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350, 400R Verado Product Launch Introduction

Models Affected

Models Covered	Serial Number Or Year
350 and 400R	1B968859–1B968883 2B141124 and Above

Scope

Worldwide

Situation

The purpose of this bulletin is to highlight product information on the Verado 350 and 400R engine

- Specifications
- G3 diagnostic tool version compatibility
- Gearcase changes
- Steering head changes
- Midsection improvements
- Fuel system changes
- Air intake and supercharger
- Engine harness changes
- Decal accent color options (400R)
- Engine mounting screw recommendation
- Maintenance decals
- Maintenance reminder
- Low battery voltage RPM strategy
- Cowl improvements
- Models available

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Specifications

Models		350	400R
Horsepower		350	400
Kilowatts		261	298
Full throttle RPM range		5800–6400	6400–7000
Idle RPM in neutral gear*		600	
Number of cylinders		6	
Displacement		2,598 cc (158.5 cid)	
Cylinder bore		82 mm (3.23 in.)	
Stroke		82 mm (3.23 in.)	
Spark plug		NGK ILFR6G-E	
Spark plug gap		0.8 mm (0.0315 in.)	
Spark plug hex size		16 mm	
Gear ratio		1.75:1	
Recommended gasoline		US and Canada —91 (R+M)/2 Octane is required for best performance. 89 (R+M)/2 minimum is acceptable, however, performance losses may occur. Outside US and Canada —95 RON is required for best performance. 93 RON minimum is acceptable, however, performance losses may occur.	
Recommended oil		SAE 25W-40 Synthetic Blend Marine 4-Stroke Engine Oil	SAE 25W-50 Synthetic Blend Racing 4-Stroke Engine Oil
Gearcase capacity	Heavy-duty 137 mm (5.4 in.)	510 ml (17.2 fl oz)	
	Sport Master	—	620 ml (21 fl oz)
Engine oil capacity with oil filter replacement		7.0 L (7.4 US qt)	
Required battery type		12-volt absorbed glass mat (AGM) battery	
USA (SAE) battery type		800 minimum marine cranking amps (MCA) with a minimum reserve capacity of 135 minutes RC25 rating	
International (EN) battery type		975 minimum cold cranking amps (CCA) with a minimum of 65 amp hours (Ah)	

* Engine at normal operation temperature.

G3 Diagnostic Tool Version Compatibility

G3 release 1.6.1 is compatible and has similar functionality as experienced with previous Verado models using CDS.

NOTE:

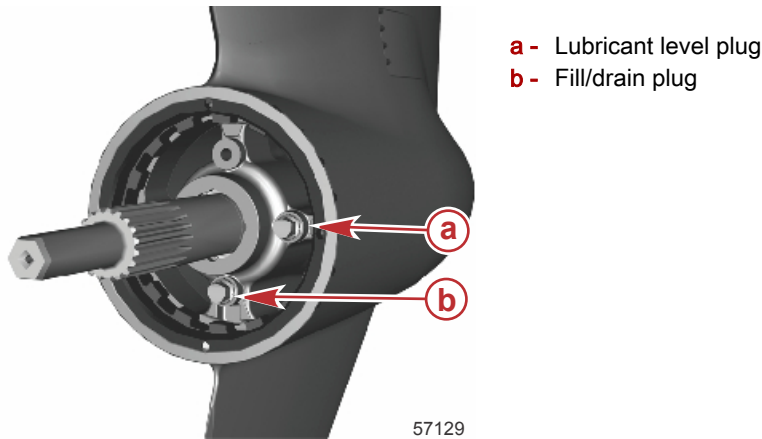
Gearcase Changes

- Heavy-duty 137 mm (5.4 in.) 1.75:1 gearcase.
 - Gearcase capacity is approximately 510 ml (17.2 fl oz). **Do not overfill.** Overfilling the gearcase will cause a reduction in power.
 - The gearcase fill/drain plug and the lubricant level plug are located on the propeller shaft bearing carrier.

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- The lubricant level plug is located at the 3 o'clock position.



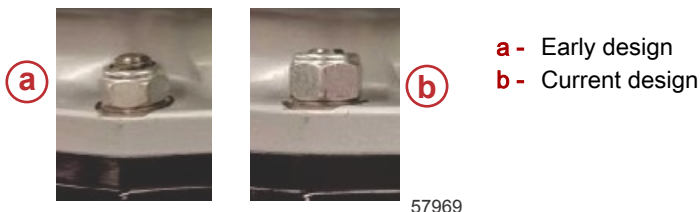
2. Sport Master 137 mm (5.4 in.) 1.75:1 gearcase.

- Gearcase capacity is approximately 620 ml (21 fl oz). **Do not overfill.** Overfilling the gearcase will cause a reduction in power.
- The gearcase fill/drain plug and the lubricant level plug are located on the propeller shaft bearing carrier.
- The lubricant level plug is located at the 3 o'clock position.
- Low-water pickups.
- Crescent leading edge.
- Straight, and camber right-hand or left-hand skeg is available.



3. Gearcase mounting hardware and torque specification change.

- On L and XL models, the aft mounting screw has changed and the torque has increased to 100 Nm (73.7 lb-ft).
- The gearcase mounting nut is taller. The new mounting nut exposes less threads on the mounting stud.
- The torque for the mounting hardware changed from 61 Nm (45 lb-ft) to 75 Nm (55 lb-ft).



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Steering Head Change

1. The steering head has been changed to utilize a larger steering arm fastener. The larger fastener size is more robust and has a 70% clamp load increase.



2. Heavy-duty tie bar kits are available. These kits have larger pinned connections, larger bushings, a solid coupler, and larger tie rod threaded ends, increasing the overall strength of the steering components.



Dual engine tie bar

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Dual Engine Tie Bar Length	Recommended Distance Center to Center	Kit Part Number
66.04 cm (26 in.)	66.04–67.95 cm (26–26.75 in.)	8M0096314
71.12 cm (28 in.)	67.95–73.03 cm (26.75–28.75 in.)	8M0096315
76.2 cm (30 in.)	73.03–78.11 cm (28.75–30.75 in.)	8M0096316
81.28 cm (32 in.)	78.11–83.19 cm (30.75–32.75 in.)	8M0096317
86.36 cm (34 in.)	83.19–88.27 cm (32.75–34.75 in.)	8M0096319
91.44 cm (36 in.)	88.27–92.08 cm (34.75–36.25 in.)	8M0097267



Add a tie bar

Add a Tie Bar Length	Recommended Distance Center to Center	Kit Part Number
66.04 cm (26 in.)	66.04–67.95 cm (26–26.75 in.)	8M0096320
71.12 cm (28 in.)	67.95–73.03 cm (26.75–28.75 in.)	8M0096321
76.2 cm (30 in.)	73.03–78.11 cm (28.75–30.75 in.)	8M0096322
81.28 cm (32 in.)	78.11–83.19 cm (30.75–32.75 in.)	8M0096323
86.36 cm (34 in.)	83.19–88.27 cm (32.75–34.75 in.)	8M0096324
91.44 cm (36 in.)	88.27–92.08 cm (34.75–36.25 in.)	8M0097268

3. A tie bar bracket for single engine applications utilizing a kicker motor for steering is available (8M0097850).
4. A bracket for the joystick piloting is also available (8M0098927).

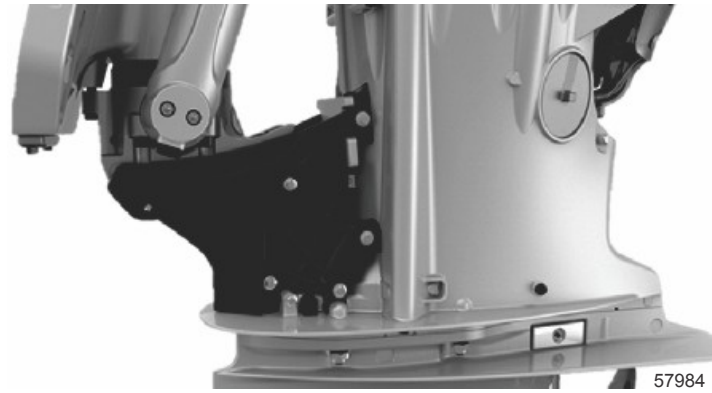
Midsection Improvements

- Tilt pin retainer rings have been anodized the color blue to make an inspection easier to visually identify the ring integrity.

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- Driveshaft housing is a new design. The design change accepts a new side support assembly.



Fuel System Changes

1. New fuel supply module (FSM).
 - The FSM is based on the 150 FourStroke fuel system architecture.
2. Priming the FSM methods.
 - **Priming the FSM with a purge tool:** Refer to the operation manual or installation manual for this priming procedure.
 - **Priming the FSM without a purge tool:** Refer to the operation manual or installation manual for this priming procedure.
3. Boat mounted water-separating fuel filter.
 - A boat mounted water-separating fuel filter is included with the engine. This filter has a larger media area for capturing contaminants, and an increased water separating capability with a removable water sensor. This filter has replaced the engine mounted fuel filter.
4. In-line fuel filter.
 - An in-line fuel filter is located inside the engine side fuel line connector and it is required when a boat mounted fuel filter is installed. This filter captures debris that may be in the fuel line between the boat mounted filter and the fuel line connection on the engine. This filter can be removed or replaced after one year or 100 hours of operation.



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5. A fuel demand valve (FDV) is no longer required on the fuel supply hose. The vent and purge valves are not used with this fuel delivery system; therefore, a primer bulb can be utilized, if desired.

Air Intake and Supercharger

- The cold air intake system has been designed to deliver cool fresh air from outside the cowl to the supercharger, lowering the intake air temperature.

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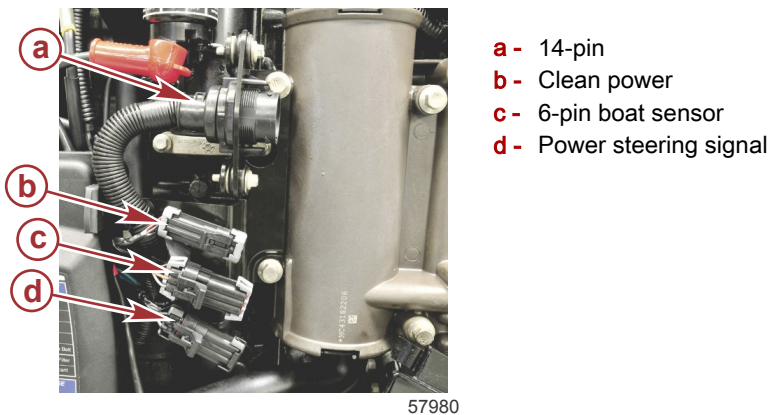
- Inlet flow path to the electronic throttle control has changed.



- Water-cooled supercharger end cap.
- Water-cooled supercharger housing.
- Supercharger rotor changed.

Engine Harness Changes

The engine harness has been changed to allow easy access to the clean power connector, power steering signal harness connector, and boat sensor harness connector. The water-in-fuel harness connector is inside the electrical box and is long enough that it can be connected outside of the electrical box.



Decal Accent Color Options (400R)

Seven decal color options are available for the 400R Race engine. These colors are: yellow, orange, red, purple, green, blue, and carbon fiber. A factory template version will be available to install the custom color decal on the engine. The template version will be gray in the areas where the decals should be applied.



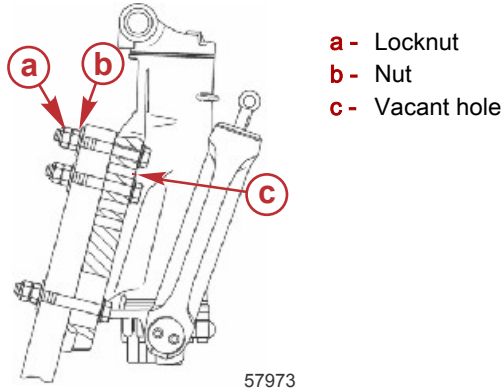
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Decal Kit Part Numbers			
Yellow—8M0096291	Orange—8M0096290	Red—8M0096288	Purple—8M0096287
Green—8M0096289	Blue—8M0096286	Carbon Fiber—8M0097812	

Engine Mounting Screw Recommendation

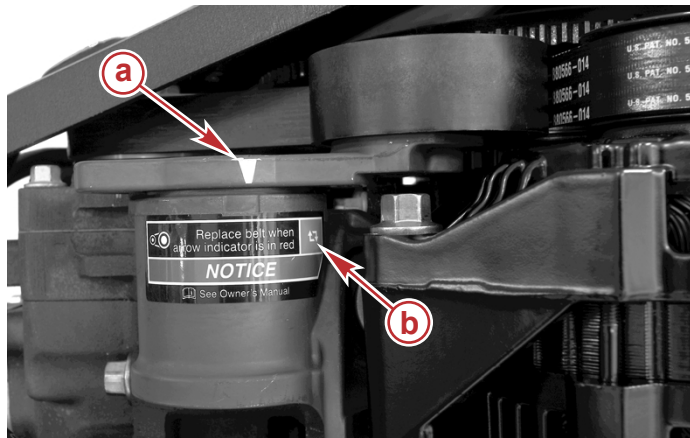
Mercury Marine recommends these engines utilize six mounting screws secured with two nuts on each screw. The top screws must have one vacant transom mounting bracket hole between the screws. Only one locknut per screw is allowed.



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Maintenance Decals

- Maintenance schedule**—The maintenance decal on the electrical cover now incorporates the maintenance schedule inspection and replacement items.
- Accessory drive belt**—A decal placed on the accessory drive belt tensioner base allows for a quick evaluation of the overall belt length. When the arrow on the tensioner is pointing to the red target window on the decal, the belt should be replaced.



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- a - Tensioner arrow
- b - Red target window (replace the belt)

Maintenance Reminder

Verado 350 and 400R have the maintenance reminder enabled. There are a number of SmartCraft gauges capable of displaying this reminder.

Low Battery Voltage RPM Strategy

The engine operation low RPM strategy has changed. During low speed engine operation, the PCM will gradually increase the RPM in incremental steps when the battery is below a specific voltage. During this charging strategy when the battery voltage is above the threshold, the PCM will gradually decrease the RPM.

Cowl Improvements

- Latch cables have been improved and are more resistant to corrosion.

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- Improved cowl seals.
- Improved cowl and panel alignment.

Models Available

350

- Colors—black, cool white, warm white
- Length—L, XL, XXL, CL, CXL, CXXL
- Joystick piloting
- Heavy-duty 137 mm (5.4 in.) 1.75:1 gearcase only

400R

- Colors—black, cool white
- Length—L, XL, XXL, CL, CXL, CXXL
- Joystick piloting
- Heavy-duty 1.75:1 gearcase
- Sport Master 137 mm (5.4 in.) 1.75:1 gearcase models

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