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Ignition Pencil Coil Troubleshooting - 75/80/90/115 FourStroke EFI, 135/150/175/200 Verado L4, and 200/225/250/275/300/350 SCi Verado L6

This service bulletin is intended to guide the technician to properly diagnose ignition pencil coil issues. It is also designed to eliminate the unnecessary replacement of misdiagnosed pencil coils, reduce the instances of no trouble found pencil coil warranty returns, and eliminate the subsequent warranty rejection of serviceable pencil coils.

⚠ WARNING

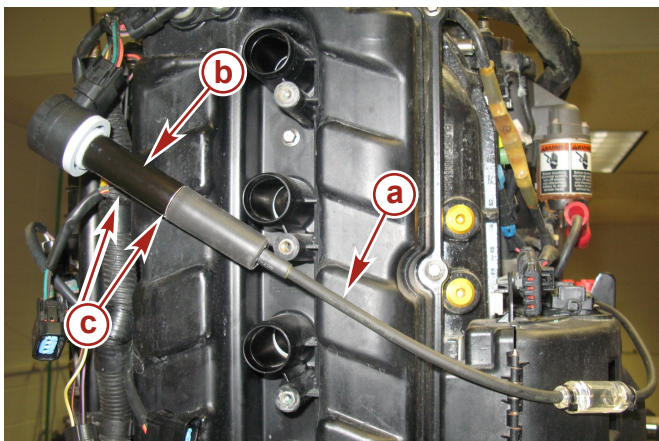
Prior to performing these ignition pencil coil tests, disconnect the fuel supply module (FSM) wiring harness to disable the fuel pumps. Failure to do so could result in a fire hazard.

⚠ WARNING

High voltage is present during these ignition pencil coil tests. Do not touch testing or ignition components and stay clear of the ignition coils when performing these tests.

IMPORTANT: Perform ignition pencil coil wiring and ignition coil ohm tests as outlined in the outboard service manual. If no problems are found, proceed to the following steps.

1. Disconnect the fuel supply module wiring harness to disable the fuel pumps.
2. Remove the pencil coils and spark plugs from each cylinder. Keep track of the cylinder location of each coil.
3. Reconnect the wiring harness connector to the pencil coil being tested.
4. Use spark gap tester (P/N 91-63998A 1). Adjust the spark gap between the pins to 11 mm (7/16 in.).
5. Install the spark gap tester between the pencil coil spark plug contact spring and engine ground (starter motor mounting bolt shown).



49402

- a - Spark gap tester (P/N 91-63998A 1)
- b - Ignition pencil coil cylinder #1
- c - Coil tube seams

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Troubleshooting without the Computer Diagnostic System (CDS)

1. Use the starter motor to spin the engine over.
2. A good coil will produce a strong blue spark across the spark plug gap.
3. While the coil is firing, carefully observe the seams of the coil tube for leakage (arcing). Replace the coil if arcing is observed.

Troubleshooting with the Computer Diagnostic System (CDS)

1. Connect the CDS to the outboard.
2. Proceed to the Active Diagnostics screen and run the Ignition (Plugs out of the Cylinder) test.
3. A good coil will produce a strong blue spark across the spark plug gap.
4. While the coil is firing, carefully observe the seams of the coil tube for leakage (arcing). Replace the coil if arcing is observed.

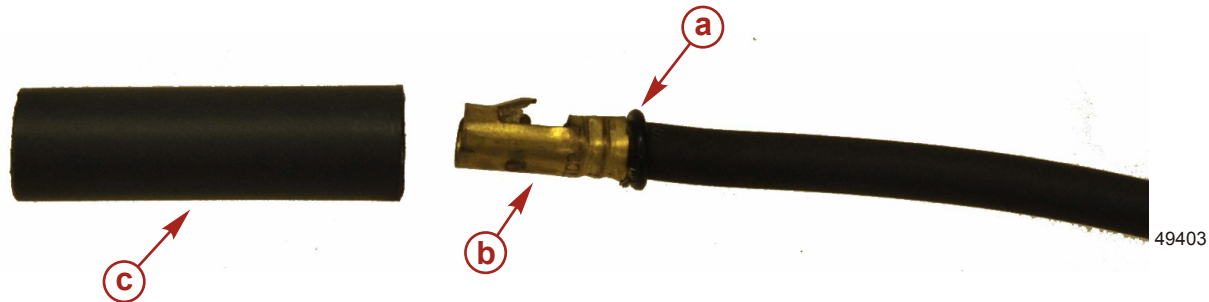
Good Ignition Pencil Coils

Pencil coils that produce a strong blue spark across the 11 mm (7/16 in.) spark gap and do not show signs of leakage (arcing) at the coil tube seams should not be replaced.

Service Tip

The spark gap tester (P/N 91-63998A 1) can be modified (described below) to work with pencil coils. Installing the O-ring with shrink tubing will provide a friction fit to hold the spark gap tester into the pencil coil spark plug boot.

1. Install an O-ring over the spark plug connector end of the spark gap tester. The O-ring size should be approximately 6 mm (0.24 in.) inside diameter with a 1.6 mm (0.063 in.) cross section, such as P/N 25-806232.
2. The O-ring should be positioned over the test lead just past the spark plug connector.



- a - O-ring
- b - Spark plug connector
- c - Heat shrink tubing

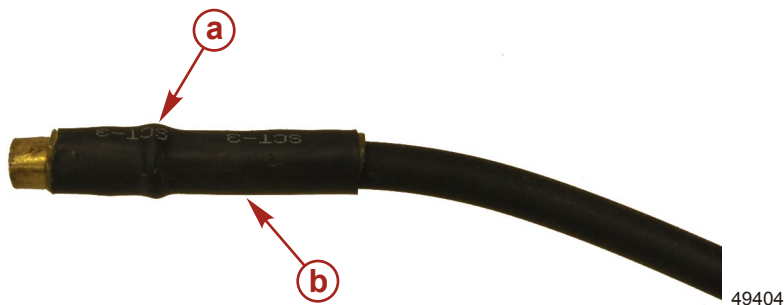
IMPORTANT: Positioning the tubing over the hooks of the spark plug connector will protect the inner rubber spark plug boot of the pencil coil during spark gap tester removal.

3. Install a 40 mm (1.5 in.) piece of heat shrink tubing over the test lead so that it covers both the hooks of the spark plug connector and the O-ring.

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4. Heat tubing to secure the assembly in place.

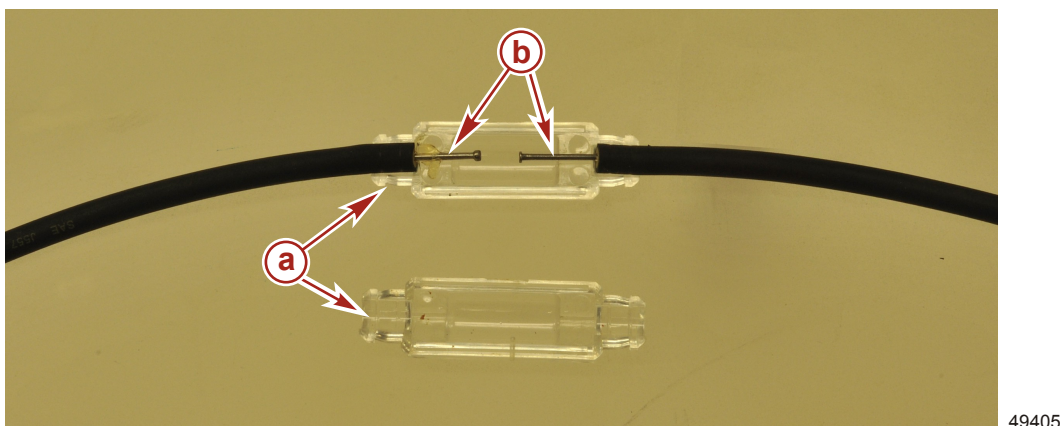


- a** - O-ring location
b - Heat shrink tubing

Spark Gap Tester Adjustment

Should the spark gap require adjustment, proceed as follows:

1. Remove the cable ties from both ends of the spark chamber.
2. Split the chamber and adjust (push/pull) the spark gap pins to obtain a gap of 11 mm (7/16 in.).
3. Reassemble the spark chamber and secure the assembly with two cable ties.



- a** - Spark chamber
b - Spark gap pins

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