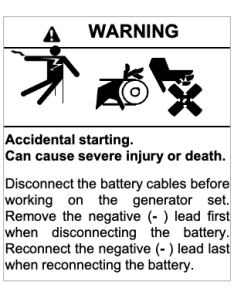
Inspecting Spark Plugs – 2.2 L RCL

IGNITION SYSTEM

Airborne particles can cause severe injury or blindness. Wear protective goggles and clothing when using power tools, hand tools, or compressed air.



Disable the generator set. Accidental starting can cause severe injury or death. Follow these precautions to prevent the starting of the generator by the remote start switch before working on the generator set or equipment connected to the set, disable the generator set as follows:

- Press the generator set off/reset button to shut down the generator set.
- Disconnect the power to the battery charger, if equipped.
- Remove the battery cables, negative (-) lead first. (Connect the negative (-) lead last when reconnecting the battery.)

Service the spark plugs at the interval specified in the service schedule using the following procedure:

- Press the off button on the RDC2 controller.
- Disconnect the power to the battery charger.
- Disconnect the generator set engine starting battery, negative (-) lead first.
- Use a cloth to wipe dirt and oil away from the area around each of the four spark plug wires.
- Remove spark plug wires by grasping the spark plug boot and turning slightly while pulling. Do not pull the wire. Pulling on the wire rather than the boot may damage the wire or terminal.
- Wipe the interior of the spark plug tubes.
- Loosen the spark plug with a ratchet and 13/16". spark plug socket with a rubber insert to prevent spark plug damage.
- Use compressed air to remove dirt from around each spark plug to prevent dirt particles from falling into the combustion chamber.
- Remove spark plugs, one at a time, and examine. Identify a spark plug in good operating condition by observing a light tan or gray deposit on firing the tip. See Figure 4-10 to evaluate engine condition by color/condition of a spark plug.

Problem/Condition	Means of Identification	Possible Cause/Solution
Gap-bridged spark plug	Built-up deposits and gap between electrodes closing.	Oil or carbon fouling. Clean and regap the spark plug.
Oil-fouled spark plug	Wet, black deposits on the insulator shell, bore, and electrodes.	Excessive oil entering combustion chamber through worn rings and pistons, excessive clearance between valve guides and stems, or worn or loose bearings. Replace the spark plug.
Carbon-fouled spark plug	Black, dry, fluffy carbon deposits on insulator tips, exposed shell surfaces and electrodes.	Incorrect spark plug, weak ignition, clogged air intake, overrich fuel mixture, or excessive no-load operation. Clean and regap the spark plug.
Lead-fouled spark plug	Dark gray, black, yellow, or tan deposits; or a glazed coating on the insulator tip.	Caused by highly leaded fuel. Replace the spark plug.
Pre-ignition damaged spark plug	Melted electrodes and possibly blistered insulator. Metallic deposits on insulator suggest internal engine damage.	Wrong type of fuel, incorrect timing or advance, too hot a plug, burned valves, or engine overheating. Replace the spark plug.
Overheated spark plug	White or light gray insulator with small black or gray/brown spots with bluish (burned) appearance on electrodes.	Engine overheating, wrong type of fuel, loose spark plugs, too hot a plug, low fuel pressure or incorrect ignition timing. Replace the spark plug.
Worn spark plug	Severely eroded or worn electrodes.	Caused by normal wear and failure to replace spark plug at prescribed interval. Replace the spark plug.

Figure 4-10

- Check that the spark plug washer is in good condition.
- Clean spark plugs by wiping them with a rag.
  Note: Do not sandblast, wire brush, scrape, or otherwise service spark plugs in poor condition. Obtain a new plug for best results.
- Check the spark plug gap before installing any spark plug. See Figure 4-6 and Figure 4-7. Attain a correct gap when the feeler (or wire) passes between the spark plug electrodes. It should pass easily but with some resistance or drag; otherwise adjust as necessary.

Model	Spark Plug Gap
24RCL	0.9–1.0 mm (0.036–0.040 in.)
30RCL and 38RCLB	0.7- 0.8 mm (0.028- 0.030 in.)

Figure 4-6

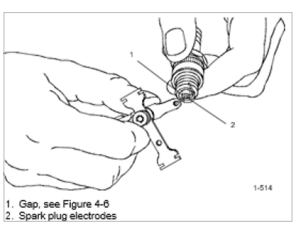


Figure 4-7

- Use a gapping tool to gently bend the side electrode closer to or farther from the center electrode to set the correct gap. See Figure 4-8. Position the side electrode directly over the center electrode.

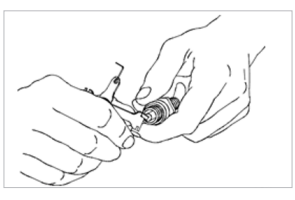


Figure 4-8

Note: Ensure that the spark plug tubes are seated before installing the spark plugs. If the tubes were removed, reinstall them before installing the spark plugs.

- Reinstall the spark plug. Do not bump the electrode against the cylinder head. Rotate the spark plug clockwise until you feel resistance.
- Use a torque wrench to tighten each spark plug to the torque shown in Figure 4-9.

Model	Spark Plug Torque
24RCL	18 Nm (13.3 ft. lbs.)
30RCL and 38RCLB	25 Nm (18.4 ft. lbs.)

Figure 4-9

- Use a ratchet wrench to tighten an additional ¼ turn. Do not overtighten, as doing so may strip the threads or alter the electrode gap setting.
- Check the spark plug wire connector in the boot for accumulated dirt, grease, and other debris; clean as necessary.
- Firmly push the spark plug boot onto the spark plug.
- Reconnect the generator set engine starting battery, positive (+) lead first.
- Reconnect the power for the battery charger.