

And It's Bubba-Proof!

◀ *Volvox Iberia* moored in Rotterdam



When Van Oord ACZ's TSHD VOLVOX IBERIA arrived home in Holland suffering from vibration after a campaign in the Middle East, Machine Support were called in...

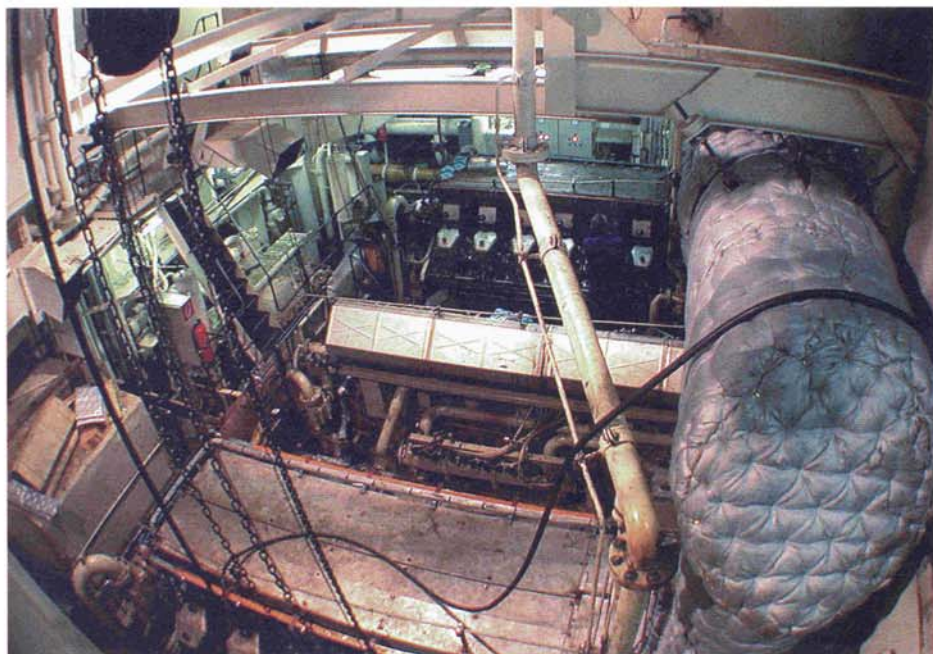
“She worked hard on the *Palm Island* job,” said Van Oord’s project manager Iwan de Vos, gazing fondly as his ship glistened in the drizzle at Rotterdam’s United Shipyard – a sharp contrast to the weather off Dubai.

“Temperatures out there could sometimes be so high we had to use portable air conditioners to keep the electronic relays cool and working properly,” said Iwan.

Back home and with the vibration almost certainly caused by alignment / mounting problems, *Volvox Iberia* was to be rewarded with an innovative solution that’s now finding favour across the dredging world.

PRECISION ENGINEERING

“Around 15% of our revenue’s now coming from the dredging industry,” said Frans Akkermans of Machine Support (MS), a firm that specialises in laser alignment and mounting services and whose reference clients not only include



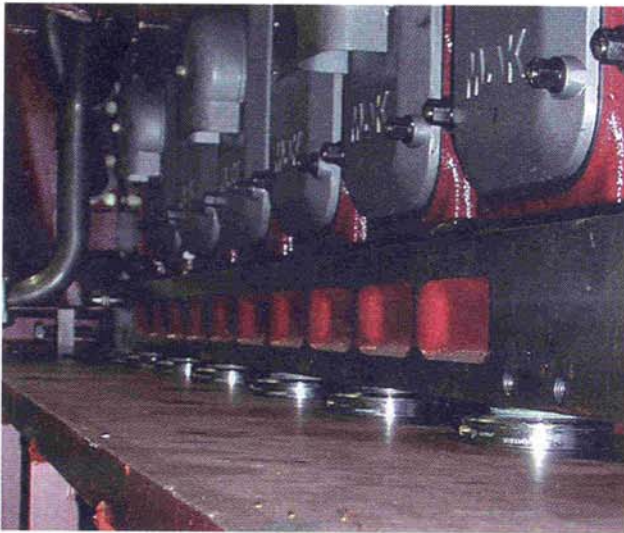
▲ Working space – *Volvox Iberia*’s engine room

Van Oord ACZ, but also Jan De Nul, Ballast Ham, Boskalis and US contractors Bean and Great Lakes Dredge and Dock.

Dredgers are special ships, not simply because of their advanced technology, but also because of the stresses and strains they have to put up with as part of their everyday working lives. After a job involving the excavation of hard

rock, for example, many cutter dredgers head straight for the nearest shipyard for repairs.

A TSHD’s life is easier, but she’s a workhorse nonetheless and to keep working smoothly she requires the major moving parts – engines, pumps, gearboxes, propshafts and more – to be in perfect harmony. Which also means perfect alignment.



▲ **Vibracons in place under a ship's engine**

“When you build a ship, inevitably there’ll be gaps under both the gearbox and the engine,” said Frans. “In the past, skilled workmen engineered steel blocks or shims to take up the slack – in fact, they still do just that in many countries. More recently, epoxy resin has been used. But now we’ve come up with *Vibracon SM*, low-profile, adjustable steel chocks that have numerous advantages.”

FORM & FUNCTION

As Frans pointed out, when ships are launched, the stresses take their toll on even the most careful alignment. Once at work, the thermal expansion of ship's engines and the changes caused by cargo loading / unloading – particularly on dredgers – almost inevitably result in



◀ René Vermeulen and Iwan de Vos worked as a team

misalignment.

“The distance between a dredger's pump, engine and prop can be as much as 50m,” Frans continued. “Get the alignment wrong and you're looking at shorter component life through unnecessary wear ... and vibration. It's our claim that *Vibracon*, installed on a newbuilding, will cope with both the launch and working stresses. In addition, about 80% of the realignment jobs we



◀ **Bubba-proof – the Vibracon SM**

get can now be solved with *Vibracon*: for the rest, we use epoxy resin, though of course that takes up to 24-hours to harden.”

The latest low-profile *Vibracons* are a mere 20mm, yet can be adjusted by spanner in the same way as their 30mm brothers. And even that spanner had to be approved by the classification societies



▲ *The Volvox Iberia comes home*

Tech Specs

VOLVOX IBERIA'S vital statistics are...

- ◆ Length Overall – 100.64m
- ◆ Length b.p.p. – 92.7m
- ◆ Beam – 19.2m
- ◆ Moulded Depth – 9.6m
- ◆ Draught – 8.2m
- ◆ Hopper Volume – 6,038m³
- ◆ Max. Dredging Depth – 50m
- ◆ Suction Pipe – 1,100mm
- ◆ Discharge Pipe – 750mm
- ◆ Speed (loaded) – 13.8 knots
- ◆ Main Engines – 7,060kW
- ◆ Bow Thruster – 1 x 660kW
- ◆ Stern Thruster – 1 x 840kW
- ◆ Underwater Pump – 1,154kW
- ◆ Suction Pump – 2,300kW
- ◆ Discharge Pump – 5,980kW

involved. Additionally, major engine manufacturers such as Wärtsilä are using them.

WORKING WITH VAN OORD

Volvox Iberia's problems did indeed stem from misalignment of the starboard engine and MS proposed using their low profile Vibracons, sending Van Oord a sample for inspection.

In addition, they checked with engine maker Wärtsilä and the German gearbox specialists **Flender**, winning approvals from both to use Vibracons.

MS engineering chief René Vermeulen worked with project manager Dick Vogelaar in close co-operation with Iwan de Vos, kicking off with a thorough 'hot' alignment check so Van Oord knew what the problems were.

The original alignment targets were checked with shipbuilders IHC, and, with backing from IHC as well as Flender and Wärtsilä, new targets were agreed and the team went to work.

"We used the propulsion gearbox as our fixed point," said René, "machining the top plate of the engine and using 20 Vibracons to align them. We continued by aligning the dredge pump and pump gearbox with the nine-cylinder engine that runs the genset and pump and also realigned the ship's port side engine and pumps."

FINALLY...

The entire job took just three weeks – and that included giving the Olympia a new coat of paint. The alignment itself took just four days.

"The major advantage is that you can prepare the Vibracons in advance," said René. "And of course, should any event cause misalignment in the future – always a risk with working dredgers – realignment's a simple job thanks to the Vibracons."

Bubba-proof?

"Every shipyard has a Bubba," said Frans, "he's the big dumb guy who wanders around with a hammer hitting things to see if they work – or break. But Vibracons are so tough, not even Bubba can upset them!"

More info at www.machinesupport.com and at www.voacz.com