

# Container vessel tripled ring replacement period

Costamare Shipping | Cosco Yantian | MAN 12K98MC MK7 engine



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Costamare Shipping, operators of container vessel Cosco Yantian, more than tripled its engine's expected ring replacement period by combining Mobilgard™ 570 cylinder oil with Mobil Serv<sup>SM</sup> Cylinder Condition Monitoring, and also greatly improved liner wear rates compared with engine builder expectations.

## Situation

Cosco Yantian is equipped with a MAN Diesel & Turbo 12K98MC MK7 main engine with a power of 74,757 kW. The engine maker's guidance is that the piston rings should be replaced after 16,000 unmonitored engine hours or as determined by cylinder condition monitoring. The expected upper limit for the life of a piston ring without a Cermet coating was 25,000 hours.

The vessel also operated with a fixed cylinder oil feed rate below 0.6 g/kWh for many years — the operator saw no need to follow one dependent on sulphur levels. The Cosco Yantian had been slow steaming in the 10 to 40 per cent load range, which made the engine more corrosive than expected.

## Recommendation

Piston ring and liner replacements involve a significant labour cost, a considerable number of spare parts and engine downtime, which has an obvious commercial impact. Replacement is ideally postponed for as long as possible without jeopardising safe operation.

## Impact

Mobil Serv Cylinder Condition Monitoring, in combination with Mobilgard 570 cylinder oil, resulted in the Cosco Yantian being able to run its piston rings and liners for appreciably longer than expected. After more than 55,000 hours, the cylinder liner measured 980.6mm, and piston rings were above minimum wear forecast — almost three and a half times the recommended replacement period. Onboard testing also showed an impressive reduction in liner wear rates.

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Mobilgard 570 oil enabled piston and liner life of more than **55,000 hours.**

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