

On-site repair on azimuth thruster in Gabon

This year marks the 45th anniversary of Hydrex. We will be looking back at some of the many key operations our teams performed since the company was founded in 1974. We will do this by republishing an article from the vault of the Hydrex Magazine each month.

This month's revisited article talks about an operation carried out in 2006. It required meticulous planning and engineering skills, combined with professional diving expertise. Just about all vessels have tight time schedules to keep, but this is probably even more so when it comes to offshore activity where a number of rigs, crane and other service vessels must remain in close synchroni-

zation. Dropping out of service because repairs are needed will often mean serious penalties for contract breakage.

Going to drydock had not been an option for an offshore crane barge that was servicing rigs on an oilfield off the coast of Gabon. When one of its four 40-ton thrusters malfunctioned we therefore designed a large mobdock (weighing over 25 tons by itself) to remove the thruster on-site. After the operation it was stored in Gabon to be used at short notice whenever future repairs were required on the thrusters. This has allowed for a very fast mobilization and execution of repairs on several occasions since then. ■

30 days to remove, overhaul and re-install a 40-ton thruster

One of the four 40-ton swing-up azimuth thrusters of an offshore crane barge servicing rigs on an oil field in Gabon had malfunctioned and needed to be removed from the barge for repairs. Thrusters are vital to staying in location as this is done by DP (dynamic positioning). While it is possible to maintain location

with 3 thrusters it was obvious that the fourth needed to be repaired urgently.

The crane barge, however, had only one month during the year in which it was contracted to leave the oil field for repairs. The work on the thruster, along with any other servicing, needed to be done



This article was first published in November 2006.



Mobdock construction.

nearest suitable place was in South Africa and this would have taken the repairs way outside of the time frame available.

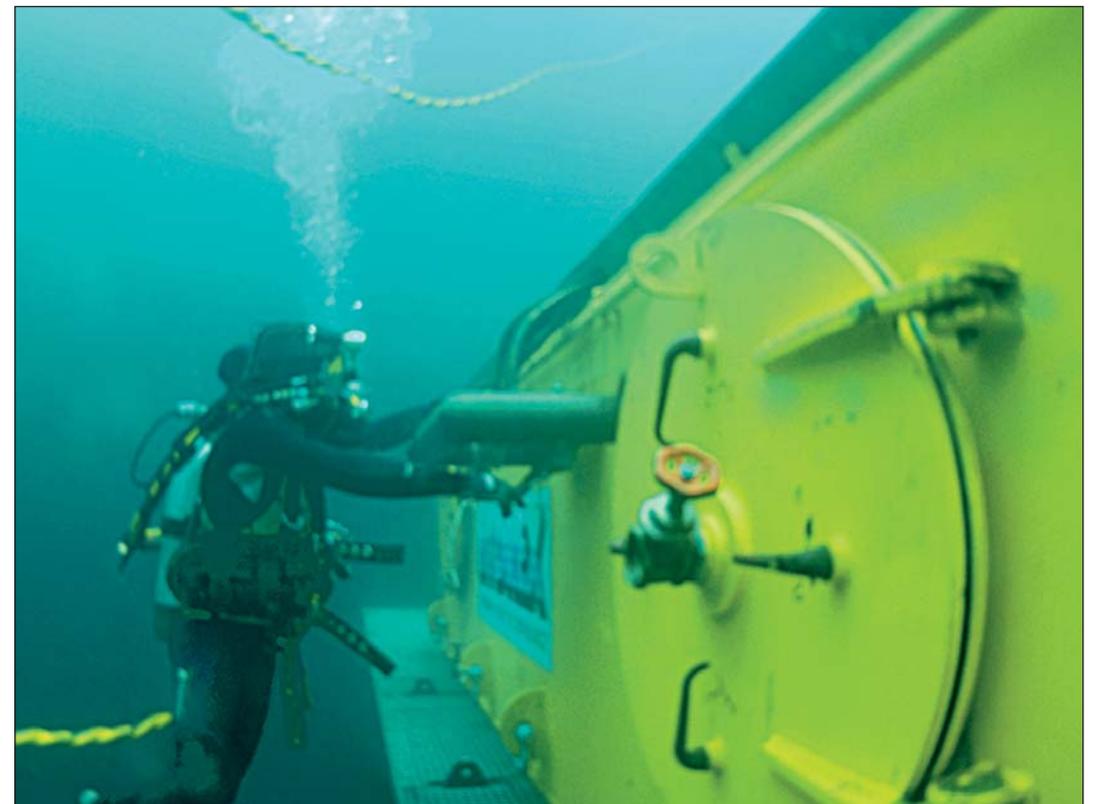
There were also detailed safety and technical procedures that had to be met in order to access the thruster from within the engine room, as the thruster was located outside the vessel under the water line.

This was where we were called in: to find a solution to this problem as well as to overhaul the thruster unit. True to form, we did.

There was some time in which to prepare for the work but only the relatively small time frame of



Immersion of mobdock.



Preparation underwater.



Positioning the mobdock.



Mobdock underwater.

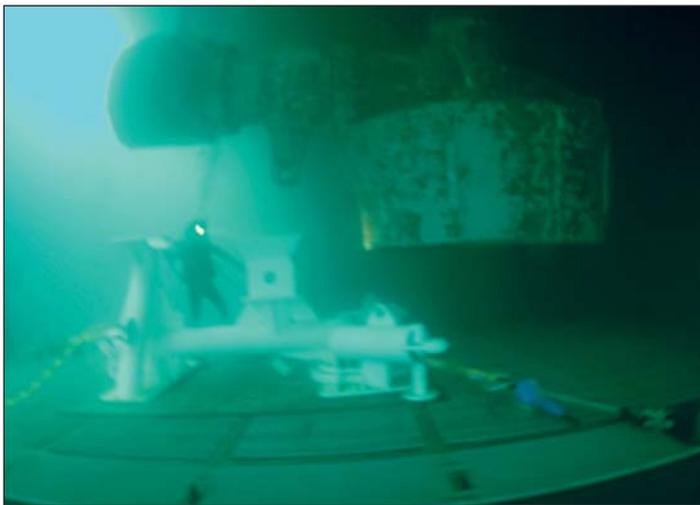
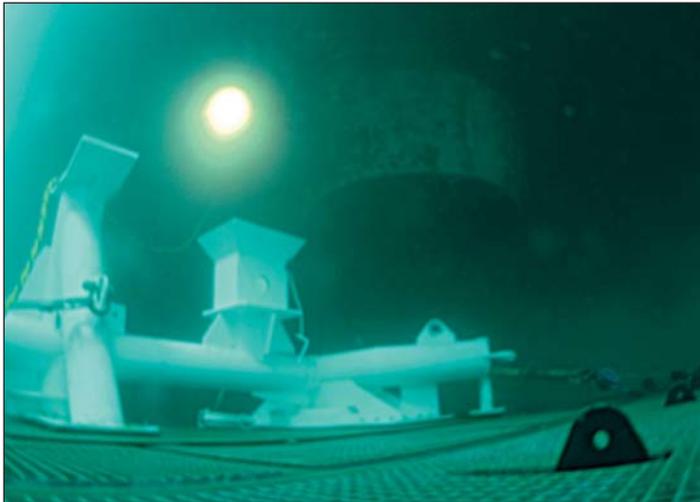
30 days when the crane barge would be available. The solution proposed by our technical department was gladly accepted by the customer. A large mobdock (mobile mini drydock), would be constructed along with all the auxiliaries needed for this work. It would be placed on the underside of the crane barge to cover the area where the swing-up thruster was housed. This mobdock was one of the largest we have made. It was approximately 9 x 6 x 2 meters in size and weighed over 25 tons itself.

It was built in Belgium under the supervision of our headquarters there and then transported to Gabon along with all other needed equipment to carry out the work.

Everything was in place at the beginning of the 30-day period and an operations base was set up on a working pontoon next to the crane barge. It was an extremely precise operation requiring a great deal of coordination and organization to ensure that all went smoothly.

The thruster was first retracted into its housing within the main body of the offshore unit and the mobdock was brought into position covering the entire area under the hull of the crane barge where the retractable thruster was now housed. The mobdock was secured in place, made watertight and all water was pumped out of it creating a dry space within the area that held the unit.

Access could then be gained to the thruster from within the crane barge. The two main access plates above the unit in the engine room were removed and two hoists held the thruster in place while the



Lowering the thruster beneath the crane barge.

auxiliaries were disconnected and the drive and steering gears dismantled. The water sensitive parts of the thruster were sealed off. Once all this was done the thruster unit was disconnected and the chamber housing was flooded.

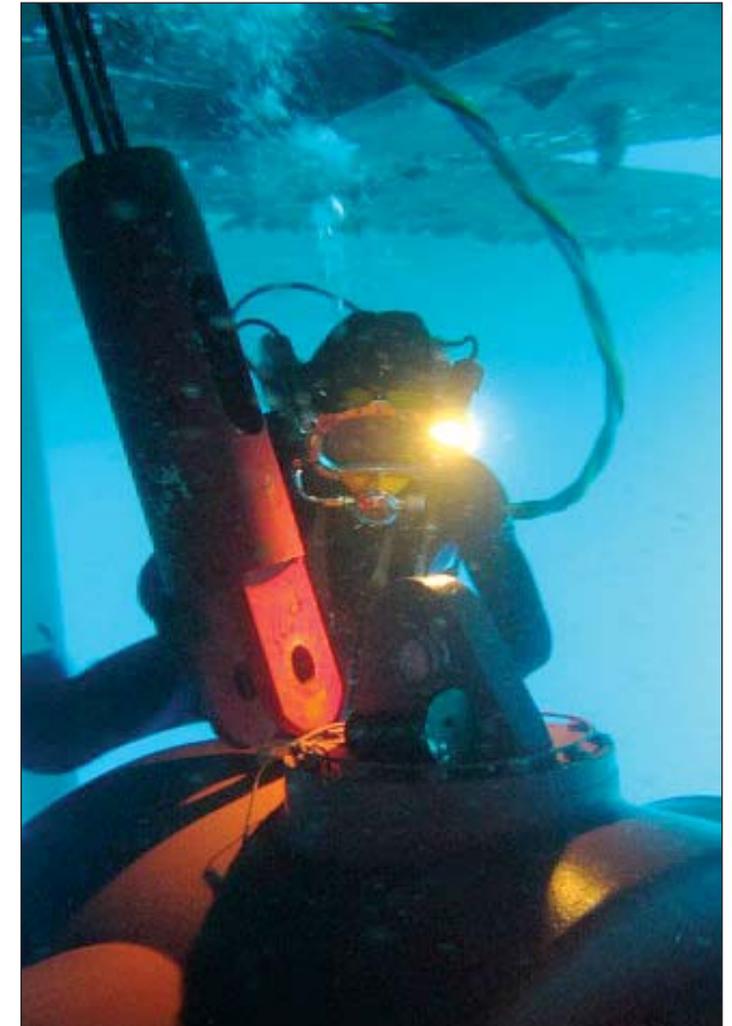
At this point the mobdock was removed and the thruster unit was lowered onto a specially designed support unit under the barge. After being safely secured the thruster was lifted onto the pontoon by the main crane of the barge.



Transporting thruster out of water for repairs.

The thruster was then transported to shore where Hydrex engineers dismantled the thruster under the supervision of two manufacturer's representatives.

After the repair was completed, the reverse procedure was followed and the thruster reinstalled into the crane barge. Commissioning and testing were carried out satisfactorily. This completed the operation with the offshore unit fully operational again.



Hydrex diver/technician during reinstallation of azimuth thruster unit.

The work, which took a considerable amount of engineering precision and skill combined with diving expertise, was a major feat and validation of our underwater knowledge. It was done within the time period available. For the owners this was a major saving in time and money as the offshore unit did not have to move to drydock. ■