

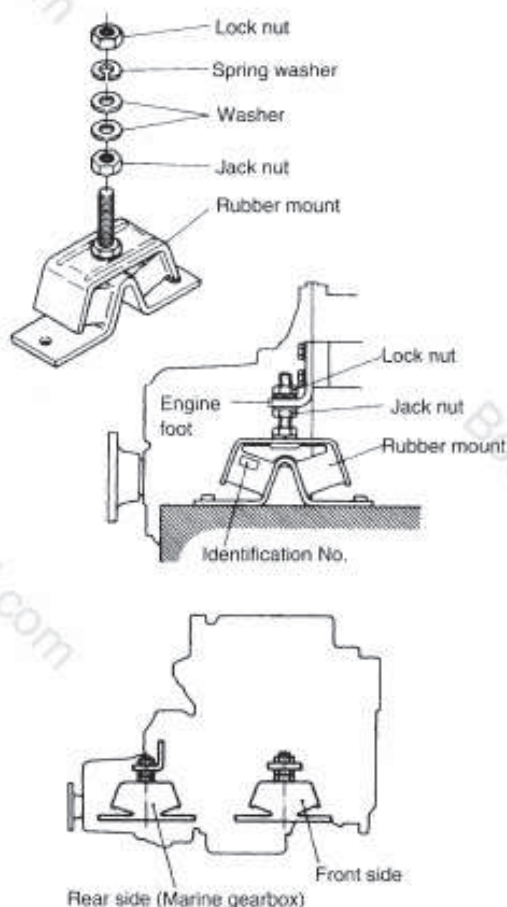
5. Flexible Engine Mount

Be sure to use a flexible engine mount for the installation of every Yanmar pleasure craft engine model. Do not install the engine directly on the engine bed. The use of a flexible engine mount reduces vibration and noise by absorbing the vibrations at the couplings between the engine and the engine bed.

If you use flexible engine mounts, don't forget to make allowance for the exhaust, fuel oil and cooling water piping.

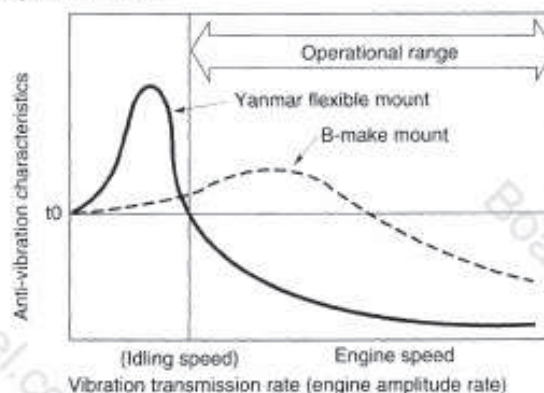
5-1. Yanmar Flexible Engine Mount

The dimensions for both front and rear-side flexible engine mounts are identical. However the rubber elastic modulus is different for front and rear, so be sure remember their numbers.



5-1-1. Characteristics of the Yanmar Flexible Engine Mount

The illustration shows the vibration transmission rate and the engine amplitude rate in relation to the engine speed. Lowering the spring constant lowers the resonance point. In the engine's operational range, the vibration transmission rate (engine amplitude rate) is kept at under 10.

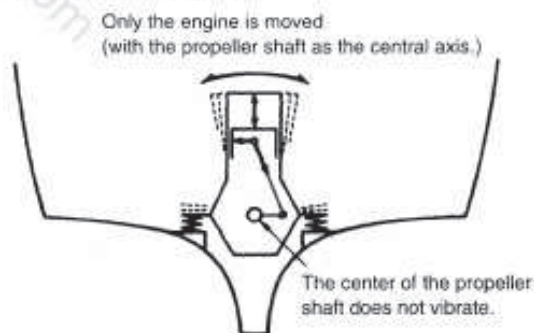


5-1-2. Hull Vibration

The target value for hull vibration with the use of Yanmar flexible engine mounts is 80 dB in the engine's operational range. This target value has already been established by sea trial tests. 80 dB vibration is the same level of vibration as in a normal passenger car. The decrease of each 6 dB of vibration reduces the previous vibrations by half.

5-1-3. Engine Amplitude

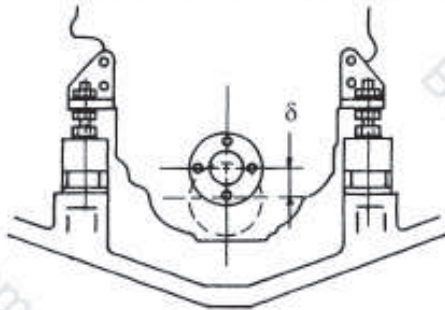
As shown in the illustration, the Yanmar flexible engine mount is designed to make the amplitudes small in the engine's operational range. At the resonance point, which is encountered at both engine starting and stopping, the amplitude may be large, but the mode of vibration at such times is rolling, centered around the propeller shaft. The upper part of the engine may be vibrated to a certain degree, but there is almost no vibration in the propeller.



5-2. Static Distortion of the Flexible Engine Mount Rubber (Rough Standard)

Flexible engine mounts are compressed by the engine load. The compression value varies according to the engine model and the positioning of the flexible engine mount. It is important to know this compression value in order to make the propeller shaft hole on the hull at the correct height above the engine bed.

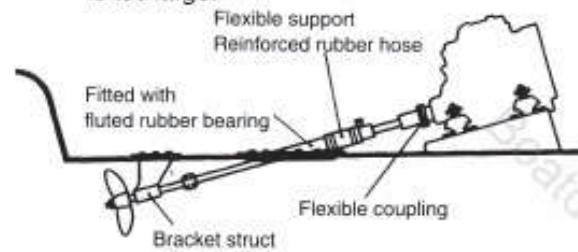
For "Flexible engine mount rubber static distortion values" refer to the ENGINE DATA for each model.



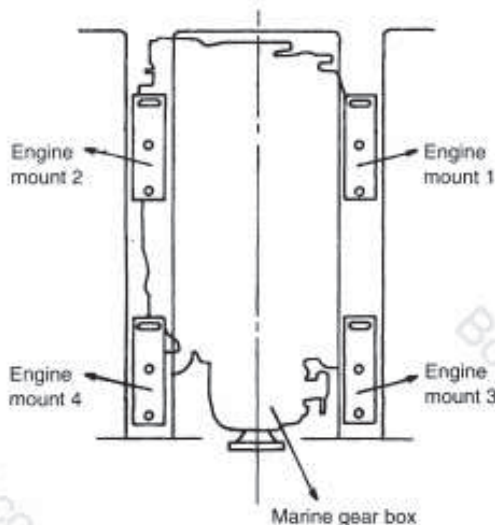
5-4. Flexible Coupling and Flexible Stern Tube

When the engine is installed with the flexible engine mount method, a flexible coupling or flexible stern tube must be employed.

[Note] Even if the flexible coupling and flexible stern tube are used, they will not be effective if the centering disalignment between the marine gear output shaft flange and the propeller shaft is too large.



5-5. Examples of Flexible Coupling



5-3. Durability of Flexible Engine Mount

The rubber tension of the flexible engine mounts is lost after many hours' use. This leads to a drop in vibration absorption performance, and also causes centering disalignment of the propeller shaft.

Be sure to replace the Yanmar flexible engine mount after two (2) years' use.

