



August 2010

SubSea Solutions Newsletter

"The Chronicles"

Rapid Cost-Effective Worldwide Underwater Repair Solutions

In This Issue- SSA Highlights

Tunnel Thruster Repairs

Offshore Semi-Submersibles

Permanent Plate repairs

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may be found on our
Web Site:**

www.subseasolutions.com

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It is hard to believe that the summer has already passed us by. With fall coming quickly upon us it is time to pack up the barbecues and prepare for winter. With the cruise fleet escaping the cold of the north to the warmer climates of the South, we are prepared to support our clients when and where they need us. The **Subsea Solutions Alliance** continues to remain busy, actively working on projects in all sectors of the marine market. In addition to the normal portfolio of services provided by the Alliance, major projects were performed on offshore installations in various parts of the world in August. From the North Atlantic to Europe, the **Subsea Solutions Alliance** performed propulsion azimuthing thruster repairs and installations without a hitch or delay. By creating innovative methods of repair and installation for these propulsors the member companies of the **Subsea Solutions Alliance** are developing easier, more convenient and faster ways to work with these complex heavy azimuthing thrusters. By focusing on reducing the off-hire time of these valuable installations, the techniques and methods of repair utilized are adding value to offshore operators throughout the world.

The **Subsea Solutions Alliance** was very busy in August meeting the needs of the industry by performing multiple high value repairs in various ports around the world. The summary below illustrates just

some of the major projects performed.

2 Tunnel Thrusters installations occurred in Europe

1 Tunnel Thruster repair was performed in Hong Kong

8 Azimuthing Thruster installations occurred in the Caribbean

1 Azimuthing thruster stern seals were overhauled / repaired in Europe

2 Permanent weld insert repairs were performed in the Caribbean

1 Permanent weld repair to a Sea Chest was performed in West Africa

1 Semi-Submersible wet dock including UWILD, anode replacement, thruster work, etc- Pacific Ocean

1 Monoblock propeller repair with Sectional reduction was performed in the Gulf of Mexico

1 Rudder repair was performed in the Gulf of Mexico

It has been a pleasure meeting many of our European clients at the SMM show in early September. We thank you all for joining us at our booth and sharing some time with us during this busy exhibition. I also want to thank the Canadian Ferry Operators Association for giving the **Subsea Solutions Alliance** an opportunity to present our unique methods of repair to their members at their conference this past week. We look forward to continuing to work together with all of our valued clients around the world and we thank you for your continued patronage and support.

--Rick Shilling

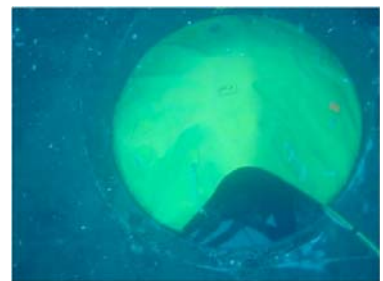
Subsea Solutions Alliance

Delays are not an option

Tunnel thruster maintenance and repair

Considering the fragile state of our global economy, more than ever, cruise vessel operators are avoiding all delays or port cancellations.

Cruise operators are trying to manage their costs by avoiding the requirements for additional tugboats or support craft during docking operations. While trying to optimize critical equipment maintenance with balancing a jam-packed cruise itinerary, more and more cruise operators are turning to underwater maintenance repair of their tunnel thrusters. The **Subsea Solutions Alliance** has pioneered the concept and



techniques for the repair and exchange of tunnel thrusters without causing delays or penalties for it's cruise ship customers.

Two cruise vessels this month had tunnel thrusters reinstalled by the professional diver / Technicians from the **Subsea Solutions Alliance** member company Trident BV. Some months ago, in both cases, leakage developed on these thrusters. Upon inspection and after consultation with the Original Equipment Manufacturer of the thrusters, it was determined in both cases that both thrusters should be removed for overhaul and repair. Taking into consideration the itineraries of these vessels, a repair plan was developed to avoid all delays or port cancellations. Without any issues, both thrusters were properly extracted with ease by the **Subsea Solutions Alliance** and provided to the Original Equipment Manufacturers for overhaul. Upon the completion of their repairs, these thrusters were again reinstalled this past month.

Considering the fact that the typical in-port time for a cruise vessel is only 10 to 24 hours, the **Subsea Solutions Alliance** had to a prepare a repair process that would encompass two interventions per ship. Coordinating the internal repair together with the dive operations provides a flawless thruster installation. In both cases while the vessels remained alongside their cruise berths in ports in Europe the tunnel thrusters were installed without a hitch or delay.

In addition to the tunnel thruster installations highlighted above, in-water tunnel thruster repairs are also available through the **Subsea Solutions Alliance**. When a containership found itself with damaged tunnel thruster blades and leaking blade palm seals in Hong Kong, the diver / technicians from the **Subsea Solutions Alliance** member company All-Sea Enterprises Ltd. jumped into action. Deploying personnel and equipment from their offices in Busan Korea and Vancouver, Canada, the propeller blades and palm blade seals were exchanged in the anchorage while the vessel waited entrance into port.

Remaining focused on reducing the in-water time required for performing these thruster exchanges and repairs, the engineering department within the **Subsea Solutions Alliance** continues to develop new alternative solutions for performing these repairs. We look forward to supporting your needs in the future. Let us know what we can do for you.

Offshore Installations- Bigger the better!



Azimuthing thruster repair and installation on Semi-Submersibles

The member companies of the **Subsea Solutions Alliance** remained very busy this summer providing



critical support to offshore installations throughout the world. As reported last month, the **Subsea Solutions Alliance** completed two critical projects with excellent results. August was not an exception with diver / technician support provided on two individual projects; one in Europe and one in the Caribbean.

With a new installation preparing to go into service, it's eight 46-ton underwater de-mountable azimuthing thrusters needed to be installed. Finding a suitable location to perform the thruster installation as well as final outfitting of the rig prior to it going into service was a primary concern of the rig owner. Weighing many areas in the Southern Caribbean Sea, Curacao was selected as the location to perform this work. Considering the pristine water and almost perfect dive conditions year round, Curacao offers rig operators a completely sheltered DEEP WATER port with first class services available. The **Subsea Solutions Alliance** member company Miami Diver International NV retains several diver support vessels, crane barges and support barges in Curacao available to support services of this magnitude and above. Working together with the engineering department within the **Subsea Solutions Alliance** a unique method of thruster installation with minimal use of the crane barge was utilized. This allowed the rig to be more self-sufficient and allowed the work to be performed quicker and safer while at the same time reduced the installation cost for the client. By working closely with the vessel's management and other sub-contractors on board, the **Subsea Solutions Alliance** was instrumental in ensuring the thruster installation was completed ahead of schedule without incident. Considering Curacao's unique location in the Southern Caribbean combined with it's natural sheltered harbor qualities, the rig owner looks forward to many future rig refits in Curacao working together with Miami Diver International and the team from the **Subsea Solutions Alliance**.

While outfitting a Semi-Submersible for it's next deployment, a rig owner contacted the **Subsea Solutions Alliance** to exchange an aft stern seal on one of it's azimuthing thrusters. Considering the design of the seal and the procedure outlined by the Original Equipment Manufacturer, the **Subsea Solutions Alliance** endeavored to change the defective seal as a complete package. In order for this to happen, the 8-ton monoblock propeller needed to be removed underwater and hung off the Semi-Submersibles pontoon.

Once the propeller was removed and safely rigged away, the seal cartridge was exchanged properly and in accordance with the owner's and original equipment manufacturers specifications. Coordinating closely with rig owner and others involved with the project, the diver / technicians from the **Subsea Solutions Alliance** performed the work safely and without incident.

When dry docks are not available in the location in which you operate, you need the expert services of the **Subsea Solutions Alliance**. Operating a Semi-Submersible on the West Coast of the USA in the Pacific Ocean limits your available repair locations. **Subsea Solutions Alliance** member company Parker Diving Inc. had the unique opportunity to support the wet dock activities for a semi-submersible wet dock maintenance period this past month. Performing a UWILD, hull cleaning, anode replacement and thruster inspection and maintenance, the skilled diver / technicians of the **Subsea Solutions Alliance** allowed the vessel operator complete the inspection and repairs within the required period and budget.

Combining the expertise and skills of the diver / technicians of the **Subsea Solutions Alliance** with our customers and OEM partners allows us to provide unparalleled service on any vessel anywhere in the world. Let's figure out what we can do together!

Shoddy Seams, Same Location on Sister Ships-

Permanent Weld repairs performed

While performing underwater inspection in lieu of docking (UWILD) in the Caribbean, weld seam fractures were found on two sister vessels. Due to their locations on the vessel and their size, the attending surveyor required permanent underwater weld repairs. The **Subsea Solutions Alliance** member company Miami Diver Inc. mobilized additional resources to the location while at the same time the engineering department within the **Subsea Solutions Alliance** developed a class approved PERMANENT weld repair procedure. After the vessel's superintendent and the attending surveyor agreed upon the procedure the repair was executed without delay.

The damage extended over 700 mm in length. A properly designed steel backing bar was centered over the fracture and then secured to the hull with staggered **class approved** underwater fillet welds. A prefabricated cofferdam over 900 mm long by 300 mm wide was



secured over the fracture. An access hole was cut out of a longitudinal stiffener located 50 mm above the repair to gain access to the defect. The diver / welder team then removed the fracture and inclusions by a carbon arc gouging and grinding to minimize the affected area. The affected area was properly prepped for repair and then preheated in accordance with the approved weld procedure. The root weld pass was established, cooled and non destructive testing confirmed it's integrity. Finally, the "V" groove was fully welded out. Visual and non destructive test results revealed a high quality weld meeting the American Welding Society's standard D 1.1/D 1.1M:2008 structural welding code.

Upon completion of the repair, the diver / welders of the **Subsea Solutions Alliance** re-installed the longitudinal stiffener that was removed for access, removed the cofferdam and hydro-gouged the backing bar away outside of the heat effected zone of the repair.

The exact same repair was then performed to it's sister which entered the Caribbean port a couple of days later. From inspection to repair, the **Subsea Solutions Alliance** remains dedicated to keeping your installations in service. Having skilled and knowledgeable diver / technicians performing your UWILD not only saves you time but in the long run reduces the risks and costs associated with ship operations. Let us know what we can do for you.

The Subsea Solutions Alliance (SSA) consists 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 150 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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