



April / May 2009

SubSea Solutions Newsletter

"The Chronicles"

Rapid Cost-Effective Worldwide Underwater Repair Solutions

In This Issue- SSA Highlights

Rudder and Rudder Horn Repairs

Blade change out- Podded propulsion unit

Underwater Seal and Liner repairs

Marine Construction- The other SSA business area

These months afforded me the opportunity to spend some quality time in the oil patch with our offshore clients as well as in Europe. With so much focus on the reduction / elimination of off-hire time, there is a strong interest in the unique service solutions provided by the **Subsea Solutions Alliance**. As long as vessels are moving or providing their intended service to the industry, everyone is making money. In today's market keeping vessels on charter and employed is paramount. We look forward to continuing to be the industry leader in providing in-water service to vessels and propulsion systems.

Additional information may be found on our Web Site:

The **Subsea Solutions Alliance** continues to remain busy with major projects happening around the world. Below is a short summary of the major jobs performed this prior and current month.

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Worlds Toughest Fixes-
June 25 2009

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- 2 Thruster repairs were performed in Europe
- 1 thruster was exchanged with an OEM overhauled exchange unit in North America
- 1 extensive rudder and rudder horn repair continues in the Caribbean
- Propeller blades were exchanged on a built up fixed pitch propeller
- 1 propeller repair with underwater Straightening was completed in Europe
- 1 propeller repair with cutting and edge restoration was completed in Europe
- A major pier restoration project was completed in the Caribbean.

Whatever the situation in any port around the world, if you have a problem we have a solution!

- Rick Shilling
Subsea Solutions Alliance

Rudder and Rudder Horn Repairs

Innovative repair alternatives to keep the cargo on board



A fully laden bulk carrier called the **Subsea Solutions Alliance** to perform the removal and repair of a 50 ton rudder after a grounding occurred in South America. Prior to the arrival of the vessel, the **Subsea Solutions Alliance's** engineering department developed and fabricated a cofferdam to displace 130 cubic meters of water. Upon the arrival of the vessel to the Caribbean a full inspection was performed by the **Subsea Solutions Alliance** team. The 50 ton rudder was

removed with the damaged rudder stock still installed. A purpose built cofferdam was installed and the vessel was prepared for an "in water repair". The damage incurred from the grounding was more extensive than previously considered.

Over the past months a repair to both the rudder and severely damaged rudder horn has been taking place. A full class approved permanent repair was requested by the underwriters of the vessel and subsequently is being performed by the **Subsea Solutions Alliance**. The repair includes the relocation of the rudder horn and line boring for new bushings, structural repairs with class approved insert plates in the stern section of the vessel, rudder blade repairs internally and externally, new foundations for the steering gear, the Steering gear overhauled by Rolls Royce, the Original Equipment Manufacturer and other small hull insert repairs along the vessels bottom. The vessel is expected to sail in June 2009.

The **Subsea Solutions Alliance** was filmed in action during the extraction of this rudder. National Geographic's "World's Toughest Fixes" series will broadcast the initial days of the repair on the 25th of June 2009 in the United States. The attached link highlights the challenges associated with this type of repair and it's subsequent successful conclusion.



Need more speed? Change blades!

Exchange of Fixed Pitch Propeller Blades on a Pod

After a grounding in Caribbean, a cruise vessel sustained propeller damage. The propeller specialists from the **Subsea Solutions Alliance** was called in to assess the damage and perform a temporary repair to alleviate the heavy vibration issue on board. As the damage was significant in order to relieve the propeller of the damaged sections a large

portion of the propeller's blades were removed. This caused a loss of speed which affected the vessels itinerary. With new blades available, the fixed pitch built up propeller blades mounted on the podded propulsion unit were exchanged in opposing pairs. This work was performed without any impact to the vessels schedule by the **Subsea Solutions Alliance** while the vessel cruised the East Coast of North America.

With speed restored to the vessel, the operator is happy. With vibration

levels back to original parameters, passengers can enjoy a smooth cruise to dream destinations without delay. All in a days work in the life of a diver / technician with the **Subsea Solutions Alliance**.

Tunnel Thruster Repairs- Semi-Sub Seal and Ceramic Liner Exchanges in the Tunnel!

The Subsea Solutions Alliance working together with Wartsila Propulsion BV successfully exchanged the shaft seals and ceramic liners on tunnel thrusters on board a semi-submersible rig performing a wet dock in the Mediterranean.

Wartsila Propulsion BV was contracted to perform maintenance repair and service to their equipment on board. As part of the Wartsila scope of service, underwater replacement of the bonded lip rings was requested. The **Subsea Solutions Alliance** was called in to assist Wartsila BV since the **Subsea Solutions Alliance** is the underwater service provider to Wartsila on a global basis. Once the **Subsea Solutions Alliance** flexible cofferdams were installed, the tunnel was de-watered. This provided a safe environment for opening of the tunnel thruster in the tunnel. When the lip rings were removed the liner was evaluated and found to be damaged beyond usable limits. Through close consultation with Wartsila, an OEM approved procedure was developed to extract and then install a new ceramic liner on the thruster shaft. The procedure included the underwater demounting of the propeller, installation of a shrunk fit ceramic liner and re-assembly with new lip rings bonded hyperbarically in the tunnel.

By performing this repair in place without the extraction of the lower unit, the end customer saved valuable off hire time, completed the repairs within the allotted wet dock interval and received a full Wartsila OEM warranty on the repairs performed both above and below the water line. Best of all, the price was the same going through Wartsila as opposed to the client contracting separately with Wartsila and the Subsea Solutions Alliance. Contracting the entire project through the OEM, the client eased the responsibility of management of the repair. With the agreements in place with most equipment manufacturers, the Subsea Solutions Alliance services are available through the OEM's at no additional cost!

Cruise Terminal Rebuilt in Caribbean Caribbean Marine Construction project



The **Subsea Solutions Alliance** is more than just a ship repair company. With specialty companies like Parker Diving Service Inc, in the alliance, the **Subsea Solutions Alliance** has the experience and know how to tackle large scale marine terminal construction and repair around the world.

After years of reliable service, the cruise terminal in Freeport Bahamas required maintenance and repair due to heavy erosion and the formation of caverns underneath the pier. As part of an overall repair of the facility, the **Subsea Solutions Alliance** was hired to repair 800 feet (244 meters) of the sea wall to a depth of 50 feet (15.25 meters). The scope of work included drilling into the limestone bed rock and setting re-bar into the limestone bed rock at 1 foot centers, filling the holes with Epoxy and building / installing forms to pump the proper grade concrete into the area to restore the pier's sea wall. Over a few month period the crew of 6 diver / technicians finished the job on time without a hitch.

With a safe and secure terminal restored to the harbor, the next time the

Subsea Solutions Alliance visits this facility will be to perform a ship board repair. From land to sea and back again, the **Subsea Solutions Alliance** stands ready to support our customer's in-water needs whatever they may require.

The Subsea Solutions Alliance (SSA) is a consortium of underwater ship repair specialists including: All-Sea Enterprises Ltd, Miami Diver Inc, Parker Diving Inc and Trident BV. With a dedicated staff of over 130 divers globally, SSA has revolutionized the methods of repair for ship equipment underwater. Through a common shared system of dive equipment, specialty tools, and dive personnel the SSA is able to mobilize quickly anywhere throughout the world with diver / factory trained service technicians for most OEM equipment. From the replacement of aft propeller shaft seals to the exchange of thrusters to straightening large bends in propellers, SSA has become the OEM's choice for all types of complex repairs. With class approved techniques and a highly trained staff in both underwater ship repair and propulsion equipment maintenance, SSA is the clear choice for vessels operating in sensitive environments and on critical trade routes.

For Further information please feel free to contact:

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