

Brabon Engineering Services Limited



Services:

- Root cause analysis of damage to all types of machinery. Involving mechanical components such as; bearings, couplings, lubrication systems, etc. Additional specialist technical contributions to confirm damage process, e.g. metallurgical analysis or electrical engineering, provided via managed sub-contract.
- **Shaftline alignment calculations and measurements. Including:**
 - Shaft alignment design calculations using computer mathematical modelling to derive shaft bending/ shear and bearing load distribution for conditions.
 - **Bore alignment measurements of offsets on sterntube bearings and housings.**
 - Bearing load measurements by jacking method using strain gauge load cell and displacement sensor with computer data logging. Automated computer analysis of data.
 - **Main engine, main bearing loads by crankshaft jacking. Engine crankweb deflection measurements.**
 - Bearing loads by bending strain (gauge) measurements. This method can derive load distribution on the sterntube aft bearing as well as aft and forward main wheel bearing loads (geared reduction propulsion).
 - **Alignment measurements on cardan shafts, flexible couplings and uncoupled shaft sections (gap and sag).**
 - Assessment of measured alignment. Also calculations (predictions) and assistance with adjustments for optimised local alignment and shaftline bearing load distribution.
- **Strain gauge measurements and calculations of stress/ applied load.**
- Engineering calculations including classical mechanics, finite element modelling and mechanical design with CAD drawings.
- **Preparation of formal written reports to the highest standard.**

Advantages:

- Thorough and responsible, 30+ years of experience. IMechE member since 1999.
- **Extensive failure investigation experience with diesel engines, main propulsion shafting, bearings, seals, high-speed turbo machinery and structures. Investigations involving complex dynamic measurements and analysis or metallurgical analysis. Ship types attended include; passenger vessels (cruise vessels, large yachts and ferries), LNG carriers, oil tankers, bulk carriers and warships.**
- Failure investigations involve application of research and experience with different hypotheses being ranked by highest probability in typical circumstance/ experience (the law of parsimony). The process includes iterative reviews of information/ evidence and conclusions. Multiple reviews of intermediate conclusions typically result in an improved level of certainty.
- **Where appropriate, investigations involve a combined approach of field measurements and analysis with theoretical modelling. This can provide insight into the phenomenon studied as well as a validated basis for extrapolation of modelling results.**
- Extensive shaft alignment experience involving numerous ship types having suffered various damages and requiring a range of repair actions.
- **Pragmatic design/ rectification solutions as driven by a practical background extending from engineering craft and seagoing operations/ refit supervision (steam propulsion), then progressing to consulting engineer with BAE Systems (1999 to 2007) and senior machinery engineering with Lloyd's Register – TID (2007 to 2018).**
- No unnecessary overheads in costing. Fees are focused on working time, not waiting or travel.
- **Continuous improvement of technical procedures using of Total Quality Management principals in order to maintain a standard of excellence, i.e. to build on success and learn from mistakes.**

Brett Weintz CEng, MIMechE, consultant mechanical engineer
Tel: +353 (0)87 383 5043, email: info@brabon.org
<https://brabon.org>