

Last Modified: 11-27-2007		1.6 J
Service Category: Power Source/Network	Section: Networking	
Model Year: 2008	Model: LX570	Doc ID: RM000002L7Z00EX
Title: NETWORKING: CAN COMMUNICATION SYSTEM: DESCRIPTION (2008 LX570)		

Short in CAN Bus Lines

DESCRIPTION

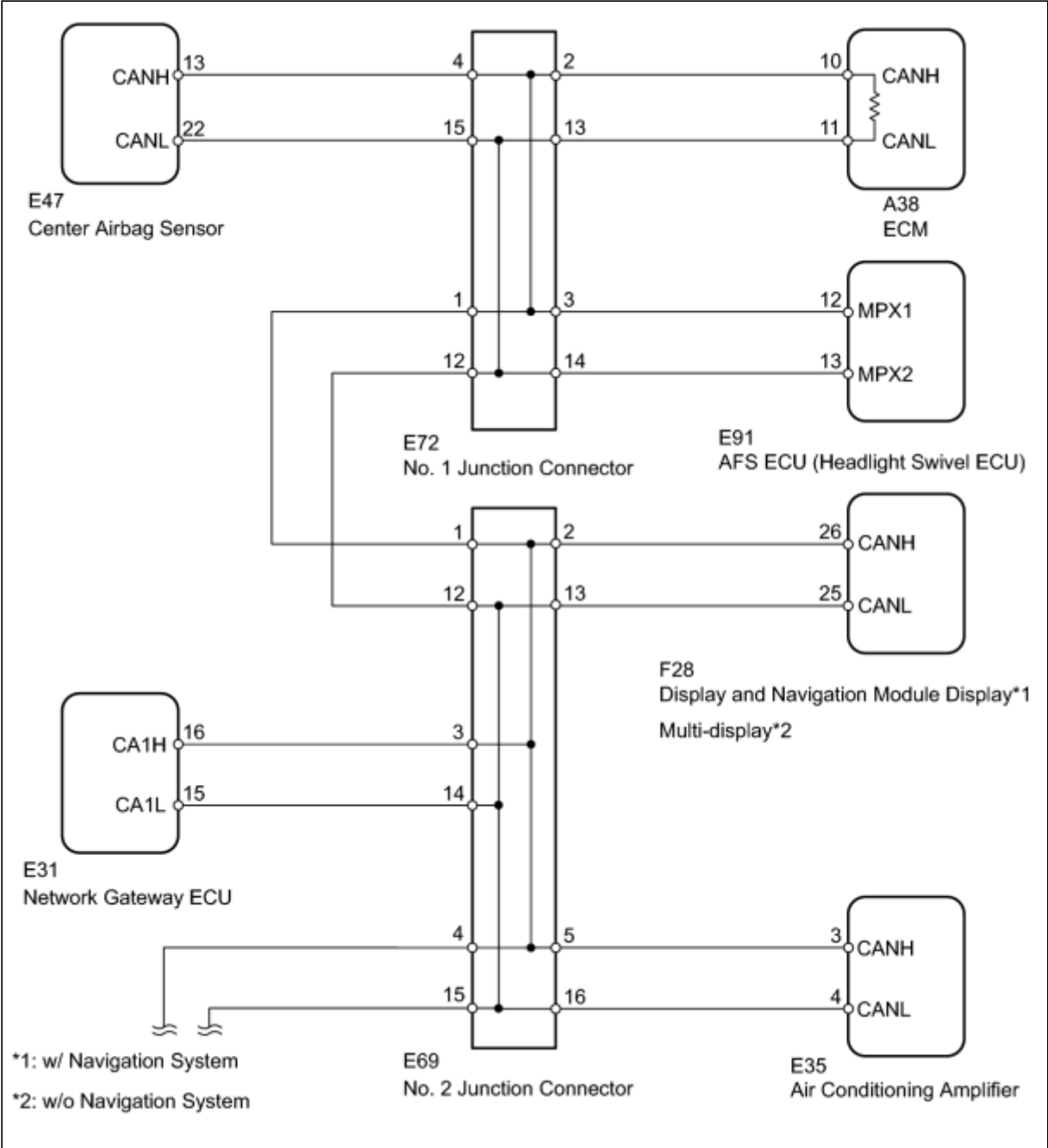
There may be a short circuit between the CAN bus lines when the resistance between terminals 6 (CANH) and 14 (CANL) of the DLC3 is below 54 Ω.

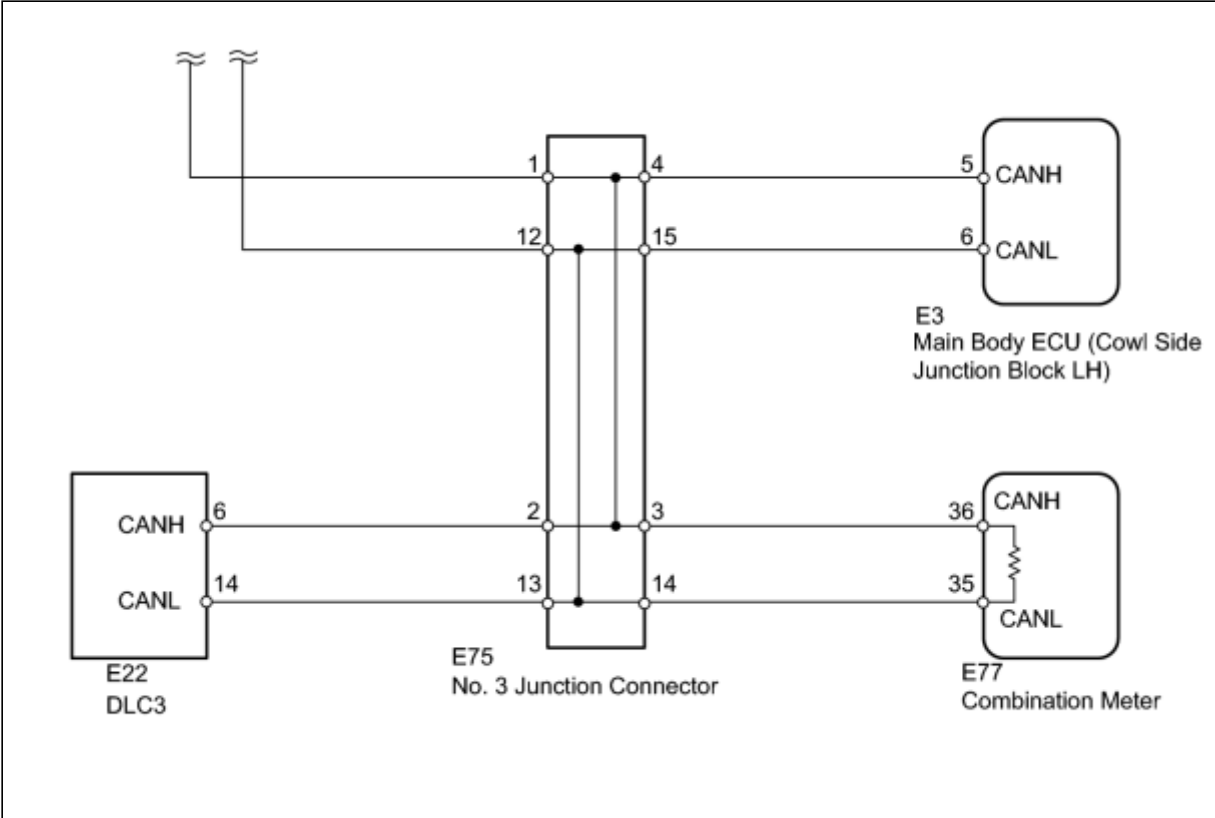
SYMPTOM	TROUBLE AREA
Resistance between terminals 6 (CANH) and 14 (CANL) of the DLC3 is below 54 Ω.	• Short between CAN bus lines • ECM • Center airbag sensor assembly • Display and navigation module display*1 • Multi-display*2 • AFS ECU (headlight swivel ECU assembly) • Air conditioning amplifier assembly • Network gateway ECU • Main body ECU (cowl side junction block LH) • Combination meter assembly • No. 1 junction connector • No. 2 junction connector • No. 3 junction connector

*1: w/ Navigation System

*2: w/o Navigation System

WIRING DIAGRAM





INSPECTION PROCEDURE

HINT:

Operating the engine switch, any switches or any doors triggers related ECU and sensor communication with the CAN, which causes resistance variation.

PROCEDURE

1.	DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
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(a) Disconnect the cable from the negative (-) battery terminal before measuring the resistances of the main wire and the branch wire.

CAUTION:

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

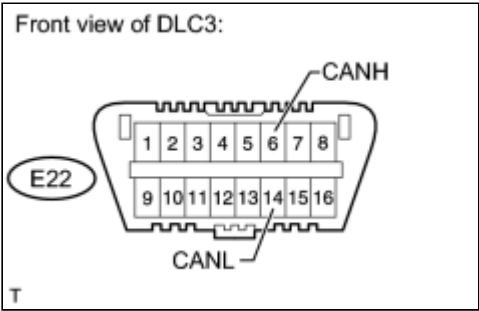
NOTICE:

- w/ Navigation System:
After the engine switch is turned off, the HDD navigation system requires approximately 6 minutes to record various types of memory and settings. As a result, after turning the engine switch off, wait 6 minutes or more before disconnecting the cable from the negative (-) battery terminal.
- When disconnecting the cable, some systems need to be initialized after the cable is reconnected INFO.

NEXT
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2.

CHECK FOR SHORT IN CAN BUS WIRES (DLC3 BRANCH WIRE)



(a) Disconnect the E75 No. 3 junction connector connector.

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

Result

TESTER CONNECTION	SWITCH CONDITION	MEASURED RESISTANCE	PROCEED TO
E22-6 (CANH) - E22-14 (CANL)	Engine switch off	1 Ω or higher	OK
		Below 1 Ω	NG

OK

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3.

CONNECT CONNECTOR

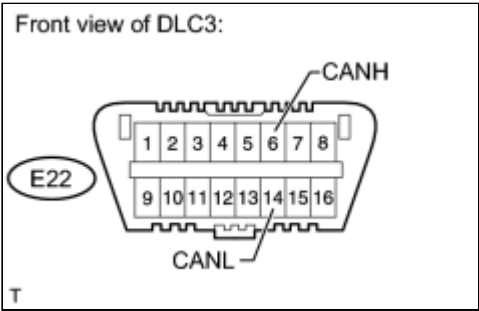
(a) Reconnect the E75 No. 3 junction connector connector.

NEXT

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4.

CHECK FOR SHORT IN CAN BUS WIRES (NO. 1 JUNCTION CONNECTOR SIDE)



(a) Disconnect the E72 No. 1 junction connector connector.

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

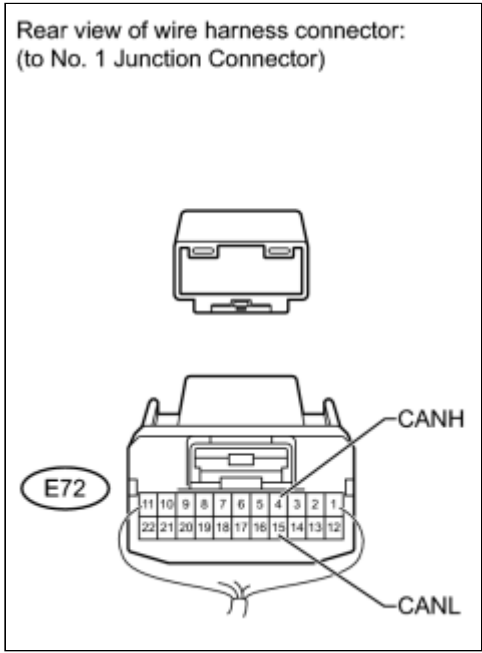
Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E22-6 (CANH) - E22-14 (CANL)	Engine switch off	108 to 132 Ω

OK

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5.	CHECK FOR SHORT IN CAN BUS WIRES (NO. 1 JUNCTION CONNECTOR - CENTER AIRBAG SENSOR)
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(a) Measure the resistance according to the value(s) in the table below.

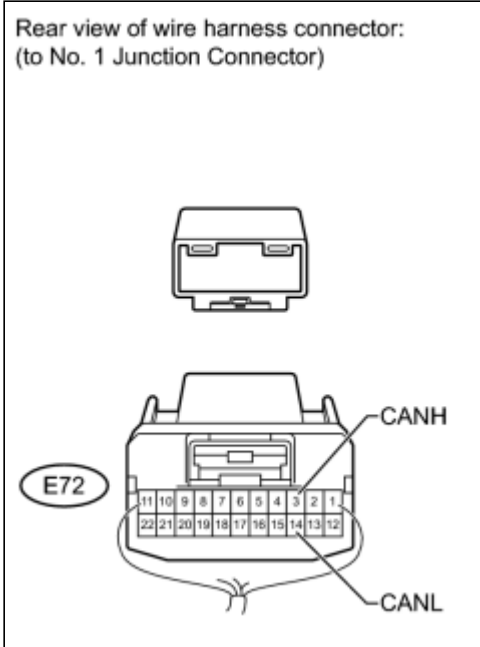
Result

TESTER CONNECTION	SWITCH CONDITION	MEASURED RESISTANCE	PROCEED TO
E72-4 (CANH) - E72-15 (CANL)	Engine switch off	1 Ω or higher	OK
		Below 1 Ω	NG

OK

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6.	CHECK FOR SHORT IN CAN BUS WIRES (NO. 1 JUNCTION CONNECTOR - AFS ECU)
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(a) Measure the resistance according to the value(s) in the table below.

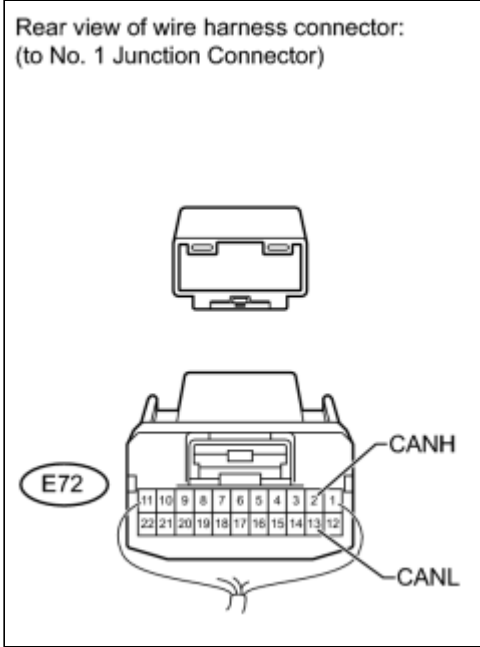
Result

TESTER CONNECTION	SWITCH CONDITION	MEASURED RESISTANCE	PROCEED TO
E72-3 (CANH) - E72-14 (CANL)	Engine switch off	1 Ω or higher	OK
		Below 1 Ω	NG

OK



7. CHECK FOR SHORT IN CAN BUS WIRES (NO. 1 JUNCTION CONNECTOR - ECM)



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

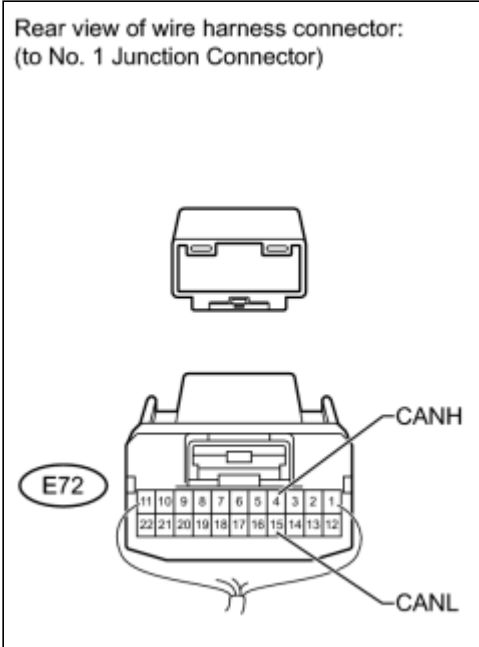
Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E72-2 (CANH) - E72-13 (CANL)	Engine switch off	108 to 132 Ω

OK



8. CHECK FOR SHORT IN CAN BUS WIRES (CENTER AIRBAG SENSOR)



(a) Disconnect the E47 center airbag sensor connector.

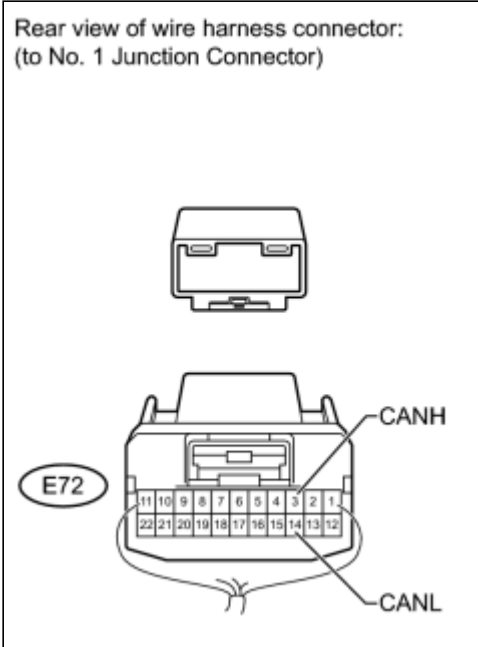
(b) Measure the resistance according to the value(s) in the table below.

Result

TESTER CONNECTION	SWITCH CONDITION	MEASURED RESISTANCE	PROCEED TO
E72-4 (CANH) - E72-15 (CANL)	Engine switch off	1 Ω or higher	OK
		Below 1 Ω	NG

OK
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9.	CHECK FOR SHORT IN CAN BUS WIRES (AFS ECU)
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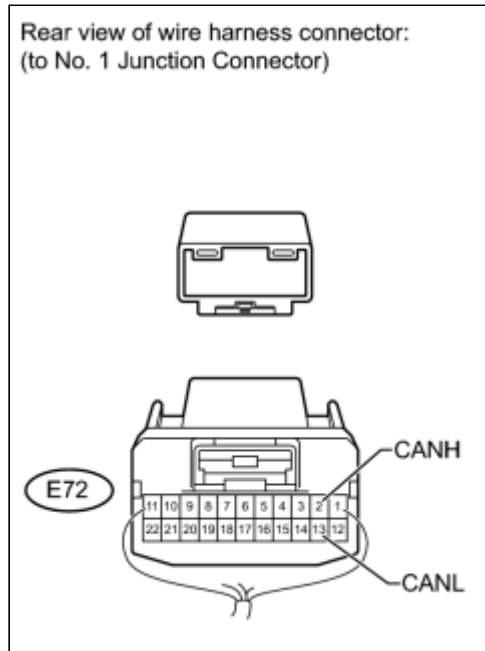
- (a) Disconnect the E91 AFS ECU (headlight swivel ECU) connector.
- (b) Measure the resistance according to the value(s) in the table below.

Result

TESTER CONNECTION	SWITCH CONDITION	MEASURED RESISTANCE	PROCEED TO
E72-3 (CANH) - E72-14 (CANL)	Engine switch off	1 Ω or higher	OK
		Below 1 Ω	NG

OK
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10. CHECK FOR SHORT IN CAN BUS WIRES (ECM)



- (a) Disconnect the A38 ECM connector.

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

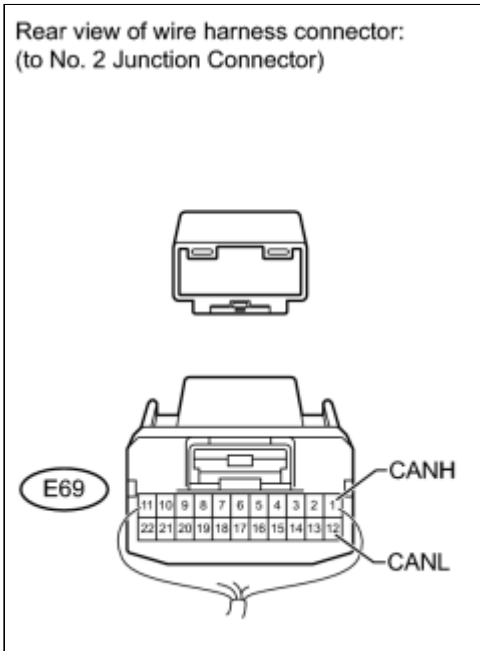
Result

TESTER CONNECTION	SWITCH CONDITION	MEASURED RESISTANCE	PROCEED TO
E72-2 (CANH) - E72-13 (CANL)	Engine switch off	1 Ω or higher	OK
		Below 1 Ω	NG

OK

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11.	CHECK FOR SHORT IN CAN BUS WIRES (NO. 1 JUNCTION CONNECTOR - NO. 2 JUNCTION CONNECTOR)
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(a) Disconnect the E69 No. 2 junction connector connector.

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

Result

TESTER CONNECTION	SWITCH CONDITION	MEASURED RESISTANCE	PROCEED TO
E69-1 (CANH) - E69-12 (CANL)	Engine switch off	1 Ω or higher	OK
		Below 1 Ω	NG

OK

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12.	CONNECT CONNECTOR
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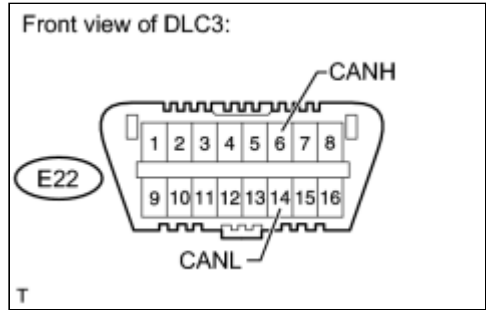
(a) Reconnect the E72 No. 1 junction connector connector.

NEXT

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13.

CHECK FOR SHORT IN CAN BUS WIRES (NO. 2 JUNCTION CONNECTOR SIDE)



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

Standard Resistance:

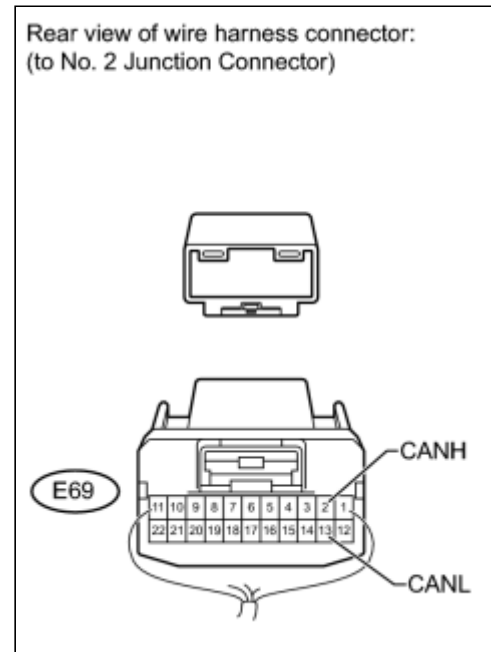
TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E22-6 (CANH) - E22-14 (CANL)	Engine switch off	108 to 132 Ω

OK

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14.

CHECK FOR SHORT IN CAN BUS WIRES (NO. 2 JUNCTION CONNECTOR - DISPLAY AND NAVIGATION MODULE DISPLAY OR MULTI-DISPLAY)



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

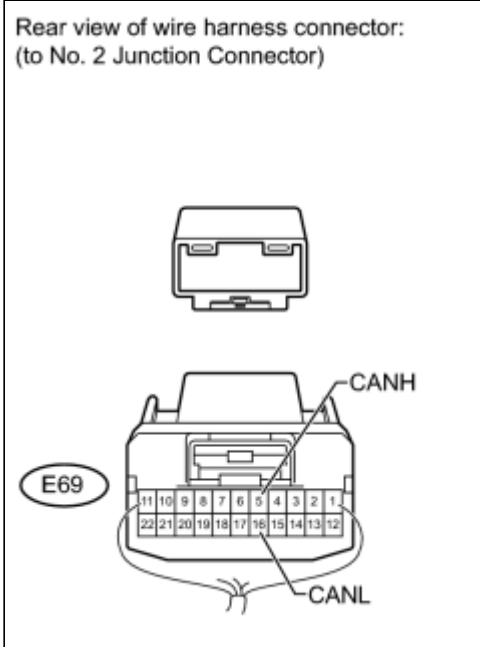
Result

TESTER CONNECTION	SWITCH CONDITION	MEASURED RESISTANCE	PROCEED TO
E69-2 (CANH) - E62-13 (CANL)	Engine switch off	1 Ω or higher	OK
		Below 1 Ω	NG

OK



15.	CHECK FOR SHORT IN CAN BUS WIRES (NO. 2 JUNCTION CONNECTOR - AIR CONDITIONING AMPLIFIER)
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(a) Measure the resistance according to the value(s) in the table below.

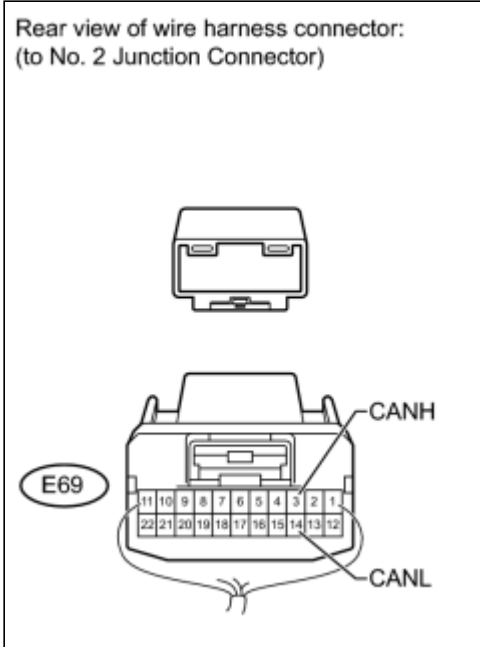
Result

TESTER CONNECTION	SWITCH CONDITION	MEASURED RESISTANCE	PROCEED TO
E69-5 (CANH) - E69-16 (CANL)	Engine switch off	1 Ω or higher	OK
		Below 1 Ω	NG

OK



16.	CHECK FOR SHORT IN CAN BUS WIRES (NO. 2 JUNCTION CONNECTOR - NETWORK GATEWAY ECU)
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(a) Measure the resistance according to the value(s) in the table below.

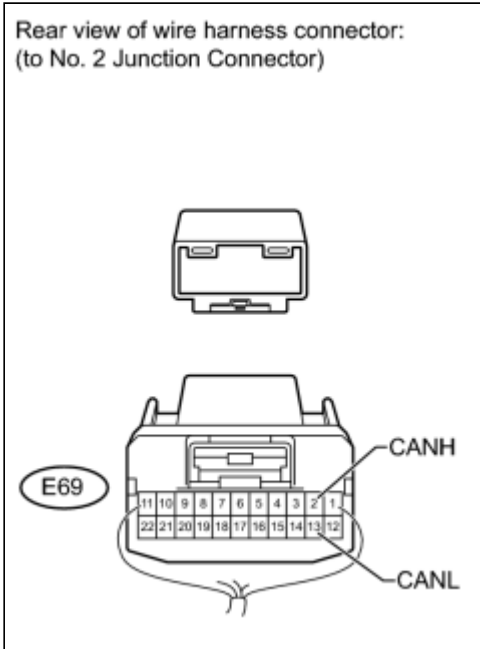
Result

TESTER CONNECTION	SWITCH CONDITION	MEASURED RESISTANCE	PROCEED TO
E69-3 (CANH) - E69-14 (CANL)	Engine switch off	1 Ω or higher	OK
		Below 1 Ω	NG

OK



17.	CHECK FOR SHORT IN CAN BUS WIRES (DISPLAY AND NAVIGATION MODULE DISPLAY OR MULTI-DISPLAY)
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(a) Disconnect the F28 display and navigation module display*1 or multi-display*2 connector.

*1: w/ Navigation System

*2: w/o Navigation System

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

Result

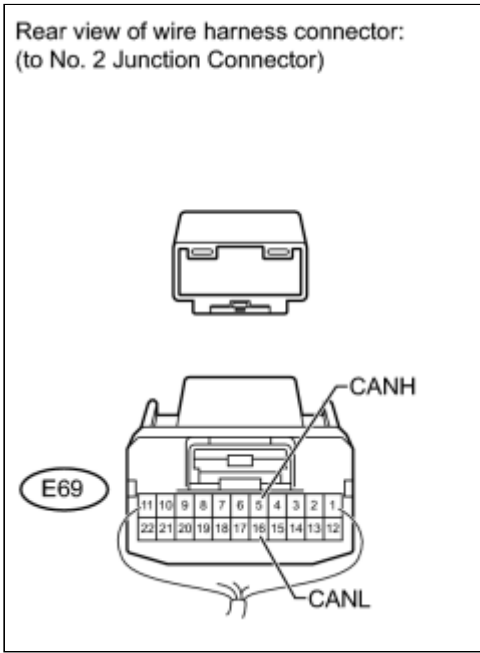
TESTER CONNECTION	SWITCH CONDITION	MEASURED RESISTANCE	RESULT	TYPE	PROCEED TO
E69-2 (CANH) - E69-13 (CANL)	Engine switch off	1 Ω or higher	OK	w/ Navigation System	A

TESTER CONNECTION	SWITCH CONDITION	MEASURED RESISTANCE	RESULT	TYPE	PROCEED TO
				w/o Navigation System	B
		Below 1 Ω	NG	-	C

A



18. CHECK FOR SHORT IN CAN BUS WIRES (AIR CONDITIONING AMPLIFIER)



(a) Disconnect the E35 air conditioning amplifier connector.

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

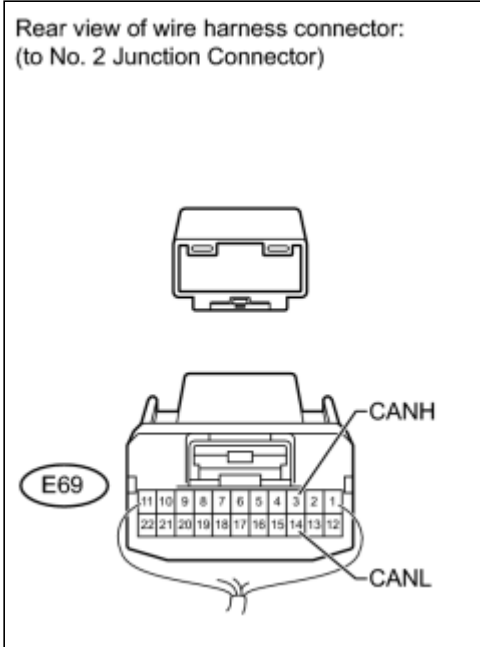
Result

TESTER CONNECTION	SWITCH CONDITION	MEASURED RESISTANCE	RESULT
E69-5 (CANH) - E69-16 (CANL)	Engine switch off	1 Ω or higher	OK
		Below 1 Ω	NG

OK



19. CHECK FOR SHORT IN CAN BUS WIRES (NETWORK GATEWAY ECU)



(a) Disconnect the E31 network gateway ECU connector.

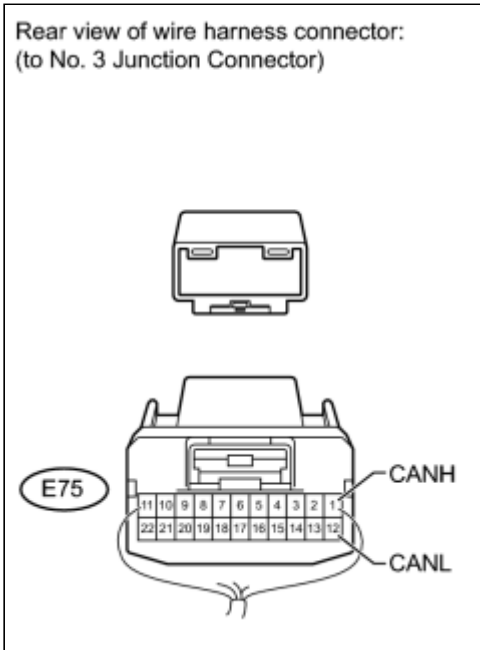
(b) Measure the resistance according to the value(s) in the table below.

Result

TESTER CONNECTION	SWITCH CONDITION	MEASURED RESISTANCE	PROCEED TO
E69-3 (CANH) - E69-14 (CANL)	Engine switch off	1 Ω or higher	OK
		Below 1 Ω	NG

OK
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20.	CHECK FOR SHORT IN CAN BUS WIRES (NO. 2 JUNCTION CONNECTOR - NO. 3 JUNCTION CONNECTOR)
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(a) Disconnect the E75 No. 3 junction connector connector.

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

Result

TESTER CONNECTION	SWITCH CONDITION	MEASURED RESISTANCE	PROCEED TO
E75-1 (CANH) - E75-12 (CANL)	Engine switch off	1 Ω or higher	OK
		Below 1 Ω	NG

OK

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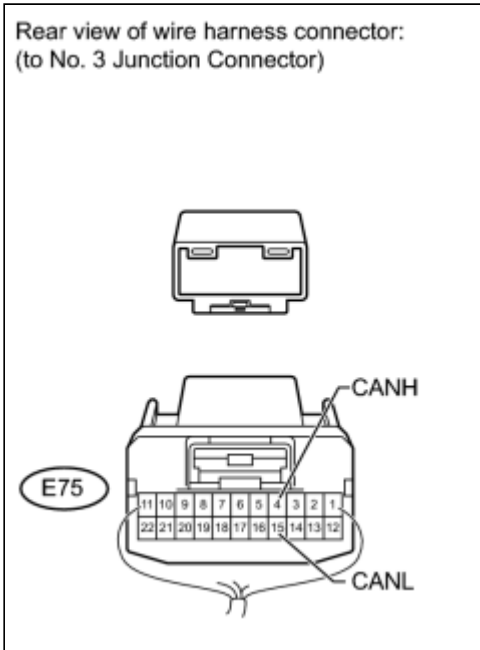
21.	CONNECT CONNECTOR
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(a) Reconnect the E69 No. 2 junction connector connector.

NEXT

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22.	CHECK FOR SHORT IN CAN BUS WIRES (NO. 3 JUNCTION CONNECTOR - MAIN BODY ECU)
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(a) Measure the resistance according to the value(s) in the table below.

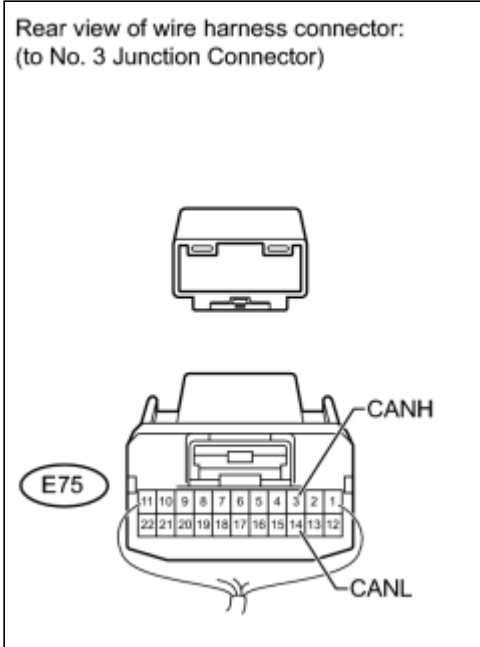
Result

TESTER CONNECTION	SWITCH CONDITION	MEASURED RESISTANCE	PROCEED TO
E75-4 (CANH) - E75-15 (CANL)	Engine switch off	1 Ω or higher	OK
		Below 1 Ω	NG

OK

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23.	CHECK FOR SHORT IN CAN BUS WIRES (NO. 3 JUNCTION CONNECTOR - COMBINATION METER)
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(a) Measure the resistance according to the value(s) in the table below.

Result

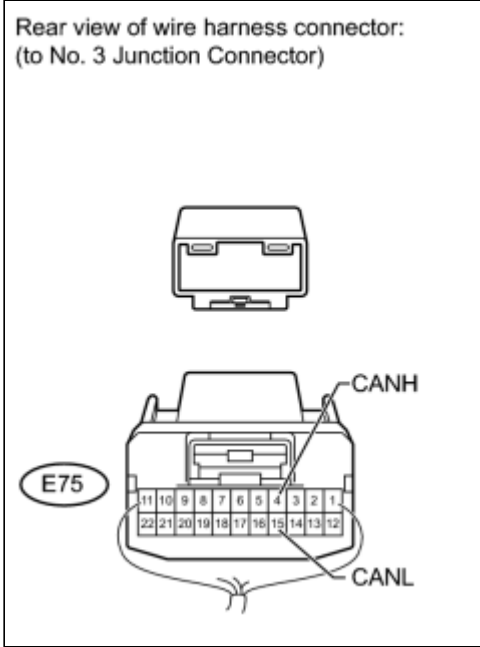
TESTER CONNECTION	SWITCH CONDITION	MEASURED RESISTANCE	PROCEED TO
E75-3 (CANH) - E75-14 (CANL)	Engine switch off	1 Ω or higher	OK
		Below 1 Ω	NG

OK



24.

CHECK FOR SHORT IN CAN BUS WIRES (MAIN BODY ECU)



(a) Disconnect the E3 main body ECU (cowl side junction block LH) connector.

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

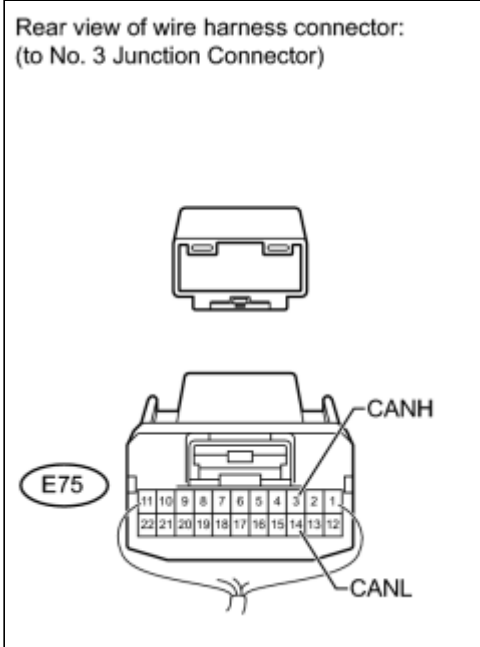
Result

TESTER CONNECTION	SWITCH CONDITION	MEASURED RESISTANCE	PROCEED TO
E75-4 (CANH) - E75-15 (CANL)	Engine switch off	1 Ω or higher	OK
		Below 1 Ω	NG

OK



25. CHECK FOR SHORT IN CAN BUS WIRES (COMBINATION METER)



(a) Disconnect the E77 combination meter connector.

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

Result

TESTER CONNECTION	SWITCH CONDITION	MEASURED RESISTANCE	PROCEED TO
E75-3 (CANH) - E75-14 (CANL)	Engine switch off	1 Ω or higher	OK
		Below 1 Ω	NG

OK

