



Theo Aers, Apprentice Marine Engineer

Servowatch Systems Ltd, Essex

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<http://www.servowatch.com/>

I am Theo Aers, and I am 17 years old, and I was fortunate enough to receive the opportunity of an apprenticeship at Servowatch.

Servowatch is a marine automation and integrated systems solutions provider that is part of the Rolls Royce Group. Throughout my first year at Servowatch I have been part of many of the projects to get an understanding of how the company operates and what work is involved to produce, and supply some of the leading ship automation systems.

I have really enjoyed learning about the capabilities of these control systems and look forward to being involved in the constantly improving technology in the Marine Engineering world. From the beginning I was very interested in learning about how these systems work and the extent of their capabilities. At first, I found the software element challenging and it was not easy to understand how it operated. However, now I have a greater understanding I have learned to enjoy it and involve myself in this part of my work when I have the chance.



Main Control Room



RFA Tidesurge

In January, I took part in sea trials aboard RFA Tidesurge, a Tide-class replenishment tanker of the British Royal Fleet Auxiliary. We first joined the ship in Plymouth and spent a day in harbour where I spent a lot of time in the Main control room as we were trying to optimise the control of the propulsion system. We set off the next day to see how the ship performed at sea and tried to get a further

understanding of what optimisations were possible. I really enjoyed the experience and learned a lot and it has massively helped me understand more about the Servowatch systems and their purpose.

Although I have not had the chance to visit another vessel since the sea trials on RFA Tideway, I am sure more opportunities will arise in the future.



A display for the Land based system

One of the main projects I have been involved in is a land-based simulator which is being built for the MARS Fleet of tankers for the crew to practice and learn about how to operate and control the Servowatch systems before doing it in a real-life scenario. My job for this project was to create the displays for the control panels as shown in this picture.

Another project I have been involved in is a new system being fitted to the RFA ships where I have created the HMI – Human Machine Interface - pages using a software called Factory Talk View Studio. I have found this a particularly interesting job as it has assisted me in understanding what needs to be monitored on these types of vessels and why is it so important.

Alongside my work at Servowatch I also attend Colchester Institute on Mondays and Thursdays to improve my fundamental engineering skills as part of my Level 3 Engineering Technician qualification. I was learning the skills to operate lathes and milling machines as well as wiring and testing electrical equipment. Both of these different sectors cover a large range of basic engineering skills and will provide valuable steppingstones and knowledge for my career as a Marine Systems Engineer.



Horizontal Milling Machine



Turning down steel on a Lathe

In October I also attended a CAD course which I found very interesting and beneficial. After finishing the electrical unit at college, I took part in a welding course – particularly MIG welding. I really enjoyed the welding, and I would like to think I am now a reasonably competent welder!





La Mascarade

One of the practice welds I did

More recently I have started to really become involved in more projects as my knowledge and skills have improved. A smaller project that I was involved in was a super yacht called La Mascarade. As this was a relatively simple system it was a great opportunity for me to work closely with other engineers and gain an understanding of what hardware is required to make up an advanced super yacht's

system.

I also discovered a lot about what happens in the background in the software and how it is able to monitor the different components on the ship and generate data and information on displays around the ship. The software also sounds alarms if any mechanical or electrical issues occur.

One specific project that I have found particularly interesting this year is for military salvage vessels for a foreign country – a much larger project than those that I have been involved in previously. For the first couple of weeks my main role for this job was building the base of the system, putting together all the hardware and helping to wire up all the different components that make up the RTU - Remote Terminal Unit. I then joined in with the set up of all the processors and displays that will monitor the engines and other parts of the ships. Once the setup was complete, comprehensive tests were conducted on the system by simulating faults and seeing how the system reacted, to ensure that it works correctly to any defects on the ship. I really engaged with this project and believe I worked well as a member of the project's engineering team to get the system ready to go aboard on time.



At the time of writing this report I am currently doing a job on the refit of a tug built in 2004 where we are replacing the alarm monitoring systems.

In May I attended the Defence Leaders Combined Naval Conference at Farnborough, assisting on the Rolls Royce stand. The event covers three main topics; Future surface fleets, Underwater defence & security, and Submarine technology. I was also able to attend a number of the seminars including one on future fuel alternatives for marine engines. I found the whole event very interesting.



At college in my next year I shall be taking the following new modules; Engineering organisational efficiency and improvement,

Applications of mechanical systems, Features and applications of electrical machines, 3 Phase motors and drives, Mechanical principles of engineering systems, and Properties and applications of engineering materials.

In summary, my first year with Servowatch has been really interesting and challenging at points, but I have already learned a huge amount about my role and how the company operates. I have had no second thought about choosing this career pathway and I continue to be incredibly grateful for the Worshipful Company of Shipwrights for supporting me this year.