Installing a Beta in an Albin Vega

I had ordered new bearer plates from Steve – although I could have got these locally they were cheap enough and one less problem to worry about. I painted them with some strange sort of rust-beating paint – Hammerite would probably be most people's choice – and set about bolting them onto the existing engine bearers.Not being confident in my precision measuring, I made two plywood templates first. Once I was happy with these I took them and the steel plates to a friend who has a pillar drill and he drilled the holes. I then bolted the plates down to the original bearers.

The engine was lifted into the boat using the yard crane, although it could probably be done with the mainsheet and boom if you were careful. I have even heard of the engine being carried up a ladder, although I didn't fancy it. We lowered the engine through the companionway and sat it on two pieces of wood on the saloon sole, then rigged up the mainsheet tackle from a pole over the hatchway. Using this it was easy to lift the engine then slide it forward onto the bearers.

The Alignment Story

Now the bit I had been dreading – lining the engine up. The flexible coupling was attached to the gearbox and the propshaft inserted in the stern tube and centred using the alignment cones lent to us by Steve. The flexible coupling makes alignment the traditional way using feeler gauges between the two flanges problematical, so I sought advice from others who had passed this way before. The entrance to the flexible coupling has a slight bevel to it. If the shaft hits this bevel when you slide it into the coupling there will be a double click as it slides home. Adjust the engine from side to side on the bearers and up and down using the adjustable feet

until the shaft clicks home with a single click and you can't see any movement of the coupling as you slide it home.

Once I was happy with the alignment I marked the position of the holes for bolting the engine down prior to removing the bearers and taking them back to my friend to have the new holes drilled and tapped. At this stage though I lost my nerve and decided to have a 'professional' align the engine for me. This turned out to be a big mistake. When I went back down to the yard the engine was bolted firmly in place and out of alignment by nearly half the diameter of the shaft – the forward alignment cone had apparently not been used, so what the engine had been aligned with was a mystery! I slackened all the bolts and worked for an hour or so until I had got the engine lined up again. It was not made any easier by the fact that the guy who had done it had used 10mm bolts in 10mm holes, not leaving any room for adjustment – Steve recommends using 10mm holes and 8mm bolts for this reason.

When I mentioned this to the engineer he seemed annoyed that I had redone his work, and said that final alignment cannot be done until the boat is in the water. I found this unlikely with a small stiff boat like the Vega, but he is the professional so I invited him to come and check the alignment when the boat was in the water. Jumping ahead to that time now, he turned up at the pontoon some months later when the boat was launched, slackened all the bolts and writhed around for an hour or so. When he said it was done I fired up the engine and put it in gear. Water began to leak round the stern seal, and when I removed it (safe to do in the water with the Vega solid stern bearing – only a trickle gets up the shaft, of which more later) the shaft was almost touching one side of the stern tube. I was pretty annoyed by now. I rushed home to get the forward alignment cone and then supervised as the alignment was once again fixed, checking the final alignment myself. This guy cost me nearly £300 and didn't have a clue – if I hadn't checked his work I would have had half an inch or more of misalignment. The moral of this story is trust yourself, it isn't rocket science and you can do it. Our engine has now run like a

sewing machine for nearly 300 hours after finally being aligned by me using the 'one click' technique described above.

(Of course, if you are not using a flexible coupling then I would advise using the traditional method of a feeler gauge between the two flanges as you rotate the propshaft)

Fuel

I had taken out the fuel tank and removed all the old copper fuel pipes. The tank was steam cleaned inside and painted outside before being reinstalled with a new gasket on the inspection plate. I got the fuel-resistant nitrile rubber to make the gasket from Ebay. I used 8mm flexible fuel hose – make sure it is the right stuff with the BS mark, not the cheaper transparent stuff. How to attach the fuel hoses to the tank outlet was a problem, but I managed to get push-on 8mm gas fittings that attached to the old fittings on the inspection plate. There is some special blue gunge that can be used to seal diesel fittings.

Work out the hose runs first before cutting anything and remember to buy and fit a primary fuel filter/water separator (CAV or similar). This posed a problem in itself as the CAV filter doesn't come with any fittings to attach fuel hose to it. I had an incredible job finding suitable fittings, but eventually an agricultural engineer came up trumps. Save yourself a lot of time and go to a tractor place first for this sort of thing!

One thing I forgot to do was fit a fuel cut-off tap – essential if you want to be able to change the fuel filters without making a mess!

Exhaust

I bought 40mm flexible exhaust hose from the chandlers. This is not cheap. You will need two lengths, one from the manifold to the water trap and one from the water trap to the swan neck. The swan neck can just be a loop of hose which rises as high as possible above the waterline – this means buying a little more hose but saves on the purchase of another

expensive bit of plastic from Vetus. Make sure you calculate the amount you will need correctly and err on the generous side as it will be expensive if you get a few inches too little!.

The 40mm hose is quite a bit too big for the outlet manifold on the engine, which worried me until I looked at a couple of other installations. Use two jubilee clips and it will work just fine. I positioned the Vetus LP40 water lock beside the rudder tube and tie-wrapped it in place – it should be as low as possible. As already mentioned, I used a loop of hose immediately before the exhaust through-hull instead of a swan neck.

The other part of the exhaust system is the vented loop on the water injection pipe. This was a pain. I couldn't source the right ID hose locally, and eventually got a length from Beta. It wasn't expensive and arrived in a couple of days. The plastic bit from Vetus was nearly £50 for something that looks as though it comes out of a lucky bag, but if it prevents water flooding your engine then I guess it is worth it. (Although water has already got to have got past the swan neck and the water trap for this to come into play as far as I can see). The vented loop should be sited as high as possible; I managed to bolt it to the aft side of the port bulkhead, but running the two hoses to it was not an easy job as the hose was semi-rigid and couldn't be bent too much. I used a length of copper tube at one point to stop the rubber hose collapsing.

Wiring

The engine wiring itself is very straightforward - You need a thick earth to the engine. Just choose a nice bolt in a convenient place and attach it there. Make sure you sand the paint off for a good connection then cover with vaseline or similar afterwards. The thick live needs to be attached to the outside connection on the starter solenoid (above the starter).

The hassles all revolved around wiring the special control panel Steve had built for us. The temperature gauge needed a different sender, which proved difficult to identify but easy to source (from Beta) once we knew

which one it was. The tacho needed a connection to the alternator as it was not wired into the loom on our engine. I have no doubt that this would be a lot easier for someone with a bit more electrical nous, but for me it was a steep learning curve.

Morse Control

This was enormous fun. The instructions were diagrammatic and not easy to follow, and as installation involved crawling into the starboard cockpit locker (which already contains the fuel tank on Fairwinds) it would have been nice to get it right first time. Oh no – fourth attempt. First I connected the gear linkage to the throttle and vice versa. Next I routed them wrongly. Finally the length was wrong and I had to move them to the alternate position. (I know this is a bit vague, but look at it before you fit it and hopefully you will see what I mean and not make the same mistakes). What about the fourth time I hear you say – well, that came after launch. The lever went forwards for reverse and vice versa. I had suspected this but failed to read the gearbox manual carefully enough, so it was back into the locker. Perhaps I am just daft, but hopefully this little tale will save someone else some hassle and embarrassment.

Stern Gear

The prop shaft has to be cut to length. (Don't make it too short – measure three times, cut once). This took a while but was much easier than I thought with a reasonable hacksaw. It was then smoothed off with a slight bevel using a file and emery paper. We were fitting a Volvo dripless 'blackjack' sternseal, so it was important that the end of the shaft was very smooth.

We fitted a new stern bearing, using emery paper to enlarge it slightly until it would just slip down the shaft under its own weight. (The Vega uses a solid stern bearing made of some type of nylon). With hindsight I think that I could have made it a slightly slacker fit, as not much water

gets up the stern tube and the shaft seal runs a little hot. Fitting the Varifold prop was very easy – good instructions make all the difference.

Minor Problems

A mentioned above the Volvo stern seal runs a little hot and is hard to get water through when you 'burp' it, but it is still dripless and I stopped worrying after a fellow Vega owner who does a lot of motoring to reach his chosen cruising grounds quickly told me he hadn't got any water through his for the first year but has had no problems since. The answer is probably to ream out the stern bearing a little more. This is peculiar to Vegas with a solid stern bearing and of course does not apply to boats with a traditional cutlass bearing.

We had a problem once when the starter jammed on due to a sticky ignition switch on the control panel – regular applications of WD40 are required. A bit alarming as it took us a few seconds to realise what was happening – massive battery discharge, a strange noise and the solenoid stop switch failing to stop the engine.

Neither of these are really anything to do with the engine itself though, and both are easily solved.

The Result?

Perfect. A smooth running trouble free installation that has already done nearly 300 hours. We cruise at 2100 rpm at 5 knots in smooth water or 2200rpm at 5.2 knots, using less than a litre of diesel per hour. The engine has also been run flat out (3600 rpm) for over four hours in very big head seas as we battled our way to windward into Porto Santo in the tail end of a storm, with no complaints from it at all.

There is no doubt that it has changed the boat completely, and that our Atlantic cruise to Madeira and the Canaries would not have been possible without it. It means we never worry about the engine not starting, we don't worry about it overheating or malfunctioning and servicing is very simple, with everything accessible at the front - and look how clean and tidy it is after 270 hours and eight months!

Clean, shiny and accessible*(click to enlarge)*