



- A. Engine Rotation Terminology - MerCruiser Stern Drive and Inboard Engines
- B. Over-Filled Engine Crankcase - All Models
- C. Water Entering Engines Via Carburetor/Flame Arrestor
- D. New Propeller Line with New Front Thrust Hub

CIRCULATE TO:  
SERVICE MANAGER  
PARTS MANAGER  
MECHANICS

#### A. ENGINE ROTATION TERMINOLOGY - MerCruiser Stern Drive and Inboard Engines

Engine rotation terminology at times has caused confusion. To clarify, engine rotation is determined by observing CRANKSHAFT rotation from the rear (transmission or stern drive end) of the engine looking forward (water pump end).

PROPELLER ROTATION IS NOT NECESSARILY THE SAME as engine rotation.

LEFT HAND rotation is STANDARD ROTATION - Flywheel turns counterclockwise when viewed from the transmission or stern drive end of engine.

RIGHT HAND rotation is OPPOSITE ROTATION - The flywheel turns clockwise when viewed from the transmission or stern drive end of engine.

ALL MerCruiser Stern Drive engines (MCM are LEFT HAND rotation engines. MerCruiser inboard engines (MIE) can be either LEFT or RIGHT HAND rotation.

When ordering replacement engines, short blocks or parts for engines, be certain to check engine rotation. Do not rely on propeller rotation in determining engine rotation.

#### B. OVER-FILLED ENGINE CRANKCASE - All Models

Occasionally, a report is received about loss of RPM, accompanied by a fluctuation or drop in oil pressure and rocker arm "clatter", on MerCruiser engines. This situation can be caused by the crankcase oil level being too high (crankcase over-filled). The over-full condition results in the engine crankshaft splashing and agitating the oil, causing it to foam (become aerated). The aerated oil causes the hydraulic valve lifters to "bleed down". This, in turn, results in rocker arm "clatter" and loss of engine performance, due to the valves not opening properly.

Care must be taken when checking engine oil level. Oil level must be maintained between the "add mark" and the "full mark" on the dipstick. To ensure that you are not getting a "false reading", make sure the following steps are done before checking the oil level.

- Boat "at rest" in the water, OR
- If boat is on a trailer, raise or lower bow until the boat is setting at the approximate angle that it would be if setting "at rest" in the water.
- Allow sufficient time for oil to drain into the crankcase if engine has just been run or oil has just been added.

#### C. WATER ENTERING ENGINES VIA CARBURETOR/FLAME ARRESTOR

Periodically, Mercury Marine will receive a complaint from a customer or dealer that there is water in a MerCruiser engine.

Investigation reveals that the water entered via the flame arrestor and carburetor. The location of the engine hatch seam was such that rainwater was leaking down through the seam and ran on top of the carburetor/flame arrestor.

The problem usually occurs when the boat is not being used. Generally, the volume of water entering via the flame arrestor, is not great enough to "hydraulically lock" the engine while it is running; although it probably would cause rough running. The real problem occurs when the boat is at rest with the engine not running. Over a period of time, enough water can run into the

flame arrestor, carburetor, and intake manifold and into a combustion chamber through an open intake valve. It then can cause the engine to “hydraulically lock” when cranked. Also, if only a small amount of water enters the combustion chamber, it may cause a rust in the cylinder(s). If it is found that rainwater has entered the internal portion of an engine in this manner, steps must be taken to prevent this from reoccurring.

**D. NEW PROPELLER LINE with NEW FRONT THRUST HUB**

A new MerCruiser propeller line is available. They are stainless steel of the cleaver design. They are designed to supersede the MerCruiser I drive cleaver propeller line.

The new propellers use a forward thrust hub 92950. This forward thrust hub must always be used with these propellers. DO NOT use the MerCruiser I drive thrust hub 56292A1 or damage to the propeller and/or gear housing may occur. NEW thrust hub is packaged with propeller. Hi-Performance trim tab C-46399A1 must also be used with these propellers.

**PROPELLER CHART**

<u>Diameter</u>	<u>Pitch</u>	<u>No. of Blades</u>	<u>Material</u>	<u>RH Rotation Part Number</u>	<u>Propeller Supersession Chart</u>
14-1/4"	25"	3	S. Steel	48-89806A4	48-89802A4 Supersedes 48-88448A4
14-1/2"	23"	3	S. Steel	48-89804A4	48-89804A4 Supersedes 48-88450A4
14-3/4"	21"	3	S. Steel	48-89802A4	48-89806A4 Supersedes 48-88452A4
15"	19"	3	S. Steel	48-89800A4	48-89800A4 Supersedes 48-89266A4