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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: C121F49,...,C150D1D; Lost Communication with Electronic Brake Booster Control Module "A" Internal Electronic Failure; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	**C121F49**	**Lost Communication with Electronic Brake Booster Control Module "A" Internal Electronic Failure**
DTC	**C14F112**	**Brake Pressure Control Solenoid "C" Control Circuit Short to Battery**
DTC	**C14F114**	**Brake Pressure Control Solenoid "C" Control Circuit Short to Ground or Open**
DTC	**C14F118**	**Brake Pressure Control Solenoid "C" Control Circuit Current Below Threshold**
DTC	**C14F119**	**Brake Pressure Control Solenoid "C" Control Circuit Current Above Threshold**
DTC	**C14F11D**	**Brake Pressure Control Solenoid "C" Control Circuit Current Out of Range**
DTC	**C14FA12**	**Brake Pressure Control Solenoid "D" Control Circuit Short to Battery**
DTC	**C14FA14**	**Brake Pressure Control Solenoid "D" Control Circuit Short to Ground or Open**
DTC	**C14FA18**	**Brake Pressure Control Solenoid "D" Control Circuit Current Below Threshold**
DTC	**C14FA19**	**Brake Pressure Control Solenoid "D" Control Circuit Current Above Threshold**
DTC	**C14FA1D**	**Brake Pressure Control Solenoid "D" Control Circuit Current Out of Range**
DTC	**C150712**	**Brake Pressure Control solenoid "E" Control Circuit Short to Battery**

DTC	C150714	Brake Pressure Control solenoid "E" Control Circuit Short to Ground or Open
DTC	C150718	Brake Pressure Control solenoid "E" Control Circuit Current Below Threshold
DTC	C150719	Brake Pressure Control solenoid "E" Control Circuit Current Above Threshold
DTC	C15071D	Brake Pressure Control solenoid "E" Control Circuit Current Out of Range
DTC	C150D12	Brake Pressure Control solenoid "F" Control Circuit Short to Battery
DTC	C150D14	Brake Pressure Control solenoid "F" Control Circuit Short to Ground or Open
DTC	C150D18	Brake Pressure Control solenoid "F" Control Circuit Current Below Threshold
DTC	C150D19	Brake Pressure Control solenoid "F" Control Circuit Current Above Threshold
DTC	C150D1D	Brake Pressure Control solenoid "F" Control Circuit Current Out of Range

DESCRIPTION

The linear solenoids SLM1 and SLM2 control the regulator based on signals from the No. 1 skid control ECU (brake booster with master cylinder assembly) and produce servo pressure in accordance with the vehicle condition.

When the system is normal, the switching solenoid SGH is opened to allow brake fluid to flow to the stroke simulator when the brake pedal is depressed. When the system is abnormal, the switching solenoid SGH closes to prevent the flow of brake fluid.

When the system is normal, the switching solenoid SSA is closed. When the system is abnormal, the switching solenoid SSA is opened to allow fluid to flow to the brake master cylinder reservoir assembly.

HINT:

- If the supply voltage decreases, a drop in current may cause DTCs to be stored.
- Brake pressure control solenoid "C": Solenoid SLM2.
- Brake pressure control solenoid "D": Solenoid SLM1.
- Brake pressure control solenoid "E": Solenoid SSA.
- Brake pressure control solenoid "F": Solenoid SGH.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
C121F49	Lost Communication with Electronic Brake Booster Control Module "A" Internal Electronic Failure	When the voltage at terminal +BI1 is between 7.3 V and 16.6 V, the voltage of the booster circuit inside the ECU is excessively low for 0.1 seconds or more.	No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C121F • Output ECU: Both skid control ECUs
C14F112	Brake Pressure Control Solenoid "C" Control Circuit Short to Battery	An excessive current is detected in the solenoid for 0.05 seconds or more.	• Supply voltage reduced • No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C14F4 (Case 3 to 6) • Output ECU: Both skid control ECUs
C14F114	Brake Pressure Control Solenoid "C" Control Circuit Short to Ground or Open	Insufficient current is detected in the solenoid for 0.05 seconds or more.	No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C14F3 (Case 1 to 3) • Output ECU: Both skid control ECUs
C14F118	Brake Pressure Control Solenoid "C" Control Circuit Current Below Threshold	An open is detected in the solenoid for 0.05 seconds or more.	No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C14F3 (Case 4 to 5) • Output ECU: Both skid

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
							control ECUs
C14F119	Brake Pressure Control Solenoid "C" Control Circuit Current Above Threshold	Overcurrent is detected in the solenoid for 0.05 seconds or more.	No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C14F4 (Case 7 and 8) • Output ECU: Both skid control ECUs
C14F11D	Brake Pressure Control Solenoid "C" Control Circuit Current Out of Range	Current leakage is detected in the solenoid for 0.05 seconds or more.	No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C14F4 (Case 1 and 2) • Output ECU: Both skid control ECUs
C14FA12	Brake Pressure Control Solenoid "D" Control Circuit Short to Battery	An excessive current is detected in the solenoid for 0.05 seconds or more.	• Supply voltage reduced • No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C14FD (Case 3 to 6) • Output ECU: Both skid control ECUs

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
C14FA14	Brake Pressure Control Solenoid "D" Control Circuit Short to Ground or Open	Insufficient current is detected in the solenoid for 0.05 seconds or more.	No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C14FC (Case 1 to 3) • Output ECU: Both skid control ECUs
C14FA18	Brake Pressure Control Solenoid "D" Control Circuit Current Below Threshold	An open is detected in the solenoid for 0.05 seconds or more.	No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C14FC (Case 4 and 5) • Output ECU: Both skid control ECUs
C14FA19	Brake Pressure Control Solenoid "D" Control Circuit Current Above Threshold	Overcurrent is detected in the solenoid for 0.05 seconds or more.	No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C14FD (Case 7 and 8) • Output ECU: Both skid control ECUs
C14FA1D	Brake Pressure Control Solenoid "D" Control Circuit Current Out of Range	Current leakage is detected in the solenoid for 0.05 seconds or more.	No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C14FD (Case 1 and 2) • Output ECU: Both skid

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
							control ECUs
C150712	Brake Pressure Control solenoid "E" Control Circuit Short to Battery	Monitoring value of SSA continues to be excessively higher than request value.	• Supply voltage reduced • No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C150A (Case 3 to 6) • Output ECU: Both skid control ECUs
C150714	Brake Pressure Control solenoid "E" Control Circuit Short to Ground or Open	Monitoring value of SSA continues to be excessively lower than request value.	No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C1509 (Case 1 to 3) • Output ECU: Both skid control ECUs
C150718	Brake Pressure Control solenoid "E" Control Circuit Current Below Threshold	An open is detected in SSA for 0.05 seconds or more.	No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C1509 (Case 4 and 5) • Output ECU: Both skid control ECUs
C150719	Brake Pressure Control solenoid "E" Control Circuit Current Above Threshold	Overcurrent is detected in SSA for 0.05 seconds or more.	No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C150A (Case 7 and 8) • Output ECU:

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
							Both skid control ECUs
C15071D	Brake Pressure Control solenoid "E" Control Circuit Current Out of Range	Current leakage is detected in SSA for 0.05 seconds or more.	No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C150A (Case 1 and 2) • Output ECU: Both skid control ECUs
C150D12	Brake Pressure Control solenoid "F" Control Circuit Short to Battery	Monitoring value of SGH continues to be excessively higher than request value.	• Supply voltage reduced • No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C1510 (Case 3 to 6) • Output ECU: Both skid control ECUs
C150D14	Brake Pressure Control solenoid "F" Control Circuit Short to Ground or Open	Monitoring value of SGH continues to be excessively lower than request value.	No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C150F (Case 1 to 3) • Output ECU: Both skid control ECUs
C150D18	Brake Pressure Control solenoid "F" Control Circuit Current Below Threshold	An open is detected in SGH for 0.05 seconds or more.	No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C150F (Case 4 and 5)

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
							• Output ECU: Both skid control ECUs
C150D19	Brake Pressure Control solenoid "F" Control Circuit Current Above Threshold	Overcurrent is detected in SGH for 0.05 seconds or more.	No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C1510 (Case 7 and 8) • Output ECU: Both skid control ECUs
C150D1D	Brake Pressure Control solenoid "F" Control Circuit Current Out of Range	Current leakage is detected in SGH for 0.05 seconds or more.	No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	B	• SAE Code: C1510 (Case 1 and 2) • Output ECU: Both skid control ECUs

MONITOR DESCRIPTION

The No. 2 skid control ECU (brake actuator assembly) monitors the drive voltage and current of the linear solenoids (SLM1, SLM2, SSA and SGH). Based on the monitored information, if any of the following abnormal conditions are detected, the MIL is illuminated and a DTC is stored.

- A malfunction of the current monitor is detected.
- Based on the duty cycle, the monitored current value is considerably low.
- An open circuit is detected.
- Based on the duty cycle, the monitored current value is considerably high.
- A current leakage is detected.
- When the monitored current value increases to a value that is not possible when normal.

MONITOR STRATEGY

Related DTCs	C121F: Brake system voltage performance

	C14F3 (Case 1 to 3) Brake pressure control solenoid (SLM1) circuit open C14F3 (Case 4 to 5) Brake pressure control solenoid (SLM1) circuit low C14F4 (Case 1 to 2): Brake pressure control solenoid (SLM2) circuit high (solenoid OFF current) C14F4 (Case 3 to 6): Brake pressure control solenoid (SLM2) circuit high (IC data) C14F4 (Case 7 to 8): Brake pressure control solenoid (SLM2) circuit high (solenoid ON current) C14FC (Case 1 to 3) Brake pressure control solenoid (SLM2) circuit open C14FC (Case 4 to 5) Brake pressure control solenoid (SLM2) circuit low C14FD (Case 1 to 2): Brake pressure control solenoid (SLM1) circuit high (solenoid OFF current) C14FD (Case 3 to 6): Brake pressure control solenoid (SLM1) circuit high (IC data) C14FD (Case 7 to 8): Brake pressure control solenoid (SLM1) circuit high (solenoid ON current) C1509 (Case 1 to 3) Brake pressure control solenoid (SSA) circuit open C1509 (Case 4 to 5) Brake pressure control solenoid (SSA) circuit low C1510 (Case 1 to 2): Brake pressure control solenoid (SGH) circuit high (solenoid OFF current) C1510 (Case 3 to 6): Brake pressure control solenoid (SGH) circuit high (IC data) C1510 (Case 7 to 8): Brake pressure control solenoid (SGH) circuit high (solenoid ON current) C150A (Case 1 to 2): Brake pressure control solenoid (SSA) circuit high (solenoid OFF current) C150A (Case 3 to 6): Brake pressure control solenoid (SSA) circuit high (IC data) C150A (Case 7 to 8): Brake pressure control solenoid (SSA) circuit high (solenoid ON current) C150F (Case 1 to 3) Brake pressure control solenoid (SGH) circuit open C150F (Case 4 to 5) Brake pressure control solenoid (SGH) circuit low
Required Sensors/Components(Main)	No. 2 skid control ECU (brake actuator assembly) Brake actuator (brake booster with master cylinder assembly)
Required Sensors/Components(Related)	No. 2 skid control ECU (brake actuator assembly) Brake actuator (brake booster with master cylinder assembly
Frequency of Operation	Continuous
Duration	0.012 seconds: C121F (Case 2 and 4) 0.054 seconds: C121F (Case 3), C14F3, C14F4 (Case 1 to 6 and 8), C14FC, C14FD (Case 1 to 6 and 8), C1509, C150A (Case 1 to 6 and 8), C150F and C1510 (Case 1 to 6 and 8) 0.102 seconds: C121F (Case 1) -: C14F4 (Case 7), C14FD (Case 7), C150A (Case 7) and C1510 (Case 7)
MIL Operation	Immediately
Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

C121F (Case 1)

Monitor runs whenever the following DTCs are not stored	C14C8: Brake system voltage circuit high
All of the following conditions are met	A, B, C and D
A. Both of the following conditions are met	More than 0.198 seconds
+BS cut MOS	Valid
+BS cut MOS voltage	Higher than 7.4 V
B. Both of the following conditions are met	More than 0.198 seconds
+BS cut MOS	Valid
+BS cut MOS voltage	Higher than 7.8 V, and Below 23.2 V

C121F (Case 2)

Monitor runs whenever the following DTCs are not stored	C12FA: Brake system voltage power supply relay open circuit
All of the following conditions are met	-
ECU status	Final check
Command to main relay	On
ASIC output permission	Off
BS voltage	0.42 x VM1 V or higher

C121F (Case 3)

Monitor runs whenever the following DTCs are not stored	C12FA: Brake system voltage power supply relay open circuit
All of the following conditions are met	-
ECU status	Final check
Command to main relay	On
ASIC output permission	Off
Brake pressure control solenoid target current value	0.15 A
BS voltage	0.42 x VM1 V or higher
BS (linear) voltage	9.5 V or higher

C121F (Case 4)

Monitor runs whenever the following DTCs are not stored	None
All of the following conditions are met	-
ECU status	Final check
Command to main relay	Off
ASIC output permission	Off
ASIC Q&A	Wrong answer

C14F3 (Case 1), C14FC (Case 1), C1509 (Case 1) and C150F (Case 1)

Monitor runs whenever the following DTCs are not stored	C12FA: Brake system voltage power supply relay open circuit C12FB: Brake system voltage power supply relay circuit high C14C8: Brake system voltage circuit high C14F3 (Case 1 to 3): Brake pressure control solenoid (SLM1) circuit open C14F3 (Case 4 to 5): Brake pressure control solenoid (SLM1) circuit low C14F4 (Case 1 to 2): Brake pressure control solenoid (SLM2) circuit high (solenoid OFF current) C14F4 (Case 3 to 6): Brake pressure control solenoid (SLM2) circuit high (IC data) C14F4 (Case 7 to 8): Brake pressure control solenoid (SLM2) circuit high (solenoid ON current) C14FC (Case 1 to 3): Brake pressure control solenoid (SLM2) circuit open C14FC (Case 4 to 5): Brake pressure control solenoid (SLM2) circuit low C14FD (Case 1 to 2): Brake pressure control solenoid (SLM1) circuit high (solenoid OFF current) C14FD (Case 3 to 6): Brake pressure control solenoid (SLM1) circuit high (IC data) C14FD (Case 7 to 8): Brake pressure control solenoid (SLM1) circuit high (solenoid ON current) C1509 (Case 1 to 3): Brake pressure control solenoid (SSA) circuit open C1509 (Case 4 to 5): Brake pressure control solenoid (SSA) circuit low C150A (Case 1 to 2): Brake pressure control solenoid (SSA) circuit high (solenoid OFF current) C150A (Case 3 to 6): Brake pressure control solenoid (SSA) circuit high (IC data) C150A (Case 7 to 8): Brake pressure control solenoid (SSA) circuit high (solenoid ON current) C150F (Case 1 to 3): Brake pressure control solenoid (SGH) circuit open C150F (Case 4 to 5): Brake pressure control solenoid (SGH) circuit low C1510 (Case 1 to 2): Brake pressure control solenoid (SGH) circuit high (solenoid OFF current) C1510 (Case 3 to 6): Brake pressure control solenoid (SGH) circuit high (IC data) C1510 (Case 7 to 8): Brake pressure control solenoid (SGH) circuit high (solenoid ON current)
All of the following conditions are met	A, B and C
A. Command to main relay	On
B. Following condition is met	More than 0.012 seconds
BS voltage	6 V or higher
C. Both of the following conditions are met	More than 0.198 seconds
+BS cut MOS	Valid

+BS cut MOS voltage	Below 23.2 V

C14F3 (Case 2), C14FC (Case 2), C1509 (Case 2) and C150F (Case 2)

Monitor runs whenever the following DTCs are not stored	C12FA: Brake system voltage power supply relay open circuit C12FB: Brake system voltage power supply relay circuit high C14C8: Brake system voltage circuit high C14F3 (Case 1 to 3): Brake pressure control solenoid (SLM1) circuit open C14F3 (Case 4 to 5): Brake pressure control solenoid (SLM1) circuit low C14F4 (Case 1): Brake pressure control solenoid (SLM2) circuit high (solenoid OFF current) C14F4 (Case 3 to 6): Brake pressure control solenoid (SLM2) circuit high (IC data) C14F4 (Case 7 to 8): Brake pressure control solenoid (SLM2) circuit high (solenoid ON current) C14FC (Case 1 to 3): Brake pressure control solenoid (SLM2) circuit open C14FC (Case 4 to 5): Brake pressure control solenoid (SLM2) circuit low C14FD (Case 1 to 2): Brake pressure control solenoid (SLM1) circuit high (solenoid OFF current) C14FD (Case 3 to 6): Brake pressure control solenoid (SLM1) circuit high (IC data) C14FD (Case 7 to 8): Brake pressure control solenoid (SLM1) circuit high (solenoid ON current) C1509 (Case 1 to 3): Brake pressure control solenoid (SSA) circuit open C1509 (Case 4 to 5): Brake pressure control solenoid (SSA) circuit low C150A (Case 1 to 2): Brake pressure control solenoid (SSA) circuit high (solenoid OFF current) C150A (Case 3 to 6): Brake pressure control solenoid (SSA) circuit high (IC data) C150A (Case 7 to 8): Brake pressure control solenoid (SSA) circuit high (solenoid ON current) C150F (Case 1 to 3): Brake pressure control solenoid (SGH) circuit open C150F (Case 4 to 5): Brake pressure control solenoid (SGH) circuit low C1510 (Case 1 to 2): Brake pressure control solenoid (SGH) circuit high (solenoid OFF current) C1510 (Case 3 to 6): Brake pressure control solenoid (SGH) circuit high (IC data) C1510 (Case 7 to 8): Brake pressure control solenoid (SGH) circuit high (solenoid ON current)
All of the following conditions are met	A, B, C and D
A. Command to main relay	On
B. Following condition is met	More than 0.012 seconds
BS voltage	6 V or higher

C. Both of the following conditions are met	More than 0.198 seconds
+BS cut MOS	Valid
+BS cut MOS voltage	Below 23.2 V
D. Following condition is met	More than 0.033 seconds
Brake pressure control solenoid target current value	0 A

C14F3 (Case 3), C14F4 (Case 5), C14FC (Case 3), C14FD (Case 5), C1509 (Case 3), C150A (Case 5), C150F (Case 3) and C1510 (Case 5)

Monitor runs whenever the following DTCs are not stored	C12FA: Brake system voltage power supply relay open circuit
All of the following conditions are met	-
ECU status	Final check
Command to main relay	On
BS voltage	0.42 x VM1 V or higher
Brake pressure control solenoid target current value	0 A
BS (linear) voltage	9.5 V or higher

C14F3 (Case 4), C14FC (Case 4), C1509 (Case 4) and C150F (Case 4)

Monitor runs whenever the following DTCs are not stored	C12FA: Brake system voltage power supply relay open circuit C12FB: Brake system voltage power supply relay circuit high C14C8: Brake system voltage circuit high C14F3 (Case 1 to 3): Brake pressure control solenoid (SLM1) circuit open C14F3 (Case 4 to 5): Brake pressure control solenoid (SLM1) circuit low C14F4 (Case 1): Brake pressure control solenoid (SLM2) circuit high (solenoid OFF current) C14F4 (Case 3 to 6): Brake pressure control solenoid (SLM2) circuit high (IC data) C14F4 (Case 7 to 8): Brake pressure control solenoid (SLM2) circuit high (solenoid ON current) C14FC (Case 1 to 3): Brake pressure control solenoid (SLM2) circuit open C14FC (Case 4 to 5): Brake pressure control solenoid (SLM2) circuit low C14FD (Case 1 to 2): Brake pressure control solenoid (SLM1) circuit high (solenoid OFF current) C14FD (Case 3 to 6): Brake pressure control solenoid (SLM1) circuit high (IC data) C14FD (Case 7 to 8): Brake pressure control solenoid (SLM1) circuit high (solenoid ON current) C1509 (Case 1 to 3): Brake pressure control solenoid (SSA) circuit open

	C1509 (Case 4 to 5): Brake pressure control solenoid (SSA) circuit low C150A (Case 1 to 2): Brake pressure control solenoid (SSA) circuit high (solenoid OFF current) C150A (Case 3 to 6): Brake pressure control solenoid (SSA) circuit high (IC data) C150A (Case 7 to 8): Brake pressure control solenoid (SSA) circuit high (solenoid ON current) C150F (Case 1 to 3): Brake pressure control solenoid (SGH) circuit open C150F (Case 4 to 5): Brake pressure control solenoid (SGH) circuit low C1510 (Case 1 to 2): Brake pressure control solenoid (SGH) circuit high (solenoid OFF current) C1510 (Case 3 to 6): Brake pressure control solenoid (SGH) circuit high (IC data) C1510 (Case 7 to 8): Brake pressure control solenoid (SGH) circuit high (solenoid ON current)
All of the following conditions are met	A, B, C, D, E, F, G, H and I
A. Command to main relay	On
B. Following condition is met	More than 0.012 seconds
BS voltage	6 V or higher
C. Both of the following conditions are met	More than 0.198 seconds
+BS cut MOS	Valid
+BS cut MOS voltage	Below 23.2 V
D. Both of the following conditions are met	More than 0.198 seconds
BS	Valid
BS (linear) voltage	Higher than 9.4 V
E. Following condition is met	More than 0.012 seconds
Brake pressure control solenoid target current value	Higher than 0.348 A
F. Solenoid overcurrent signal (IC Data)	Off
G. Solenoid driver overtemperature signal (IC Data)	Off
H. Solenoid return current terminal disconnection signal (IC Data)	Off
I. Solenoid GND terminal disconnection signal (IC Data)	Off

C14F3 (Case 5), C14F4 (Case 3), C14FC (Case 5), C14FD (Case 3), C1509 (Case 5), C150A (Case 3), C150F (Case 5) and C1510 (Case 3)

Monitor runs whenever the following DTCs are not stored	None
All of the following conditions are met	-

ECU status	Final check
Command to main relay	On
BS voltage	0.42 x VM1 V or higher
Brake pressure control solenoid target current value	0.15 A
BS (linear) voltage	9.5 V or higher

C14F4 (Case 1), C14FD (Case 1), C150A (Case 1) and C1510 (Case 1)

Monitor runs whenever the following DTCs are not stored	C12FA: Brake system voltage power supply relay open circuit C12FB: Brake system voltage power supply relay circuit high C14C8: Brake system voltage circuit high C14F3 (Case 1 to 3): Brake pressure control solenoid (SLM1) circuit open C14F3 (Case 4 to 5): Brake pressure control solenoid (SLM1) circuit low C14F4 (Case 1): Brake pressure control solenoid (SLM2) circuit high (solenoid OFF current) C14F4 (Case 3 to 6): Brake pressure control solenoid (SLM2) circuit high (IC data) C14F4 (Case 7 to 8): Brake pressure control solenoid (SLM2) circuit high (solenoid ON current) C14FC (Case 1 to 3): Brake pressure control solenoid (SLM2) circuit open C14FC (Case 4 to 5): Brake pressure control solenoid (SLM2) circuit low C14FD (Case 1 to 2): Brake pressure control solenoid (SLM1) circuit high (solenoid OFF current) C14FD (Case 3 to 6): Brake pressure control solenoid (SLM1) circuit high (IC data) C14FD (Case 7 to 8): Brake pressure control solenoid (SLM1) circuit high (solenoid ON current) C1509 (Case 1 to 3): Brake pressure control solenoid (SSA) circuit open C1509 (Case 4 to 5): Brake pressure control solenoid (SSA) circuit low C150A (Case 1 to 2): Brake pressure control solenoid (SSA) circuit high (solenoid OFF current) C150A (Case 3 to 6): Brake pressure control solenoid (SSA) circuit high (IC data) C150A (Case 7 to 8): Brake pressure control solenoid (SSA) circuit high (solenoid ON current) C150F (Case 1 to 3): Brake pressure control solenoid (SGH) circuit open C150F (Case 4 to 5): Brake pressure control solenoid (SGH) circuit low C1510 (Case 1 to 2): Brake pressure control solenoid (SGH) circuit high (solenoid OFF current) C1510 (Case 3 to 6): Brake pressure control solenoid (SGH) circuit high (IC data)

	C1510 (Case 7 to 8): Brake pressure control solenoid (SGH) circuit high (solenoid ON current)
All of the following conditions are met	A, B, C, D, E, F, G, H, I and J
A. Command to main relay	On
B. Following condition is met	More than 0.012 seconds
BS voltage	6 V or higher
C. Both of the following conditions are met	More than 0.198 seconds
+BS cut MOS	Valid
+BS cut MOS voltage	Below 23.2 V
D. Following condition is met	More than 0.033 seconds
Brake pressure control solenoid target current value	0 A
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

C14F4 (Case 2), C14FD (Case 2), C150A (Case 2) and C1510 (Case 2)

All of the following conditions are met	A, B, C, D and E
A. Either of the following conditions is met	-
ECU status	Premain
ECU status	Final check
B. Command to main relay	On
C. BS voltage	0.42 x VM1 V or higher
D. Brake pressure control solenoid target current value	0.0007 A
E. Command to main relay	9.5 V or higher

C14F4 (Case 3), C14FD (Case 3), C150A (Case 3) and C1510 (Case 3)

Monitor runs whenever the following DTCs are not stored	C12FA: Brake system voltage power supply relay open circuit C12FB: Brake system voltage power supply relay circuit high C14C8: Brake system voltage circuit high C14F3 (Case 1 to 3): Brake pressure control solenoid (SLM1) circuit open C14F3 (Case 4 to 5): Brake pressure control solenoid (SLM1) circuit low

	C14F4 (Case 1): Brake pressure control solenoid (SLM2) circuit high (solenoid OFF current) C14F4 (Case 3 to 6): Brake pressure control solenoid (SLM2) circuit high (IC data) C14F4 (Case 7 to 8): Brake pressure control solenoid (SLM2) circuit high (solenoid ON current) C14FC (Case 1 to 3): Brake pressure control solenoid (SLM2) circuit open C14FC (Case 4 to 5): Brake pressure control solenoid (SLM2) circuit low C14FD (Case 1 to 2): Brake pressure control solenoid (SLM1) circuit high (solenoid OFF current) C14FD (Case 3 to 6): Brake pressure control solenoid (SLM1) circuit high (IC data) C14FD (Case 7 to 8): Brake pressure control solenoid (SLM1) circuit high (solenoid ON current) C1509 (Case 1 to 3): Brake pressure control solenoid (SSA) circuit open C1509 (Case 4 to 5): Brake pressure control solenoid (SSA) circuit low C150A (Case 1 to 2): Brake pressure control solenoid (SSA) circuit high (solenoid OFF current) C150A (Case 3 to 6): Brake pressure control solenoid (SSA) circuit high (IC data) C150A (Case 7 to 8): Brake pressure control solenoid (SSA) circuit high (solenoid ON current) C150F (Case 1 to 3): Brake pressure control solenoid (SGH) circuit open C150F (Case 4 to 5): Brake pressure control solenoid (SGH) circuit low C1510 (Case 1 to 2): Brake pressure control solenoid (SGH) circuit high (solenoid OFF current) C1510 (Case 3 to 6): Brake pressure control solenoid (SGH) circuit high (IC data) C1510 (Case 7 to 8): Brake pressure control solenoid (SGH) circuit high (solenoid ON current)
All of the following conditions are met	A, B and C
A. Command to main relay	On
B. Following condition is met	More than 0.012 seconds
BS voltage	6 V or higher
C. Both of the following conditions are met	More than 0.198 seconds
+BS cut MOS	Valid
+BS cut MOS voltage	Below 23.2 V

C14F4 (Case 4), C14FD (Case 4), C150A (Case 4) and C1510 (Case 4)

Monitor runs whenever the following DTCs are not stored	C12FA: Brake system voltage power supply relay open circuit C12FB: Brake system voltage power supply relay circuit high C14C8: Brake system voltage circuit high

	C14F3 (Case 1 to 3): Brake pressure control solenoid (SLM1) circuit open C14F3 (Case 4 to 5): Brake pressure control solenoid (SLM1) circuit low C14F4 (Case 1): Brake pressure control solenoid (SLM2) circuit high (solenoid OFF current) C14F4 (Case 3 to 6): Brake pressure control solenoid (SLM2) circuit high (IC data) C14F4 (Case 7 to 8): Brake pressure control solenoid (SLM2) circuit high (solenoid ON current) C14FC (Case 1 to 3): Brake pressure control solenoid (SLM2) circuit open C14FC (Case 4 to 5): Brake pressure control solenoid (SLM2) circuit low C14FD (Case 1 to 2): Brake pressure control solenoid (SLM1) circuit high (solenoid OFF current) C14FD (Case 3 to 6): Brake pressure control solenoid (SLM1) circuit high (IC data) C14FD (Case 7 to 8): Brake pressure control solenoid (SLM1) circuit high (solenoid ON current) C1509 (Case 1 to 3): Brake pressure control solenoid (SSA) circuit open C1509 (Case 4 to 5): Brake pressure control solenoid (SSA) circuit low C150A (Case 1 to 2): Brake pressure control solenoid (SSA) circuit high (solenoid OFF current) C150A (Case 3 to 6): Brake pressure control solenoid (SSA) circuit high (IC data) C150A (Case 7 to 8): Brake pressure control solenoid (SSA) circuit high (solenoid ON current) C150F (Case 1 to 3): Brake pressure control solenoid (SGH) circuit open C150F (Case 4 to 5): Brake pressure control solenoid (SGH) circuit low C1510 (Case 1 to 2): Brake pressure control solenoid (SGH) circuit high (solenoid OFF current) C1510 (Case 3 to 6): Brake pressure control solenoid (SGH) circuit high (IC data) C1510 (Case 7 to 8): Brake pressure control solenoid (SGH) circuit high (solenoid ON current)
All of the following conditions are met	A, B, C, D and E
A. Command to main relay	On
B. Following condition is met	More than 0.012 seconds
BS voltage	6 V or higher
C. Both of the following conditions are met	More than 0.198 seconds
+BS cut MOS	Valid
+BS cut MOS voltage	Below 23.2 V
D. Following condition is met	More than 0.033 seconds

Brake pressure control solenoid target current value	0 A
E. Solenoid load open/short to ground signal (IC Data)	Off

C14F4 (Case 6), C14FD (Case 6), C150A (Case 6) and C1510 (Case 6)

Monitor runs whenever the following DTCs are not stored	C12FA: Brake system voltage power supply relay open circuit
All of the following conditions are met	-
ECU status	Final check
Command to main relay	On
BS voltage	0.42 x VM1 V or higher
Brake pressure control solenoid target current value	0 A
Solenoid load open/short to ground signal (IC Data)	Off
BS (linear) voltage	9.5 V or higher

C14F4 (Case 7), C14FD (Case 7), C150A (Case 7) and C1510 (Case 7)

Monitor runs whenever the following DTCs are not stored	C12FA: Brake system voltage power supply relay open circuit C12FB: Brake system voltage power supply relay circuit high C14C8: Brake system voltage circuit high C14F3 (Case 1 to 3): Brake pressure control solenoid (SLM1) circuit open C14F3 (Case 4 to 5): Brake pressure control solenoid (SLM1) circuit low C14F4 (Case 1): Brake pressure control solenoid (SLM2) circuit high (solenoid OFF current) C14F4 (Case 3 to 6): Brake pressure control solenoid (SLM2) circuit high (IC data) C14F4 (Case 7 to 8): Brake pressure control solenoid (SLM2) circuit high (solenoid ON current) C14FC (Case 1 to 3): Brake pressure control solenoid (SLM2) circuit open C14FC (Case 4 to 5): Brake pressure control solenoid (SLM2) circuit low C14FD (Case 1 to 2): Brake pressure control solenoid (SLM1) circuit high (solenoid OFF current) C14FD (Case 3 to 6): Brake pressure control solenoid (SLM1) circuit high (IC data) C14FD (Case 7 to 8): Brake pressure control solenoid (SLM1) circuit high (solenoid ON current) C1509 (Case 1 to 3): Brake pressure control solenoid (SSA) circuit open C1509 (Case 4 to 5): Brake pressure control solenoid (SSA) circuit low C150A (Case 1 to 2): Brake pressure control solenoid (SSA) circuit high (solenoid OFF current)

	C150A (Case 3 to 6): Brake pressure control solenoid (SSA) circuit high (IC data) C150A (Case 7 to 8): Brake pressure control solenoid (SSA) circuit high (solenoid ON current) C150F (Case 1 to 3): Brake pressure control solenoid (SGH) circuit open C150F (Case 4 to 5): Brake pressure control solenoid (SGH) circuit low C1510 (Case 1 to 2): Brake pressure control solenoid (SGH) circuit high (solenoid OFF current) C1510 (Case 3 to 6): Brake pressure control solenoid (SGH) circuit high (IC data) C1510 (Case 7 to 8): Brake pressure control solenoid (SGH) circuit high (solenoid ON current)
All of the following conditions are met	A, B, C, D, E, F, G, H and I
A. Command to main relay	On
B. Following condition is met	More than 0.012 seconds
BS voltage	6 V or higher
C. Both of the following conditions are met	More than 0.198 seconds
+BS cut MOS	Valid
+BS cut MOS voltage	Below 23.2 V
D. Both of the following conditions are met	More than 0.198 seconds
BS	Valid
BS (linear) voltage	Higher than 9.4 V
E. Following condition is met	More than 0.033 seconds
Brake pressure control solenoid target current value	0 A
F. Solenoid overcurrent signal (IC Data)	Off
G. Solenoid driver overtemperature signal (IC Data)	Off
H. Solenoid return current terminal disconnection signal (IC Data)	Off
I. Solenoid GND terminal disconnection signal (IC Data)	Off

TYPICAL MALFUNCTION THRESHOLDS

C121F (Case 1)

Charge pump low voltage detection signal (IC Data)	On

C121F (Case 2)

Either of the following conditions is met	-
ASIC ERRIN malfunction	Not detected

Solenoid GND terminal disconnection signal (IC Data)	Off
Solenoid driver overtemperature signal (IC Data)	Off
Solenoid return current terminal disconnection signal (IC Data)	Off
Solenoid overcurrent signal (IC Data)	Off
Solenoid load leakage signal (IC Data)	Off
Solenoid load open/short to ground signal (IC Data)	On

C121F (Case 3)

Either of the following conditions is met	-
Brake pressure control solenoid current monitor value	0.1 A or higher
Solenoid GND terminal disconnection signal (IC Data)	Off
Solenoid driver overtemperature signal (IC Data)	Off
Solenoid return current terminal disconnection signal (IC Data)	Off
Solenoid overcurrent signal (IC Data)	Off
Solenoid load leakage signal (IC Data)	Off
Solenoid load open/short to ground signal (IC Data)	On

C121F (Case 4)

ASIC Q&A malfunction	Not detected

C14F3 (Case 1), C14FC (Case 1), C1509 (Case 1) and C150F (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

C14F3 (Case 2), C14FC (Case 2), C1509 (Case 2) and C150F (Case 2)

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

C14F3 (Case 3), C14FC (Case 3), C1509 (Case 3) and C150F (Case 3)

Either of the following conditions is met	-
Solenoid return current terminal disconnection signal (IC Data)	On
Solenoid GND terminal disconnection signal (IC Data)	On
Solenoid load open/short to ground signal (IC Data)	On

C14F3 (Case 4), C14FC (Case 4), C1509 (Case 4) and C150F (Case 4)

Either of the following conditions is met	-
Brake pressure control solenoid current monitor value	Less than 0.25

Brake pressure control solenoid target current value	Less than 0.25

C14F3 (Case 5), C14FC (Case 5), C1509 (Case 5) and C150F (Case 5)

Brake pressure control solenoid current monitor value	0.038 A or less

C14F4 (Case 1), C14FD (Case 1), C150A (Case 1) and C1510 (Case 1)

Brake pressure control solenoid current monitor value	Higher than 0.1 A

C14F4 (Case 2), C14FD (Case 2), C150A (Case 2) and C1510 (Case 2)

Brake pressure control solenoid current monitor value	0.1 A or higher

C14F4 (Case 3 and 5), C14FD (Case 3 and 5), C150A (Case 3 and 5) and C1510 (Case 3 and 5)

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

C14F4 (Case 4 and 6), C14FD (Case 4 and 6), C150A (Case 4 and 6) and C1510 (Case 4 and 6)

Solenoid load leakage signal (IC Data)	On

C14F4 (Case 7), C14FD (Case 7), C150A (Case 7) and C1510 (Case 7)

Either of the following conditions is met	A, B or C
A. Both of the following conditions are met	More than 0.054 seconds
Brake pressure control solenoid target current value	0.348 A or higher
Brake pressure control solenoid current monitor value	More than 2
B. Both of the following conditions are met	More than 0.054 seconds
Brake pressure control solenoid target current value	0.348 A or higher
Brake pressure control solenoid target current value	More than 2
C. Both of the following conditions are met	More than 0.054 seconds
Brake pressure control solenoid target current value	Below 0.348 A
Brake pressure control solenoid current monitor value	Higher than 0.696 A

C14F4 (Case 8), C14FD (Case 8), C150A (Case 8) and C1510 (Case 8)

Brake pressure control solenoid current monitor value	0.3 A or higher

COMPONENT OPERATING RANGE

C121F

Either of the following conditions is met	A, B, C and D

A. All of the following conditions are met	a, b, c, d, e, f, g, h and i
a. Both of the following conditions are met	More than 0.198 seconds
+BS cut MOS	Valid
+BS cut MOS voltage	Higher than 7.4 V
b. Both of the following conditions are met	More than 0.198 seconds
+BS cut MOS	Valid
+BS cut MOS voltage	Below 23.2 V
c. Premain	Finished
d. Final check	Finished
e. BM voltage	7.1 V or higher
f. Brake system voltage fail (C12FA, C12FB)	Not detected
g. Brake pressure control solenoid fail (C14F3, C14F4, C14FC, C14FD, C1509, C150A, C150F, C1510)	Not detected
h. Brake booster motor fail (C12BF, C13BB)	Not detected
i. Following condition is met	More than 1 second
Charge pump low voltage detection signal (IC Data)	Off
B. All of the following conditions are met	a, b, c, d, e, f, g, h, I, j and k
a. Either of the following conditions is met	-
ECU status	Premain
ECU status	Final check
b. Command to main relay	On
c. ASIC output permission	Off
d. BS voltage	0.42 x VM1 V or higher
e. ASIC ERRIN malfunction	Detected
f. Solenoid GND terminal disconnection signal (IC Data)	On
g. Solenoid driver overtemperature signal (IC Data)	On
h. Solenoid return current terminal disconnection signal (IC Data)	On
i. Solenoid overcurrent signal (IC Data)	On
j. Solenoid load leakage signal (IC Data)	On
k. Solenoid load open/short to ground signal (IC Data)	Off
C. All of the following conditions are met	a, b, c, d, e, f, g, h, I, j k. l and m
a. Either of the following conditions is met	-
ECU status	Premain
ECU status	Final check
b. Command to main relay	On

c. ASIC output permission	Off
d. Brake pressure control solenoid target current value	0.15 A
e. BS voltage	0.42 x VM1 V or higher
f. BS (linear) voltage	9.5 V or higher
g. Brake pressure control solenoid current monitor value	Below 0.1 A
h. Solenoid GND terminal disconnection signal (IC Data)	On
i. Solenoid driver overtemperature signal (IC Data)	On
j. Solenoid return current terminal disconnection signal (IC Data)	On
k. Solenoid overcurrent signal (IC Data)	On
l. Solenoid load leakage signal (IC Data)	On
m. Solenoid load open/short to ground signal (IC Data)	Off
D. All of the following conditions are met	a, b, c, d and e
a. Either of the following conditions is met	-
ECU status	Premain
ECU status	Final check
b. Command to main relay	Off
c. ASIC output permission	Off
d. ASIC Q&A	Wrong answer
e. ASIC Q&A malfunction	Detected

C14F3 (Case 1), C14FC (Case 1), C1509 (Case 1) and C150F (Case 1)

All of the following conditions are met	-
Premain	Finished
Final check	Finished
BM voltage	7.1 V or higher
Brake pressure control solenoid fail (C14F3, C14F4, C14FC, C14FD, C1509, C150A, C150F, C1510)	Not detected
Brake system voltage fail (C12FA, C12FB)	Not detected
BSCM2 fail (C121F)	Not detected
Brake booster motor fail (C12BF, C13BB)	Not detected
Solenoid return current terminal disconnection signal (IC Data)	Off
Solenoid GND terminal disconnection signal (IC Data)	Off

C14F3 (Case 2), C14FC (Case 2), C1509 (Case 2) and C150F (Case 2)

All of the following conditions are met	-
Premain	Finished
Final check	Finished
BM voltage	7.1 V or higher

Brake pressure control solenoid fail (C14F3, C14F4, C14FC, C14FD, C1509, C150A, C150F, C1510)	Not detected
Brake system voltage fail (C12FA, C12FB)	Not detected
BSCM2 fail (C121F)	Not detected
Brake booster motor fail (C12BF, C13BB)	Not detected
Solenoid load open/short to ground signal (IC Data)	Off

C14F3 (Case 3), C14FC (Case 3), C1509 (Case 3) and C150F (Case 3)

All of the following conditions are met	-
ECU status	Final check
Command to main relay	On
BS voltage	0.42 x VM1 V or higher
Brake pressure control solenoid target current value	0 A
BS(linear) voltage	9.5 V or higher
Premain	Finished
Final check	Finished
BM voltage	7.1 V or higher
Brake pressure control solenoid fail (C14F3, C14F4, C14FC, C14FD, C1509, C150A, C150F, C1510)	Not detected
Brake system voltage fail (C12FA, C12FB)	Not detected
BSCM2 fail (C121F)	Not detected
Brake booster motor fail (C12BF, C13BB)	Not detected
Solenoid return current terminal disconnection signal (IC Data)	Off
Solenoid GND terminal disconnection signal (IC Data)	Off
Solenoid load open/short to ground signal (IC Data)	Off

C14F3 (Case 4), C14FC (Case 4), C1509 (Case 4) and C150F (Case 4)

All of the following conditions are met	-
ECU status	Final check
Command to main relay	On
BS voltage	0.42 x VM1 V or higher
Brake pressure control solenoid target current value	0 A
BS(linear) voltage	9.5 V or higher
Premain	Finished
Final check	Finished
BM voltage	7.1 V or higher

Brake pressure control solenoid fail (C14F3, C14F4, C14FC, C14FD, C1509, C150A, C150F, C1510)	Not detected
Brake system voltage fail (C12FA, C12FB)	Not detected
BSCM2 fail (C121F)	Not detected
Brake booster motor fail (C12BF, C13BB)	Not detected
Brake pressure control solenoid current monitor value	0.25 or more
Brake pressure control solenoid target current value	0.25 or more

C14F3 (Case 5), C14FC (Case 5), C1509 (Case 5) and C150F (Case 5)

All of the following conditions are met	-
ECU status	Final check
Command to main relay	On
BS voltage	0.42 x VM1 V or higher
Brake pressure control solenoid target current value	0.15 A
BS(linear) voltage	9.5 V or higher
Premain	Finished
Final check	Finished
BM voltage	7.1 V or higher
Brake system voltage fail (C12FA, C12FB)	Not detected
Brake pressure control solenoid fail (C14F3, C14F4, C14FC, C14FD, C1509, C150A, C150F, C1510)	Not detected
BSCM2 fail (C121F)	Not detected
Brake booster motor fail (C12BF, C13BB)	Not detected
Brake pressure control solenoid current monitor value	Higher than 0.038 A

C14F4 (Case 1), C14FD (Case 1), C150A (Case 1) and C1510 (Case 1)

All of the following conditions are met	-
Premain	Finished
Final check	Finished
BM voltage	7.1 V or higher
Brake system voltage fail (C12FA, C12FB)	Not detected
Brake pressure control solenoid fail (C14F3, C14F4, C14FC, C14FD, C1509, C150A, C150F, C1510)	Not detected
BSCM2 fail (C121F)	Not detected
Brake booster motor fail (C12BF, C13BB)	Not detected
Brake pressure control solenoid current monitor value	0.1 A or less

C14F4 (Case 2), C14FD (Case 2), C150A (Case 2) and C1510 (Case 2)

All of the following conditions are met	A, B, C, D, E, F, G, H, I, J, K, L and M
A. Either of the following conditions is met	-
ECU status	Premain
ECU status	Final check
B. Command to main relay	On
C. BS voltage	0.42 x VM1 V or higher
D. Brake pressure control solenoid target current value	0.0007 A
E. Command to main relay	9.5 V or higher
F. Premain	Finished
G. Final check	Finished
H. BM voltage	7.1 V or higher
I. Brake system voltage fail (C12FA, C12FB)	Not detected
J. Brake pressure control solenoid fail (C14F3, C14F4, C14FC, C14FD, C1509, C150A, C150F, C1510)	Not detected
K. BSCM2 fail (C121F)	Not detected
L. Brake booster motor fail (C12BF, C13BB)	Not detected
M. Brake pressure control solenoid current monitor value	Below 0.1 A

C14F4 (Case 3 and 5), C14FD (Case 3 and 5), C150A (Case 3 and 5) and C1510 (Case 3 and 5)

All of the following conditions are met	-
Premain	Finished
Final check	Finished
BM voltage	7.1 V or higher
Brake system voltage fail (C12FA, C12FB)	Not detected
Brake pressure control solenoid fail (C14F3, C14F4, C14FC, C14FD, C1509, C150A, C150F, C1510)	Not detected
BSCM2 fail (C121F)	Not detected
Brake booster motor fail (C12BF, C13BB)	Not detected
Solenoid overcurrent signal (IC Data)	Off
Solenoid driver overtemperature signal (IC Data)	Off

C14F4 (Case 4), C14FD (Case 4), C150A (Case 4) and C1510 (Case 4)

All of the following conditions are met	-
Premain	Finished
Final check	Finished
BM voltage	7.1 V or higher
Brake system voltage fail (C12FA, C12FB)	Not detected

Brake pressure control solenoid fail (C14F3, C14F4, C14FC, C14FD, C1509, C150A, C150F, C1510)	Not detected
BSCM2 fail (C121F)	Not detected
Brake booster motor fail (C12BF, C13BB)	Not detected
Solenoid load leakage signal (IC Data)	Off

C14F4 (Case 6), C14FD (Case 6), C150A (Case 6) and C1510 (Case 6)

All of the following conditions are met	-
ECU status	Final check
Command to main relay	On
BS voltage	0.42 x VM1 V or higher
Brake pressure control solenoid target current value	0 A
Solenoid load open/short to ground signal (IC Data)	Off
BS (linear) voltage	9.5 V or higher
Premain	Finished
Final check	Finished
BM voltage	7.1 V or higher
Brake system voltage fail (C12FA, C12FB)	Not detected
Brake pressure control solenoid fail (C14F3, C14F4, C14FC, C14FD, C1509, C150A, C150F, C1510)	Not detected
BSCM2 fail (C121F)	Not detected
Brake booster motor fail (C12BF, C13BB)	Not detected
Solenoid load leakage signal (IC Data)	Off

C14F4 (Case 7), C14FD (Case 7), C150A (Case 7) and C1510 (Case 7)

All of the following conditions are met	A, B, C, D, E, F G, H and I
A. Premain	Finished
B. Final check	Finished
C. BM voltage	7.1 V or higher
D. Brake system voltage fail (C12FA, C12FB)	Not detected
E. Brake pressure control solenoid fail (C14F3, C14F4, C14FC, C14FD, C1509, C150A, C150F, C1510)	Not detected
F. BSCM2 fail (C121F)	Not detected
G. Brake booster motor fail (C12BF, C13BB)	Not detected
H. All of the following conditions are met	-
Brake pressure control solenoid target current value	0.348 A or higher
Brake pressure control solenoid current monitor value	2 or less

Brake pressure control solenoid target current value	2 or less
I. Both of the following conditions are met	-
Brake pressure control solenoid target current value	Below 0.348 A
Brake pressure control solenoid current monitor value	0.696 A or less

C14F4 (Case 8), C14FD (Case 8), C150A (Case 8) and C1510 (Case 8)

All of the following conditions are met	-
ECU status	Final check
Command to main relay	On
BS voltage	0.42 x VM1 V or higher
Brake pressure control solenoid target current value	0.15 A
BS (linear) voltage	9.5 V or higher
Premain	Finished
Final check	Finished
BM voltage	7.1 V or higher
Brake system voltage fail (C12FA, C12FB)	Not detected
Brake pressure control solenoid fail (C14F3, C14F4, C14FC, C14FD, C1509, C150A, C150F, C1510)	Not detected
BSCM2 fail (C121F)	Not detected
Brake booster motor fail (C12BF, C13BB)	Not detected
Brake pressure control solenoid current monitor value	Below 0.3 A

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. Depress the brake pedal 1 or more times. [*]

HINT:

[*]: Normal judgment procedure.

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

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

*: Electric Parking Brake System

8. 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.	**CHECK DTC**

(a) Check the DTCs that are output.

Chassis > Brake Booster > Trouble Codes

Chassis > Brake/EPB > Trouble Codes

HINT:

If a DTC for undervoltage is output, first troubleshoot the power source system.

RESULT	PROCEED TO
DTCs C121F49, C14F112, C14F114, C14F118, C14F119, C14F11D, C14FA12, C14FA14, C14FA18, C14FA19, C14FA1D, C150712, C150714, C150718, C150719, C15071D, C150D12, C150D14, C150D18, C150D19 and C150D1D are not output.	A
A DTC related to low voltage is output.	B
DTCs C121F49, C14F112, C14F114, C14F118, C14F119, C14F11D, C14FA12, C14FA14, C14FA18, C14FA19, C14FA1D, C150712, C150714, C150718, C150719, C15071D, C150D12, C150D14, C150D18, C150D19 and/or C150D1D are output.	C

A ▶ **USE SIMULATION METHOD TO CHECK**

B ▶ **REPAIR CIRCUITS INDICATED BY OUTPUT DTCS**

C ▶ **REPLACE BRAKE BOOSTER WITH MASTER CYLINDER ASSEMBLY**

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