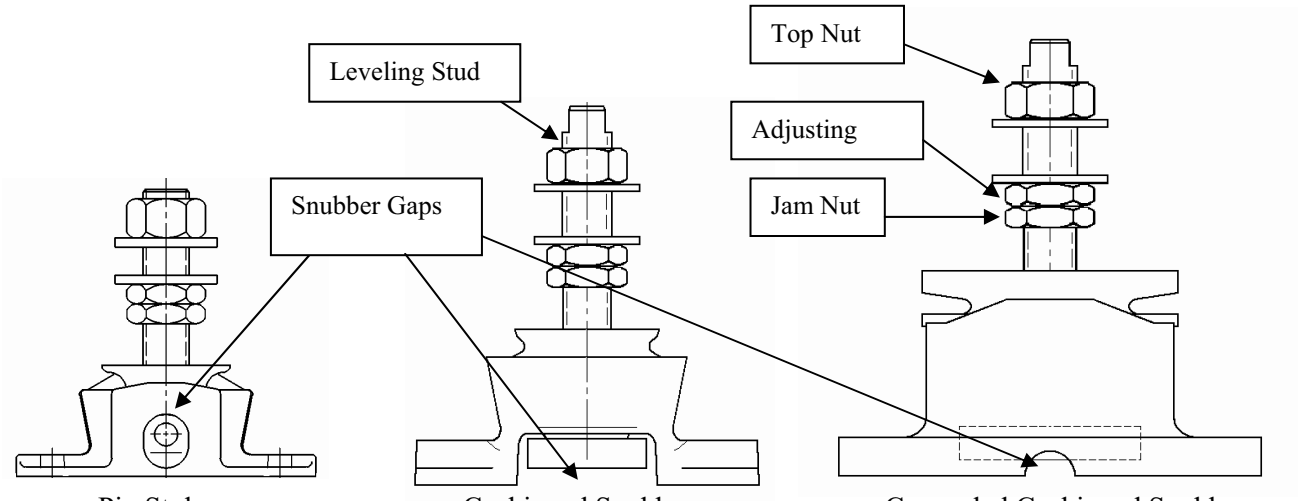
BARRY MARINE MOUNTS

Barry Controls Marine Engine Mounts are engineered to provide superior isolation of marine diesel engine vibration. To gain the full benefit of your Barry Mounts, they must be installed correctly. The engine bed or stringers in the vessel must be level and square with the engine installation. The stringers should have metal inserts with tapped holes or nut inserts to accept bolts or machine screws. Lag bolts screwed into wood or fiberglass stringers are not acceptable mount attachments.

There are three main styles of Barry Marine Mount. The mounts you have will look like one of these diagrams:

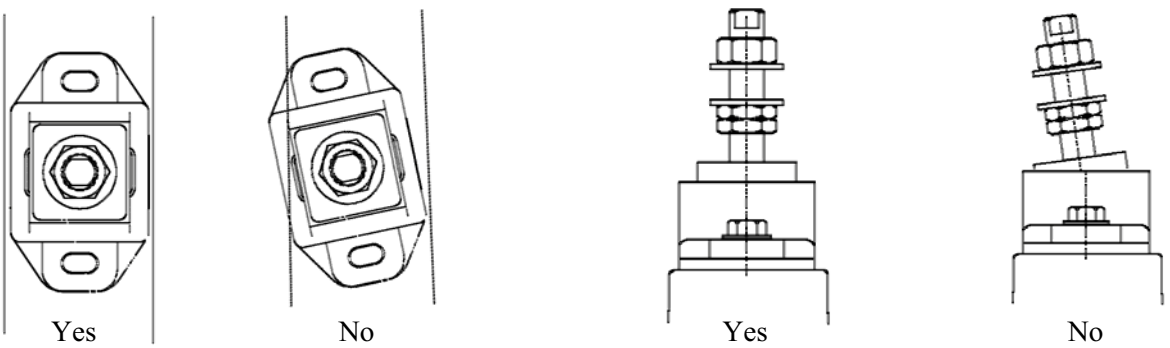


Pin Style | Cushioned Snubber | Concealed Cushioned Snubber

Installation Procedure:

1) The mounts must be installed parallel to the engine support bracket (engine foot) to maintain the required motion capability and clearances. Normally the engine feet will be parallel to the crankshaft centerline, and the oil pan flange can be used as a visual reference to the crankshaft centerline. If the engine bed or stringer mounting system is not parallel to the engine feet, then the feet must be changed, the stringers must be leveled or wedges (shims) must be used under the isolators. Shims must be made of non-compressible material such as aluminum or steel. Assemble the mounts to the engine support brackets. Position the nuts so that some thread adjustment is available both upward and downward. If the engine support bracket is slotted, position the leveling stud in the center of the slot. This will allow for adjustment in all directions when performing the engine alignment.

2) It is also necessary to be sure the mounts do not have any caster or camber. They should be upright and parallel to the engine support bracket and stringer to within 4° in all directions. A separate document is available from Barry Controls showing how to measure the misalignment and find the 4° limits.



Yes | No | Yes | No

3) Lower the engine into place so that the four mount bases rest in the desired position on the stringers, and bolt them lightly to the stringers. Do not remove the lifting hoist yet. Align the engine and marine gear with the propeller shaft to specification, and then begin to transfer the weight of the engine from the hoist to the mounts by using the adjusting nuts on all the mounts (see Step 6). Do not move the adjusting nuts without assist from the hoist until the engine weight is nearly evenly distributed. Failure to support the engine could result in damage to the stud and nut threads. Once the weight is evenly distributed, the hoist can be removed.

Isolator Adjustment:

4) Barry marine mounts are height-adjustable to allow for engine alignment. Adjusting the height also adjusts the share of the weight carried by each mount. It is very important to equalize the weight of the engine and gear on each of the isolator mounts as much as possible so that each mount carries its share of the load. In some situations the load cannot be completely equalized between the forward and aft mounts, but the load should always be equalized between the port and starboard sides of each engine.

5) On pin-style mounts, the pin serves as a load indicator. The mount is correctly loaded when the pin is at least 3 mm (1/8") from the edge of the hole in the cast housing. If the pin is touching the top of the hole, the mount is underloaded and will not isolate well. If the pin is at the bottom, the mount is overloaded.

   On cushioned snubber style mounts, the bottom rubber snubber, located between the cast housing and the stringer, serves as a load indicator. When the isolator is properly loaded the rubber snubber should not be touching the housing or the stringer, with approximately 3 mm (1/8 inch) gaps above and below the snubber. If the snubber is touching the housing, the mount is underloaded and will not isolate properly. If the snubber is touching the stringer, the mount is overloaded.

   On concealed snubber style mounts, a feeler gage 3 mm (1/8 inch) thick can be inserted through the half-moon opening under the base casting to get an approximate measurement of the gap. If the gap is 8 mm (5/16 inch)or more, the mount is underloaded and will not isolate properly. If the snubber is touching the stringer, the mount is overloaded.

6) To apply load to a mount, turn the adjusting nut so that it moves upward. This lifts the engine at that corner and compresses the mount. You will see that when the nut goes up, the snubber goes down. To reduce load, turn the adjusting nut so that it moves downward. This lowers the engine at that corner and relieves load on the mount. When the nut goes down, the snubber goes up. Adjust the mount loads until the port and starboard front mounts have similar snubber gaps, and the port and starboard rear mounts have similar snubber gaps.

7) Adjust the base flanges inward or outward if necessary. Tighten the flange bolts down to the stringers.

8) Adjusting the mount snubber gaps may change the shaft flange alignment. Recheck alignment and repeat the process as necessary to ensure that the isolators are properly loaded and the engine is aligned with the shaft. If major adjustments are needed to achieve proper loading and alignment, it may be necessary to add shims or modify the stringers to center the isolator studs to the engine support bracket. When the nuts are tightened, the top nut must not be more than 2 mm (.08 inch) onto the flatted region of the stud. If the nut is too high on the stud, shims should be added under the mount.

9) Finally, the lower nuts and the upper nut must be tightened. Typical values are given below. Hold the adjusting nut and tighten the jam nut, then hold the flats on the stud and tighten the top nut.

	Adjusting Nut, Jam Nut	Top Nut
¾ inch dia. stud:	129 N-m (95 lb-ft)	195 N-m (144 lb-ft)
1 inch dia. stud:	181 N-m (134 lb-ft)	285 N-m (210 lb-ft)

10) Mounts will settle slightly after installation. Re-check engine / shaft alignment and snubber spacing after several days under full engine weight load.