

Rudder project highlights SSA capabilities

Earlier this year, the SubSea Solutions Alliance handled a very difficult rudder extraction project, with divers working underwater to effect repairs.

The multi-national Subsea Solutions Alliance (SSA) demonstrated its technical capabilities earlier this year with a very complex rudder project carried out in the Caribbean.

A fully laden bulk carrier ran aground while off the coast of South America, causing extensive damage to both the rudder and rudder horn. The vessel was towed after the grounding to the Caribbean with no means of discharging the cargo, while there was also no drydock available nearby.

The owner engaged SSA to perform the required repairs. To expedite the repair, a specialised cofferdam displacing 130m³ of water was engineered and fabricated by

SSA prior to the ship's arrival to facilitate the necessary repairs. Once the rudder was removed and inspection completed, it was determined that the rudder stock, rudder horn, steering gear and other structural members of the vessel were significantly damaged and required repair.

After consultation with the underwriters and classification society, the SSA engineering department prepared a permanent class approved repair procedure for the rudder, rudder horn and the damaged structural members of the vessel. Coordinating all repair activities, including the overhaul of the steering gear, the fabrication of a new steering gear

foundation, the relocation and line boring of the rudder horn, and the fabrication and installation of major structural inserts in the hull section, the SSA restored the vessel to its original specification in accordance with class and underwriters requirements. The repair also included the structural repair and line boring of the rudder itself, as well as the fabrication of a new rudderstock and pintle shaft with associated bearings.

Business development and sales manager, Rick Shilling says there were a number of benefits for the owner from the approach taken. "Maintaining the cargo onboard without transshipping or off-loading allowed the cargo owner to minimise spoilage, while

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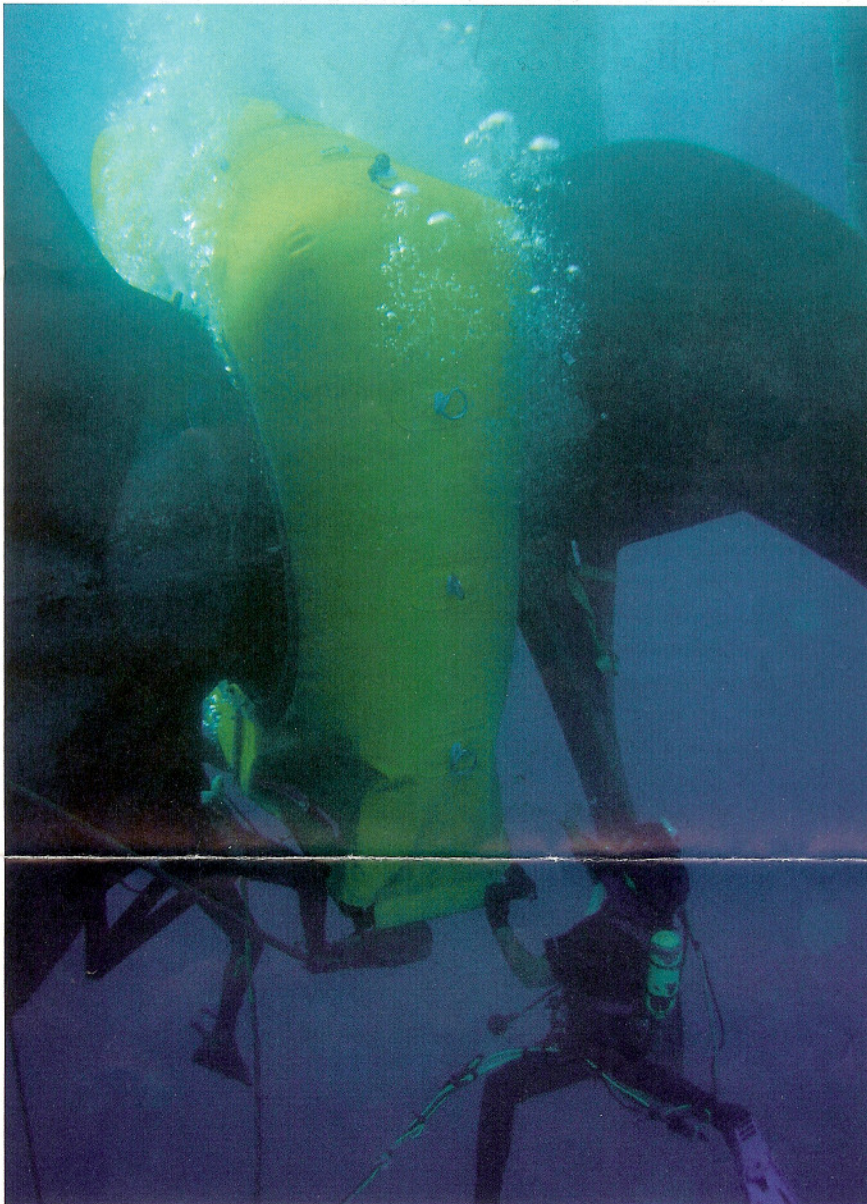
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SSA diver technicians carrying out a thruster exchange underwater.

technicians installed a newly rebuilt tunnel thruster while the container vessel was still waterborne. Working around the clock and in multiple shifts the thruster was installed in a little over a day.

This project was followed by an in-water repair of a newly delivered bow thruster in Europe. Working closely with the original equipment manufacturer, the lower gear box was opened for inspection and repair within the tunnel in a dry environment. The defect was quickly remedied and the vessel returned to service without undue delays.

Another tunnel thruster was exchanged in partnership with Rolls Royce Marine in the Caribbean, using a newly developed 'sled' system. A complete lower unit was exchanged in a cruise vessel's stern thruster tunnel in under 10 hours.

Propeller repairs are one of SSA's strong points and the group was recently called up to a project in Western Canada to evaluate propeller damage reported on a cruise vessel's podded propulsion system. High vibration levels caused the vessel to take one of the podded units out of service, causing a significant speed reduction.

Within a short port stay, propeller technicians from All-Sea Enterprises determined that one blade on the podded propulsion system was severely bent. Using a patented in-water cold static load press, diver technicians were able to carry out a class-approved permanent repair, restoring the propeller blade back to its original geometry with the propeller completely underwater and the vessel at normal draft. Remaining onboard to the next port of call, the technicians confirmed that engine parameters, vibration levels and vessel speed were fully restored to pre-damage values.

"Performance restoration in hours, not days - that is what the SSA is all about when it comes to propeller repairs," says Rick Shilling.

SSA currently has a dedicated staff of over 130 divers globally. Through a common shared system of dive equipment, speciality tools and dive personnel, SSA says it is able to mobilise quickly for work anywhere in the world, with divers and factory trained service technicians for almost all major OEM equipment items. *SRCT*

performing a repair on the vessel with it loaded and waterborne allowed the ship's owner and operator to save significant costs on towage, as the vessel was able to complete its voyage under its own power without restriction," he comments.

The SSA consists of four underwater ship repair specialists: All-Sea Enterprises, Miami Diver, Parker Diving Service and Trident BV. Between them these companies have operational bases in the USA, Canada, China, Panama, Curacao, The Netherlands and Malta.

The network allows the group to offer owners global coverage, as demonstrated in August when diver technicians were able to complete six equipment repair jobs, including three underwater seal repairs and three

tunnel thruster exchanges and installations concurrently on three different continents.

One of these projects was undertaken by Trident for a European customer, and involved a leaking Simplex aft stern seal. As the exclusive global service agent for Blohm and Voss Industries (BVI), SSA's engineering department worked with service experts from BVI to diagnose the problem and develop a corrective action procedure. Equipment and personnel were dispatched to Dubai to carry out the repair during a small window of opportunity for the containership concerned. The aft stern seal was successfully exchanged using SSA's hyperbaric cofferdam, Transhab.

Another underwater thruster repair was undertaken in the Far East, where diver