

Condition Monitoring in Azimuth Thrusters

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Abstract

In the future conditioning monitoring will have an important part of azimuth thrusters' life cycle design. Preventing maintenance program based on information from conditioning monitoring gives the operator possibility to plan the maintenance program and overhaul of thrusters.

Today classification societies gives attention to systems where some indication on thrusters overall vibration level is monitored. This system gives only indication but not real facts of where and what is the problem if there is an increase in vibration level.

By monitoring each bearing separately directly from the bearing seating gives us exact information of the behavior of that bearing and allows the operator to plan his operation better. The difficulty in this system is to get the information out of the rotating thruster underwater body available for monitoring in control room. By introducing slip ring this is possible. An other method is sending signal from the rotating part and record it inside the ship.

There are several ways how this can be done. We have studied some alternatives. Three of these alternatives will be presented in more details. We have as well Mermaide podded units where the monitoring is done differently sine there the bearings are not located in oil bath.

The challenge in mechanical AzT is to handle the signal from sensors since they are in oil bath. One alternative is to get the information from each sensor through slip ring. Second alternative is to collect the information and send it to the central unit as well through slip ring. The first alternative requires several slip ring packages through which the power is supplied and information taken out from the thruster body and the other one needs only slip ring for power supply and out coming signal. Third alternative is to send information out of the thruster body and pick it up in thruster's room.

An other conditioning monitoring system is the ICCP system, which gives information on the corrosion level on the thrusters. Of course the main purpose of the ICCP system is to protect the unit, but at the same time this can be used also for condition monitoring.

The final presentation will consist of:

- historical back ground
- technical solution - power supply; information route; data handling
- what is monitored
- what else is involved in condition monitoring - oil sampling; temperature measurement
- details of ICCP system

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