Component Procedures: Spark Plug

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Parts and Labor (itype_189)

Labor

Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Remove & Install	Ignition System > Spark Plugs, R&I	B	2.8	0.0
Remove & Replace	Ignition System > Spark Plugs, R&R	B	2.8	0.0

Specifications Quick Reference (itype_439)

Quick Specifications
- item

Gas Engine Ignition Spark Plug Replacement (Article 11445)

Callout Component Name
Preliminary Procedure Remove the ignition coil . Refer to Ignition Coil Replacement - Bank 1 and Ignition Coil Replacement - Bank 2 .
Preliminary Procedure
Remove the ignition coil . Refer to Ignition Coil Replacement - Bank 1 and Ignition Coil Replacement - Bank 2 .
1 Spark Plugs Caution: Refer to Component Fastener Tightening Caution . Procedure If reusing the spark plug s, inspect for wear or damage. Gas Engine Ignition Spark Plug Inspection . If using NEW spark plugs do NOT attempt to check gap or damage can occur, plugs come pre gapped. Tighten 25 Nm (18 lb ft)
Procedure
- If reusing the spark plug s, inspect for wear or damage. Gas Engine Ignition Spark Plug Inspection .
- If using NEW spark plugs do NOT attempt to check gap or damage can occur, plugs come pre gapped. Tighten 25 Nm (18 lb ft)
25 Nm (18 lb ft)

Ignition System Specifications (Article 11472)

Application Specification
Ignition System Type T8 Ignition Coil — 1–6
Firing Order 1–2–3–4–5–6
Spark Plug Torque Refer to: Fastener Specifications
Spark Plug Gap Refer to: Engine Mechanical Specifications
Spark Plug Type Refer to: Electronic Parts Catalog

All New Technical Service Bulletins (itype_432)

Tsbs
- Fluid in Spark Plug Tubes, Coolant and/or Oil Leak, Malfunction Indicator Lamp (MIL) Illuminated (21-NA-147, 2025/07/25)

All Technical Service Bulletins (itype_100)

Tsbs
- Fluid in Spark Plug Tubes, Coolant and/or Oil Leak, Malfunction Indicator Lamp (MIL) Illuminated (21-NA-147, 2025/07/25)
- Engine Controls - Single Cylinder Misfire Diagnostics (PIP5062C, 2014/05/02)

Repair Tips (itype_110)

Tsbs
- Engine Controls - Single Cylinder Misfire Diagnostics (PIP5062C, 2014/05/02)

Gas Engine Ignition Spark Plug Inspection (Article 11444)

Spark Plug Usage
Ensure that the correct spark plug is installed. An incorrect spark plug causes driveability conditions. Refer to the Electronic Parts Catalog.
Spark Plug Inspection
- Inspect the terminal post (1) for damage. Click for full-size image

- Inspect for a bent or broken terminal post (1).
- Test for a loose terminal post (1) by twisting and pulling the post. The terminal post (1) should NOT move.
- Inspect the insulator (2) for flashover or carbon tracking, soot. This condition is often mistakenly identified as a cracked insulator. This is caused by the electrical charge traveling across the insulator (2) between the terminal post (1) and ground. Inspect for the following conditions:
- Inspect the spark plug boot for damage.
- Inspect the spark plug recess area of the cylinder head for moisture, such as oil, coolant, or water. A spark plug boot that is saturated causes arcing to ground.
- Inspect the insulator (2) for cracks. All or part of the electrical charge may arc through the crack instead of the electrodes (3, 4).
- Inspect for evidence of improper arcing.
- Measure the gap between the center electrode (4) and the side electrode (3) terminals. This must be done carefully in order to avoid damaging the small diameter Iridium center electrode. An excessively wide electrode gap can prevent correct spark plug operation. Ignition System Specifications
- Inspect for the correct spark plug torque. Insufficient torque can prevent correct spark plug operation. An over torqued spark plug, causes the insulator (2) to crack. Ignition System Specifications
- Inspect for signs of tracking that occurred near the insulator tip instead of the center electrode (4).
- Inspect for a broken or worn side electrode (3).
- Inspect for a broken, worn, or loose center electrode (4) by shaking the spark plug.
- A rattling sound indicates internal damage.
- A loose center electrode (4) reduces the spark intensity.
- Inspect for bridged electrodes (3, 4). Deposits on the electrodes (3, 4) reduce or eliminates the gap.
- Inspect for worn or missing platinum pads on the electrodes (3, 4) If equipped.
- Inspect for excessive fouling.
- Inspect the spark plug recess area of the cylinder head for debris. Dirty or damaged threads can cause the spark plug not to seat correctly during installation.

Spark Plug Visual Inspection

- Normal operation—Brown to grayish-tan with small amounts of white powdery deposits are normal combustion by-products from fuels with additives. Reddish orange deposits can indicate MMT fuel additive which is still used in some markets around the world (will cause misfire and cannot be burned off). MMT fuel additive use should be avoided.
- Carbon Fouled—Dry, fluffy black carbon, or soot caused by the following conditions:
- Rich fuel mixtures
- Leaking fuel injectors
- Excessive fuel pressure
- Restricted air filter element
- Incorrect combustion
- Reduced ignition system voltage output
- Weak coils
- Worn ignition wires
- Incorrect spark plug gap
- Excessive idling or slow speeds under light loads can keep spark plug temperatures so low that normal combustion deposits may not burn off.
- Deposit Fouling—Oil, coolant, or additives that include substances such as silicone, very white coating, reduces the spark intensity. Most powdery deposits will not effect spark intensity unless they form into a glazing over the electrode.
- Click for full-size image
- If carbon tracking occurs on spark plug tower (1), replace spark plug and spark plug wire or coil boot.