# SECTION SYSTEM

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### PRECAUTIONS

### PRECAUTIONS

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# Precautions for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

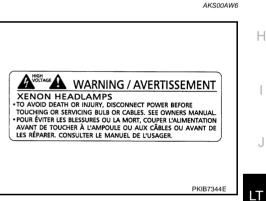
The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SRS and SB section of this Service Manual.

#### WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SRS section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

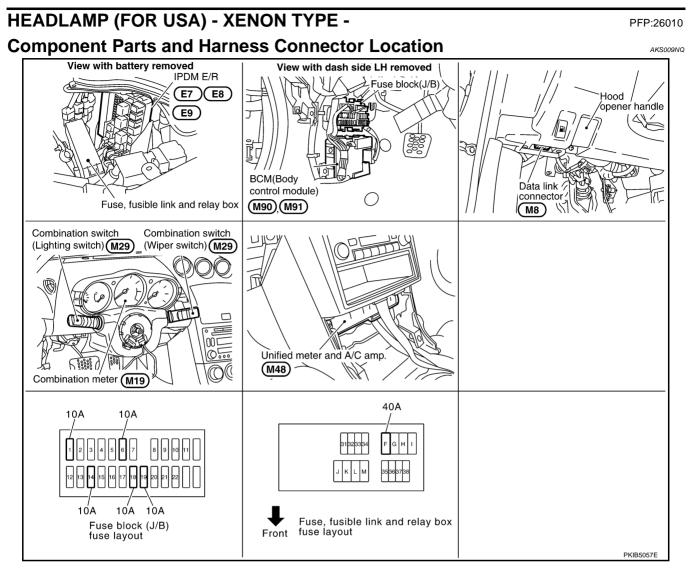
### **General Precautions for Service Operations**

- Never work with wet hands.
  - Xenon headlamp includes high voltage generating part. Be sure to disconnect battery negative cable (negative terminal) or power fuse before removing, installing, or touching the xenon headlamp (including lamp bulb).
- Turn the lighting switch OFF before disconnecting and connecting the connector.
- When turning the xenon headlamp on and while it is illuminated, never touch the harness, bulb, and socket of the headlamp.
- When checking the headlamp on/off operation, check it on vehicle and with the power connected to the vehicle-side connector.
- Do not touch the headlamp bulb glass surface with bare hands or allow oil or grease to get on it. Do not touch the headlamp bulb just after the headlamp is turned off, because it is very hot.
- Install the xenon headlamp bulb socket correctly. If it is installed improperly, high-voltage leak or corona discharge may occur that can melt the bulb, connector, and housing. Do not illuminate the xenon headlamp bulb out of the headlamp housing. Doing so can cause fire and harm your eyes.
- When the bulb has burned out, wrap it in a thick vinyl bag and discard. Do not break the bulb.
- Leaving the bulb removed from the headlamp housing for a long period of time can deteriorate the performance of the lens and reflector (dirt, clouding). Always prepare a new bulb and have it on hand when replacing the bulb.
- When adjusting the headlamp aiming, turn the aiming adjustment screw only in the tightening direction. (If it is necessary to loosen the screw, first fully loosen the screw, and then turn it in the tightening direction.)
- Do not use organic solvent (paint thinner or gasoline) to clean lamps and to remove old sealant.





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### System Description

AKS009NR

Control of the headlamp system operation is dependent upon the position of the combination switch (lighting switch). When the lighting switch is placed in the 2ND position, the BCM (body control module) receives input signal requesting the headlamps (and tail lamps) illuminate. This input signal is communicated to the IPDM E/R (intelligent power distribution module engine room) across the CAN communication lines. The CPU (central processing unit) of the IPDM E/R controls the headlamp high and headlamp low relay coils. These relays, when energized, direct power to the respective headlamps, which then illuminate.

#### OUTLINE

Power is supplied at all times

- to headlamp high relay, located in IPDM E/R and
- to headlamp low relay, located in IPDM E/R, from battery direct,
- through 40A fusible link (letter F, located in fuse, fusible link and relay box)
- to BCM terminal 55,
- through 10A fuse [No.18, located in fuse block (J/B)]
- to BCM terminal 42,
- through 15A fuse [No.78 located in IPDM E/R]
- to CPU located in IPDM E/R,
- through 10A fuse [No.71,located in IPDM E/R]
- to CPU located in IPDM E/R,
- through 10A fuse [No.19, located in fuse block (J/B)]

to combination meter terminal 24.	
With ignition switch in the ON or START position, power is supplied	А
<ul> <li>to CPU located in IPDM E/R, from battery direct</li> </ul>	
<ul> <li>through 10A fuse [No. 1, located in fuse block (J/B)]</li> </ul>	
• to BCM terminal 38,	В
<ul> <li>through 10A fuse [No.14, located in fuse block (J/B)]</li> </ul>	
to combination meter terminal 23.	С
With ignition switch in ACC or ON position, power is supplied	0
<ul> <li>through 10A fuse [No. 6, located in fuse block (J/B)]</li> </ul>	
• to BCM terminal 11.	D
Ground is supplied	
to BCM terminal 52	
<ul> <li>through grounds M30 and M66,</li> </ul>	Е
<ul> <li>to IPDM E/R terminals 38 and 60</li> </ul>	
<ul> <li>through grounds E17, E43 and F152,</li> </ul>	_
<ul> <li>to combination meter terminals 10, 11 and 12</li> </ul>	F
<ul> <li>through grounds M30 and M66.</li> </ul>	
HEADLAMP OPERATION	G
Low Beam Operation	
With the lighting switch in 2ND position, the BCM receives input signal from combination switch reading func- tion (Refer to <u>BCS-3, "COMBINATION SWITCH READING FUNCTION"</u> ) the headlamp to illuminate. This input signal is communicates to the IPDM E/R across the CAN communication lines. The CPU located in the IPDM E/R controls the headlamp low relay coil, which when energized, power is supplied.	Η
<ul> <li>through 15A fuse (No. 76, located in IPDM E/R)</li> </ul>	I
<ul> <li>through IPDM E/R terminal 20</li> </ul>	I
<ul> <li>to front combination lamp RH terminal 7</li> </ul>	
<ul> <li>through 15A fuse (No. 86, located in IPDM E/R)</li> </ul>	J
through IPDM E/R terminal 30	
• to front combination lamp LH terminal 7.	
Ground is supplied	LT
<ul> <li>to front combination lamp RH terminal 8</li> </ul>	
<ul> <li>through grounds E17, E43 and F152,</li> </ul>	I
to front combination lamp LH terminal 8	
<ul> <li>through grounds E17, E43 and F152.</li> </ul>	
With power and ground supplied, low beam headlamps illuminate.	Μ
High Beam Operation/Flash-to-Pass Operation	
With the lighting switch in 2ND position and placed in HIGH or PASS position, the BCM receives input signal requesting the headlamp high beam and low beam to illuminate. This input signal is communicated to the IPDM E/R across the CAN communication lines. The CPU located in the IPDM E/R controls the headlamp high relay coil and headlamp low relay coil, which when energized, directs power.	

- through 15A fuse (No. 76, located in IPDM E/R)
- through IPDM E/R terminal 20
- to front combination lamp RH terminal 7, and
- through 15A fuse (No. 86, located in IPDM E/R)
- through IPDM E/R terminal 30
- to front combination lamp LH terminal 7,
- through 10A fuse (No. 72, located in IPDM E/R)
- through IPDM E/R terminal 27
- to front combination lamp RH terminal 3, and

- through 10A fuse (No. 74, located in IPDM E/R)
- through IPDM E/R terminal 28
- to front combination lamp LH terminal 3.

Ground is supplied

- to front combination lamp RH terminals 4 and 8
- through grounds E17,E43 and F152,
- to front combination lamp LH terminals 4 and 8
- through grounds E17,E43 and F152.

With power and ground supplied, headlamp high beam and low beam illuminate.

Unified meter and A/C amp. receives signal from BCM across CAN communication lines, and then combination meter indicator illuminates high beam.

#### COMBINATION SWITCH READING FUNCTION

Refer to BCS-3, "COMBINATION SWITCH READING FUNCTION" .

#### **EXTERIOR LAMP BATTERY SAVER CONTROL**

When the combination switch (lighting switch) is in the 2ND position (ON), and the ignition switch is turned from ON or ACC to OFF, the battery saver control function is activated.

Under this condition, the headlamps remain illuminated for 5 minutes, then the headlamps are turned off. Exterior lamp battery saver control mode can be changed by the function setting of CONSULT-II.

#### **REMOTE KEYLESS ENTRY SYSTEM OPERATION**

Refer to BL-62, "REMOTE KEYLESS ENTRY SYSTEM" .

#### **VEHICLE SECURITY SYSTEM**

The vehicle security system will flash the high beams if the system is triggered. Refer to <u>BL-134</u>, <u>"VEHICLE</u> <u>SECURITY (THEFT WARNING) SYSTEM"</u>.

#### **XENON HEADLAMP**

Xenon type lamps are used for to the low beam headlamps. Xenon bulbs do not use a filament. Instead, they produce light when a high voltage current is passed between two tungsten electrodes through a mixture of xenon (an inert gas) and certain other metal halides. In addition to strong lighting power, electronic control of the power supply gives the headlamps stable quality and tone color.

Followings are some advantages of the xenon type headlamp.

- The light produced by the headlamps is white color similar to sunlight that is easy to the eyes.
- Light output is nearly double that of halogen headlamps, affording increased area of illumination.
- Counter-reflected luminance increases and the contrast enhances on the wet road in the rain. That makes visibility go up more than the increase of the light volume.
- Power consumption is approximately 25 percent less than halogen headlamps, reducing battery load.

### **CAN Communication System Description**

AKS009NS

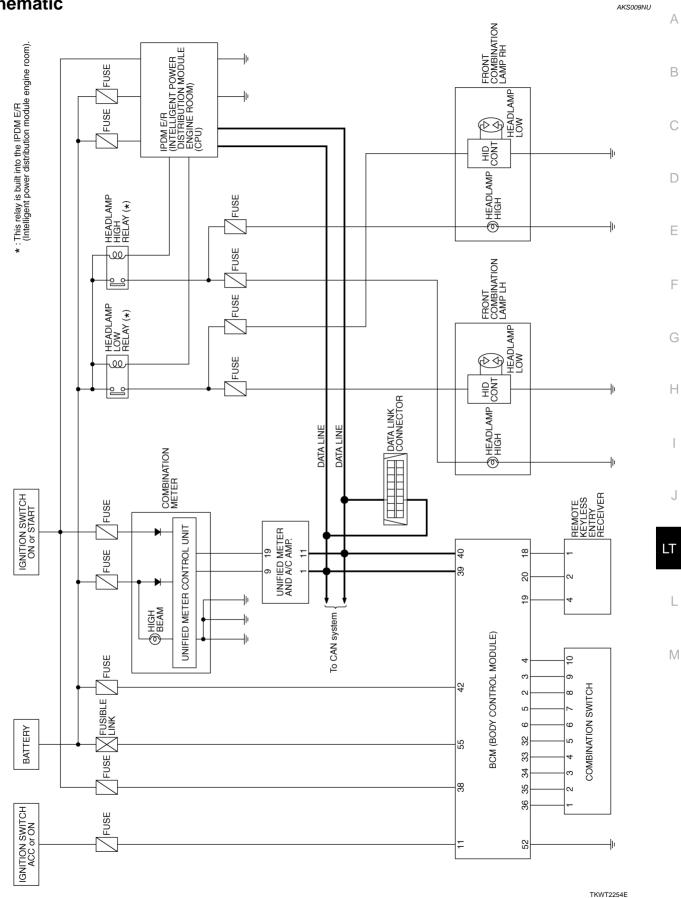
CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN H line, CAN L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

### **CAN Communication Unit**

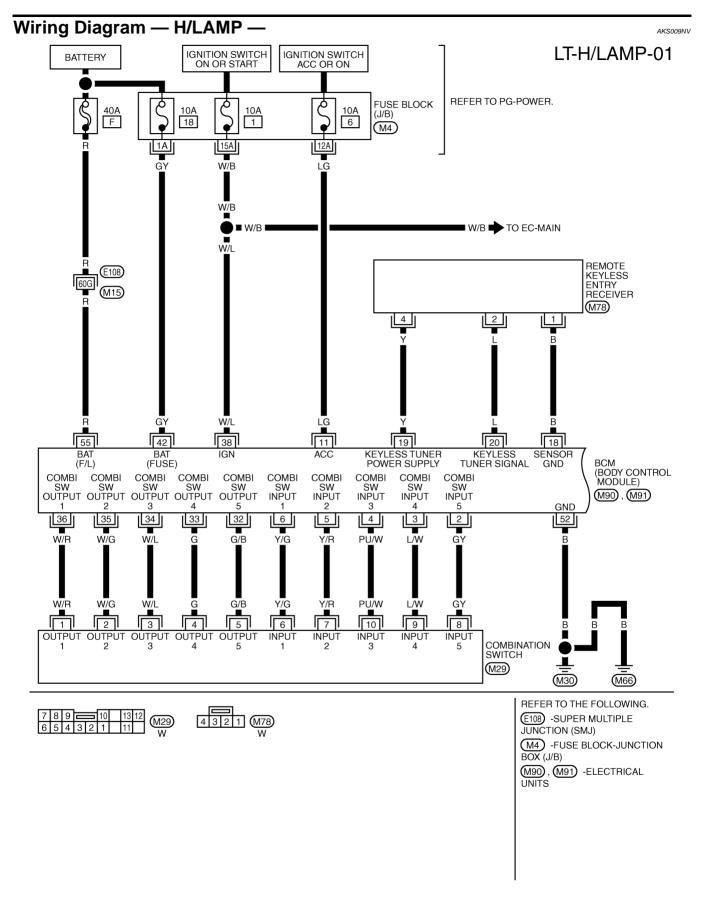
AKS009NT

Refer to LAN-21, "CAN Communication Unit".

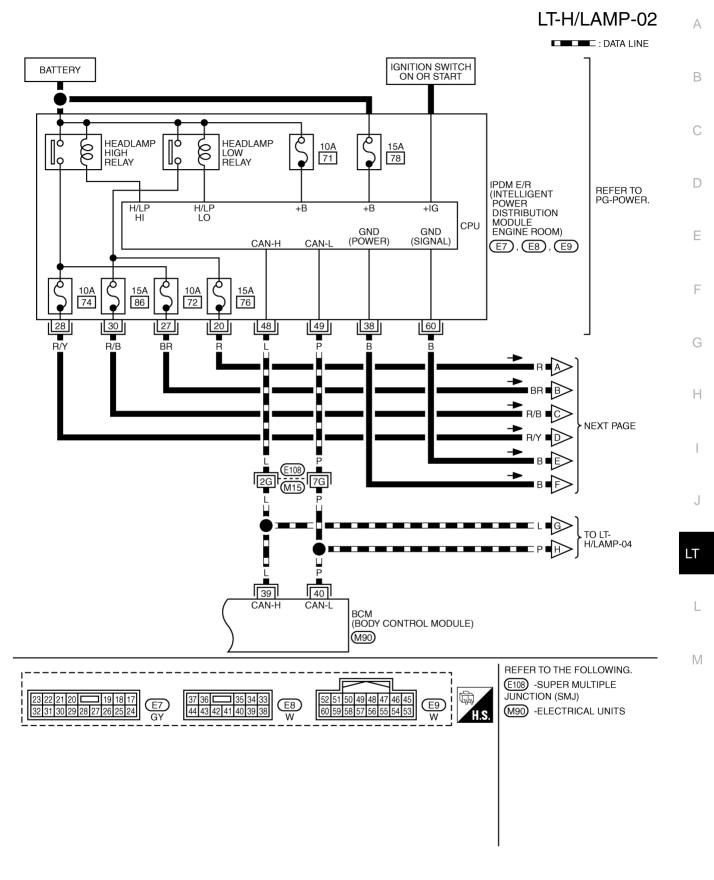
### Schematic



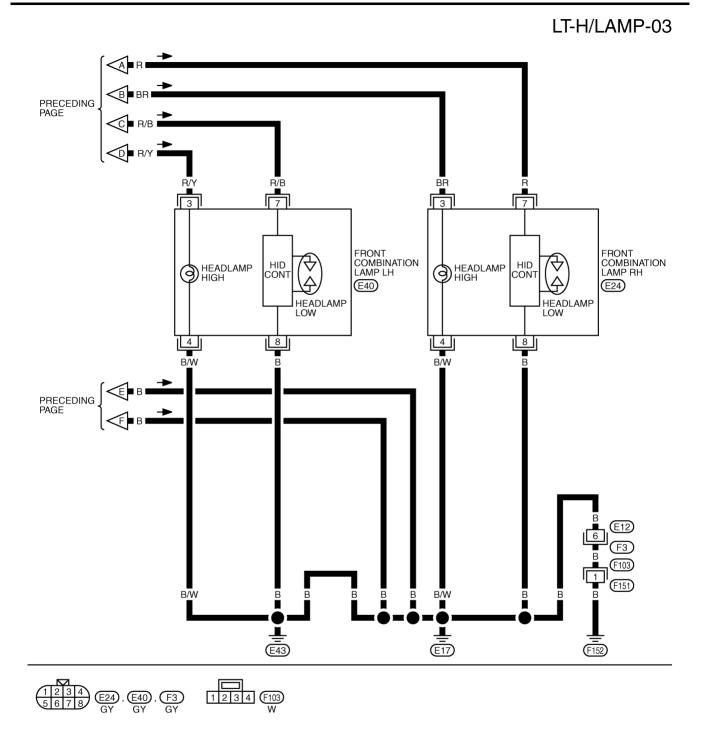
Revision: 2005 August



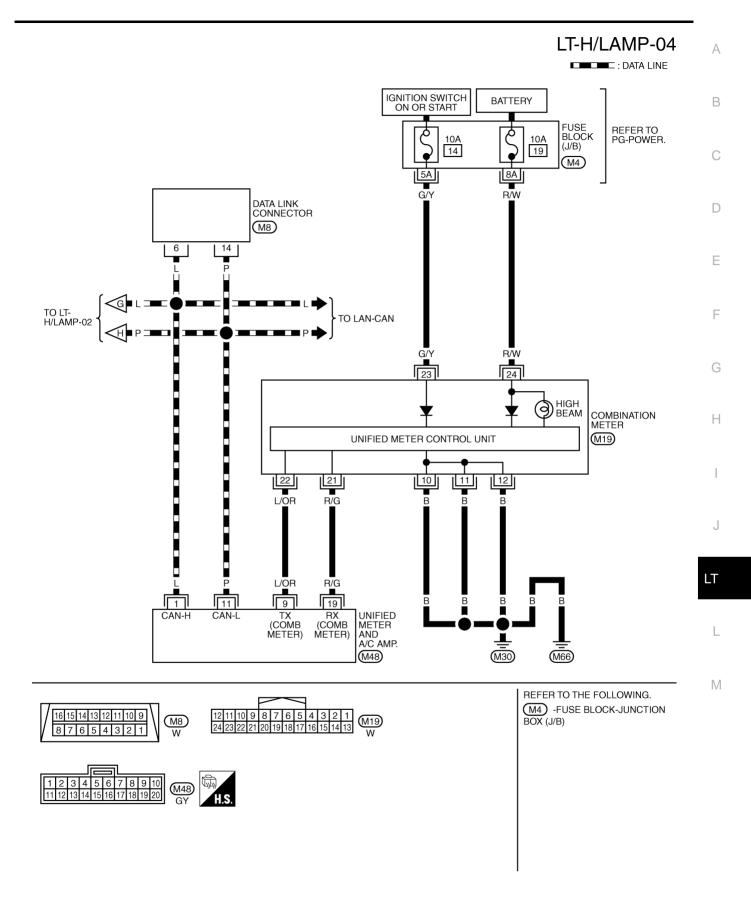
TKWT2255E



TKWT2256E



TKWT2257E



TKWT2258E

### **Terminals and Reference Values for BCM**

	147			Measuring condition	
Terminal No.	Wire color	Signal name	Ignition switch	Operation or condition	Reference value
2	GY	Combination switch input 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 + 5 ms SKIA5291E
3	L/W	Combination switch input 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 •••5ms SKIA5292E
4	PU/W	Combination switch input 3	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 • • • 5 ms SKIA5291E
5	Y/R	Combination switch input 2	_		
6	Y/G	Combination switch input 1	ON	Lighting, turn, wiper OFF Wiper dial position 4	4 0 
11	LG	Ignition switch (ACC)	ACC		Battery voltage
32	G/B	Combination switch output 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 •••5ms SKIA5291E
33	G	Combination switch output 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 2 0 • • 5ms SKIA5292E
34	W/L	Combination switch output 3	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 •••5ms SKIA5291E

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Terminal Wi		Wire		Measuring condition	
No.	Signal name		Ignition switch	Operation or condition	Reference value
35	W/G	Combination switch output 2			
36	W/R	Combination switch output 1	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 4 2 0 → +5ms SKIA5292E
38	W/L	Ignition switch (ON)	ON	_	Battery voltage
39	L	CAN– H	_	_	_
40	Р	CAN– L		_	_
42	GY	Battery power supply	OFF	_	Battery voltage
52	В	Ground	ON	—	Approx. 0V
55	R	Battery power supply	OFF	_	Battery voltage

### Terminals and Reference Values for IPDM E/R

Terminal	Wire			Measuring condition		G	
No.	color	Signal name	Ignition switch	<ul> <li>Operation or condition</li> </ul>		Reference value	
20	R	Headlamp low (PH)	ON	Lighting switch 2ND	OFF	Approx. 0V	Н
20	ĸ	Headlamp low (RH)	ON	position	ON	Battery voltage	
27	חח	Headlamp high (RH)		ON Lighting switch HIGH or PASS position	OFF	Approx. 0V	
21	BR		ON		ON	Battery voltage	
28	R/Y	Lloodlamp bigh (LLI)	ON	Lighting switch HIGH	OFF	Approx. 0V	
20	R/ I	Headlamp high (LH)	ON	or PASS position	ON	Battery voltage	J
30	R/B	Haadlamp low (LH)	ON	Lighting switch 2ND	OFF	Approx. 0V	
30	R/D	Headlamp low (LH)	ON	position	ON	Battery voltage	
38	В	Ground	ON	—		Approx. 0V	
48	L	CAN– H	_	—		—	
49	Р	CAN– L	—	—		—	L
60	В	Ground	ON	_		Approx. 0V	

### How to Proceed With Trouble Diagnosis

- 1. Confirm the symptom or customer complaint.
- 2. Understand operation description and function description. Refer to LT-6, "System Description".
- 3. Perform the preliminary check. Refer to LT-16, "Preliminary Check" .
- 4. Check symptom and repair or replace the cause of malfunction.
- 5. Does headlamp operate normally? If YES, GO TO 6. If NO, GO TO 4.
- 6. INSPECTION END

AKS009QM

AKS009QN

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#### Preliminary Check CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

#### • Check for blown fuses.

Unit	Power source	Fuse and fusible link No.
	Detterri	F
DOM	Battery	18
BCM	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R		72
	Dettern	74
	Battery	76
		86

Refer to LT-10, "Wiring Diagram — H/LAMP —".

#### OK or NG

- OK >> GO TO 2.
- NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to <u>PG-</u> <u>3, "POWER SUPPLY ROUTING CIRCUIT"</u>.

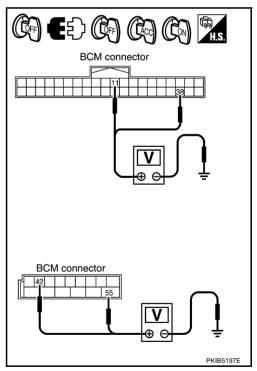
### 2. CHECK POWER SUPPLY CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect BCM connector.
- 3. Check voltage between BCM harness connector and ground.

	Terminal			Ignition switch position		
	(+)				ON	
Connector	Terminal (Wire color)	(-)	OFF	ACC		
M90	11 (LG)		Approx. 0V	Battery voltage	Battery voltage	
10190	38 (W/L)	Ground	Approx. 0V	Approx. 0V	Battery voltage	
M91	42 (GY)	Glound	Battery voltage	Battery voltage	Battery voltage	
10191	55 (R)		Battery voltage	Battery voltage	Battery voltage	

#### OK or NG

- OK >> GO TO 3.
- NG >> Check harness for open or short between BCM and fuse.



AKS009QO

### $\overline{3}$ . CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.			
	Continuity		
Connector	Terminal (Wire color)	Ground	
M91	52 (B)	Yes	

OK or NG

OK >> INSPECTION END

NG >> Check ground circuit harness.

# А В BCM connector D PKIB5198E

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### **CONSULT-II Functions (BCM)**

CONSULT-II can display each diagnostic item using the diagnostic test mode shown following.

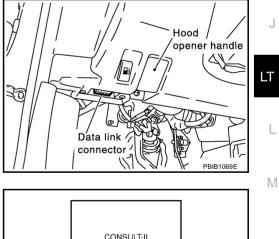
BCM diagnosis part	Diagnosis mode	Description	
	WORK SUPPORT	Changes the setting for each function.	
HEADLAMP	DATA MONITOR	Displays BCM input data in real time.	
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.	(
BCM	SELF-DIAG RESULTS	BCM performs self-diagnosis of CAN communication.	
BCIN	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.	
	1		1

#### **CONSULT-II BASIC OPERATION**

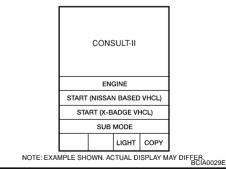
#### **CAUTION:**

If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

With ignition switch OFF, connect CONSULT-II and CONSULT-II 1. CONVERTER to data link connector, then turn ignition switch ON.

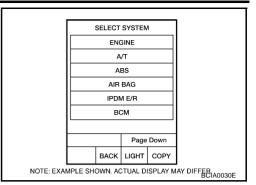


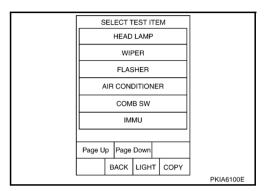




 Touch "BCM" on "SELECT SYSTEM" screen. If "BCM" is not displayed, print "SELECT SYSTEM" screen, then refer to <u>GI-39, "CONSULT-II Data Link Connector (DLC) Circuit"</u>

Touch "HEAD LAMP" on "SELECT TEST ITEM" screen.





#### WORK SUPPORT

4.

#### **Operation Procedure**

- 1. Touch "HEAD LAMP" on "SELECT TEST ITEM" screen.
- 2. Touch "WORK SUPPORT" on "SELECT DIAG MODE" screen.
- 3. Touch "BATTERY SAVER SET" on "SELECT WORK ITEM" screen.
- 4. Touch "START".
- 5. Touch "CHANGE SET".
- 6. The setting will be changed and "CUSTOMIZING COMPLETED" will be displayed.
- 7. Touch "END".

#### **Display Item List**

Item	Description	CONSULT-II	Factory setting
BATTERY SAVER	Exterior lamp battery saver control mode can be changed in this mode.	ON	×
SET	Selects exterior lamp battery saver control mode between two ON/OFF.	OFF	_

### DATA MONITOR

#### **Operation Procedure**

- 1. Touch "HEAD LAMP" on "SELECT TEST ITEM" screen.
- 2. Touch "DATA MONITOR" on "SELECT DIAG MODE" screen.
- 3. Touch either "ALL SIGNALS" or "SELECTION FROM MENU" on "SELECT MONITOR ITEM" screen.

ALL SIGNALS	Monitors all the signals.
SELECTION FROM MENU	Selects items and monitor them.

4. When "SELECTION FROM MENU" is selected, touch individual items to be monitored. When "ALL SIG-NALS" is selected, all the items will be monitored.

#### 5. Touch "START".

6. Touch "RECORD" while monitoring, then the status of the monitored item can be recorded. To stop recording, touch "STOP".

#### **Display Item List**

Monitor item		Contents
IGN ON SW	"ON/OFF"	Displays "IGN position (ON)/OFF, ACC position (OFF)" judged from the ignition switch signal.
ACC ON SW	"ON/OFF"	Displays "ACC (ON)/OFF, Ignition OFF (OFF)" status judged from ignition switch signal.
HI BEAM SW	"ON/OFF"	Displays status (high beam switch: ON/Others: OFF) of high beam switch judged from lighting switch signal.
HEAD LAMP SW 1	"ON/OFF"	Displays status (headlamp switch 1: ON/Others: OFF) of headlamp switch 1 judged from light- ing switch signal.
HEAD LAMP SW 2	"ON/OFF"	Displays status (headlamp switch 2: ON/Others: OFF) of headlamp switch 2 judged from light- ing switch signal.
LIGHT SW 1 ST	"ON/OFF"	Displays status (lighting switch 1ST or 2ND position: ON/Others: OFF) of lighting switch judged from lighting switch signal.
PASSING SW	"ON/OFF"	Displays status (flash-to-pass switch: ON/Others: OFF) of flash-to-pass switch judged from lighting switch signal.
FR FOG SW NOTE	"ON/OFF"	_
DOOR SW - DR	"ON/OFF"	Displays status of driver door as judged from driver door switch signal. (Door is open: ON/ Door is closed: OFF)
DOOR SW - AS	"ON/OFF"	Displays status of passenger door as judged from passenger door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - RR NOTE	"OFF"	_
DOOR SW - RL <sup>NOTE</sup>	"OFF"	
BACK DOOR SW	"ON/OFF"	<ul> <li>Displays status of back door as judged from back door switch signal. (Coupe models)</li> <li>Displays status of rear trunk hood as judged from trunk lamp switch signal. (Roadster models)</li> </ul>
TURN SIGNAL R	"ON/OFF"	Displays status (Turn right: ON/Others: OFF) as judged from lighting switch signal.
TURN SIGNAL L	"ON/OFF"	Displays status (Turn left: ON/Others: OFF) as judged from lighting switch signal.
CARGO LAMP SW NOTE	"OFF"	_

#### NOTE:

This item is displayed, but cannot be monitored.

### ACTIVE TEST

#### **Operation Procedure**

- 1. Touch "HEAD LAMP" on "SELECT TEST ITEM" screen.
- 2. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 3. Touch item to be tested and check operation of the selected item.
- 4. During the operation check, touching "BACK" deactivates the operation.

#### **Display Item List**

Test item	Description
TAIL LAMP	Allows tail lamp relay to operate by switching ON–OFF.
HEAD LAMP	Allows headlamp relay to operate by switching ON–OFF.
FR FOG LAMP NOTE	_
CORNERING LAMP NOTE	—

#### NOTE:

This item is displayed, but cannot be tested.

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### **CONSULT-II Functions (IPDM E/R)**

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CONSULT-II can display each diagnostic item using the diagnostic test mode shown following.

Check Item, Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	Refer to PG-19, "SELF-DIAG RESULTS".
DATA MONITOR	The input/output data of IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE TEST	IPDM E/R sends a drive signal to electronic components to check their operation.

### CONSULT-II BASIC OPERATION

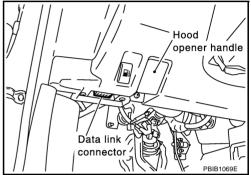
Touch "START (NISSAN BASED VHCL)".

#### CAUTION:

2.

If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

 With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



- CONSULT-II

  ENGINE

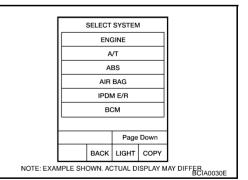
  START (NISSAN BASED VHCL)

  START (X-BADGE VHCL)

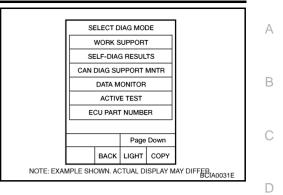
  SUB MODE

  LIGHT COPY

  NOTE: EXAMPLE SHOWN. ACTUAL DISPLAY MAY DIFFEB
  BCIA0029E
- Touch "IPDM E/R" on "SELECT SYSTEM" screen. If "IPDM E/R" is not displayed, print "SELECT SYSTEM" screen, then refer to <u>GI-39</u>, "CONSULT-II Data Link Connector (DLC) <u>Circuit"</u>.



4. Select the desired part to be diagnosed on the "SELECT DIAG MODE" screen.



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### DATA MONITOR

#### **Operation Procedure**

- 1. Touch "DATA MONITOR" on "SELECT DIAG MODE " screen.
- 2. Touch "ALL SIGNALS", "MAIN SIGNALS" or "SELECTION FROM MENU" on "SELECT MONITOR ITEM" screen.

ALL SIGNALS	Monitors all items.
MAIN SIGNALS	Monitor the predetermined item.
SELECTION FROM MENU	Selects items and monitors them.

- 3. Touch the required monitoring item on "SELECTION FROM MENU". In "ALL SIGNALS", all items are monitored. In "MAIN SIGNALS", predetermined items are monitored.
- 4. Touch "START".
- 5. Touch "RECORD" while monitoring to record the status of the item being monitored. To stop recording, touch "STOP".

#### All Signals, Main Signals, Selection From Menu

Item name	CONSULT-II	Display	M	onitor item s	election		
	screen display	or unit	ALL SIGNALS	MAIN SIGNALS	SELECTION FROM MENU	Description	J
Position lights request	TAIL & CLR REQ	ON/OFF	×	×	×	Signal status input from BCM	
Headlamp low beam request	HL LO REQ	ON/OFF	×	×	×	Signal status input from BCM	ιт
Headlamp high beam request	HL HI REQ	ON/OFF	×	×	×	Signal status input from BCM	

#### NOTE:

Perform monitoring of IPDM E/R data with ignition switch ON. When ignition switch is at ACC, the display may not be correct.

#### ACTIVE TEST

#### **Operation Procedure**

- 1. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Touch item to be tested, and check operation.
- 3. Touch "START".
- 4. Touch "STOP" while testing to stop the operation.

Test item	CONSULT-II screen display	Description
Tail lamp relay output	TAIL LAMP	Allows tail lamp relay to operate by switching operation ON-OFF at your option.
Headlamp relay (HI, LO) output	LAMPS	Allows headlamp relay (HI, LO) to operate by switching operation (OFF, HI ON, LO ON) at your option (Headlamp high beam repeats ON– OFF every 1 second).

tion of BCM" .

: HI BEAM SW ON

### Headlamp High Beam Does Not Illuminate (Both Sides)

### **1. CHECK COMBINATION SWITCH INPUT SIGNAL**

#### (P)With CONSULT-II

Select "BCM" on CONSULT-II. With "HEAD LAMP" data monitor. make sure "HI BEAM SW" turns ON-OFF linked with operation of lighting switch.

> When lighting switch is **HIGH BEAM position**

Without CONSULT-II Refer to LT-173, "Combination Switch Inspection".

#### OK or NG

OK >> GO TO 2.

NG >> Check combination switch (lighting switch). Refer to LT-173, "Combination Switch Inspection".

### 2. HEADLAMP ACTIVE TEST

#### (P)With CONSULT-II

- 1. Select "IPDM E/R" on CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- Select "LAMPS" on "SELECT TEST ITEM" screen. 2.
- Touch "HI" screen. 3
- 4. Make sure headlamp high beam operation.

#### Headlamp high beam should operate. (Headlamp high beam repeats ON-OFF every 1 second).

#### Without CONSULT-II

- Start auto active test. Refer to PG-22, "Auto Active Test" . 1.
- 2. Make sure headlamp high beam operation.

#### Headlamp high beam should operate.

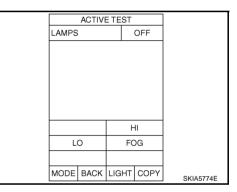
#### OK or NG

OK >> GO TO 3. NG >> GO TO 4.

### 3. Check IPDM E/R

	Calast "IDDM E/D" as CONCLUT II and aslast "DATA MONIL I			
Ι.	Select "IPDM E/R" on CONSULT-II, and select "DATA MONI-	DATA MONITOR		
	TOR" on "SELECT DIAG MODE" screen.	MONITOR		
2.	Make sure "HL LO REQ" and "HL HI REQ" turns ON when light- ing switch is in HI position.	HL LO REQ HL HI REQ	ON ON	
	When lighting switch is: HL LO REQ ONHIGH BEAM position: HL HI REQ ON			
OK	or NG			
O	K >> Replace IPDM E/R.		Page Down	
			RECORD	
N	G >> Replace BCM. Refer to <u>BCS-18, "Removal and Installa-</u>	MODE BAC	K LIGHT COPY	

	DATA M			
MONITOR			O DTC	
HI BEAM SW		O	N	
MODE	BACK	LIGHT	COPY	PKIA6324E



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Front combination lamp connector

#### 4. CHECK HEADLAMP INPUT SIGNAL

#### (B) With CONSULT-II

- 1. Turn ignition switch OFF.
- 2. Disconnect front combination lamp RH and LH connector.
- 3. Select "IPDM E/R" on CONSULT-II. and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 4. Select "LAMPS" on "SELECT TEST ITEM" screen.
- 5. Touch "HI" screen.
- When headlamp high beam is operating, check voltage between front combination lamp RH and LH harness connector and ground (Headlamp high beam repeats ON-OFF every 1 second).

		(-)	Voltage	
Conr	nector	Terminal (Wire color)	(-)	
RH	E24	3 (BR)	Ground	Battery voltage
LH	E40	3 (R/Y)	Giouna	Ballery vollage

#### Without CONSULT-II

- 1. Turn ignition switch OFF.
- 2. Disconnect front combination lamp RH and LH connector.
- 3. Start auto active test. Refer to PG-22, "Auto Active Test" .
- 4. When headlamp high beam is operating, check voltage between front combination lamp RH and LH harness connector and ground.

	Terminal					
		()	Voltage			
Conr	nector	Terminal (Wire color)	(-)			
RH	E24	3 (BR)	Ground	Battery voltage		
LH	E40	3 (R/Y)	Giouna	Ballery vollage		

#### OK or NG

OK >> GO TO 6. NG >> GO TO 5.

#### 5. CHECK HEADLAMP CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- Check continuity between IPDM E/R harness connector E7 terminal 27 (BR) and front combination lamp RH harness connector E24 terminal 3 (BR).

#### 27 (BR) - 3 (BR)

#### : Continuity should exist.

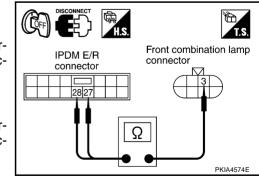
 Check continuity between IPDM E/R harness connector E7 terminal 28 (R/Y) and front combination lamp LH harness connector E40 terminal 3 (R/Y).

#### 28 (R/Y) – 3 (R/Y)

#### : Continuity should exist.

#### OK or NG

- OK >> Replace IPDM E/R.
- NG >> Repair harness or connector.



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### 6. CHECK HEADLAMP GROUND

1. Check continuity between front combination lamp RH harness connector E24 terminal 4 (B/W) and ground.

#### 4 (B/W) – Ground

#### : Continuity should exist.

2. Check continuity between front combination lamp LH harness connector E40 terminal 4 (B/W) and ground.

#### 4 (B/W) – Ground

: Continuity should exist.

#### OK or NG

OK >> Check headlamp harness, connector and bulb.

NG >> Repair harness or connector.

### Headlamp High Beam Does Not Illuminate (One Side)

#### 1. CHECK BULB

Check bulb of lamp which does not illuminate.

#### OK or NG

- OK >> GO TO 2.
- NG >> Replace headlamp bulb.

#### 2. CHECK HEADLAMP INPUT SIGNAL

- 1. Turn ignition switch OFF.
- 2. Disconnect front combination lamp RH or LH connector.
- 3. Turn ignition switch ON.
- 4. Lighting switch is turned HIGH BEAM position.
- 5. Check voltage between front combination lamp RH or LH harness connector and ground.

	(-)	Voltage		
Conr	nector	Terminal (Wire color)	(-)	
RH			Ground	Battery voltage
LH	E40	3 (R/Y)	Ground	Ballery vollage



OK >> GO TO 4. NG >> GO TO 3. Front combination lamp connector

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Front combination lamp connector

IPDM E/R

connector

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### 3. CHECK HEADLAMP CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- 3. Check continuity between IPDM E/R harness connector E7 terminal 27 (BR) and front combination lamp RH harness connector E24 terminal 3 (BR).

27 (BR) - 3 (BR)

: Continuity should exist.

 Check continuity between IPDM E/R harness connector E7 terminal 28 (R/Y) and front combination lamp LH harness connector E40 terminal 3 (R/Y).

#### 28 (R/Y) - 3 (R/Y)

#### : Continuity should exist.

#### OK or NG

OK >> Replace IPDM E/R.

NG >> Repair harness or connector.

#### 4. CHECK HEADLAMP GROUND

1. Check continuity between front combination lamp RH harness connector E24 terminal 4 (B/W) and ground.

#### 4 (B/W) – Ground

#### : Continuity should exist.

2. Check continuity between front combination lamp LH harness connector E40 terminal 4 (B/W) and ground.

#### 4 (B/W) - Ground



#### OK or NG

- OK >> Check headlamp harness and connector.
- NG >> Repair harness or connector.

# High Beam Indicator Lamp Does Not Illuminate 1. CHECK BULB

Check bulb of high beam indicator lamp.

#### OK or NG

OK >> Replace combination meter.

NG >> Replace indicator bulb.

#### Headlamp Low Beam Does Not Illuminate (Both Sides)

#### 1. CHECK COMBINATION SWITCH INPUT SIGNAL

With CONSULT-II
Select "BCM" on CONSULT-II. With "HEAD LAMP" data monitor,
make sure "HEAD LAMP SW 1" and "HEAD LAMP SW 2" turns ONOFF linked with operation of lighting switch.

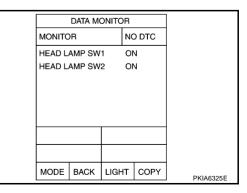
When lighting switch is 2ND	: HEAD LAMP SW 1 ON
position	: HEAD LAMP SW 2 ON

Without CONSULT-II

Refer to LT-173, "Combination Switch Inspection" .

#### OK or NG

- OK >> GO TO 2.
- NG >> Check combination switch (lighting switch). Refer to <u>LT-</u> <u>173, "Combination Switch Inspection"</u>.



Front combination lamp connector	Н
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Front combination lamp

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connector

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### 2. HEADLAMP ACTIVE TEST

#### (B)With CONSULT-II

- 1. Select "IPDM E/R" on CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Select "LAMPS" on "SELECT TEST" ITEM screen.
- 3. Touch "LO" screen.
- 4. Make sure headlamp low beam operation.

#### Headlamp low beam should operate.

#### Without CONSULT-II

- 1. Start auto active test. Refer to PG-22, "Auto Active Test" .
- 2. Make sure headlamp low beam operation.

#### Headlamp low beam should operate.

OK or NG

OK >> GO TO 3. NG >> GO TO 4.

- 3. CHECK IPDM E/R
- 1. Select "IPDM E/R" on CONSULT-II, and select "DATA MONI-TOR" on "SELECT DIAG MODE" screen.
- Make sure "HL LO REQ" turns ON when lighting switch is in 2ND position.

# When lighting switch is 2ND : HL LO REQ ON position

#### OK or NG

- OK >> Replace IPDM E/R.
- NG >> Replace BCM. Refer to <u>BCS-18, "Removal and Installa-</u> tion of <u>BCM"</u>

ACTIVE TEST				
LAMPS			OFF	
		F	11	
L	0	FC	)G	
MODE	BACK	LIGHT	COPY	
				SKIA5774E

DATA MONITOR			1	
MONIT	OR			
HL LO I	REQ		N	
		Page	Down	
		REC	ORD	
MODE	BACK	LIGHT	COPY	SKIA5780E

#### 4. CHECK HEADLAMP INPUT SIGNAL

#### (B) With CONSULT-II

- 1. Turn ignition switch OFF.
- 2. Disconnect front combination lamp RH and LH connector.
- 3. Select "IPDM E/R" on CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 4. Select "LAMPS" on "SELECT TEST ITEM" screen.
- 5. Touch "LO" screen.
- 6. When headlamp low beam is operating, check voltage between front combination lamp RH and LH harness connector and ground.

		(+)	(-)	Voltage
Conr	nector	Terminal (Wire color)	(-)	
RH	E24	7 (R)	Ground	Battery voltage
LH	E40	7 (R/B)	Giouna	Dattery voltage

#### Without CONSULT-II

- 1. Turn ignition switch OFF.
- 2. Disconnect front combination lamp RH and LH connector.
- 3. Start auto active test. Refer to PG-22, "Auto Active Test" .
- 4. When headlamp low beam is operating, check voltage between front combination lamp RH and LH harness connector and ground.

		(+)	()	Voltage
Conr	nector	Terminal (Wire color)	(-)	
RH	E24	7 (R)	Ground	Battery voltage
LH			Giouna	Ballery vollage

#### OK or NG

OK >> GO TO 6.

NG >> GO TO 5.

#### 5. CHECK HEADLAMP CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- Check continuity between IPDM E/R harness connector E7 terminal 20 (R) and front combination lamp RH harness connector E24 terminal 7 (R).

#### 20 (R) – 7 (R)

#### : Continuity should exist.

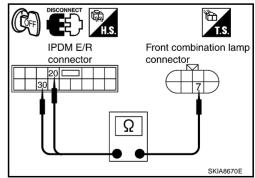
4. Check continuity between IPDM E/R harness connector E7 terminal 30 (R/B) and front combination lamp LH harness connector E40 terminal 7 (R/B).

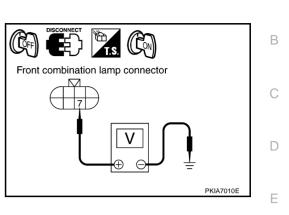
#### 30 (R/B) - 7 (R/B)

: Continuity should exist.

#### OK or NG

- OK >> Replace IPDM E/R.
- NG >> Repair harness or connector.





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### 6. CHECK HEADLAMP GROUND

- 1. Turn ignition switch OFF.
- 2. Check continuity between front combination lamp RH harness connector E24 terminal 8 (B) and ground.

#### 8 (B) – Ground

#### : Continuity should exist.

3. Check continuity between front combination lamp LH harness connector E40 terminal 8 (B) and ground.

: Continuity should exist.

#### OK or NG

- OK >> Check headlamp harness and connectors, ballasts (HID \_\_\_\_\_\_\_\_\_\_ control unit), and xenon bulbs. Refer to LT-31, "Xenon Headlamp Trouble Diagnosis".
- NG >> Repair harness or connector.

#### Headlamp Low Beam Does Not Illuminate (One Side)

#### 1. CHECK BULB

Check ballast (HID control unit) and xenon bulb of lamp which does not illuminate. Refer to <u>LT-31, "Xenon</u> <u>Headlamp Trouble Diagnosis"</u>.

#### OK or NG

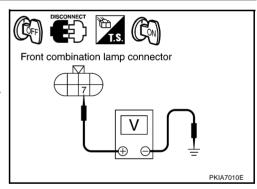
OK >> GO TO 2.

NG >> Replace malfunctioning part.

### 2. CHECK HEADLAMP INPUT SIGNAL

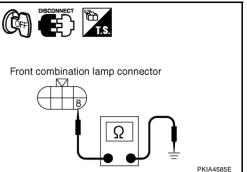
- 1. Turn ignition switch OFF.
- 2. Disconnect front combination lamp RH or LH connector.
- 3. Turn ignition switch ON.
- 4. Lighting switch is turned 2ND position.
- 5. Check voltage between front combination lamp RH or LH harness connector and ground.

	(-)	Voltage		
Conr	nector	Terminal (Wire color)	(-)	
RH	E24	7 (R)	Ground	Battery voltage
LH	E40	7 (R/B)	Ground	Ballery vollage



#### OK or NG

OK >> GO TO 4. NG >> GO TO 3.



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### 3. CHECK HEADLAMP CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- 3. Check continuity between IPDM E/R harness connector E7 terminal 20 (R) and front combination lamp RH harness connector E24 terminal 7 (R).

20 (R) – 7 (R)

: Continuity should exist.

 Check continuity between IPDM E/R harness connector E7 terminal 30 (R/B) and front combination lamp LH harness connector E40 terminal 7 (R/B).

#### 30 (R/B) - 7 (R/B)

#### : Continuity should exist.

#### OK or NG

OK >> Replace IPDM E/R.

NG >> Repair harness or connector.

#### 4. CHECK HEADLAMP GROUND

1. Check continuity between front combination lamp RH harness connector E24 terminal 8 (B) and ground.

#### : Continuity should exist.

2. Check continuity between front combination lamp LH harness connector E40 terminal 8 (B) and ground.

#### 8 (B) - Ground

: Continuity should exist.

#### OK or NG

- OK >> Check headlamp harness and connector. NG >> Repair harness or connector.
- Headlamps Does Not Turn OFF

### 1. CHECK HEADLAMP TURN OFF

Make sure that lighting switch is OFF. And make sure is headlamp turns off when ignition switch is turned OFF. OK or NG

OK >> GO TO 3. NG >> GO TO 2.

### 2. CHECK COMBINATION SWITCH INPUT SIGNAL

Select "BCM" on CONSULT-II. With "HEAD LAMP" data monitor, make sure "HEAD LAMP SW 1" and "HEAD LAMP SW 2" turns ON-OFF linked with operation of lighting switch.

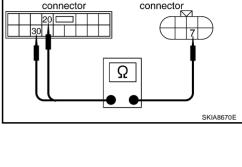
## When lighting switch is OFF: HEAD LAMP SW 1 OFFposition: HEAD LAMP SW 2 OFF

#### OK or NG

OK >> Replace IPDM E/R.

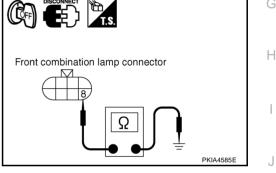
NG >> Check combination switch (lighting switch). Refer to <u>LT-</u> <u>173, "Combination Switch Inspection"</u>.

DATA MONITOR					
MONITO		NO DTC			
HEAD LAMP SW 1 HEAD LAMP SW 2			OFF OFF		
		Pag	je∣	Down	
F		RE	ECORD		
MODE	BACK	LIGH	г	COPY	PKIA7011E
			-		-



Front combination lamp

IPDM E/R



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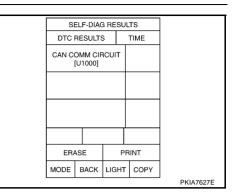
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### 3. CHECKING CAN COMMUNICATIONS BETWEEN BCM AND IPDM E/R

Select "BCM" by CONSULT-II, and perform self-diagnosis for "BCM".
Display of self-diagnosis results
NO DTC>> Replace IPDM E/R.
CAN COMM CIRCUIT>> Refer to BCS-17, "CAN Communication
Inspection Using CONSULT-II (Self-Diagnosis)".



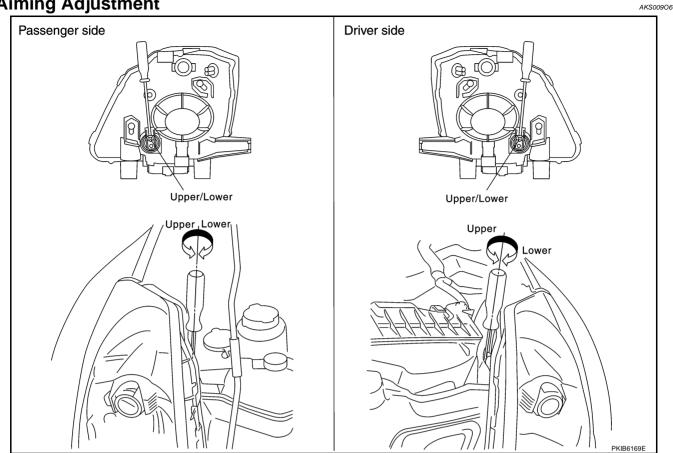
General Information for Xenon Headlamp Trouble Diagnosis
In most cases, malfunction of xenon headlamp - "does not illuminate", "flickers" or "dark" - is caused by a mal functioning xenon bulb. A malfunctioning HID control unit or lamp housing, however, may be a cause. Be sur- to perform trouble diagnosis following the steps described below.
Caution:
<ul> <li>Installation or removal of connector must be done with lighting switch OFF.</li> </ul>
• Disconnect the battery cable from the negative terminal or remove power fuse.
CAUTION:
After the battery cables are disconnected, never open/close the driver and/or front passenger doo with the window in the full up position. The automatic window adjusting function will not work and the side roof panel may be damaged.
<ul> <li>When the lamp is illuminated (when lighting switch is ON), never touch harness, HID control unit, inside or lamp, or lamp metal parts.</li> </ul>
<ul> <li>To check illumination, temporarily install lamp in vehicle. Be sure to connect power at vehicle side connect tor.</li> </ul>
<ul> <li>If error can be traced directly to electrical system, first check for items such as blown fuses and fusible links, broken wires or loose connectors, dislocated terminals, and improper connections.</li> </ul>
Never work with wet hands.
<ul> <li>Using a tester for HID control unit circuit trouble diagnosis is prohibited.</li> <li>Disassembling HID control unit or harnesses (bulb socket harness, ECM harness) is prohibited.</li> </ul>
<ul> <li>Immediately after illumination, light intensity and color will fluctuate, but there is nothing wrong.</li> </ul>
<ul> <li>When bulb has come to end of its life, brightness will drop significantly, it will flash repeatedly, or light colo will turn reddish.</li> </ul>
Xenon Headlamp Trouble Diagnosis
1. CHECK 1: XENON HEADLAMP LIGHTING
Install normal xenon bulb to corresponding xenon bulb headlamp, and check if lamp lights up. OK or NG
OK >> Replace xenon bulb.
NG >> GO TO 2.
2. CHECK 2: XENON HEADLAMP LIGHTING
Install normal HID control unit to corresponding xenon headlamp, and check if lamp lights up. OK or NG
OK >> Replace HID control unit. NG >> GO TO 3.
3. CHECK 3: XENON HEADLAMP LIGHTING
Install normal xenon lamp housing assembly to corresponding xenon headlamp, and check if lamp lights up.

OK or NG

OK >> Replace xenon headlamp housing assembly. [Malfunction in starter (boosting circuit) in xenon headlamp housing]

NG >> INSPECTION END

#### **Aiming Adjustment**



#### **PREPARATION BEFORE ADJUSTING**

For details, refer to the regulations in your own country.

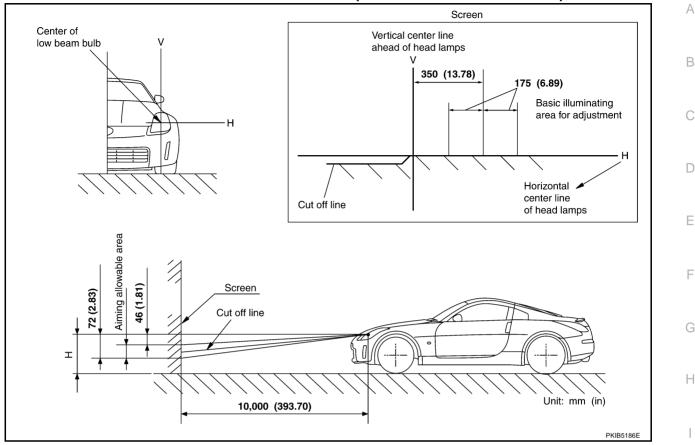
Before performing aiming adjustment, check the following.

- 1. Keep all tires inflated to correct pressures.
- 2. Place vehicle on flat surface.
- 3. Set that there is no-load in vehicle other than the driver (or equivalent weight placed in driver's position). Coolant, engine oil filled up to correct level and full fuel tank.

#### LOW BEAM AND HIGH BEAM

- Turn headlamp low beam ON. 1.
- 2. Use adjusting screws to perform aiming adjustment.

#### ADJUSTMENT USING AN ADJUSTMENT SCREEN (LIGHT/DARK BORDERLINE)



If the vehicle front body has been repaired and/or the headlamp assembly has been replaced, check aiming. Use the aiming chart shown in the figure.

 Basic illumination area for adjustment should be within the range shown on the aiming chart. Adjust headlamp accordingly.

#### Bulb Replacement HEADLAMP (UPPER) LOW BEAM

- 1. Turn lighting switch OFF.
- 2. Open the driver and front passenger window, and then disconnect the battery cable from the negative terminal or remove power fuse.

#### CAUTION:

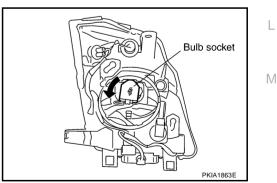
After the battery cables are disconnected, never open/close the driver and/or front passenger door with the window in the full up position. The automatic window adjusting function will not work and the side roof panel may be damaged.

- 3. Remove headlamp. Refer to LT-35, "Removal and Installation" .
- 4. Turn plastic cap counterclockwise and unlock it.
- 5. Turn bulb socket counterclockwise and unlock it.
- 6. Unlock retaining spring and remove bulb from headlamp.
- 7. Installation is reverse order of removal.

#### NOTE:

After installation, perform aiming adjustment. Refer to LT-32, "Aiming Adjustment" .

Headlamp (upper) low beam : 12V - 35W (D2R) (Xenon)



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#### **HEADLAMP (LOWER) HIGH BEAM**

- 1. Turn lighting switch OFF.
- 2. Open the driver and front passenger window, and then disconnect the battery cable from the negative terminal or remove power fuse.

#### CAUTION:

After the battery cables are disconnected, never open/close the driver and/or front passenger door with the window in the full up position. The automatic window adjusting function will not work and the side roof panel may be damaged.

- 3. Remove fender protector (front). Refer to <u>EI-21, "FENDER PROTECTOR"</u> in "EI" section.
- 4. Turn plastic cap counterclockwise and unlock it.
- 5. Disconnect bulb socket.
- 6. Unlock retaining spring and remove bulb from headlamp.
- 7. Installation is reverse order of removal.

#### Headlamp (lower) high beam : 12V - 55W (H7)

#### PARKING LAMP (CLEARANCE LAMP)

- 1. Turn lighting switch OFF.
- 2. Remove fender protector (front). Refer to EI-21, "FENDER PROTECTOR" in "EI" section.
- 3. Turn bulb socket counterclockwise and unlock it.
- 4. Remove bulb from its socket.
- 5. Installation is reverse order of removal.

#### Parking lamp (Clearance lamp) : 12V - 5W

#### FRONT TURN SIGNAL LAMP

- 1. Turn lighting switch OFF.
- 2. Remove fender protector (front). Refer to <u>EI-21, "FENDER PROTECTOR"</u> in "EI" section.
- 3. Turn bulb socket counterclockwise and unlock it.
- 4. Remove bulb from its socket.
- 5. Installation is reverse order of removal.

#### Front turn signal lamp

#### FRONT SIDE MARKER LAMP

- 1. Turn lighting switch OFF.
- 2. Remove fender protector (front). Refer to EI-21, "FENDER PROTECTOR" in "EI" section.
- 3. Turn bulb socket counterclockwise and unlock it.
- 4. Remove bulb from its socket.
- 5. Installation is reverse order of removal.
  - Front side marker lamp : 12V 5W

#### CAUTION:

After installing bulb, be sure to install plastic cap and bulb socket securely to insure watertightness.

: 12V - 21W (amber)

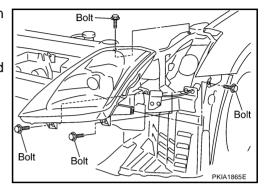
#### **Removal and Installation** REMOVAL

1. Open the driver and front passenger window, and then disconnect the battery cable from the negative terminal or remove power fuse.

#### CAUTION:

After battery cables are disconnected, never open/close the driver and/or front passenger door with the window in the full up position. The automatic window adjusting function will not work and the side roof panel may be damaged.

- Remove front bumper. Refer to EI-14, "FRONT BUMPER" in 2. "EI" section.
- 3. Remove headlamp mounting bolts.
- 4. Pull head lamp toward vehicle front, disconnect connector, and remove headlamp.



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#### INSTALLATION

Installation is the reverse order of removal.

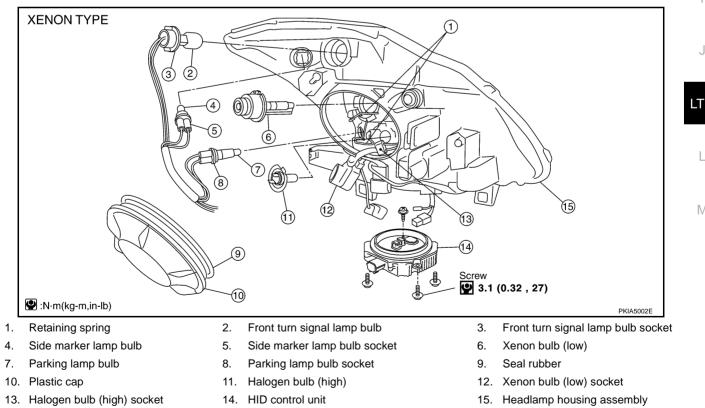
#### Headlamp mounting bolt

: 6.1 N·m (0.62 kg-m, 54 in-lb)

#### NOTE:

After installation, perform aiming adjustment. Refer to LT-32, "Aiming Adjustment".

### **Disassembly and Assembly**



#### DISASSEMBLY

- 1. Turn plastic cap counterclockwise and unlock it.
- 2. Turn xenon bulb (low) socket counterclockwise, and unlock it.
- 3. Unlock retaining spring, and remove xenon bulb (low).
- 4. Disconnect HID control unit connector, and remove HID control unit screws.
- 5. Disconnect the socket connected to halogen bulb (high).
- 6. Unlock retaining spring, and remove halogen bulb (high).
- 7. Turn parking lamp bulb socket counterclockwise and unlock it.
- 8. Remove parking lamp bulb from its socket.
- 9. Turn front turn signal lamp bulb socket counterclockwise and unlock it.
- 10. Remove front turn signal lamp bulb from its socket.
- 11. Turn front side marker lamp bulb socket counterclockwise and unlock it.
- 12. Remove front side marker lamp bulb from its socket.

#### ASSEMBLY

Assembly is the reverse order of disassembly.

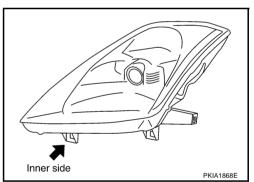
HID control unit mounting screw 💽 : 3.1 N·m (0.32 kg-m, 27 in-lb)

#### **CAUTION:**

- When HID control unit is removed, reinstall it securely and avoid any looseness.
- After installing bulb, be sure to install plastic cap and bulb socket securely to insure watertightness

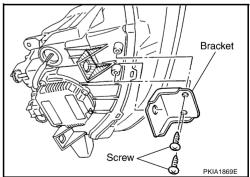
### Servicing to Replace Headlamps When Damaged

If only installation part as shown in the figure is damaged, and headlamp housing itself is not damaged, repair can be completed easily by installing correction brackets.

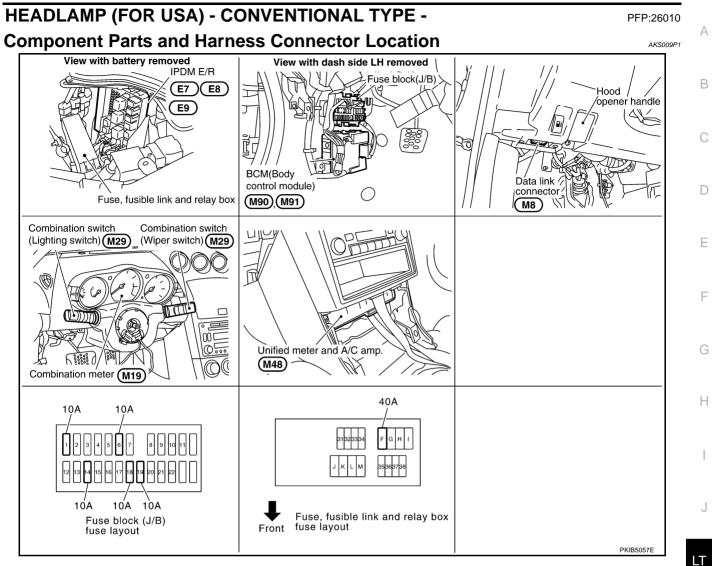


#### INSTALLATION OF HEADLAMP BRACKET

- 1. Remove headlamps. Refer to LT-35, "Removal and Installation" .
- 2. Cut damaged section of installation part, then shape with sand-paper.
- 3. Attach each correction bracket to headlamp housing boss with 2 screws.



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# System Description

Control of the headlamp system operation is dependent upon the position of the combination switch (lighting switch). When the lighting switch is placed in the 2ND position, the BCM (body control module) receives input L signal requesting the headlamps (and tail lamps) illuminate. This input signal is communicated to the IPDM E/ R (intelligent power distribution module engine room) across the CAN communication lines. The CPU (central processing unit) of the IPDM E/R controls the headlamp high and headlamp low relay coils. These relays, Μ when energized, direct power to the respective headlamps, which then illuminate.

#### OUTLINE

Power is supplied at all times

- to headlamp high relay, located in IPDM E/R and
- to headlamp low relay, located in IPDM E/R, from battery direct,
- through 40A fusible link (letter F, located in fuse, fusible link and relay box)
- to BCM terminal 55,
- through 10A fuse [No.18, located in fuse block (J/B)]
- to BCM terminal 42,
- through 10A fuse (No.71, located in IPDM E/R)
- to CPU located in IPDM E/R,
- through 15A fuse (No.78, located in IPDM E/R)
- to CPU located in IPDM E/R,
- through 10A fuse [No.19, located in fuse block (J/B)]

• to combination meter terminal 24.

With ignition switch in ON or START position, power is supplied

- to CPU located in IPDM E/R, from battery direct
- through 10A fuse [No.1, located in fuse block (J/B)]
- to BCM terminal 38,
- through 10A fuse [No.14, located in fuse block (J/B)]
- to combination meter terminal 23.
- With ignition switch in ACC or ON position, power is supplied
- through 10A fuse [No.6, located in fuse block (J/B)]
- to BCM terminal 11.

Ground is supplied

- to BCM terminal 52
- through grounds M30 and M66,
- to IPDM E/R terminals 38 and 60
- through grounds E17, E43 and F152,
- to combination meter terminals 10, 11 and 12
- through grounds M30 and M66.

#### HEADLAMP OPERATION

#### Low Beam Operation

With the lighting switch in 2ND position, the BCM receives input signal requesting by combination switch reading function (Refer to <u>BCS-3</u>, <u>"COMBINATION SWITCH READING FUNCTION"</u>) the headlamps to illuminate. This input signal is communicated to the IPDM E/R across the CAN communication lines. The CPU located in the IPDM E/R controls headlamp low relay coil, which when energized, power is supplied.

- through 15A fuse (No.76, located in IPDM E/R)
- through IPDM E/R terminal 20
- to front combination lamp RH terminal 6,
- through 15A fuse (No.86, located in IPDM E/R)
- through IPDM E/R terminal 30
- to front combination lamp LH terminal 6.

Ground is supplied

- to front combination lamp RH terminal 3, and
- to front combination lamp LH terminal 3
- through grounds E17, E43 and F152.

#### High Beam Operation/Flash-to-Pass Operation

With the lighting switch in 2ND position and placed in HIGH or PASS position, the BCM receives input signal requesting the headlamp high beams to illuminate. This input signal is communicated to the IPDM E/R across CAN communication lines. The CPU located in the IPDM E/R controls headlamp high relay coil, which when energized, directs power.

- through 10A fuse (No.72, located in IPDM E/R)
- through IPDM E/R terminal 27
- to front combination lamp RH terminal 2,
- through 10A fuse (No.74, located in IPDM E/R)
- through IPDM E/R terminal 28
- to front combination lamp LH terminal 2. Ground is supplied
- to front combination lamp RH terminal 3, and
- to front combination lamp LH terminal 3
- through grounds E17, E43 and F152.

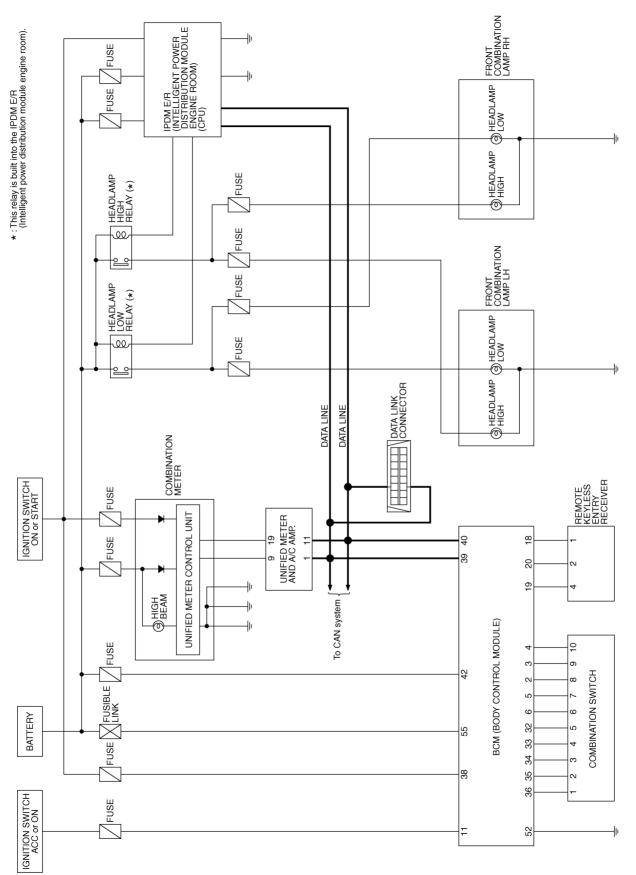
With power and ground supplied, headlamp high beam illuminate.

Unified meter and A/C amp. receives signal from BCM across CAN communication lines, and then combination meter indicator illuminates high beam.	А
COMBINATION SWITCH READING FUNCTION	
Refer to BCS-3, "COMBINATION SWITCH READING FUNCTION" .	
EXTERIOR LAMP BATTERY SAVER CONTROL	В
When the combination switch (lighting switch) is in the 2ND position (ON), and the ignition switch is turned from ON or ACC to OFF, the battery saver control function is activated. Under this condition, the headlamps remain illuminated for 5 minutes, then the headlamps are turned off. Exterior lamp battery saver control mode can be changed by the function setting of CONSULT-II.	С
REMOTE KEYLESS ENTRY SYSTEM OPERATION	D
Refer to <u>BL-62, "REMOTE KEYLESS ENTRY SYSTEM"</u> .	
VEHICLE SECURITY SYSTEM	
The vehicle security system will flash the high beams if the system is triggered. Refer to <u>BL-134</u> , "VEHICLE <u>SECURITY (THEFT WARNING) SYSTEM</u> ".	E
CAN Communication System Description	F
CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle mul- tiplex communication line with high data communication speed and excellent error detection ability. Many elec- tronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN H line, CAN L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.	G
CAN Communication Unit	
Refer to LAN-21, "CAN Communication Unit".	
	J

L

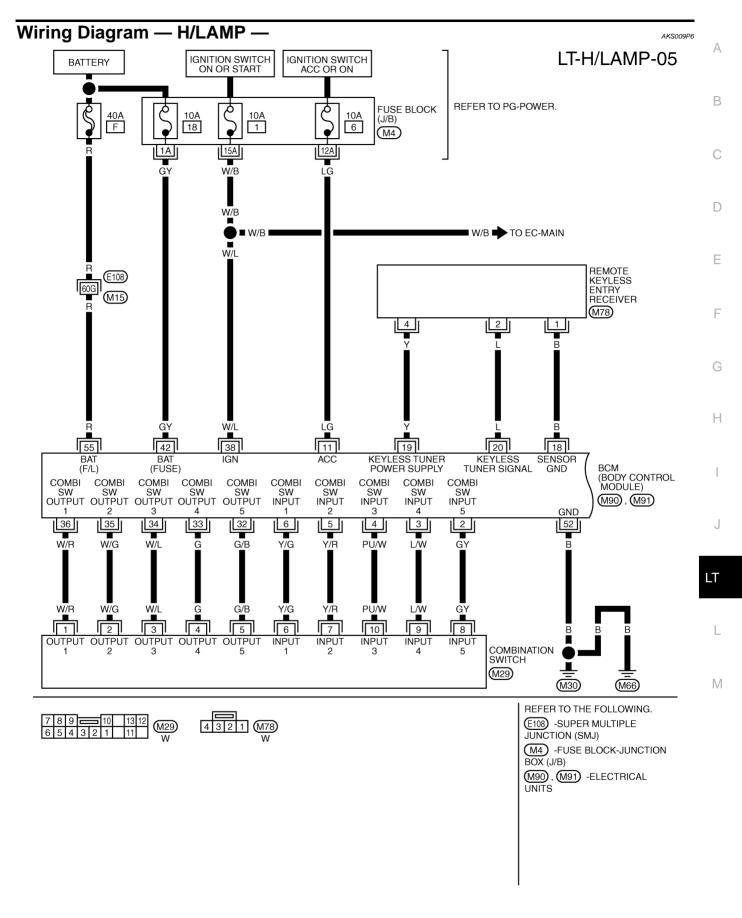
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## Schematic

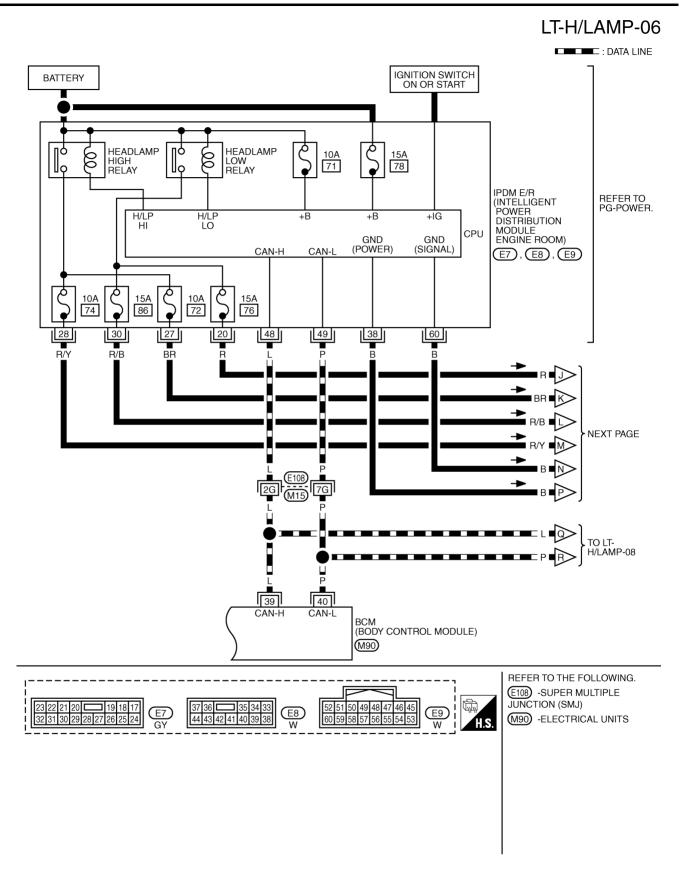


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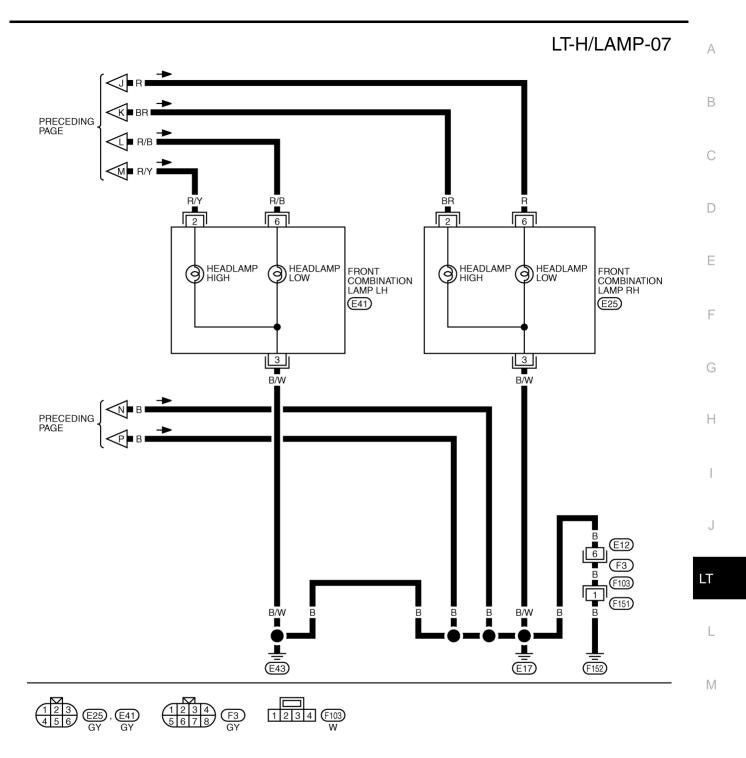
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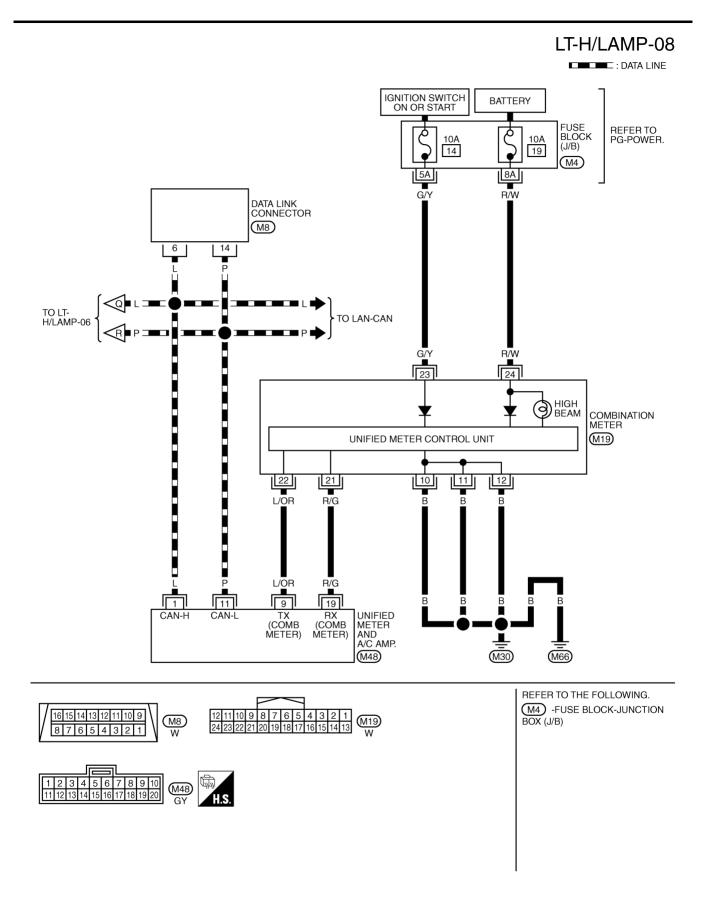
TKWT2260E



TKWT2261E



TKWT2262E



TKWT2263E

# Terminals and Reference Values for BCM

<b>-</b>	14.0			Measuring condition	
Terminal No.	Wire color	Signal name	Ignition switch	Operation or condition	Reference value
2	GY	Combination switch input 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 2 0 
3	L/W	Combination switch input 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 **5ms SKIA5292E
4	PU/W	Combination switch input 3	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 
5	Y/R	Combination switch input 2			(V)
6	Y/G	Combination switch input 1	ON	Lighting, turn, wiper OFF Wiper dial position 4	(°) 6 4 2 0 → +5ms SKIA5292E
11	LG	Ignition switch (ACC)	ACC	_	Battery voltage
32	G/B	Combination switch output 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 2 0 ••••5ms SKIA5291E
33	G	Combination switch output 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 2 0 •••5ms SKIA5292E
34	W/L	Combination switch output 3	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 •••5ms SKIA5291E

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Terminal	Wire			Measuring condition	
No. color	Signal name	Ignition switch	Operation or condition	Reference value	
35	W/G	Combination switch output 2			0.0
36	W/R	Combination switch output 1	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 4 2 0 + 5ms SKIA5292E
38	W/L	Ignition switch (ON)	ON	—	Battery voltage
39	L	CAN– H	_	_	—
40	Р	CAN– L	_	—	—
42	GY	Battery power supply	OFF	_	Battery voltage
52	В	Ground	ON	—	Approx. 0V
55	R	Battery power supply	OFF		Battery voltage

# Terminals and Reference Values for IPDM E/R

Terminal	Wire			Measuring con				
No.	color	Signal name	Ignition switch	Operation	or condition	Reference value		
20	R	Hoodlamp low (PH)	ON	Lighting switch	OFF	Approx. 0V		
20	ĸ	Headlamp low (RH)	ON	2ND position	ON	Battery voltage		
				Lighting switch	OFF	Approx. 0V		
27	BR	Headlamp high (RH)	ON HIGH or PASS position	ON	Battery voltage			
			ON HIGH	ON	ON	Lighting switch	OFF	Approx. 0V
28	R/Y	Headlamp high (LH)				ON	HIGH or PASS position	ON
30	R/B	Headlamp low (LH)	ON	Lighting switch	OFF	Approx. 0V		
30	R/D		ON	2ND position	ON	Battery voltage		
38	В	Ground	ON			Approx. 0V		
48	L	CAN– H	—			_		
49	Р	CAN– L	—	_		_		
60	В	Ground	ON	_		Approx. 0V		

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How to F	Proceed \	With Tro	ouble Dia	agnosis		AKS009RA		
	n the sympto			•				
					iption. Refer	to LT-37, "System Description".		
	•				minary Chec			
Check symptom and repair or replace the cause of malfunction.								
5. Does t	he headlamp	o operate r	normally? If	YES, GO T	O 6. If NO, G	O TO 4.		
6. INSPE	CTION END	)						
Prelimin CHECK P	ary Chec	k PPLY AN	D GROUN		г	AKS009P9		
1. снесі	<b>K FUSES</b>							
Check	for blown fu	ses.						
	UNIT			POWER SC	DURCE	Fuse and fusible link No.		
				Batter	rv	F		
	BCM				· J	18		
			Ignitio	n switch ON or	START positior	n 1		
			Igniti	on switch ACC	or ON position	6		
		72			72			
	IPDM E/R			Potto	n /	74		
				Batter	l y	76		
					86			
. Turn ig	K POWER S	OFF.		<u>CIRCUIT"</u> .				
	nect BCM co voltage betv		harness co	onnector and	d ground.			
	Terminal		Ignit	tion switch pos	ition			
(	(+)							
Connector	Terminal (Wire color)	(-)	OFF	ACC	ON			
M90	11 (LG)		Approx. 0V	Battery voltage	Battery voltage			
	38 (W/L)	Ground	Approx. 0V	Approx. 0V	Battery voltage			
M91	42 (GY)		Battery voltage	Battery voltage	Battery voltage			
	55 (R)		Battery voltage	Battery voltage	Battery voltage			
	- GO TO 3. - Check har	ness for a	open or sh	ort betweer	n BCM and			

>> Check harness for open or short between BCM and NG fuse.

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# 3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

	Continuity		
Connector	Terminal (Wire color)	Ground	Continuity
M91	52 (B)	Ground	Yes

OK or NG

OK >> INSPECTION END

NG >> Check ground circuit harness.

# BCM connector

# **CONSULT-II Functions (BCM)**

CONSULT-II can display each diagnostic item using the diagnostic test mode shown following.

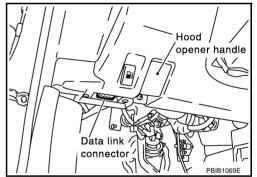
BCM diagnosis part	Diagnosis mode	Description		
	WORK SUPPORT	Changes the setting for each function.		
HEADLAMP	DATA MONITOR	Displays BCM input data in real time.		
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.		
BCM	SELF-DIAG RESULTS	BCM performs self-diagnosis of CAN communication.		
BCIM	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.		

# **CONSULT-II BASIC OPERATION**

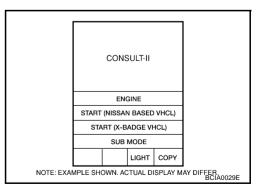
## CAUTION:

If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

1. With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



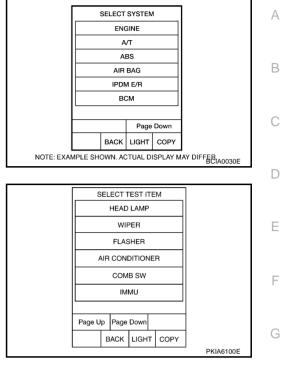
2. Touch "START (NISSAN BASED VHCL)".



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 Touch "BCM" on "SELECT SYSTEM" screen. If "BCM" is not displayed, print "SELECT SYSTEM" screen, then refer to <u>GI-39, "CONSULT-II Data Link Connector (DLC) Circuit"</u>

Touch "HEAD LAMP" on "SELECT TEST ITEM" screen.



#### WORK SUPPORT

4.

#### **Operation Procedure**

- 1. Touch "HEAD LAMP" on "SELECT TEST ITEM" screen.
- 2. Touch "WORK SUPPORT" on "SELECT DIAG MODE" screen.
- 3. Touch "BATTERY SAVER SET" on "SELECT WORK ITEM" screen.
- 4. Touch "START".
- 5. Touch "CHANGE SET".
- 6. The setting will be changed and "CUSTOMIZING COMPLETED" will be displayed.
- 7. Touch "END".

#### **Display Item List**

Item	Description	CONSULT-II	Factory setting	•
	Exterior lamp battery saver control mode can be changed	ON	×	- 1
BATTERY SAVER SET	in this mode. Selects exterior lamp battery saver control mode between two ON/OFF.	OFF	—	-

#### DATA MONITOR

#### **Operation Procedure**

- 1. Touch "HEAD LAMP" on "SELECT TEST ITEM" screen.
- 2. Touch "DATA MONITOR" on "SELECT DIAG MODE" screen.
- 3. Touch either "ALL SIGNALS" or "SELECTION FROM MENU" on "SELECT MONITOR ITEM" screen.

ALL SIGNALS	Monitors all the signals.
SELECTION FROM MENU	Selects items and monitor them.

- 4. When "SELECTION FROM MENU" is selected, touch individual items to be monitored. When "ALL SIG-NALS" is selected, all the items will be monitored.
- 5. Touch "START".
- 6. Touch "RECORD" while monitoring, then the status of the monitored item can be recorded. To stop recording, touch "STOP".

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Disp	lav	Item	List
PICP			

Monitor item		Contents
IGN ON SW	"ON/OFF"	Displays "IGN position (ON)/OFF, ACC position (OFF)" judged from the ignition switch signal.
ACC ON SW	"ON/OFF"	Displays "ACC (ON)/OFF, Ignition OFF (OFF)" status judged from ignition switch signal.
HI BEAM SW	"ON/OFF"	Displays status (high beam switch: ON/Others: OFF) of high beam switch judged from lighting switch signal.
HEAD LAMP SW 1	"ON/OFF"	Displays status (headlamp switch 1: ON/Others: OFF) of headlamp switch 1 judged from light- ing switch signal.
HEAD LAMP SW 2	"ON/OFF"	Displays status (headlamp switch 2: ON/Others: OFF) of headlamp switch 2 judged from light- ing switch signal.
LIGHT SW 1 ST	"ON/OFF"	Displays status (lighting switch 1ST or 2ND position: ON/Others: OFF) of lighting switch judged from lighting switch signal.
PASSING SW	"ON/OFF"	Displays status (flash-to-pass switch: ON/Others: OFF) of flash-to-pass switch judged from lighting switch signal.
FR FOG SW NOTE	"ON/OFF"	_
DOOR SW - DR	"ON/OFF"	Displays status of driver door as judged from driver door switch signal. (Door is open: ON/ Door is closed: OFF)
DOOR SW - AS	"ON/OFF"	Displays status of passenger door as judged from passenger door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - RR NOTE	"OFF"	_
DOOR SW - RL NOTE	"OFF"	
BACK DOOR SW	"ON/OFF"	<ul> <li>Displays status of back door as judged from back door switch signal. (Coupe models)</li> <li>Displays status of rear trunk hood as judged from trunk lamp switch signal. (Roadster models)</li> </ul>
TURN SIGNAL R	"ON/OFF"	Displays status (Turn right: ON/Others: OFF) as judged from lighting switch signal.
TURN SIGNAL L	"ON/OFF"	Displays status (Turn left: ON/Others: OFF) as judged from lighting switch signal.
CARGO LAMP SW NOTE	"OFF"	

#### NOTE:

This item is displayed, but cannot be monitored.

# ACTIVE TEST

#### **Operation Procedure**

- 1. Touch "HEAD LAMP" on "SELECT TEST ITEM" screen.
- 2. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 3. Touch item to be tested and check operation of the selected item.
- 4. During the operation check, touching "BACK" deactivates the operation.

#### **Display Item List**

Test item	Description
TAIL LAMP	Allows tail lamp relay to operate by switching ON–OFF.
HEAD LAMP	Allows headlamp relay to operate by switching ON–OFF.
FR FOG LAMP NOTE	_
CORNERING LAMP NOTE	—

#### NOTE:

This item is displayed, but cannot be tested.

# **CONSULT-II Functions (IPDM E/R)**

CONSULT-II can display each diagnostic item using the diagnostic test mode shown following.

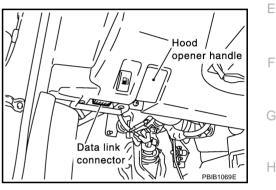
Check Item, Diagnosis Mode	Description	
SELF-DIAGNOSTIC RESULTS	Refer to PG-19, "SELF-DIAG RESULTS".	В
DATA MONITOR	The input/output data of IPDM E/R is displayed in real time.	
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.	
ACTIVE TEST	IPDM E/R sends a drive signal to electronic components to check their operation.	С

# **CONSULT-II BASIC OPERATION**

#### **CAUTION:**

If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

With ignition switch OFF, connect CONSULT-II and CONSULT-II 1. CONVERTER to data link connector, then turn ignition switch ON.



AKS009RB

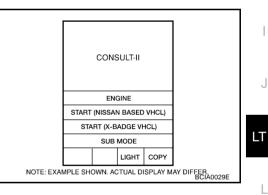
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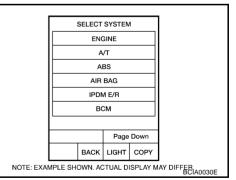
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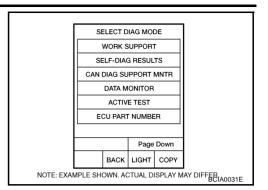
2. Touch "START (NISSAN BASED VHCL)".



Touch "IPDM E/R" on "SELECT SYSTEM" screen. 3. If "IPDM E/R" is not displayed, print "SELECT SYSTEM" screen, then refer to GI-39, "CONSULT-II Data Link Connector (DLC) Circuit" .



4. Select the desired part to be diagnosed on "SELECT DIAG MODE" screen.



# DATA MONITOR

#### **Operation Procedure**

- 1. Touch "DATA MONITOR" on "SELECT DIAG MODE " screen.
- Touch "ALL SIGNALS", "MAIN SIGNALS" or "SELECTION FROM MENU" on "SELECT MONITOR ITEM" screen.

ALL SIGNALS	Monitors all items.
MAIN SIGNALS	Monitor the predetermined item.
SELECTION FROM MENU	Selects items and monitors them.

- 3. Touch the required monitoring item on "SELECTION FROM MENU". In "ALL SIGNALS", all items are monitored. In "MAIN SIGNALS", predetermined items are monitored.
- 4. Touch "START".
- 5. Touch "RECORD" while monitoring to record the status of the item being monitored. To stop recording, touch "STOP".

#### All Signals, Main Signals, Selection From Menu

			Moni	tor item sele	ction	
Item name	CONSULT-II screen display	Display or unit	ALL SIGNALS	MAIN SIGNALS	SELECT FROM MENU	Description
Position lights request	TAIL&CLR REQ	ON/OFF	×	×	×	Signal status input from BCM
Headlamp low beam request	HL LO REQ	ON/OFF	×	×	×	Signal status input from BCM
Headlamp high beam request	HL HI REQ	ON/OFF	×	×	×	Signal status input from BCM

#### NOTE:

Perform monitoring of IPDM E/R data with ignition switch ON. When ignition switch is at ACC, the display may not be correct.

#### ACTIVE TEST

#### **Operation Procedure**

- 1. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Touch item to be tested, and check operation.
- 3. Touch "START".
- 4. Touch "STOP" while testing to stop the operation.

Test item	CONSULT-II screen display	Description	
Tail lamp relay output	TAIL LAMP	Allows tail lamp relay to operate by switching operation ON-OFF at your option.	
Headlamp relay (HI, LO) output	LAMPS	Allows headlamp relay (HI, LO) to operate by switching operation (OFF, HI ON, LO ON) at your option (Headlamp high beam repeats ON– OFF every 1 second).	

# Headlamp High Beam Does Not Illuminate (Both Sides)

#### **1.** CHECK COMBINATION SWITCH INPUT SIGNAL

#### With CONSULT-II

#### Select "BCM" on CONSULT-II. With "HEAD LAMP" data monitor, make sure "HI BEAM SW" turns ON-OFF linked with operation of lighting switch. When lighting switch is : HI BEAM SW ON

When lighting switch is HIGH BEAM position

Without CONSULT-II

Refer to LT-173, "Combination Switch Inspection" .

#### OK or NG

OK >> GO TO 2.

NG >> Check combination switch (lighting switch). Refer to <u>LT</u> <u>173, "Combination Switch Inspection"</u>.

## 2. HEADLAMP ACTIVE TEST

#### With CONSULT-II

- 1. Select "IPDM E/R" on CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Select "LAMPS" on "SELECT TEST ITEM" screen.
- 3. Touch "HI" screen.
- 4. Make sure headlamp high beam operation.

#### Headlamp high beam should operate. (Headlamp high beam repeats ON-OFF every 1 second).

#### Without CONSULT-II

- 1. Start auto active test. Refer to PG-22, "Auto Active Test" .
- 2. Make sure headlamp high beam operation.

#### Headlamp high beam should operate.

#### OK or NG

OK >> GO TO 3. NG >> GO TO 4.

# 3. CHECK IPDM E/R

	elect "IPDM E/R" on CONSULT-II, and select "DATA MONI- DR" on "SELECT DIAG MODE" screen.	DATA M MONITOR		
	ake sure "HL LO REQ" and "HL HI REQ" turns ON when light- g switch is in HI position.	HL LO REQ HL HI REQ	ON ON	
	When lighting switch is: HL LO REQ ONHIGH BEAM position: HL HI REQ ON			
OK or	NG			
OK NG	<ul> <li>&gt;&gt; Replace IPDM E/R.</li> <li>&gt;&gt; Replace BCM. Refer to <u>BCS-18, "Removal and Installa-</u>tion of BCM".</li> </ul>	MODE BACK	Page Down RECORD LIGHT COPY	SKIA5775E

N					
efer to <u>LT-</u>	MODE	BACK	LIGHT	COPY	

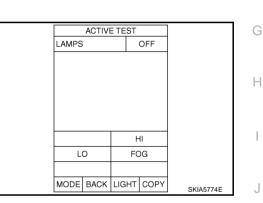
MONITOR

HI BEAM SW

DATA MONITOR

NO DTC

ON



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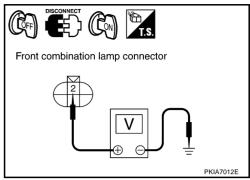
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PKIA6324E

# 4. CHECK HEADLAMP INPUT SIGNAL

#### BWith CONSULT-II

- 1. Turn ignition switch OFF.
- 2. Disconnect front combination lamp RH and LH connector.
- 3. Select "IPDM E/R" on CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 4. Select "LAMPS" on "SELECT TEST ITEM" screen.
- 5. Touch "HI" screen.
- When headlamp high beam is operating, check voltage between front combination lamp RH and LH harness connector and ground (Headlamp high beam repeats ON–OFF every 1 second).



	Terminal					
		(+)	(-)	Voltage		
Conr	Connector Terminal (Wire color)					
RH	E25	2 (BR)	Ground	Battery voltage		
LH	E41	2 (R/Y)	Giouna	Ballery vollage		

#### Without CONSULT-II

- 1. Turn ignition switch OFF.
- 2. Disconnect front combination lamp RH and LH connector.
- 3. Start auto active test. Refer to PG-22, "Auto Active Test" .
- 4. When headlamp high beam is operating, check voltage between front combination lamp RH and LH harness connector and ground.

(+)			(-)	Voltage	
Conr	Connector Terminal (Wire color)		(-)		
RH	E25	2 (BR) Grou		Battery voltage	
LH	E41	E41 2 (R/Y)		Ballery vollage	

OK or NG

OK >> GO TO 6.

NG >> GO TO 5.

# 5. CHECK HEADLAMP CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- Check continuity between IPDM E/R harness connector E7 terminal 27 (BR) and front combination lamp RH harness connector E25 terminal 2 (BR).

#### 27 (BR) – 2 (BR)

#### : Continuity should exist.

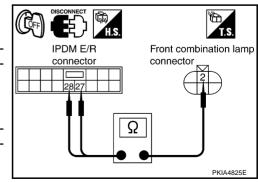
 Check continuity between IPDM E/R harness connector E7 terminal 28 (R/Y) and front combination lamp LH harness connector E41 terminal 2 (R/Y).

#### 28 (R/Y) – 2 (R/Y)

#### : Continuity should exist.

#### OK or NG

- OK >> Replace IPDM E/R.
- NG >> Repair harness or connector.





1. Check continuity between front combination lamp RH harness connector E25 terminal 3 (B/W) and ground.

#### 3 (B/W) - Ground

#### : Continuity should exist.

2. Check continuity between front combination lamp LH harness connector E41 terminal 3 (B/W) and ground.

#### 3 (B/W) – Ground

: Continuity should exist.

#### OK or NG

OK >> Check headlamp harness, connector and bulb. NG >> Repair harness or connector.

# Headlamp High Beam Does Not Illuminate (One Side)

#### 1. CHECK BULB

Check bulb of lamp which does not illuminate.

#### OK or NG

OK >> GO TO 2.

NG >> Replace headlamp bulb.

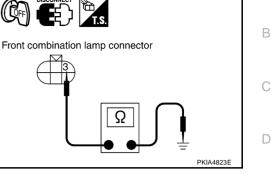
## 2. CHECK HEADLAMP INPUT SIGNAL

- 1. Turn ignition switch OFF.
- 2. Disconnect front combination lamp RH or LH connector.
- 3. Turn ignition switch ON.
- 4. Lighting switch is turned HIGH BEAM position.
- 5. Check voltage between front combination lamp RH or LH harness connector and ground.

	Terminal				
		(+)	(-)	Voltage	
Conr	Connector Terminal (Wire color)		(-)		
RH	E25	2 (BR)	Ground	Battery voltage	
LH	E41	2 (R/Y)	Giouna	Ballery vollage	



OK >> GO TO 4. NG >> GO TO 3.



А

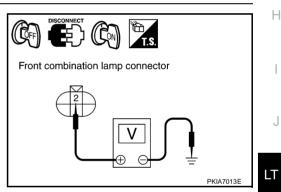
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# 3. CHECK HEADLAMP CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- 3. Check continuity between IPDM E/R harness connector E7 terminal 27 (BR) and front combination lamp RH harness connector E25 terminal 2 (BR).

27 (BR) – 2 (BR)

: Continuity should exist.

 Check continuity between IPDM E/R harness connector E7 terminal 28 (R/Y) and front combination lamp LH harness connector E41 terminal 2 (R/Y).

#### 28 (R/Y) - 2 (R/Y)

#### : Continuity should exist.

#### OK or NG

OK >> Replace IPDM E/R.

NG >> Repair harness or connector.

#### 4. CHECK HEADLAMP GROUND

1. Check continuity between front combination lamp RH harness connector E25 terminal 3 (B/W) and ground.

#### 3 (B/W) - Ground

#### : Continuity should exist.

2. Check continuity between front combination lamp LH harness connector E41 terminal 3 (B/W) and ground.

#### 3 (B/W) – Ground

: Continuity should exist.

#### OK or NG

- OK >> Check headlamp harness and connector.
- NG >> Repair harness or connector.

# High Beam Indicator Lamp Does Not Illuminate 1. CHECK BULB

Check bulb of high beam indicator lamp.

#### OK or NG

OK >> Replace combination meter.

NG >> Replace indicator bulb.

# Headlamp Low Beam Does Not Illuminate (Both Sides)

#### 1. CHECK COMBINATION SWITCH INPUT SIGNAL

(B)With CONSULT-II Select "BCM" on CONSULT-II. With "HEAD LAMP" data monitor, make sure "HEAD LAMP SW 1" and "HEAD LAMP SW 2" turns ON-OFF linked with operation of lighting switch.

When lighting switch is 2ND: HEAD LAMP SW 1 ONposition: HEAD LAMP SW 2 ON

Without CONSULT-II

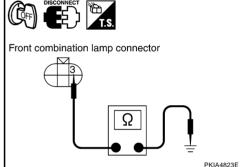
Refer to LT-173, "Combination Switch Inspection".

#### OK or NG

OK >> GO TO 2.

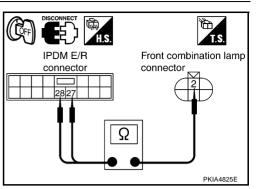
NG >> Check combination switch (lighting switch). Refer to <u>LT-</u> <u>173, "Combination Switch Inspection"</u>.

DATA MONITOR					
MONITOR		NC	DTC		
HEAD LAMP SW1		10	1		
HEAD LAMP SW2		2	10	1	
MODE	BACK	LIGH	т	COPY	PKIA6325E



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# 2. HEADLAMP ACTIVE TEST

#### ()With CONSULT-II

- Select "IPDM E/R" on CONSULT-II, and select "ACTIVE TEST" 1. on "SELECT DIAG MODE" screen.
- Select "LAMPS" on "SELECT TEST" ITEM screen. 2.
- 3. Touch "LO" screen.
- 4. Make sure headlamp low beam operation.

#### Headlamp low beam should operate.

#### Without CONSULT-II

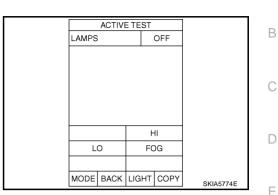
- 1. Start auto active test. Refer to PG-22, "Auto Active Test" .
- Make sure headlamp low beam operation. 2.

#### Headlamp low beam should operate.

#### OK or NG

>> GO TO 3. OK NG >> GO TO 4.

# 3. CHECK IPDM E/R



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<ol> <li>Select "IPDM E/R" on CONSULT-II, and select "DATA MONI- TOR" on "SELECT DIAG MODE" screen.</li> <li>Make sure "HL LO REQ" turns ON when lighting switch is in</li> </ol>	DATA MONITOR MONITOR HL LO REQ ON	Η
2ND position. When lighting switch is 2ND : HL LO REQ ON position		I
OK or NG OK >> Replace IPDM E/R. NG >> Replace BCM. Refer to <u>BCS-18, "Removal and Installa-</u> tion of BCM".	Page Down RECORD MODE BACK LIGHT COPY SKIA5780E	J

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## 4. CHECK HEADLAMP INPUT SIGNAL

#### (B)With CONSULT-II

- 1. Turn ignition switch OFF.
- 2. Disconnect front combination lamp RH and LH connector.
- 3. Select "IPDM E/R" on CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 4. Select "LAMPS" on "SELECT TEST ITEM" screen.
- 5. Touch "LO" screen.
- 6. When headlamp low beam is operating, check voltage between front combination lamp RH and LH harness connector and ground.

Front combination lamp connector
PKIA7014E

		Terminal				
		(+)	(-)	Voltage		
Conr	nector	Terminal (Wire color)	(-)			
RH	E25	6 (R)	Ground	Battory voltago		
LH	E41	6 (R/B)	Giouna	Battery voltage		

#### Without CONSULT-II

- 1. Turn ignition switch OFF.
- 2. Disconnect front combination lamp RH and LH connector.
- 3. Start auto active test. Refer to PG-22, "Auto Active Test" .
- 4. When headlamp low beam is operating, check voltage between front combination lamp RH and LH harness connector and ground.

		Terminal					
		(+)	(-)	Voltage			
Conr	nector	Terminal (Wire color)	(-)				
RH	E25	6 (R)	Ground	Battony voltago			
LH	E41	Battery voltage					
	~						

#### OK or NG

OK >> GO TO 6.

NG >> GO TO 5.

## 5. CHECK HEADLAMP CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- 3. Check continuity between IPDM E/R harness connector E7 terminal 20 (R) and front combination lamp RH harness connector E25 terminal 6 (R).

#### 20 (R) – 6 (R)

#### : Continuity should exist.

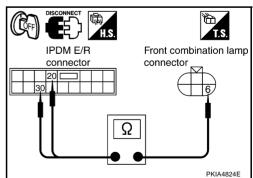
4. Check continuity between IPDM E/R harness connector E7 terminal 30 (R/B) and front combination lamp LH harness connector E41 terminal 6 (R/B).

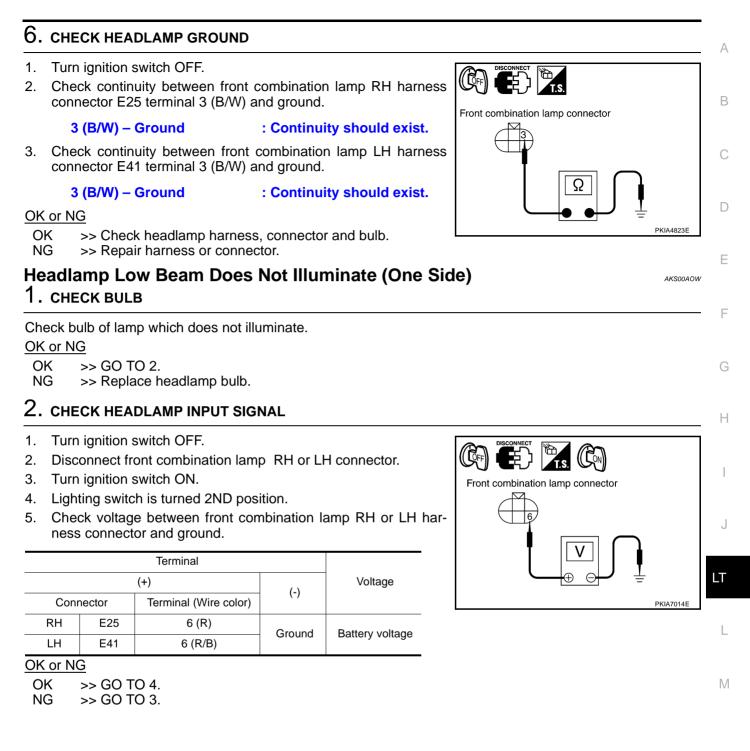
#### 30 (R/B) - 6 (R/B)

: Continuity should exist.

#### OK or NG

- OK >> Replace IPDM E/R.
- NG >> Repair harness or connector.





# $\overline{3}$ . CHECK HEADLAMP CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- 3. Check continuity between IPDM E/R harness connector E7 terminal 20 (R) and front combination lamp RH harness connector E25 terminal 6 (R).

20 (R) – 6 (R)

: Continuity should exist.

 Check continuity between IPDM E/R harness connector E7 terminal 30 (R/B) and front combination lamp LH harness connector E41 terminal 6 (R/B).

#### 30 (R/B) - 6 (R/B)

#### : Continuity should exist.

#### OK or NG

OK >> Replace IPDM E/R.

NG >> Repair harness or connector.

#### 4. CHECK HEADLAMP GROUND

1. Check continuity between front combination lamp RH harness connector E25 terminal 3 (B/W) and ground.

#### 3 (B/W) - Ground

#### : Continuity should exist.

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2. Check continuity between front combination lamp LH harness connector E41 terminal 3 (B/W) and ground.

#### 3 (B/W) – Ground

: Continuity should exist.

#### OK or NG

- OK >> Check headlamp harness and connector.
- NG >> Repair harness or connector.

#### **Headlamps Does Not Turn OFF**

#### 1. CHECK HEADLAMP TURN OFF

Make sure that lighting switch is OFF. And make sure is headlamp turns off when ignition switch is turned OFF. OK or NG

OK >> GO TO 3. NG >> GO TO 2.

#### 2. CHECK COMBINATION SWITCH INPUT SIGNAL

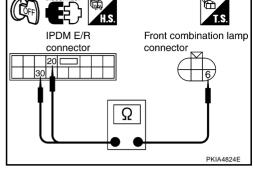
Select "BCM" on CONSULT-II. With "HEAD LAMP" data monitor, make sure "HEAD LAMP SW 1" and "HEAD LAMP SW 2" turns ON-OFF linked with operation of lighting switch.

# When lighting switch is OFF: HEAD LAMP SW 1 OFFposition: HEAD LAMP SW 2 OFF

#### OK or NG

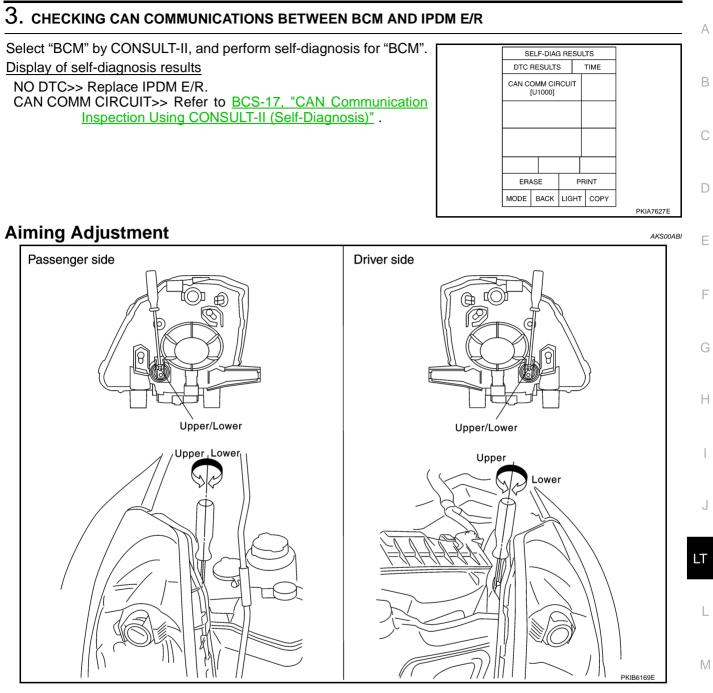
- OK >> Replace IPDM E/R.
- NG >> Check combination switch (lighting switch). Refer to <u>LT-</u> <u>173, "Combination Switch Inspection"</u>.

	DATA M	ONITC	R		
MONITO	OR		N	O DTC	
	AMP SW AMP SW			OFF OFF	
		Pa	ge	Down	
		RI	ORD		
MODE	BACK	LIGH	т	COPY	PKIA7011E



Front combination lamp connector	
	PKIA4823E

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#### PREPARATION BEFORE ADJUSTING

For details, refer to the regulations in your own country.

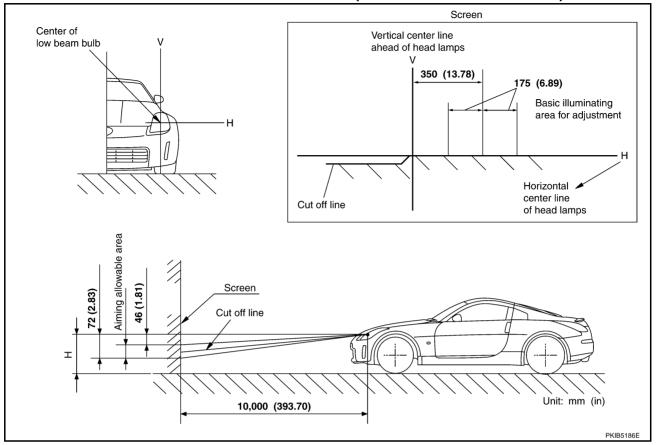
Before performing aiming adjustment, check the following.

- 1. Keep all tires inflated to correct pressures.
- 2. Place vehicle on flat surface.
- 3. Set that there is no-load in vehicle other than the driver (or equivalent weight placed in driver's position). Coolant, engine oil filled up to correct level and full fuel tank.

#### LOW BEAM AND HIGH BEAM

- 1. Turn headlamp low beam ON.
- 2. Use adjusting screws to perform aiming adjustment.

#### ADJUSTMENT USING AN ADJUSTMENT SCREEN (LIGHT/DARK BORDERLINE)



If the vehicle front body has been repaired and/or the headlamp assembly has been replaced, check aiming. Use the aiming chart shown in the figure.

• Basic illumination area for adjustment should be within the range shown on the aiming chart. Adjust headlamp accordingly.

#### Bulb Replacement HEADLAMP (UPPER) LOW BEAM

1. Turn lighting switch OFF.

- 2. Remove fender protector (front). Refer to EI-21, "FENDER PROTECTOR" in "EI" section.
- 3. Turn plastic cap counterclockwise and unlock it.
- 4. Disconnect bulb terminal.
- 5. Unlock retaining spring and remove bulb from headlamp.
- 6. Installation is the reverse order of removal.

Headlamp (upper) low beam : 12V - 55W (H7) (Halogen) AKS00ABJ

HE	ADLAMP (LOWER) HIGH BEAM	
1.	Turn lighting switch OFF.	А
2.	Remove fender protector (front). Refer to EI-21, "FENDER PROTECTOR" in "EI" section.	
3.	Turn plastic cap counterclockwise and unlock it.	D
4.	Disconnect bulb terminal.	В
5.	Unlock retaining spring and remove bulb from headlamp.	
6.	Installation is the reverse order of removal.	С
	Headlamp (lower) high beam : 12V - 55W (H1)	
PA	RKING LAMP (CLEARANCE LAMP)	D
1.	Turn lighting switch OFF.	
2.	Remove fender protector (front). Refer to <u>EI-21, "FENDER PROTECTOR"</u> in "EI" section.	
3. 4.	Turn bulb socket counterclockwise and unlock it. Remove bulb from its socket.	E
4. 5.	Installation is the reverse order of removal.	
0.	Parking lamps (Clearance lamps) : 12V - 5W	F
	ONT TURN SIGNAL LAMP Turn lighting switch OFF.	0
1. 2.	Remove fender protector (front). Refer to <u>EI-21, "FENDER PROTECTOR"</u> in "EI" section.	G
2. 3.	Turn bulb socket counterclockwise and unlock it.	
4.	Remove bulb from its socket.	Н
5.	Installation is the reverse order of removal.	
	Front turn signal lamp : 12V - 21W (amber)	I
	CAUTION:	I
	After installing bulb, be sure to install plastic cap and bulb socket securely to insure watertight- ness.	
ED	ONT SIDE MARKER LAMP	J
гк 1.	Turn lighting switch OFF.	
2.	Remove fender protector (front). Refer to <u>EI-21, "FENDER PROTECTOR"</u> in "EI" section.	LT
3.	Turn bulb socket counterclockwise and unlock it.	
4.	Remove bulb from its socket.	
5.	Installation is the reverse order of removal.	L
	Front side marker lamp : 12V - 5W	
	CAUTION: After installing bulb, be sure to install plastic cap and socket securely to insure watertightness.	M
	MOVAL AKSODABK	
1.		
2.	Remove headlamp mounting bolts.	
3.	Pull headlamp toward vehicle front, disconnect connector, and remove headlamp.	
	Bolt	
	Bolt Bolt	

PKIA1865E

Bolt

#### INSTALLATION

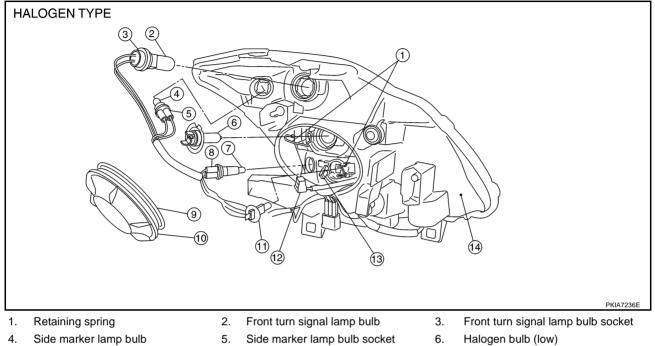
Installation is the reverse order of removal.

● : 6.1 N·m (0.62 kg-m, 54 in-lb) Headlamp mounting bolt

#### NOTE:

After installation, perform aiming adjustment. Refer to LT-61, "Aiming Adjustment" .

# **Disassembly and Assembly**



- 7.
- Clearance lamp bulb
- Clearance lamp bulb socket 8.

- 10. Plastic cap
- 13. Halogen bulb (high) socket
- 11. Halogen bulb (high)
- 14. Headlamp housing assembly
- 9 Seal rubber
- 12. Halogen bulb (low) socket

#### DISASSEMBLY

- Turn plastic cap counterclockwise and unlock it. 1.
- 2. Disconnect halogen bulb (low) socket.
- 3. Unlock retaining spring, and remove halogen bulb (low).
- 4. Disconnect the socket connected to halogen bulb (high).
- 5. Unlock retaining spring, and remove halogen bulb (high).
- 6. Turn parking lamp bulb socket counterclockwise and unlock it.
- 7. Remove parking lamp bulb from its socket.
- 8. Turn front turn signal lamp bulb socket counterclockwise and unlock it.
- 9. Remove front turn signal lamp bulb from its socket.
- 10. Turn front side marker lamp bulb socket counterclockwise and unlock it
- 11. Remove front side lamp marker lamp bulb from its socket.

#### ASSEMBLY

Assembly is the reverse order of disassembly.

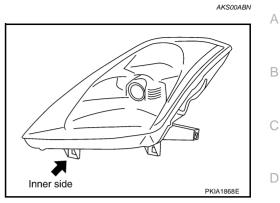
#### **CAUTION:**

After installing bulb, be sure to install plastic cap and bulb socket securely to insure watertightness.

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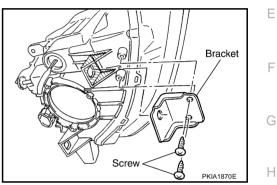
#### Servicing to Replace Headlamps When Damaged

If only installation part as shown in the figure is damaged, and headlamp housing itself is not damaged, repair can be completed easily by installing correction brackets.



#### INSTALLATION OF HEADLAMP BRACKET

- 1. Remove headlamps. Refer to LT-63, "Removal and Installation" .
- 2. Cut damaged section of installation part, then shape with sandpaper.
- 3. Attach each correction bracket to headlamp housing boss with 2 screws.



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#### HEADLAMP (FOR CANADA) - XENON TYPE -PFP:26010 **Component Parts and Harness Connector Location** AKS009N4 View with battery removed View with dash side LH removed IPDM E/R Fuse block(J/B) (E7)(E8) Hood Т ópener hańdle E9 2 <u></u> BCM(Body Dáta link control module) connector Fuse, fusible link and relay box (M90)(M91) (M8) Combination switch Combination switch (Lighting switch) (M29) (Wiper switch) (M29) Parking brake switch (B47) $\square$ ° <u>=</u>= 0.00 Unified meter and A/C amp Risso) $\bigcirc$ (M48) ΨŀŻ Combination meter (M19) Daytime light control unit 10A (E13) (E14) (E15) 81 10A 10A 10A 10A 73 82 -10A 74 83 75 84 76 85 15A 86 ~15A 77 87 78 88 15A 79 89 80 10A 10A 10A Fuse block (J/B) IPDM E/R fuse layout fuse layout 40A Fuse, fusible link and relay box Front fuse lavout PKIB5058E

# System Description

AKS009N5

The headlamp system for Canada vehicles is equipped with a daytime light control unit that activates the high beam headlamps at approximately half illumination whenever the engine is running. If the parking brake is applied before the engine is started the daytime lights will not be illuminated. The daytime lights will illuminate once the parking brake is released. Thereafter, the daytime lights will continue to operate when the parking brake is applied.

And battery saver system is controlled by the BCM (body control module).

#### OUTLINE

Power is supplied at all times

• to headlamp high relay, located in IPDM E/R (intelligent power distribution module engine room)

•	to headlamp low relay, located in IPDM E/R, from battery direct,	
•	through 15A fuse (No. 78, located in IPDM E/R)	А
•	to CPU (central processing unit) located in IPDM E/R,	
•	through 40A fusible link (letter F, located in the fuse, fusible link and relay box)	_
•	to BCM terminal 55,	В
•	through 10A fuse [No.18, located in fuse block (J/B)]	
•	to BCM terminal 42,	С
•	through 10A fuse (No. 71, located in IPDM E/R)	0
•	to CPU located in IPDM E/R,	
•	through 10A fuse [No.19, located in fuse block (J/B)]	D
•	to combination meter terminal 24.	
Wi	h ignition switch in ON or START position, power is supplied	
•	to CPU located in IPDM E/R, from battery direct,	Е
•	through 10A fuse (No. 82, located in IPDM E/R)	
•	to daytime light control unit terminal 3,	_
•	through 10A fuse [No. 1, located in fuse block (J/B)]	F
•	to BCM terminal 38,	
•	through 10A fuse [No.14, located in fuse block (J/B)]	G
•	to combination meter terminal 23.	0
Wi	h ignition switch in ACC or ON position, power is supplied	
•	through 10A fuse [No. 6, located in fuse block (J/B)]	Н
•	to BCM terminal 11.	
Wi	h ignition switch in START position, power is supplied	
•	through 10A fuse [No. 9, located in fuse block (J/B)]	
•	to daytime light control unit terminal 2.	
Gro	ound is supplied	J
•	to daytime light control unit terminal 16	J
•	through groundsE17, E43 and F152,	
•	to IPDM E/R terminals 38 and 60	LT
•	through grounds E17, E43 and F152,	
•	to BCM terminal 52	
•	through grounds M30 and M66,	L
•	to combination meter terminals 10, 11 and 12	
•	through grounds M30 and M66.	D. 4
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#### **HEADLAMP OPERATION**

#### Low Beam Operation

With the lighting switch in 2ND position, the BCM receives input signal requesting the headlamps to illuminate. This input signal is communicated to the IPDM E/R across the CAN communication lines. The CPU located in the IPDM E/R controls the headlamp low relay coil, which when energized, directs power.

- through 15A fuse (No. 76, located in IPDM E/R)
- through IPDM E/R terminal 20
- to front combination lamp RH terminal 7,
- through 15A fuse (No. 86, located in IPDM E/R)
- through IPDM E/R terminal 30
- to front combination lamp LH terminal 7.

#### Ground is supplied

- to front combination lamp RH terminal 8, and
- to front combination lamp LH terminal 8
- through grounds E17, E43 and F152.

With power and ground supplied, low beam headlamps illuminate.

#### High Beam Operation (When Daytime Light Does Not Operate) /Flash-to-Pass Operation

With the lighting switch in 2ND position and placed in HIGH or PASS position, the BCM receives input signal requesting headlamp high beams and headlamp low beams to illuminate. High beam request signal and low beam request signal is communicated to the IPDM E/R across the CAN communication lines. The CPU located in the IPDM E/R controls headlamp high relay coil and headlamp low relay coil turned ON, which when energized, directs power.

- through 15A fuse (No. 76, located in IPDM E/R)
- through IPDM E/R terminal 20
- to front combination lamp RH terminal 7,
- through 15A fuse (No. 86, located in IPDM E/R)
- through IPDM E/R terminal 30
- to front combination lamp LH terminal 7,
- through 10A fuse (No.74, located in IPDM E/R)
- through IPDM E/R terminal 28,
- through daytime light control unit terminals 4 and 7
- to front combination lamp LH terminal 3,
- through 10A fuse (No.72, located in IPDM E/R)
- through IPDM E/R terminal 27
- through daytime light control unit terminals 5 and 6
- to front combination lamp RH terminal 3.

Ground is supplied

- to front combination lamp LH terminal 4
- through daytime light control unit terminals 9 and 4
- to daytime light control unit terminal 14
- through grounds E17, E43 and F152,
- to front combination lamp RH terminal 4
- through grounds E17, E43 and F152.

With the power and ground supplied, the headlamp high beam and low beam headlamp illuminate. Unified meter and A/C amp. receives signal from BCM across CAN communication lines, and then combination meter indicator illuminates high beam.

#### DAYTIME LIGHT OPERATION

With the engine running, the lighting switch in the OFF or 1ST position and parking brake released, power is supplied.

- through daytime light control unit terminal 7
- to front combination lamp LH terminal 3 and 4
- through daytime light control unit terninals 9 and 6
- to front combination lamp RH terminal 3.

Ground is supplied

- to front combination lamp RH terminal 4
- through grounds E17, E43 and F152.

Because the high beam headlamps are now wired in series, they operate at half illumination.

#### OPERATION

After starting engine with lighting switch in the OFF or 1ST position, headlamp high beam automatically turns on. Lighting switch operations other than above are same as conventional light systems.

En	With engine stopped									With engine running										
Lighting switch		OFF		OFF			1ST 21			OFF			1ST			2ND				
		Hi	Lo	Ρ	Hi	Lo	Ρ	Hi	Lo	Р	Hi	Lo	Р	Hi	Lo	Р	Hi	Lo	Р	
Head- lamp	High beam	_	_	-	_	_	×	×	_	×	•*	•*	×	•*	•*	×	×	-	×	
	Low beam	-	-	-	-	_	×	×	×	×	_	_	×	_	-	×	×	×	×	
Tail lamp		-	-	_	×	×	×	×	×	×	_	_	_	×	×	×	×	×	×	
License and instru- ment illumination lamp		_	_	-	×	×	×	×	×	×	_	_	_	×	×	×	×	×	×	

- Hi: "HIGH BEAM" position
- Lo: "LOW BEAM" position
- P: "FLASH TO PASS" position
- ×: Lamp "ON"
- -: Lamp "OFF"
- •: Lamp dims. (Added functions)
- \*: When starting the engine with the parking brake released, the daytime light will come ON. When starting the engine with the parking brake pulled, the daytime light will not come ON.

#### **COMBINATION SWITCH READING FUNCTION**

Refer to BCS-3, "COMBINATION SWITCH READING FUNCTION" .

#### EXTERIOR LAMP BATTERY SAVER CONTROL

When the combination switch (lighting switch) is in the 2ND position (ON), and the ignition switch is turned from ON or ACC to OFF, the battery saver control function is activated.

Under this condition, the headlamps remain illuminated for 5 minutes, then the headlamps are turned off. Exterior lamp battery saver control mode can be changed by the function setting of CONSULT-II.

#### REMOTE KEYLESS ENTRY SYSTEM OPERATION

Refer to **BL-62**, "REMOTE KEYLESS ENTRY SYSTEM" .

#### **VEHICLE SECURITY SYSTEM**

The vehicle security system will flash the high beams if the system is triggered. Refer to <u>BL-134</u>, "VEHICLE <u>SECURITY (THEFT WARNING) SYSTEM</u>".

#### **XENON HEADLAMP**

Xenon type lamps are used for to the low beam headlamps. Xenon bulbs do not use a filament. Instead, they produce light when a high voltage current is passed between two tungsten electrodes through a mixture of xenon (an inert gas) and certain other metal halides. In addition to strong lighting power, electronic control of the power supply gives the headlamps stable quality and tone color.

Followings are some advantages of the xenon type headlamp.

- The light produced by the headlamps is white color similar to sunlight that is easy to the eyes.
- Light output is nearly double that of halogen headlamps, affording increased area of illumination.
- Counter-reflected luminance increases and the contrast enhances on the wet road in the rain. That makes visibility go up more than the increase of the light volume.
- Power consumption is approximately 25 percent less than halogen headlamps, reducing battery load.

#### **CAN Communication System Description**

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2

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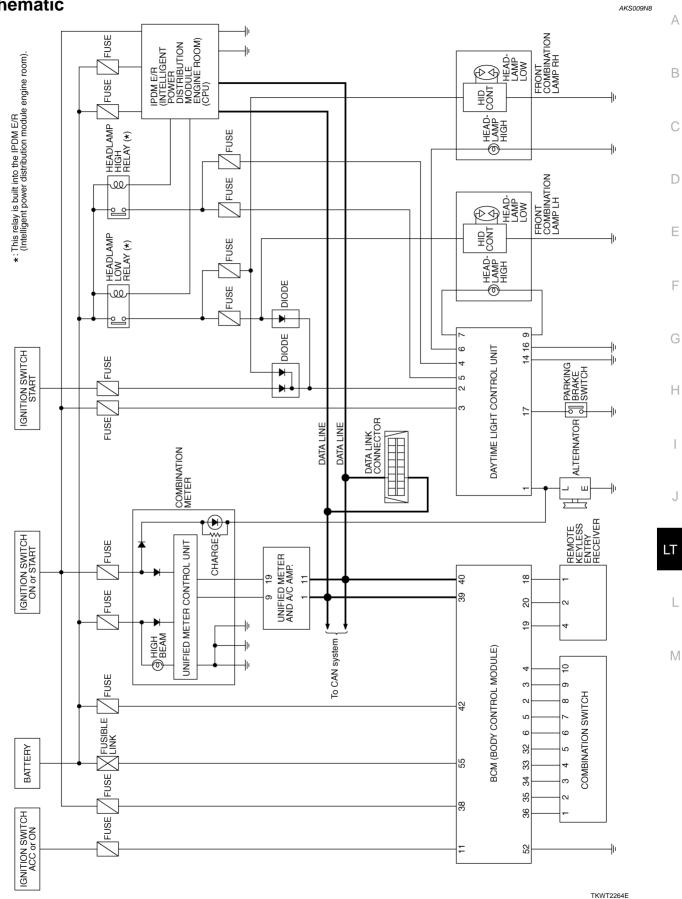
communication lines (CAN H line, CAN L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

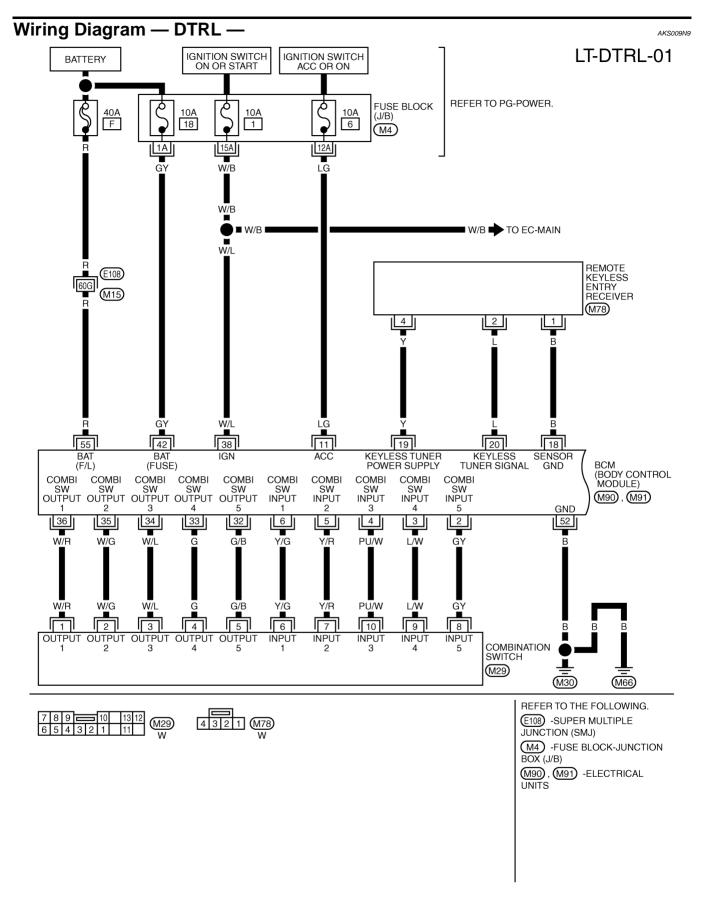
## **CAN Communication Unit**

Refer to LAN-21, "CAN Communication Unit" .

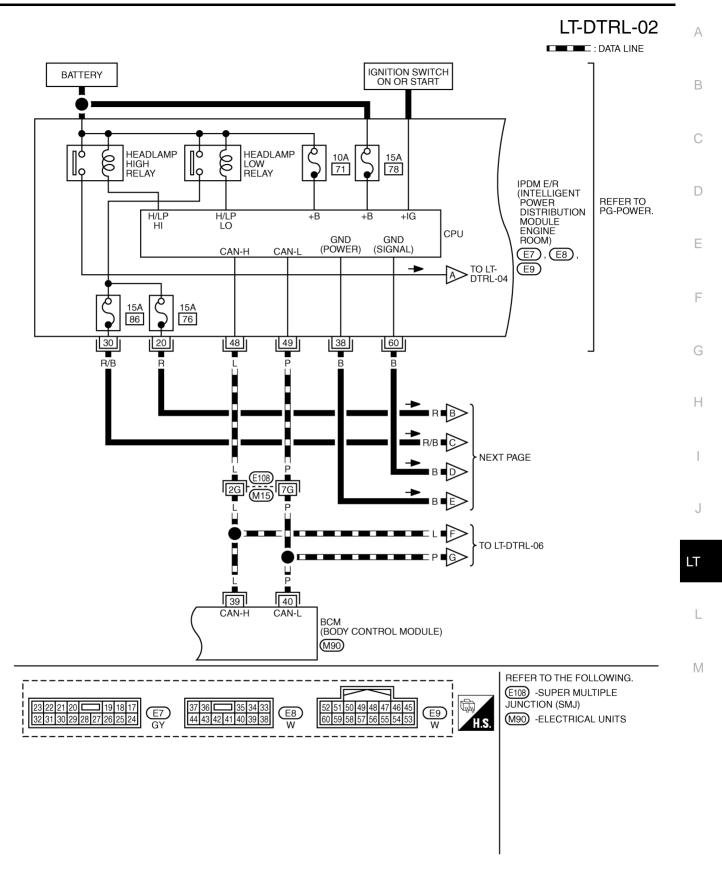
AKS009N7

## Schematic

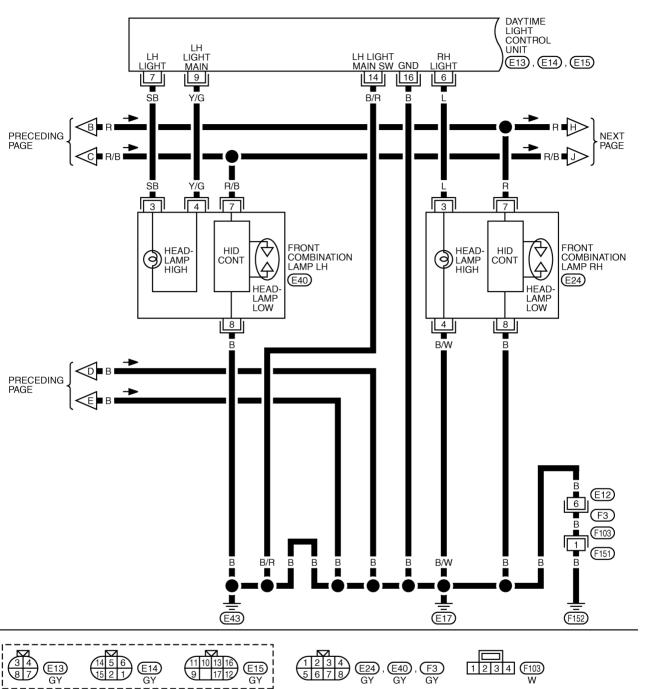




TKWT2265E

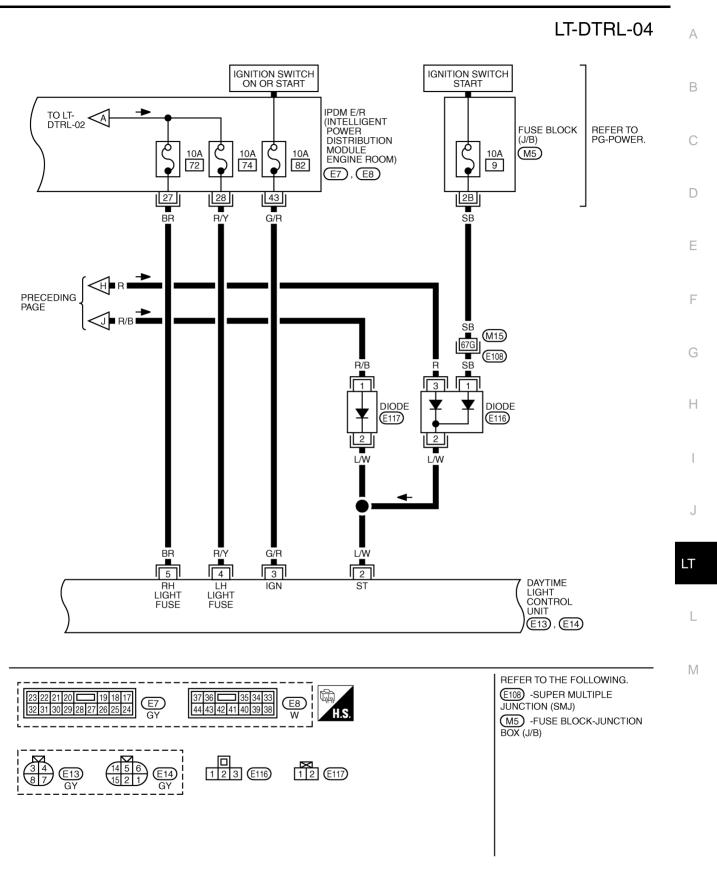


TKWT2266E

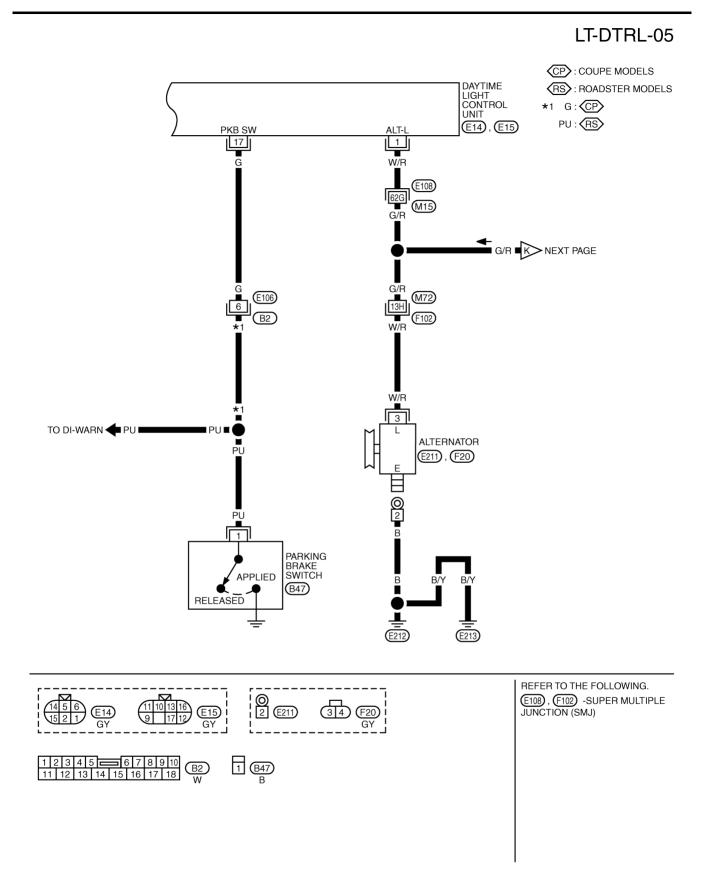


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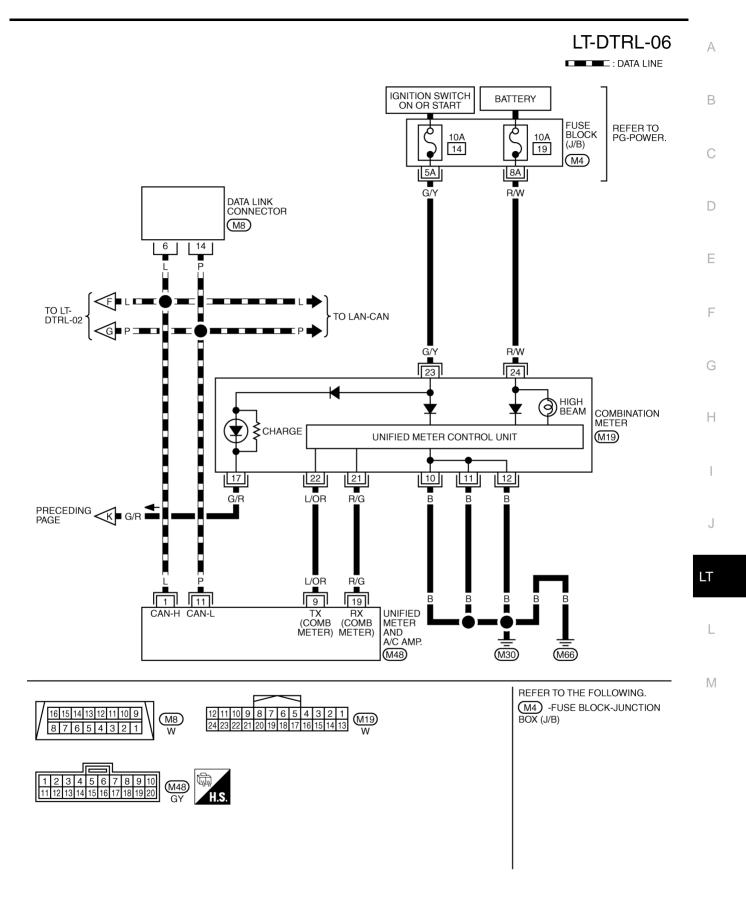
TKWT2267E



TKWT2268E



TKWT2269E



TKWT2270E

## Terminals and Reference Values for BCM

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	\\ <i>\\</i> ;			Measuring condition	
Terminal No.	Wire color	Signal name	Ignition switch	Operation or condition	Reference value
2	GY	Combination switch input 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 
3	L/W	Combination switch input 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 2 0 + 5ms SKIA5292E
4	PU/W	Combination switch input 3	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 •••5ms SKIA5291E
5	Y/R	Combination switch input 2			(\/)
6	Y/G	Combination switch input 1	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 **5ms SKIA5292E
11	LG	Ignition switch (ACC)	ACC	—	Battery voltage
32	G/B	Combination switch output 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 4 2 0 + 5ms SKIA5291E
33	G	Combination switch output 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 4 0 + 5ms SKIA5292E
34	W/L	Combination switch output 3	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 •••5ms SKIA5291E

Terminel	Wire			Measuring condition		
Terminal No.	color	Signal name	Ignition switch	Operation or condition	Reference value	
35	W/G	Combination switch output 2			0.0	-
36	W/R	Combination switch output 1	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 4 2 0 + 5ms SKIA5292E	
38	W/L	Ignition switch (ON)	ON	_	Battery voltage	-
39	L	CAN– H	_	_	—	-
40	Р	CAN– L	_	_	_	-
42	GY	Battery power supply	OFF	—	Battery voltage	-
52	В	Ground	ON	—	Approx. 0V	-
55	R	Battery power supply	OFF	_	Battery voltage	-

## Terminals and Reference Values for IPDM E/R

			Measuring condition			Wire	Terminal	
	Reference value	tion	Ignition switch Operation or condition		Signal name	color	No.	
	Approx. 0V	OFF	Lighting switch 2ND	ON	Headlamp low (RH)	R	20	
	Battery voltage	ON	position	ON		ĸ	20	
	Approx. 0V	OFF	Lighting switch HIGH or	ON	Llaadlama high (DLI)	חח	07	
	Battery voltage	ON	PASS position	ON	Headlamp high (RH)	BR	27	
	Approx. 0V	OFF	Lighting switch HIGH or				00	
	Battery voltage	ON	PASS position	ON	UN	Headlamp high (LH)	R/Y	28
	Approx. 0V	OFF	Lighting switch 2ND			D /D	20	
	Battery voltage	ON	position	ON	Headlamp low (LH)	R/B	30	
_	Approx. 0V		_	ON	Ground	В	38	
	Battery voltage		_	ON	Ignition switch (ON)	G/R	43	
	_		_	_	CAN– H	L	48	
	_			<u> </u>	CAN– L	Р	49	
	Approx. 0V		_	ON	Ground	В	60	

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## **Terminals and Reference Values for Daytime Light Control Unit**

Terminal No.	Wire color	Item	Condition	Reference value
			When turning ignition switch to "ON"	Approx. 0V
1	W/R	Alternator	When engine is running	Battery voltage
			When turning ignition switch to "OFF"	Approx. 0V
			When turning ignition switch to "START"	Battery voltage
2	L/W	Start signal	When turning ignition switch to "ON" from "START"	Approx. 0V
			When turning ignition switch to "OFF"	Approx. 0V
3	G/R	Ignition power supply	When turning ignition switch to "ON"	Battery voltage
4	R/Y	Lighting switch (LH hi beam)	When turning lighting switch to "HI BEAM"	Battery voltage
5	BR	Lighting switch (RH hi beam)	When turning lighting switch to "HI BEAM"	Battery voltage
			When lighting switch is turned to the 2ND position with "HI BEAM" or "FLASH TO PASS" position	Battery voltage
6	6 L RH hi beam	When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation) CAUTION: Block wheels and ensure selector lever is in N or P position.	Approx. 6V	
			When lighting switch is turned to the 2ND position with "HI BEAM" or "FLASH TO PASS" position	Battery voltage
7	SB	LH hi beam	When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation) CAUTION: Block wheels and ensure selector lever is in N or P position.	Battery voltage
			When turning lighting switch to the 2ND position with "HI BEAM" or "FLASH TO PASS" position	Approx. 0V
9	Y/G	LH hi beam (ground)	When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation)CAUTION:Block wheels and ensure selector lever is in N or P position.	Approx. 6V
14	B/R	Ground	—	_
16	В	Ground	_	_
47	0	Darking karden av 't k	When parking brake is released	Battery voltage
17	G	Parking brake switch	When parking brake is allied	Approx. 0V

## How to Proceed With Trouble Diagnosis

AKS009NB

- 1. Confirm the symptom or customer complaint.
- 2. Understand operation description and function description. Refer to LT-66, "System Description".
- 3. Perform the preliminary check. Refer to LT-81, "Preliminary Check" .
- 4. Check symptom and repair or replace the cause of malfunction.
- 5. Does headlamp operate normally? If YES, GO TO 6. If NO, GO TO 4.
- 6. INSPECTION END

## **Preliminary Check** CHECK POWER SUPPLY AND GROUND CIRCUIT

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## 1. CHECK FUSES

#### Check for blown fuses.

UNIT	POWER SOURCE	Fuse and fusible link No.	
	Detter	F	
ROM	Battery	18	
BCM	Ignition switch ON or START position	1	
	Ignition switch ACC or ON position	6	
		72	
	Botton	74	
IPDM E/R	Battery	76	
		86	
	Ignition switch ON or START	82	
DAYTIME LIGHT CONTROL UNIT	Ignition switch START position	9	

Refer to LT-72, "Wiring Diagram - DTRL -".

### OK or NG

OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-Н 3, "POWER SUPPLY ROUTING CIRCUIT" .

## 2. CHECK POWER SUPPLY CIRCUIT

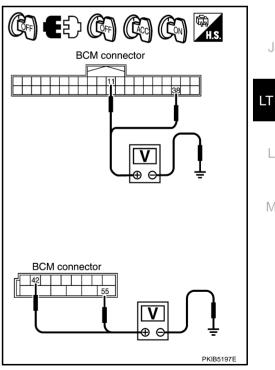
- Turn ignition switch OFF. 1.
- 2. Disconnect BCM connector.
- 3. Check voltage between BCM harness connector and ground.

Terminal			Ignition switch position		
	(+)				
Connector	Terminal (Wire color)	(-)	OFF	ACC	ON
M90	11 (LG)	Ground	Approx. 0V	Battery voltage	Battery voltage
M90	38 (W/L)		Approx. 0V	Approx. 0V	Battery voltage
M91	42 (GY)		Battery voltage	Battery voltage	Battery voltage
M91	55 (R)		Battery voltage	Battery voltage	Battery voltage

#### OK or NG

OK >> GO TO 3.

NG >> Check harness for open or short between BCM and fuse.



## 3. CHECK GROUND CIRCUIT

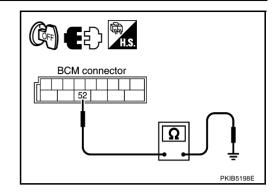
Check continuity between BCM harness connector and ground.

	Terminal				
Connector	Terminal (Wire color)	Ground	Continuity		
M91	52 (B)	Ground	Yes		

OK or NG

OK >> INSPECTION END

NG >> Check ground circuit harness.



## **CONSULT-II Functions (BCM)**

CONSULT-II can display each diagnostic item using the diagnostic test mode shown following.

BCM diagnosis part	Diagnosis mode	Description	
	WORK SUPPORT	Changes the setting for each function.	В
HEADLAMP	DATA MONITOR	Displays BCM input data in real time.	
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.	
BCM	SELF-DIAG RESULTS	BCM performs self-diagnosis of CAN communication.	С
DCIM	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.	

### **CONSULT-II BASIC OPERATION**

Touch "START (NISSAN BASED VHCL)".

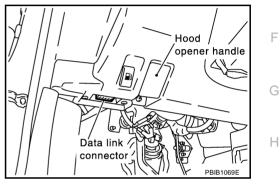
#### **CAUTION:**

2.

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If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

With ignition switch OFF, connect CONSULT-II and CONSULT-II 1. CONVERTER to data link connector, then turn ignition switch ON.



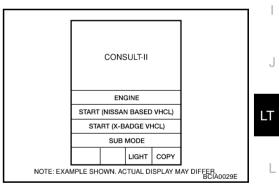
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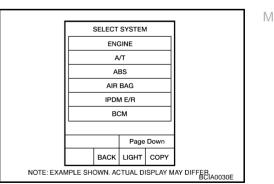
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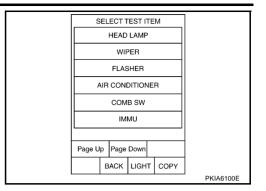
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3. Touch "BCM" on "SELECT SYSTEM" screen. If "BCM" is not displayed, print "SELECT SYSTEM" screen, then refer to GI-39, "CONSULT-II Data Link Connector (DLC) Circuit"

#### 4. Touch "HEAD LAMP" on "SELECT TEST ITEM" screen.



### WORK SUPPORT

#### **Operation Procedure**

- 1. Touch "HEAD LAMP" on "SELECT TEST ITEM" screen.
- 2. Touch "WORK SUPPORT" on "SELECT DIAG MODE" screen.
- 3. Touch "BATTERY SAVER SET" on "SELECT WORK ITEM" screen.
- 4. Touch "START".
- 5. Touch "CHANGE SET".
- 6. The setting will be changed and "CUSTOMIZING COMPLETED" will be displayed.
- 7. Touch "END".

### **Display Item List**

Item	Description	CONSULT-II	Factory setting
BATTERY SAVER SET	Exterior lamp battery saver control mode can be changed in this mode.	ON	×
DATTERT SAVER SET	Selects exterior lamp battery saver control mode between two ON/OFF.	OFF	_

### DATA MONITOR

### **Operation Procedure**

- 1. Touch "HEAD LAMP" on "SELECT TEST ITEM" screen.
- 2. Touch "DATA MONITOR" on "SELECT DIAG MODE" screen.
- 3. Touch either "ALL SIGNALS" or "SELECTION FROM MENU" on "SELECT MONITOR ITEM" screen.

ALL SIGNALS	Monitors all the signals.
SELECTION FROM MENU	Selects items and monitor them.

- 4. When "SELECTION FROM MENU" is selected, touch individual items to be monitored. When "ALL SIG-NALS" is selected, all the items will be monitored.
- 5. Touch "START".
- 6. Touch "RECORD" while monitoring, then the status of the monitored item can be recorded. To stop recording, touch" STOP".

### **Display Item List**

Monitor ite	em	Contents
IGN ON SW	"ON/OFF"	Displays "IGN position (ON)/OFF, ACC position (OFF)" judged from the ignition switch signal.
ACC ON SW	"ON/OFF"	Displays "ACC (ON)/OFF, Ignition OFF (OFF)" status judged from ignition switch signal.
HI BEAM SW	"ON/OFF"	Displays status (high beam switch: ON/Others: OFF) of high beam switch judged from lighting switch signal.
HEAD LAMP SW 1	"ON/OFF"	Displays status (headlamp switch 1: ON/Others: OFF) of headlamp switch 1 judged from light- ing switch signal.
HEAD LAMP SW 2	"ON/OFF"	Displays status (headlamp switch 2: ON/Others: OFF) of headlamp switch 2 judged from light- ing switch signal.
LIGHT SW 1 ST	"ON/OFF"	Displays status (lighting switch 1ST or 2ND position: ON/Others: OFF) of lighting switch judged from lighting switch signal.

Monitor item		Contents
PASSING SW	"ON/OFF"	Displays status (flash-to-pass switch: ON/Others: OFF) of flash-to-pass switch judged from lighting switch signal.
FR FOG SW NOTE	"ON/OFF"	_
DOOR SW - DR	"ON/OFF"	Displays status of driver door as judged from driver door switch signal. (Door is open: ON/ Door is closed: OFF)
DOOR SW - AS	"ON/OFF"	Displays status of passenger door as judged from passenger door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - RR NOTE	"OFF"	
DOOR SW - RL NOTE	"OFF"	
		• Displays status of back door as judged from back door switch signal. (Coupe models)
BACK DOOR SW	"ON/OFF"	<ul> <li>Displays status of rear trunk hood as judged from trunk lamp switch signal. (Roadster models)</li> </ul>
TURN SIGNAL R	"ON/OFF"	Displays status (Turn right: ON/Others: OFF) as judged from lighting switch signal.
TURN SIGNAL L	"ON/OFF"	Displays status (Turn left: ON/Others: OFF) as judged from lighting switch signal.
CARGO LAMP SW NOTE	"OFF"	

#### NOTE:

This item is displayed, but cannot be monitored.

### ACTIVE TEST

### **Operation Procedure**

- 1. Touch "HEAD LAMP" on "SELECT TEST ITEM" screen.
- 2. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 3. Touch item to be tested and check operation of the selected item.
- 4. During the operation check, touching "BACK" deactivates the operation.

### **Display Item List**

		- 1
Test item	Description	J
TAIL LAMP	Allows tail lamp relay to operate by switching ON–OFF.	
HEAD LAMP	Allows headlamp relay to operate by switching ON–OFF.	LT
FR FOG LAMP NOTE	_	-
CORNERING LAMP NOTE	_	

#### NOTE:

This item is displayed, but cannot be tested.

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## **CONSULT-II Functions (IPDM E/R)**

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CONSULT-II can display each diagnostic item using the diagnostic test mode shown following.

Check Item, Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	Refer to PG-19, "SELF-DIAG RESULTS".
DATA MONITOR	The input/output data of IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE TEST	IPDM E/R sends a drive signal to electronic components to check their operation.

## CONSULT-II BASIC OPERATION

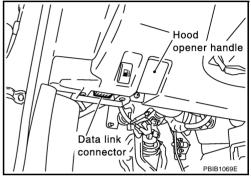
Touch "START (NISSAN BASED VHCL)".

### CAUTION:

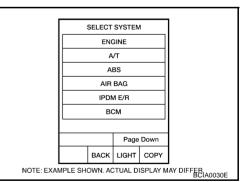
2.

If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

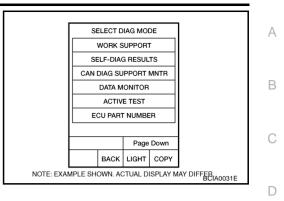
 With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



- CONSULT-II ENGINE START (NISSAN BASED VHCL) START (X-BADGE VHCL) SUB MODE LIGHT COPY NOTE: EXAMPLE SHOWN. ACTUAL DISPLAY MAY DIFFEER BCIA0029E
- 3. Touch "IPDM E/R" on "SELECT SYSTEM" screen. If "IPDM E/R" is not displayed, print "SELECT SYSTEM" screen, then refer to <u>GI-39</u>, "CONSULT-II Data Link Connector (DLC) <u>Circuit"</u>.



4. Select the desired part to be diagnosed on "SELECT DIAG MODE" screen.



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## DATA MONITOR

### **Operation Procedure**

- 1. Touch "DATA MONITOR" on "SELECT DIAG MODE " screen.
- 2. Touch "ALL SIGNALS", "MAIN SIGNALS" or "SELECTION FROM MENU" on "SELECT MONITOR ITEM" screen.

ALL SIGNALS	Monitors all the signal.
MAIN SIGNALS	Monitor the predetermined item.
SELECTION FROM MENU	Selects items and monitors them.

- 3. Touch the required monitoring item on "SELECTION FROM MENU". In "ALL SIGNALS", all items are monitored. In "MAIN SIGNALS", predetermined items are monitored.
- 4. Touch "START".
- 5. Touch "RECORD" while monitoring to record the status of the item being monitored. To stop recording, touch "STOP".

### All Signals, Main Signals, Selection From Menu

			М	onitor item s	election		
Item name	CONSULT-II screen display	Display or unit	ALL SIG- NALS	MAIN SIGNALS	SELECTION FROM MENU	Description	J
Position lights request	TAIL&CLR REQ	ON/OFF	×	×	×	Signal status input from BCM	
Headlamp low beam request	HL LO REQ	ON/OFF	×	×	×	Signal status input from BCM	LI
Headlamp high beam request	HL HI REQ	ON/OFF	×	×	×	Signal status input from BCM	

### NOTE:

Perform monitoring of IPDM E/R data with ignition switch ON. When ignition switch is at ACC, the display may not be correct.

### **ACTIVE TEST**

### **Operation Procedure**

- 1. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Touch item to be tested, and check operation.
- 3. Touch "START".
- 4. Touch "STOP" while testing to stop the operation.

Test item	CONSULT-II screen display	Description
Tail lamp relay output	TAIL LAMP	Allows tail lamp relay to operate by switching operation ON-OFF at your option.
Headlamp relay (HI, LO) output	LAMPS	Allows headlamp relay (HI, LO) to operate by switching operation (OFF, HI ON, LO ON) at your option (Headlamp high beam repeats ON– OFF every 1 second).

## Daytime Light Control Does Not Operate Properly

## 1. CHECK DAYTIME LIGHT CONTROL UNIT

- 1. Turn ignition switch OFF.
- 2. Disconnect daytime light control unit connector.
- 3. Turn ignition switch ON.
- 4. Check voltage between daytime light control unit harness connector E13 terminal 3 (G/R) and ground.

### 3 (G/R) – Ground : Battery voltage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair daytime light control unit power supply circuit harness or connector.

## 2. CHECK DAYTIME LIGHT CONTROL UNIT AND GROUND

1. Check continuity between daytime light control unit harness connector E14 terminal 14 (B/R) and ground.

#### 14 (B/R) – Ground : Continuity should exist.

2. Check continuity between daytime light control unit harness connector E15 terminal 16 (B) and ground.

#### 16 (B) - Ground

### : Continuity should exist.

#### OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

## 3. CHECK PARKING BRAKE SWITCH CIRCUIT

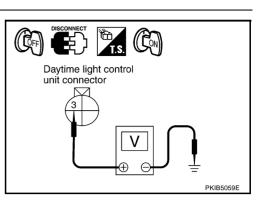
- 1. Turn ignition switch OFF.
- Disconnect daytime light control unit connector and parking brake switch connector.
- 3. Check harness continuity between daytime light control unit harness connector E15 terminal 17 (G) and parking brake switch harness connector B47 terminal 1 (PU).

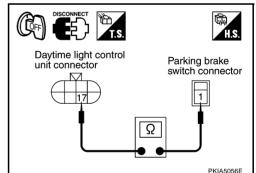
#### 17 (G) – 1 (PU)

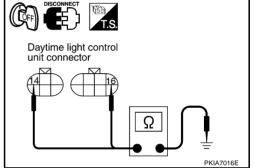
### : Continuity should exist.

#### OK or NG

- OK >> GO TO 4.
- NG >> Repair harness or connector.







## 4. CHECK PARKING BRAKE SWITCH

- 1. Connect daytime light control unit connector and parking brake switch connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between parking brake switch harness connector B47 terminal 1 (PU) and ground, when parking brake is released.

1 (PU) – Ground : Battery voltage.

Check voltage between parking brake switch harness connector 4. B47 terminal 1(PU) and ground, when parking brake is applied.

#### 1 (PU) – Ground : Approx. 0V

### OK or NG

OK >> GO TO 5.

NG >> Replace parking brake switch.

## 5. CHECK ALTERNATOR CIRCUIT

- Turn ignition switch OFF. 1.
- 2. Disconnect daytime light control unit connector.
- 3. Start engine running.
- Check voltage between daytime light control unit harness con-4 nector E14 terminal 1 (W/R) and ground.

#### 1 (W/R) – Ground : Battery voltage.

#### OK or NG

OK >> GO TO 6.

NG >> Repair harness or connector.

## 6. CHECK DAYTIME LIGHT CONTROL UNIT CIRCUIT

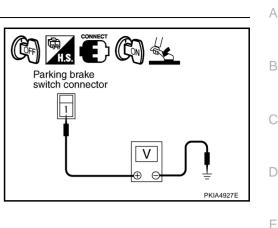
- Turn ignition switch OFF. 1.
- 2. Disconnect daytime light control unit connector and front combination lamp LH connector.
- Check continuity between daytime light control harness connec-3. tor E13 terminal 7 (SB) and front combination lamp LH harness connector E40 terminal 3 (SB).

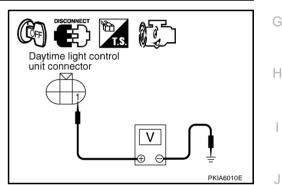
#### 7(SB) - 3(SB)

: Continuity should exist.

#### OK or NG

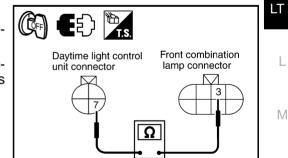
- OK >> GO TO 7.
- NG >> Repair harness or connector.





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## 7. CHECK DAYTIME LIGHT CONTROL UNIT CIRCUIT

- 1. Disconnect daytime light control unit connector.
- 2. Check continuity between daytime light control harness connector E15 terminal 9 (Y/G) and front combination lamp LH harness connector E40 terminal 4 (Y/G).

9(Y/G) - 4(Y/G)

: Continuity should exist.

OK or NG

OK >> GO TO 8.

NG >> Repair harness or connector.

## 8. CHECK DAYTIME LIGHT CONTROL UNIT CIRCUIT

- Disconnect daytime light control unit connector and front combi-1. nation lamp RH connector.
- Check continuity between daytime light control unit 2. harness connector E14 terminal 6 (L) and front combination lamp RH harness connector E24 terminal 3 (L).

### 6(L) - 3(L)

### : Continuity should exist.

### OK or NG

OK >> GO TO 9.

NG >> Repair harness or connector.

## 9. CHECK DAYTIME LIGHT CONTROL UNIT

- 1. Connect daytime light control unit connector.
- Check voltage between front combination lamp LH harness con-2. nector E40 terminal 3 (SB) and ground, when releasing parking brake with engine running and turning lighting switch to "OFF".

#### 3 (SB) – Ground : Battery voltage.

### OK or NG

- OK >> • Check connector for connection, bend and loose fit and repair.
  - Check headlamp bulb.
- NG >> Replace daytime light control unit.

## Headlamp High Beam Does Not Illuminate (Both Sides)

## **1. CHECK COMBINATION SWITCH INPUT SIGNAL**

### (P)With CONSULT-II

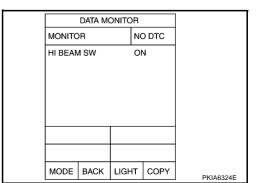
Select "BCM" on CONSULT-II, With "HEAD LAMP" data monitor, make sure "HI BEAM SW" turns ON-OFF linked with operation of lighting switch.

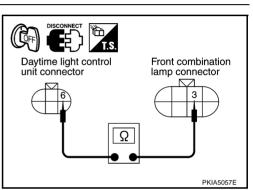
> When lighting switch is : HI BEAM SW ON **HIGH BEAM position**

Without CONSULT-II Refer to LT-173, "Combination Switch Inspection" .

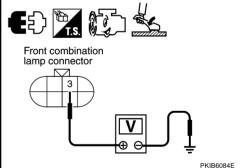
OK or NG

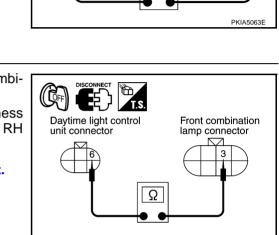
- OK >> GO TO 2.
- NG >> Check combination switch (lighting switch). Refer to LT-173, "Combination Switch Inspection".





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Daytime light control

unit connector

Front combination

lamp connector

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## 2. HEADLAMP ACTIVE TEST

#### (B) With CONSULT-II

- 1. Select "IPDM E/R" on CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Select "LAMPS" on "SELECT TEST ITEM" screen.
- 3. Touch "HI" screen.
- 4. Make sure headlamp high beam operation.

Headlamp high beam should operate. (Headlamp high beam repeats ON-OFF every 1 second).

### Without CONSULT-II

- 1. Start auto active test. Refer to PG-22, "Auto Active Test" .
- 2. Make sure headlamp high beam operation.

#### Headlamp high beam should operate.

### OK or NG

OK >> GO TO 3. NG >> GO TO 4.

## 3. CHECK IPDM E/R

	Select "IPDM E/R" on CONSULT-II, and select "DATA MONI- OR" on "SELECT DIAG MODE" screen.	- DATA MONITOR MONITOR	Н
	Make sure "HL LO REQ" and "HL HI REQ" turns ON when light- ng switch is in HIGH BEAM position.	HL LO REQ ON HL HI REQ ON	
	When lighting switch is: HL LO REQ ONHIGH BEAM position: HL HI REQ ON		
OK or	r NG		J
OK	>> Replace IPDM E/R.	Page Down	
NG	>> Replace BCM. Refer to <u>BCS-18, "Removal and Installa-</u> tion of <u>BCM"</u> .	- RECORD MODE BACK LIGHT COPY SKIA5775E	LT

ACTIV	E TEST		
LAMPS	OFF		E
			C
	н		
			D
LO	FOG		
MODE BACK	LIGHT COPY	SKIA5774E	

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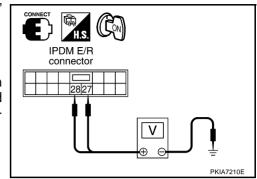
LT-91

## 4. CHECK IPDM E/R INPUT SIGNAL

### With CONSULT-II

- 1. Select "IPDM E/R" on CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Select "LAMPS" on "SELECT TEST ITEM" screen.
- 3. Touch "HI" screen.
- When headlamp high beam is operating, check voltage between front combination lamp RH and LH harness connector and ground (Headlamp high beam repeats ON–OFF every 1 second).

	Terminal		
	(+)	(-)	Voltage
Connector	Terminal (Wire color)	(-)	
F7	27 (BR)	Ground	Battery voltage
	28 (R/Y)	Giouna	Dattery Vollage



### Without CONSULT-II

- 1. Start auto active test. Refer to PG-22, "Auto Active Test" .
- 2. When headlamp high beam is operating, check voltage between front combination lamp RH and LH harness connector and ground.

Terminal			
	(+)	(-)	Voltage
Connector	Terminal (Wire color)	(-)	
E7	27 (BR)	Ground	Battery voltage
Ε/	28 (R/Y)	Giouna	Ballery vollage

### OK or NG

OK >> GO TO 5.

NG >> Replace IPDM E/R.

## 5. CHECK IPDM E/R CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- Check harness continuity between IPDM E/R harness connector E7 terminal 28 (R/Y) and daytime light control unit harness connector E13 terminal 4 (R/Y).

#### 28 (R/Y) – 4 (R/Y)

#### : Continuity should exist.

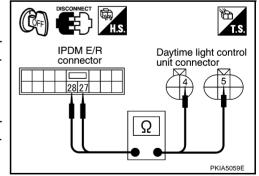
 Check harness continuity between IPDM E/R harness connector E7 terminal 27 (BR) and daytime light control unit harness connector E14 terminal 5 (BR).

#### 27 (BR) – 5 (BR)

### : Continuity should exist.

#### OK or NG

- OK >> GO TO 6.
- NG >> Repair harness or connector.



6. CHECK BULB	A
Check bulb of lamp which does not illuminate. OK or NG	
OK >> Replace daytime light control unit. NG >> Replace headlamp bulb.	В
RH High Beam Does Not Illuminate But RH Low Be 1. CHECK BULB	eam Illuminates
Check bulb of lamp which does not illuminate. <u>OK or NG</u> OK >> GO TO 2. NG >> Replace headlamp bulb.	D
2. CHECK HEADLAMP INPUT SIGNAL	E
<ol> <li>Disconnect front combination lamp RH connector.</li> <li>Turn ignition switch ON</li> <li>Lighting switch is turned HIGH BEAM position.</li> </ol>	
4. Check voltage between front combination lamp RH harness connector E24 terminal 3 (L) and ground.	Front combination lamp connector
3 (L) – Ground         : Battery voltage.           OK or NG	
3. CHECK DAYTIME LIGHT CONTROL CIRCUIT	
<ol> <li>Turn ignition switch OFF.</li> <li>Disconnect daytime light control unit connector.</li> <li>Check continuity between daytime light control unit harness connector E14 terminal 6 (L) and front combination lamp RH harness connector E24 terminal 3 (L).</li> </ol>	J Daytime light control unit connector J T.S. Front combination lamp connector J J LT
6 (L) – 3 (L) : Continuity should exist.	
OK >> GO TO 4. NG >> Repair harness or connector.	PKIA5060E
4. CHECK DAYTIME LIGHT CONTROL UNIT INPUT SIGNAL	
<ol> <li>Disconnect daytime light control unit connector.</li> <li>Turn ignition switch ON.</li> <li>Lighting switch is turned HIGH BEAM position.</li> <li>Check voltage between daytime light control unit harness connector E14 terminal 5 (BR) and ground.</li> </ol>	Daytime light control unit connector
5 (BR) - Ground: Battery voltage.OK or NGOK >> Replace daytime light control unit.NG >> GO TO 5.	

## 5. CHECK IPDM E/R CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- 3. Check harness continuity between IPDM E/R harness connector E7 terminal 27 (BR) and daytime light control unit harness connector E14 terminal 5 (BR).

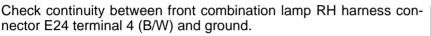
#### 27 (BR) – 5 (BR)



#### OK or NG

- OK >> Replace IPDM E/R.
- NG >> Repair harness or connector.

## 6. CHECK HEADLAMP GROUND

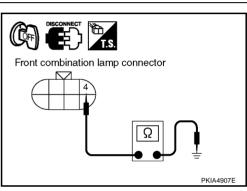


4 (B/W) – Ground

: Continuity should exist.

### OK or NG

- OK >> Check headlamp harness and connector and headlampbulbs.
- NG >> Repair harness or connector.



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IPDM E/R

connector

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Daytime light control unit connector

# LH High Beam Does Not Illuminate But LH Low Beam Illuminates

## 1. CHECK BULB

Check bulb of lamp which does not illuminate.

OK or NG

- OK >> GO TO 2.
- NG >> Replace headlamp bulb.

## 2. CHECK HEADLAMP INPUT SIGNAL

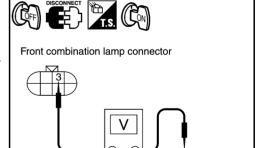
- 1. Disconnect front combination lamp LH connector.
- 2. Turn ignition switch ON.
- 3. Lighting switch is turned 2ND position.
- 4. Check voltage between front combination lamp LH harness connector E40 terminal 3 (SB) and ground.

### 3 (SB) – Ground

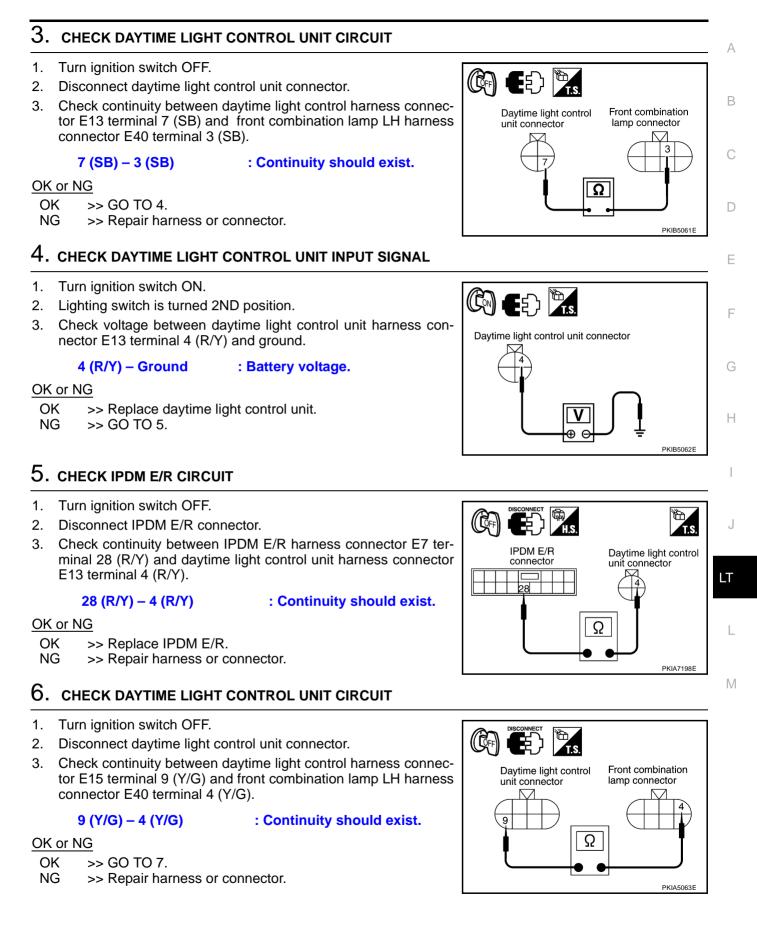
: Battery voltage.

### OK or NG

OK	>> GO TO 6.
NG	>> GO TO 3.



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## 7. CHECK DAYTIME LIGHT CONTROL UNIT GROUND

Check continuity between daytime light control unit harness connector E14 terminal 14 (B/R) and ground.

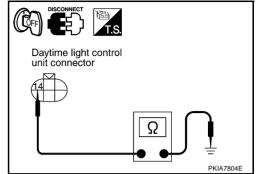
#### 14 (B/R) – Ground

(R) – Ground

: Continuity should exist.

OK or NG

- OK >> Replace daytime light control unit.
- NG >> Repair harness or connector.



## Headlamp Low Beam Does Not Illuminate (Both Sides)

## 1. CHECK COMBINATION SWITCH INPUT SIGNAL

#### (B)With CONSULT-II

Select "BCM" on CONSULT-II. With "HEADLAMP" data monitor, make sure "HEAD LAMP SW 1" and "HEAD LAMP SW 2" turn ON-OFF linked with operation of lighting switch.

# When lighting switch is 2ND position

: HEAD LAMP SW 1 ON : HEAD LAMP SW 2 ON

#### Without CONSULT-II

Refer to LT-173, "Combination Switch Inspection" .

#### OK or NG

OK >> GO TO 2.

NG >> Check combination switch (lighting switch). Refer to <u>LT-</u> <u>173, "Combination Switch Inspection"</u>.

## 2. HEADLAMP ACTIVE TEST

### (B)With CONSULT-II

- 1. Select "IPDM E/R" on CONSULT-II and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Select "LAMPS" on "SELECT TEST" ITEM screen.
- 3. Touch "LO" screen.
- 4. Make sure headlamp low beam operation.

#### Headlamp low beam should operate.

#### Without CONSULT-II

- 1. Start auto active test. Refer to PG-22, "Auto Active Test" .
- 2. Make sure headlamp low beam operation.

#### Headlamp low beam should operate.

#### OK or NG

OK	>> GO TO 3.
NG	>> GO TO 4.

DATA MONITOR					
MONITOR			NC	DTC	
HEAD L	AMP SW	1	10	1	
HEAD L	AMP SW	2	10	J	
MODE	BACK	LIGH	Т	COPY	PKIA6325E

ACTIVE TEST				
LAMPS			OFF	
		ŀ	41	
Ľ	0	FC	DG	
MODE	BACK	LIGHT	COPY	SKIA5774E

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## 3. CHECK IPDM E/R

		A
1. Select "IPDM E/R" on CONSULT-II and select "DATA MONI- TOR" on "SELECT DIAG MODE" screen.	DATA MONITOR MONITOR	1
<ol> <li>Make sure "HL LO REQ" turns ON when lighting switch is in 2ND position.</li> </ol>	HL LO REQ ON	В
When lighting switch is 2ND :HL LO REQ ON position		С
OK or NG OK >> Replace IPDM E/R. NG >> Replace BCM. Refer to <u>BCS-18, "Removal and Installa-</u> tion of BCM".	Page Down RECORD MODE BACK LIGHT COPY SKIA5780E	D

## 4. CHECK HEADLAMP INPUT SIGNAL

#### () With CONSULT-II

- 1. Turn ignition switch OFF.
- 2. Disconnect front combination lamp RH and LH connector.
- 3. Select "IPDM E/R" on CONSULT-II and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 4. Select "LAMPS" on "SELECT TEST ITEM" screen.
- 5. Touch "LO" screen.
- 6. When headlamp low beam is operating, check voltage between front combination lamp RH and LH harness connector and ground.

Terminal				
(+)				Voltage
Conr	Connector Terminal (Wire color)		(-)	
RH	E24	7 (R)	Ground	Battery voltage
LH	E40	7 (R/B)	Ground	Dattery Voltage

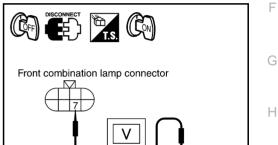
#### Without CONSULT-II

- 1. Turn ignition switch OFF.
- 2. Disconnect front combination lamp RH and LH connector.
- 3. Start auto active test. Refer to PG-22, "Auto Active Test" .
- 4. When headlamp low beam is operating, check voltage between front combination lamp RH and LH harness connector and ground.

	Voltage			
Conr	Connector Terminal (Wire color)		(-)	
RH	E24	7 (R)	Ground	Battery voltage
LH	E40	7 (R/B)	Giouna	Ballery Vollage

#### OK or NG

OK >> GO TO 6. NG >> GO TO 5.



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## 5. CHECK HEADLAMP CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- 3. Check continuity between IPDM E/R harness connector E7 terminal 20 (R) and front combination lamp RH harness connector E24 terminal 7 (R).

20 (R) – 7 (R)

: Continuity should exist.

 Check continuity between IPDM E/R harness connector E7 terminal 30 (R/B) and front combination lamp LH harness connector E40 terminal 7 (R/B).

#### 30 (R/B) - 7 (R/B)

#### : Continuity should exist.

#### OK or NG

OK >> Replace IPDM E/R.

NG >> Repair harness or connector.

## 6. CHECK HEADLAMP GROUND

- 1. Turn ignition switch OFF.
- 2. Check continuity between front combination lamp RH harness connector E24 terminal 8 (B) and ground.

#### 8 (B) - Ground

#### : Continuity should exist.

3. Check continuity between front combination lamp LH harness connector E40 terminal 8 (B) and ground.

#### 8 (B) - Ground

: Continuity should exist.

OK or NG

- OK >> Check headlamp harness and connectors, ballasts (HID \_\_\_\_\_\_ control unit). Refer to <u>LT-101, "Xenon Headlamp Trouble Diagnosis"</u>.
- NG >> Repair harness or connector.

## Headlamp Low Beam Does Not Illuminate (One Side)

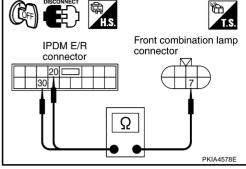
### 1. CHECK BULB

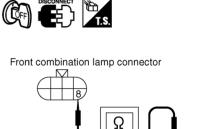
Check ballast (HID control unit) and xenon bulb of lamp which does not illuminate. Refer to <u>LT-101, "Xenon</u> <u>Headlamp Trouble Diagnosis"</u>.

#### OK or NG

OK >> GO TO 2.

NG >> Replace malfunctioning part.







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## $\overline{2}$ . CHECK HEADLAMP INPUT SIGNAL

- 1. Turn ignition switch OFF.
- 2. Disconnect front combination lamp RH or LH connector.
- 3. Turn ignition switch ON.
- 4. Lighting switch is turned 2ND position.
- 5. Check voltage between front combination lamp RH or LH harness connector and ground.

Terminal				
	Voltage			
Conr	Connector Terminal (Wire color)		(-)	
RH	E24	7 (R)	Ground	Battery voltage
LH	E40	7 (R/B)	Giouna	Ballery Vollage

### OK or NG

OK >> GO TO 4. NG >> GO TO 3

## 3. CHECK HEADLAMP CIRCUIT

- 1. Disconnect IPDM E/R connector and front combination lamp RH or LH connector.
- Check continuity between IPDM E/R harness connector E7 terminal 20 (R) and front combination lamp RH harness connector E24 terminal 7 (R).

#### 20 (R) - 7 (R)

#### : Continuity should exist.

3. Check continuity between IPDM E/R harness connector E7 terminal 30 (R/B) and front combination lamp LH harness connector E40 terminal 7 (R/B).

#### 30 (R/B) - 7 (R/B)

### : Continuity should exist.

### OK or NG

- OK >> Replace IPDM E/R.
- NG >> Repair harness or connector.

### 4. CHECK HEADLAMP GROUND

1. Check continuity between front combination lamp RH harness connector E24 terminal 8 (B) and ground.

#### 8 (B) - Ground

### : Continuity should exist.

2. Check continuity between front combination lamp LH harness connector E40 terminal 8 (B) and ground.

#### 8 (B) – Ground

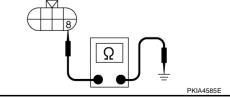
#### : Continuity should exist.

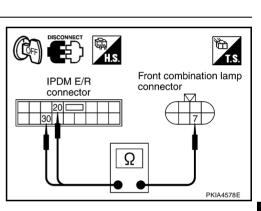
#### OK or NG

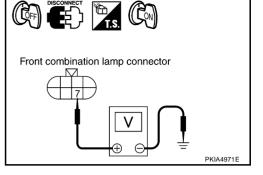
- OK >> Check headlamp harness and connectors.
- NG >> Repair harness or connector.



Front combination lamp connector







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## Headlamps Does Not Turn OFF

## 1. CHECK HEADLAMP TURN OFF

Make sure that lighting switch is OFF. And make sure is headlamp turns off when ignition switch is turned OFF. OK or NG

OK >> GO TO 3. NG >> GO TO 2.

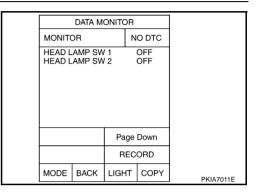
## 2. CHECK COMBINATION SWITCH INPUT SIGNAL

Select "BCM" on CONSULT-II. With "HEAD LAMP" data monitor, make sure "HEAD LAMP SW 1" and "HEAD LAMP SW 2" turns ON-OFF linked with operation of lighting switch.

When lighting switch is OFF<br/>position: HEAD LAMP SW 1 OFF<br/>: HEAD LAMP SW 2 OFF

#### OK or NG

- OK >> Replace IPDM E/R.
- NG >> Check combination switch (lighting switch). Refer to <u>LT-</u> <u>173, "Combination Switch Inspection"</u>.



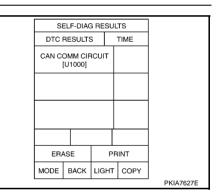
## 3. CHECKING CAN COMMUNICATIONS BETWEEN BCM AND IPDM E/R

Select "BCM" by CONSULT-II, and perform self-diagnosis for "BCM".

Display of self-diagnosis results

NO DTC>> Replace IPDM E/R.

CAN COMM CIRCUIT>> Refer to <u>BCS-17, "CAN Communication</u> <u>Inspection Using CONSULT-II (Self-Diagnosis)"</u>.



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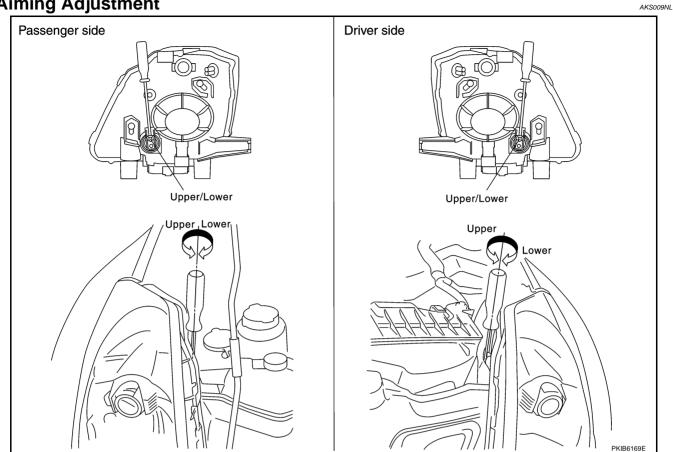
#### **General Information for Xenon Headlamp Trouble Diagnosis** AKS00CGL А In most cases, malfunction of xenon headlamp - "does not illuminate", "flickers" or "dark" - is caused by a malfunctioning xenon bulb. A malfunctioning HID control unit or lamp housing, however, may be a cause. Be sure to perform trouble diagnosis following the steps described below. R Caution: AKS00CGM Installation or removal of connector must be done with lighting switch OFF. Disconnect the battery cable from the negative terminal or remove power fuse. CAUTION: After the battery cables are disconnected, never open/close the driver and/or front passenger door with the window in the full up position. The automatic window adjusting function will not work and D the side roof panel may be damaged. When the lamp is illuminated (when lighting switch is ON), never touch harness, HID control unit, inside of lamp, or lamp metal parts. F To check illumination, temporarily install lamp in vehicle. Be sure to connect power at vehicle side connector. If error can be traced directly to electrical system, first check for items such as blown fuses and fusible E links, broken wires or loose connectors, dislocated terminals, and improper connections. Never work with wet hands. Using a tester for HID control unit circuit trouble diagnosis is prohibited. Disassembling HID control unit or harnesses (bulb socket harness, ECM harness) is prohibited. Immediately after illumination, light intensity and color will fluctuate, but there is nothing wrong. Н When bulb has come to end of its life, brightness will drop significantly, it will flash repeatedly, or light color will turn reddish. Xenon Headlamp Trouble Diagnosis AKS00CGN 1. CHECK 1: XENON HEADLAMP LIGHTING Install normal xenon bulb to corresponding xenon bulb headlamp, and check if lamp lights up. J OK or NG OK >> Replace xenon bulb. NG >> GO TO 2. LT 2. CHECK 2: XENON HEADLAMP LIGHTING Install normal HID control unit to corresponding xenon headlamp, and check if lamp lights up. OK or NG OK >> Replace HID control unit. NG >> GO TO 3. Μ 3. CHECK 3: XENON HEADLAMP LIGHTING

Install normal xenon lamp housing assembly to corresponding xenon headlamp, and check if lamp lights up. OK or NG

OK >> Replace xenon headlamp housing assembly. [Malfunction in starter (boosting circuit) in xenon headlamp housing]

NG >> INSPECTION END

## **Aiming Adjustment**



### **PREPARATION BEFORE ADJUSTING**

For details, refer to the regulations in your own country.

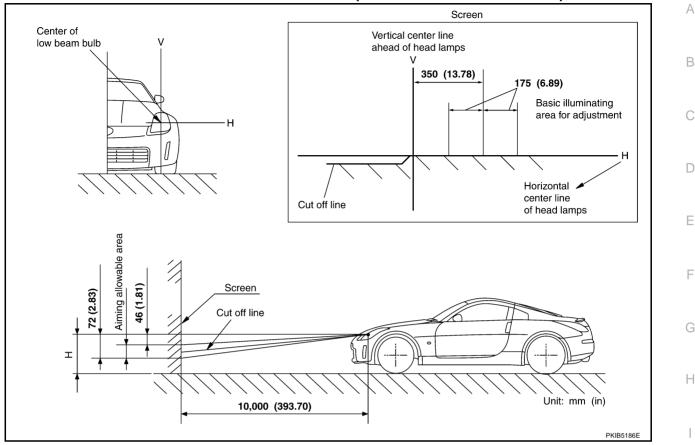
Before performing aiming adjustment, check the following.

- 1. Keep all tires inflated to correct pressures.
- 2. Place vehicle on flat surface.
- 3. Set that there is no-load in vehicle other than the driver (or equivalent weight placed in driver's position). Coolant, engine oil filled up to correct level and full fuel tank.

### LOW BEAM AND HIGH BEAM

- Turn headlamp low beam ON. 1.
- 2. Use adjusting screws to perform aiming adjustment.

### ADJUSTMENT USING AN ADJUSTMENT SCREEN (LIGHT/DARK BORDERLINE)



If the vehicle front body has been repaired and/or the headlamp assembly has been replaced, check aiming. Use the aiming chart shown in the figure.

 Basic illumination area for adjustment should be within the range shown on the aiming chart. Adjust headlamp accordingly.

### Bulb Replacement HEADLAMP (UPPER) LOW BEAM

- 1. Turn lighting switch OFF.
- 2. Open the driver and front passenger window, and then disconnect the battery cable from the negative terminal or remove power fuse.

#### CAUTION:

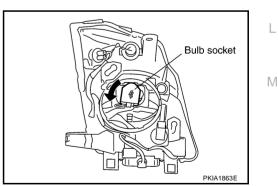
After the battery cables are disconnected, never open/close the driver and/or front passenger door with the window in the full up position. The automatic window adjusting function will not work and the side roof panel may be damaged.

- 3. Remove headlamp. Refer to LT-105, "Removal and Installation"
- 4. Turn plastic cap counterclockwise and unlock it.
- 5. Turn bulb socket counterclockwise and unlock it.
- 6. Unlock retaining spring and remove bulb from headlamp.
- 7. Installation is the reverse order of removal.

#### NOTE:

After installation, perform aiming adjustment. Refer to LT-102, "Aiming Adjustment" .

Headlamp (upper) low beam : 12V - 35W (D2R) (Xenon)



## LT-103

LT

AKS009NM

### **HEADLAMP (LOWER) HIGH BEAM**

- 1. Turn lighting switch OFF.
- 2. Open the driver and front passenger window, and then disconnect the battery cable from the negative terminal or remove power fuse.

#### CAUTION:

After the battery cables are disconnected, do not open/close the driver and/or front passenger door with the window in the full up position. The automatic window adjusting function will not work and the side roof panel may be damaged.

- 3. Remove fender protector (front). Refer to <u>EI-21, "FENDER PROTECTOR"</u> in "EI" section.
- 4. Turn plastic cap counterclockwise and unlock it.
- 5. Disconnect bulb socket.
- 6. Unlock retaining spring and remove bulb from headlamp.
- 7. Installation is the reverse order of removal.

#### Headlamp (lower) high beam : 12V - 55W (H7)

## PARKING LAMP (CLEARANCE LAMP)

- 1. Turn lighting switch OFF.
- 2. Remove fender protector (front). Refer to EI-21, "FENDER PROTECTOR" in "EI" section.
- 3. Turn bulb socket counterclockwise and unlock it.
- 4. Remove bulb from its socket.
- 5. Installation is the reverse order of removal.

#### Parking lamp (Clearance lamp) : 12V - 5W

### FRONT TURN SIGNAL LAMP

- 1. Turn lighting switch OFF.
- 2. Remove fender protector (front). Refer to <u>EI-21, "FENDER PROTECTOR"</u> in "EI" section.
- 3. Turn bulb socket counterclockwise and unlock it.
- 4. Remove bulb from its socket.
- 5. Installation is the reverse order of removal.
  - Front turn signal lamp

#### : 12V - 21W

### FRONT SIDE MARKER LAMP

- 1. Turn lighting switch OFF.
- 2. Remove fender protector (front). Refer to EI-21, "FENDER PROTECTOR" in "EI" section.
- 3. Turn bulb socket counterclockwise and unlock it.
- 4. Remove bulb from its socket.
- 5. Installation is the reverse order of removal.
  - Front side marker lamp : 12V 5W

#### CAUTION:

After installing bulb, be sure to install plastic cap and bulb socket securely to insure watertightness.

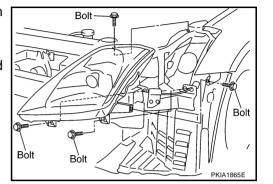
# Removal and Installation REMOVAL

1. Open the driver and front passenger window, and then disconnect the battery cable from the negative terminal or remove power fuse.

### CAUTION:

After the battery cables are disconnected, do not open/close the driver and/or front passenger door with the window in the full up position. The automatic window adjusting function will not work and the side roof panel may be damaged.

- 2. Remove front bumper. Refer to <u>EI-14, "FRONT BUMPER"</u> in "EI" section.
- 3. Remove headlamp mounting bolts.
- 4. Pull head lamp toward vehicle front, disconnect connector, and remove headlamp.



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### INSTALLATION

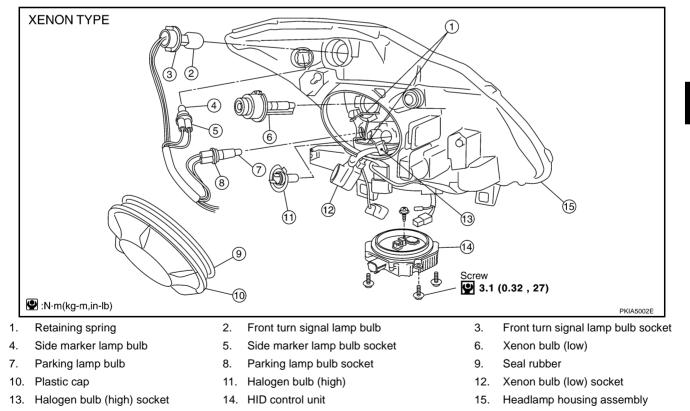
Installation is the reverse order of removal.

#### Headlamp mounting bolt 🕑 : 6.1N·m (0.62 kg-m, 54 in lb)

#### NOTE:

After installation, perform aiming adjustment. Refer to LT-102, "Aiming Adjustment" .

## **Disassembly and Assembly**



### DISASSEMBLY

- 1. Turn plastic cap counterclockwise and unlock it.
- 2. Turn xenon bulb (low) socket counterclockwise, and unlock it.
- 3. Unlock retaining spring, and remove xenon bulb (low).
- 4. Disconnect HID control unit connector, and remove HID control unit screws.
- 5. Disconnect the socket connected to halogen bulb (high).
- 6. Unlock retaining spring, and remove halogen bulb (high).
- 7. Turn parking lamp bulb socket counterclockwise and unlock it.
- 8. Remove parking lamp bulb from its socket.
- 9. Turn front turn signal lamp bulb socket counterclockwise and unlock it.
- 10. Remove front turn signal lamp bulb from its socket.
- 11. Turn front side marker lamp bulb socket counterclockwise and unlock it.
- 12. Remove front side marker lamp bulb from its socket.

### ASSEMBLY

Assembly is the reverse order of disassembly.

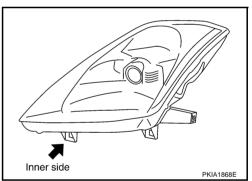
HID control unit mounting screw (0.32 kg-m, 27 in-lb) : 3.1 N·m (0.32 kg-m, 27 in-lb)

#### **CAUTION:**

- When HID control unit is removed, reinstall it securely and avoid any looseness.
- After installing bulb, be sure to install plastic cap and bulb socket securely to insure watertightness

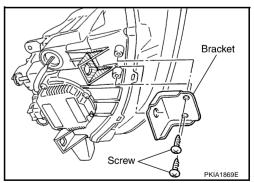
## Serving to Replace Headlamps When Damaged

If only installation part as shown in the figure is damaged, and headlamp housing itself is not damaged, repair can be completed easily by installing correction brackets.

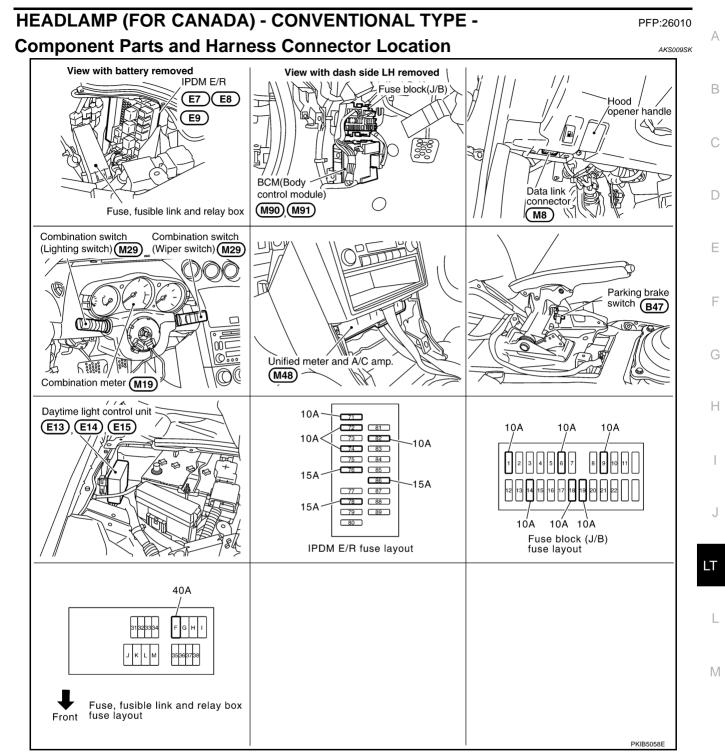


### INSTALLATION OF HEADLAMP BRACKET

- 1. Remove headlamps. Refer to <u>LT-105, "Removal and Installa-</u> tion".
- 2. Cut damaged section of installation part, then shape with sand-paper.
- 3. Attach each correction bracket to headlamp housing boss with 2 screws.



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## **System Description**

The headlamp system for Canada vehicles is equipped with a daytime light control unit that activates the high beam headlamps at approximately half illumination whenever the engine is running. If the parking brake is applied before the engine is started the daytime lights will not be illuminated. The daytime lights will illuminate once the parking brake is released. Thereafter, the daytime lights will continue to operate when the parking brake is applied.

And battery saver system is controlled by the BCM (body control module).

## OUTLINE

Power is supplied at all times

• to headlamp high relay, located in IPDM E/R (intelligent power distribution module engine room), and

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## HEADLAMP (FOR CANADA) - CONVENTIONAL TYPE -

- to headlamp low relay, located in IPDM E/R, from battery direct,
- through 15A fuse (No. 78, located in IPDM E/R)
- to CPU (central processing unit) located in IPDM E/R,
- through 40A fusible link (letter F, located in the fuse, fusible link and relay box)
- to BCM terminal 55,
- through 10A fuse [No.18, located in fuse block (J/B)]
- to BCM terminal 42,
- through 10A fuse (No. 71, located in IPDM E/R)
- to CPU located in IPDM E/R,
- through 10A fuse [No.19, located in fuse block (J/B)]
- to combination meter terminal 24.

With ignition switch in ON or START position, power is supplied

- to CPU located in IPDM E/R, from battery direct,
- through 10A fuse (No. 82, located in IPDM E/R)
- to daytime light control unit terminal 3,
- through 10A fuse [No. 1, located in fuse block (J/B)]
- to BCM terminal 38,
- through 10A fuse [No.14, located in fuse block (J/B)]
- to combination meter terminal 23.

With ignition switch in ACC or ON position, power is supplied

- through 10A fuse [No. 6, located in fuse block (J/B)]
- to BCM terminal 11.

With ignition switch in START position, power is supplied

- through 10A fuse [No. 9, located in fuse block (J/B)]
- to daytime light control unit terminal 2.

Ground is supplied

- to daytime light control unit terminal 16
- through groundsE17, E43 and F152,
- to IPDM E/R terminals 38 and 60
- through grounds E17, E43 and F152,
- to BCM terminal 52
- through grounds M30 and M66,
- to combination meter terminals 10, 11 and 12
- through grounds M30 and M66.

### **HEADLAMP OPERATION**

### Low Beam Operation

With the lighting switch in 2ND position, the BCM receives input signal requesting the headlamps to illuminate. This input signal is communicated to IPDM E/R across the CAN communication lines. The CPU located in the IPDM E/R controls the headlamp low relay coil, which when energized, directs power

- through 15A fuse (No. 76, located in IPDM E/R)
- through IPDM E/R terminal 20
- to front combination lamp RH terminal 6,
- through 15A fuse (No. 86, located in IPDM E/R)
- through IPDM E/R terminal 30,
- through daytime light control unit terminals 11 and 12
- to front combination lamp LH terminal 6.

### Ground is supplied

- to front combination lamp RH terminal 3
- through grounds E17, E43 and F152,

to front combination lamp LH terminal 3	
<ul> <li>through daytime light control unit terminal 9</li> </ul>	А
<ul> <li>to daytime light control unit terminal 14</li> </ul>	/ \
<ul> <li>through grounds E17, E43 and F152.</li> </ul>	
	В
With power and ground supplied, low beam headlamps illuminate.	
High Beam Operation (When Daytime Light Does Not Operate) /Flash-to-Pass Operation	
With the lighting switch in 2ND position and placed in HIGH or PASS position, the BCM receives input signal requesting headlamp high beams to illuminate. High beam request signal is communicated to the IPDM E/R across the CAN communication lines. The CPU located in the IPDM E/R controls headlamp high relay coil turned ON, which when energized, directs power.	С
<ul> <li>through 10 A fuse (No. 74, located in IPDM E/R)</li> </ul>	D
through IPDM E/R terminal 28	
<ul> <li>through daytime light control unit terminals 4 and 7</li> </ul>	Е
to front combination lamp LH terminal 2,	
through 10 A fuse (No. 72, located in IPDM E/R)	
through IPDM E/R terminal 27	F
<ul> <li>through daytime light control unit terminals 5 and 6</li> </ul>	
to front combination lamp RH terminal 2.	
Ground is supplied	G
to front combination lamp LH terminal 3	
<ul> <li>through daytime light control unit terminals 9 and 14</li> </ul>	Н
<ul> <li>through grounds E17, E43 and F152,</li> </ul>	П
to front combination lamp RH terminal 3	
<ul> <li>through grounds E17, E43 and F152.</li> </ul>	I
With the power and ground supplied, the high beam headlamps illuminate. Unified meter and A/C amp. receives signal from BCM across CAN communication lines, and then combina- tion meter indicator illuminates high beam.	J
DAYTIME LIGHT OPERATION	
With the engine running, lighting switch in the OFF or 1ST position and parking brake released, power is supplied.	LT
<ul> <li>through daytime light control unit terminal 7</li> </ul>	
to front combination lamp LH terminal 2,	
through front combination lamp LH terminal 3	L
<ul> <li>through daytime light control unit terminal 9 and 6</li> </ul>	
to front combination lamp RH terminal 2.	5.4
Ground is supplied	M
to front combination lamp RH terminal 3	
<ul> <li>through grounds E17, E43 and F152.</li> </ul>	
Because the high beam headlamps are now wired in series, they operate at half illumination.	

If the lighting switch is in the 2ND position, daytime light operation is canceled.

#### **OPERATION**

After starting engine with lighting switch in the OFF or 1ST position, headlamp high beam automatically turns on. Lighting switch operations other than the above are the same as conventional light systems.

Eng	Engine		With engine stopped					With engine running											
Lighting switch		OFF		1ST 2ND		OFF			1ST 2NE		2ND	1D							
		Hi	Lo	Ρ	Hi	Lo	Ρ	Hi	Lo	Ρ	Hi	Lo	Ρ	Hi	Lo	Ρ	Hi	Lo	Ρ
Head- lamp Low	High beam	_	-	-	_	-	×	×	-	×	•*	•*	×	•*	•*	×	×	_	×
	Low beam	_	-	I	_	I	×	×	×	×	_	-	×	-	-	×	×	×	×
Tail lamp		_	_	I	×	×	×	×	×	×	_	_	-	×	×	×	×	×	×
License ar ment illum lamp		_	_	-	×	×	×	×	×	×	_	_	_	×	×	×	×	×	×

- Hi: "HIGH BEAM" position
- Lo: "LOW BEAM" position
- P: "FLASH TO PASS" position
- ×: Lamp "ON"
- –: Lamp "OFF"
- •: Lamp dims. (Added functions)
- \*: When starting engine with parking brake released, daytime light will come ON. When starting engine with parking brake pulled, daytime light will not come ON.

#### COMBINATION SWITCH READING FUNCTION

Refer to BCS-3, "COMBINATION SWITCH READING FUNCTION" .

#### **EXTERIOR LAMP BATTERY SAVER CONTROL**

When the combination switch (lighting switch) is in the 2ND position (ON), and the ignition switch is turned from ON or ACC to OFF, the battery saver control function is activated.

Under this condition, the headlamps remain illuminated for 5 minutes, then the headlamps are turned off. Exterior lamp battery saver control mode can be changed by the function setting of CONSULT-II.

#### **REMOTE KEYLESS ENTRY SYSTEM OPERATION**

Refer to BL-62, "REMOTE KEYLESS ENTRY SYSTEM" .

### **VEHICLE SECURITY SYSTEM**

The vehicle security system will flash the high beams if the system is triggered. Refer to <u>BL-134</u>, <u>"VEHICLE</u> <u>SECURITY (THEFT WARNING) SYSTEM"</u>.

### **CAN Communication System Description**

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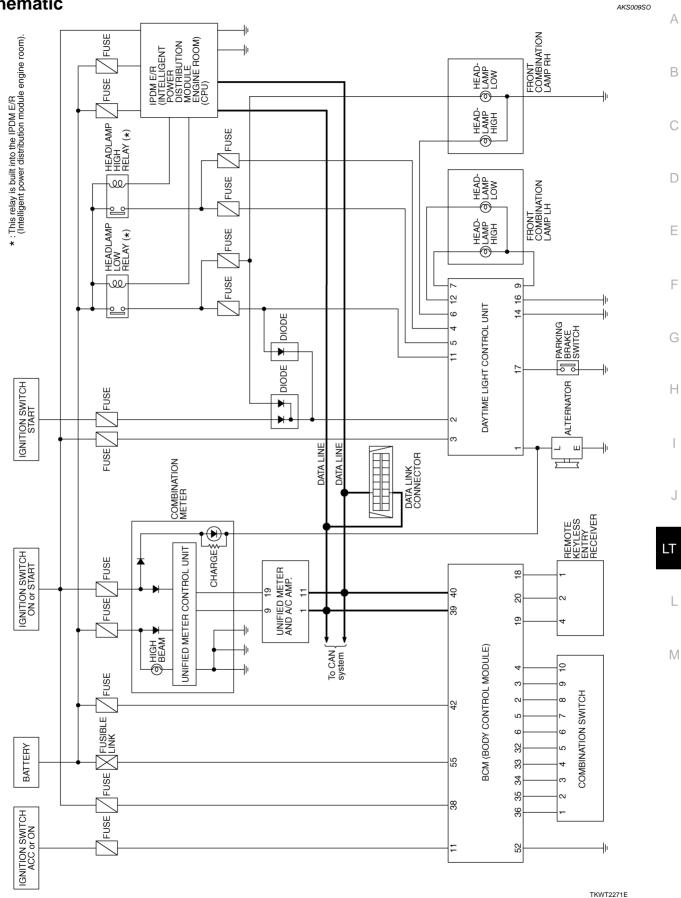
AKS009SN

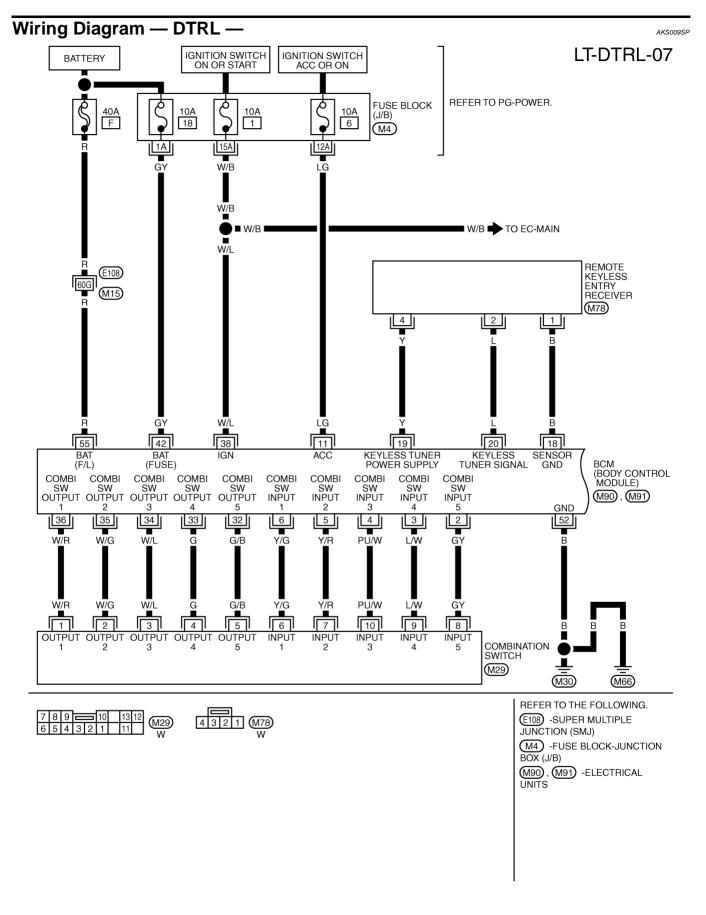
CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN H line, CAN L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

## **CAN Communication Unit**

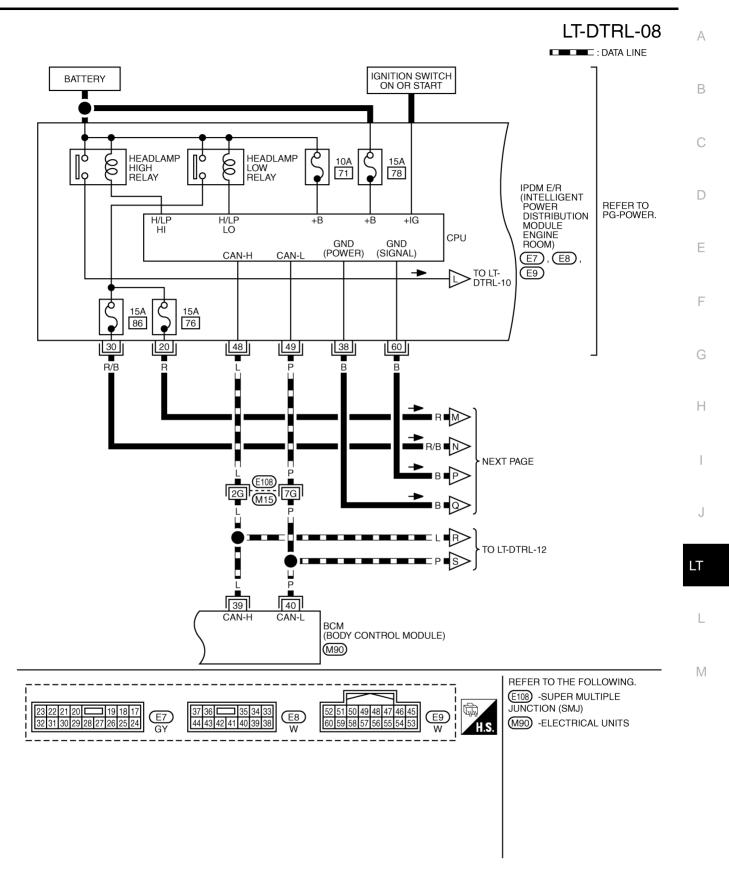
Refer to LAN-21, "CAN Communication Unit" .



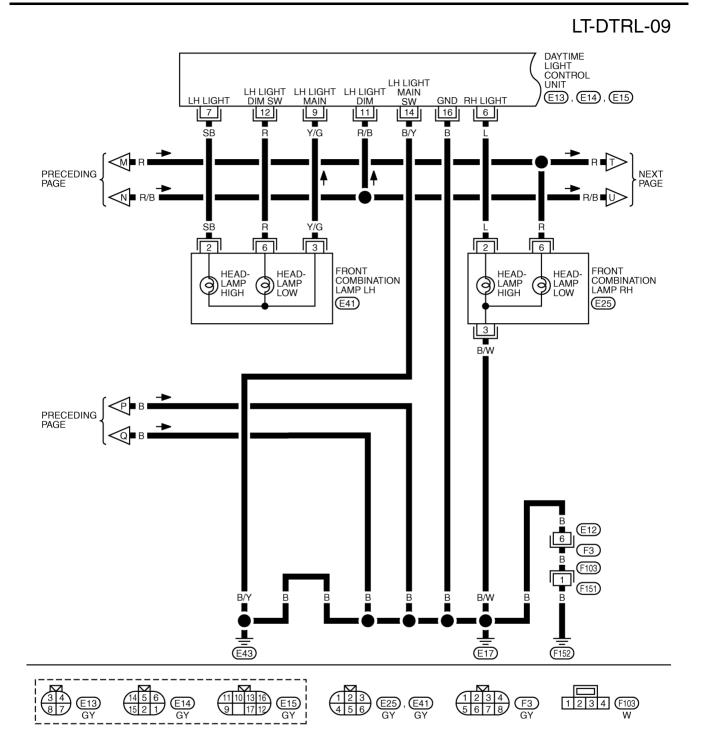




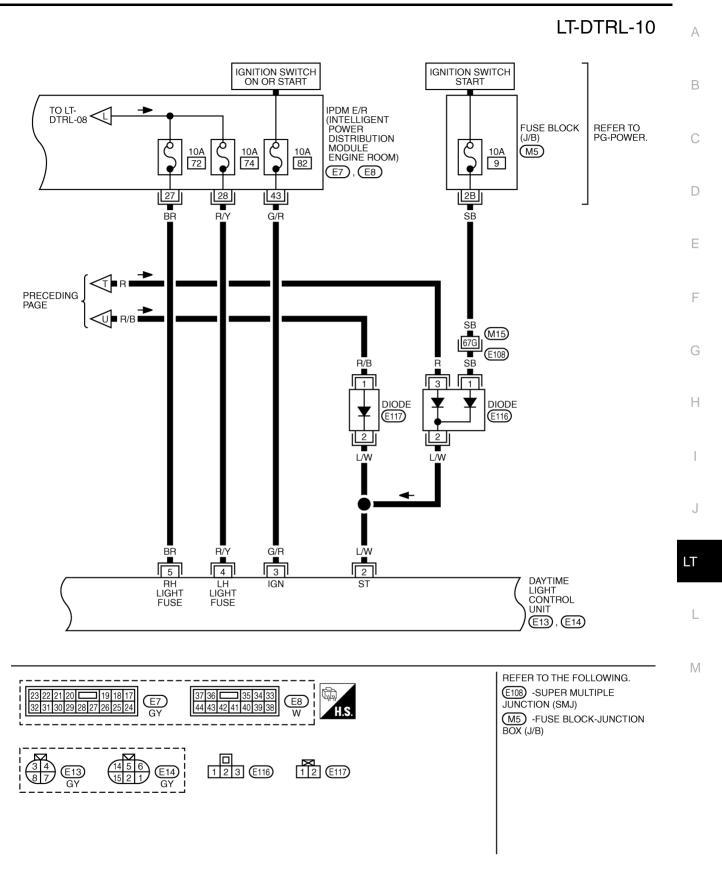
TKWT2272E



TKWT2273E

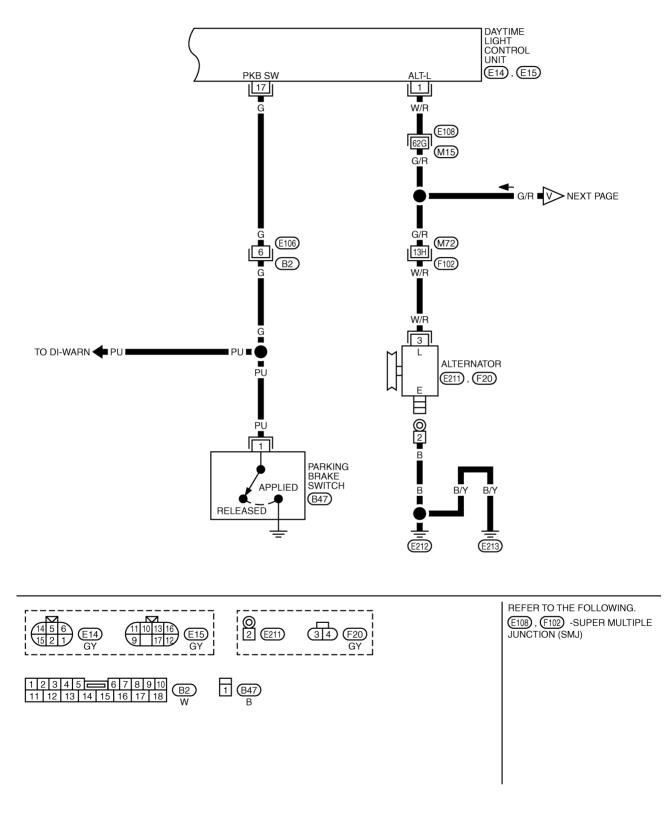


TKWT2274E

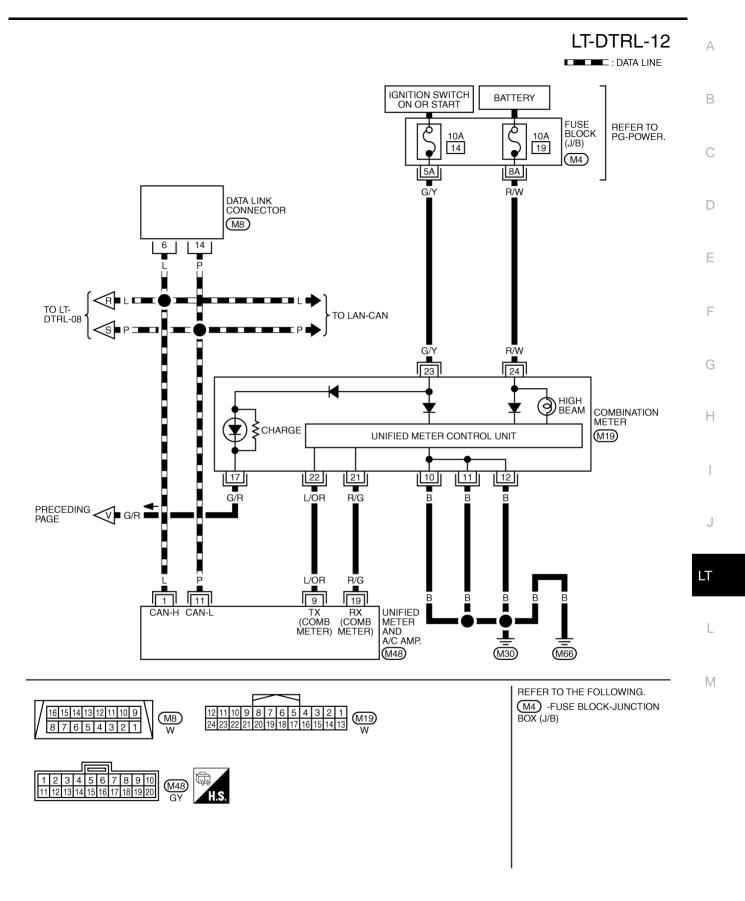


TKWT2275E

## LT-DTRL-11



TKWT2276E



TKWT2277E

## Terminals and Reference Values for BCM

AKS00AQE

Townsings	10/5==			Measuring condition	
Terminal No.	Wire color	Signal name	Ignition switch	Operation or condition	Reference value
2	GY	Combination switch input 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 •••5ms SKIA5291E
3	L/W	Combination switch input 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 4 2 0 • • 5ms SKIA5292E
4	PU/W	Combination switch input 3	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 + + 5ms SKIA5291E
5	Y/R	Combination switch input 2			(V)
6	Y/G	Combination switch input 1	ON	Lighting, turn, wiper OFF Wiper dial position 4	€ 4 2 0 •••5ms SKIA5292E
11	LG	Ignition switch (ACC)	ACC	_	Battery voltage
32	G/B	Combination switch output 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 + 5ms SKIA5291E
33	G	Combination switch output 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 4 2 0 ••5ms SKIA5292E
34	W/L	Combination switch output 3	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 •••5ms SKIA5291E

Terminal	Wire			Measuring condition		
No. color	Signal name	Ignition switch	Operation or condition	Reference value		
35	W/G	Combination switch output 2				-
36	W/R	Combination switch output 1	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 4 2 0 + 5ms SKIA5292E	
38	W/L	Ignition switch (ON)	ON	_	Battery voltage	-
39	L	CAN– H	_	_	_	-
40	Р	CAN– L	_	_	_	-
42	GY	Battery power supply	OFF	_	Battery voltage	-
52	В	Ground	ON	—	Approx. 0V	-
55	R	Battery power supply	OFF	_	Battery voltage	-

## Terminals and Reference Values for IPDM E/R

		Measuring condition			\\/iro	Terminal Wire	
Reference value	lition	Operation or conc	Signal name	color			
 Approx. 0V	OFF	Lighting switch 2ND	ON	Headlamp low (RH)	R	20 R	
 Battery voltage	ON	position	ON		ĸ	20	
 Approx. 0V	OFF	Lighting switch HIGH		Llaadlama hish (DLI)	BR	27	
 Battery voltage	ON	or PASS position	ON	Headlamp high (RH)	R Headlamp high (RH)	ВК	21
 Approx. 0V	OFF	Lighting switch HIGH	Lighting switch HIGF		DA	00	
 Battery voltage	ON	or PASS position	ON	Headlamp high (LH)	R/Y	28	
 Approx. 0V	OFF	Lighting switch 2ND	ON		R/B	30	
Battery voltage	ON	position	ON	Headlamp low (LH)	R/B	30	
 Approx. 0V			ON	Ground	В	38	
Battery voltage		_	ON	Ignition power supply	G/R	43	
 —			—	CAN– H	L	48	
 _			_	CAN– L	Р	49	
 Approx. 0V		_	ON	Ground	В	60	

AKS009T8

### Terminals and Reference Values for Daytime Light Control Unit

Terminal No.	Wire color	Item	Condition	Reference value
			When turning ignition switch to "ON"	Approx. 0V
1	W/R	Alternator	When engine is running	Battery voltage
			When turning ignition switch to "OFF"	Approx. 0V
			When turning ignition switch to "START"	Battery voltage
2	L/W	Start signal	When turning ignition switch to "ON" from "START"	Approx. 0V
			When turning ignition switch to "OFF"	Approx. 0V
3	G/R	Ignition power supply	When turning ignition switch to "ON"	Battery voltage
4	R/Y	Lighting switch (LH hi beam)	When turning lighting switch to "HI BEAM"	Battery voltage
5	BR	Lighting switch (RH hi beam)	When turning lighting switch to "HI BEAM"	Battery voltage
			When lighting switch is turned to the 2ND position with "HI BEAM" or "FLASH TO PASS" position	Battery voltage
6 L	RH hi beam	When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation) CAUTION: Block wheels and ensure selector lever is in N or P position.	Approx. 6V	
			When lighting switch is turned to the 2ND position with "HI BEAM" or "FLASH TO PASS" position	Battery voltage
7 SB LH hi beam		LH hi beam	When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation) CAUTION: Block wheels and ensure selector lever is in N or P position.	Battery voltage
			When turning lighting switch to the 2ND position with "HI BEAM" or "FLASH TO PASS" position	Approx. 0V
9 Y/G LH hi/low beam (ground)	9 Y/(-j	LH hi/low beam (ground)	When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation) CAUTION: Block wheels and ensure selector lever is in N or P position.	Approx. 6V
11	R/B	Lighting switch (LH low beam)	When turning lighting switch to "LOW BEAM"	Battery voltage
12	R	LH Low beam	When turning lighting switch to "LOW BEAM"	Battery voltage
14	B/Y	Ground		_
16	В	Ground	-	—
17	<u> </u>	Darking broke switch	When parking brake is released	Battery voltage
17	G	Parking brake switch	When parking brake is applied	Approx. 0V

## How to Proceed with Trouble Diagnosis

AKS009SR

- 1. Confirm the symptom or customer complaint.
- 2. Understand operation description and function description. Refer to LT-107, "System Description" .
- 3. Perform the preliminary check. Refer to LT-121, "Preliminary Check" .
- 4. Check symptom and repair or replace the cause of malfunction.
- 5. Does headlamp operate normally? If YES, GO TO 6. If NO, GO TO 4.
- 6. INSPECTION END

### **Preliminary Check** CHECK POWER SUPPLY AND GROUND CIRCUIT

### 1. CHECK FUSES

#### Check for blown fuses.

UNIT	POWER SOURCE	Fuse and fusible link No.		
	Detter	F		
BCM	Battery	18		
	Ignition switch ON or START position	1		
	Ignition switch ACC or ON position	6		
		72		
	Detter	74		
IPDM E/R	Battery	76		
		86		
	Ignition switch ON or START position	82		
DAYTIME LIGHT CONTROL UNIT	Ignition switch START position	9		

Refer to LT-112, "Wiring Diagram — DTRL —".

#### OK or NG

OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-Н 3, "POWER SUPPLY ROUTING CIRCUIT" .

## 2. CHECK POWER SUPPLY CIRCUIT

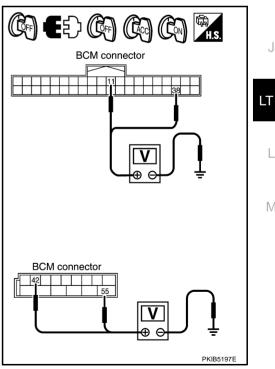
- Turn ignition switch OFF. 1.
- 2. Disconnect BCM connectors.
- 3. Check voltage between BCM harness connector and ground.

	Terminal		Ignition switch position			
	(+)					
Connector	Terminal (Wire color)	(-)	OFF	ACC	ON	
M90	11 (LG)		Approx. 0V	Battery voltage	Battery voltage	
10190	38 (W/L)	Ground	Approx. 0V	Approx. 0V	Battery voltage	
M91	42 (GY)	Ground	Battery voltage	Battery voltage	Battery voltage	
10191	55 (R)		Battery voltage	Battery voltage	Battery voltage	

#### OK or NG

OK >> GO TO 3.

NG >> Check harness for open or short between BCM and fuse.



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## 3. CHECK GROUND CIRCUIT

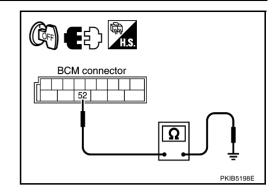
Check continuity between BCM harness connector and ground.

	Continuity		
Connector	Terminal (Wire color)	Ground	Continuity
M91	52 (B)	Ground	Yes

OK or NG

OK >> INSPECTION END

NG >> Check ground circuit harness.



## **CONSULT-II Functions (BCM)**

CONSULT-II can display each diagnostic item using the diagnostic test mode shown following.

BCM diagnosis part	Diagnosis mode	Description			
	WORK SUPPORT	Changes the setting for each function.			
HEADLAMP	DATA MONITOR	Displays BCM input data in real time.			
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.			
BCM	SELF-DIAG RESULTS	BCM performs self-diagnosis of CAN communication.	С		
BCIM	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.			

#### **CONSULT-II BASIC OPERATION**

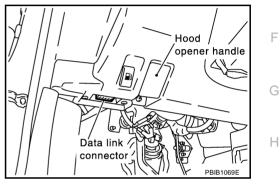
#### **CAUTION:**

2.

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If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

With ignition switch OFF, connect CONSULT-II and CONSULT-II 1. CONVERTER to data link connector, then turn ignition switch ON.



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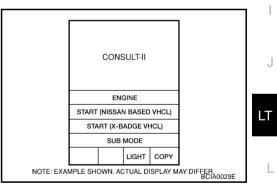
А

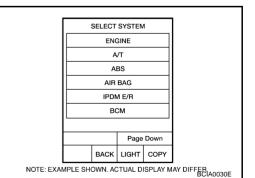
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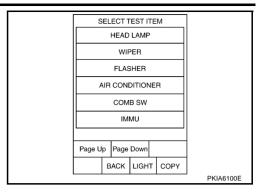




3. Touch "BCM" on "SELECT SYSTEM" screen. If "BCM" is not displayed, print "SELECT SYSTEM" screen, then refer to GI-39, "CONSULT-II Data Link Connector (DLC) Circuit"

Touch "START (NISSAN BASED VHCL)".

#### 4. Touch "HEAD LAMP" on "SELECT TEST ITEM" screen.



#### WORK SUPPORT

#### **Operation Procedure**

- 1. Touch "HEAD LAMP" on "SELECT TEST ITEM" screen.
- 2. Touch "WORK SUPPORT" on "SELECT DIAG MODE" screen.
- 3. Touch "BATTERY SAVER SET" on "SELECT WORK ITEM" screen.
- 4. Touch "START".
- 5. Touch "CHANGE SET".
- 6. The setting will be changed and "CUSTOMIZING COMPLETED" will be displayed.
- 7. Touch "END".

#### **Display Item List**

Item	Description	CONSULT-II	Factory setting
BATTERY SAVER SET	Exterior lamp battery saver control mode can be changed in this mode.	ON	×
	elects exterior lamp battery saver control mode between two ON/OFF.	OFF	_

#### DATA MONITOR

#### **Operation Procedure**

- 1. Touch "HEAD LAMP" on "SELECT TEST ITEM" screen.
- 2. Touch "DATA MONITOR" on "SELECT DIAG MODE" screen.
- 3. Touch either "ALL SIGNALS" or "SELECTION FROM MENU" on "SELECT MONITOR ITEM" screen.

ALL SIGNALS	Monitors all the signals.
SELECTION FROM MENU	Selects items and monitor them.

- 4. When "SELECTION FROM MENU" is selected, touch individual items to be monitored. When "ALL SIG-NALS" is selected, all the items will be monitored.
- 5. Touch "START".
- 6. Touch "RECORD" while monitoring, then the status of the monitored item can be recorded. To stop recording, touch" STOP".

#### **Display Item List**

Monitor ite	em	Contents				
IGN ON SW	"ON/OFF"	Displays "IGN position (ON)/OFF, ACC position (OFF)" judged from the ignition switch signal.				
ACC ON SW	"ON/OFF"	Displays "ACC (ON)/OFF, Ignition OFF (OFF)" status judged from ignition switch signal.				
HI BEAM SW	"ON/OFF"	Displays status (high beam switch: ON/Others: OFF) of high beam switch judged from lighting switch signal.				
HEAD LAMP SW 1	"ON/OFF"	Displays status (headlamp switch 1: ON/Others: OFF) of headlamp switch 1 judged from light- ing switch signal.				
HEAD LAMP SW 2	"ON/OFF"	Displays status (headlamp switch 2: ON/Others: OFF) of headlamp switch 2 judged from light- ing switch signal.				
LIGHT SW 1 ST	"ON/OFF"	Displays status (lighting switch 1ST or 2ND position: ON/Others: OFF) of lighting switch judged from lighting switch signal.				

Monitor item		Contents				
PASSING SW	"ON/OFF"	Displays status (flash-to-pass switch: ON/Others: OFF) of flash-to-pass switch judged from lighting switch signal.				
FR FOG SW NOTE	"ON/OFF"	_				
DOOR SW - DR	"ON/OFF"	Displays status of the driver door as judged from the driver door switch signal. (Door is open: ON/Door is closed: OFF)				
DOOR SW - AS	"ON/OFF"	isplays status of the passenger door as judged from the passenger door switch signal. ( s open: ON/Door is closed: OFF)				
DOOR SW - RR NOTE	"OFF"	_				
DOOR SW - RL NOTE	"OFF"	_				
BACK DOOR SW	"ON/OFF"	<ul> <li>Displays status of the back door as judged from the back door switch signal. (Coupe models)</li> <li>Displays status of the rear trunk hood as judged from the trunk lamp switch signal. (Roadster models)</li> </ul>				
TURN SIGNAL R	"ON/OFF"	Displays status (Turn right: ON/Others: OFF) as judged from lighting switch signal.				
TURN SIGNAL L	"ON/OFF"	Displays status (Turn left: ON/Others: OFF) as judged from lighting switch signal.				
CARGO LAMP SW NOTE	"OFF"	_				

#### NOTE:

This item is displayed, but cannot be monitored.

### **ACTIVE TEST**

#### **Operation Procedure**

- 1. Touch "HEAD LAMP" on "SELECT TEST ITEM" screen.
- 2. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 3. Touch item to be tested and check operation of the selected item.
- 4. During the operation check, touching "BACK" deactivates the operation.

#### **Display Item List**

Test item	Description	
TAIL LAMP	Allows tail lamp relay to operate by switching ON–OFF.	IΤ
HEAD LAMP	Allows headlamp relay to operate by switching ON–OFF.	
FR FOG LAMP <sup>NOTE</sup>	_	
CORNERING LAMP <sup>NOTE</sup>	_	L

#### NOTE:

This item is displayed, but cannot be tested.

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## **CONSULT-II Functions (IPDM E/R)**

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CONSULT-II can display each diagnostic item using the diagnostic test mode shown following.

Check Item, Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	Refer to PG-19, "SELF-DIAG RESULTS".
DATA MONITOR	The input/output data of IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE TEST	IPDM E/R sends a drive signal to electronic components to check their operation.

## CONSULT-II BASIC OPERATION

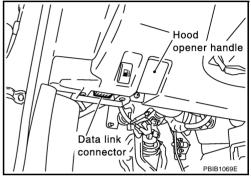
Touch "START (NISSAN BASED VHCL)".

### CAUTION:

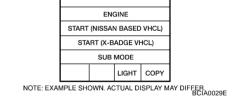
2.

If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

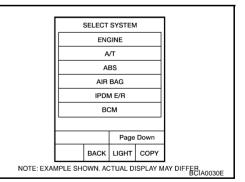
 With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



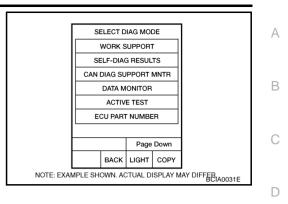
CONSULT-II ENGINE



 Touch "IPDM E/R" on "SELECT SYSTEM" screen. If "IPDM E/R" is not displayed, print "SELECT SYSTEM" screen, then refer to <u>GI-39</u>, "CONSULT-II Data Link Connector (DLC) <u>Circuit"</u>.



4. Select the desired part to be diagnosed on "SELECT DIAG MODE" screen.



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## DATA MONITOR

#### **Operation Procedure**

- 1. Touch "DATA MONITOR" on "SELECT DIAG MODE " screen.
- 2. Touch "ALL SIGNALS", "MAIN SIGNALS" or "SELECTION FROM MENU" on "SELECT MONITOR ITEM" screen.

ALL SIGNALS	Monitors all the signal.
MAIN SIGNALS	Monitor the predetermined item.
SELECTION FROM MENU	Selects items and monitors them.

- 3. Touch the required monitoring item on "SELECTION FROM MENU". In "ALL SIGNALS", all items are monitored. In "MAIN SIGNALS", predetermined items are monitored.
- 4. Touch "START".
- 5. Touch "RECORD" while monitoring to record the status of the item being monitored. To stop recording, touch "STOP".

### All Signals, Main Signals, Selection From Menu

			Mo	onitor item se	lection		
Item name	CONSULT-II screen display	Display or unit	ALL SIGNALS	MAIN SIGNALS SELECTIO FROM MENU		Description	J
Position lights request	TAIL&CLR REQ	ON/OFF	×	×	×	Signal status input from BCM	
Headlamp low beam request	HL LO REQ	ON/OFF	×	×	×	Signal status input from BCM	LT
Headlamp high beam request	HL HI REQ	ON/OFF	×	×	×	Signal status input from BCM	

#### NOTE:

Perform monitoring of IPDM E/R data with ignition switch ON. When ignition switch is at ACC, the display may not be correct.

### ACTIVE TEST

### **Operation Procedure**

- 1. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Touch item to be tested, and check operation.
- 3. Touch "START".
- 4. Touch "STOP" while testing to stop the operation.

Test item	CONSULT-II screen display	Description
Tail lamp relay output	TAIL LAMP	Allows tail lamp relay to operate by switching operation ON-OFF at your option.
Headlamp relay (HI, LO) output	LAMPS	Allows headlamp relay (HI, LO) to operate by switching operation (OFF, HI ON, LO ON) at your option (Headlamp high beam repeats ON– OFF every 1 second).

## Daytime Light Control Does Not Operate Properly

### 1. CHECK DAYTIME LIGHT CONTROL UNIT

- 1. Turn ignition switch OFF.
- 2. Disconnect daytime light control unit connector.
- 3. Turn ignition switch ON.
- 4. Check voltage between daytime light control unit harness connector E13 terminal 3 (G/R) and ground.

#### 3 (G/R) – Ground : Battery voltage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair daytime light control unit power supply circuit harness or connector.

## 2. CHECK FOR DAYTIME LIGHT CONTROL UNIT GROUND

1. Check continuity between daytime light control unit harness connector E14 terminal 14 (B/Y) and ground.

#### 14 (B/Y) - Ground : Continuity should exist.

2. Check continuity between daytime light control unit harness connector E15 terminal 16 (B) and ground.

#### 16 (B) - Ground : Continuity should exist.

#### OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

## 3. CHECK PARKING BRAKE SWITCH CIRCUIT

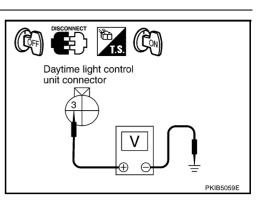
- 1. Turn ignition switch OFF.
- Disconnect daytime light control unit connector and parking brake switch connector.
- 3. Check harness continuity between daytime light control unit harness connector E15 terminal 17 (G) and parking brake switch harness connector B47 terminal 1 (PU).

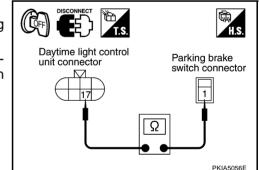
#### 17 (G) – 1 (PU)

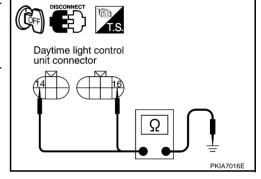
#### : Continuity should exist.

#### OK or NG

- OK >> GO TO 4.
- NG >> Repair harness or connector.









## 4. CHECK PARKING BRAKE SWITCH

- 1. Connect daytime light control unit connector and parking brake switch connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between parking brake switch harness connector B47 terminal 1 (PU) and ground, when parking brake is released.

1 (PU) – Ground : Battery voltage.

4. Check voltage between parking brake switch harness connector B47 terminal 1(PU) and ground, when parking brake is applied.

## 1 (PU) – Ground : Approx. 0V

### OK or NG

OK >> GO TO 5.

NG >> Replace parking brake switch.

## 5. CHECK ALTERNATOR CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect daytime light control unit connector.
- 3. Start engine running.
- 4. Check voltage between daytime light control unit harness connector E14 terminal 1 (W/R) and ground.

### 1 (W/R) – Ground : Battery voltage.

### OK or NG

OK >> GO TO 6.

NG >> Repair harness or connector.

## 6. CHECK DAYTIME LIGHT CONTROL UNIT CIRCUIT

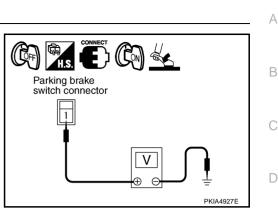
- 1. Turn ignition switch OFF.
- 2. Disconnect daytime light control unit connector and front combination lamp LH connector.
- 3. Check continuity between daytime light control harness connector E13 terminal 7 (SB) and front combination lamp LH harness connector E41 terminal 2 (SB).

### 7 (SB) – 2 (SB)

: Continuity should exist.

### OK or NG

- OK >> GO TO 7.
- NG >> Repair harness or connector.

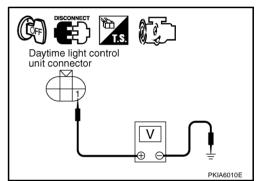


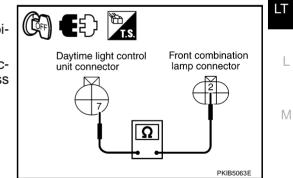
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### 7. CHECK DAYTIME LIGHT CONTROL UNIT CIRCUIT

- 1. Disconnect daytime light control unit connector.
- 2. Check continuity between daytime light control harness connector E15 terminal 9 (Y/G) and front combination lamp LH harness connector E41 terminal 3 (Y/G).

9(Y/G) - 3(Y/G)

: Continuity should exist.

OK or NG

OK >> GO TO 8.

NG >> Repair harness or connector.

## 8. CHECK DAYTIME LIGHT CONTROL UNIT CIRCUIT

- Disconnect daytime light control unit connector and front combi-1. nation lamp RH connector.
- Check continuity between daytime light control unit harness con-2. nector E14 terminal 6 (L) and front combination lamp RH harness connector E25 terminal 2 (L).

#### 6(L) - 2(L)

#### : Continuity should exist.

#### OK or NG

OK >> GO TO 9.

NG >> Repair harness or connector.

### 9. CHECK DAYTIME LIGHT CONTROL UNIT

- 1. Connect daytime light control unit connector.
- 2. Check voltage between front combination lamp LH harness connector E41 terminal 2 (SB) and ground, when releasing parking brake with engine running and turning lighting switch to "OFF".

#### 2 (SB) – Ground : Battery voltage.

#### OK or NG

- OK >> • Check connector for connection, bend and loose fit and repair.
  - Check headlamp bulb.
- NG >> Replace daytime light control unit.

## Headlamp High Beam Does Not Illuminate (Both Sides)

## **1. CHECK COMBINATION SWITCH INPUT SIGNAL**

### (P)With CONSULT-II

Select "BCM" on CONSULT-II, With "HEAD LAMP" data monitor, make sure "HI BEAM SW" turns ON-OFF linked with operation of lighting switch.

> When lighting switch is : HI BEAM SW ON **HIGH BEAM position**

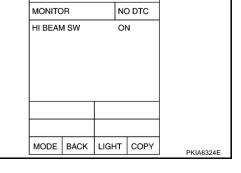
Without CONSULT-II

Refer to LT-173, "Combination Switch Inspection" .

### OK or NG

- OK >> GO TO 2.
- NG >> Check combination switch (lighting switch). Refer to LT-173, "Combination Switch Inspection".

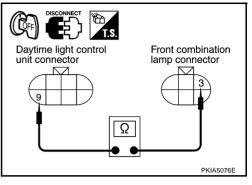
## LT-130



DATA MONITOR

ED 🔀 🕼	
Front combination lamp connector	

Ω



Front combination

PKIA5074E

AKS00ATA

lamp connector

Daytime light control

unit connector

## 2. HEADLAMP ACTIVE TEST

#### ()With CONSULT-II

- Select "IPDM E/R" on CONSULT-II, and select "ACTIVE TEST" 1. on "SELECT DIAG MODE" screen.
- Select "LAMPS" on "SELECT TEST ITEM" screen. 2.
- 3. Touch "HI" screen.
- 4. Make sure headlamp high beam operation.

Headlamp high beam should operate. (Headlamp high beam repeats ON-OFF every 1 second).

#### Without CONSULT-II

- 1. Start auto active test. Refer to PG-22, "Auto Active Test" .
- 2. Make sure headlamp high beam operation.

#### Headlamp high beam should operate.

#### OK or NG

OK >> GO TO 3. NG >> GO TO 4.

## 3. CHECK IPDM E/R

1.	Select "IPDM E/R" on CONSULT-II, and select "DATA MONI- TOR" on "SELECT DIAG MODE" screen.	DATA M MONITOR	ONITOR		Н
2.	Make sure "HL LO REQ" and "HL HI REQ" turns ON when light- ing switch is in HIGH BEAM position.	HL LO REQ HL HI REQ	ON ON		I
	When lighting switch is: HL LO REQ ONHIGH BEAM position: HL HI REQ ON				I
OK	or NG				J
0	K >> Replace IPDM E/R.		Page Down		
Ň			RECORD		
IN	tion of BCM".	MODE BACK	LIGHT COPY	SKIA5775E	LT

L	AMPS			ACTIVE TEST						
	LAMPS			C	DFF					В
										С
										-
-				н						_
F	LC	<u>,                                     </u>		FO						D
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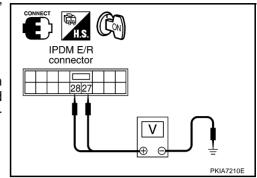
G

### 4. CHECK IPDM E/R INPUT SIGNAL

#### With CONSULT-II

- 1. Select "IPDM E/R" on CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Select "LAMPS" on "SELECT TEST ITEM" screen.
- 3. Touch "HI" screen.
- When headlamp high beam is operating, check voltage between front combination lamp RH and LH harness connector and ground (Headlamp high beam repeats ON–OFF every 1 second).

	(+)	(-)	Voltage
Connector	Terminal (Wire color)	(-)	
F7	27 (BR)	Ground	Battery voltage
	28 (R/Y)	Ground	ballery vollage



#### Without CONSULT-II

- 1. Start auto active test. Refer to PG-22, "Auto Active Test" .
- 2. When headlamp high beam is operating, check voltage between front combination lamp RH and LH harness connector and ground.

	(+)	(-)	Voltage
Connector	Terminal (Wire color)	(-)	
E7	27 (BR)	Ground	Battery voltage
	28 (R/Y)	Giouna	

#### OK or NG

OK >> GO TO 5.

NG >> Replace IPDM E/R.

### 5. CHECK IPDM E/R CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- Check harness continuity IPDM E/R harness connector E7 terminal 28 (R/Y) and daytime light control unit harness connector E13 terminal 4 (R/Y).

#### 28 (R/Y) - 4 (R/Y)

#### : Continuity should exist.

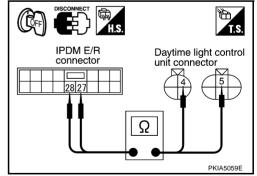
 Check harness continuity IPDM E/R harness connector E7 terminal 27 (BR) daytime light control unit harness connector E14 terminal 5 (BR).

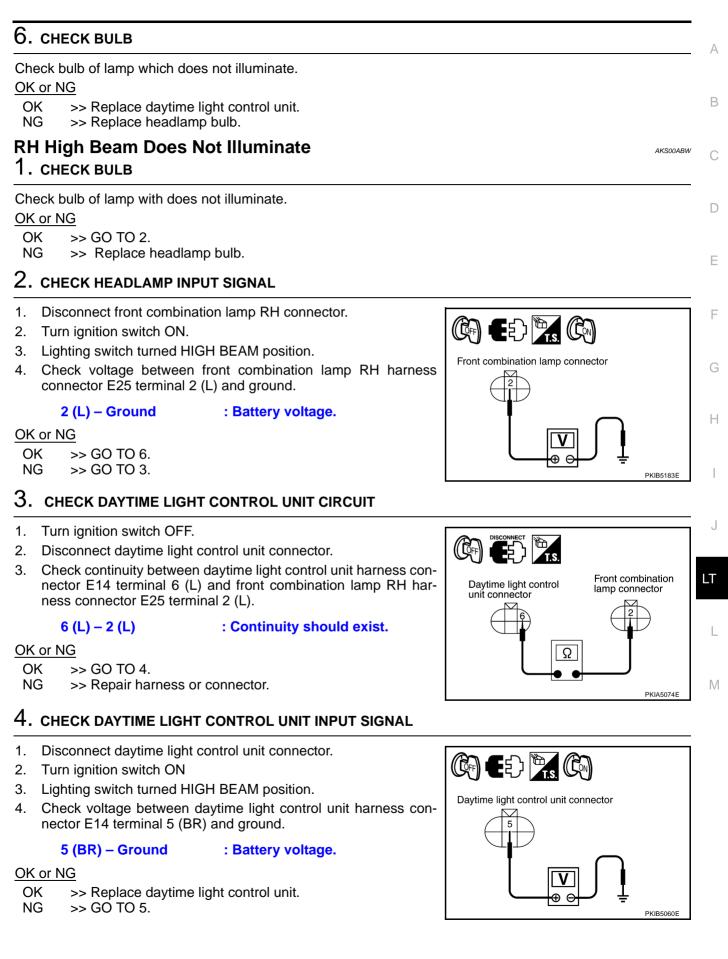
#### 27 (BR) – 5 (BR)

: Continuity should exist.

#### OK or NG

- OK >> GO TO 6.
- NG >> Repair harness or connector.





## 5. CHECK IPDM E/R CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- Check harness continuity IPDM E/R harness connector E7 terminal 27 (BR) daytime light control unit harness connector E14 terminal 5 (BR).

#### 27 (BR) – 5 (BR)



#### OK or NG

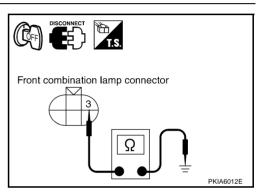
- OK >> Replace IPDM E/R.
- NG >> Repair harness or connector.

### 6. CHECK HEADLAMP GROUND

# Check continuity between front combination lamp RH harness connector E25 terminal 3 (B/W) and ground. **3 (B/W) – Ground** : Continuity should exist.

#### OK or NG

- OK >> Check headlamp harness and connector.
- NG >> Repair harness or connector.



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IPDM E/R

connector

ТŚ

PKIA7199E

AKS00ABX

Daytime light control

unit connector

## LH High Beam Does Not Illuminate

### 1. CHECK BULB

Check bulb of lamp which does not illuminate.

OK or NG

- OK >> GO TO 2.
- NG >> Replace bulb of lamp.

## 2. CHECK HEADLAMP INPUT SIGNAL

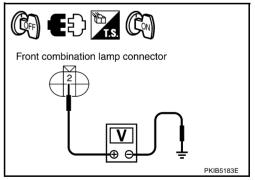
- 1. Disconnect front combination lamp LH connector.
- 2. Turn ignition switch ON.
- 3. Lighting switch is turned 2ND position.
- 4. Check voltage between front combination lamp LH harness connector E41 terminal 2 (SB) and ground.

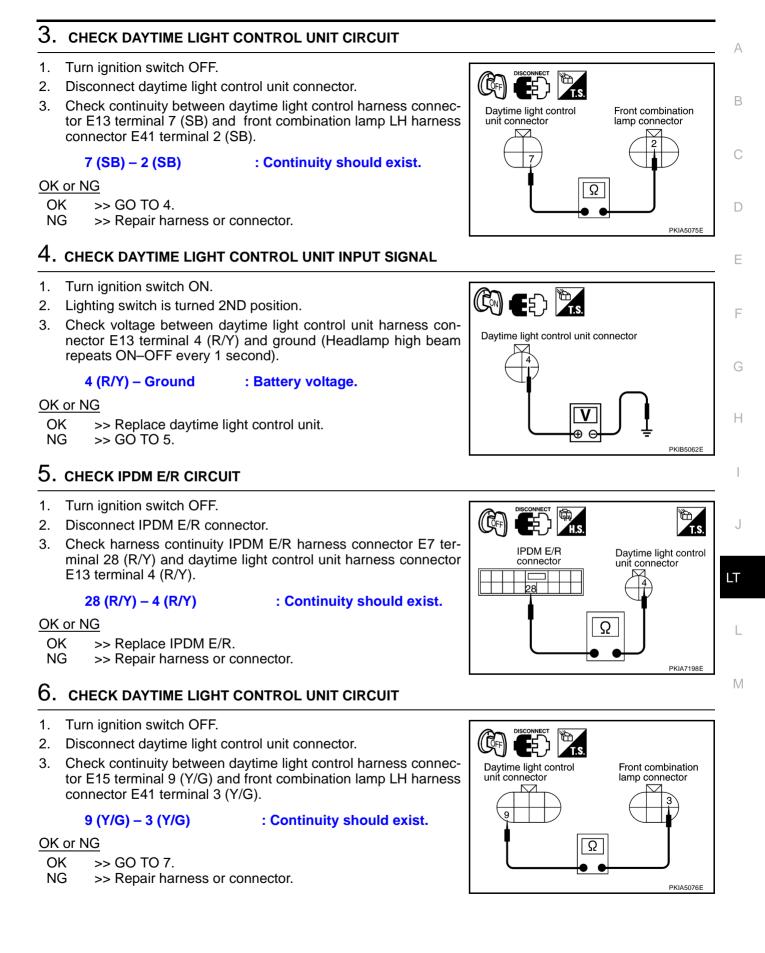
#### 2 (SB) – Ground

: Battery voltage.

#### OK or NG

OK	>> GO TO 6.
NG	>> GO TO 3.





### 7. CHECK DAYTIME LIGHT CONTROL UNIT AND GROUND

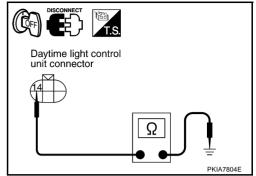
Check continuity between daytime light control unit harness connector E14 terminal 14 (B/Y) and ground.

14 (B/Y) – Ground

: Continuity should exist.

OK or NG

- OK >> Replace daytime light control unit.
- NG >> Repair harness or connector.



## Headlamp Low Beam Does Not Illuminate (Both Sides)

## **1. CHECK COMBINATION SWITCH INPUT SIGNAL**

#### With CONSULT-II

Select "BCM" on CONSULT-II. With "HEAD LAMP" data monitor, make sure "HEAD LAMP SW 1" and "HEAD LAMP SW 2" turns ON-OFF linked with operation of lighting switch.

When lighting switch is 2ND: HEAD LAMP SW 1 ONposition: HEAD LAMP SW 2 ON

#### Without CONSULT-II

Refer to LT-173, "Combination Switch Inspection" .

#### OK or NG

OK >> GO TO 2.

NG >> Check combination switch (lighting switch). Refer to <u>LT-173, "Combination Switch Inspection"</u>.

## 2. HEADLAMP ACTIVE TEST

#### (B)With CONSULT-II

- 1. Select "IPDM E/R" on CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Select "LAMPS" on "SELECT TEST" ITEM screen.
- 3. Touch "LO" screen.
- 4. Make sure headlamp low beam operation.

#### Headlamp low beam should operate.

#### Without CONSULT-II

- 1. Start auto active test. Refer to PG-22, "Auto Active Test" .
- 2. Make sure headlamp low beam operation.

#### Headlamp low beam should operate.

#### OK or NG

OK	>> GO TO 3.
NG	>> GO TO 4.

DATA MONITOR					
MONITOR			NC	DTC	
HEAD L	AMP SW	1	10	N	
HEAD L	AMP SW	2	10	N	
MODE	BACK	LIGH	т	COPY	PKIA6325E
MODE	DAUK	LIGH	1	COPT	PKIA6325E

ACTIVE TEST				
LAMPS			OFF	
		ŀ	H	
LO		F	DG	
	-			
MODE	BACK	LIGHT	COPY	SKIA5774E

AKS00ATB

AKS00A

## 3. CHECK IPDM E/R

		. A
1. Select "IPDM E/R" on CONSULT-II, and select "DATA MONI- TOR" on "SELECT DIAG MODE" screen.	DATA MONITOR MONITOR	
<ol> <li>Make sure "HL LO REQ" turns ON when lighting switch is in 2ND position.</li> </ol>	HL LO REQ ON	В
When lighting switch is 2ND position : HL LO REQ ON		С
OK or NG		
OK >> Replace IPDM E/R. NG >> Replace BCM. Refer to <u>BCS-18, "Removal and Installa-</u> tion of BCM".	Page Down RECORD MODE BACK LIGHT COPY	D
	SKIA5780E	1

## 4. CHECK IPDM E/R SIGNAL

#### With CONSULT-II

- Select "IPDM E/R" on CONSULT-II. and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Select "LAMPS" on "SELECT TEST ITEM" screen.
- 3. Touch "LO" screen.
- 4. When headlamp low beam is operating, check voltage between IPDM E/R and ground.

	(+)	(-)	Voltage
Connector	Terminal (wire color)	(-)	
F7	30 (R/B)	Ground	Battery voltage
L7	20 (R)	Ground	Dattery Voltage

#### F PDM E/R connector 20 20 U U U U U U C KIA4933E

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#### Without CONSULT-II

- 1. Start auto active test. Refer to PG-22, "Auto Active Test" .
- 2. When headlamp low beam is operating, check voltage between IPDM E/R and ground.

	()	Voltage	
Connector	Terminal (wire color)	(-)	
F7	30 (R/B)	Ground	Battery voltage
L7	20 (R)	Giouna	Ballery Vollage

#### OK or NG

OK >> Check headlamp harness, connector and bulbs.

NG >> Replace IPDM  $\dot{E}/R$ .

## **RH Low Beam Does Not Illuminate**

### 1. CHECK BULB

Check bulb of lamp with does not illuminate.

OK or NG

OK >> GO TO 2.

NG >> Replace headlamp bulb.

## 2. CHECK HEADLAMP INPUT SIGNAL

- 1. Disconnect front combination lamp RH connector.
- 2. Turn ignition switch ON.
- 3. Lighting switch is turned 2ND position.
- 4. Check voltage between front combination lamp RH harness connector E25 terminal 6 (R) and ground.

#### 6 (R) - Ground

### : Battery voltage.

OK or NG

OK >> GO TO 4. NG >> GO TO 3.

## 3. CHECK HEADLAMP RH CIRCUIT

- Turn ignition switch OFF. 1.
- 2. Disconnect IPDM E/R connector.
- Check continuity between IPDM E/R harness connector E7 ter-3. minal 20 (R) and front combination lamp RH harness connector E25 terminal 6 (R).
  - 20 (R) 6 (R)

#### : Continuity should exist.

#### OK or NG

- OK >> Replace IPDM E/R.
- NG >> Repair harness or connector.

### 4. CHECK HEADLAMP GROUND

- 1. Turn ignition switch OFF.
- Check continuity between front combination lamp RH harness 2. connector E25 terminal 3 (B/W) and ground.

#### 3 (B/W) – Ground

#### : Continuity should exist.

#### OK or NG

- OK >> Check headlamp harness and connectors.
- NG >> Repair harness or connector.

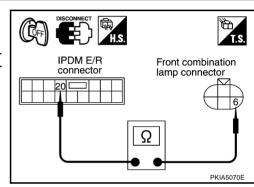
## LH Low Beam Does Not Illuminate

### 1. CHECK BULB

Check bulb of lamp which does not illuminate. OK or NG

OK

>> GO TO 2. NG >> Replace bulb of lamp.



Front combination lamp connector

6

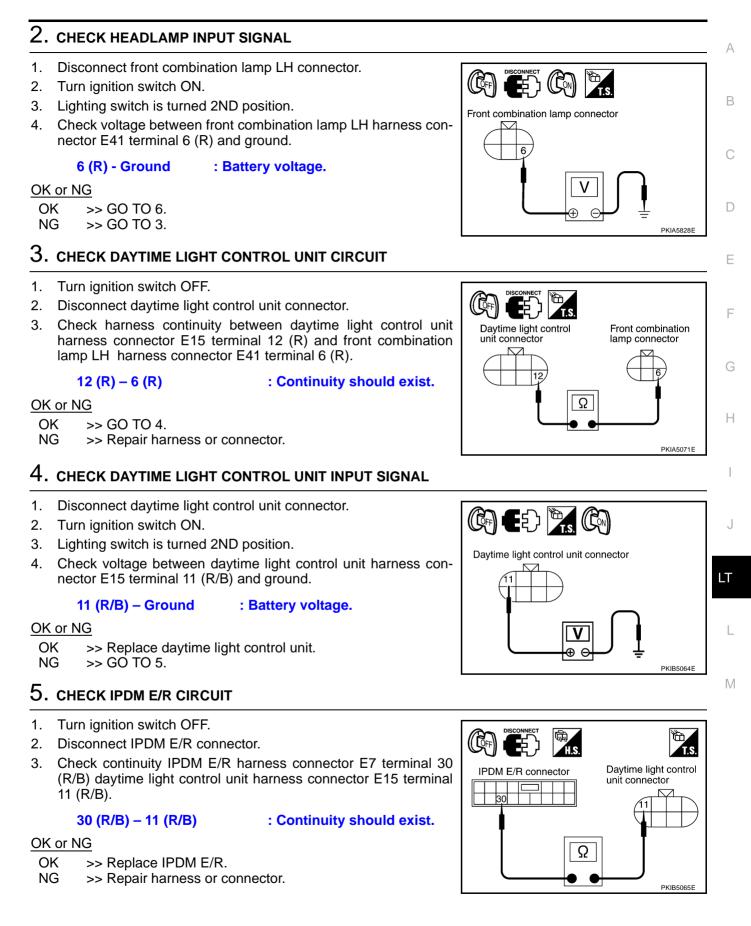
Front combination lamp connector

2



PKIA6012E

PKIA5828E



## 6. CHECK DAYTIME LIGHT CONTROL UNIT CIRCUIT

- 1. Disconnect daytime light control unit connector.
- 2. Check continuity between daytime light control unit harness connector E15 terminal 9 (Y/G) and front combination lamp LH harness connector E41 terminal 3 (Y/G).

#### 9 (Y/G) – 3 (Y/G)

: Continuity should exist.

OK or NG

OK >> GO TO 7.

NG >> Repair harness or connector.

## 7. CHECK DAYTIME LIGHT CONTROL UNIT AND GROUND

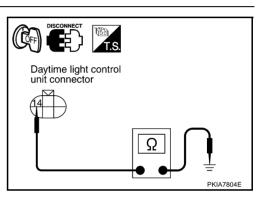
Check continuity between daytime light control unit harness connector E14 terminal 14 (B/Y) and ground.

14 (B/Y) - Ground

: Continuity should exist.

OK or NG

- OK >> Replace daytime light control unit.
- NG >> Repair harness or connector.



Daytime light control

unit connector

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T.S.

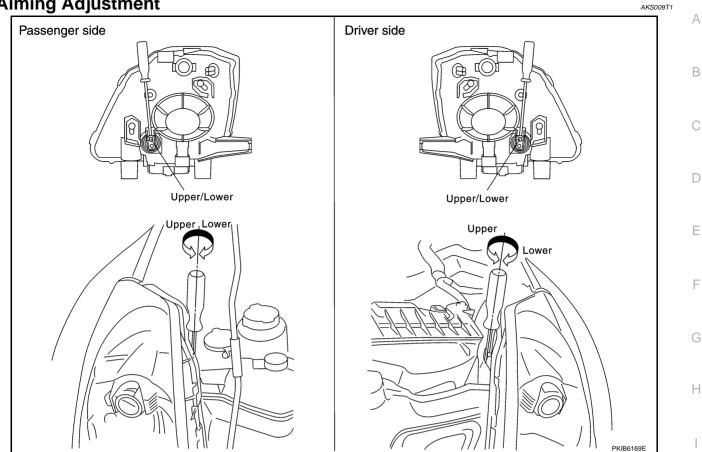
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Front combination

PKIA5072E

lamp connector

### **Aiming Adjustment**



### **PREPARATION BEFORE ADJUSTING**

For details, refer to the regulations in your own country.

Before performing aiming adjustment, check the following.

- 1. Keep all tires inflated to correct pressures.
- 2. Place vehicle on flat surface.
- 3. Set that there is no-load in vehicle other than the driver (or equivalent weight placed in driver's position). Coolant, engine oil filled up to correct level and full fuel tank.

### LOW BEAM AND HIGH BEAM

- Turn headlamp low beam ON. 1.
- 2. Use adjusting screws to perform aiming adjustment.

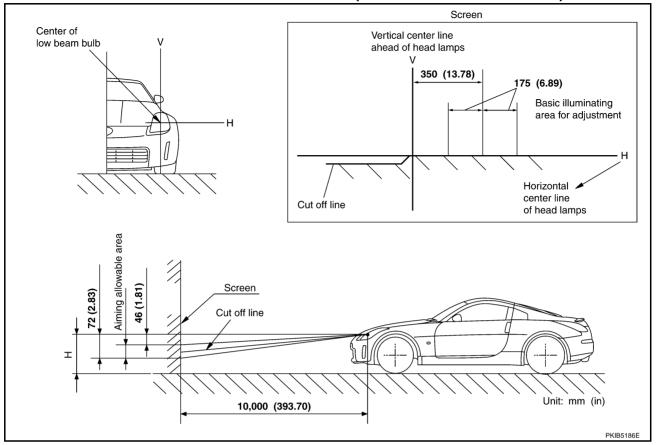
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#### ADJUSTMENT USING AN ADJUSTMENT SCREEN (LIGHT/DARK BORDERLINE)



If the vehicle front body has been repaired and/or the headlamp assembly has been replaced, check aiming. Use the aiming chart shown in the figure.

• Basic illumination area for adjustment should be within the range shown on the aiming chart. Adjust headlamp accordingly.

#### Bulb Replacement HEADLAMP (UPPER) LOW BEAM

- 1. Turn lighting switch OFF.
- 2. Remove fender protector (front). Refer to EI-21, "FENDER PROTECTOR" in "EI" section.
- 3. Turn plastic cap counterclockwise and unlock it.
- 4. Disconnect bulb terminal.
- 5. Unlock retaining spring and remove bulb from headlamp.
- 6. Installation is the reverse order of removal.

#### Headlamp (upper) low beam : 12V - 55W (H7) (Halogen)

#### **HEADLAMP (LOWER) HIGH BEAM**

- 1. Turn lighting switch OFF.
- 2. Remove fender protector (front). Refer to EI-21, "FENDER PROTECTOR" in "EI" section.
- 3. Turn plastic cap counterclockwise and unlock it.
- 4. Disconnect bulb terminal.
- 5. Unlock retaining spring and remove bulb from headlamp.
- 6. Installation is the reverse order of removal.

Headlamp (lower) high beam : 12V - 55W (H1)

### LT-142

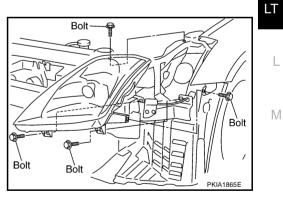
AKS009T2

	ARKING LAMPS (CLEARANCE LAMPS) . Turn lighting switch OFF.	А
1 2		
2		
4		В
5	. Installation is the reverse order of removal.	
	Parking lamps (Clearance lamps) : 12V - 5W	С
F	RONT TURN SIGNAL LAMP	
1	. Turn lighting switch OFF.	D
2	· · · · · · · · · · · · · · · · · · ·	D
3		
4		Е
5		
	Front turn signal lamp : 12V - 21W (amber)	_
	CAUTION:	F
	After installing bulb, be sure to install plastic cap and bulb socket securely to insure watertight- ness.	
F	RONT SIDE MARKER LAMP	G
1		
2		Н
3		Π
4	. Remove bulb from its socket.	
5	. Installation is the reverse order of removal.	
	Front side marker lamp : 12V - 5W	
	CAUTION:	I

### After installing bulb, be sure to install plastic cap and socket securely to insure watertightness.

# Removal and Installation REMOVAL

- 1. Remove front bumper. Refer to <u>EI-14, "FRONT BUMPER"</u> in "EI" section.
- 2. Remove headlamp mounting bolts.
- 3. Pull headlamp toward vehicle front, disconnect connector, and remove headlamp.



### INSTALLATION

Installation is the reverse order of removal.

Headlamp mounting bolt is : 6.1 N·m (0.62 kg-m, 54 in-lb)

#### NOTE:

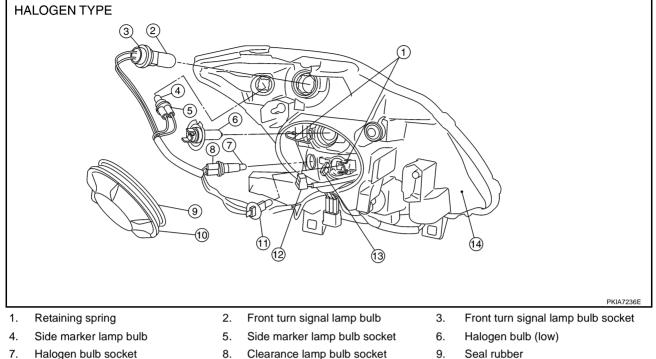
After installation, perform aiming adjustment. Refer to LT-141, "Aiming Adjustment" .

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AKS009T3

### **Disassembly and Assembly**





- 10. Plastic cap
- 13. Halogen bulb (high) socket
- 8. Clearance lamp bulb socket
- 11. Halogen bulb (high)
- 14. Headlamp housing assembly

### DISASSEMBLY

- 1. Turn plastic cap counterclockwise and unlock it.
- 2. Disconnect halogen bulb (low) socket.
- Unlock retaining spring, and remove halogen bulb (low). 3.
- 4. Disconnect the socket connected to halogen bulb (high).
- 5. Unlock retaining spring, and remove halogen bulb (high).
- 6. Turn parking lamp bulb socket counterclockwise and unlock it.
- 7. Remove parking lamp bulb from its socket.
- Turn front turn signal lamp bulb socket counterclockwise and unlock it. 8.
- Remove front turn signal lamp bulb from its socket. 9.
- 10. Turn front side marker lamp bulb socket counterclockwise and unlock it
- 11. Remove front side lamp marker lamp bulb from its socket.

### **ASSEMBLY**

Assembly is the reverse order of disassembly.

#### **CAUTION:**

After installing bulb, be sure to install plastic cap and bulb socket securely to insure watertightness.

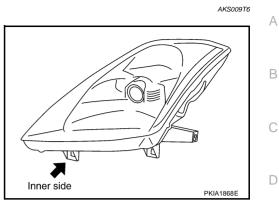
Revision: 2005 August

- 9. Seal rubber
- 12. Halogen bulb (low) socket

# HEADLAMP (FOR CANADA) - CONVENTIONAL TYPE -

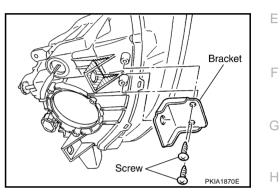


If only installation part as shown in the figure is damaged, and headlamp housing itself is not damaged, repair can be completed easily by installing correction brackets.



#### INSTALLATION OF HEADLAMP BRACKET

- 1. Remove headlamps. Refer to <u>LT-143</u>, "Removal and Installation".
- 2. Cut damaged section of installation part, then shape with sand-paper.
- 3. Attach each correction bracket to headlamp housing boss with 2 screws.



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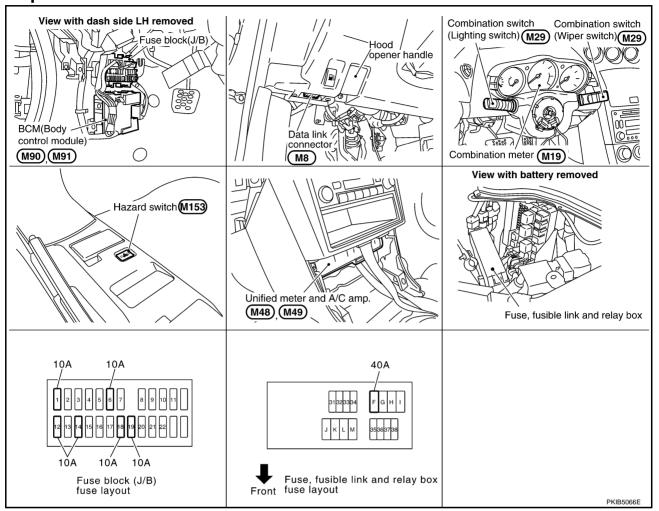
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## TURN SIGNAL AND HAZARD WARNING LAMPS Component Parts and Harness Connector Location

PFP:26120

AKS009RI



## System Description TURN SIGNAL OPERATION

When the ignition switch is in ON or START position, power is supplied

- through 10A fuse [No.1, located in fuse block (J/B)]
- to BCM (body control module) terminal 38,
- through 10A fuse [No.12, located in fuse block (J/B)]
- to unified meter and A/C amp. terminal 22,
- through 10A fuse [No.14, located in fuse block (J/B)]
- to combination meter terminal 23.

Ground is supplied

- to BCM terminal 52
- through grounds M30 and M66,
- to unified meter and A/C amp. terminals 29 and 30
- through grounds M30 and M66,
- to combination meter terminals 10, 11 and 12
- through grounds M30 and M66.

## LH Turn Signal Lamp

When the turn signal switch is moved to the left position, the BCM receives left turn signal by combination switch reading function (Refer to <u>BCS-3</u>, <u>"COMBINATION SWITCH READING FUNCTION"</u>). Power is supplied

# LT-146

AKS009QS

<ul> <li>through BCM terminal 45</li> </ul>	
<ul> <li>to front combination lamp LH terminal 2<sup>*1</sup></li> </ul>	А
<ul> <li>to front combination lamp LH terminal 1<sup>*2</sup> and</li> </ul>	
• to rear combination lamp LH terminal 2.	В
Ground is supplied	
<ul> <li>to front combination lamp LH terminal 1<sup>*1</sup></li> </ul>	
• through grounds E17, E43 and F152	С
<ul> <li>to front combination lamp LH terminal 4<sup>*2</sup></li> </ul>	
<ul> <li>through grounds E17, E43 and F152,</li> </ul>	
<ul> <li>to rear combination lamp LH terminal 4</li> </ul>	D
<ul> <li>through grounds T14, B5, B6 and D105.</li> </ul>	
The BCM also supplies ground to unified meter and A/C amp. terminals 1 and 11 across the CAN communica-	Е
tion lines. This input signal is processed by the unified meter control unit in the combination meter through uni- fied meter and A/C amp., which in turn supplies ground to left turn signal indicator lamp. With the power and ground supplied, The BCM controls the flashing of LH turn signal lamps.	
NOTE:	F
*1: Xenon headlamp, *2: halogen headlamp.	
RH Turn Signal Lamp	G
When the turn signal switch is moved to the right position, the BCM receives right turn signal by combination	-
switch reading function (Refer to <u>BCS-3, "COMBINATION SWITCH READING FUNCTION"</u> ). Power is supplied	
<ul> <li>through BCM terminal 46</li> </ul>	1.1
<ul> <li>to front combination lamp RH terminal 2<sup>*1</sup></li> </ul>	
<ul> <li>to front combination lamp RH terminal 1<sup>*2</sup> and</li> </ul>	
• to rear combination lamp RH terminal 2.	
Ground is supplied	I
• to combination lamp RH terminal 1 <sup>*1</sup>	0
<ul> <li>through grounds E17, E43 and F152</li> </ul>	
<ul> <li>to front combination lamp RH terminal 4<sup>*2</sup></li> </ul>	LT
<ul> <li>through grounds E17, E43 and F152 ,</li> </ul>	
<ul> <li>to rear combination lamp RH terminal 4</li> </ul>	
<ul> <li>through grounds T14, B5, B6 and D105.</li> </ul>	L
BCM also supplies ground to unified meter and A/C amp. terminals 1 and 11 across CAN communication	
lines. This input is processed by unified meter control unit in combination meter through unified meter and A/C amp., which in turn supplies ground to the right turn signal indicator lamp. With power and ground supplied, BCM controls the flashing of RH turn signal lamps.	
NOTE: *1: Yanan baadlamp, *2: Halagan baadlamp	
*1: Xenon headlamp, *2: Halogen headlamp.	
Power is supplied at all times	
<ul> <li>through 40A fusible link (letter F, located in fuse, fusible link and relay box)</li> <li>to PCM terminal 55</li> </ul>	
<ul> <li>to BCM terminal 55,</li> <li>through 10A functions 10, located in functions block (1/P)1</li> </ul>	
<ul> <li>through 10A fuse [No. 19, located in fuse block (J/B)]</li> <li>to combination mater terminal 24, and</li> </ul>	
<ul> <li>to combination meter terminal 24, and</li> <li>to unified meter and A/C amp. terminal 21</li> </ul>	
<ul> <li>to unified meter and A/C amp. terminal 21.</li> <li>Ground is supplied</li> </ul>	
<ul> <li>Ground is supplied</li> <li>to BCM terminals 52</li> </ul>	
<ul> <li>to BCM terminals 52</li> <li>through grounds M30 and M60,</li> </ul>	
<ul> <li>to unified meter and A/C amp. terminals 29 and 30</li> </ul>	

- through grounds M30 and M66,
- to combination meter terminals 10, 11 and 12
- through grounds M30 and M66.

When the hazard switch is depressed, power is supplied

- through BCM terminal 29
- to hazard lamp switch terminal 2.
- Ground is supplied
- through hazard lamp switch terminal 1
- to grounds M30 and M66.

The BCM then supplies power

- through BCM terminal 45
- to front combination lamp LH terminal 2<sup>\*1</sup>
- to front combination lamp LH terminal 1<sup>\*2</sup>
- to rear combination lamp LH terminal 2,
- through BCM terminal 46
- to front combination lamp RH terminal 2\*1
- to front combination lamp RH terminal 1\*2

• to rear combination lamp RH terminal 2. Ground is supplied

- to front combination lamp LH terminal 1<sup>\*1</sup>
- through grounds E17, E43 and F152
- to front combination lamp LH terminal 4<sup>\*2</sup>
- through grounds E17, E43 and F152,
- to front combination lamp RH terminal 1<sup>\*1</sup>
- through grounds E17, E43 and F152
- to front combination lamp RH terminal 4<sup>\*2</sup>
- through grounds E17, E43 and F152,
- to rear combination lamp LH terminal 4
- through grounds T14, B5, B6 and D105,
- to rear combination lamp RH terminal 4
- through grounds T14, B5, B6 and D105.

The BCM also supplies input to unified meter and A/C amp. terminals 1 and 11 across the CAN communication lines. This input is processed by the unified meter control unit in the combination meter through the unified meter and A/C amp., which in turn supplies ground to the left and right turn signal indicator lamps. With the power and ground supplied, BCM controls flashing of hazard warning lamps.

#### NOTE:

\*1: Xenon headlamp, \*2: Halogen headlamp.

#### **REMOTE KEYLESS ENTRY SYSTEM OPERATION**

Refer to BL-62, "REMOTE KEYLESS ENTRY SYSTEM" .

#### COMBINATION SWITCH READING FUNCTION

Refer to BCS-3, "COMBINATION SWITCH READING FUNCTION" .

### **CAN Communication System Description**

AKS009QT

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN H line, CAN L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

CAN Communication Unit	AKS009QU	
Refer to LAN-21, "CAN Communication Unit".		A
		В

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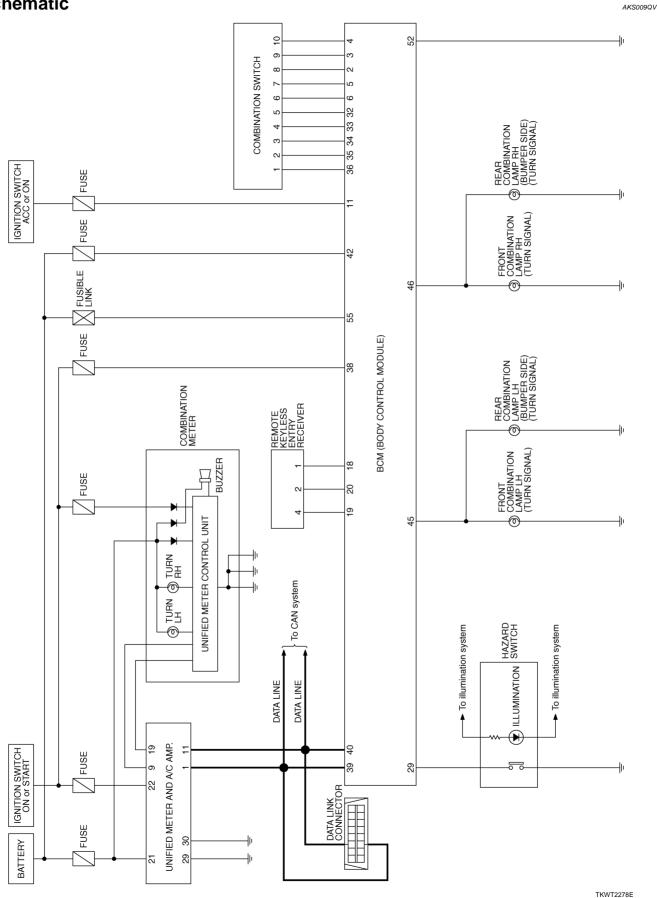
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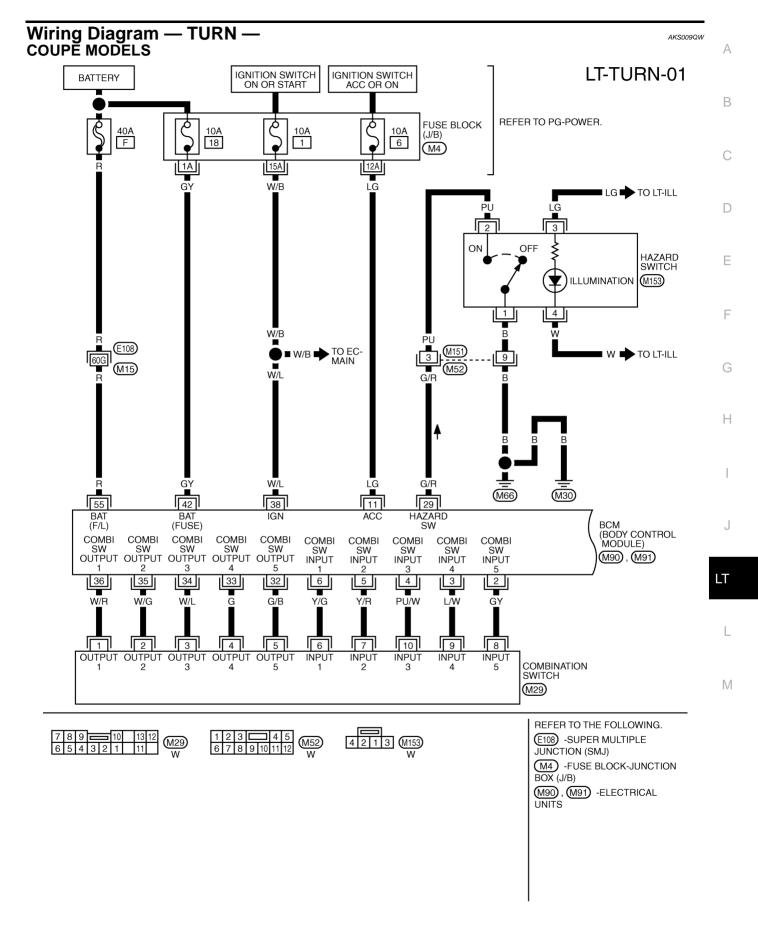
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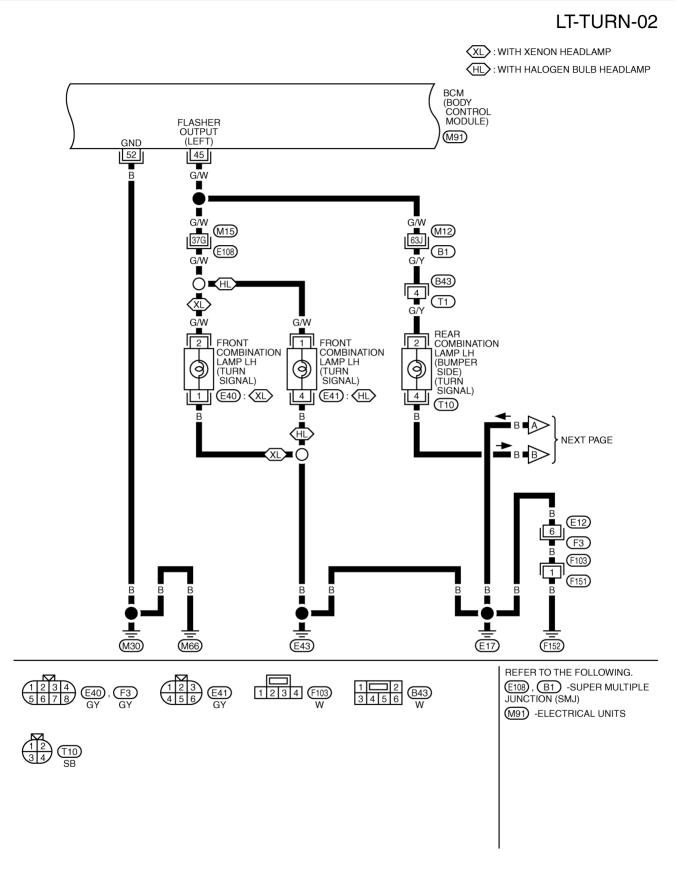
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## **Schematic**

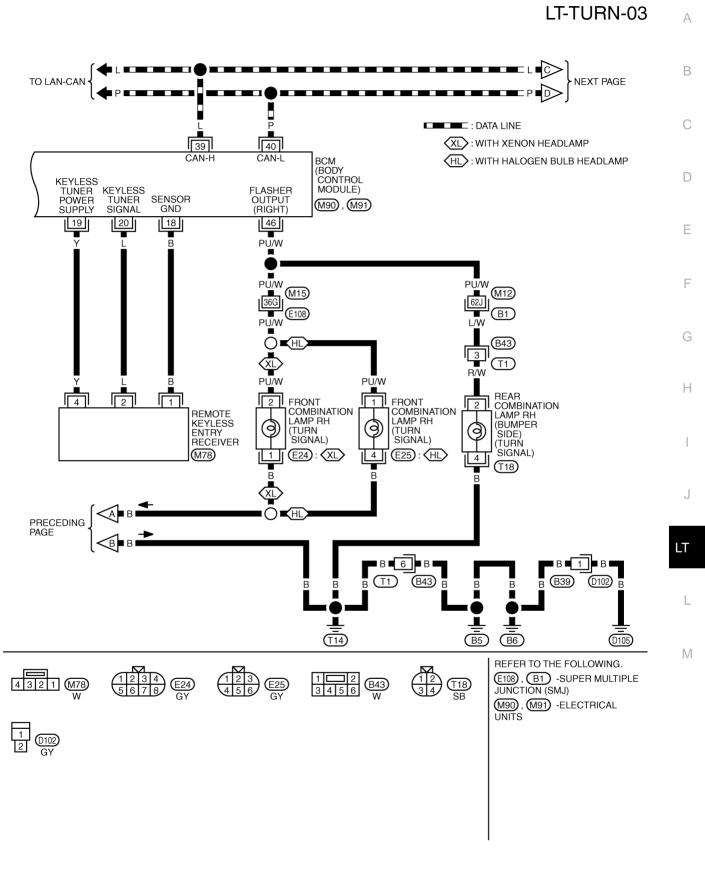




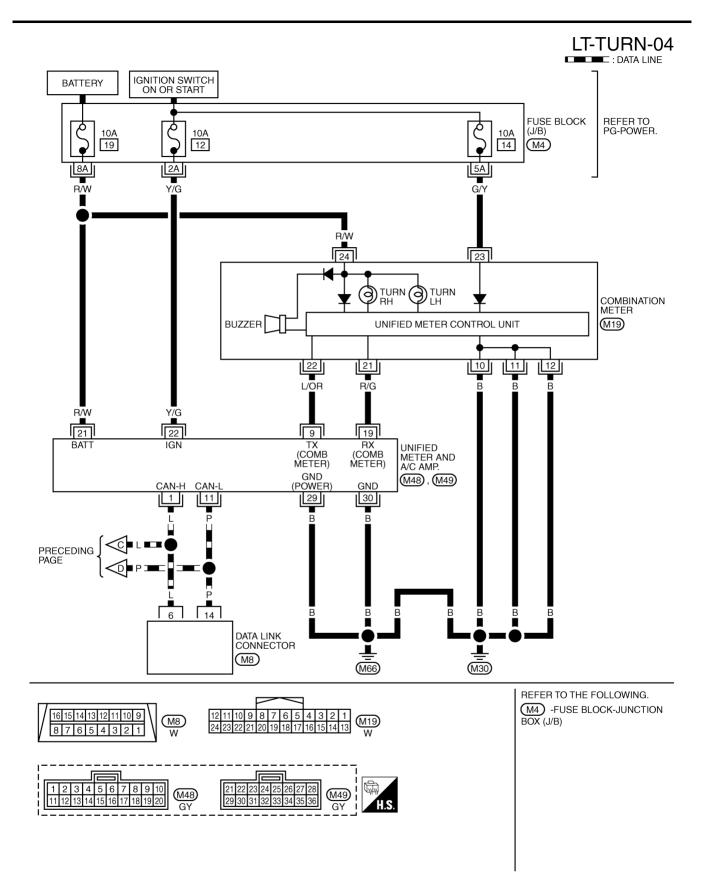
TKWT2279E



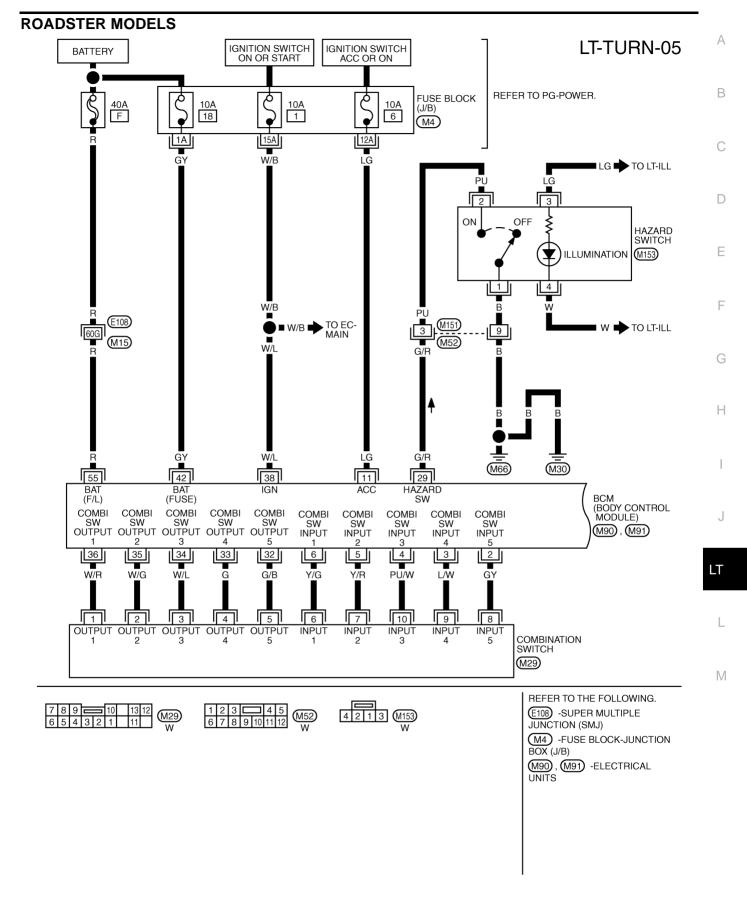
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TKWT2280E

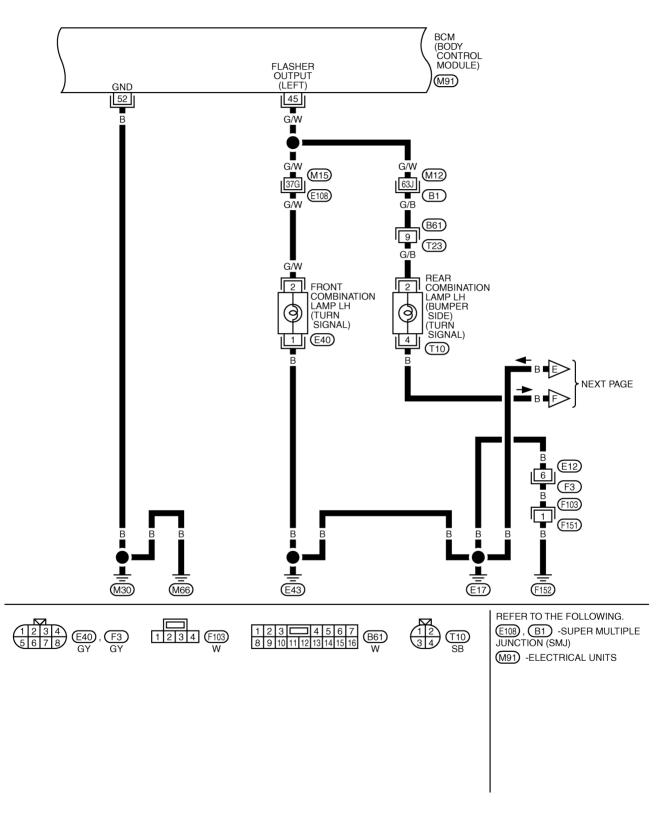


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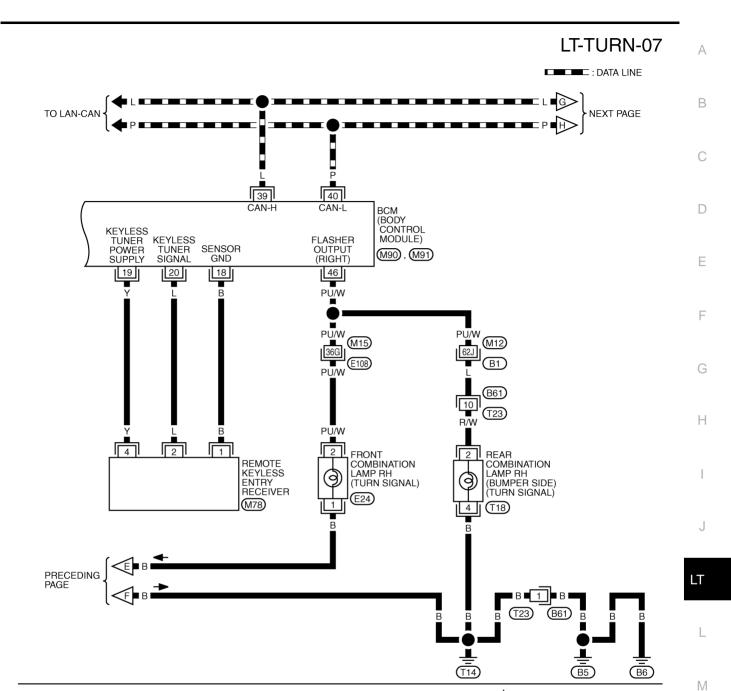


TKWT2282E

## LT-TURN-06



TKWT1806E



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(T18) SB

TKWT2283E

REFER TO THE FOLLOWING.

(M90), (M91) -ELECTRICAL

JUNCTION (SMJ)

UNITS

(E108), (B1) -SUPER MULTIPLE

4321 M78

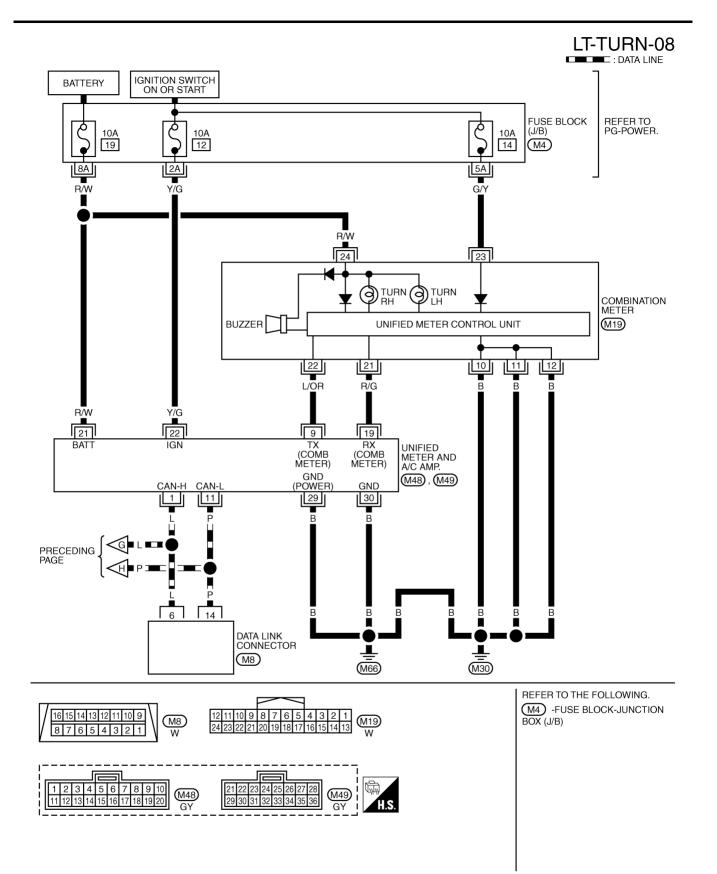
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E24 GY 

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TKWT2284E

# Terminals and Reference Values for BCM

				Measuring c	ondition		
Terminal No.	Wire color	Signal name	Ignition switch		on or condition	Reference value	_
2	GY	Combination switch input 5	ON	Lighting, turi Wiper dial p	n, wiper OFF osition 4	(V) 6 4 0 	
3	L/W	Combination switch input 4	ON	Lighting, turi Wiper dial p	n, wiper OFF osition 4	(V) 6 4 2 0 + 5 ms SKIA5292E	-
4	PU/W	Combination switch input 3	ON	Lighting, turi Wiper dial p	n, wiper OFF osition 4	(V) 6 4 2 0  	_
5	Y/R	Combination switch input 2					
6	Y/G	Combination switch input 1	ON	Lighting, turi Wiper dial p	n, wiper OFF osition 4	(V) 6 4 2 0 + 5ms 	
11	LG	Ignition switch (ACC)	ACC			Battery voltage	L
29	G/R	Hazard switch signal	OFF	Hazard switch	ON OFF	Approx. 0V Approx. 5V	-
32	G/B	Combination switch output 5	ON	Lighting, turn, wiper OFF Wiper dial position 4		(V) 6 4 0 •••• 5ms SKIA5291E	-
33	G	Combination switch output 4	ON	Lighting, turi Wiper dial p	n, wiper OFF osition 4	(V) 6 4 2 0 + 5ms SKIA5292E	

AKS009QX

Terminal	Wire			Measuring c	ondition	
No.	color	Signal name	Signal name Ignition Operation or cor switch		on or condition	Reference value
34	W/L	Combination switch output 3	ON	Lighting, turn, wiper OFF Wiper dial position 4		(V) 6 2 0 ++5ms SKIA5291E
35	W/G	Combination switch output 2				0.0
36	W/R	Combination switch output 1	ON	Lighting, tur Wiper dial p	n, wiper OFF osition 4	(V) 4 2 0 + 5ms SKIA5292E
38	W/L	Ignition switch (ON)	ON		_	Battery voltage
39	L	CAN-H	—		—	_
40	Р	CAN-L	—		—	_
42	GY	Battery power supply	OFF		—	Battery voltage
45	G/W	Turn signal (left)	ON	Combina- tion switch	Turn left ON	(V) 15 10 5 0 500 ms SKIA3009J
46	PU/W	Turn signal (right)	ON	Combina- tion switch	Turn right ON	(V) 15 10 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 0 5 0 0 5 0 0 5 0 0 5 0 0 0 0 0 0 0 0 0 0 0 0 0
52	В	Ground	ON		—	Approx. 0V
55	R	Battery power supply	OFF			Battery voltage

## How to Proceed With Trouble Diagnosis

AKS009QY

- 1. Confirm the symptom or customer complaint.
- 2. Understand operation description and function description. Refer to LT-146, "System Description" .
- 3. Perform preliminary check. Refer to LT-161, "Preliminary Check" .
- 4. Check symptom and repair or replace the cause of malfunction.
- 5. Do turn signal and hazard warning lamps operate normally? If YES, GO TO 6. If NO, GO TO 4.
- 6. INSPECTION END

### **Preliminary Check** CHECK POWER SUPPLY AND GROUND CIRCUIT

## 1. CHECK FUSES

Check for blown fuses.

UNIT	POWER SOURCE	Fuse and fusible link No.	
	Detter	F	
BCM	Battery	18	
	Ignition switch ON or START position	1	
	Ignition switch ACC or ON position	6	

#### Refer to LT-151, "Wiring Diagram — TURN —".

#### OK or NG

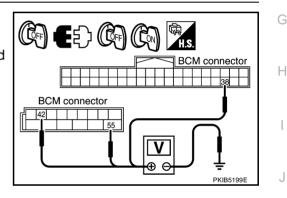
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-3, "POWER SUPPLY ROUTING CIRCUIT" .

# 2. CHECK POWER SUPPLY CIRCUIT

- Turn ignition switch OFF. 1.
- Disconnect BCM connectors. 2.
- Check voltage between BCM harness connector terminals and 3. ground.

Terminal			Ignition sv	vitch position	
(+)					
Connector	Terminal (Wire color)	(-)	OFF	ON	
M90	38 (W/L)		0V	Battery voltage	
M91	42 (GY)	Ground	Battery voltage	Battery voltage	
10191	55 (R)		Battery voltage	Battery voltage	



OK or NG

OK >> GO TO 3.

NG >> Check harness for open or short between BCM and fuse.

## **3. CHECK GROUND CIRCUIT**

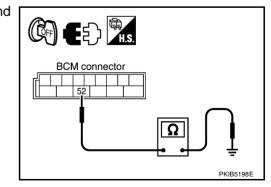
Check continuity between BCM harness connector terminal and ground.

	Continuity				
Connector	Connector Terminal (Wire color) Ground				
M91	52 (B)	Ground	Yes		

#### OK or NG

OK >> INSPECTION END

NG >> Check ground circuit harness.



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## **CONSULT-II Functions (BCM)**

AKS009R0

CONSULT-II can display each diagnostic item using the diagnostic test mode shown following.

BCM diagnosis part Diagnosis mode Descrip		Description
FLASHER	DATA MONITOR	Displays BCM input data in real time.
TEAGHER	ACTIVE TEST	Operation of electrical loads can be checked by sending driving signal to them.

#### **CONSULT-II BASIC OPERATION**

Touch "START (NISSAN BASED VHCL)".

Touch "BCM" on "SELECT SYSTEM" screen.

If "BCM" is not displayed, print "SELECT SYSTEM" screen, then

refer to GI-39, "CONSULT-II Data Link Connector (DLC) Circuit"

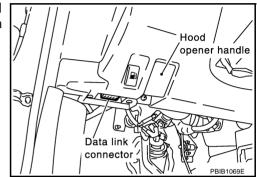
#### CAUTION:

2.

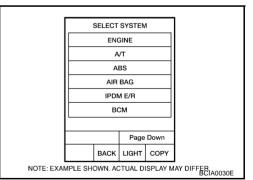
3.

If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

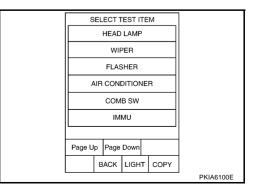
1. With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



CONSULT-II ENGINE START (NISSAN BASED VHCL) START (X-BADGE VHCL) SUB MODE LIGHT COPY NOTE: EXAMPLE SHOWN. ACTUAL DISPLAY MAY DIFFER BCIA0029E



4. Touch "FLASHER" on "SELECT TEST ITEM" screen.



Revision: 2005 August

# DATA MONITOR

#### **Operation Procedure**

- Touch "FLASHER" on "SELECT TEST ITEM" screen. 1.
- 2. Touch "DATA MONITOR" on "SELECT DIAG MODE" screen.
- 3 Touch either "ALL SIGNALS" or "SELECTION FROM MENU" on "SELECT MONITOR ITEM" screen.

ALL SIGNALS	Monitors all the signals.
SELECTION FROM MENU	Selects items and monitor them.

When "SELECTION FROM MENU" is selected, touch items to be monitored. When "ALL SIGNALS" is 4 selected, all the items will be monitored.

Touch "START". 5.

Touch "RECORD" while monitoring, then the status of the monitored item can be recorded. To stop 6. recording, touch "STOP".

#### **Display Item List**

Monitor in	tem	Contents	-
IGN ON SW	"ON/OFF"	Displays "IGN position (ON)/OFF, ACC position (OFF)" judged from ignition switch signal.	-
HAZARD SW	"ON/OFF"	Displays "Hazard ON (ON)/Hazard OFF (OFF)" status, determined from hazard switch signal.	-
TURN SIGNAL R	"ON/OFF"	Displays "Turn right (ON)/Other (OFF)" status, determined from lighting switch signal.	-
TURN SIGNAL L	"ON/OFF"	Displays "Turn left (ON)/Other (OFF)" status, determined from lighting switch signal.	-
BRAKE SW NOTE	"OFF"		-
OTE		·	•

#### NOTE:

This item is displayed, but cannot be monitored.

## **ACTIVE TEST**

#### **Operation Procedure**

- 1. Touch "FLASHER" on "SELECT TEST ITEM" screen.
- Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen. 2.
- 3. Touch item to be tested and check operation of the selected item.
- During the operation check, touching "BACK" deactivates the operation. 4.

#### **Display Item List**

Test item	Description	
FLASHER	With a certain operation (OFF, RH, LH), turn signal lamp can be operated.	L

# **Turn Signal Lamp Does Not Operate**

## 1. CHECK BULB

Check bulb standard of each turn signal lamp is correct.

#### OK or NG

OK >> GO TO 2.

NG >> Replace turn signal lamp bulb. А

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# 2. CHECK COMBINATION SWITCH INPUT SIGNAL

#### (B)With CONSULT-II

Select "BCM" on CONSULT-II. With "FLASHER" data monitor, make sure "TURN SIGNAL R" and "TURN SIGNAL L" turns ON-OFF linked with operation of lighting switch.

When lighting switch is<br/>TURN RH position: TURN SIGNAL R ONWhen lighting switch is<br/>TURN LH position: TURN SIGNAL L ON

Without CONSULT-II Refer to <u>LT-173, "Combination Switch Inspection"</u>.

 				1
	DATA M			
MONITOR			O DTC	
TURN SIGNAL R TURN SIGNAL L			Z Z	
MODE	BACK	LIGHT	COPY	PKIA6351E

OK or NG

OK >> GO TO 3.

NG >> Check combination switch (lighting switch). Refer to <u>LT-173, "Combination Switch Inspection"</u>.

# 3. ACTIVE TEST

With CONSULT-II

- Select "FLASHER" during active test. Refer to <u>LT-163, "ACTIVE</u> <u>TEST"</u>.
- 2. Make sure "FLASHER RIGHT" and "FLASHER LEFT" operate.

#### Turn signal lamp should operate.

Without CONSULT-II GO TO 4.

#### OK or NG

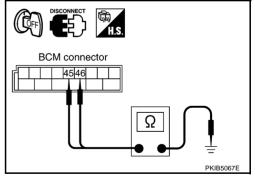
OK >> Replace BCM. Refer to <u>BCS-18, "Removal and Installa-</u> tion of <u>BCM"</u>.

NG >> GO TO 4.

## 4. CHECK SHORT CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect BCM connector and all turn signal lamp connectors.
- 3. Check continuity (short circuit) between BCM harness connector and ground.

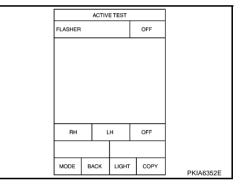
	Terminal					
	BCM					
Conr	Connector Terminal (Wire c		Ground			
RH	M91	46 (PU/W)	Giouna	No		
LH	10191	45 (G/W)		NU		



#### OK or NG

OK >> Replace BCM if turn signal lamps does not work after setting the connector again. Refer to <u>BCS-18, "Removal and Installation of BCM"</u>.

NG >> Repair harness or connector.



# Hazard Warning Lamp Does Not Operate But Turn Signal Lamp Operate 1. CHECK BULB

Make sure bulb standard of each turn signal lamp is correct.

#### OK or NG

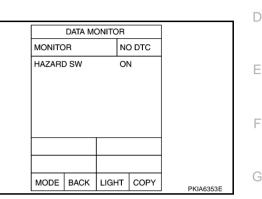
OK >> GO TO 2. NG >> Replace bulb.

## 2. CHECK HAZARD SWITCH INPUT SIGNAL

#### With CONSULT-II

Select "BCM" on CONSULT-II. With "FLASHER" data monitor to make sure "HAZARD SW" turns ON-OFF linked with operation of hazard switch.

When hazard switch is ON : HAZARD SW ON position



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#### Without CONSULT-II

Check voltage between hazard switch harness connector M153 terminal 2 (PU) and ground.

Terminal					
(+)			Condition	Voltage	
Connector	Terminal (Wire color)	(-)		0	
M153	2 (PU)	Ground	Hazard switch is ON	Approx. 0V	
WI135	2 (FO)	Giouna	Hazard switch is OFF	Approx. 5V	

#### OK or NG

OK >> Replace BCM. Refer to <u>BCS-18</u>, "Removal and Installation of <u>BCM</u>".

NG >> GO TO 3.

# 3. CHECK HAZARD SWITCH CIRCUIT

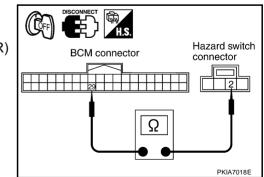
- 1. Turn ignition switch OFF.
- 2. Disconnect BCM connector and hazard switch connector.
- 3. Check continuity BCM harness connector M90 terminal 29 (G/R) and hazard switch harness connector M153 terminal 2 (PU).

#### 29 (G/R) – 2 (PU)

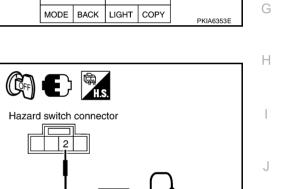
#### : Continuity should exist.

#### OK or NG

- OK >> GO TO 4.
- NG >> Repair harness or connector.



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## 4. CHECK GROUND

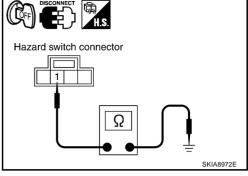
Check continuity hazard switch harness connector M153 terminal 1 (B) and ground.

#### 1 (B) – Ground

: Continuity should exist.

#### OK or NG

- OK >> GO TO 5.
- NG >> Repair harness or connector.



# 5. CHECK HAZARD SWITCH

Check continuity hazard switch.					
Terminal Condition Continuity					
Hazard switch		Condition	Continuity		
1	2	Hazard switch is ON.	Yes		
Hazard switch is OFF. No					
OK or NC					

#### OK or NG

OK >> Replace BCM if turn signal lamps does not work after setting the connector again. Refer to <u>BCS-18, "Removal and Installation of BCM"</u>.

NG >> Replace hazard switch.

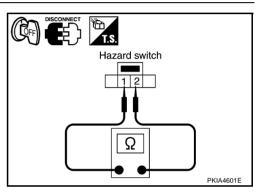
# Turn Signal Indicator Lamp Does Not Operate 1. CHECK BULB

Inspect bulb of turn signal indicator lamp in combination meter.

#### OK or NG

OK >> Replace combination meter.

NG >> Replace indicator bulb.



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Bulb Replacement (Front Turn Signal Lamp)	AKS00AP5	
Refer to LT-33, "Bulb Replacement" in "HEADLAMP (FOR USA)".		А
Bulb Replacement (Rear Turn Signal Lamp)	AKS00AP6	
Refer to LT-207, "Bulb Replacement" in "REAR COMBINATION LAMP".		В
Removal and Installation of Front Turn Signal Lamp	AKS00AP7	
Refer to LT-35, "Removal and Installation" in "HEADLAMP (FOR USA)".		С
Removal and Installation of Rear Turn Signal Lamp	AKS00AP8	
Refer to LT-208, "Removal and Installation" in "REAR COMBINATION LAMP".		D

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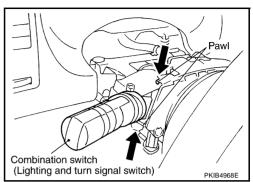
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## LIGHTING AND TURN SIGNAL SWITCH

# Removal and Installation REMOVAL

- 1. Remove steering column lower cover. Refer to <u>IP-10, "INSTRU-</u><u>MENT PANEL ASSEMBLY"</u> in "IP" section.
- Remove column upper cover and combination meter assembly. Refer to <u>IP-10, "INSTRUMENT PANEL ASSEMBLY"</u> in "IP" section.
- 3. While pressing pawls in direction as shown in the figure, pull lighting and turn signal switch toward driver door and disconnect from the base.



## INSTALLATION

Installation is the reverse order of removal.

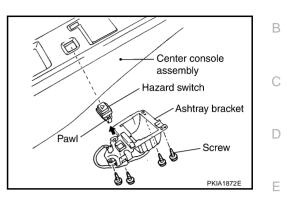
PFP:25540

## **HAZARD SWITCH**

# HAZARD SWITCH

# Removal and Installation REMOVAL

- 1. Remove center console assembly. Refer to <u>IP-10</u>, <u>"INSTRU-MENT PANEL ASSEMBLY"</u> in "IP" section.
- 2. Disconnect hazard switch connector.
- 3. Remove ashtray bracket assembly from center console assembly.
- 4. Press pawl on reverse side and remove the hazard switch.



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## INSTALLATION

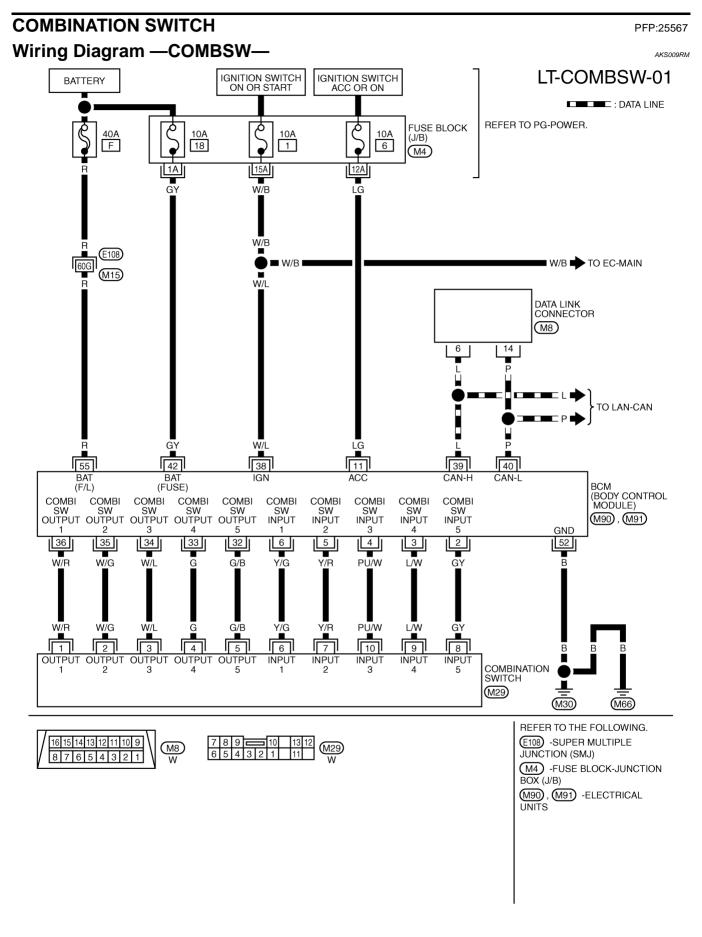
Installation is the reverse order of removal.



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## **COMBINATION SWITCH**



TKWT2285E

# **COMBINATION SWITCH**

Combination Switch Reading Function				
For details, refer to BCS-3, "C	OMBINATION SWITCH R	EADING FUNCTION" in "BCS" section.		
CONSULT-II Functions (BCM)			AKS00APA	
CONSULT-II can display each diagnostic item using the diagnostic test mode shown following.				
BCM diagnosis part Diagnosis mode Description				
COMB SW	DATA MONITOR	Displays BCM input data in real time.		

## **CONSULT-II BASIC OPERATION**

Touch "START (NISSAN BASED VHCL)".

**CAUTION:** 

2.

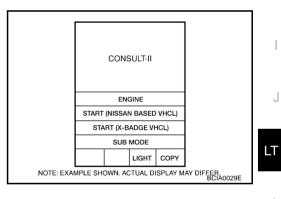
If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

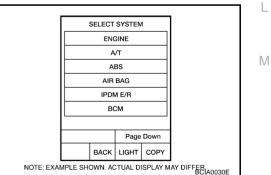
- 1. With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.
- Hood opener handle Data link connector PBIB1069E

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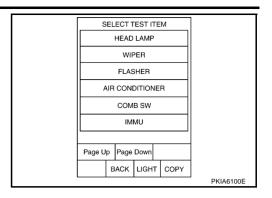
D





 Touch "BCM" on "SELECT SYSTEM" screen. If "BCM" is not displayed, print "SELECT SYSTEM" screen, then refer to GI-39, "CONSULT-II Data Link Connector (DLC) Circuit"

#### 4. Touch "COMB SW".



# DATA MONITOR

# Operation Procedure

- 1. Touch "COMB SW" on "SELECT TEST ITEM" screen.
- 2. Touch "DATA MONITOR" on "SELECT DIAG MODE" screen.
- 3. Touch either "ALL SIGNALS" or "SELECTION FROM MENU" on "SELECT MONITOR ITEM" screen.

ALL SIGNALS	Monitors all the signals.
SELECTION FROM MENU	Selects items and monitor them.

4. When "SELECTION FROM MENU" is selected, touch items to be monitored. When "ALL SIGNALS" is selected, all the signals will be monitored.

- 5. Touch "START".
- 6. Touch "RECORD" while monitoring, then the status of the monitored item can be recorded. To stop recording, touch "STOP".

Monitor item I OPERATION O	Contents	
TURN SIGNAL R	"ON/OFF"	Displays "Turn Right (ON)/Other (OFF)" status, determined from lighting switch signal.
TURN SIGNAL L	"ON/OFF"	Displays "Turn Left (ON)/Other (OFF)" status, determined from lighting switch signal.
HI BEAM SW	"ON/OFF"	Displays status (high beam switch: ON/Others: OFF) of high beam switch judged from lighting switch signal.
HEAD LAMP SW 1	"ON/OFF"	Displays status (headlamp switch 2: ON/Others: OFF) of headlamp switch 1 judged from lighting switch signal.
HEAD LAMP SW 2	"ON/OFF"	Displays status (headlamp switch 2: ON/Others: OFF) of headlamp switch 2 judged from lighting switch signal.
LIGHT SW 1ST	"ON/OFF"	Displays status (lighting switch 1ST or 2ND position: ON/Others: OFF) of lighting switch judged from lighting switch signal.
PASSING SW	"ON/OFF"	Displays status (flash-to-pass switch: ON/Others: OFF) of flash-to-pass switch judged from lighting switch signal.
FR FOG SW NOTE	"ON/OFF"	—
FR WIPER HI	"ON/OFF"	Displays "Front Wiper HI (ON)/Other (OFF)" status, determined from wiper switch signal.
FR WIPER LOW	"ON/OFF"	Displays "Front Wiper LOW (ON)/Other (OFF)" status, determined from wiper switch signal.
FR WIPER INT	"ON/OFF"	Displays "Front Wiper INT (ON)/Other (OFF)" status, determined from wiper switch signal.
FR WASHER SW	"ON/OFF"	Displays "Front Washer Switch (ON)/Other (OFF)" status, determined from wiper switch signal.
INT VOLUME	[1 - 7]	Displays intermittent operation knob setting (1 - 7), determined from wiper switch signal.
RR WIPER ON	"ON/OFF"	Displays "rear Wiper (ON)/Other (OFF)" status as judged from wiper switch signal.
RR WIPER INT	"ON/OFF"	Displays "rear Wiper INT (ON)/Other (OFF)" status as judged from wiper switch signal.
RR WASHER SW	"ON/OFF"	Displays "rear Washer Switch (ON)/Other (OFF)" status as judged from wiper switch signal.

#### Display Item List

#### NOTE:

This item is displayed, but cannot be monitored.

## **Combination Switch Inspection**

## 1. SYSTEM CHECK

1. Referring to table below, check which system malfunctioning switch belongs to.

F					
L	System 5	System 4	System 3	System 2	System 1
	TURN RH	TURN LH	FR WIPER LO	FR WASHER	—
С	HEAD LAMP 1	PASSING	FR WIPER INT	_	FR WIPER HI
	HI BEAM	HEAD LAMP 2	—	RR WASHER	INT VOLUME 1
_	LIGHT SW 1ST	—	—	INT VOLUME 3	RR WIPER INT
D	_	—	—	RR WIPER ON	INT VOLUME 2

>> Check the system to which malfunctioning switch belongs, and GO TO 2.

# 2. SYSTEM CHECK

#### With CONSULT-II

#### CAUTION:

If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

- 1. Connect CONSULT-II, and select "COMB SW" on "SELECT TEST ITEM" screen.
- 2. Select "DATA MONITOR".
- Select "START", and confirm that other switches in malfunctioning system operate normally. Example: When the HI BEAM switch is malfunctioning, confirm that "TURN RH", "HEAD LAMP 1" and "LIGHT SW 1 ST" in System 5, to which the HI BEAM switch belongs, turn ON-OFF normally.

	DATA N	IONITOR			1
мо	NITOR				
TUR	N SIGNAL R	(	DFF		Н
TUR	N SIGNAL L	(	DFF		
HIBE	EAM SW	(	OFF		
HEA	D LAMP SW1	(	OFF		
HEA	D LAMP SW2		OFF		
LIGH	HT SW 1ST	(	OFF		
PAS	SING SW	(	OFF		
AUT	O LIGHT SW	(	OFF		
FR F	FOG SW	C	DFF		
		Page	Down		
		REC	ORD		J
МО	DE BACK	LIGHT	COPY	SKIA7075E	

#### Without CONSULT-II

Operating combination switch, and confirm that other switches in malfunctioning system operate normally. Example: When the HI BEAM switch is malfunctioning, confirm that "TURN RH", "HEAD LAMP 1" and "LIGHT SW 1 ST" in System 5, to which HI BEAM switch belongs, turn ON-OFF normally.

#### Check results

Other switches in malfunctioning system operate normally.>>Replace lighting switch or wiper switch. Other switches in malfunctioning system do not operate normally.>>GO TO 3.

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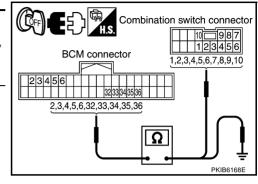
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# 3. HARNESS INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect BCM and combination switch connectors.
- 3. Check for continuity between BCM harness connector of the suspect system and the corresponding combination switch connector terminals.

	Terminal					
Sus- pect		BCM		Combina	Continuity	
system	Connector	Terminal (Wire color)		Connector	Terminal (Wire color)	
1		Input 1	6 (YG)		6 (YG)	
I		Output 1	36 (W/R)		1 (W/R)	
2		Input 2	5 (Y/R)		7 (Y/R)	
2		Output 2	35 (W/G)		2 (W/G)	
3	M90	Input 3	4 (PU/W)	M29	10 (PU/W)	Yes
3	10190	Output 3	34 (W/L)	10129	3 (W/L)	- 165
4		Input 4	3 (L/W)		9 (L/W)	
4		Output 4	33 (G)		4 (G)	
5		Input 5	2 (GY)		8 (GY)	
5		Output 5	32 (G/B)		5 (G/B)	



4. Check for continuity between each terminal of BCM harness connector in suspect malfunctioning system and ground.

<b>.</b>	Terminal				
Suspect system		BCM			Continuity
.,	Connector	Terminal	(Wire color)		
1		Input 1	6 (YG)	-	
I		Output 1	36 (W/R)	-	
2		Input 2	5 (Y/R)	-	
2		Output 2	35 (W/G)		
3	M90	Input 3	4 (PU/W)	Ground	No
3	NI90	Output 3	34 (W/L)		INO
4		Input 4	3 (L/W)		
4	-	Output 4	33 (G)	-	
5		Input 5	2 (GY)	1	
5		Output 5	32 (G/B)	1	

OK or NG

OK >> GO TO 4.

NG >> Check harness between BCM and combination switch for open or short circuit.

# 4. BCM OUTPUT TERMINAL INSPECTION

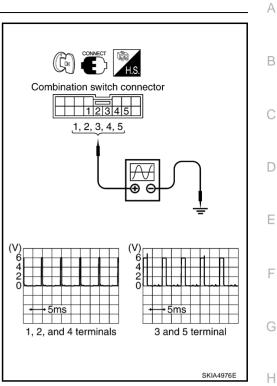
- 1. Turn lighting switch and wiper switch OFF.
- 2. Set wiper dial position 4.
- 3. Connect BCM and combination switch connectors, and check BCM output terminal voltage waveform of suspect malfunctioning system.

<u> </u>			
Suspect system	Comb	ination switch (+)	(-)
-,	Connector	Terminal (Wire color)	(-)
1		1 (W/R)	
2		2 (W/G)	
3	M29	3 (W/L)	Ground
4		4 (G)	
5		5 (G/B)	

### OK or NG

OK >> Open circuit in combination switch, GO TO 5. NG >> Replace BCM. Refer to BCS-18. "Removal and

>> Replace BCM. Refer to <u>BCS-18</u>, "Removal and Installation of BCM"



## 5. COMBINATION SWITCH INSPECTION

Referring to table below, perform combination switch inspection.

Procedure									
1	2		3	4		5	6		7
Replace	Confirm	OK	INSPECTION END	Confirm	OK	INSPECTION END	Confirm	OK	INSPECTION END
lighting switch	check results	NG	Replace wiper switch	check results	NG	Replace switch base	check results	NG	Confirm symptom again

#### >> INSPECTION END

## **Removal and Installation**

For details, refer to LT-168, "LIGHTING AND TURN SIGNAL SWITCH" .

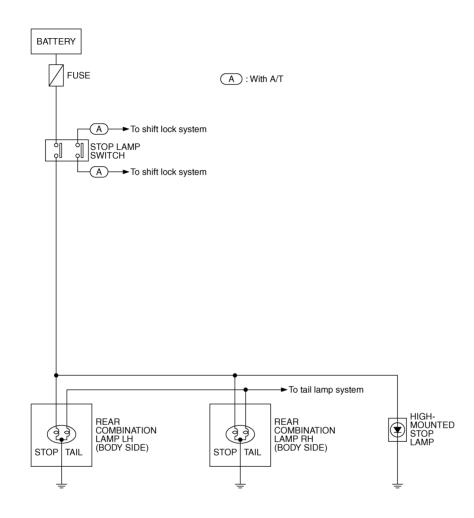
Μ

AKSODAPC

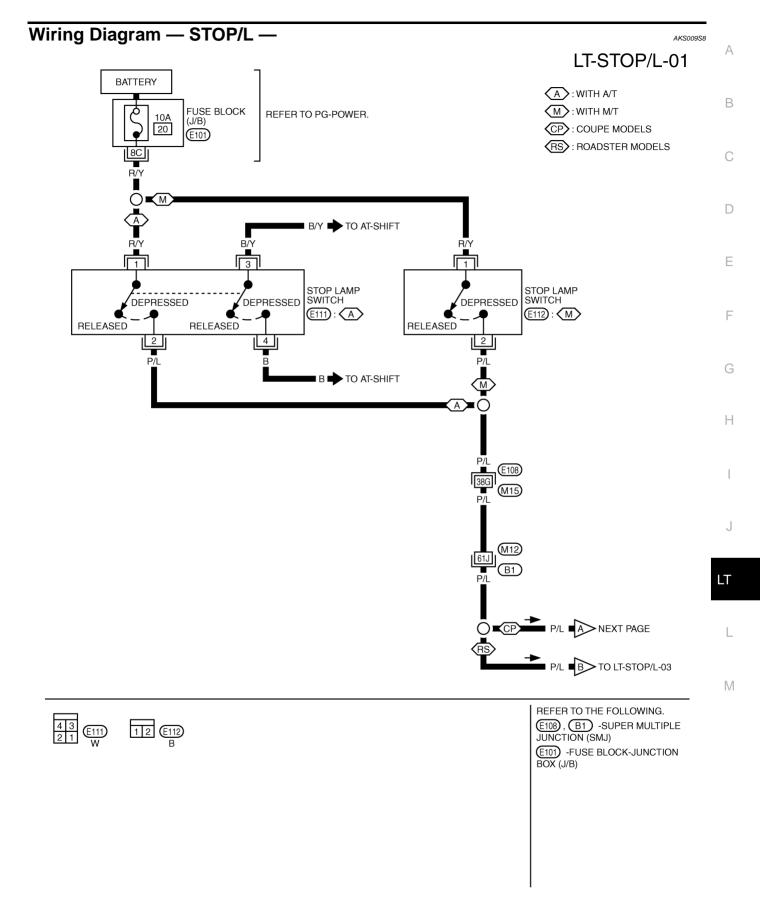
# STOP LAMP Schematic

PFP:26550

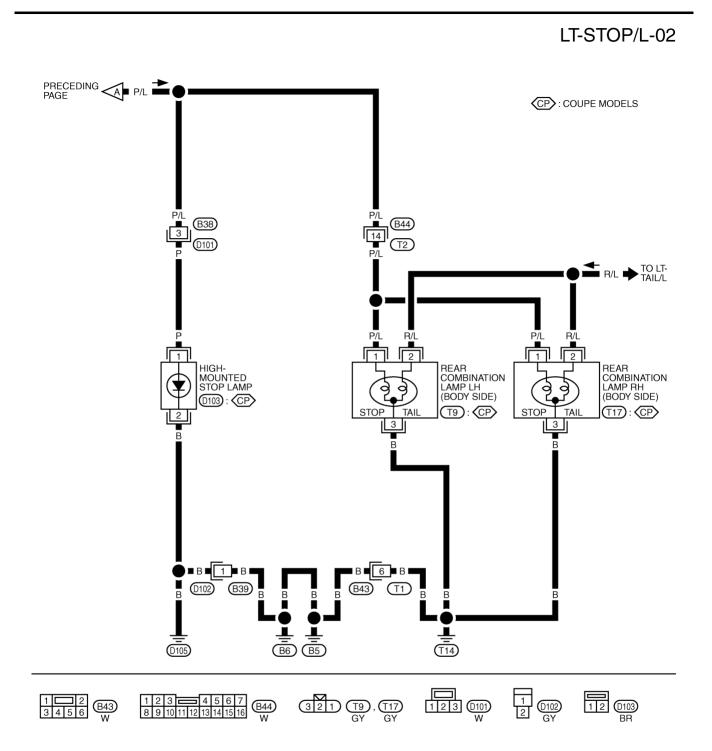
AKS00ADW



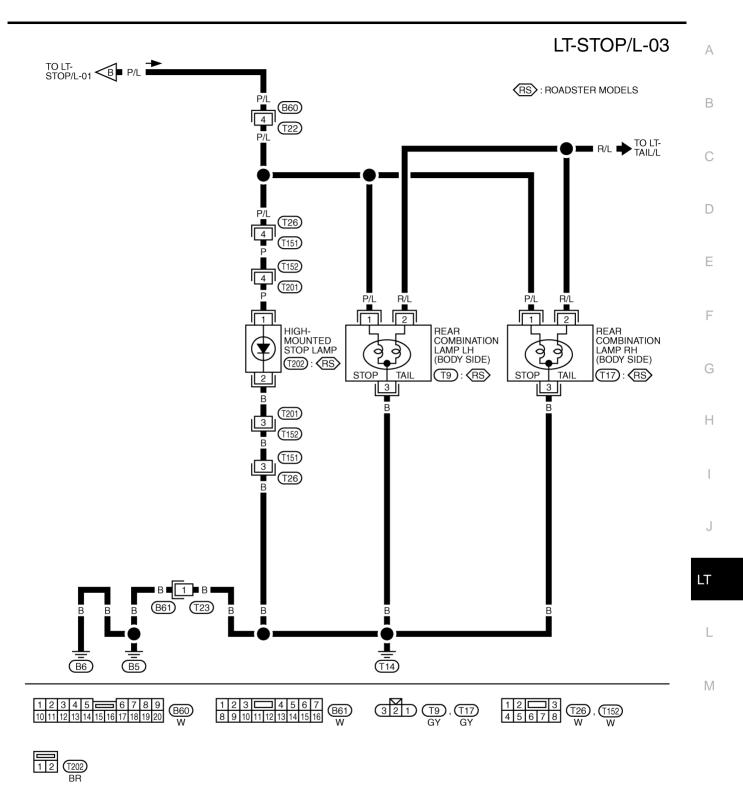
TKWT1601E



TKWT1602E



TKWT1603E



TKWT1604E

## High-Mounted Stop Lamp (Coupe Models) BULB REPLACEMENT, REMOVAL AND INSTALLATION

- 1. Remove back door finisher upper. Refer to <u>EI-47, "BACK DOOR</u> <u>FINISHER"</u> in "EI" section.
- 2. Disconnect high-mounted stop lamp connector.
- 3. Remove nuts and remove high-mounted stop lamp with cover from back door. Be sure to pull toward the arrow in the figure.
- 4. Remove screws and remove high-mounted stop lamp assembly from cover.
- 5. Installation is the reverse order of removal.

#### High-mounted stop lamp : LED

### High-Mounted Stop Lamp (Roadster Models) BULB REPLACEMENT, REMOVAL AND INSTALLATION

- 1. Turn ignition switch ON, and turn soft-top OPEN/CLOSE switch ON.
- 2. When the storage lid is fully opened, soft-top OPEN/CLOSE switch to OFF.
- 3. Remove battery negative cable.
- 4. Disconnect high-mounted stop lamp connector.
- 5. Remove high-mounted stop lamp. Be sure to pull toward the arrow in the figure.
- 6. Remove high-mounted stop lamp assembly from storage lid.
- 7. Installation is the reverse order of removal.

High-mounted stop lamp : LED

## Stop Lamp BULB REPLACEMENT

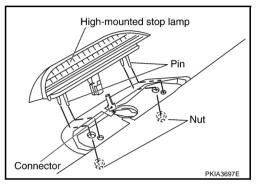
Refer to LT-207, "Bulb Replacement" in "REAR COMBINATION LAMP".

#### **REMOVAL AND INSTALLATION**

Refer to LT-208, "Removal and Installation" in "REAR COMBINATION LAMP".

High-mounted stop lamp

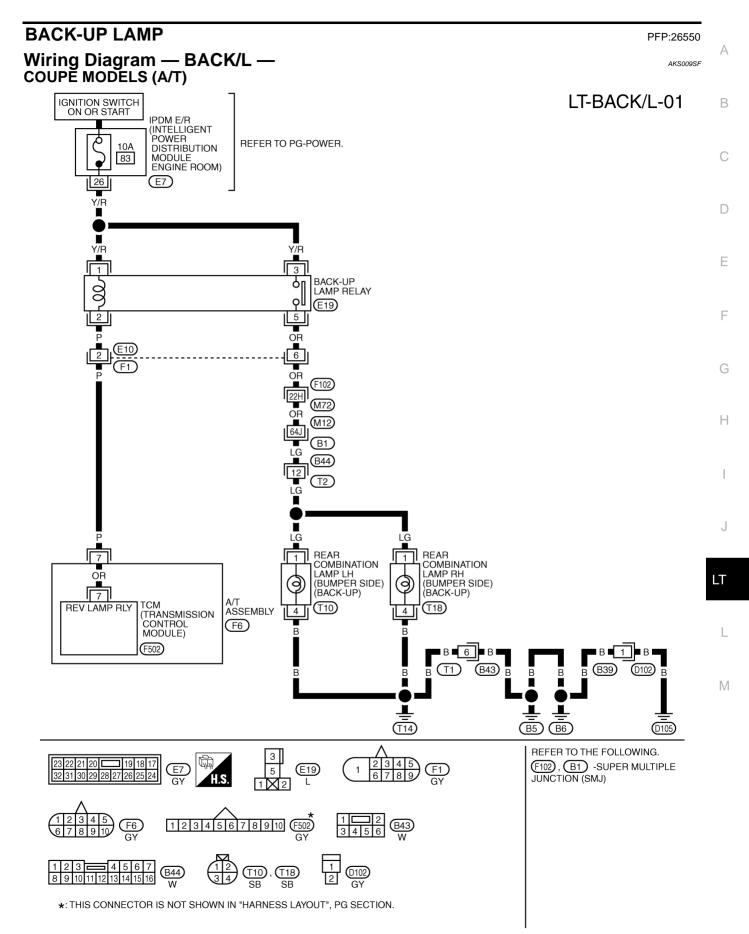
AKS003U0



AKS009SA

AKS009S9

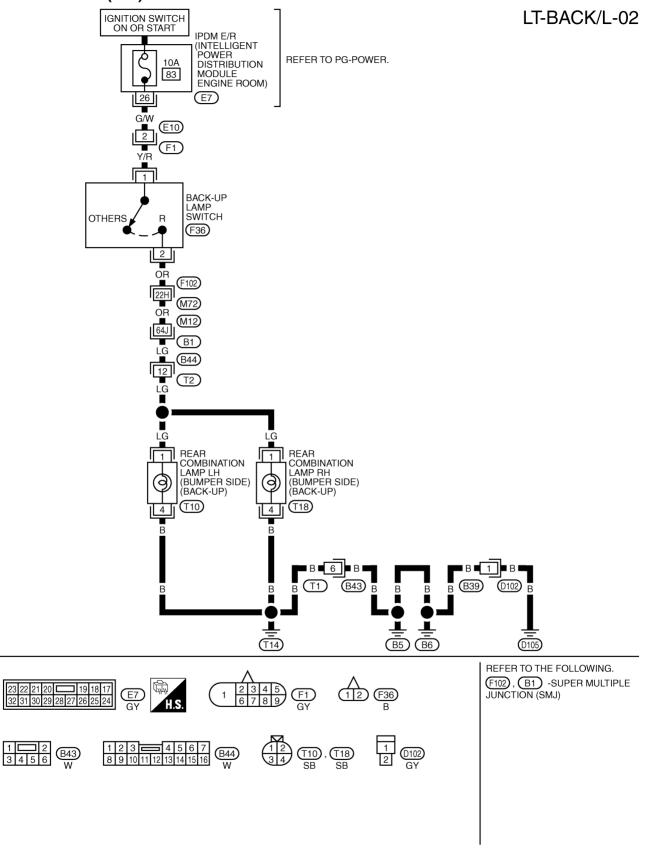
### **BACK-UP LAMP**



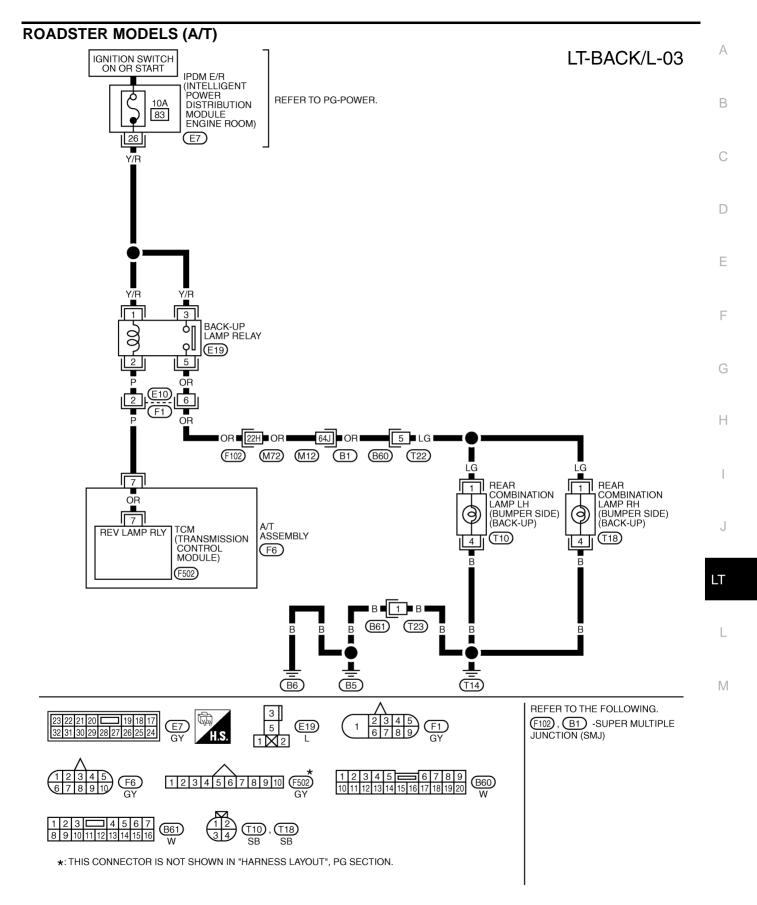
TKWM1315E

### **BACK-UP LAMP**

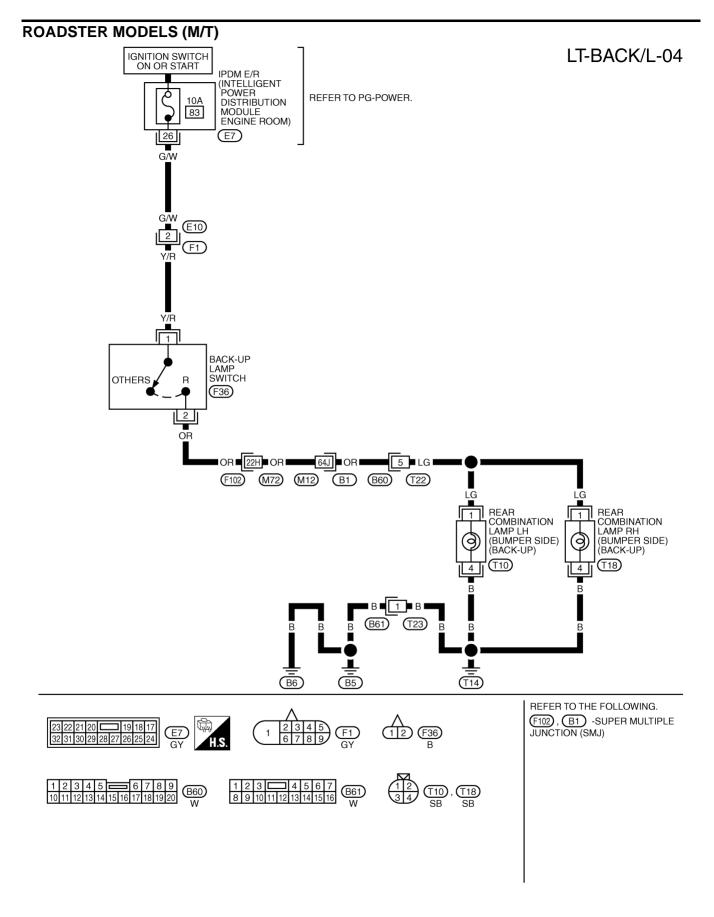
#### COUPE MODELS (M/T)



TKWT1326E



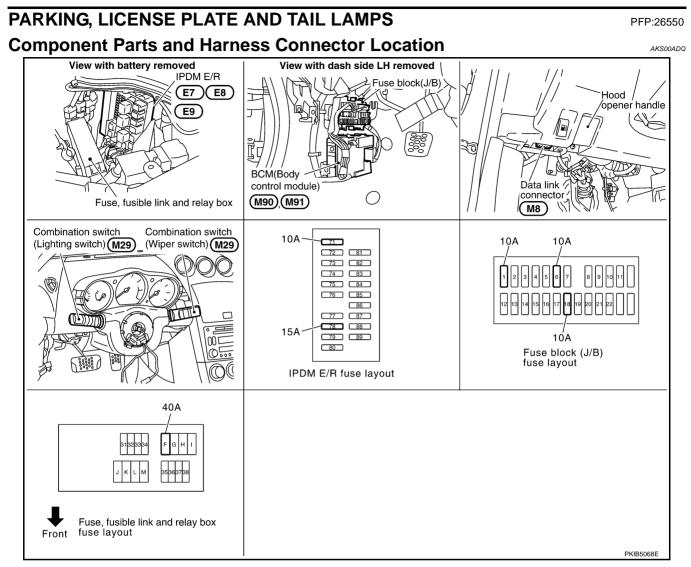
TKWM1316E



TKWT1606E

### **BACK-UP LAMP**

	S000V8	
Bulb Replacement       AK         Refer to LT-207, "Bulb Replacement" in "REAR COMBINATION LAMP".		А
Removal and Installation	S000V9	
Refer to LT-208, "Removal and Installation" in "REAR COMBINATION LAMP".		В
		С
		D
		D
		Е
		F
		G
		Н
		J
	_	
		LT
		L
		M



### System Description

AKS009RU

Control of parking, license plate, and tail lamp operation is dependent upon the position of lighting switch (combination switch). When the lighting switch is placed in the 1ST position, the BCM (body control module) receives input signal requesting the parking, license plate, side marker and tail lamps to illuminate. This input signal is communicated to the IPDM E/R (intelligent power distribution module engine room) across the CAN communication lines. The CPU (central processing unit) located in the IPDM E/R controls the tail lamp relay coil. This relay, when energized, directs power to parking, license plate, side marker and tail lamps, which then illuminate.

#### OUTLINE

Power is supplied at all times

- through 10A fuse (No.71, located in IPDM E/R)
- to tail lamp relay, located in IPDM E/R, and
- to CPU located in IPDM E/R,
- through 15A fuse (No.78, located in IPDM E/R)
- to CPU located in IPDM E/R,
- through 40A fusible link (letter F, located in fuse, fusible link and relay box)
- to BCM terminal 55,
- through 10A fuse [No.18, located in fuse block (J/B)]
- to BCM terminal 42.

With ignition switch in ON or START position, power is supplied

### LT-186

<ul> <li>to CPU located in IPDM E/R, from battery direct</li> </ul>	
<ul> <li>through 10A fuse [No.1, located in fuse block (J/B)]</li> </ul>	А
• to BCM terminal 38.	
With ignition switch in ACC or ON position, power is supplied	В
<ul> <li>through 10A fuse [No. 6, located in fuse block (J/B)]</li> </ul>	D
• to BCM terminal 11.	
Ground is supplied	С
to BCM terminal 52	
<ul> <li>through grounds M30 and M66,</li> </ul>	
<ul> <li>to IPDM E/R terminals 38 and 60</li> </ul>	D
<ul> <li>through grounds E17, E43 and F152.</li> </ul>	
OPERATION BY LIGHTING SWITCH	_
With the lighting switch in the 1ST or 2ND position, the BCM receives input signal requesting the parking, license plate, side marker and tail lamps to illuminate. This input is communicated to the IPDM E/R across the CAN communication lines. The CPU located in the IPDM E/R controls tail lamp relay coil, which when ener- gized, directs power	•
through IPDM E/R terminal 22	
<ul> <li>to front combination lamp LH terminals 5 and 6 (With xenon bulb headlamp)</li> </ul>	
<ul> <li>to front combination lamp LH terminal 5 (With halogen bulb headlamp)</li> </ul>	G
• to front combination lamp RH terminals 5 and 6 (With xenon bulb headlamp)	
• to front combination lamp RH terminal 5 (With halogen bulb headlamp)	
• to rear combination lamp LH terminals 2 and 5	Н
• to rear combination lamp RH terminals 2 and 5	
• to license plate lamp LH terminal 2	
• to license plate lamp RH terminal 2.	
Ground is supplied at all times	
<ul> <li>to front combination lamp LH terminal 1 (With xenon bulb headlamp)</li> </ul>	J
• to front combination lamp LH terminal 4 (With halogen bulb headlamp)	
• through grounds E17, E43 and F152,	
<ul> <li>to front combination lamp RH terminal 1 (With xenon bulb headlamp)</li> </ul>	LT
<ul> <li>to front combination lamp RH terminal 4 (With halogen bulb headlamp)</li> </ul>	
<ul> <li>through grounds E17, E43 and F152,</li> </ul>	1
<ul> <li>to rear combination lamp LH terminals 3 and 4</li> </ul>	
<ul> <li>through grounds D105, B5, B6 and T14 (Coupe models)</li> </ul>	
<ul> <li>through grounds B5, B6 and T14 (Roadster models),</li> </ul>	M
<ul> <li>to rear combination lamp RH terminals 3 and 4</li> </ul>	
<ul> <li>through grounds D105, B5, B6 and T14 (Coupe models)</li> </ul>	
<ul> <li>through grounds B5, B6 and T14 (Roadster models),</li> </ul>	
<ul> <li>to license plate lamp LH terminal 1</li> </ul>	
<ul> <li>through grounds D105, B5, B6 and T14 (Coupe models)</li> </ul>	
<ul> <li>through grounds B5, B6 and T14 (Roadster models),</li> </ul>	
<ul> <li>to license plate lamp RH terminal 1</li> </ul>	
<ul> <li>through grounds D105, B5, B6 and T14 (Coupe models)</li> </ul>	
<ul> <li>through grounds B5, B6 and T14 (Roadster models).</li> </ul>	
With power and ground supplied, parking, license plate side marker and tail lamps illuminate.	
COMBINATION SWITCH READING FUNCTION	
Refer to BCS-3, "COMBINATION SWITCH READING FUNCTION" .	

#### **EXTERIOR LAMP BATTERY SAVER CONTROL**

When the combination switch (lighting switch) is in the 2ND position (ON), and the ignition switch is turned from ON or ACC to OFF, the battery saver control function is activated.

Under this condition, the parking, license, side marker and tail lamps remain illuminated for 5 minutes, then the headlamps are turned off.

Exterior lamp battery saver control mode can be changed by the function setting of CONSULT-II.

### **CAN Communication System Description**

AKS009RV

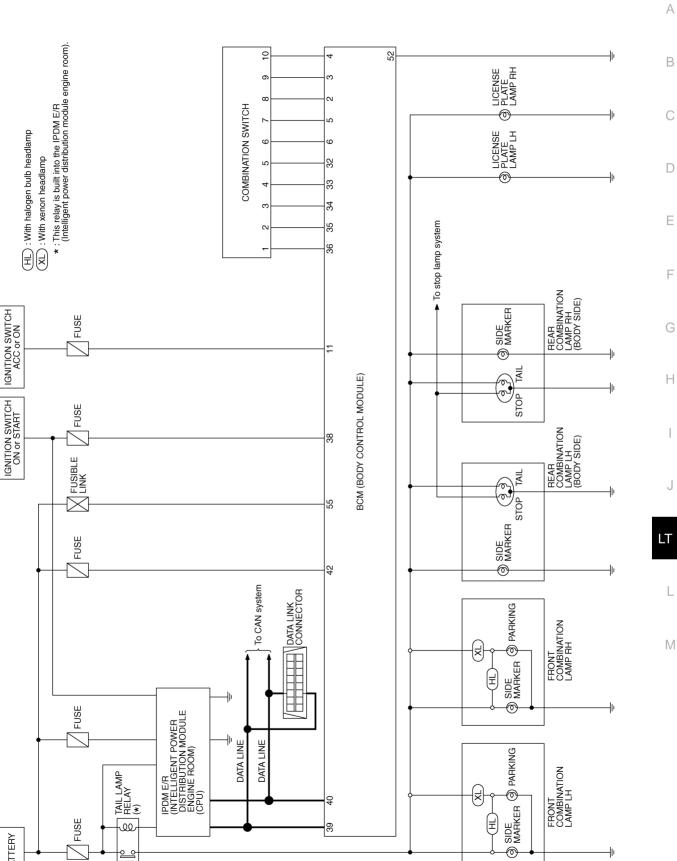
CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN H line, CAN L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

#### **CAN Communication Unit**

AKS009RW

Refer to LAN-21, "CAN Communication Unit" .

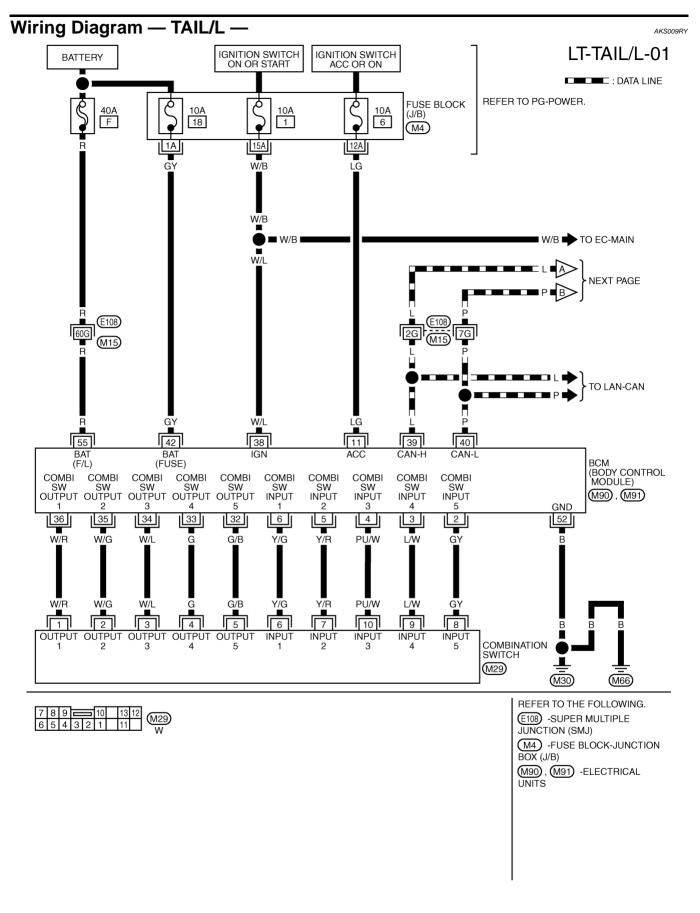
### Schematic



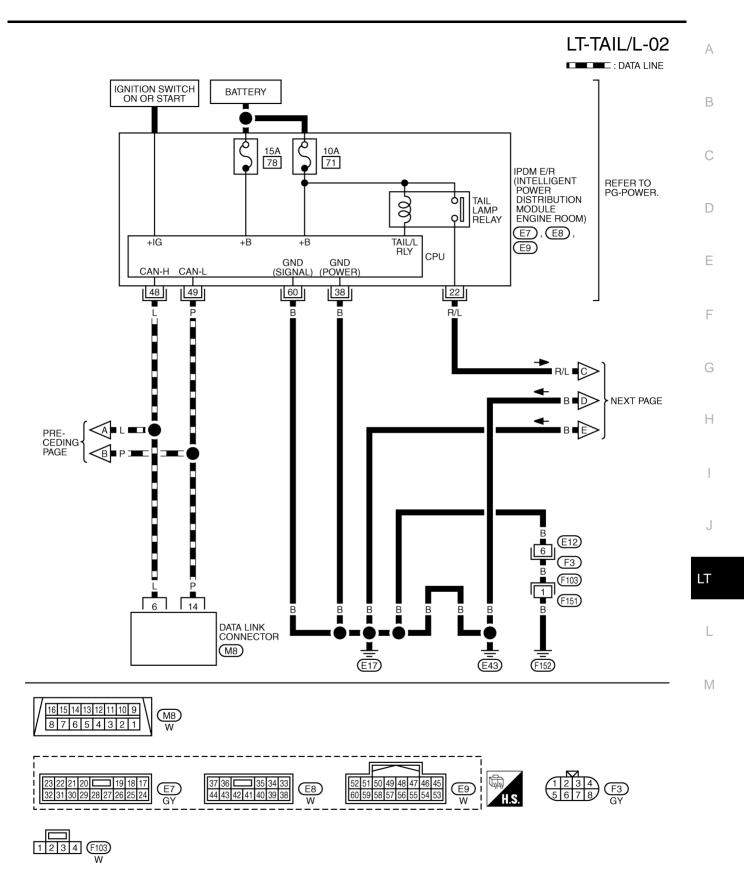
TKWT2286E

AKS009RX

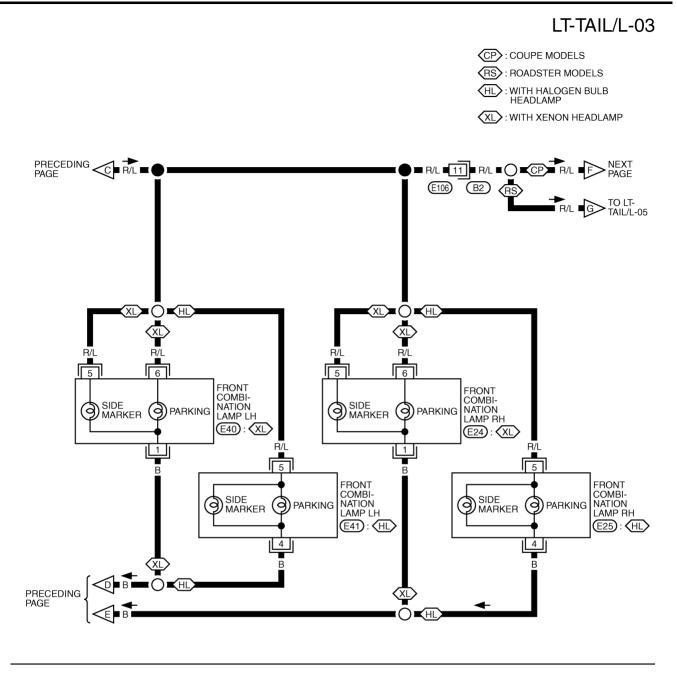
BATTERY



TKWT2287E

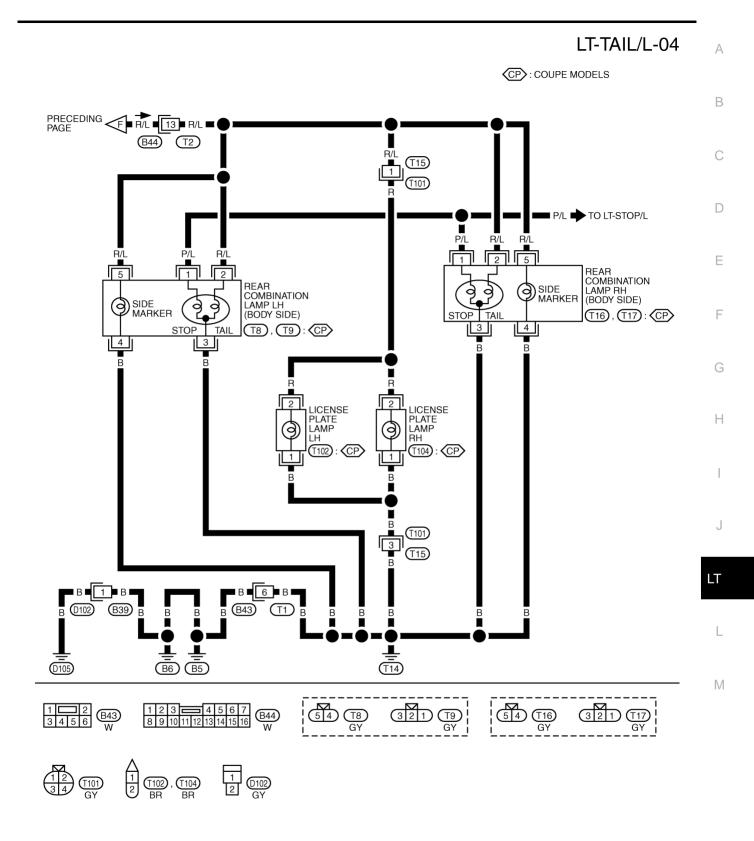


TKWT2288E





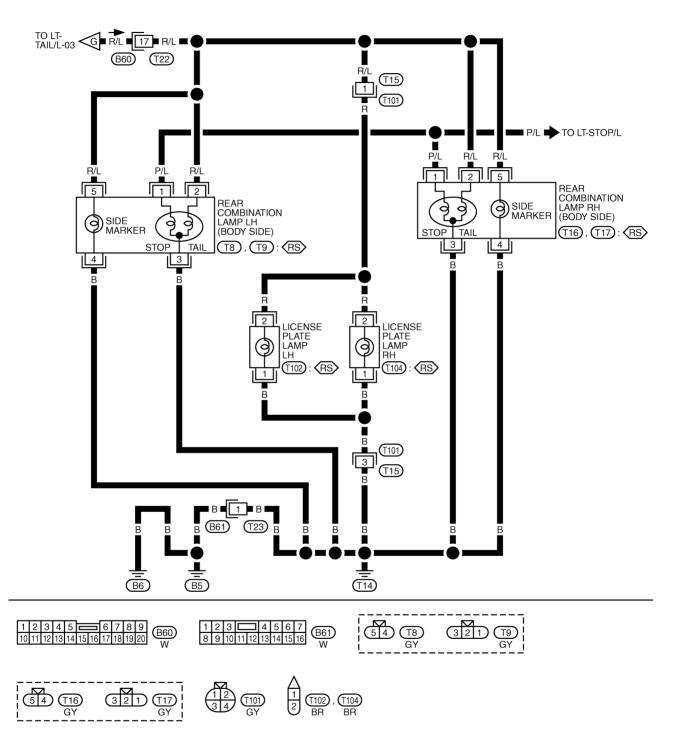
TKWT1813E



TKWT1814E

### LT-TAIL/L-05

RS : ROADSTER MODELS



TKWT1815E

### **Terminals and Reference Values for BCM**

<b>-</b> · ·	10/			Measuring condition	
Ferminal No.	Wire color	Signal name	Ignition switch	Operation or condition	Reference value
2	GY	Combination switch input 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 2 0 
3	L/W	Combination switch input 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 •••5ms SKIA5292E
4	PU/W	Combination switch input 3	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 + 5 ms 5 KIA5291E
5	Y/R	Combination switch input 2			(V)
6	Y/G	Combination switch input 1	ON	Lighting, turn, wiper OFF Wiper dial position 4	(°) 4 2 0 → +5ms SKIA5292E
11	LG	Ignition switch (ACC)	ACC	_	Battery voltage
32	G/B	Combination switch output 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 
33	G	Combination switch output 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 • • • 5ms SKIA5292E
34	W/L	Combination switch output 3	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 

AKS00APD

Terminal	Wire			Measuring condition		
No.	color	Signal name	Ignition switch	Operation or condition	Reference value	
35	W/G	Combination switch output 2				
36	W/R	Combination switch output 1	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 + 5ms SKIA5292E	
38	W/L	Ignition switch (ON)	ON	—	Battery voltage	
39	L	CAN– H	—	—	-	
40	Р	CAN– L	_	_	_	
42	GY	Battery power supply	OFF	_	Battery voltage	
52	В	Ground	ON	_	Approx. 0V	
55	R	Battery power supply	OFF	_	Battery voltage	

### Terminals and Reference Values for IPDM E/R

Terminal	Wire			Measuring con	dition			
No.	color	Signal name	Ignition switch	()peration or condition				Reference value
22	R/L	Parking, license plate,	ON	Lighting switch	OFF	Approx. 0V		
22		and tail lamp	ON	1ST position	ON	Battery voltage		
38	В	Ground	ON	—		Approx. 0V		
48	L	CAN– H		_		_		
49	Р	CAN– L	—	—		—		
60	В	Ground	ON	_		Approx. 0V		

### How to Proceed With Trouble Diagnosis

AKS009S0

AKS009SG

- 1. Confirm the symptom or customer complaint.
- 2. Understand operation description and function description. Refer to LT-186, "System Description" .
- 3. Carry out preliminary check. Refer to LT-197, "Preliminary Check" .
- 4. Check symptom and repair or replace the cause of malfunction.
- 5. Do parking, license plate, side marker and tail lamps operate normally? If YES, GO TO 6. If NO, GO TO 4.
- 6. INSPECTION END

#### **Preliminary Check** CHECK POWER SUPPLY AND GROUND CIRCUIT

#### 1. CHECK FUSES

Check for blown fuses.

Battery	F	
Battery		
,	18	
Ignition switch ON or START position	1	
Ignition switch ACC or ON position	6	
Battery	71	
	Ignition switch ACC or ON position	Ignition switch ON or START position     1       Ignition switch ACC or ON position     6       Battery     71

Refer to <u>LT-190, "Wiring Diagram — TAIL/L —"</u>

#### OK or NG

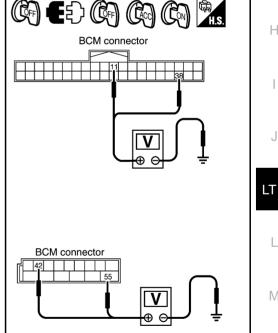
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-F 3, "POWER SUPPLY ROUTING CIRCUIT" .

### 2. CHECK POWER SUPPLY CIRCUIT

- 1. Turn ignition switch OFF.
- Disconnect BCM connector. 2.
- 3. Check voltage between BCM harness connector terminals and ground.

	Terminal			Ignition switch position		
	(+)					
Connector	Terminal (Wire color)	(–)	OFF	ACC	ON	
M90	11 (LG)		Approx. 0V	Battery voltage	Battery voltage	
M90	38 (W/L)	Ground	Approx. 0V	Approx. 0V	Battery voltage	
M01	42 (GY)	Ground	Battery voltage	Battery voltage	Battery voltage	
M91	55 (R)		Battery voltage	Battery voltage	Battery voltage	



### OK or NG

OK >> GO TO 3.

NG >> Check harness for open or short between BCM and fuse.

### 3. CHECK GROUND CIRCUIT

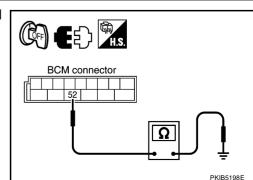
Check continuity between BCM harness connector terminal and ground.

	Continuity		
Connector Terminal (Wire color)		Ground	Continuity
M91	52 (B)	Giouna	Yes

#### OK or NG

OK >> INSPECTION END

NG >> Check ground circuit harness.



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### **CONSULT-II Functions (BCM)**

Refer to <u>LT-17</u>, "CONSULT-II Functions (BCM)" in XENON TYPE (FOR USA). Refer to <u>LT-48</u>, "CONSULT-II Functions (BCM)" in CONVENTIONAL TYPE (FOR USA). Refer to <u>LT-83</u>, "CONSULT-II Functions (BCM)" in XENON TYPE (FOR CANADA). Refer to LT-123, "CONSULT-II Functions (BCM)" in CONVENTIONAL TYPE (FOR CANADA).

### **CONSULT-II Functions (IPDM E/R)**

Refer to <u>LT-20, "CONSULT-II Functions (IPDM E/R)"</u> in XENON TYPE (FOR USA). Refer to <u>LT-51, "CONSULT-II Functions (IPDM E/R)"</u> in CONVENTIONAL TYPE (FOR USA). Refer to <u>LT-86, "CONSULT-II Functions (IPDM E/R)"</u> in XENON TYPE (FOR CANADA). Refer to <u>LT-126, "CONSULT-II Functions (IPDM E/R)"</u> in CONVENTIONAL TYPE (FOR CANADA).

### Parking, Side Marker, License Plate and Tail Lamps Do Not Illuminate

### **1. CHECK COMBINATION SWITCH INPUT SIGNAL**

With CONSULT-II Select "BCM" on CONSULT-II. With "HEAD LAMP" data monitor, make sure "LIGHT SW 1 ST" turns ON-OFF linked with operation of lighting switch.

When lighting switch is 1ST : LIGHT SW 1 ST ON position

Without CONSULT-II

Refer to LT-173, "Combination Switch Inspection".

#### OK or NG

OK >> GO TO 2.

NG >> Check combination switch (lighting switch). Refer to <u>LT-</u> <u>173, "Combination Switch Inspection"</u>.

### 2. ACTIVE TEST

#### With CONSULT-II

- 1. Select "IPDM E/R" on CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Select "TAIL LAMP" on "SELECT TEST ITEM" screen.
- 3. Touch "ON" screen.
- 4. Make sure parking, license plate, side marker and tail lamp operation.

Parking, license plate, side marker and tail lamp should operate.

#### Without CONSULT-II

- 1. Start auto active test. Refer to PG-22, "Auto Active Test" .
- 2. Make sure parking, license plate, side marker and tail lamp operation.

## Parking, license plate, side marker and tail lamp should operate.

#### OK or NG

OK >> GO TO 3. NG >> GO TO 4.

	ACTI\			
TAIL LA	ИР		ON	
		OI	F	
MODE	BACK	LIGHT	COPY	PKIA7021E

DATA MONITOR

ON

MONITOR

LIGHT SW 1ST

		MODE	BACK	
tive Test".				
and tail lamp opera	tion.			

AKS00ADT

AKS009S2

AKSOOAPO

SKIA5956E

#### 3. CHECK IPDM E/R А Select "IPDM E/R" on CONSULT-II, and select "DATA MONI-1. DATA MONITOR TOR" on "SELECT DIAG MODE" screen. MONITOR TAIL&CLR REQ ON 2. Make sure "TAIL & CLR REQ" turns ON when lighting switch is В in 1ST position. When lighting switch is 1ST : TAIL & CLR REQ ON С position OK or NG OK >> Replace IPDM E/R. D RECORD NG >> Replace BCM. Refer to BCS-18, "Removal and Installa-MODE BACK LIGHT COPY SKIA5958E tion of BCM" .

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### 4. CHECK IPDM E/R

#### (B)With CONSULT-II

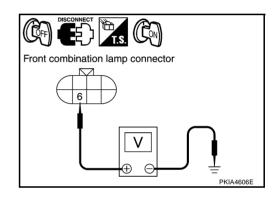
- 1. Turn ignition switch OFF.
- 2. Disconnect front combination lamp, rear combination lamp and license plate lamp connectors.
- 3. Select "IPDM E/R" on CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 4. Select "TAIL LAMP" on "SELECT TEST ITEM" screen.
- 5. Touch "ON" screen.
- 6. When tail lamp relay is operating, check voltage between front combination lamp, rear combination lamp and license plate lamp harness connector and ground.

With out CONSULT-II

- 1. Turn ignition switch OFF.
- 2. Disconnect front combination lamp, rear combination lamp and license plate lamp connector.
- 3. Start auto active test. Refer to PG-22, "Auto Active Test" .
- 4. When tail lamp relay is operating, check voltage between front combination lamp, rear combination lamp and license plate lamp harness connector and ground.

With xenon headlamp

	Terminal					
Front combination lamp (+) (Parking)			(-)	Voltage		
Conr	Connector Terminal					
RH	E24	6 (P/L)	Ground	Pottony voltago		
LH	E40	6 (R/L)	Giouna	Battery voltage		

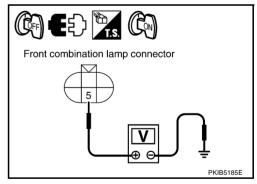


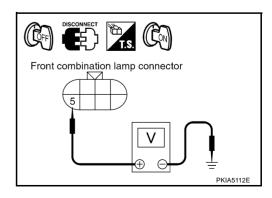
With halogen headlamp

	Terminal						
	Front comb (P	(-)	Voltage				
Conr	Connector Terminal (wire color)						
RH	E25	5 (R/L)	Ground	Battery voltage			
LH	E41	5 (R/L)	Giouna	Ballery Vollage			

With xenon headlamp

	mbination lamp (+) Side marker)	(-)	Voltage
Connector	Terminal (wire color)		
RH E24	5 (R/L)	Ground	Battery voltage
LH E40		Cibuliu	Dattery Voltage





With I	With halogen headlamp							
	Terminal							
	Front comb (side	(-)	Voltage					
Conr	nector	Terminal (wire color)						
RH	E25	5 (R/L)	Ground	Battony voltago				
LH	E41	5 (N/L)	Ground	Battery voltage				

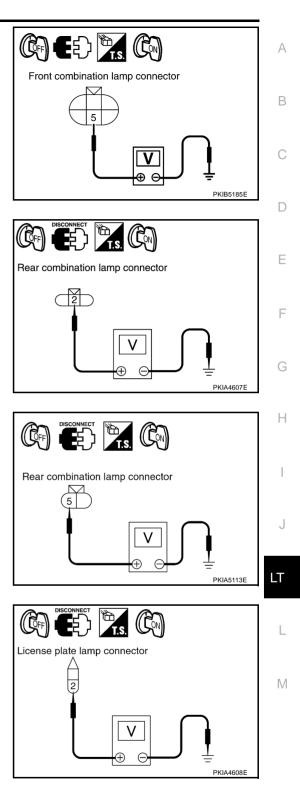
	Rear comb	(-)	Voltage		
Con	Connector Terminal (wire color)				
RH	T17	2 (R/L)	Ground	Battery voltage	
LH	Т9	2 (N/L)	Giouna	Ballery Vollage	

	Rear comb (Sid	(-)	Voltage		
Con	Connector Terminal (wire color)				
RH	T16	5 (R/L)	Ground	Battery voltage	
LH	Т8	5 (R/L)	Gibuna	Ballery Vollage	

	Voltage				
Conr	nector	Terminal (wire color)	(-)		
RH	T104	2 (R)	Ground	Pattony voltago	
LH	T102	2 (11)	Giouna	Battery voltage	

OK or NG

OK >> GO TO 6. NG >> GO TO 5.

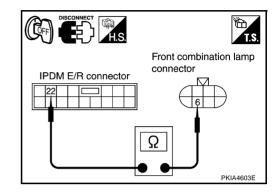


### 5. CHECK BETWEEN IPDM E/R AND PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- 3. Check continuity between IPDM E/R harness connector and front combination lamp, rear combination lamp and license plate lamp harness connector.

With xenon headlamp

IPDM E/R		Front combination lamp (Parking)			Continuity
Connector	Terminal (wire color)	Connector		Terminal (wire color)	
F7	22 (R/L)	RH	E24	6 (R/L)	Yes
	22 (N/L)	LH	E40	6 (R/L)	165



### With halogen bulb headlamp

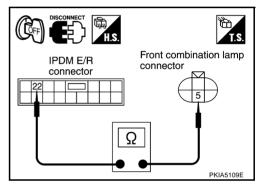
IPDM E/R		Front combination lamp (Parking)			Continuity
Connector	Terminal (wire color)	Connector		Terminal (wire color)	
E7	22 (R/L)	RH	E25	5 (R/L)	Yes
E7	22 (IV/L)	LH	E41	5 (R/L)	165

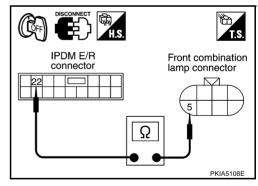
#### With xenon headlamp

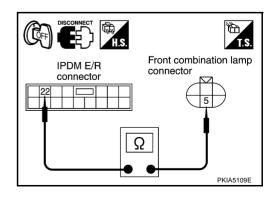
IPD	Front combination lamp (side marker)			Continuity	
Connector	Terminal (wire color)	Connector		Terminal (wire color)	
E7	22 (R/L)	RH	E24	5 (R/L)	Yes
	22 (IV/L)	LH	E40	5 (R/L)	165

#### With halogen bulb headlamp

IPD	Front combination lamp (side marker)			Continuity	
Connector	Terminal (wire color)	Connector		Terminal (wire color)	
E7	22 (R/L)	RH	E25	5 (R/L)	Yes
	22 (IV/L)	LH	E41	5 (R/L)	165







IPD	Rear combination lamp (Tail)			Continuity	
Connector	Terminal (wire color)	Connector		Terminal (wire color)	
F7	E7 22(R/L)	RH	T17	2 (R/L)	Yes
	22(IV/L)	LH	Т9	2 (R/L)	165

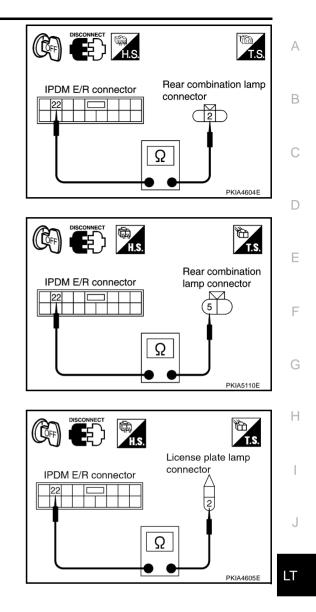
IPD	Rear combination lamp (side marker)			Continuity	
Connector	Terminal (wire color)	Connector		Terminal (wire color)	
F7	22(R/L)	RH	T16	5 (R/L)	Yes
E7	22(N/L)	LH	Т8	5 (R/L)	165

Terminal					
IPDM E/R		Licence plat lamp		Continuity	
Connector	Terminal (wire color)	Connector		Terminal (wire color)	
E7	22 (R/L)	RH	T104	2 (R)	Yes
	22 (IV/L)	LH	T102	2 (R)	165

#### OK or NG

OK >> Replace IPDM E/R.

NG >> Repair harness or connector.



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### 6. CHECK GROUND

RH

LH

E25

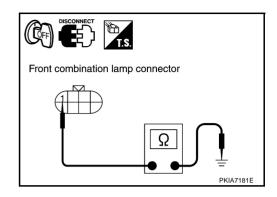
E41

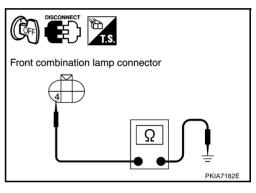
## 1. Check continuity between front combination lamp, rear combination lamp and license plate lamp harness connector and ground.

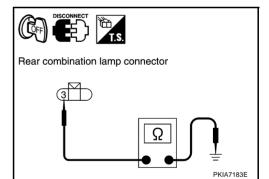
Continuity

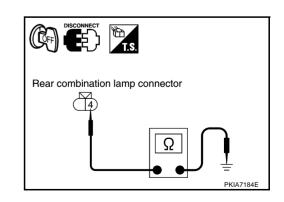
Yes

Terminal					
		nbination lamp nd side marker)		Continuity	
Con	nector	Terminal (wire color)	Ground		
RH	E24	1 (D)		Voc	
LH	E40	1 (B)	Yes	res	







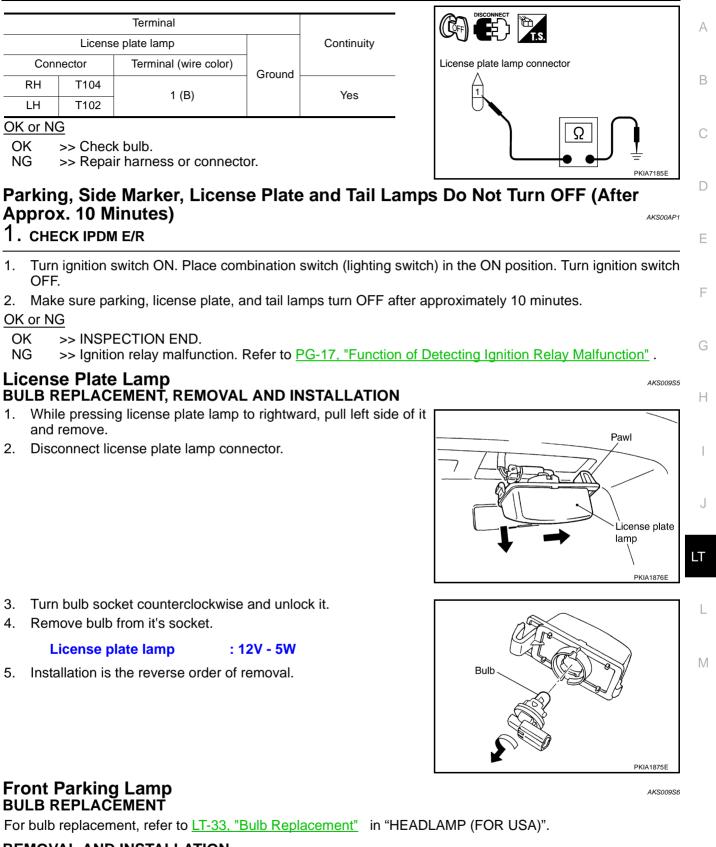


With halogen headlamp			
Terminal			
Front cor (Parking a			
Connector	Terminal (wire color)	Ground	

4 (B)

Terminal				
	Rear combination lamp (Tail)			Continuity
Con	nector	Terminal (wire color)	Ground	
RH	T17	3 (B)		Yes
LH	Т9			105

Terminal				
	Rear combination lamp (Side marker)			Continuity
Conr	nector	Terminal (wire color)	Ground	
RH	T16	4 (B)		Yes
LH	T8			163



#### **REMOVAL AND INSTALLATION**

For front parking (clearance) lamp removal and installation procedures, refer to <u>LT-35, "Removal and Installa-</u> tion" in "HEADLAMP (FOR USA)".

#### Tail Lamp BULB REPLACEMENT

AKS009S7

For bulb replacement, refer to LT-207, "Bulb Replacement" in "REAR COMBINATION LAMP".

#### **REMOVAL AND INSTALLATION**

For tail lamp removal and installation procedures, refer to <u>LT-208, "Removal and Installation"</u> in "REAR COM-BINATION LAMP".

### **REAR COMBINATION LAMP**

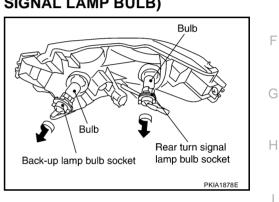
#### Bulb Replacement REAR FENDER SIDE (STOP & TAIL LAMP BULB, REAR SIDE MARKER LAMP BULB)

- 1. Remove rear combination lamp. Refer to <u>LT-208</u>, "Removal and <u>Installation"</u>
- 2. Turn bulb socket counterclockwise and unlock it.
- 3. Remove bulb.
- 4. Installation is the reverse order of removal.

Stop/tail lamp (rear fender side)	: 12V - 21/5W
Rear side marker lamp (rear fender side)	: 12V - 5W

### REAR BUMPER SIDE (BACK-UP LAMP BULB, REAR TURN SIGNAL LAMP BULB)

- 1. Remove rear combination lamp. Refer to <u>LT-208, "Removal and</u> <u>Installation"</u>
- 2. Turn bulb socket counterclockwise and unlock it through bumper fascia crevice.



Bulb Rear side marker lamp bulb socket PFP:26554

Bulb

Stop/ tail lamp bulb socket

PKIA1877E

AKS000VN

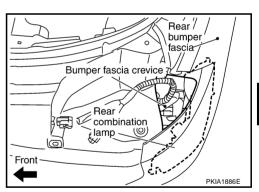
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- 3. Remove bulb.
- 4. Installation is the reverse order of removal.

Rear turn signal lamp<br/>(rear bumper side): 12V - 21W (amber)Back-up lamp<br/>(rear bumper side): 12V - 21W



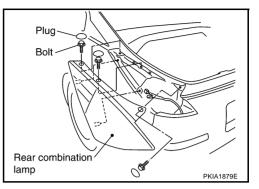
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#### **Removal and Installation** REMOVAL

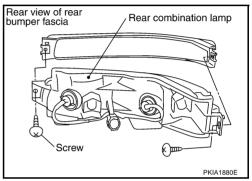
#### **Rear Fender Side**

- 1. Remove plugs and remove rear combination lamp mounting bolts.
- 2. Pull rear combination lamp toward side of the vehicle and remove from the vehicle.
- 3. Disconnect rear combination lamp connector.



#### **Rear Bumper Side**

- Remove rear bumper fascia. Refer to EI-17, "REAR BUMPER" 1. in "EI" section.
- 2. Disconnect rear combination lamp connector.
- 3. Remove rear combination lamp mounting screws.
- 4. Remove rear combination lamp from rear bumper fascia.



#### INSTALLATION

Installation is the reverse order of removal. Be careful of the following:

Rear combination lamp (Rear fender side) mounting bolt is : 5.5 N·m (0.56 kg-m, 49 in-lb)

AKS000VO

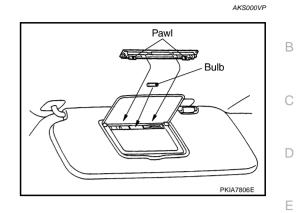
### VANITY MIRROR LAMP

### **Bulb Replacement**

- 1. Insert a thin screwdriver in the lens end and remove lens.
- 2. Remove bulb.

Vanity mirror lamp : 12V - 1.32W

3. Installation is the reverse order of removal.



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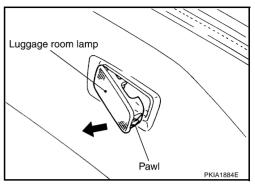
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### TRUNK ROOM LAMP

PFP:26470

# Bulb Replacement, Removal and Installation of Luggage Room Lamp (Coupe Models)

- 1. Pull out luggage room lamp in direction shown by the arrow in the figure.
- 2. Disconnect luggage room lamp connector.



# Bulb Replacement, Removal and Installation of Trunk Room Lamp (Roadster Models)

: 12V - 5W

1. Unfold pawl A and remove lens.

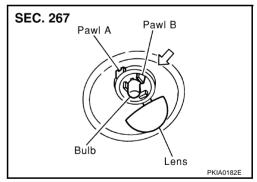
Luggage room lamp

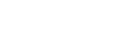
Installation is the reverse order of removal.

- 2. Remove trunk room lamp while pressing pawl B in the direction of the arrow.
- 3. Disconnect trunk room lamp connector.

Trunk room lamp : 12V - 3.4W

4. Installation is the reverse order of removal.





3. Remove bulb.

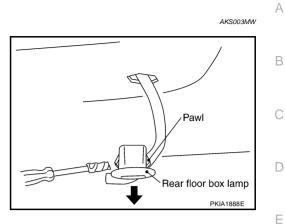
4.

### **REAR FLOOR BOX LAMP**

### **REAR FLOOR BOX LAMP**

### **Bulb Replacement, Removal and Installation**

1. Pull out rear floor box lamp using screwdriver or similar tool.



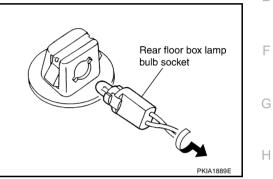
PFP:68520

Turn bulb socket counterclockwise to release lock and remove 2. it.

**Rear floor box lamp** 

: 12V - 1.4W

3. Installation is the reverse order of removal.



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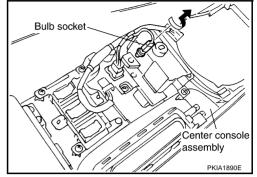
### **ASHTRAY ILLUMINATION**

### **Bulb Replacement, Removal and Installation**

- 1. Remove center console assembly. Refer to <u>IP-10, "INSTRU-</u><u>MENT PANEL ASSEMBLY"</u> in "IP" section.
- 2. Turn bulb socket counterclockwise to release lock and remove bulb socket.

Ashtray illumination : 12V - 1.4W

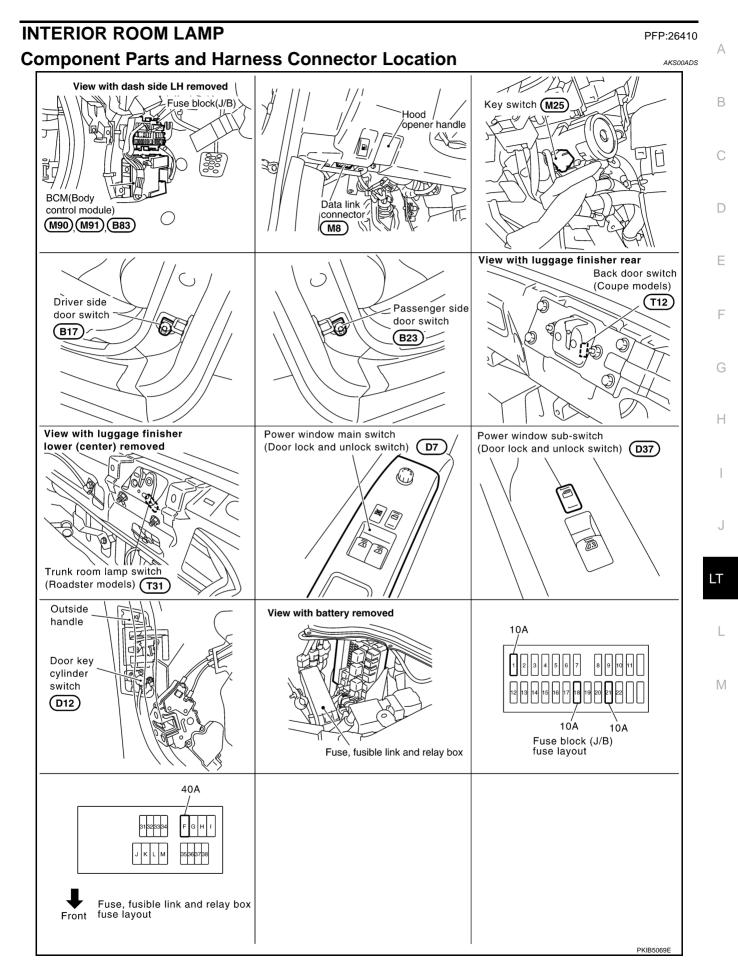
3. Installation is the reverse order of removal.



PFP:25860

AKS000VY

### **INTERIOR ROOM LAMP**



### **System Description**

When the map lamp switch is in the DOOR position, map lamp ON/OFF is controlled by timer according to signals from switches including key switch, door switch driver side and assist side, unlock and lock signal from

key fob, door lock and unlock switch, key cylinder lock and unlock switch, ignition switch. When the map lamp turns ON, there is a gradual brightening over 1 second. When map lamp turns OFF, there is a gradual dimming over 1 second.

map lamp timer is controlled by BCM (body control module).

Map lamp timer control settings can be changed with CONSULT-II.

#### POWER SUPPLY AND GROUND

Power is supplied at all times

- through 10A fuse [No.21, located in fuse block (J/B)]
- to key switch terminal 2,
- through 10A fuse [No.18, located in fuse block (J/B)]
- to BCM terminal 42,
- through 40A fusible link (letter F, located in fuse, fusible link and relay box)
- to BCM terminal 55.

When key is removed from ignition key cylinder, power is interrupted

- through key switch terminal 1
- to BCM terminal 37.

With ignition switch in ON or START position, power is supplied

- through 10A fuse [No.1, located in fuse block (J/B)]
- to BCM terminal 38.

When room lamp and vanity mirror lamp power is supplied at times

- through BCM terminal 41
- to map lamp terminal 3 (Coupe models)
- to map lamp terminal 2 (Roadster models)
- to luggage room lamp terminal 1 (Coupe models)
- to trunk room lamp terminal 1 (Roadster models)
- to vanity mirror lamp LH and RH terminal 1.

Ground is supplied

- to BCM terminal 52
- through grounds M30 and M66.

When driver side door is opened, ground is supplied

- through case ground of driver side door switch
- to BCM terminal 62.

When passenger side door is opened, ground is supplied

- through case ground of passenger side door switch
- to BCM terminal 12.

When back door is opened, ground is supplied (Coupe models)

- through grounds B5, B6, D105 and T14
- to back door switch terminal 3
- from back door switch terminal 1
- to BCM terminal 58.

When trunk hood is opened, ground is supplied (Roadster models)

- through grounds B5, B6 and T14
- to trunk room lamp switch terminal 2
- through trunk room lamp switch terminal 1
- to BCM terminal 57.

When the driver side door or passenger side door is unlocked by door lock and unlock switch, The BCM receives unlock signal with power window serial link

Revision: 2005 August

#### LT-214

AKS000W0

### INTERIOR ROOM LAMP

<ul> <li>through grounds M30 and M66</li> </ul>	
• to power window main switch (door lock and unlock switch) terminal 15 or power window sub switch (door lock and unlock switch) terminal 11	А
• through power window main switch (door lock and unlock switch) terminal 12 and power window sub switch (door lock and unlock switch) terminal 16	В
• to BCM terminal 22.	
When the driver side door is unlocked by door key cylinder switch, The BCM receives information by communicating with power window main switch	С
<ul> <li>through grounds M30 and M66</li> </ul>	
<ul> <li>to door key cylinder switch terminal 2</li> </ul>	
<ul> <li>through door key cylinder switch terminal 1</li> </ul>	D
<ul> <li>to power window main switch terminal 7</li> </ul>	
<ul> <li>through power window main switch (door lock and unlock switch) terminal 12</li> </ul>	Е
to BCM terminal 22.	_
When a signal, or combination of signals is received by BCM, ground is supplied	
through BCM terminal 48	F
<ul> <li>to map lamp terminal 2 (Coupe models)</li> </ul>	
<ul> <li>to map lamp terminal 3 (Roadster models).</li> </ul>	
With power and ground are supplied, map lamp illuminates.	G
SWITCH OPERATION	
When map lamp switch is ON, ground is supplied	Н
to map lamp terminal 1	
<ul> <li>through grounds M30 and M66.</li> </ul>	
And power is supplied	
through BCM terminal 41	
<ul> <li>to map lamp terminal 3 (Coupe models)</li> </ul>	
<ul> <li>to map lamp terminals 2 (Roadster models).</li> </ul>	J
When vanity mirror lamp LH and RH is ON, ground is supplied	
<ul> <li>to vanity mirror lamp LH and RH terminal 2</li> </ul>	LT
<ul> <li>through grounds M30 and M66.</li> </ul>	
And power is supplied	
through BCM terminal 41	L
<ul> <li>to vanity mirror lamp terminal 1.</li> </ul>	
MAP LAMP TIMER OPERATION	
When the man lamp switch is in the DOOR position, and when all conditions below are met. BCM performs	M

When the map lamp switch is in the DOOR position, and when all conditions below are met, BCM performs timer control (maximum 30 seconds) for map lamp ON/OFF. In addition, when map lamp turns ON or OFF there is gradual brightening or dimming over 1 second.

Power is supplied at all times

- to 10A fuse [No. 21 (located in fuse block (J/B)]
- through key switch terminal 2.

When all doors are closed (all door switches OFF) and key is removed from key cylinder (key switch OFF), power will not be supplied to BCM terminal 37. Ground is supplied

- through BCM terminal 22
- to power window main switch (door lock and unlock switch) terminal 12.

At this time, BCM detects that driver door is unlocked. It determines that map lamp timer operation conditions are met, and turns map lamp ON for 30 seconds.

When all doors are closed (all door switches OFF) and key is in key cylinder (key switch ON), Power is supplied

• through key switch terminal 1

#### • to BCM terminal 37.

When the key is removed from key switch (key switch OFF), power supply to BCM terminal 37 is terminated. BCM detects that key has been removed. It determines that map lamp timer conditions are met, and turns map lamp ON for 30 seconds.

When driver door opens  $\rightarrow$  closes, and key is not inserted in key switch (key switch OFF), BCM terminal 62 changes between 0V (door open)  $\rightarrow$  5V (door closed). BCM determines that conditions for spot lamp operation are met and turns interior lamp ON for 30 seconds.

Timer control is canceled under the following conditions.

- Driver door is locked (When locked key fob or power window main switch (door lock and unlock switch, door key cylinder switch).
- Driver door is opened (driver door switch turns ON).
- Ignition switch ON.

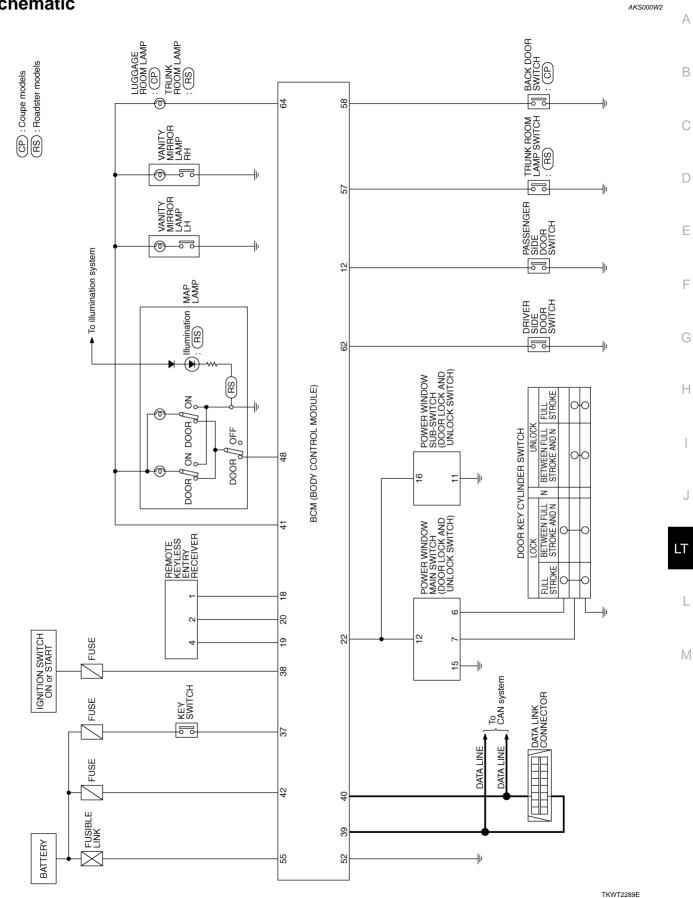
#### INTERIOR LAMP BATTERY SAVER CONTROL

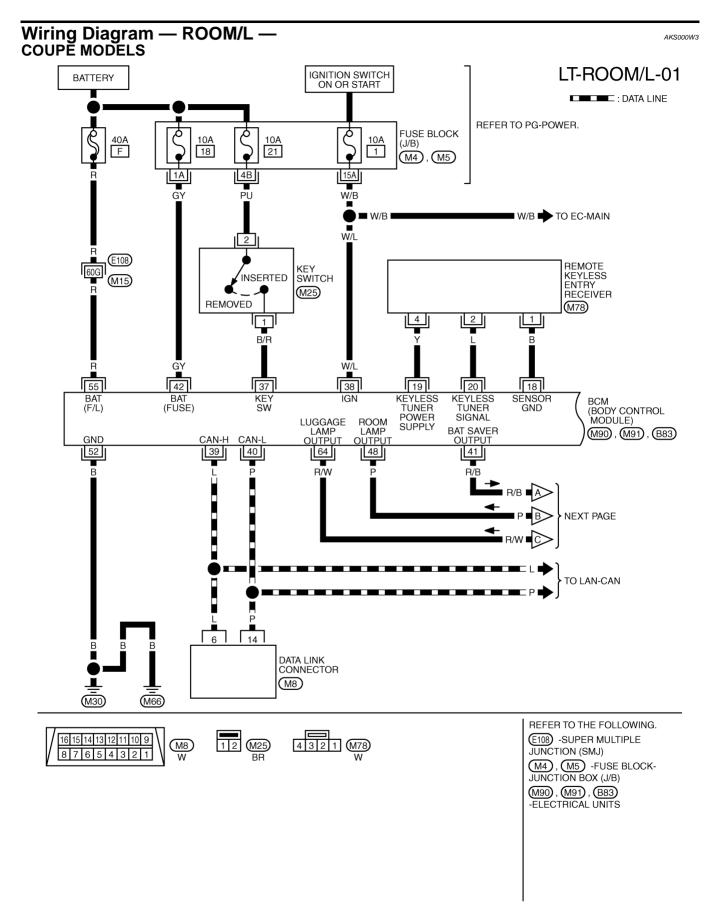
If the room lamp remains illuminated by door switch open signal, or if room lamp switch is in the ON position for more than 30 minutes after the ignition switch is turned to the OFF position, BCM will automatically turn off map lamp, luggage room lamp (Coupe models), trunk room lamp (Roadster models) and vanity mirror lamp. After lamps turn OFF by battery saver system, the lamps illuminate again when

- signal from key fob, door lock and unlock switch, or key cylinder is locked or unlocked,
- door is opened or closed,
- key is removed from ignition key cylinder or inserted in ignition key cylinder.

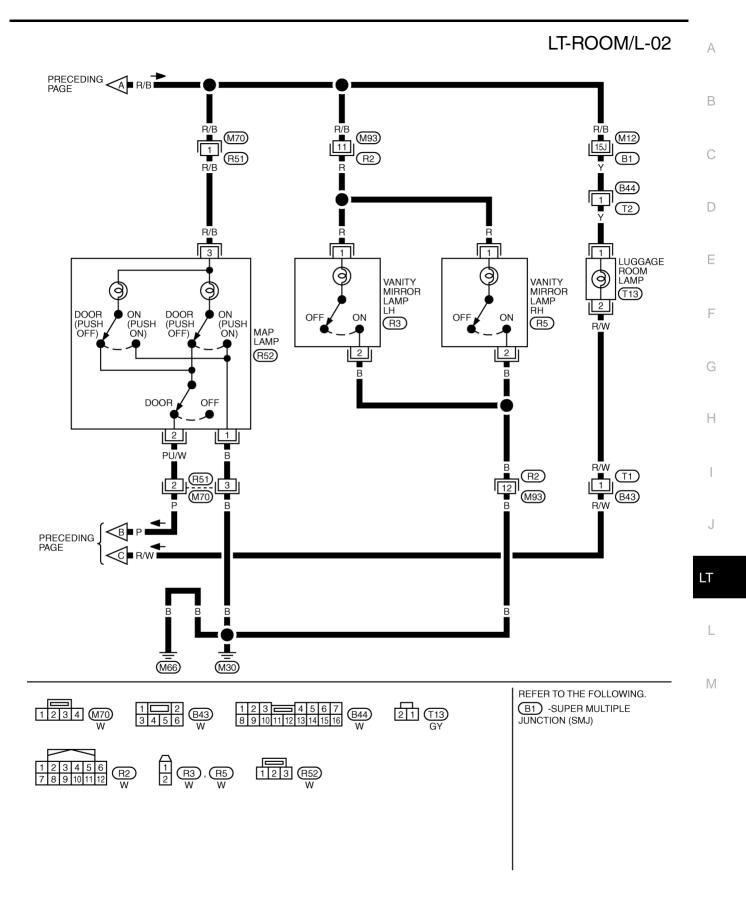
Interior lamp battery saver control period can be changed by the function setting of CONSULT-II.

## Schematic



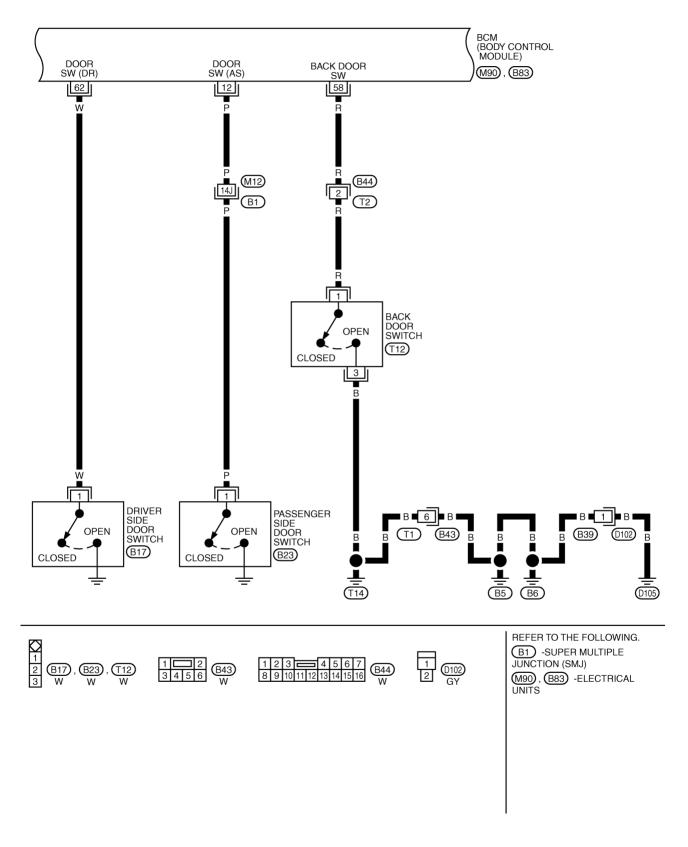


TKWT2290E

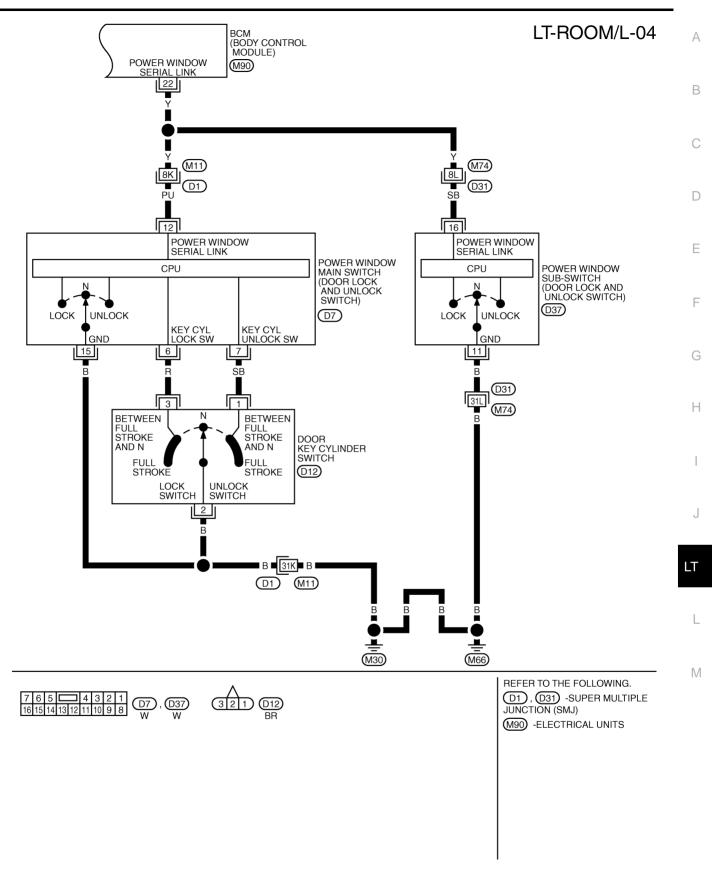


TKWT2291E

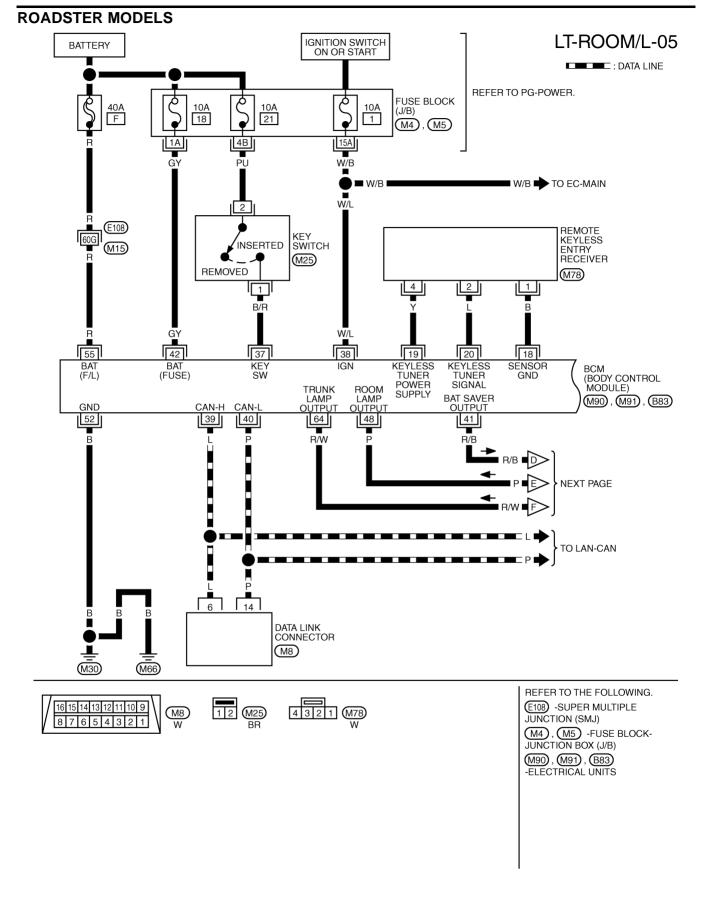
## LT-ROOM/L-03



TKWT1819E



TKWT1820E



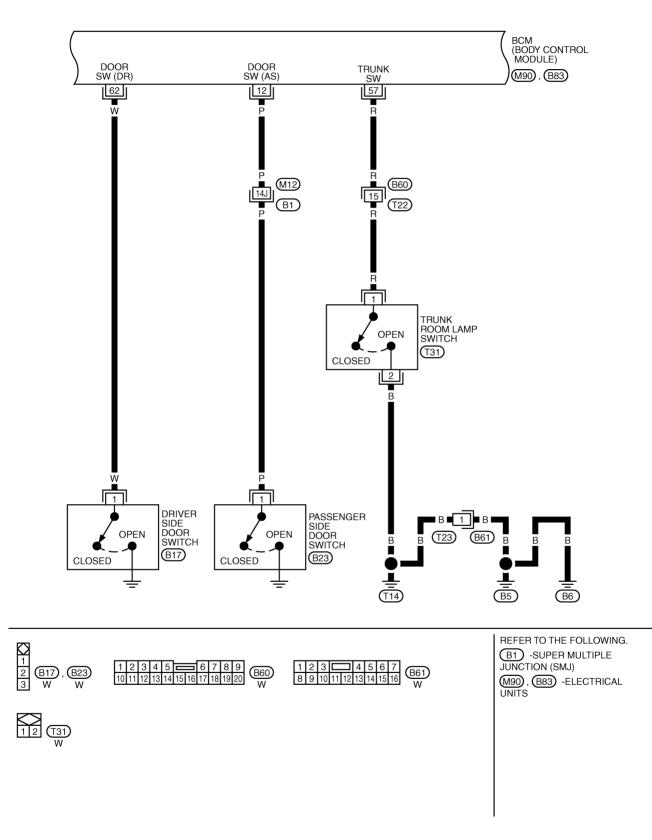
TKWT2292E

LT-ROOM/L-06 А PRECEDING В R/B R/B 11 R/B 15J (M70) (M12) (M93) С (B1) (R51) (R2) R R TO LT-ILL 🔶 Y (B60) 16 D (T22) R R R 4 2 1 1 Е TRUNK ROOM LAMP 9 3 VANITY MIRROR LAMP VANITY MIRROR LAMP (T29) 2 ON (PUSH ON) ON (PUSH ON) ĹΗ RH F DOOR (PUSH OFF) DOOR (PUSH OFF) ON ON R/W (R3) (R5) MAP LAMP ILLUMI-NATION OFF OFF 2 2 (R53) G В R DOOR OFF Н 3 1 B R/W 3 (T22) (R2)2 R51 M70 3 (M93) (B60) R/W B J PRECEDING PAGE LT B B L ╨ (M66) (M30) Μ REFER TO THE FOLLOWING. 1 2 T29 W B1 -SUPER MULTIPLE JUNCTION (SMJ) 1234 (M70) W 1 2 3 4 5 6 7 8 9 10 11 12 
 3
 4
 5
 6
 7
 8
 9

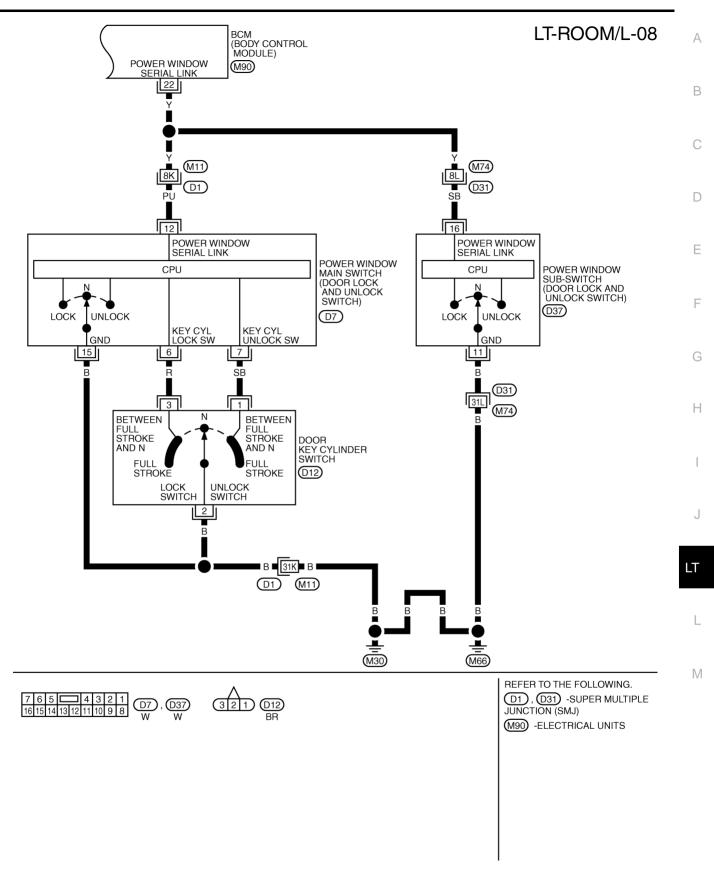
 12
 13
 14
 15
 16
 17
 18
 19
 20
 1 2 10 11 R2 W (B60) W 1 2 W , R5 W 4321 R53 W

TKWT2293E

## LT-ROOM/L-07



TKWT1823E



TKWT1824E

## **Terminals and Reference Values for BCM**

Terretinal	Wire			Measuring condit	ion		
Terminal No.	color	Signal name	Ignition switch	Operation or	conditior	ı	Reference value
12	Р	Front door switch AS signal	OFF	Front door switch AS	ON (op	en)	Approx. 0V
12	Г	Tioni door switch AS signal	OIT	Tioni door switch AS	OFF (c	losed)	Battery voltage
22	Y	Power window switch serial link	ON	_			(V) 5 0 20ms D D D D D D D D D D D D D D D D D D D
	B/R	Key-in detection switch sig-	OFF	Vehicle key is remove	d.		Approx. 0V
37	B/R nal Vehicle key is in		Vehicle key is inserted	l.		Battery voltage	
38	W/L	Ignition power supply	ON	_	— Battery		Battery voltage
41	R/B	Battery saver output signal	OFF	30 minutes after ignition to OFF.	on switch	is turned	Approx. 0V
			ON	_			Battery voltage
42	GY	Battery power supply	OFF	_			Battery voltage
48	Ρ	Map lamp output signal	OFF	Map lamp door switch: DOOR posi- tion	Any door switch	ON (open) OFF	Approx. 0V Battery voltage
						(closed)	Dattery voltage
52	В	Ground	ON	_			Approx. 0V
55	R	Battery power supply	OFF				Battery voltage
57* <sup>1</sup>	R	Trunk room lamp switch	OFF	Trunk room lamp	ON (op	en)	Approx. 0V
		signal	0	switch	OFF (c	losed)	Battery voltage
58* <sup>2</sup>	R	Back door switch signal	OFF	Luggage room lamp	ON (op	en)	Approx. 0V
			0	switch	OFF (c	losed)	Battery voltage
62	W	Front door switch DR signal	OFF	Front door switch DR	ON (op		Approx. 0V
			0		OFF (c	,	Battery voltage
		Trunk room lamp* <sup>1</sup> or lug-	OFF	Trunk room lamp* <sup>1</sup>	ON (op	en)	Approx. 0V
64	R/W	R/W gage lamp <sup>*2</sup> switch signal		or back door* <sup>2</sup> switch	OFF (c	losed)	Battery voltage

\*1: Roadster models, \*2: Coupe models

## How to Proceed with Trouble Diagnosis

- 1. Confirm the symptom or customer complaint.
- 2. Understand operation description and function description. Refer to LT-214, "System Description" .
- 3. Perform preliminary check. Refer to <u>LT-227, "Preliminary Check"</u>.
- 4. Check symptom and repair or replace the cause of malfunction.
- 5. Does interior room lamp operate normally? If YES, GO TO 6. If NO, GO TO 4.
- 6. INSPECTION END

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### Preliminary Check CHECK POWER SUPPLY AND GROUND CIRCUIT

## 1. CHECK FUSES

#### Check for blown fuses.

Unit	Power source	Fuse and fusible link No.	
		F	
DOM	Battery	18 21	
BCM			
	Ignition switch ON or START position	1	

Refer to <u>LT-218</u>, "Wiring Diagram — ROOM/L —"

#### OK or NG

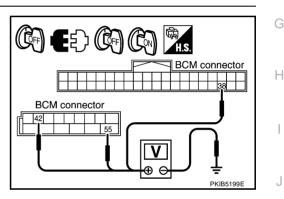
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to <u>PG-</u> <u>3, "POWER SUPPLY ROUTING CIRCUIT"</u>.

## 2. CHECK POWER SUPPLY CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect BCM connector.
- 3. Check voltage between BCM connector and ground.

	Terminal	Ignition switch position			
	(+)	(-) OFF		ON	
Connector	Terminal (Wire color)	(-)	OIT	ON	
M91	42 (GY)		Battery voltage	Battery voltage	
10191	55 (R)	Ground	Battery voltage	Battery voltage	
M90	38 (W/L)		Approx. 0V	Battery voltage	



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#### OK or NG

OK >> GO TO 3.

NG >> Check harness for open or short between BCM and fuse.

## 3. CHECK GROUND CIRCUIT

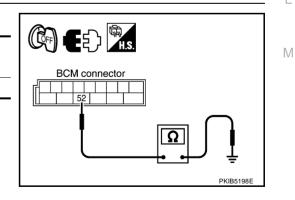
Check continuity between BCM and ground.

	Terminal		Continuity	
Connector				
M91	52 (B)	Ground	Yes	

OK or NG

OK >> INSPECTION END

NG >> Check harness ground circuit.



## **CONSULT-II Functions (BCM)**

CONSULT-II can display each diagnostic item using the diagnostic test mode shown following.

BCM diagnosis part	Diagnosis mode	Description
	WORK SUPPORT	Changes the setting for each function.
INT LAMP	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending driving signal to them.

### **CONSULT-II BASIC OPERATION**

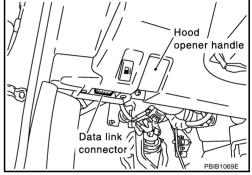
Touch "START (NISSAN BASED VHCL)".

#### **CAUTION:**

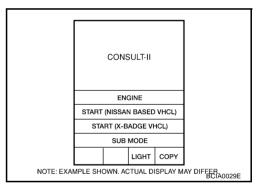
2.

If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

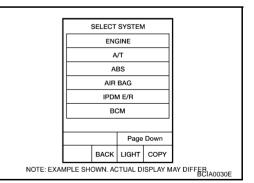
 With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



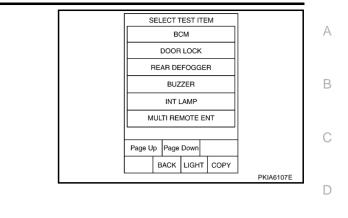
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 Touch "BCM" on "SELECT SYSTEM" screen. If "BCM" is not displayed, print "SELECT SYSTEM" screen, then refer to <u>GI-39</u>, "CONSULT-II Data Link Connector (DLC) Circuit"



#### 4. Touch "INT LAMP" on "SELECT TEST ITEM" screen.



#### WORK SUPPORT

#### **Operation Procedure**

- 1. Touch "INT LAMP" on "SELECT TEST ITEM" screen.
- 2. Touch "WORK SUPPORT" on "SELECT DIAG MODE" screen.
- 3. Touch "SET I/L D- UNLCK INTCON" on "SELECT WORK ITEM" screen.
- 4. Touch "START".
- 5. Touch "CHANGE SETT".
- 6. The setting will be changed and "CUSTOMIZING COMPLETED " will be displayed.
- 7. Touch "END".

#### **Display Item List**

Item	Description	CONSULT-II	
SET I/L D-UNLCK INTCON	The 30 seconds glowing function interior room lamps and ignition keyhole illumi- nation can be selected when driver door is released (unlocked).	ON/OFF	
ROOM LAMP ON TIME SET	The time in order to escalate illumination can be adjusted when interior room lamps and ignition keyhole illumination is turned on.	MODE 1 – 7	
ROOM LAMP OFF TIME SET	The time in order to diminish illumination can be adjusted when interior room lamps and ignition keyhole illumination is turned off.	MODE 1 – 7	

Reference between "MODE" and "TIME" for "TURN ON/OFF"

MODE	1	2	3	4	5	6	7
Time (sec.)	0.5	1	2	3	4	5	0

#### DATA MONITOR

#### **Operation Procedure**

- 1. Touch "INT LAMP" on "SELECT TEST ITEM" screen.
- 2. Touch "DATA MONITOR" on "SELECT DIAG MODE" screen.
- 3. Touch either "ALL SIGNALS" or "SELECTION FROM MENU" on "SELECT MONITOR ITEM" screen.

ALL SIGNALS	Monitors all the signals.		
SELECTION FROM MENU	Selects items and monitor them.		

4. When "SELECTION FROM MENU" is selected, touch items to be monitored. When "ALL SIGNALS" is selected, all the items will be monitored.

5. Touch "START".

6. Touch "RECORD" while monitoring, then the status of the monitored item can be recorded. To stop recording, touch "STOP".

#### **Display Item List**

Monitor item		Contents
IGN ON SW "ON/OFF"		Displays "IGN position (ON)/OFF, ACC position (OFF)" judged from ignition switch signal.
KEY ON SW	"ON/OFF"	Displays "Key inserted (ON)/key removed (OFF)" status judged from key switch signal.

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Monitor iten	n	Contents		
DOOR SW - DR	"ON/OFF"	Displays status of driver door as judged from driver door switch signal. (Door is open: ON/Door is closed: OFF)		
DOOR SW - AS	"ON/OFF"	Displays "Door open (ON)/Door closed (OFF)" status, determined from passenger door switch signal.		
DOOR SW - RR NOTE	"OFF"			
DOOR SW - RL <sup>NOTE</sup>	"OFF"			
BACK DOOR SW	"ON/OFF"	<ul> <li>Displays status of back door as judged from back door switch signal. (Coupe models)</li> <li>Displays status of rear trunk hood as judged from trunk lamp switch signal. (Roadster models)</li> </ul>		
KEY CYL LK - SW	"ON/OFF"	Displays "Door locked (ON) status, determined from key cylinder lock switch in driver door.		
KEY CYL UN - SW	"ON/OFF"	Displays "Door unlocked (OFF) status, determined from key cylinder lock switch in driver door.		
CDL LOCK SW	"ON/OFF"	Displays "Door locked (ON)/Door unlocked (OFF) status, determined from locking detection switch in driver door.		
CDL UNLOCK SW	"ON/OFF"	Displays "Door unlocked (OFF)" status, determined from locking detection switch in passenger door.		
KEYLESS LOCK	"ON/OFF"	Displays "Locked (ON)/Other (OFF)" status, determined from lock signal.		
KEYLESS UNLOCK	"ON/OFF"	Displays "Unlocked (ON)/Other (OFF)" status, determined from unlock signal.		

#### NOTE:

This item is displayed, but cannot be monitored.

#### **ACTIVE TEST**

#### **Operation Procedure**

- 1. Touch "INT LAMP" on "SELECT TEST ITEM" screen.
- 2. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 3. Touch item to be tested and check operation of the selected item.
- 4. During the operation check, touching "BACK" deactivates the operation.

#### **Display Item List**

Test item	Description Map lamp can be operated by any ON-OFF operations.			
INT LAMP				
IGN ILLUM NOTE	_			
STEM LAMP TEST NOTE	_			
LUGGAGE LAMP TEST	• Luggage room lamp can be operated by any ON-OFF operations. (Coupe models)			
	<ul> <li>Trunk room lamp can be operated by any ON-OFF operations. (Roadster models)</li> </ul>			

#### NOTE:

This item is displayed, but cannot be tested.

## Map Lamp Control Does Not Operate (Coupe models) 1. CHECK BETWEEN EACH SWITCH AND BCM

Select BCM on CONSULT-II. Use "INT LAMP" data monitor to make sure switches listed in display item list turn ON-OFF linked with switch operation. Refer to <u>LT-229</u>, "<u>Display Item List</u>" for switches and their functions.

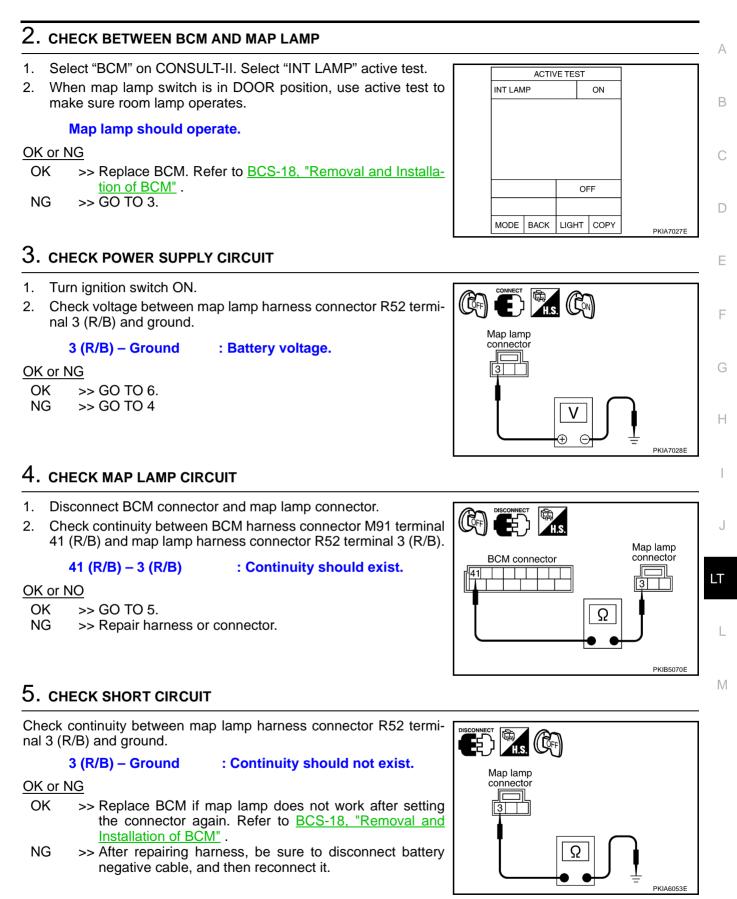
#### OK or NG

OK >> GO TO 2.

NG >> Inspect malfunctioning switch system.

MONITO	MONITOR		O DTC	
DOOR S			ON ON	
		BEC	ORD	
MODE	BACK	LIGHT	COPY	PKIA702

AKS009SI



## 6. CHECK MAP LAMP

- 1. Disconnect map lamp connector.
- 2. Check continuity between map lamp.

Terminal		Condition	Continuity	
Map lamp		Condition	Continuity	
3	2	Map lamp switch is DOOR.	Yes	
		Map lamp switch is OFF.	No	

#### OK or NG

OK >> GO TO 7.

NG >> Replace map lamp

## 7. CHECK MAP LAMP CIRCUIT

- 1. Disconnect BCM connector.
- 2. Check continuity between BCM harness connector M91 terminal 48 (P) and map lamp harness connector R52 terminal 2 (PU/W).

#### 48 (P) – 2 (PU/W) : Continuity should exist.

#### OK or NO

- OK >> Replace BCM if map lamp does not work after setting the connector again. Refer to <u>BCS-18</u>, "<u>Removal and</u> <u>Installation of BCM</u>".
- NG >> Repair harness or connector.

## Map Lamp Control Does Not Operate (Roadster models)

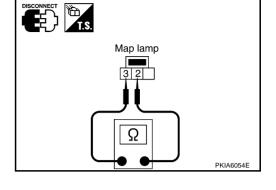
## 1. CHECK BETWEEN EACH SWITCH AND BCM

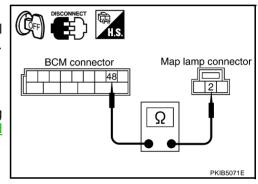
Select BCM on CONSULT-II. Use "INT LAMP" data monitor to check that switches listed in display item list turn ON-OFF linked with switch operation. Refer to <u>LT-229</u>, "Display Item List" for switches and their functions.

#### OK or NG

OK >> GO TO 2.

NG >> Inspect malfunctioning switch system.





	DATA MONITOR			
MONITO	JR	N	IO DTC	
DOOR S			ON ON	
		REC	ORD	
MODE	BACK	LIGHT	COPY	PKIA702

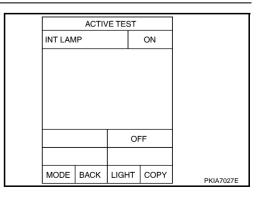
## 2. CHECK BETWEEN BCM AND MAP LAMP

- 1. Select "BCM" on CONSULT-II. Select "INT LAMP" active test.
- 2. When map lamp switch is in DOOR position, use active test to make sure map lamp operates.

#### Map lamp should operate.

#### OK or NG

OK >> Replace BCM. Refer to <u>BCS-18</u>, "<u>Removal and Installa-</u> tion of <u>BCM</u>". NG >> GO TO 3.



AKS009SJ

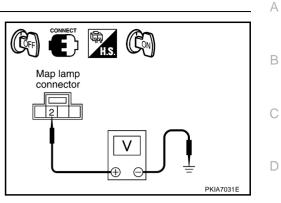
# $\overline{\mathbf{3}}$ . Check between BCM and MAP LAMP

- 1. Turn ignition switch ON.
- 2. Check voltage between map lamp harness connector R53 terminal 2 (R) and ground.

2 (R) – Ground : Battery voltage should exist.

#### OK or NG

OK	>> GO TO 6.
NG	>> GO TO 4.



Εþ

BCM connector

Map lamp

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Map lamp connector

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PKIB5072E

PKIA6057E

## 4. CHECK POWER SUPPLY CIRCUIT

- 1. Disconnect BCM connector and map lamp connector.
- 2. Check continuity between BCM harness connector M91 terminal 41 (R/B) and map lamp harness connector R53 terminal 2 (R).

#### : Continuity should exist.

#### OK or NO

OK	>> GO TO 5.
----	-------------

NG >> Repair harness or connector.

## 5. CHECK SHORT CIRCUIT

Check continuity between map lamp harness connector R53 terminal 2 (R) and ground.

2 (R) – Ground

: Continuity should not exist.

#### OK or NG

- OK >> Replace BCM if map lamp does not work after setting the connector again. Refer to <u>BCS-18</u>, "<u>Removal and</u> <u>Installation of BCM</u>".
- NG >> After repairing harness, be sure to disconnect battery negative cable, and then reconnect it.

## 6. CHECK MAP LAMP

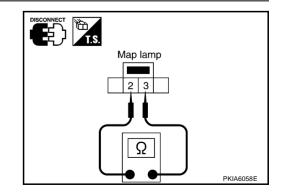
- 1. Disconnect map lamp connector.
- 2. Check continuity between map lamp.

Terminal		Condition	Continuity
Map lamp		Condition	
2	3	Map lamp switch is DOOR.	Yes
2		Map lamp switch is OFF.	No

#### OK or NG

OK >> GO TO 7.

NG >> Replace map lamp



Ω

## 7. CHECK MAP LAMP CIRCUIT

- 1. Disconnect BCM connector.
- 2. Check continuity between BCM harness connector M91 terminal 48 (P) and map lamp harness connector R53 terminal 3 (L).

OK or NO

- OK >> Replace BCM if map lamp does not work after setting the connector again. Refer to BCS-18, "Removal and Installation of BCM" .
- NG >> Repair harness or connector.

## Luggage Room Lamp Does Not Illuminate (Coupe Models) 1. CHECK BULB

#### Inspect bulb of luggage room lamp.

OK or NG

OK >> GO TO 2.

NG >> Replace bulb of luggage room lamp.

## 2. CHECK BETWEEN BACK DOOR SWITCH AND BCM

3. CHECK BETWEEN BCM AND LUGGAGE ROOM LAMP

Select "BCM" on CONSULT-II. Select "LAGGUAGE LAMP

>> Replace BCM. Refer to BCS-18, "Removal and Installa-

Select BCM on CONSULT-II. Use "INT LAMP" data monitor to make sure switches listed in display item list turn ON-OFF linked with switch operation. Refer to LT-229, "Display Item List" for switches and their functions.

OK or NG

1.

2.

OK or NG OK

NG

OK >> GO TO 3.

TEST" active test.

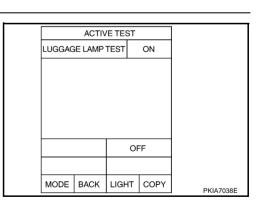
NG >> Inspect malfunctioning switch system.

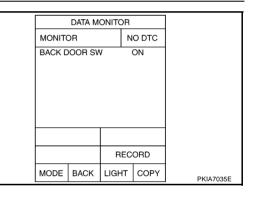
Make sure luggage room lamp operates.

tion of BCM" .

>> GO TO 4.

Luggage room lamp should operate.





# Ω

Revision: 2005 August



BCM connector

48

AKS00AT6

PKIB5073E

Map lamp connector

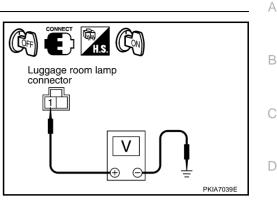
3

## 4. CHECK POWER SUPPLY CIRCUIT

- 1. Turn ignition switch ON.
- 2. Check voltage between luggage room lamp harness connector T13 terminal 1 (Y) and ground.

#### OK or NG

OK	>> GO TO 7.
NG	>> GO TO 5.



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BCM connector

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Luggage room lamp connector

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Luggage room

lamp connector

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PKIB5167E

PKIA7200E

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## 5. CHECK LUGGAGE ROOM LAMP CIRCUIT

#### 1. Disconnect BCM connector and luggage room lamp connector.

 Check continuity between BCM harness connector M91 terminal 41 (R/B) and luggage room lamp harness connector T13 terminal 1 (Y).

#### 41 (R/B) – 1 (Y)

#### : Continuity should exist.

#### OK or NO

OK >> GO TO 6.

NG >> Repair harness or connector.

## 6. CHECK SHORT CIRCUIT

Check continuity between luggage room lamp harness connector T13 terminal 1 (Y) and ground.

#### 1 (Y) – Ground : Continuity should not exist.

#### OK or NG

- OK >> Replace BCM if luggage room lamp does not work after setting the connector again. Refer to <u>BCS-18, "Removal and Installation of BCM"</u>.
- NG >> After repairing harness, be sure to disconnect battery negative cable, and then reconnect it.

## 7. CHECK LUGGAGE ROOM LAMP CIRCUIT

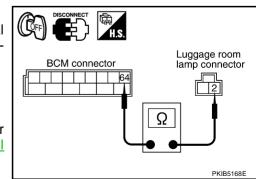
- 1. Disconnect BCM connector.
- Check continuity between BCM harness connector B83 terminal 64 (R/W) and luggage room lamp harness connector T13 terminal 2 (R/W).

#### 64 (R/W) – 2 (R/W)

#### : Continuity should exist.

#### OK or NO

- OK >> Replace BCM if luggage room lamp does not work after setting the connector again. Refer to <u>BCS-18, "Removal</u> and Installation of BCM"
- NG >> Repair harness or connector.



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# Trunk Room Lamp Does Not Illuminate (Roadster Models)

## 1. CHECK BULB

Inspect bulb of trunk room lamp.

#### OK or NG

OK >> GO TO 2. NG >> Replace map lamp

## 2. CHECK BETWEEN BACK DOOR SWITCH AND BCM

Select BCM on CONSULT-II. Use "INT LAMP" data monitor to check that switches listed in display item list turn ON-OFF linked with switch operation. Refer to <u>LT-229</u>, "Display Item List" for switches and their functions.

#### OK or NG

OK >> GO TO 3.

NG >> Inspect malfunctioning switch system.

DATA MONITOR		
MONITOR NO DTC		
BACK DOOR SW ON		
RECORD		
MODE BACK LIGHT COPY		

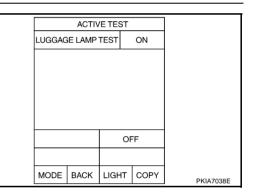
## 3. CHECK BETWEEN BCM AND TRUNK ROOM LAMP

- 1. Select "BCM" on CONSULT-II. Select "LUGGAGE LAMP TEST" active test.
- 2. Make sure trunk room lamp operates.

#### Trunk room lamp should operate.

#### OK or NG

- OK >> Replace BCM. Refer to <u>BCS-18, "Removal and Installa-</u> tion of <u>BCM"</u>.
- NG >> GO TO 4.



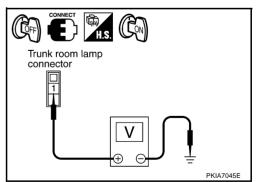
## 4. CHECK POWER SUPPLY CIRCUIT

- 1. Turn ignition switch ON.
- 2. Check voltage between trunk room lamp harness connector T29 terminal 1 (Y) and ground.

#### 1 (Y) – Ground : Battery voltage.

#### OK or NG

- OK >> GO TO 7.
- NG >> GO TO 5.



AKS00AT7

## 5. CHECK TRUNK ROOM LAMP CIRCUIT

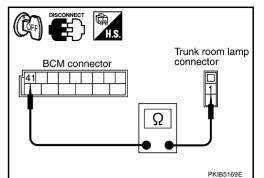
- 1. Disconnect BCM connector and trunk room lamp connector.
- Check continuity between BCM harness connector M91 terminal 41 (R/B) and trunk room lamp harness connector T29 terminal 1 (Y).

#### 41 (R/B) – 1 (Y)

: Continuity should exist.

OK or NO

- OK >> GO TO 6.
- NG >> Repair harness or connector.



Trunk room lamp connector

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## 6. CHECK SHORT CIRCUIT

Check continuity between trunk room lamp harness connector T29 terminal 1 (Y) and ground.

OK or NG

- OK >> Replace BCM if trunk room lamp does not work after setting the connector again. Refer to <u>BCS-18, "Removal and Installation of BCM"</u>.
- NG >> After repairing harness, be sure to disconnect battery negative cable, and then reconnect it.

## 7. CHECK TRUNK ROOM LAMP CIRCUIT

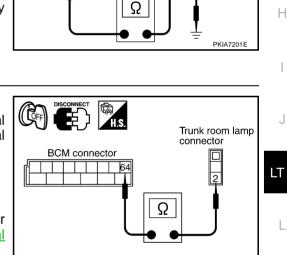
- 1. Disconnect BCM connector.
- Check continuity between BCM harness connector B83 terminal 64 (R/W) and trunk room lamp harness connector T29 terminal 2 (R/W).

#### 64 (R/W) – 2 (R/W) : Continuity should exist.

#### OK or NO

OK >> Replace BCM if trunk room lamp does not work after setting the connector again. Refer to <u>BCS-18, "Removal</u> and Installation of <u>BCM"</u>.

NG >> Repair harness or connector.



PKIB5170E

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#### **Bulb Replacement COUPE MODELS**

1. Open driver and passenger window, and then disconnect cable from the negative terminal.

#### **CAUTION:**

After battery cables are disconnected, do not open/close driver and/or passenger door with the window in the full up position. Automatic window adjusting function will not work and side roof panel may be damaged.

- 2. Remove lens using clip driver or suitable tool.
- 3 Remove bulb.

#### : 12V - 8 W Map lamp

4. Installation is the reverse order of removal.

#### **ROADSTER MODELS**

1. Open driver and passenger window, and then disconnect cable from the negative terminal.

#### CAUTION:

After battery cables are disconnected, do not open/close driver and/or passenger door with the window in the full up position. Automatic window adjusting function will not work and side roof panel may be damaged.

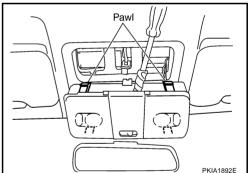
- 2. Remove lens using clip driver or suitable tool.
- 3. Remove bulb.

#### Map lamp : 12V - 8 W

4. Installation is the reverse order of removal.

#### **Removal and Installation REMOVAL (COUPE MODELS)**

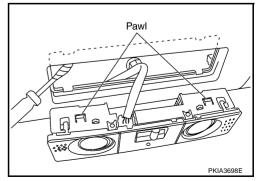
- Insert a clip driver or suitable tool and disengage pawl fittings of 1 map lamp.
- 2. Disconnect map lamp connector and remove map lamp.





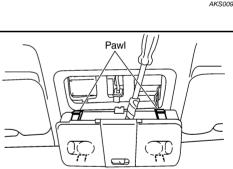
Installation is the reverse order of removal.

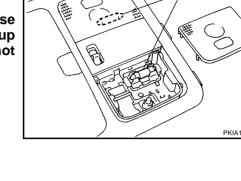
- 1. Insert a clip driver or suitable tool and disengage pawl fittings of map lamp.
- 2. Disconnect map lamp connector and remove map lamp.



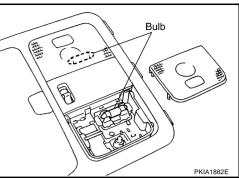
AKS0099A

PKIA3699F





Bulb



INSTALLATION

## **ILLUMINATION** System Description Control of the illumination lamps operation is dependent upon the position of the lighting switch (combination switch). When the lighting switch is placed in the 1ST or 2ND position, the BCM (body control module) receives input signal requesting illumination lamps to illuminate. This input signal is communicated to the IPDM E/R (intelligent power distribution module engine room) across the CAN communication lines. The CPU (central processing unit) in located in the IPDM E/R controls tail lamp relay coil. This relay, when energized, directs power to illumination lamps, which then illuminate. **OUT LINE** Power is supplied at all times through 10A fuse (No.71, located in IPDM E/R) to tail lamp relay, located in IPDM E/R, and to CPU located in IPDM E/R, through 15A fuse (No.78, located in IPDM E/R) to CPU located in IPDM E/R. Power is also supplied at all times through 40A fusible link (letter F, located in fuse, fusible link and relay box) to BCM terminal 55, through 10A fuse [No.18, located in fuse block (J/B)] to BCM terminal 42, through 10A fuse [No.19, located in fuse block (J/B)] to unified meter and A/C amp. terminal 21, through 10A fuse [No.19, located in fuse block (J/B)] to combination meter terminal 24. With ignition switch in the ON or START position, power is supplied to CPU located in IPDM E/R, from battery direct, through 10A fuse [No.1, located in fuse block (J/B)] to BCM terminal 38, through 10A fuse [No.12, located in fuse block (J/B)] to unified meter and A/C amp. terminal 22, to NAVI control unit terminal 26 (With navigation system) through 10A fuse [No.14, located in fuse block (J/B)] to combination meter terminal 23. With ignition switch in the ACC or ON position, power is supplied through 10A fuse [No.6, located in fuse block (J/B)] to BCM terminal 11. Ground is supplied to BCM terminal 52 through grounds M30 and M66, to IPDM E/R terminals 38 and 60 through grounds E17, E43 and F152, to unified meter and A/C amp. terminals 29 and 30 through grounds M30 and M66, to combination meter terminals 10, 11 and 12 through grounds M30 and M66, to NAVI control unit terminals 1 and 4 (With navigation system)

through ground B102 (With navigation system).

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#### ILLUMINATION OPERATION BY LIGHTING SWITCH

With the lighting switch in the 1ST or 2ND position, the BCM receives input signal requesting illumination lamps to illuminate. This input signal is communicated to the IPDM E/R across the CAN communication lines. CPU located in the IPDM E/R controls tail lamp relay coil, which, when energized, directs power

- through terminal 22 of IPDM E/R
- to NAVI control unit terminal 25 (With navigation system)
- to NAVI switch terminal 2 (With navigation system)
- to VDC off switch (illumination) terminal 3 (With VDC)
- to TCS off switch (illumination) terminal 3 (With TCS)
- to A/T device A/T illumination terminal 3 (With A/T)
- to hazard switch (illumination) terminal 3
- to map lamp (illumination) terminal 4 (Roadster models)
- to ashtray illumination terminal 1 (With ashtray)
- to heated seat switch (driver side) (illumination) terminal 5 (With heated seat)
- to heated seat switch (passenger side) (illumination) terminal 5 (With heated seat)
- to luggage floor box lamp terminal 1
- to soft top switch (illumination) terminal 5 (Roadster model)
- to audio unit terminal 8.

Ground is supplied at all times

- to luggage floor box lamp terminal 2
- through grounds D105, B5, B6, and T14 (Coupe model)
- through grounds B5, B6 and T14 (Roadster model),
- to ashtray illumination terminal 2 (With ashtray)
- to map lamp (illumination) terminal 1 (Roadster models)
- through grounds M30 and M66,
- to soft top switch (illumination) terminal 6 (Roadster models)
- to hazard switch (illumination) terminal 4
- to VDC off switch (illumination) terminal 4 (With VDC)
- to TCS off switch (illumination) terminal 4 (With TCS)
- to A/T device (A/T illumination) terminal 5 (With A/T)
- to NAVI switch terminal 3 (With navigation system)
- to audio unit terminal 7
- to heated seat switch (driver side) (illumination) terminal 6 (With heated seat), and
- to heated seat switch (passenger side) (illumination) terminal 6
- through combination meter terminal 18.

With power and ground supplied, illumination lamps illuminate.

#### EXTERIOR LAMP BATTERY SAVER CONTROL

When the combination switch (lighting switch) is in the 1ST or 2ND position, and the ignition switch is turned from ON or ACC to OFF, battery saver control function is activated.

Under this condition, the illumination lamps remain illuminated for 5 minutes, then illumination lamps are turned off.

When the lighting switch is turned from OFF to 1ST or 2ND position after illumination lamps are turned off by battery saver control, and illumination lamps illuminate again.

Exterior lamp battery saver control mode can be changed by the function setting of CONSULT-II.

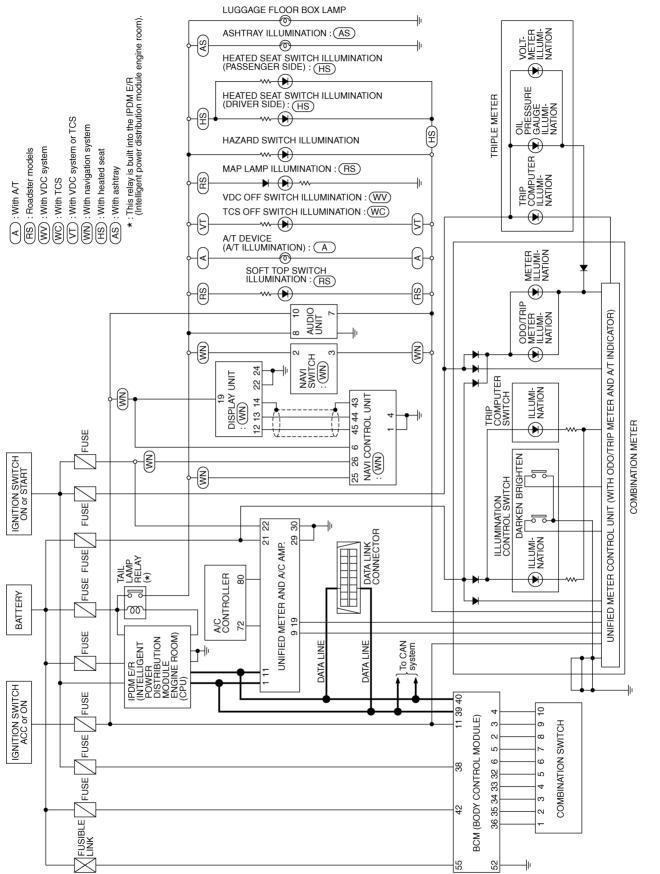
## **CAN Communication System Description**

AKS009Q

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2

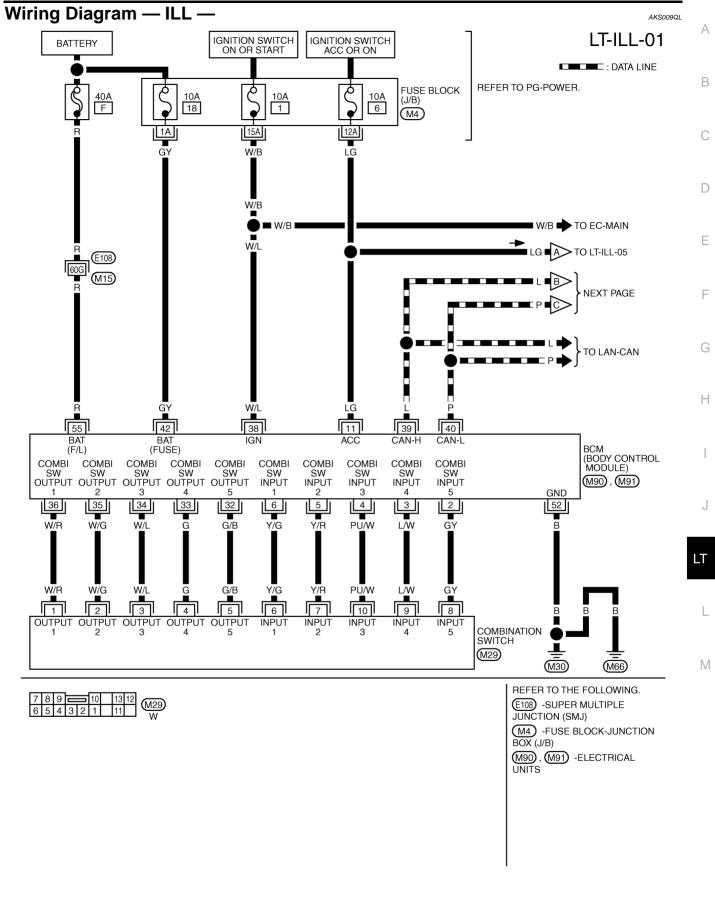
communication lines (CAN H line, CAN L line) allowing a high rate of information transmission with less wirin Each control unit transmits/receives data but selectively reads required data only.	g. A
CAN Communication Unit	9QJ
Refer to LAN-21, "CAN Communication Unit".	В
	С
	D
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### **Schematic**

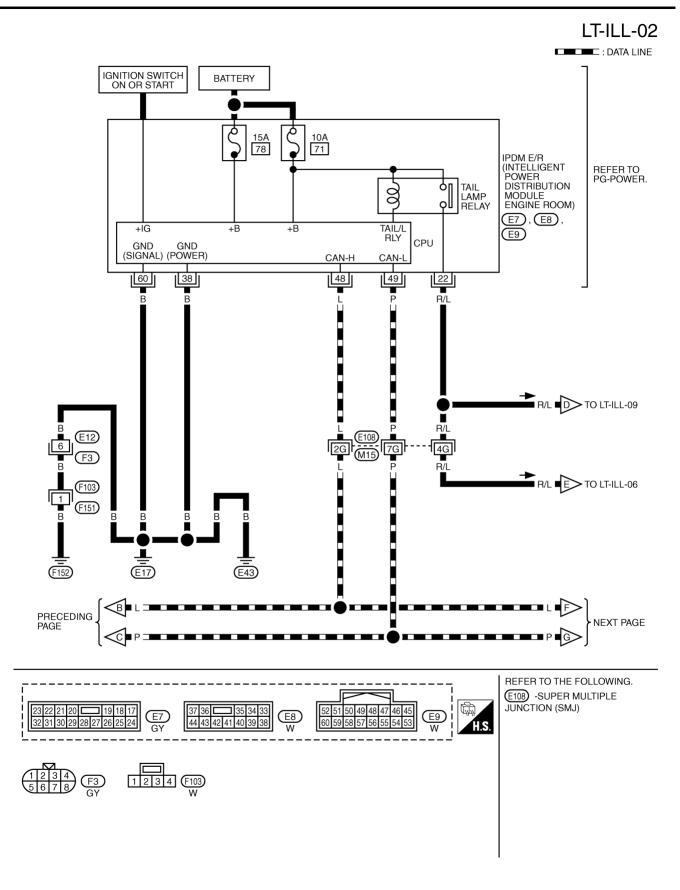


TKWT2294E

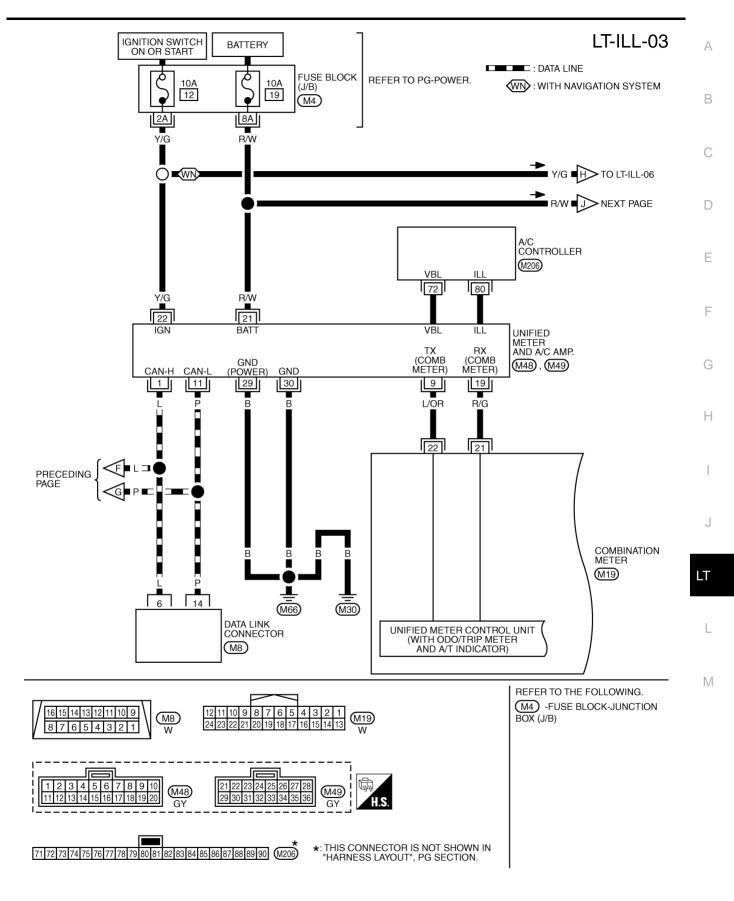
AKS009QK



TKWT2295E

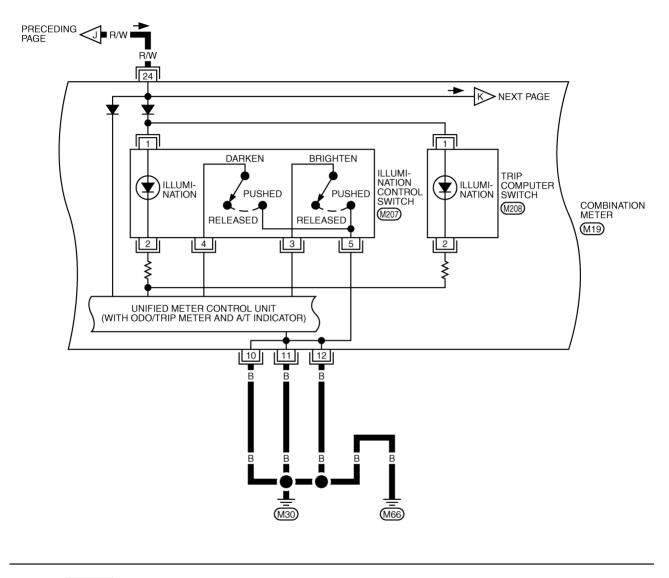


TKWT1827E



TKWT2296E

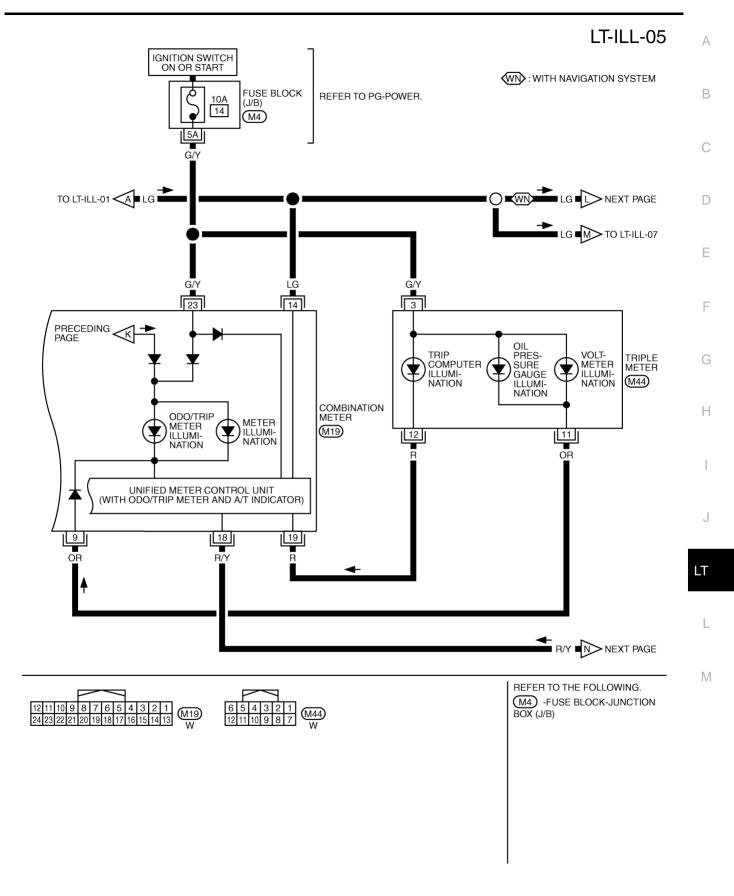
LT-ILL-04





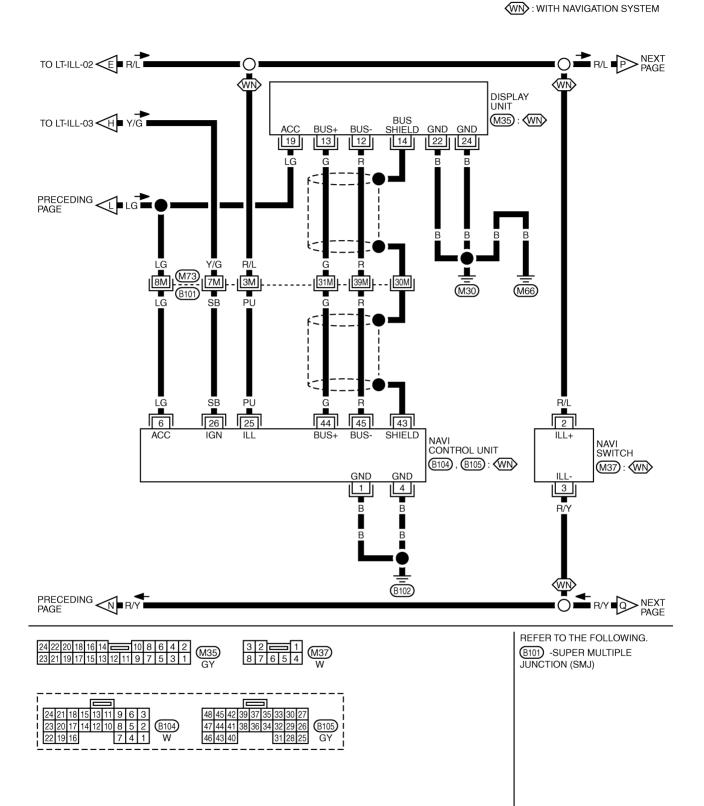
\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT1829E

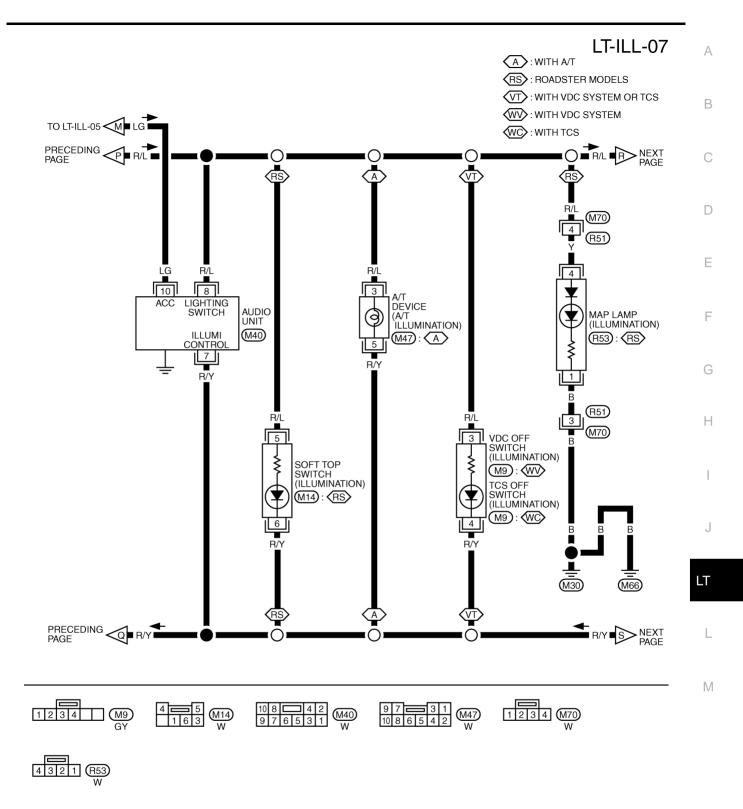


TKWT1830E

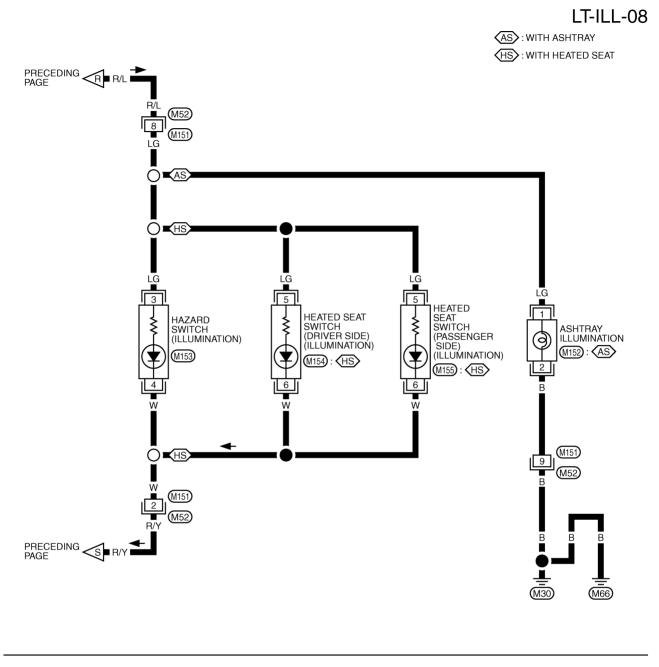
LT-ILL-06



TKWT2297E

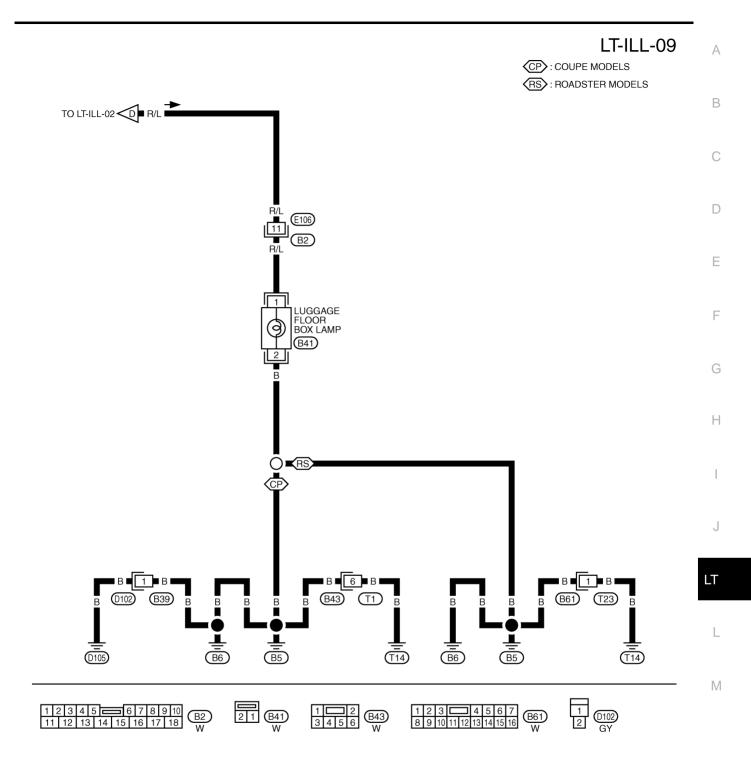


TKWT1832E





TKWT1833E



TKWT1834E

## **BULB SPECIFICATIONS**

BULB SPECIFICATION	ONS	PFP:26297	
Headlamp		AKS000WI	
	Item	Wattage (W)	
Low (Halogen type)		55 (H7)	
Low (Xenon type)		35 (D2R)	
High (Halogen type)		55 (H1)	
High (Xenon type)		55 (H7)	
Exterior Lamp		AKS000WJ	
	Item	Wattage (W)	
	Front Turn signal lamp	21 (amber)	
Front combination lamp	Parking lamp	5	
	Front side marker lamp	5	
	Stop/Tail lamp	21/5	
Deer combination lamp	Rear Turn signal lamp	21	
Rear combination lamp	Back-up lamp	21	
	Rear side marker lamp	5	
License plate lamp		5	
High-mounted stop lamp (back door mount)		LED	
Interior Lamp/Illumi	nation	AKS000WK	
	Item	Wattage (W)	
Rear floor box lamp		1.4	
Ashtray illumination lamp		1.4	
Map lamp		8	
Luggage room lamp		5	

Trunk room lamp

Vanity mirror lamp

3.4 1.32