



The Worshipful
Company of
Shipwrights

Case study – Sam Walker – Apprentice Marine Engineer (funded 2015-16)

Barnes Brinkcraft www.barnesbrinkcraft.co.uk

During the first half of the year at Barnes Brinkcraft I got to experience and partake in many different activities at Barnes Brinkcraft, these activities include:

- Basic PLC work and fault diagnosis on different electrical systems.
- Installing various systems on the newest hybrid boat
- Assisting with the assessment, removal and installing of gas systems on various boats
- Installing solar panels on various boats around the fleet

PLC work

Most of the boats on the fleet have PLCs on them called ismarts which are programmable logic controllers. These controllers are used to manage various functions on the boats such as alarms sounds when the boats start to sink or the engine over heats. So they can be used for managing functions on the boats and can be helpful in fault diagnosis. Since the last report I have had minimal experience with them when it comes to programming them, but I used them numerous times when it comes to fault diagnosis. I aim to get more experience with these especially when it comes to being able to program them.

Solar panel installation

Since the last time I installed these panels, we are currently testing a variety of different panels to see which are the best to install on the new boats we are building. We are moving away the big bulky Victron panels to some thinner and less weighty panels all while maintaining the same output as some of the other big arrangements we have on the fleet.

Second half of the year march – September

The second half of the has been very different so far, the style of work has changed so much. Due to the nature of the business things are very different through the summer months. The jobs from these past six months are;

- Servicing fleet hire and day boats
- Private work – Delphia nano extractor fan wiring install
- Private work Delphia 1050 solar panel/shunt install/40hrs service
- Saved a sinking rhapsody
- Fixing broken down boats on the broads

Sam Walker – Barnes Brinkcraft

Servicing fleet boats

During a turnaround day at Barnes Brinkcraft there are various checks that have to be done from the engineering side of the boat. This includes an engine service which includes;

- Checking the oil level
- Checking the coolant level
- Check the belt has suffered no damage
- Check the weed filter is not blocked
- Check gear oil/hydraulic level

If any of the boats aren't up to the standards set by Barnes then it is part of my job to correct them. By topping up the oil for example. The rest of the boat checks are:

- Service generator (if the boat has one)
- Check all lights
- Check all televisions can pick up a signal and work
- Check fridges are cold and work
- Check toilets flush correctly
- Check anchor winch works
- Check the Stern gland isn't leaking
- Check all batteries and their respective levels if they are wet lead acid batteries.

Once all these have been checked a boat is ready to be cleaned by the cleaners ready for when the customers take the boat out later that day. Over the last six months I have gotten better with knowing the boats and what to look for on them and how to service to a higher standard.

Delphi nano extractor fan installation

The job for this was to install an extractor fan system that came on when the ignition was off but went off again when the ignition went off. So to do this, I ran three wires from the outboard engine to a junction box with a relay on the inside. The colours are as follows;

- Red - positive
- Black - negative
- White - positive pull in wire

The red positive is connected to a permanent feed from the batteries through a fuse. The black negative is connected to the engine and the engine was put down too negative. The white wire is connected to a purple ignition for the pull in wire, which is the feed to the ignition, connecting these wires together will cause the relay to pull in when the ignition is turned on and turn back off when switched. Once all this was in place I ran the second part of the wiring which was the supply to the fans. All of the wires have been nicely bunched

together in spilt conduit and tie wrapped to the existing wires. After I had the cables in place I drill and amount the water tight gland and the fans to the boat and connected them up.

Summary of Barnes Brinkcraft

My time so far at Barnes has been interesting experience and overall a positive which has broadened my skills and knowledge by allowing me to do many different types of work and complete with good guidance while tackling each job. Since I started at Barnes I have done AC and DC electrics, plumbing, gas work, engine work and metal work. I find electrical installation the most satisfying and enjoyable type of work I do at Barnes having an electrical bias background which is all tied in to the apprenticeship at Barnes. They have me doing the technical certificate along PEO (performing engineering operations). Which will lead to the advanced apprenticeship where will just do level 3 NVQ in electrical installation as I already have the level 3 BTEC. My least favourite type of work has to be engine work as I find it the least rewarding due my lack of knowledge of engines and find it challenging. So as of right now, my future plan is to continue along my current route and aim to complete the intermediate part of my apprenticeship by May/June time next year and move straight on the level 3 electrical installation and have that completed by the following year which will make me 22 yrs old.