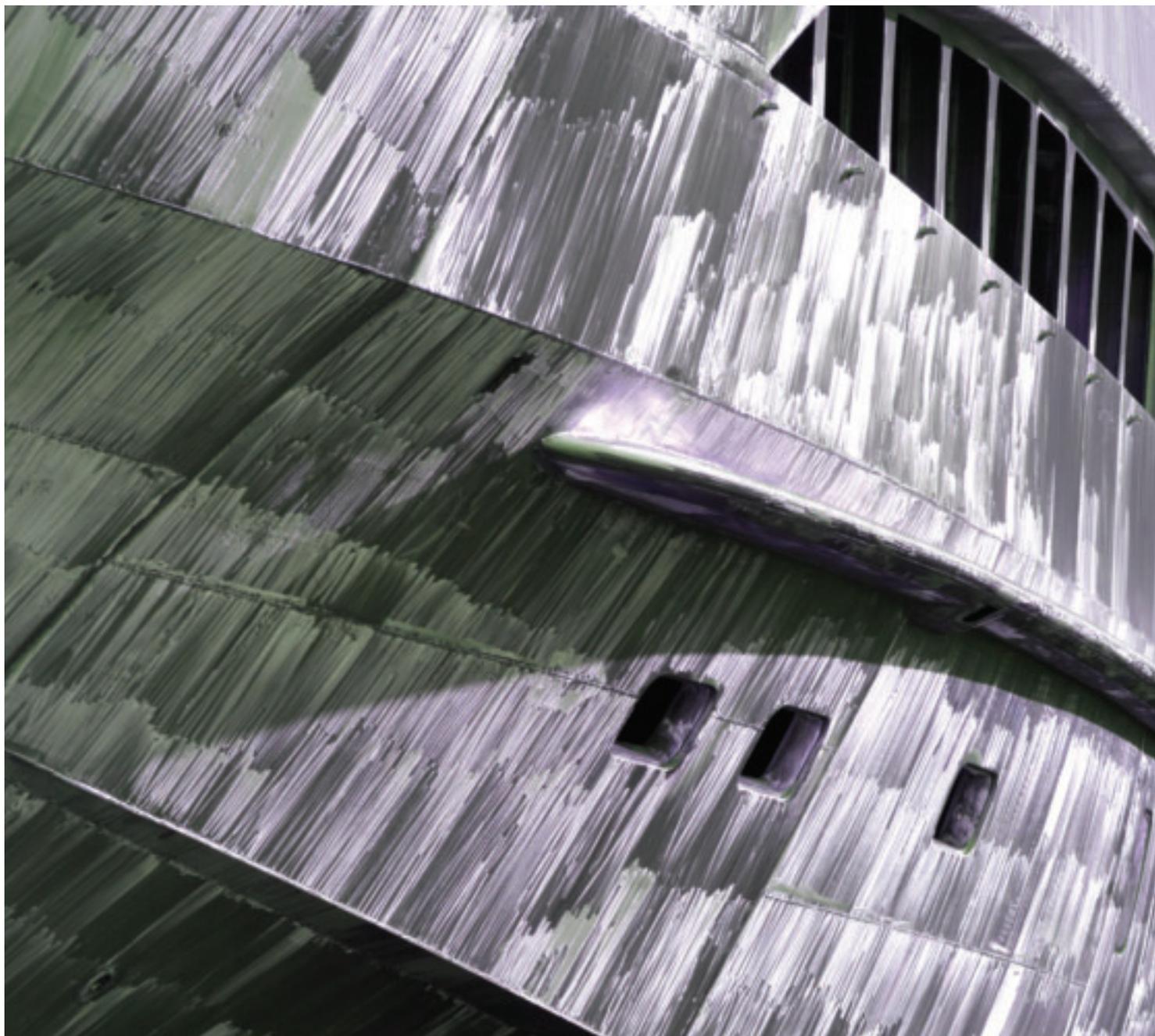


The Superyacht

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report

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Diary of a refit: *Audacia*

Between January and April of 2011, Feadship's *Audacia* underwent a nine-week refit at Pendennis, with work including a 2m extension of her swim deck. We asked her project managers to keep a refit diary of her time in the shed, chronologising the work done along the way. A photographer also recorded the progress of work in regular time-lapse shots along the way.



Audacia was scheduled to spend just nine weeks in dry dock at Pendennis, during which time we aimed to completely re-style the stern, and install a new set of zero-speed active stabilisers. Having allowed two weeks at the end to fair and paint the new works, and a further week for setting up and removing scaffolding and tenting, this left Pendennis with just six weeks to complete *Audacia*'s stern modernisation and install the improved stabiliser system.

In order to facilitate this short build schedule, we undertook extensive measuring and design

work in Gibraltar before her journey to the UK. Working through these details in conjunction with Joanne De Guardiola Design, the work outlined included the forward fashion plate removal and the modernised sweeping curves on the rear staircases to the aft swim deck. Instructions from the designer included an inset handrail and curl around the front corner; width and angle specifications for the stair treads; a thicker inside wall along with lowering of its height; the outside stairwell's softly rolled edge into the stairs, as well as the elevation view of the 'cut away' of the stair walls.



This level of detail ensured that all plans were finalised in advance, enabling construction of both the grand pair of elliptical staircases and new swim platform prior to *Audacia's* arrival – the new swim platform had been cleverly designed to allow us to tie straight into the ship's hull.

11/02/2011

Audacia arrived at 9am on 26 January in Falmouth, after taking part in the Antigua charter show and enjoying the festive break in the Caribbean. We organised to berth her in our undercover outer dock directly upon arrival. Once the tide had dropped sufficiently for her to slip into the new covered facility, we closed the gate and were flooding up by 12:30pm. Work commenced at a fantastic pace to strip away the existing redundant structure.

The first job was to cut, mark up and clean (by an advanced vacuum blasting system) all of the lines along which we would make the separation before beginning the task of cutting off the existing swim platform back to the original hull (the existing swim platform was itself an extension from the original hull completed in 1992). Whilst the fabricators were taking the stern back to its original lines, the engineers were dismantling the stabiliser system. This required all of the old components to be removed, including the fins, the bearing housings, the power pack and all control circuitry alongside a complete overhaul of the supporting structure.

The new Quantum zero-speed active stabiliser system was a requirement to reduce roll motion on the vessel whilst underway, and with bigger fins and a more powerful power pack, the system would also be effective whilst the boat is at anchor. The objective of installing such a system was to greatly increase passenger comfort without sacrificing interior volume.

25/02/2011

With *Audacia's* stern cut back to the original hull, the new pre-fabricated swim platform was lowered into place, trimmed to fit and welded to the hull. Work commenced on preparing for the new double sweeping stairways to be fitted, and another team worked in parallel, beginning the skilled job of forming the shell plating to precisely match the curves of the existing hull.

At the same time, the forward fashion plates on the main deck were cut out; a stylistic detail, as recommended by Joanne De Guardiola Interior Design who provided inspiration for the yacht's modernisation. Once the old transom facing had been cut away to provide the location for the new staircase on the port side, the pre-fabricated unit could be craned into position and welded. The design was such that the stairs posed no obstruction to the lazarette door and mooring arrangement on the main deck.

Throughout the project it was essential that the new design elements remained sympathetic to the existing Feadship design.

Work then commenced on the existing starboard staircase, which had to be cut out to make way for the new stairs which would sit slightly further outboard and aft. By the following day, the area had been prepared for the new staircase to be lowered in and fitted. Both the extended swim platform and new sweeping staircases were already detailed with the cut outs for all lights, the recess fabricated for the stainless-steel handrails, and the bay for the stainless-steel shower box welded in place approximately three weeks after work had commenced. The majority of the new shell plating under the swim platform had been completed and the capping rail replaced.

In order to remove the stabiliser equipment and install the newly

upgraded system, a large patch had to be cut from the hull for access. With the entire superfluous stabiliser components removed, the new internal components were lifted through the shell opening before the work commenced on upgrading the structure around the new bearing housing with a thickened shell plate and additional bracing. The protective paint layer would then be applied. Additionally, it was decided at this point that a new air-conditioning chiller plant would further add to the guest comfort. This led to removal of the existing chiller unit and replacement with a new more efficient AC system.

During the first few weeks of the project, various options for a new foredeck crane were investigated. It was felt that the existing davit crane on the foredeck, which was used to launch a pair of jet skis from the bow, was not able to meet the growing requirements of the yacht, and a crane able to launch and retrieve the jet skis quicker and more safely would be immensely beneficial. The upgrade to this new hydraulic foredeck crane was also partly a stylistic decision. With the rest of the yacht receiving a makeover, it was felt that the new crane would help to enhance the improved aesthetics.

11/03/2011

With the stairwells in place on the transom, work could begin on preparing the hull topsides for the plating that would merge the elegant new stairs into the slope of the bulwark. With so many complex curves to tie together over a fairly large area this was no simple task. This time a more traditional approach to finding the shape was required and careful templating with wooden batons was called for to give 'cheeks' which tied the old with the new seamlessly – throughout the project it was essential that the new design elements remained sympathetic to the existing Feadship design.

Work could also progress now on sealing up *Audacia's* new swim platform, ensuring the connection to

the hull was completely watertight. At the same time, maintenance hatches had to be considered alongside access to the underwater lights, which was achieved by installing watertight hatches through from the lazarette.

The work on the forward fashion plates was then completed with a spray shoot to blow in the patch left behind by their removal. This took place just in time for a visit from her owners, and they were shown the extensive work already completed in just over five weeks. Due to their delight with the work completed to date, talk quickly progressed to potential future scope of work. With the stabiliser equipment in and the new structure in place, work could then progress on the time-consuming task of assembling the new AC system and running all cables and piping.

25/03/2011

The final few welds were run on 15 March to seal off the swim platform. In the six weeks since scaffolding first went up around the boat, an immense amount of structural work had taken place. Now the fabricators handed the area over to the joiners and the painters to finish the yacht in line with the pre-existing structure.

As is often the case when undertaking system overhauls that include the removal of existing equipment, previously invisible issues can be revealed. In *Audacia's* case, once the existing AC system had been removed it was noticed that the underlying structure had had years of corrosion from the condensation, so a substantial swath of it had to be renewed and painted before the new plant could be installed.

With such a short period in dock, the expected crane delivery was anticipated to fall after *Audacia* had left for her summer charters. It was agreed a skilled Pendennis team would intercept *Audacia* and install the crane using a Pendennis support team based on the Italian Riviera. In order to expedite this process, it was decided that as much of the initial work as possible should take place at the



SCHEDULE OF WORK

- > 2m stern extension to extend beach deck area including new teak decking on all of the stern section;
- > New aft staircases linked to new swim platform;
- > Underwater lighting on stern;
- > Replace stabilisers with Quantum zero speed stabilisers, including overhaul of the supporting structure and systems;
- > Removal of forward fashion plate;
- > Replacement of AC chiller unit including improvements to the underlying structure affected by corrosion;
- > New hydraulic foredeck crane;
- > Modernise vessel whilst remaining sympathetic to the original Feadship design;
- > Fairing and painting of the new works.

yard. The suppliers of the crane were able to send a template of the crane base along with detailed drawings so we could complete all structural modifications to the boat and run all of the wiring as required. With this completed, the only work necessary when the Pendennis team rendezvous with the yacht is to bolt on the crane and connect the hoses and wiring.

02/04/2011

The final week in the dry dock was focused largely on completing the paint works on the stern. A two-week period to fair and gloss the new stern was a tall task, even for Pendennis's experienced in-house paint team. The problem they had to overcome was that they were limited by the curing times of the products being used, along with the complexities of all the curves and edges of the improved stern profile. However, they managed to gloss the hull on schedule planning the work so that the job could be progressed in sections whilst other areas cured. Our environmentally controlled paint tent was also sustained at the ideal temperature to allow the products to cure off as quickly as possible.

With the gloss work completed, a swath of other trades sprang into action to ready the boat for leaving the dry dock. The joiners moved to complete the new teak decking on the swim platform whilst simultaneously

the exterior outfit team fitted the stainless-steel handrails around the edges. Finally, the fabrication team completed the final fit of the rubber fendering, which encircles the transom extension, an idea from the designers in order to provide a practical method for berthing tenders, whilst at the same time maintaining the aesthetics of the vessel.

A further milestone was the re-instatement of the engineering equipment, which had been removed in order to access the stabilisers. This would allow the vessel to move under her own power again once out of the dock and moored at the marina, where the final completion and commissioning of the stabilisers were scheduled to take place.

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On 4 April, *Audacia* left the dry dock under her own power, just nine weeks after her arrival, with an impressive list of works completed.

A major consideration when designing any stern extension is the effect the additional underwater volume and weight will have on the trim, stability, sea keeping and maneuverability of





the yacht. With experience gained over several similar refits (including M/Y *Illusion*), and along with advice from our in-house naval architects, we were able to anticipate what the likely effects would be when we flooded up. The conclusion was that the new work had increased the mass of the yacht by a small enough margin to occlude the need to generate a new stability booklet and also meant that the tonnage of the vessel was not noticeably affected. The short journey across to Port Pendennis Marina also allowed the captain to get a feel for the effect the extension had on the handling, to which he reported no issues and even commented that vibration at the stern had appeared to have been reduced.

The rest of the week was focused on the final fit-out of the vessel, replacing lazarette cupboards, final installation of the handrails, and fitting of the custom bollards on the swim platform. The new lettering on the transom was also placed proudly on top of the gloss paint finish. *Audacia* was delivered to her owners before Easter at which point she travelled down to the Mediterranean ahead of her busy charter season. ■

Images courtesy of Pendennis

With thanks to John Posnett, Assistant Project Manager, and the rest of the *Audacia* team at Pendennis.

Please go to synfo.com/extras to see a photo diary of the *Audacia* refit

To comment on this article, email issue125@synfo.com with subject: Diary of a refit: *Audacia*

AUDACIA SPECIFICATION

Builder:	Feadship
Year:	1987
LOA:	46.5m
Beam:	8.2m
Draught (maximum):	3.05m
Number of engines:	Two
Type:	Diesel
HP:	775hp/570kW
Engine manufacturer:	Caterpillar
Speed:	14 knots
Hull material:	Steel
Superstructure:	Aluminium
Gross tonnage:	424 tonnes
Naval architect:	De Voogt
Refit designer:	Joanne De Guardiola Design and Pendennis
Guest cabins:	6
Guests:	12
Crew:	9