



UNDERWATER TECHNOLOGY

Magazine

Number 319



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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.

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UNDERWATER TECHNOLOGY

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Editorial



When we send a team to an operation, any operation, we have one goal in mind: to get the job done in the shortest possible time and to the highest standards. This has been our policy since Hydrex was founded in 1974. Our track record proves this.

Providing a service that is both versatile and effective, Hydrex has built a reputation as the world's leading underwater repair and replacement specialists. With an ever-expanding worldwide network of offices and support bases, we can provide fast service at reasonable costs.

Over the years we have not only built long-lasting relationships with

our customers, but also with classification societies and OEMs. Correct and direct communication is an essential factor in establishing and maintaining a network you can rely on.

Whether it is close to home or on the other side of the globe, if a shipowner needs assistance, we can send a team to the vessel immediately without losing time.

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Insert installation in Uruguay prevents loss of charter

A 277-meter oil tanker suffered a hole in the shell plating of its ballast tank. We were contacted by the owner to provide an underwater solution that would allow the vessel to keep its schedule. A team of our diver/technicians therefore mobilized to Punta Del Este, Uruguay to perform on-site repairs.

The corrosion damage was situated in the bottom plating of the ballast tank, underneath the sounding pipe. The tanker's tight schedule only allowed for a temporary repair at this time. Because of the bad weather conditions and resulting fast current, no underwater welding work could be performed. Our technical department proposed a repair plan that took into account both the limited time frame and the meteorological circumstances.



Workboat next to oil tanker in Uruguay.

Fast temporary repair

After our team arrived in Punta Del Este, where the vessel was at anchorage, they performed a detailed inspection of the damage.

Next a doubler plate was installed. This was done using a method that did not require any welding work on the waterside of the shell plating.

This repair was carried out very quickly. It allowed the tanker to keep its schedule. The classification society agreed to let the vessel sail until its next scheduled drydocking, if regular inspections were done of the affected area.

While this repair kept the ship from going off hire, the charterer requested the owner to find a permanent solution to avoid the required inspections. Once again, we were asked to look for a way to help the owner.

Permanent underwater solution

Thanks to the quick doubler operation carried out by our divers, the vessel could keep on sailing until a



Installed doubler plate on tanker.



Cofferdam being lowered into the water, ready for installation.

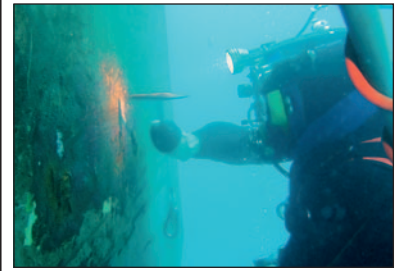


Removing the corroded plating.



New insert fitted.

Hydrex under-water 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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Hydrex diver/technician during removal of the cofferdam.

larger time frame became available. This was needed to plan the permanent repair that would involve the installation of a new insert plate.

Three months after the doubler plate had been installed, a Hydrex team mobilized to Punta Del Este again.

They arrived on-site with a work-boat, all the needed equipment and the new insert plate that measured 860 mm x 600 mm.

The repair operation started with the removal of the doubler plate and the installation of a cofferdam on the

waterside of the damaged area. This cofferdam had been modified to fit the shape of the hull by using the measurements taken by our team during the first part of the operation.

The team then cut away the affected area of the bottom plating. Next, they fitted the insert plate, which was welded following the Hydrex class-approved procedure for insert plates, using a full penetration weld.

An independent inspector carried out ultrasonic testing and the repair was approved by the classification surveyor who was present during the operation. The divers then removed the cofferdam, concluding the repair.

Stormy weather poses no problem

During both parts of the operation the weather conditions were terrible, but we were able to find a way



Hydrex welder working on the insert plate.



Independent ultrasonic testing.

around this. By performing a very fast temporary repair that did not require any underwater welding work, we bought the owner of the

tanker the time needed to find a more suitable date for the second, permanent part of the repair.

Diving conditions were still not ideal during the second phase of the operation, but this did not prevent our team from securing the cofferdam and installing the new insert. Our divers have gone through extensive training, both in-house and external to make sure they can perform the task at hand in challenging circumstances. They do this without compromising the high safety and quality standards we are known for. ■



Fully welded insert.

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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**KEEPING SHIPS
IN BUSINESS**



Underwater re

Seal repairs

We have developed a reliable technology that enables the underwater replacement of all types and sizes of shaft seals.



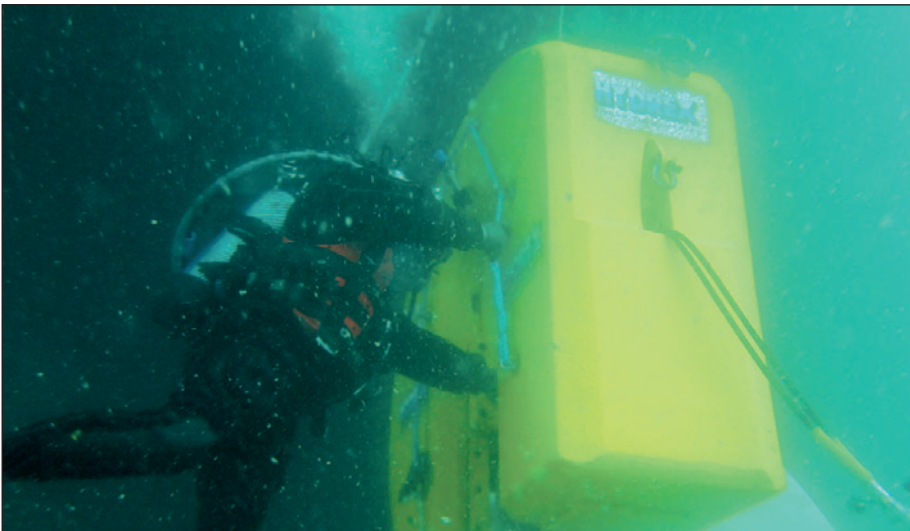
Thruster repairs

We can assist shipowners with almost any



Propeller repairs

When damage to propellers occurs due to impact with ice and other debris we can fix these, even if the damage is extensive.



Rudder repairs

We can perform permanent repairs on any rudder damage, even at anchorage and cargo operations continuing.



Underwater maintenance

Inspections

We offer a full range of hull monitoring services including IWS and class inspections. This gives owners total control of their ship's hull condition.

Propeller buffing

We developed an efficient technology to enhance propeller blade surfaces underwater and achieve surface conditions never seen before.

Anode installation

We can install both ICCP and sacrificial anodes. If needed we can supply the anodes.

Repair solutions

any problem encountered with thrusters.



Hull repairs

Our on-site hull repair services include the renewal of both small and large areas of damaged hull plating.



any type of rudder while the vessel remains
ue.



Scrubber repairs

We can assist shipowners at moment's notice when a scrubber pipe corrodes and needs replacing.



Transducer installation

Our teams can very quickly replace or install speedlogs and echosounders without any hindrance to a ship's schedule.

Blanking

We can blank overboard valves, inlets, seachests or any other underwater opening to allow for onboard repairs. This is done very quickly and on-site.

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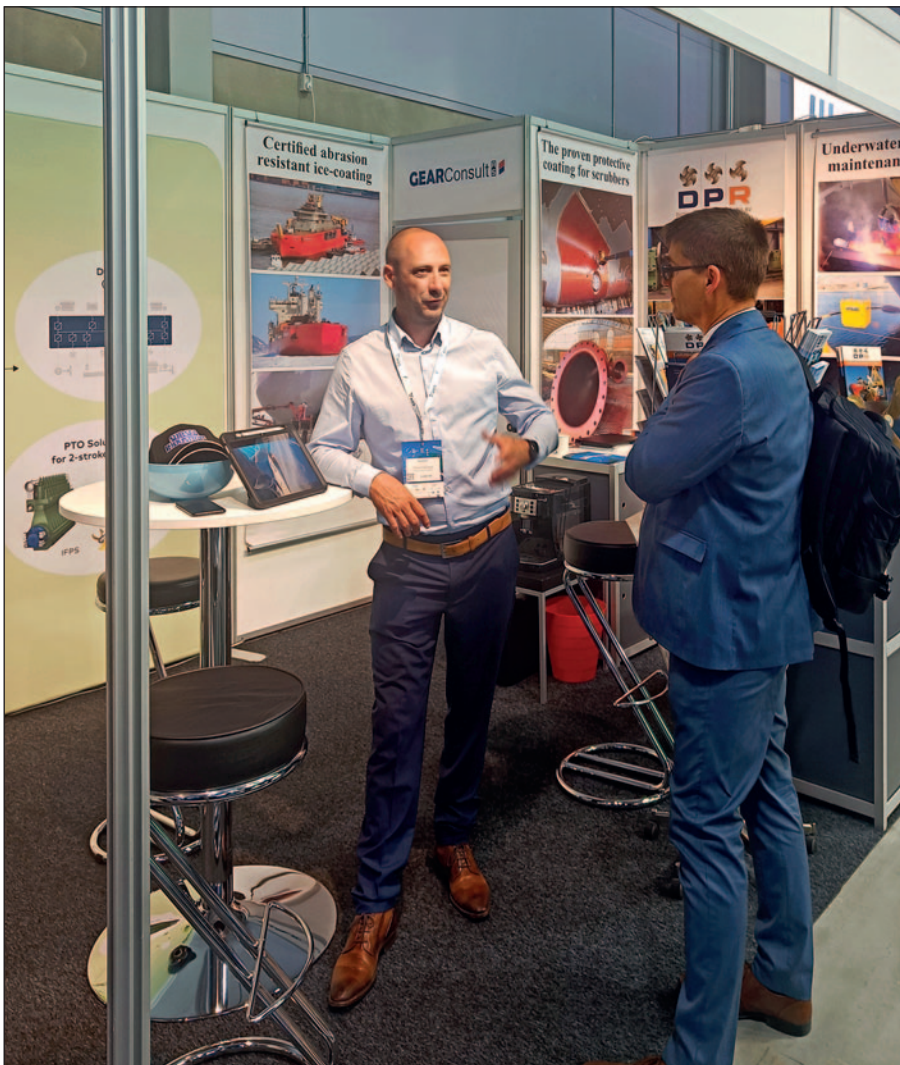
Hydrex at Nor-Shipping 2023

In June, Hydrex and Subsea Industries took part in Nor-Shipping, together with our agent for Norway, GearConsult AS. The exhibition was a very successful one for everyone involved and we are already looking forward to the next edition.

According to the exhibition's post event press release, initial analysis shows a total of 30,000 entries into the exhibition halls, where visitors were introduced to around 892 exhibiting companies, and total participant numbers of over 50,000, including those at conferences, net-



In June, Hydrex and Subsea Industries took part in Nor-Shipping, together with our agent for Norway. (Images courtesy of Nor-Shipping).



Hydrex Head of Technical Services, Timo Verhoegstraete (left) answering questions about Hydrex services.

working events and official social gatherings. These figures do not include those attending the huge array of partner and exhibitor events in Oslo.

Nor-Shipping 2023 proved to be one of those “you had to be there” moments. From the second the bell rang at Oslo Stock Exchange on Monday morning, announcing the beginning of this year's packed program, through to the final delegates leaving the Lillestrøm Exhibition Center on Friday afternoon, this year's Nor-Shipping delivered on every expectation.

Sidsel Norvik, Director of Nor-Shipping said: “It's been an unforgettable week. The numbers speak for themselves, but what you can't quantify is the incredible enthusiasm and sense of opportunity – the real desire to connect and do business – that defined the whole week. It's been a joy to watch so many diverse industry stakeholders, from all around the world, seizing this

chance to learn from, partner with and inspire one another.”

Hydrex Head of Technical Services, Timo Verhoegstraete was present during the entire event. He told us that he had many networking opportunities throughout the exhibition and that the GearConsult booth was bustling with activity from start to finish. “Nor-Shipping 2023 was a great success for us. I met many interesting people from the shipping industry,” said Timo. “We reinforced existing relationships while new business opportunities presented themselves.”

We would like to thank all of you who visited us there for coming and look forward to working with you on an ongoing basis. We would also like to invite you to come and visit us during Europort 2023 at the Holland Pavilion in Hall 1, booth 1010. ■



Timo together with Ludvig Nyquist, CEO of GearConsult (middle) and Andi Hermans, Production Manager Subsea Industries (right), at the GearConsult stand before another busy day at Nor-Shipping.

Stern tube seal repairs



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.

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.

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In-house training and tests lead to experienced certified diver/technicians

Hydrex can offer its customers the high quality of service they deserve while guaranteeing the safety of the divers at all times. This can only be done successfully by staff who have experience with a wide range of operations and have gained all the relevant know-how.

Our diver/technicians are trained and qualified to perform all required class-approved repair procedures in even the harshest conditions. This is a result of the stringent training all divers go through, whether they work for the Hydrex main office in



Hydrex truck on the road with Chief Diver Toon Joos at the wheel. New divers have the opportunity to go on jobs with experienced divers and gain valuable experience.



Hydrex Lead Diver and trainee diver during dry welding training at the Antwerp headquarters.



Divers can be trained in wet welding and other aspects of underwater work in one of our three in-house diving tanks.



Class surveyor making a visual inspection of one of the welds performed by a Hydrex diver/technician. Further examination of the samples is done in a laboratory.

Antwerp or for one of the other offices. Besides being required to have official international commercial diver certificates and taking high standard external courses, including safety and offshore courses, they also receive comprehensive in-house training.

Training consists of both theoretical classes in the course room and practical drills on the Hydrex premises, including dry welding training. They also have access to a wide range of

underwater tools and various other equipment, including three dive tanks in which to practice underwater welding and other repair work.

When new divers have to perform tests for their dry welding certificates, we also have the facilities to do this in-house. These tests are performed at the Hydrex premises under the watchful eye of a class surveyor who then takes the welding samples to a laboratory for further examination.

Because our divers are also certified welders, we only have to send one team to the job. They can carry out the operation from start to finish and we do not have to send in new team members halfway through.

New divers get the opportunity to assist experienced Hydrex diver/technicians during operations. The training enables them to become experienced divers and technicians themselves and to take advantage of the technical know-how and practical knowledge Hydrex has accumulated over the last 50 years.

When their training is completed, Hydrex divers can carry out both simple and complex jobs even in harsh circumstances and achieve this uniformly without any waste of time or sacrifice of quality or safety. This has led to an outstanding safety record since the company was founded in 1974 and results in the extraordinary dependability that our customers deserve. ■



One of our divers during dry welding test at the Hydrex premises.

Grade A wet welding certificate

We can carry out classification certified grade A wet welding. To guarantee the required high standard of these underwater welds, NDT tests were performed by ABS surveyors before the certificate was awarded.

The certificate was given to carry out grade A *groove welding* underwater. Cavitation or corrosion damage on rudders, clad welding, rope guard repairs, mewis duct repairs, ... can now be done with permanent welding.

With a class B weld regular inspection of the weld is required. With class A welding the deadline for an inspection is much longer. This is decided by the attending surveyor on a case by case basis.

Any required inspection will be for the underlying problem causing the damage and not for the welding work. An internal structural problem causing damage will not always be handled after the repair and will need to be followed up. For instance, doubler repairs can never be permanent because the doubler is installed over the damaged plating instead of replacing it (as is the case with insert repairs).

With class A underwater welding only a note is made stating that the affected area needs to be looked at during the next scheduled inspection. This is very important for tankers as a clean class certificate is requested by most charterers.

Even for non-class items the certificate is useful because it shows our customers that our diver/welders can carry out high quality underwater



We have received the approval to carry out classification certified grade A wet welding.

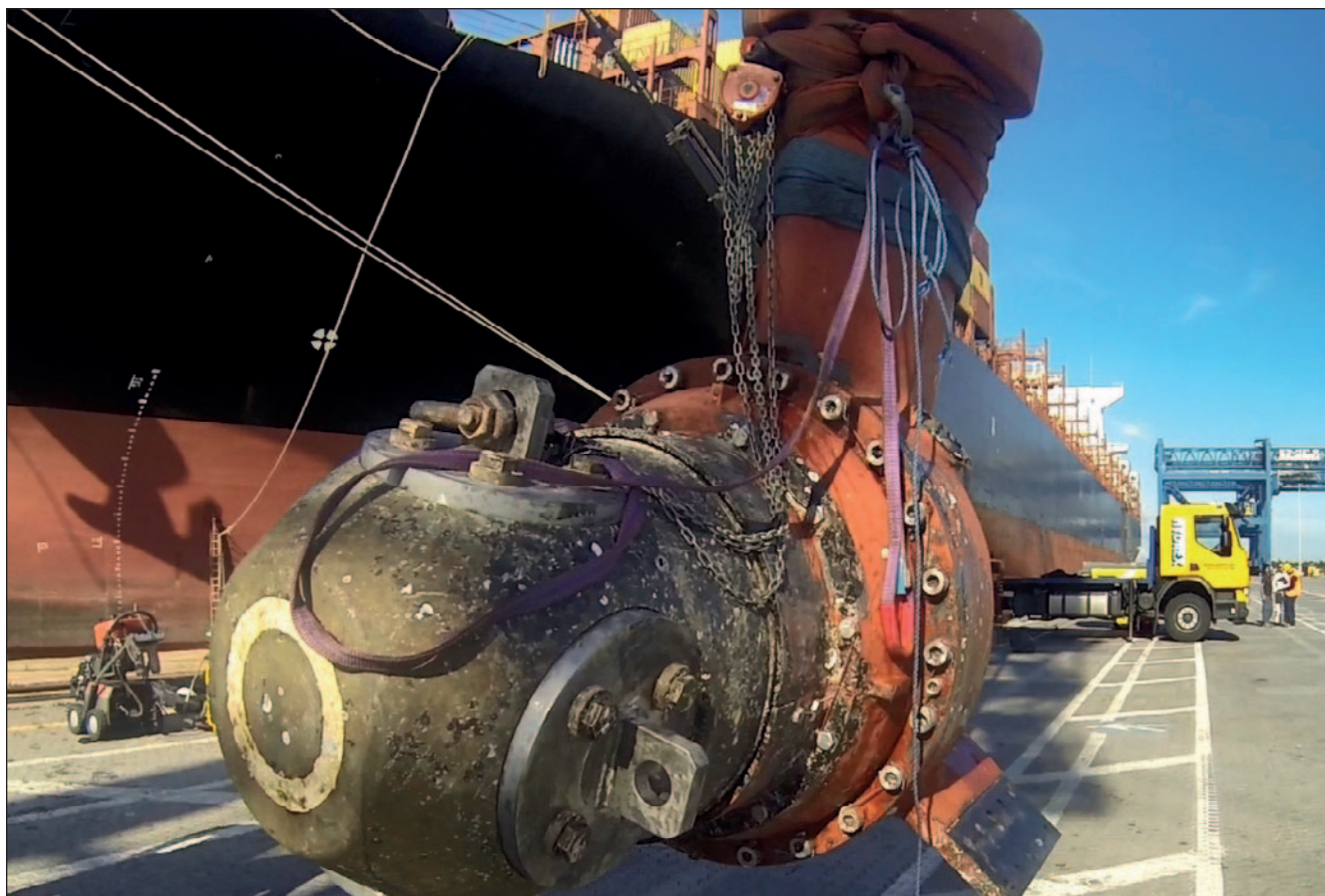
welding work. This is a major benefit for offshore units where high quality standards need to be verified

before welding operations like doubler repairs can be performed. ■



Weld seams of doubler plate installed over damaged hull area.

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.

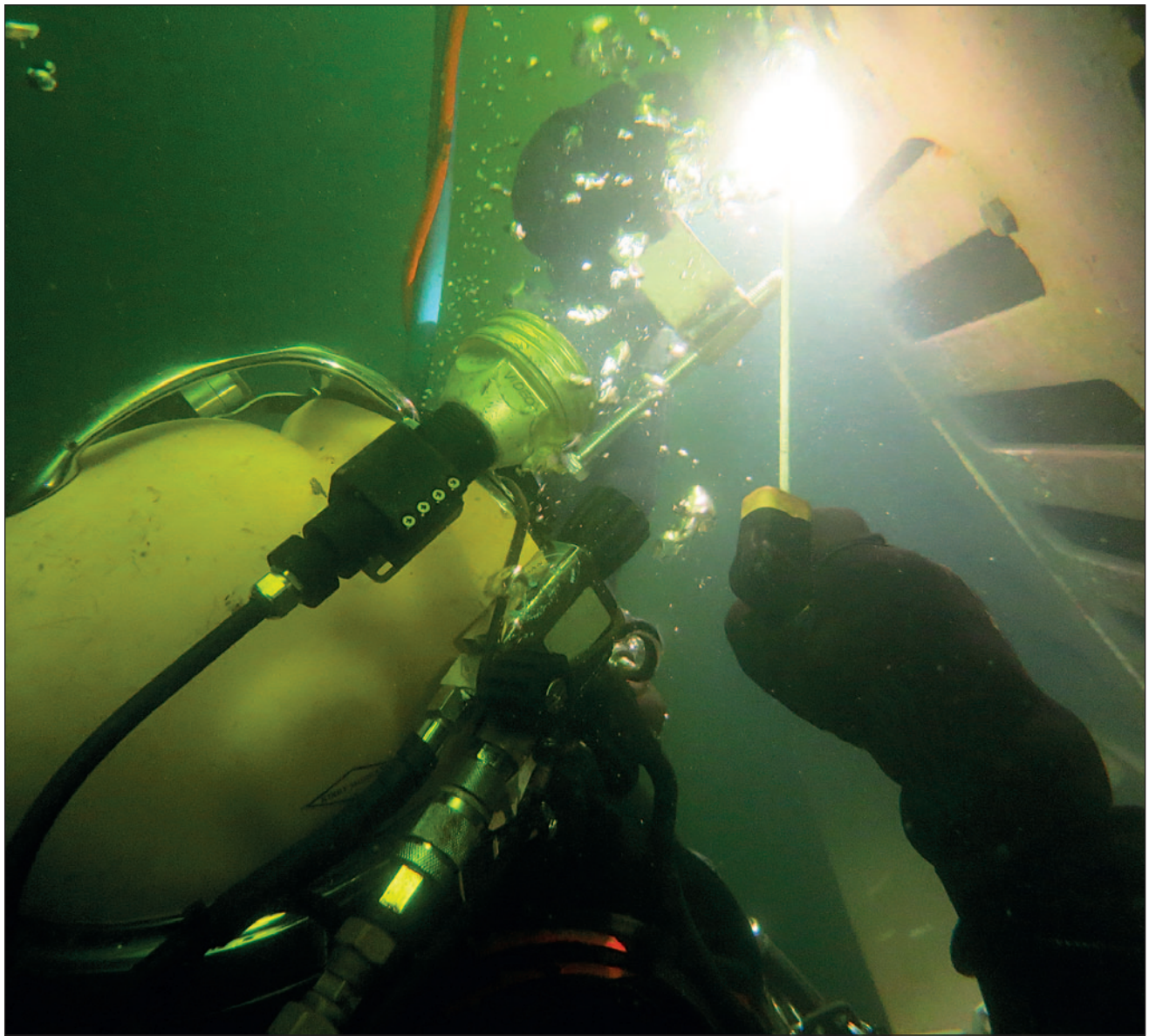
There is no need to send the vessel to drydock as all operations can be carried out in port or while the vessel is stationary at sea. Normal commercial activities can therefore continue without disruption.

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