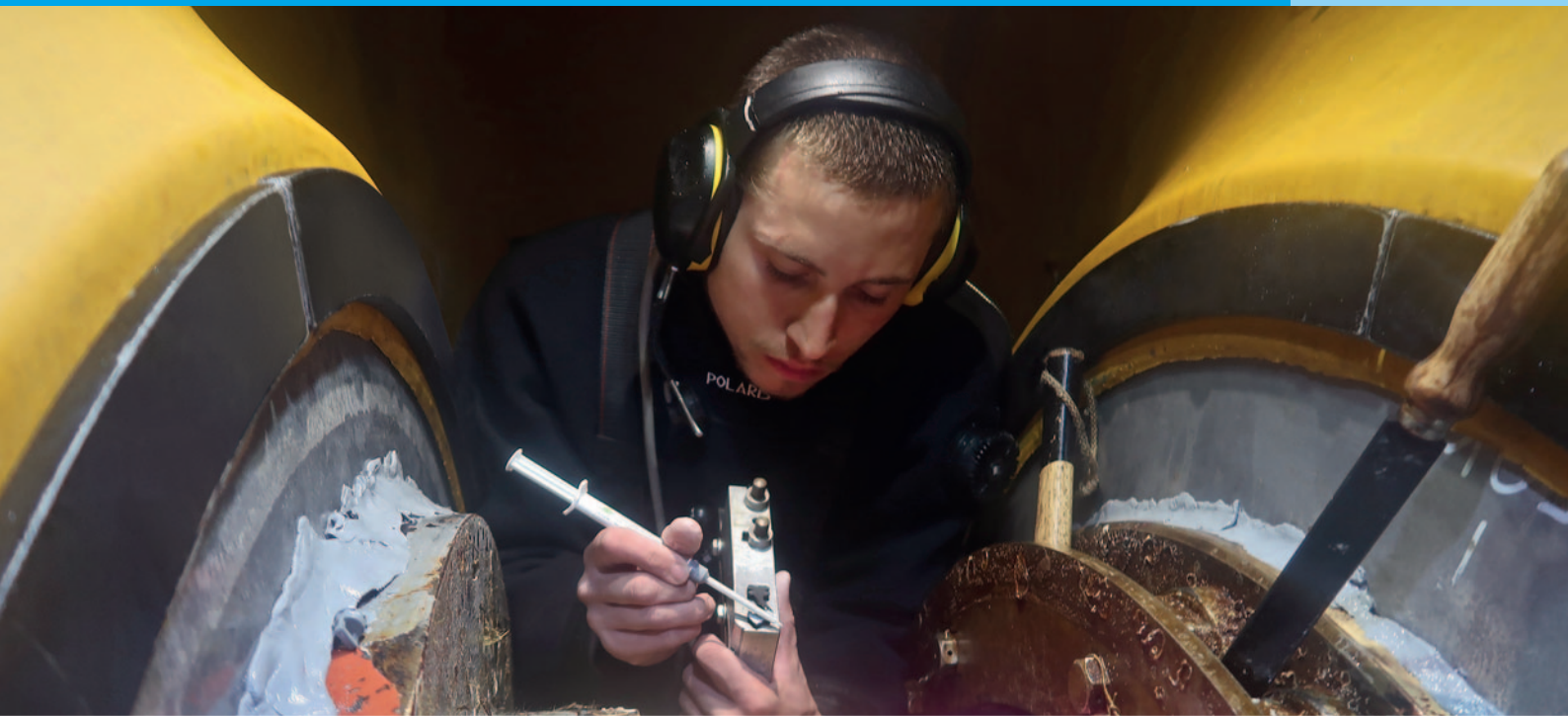


HYDREX[®]

UNDERWATER TECHNOLOGY

Magazine

Number 313



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Scrubber pipe repairs and lasting protection



Exhaust scrubbers filter out all harmful toxins from exhaust gases of marine diesel engines. These hazardous pollutants can severely corrode the pipes of the scrubber. Using the experience we have accumulated over the years allows us to assist you at moment's notice if this happens.

We offer a full package to owners that are experiencing similar damage. Not only can we replace the corroded exhaust pipe while your vessel stays on schedule, but we can make sure that you will not have to call us again in a few months time for the same problem. This is done by coating the pipes with a highly

corrosion resistant coating called Ecospeed.

Contact us for more information on scrubber pipe replacements or other underwater repairs. We are at your disposal 24/7.



UNDERWATER TECHNOLOGY

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Editorial



In the first article in this magazine you can read about a double underwater stern tube seal repair in Tasmania. This operation was performed using two of our mobdocks simultaneously. This technology has been successfully used on numerous occasions in the last 20 years.

This is just one of the many underwater services we offer to our customers. On our website (www.hydrex.be) you can find a more comprehensive overview. If you need more information on any of these, do not hesitate to contact me. I am always available to answer your questions.

Besides a wide variety of routine

repair and maintenance operations, we can also assist you with almost any unique situation. Finding solutions to keep ships in business and out of drydock is what we have been doing for the last 49 years.

Whether you need a simple inspection or a complex tailor-made repair, please contact me and my team and I will take the worry out of your hands.

A handwritten signature in black ink, which appears to be 'BVR' followed by a long horizontal stroke.

Hydrex founder
Boud Van Rompay
bvr@hydrex.be
www.hydrex.be

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Underwater services and technology approved by:



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Double stern tube seal repair on second vessel in Tasmania confirms customer's trust

At the end of 2022 our diver/technician teams carried out a double underwater stern tube seal repair on a ro-ro ship berthed in Port of Burnie, Tasmania. The ship was leaking oil, making an on-site repair necessary. Using two Hydrex flexible mobdocks simultaneously the team was able to carry out the entire operation on-site and underwater in just 60 hours, saving the owner an expensive and time-consuming trip to drydock.

After arriving on-site, the diving team first set up a monitoring station next to the vessel. The operation then started with a thorough underwater inspection of the stern tube seal assemblies.

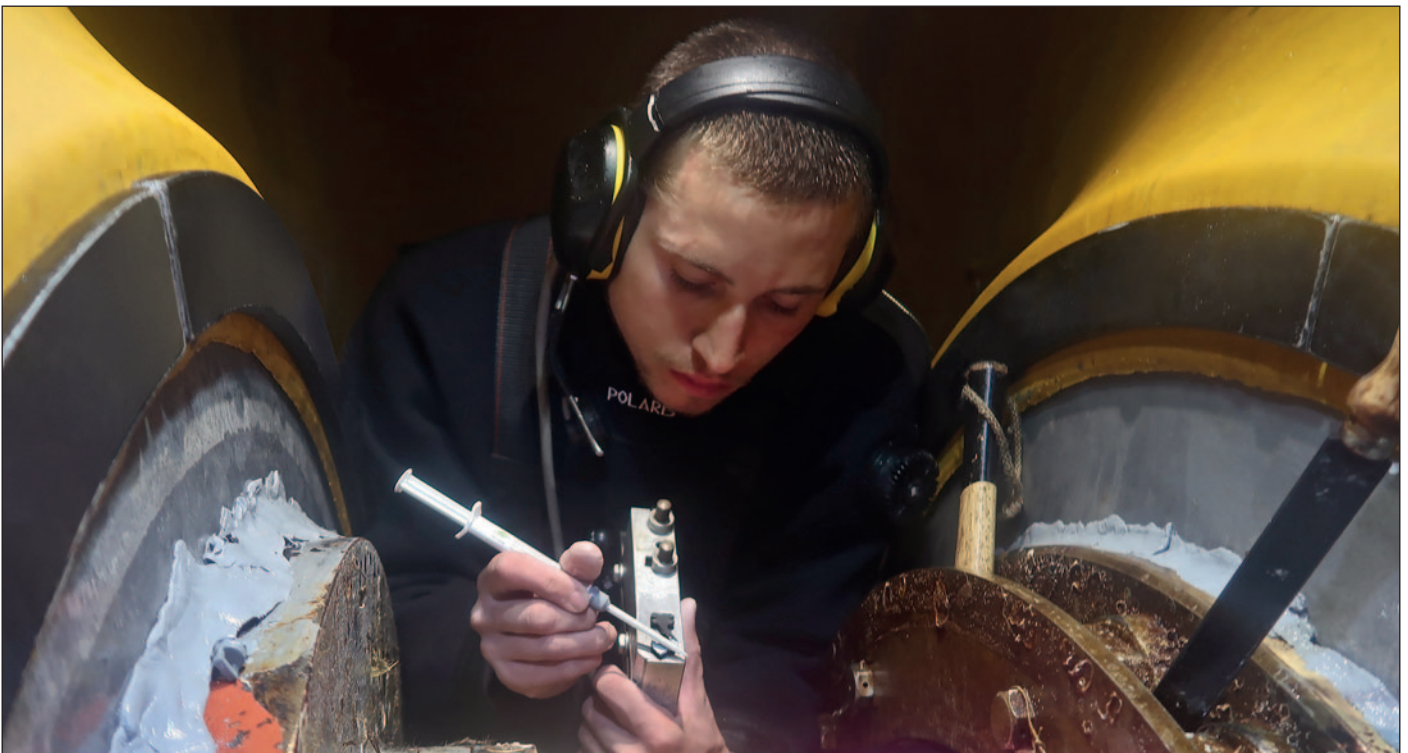


Preparations in our fast response center for a large repair operation.

After the inspection the divers cleaned the assemblies and installed both flexible mobdocks. By doing this they created a dry underwater environment so that they could work

in drydock-like conditions.

The exact same procedure was followed on both stern tube seal assemblies. The split ring was first discon-



Hydrex diver/technician working inside the flexible mobdock.



Positioning the new stern tube seals.

nected and brought to the surface to be cleaned. After cleaning the entire assembly, the divers removed the first seal and replaced it with a new one which was then bonded. This was done in cooperation with the supervising OEM technician. The procedure was repeated with the other three seals.

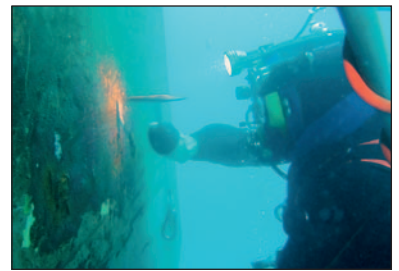
A successful operation was concluded with leakage tests, the removal of

the flexible mobdocks and the reinstallation of the rope guards.

Long distance a stimulus, not a hindrance

Despite the remote location of the ro-ro vessel, our technical department was able to make all practical logistic arrangements and organize a mobilization of the equipment very swiftly. In the recent past we have

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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First assembly after seal replacement.

carried out several operations in Australia. Earlier in 2022 we mobilized to the same location for an identical job on the vessel's sister ship, so the customer knew we could perform the operation fast, safe and to the highest quality standard.

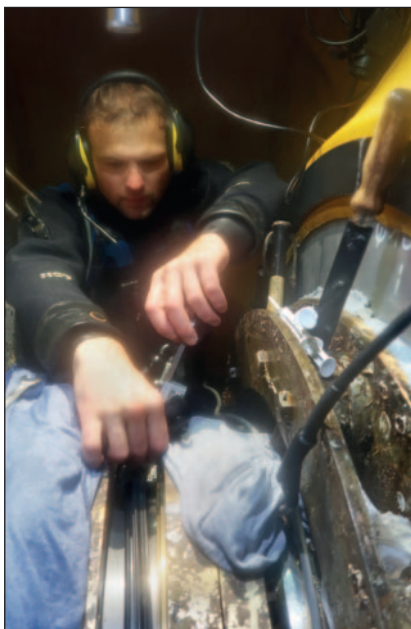
Taking advantage of our flexible mobdock technique our men were able to carry out the entire repair on-site and underwater. Because all the required material is ready to be transported at all times, no time is lost making preparations.

With Hydrex organizing everything from start to finish, the owner did not have to worry about making any arrangements for the repair. After the seals had been successfully replaced he could sail his vessel to her next stop free of oil leaks.

We have developed a flexible mobdock repair method that enables us to replace all types and sizes of shaft seals underwater. It allows ship owners to keep their vessels sailing, saving precious time and money.



Diver putting the assembly back together.



Working on the second assembly.



Reinstallation of one of the rope guards.



After the second rope guard was secured the operation was completed.

Stay on schedule and out of drydock

Damaged stern tube seals will cause oil leaks or an ingress of water. By replacing the seals as soon as possible we can keep the down time low. Because seal repairs can be performed during cargo operations the ship can keep its schedule.

It is not always straightforward to replace seals. There can be consider-

able variation in the size of the stern tube itself and, for instance, the liners can be worn down and show ruts. However, all this is routinely handled by our experienced teams.

All our offices are equipped with the latest facilities, lightweight equipment and tools. This allowed for a timely arrival of the team in Tasmania with everything needed to successfully complete the job.

If you ever encounter a similar situation, give us a call. We can then tell you if the repair is feasible and start working on its handling. ■

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High quality in-water ship re

Permanent insert repairs

Specialist class approved insert repair work carried out on a permanent basis. Providing a real alternative to drydock.

Emergency repairs

Fast response emergency repairs worldwide.

Inwater video inspections

Professional video surveys provide a reality of the problem and enable owners and classification surveyors to directly diagnose any problems.



Echo sounder inspection and replacement

Speed log
Checks for damage, marine fouling and replacement.

Bow thruster and propellers
Permanent on-site repair, maintenance and replacement with the award winning flexible mobdock technique.

Hull cleaning on suitable coatings

Bilge keel
Check and repair broken welds, renewal of sacrificial anodes.

pair and fuel saving services

KEEPING SHIPS IN BUSINESS



Sea valves, sea chests and gratings
In-water inspection, cleaning and repair of intakes and valves, installation of new sea chests, condensers and coolers afloat.

Stern tube seal replacement
Permanent inwater stern tube seal replacements and repairs with the unique Hydrex flexible mobdock technique.

Propeller operations
Propeller cleaning with special tools, on-site blade straightening and cropping. Permanent repairs to all types of propellers or installation of propeller cone fins.

Rudder repairs
Permanent on-site repairs on all types of rudders with groundbreaking new technology.

Pintle and bushing repair and replacements

How Hydrex helps shipowners save money

Ships are large, complex pieces of equipment with many, many working parts that require maintenance and that can fail and need repair. Because they are at sea, often far from land or a port, there is a safety aspect to their proper maintenance and repair which is even more crucial than for land-based vehicles. The repair and maintenance involved can come at a very high cost.

Anything that can reduce the cost of maintenance and repair while maintaining efficiency and safety and keeping the ship in business and on-schedule is therefore a valuable resource to shipowners and operators.

One of the benefits Hydrex offers to shipowners and operators all over the world is cost savings.

How do we do this?



Training is essential in ensuring that technical personnel works fast and efficiently on each job, keeping the costs down for the customer.



The fast response center in Antwerp along with the boats, vans and trucks were all designed for rapid mobilization for underwater maintenance and repair work anywhere in the world.

The first step: to drydock or not to drydock?

Drydocking a ship under any circumstances is a very expensive exercise. There are two sides to the cost: there are the drydock fees and the cost of the maintenance or repair carried out in drydock; then there is the off-hire time while the ship is out of service. These both affect the bottom line equally.

Certain drydocking is mandatory, routine and scheduled. If an intervention is required when the ship is not due to go to drydock, the revenues lost as a result have a direct effect on the bottom line for the ship and its owners, just as much as the direct costs and fees involved.

Nevertheless, these situations do arise, and not infrequently. The stern tube starts leaking oil and the ship is not approved to sail until it is

repaired and the leak stopped. The ship grounds or touches something and the integrity of the hull is jeopardized, or the propeller blades are bent. Cracks develop. A thruster ceases to operate, making the ship impossible to maneuver properly so that tugs are required. The acids in the scrubber exhaust eat away the steel and the ship begins to leak. Rudder malfunctions, stabilizer problems, clogged seachest grids and a thousand other problems can develop which interrupt the ship's scheduled itinerary and operations.

When any of these circumstances arise, the Captain, Chief Engineer, Superintendents and Ship Managers are faced with a difficult decision. Drydock the ship for repair? Or try to get the needed repair carried out as rapidly as possible with the ship still afloat?

This is where Hydrex can be a real



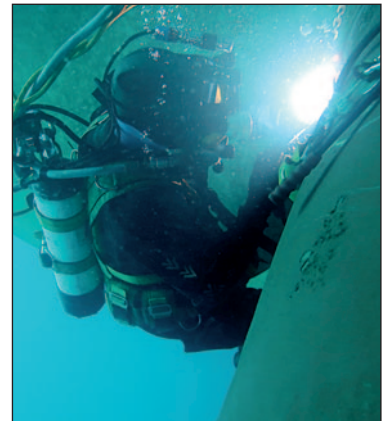
Once on location, the technicians and divers simply do the necessary steps to achieve the required outcome in the shortest possible time, with due regard for safety.

asset to anyone responsible for keeping a ship in good repair and operating safely. They can simply call us, explain the situation they are faced with, and ask us if we can carry out the needed intervention without the ship having to go to drydock.

“Without charging anything for this service, we will determine from the information at hand or that we can obtain, whether the needed repair can be carried out with the ship afloat, or whether the ship has to go to drydock,” says Hydrex’s Founder and CEO, Boud Van Rompay. We will examine the situation, study any drawings, photos or videos provided, talk to the officers and engineers

involved. “When we say, ‘Yes, we can do it with the ship afloat,’ or, ‘No, we think you will have to go to drydock,’ that represents the shipowner’s first cost saving with Hydrex. “That initial free service can represent a huge cost saving. “If we determine we cannot carry out the operation underwater with the ship afloat, you can be sure that nobody else is likely to be able to do it either, so the only choice is to go to drydock,” Boud continues. “But very often we will undertake in-water repairs that others cannot do, because they don’t have the personnel, organization, equipment, know-how, ingenuity or experience needed. In those cases, the shipowner

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 many 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.

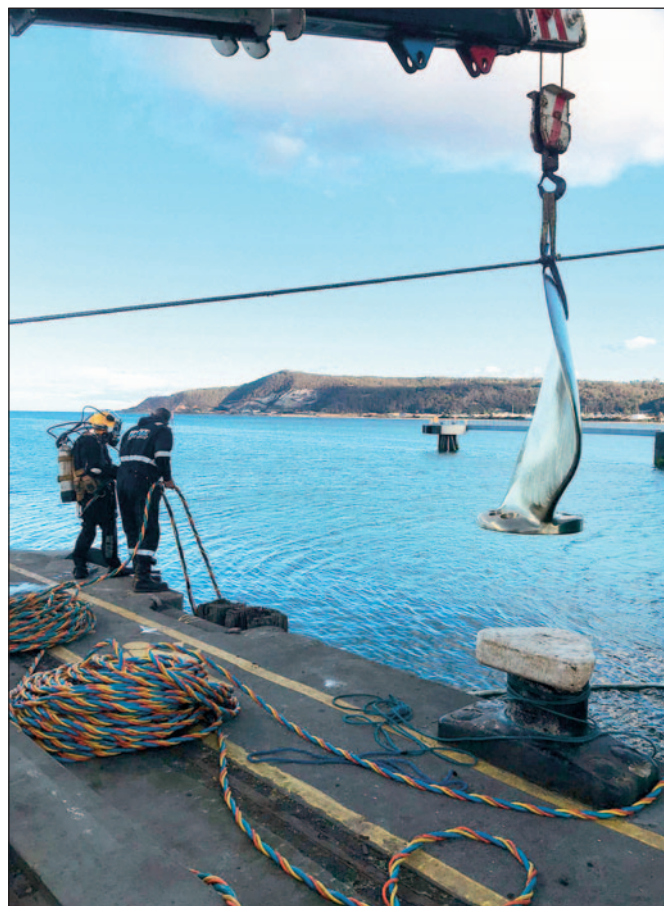
This class accepted method is performed by our diving teams under our warranty. It can be used while the ship is carrying out its usual cargo or other commercial operations in port.

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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Hydrex welder welding the rope guards back in position on a thruster which has been removed for repair with the ship still afloat.



Repairing a propeller with the ship still afloat can save the owner great expense and time.

will save large amounts of money by having Hydrex do the job.”

Either way, this initial decision is an important one in the overall saving of unnecessary costs.

Accurate estimates

Once the decision has been made that the job can be successfully carried out without the need to drydock, the next step is an accurate estimation of the time and costs involved.

“We provide estimates based on the information we have about the situation we will be dealing with,” explains Dave Bleyenbergh in Tech Services at Hydrex. “If this information is accurate, then we usually complete the job within the time and cost estimate we provide. This is not usual in this industry. We are able to do this because of the experience and knowledge of the key decision makers in the company and because we train our technical personnel on courses including practicing the procedures here at our headquarters so that when they are on a job they can perform as efficiently as possible.”

Speed, quality, reliability

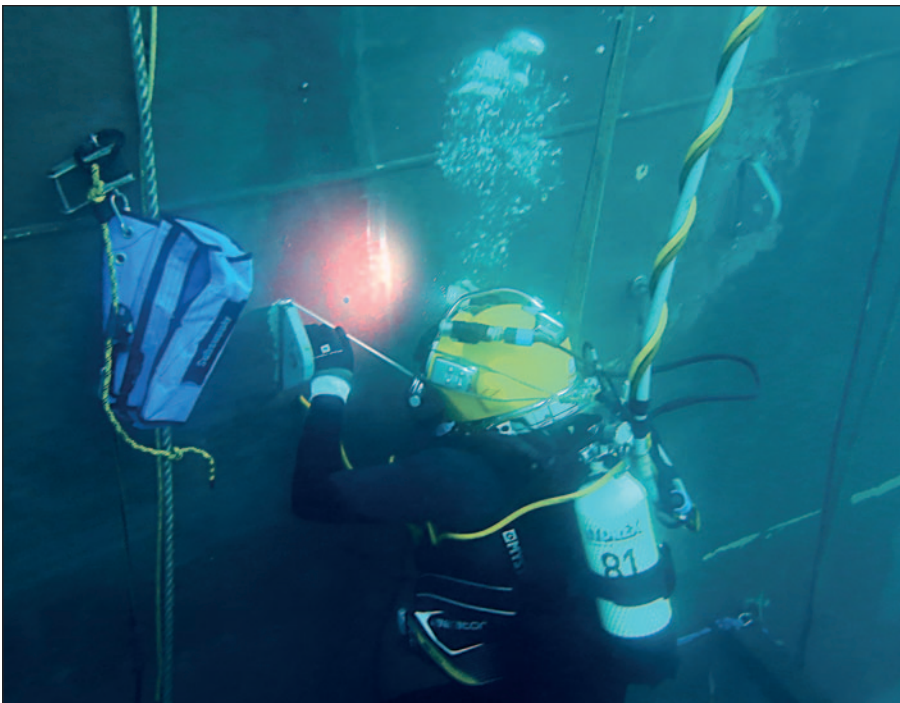
Once we and the shipowner or manager have decided to go ahead with an in-water repair, the next major savings to be made are through the quality and speed of the operation.



An insert repair on the bulkhead of a vessel that grounded. The repair was rapidly completed without a trip to drydock.



Excellent communication between the Hydrex team on the job, the support team in the office and the client is key to overall cost savings.



Emergency hull repairs play a very important role in keeping ships in business and must be performed competently and rapidly.

Just comparing hourly costs of various underwater service providers and choosing the cheapest does not guarantee cost savings. It is the final

invoice and also quality of the repair and how long it will stay repaired that tell the tale. If a new insert is installed but it starts leaking again

after a few months, no money has been saved.

Quality and reliability are essential if the repair is going to prove cost-effective overall.

When it comes to speed of delivery, it is generally reckoned that there's no comparison to Hydrex. "We get the job done dramatically faster, often cutting the time others would take in half or less," says Boud. "Since the company was founded, we always took great pride in how quickly we could get the job done."

Boud recalls, "We took a decision right at the start that we were going to get each job done to the highest quality standards and requirements,



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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Hydrex diver/technicians repairing a rudder with the ship afloat, saving the costs and off-hire time associated with drydocking.

observing all safety precautions, as rapidly as the job could be done. It was based on a sense of giving value for money and also establishing our reputation and trust with the market. Our customers gained confidence that jobs could be done very quickly.”

The quality factor comes down to doing all the steps necessary to meet the standard or the class requirement for a particular job. “You don’t waver,” Boud explains. “You look at the steps that are needed and then you just do them, no matter how difficult. Some people cannot see the steps to take in order to get there because it is overwhelming. That’s where training comes in.”

Conclusion

The first cost saving is establishing whether or not the job can be done without going to drydock. This is a free service.

If it can be handled with the ship afloat, the next step is providing an accurate estimate. The next cost sav-

ing comes in doing the work as quickly as humanly possible to the highest quality standards while keeping safety firmly in mind.

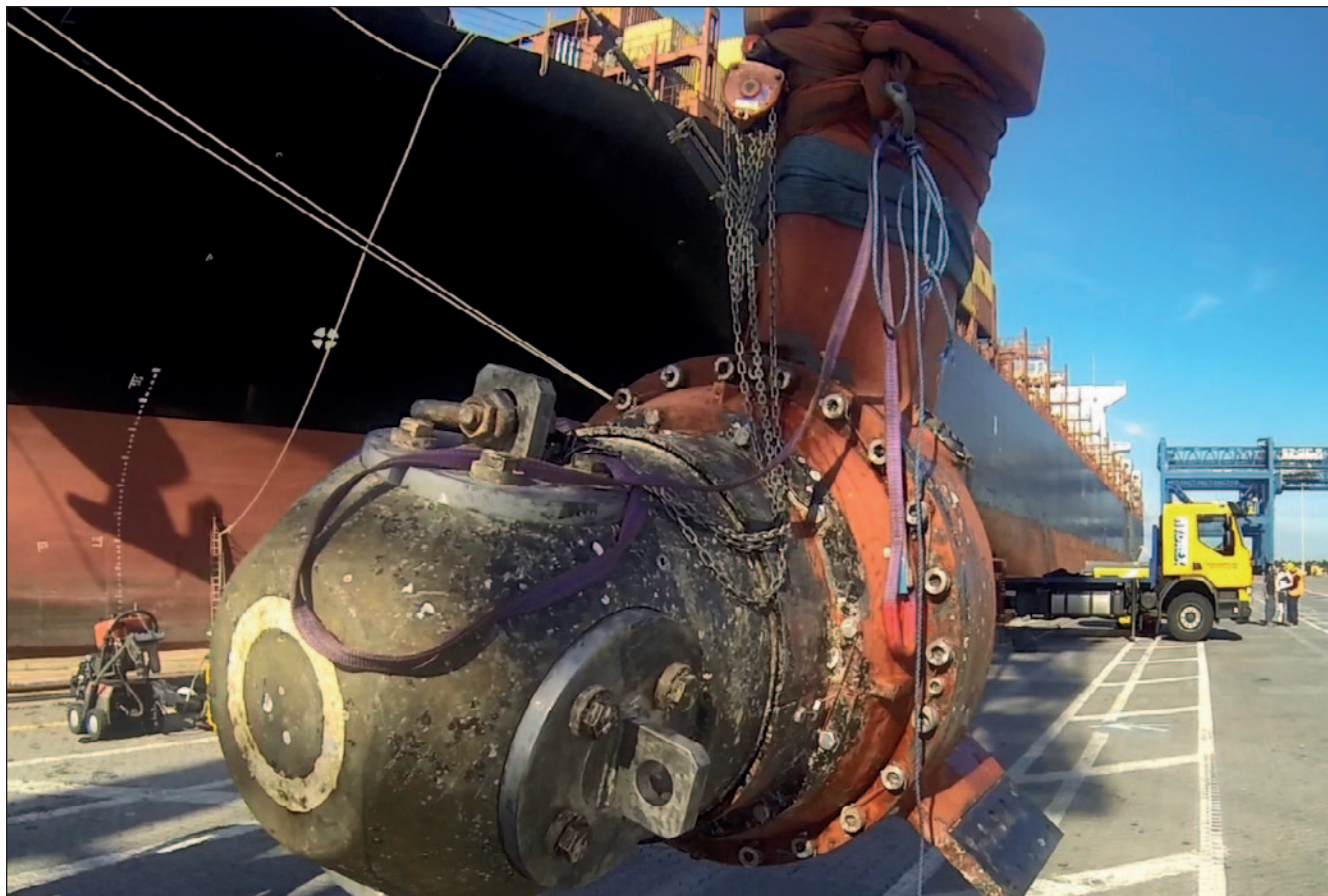
Your ship is back in action without interfering with the charter, without loss of time, and interrupting the commercial activities as little as possible if at all. ■

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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or at
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**KEEPING SHIPS
IN BUSINESS**

In-water bow thruster repairs



Our 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 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.

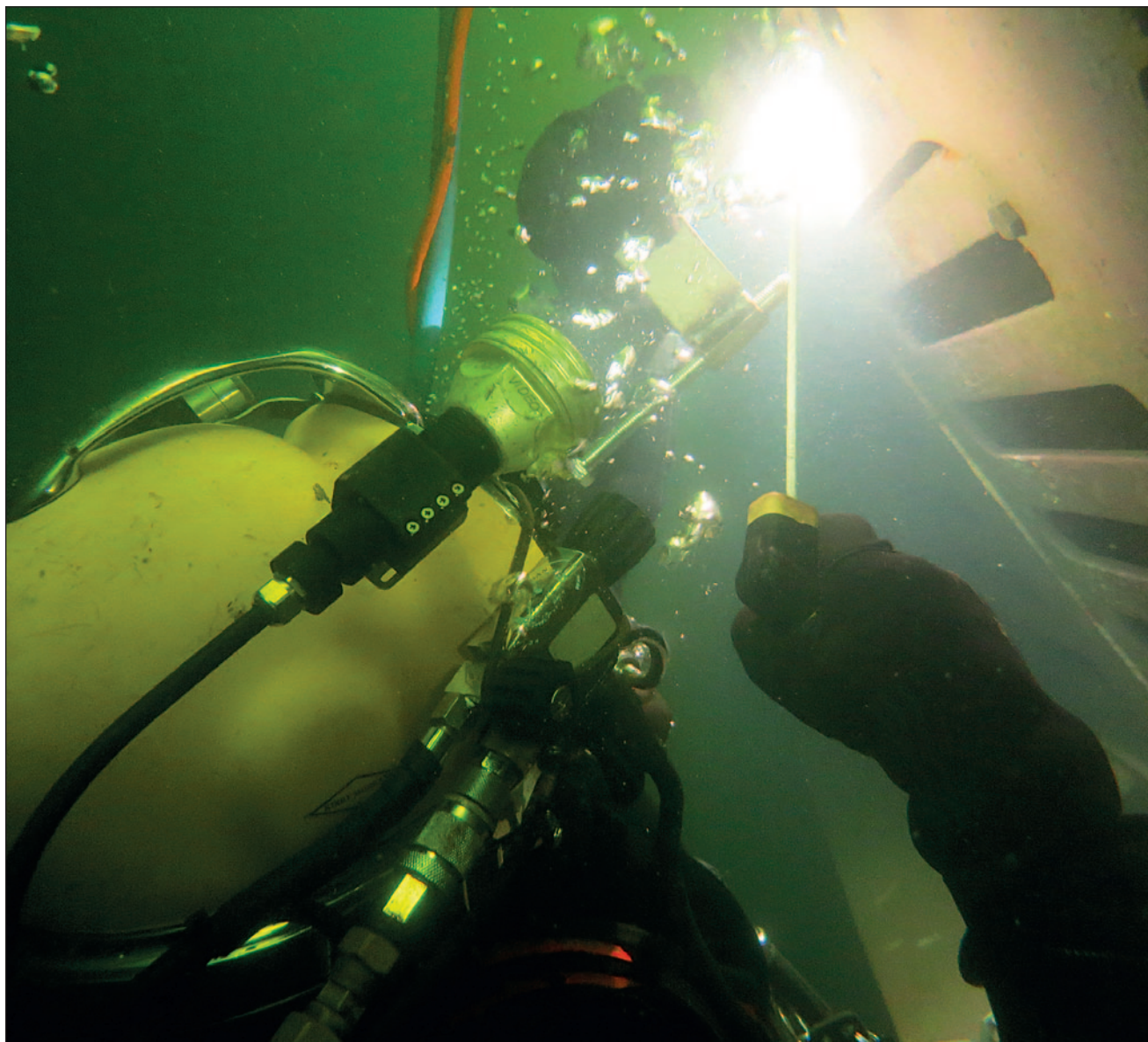
There is no need to send the vessel to drydock as all operations can be carried out in port or while the vessel is stationary at sea. Normal commercial activities can therefore continue without disruption.

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