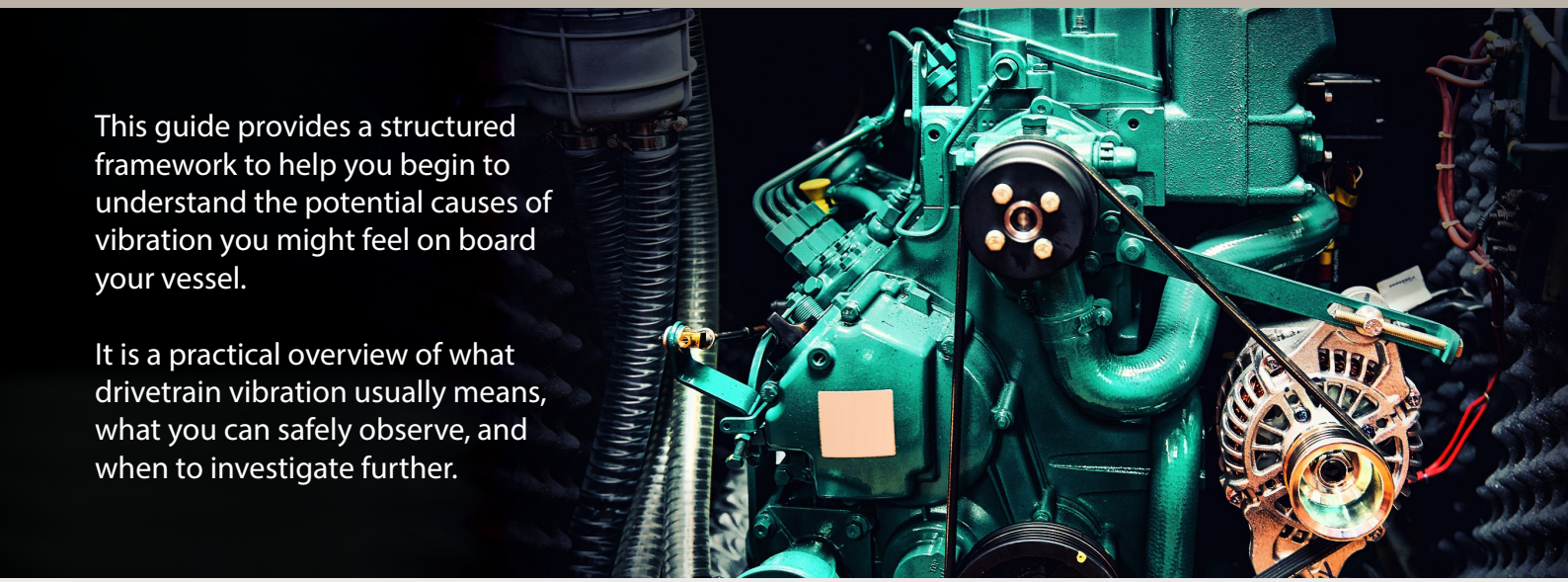
BRUNTONS

DRIVETRAIN VIBRATION GUIDE

A quick-reference sheet for boat owners and dealers



This guide provides a structured framework to help you begin to understand the potential causes of vibration you might feel on board your vessel.

It is a practical overview of what drivetrain vibration usually means, what you can safely observe, and when to investigate further.

1 - What vibration usually means

Most drivetrain vibration stems from misalignment between the engine and the propeller shaft. Even minor angular deviations create significant structural feedback, especially as a vessel ages and components naturally settle, wear, or flex.

2 - Why misalignment happens

Misalignment is common and often unavoidable due to real-world operational variables:

- hull flex under sea load
- ageing or uneven engine mounts
- installation tolerances during setup
- torque forces during acceleration
- natural settling of the hull and drivetrain over time

3 - Common symptoms & likely causes

A quick reference to help interpret what you're feeling or hearing.

What you feel or hear	Potential drivetrain culprit	Engineering context
Vibration at specific RPM bands	Minor angular misalignment	Drivetrain systems often "fight" tolerances at specific harmonic speeds.
Heavy shudder when engaging gear	Engine mount fatigue	Worn rubber allows the engine block to shift under initial torque.
High-pitched hum or buzz at high RPM	Bearing or shaft wear	Continuous misaligned load stresses cutlass bearings and shaft seals.
Vibration worsening over time	Hull flex or ageing mounts	As structures settle, the baseline alignment gradually drifts out of true.

4 - What you can safely observe (no tools required)

These are simple visual benchmarks to note during normal operation, not instructions to dismantle machinery.

- **Engine movement:** Watch the engine block as you shift from neutral into gear. Excessive twisting or rocking suggests mount fatigue.
- **Mount compression:** Visually inspect all four engine mounts. Look for unevenly compressed rubber, sagging, or metal-on-metal contact.
- **Shaft behaviour:** Safely observe the shaft log under power. A shaft that appears to "wobble" or blur rather than spin cleanly on a tight axis is running out of true.
- **Acoustic changes:** Note whether vibration stays constant or spikes sharply under specific loads or RPM thresholds.

5 - When to investigate further

Consider a professional inspection if you notice:

- vibration or resonance that wasn't present in previous seasons
- repeated, premature cutlass bearing or shaft seal wear
- visible rubber deterioration or cracking on engine mounts
- shaft tracking that looks irregular or off-centre under power

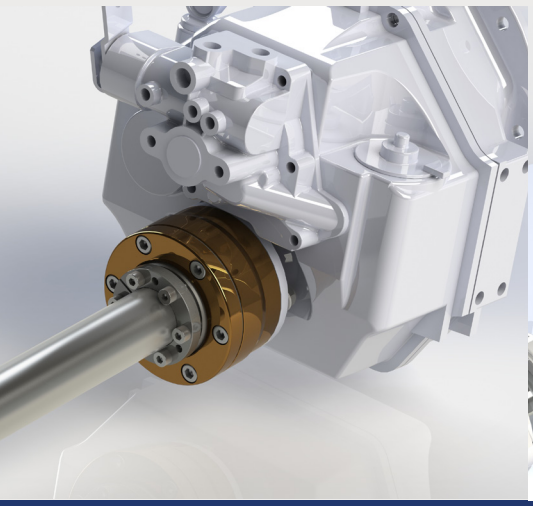
6 - How flexible couplings help

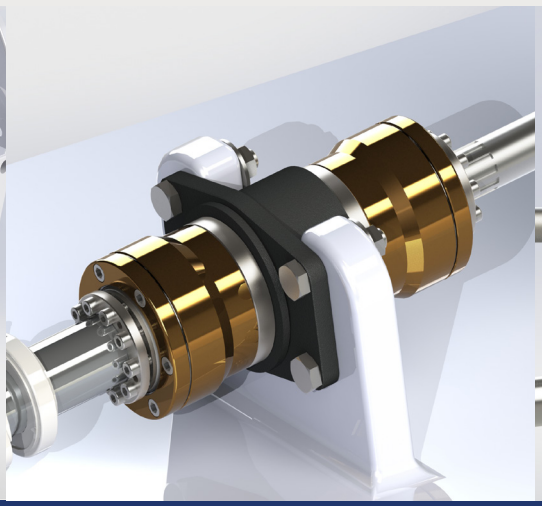
Standard rigid couplings require the engine and propeller shaft to remain perfectly concentric at all times. In real-world marine environments, absolute perfection is rarely maintained.

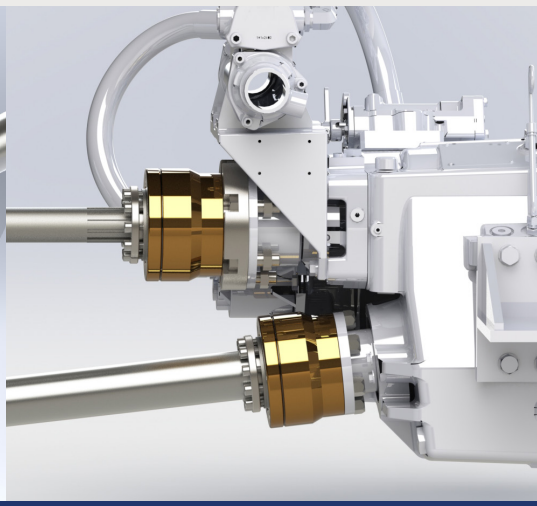
A flexible coupling, such as SigmaDrive, acts as a mechanical buffer, absorbing dynamic angular changes caused by hull flex, torque, and structural settling. By absorbing dynamic angular changes caused by hull flex, torque, and structural settling, it stops the shaft from binding, delivering a smoother, quieter ride while protecting the entire drivetrain from accelerated wear.

7 - SigmaDrive Application suitability

If you are exploring options to mitigate drivetrain vibration, share your engine model and shaft specifications with our team. We can provide an objective engineering assessment on whether a SigmaDrive unit is appropriate for your specific installation layout.







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