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Turbo washing test success for Vicmar

A NEW system of engine washing, introduced in 1991, has been proved to result in better combustion, cleaner engine parts and fuel savings of between 3.0 and 4%.

Designed by the British Columbian company Vicmar Engineering, the Turbo Washing System keeps turbochargers, air coolers, air intake manifolds, scavenging ports, valves etc, in clean condition.

The system has now been extensively tested by Orient Ship Management, which has used Vicmar washing units on different types of engines with some considerable success. Following these tests it has been decided to install the equipment on board the vessels managed by OSM.

The equipment has been designed to counteract the gradual deterioration in performance suffered in normal operation of all supercharged engines, caused by fouling of the turbochargers, scavenging air coolers, air intake manifolds, scavenging ports or intake/exhaust valves.

While some turbochargers — generally on main engines — are equipped with washing systems, practical experience has shown that these are not entirely effective.

The use of cold water, the small size of water tanks and supply pipes contribute to this inefficiency, while washed-off deposits are transferred into the scavenging air coolers where they can settle between the fins and create more airflow restrictions. Vicmar maintains the use of chemical cleaners has other disadvantages.

With the Vicmar system, the size of the water tanks and water quantities are designed according to the size of the turbochargers.

Hot water is used, with temperature being maintained, injected into the compressor to enhance cleaning. All of this enhances the cleaning in the air side of the turbocharger.

Specially-designed injectors are fitted to clean scavenging air coolers during normal engine operation. On the gas side of the turbocharger, injectors are designed and installed as close as possible to the turbine blades and nozzle ring.

Optimum water temperature and quantity is maintained and no chemical is used.

Vicmar says the washing systems have been installed on more than 50 engines, main and auxiliary, with satisfactory results.

There are no more deposits on the turbochargers on either air or gas sides; and the pressure drop across the coolers does not change, in a two-year period following installation.

Some clients have advised that while ships are due for a two-year overhaul, there is no indication that turbochargers and scavenging air coolers have to be disassembled and cleaned.

According to OSM, the washing process "does not have any negative effect to the engine performance or cylinder liner wear down, as the amount of hot washing water (20 litres) per washing cycle is negligible".

Any turbocharger which had been fitted with the system was found in good condition after opening up for inspection.

As a result, OSM has decided to increase the overhaul and cleaning intervals. The shipmanager says turbochargers "can also be maintained in very clean condition".