

A Bow Thruster has 4 Blades ...

A bow thruster is the item of equipment installed in a vessel for moving the fore ship laterally when berthing or departing. It is an “engine” with considerable output but unfortunately limited life of operation. This was also the case on our vessel, one of many of this shipping company.

Everything began as follows. We had just completed another major project and were looking forward to a quiet voyage to the Far East. The most recent stress point, the Suez Canal, lay behind us. Then after leaving Jeddah something happened that was to spoil the voyage for us. We had had a wonderful departure and had just switched everything to “sea operation” when the gravity tank of the bow thruster gave minimum alarm.

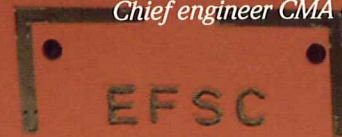
That was certainly unusual, as the tank is regularly controlled and the oil level checked. This inspection showed “Empty”. No oil leakage was to be discovered anywhere, so it was filled up again to the normal level.

But close on half an hour later the low level alarm came another time – and that gave cause for concern. There was thus a considerable leakage that had to be found and corrected. But there were no signs of any oil leakage. It inevitably had to run outside the ship and thus could cause oil pollution on the water surface. The subsequent tests, however, yielded no information about the whereabouts of the oil. There was also nothing unusual on the displays in the engine control room and on the bridge. So we continued our voyage to Port Kelang and regularly filled oil into the gravity tank in order to prevent ingress of seawater. Obviously, if seawater penetrated into the gears of the bow thruster, we would soon have only knots of rust in the casing. All this was also reported to the superintendence, which then sent us a diver in Port Kelang to look at the bow thruster.

The diver came and promised us photos. But nothing of the sort could be provided. The visibility in the port water was as good as zero and there was no possibility of taking any photos. The man in the water could not see five centimetres ahead in the “muddy soup”, so he groped his way forward to the object in question. He “fished in troubled waters” – in the truest sense of the word – and had to “see” with his fingers, that is feel his way. He then also presented a sobering result at the later discussion: he could not determine any further damage, but asked “Does your bow thruster have two or four blades?”

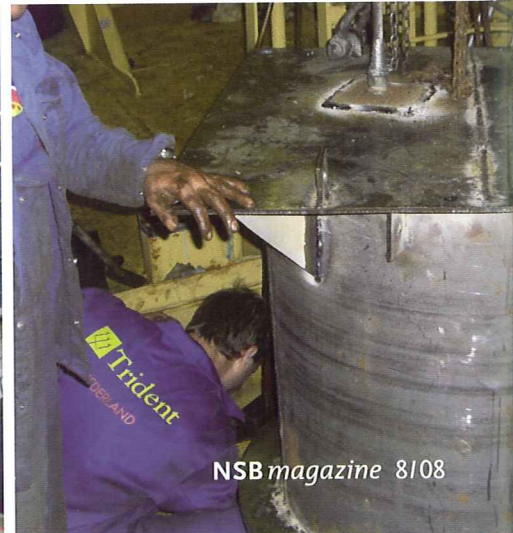
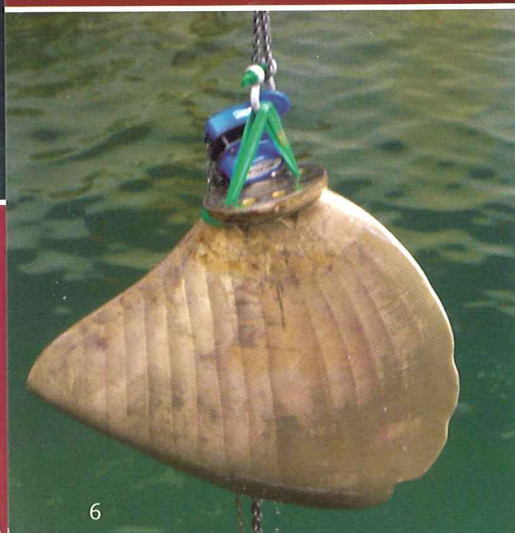
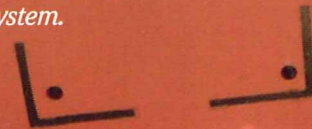
Our thunderstruck faces would have made a good photo if the matter hadn’t been so serious. But after some repeated enquiries and a precise description given by the diver it was now clear that we had lost two blades on departing in Jeddah. They had simply broken off. Then the superintendence began to creak into action, as naturally a repair now had to be carried out. But what then followed ... you can read in the continuation further below.

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The superintendence then decided to have the bow thruster completely exchanged in the water by the diving company Trident Rotterdam while passing through Europe in August 2008. We began to rack our brains to imagine how something like that is performed in the water. So there were some theories and conjectures, but to be honest none of us had the slightest idea.

As initial preparation, on the return voyage to Suez the crew disconnected the e-motor and overhauled the badly corroded fastening screws and any hydraulics oil still present was pumped out of the system.



A start was made dismantling the bow thruster immediately after tying up in Le Havre. The remaining two propeller blades were removed under water and brought to land. At the same time, the preparations for dismantling the e-motor proceeded in the bow thruster room. Then in the pipe tunnel the side mountings had to be detached (very time-consuming) so that the gears could be exchanged in Rotterdam. Now it was also at last time to ask Adri, the head of the diver firm, how the gearbox was to be removed without us standing in the water. The solution was very simple: above on the flange of the electric motor a "bell" is installed which has an air connection, so that an air cushion is built up that presses the water level downwards. However, the "bell" first had to be welded together on the spot from individual parts, as it unfortunately did not fit in its entirety through the entry hatch. Moreover, in the bow thruster room an opening had to be made in the deck floor in order to set down the e-motor.

After this work had been done, the e-motor was finally hoisted away with chain hoists and the efforts of all and sundry and the "bell" constructed.

Two days later in Rotterdam came the big moment. Very early in the morning, the divers went down into the water and began with the dismantling work. Three hours later, the damaged bow thruster stood on the barge of the diving firm and became the object of our curiosity.

Meanwhile the other work such as bunkering and the taking on of the equipment for the next voyage went on. The new gear unit, which was already available, was then lifted into the water and installed by the divers. So far, so good!

But things have a habit of turning out differently from what one thinks. Our berthing time in Rotterdam was shortened by some hours, upsetting the schedule somewhat. Then it was decided to complete the repair in Southampton. This did not work out – unluckily it was Sunday and on top of that there were company holidays!

The next port of call was Zeebrügge. Here we also unfortunately could not make any progress, as the visibility under water was not adequate. So the entire diving equipment was loaded on board to conclude the repair five days later in Beirut. As luck would have it also there the port was not obliging, as we did not receive a permit for underwater work ...

We thus carried on to Asia with a half-finished bow thruster, with all of us on board now keen to see how the story will go on. To be continued ...

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