

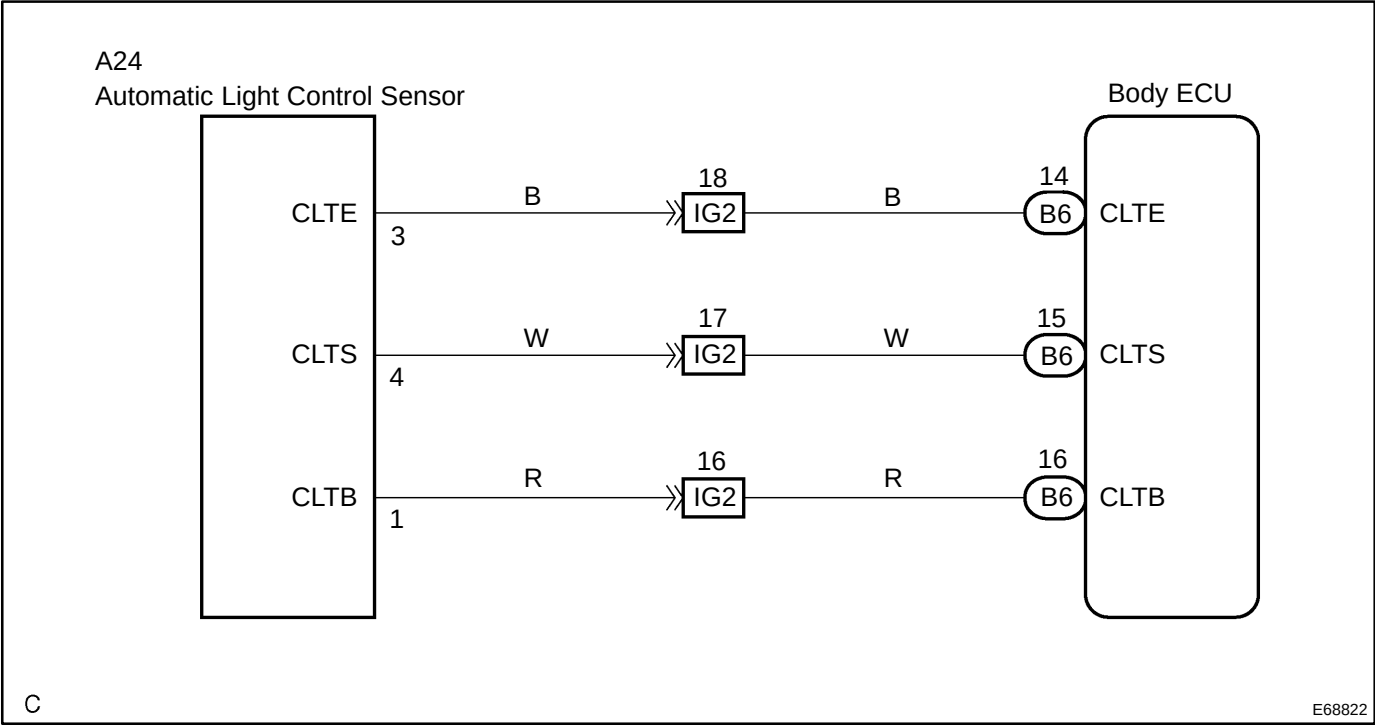
DTC	B1244	LIGHT SENSOR CIRCUIT MALFUNCTION
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CIRCUIT DESCRIPTION

This DTC is output when a failure in the light sensor circuit is detected.

DTC No.	DTC Detecting Condition	Trouble Area
B1244	- Malfunction in automatic light control sensor - Open or short in automatic light control sensor circuit	- Automatic light control sensor - Harness or connector - Multiplex network body ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

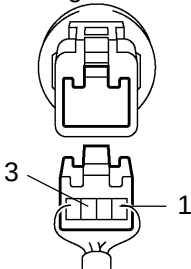
1

CHECK HARNESS AND CONNECTOR(AUTOMATIC LIGHT CONTROL SENSOR POWER SOURCE CIRCUIT)

Wire Harness View:

A24

 Automatic Light Control Sensor



- (a) Disconnect the automatic light control sensor connector.
- (b) Measure the voltage according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
A24-1 – A24-3	Power switch ON (IG)	10 to 14 V

NG

Go to step 4

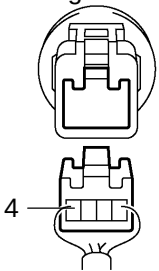
OK

2

CHECK HARNESS AND CONNECTOR(INSTRUMENT PANEL JUNCTION BLOCK ASSY – AUTOMATIC LIGHT CONTROL SENSOR)

Wire Harness View:

A24 Automatic Light Control Sensor



I39976

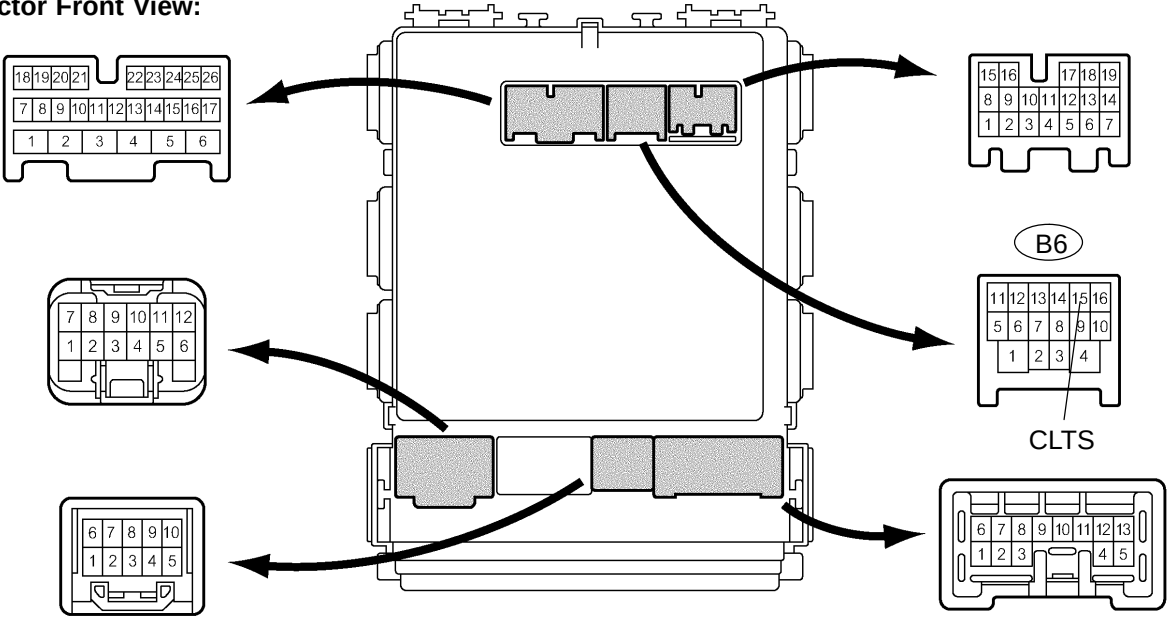
- (a) Disconnect the B6 connector from the multiplex network body ECU.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
A24-4 – B6-15	Always	Below 1 Ω

Instrument Panel Junction Block

Connector Front View:



H

I39973

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3

REPLACE AUTOMATIC LIGHT CONTROL SENSOR

OK: Returns to normal operation.

NG

REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY

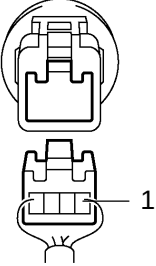
OK

END

4

CHECK HARNESS AND CONNECTOR(INSTRUMENT PANEL JUNCTION BLOCK ASSY – AUTOMATIC LIGHT CONTROL SENSOR)

Wire Harness View:
A24 Automatic Light Control Sensor



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

Standard:

Tester connection	Condition	Specified condition
A24-1 – Body ground	Power switch ON (IG)	10 to 14 V

OK

NG

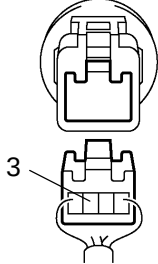
Go to step 6

5

CHECK HARNESS AND CONNECTOR(INSTRUMENT PANEL JUNCTION BLOCK ASSY - AUTOMATIC LIGHT CONTROL SENSOR)

Wire Harness View:

(A24) Automatic Light Control Sensor



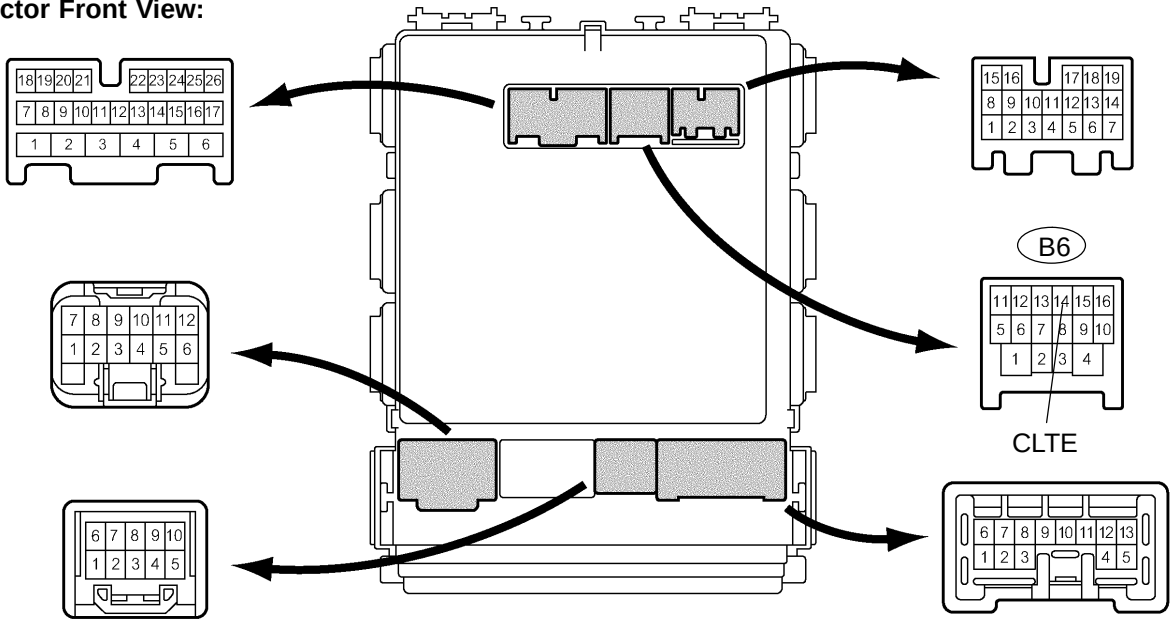
I39976

- (a) Disconnect the B6 connector from the instrument panel junction block.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
A24-3 - B6-14	Always	Below 1 Ω

Instrument Panel Junction Block
Connector Front View:



H

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NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

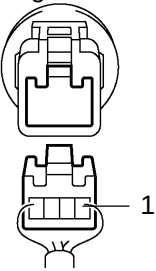
OK

REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY

6

CHECK HARNESS AND CONNECTOR(INSTRUMENT PANEL JUNCTION BLOCK ASSY – AUTOMATIC LIGHT CONTROL SENSOR)

Wire Harness View:
(A24) Automatic Light Control Sensor



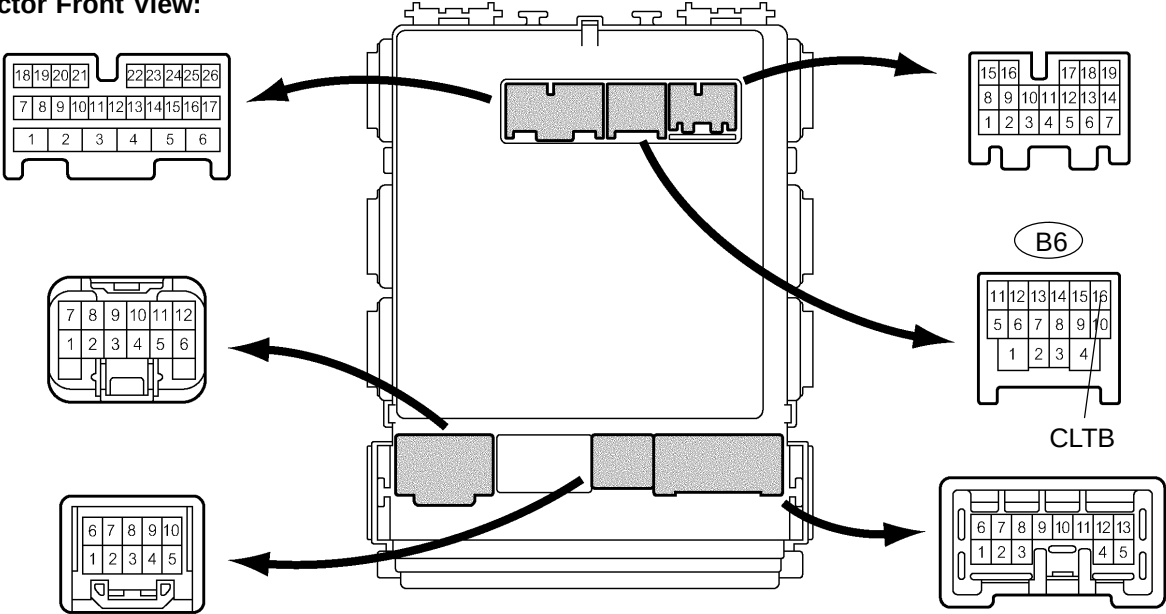
I39976

- (a) Disconnect the B6 connector from the instrument panel junction block assy.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
A24-1 – B6-16	Always	Below 1 Ω

Instrument Panel Junction Block
Connector Front View:



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NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

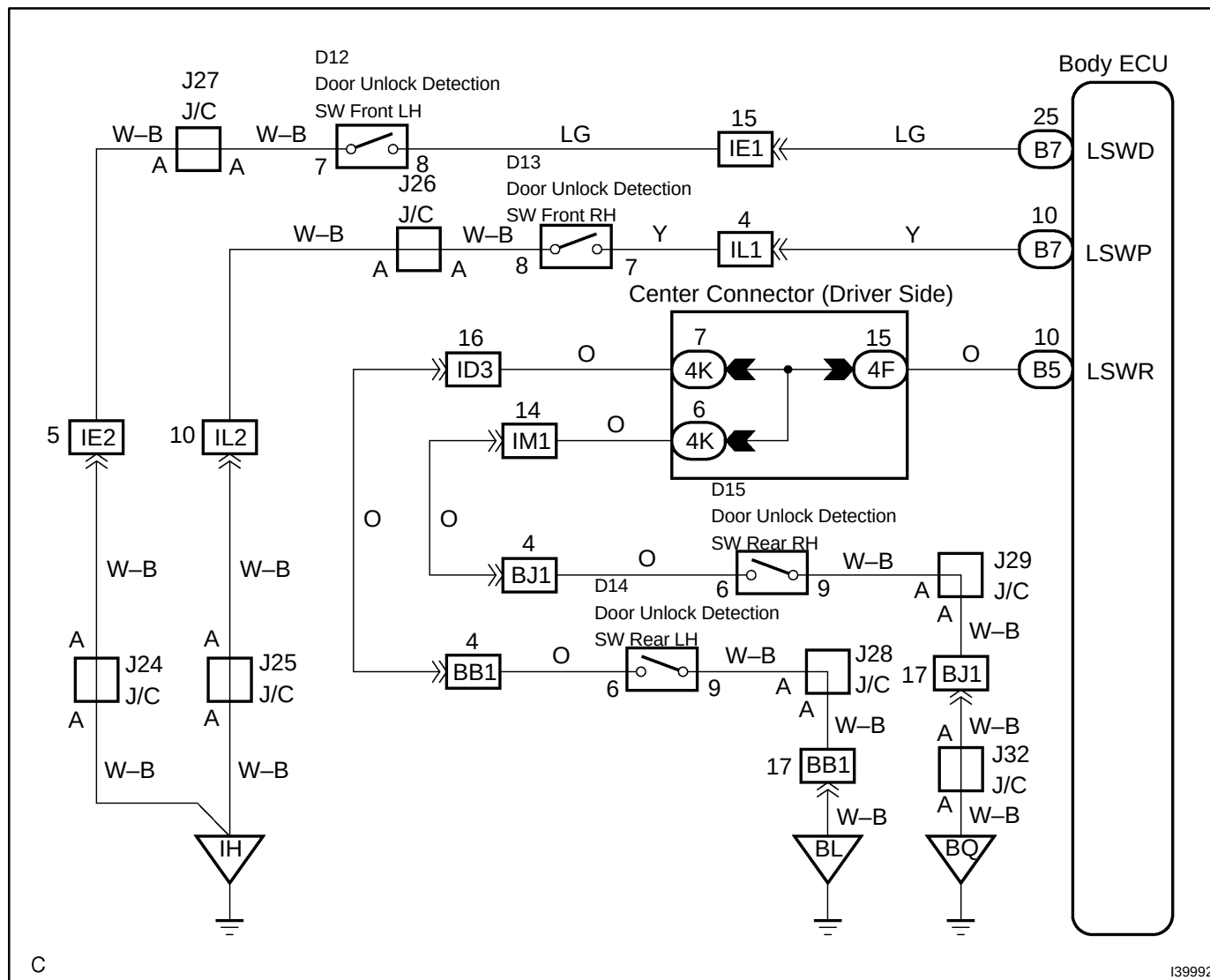
REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY

DOOR LOCK POSITION CIRCUIT

CIRCUIT DESCRIPTION

This circuit detects the state of the door lock detection sensor and send it to the multiplex network body ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

- Before this procedure, check if the wireless door lock system operation is normal.
- Each door lock position circuit is same procedure. First, inspect the suspected door lock position circuit.

1 READ VALUE OF HAND-HELD TESTER

- Connect the hand-held tester to the DLC3.
- Push the power switch ON (IG) and turn the hand-held tester main switch on.
- Select the items below in the DATA LIST, and read the displays on the hand-held tester.

B No.1/GW (Multiplex Network Body ECU):

Item	Measurement Item/ Display (Range)	Normal Condition	Diagnostic Note
P LOCK POS SW	Front passenger's door lock position SW signal/ON or OFF	ON: Front passenger door lock is in unlock position OFF: Front passenger door lock is in lock position	–
D LOCK POS SW	Driver's door lock position SW signal/ ON or OFF	ON: Driver door lock is in unlock position OFF: Driver door lock is in lock position	–

NG

Go to step 2

OK

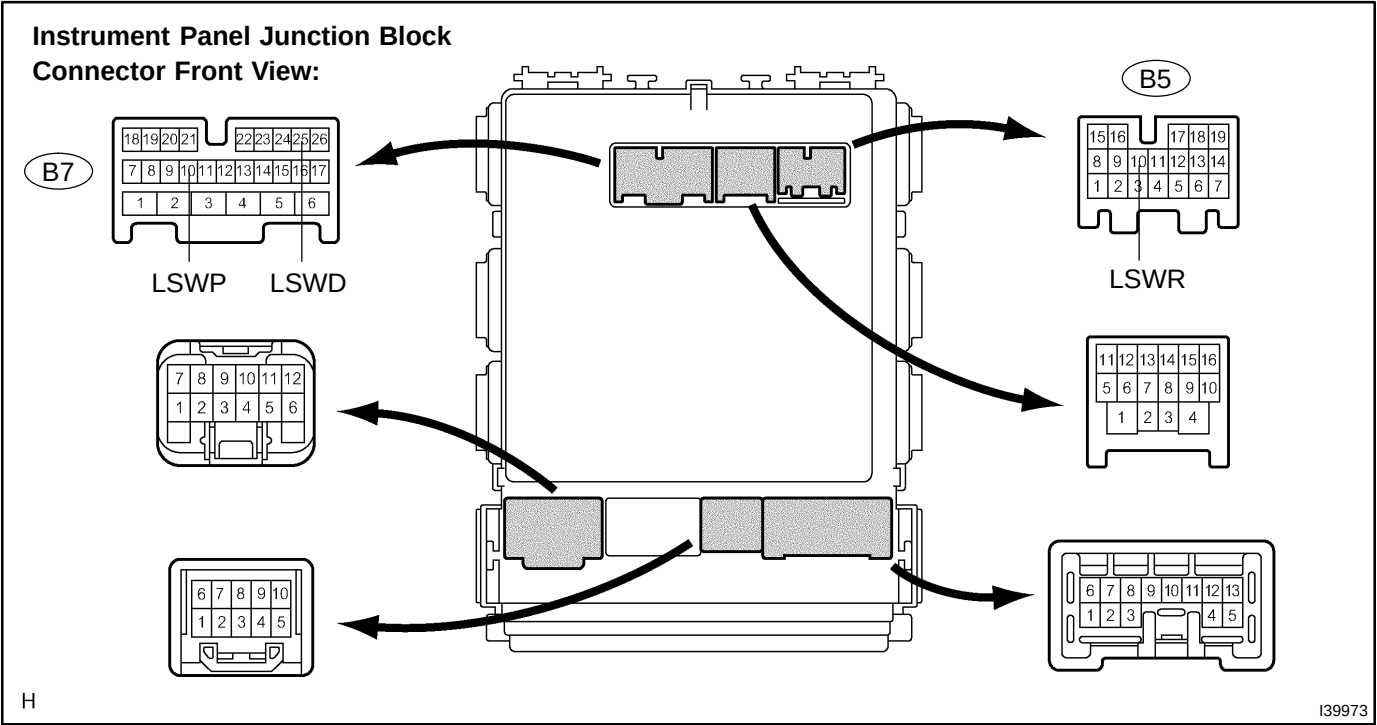
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1677)**

2 INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY

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

Standard:

Tester connection	Condition	Specified condition
B7-10 - Body ground	Front passenger door is locked → Front passenger door is unlocked	Below 1 V → 10 to 14 V
B7-25 - Body ground	Driver side door is locked → Driver side door is unlocked	Below 1 V → 10 to 14 V
B5-10 - Body ground	Both side rear door is locked → Each side rear door is unlocked	Below 1 V → 10 to 14 V



NG GO TO POWER DOOR LOCK CONTROL SYSTEM (SEE PAGE 05-2074)

OK

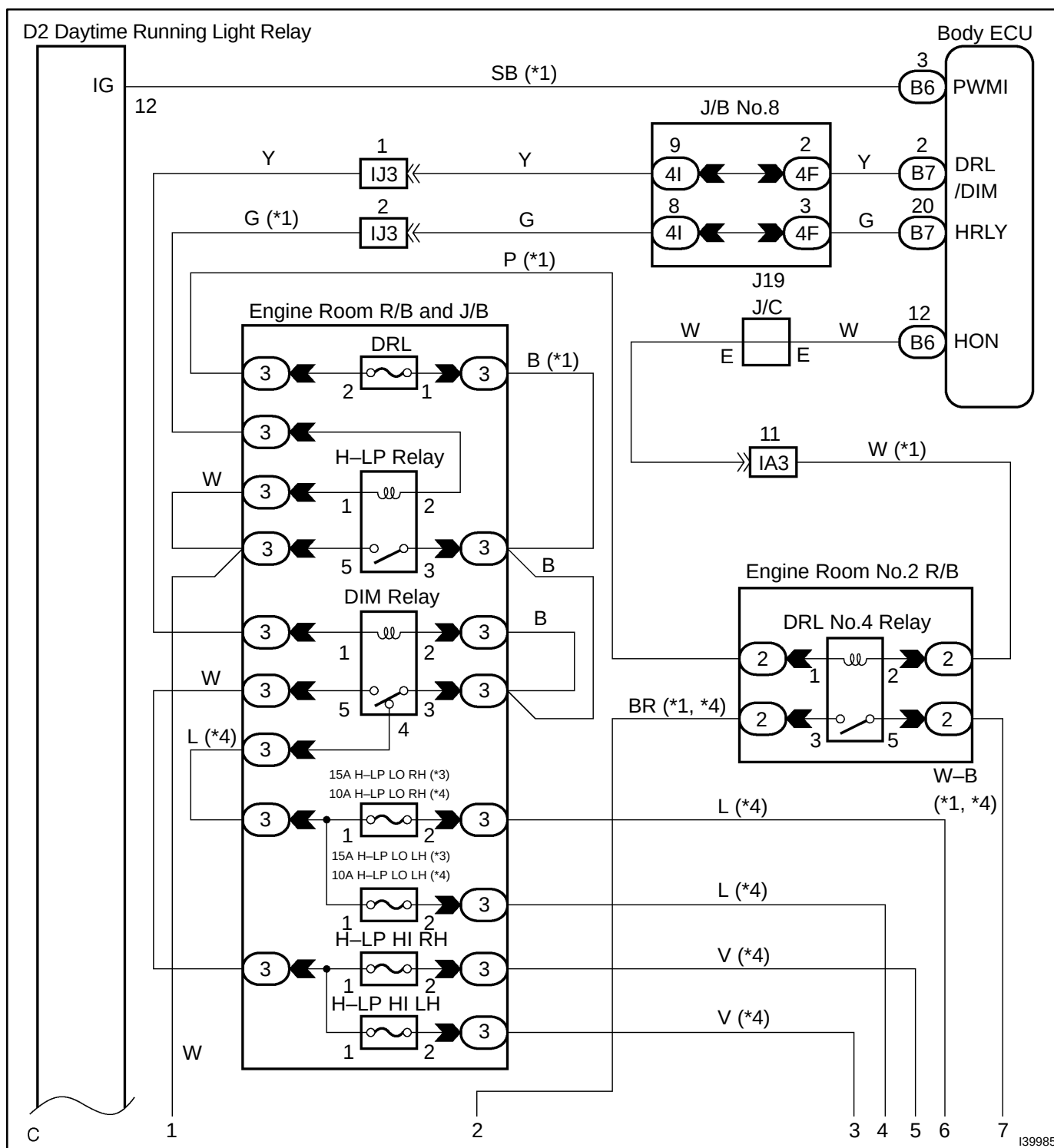
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1677)

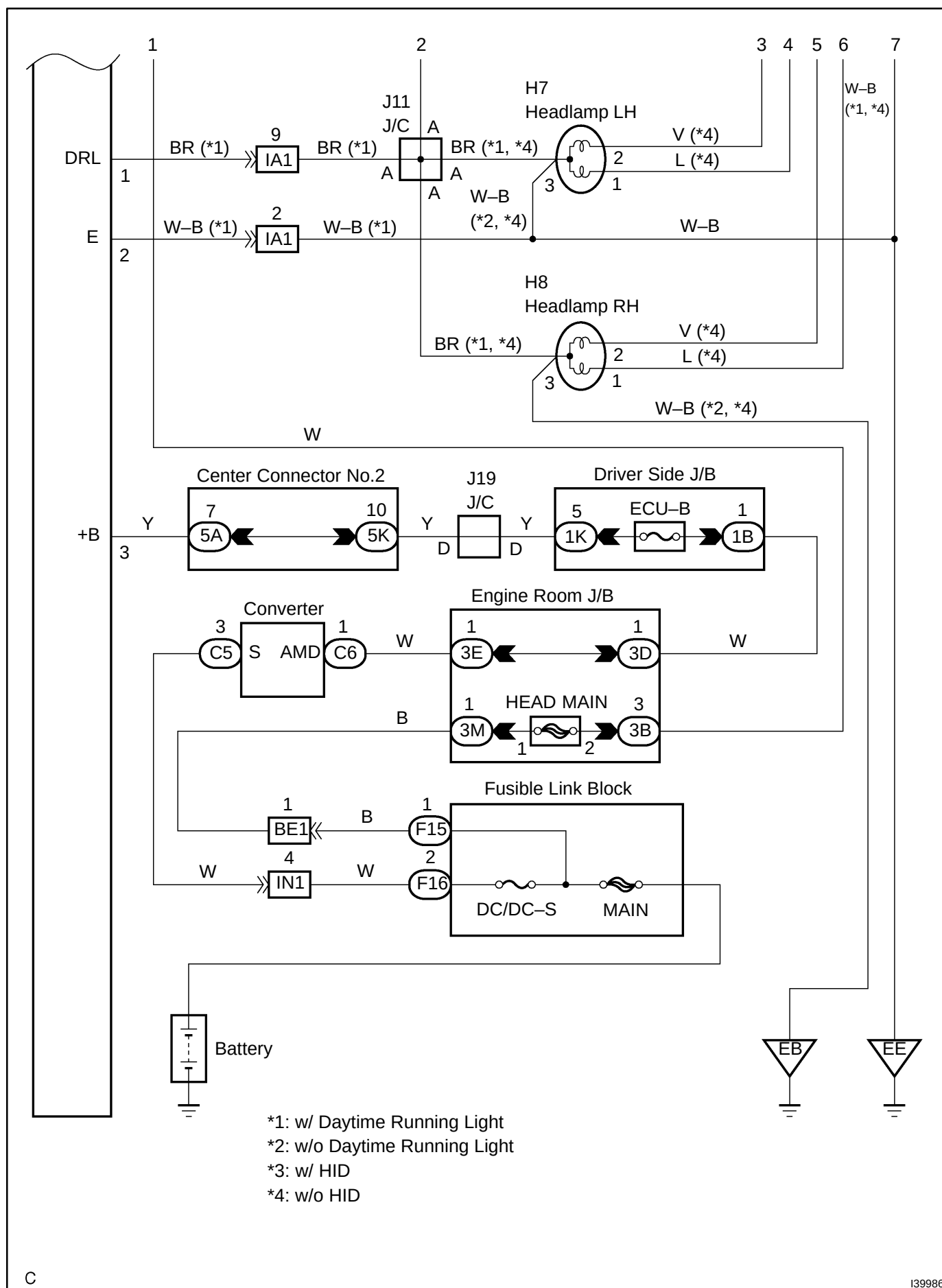
DRL RELAY CIRCUIT

CIRCUIT DESCRIPTION

The multiplex network body ECU controls the DRL No.4 relay. The DRL No.4 relay connects the daytime running light relay and the headlamp during DRL operation. The daytime running light relay controls the illuminance of the headlamp accordingly.

WIRING DIAGRAM





INSPECTION PROCEDURE

HINT:

Check if the headlamp (low beam and high beam) is normal before performing the following procedure.

1 PERFORM ACTIVE TEST USING HAND-HELD TESTER

- (a) Connect the hand-held tester to the DLC3.
- (b) Push the power switch ON (IG) and press the hand-held tester main switch on.
- (c) Select the item below in the ACTIVE TEST and then check that the tail relay operates.

B No.1/GW (Multiplex Network Body ECU):

Item	Test Details	Diagnostic Note
DRL RELAY	(Test Details) Turn daytime running light relay ON/OFF (Vehicle Condition) Power switch ON (IG), engine is stopped and light control SW is in OFF	—

OK: Headlamp (High beam) comes on.

NG

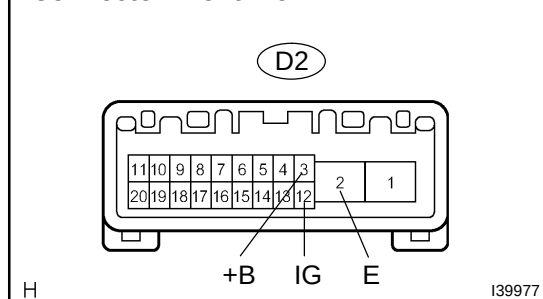
Go to step 2

OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1677)**

2 INSPECT RUNNING LIGHT RELAY ASSY

Connector Front View:



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

Standard:

Tester connection	Condition	Specified condition
D2-3 – D2-2	Always	10 to 14 V
D2-12 – D2-2	Engine is running and parking brake is released	10 to 14 V

NG

Go to step 4

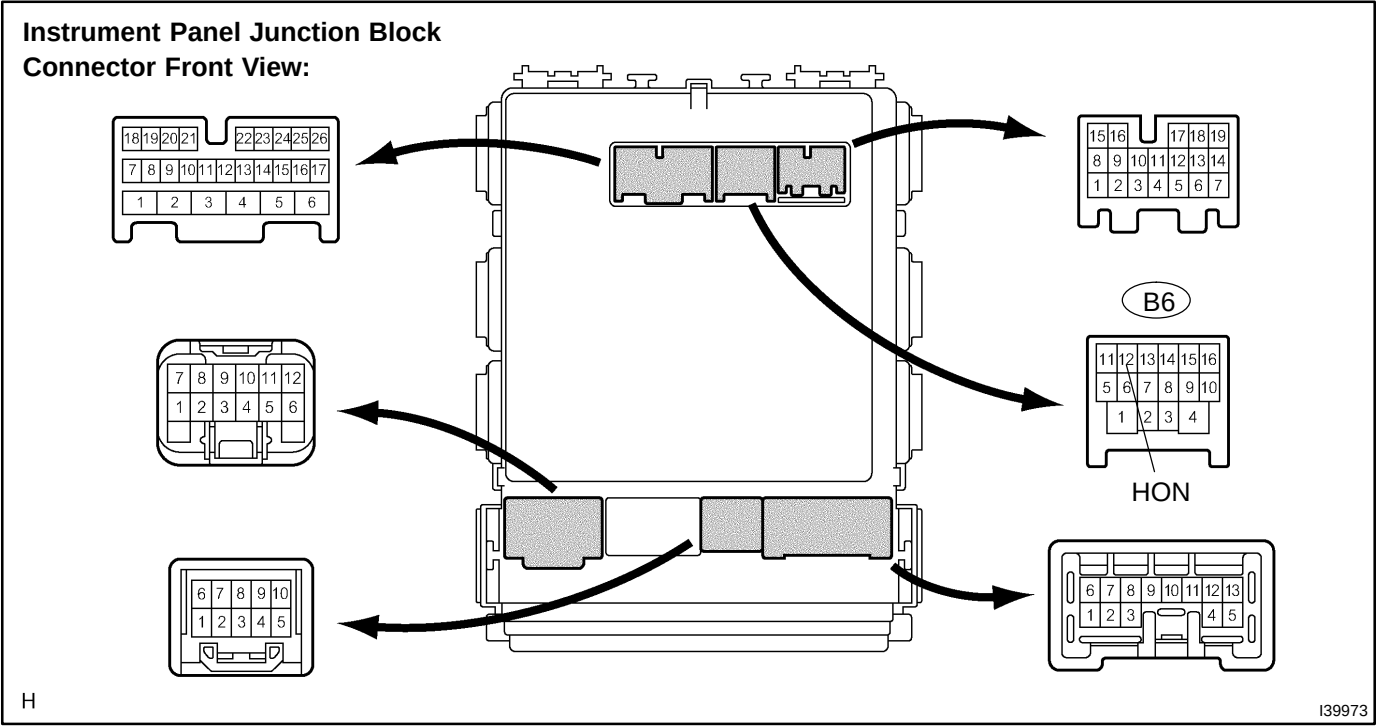
OK

3 INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY

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

Standard:

Tester connection	Condition	Specified condition
B6-12 – Body ground	Light control switch in HEAD	Below 1 V
B6-12 – Body ground	Engine is running and parking brake is released	10 to 14 V



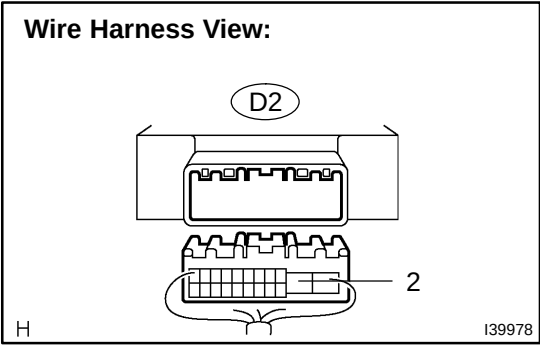
NG REPAIR OR REPLACE HARNESS OR CONNECTOR (BODY ECU – ENGINE ROOM R/B AND J/B)

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1677)

4

CHECK HARNESS AND CONNECTOR(GROUND CIRCUIT)



- (a) Disconnect the connector from the daytime running light relay.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
D2-2 – Body ground	Always	Below 1 Ω

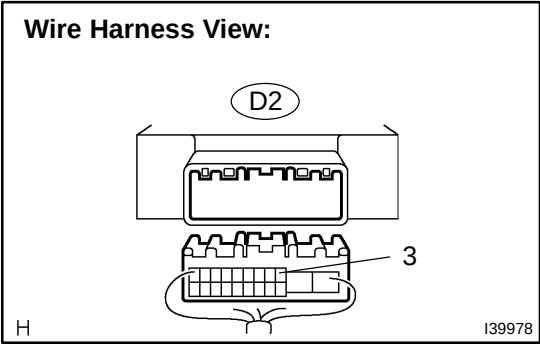
NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5

CHECK HARNESS AND CONNECTOR(POWER SOURCE CIRCUIT)



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

Standard:

Tester connection	Condition	Specified condition
D2-3 – Body ground	Always	10 to 14 V

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

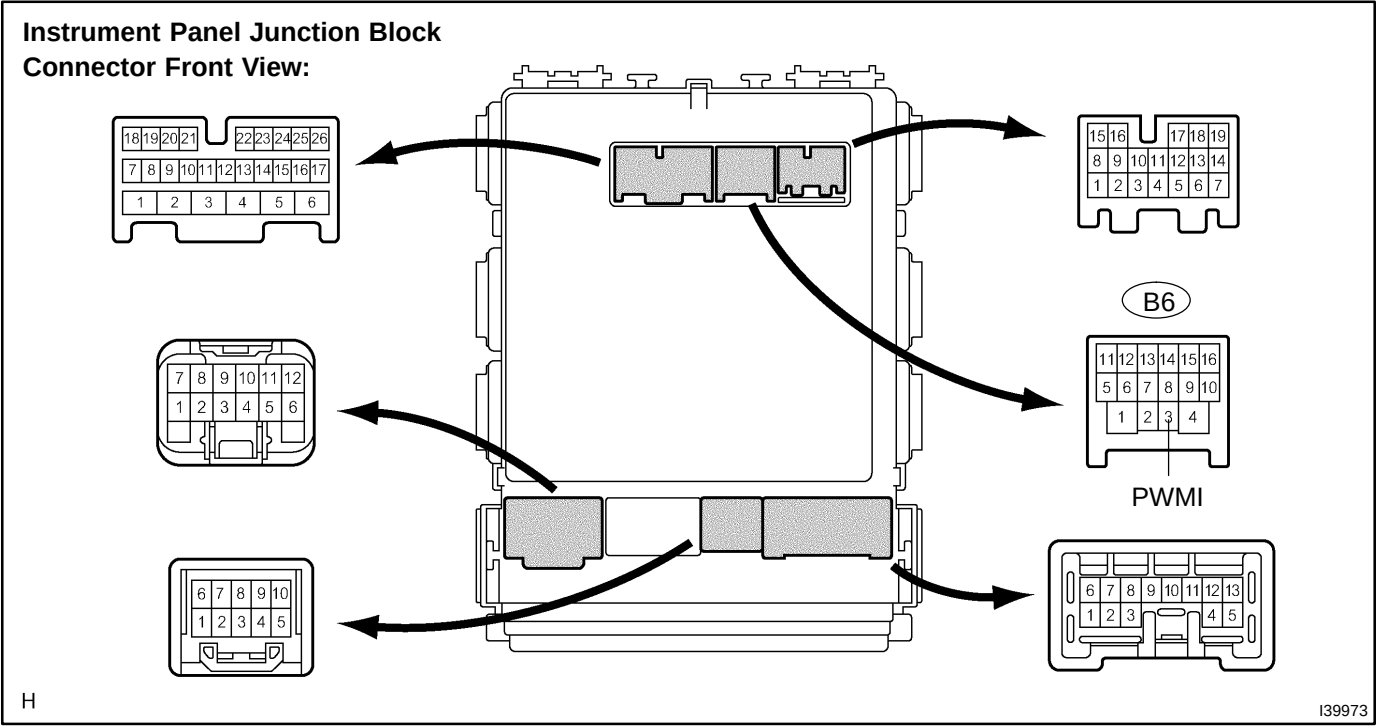
6

INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY

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

Standard:

Tester connection	Condition	Specified condition
B6-3 – Body ground	Light control switch in HEAD	Below 1 V
B6-3 – Body ground	Engine running and parking brake is released	10 to 14 V



NG

PROCEED TO NEXT CIRCUIT INSPECTION
SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1677)

OK

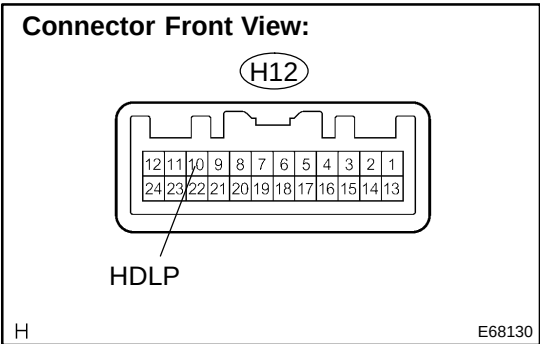
REPAIR OR REPLACE HARNESS OR CONNECTOR (INSTRUMENT PANEL JUNCTION BLOCK – DAYTIME RUNNING LIGHT RELAY)

INSPECTION PROCEDURE

HINT:

First, check if the headlamp operation is normal before performing the following procedure.

1 INSPECT HEADLAMP LEVELING ECU ASSY



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

Standard:

Tester connection	Condition	Specified condition
H12-10 – Body ground	Light control switch OFF	10 to 14 V
H12-10 – Body ground	Light control switch in HEAD	Below 1 V

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR (HEADLAMP LEVELING ECU ASSY – HEAD RELAY)

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1677)

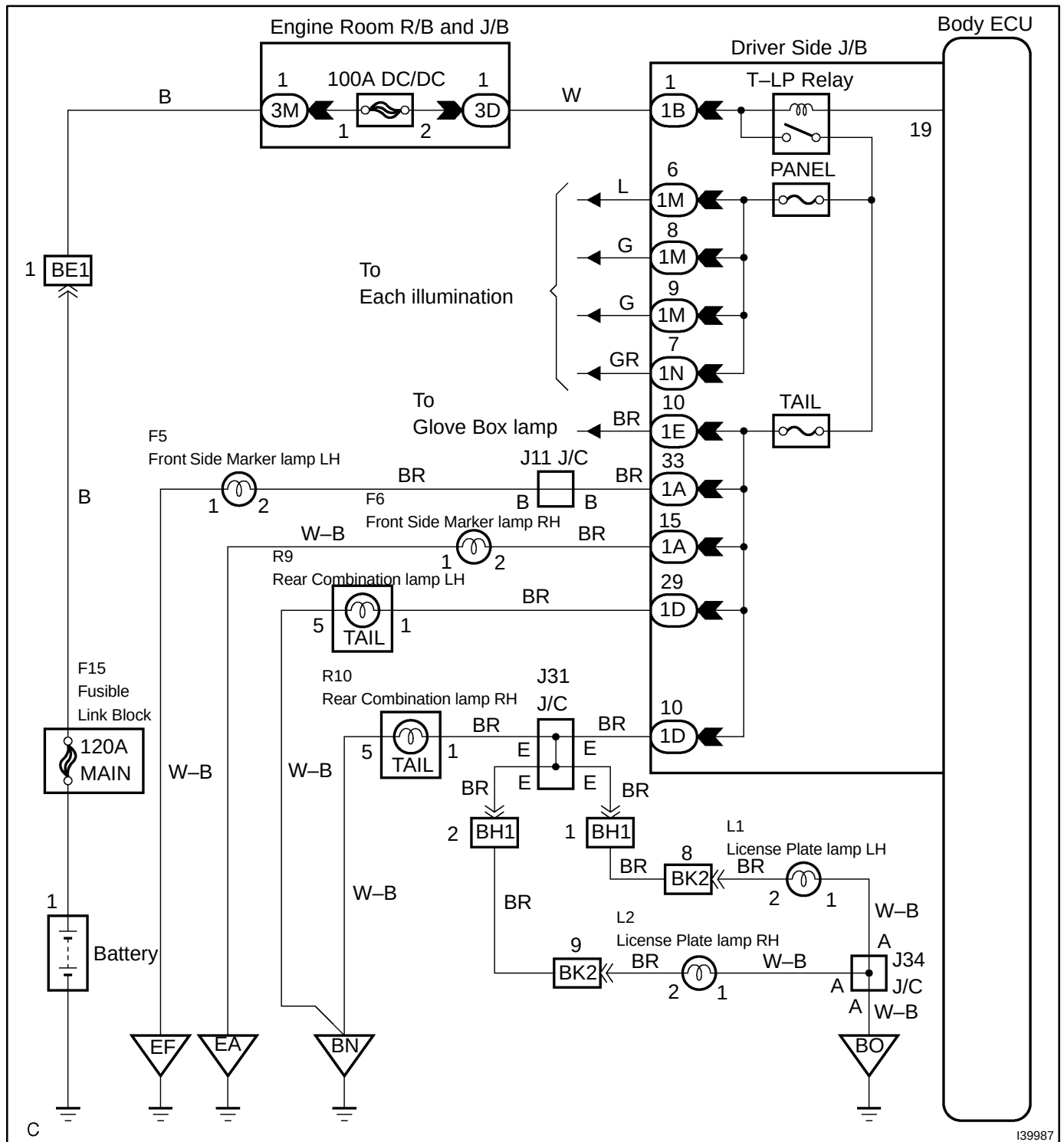
cardiagn.com

TAIL RELAY CIRCUIT

CIRCUIT DESCRIPTION

The multiplex network body ECU controls the TAIL relay when a signal is received from the headlamp dimmer switch assy.

WIRING DIAGRAM



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INSPECTION PROCEDURE

1 PERFORM ACTIVE TEST USING HAND-HELD TESTER

- (a) Connect the hand-held tester to the DLC3.
- (b) Push the power switch ON (IG) and press the hand-held tester main switch on.
- (c) Select the item below in the ACTIVE TEST and then check that the tail relay operates.

B No.1/GW (Multiplex Network Body ECU):

Item	Test Details	Diagnostic Note
TAIL LIGHT	Turn taillamp relay ON/OFF	–

OK: Each lamp comes on.

NG

Go to step 2

OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1677)**

2 INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY

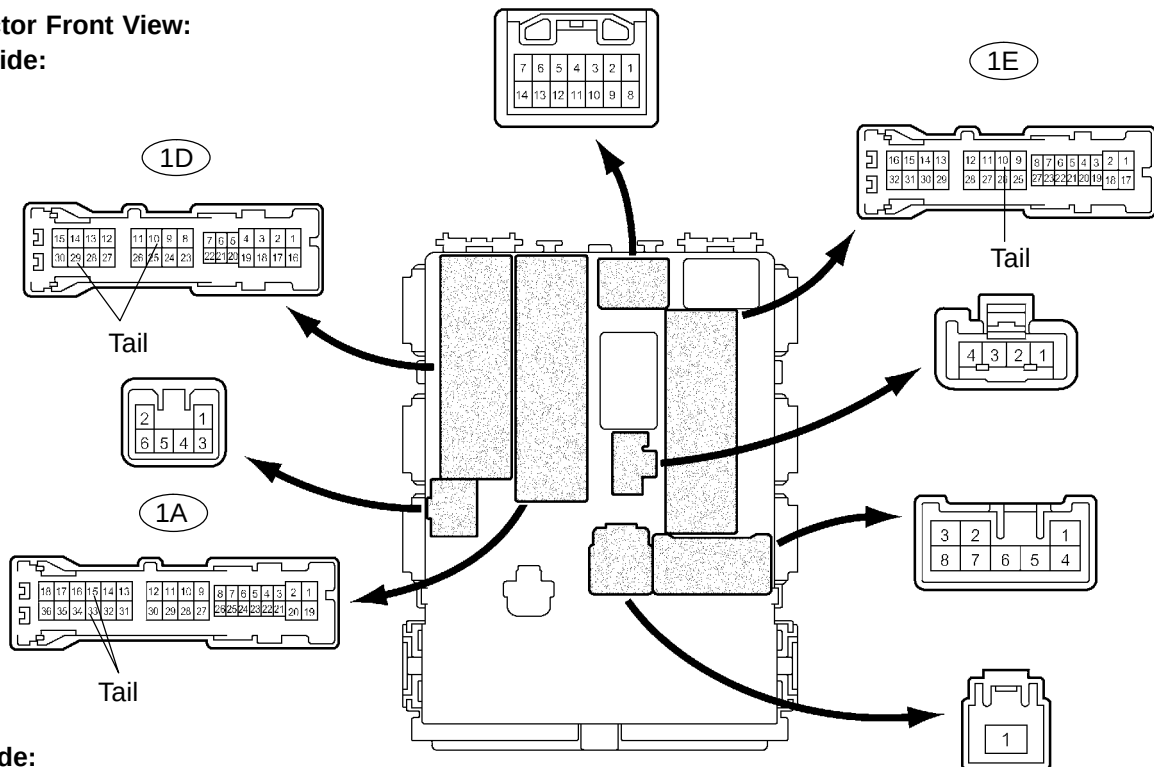
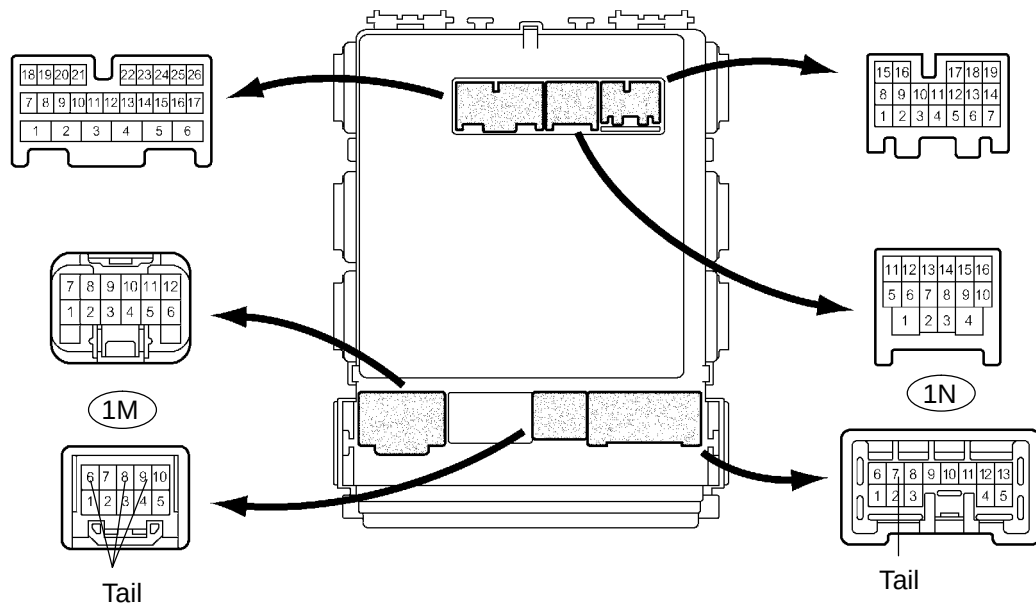
- (a) Measure the voltage according to the value(s) in the table below.

HINT:

Inspect the side the suspected malfunctioning part is on.

Standard:

Tester connection	Condition	Specified condition
1A-15 – Body ground	Light control switch OFF → TAIL	Below 1 V → 10 to 14 V
1A-33 – Body ground	Light control switch OFF → TAIL	Below 1 V → 10 to 14 V
1D-10 – Body ground	Light control switch OFF → TAIL	Below 1 V → 10 to 14 V
1D-29 – Body ground	Light control switch OFF → TAIL	Below 1 V → 10 to 14 V
1E-10 – Body ground	Light control switch OFF → TAIL	Below 1 V → 10 to 14 V
1M-6 – Body ground	Light control switch OFF → TAIL	Below 1 V → 10 to 14 V
1M-8 – Body ground	Light control switch OFF → TAIL	Below 1 V → 10 to 14 V
1M-9 – Body ground	Light control switch OFF → TAIL	Below 1 V → 10 to 14 V
1N-7 – Body ground	Light control switch OFF → TAIL	Below 1 V → 10 to 14 V

Instrument Panel Junction Block**Connector Front View:****Front Side:****Rear Side:**

I41126

NG**Go to step 3****OK****REPAIR OR REPLACE HARNESS OR CONNECTOR (EACH OF TAILLAMP CIRCUIT)**

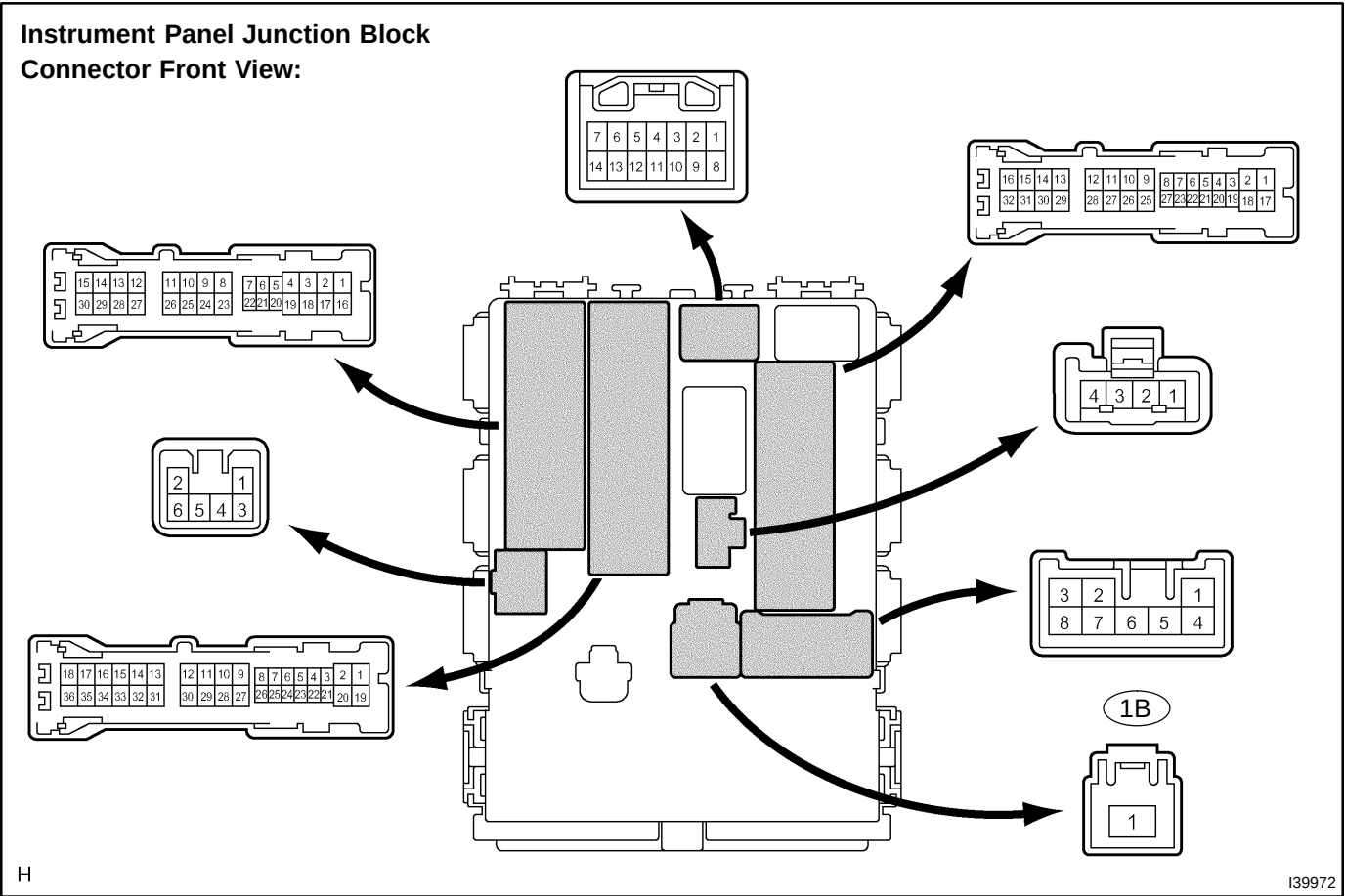
3

INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY(POWER SOURCE CIRCUIT)

- (a) Disconnect the 1B connector from the instrument panel junction block assy.
- (b) Measure the voltage according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
1B-1 – Body ground	Always	10 to 14 V



NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1677)

CUSTOMIZE PARAMETERS

HINT:

The following items can be customized.

NOTICE:

- Check if the items requested from a customer can be customized before beginning work.
- Be sure to record current values before customization.
- When troubleshooting, be careful as the function may be turned off by customization. For example, when the wireless operation does not function, check the wireless operation continues after customization, then perform troubleshooting.

ILLUMINATED ENTRY

DISPLAY (ITEM)	DEFAULT	CONTENTS	SETTING
LIGHTING TIME	15 s	Changes the lighting time after closing the doors (the light quickly fades out when the ignition switch is turned on).	7.5 s / 15 s / 30 s
I/L AUTO OFF	ON	Function to turn off the interior light automatically after specified time for prevent the battery loss when the interior light switch is "DOOR" position and the door is open.	ON / OFF
I/L ON/UNLOCK	ON	Function to light the interior light, etc. when the door is unlocked with a transmitter, door key or door lock control switch.	ON / OFF
I/L ON/ACC OFF	ON	Illuminates the interior light when the ignition switch is turned from the ACC to LOCK position.	ON / OFF

LIGHT CONTROL

DISPLAY (ITEM)	DEFAULT	CONTENTS	SETTING
SENSITIVITY	NORMAL	To adjust the sensitivity of the lighting illumination. Refer to the *1 illustration.	LIGHT2 / LIGHT1 / NORMAL / DARK1 / DARK2
DISP EX ON SEN	NORMAL	Changes the brightness when lowering lights such as the combination meter indicator lamp, A/C indicator lamp, and clock lamp. Refer to the illustration *2.	LIGHT2 / LIGHT1 / NORMAL / DARK1 / DARK2
DISP EX OFF SEN	NORMAL	Changes the brightness when lowering lights such as the combination meter indicator lamp, A/C indicator lamp, and clock. Refer to the illustration *3.	LIGHT2 / LIGHT1 / NORMAL / DARK1 / DARK2
DRL FUNCTION (★)	ON	ON/OFF of the DRL function.	ON / OFF

★: w/ Daytime Running Light for U.S.A.

Illustration of *1

Brightness of lowering the lights	Dark ←————→ Bright
Setting	DARK2 ——— DARK1 ——— NORMAL ——— LIGHT1 ——— LIGHT2

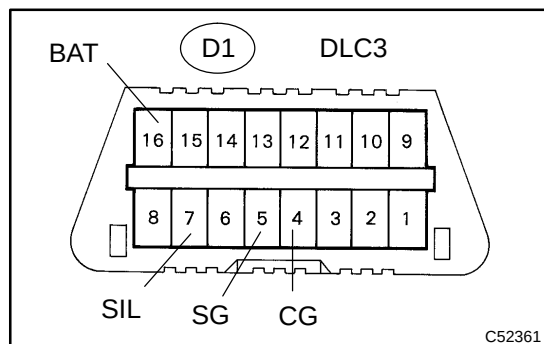
Illustration of *2

Brightness when canceling the lowering of the lights	Dark ←————→ Bright
Setting	DARK2 ——— DARK1 ——— NORMAL ——— LIGHT1 ——— LIGHT2

Illustration of *3

Lighting brightness	Dark ←————→ Bright
Setting	DARK2 ——— DARK1 ——— NORMAL ——— LIGHT1 ——— LIGHT2

DIAGNOSIS SYSTEM



1. CHECK DLC3

- (a) The vehicle's ECU uses BEAN of ISO 9141-2 for communication.

The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.

Standard:

Symbols (Terminals No.)	Terminal Description	Condition	Specified condition
SIL (7) – SG (5)	Bus "+" line	During transmission	Pulse generation
CG (4) – Body ground	Chassis ground	Always	Below 1 Ω
SG (5) – Body ground	Signal ground	Always	Below 1 Ω
BAT (16) – Body ground	Battery positive	Always	11 to 14 V

HINT:

If the screen displays "UNABLE TO CONNECT TO VEHICLE" after you have connected the cable of the hand-held tester to the DLC3, turned the ignition switch to the ON position and used the hand-held tester, there is a problem on the vehicle side or tester side.

- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 of the original vehicle.
- If communication is still impossible when the tester is connected to another vehicle, the problem is probably in the tester itself, so consult the Service Department listed in the tester's manual.

DATA LIST/ACTIVE TEST

1. DATA LIST

HINT:

Values of the switch, sensor or actuator can be read by using the DATA LIST displayed on the hand-held tester without removing any parts. Reading the DATA LIST as the first step of troubleshooting is one of the methods to shorten labor time.

- Connect the hand-held tester to the DLC3.
- Turn the power switch on (IG).
- Read the DATA LIST according to the display on the tester.

B No.1/GW:

Item	Measurement Item/ Display (Range)	Normal Condition	Diagnostic Note
ACC SW	ACC SW signal/ ON or OFF	ON: Power switch ON (ACC) OFF: Power switch OFF	–
IG SW	IG SW signal/ ON or OFF	ON: Power switch ON (IG) OFF: Power switch OFF	–
D DOR CTY SW	Driver's door courtesy SW signal/ON or OFF	ON: Driver's door is open OFF: Driver's door is closed	–
P DOR CTY SW	Passenger's door courtesy SW signal/ ON or OFF	ON: Passenger's door is open OFF: Passenger's door is closed	–
Rr DOR CTY SW	Rear door courtesy SW signal/ON or OFF	ON: Either right or left door is open OFF: Both the right and left door is closed	–
P LOCK POS SW	Front passenger's door lock position SW signal/ON or OFF	ON: Front passenger's door lock is in unlock position OFF: Front passenger's door lock is in lock position	–
DIMMER SW	Headlight dimmer SW signal/ON or OFF	ON: Headlamp dimmer switch is in HI or FLASH position OFF: Headlamp dimmer switch is in LO position	–
HIGH FLASHER SW	Headlight dimmer SW signal/ON or OFF	ON: Headlamp dimmer switch is in FLASH position OFF: Headlamp dimmer switch is in except FLASH position	–
F FOG LIGHT	Front fog light SW sig- nal/ ON or OFF	ON: Front fog lamp switch is in ON position OFF: Front fog lamp switch is in OFF position	–
AUTO LIGHT SW	Auto light SW signal/ ON or OFF	ON: Light control switch is in AUTO position OFF: Light control switch is not in AUTO position	–
HEAD LIGHT SW	Headlight control SW signal/ON or OFF	ON: Light control switch is in HEAD position OFF: Light control switch is not in HEAD position	–
TAIL LIGHT SW	Taillight SW signal/ On or OFF	ON: Light control switch is in TAIL or HEAD position	–
ILLUMINATE RATE	Illuminate rate/ ON or OFF	Condition value will be displayed	–
D LOCK POS SW	Driver's door lock position SW signal/ ON or OFF	ON: Driver's door lock is in unlock position OFF: Driver's door lock is in lock position	–
LIGHTING TIME	Lighting time/7.5 s, 15 s or 30 s	Customized value will be displayed	–
I/L AUTO OFF	Battery saver/ ON or OFF	Customized value will be displayed	–
I/L ON/ACC OFF	Light the I/L when ACC OFF/ ON or OFF	Customized value will be displayed	–
I/L ON /UNLK	Interior light ON W/Un- lock/ON or OFF	Customized value will be displayed	–
SENSITIVITY	Turn on luminous in- tensity/DARK1, DARK2, NOR- MAL,LIGHT1, LIGHT2	Customized value will be displayed	–

DIAGNOSTICS – LIGHTING SYSTEM

Item	Measurement Item/ Display (Range)	Normal Condition	Diagnostic Note
DISP EX ON SEN	Display extinction luminous intensity/ DARK1, DARK2, NORMAL, LIGHT1, LIGHT2	Customized value will be displayed	–
DISP EX OFF SEN	Display extinction release luminous intensity/ DARK1, DARK2, NORMAL, LIGHT1, LIGHT2	Customized value will be displayed	–
DRL FUNCTION (*1)	DRL function/ ON or OFF	Customized value will be displayed	–

*1: w/ Daytime Running Light for U.S.A.

2. ACTIVE TEST

HINT:

Performing the "ACTIVE TEST" using the hand-held tester allows the relay, VSV, actuator, etc. to operate without removing any parts. Performing the "ACTIVE TEST" as the first step of troubleshooting is one of the methods to shorten labor time. The DATA LIST can be displayed during the ACTIVE TEST.

- Connect the hand-held tester to the DLC3.
- Turn the power switch on (IG).
- Perform the "ACTIVE TEST" according to the display on the tester.

B No.1/GW:

Item	Test Details	Diagnostic Note
HAZARD	Turn hazard lamp flasher relay ON/OFF	–
F FOG LIGHT	Turn front fog lamp relay ON/OFF	–
HEAD LIGHT	Turn headlamp relay ON/OFF	–
HEAD LIGHT (HI)	Turn headlamp dimmer relay (headlamp dimmer switch HI position) ON/OFF	–
TAIL LIGHT	Turn taillamp relay ON/OFF	–
DRL RELAY	(Test Details) Turn daytime running light relay ON/OFF (Vehicle Condition) Power switch ON (IG), engine is stopped and light control SW is in OFF	–
DIMMER SIG	Turn dimmer relay ON/OFF	–
ILLUMI OUTPUT	(Test Details) Turn daytime light and key illumination ON/OFF (Vehicle Condition) Interior light switch is in DOOR position and all doors are closed	–

INSPECTION PROCEDURE

HINT:

Each door courtesy switch circuit is same procedure. First, inspect the suspected door courtesy switch circuit.

1 READ VALUE OF HAND-HELD TESTER

- (a) Connect the hand-held tester to the DLC3.
- (b) Push the power switch ON (IG) and turn the hand-held tester main switch on.
- (c) Select the items below in the DATA LIST, and read the displays on the hand-held tester.

B No.1/GW (Multiplex Network Body ECU):

Item	Measurement Item/ Display (Range)	Normal Condition	Diagnostic Note
D DOR CTY SW	Driver's door courtesy SW signal/ON or OFF	ON: Driver's door is open OFF: Driver's door is closed	–
P DOR CTY SW	Passenger's door courtesy SW signal/ ON or OFF	ON: Passenger's door is open OFF: Passenger's door is closed	–
Rr DOR CTY SW	Rear door courtesy SW signal/ON or OFF	ON: Either right or left door is open OFF: Both the right and left doors are closed	–

NG

Go to step 2

OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1677)**

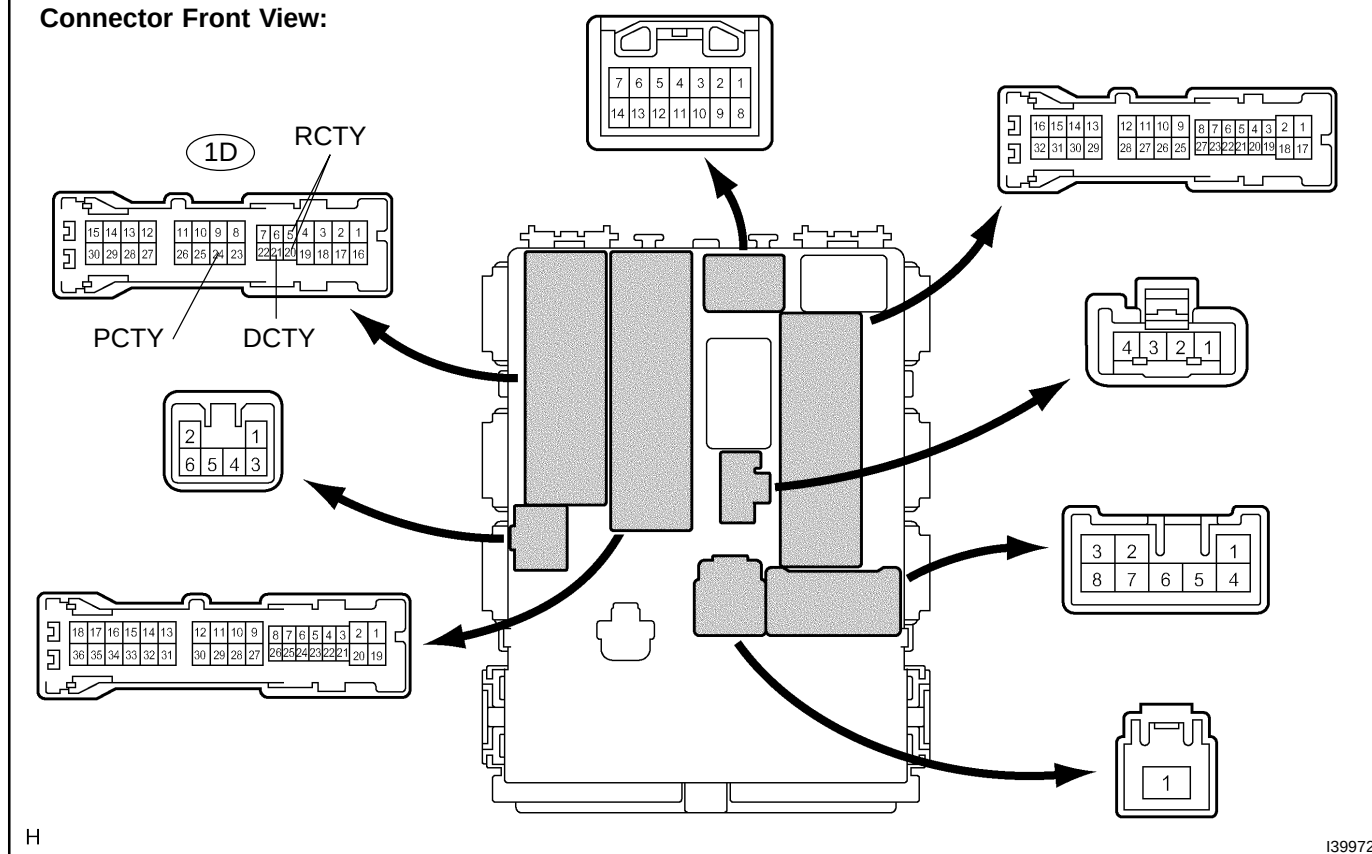
2 CHECK HARNESS AND CONNECTOR(COURTESY LAMP SWITCH – INSTRUMENT PANEL JUNCTION BLOCK ASSY)

- Disconnect the 1D connectors from the instrument panel junction block assy.
- Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
1D-24 – Body ground	Front passenger door is open Front passenger door is closed	Below 1 Ω 10 k Ω or higher
1D-21 – Body ground	Front driver door is open Front driver door is closed	Below 1 Ω 10 k Ω or higher
1D-20 – Body ground	Rear RH door is open Rear RH door is closed	Below 1 Ω 10 k Ω or higher
1D-5 – Body ground	Rear LH door is open Rear LH door is closed	Below 1 Ω 10 k Ω or higher

Instrument Panel Junction Block Connector Front View:



NG

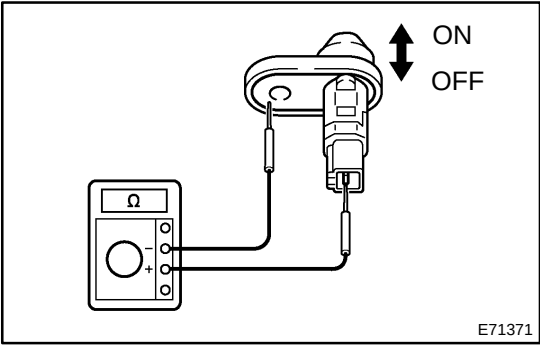
Go to step 3

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1677)

3

INSPECT COURTESY LAMP SWITCH



- (a) Remove the courtesy lamp switch.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
1 – Switch body	OFF (When shaft is pressed)	10 kΩ or higher
1 – Switch body	ON (When shaft is not pressed)	Below 1Ω

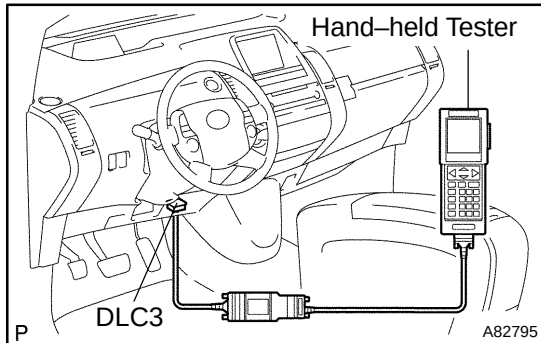
NG

REPLACE COURTESY LAMP SWITCH

OK

REPAIR OR REPLACE HARNESS OR CONNECTOR (EACH OF COURTESY SWITCH CIRCUIT)

DTC CHECK/CLEAR



1. DTC CHECK

- (a) Connect the hand-held tester to the DLC3.
- (b) Turn the ignition switch to the ON position.
- (c) Read DTCs by following the prompts on the tester screen.

HINT:

Please refer to the hand-held tester operator's manual for further details.

2. DTC CLEAR

- (a) DTCs can be erased by operating the hand-held tester.

HINT:

Please refer to the hand-held tester operator's manual for further details.

FAIL-SAFE CHART

1. HEADLAMP BEAM LEVEL CONTROL ECU

- (a) If the headlamp beam level control ECU detects the following malfunctions, it performs the fail safe control, blinks the master warning lamp in the combination meter, and displays "AUTO LEVELING WARNING" on the multi-display.
- (b) *1: Stops the actuator operation.
*2: Replaces the minimum or maximum value of the actuator's operating range with the calculated value.

Item	Condition to transfer	Condition to return	Warning indication
Over voltage (*1)	Detects input voltage of more than 18.5 V	Detects less than 17.5 V	Appears
Low voltage (*1)	Detects input voltage of less than 9 V	Detects more than 9.3 V	Does not appear
Vehicle height sensor malfunction (*1)	• Detects vehicle height sensor supply voltage of less than 4 V • Detects vehicle height signal malfunction (not within 0.5 V and 4.5 V) • Vehicle height sensor power source supply line is open, or short to GND • Vehicle height sensor GND line is open	Detects normal voltage for 5 sec.	Appears
Microcomputer (*1)	Detects ECU malfunction	Cancels reset of microcomputer	Appears
Leveling angle calculation value (*2)	Calculates values out of the actuator's operative range	–	Does not appear

2. MULTIPLEX NETWORK BODY ECU (CONLIGHT CONTROL)

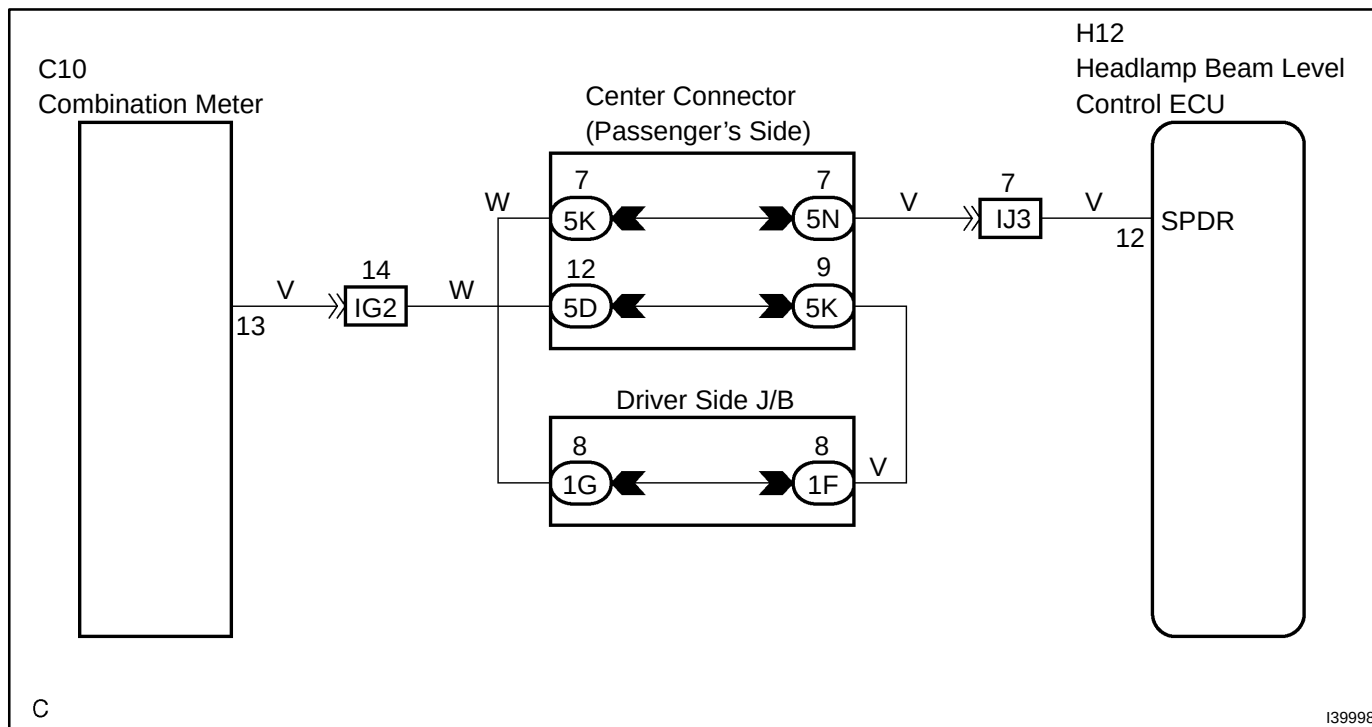
- (a) The multiplex network body ECU keeps the headlamp or taillamp on if there is a malfunction in the light sensor systems while the headlamp is on due to the conlight control (headlamp dimmer switch is in AUTO position).
- (b) The multiplex network body ECU prohibits conlight control if there is a malfunction in the sensor systems when the headlamp goes off.

VEHICLE SPEED SIGNAL CIRCUIT

CIRCUIT DESCRIPTION

Headlamp beam level control ECU receives the vehicle speed signal from the combination meter.

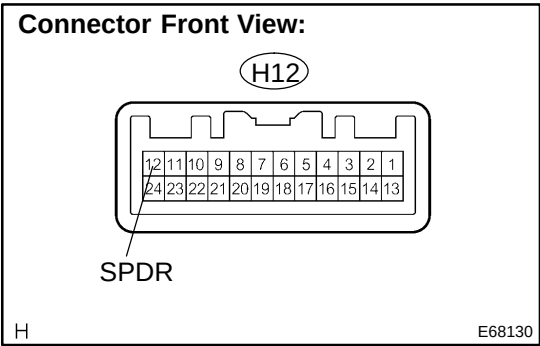
WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:
Check if the combination meter operation is normal before performing the following procedure.

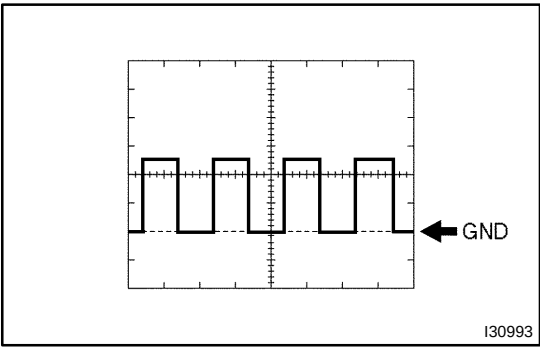
1 INSPECT HEADLAMP LEVELING ECU ASSY



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

Standard:

Tester connection	Condition	Specified condition
H12-12 (SPDR) – Body ground	Vehicle is driving approx. 30 km/h (19 mph)	0 to 14 V Pulse generation (Waveform 1)



Waveform 1: Oscilloscope wave

- HINT:
- Gauge set: 5 V / DIV. 2 ms / DIV
 - Condition: Vehicle is driving approximately 30 km/h (19 mph).

OK: Waveform is output as shown in the illustration.

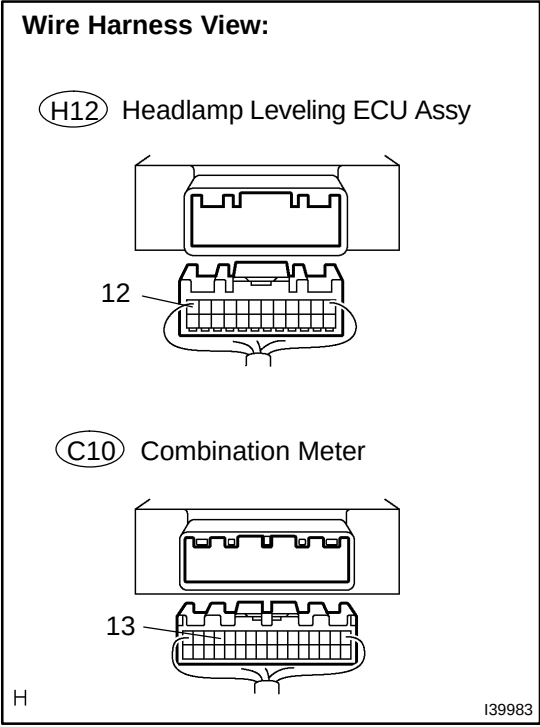
OK

NG Go to step 2

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1677)

2

CHECK HARNESS AND CONNECTOR(COMBINATION METER ASSY – HEADLAMP LEVELING ECU ASSY)



- (a) Disconnect the combination meter connector and headlamp leveling ECU assy connector.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
H12-12 – C10-13	Always	Below 1 Ω
H12-12 – Body ground	Always	10 kΩ or higher

NG

REPAIR OR
CONNECTOR

REPLACE HARNESS OR

OK

REPLACE COMBINATION METER ASSY (SEE PAGE 71-19)

INITIALIZATION

1. HEADLAMP LEVELING ECU INITIALIZATION

NOTICE:

- Initialize the headlamp leveling ECU when: vehicle height changes by such means as removal, installation, and replacement of the height control sensor, replacement of the suspension, or replacement of the headlamp leveling ECU assy.
- Adjust the headlamp aim after initializing the headlamp leveling ECU (see page 65-16).

1	CHECK VEHICLE CONDITION
---	-------------------------

- (a) Leave approximately 10 liters of fuel in the tank (fuel indicator shows approximately 2 segments).
(b) Unload the vehicle.
(c) Check that there is no passenger in the vehicle.
(d) Turn off the headlamps.



2	CHECK WARNING INDICATOR
---	-------------------------

- (a) Turn the power switch on (IG) and check if the warning indication appears.

Standard: Master warning in the meter blinks and "AUTO LEVELING WARNING" appears.

HINT:

Warning indication appears only when replacing with a new headlamp leveling ECU. Go to "OK" for removal/installation of the headlamp leveling ECU, replacement/removal/installation of the height control sensor, or replacement of the suspension.

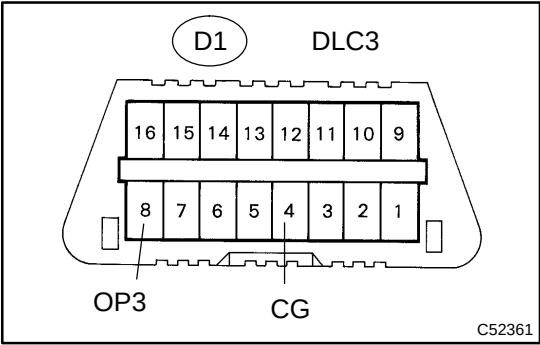
NG

CHECK HEADLAMP LEVELING ECU, WIRE HARNESS AND CONNECTOR

OK

3

INITIALIZATION



- (a)
- Connect terminals 4 (CG) and 8 (OP3) of the DLC3 using the SST.
- (b)
- Flash the headlamp more than 3 times within 20 seconds using the headlamp dimmer switch. Check if warning indication appears.

NOTICE:

- Flash the headlamp at an interval of 1 second.

Standard:

Action	Warning indication
Headlamp leveling ECU replacement (new)	Appears → Disappears (initialization complete)
Headlamp leveling ECU removal/installation, height control sensor replacement/removal/installation, or suspension replacement	Does not appears → Appears (initialization complete) → Disappears

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RETURN TO STEP 2 IF INITIALIZATION DOES NOT SUCCEED AFTER REPEATING (b) MORE THAN 20 TIMES

OK

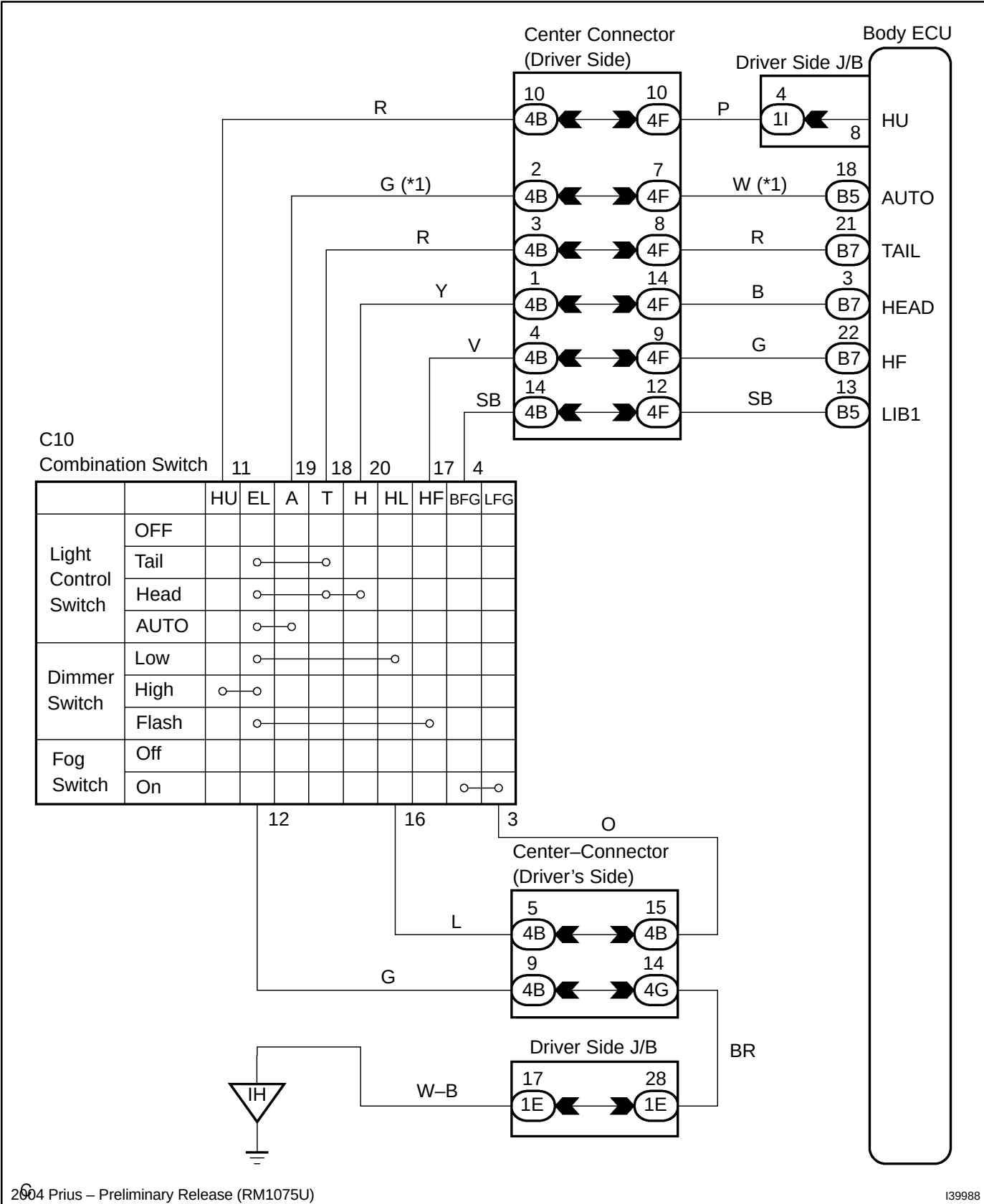
INITIALIZATION COMPLETE

LIGHT CONTROL SWITCH CIRCUIT

CIRCUIT DESCRIPTION

This circuit detects the state of the headlamp dimmer switch.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 READ VALUE OF HAND-HELD TESTER

- (a) Connect the hand-held tester to the DLC3.
 (b) Push the power switch ON (IG) and press the hand-held tester main switch on.
 (c) Select the items below in the DATA LIST, and read the displays on the hand-held tester.

B No.1/GW (Multiplex Network Body ECU):

Item	Measurement Item/ Display (Range)	Normal Condition	Diagnostic Note
DIMMER SW	Headlight dimmer SW signal/ON or OFF	ON: Headlamp dimmer switch is in HI or FLASH position OFF: Headlamp dimmer switch is in LO position	–
HIGH FLASHER SW	Headlight dimmer SW signal/ON or OFF	ON: Headlamp dimmer switch is in FLASH position OFF: Headlamp dimmer switch is in except FLASH position	–
AUTO LIGHT SW	Auto light SW signal/ ON or OFF	ON: Light control switch is in AUTO position OFF: Light control switch is in except AUTO position	–
HEAD LIGHT SW	Head light control SW signal/ON or OFF	ON: Light control switch is in HEAD position OFF: Light control switch is in except HEAD position	–
TAIL LIGHT SW	Taillight SW signal/ ON or OFF	ON: Light control switch is in TAIL or HEAD position	–

NG**Go to step 2****OK**

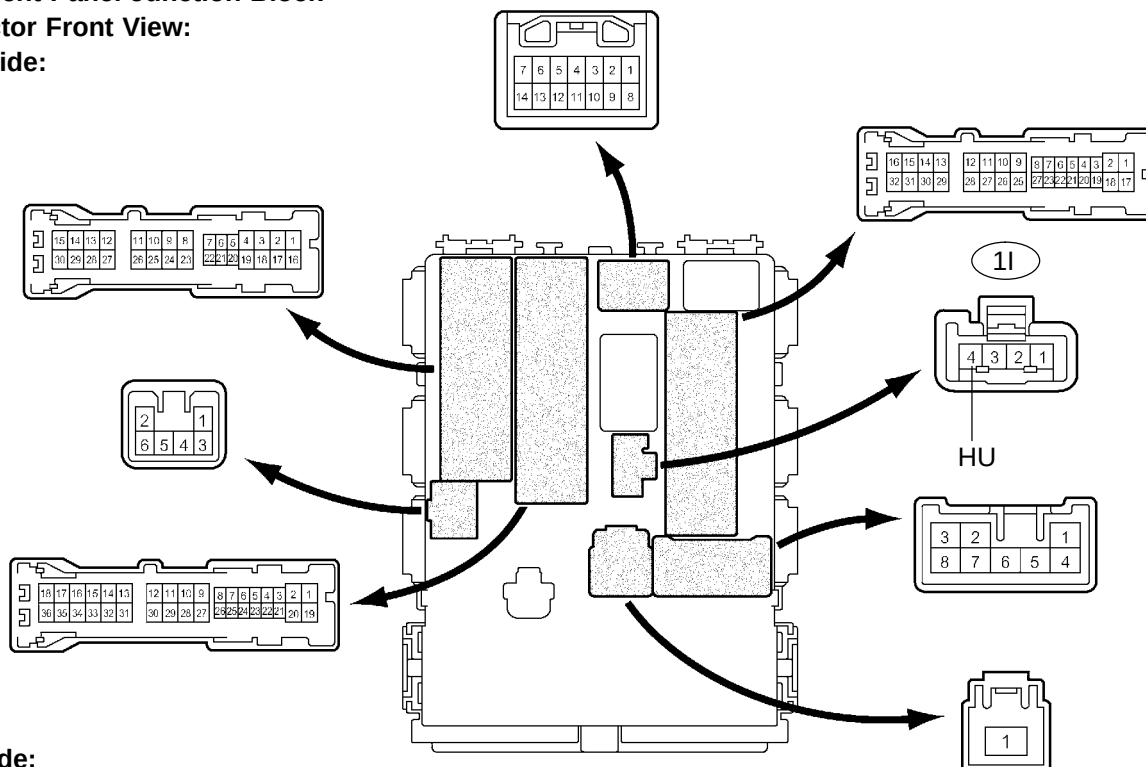
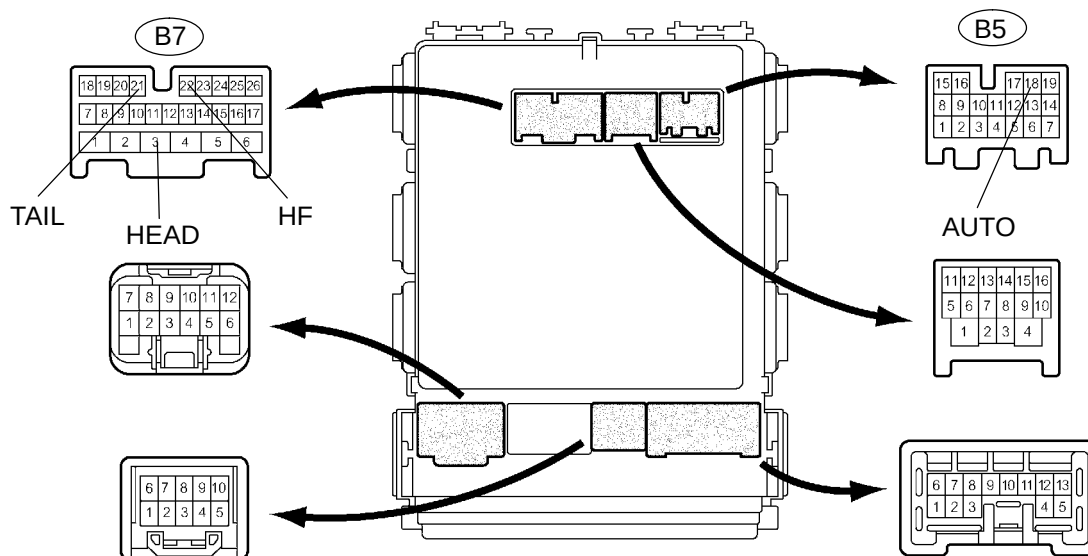
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
 (SEE PAGE 05-1677)**

2 INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY

- (a) Disconnect the B5, B7 and 1I connectors from the instrument panel junction block assy.
 (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
1I-4 – Body ground	Headlamp dimmer switch LOW → HIGH	10 kΩ or higher → Below 1 Ω
B5-18 – Body ground	Light control switch OFF → AUTO	10 kΩ or higher → Below 1 Ω
B7-3 – Body ground	Light control switch OFF → HEAD	10 kΩ or higher → Below 1 Ω
B7-21 – Body ground	Light control switch OFF → TAIL	10 kΩ or higher → Below 1 Ω
B7-22 – Body ground	Headlamp dimmer switch LOW → FLASH	10 kΩ or higher → Below 1 Ω

Instrument Panel Junction Block**Connector Front View:****Front Side:****Rear Side:**

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NG

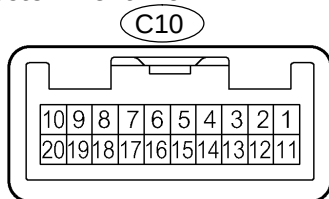
Go to step 3

OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1677)**

3 INSPECT HEADLAMP DIMMER SWITCH ASSY

Connector Front View:



H

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- (a) Inspect light control switch continuity.
 (1) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
12 – 18 12 – 19 12 – 20	OFF	10 kΩ or higher
12 – 18	TAIL	Below 1 Ω
12 – 18 12 – 20	HEAD	Below 1 Ω
12 – 19	AUTO	Below 1 Ω

- (b) Inspect headlamp dimmer switch continuity.
 (1) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
11 – 12 12 – 17	FLASH	Below 1 Ω
12 – 16	LOW BEAM	Below 1 Ω
11 – 12	HIGH BEAM	Below 1 Ω

NG

**REPLACE HEADLAMP DIMMER SWITCH ASSY
 (SEE PAGE 65-23)**

OK

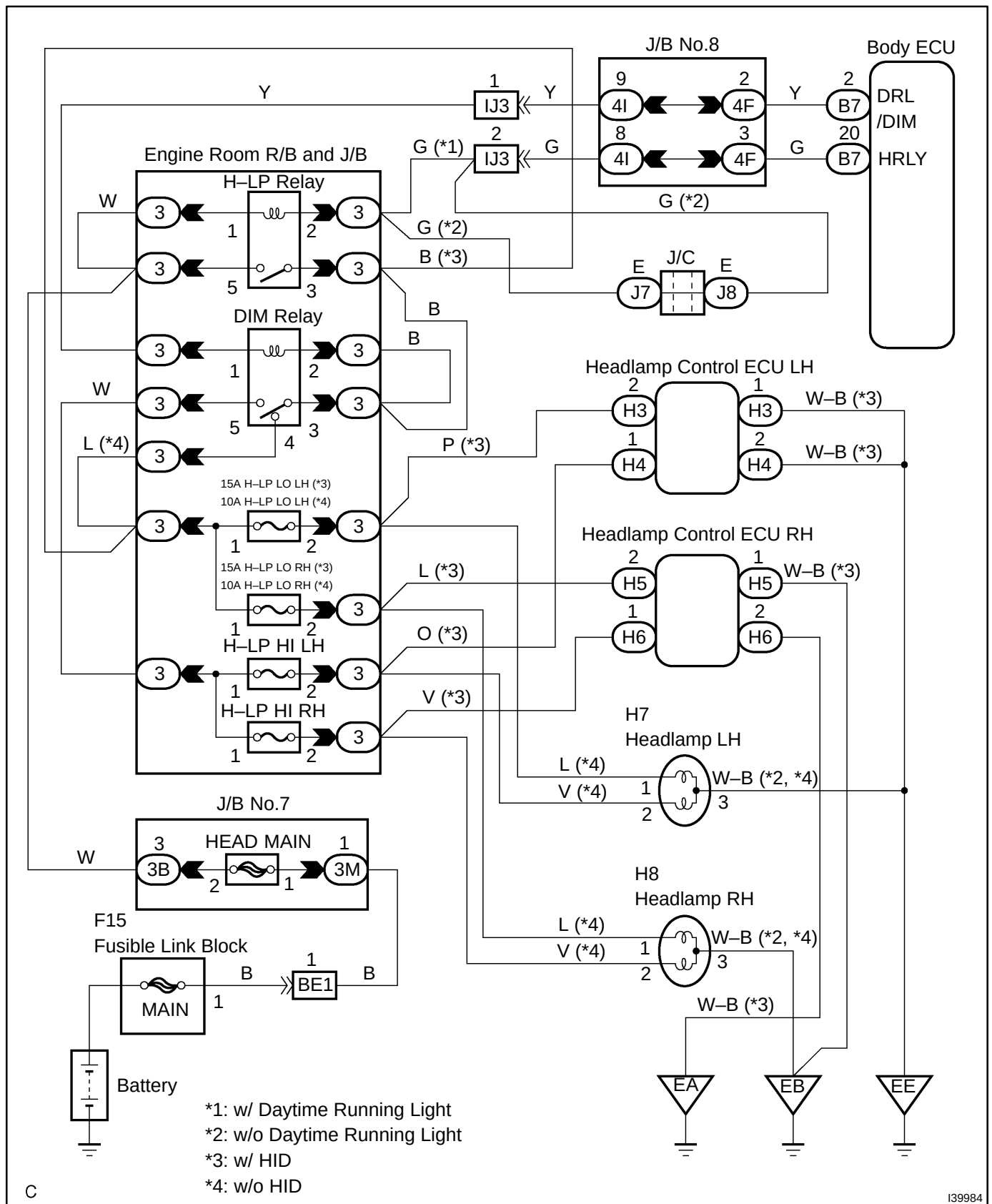
REPAIR OR REPLACE HARNESS OR CONNECTOR

HEADLIGHT RELAY CIRCUIT

CIRCUIT DESCRIPTION

The multiplex network body ECU controls the HEAD relay when signals are received from the headlamp dimmer switch assy.

WIRING DIAGRAM



INSPECTION PROCEDURE**1 PERFORM ACTIVE TEST USING HAND-HELD TESTER**

- (a) Connect the hand-held tester to the DLC3.
(b) Push the power switch ON (IG) and turn the hand-held tester main switch on.
(c) Select the item below in the ACTIVE TEST and then check that the head relay operates.

B No.1/GW (Multiplex Network Body ECU):

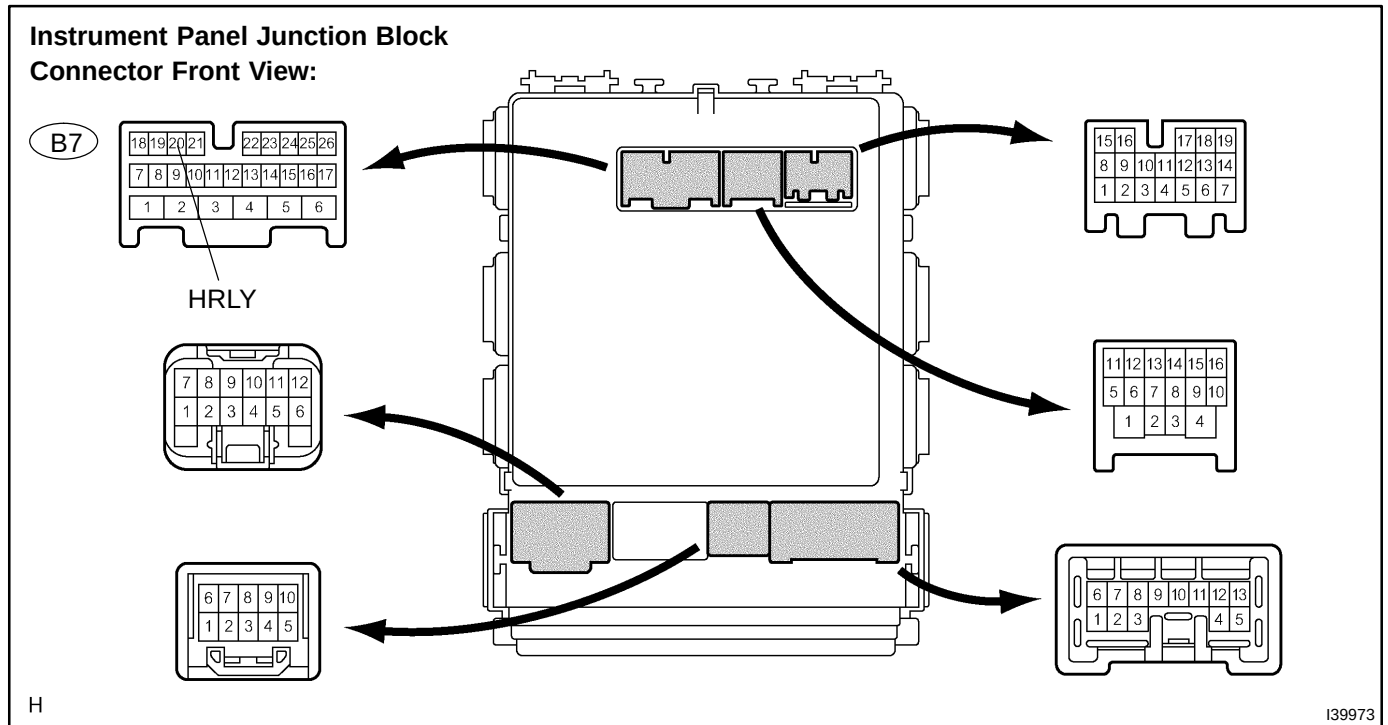
Item	Test Details	Diagnostic Note
HEAD LIGHT	Turn headlamp relay ON/OFF	–
HEAD LIGHT (HI)	Turn headlamp dimmer relay (headlamp dimmer switch in HI position) ON/OFF	–

OK: Headlamp is comes on.**NG****Go to step 2****OK****PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1677)**

2 INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY

- (a) Disconnect the B7 connector from the instrument panel junction block assy.
- (b) Using a service wire, connect B7-20 of the wire harness side and body ground.

OK: Headlamp (Low beam) comes on



NG

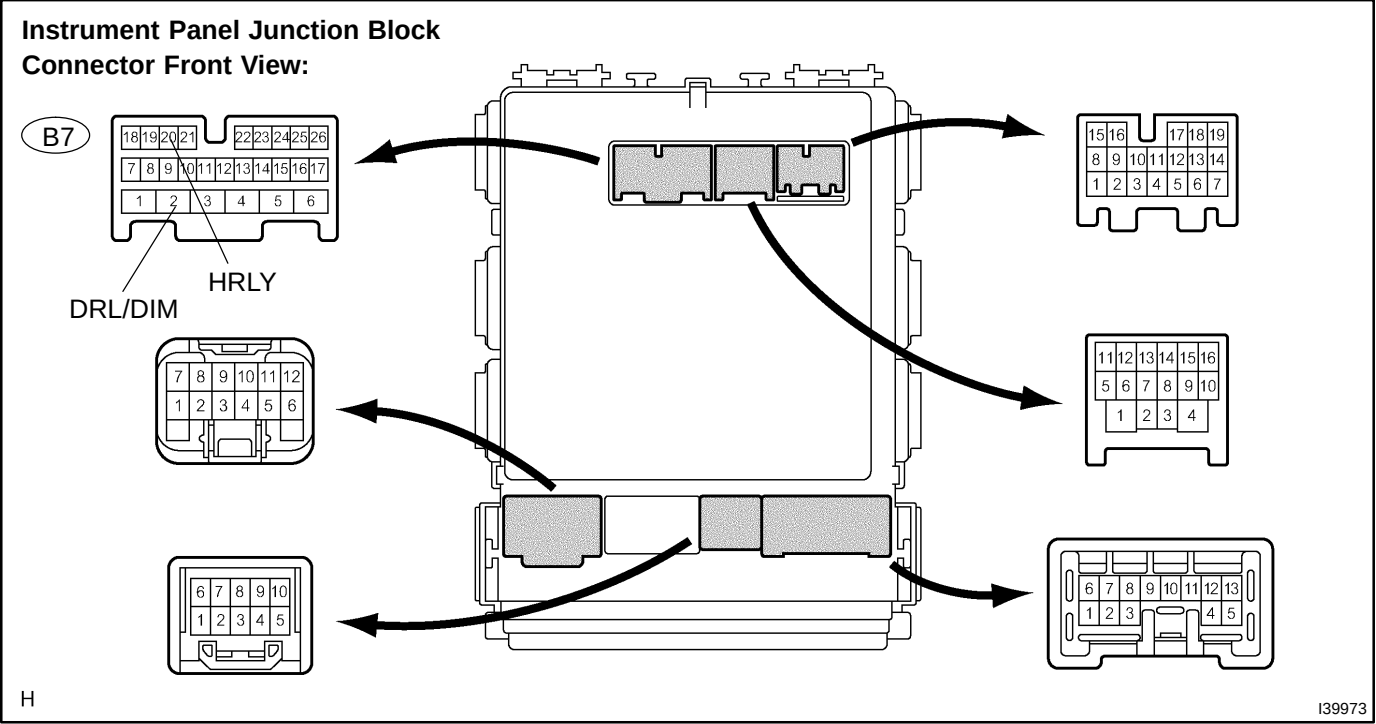
Go to step 4

OK

3 INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY

- (a) Using a service wire, connect B7-20 of the wire harness side and body ground.
- (b) Using a service wire, connect B7-2 of the wire harness side and body ground.

OK: Headlamp (High beam) comes on



NG

Go to step 5

OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1677)**

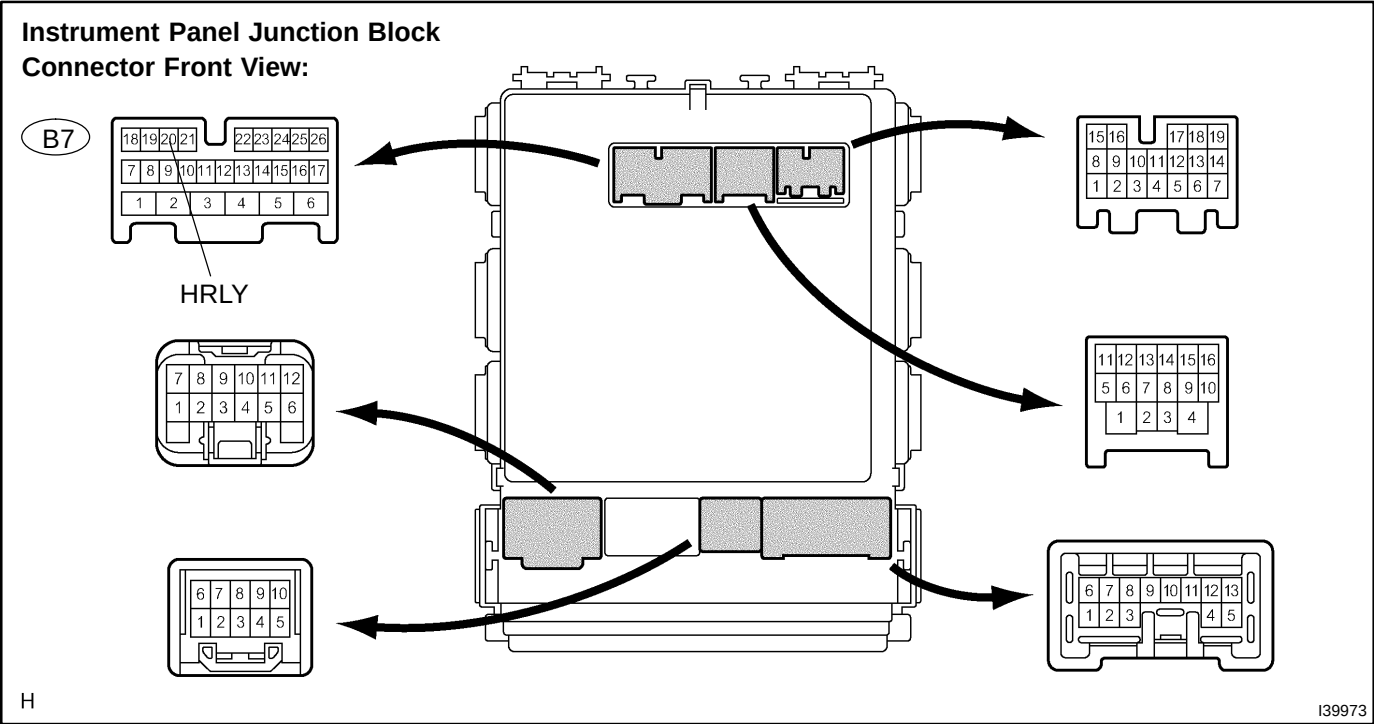
4

CHECK HARNESS AND CONNECTOR(HEAD SIGNAL CIRCUIT)

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

Standard:

Tester connection	Condition	Specified condition
B7-20 – Body ground	Always	10 to 14 V



NG

REPAIR OR REPLACE HARNESS OR CONNECTOR (INSTRUMENT PANEL JUNCTION BLOCK ASSY – BATTERY)

OK

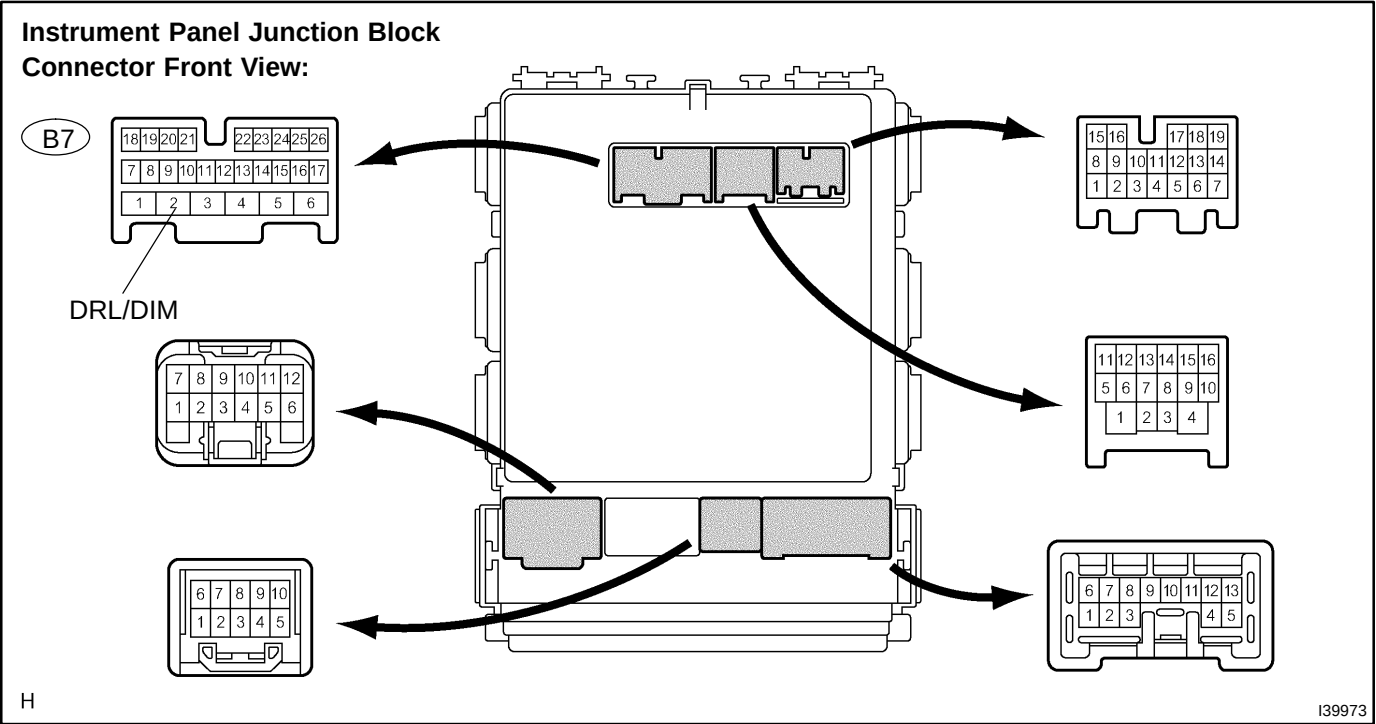
REPAIR OR REPLACE HARNESS OR CONNECTOR (EACH OF HEADLIGHT (LOW BEAM) CIRCUIT)

5 CHECK HARNESS AND CONNECTOR(DRL/DIM SIGNAL CIRCUIT)

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

Standard:

Tester connection	Condition	Specified condition
B7-2 – Body ground	Connect B5-20 and Body ground	10 to 14 V



NG REPAIR OR REPLACE HARNESS OR CONNECTOR (INSTRUMENT PANEL JUNCTION BLOCK ASSY – ENGINE ROOM R/B AND J/B)

OK

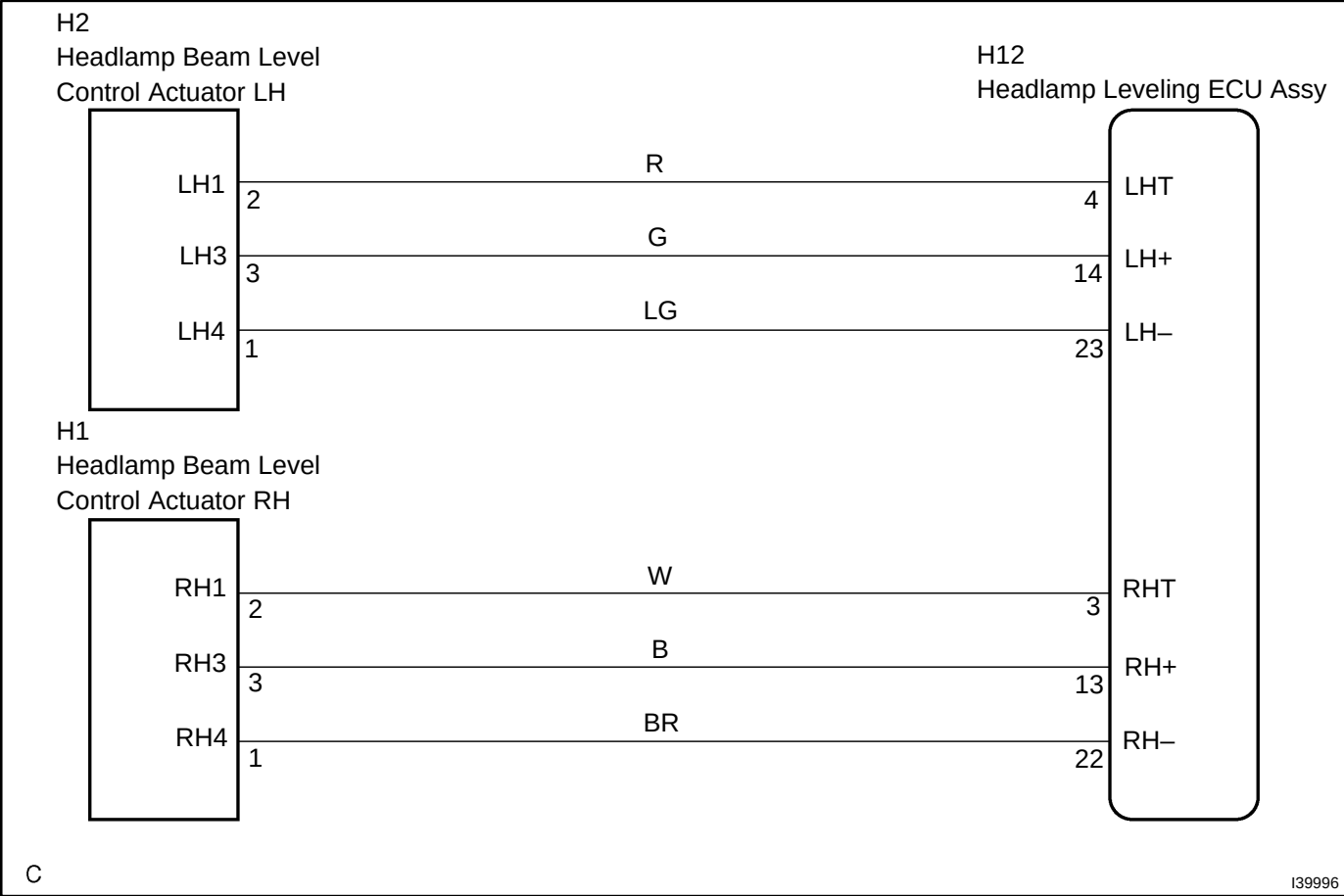
REPAIR OR REPLACE HARNESS OR CONNECTOR (EACH OF HEADLIGHT (HIGH BEAM) CIRCUIT)

HEADLIGHT BEAM LEVEL CONTROL ACTUATOR CIRCUIT

CIRCUIT DESCRIPTION

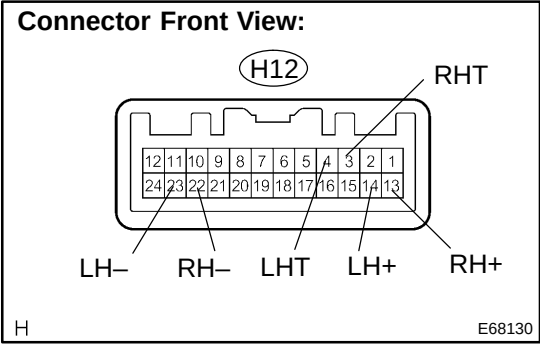
When the actuator receives signals from the headlight beam level control ECU, the step motor is activated and the angle of the reflector in the headlamp will be adjusted.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 INSPECT HEADLAMP LEVELING ECU ASSY



- (a) Disconnect the connector from each headlamp leveling control actuator.
- (b) Measure the voltage according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
H12-13 (RH+) – H12-22 (RH-)	Power switch ON (IG)	10 to 14 V
H12-14 (LH+) – H12-23 (LH-)	Power switch ON (IG)	10 to 14 V
H12-3 (RHT) – H12-22 (RH-)	With power switch ON (IG) and headlamp ON, change the vehicle height and keep it for more than 2 seconds	10 to 12.6 V (Approx. 10 seconds)
H12-4 (LHT) – H12-23 (LH-)	With power switch ON (IG) and headlamp ON, change the vehicle height and keep it for more than 2 seconds	10 to 12.6 V (Approx. 10 seconds)

NG

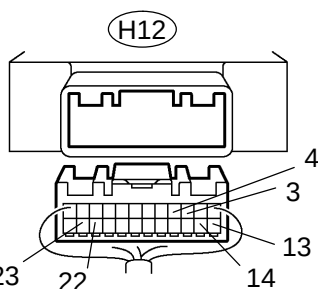
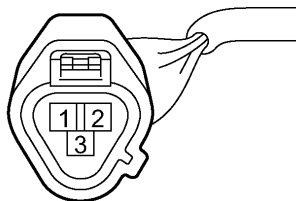
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1677)

OK

2 CHECK HARNESS AND CONNECTOR(HEADLAMP BEAM LEVEL CONTROL ACTUATOR – HEADLAMP LEVELING ECU ASSY)

Wire Harness View:

- (H2) Headlamp Beam Level Control Actuator LH
(H1) Headlamp Beam Level Control Actuator RH



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- Disconnect the connector of headlamp beam level control motor and the H12 connector of the headlamp beam level control ECU.
- Measure the resistance according to the value(s) in the table below.

Standard:

LH Side:

Tester connection	Condition	Specified condition
H12-4 (LHT) – H2-2 (LH1)	Always	Below 1 Ω
H12-14 (LH+) – H2-3 (LH3)	Always	Below 1 Ω
H12-23 (LH-) – H2-1 (LH4)	Always	Below 1 Ω
H12-4 (LHT) – Body ground	Always	10 k Ω or higher
H12-14 (LH+) – Body ground	Always	10 k Ω or higher
H12-23 (LH-) – Body ground	Always	10 k Ω or higher

RH Side:

Tester connection	Condition	Specified condition
H12-3 (RHT) – H1-2 (RH1)	Always	Below 1 Ω
H12-13 (RH+) – H1-3 (RH3)	Always	Below 1 Ω
H12-22 (RH-) – H1-1 (RH4)	Always	Below 1 Ω
H12-3 (RHT) – Body ground	Always	10 k Ω or higher
H12-13 (RH+) – Body ground	Always	10 k Ω or higher
H12-22 (RH-) – Body ground	Always	10 k Ω or higher

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE HEADLAMP ASSY (HEADLAMP BEAM LEVEL CONTROL ACTUATOR)

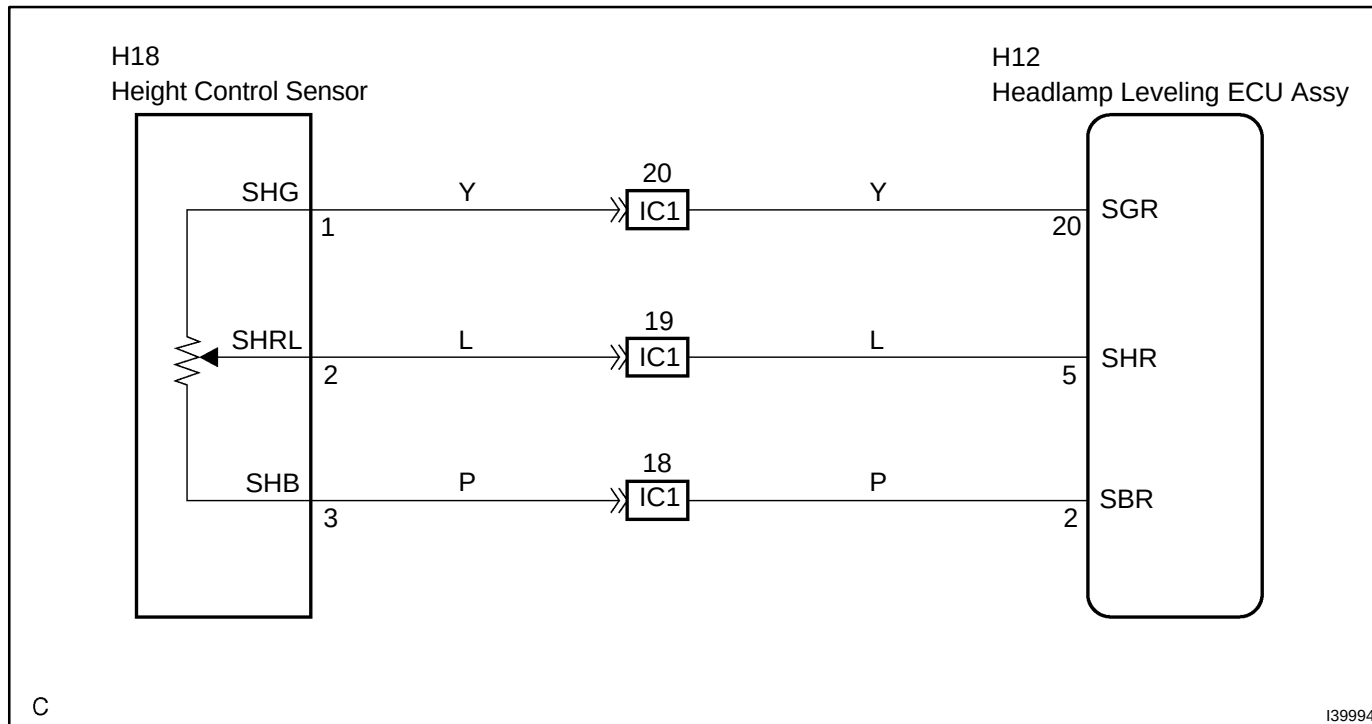
HEIGHT CONTROL SENSOR CIRCUIT

CIRCUIT DESCRIPTION

The headlamp leveling ECU assy receives the height control sensor signal from the height control sensor sub-assy or height control ECU.

The headlamp leveling ECU assy calculates a height value from the height control signal. The voltage at the power source of the height control sensor is corrected when SHR is detected.

WIRING DIAGRAM

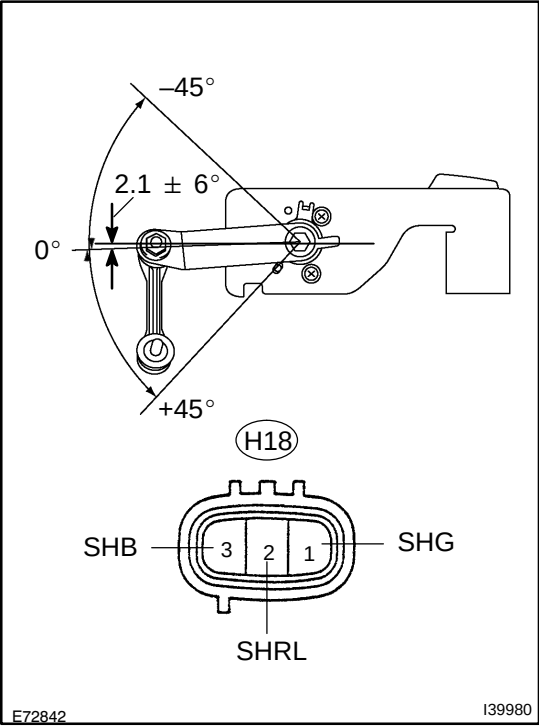


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INSPECTION PROCEDURE

1 INSPECT HEIGHT CONTROL SENSOR SUB-ASSY REAR LH



- (a) Connect 3 dry cell batteries (1.5 V) in series.
- (b) Connect the positive (+) lead from the battery to terminal 3 and negative (-) lead from the battery to terminal 1.
- (c) Measure the voltage between terminals 1 and 2 when slowly moving the link up and down.

Standard:

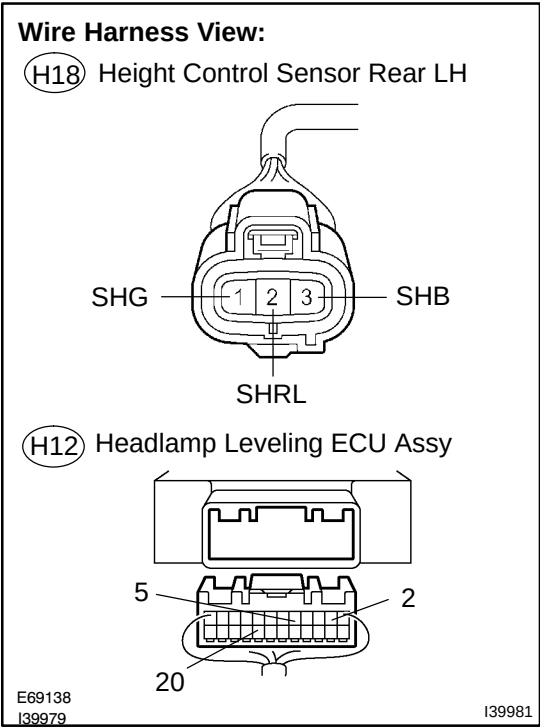
Link angle	Standard voltage
+45° (High)	Approx. 4.5 V
0° (Normal)	Approx. 2.5 V
-45° (Low)	Approx. 0.5 V

NG REPLACE HEIGHT CONTROL SENSOR SUB-ASSY REAR LH (SEE PAGE 65-25)

OK

2

CHECK HARNESS AND CONNECTOR(HEIGHT CONTROL SENSOR SUB-ASSY REAR LH – HEADLAMP LEVELING ECU ASSY)



- (a) Disconnect the H12 connector from headlamp leveling ECU assy.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
H12-20 (SGR) – H18-1 (SHG)	Always	Below 1 Ω
H12-5 (SHR) – H18-2 (SHRL)	Always	Below 1 Ω
H12-2 (SBR) – H18-3 (SHB)	Always	Below 1 Ω
H18-1 (SHG) – Body ground	Always	10 kΩ or higher
H18-2 (SHRL) – Body ground	Always	10 kΩ or higher
H18-3 (SHB) – Body ground	Always	10 kΩ or higher

NG

REPAIR OR
CONNECTOR

REPLACE HARNESS OR

OK

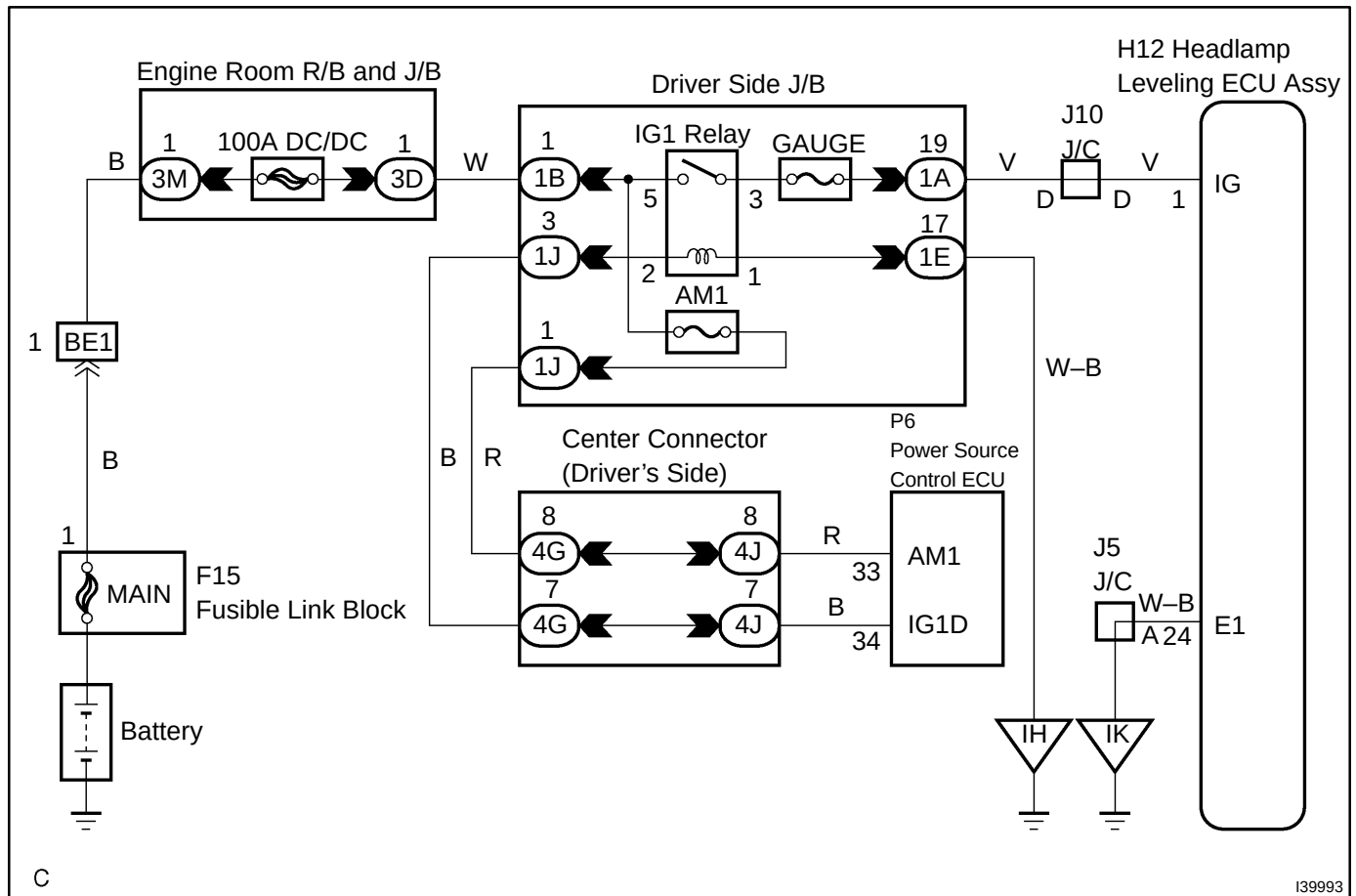
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1677)

HEADLIGHT BEAM LEVEL CONTROL ECU POWER SOURCE CIRCUIT

CIRCUIT DESCRIPTION

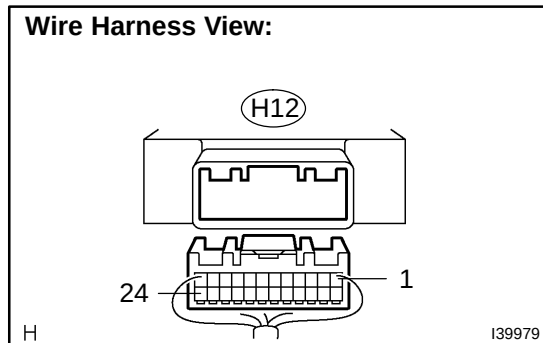
This circuit provides power to operate the headlamp leveling ECU Assy.

WIRING DIAGRAM



cardiagn.com

INSPECTION PROCEDURE

1 INSPECT HEADLAMP LEVELING ECU ASSY**Wire Harness View:**

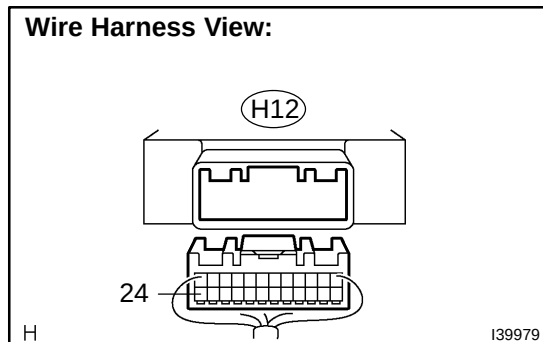
- (a) Disconnect the H12 connector from the headlamp leveling ECU assy.
- (b) Measure the voltage according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
H12-1 (IG) – H12-24 (E1)	Power switch OFF → ON (IG)	Below 1 V → 10 to 14 V

NG**Go to step 2****OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1677)**

2 CHECK HARNESS AND CONNECTOR(HEADLAMP LEVELING ECU ASSY – BODY GROUND)**Wire Harness View:**

- (a) Disconnect H12 connector from the headlamp leveling ECU assy.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
H12-24 (E1) – Body ground	Always	Below 1 Ω

NG**REPAIR OR REPLACE HARNESS OR CONNECTOR (GROUND CIRCUIT)****OK**

REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)

AUTOMATIC LIGHT CONTROL SENSOR CIRCUIT

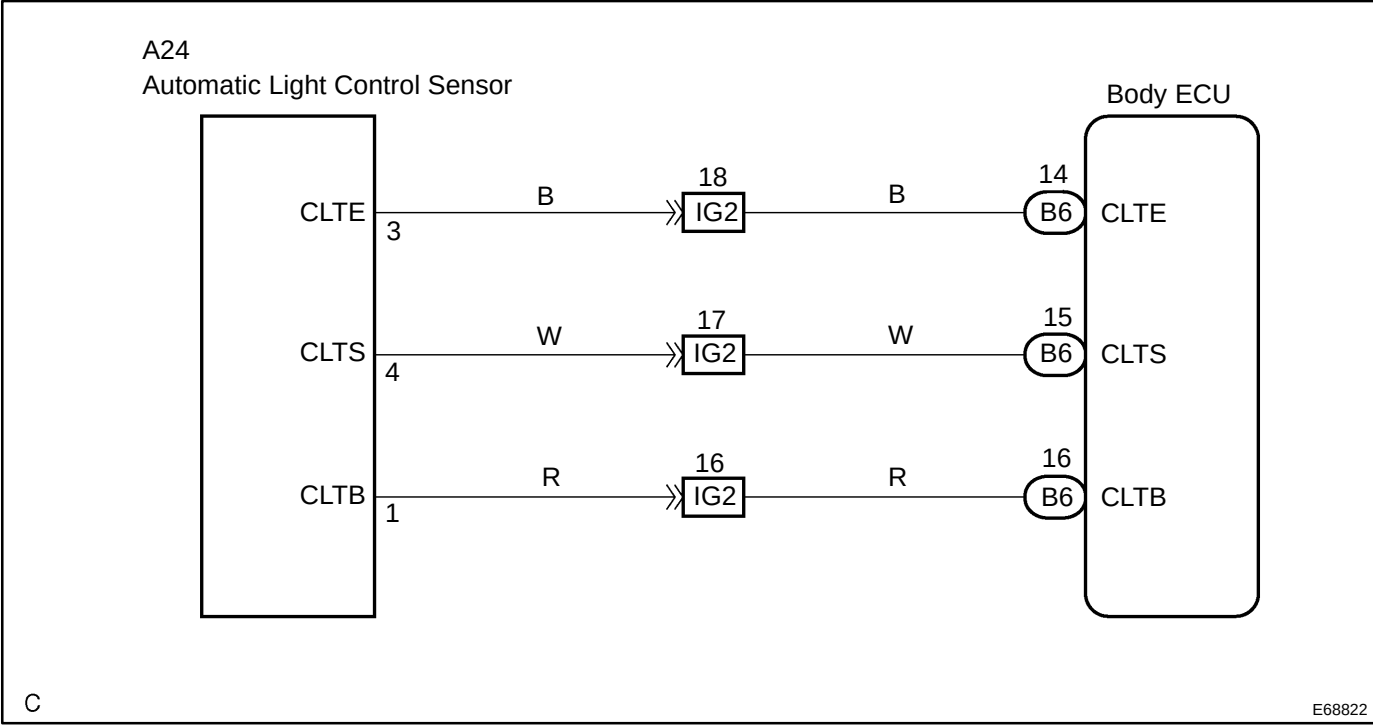
CIRCUIT DESCRIPTION

The multiplex network body ECU receives signals from the automatic light control sensor.

HINT:

A DTC code is output when the automatic light control sensor is malfunctioning or there is an open or short circuit in the automatic light control sensor (see page 05-1691).

WIRING DIAGRAM



INSPECTION PROCEDURE

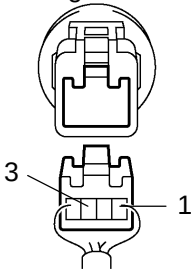
1

CHECK HARNESS AND CONNECTOR(AUTOMATIC LIGHT CONTROL SENSOR POWER SOURCE CIRCUIT)

Wire Harness View:

A24

 Automatic Light Control Sensor



- (a) Disconnect the automatic light control sensor connector.
- (b) Measure the voltage according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
A24-1 – A24-3	Power switch ON (IG)	10 to 14 V

NG

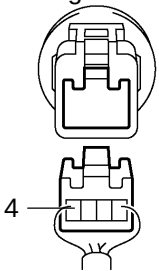
Go to step 4

OK

2

CHECK HARNESS AND CONNECTOR(INSTRUMENT PANEL JUNCTION BLOCK ASSY – AUTOMATIC LIGHT CONTROL SENSOR)

Wire Harness View:
A24 Automatic Light Control Sensor



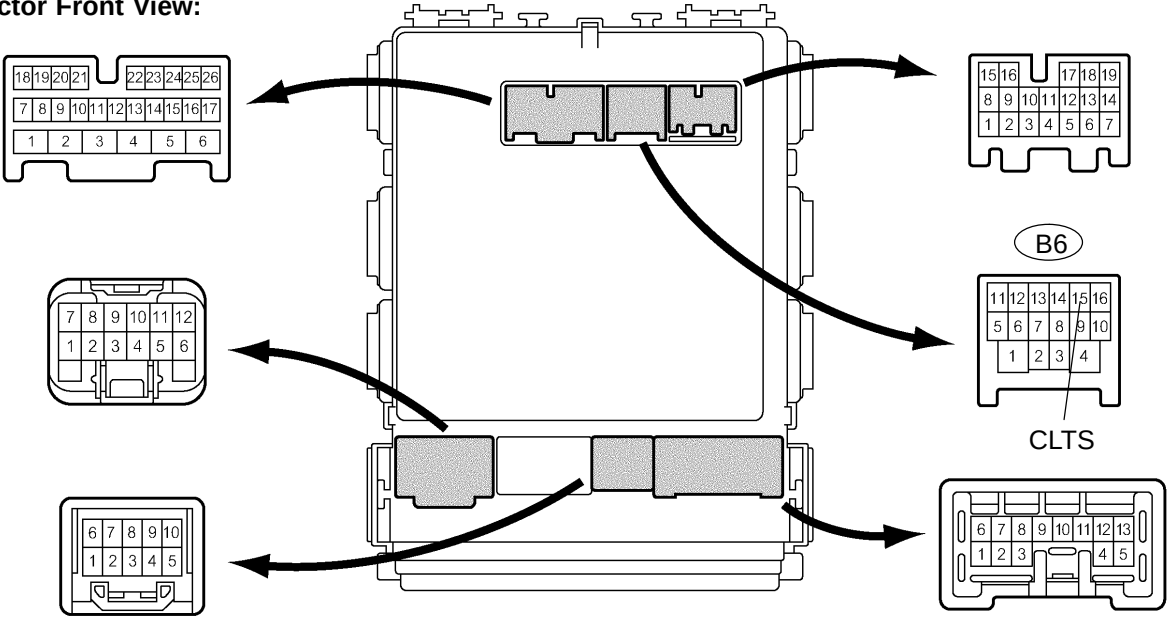
I39976

- (a) Disconnect the B6 connector from the multiplex network body ECU.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
A24-4 – B6-15	Always	Below 1 Ω

Instrument Panel Junction Block
Connector Front View:



H

I39973

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3

REPLACE AUTOMATIC LIGHT CONTROL SENSOR

OK: Returns to normal operation.

NG

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1677)

OK

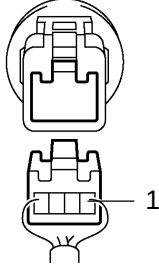
END

4

CHECK HARNESS AND CONNECTOR(INSTRUMENT PANEL JUNCTION BLOCK ASSY – AUTOMATIC LIGHT CONTROL SENSOR)

Wire Harness View:

(A24) Automatic Light Control Sensor



I39976

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

Standard:

Tester connection	Condition	Specified condition
A24-1 – Body ground	Power switch ON (IG)	10 to 14 V

NG

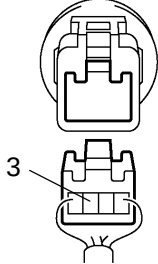
Go to step 6

OK

5

CHECK HARNESS AND CONNECTOR(INSTRUMENT PANEL JUNCTION BLOCK ASSY – AUTOMATIC LIGHT CONTROL SENSOR)

Wire Harness View:
A24 Automatic Light Control Sensor



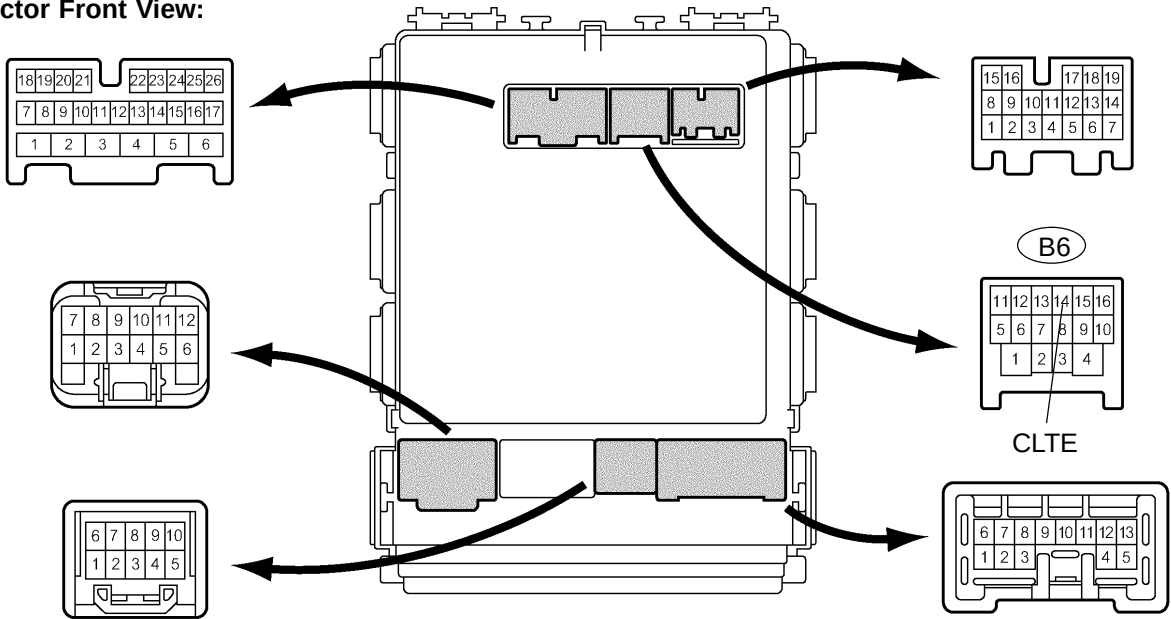
I39976

- (a) Disconnect the B6 connector from the instrument panel junction block.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
A24-3 – B6-14	Always	Below 1 Ω

Instrument Panel Junction Block
Connector Front View:



I39973

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

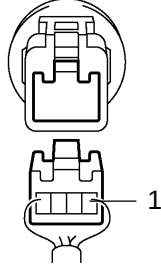
OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1677)

6 CHECK HARNESS AND CONNECTOR(INSTRUMENT PANEL JUNCTION BLOCK ASSY – AUTOMATIC LIGHT CONTROL SENSOR)

Wire Harness View:

(A24) Automatic Light Control Sensor



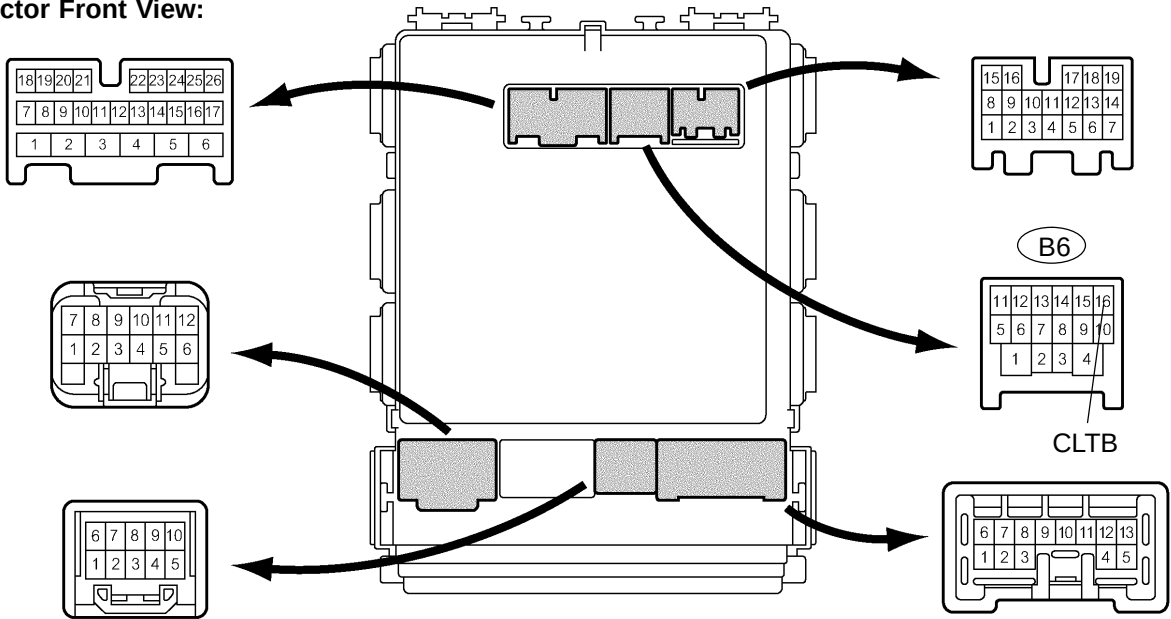
I39976

- (a) Disconnect the B6 connector from the instrument panel junction block assy.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
A24-1 – B6-16	Always	Below 1 Ω

Instrument Panel Junction Block Connector Front View:



H

I39973

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1677)

OPERATION CHECK

1. ILLUMINATED ENTRY OPERATION CHECK

- (a) Illumination entry system controls the following:
- Key slot lamp
 - Room lamp assy No.1
- (b) Check that the lamps come on after:
- (1) Unlocking driver or front passenger door that was closed and locked with the power switch off.
- (c) Check that the lamps fade out after:
- (1) Leaving the doors unlocked for 15 seconds.
 - (2) Turning the power switch on (ACC or IG).
 - (3) Locking all the doors.
- (d) Check that the lamps stay on for at least 15 seconds after opening any of the doors, then fade out again after 15 seconds.
- (e) Check that the lamps come on after:
- (1) Closing all the doors and turning the power switch off from on (ACC or IG).
- (f) Check that the lamps fade out after:
- (1) Leaving the doors unlocked for 15 seconds.
 - (2) Turning the power switch on (ACC or IG).
 - (3) Locking all the doors.
- (g) Check that the lamps stay on for at least 15 seconds after opening any of the doors, then fade out again in 15 seconds after closing all the doors.
- (h) Check that the lamps come on when opening any of the doors and fade out after either closing and locking them or turning the power switch on (ACC or IG).

2. CONLIGHT SYSTEM OPERATION CHECK

- (a) Turn the power switch on (IG).
- (b) Turn the headlamp dimmer switch to the AUTO position.
- (c) Cover the automatic light control sensor and check that the taillamp and headlamp come on in order.
- (d) Uncover the automatic light control sensor and check that the headlamp and taillamp go off in order.

3. LIGHT AUTO TURN OFF SYSTEM OPERATION CHECK

HINT:

Perform the operation check at a location with bright surroundings.

- (a) Turn the power switch on (IG), and switch the light control switch into the TAIL or HEAD position when driver side door is closed.
- (b) Turn the power switch off and open the driver's door. Check that the headlamp, taillamp, and front fog lamp go off.
- (c) Turn the power switch on (IG) and switch the light control switch into the AUTO position.
- (d) Turn the power switch off and open the driver's door when the light control switch is in the AUTO position and headlamps remain on by the conlight system operation. Check that the headlamp, taillamp, front fog lamp go off.

4. BATTERY SAVER OPERATION CHECK

- (a) Check that the all lamps go off after approximately 20 minutes with the power switch off and driver door is opened.

5. DAYTIME RUNNING LIGHT OPERATION CHECK

- (a) Turn the light control switch off, and release the parking brake with the power switch on (IG or READY). Check that the headlamp (low beam) dims.
- (b) Check that the daytime running light goes off after turning the power switch off or changing the light control switch to the HEAD position.
- (c) Check that the headlamp (low beam) dims when releasing the parking brake under the following conditions:
 - Light control switch is in the AUTO position (with bright surroundings).
 - Conlight system is not operating.
 - Power switch is on (IG).
 - Power switch is on (READY).
- (d) Turn the power switch off or change the light control switch to the TAIL or HEAD position. Check that the headlamp (low beam) goes off.

SYSTEM DESCRIPTION

1. PARTS DESCRIPTION

Components	Function
Automatic light control sensor	Detects ambient light and sends the information to the multiplex network body ECU.
Hazard warning switch	On or off state is sent to the FLASHER RELAY.
Stop lamp switch	Sends the brake pedal state to the rear combination lamp and high mount stop lamp.
HEAD relay	Turns the headlamp on when it is actuated by the headlamp ON demand signal via the multiplex network body ECU.
TAIL relay	Turns the taillamp and illumination on when it is actuated by the taillamp ON demand signal via the multiplex network body ECU.
DIM relay	Turns the headlamp (high beam) on when it is actuated by the headlamp ON demand signal via the multiplex network body ECU.
DRL relay	Controls the headlamp (low beam) when it is actuated by the DRL ON demand signal via the multiplex network body ECU.
Daytime Running Light Relay	Controls the headlamp (low beam) when it is actuated by the DRL ON demand signal via the multiplex network body ECU.
Door courtesy switch	Detects the door open/close state and sends the information to the respective multiplex network body ECU.
Door unlock detection switch	Detects the door lock/unlock state and sends the information to the respective multiplex network body ECU.
Headlamp leveling actuator	Moves the headlamp (low beam) up and down according to the information from the headlamp beam level control ECU.
Height sensor	Detects the vehicle height and sends the corresponding information to the headlamp beam level control ECU.
Combination meter	Sends headlamp level warning according to the information from the headlamp beam level control ECU.

2. OPERATION DESCRIPTION

(a) Manual lighting system

- (1) The multiplex network body ECU receives the following:
 - Light SW tail signal
 - Light SW head signal
 - Light SW high beam signal
 - Front fog SW signal
 - Lighting system passing signal
- (2) The multiplex network body ECU controls the following based on the signals listed in (1).
 - HEAD relay ON signal
Sent when light SW head signal is received.
 - TAIL relay ON signal
Sent when light SW tail signal and light SW head signal are received.
 - DIM relay ON signal
Sent when light SW high beam signal is received.
 - FRONT FOG relay ON signal
Sent when light SW tail and front fog SW signals are received.

- (3) The multiplex network body ECU controls the on/off operation of the following based on the signals listed in (2):
 - Headlamp (low)
 - Headlamp (high)
 - Clearance lamp
 - Side marker lamp
 - Front fog lamp
 - Taillamp
 - License plate lamp
 - Room lamps
- (b) Automatic lighting system
 - (1) The multiplex network body ECU receives the following:
 - Light SW auto signal
 - Light control SW signal
 - (2) The multiplex network body ECU controls the following based on the signals listed in (1):
 - HEAD relay ON signal
Sent according to the illuminance information from the light control signal when the light SW auto signal is received.
 - TAIL relay ON signal
Sent according to the illuminance information from the light control signal when the light SW auto signal is received.
 - (3) The multiplex network body ECU controls the on/off operation of the following based on the signals listed in (2).
 - Headlamp (low)
 - Clearance lamp
 - Side marker lamp
 - Taillamp
 - License plate lamp
- (c) Daytime running light system
 - (1) The multiplex network body ECU receives the following:
 - Light SW tail signal
 - Light SW head signal
 - Light SW auto signal
 - Light control signal
 - Ready condition signal
 - Parking brake SW signal
 - (2) The multiplex network body ECU controls the following based on the signals listed in (1).
 - HEAD relay ON signal
Sent when the ready condition signal has been received but the light SW head and parking brake SW signals have not been received.
Sent when the ready condition signal has been received but the parking brake switch signal and the illuminance information from the light control have not been received while receiving the light switch auto signal.
 - DIM relay ON signal
Sent when the relay condition signal has been received but the light SW head and parking brake SW signals have not been received.
Sent when the ready condition signal has been received but the parking brake switch signal and the illuminance information from the light control have not been received while receiving the light switch auto signal.

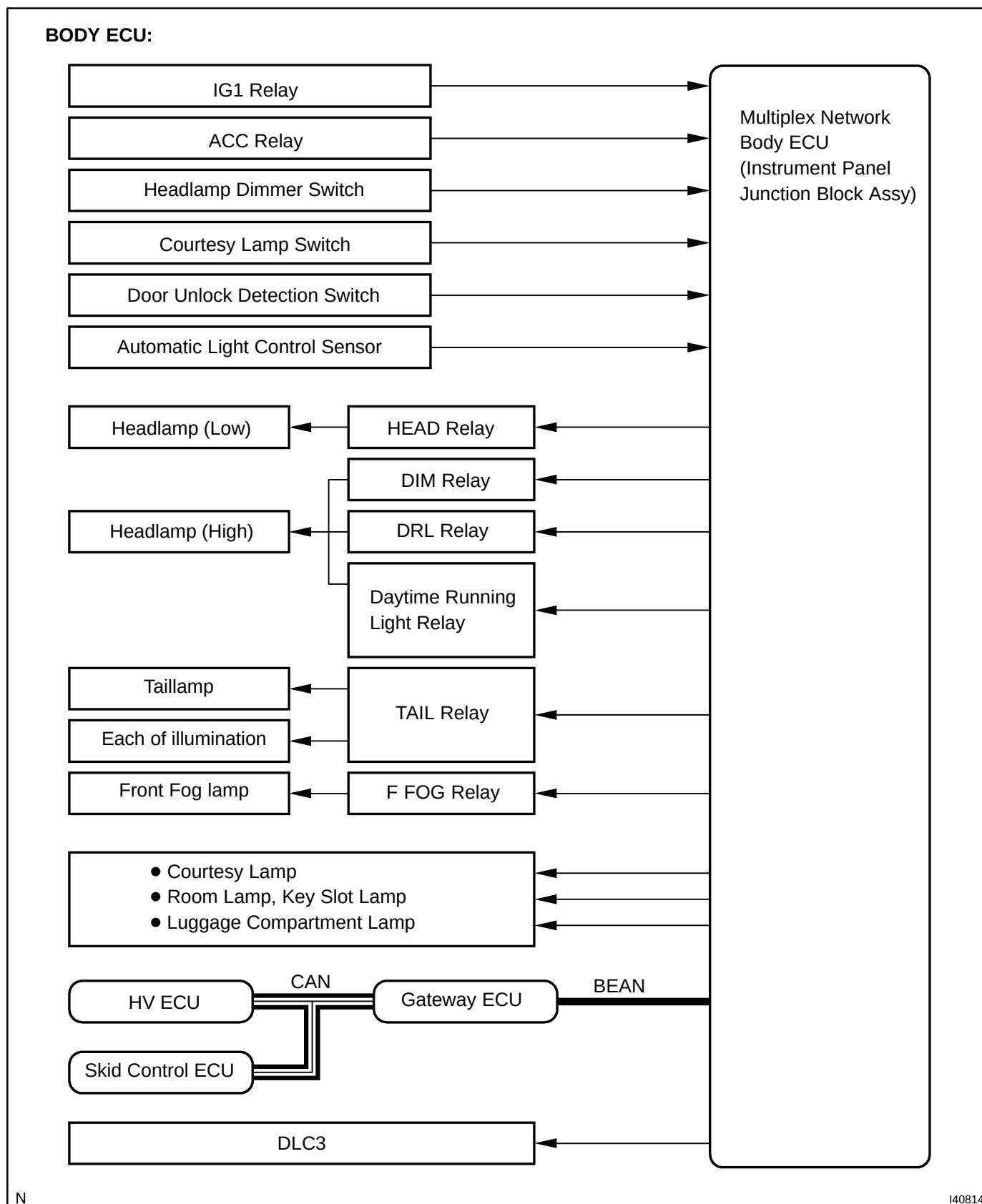
- Two-lamp DRL relay ON signal
Sent when the ready condition signal has been received but the light SW head and parking brake SW signals have not been received.
Sent when the ready condition signal has been received but the parking brake switch signal and the illuminance information from the light control have not been received while receiving the light switch auto signal.
 - PWM output signal
Sent when the ready condition signal has been received but the light SW tail, light SW head, and parking brake SW signals have not been received.
Sent when the ready condition signal has been received but the parking brake switch signal and the illuminance information from the light control have not been received while receiving the light switch auto signal.
- (3) The multiplex network body ECU controls the following based on the signals listed in (2):
- Headlamp (Low)
- (d) Light auto cut system
- (1) The multiplex network body ECU receives the following:
- Light SW tail signal
 - Light SW head signal
 - Light SW auto signal
 - Front fog SW signal
 - Power SW signal
 - Light control signal
 - Driver's seat courtesy SW signal
- (2) The multiplex network body ECU controls the following based on the signals listed in (1).
- HEAD relay ON signal
Terminates communication when the power switch ON (IG) signal terminates and the driver's seat courtesy SW signal is received while sending the HEAD relay ON signal. The HEAD relay ON signal results from receiving the light SW head signal and illuminance information from the light control signal.
 - TAIL relay ON signal
Terminates communication when the power switch ON (IG) signal terminates and the driver's seat courtesy SW signal is received while sending the TAIL relay ON signal. The TAIL relay ON signal results from receiving the light SW head signal and illuminance information from the light control signal.
- (3) The multiplex network body ECU controls the on/off operation of the following based on the signals listed in (2).
- Headlamp (low)
 - Headlamp (high)
 - Clearance lamp
 - Side marker lamp
 - Front fog lamp
 - Taillamp
 - License plate lamp
- (e) Illuminated entry system
- (1) The multiplex network body ECU receives the following:
- D/P/RR/RL seat door courtesy SW signal
 - D seat door lock signal
 - P seat door lock signal (w/ Smart Key, w/ Security System)
 - Power SW signal

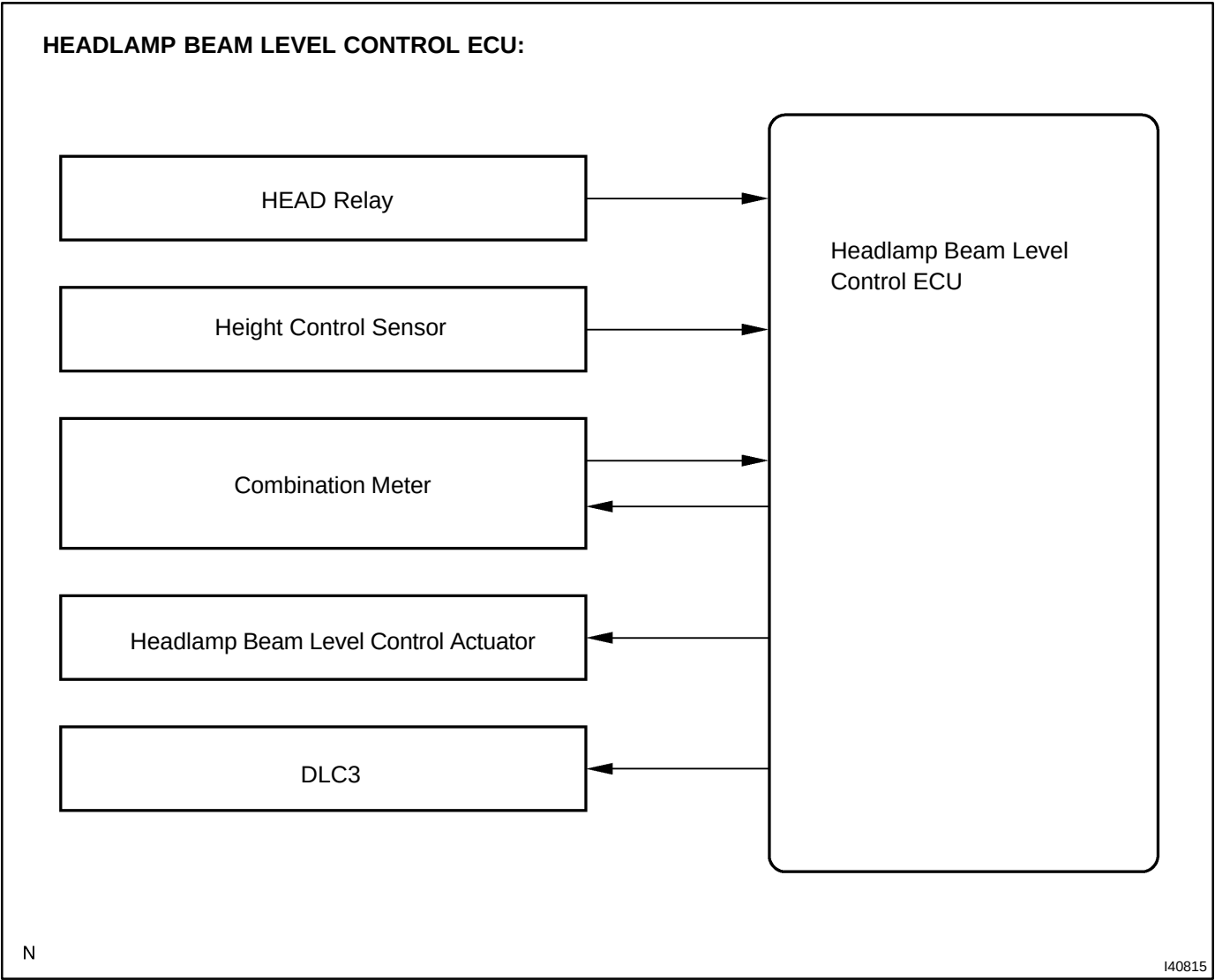
- (2) The multiplex network body ECU controls the following based on the signals listed in (1):
- Illumination ON demand signal
Sent when the respective door courtesy SW signals are received.
Sent when the respective door lock signals are received.
Sent when the power switch ON (IG) and power switch ON (ACC) signals are not received.
- (3) The multiplex network body ECU controls on/off and fade-in/fade-out operations of the following based on the signals listed in (2):
- Key slot lamp
 - Room lamp No.1
 - Personal lamp (Overhead J/B)
- (f) Auto headlamp leveling system
- (1) The headlamp beam level control ECU receives the following:
- HEAD relay ON signal
 - Vehicle height sensor signal
 - Vehicle speed signal
- (2) The headlamp beam level control ECU controls the following based on the signals listed in (1).
- Leveling motor operation demand signal
Sent based on the vehicle height sensor signal and vehicle speed sensor when the HEAD relay ON signal is received.
The headlamp beam level control ECU receives vehicle speed signal and determines the driving condition according to the table below, and then starts/terminates controlling on the headlamp leveling actuator.

Vehicle Speed	Mode	Control
Less than 0.7 km/h (0.4mph)	While stopping	Controls
More than 30 km/h (19 mph) or less than 180 km/h (112 mph)	While driving at constant speed	Controls
More than 30 km/h (19 mph) or less than 180 km/h (112 mph)	While accelerating	Does not control
More than 180 km/h (112 mph)	While driving at high speed	Does not control
More than 0.7 km/h (0.4 mph) or less than 30 km/h (19 mph)	While driving at low speed	Does not control

- (3) The headlamp beam level control ECU controls the following based on the signal listed in (2).
- Headlamp beam leveling actuator

SYSTEM DIAGRAM





Input and output signal of each ECU

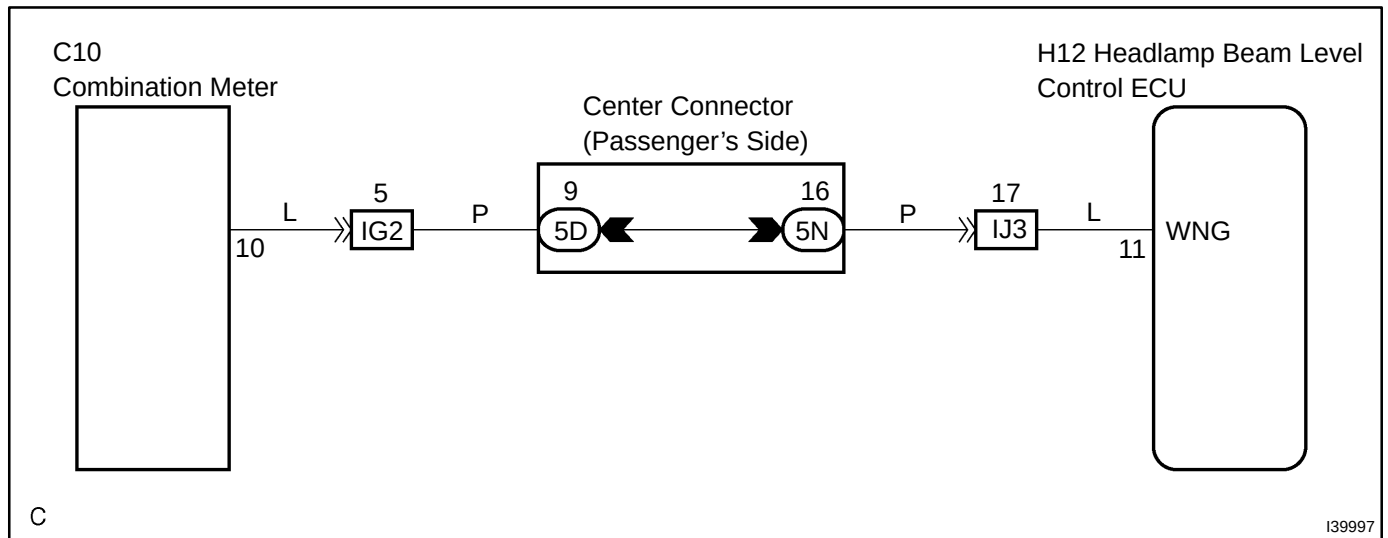
Transmitting ECU (Transmitter)	Receiving ECU	Signal	Communication method
HV ECU	Multiplex Network Body ECU	Ready condition signal	CAN – BEAN
Skid Control ECU	Multiplex Network Body ECU	Parking brake switch signal	CAN – BEAN

WARNING LIGHT CIRCUIT

CIRCUIT DESCRIPTION

Headlamp beam level control ECU sends the warning signal to the combination meter.

WIRING DIAGRAM



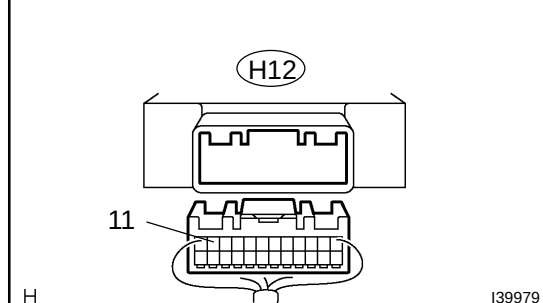
INSPECTION PROCEDURE

HINT:

Check if the combination meter operation is normal before performing the following procedure.

1 INSPECT HEADLAMP LEVELING ECU ASSY

Wire Harness View:



- Disconnect the connector from the headlamp leveling ECU.
- Measure the voltage according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
H12-11 (WNG) – Body ground	Power switch ON (IG)	10 to 14 V

NG

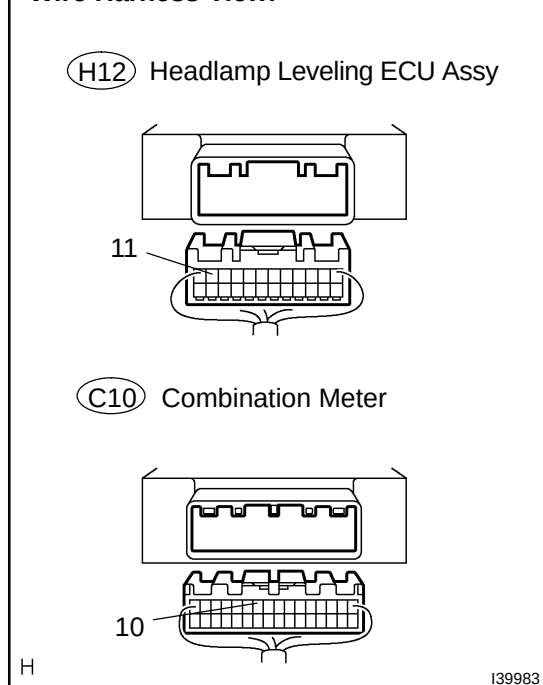
Go to step 2

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1677)

2 CHECK HARNESS AND CONNECTOR(COMBINATION METER ASSY – HEADLAMP LEVELING ECU ASSY)

Wire Harness View:



- Disconnect the combination meter connector and headlamp beam level control ECU connector.
- Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
H12-11 – C10-10	Always	Below 1 Ω
H12-11 – Body ground	Always	10 k Ω or higher

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

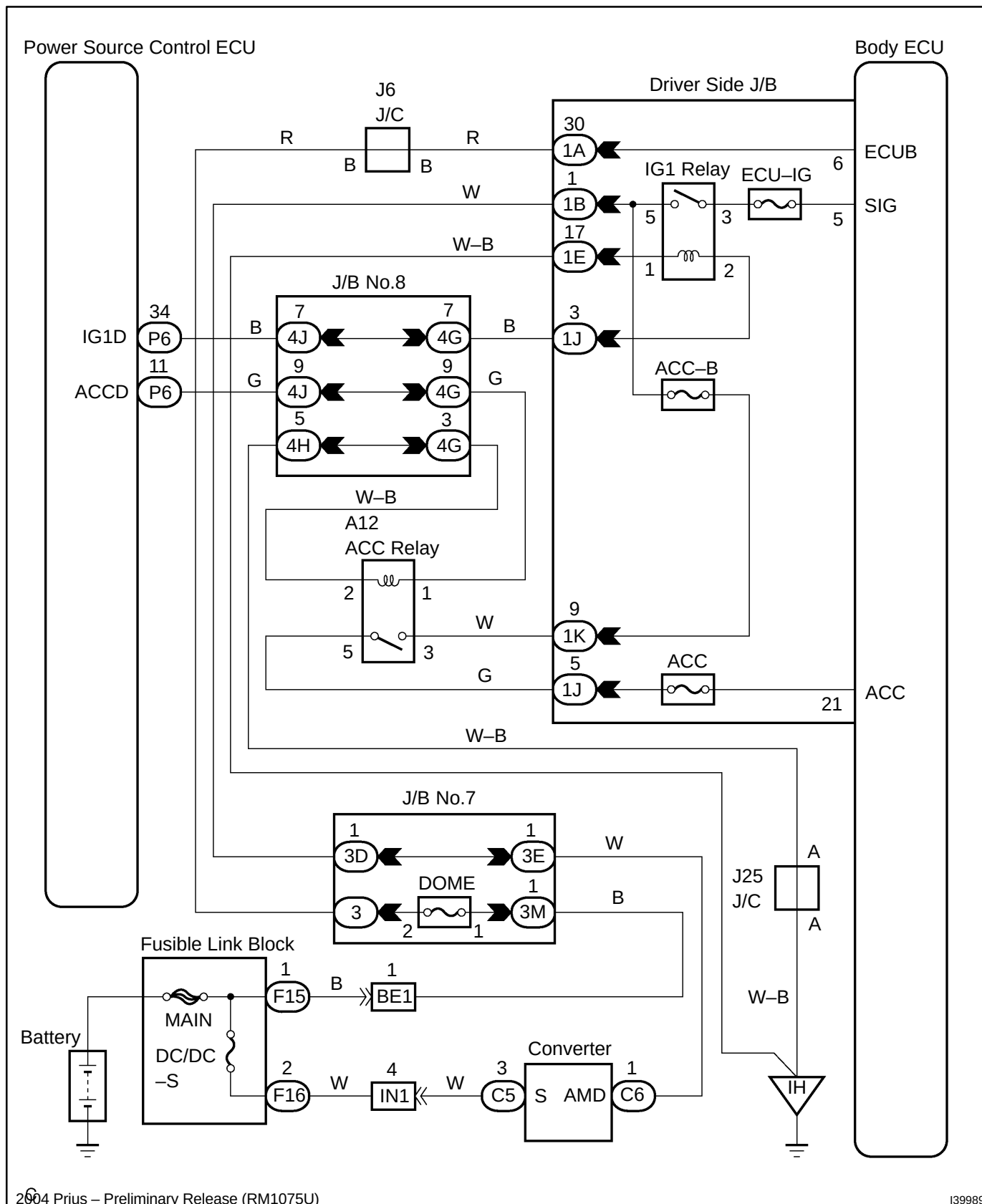
REPLACE COMBINATION METER ASSY

POWER SOURCE CIRCUIT

CIRCUIT DESCRIPTION

This circuit detects the state of the power switch and sends it to the multiplex network body ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Check if the ignition control ECU operation is normal before performing the following procedure.

1 READ VALUE OF HAND-HELD TESTER

- (a) Connect the hand-held tester to the DLC3.
- (b) Push the power switch ON (IG) and press the hand-held tester main switch on.
- (c) Select the items below in the DATA LIST, and read the displays on the hand-held tester.

B No.1/GW (Multiplex Network Body ECU):

Item	Measurement Item/ Display (Range)	Normal Condition	Diagnostic Note
ACC SW	ACC SW signal/ ON or OFF	ON: Power switch ON (ACC) OFF: Power switch OFF	–
IG SW	IG SW signal/ ON or OFF	ON: Power switch ON (IG) OFF: Power switch OFF	–

NG

Go to step 2

OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1677)**

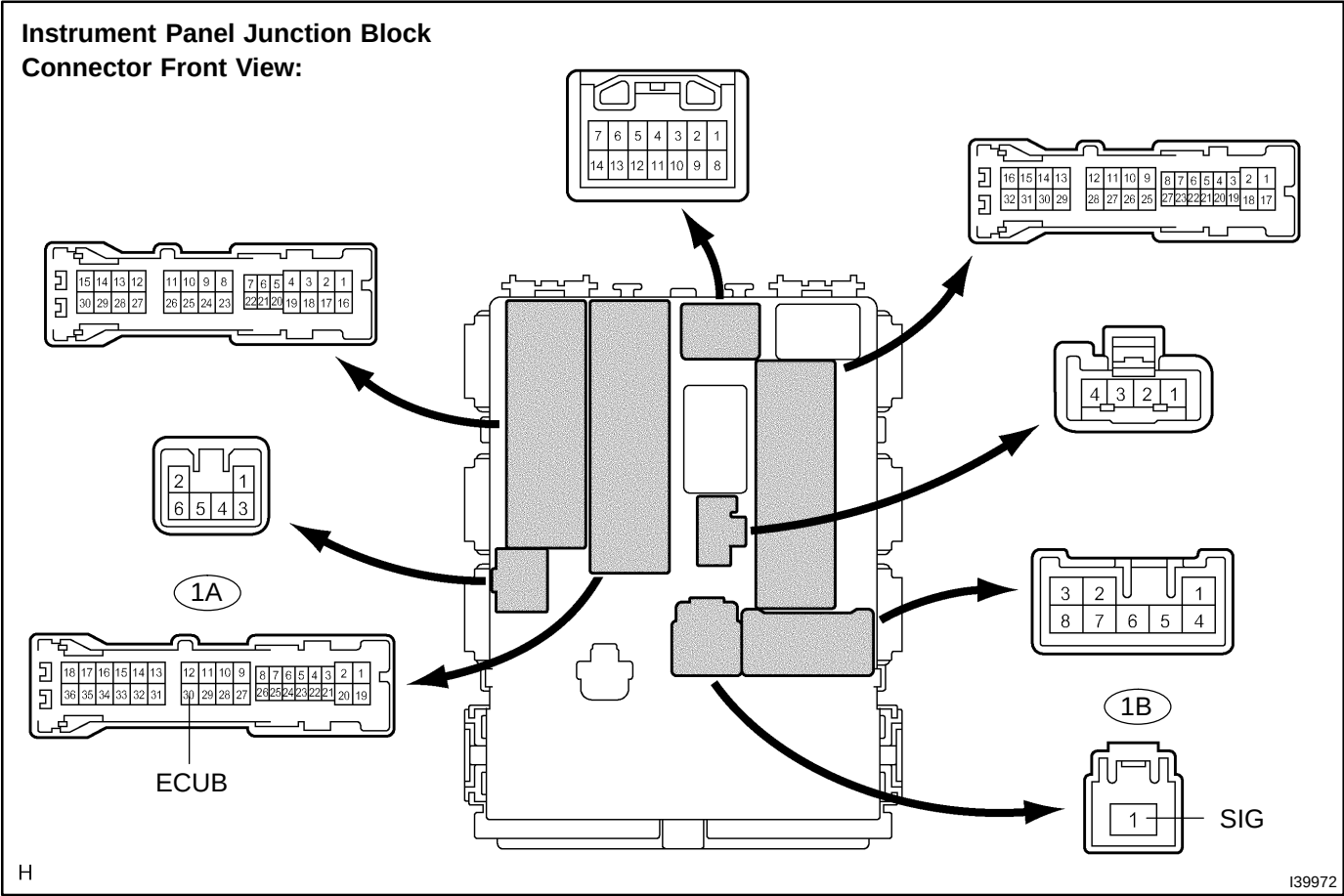
2

CHECK HARNESS AND CONNECTOR(POWER SOURCE CIRCUIT)

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

Standard:

Tester connection	Condition	Specified condition
1A-30 – Body ground	Always	10 to 14 V
1B-1 – Body ground	Always	10 to 14 V



NG

REPAIR OR
CONNECTOR

REPLACE

HARNESS

OR

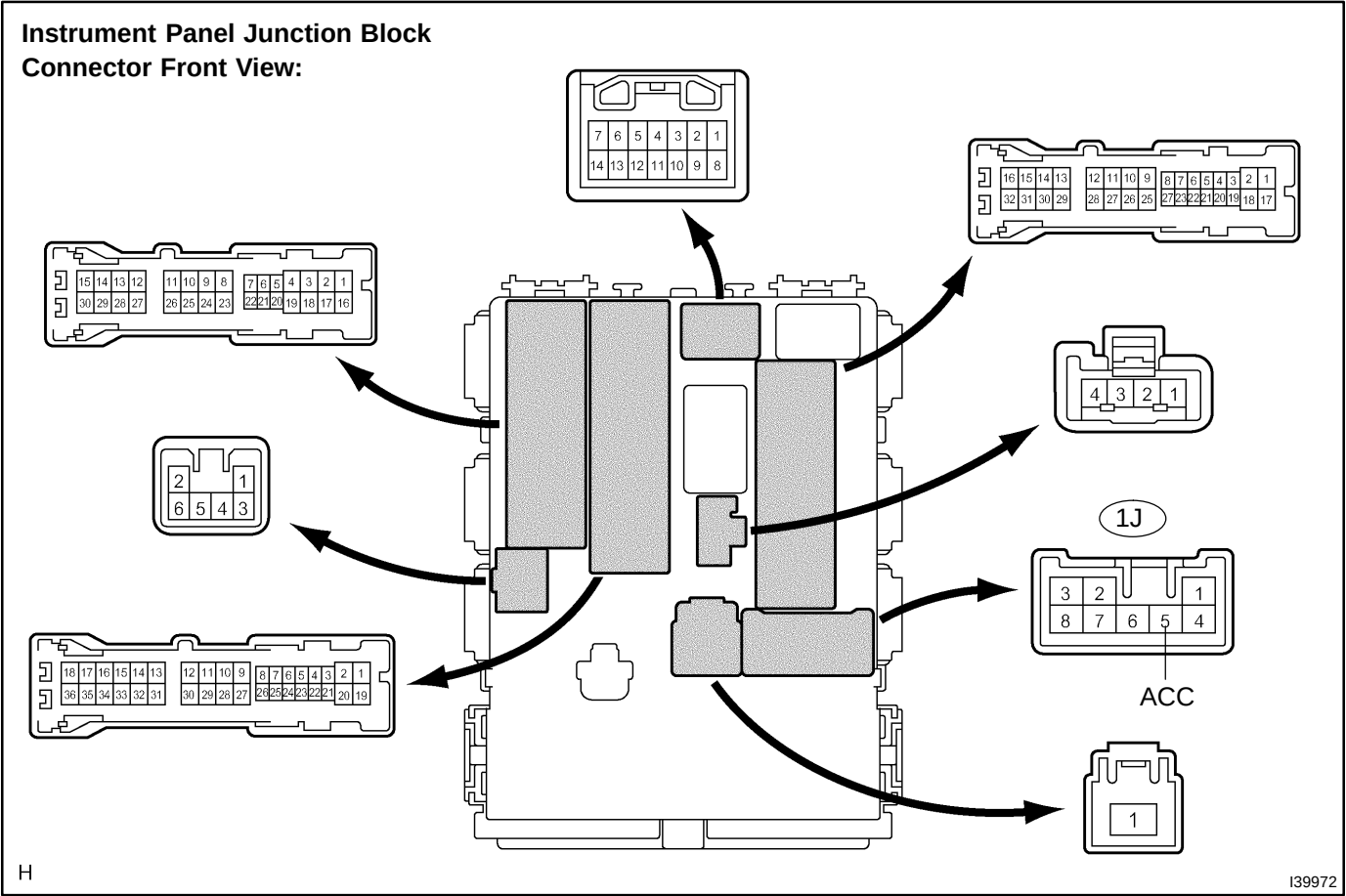
OK

3 INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY

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

Standard:

Tester connection	Condition	Specified condition
1J-5 - Body ground	Power switch ON (ACC)	10 to 14 V



NG Go to step 4

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1677)

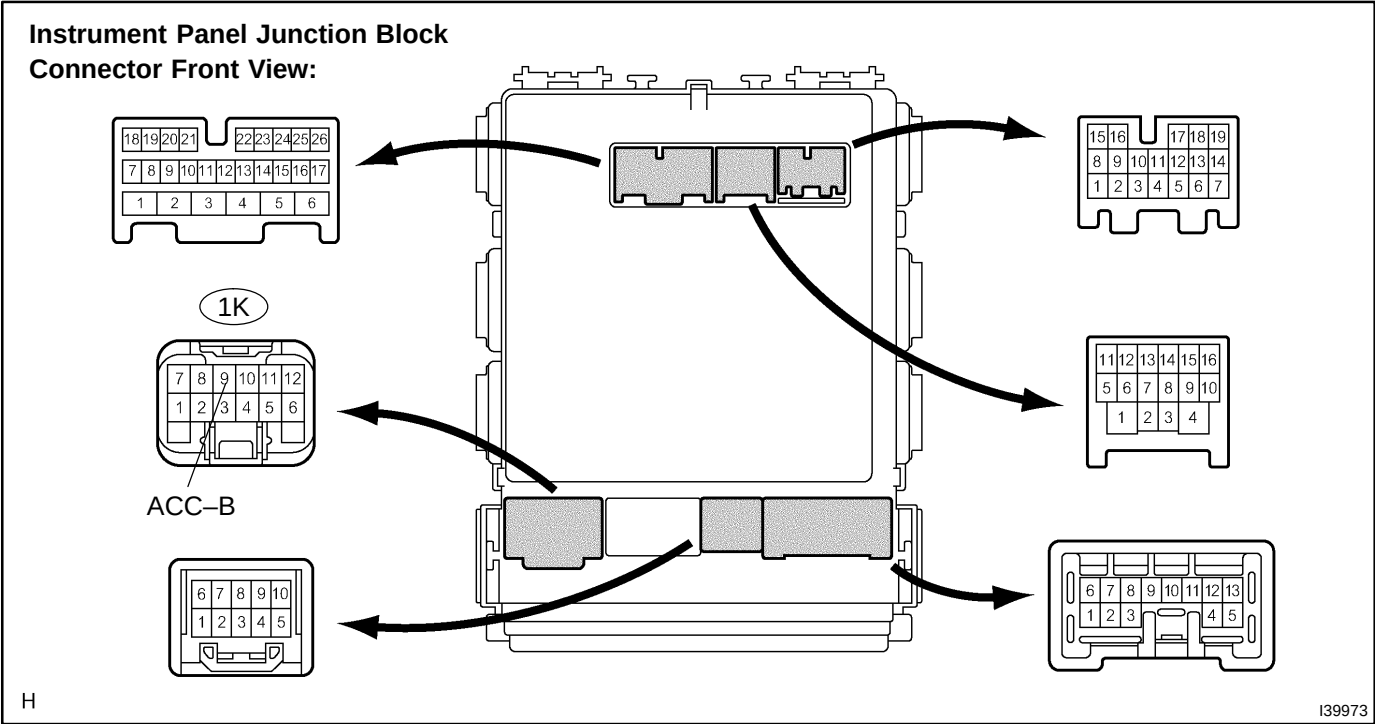
4

INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY

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

Standard:

Tester connection	Condition	Specified condition
1K-9 – Body ground	Always	10 to 14 V



NG

REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY

OK

REPAIR OR REPLACE HARNESS OR CONNECTOR

CUSTOMER PROBLEM ANALYSIS CHECK

LIGHTING SYSTEM Check Sheet

Inspector's name: _____

Customer's Name		VIN	
		Production Date	
		Licence Plate No.	
Date Vehicle Brought in	/ /	Odometer Reading	km mile

Date Problem First Occurred		/ /
Frequency Problem Occurs		☐ Always ☐ Sometimes (times per day, month) ☐ Once only
Weather Conditions When Problem Occurred	Weather	☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy ☐ Various/ Others
	Outdoor Temperature	☐ Hot ☐ Warm ☐ Cool ☐ Cold (Approx. °F (°C))

Malfunctioning System:	☐ Headlamp system
	☐ Taillamp system
	☐ Automatic light control system
	☐ Light auto turn off system
	☐ Fog lamp system
	☐ Turn signal and hazard warning system
	☐ Stop lamp system
	☐ Illuminated entry system
	☐ Others
	☐
	☐
	☐
	☐
	☐
	☐

N

I34763

DIAGNOSTIC TROUBLE CODE CHART

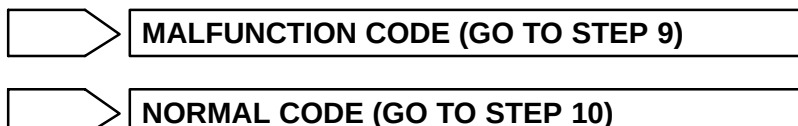
1. DTC CHECK

If a malfunction code is displayed during the DTC check, check the suspected area listed for that code in the table below, and proceed to the appropriate page.

DTC No. (See Page)	Symptom	Suspect Area
B1244 (05-1691)	Light sensor circuit malfunction	• Automatic light control sensor • Harness or connector • Multiplex network body ECU

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The hand-held tester can be used at step 3, 6, 7, 8, 9 and 15.



9	DTC CHART (SEE PAGE 05-1690)
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GO TO STEP 12

10	PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1677)
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11	TERMINALS OF ECU (SEE PAGE 05-1680)
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12	CIRCUIT INSPECTION (SEE PAGE 05-1691 to 05-1748)
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13	IDENTIFICATION OF PROBLEM
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14	REPAIR OR REPLACE
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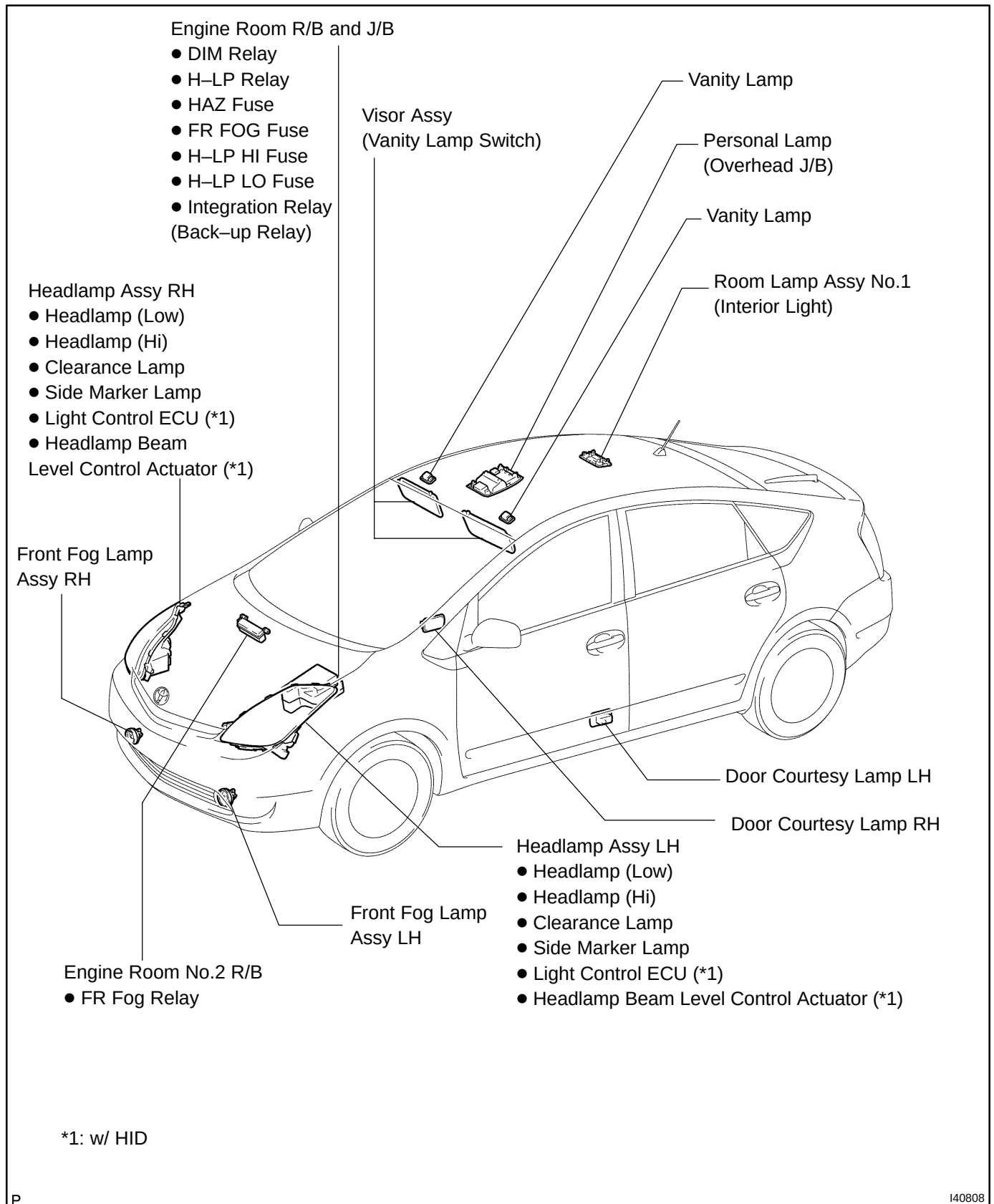
15	CONFIRMATION TEST
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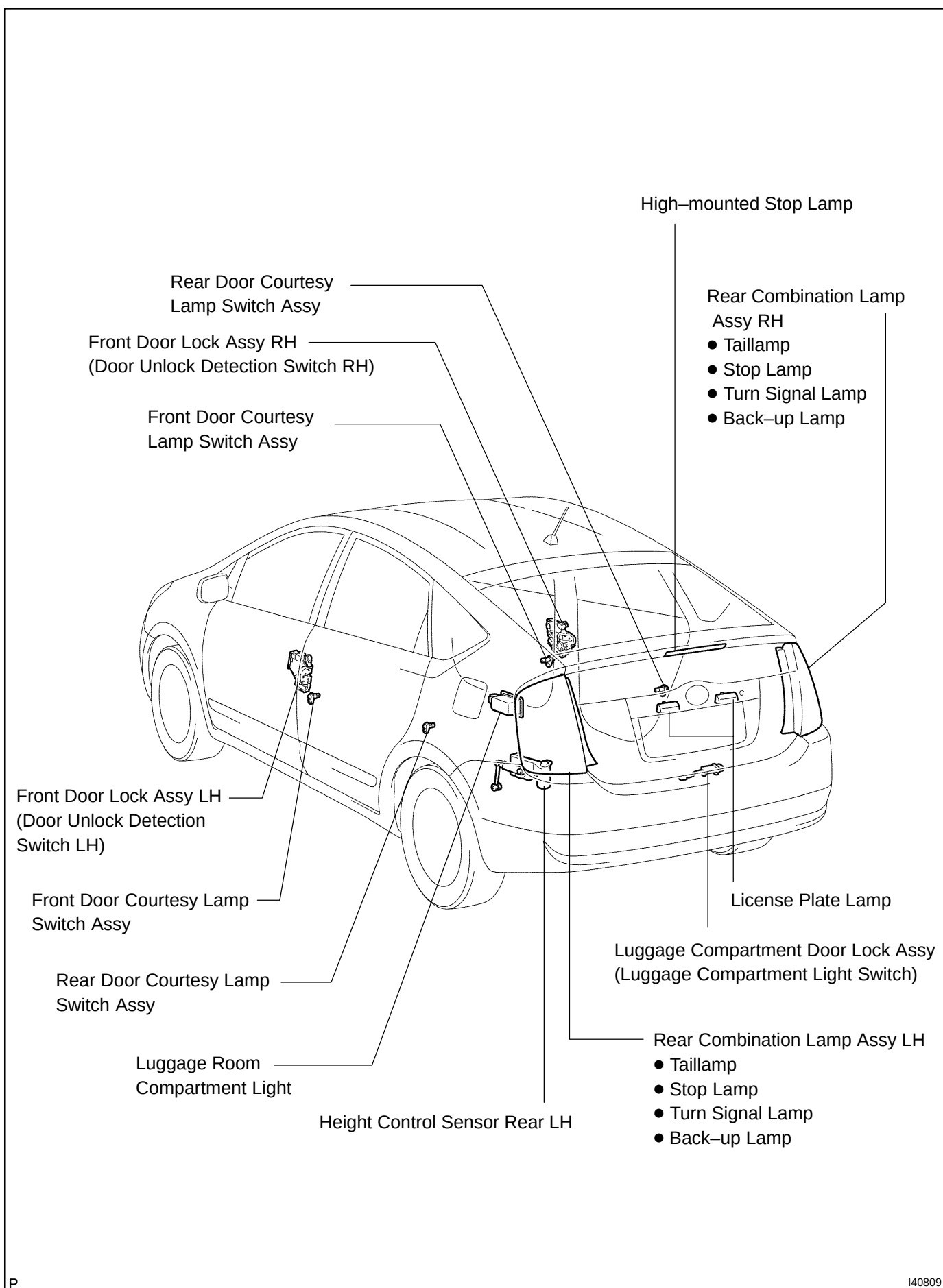
END

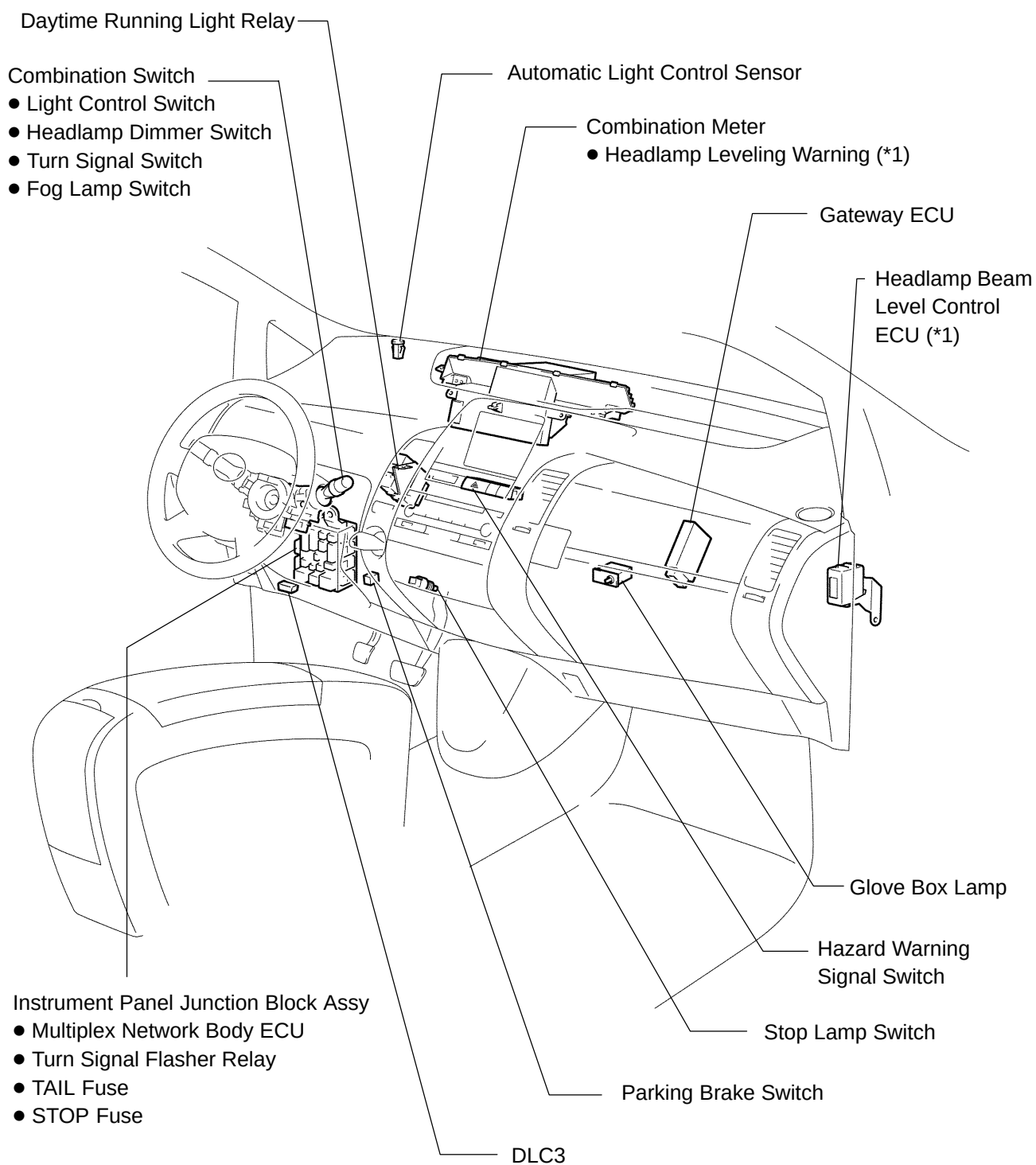
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LOCATION



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*1: w/ HID

LIGHTING SYSTEM

05CTV-04

PRECAUTION

1. PRECAUTION FOR DISCONNECTING THE BATTERY CABLE

NOTICE FOR INITIALIZATION:

When disconnecting the negative (–) battery terminal, initialize the following system after the terminal is reconnected.

System Name	See Page
Power Window Control System	01-28

NOTICES FOR HYBRID SYSTEM ACTIVATION:

- When the warning lamp is illuminated or the battery has been disconnected and reconnected, pressing the power switch may not start the system on the first try. If so, press the power switch again.
 - With the power switch's power mode changed to ON (IG), disconnect the battery. If the key is not in the key slot during reconnection, DTC B2799 may be output.
- ### 2. PRECAUTION OF HEADLIGHT BULB REPLACEMENT (w/o HID)
- (a) If even a thin film of oil is left on the surface of the halogen lamp, its service life will be shortened because the lamp will burn at a higher temperature.
 - (b) Handle any halogen lamp with great care. Dropping, hitting or damaging the bulb, in any way, may result in it exploding and shattering because the internal pressure is high.
 - (c) Always prepare a new bulb for immediate replacement. While replacing the bulb, the lens may attract dust and moisture if removed from the vehicle for too long.
 - (d) Always use a bulb of the same wattage for replacement.
 - (e) Firmly reinstall the socket after bulb replacement. The lens may become cloudy or the light cavity may fill with water through the gaps around the socket.
- ### 3. PRECAUTION FOR HEADLAMP BULB REPLACEMENT (w/ HID)
- (a) When any defects such as deformation, crack, dent, chipping, etc. are identified on the HID headlight (especially, on the light control ECU), replace it with a new one.
 - (b) Even if the operation seems to be normal, the fail-safe function may be defective.
 - (c) Be careful not to scratch or drop bulbs of the HID headlight and halogen bulbs (for high beam headlights and fog lights) as they have pressurized gas inside and can be easily broken.
 - (d) Touching the high voltage socket of the HID headlight with the headlight dimmer switch ON could generate momentary high voltage of 20,000 V and lead to a serious injury.
 - (e) Never connect a tester to the high voltage socket of the HID headlight for measurement, as this may lead to a serious injury because of high voltage.
 - (f) When servicing the HID headlight, keep it away from water including rain, turn off the light control switch, and disconnect the battery terminal and the connector of the light control ECU in advance to avoid electric shock.
 - (g) When operating the HID headlight, operate it after assembling is completed and never turn on the lights without a bulb installed.
 - (h) Do not turn on the HID headlight using another power source except the vehicle's.

PROBLEM SYMPTOMS TABLE

If a normal code is displayed during the DTC check but the problem still occurs, check the circuits for each problem symptom in the order given in the table below and proceed to the relevant troubleshooting page.
HINT:

Inspect the fuse and relay before confirming the suspected area as shown in the charts below.

Inspect each malfunction circuit in numerical order for the corresponding symptom.

If the malfunction still exist even after checking and confirming that all the circuit are normal, replace the ECU.

1. HEADLAMP AND TAIL LAMP SYSTEM

Symptoms	Suspected Area	See page
Low beam does not come on (one side).	5. Bulb	–
	6. Wire harness or connector	–
	7. Light control computer (HID)	–
Low beam does not come on (both sides).	1. Light control switch circuit	05-1714
	2. Headlight relay circuit	05-1697
	3. Multiplex Network Body ECU	–
High beam does not come on (one side).	1. Bulb	–
	2. Wire harness or connector	–
High beam does not come on (both sides).	1. Light control switch circuit	05-1714
	2. Headlight relay circuit	05-1697
	3. DRL relay circuit (w/ DRL)	05-1704
	4. Multiplex Network Body ECU	–
FLASH does not come on (Low beam and high beam are normal).	1. Light control switch circuit	05-1714
	2. Multiplex Network Body ECU	–
Headlamp is dim.	1. Bulb	–
	2. Wire harness or connector	–
Taillamp does not come on (all).	1. Light control switch circuit	05-1714
	2. TAIL relay circuit	05-1710
	3. Multiplex Network Body ECU	–
One taillamp does not come on.	1. Bulb	–
	2. Wire harness or connector	–
Daytime running light system does not operate.	1. Light control switch circuit	05-1714
	2. Headlight relay circuit	05-1697
	3. DRL relay circuit	05-1704
	4. Parking brake switch circuit	05-1119
	5. Daytime running light relay	–
	6. Multiplex Network Body ECU	–

2. AUTOMATIC LIGHT CONTROL SYSTEM

Symptoms	Suspected Area	See page
Automatic light control system does not operate.	1. Light control switch circuit	05-1714
	2. Automatic light control sensor circuit	05-1718
	3. Multiplex Network Body ECU	–

3. LIGHT AUTO TURN OFF SYSTEM

Symptoms	Suspected Area	See page
Light auto turn off system does not operate.	1. Light control switch circuit	05-1714
	2. Power source circuit	05-1724
	3. Door courtesy switch circuit	05-1729
	4. Multiplex Network Body ECU	–

4. FOG LAMP SYSTEM

Symptoms	Suspected Area	See page
Fog lamp does not come on (one side).	1. Bulb 2. Wire harness or connector	– –
Fog lamp does not come on (both sides).	1. Headlamp dimmer switch 2. Wire harness or connector 3. Multiplex Network Body ECU	65-5 – –

5. TURN SIGNAL LAMP AND HAZARD WARNING SYSTEM

Symptoms	Suspected Area	See page
"Hazard" and "Turn" do not come on.	1. Turn signal flasher relay 2. Wire harness or connector 3. Instrument panel junction block assy	65-2 – –
Hazard warning light does not come on ("Turn" is normal).	1. Hazard warning switch 2. Wire harness or connector 3. Instrument panel junction block assy	65-5 – –
Turn signal does not come on ("Hazard" is normal).	1. Headlamp dimmer switch 2. Wire harness or connector 3. Instrument panel junction block assy	65-5 – –
Turn signal does not come on in one direction.	1. Bulb 2. Wire harness or connector 3. Instrument panel junction block assy	– – –

6. STOP LIGHT SYSTEM

Symptoms	Suspected Area	See page
One stop lamp does not come on.	1. Bulb 2. Wire harness or connector	– –
Stop lamp does not come on (all).	1. Stop light switch assy 2. Wire harness or connector	65-5 –

7. ILLUMINATED ENTRY SYSTEM

Symptoms	Suspected Area	See page
Illuminated entry system controlled by the multiplex network body ECU does not operate.	1. Power source circuit 2. Door lock position circuit 3. Door courtesy switch circuit 4. Multiplex Network Body ECU	05-1724 05-1733 05-1729 –

8. HEADLIGHT BEAM LEVEL CONTROL SYSTEM

Symptoms	Suspected Area	See page
Headlamp beam level control system does not operate (warning lamp comes on).	1. Headlight beam level control ECU power source circuit 2. Height control sensor circuit 3. Headlight beam level control ECU	05-1736 05-1738 –
Headlamp beam level control system does not operate (warning lamp goes off).	1. Headlight signal circuit 2. Headlight beam level control actuator circuit 3. Warning light circuit 4. Headlight beam level control ECU	05-1741 05-1743 05-1746 –
Headlamp beam level control system cannot be canceled during low speed driving (driving condition cannot be determined).	1. Vehicle speed signal circuit 2. Headlight beam level control ECU	05-1748 –

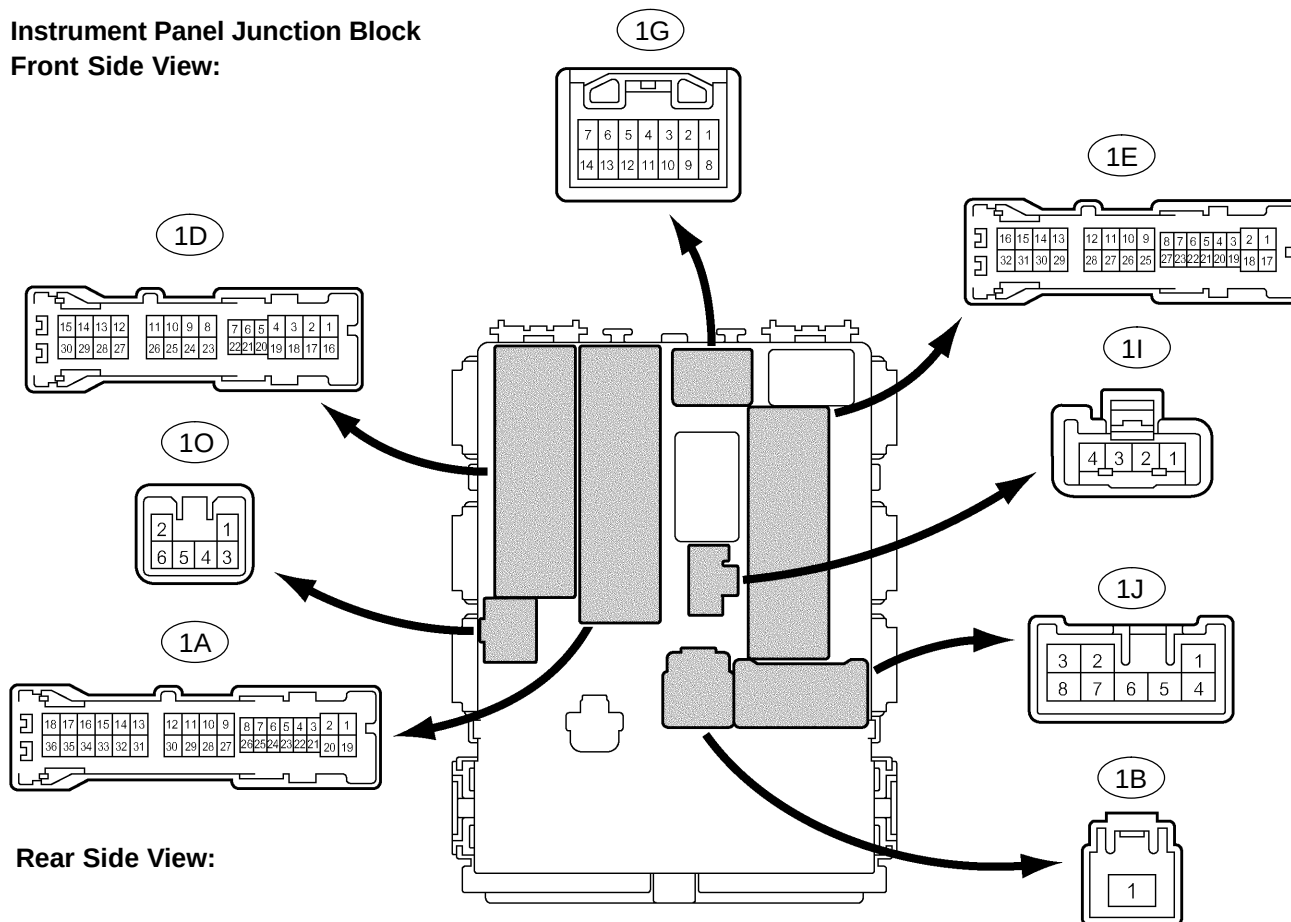
9. OTHERS

Symptoms	Suspected Area	See page
Vanity lamp does not come on.	1. Bulb 2. Wire harness or connector	– –
Back up lamp does not come on.	1. Bulb 2. Back/up relay 3. Wire harness or connector	– 65-5 –
Luggage room lamp does not come on.	1. Bulb 2. Wire harness or connector	– –
Courtesy lamp does not come on.	1. Bulb 2. Courtesy lamp switch 3. Wire harness or connector 4. Multiplex Network Body ECU	– 65-5 – –

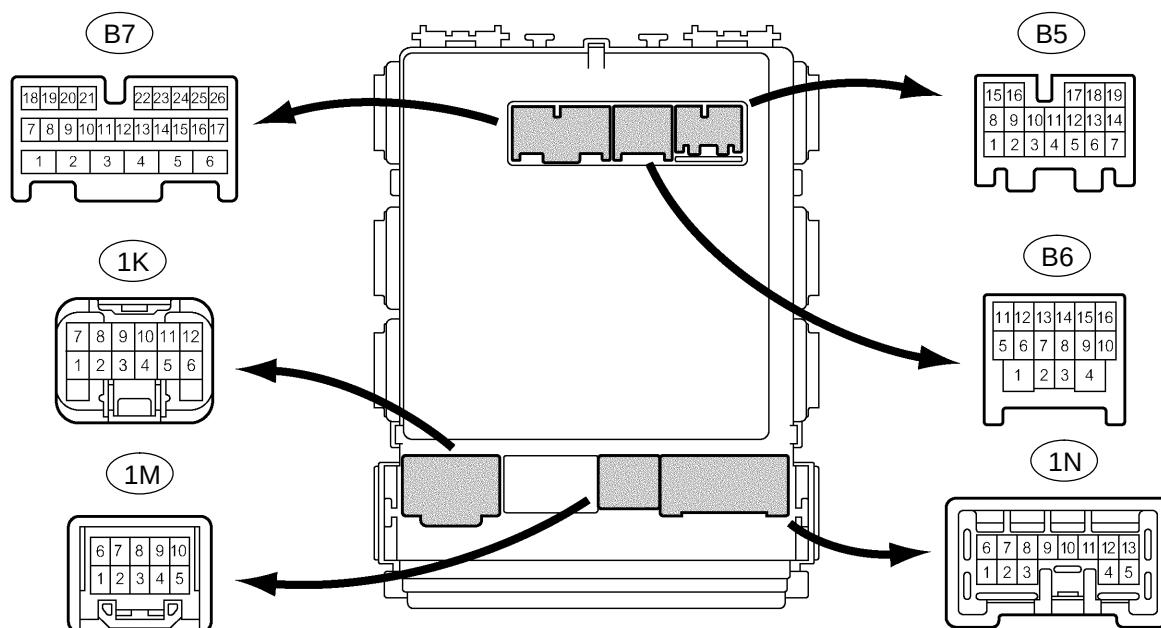
TERMINALS OF ECU

1. INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)

Instrument Panel Junction Block
Front Side View:



Rear Side View:



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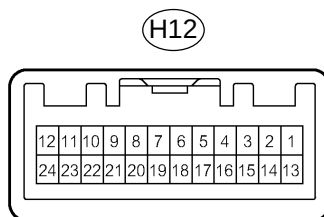
DIAGNOSTICS – LIGHTING SYSTEM

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
Tail (1A-15) – GND (1E-17)	BR – W-B	Taillamp signal (To front side marker)	Front RH side marker lamp comes on Front RH side marker lamp goes off	10 to 14 V Below 1 V
ECUB (1A-30) – GND (1E-17)	R – W-B	Power source (From battery)	Always	10 to 14 V
Tail (1A-33) – GND (1E-17)	BR – W-B	Taillamp signal (To front side marker)	Front LH side marker lamp comes on Front LH side marker lamp goes off	10 to 14 V Below 1 V
RCTY (1D-5) – GND (1E-17)	R – W-B	Rear LH door courtesy switch signal	Rear LH door is opened Rear LH door is closed	Below 1 V 10 to 14 V
BCTY (1D-7) – GND (1E-17)	R – W-B	Luggage room courtesy switch signal	Luggage room door is opened Luggage room door is closed	Below 1 V 10 to 14 V
Tail (1D-10) – GND (1E-17)	BR – W-B	Taillamp signal (To license plate light and rear combination light)	License plate lamp and rear RH combination lamp come on License plate lamp and rear RH combination lamp go off	10 to 14 V Below 1 V
RCTY(1D-20) – GND (1E-17)	R – W-B	Rear RH door courtesy switch signal	Rear LH door is opened Rear LH door is closed	Below 1 V 10 to 14 V
DCTY (1D-21) – GND (1E-17)	V – W-B	Front LH door courtesy switch signal	Front LH door is opened Front LH door is closed	Below 1 V 10 to 14 V
PCTY (1D-24) – GND (1E-17)	BR – W-B	Front RH door courtesy switch signal	Front RH door is opened Front RH door is closed	Below 1 V 10 to 14 V
Tail (1D-29) – GND (1E-17)	BR – W-B	Taillamp signal (To rear combination light)	Rear LH combination lamp comes on Rear LH combination lamp goes off	10 to 14 V Below 1 V
Tail (1E-10) – GND (1E-17)	BR – W-B	Taillamp signal (To each illumination)	Light control switch is in TAIL or HEAD Light control switch is OFF	10 to 14 V Below 1 V
GND (1E-17) – Body ground (Body ground)	W-B – Body ground	Ground	Always	Below 1 V
ILL (1E-27) – GND (1E-17)	B – W-B	Illumination signal circuit	Key slot lamp comes on Key slot lamp goes off	Below 1 V 10 to 14 V
MPX1 (1G-9) – GND (1E-17)	GR – W-B	Multiplex communication signal circuit	Power switch ON (IG)	Signal waveform
HU (1I-4) – GND (1E-17)	P – W-B	Headlamp dimmer switch signal	Headlamp dimmer switch in HIGH Headlamp dimmer switch not in HIGH	Below 1 V 10 to 14 V
Tail (1N-7) – GND (1E-17)	GR – W-B	Taillamp signal (To each illumination)	Light control switch is in TAIL or HEAD Light control switch is OFF	10 to 14 V Below 1 V
Tail (1N-9) – GND (1E-17)	G – W-B	Taillamp signal (To each illumination)	Light control switch is in TAIL or HEAD Light control switch is OFF	10 to 14 V Below 1 V
Tail (1M-6) – GND (1E-17)	L – W-B	Taillamp signal (To each illumination)	Light control switch is in TAIL or HEAD Light control switch is OFF	10 to 14 V Below 1 V
Tail (1M-8) – GND (1E-17)	G – W-B	Taillamp signal (To each illumination)	Light control switch is in TAIL or HEAD Light control switch is OFF	10 to 14 V Below 1 V

ILL (10-2) – GND (1E-17)	L – W-B	Illumination signal circuit	Room lamp comes on Room lamp goes off (When switch is in DOOR position)	Below 1 V 10 to 14 V
CYLB (B5-7) – GND (1E-17)	W – W-B	Luggage room light signal circuit	Luggage room lamp comes on Luggage room light goes off (When switch is in DOOR position)	Below 1 V 10 to 14 V
LSWR (B5-10) – GND (1E-7)	O – W-B	Door lock position switch circuit	Rear door is in lock position Each of rear door is in unlock position	10 to 14 V Below 1 V
LIB1 (B5-13) – GND (1E-17)	SB – W-B	Front fog lamp switch signal circuit	Front fog lamp switch ON Front fog lamp switch OFF	Below 1 V 10 to 14 V
CYPL (B5-14) – GND (1E-17)	L – W-B	Door courtesy light circuit	Door courtesy lamp RH comes on Door courtesy lamp RH goes off	Below 1 V 10 to 14 V
MPX2 (B5-15) – GND (1E-17)	B – W-B	Multiplex communication signal circuit	Power switch ON (IG)	Signal waveform
FFOG (B5-17) – GND (1E-17)	Y – W-B	Front fog lamp operation signal circuit	Front fog lamp comes on Front fog lamp goes off	Below 1 V 10 to 14 V
AUTO (B5-18) – GND (1E-17)	W – W-B	Headlamp dimmer switch signal circuit	Light control switch is in AUTO Light control switch is not in AUTO	Below 1 V 10 to 14 V
CYLD (B5-19) – GND (1E-17)	Y – W-B	Door courtesy light circuit	Door courtesy lamp LH comes on Door courtesy lamp LH goes off	Below 1 V 10 to 14 V
PWM1 (B6-3) – GND (1E-7)	(*1) SB – W-B	Daytime running light operation signal	Daytime running light does not operate Daytime running light operates	10 to 14 V Below 1 V
HON (B6-12) – GND (1E-7)	W – W-B	Daytime running light operation signal	Daytime running light does not operate Daytime running light operates	Below 1 V 10 to 14 V
CLTE (B6-14) – GND (1E-7)	B – W-B	Light control sensor circuit (Ground circuit)	Always	Below 1 V
CLTS (B6-15) – GND (1E-7)	W – W-B	Light control sensor circuit (Signal circuit)	Power switch ON (IG)	Signal waveform
CLTB (B6-16) – GND (1E-7)	R – W-B	Light control sensor circuit (Power source circuit)	Power switch ON (IG)	10 to 14 V
DRL/DIM (B7-2) – GND (1E-17)	Y – W-B	DIM relay operation signal	Headlamp (High beam) comes on Headlamp (High beam) goes off	Below 1 V 10 to 14 V
HEAD (B7-3) – GND (1E-17)	B – W-B	Headlamp dimmer switch signal circuit	Light control switch is in HEAD Light control switch is not in HEAD	Below 1 V 10 to 14 V
LSWP (B7-10) – GND (1E-7)	Y – W-B	Door lock position switch circuit	Front RH door is in lock position Front RH door is in unlock position	10 to 14 V Below 1 V
HRLY (B7-20) – GND (1E-7)	G – W-B	HEAD relay operation signal	Headlamp comes on Headlamp goes off	Below 1 V 10 to 14 V
TAIL (B7-21) – GND (1E-7)	R – W-B	Headlamp dimmer switch signal circuit	Light control switch is in TAIL Light control switch is not in TAIL	Below 1 V 10 to 14 V
HF (B7-22) – GND (1E-7)	G – W-B	Headlamp dimmer switch signal circuit	Headlamp dimmer switch is in FLASH Headlamp dimmer switch is not in FLASH	Below 1 V 10 to 14 V
LSWD (B7-25) – GND (1E-7)	LG – W-B	Door lock position switch circuit	Front LH door is in lock position Front LH door is in unlock position	10 to 14 V Below 1 V

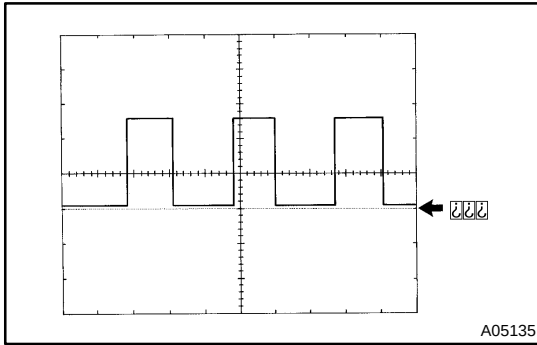
*1: w/ Daytime Running Light

2. HEADLIGHT BEAM LEVEL CONTROL ECU



E73014

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
IG (H12-1) – E1 (H12-24)	V – W-B	Power source (From battery)	Power switch ON (IG)	10 to 14 V
SBR (H12-2) – E1 (H12-24)	P – W-B	Height control sensor (Power source)	Power switch ON (IG)	4.5 to 5.5 V
RHT (H12-3) – E1 (H12-24)	W – W-B	Headlamp beam level control actuator RH (Signal circuit)	With power switch ON (IG) and headlamp ON, change the vehicle height and keep it for more than 2 seconds	1.0 to 12.6 V (approx. 10 seconds)
LHT (H12-4) – E1 (H12-24)	R – W-B	Headlamp beam level control actuator LH (Signal circuit)	With power switch ON (IG) and headlamp ON, change the vehicle height and keep it for more than 2 seconds	1.0 to 12.6 V (approx. 10 seconds)
SHR (H12-5) – E1 (H12-24)	L – W-B	Height control sensor (Power source)	Power switch ON (IG)	Above 2.5 V
PRST (H12-9) – E1 (H12-24)	B – W-B	Initialize signal input terminal	Power switch ON (IG)	Above 5.0 V
HDLP (H12-10) – E1 (H12-24)	G – W-B	HEAD relay operate signal	Light control switch is in HEAD Light control switch is motion HEAD	Below 1 V 10 to 14 V
WNG (H12-11) – E1 (H12-24)	L – W-B	Headlamp leveling warning signal (To combination meter)	HEADLAMP LEVELING is indicate HEADLAMP LEVELING is not indicate	Below 1 V 10 to 14 V
SPDR (H12-12) – E1 (H12-24)	V – W-B	Vehicle speed signal (From combination meter)	Vehicle is driving at 30 km/h (18 mph)	Pulse generation (See waveform 1)
RH+ (H12-13) – E1 (H12-24)	B – W-B	Headlamp beam level control actuator RH (Power source circuit)	Power switch ON (IG)	10 to 14 V
LH+ (H12-14) – E1 (H12-24)	G – W-B	Headlamp beam level control actuator LH (Power source)	Power switch ON (IG)	10 to 14 V
SGR (H12-20) – E1 (H12-24)	Y – W-B	Height control sensor (Ground circuit)	Always	Below 1 V
RH- (H12-22) – E1 (H12-24)	BR – W-B	Headlamp beam level control actuator RH (Ground circuit)	Always	Below 1 V
LH- (H12-23) – E1 (H12-24)	LG – W-B	Headlamp beam level control actuator LH (Ground circuit)	Always	Below 1 V
E1 (H12-24) – Body ground (Body ground)	W-B – Body ground	Ground	Always	Below 1 V



Waveform 1

HINT:

- Terminal: SPDR – GND
- Gauge set: 5 V/DIV, 20 ms/DIV
- Condition: Vehicle is driving at approximately 30 km/h (18 mph).