestal Guard

To install the NAVPOD on the guard and then installing the guard on the existing pedestal requires drilling four (4) holes for mounting the NAVPOD, plus one (1) large hole for wires, two (2) off-set holes at the base to attached the Guard to the existing feet.

The four (4) holes for mounting the NAVPOD must all be tapped to accept the screw provided.

Thankfully I had my trusty drill press.

The nice thing about Ocean Equipment (NAVPOD manufacturer) is their out-box-experience. What I mean is that each unit ships with everything you need for installation, including drill bit and tap as well as screws and allen wrenches.

Very well done.



Tapping each hole for mounting.



I ended up drilling a 1/2 hole for the wiring. I started with a small pilot hole and continued to increase bit size until I had the hole I wanted.

The guard is stainless steel so I had to be careful not to let the metal get too hot in the process.

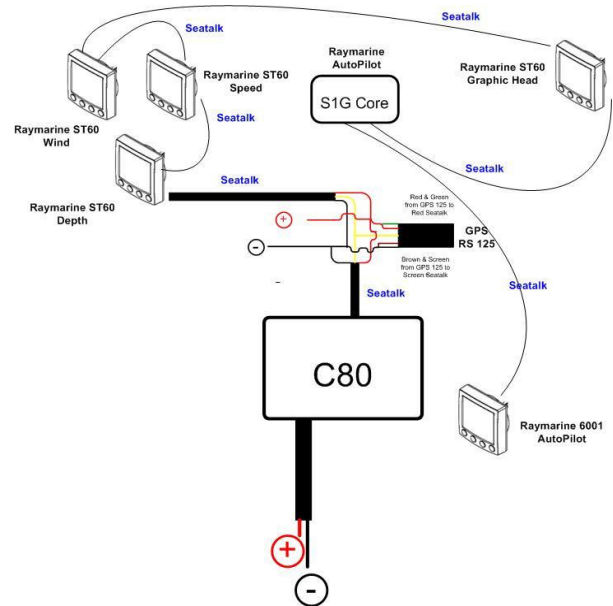
I used a small ball shaped grinding stone chucked in a drill to smooth the inside of the hole so as not to chaff the wiring.

The final step was to move the Autopilot NAVPOD unit I used on the old guard to the new guard. I had had problems last season with the unit rotating on the guard when people walked in to it. So I drilled hole in the guard so that the set screw passed through the mounting and the guard... There will be no movement this season.



Next my challenge was to get the Depth, Wind, Speed, Chartplotter, Graphic head (Navstation), Autopilot, and GPS receiver talking nicely together.

Raymarine suggests that the GPS 125 have it's own power supply. They also suggest an additional power supply for longer runs. So I ended my Seataalk network at the GPS unit and at the Autopilot core pack. See the final [wiring diagram](#) for the Seataalk network on Sea Dragon.



About 2 years ago, I purchased a new ICOM 502 and Remote mic. I final got around to installing the radio.

Next I had to find a place to install the Ram Mic so that it was near the helm yet far enough from the helm to not effect the compass.

After considering several locations, I decided that the best location was on the aft wall of the Starboard coaming box.

The final installation was pretty simple. I found a scrap piece of teak and my son and I cut it match the aft wall. Drilled a hole for the cable and mic clip then a few coats of Cetol and I ready to install.

From the inside of the aft locker I drilled four holes in through the box into the teak. Then added liberal amounts of sealant to the teak plate and screwed into place via the aft locker. With the teak board in place I was able to drill a hole for the cable, feed it to the navstation, and seal the cable opening.

Now all I need to do is register the DSC and figure out how to connect it to the NEMA output from the GPS.

Stay Tuned

