Commercial Vessels

REMAN ENGINES FOR A POWERFUL DRIVE: PILOT LAUNCH DUHNEN IS POWERED BY AS-NEW SERIES 2000 ENGINES

Who	Lotsbetriebsverein e.V. (River Elbe Pilots' Association)
What	MTU reman engines in the 2000 series for a diesel-electric drive
Where	Cuxhaven, Germany

For 30 years, a majority of the pilot launches operated by the pilot associations have been powered by engines from Rolls-Royce. Three of them now run with reman engines. These are engines that have already spent one "lifetime" in another vessel, and have been overhauled to such an extent that they correspond to new engines down to the smallest detail. The most recent change took place in the pilot launch "Duhnen". In the hulls of the vessel, two drives of type 12V 2000 M70 ensure that the pilots are safely transported to the large tankers in the North Sea.

A Rolls-Royce solution

Cuxhaven, Germany – Pilots are employed worldwide to guide large tankers, cruise liners and freighters safely into port. Pilots are used because they know the coastal waters much better than the ships' captains from many different nations. In Germany, there are about 800 pilots, and almost 270 belong to the River Elbe Pilots' Association. They are responsible for the stretch between Hamburg and the North Sea. To accomplish this task, the pilots need a vessel that they can rely upon one hundred percent. "The engines must not fail under any circumstances. Particularly when we're bringing the small pilot launches alongside the large tankers to allow the pilots to alight, an engine failure would be potentially fatal," explains Andreas Schoon, managing director of the Cuxhaven branch of the Pilots' Association. This perilous situation exists principally because the pilot launches have to come alongside the large tankers whilst they are underway. The pilot needs to have total confidence in both captains: Both helmsmen have to maintain precisely the same speed. Up to 40 km off the coast of Cuxhaven, the two MTU 12V 2000 M70 engines from Rolls-Royce make sure that the pilots are transported safely. The pilot launches are operated with diesel-electric power. Each engine generates an output of 788 kW, giving the vessel a top speed of up to 18 knots. The engines already operated reliably during their first life, so the Pilots' Association decided to install the tried-and-tested engines once again.

Reman engines for optimum propulsion

The double-hulled vessels painted in striking orange and red livery rely on MTU Reman engines as they ply their trade. "You can picture the Reman process like paying a deposit on bottles at the supermarket," explains Thomas Geertz, who is responsible for service at Rolls-Royce in Hamburg. "Customers who have already bought new engines from us can exchange the engine by buying a completely overhauled Reman engine." To prevent long downtimes, the customer needs to inform Rolls-Royce early on, and will then be provided with an identical engine. The customer pays for the overhauled engine and a deposit which is referred to as the core charge. As soon as the used engine has been returned by the customer to Rolls-Royce, the core charge is refunded – assuming all the specifications are complied with. For example, all parts must be fitted on the engine, and the maintenance intervals must have been complied with. "If the customer insists, it is also possible for him to get his own engine back again. However, this will take several weeks," describes Geertz. The Pilots' Association works with an engine pool. "We always keep a stock of engines so that if we need to exchange one, the downtime for the vessel will be as short as possible," explains Schoon.

In the pilot launch Duhnen, two MTU Reman engines of type 12V 2000 M70, each generating 788 kW output, provide the right propulsion. Rolls-Royce Field Service Inspector Detlef Paul assesses the engines. They have a harsh life, with up to 6,000 operating hours a year. (Pictures: Rolls-Royce)

Pilots on the way to their next job. The large tanker needs to be guided safely into the nearest port. Making a transfer on the high seas is always perilous. (Pictures: Rolls-Royce)

Harsh conditions on the high seas

Each engine clocks up between 4,500 and 6,000 operating hours per year. That corresponds to a continuously operating time of about six to nine months. However, the particular challenge is that the engines usually operate for between two and three weeks at a stretch. “And the weather can get really stormy,” says Schoon. “In good weather, we can get by using two engines on the station ships, whereas when conditions are rougher, it’s quite possible for us to need all four engines to extricate the vessel quickly and safely from a dangerous situation.” MTU engines can withstand these conditions, irrespective of whether they are new or completely overhauled Reman engines. “It makes no difference for the customer. Reman engines are as-new, and even come with the same warranty as a new engine,” explains Geertz. “As a result, you can rely on these engines in difficult situations just like new ones.”

The Reman process in-house

Rolls-Royce carries out the complete overhaul of the engines using a standardized process in-house. The Technology Center in Magdeburg is geared up for series remanufacturing of MTU engines. Old engines from all over the world are delivered here and completely overhauled for their new lives. This process provides several advantages for customers. “It’s a very sustainable process. The basic materials such as the cylinder heads, crankshafts or crankcase are simply remanufactured. This means there is no need to consume additional raw materials,” explains Carola Riedter from Global Reman at Rolls-Royce. “Only wear parts such as gaskets are replaced by new parts.”

“The engines must not fail under any circumstances.”

Andreas Schoon
Managing director of the Cuxhaven branch of the Pilots’ Association

Also, the customer will not notice any changes on the exterior. The engines are identical to those which were returned, and are even repainted in the corresponding color. What is more, Rolls-Royce offers the same warranty on them as on new engines. The MTU Value Care service portfolio is also supported. “Our customers can use all the offers in our service portfolio without restrictions. For example, spare parts can be supplied or entire service or maintenance contracts concluded.”

The everyday life of a pilot

Every day, the pilots set out into the North Sea on board the Duhnen. Here, a larger pilot launch is already waiting for them at the mouth of the River Elbe. From this point onwards, vessels with a length of 90 m or more and a beam of 13 m are obliged to continue with a pilot on board. The pilot station vessels will remain here for two weeks. The Elbe or Hanse, which is the name of the station vessels, are also powered by MTU engines and have a double-hull design referred to as SWATH (small waterplane area twin hull). The pilots can wait onboard the floating pilot stations until they are needed by a large freighter or tanker. There is hot food, mess rooms, televisions, a sauna and fitness room as well as cosy pilots’ cabins for resting between duties. Pilots have to be on the job 24 hours a day, 365 days a year. As soon as a large vessel approaches, the pilots are collected from the station ship by the Duhnen and brought out to the large tanker. The pilots go on board either using a small projecting gantry or with a pilot ladder. They have to place great trust in the captains of the two vessels, because the vessels need to be making exactly the same speed so that the pilots can go across. The pilots then guide the vessels safely into the various harbors at Cuxhaven, Hamburg or along the Kiel Canal. Each of them is an experienced captain. The size of vessels that a pilot is allowed to control depends on years of service.