The ship owners of today are facing ever tougher competition. Therefore their focus in vessel operation is often on reducing fuel oil consumption and maintenance costs. The German shipping company Hamburg Süd also needs to cut fuel costs for their vessels equipped with RTA engines.

– We are always trying to optimise fuel costs on all our operated vessels. And since the solution Wärtsilä offered looked very promising, the ship M/V Rio de la Plata was selected to run a field test in order to validate the fuel savings potential promised by Wärtsilä, says Fleet Manager Sven Fröhndrich at Columbus Shipmanagement, a daughter company of Hamburg Süd.

Hamburg Süd was founded in 1871 under the name Hamburg Südamerikanische Dampfschifffahrts-Gesellschaft. Since then the company has evolved from a conventional shipping company into a globally operating transport logistics organisation. Today, Hamburg Süd is a member of the Oetker Group, ranking among the world’s 20 largest container shipping lines, and is one of the leading providers in the North-South trades. Hamburg Süd’s 5,908 TEU container vessel M/V Rio de la Plata – deployed in the EPIC Service, linking North Europe with the Mediterranean region, the Middle East, Pakistan and India – is equipped with a Wärtsilä 8RTA96C-B and is in operation between Europe and India.

CASE HAMBURG SÜD:
RTA INJECTION TIMING AUTOMATION REDUCES FUEL CONSUMPTION ON CONTAINER VESSEL

FROM OPEN LOOP TO CLOSED LOOP FUNCTION

RTA type diesel engines are operated in a so-called open loop control mode. In this mode, the injection timing needs to be adjusted manually on a regular basis to achieve optimal fuel consumption. When left unadjusted, the injection timing often leads to unnecessarily high fuel consumption.

Hamburg Süd’s decision to install Wärtsilä’s RTA injection timing automation (RITA) solution was based on the fact that Wärtsilä is the engine designer with the best engine know-how.

– The short payback time and the competitive price of the product further
“We achieved the expected 1.5% reduction of fuel consumption.”

**Challenges**

- Reducing fuel consumption on a conventional camshaft engine
- First installation on an RTA96C engine

**Solution**

- Offering a solution that automatically controls the adjustment of injection timing based on cylinder pressure (RITA)

**Benefits**

- Reduction of fuel consumption by 1.5%
- Leading to savings on the fuel bill
- Reduced operating costs
- Optimal engine operation within design criteria
- Reduced CO₂ emissions

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supported our decision. We ordered the material and installation from Wärtsilä and they installed the RITA system in Hamburg, December 2013. It was a smooth installation.

The optimal firing pressure set-point was calculated according to ambient conditions. This ensured that the cylinder pressure is always adjusted according to its design criteria. Hence the engine is protected against thermal overload, while full fuel saving potential is achieved. The so-called closed loop function has already proven to be a reliable and fuel saving option after many years in use with Wärtsilä’s RT-flex engines.

Taking into consideration that this was the first installation of the RITA system on an RTA96C engine, Wärtsilä did a really good installation job, the Fleet Manager says.

**THROUGH CHALLENGES TO EXPECTED FUEL SAVINGS**

Pressure in the cylinders is monitored by three pressure transducers mounted on the cylinder head just below the indication cocks; alternatively a direct connection to the ICM product is also available. The sensor signals are then sent to the control cabinet. The optimal set-point is calculated according to present load and ambient conditions. Corrective signals are then sent to the engine’s variable injection timing (VIT) system that adjusts the cylinder pressures accordingly.

According to Hamburg Süd, there were some challenges regarding the installation. The user interface broke down during the first voyage, for example. However, this was easily fixed by installing a new panel. Also, there was the fact that the system only became fully operational after the vessel’s first round trip.

- Experienced 2-stroke service engineers are not available everywhere, not even in Wärtsilä’s extensive network, says the Fleet Manager.

Nevertheless, Hamburg Süd’s experiences with RTA injection timing automation have been very good. The reason why certain things did not work perfectly from the beginning was because this was the first installation on an RTA96C engine.

- Our experiences are positive so far. We have been able to optimise the engine performance. And the most important benefit that we gained is that we achieved the expected 1.5% reduction of fuel consumption, states the Fleet Manager.

**CONTINUOUS TECHNICAL SUPPORT**

Wärtsilä has continued to support Hamburg Süd after the installation.

- Wärtsilä is providing us with technical support through a direct link to the person who is responsible for RITA within their organisation.

The Fleet Manager continues to say that this installation also supports Hamburg Süd’s business and goals.

- Both the simplicity of the system and the fact that it gives us a clear understanding of the fuel saving function are truly positive. This solution supports us in our efforts to optimise the operational costs of the engines by reducing the fuel consumption.

- It is important for a company like Hamburg Süd to have trustworthy connections and a direct link to technical experts. This link is especially important for products that are directly linked to engine performance. Would we recommend other ship owners to do a similar installation? Yes, without a doubt, concludes the Fleet Manager at Hamburg Süd.