SECTION LT
LIGHTING SYSTEM

CONTENTS

PRECAUTIONS

PFP:00011

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

AKS004I3

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.

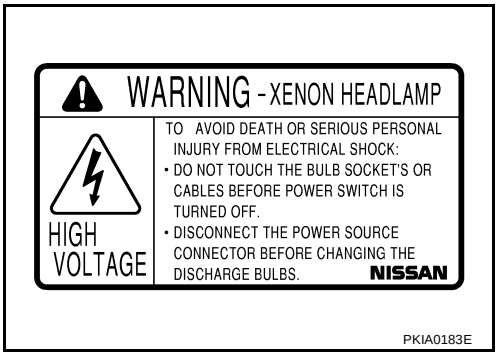
WARNING:

- **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

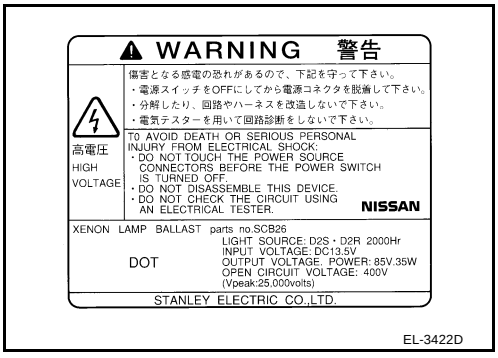
AKS004I5

- 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.



PKIA0183E

- 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.



EL-3422D

- 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.

Wiring Diagrams and Trouble Diagnosis

AKS004I6

When you read wiring diagrams, refer to the following:

- Refer to GI-14, "How to Read Wiring Diagrams" in GI section.
- Refer to PG-3, "POWER SUPPLY ROUTING CIRCUIT" for power distribution in PG section.

When you perform trouble diagnosis, refer to the following:

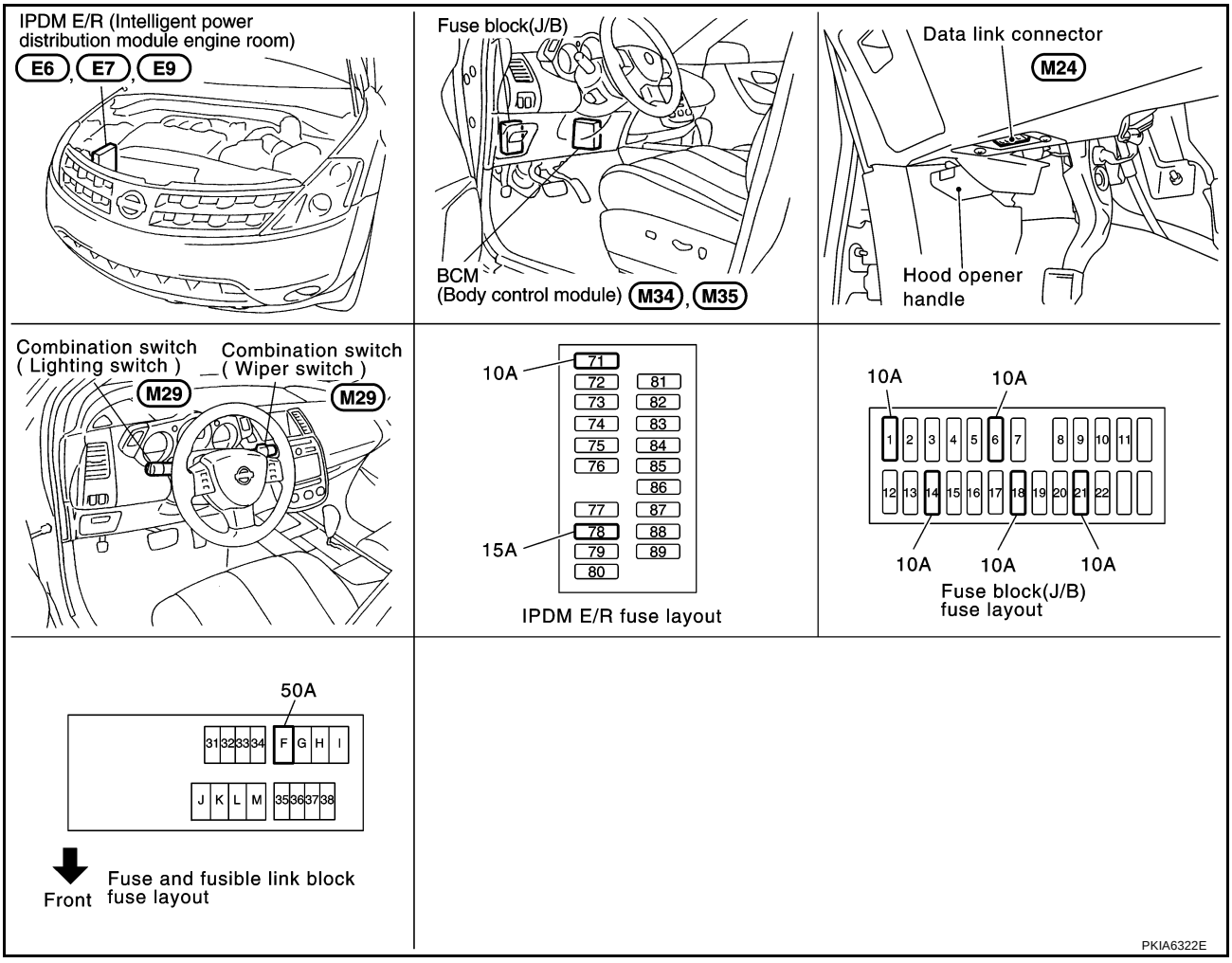
- Refer to GI-10, "HOW TO FOLLOW TEST GROUPS IN TROUBLE DIAGNOSES" in GI section.
- Refer to GI-26, "How to Perform Efficient Diagnosis for an Electrical Incident" in GI section.

HEADLAMP - XENON TYPE -

PFP:26010

Component Parts and Harness Connector Location

AKS007KW



System Description

AKS007KX

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 (intelligent power distribution module engine room) controls the headlamp high and headlamp low relay coils. These relays, when energized, direct power to the respective headlamps, which then illuminate.

If voltage is applied to a high beam solenoid, the bulb shade will move, even a xenon head lamp bulb comes out, and a high beam and a low beam are changed.

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 (intelligent power distribution module engine room)]
- through 50A fusible link (letter F, located in fuse and fusible link block)
- to BCM (body control module) terminal 55
- through 10A fuse [No. 18, located in fuse block (J/B)]
- to BCM (body control module) terminal 42
- through 15A fuse [No. 78, located in IPDM E/R (intelligent power distribution module engine room)]
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- through 10A fuse [No. 71, located in IPDM E/R (intelligent power distribution module engine room)]

- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- through 10A fuse [No. 21, located in the fuse block (J/B)]
- to combination meter terminal 21.

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

- to ignition relay, located in the IPDM E/R (intelligent power distribution module engine room)
- through 10A fuse [No. 1, located in fuse block (J/B)]
- to BCM (body control module) terminal 38
- through 10A fuse [No. 14 located in fuse block (J/B)]
- to combination meter terminal 20.

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

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

Ground is supplied

- to BCM (body control module) terminals 49 and 52
- through grounds M14 and M78
- to IPDM E/R (intelligent power distribution module engine room) terminals 38 and 60
- through grounds E13, E26 and E28.
- to combination meter terminals 22, 23 and 24
- through grounds M14 and M78.

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 in the IPDM E/R controls the headlamp low relay coil, which when energized, directs power

- to 15A fuse [No. 76, located in IPDM E/R]
- through IPDM E/R terminal 20
- to headlamp RH terminal 4
- to 15A fuse [No. 86, located in IPDM E/R]
- through IPDM E/R terminal 30
- to headlamp LH terminal 4.

Ground is supplied

- to headlamp RH terminal 5
- through grounds E13, E26 and E28
- to headlamp LH terminal 5
- through grounds E13, E26 and E28.

With power and ground supplied, low beam headlamps illuminate.

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 the CAN communication lines. The CPU in the IPDM E/R controls the headlamp high relay coil and low relay coil, which when energized, directs power

- to 10A fuse [No. 72, located in the IPDM E/R]
- through IPDM E/R terminal 27
- to headlamp RH terminal 1
- to 10A fuse [No. 74, located in the IPDM E/R]
- through IPDM E/R terminal 28
- to headlamp LH terminal 1.

Ground is supplied

- to headlamp RH terminal 5

- through grounds E13, E26 and E28
- to headlamp LH terminal 5
- through grounds E13, E26 and E28.

With power and ground supplied, the high beam headlamps illuminate.
If voltage is applied to a high beam solenoid, the bulb shade will move, even a xenon head lamp bulb comes out, and a high beam and a low beam are changed.
The unified meter and A/C amp that received the high beam request signal by BCM across the CAN communication makes a high beam indicator lamp turn on in combination meter.

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.

AUTO LIGHT OPERATION

Refer to LT-86, "System Description" in “AUTO LIGHT SYSTEM”.

VEHICLE SECURITY SYSTEM

The vehicle security system will flash the high beams if the system is triggered. Refer to BL-98, "VEHICLE SECURITY (THEFT WARNING) SYSTEM" .

XENON HEADLAMP

Xenon type headlamp is adopted 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 added lighting power, electronic control of the power supply gives the headlamps stable quality and tone color.
Following are some of the many advantages of the xenon type headlamp.

- The light produced by the headlamps is a white color comparable to sunlight that is easy on the eyes.
- Light output is nearly double that of halogen headlamps, affording increased area of illumination.
- The light features a high relative spectral distribution at wavelengths to which the human eye is most sensitive. This means that even in the rain, more light is reflected back from the road surface toward the vehicle, for added visibility.
- Power consumption is approximately 25 percent less than halogen headlamps, reducing battery load.

CAN Communication System Description

AKS007KY

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.

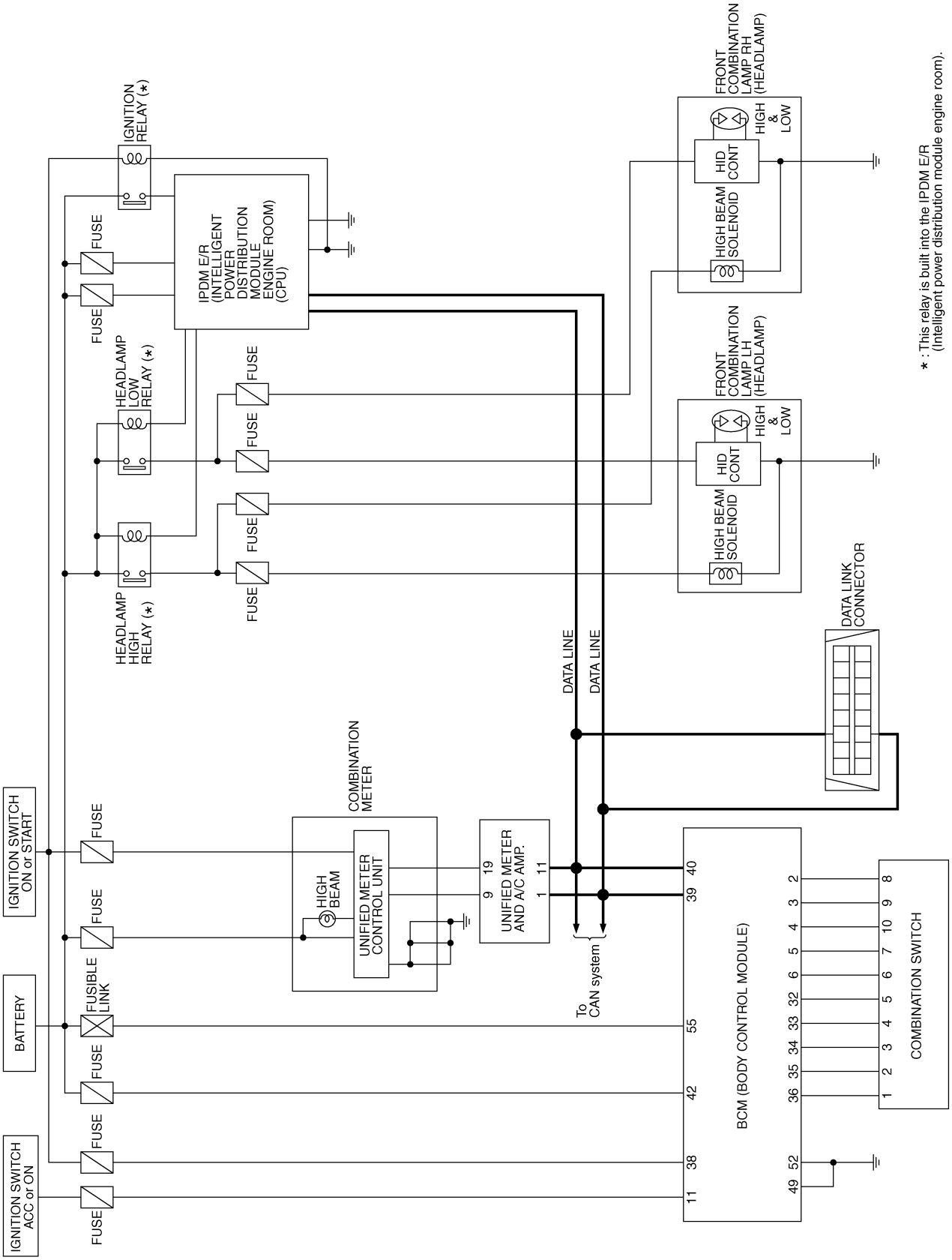
CAN Communication Unit

AKS007QL

Refer to LAN-8, "CAN Communication Unit" .

Schematic

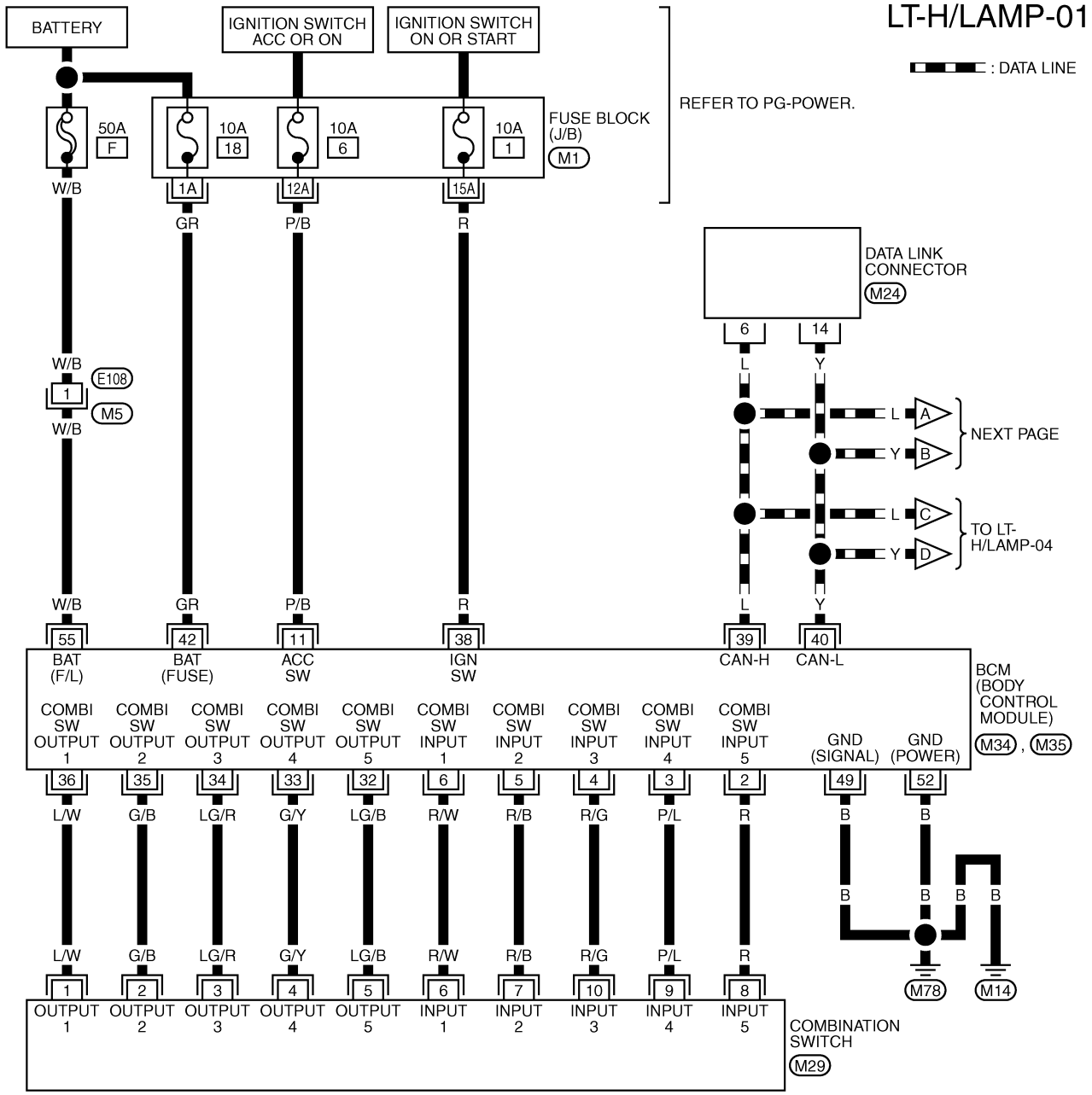
AKS007L0

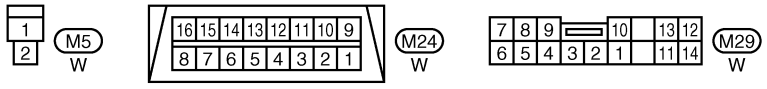


TKWA1674E

Wiring Diagram — H/LAMP —

AKS007L1





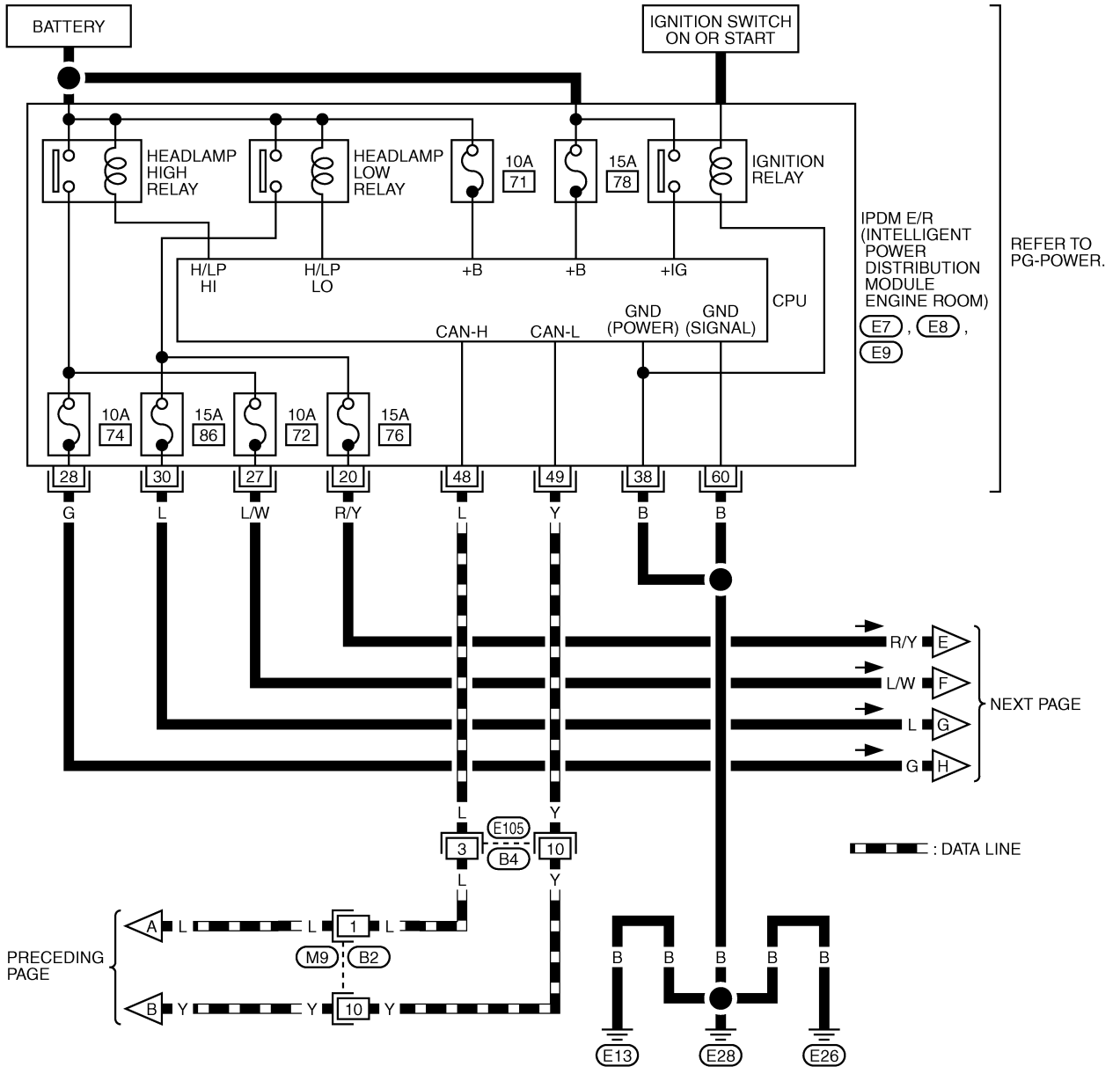
REFER TO THE FOLLOWING.

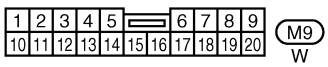
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

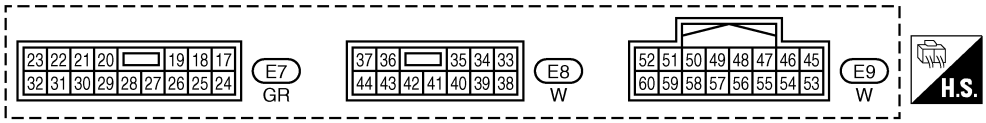
M34 , M35 -ELECTRICAL UNITS

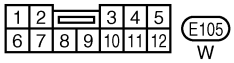
TKWA1675E

LT-H/LAMP-02









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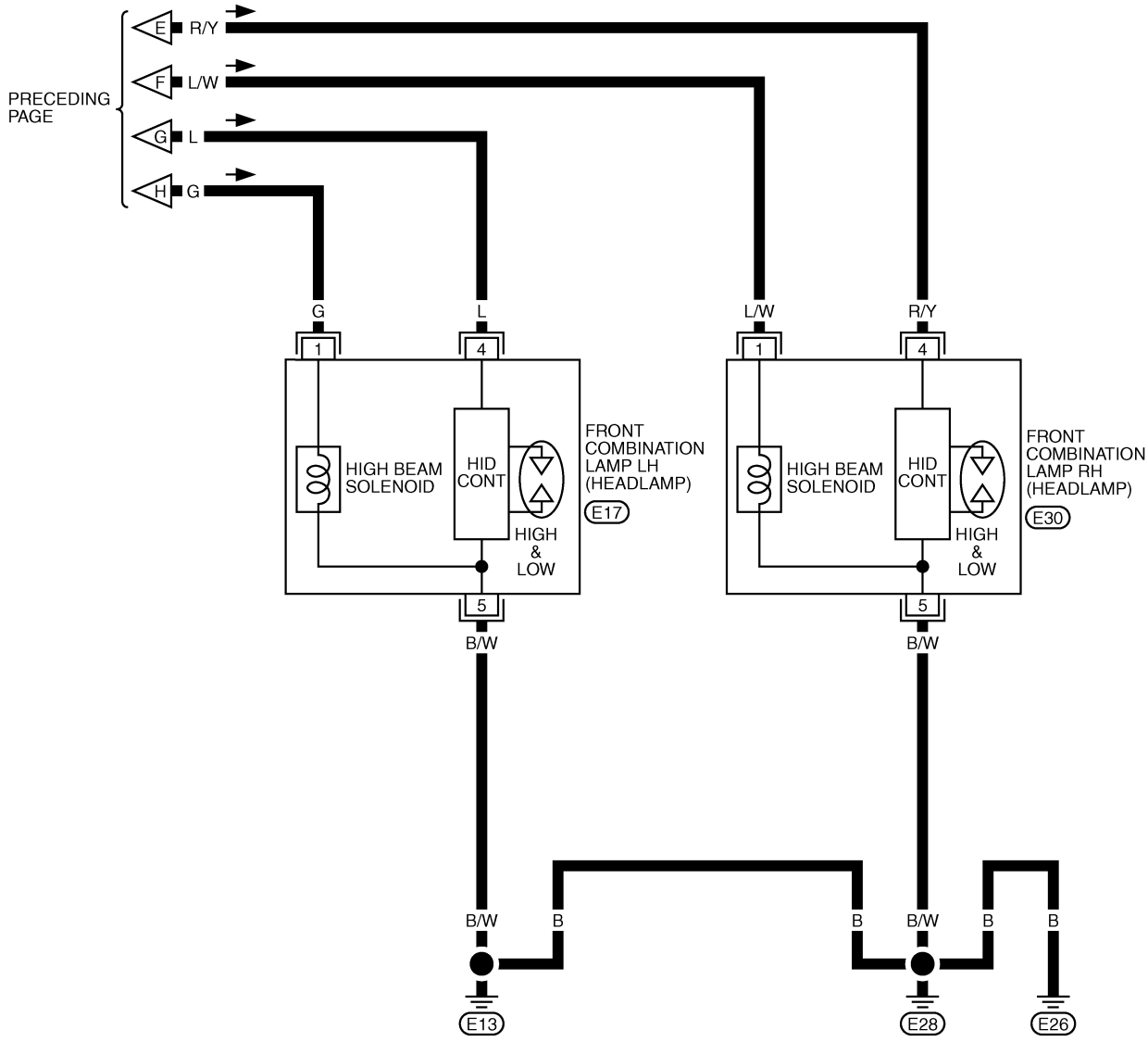
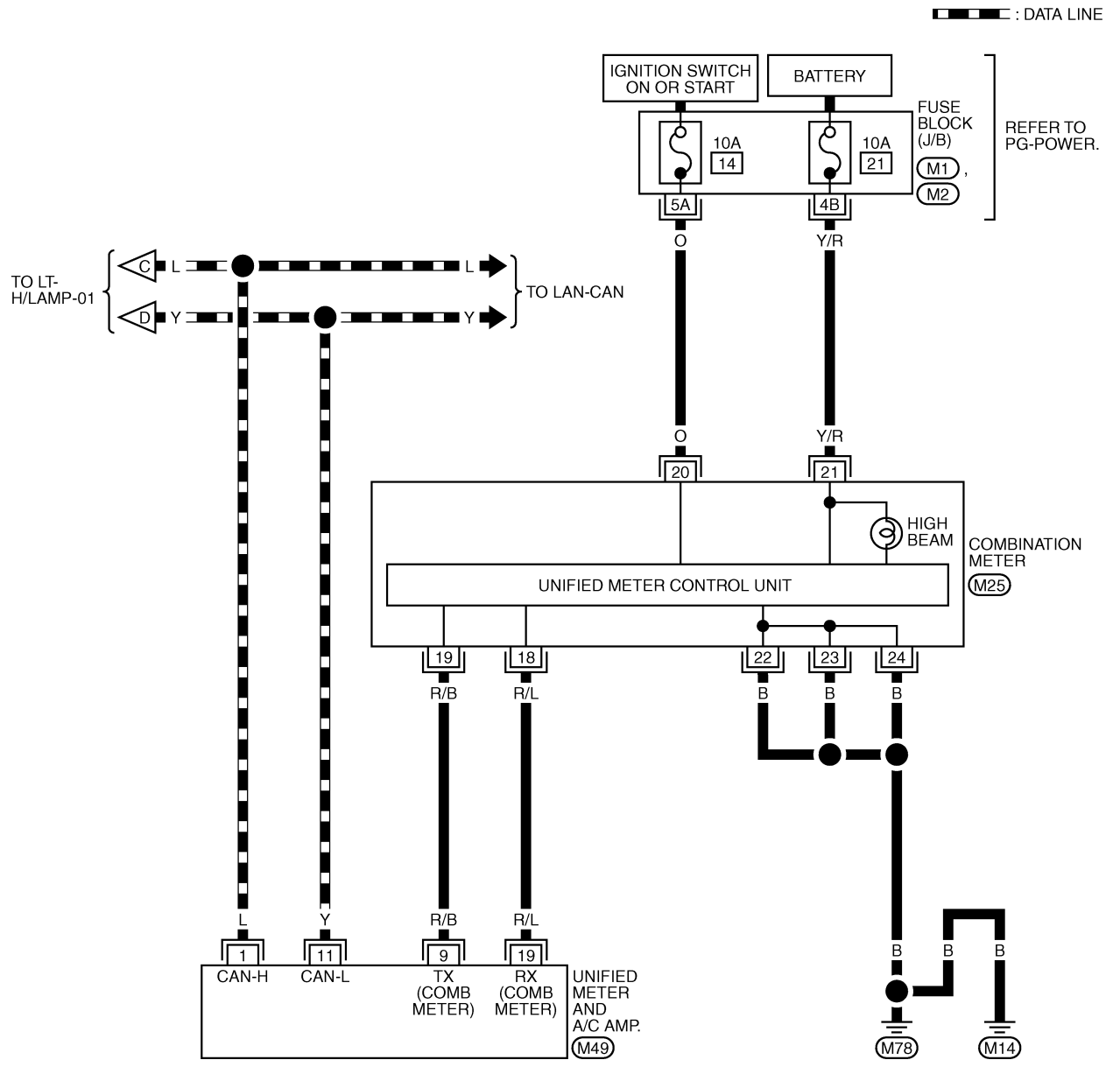
LT-H/LAMP-03

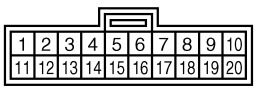


TKWA0740E

LT-H/LAMP-04



M25
W



M49
GR

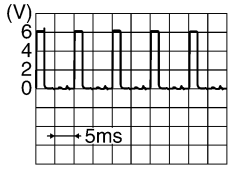
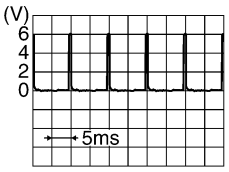
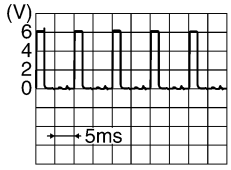
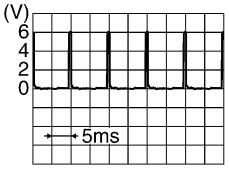
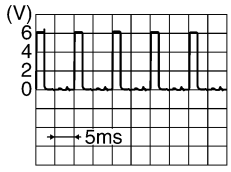
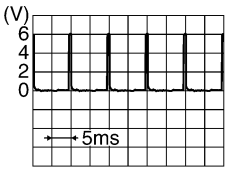
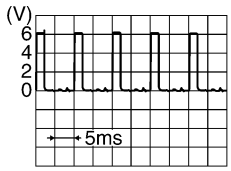
H.S.

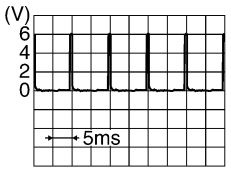
REFER TO THE FOLLOWING.
M1 , M2 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWA0741E

Terminals and Reference Values for BCM

AKS00AJQ

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

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

Terminals and Reference Values for IPDM E/R

AKS00AJR

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

How to Proceed With Trouble Diagnosis

AKS00AJS

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-7, "System Description" .
3. Perform the preliminary check. Refer to LT-17, "Preliminary Check" .
4. Check symptom and repair or replace the cause of malfunction.
5. Does the headlamp operate normally? If YES: GO TO 6. If NO: GO TO 4.
6. INSPECTION END

Preliminary Check

AKS00AJT

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

- Check for blown fuses.

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

Refer to LT-11, "Wiring Diagram — H/LAMP —" .

OK or NG

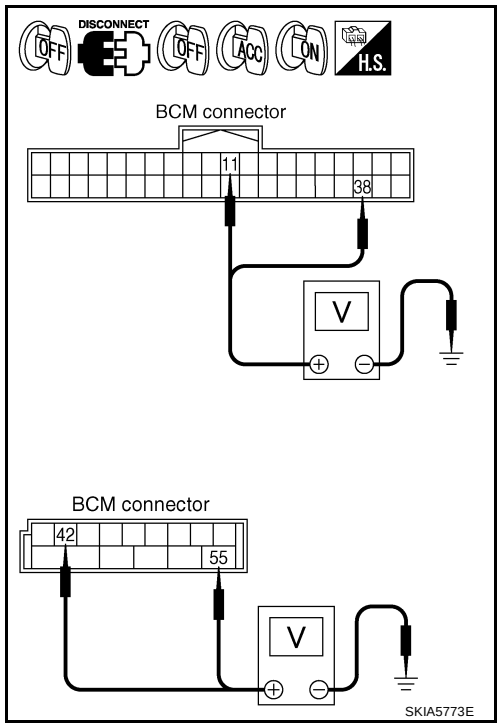
OK >> GO TO 2.

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

2. CHECK POWER SUPPLY CIRCUIT

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

Terminals			Ignition switch position		
(+)		(-)	OFF	ACC	ON
Connector	Terminal (Wire color)				
M34	11 (P/B)	Ground	0V	Battery voltage	Battery voltage
	38 (R)		0V	0V	Battery voltage
M35	42 (GR)		Battery voltage	Battery voltage	Battery voltage
	55 (W/B)		Battery voltage	Battery voltage	Battery voltage



OK or NG

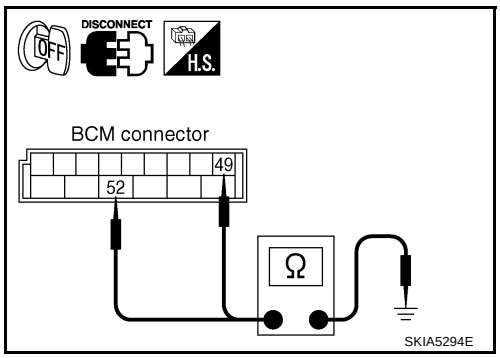
OK >> GO TO 3.

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

3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminals			Continuity
Connector	Terminal (Wire color)		
M35	49 (B)	Ground	Yes
	52 (B)		



OK or NG

OK >> INSPECTION END
NG >> Check ground circuit harness.

CONSULT-II Functions (BCM)

AKS00AJU

- CONSULT-II executes the following functions by combining data reception and command transmission via the communication line from BCM. Work support, self-diagnosis, data monitor, and active test display.

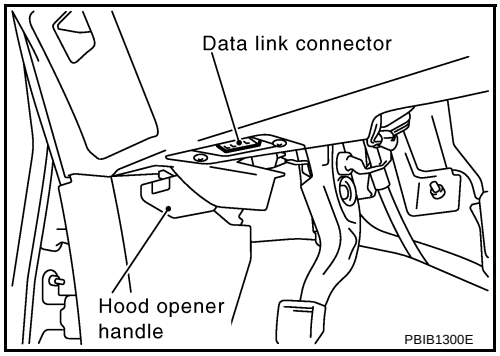
BCM diagnosis part	Check item, diagnosis mode	Description
HEAD LAMP	WORK SUPPORT	Changes the setting for each function.
	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.
BCM	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.

CONSULT-II BASIC OPERATION

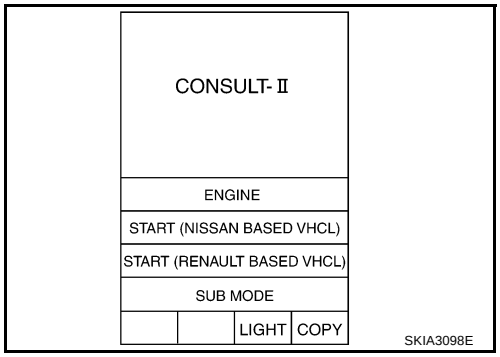
CAUTION:

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.

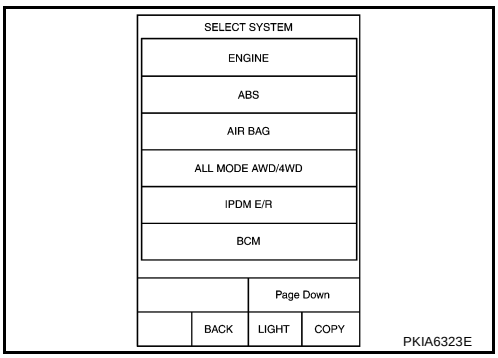
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn ignition switch ON.



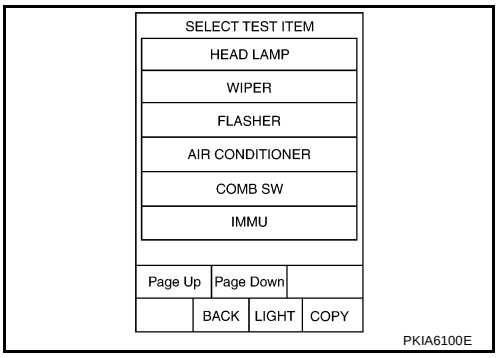
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “BCM” on “SELECT SYSTEM” screen.
If “BCM” is not indicated, 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 item 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. Selects exterior lamp battery saver control mode between two ON/OFF.	ON	×
		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 “DATA MONITOR” screen.

ALL SIGNALS	Monitors all the signals.
SELECTION FROM MENU	Selects and monitors individual signal.

4. Touch “START”.
5. When “SELECTION FROM MENU” is selected, touch individual items to be monitored. When “ALL SIGNALS” is selected, all the items will be monitored.
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 2 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 1 ST	“ON/OFF”	Displays status (lighting switch 1st position: ON/Others: OFF) of lighting switch judged from lighting switch signal.
AUTO LIGHT SW	“ON/OFF”	Displays status of the lighting switch as judged from the lighting switch signal. (AUTO position: ON/Other than AUTO position: OFF)
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	“ON/OFF”	Displays status (front fog lamp switch: ON/Others: OFF) of front fog lamp switch judged from lighting switch signal.
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”	Displays status of the passenger door as judged from the passenger door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - RR	“ON/OFF”	Displays status of the rear door as judged from the rear door switch (RH) signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - RL	“ON/OFF”	Displays status of the rear door as judged from the passenger door switch (LH) signal. (Door is open: ON/Door is closed: OFF)
BACK DOOR SW	“ON/OFF”	Displays status of the back door as judged from the back door switch signal. (Door is open: ON/Door is closed: OFF)
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”	—
OPTICAL SENSOR	[0 - 5V]	Displays “ambient light (close to 5V when light/close to 0V when dark)” judged from optical sensor signal.

NOTE:
This item is displayed, but cannot monitor it.

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	Allows fog lamp relay to operate by switching ON–OFF.
CORNERING LAMP[NOTE]	—
CARGO LAMP[NOTE]	—

NOTE:
This item is displayed, but cannot monitor it.

CONSULT-II Functions (IPDM E/R)

AKS00AJV

CONSULT-II can display each diagnostic item using the following diagnostic test modes: work support, self-diagnostic results, data monitor and active test through data reception and command transmission via the IPDM E/R CAN communication line.

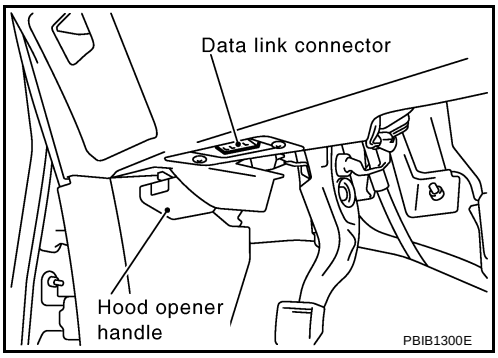
Inspection Item, Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	The IPDM E/R performs self-diagnosis of CAN communication.
DATA MONITOR	The input/output data of the IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result transmit/receive diagnosis of CAN communication can be read.
ACTIVE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

CONSULT-II OPERATION

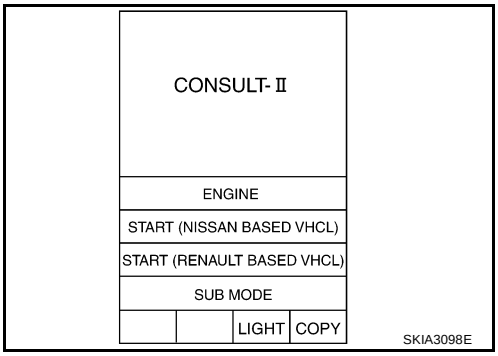
CAUTION:

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.

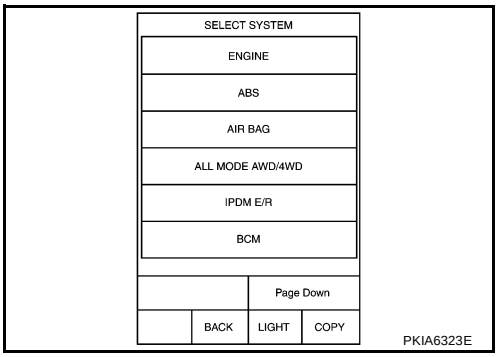
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn the ignition switch ON.



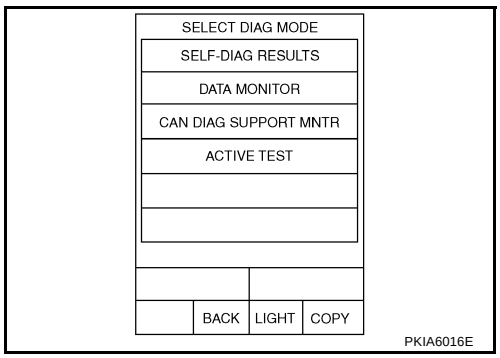
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “IPDM E/R” on “SELECT SYSTEM” screen.
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 SYSTEM” screen.



SELF-DIAGNOSTIC RESULTS

Refer to PG-20, "SELF-DIAG RESULTS" .

DATA MONITOR

Operation Procedure

1. Touch “DATA MONITOR” on “SELECT DIAG MODE ” screen.
2. Touch “ALL SIGNALS”, “MAIN SIGNALS”, or “SELECTION FROM MENU” on “DATA MONITOR” screen.

ALL SIGNALS	All items will be monitored.
MAIN SIGNALS	Monitor the predetermined item.
SELECTION FROM MENU	Select any item for monitoring.

3. Touch “START”.
4. Touch the required monitoring item on “SELECTION FROM MENU”. In “ALL SIGNALS”, all items are monitored. In “MAIN SIGNALS”, predetermined items are monitored.
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 screen display	Display or unit	Monitor item selection			Description
			ALL SIGNALS	MAIN SIGNALS	SELECTION FROM MENU	
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
Font fog lights request	FR FOG REQ	ON/OFF	×	×	×	Signal status input from BCM

NOTE:
Perform monitoring of IPDM E/R data with the ignition switch ON. When the 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
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.)
Front fog lamp relay output		Allows fog lamp relay to operate by switching operation ON-OFF at your option.
Tail lamp relay output	TAIL LAMP	Allows tail lamp relay to operate by switching operation ON-OFF at your option.

Headlamp Does Not Change To High Beam (Both Sides)

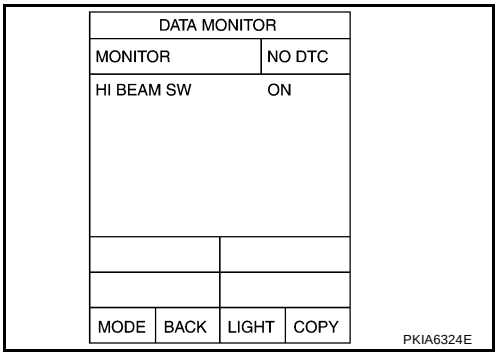
AKS00AJW

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 HIGH BEAM position : HI BEAM SW ON



Without CONSULT-II

Refer to LT-140, "Combination Switch Inspection" .

OK or NG

OK >> GO TO 2.

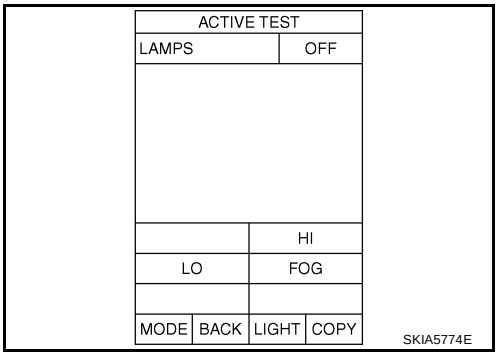
NG >> Check lighting switch. Refer to LT-140, "Combination Switch Inspection" .

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 operates.

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



Without CONSULT-II

1. Start auto active test. Refer to PG-23, "Auto Active Test" .
2. Make sure headlamp high beam operates.

Headlamp high beam should operate.

OK or NG

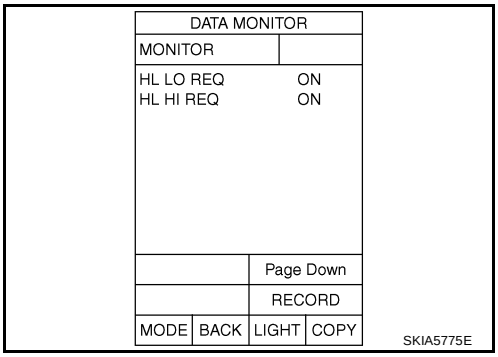
OK >> GO TO 3.

NG >> GO TO 4.

3. CHECK IPDM E/R

1. Select “IPDM E/R” on CONSULT-II, and select “DATA MONITOR” on “SELECT DIAG MODE” screen.
2. Make sure “HL LO REQ” and “HL HI REQ” turns ON when lighting switch is in HI position.

When lighting switch is HIGH BEAM position : HL LO REQ ON
: HL HI REQ ON



OK or NG

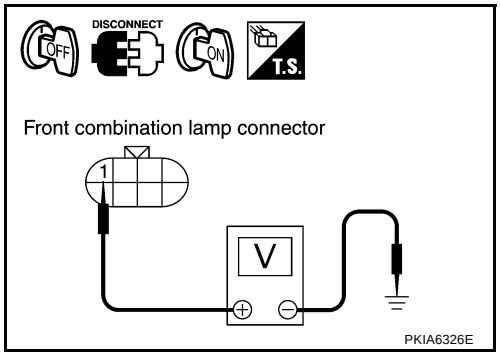
OK >> Replace IPDM E/R.

NG >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .

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 “HI” screen.
6. 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).



Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E30	1 (L/W)	Ground	Battery voltage
LH	E17	1 (G)		

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-23, "Auto Active Test" .
4. When headlamp high beam is operating, check voltage between front combination lamp RH and LH harness connector and ground.

Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E30	1 (L/W)	Ground	Battery voltage
LH	E17	1 (G)		

OK or NG

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

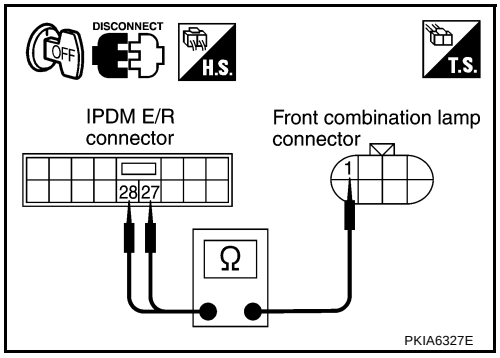
5. CHECK HEADLAMP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector E7 terminal 27 (L/W) and front combination lamp RH harness connector E30 terminal 1 (L/W).

27 (L/W) – 1 (L/W) : Continuity should exist.

4. Check continuity between IPDM E/R harness connector E7 terminal 28 (G) and front combination lamp LH harness connector E17 terminal 1 (G).

28 (G) – 1 (G) : Continuity should exist.



OK or NG

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

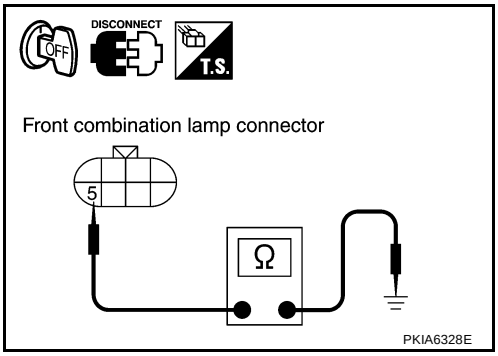
6. CHECK HEADLAMP GROUND

1. Check continuity between front combination lamp RH harness connector E30 terminal 5 (B/W) and ground.

5 (B/W) – Ground : Continuity should exist.

2. Check continuity between front combination lamp LH harness connector E17 terminal 5 (B/W) and ground.

5 (B/W) – Ground : Continuity should exist.



OK or NG

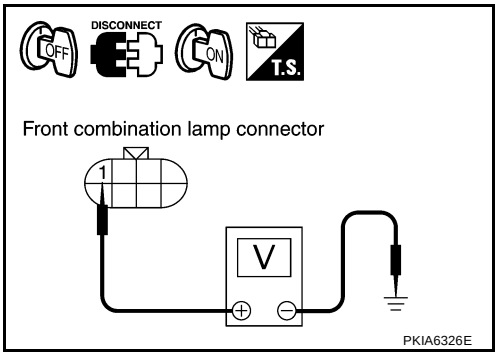
OK >> Replace headlamp.
NG >> Repair harness or connector.

Headlamp Does Not Change To High Beam (One Side)

AKS00AJX

1. 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.



Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E30	1 (L/W)	Ground	Battery voltage
LH	E17	1 (G)		

OK or NG

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

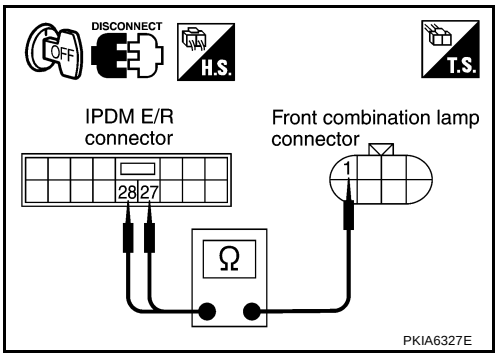
2. CHECK HEADLAMP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector E7 terminal 27 (L/W) and front combination lamp RH harness connector E30 terminal 1 (L/W).

27 (L/W) – 1 (L/W) : Continuity should exist.

4. Check continuity between IPDM E/R harness connector E7 terminal 28 (G) and front combination lamp LH harness connector E17 terminal 1 (G).

28 (G) – 1 (G) : Continuity should exist.



OK or NG

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

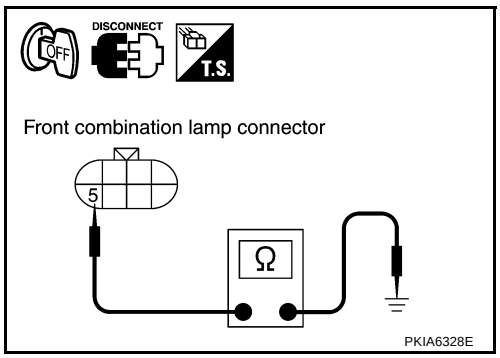
3. CHECK HEADLAMP GROUND

1. Check continuity between front combination lamp RH harness connector E30 terminal 5 (B/W) and ground.

   5 (B/W) – Ground : Continuity should exist.

2. Check continuity between front combination lamp LH harness connector E17 terminal 5 (B/W) and ground.

   5 (B/W) – Ground : Continuity should exist.



OK or NG

OK >> Replace headlamp assembly.
NG >> Repair harness or connector.

High Beam Indicator Lamp Does Not Illuminate

AKS00AJY

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)

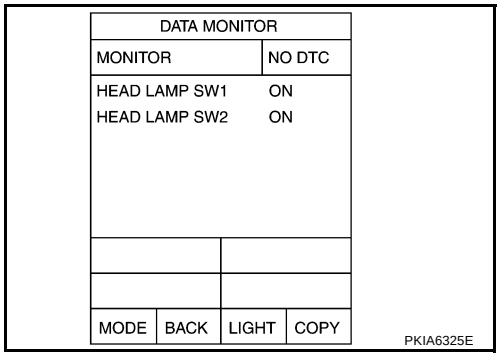
AKS00AJZ

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



Without CONSULT-II

Refer to LT-140, "Combination Switch Inspection" .

OK or NG

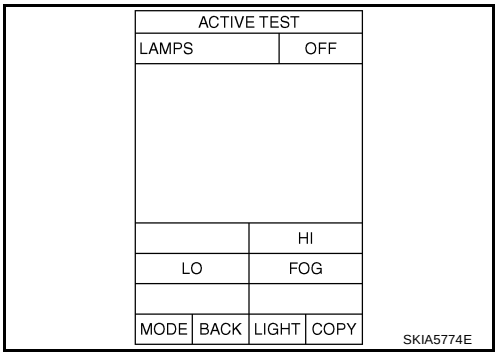
OK >> GO TO 2.
NG >> Check lighting switch. Refer to LT-140, "Combination Switch Inspection" .

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 “LO” screen.
4. Make sure headlamp low beam operates.

Headlamp low beam should operate.



Without CONSULT-II

1. Start auto active test. Refer to PG-23, "Auto Active Test" .
2. Make sure headlamp low beam operates.

Headlamp low beam should operate.

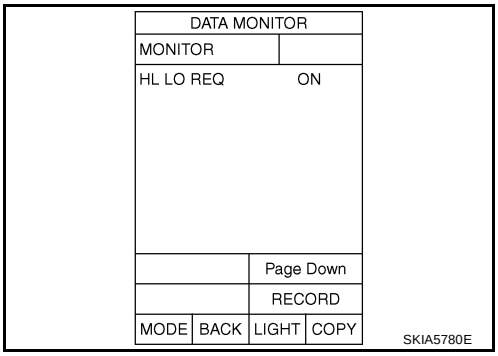
OK or NG

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

3. CHECK IPDM E/R

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

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



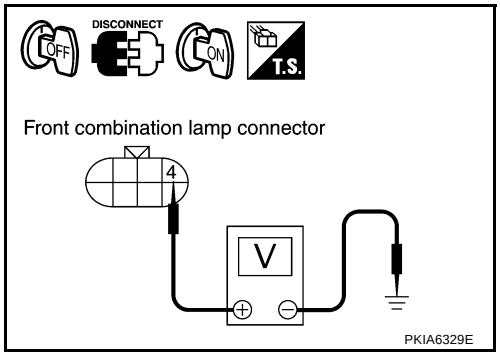
OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .

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.



Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E30	4 (R/Y)	Ground	Battery voltage
LH	E17	4 (L)		

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-23, "Auto Active Test" .
4. When headlamp low beam is operating, check voltage between front combination lamp RH and LH harness connector and ground.

Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E30	4 (R/Y)	Ground	Battery voltage
LH	E17	4 (L)		

OK or NG

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

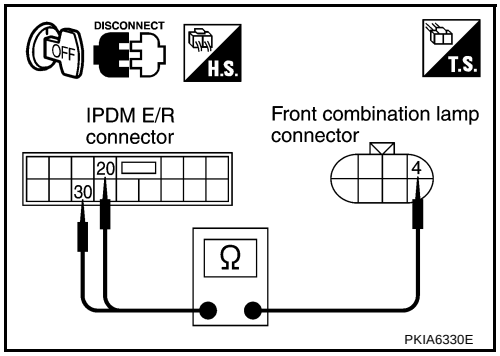
5. CHECK HEADLAMP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector E7 terminal 20 (R/Y) and front combination lamp RH harness connector E30 terminal 4 (R/Y).

20 (R/Y) – 4 (R/Y) : Continuity should exist.

4. Check continuity between IPDM E/R harness connector E7 terminal 30 (L) and front combination lamp LH harness connector E17 terminal 4 (L).

30 (L) – 4 (L) : Continuity should exist.



OK or NG

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

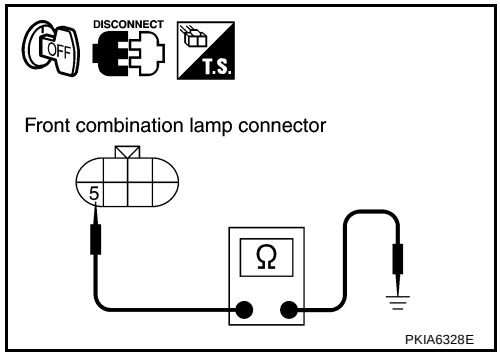
6. CHECK HEADLAMP GROUND

1. Turn ignition switch OFF.
2. Check continuity between front combination lamp RH harness connector E30 terminal 5 (B/W) and ground.

5 (B/W) – Ground : Continuity should exist.

3. Check continuity between front combination lamp LH harness connector E17 terminal 5 (B/W) and ground.

5 (B/W) – Ground : Continuity should exist.



OK or NG

OK >> Check headlamp harness and connectors, ballasts (HID control unit), and xenon bulbs. Refer to LT-32, "Xenon Headlamp Trouble Diagnosis" .

NG >> Repair harness or connector.

Headlamp Low Beam Does Not Illuminate (One Side)

AKS00AK0

1. CHECK BULB

Check ballasts (HID control unit) and xenon bulb of lamp which does not illuminate. Refer to LT-32, "Xenon Headlamp Trouble Diagnosis" .

OK or NG

OK >> GO TO 2.

NG >> Repair malfunctioning part.

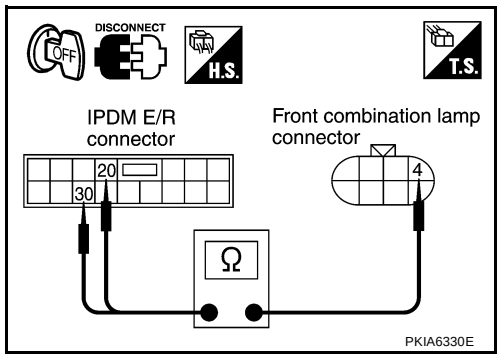
2. CHECK HEADLAMP CIRCUIT

1. Disconnect IPDM E/R connector and front combination lamp RH or LH connector.
2. Check continuity between IPDM E/R harness connector E7 terminal 20 (R/Y) and front combination lamp RH harness connector E30 terminal 4 (R/Y).

20 (R/Y) – 4 (R/Y) : Continuity should exist.

3. Check continuity between IPDM E/R harness connector E7 terminal 30 (L) and front combination lamp LH harness connector E17 terminal 4 (L).

30 (L) – 4 (L) : Continuity should exist.



OK or NG

OK >> GOTO 3.

NG >> Repair harness or connector.

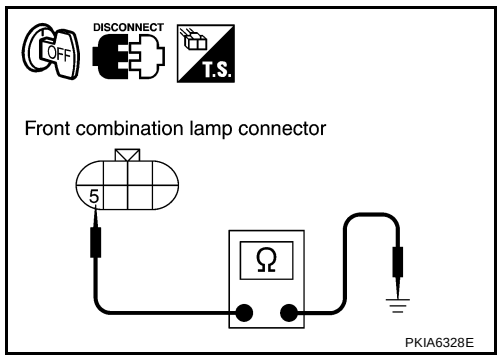
3. CHECK HEADLAMP GROUND

1. Check continuity between front combination lamp RH harness connector E30 terminal 5 (B/W) and ground.

5 (B/W) – Ground : Continuity should exist.

2. Check continuity between front combination lamp LH harness connector E17 terminal 5 (B/W) and ground.

5 (B/W) – Ground : Continuity should exist.



OK or NG

OK >> Replace IPDM E/R.

NG >> Repair harness or connector.

Headlamp RH Low Beam and High Beam Does Not Illuminate

AKS00AK1

1. CHECK BULB

Check ballasts (HID control unit) and xenon bulb of lamp which does not illuminate. Refer to LT-32, "Xenon Headlamp Trouble Diagnosis" .

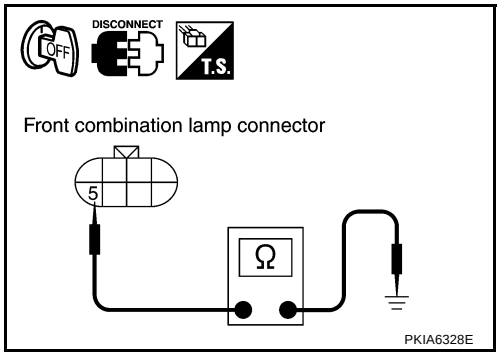
OK or NG

OK >> GO TO 2.
NG >> Repair malfunctioning part.

2. CHECK HEADLAMP GROUND

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH connector.
3. Check continuity between front combination lamp RH harness connector E30 terminal 5 (B/W) and ground.

5 (B/W) – Ground : Continuity should exist.



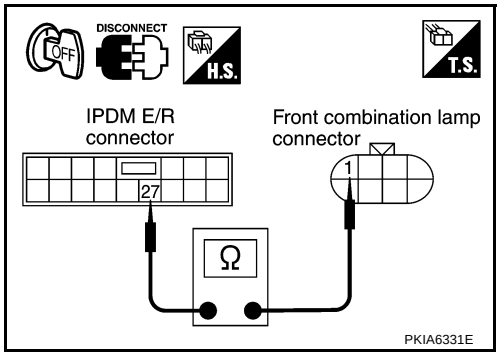
OK or NG

OK >> GO TO 3.
NG >> Repair harness or connector.

3. CHECK HEADLAMP CIRCUIT

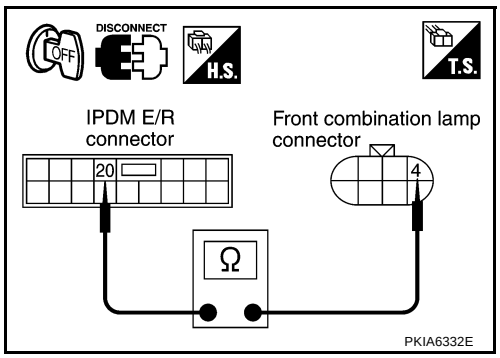
1. Disconnect IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E7 terminal 27 (L/W) and front combination lamp RH harness connector E30 terminal 1 (L/W).

27 (L/W) – 1 (L/W) : Continuity should exist.



3. Check continuity between IPDM E/R harness connector E7 terminal 20 (R/Y) and front combination lamp RH harness connector E30 terminal 4 (R/Y).

20 (R/Y) – 4 (R/Y) : Continuity should exist.



OK or NG

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

Headlamp LH Low Beam and High Beam Does Not Illuminate

AKS00AK2

1. CHECK BULB

Check ballasts (HID control unit) and xenon bulb of lamp which does not illuminate. Refer to LT-32, "Xenon Headlamp Trouble Diagnosis" .

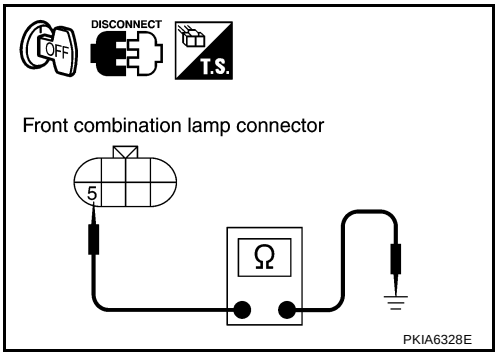
OK or NG

OK >> GO TO 2.
NG >> Repair malfunctioning part.

2. CHECK HEADLAMP GROUND

1. Turn ignition switch OFF.
2. Disconnect front combination lamp LH connector.
3. Check continuity between front combination lamp LH harness connector E17 terminal 5 (B/W) and ground.

5 (B/W) – Ground : Continuity should exist.



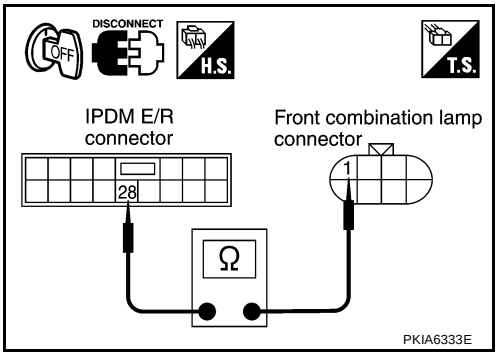
OK or NG

OK >> GO TO 3.
NG >> Repair harness or connector.

3. CHECK HEADLAMP CIRCUIT

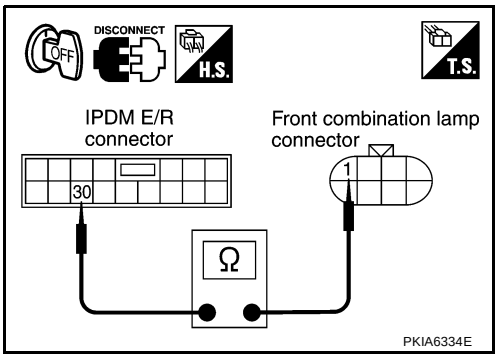
1. Disconnect IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E7 terminal 28 (G) and front combination lamp LH harness connector E17 terminal 1 (G).

28 (G) – 1 (G) : Continuity should exist.



3. Check continuity between IPDM E/R harness connector E7 terminal 30 (L) and front combination lamp LH harness connector E17 terminal 4 (L).

30 (L) – 4 (L) : Continuity should exist.



OK or NG

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

Headlamps Do Not Turn OFF

AKS00AK3

1. CHECK HEADLAMP TURN OFF

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

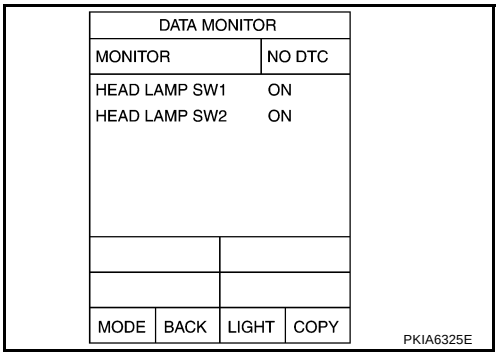
OK or NG

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 position : HEAD LAMP SW 1 OFF
: HEAD LAMP SW 2 OFF



OK or NG

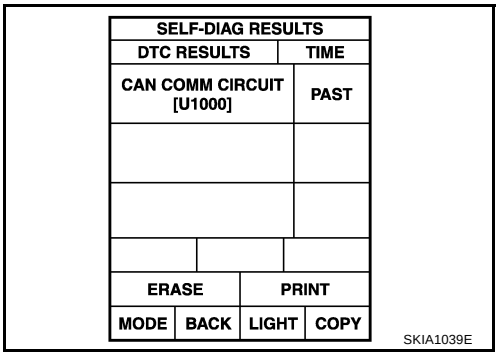
OK >> Replace IPDM E/R.
NG >> Check lighting switch. Refer to LT-140, "Combination Switch Inspection" .

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

Select “BCM” on 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-14, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .



CAUTION:

AKS00AK4

- Installation or removal of the connector must be done with the lighting switch OFF.
- When the lamp is illuminated (when the lighting switch is ON), do not touch the harness, HID control unit, inside of the lamp, or the lamp metal parts.
- To check illumination, temporarily install lamp in the vehicle. Be sure to connect power at the vehicle-side connector.
- If the error can be traced directly to the electrical system, first check for items such as burned-out fuses and fusible links, broken wires or loose connectors, pulled-out terminals, and improper connections.
- Do not work with wet hands.
- Using a tester for HID control unit circuit trouble diagnosis is prohibited.
- Disassembling the HID control unit or harnesses (bulb socket harness, ECM harness) is prohibited.
- Immediately after illumination, the light intensity and color will fluctuate, but there is nothing wrong.
- When the bulb has reached the end of its lifetime, the brightness may drop significantly, it may flash repeatedly, or the light may turn a reddish color.

Xenon Headlamp Trouble Diagnosis

AKS00AK5

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.

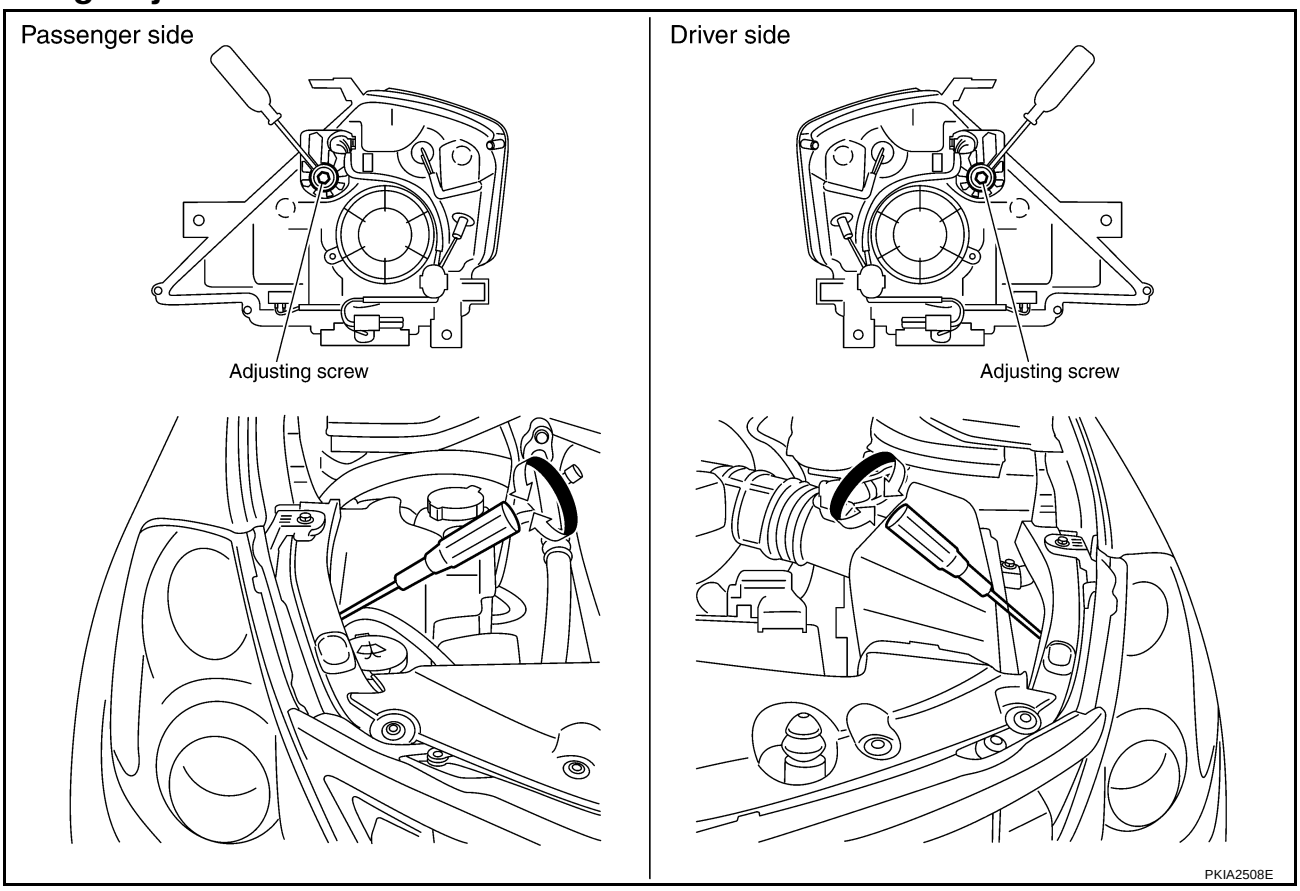
OK or NG

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

NG >> INSPECTION END

Aiming Adjustment

AKS00AK6



PREPARATION BEFORE ADJUSTING

For Details, Refer To the Regulations In Your Own Country.

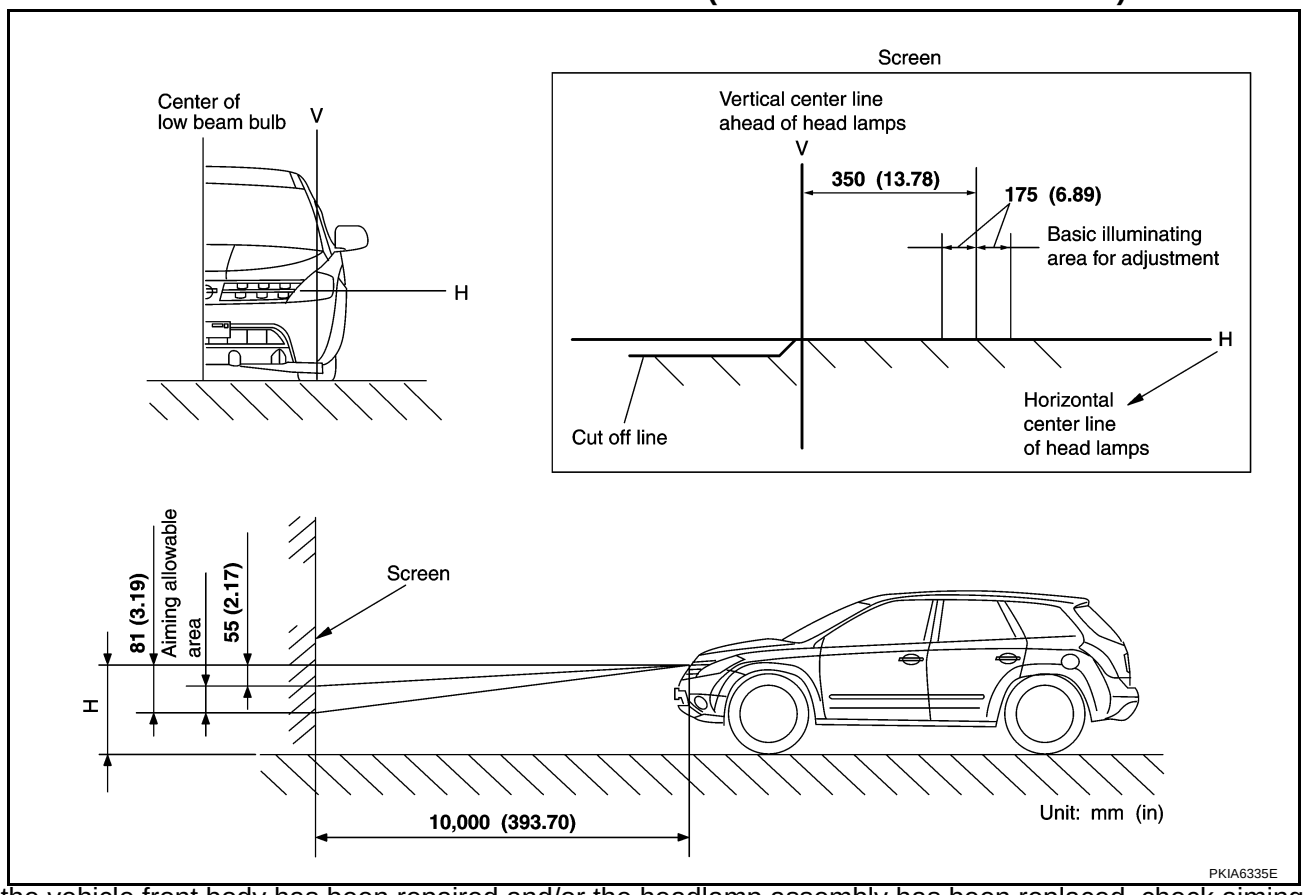
Before performing aiming adjustment, check the following.

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)

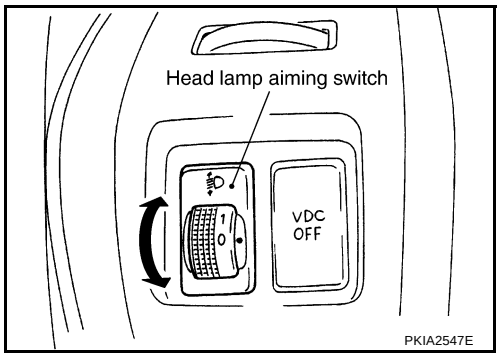


If the vehicle front body has been repaired and/or the headlamp assembly has been replaced, check aiming. Use the aiming chart shown in the figure.

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

CAUTION:

Be sure aiming switch is set to “0” when performing aiming adjustment.



Bulb Replacement

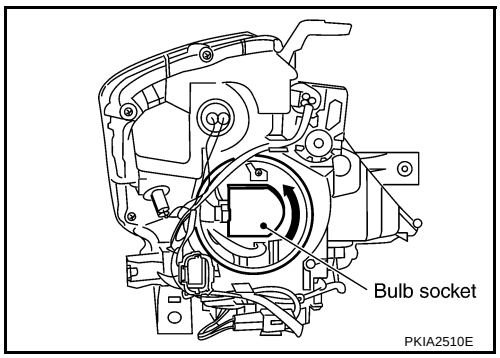
AKS00AK7

HEADLAMP HIGH/LOW BEAM

1. Turn lighting switch OFF.
2. Remove headlamp. Refer to LT-35, "Removal and Installation" .
3. Turn plastic cap counterclockwise and unlock it.
4. Turn bulb socket counterclockwise and unlock it.
5. Unlock retaining spring and remove bulb from headlamp.
6. Install in reverse order of removal.

NOTE:

After installation, perform aiming adjustment. Refer to LT-33, "Aiming Adjustment" .



Headlamp high/low beam (Xenon) : 12V - 35W (D2S)

PARKING LAMP (CLEARANCE LAMP)

1. Turn lighting switch OFF.
2. Remove fender protector (front). Refer to EI-22, "FENDER PROTECTOR" in “EI” section.
3. Turn bulb socket counterclockwise and unlock it.
4. Remove bulb from its socket.
5. Install in reverse order of removal.

Parking lamp (Clearance lamp) : 12V - 3.8W

FRONT TURN SIGNAL LAMP

1. Turn lighting switch OFF.
2. Remove air cleaner case (when replacing LH bulb). Refer to EM-14, "AIR CLEANER AND AIR DUCT" in “EM” section.
3. Remove IPDM E/R (when replacing RH bulb). Refer to PG-29, "Removal and Installation of IPDM E/R" in “PG” section (RH).
4. Turn bulb socket counterclockwise and unlock it.
5. Remove bulb from its socket.
6. Install in reverse order of removal.

Front turn signal lamp : 12V - 21W (amber)

FRONT SIDE MARKER LAMP

1. Turn lighting switch OFF.
2. Remove fender protector (front). Refer to EI-22, "FENDER PROTECTOR" in "EI" section.
3. Turn bulb socket counterclockwise and unlock it.
4. Remove bulb from its socket.
5. Install in reverse order of removal.

Front side marker lamp : 12V - 3.8W

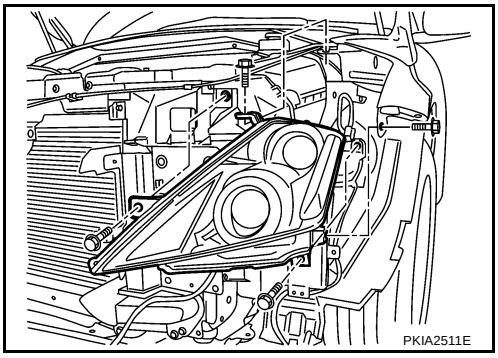
CAUTION:
After installing bulb, be sure to install plastic cap and bulb socket securely to insure watertightness.

Removal and Installation

AKS00AK8

REMOVAL

1. Disconnect the battery negative cable.
2. Remove front bumper. Refer to EI-14, "FRONT BUMPER" in "EI" section.
3. Remove headlamp mounting bolts.
4. Remove plastics bumper bracket, then pull head lamp toward vehicle front, disconnect connector, and remove headlamp.



INSTALLATION

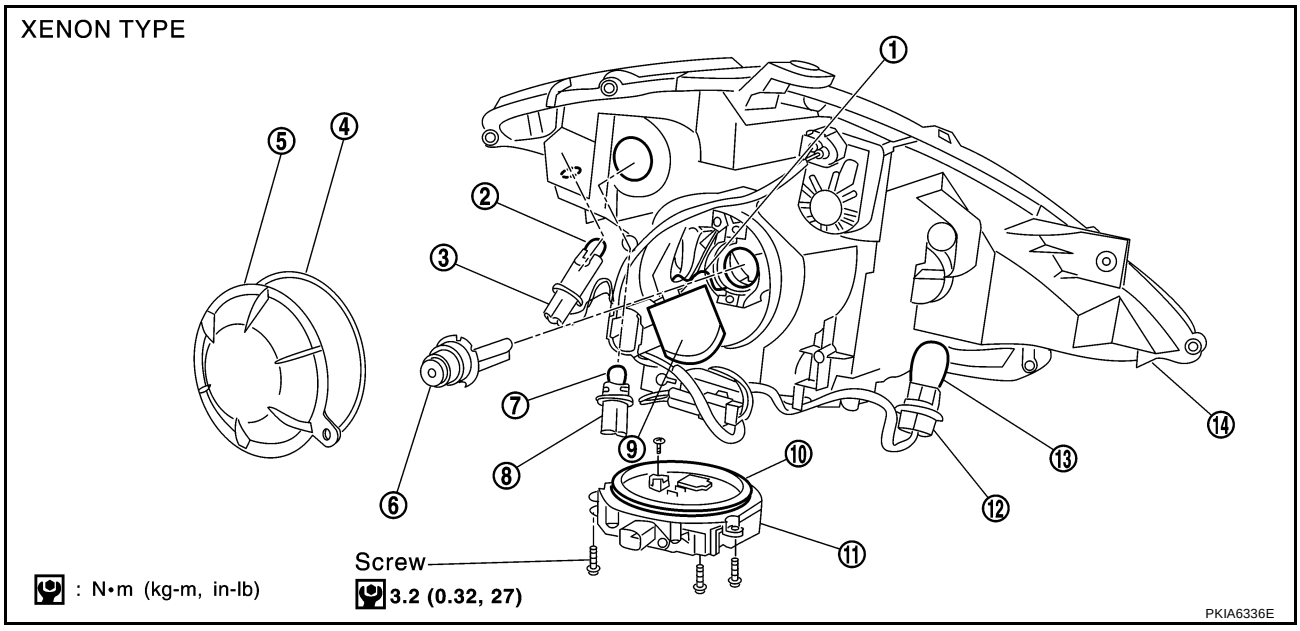
Note the following, and install in the reverse order of removal.

Headlamp mounting bolt : 5.9 N·m (0.60 kg-m, 52 in-lb)

NOTE:
After installation, perform aiming adjustment. Refer to LT-33, "Aiming Adjustment" .

Disassembly and Assembly

AKS00AK9



1. Retaining spring	2. Side marker lamp bulb	3. Side marker lamp bulb socket
4. Seal rubber	5. Plastic cap	6. Xenon bulb
7. Parking lamp (Clearance lamp) bulb	8. Parking lamp (Clearance lamp) bulb socket	9. Xenon bulb socket
10. Seal packing	11. HID C/U	12. Front turn signal lamp bulb socket
13. Front turn signal lamp bulb	14. Headlamp housing assembly	

DISASSEMBLY

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

ASSEMBLY

Note the following, and assemble in the reverse order of disassemble.

HID control unit mounting screw **:3.2 N·m (0.32 kg-m, 27 in-lb)**

CAUTION:

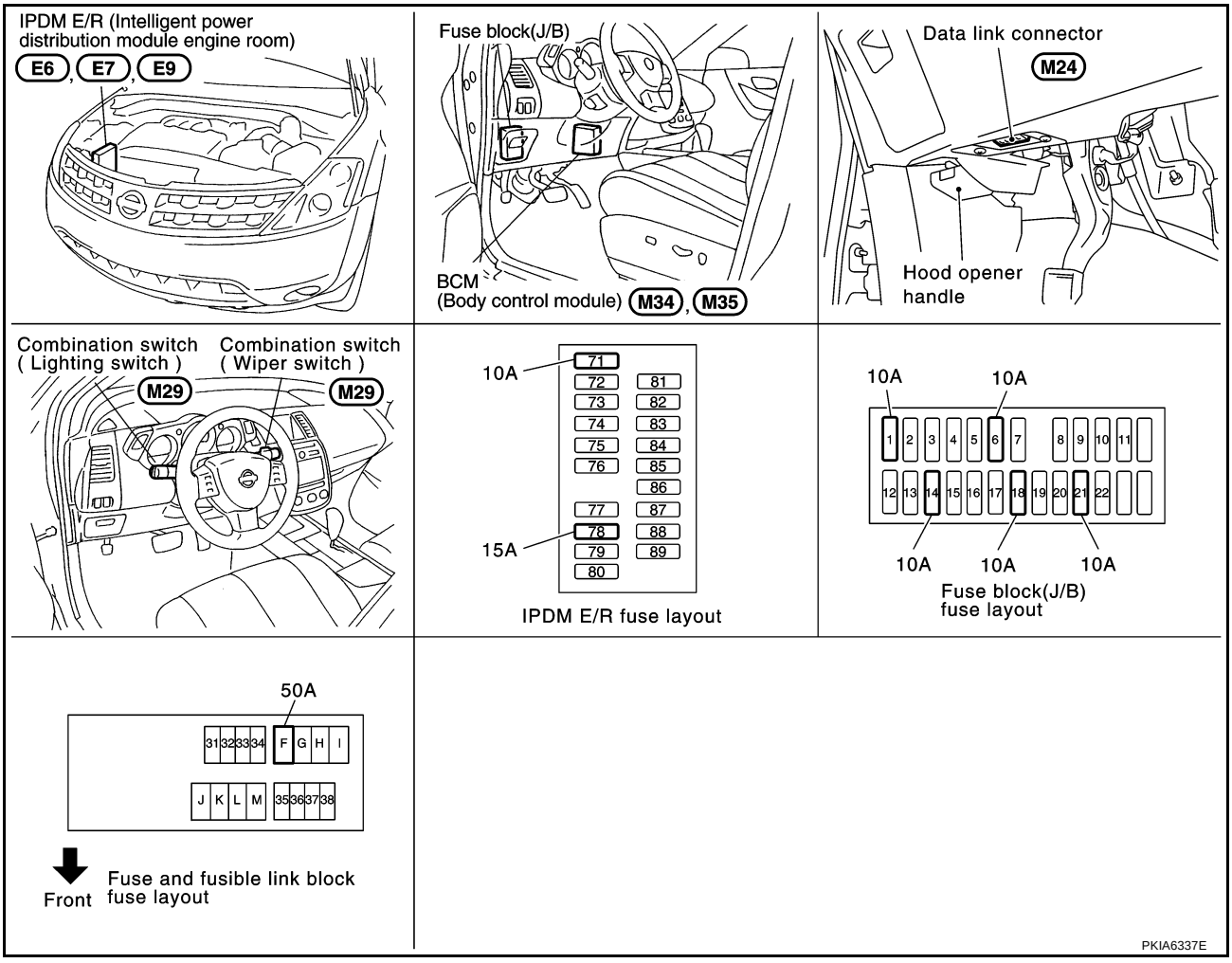
- **When HID control unit is removed, reinstall it securely and avoid any looseness.**
- **After installing bulb, be sure to install plastic cap and bulb socket securely to insure watertightness.**

HEADLAMP -CONVENTIONAL TYPE-

PFP:26010

Component Parts and Harness Connector Location

AKS007LL



System Description

AKS007LM

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 (intelligent power distribution module engine room) 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 (intelligent power distribution module engine room)]
- to headlamp low relay [located in IPDM E/R (intelligent power distribution module engine room)]
- through 50A fusible link (letter F, located in fuse and fusible link block)
- to BCM (body control module) terminal 55
- through 10A fuse [No. 18, located in fuse block (J/B)]
- to BCM (body control module) terminal 42
- through 15A fuse [No. 78, located in IPDM E/R (intelligent power distribution module engine room)]
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- through 10A fuse [No. 71, located in IPDM E/R (intelligent power distribution module engine room)]
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]

- through 10A fuse [No. 21, located in fuse block (J/B)]
- to combination meter terminal 21.

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

- to ignition relay, located in IPDM E/R (intelligent power distribution module engine room)
- through 10A fuse [No. 1, located in fuse block (J/B)]
- to BCM (body control module) terminal 38
- through 10A fuse [No. 14 located in fuse block (J/B)]
- to combination meter terminal 20.

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

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

Ground is supplied

- to BCM (body control module) terminals 49 and 52
- through grounds M14 and M78
- to IPDM E/R (intelligent power distribution module engine room) terminals 38 and 60
- through grounds E13, E26 and E28.
- to combination meter terminals 22, 23 and 24
- through grounds M14 and M78.

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 in the IPDM E/R controls the headlamp low relay coil, which when energized, directs power

- to 15A fuse [No. 76, located in IPDM E/R]
- through IPDM E/R terminal 20
- to headlamp RH terminal 4
- to 15A fuse [No. 86, located in IPDM E/R]
- through IPDM E/R terminal 30
- to headlamp LH terminal 4.

Ground is supplied at all times

- to headlamp RH terminal 5
- through grounds E13, E26 and E28
- to headlamp LH terminal 5
- through grounds E13, E26 and E28.

With power and ground supplied, low beam headlamps illuminate.

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 the CAN communication lines. The CPU in the IPDM E/R controls the headlamp high relay coil, which when energized, directs power

- to 10A fuse [No. 72, located in IPDM E/R]
- through IPDM E/R terminal 27
- to headlamp RH terminal 1
- to 10A fuse [No. 74, located in IPDM E/R]
- through IPDM E/R terminal 28
- to headlamp LH terminal 1.

Ground is supplied

- to headlamp RH terminal 5
- through grounds E13, E26 and E28

- to headlamp LH terminal 5
- through grounds E13, E26 and E28.

With power and ground supplied, the high beam headlamps illuminate.
The unified meter and A/C amp that received the high beam request signal by BCM across the CAN communication makes a high beam indicator lamp turn on in combination meter.

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.

AUTO LIGHT OPERATION

Refer to LT-86, "System Description" in “AUTO LIGHT SYSTEM”.

VEHICLE SECURITY SYSTEM

The vehicle security system will flash the high beams if the system is triggered. Refer to BL-98, "VEHICLE SECURITY (THEFT WARNING) SYSTEM" .

CAN Communication System Description

AKS007LN

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.

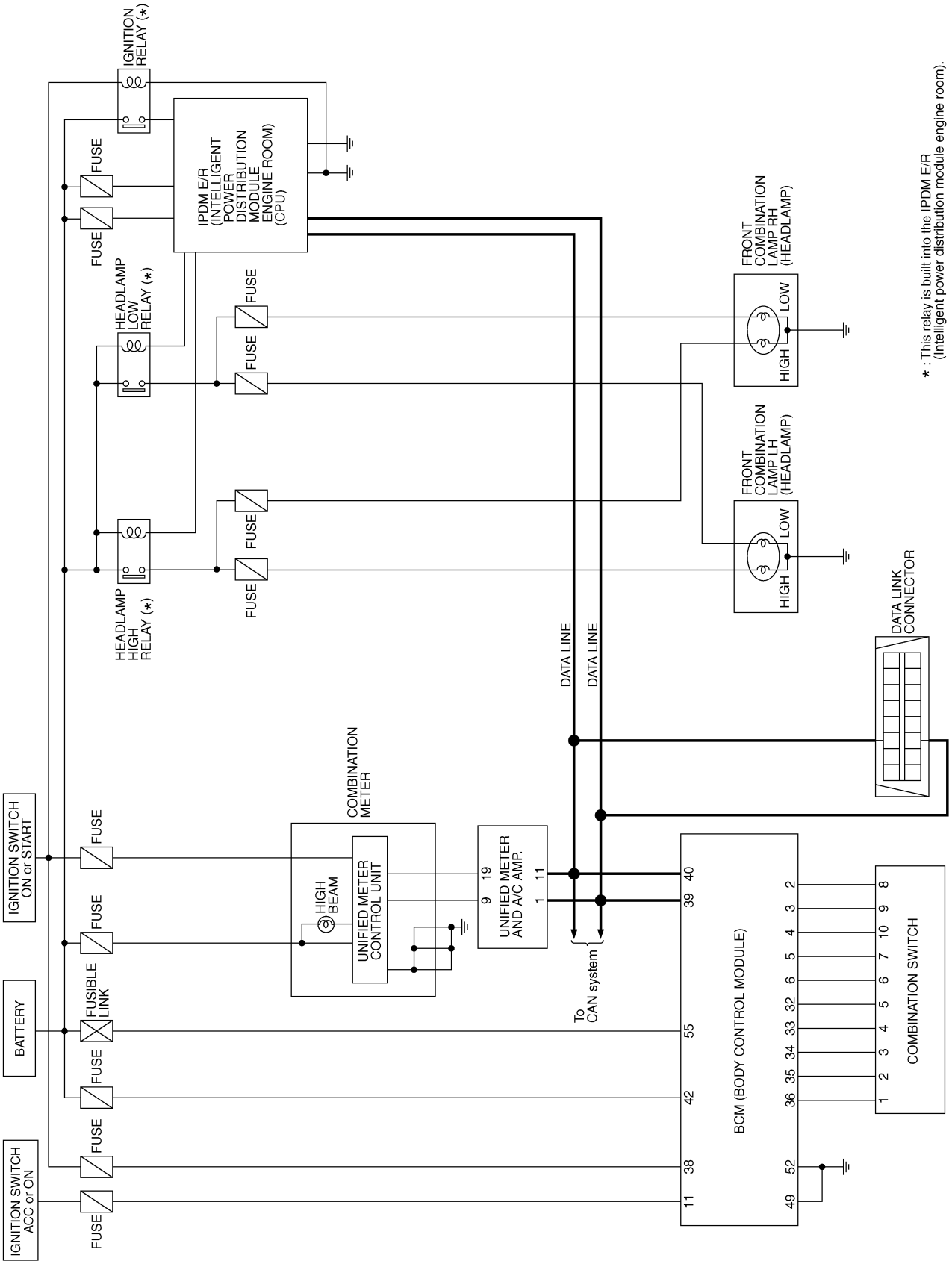
CAN Communication Unit

AKS007QN

Refer to LAN-8, "CAN Communication Unit" .

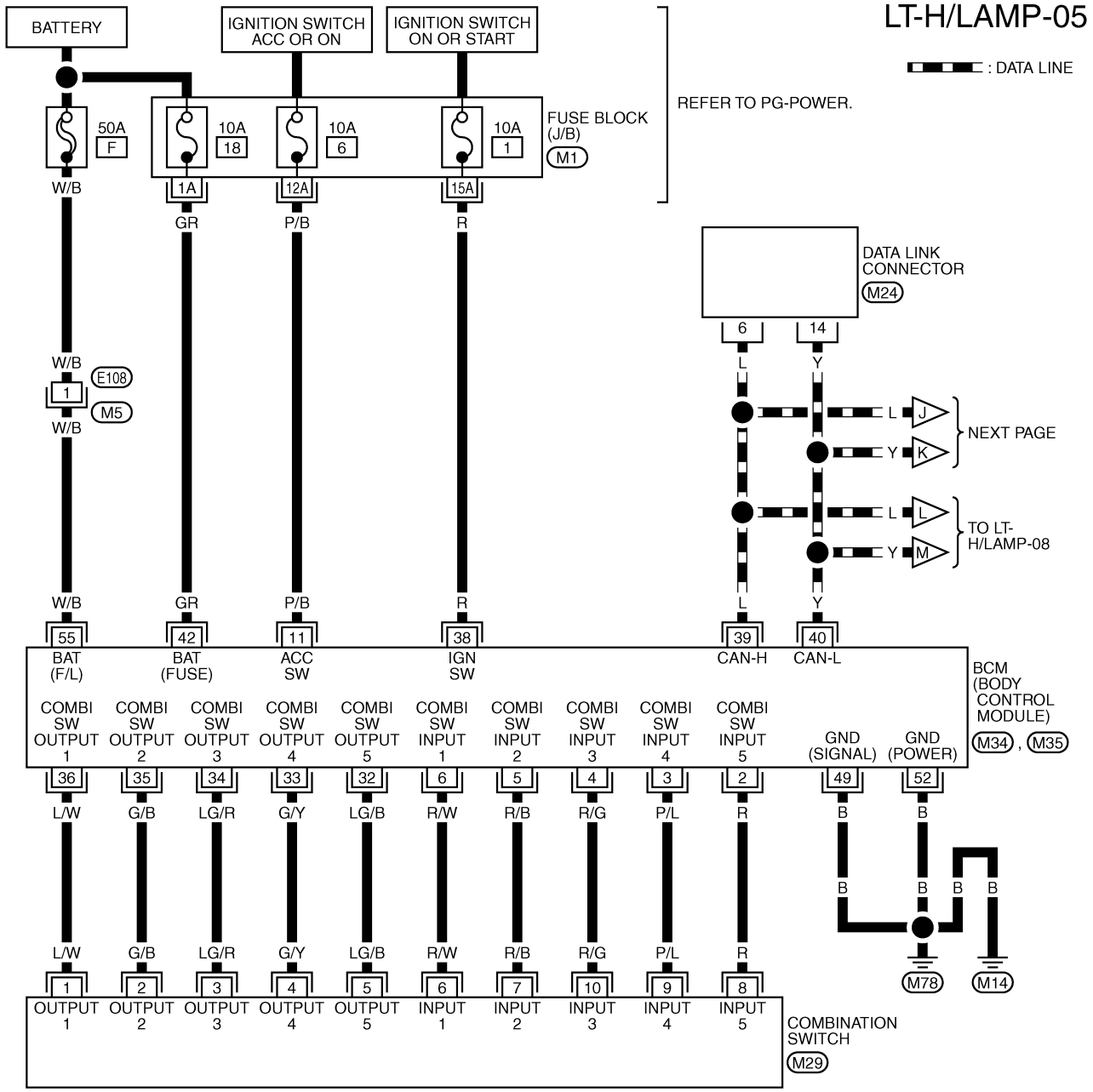
Schematic

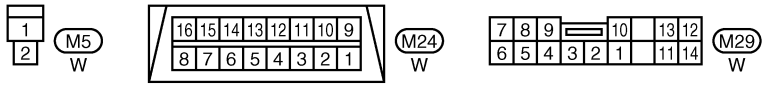
AKS007LP



Wiring Diagram — H/LAMP —

AKS007LQ





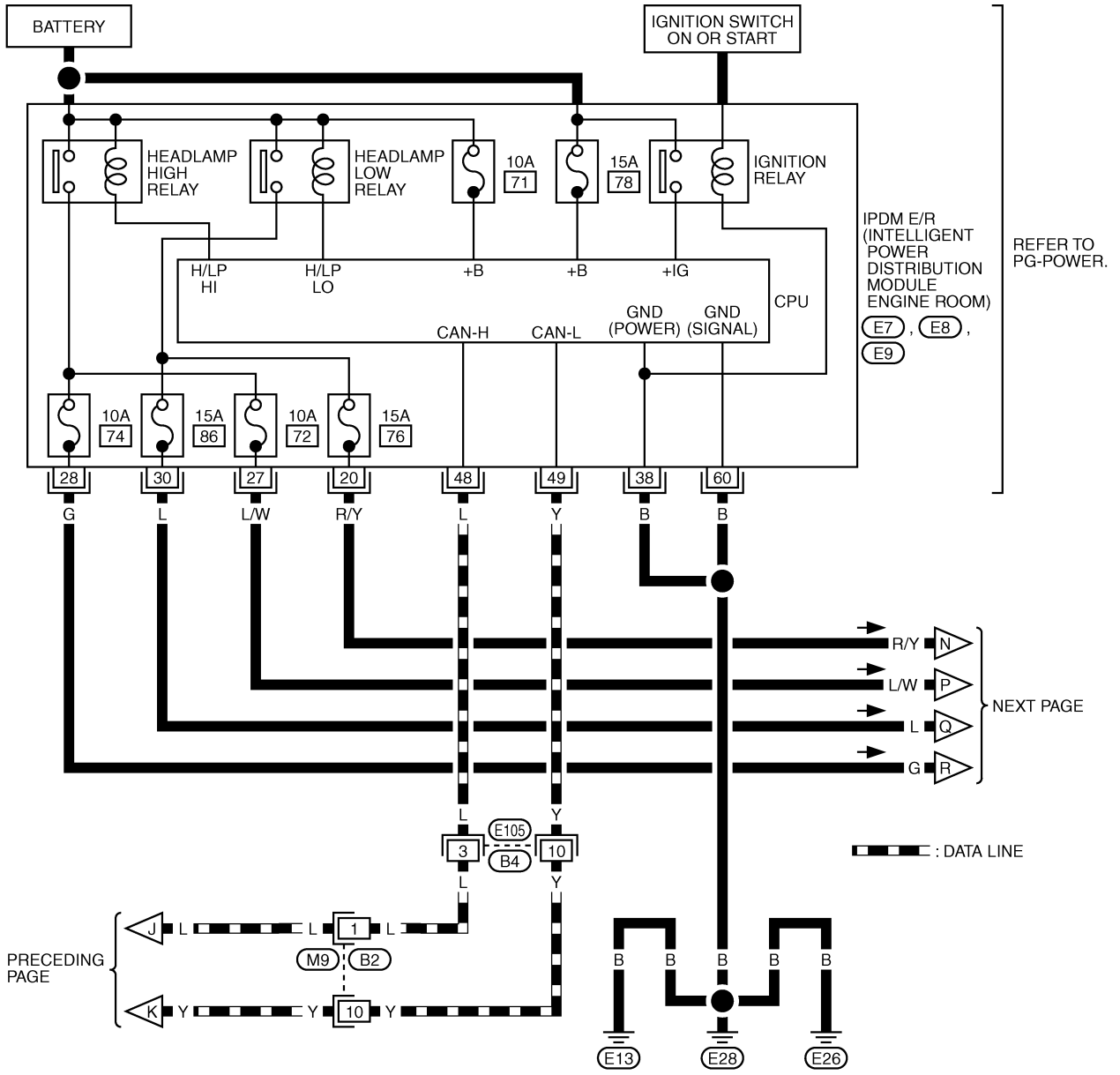
REFER TO THE FOLLOWING.

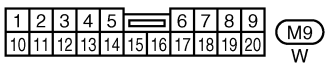
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

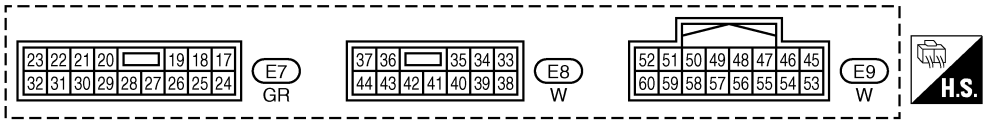
M34, M35 -ELECTRICAL UNITS

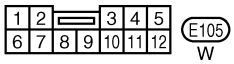
TKWA1678E

LT-H/LAMP-06



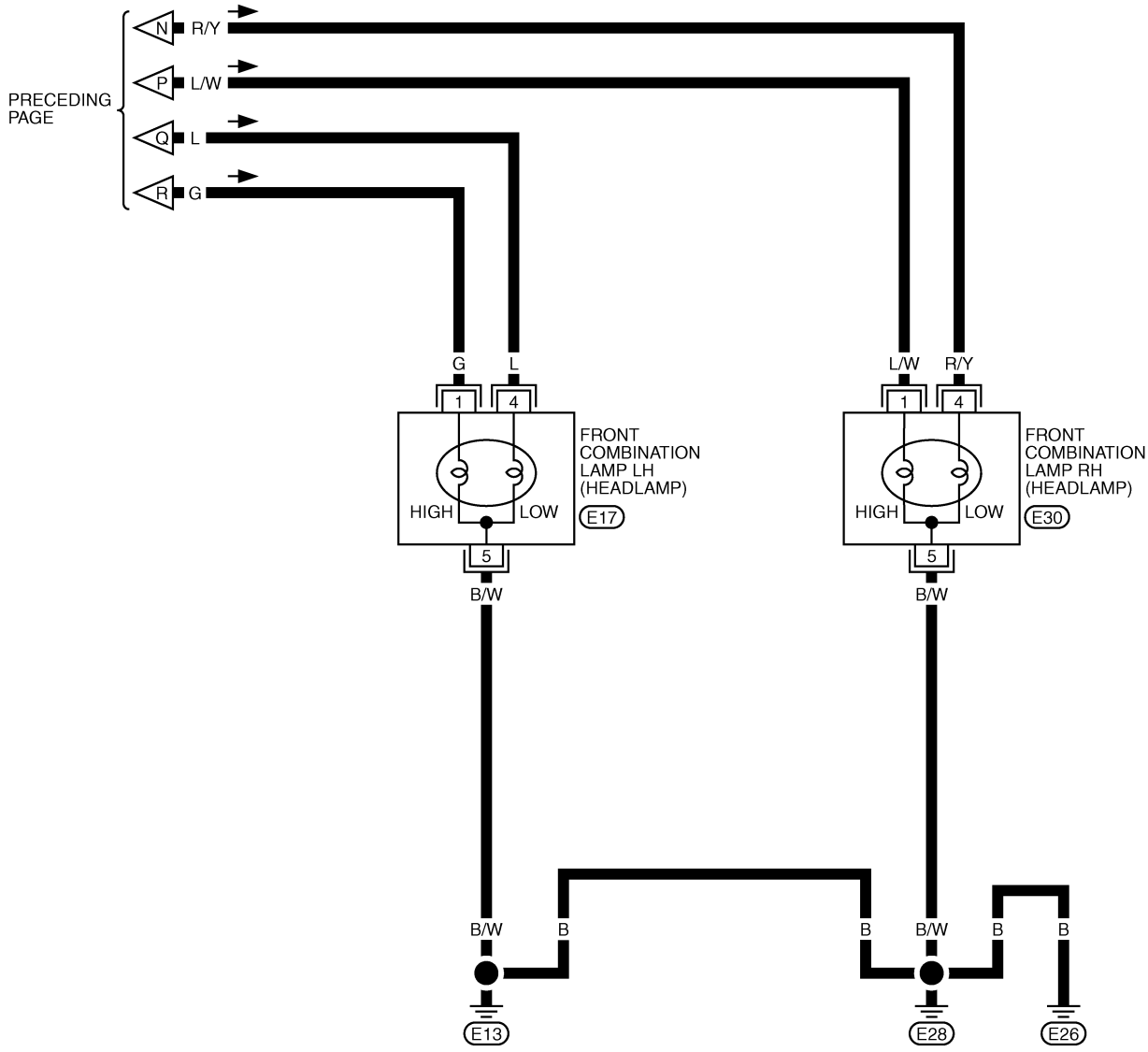






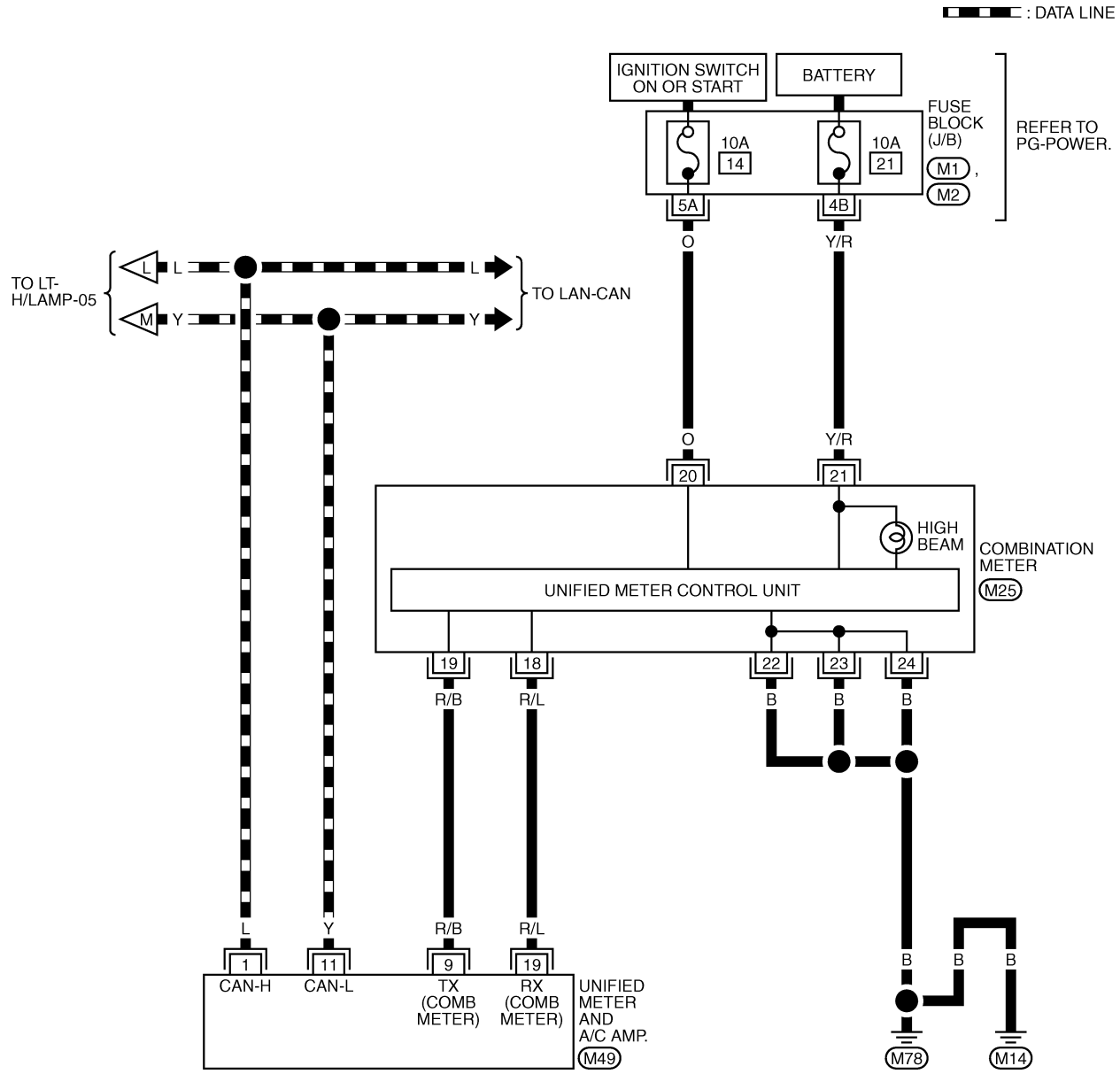
TKWA1679E

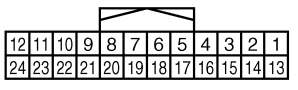
LT-H/LAMP-07



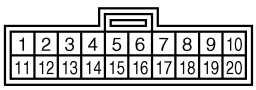
TKWA0745E

LT-H/LAMP-08





M25
W



M49
GR

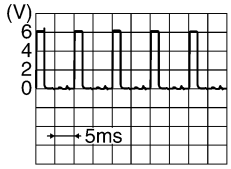
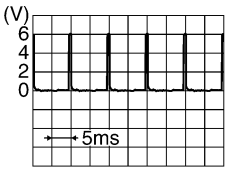
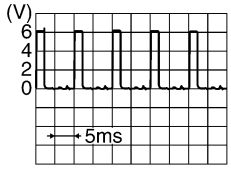
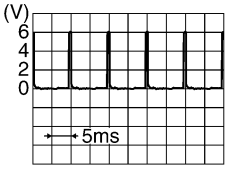
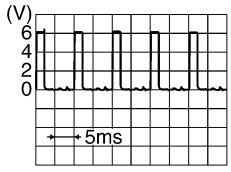
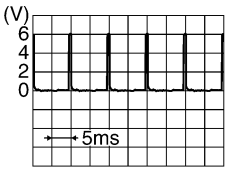
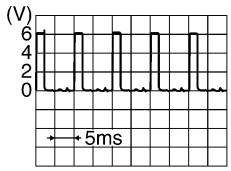
H.S.

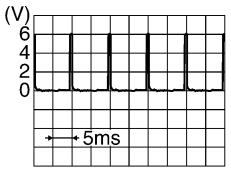
REFER TO THE FOLLOWING.
M1 , M2 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWA0746E

Terminals and Reference Values for BCM

AKS00AKA

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

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

Terminals and Reference Values for IPDM E/R

AKS00AKB

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

How to Proceed With Trouble Diagnosis

AKS00AKC

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-37, "System Description" .
3. Perform the preliminary check. Refer to LT-47, "Preliminary Check" .
4. Check symptom and repair or replace the cause of malfunction.
5. Does the headlamp operate normally? If YES: GO TO 6. If NO: GO TO 4.
6. INSPECTION END

Preliminary Check

AKS00AKD

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

- Check for blown fuses.

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

Refer to LT-41, "Wiring Diagram — H/LAMP —" .

OK or NG

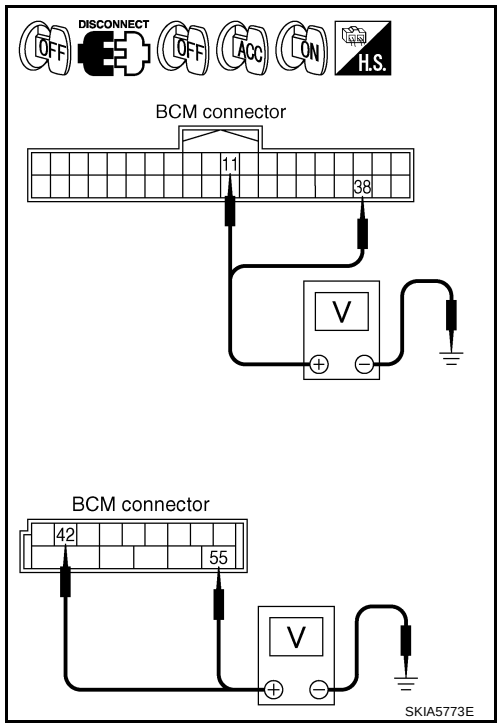
OK >> GO TO 2.

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

2. CHECK POWER SUPPLY CIRCUIT

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

Terminals			Ignition switch position		
(+)		(-)	OFF	ACC	ON
Connector	Terminal (Wire color)				
M34	11 (P/B)	Ground	0V	Battery voltage	Battery voltage
	38 (R)		0V	0V	Battery voltage
M35	42 (GR)		Battery voltage	Battery voltage	Battery voltage
	55 (W/B)		Battery voltage	Battery voltage	Battery voltage



OK or NG

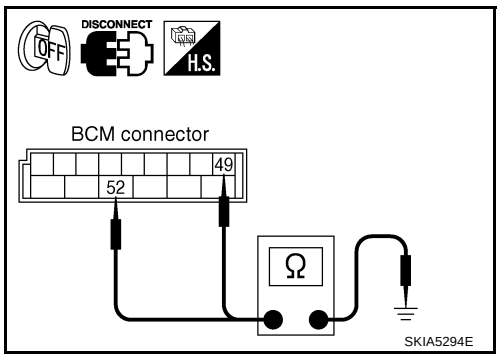
OK >> GO TO 3.

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

3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminals			Continuity
Connector	Terminal (Wire color)		
M35	49 (B)	Ground	Yes
	52 (B)		



OK or NG

OK >> INSPECTION END
NG >> Check ground circuit harness.

CONSULT-II Functions (BCM)

AKS00AKE

- CONSULT-II executes the following functions by combining data reception and command transmission via the communication line from BCM. Work support, self-diagnosis, data monitor, and active test display.

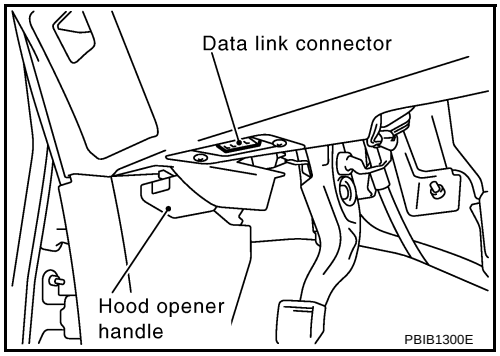
BCM diagnosis part	Check item, diagnosis mode	Description
HEAD LAMP	WORK SUPPORT	Changes the setting for each function.
	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.
BCM	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.

CONSULT-II BASIC OPERATION

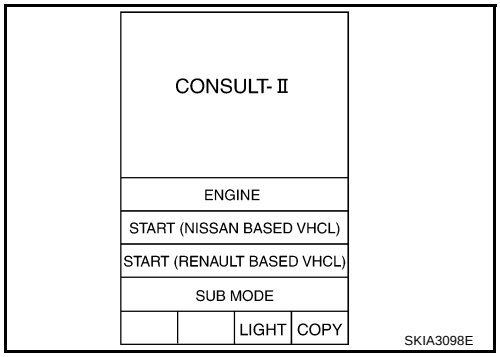
CAUTION:

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.

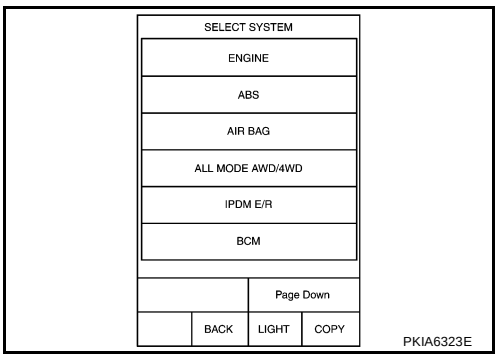
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn ignition switch ON.



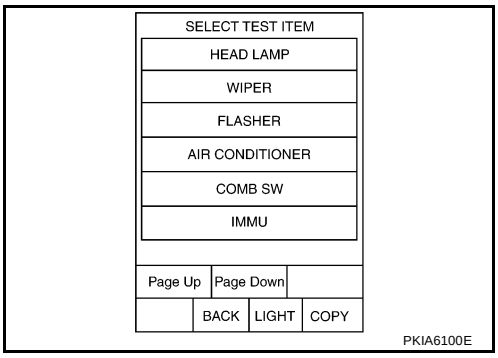
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “BCM” on “SELECT SYSTEM” screen.
If “BCM” is not indicated, 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 item 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. Selects exterior lamp battery saver control mode between two ON/OFF.	ON	×
		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 “DATA MONITOR” screen.

ALL SIGNALS	Monitors all the signals.
SELECTION FROM MENU	Selects and monitors individual signal.

4. Touch “START”.
5. When “SELECTION FROM MENU” is selected, touch individual items to be monitored. When “ALL SIGNALS” is selected, all the items will be monitored.
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 2 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 1 ST	“ON/OFF”	Displays status (lighting switch 1st position: ON/Others: OFF) of lighting switch judged from lighting switch signal.
AUTO LIGHT SW	“ON/OFF”	Displays status of the lighting switch as judged from the lighting switch signal. (AUTO position: ON/Other than AUTO position: OFF)
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	“ON/OFF”	Displays status (front fog lamp switch: ON/Others: OFF) of front fog lamp switch judged from lighting switch signal.
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”	Displays status of the passenger door as judged from the passenger door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - RR	“ON/OFF”	Displays status of the rear door as judged from the rear door switch (RH) signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - RL	“ON/OFF”	Displays status of the rear door as judged from the passenger door switch (LH) signal. (Door is open: ON/Door is closed: OFF)
BACK DOOR SW	“ON/OFF”	Displays status of the backdoor as judged from the backdoor switch signal. (Door is open: ON/Door is closed: OFF)
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”	—
OPTICAL SENSOR	[0 - 5V]	Displays “ambient light (close to 5V when light/close to 0V when dark)” judged from optical sensor signal.

NOTE:
This item is displayed, but cannot monitor it.

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	Allows fog lamp relay to operate by switching ON–OFF.
CORNERING LAMP[NOTE]	—
CARGO LAMPNOTE	—

NOTE:
This item is displayed, but cannot monitor it.

CONSULT-II Functions (IPDM E/R)

AKS00AKF

CONSULT-II can display each diagnostic item using the following diagnostic test modes: work support, self-diagnostic results, data monitor and active test through data reception and command transmission via the IPDM E/R CAN communication line.

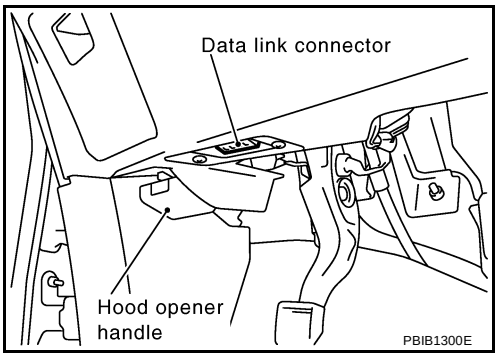
Inspection Item, Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	The IPDM E/R performs self-diagnosis of CAN communication.
DATA MONITOR	The input/output data of the IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.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

CONSULT-II OPERATION

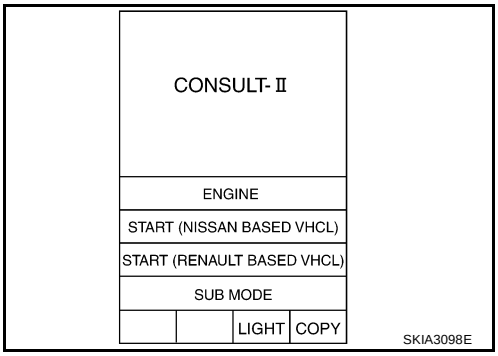
CAUTION:

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.

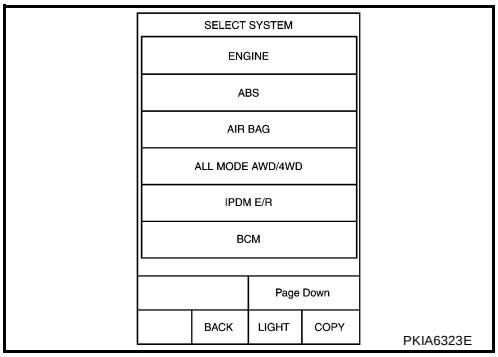
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn the ignition switch ON.



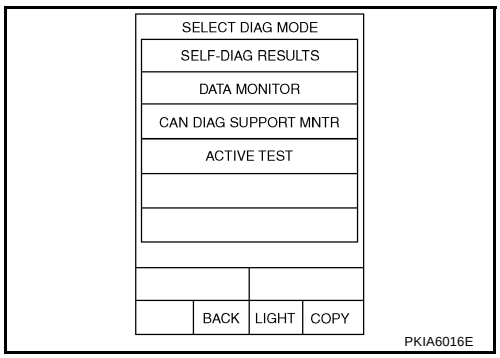
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “IPDM E/R” on “SELECT SYSTEM” screen.
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 SYSTEM” screen.



SELF-DIAGNOSTIC RESULTS

Refer to PG-20, "SELF-DIAG RESULTS" .

DATA MONITOR

Operation Procedure

1. Touch “DATA MONITOR” on “SELECT DIAG MODE ” screen.
2. Touch “ALL SIGNALS”, “MAIN SIGNALS”, or “SELECTION FROM MENU” on “DATA MONITOR” screen.

ALL SIGNALS	All items will be monitored.
MAIN SIGNALS	Monitor the predetermined item.
SELECTION FROM MENU	Select any item for monitoring.

3. Touch “START”.
4. Touch the required monitoring item on “SELECTION FROM MENU”. In “ALL SIGNALS”, all items are monitored. In “MAIN SIGNALS”, predetermined items are monitored.
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 screen display	Display or unit	Monitor item selection			Description
			ALL SIGNALS	MAIN SIGNALS	SELECTION FROM MENU	
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
Font fog lights request	FR FOG REQ	ON/OFF	×	×	×	Signal status input from BCM

NOTE:
Perform monitoring of IPDM E/R data with the ignition switch ON. When the 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
Headlamp relay (HI, LO) output	LAMPS	Allows headlamp relay (HI, LO) to operate by switching operation (OFF, HI ON, LO ON) at your option.
Front fog lamp relay output		Allows fog lamp relay to operate by switching operation ON-OFF at your option.
Tail lamp relay output	TAIL LAMP	Allows tail lamp relay to operate by switching operation ON-OFF at your option.

Headlamp High Beam Does Not Illuminate (Both Side)

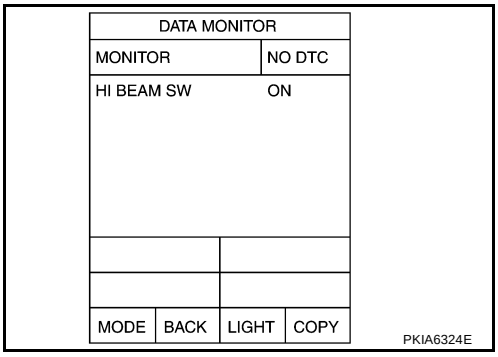
AKS00AKG

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 HIGH BEAM position : HI BEAM SW ON



Without CONSULT-II

Refer to LT-140, "Combination Switch Inspection" .

OK or NG

OK >> GO TO 2.

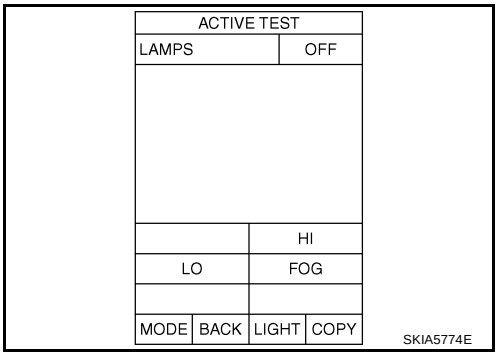
NG >> Check lighting switch. Refer to LT-140, "Combination Switch Inspection" .

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 operates.

Headlamp high beam should operate.



Without CONSULT-II

1. Start auto active test. Refer to PG-23, "Auto Active Test" .
2. Make sure headlamp high beam operates.

Headlamp high beam should operate.

OK or NG

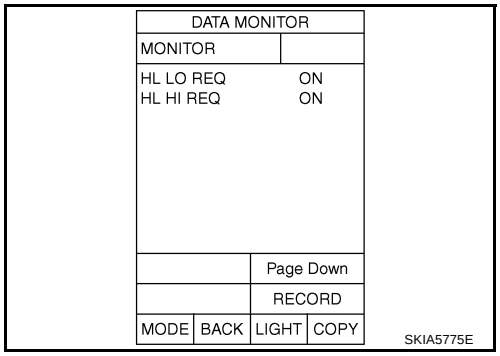
OK >> GO TO 3.

NG >> GO TO 4.

3. CHECK IPDM E/R

1. Select “IPDM E/R” on CONSULT-II, and select “DATA MONITOR” on “SELECT DIAG MODE” screen.
2. Make sure “HL LO REQ” and “HL HI REQ” turns ON when lighting switch is in HI position.

When lighting switch is HIGH BEAM position : HL LO REQ ON : HL HI REQ ON



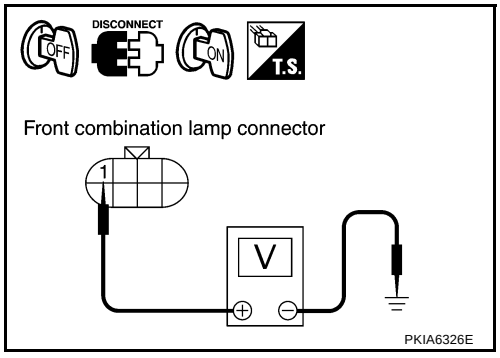
OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .

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 “HI” screen.
6. 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).



Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E30	1 (L/W)	Ground	Battery voltage
LH	E17	1 (G)		

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-23, "Auto Active Test" .
4. When headlamp high beam is operating, check voltage between front combination lamp RH and LH harness connector and ground.

Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E30	1 (L/W)	Ground	Battery voltage
LH	E17	1 (G)		

OK or NG

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

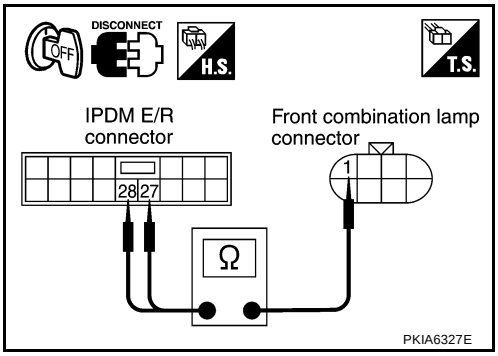
5. CHECK HEADLAMP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector E7 terminal 27 (L/W) and front combination lamp RH harness connector E30 terminal 1 (L/W).

27 (L/W) – 1 (L/W) : Continuity should exist.

4. Check continuity between IPDM E/R harness connector E7 terminal 28 (G) and front combination lamp LH harness connector E17 terminal 1(G).

28 (G) – 1 (G) : Continuity should exist.



OK or NG

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

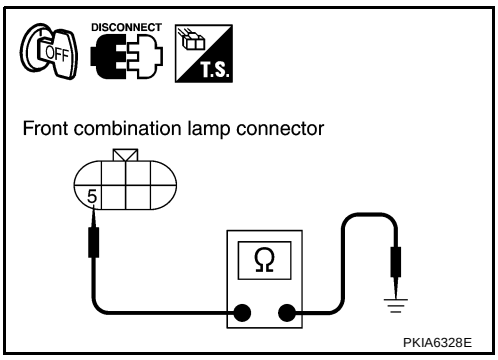
6. CHECK HEADLAMP GROUND

1. Check continuity between front combination lamp RH harness connector E30 terminal 5 (B/W) and ground.

5 (B/W) – Ground : Continuity should exist.

2. Check continuity between front combination lamp LH harness connector E17 terminal 5 (B/W) and ground.

5 (B/W) – Ground : Continuity should exist.



OK or NG

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

Headlamp High Beam Does Not Illuminate (One Side)

AKS00AKH

1. CHECK BULB

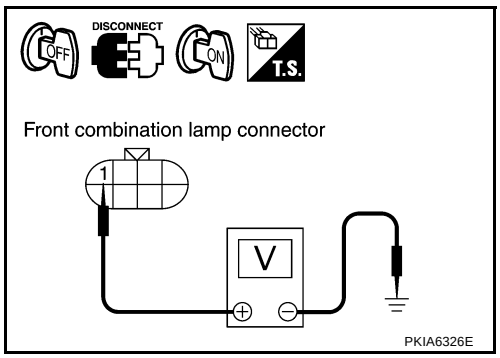
Check bulb of lamp which does not illuminate.

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.



Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E30	1 (L/W)	Ground	Battery voltage
LH	E17	1 (G)		

OK or NG

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

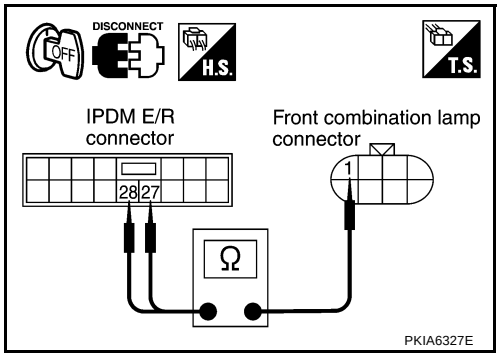
3. CHECK HEADLAMP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector E7 terminal 27 (L/W) and front combination lamp RH harness connector E30 terminal 1 (L/W).

27 (L/W) – 1 (L/W) : Continuity should exist.

4. Check continuity between IPDM E/R harness connector E7 terminal 28 (G) and front combination lamp LH harness connector E17 terminal 1 (G).

28 (G) – 1 (G) : Continuity should exist.



OK or NG

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

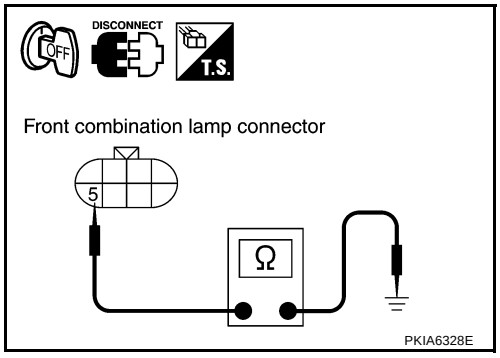
4. CHECK HEADLAMP GROUND

1. Check continuity between front combination lamp RH harness connector E30 terminal 5 (B/W) and ground.

5 (B/W) – Ground : Continuity should exist.

2. Check continuity between front combination lamp LH harness connector E41 terminal 5 (B/W) and ground.

5 (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

AKS00AKI

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)

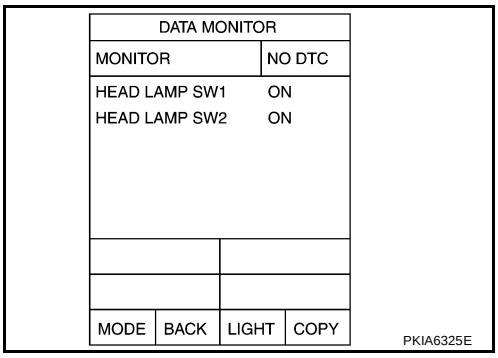
AKS00AKJ

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



Without CONSULT-II

Refer to LT-140, "Combination Switch Inspection" .

OK or NG

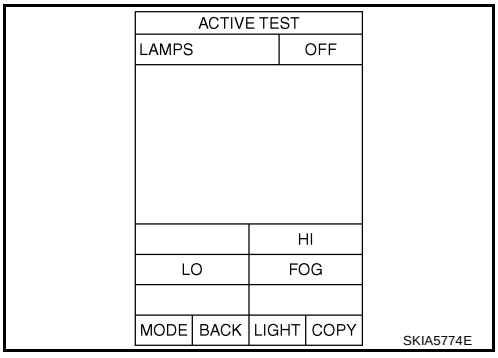
OK >> GO TO 2.
NG >> Check lighting switch. Refer to LT-140, "Combination Switch Inspection" .

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 “LO” screen.
4. Make sure headlamp low beam operates.

Headlamp low beam should operate.



Without CONSULT-II

1. Start auto active test. Refer to PG-23, "Auto Active Test" .
2. Make sure headlamp low beam operates.

Headlamp low beam should operate.

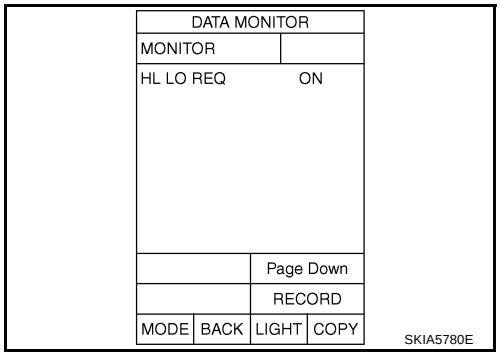
OK or NG

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

3. CHECK IPDM E/R

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

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



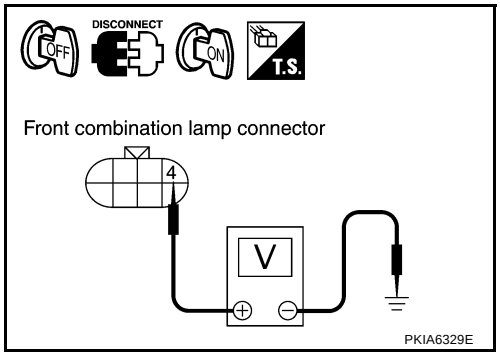
OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .

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.



Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E30	4 (R/Y)	Ground	Battery voltage
LH	E17	4 (L)		

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-23, "Auto Active Test" .
4. When headlamp low beam is operating, check voltage between front combination lamp RH and LH harness connector and ground.

Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E30	4 (R/Y)	Ground	Battery voltage
LH	E17	4 (L)		

OK or NG

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

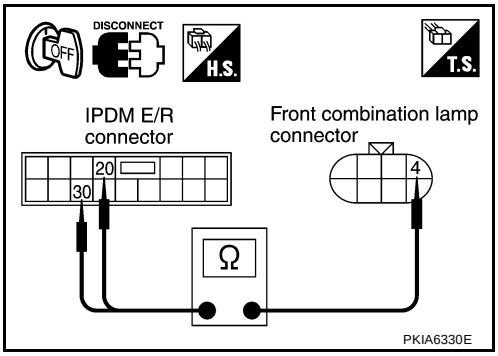
5. CHECK HEADLAMP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector E7 terminal 20 (R/Y) and front combination lamp RH harness connector E30 terminal 4 (R/Y).

20 (R/Y) – 4 (R/Y) : Continuity should exist.

4. Check continuity between IPDM E/R harness connector E7 terminal 30 (L) and front combination lamp LH harness connector E17 terminal 4 (L).

30 (L) – 4 (L) : Continuity should exist.



OK or NG

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

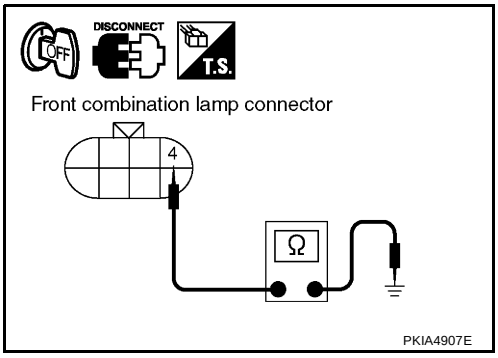
6. CHECK HEADLAMP GROUND

1. Turn ignition switch OFF.
2. Check continuity between front combination lamp RH harness connector E30 terminal 5 (B/W) and ground.

5 (B/W) – Ground : Continuity should exist.

3. Check continuity between front combination lamp LH harness connector E17 terminal 5 (B/W) and ground.

5 (B/W) – Ground : Continuity should exist.



OK or NG

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

Headlamp Low Beam Does Not Illuminate (One Side)

AKS00AKK

1. CHECK BULB

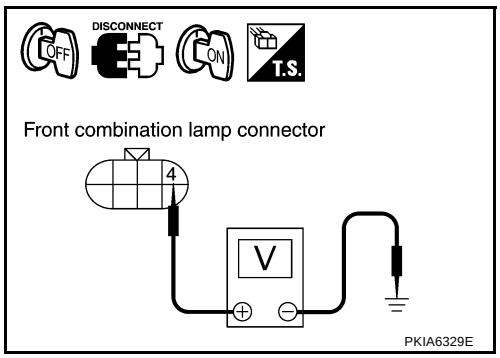
Check bulb of lamp which does not illuminate.

OK or NG

OK >> GO TO 2.
NG >> Repair 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 HIGH position.
5. Check voltage between front combination lamp RH or LH harness connector and ground.



Terminals			Voltage
(+)		(-)	
Connector		Terminal (Wire color)	
RH	E30	4 (R/Y)	Ground	Battery voltage
LH	E17	4 (L)		

OK or NG

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

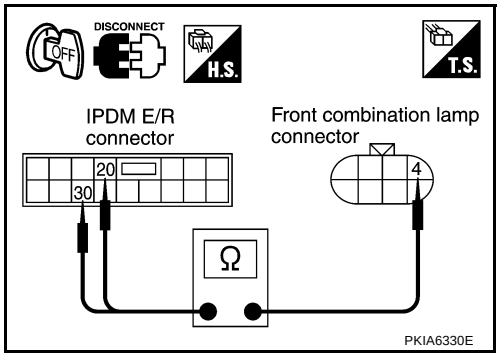
3. CHECK HEADLAMP CIRCUIT

1. Disconnect IPDM E/R connector and front combination lamp RH or LH connector.
2. Check continuity between IPDM E/R harness connector E7 terminal 20 (R/Y) and front combination lamp RH harness connector E30 terminal 4 (R/Y).

20 (R/Y) – 4 (R/Y) : Continuity should exist.

3. Check continuity between IPDM E/R harness connector E7 terminal 30 (L) and front combination lamp LH harness connector E17 terminal 4 (L).

30 (L) – 4 (L) : Continuity should exist.



OK or NG

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

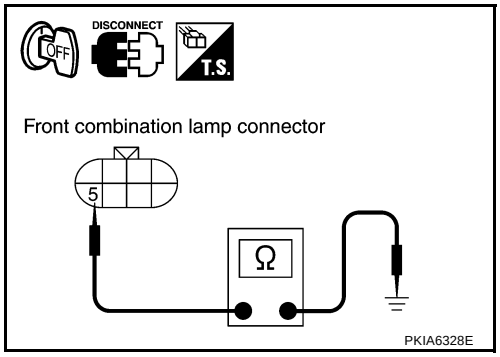
4. CHECK HEADLAMP GROUND

1. Check continuity between front combination lamp RH harness connector E30 terminal 5 (B/W) and ground.

5 (B/W) – Ground : Continuity should exist.

2. Check continuity between front combination lamp LH harness connector E17 terminal 5 (B/W) and ground.

5 (B/W) – Ground : Continuity should exist.



OK or NG

OK >> Ckeck headlamp harness and connector.
NG >> Repair harness or connector.

Headlamp RH Low Beam and High Beam Do Not Illuminate

AKS00AKL

1. CHECK BULB

Check bulb of lamp which does not illuminate.

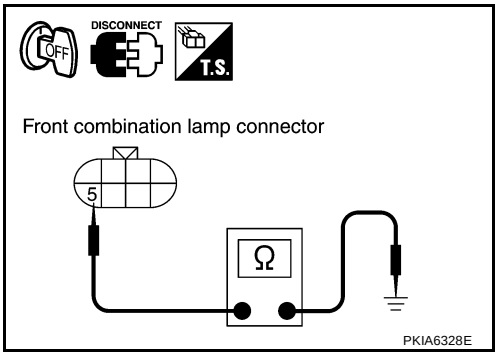
OK or NG

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

2. CHECK HEADLAMP GROUND

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH connector.
3. Check continuity between front combination lamp RH harness connector E30 terminal 5 (B/W) and ground.

5 (B/W) – Ground : Continuity should exist.



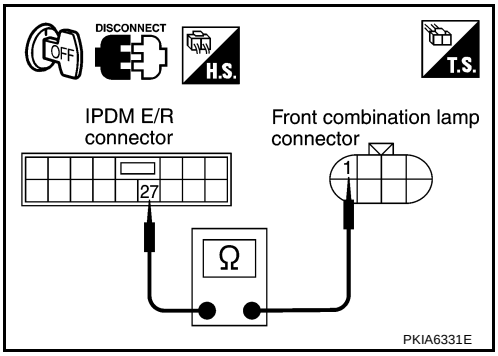
OK or NG

OK >> GO TO 3.
NG >> Repair harness or connector.

3. CHECK HEADLAMP CIRCUIT

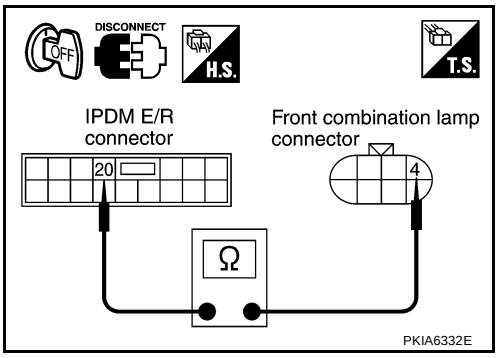
1. Disconnect IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E7 terminal 27 (L/W) and front combination lamp RH harness connector E30 terminal 1 (L/W).

27 (L/W) – 1 (L/W) : Continuity should exist.



3. Check continuity between IPDM E/R harness connector E7 terminal 20 (R/Y) and front combination lamp RH harness connector E30 terminal 4 (R/Y).

20 (R/Y) – 4 (R/Y) : Continuity should exist.



OK or NG

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

Headlamp LH Low Beam and High Beam Do Not Illuminate

AKS00AKM

1. CHECK BULB

Check bulb of lamp which does not illuminate.

OK or NG

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

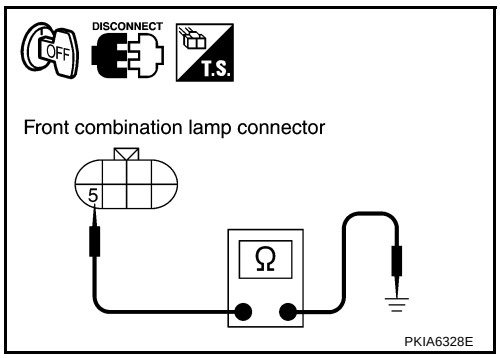
2. CHECK HEADLAMP GROUND

1. Disconnect front combination lamp LH connector.
2. Check continuity between front combination lamp LH harness connector E17 terminal 5 (B/W) and ground.

5 (B/W) – Ground : Continuity should exist.

OK or NG

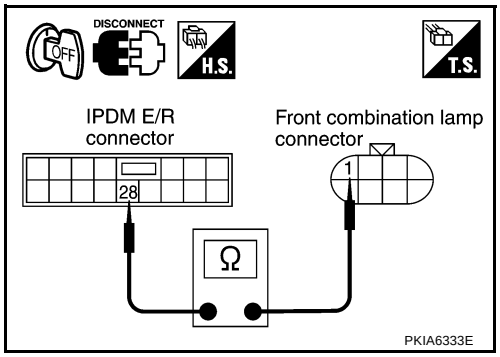
OK >> GO TO 3.
NG >> Repair harness or connector.



3. CHECK HEADLAMP CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E7 terminal 28 (G) and front combination lamp LH harness connector E17 terminal 1 (G).

28 (G) – 1 (G) : Continuity should exist.

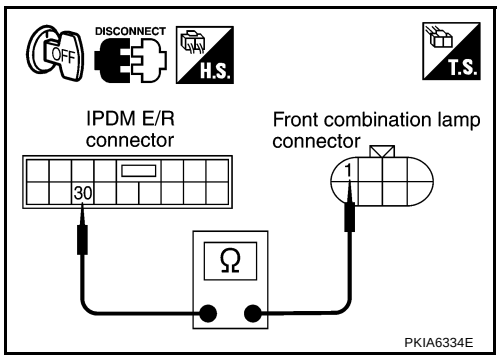


3. Check continuity between IPDM E/R harness connector E7 terminal 30 (L) and front combination lamp LH harness connector E17 terminal 4 (L).

30 (L) – 4 (L) : Continuity should exist.

OK or NG

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



Headlamps Do Not Turn OFF

AKS00AKN

1. CHECK HEADLAMP TURN OFF

Make sure that lighting switch is OFF. And make sure headlamps turns off when ignition switch is turned OFF.

OK or NG

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

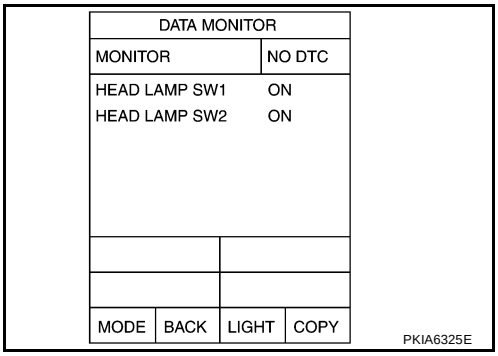
2. CHECK COMBINATION SWITCH INPUT SIGNAL

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

When lighting switch is OFF position : HEAD LAMP SW 1 OFF
: HEAD LAMP SW 2 OFF

OK or NG

OK >> Replace IPDM E/R.
NG >> Check lighting switch. Refer to LT-140, "Combination Switch Inspection" .

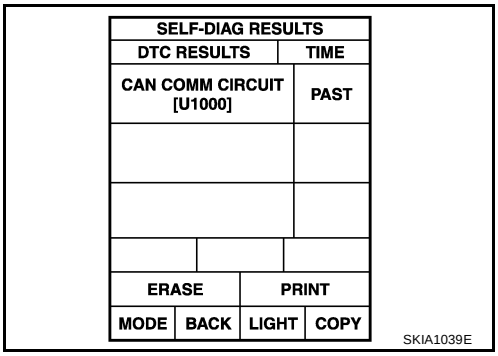


3. CHECKING CAN COMMUNICATIONS BETWEEN BCM AND IPDM E/R

Select “BCM” on CONSULT-II, and perform self-diagnosis for “BCM”.

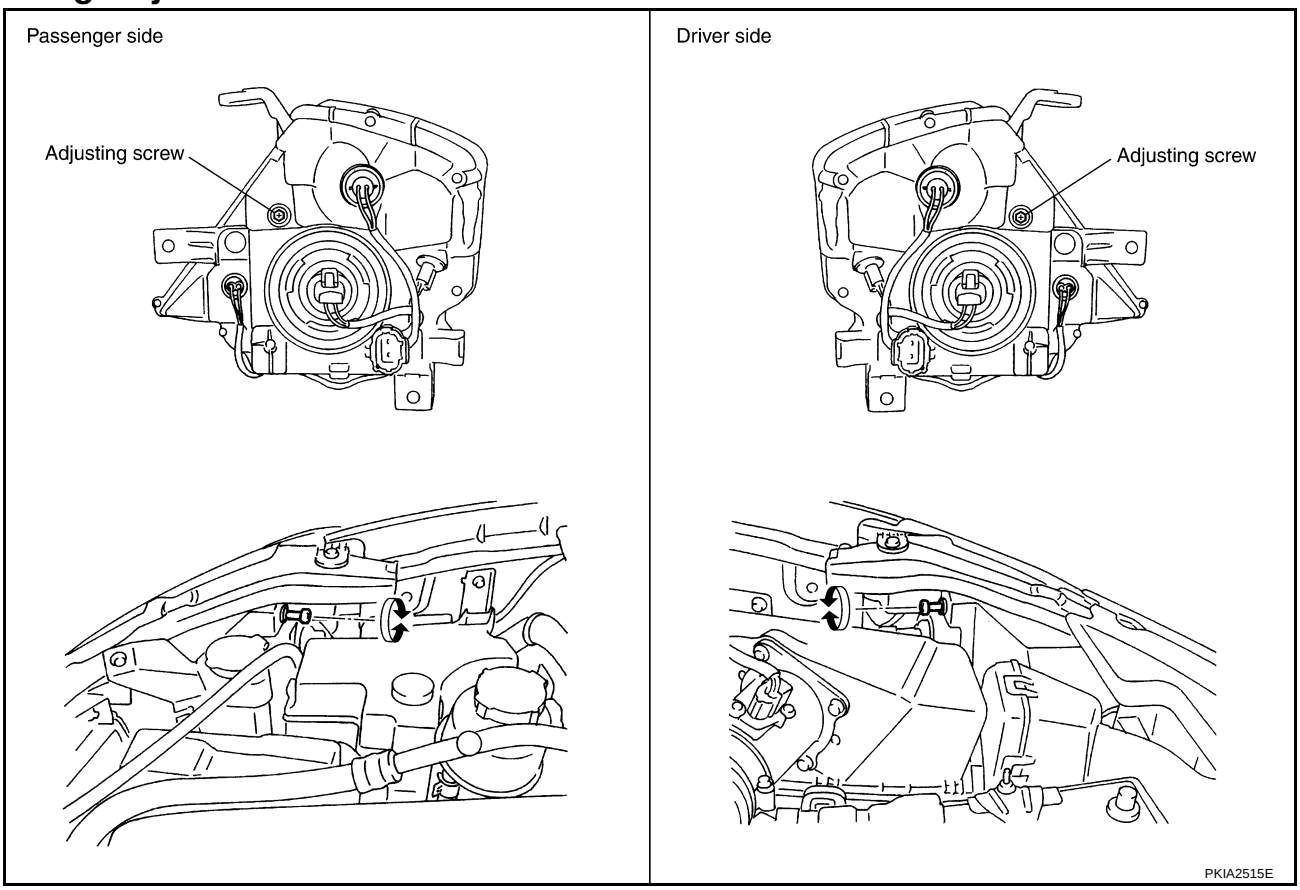
Display of self-diagnosis results

NO DTC>> Replace IPDM E/R.
CAN COMM CIRCUIT>> Refer to BCS-14, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .



Aiming Adjustment

AKS00AKO



PREPARATION BEFORE ADJUSTING

For Details, Refer To the Regulations In Your Own Country.

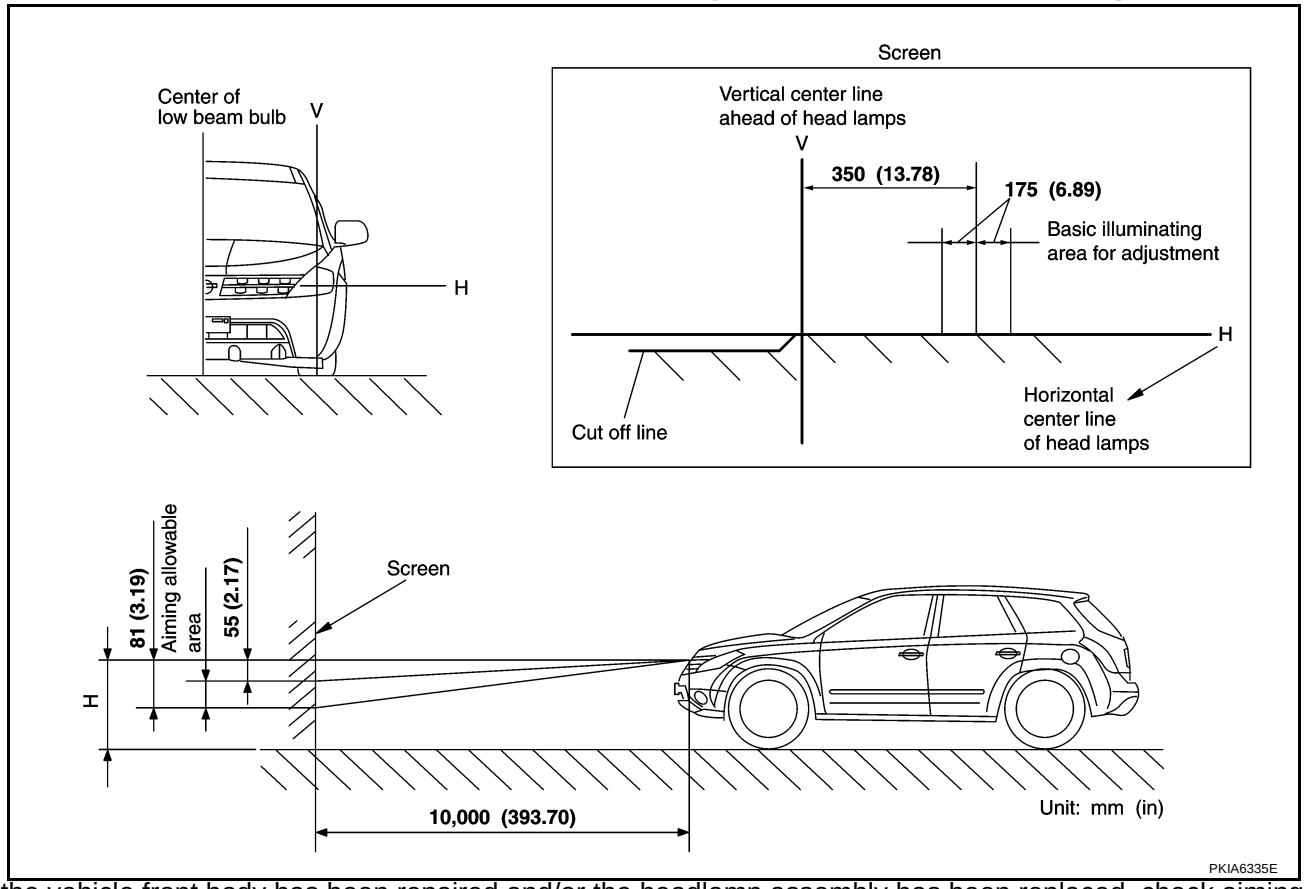
Before performing aiming adjustment, check the following.

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

AKS00AKP

HEADLAMP HIGH/LOW BEAM

1. Turn lighting switch OFF.
2. Remove fender protector (front). Refer to EI-22, "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. Install in reverse order of removal.

Headlamp high/low beam (Halogen) : 12V - 65/55W (HB5)

PARKING LAMP (CLEARANCE LAMP)

1. Turn lighting switch OFF.
2. Remove air cleaner case (when replacing LH bulb). Refer to EM-14, "AIR CLEANER AND AIR DUCT" in “EM” section.

3. Remove IPDM E/R (when replacing RH bulb). Refer to PG-29, "Removal and Installation of IPDM E/R" in "PG" section.
4. Turn bulb socket counterclockwise and unlock it.
5. Remove bulb from its socket.
6. Install in the reverse order of removal.

Parking lamps (Clearance lamps) : 12V - 3.8W

FRONT TURN SIGNAL LAMP

1. Turn lighting switch OFF.
2. Remove fender protector (front). Refer to EI-22, "FENDER PROTECTOR" in "EI" section.
3. Turn bulb socket counterclockwise and unlock it.
4. Remove bulb from its socket.
5. Install in the reverse order of removal.

Front turn signal lamp : 12V - 21W (amber)

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

FRONT SIDE MARKER LAMP

1. Turn lighting switch OFF.
2. Remove fender protector (front). Refer to EI-22, "FENDER PROTECTOR" in "EI" section.
3. Turn bulb socket counterclockwise and unlock it.
4. Remove bulb from its socket.
5. Install in the reverse order of removal.

Front side marker lamp : 12V - 3.8W

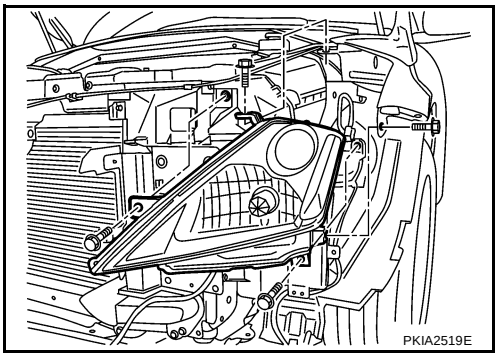
CAUTION:
After installing bulb, be sure to install plastic cap and socket securely to insure watertightness.

Removal and Installation

AKS00AKQ

REMOVAL

1. Remove front bumper. Refer to EI-14, "FRONT BUMPER" in "EI" section.
2. Remove headlamp mounting bolts.
3. Remove plastics bumper bracket, then pull headlamp toward vehicle front, disconnect connector, and remove headlamp.



INSTALLATION

Note the following, and install in the reverse order of removal.

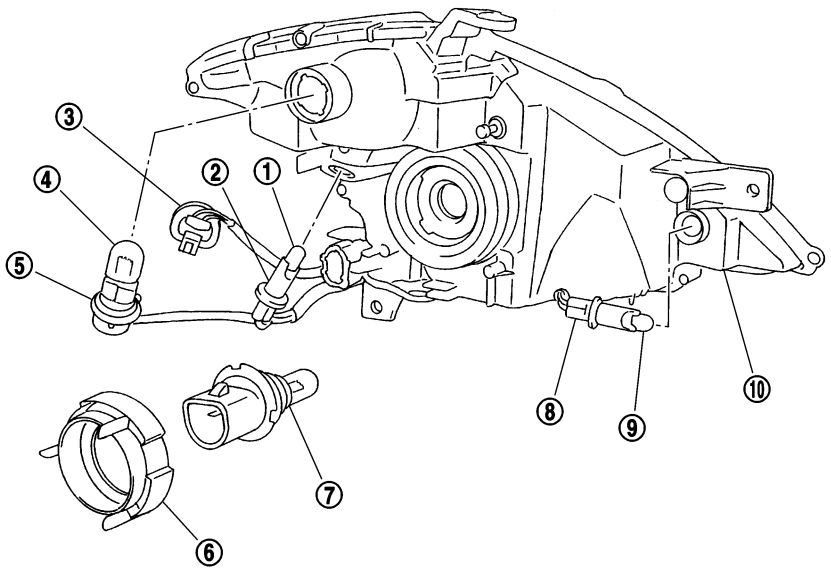
Headlamp mounting bolt 5.9N·m (0.60 kg-m, 52 in-lb)

NOTE:
After installation, perform aiming adjustment. Refer to LT-63, "Aiming Adjustment" .

Disassembly and Assembly

AKS00AKR

HALOGEN TYPE



1. Side marker lamp bulb
2. Side marker lamp bulb socket
3. Halogen bulb connector
4. Front turn signal lamp bulb
5. Front turn signal lamp bulb socket
6. Plastic holder
7. Halogen bulb
8. Parking lamp (clearance lamp) bulb socket
9. Parking lamp (clearance lamp) bulb
10. Headlamp housing assembly

DISASSEMBLY

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

ASSEMBLY

Note the following, and assemble in the reverse order of disassembly.

CAUTION:

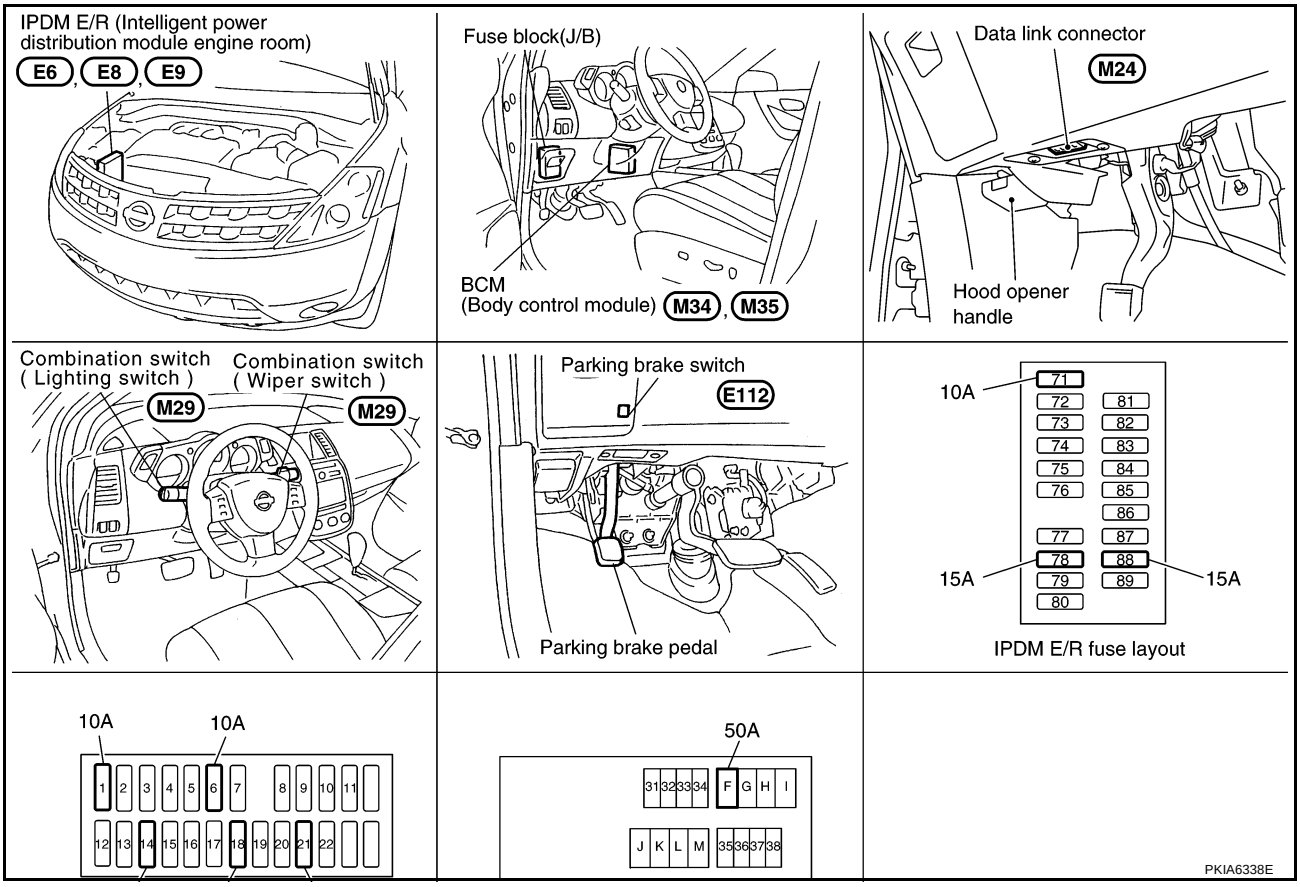
- **After installing bulb, be sure to install plastic cap and bulb socket securely to insure watertightness.**

DAYTIME LIGHT SYSTEM

PFP:284B2

Component Parts and Harness Connector Location

AKS007NE



System Description

AKS007NF

During a ran, when the engine which makes fog lamp turn on has started and parking brake is detached, foglamp turns do daytime light system for the Canada vehicle, and the light is put out at the of operating parking brake, and the of lighting switch 2ND position or the lighting switch AUTO (at the time of headlamp lighting).

ON/OFF of fog lamp switch is followed at the time of lighting switch 2ND position, and it is turned on and switched off.

An parking brake signal and engine ran or stop signal are sent to BCM (body control module) by CAN communication line, and control daytime light system.

CAUTION:

If an ignition switch is turned ON within several seconds in OFF from the ignition switch ON in the state of daytime light system lighting, daytime light system which put out the light once OFF form the ignition switch ON will relight up for about 2 seconds.

In the state where the parking brake is not operated, if cranking time is extremely short daytime light system will light up for about 2 seconds.

OUTLINE

Power is supplied at all times

- through 15A fuse [No. 88, located in IPDM E/R (intelligent power distribution module engine room)]
- to front fog lamp relay [located in IPDM E/R (intelligent power distribution module engine room)]
- through 10A fuse [No. 71, located in IPDM E/R (intelligent power distribution module engine room)]
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- through 15A fuse [No. 78, located in IPDM E/R (intelligent power distribution module engine room)]
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- to ignition relay [located in IPDM E/R (intelligent power distribution module engine room)].

Power is also supplied at all times

- through 50A fusible link (letter F, located in fuse and fusible link block)
- to BCM (body control module) terminal 55
- through 10A fuse [No. 18, located in fuse block (J/B)]
- to BCM (body control module) terminal 42
- through 10A fuse [No. 21, located in fuse block (J/B)]
- to combination meter terminal 21.

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. 14, located in fuse block (J/B)]
- to combination meter terminal 20
- to ignition relay [located in IPDM E/R (intelligent power distribution module engine room)].

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

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

Ground is supplied

- to BCM (body control module) terminals 49 and 52
- through grounds M14 and M78
- to IPDM E/R (intelligent power distribution module engine room) terminals 38 and 60
- through grounds E13, E26 and E28.
- to combination meter terminals 22, 23 and 24
- through grounds M14 and M78.

FOG LAMP OPERATION

The fog lamp switch is built into the combination switch. The lighting switch must be in the 2ND position or AUTO position (LOW beam is ON) and the fog lamp switch must be ON for fog lamp operation.
With the fog lamp switch in the ON position, the CPU of the IPDM E/R grounds the coil side of the fog lamp relay. The fog lamp relay then directs power

- through IPDM E/R terminal 37
- to front fog lamp LH terminal 1
- through IPDM E/R terminal 36
- to front fog lamp RH terminal 1.

Ground is supplied

- to front fog lamp LH terminal 2
- through grounds E13, E26 and E28
- to front fog lamp RH terminal 2
- through grounds E13, E26 and E28.

With power and grounds supplied, the front fog lamps illuminate.

DAYTIME LIGHT OPERATION

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

- through IPDM E/R terminal 37
- to front fog lamp LH terminal 1
- through IPDM E/R terminal 36
- to front fog lamp RH terminal 1.

Ground is supplied

- to front fog lamp LH terminal 2
- through grounds E13, E26 and E28
- to front fog lamp RH terminal 2
- through grounds E13, E26 and E28.

With power and grounds supplied, the front fog lamps illuminate.

EXTERIOR LAMP BATTERY SAVER CONTROL

With 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 made can be changed by the function setting of CONSULT-II.

COMBINATION SWITCH READING FUNCTION

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

AUTO LIGHT OPERATION

For auto light operation, refer to LT-86, "System Description" in “AUTO LIGHT SYSTEM”.

CAN Communication System Description

AKS007NG

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.

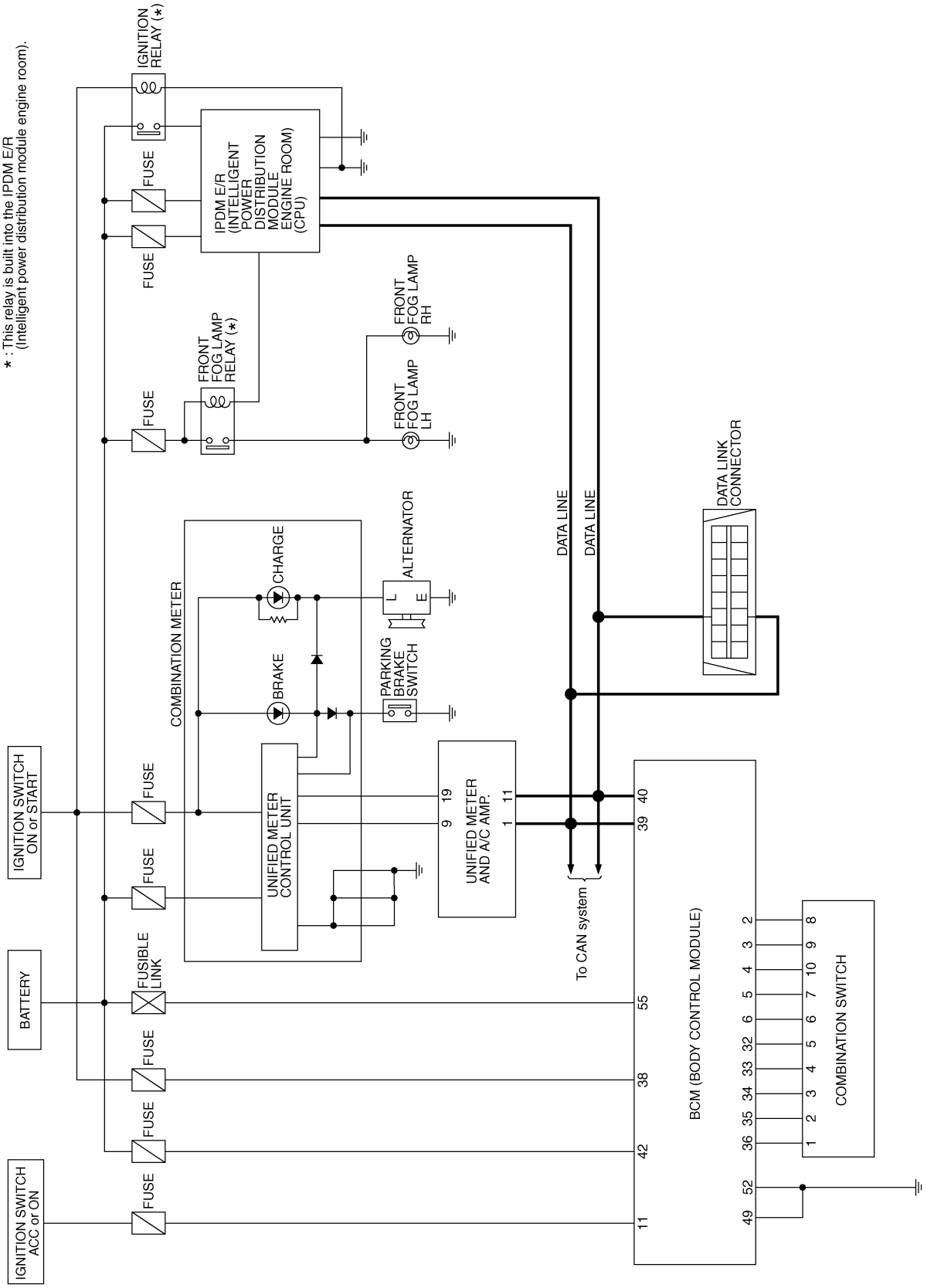
CAN Communication Unit

AKS007QP

Refer to LAN-8, "CAN Communication Unit" .

Schematic

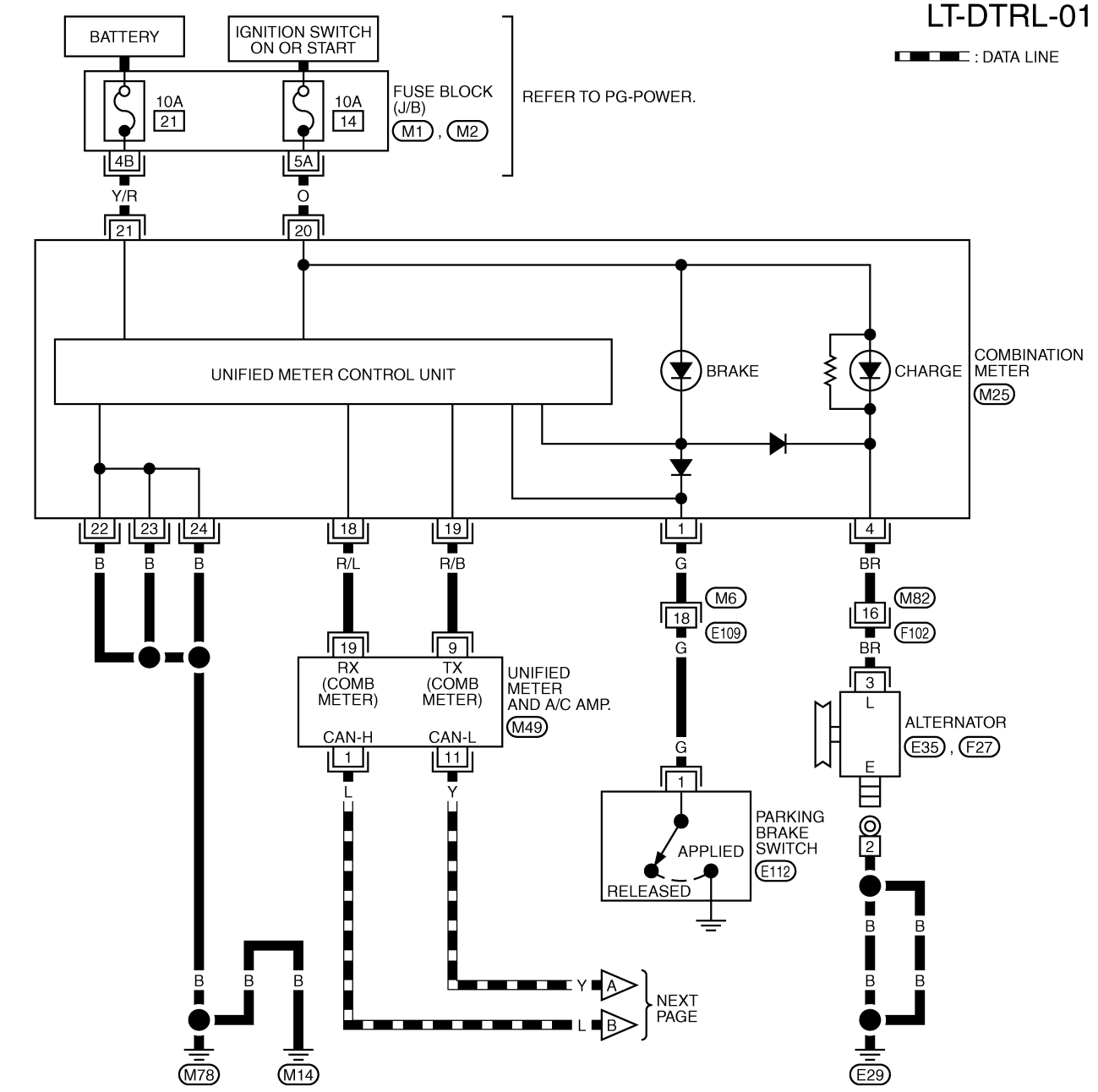
AKS007NI



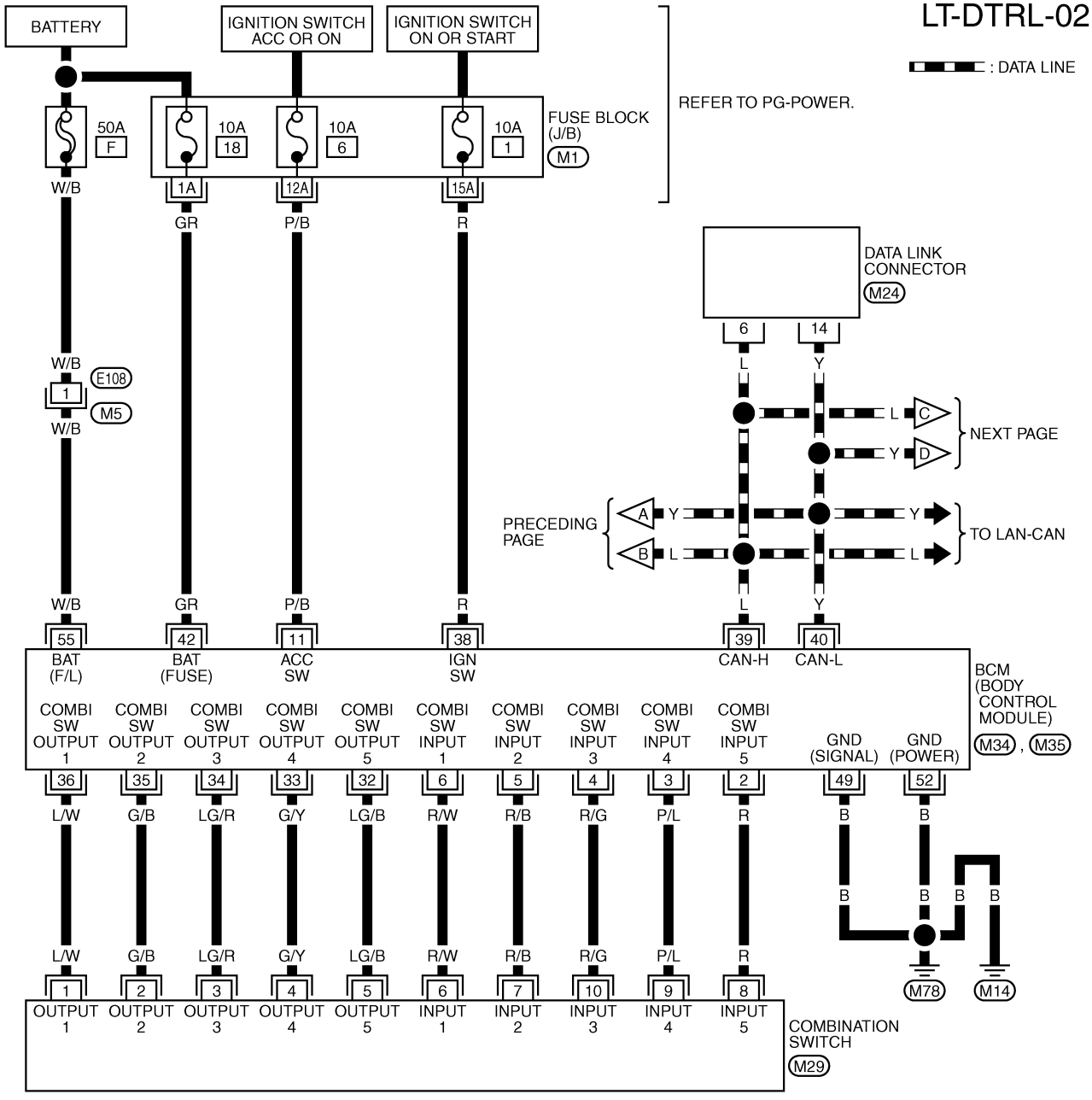
TKWA1680E

Wiring Diagram — DTRL —

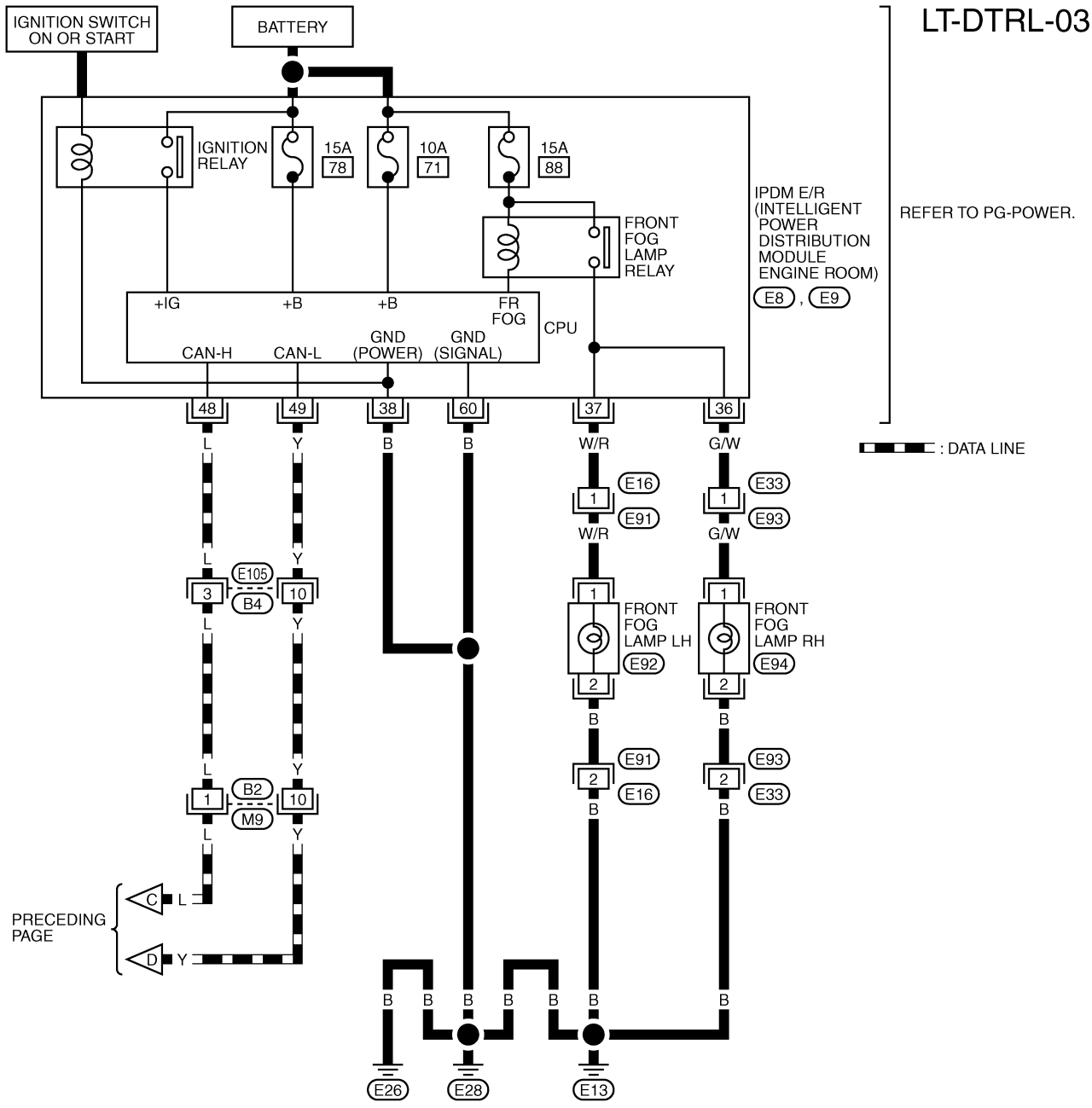
AKS007NJ

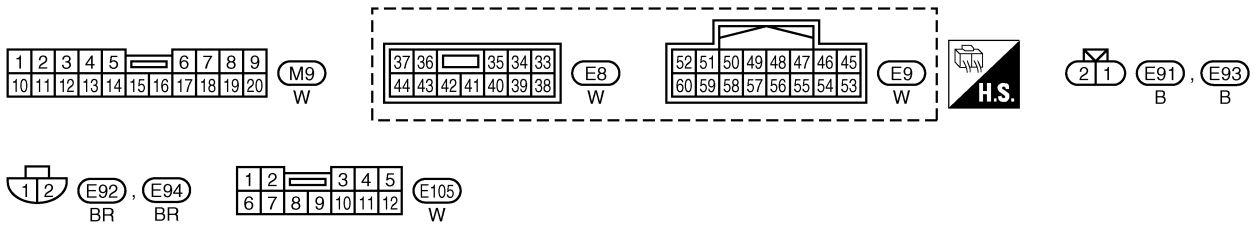


TKWA0748E


LT-DTRL-02
: DATA LINE
BATTERY
IGNITION SWITCH ACC OR ON
IGNITION SWITCH ON OR START
REFER TO PG-POWER.
50A F
10A 18
10A 6
10A 1
FUSE BLOCK (J/B) M1
W/B
1A
12A
15A
GR
P/B
R
DATA LINK CONNECTOR M24
6
14
L
Y
W/B E108 1 M5 W/B
L C
Y D
NEXT PAGE
PRECEDING PAGE
A Y
B L
Y
L
TO LAN-CAN
W/B
GR
P/B
R
L
Y
55 BAT (F/L)
42 BAT (FUSE)
11 ACC SW
38 IGN SW
39 CAN-H
40 CAN-L
BCM (BODY CONTROL MODULE) M34, M35
COMBI SW OUTPUT 1
COMBI SW OUTPUT 2
COMBI SW OUTPUT 3
COMBI SW OUTPUT 4
COMBI SW OUTPUT 5
COMBI SW INPUT 1
COMBI SW INPUT 2
COMBI SW INPUT 3
COMBI SW INPUT 4
COMBI SW INPUT 5
GND (SIGNAL)
GND (POWER)
36 35 34 33 32 6 5 4 3 2 49 52
L/W G/B LG/R G/Y LG/B R/W R/B R/G P/L R B B
B B B B
M78
M14
1 OUTPUT 1
2 OUTPUT 2
3 OUTPUT 3
4 OUTPUT 4
5 OUTPUT 5
6 INPUT 1
7 INPUT 2
10 INPUT 3
9 INPUT 4
8 INPUT 5
COMBINATION SWITCH M29
1 2 M5 W
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 M24 W
7 8 9 10 13 12 6 5 4 3 2 1 11 14 M29 W
REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B)
M34, M35 -ELECTRICAL UNITS

TKWA1681E

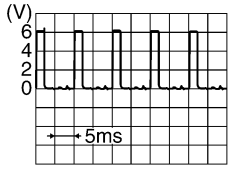
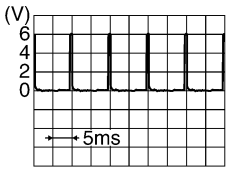
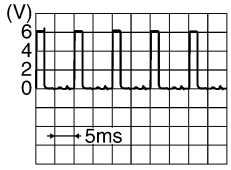
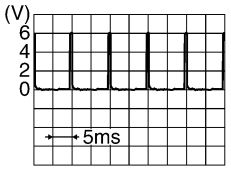
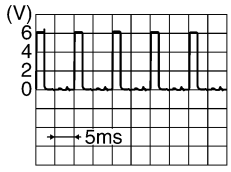
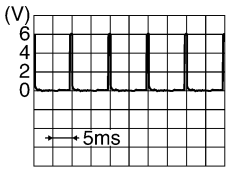
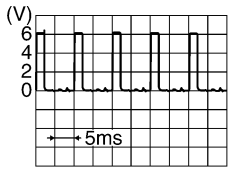

LT-DTRL-03
IGNITION SWITCH ON OR START
BATTERY
IGNITION RELAY
15A 78
10A 71
15A 88
FRONT FOG LAMP RELAY
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E8 , E9
REFER TO PG-POWER.
+IG
+B
+B
FR FOG
CPU
CAN-H
CAN-L
GND (POWER)
GND (SIGNAL)
48
49
38
60
37
36
L
Y
B
B
W/R
G/W
: DATA LINE
E16
E91
E33
E93
E105
3
B4
10
FRONT FOG LAMP LH
E92
FRONT FOG LAMP RH
E94
B2
1
M9
PRECEDING PAGE
C
D
E26
E28
E13


M9
W
E8
W
E9
W
H.S.
E91 , E93
B B
E92 , E94
BR BR
E105
W

TKWA1682E

Terminals and Reference Values for BCM

AKS00AKT

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

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

Terminals and Reference Values for IPDM E/R

AKS00AKU

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
36	G/W	Front fog lamp (RH)	ON	Lighting switch must be in the 2ND position or AUTO position (LOW beam is ON) and the front fog lamp switch must be ON.	OFF	Approx. 0V
					ON	Battery voltage
37	W/R	Front fog lamp (LH)	ON	Lighting switch must be in the 2ND position or AUTO position (LOW beam is ON) and the front fog lamp switch must be ON.	OFF	Approx. 0V
					ON	Battery voltage
38	B	Ground	ON	—		Approx. 0V
48	L	CAN– H	—	—		—
49	Y	CAN– L	—	—		—
60	B	Ground	ON	—		Approx. 0V

How to Proceed With Trouble Diagnosis

AKS00AKV

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-67, "System Description" .
3. Perform the Preliminary Check. Refer to LT-75, "Preliminary Check" .
4. Check symptom and repair or replace the cause of malfunction.
5. Does the headlamp operate normally? If YES: GO TO 6. If NO: GO TO 4.
6. INSPECTION END.

Preliminary Check

AKS00AKW

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

- Check for blown fuses.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	88

Refer to LT-71, "Wiring Diagram — DTRL —" .

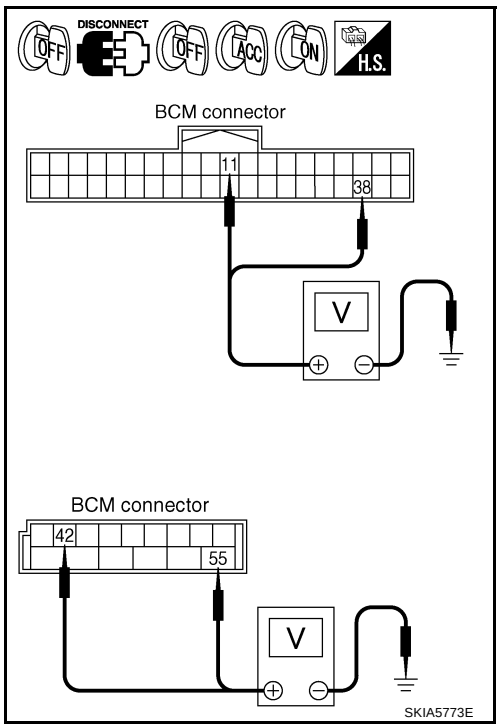
OK or NG

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

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector.
2. Check voltage between BCM harness connector and ground.

Terminals			Ignition switch position		
(+)		(-)			
Connector	Terminal (Wire color)		OFF	ACC	ON
M34	11 (P/G)	Ground	0V	Battery voltage	Battery voltage
	38 (R)		0V	0V	Battery voltage
M35	42 (GR)		Battery voltage	Battery voltage	Battery voltage
	55 (W/R)		Battery voltage	Battery voltage	Battery voltage



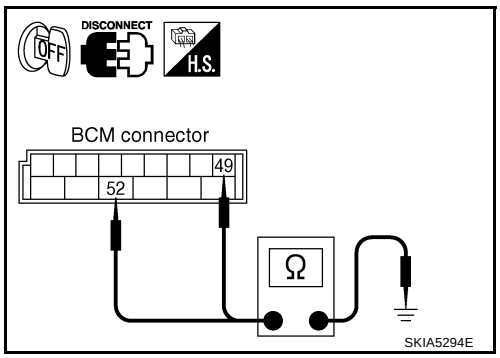
OK or NG

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.

Terminals			Continuity
Connector	Terminal (Wire color)		
M35	49 (B)	Ground	Yes
	52 (B)		



OK or NG

OK >> INSPECTION END
NG >> Check ground circuit harness.

CHECK PARKING BRAKE SWITCH CIRCUIT

1. CHECK BRAKE INDICATOR

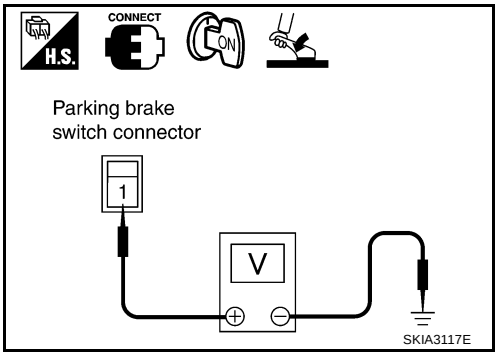
1. Turn ignition switch ON.
2. When parking brake is made ON/OFF, it checks whether the brake indicator lamp of combination meter lights up/puts out the light.

OK or NG

OK >> INSPECTION END
NG >> GO TO 2.

2. CHECK PARKING BRAKE SWITCH SIGNAL

1. Turn ignition switch ON.
2. Check voltage between parking brake switch harness connector and ground, when parking brake is released.



Terminals			Condition	Voltage
Parking brake switch		Ground		
Connector	Terminal (Wire color)			
E112	1 (G)		Not released	Approx. 0V
			Released	Battery voltage

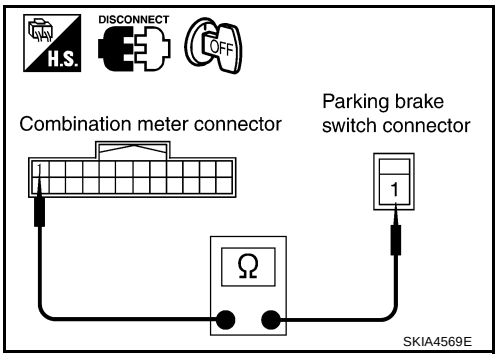
OK or NG

OK >> GO TO 3
NG >> Replace parking brake switch.

3. CHECK PARKING BRAKE SWITCH CIRCUIT

1. Disconnect parking brake switch connector and combination meter connector.
2. Check continuity between combination meter harness connector M25 terminal 1 (G) and parking brake switch harness connector E112 terminal 1 (G).

1 (G) – 1 (G) : Continuity should exist.



OK or NG

OK >> INSPECTION END
NG >> Repair harness or connector.

CONSULT-II Functions (BCM)

AKS00AKX

- CONSULT-II executes the following functions by combining data reception and command transmission via the communication line from BCM. Work support, self-diagnosis, data monitor, and active test display.

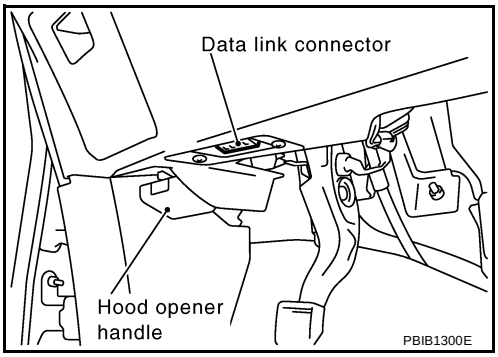
BCM diagnosis part	Check item, diagnosis mode	Description
HEAD LAMP	WORK SUPPORT	Changes the setting for each function.
	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.
BCM	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.

CONSULT-II BASIC OPERATION

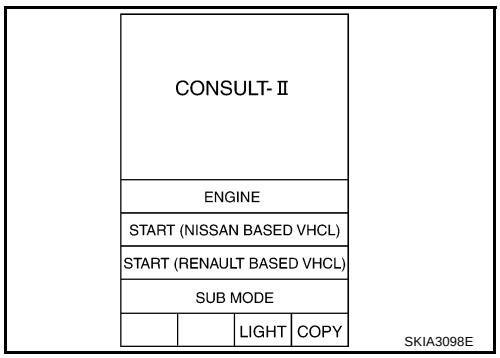
CAUTION:

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.

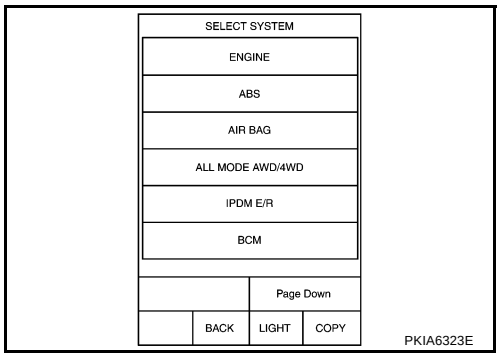
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn ignition switch ON.



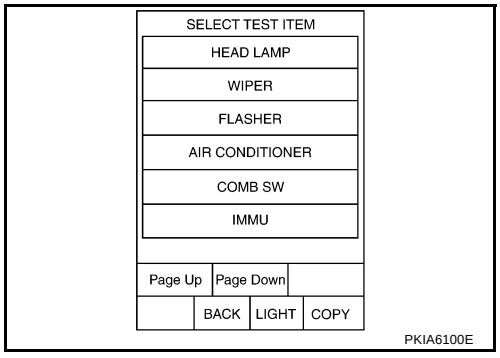
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “BCM” on “SELECT SYSTEM” screen.
If “BCM” is not indicated, 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 item 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. Selects exterior lamp battery saver control mode between two ON/OFF.	ON	×
		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 “DATA MONITOR” screen.

ALL SIGNALS	Monitors all the signals.
SELECTION FROM MENU	Selects and monitors individual signal.

4. Touch “START”.
5. When “SELECTION FROM MENU” is selected, touch individual items to be monitored. When “ALL SIGNALS” is selected, all the items will be monitored.
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 2 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 1 ST	“ON/OFF”	Displays status (lighting switch 1st position: ON/Others: OFF) of lighting switch judged from lighting switch signal.
AUTO LIGHT SW	“ON/OFF”	Displays status of the lighting switch as judged from the lighting switch signal. (AUTO position: ON/Other than AUTO position: OFF)
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	“ON/OFF”	Displays status (front fog lamp switch: ON/Others: OFF) of front fog lamp switch judged from lighting switch signal.
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”	Displays status of the passenger door as judged from the passenger door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - RR	“ON/OFF”	Displays status of the rear door as judged from the rear door switch (RH) signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - RL	“ON/OFF”	Displays status of the rear door as judged from the passenger door switch (LH) signal. (Door is open: ON/Door is closed: OFF)
BACK DOOR SW	“ON/OFF”	Displays status of the backdoor as judged from the backdoor switch signal. (Door is open: ON/Door is closed: OFF)
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”	—
OPTICAL SENSOR	[0 - 5V]	Displays “ambient light (close to 5V when light/close to 0V when dark)” judged from optical sensor signal.

NOTE:
This item is displayed, but cannot monitor it.

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	Allows fog lamp relay to operate by switching ON–OFF.
CORNERING LAMP[NOTE]	—
CARGO LAMP[NOTE]	—

NOTE:
This item is displayed, but cannot monitor it.

CONSULT-II Functions (IPDM E/R)

AKS00AKY

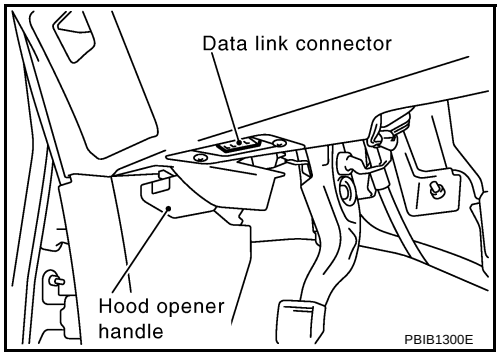
CONSULT-II can display each diagnostic item using the following diagnostic test modes: work support, self-diagnostic results, data monitor and active test through data reception and command transmission via the IPDM E/R CAN communication line.

Inspection Item, Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	The IPDM E/R performs self-diagnosis of CAN communication.
DATA MONITOR	The input/output data of the 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	The IPDM E/R sends a drive signal to electronic components to check their operation.

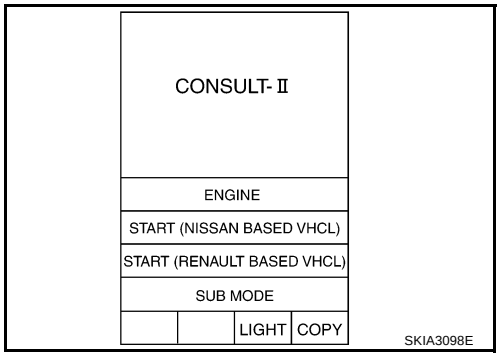
CONSULT-II OPERATION

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.

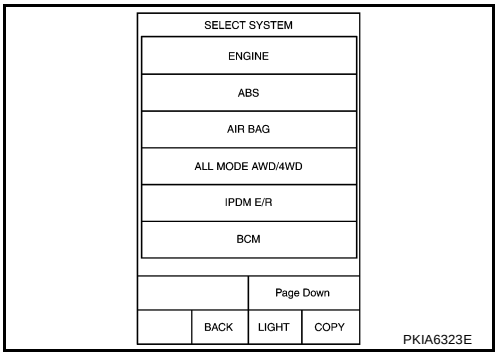
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn the ignition switch ON.



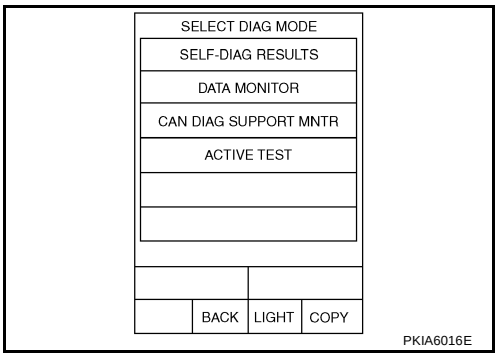
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “IPDM E/R” on “SELECT SYSTEM” screen.
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 SYSTEM” screen.



SELF-DIAGNOSTIC RESULTS

Refer to PG-20, "SELF-DIAG RESULTS" .

DATA MONITOR

Operation Procedure

1. Touch “DATA MONITOR” on “SELECT DIAG MODE ” screen.
2. Touch “ALL SIGNALS”, “MAIN SIGNALS”, or “SELECTION FROM MENU” on “DATA MONITOR” screen.

ALL SIGNALS	All items will be monitored.
MAIN SIGNALS	Monitor the predetermined item.
SELECT FROM MENU	Select any item for monitoring.

3. Touch “START”.
4. Touch the required monitoring item on “SELECTION FROM MENU”. In “ALL SIGNALS”, all items are monitored. In “MAIN SIGNALS”, predetermined items are monitored.
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 screen display	Display or unit	Monitor item selection			Description
			ALL SIGNALS	MAIN SIGNALS	SELECTION FROM MENU	
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
Font fog lights request	FR FOG REQ	ON/OFF	×	×	×	Signal status input from BCM

NOTE:
Perform monitoring of IPDM E/R data with the ignition switch ON. When the 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
Headlamp relay (HI, LO) output	LAMPS	Allows headlamp relay (HI, LO) to operate by switching operation (OFF, HI ON, LO ON) at your option.
Front fog lamp relay output		Allows fog lamp relay to operate by switching operation ON-OFF at your option.
Tail lamp relay output	TAIL LAMP	Allows tail lamp relay to operate by switching operation ON-OFF at your option.

Daytime Light Control Does Not Operate Properly

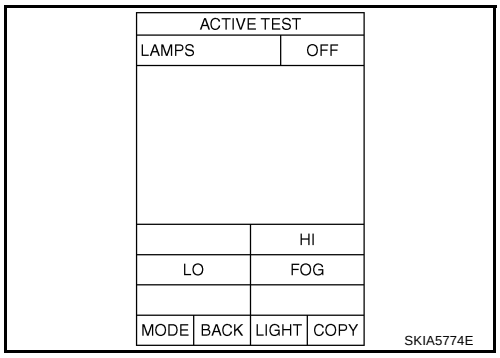
AKS00AKZ

1. FOG LAMP 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 “FOG” screen.
4. Make sure fog lamp operates.

Fog lamp should operate.



Without CONSULT-II

1. Start auto active test. Refer to PG-23, "Auto Active Test" .
2. Make sure fog lamp operates.

Fog lamp should operate.

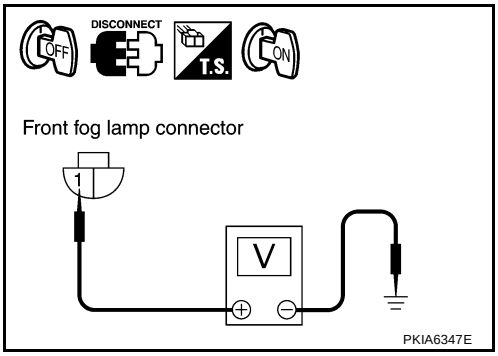
OK or NG

OK >> GO TO 5.
NG >> GO TO 2.

2. CHECK FRONT FOG LAMP INPUT SIGNAL

With CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH and LH connectors.
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 “FOG” screen.
6. When fog lamp is operating, check voltage between front fog lamp RH and LH harness connector and ground.



Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E94	1 (G/W)	Ground	Battery voltage
LH	E92	1 (W/R)		

Without CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front fog lamp RH and LH connectors.
3. Start auto active test. Refer to PG-23, "Auto Active Test" .
4. When fog lamp is operating, check voltage between front fog lamp RH and LH harness connectors and ground.

Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E94	1 (G/W)	Ground	Battery voltage
LH	E92	1 (W/R)		

OK or NG

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

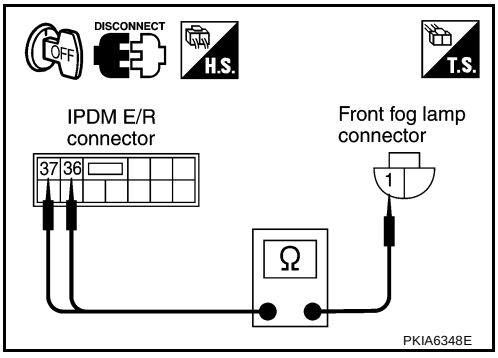
3. CHECK FRONT FOG LAMP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector E8 terminal 36 (G/W) and front fog lamp RH harness connector E94 terminal 1 (G/W).

36 (G/W) – 1 (G/W) : Continuity should exist.

4. Check continuity between IPDM E/R harness connector E8 terminal 37 (W/R) and front fog lamp LH harness connector E92 terminal 1 (W/R).

37 (W/R) – 1(W/R) : Continuity should exist.



OK or NG

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

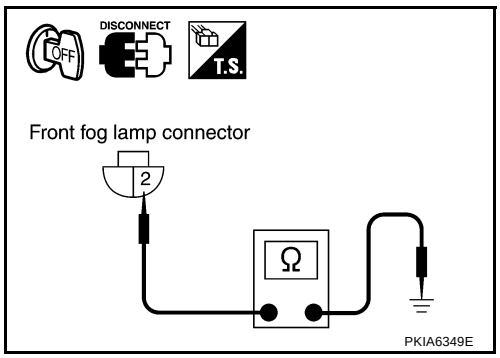
4. CHECK FRONT FOG LAMP GROUND

1. Check continuity between front fog lamp RH harness connector E94 terminal 2 (B) and ground.

2 (B) – Ground : Continuity should exist.

2. Check continuity between front fog lamp LH harness connector E92 terminal 2 (B) and ground.

2 (B) – Ground : Continuity should exist.



OK or NG

OK >> Check front fog lamp bulbs.
NG >> Repair harness or connector.

5. CHESK SELF-DIAGNOSIS

Select “BCM” on CONSULT-II. Carry out “BCM” self-diagnosis.

Displayed results of self-diagnosis

No malfunction detected>> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .

CAN communications or CAN system>> Check BCM CAN communication system. Refer to BCS-14, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .

SELF-DIAG RESULTS	
DTC RESULTS	TIME
NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED	

LKIA0073E

Front Fog Lamp Does Not Illuminate (One Side)

AKS00AO2

1. CHECK BULB

Check bulb of lamp which does not illuminate.

OK or NG

OK >> GO TO 2.
NG >> Replace front fog lamp bulb.

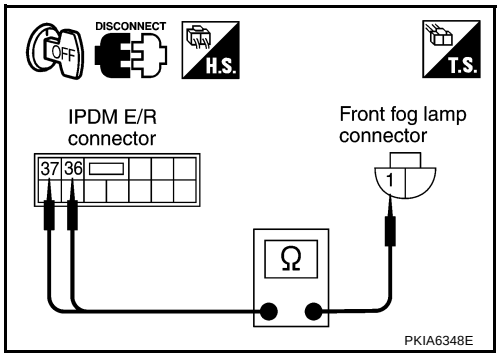
2. CHECK FRONT FOG LAMP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and front fog lamp connector RH or LH.
3. Check continuity between IPDM E/R harness connector E8 terminal 36 (G/W) and front fog lamp RH harness connector E94 terminal 1 (G/W).

36 (G/W) – 1 (G/W) : Continuity should exist.

4. Check continuity between IPDM E/R harness connector E8 terminal 37 (W/R) and front fog lamp LH harness connector E92 terminal 1 (W/R).

37 (W/R) – 1 (W/R) : Continuity should exist.



OK or NG

OK >> GO TO 3.
NG >> Repair harness or connector.

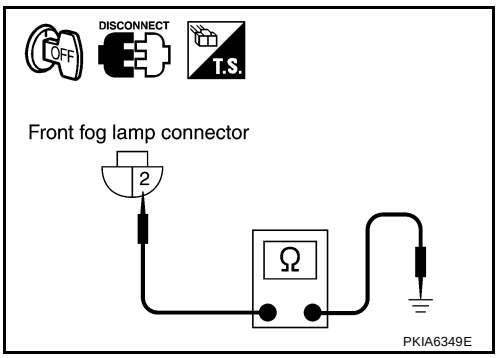
3. CHECK FRONT FOG LAMP GROUND

1. Check continuity between front fog lamp RH harness connector E94 terminal 2 (B) and ground.

2 (B) – Ground : Continuity should exist.

2. Check continuity between front fog lamp LH harness connector E92 terminal 2 (B) and ground.

2 (B) – Ground : Continuity should exist.



OK or NG

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

Aiming Adjustment

AKS00AO3

Refer to LT-117, "Aiming Adjustment" in “FRONT FOG LAMP”.

Bulb Replacement

AKS00AO4

Refer to LT-118, "Bulb Replacement" in “FRONT FOG LAMP”.

Removal and Installation

AKS00AO5

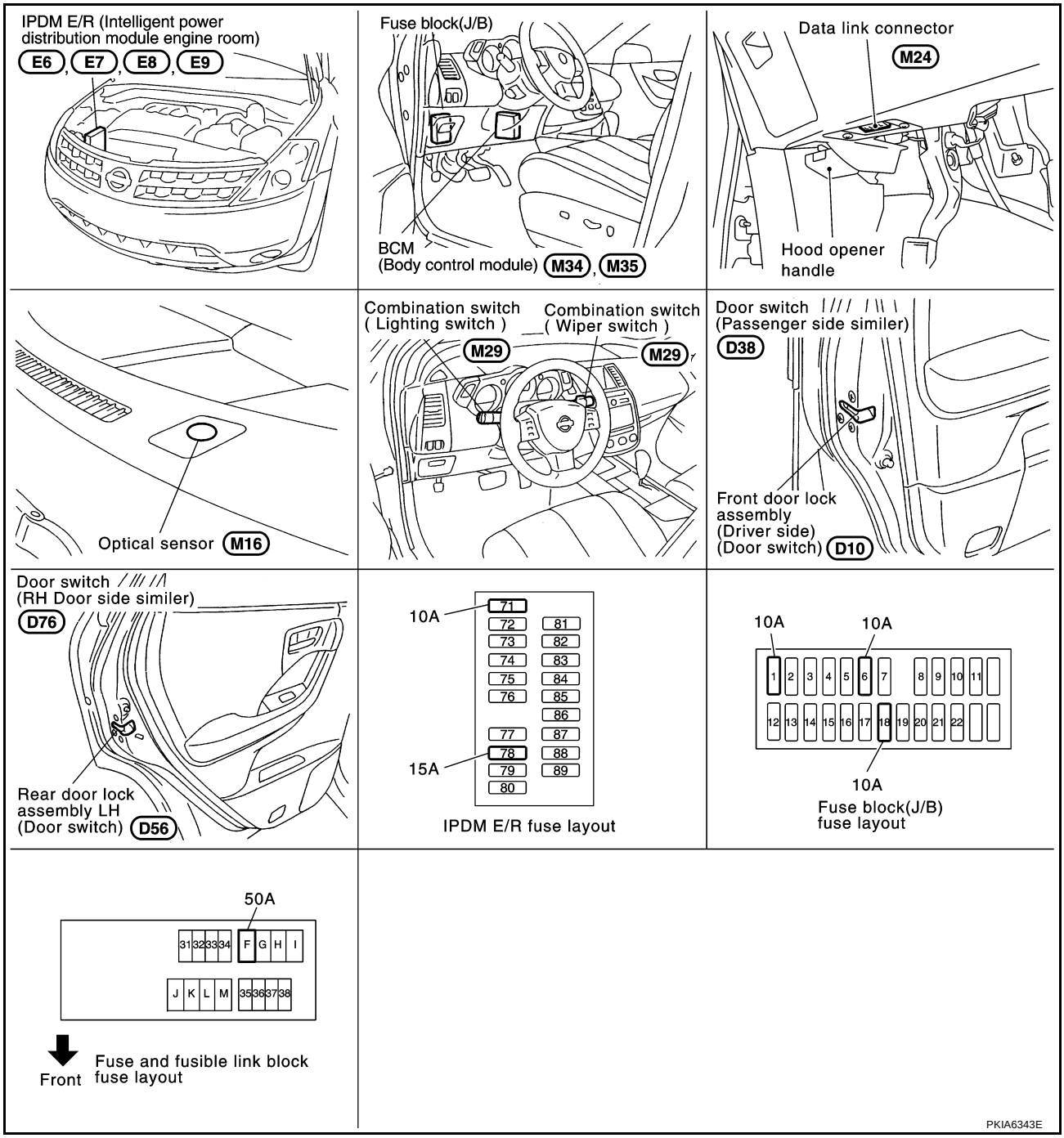
Refer to LT-118, "Removal and Installation" in “FRONT FOG LAMP”.

AUTO LIGHT SYSTEM

PFP:28491

Component Parts and Harness Connector Location

AKS004JH



System Description

AKS004JI

Automatically turns on/off the parking lamps and the headlamps in accordance with ambient light.
Timing for when the lamps turn on/off can be selected using four modes.

OUTLINE

The auto light control system has an optical sensor inside it that detects outside brightness.
When the lighting switch is in “AUTO” position, it automatically turns on/off the parking lamps and the headlamps in accordance with the ambient light. Sensitivity can be adjusted in four steps. For the details of the setting, refer to LT-95, "SETTING CHANGE FUNCTIONS" .
Optical sensor, power is supplied

- from BCM (body control module) terminal 17

- to optical sensor terminal 1.

Optical sensor, ground is supplied

- from BCM (body control module) terminal 18
- to optical sensor terminal 3.

When ignition switch is turn to “ON” position, and
When outside brightness is darker than prescribed level, input is supplied

- to BCM (body control module) terminal 14
- from optical sensor terminal 2.

The headlamps will then illuminate. For a description of headlamp operation, refer to LT-86, "System Description" .

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 AUTO position, and the ignition switch is turned from ON or ACC to OFF, and one of the front door is opened, the battery saver control feature is activated.
Under this condition, the headlamp remain illuminated for 5mimutes, then the headlamp are turned off.
Exterior lamp battery saver control mode can be changed by the function setting of CONSULT-II.

DELAY TIMER FUNCTION

When ignition switch ON and ACC are OFF while auto light switch is ON, BCM turns on/off headlamp. In delay timer function, auto light sensor power source is OFF and BCM is not turned on/off by auto light sensor signal.

- When the states ignition switch ON or ACC is ON and output judgment by auto light function is headlamp ON turn to ignition switch ON or ACC are OFF and door switch (driver side), door switch (passenger side), rear door switch (right side), rear door switch (lift side) and back door switch is ON, output judgment by auto light function should be headlamp ON for 5 minutes by timer. After time out, output judgment by auto light function should be headlamp OFF.
- When the state is door switch (driver side), door switch (passenger side), rear door switch (right side), rear door switch (lift side) and back door switches turned to ON from OFF 45 seconds or 5 minutes while timer is counting, timer stops, and re–start counting for 5 minutes, then auto light function judges output as headlamp ON. After time out, auto light function judges output as headlamp OFF.
- When the states door witch (driver side), door switch (passenger side), rear door switch (right side), rear door switch (lift side) and back door switch are ON turns to door switch (driver side), front door switch (passenger side), rear door switch (right side), rear door switch (lift side) and back door switch are OFF 45 seconds or 5 minute timer while is counting, Timer stops, and re–start counting for 45 seconds, then auto light function judges output as head lamp ON. After timer out and auto light function judges output as head lamp OFF.
- When the state is ignition switch ON or ACC is ON or auto light switch OFF while timer is counting, timer stops counting and BCM turns on/off lamps according to headlamp function, front fog lamp function, auto light function and headlamp battery save function.

Delay timer control mode can be changed by the function setting of CONSULT-II.

CAN Communication System Description

AKS004JJ

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

AKS007QR

Refer to LAN-8, "CAN Communication Unit" .

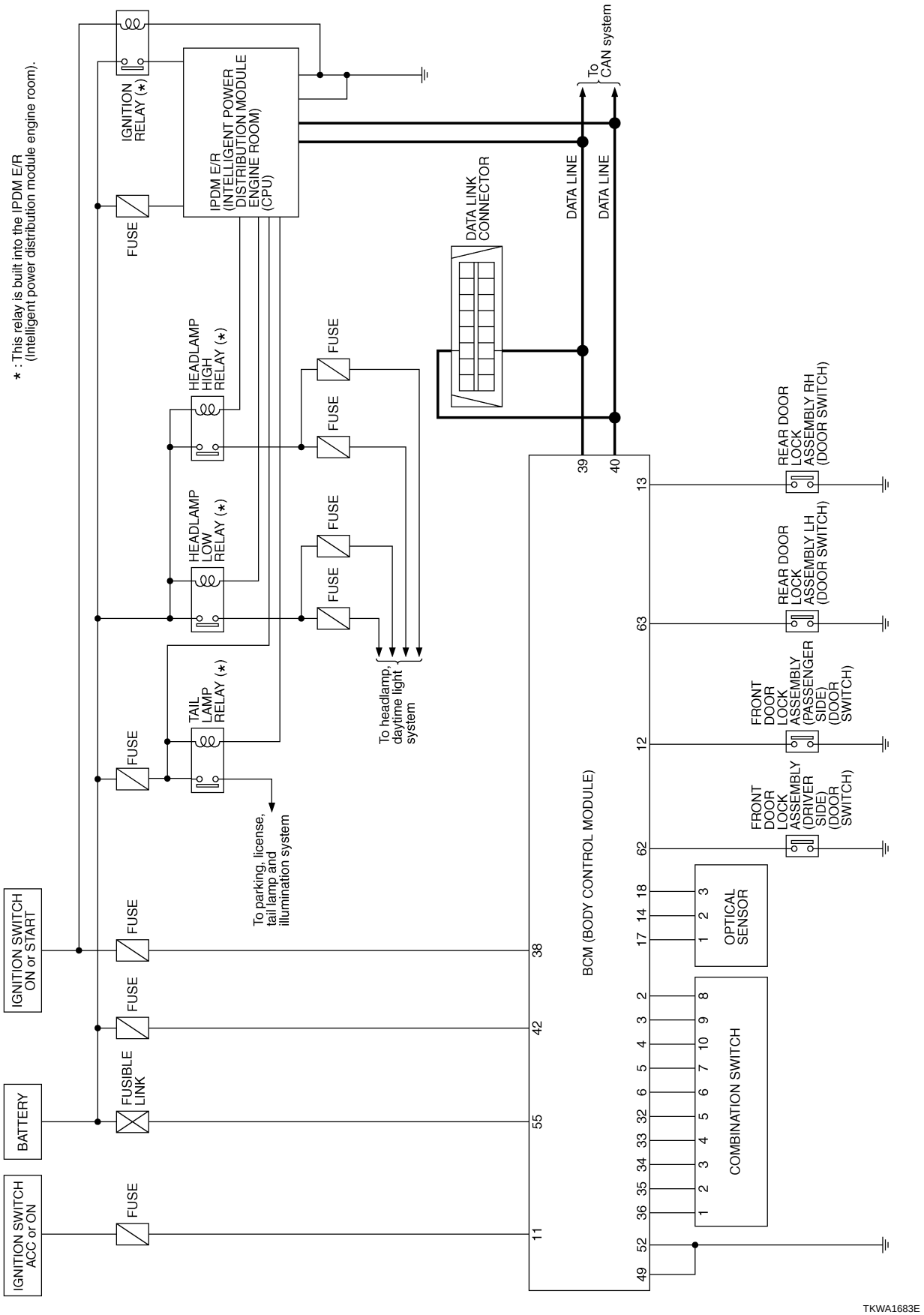
Major Components and Functions

AKS004JL

Components	Functions
BCM	● Turns on/off circuits of tail light and headlamp according to signals from light sensor, lighting switch (AUTO), driver door switch, passenger door switch, rear door switch, and ignition switch (ON, OFF).
Optical sensor	● Converts ambient light (lux) to voltage, and sends it to BCM. (Detects lightness of 50 to 1,300 lux)

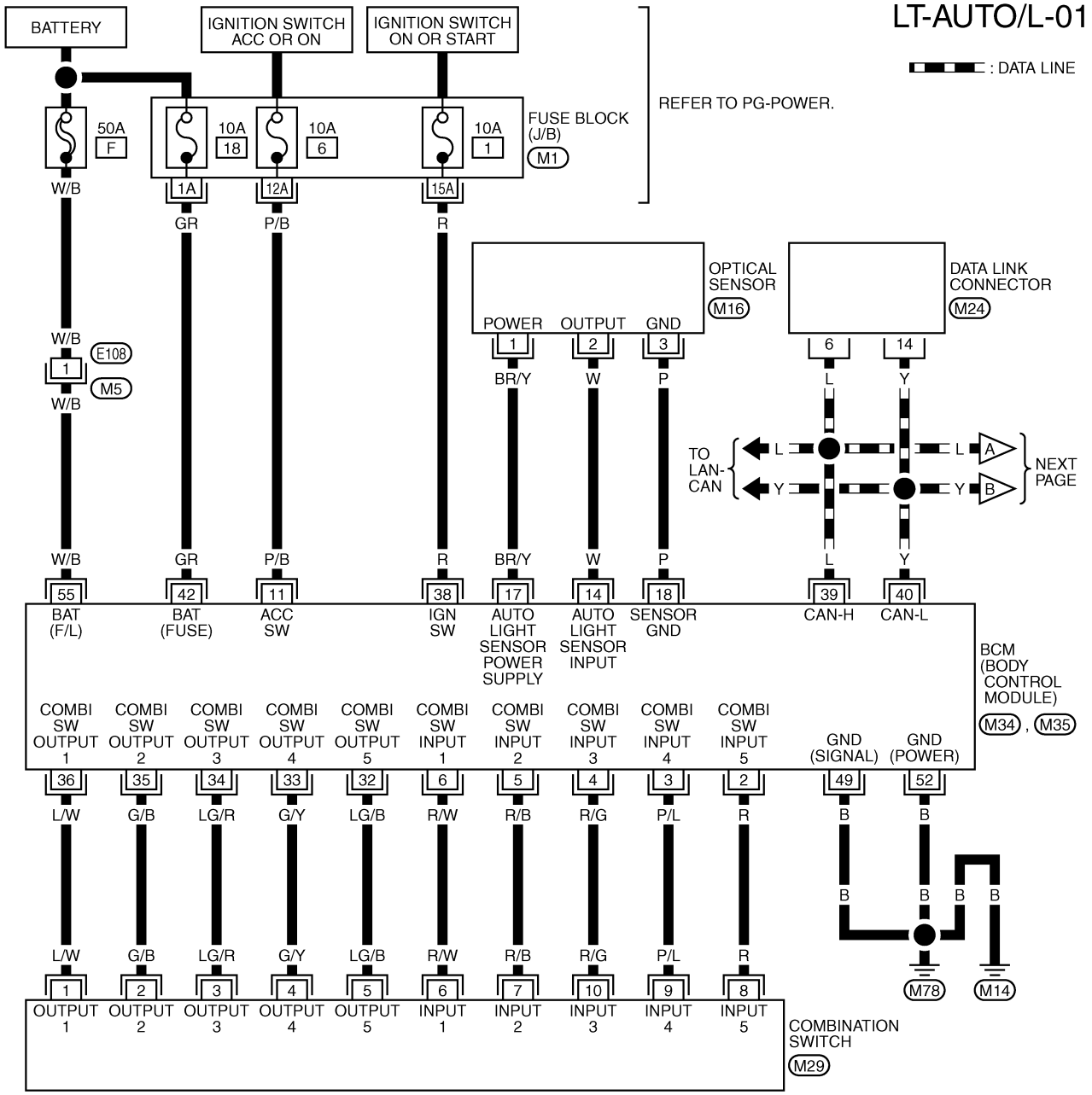
Schematic

AKS004JM



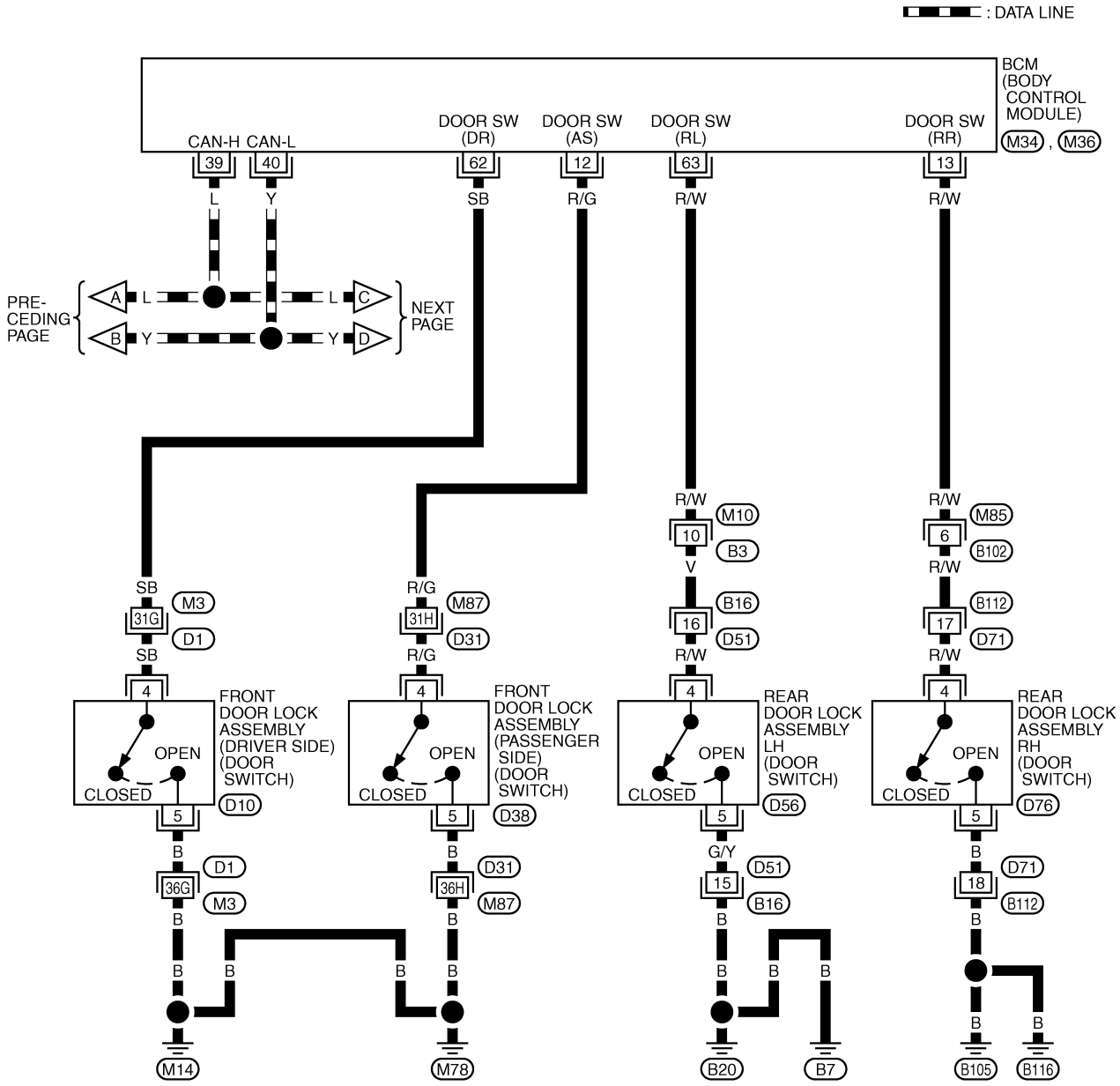
Wiring Diagram — AUTO/L —

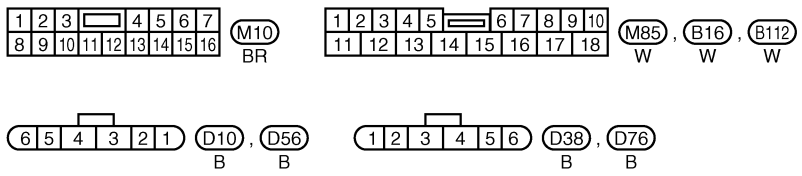
AKS004JN



TKWA1684E

LT-AUTO/L-02





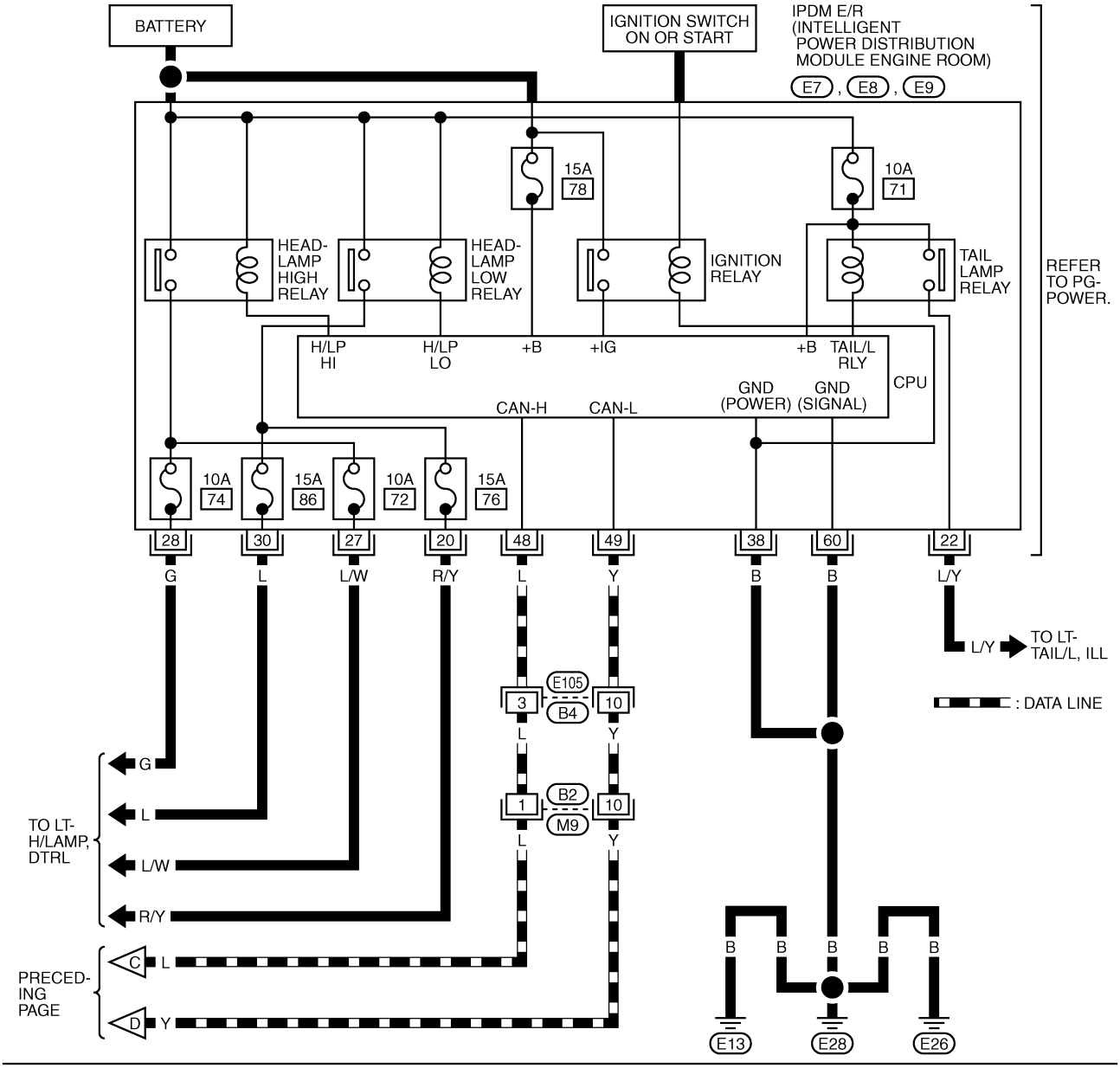
REFER TO THE FOLLOWING.

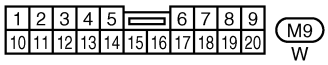
D1, D31 -SUPER MULTIPLE JUNCTION (SMJ)

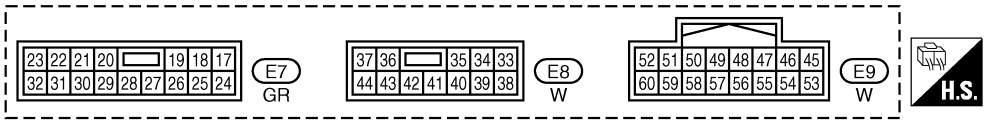
M34, M36 -ELECTRICAL UNITS

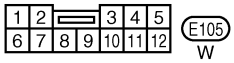
TKWA1685E

LT-AUTO/L-03





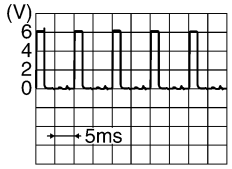
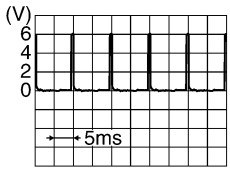
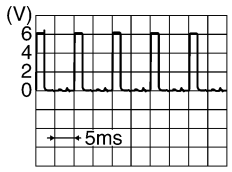
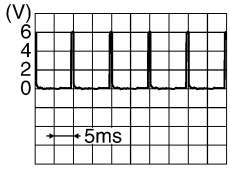
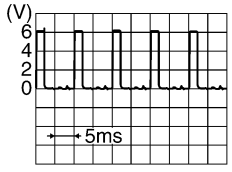
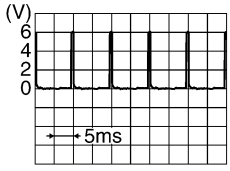


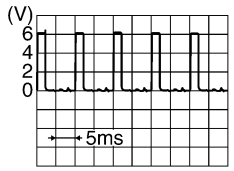
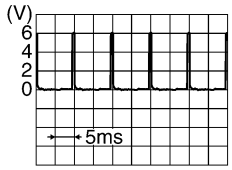


TKWA1686E

Terminals and Reference Values for BCM

AKS00AL4

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
2	R	Combination switch input 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
3	P/L	Combination switch input 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
4	R/G	Combination switch input 3	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
5	R/B	Combination switch input 2	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
6	R/W	Combination switch input 1			
11	P/B	Ignition switch (ACC)	ACC	—	Battery voltage
14	W	Optical sensor signal	ON	When optical sensor is illuminated	3.1 V or more[NOTE]
				When optical sensor is not illuminated	0.6 V or less
17	BR/Y	Optical sensor power supply	ON	—	Approx. 5V
18	P	Keyless and auto light sensor ground	ON	—	Approx. 0V
32	LG/B	Combination switch output 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
33	G/Y	Combination switch output 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
34	LG/R	Combination switch output 3	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
35	G/B	Combination switch output 2	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
36	L/W	Combination switch output 1			
38	R	Ignition switch (ON)	ON	—	Battery voltage
39	L	CAN– H	—	—	—
40	Y	CAN– L	—	—	—
42	GR	Battery power supply	OFF	—	Battery voltage
49	B	Ground	ON	—	Approx. 0V
52	B	Ground	ON	—	Approx. 0V
55	W/B	Battery power supply	OFF	—	Battery voltage

NOTE:
Optical sensor must be securely subjected to work lamp light. If the optical sensor is insufficiently illuminated, the measured value may not satisfy standard.

Terminals and Reference Values for IPDM E/R

AKS00AL5

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
20	R/Y	Headlamp low (RH)	ON	Lighting switch 2ND position	OFF	Approx. 0V
					ON	Battery voltage
22	L/Y	Parking, license, and tail lamp	ON	Lighting switch 1ST position	OFF	Approx. 0V
					ON	Battery voltage
27	L/W	Headlamp high (RH)	ON	Lighting switch HIGH or PASS position	OFF	Approx. 0V
					ON	Battery voltage
28	G	Headlamp high (LH)	ON	Lighting switch HIGH or PASS position	OFF	Approx. 0V
					ON	Battery voltage
30	L	Headlamp low (LH)	ON	Lighting switch 2ND position	OFF	Approx. 0V
					ON	Battery voltage
38	B	Ground	ON	—		Approx. 0V
48	L	CAN– H	—	—		—
49	Y	CAN– L	—	—		—
60	B	Ground	ON	—		Approx. 0V

How to Proceed With Trouble Diagnosis

AKS00AL6

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-86, "System Description" .
3. Perform the preliminary check. Refer to LT-95, "Preliminary Check" .
4. Check symptom and repair or replace the cause of malfunction. Refer to LT-101, "Trouble Diagnosis Chart by Symptom" .
5. Does the auto light system operate normally? If YES: GO TO 6. If NO: GO TO 4.
6. INSPECTION END

Preliminary Check

AKS00AL7

SETTING CHANGE FUNCTIONS

- Sensitivity of auto light system can be adjusted using CONSULT-II. Refer to LT-97, "WORK SUPPORT" .

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

- Check for blown fuses.

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

Refer to LT-90, "Wiring Diagram — AUTO/L —" .

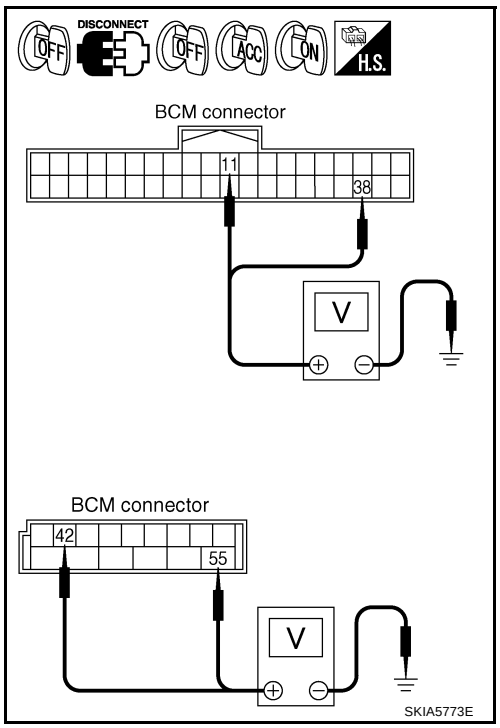
OK or NG

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

2. CHECK POWER SUPPLY CIRCUIT

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

Terminals			Ignition switch position		
(+)		(-)	OFF	ACC	ON
Connector	Terminal (Wire color)				
M34	11 (P/B)	Ground	0V	Battery voltage	Battery voltage
	38 (R)		0V	0V	Battery voltage
M35	42 (GR)		Battery voltage	Battery voltage	Battery voltage
	55 (W/B)		Battery voltage	Battery voltage	Battery voltage



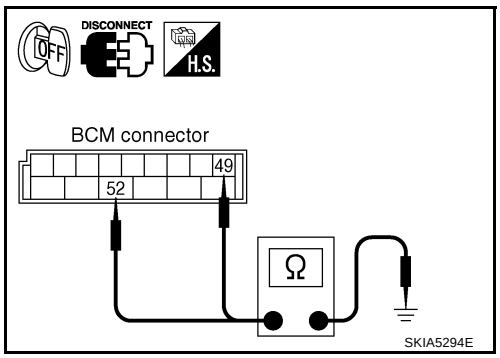
OK or NG

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.

Terminals			Continuity
Connector	Terminal (Wire color)		
M35	49 (B)	Ground	Yes
	52 (B)		



OK or NG

OK >> INSPECTION END
NG >> Check ground circuit harness.

CONSULT-II Functions (BCM)

AKS00AL8

- CONSULT-II executes the following functions by combining data reception and command transmission via the communication line from BCM. Work support, self-diagnosis, data monitor, and active test display.

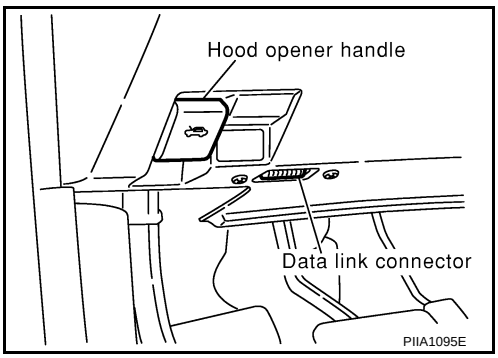
BCM diagnosis part	Check item, diagnosis mode	Description
HEAD LAMP	WORK SUPPORT	Changes the setting for each function.
	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.
BCM	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.

CONSULT-II BASIC OPERATION

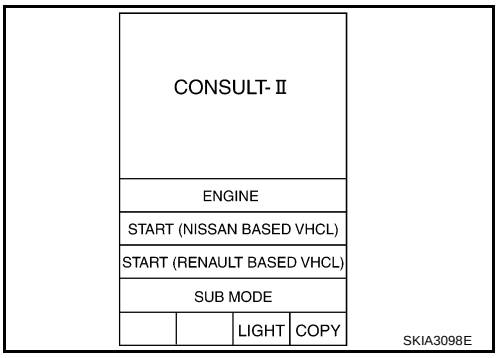
CAUTION:

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.

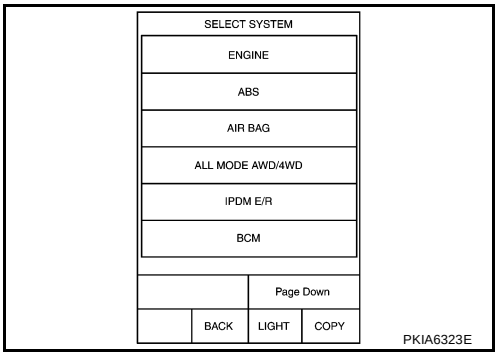
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn ignition switch ON.



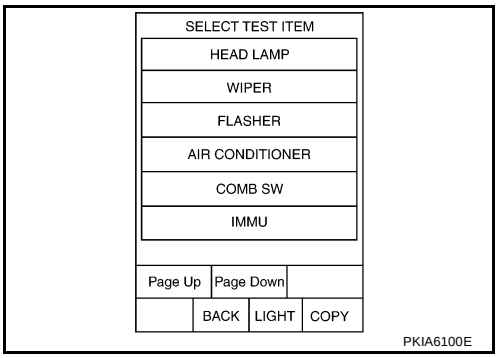
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “BCM” on “SELECT SYSTEM” screen.
If “BCM” is not indicated, 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 “CUSTOM A/LIGHT SETTING” or “ILL DELAY SET” on “SELECT WORK ITEM” screen.
4. Touch “START”.
5. Touch “NORMAL” or “MODE 2 - 4” of setting to be changed (CUSTOM A/LIGHT SETTING) or touch “MODE1–8” of setting to be changed (ILL DELAY SET).
6. Touch “SETTING CHANGE”.
7. The setting will be changed and “CUSTOMIZING COMPLETED” will be displayed.

8. Touch “END”.

Work Support Setting Item

- Sensitivity of auto light can be selected and set from four modes.

Work item	Description
CUSTOM A/LIGHT SETTING	Auto light sensitivity can be changed in this mode. Sensitivity can be adjusted in four modes. ● MODE 1 (Normal)/ MODE 2 (sensitive)/MODE 3 (Desensitized)/MODE4 (Insensitive)
ILL DELAY SET	Auto light delay off timer period can be changed in this mode. Selects auto light delay off timer period among eight modes. ● MODE 1 (45 sec.)/MODE 2 (OFF)/MODE 3 (30 sec.)/MODE 4 (60 sec.)/MODE 5 (90 sec.)/ MODE 6 (120 sec.)/MODE 7 (150 sec.)/MODE 8 (180 sec.)

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 “DATA MONITOR” screen.

ALL SIGNALS	Monitors all the signals.
SELECTION FROM MENU	Selects and monitors individual signal.

4. Touch “START”.
5. When “SELECTION FROM MENU” is selected, touch individual items to be monitored. When “ALL SIGNALS” is selected, all the items will be monitored.
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 2 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.
TAIL LAMP SW	“ON/OFF”	Displays status (lighting switch 1st position: ON/Others: OFF) of lighting switch judged from lighting switch signal.
AUTO LIGHT SW	“ON/OFF”	Displays status of the lighting switch as judged from the lighting switch signal. (AUTO position: ON/Other than AUTO position: OFF)
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	“ON/OFF”	Displays status (front fog lamp switch: ON/Others: OFF) of front fog lamp switch judged from lighting switch signal.
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”	Displays status of the passenger door as judged from the passenger door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - RR	“ON/OFF”	Displays status of the rear door as judged from the rear door switch (RH) signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - RL	“ON/OFF”	Displays status of the rear door as judged from the passenger door switch (LH) signal. (Door is open: ON/Door is closed: OFF)
BACK DOOR SW	“ON/OFF”	Displays status of the backdoor as judged from the backdoor switch signal. (Door is open: ON/Door is closed: OFF)

Monitor item		Contents
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”	—
OPTICAL SENSOR	[0 - 5V]	Displays “ambient light (close to 5V when light/close to 0V when dark)” judged from optical sensor signal.

NOTE:
This item is displayed, but cannot monitor it.

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 (LOW)	Allows headlamp relay to operate by switching ON–OFF.
HEAD LAMP (HI)	Allows headlamp relay to operate by switching ON–OFF.
FR FOG LAMP	Allows fog lamp relay to operate by switching ON–OFF.
CORNERING LAMP[NOTE]	—
CARGO LAMP[NOTE]	—

NOTE:
This item is displayed, but cannot monitor it.

CONSULT-II Functions (IPDM E/R)

AKS00AL9

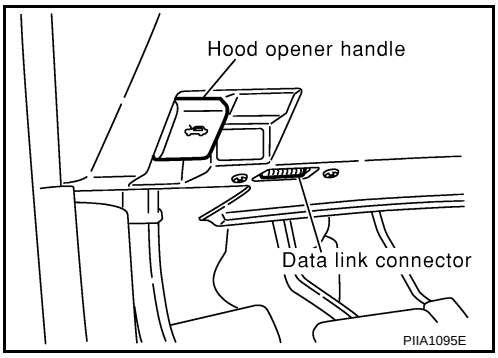
CONSULT-II can display each diagnostic item using the following diagnostic test modes: work support, self-diagnostic results, data monitor and active test through data reception and command transmission via the IPDM E/R CAN communication line.

Check Item, Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	The IPDM E/R performs self-diagnosis of CAN communication.
DATA MONITOR	The input/output data of the 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	The IPDM E/R sends a drive signal to electronic components to check their operation.

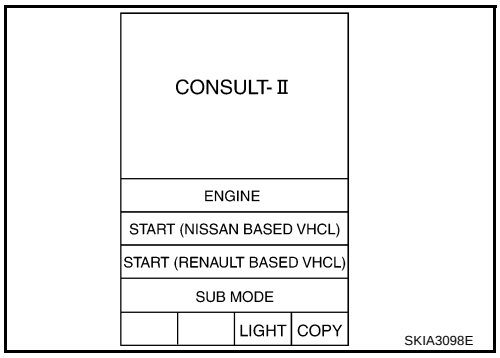
CONSULT-II OPERATION

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.

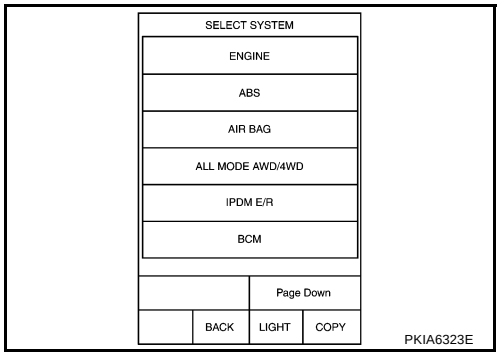
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn the ignition switch ON.



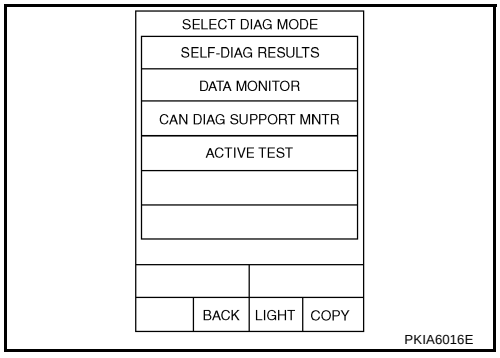
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “IPDM E/R” on “SELECT SYSTEM” screen.
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 SYSTEM” screen.



SELF-DIAGNOSTIC RESULTS

Refer to PG-20, "SELF-DIAG RESULTS" .

DATA MONITOR

Operation Procedure

1. Touch “DATA MONITOR” on “SELECT DIAG MODE ” screen.
2. Touch “ALL SIGNALS”, “MAIN SIGNALS”, or “SELECTION FROM MENU” on “DATA MONITOR” screen.

ALL SIGNALS	All items will be monitored.
MAIN SIGNALS	Monitor the predetermined item.
SELECT FROM MENU	Select any item for monitoring.

3. Touch “START”.
4. Touch the required monitoring item on “SELECTION FROM MENU”. In “ALL SIGNALS”, all items are monitored. In “MAIN SIGNALS”, predetermined items are monitored.
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 screen display	Display or unit	Monitor item selection			Description
			ALL SIGNALS	MAIN SIGNALS	SELECTION FROM MENU	
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
Font fog lights request	FR FOG REQ	ON/OFF	×	×	×	Signal status input from BCM

NOTE:
Perform monitoring of IPDM E/R data with the ignition switch ON. When the 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
Headlamp relay (HI, LO) output	LAMPS	Allows headlamp relay (HI, LO) to operate by switching operation (OFF, HI ON, LO ON) at your option.
Front fog lamp relay output		Allows fog lamp relay to operate by switching operation ON-OFF at your option.
Tail lamp relay output	TAIL LAMP	Allows tail lamp relay to operate by switching operation ON-OFF at your option.

Trouble Diagnosis Chart by Symptom

AKS00ALA

Trouble phenomenon	Malfunction system and reference
● Parking lamps and headlamps will not illuminate when outside of the vehicle becomes dark. (Lighting switch 1st position and 2nd position operate normally.) ● Parking lamps and headlamp will not go out when outside of the vehicle becomes light. (Lighting switch 1st position and 2nd position operate normally.) ● Headlamps go out when outside of the vehicle becomes light, but parking lamps stay on.	● Refer to LT-97, "WORK SUPPORT" . ● Refer to LT-102, "Lighting Switch Inspection" . ● Refer to LT-102, "Optical sensor System Inspection" . If above systems are normal, replace BCM.
Parking lamps illuminate when outside of the vehicle becomes dark, but headlamps stay off. (Lighting switch 1st position and 2nd position operate normally.)	● Refer to LT-97, "WORK SUPPORT" . ● Refer to LT-102, "Optical sensor System Inspection" . If above systems are normal, replace BCM.
Auto light adjustment system will not operate. (Lighting switch AUTO, 1st position and 2nd position operate normally.)	● Refer to LT-102, "Optical sensor System Inspection" . If above system is normal, replace BCM.
Auto light adjustment system of combination meter will not operate.	● CAN communication line inspection between BCM and combination meter. Refer to BCS-14, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .
Shut off delay feature will not operate.	● CAN communication line inspection between BCM and combination meter. Refer to BCS-14, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" . ● Refer to BL-37, "Check Door Switch" . If above system is normal, replace BCM.

Lighting Switch Inspection

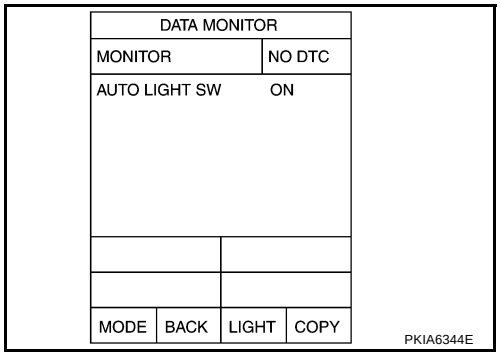
AKS00ALB

1. CHECK LIGHTING SWITCH INPUT SIGNAL

With CONSULT-II

Select “BCM” on CONSULT-II. With “HEAD LAMP” data monitor, make sure “AUTO LIGHT SW” turns ON–OFF linked with operation of lighting switch.

When lighting switch is AUTO position : AUTO LIGHT SW ON



Without CONSULT-II

Refer to LT-140, "Combination Switch Inspection" .

OK or NG

OK >> INSPECTION END

NG >> Check lighting switch. Refer to LT-140, "Combination Switch Inspection" .

Optical sensor System Inspection

AKS00ALC

1. CHECK OPTICAL SENSOR INPUT SIGNAL

With CONSULT-II

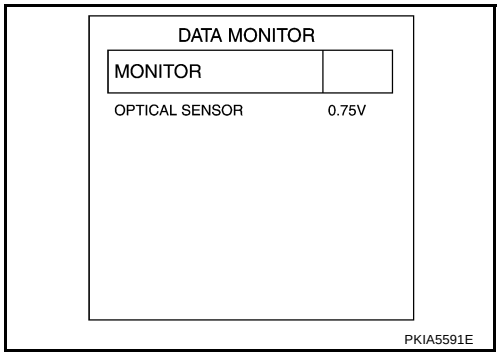
Select “BCM” on CONSULT-II. With “HEAD LAMP” data monitor, make sure “OPTICAL SENSOR”, check difference in the voltage when the auto light sensor is illuminated and not illuminated.

Illuminated

OPTICAL SENSOR : 3.1V or more

Not illuminated

OPTICAL SENSOR : 0.6V or less



CAUTION:

Optical sensor must be securely subjected to work lamp light. If the optical sensor is insufficiently illuminated, the measured value may not satisfy the standard.

Without CONSULT-II

GO TO 2.

OK or NG

OK >> INSPECTION END

NG >> GO TO 2.

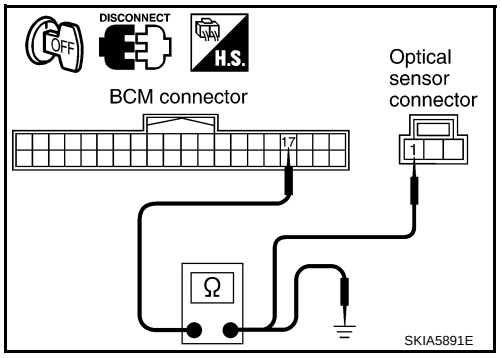
2. CHECK OPTICAL SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and optical sensor connector.
3. Check continuity (open circuit) between BCM harness connector M34 terminal 17 (BR/Y) and optical sensor harness connector M16 terminal 1 (BR/Y).

17 (BR/Y) – 1 (BR/Y) : Continuity should exist.

4. Check continuity (short circuit) between BCM harness connector M34 terminal 17 (BR/Y) and ground.

17 (BR/Y) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

3. CHECK OPTICAL SENSOR SIGNAL CIRCUIT

1. Check continuity (open circuit) between BCM harness connector M34 terminal 14 (W) and optical sensor harness connector M16 terminal 2 (W).

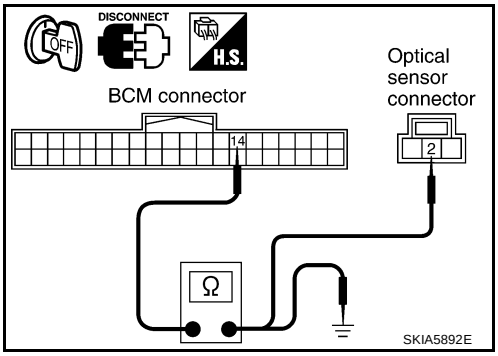
14 (W) – 2 (W) : Continuity should exist.

2. Check continuity (short circuit) between BCM harness connector M34 terminal 14 (W) and ground.

14 (W) – Ground : Continuity should not exist.

OK or NG

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



4. CHECK OPTICAL SENSOR GROUND CIRCUIT

1. Check continuity (open circuit) between BCM harness connector M34 terminal 18 (P) and optical sensor harness connector M16 terminal 3 (P).

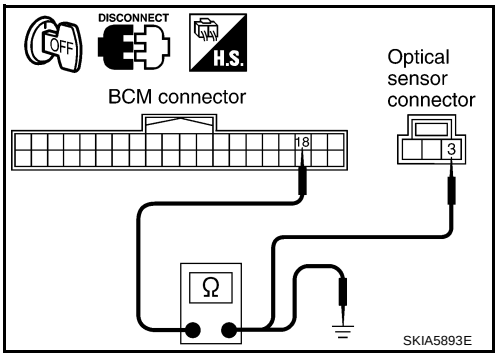
18 (P) – 3 (P) : Continuity should exist.

2. Check continuity (short circuit) between BCM harness connector M34 terminal 18 (P) and ground.

18 (P) – Ground : Continuity should not exist.

OK or NG

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



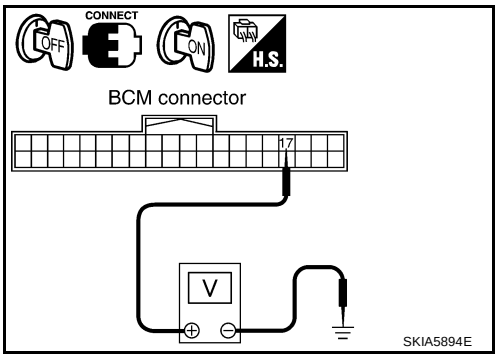
5. CHECK OPTICAL SENSOR VOLTAGE

1. Connect BCM connector.
2. Turn ignition switch ON.
3. Check voltage between BCM harness connector M34 terminal 17 (BR/Y) and ground.

17 (BR/Y) – Ground : Approx. 5V should exist.

OK or NG

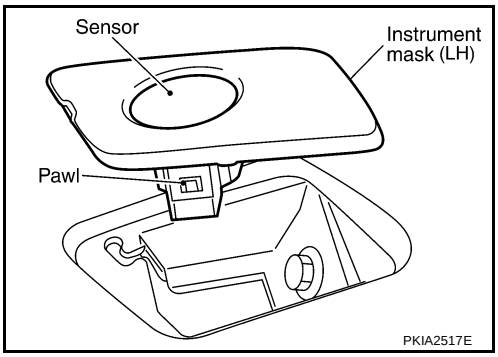
OK >> Replace the optical sensor.
NG >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .



Removal and Installation of Optical Sensor

AKS00ALD

1. Remove instrument mask (LH) assembly. Refer to IP-11, "Removal and Installation" .
2. While pressing pawl in direction as shown in the figure, remove the sensor unit from instrument mask.

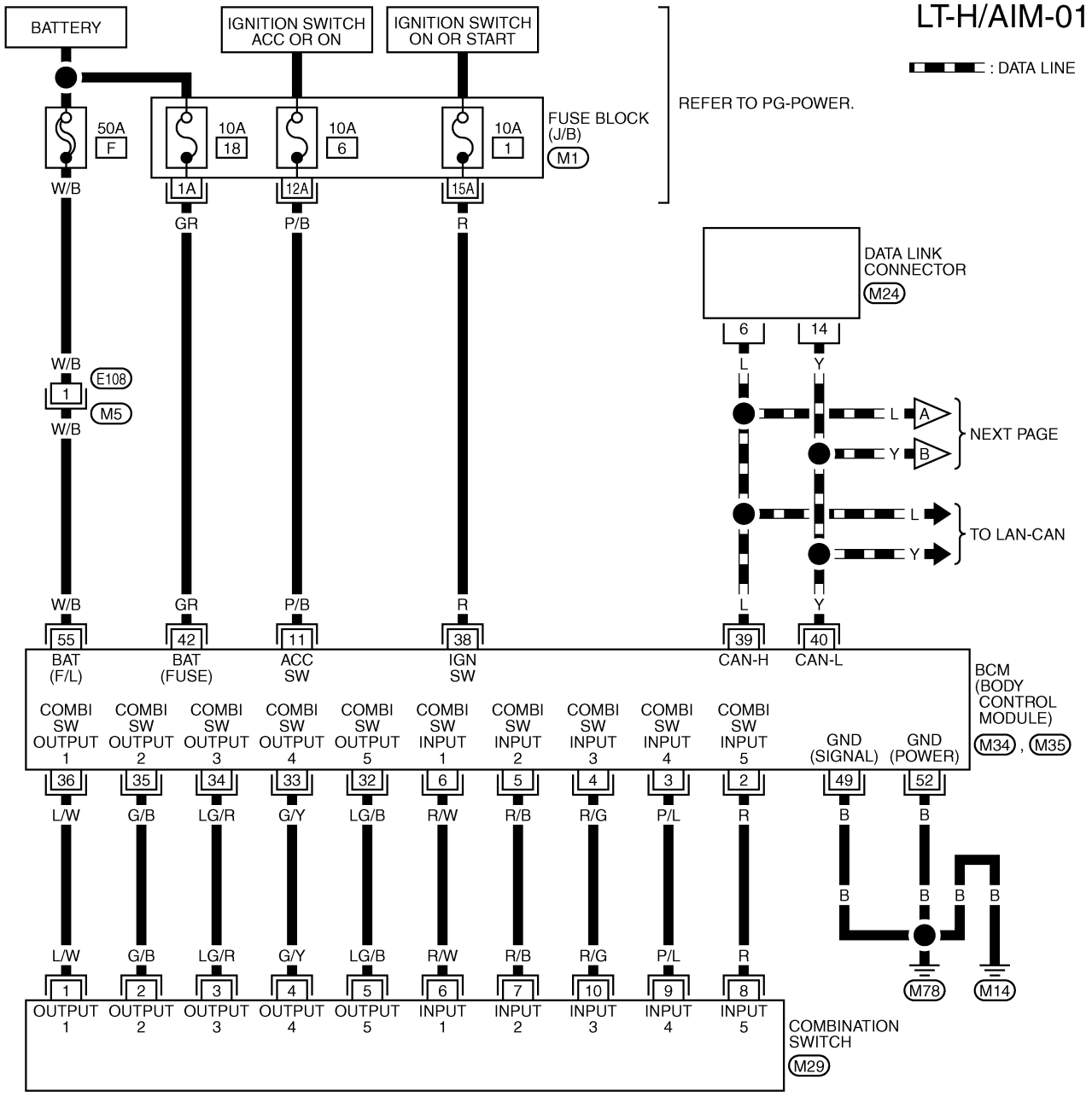


HEADLAMP AIMING CONTROL

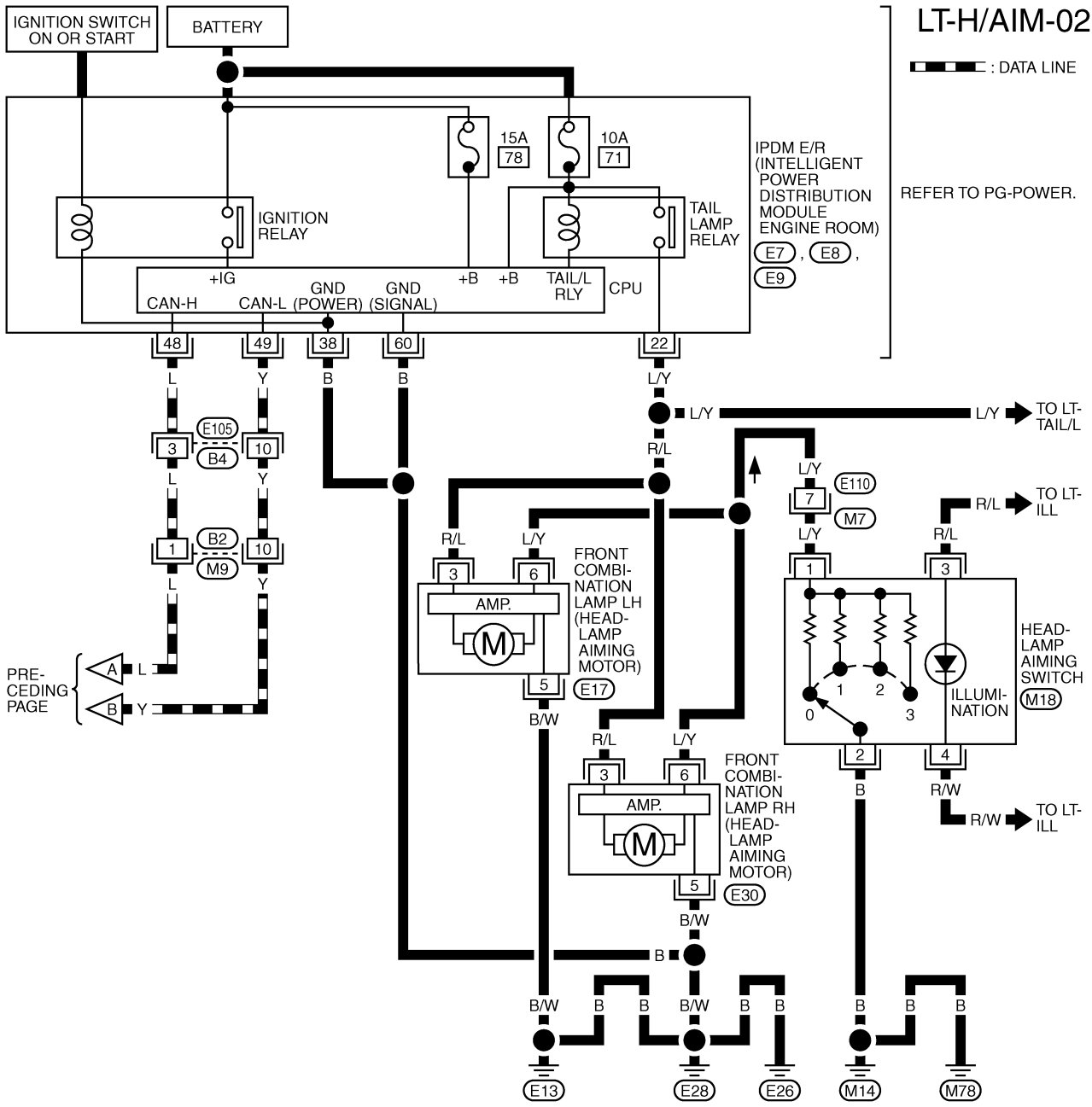
PFP:26010

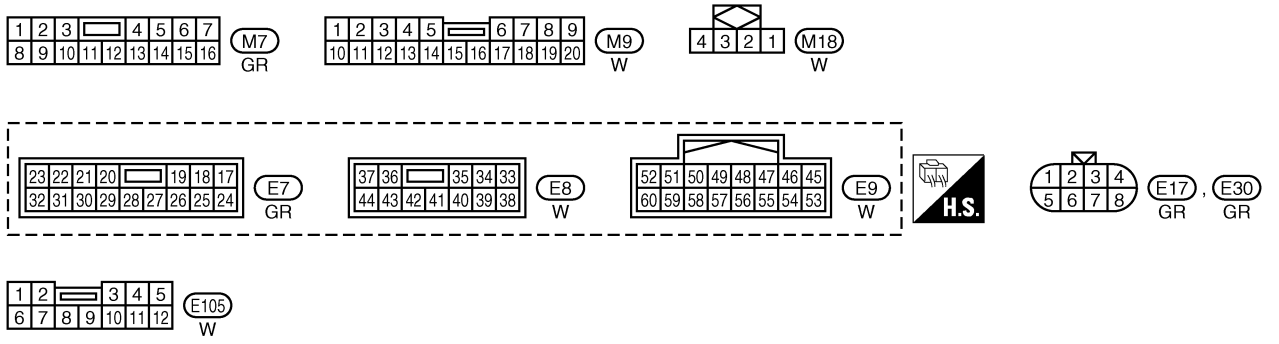
Wiring Diagram — H/AIM —

AKS004UC



TKWA1687E


LT-H/AIM-02
: DATA LINE
REFER TO PG-POWER.
IGNITION SWITCH ON OR START
BATTERY
15A 78
10A 71
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) E7, E8, E9
IGNITION RELAY
TAIL LAMP RELAY
+IG
CAN-H
CAN-L
GND (POWER)
GND (SIGNAL)
+B
+B
TAIL/L RLY
CPU
48
49
38
60
22
L
Y
B
B
L/Y
E105
3
B4
10
B2
1
M9
PRE-CEDING PAGE
A
B
R/L
L/Y
FRONT COMBI-NATION LAMP LH (HEAD-LAMP AIMING MOTOR) E17
AMP.
M
5
B/W
FRONT COMBI-NATION LAMP RH (HEAD-LAMP AIMING MOTOR) E30
E110
7
M7
TO LT-TAIL/L
TO LT-ILL
HEAD-LAMP AIMING SWITCH M18
ILLUMI-NATION
0
1
2
3
4
R/W
E13
E28
E26
M14
M78

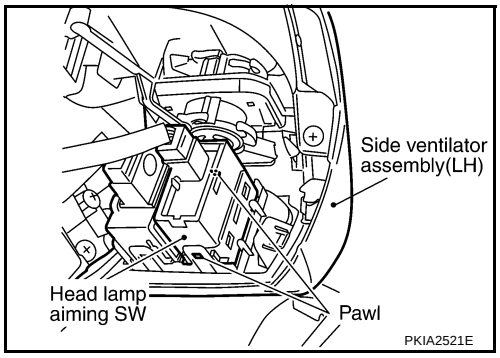

M7 GR
M9 W
M18 W
E7 GR
E8 W
E9 W
H.S.
E17, E30 GR
E105 W

TKWA1688E

Removal and Installation

AKS004UD

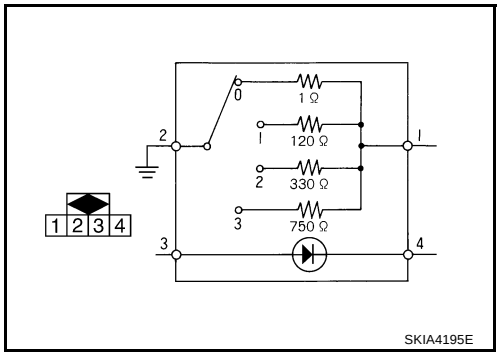
1. Remove the side ventilator assembly (LH). Refer to IP-11, "Removal and Installation" in “INSTRUMENT PANEL (IP)” section.
2. Press the headlamp aiming switch fixing pawls and remove the unit from the side ventilator assembly (LH).



Switch Circuit Inspection (Xenon type)

AKS004UE

Using a circuit tester, check continuity between the headlamp aiming switch connector terminals in each operation status of the aiming switch.

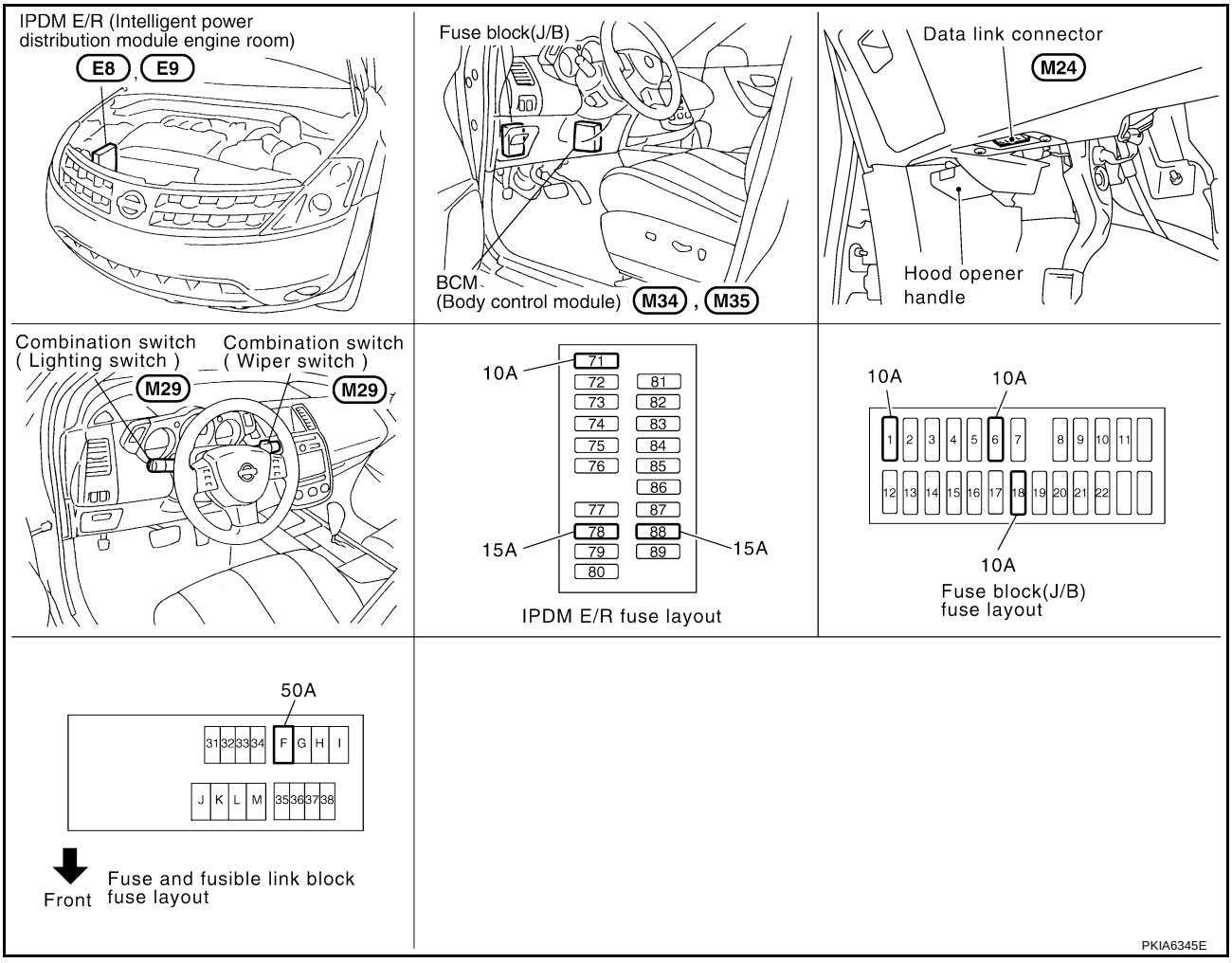


FRONT FOG LAMP

PFP:26150

Component Parts and Harness Connector Location

AKS00AMD



System Description

AKS005P3

Control of the fog lamps is dependent upon the position of the combination switch (lighting switch). The lighting switch must be in the 2ND position or AUTO position (LOW beam is ON) for front fog lamp operation.When the lighting switch is placed in the fog lamp position the BCM (body control module) receives input signal requesting the fog lamps to illuminate. When the headlamps are illuminated, 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 (intelligent power distribution module engine room) controls the front fog lamp relay coil. When activated, this relay directs power to the front fog lamps.

OUTLINE

Power is supplied at all times

- through 15A fuse [No. 88, located in IPDM E/R (intelligent power distribution module engine room)]
- to front fog lamp relay [located in IPDM E/R (intelligent power distribution module engine room)]
- through 10A fuse [No. 71, located in the IPDM E/R (intelligent power distribution module engine room)]
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- through 15A fuse [No. 78, located in IPDM E/R (intelligent power distribution module engine room)]
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)].

Power is also supplied at all times

- through 50A fusible link (letter F, located in the fuse and fusible link block)
- to BCM (body control module) terminal 55
- through 10A fuse [No. 18, located in fuse block (J/B)]

- to BCM (body control module) terminal 42.

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.

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

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

Ground is supplied

- to BCM (body control module) terminals 49 and 52
- through grounds M14 and M78
- to IPDM E/R (intelligent power distribution module engine room) terminals 38 and 60
- through grounds E13, E26 and E28.

FOG LAMP OPERATION

The fog lamp switch is built into the combination switch. The lighting switch must be in the 2ND position or AUTO position (LOW beam is ON) and the fog lamp switch must be ON for fog lamp operation.
With the fog lamp switch in the ON position, the CPU of the IPDM E/R grounds the coil side of the fog lamp relay. The fog lamp relay then directs power

- through IPDM E/R terminal 37
- to front fog lamp LH terminal 1
- through IPDM E/R terminal 36
- to front fog lamp RH terminal 1.

Ground is supplied

- to front fog lamp LH terminal 2
- through grounds E13, E26 and E28
- to front fog lamp RH terminal 2
- through grounds E13, E26 and E28.

With power and grounds supplied, the front fog 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), the fog lamp switch is ON, and the ignition switch is turned from ON or ACC to OFF, the battery saver control feature is activated.
Under this condition, the fog lamps (and headlamps) remain illuminated for 5 minutes, then the fog lamps (and headlamps) are turned off.
Exterior lamp battery saver control mode can be changed by the function setting of CONSULT-II.

CAN Communication System Description

AKS004JX

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.

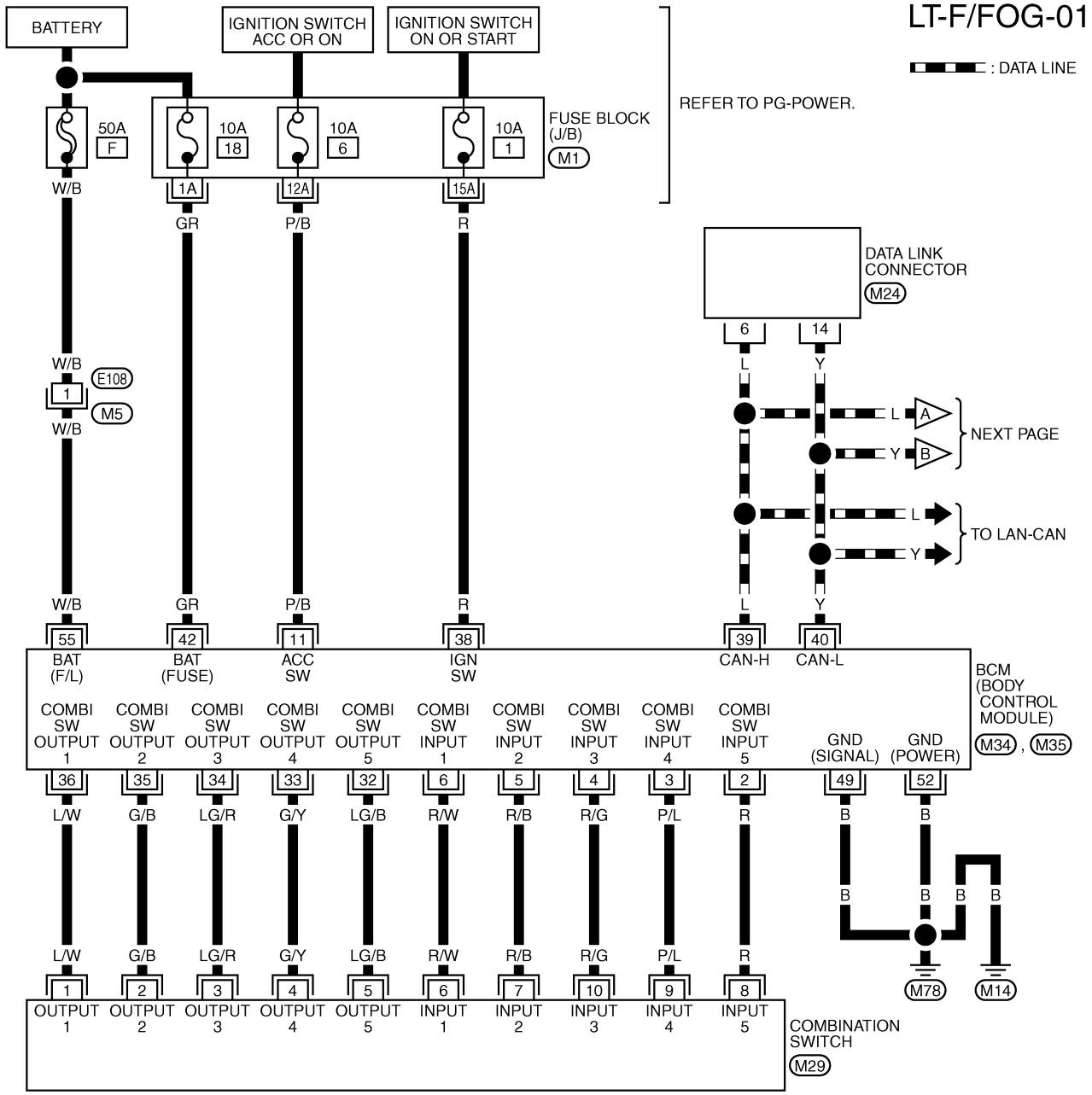
CAN Communication Unit

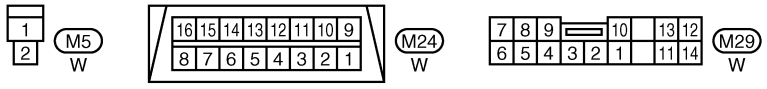
AKS007QT

Refer to LAN-8, "CAN Communication Unit" .

Wiring Diagram — F/FOG —

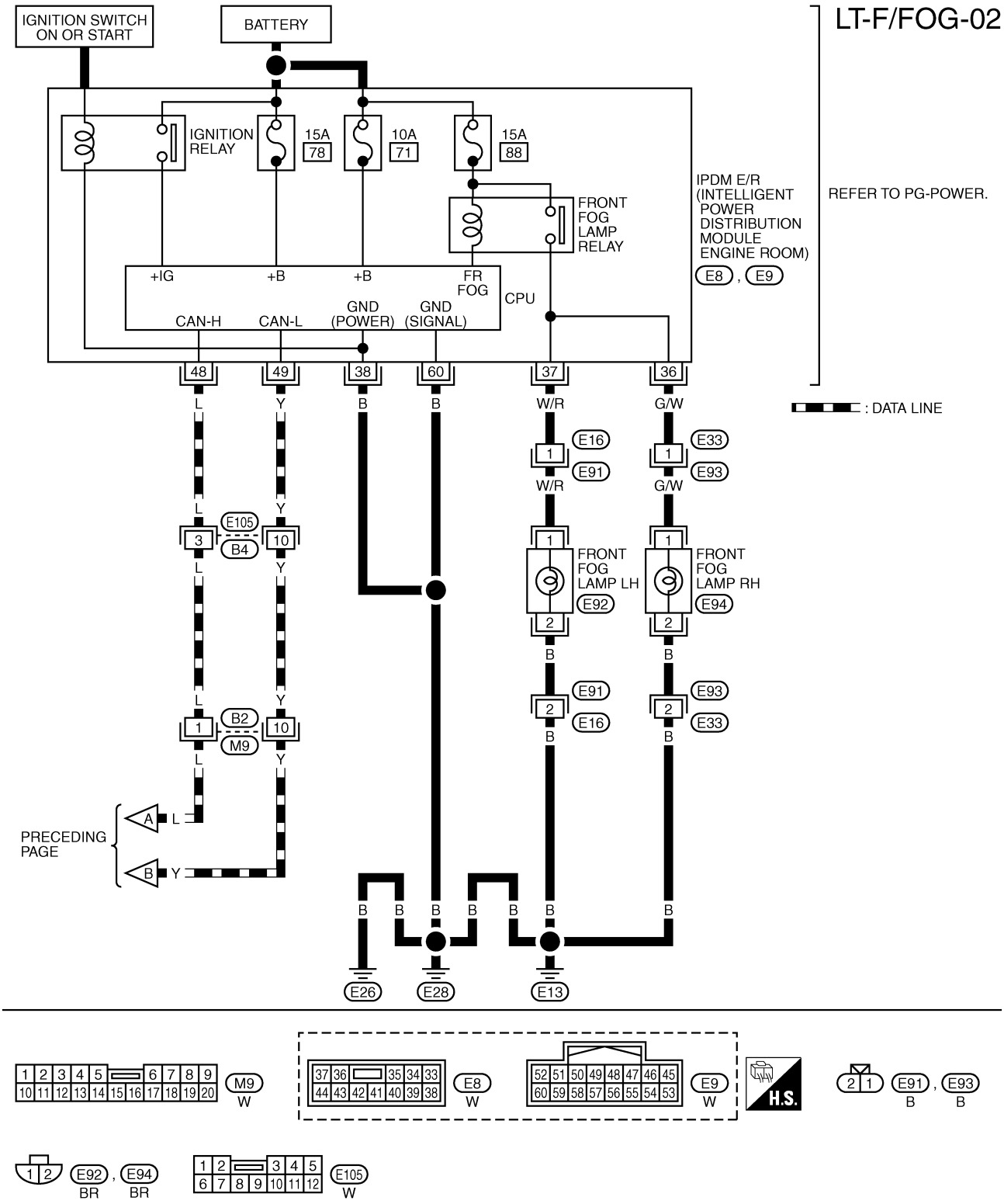
AKS004JZ





REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B)
M34 , M35 -ELECTRICAL UNITS

TKWA1689E

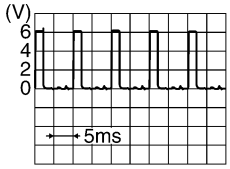
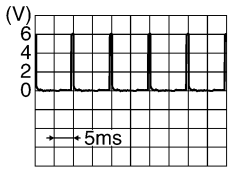
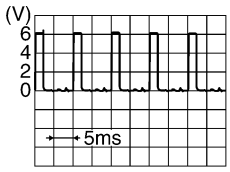
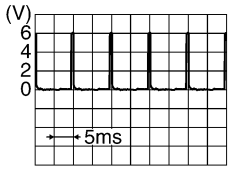
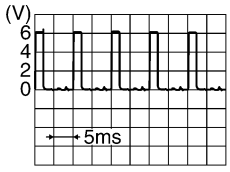
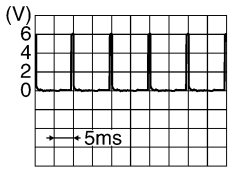
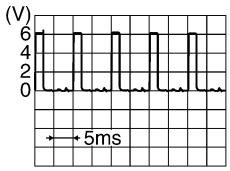

LT-F/FOG-02
IGNITION SWITCH ON OR START
BATTERY
IGNITION RELAY
15A 78
10A 71
15A 88
FRONT FOG LAMP RELAY
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E8 , E9
REFER TO PG-POWER.
+IG
+B
+B
FR FOG
CPU
CAN-H
CAN-L
GND (POWER)
GND (SIGNAL)
48
49
38
60
37
36
L
Y
B
B
W/R
G/W
: DATA LINE
E16
E91
E33
E93
E105
B4
B2
M9
FRONT FOG LAMP LH
E92
FRONT FOG LAMP RH
E94
PRECEDING PAGE
A
B
E26
E28
E13

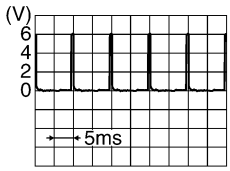
M9 W
E8 W
E9 W
H.S.
E91 , E93 B B
E92 , E94 BR BR
E105 W

TKWA1690E

Terminals and Reference Values for BCM

AKS00AM3

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

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

Terminals and Reference Values for IPDM E/R

AKS00AM4

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
36	G/W	Front fog lamp (RH)	ON	Lighting switch must be in the 2ND position or AUTO position (LOW beam is ON) and the front fog lamp switch must be ON.	OFF	Approx. 0V
					ON	Battery voltage
37	W/R	Front fog lamp (LH)	ON	Lighting switch must be in the 2ND position or AUTO position (LOW beam is ON) and the front fog lamp switch must be ON.	OFF	Approx. 0V
					ON	Battery voltage
38	B	Ground	ON	—		Approx. 0V
48	L	CAN– H	—	—		—
49	Y	CAN– L	—	—		—
60	B	Ground	ON	—		Approx. 0V

How to Proceed With Trouble Diagnosis

AKS00AM5

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-112, "Preliminary Check" .
4. Check symptom and repair or replace the cause of malfunction.
5. Does the front fog lamp operate normally? If YES: GO TO 6. If NO: GO TO 4.
6. INSPECTION END

Preliminary Check

AKS00AM6

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

- Check fuses for blown-out.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
		18
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6

Unit	Power source	Fuse and fusible link No.
IPDM E/R	Battery	71
		78
		88

Refer to LT-109, "Wiring Diagram — F/FOG —" .

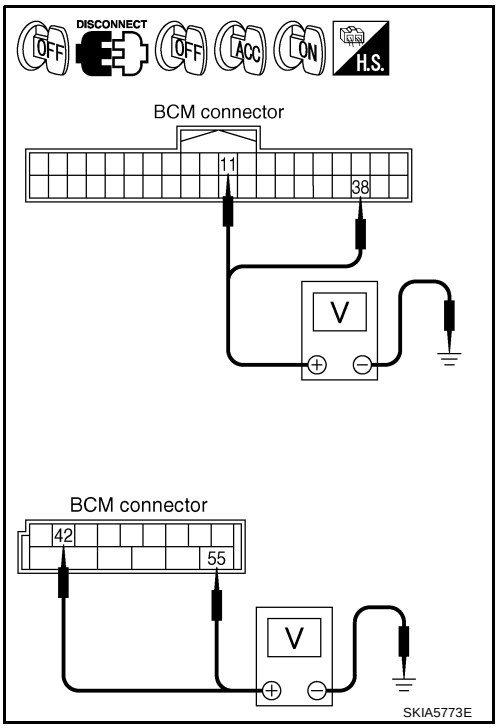
OK or NG

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

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

Terminals			Ignition switch position		
(+)		(-)	OFF	ACC	ON
Connector	Terminal (Wire color)				
M34	11 (P/B)	Ground	0V	Battery voltage	Battery voltage
	38 (R)		0V	0V	Battery voltage
M35	42 (GR)		Battery voltage	Battery voltage	Battery voltage
	55 (W/B)		Battery voltage	Battery voltage	Battery voltage



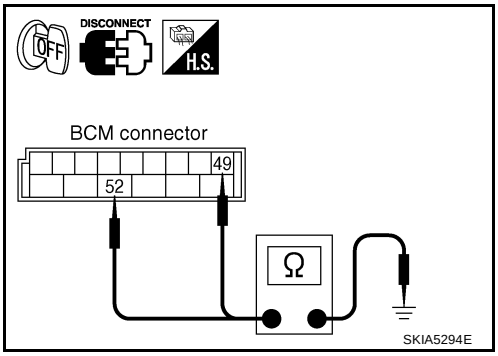
OK or NG

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.

Terminals			Continuity
Connector	Terminal (Wire color)		
M35	49 (B)	Ground	Yes
	52 (B)		



OK or NG

OK >> INSPECTION END
NG >> Check ground circuit harness.

CONSULT-II Functions

AKS00AM7

Refer to LT-18, "CONSULT-II Functions (BCM)" in HEAD LAMP - XENON TYPE.
Refer to LT-48, "CONSULT-II Functions (BCM)" in HEAD LAMP - CONVENTIONAL TYPE.
Refer to LT-21, "CONSULT-II Functions (IPDM E/R)" in HEAD LAMP - XENON TYPE.
Refer to LT-51, "CONSULT-II Functions (IPDM E/R)" in HEAD LAMP - CONVENTIONAL TYPE.

Front Fog Lamps Do Not Illuminate (Both Sides)

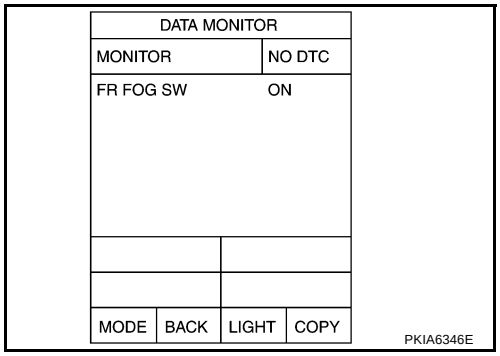
AKS00AM8

1. CHECK COMBINATION SWITCH INPUT SIGNAL

With CONSULT-II

Select “BCM” on CONSULT-II. With “HEAD LAMP” data monitor, make sure “FR FOG SW” turns ON-OFF linked with operation of lighting switch.

When lighting switch is FOG position : FR FOG SW ON



Without CONSULT-II

Refer to LT-140, "Combination Switch Inspection" .

OK or NG

OK >> GO TO 2.

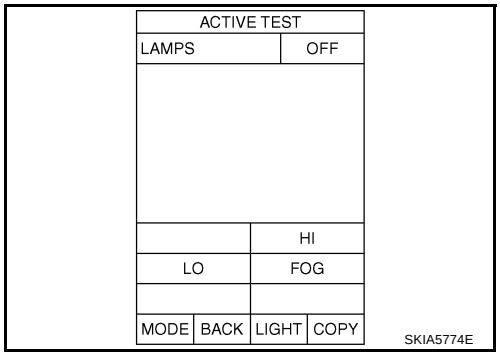
NG >> Check lighting switch. Refer to LT-140, "Combination Switch Inspection" .

2. FOG LAMP 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 “FOG” screen.
4. Make sure fog lamp operates.

Fog lamp should operate.



Without CONSULT-II

1. Start auto active test. Refer to PG-23, "Auto Active Test" .
2. Make sure fog lamp operates.

Fog lamp should operate.

OK or NG

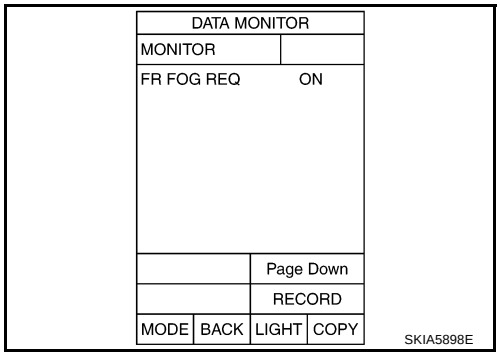
OK >> GO TO 3.

NG >> GO TO 4.

3. CHECK IPDM E/R

1. Select “IPDM E/R” on CONSULT-II, and select “DATA MONITOR” on “SELECT DIAG MODE” screen.
2. Make sure “FR FOG REQ” turns ON when lighting switch is in FOG position.

When lighting switch is FOG position : FR FOG REQ ON



OK or NG

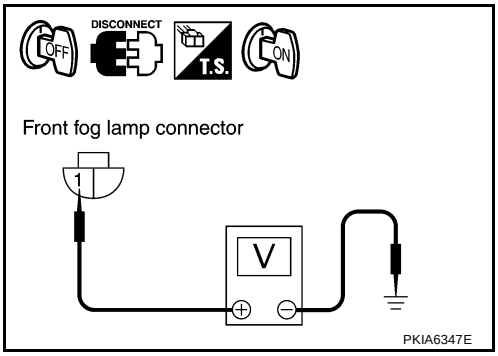
OK >> Replace IPDM E/R.

NG >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .

4. CHECK FRONT FOG LAMP INPUT SIGNAL

With CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH and LH connectors.
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 “FOG” screen.
6. When fog lamp is operating, check voltage between front fog lamp RH and LH harness connector and ground.



Terminals			Voltage
(+)		(-)	
Connector		Terminal (Wire color)	
RH	E94	1 (G/W)	Battery voltage
LH	E92	1 (W/R)	

Without CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front fog lamp RH and LH connectors.
3. Start auto active test. Refer to PG-23, "Auto Active Test" .
4. When fog lamp is operating, check voltage between front fog lamp RH and LH harness connectors and ground.

Terminals			Voltage
(+)		(-)	
Connector		Terminal (Wire color)	
RH	E94	1 (G/W)	Battery voltage
LH	E92	1 (W/R)	

OK or NG

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

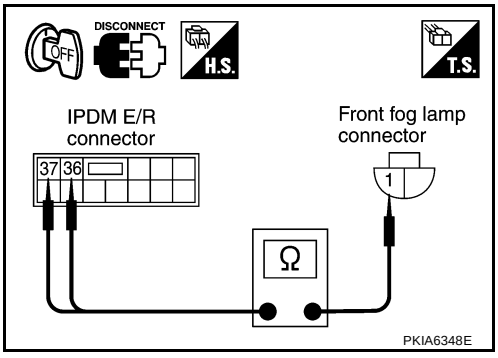
5. CHECK FRONT FOG LAMP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector E8 terminal 36 (G/W) and front fog lamp RH harness connector E94 terminal 1 (G/W).

36 (G/W) – 1 (G/W) : Continuity should exist.

4. Check continuity between IPDM E/R harness connector E8 terminal 37 (W/R) and front fog lamp LH harness connector E92 terminal 1 (W/R).

37 (W/R) – 1(W/R) : Continuity should exist.



OK or NG

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

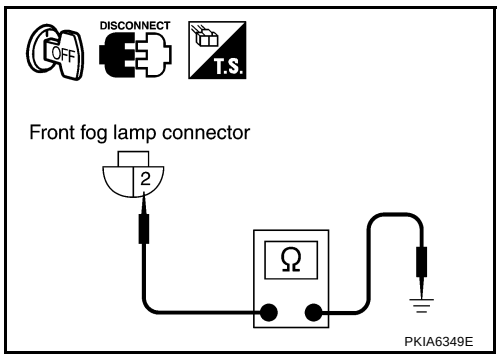
6. CHECK FRONT FOG LAMP GROUND

1. Check continuity between front fog lamp RH harness connector E94 terminal 2 (B) and ground.

2 (B) – Ground : Continuity should exist.

2. Check continuity between front fog lamp LH harness connector E92 terminal 2 (B) and ground.

2 (B) – Ground : Continuity should exist.



OK or NG

OK >> Check front fog lamp bulbs.
NG >> Repair harness or connector.

Front Fog Lamp Does Not Illuminate (One Side)

AKS00AM9

1. CHECK BULB

Check bulb of lamp which does not illuminate.

OK or NG

OK >> GO TO 2.
NG >> Replace front fog lamp bulb.

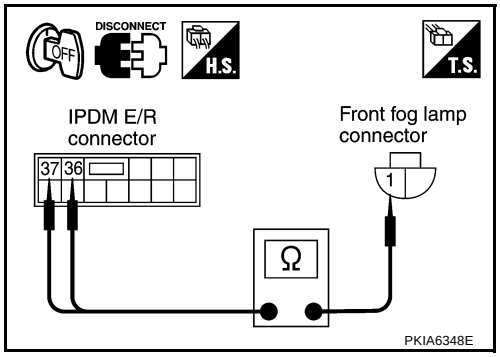
2. CHECK FRONT FOG LAMP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and front fog lamp connector RH or LH.
3. Check continuity between IPDM E/R harness connector E8 terminal 36 (G/W) and front fog lamp RH harness connector E94 terminal 1 (G/W).

36 (G/W) - 1 (G/W) : Continuity should exist.

4. Check continuity between IPDM E/R harness connector E8 terminal 37 (W/R) and front fog lamp LH harness connector E92 terminal 1 (W/R).

37 (W/R) - 1 (W/R) : Continuity should exist.



OK or NG

OK >> GO TO 3.
NG >> Repair harness or connector.

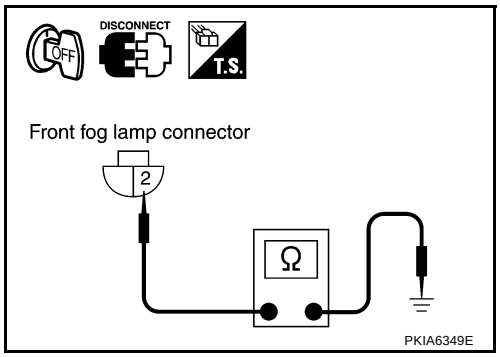
3. CHECK FRONT FOG LAMP GROUND

1. Check continuity between front fog lamp RH harness connector E94 terminal 2 (B) and ground.

2 (B) – Ground : Continuity should exist.

2. Check continuity between front fog lamp LH harness connector E92 terminal 2 (B) and ground.

2 (B) – Ground : Continuity should exist.



OK or NG

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

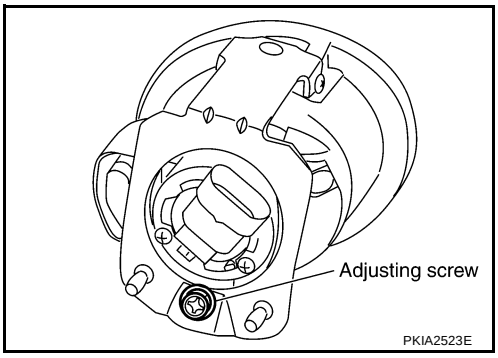
Aiming Adjustment

AKS00AMA

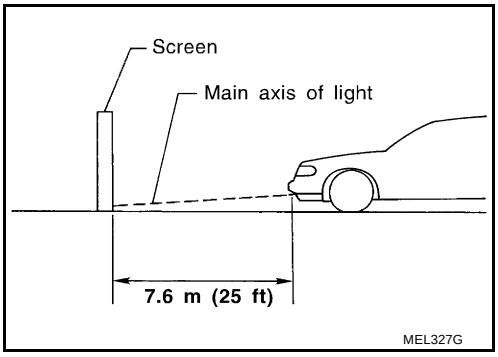
The fog lamp is a semi-sealed beam type which uses a replaceable halogen bulb. Before performing aiming adjustment, make sure of the following.

- Keep all tires inflated to correct pressure.
- Place vehicle on level ground.
- See that vehicle is unloaded (except for full levels of coolant, engine oil and fuel, and spare tire, jack, and tools). Have the driver or equivalent weight placed in driver seat.

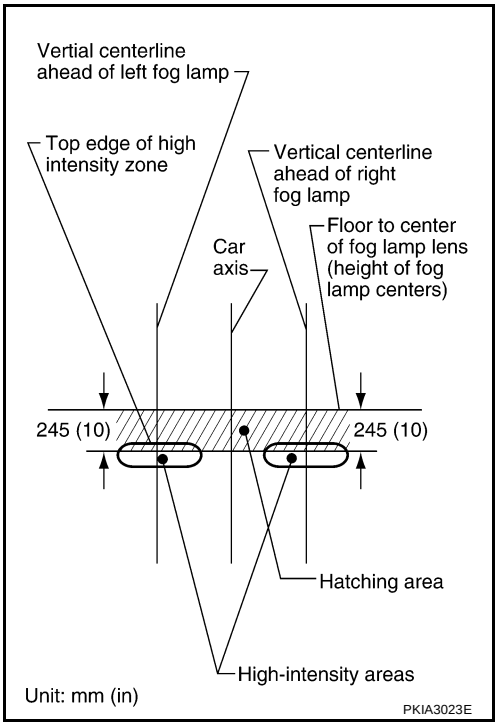
Adjust aiming in the vertical direction by turning the adjusting screw.



1. Set the distance between the screen and the center of the fog lamp lens as shown at left.
2. Turn front fog lamps ON.



3. Adjust front fog lamps using adjusting screw so that the top edge of the high intensity zone is in the hatched area as shown in the figure.
   - When performing this adjustment, cover the headlamps and the opposite fog lamp, if necessary.



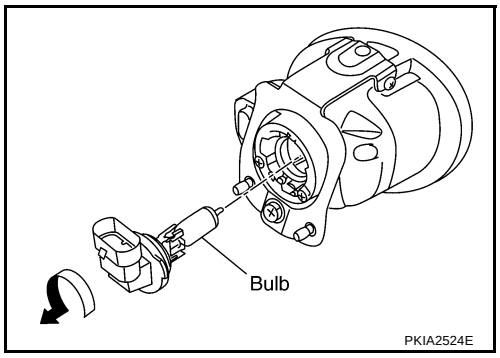
Bulb Replacement

AKS00AMB

1. Remove fender protector front. Refer to EI-22, "FENDER PROTECTOR" in “EI” section.
2. Remove the one side of front bumper where a fog lamp bulb to be changed.
3. Disconnect connector.
4. Turn bulb socket counterclockwise and unlock it.

Fog lamp **:12 V - 51 W (HB4 halogen)**

5. Install in the reverse order of removal.



CAUTION:

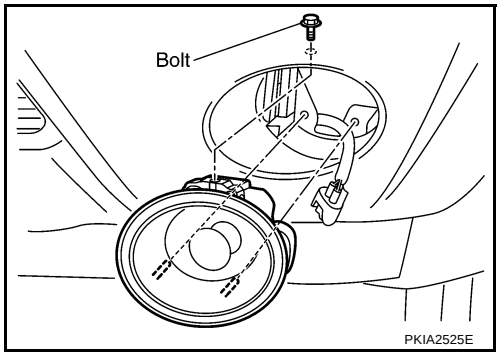
- **Do not touch the glass of bulb directly by hand. Keep grease and other oily matters away from it. Do not touch bulb by hand while it is lit or right after being turned off. Burning may result.**
- **Do not leave bulb out of fog lamp reflector for a long time because dust, moisture smoke, etc. May affect the performance of fog lamp. When replacing bulb, be sure to replace it with new one.**

Removal and Installation

AKS00AMC

REMOVAL

1. Remove fender protector front. Refer to EI-22, "FENDER PROTECTOR" in “EI” section.
2. Remove the one side of front bumper where a fog lamp needs to be changed. Refer to EI-14, "FRONT BUMPER" in “EI” section.
3. Remove fog lamp mounting bolt.
4. Pull out fog lamp from vehicle and disconnect connector.



INSTALLATION

- Install fog lamp in the reverse order of removal, observing the tightening torque shown below.

Fog lamp mounting screw

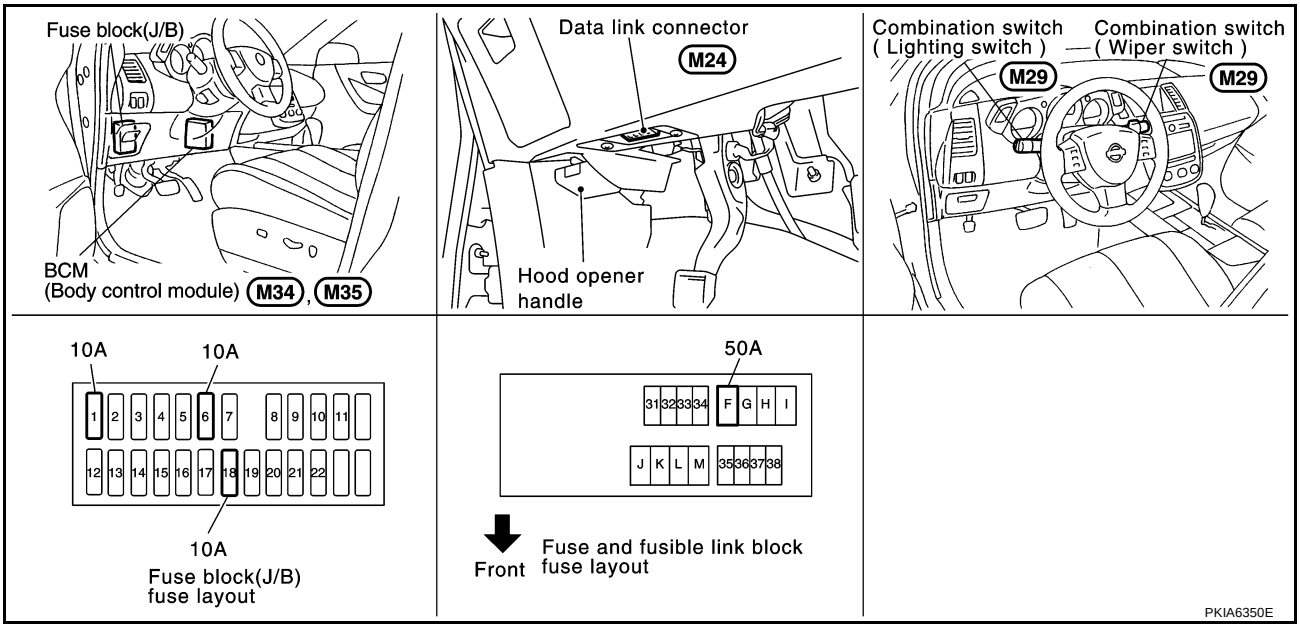
Tightening torque **: 5.5 N·m (0.56 kg-m, 49 in-lb)**

TURN SIGNAL AND HAZARD WARNING LAMPS

PFP:26120

Component Parts and Harness Connector Location

AKS00ALE



System Description

AKS004KB

TURN SIGNAL OPERATION

When the ignition switch is in the 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 20.

Ground is supplied

- to BCM (body control module) terminals 49 and 52
- through grounds M14 and M78
- to unified meter and A/C amp. terminals 29 and 30
- through grounds M14 and M78
- to combination meter terminals 22, 23 and 24
- through grounds M14 and M78.

LH Turn

When the turn signal switch (combination switch) is moved to the left position, the BCM (body control module) receives input signal requesting the left turn signals to flash. The BCM then supplies power

- through BCM (body control module) terminal 45
- to front combination lamp LH terminal 2
- to rear combination lamp LH terminal 3.

Ground is supplied to the front combination lamp LH terminal 8 through grounds E13, E26 and E28.
Ground is supplied to the rear combination lamp LH terminal 4 through grounds B7 and B20.
The BCM also supplies input to unified meter and A/C amp. terminals 1 and 11 across the CAN communication lines.
The unified meter and A/C amp. which received the turn indicator signal makes a left turn signal indicator turn on in combination meter.
With power and input supplied, the BCM controls the flashing of the LH turn signal lamps.

RH Turn

When the turn signal switch (combination switch) is moved to the right position, the BCM (body control module) receives input signal requesting the right turn signals to flash. The BCM then supplies power

- through BCM (body control module) terminal 46
- to front combination lamp RH terminal 2
- to rear combination lamp RH terminal 3.

Ground is supplied to the front combination lamp RH terminal 8 through grounds E13, E26 and E28.
Ground is supplied to the rear combination lamp RH terminal 4 through grounds B7 and B20.
The BCM also supplies input to unified meter and A/C amp. terminals 1 and 11 across the CAN communication lines.
The unified meter and A/C amp. which received the turn indicator signal makes a right turn signal indicator turn on in combination meter.
With power and input supplied, the BCM controls the flashing of the RH turn signal lamps.

HAZARD LAMP OPERATION

Power is supplied at all times

- through 50A fusible link [letter F, located in fuse and fusible link block]
- to BCM (body control module) terminal 55
- through 10A fuse [No. 18, located in fuse block (J/B)]
- to BCM (body control module) 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. 21, located in fuse block (J/B)]
- to combination meter terminal 21.

Ground is supplied

- to BCM terminals 49 and 52
- through grounds M14 and M78
- to unified meter and A/C amp. terminals 29 and 30
- through grounds M14 and M78
- to combination meter terminals 22, 23 and 24
- through grounds M14 and M78.

When the hazard switch is depressed, ground is supplied

- to BCM terminal 29
- through combination meter terminal 9
- to combination meter terminals 22, 23 and 24
- through grounds M14 and M78.

The BCM then supplies power

- through BCM terminal 45
- to front combination lamp LH terminal 2
- to rear combination lamp LH terminal 3
- through BCM terminal 46
- to front combination lamp RH terminal 2
- to rear combination lamp RH terminal 3.

Ground is supplied

- to the front combination lamp LH terminal 8 through grounds E13, E26 and E28
- to the front combination lamp RH terminal 8 through grounds E13, E26 and E28
- to the rear combination lamp LH terminal 4 through grounds B7 and B20
- to the rear combination lamp RH terminal 4 through grounds B7 and B20.

The BCM also supplies input to unified meter and A/C amp. terminals 1 and 11 across the CAN communication lines.

The unified meter and A/C amp. which received the turn indicator signal makes a left and right turn signal indicator turn on in combination meter.
With power and input supplied, the BCM controls the flashing of the hazard warning lamps.

REMOTE CONTROL ENTRY SYSTEM OPERATION

Power is supplied at all times

- through 50A fusible link [letter F, located in fuse and fusible link block]
- to BCM (body control module) terminal 55
- through 10A fuse [No. 18, located in fuse block (J/B)]
- to BCM (body control module) 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. 21, located in fuse block (J/B)]
- to combination meter terminal 21.

Ground is supplied

- to BCM (body control module) terminals 49 and 52
- through grounds M14 and M78
- to unified meter and A/C amp. terminals 29 and 30
- through grounds M14 and M78
- to combination meter terminals 22, 23 and 24
- through grounds M14 and M78.

When the remote control entry system is triggered by input from the key fob, the BCM supplies power

- through BCM terminal 45
- to front combination lamp LH terminal 2
- to rear combination lamp LH terminal 3
- through BCM terminal 46
- to front combination lamp RH terminal 2
- to rear combination lamp RH terminal 3.

Ground is supplied

- to the front combination lamp LH terminal 8 through grounds E13, E26 and E28
- to the front combination lamp RH terminal 8 through grounds E13, E26 and E28
- to the rear combination lamp LH terminal 4 through grounds B7 and B20
- to the rear combination lamp RH terminal 4 through grounds B7 and B20.

The BCM also supplies input to unified meter and A/C amp. terminals 1 and 11 across the CAN communication lines.
The unified meter and A/C amp. which received the turn indicator signal makes a left and right turn signal indicator turn on in combination meter.
With power and input supplied, the BCM controls the flashing of the hazard warning lamps when key fob is used to activate the remote control entry system.

COMBINATION SWITCH READING FUNCTION

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

CAN Communication System Description

AKS004KC

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.

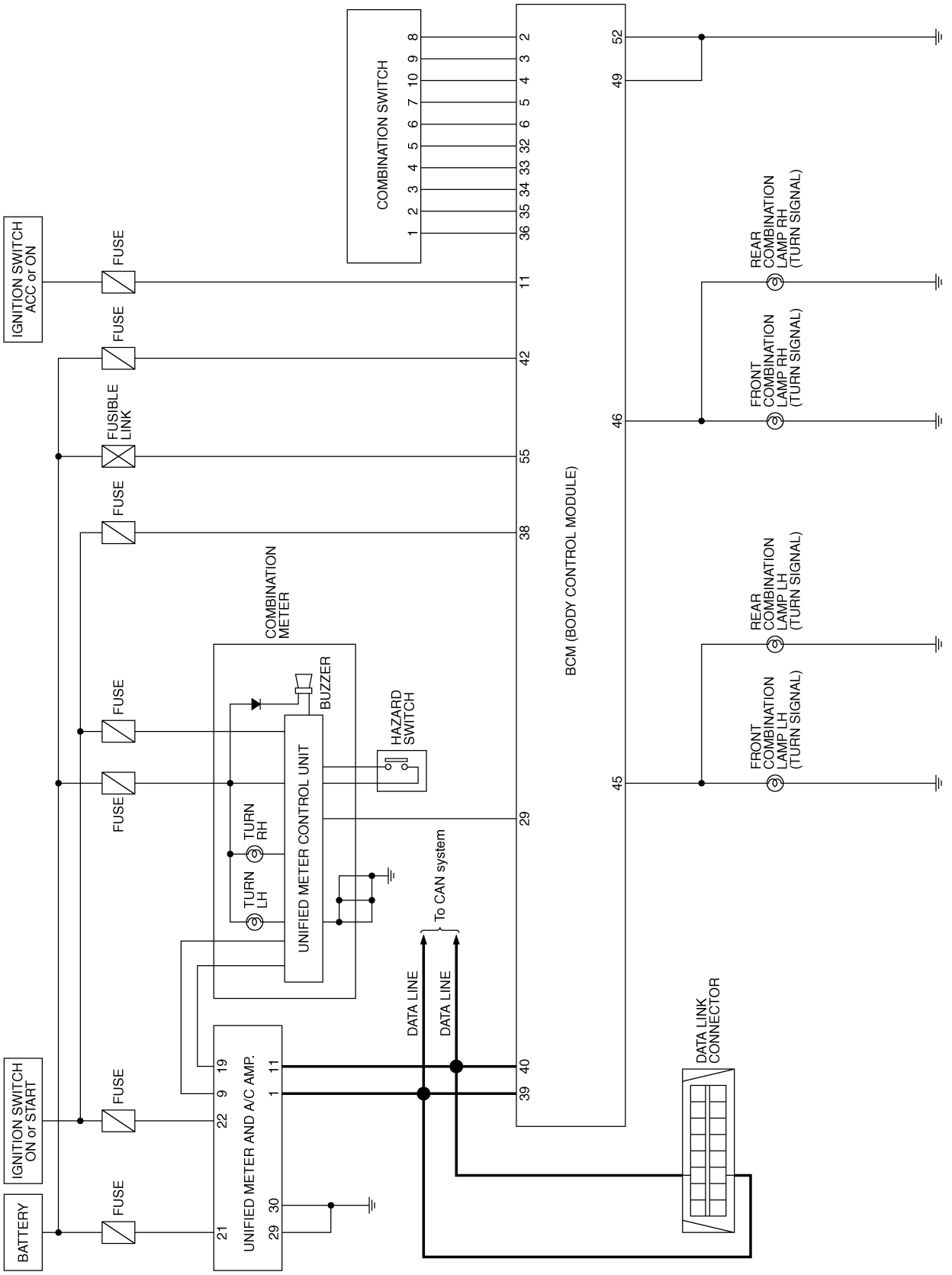
CAN Communication Unit

AKS007QV

Refer to LAN-8, "CAN Communication Unit" .

Schematic

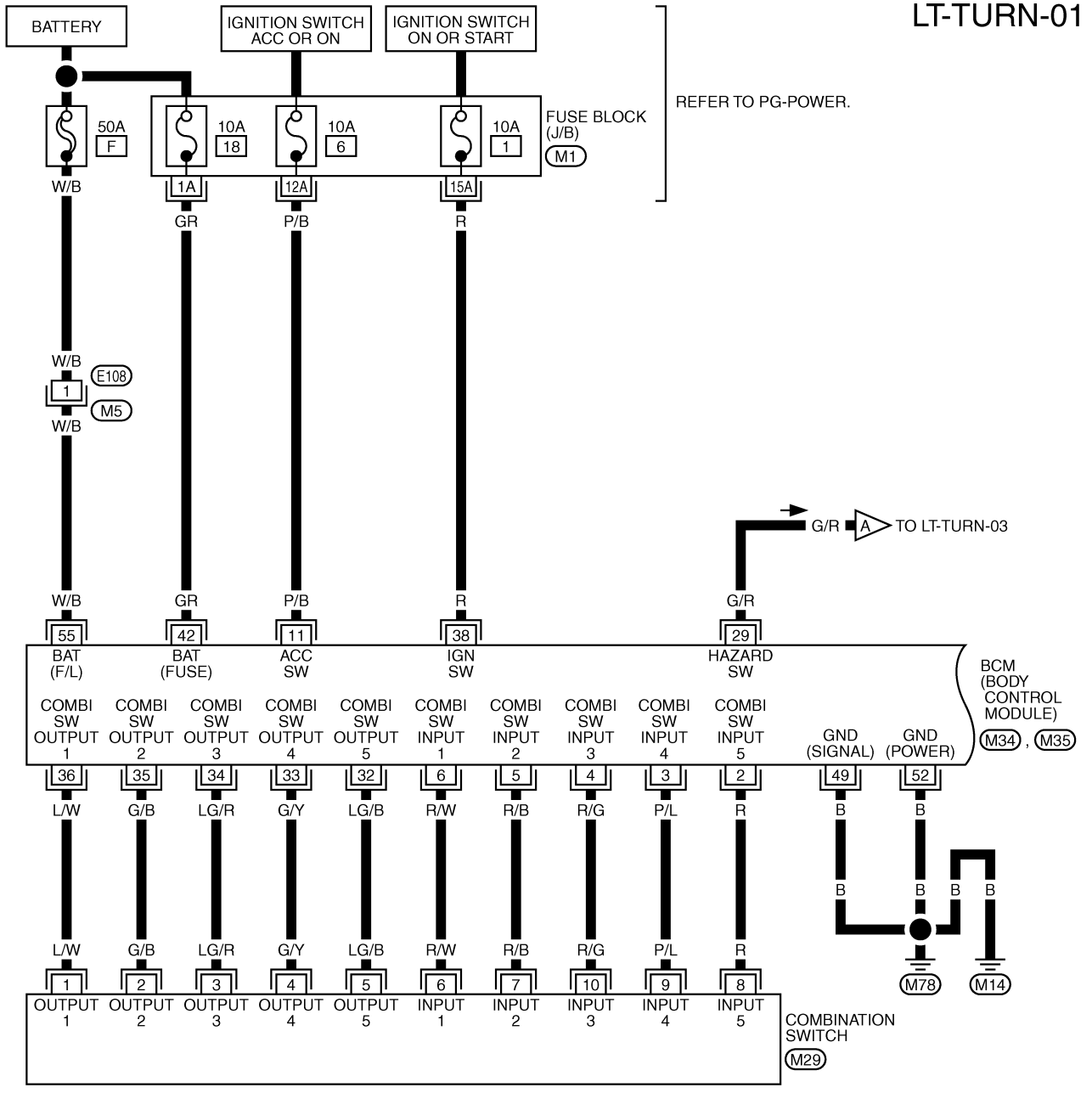
AKS004KE

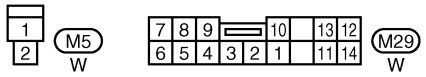


TKWA1691E

Wiring Diagram — TURN —

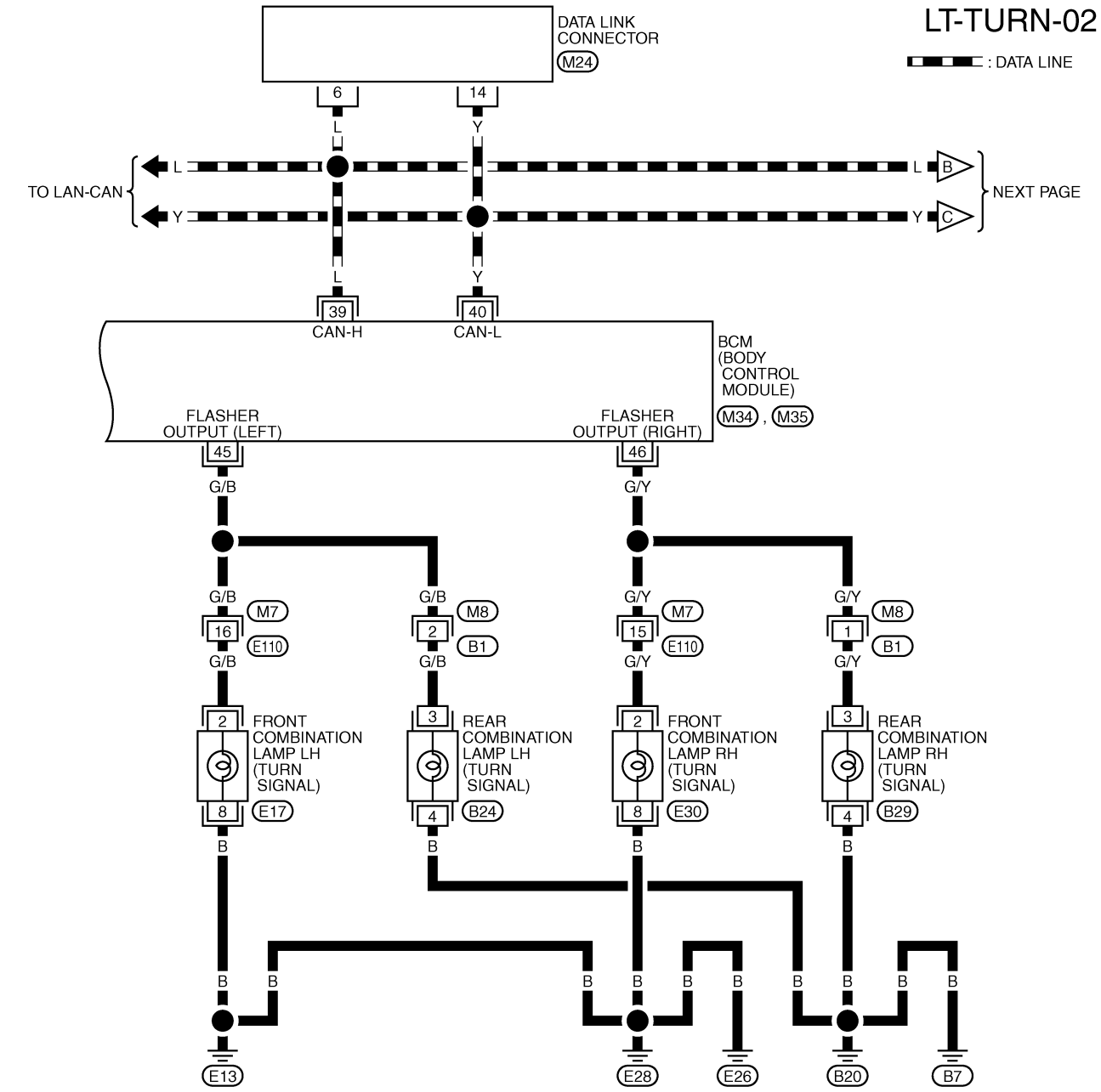
AKS004KF

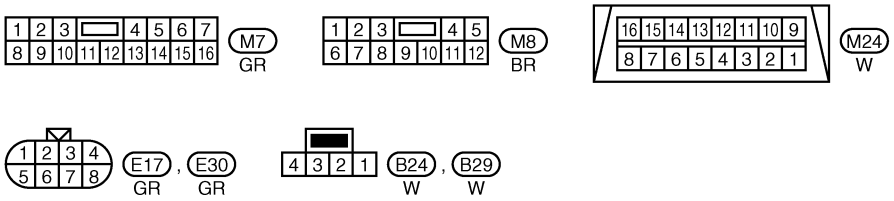




REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B)
M34, M35 -ELECTRICAL UNITS

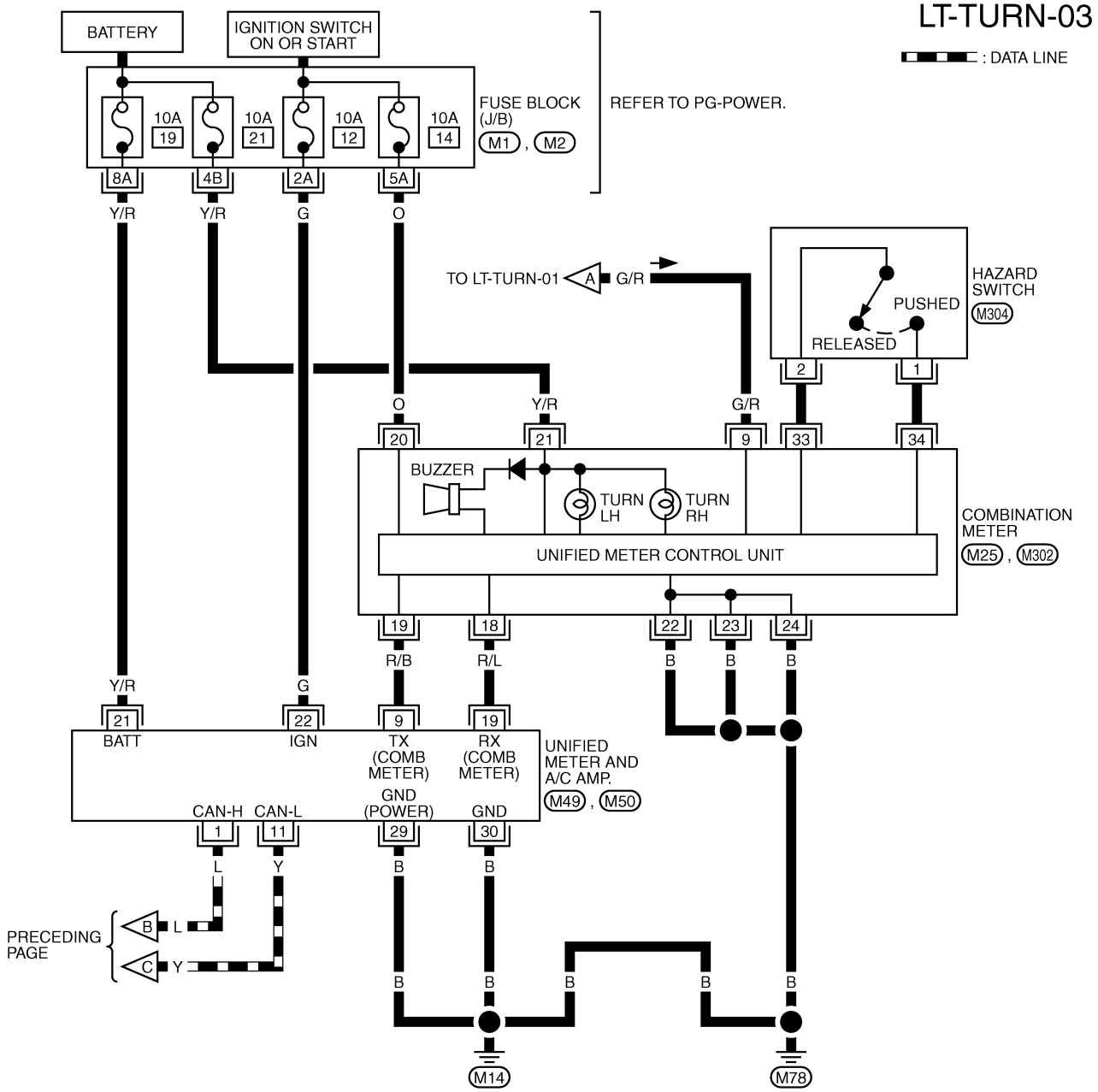
TKWA1692E

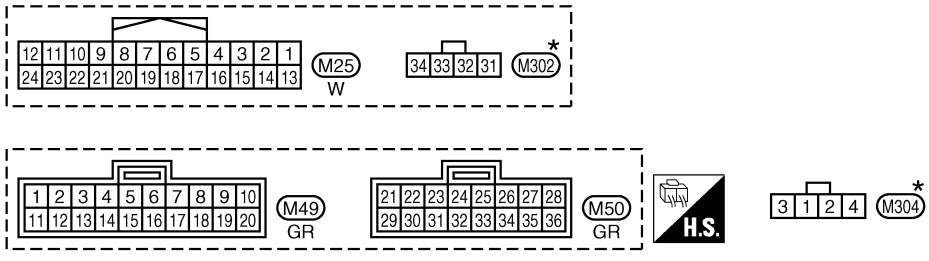




REFER TO THE FOLLOWING.
M34 , M35 -ELECTRICAL UNITS

TKWA1693E





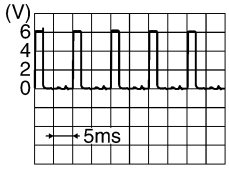
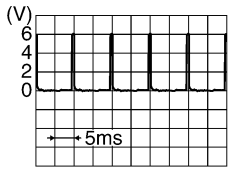
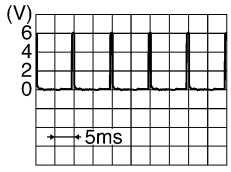
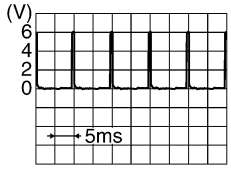
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

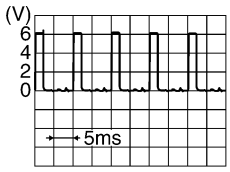
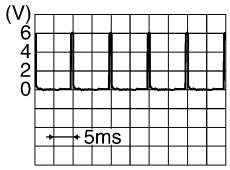
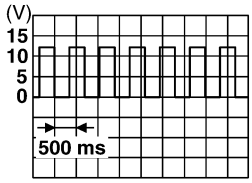
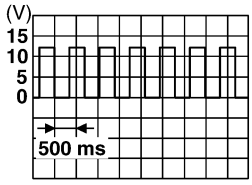
REFER TO THE FOLLOWING.
M1 , M2 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWA0768E

Terminals and Reference Value for BCM

AKS00ALF

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
2	R	Combination switch input 5	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5291E
3	P/L	Combination switch input 4	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5292E
4	R/G	Combination switch input 3	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5291E
5	R/B	Combination switch input 2	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5292E
6	R/W	Combination switch input 1				
11	P/B	Ignition switch (ACC)	ACC	—		Battery voltage
29	G/R	Hazard switch signal	OFF	Hazard switch	ON	Approx. 0V
					OFF	Approx. 5V
32	LG/B	Combination switch output 5	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5291E
33	G/Y	Combination switch output 4	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5292E

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
34	LG/R	Combination switch output 3	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5291E
35	G/B	Combination switch output 2	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5292E
36	L/W	Combination switch output 1				
38	R	Ignition switch (ON)	ON	—		Battery voltage
39	L	CAN–H	—	—		—
40	Y	CAN–L	—	—		—
42	GR	Battery power supply	OFF	—		Battery voltage
45	G/B	Turn signal (left)	ON	Combination switch	Turn left ON	 SKIA3009J
46	G/Y	Turn signal (right)	ON	Combination switch	Turn right ON	 SKIA3009J
49	B	Ground	ON	—		Approx. 0V
52	B	Ground	ON	—		Approx. 0V
55	W/B	Battery power supply	OFF	—		Battery voltage

How to Proceed With Trouble Diagnosis

AKS00ALG

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-119, "System Description" .
3. Perform preliminary check. Refer to LT-128, "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

AKS00ALH

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

- Check for blown fuses.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
		18
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
Unified meter and A/C amp.	Battery	19
	Ignition switch ON or START position	12
Combination meter	Battery	21
	Ignition switch ON or START position	14

Refer to LT-123, "Wiring Diagram — TURN —" .

OK or NG

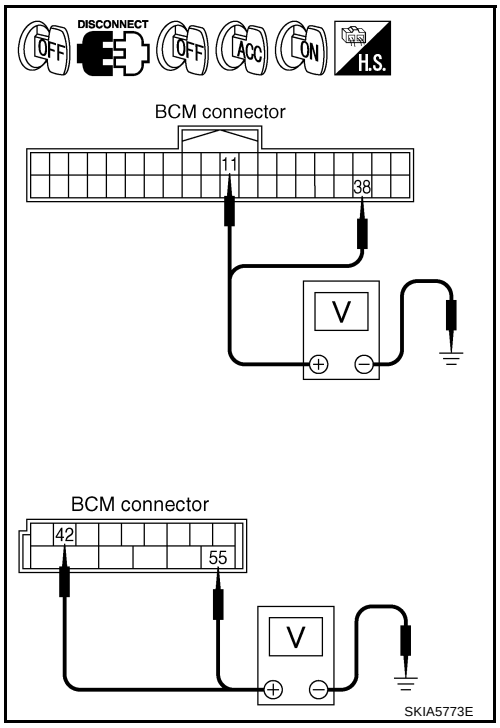
OK >> GO TO 2.

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

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

Terminals			Ignition switch position		
(+)		(-)	OFF	ACC	ON
Connector	Terminal (Wire color)				
M34	11 (P/B)	Ground	0V	Battery voltage	Battery voltage
	38 (R)		0V	0V	Battery voltage
M35	42 (GR)		Battery voltage	Battery voltage	Battery voltage
	55 (W/B)		Battery voltage	Battery voltage	Battery voltage



OK or NG

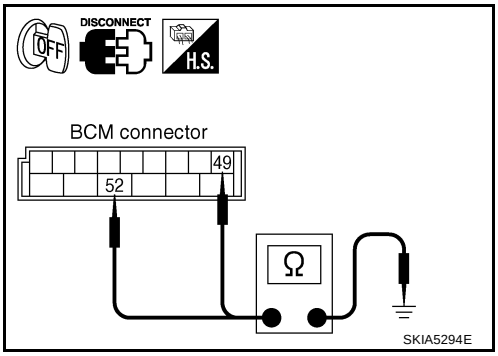
OK >> GO TO 3.

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

3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminals			Continuity
Connector	Terminal (Wire color)		
M35	49 (B)	Ground	Yes
	52 (B)		



OK or NG

OK >> INSPECTION END
NG >> Check ground circuit harness.

CONSULT-II Functions

AKS00ALI

CONSULT-II has a display function for data monitor, and active test for each part by combining data receiving and sending via the communication line from BCM.

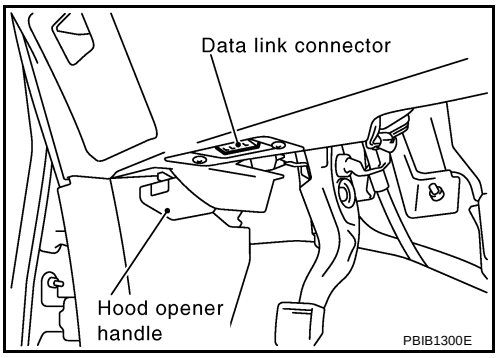
BCM diagnosis part	Check item, diagnosis mode	Description
FLASHER	Data monitor	Displays BCM input data in real time.
	Active test	Operation of electrical loads can be checked by sending driving signal to them.

CONSULT-II BASIC OPERATION

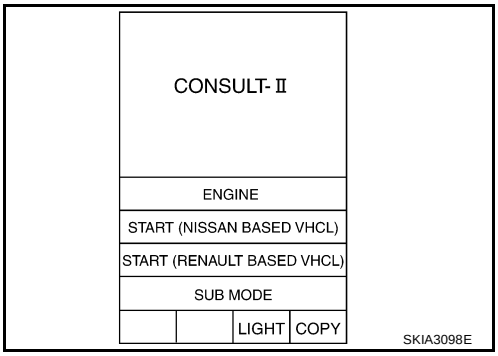
CAUTION:

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.

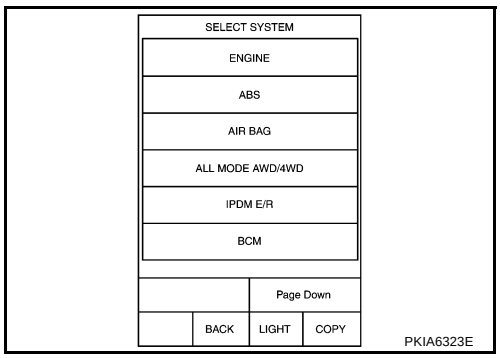
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn ignition switch ON.



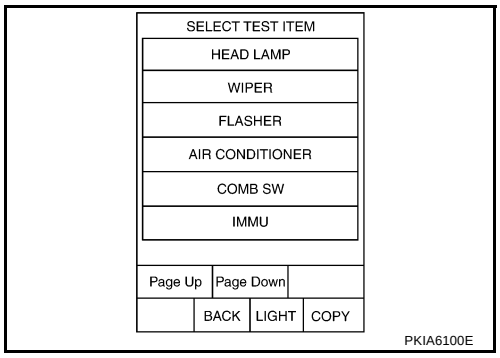
2. Touch “START (NISSAN BASED VHCL)”.



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



4. Touch “FLASHER” on “SELECT TEST ITEM” screen.



DATA MONITOR

Operation Procedure

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

All signals	Monitors all the signals.
Selection from menu	Selects and monitors the individual signal.

4. Touch “START”.
5. When “SELECTION FROM MENU” is selected, touch items to be monitored. When “ALL SIGNALS” is selected, all the items will be monitored.
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.
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”	—

NOTE:
This item is displayed, but cannot monitor it.

ACTIVE TEST

Operation Procedure

1. Touch “FLASHER” 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
FLASHER	With a certain operation (OFF, RH, LH), turn signal lamp can be operated.

Turn Signal Lamp Does Not Operate

AKS00ALJ

1. CHECK BULB

Check bulb of each turn signal lamp.

OK or NG

OK >> GO TO 2.
NG >> Replace turn signal lamp bulb.

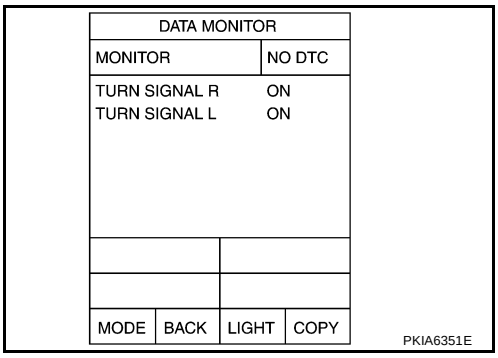
2. CHECK COMBINATION SWITCH INPUT SIGNAL

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 TURN RH position : TURN SIGNAL R ON

When lighting switch is TURN LH position : TURN SIGNAL L ON



Without CONSULT-II

Refer to LT-140, "Combination Switch Inspection" .

OK or NG

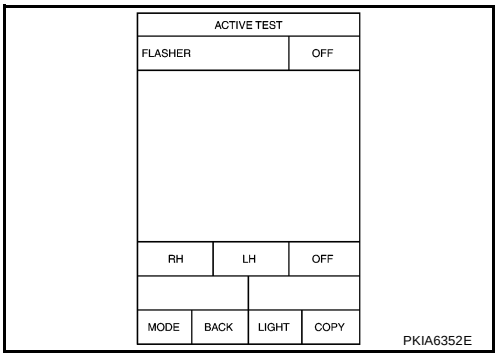
OK >> GO TO 3.
NG >> Check lighting switch. Refer to LT-140, "Combination Switch Inspection" .

3. ACTIVE TEST

With CONSULT-II

1. Select “FLASHER” during active test. Refer to LT-130, "ACTIVE TEST" .
2. Make sure “FLASHER RIGHT” and “FLASHER LEFT” operates.

Turn signal lamp should operate.



Without CONSULT-II

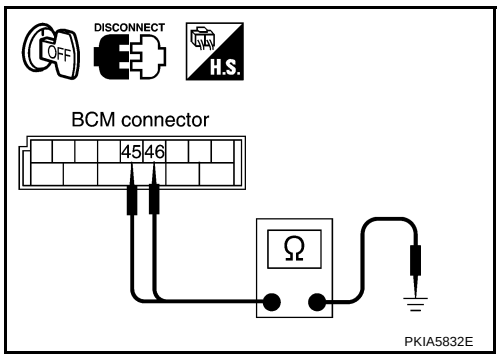
GO TO 4.

OK or NG

OK >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .
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 harness connector of BCM and ground.



Terminals				Continuity
BCM			Ground	
Connector		Terminal (Wire color)		
RH	M35	46 (G/Y)		No
LH		45 (G/B)		

OK or NG

OK >> Replace BCM if turn signal lamps does not work after setting the connector again. Refer to BCS-14, "Removal and Installation of BCM" .

NG >> Repair harness or connector.

Hazard Warning Lamp Does Not Operate But Turn Signal Lamp Operate

AKS00ALK

1. CHECK BULB

Check bulb of each turn signal lamp.

OK or NG

OK >> GO TO 2.

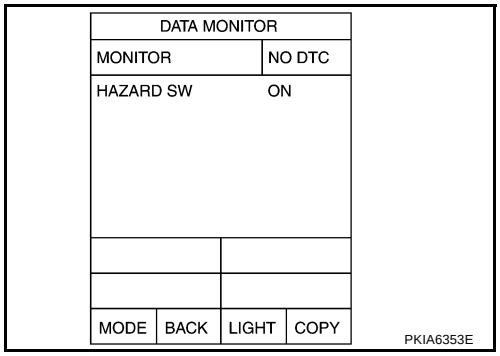
NG >> Replace bulb.

2. CHECK HAZARD SWITCH INPUT SIGNAL

With CONSULT-II

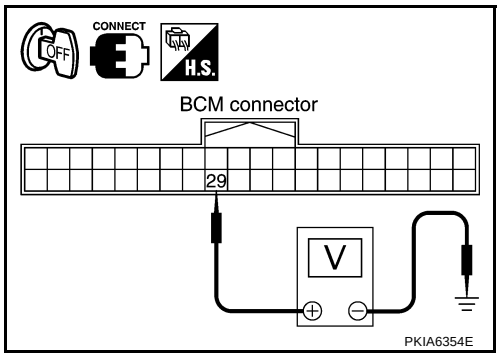
Select “BCM” on CONSULT-II. With “FLASHER” data monitor to make sure “HAZARD SW” turns ON-OFF linked with operation of hazard switch.

When hazard switch is ON : HAZARD SW ON position



Without CONSULT-II

Check voltage between BCM harness connector M34 terminal 29 (G/R) and ground.



Terminals			Condition	Voltage
(+)		(-)		
Connector	Terminal (Wire color)			
M34	29 (G/R)	Ground	Hazard switch is ON	Approx. 0V
			Hazard switch is OFF	Approx. 5V

OK or NG

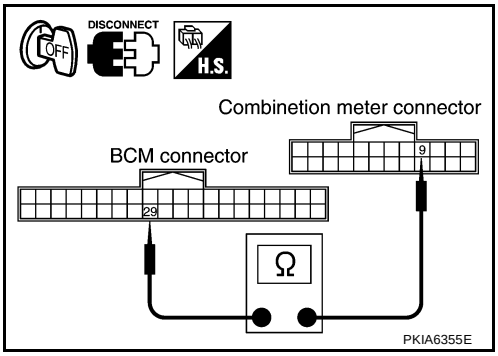
OK >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .

NG >> GO TO 3.

3. CHECK HAZARD SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and combination meter connector.
3. Check continuity BCM harness connector M1 terminal 29 (G/R) and combination meter harness connector M25 terminal 9 (G/R).

29 (G/R) – 9 (G/R) : Continuity should exist.



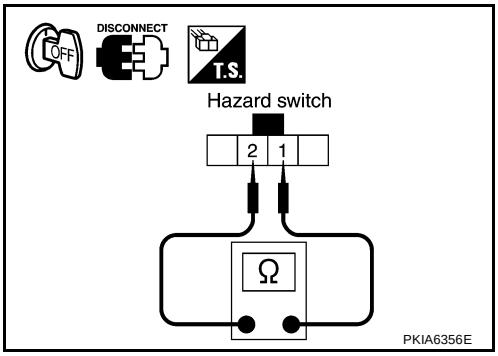
OK or NG

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

4. CHECK HAZARD SWITCH

1. Remove hazard switch from combination meter lid. Refer to LT-136, "Removal and Installation" .
2. Check continuity hazard switch.

Terminal		Condition	Continuity
Hazard switch			
1	2	Hazard switch is ON.	Yes
		Hazard switch is OFF.	No



OK or NG

OK >> GO TO 6.
NG >> Replace hazard switch.

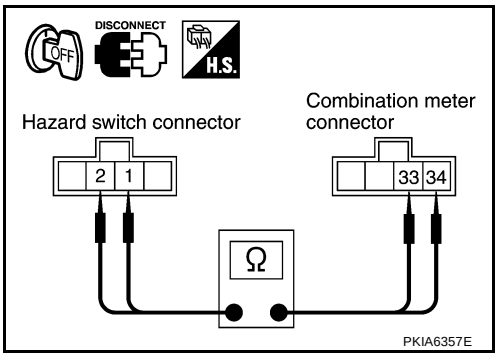
5. CHECK HAZARD SWITCH CIRCUIT

1. Check continuity between hazard switch harness connector M304 terminal 1 and combination meter harness connector M302 terminal 34.

1 - 34 : Continuity should exist.

2. Check continuity between hazard switch harness connector M304 terminal 2 and combination meter harness connector M302 terminal 33.

2 - 33 : Continuity should exist.



OK or NG

OK >> Replace combination meter.
NG >> Repair or replace harness.

Turn Signal Indicator Lamp Does Not Operate

AKS00ALL

1. CHECK BULB

Check bulb of turn signal indicator lamp in combination meter.

OK or NG

OK >> Replace combination meter.
NG >> Replace indicator bulb.

Bulb Replacement (Front Turn Signal Lamp)

AKS00ALM

Refer to LT-34, "Bulb Replacement" in “HEADLAMP” (XENON TYPE).
Refer to LT-64, "Bulb Replacement" in “HEADLAMP” (CONVENTIONAL TYPE).

Bulb Replacement (Rear Turn Signal Lamp)

AKS00ALN

Refer to LT-165, "Bulb Replacement" in “REAR COMBINATION LAMP”.

Removal and Installation of Front Turn Signal Lamp

AKS00ALO

Refer to LT-35, "Removal and Installation" in “HEADLAMP” (XENON TYPE).
Refer to LT-65, "Removal and Installation" in “HEADLAMP” (CONVENTIONAL TYPE).

Removal and Installation of Rear Turn Signal Lamp

AKS00ALP

Refer to LT-165, "Removal and Installation" in “REAR COMBINATION LAMP”.

LIGHTING AND TURN SIGNAL SWITCH

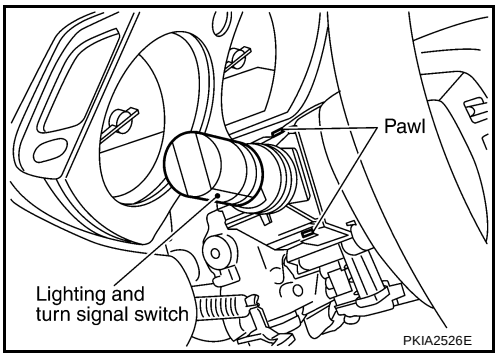
PFP:25540

Removal and Installation

AKS005LK

REMOVAL

1. Remove instrument driver lower panel and steering column cover. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" in "IP" section.
2. 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

Install in the reverse order of removal.

HAZARD SWITCH

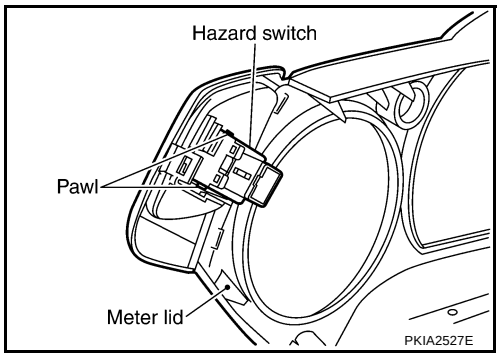
PFP:25290

Removal and Installation

AKS005LL

REMOVAL

1. Remove meter lid. Refer to DI-29, "Disassembly and Assembly of Combination Meter" in “DI” section.
2. Disconnect hazard switch connector.
3. Press pawl on reverse side and remove the hazard switch.



INSTALLATION

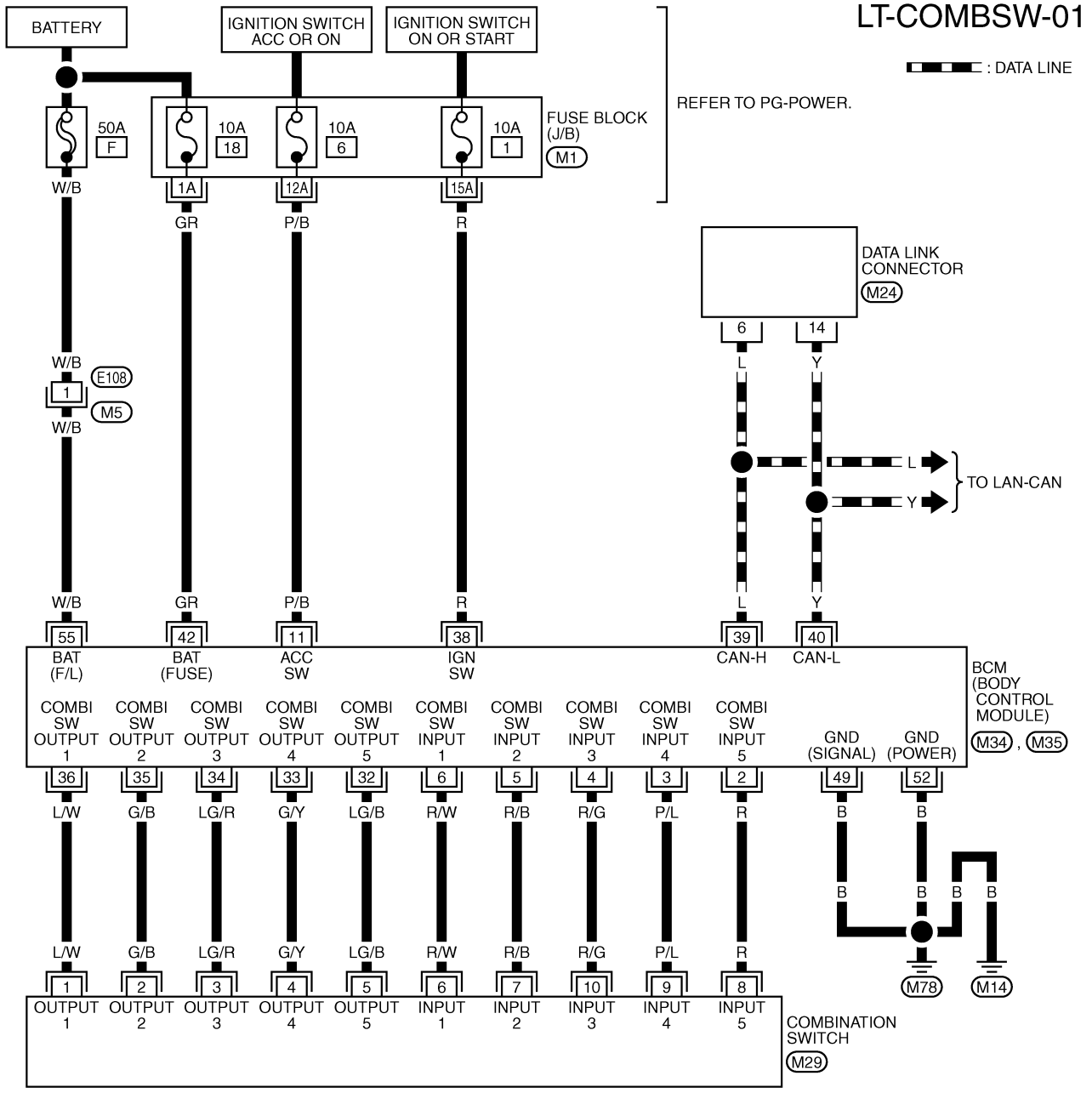
Install in the reverse order of removal.

COMBINATION SWITCH

PFP:25567

Wiring Diagram — COMBSW —

AKS00A3X



TKWA1694E

Combination Switch Reading Function

AKS00A3Y

For details, refer to BCS-3, "COMBINATION SWITCH READING FUNCTION" in "BCS" section.

CONSULT-II Function

AKS00A3Z

CONSULT-II performs the following functions with combination of data receiving, command and transmission using the CAN communication line from the BCM.

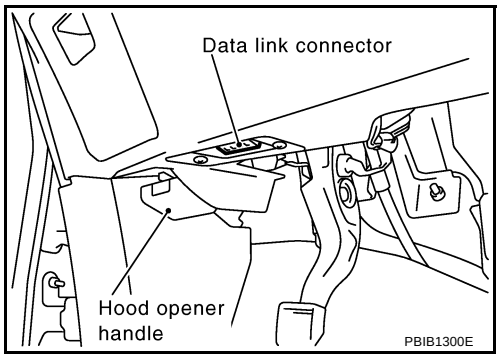
BCM diagnosis part	Check item, diagnosis mode	Description
Combination switch	Data monitor	Displays BCM input data in real time.

CONSULT-II BASIC OPERATION

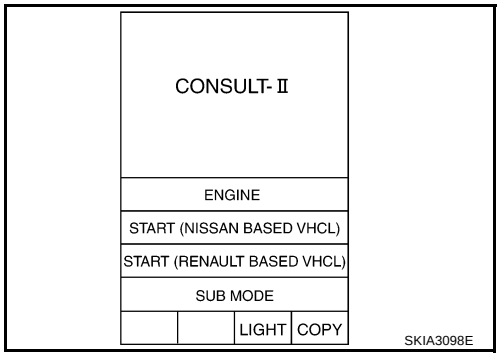
CAUTION:

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.

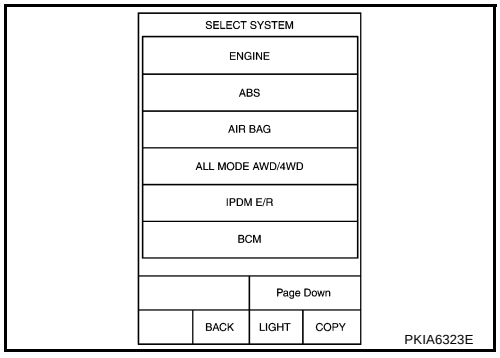
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn ignition switch ON.



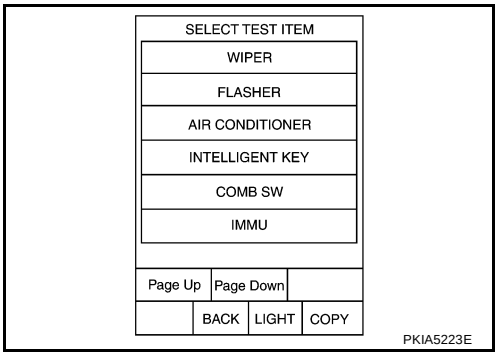
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “BCM” on “SELECT SYSTEM” screen.
If “BCM” is not indicated, 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 “DATA MONITOR” screen.

ALL SIGNALS	Monitors all the signals.
SELECTION FROM MENU	Selects and monitors individual signal.

4. Touch “START”.
5. When “SELECTION FROM MENU” is selected, touch items to be monitored. When “ALL SIGNALS” is selected, all the signals will be monitored.
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 name “OPERATION OR UNIT”		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 “Headlamp switch 1 (ON)/Other (OFF)” status, determined 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.
LIGT SW 1 ST	“ON/OFF”	Displays status (lighting switch 1st 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.
AUTO LIGHT SW	“ON/OFF”	Displays “Auto light switch (ON)/Other (OFF)” status, determined from lighting switch signal.
FR FOG SW	“ON/OFF”	Displays “Front fog lamp switch (ON)/Other (OFF)” status, determined from lighting switch signal.
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.

Combination Switch Inspection

AKS00A40

1. SYSTEM CHECK

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

System 1	System 2	System 3	System 4	System 5
—	FR WASHER	FR WIPER LO	TURN LH	TURN RH
FR WIPER HI	—	FR WIPER INT	PASSING	HEAD LAMP1
INT VOLUME 1	RR WASHER	—	HEAD LAMP2	HI BEAM
RR WIPER INT	INT VOLUME 3	AUTO LIGHT	—	LIGHT SW 1ST
INT VOLUME 2	RR WIPER ON	—	FR FOG	—

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

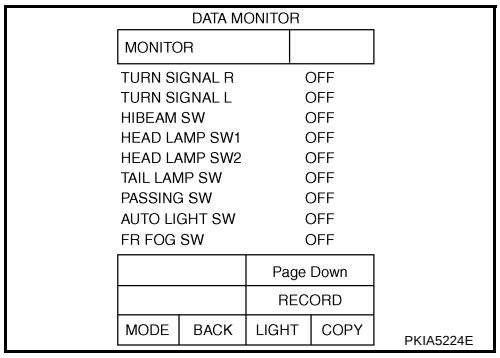
2. SYSTEM CHECK

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”.
3. Select “START”, and confirm that other switches in malfunctioning system operate normally.
   Example: When auto light switch is malfunctioning, confirm that “FRONT WIPER LOW” and “FRONT WIPER INT” in System 3, to which the auto light switch belongs, turn ON-OFF normally.



Without CONSULT-II

Operating combination switch, and confirm that other switches in malfunctioning system operate normally.
Example: When auto light switch is malfunctioning, confirm that FRONT WIPER LOW and FRONT WIPER INT in System 3, to which the auto light switch belongs, operate normally.

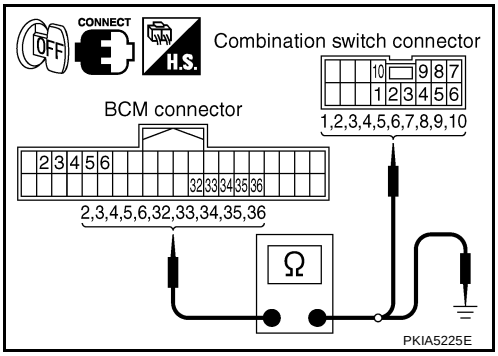
Check results

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.

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.

Suspect system	Terminals					Continuity
	BCM			Combination switch		
	Connector	Terminal (Wire color)		Connector	Terminal (Wire color)	
1	M34	Input 1	6 (R/W)	M29	6 (R/W)	Yes
		Output 1	36 (L/W)		1 (L/W)	
2		Input 2	5 (R/B)		7 (R/B)	
		Output 2	35 (G/B)		2 (G/B)	
3		Input 3	4 (R/G)		10 (R/G)	
		Output 3	34 (LG/R)		3 (LG/R)	
4		Input 4	3 (P/L)		9 (P/L)	
		Output 4	33 (G/Y)		4 (G/Y)	
5		Input 5	2 (R)		8 (R)	
		Output 5	32 (LG/B)		5 (LG/B)	



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

Suspect system	Terminals				Continuity
	BCM (+)			(-)	
	Connector	Terminal (Wire color)			
1	M34	Input 1	6 (R/W)	Ground	No
		Output 1	36 (L/W)		
2		Input 2	5 (R/B)		
		Output 2	35 (G/B)		
3		Input 3	4 (R/G)		
		Output 3	34 (LG/R)		
4		Input 4	3 (P/L)		
		Output 4	33 (G/Y)		
5		Input 5	2 (R)		
		Output 5	32 (LG/B)		

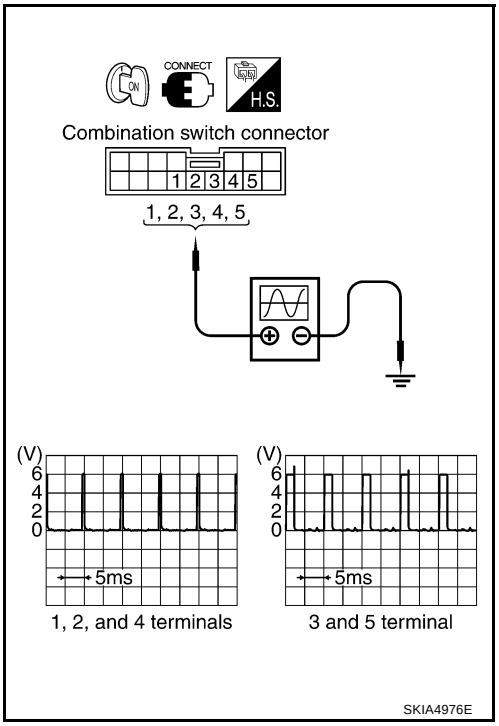
OK or NG

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 into 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.

Suspect system	Terminals		
	Combination switch (+)		(-)
	Connector	Terminal (Wire color)	
1	M17	1 (L/W)	Ground
2		2 (GB)	
3		3 (LG/R)	
4		4 (G/Y)	
5		5 (LG/B)	



OK or NG

OK >> Open circuit in combination switch, GO TO 5.
NG >> Replace BCM.

5. COMBINATION SWITCH INSPECTION

Referring to table below, perform combination switch inspection.

Procedure										
1	2		3	4		5	6		7
Replace lighting switch.	Confirm check results.	OK	INSPECTION END	Confirm check results.	OK	INSPECTION END	Confirm check results.	OK	INSPECTION END
		NG	Replace wiper switch.		NG	Replace switch base.		NG	Confirm symptom again.

>> INSPECTION END

Removal and Installation

AKS00A41

For details, refer to LT-135, "LIGHTING AND TURN SIGNAL SWITCH" .

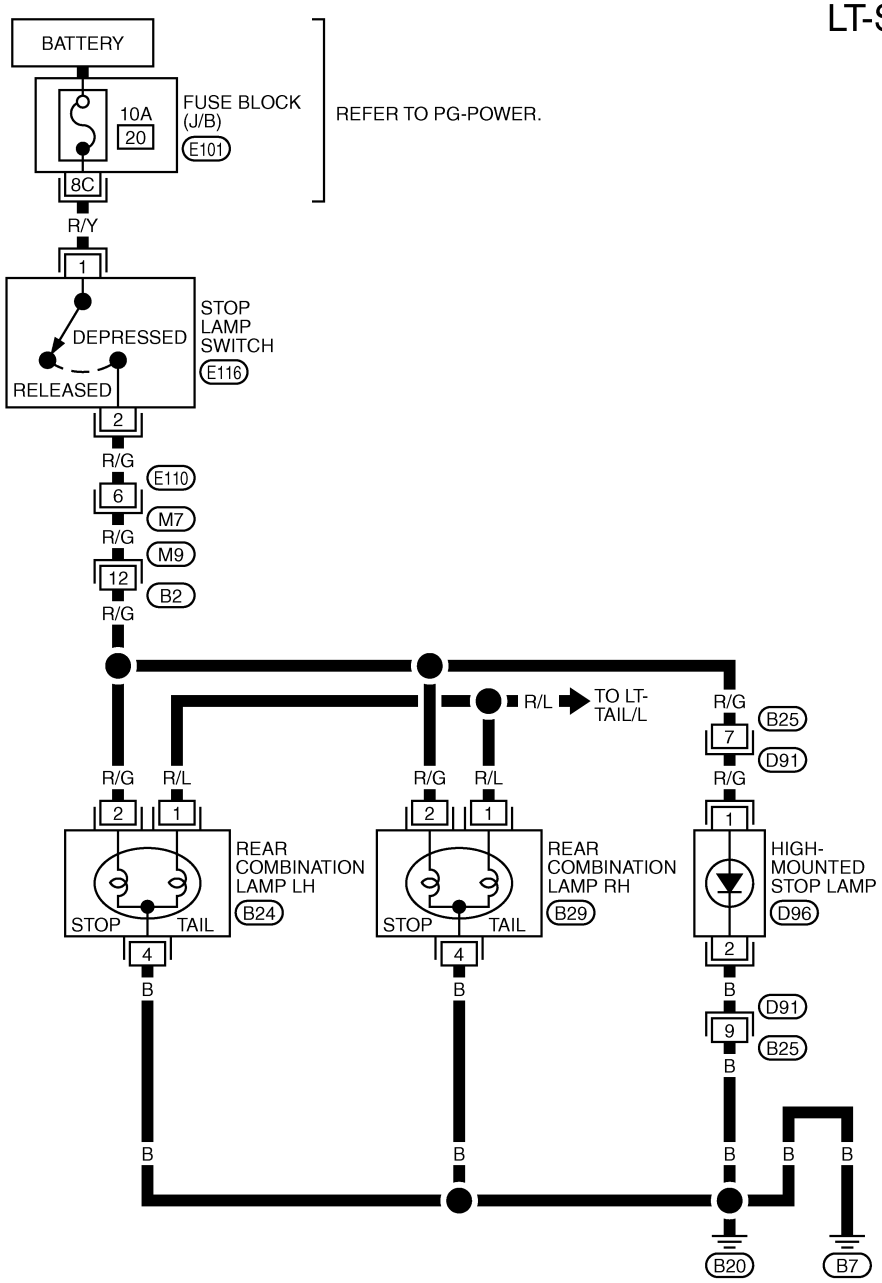
STOP LAMP

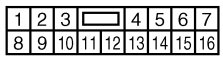
PFP:26550

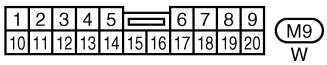
Wiring Diagram — STOP/L —

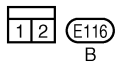
AKS004L1

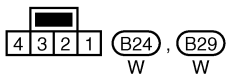
LT-STOP/L-01

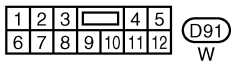


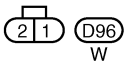












REFER TO THE FOLLOWING.
E101 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWA0769E

High-Mounted Stop Lamp

AKS005LO

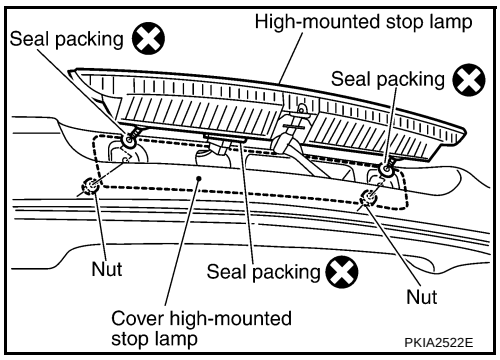
BULB REPLACEMENT, REMOVAL AND INSTALLATION

1. Remove cover high-mounted stop lamp on back door inner panel. Refer to EI-40, "BACK DOOR TRIM" in “EI” section.
2. Disconnect high-mounted stop lamp connector.
3. Remove washer tube from high-mounted stop lamp.
4. Remove nuts and remove high-mounted stop lamp from back door.

High-mounted stop lamp : LED

5. Note the following, and install in the reverse order of removal.
   - Install a new seal packing to the high-mounted stop lamp.

CAUTION:
Seal packing cannot be reused.



Stop Lamp

AKS005LP

BULB REPLACEMENT

Refer to LT-165, "Bulb Replacement" in “REAR COMBINATION LAMP”.

REMOVAL AND INSTALLATION

Refer to LT-165, "Removal and Installation" in “REAR COMBINATION LAMP”.

STEP LAMP

PFP:26420

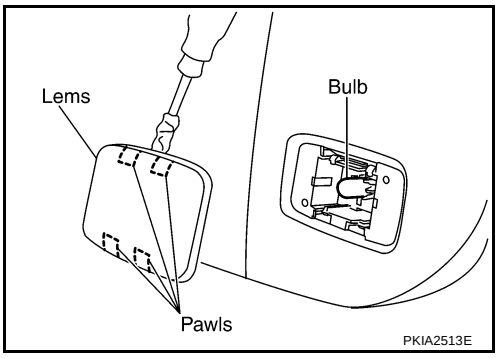
Bulb Replacement

AKS005LQ

1. Disconnect the battery negative cable.
2. Insert a screwdriver in the chink between lens and door trim, and remove the lens.
3. Remove the bulb.

Step lamp : 12V - 2.7W

4. Install in the reverse order of removal.

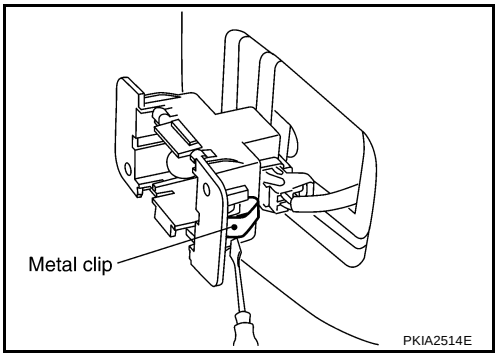


Removal and Installation

AKS005LR

REMOVAL

1. Insert a screwdriver in the chink between lens and door trim, and remove the lens.
2. Using a clip driver or a suitable tool, press and disengage the metal clip fittings of the step lamp.
3. Disconnect the step lamp connector and remove the step lamp.



INSTALLATION

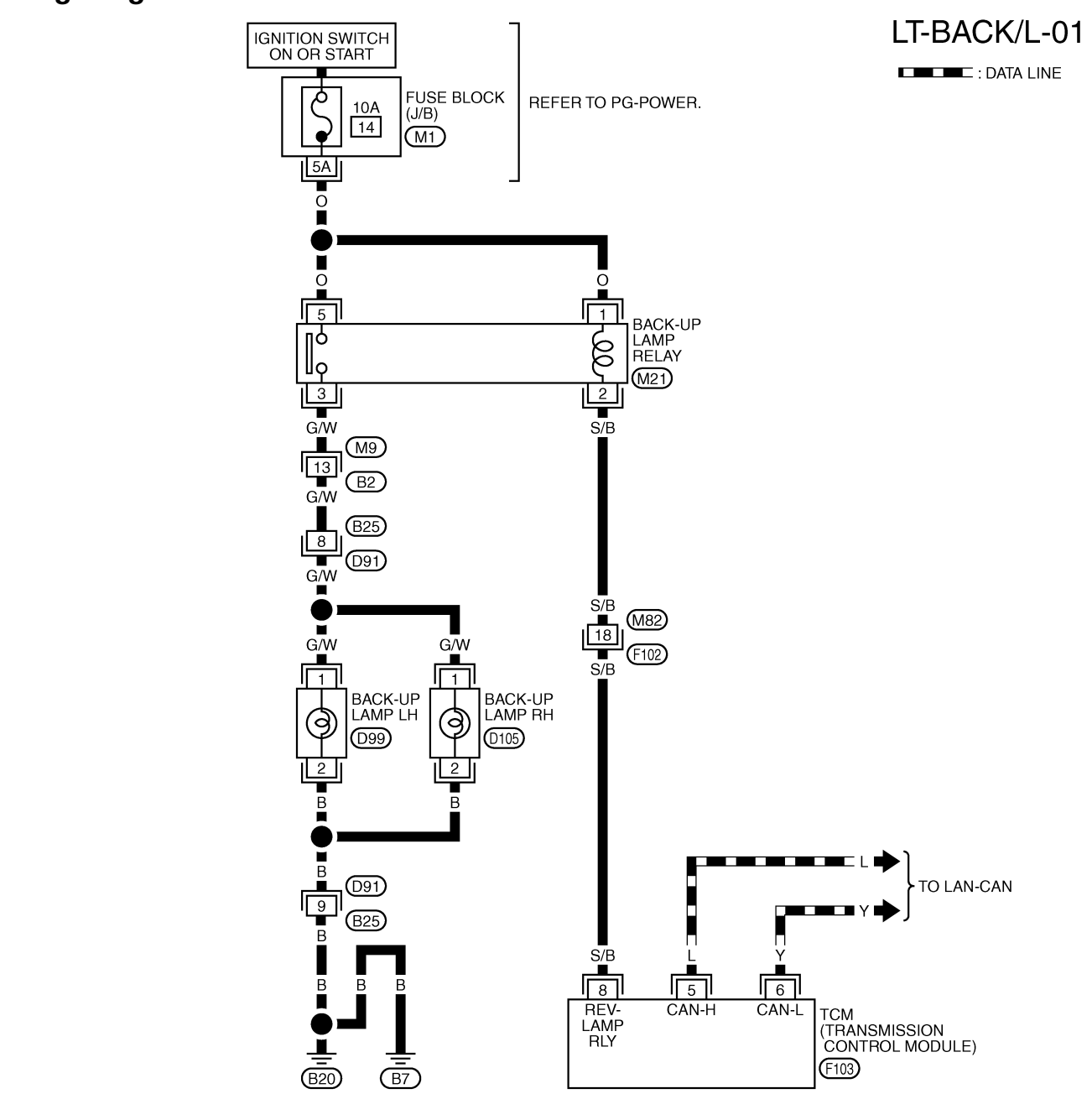
Install in the reverse order of removal.

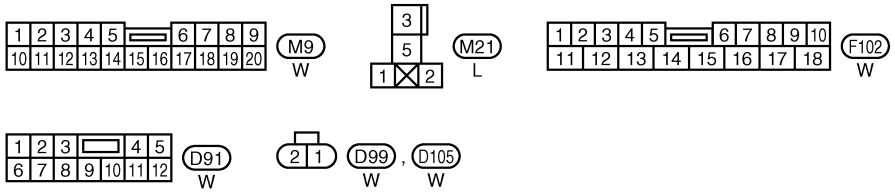
BACK-UP LAMP

PFP:26550

Wiring Diagram — BACK/L —

AKS004L8





REFER TO THE FOLLOWING.

M1 -FUSE BLOCK-JUNCTION BOX (J/B)

F103 -ELECTRICAL UNITS

TKWA0770E

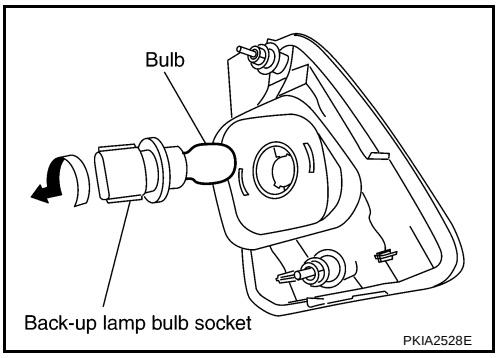
Bulb Replacement

AKS004L9

1. Remove back door finisher. Refer to EI-40, "BACK DOOR TRIM" in “EI” section.
2. Disconnect the back-up lamp connector.
3. Turn bulb socket counterclockwise and unlock it.
4. Remove bulb from its socket.

Back-up lamp : 12V - 16W

5. Install in the reverse order of removal.

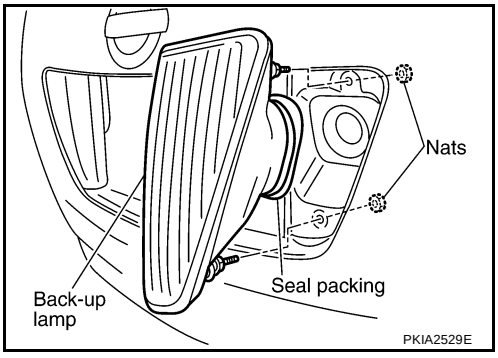


Removal and Installation

AKS004LA

REMOVAL

1. Remove back door finisher. Refer to EI-40, "BACK DOOR TRIM" in “EI” section.
2. Remove the back-up lamp mounting nuts and remove it.
3. Disconnect the back-up lamp connector.



INSTALLATION

Install back up lamp in the reverse order of removal, observing the tightening to torque shown below.

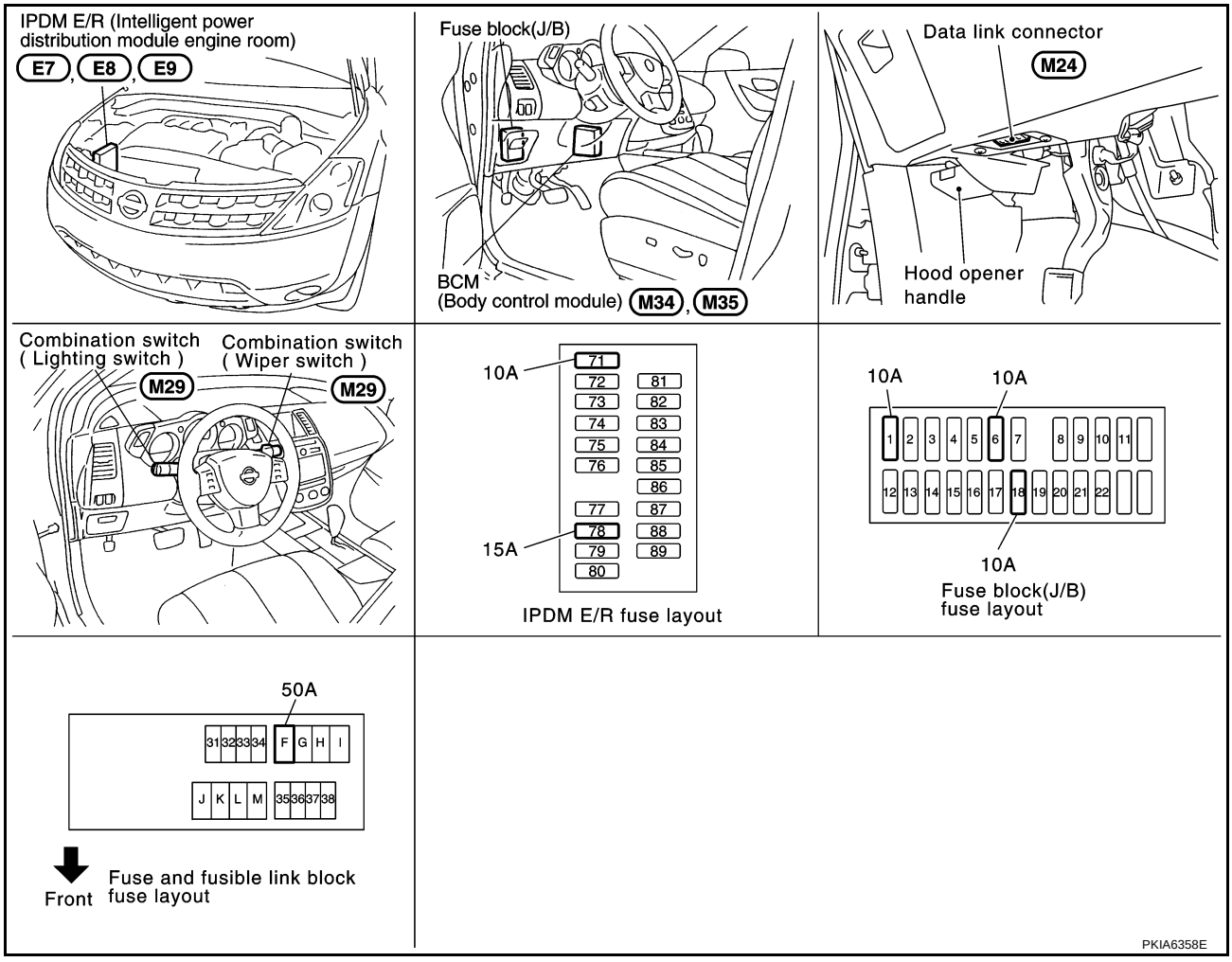
Tightening torque: 5.5 N·m (0.56 kg-m, 49 in-lb)

PARKING, LICENSE PLATE AND TAIL LAMPS

PFP:26550

Component Parts and Harness Connector Location

AKS00ALQ



System Description

AKS004LB

Control of the parking, license plate, and tail lamp operation is dependent upon the position of the 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) of the IPDM E/R (intelligent power distribution module engine room) controls the tail lamp relay coil. This relay, when energized, directs power to the parking, license plate, side marker and tail lamps, which then illuminate.

Power is supplied at all times

- through 10A fuse [No. 71, located in IPDM E/R (intelligent power distribution module engine room)]
- to tail lamp relay [located in IPDM E/R (intelligent power distribution module engine room)]
- through 15A fuse [No. 78 located in IPDM E/R (intelligent power distribution module engine room)]
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)].

Power is also supplied at all times

- through 50A fusible link (letter F, located in fuse and fusible link block)
- to BCM (body control module) terminal 55.

With the ignition switch in the 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.

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

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

Ground is supplied

- to BCM (body control module) terminals 49 and 52
- through grounds M14 and M78
- to IPDM E/R (intelligent power distribution module engine room) terminals 38 and 60
- through grounds E13, E26 and E28.

OPERATION BY LIGHTING SWITCH

With the lighting switch in the 1ST or 2ND position (or if the auto light system is activated), the BCM 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 across the CAN communication lines. The CPU in the IPDM E/R controls the tail lamp relay coil, which when energized, directs power

- through IPDM E/R terminal 22
- to front combination lamp RH terminal 7
- to front combination lamp LH terminal 7
- to rear combination lamp RH terminal 1
- to rear combination lamp LH terminal 1
- to license plate lamp RH terminal 1
- to license plate lamp LH terminal 1.

Ground is supplied at all times

- to front combination lamp RH terminal 5
- through grounds E13, E26 and E28
- to front combination lamp LH terminal 5
- through grounds E13, E26 and E28
- to rear combination lamp RH terminal 4
- through grounds B7 and B20
- to rear combination lamp LH terminal 4
- through grounds B7 and B20
- to license plate lamp RH terminal 2
- through grounds B7 and B20
- to license plate lamp LH terminal 2
- through grounds B7 and B20.

With power and ground supplied, the 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 1ST (or 2ND) position, and the ignition switch is turned from ON or ACC to OFF, the battery saver control feature is activated.
Under this condition, the parking, license plate, side marker and tail lamps remain illuminated for 5 minutes, then the parking, license plate, side marker and tail lamps are turned off.
Exterior lamp battery saver control mode can be changed by the function setting of CONSULT-II.

CAN Communication System Description

AKS004LC

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.

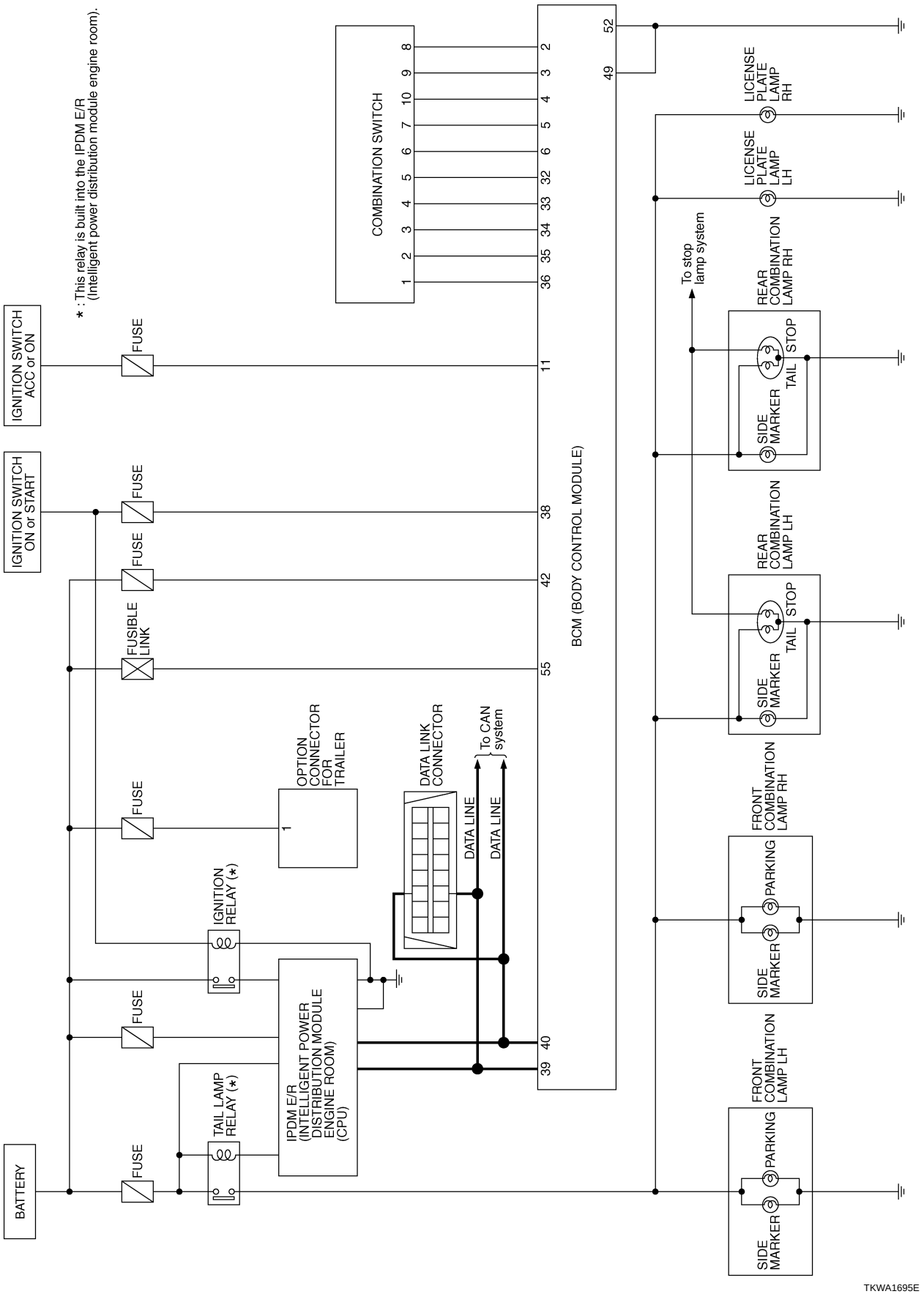
CAN Communication Unit

AKS007QX

Refer to LAN-8, "CAN Communication Unit" .

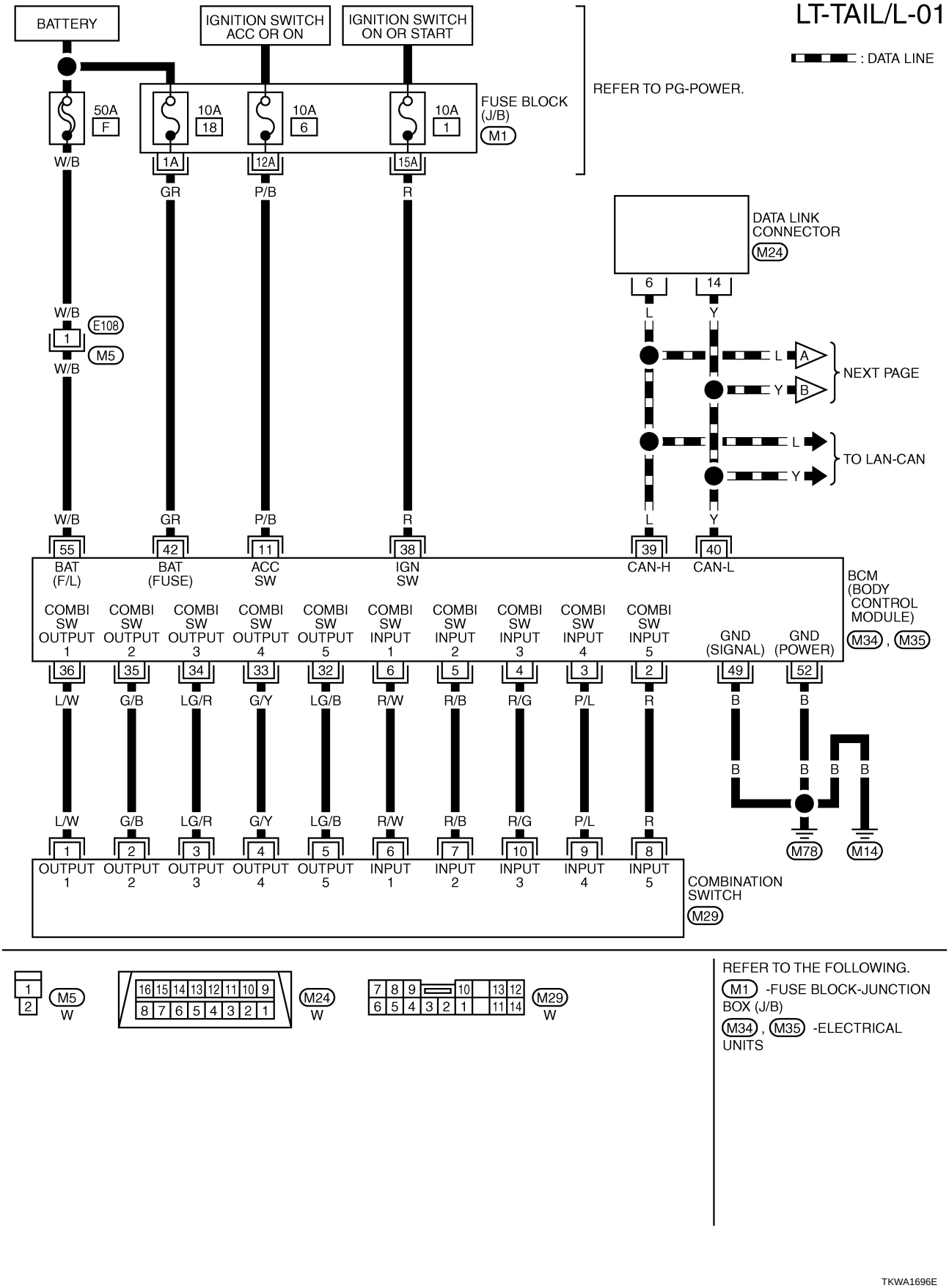
Schematic

AKS004LE

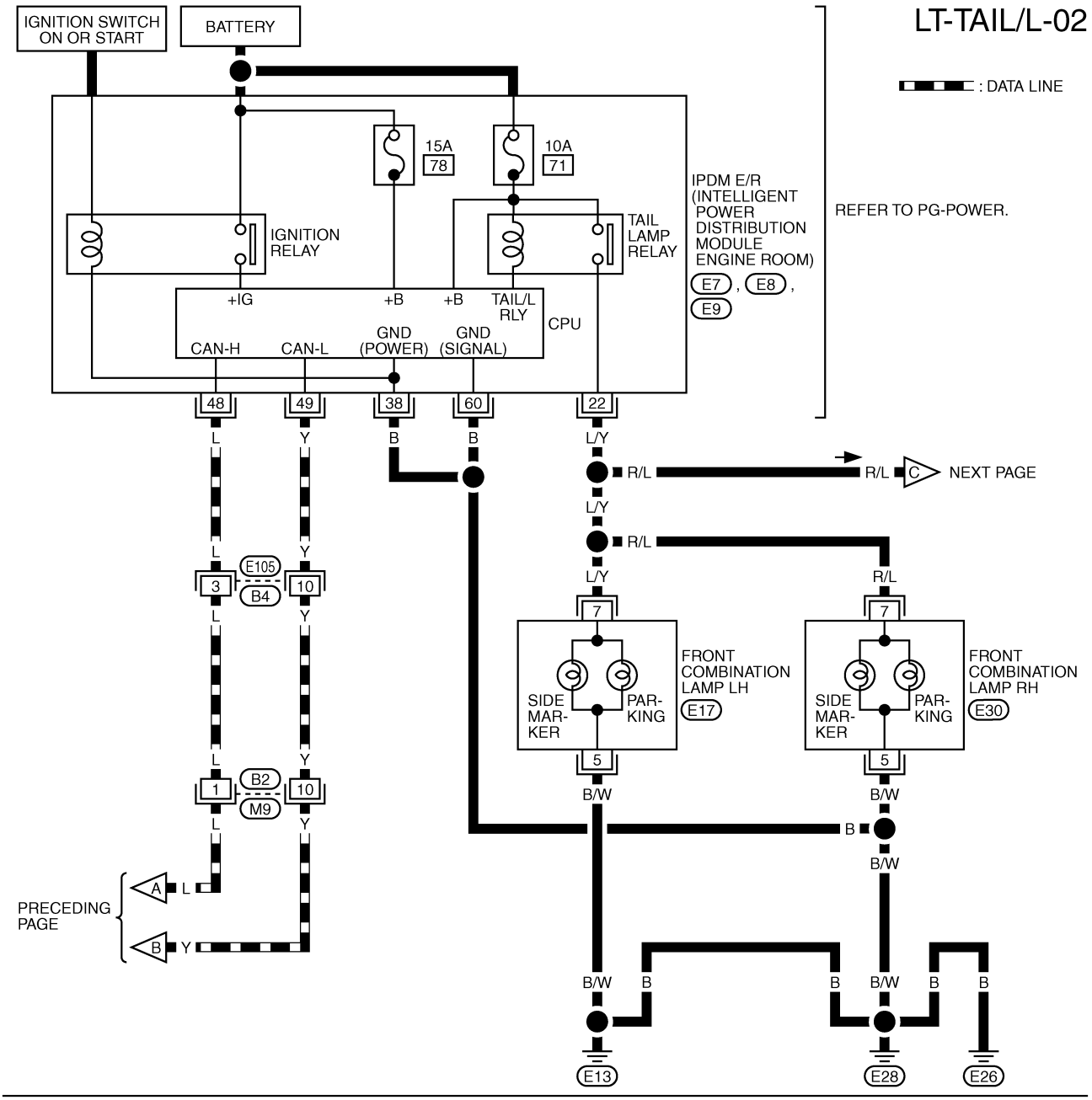


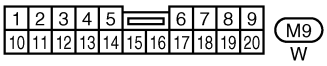
Wiring Diagram — TAIL/L —

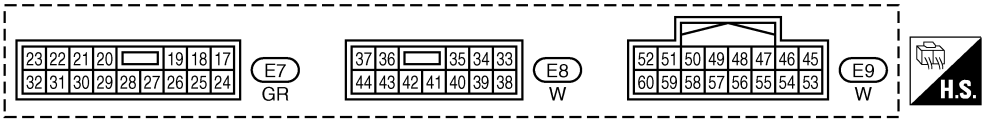
AKS004LF

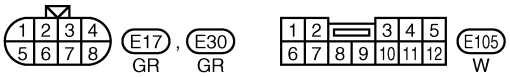


TKWA1696E


LT-TAIL/L-02
: DATA LINE
IGNITION SWITCH ON OR START
BATTERY
15A 78
10A 71
IGNITION RELAY
TAIL LAMP RELAY
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E7, E8, E9
REFER TO PG-POWER.
+IG
+B
+B
TAIL/L RLY
CPU
CAN-H
CAN-L
GND (POWER)
GND (SIGNAL)
48
49
38
60
22
L
Y
B
B
L/Y
R/L
R/L C NEXT PAGE
E105
3
B4
10
7
FRONT COMBINATION LAMP LH
E17
FRONT COMBINATION LAMP RH
E30
SIDE MAR-KER
PAR-KING
5
B/W
B2
1
M9
PRECEDING PAGE
A
B
E13
E28
E26

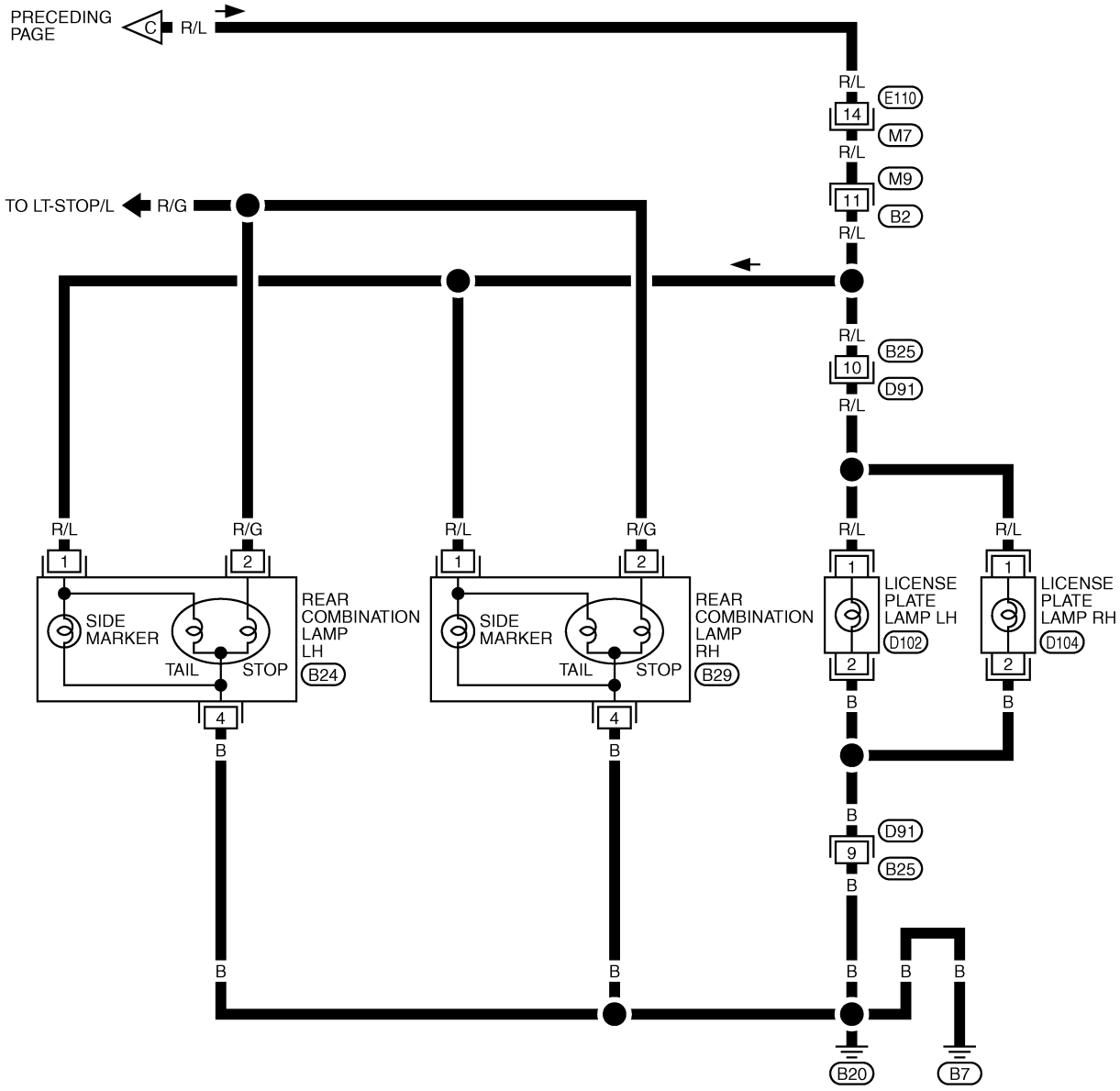

M9
W

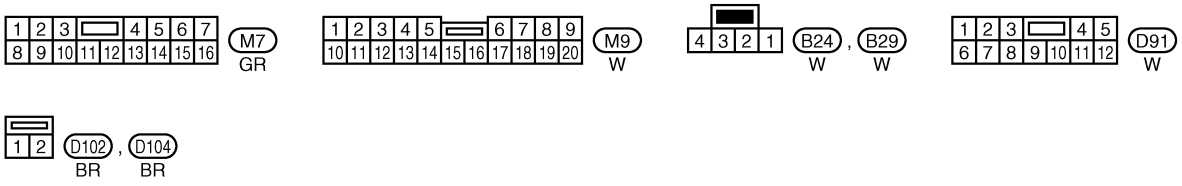

E7
GR
E8
W
E9
W
H.S.


E17, E30
GR GR
E105
W

TKWA1697E

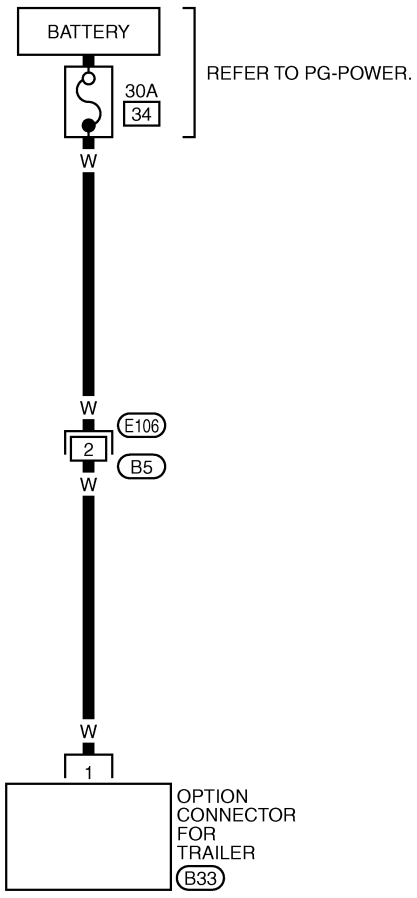
LT-TAIL/L-03

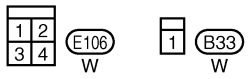




TKWA0774E

LT-TAIL/L-04

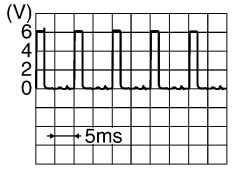
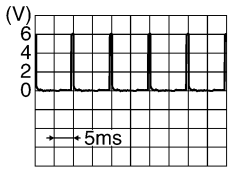
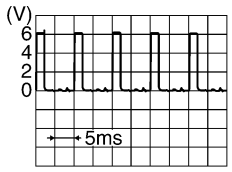
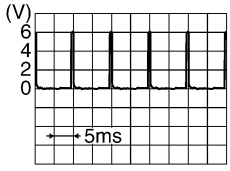
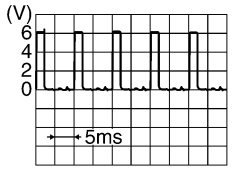
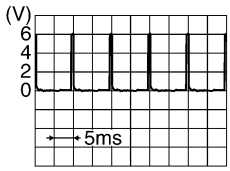
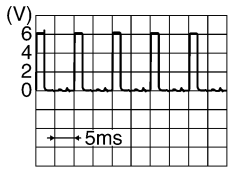


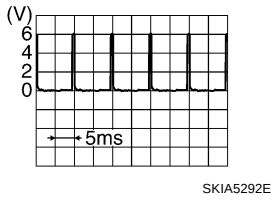


TKWB0007E

Terminals and Reference Values for BCM

AKS00ALR

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

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

Terminals and Reference Values for IPDM E/R

AKS00ALS

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
22	L/Y	Parking, license, and tail lamp	ON	Lighting switch 1ST position	OFF	Approx. 0V
					ON	Battery voltage
38	B	Ground	ON	—		Approx. 0V
48	L	CAN– H	—	—		—
49	Y	CAN– L	—	—		—
60	B	Ground	ON	—		Approx. 0V

How to Proceed With Trouble Diagnosis

AKS00ALT

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-148, "System Description" .
3. Perform the preliminary check. Refer to LT-158, "Preliminary Check" .
4. Check symptom and repair or replace the cause of malfunction.
5. Do the parking, license plate and tail lamps operate normally? If YES: GO TO 6. If NO: GO TO 4.
6. INSPECTION END

Preliminary Check

AKS00ALU

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

- Check for blown fuses.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
		18
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	71
		78

Refer to LT-152, "Wiring Diagram — TAIL/L —" .

OK or NG

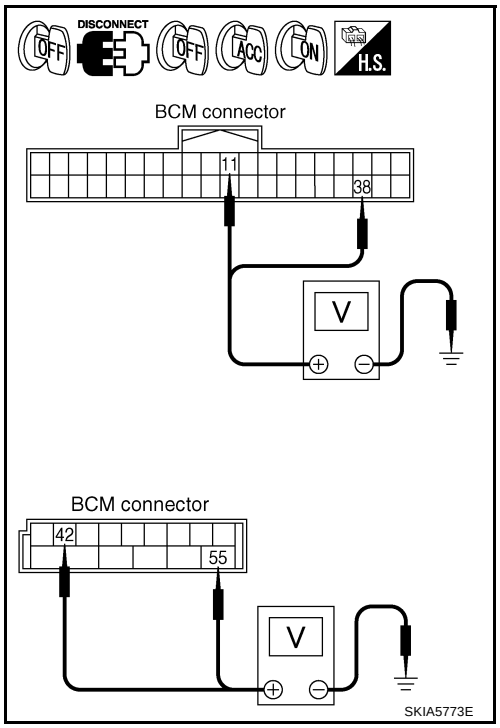
OK >> GO TO 2.

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

2. CHECK POWER SUPPLY CIRCUIT

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

Terminals			Ignition switch position		
(+)		(–)	OFF	ACC	ON
Connector	Terminal (Wire color)				
M34	11 (P/B)	Ground	0V	Battery voltage	Battery voltage
	38 (R)		0V	0V	Battery voltage
M35	42 (GR)		Battery voltage	Battery voltage	Battery voltage
	55 (W/B)		Battery voltage	Battery voltage	Battery voltage



OK or NG

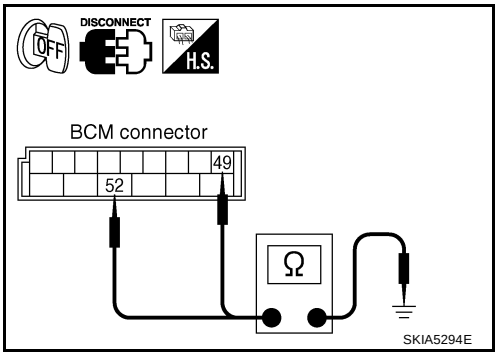
OK >> GO TO 3.

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

3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminals			Continuity
Connector	Terminal (Wire color)		
M35	49 (B)	Ground	Yes
	52 (B)		



OK or NG

OK >> INSPECTION END
NG >> Check ground circuit harness.

CONSULT-II Functions

AKS00ALV

Refer to LT-18, "CONSULT-II Functions (BCM)" in HEAD LAMP - XENON TYPE.
Refer to LT-48, "CONSULT-II Functions (BCM)" in HEAD LAMP - CONVENTIONAL TYPE.
Refer to LT-21, "CONSULT-II Functions (IPDM E/R)" in HEAD LAMP - XENON TYPE.
Refer to LT-51, "CONSULT-II Functions (IPDM E/R)" in HEAD LAMP - CONVENTIONAL TYPE.

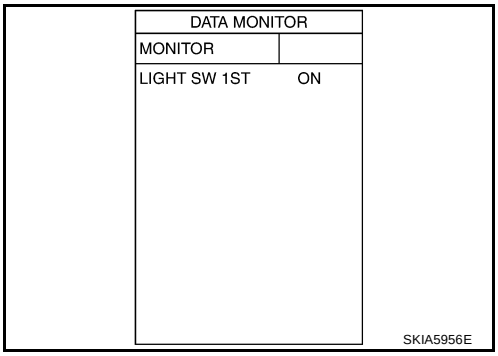
Parking, License Plate and Tail Lamps Do Not Illuminate

AKS00ALW

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” turns ON-OFF linked with operation of lighting switch.

When lighting switch is 1ST position : LIGHT SW 1 ST ON



Without CONSULT-II
Refer to LT-140, "Combination Switch Inspection" .

OK or NG

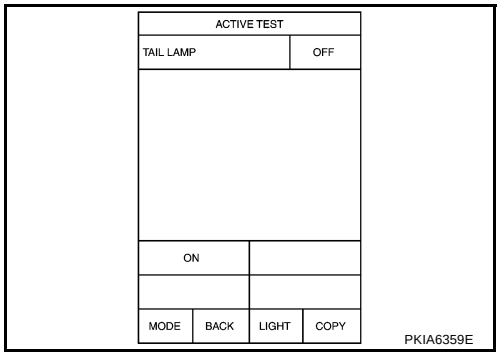
OK >> GO TO 2.
NG >> Check lighting switch. Refer to LT-140, "Combination Switch Inspection" .

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 lamps operate.

Parking, license plate, side marker and tail lamp should operate.



Without CONSULT-II

1. Start auto active test. Refer to PG-23, "Auto Active Test" .
2. Make sure parking, license plate, side marker and tail lamps operate.

Parking, license plate, side marker and tail lamp should operate.

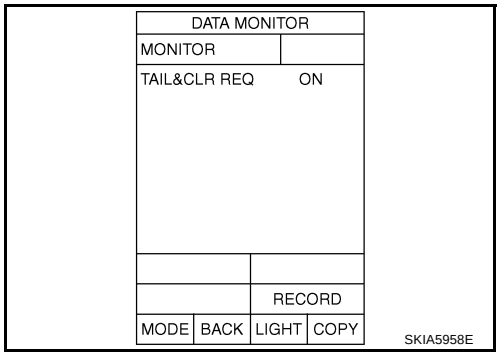
OK or NG

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

3. CHECK IPDM E/R

1. Select “IPDM E/R” on CONSULT-II, and select “DATA MONITOR” on “SELECT DIAG MODE” screen.
2. Make sure “TAIL & CLR REQ” turns ON when lighting switch is in 1ST position.

When lighting switch is 1ST position : TAIL & CLR REQ ON



OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .

4. CHECK INPUT SIGNAL

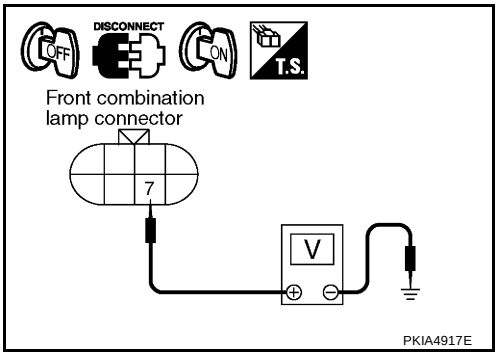
With CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH and LH, license plate lamp RH and LH and rear combination lamp RH and LH 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 is operating, check voltage between front combination lamp, license plate lamp, rear combination lamp harness connector and ground.

Without CONSULT-II

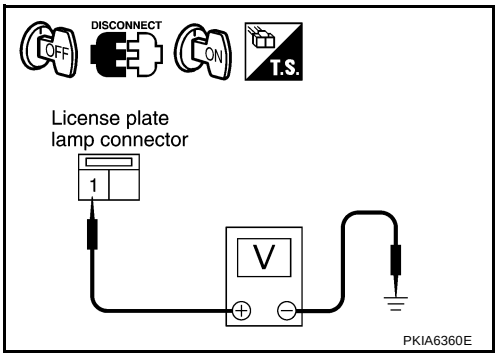
1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH and LH, license plate lamp RH and LH and rear combination lamp RH and LH connectors.
3. Start auto active test. Refer to PG-23, "Auto Active Test" .
4. Check voltage between front combination lamp connector and ground.

Terminals				Voltage
Front combination lamp (+) (Parking)			(-)	
Connector		Terminal (Wire color)		
RH	E30	7 (R/L)	Ground	Battery voltage
LH	E17	7 (L/Y)		



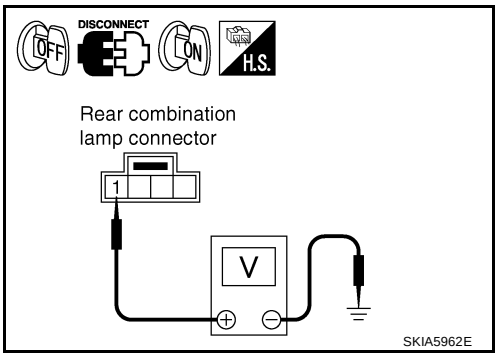
5. Check voltage between license plate lamp connector and ground.

Terminals				Voltage
License plate lamp (+)			(-)	
Connector		Terminal (Wire color)		
RH	D104	1 (R/L)	Ground	Battery voltage
LH	D102			



6. Check voltage between rear combination lamp connector and ground.

Terminals				Voltage
Rear combination lamp (+) (Tail and side marker)			(-)	
Connector		Terminal (Wire color)		
RH	B29	1 (R/L)	Ground	Battery voltage
LH	B24			



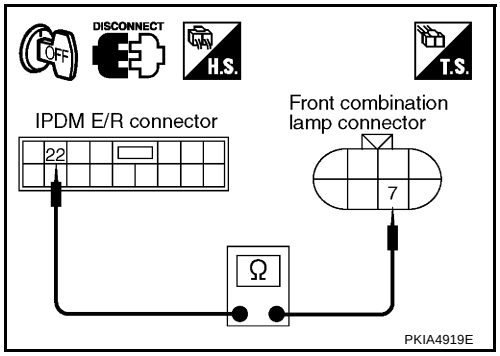
OK or NG

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

5. CHECK PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP CIRCUIT

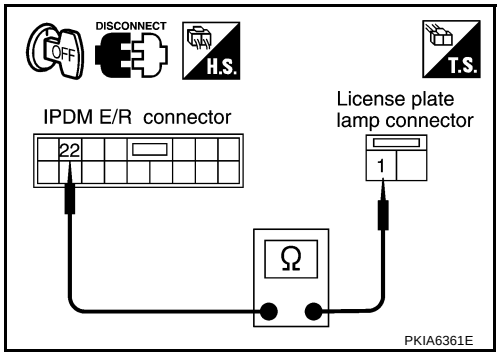
1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector and front combination lamp harness connector.

Terminals					Continuity
IPDM E/R		Front combination lamp (Parking)			
Connector	Terminal (Wire color)	Connector		Terminal (Wire color)	
E7	22 (R/L)	RH	E30	7 (R/L)	Yes
		LH	E17	7 (L/Y)	



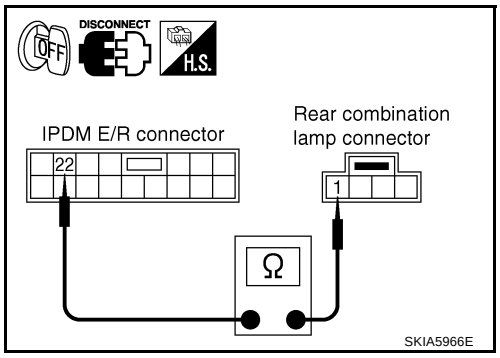
4. Check continuity between IPDM E/R harness connector and license plate lamp harness connector.

Terminals					Continuity
IPDM E/R		License plate lamp			
Connector	Terminal (Wire color)	Connector		Terminal (Wire color)	
E7	22 (R/L)	RH	D104	1 (R/L)	Yes
		LH	D102		



5. Check continuity between IPDM E/R harness connector and rear combination lamp harness connector.

Terminals					Continuity
IPDM E/R		Rear combination lamp (Tail and side marker)			
Connector	Terminal (Wire color)	Connector		Terminal (Wire color)	
E7	22 (R/L)	RH	B29	1 (R/L)	Yes
		LH	B24		



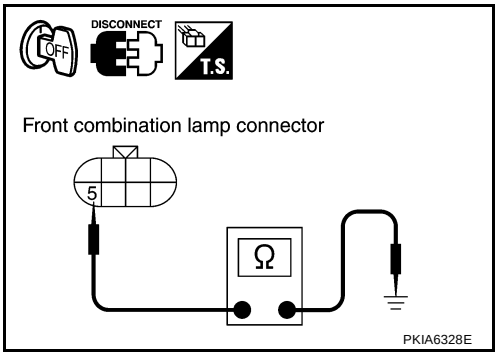
OK or NG

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

6. CHECK GROUND

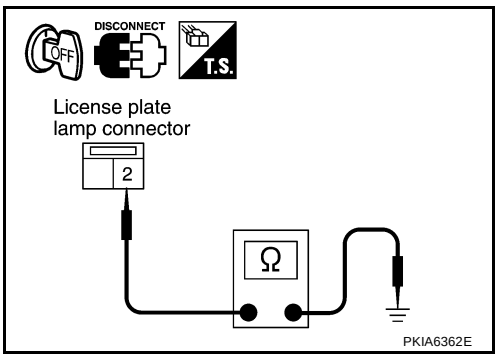
1. Check continuity between front combination lamp harness connector and ground.

Terminals				Continuity
Front combination lamp (Parking)				
Connector		Terminal (Wire color)		
RH	E30	5 (B/W)	Ground	Yes
LH	E17			



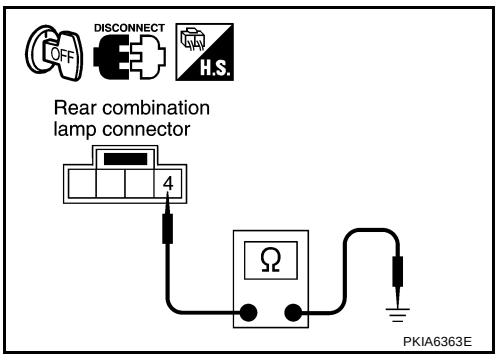
2. Check continuity between license plate lamp harness connector and ground.

Terminals				Continuity
License plate lamp				
Connector		Terminal (Wire color)		
RH	D104	2 (B)	Ground	Yes
LH	D102			



3. Check continuity between rear combination lamp harness connector and ground.

Terminals				Continuity
Rear combination lamp (Tail and side marker)				
Connector		Terminal (Wire color)		
RH	B29	4 (B)	Ground	Yes
LH	B24			



OK or NG

OK >> Check bulbs.
NG >> Repair harness or connector.

Parking, License Plate and Tail Lamps Do Not Turn OFF (After Approx. 10 Minutes)

AKS00ALX

1. CHECK IPDM E/R

1. Turn the ignition switch ON. Place the combination switch (lighting switch) in the ON position. Turn the ignition switch OFF.
2. Make sure the parking, license plate, and tail lamps turn OFF after approximately 10 minutes.

OK or NG

OK >> INSPECTION END
NG >> Ignition relay malfunction. Refer to PG-18, "Function of Detecting Ignition Relay Malfunction" .

Bulb Replacement

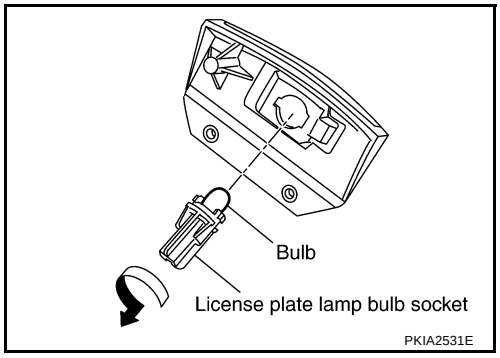
AKS00ALY

LICENSE PLATE LAMP

1. Remove back door inner finisher. Refer to EI-40, "BACK DOOR TRIM" in “EI” section.
2. Disconnect the license plate lamp connector.
3. Turn bulb socket counterclockwise and unlock it.
4. Remove bulb from its socket.

License plate lamp : 12V - 5W

5. Install in the reverse order of removal.



PARKING LAMP (CLEARANCE LAMP)

For bulb replacement, refer to LT-34, "Bulb Replacement" in “HEADLAMP”. (XENON TYPE)
For bulb replacement, refer to LT-64, "Bulb Replacement" in “HEADLAMP”. (CONVENTIONAL TYPE)

TAIL LAMP

For bulb replacement, refer to LT-165, "Bulb Replacement" in “REAR COMBINATION LAMP”.

FRONT SIDE MARKER LAMP

For bulb replacement, refer to LT-34, "Bulb Replacement" in “HEADLAMP”. (XENON TYPE)
For bulb replacement, refer to LT-64, "Bulb Replacement" in “HEADLAMP”. (CONVENTIONAL TYPE)

REAR SIDE MARKER LAMP

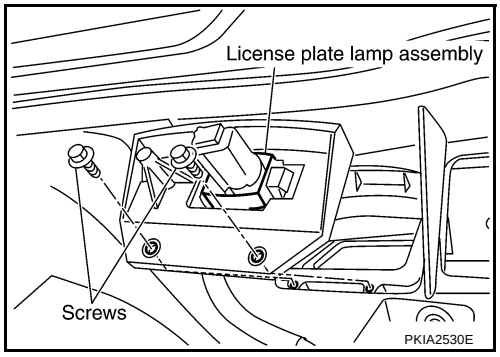
For bulb replacement, refer to LT-165, "Bulb Replacement" in “REAR COMBINATION LAMP”.

Removal and Installation

AKS00ALZ

LICENSE PLATE LAMP

1. Remove back door inner finisher. Refer to EI-40, "BACK DOOR TRIM" in “EI” section.
2. Remove rear wiper motor. Refer to WW-51, "Removal and Installation of Rear Wiper Motor" .
3. Remove the license plate lamp mounting screws and remove it.
4. Install in the reverse order of removal.



PARKING LAMP (CLEARANCE LAMP)

For parking lamp (clearance lamp) removal and installation procedures, refer to LT-35, "Removal and Installation" in “HEADLAMP”. (XENON TYPE)
For parking lamp (clearance lamp) removal and installation procedures, refer to LT-65, "Removal and Installation" in “HEADLAMP”. (CONVENTIONAL TYPE)

TAIL LAMP

For tail lamp removal and installation procedures, refer to LT-165, "Removal and Installation" in “REAR COMBINATION LAMP”.

FRONT SIDE MARKER LAMP

For headlamp removal and installation procedures, refer to LT-35, "Removal and Installation" in “HEADLAMP”. (XENON TYPE)
For headlamp removal and installation procedures, refer to LT-65, "Removal and Installation" in “HEADLAMP”. (CONVENTIONAL TYPE)

REAR SIDE MARKER LAMP

For rear side marker lamp removal and installation procedures, refer to LT-165, "Removal and Installation" in “REAR COMBINATION LAMP”.

REAR COMBINATION LAMP

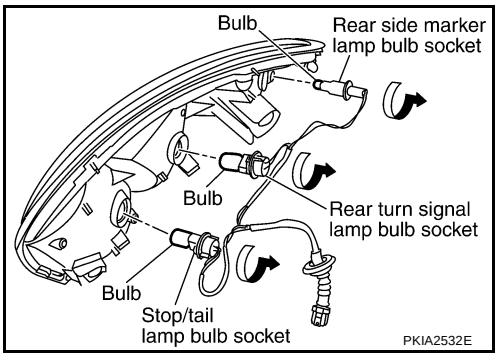
PFP:26554

Bulb Replacement

AKS005M1

STOP & TAIL LAMP BULB, REAR SIDE MARKER LAMP BULB, REAR TURN SIGNAL LAMP BULB

1. Remove rear combination lamp. Refer to LT-165, "Removal and Installation" .
2. Turn bulb socket counterclockwise and unlock it.
3. Remove bulb.
4. Install in the reverse order of removal.



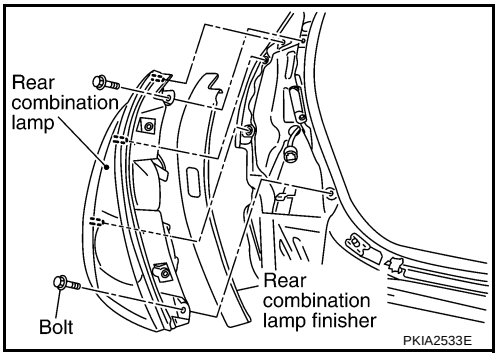
Stop/tail lamp	**: 12V - 21/5W**
Rear side marker lamp	**: 12V - 5W**
Rear turn signal lamp	**: 12V - 21W**

Removal and Installation

AKS005M2

REMOVAL

1. Remove rear combination lamp finisher.
2. Remove rear combination lamp mounting bolts.
3. Pull the rear combination lamp toward side of the vehicle and remove from the vehicle.
4. Disconnect rear combination lamp connector.



INSTALLATION

Install in the reverse order of removal. Be careful of the following:

Rear combination lamp mounting bolt	**: 5.5 N·m (0.56 kg-m, 49 in-lb)**

VANITY MIRROR LAMP

PFP:96400

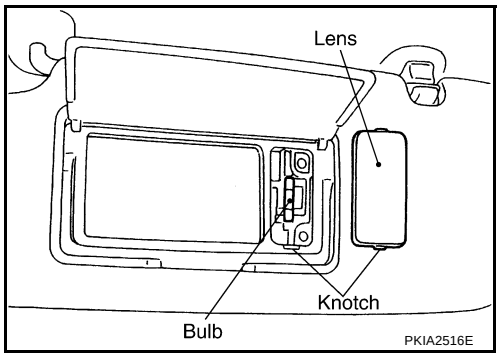
Bulb Replacement

AKS005M3

1. Insert a thin screwdriver in the knotch and remove lens.
2. Remove bulb.

Vanity mirror lamp : 12V - 2.0W

3. Install in the reverse order of removal.



MAP LAMP

PFP:26430

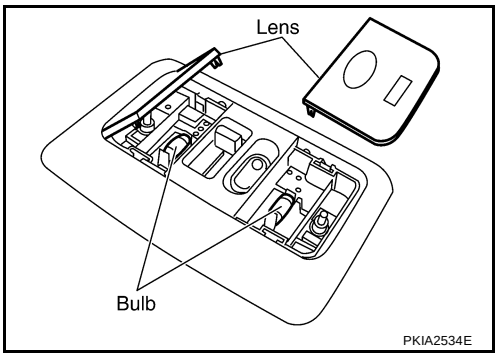
Bulb Replacement

AKS005M4

1. Disconnect the battery negative cable.
2. Remove the lens using clip driver or suitable tool.
3. Remove the bulb.

Map lamp :12V - 8 W

4. Install in the reverse order of removal.

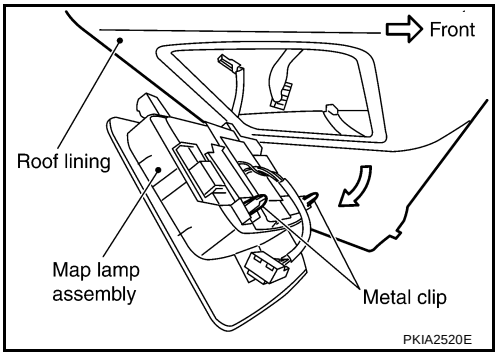


Removal and Installation

AKS005M5

REMOVAL

1. Pull wider part of thin plate of the map lamp to disengage the metal clip.
2. Pull map lamp in direction shown by the arrow in the figure.
3. Disconnect map lamp connector and remove the map lamp.



INSTALLATION

Install in the reverse order of removal.

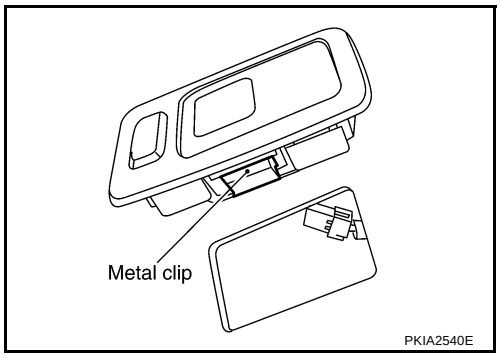
PERSONAL LAMP

PFP:26415

Bulb Replacement, Removal and Installation

AKS004LW

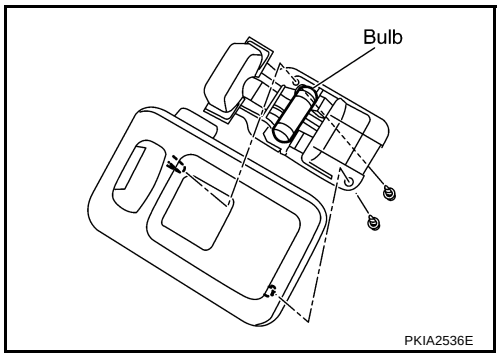
1. Insert a clip driver or suitable tool and disengage the metal clip fittings of the personal lamp.
2. Disconnect personal lamp connector and remove the personal lamp.



3. Remove the housing mounting screws, and separate it.
4. Remove bulb from the base.

Personal lamp : 12V - 8W

5. Install in the reverse order of removal.



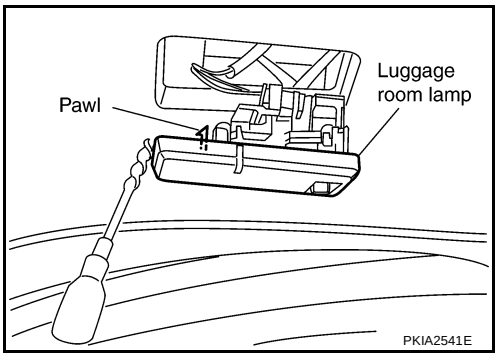
LUGGAGE ROOM LAMP

PFP:26410

Bulb Replacement, Removal and Installation

AKS005M6

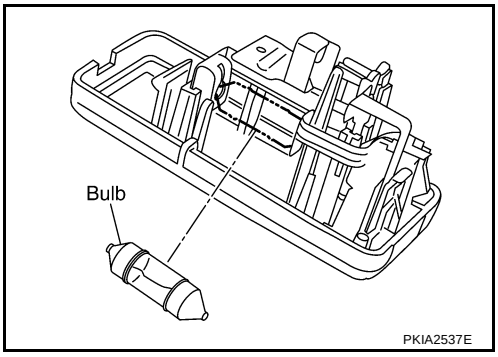
1. Insert a screwdriver as shown in the figure and pull out the luggage room lamp.
2. Disconnect the luggage room lamp connector.



3. Remove the bulb.

Luggage room lamp : 12V - 8W

4. Install in the reverse order of removal.

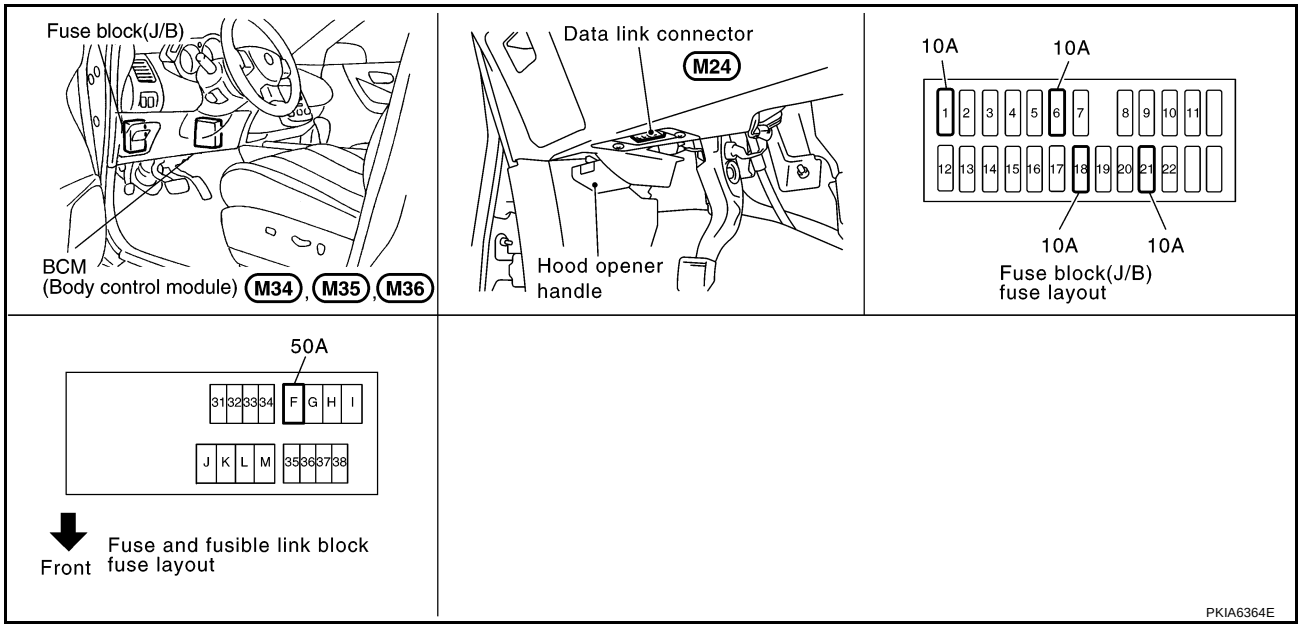


INTERIOR ROOM LAMP

PFP:26410

Component Parts and Harness Connector Location

AKS00AME



System Description

AKS005R0

When room lamp and personal lamp switch is in DOOR position, room lamp and personal lamp ON/OFF is controlled by timer according to signals from switches including key switch, front door switch driver side, unlock signal from keyfob, door lock and unlock switch, key cylinder lock and unlock switch, ignition switch.
When room lamp and personal lamp turns ON, there is a gradual brightening over 1 second. When room lamp and personal lamp turns OFF, there is a gradual dimming over 1 second.
The room lamp and personal lamp timer is controlled by the BCM (body control module).
Room lamp and personal lamp timer control settings can be changed with CONSULT-II.
Ignition keyhole illumination turns ON at time when driver door is opened (door switch ON) or removed keyfob from key cylinder. Illumination turns OFF when driver door is closed (door switch OFF).
Step lamp turns ON at time when driver door or passenger door is opened (door switch ON). Lamp turns OFF when driver, passenger doors are closed (all door switches OFF).

POWER SUPPLY AND GROUND

Power is supplied at all times

- through 10A fuse [No. 21, located in fuse block (J/B)]
- to key switch and key lock solenoid terminal 3
- through 10A fuse [No. 18, located in fuse block (J/B)]
- to BCM (body control module) terminal 42
- through 50A fusible link [letter F, located in fuse and fusible link block]
- to BCM (body control module) terminal 55.

When the key is inserted to ignition key cylinder, power is interrupted

- through key switch and key lock solenoid terminal 4
- to BCM (body control module) terminal 37.

With the ignition switch in the 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.

Ground is supplied

- to BCM (body control module) terminals 49 and 52
- through grounds terminals M14 and M78.

When the driver side door is opened, ground is supplied

- through grounds terminals M14 and M78

- through front door lock assembly (driver side) (door switch) terminal 5
- through front door lock assembly (driver side) (door switch) terminal 4
- to BCM (body control module) terminal 62.

When the passenger side door is opened, ground is supplied

- through grounds M14 and M78
- through front door lock assembly (passenger side) (door switch) terminal 5
- through front door lock assembly (passenger side) (door switch) terminal 4
- to BCM (body control module) terminal 12.

When the rear door LH is opened, ground is supplied

- through grounds B7 and B20
- through rear door lock assembly LH (door switch) terminal 5
- through rear door lock assembly LH (door switch) terminal 4
- to BCM (body control module) terminal 63.

When the rear door RH is opened, ground is supplied

- through grounds B105 and B116
- through rear door lock assembly RH (door switch) terminal 5
- through rear door lock assembly RH (door switch) terminal 4
- to BCM (body control module) terminal 13.

When the driver side door is unlocked by the door lock and unlock switch, BCM (body control module) receives a ground signal

- through grounds M14 and M78
- to power window main switch (door lock and unlock switch) terminal 17 or front power window switch (passenger side) (door lock and unlock switch) terminal 11
- from power window main switch (door lock and unlock switch) terminal 14 or front power window switch (passenger side) (door lock and unlock switch) terminal 16
- to BCM (body control module) terminal 22.

When the front driver side door is unlocked by the driver side door lock assembly (door key cylinder switch), BCM (body control module) receives a ground signal

- through grounds M14 and M78
- to front door lock assembly (driver side) (door key cylinder switch) terminal 5
- from front door lock assembly (driver side) (door key cylinder switch) terminal 6
- to power window main switch (door lock and unlock switch) terminal 6
- from power window main switch (door lock and unlock switch) terminal 14
- to BCM (body control module) terminal 22.

When a signal, or combination of signals is received by BCM (body control module), ground is supplied

- through BCM (body control module) terminal 48
- to room lamp terminal 1 and
- to personal lamp LH and RH terminal 3.

With power and supplied, the interior lamp illuminates.

SWITCH OPERATION

When driver door switch is ON (door is opened), ground is supplied

- through BCM terminal 1
- to ignition keyhole illumination terminal 2.

And power is supplied

- from BCM terminal 41
- to ignition keyhole illumination terminal 1.

When any door switch is ON (door is opened), ground is supplied

- through BCM terminal 47
- to step lamp driver side and passenger side terminal 2.

And power is supplied
- from BCM terminal 41
- to step lamp driver side and passenger side terminal 1.

When map lamp switch is ON, ground is supplied
- through grounds M14 and M78
- to map lamp terminal 2.

And power is supplied
- from BCM terminal 41
- to map lamp terminal 1.

When vanity mirror lamp (driver side and passenger side) is ON, ground is supplied
- through grounds M14 and M78
- to vanity mirror lamp (driver side and passenger side) terminal 2.

And power is supplied
- from BCM terminal 41
- to vanity mirror lamp (driver side and passenger side) terminal 1.

When luggage room lamp (RH and LH) is ON, and then back door switch is ON, ground is supplied
- through grounds B7 and B20
- through back door switch terminal 3
- through back door switch terminal 1
- to luggage room lamp (RH and LH) terminal 2.

And power is supplied
- from BCM terminal 41
- to luggage room lamp (RH and LH) terminal 1.

ROOM LAMP TIMER OPERATION

When room lamp and personal lamp switch is in DOOR position, and when all conditions below are met, BCM performs timer control (maximum 30 seconds) for room lamp and personal lamp ON/OFF.
In addition, when spot turns ON or OFF there is gradual brightening or dimming over 1 second.
Power is supplied
- through 10A fuse [No. 21, located in the fuse block (J/B)]
- to key switch and key lock solenoid terminal 3.

Key is removed from ignition key cylinder (key switch OFF), power will not be supplied to BCM terminal 37.
Ground is supplied
- from BCM terminal 22
- to power window main switch (door lock and unlock switch) terminal 14.

At this time, BCM detects that driver door is unlocked. It determines that room lamp and personal lamp timer operation conditions are met, and turns the room lamp and personal lamp ON for 30 seconds.
Key is in ignition key cylinder (key switch ON),
Power is supplied
- through key switch and key lock solenoid terminal 4
- to BCM terminal 37.

When key is removed from key switch and key lock solenoid (key switch OFF), power supply to BCM terminal 37 is terminated. BCM detects that key has been removed, determines that room lamp and personal lamp timer conditions are met, and turns the room lamp and personal lamp ON for 30 seconds.
When driver door opens → closes, and the key is not inserted in the key switch and key lock solenoid (key switch OFF), BCM (body control module) terminal 62 changes between 0V (door open) → 12V (door closed). The BCM determines that conditions for room lamp and personal lamp operation are met and turns the interior lamp ON for 30 seconds.
Timer control is canceled under the following conditions.
- Driver door is locked [when locked keyfob 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

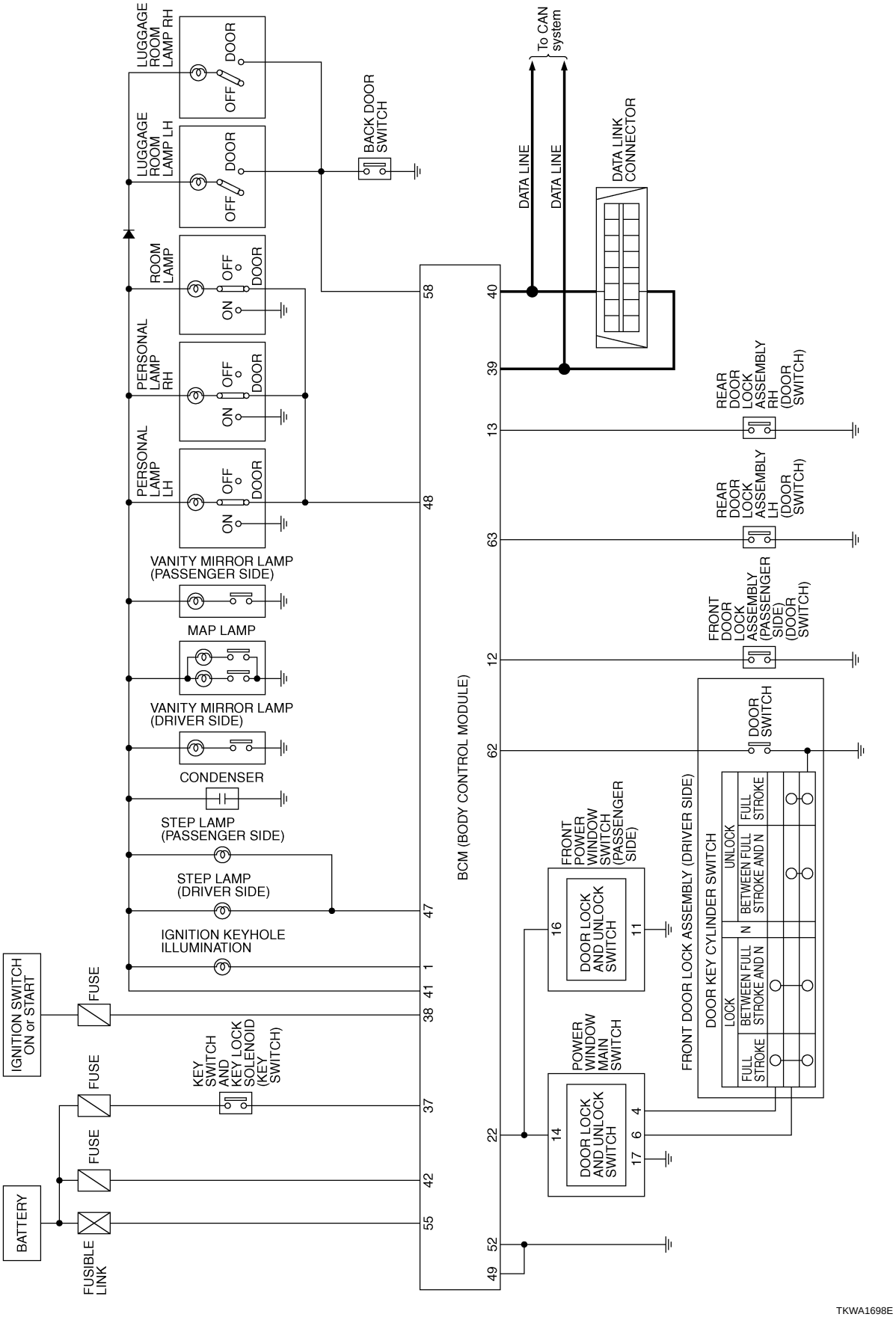
If the room lamp remains illuminated by the door switch open signal, or if the room lamp switch is in the ON position for more than 30 minutes after the ignition switch is turned to the OFF position, the BCM will automatically turn off the map lamp, step lamp, and/or personal lamp and vanity mirror lamp.
After lamps turn OFF by the battery saver system, the lamps illuminate again when

- signal from keyfob, or power window main switch (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

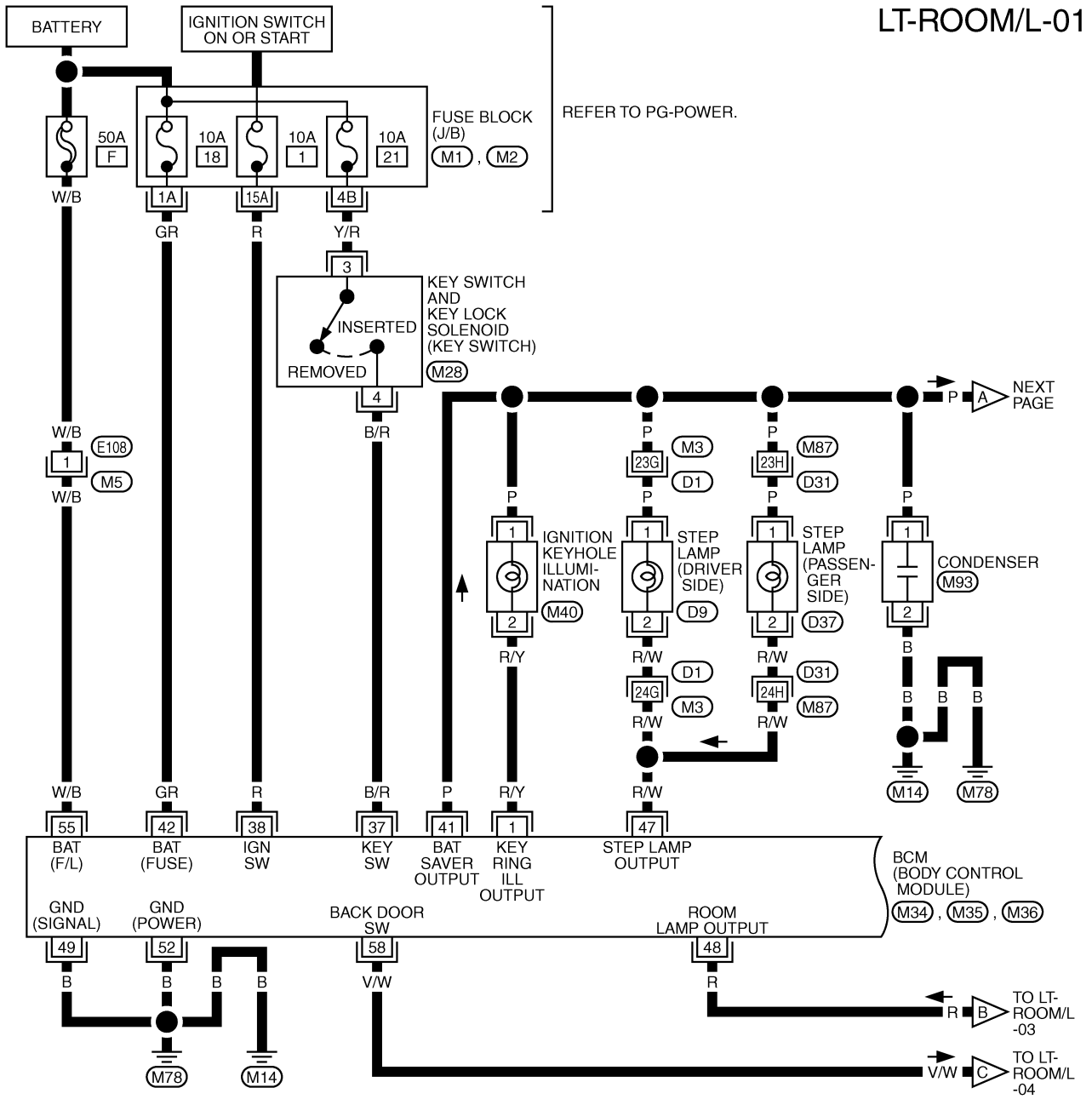
AKS004M4



TKWA1698E

Wiring Diagram — ROOM/L —

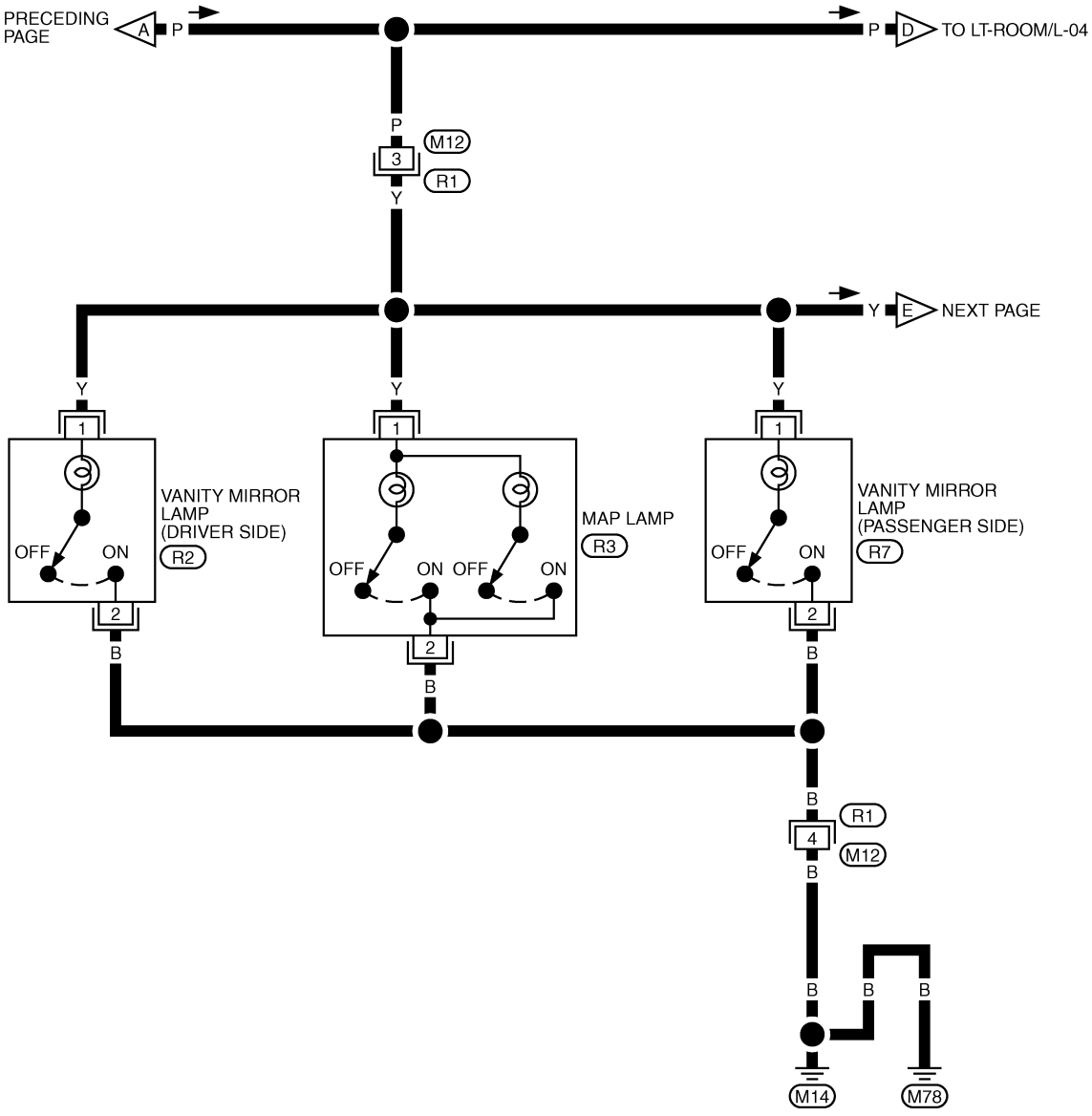
AKS004M5

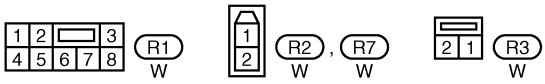


REFER TO THE FOLLOWING.
D1, D31 -SUPER MULTIPLE JUNCTION (SMJ)
M1, M2 -FUSE BLOCK-JUNCTION BOX (J/B)
M34, M35, M36 -ELECTRICAL UNITS

TKWA1699E

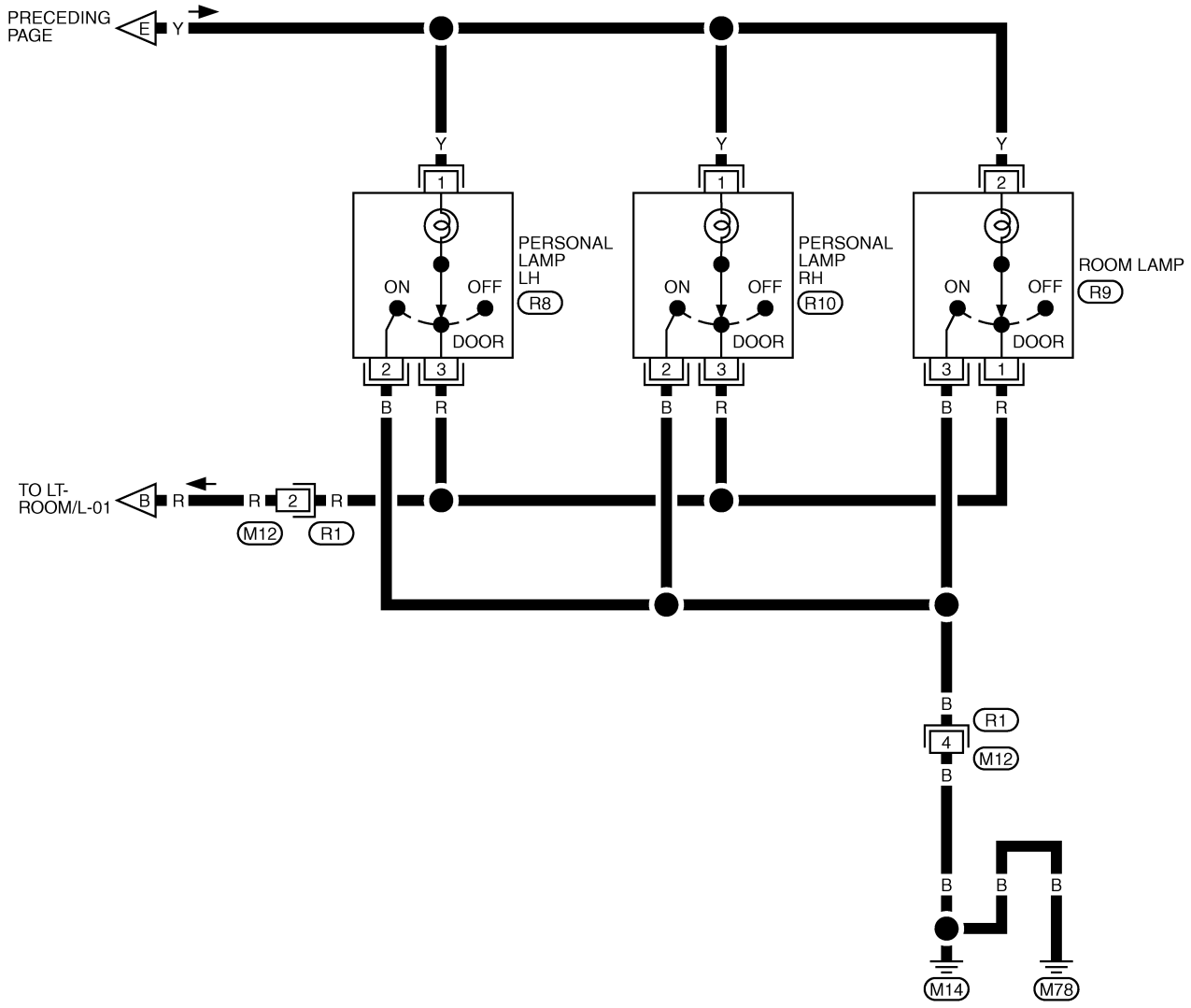
LT-ROOM/L-02

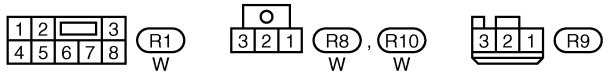




TKWA1152E

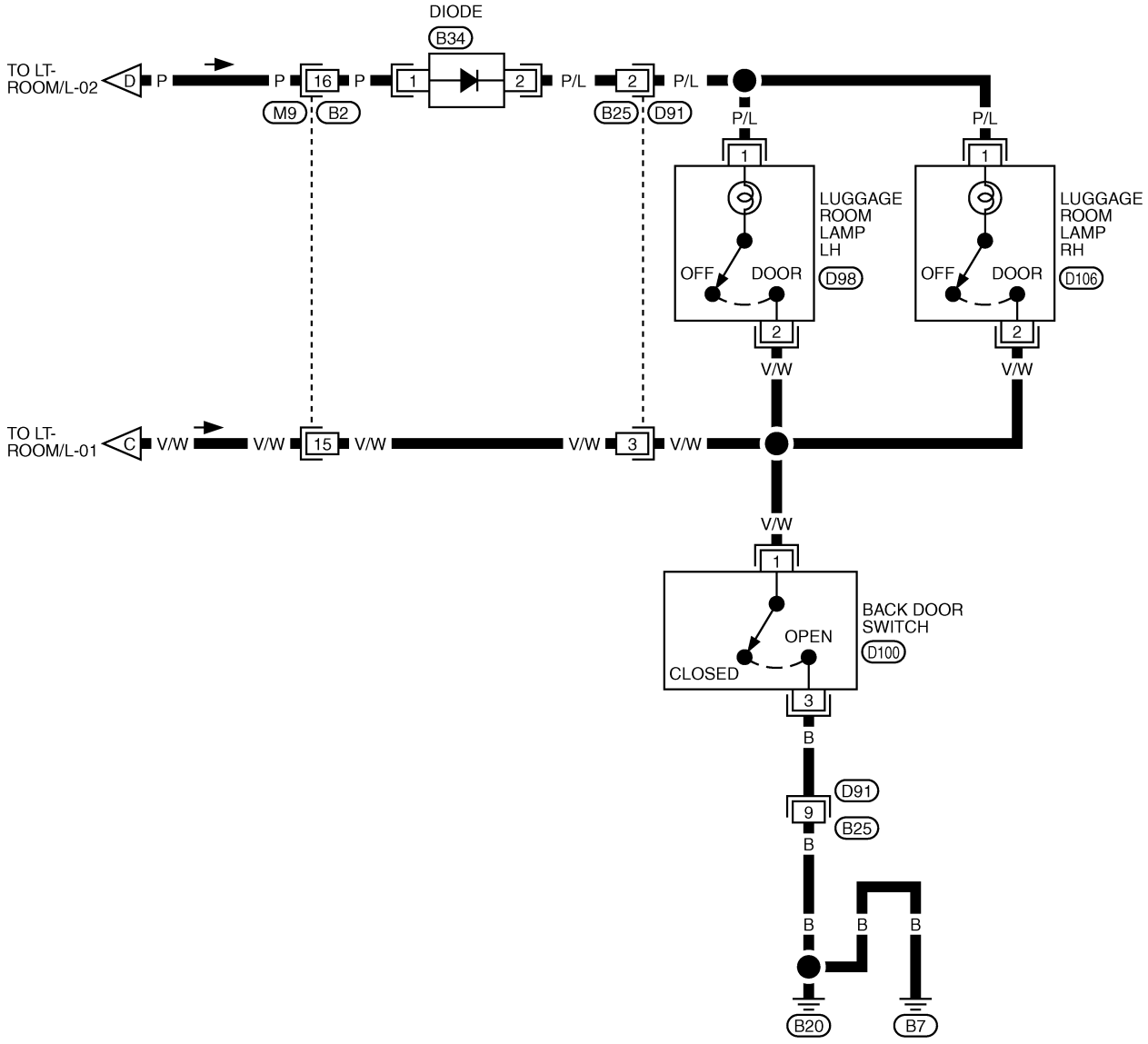
LT-ROOM/L-03

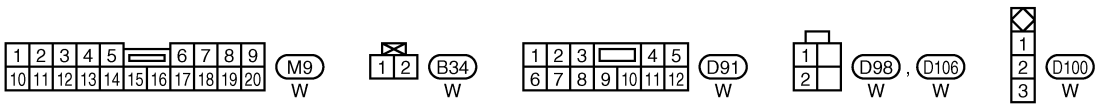




TKWA0916E

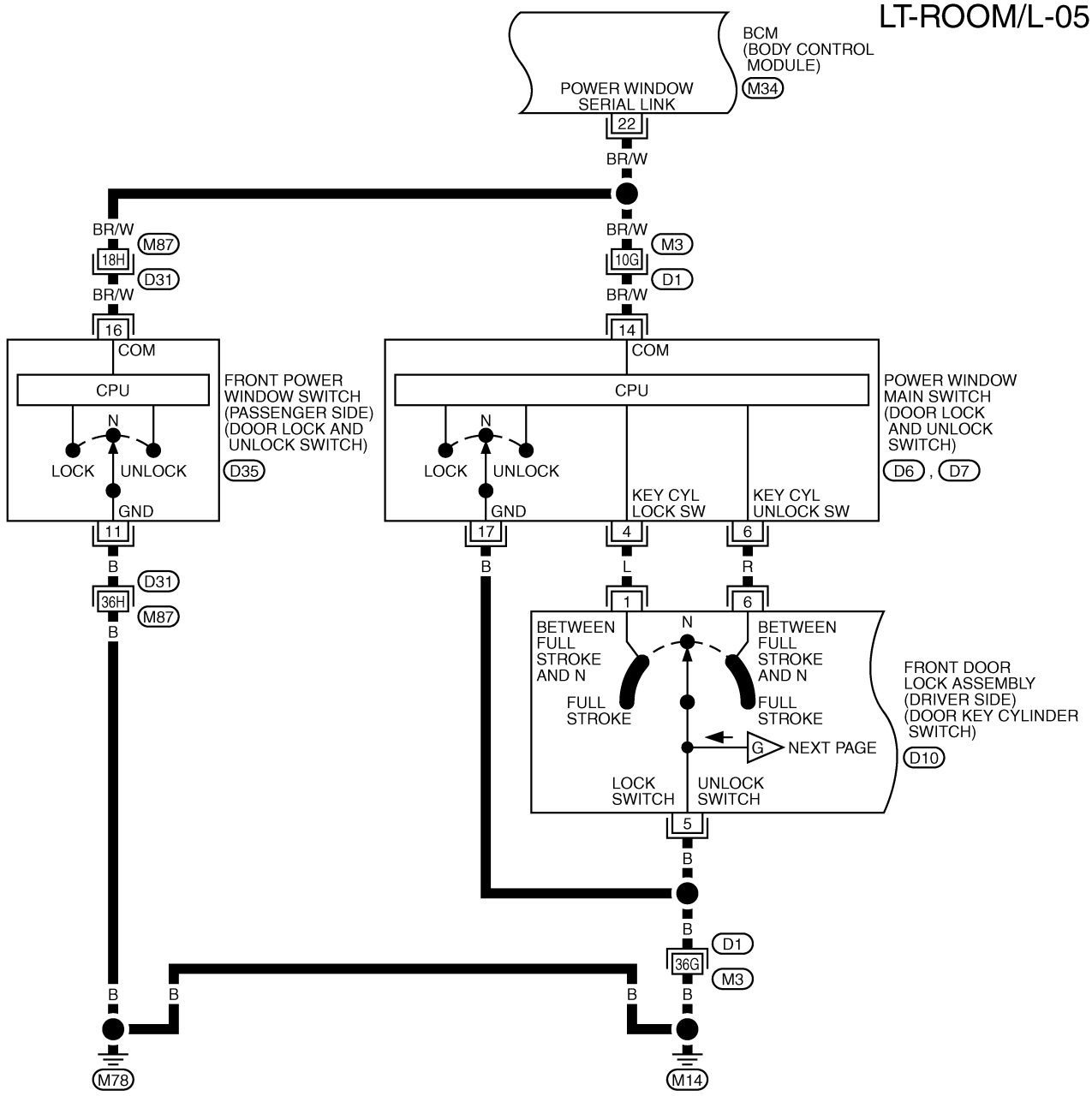
LT-ROOM/L-04

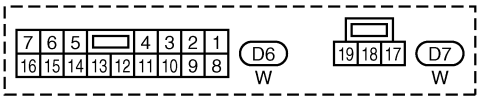


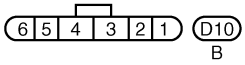


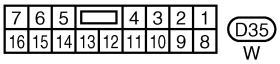
TKWA0917E

LT-ROOM/L-05









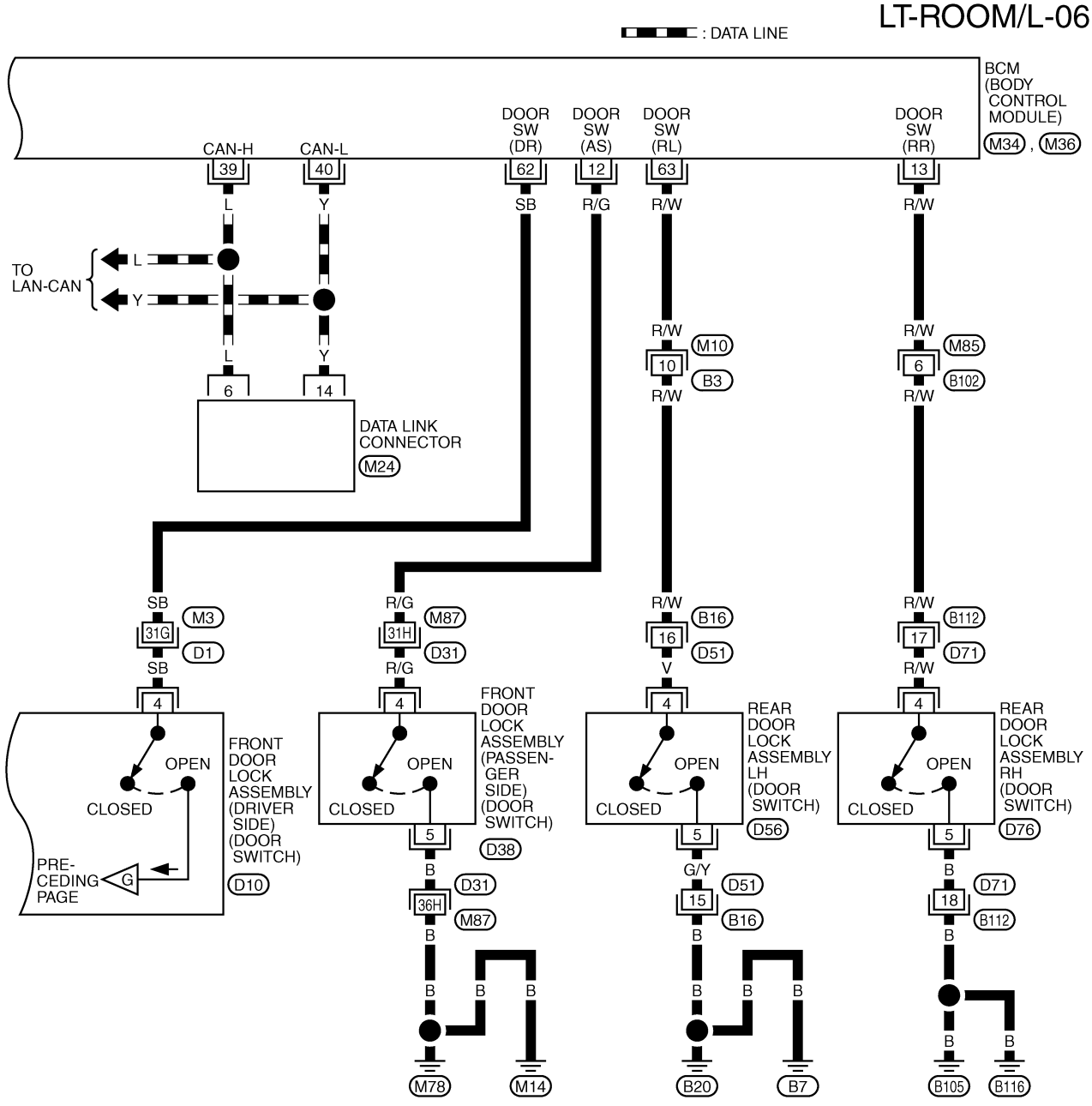
REFER TO THE FOLLOWING.

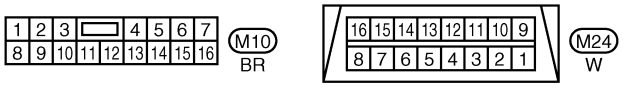
D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)

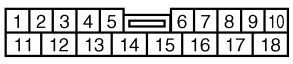
M34 -ELECTRICAL UNITS

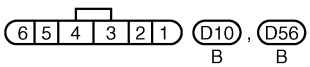
TKWA1700E

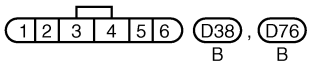
LT-ROOM/L-06









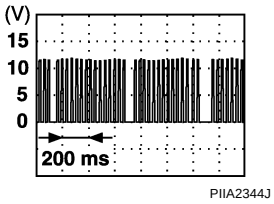


REFER TO THE FOLLOWING.
D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)
M34 , M36 -ELECTRICAL UNITS

TKWA1701E

Terminals and Reference Values for BCM

AKS00AMF

Terminal No.	Wire color	Signal name	Measuring condition				Reference value
			Ignition switch	Operation or condition			
1	R/Y	Ignition keyhole illumination signal	OFF	Door is locked. (SW OFF)			Battery voltage
				Door is unlocked. (SW ON)			Approx. 0V
12	R/G	Front door switch AS signal	OFF	Front door switch AS	ON (open)		Approx. 0V
					OFF (closed)		Battery voltage
13	R/W	Rear door switch RH signal	OFF	Rear door switch RH	ON (open)		Approx. 0V
					OFF (closed)		Battery voltage
22	BR/W	Power window switch serial link	—	—			 PIIA2344J
37	B/R	Key-in detection switch signal	OFF	Vehicle key is removed.			Approx. 0V
				Vehicle key is inserted.			Battery voltage
38	R	Ignition power supply	ON	—			Battery voltage
39	L	CAN–H	—	—			—
40	Y	CAN–L	—	—			—
41	P	Battery saver output signal	OFF	30 minutes after ignition switch is turned to OFF.			Approx. 0V
			ON	—			Battery voltage
42	GR	Battery power supply	OFF	—			Battery voltage
47	R/W	Step lamp signal	OFF	Any door is open. (ON)			Approx. 0V
				All doors are closed. (OFF)			Battery voltage
48	R	Personal lamp LH and RH, map lamp illumination output signal	OFF	Interior door switch: DOOR position	Any door switch	ON (open)	Approx. 0V
						OFF (closed)	Battery voltage
49	B	Ground	ON	—			Approx. 0V
52	B	Ground	ON	—			Approx. 0V
55	W/B	Battery power supply	OFF	—			Battery voltage
58	V/W	Back door switch signal	OFF	Back door switch	ON (open)		Approx. 0V
					OFF (closed)		Battery voltage
62	SB	Front door switch DR signal	OFF	Front door switch DR	ON (open)		Approx. 0V
					OFF (closed)		Battery voltage
63	R/W	Rear door switch LH signal	OFF	Rear door switch LH	ON (open)		Approx. 0V
					OFF (closed)		Battery voltage

How to Proceed With Trouble Diagnosis

AKS00AMG

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-170, "System Description" .
3. Carry out the Preliminary Check. Refer to LT-182, "Preliminary Check" .
4. Check symptom and repair or replace the cause of malfunction.
5. Does the interior room lamp operate normally? If YES: GO TO 6. If NO: GO TO 4.
6. INSPECTION END

Preliminary Check

AKS00AMQ

CHECK FOR POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

- Check for blown BCM fuses.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
		18
		21
	Ignition switch ON or START position	1

Refer to LT-175, "Wiring Diagram — ROOM/L —" .

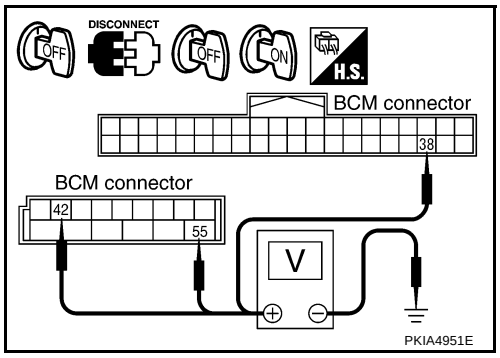
OK or NG

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

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector.
2. Check voltage between BCM connector and ground.

Terminals			Ignition switch position	
(+)		(-)	OFF	ON
Connector	Terminal (Wire color)			
M35	42 (GR)	Ground	Battery voltage	Battery voltage
	55 (W/B)		Battery voltage	Battery voltage
M34	38 (R)		0V	Battery voltage



OK or NG

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

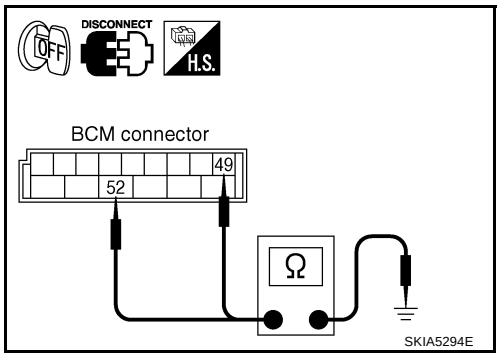
3. CHECK GROUND CIRCUIT

Check continuity between BCM and ground.

Terminals			Continuity
Connector	Terminal (Wire color)		
M35	49 (B)	Ground	Yes
	52 (B)		

OK or NG

OK >> INSPECTION END
NG >> Check harness ground circuit.



CONSULT-II Functions

AKS00AMR

CONSULT-II has a display function for work support, self-diagnosis, data monitor, and active test for each part by combining data receiving and sending via the communication line from BCM.

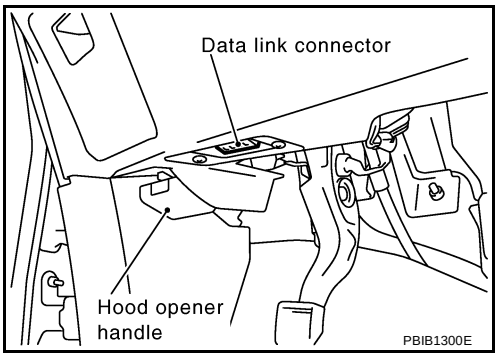
BCM diagnosis part	Check item, diagnosis mode	Description
INTERIOR LAMP	Work support	Changes the setting for each function.
	Data monitor	Displays BCM input data in real time.
	Active test	Operation of electrical loads can be checked by sending driving signal to them.

CONSULT-II BASIC OPERATION

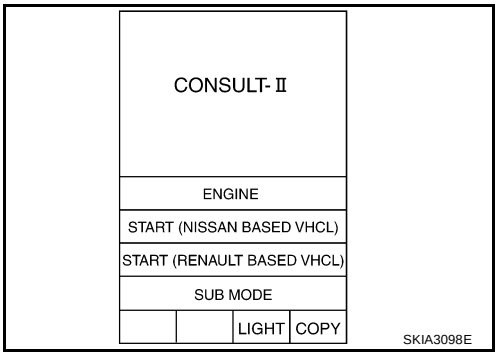
CAUTION:

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.

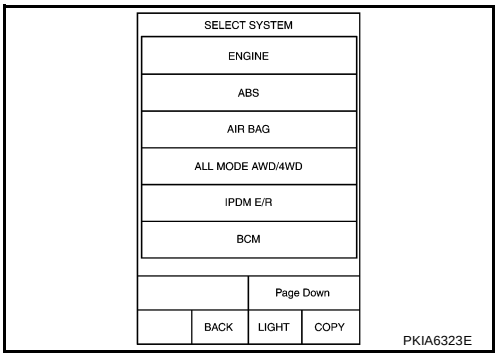
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn ignition switch ON.



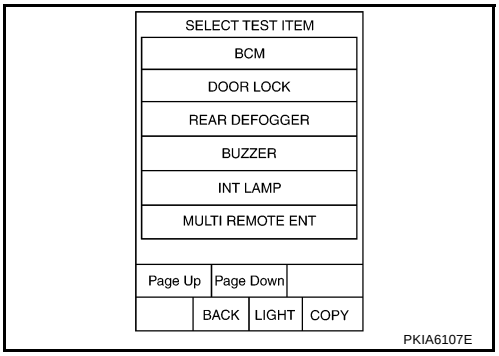
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “BCM” on “SELECT SYSTEM” screen.
If “BCM” is not indicated, refer to GI-39, "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 the interior room lamps and the ignition keyhole illumination 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 the interior room lamps and the 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 the interior room lamps and the 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 “DATA MONITOR” screen.

All signals	Monitors all the signals.
Selection from menu	Selects and monitors the individual signal.

4. Touch “START”.
5. When “SELECTION FROM MENU” is selected, touch items to be monitored. When “ALL SIGNALS” is selected, all the items will be monitored.
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.
KEY ON SW	“ON/OFF”	Displays “Key inserted (ON)/key removed (OFF)” status judged from the key switch signal.

Monitor item		Contents
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”	Displays status of the passenger door as judged from passenger door switch signal. (Door open (ON)/Door closed (OFF))
DOOR SW - RR	“ON/OFF”	Displays status of rear door as judged from the rear door switch (RH) signal. (Door is open: ON/ Door is closed: OFF)
DOOR SW - RL	“ON/OFF”	Displays status of rear door as judged from the rear door switch (LH) signal. (Door is open: ON/ Door is closed: OFF)
BACK DOOR SW	“ON/OFF”	Displays status of the back door as judged from back door switch signal. (Door open (ON)/Door closed (OFF))
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.

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
INT LAMP	Interior room lamp can be operated by any ON-OFF operations.
IGN ILLUM	Ignition key hole illumination can be operated by ON– OFF operation.

Room Lamp Does Not Illuminate

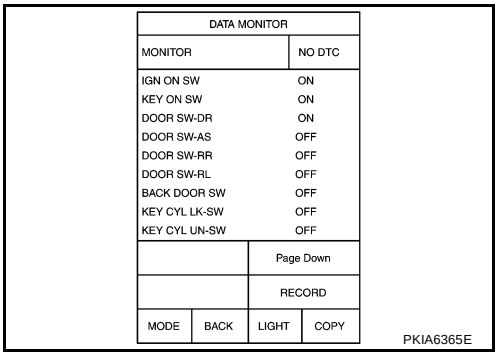
AKS00AMJ

1. CHECK EACH SWITCH

Select “BCM” on CONSULT-II. With “INT LAMP” data monitor to make sure switches listed in display item list turn ON-OFF linked with switch operation. Refer to LT-184, "Display Item List" for switches and their functions.

OK or NG

OK >> GO TO 2.
NG >> Inspect malfunctioning switch system.

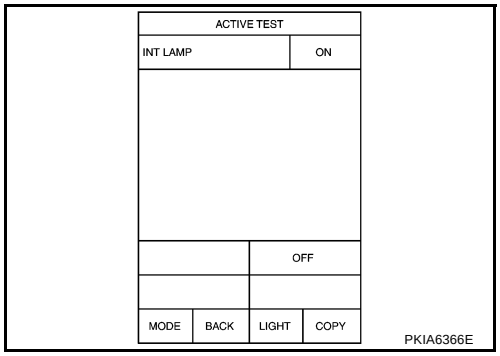


2. CHECK WITH ACTIVE TEST

1. Select “BCM” on CONSULT-II. Select “INT LAMP” active test.
2. When room lamp switch is in “DOOR” position, use active test to make sure room lamp operates.

OK or NG

OK >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .
NG >> GO TO 3.



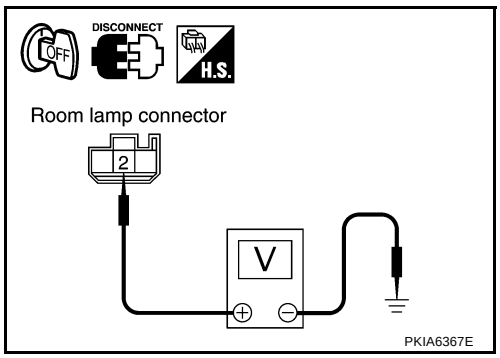
3. CHECK POWER SUPPLY TO ROOM LAMP

1. Turn ignition switch OFF.
2. Disconnect room lamp connector.
3. Turn ignition switch ON.
4. Check voltage between room lamp harness connector R9 terminal 2 (Y) and ground.

2 (Y) - Ground : Battery voltage should exist.

OK or NG

OK >> GO TO 4.
NG >> GO TO 6.



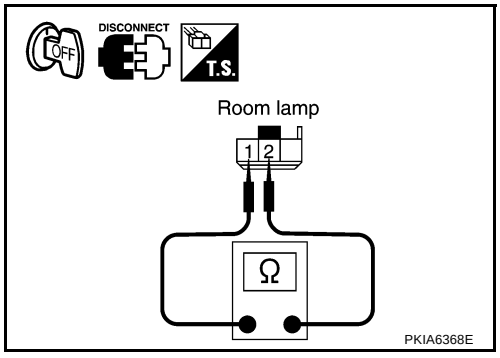
4. CHECK ROOM LAMP

Check continuity between room lamp terminals.

Terminal		Condition	Continuity
Room lamp			
1	2	Room lamp switch is ON.	Yes
		Room lamp switch is OFF.	No

OK or NG

OK >> GO TO 5.
NG >> Check bulb or replace room lamp.



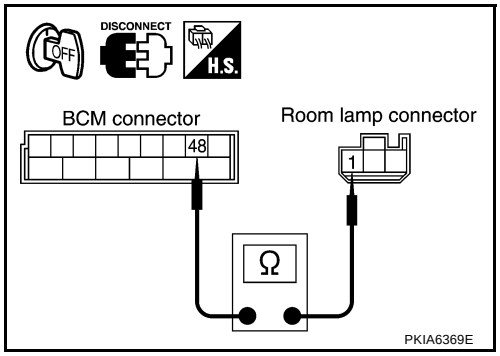
5. CHECK POWER SUPPLY CIRCUIT FOR ROOM LAMP

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector M35 terminal 48 (R) and room lamp harness connector R9 terminal 1 (R).

Continuity should exist.

OK or NG

OK >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .
NG >> Repair harness or connector.



6. CHECK GROUND CIRCUIT FOR ROOM LAMP

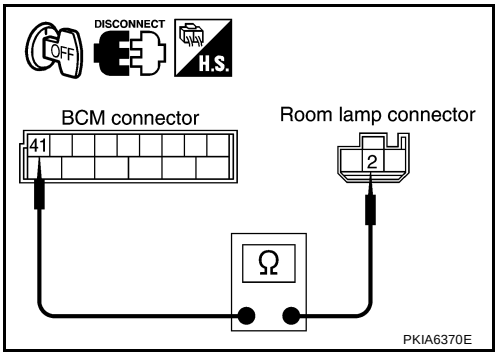
1. Disconnect BCM connector and room lamp connector.
2. Check continuity between BCM harness connector M35 terminal 41 (P) and room lamp harness connector R9 terminal 2 (Y).

41 (P) - 2 (Y) : Continuity should exist.

OK or NG

OK >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .

NG >> Repair harness or connector.



Personal Lamp Does Not Illuminate

AKS00AMK

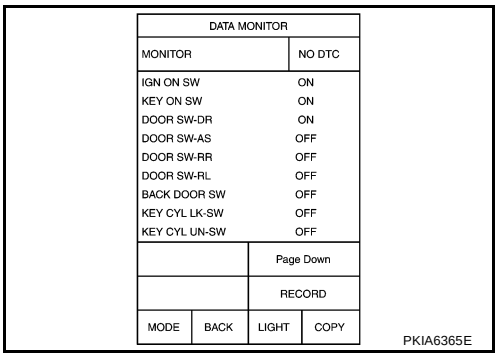
1. CHECK EACH SWITCH

Select “BCM” on CONSULT-II. With “INT LAMP” data monitor to make sure switches listed in display item list turn ON-OFF linked with switch operation. Refer to LT-184, "Display Item List" for switches and their functions.

OK or NG

OK >> GO TO 2.

NG >> Inspect malfunctioning switch system.



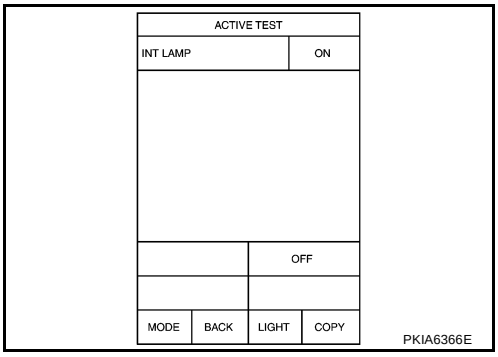
2. CHECK WITH ACTIVE TEST

1. Select “BCM” on CONSULT-II. Select “INT LAMP” active test.
2. When personal lamp switch is in “DOOR” position, use active test to make sure personal lamp operates.

OK or NG

OK >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .

NG >> GO TO 3.



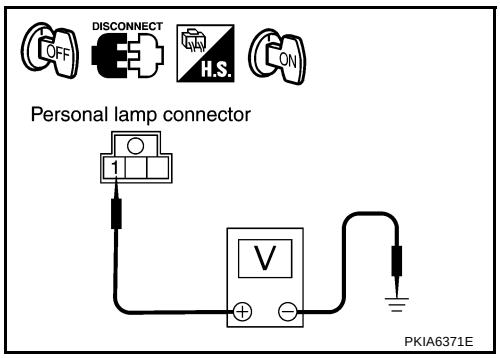
3. CHECK PERSONAL LAMP INPUT

1. Turn ignition switch OFF.
2. Disconnect personal lamp connectors.
3. Turn ignition switch ON.
4. Check voltage between personal lamp RH harness connector R10 terminal 1 (Y) and ground.

1 (Y) - Ground : Battery voltage should exist.

5. Check voltage between personal lamp LH harness connector R8 terminal 1 (Y) and ground.

1 (Y) - Ground : Battery voltage should exist.



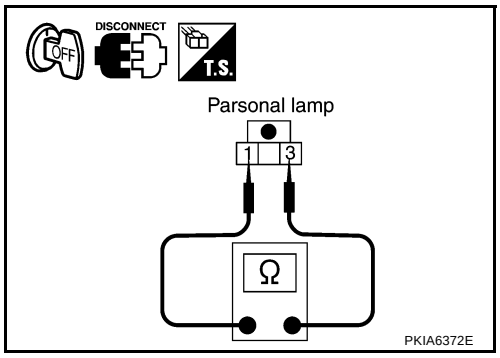
OK or NG

OK >> GO TO 4.
NG >> GO TO 6.

4. CHECK PERSONAL LAMP

1. Disconnect personal lamp connector.
2. Check continuity between personal lamp terminals.

Terminal		Condition	Continuity
Personal lamp			
1	3	Personal lamp switch is ON.	Yes
		Personal lamp switch is OFF.	No



OK or NG

OK >> GO TO 5.
NG >> Check bulb or replace personal lamp.

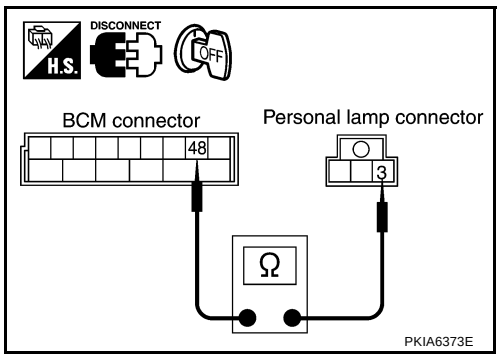
5. CHECK PERSONAL LAMP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check continuity between BCM harness connector M35 terminal 48 (R) and personal lamp RH harness connector R10 terminal 3 (R).

48 (R) - 3 (R) : Continuity should exist.

4. Check continuity between BCM harness connector M35 terminal 48 (R) and personal lamp LH harness connector terminal 3 (R).

48 (R) - 3 (R) : Continuity should exist.



OK or NG

OK >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .
NG >> Repair harness or connector.

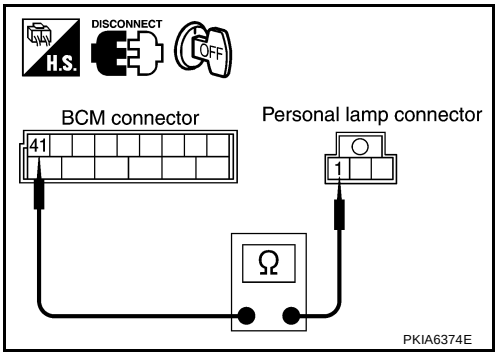
6. CHECK PERSONAL LAMP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and personal lamp connector.
3. Check continuity between BCM harness connector M35 terminal 41 (P) and personal lamp RH harness connector R10 terminal 1 (Y).

41 (P) - 1 (Y) : Continuity should exist.

4. Check continuity between BCM harness connector M35 terminal 41 (P) and personal lamp LH harness connector R8 terminal 1 (Y).

41 (P) - 1 (Y) : Continuity should exist.



OK or NG

OK >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .
NG >> Repair harness or connector.

Ignition Key Hole Illumination Does Not Illuminate

AKS00AML

1. CHECK BULB

Check bulb of lamp which does not operate.

OK or NG

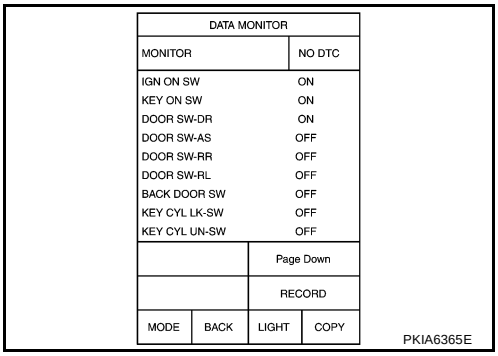
OK >> GO TO 2.
NG >> Replace bulb.

2. CHECK EACH SWITCH

Select “BCM” on CONSULT-II. With “INT LAMP” data monitor to make sure switches listed in display item list turn ON-OFF linked with switch operation. Refer to LT-184, "Display Item List" for switches and their functions.

OK or NG

OK >> GO TO 3.
NG >> Inspect malfunctioning switch system.

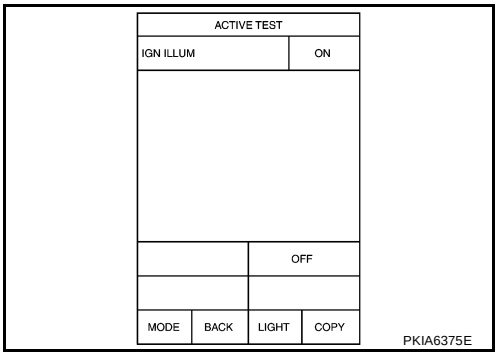


3. CHECK WITH ACTIVE TEST

1. Select “BCM” on CONSULT-II. Select “INT LAMP”.
2. Select “IGN ILLUM” active test to make sure lamp operates.

OK or NG

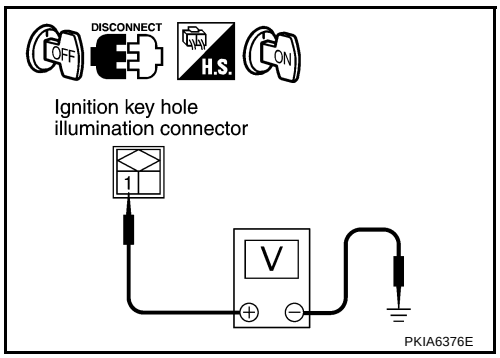
OK >> Replace BCM.Refer to BCS-14, "Removal and Installation of BCM" .
NG >> GO TO 4.



4. CHECK POWER SUPPLY TO IGNITION KEY HOLE ILLUMINATION

1. Turn ignition switch OFF.
2. Disconnect ignition key hole illumination connector.
3. Turn ignition switch ON.
4. Check voltage between ignition key hole illumination harness connector M40 terminal 1 (P) and ground.

1 (P) - Ground : Battery voltage should exist.



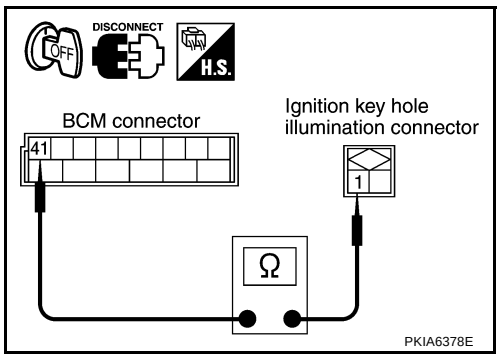
OK or NG

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

5. CHECK POWER SUPPLY CIRCUIT FOR IGNITION KEY HOLE ILLUMINATION

1. Turn ignition switch OFF.
2. Disconnect BCM connector and key hole illumination connector.
3. Check continuity between BCM harness connector M35 terminal 41 (P) and key hole illumination harness connector M40 terminal 1 (P).

41 (P) - 1 (P) : Continuity should exist.



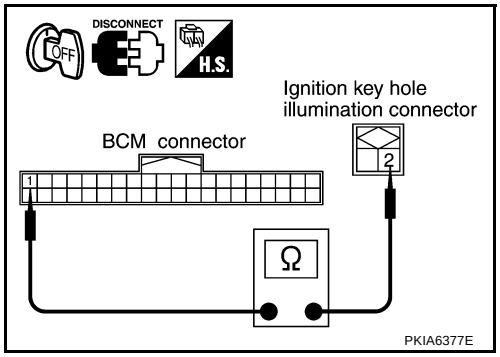
OK or NG

OK >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .
NG >> Repair harness or connector.

6. CHECK GROUND CIRCUIT FOR IGNITION KEY HOLE ILLUMINATION

1. Turn ignition switch OFF.
2. Disconnect BCM connector and key hole illumination connector.
3. Check continuity between BCM harness connector M34 terminal 1 (R/Y) and key hole illumination harness connector M40 terminal 2 (R/Y).

1 (R/Y) - 2 (R/Y) : Continuity should exist.



OK or NG

OK >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .
NG >> Repair harness or connector.

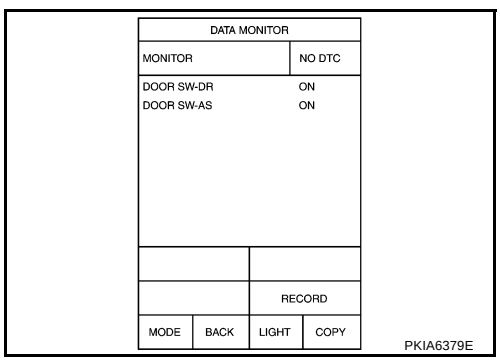
Step Lamp Does Not Illuminate

AKS00AMM

1. CHECK EACH DOOR SWITCH

Select “BCM” on CONSULT-II. With “INT LAMP” data monitor to make sure switches listed below turn ON-OFF linked with switch operation.

Switch name	CONSULT screen
Driver side door switch	DOOR SW - DR
Passenger side door switch	DOOR SW - AS



OK or NG

OK >> GO TO 2.
NG >> Inspect malfunctioning switch system.

2. CHECK BULB

Check bulb of lamp which does not illuminate.

OK or NG

OK >> GO TO 3.
NG >> Replace bulb.

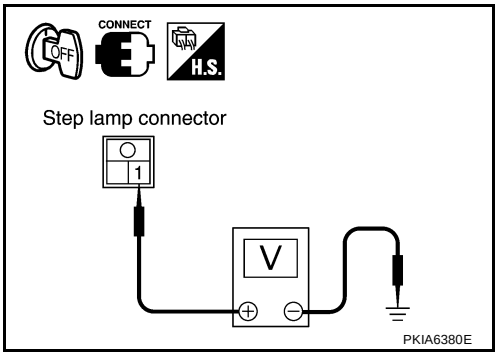
3. CHECK STEP LAMP INPUT

1. Turn ignition switch OFF.
2. Disconnect step lamp (driver side/passenger side) connectors.
3. Turn ignition switch ON.
4. Check voltage between step lamp (driver side) harness connector D9 terminal 1 (P) and ground.

1 (P) - Ground : Battery voltage should exist.

5. Check voltage between step lamp (passenger side) harness connector D37 terminal 1 (P) and ground.

1 (P) - Ground : Battery voltage should exist.



OK or NG

OK >> GO TO 4.
NG >> GO TO 5.

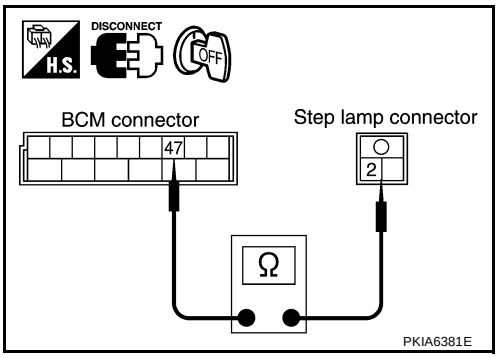
4. CHECK GROUND CIRCUIT FOR STEP LAMP

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check continuity between BCM harness connector M35 terminal 47 (R/W) and step lamp (driver side) harness connector D9 terminal 2 (R/W).

47 (R/W) - 2 (R/W) : Continuity should exist.

4. Check continuity between BCM harness connector M35 terminal 47 (R/W) and step lamp (passenger side) harness connector D37 terminal 2 (R/W).

47 (R/W) - 2 (R/W) : Continuity should exist.



OK or NG

OK >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .
NG >> Repair harness or connector.

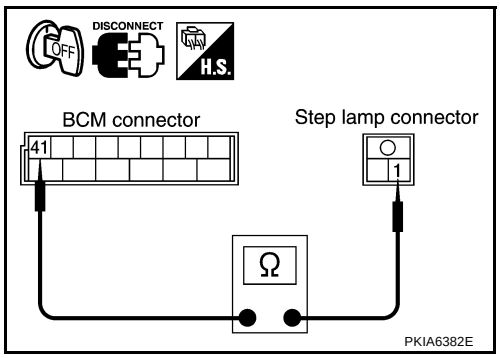
5. CHECK STEP LAMP CIRCUIT

1. Disconnect BCM connector and step lamp connector.
2. Check continuity between BCM harness connector M35 terminal 41 (P) and step lamp (driver side) harness connector D9 terminal 1 (P).

41 (P) - 1 (P) : Continuity should exist.

3. Check continuity between BCM harness connector M35 terminal 41 (P) and step lamp (passenger side) harness connector D37 terminal 1 (P).

41 (P) - 1 (P) : Continuity should exist.



OK or NG

OK >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .
NG >> Repair harness or connector.

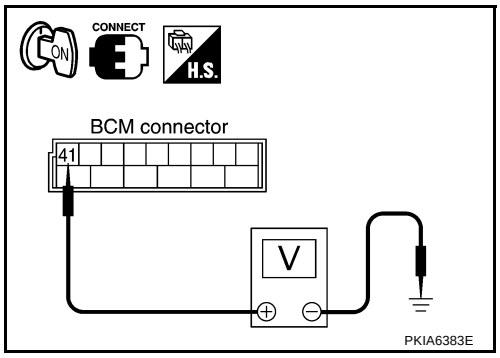
All Interior Room Lamp Does Not Operate

AKS00AMN

1. CHECK POWER SUPPLY CIRCUIT

1. All interior room lamps switch are OFF.
2. Turn ignition switch ON.
3. Check voltage between BCM harness connector M35 terminal 41 (P) and ground.

Battery voltage should exist.



OK or NG

OK >> Repair harness or connector. In a case of making a short circuit, be sure to disconnect battery negative cable after repairing harness, and then reconnect
NG >> Replace BCM. Refer to BCS-14, "Removal and Installation of BCM" .

Bulb Replacement

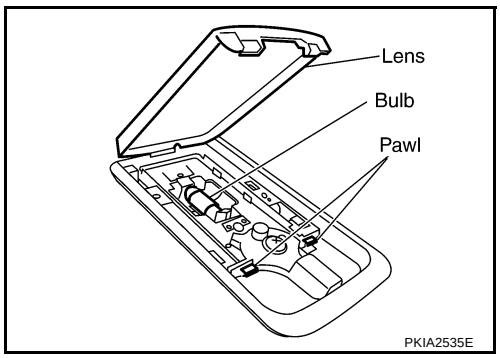
AKS00AMO

ROOM LAMP

1. Disconnect the battery negative cable.
2. Remove the lens using clip driver or suitable tool.
3. Remove the bulb.

Room lamp :12V - 8W

4. Install in the reverse order of removal.



MAP LAMP

Refer to LT-167, "Bulb Replacement" in “MAP LAMP”.

PERSONAL LAMP

Refer to LT-168, "Bulb Replacement, Removal and Installation" in “PERSONAL LAMP”.

STEP LAMP

Refer to LT-145, "Bulb Replacement" in “STEP LAMP”.

LUGGAGE ROOM LAMP

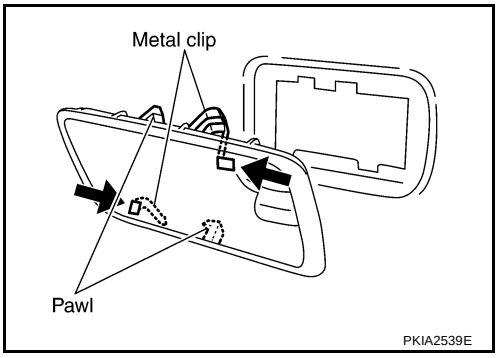
Refer to LT-169, "Bulb Replacement, Removal and Installation" in “LUGGAGE ROOM LAMP”.

Removal and Installation

AKS00AMP

ROOM LAMP

1. Remove the lens using clip driver or suitable tool.
2. Using a clip driver or suitable tool and disengage the metal clip fittings of the room lamp.
3. Disconnect room lamp connector and remove the room lamp.



MAP LAMP

Refer to LT-167, "Removal and Installation" in “MAP LAMP”.

PERSONAL LAMP

Refer to LT-168, "Bulb Replacement, Removal and Installation" in “PERSONAL LAMP”.

STEP LAMP

Refer to LT-145, "Removal and Installation" in “STEP LAMP”.

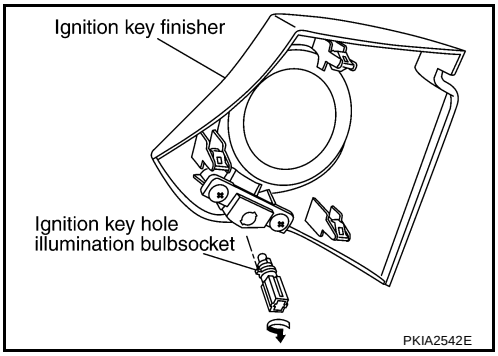
LUGGAGE ROOM LAMP

Refer to LT-169, "Bulb Replacement, Removal and Installation" in “LUGGAGE ROOM LAMP”.

IGNITION KEY HOLE ILLUMINATION

1. Remove the ignition key finisher. Refer to IP-11, "Removal and Installation" in “INSTRUMENT PANEL (IP)” section.
2. Turn the bulb socket counterclockwise and unlock it.

Ignition key hole illumination : 12V - 0.8W



ILLUMINATION

PFP:27545

System Description

AKS004MG

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 (or if the auto light system is activated) the BCM (body control module) receives input signal requesting the 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) of the IPDM E/R (intelligent power distribution module engine room) controls the tail lamp relay coil. This relay, when energized, directs power to the illumination lamps, which then illuminate.

Power is supplied at all times

- through 10A fuse [No. 71, located in IPDM E/R (intelligent power distribution module engine room)]
- to tail lamp relay [located in IPDM E/R (intelligent power distribution module engine room)] and
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)].
- through 15A fuse [No. 78, located in IPDM E/R (intelligent power distribution module engine room)]
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)].

Power is also supplied at all times

- through 50A fusible link (letter F, located in fuse and fusible link block)
- to BCM (body control module) terminal 55
- through 10A fuse [No. 21, located in fuse block (J/B)]
- to combination meter terminal 21.

With the ignition switch in the 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. 14, located in fuse block (J/B)]
- to combination meter terminal 20.

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

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

Ground is supplied

- to BCM (body control module) terminals 49 and 52
- through grounds M14 and M78
- to IPDM E/R (intelligent power distribution module engine room) terminals 38 and 60
- through grounds E13, E26 and E28
- to combination meter 22, 23 and 24
- through grounds M14 and M78.

ILLUMINATION OPERATION BY LIGHTING SWITCH

With the lighting switch in the 1ST or 2ND position (or if the auto light system is activated), the BCM receives input signal requesting the illumination lamps to illuminate. This input signal is communicated to the IPDM E/R across the CAN communication lines. The CPU of the IPDM E/R controls the tail lamp relay coil, which, when energized, directs power

- through IPDM E/R terminal 22
- to CVT illumination terminal 1
- to VDC off switch (illumination) terminal 3 (with VDC)
- to headlamp aiming switch (illumination) terminal 3 (with headlamp aiming)
- to AWD lock switch (illumination) terminal 4 (AWD models)
- to heated seat switch (driver side) (illumination) terminal 5 (with heater seat)
- to heated seat switch (passenger side) (illumination) terminal 5 (with heater seat)
- to NAVI control unit terminal 25 (with navigation system)

- to A/C and AV switch terminal 3
- to coin box illumination terminal 1
- to glove box lamp terminal 1
- to rear power window switch LH (illumination) terminal 6
- to rear power window switch RH (illumination) terminal 6.

Illumination control

- through combination meter terminal 15
- to CVT illumination terminal 2
- to VDC off switch (illumination) terminal 4 (with VDC)
- to headlamp aiming switch (illumination) terminal 4 (with headlamp aiming)
- to AWD lock switch (illumination) terminal 2 (AWD models)
- to heated seat switch (driver side) (illumination) terminal 6 (with heater seat)
- to heated seat switch (passenger side) (illumination) terminal 6 (with heater seat)
- to NAVI control unit terminal 30 (with navigation system)
- to A/C and AV switch terminal 4.

Ground is supplied at all times

- to coin box illumination terminal 2
- to glove box lamp terminal 2
- through grounds M14 and M78
- to rear power window switch LH (illumination) terminal 7
- through grounds B7 and B20
- to rear power window switch RH (illumination) terminal 7
- through grounds B105 and B116.

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 (or if auto light system is activated), and the ignition switch is turned from ON or ACC to OFF, the battery saver control function is activated. Under this condition, the illumination lamps remain illuminated for 5 minutes, then the illumination lamps are turned off.
When the lighting switch is turned from OFF to 1ST or 2ND position (or if auto light system is activated) after illumination lamps are turned off by the 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

AKS004MH

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.

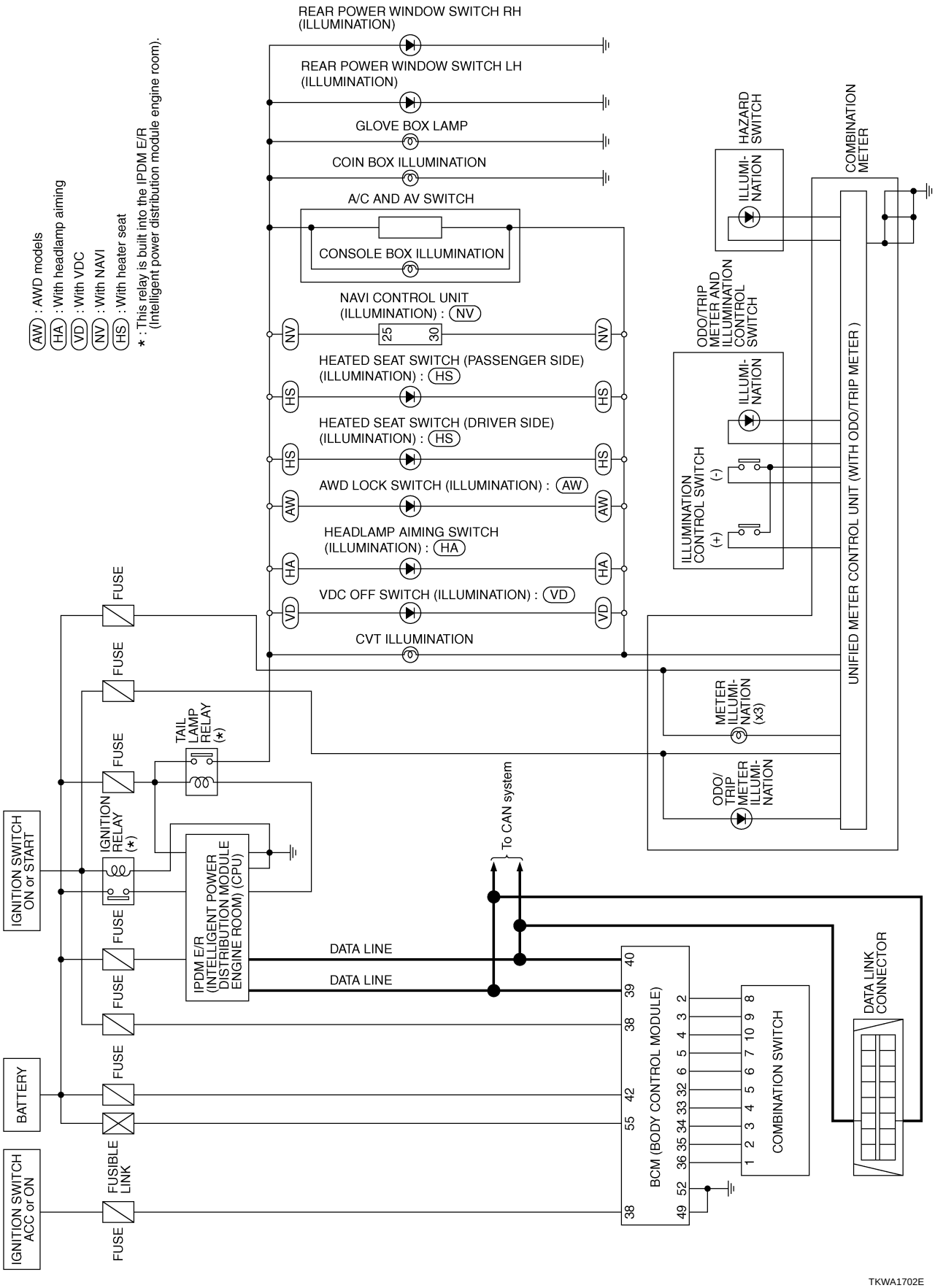
CAN Communication Unit

AKS007QZ

Refer to LAN-8, "CAN Communication Unit" .

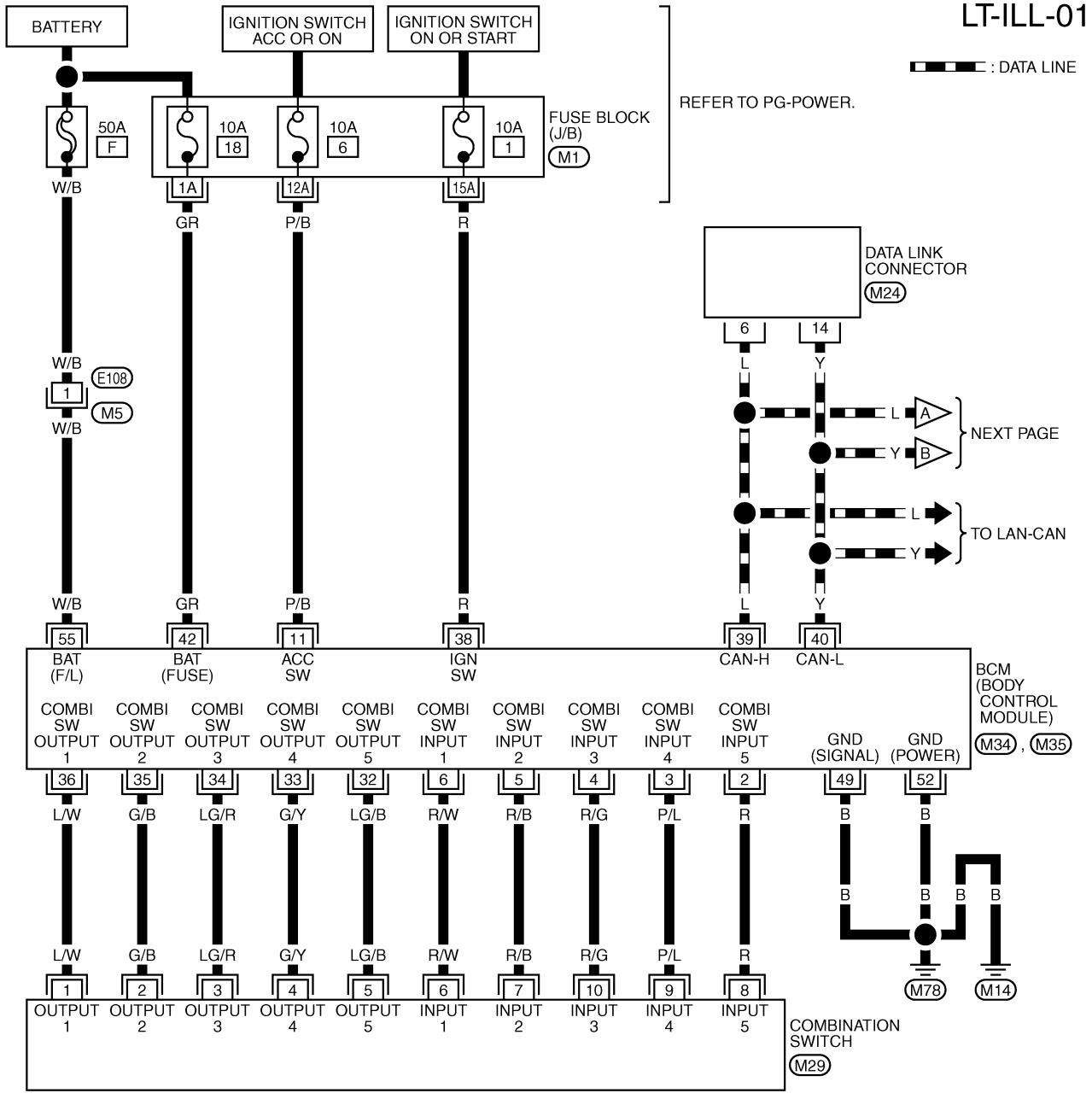
Schematic

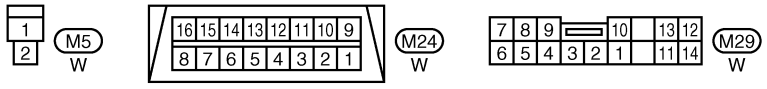
AKS004MJ



Wiring Diagram — ILL —

AKS004MK

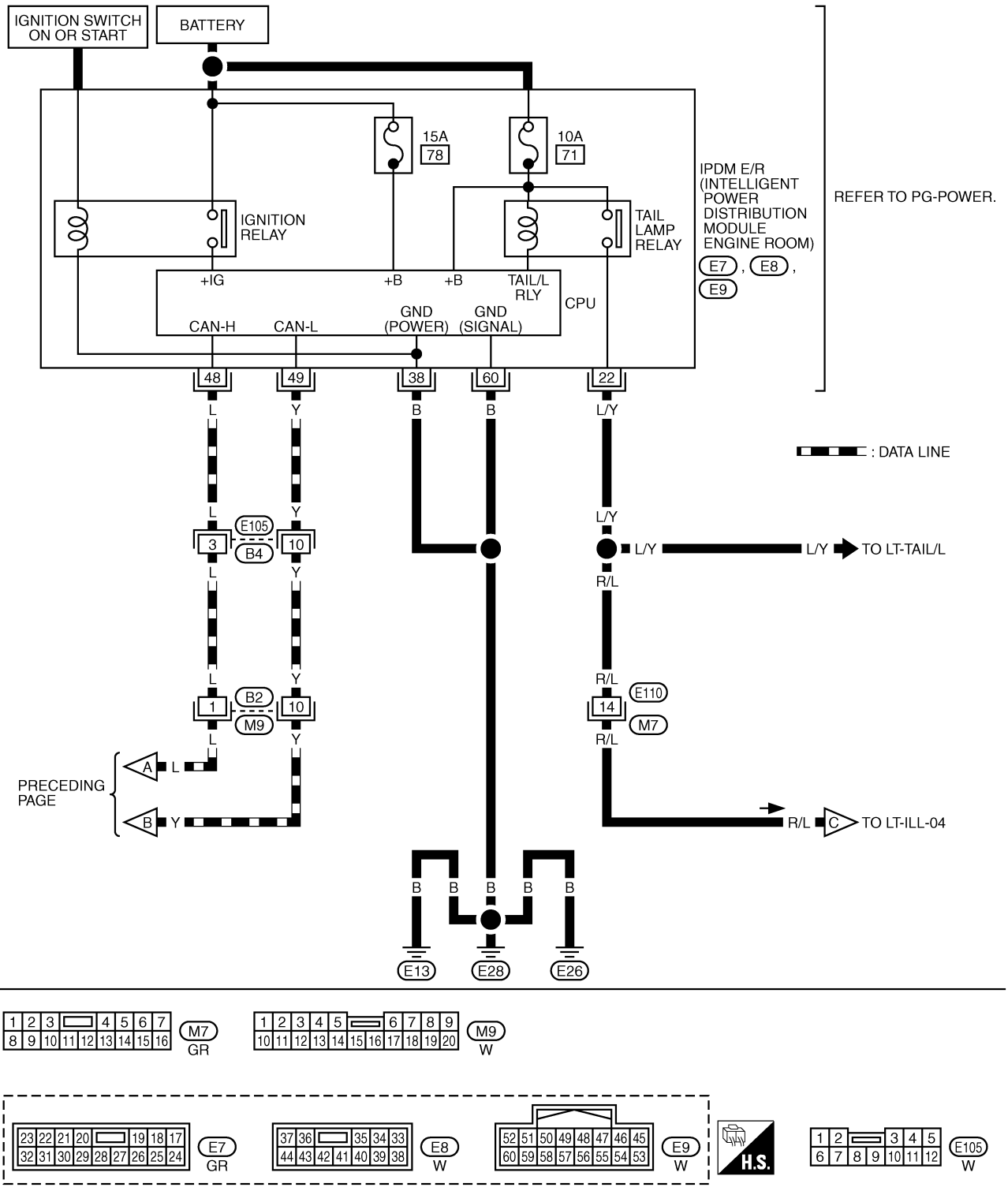




REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B)
M34, M35 -ELECTRICAL UNITS

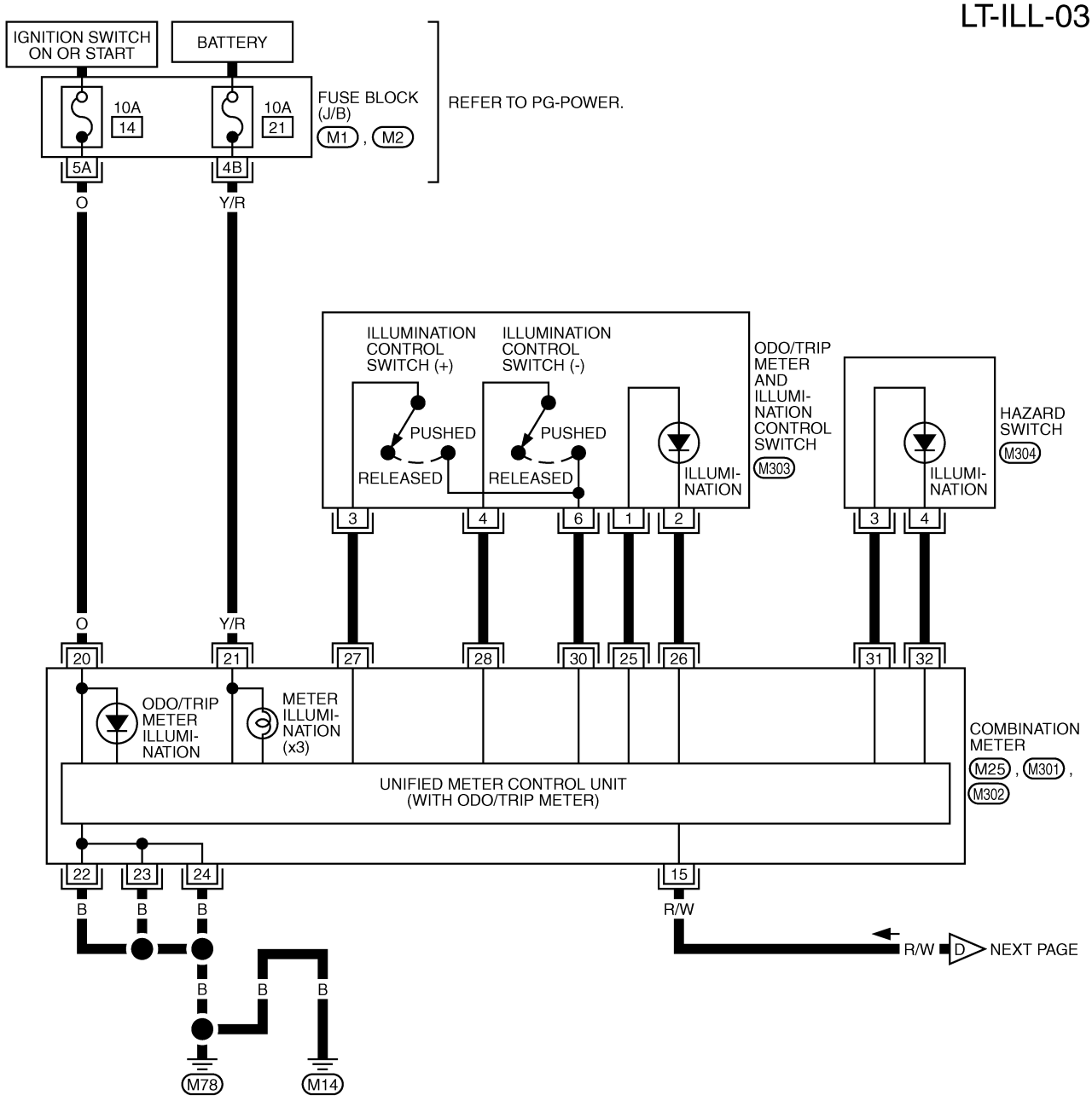
TKWA1703E

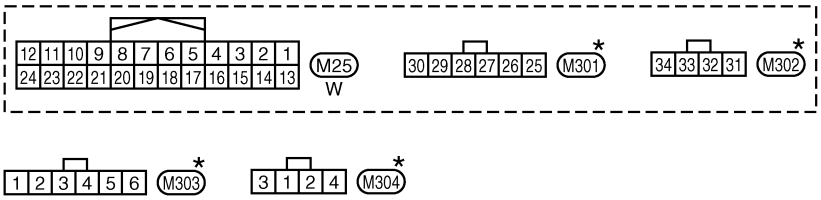
LT-ILL-02



TKWA1704E

LT-ILL-03





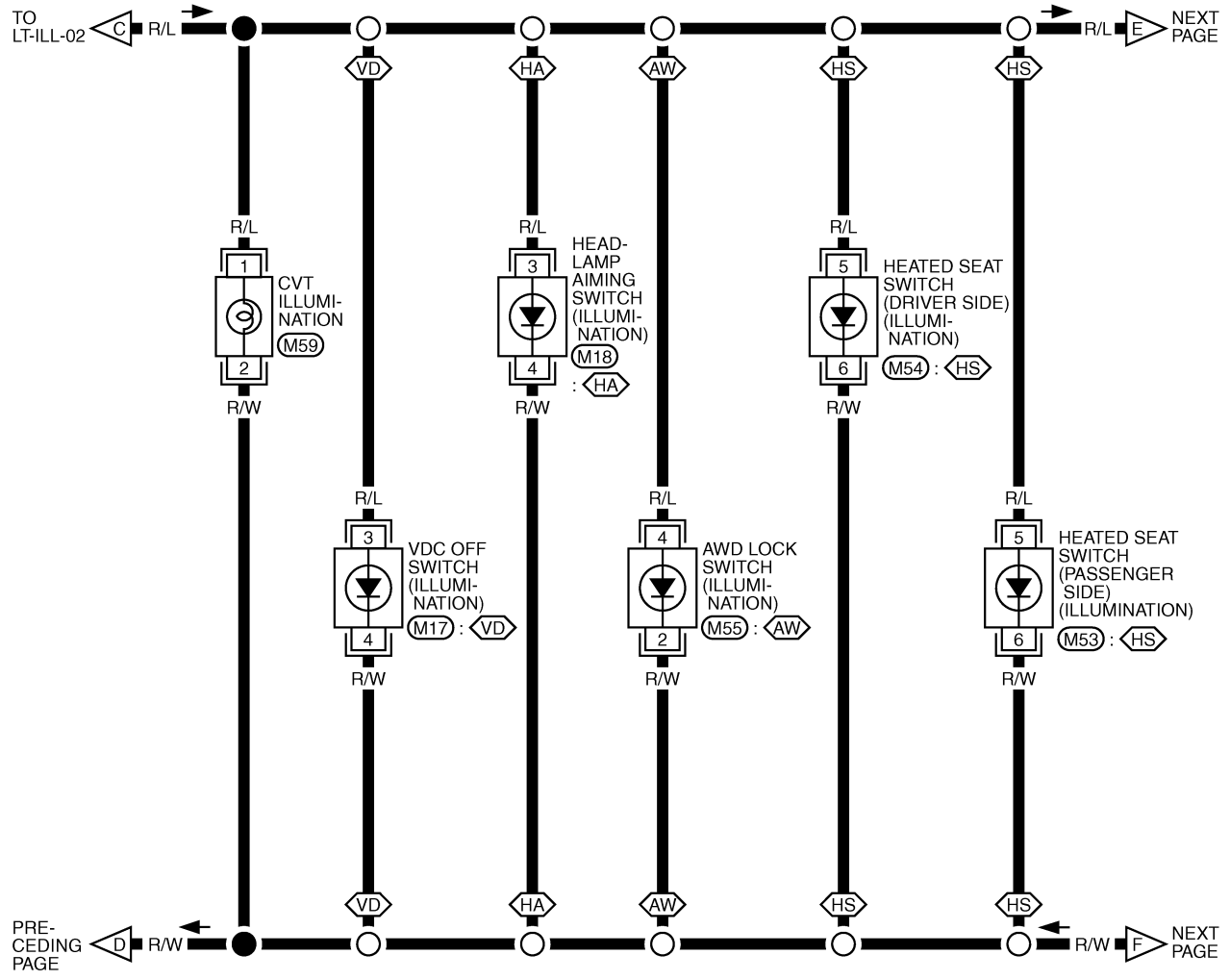
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

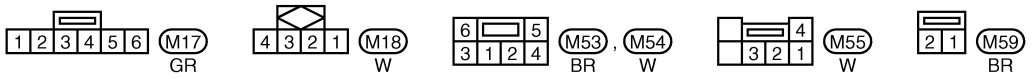
REFER TO THE FOLLOWING.
M1 , M2 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWA0923E

LT-ILL-04

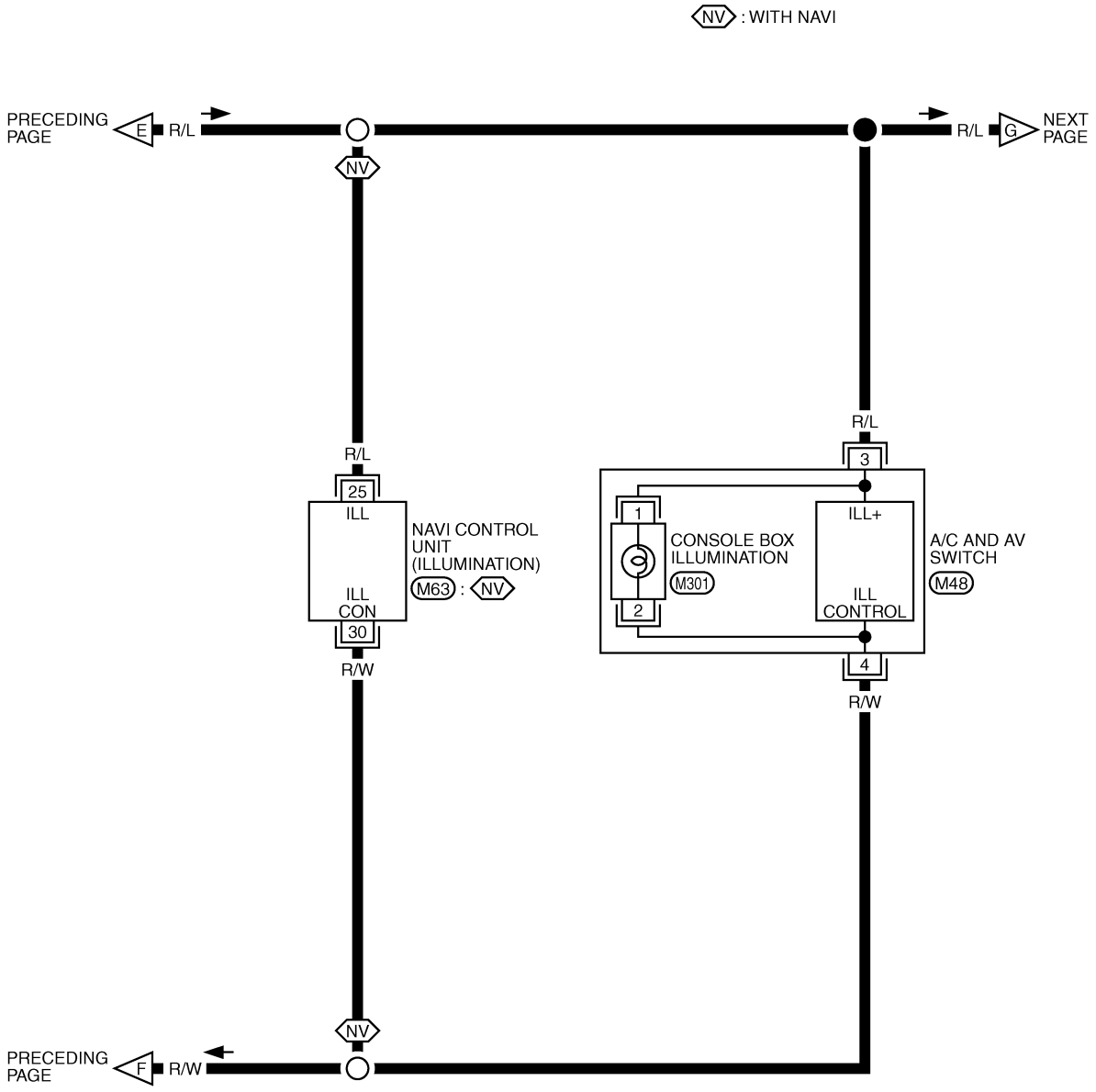
AW : AWD MODELS
HA : WITH HEADLAMP AIMING
VD : WITH VDC
HS : WITH HEATER SEAT

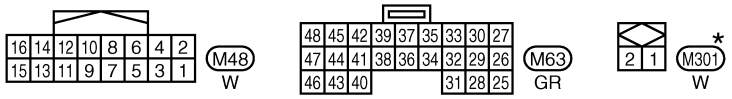




TKWA0924E

LT-ILL-05

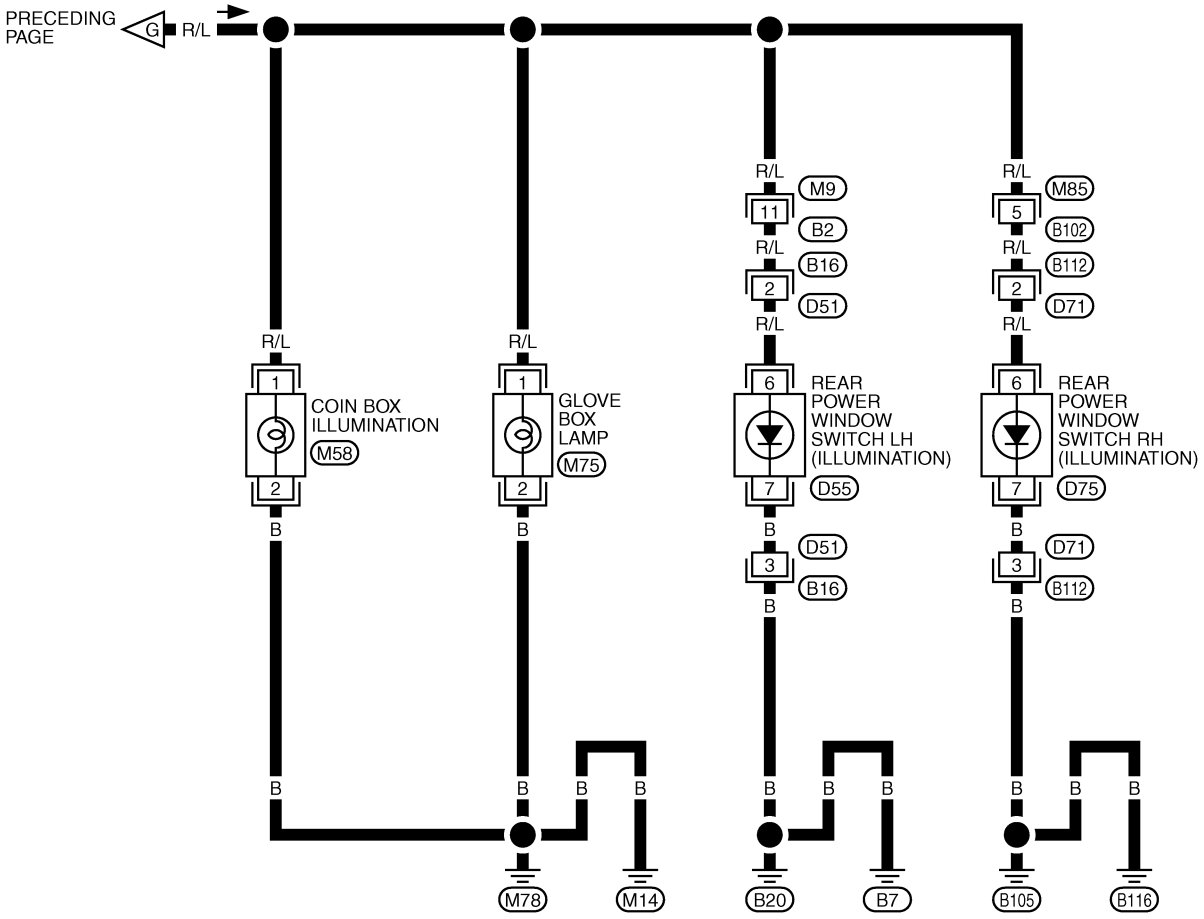


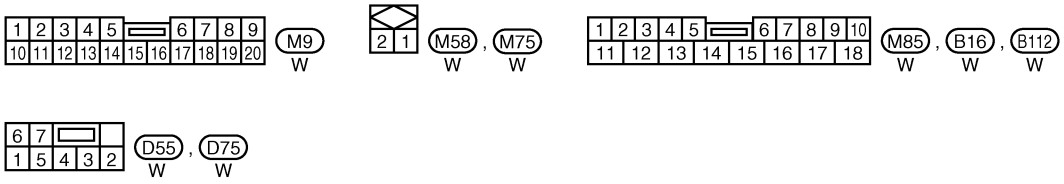


*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWA1705E

LT-ILL-06





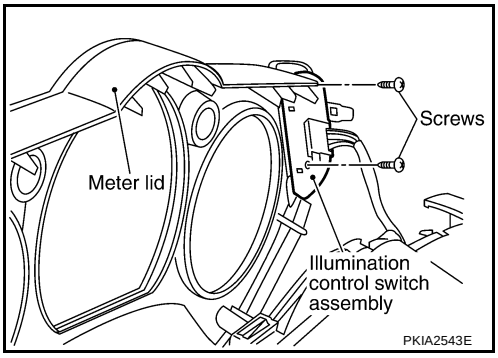
TKWA1706E

Removal and Installation

AKS005MB

ILLUMINATION CONTROL SWITCH

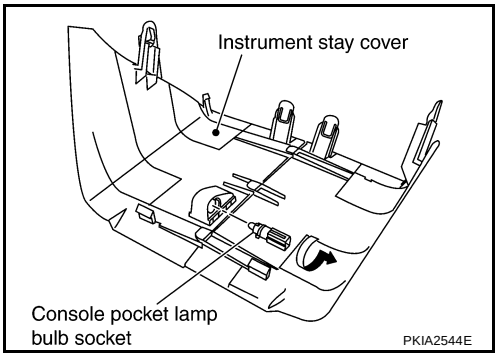
1. Remove the meter lid. Refer to DI-29, "Disassembly and Assembly of Combination Meter" in “DRIVER INFORMATION SYSTEM (DI)” section.
2. Remove the illumination control switch fixing screws and remove the unit from the meter lid.



CONSOLE POCKET LAMP

1. Remove the instrument stay cover. Refer to IP-11, "Removal and Installation" in “INSTRUMENT PANEL (IP)” section.
2. Turn the bulb socket counterclockwise and unlock it.

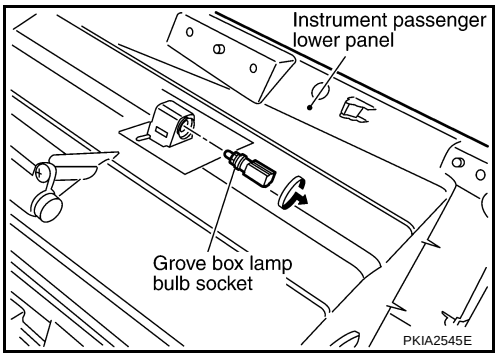
Console pocket lamp : 12V - 2W



GLOVE BOX LAMP

1. Remove the instrument passenger lower panel. Refer to IP-11, "Removal and Installation" in “INSTRUMENT PANEL (IP)” section.
2. Turn the bulb socket counterclockwise and unlock it.

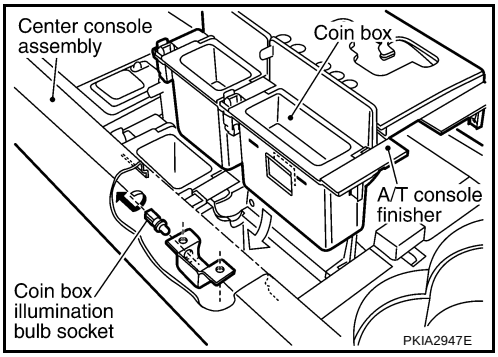
Glove box lamp : 12V - 1.4W



COIN BOX ILLUMINATION

1. Remove the A/T console finisher. Refer to IP-17, "CENTER CONSOLE ASSEMBLY" in “INSTRUMENT PANEL (IP)” section.
2. Turn the bulb socket counterclockwise and unlock it.

Coin box illumination : 12V - 1.4W



BULB SPECIFICATIONS

PFP:26297

Headlamp

AKS005ME

Item	Wattage (W)
High/Low (Halogen type)	65/55 (HB5)
High/Low (Xenon type)	35 (D2R)

Exterior Lamp

AKS005MF

Item		Wattage (W)
Front combination lamp	Front turn signal lamp	21 (amber)
	Parking lamp	3.8
	Front side marker lamp	3.8
Rear combination lamp	Stop/Tail lamp	21/5
	Rear turn signal lamp	21
	Rear side marker lamp	5
Front fog lamp		51 (HB4)
Back-up lamp		16
License plate lamp		5
High-mounted stop lamp (back door mount)		LED

Interior Lamp/Illumination

AKS005MG

Item	Wattage (W)
Map lamp	8
Room lamp	8
Personal lamp	8
Luggage room lamp	8
Step lamp	2.7
Glove box lamp	1.4
Vanity mirror lamp	2
Ignition key hole illumination	1.4
Console pocket lamp	1.4
Coin box illumination	1.4