

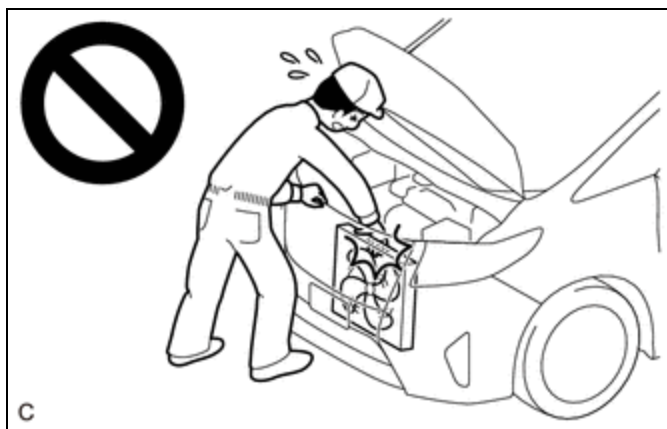
Last Modified: 12-04-2024	6.11:8.1.0	Doc ID: RM100000029ZKP
Model Year Start: 2023	Model: Prius Prime	Prod Date Range: [12/2022 -]
Title: M20A-FXS (ENGINE CONTROL): IGNITION SYSTEM: ON-VEHICLE INSPECTION; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

ON-VEHICLE INSPECTION

CAUTION / NOTICE / HINT

CAUTION:

To prevent injury due to contact with an operating cooling fan, keep your hands and clothing away from the cooling fan when working in the engine compartment with the engine running or the ignition switch ON.



PROCEDURE

1. PERFORM SPARK TEST

Pre-procedure1

- (a) Check for DTCs.

Powertrain > Engine > Trouble Codes

NOTICE:

If any DTCs are present, perform troubleshooting in accordance with the procedure for each DTC.

- (b) Remove the 4 ignition coil assemblies and 4 spark plugs.

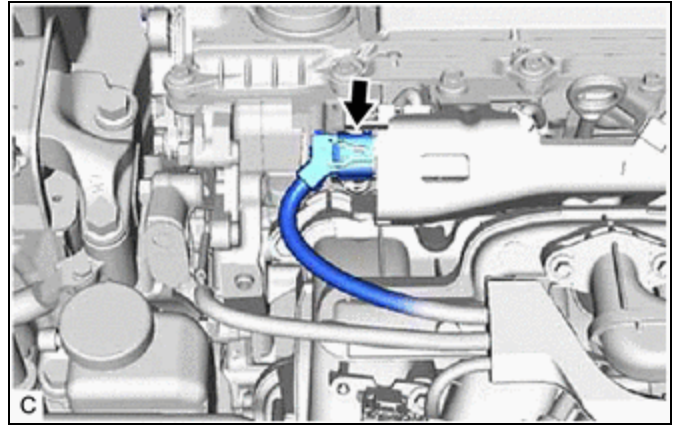
HINT:

[Click here](#) **INFO**

- (c) Disconnect the No. 5 engine wire connector.

NOTICE:

Perform this step in order to stop fuel injection and prevent damage to the catalyst due to unburned fuel.



(d) Remove the No. 1 engine under cover assembly.

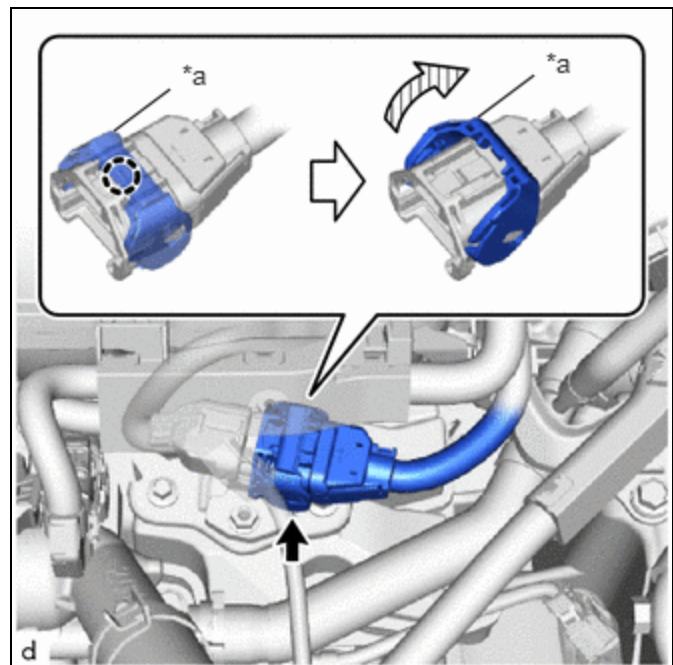
HINT:

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(e) Disengage the claw and raise the lock lever to disconnect the No. 6 engine wire connector as shown in the illustration.

NOTICE:

Perform this step in order to stop fuel injection and prevent damage to the catalyst due to unburned fuel.



*a Lock Lever

(f) Install the spark plug to the ignition coil assembly, and then connect the ignition coil assembly connector.

(g) Put the engine in Inspection Mode (Maintenance Mode).

Powertrain > Hybrid Control > Utility



(h) Ground the spark plug.

Procedure1

(i) Check that spark occurs at each spark plug while the engine is being cranked.

NOTICE:

- Be sure to ground the spark plugs when checking them.
- Do not crank the engine for more than 2 seconds.
- If an ignition coil assembly or spark plug has been struck or dropped, replace it.

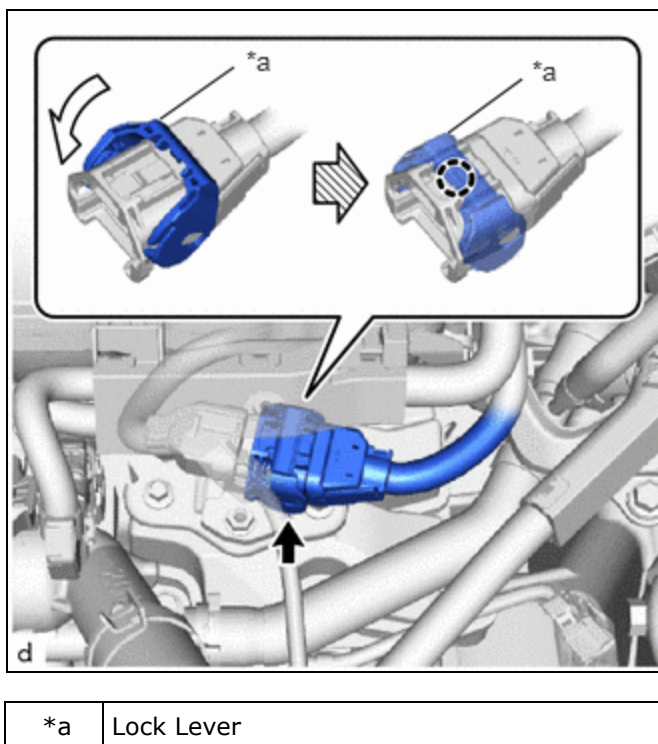
HINT:

- If spark does not occur, perform the following procedure.
- If spark does not occur for any cylinder, inspect the ignition circuit.

[Click here](#) INFO

Post-procedure1

(j) Connect the No. 6 engine wire connector and push down the lock lever to engage the claw as shown in the illustration.



(k) Install the No. 1 engine under cover assembly.

HINT:

[Click here](#) INFO

(l) Connect the No. 5 engine wire connector.

(m) Install the 4 ignition coil assemblies and 4 spark plugs.

HINT:

[Click here](#) INFO

(n) Check for DTCs.

Powertrain > Engine > Trouble Codes

(o) Clear the DTCs.

Powertrain > Engine > Clear DTCs

2. INSPECT IGNITION COIL ASSEMBLY AND SPARK TEST

Pre-procedure1

(a) None

Procedure1

(b) Check that the ignition coil assembly connector is securely connected.

RESULT	ACTION
NG	Connect securely
OK	Go to next step

(c) Perform a spark test on each ignition coil assembly.

(1) Replace the ignition coil assembly with a known good one.


(2) Perform the spark test again.

RESULT	ACTION
NG	Go to next step
OK	Replace ignition coil assembly

(d) Perform a spark test on each spark plug.

(1) Replace the spark plug with a known good one.

(2) Perform the spark test again.

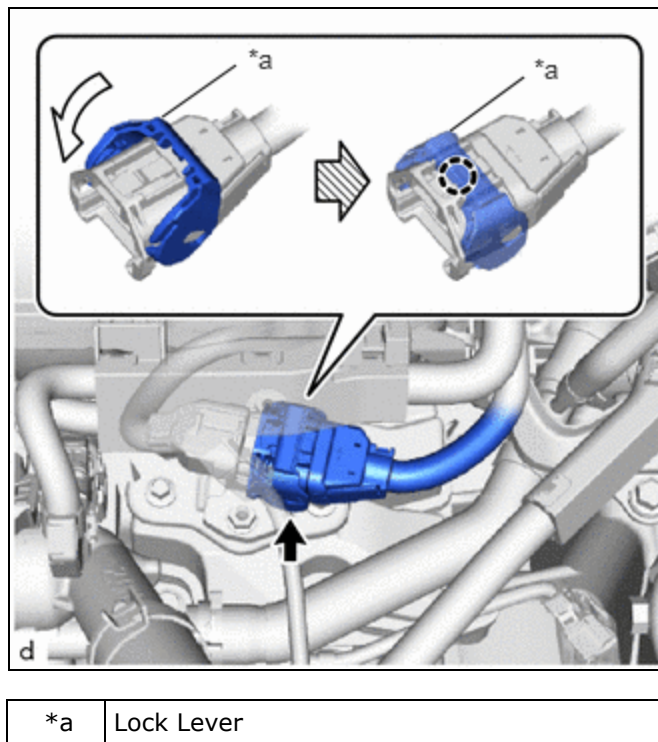
RESULT	ACTION
NG	Inspect ignition system HINT: 
OK	Replace spark plug

NOTICE:

If an ignition coil assembly or spark plug has been struck or dropped, replace it.

Post-procedure1

(e) Connect the No. 6 engine wire connector and push down the lock lever to engage the claw as shown in the illustration.



(f) Install the No. 1 engine under cover assembly.

HINT:

[Click here](#) INFO

(g) Connect the No. 5 engine wire connector.

(h) Install the 4 ignition coil assemblies and 4 spark plugs.

HINT:

[Click here](#) INFO

(i) Check for DTCs.

Powertrain > Engine > Trouble Codes

(j) Clear the DTCs.

Powertrain > Engine > Clear DTCs

3. CHECK SPARK PLUG

NOTICE:

- Do not damage the iridium tip and platinum tip.
- Check the iridium tip visually since the iridium tip may be damaged.
- Never attempt to adjust the electrode gap of a used spark plug.
- Replace with new spark plugs if extremely dirty due to sludge, etc.
- Replace with new spark plugs if damaged at all.
- Replace with a new spark plug if it has been struck or dropped.
- When replacing with a new spark plug, do not remove the cap for protecting the spark plug tip until it is installed to the engine.

Pre-procedure1

(a) None

Procedure1

(b) Check the electrode.

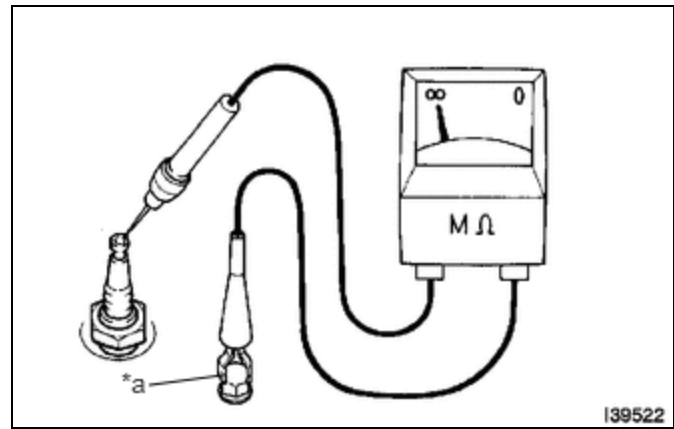
(1) Using a megohmmeter, measure the insulation resistance.

Standard Insulation Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
Spark plug (terminal part) - Body ground	Always	10 MΩ or higher	MΩ

HINT:

- If the result is not as specified, clean the spark plug with a spark plug cleaner and measure the resistance again.
- If a megohmmeter is not available, perform the following simple inspection instead.



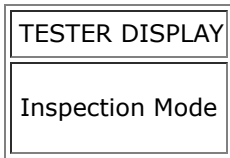
*a	Body Ground
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Procedure2

(c) Alternative inspection method.

(1) Put the engine in Inspection Mode (Maintenance Mode).

Powertrain > Hybrid Control > Utility



(2) Start the engine.

NOTICE:

Do not perform this step when any of the following DTCs are output: P030000, P030027, P030085, P030100, P030200, P030300, P030400 (Cylinder Misfire Detected).

(3) Quickly accelerate the engine to 2500 rpm 5 times.

NOTICE:

Do not perform this step when any of the following DTCs are output: P030000, P030027, P030085, P030100, P030200, P030300, P030400 (Cylinder Misfire Detected).

(4) Remove the spark plug.

HINT:

Click here [INFO](#)

(5) Visually check the spark plug.

HINT:

If the electrode is dry, the spark plug is functioning properly. If the electrode is damp, proceed to the next step.

(d) Check the spark plug for any damage to its threads and insulator.

If there is any damage, replace the spark plug.

Recommended Spark Plug:

MANUFACTURER	SPARK PLUG TYPE
DENSO	FC16HR-Q8

(e) Check the spark plug electrode gap.

Maximum Electrode Gap for Used Spark Plug:

SPECIFIED CONDITION	RESULT
1.2 mm 0.0472 in.	mm in.

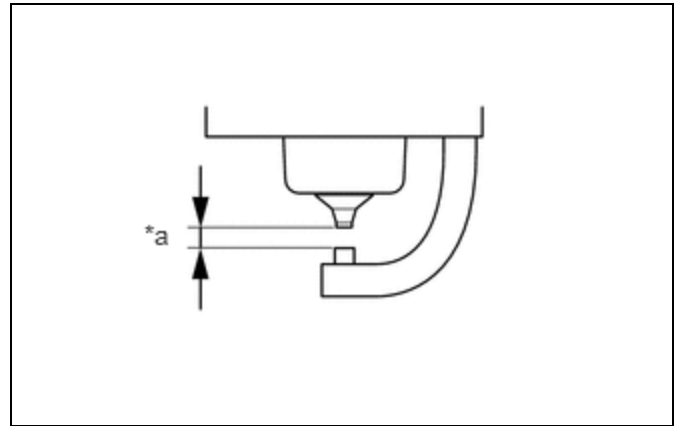
NOTICE:

Never attempt to adjust the electrode gap of a used spark plug.

If the spark plug electrode gap is more than the maximum, replace the spark plug.

Standard Electrode Gap for New Spark Plug:

SPECIFIED CONDITION	RESULT
0.7 to 0.8 mm 0.0276 to 0.0315 in.	mm in.



*a	Spark Plug Electrode Gap
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Post-procedure1

(f) Install the spark plug.

HINT:

[Click here](#) INFO

4. PERFORM INITIALIZATION

(a) Perform "Inspection After Repair" after replacing an ignition coil assembly or spark plug.

HINT:

[Click here](#) INFO

