

BCTQ helps transform *Red Falcon*

This April *Red Falcon*, one of three 94m Raptor Class ro-ro vehicle ferries operated by Red Funnel, re-entered service following a major £2.2 million (US\$35.5 million) refurbishment project, extending the effective lifetime of what has proved a most versatile ferry design servicing the popular route between Southampton and Cowes on the Isle of Wight

Built in the early 1990s at Fergusons Shipbuilders in Glasgow, and powered by medium-speed diesel engines with Voith Schneider propulsion, *Red Falcon* and sister ships, *Red Osprey* and *Red Eagle* were originally designed by naval architects and marine engineers, Burness Corlett & Partners, which, following a merger with Three Quays Marine Services became Burness Corlett Three Quays (BCTQ) in 2005.

BCTQ was subsequently asked to work up the design and provide technical management for a 'second generation' conversion and lengthening process which took place between 2003 and 2005 at Remontowa in Gdansk. This work included adding a new mid-section to lengthen the vessels from 84m to 94m and adding an extra car deck.

Red Funnel's primary justification for this most recent 'third generation' work came about in response to a steadily increasing demand in the number of passengers wishing to travel the Southampton to Cowes route. At the same time, Red Funnel's own customer feedback confirmed that an improved interior accommodation including new café-bar areas, a wider choice of seating



Red Falcon showing the new observation lounges

and dining options, pet-friendly areas, Wi-Fi connectivity and flat-screen TV 'infotainment' would bring about a complete modernisation of the service.

Red Funnel appointed a principal project group, including BCTQ, SMC Design and marine interior refurbishment specialists Trimline, the majority of whose teams were Southampton based. Not only that, but *Red Falcon* itself remained afloat in Southampton's Eastern Docks while work

progressed over a remarkably productive time frame of only eight weeks and with the workforce having to endure some of the UK's wettest weather on record.

Before giving the project the green light, BCTQ first had to check that the proposed modifications were feasible and would meet both the expectations of Red Funnel and the Maritime and Coastguard Agency (MCA) safety requirements. Next BCTQ set to work optimising the vessel's deck arrangements to achieve the spatial accommodation to fit SMC's interior design scheme. The primary objective was to increase passenger seating, with cafés and bar facilities, by constructing two new observation lounges on top of the existing Deck B passenger accommodation.

An important feature was to create 180deg panoramic views from the new lounge spaces and BCTQ achieved this by designing the steel deckhouse structure to incorporate large, flush-mounted, superyacht style windows. With the additional weight aloft, the effect on

The success of the BCTQ-designed upgrade has persuaded Red Funnel to carry out a similar conversion on *Red Osprey*





stability was also carefully monitored to maximise the vessel's deadweight carrying capacity.

The refurbished vessel now offers two fully enclosed observation-style North and South Lounges that provide bright and contemporary furnished spaces free of bulkheads and partitions and with stunning views. With moveable furniture, the South Lounge offers flexibility for alternative use as individual board room style meeting or entertainment hosting rooms depending upon demand.

To help minimise the time that *Red Falcon* was taken out of service, each lounge was prepared and built in steel sections before the ship docked. The steel work was carried out by Burgess Marine which was appointed as a sub-contractor by Trimline, although the latter maintained overall responsibility.

Formed on shore, the steel panels were then lifted onto the ship in 'flat-pack' sections, where they were welded, insulated and glazed using energy efficient windows supplied by marine glazing specialist, Seaglaze. To meet the tight deadline, Trimline's team of electrical engineers, interior joiners and installers then set to work running cables, installing pipes and laying hundreds of metres of flooring.

At the same time work was progressing on the two new observation lounges, Deck B was completely stripped back to its bare shell, with the work once more overseen by Trimline. Improvements included the installation of LED lighting throughout the ferry, TV screens fitted throughout, air-conditioning, Wi-Fi and charging points for laptops located in the seating areas and a new bar surrounded by comfortable lounge-style seating.

Lift access was extended up to the new observation lounges and, weather permitting, passengers can now use an external 'promenade' walkway with bench seating that allows access also for pushchair and wheelchair users. Above each lounge sun decks with seating have become the highest viewing points on the ferry.

Combined with the new observation lounges, the work has resulted in a 55% net gain in seat capacity and a completely transformed and more modern passenger environment. The



A Trimline contractor putting the finishing touches to *Red Falcon*'s interior

success of the conversion has recently been endorsed in a further contract for the conversion of a second Red Funnel ferry. The company is to invest another £2.2 million (US\$3.5 million) in a major refurbishment of *Red Osprey*, which operates between Southampton and East Cowes on the Isle of Wight.

The new look planned for *Red Osprey* will be almost identical to the refurbishment carried out on *Red Falcon*, although the design will incorporate some minor changes following operational experience and customer feedback.

Kevin George, chief executive of Red Funnel commented: "We are delighted to announce this new tranche of investment following such positive feedback received from the customers who have travelled on *Red Falcon* since April. The refurbishment of *Red Osprey* further underpins our commitment to the Isle of Wight as we work with partners and stakeholders to help grow the Island's economy."

The lead contract for *Red Osprey* has again been awarded to Trimline, supported by other local suppliers. The work is scheduled to start on the ship in the New Year and will be carried out entirely in Southampton. The new look *Red Osprey* will re-enter service in time for Easter 2015.

In a project for a completely different market, BCTQ earlier this year completed a successful conversion project for Star

Reefers for four of its C-Class vessels. The primary requirement was to insert a 30.8m hull section comprising a container hold suitable for accommodating two bays of 40ft reefer containers. This required the inclusion of a new cargo crane and the incorporation of a side loading pallet system to serve the existing cargo holds. During this phase the vessels also saw the inclusion of an anti-heeling system along with a new reefer monitoring system and the installation of a new controlled atmosphere system.

BCTQ undertook both Finite Element Analysis (FEA) and vibration studies as part of this conversion, whilst substantial model tests were carried out at Force Technology in Denmark to evaluate the performance of the lengthened vessels. This resulted in the development of a new bulbous bow, improving performance over a range of operating conditions.

An additional feature of the conversion was for the provision of an extra auxiliary generator, to power the additional reefer containers within the lengthened section. BCTQ designed a new machinery space aft of the accommodation, as the vessel could not accommodate the new equipment internally. The full electrical package was handled by BCTQ's long term contractor, KeiWay Electrical Engineering, which has been commissioned to undertake additional electrical studies for Star Reefers. **SCRT**