

Fitting an inboard Autopilot Drive to a Beneteau Oceanis 31.

I took delivery of a Beneteau Oceanis 31 this year and high on my wish list was an inboard autopilot as opposed to the wheel drive. I had had two wheel steered boats before and had never been happy with the performance of the wheel type drive, and I didn't like the feel of the wheel with them fitted. I believe the more recent wheel pilots are a great improvement due having a Gyro in their control pack but my mind was made up.

I won't go into the installation of the electronics as this was straight forward and relatively simple because all my instruments and chart plotter were from Raymarine.

I started on my quest to install a Raymarine SPX10 core pack with a suitable drive for the boat. Having visited the boat show this looked fairly simple; just buy a complete pack including a linear drive and the jobs a good one.

If only life were that simple; it looked easy as the Oceanis 31 is fitted with a tiller arm pre fitted with a tiller pin to attach the drive to. However on measuring, not only was the arm longer than I expected but the tiller pin was 15mm in diameter. The Raymarine linear drive rod end bearing is 12mm in common with most hydraulic Rams. The length of the tiller arm also meant I would need a 12" stroke on the drive.

I checked with the Beneteau agent and it turned out that Beneteau fit a hydraulic ram that is a type 2 drive which would mean buying a type 2 core pack. This was not on, both on the grounds of cost and overkill on a small yacht.

I looked at getting a rod end made, as you cannot easily buy a 15mm rod end, but it was all getting a bit complicated and would have meant buying the drive and then looking at modifying the rod end, I wasn't prepared to do this in case I ended up with a "pig's ear" of an installation.

I happened to come across an Octopus RS drive from a Canadian company that looked like it might fit the bill. I made contact with the European office and explained what I was looking for and Tim Bell in Spain sent photographs of the drive attachment and we concluded the standard fitting would not meet my needs. Tim at this point brought in Dave Shannon from Octopus Products in Canada who designed a custom fitting for the Beneteau tiller pin. From start of design to having it in my hand was only 3 weeks. It fitted perfectly. The picture below shows the fitting attached to the tiller pin.



The RS drive is unique in so much that it uses a cable drive system similar to that used on outboard motors, essentially the motor unit pushes / pulls the rudder using a Bowden cable. The picture below shows the system



The sailboat drive connector is attached to a strong point and it is this that accepts the thrust, no thrust is transferred to the motor unit. I mounted this to a bracket made from a substantial piece of angle iron. This was attached to the reinforced bulkhead Beneteau fitted to mount their standard hydraulic drive. See photo below



The drive unit was then fitted to the shelf on the starboard side see photo below showing final installation, the motor is angled to allow a clean bend in the cable.



One of the unique selling points of the RS drive is that it has an integrated rudder feedback unit which saves time when fitting the system, you can see this in the picture above it's the grey box mounted into the drive unit at the rear.

I first used the boat without a Rudder Reference unit, as I was impatient to try the drive, and I can report that once fitted the autopilot was noticeably better at keeping a course, in particular down wind. It also knows where the rudder is so if you had the wheel turned to port and called for a course to Starboard the pilot knows to drive it past the centre and to Starboard so it doesn't drive a little and wait to see what's happening as it does without the feedback unit.

I have used the boat several times now in winds up to 24kn apparent and can report that the drive unit / SPX10 combination is working perfectly. I sail mostly in wind vane mode and the boat holds its course with no difficulty at all up or down wind. The drag on the steering is minimal and it's possible to twirl the wheel and on letting it go it continues travelling so low is the drag.

I had a good look at the drive motor assembly while mounting the unit and I can safely say it is built like the proverbial brick outhouse. Having fitted the drive before the core pack arrived I tested it using a 12v drill battery and it worked fine. A useful tip if you fit one is to use the battery to help feed the drive cable into the drive unit.

Observing power consumption I can see around 1 amp is drawn as the drive operates which is better than I expected. A feature I had not expected was that the clutch does not immediately disengage when setting the autopilot to standby; to release it requires a little wiggle of the steering wheel. This is a safety feature to prevent the boat suddenly veering of course should the autopilot be disengaged accidentally. I can also see it as being a good idea if someone operates the autopilot by sticking their hand through the spokes of the wheel. On hearing of this feature I was dubious and thought it would irritate me but actually in practice it works really well and I got used to it in no time.

The drive is supremely quiet, this is partially due to the flexibility the RS system offers regarding its fitting, it has a 6ft drive cable as standard so the motor unit can be 6ft from the tiller arm, in my case I fitted it on the shelf in the locker. This means no drive noise is transferred to the aft cabin. Octopus can supply drive cables in various lengths meaning it's really easy to find a suitable position to mount the drive motor, it will be particularly useful when space is at a premium. Beneteau's standard offering consists of a hydraulic Ram and separate hydraulic pump mounted on the cabin bulkhead and looking at the photos from Beneteau this solution takes up much more room. Plus you then have to fit a rudder feedback unit.

I am also seriously impressed with the service and quick response from both Tim and Dave, it is a pleasure doing business with true engineers who really understand their product and are prepared to produce engineering modifications to satisfy their customer's needs at short notice. All in all I am really pleased with the system and the acid test is yes I would fit it again.

29/04/10
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