HYDREX®

UNDERWATER TECHNOLOGY

NEWS

LETTER | 266

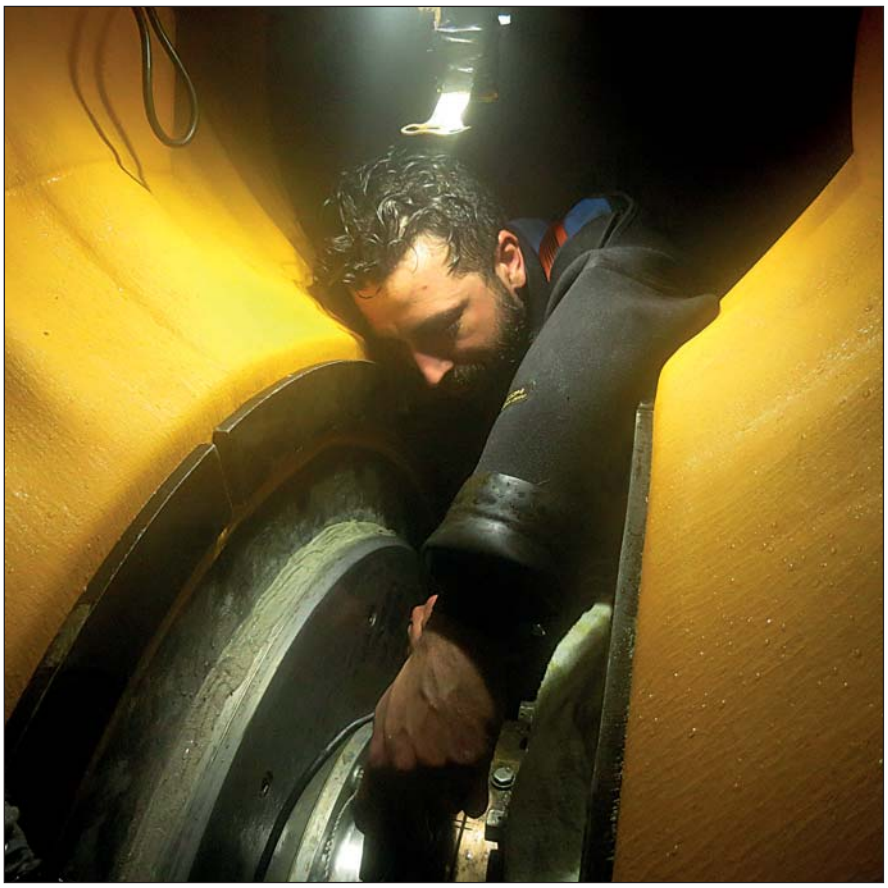
Contents

KEEPING SHIPS IN BUSINESS

ISO 9001 certified

Underwater services and technology approved by:

Stern tube seal repairs



Using our flexible mobdock method to create a dry underwater environment, we have carried out stern tube seal repairs and replacements underwater for some years now in cooperation with OEMs.

This technology brings drydock conditions to the ship rather than having to take the ship to drydock, saving a considerable amount of time and money in doing so.

This class accepted method is performed by our diving teams under our warranty. It can be used while the ship is carrying out its usual cargo or other commercial operations in port.

Visit the special stern tube seal repair section on our website for more information and examples of the many seal repairs we have performed in recent years.

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Pipe repairs on cruise ship in Uruguay

Last month our diver/technicians carried out a pipe repair on a 238-meter cruise ship during her stop in Punta Del Este, Uruguay. The vessel was suffering a leak as a result of corrosion damage to the pipe and a swift on-site solution was suggested by our technical department. The repairs were performed afloat with our cofferdam technique. This gave the owner a cost effective alternative for drydock.

Old overboard pipe prior to replacement.

An overboard pipe needed to be replaced on port side. This would stop the water ingress and secure the integrity of the hull.

While preparations for the welding work were ongoing inside the engine room a mobdock was installed and secured underwater over the outlet of the damaged pipe.

The team then disconnected the old overboard pipe and the surrounding support frames. The hull plating and the new pipe were then prepared for fitting. Once the pipe was positioned, welding of the hot pass was done according to our class approved welding procedures. This connected the overboard pipe to the ship's hull. The support frames were then reinstalled and the remaining piping and valve were reconnected.

An ultrasonic test was carried out by independent testers. This showed that the repairs had been performed successfully. The cofferdam could then be removed. Finally a visual inspection was made on the outside by our team. The repair was approved by the representative of the classification society who had been present during the operation.

Removing the brackets of the old pipe.

Hydrex underwater inspections

Underwater inspections are an essential aspect of ship repairs. Building upon conventional technical skills and know-how while also taking advantage of the latest technology, Hydrex offers a unique hull monitoring service to its customers. This gives ship owners total control of the underwater hull and the underwater gear of their vessels. An informed decision can then be made concerning any required follow-up action. Catching problems early can save you much money in the long run.

Hydrex diver/technicians can carry out inspections underwater and on-site very swiftly without disturbing the vessel's sailing schedule.

With fuel costs amounting to 40% of operational expenses and continuing to rise, reducing fuel consumption is a vital concern of ship owners. This is the reason why hull monitoring pays for itself. Underwater hull roughness, marine fouling, bent propellers and poor paint condition are all factors that will increase fuel usage due to the drag or inefficiency created by the damaged or affected area. The data gathered can then be used to see if actions are required.

Our diver/technicians are trained for a wide range of operations and they can carry out the inspections in port or at anchor anywhere in the world.

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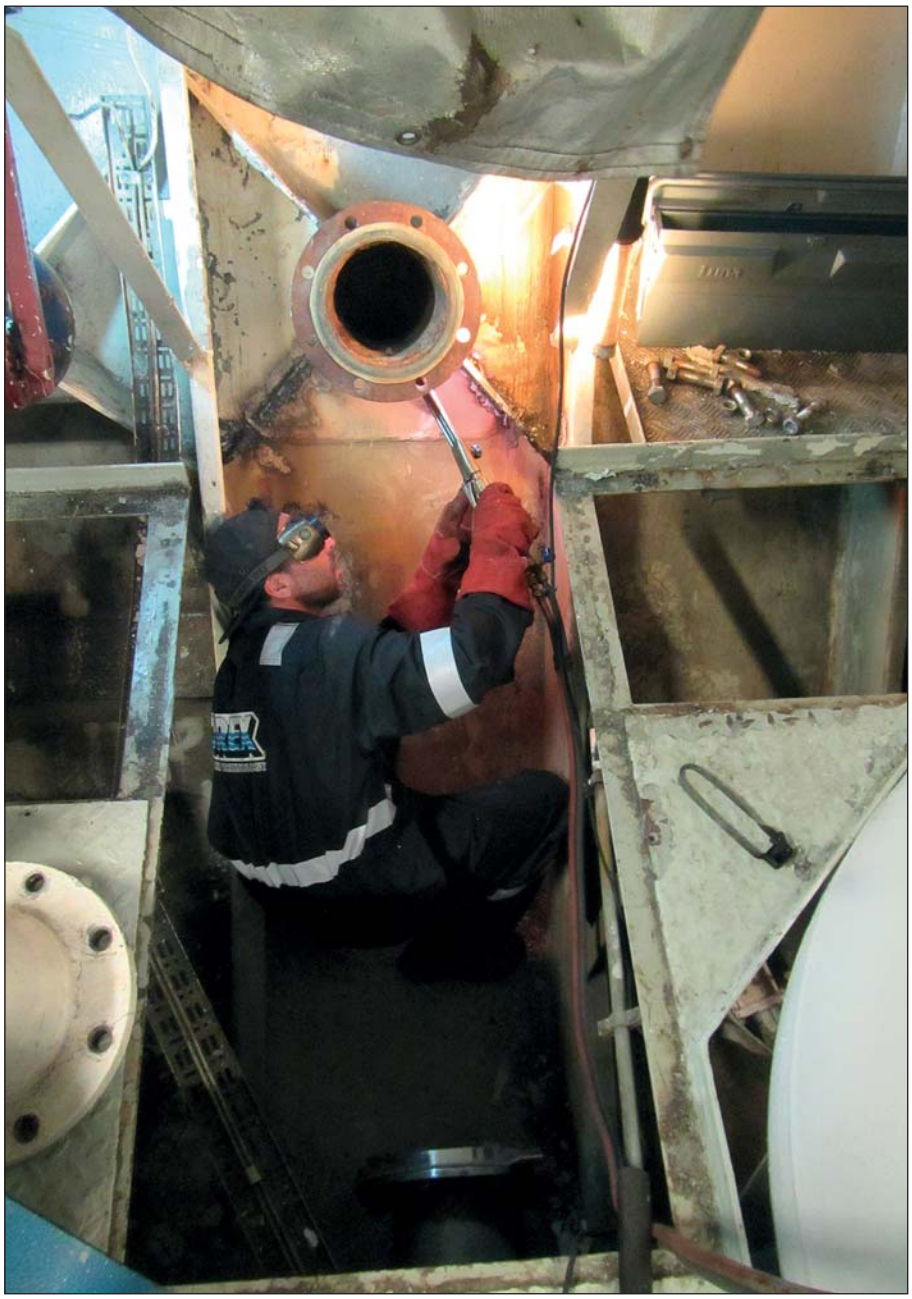

One of our certified welders working on the pipe.

Hull after the old pipe was removed.

Conclusion

Overboard pipe repairs are vital for a vessel because there is a direct connection between the outside hull and the pipes. This means that any damage to these can compromise the integrity of the hull. For this reason the classification society will very strictly monitor their condition and will demand a fast and thorough repair of the damage.

If this occurs we can offer a permanent afloat solution. Our teams bring a high standard of care and professionalism to any operation to guarantee that a ship can sail safely afterwards.

An ultrasonic test was carried out by independent testers.

The pipe was secured according to our class approved welding procedures.

Due to the nature of the ship, only a limited time frame was available during each stop. Our technical department therefore looked at the schedule of the ship to find the best opportunity to perform the operation. Our divers made sure that the service was delivered in as short a time period as possible. The ship could leave Punta Del Este on schedule. ■

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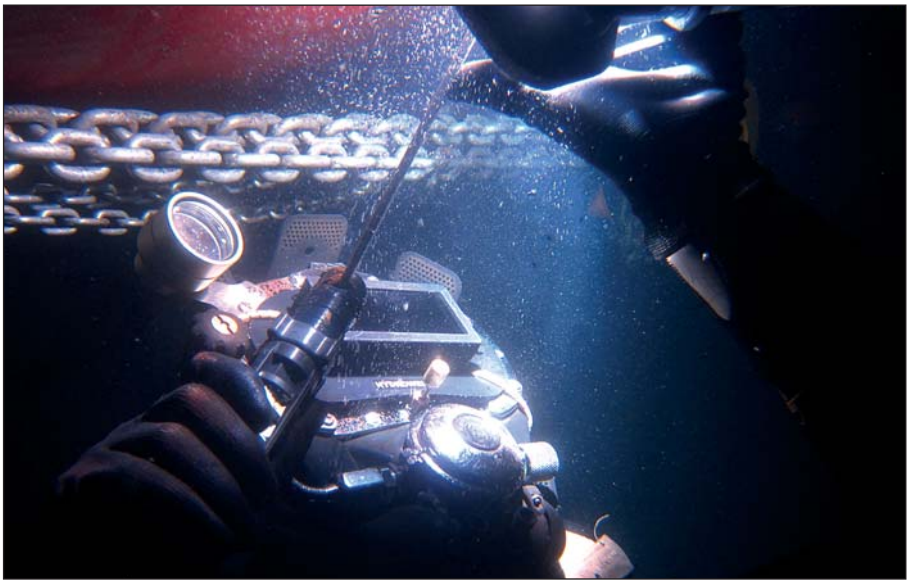
Underwater rudder operation in Dubai

We were contacted by the owner of a 193-meter roro ship to secure both rudders of the vessel. This would allow the OEM to safely perform repairs on the rudders from inside the engine room. A team of our divers therefore mobilized to Jebel Ali, Dubai to perform the operation during the ship's stop.



Hydrex diver/welder during pad eye installation.

The manufacturer needed to work on both rudders and they needed to be disconnected for this. Our men made sure that the rudders would stay in position during the repair.

First the team took the weight off the rudders. Next they locked them in the neutral position. Our team took the exact measurements needed during an underwater inspection. The required material was fabricated by our diver/technicians on-site.

The OEM could then safely disconnect the rudders from the engine room and perform the required work on the steering gear.

When the manufacturer had finished their repairs, our divers removed the material used to fix the rudders in position.

This concluded the operation. The owner could sail his vessel with two fully working rudders. Thanks to our team of underwater specialists, the OEM was able to perform their work knowing that the rudders would remain safely in position. Because our divers performed the operation on-site and underwater, the ship could stay out of drydock and on schedule. ■

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One of our divers performing welding work on the rudder.

Hydrex diver/technicians performed an underwater rudder operation in Dubai.

In-water bow thruster repairs

The Hydrex lightweight flexible mobdocks are designed to be easily transported around the world and are used to close off the thruster tunnel on both sides, allowing divers to perform repairs and other operations in a dry environment around the bow thruster unit.

This technique enables them to reinstall the propeller blades of an overhauled thruster inside the thruster tunnel after the unit has been secured or replace the blades or seals and perform repair work on a specific part without removing the unit.

Since the development of this flexible mobdock technique, numerous thruster repairs have been carried out by Hydrex diver/technicians around the world.

There is no need to send the vessel to drydock as all operations can be carried out in port or while the vessel is stationary at sea. Normal commercial activities can therefore continue without disruption.

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Underwater propeller cone fin installation offers immediate fuel savings

Over the last few months Hydrex installed propeller cone fins on several general cargo vessels. We can carry out these operations all over the world.

A direct result of this underwater operation is that an owner can instantly start benefitting from the fuel savings a propeller cone fin brings. He does not have to wait until the next scheduled drydocking for the installation.

Propeller caps like these can recover energy loss of a propeller hub vortex in the propeller's slipstream. This decreases fuel consumption from 3% up to 5% according to the manufacturers and reduces cavitation on rudders and hulls. Hydrex can install propeller cone fins underwater on any size and make of propeller, on both new build or in-service vessels.

Installation afloat prevents a long wait for fuel savings

We carry out these operations following the specific procedures required by the involved OEM,

Hydrex equipment next to general cargo vessel.

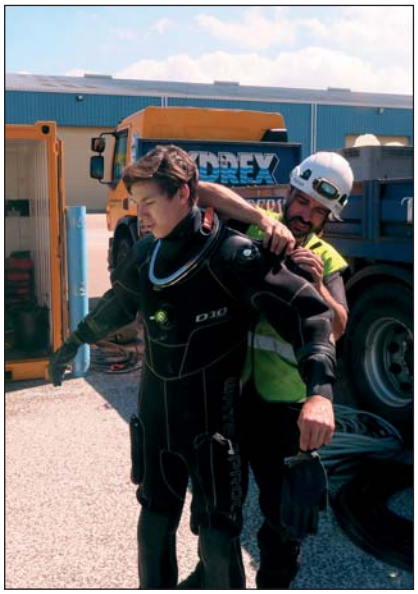
Propeller cone fine ready for installation.

Hydrex technician lowering the propeller cone fin into the water.

adapted for an underwater installation.

After a preliminary inspection the divers remove the propeller cap and clean the flange where the device is to be installed. They then lower the propeller cone into the water and position it on the propeller. The bolts are put on the correct torque and secured. Hydrex teams can work in shifts around the clock to finish the operation as quickly as possible.

The owner of the vessel can start enjoying the fuel savings the propulsion improving device creates right away. Not having to wait for the next scheduled drydocking to have the propeller cone fin installed can win him up to four years of fuel savings. In contrast, he will have earned back the cost of the underwater installation in only a few months. The savings are considerable. ■



Diver getting ready for the installation.

Installed propeller cone fin.

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If you have received this magazine at the wrong address or if your company is going to move, please let us know.

You can contact us at:
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Permanent in-water rudder repairs now possible without drydocking

Hydrex has developed an entirely new method enabling permanent repairs of rudders without drydocking the ship. Permanent repairs were hitherto not possible and ships had to drydock in case a major defect was found. The newly designed equipment is light-weight and can be mobilized very rapidly in our special flight containers. Therefore this new service is now available world-wide.

Major defects on rudders very often cause unscheduled drydocking of ships. The new method designed by our technical department allows engineers, welders and inspectors to perform their tasks in dry conditions. Class approved permanent repairs on-site, without moving the ship, are now possible and commercial operations can continue. Steel repairs and replacements can be performed and pintle and bushing defects can be solved without the loss of time and money associated with drydocking.

The equipment can be mobilized within hours to any port in the world and is available for rapid mobilization from the Hydrex headquarters in Antwerp.

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Dive suport workboats in Rotterdam and Antwerp

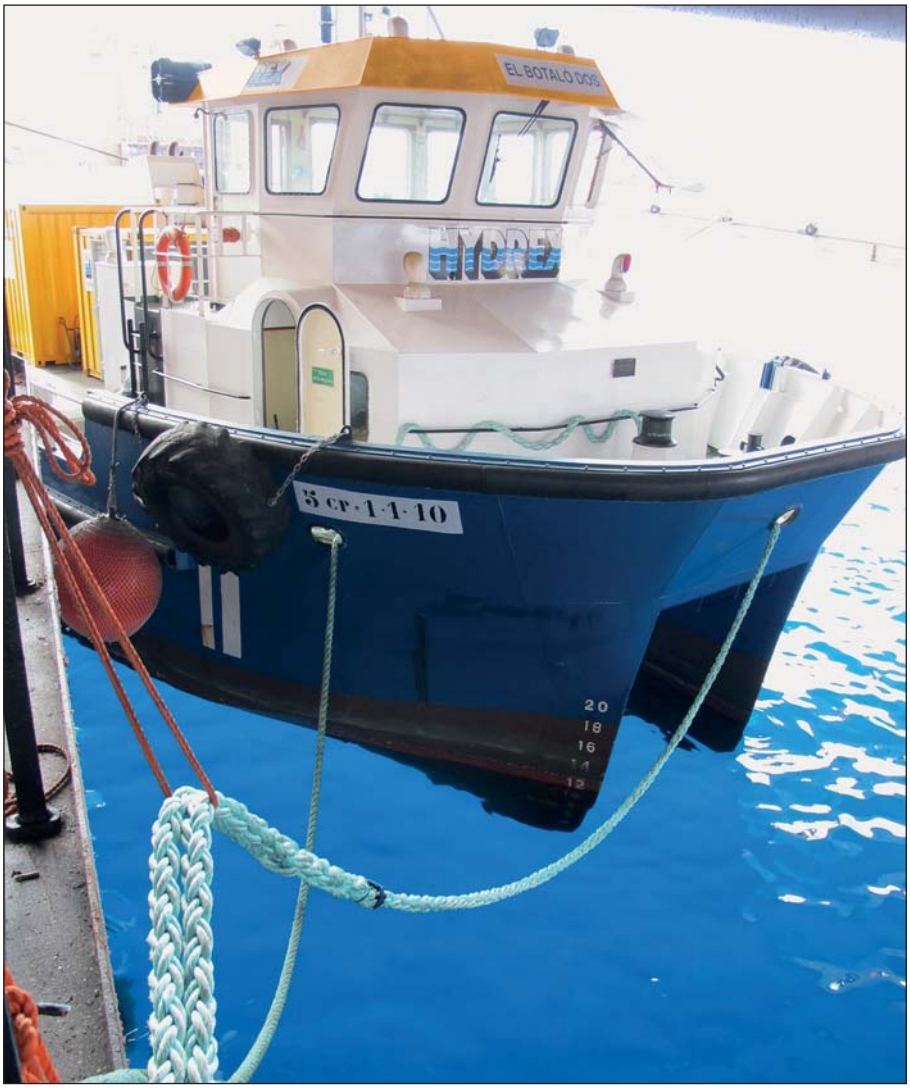
Our offices in Antwerp and Rotterdam have dive support workboats available for immediate mobilization. These vessels can be used for a wide range of operations in Belgium, the Netherlands, the United Kingdom and France.

The catamarans are fully equipped as dive support stations with hydraulic cranes, hydraulic winches, nautical and communication equipment and a dive control room. A PDF document with details about the vessels can be found on our website (http://www.hydrex.be/case-story/89) or requested by contacting one of our offices.

The workboats are docked right outside the Antwerp office, where a wide range of state-of-the- art equipment and tools is available at all times and in the center of the

Hydrex has experienced diver/technicians ready to mobilize together with the workboats.

Both workboats are fully equipped as dive support stations.



Hydrex workboat during operation.

The workboats are stationed in Antwerp and Rotterdam where a wide range of extra equipment is available.

Rotterdam port from where we can mobilize throughout the entire port within hours.

Hydrex has experienced and certified teams of diver/technicians ready to mobilize together with the workboats. They can carry out routine operations as well as highly technical repair work within a very short time frame and all to Hydrex's well-known high quality standards.

Contact us 24/7 for more information about these vessels or the underwater services Hydrex offers. ■

Hydrex workboat with equipment next to tanker during underwater operation.

Always on time

Hydrex offers turnkey underwater repair solutions to shipowners wherever and whenever they are needed. Hydrex's multidisciplinary team will help you find the best solution for any problem encountered with your ship below the water line. We will immediately mobilize our diver/technicians to carry out necessary repair work without the need to drydock.

Hydrex performs complex permanent underwater repairs to thrusters, propellers, rudders, stern tube seals and damaged or corroded hulls. By creating drydock-like conditions around the affected area we can carry out these operations in port or at anchor.

All the projects we undertake are engineered and carried out in close cooperation with the customer and any third party suppliers, relieving the customer of all the hassle of coordination, planning and supervision.

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