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Model Year Start: 2016	Model: 4Runner	Prod Date Range: [08/2015 -]
Title: 1GR-FE (ENGINE CONTROL): SFI SYSTEM: P2119; Throttle Actuator Control Throttle Body Range / Performance; 2016 - 2020 MY 4Runner [08/2015 -]		

DTC	P2119	Throttle Actuator Control Throttle Body Range / Performance
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DESCRIPTION

The Electronic Throttle Control System (ETCS) is composed of the throttle actuator, throttle position sensor, accelerator pedal position sensor and ECM. The ECM operates the throttle actuator to regulate the throttle valve in response to driver inputs. The throttle position sensor detects the opening angle of the throttle valve, and provides the ECM with feedback so that the throttle valve can be appropriately controlled by the ECM.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
P2119	Throttle valve opening angle continues to vary greatly from the target opening angle (1 trip detection logic).	<ul style="list-style-type: none"> • Electronic Throttle Control System • Wire harness or connector • ECM

MONITOR DESCRIPTION

The ECM determines the actual opening angle of the throttle valve from the throttle position sensor signal. The actual opening angle is compared to the target opening angle calculated by the ECM. If the difference between these two values is outside the standard range, the ECM interprets this as a malfunction in the ETCS. The ECM then illuminates the MIL and stores the DTC.

If the malfunction is not repaired successfully, the DTC is stored when the accelerator pedal is quickly released (to close the throttle valve) after the engine speed reaches 5000 rpm by the accelerator pedal being fully depressed (fully opening the throttle valve).

MONITOR STRATEGY

Related DTCs	P2119: Electronic throttle control system malfunction
Required Sensors/Components (Main)	Throttle actuator
Required Sensors/Components (Related)	-
Frequency of Operation	Continuous
Duration	Closed: 1 second Open: 0.6 seconds
MIL Operation	Immediate
Sequence of Operation	None

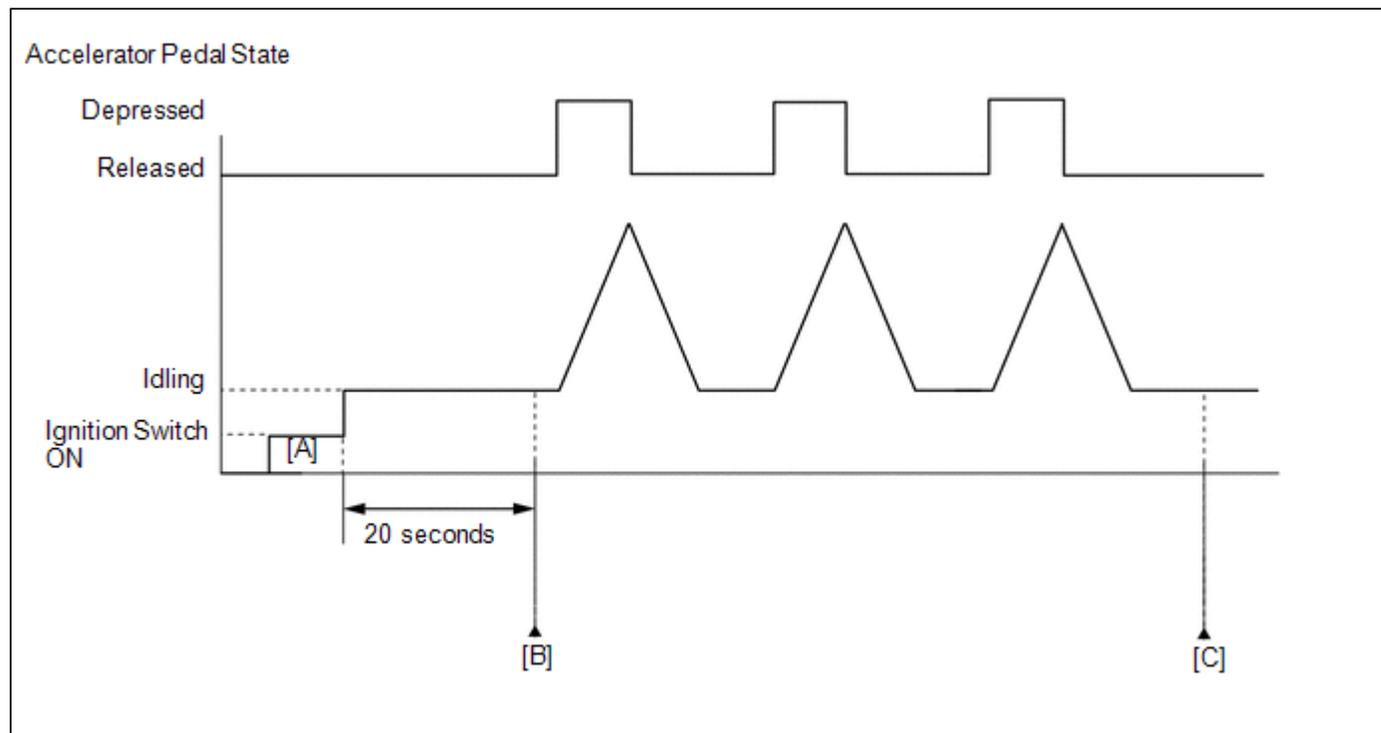
TYPICAL ENABLING CONDITIONS

Monitor runs whenever the following DTCs are not present	None
System guard* judge condition	ON
*: System guard is on when the following conditions are met	-
Throttle actuator	ON
Throttle actuator duty calculation	Executing
Throttle position sensor fail	Not detected
Throttle actuator current-cut operation	Not executing
Throttle actuator power supply	4 V or higher
Throttle actuator fail	Not detected

TYPICAL MALFUNCTION THRESHOLDS

Either of the following condition A or B is met	-
A. Difference between commanded closed throttle position and current closed throttle position	0.3 V or higher
B. Difference between commanded open throttle position and current open throttle position	0.3 V or higher

CONFIRMATION DRIVING PATTERN



1. Connect the Techstream to the DLC3.
2. Turn the ignition switch to ON and turn the Techstream on.
3. Clear DTCs (even if no DTCs are stored, perform the clear DTC operation).
4. Turn the ignition switch off and wait for at least 30 seconds.
5. Turn the ignition switch to ON and turn the Techstream on [A].
6. Start the engine.
7. Idle the engine for 20 seconds.
8. Enter the following menus: Powertrain / Engine and ECT / Trouble Codes [B].

9. Read the pending DTCs.

HINT:

- If a pending DTC is output, the system is malfunctioning.
- If a pending DTC is not output, perform the following procedure.

10. Enter the following menus: Powertrain / Engine and ECT / Utility / All Readiness.

11. Input the DTC: P2119.

12. Check the DTC judgment result.

TESTER DISPLAY	DESCRIPTION
NORMAL	<ul style="list-style-type: none">◦ DTC judgment completed◦ System normal
ABNORMAL	<ul style="list-style-type: none">◦ DTC judgment completed◦ System abnormal
INCOMPLETE	<ul style="list-style-type: none">◦ DTC judgment not completed◦ Perform driving pattern after confirming DTC enabling conditions
N/A	<ul style="list-style-type: none">◦ Unable to perform DTC judgment◦ Number of DTCs which do not fulfill DTC preconditions has reached ECU memory limit

HINT:

- If the judgment result shows NORMAL, the system is normal.
- If the judgment result shows ABNORMAL, the system has a malfunction.
- If the judgment result shows INCOMPLETE or N/A, fully depress and release the accelerator pedal 3 times, and then check the DTC judgment result at step [C].

13. If no pending DTC is output, perform a universal trip and check for permanent DTCs (See page **INFO**).

HINT:

- If a permanent DTC is output, the system is malfunctioning.
- If no permanent DTC is output, the system is normal.

FAIL-SAFE

When this DTC or other DTCs relating to ETCS (Electronic Throttle Control System) malfunctions are set, the ECM enters fail-safe mode. During fail-safe mode, the ECM cuts the current to the throttle actuator, and the throttle valve is returned to a 7° opening angle by the return spring. The ECM then adjusts the engine output by controlling the fuel injection (intermittent fuel-cut) and ignition timing in accordance with the accelerator pedal position to allow the vehicle to continue at a minimal speed. If the accelerator pedal is depressed firmly and gently, the vehicle can be driven slowly.

The ECM continues operating in fail-safe mode until a pass condition is detected and the ignition switch is turned off.

WIRING DIAGRAM

Refer to DTC P2102 (See page **INFO**).

CAUTION / NOTICE / HINT

HINT:

- Read freeze frame data using the Techstream. Freeze frame data records the engine condition when malfunctions are detected. When troubleshooting, freeze frame data can help determine if the vehicle was moving or stationary, if the engine was warmed up or not, if the air-fuel ratio was lean or rich, and other data from the time the malfunction occurred.
- Refer to "Data List / Active Test" [Throttle Position Command, Throttle Position No. 1, Throttle Motor Current, Throttle Motor Duty (Open), Throttle Motor Duty (Close)] (See page [INFO](#)).

PROCEDURE

1.	CHECK FOR ANY OTHER DTCS OUTPUT (IN ADDITION TO DTC P2119)
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- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Powertrain / Engine and ECT / Trouble Codes.
- (e) Read DTCs.

Result

DISPLAY (DTC OUTPUT)	PROCEED TO
P2119	A
P2119 and other DTCs	B

HINT:

If any DTCs other than P2119 are output, troubleshoot those DTCs first.

B  **GO TO DTC CHART**

A


2.	READ VALUE USING TECHSTREAM
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- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the tester on.
- (d) Clear DTCs (See page [INFO](#)).
- (e) Turn the ignition switch off and wait for at least 30 seconds.
- (f) Turn the ignition switch to ON.

(g) Enter the following menus: Powertrain / Engine and ECT / Data List / All Data / Throttle Position No. 1 and Throttle Position Command.

(h) Check the values displayed on the tester while fully depressing and releasing the accelerator pedal quickly.

Result

RESULT	PROCEED TO
Throttle Position No. 1 does not change	A
Throttle Position No. 1 changes even a little	B

HINT:

When a DTC is output, the system changes to fail-safe mode. Therefore, only use the data up until the time the DTC is stored for confirmation.

B ► GO TO STEP 4

A



3.	INSPECT THROTTLE BODY WITH MOTOR ASSEMBLY (RESISTANCE OF THROTTLE ACTUATOR)
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(a) Inspect the throttle body with motor assembly (See page [INFO](#)).

NG ► GO TO STEP 7

OK



4.	INSPECT THROTTLE BODY WITH MOTOR ASSEMBLY (VISUALLY CHECK THROTTLE VALVE)
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(a) Check for contamination between the throttle valve and housing. If necessary, clean the throttle body. Also, check that the throttle valve moves smoothly.

OK:

Throttle valve is not contaminated with foreign objects and moves smoothly.

NG ► GO TO STEP 7

OK



5. READ VALUE USING TECHSTREAM (THROTTLE POSITION)

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the tester on.
- (d) Clear DTCs (See page [INFO](#)).
- (e) Turn the ignition switch off and wait for at least 30 seconds.
- (f) Turn the ignition switch to ON.
- (g) Enter the following menus: Powertrain / Engine and ECT / Data List / All Data / Throttle Position No. 1, Throttle Position No. 2 and Throttle Position Command.
- (h) Check the values displayed on the tester while wiggling the ECM wire harness.
- (i) Enter the following menus: Powertrain / Engine and ECT / Trouble Codes.
- (j) Check for DTCs.

Result

RESULT	PROCEED TO
Value in Data List changes when wire harness is wiggled, or DTC is output*	A
Other than above	B

*: As the DTC was stored due to a change in the contact resistance of the connector, repair or replace the wire harness or connector (See page [INFO](#)).

NG  **GO TO STEP 8**

OK



6. REPAIR OR REPLACE HARNESS OR CONNECTOR (ECM - THROTTLE BODY WITH MOTOR ASSEMBLY)

- (a) As the DTC was stored due to a change in the contact resistance of the connector, repair or replace the wire harness or connector (See page [INFO](#)).

NEXT  **END**

7. REPLACE THROTTLE BODY WITH MOTOR ASSEMBLY

(a) Replace the throttle body assembly (See page [INFO](#)).

NEXT



8. CHECK WHETHER DTC OUTPUT RECURS (DTC P2119)

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Clear DTCs (See page [INFO](#)).
- (e) Allow the engine to idle for 15 seconds or more.
- (f) Fully depress and release the accelerator pedal several times quickly.
- (g) Enter the following menus: Powertrain / Engine and ECT / Trouble Codes.
- (h) Read DTCs.

Result

RESULT	PROCEED TO
Not DTC is output	A
P2119 is output	B

OK  **END**

NG  **REPLACE ECM**

