Service Bulletin

Bulletin No. 2013-05R1
OEM No. 2013-04R1

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Water Circulation Pump Impeller Cracking

NOTICE
Revised May 2013. This bulletin supersedes the previous bulletin number 2013-05 April 2013.

Models Affected

Models Covered	Serial Number
4.3 Liter Models	1A645142–2A036214
5.0, 5.7 and 6.2 Liter Models	1A645061–2A036260

Scope

Worldwide

Situation

Mercury MerCruiser has observed water circulation pump impellers cracking, which can cause the engine to run below normal operating temperatures or cause an engine overheat. These impeller failures sometimes may be difficult to diagnose. Below are some specific symptoms and actions to help diagnose the potential problem.



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Symptoms

All engine models identified above:

Water pump noisy, rattling or emitting a rotating noise.

All engine models with seawater cooling of the engines identified above:

Engine runs below normal operating temperature, and then the thermostat cycles from low temperature up to near thermostat temperature and drops back down. This cycle will repeat multiple times. ECT (Emission Control Technology) engines may have a time to closed loop fault # 306, which can be observed from the CDS G3 service tool. If the operator continues using the engine with the above described condition, the lack of water circulation in the cylinder block will lead to an engine overheat.

All engine models with closed cooling of the engines identified above:

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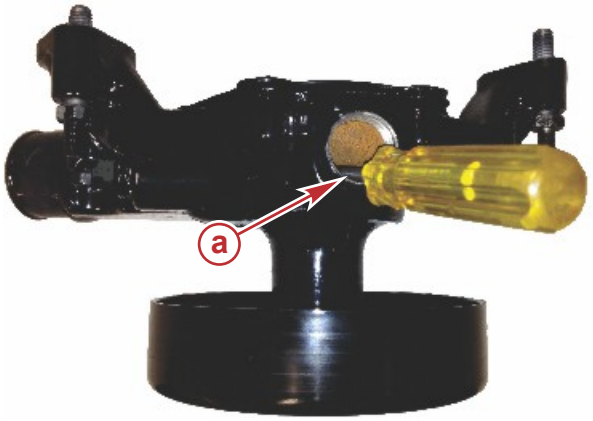
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Engine runs at normal operating temperature initially, but as the operator continues using the engine or the engine RPM is elevated with loads increasing, the lack of glycol circulation in the cylinder block will lead to an engine overheat

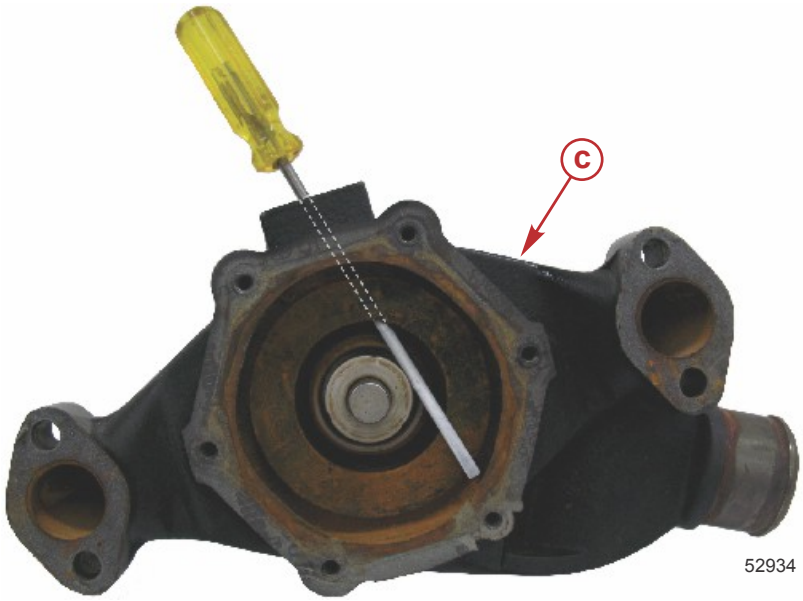
Inspection of Impeller

Confirmation of the impeller cracking without removing the circulation pump from the engine can be accomplished by the following procedure below.

1. Release the tension on the accessory drive belt.
2. Drain the engine cooling water or glycol so the fluid level is below the circulation pump.
3. Remove the plug on the top side of the circulation pump.
4. Insert a flat blade screwdriver no larger than 0.190 in shaft diameter and at least 5.5 inches long into the forward center inside diameter of the top plug hole at an angle equivalent to the 7 o' clock position, locking into the impeller vanes.
5. Hold the screwdriver in the locked position and rotate the water circulation pump pulley, feeling for resistance against the screwdriver. If you do not feel resistance, the circulation pump is broken or slipping on the pulley shaft.







a - Positioned at the front of inside diameter
b - Positioned with tip of screwdriver at 7 o' clock
c - Impeller removed for screwdriver positioning visual aid

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Correction

Replace any failed water circulation pumps. Refer to Service Manual for removal and replacement procedures.

Parts Required

Qty.	Description	Part Number
1	Circulation pump 4.3 liter V6 models	879194401
1	Circulation pump 5.0, 5.7 and 6.2 liter V8 models	850399 1

Warranty Procedure

If the engine is within the warranty period, submit a warranty claim through your normal warranty processing channel.

- Flat rate code: MC16
- Part code: 610
- Fail code: 07

Outside the United States and Canada: Follow the instructions issued by your local office or distributor.

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