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Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [12/2022 -]
Title: BRAKE CONTROL / DYNAMIC CONTROL SYSTEMS: ELECTRONICALLY CONTROLLED BRAKE SYSTEM: C12BB12,...,C12C614; Right Front Wheel ABS Hold Solenoid Control Circuit Short to Battery; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	**C12BB12**	**Right Front Wheel ABS Hold Solenoid Control Circuit Short to Battery**

DTC	**C12BB14**	**Right Front Wheel ABS Hold Solenoid Control Circuit Short to Ground or Open**

DTC	**C12BB18**	**Right Front Wheel ABS Hold Solenoid Control Circuit Current Below Threshold**

DTC	**C12BB19**	**Right Front Wheel ABS Hold Solenoid Control Circuit Current Above Threshold**

DTC	**C12BB1D**	**Right Front Wheel ABS Hold Solenoid Control Circuit Current Out of Range**

DTC	**C12C612**	**Right Front Wheel ABS Release Solenoid Control Circuit Short to Battery**

DTC	**C12C614**	**Right Front Wheel ABS Release Solenoid Control Circuit Short to Ground or Open**

DESCRIPTION

The solenoid relay and solenoid valves are built into the brake actuator assembly.

The front solenoid valve RH controls the brake fluid pressure of the front wheel cylinder RH of the vehicle.

When these DTCs are stored, the fail-safe function operates and the solenoid relay is turned off to prevent the solenoid valves from operating.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
C12BB12	Right Front Wheel ABS Hold Solenoid Control Circuit Short to Battery	An excessive current is detected in the solenoid for 0.05 seconds or more.	No. 2 skid control ECU (brake actuator assembly)	Comes on	Brake/EPB	A	• SAE Code: C12BE (Case 2 and 3) • Output ECU: No. 2 skid control ECU (brake

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
							actuator assembly)
C12BB14	Right Front Wheel ABS Hold Solenoid Control Circuit Short to Ground or Open	Insufficient current is detected in the solenoid for 0.05 seconds or more.	No. 2 skid control ECU (brake actuator assembly)	Comes on	Brake/EPB	A	• SAE Code: C12BD (Case 1 and 2) • Output ECU: No. 2 skid control ECU (brake actuator assembly)
C12BB18	Right Front Wheel ABS Hold Solenoid Control Circuit Current Below Threshold	An open is detected in the solenoid for 0.05 seconds or more.	No. 2 skid control ECU (brake actuator assembly)	Comes on	Brake/EPB	A	• SAE Code: C12BD (Case 3) • Output ECU: No. 2 skid control ECU (brake actuator assembly)
C12BB19	Right Front Wheel ABS Hold Solenoid Control Circuit Current Above Threshold	Overcurrent is detected in the solenoid for 0.05 seconds or more.	No. 2 skid control ECU (brake actuator assembly)	Comes on	Brake/EPB	A	• SAE Code: C12BE (Case 4) • Output ECU: No. 2 skid control ECU (brake actuator assembly)
C12BB1D	Right Front Wheel ABS Hold Solenoid Control Circuit Current Out of Range	Current leakage is detected in the solenoid for 0.05 seconds or more.	No. 2 skid control ECU (brake actuator assembly)	Comes on	Brake/EPB	A	• SAE Code: C12BE (Case 1) • Output ECU: No. 2 skid control ECU (brake actuator assembly)

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
C12C612	Right Front Wheel ABS Release Solenoid Control Circuit Short to Battery	Any of the following is detected: • Overcurrent is detected in the solenoid for 0.05 seconds or more. • Overheat in the solenoid is detected for 0.05 seconds or more. • When the solenoid is OFF, a current leak in the solenoid circuit is detected for 0.05 seconds or more.	No. 2 skid control ECU (brake actuator assembly)	Comes on	Brake/EPB	A	• SAE Code: C12C9 • Output ECU: No. 2 skid control ECU (brake actuator assembly)
C12C614	Right Front Wheel ABS Release Solenoid Control Circuit Short to Ground or Open	Any of the following is detected: • When the solenoid is not being operated, an open in the solenoid circuit or short to ground is detected for 0.05 seconds or more. • When the solenoid is being operated, an open in the solenoid circuit is detected for 0.05 seconds or more.	No. 2 skid control ECU (brake actuator assembly)	Comes on	Brake/EPB	A	• SAE Code: C12C8 • Output ECU: No. 2 skid control ECU (brake actuator assembly)

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
		• An open in the solenoid ground circuit is detected for 0.05 seconds or more.					

MONITOR DESCRIPTION

The No. 2 skid control ECU (brake actuator assembly) monitors the drive voltage and current of the ABS holding solenoid and ABS reduction solenoid. Based on the monitored information, if any of the following abnormal conditions are detected, the MIL is illuminated and a DTC is stored.

- Excessively high current in a solenoid circuit is detected
- Excessively low current in a solenoid circuit is detected
- An open in a solenoid circuit is detected
- Overcurrent in a solenoid circuit is detected
- A current leak in a solenoid circuit is detected
- Excessively high temperature in a solenoid is detected
- An abnormal solenoid circuit is detected

MONITOR STRATEGY

Related DTCs	C12BD (Case 1 and 2): ABS hold solenoid (FR) circuit open C12BD (Case 3): ABS hold solenoid (FR) circuit low C12BE (Case 1): ABS hold solenoid (FR) circuit high (solenoid Off current) C12BE (Case 2 and 3): ABS hold solenoid (FR) circuit high (IC data) C12BE (Case 4): ABS hold solenoid (FR) circuit high (solenoid On current) C12C8: ABS release solenoid (FR) circuit low C12C9: ABS release solenoid (FR) circuit high
Required Sensors/Components(Main)	No. 2 skid control ECU (brake actuator assembly)
Required Sensors/Components(Related)	No. 2 skid control ECU (brake actuator assembly)
Frequency of Operation	Continuous
Duration	0.054 seconds: C12BD, C12BE (Case 1 to 3), C12C8 and C12C9 -: C12BE (Case 4)
MIL Operation	Immediately
Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

C12BD (Case 1)

Monitor runs whenever the following DTCs are not stored	C0597: ABS hold solenoid performance C12A7 (Case 1 and 2): ABS hold solenoid (FL) circuit open C12A7 (Case 3): ABS hold solenoid (FL) circuit low

	C12A8 (Case 1): ABS hold solenoid (FL) circuit high (solenoid Off current) C12A8 (Case 2 and 3): ABS hold solenoid (FL) circuit high (IC data) C12A8 (Case 4): ABS hold solenoid (FL) circuit high (solenoid On current) C12B2: ABS release solenoid (FL) circuit low C12B3: ABS release solenoid (FL) circuit high C12BE (Case 1): ABS hold solenoid (FR) circuit high (solenoid Off current) C12BE (Case 2 and 3): ABS hold solenoid (FR) circuit high (IC data) C12BE (Case 4): ABS hold solenoid (FR) circuit high (solenoid On current) C12C8: ABS release solenoid (FR) circuit low C12C9: ABS release solenoid (FR) circuit high C12D3 (Case 1 and 2): ABS hold solenoid (RL) circuit open C12D3 (Case 3): ABS hold solenoid (RL) circuit low C12D4 (Case 1): ABS hold solenoid (RL) circuit high (solenoid Off current) C12D4 (Case 2 and 3): ABS hold solenoid (RL) circuit high (IC data) C12D4 (Case 4): ABS hold solenoid (RL) circuit high (solenoid On current) C12DE: ABS release solenoid (RL) circuit low C12DF: ABS release solenoid (RL) circuit high C12E9 (Case 1 and 2): ABS hold solenoid (RR) circuit open C12E9 (Case 3): ABS hold solenoid (RR) circuit low C12EA (Case 1): ABS hold solenoid (RR) circuit high (solenoid Off current) C12EA (Case 2 and 3): ABS hold solenoid (RR) circuit high (IC data) C12EA (Case 4): ABS hold solenoid (RR) circuit high (solenoid On current) C12F4: ABS release solenoid (RR) circuit low C12F5: ABS release solenoid (RR) circuit high C12F6: ABS hold solenoid other functional C12F7: ABS hold solenoid other functional C13BF: SM solenoid other functional C13C2 (Case 1 and 2): SM1 solenoid circuit open C13C2 (Case 3): SM1 solenoid circuit low C13C3 (Case 1): SM1 solenoid circuit high (solenoid Off current) C13C3 (Case 2 and 3): SM1 solenoid circuit high (IC data) C13C3 (Case 4): SM1 solenoid circuit high (solenoid On current) C13CB (Case 1 and 2): SM2 solenoid circuit open C13CB (Case 3): SM2 solenoid circuit low C13CC (Case 1): SM2 solenoid circuit high (solenoid Off current) C13CC (Case 2 and 3): SM2 solenoid circuit high (IC data) C13CC (Case 4): SM2 solenoid circuit high (solenoid On current) C137D: Brake system voltage circuit high C143B: Brake system voltage power supply relay circuit high

	C143C: Brake system voltage power supply relay circuit open
All of the following conditions are met	A, B, C, D, E and F
A. Command to solenoid relay	On
B. Following condition is met	More than 0.012 seconds
AST voltage	6 V or higher
C. Following condition is met	More than 0.22 seconds
+BS voltage	17.4 V or less
D. +BS voltage	9.5 V or higher
E. IGR voltage	Higher than 10 V
F. IGP voltage	Higher than 10 V

C12BD (Case 2)

Monitor runs whenever the following DTCs are not stored	C0597: ABS hold solenoid performance C12A7 (Case 1 and 2): ABS hold solenoid (FL) circuit open C12A7 (Case 3): ABS hold solenoid (FL) circuit low C12A8 (Case 1): ABS hold solenoid (FL) circuit high (solenoid Off current) C12A8 (Case 2 and 3): ABS hold solenoid (FL) circuit high (IC data) C12A8 (Case 4): ABS hold solenoid (FL) circuit high (solenoid On current) C12B2: ABS release solenoid (FL) circuit low C12B3: ABS release solenoid (FL) circuit high C12BE (Case 1): ABS hold solenoid (FR) circuit high (solenoid Off current) C12BE (Case 2 and 3): ABS hold solenoid (FR) circuit high (IC data) C12BE (Case 4): ABS hold solenoid (FR) circuit high (solenoid On current) C12C8: ABS release solenoid (FR) circuit low C12C9: ABS release solenoid (FR) circuit high C12D3 (Case 1 and 2): ABS hold solenoid (RL) circuit open C12D3 (Case 3): ABS hold solenoid (RL) circuit low C12D4 (Case 1): ABS hold solenoid (RL) circuit high (solenoid Off current) C12D4 (Case 2 and 3): ABS hold solenoid (RL) circuit high (IC data) C12D4 (Case 4): ABS hold solenoid (RL) circuit high (solenoid On current) C12DE: ABS release solenoid (RL) circuit low C12DF: ABS release solenoid (RL) circuit high C12E9 (Case 1 and 2): ABS hold solenoid (RR) circuit open C12E9 (Case 3): ABS hold solenoid (RR) circuit low C12EA (Case 1): ABS hold solenoid (RR) circuit high (solenoid Off current) C12EA (Case 2 and 3): ABS hold solenoid (RR) circuit high (IC data)

	C12EA (Case 4): ABS hold solenoid (RR) circuit high (solenoid On current) C12F4: ABS release solenoid (RR) circuit low C12F5: ABS release solenoid (RR) circuit high C12F6: ABS hold solenoid other functional C12F7: ABS hold solenoid other functional C13BF: SM solenoid other functional C13C2 (Case 1 and 2): SM1 solenoid circuit open C13C2 (Case 3): SM1 solenoid circuit low C13C3 (Case 1): SM1 solenoid circuit high (solenoid Off current) C13C3 (Case 2 and 3): SM1 solenoid circuit high (IC data) C13C3 (Case 4): SM1 solenoid circuit high (solenoid On current) C13CB (Case 1 and 2): SM2 solenoid circuit open C13CB (Case 3): SM2 solenoid circuit low C13CC (Case 1): SM2 solenoid circuit high (solenoid Off current) C13CC (Case 2 and 3): SM2 solenoid circuit high (IC data) C13CC (Case 4): SM2 solenoid circuit high (solenoid On current) C137D: Brake system voltage circuit high C143B: Brake system voltage power supply relay circuit high C143C: Brake system voltage power supply relay circuit open
All of the following conditions are met	A, B, C, D, E, F and G
A. Command to solenoid relay	On
B. Following condition is met	More than 0.012 seconds
AST voltage	6 V or higher
C. Following condition is met	More than 0.22 seconds
+BS voltage	17.4 V or less
D. Following condition is met	More than 0.054 seconds
Solenoid target current value	0 A
E. +BS voltage	9.5 V or higher
F. IGR voltage	Higher than 10 V
G. IGP voltage	Higher than 10 V

C12BD (Case 3)

Monitor runs whenever the following DTCs are not stored	C0597: ABS hold solenoid performance C12A7 (Case 1 and 2): ABS hold solenoid (FL) circuit open C12A7 (Case 3): ABS hold solenoid (FL) circuit low C12A8 (Case 1): ABS hold solenoid (FL) circuit high (solenoid Off current) C12A8 (Case 2 and 3): ABS hold solenoid (FL) circuit high (IC data) C12A8 (Case 4): ABS hold solenoid (FL) circuit high (solenoid On current) C12B2: ABS release solenoid (FL) circuit low C12B3: ABS release solenoid (FL) circuit high C12BE (Case 1): ABS hold solenoid (FR) circuit high (solenoid Off current)

	C12BE (Case 2 and 3): ABS hold solenoid (FR) circuit high (IC data) C12BE (Case 4): ABS hold solenoid (FR) circuit high (solenoid On current) C12C8: ABS release solenoid (FR) circuit low C12C9: ABS release solenoid (FR) circuit high C12D3 (Case 1 and 2): ABS hold solenoid (RL) circuit open C12D3 (Case 3): ABS hold solenoid (RL) circuit low C12D4 (Case 1): ABS hold solenoid (RL) circuit high (solenoid Off current) C12D4 (Case 2 and 3): ABS hold solenoid (RL) circuit high (IC data) C12D4 (Case 4): ABS hold solenoid (RL) circuit high (solenoid On current) C12DE: ABS release solenoid (RL) circuit low C12DF: ABS release solenoid (RL) circuit high C12E9 (Case 1 and 2): ABS hold solenoid (RR) circuit open C12E9 (Case 3): ABS hold solenoid (RR) circuit low C12EA (Case 1): ABS hold solenoid (RR) circuit high (solenoid Off current) C12EA (Case 2 and 3): ABS hold solenoid (RR) circuit high (IC data) C12EA (Case 4): ABS hold solenoid (RR) circuit high (solenoid On current) C12F4: ABS release solenoid (RR) circuit low C12F5: ABS release solenoid (RR) circuit high C12F6: ABS hold solenoid other functional C12F7: ABS hold solenoid other functional C13BF: SM solenoid other functional C13C2 (Case 1 and 2): SM1 solenoid circuit open C13C2 (Case 3): SM1 solenoid circuit low C13C3 (Case 1): SM1 solenoid circuit high (solenoid Off current) C13C3 (Case 2 and 3): SM1 solenoid circuit high (IC data) C13C3 (Case 4): SM1 solenoid circuit high (solenoid On current) C13CB (Case 1 and 2): SM2 solenoid circuit open C13CB (Case 3): SM2 solenoid circuit low C13CC (Case 1): SM2 solenoid circuit high (solenoid Off current) C13CC (Case 2 and 3): SM2 solenoid circuit high (IC data) C13CC (Case 4): SM2 solenoid circuit high (solenoid On current) C137D: Brake system voltage circuit high C143B: Brake system voltage power supply relay circuit high C143C: Brake system voltage power supply relay circuit open
All of the following conditions are met	A, B, C, D, E, F, G, H, I, J and K
A. Command to solenoid relay	On

B. Following condition is met	More than 0.012 seconds
AST voltage	9.5 V or higher
C. Following condition is met	More than 0.22 seconds
+BS voltage	17.4 V or less
D. Following condition is met	More than 0.048 seconds
Solenoid target current value	0.25 A or higher
E. Solenoid overcurrent signal (IC Data)	Off
F. Solenoid driver overtemperature signal (IC Data)	Off
G. Solenoid return current terminal disconnection signal (IC Data)	Off
H. Solenoid GND terminal disconnection signal (IC Data)	Off
I. +BS voltage	9.5 V or higher
J. IGR voltage	Higher than 10 V
K. IGP voltage	Higher than 10 V

C12BE (Case 1)

Monitor runs whenever the following DTCs are not stored	C0597: ABS hold solenoid performance C12A7 (Case 1 and 2): ABS hold solenoid (FL) circuit open C12A7 (Case 3): ABS hold solenoid (FL) circuit low C12A8 (Case 1): ABS hold solenoid (FL) circuit high (solenoid Off current) C12A8 (Case 2 and 3): ABS hold solenoid (FL) circuit high (IC data) C12A8 (Case 4): ABS hold solenoid (FL) circuit high (solenoid On current) C12B2: ABS release solenoid (FL) circuit low C12B3: ABS release solenoid (FL) circuit high C12BD (Case 1 and 2): ABS hold solenoid (FR) circuit open C12BD (Case 3): ABS hold solenoid (FR) circuit low C12C8: ABS release solenoid (FR) circuit low C12C9: ABS release solenoid (FR) circuit high C12D3 (Case 1 and 2): ABS hold solenoid (RL) circuit open C12D3 (Case 3): ABS hold solenoid (RL) circuit low C12D4 (Case 1): ABS hold solenoid (RL) circuit high (solenoid Off current) C12D4 (Case 2 and 3): ABS hold solenoid (RL) circuit high (IC data) C12D4 (Case 4): ABS hold solenoid (RL) circuit high (solenoid On current) C12DE: ABS release solenoid (RL) circuit low C12DF: ABS release solenoid (RL) circuit high C12E9 (Case 1 and 2): ABS hold solenoid (RR) circuit open C12E9 (Case 3): ABS hold solenoid (RR) circuit low

	C12EA (Case 1): ABS hold solenoid (RR) circuit high (solenoid Off current) C12EA (Case 2 and 3): ABS hold solenoid (RR) circuit high (IC data) C12EA (Case 4): ABS hold solenoid (RR) circuit high (solenoid On current) C12F4: ABS release solenoid (RR) circuit low C12F5: ABS release solenoid (RR) circuit high C12F6: ABS hold solenoid other functional C12F7: ABS hold solenoid other functional C13BF: SM solenoid other functional C13C2 (Case 1 and 2): SM1 solenoid circuit open C13C2 (Case 3): SM1 solenoid circuit low C13C3 (Case 1): SM1 solenoid circuit high (solenoid Off current) C13C3 (Case 2 and 3): SM1 solenoid circuit high (IC data) C13C3 (Case 4): SM1 solenoid circuit high (solenoid On current) C13CB (Case 1 and 2): SM2 solenoid circuit open C13CB (Case 3): SM2 solenoid circuit low C13CC (Case 1): SM2 solenoid circuit high (solenoid Off current) C13CC (Case 2 and 3): SM2 solenoid circuit high (IC data) C13CC (Case 4): SM2 solenoid circuit high (solenoid On current) C137D: Brake system voltage circuit high C143B: Brake system voltage power supply relay circuit high C143C: Brake system voltage power supply relay circuit open
All of the following conditions are met	A, B, C, D, E, F, G, H, I, J, K, L and M
A. Command to solenoid relay	On
B. Following condition is met	More than 0.012 seconds
AST voltage	6 V or higher
C. Following condition is met	More than 0.054 seconds
Solenoid target current value	0 A
D. Following condition is met	More than 0.22 seconds
+BS voltage	17.4 V or less
E. Solenoid overcurrent signal (IC Data)	Off
F. Solenoid driver overtemperature signal (IC Data)	Off
G. Solenoid load open/short to ground signal (IC Data)	Off
H. Solenoid load leakage signal (IC Data)	Off
I. Solenoid return current terminal disconnection signal (IC Data)	Off

J. Solenoid GND terminal disconnection signal (IC Data)	Off
K. +BS voltage	9.5 V or higher
L. IGR voltage	Higher than 10 V
M. IGP voltage	Higher than 10 V

C12BE (Case 2)

Monitor runs whenever the following DTCs are not stored	C0597: ABS hold solenoid performance C12A7 (Case 1 and 2): ABS hold solenoid (FL) circuit open C12A7 (Case 3): ABS hold solenoid (FL) circuit low C12A8 (Case 1): ABS hold solenoid (FL) circuit high (solenoid Off current) C12A8 (Case 2 and 3): ABS hold solenoid (FL) circuit high (IC data) C12A8 (Case 4): ABS hold solenoid (FL) circuit high (solenoid On current) C12B2: ABS release solenoid (FL) circuit low C12B3: ABS release solenoid (FL) circuit high C12BD (Case 1 and 2): ABS hold solenoid (FR) circuit open C12BD (Case 3): ABS hold solenoid (FR) circuit low C12C8: ABS release solenoid (FR) circuit low C12C9: ABS release solenoid (FR) circuit high C12D3 (Case 1 and 2): ABS hold solenoid (RL) circuit open C12D3 (Case 3): ABS hold solenoid (RL) circuit low C12D4 (Case 1): ABS hold solenoid (RL) circuit high (solenoid Off current) C12D4 (Case 2 and 3): ABS hold solenoid (RL) circuit high (IC data) C12D4 (Case 4): ABS hold solenoid (RL) circuit high (solenoid On current) C12DE: ABS release solenoid (RL) circuit low C12DF: ABS release solenoid (RL) circuit high C12E9 (Case 1 and 2): ABS hold solenoid (RR) circuit open C12E9 (Case 3): ABS hold solenoid (RR) circuit low C12EA (Case 1): ABS hold solenoid (RR) circuit high (solenoid Off current) C12EA (Case 2 and 3): ABS hold solenoid (RR) circuit high (IC data) C12EA (Case 4): ABS hold solenoid (RR) circuit high (solenoid On current) C12F4: ABS release solenoid (RR) circuit low C12F5: ABS release solenoid (RR) circuit high C12F6: ABS hold solenoid other functional C12F7: ABS hold solenoid other functional C13BF: SM solenoid other functional C13C2 (Case 1 and 2): SM1 solenoid circuit open C13C2 (Case 3): SM1 solenoid circuit low C13C3 (Case 1): SM1 solenoid circuit high (solenoid Off current) C13C3 (Case 2 and 3): SM1 solenoid circuit high (IC data)

	C13C3 (Case 4): SM1 solenoid circuit high (solenoid On current) C13CB (Case 1 and 2): SM2 solenoid circuit open C13CB (Case 3): SM2 solenoid circuit low C13CC (Case 1): SM2 solenoid circuit high (solenoid Off current) C13CC (Case 2 and 3): SM2 solenoid circuit high (IC data) C13CC (Case 4): SM2 solenoid circuit high (solenoid On current) C137D: Brake system voltage circuit high C143B: Brake system voltage power supply relay circuit high C143C: Brake system voltage power supply relay circuit open
All of the following conditions are met	A, B, C, D, E and F
A. Command to solenoid relay	On
B. Following condition is met	More than 0.012 seconds
AST voltage	6 V or higher
C. Following condition is met	More than 0.22 seconds
+BS voltage	17.4 V or less
D. +BS voltage	9.5 V or higher
E. IGR voltage	Higher than 10 V
F. IGP voltage	Higher than 10 V

C12BE (Case 3)

Monitor runs whenever the following DTCs are not stored	C0597: ABS hold solenoid performance C12A7 (Case 1 and 2): ABS hold solenoid (FL) circuit open C12A7 (Case 3): ABS hold solenoid (FL) circuit low C12A8 (Case 1): ABS hold solenoid (FL) circuit high (solenoid Off current) C12A8 (Case 2 and 3): ABS hold solenoid (FL) circuit high (IC data) C12A8 (Case 4): ABS hold solenoid (FL) circuit high (solenoid On current) C12B2: ABS release solenoid (FL) circuit low C12B3: ABS release solenoid (FL) circuit high C12BD (Case 1 and 2): ABS hold solenoid (FR) circuit open C12BD (Case 3): ABS hold solenoid (FR) circuit low C12C8: ABS release solenoid (FR) circuit low C12C9: ABS release solenoid (FR) circuit high C12D3 (Case 1 and 2): ABS hold solenoid (RL) circuit open C12D3 (Case 3): ABS hold solenoid (RL) circuit low C12D4 (Case 1): ABS hold solenoid (RL) circuit high (solenoid Off current) C12D4 (Case 2 and 3): ABS hold solenoid (RL) circuit high (IC data) C12D4 (Case 4): ABS hold solenoid (RL) circuit high (solenoid On current) C12DE: ABS release solenoid (RL) circuit low C12DF: ABS release solenoid (RL) circuit high C12E9 (Case 1 and 2): ABS hold solenoid (RR) circuit open

	C12E9 (Case 3): ABS hold solenoid (RR) circuit low C12EA (Case 1): ABS hold solenoid (RR) circuit high (solenoid Off current) C12EA (Case 2 and 3): ABS hold solenoid (RR) circuit high (IC data) C12EA (Case 4): ABS hold solenoid (RR) circuit high (solenoid On current) C12F4: ABS release solenoid (RR) circuit low C12F5: ABS release solenoid (RR) circuit high C12F6: ABS hold solenoid other functional C12F7: ABS hold solenoid other functional C13BF: SM solenoid other functional C13C2 (Case 1 and 2): SM1 solenoid circuit open C13C2 (Case 3): SM1 solenoid circuit low C13C3 (Case 1): SM1 solenoid circuit high (solenoid Off current) C13C3 (Case 2 and 3): SM1 solenoid circuit high (IC data) C13C3 (Case 4): SM1 solenoid circuit high (solenoid On current) C13CB (Case 1 and 2): SM2 solenoid circuit open C13CB (Case 3): SM2 solenoid circuit low C13CC (Case 1): SM2 solenoid circuit high (solenoid Off current) C13CC (Case 2 and 3): SM2 solenoid circuit high (IC data) C13CC (Case 4): SM2 solenoid circuit high (solenoid On current) C137D: Brake system voltage circuit high C143B: Brake system voltage power supply relay circuit high C143C: Brake system voltage power supply relay circuit open
All of the following conditions are met	A, B, C, D, E, F and G
A. Command to solenoid relay	On
B. Following condition is met	More than 0.012 seconds
AST voltage	6 V or higher
C. Following condition is met	More than 0.22 seconds
+BS voltage	17.4 V or less
D. Following condition is met	More than 0.054 seconds
Solenoid target current value	0 A
E. +BS voltage	9.5 V or higher
F. IGR voltage	Higher than 10 V
G. IGP voltage	Higher than 10 V

C12BE (Case 4)

Monitor runs whenever the following DTCs are not stored	C0597: ABS hold solenoid performance C12A7 (Case 1 and 2): ABS hold solenoid (FL) circuit open C12A7 (Case 3): ABS hold solenoid (FL) circuit low C12A8 (Case 1): ABS hold solenoid (FL) circuit high (solenoid Off current) C12A8 (Case 2 and 3): ABS hold solenoid (FL) circuit high (IC data)

	C12A8 (Case 4): ABS hold solenoid (FL) circuit high (solenoid On current) C12B2: ABS release solenoid (FL) circuit low C12B3: ABS release solenoid (FL) circuit high C12BD (Case 1 and 2): ABS hold solenoid (FR) circuit open C12BD (Case 3): ABS hold solenoid (FR) circuit low C12C8: ABS release solenoid (FR) circuit low C12C9: ABS release solenoid (FR) circuit high C12D3 (Case 1 and 2): ABS hold solenoid (RL) circuit open C12D3 (Case 3): ABS hold solenoid (RL) circuit low C12D4 (Case 1): ABS hold solenoid (RL) circuit high (solenoid Off current) C12D4 (Case 2 and 3): ABS hold solenoid (RL) circuit high (IC data) C12D4 (Case 4): ABS hold solenoid (RL) circuit high (solenoid On current) C12DE: ABS release solenoid (RL) circuit low C12DF: ABS release solenoid (RL) circuit high C12E9 (Case 1 and 2): ABS hold solenoid (RR) circuit open C12E9 (Case 3): ABS hold solenoid (RR) circuit low C12EA (Case 1): ABS hold solenoid (RR) circuit high (solenoid Off current) C12EA (Case 2 and 3): ABS hold solenoid (RR) circuit high (IC data) C12EA (Case 4): ABS hold solenoid (RR) circuit high (solenoid On current) C12F4: ABS release solenoid (RR) circuit low C12F5: ABS release solenoid (RR) circuit high C12F6: ABS hold solenoid other functional C12F7: ABS hold solenoid other functional C13BF: SM solenoid other functional C13C2 (Case 1 and 2): SM1 solenoid circuit open C13C2 (Case 3): SM1 solenoid circuit low C13C3 (Case 1): SM1 solenoid circuit high (solenoid Off current) C13C3 (Case 2 and 3): SM1 solenoid circuit high (IC data) C13C3 (Case 4): SM1 solenoid circuit high (solenoid On current) C13CB (Case 1 and 2): SM2 solenoid circuit open C13CB (Case 3): SM2 solenoid circuit low C13CC (Case 1): SM2 solenoid circuit high (solenoid Off current) C13CC (Case 2 and 3): SM2 solenoid circuit high (IC data) C13CC (Case 4): SM2 solenoid circuit high (solenoid On current) C137D: Brake system voltage circuit high C143B: Brake system voltage power supply relay circuit high C143C: Brake system voltage power supply relay circuit open
All of the following conditions are met	A, B, C, D, E, F, G, H, I, J, K, L and M

A. Command to solenoid relay	On
B. Following condition is met	More than 0.012 seconds
AST voltage	9.5 V or higher
C. Following condition is met	More than 0.22 seconds
+BS voltage	17.4 V or less
D. Following condition is met	More than 0.048 seconds
Solenoid target current value	Higher than 0 A
E. Solenoid overcurrent signal (IC Data)	Off
F. Solenoid driver overtemperature signal (IC Data)	Off
G. Solenoid return current terminal disconnection signal (IC Data)	Off
H. Solenoid GND terminal disconnection signal (IC Data)	Off
I. +BS voltage	9.5 V or higher
J. IGR voltage	Higher than 10 V
K. IGP voltage	Higher than 10 V

C12C8 (Case 1)

Monitor runs whenever the following DTCs are not stored	C0597: ABS hold solenoid performance C12A7 (Case 1 and 2): ABS hold solenoid (FL) circuit open C12A7 (Case 3): ABS hold solenoid (FL) circuit low C12A8 (Case 1): ABS hold solenoid (FL) circuit high (solenoid Off current) C12A8 (Case 2 and 3): ABS hold solenoid (FL) circuit high (IC data) C12A8 (Case 4): ABS hold solenoid (FL) circuit high (solenoid On current) C12B3: ABS release solenoid (FL) circuit high C12BD (Case 1 and 2): ABS hold solenoid (FR) circuit open C12BD (Case 3): ABS hold solenoid (FR) circuit low C12BE (Case 1): ABS hold solenoid (FR) circuit high (solenoid Off current) C12BE (Case 2 and 3): ABS hold solenoid (FR) circuit high (IC data) C12BE (Case 4): ABS hold solenoid (FR) circuit high (solenoid On current) C12C9: ABS release solenoid (FR) circuit high C12D3 (Case 1 and 2): ABS hold solenoid (RL) circuit open C12D3 (Case 3): ABS hold solenoid (RL) circuit low C12D4 (Case 1): ABS hold solenoid (RL) circuit high (solenoid Off current) C12D4 (Case 2 and 3): ABS hold solenoid (RL) circuit high (IC data) C12D4 (Case 4): ABS hold solenoid (RL) circuit high (solenoid On current)

	C12DF: ABS release solenoid (RL) circuit high C12E9 (Case 1 and 2): ABS hold solenoid (RR) circuit open C12E9 (Case 3): ABS hold solenoid (RR) circuit low C12EA (Case 1): ABS hold solenoid (RR) circuit high (solenoid Off current) C12EA (Case 2 and 3): ABS hold solenoid (RR) circuit high (IC data) C12EA (Case 4): ABS hold solenoid (RR) circuit high (solenoid On current) C12F5: ABS release solenoid (RR) circuit high C12F6: ABS hold solenoid other functional C12F7: ABS hold solenoid other functional C13BF: SM solenoid other functional C13C2 (Case 1 and 2): SM1 solenoid circuit open C13C2 (Case 3): SM1 solenoid circuit low C13C3 (Case 1): SM1 solenoid circuit high (solenoid Off current) C13C3 (Case 2 and 3): SM1 solenoid circuit high (IC data) C13C3 (Case 4): SM1 solenoid circuit high (solenoid On current) C13CB (Case 1 and 2): SM2 solenoid circuit open C13CB (Case 3): SM2 solenoid circuit low C13CC (Case 1): SM2 solenoid circuit high (solenoid Off current) C13CC (Case 2 and 3): SM2 solenoid circuit high (IC data) C13CC (Case 4): SM2 solenoid circuit high (solenoid On current) C137D: Brake system voltage circuit high C143B: Brake system voltage power supply relay circuit high C143C: Brake system voltage power supply relay circuit open
All of the following conditions are met	A, B, C, D, E, F, G and H
A. Command to solenoid relay	On
B. Following condition is met	More than 0.012 seconds
AST voltage	6 V or higher
C. Following condition is met	More than 0.22 seconds
+BS voltage	17.4 V or less
D. Following condition is met	More than 0.015 seconds
Command to ABS release solenoid	Off
E. Following condition is met	More than 0.015 seconds
Command to reference solenoid	Off
F. +BS voltage	9.5 V or higher
G. IGR voltage	Higher than 10 V
H. IGP voltage	Higher than 10 V

C12C8 (Case 2)

Monitor runs whenever the following DTCs are not stored	C0597: ABS hold solenoid performance C12A7 (Case 1 and 2): ABS hold solenoid (FL) circuit open C12A7 (Case 3): ABS hold solenoid (FL) circuit low

	C12A8 (Case 1): ABS hold solenoid (FL) circuit high (solenoid Off current) C12A8 (Case 2 and 3): ABS hold solenoid (FL) circuit high (IC data) C12A8 (Case 4): ABS hold solenoid (FL) circuit high (solenoid On current) C12B3: ABS release solenoid (FL) circuit high C12BD (Case 1 and 2): ABS hold solenoid (FR) circuit open C12BD (Case 3): ABS hold solenoid (FR) circuit low C12BE (Case 1): ABS hold solenoid (FR) circuit high (solenoid Off current) C12BE (Case 2 and 3): ABS hold solenoid (FR) circuit high (IC data) C12BE (Case 4): ABS hold solenoid (FR) circuit high (solenoid On current) C12C9: ABS release solenoid (FR) circuit high C12D3 (Case 1 and 2): ABS hold solenoid (RL) circuit open C12D3 (Case 3): ABS hold solenoid (RL) circuit low C12D4 (Case 1): ABS hold solenoid (RL) circuit high (solenoid Off current) C12D4 (Case 2 and 3): ABS hold solenoid (RL) circuit high (IC data) C12D4 (Case 4): ABS hold solenoid (RL) circuit high (solenoid On current) C12DF: ABS release solenoid (RL) circuit high C12E9 (Case 1 and 2): ABS hold solenoid (RR) circuit open C12E9 (Case 3): ABS hold solenoid (RR) circuit low C12EA (Case 1): ABS hold solenoid (RR) circuit high (solenoid Off current) C12EA (Case 2 and 3): ABS hold solenoid (RR) circuit high (IC data) C12EA (Case 4): ABS hold solenoid (RR) circuit high (solenoid On current) C12F5: ABS release solenoid (RR) circuit high C12F6: ABS hold solenoid other functional C12F7: ABS hold solenoid other functional C13BF: SM solenoid other functional C13C2 (Case 1 and 2): SM1 solenoid circuit open C13C2 (Case 3): SM1 solenoid circuit low C13C3 (Case 1): SM1 solenoid circuit high (solenoid Off current) C13C3 (Case 2 and 3): SM1 solenoid circuit high (IC data) C13C3 (Case 4): SM1 solenoid circuit high (solenoid On current) C13CB (Case 1 and 2): SM2 solenoid circuit open C13CB (Case 3): SM2 solenoid circuit low C13CC (Case 1): SM2 solenoid circuit high (solenoid Off current) C13CC (Case 2 and 3): SM2 solenoid circuit high (IC data) C13CC (Case 4): SM2 solenoid circuit high (solenoid On current) C137D: Brake system voltage circuit high C143B: Brake system voltage power supply relay circuit high C143C: Brake system voltage power supply relay circuit open
All of the following conditions are met	A, B, C, D, E, F, G and H

A. Command to solenoid relay	On
B. Following condition is met	More than 0.012 seconds
AST voltage	6 V or higher
C. Following condition is met	More than 0.22 seconds
+BS voltage	17.4 V or less
D. Either of the following conditions is met	a or b
a. Following condition is met	More than 0.006 seconds
Command to ABS release solenoid	On
b. Following condition is met	More than 0.015 seconds
Command to ABS release solenoid	Off
E. Either of the following conditions is met	a or b
a. Following condition is met	More than 0.006 seconds
Command to reference solenoid	On
b. Following condition is met	More than 0.015 seconds
Command to reference solenoid	Off
F. +BS voltage	9.5 V or higher
G. IGR voltage	Higher than 10 V
H. IGP voltage	Higher than 10 V

C12C9 (Case 1 and 2)

Monitor runs whenever the following DTCs are not stored	C0597: ABS hold solenoid performance C12A7 (Case 1 and 2): ABS hold solenoid (FL) circuit open C12A7 (Case 3): ABS hold solenoid (FL) circuit low C12A8 (Case 1): ABS hold solenoid (FL) circuit high (solenoid Off current) C12A8 (Case 2 and 3): ABS hold solenoid (FL) circuit high (IC data) C12A8 (Case 4): ABS hold solenoid (FL) circuit high (solenoid On current) C12B2: ABS release solenoid (FL) circuit low C12BD (Case 1 and 2): ABS hold solenoid (FR) circuit open C12BD (Case 3): ABS hold solenoid (FR) circuit low C12BE (Case 1): ABS hold solenoid (FR) circuit high (solenoid Off current) C12BE (Case 2 and 3): ABS hold solenoid (FR) circuit high (IC data) C12BE (Case 4): ABS hold solenoid (FR) circuit high (solenoid On current) C12C8: ABS release solenoid (FR) circuit low C12D3 (Case 1 and 2): ABS hold solenoid (RL) circuit open C12D3 (Case 3): ABS hold solenoid (RL) circuit low C12D4 (Case 1): ABS hold solenoid (RL) circuit high (solenoid Off current)

	C12D4 (Case 2 and 3): ABS hold solenoid (RL) circuit high (IC data) C12D4 (Case 4): ABS hold solenoid (RL) circuit high (solenoid On current) C12DE: ABS release solenoid (RL) circuit low C12E9 (Case 1 and 2): ABS hold solenoid (RR) circuit open C12E9 (Case 3): ABS hold solenoid (RR) circuit low C12EA (Case 1): ABS hold solenoid (RR) circuit high (solenoid Off current) C12EA (Case 2 and 3): ABS hold solenoid (RR) circuit high (IC data) C12EA (Case 4): ABS hold solenoid (RR) circuit high (solenoid On current) C12F4: ABS release solenoid (RR) circuit low C12F6: ABS hold solenoid other functional C12F7: ABS hold solenoid other functional C13BF: SM solenoid other functional C13C2 (Case 1 and 2): SM1 solenoid circuit open C13C2 (Case 3): SM1 solenoid circuit low C13C3 (Case 1): SM1 solenoid circuit high (solenoid Off current) C13C3 (Case 2 and 3): SM1 solenoid circuit high (IC data) C13C3 (Case 4): SM1 solenoid circuit high (solenoid On current) C13CB (Case 1 and 2): SM2 solenoid circuit open C13CB (Case 3): SM2 solenoid circuit low C13CC (Case 1): SM2 solenoid circuit high (solenoid Off current) C13CC (Case 2 and 3): SM2 solenoid circuit high (IC data) C13CC (Case 4): SM2 solenoid circuit high (solenoid On current) C137D: Brake system voltage circuit high C143B: Brake system voltage power supply relay circuit high C143C: Brake system voltage power supply relay circuit open
All of the following conditions are met	A, B, C, D, E, F, G and H
A. Command to solenoid relay	On
B. Following condition is met	More than 0.012 seconds
AST voltage	6 V or higher
C. Following condition is met	More than 0.22 seconds
+BS voltage	17.4 V or less
D. Either of the following conditions is met	a or b
a. Following condition is met	More than 0.006 seconds
Command to ABS release solenoid	On
b. Following condition is met	More than 0.015 seconds
Command to ABS release solenoid	Off
E. Either of the following conditions is met	a or b
a. Following condition is met	More than 0.006 seconds
Command to reference solenoid	On
b. Following condition is met	More than 0.015 seconds

Command to reference solenoid	Off
F. +BS voltage	9.5 V or higher
G. IGR voltage	Higher than 10 V
H. IGP voltage	Higher than 10 V

TYPICAL MALFUNCTION THRESHOLDS

C12BD (Case 1)

Either of the following conditions is met	-
Solenoid return current terminal disconnection signal (IC Data)	On
Solenoid GND terminal disconnection signal (IC Data)	On

C12BD (Case 2) and C12C8 (Case 1)

Solenoid load open/short to ground signal (IC Data)	On

C12BD (Case 3)

Solenoid current monitor value / Solenoid target current value	Below 0.25

C12BE (Case 1)

Solenoid current monitor value	Higher than 0.1 A

C12BE (Case 2) and C12C9 (Case 1)

Either of the following conditions is met	-
Solenoid overcurrent signal (IC Data)	On
Solenoid driver overtemperature signal (IC Data)	On

C12BE (Case 3)

Solenoid load leakage signal (IC Data)	On

C12BE (Case 4)

Either of the following conditions is met	A or B
A. Both of the following conditions are met	More than 0.054 seconds
Solenoid target current value	0.25 A or higher
Solenoid current monitor value / Solenoid target current value	Higher than 2
B. Both of the following conditions are met	More than 0.054 seconds
Solenoid target current value	Below 0.25 A
Solenoid current monitor value	0.5 A or higher

C12C8 (Case 2)

Either of the following conditions is met	-
Solenoid load open at ON signal (IC Data)	On
Solenoid GND terminal disconnection signal (IC Data)	On

C12C9 (Case 2)

Both of the following conditions are met	-
Solenoid load leakage signal (IC Data)	On
Solenoid load open/short to ground signal (IC Data)	On

COMPONENT OPERATING RANGE

C12BD (Case 1)

All of the following conditions are met	-
ABS hold solenoid fail (C12A7, C12A8, C12BE, C12D3, C12D4, C12E9, C12EA, C12F6, C12F7)	Not detected
ABS release solenoid fail (C12B2, C12B3, C12C8, C12C9, C12DE, C12DF, C12F4, C12F5)	Not detected
SM solenoid fail (C13BF, C13C2, C13C3, C13CB, C13CC)	Not detected
Brake system voltage fail (C143B, C143C)	Not detected
Initial check	Finished
Solenoid return current terminal disconnection signal (IC Data)	Off
Solenoid GND terminal disconnection signal (IC Data)	Off

C12BD (Case 2)

All of the following conditions are met	-
ABS hold solenoid fail (C12A7, C12A8, C12BE, C12D3, C12D4, C12E9, C12EA, C12F6, C12F7)	Not detected
ABS release solenoid fail (C12B2, C12B3, C12C8, C12C9, C12DE, C12DF, C12F4, C12F5)	Not detected
SM solenoid fail (C13BF, C13C2, C13C3, C13CB, C13CC)	Not detected
Brake system voltage fail (C143B, C143C)	Not detected
Initial check	Finished
Solenoid load open/short to ground signal (IC Data)	Off

C12BD (Case 3)

All of the following conditions are met	-
ABS hold solenoid fail (C12A7, C12A8, C12BE, C12D3, C12D4, C12E9, C12EA, C12F6, C12F7)	Not detected
ABS release solenoid fail (C12B2, C12B3, C12C8, C12C9, C12DE, C12DF, C12F4, C12F5)	Not detected
SM solenoid fail (C13BF, C13C2, C13C3, C13CB, C13CC)	Not detected
Brake system voltage fail (C143B, C143C)	Not detected
Initial check	Finished

Solenoid current monitor value / Solenoid target current value	0.25 or higher

C12BE (Case 1)

All of the following conditions are met	-
ABS hold solenoid fail (C12A7, C12A8, C12BD, C12D3, C12D4, C12E9, C12EA, C12F6, C12F7)	Not detected
ABS release solenoid fail (C12B2, C12B3, C12C8, C12C9, C12DE, C12DF, C12F4, C12F5)	Not detected
SM solenoid fail (C13BF, C13C2, C13C3, C13CB, C13CC)	Not detected
Brake system voltage fail (C143B, C143C)	Not detected
Initial check	Finished
Solenoid current monitor value	0.1 A or less

C12BE (Case 2)

All of the following conditions are met	-
ABS hold solenoid fail (C12A7, C12A8, C12BE, C12D3, C12D4, C12E9, C12EA, C12F6, C12F7)	Not detected
ABS release solenoid fail (C12B2, C12B3, C12C8, C12C9, C12DE, C12DF, C12F4, C12F5)	Not detected
SM solenoid fail (C13BF, C13C2, C13C3, C13CB, C13CC)	Not detected
Brake system voltage fail (C143B, C143C)	Not detected
Initial check	Finished
Solenoid overcurrent signal (IC Data)	Off
Solenoid driver overtemperature signal (IC Data)	Off

C12BE (Case 3)

All of the following conditions are met	-
ABS hold solenoid fail (C12A7, C12A8, C12BD, C12D3, C12D4, C12E9, C12EA, C12F6, C12F7)	Not detected
ABS release solenoid fail (C12B2, C12B3, C12C8, C12C9, C12DE, C12DF, C12F4, C12F5)	Not detected
SM solenoid fail (C13BF, C13C2, C13C3, C13CB, C13CC)	Not detected
Brake system voltage fail (C143B, C143C)	Not detected
Initial check	Finished
Solenoid load leakage signal (IC Data)	Off

C12BE (Case 4)

All of the following conditions are met	-
ABS hold solenoid fail (C12A7, C12A8, C12BD, C12D3, C12D4, C12E9, C12EA, C12F6, C12F7)	Not detected
ABS release solenoid fail (C12B2, C12B3, C12C8, C12C9, C12DE, C12DF, C12F4, C12F5)	Not detected
SM solenoid fail (C13BF, C13C2, C13C3, C13CB, C13CC)	Not detected
Brake system voltage fail (C143B, C143C)	Not detected
Initial check	Finished

Solenoid target current value	0.25 A or higher
Solenoid current monitor value / Solenoid target current value	2 or less
Solenoid target current value	Below 0.25 A
Solenoid current monitor value	0.5 A or less

C12C8 (Case 1)

All of the following conditions are met	-
ABS hold solenoid fail (C12A7, C12A8, C12BD, C12BE, C12D3, C12D4, C12E9, C12EA, C12F6, C12F7)	Not detected
ABS release solenoid fail (C12B3, C12C9, C12DF, C12F5)	Not detected
SM solenoid fail (C13BF, C13C2, C13C3, C13CB, C13CC)	Not detected
Brake system voltage fail (C143B, C143C)	Not detected
Initial check	Finished
Solenoid load open/short to ground signal (IC Data)	Off

C12C8 (Case 2)

All of the following conditions are met	-
ABS hold solenoid fail (C12A7, C12A8, C12BD, C12BE, C12D3, C12D4, C12E9, C12EA, C12F6, C12F7)	Not detected
ABS release solenoid fail (C12B3, C12C9, C12DF, C12F5)	Not detected
SM solenoid fail (C13BF, C13C2, C13C3, C13CB, C13CC)	Not detected
Brake system voltage fail (C143B, C143C)	Not detected
Initial check	Finished
Solenoid load open at ON signal (IC Data)	Off
Solenoid GND terminal disconnection signal (IC Data)	Off

C12C9 (Case 1)

All of the following conditions are met	-
ABS hold solenoid fail (C12A7, C12A8, C12BD, C12BE, C12D3, C12D4, C12E9, C12EA, C12F6, C12F7)	Not detected
ABS release solenoid fail (C12B2, C12C8, C12DE, C12F4)	Not detected
SM solenoid fail (C13BF, C13C2, C13C3, C13CB, C13CC)	Not detected

Brake system voltage fail (C143B, C143C)	Not detected
Initial check	Finished
Solenoid overcurrent signal (IC Data)	Off
Solenoid driver overtemperature signal (IC Data)	Off

C12C9 (Case 2)

All of the following conditions are met	-
ABS hold solenoid fail (C12A7, C12A8, C12BD, C12BE, C12D3, C12D4, C12E9, C12EA, C12F6, C12F7)	Not detected
ABS release solenoid fail (C12B2, C12C8, C12DE, C12F4)	Not detected
SM solenoid fail (C13BF, C13C2, C13C3, C13CB, C13CC)	Not detected
Brake system voltage fail (C143B, C143C)	Not detected
Initial check	Finished
Solenoid load leakage signal (IC Data)	Off
Solenoid load open/short to ground signal (IC Data)	Off

CONFIRMATION DRIVING PATTERN

NOTICE:

When performing the normal judgment procedure, make sure that the driver door is closed and is not opened at any time during the procedure.

HINT:

- After repair has been completed, clear the DTC and then check that the vehicle has returned to normal by performing the following All Readiness check procedure.
- When clearing the permanent DTCs, refer to the "CLEAR PERMANENT DTC" procedure.

1. Connect the GTS to the DLC3.
2. Turn the ignition switch to ON and turn the GTS on.
3. Clear the DTCs (even if no DTCs are stored, perform the clear DTC procedure).
4. Turn the ignition switch off.
5. Turn the ignition switch to ON (READY) and turn the GTS on.
6. Drive the vehicle at a speed of 20 km/h (12 mph) for 1 minute. [*1]
7. Operate the ABS using a drum tester or equivalent. [*2]

HINT:

[*1] to [*2]: Normal judgment procedure.

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

8. Enter the following menus: Chassis / Brake/EPB* / Utility / All Readiness.

*: Electric Parking Brake System

9. Check the DTC judgment result.

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, perform driving pattern again.

PROCEDURE

1.	**REPLACE BRAKE ACTUATOR ASSEMBLY**

HINT:

Click here INFO

NEXT END