

LIGHTING SYSTEM

850NC-04

PRECAUTION

1. PRECAUTION FOR DISCONNECTING THE BATTERY CABLE

NOTICE FOR INITIALIZATION:

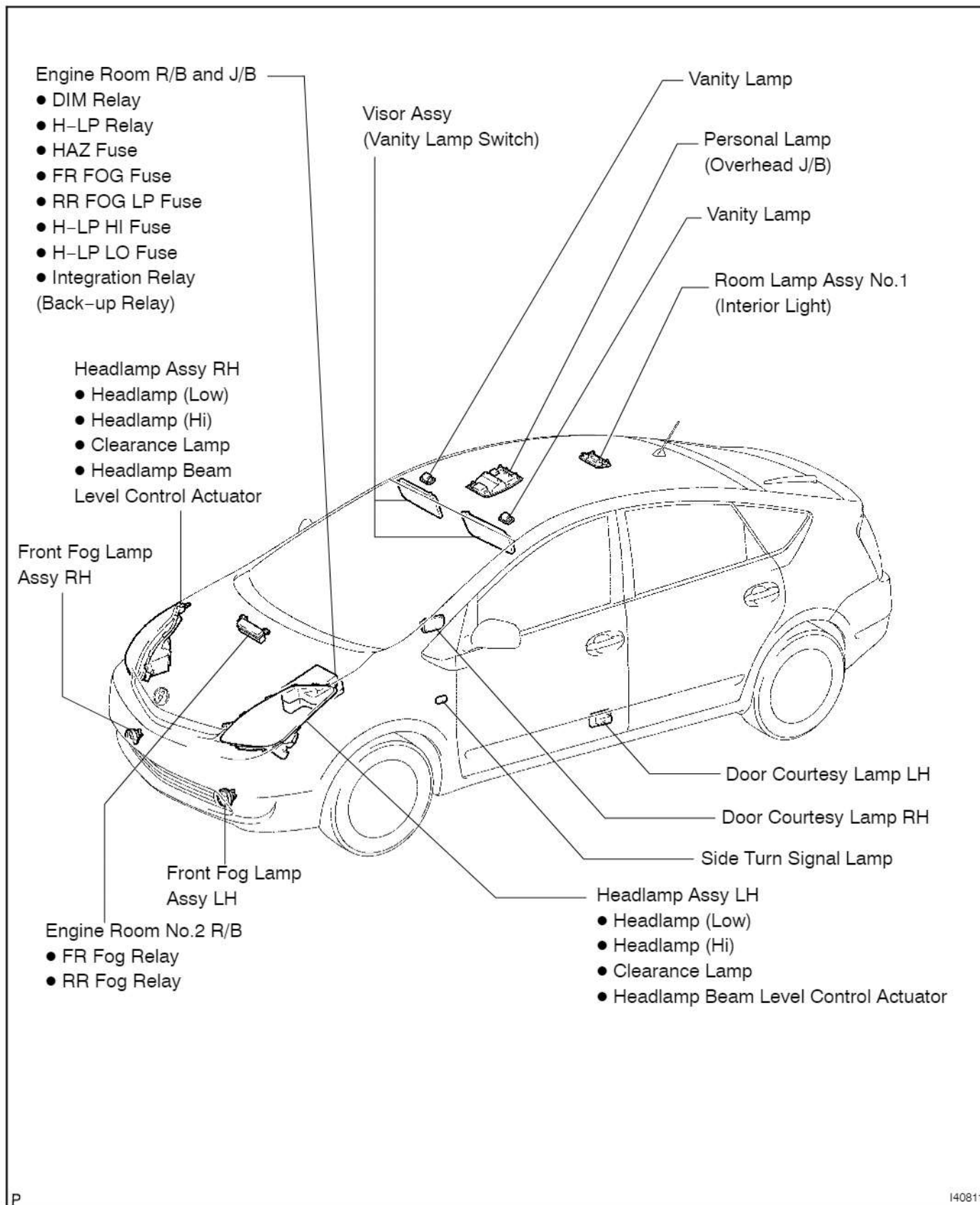
When disconnecting the negative (-) battery terminal, initialize the following systems after the terminal is reconnected.

System Name	See Page
Power Window Control System	01-29

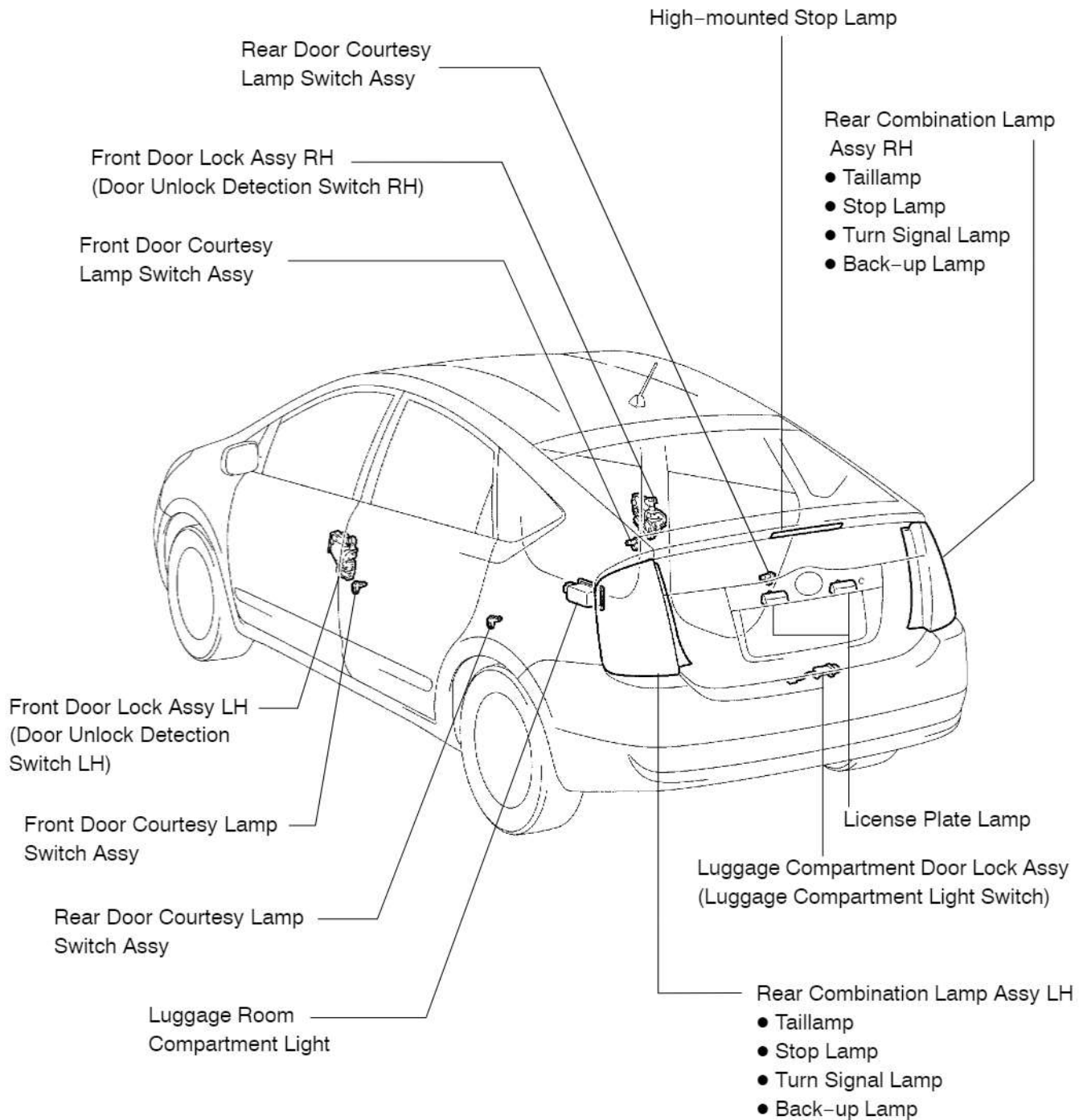
NOTICES FOR HYBRID SYSTEM ACTIVATION:

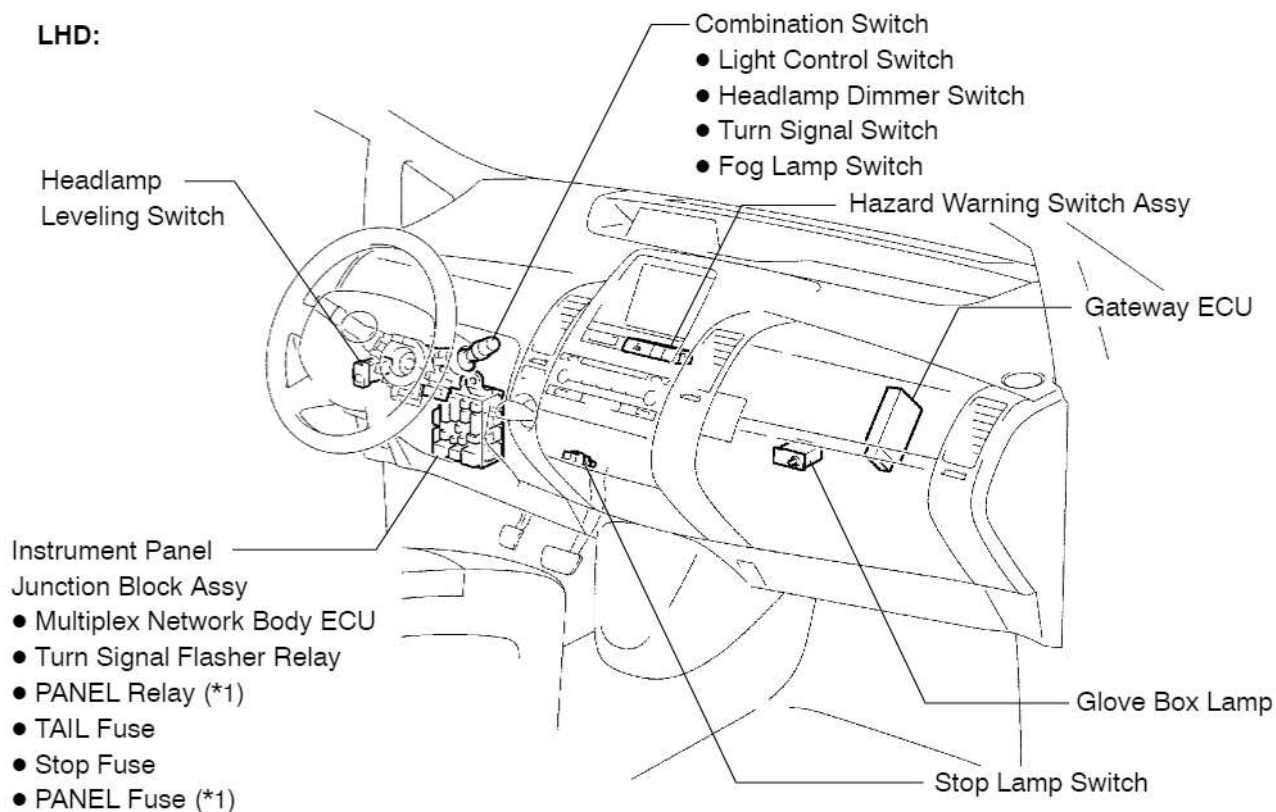
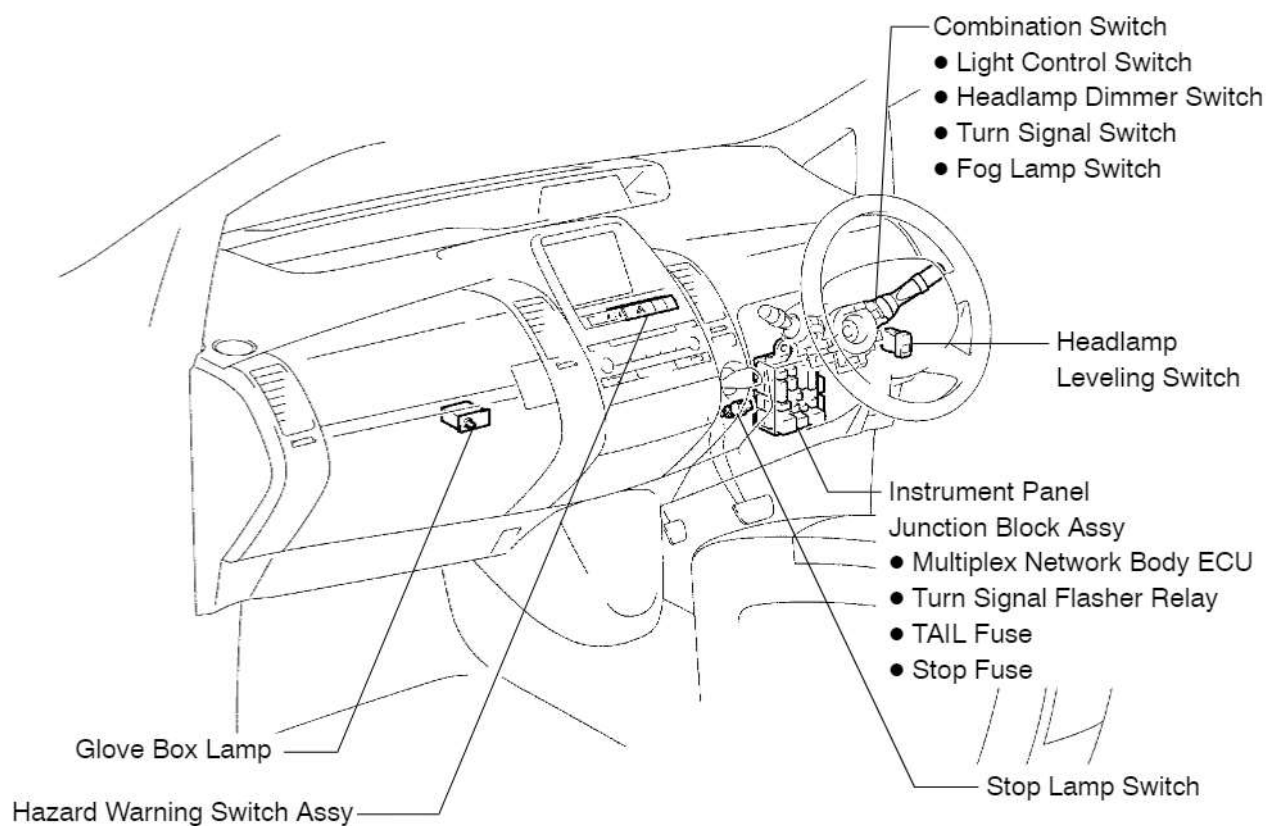
- When the warning lamp is illuminated or the battery has been disconnected and reconnected, pressing the power switch may not start the system on the first try. If so, press the power switch again.
 - With the power switch's power mode changed to ON (IG), disconnect the battery. If the key is not in the key slot during reconnection, DTC B2799 may be output.
- ### 2. PRECAUTION OF HEADLIGHT BULB REPLACEMENT
- (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.

LOCATION



I40811



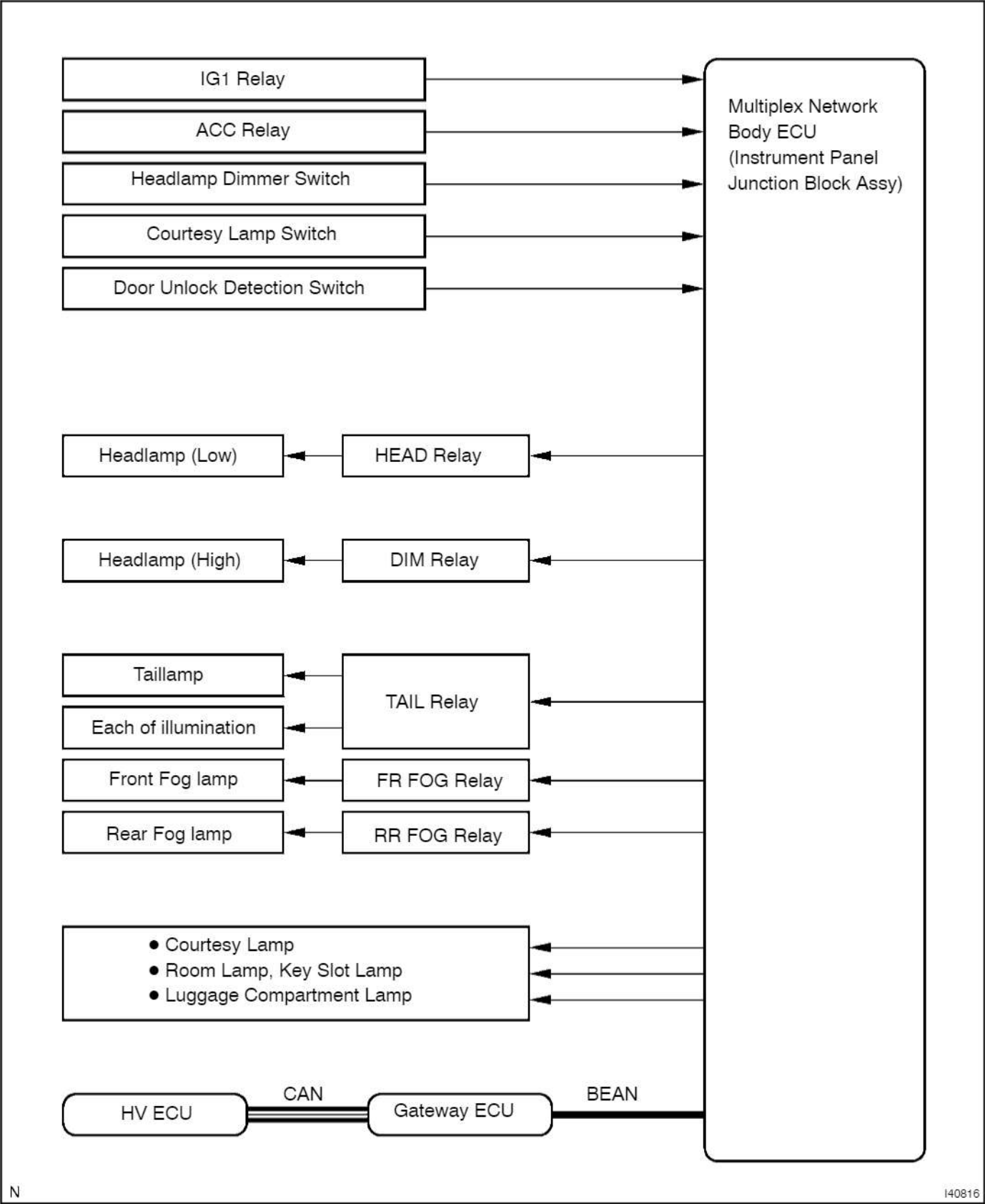
LHD:**RHD:**

*1: w/ Daytime Running Light

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I40813

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

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.
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 leveling switch.

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
 - Rear fog SW signal (Europe)
 - 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.
 - REAR FOG relay ON signal (Europe)
Sent when light SW tail and rear fog SW signals are received.
 - PANEL relay ON signal (Europe)
Sent when light SW tail and light SW head 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
 - Front fog lamp
 - Rear fog lamp
 - Taillamp
 - License plate lamp
 - Room lamps
- (b) Daytime running light system
- (1) The multiplex network body ECU receives the following:
- Light SW head signal
 - Light SW auto signal
 - Light control signal
 - Ready condition 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 signal have not been received.
- (3) The multiplex network body ECU controls the following based on the signals listed in (2):
- Headlamp (Low)
- (c) Light auto cut system (Europe)
- (1) The multiplex network body ECU receives the following:
- Light SW tail signal
 - Light SW head signal
 - Front fog SW signal
 - Power 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 light SW head signal is received while sending the HEAD relay ON signal.
 - Front fog relay ON signal
Terminates communication when the power switch ON (IG) signal terminates while sending the front fog relay ON signal results from receiving the light SW tail signal, light SW head signal, or front fog SW 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)
 - Taillamp

- (d) Light auto cut system (Australia)
- (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
 - 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)

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. LIGHT AUTO TURN OFF SYSTEM OPERATION CHECK (EUROPE)

- (a) Turn the power switch on (IG), and switch the light control switch into the TAIL position when driver side door is closed.
- (b) Turn the power switch off. Check that the front fog lamp goes off.
- (c) Turn the power switch on (IG), and switch the light control switch into the HEAD position when driver side door is closed.
- (d) Turn the power switch off. Check that the headlamp and front fog lamps go off.

3. LIGHT AUTO TURN OFF SYSTEM OPERATION CHECK (AUSTRALIA)

- (a) Turn the power switch on (IG), and switch the light control switch into the TAIL or HEAD position and front fog lamp switch is in the ON position when driver side door is closed.
- (b) Turn the power switch off and open the driver side door. Check that the headlamp, taillamp and front fog lamps 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 (EUROPE)

- (a) Check that the headlamp comes on when the light control switch is off, the power switch is ON (IG), and the vehicle is ready to run.
- (b) Check that the headlamp goes off when the power switch is turned off.

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/ACC OFF	ON	Illuminates the interior light when the ignition switch is turned from the ACC to LOCK position.	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

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 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).	1. H-LP LH/H-LP RH fuse 2. Bulb 3. Wire harness or connector	- - -
Low beam does not come on (both sides).	1. HEAD MAIN fuse 2. Headlamp dimmer switch 3. Wire harness or connector 4. Multiplex Network Body ECU	- 65-20 - -
High beam does not come on (one side).	1. H-LP LH/H-LP RH fuse 2. Bulb 3. Wire harness or connector	- - -
High beam does not come on (both sides).	1. HEAD MAIN fuse 2. Headlamp dimmer switch 3. Wire harness or connector 4. Multiplex Network Body ECU	- 65-20 - -
FLASH does not come on (Low beam and high beam are normal).	1. Headlamp dimmer switch 2. Wire harness or connector 3. Multiplex Network Body ECU	65-20 - -
Headlamp is dim.	1. Bulb 2. Wire harness or connector	- -
Taillamp does not come on (all).	1. Headlamp dimmer switch 2. Wire harness or connector 3. Multiplex Network Body ECU	65-20 - -
One taillamp does not come on.	1. Bulb 2. Wire harness or connector	- -
Daytime running light system does not operate.	1. Headlamp dimmer switch 2. Wire harness or connector 3. Multiplex Network Body ECU	65-20 - -

2. LIGHT AUTO TURN OFF SYSTEM

Symptoms	Suspected Area	See page
Light auto turn off system does not operate.	1. Headlamp dimmer switch 2. Door courtesy switch (Australia) 3. Wire harness or connector 4. Multiplex Network Body ECU	65-20 65-20 - -

3. FOG LAMP SYSTEM

Symptoms	Suspected Area	See page
Front fog lamp does not come on (one side).	1. Bulb 2. Wire harness or connector	- -
Front fog lamp does not come on (both sides).	1. FR FOG fuse 2. FR FOG relay 3. Headlamp dimmer switch 4. Wire harness or connector 5. Multiplex Network Body ECU	- - 65-20 - -
Rear fog lamp does not come on (one side).	1. Bulb 2. Wire harness or connector	- -
Rear fog lamp does not come on (both sides).	1. RR FOG fuse 2. RR FOG relay 3. Headlamp dimmer switch 4. Wire harness or connector 5. Multiplex Network Body ECU	- - 65-20 - -

4. TURN SIGNAL LAMP AND HAZARD WARNING SYSTEM

Symptoms	Suspected Area	See page
"Hazard" and "Turn" do not come on.	1. HAZ/GAUGE fuse 2. Turn signal flasher relay 3. Wire harness or connector 4. Instrument panel junction block assy	- 65-17 - -
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	65-20 - -
Turn signal does not come on ("Hazard" is normal).	1. Headlamp dimmer switch 2. Wire harness or connector 3. Instrument panel junction block assy	65-20 - -
Turn signal does not come on in one direction.	1. Bulb 2. Wire harness or connector 3. Instrument panel junction block assy	- - -

5. 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 fuse 2. Stop light switch assy 3. Wire harness or connector	- 65-20 -

6. ILLUMINATED ENTRY SYSTEM

Symptoms	Suspected Area	See page
Illuminated entry system controlled by the multiplex network body ECU does not operate.	1. Door courtesy switch 2. Door unlock detection switch 3. Wire harness or connector 4. Multiplex Network Body ECU	65-20 05-1776 - -

7. HEADLIGHT BEAM LEVEL CONTROL SYSTEM

Symptoms	Suspected Area	See page
Headlamp beam level control system does not operate (one side).	1. Headlamp leveling switch 2. Headlamp assy (Headlight beam level control actuator) 3. Wire harness or connector	65-20 65-17 -
Headlamp beam level control system does not operate (both sides).	1. TAIL fuse 2. Headlamp leveling switch 3. Headlamp assy (Headlight beam level control actuator) 4. Wire harness or connector	- 65-20 65-17 -

8. OTHERS

Symptoms	Suspected Area	See page
Vanity lamp does not come on.	1. DOME fuse 2. Bulb 3. Wire harness or connector	- - -
Back up lamp does not come on.	1. GAUGE fuse 2. IG 1 relay 3. Bulb 4. Back/up relay 5. Wire harness or connector	- - - 65-20 -
Luggage room lamp does not come on.	1. DOME fuse 2. Bulb 3. Wire harness or connector	- - -
Courtesy lamp does not come on.	1. DOME fuse 2. Bulb 3. Courtesy lamp switch 4. Wire harness or connector 5. Multiplex Network Body ECU	- - 65-20 - -

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 intelligent tester II 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 intelligent tester II 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 Door courtesy SW	Driver's door courtesy SW signal/ON or OFF	ON: Driver's door is open OFF: Driver's door is closed	-
P Door courtesy SW	Passenger's door courtesy SW signal/ ON or OFF	ON: Passenger's door is open OFF: Passenger's door is closed	-
Rear Door courtesy 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	-
Passenger 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	-
Passing Light SW (Body)	Headlight dimmer SW signal/ON or OFF	ON: Headlamp dimmer switch is in FLASH position OFF: Headlamp dimmer switch is in except FLASH position	-
Rear Fog Light SW	Rear fog light SW sig- nal/ ON or OFF	ON: Rear fog lamp switch is in ON position OFF: Rear fog lamp switch is in OFF position	-
Front Fog Light SW	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	-
Head light SW (Head)	Headlight control SW signal/ON or OFF	ON: Light control switch is in HEAD position OFF: Light control switch is not in HEAD position	-
Head light SW (Tail)	Taillight SW signal/ On or OFF	ON: Light control switch is in TAIL or HEAD position	-
Illumination Rate Info	Illuminate rate/ ON or OFF	Condition value will be displayed	-
D Door 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	-
Battery saver	Battery saver/ ON or OFF	Customized value will be displayed	-
I/L when ACC OFF	Light the I/L when ACC OFF/ ON or OFF	Customized value will be displayed	-
I/L ON W/Unlock	Interior light ON W/Un- lock/ON or OFF	Customized value will be displayed	-
DRL Function (*1)	DRL function/ ON or OFF	ON	-

*1: w/ Daytime Running Light

2. ACTIVE TEST

HINT:

Performing the "ACTIVE TEST" using the intelligent tester II 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.

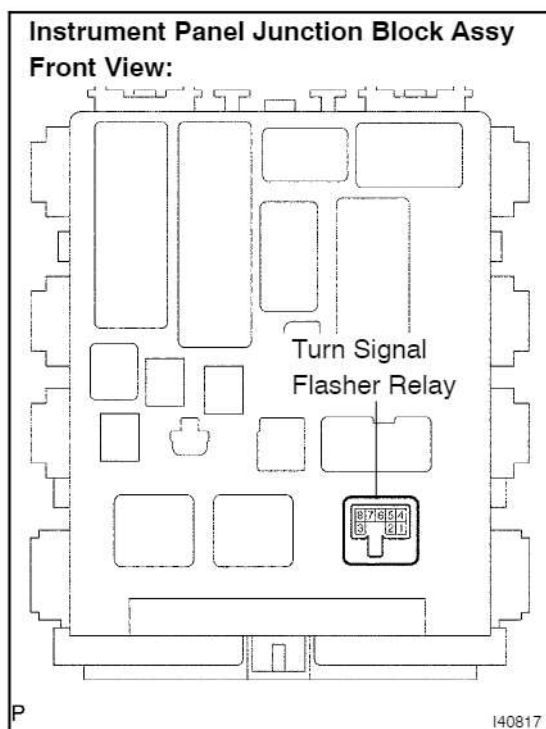
- (a) Connect the intelligent tester II to the DLC3.
- (b) Turn the power switch on (IG).
- (c) Perform the "ACTIVE TEST" according to the display on the tester.

B No.1/GW:

Item	Test Details	Diagnostic Note
Hazard	Turn hazard lamp flasher relay ON/OFF	-
Rear Fog Light Relay	Turn rear fog lamp relay ON/OFF	-
Front Fog Light Relay	Turn front fog lamp relay ON/OFF	-
Headlight Relay	Turn headlamp relay ON/OFF	-
Head Light (Hi)	Turn headlamp dimmer relay (headlamp dimmer switch HI position) ON/OFF	-
Taillight Relay	Turn taillamp relay ON/OFF	-
Dimmer Signal	Turn dimmer relay ON/OFF	-
Illuminated Entry System	(Test Details) Turn daytime light and key illumination ON/OFF (Vehicle Condition) Interior light switch is in DOOR position and all doors are closed	-
Interior Panel Relay (*1)	Turn panel relay ON/OFF	-

*1: w/ Daytime Running Light

ON-VEHICLE INSPECTION



1. INSPECT TURN SIGNAL FLASHER OPERATION 65070-02

- (a) Power source circuit and ground circuit inspection.
- (1) Remove the turn signal flasher relay from the instrument panel junction block assy.
 - (2) Measure the voltage according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
1 - Body ground	Ignition switch ON	10 to 14 V
4 - Body ground	Always	10 to 14 V

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

Standard:

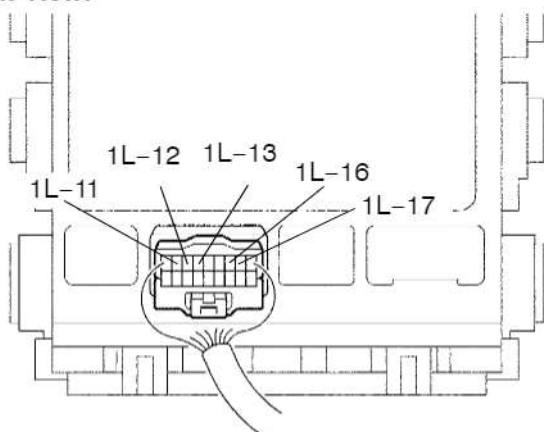
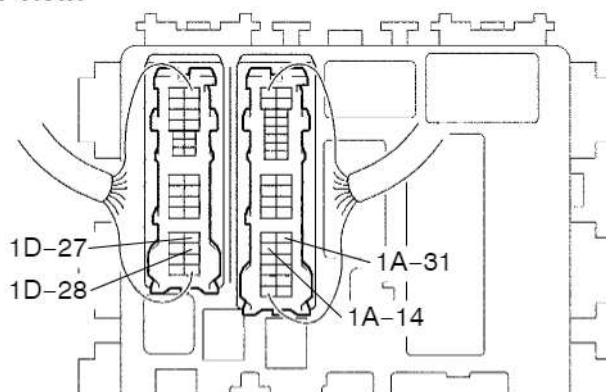
Tester connection	Condition	Specified condition
7 - Body ground	Always	Below 1 Ω

(b) Output operation signal inspection.

- (1) Install the turn signal flasher relay to the instrument panel junction block assy.
- (2) Measure the voltage according to the value(s) in the table below.

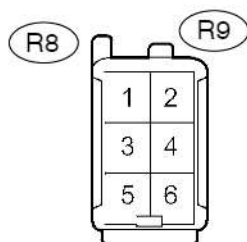
Standard:

Tester connection	Condition	Specified condition
1A-14 - Body ground	Hazard warning switch OFF → ON	0 V → 0 ↔ above 9 V (60 to 120 times per minutes)
1A-14 - Body ground	Turn signal switch (left turn) OFF → ON	0 V → 0 ↔ above 9 V (60 to 120 times per minutes)
1A-31 - Body ground	Hazard warning switch OFF → ON	0 V → 0 ↔ above 9 V (60 to 120 times per minutes)
1A-31 - Body ground	Turn signal switch (right turn) OFF → ON	0 V → 0 ↔ above 9 V (60 to 120 times per minutes)
1D-27 - Body ground	Hazard warning signal OFF → ON	0 V → 0 ↔ above 9 V (60 to 120 times per minutes)
1D-27 - Body ground	Turn signal switch (left turn) OFF → ON	0 V → 0 ↔ above 9 V (60 to 120 times per minutes)
1D-28 - Body ground	Hazard warning signal OFF → ON	0 V → 0 ↔ above 9 V (60 to 120 times per minutes)
1D-28 - Body ground	Turn signal switch (right turn) OFF → ON	0 V → 0 ↔ above 9 V (60 to 120 times per minutes)
1L-11 - Body ground	Turn signal switch (left turn) OFF → ON	Above 9 V → 0 V
1L-12 - Body ground	Turn signal switch (right turn) OFF → ON	Above 9 V → 0 V
1L-13 - Body ground	Hazard warning switch OFF → ON	0 V → 0 ↔ above 9 V (60 to 120 times per minutes)
1L-13 - Body ground	Turn signal switch (left turn) OFF → ON	0 V → 0 ↔ above 9 V (60 to 120 times per minutes)
1L-16 - Body ground	Hazard warning switch OFF → ON	0 V → 0 ↔ above 9 V (60 to 120 times per minutes)
1L-16 - Body ground	Turn signal switch (right turn) OFF → ON	0 V → 0 ↔ above 9 V (60 to 120 times per minutes)
1L-17 - Body ground	Hazard warning switch OFF → ON	Above 9 V → 0 V

Instrument Panel Junction Block Assy:**Front View:****Rear View:**

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Wire Harness View:

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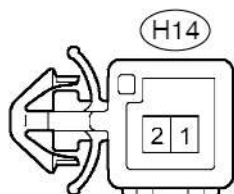
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2. REAR COMBINATION LAMP

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

Standard:

Tester connection	Condition	Specified condition
2 - 5	Brake pedal released	Below 1 V
2 - 5	Brake pedal depressed	10 to 14 V

Wire Harness View:

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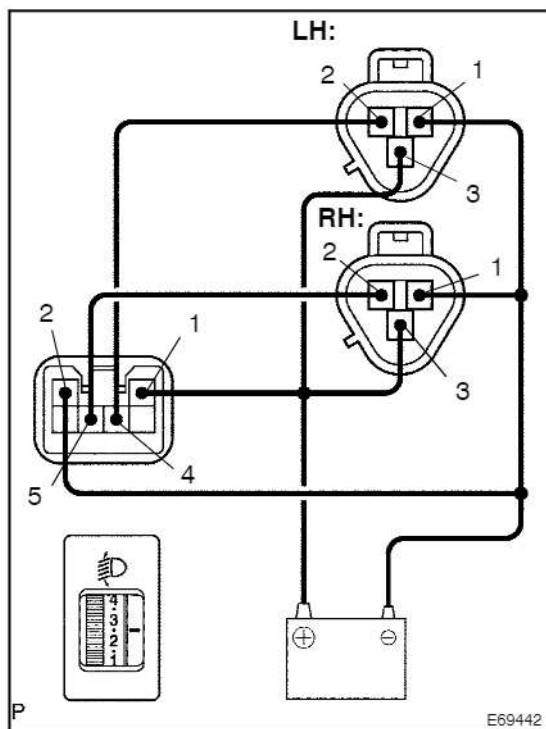
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3. HIGH MOUNTED STOP LAMP

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

Standard:

Tester connection	Condition	Specified condition
1 - 2	Brake pedal released	Below 1 V
1 - 2	Brake pedal depressed	10 to 14 V



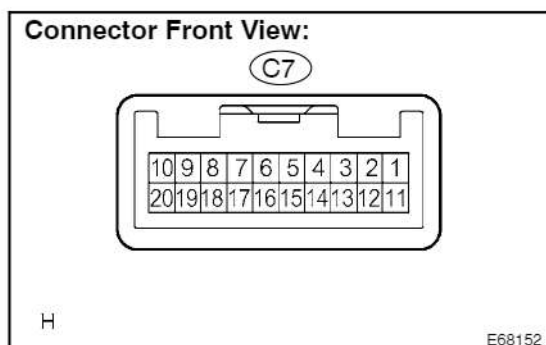
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4. INSPECT HEADLAMP ASSY (HEADLIGHT BEAM LEVEL CONTROL ACTUATOR OPERATION)

- Disconnect the headlamp beam level control actuator connector.
- Connect the positive (+) lead from the battery to headlamp leveling switch terminal 1 and negative (-) lead to headlamp leveling switch terminal 2.
- Connect the positive (+) lead from the battery to each of headlamp beam level control actuator terminal 1 and negative (-) lead to each of headlamp beam level control actuator terminal 3.
- Connect the headlamp leveling switch terminal 4 and LH side headlamp beam level control actuator terminal 2.
- Connect the headlamp leveling switch terminal 5 and RH side headlamp beam level control actuator terminal 2.
- Inspect the headlamp beam level control actuator operation when headlamp leveling switch is operated.

INSPECTION



1. HEADLAMP DIMMER SWITCH ASSY (LH POSITION)

(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 - 20	OFF	10 kΩ or higher
12 - 18	TAIL	Below 1 Ω
12 - 18 12 - 20	HEAD	Below 1 Ω

(b) Inspect headlight dimmer switch continuity.

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

Standard:

Tester connection	Condition	Specified condition
12 - 17	FLASH	Below 1 Ω
11 - 12 12 - 17	LOW BEAM	10 kΩ or higher
11 - 12	HIGH BEAM	Below 1 Ω

(c) Inspect turn signal switch continuity.

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

Standard:

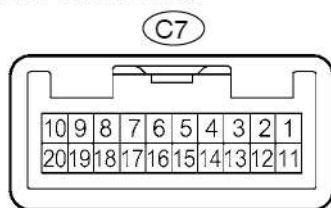
Tester connection	Condition	Specified condition
12 - 13	Right turn	Below 1 Ω
12 - 13 12 - 15	Neutral	10 kΩ or higher
12 - 15	Left turn	Below 1 Ω

(d) Inspect fog lamp switch continuity.

- (1) measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
2 - 3 3 - 4	OFF	10 kΩ or higher
3 - 4	Front fog lamp switch ON	Below 1 Ω
2 - 3 3 - 4	Rear fog lamp switch ON	Below 1 Ω

Connector Front View:

H

E68152

2. HEADLAMP DIMMER SWITCH ASSY (RH POSITION)

- (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
11 - 19 13 - 19	OFF	10 k Ω or higher
13 - 19	TAIL	Below 1 Ω
11 - 19 13 - 19	HEAD	Below 1 Ω

- (b) Inspect headlight dimmer switch continuity.

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

Standard:

Tester connection	Condition	Specified condition
14 - 19	FLASH	Below 1 Ω
14 - 19 15 - 19	LOW BEAM	Below 1 Ω
15 - 19	HIGH BEAM	Below 1 Ω

- (c) Inspect turn signal switch continuity.

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

Standard:

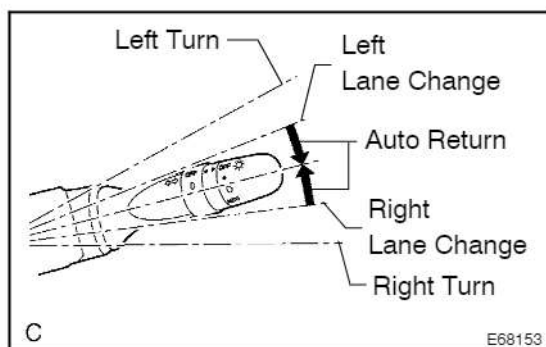
Tester connection	Switch operation	Specified resistance
16 - 19 17 - 19	Right turn	Below 1 Ω
16 - 19	Right lane change	Below 1 Ω
16 - 19 17 - 19 18 - 19	Neutral	10 k Ω or higher
18 - 19	Left lane change	Below 1 Ω
17 - 19 18 - 19	Left turn	Below 1 Ω

- (d) Inspect fog lamp switch continuity.

- (1) measure the resistance according to the value(s) in the table below.

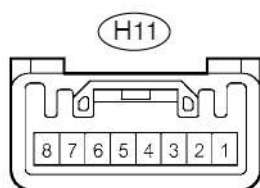
Standard:

Tester connection	Condition	Specified condition
7 - 8 7 - 9	OFF	10 k Ω or higher
7 - 8	Front fog lamp switch ON	Below 1 Ω
7 - 8 7 - 9	Rear fog lamp switch ON	Below 1 Ω



C

E68153

Connector Front View:

H

E72840

3. HAZARD WARNING SIGNAL SWITCH ASSY

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

Standard:

Tester connection	Condition	Specified condition
2 - 3	Hazard warning switch ON	Below 1 Ω
2 - 3	Hazard warning switch OFF	10 k Ω or higher

- (b) Inspect hazard warning switch illumination.
- (1) Connect the battery positive (+) lead from the battery to the terminal 4 and battery negative (-) lead to the terminal 1, then check that the illumination comes on.

OK: Illumination comes on.**4. FRONT DOOR COURTESY LAMP SWITCH ASSY**

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

Standard:

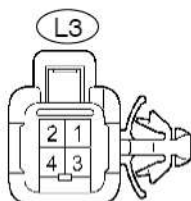
Tester connection	Condition	Specified condition
1 - Body ground	OFF (Shaft is pressed)	10 k Ω or higher
1 - Body ground	ON (Shaft is not pressed)	Below 1 Ω

5. REAR DOOR COURTESY LAMP SWITCH ASSY

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

Standard:

Tester connection	Condition	Specified condition
1 - Body ground	OFF (Shaft is pressed)	10 k Ω or higher
1 - Body ground	ON (Shaft is not pressed)	Below 1 Ω

Connector Front View:

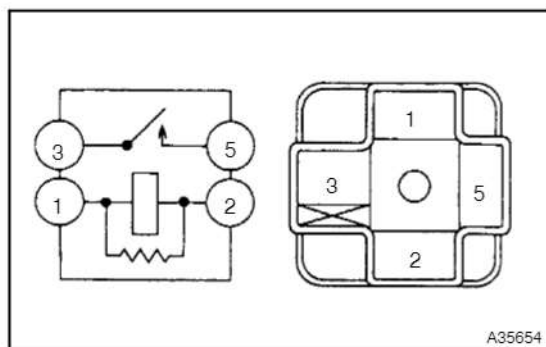
E54740

6. BACK DOOR COURTESY LAMP SWITCH ASSY

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

Standard:

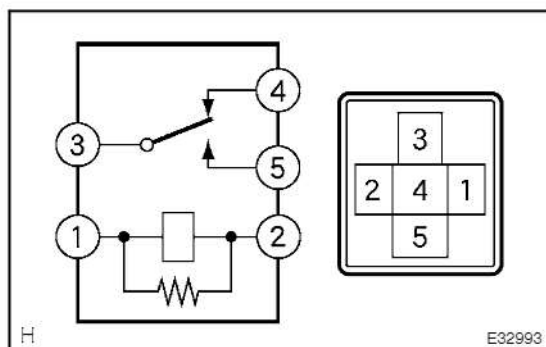
Tester connection	Condition	Specified condition
1 - 2	Back door is closed	10 k Ω or higher
1 - 2	Back door is opened	Below 1 Ω

**7. HEADLAMP RELAY**

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

Standard:

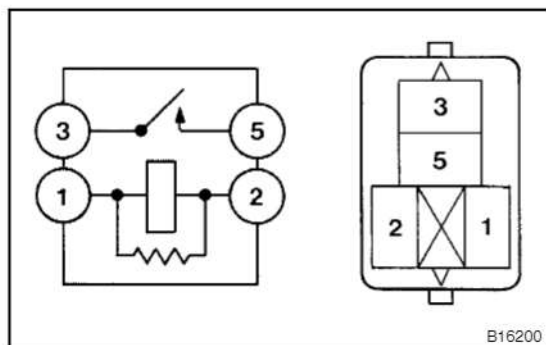
Tester connection	Specified condition
3 - 5	10 kΩ or higher
3 - 5	Below 1 Ω (When battery voltage is applied to terminal 1 - 2)

**8. HEADLAMP RELAY NO.2**

- (a) Inspect DIM relay continuity.
(1) Measure the resistance according to the value(s) in the table below.

Standard:

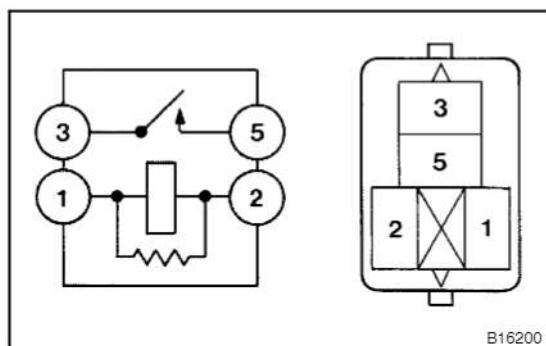
Tester connection	Specified condition
3 - 5	10 kΩ or higher
3 - 4	Below 1 Ω
3 - 5	Below 1 Ω (When battery voltage is applied to terminal 1 - 2)
3 - 4	10 kΩ or higher (When battery voltage is applied to terminal 1 - 2)

**9. FOG LAMP RELAY (W/ FOG LAMP)**

- (a) Inspect front fog and rear fog relay continuity.
(1) Measure the resistance according to the value(s) in the table below.

Standard:

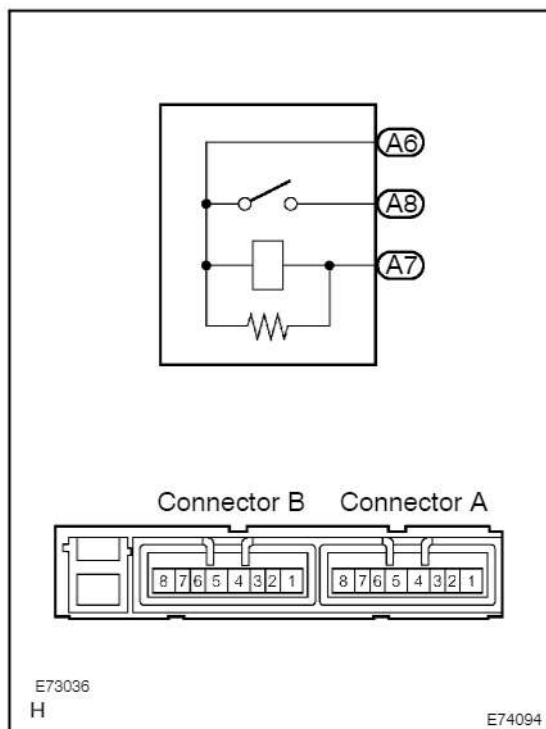
Tester connection	Specified condition
3 - 5	10 kΩ or higher
3 - 5	Below 1 Ω (When battery voltage is applied to terminal 1 - 2)

**10. PANEL RELAY**

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

Standard:

Tester connection	Specified condition
3 - 5	10 kΩ or higher
3 - 5	Below 1 Ω (When battery voltage is applied to terminal 1 - 2)

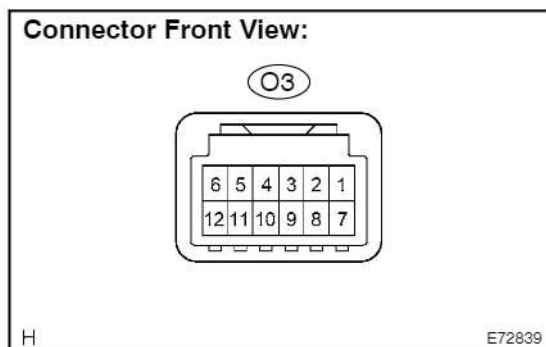


11. INTEGRATION RELAY

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

Standard:

Tester connection	Specified condition
A6 - A8	Below 1 V
A6 - A8	10 to 14 V (When connect the (+) lead from the battery to terminal A6 and the (-) lead to terminal A7)



12. MAP LAMP ASSY

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

Standard:

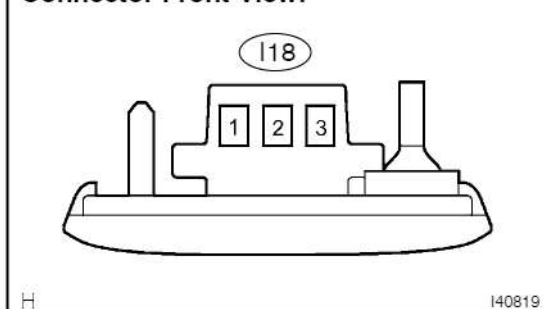
Tester connection	Condition	Specified condition
1 - 3 1 - 4	Switch is OFF	10 kΩ or higher

- (b) Connect the battery positive (+) lead from the battery to the terminal 1 and battery negative (-) lead to the terminal 3, then check that the illumination comes on when switch is in the DOOR position.

OK: Illumination comes on.

- (c) Connect the battery positive (+) lead from the battery to the terminal 1 and battery negative (-) lead to the terminal 4, then check that the illumination comes on when switch is in the ON position.

OK: Illumination comes on.

Connector Front View:**13. ROOM LAMP ASSY NO.1**

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

Standard:

Tester connection	Condition	Specified condition
1 - 2	Switch is OFF	10 kΩ or higher
1 - 3		

- (b) Connect the battery positive (+) lead from the battery to the terminal 1 and battery negative (-) lead to the terminal 2, then check that the illumination comes on when switch is in the DOOR position.

OK: Illumination comes on.

- (c) Connect the battery positive (+) lead from the battery to the terminal 1 and battery negative (-) lead to the terminal 3, then check that the illumination comes on when switch is in the ON position.

OK: Illumination comes on.

14. ROOM LAMP ASSY NO.2

- (a) Connect the battery positive (+) lead from the battery to one of the terminal and battery negative (-) lead to other terminal, then check that the lamp comes on.

OK: Lamp comes on.

15. VANITY LAMP SWITCH

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

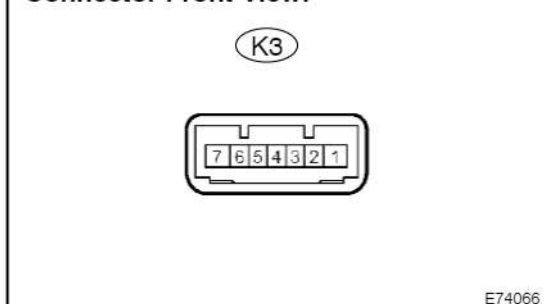
Standard:

Tester connection	Condition	specified condition
1 - 2	Switch is OFF	10 kΩ or higher
1 - 2	Switch is ON	Below 1 Ω

16. VANITY LAMP ASSY

- (a) Connect the battery positive (+) lead from the battery to one of the terminal and battery negative (-) lead to other terminal, then check that the lamp comes on.

OK: Lamp comes on.

Connector Front View:**17. ELECTRICAL KEY HOLDER ASSY**

- (a) Inspect key slot illumination.

- (1) Connect the battery positive (+) lead from the battery to the terminal 2 and battery negative (-) lead to the terminal 6, then check that the illumination comes on.

OK: Illumination comes on.

18. GLOVE BOX LAMP ASSY

- (a) Connect the battery positive (+) lead from the battery to one of the terminal and battery negative (-) lead to other terminal, then check that the lamp comes on when switch is in the ON position.

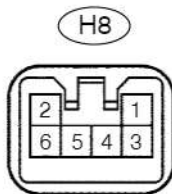
OK: Lamp comes on.

19. DOOR COURTESY LAMP ASSY

- (a) Connect the battery positive (+) lead from the battery to one of the terminal and battery negative (-) lead to other terminal, then check that the lamp comes on.

OK: Lamp comes on.

Connector Front View:



P E69442

E71009

20. HEADLAMP LEVELING SWITCH

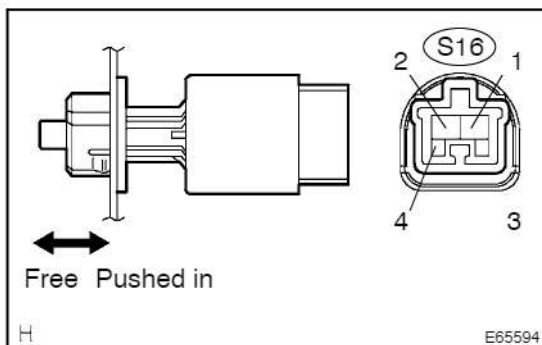
- (a) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Switch position	Specified condition
3 - 4	0	1,620 to 1,980 Ω
3 - 4	1	1,430 to 1,740 Ω
3 - 4	2	1,340 to 1,510 Ω
3 - 4	3	1,040 to 1,280 Ω
3 - 4	4	850 to 1,040 Ω
3 - 4	5	660 to 810 Ω
3 - 5	0	1,620 to 1,980 Ω
3 - 5	1	1,430 to 1,740 Ω
3 - 5	2	1,340 to 1,510 Ω
3 - 5	3	1,040 to 1,280 Ω
3 - 5	4	850 to 1,040 Ω
3 - 5	5	660 to 810 Ω

- (b) Connect the battery positive (+) lead from the battery to the terminal 3 and battery negative (-) lead to the terminal 6, then check that the illumination comes on when switch is in the ON position.

OK: Illumination comes on.

**21. STOP LAMP SWITCH ASSY**

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

Standard:

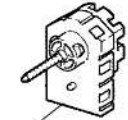
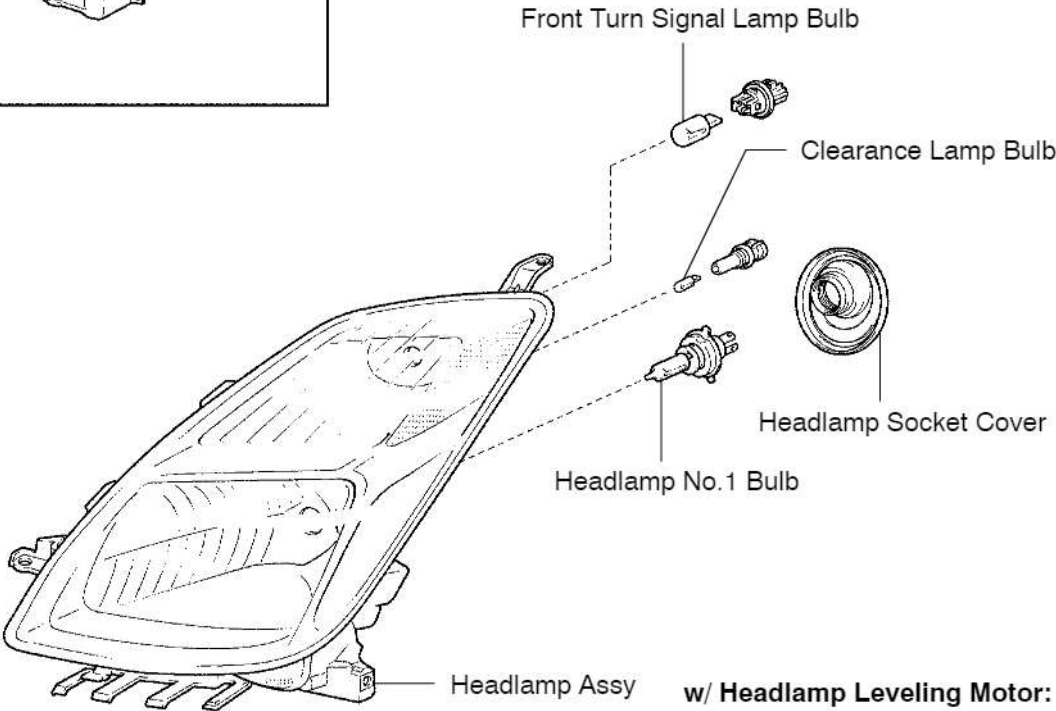
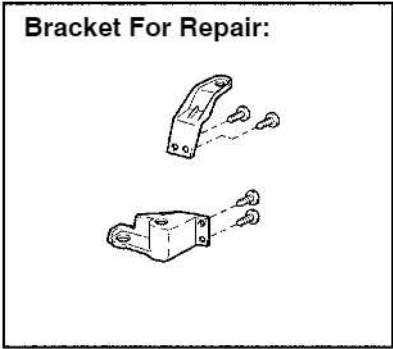
Tester connection	Condition	Specified condition
1 - 2	Switch pin free	Below 1 Ω
3 - 4	Switch pin free	10 k Ω or higher
1 - 2	Switch pin pushed in	10 k Ω or higher
3 - 4	Switch pin pushed in	Below 1 Ω

HEADLAMP ASSY

COMPONENTS

6511N-01

HINT:
Parts are shown for the LH side only. The LH and RH side are symmetrical.



Headlamp Leveling Motor

P

138397

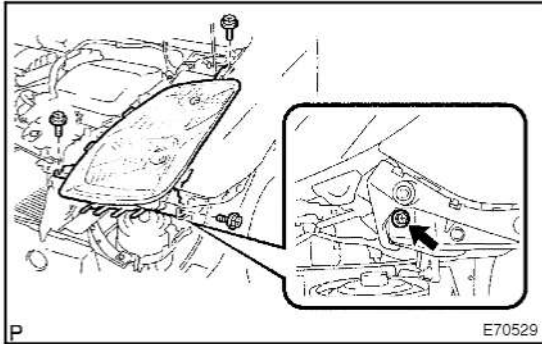
140227

OVERHAUL

HINT:

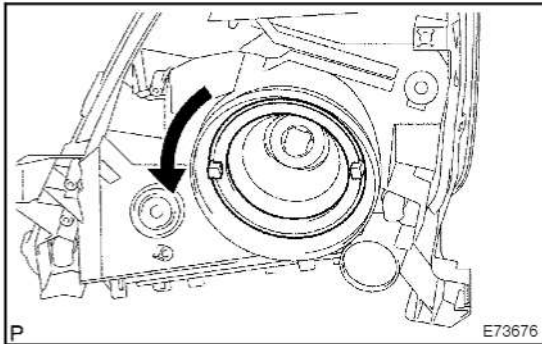
COMPONENTS: See page 65-27

1. REMOVE FRONT FENDER LINER LH (SEE PAGE 76-2)
2. REMOVE FRONT FENDER LINER RH
3. REMOVE FRONT BUMPER COVER (SEE PAGE 76-2)



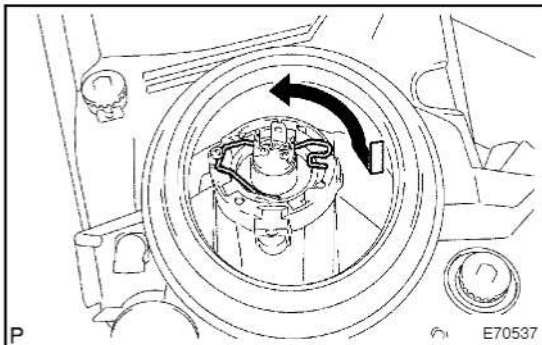
4. REMOVE HEADLAMP ASSY

- (a) Remove the 3 screws.
- (b) Pull the headlamp assy towards the front of the vehicle, disconnect all connectors and remove the headlamp assy.



5. REMOVE HEADLAMP, NO.1 BULB

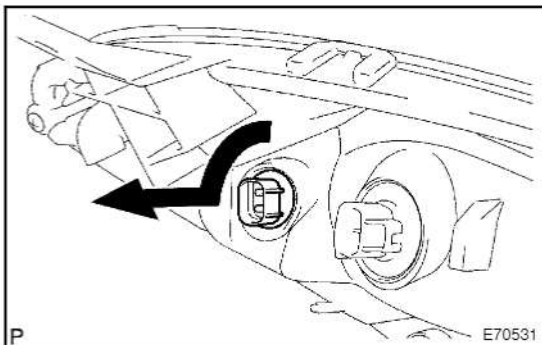
- (a) Turn the headlamp socket cover in the direction indicated by the arrow in the illustration to remove it.



- (b) Push the set spring in the direction indicated by the arrow in the illustration to remove the headlamp No.1 bulb.

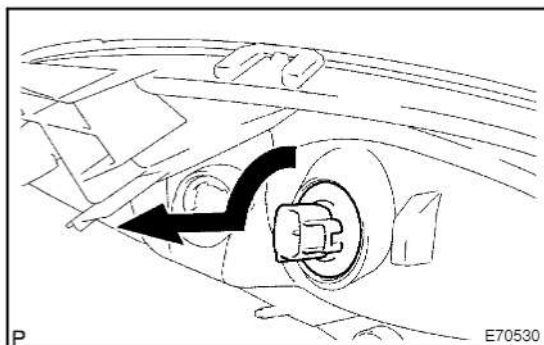
NOTICE:

Do not touch the bulb glass with your fingers.



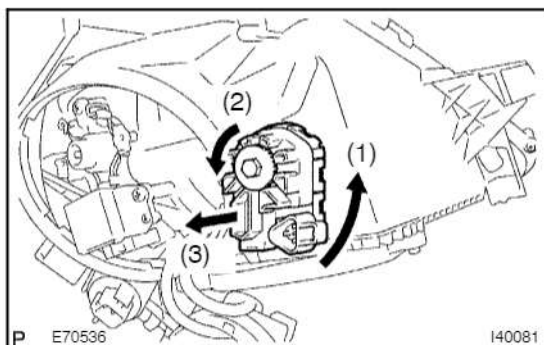
6. REMOVE CLEARANCE LAMP BULB

- (a) Turn the clearance lamp socket and bulb in the direction indicated by the arrow in the illustration to remove them.



7. REMOVE FRONT TURN SIGNAL LAMP BULB

- (a) Rotate the front turn signal lamp socket and bulb in the direction indicated by the arrow in the illustration to remove them.



8. REMOVE HEADLAMP LEVELING MOTOR (W/ LEVELING MOTOR, DISCHARGE HEAD LAMP)

- (a) Rotate the headlamp leveling motor in the direction indicated by arrow (1) in the illustration to remove it.
- (b) Rotate the aiming screw on the headlamp leveling motor in the direction indicated by arrow (2) in the illustration and remove the shaft.
- (c) Pull the headlamp leveling motor towards you to remove it.

9. HEADLIGHT AIM ONLY (SEE PAGE 65-30)

10. ADJUST FOG LIGHT AIM (SEE PAGE 65-35)

ADJUSTMENT

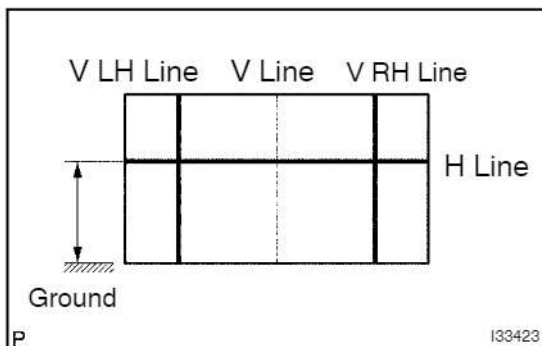
1. HEADLIGHT AIM ONLY

HINT:

- Perform aim adjustment with low-beam.
- Since the low-beam light and the high-beam light are a unit, if aiming on either side is correct, the other side should also be correct. However, check both beams just to make sure.

(a) Prepare the vehicle by performing the following.

- Ensure there is no damage or deformation to the body around the headlamps.
- Fill the fuel tank.
- Make sure that the oil is filled to the specified level.
- Make sure that the coolant is filled to the specified level.
- Inflate the tires to the appropriate pressure ([see page 28-1](#)).
- Place the spare tire, tools, and jack in their original position.
- Unload the trunk.
- Sit a person of average weight (75 kg, 165 lbs) in the driver's seat.



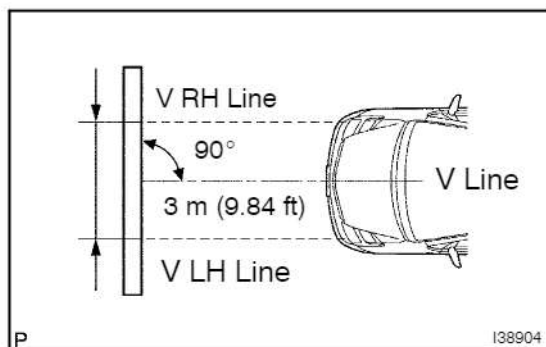
(b) Prepare a piece of thick white paper (draw base lines).

HINT:

- Stand the paper perpendicularly against a wall.
 - The base lines differ for "Low-beam inspection" and "High-beam inspection".
- (1) V line (vehicle center position)
Draw a vertical line down the center of the paper to align with the center of the vehicle.
 - (2) H line (headlight height)
Draw a horizontal line across the paper so that it is at the same height as the center mark of the low-beam light on the vehicle.
 - (3) V LH line, V RH line (center mark position of right and left headlamps)
Draw vertical lines on the left and right sides of the paper so that they line up with the center mark on the low-beam lights on the vehicle.

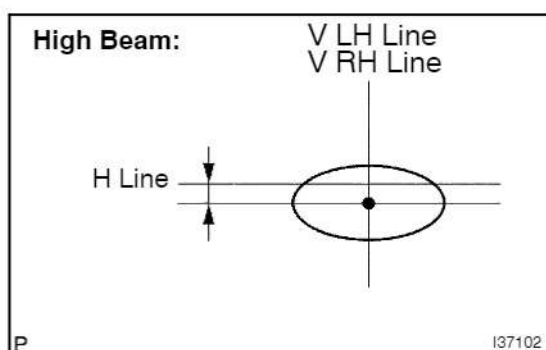
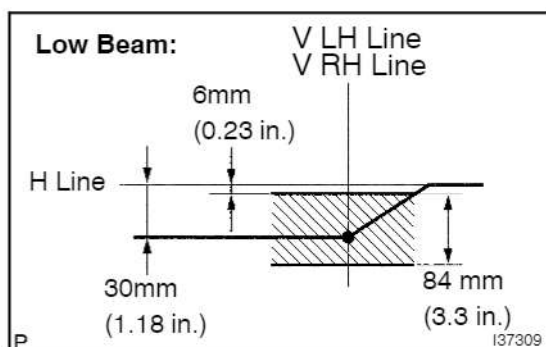
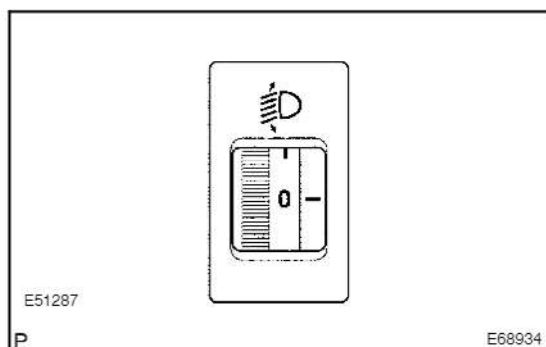
HINT:

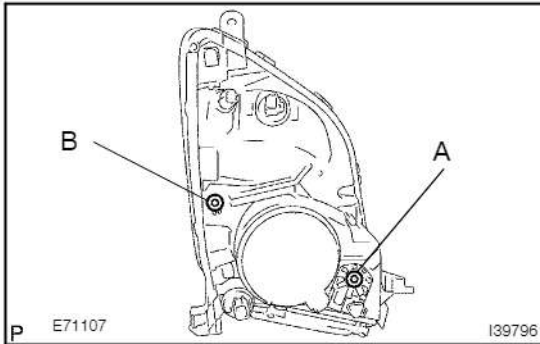
When performing "High-beam inspection", draw an H line, a V LH line, and a V RH line based on the center mark on the high-beam headlamp side.



(c) Check headlamp aim

- (1) Align the vehicle with a piece of blank paper.
 - Make a distance of 3 m (9.84 ft) between the headlamps and the paper. Place the paper against a wall with the H line at the same height as the center mark.
 - Align the center of the vehicle with the V line on the paper. Ensure that the paper forms a 90° angle to the V line.
- (2) Turn the headlamp leveling switch to 0.
- (3) Start the engine.
- (4) Turn the headlamps on and check if the aim falls within the standard shown below.





(d) To adjust the vertical aim:

Using a screwdriver, adjust the headlamp aim into the specified range by turning aiming screw A.

NOTICE:

- **Adjust the headlamp aim by turning the screw in the tightening direction.**
- **When the screw is tightened excessively, loosen it once and retighten it to adjust the headlamp aim.**

HINT:

The headlamp aim moves down when turning the screw clockwise, and moves up when turning the screw counterclockwise.

(e) To adjust the horizontal aim:

Using a screwdriver, adjust the headlamp aim into the specified range by turning aiming screw B.

NOTICE:

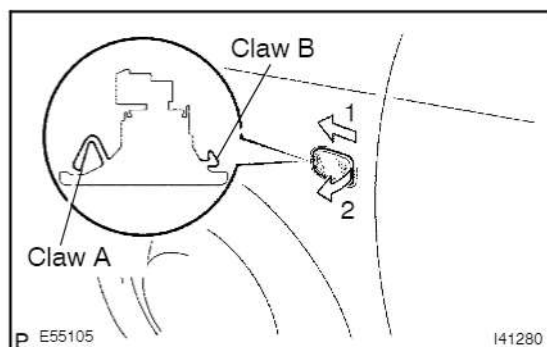
- **Adjust the headlamp aim by turning the screw in the tightening direction.**
- **When the screw is tightened excessively, loosen it once and retighten it to adjust the headlamp aim.**

SIDE TURN SIGNAL LAMP LENS REPLACEMENT

6511Q-02

HINT:

Parts are shown for the LH side only. The LH and RH side are symmetrical.



1. REMOVE SIDE TURN SIGNAL LAMP LENS

- (a) While pulling claw A towards the front of the vehicle, bend it towards you and disengage claw B.
- (b) Remove the socket and the side turn signal lamp lens.

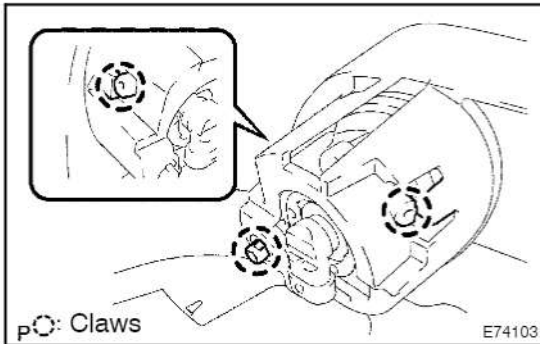
FOG LAMP UNIT REPLACEMENT

65110-01

HINT:

Parts are shown for the LH side only. The LH and RH side are symmetrical.

1. REMOVE FRONT FENDER LINER LH (SEE PAGE 76-2)
2. REMOVE FRONT FENDER LINER RH
3. REMOVE FRONT BUMPER COVER (SEE PAGE 76-2)
4. REMOVE RADIATOR GRILLE LOWER LH (SEE PAGE 76-2)



5. REMOVE FOG LAMP UNIT

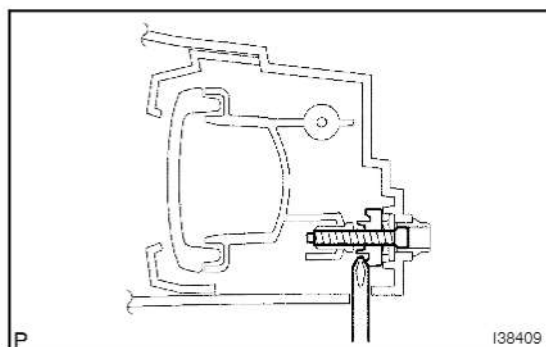
- (a) Disengage the 3 claws and push the fog lamp unit towards the front of the vehicle.
- (b) Remove the fog lamp bulb and the fog lamp unit.

6. ADJUST FOG LIGHT AIM (SEE PAGE 65-35)

ADJUSTMENT

1. ADJUST FOG LIGHT AIM

- (a) Prepare the vehicle by performing the following.
 - Ensure there is no damage or deformation to the body around the headlamps.
 - Fill the fuel tank.
 - Make sure that the oil is filled to the specified level.
 - Make sure that the coolant is filled to the specified level.
 - Inflate the tires to the appropriate pressure (see page 28-1).
 - Place the spare tire, tools, and jack in their original position.
 - Unload the trunk.
 - Sit a person of average weight (75 kg, 165 lbs) in the driver's seat.
- (b) Start the engine and let it idle.



- (c) From underneath the vehicle, turn the screw to perform the adjustment.

HINT:

- The lamp moves up when turning the screw clockwise, and moves down when turning the screw counterclockwise.
- When adjusting the fog lamp, insert a Philips head screwdriver into the front fender liner fog lamp service hole.

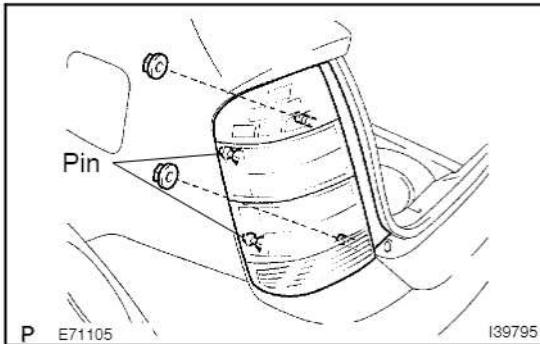
REAR COMBINATION LAMP ASSY OVERHAUL

6511R-01

HINT:

Parts are shown for the LH side only. The LH and RH side are symmetrical.

1. REMOVE REAR COMBINATION LAMP SERVICE COVER LH



2. REMOVE REAR COMBINATION LAMP ASSY

- (a) Remove the 2 nuts.
- (b) Slide the 2 pins towards the back of the vehicle to remove them.
- (c) Disconnect the connector and remove the rear combination lamp assy.
- (d) Remove all bulb sockets and the 3 rear combination lamp bulbs.

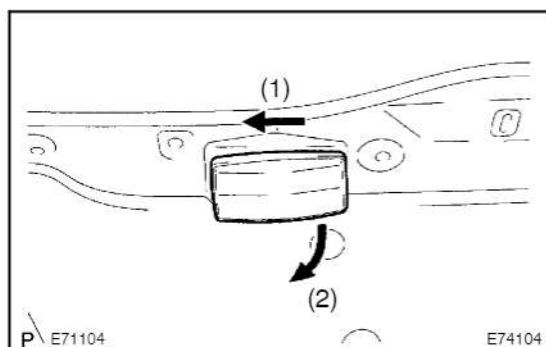
LICENSE PLATE LAMP LENS REPLACEMENT

65119-01

HINT:

Parts are shown for the LH side only. The LH and RH side are symmetrical.

1. REMOVE BACK DOOR TRIM BOARD ASSY ([SEE PAGE 75-33](#))
2. REMOVE BACK DOOR GARNISH SUB-ASSY OUTSIDE ([SEE PAGE 76-24](#))



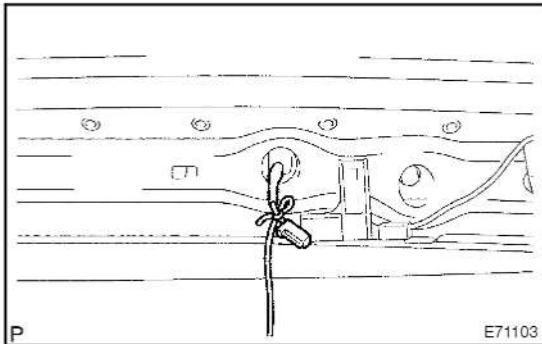
3. REMOVE LICENSE PLATE LAMP LENS

- (a) Push the license plate lamp assy in the direction indicated by the arrow in the illustration and remove it.
- (b) Disconnect the license plate lamp socket & wire and bulb. Remove the license plate lamp lens.

CENTER STOP LAMP ASSY REPLACEMENT

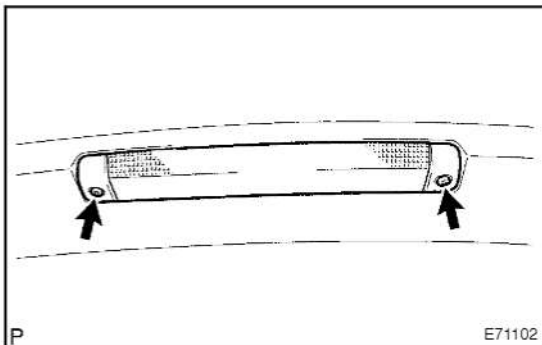
6511T-01

1. REMOVE BACK DOOR TRIM BOARD ASSY (SEE PAGE 75-33)
2. REMOVE BACK DOOR GARNISH SUB-ASSY OUTSIDE (SEE PAGE 76-24)



3. REMOVE CENTER STOP LAMP ASSY

- (a) Disconnect the connector.
- (b) Tie a string around the center stop lamp assy cord.



- (c) Remove the 2 screws and the center stop lamp assy.

NOTICE:

The string will be used when installing, so leave the string as it is inside the back door.

4. INSTALL CENTER STOP LAMP ASSY

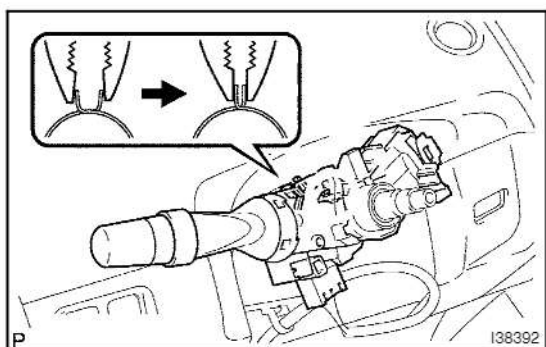
- (a) Tie the string hanging inside the back door around the new center stop lamp assy.
- (b) Using the string, pass the cord into the back door.
- (c) Install the center stop lamp assy with 2 screws.
- (d) Connect the connector.

HEADLAMP DIMMER SWITCH ASSY

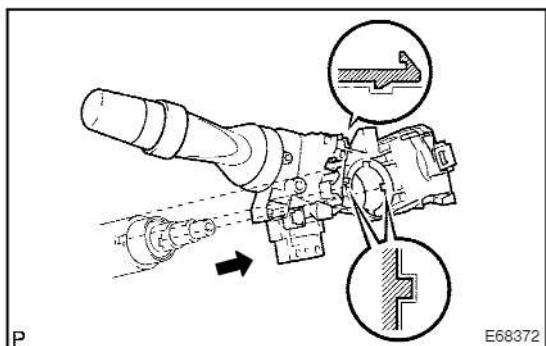
REPLACEMENT

6511U-01

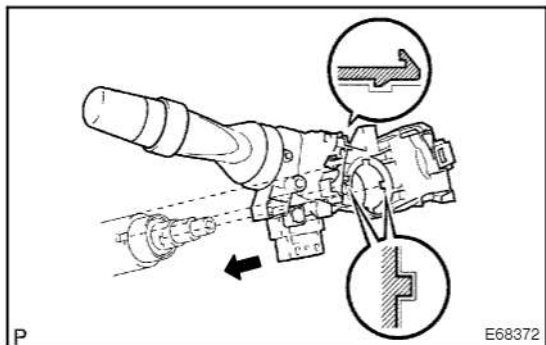
1. DISCONNECT BATTERY NEGATIVE TERMINAL (SEE PAGE 60-1)
2. REMOVE STEERING WHEEL COVER LOWER NO.2 (SEE PAGE 60-20)
3. REMOVE STEERING WHEEL COVER LOWER NO.3 (SEE PAGE 60-20)
4. REMOVE HORN BUTTON ASSY (SEE PAGE 60-20)
5. REMOVE STEERING WHEEL ASSY (SEE PAGE 50-8)
SST 09950-50013 (09951-05010, 09952-05010, 09953-05020, 09954-05021)
6. REMOVE STEERING COLUMN COVER (SEE PAGE 50-8)
7. REMOVE SPIRAL CABLE SUB-ASSY (SEE PAGE 60-29)
8. REMOVE WINDSHIELD WIPER SWITCH ASSY (SEE PAGE 66-26)



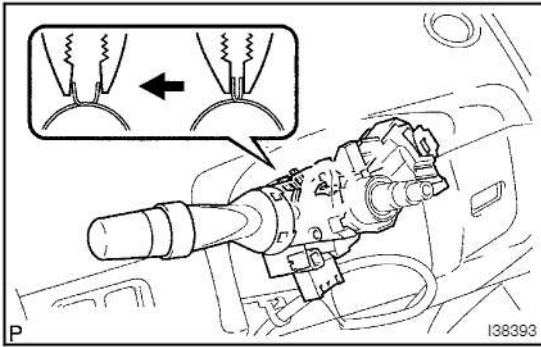
9. REMOVE HEADLAMP DIMMER SWITCH ASSY
 - (a) Disconnect the connectors.
 - (b) Remove the band clamp as shown in the illustration.



- (c) Disengage the claws and remove the headlamp dimmer switch assembly.



10. INSTALL HEADLAMP DIMMER SWITCH ASSY
 - (a) Insert the headlamp dimmer switch assembly so that the recessed portion of the rotating stopper matches that of the rotating stopper.



- (b) Install the headlamp dimmer switch with the band clamp and claw.
- (c) Connect the connectors.

- 11. CENTER SPIRAL CABLE ([SEE PAGE 60-29](#))
- 12. INSTALL STEERING WHEEL ASSY ([SEE PAGE 50-8](#))
- 13. INSTALL HORN BUTTON ASSY ([SEE PAGE 60-20](#))
- 14. CONNECT BATTERY NEGATIVE TERMINAL ([SEE PAGE 21-56](#))
- 15. INSPECT HORN BUTTON ASSY ([SEE PAGE 60-14](#))
- 16. INSPECT SRS WARNING LIGHT ([SEE PAGE 05-1151](#))
- 17. PERFORM INITIALIZATION ([SEE PAGE 01-29](#))