

Circulate to: Sales Manager Accounting Service Manager Technician Parts Manager

15/20 HP FourStroke Crankcase Engine Oil Leak Inspection and Fastener Retorque

Models Affected

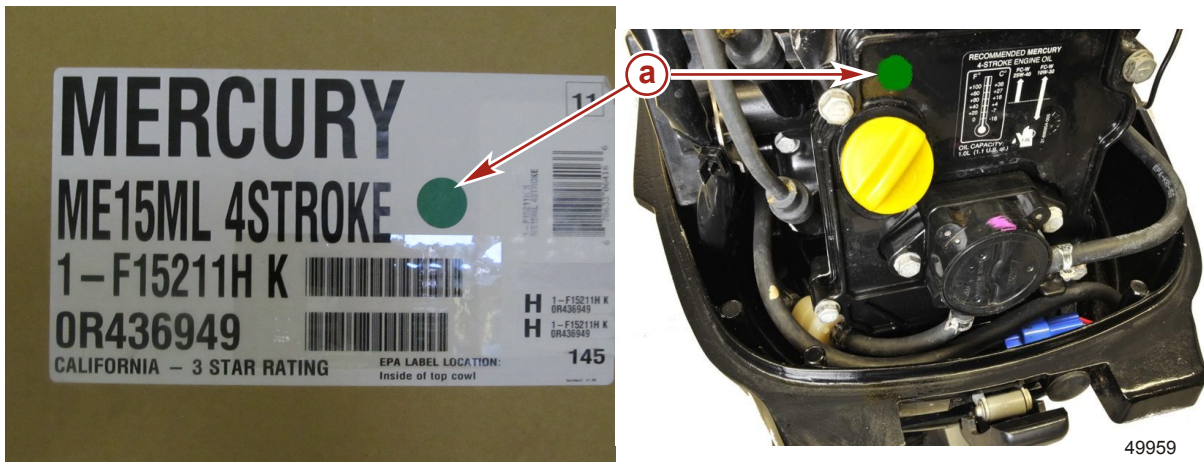
Models Covered	Serial Number
15/20 FourStroke	0R418097–0R419458
15/20 FourStroke	0R436296–0R445535

Situation

Mercury Marine has received isolated complaints of engine oil leaks on the outboards listed above due to improper torque of the crankcase bolts. Mercury Marine has determined that the torque applied to these fasteners during production may not be sufficient to retain the proper torque under all operating conditions. Engines with insufficient crankcase bolt torque could exhibit an engine oil leak at the crankcase split line seal.

Inspection

Outboards reworked by the factory or by an authorized dealer will have a mark indicating that they have been reworked. If the outboard is still in its shipping carton and has been reworked, there will be a green sticker on the boxing matte in the area of the model identification. If the engine is out of the shipping container, it will be identified by a green mark above the oil fill cap.



a - Marks identifying rework

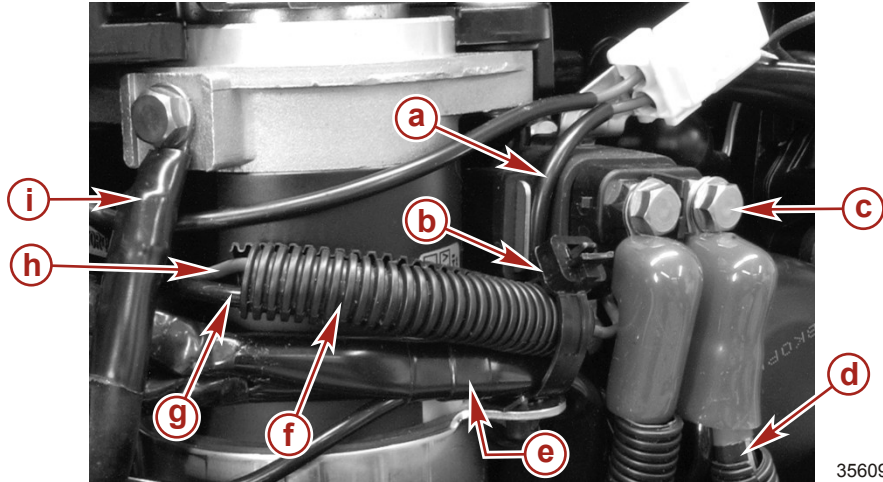
Correction

1. If the engine is equipped with electric start or battery charging, disconnect the battery cables from the battery.
2. Disconnect the engine from its fuel source.
3. If the engine is equipped with a remote control, remove the keyswitch harness and the shift and throttle cables.

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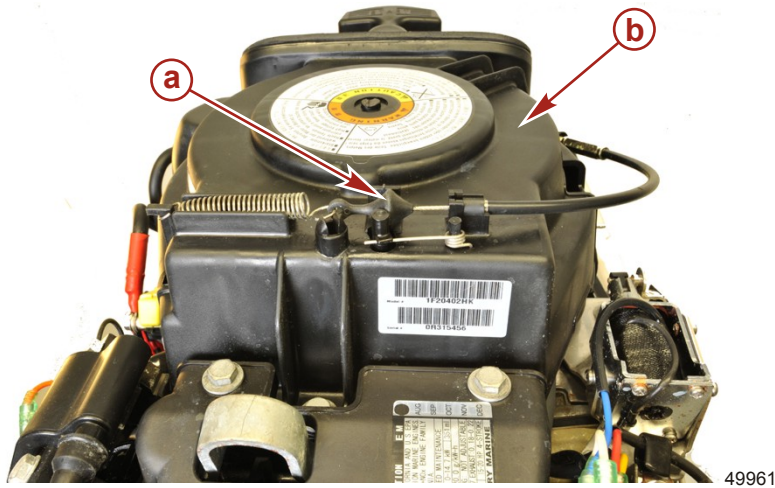
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- Following the appropriate service manual, remove the lower cowls.
- If the engine is equipped with electric start, remove the battery cables from the engine.



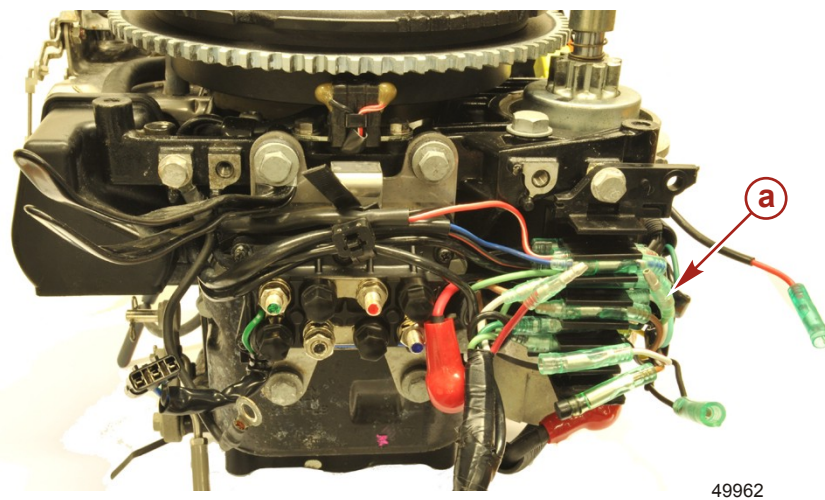
- a** - Starter motor fuse red wire to the starter motor solenoid
- b** - Cable tie
- c** - Solenoid connection for the two fuse red wires and the positive battery cable
- d** - Positive battery cable
- e** - Engine wire harness
- f** - Plastic sleeve
- g** - Voltage regulator fuse red wire to the starter motor solenoid
- h** - Starter motor solenoid green wire
- i** - Negative battery cable

- Remove the starter interlock cable, and recoil assembly.



- a** - Starter interlock cable
- b** - Recoil assembly

- Remove the electrical cover, and disconnect any wires tethering the powerhead to the driveshaft housing/lower cowl.

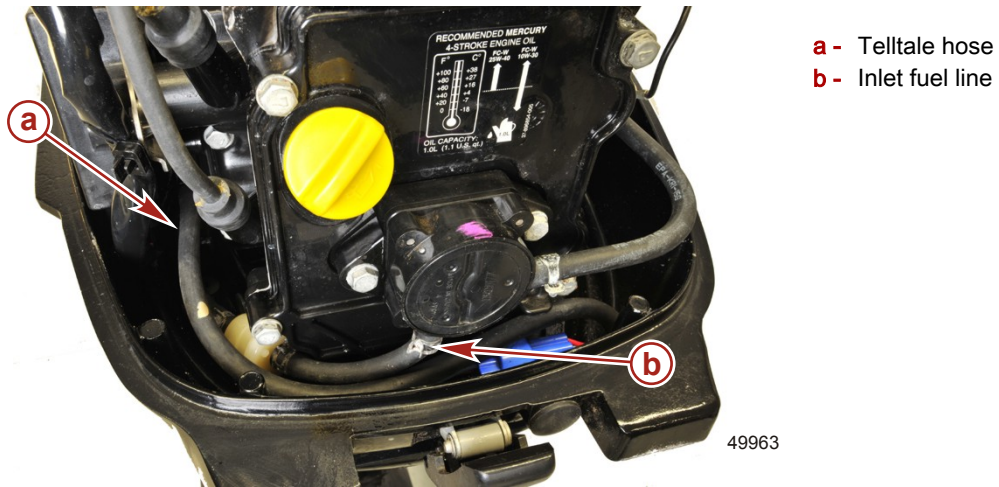


- a** - Electrical cover and bullet connectors

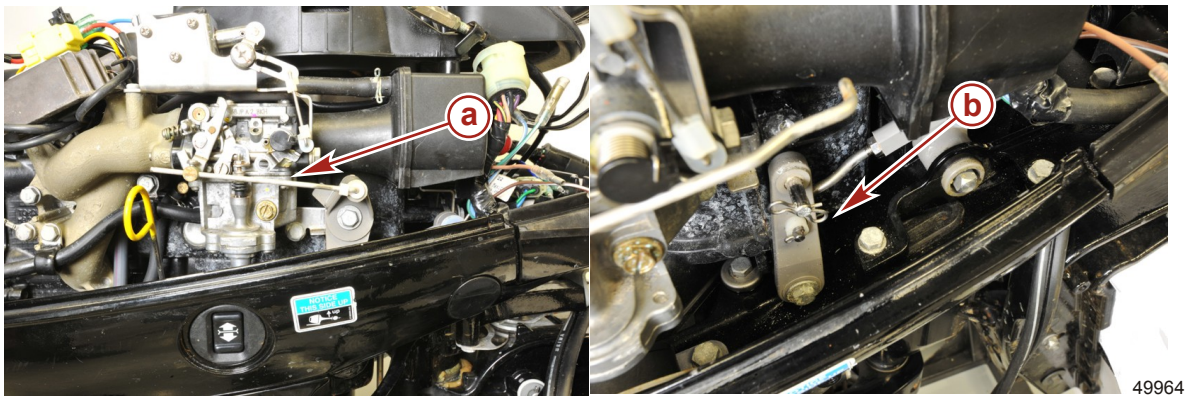
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8. Disconnect the telltale hose from the cylinder block, and the inlet fuel line from the inlet side of the fuel pump.



9. Disconnect the throttle link rod and the shift link rod (on remote control versions). If the engine is a tiller model, disconnect the choke link rod.



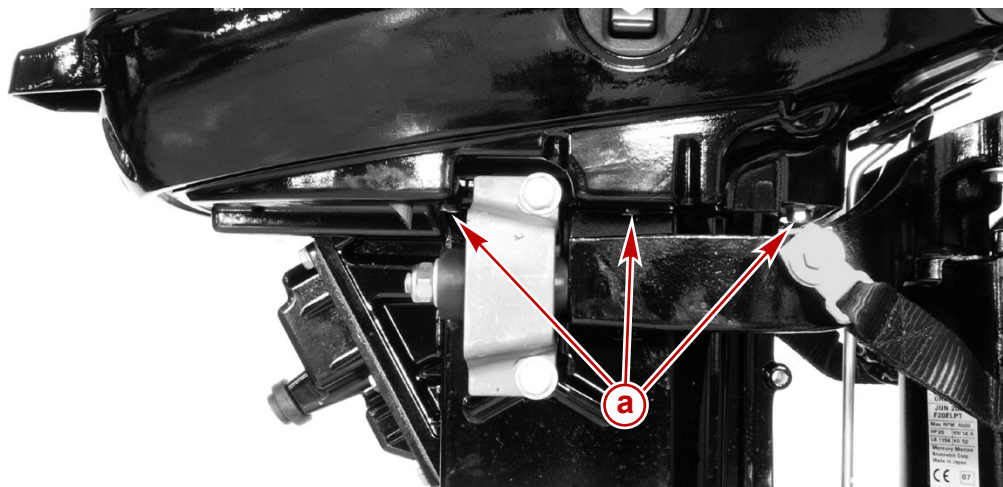
- a - Throttle link rod
b - Shift link rod

10. Remove the engine oil dipstick.

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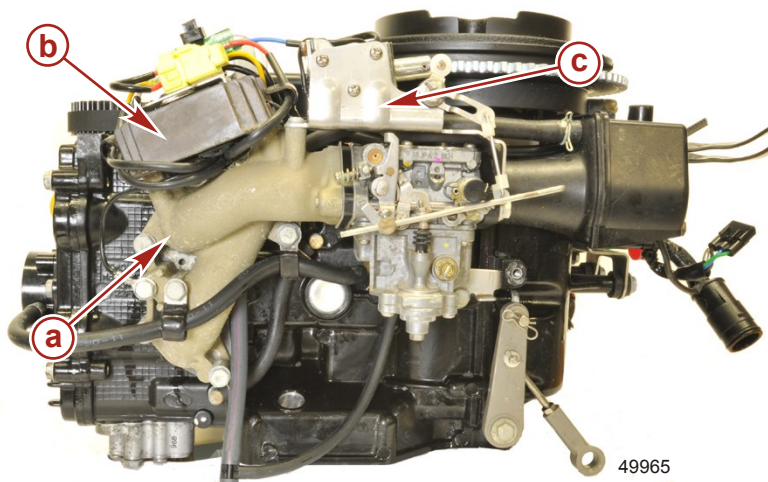
11. Remove the six bolts holding the powerhead to the driveshaft housing.



34032

a - Bolts (M8 x 35) (6)

12. Lift the powerhead off of the driveshaft housing. After removing the powerhead, place a plastic bag over the oil suction tube to prevent contamination and also to capture any oil seeping from the suction tube.
13. Disconnect the crankcase breather hose from the cylinder block. Remove the intake manifold and carburetor as an assembly and lay to the side. On electric start models it may be necessary to disconnect the voltage regulator wiring. On remote control models it may be necessary to disconnect the choke solenoid wiring.



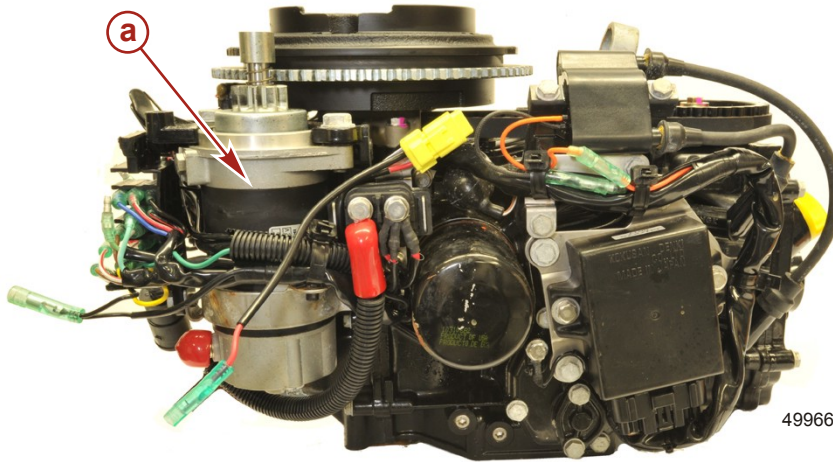
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a - Intake manifold/carburetor assembly
b - Voltage regulator (electric start models)
c - Choke solenoid (remote control models)

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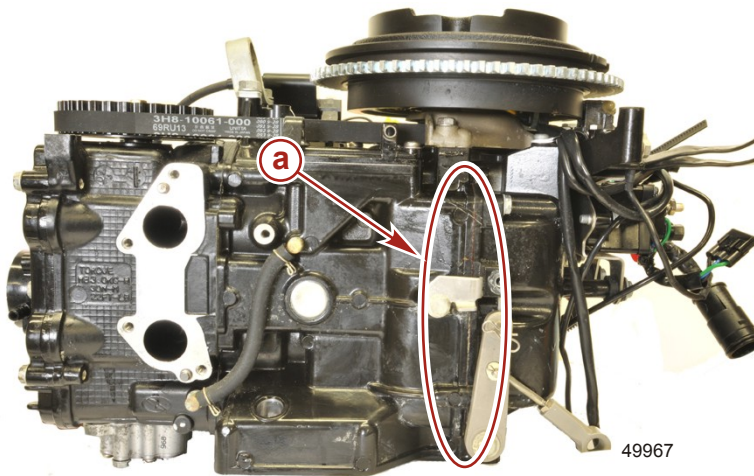
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14. If the engine is equipped with electric start, remove the starter motor.



a - Starter motor

15. Inspect the crankcase split line seal on both sides of the powerhead to see if there are any signs of engine oil leakage.



a - Crankcase split line

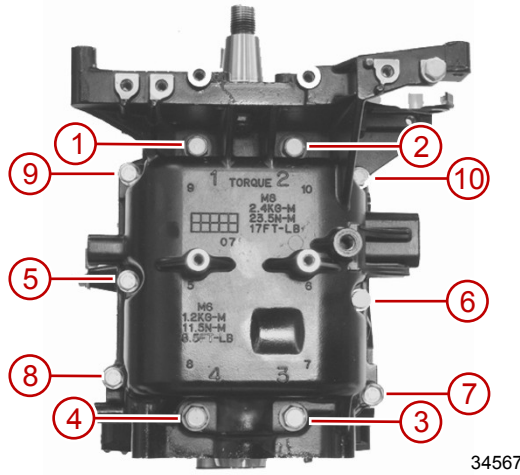
16. If there are no engine oil leaks found, follow **Repair Procedure A**. If engine oil leaks are found, follow **Repair Procedure B**.

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Repair Procedure A: Retorque crankcase bolts

- Following the appropriate service manual procedure, retorque the crankcase bolts to the specified torque following the outlined sequence.



Main bearing bolt (M8 x 50) (1–4)

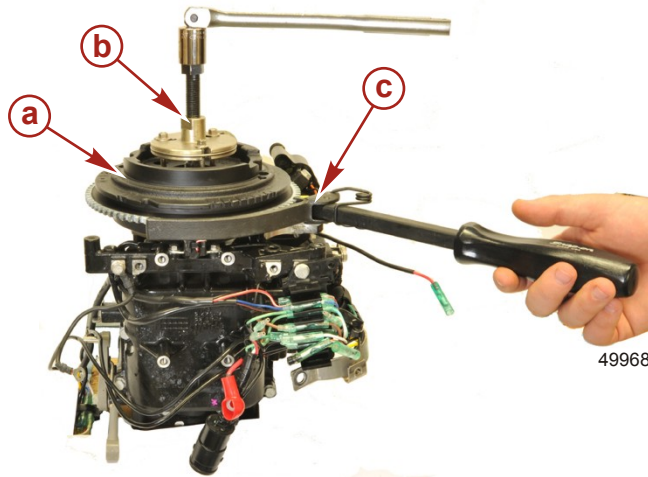
Crankcase cover bolt (M6 x 30) (5–10)

Description		Nm	lb-in.	lb-ft
Main bearing bolts (M8 x 50)	First	10	89	
	Final	26		19
Crankcase cover bolts (M6 x 30)	First	6	53	
	Final	12	106	

- Proceed to **Final Assembly**.

Repair Procedure B: Reseal crankcase

- Remove the flywheel nut, then using a flywheel puller and flywheel holding tool remove the flywheel.





- a - Flywheel
- b - Flywheel puller
- c - Flywheel holding tool

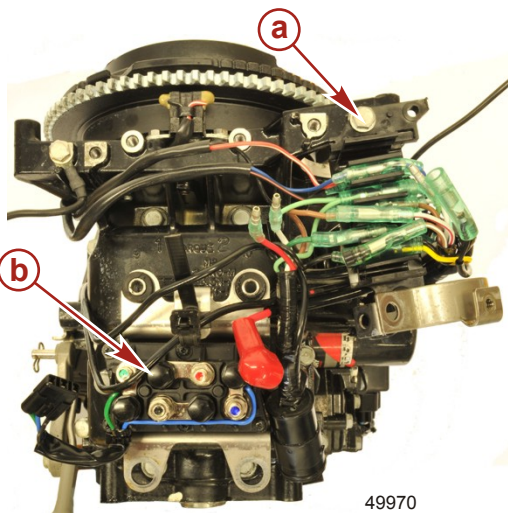
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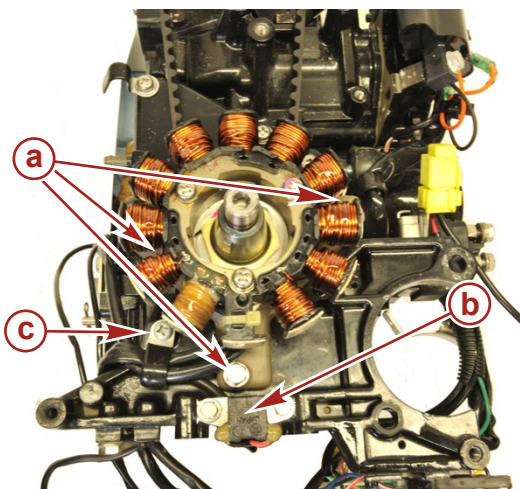
<p>Puller Set</p>	<p>FT8948-1</p>
 <p>26245</p>	<p>Aids in the removal of the flywheel from the engine.</p>
<p>Flywheel Holding Tool</p>	<p>91-52344</p>
 <p>4738</p>	<p>Holds and/or turns the flywheel while making engine repairs, also used to torque the flywheel or the engine coupler.</p>

- Remove the bolt securing the bullet connector holder. On power tilt models, remove the power tilt relay.



- a** - Bullet connector holder
- b** - Power tilt relay

- Remove the stator by removing the three hex bolts securing the stator bracket to the cylinder block. Also remove the crankshaft position sensor and wire bundle retainer.

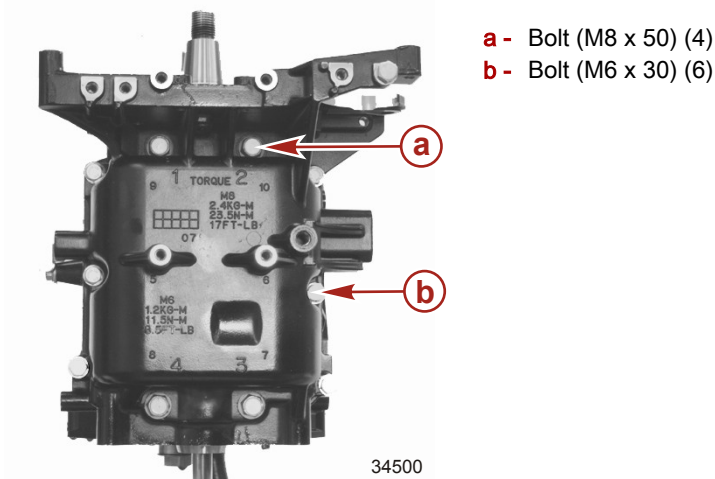


- a** - Stator bracket retaining bolts
- b** - Crankshaft position sensor
- c** - Wire bundle retainer

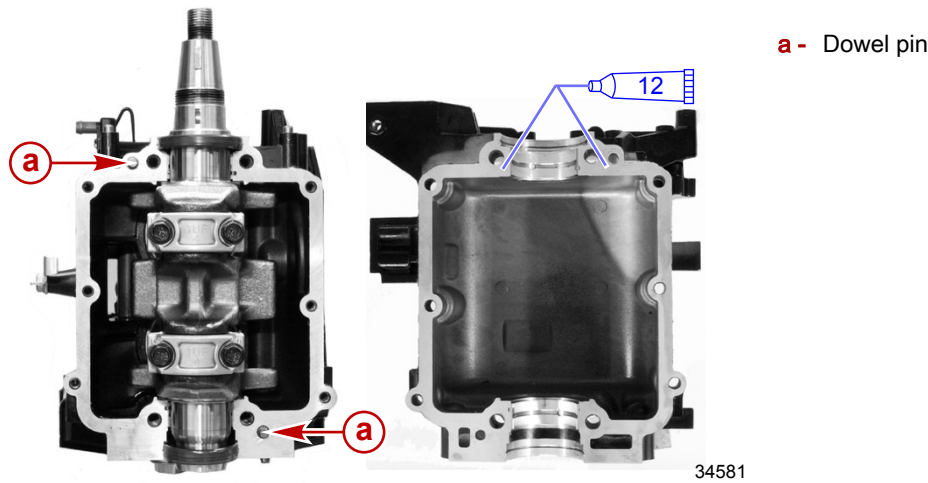
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
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- Remove the bolts securing the crankcase cover. Carefully remove the crankcase cover.



- Using a solvent such as lacquer thinner, clean the crankcase split line seal on the cylinder block and the crankcase cover. After cleaning the surface, apply Loctite 518 to the cylinder block sealing surface. Take special care not to apply sealer to the bearing surface of the crankshaft.

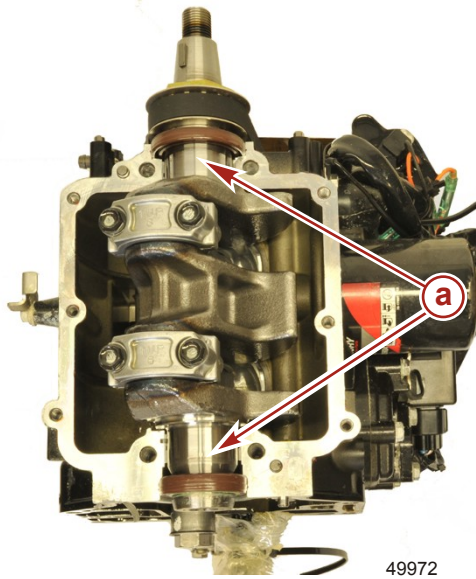


Tube Ref No.	Description	Where Used	Part No.
 12	Loctite Master Gasket Kit	Cylinder block and crankcase cover mating surfaces	92-12564 2

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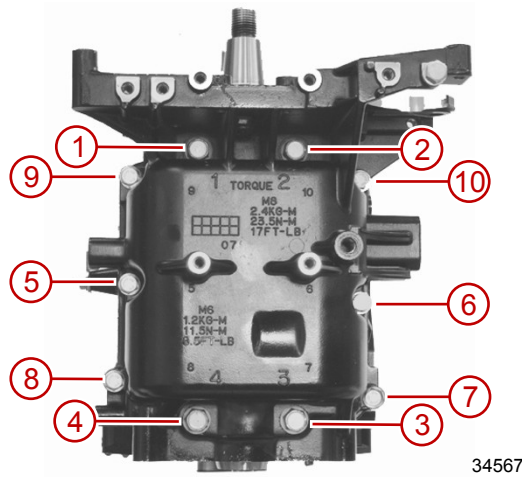
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6. Apply a few drops of 10W30 engine oil to the bearing surfaces of the crankshaft.



a - Crankshaft bearing surfaces

7. Making sure that the crankshaft bearings are in place, carefully reinstall the crankcase cover. Apply a small amount of 10W30 engine oil to the threads of the crankcase bolts. Tighten the crankcase bolts to the specified torque following the outlined sequence. Wipe up any excess sealer.



Main bearing bolt (M8 x 50) (1–4)

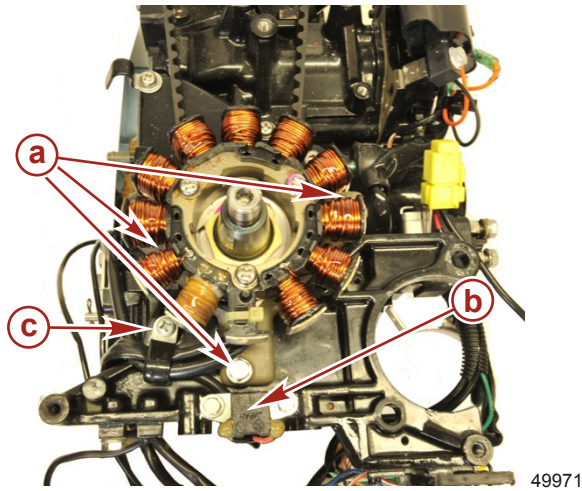
Crankcase cover bolt (M6 x 30) (5–10)

Description		Nm	lb-in.	lb-ft
Main bearing bolts (M8 x 50)	First	10	89	
	Final	26		19
Crankcase cover bolts (M6 x 30)	First	6	53	
	Final	12	106	

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8. Install the stator, crankshaft position sensor, and wire bundle retainer. When installing the stator bolts, apply a drop of Loctite 271 Threadlocker to the threads of the bolts. Tighten bolts to the specified torque.

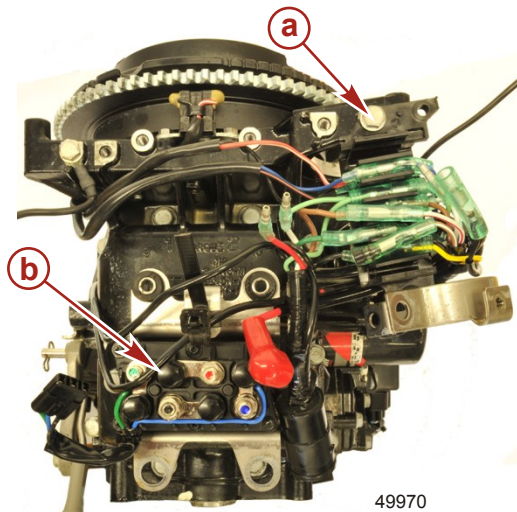


- a - Stator bracket retaining bolts
- b - Crankshaft position sensor
- c - Wire bundle retainer

Description	Nm	lb-in.	lb-ft
Stator bracket retaining bolts	6	53	
Crankshaft position sensor bolts	4	35	

Tube Ref No.	Description	Where Used	Part No.
7	Loctite 271 Threadlocker	Threads of stator bolts	92-809819

9. Install the bullet connector holder. On power tilt models, install the power tilt relay.

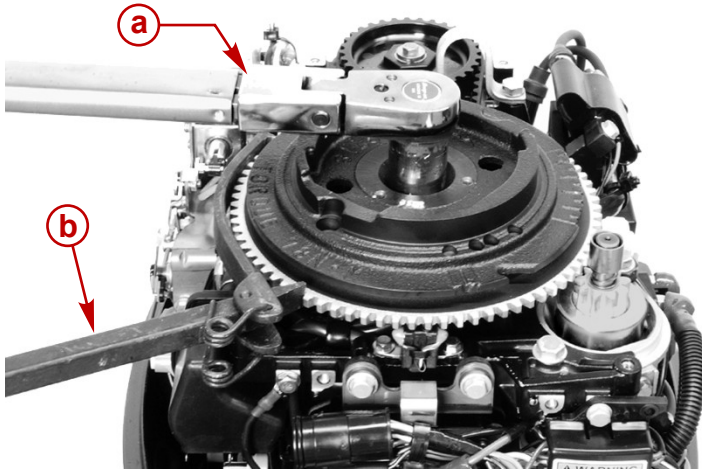


- a - Bullet connector holder
- b - Power tilt relay


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- Using a degreaser, clean the crankshaft and flywheel taper. Install the flywheel, washer, and nut, and ensure the key is properly positioned. Tighten the flywheel nut to the specified torque.



- a - Torque wrench with 24 mm socket
- b - Flywheel holding tool

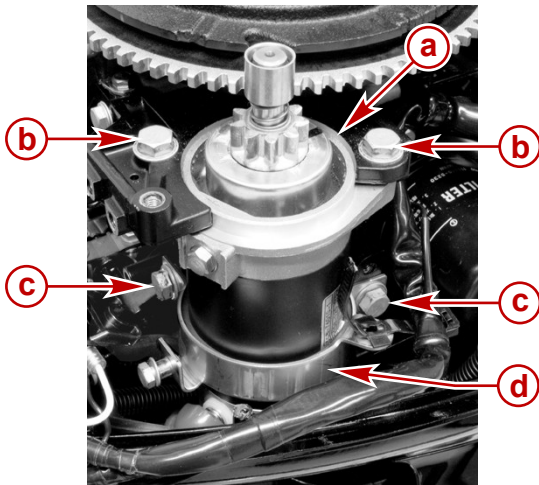
Flywheel Holding Tool	91-52344
	Holds and/or turns the flywheel while making engine repairs, also used to torque the flywheel or the engine coupler.

Description	Nm	lb-in.	lb-ft
Flywheel nut	80		59

- Proceed to **Final Assembly**.

Final Assembly

- If equipped, install the electric starter. Tighten to the specified torque.



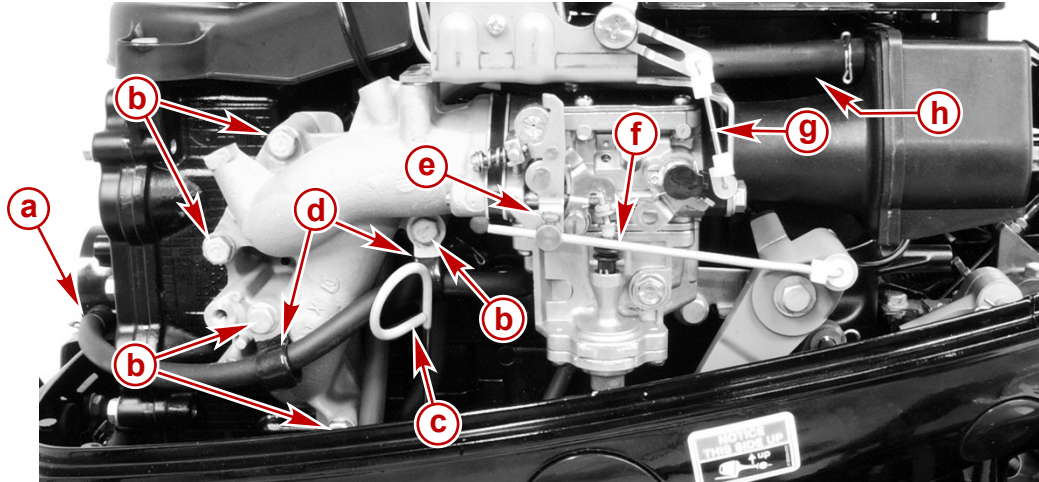
- a - Starter motor mounting flange
- b - Bolt (M8 x 25)
- c - Bolt (M8 x 18)
- d - Rubber mount and bracket

Description	Nm	lb-in.	lb-ft
Starter motor mounting bolts (M8 x 18 and M8 x 25) (4)	13	115	

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- Clean the intake manifold mating surfaces. Using a new gasket, install the carburetor and intake manifold. Tighten the bolts to the specified torque. If equipped, reconnect the voltage regulator and choke solenoid wires. Reconnect the crankcase breather hose.



34006

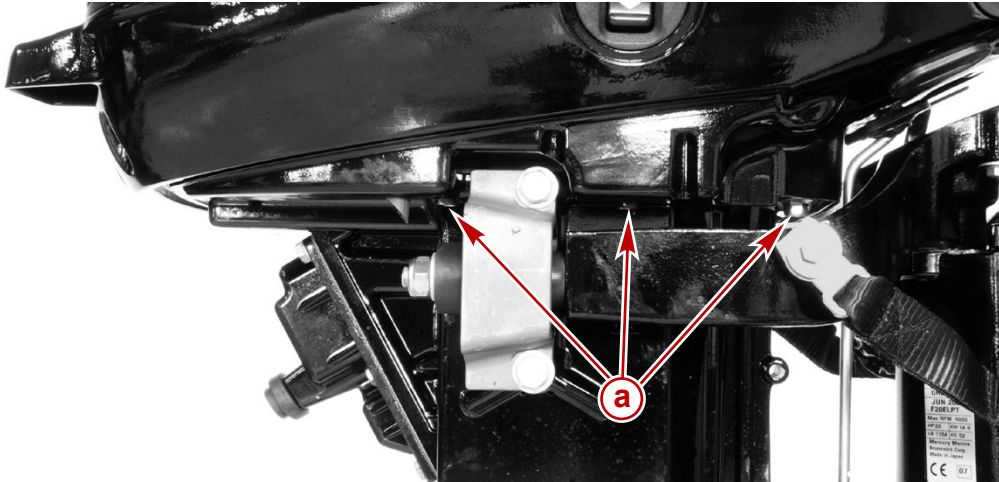
- a - Fuel pump outlet hose
- b - Intake manifold mounting bolts (M6 x 45) (5)
- c - Dipstick
- d - Wire clip
- e - Throttle link rod set screw
- f - Throttle link rod
- g - Choke link rod
- h - Air intake silencer vent hose

Description	Nm	lb-in.	lb-ft
Intake manifold mounting bolts (M6 x 45) (5)	6	53	

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- Using a new gasket, place the powerhead back on the driveshaft housing. When installing the powerhead, take special care not to pinch any hoses or wiring between the powerhead and driveshaft housing. Tighten the six bolts to the specified torque.

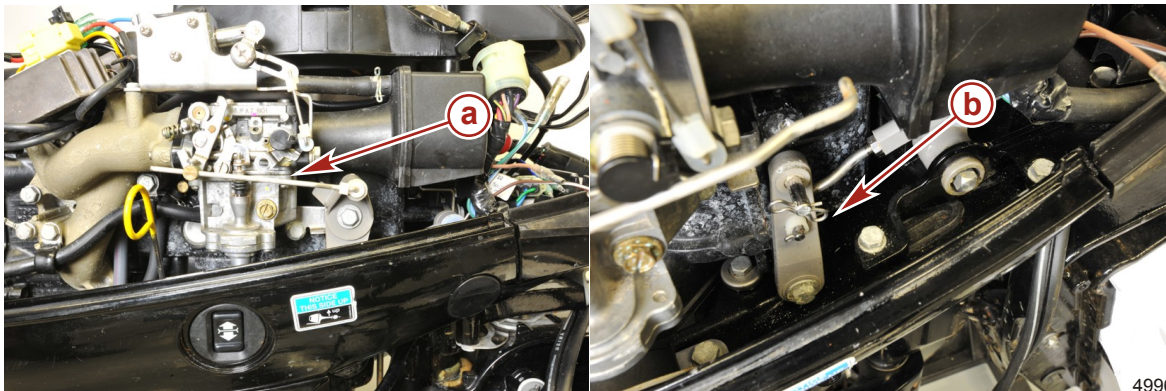


34032

- a** - Bolt (M8 x 35) (6)

Description	Nm	lb-in.	lb-ft
Powerhead mounting bolts (M8 x 35)	30		22

- Reinstall the engine oil dipstick.
- Reconnect the throttle link rod, shift link rod (remote control versions), and if equipped, the choke link rod.



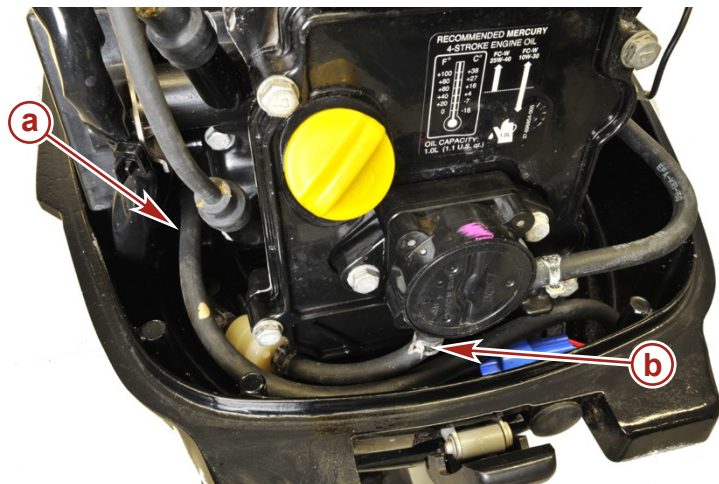
49964

- a** - Throttle link rod
b - Shift link rod

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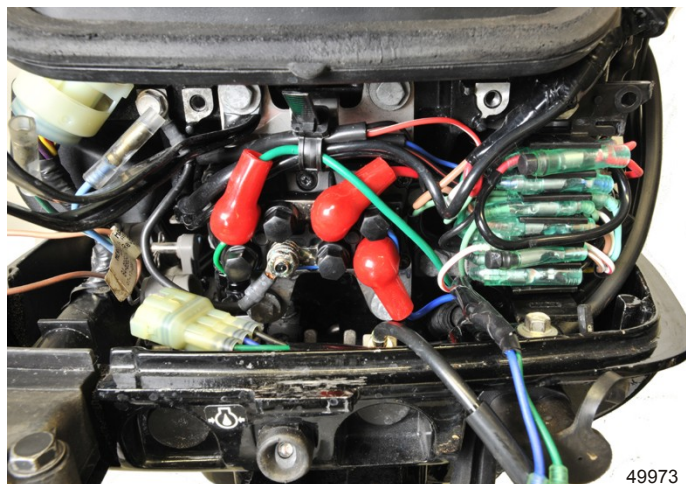
6. Reconnect the telltale hose to the cylinder block and reconnect the inlet fuel line to the fuel pump. Route carburetor vent hoses into the bottom cowl.



- a - Telltale hose
- b - Inlet fuel line

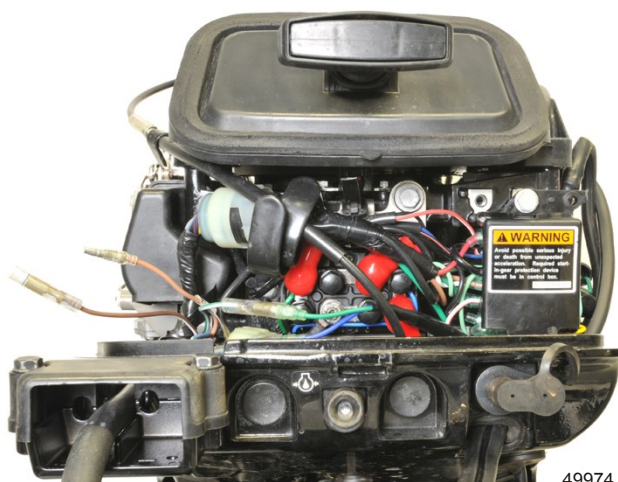
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7. Reconnect all disconnected electrical wires. Refer to the appropriate service manual if required.



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8. Reinstall the electrical cover.

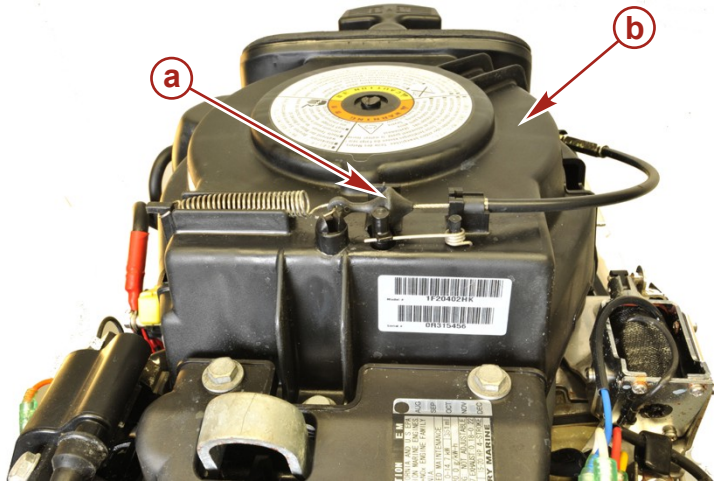


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- Reinstall the recoil assembly and starter interlock cable. Apply Loctite 271 Threadlocker to the recoil fasteners. Refer to the appropriate service manual if required.

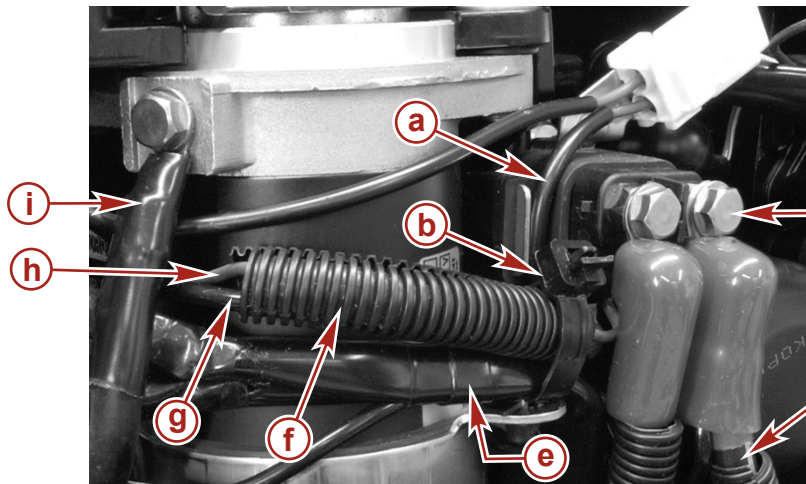


- a - Starter interlock cable
- b - Recoil assembly

49961

Tube Ref No.	Description	Where Used	Part No.
 7	Loctite 271 Threadlocker	Recoil fasteners	92-809819

- If equipped with electric start or battery charging, reconnect the battery cables to the engine. Tighten to the specified torque.



- a - Starter motor fuse red wire to the starter motor solenoid
- b - Cable tie
- c - Solenoid connection for the two fuse red wires and the positive battery cable
- d - Positive battery cable
- e - Engine wire harness
- f - Plastic sleeve
- g - Voltage regulator fuse red wire to the starter motor solenoid
- h - Starter motor solenoid green wire
- i - Negative battery cable

35609

Description	Nm	lb-in.	lb-ft
Negative battery cable bolt (M6 x 12)	6	53	
Starter motor solenoid bolts (M6 x 10)	6	53	

- Following the appropriate service manual, reinstall the lower cowls.
- If equipped with a remote control, reconnect the keyswitch harness and the throttle and shift cables.
- If equipped with electric start or battery charging, reconnect the battery cables to the battery.
- Reconnect the engine to a fuel source.
- After waiting 12 hours for the sealant to cure, test run the outboard for 10 minutes. Check the outboard for fuel, water, and engine oil leaks. Repair leaks as required. Also check the engine for proper electrical system function along with proper shift and throttle function.

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16. At the end of a successful test run, mark the valve cover with a green paint dot above the engine oil fill cap. This green paint dot will signify that the engine has been repaired.



a - Rework indicator

Owner Notification

A letter will be sent to every registered owner of an affected outboard. The letter will advise the owner to return the outboard to their selling dealer or any Mercury Outboard authorized dealer for the repair. As a selling or servicing dealer, you should also contact your customers to make them aware of this recall and to schedule an appointment for this repair. A copy of the customer letter is included with this service bulletin for your reference. Any engines in your dealer inventory should also be addressed per this bulletin.

Warranty

For manual start models requiring inspection and retorque

Complete the warranty claim listing:

- Outboard serial number
- Labor: 1.8 hours
- Flat rate code: SB10 and SB08
- Part failure code: 404
- Failure code: 00
- Powerhead base gasket: 835427T05
- Intake manifold gasket: 898101980

For manual start models requiring inspection and reseal

Complete the warranty claim listing:

- Outboard serial number
- Labor: 2.5 hours
- Flat rate code: SB20 and SB05
- Part failure code: 428
- Failure code: 00
- Powerhead base gasket: 835427T05
- Intake manifold gasket: 898101980

For electric start models requiring inspection and retorque

Complete the warranty claim listing:

- Outboard serial number
- Labor: 2.0 hours
- Flat rate code: SB20

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- Part failure code: 404
- Failure code: 00
- Powerhead base gasket: 835427T05
- Intake manifold gasket: 898101980

For electric start models requiring inspection and reseal

Complete the warranty claim listing:

- Outboard serial number
- Labor: 2.7 hours
- Flat rate code: SB20 and SB07
- Part failure code: 428
- Failure code: 00
- Powerhead base gasket: 835427T05
- Intake manifold gasket: 898101980

U.S. and Canada

Complete and process the claim via MercNET or return a warranty claim form.

International

Follow the instructions issued by the Marine Power International office or by an authorized Marine Power Distributor.

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Dear Mercury Outboard Owner:

Thank you for your purchase of a Mercury Outboard 15/20 HP FourStroke engine. Mercury Marine is dedicated to providing superior product reliability and customer satisfaction. As part of our commitment to superior customer satisfaction, we have determined that your outboard must be recalled so that we can perform an inspection of the crankcase fastener torque.

What is the condition?

Mercury Marine has identified that the crankcase fasteners of your outboard may not have been properly torqued. The outboard may develop an engine oil leak under these conditions. Mercury Marine has addressed the cause of this condition by making the appropriate changes to new outboards produced.

What will Mercury Marine do?

Mercury Marine has also identified that we can have our dealers perform an inspection on your outboard for incorrectly torqued fasteners. We have provided instructions to our dealers on the proper method of repairing these outboards if required.

What should you do?

Please contact your Mercury Outboard dealer and mention Outboard Service Bulletin 2012-02 to schedule an appointment to have this inspection performed on your outboard. Your dealer will be able to determine how long this inspection/correction will take.

Please present this notice to your dealer when you bring your engine in for your service appointment.

What if you have other questions or if you no longer own this engine?

Please contact your Mercury Outboard dealer or call Mercury Outboard Customer Service at 1-920-929-5040 between 7:30 AM and 5:30 PM CST.

We have sent this notice in the interest of your continued satisfaction with our product, and we sincerely regret any inconvenience this may cause you.

Thank you for boating with Mercury Marine

Mercury Marine Service