

Subject

G30 / GX390 No-Spark Troubleshooting.

SYSTEM OR PARTS AFFECTED

- VMAC Gas Drive Air Compressor systems powered by Honda GX390 engines.

OVERVIEW

- If the Honda Engine in a G30 Gas Drive Air compressor will not start, the following information will determine if there is no spark at the spark plug and will assist in finding the root cause.
- The following steps can be performed using an inline spark test tool, or with the spark plug in the plug cap, plug pressed/grounded against the engine.

SAFETY



If an inline spark test tool is not available, the following troubleshooting will involve turning the engine over with the spark plug near the open spark plug hole. To ensure that the spark plug does not ignite any fuel escaping the combustion chamber during engine cranking:

- Move the fuel petcock to the OFF position.
- Ensure the engine key switch is in the OFF position.
- Disconnect the spark plug cap from the spark plug.
- Remove the spark plug from the cylinder head and insert the plug into the spark plug cap.
- Use the recoil starter to pull the engine over a few times to vent the combustion chamber of any excess fuel.
- When there is no evidence of fuel mist or vapor escaping from the combustion chamber, begin the following troubleshooting steps.

BEFORE YOU START

- Always begin with a fresh spark plug and a fully charged battery.
- Confirm that the engine oil level is optimal.

TROUBLE SHOOTING

Is there spark?

- Connect an inline spark test tool or ground the spark plug against the valve cover bolt.
- Use the engine key switch to crank the engine while watching the test tool or spark plug gap for a spark.
- If there is spark, consult your Honda Manual, or contact a Honda Engine dealer or Honda Power Equipment dealer to look for the root cause of the no-start problem.
- If there is no spark continue with the following troubleshooting.



Typical inline Spark Test tool



Spark plug grounded against valve cover bolt

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Testing components

Work back from the spark plug.

- Roll back the rubber boot that seals the spark plug cap to the spark plug lead.
- Unscrew the spark plug cap from the spark plug lead.
- Set the spark plug lead against the valve cover bolt, allowing for a small gap between the spark plug wire and the bolt.



Spark plug lead against the valve cover bolt.

- Use the engine key switch to crank the engine while watching for a spark between the wire and the valve cover bolt.

If spark appears, the spark plug or the spark plug cap is faulty.

If there is no spark, there are 4 items that determine whether or not there is spark:

- Compressor temperature switch
- Honda Oil Alert® switch
- Engine key switch
- Ignition coil

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Compressor Temperature switch P/N 355974/3551149:



Compressor temperature switch

The compressor temperature switch is normally closed.
At 140°C/284°F the switch will open, breaking the power circuit to the ignition coil.

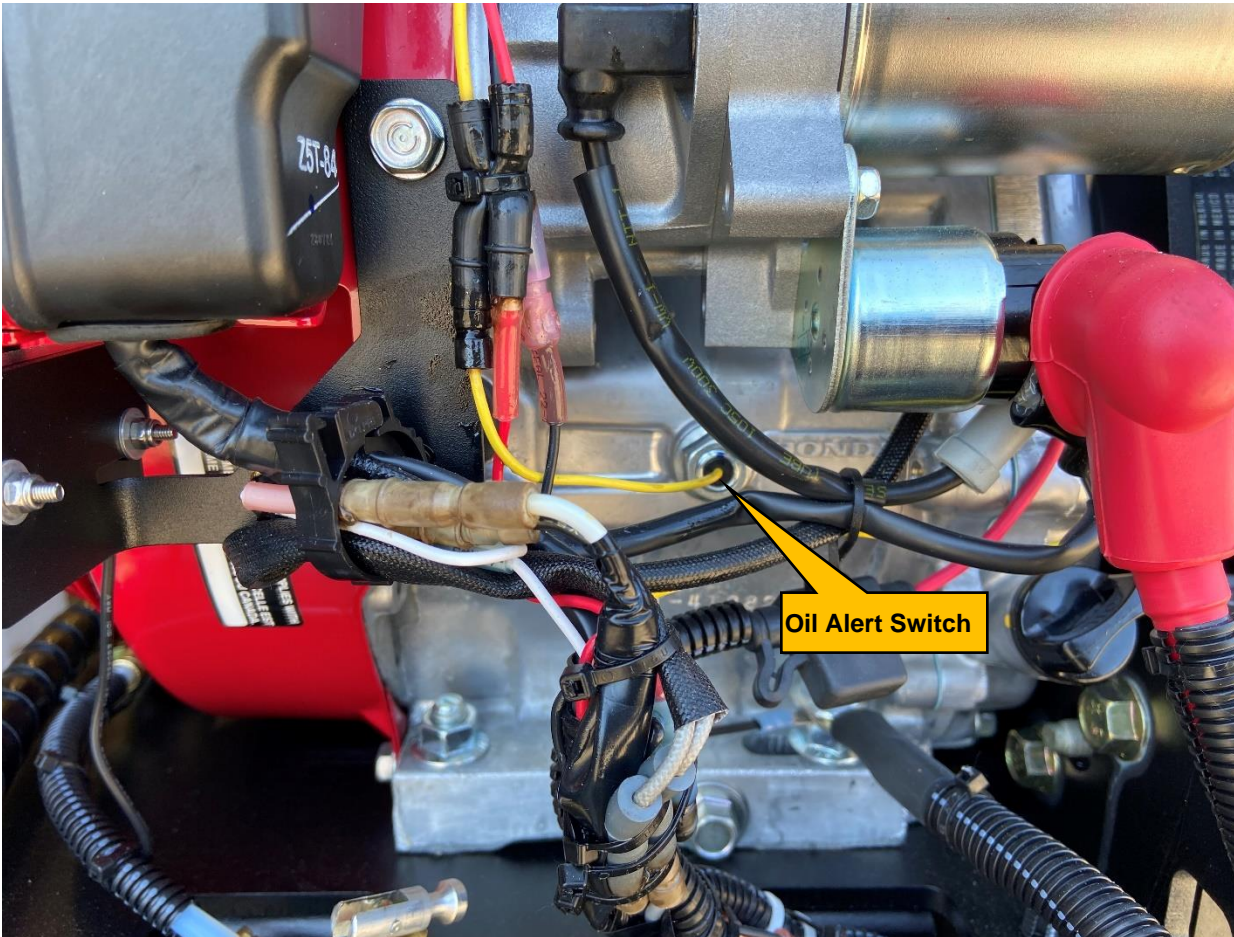
- Check the temperature of the compressor at the temperature switch.

NOTE *If using an infrared temp gun, use a black felt marker draw a spot on the aluminum of the compressor, and read that spot. Bare aluminum reflects and gives a less accurate reading.*

- If compressor temperature is reaching 140°C/284°F, consult the Installation/Owner's and Service Manual [VMAC Manuals & Illustrated Parts Lists \(vmacair.com\)](http://www.vmacair.com) to troubleshoot an over-temperature condition.
- If the temperature is not high enough to open the temperature switch, bypass the temperature switch by disconnecting the switch (2 bullet connectors) and connect the 2 harness wires together.
- Crank the engine over while looking for spark in the inline spark test tool or spark plug gap.
- If spark returns after jumpering the compressor temperature switch, replace the switch. See your Installation/Owner's manual for details.

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Honda Oil Alert Switch



Oil Alert Switch (shown on G300004 for ease of illustration)

The Oil Alert switch is a normally open switch.

When the engine oil level is low the Oil Alert switch will close, grounding the ignition coil and killing spark.

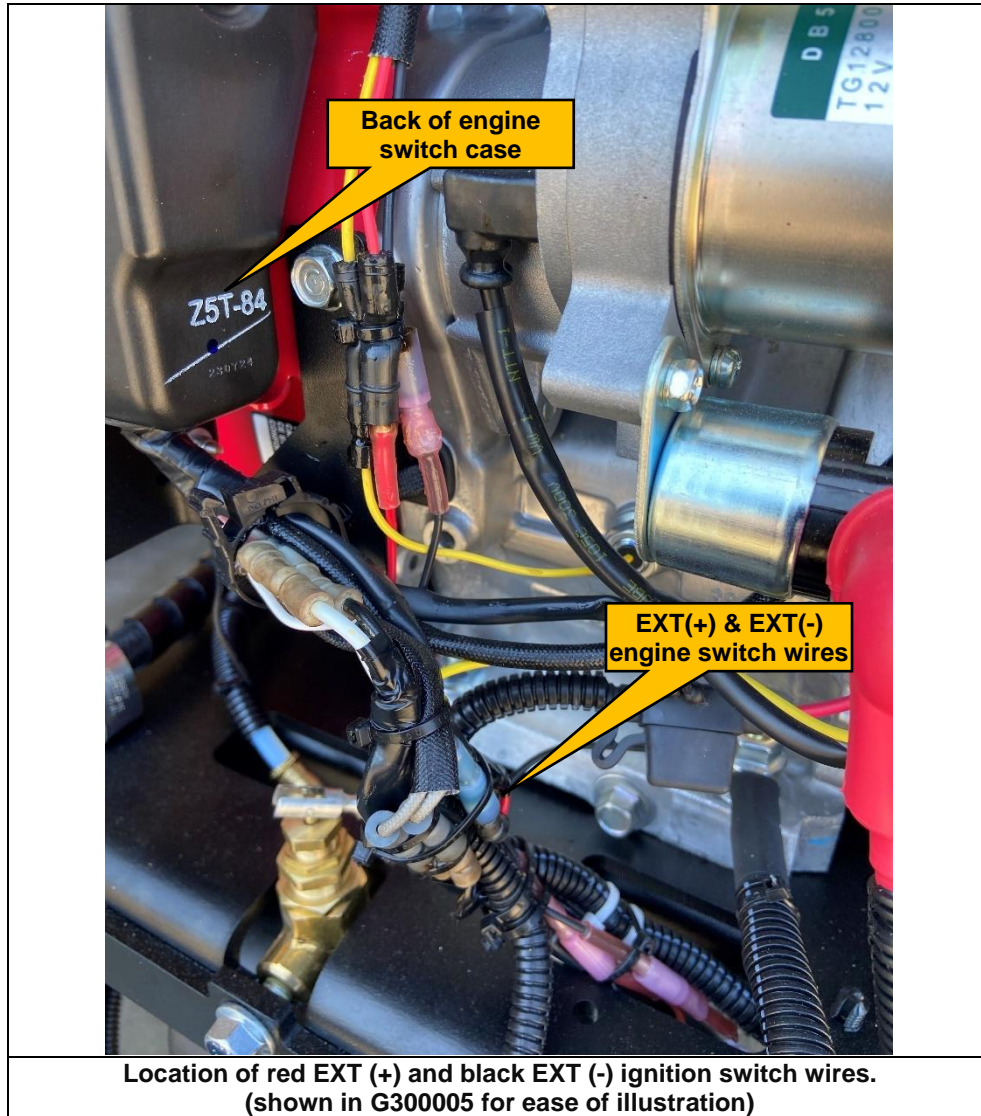
- Disconnect the yellow wire from the Honda Oil Alert switch in the engine block.
- Use the engine key switch to crank the engine over while watching for spark in the spark test tool or in the spark plug gap.
- If the engine oil level is correct and spark returns when the Oil Alert is disconnected, there is a problem with the Oil Alert switch. Contact a Honda Engine dealer or Honda Power Equipment dealer for parts and service.

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Honda Ignition Switch



There are 2 sets of contacts in the ignition switch. One latching pair that activates the ignition system, allowing spark (ON), and a momentary pair that energizes the starter motor (START).

The latching pair are a red wire, EXT(+), and a black wire, EXT(-).

- Bypass the latched portion of the ignition switch by joining the red wire to the black wire on the harness side.
- Use the key switch to crank the engine over while watching for spark in the spark test tool or spark plug gap.
- If spark is now present, there is a problem with the ignition switch. Contact a Honda Engine dealer or Honda Power Equipment dealer for parts and service.

If all the above does not resolve a no-spark issue, the ignition coil is the next likely fault. Replace the ignition coil or contact a Honda Engine dealer or Honda Power Equipment dealer for parts and service.

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