

DRL Relay Circuit

DESCRIPTION

The multiplex network body ECU controls the DIMMER, DRL No. 2 and DRL No. 4 relays.

The DIM, DRL No. 2 and DRL No. 4 relays installed in the power distributor.

1. Description (See page [LI-9](#))

1 PERFORM ACTIVE TEST BY INTELLIGENT TESTER

- (a) Connect the intelligent tester to DLC3.
- (b) Turn the ignition switch ON and push the intelligent tester main switch ON.
- (c) Select the item below in the ACTIVE TEST and then check that the relay operates.

BODY NO. 1

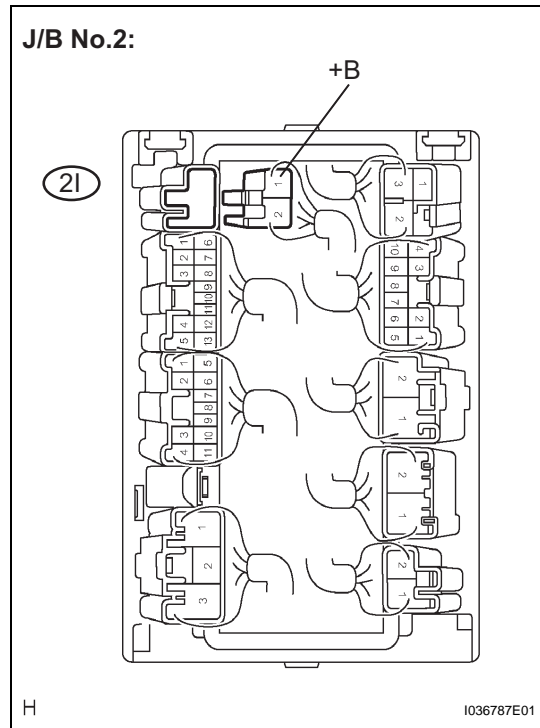
Item	Test Details	Diagnostic Note
DIMMER SIG	Turn DRL No.2 and No.4 relays ON/OFF	w/ DRL
DIMMER SIG	Turn Dimmer relay ON/OFF	w/o DRL

NG → **Go to step 2**

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

2 CHECK HARNESS AND CONNECTOR (POWER SOURCE CIRCUIT)



- (a) Disconnect the connector from the J/B No.2 (power distributor).
- (b) Measure the voltage according to the value(s) in the table below.

Voltage

Tester connection	Condition	Specified value
21 - 1 (+B) - Body ground	Always	10 to 14 V

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

3 CONFIRM MODEL

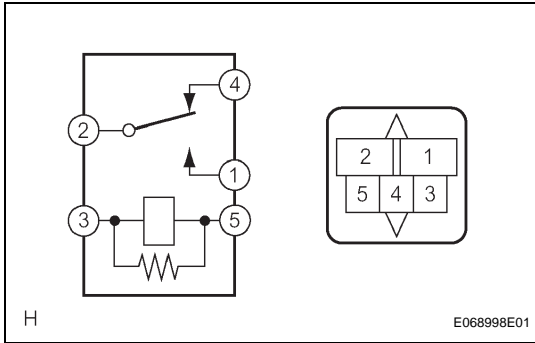
Result:
A:
 w/ DRL
B:

w/o DRL

B Go to step 14

A

4 INSPECT DAY TIME RUNNING LIGHT RELAY NO.3 (DRL NO. 3 RELAY)



- (a) Inspect DRL relay continuity.
 (1) Check the resistance between the each of the terminals as shown in the table below.

Resistance

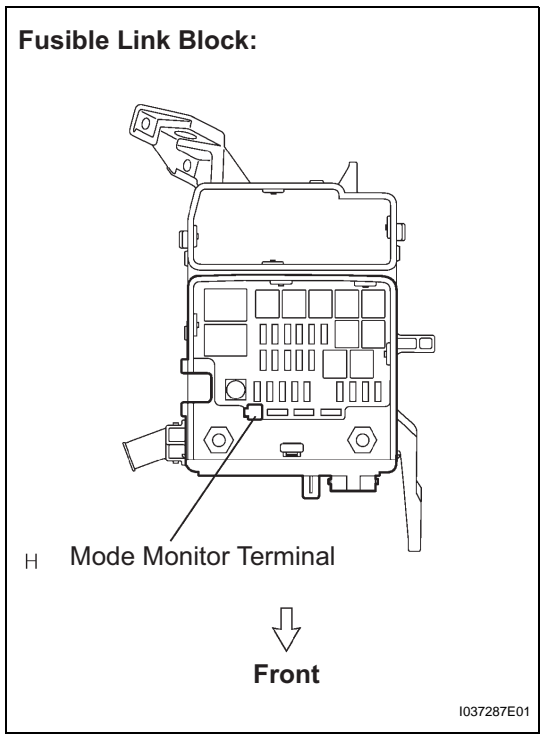
Terminal No.	Specified condition
1 - 2	10 kΩ or higher
	Below 1 Ω (When battery voltage is applied to terminals 3 and 5)
2 - 4	Below 1 Ω
	10 kΩ or higher (When battery voltage is applied to terminals 3 and 5)

NG REPLACE DAY TIME RUNNING LIGHT RELAY NO.3

OK

5 CHECK MODE MONITOR TERMINAL (DRL NO. 2, DRL NO. 4 RELAY)

- (a) Preparation
- (1) Connect the connector.
 - (2) Remove the cover of the fusible link block assembly.
 - (3) Set the vehicle to the following condition.
 - Ignition switch ON.
 - Headlight dimmer switch HI (FLASH).
 - Light control switch ON.



- (b) Check voltage
 - (1) Measure the voltage between the Mode Monitor Terminal and body ground.

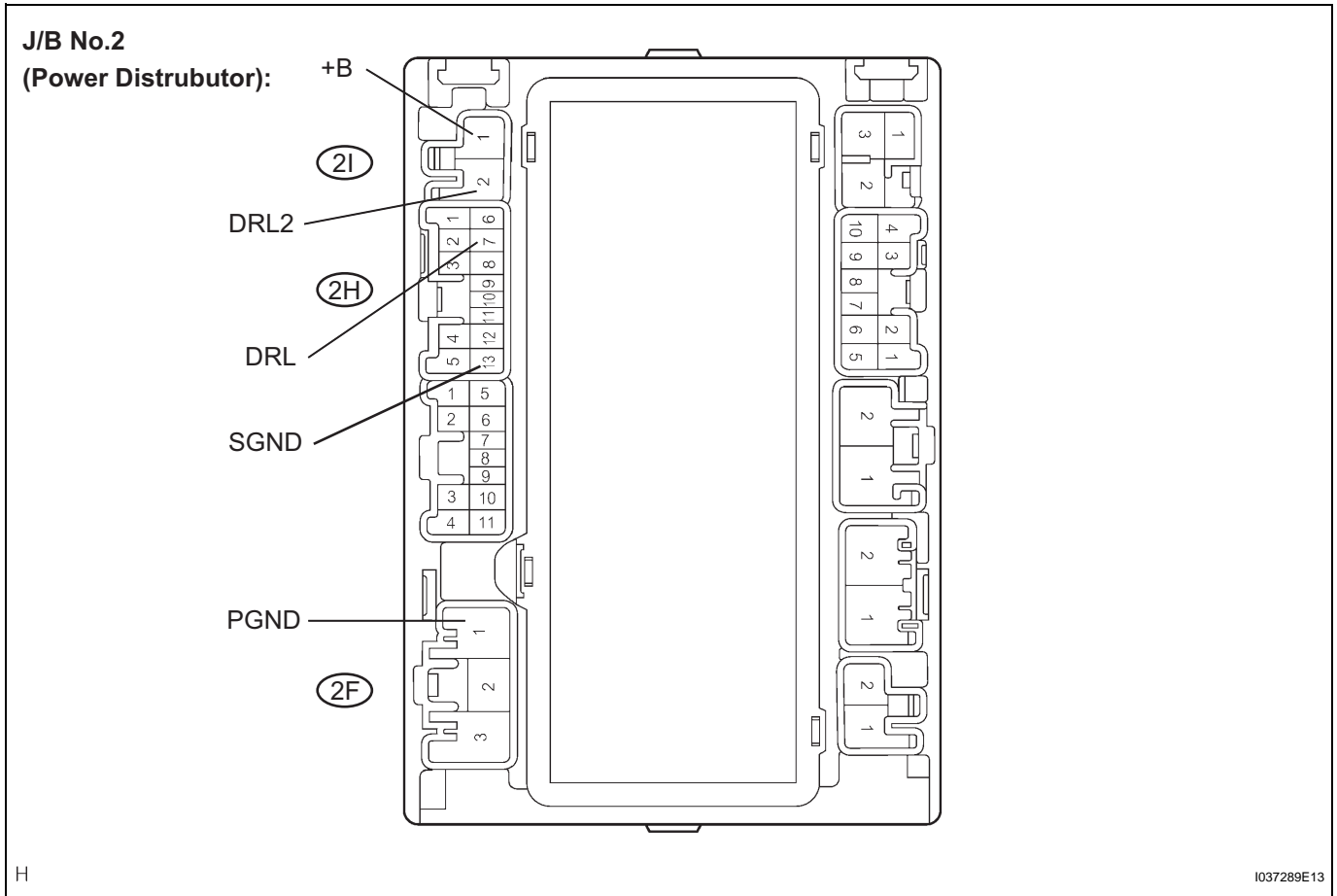
RESULT

Condition	Proceed to
6.3 +- 2 V	A
Approx. 1 V	B



6 INSPECT JUNCTION BLOCK NO.2 (DRL NO. 2, DRL NO. 4 RELAY)

- (a) Turn the ignition switch to OFF position.
- (b) Remove the J/B No. 2.
- (c) Inspect the DRL No. 2 relay.



- (1) Connect the positive battery lead to terminal +B of the J/B No. 2 and the negative lead to terminal SGND, PGND.

Symbols (terminals No.)	Connection
+B (2I-1) - SGND (2H-13), PGND (2F-1)	Positive - Negative

- (2) Measure the voltage according to the value(s) in the table below.

Voltage

Tester Connection	Specified Condition
DRL2 (2I-2) - Battery negative terminal	Below 1 V

- (3) Connect the battery negative lead to terminal DRL of the J/B No.2.

Symbols (terminals No.)	Connection
DRL (2H-7)	Negative

- (4) Measure the voltage according to the value(s) in the table below.

Voltage

Tester Connection	Specified Condition
DRL2 (2I-2) - Battery negative terminal	10 to 14 V

- (d) Inspect the DRL No.4 relay.
 - (1) Connect terminal HRE and DRL with wire.

Symbols (terminals No.)	Connection
HRE (2G-10) - DRL (2H-7)	Using wire harness

- (2) Connect the positive battery lead to terminal +B of the J/B No.2 and the negative lead to terminal SGND, PGND.

Symbols (terminals No.)	Connection
+B (2I-1) - SGND (2H-13), PGND (2F-1)	Positive - Negative

- (3) Measure the voltage according to the value(s) in the table below.

Voltage

Tester Connection	Specified Condition
DRL2 (2I-2) - Battery negative terminal	Below 1 V

- (4) Connect the battery negative lead to terminal HRLY of the J/B No.2.

Symbols (terminals No.)	Connection
HRLY (2H-8)	Negative

- (5) Measure the voltage according to the value(s) in the table below.

Voltage

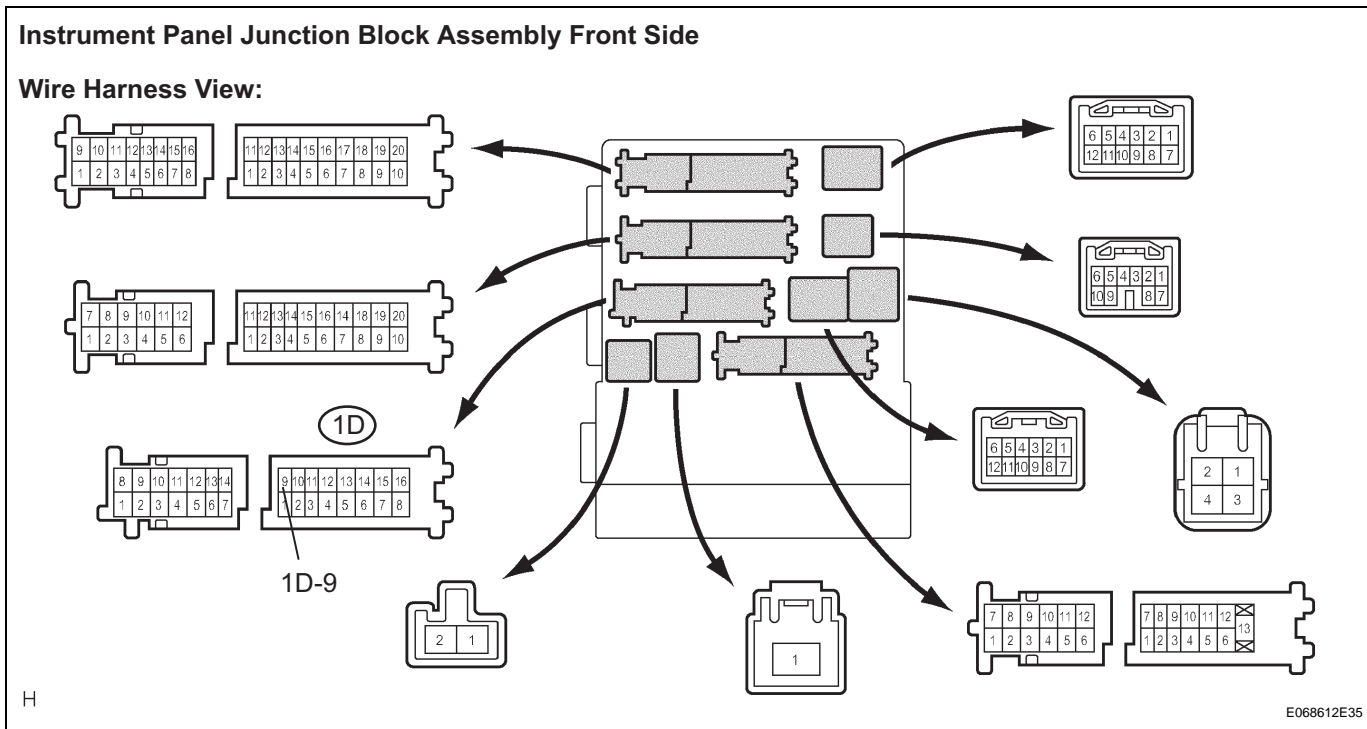
Tester Connection	Specified Condition
DRL2 (2I-2) - Battery negative terminal	10 to 14 V

NG → REPLACE JUNCTION BLOCK NO.2

OK

7 INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY (DRL SIGNAL CIRCUIT)

- (a) Disconnect the connectors from the instrument panel J/B.



HINT:

Reconnect the J/B No. 2 connector.

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

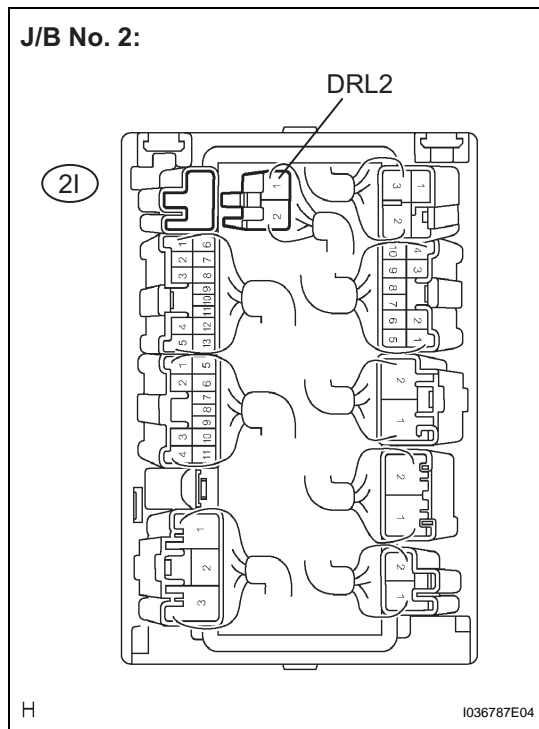
Voltage

Tester Connection	Condition	Specified Condition
1D-9 - Body ground	Always	10 to 14 V

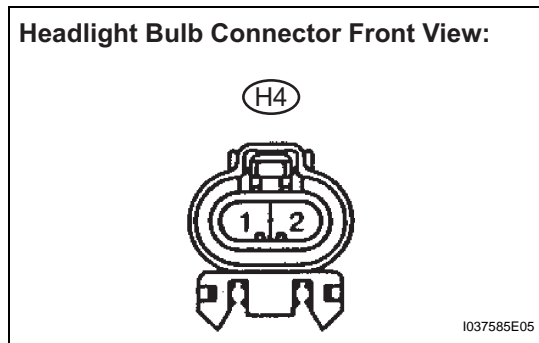
B Go to step 12

OK

8 CHECK HARNESS AND CONNECTOR (J/B NO. 2 - BULB)



- (a) Disconnect the connectors from the J/B No.2 (power distributor).



- (b) Disconnect the connector from the headlight bulb.
- (c) Measure the resistance according to the value(s) in the table below.

Resistance

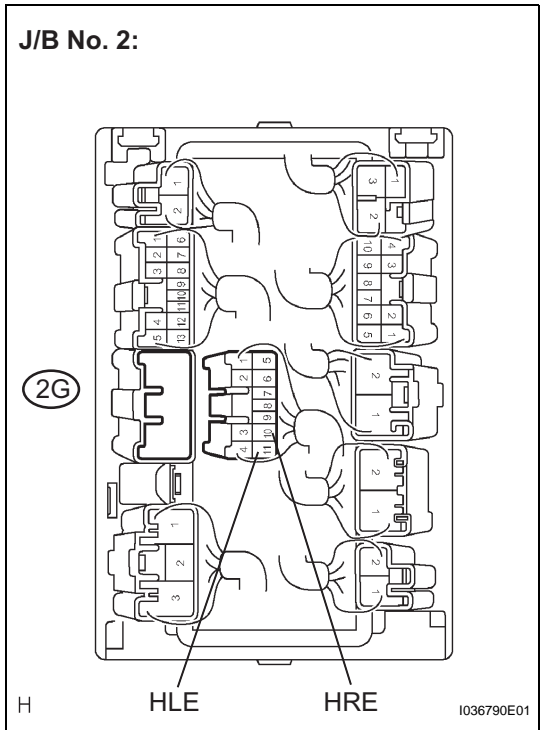
Tester connection	Condition	Specified value
2I-2 (DRL2) - H5-2 (Headlight LH)	Always	Below 1 Ω
2I-2 (DRL2) - body ground	Always	10 k Ω or higher

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

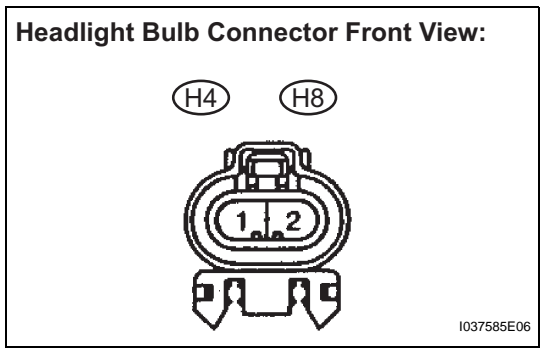
OK

LI

9 CHECK HARNESS AND CONNECTOR (BULB - J/B NO. 2)



(a) Disconnect the connectors from the J/B No.2 (power distributor).



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

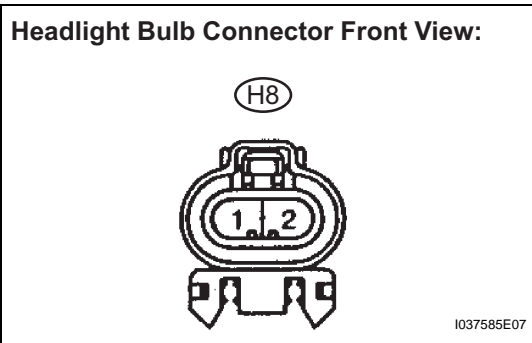
Resistance

Tester connection	Condition	Specified value
2G-11 (HLE) - H4-1 (Headlight LH)	Always	Below 1 Ω
2G-11 (HLE) - Body ground	Always	10 kΩ or higher
2G-10 (HRE) - H8-1 (Headlight RH)	Always	Below 1 Ω
2G-10 (HRE) - Body ground	Always	10 kΩ or higher

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

10 CHECK HARNESS AND CONNECTOR (BULB - BODY GROUND)



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

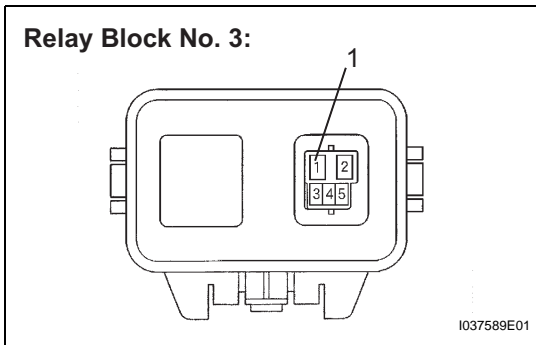
Resistance

Tester connection	Condition	Specified value
H8-2 (Headlight RH) - Body ground	Always	Below 1 Ω

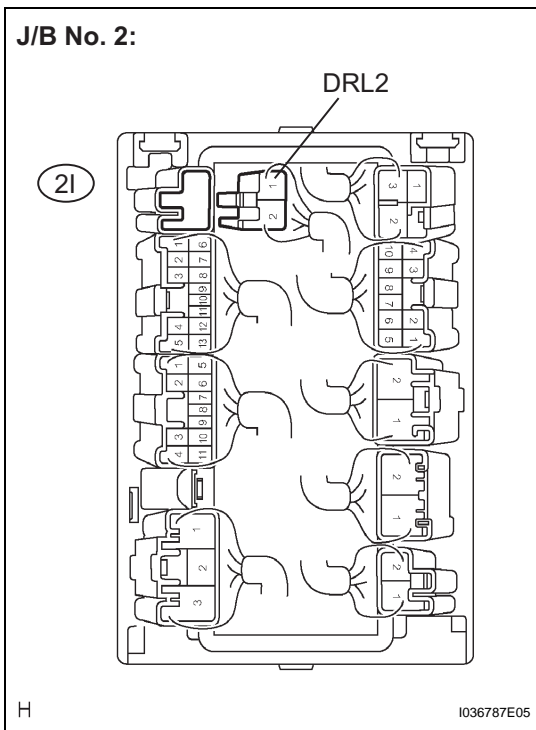
NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

11 CHECK HARNESS AND CONNECTOR (J/B NO. 2 - RELAY BLOCK NO. 3)



(a) Remove the DRL No.3 relay from the relay block No.3.



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

Resistance

Tester connection	Condition	Specified value
2I-2 (DRL2) - 1 (Relay block No.3)	Always	Below 1 Ω
2I-2 (DRL2) - Body ground	Always	10 kΩ or higher

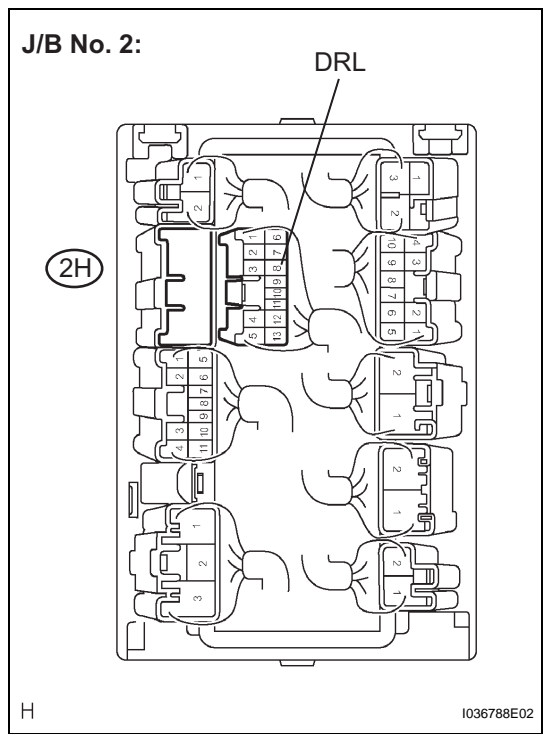
NG REPAIR OR REPLACE HARNESS OR CONNECTOR



OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

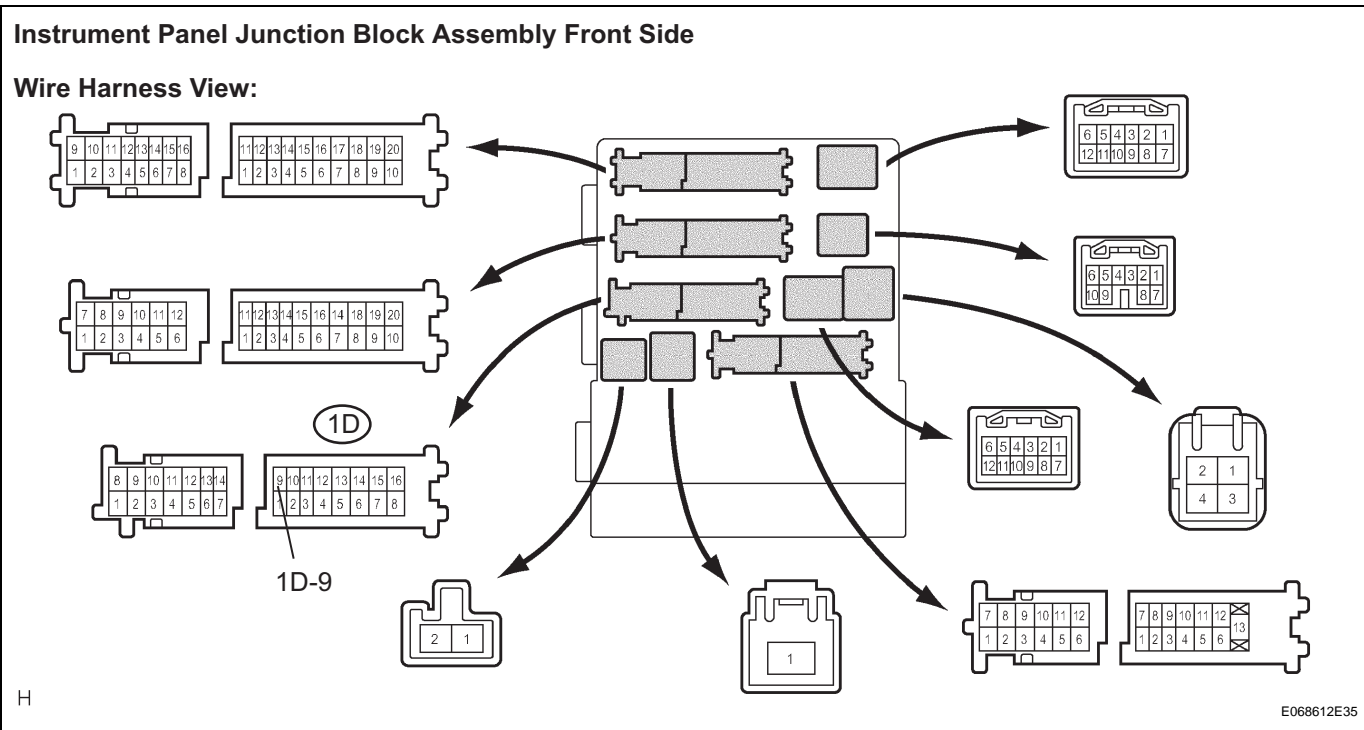
12 CHECK HARNESS AND CONNECTOR (J/B NO. 2 - INSTRUMENT PANEL J/B)



- (a) Disconnect the connectors from the instrument panel J/ B.
- (b) Measure the resistance according to the value(s) in the table below.

Resistance

Tester connection	Condition	Specified value
2H-7 (DRL) - 1D-9	Always	Below 1 Ω
2H-7 (DRL) - Body ground	Always	10 kΩ or higher



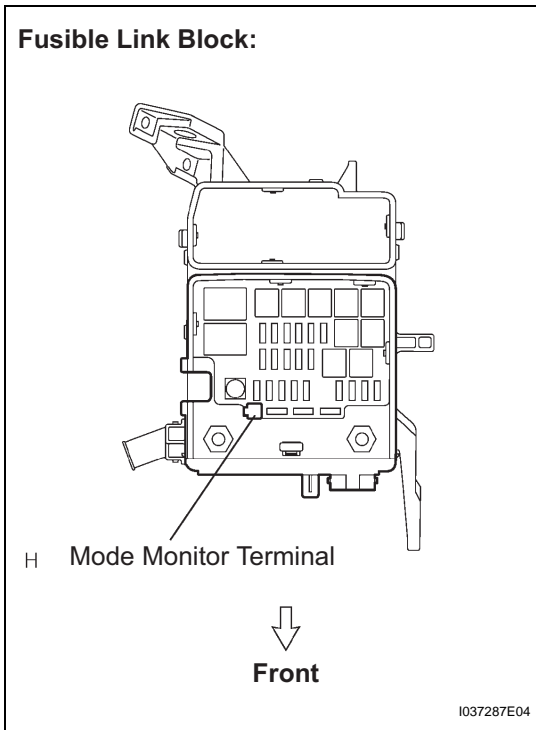
NG **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

13 CHECK MODE MONITOR TERMINAL (SHORT CIRCUIT DRIVEN SIDE BY RELAY)

- (a) Connect the connectors.
- (b) Remove the headlight bulbs.
- (c) Ignition switch ON.
- (d) Check voltage
 - (1) Measure the voltage between the Mode Monitor Terminal and body ground.



RESULT

Condition	Proceed to
6.3 +- 2 V	A
Approx. 1 V	B

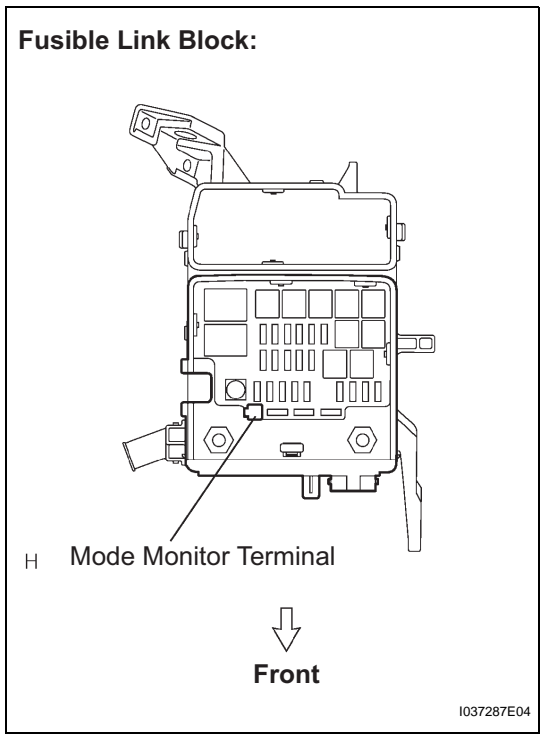
B **REPAIR OR REPLACE HARNESS OR CONNECTOR**

A

REPLACE BULB

14 CHECK MODE MONITOR TERMINAL (DIM RELAY)

- (a) Preparation
 - (1) Connect the connector.
 - (2) Remove the cover of the fusible link block assembly.
 - (3) Set the vehicle to the following condition.
 - Ignition switch ON.
 - Headlight dimmer switch HI (FLASH).
 - Light control switch ON.



- (b) Check voltage
 - (1) Measure the voltage between the Mode Monitor Terminal and body ground.

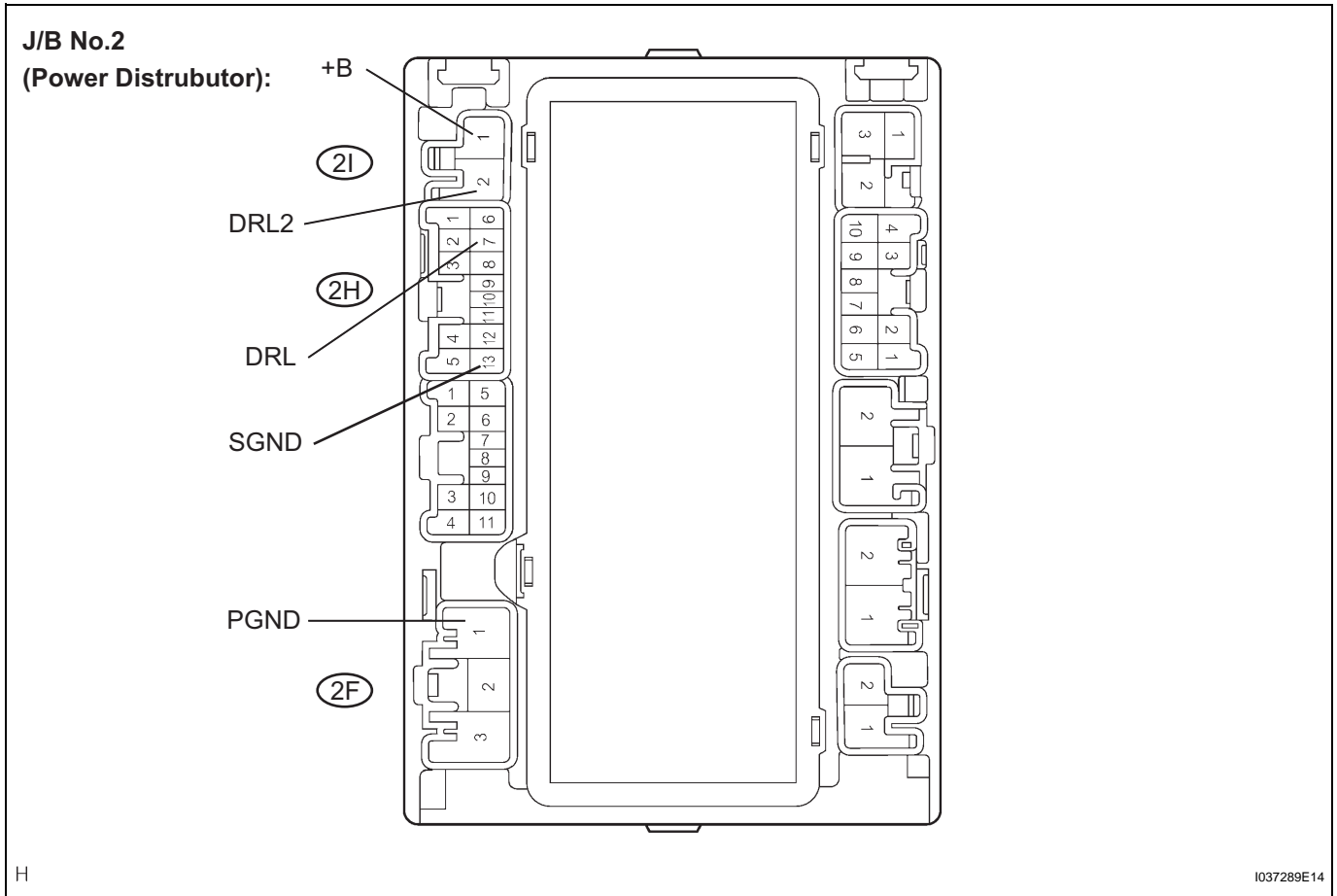
RESULT

Condition	Proceed to
6.3 +- 2 V	A
Approx. 1 V	B



15 INSPECT JUNCTION BLOCK NO.2 (DIM RELAY)

- (a) Turn the ignition switch to OFF position.
- (b) Remove the J/B No. 2.
- (c) Inspect the DRL relay.



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- (1) Connect the positive battery lead to terminal +B of the J/B No. 2 and the negative lead to terminal SGND, PGND.

Symbols (terminals No.)	Connection
+B (2I-1) - SGND (2H-13), PGND (2F-1)	Positive - Negative

- (2) Measure the voltage according to the value(s) in the table below.

Voltage

Tester Connection	Specified Condition
DRL2 (2I-2) - Battery negative terminal	Below 1 V

- (3) Connect the battery negative lead to terminal DRL of the J/B No. 2.

Symbols (terminals No.)	Connection
DRL (2H-7)	Negative

- (4) Measure the voltage according to the value(s) in the table below.

Voltage

Tester Connection	Specified Condition
DRL2 (2I-2) - Battery negative terminal	10 to 14 V

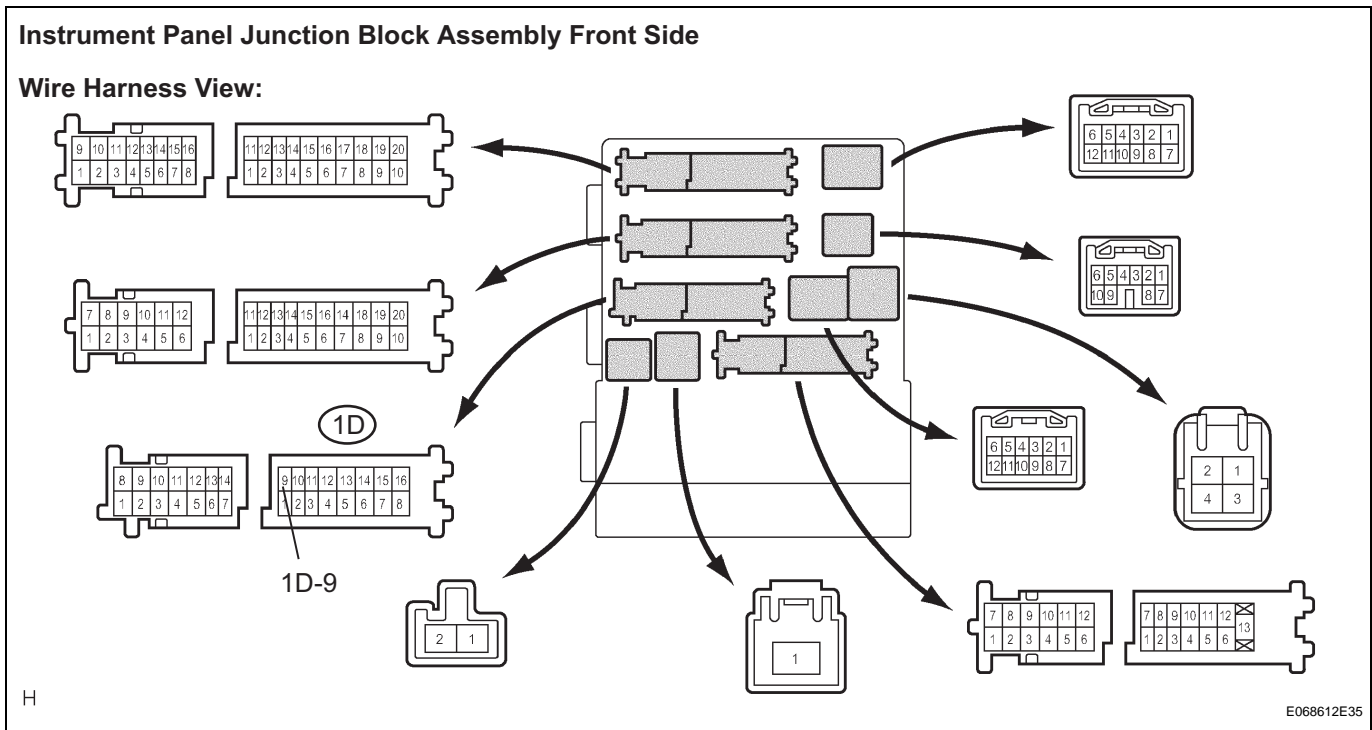
NG

REPLACE JUNCTION BLOCK NO.2

OK

16 INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY (DRL SIGNAL CIRCUIT)

(a) Disconnect the connector from the instrument panel J/B.



HINT:

Reconnect the J/B No. 2 connector.

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

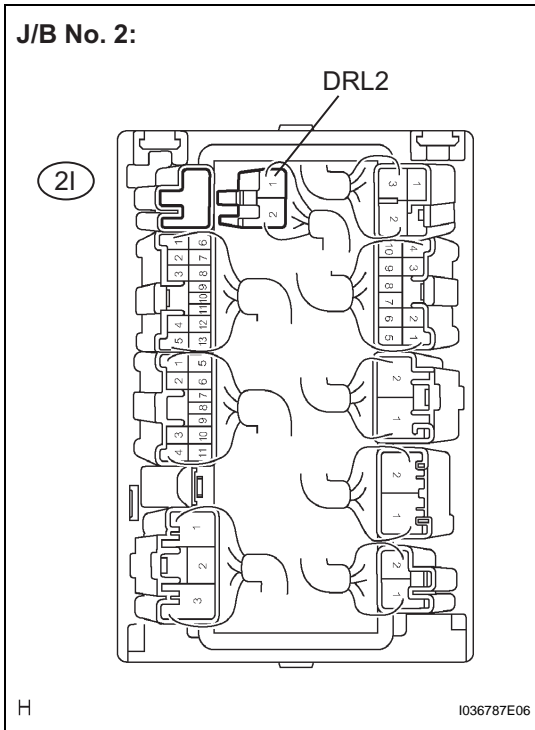
Voltage

Tester Connection (Symbols)	Condition	Specified Condition
1D-9 - Body ground	Always	10 to 14 V

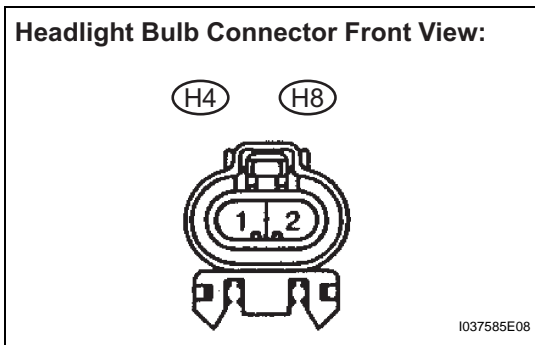
NG → **Go to step 19**

OK

17 CHECK HARNESS AND CONNECTOR (J/B NO. 2 - BULB)



(a) Disconnect the connectors from the J/B No. 2 (power distributor).



(b) Disconnect the connector from the headlight bulb.
 (c) Measure the resistance according to the value(s) in the table below.

Resistance

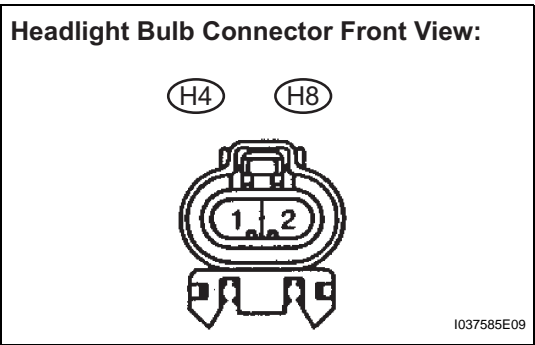
Tester connection	Condition	Specified value
2I-2 (DRL2) - H4-2 (Headlight LH)	Always	Below 1 Ω
2I-2 (DRL2) - H8-2 (Headlight RH)	Always	Below 1 Ω
2I-2 (DRL2) - body ground	Always	10 kΩ or higher

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

LI

18 CHECK HARNESS AND CONNECTOR (BULB - BODY GROUND)



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

Resistance

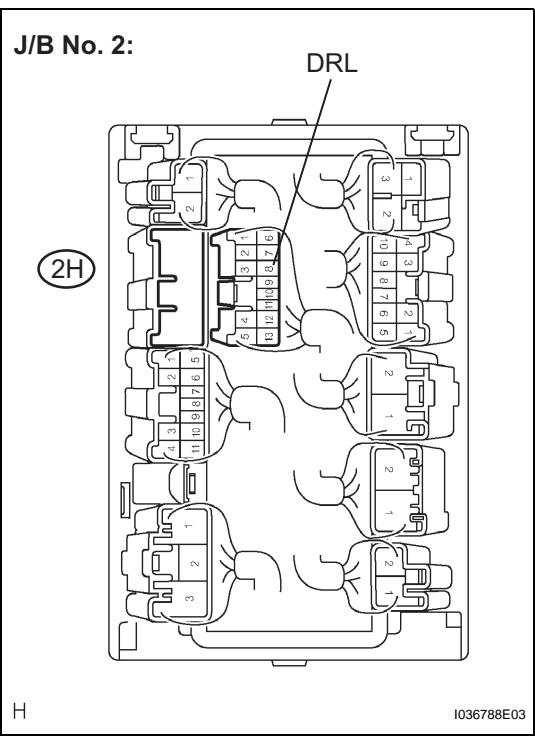
Tester connection	Condition	Specified value
H4-1 (Headlight LH) - body ground	Always	Below 1 Ω
H8-1 (Headlight RH) - body ground	Always	Below 1 Ω

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE JUNCTION BLOCK NO.2

19 CHECK HARNESS AND CONNECTOR (J/B NO. 2 - INSTRUMENT PANEL J/B)



(a) Disconnect the connectors from the instrument panel J/B.

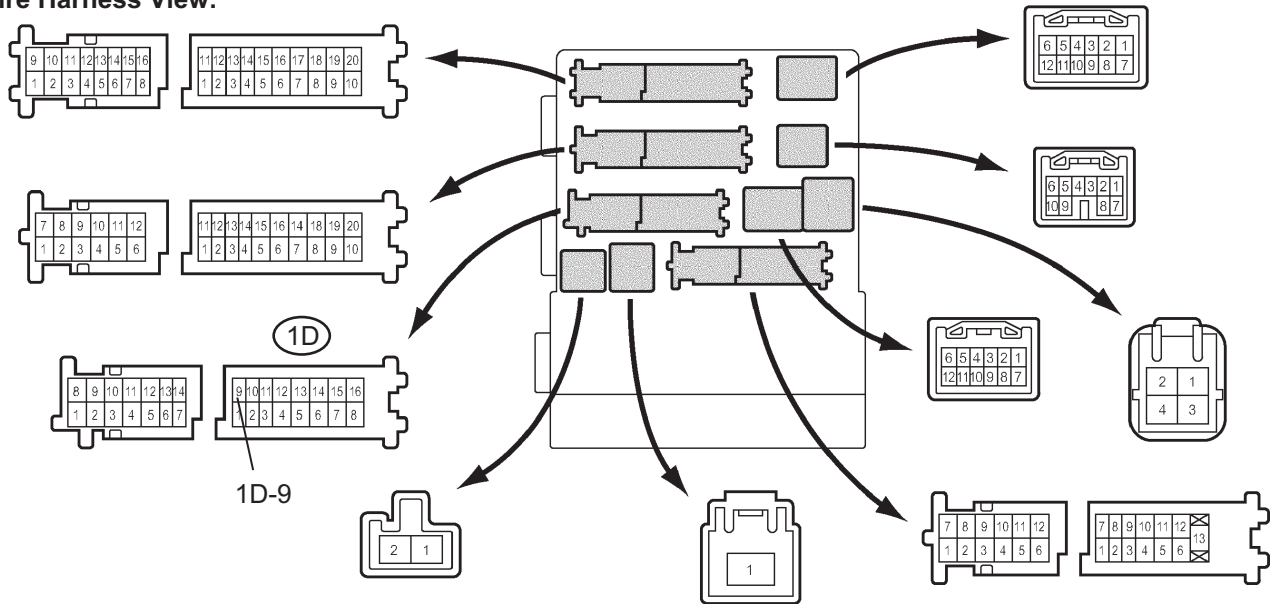
(b) Measure the resistance according to the value(s) in the table below.

Resistance

Tester connection	Condition	Specified value
2H-7 (DRL) - 1D-9	Always	Below 1 Ω
2H-7 (DRL) - Body ground	Always	10 kΩ or higher

Instrument Panel Junction Block Assembly Front Side

Wire Harness View:



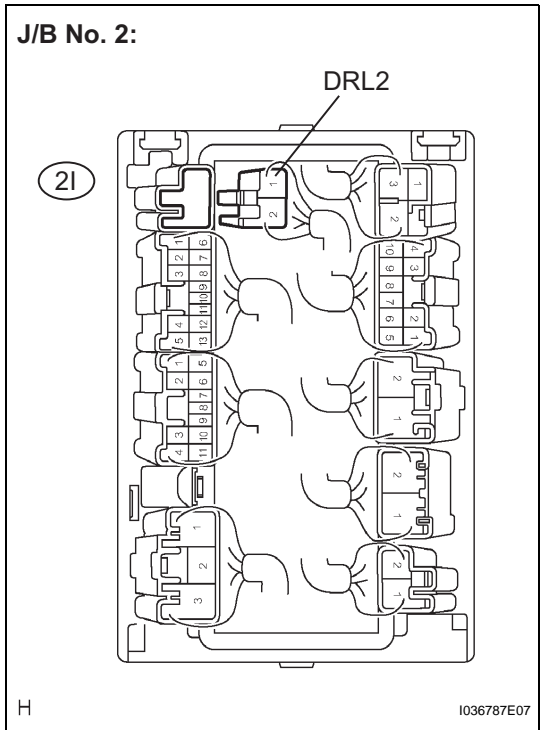
NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

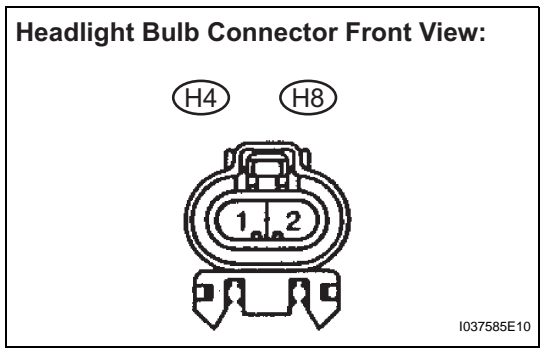
OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

20 CHECK HARNESS AND CONNECTOR (J/B NO. 2 - BULB)



(a) Disconnect the connectors from the J/B No. 2 (power distributor) and headlight bulb.



(b) Disconnect the connector from the headlight bulb.
 (c) Measure the resistance according to the value(s) in the table below.

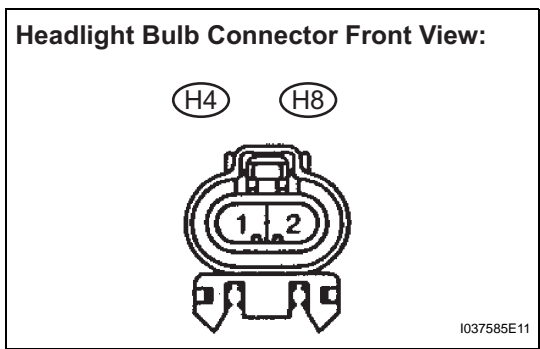
Resistance

Tester connection	Condition	Specified value
21-2 (DRL2) - H4-2 (Headlight LH)	Always	Below 1 Ω
21-2 (DRL2) - H8-2 (Headlight RH)	Always	Below 1 Ω

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

21 CHECK HARNESS AND CONNECTOR (BULB - BODY GROUND)



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

Resistance

Tester connection	Condition	Specified value
H4-1 (Headlight LH) - body ground	Always	Below 1 Ω
H8-1 (Headlight RH) - body ground	Always	Below 1 Ω

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE JUNCTION BLOCK NO.2