CASE STUDY

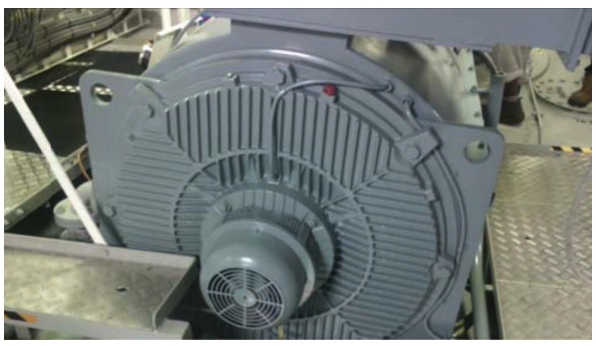
METALOCK BRASIL

ELECTRICAL AND VIBRATIONAL ANALYSIS OF A THRUSTER ELECTRIC MOTOR

CMM GRAVITY

The vessel:
80 meters long, 3521 dwt (deadweight tonnage) Offshore Tug / Supply Vessel CMM GRAVITY, built in 2014 and owned by World Wide Supply – Ulsteinvik, Norway.

The problem:
A Thruster's electric motor presented an Alarm 1 condition, unacceptable for a long operational period.

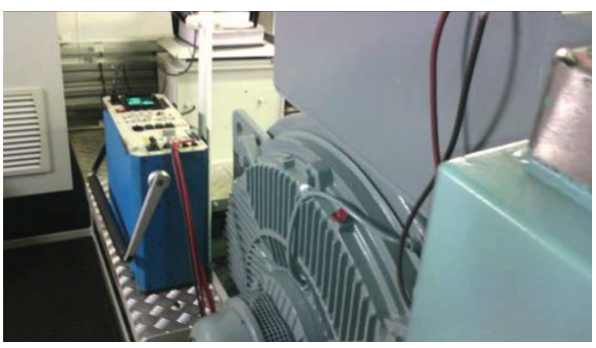


The equipment:
Marelli Motori, 1500kW, Model 85JLC6, 690V, 55Hz, 1535A, 1095rpm, Bearings : 6328/C3 DE (Drive End), 6328M/C3VL0241 NDE (Non Drive End).

Test equipment:
Compound offline insulation test and analysis equipment.
Vibration Analysis instrument.

The solution:
A diagnosis was effected and recomendations were presented to the client, as follows : Considering the presence of 22Hz harmonics, bearing clearance should be checked. Also considering axial vibrations, this condition could be related to the mentioned clearances and a possible angular misalignment.
The following analysis and checks were executed: Full offline dielectric analysis of winding condition using SKF / Baker motor analyser:

- Insulation resistance to ground;
- Phase sequence and surge analysis of all 3 phases;
- Polarization and absortion indexes (Pl and DAr);
- Ohmic resistance comparison check between phases and Delta R.



The findings:
After the electrical analysis, the electric motor was found to be in good order.
Abnormal noise frequency was identified as coming from the NDE Bearing, indicating damage of the same.
The client received the recommendation for urgent action to prepare and effect the bearing's replacement.