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Introduction


In normal ship service, proper engine and shaft alignment is surveyed by monitoring bearing service temperatures¹ and performing regular crankweb deflection measurements.

Abbreviations

The following abbreviations are used in this document:

- DG design group (Wärtsilä drawing set structure)
- MM Maintenance Manual (Wärtsilä engine documentation)

¹ Shaft bearing temperatures are monitored by the ship's control system. Main bearing temperatures are monitored by the engine's alarm and safety system.

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1 Measurements during normal ship service

1.1 Regular crankweb deflection measurements

Crankweb deflections should be measured and recorded regularly according to the intervals defined by the engine specific Maintenance Manual (MM) or by the class rules – whatever is stricter.

The records of crankweb deflection measurements should be filed for comparison of future measurements.

For each measurement the requirements and the general information provided in the following sections of DG9709 - “Engine alignment – Crankweb deflections – limits” need to be considered:

- “Turning direction during crankweb deflection measurement”
- “Measurement accuracy”
- “Recording of crankweb deflection measurement results incl. essential additional information”
- “Limits for normal ship service”

More detailed information about crankweb deflection measurements is provided in DG9709 - “Engine alignment – Guidelines for measurements” - section “Crankweb deflection (CWD)” as well as in the engine specific Maintenance Manual (MM).

1.2 Additional crankweb deflection measurements

Crankweb deflection measurements in addition to the regular ones mentioned in section 1.1 are indicated in the following cases:


- 1) before inspection of main bearing shells
- 2) right before and right after docking in continuous fully floating condition of the ship,
- 3) right before and right after welding works in the double bottom of the machinery space,
- 4) if measured crankweb deflections differ significantly from those which have been measured previously and at similar conditions (ship draught)²,
- 5) if the bearing temperature alarm has been triggered²
- 6) if a bearing wear-down detection³ alarm has been triggered²
- 7) if white metal debris have been found in the crank case²
- 8) if cracks have been found in a main bearing girder or in the engine bedplate structure²

1.3 Detailed alignment measurements

In case one of the items 5) to 8) mentioned in section 1.2 apply, then detailed alignment measurements might become necessary and **Wärtsilä should be contacted for support in advance in order to check in detail which measurements need to be made.**

² It is recommended to contact Wärtsilä.

³ Optional monitoring equipment for main engine.

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WinGD-2S - Alignment - measurements during normal ship service

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