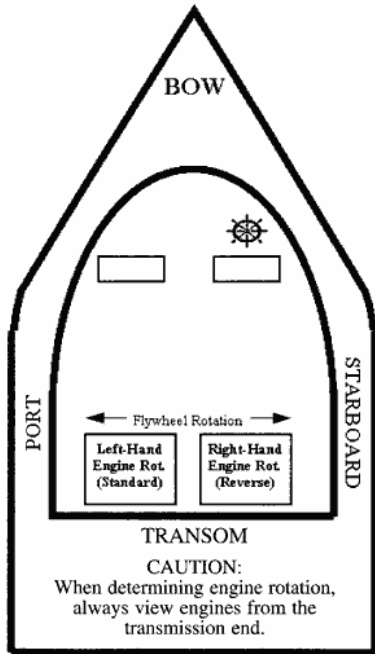




## Engine Rotation



Rotation is always determined by looking at *the* flywheel end of an inboard engine. The flywheel of a standard rotation engine turns left, or counter-clockwise, when viewed from the flywheel. The flywheel of a reverse rotation engine turns right, or clockwise, when viewed from the flywheel. Most single engine inboard and I/O boats use a standard rotation (L.H.) counter-clockwise engine. Use the illustration to the Left to help understand engine rotation.

Your boat has twin engines, counter rotating engines have long been used to neutralize propeller torque which improves vessel handling and performance. The port, left side engine, is the standard rotation engine. The starboard, right side engine, is a reverse or counter rotation engine.

Sometimes it is not possible to view the flywheel so engine rotation will have to be viewed from the front of the engine. Just remember to reverse what you see at the front of the engine so it agrees with flywheel rotation. These are the guidelines for engines mounted in the normal fore and aft position with the flywheel closer to the stern of the boat. Some older boats used a flywheel forward configuration that can change the rules. Also, some ski boats with single engines, mostly Ford 302/351 power plants, used reverse rotation engines so it is a good idea to determine your engine's rotation before visiting the parts department to avoid error.

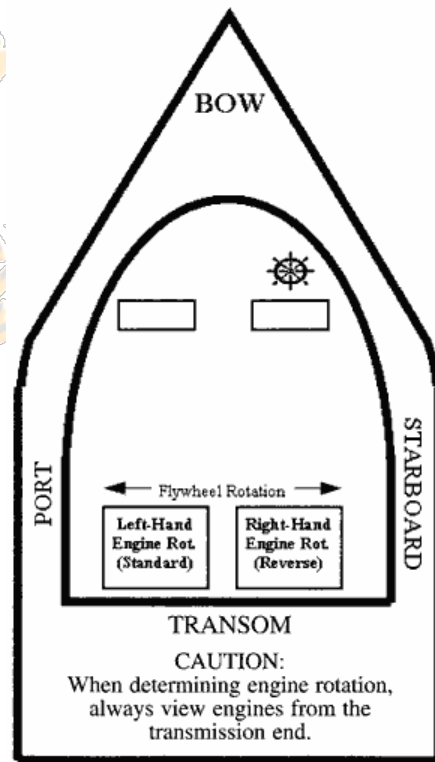
Due to the higher production costs and the advent of fuel injected gasoline engines bristling with computer modules and sensors, engine manufacturers discontinued reverse rotation engines in most cases. Since then, engine outputs have been handled by reduction gears capable of reversing engine output rotation. Both engines are standard left hand rotation but the reverse reduction gear changes the starboard engine output to right hand rotation. This is a much simpler, less expensive way to handle the need for opposite rotating engines.

## Xcessive Engines

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Starter motors, when mounted forward of the flywheel, will turn clockwise (R.H.) to start a standard rotation (L.H.) counter-clockwise motor. Starters mounted aft of the flywheel will turn counter-clockwise (L.H.) to start the same engine. Everything is just the opposite when speaking of a reverse rotation (R.H.) clockwise engine.



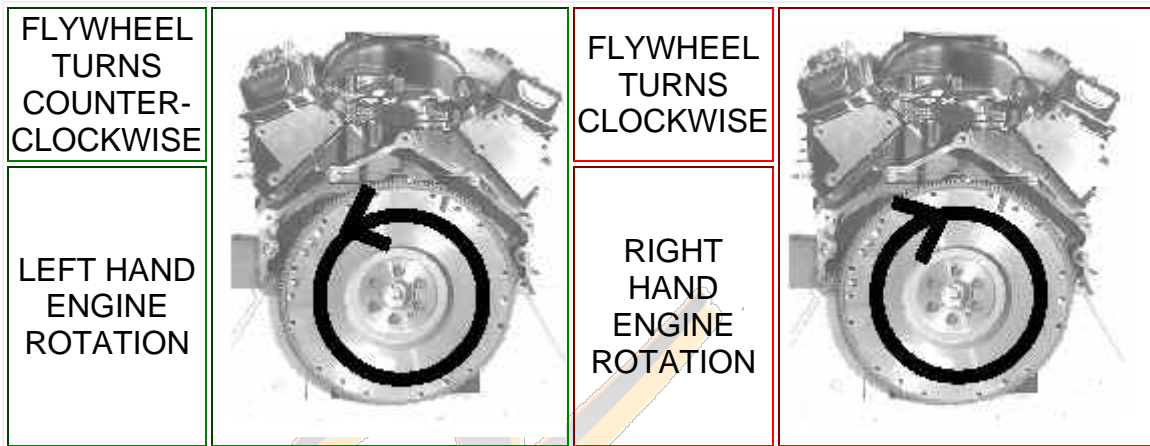
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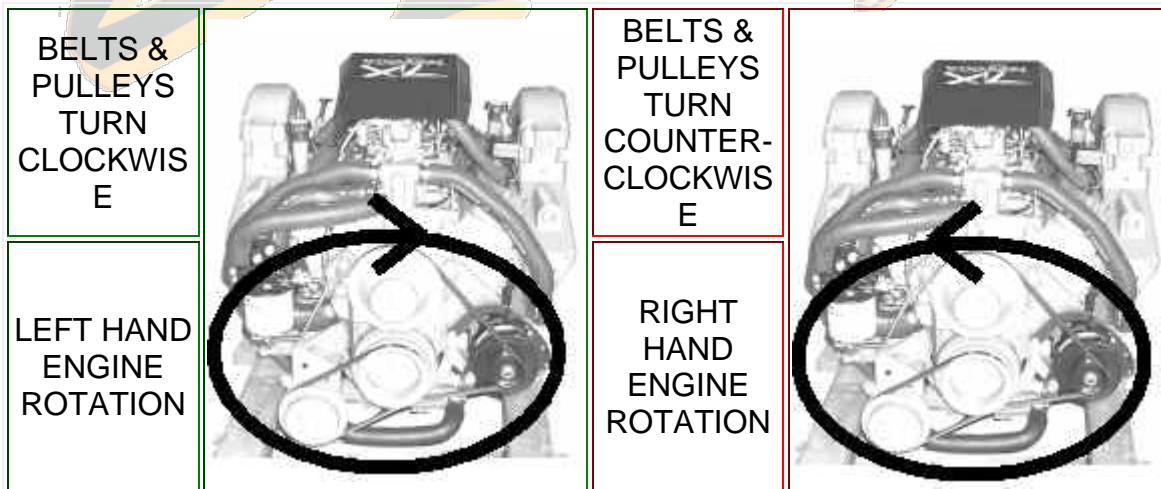


## What rotation engine do I have?

Engine rotation is viewed from the flywheel of the engine, clockwise would be Right Hand, and counter-clockwise would be Left Hand.



Since you usually cannot see the flywheel with the engine in the boat it can also be determined from the front of the engine. If you are looking at the front of the engine at the belts and pulleys, clockwise would be Left Hand, and counter-clockwise would be Right Hand. Never rely on propeller rotation to determine engine rotation. ALL I/O ENGINES ARE LEFT HAND!



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