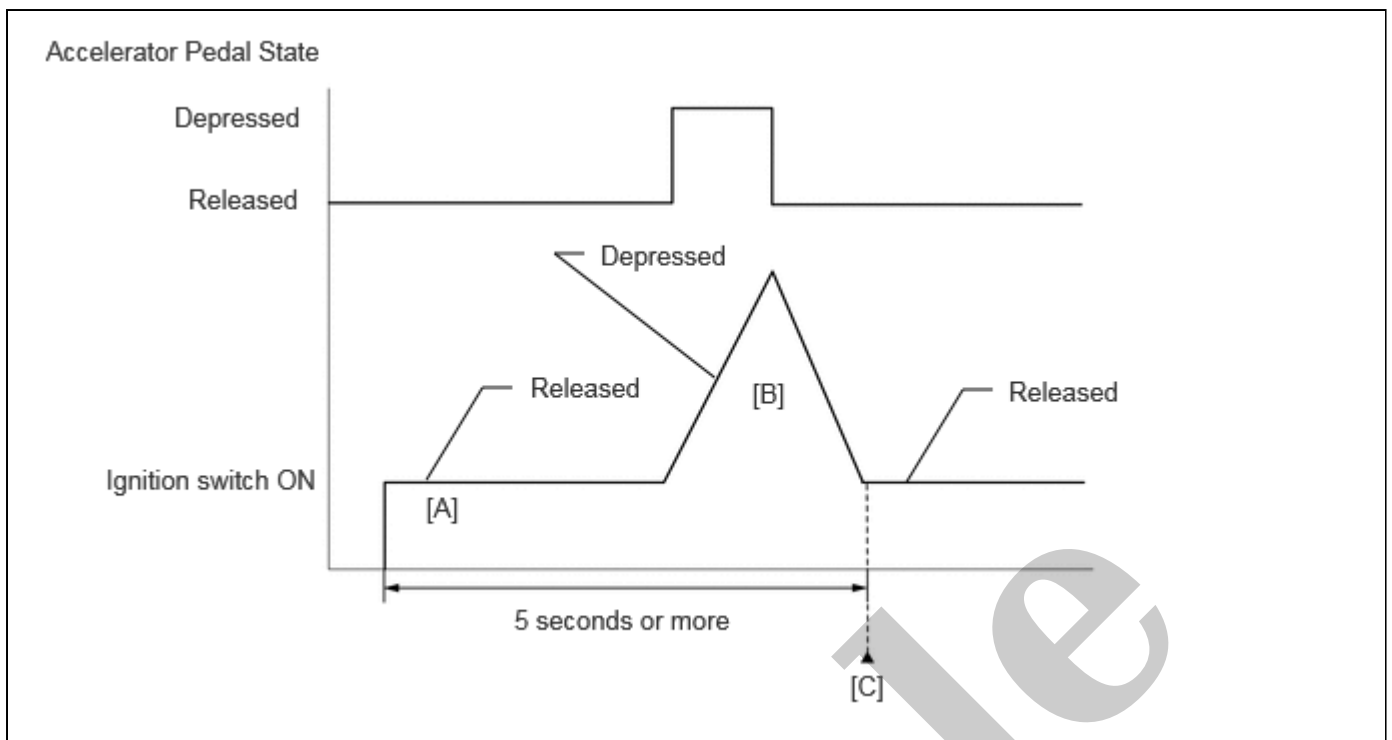


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1. Clear the DTCs (even if no DTCs are stored, perform the clear DTC procedure).
2. Turn the ignition switch off and wait for at least 30 seconds.
3. Turn the ignition switch to ON [A].
4. Fully depress and release the accelerator pedal [B].
5. Check that 5 seconds or more have elapsed since the ignition switch to ON.
6. Enter the following menus: Powertrain / Engine / Trouble Codes [C].
7. 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.

8. Enter the following menus: Powertrain / Engine / Utility / All Readiness.
9. Input the DTC: P212012, P212014, P21201F, P212512, P212514, P21251F or P21382B.
10. Check the DTC judgment result.

HINT:

- If the judgment result is NORMAL, the system is normal.
- If the judgment result is ABNORMAL, the system is malfunctioning.
- If the judgment result is INCOMPLETE, perform steps [B] through [C] again.
- [A] to [C]: Normal judgment procedure.

The normal judgment procedure is used to complete DTC judgment and also used when clearing permanent DTCs.

- When clearing the permanent DTCs, do not disconnect the cable from the battery terminal or attempt to clear the DTCs during this procedure, as doing so will clear the universal trip and normal judgment histories.

P21201C and P212099

- If the judgment result is **INCOMPLETE**, perform steps [B] through [C] again.
- [A] to [C]: Normal judgment procedure.

The normal judgment procedure is used to complete DTC judgment and also used when clearing permanent DTCs.

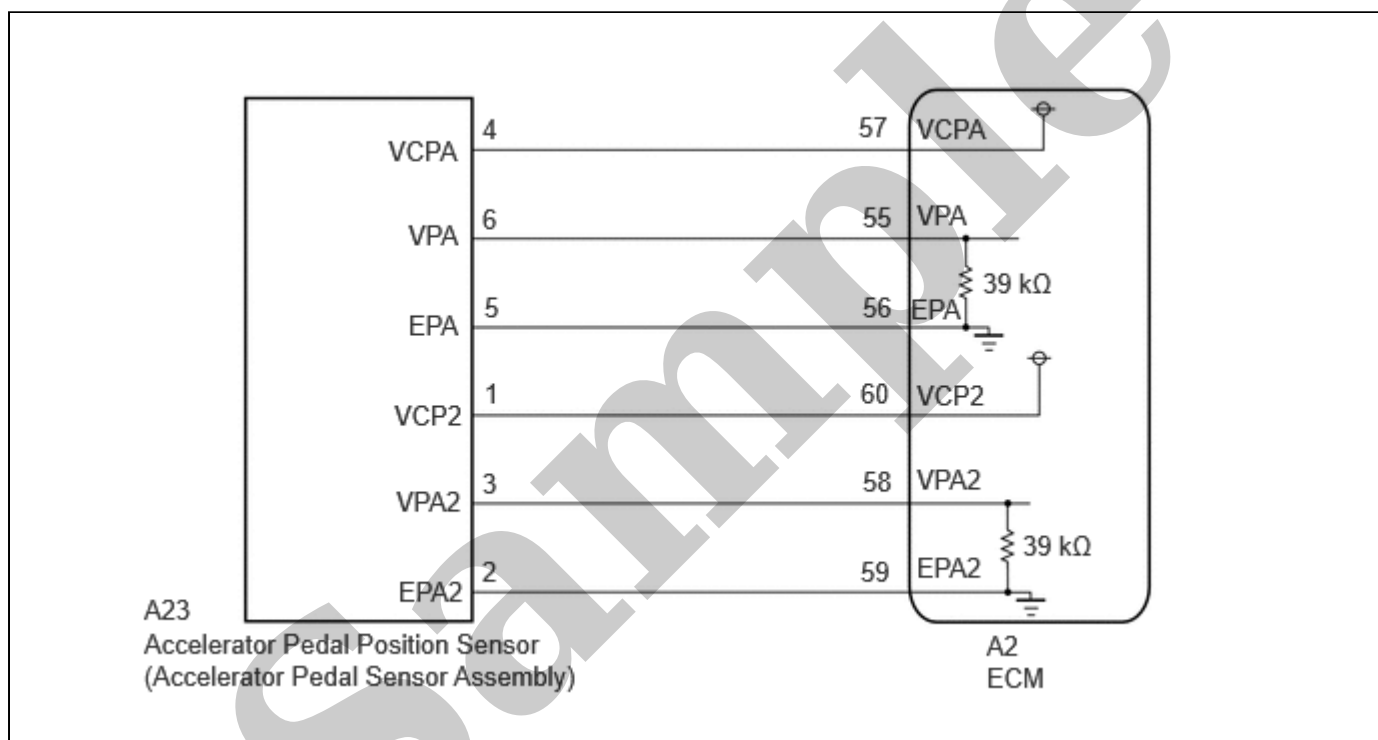
- When clearing the permanent DTCs, do not disconnect the cable from the battery terminal or attempt to clear the DTCs during this procedure, as doing so will clear the universal trip and normal judgment histories.

FAIL-SAFE

When these DTCs are stored, the ECM enters fail-safe mode. If either of the 2 sensor circuits malfunction, the ECM limits the engine output. If both of the circuits malfunction, the ECM regards the accelerator pedal as being released. As a result, the throttle valve is closed and the engine idles.

Fail-safe mode continues until a pass condition is detected, and the ignition switch is turned off.

WIRING DIAGRAM



PROCEDURE

1. READ VALUE USING GTS (ACCELERATOR PEDAL POSITION SENSOR)

(a) Read the value displayed on the GTS when the accelerator pedal is fully released.

Powertrain > Engine > Data List

TESTER DISPLAY
Accelerator Position Sensor No.1 Voltage
Accelerator Position Sensor No.2 Voltage

RESULT	PROCEED TO
The value of Accelerator Position Sensor No.1 Voltage is between 0.5 and 1.1 V	A
None of the above conditions are met	B

(a) Read the value displayed on the GTS when the accelerator pedal is fully depressed.

Powertrain > Engine > Data List

TESTER DISPLAY
Accelerator Position Sensor No.1 Voltage
Accelerator Position Sensor No.2 Voltage

RESULT	PROCEED TO
The value of Accelerator Position Sensor No.1 Voltage is between 2.6 and 4.5 V	A
None of the above conditions are met	B

B  **GO TO STEP 7**

A



5. READ VALUE USING GTS (ACCELERATOR PEDAL POSITION SENSOR)

(a) Read the value displayed on the GTS when the accelerator pedal is fully depressed.

Powertrain > Engine > Data List

TESTER DISPLAY
Accelerator Position Sensor No.1 Voltage
Accelerator Position Sensor No.2 Voltage

RESULT	PROCEED TO
The value of Accelerator Position Sensor No.2 Voltage is between 3.4 and 4.75 V	A
None of the above conditions are met	B

B  **GO TO STEP 7**

A



6. READ VALUE USING GTS (ACCELERATOR PEDAL POSITION SENSOR)

(a) Read the value displayed on the GTS when the accelerator pedal is fully depressed.

Powertrain > Engine > Data List

TESTER DISPLAY
Accelerator Position Sensor No.1 Voltage
Accelerator Position Sensor No.2 Voltage

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A23-3 (VPA2) - A23-2 (EPA2)	Ignition switch off	36.60 to 41.61 k Ω	k Ω

Post-procedure2

(g) None

OK  **REPLACE ACCELERATOR PEDAL SENSOR ASSEMBLY****NG****8. CHECK HARNESS AND CONNECTOR (ACCELERATOR PEDAL SENSOR ASSEMBLY - ECM)**

Pre-procedure1

(a) Disconnect the accelerator pedal sensor assembly connector.

(b) Disconnect the ECM connector.

Procedure1

(c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

[Click Location & Routing\(A23,A2\).](#)[Click Connector\(A23\).](#)[Click Connector\(A2\).](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A23-6 (VPA) - A2-55 (VPA)	Always	Below 1 Ω	Ω
A23-5 (EPA) - A2-56 (EPA)	Always	Below 1 Ω	Ω
A23-4 (VCPA) - A2-57 (VCPA)	Always	Below 1 Ω	Ω
A23-3 (VPA2) - A2-58 (VPA2)	Always	Below 1 Ω	Ω
A23-2 (EPA2) - A2-59 (EPA2)	Always	Below 1 Ω	Ω
A23-1 (VCP2) - A2-60 (VCP2)	Always	Below 1 Ω	Ω
A23-6 (VPA) or A2-55 (VPA) - Body ground and other terminals	Always	10 k Ω or higher	k Ω
A23-5 (EPA) or A2-56 (EPA) - Body ground and other terminals	Always	10 k Ω or higher	k Ω
A23-4 (VCPA) or A2-57 (VCPA) - Body ground and other terminals	Always	10 k Ω or higher	k Ω
A23-3 (VPA2) or A2-58 (VPA2) - Body ground and other terminals	Always	10 k Ω or higher	k Ω
A23-2 (EPA2) or A2-59 (EPA2) - Body ground and other terminals	Always	10 k Ω or higher	k Ω
A23-1 (VCP2) or A2-60 (VCP2) - Body ground and other terminals	Always	10 k Ω or higher	k Ω

Post-procedure1

(d) None

OK  **REPLACE ECM**

Last Modified: 10-07-2024	6.11:8.1.0	Doc ID: RM100000002HZEC
Model Year Start: 2024	Model: GX550	Prod Date Range: [12/2023 -]
Title: V35A-FTS (ENGINE CONTROL): SFI SYSTEM (w/ Canister Pump Module): P222611,P222615; Barometric Pressure Sensor "A" Circuit Short to Ground; 2024 MY GX550 [12/2023 -]		

DTC	P222611	Barometric Pressure Sensor "A" Circuit Short to Ground
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DTC	P222615	Barometric Pressure Sensor "A" Circuit Short to Battery or Open
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DESCRIPTION

The atmospheric pressure sensor is built into the ECM. The ECM provides optimal control in response to atmospheric pressure fluctuations.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
P222611	Barometric Pressure Sensor "A" Circuit Short to Ground	Short in atmospheric pressure sensor circuit (ECM internal malfunction) (1 trip detection logic).	ECM	Comes on	Engine	A	SAE: P2228
P222615	Barometric Pressure Sensor "A" Circuit Short to Battery or Open	Open or short in atmospheric pressure sensor circuit (ECM internal malfunction) (1 trip detection logic).	ECM	Comes on	Engine	A	SAE: P2229

MONITOR DESCRIPTION

The ECM calculates the atmospheric pressure from the atmospheric pressure sensor output voltage. When the atmospheric pressure sensor output voltage is outside of the normal range, there may be an open or short in the atmospheric pressure sensor circuit or the atmospheric pressure sensor may be malfunctioning. In this case, the ECM will illuminate the MIL and store a DTC.

MONITOR STRATEGY

Related DTCs	P2228: Barometric pressure sensor range check (low voltage) P2229: Barometric pressure sensor range check (high voltage)
Required Sensors/Components (Main)	Atmospheric pressure sensor (ECM)
Required Sensors/Components (Related)	-
Frequency of Operation	Continuous
Duration	3 seconds
MIL Operation	Immediate
Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

Monitor runs whenever the following DTCs are not stored	None
All of the following conditions are met	-
Battery voltage	8 V or higher
Ignition switch	ON
Starter	Off

Last Modified: 10-07-2024	6.11:8.1.0	Doc ID: RM100000002HZED
Model Year Start: 2024	Model: GX550	Prod Date Range: [12/2023 -]
Title: V35A-FTS (ENGINE CONTROL): SFI SYSTEM (w/ Canister Pump Module): P128300-P128800; Cold Start Fuel Injection Control Performance #1; 2024 MY GX550 [12/2023 -]		

DTC	P128300	Cold Start Fuel Injection Control Performance #1
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DTC	P128400	Cold Start Fuel Injection Control Performance #2
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DTC	P128500	Cold Start Fuel Injection Control Performance #3
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DTC	P128600	Cold Start Fuel Injection Control Performance #4
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DTC	P128700	Cold Start Fuel Injection Control Performance #5
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DTC	P128800	Cold Start Fuel Injection Control Performance #6
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DESCRIPTION

To improve emissions immediately after a cold start, cold start multi pulse fuel injection control is performed which divides a single pulse of the direct fuel injector into several smaller pulses.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
P128300	Cold Start Fuel Injection Control Performance #1	Cold start multi pulse fuel injection control for the No. 1 cylinder is not performed (2 trip detection logic).	- Direct fuel injector assembly (No. 1 cylinder) - Open or short in direct fuel injector assembly circuit - ECM	Comes on	Engine	B	SAE: P1283
P128400	Cold Start Fuel Injection Control Performance #2	Cold start multi pulse fuel injection control for the No. 2 cylinder is not performed (2 trip detection logic).	- Direct fuel injector assembly (No. 2 cylinder) - Open or short in direct fuel injector assembly circuit - ECM	Comes on	Engine	B	SAE: P1284
P128500	Cold Start Fuel Injection Control Performance #3	Cold start multi pulse fuel injection control for the No. 3 cylinder is not performed (2 trip detection logic).	Direct fuel injector assembly (No. 3 cylinder)	Comes on	Engine	B	SAE: P1285

DTC NO.	DATA LIST
P128600	• High Fuel Pressure Sensor • Injection Mode • Injection Timing Cylinder #1 (D4) • Injection Time Cylinder #1 (D4) • Ignition Timing Cylinder #1
P128700	
P128800	

MONITOR DESCRIPTION

While performing cold start multi pulse fuel injection control, the ECM monitors the direct fuel injector assemblies. When cold start multi pulse fuel injection control is being performed, the ECM counts the number of times that an injector does not pulse per cycle, and if the total number exceeds the threshold, the ECM determines that cold start multi pulse fuel injection control is malfunctioning and illuminates the MIL and stores a DTC.

MONITOR STRATEGY

Related DTCs	P1283: Cold start fuel injection control performance #1 P1284: Cold start fuel injection control performance #2 P1285: Cold start fuel injection control performance #3 P1286: Cold start fuel injection control performance #4 P1287: Cold start fuel injection control performance #5 P1288: Cold start fuel injection control performance #6
Required Sensors/Components (Main)	Direct fuel injector assembly Injector driver (EDU)
Required Sensors/Components (Related)	-
Frequency of Operation	Once per driving cycle
Duration	10 seconds
MIL Operation	2 driving cycles
Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

Monitor runs whenever the following DTCs are not stored	None
All of the following conditions are met	-
Battery voltage	11 V or higher
Time after engine start	3 seconds or more
Starter	Off
Engine coolant temperature at engine start	-10°C (14°F) or higher
Engine coolant temperature	-10°C (14°F) or higher, and less than 50°C (122°F)
Engine idling time	3 seconds or more
Fuel-cut	Off
Vehicle speed	Less than 3 km/h (1.875 mph)
Atmospheric pressure	76 kPa(abs) [11 psi(abs)] or higher

TYPICAL MALFUNCTION THRESHOLDS

Malfunction counter (not multi-injection) / Firing counter of monitor condition enable	Higher than 0.8
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A ► GO TO DTC CHART**B****2. CHECK DTC OUTPUT**

(a) Read the DTCs.

Powertrain > Engine > Trouble Codes

RESULT	PROCEED TO
Only 1 DTC among DTC P128300, P128400, P128500, P128600, P128700 and P128800 is output	A
2 or more DTCs among DTC P128300, P128400, P128500, P128600, P128700 and P128800 are output	B

HINT:

If the malfunction occurred for one cylinder or multiple cylinders can be determined based on the stored DTCs.

B ► REPLACE ECM**A****3. CHECK HARNESS AND CONNECTOR**

Pre-procedure1

(a) Disconnect the ECM connector.

Procedure1

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

[Click Location & Routing\(C104\).](#)[Click Connector\(C104\).](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
C104-36 (#1D+) - C104-17 (#1D-)	20°C (68°F)	1.34 to 1.64 Ω	Ω
C104-34 (#2D+) - C104-15 (#2D-)	20°C (68°F)	1.34 to 1.64 Ω	Ω
C104-32 (#3D+) - C104-13 (#3D-)	20°C (68°F)	1.34 to 1.64 Ω	Ω
C104-35 (#4D+) - C104-16 (#4D-)	20°C (68°F)	1.34 to 1.64 Ω	Ω

Last Modified: 10-07-2024	6.11:8.1.0	Doc ID: RM100000002HZEE
Model Year Start: 2024	Model: GX550	Prod Date Range: [12/2023 -]
Title: V35A-FTS (ENGINE CONTROL): SFI SYSTEM (w/ Canister Pump Module): P023A12; Charge Air Cooler Coolant Pump Control Circuit Short to Battery; 2024 MY GX550 [12/2023 -]		

DTC	P023A12	Charge Air Cooler Coolant Pump Control Circuit Short to Battery
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DESCRIPTION

The intercooler cooling system is a water cooling system that is independent from the engine cooling system. It uses a dedicated radiator and electric water pump assembly to cool the intercooler and turbocharger. The electric water pump assembly uses the duty cycle signals sent from the ECM to provide stepless, optimal control of the electric water pump assembly speed.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
P023A12	Charge Air Cooler Coolant Pump Control Circuit Short to Battery	The operation duty ratio signal (IWPO) of the electric water pump assembly is a certain value or more when the electric water pump assembly operation signal is being output (1 trip detection logic).	- Short in electric water pump assembly circuit - Electric water pump assembly - ECM	-	Engine	A	SAE: P023C

Related Data List

DTC NO.	DATA LIST
P023A12	- Intercooler Water Pump Speed - Intercooler Water Pump

MONITOR DESCRIPTION

The ECM outputs an operation duty signal (IWPO) to steplessly control the speed of the electric water pump assembly. The ECM outputs an operation duty signal (IWPO) to the electric water pump assembly and monitors the actual duty signal (IWPO) being output. When the actual operation duty signal (IWPO) exceeds a certain value when outputting an operation duty signal (IWPO) to the electric water pump assembly, the ECM detects a malfunction and stores a DTC.

CONFIRMATION DRIVING PATTERN