SECTION LT
LIGHTING SYSTEM

CONTENTS

PRECAUTIONS

PFP:00011

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

AKS00AW4

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.

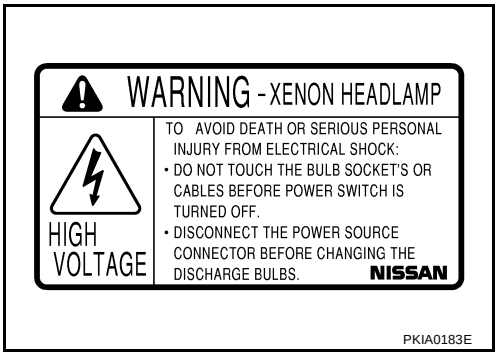
WARNING:

- **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

AKS00AW6

- 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.



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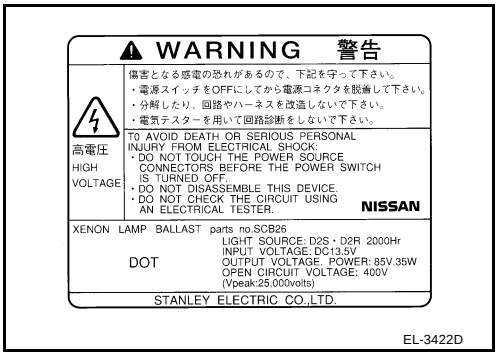
- Do not touch the headlamp bulb glass surface with bare hands or allow oil or grease to get on it. Do not touch the headlamp bulb just after the headlamp is turned off, because it is very hot.
- Install the xenon headlamp bulb socket correctly. If it is installed improperly, high-voltage leak or corona 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

AKS00AW7

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:

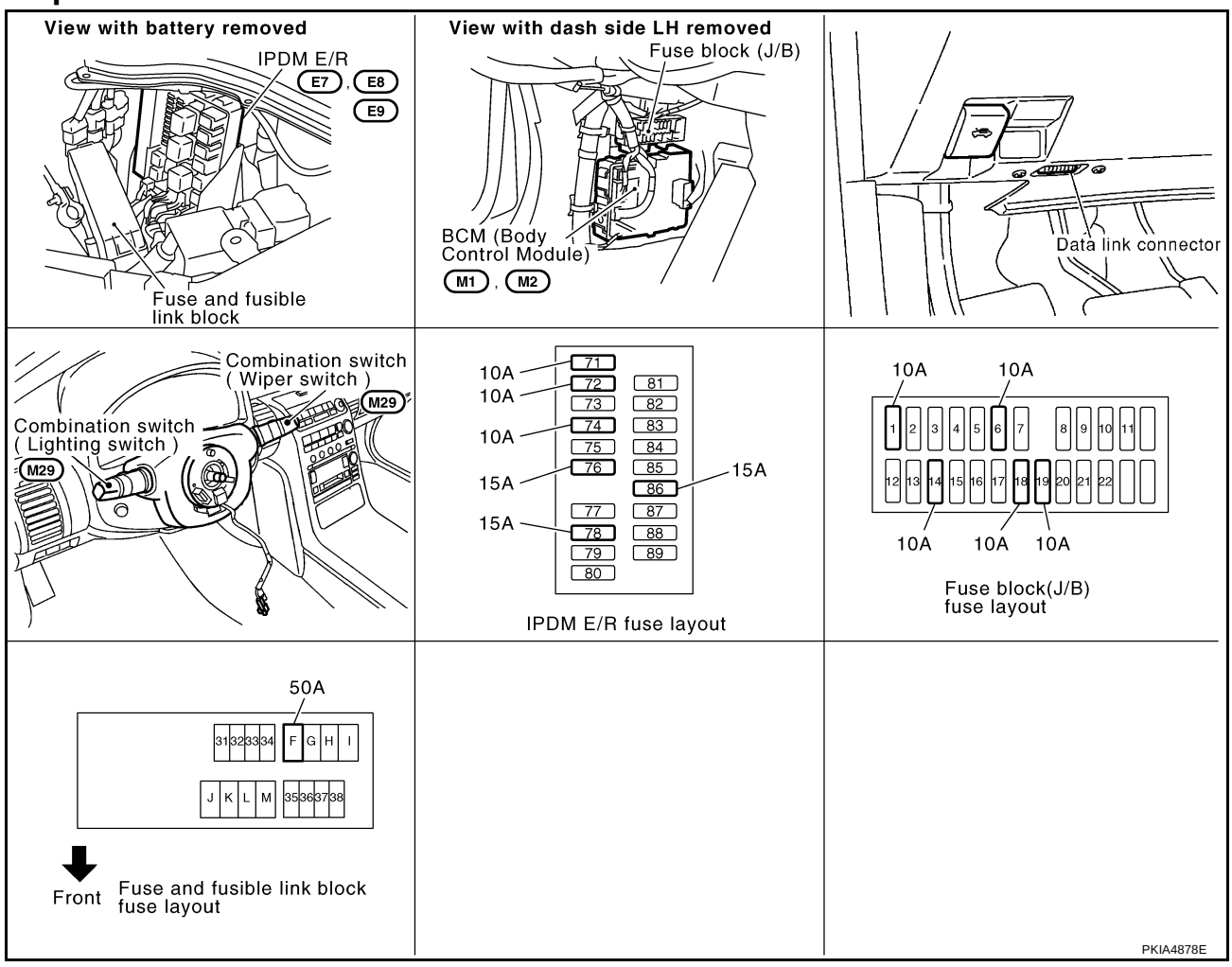
- Refer to GI-10, "HOW TO FOLLOW TEST GROUPS IN TROUBLE DIAGNOSES" in GI section.
- Refer to GI-26, "How to Perform Efficient Diagnosis for an Electrical Incident" in GI section.

HEADLAMP (FOR USA)

PFP:26010

Component Parts and Harness Connector Location

AKS009IE



System Description

AKS009IF

Control of headlamp system operation is dependent upon the position of the combination switch (lighting switch). When lighting switch is placed in the 2ND position, BCM (body control module) receives input signal requesting the headlamps (and tail lamps) illuminate. This input signal is communicated to IPDM E/R (intelligent power distribution module engine room) across CAN communication lines. The CPU (central processing unit) of IPDM E/R controls 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 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)]
- 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 combination meter terminal 43.

With 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 41 and 42.

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

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

Ground is supplied

- to BCM (body control module) terminal 52
- through grounds M30 and M66
- to IPDM E/R (intelligent power distribution module engine room) terminals 38 and 60
- through grounds E17 and E43
- to combination meter terminal 45 and 46
- through grounds M30 and M66.

Low Beam Operation

With lighting switch in 2ND position, the BCM receives input signal requesting headlamps to illuminate. This input signal is communicated to IPDM E/R across CAN communication lines. The CPU in IPDM E/R controls 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 3
- to 15A fuse [No. 86, located in IPDM E/R]
- through IPDM E/R terminal 30
- to headlamp LH terminal 3.

Ground is supplied

- to headlamp RH terminal 5
- through grounds E17 and E43
- to headlamp LH terminal 5
- through grounds E17 and E43.

With power and ground supplied, low beam headlamps illuminate.

High Beam Operation/Flash-to-Pass Operation

With lighting switch in 2ND position and placed in HIGH or PASS position, BCM receives input signal requesting headlamp high beams to illuminate. This input signal is communicated to IPDM E/R across the CAN communication lines. The CPU in IPDM E/R controls headlamp high relay coil and 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 3, and
- to 15A fuse [No. 86, located in IPDM E/R]
- through IPDM E/R terminal 30
- to headlamp LH terminal 3
- to 10A fuse [No. 72, located in IPDM E/R]
- through IPDM E/R terminal 27
- to headlamp RH terminal 2, and
- to 10A fuse [No. 74, located in IPDM E/R]
- through IPDM E/R terminal 28
- to headlamp LH terminal 2.

Ground is supplied

- to headlamp RH terminal 5 and 8
- through grounds E17 and E43
- to headlamp LH terminal 5 and 8
- through grounds E17 and E43.

With power and ground supplied, 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 high beam request signal by BCM across 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 combination switch (lighting switch) is in 2ND position (ON), and 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 headlamps are turned off.
Exterior lamp battery saver control mode can be changed by the function setting of CONSULT-II.

AUTO LIGHT OPERATION (IF EPUIPPED)

Refer to LT-71, "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-106, "VEHICLE SECURITY (THEFT WARNING) SYSTEM" .

XENON HEADLAMP

Xenon type headlamp is adopted to 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 headlamps stable quality and tone color.
Following are some of many advantages of xenon type headlamp.

- The light produced by 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 human eye is most sensitive. This means that even in the rain, more light is reflected back from the road surface toward vehicle, for added visibility.
- Power consumption is approximately 25 percent less than halogen headlamps, reducing battery load.

CAN Communication System Description

AKS009IG

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 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.

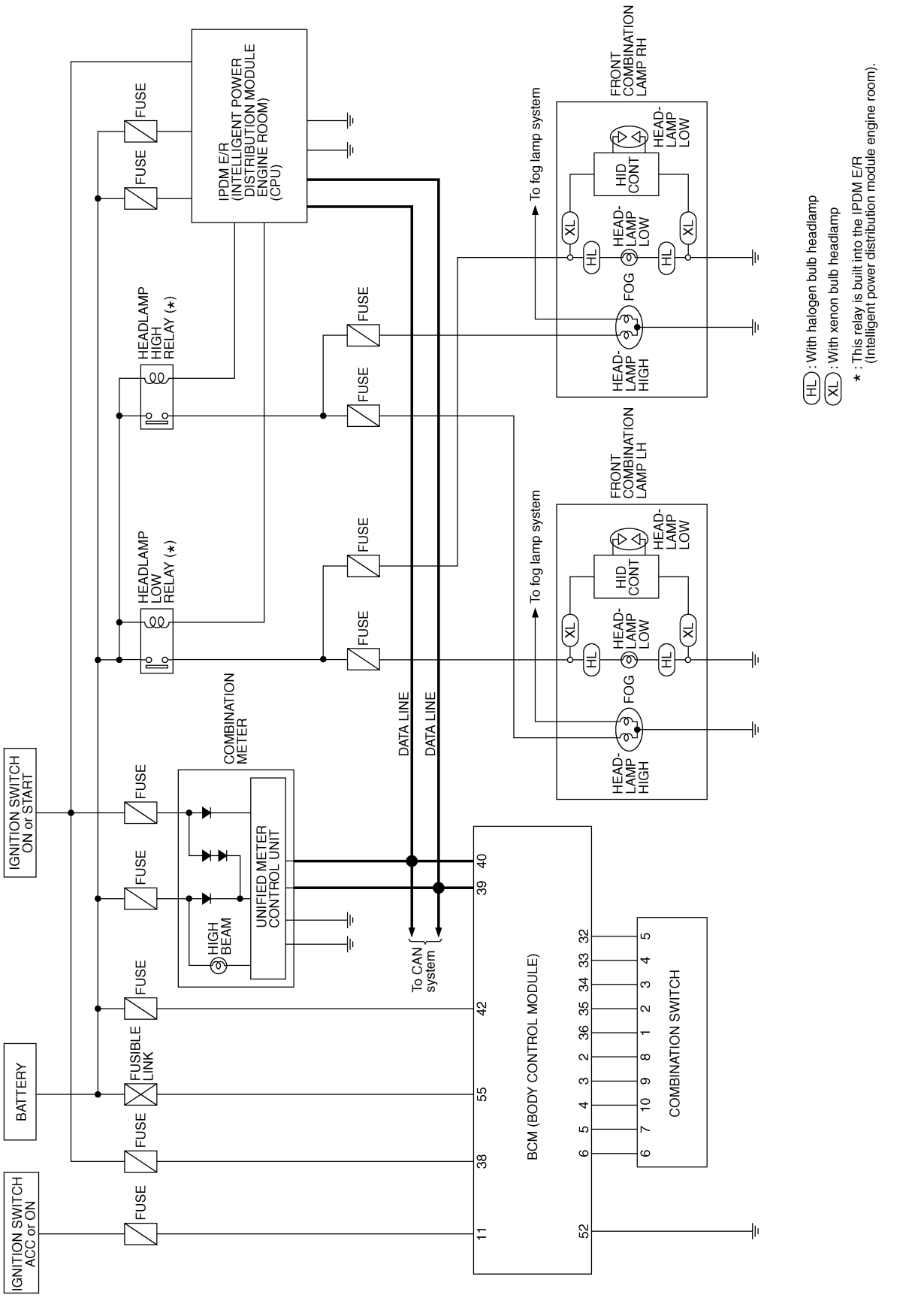
CAN Communication Unit

AKS009IH

Refer to LAN-5, "CAN Communication Unit" .

Schematic

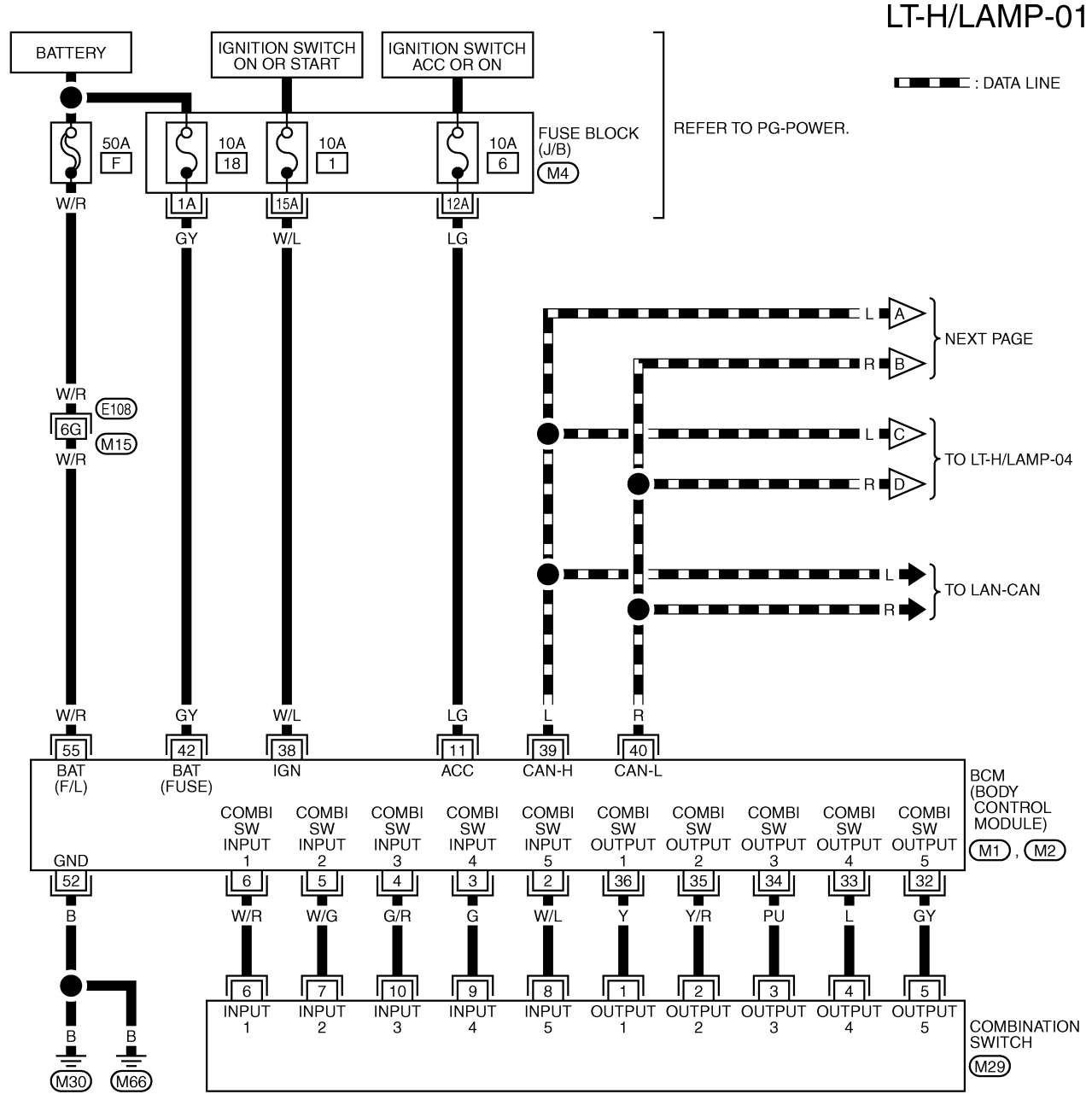
AKS009II



TKWT1403E

Wiring Diagram — H/LAMP —

AKS009IJ



REFER TO THE FOLLOWING.

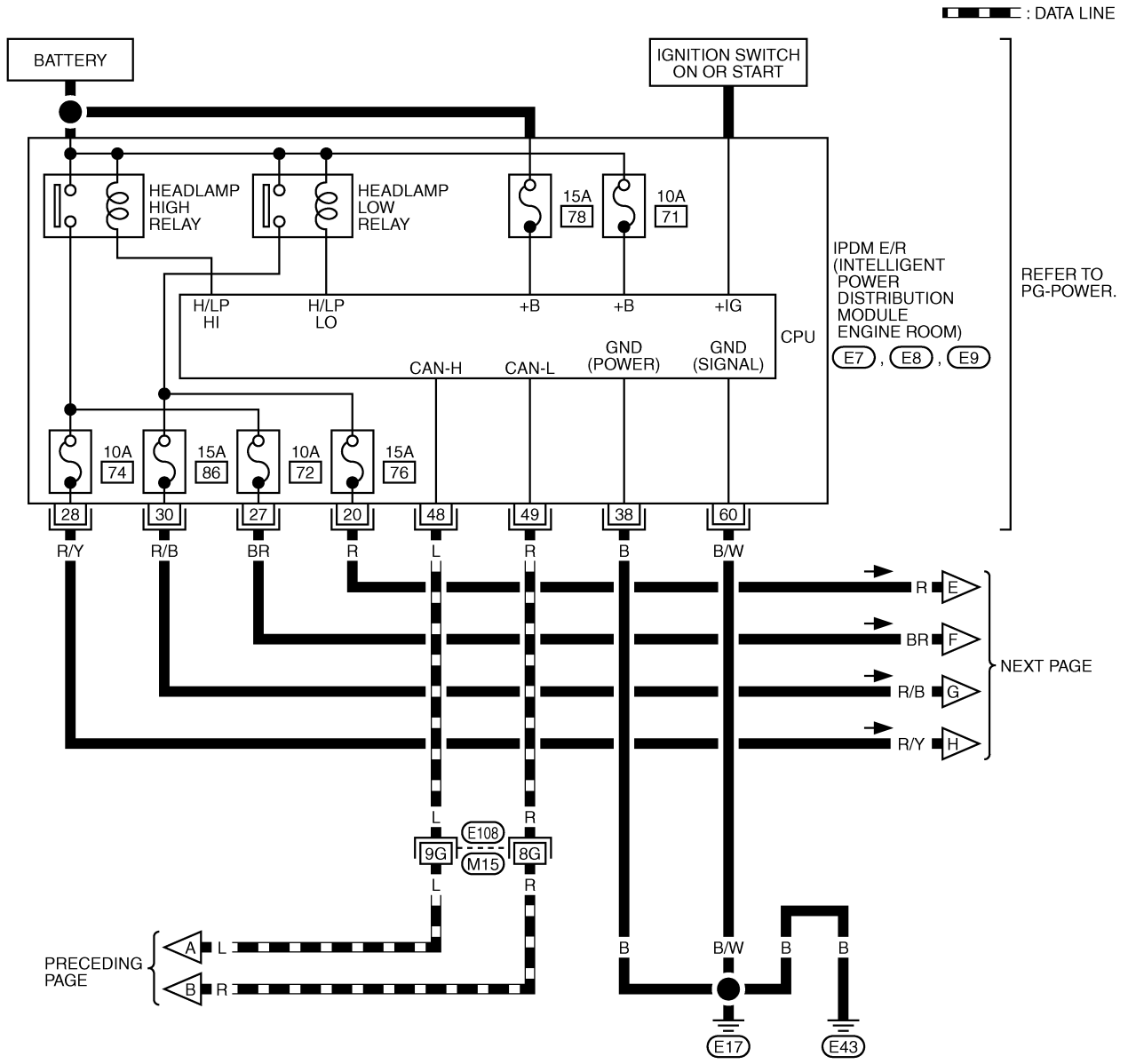
E108 -SUPER MULTIPLE JUNCTION (SMJ)

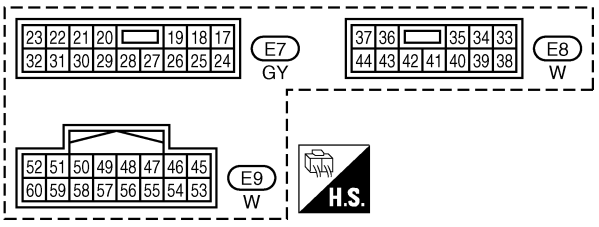
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

M1, M2 -ELECTRICAL UNITS

TKWT1404E

LT-H/LAMP-02





REFER TO THE FOLLOWING.
E108 -SUPER MULTIPLE JUNCTION (SMJ)

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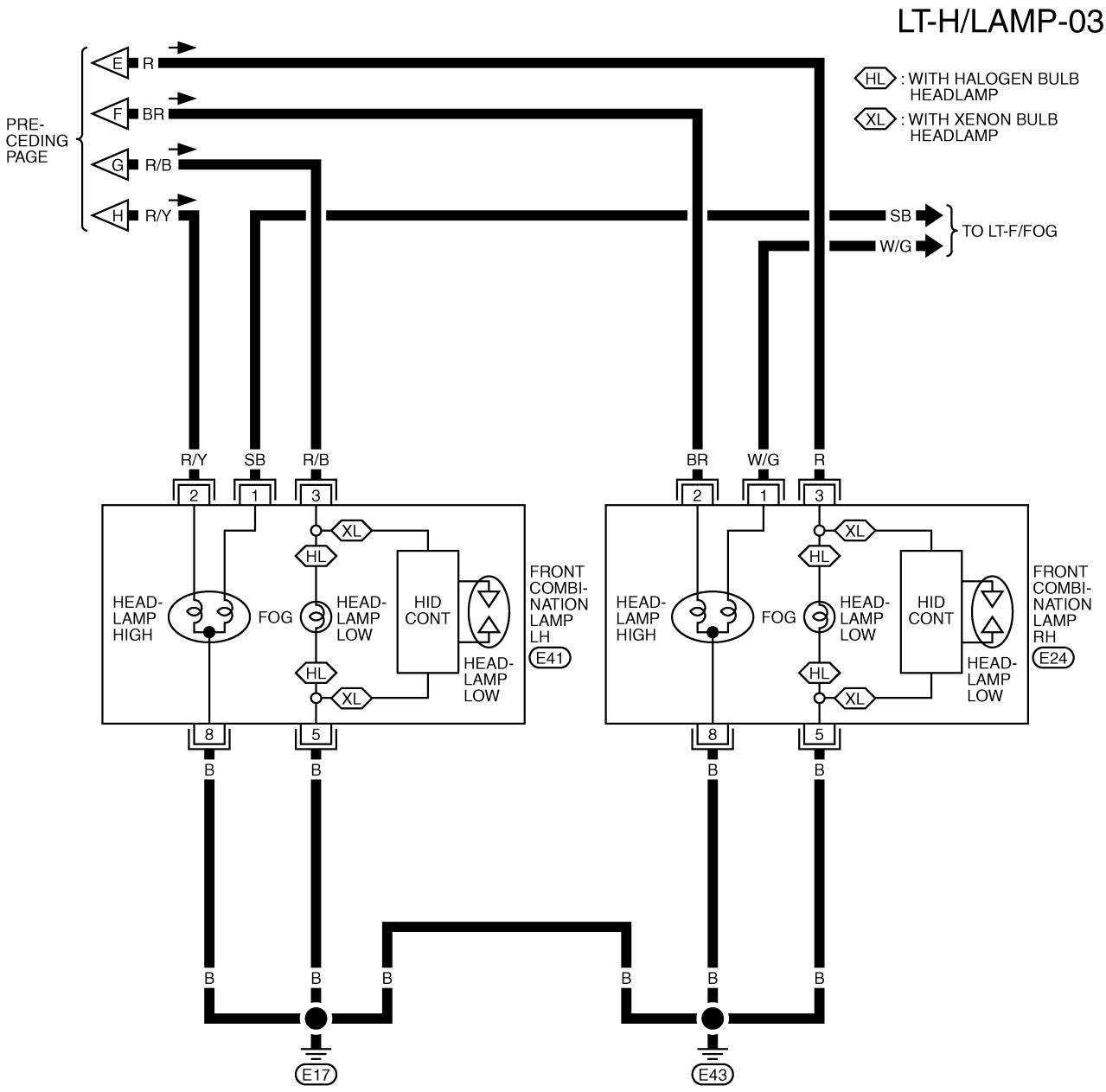
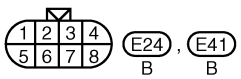
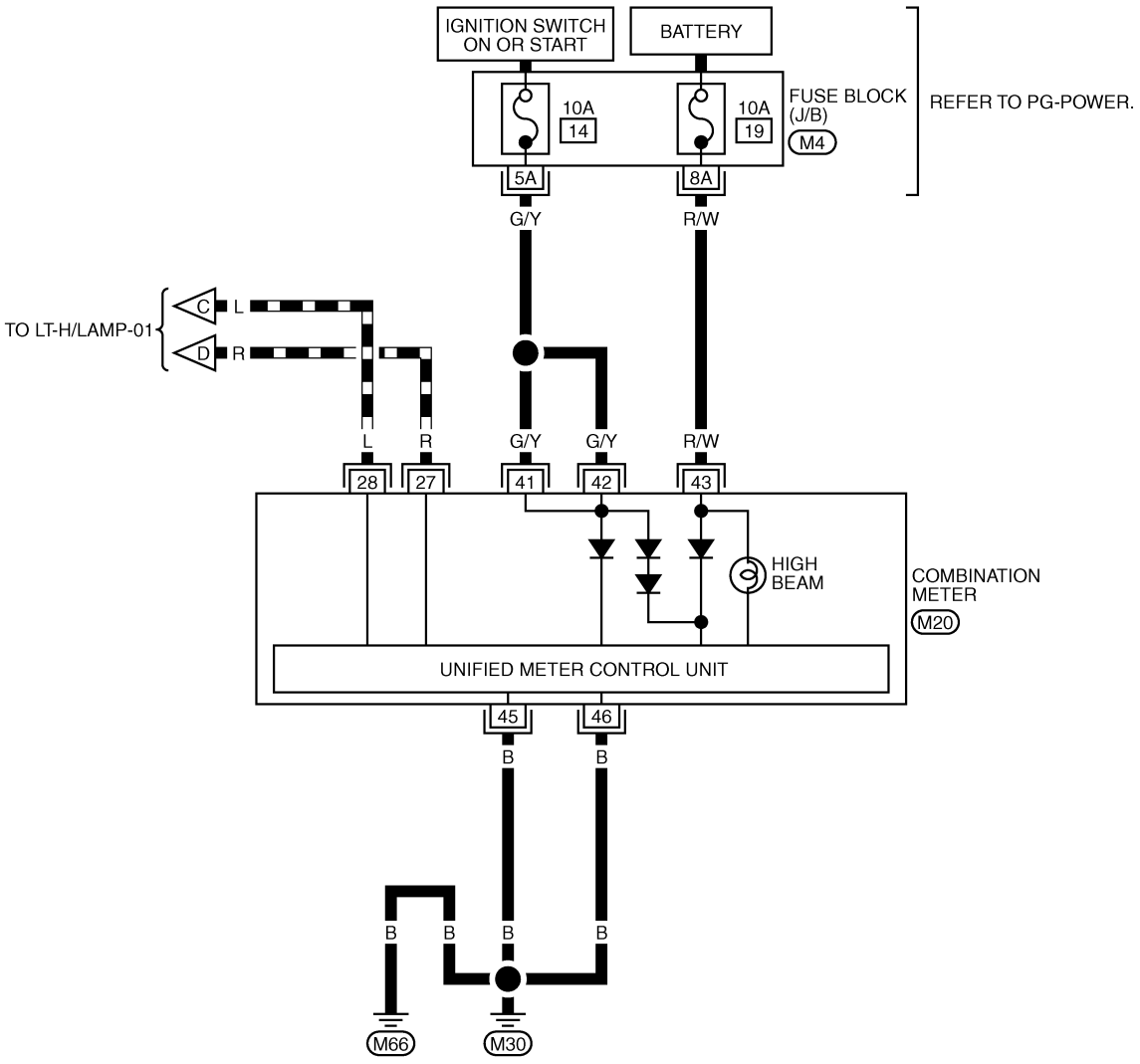

LT-H/LAMP-03
PRE-CEDING PAGE
E R
F BR
G R/B
H R/Y
HL : WITH HALOGEN BULB HEADLAMP
XL : WITH XENON BULB HEADLAMP
SB
W/G
TO LT-F/FOG
R/Y SB R/B
BR W/G R
2 1 3
XL
HL
HEAD-LAMP HIGH
FOG
HEAD-LAMP LOW
HID CONT
HEAD-LAMP LOW
FRONT COMBI-NATION LAMP LH
E41
FRONT COMBI-NATION LAMP RH
E24
8 5
B
E17
E43

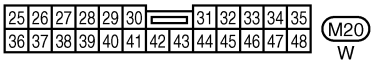

1 2 3 4
5 6 7 8
E24 B
E41 B

TKWT1406E

LT-H/LAMP-04

: DATA LINE



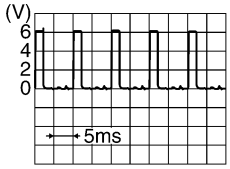
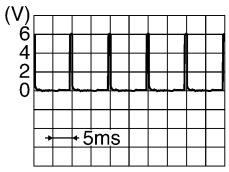
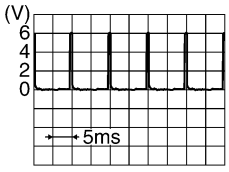
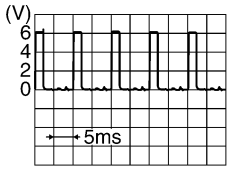
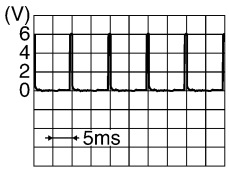
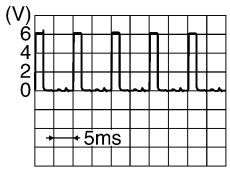


REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWT1407E

Terminals and Reference Values for BCM

AKS009IK

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
2	W/L	Combination switch input 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
3	G	Combination switch input 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
4	G/R	Combination switch input 3	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
5	W/G	Combination switch input 2	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
6	W/R	Combination switch input 1			
11	LG	Ignition switch (ACC)	ACC	—	Battery voltage
32	GY	Combination switch output 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
33	L	Combination switch output 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
34	PU	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	Y/R	Combination switch output 2	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
36	Y	Combination switch output 1			
38	W/L	Ignition switch (ON)	ON	—	Battery voltage
39	L	CAN– H	—	—	—
40	R	CAN– L	—	—	—
42	GY	Battery power supply	OFF	—	Battery voltage
52	B	Ground	ON	—	Approx. 0V
55	W/R	Battery power supply	OFF	—	Battery voltage

Terminals and Reference Values for IPDM E/R

AKS009IL

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

How to Proceed With Trouble Diagnosis

AKS009IM

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-18, "Preliminary Check" .
4. Check symptom and repair or replace the malfunctioning parts.
5. Does headlamp operate normally? If YES: GO TO 6. If NO: GO TO 4.
6. INSPECTION END

Preliminary Check

AKS009IN

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
IPDM E/R	Battery	72
		74
		76
		86

Refer to LT-12, "Wiring Diagram — H/LAMP —" .

OK or NG

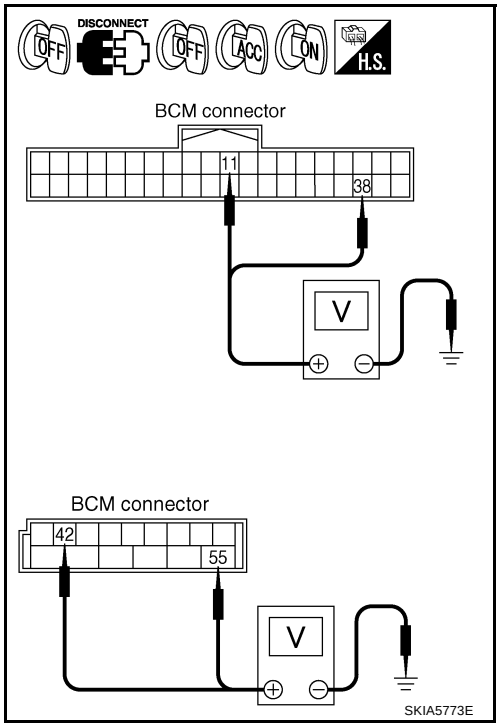
OK >> GO TO 2.

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)				
M1	11 (LG)	Ground	0V	Battery voltage	Battery voltage
	38 (W/L)		0V	0V	Battery voltage
M2	42 (GY)		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.

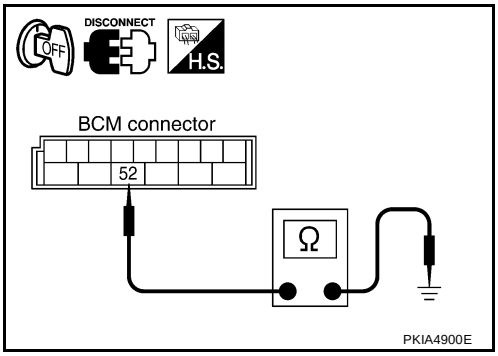
3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminals			Continuity
Connector	Terminal (Wire color)	Ground	Yes
M2	52 (B)		

OK or NG

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



CONSULT-II Functions (BCM)

AKS009IO

CONSULT-II performs the following functions communicating with BCM.

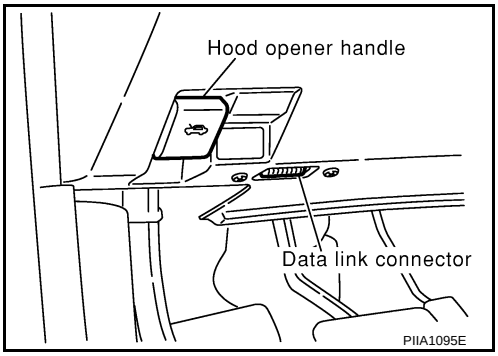
BCM diagnosis part	Check item, diagnosis mode	Description
HEAD LAMP	WORK SUPPORT	Changes the setting for each function.
	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.
BCM	CAN DIAG SUPPORT MNTR	The result of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

CONSULT-II BASIC OPERATION

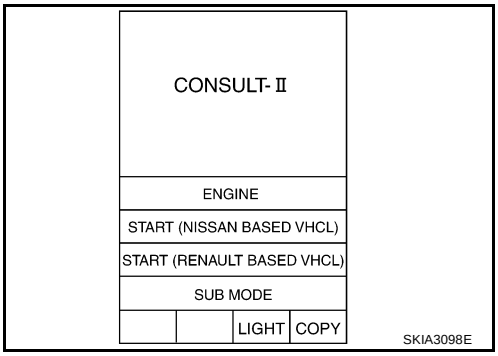
CAUTION:

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.

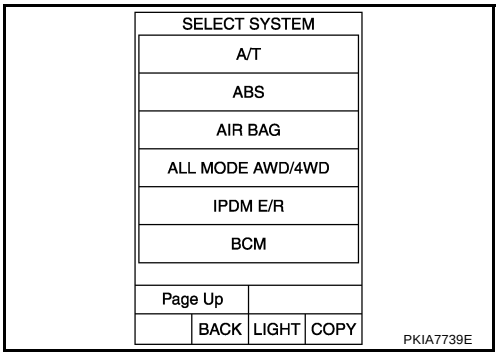
1. With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



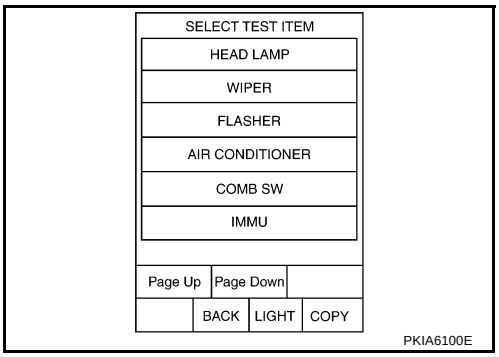
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “BCM” on “SELECT SYSTEM” screen.
If “BCM” is not indicated, refer to GI-38, "CONSULT-II Data Link Connector (DLC) Circuit" .



4. Touch “HEAD LAMP” on “SELECT DIAG MODE” 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 items will be monitored.
6. Touch “RECORD” while monitoring, then status of the monitored item can be recorded. To stop recording, touch “STOP”.

Display Item List

Monitor item		Contents
IGN ON SW	“ON/OFF”	Displays “IGN position (ON)/OFF, ACC position (OFF)” judged from ignition switch signal.
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 rear door switch (LH) signal. (Door is open: ON/Door is closed: OFF)
BACK DOOR SW[NOTE 1]	“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[NOTE1]	“OFF”	—
OPTICAL SENSOR[NOTE 2]	[0 - 5V]	Displays “ambient light (close to 5V when light/close to 0V when dark)” judged from optical sensor signal.

NOTE:
1. This item is displayed, but cannot monitor it.
2. Vehicles without auto light system display this item, 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]	—

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

CONSULT-II Functions (IPDM E/R)

AKS009IP

CONSULT-II performs the following functions communicating with IPDM E/R.

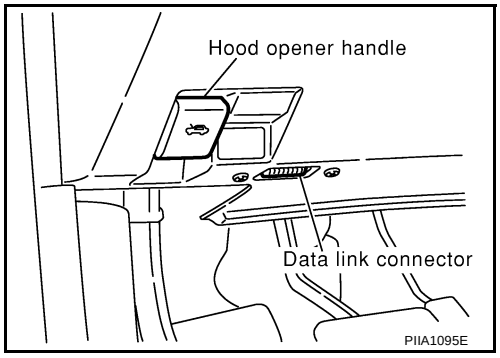
Check Item, Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	IPDM E/R performs self-diagnosis of CAN communication.
DATA MONITOR	The input/output data of the IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE TEST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

CONSULT-II OPERATION

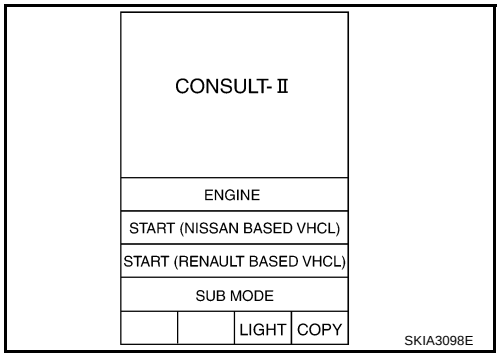
CAUTION:

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.

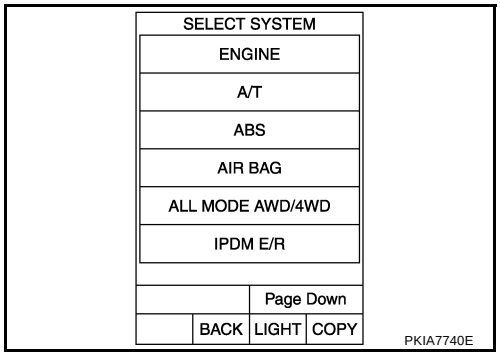
1. With ignition switch OFF, connect CONSULT-II and CON-SULT-II CONVERTER to data link connector, then turn ignition switch ON.



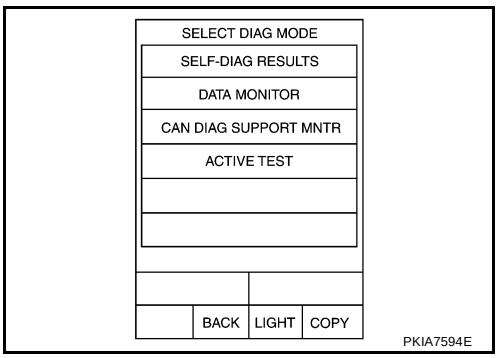
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “IPDM E/R” on “SELECT SYSTEM” screen.
   If “IPDM E/R” is not displayed, print “SELECT SYSTEM” screen, then refer to GI-38, "CONSULT-II Data Link Connector (DLC) Circuit" .



4. Select desired part to be diagnosed on “SELECT DIAG MODE” screen.



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 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 ignition switch ON. When ignition switch is at ACC, 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

SELF-DIAGNOSTIC RESULTS

Refer to PG-19, "SELF-DIAG RESULTS" .

Headlamp HI Does Not Illuminate (Both Sides)

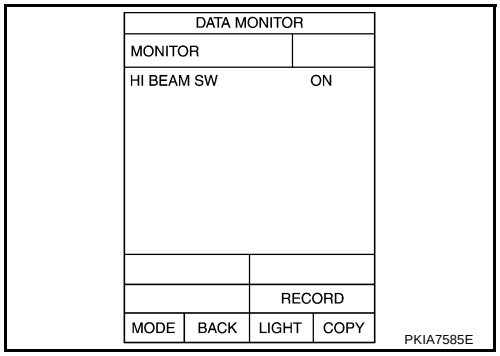
AKS009IQ

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 position : HI BEAM SW ON



With out CONSULT-II

Refer to LT-128, "Combination Switch Inspection" .

OK or NG

OK >> GO TO 2.

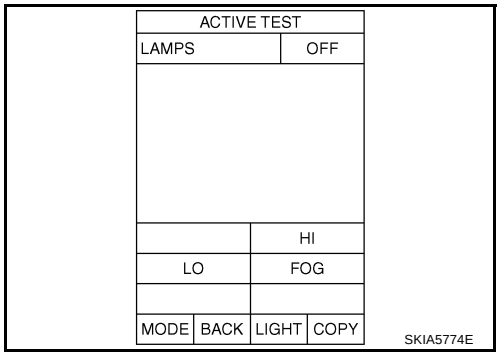
NG >> Check lighting switch. Refor to LT-128, "Combination Switch Inspection" .

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” screem.
3. Touch “HI” screem.
4. Make sure headlamp high beam operates.

Headlamp high beam should operate.



With out CONSULT-II

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

Headlamp high beam should operate.

OK or NG

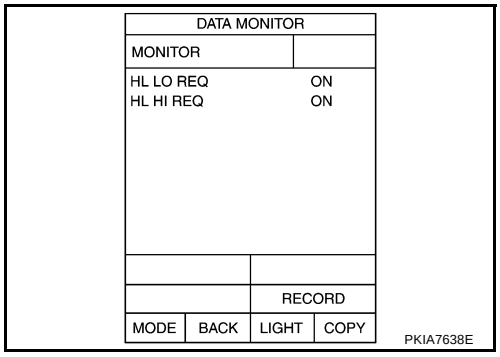
OK >> GO TO 3.

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 position : HL LO REQ ON / HL HI REQ ON



OK or NG

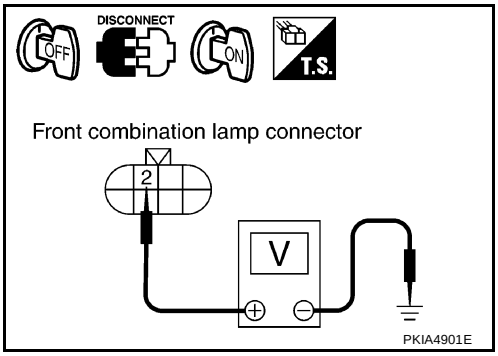
OK >> Replace IPDM E/R.

NG >> Replace BCM. Refer to BCS-15, "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” screem.
5. Touch “HI” screem.
6. 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	E24	2 (BR)	Battery voltage
LH	E41	2 (R/Y)	

With out CONSULT-II

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

Terminals			Voltage
(+)		(-)	
Connector		Terminal (Wire color)	
RH	E24	2 (BR)	Battery voltage
LH	E41	2 (R/Y)	

OK or NG

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

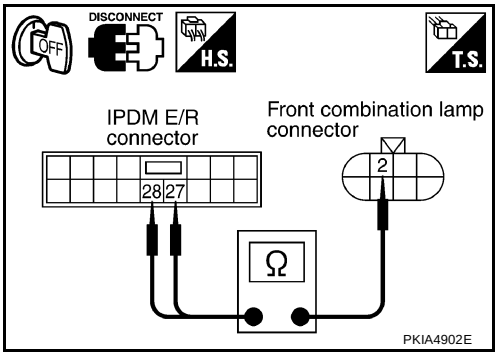
5. CHECK HEADLAMP CIRCUIT

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

27 (BR) – 2 (BR) : Continuity should exist.

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

28 (R/Y) – 2 (R/Y) : Continuity should exist.



OK or NG

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

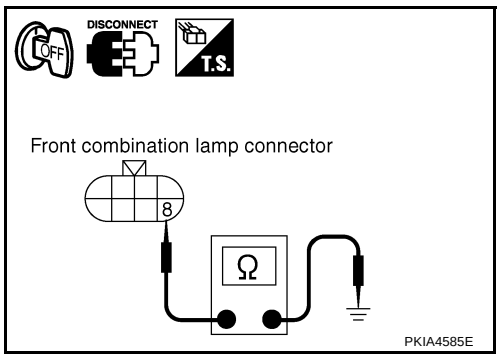
6. CHECK HEADLAMP GROUND

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

   8 (B) – Ground : Continuity should exist.

2. Check continuity between front combination lamp LH harness connector E41 terminal 8 (B) and ground.

   8 (B) – Ground : Continuity should exist.



OK or NG

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

Headlamp HI Does Not Illuminate (One Side)

AKS009IR

1. CHECK BULB

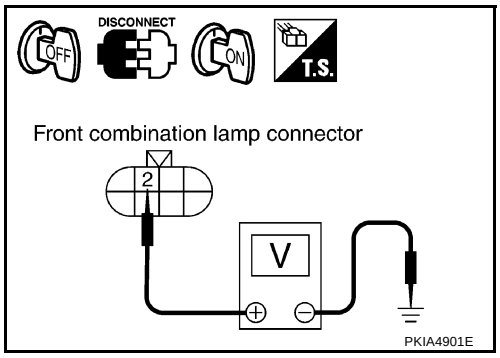
Check bulbs of lamps which do not illuminate.

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 position.
5. Check voltage between front combination lamp RH or LH harness connector and ground.



Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E24	2 (BR)	Ground	Battery voltage
LH	E41	2 (R/Y)		

OK or NG

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

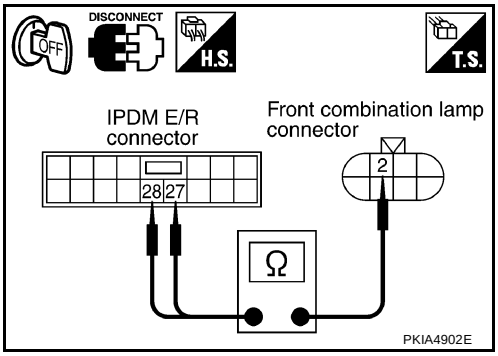
3. CHECK HEADLAMP CIRCUIT

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

27 (BR) – 2 (BR) : Continuity should exist.

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

28 (R/Y) – 2 (R/Y) : Continuity should exist.



OK or NG

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

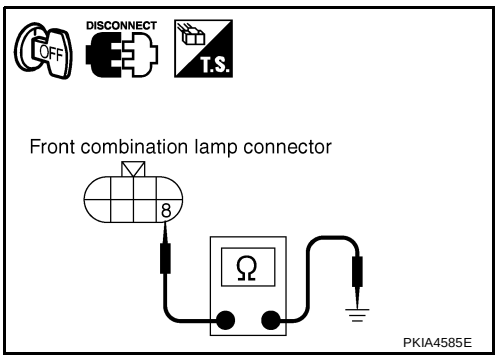
4. CHECK HEADLAMP GROUND

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

8 (B) – Ground : Continuity should exist.

2. Check continuity between front combination lamp LH harness connector E41 terminal 8 (B) and ground.

8 (B) – Ground : Continuity should exist.



OK or NG

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

High Beam Indicator Lamp Does Not Illuminate

AKS009IS

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)

AKS009IT

1. CHECK COMBINATION SWITCH INPUT SIGNAL

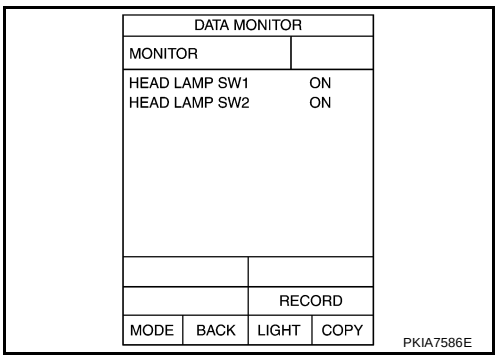
With CONSULT-II

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

With out CONSULT-II

Refer to LT-128, "Combination Switch Inspection" .



OK or NG

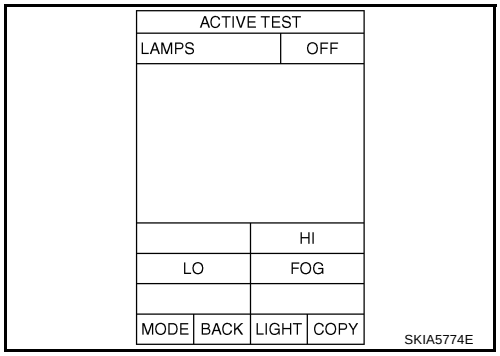
OK >> GO TO 2.
NG >> Check lighting switch. Refor to LT-128, "Combination Switch Inspection" .

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 screem.
3. Touch “LO” screem.
4. Make sure headlamp low beam operates.

Headlamp low beam should operate.



With out CONSULT-II

1. Start auto active test. Refer to PG-22, "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.

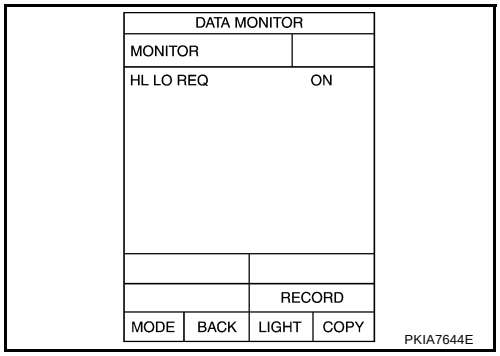
3. CHECK IPDM E/R

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

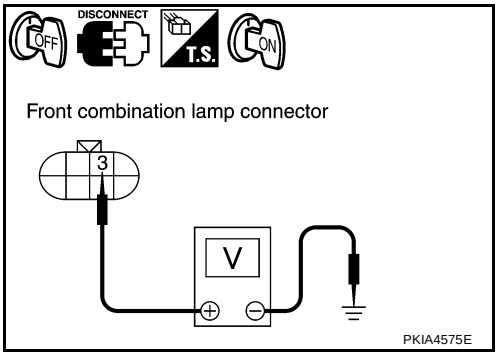
OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-15, "Removal and Installation of BCM" .



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” screem.
5. Touch “LO” screem.
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	E24	3 (R)	Ground	Battery voltage
LH	E41	3 (R/B)		

With out CONSULT-II

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

Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E24	3 (R)	Ground	Battery voltage
LH	E41	3 (R/B)		

OK or NG

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

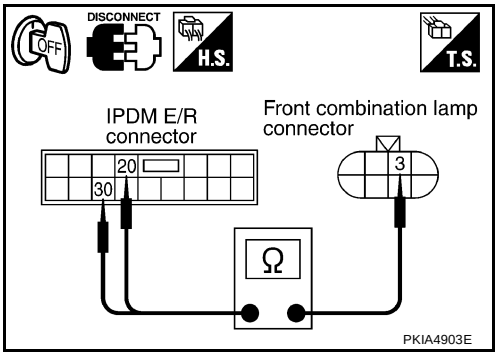
5. CHECK HEADLAMP CIRCUIT

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

20 (R) – 3 (R) : Continuity should exist.

4. Check continuity between IPDM E/R harness connector E7 terminal 30 (R/B) and front combination lamp LH harness connector E41 terminal 3 (R/B).

30 (R/B) – 3 (R/B) : Continuity should exist.



OK or NG

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

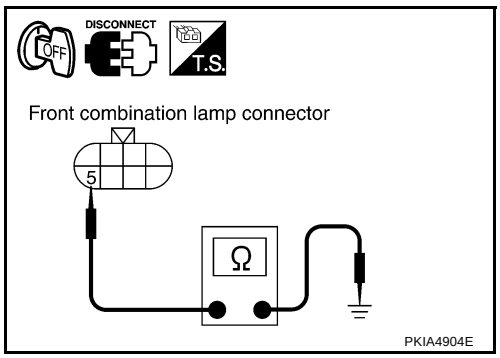
6. CHECK HEADLAMP GROUND

1. Turn ignition switch OFF.
2. Check continuity between front combination lamp RH harness connector E24 terminal 5 (B) and ground.

5 (B) – Ground : Continuity should exist.

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

5 (B) – 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)

AKS009IU

1. CHECK BULB

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

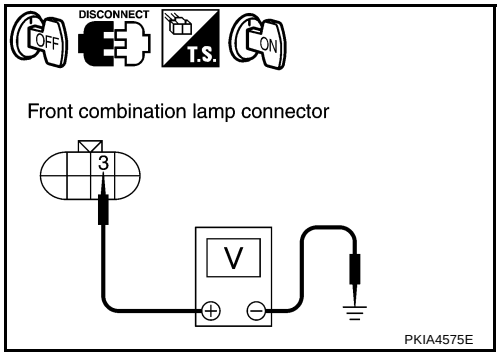
OK or NG

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 2ND position.
5. Check voltage between front combination lamp RH or LH harness connector and ground.



Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E24	3 (R)	Ground	Battery voltage
LH	E41	3 (R/B)		

OK or NG

OK >> GO TO 4.

NG >> GO TO 3.

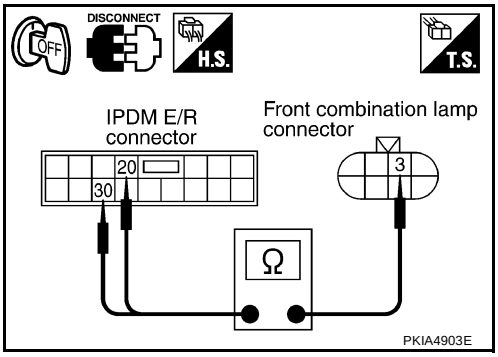
3. CHECK HEADLAMP CIRCUIT

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

20 (R) – 3 (R) : Continuity should exist.

4. Check continuity between IPDM E/R harness connector E7 terminal 30 (R/B) and front combination lamp LH harness connector E41 terminal 3 (R/B).

30 (R/B) – 3 (R/B) : Continuity should exist.



OK or NG

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

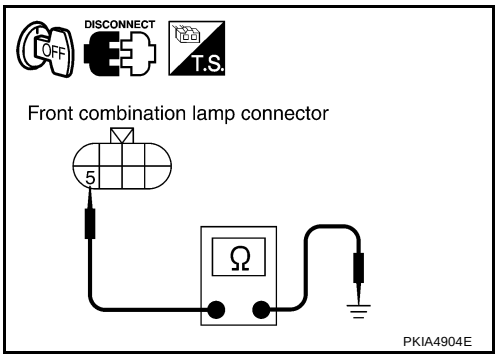
4. CHECK HEADLAMP GROUND

1. Check continuity between front combination lamp RH harness connector E24 terminal 5 (B) and ground.

5 (B) – Ground : Continuity should exist.

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

5 (B) – Ground : Continuity should exist.



OK or NG

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

Headlamps Do Not Turn OFF

AKS009IV

1. CHECK HEADLAMP TURN OFF

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

OK or NG

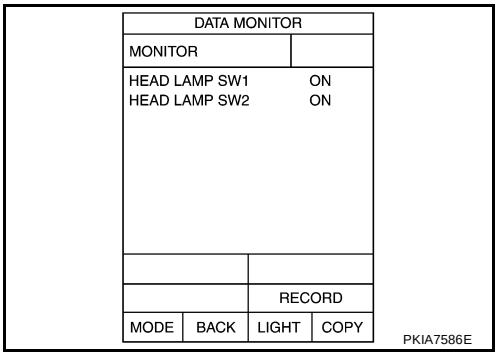
OK >> GO TO 3.
NG >> GO TO 2.

2. CHECK COMBINATION SWITCH INPUT SIGNAL

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

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

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



OK or NG

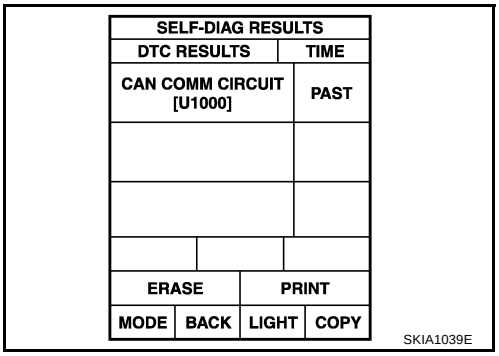
OK >> Replace IPDM E/R.
NG >> Check lighting switch. Refor to LT-128, "Combination Switch Inspection" .

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:

AKS009IW

- Installation or removal of the connector must be done with lighting switch OFF.
- When lamp is illuminated (when lighting switch is ON), do not touch harness, HID control unit, inside of lamp, or lamp metal parts.
- To check illumination, temporarily install lamp in vehicle. Be sure to connect power at vehicle-side connector.
- If error can be traced directly to electrical system, first check for items such as 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 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 bulb has reached the end of its lifetime, brightness may drop significantly, it may flash repeatedly, or light may turn a reddish color.

Xenon Headlamp Trouble Diagnosis

AKS009IX

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

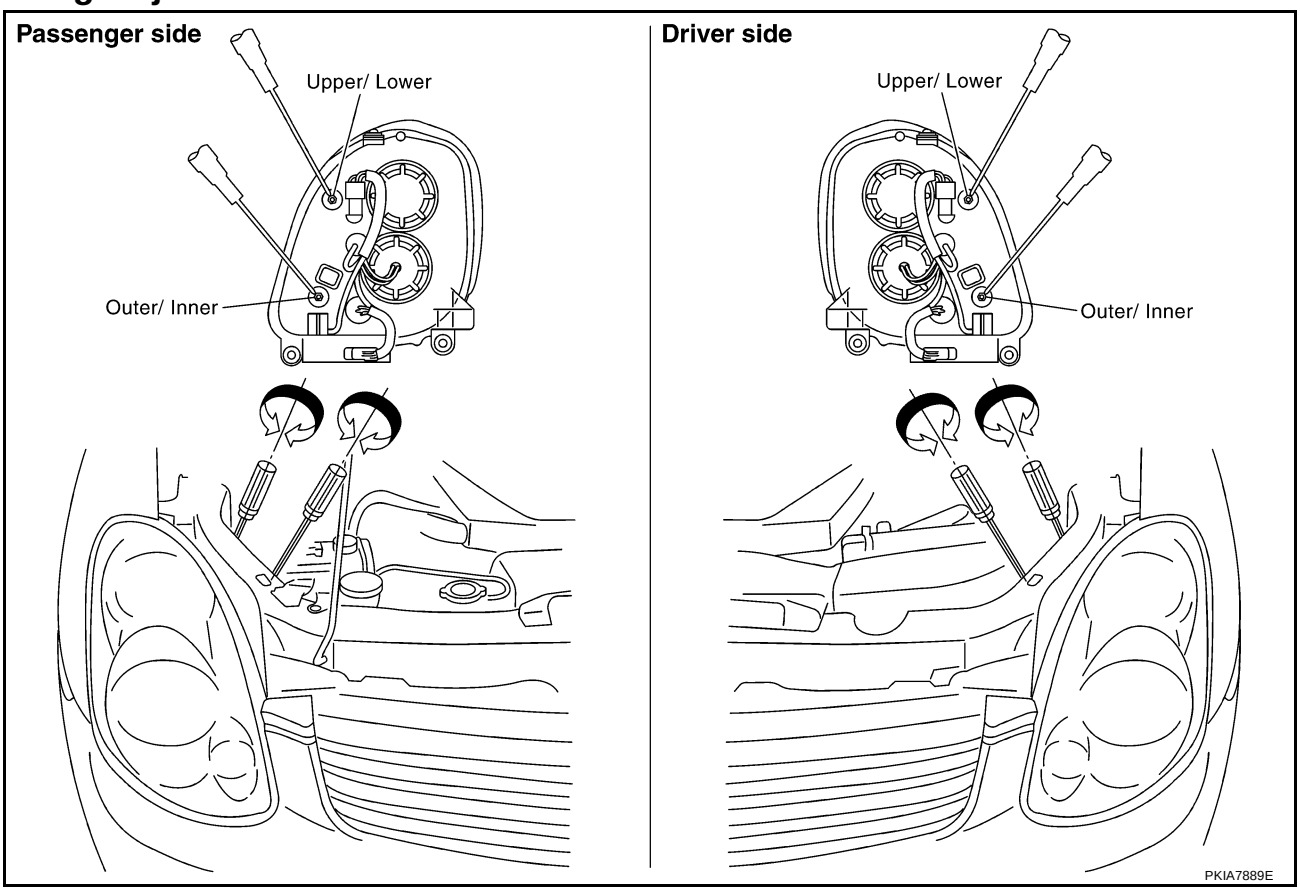
Install normal xenon lamp housing assembly to corresponding xenon headlamp, and check if lamp lights up.

OK or NG

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

Aiming Adjustment

AKS005I7



PREPARATION BEFORE ADJUSTING

For Details, Refer to the Regulations in Your Own Country.

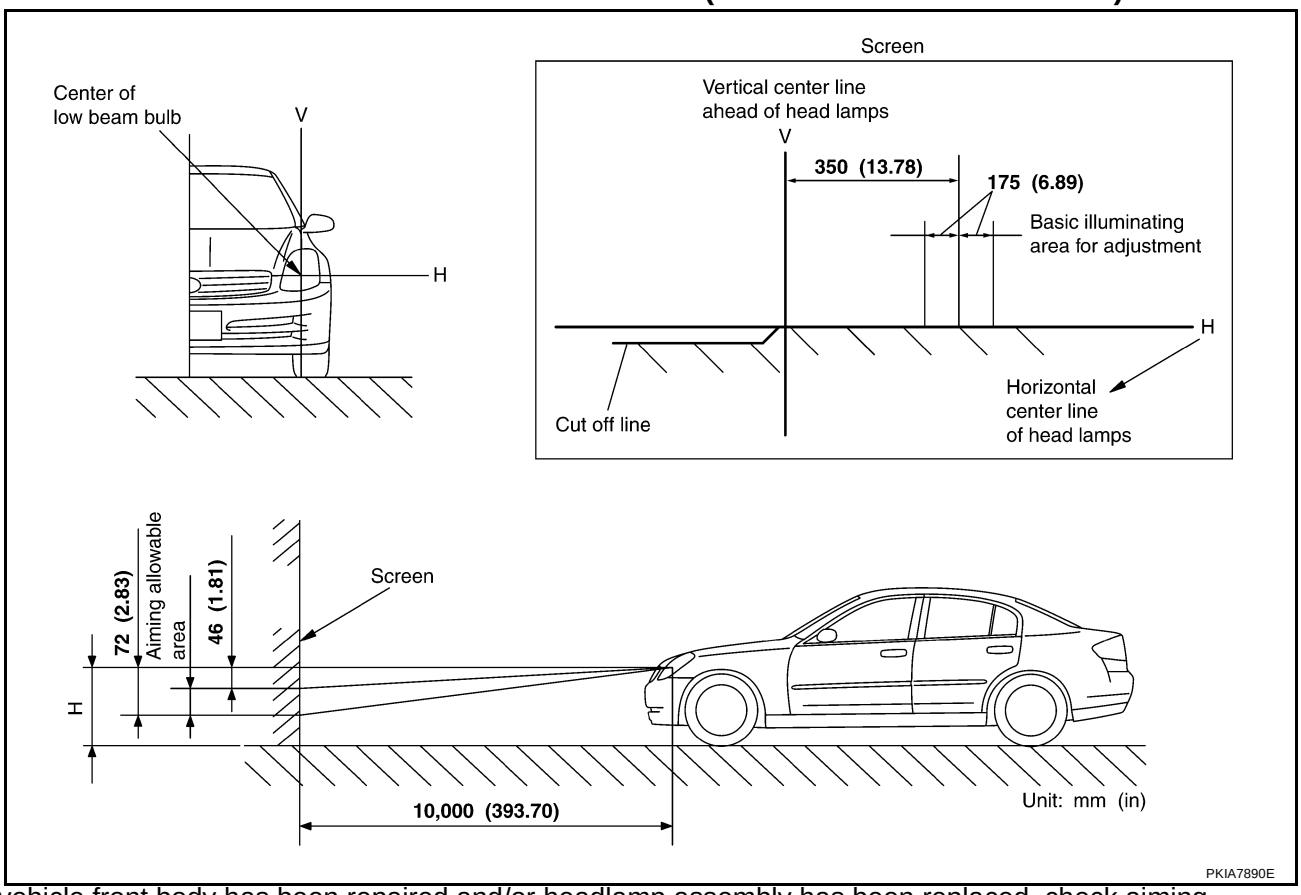
Before performing aiming adjustment, check the following.

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

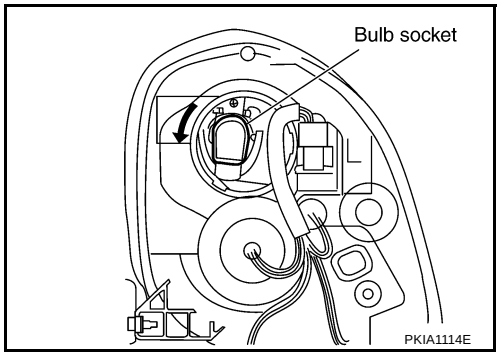
- Basic illumination area for adjustment should be within the range shown on the aiming chart. Adjust headlamp accordingly.

Bulb Replacement

AKS005I8

HEADLAMP (UPPER) LOW BEAM (XENON)

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



HEADLAMP (UPPER) LOW BEAM (HALOGEN)

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 (LOWER) HIGH BEAM/FOG LAMP

1. Turn lighting switch OFF.
2. Disconnect negative battery cable or remove power fuse.
3. Remove fender protector (front). Refer to EI-22, "FENDER PROTECTOR" in “EI” section.
4. Turn plastic cap counterclockwise and unlock it.
5. Disconnect bulb terminal.
6. Unlock retaining spring and remove bulb from headlamp.

PARKING LAMPS (CLEARANCE LAMPS)

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.

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.

Headlamp (upper) low beam (Xenon)	**: 12V - 35W (D2R)**
Headlamp (upper) low beam (Halogen)	**: 12V - 55W (H1)**
Headlamp (lower) high beam/Fog lamp	**: 12V - 60/55W (HB2)**
Parking lamps (Clearance lamps)	**: 12V - 5W**
Front turn signal lamp	**: 12V - 21W**

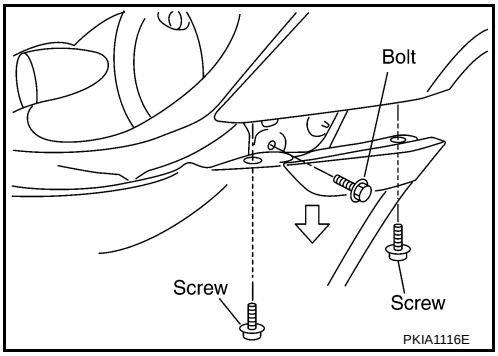
CAUTION:
After installing bulb, be sure to install plastic cap and bulb socket securely to insure watertightness.

Removal and Installation

AKS005I9

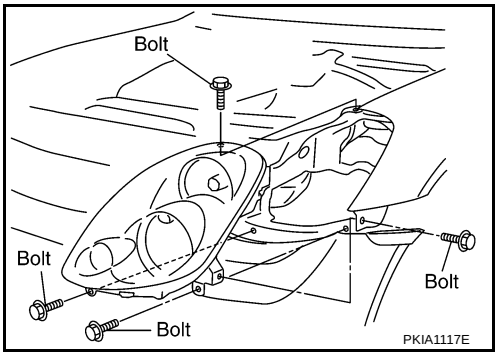
REMOVAL

1. Remove front grille. Refer to EI-20, "FRONT GRILLE" in “EI” section.
2. Remove front undercover and fender protector. Refer to EI-22, "FENDER PROTECTOR" in “EI” section.
3. Remove mounting clip on top of front bumper and screws on side of front bumper. Refer to EI-14, "FRONT BUMPER" in “EI” section.



4. Pull side of the front bumper toward the vehicle front and disengage it from clips on the body.
5. Remove headlamp mounting bolts.
6. Pull headlamp toward vehicle front, disconnect connector, and remove headlamp.

CAUTION:
When removing headlamps, put a shop cloth or something similar between headlamps and bumper to protect bumper.



INSTALLATION

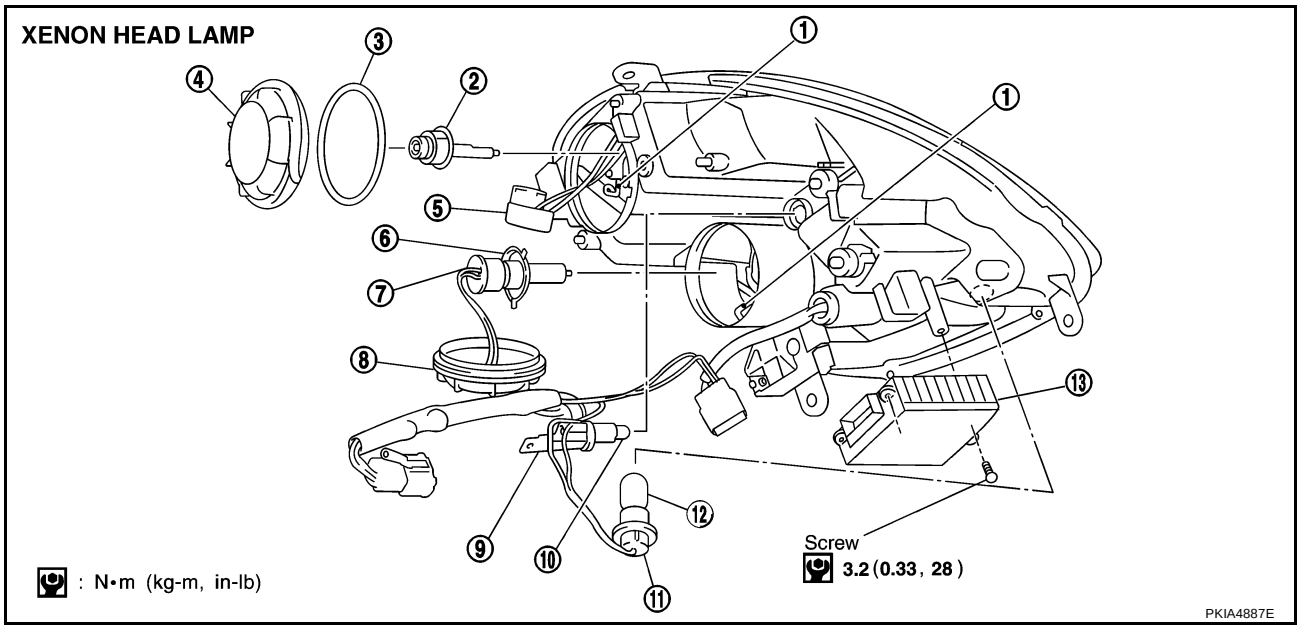
Install in the reverse order of removal. Be careful of the following:

Headlamp mounting bolt:

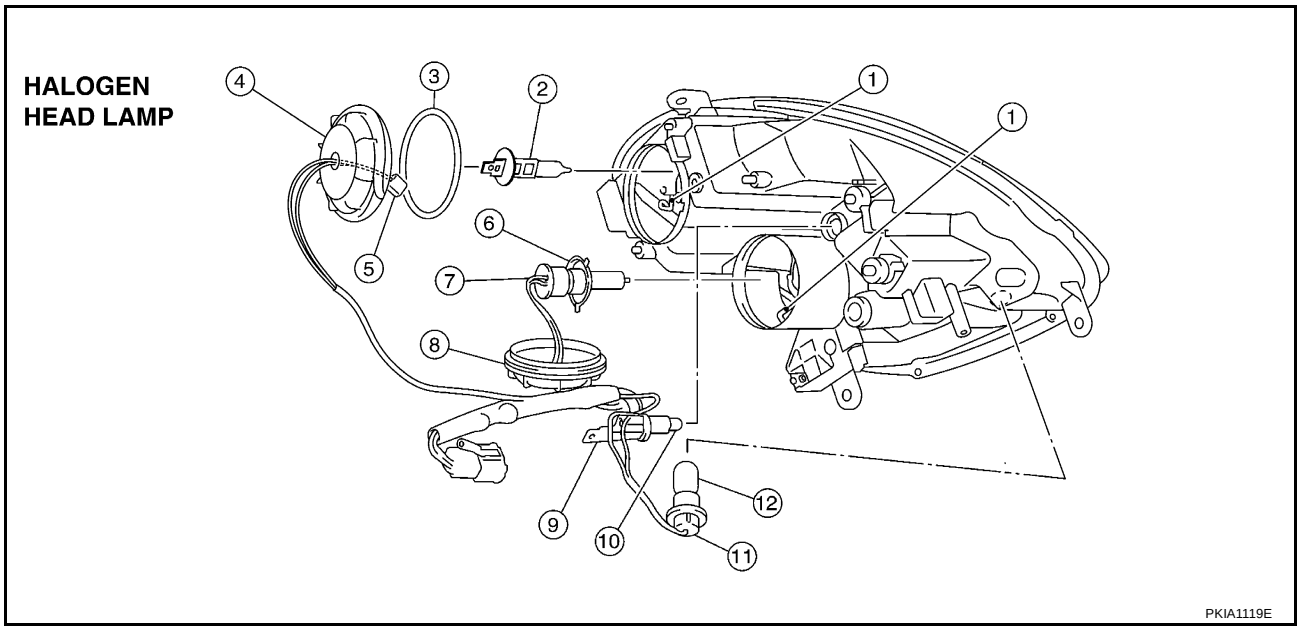
: 5.0 N·m (0.51 kg-m, 44 in-lb)

Disassembly

AKS005IA



1. Retaining spring
2. Xenon bulb
3. Seal rubber
4. Plastic cap (low)
5. Xenon bulb socket
6. Halogen bulb (high/fog)
7. Halogen bulb socket
8. Plastic cap (high/fog)
9. Parking lamp (Clearance lamp) bulb socket
10. Parking lamp (Clearance lamp) bulb
11. Front turn signal lamp bulb socket
12. Front turn signal lamp bulb
13. HID C/U



1. Retaining spring
2. Halogen bulb
3. Seal rubber
4. Plastic cap (low)
5. Halogen bulb socket
6. Halogen bulb (high/fog)
7. Halogen bulb socket
8. Resin cap (high/fog)
9. Clearance lamp bulb socket
10. Clearance lamp bulb
11. Front turn signal lamp bulb socket
12. Front turn signal lamp bulb

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

Assembly

AKS005IB

Assemble in reverse order of disassembly. Be careful of the following:

HID control unit:

: 3.2 N·m (0.33 kg-m, 28 in-lb)

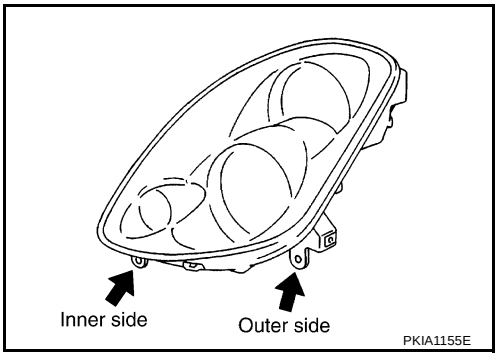
CAUTION:

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

Servicing to Replace Headlamps When Damaged

AKS005IC

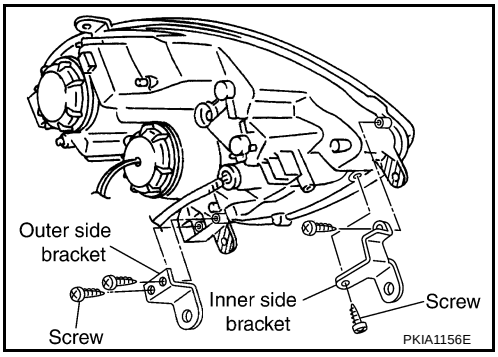
If only installation part as shown in the figure is damaged, and headlamp housing itself is not damaged, repair can be completed easily by installing correction brackets.



REMOVAL AND INSTALLATION

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

RH headlamp	**Outer side**	**26040 AL510**
	Inner side	**26040 AL500**
LH headlamp	**Outer side**	**26040 AL510**
	Inner side	**26090 AL500**

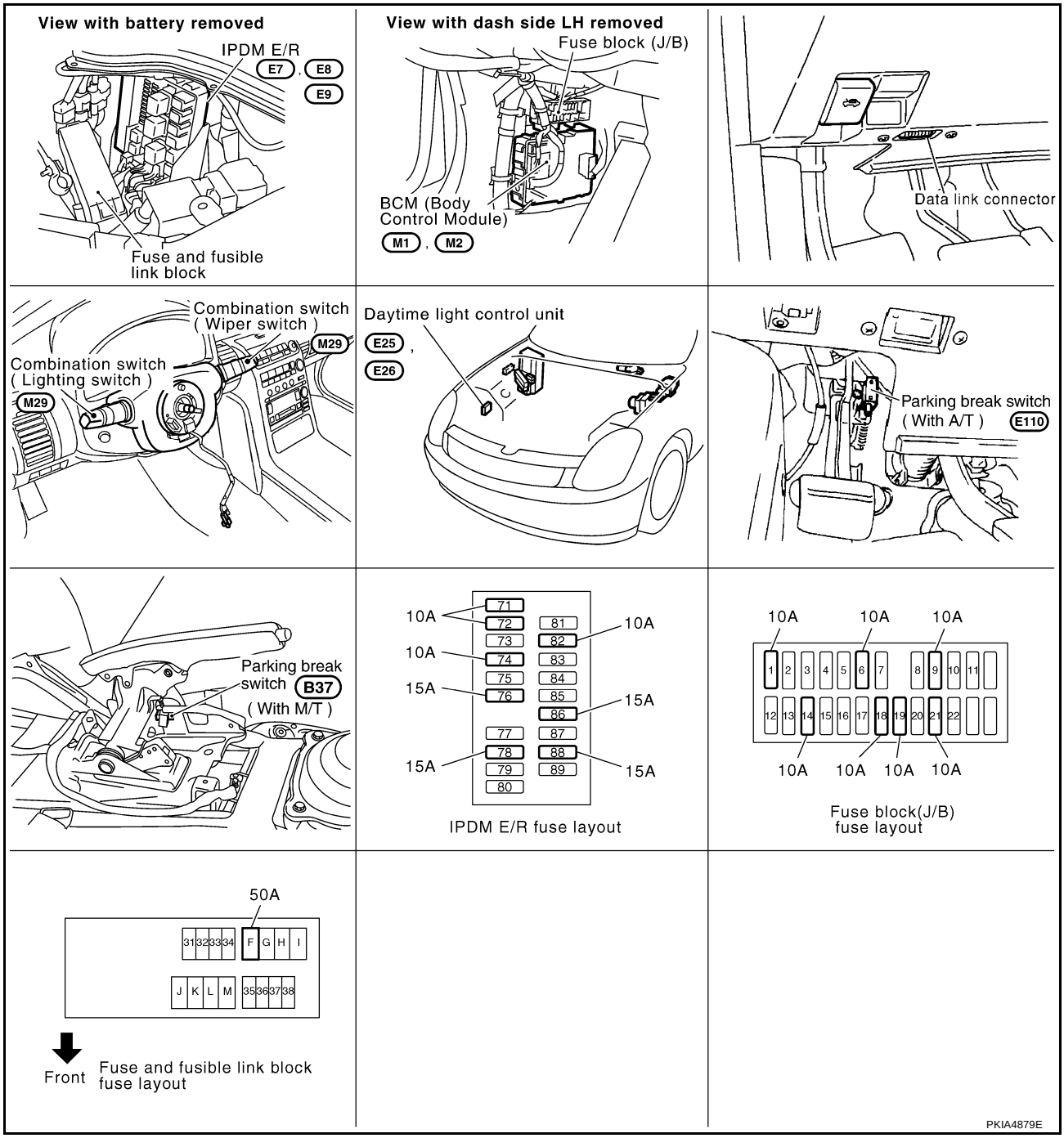


HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

PFP:26010

Component Parts and Harness Connector Location

AKS004Q2



System Description

AKS009IY

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

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)]
- 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)]

and 10A fuse [No. 71, located in IPDM E/R (intelligent power distribution module engine room)]
- to combination meter terminal 43
- through 10A fuse [No. 19, located in IPDM E/R (intelligent power distribution module engine room)]
- to daytime light control unit terminals 2 and 3
- through 10A fuse [No. 21, located in fuse block (J/B)].

Power is also supplied at all times
- to BCM (body control module) terminal 55
- through 50A fusible link [letter F, located in fuse and fusible link block].

With ignition switch in the ON or START position, power is supplied
- to daytime light control unit terminal 12
- through 10A fuse [No. 82, located in IPDM E/R (intelligent power distribution module engine room)]
- to BCM (body control module) terminal 38
- through 10A fuse [No. 1, located in fuse block (J/B)]
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)] and
- to combination meter terminals 41 and 42
- through 10A fuse [No. 14, located in fuse block (J/B)].

With ignition switch in the ACC or ON position, power is supplied
- to BCM (body control module) terminal 11
- through 10A fuse [No. 6, located in fuse block (J/B)].

With ignition switch in the START position, power is supplied
- to daytime light control unit terminal 1
- through 10A fuse [No. 9, located in fuse block (J/B)].

Ground is supplied
- to daytime light control unit terminal 9
- through grounds E17 and E43
- to BCM (body control module) terminal 52
- through grounds M30 and M66
- to IPDM E/R (intelligent power distribution module engine room) terminals 38 and 60
- through grounds E17 and E43
- to combination meter terminals 45 and 46
- through grounds M30 and M66.

HEADLAMP OPERATION

Low Beam Operation

With lighting switch in 2ND position, BCM receives input signal requesting the headlamps to illuminate. This input signal is communicated to IPDM E/R across CAN communication lines. CPU in 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 3 and
- to 15A fuse (No. 86, located in IPDM E/R)
- through IPDM E/R terminal 30
- to headlamp LH terminal 3.

Ground is supplied at all times
- to headlamp RH terminal 5
- through grounds E17 and E43, and
- to headlamp LH terminal 5
- through grounds E17 and E43.

With power and ground supplied, low beam headlamps illuminate.

High Beam Operation (When Engine Stopped)/Flash-to-Pass Operation

With lighting switch in 2ND position and placed in HIGH or PASS position, BCM receives input signal requesting headlamp high beams to illuminate. This input signal is communicated to IPDM E/R (intelligent power distribution module engine room) across CAN communication lines. CPU in IPDM E/R controls headlamp high relay coil and daytime light relay-2 turned on, which when energized, directs power

- to 10A fuse (No. 74, located in IPDM E/R)
- through IPDM E/R terminal 28
- to daytime light control unit terminal 5
- through daytime light control unit terminal 6
- to headlamp LH terminal 2
- to 10A fuse (No. 72, located in IPDM E/R)
- through IPDM E/R terminal 27
- to daytime light relay-2 terminal 2 and
- to daytime light control unit terminal 1
- to 10A fuse [No. 72, located in IPDM E/R]
- through IPDM E/R terminal 27
- to daytime light relay-2 terminal 5
- through daytime light relay-2 terminal 3
- to headlamp RH terminal 2.

Ground is supplied

- to daytime light relay-2 terminal 1
- through grounds E17 and E43
- to headlamp RH terminal 8
- through grounds E17 and E43
- to headlamp RH terminal 5
- through grounds E17 and E43
- to headlamp LH terminal 5
- through grounds E17 and E43
- to headlamp LH terminal 8
- through daytime light control unit terminal 7
- to daytime light control unit terminal 9
- through grounds E17 and E43.

When power and ground supplied, high beam headlamps illuminate.
High beam indicator illuminates when combination meter receives input signal requesting high beam indicator to illuminate. This is communicated to BCM across the CAN communication lines.

COMBINATION SWITCH READING FUNCTION

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

EXTERIOR LAMP BATTERY SAVER CONTROL

With combination switch (lighting switch) is in 2ND position (ON), and ignition switch is turned from ON or ACC to OFF, the battery saver control function is activated.
Under this condition, headlamps remain illuminated for 5 minutes, then headlamps are turned off.
Exterior lamp battery saver control made can be changed by the function setting of CONSULT-II.

AUTO LIGHT OPERATION (IF EPUIPPED)

For auto light operation, refer to LT-71, "System Description" in “AUTO LIGHT SYSTEM”.

DAYTIME LIGHT OPERATION

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

- through daytime light control unit terminal 6
- to headlamp LH terminal 2
- through headlamp LH terminal 8
- to daytime light control unit terminal 7
- through daytime light control unit terminal 8
- to headlamp RH terminal 2.

Ground is supplied

- to headlamp RH terminal 8
- through grounds E17 and E43, and
- to daytime light control unit terminal 9
- through grounds E17 and E43.

Because high beam headlamps are now wired in series, they operate at half illumination.
If lighting switch is in HIGH position, daytime light operation is canceled. On this occasion, power is supplied

- through IPDM E/R terminal 27
- to daytime light control unit terminal 1.

Daytime light control unit is canceled power suppling from headlamp RH terminal 8 to terminal 2 (series power suppling is canceled). And then high beam is ON.

OPERATION

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

Engine		With engine stopped												With engine running											
Lighting switch		OFF				1ST				2ND				OFF				1ST				2ND			
		Hi	Lo	P	F	Hi	Lo	P	F	Hi	Lo	P	F	Hi	Lo	P	F	Hi	Lo	P	F	Hi	Lo	P	F
Head-lamp	High beam	–	–	×	–	–	–	×	–	×	–	×	–	● *	● *	×	–	● *	● *	×	–	×	–	×	–
	Low beam	–	–	×	–	–	–	×	–	×	×	×	×	–	–	×	–	–	–	×	–	×	×	×	×
Tail lamp		–	–	–	–	×	×	×	×	×	×	×	×	–	–	–	–	×	×	×	×	×	×	×	×
License plate and instrument illumination lamp		–	–	–	–	×	×	×	×	×	×	×	×	–	–	–	–	×	×	×	×	×	×	×	×

- Hi: “HIGH BEAM” position
- Lo: “LOW BEAM” position
- P: “FLASH TO PASS” position
- F: “FOG LAMP” SW is ON
- ×: Lamp “ON”
- –: Lamp “OFF”
- ●: Lamp dims. (Added functions)
- *: When starting the engine with the parking brake released, the daytime light will come ON.
  When starting the engine with the parking brake pulled, the daytime light will not come ON.

XENON HEADLAMP

Xenon type headlamp is adopted to 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 headlamps stable quality and tone color.
Following are some of many advantages of xenon type headlamp.

- The light produced by headlamps is a white color comparable to sunlight that is easy on 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 human eye is most sensitive. This means that even in the rain, more light is reflected back from the road surface toward vehicle, for added visibility.
- Power consumption is approximately 25 percent less than halogen headlamps, reducing battery load.

CAN Communication System Description

AKS004Q4

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 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.

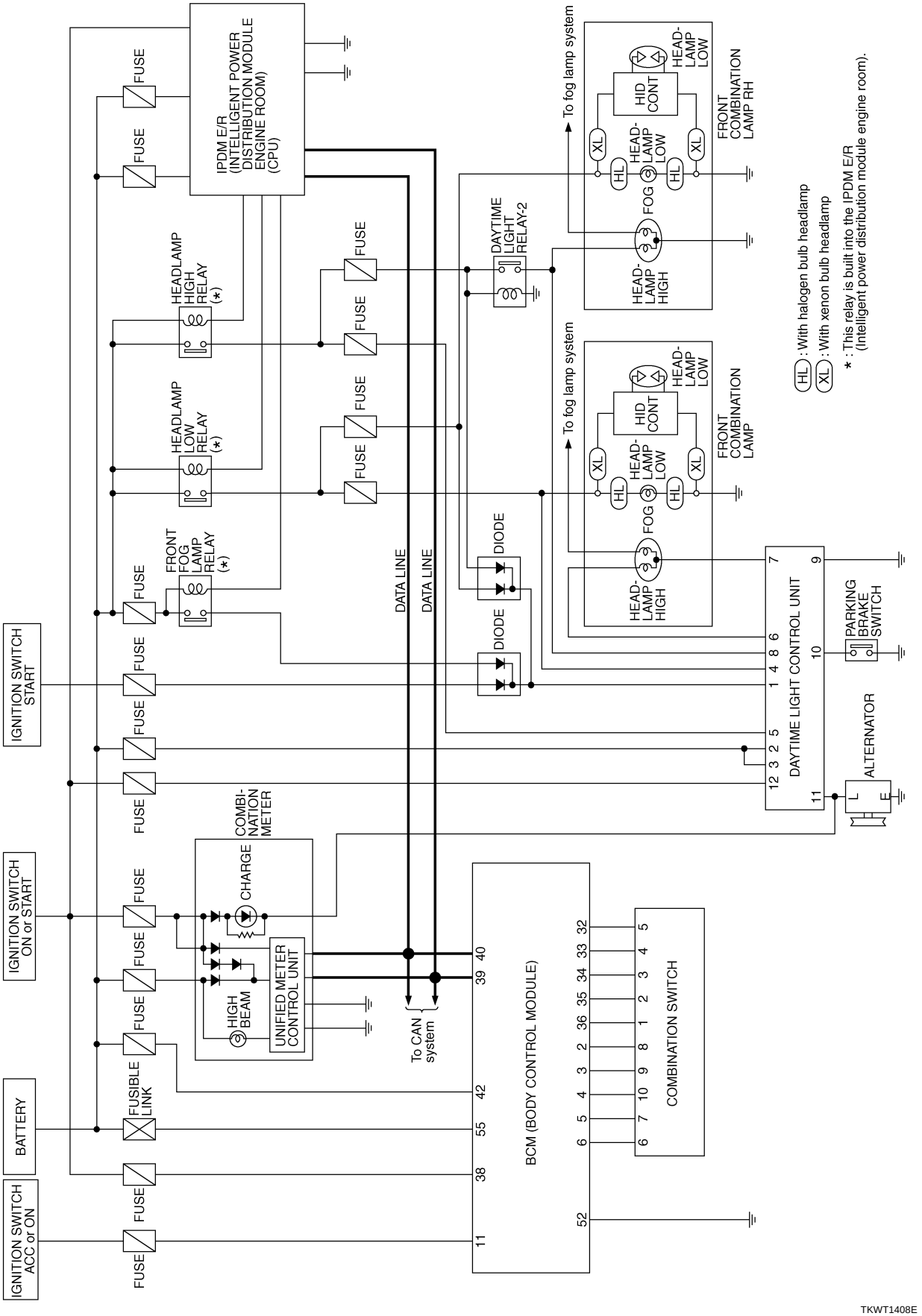
CAN Communication Unit

AKS0093K

Refer to LAN-5, "CAN Communication Unit" .

Schematic

AKS004Q6

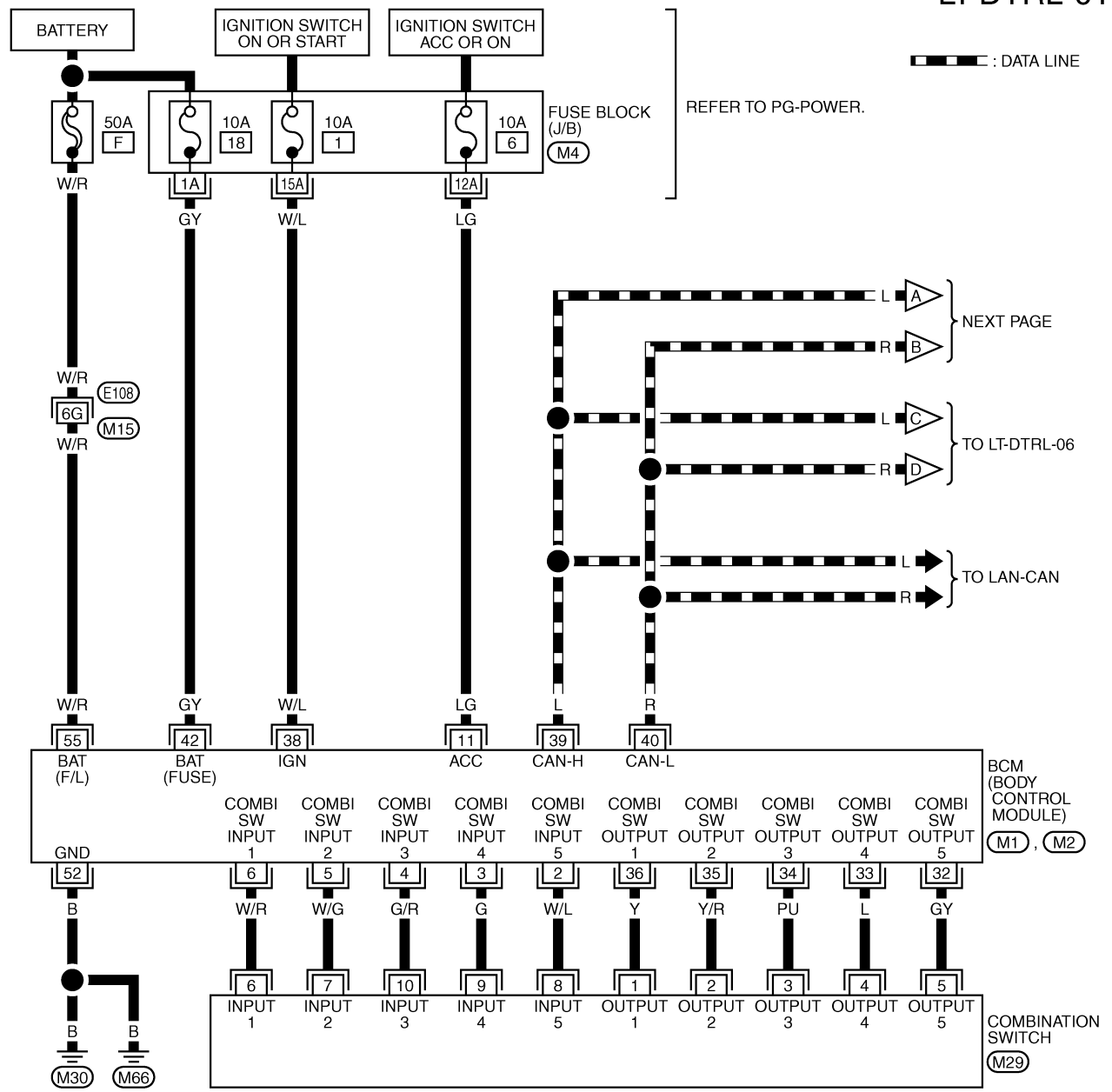


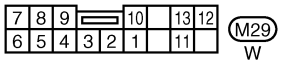
TKWT1408E

Wiring Diagram — DTRL —

AKS0091T

LT-DTRL-01





REFER TO THE FOLLOWING.

E108 -SUPER MULTIPLE JUNCTION (SMJ)

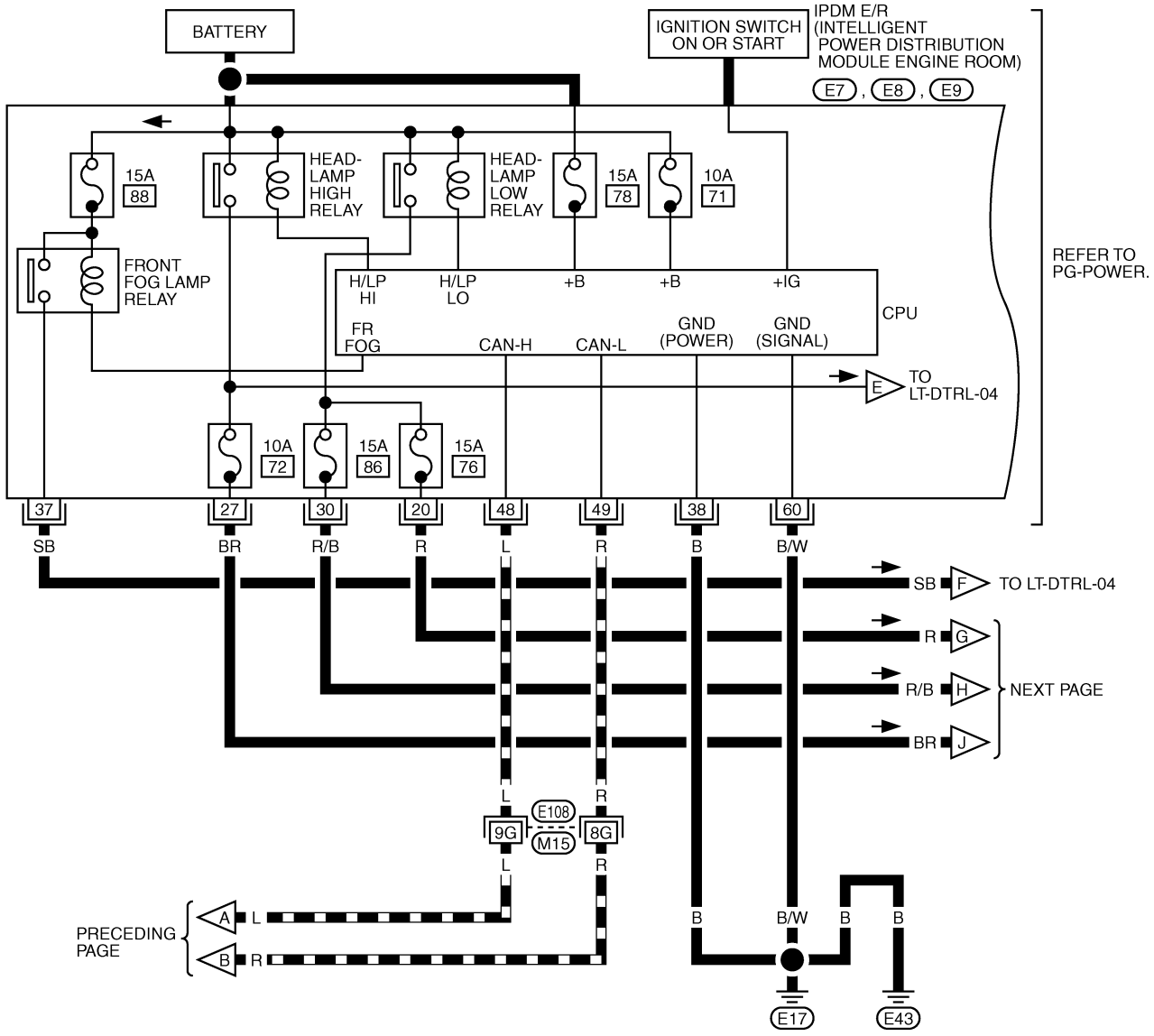
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

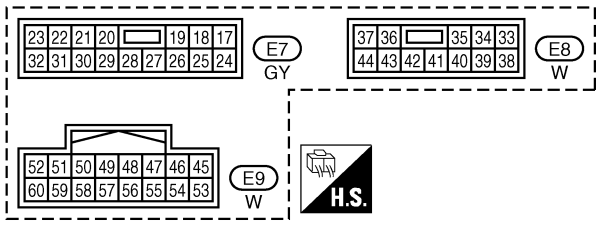
M1, M2 -ELECTRICAL UNITS

TKWT1409E

LT-DTRL-02

: DATA LINE

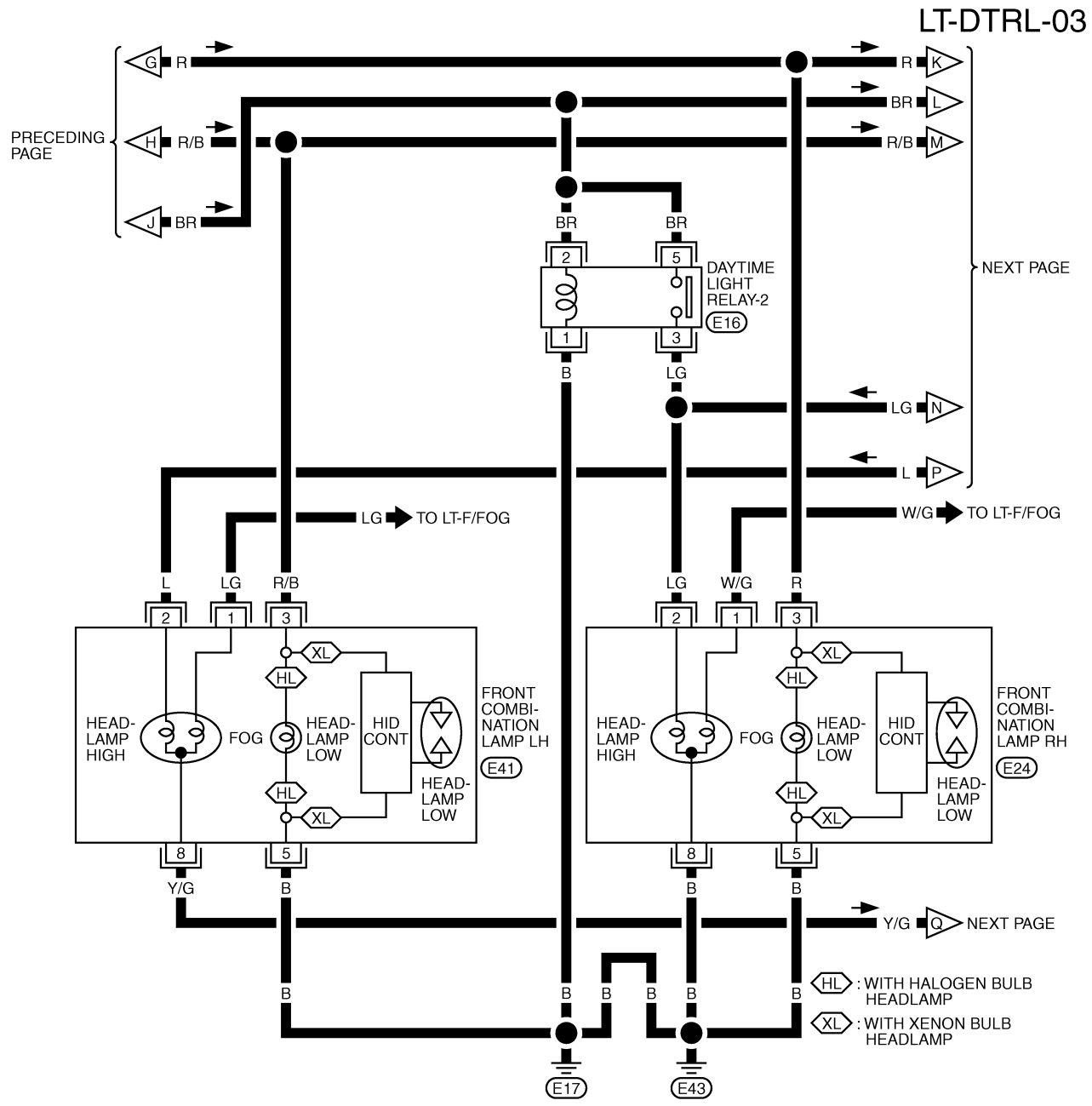


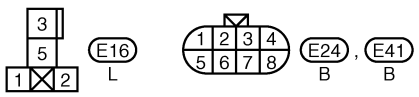


REFER TO THE FOLLOWING.

E108 -SUPER MULTIPLE JUNCTION (SMJ)

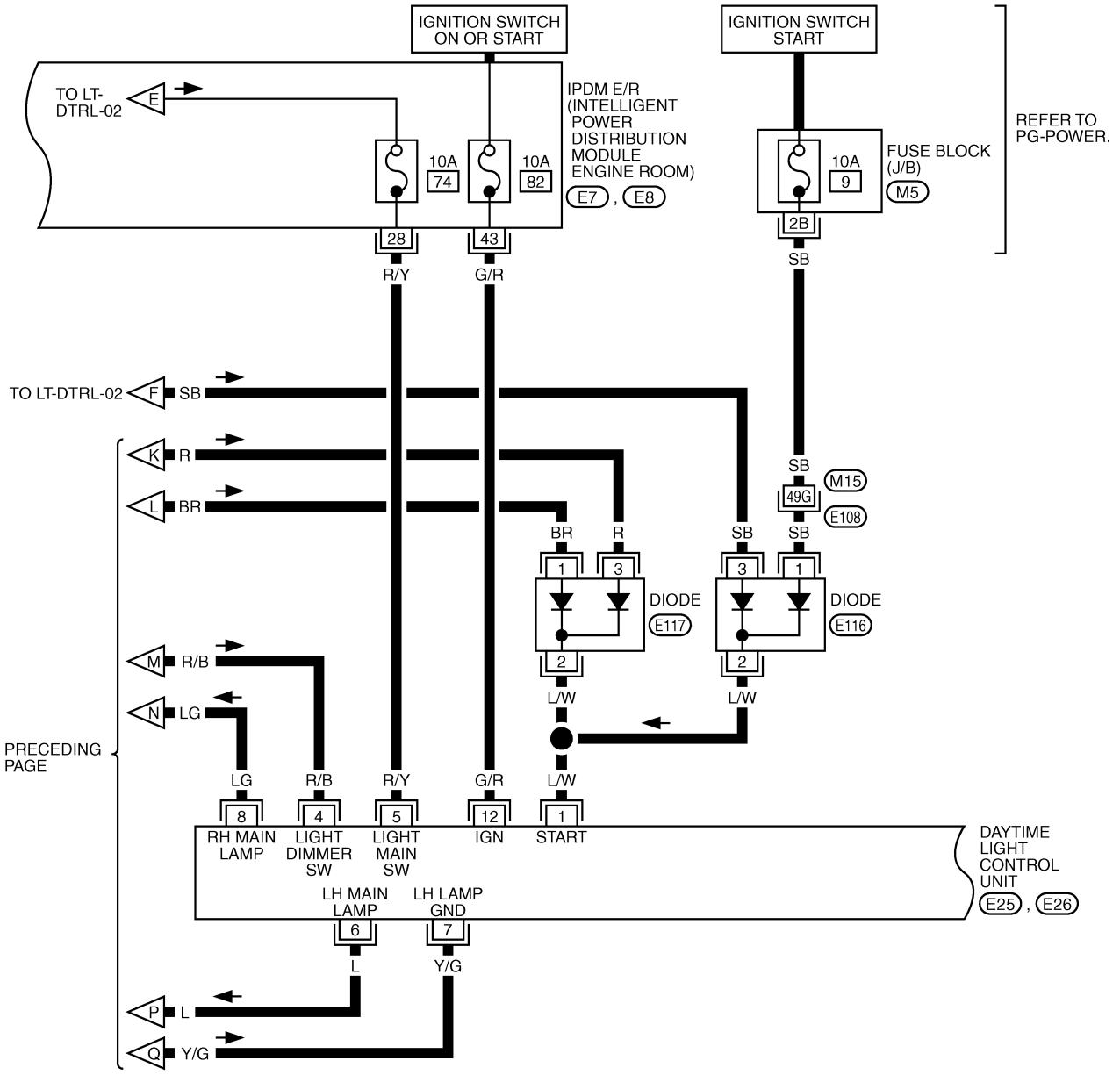
TKWT1410E

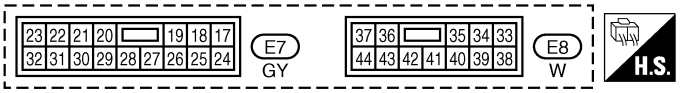

LT-DTRL-03
PRECEDING PAGE
G R
H R/B
J BR
R K
BR L
R/B M
NEXT PAGE
BR
BR
DAYTIME LIGHT RELAY-2
E16
B
LG
LG N
L P
LG TO LT-F/FOG
W/G TO LT-F/FOG
L
LG
R/B
LG
W/G
R
HEAD-LAMP HIGH
FOG
HEAD-LAMP LOW
HID CONT
HEAD-LAMP LOW
FRONT COMBI-NATION LAMP LH
E41
FRONT COMBI-NATION LAMP RH
E24
XL
HL
Y/G
B
Y/G Q NEXT PAGE
HL : WITH HALOGEN BULB HEADLAMP
XL : WITH XENON BULB HEADLAMP
E17
E43

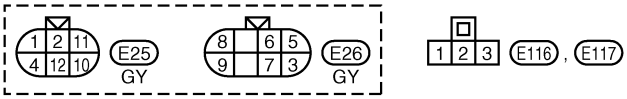

E16
L
E24 , E41
B

TKWT1411E

LT-DTRL-04







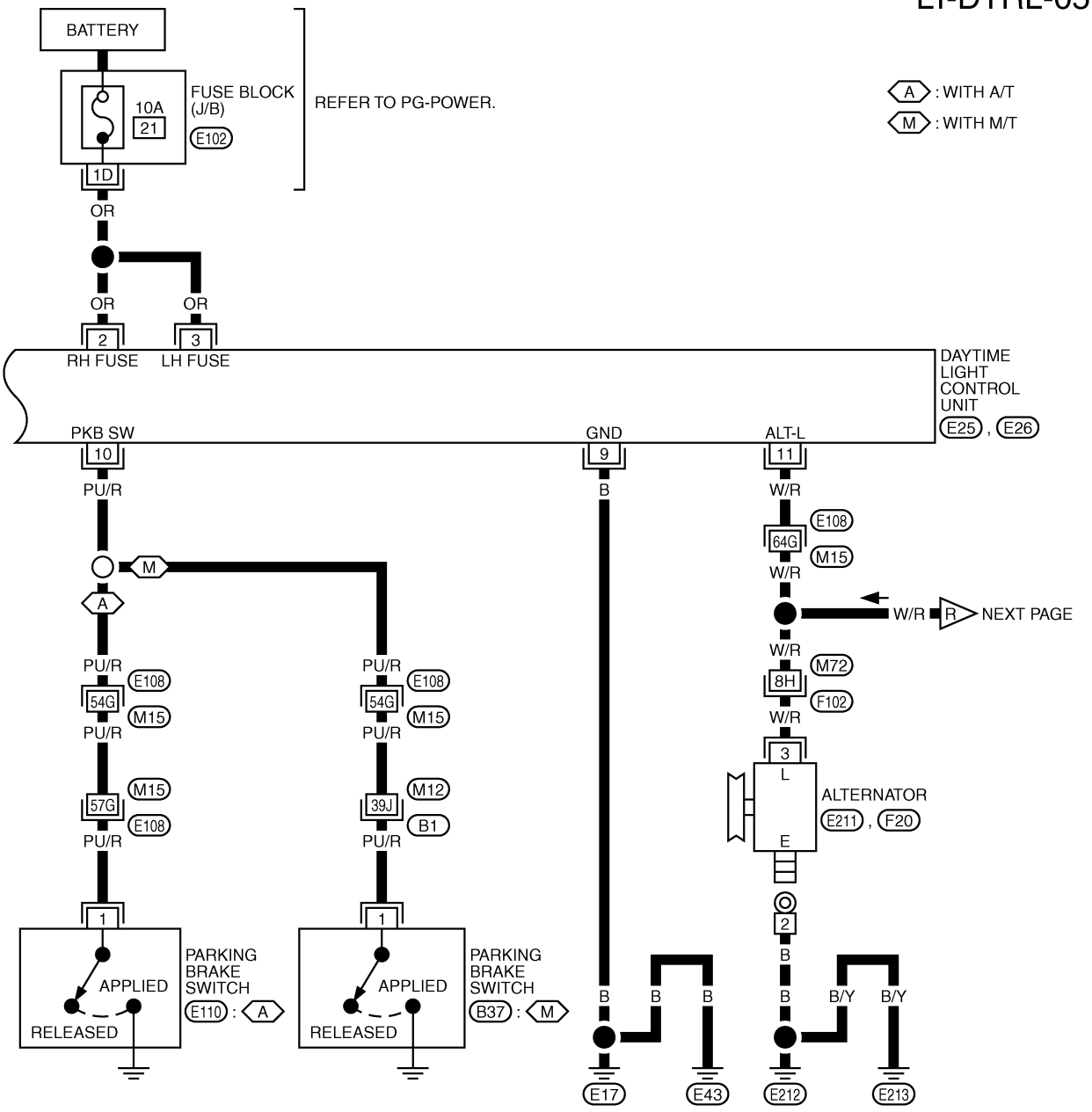
REFER TO THE FOLLOWING.

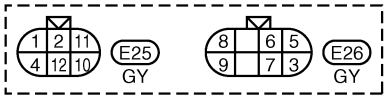
E108 -SUPER MULTIPLE JUNCTION (SMJ)

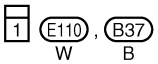
M5 -FUSE BLOCK-JUNCTION BOX (J/B)

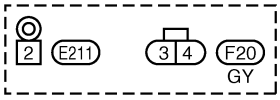
TKWT1412E

LT-DTRL-05







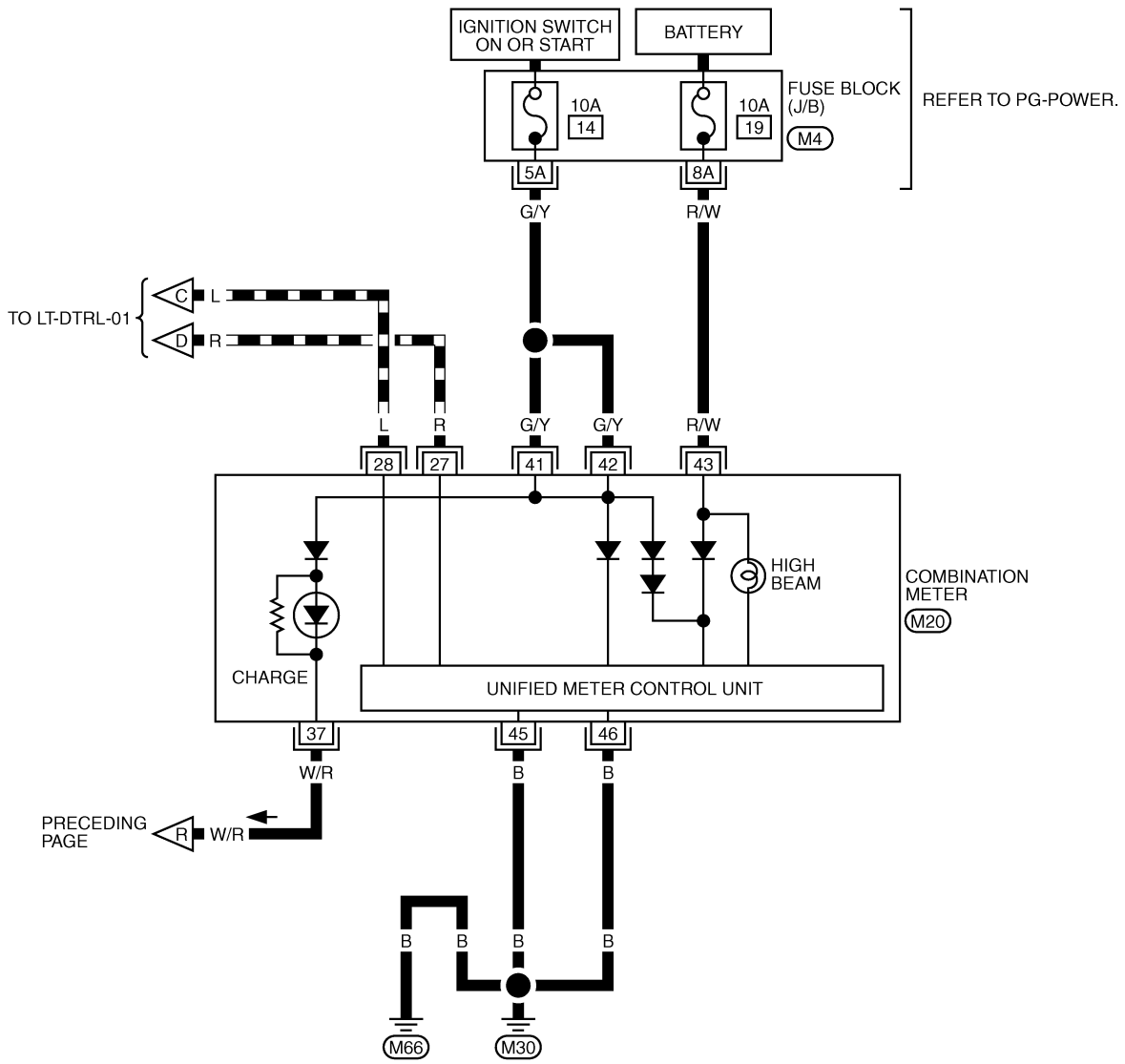


REFER TO THE FOLLOWING.
E108 , F102 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
E102 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWT1413E

LT-DTRL-06

: DATA LINE



25	26	27	28	29	30		31	32	33	34	35
36	37	38	39	40	41	42	43	44	45	46	47	48

M20
W

REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWT1414E

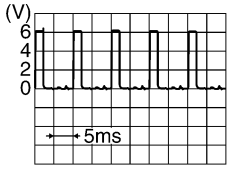
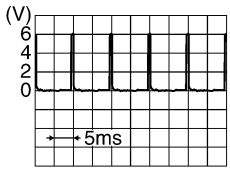
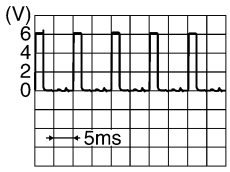
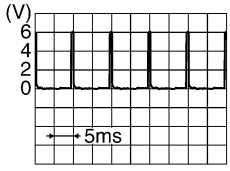
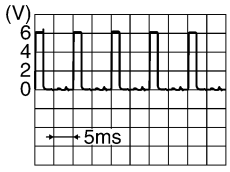
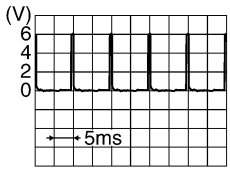
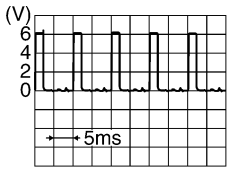
Terminals and Reference Value for Daytime Light Control Unit

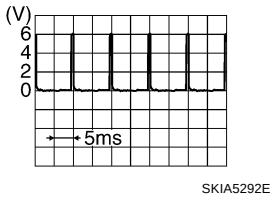
AKS00AAV

Terminal No.	Wire color	Item	Condition	Reference value
1	L/W	Start signal	When turning ignition switch to “START”	Battery voltage
			When turning ignition switch to “ON” from “START”	Approx.0V
			When turning ignition switch to “OFF”	Approx.0V
2	OR	RH light fuse	—	Battery voltage
3	OR	LH light fuse	—	Battery voltage
4	R/B	Lighting switch (Lowbeam)	When turning lighting switch is turned 2ND position “LOW BEAM” position.	Battery voltage
5	R/Y	Lighting switch (Hi beam)	When turning lighting switch is turned 2ND position “HI BEAM” position	Battery voltage
6	L	LH Hi beam	When lighting switch is turned to 2ND position with “HI BEAM” or “FLASH TO PASS” position	Battery voltage
			When releasing parking brake with engine running and turning lighting switch to “OFF” (daytime light operation) **CAUTION:** **Block wheels and ensure selector lever is in N or P position.**	Battery voltage
7	Y/G	LH Hi beam (Ground)	When turning lighting switch to 2ND position with “HI BEAM” or “FLASH TO PASS” position	Approx.0V
			When releasing parking brake with engine running and turning lighting switch to “OFF” (daytime light operation) **CAUTION:** **Block wheels and ensure selector lever is in N or P position.**	Approx.0V
8	LG	RH Hi beam	When lighting switch is turned to 2ND position with “HI BEAM” or “FLASH TO PASS” position	Battery voltage
			When releasing parking brake with engine running and turning lighting switch to “OFF” (daytime light operation) **CAUTION:** **Block wheels and ensure selector lever is in N or P position.**	Battery voltage
9	B	Ground	—	—
10	PU/R	Parking brake switch	When parking brake is released	Battery voltage
			When parking brake is applied	Approx.0V
11	W/R	Alternator	When turning ignition switch to “ON”	Approx.0V
			When engine is running	Battery voltage
			When turning ignition switch to “OFF”	Approx.0V
12	G/R	Ignition power supply	When turning ignition switch to “ON”	Battery voltage

Terminals and Reference Values for BCM

AKS009IZ

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
2	W/L	Combination switch input 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
3	G	Combination switch input 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
4	G/R	Combination switch input 3	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
5	W/G	Combination switch input 2	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
6	W/R	Combination switch input 1			
11	LG	Ignition switch (ACC)	ACC	—	Battery voltage
32	GY	Combination switch output 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
33	L	Combination switch output 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
34	PU	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	Y/R	Combination switch output 2	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
36	Y	Combination switch output 1			
38	W/L	Ignition switch (ON)	ON	—	Battery voltage
39	L	CAN– H	—	—	—
40	R	CAN– L	—	—	—
42	GY	Battery power supply	OFF	—	Battery voltage
52	B	Ground	ON	—	Approx. 0V
55	W/R	Battery power supply	OFF	—	Battery voltage

Terminals and Reference Values for IPDM E/R

AKS00AAW

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
20	R	Headlamp low (RH)	ON	Lighting switch 2ND position	OFF	Approx. 0V
					ON	Battery voltage
27	BR	Headlamp high (RH)	ON	Lighting switch HIGH or PASS position	OFF	Approx. 0V
					ON	Battery voltage
28	R/Y	Headlamp high (LH)	ON	Lighting switch HIGH or PASS position	OFF	Approx. 0V
					ON	Battery voltage
30	R/B	Headlamp low (LH)	ON	Lighting switch 2ND position	OFF	Approx. 0V
					ON	Battery voltage
37	SB	Front fog lamp	ON	Lighting switch must be in 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
43	G/R	Ignition power supply	ON	When turning ignition switch to “ON”		Battery voltage
48	L	CAN– H	—	—		—
49	R	CAN– L	—	—		—
60	B/W	Ground	ON	—		Approx. 0V

How to Proceed With Trouble Diagnosis

AKS009J0

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-38, "System Description" .
3. Perform the preliminary check. Refer to LT-53, "Preliminary Check" .
4. Check symptom and repair or replace the malfunctioning parts.
5. Does the headlamp operate normally? If YES: GO TO 6. If NO: GO TO 4.
6. INSPECTION END

Preliminary Check

AKS009J1

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

- Check fuses 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
		74
		78
		88
	Ignition switch ON or START position	82
DAYTIME LIGHT CONTROL UNIT	Battery	21
	Ignition switch START position	9

Refer to LT-44, "Wiring Diagram — DTRL —" .

OK or NG

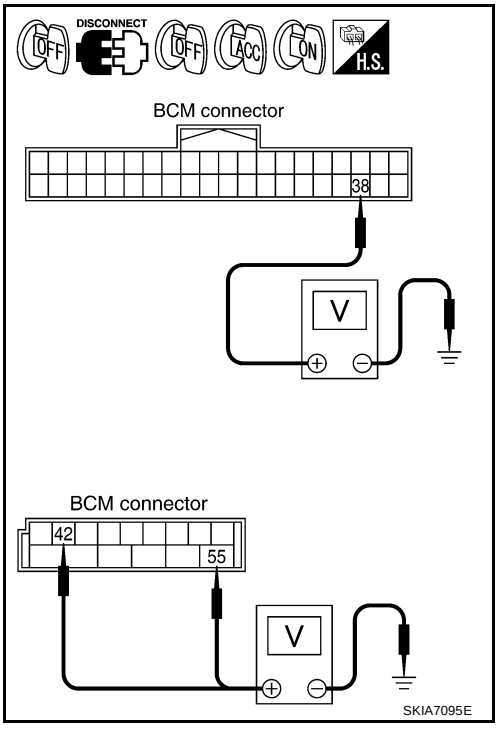
OK >> GO TO 2.

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

Terminals			Ignition switch position	
(+)		(-)	OFF	ON
Connector	Terminal (Wire color)			
M1	38 (W/L)	Ground	0V	Battery voltage
M2	42 (GY)		Battery voltage	Battery voltage
	55 (W/R)		Battery voltage	Battery voltage



OK or NG

OK >> GO TO 3.

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

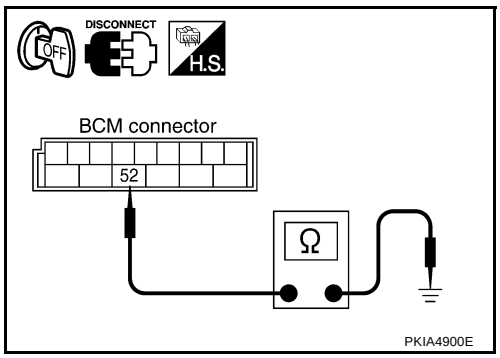
3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminals			Continuity
Connector	Terminal (Wire color)	Ground	Yes
M2	52 (B)		

OK or NG

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



CONSULT-II Functions (BCM)

AKS00AAZ

CONSULT-II performs the following functions communicating with BCM.

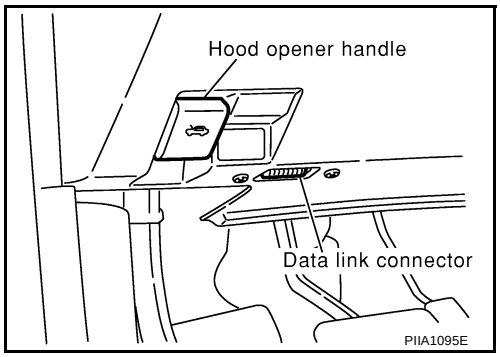
BCM diagnosis part	Check item, diagnosis mode	Description
HEAD LAMP	WORK SUPPORT	Changes the setting for each function.
	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.
BCM	CAN DIAG SUPPORT MNTR	The result of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

CONSULT-II BASIC OPERATION

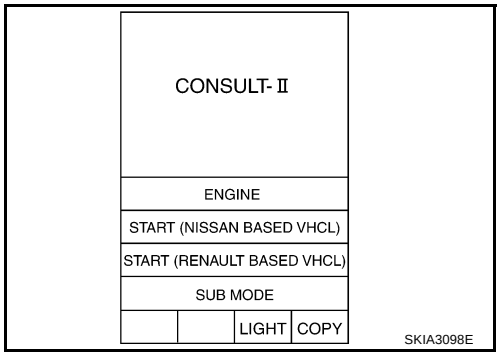
CAUTION:

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.

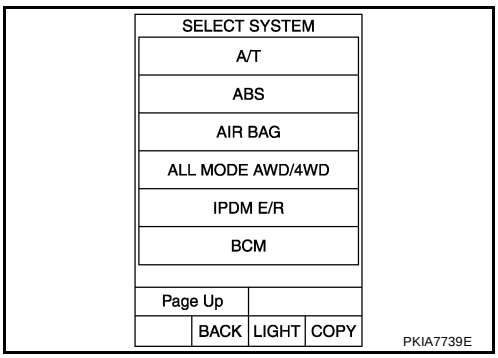
1. With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



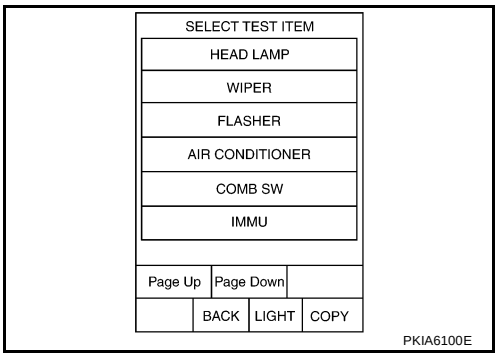
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “BCM” on “SELECT SYSTEM” screen.
If “BCM” is not indicated, refer to GI-38, "CONSULT-II Data Link Connector (DLC) Circuit" .



4. Touch “HEAD LAMP” on “SELECT DIAG MODE” 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 items will be monitored.
6. Touch “RECORD” while monitoring, then status of the monitored item can be recorded. To stop recording, touch “STOP”.

Display Item List

Monitor item		Contents
IGN ON SW	“ON/OFF”	Displays “IGN position (ON)/OFF, ACC position (OFF)” judged from ignition switch signal.
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 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 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 is open: ON/Door is closed: OFF)
DOOR SW - RR	“ON/OFF”	Displays status of the rear door as judged from 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 rear door switch (LH) signal. (Door is open: ON/Door is closed: OFF)
BACK DOOR SW[Note 1]	“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 1]	“OFF”	—
OPTICAL SENSOR[Note 2]	[0 - 5V]	Displays “ambient light (close to 5V when light/close to 0V when dark)” judged from optical sensor signal.

NOTE:
1. This item is displayed, but cannot monitor it.
2. Vehicles without auto light system display this item, 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]	—

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

CONSULT-II Functions (IPDM E/R)

AKS00AB0

CONSULT-II performs the following functions communicating with IPDM E/R.

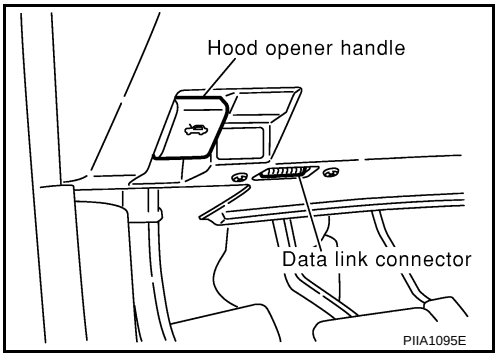
Check Item, Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	IPDM E/R performs self-diagnosis of CAN communication.
DATA MONITOR	The input/output data of IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE TEST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

CONSULT-II OPERATION

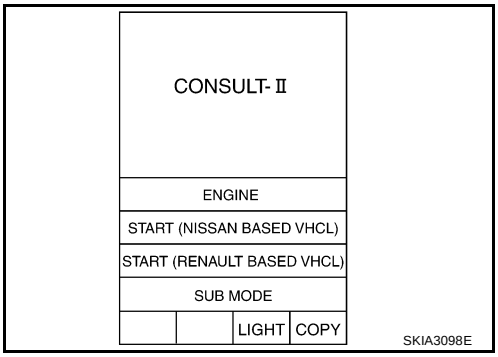
CAUTION:

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

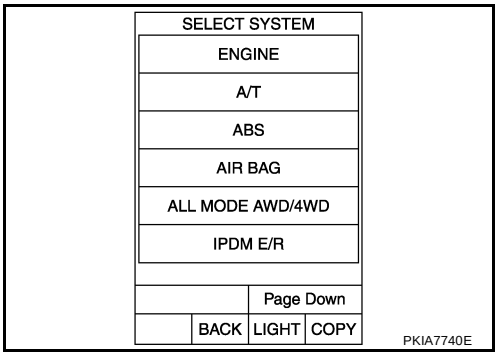
1. With ignition switch OFF, connect CONSULT-II and CON-SULT-II CONVERTER to data link connector, then turn ignition switch ON.



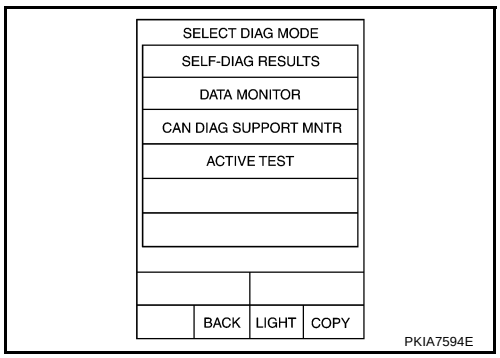
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “IPDM E/R” on “SELECT SYSTEM” screen.
If “IPDM E/R” is not displayed, print “SELECT SYSTEM” screen, then refer to GI-38, "CONSULT-II Data Link Connector (DLC) Circuit" .



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



DATA MONITOR

Operation Procedure

1. Touch “DATA MONITOR” on “SELECT DIAG MODE ” screen.
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 ignition switch ON. When ignition switch is at ACC, 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

SELF-DIAGNOSTIC RESULTS

Refer to PG-19, "SELF-DIAG RESULTS" .

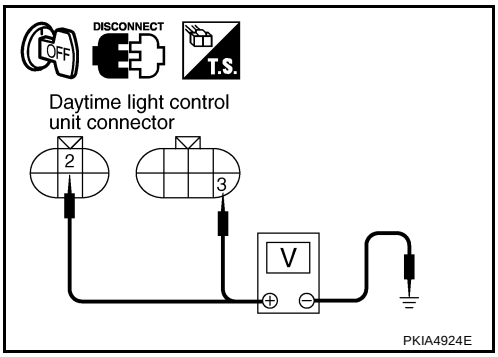
Daytime Light Control Does Not Operate Properly

AKS004QE

1. CHECK DAYTIME LIGHT CONTROL UNIT

1. Turn ignition switch OFF.
2. Disconnect daytime light control unit connector.
3. Check voltage between daytime light control unit harness connector and ground.

Terminals			Voltage
(+)		(-)	
Connector	Terminal (Wire color)		
E25	2 (OR)	Ground	Battery voltage
E26	3 (OR)		



OK or NG

OK >> GO TO 2.
NG >> Repair or replace daytime light control unit power supply circuit harness.

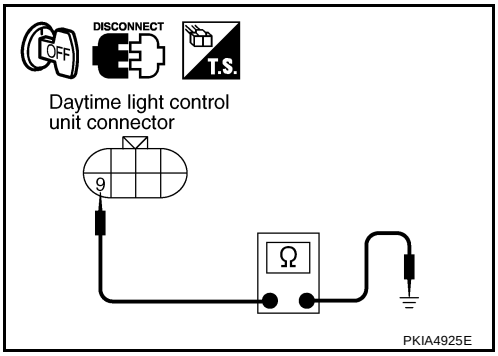
2. CHECK GROUND FOR DAYTIME LIGHT CONTROL UNIT

Check continuity between daytime light control unit harness connector E26 terminal 9 (B) and ground.

9 (B) – ground : Continuity should exist.

OK or NG

OK >> GO TO3.
NG >> Repair harness or connector.



3. CHECK PARKING BRAKE SWITCH CIRCUIT

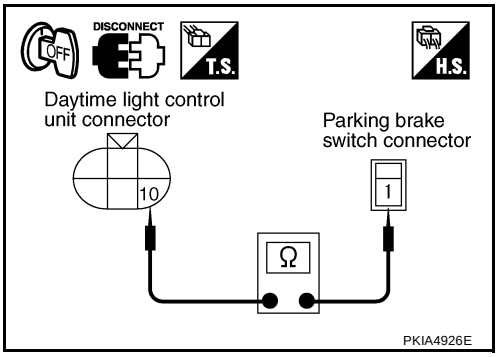
1. Disconnect parking brake switch connector.
2. Check continuity between daytime light control unit harness connector E25 terminal 10 (PU/R) and parking brake switch harness connector B37*1 or E110*2 terminal 1 (PU/R).

10 (PU/R) – 1 (PU/R) : Continuity should exist.

*1: M/T, *2: A/T

OK or NG

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

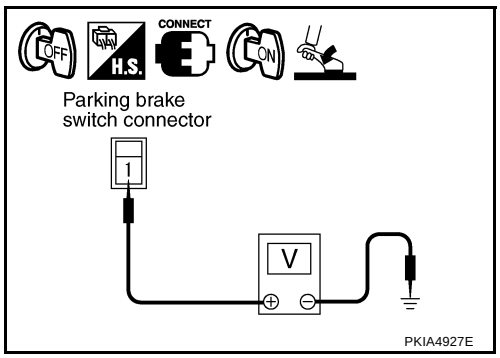


4. CHECK PARKING BRAKE SWITCH

1. Connect daytime light control unit connector and parking brake switch connector.
2. Turn ignition switch ON.
3. Check voltage between parking brake switch harness connector B37*1 or E110*2 terminal 1 (PU/R) and ground, when parking brake is released.

1 (PU/R) – Ground : Battery voltage should exist.

*1: M/T, *2: A/T



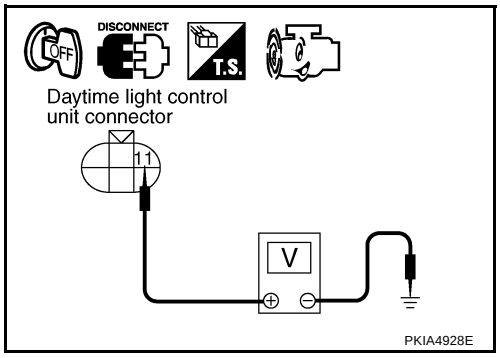
OK or NG

OK >> GO TO 5.
NG >> Replace parking brake switch.

5. CHECK ALTERNATOR CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect daytime light control unit connector.
3. Start engine running.
4. Check voltage between daytime light control unit harness connector E25 terminal 11 (W/R) and ground.

11 (W/R) – Ground : Battery voltage should exist.



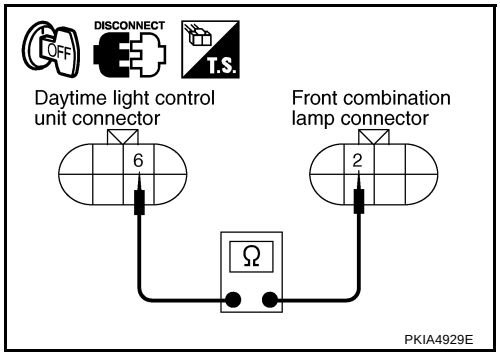
OK or NG

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

6. CHECK POWER CIRCUIT BETWEEN DAYTIME LIGHT CONTROL UNIT AND HEADLAMP LH

1. Turn ignition switch OFF.
2. Disconnect daytime light control unit connector and LH front combination lamp connector.
3. Check continuity between daytime light control unit harness connector E26 terminal 6 (L) and front combination lamp LH harness connector E41 terminal 2 (L).

6 (L) – 2 (L) : Continuity should exist.



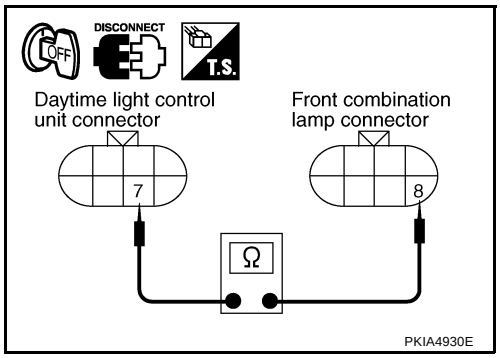
OK or NG

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

7. CHECK GROUND CIRCUIT BETWEEN DAYTIME LIGHT CONTROL UNIT AND HEADLAMP LH

Check continuity between daytime light control unit harness connector E26 terminal 7 (Y/G) and front combination lamp LH harness connector E41 terminal 8 (Y/G).

7 (Y/G) – 8 (Y/G) : Continuity should exist.



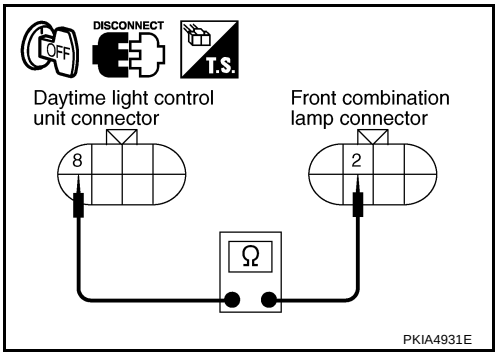
OK or NG

OK >> GO TO 8.
NG >> Repair harness or connector.

8. CHECK POWER CIRCUIT BETWEEN DAYTIME LIGHT CONTROL UNIT AND HEADLAMP RH

1. Turn ignition switch OFF.
2. Disconnect RH front combination lamp connector.
3. Check continuity between daytime light control unit harness connector E26 terminal 8 (LG) and front combination lamp RH harness connector E24 terminal 2 (LG).

8 (LG) – 2 (LG) : Continuity should exist.



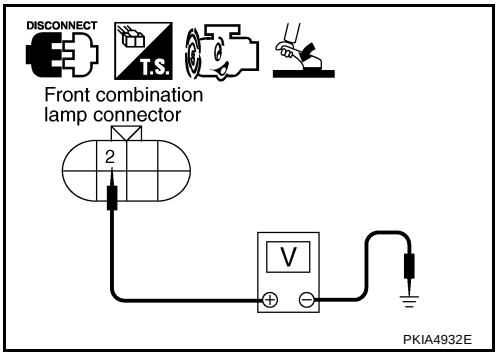
OK or NG

OK >> GO TO 9.
NG >> Repair harness or connector.

9. CHECK DAYTIME LIGHT CONTROL UNIT

1. Connect daytime light control unit connector.
2. Check voltage between front combination lamp RH harness connector E24 terminal 2 (LG) and ground, when releasing parking brake with engine running and turning lighting switch to “OFF”.

2 (LG) – Ground : Battery voltage should exist.



OK or NG

OK >> Check headlamp bulb.
NG >> Replace daytime light control unit.

Headlamp HI Does Not Illuminate (Both Sides)

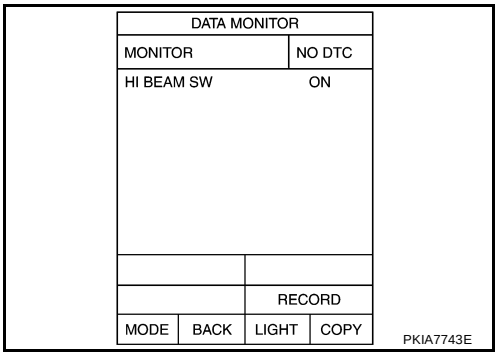
AKS004QF

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 position : HI BEAM SW ON



With out CONSULT-II

Refer to LT-128, "Combination Switch Inspection" .

OK or NG

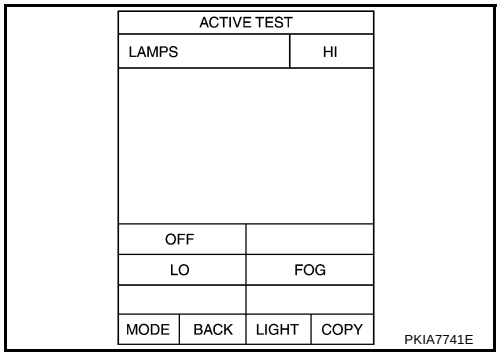
OK >> GO TO 2.
NG >> Check lighting switch. Refor to LT-128, "Combination Switch Inspection" .

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” screem.
3. Touch “HI” screem.
4. Make sure headlamp high beam operates.

Headlamp high beam should operate



With out CONSULT-II

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

Headlamp high beam should operate.

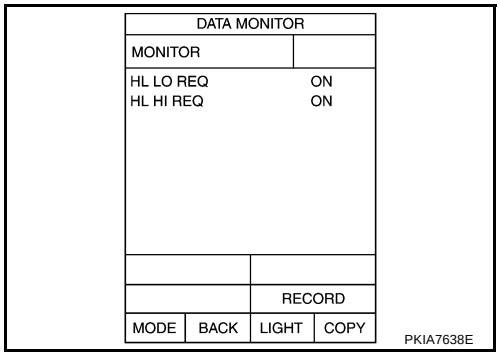
OK or NG

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 position : HL LO REQ ON
: HL HI REQ ON



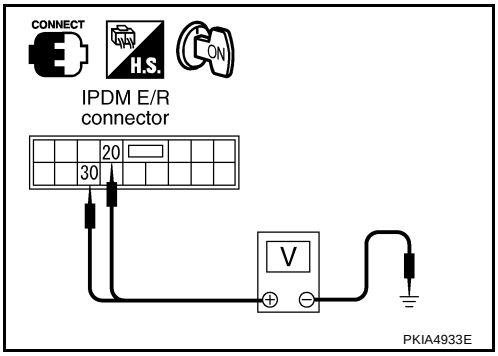
OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-15, "Removal and Installation of BCM" .

4. CHECK HEADLAMP INPUT SIGNAL

With CONSULT-II

1. Select “IPDM E/R” on CONSULT-II, and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
2. Select “LAMPS” on “SELECT TEST ITEM” screem.
3. Touch “HI” screem.
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)		
E7	20 (R)	Ground	Battery voltage
	30 (R/B)		

With out CONSULT-II

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

Terminals			Voltage
(+)		(-)	
Connector	Terminal (Wire color)		
E7	20 (R)	Ground	Battery voltage
	30 (R/B)		

OK or NG

OK >> Check headlamp bulbs.
NG >> Replace IPDM E/R.

RH HI Does Not Illuminate But RH LO Illuminates

AKS004QG

1. CHECK BULB

Check bulb of lamp.

OK or NG

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

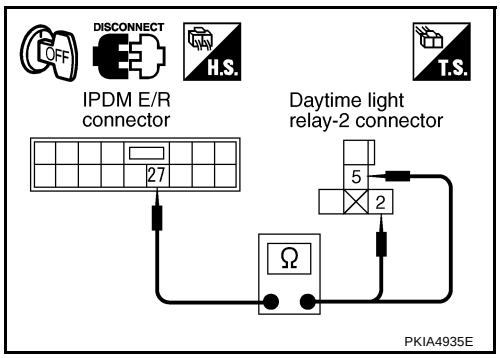
2. CHECK CIRCUIT BETWEEN IPDM E/R AND DAYTIME LIGHT RELAY–2

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and daytime light relay–2.
3. Check continuity between IPDM E/R harness connector E7 terminal 27 (BR) and daytime light relay–2 harness connector E16 terminal 2 (BR).

27 (BR) – 2 (BR) : Continuity should exist.

4. Check continuity between IPDM E/R harness connector E7 terminal 27 (BR) and daytime light relay–2 harness connector E16 terminal 5 (BR).

27 (BR) – 5 (BR) : Continuity should exist.



OK or NG

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

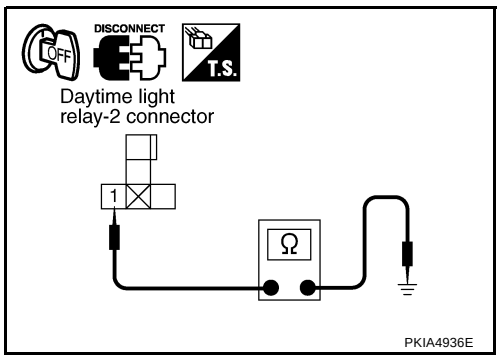
3. CHECK DAYTIME LIGHT RELAY–2 GROUND

Check continuity between daytime light relay–2 harness connector E16 terminal 1 (B) and ground.

1 (B) – Ground : Continuity should exist.

OK or NG

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



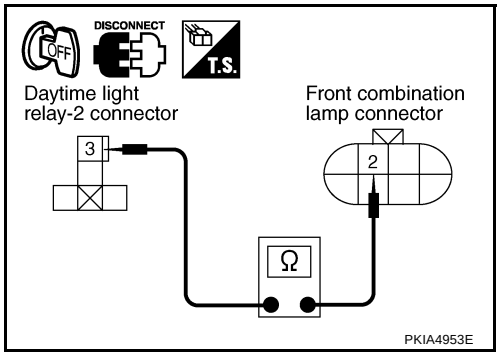
4. CHECK CIRCUIT BETWEEN DAYTIME LIGHT RELAY–2 AND HEADLAMP RH

1. Disconnect RH front combination lamp connector.
2. Check continuity between daytime light relay–2 harness connector E16 terminal 3 (LG) and front combination lamp RH harness connector E24 terminal 2 (LG).

3 (LG) – 2 (LG) : Continuity should exist.

OK or NG

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



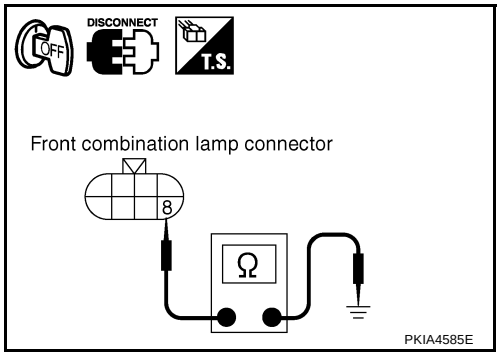
5. CHECK HEADLAMP RH GROUND CIRCUIT

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

8 (B) – Ground : Continuity should exist.

OK or NG

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



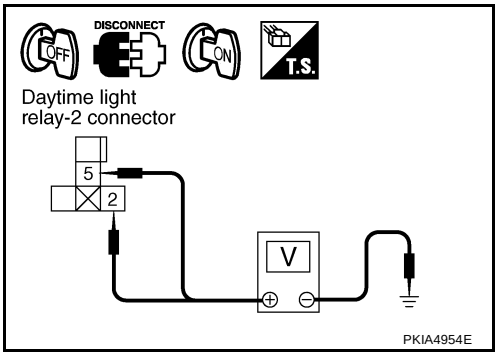
6. CHECK IPDM E/R

1. Connect IPDM E/R connector.
2. Turn ignition switch ON.
3. Lighting switch is turned HIGH position.
4. Check voltage between daytime light relay–2 harness connector E16 terminal 2 (BR) and ground.

2 (BR) – Ground : Battery voltage should exist.

5. Check voltage between daytime light relay–2 harness connector E16 terminal 5 (BR) and ground.

5 (BR) – Ground : Battery voltage should exist.



OK or NG

OK >> Replace daytime light relay–2.
NG >> Replace IPDM E/R.

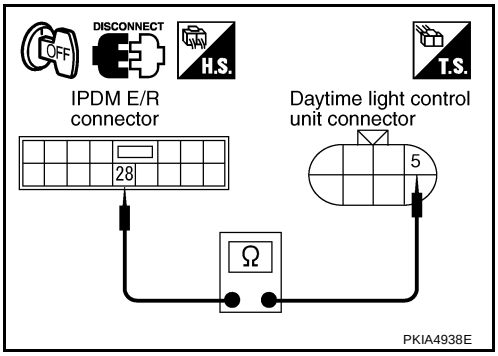
LH HI Does Not Illuminate But LH LO Illuminates

AKS004QH

1. CHECK CIRCUIT BETWEEN IPDM E/R AND DAYTIME LIGHT CONTROL UNIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and daytime light control unit connector.
3. Check continuity between IPDM E/R harness connector E7 terminal 28 (R/Y) and daytime light control unit harness connector E26 terminal 5 (R/Y).

28 (R/Y) – 5 (R/Y) : Continuity should exist.



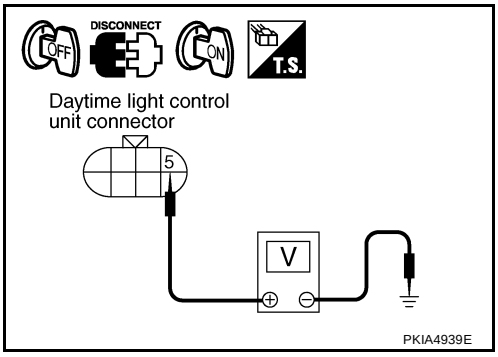
OK or NG

OK >> GO TO 2.
NG >> Repair harness or connector.

2. CHECK IPDM E/R

1. Connect IPDM E/R connector.
2. Turn ignition switch ON.
3. Lighting switch is turned HIGH position.
4. Check voltage between daytime light control unit harness connector E26 terminal 5 (R/Y) and ground.

5 (R/Y) – Ground : Battery voltage should exist.



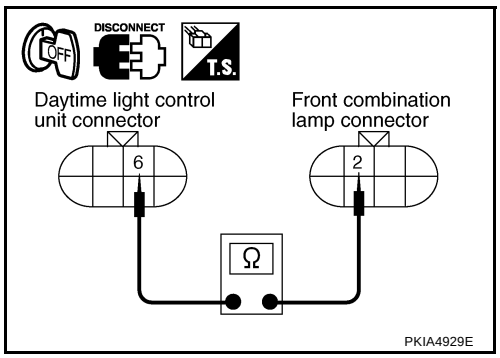
OK or NG

OK >> GO TO 3.
NG >> Replace IPDM E/R.

3. CHECK POWER CIRCUIT BETWEEN DAYTIME LIGHT CONTROL UNIT AND HEADLAMP LH

1. Turn ignition switch OFF.
2. Disconnect daytime light control unit connector and LH front combination lamp connector.
3. Check continuity between daytime light control unit harness connector E26 terminal 6 (L) and front combination lamp LH harness connector E41 terminal 2 (L).

6 (L) – 2 (L) : Continuity should exist.



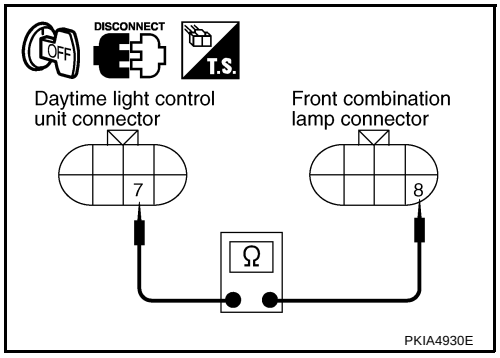
OK or NG

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

4. CHECK CIRCUIT BETWEEN DAYTIME LIGHT CONTROL UNIT AND HEADLAMP LH

Check continuity between daytime light control unit harness connector E26 terminal 7 (Y/G) and front combination lamp LH harness connector E41 terminal 8 (Y/G).

7 (Y/G) – 8 (Y/G) : Continuity should exist.



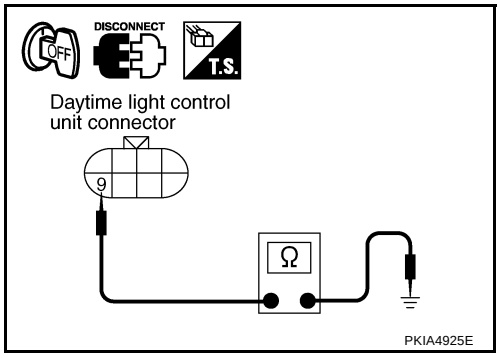
OK or NG

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

5. CHECK DAYTIME LIGHT CONTROL UNIT AND GROUND

Check continuity between daytime light control unit harness connector E26 terminal 9 (B) and ground.

9 (B) – Ground : Continuity should exist.



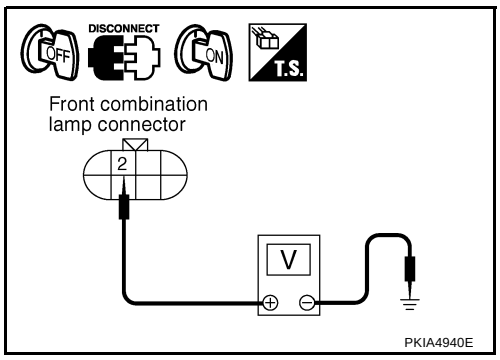
OK or NG

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

6. CHECK DAYTIME LIGHT CONTROL UNIT

1. Connect daytime light control unit connector.
2. Turn ignition switch ON.
3. Lighting switch is turned HIGH position.
4. Check voltage between front combination lamp LH harness connector E41 terminal 2 (L) and ground.

2 (L) – Ground : Battery voltage should exist.



OK or NG

OK >> Check headlamp bulb.
NG >> Replace daytime light control unit.

Headlamp Low Beam Does Not Illuminate (Both Sides)

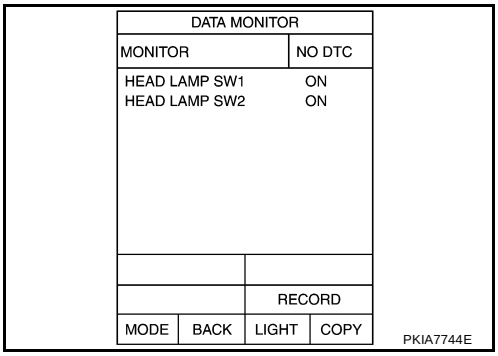
AKS00AB1

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



With out CONSULT-II

Refer to LT-128, "Combination Switch Inspection" .

OK or NG

OK >> GO TO 2.

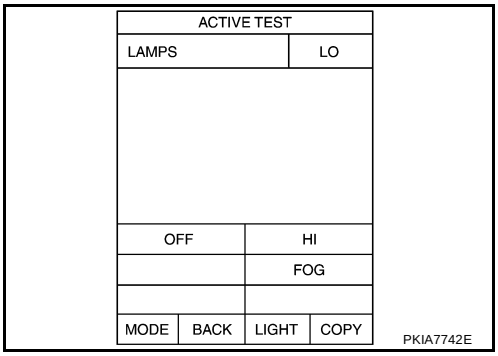
NG >> Check lighting switch. Refer to LT-128, "Combination Switch Inspection" .

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 screem.
3. Touch “LO” screem.
4. Make sure headlamp low beam operates.

Headlamp low beam should operate.



With out CONSULT-II

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

Headlamp low beam should operate.

OK or NG

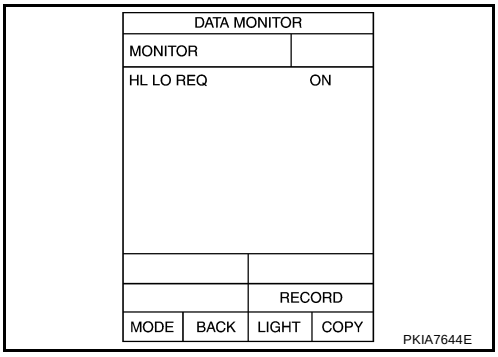
OK >> GO TO 3.

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

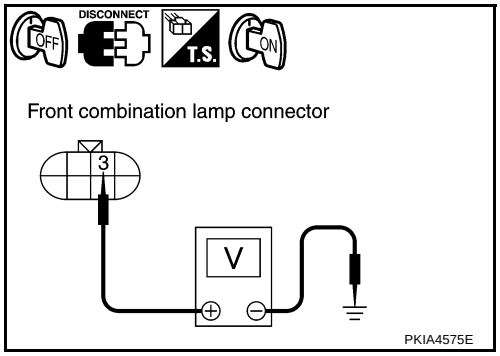
OK >> Replace IPDM E/R.

NG >> Replace BCM. Refer to BCS-15, "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	E24	3 (R)	Ground	Battery voltage
LH	E41	3 (R/B)		

With out CONSULT-II

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

Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E24	3 (R)	Ground	Battery voltage
LH	E41	3 (R/B)		

OK or NG

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

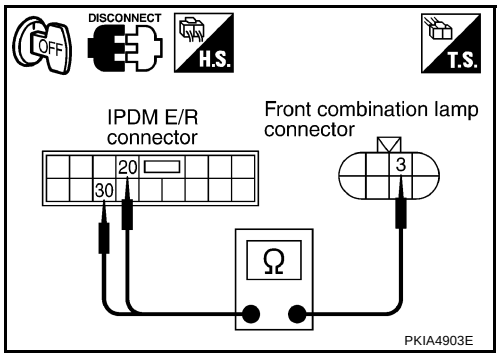
5. CHECK HEADLAMP CIRCUIT

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

20 (R) – 3 (R) : Continuity should exist.

4. Check continuity between IPDM E/R harness connector E7 terminal 30 (R/B) and front combination lamp LH harness connector E41 terminal 3 (R/B).

30 (R/B) – 3 (R/B) : Continuity should exist.



OK or NG

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

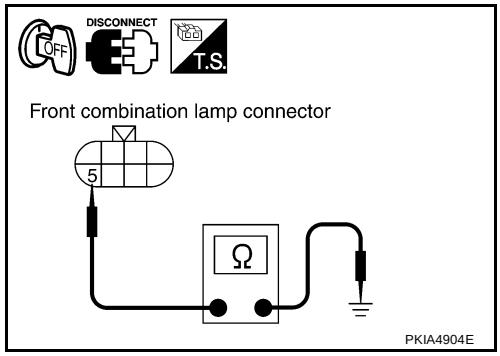
6. CHECK HEADLAMP GROUND

1. Turn ignition switch OFF.
2. Check continuity between front combination lamp RH harness connector E24 terminal 5 (B) and ground.

5 (B) – Ground : Continuity should exist.

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

5 (B) – 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.

RH LO Does Not Illuminate But RH HI Illuminates

AKS004QJ

1. CHECK BULB

- Check bulb of lamp. (Halogen bulb models)
- Check ballasts (HID control unit) and xenon bulb of lamp. (Xenon bulb models)

OK or NG

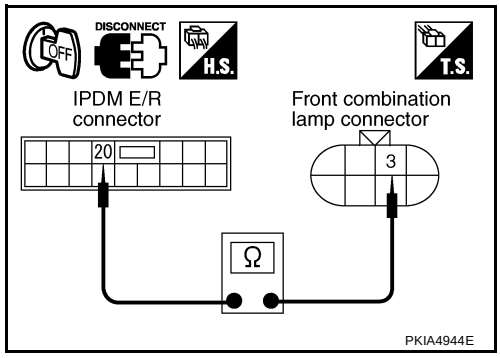
OK >> GO TO 2.

NG >> Repair malfunctioning part.

2. CHECK CIRCUIT BETWEEN IPDM E/R AND HEADLAMP RH

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

20 (R) – 3 (R) : Continuity should exist.



OK or NG

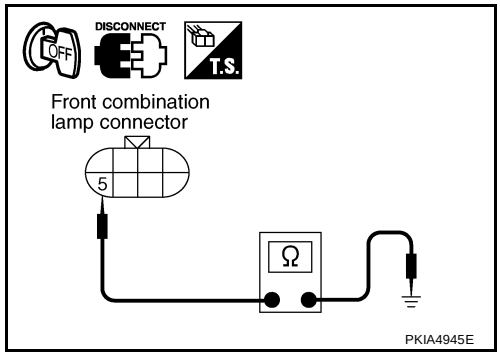
OK >> GO TO 3.

NG >> Repair harness or connector.

3. CHECK HEADLAMP RH GROUND CIRCUIT

Check continuity between front combination lamp RH harness connector E24 terminal 5 (B) and ground.

5 (B) – Ground : Continuity should exist.



OK or NG

OK >> Replace IPDM E/R.

NG >> Repair harness or connector.

LH LO Does Not Illuminate But LH HI Illuminates

AKS004QK

1. CHECK BULB

- Check bulb of lamp. (Halogen bulb models)
- Check ballasts (HID control unit) and xenon bulb of lamp. (Xenon bulb models)

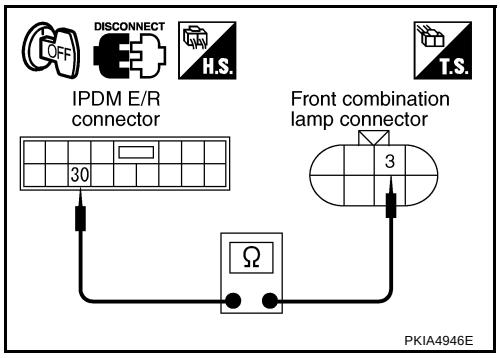
OK or NG

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

2. CHECK CIRCUIT BETWEEN IPDM E/R AND HEADLAMP LH

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and front combination lamp LH connector.
3. Check continuity between IPDM E/R harness connector E7 terminal 30 (R/B) and front combination lamp harness LH connector E41 terminal 3 (R/B).

30 (R/B) – 3 (R/B) : Continuity should exist.



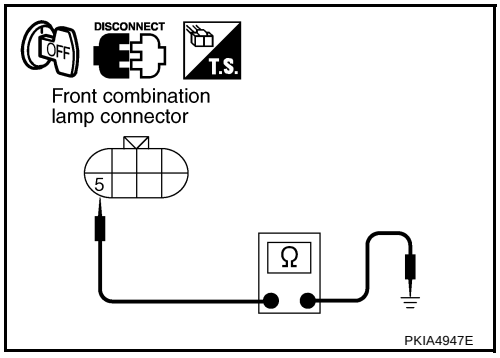
OK or NG

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

3. CHECK HEADLAMP AND GROUND

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

5 (B) – Ground : Continuity should exist.



OK or NG

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

Aiming Adjustment

AKS005IG

Refer to LT-33, "Aiming Adjustment" in “HEAD LAMP (FOR USA)”.

Bulb Replacement

AKS005IH

Refer to LT-34, "Bulb Replacement" in “HEAD LAMP (FOR USA)”.

Removal and Installation

AKS005II

Refer to LT-35, "Removal and Installation" in “HEAD LAMP (FOR USA)”.

Disassembly and Assembly

AKS005IJ

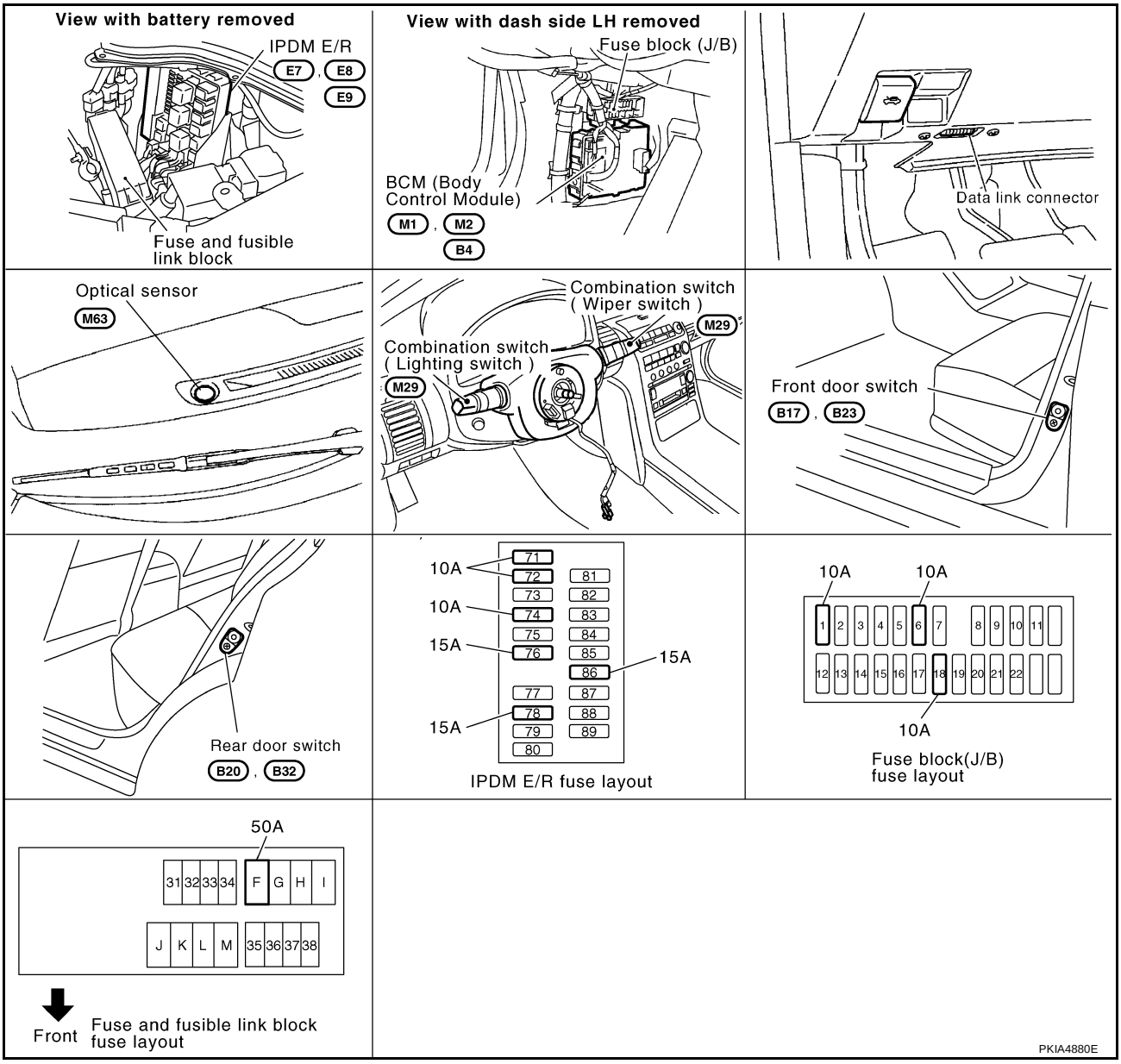
Refer to LT-36, "Disassembly" , LT-37, "Assembly" in “HEAD LAMP (FOR USA)”.

AUTO LIGHT SYSTEM

PFP:28491

Component Parts and Harness Connector Location

AKS009LA



System Description

AKS009LB

Automatically turns on/off the parking lamps and the headlamps in accordance with ambient light.
Timing for when 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 ambient light. Sensitivity can be adjusted in four steps. For the details of the setting, Refer to LT-79, "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-71, "System Description" .

COMBINATION SWITCH READING FUNCTION

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

EXTERIOR LAMP BATTERY SAVER CONTROL

When lighting switch changes into the state of off of ignition switch from the state of ACC or ON by 1st position, a function in case lighting switch is except AUTO or OFF in the state of ignition carries out the timer operation of the output of headlamp, fog lamp, and tall lamp for 5 minutes, is not based on the input conditions of combination switch after that, but is set to OFF.
Exterior lamp battery saver control mode can be changed by the function setting of CONSULT-II.

SHUT OFF DELAY

When ignition switch is in the state of ON or ACC and lighting switch is AUTO position, after OFF and door switch (a driver, passenger) serve as ON from the state of ON of headlamp in ignition switch, headlamp is turned on for 5 minutes, and headlamp, parking lamp, and fog lamp are set OFF after that.
When door switch (a driver, passenger) is turned on from OFF during 45 seconds or 5 minute timer operation, the present timer stops, newly turns on a headlamp for 5 minutes, and sets headlamp, parking lamp, and fog lamp to OFF after that.
When door switch (a driver, passenger) is turned off from ON during 45 seconds or 5 minute timer operation, the present timer stops, newly turns on a head lamp for 45 seconds, and sets a headlamp, parking lamp, and fog lamp to OFF after that.
When ignition switch is turned off from ON during the above mentioned timer operation, the function, which stopped timer and followed each lighting switch, is performed.
Shut off delay control mode can be changed by the function setting of CONSULT-II.

CAN Communication System Description

AKS009LC

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 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 the high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

CAN Communication Unit

AKS009LD

Refer to LAN-5, "CAN Communication Unit" .

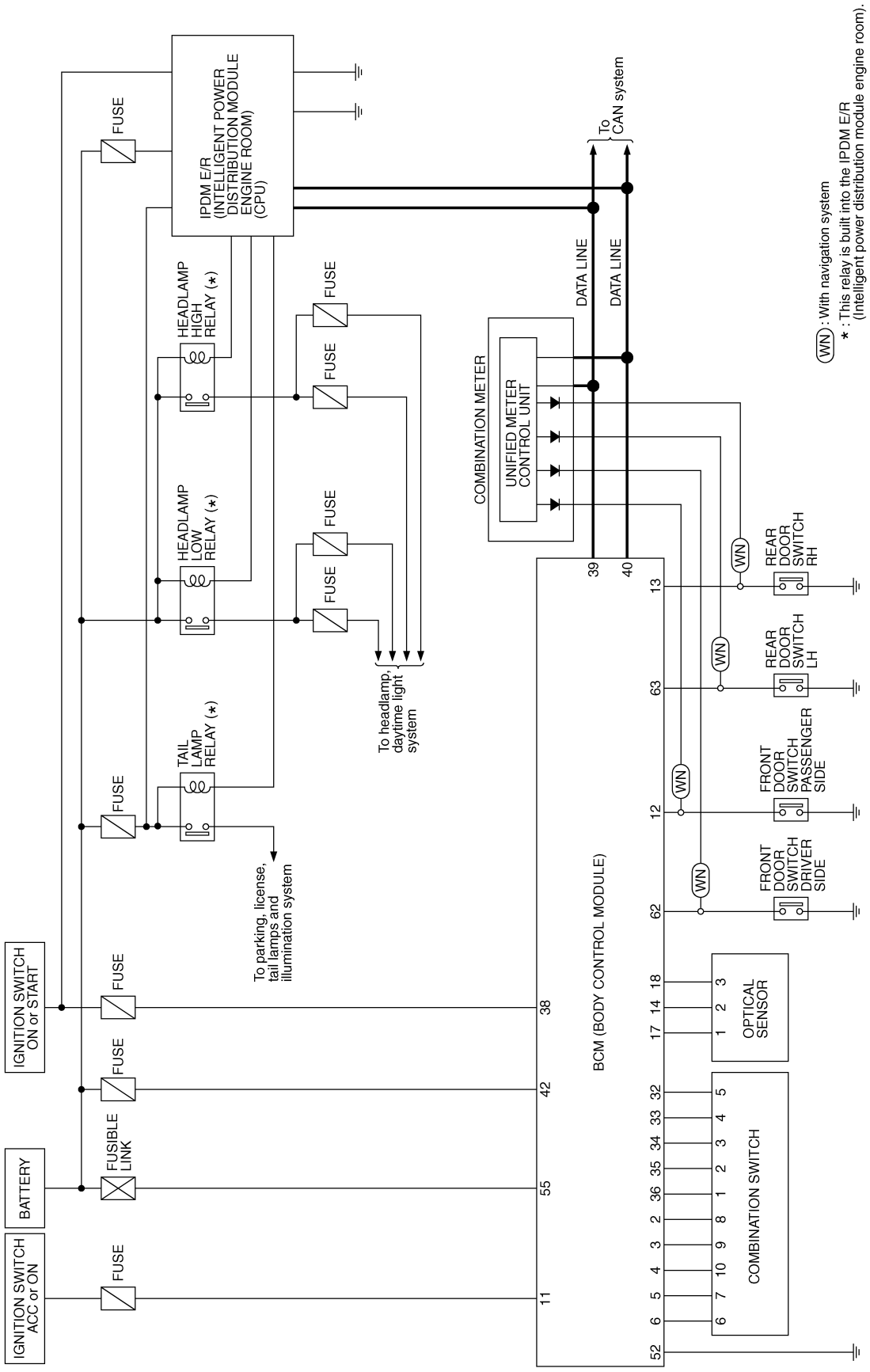
Major Components and Functions

AKS009LE

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

AKS009LF

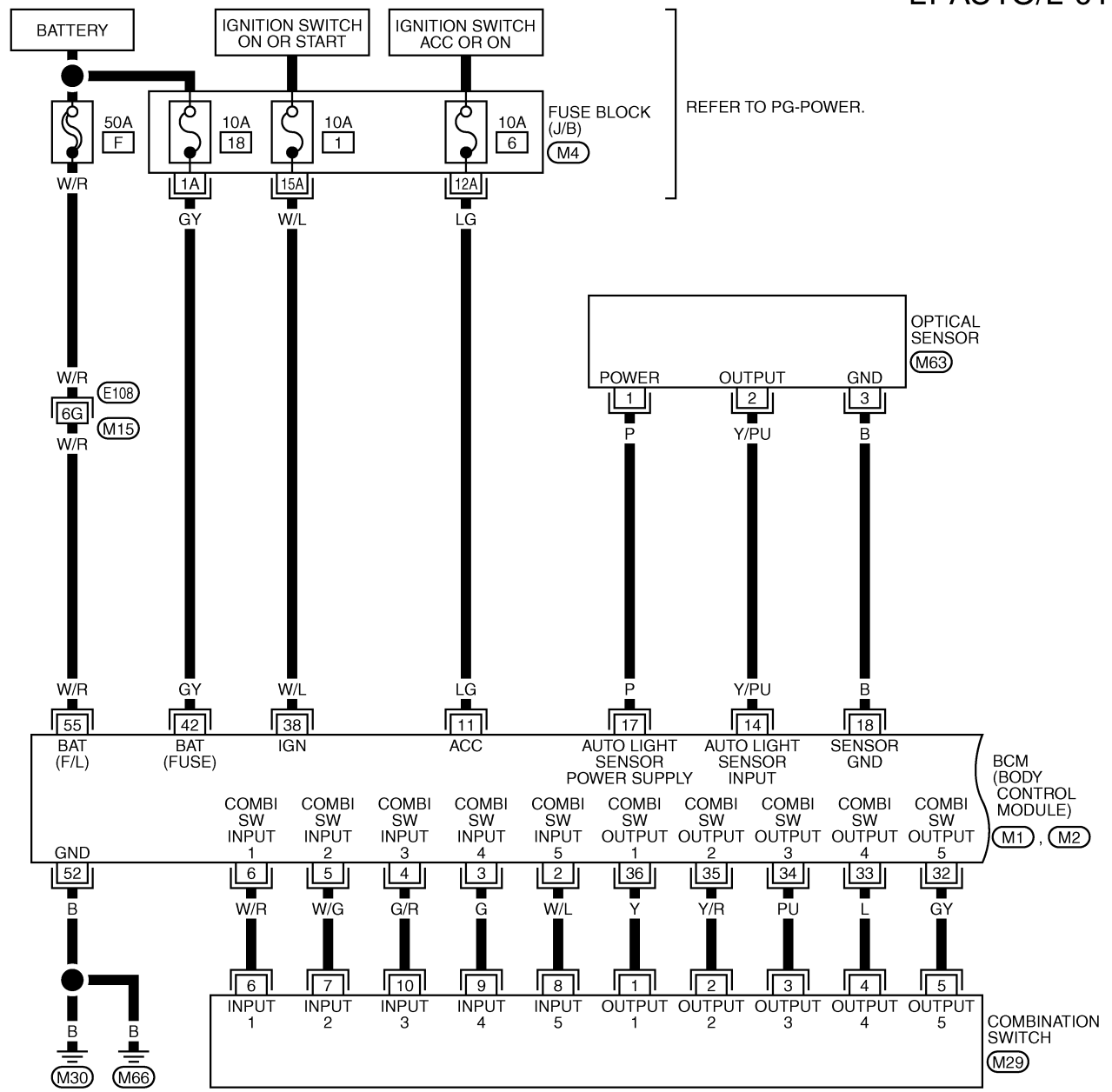


TKWT1415E

Wiring Diagram — AUTO/L —

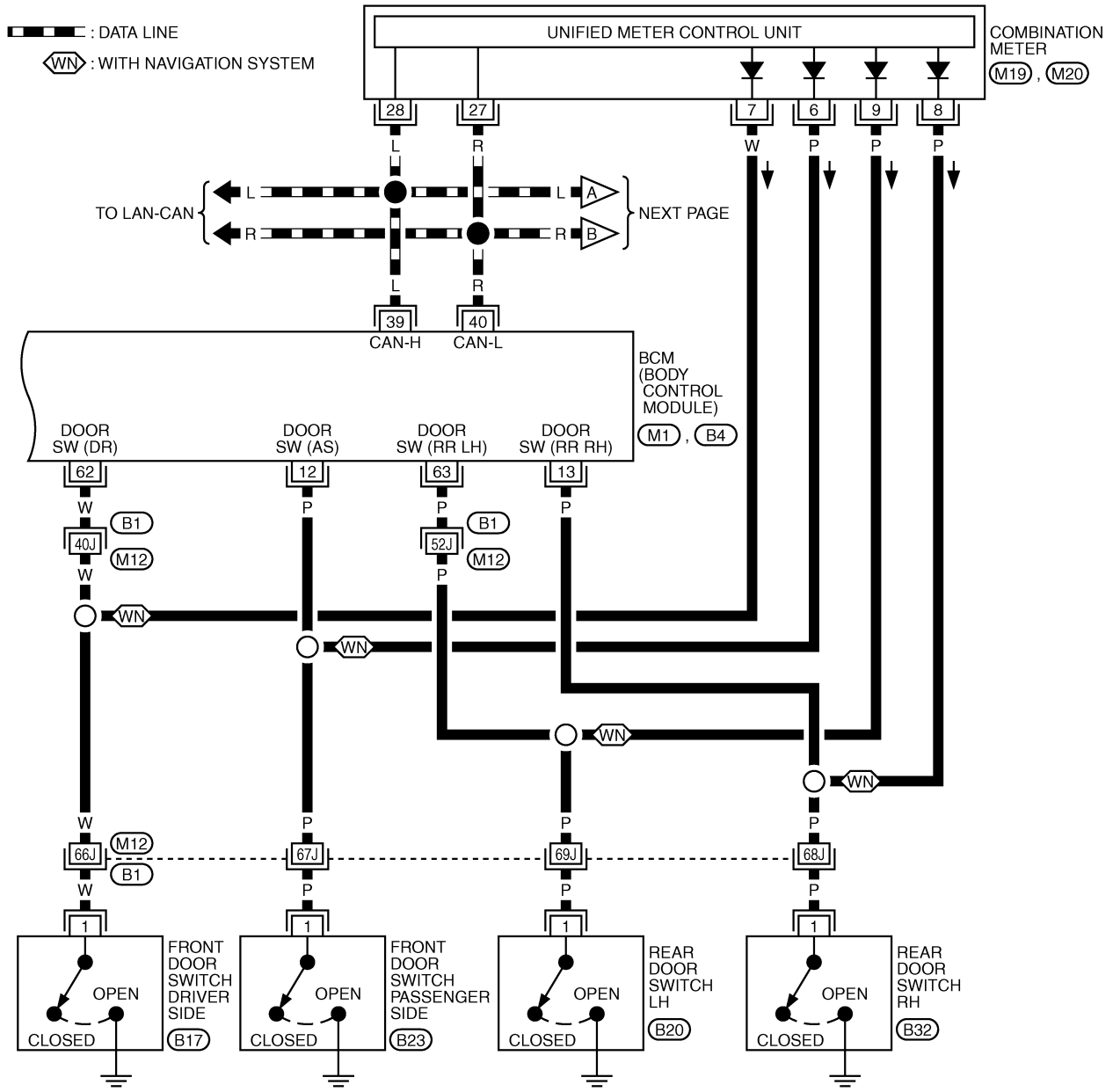
AKS009LG

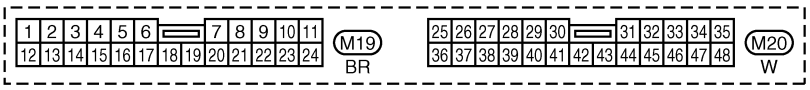
LT-AUTO/L-01

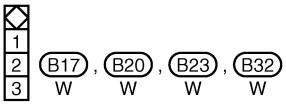


TKWT1416E

LT-AUTO/L-02





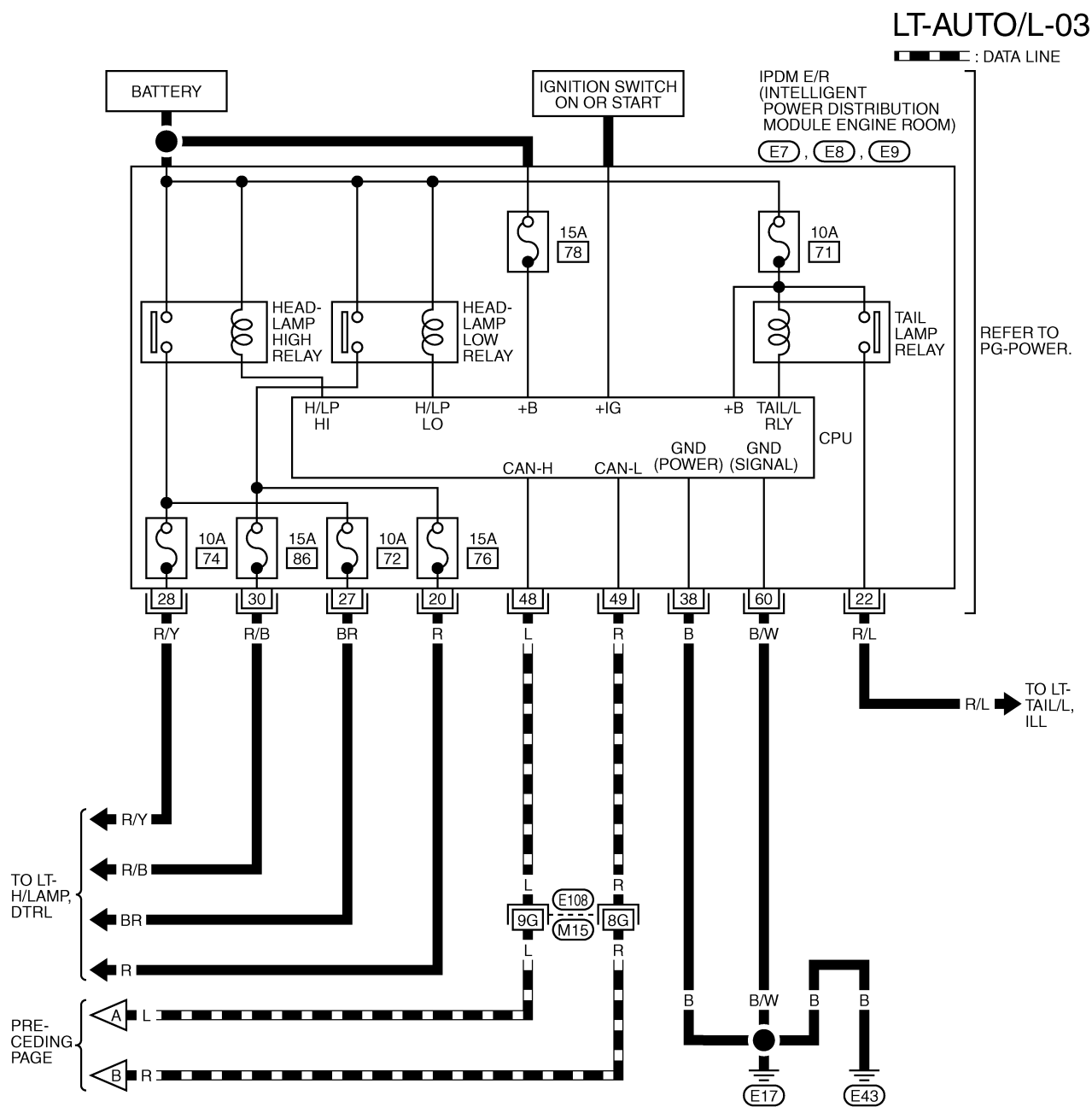


REFER TO THE FOLLOWING.

B1 -SUPER MULTIPLE JUNCTION (SMJ)

M1 , B4 -ELECTRICAL UNITS

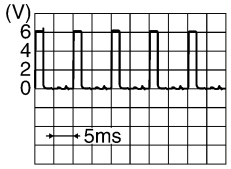
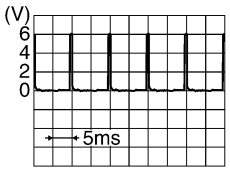
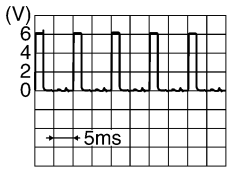
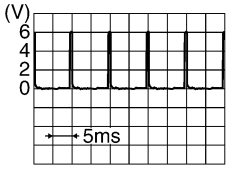
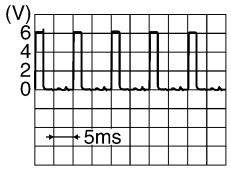
TKWT1417E

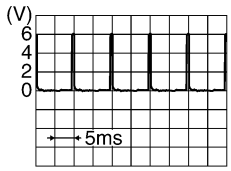
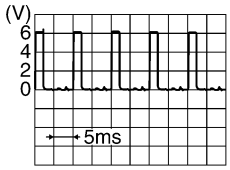
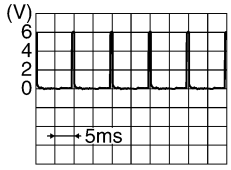

LT-AUTO/L-03
: DATA LINE
BATTERY
IGNITION SWITCH ON OR START
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E7 , E8 , E9
15A 78
10A 71
HEAD-LAMP HIGH RELAY
HEAD-LAMP LOW RELAY
TAIL LAMP RELAY
REFER TO PG-POWER.
H/LP HI
H/LP LO
+B
+IG
+B
TAIL/L RLY
CPU
CAN-H
CAN-L
GND (POWER)
GND (SIGNAL)
10A 74
15A 86
10A 72
15A 76
28
30
27
20
48
49
38
60
22
R/Y
R/B
BR
R
L
R
B
B/W
R/L
TO LT-TAIL/L, ILL
TO LT-H/LAMP, DTRL
R/Y
R/B
BR
R
PRE-CEDING PAGE
A
L
B
R
9G
E108
M15
8G
L
R
B
B/W
B
B
E17
E43
23 22 21 20 19 18 17
32 31 30 29 28 27 26 25 24
E7
GY
37 36 35 34 33
44 43 42 41 40 39 38
E8
W
52 51 50 49 48 47 46 45
60 59 58 57 56 55 54 53
E9
W
H.S.
REFER TO THE FOLLOWING.
E108 -SUPER MULTIPLE JUNCTION (SMJ)

TKWT1418E

Terminals and Reference Values for BCM

AKS009LH

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
2	W/L	Combination switch input 5	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5291E
3	G	Combination switch input 4	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5292E
4	G/R	Combination switch input 3	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5291E
5	W/G	Combination switch input 2	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5292E
6	W/R	Combination switch input 1				
11	LG	Ignition switch (ACC)	ACC	—		Battery voltage
12	P	Front door switch passenger side signal	OFF	Front door switch passenger side	ON (open)	Approx. 0V
					OFF (closed)	Battery voltage
13	P	Rear door switch RH signal	OFF	Rear door switch RH	ON (open)	Approx. 0V
					OFF (closed)	Battery voltage
14	Y/PU	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	P	Optical sensor power supply	ON	—		Approx. 5V
18	B	Sensor ground	ON	—		Approx. 0V
32	GY	Combination switch output 5	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		
33	L	Combination switch output 4	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5292E
34	PU	Combination switch output 3	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5291E
35	Y/R	Combination switch output 2	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5292E
36	Y	Combination switch output 1				
38	W/L	Ignition switch (ON)	ON	—		Battery voltage
39	L	CAN– H	—	—		—
40	R	CAN– L	—	—		—
42	GY	Battery power supply	OFF	—		Battery voltage
52	B	Ground	ON	—		Approx. 0V
55	W/R	Battery power supply	OFF	—		Battery voltage
62	W	Front door switch driver side signal	OFF	Front door switch driver side	ON (open)	Approx. 0V
					OFF (closed)	Battery voltage
63	P	Rear door switch LH signal	OFF	Rear door switch LH	ON (open)	Approx. 0V
					OFF (closed)	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

AKS009LI

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
20	R	Headlamp low (RH)	ON	Lighting switch 2ND position	OFF	Approx. 0V
					ON	Battery voltage
22	R/L	Parking, license, and tail lamp	ON	Lighting switch 1ST position	OFF	Approx. 0V
					ON	Battery voltage
27	BR	Headlamp high (RH)	ON	Lighting switch HIGH or PASS position	OFF	Approx. 0V
					ON	Battery voltage
28	R/Y	Headlamp high (LH)	ON	Lighting switch HIGH or PASS position	OFF	Approx. 0V
					ON	Battery voltage

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
30	R/B	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	R	CAN– L	—	—		—
60	B/W	Ground	ON	—		Approx. 0V

How to Proceed With Trouble Diagnosis

AKS009LJ

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-71, "System Description" .
3. Perform the preliminary check. Refer to LT-79, "Preliminary Check" .
4. Check symptom and repair or replace the malfunctioning parts. Refer to LT-86, "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

AKS009LK

SETTING CHANGE FUNCTIONS

- Sensitivity of auto light system can be adjusted using CONSULT-II. Refer to LT-81, "WORK SUPPORT" .

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
IPDM E/R	Battery	72
		74
		76
		86

Refer to LT-74, "Wiring Diagram — AUTO/L —" .

OK or NG

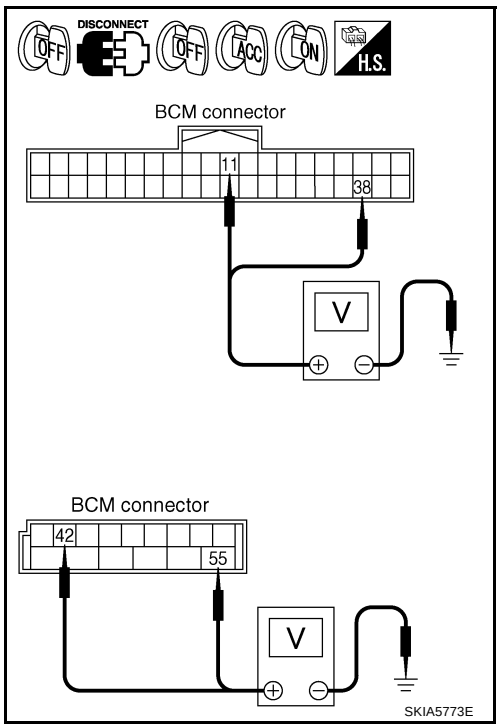
OK >> GO TO 2.

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)				
M1	11 (LG)	Ground	0V	Battery voltage	Battery voltage
	38 (W/L)		0V	0V	Battery voltage
M4	42 (GY)		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.

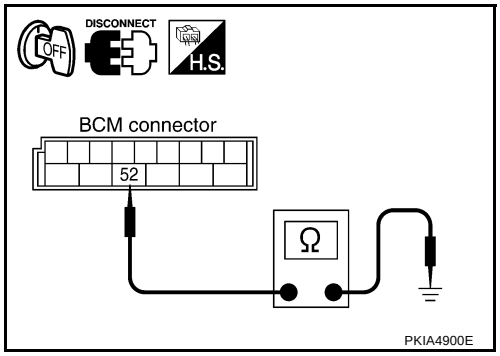
3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminals			Continuity
Connector	Terminal (Wire color)	Ground	Yes
M2	52 (B)		

OK or NG

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



CONSULT-II Functions (BCM)

AKS009LL

CONSULT-II performs the following functions communicating with BCM.

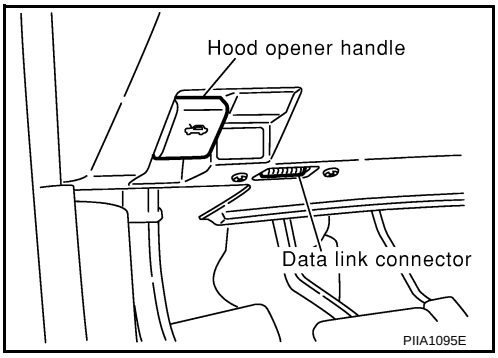
BCM diagnosis part	Check item, diagnosis mode	Description
HEAD LAMP	WORK SUPPORT	Changes the setting for each function.
	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.
BCM	CAN DIAG SUPPORT MNTR	The result of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

CONSULT-II BASIC OPERATION

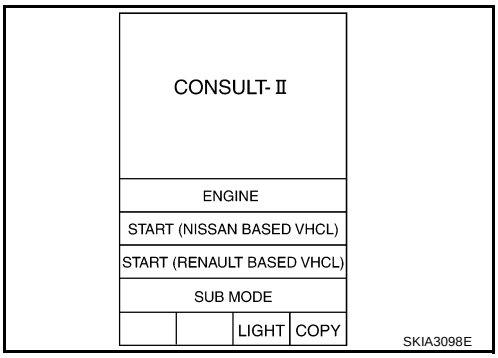
CAUTION:

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.

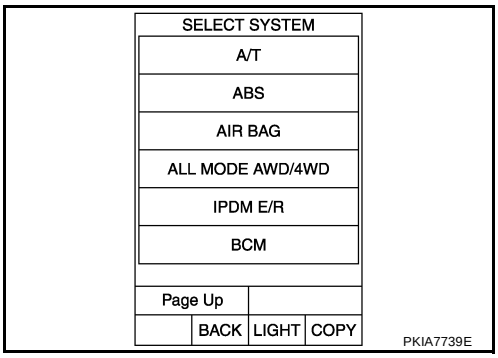
1. With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



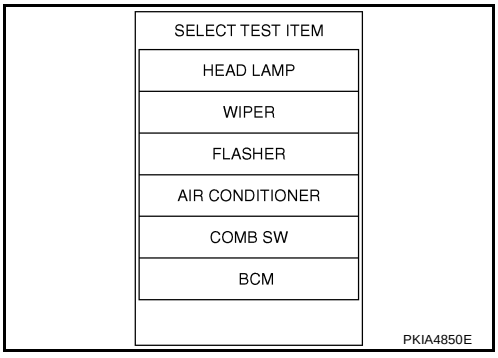
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “BCM” on “SELECT SYSTEM” screen.
   If “BCM” is not indicated, refer to GI-38, "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), 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 items will be monitored.
6. Touch “RECORD” while monitoring, then the status of monitored item can be recorded. To stop recording, touch “STOP”.

Display Item List

Monitor item		Contents
IGN ON SW	“ON/OFF”	Displays “IGN position (ON)/OFF, ACC position (OFF)” judged from ignition switch signal.
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 lighting switch as judged from 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 driver door as judged from driver door switch signal. (Door is open: ON/ Door is closed: OFF)
DOOR SW - AS	“ON/OFF”	Displays status of passenger door as judged from passenger door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - RR	“ON/OFF”	Displays status of rear door as judged from rear door switch (RH) signal. (Door is open: ON/Door is closed: OFF)

Monitor item		Contents
DOOR SW - RL	“ON/OFF”	Displays status of rear door as judged from rear door switch (LH) signal. (Door is open: ON/Door is closed: OFF)
BACK DOOR SW[Note 1]	“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 1]	“OFF”	—
OPTICAL SENSOR[Note 2]	[0 - 5V]	Displays “ambient light (close to 5V when light/close to 0V when dark)” judged from optical sensor signal.

NOTE:
1. This item is displayed, but cannot monitor it.
2. Vehicles without auto light system display this item, 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]	—

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

CONSULT-II Functions (IPDM E/R)

AKS009LM

CONSULT-II performs the following functions communicating with IPDM E/R.

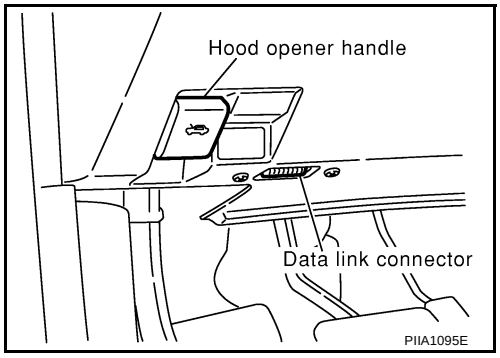
Check Item, Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	IPDM E/R performs self-diagnosis of CAN communication.
DATA MONITOR	The input/output data of IPDM E/R is displayed in real time.
CAN DIAG SUPPORT	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE TEST	IPDM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

CONSULT-II OPERATION

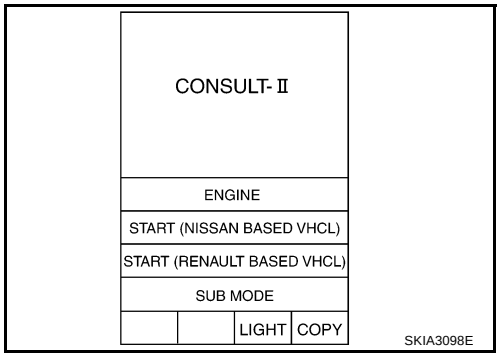
CAUTION:

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

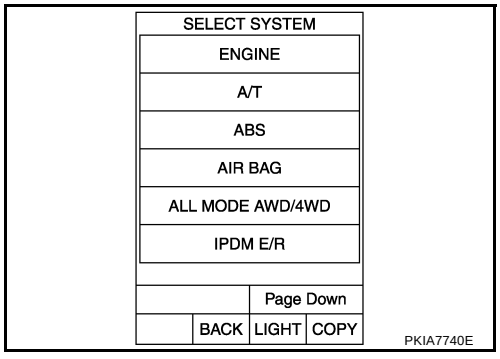
1. With ignition switch OFF, connect CONSULT-II and CON-SULT-II CONVERTER to data link connector, then turn ignition switch ON.



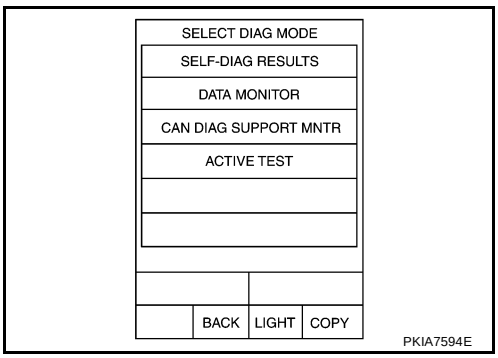
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “IPDM E/R” on “SELECT SYSTEM” screen.
   If “IPDM E/R” is not displayed, print “SELECT SYSTEM” screen, then refer to GI-38, "CONSULT-II Data Link Connector (DLC) Circuit" .



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



SELF-DIAGNOSTIC RESULTS

Refer to PG-19, "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 SIG-NALS	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
Front fog lights request	FR FOG REQ	ON/OFF	×	×	×	Signal status input from BCM

NOTE:
Perform monitoring of IPDM E/R data with ignition switch ON. When ignition switch is at ACC, 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

SELF-DIAGNOSTIC RESULTS

Refer to PG-19, "SELF-DIAG RESULTS" .

Trouble Diagnosis Chart by Symptom

AKS009LN

Trouble phenomenon	Malfunction system and reference
● Parking lamps and headlamps will not illuminate when outside of vehicle becomes dark. (Lighting switch 1st position and 2nd position operate normally.) ● Parking lamps and headlamp will not go out when outside of vehicle becomes light. (Lighting switch 1st position and 2nd position operate normally.) ● Headlamps go out when outside of vehicle becomes light, but parking lamps stay on.	● Refer to LT-81, "WORK SUPPORT" . ● Refer to LT-86, "Lighting Switch Inspection" . ● Refer to LT-87, "Optical sensor System Inspection" . If above systems are normal, replace BCM.
Parking lamps illuminate when outside of vehicle becomes dark, but headlamps stay off. (Lighting switch 1st position and 2nd position operate normally.)	● Refer to LT-81, "WORK SUPPORT" . ● Refer to LT-87, "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-87, "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-71, "Check Door Switch/Without Navigation System" . If above system is normal, replace BCM.

Lighting Switch Inspection

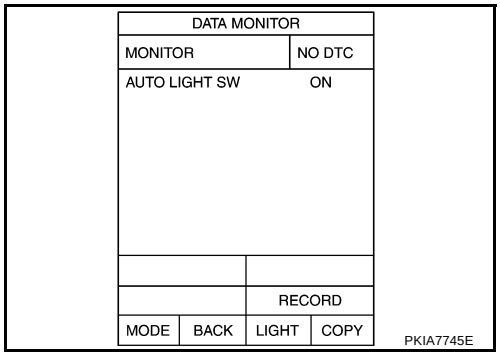
AKS009LO

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



With out CONSULT-II

Refer to LT-128, "Combination Switch Inspection" .

OK or NG

OK >> INSPECTION END

NG >> Check lighting switch. Refer to LT-128, "Combination Switch Inspection" .

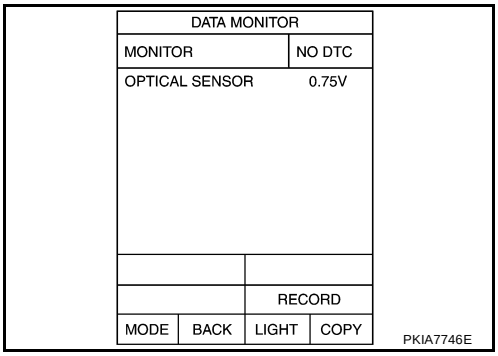
Optical sensor System Inspection

AKS009LP

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 voltage when the optical 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 optical sensor is insufficiently illuminated, the measured value may not satisfy the standard.

With out CONSULT-II

GO TO 2.

OK or NG

OK >> INSPECTION END

NG >> GO TO 2.

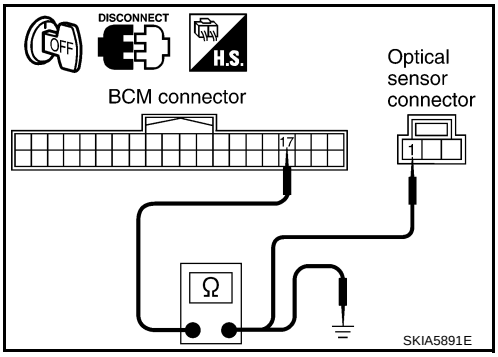
2. CHECK OPTICAL SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and optical sensor connector.
3. Check continuity (open circuit) between BCM harness connector M1 terminal 17 (P) and optical sensor harness connector M63 terminal 1 (P).

17 (P) – 1 (P) : Continuity should exist.

4. Check continuity (short circuit) between BCM harness connector M3 terminal 17 (P) and ground.

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



OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

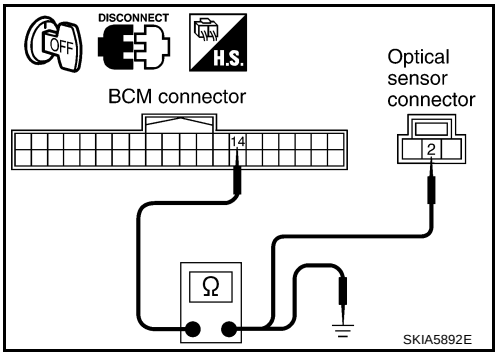
3. CHECK OPTICAL SENSOR POWER SUPPLY CIRCUIT

1. Check continuity (open circuit) between BCM harness connector M1 terminal 14 (Y/PU) and optical sensor harness connector M63 terminal 2 (Y/PU).

14 (Y/PU) – 2 (Y/PU) : Continuity should exist.

2. Check continuity (short circuit) between BCM harness connector M1 terminal 14 (Y/PU) and ground.

14 (Y/PU) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 4.

NG >> Repair harness or connector.

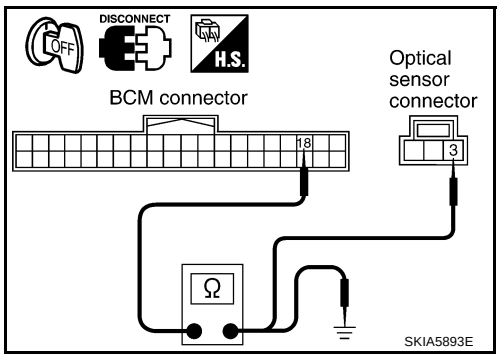
4. CHECK OPTICAL SENSOR POWER SUPPLY CIRCUIT

1. Check continuity (open circuit) between BCM harness connector M1 terminal 18 (B) and optical sensor harness connector M63 terminal 3 (B).

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

2. Check continuity (short circuit) between BCM harness connector M1 terminal 18 (B) and ground.

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



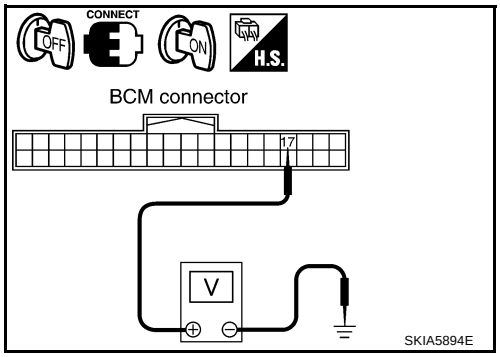
OK or NG

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 M1 terminal 17 (P) and ground.

17 (P) – Ground : Approx. 5V should exist.



OK or NG

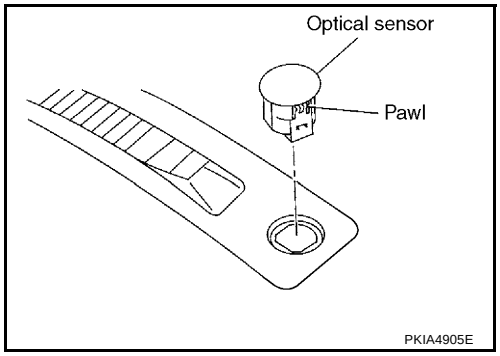
OK >> Replace optical sensor.
NG >> Replace BCM. Refer to BCS-15, "Removal and Installation of BCM" .

Removal and Installation for Optical Sensor

AKS009LQ

REMOVAL

1. Insert a screwdriver or similar tool and remove front defroster grill (LH). Refer to IP-15, "(W) Front Defroster Grille (RH/LH)" in “IP” section.
2. Disconnect optical sensor connector.
3. Remove optical sensor.



INSTALLATION

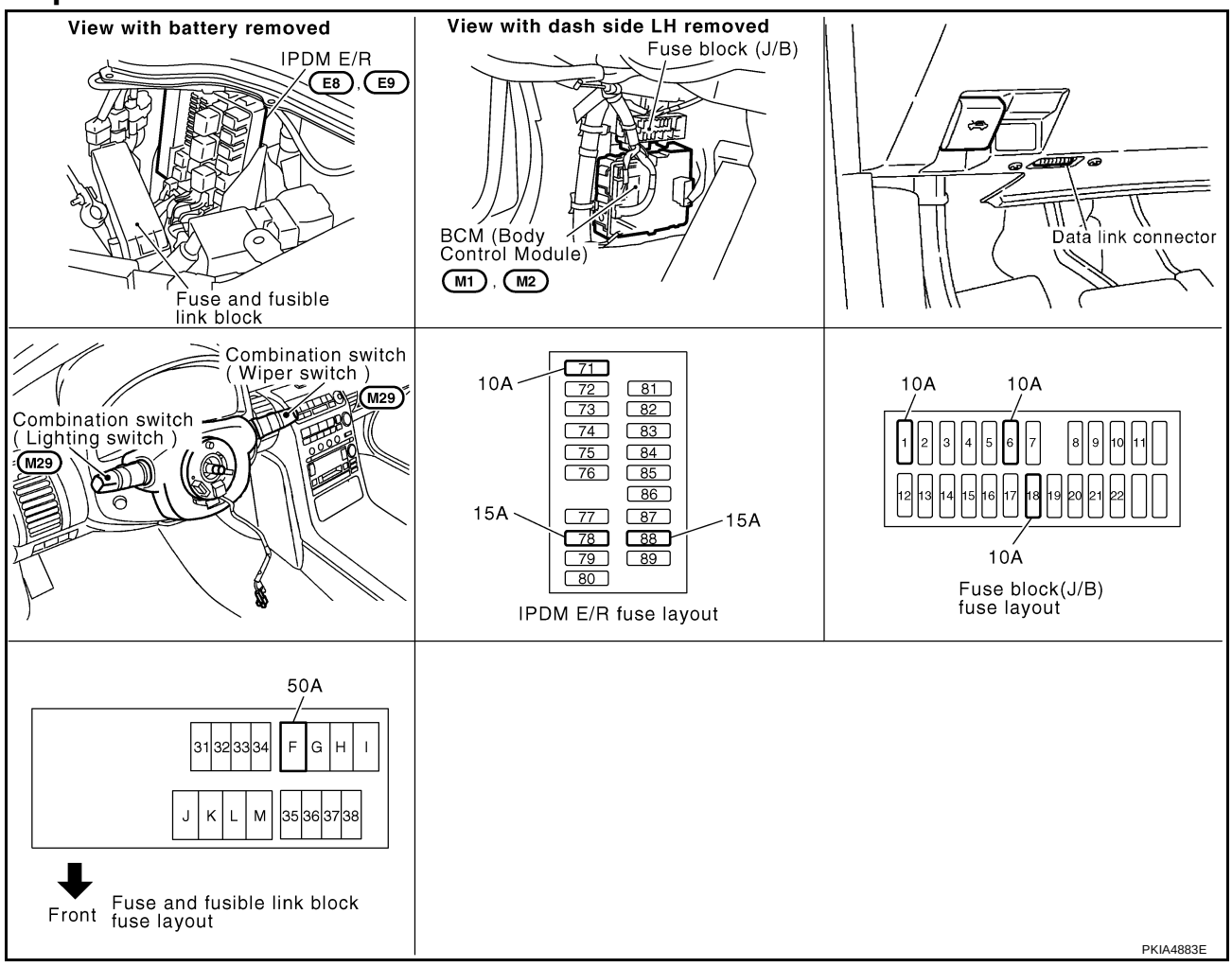
Install in the reverse order of removal.

FRONT FOG LAMP

PFP:26150

Component Parts and Harness Connector Location

AKS009KJ



System Description

AKS009KK

Control of fog lamps is dependent upon the position of combination switch (lighting switch). Lighting switch must be in 2ND position or AUTO position (LOW beam is ON) for front fog lamp operation.When lighting switch is placed in fog lamp position BCM (body control module) receives input signal requesting fog lamps to illuminate. When headlamps are illuminated, this input signal is communicated to IPDM E/R (intelligent power distribution module engine room) across the CAN communication lines. CPU (central processing unit) of IPDM E/R controls front fog lamp relay coil. When activated, this relay directs power to front fog lamps.

OUTLINE

Power is supplied at all times

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

Power is also supplied at all times

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

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

- to BCM (body control module) terminal 38
- through 10A fuse [No. 1, located in fuse block (J/B)].

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

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

Ground is supplied

- to BCM (body control module) terminal 52
- through grounds M30 and M66
- to IPDM E/R (intelligent power distribution module engine room) terminals 38 and 60
- through grounds E17 and E43.

Fog Lamp Operation (For USA)

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

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

Ground is supplied

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

With power and grounds supplied, front fog lamps illuminate.

Fog Lamp Operation (For CANADA)

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

- to front combination lamp LH terminal 1
- through daytime light relay-1 terminal 3
- to daytime light relay-1 terminals 2 and 5
- through IPDM E/R terminal 37
- to front combination lamp RH terminal 1
- through IPDM E/R terminal 36.

Ground is supplied

- to front combination lamp LH terminal 8
- through daytime light control unit terminal 7
- to daytime light control unit terminal 9
- through grounds E17 and E43
- to front combination lamp RH terminal 8
- through grounds E17 and E43.

With power and grounds supplied, front fog lamps illuminate.

COMBINATION SWITCH READING FUNCTION

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

EXTERIOR LAMP BATTERY SAVER CONTROL

When combination switch (lighting switch) is in 2ND position (ON), fog lamp switch is ON, and ignition switch is turned from ON or ACC to OFF, the battery saver control feature is activated.
Under this condition, fog lamps (and headlamps) remain illuminated for 5 minutes, then 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

AKS009KL

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 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.

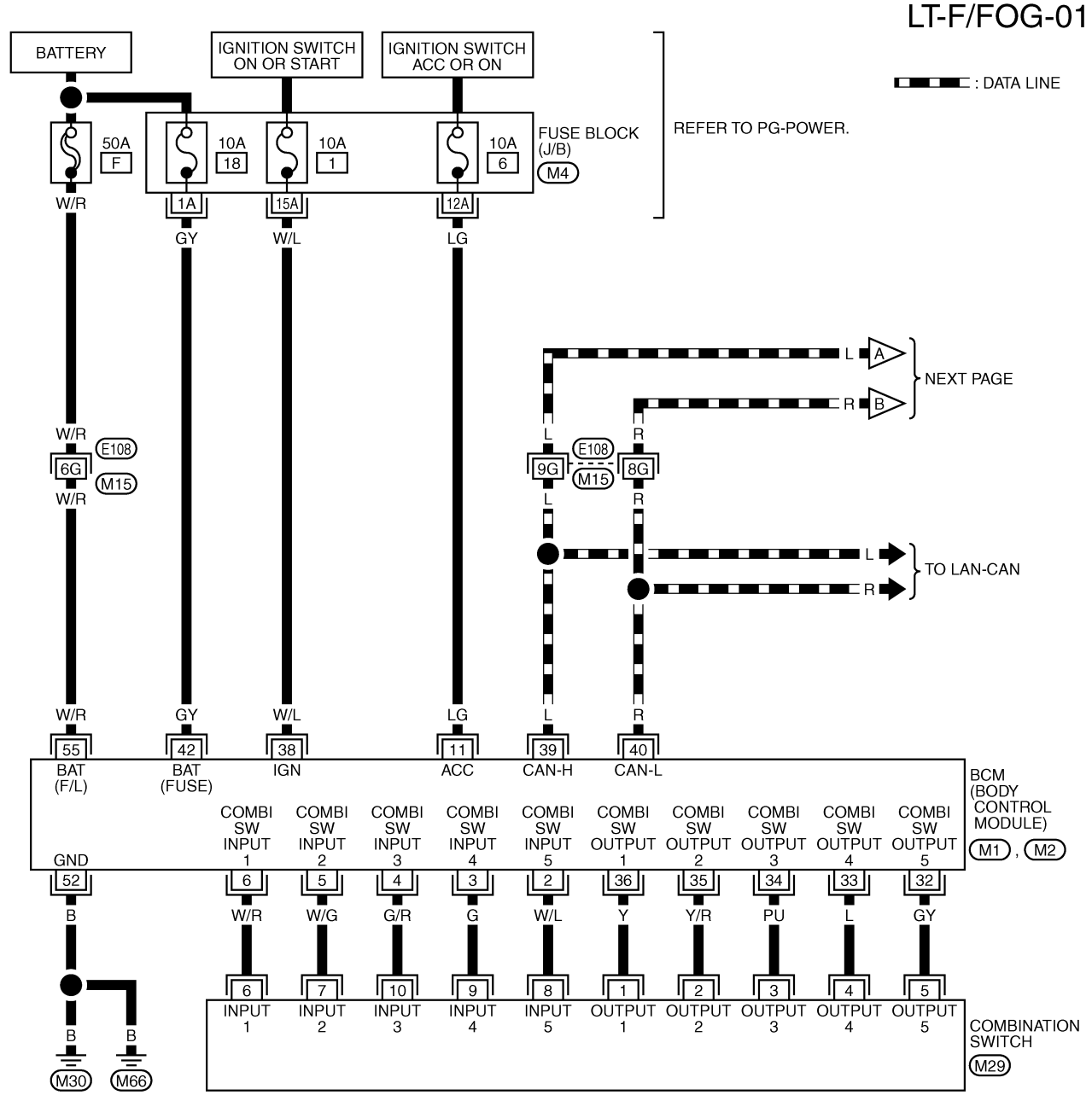
CAN Communication Unit

AKS009KM

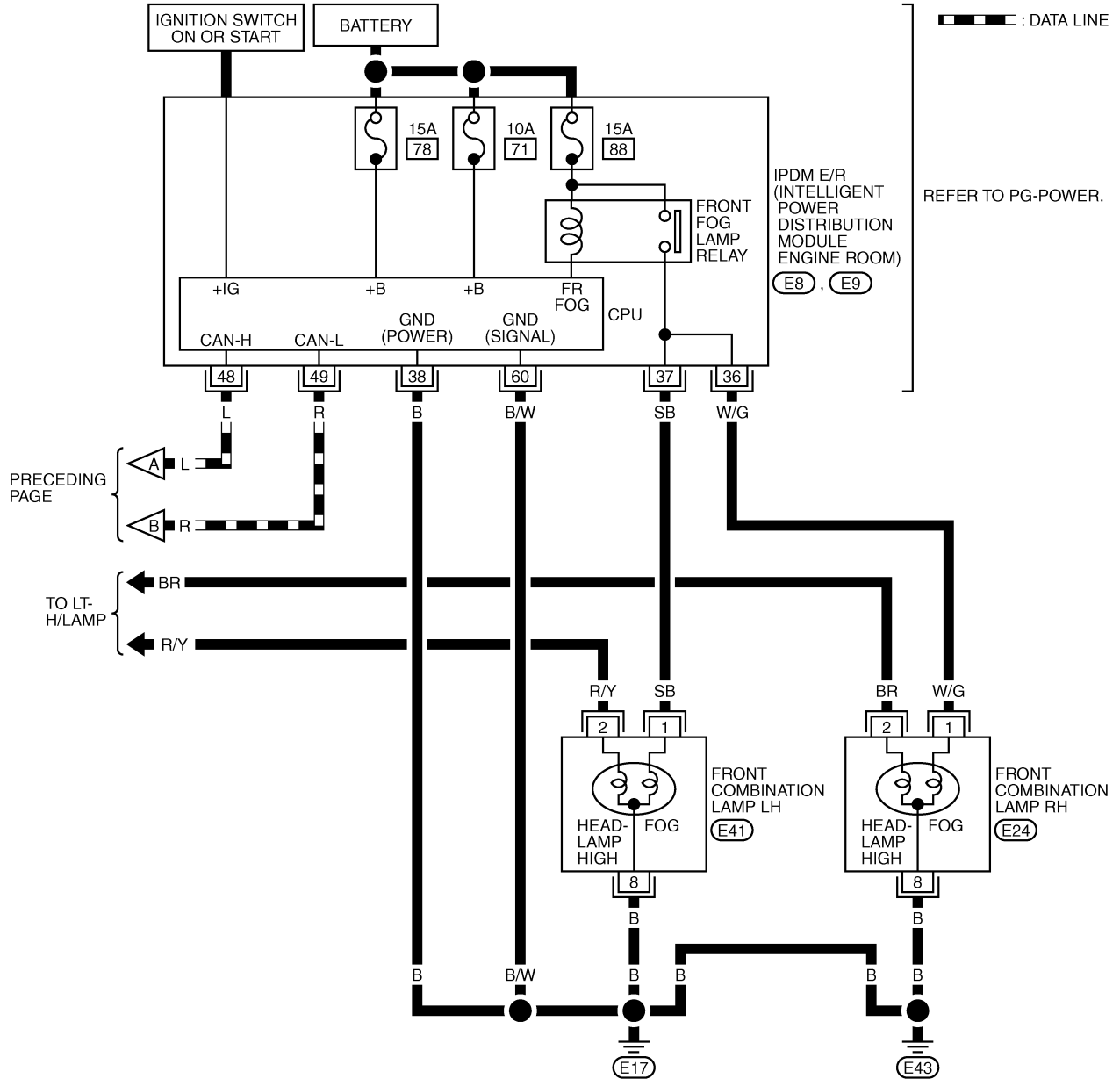
Refer to LAN-5, "CAN Communication Unit" .

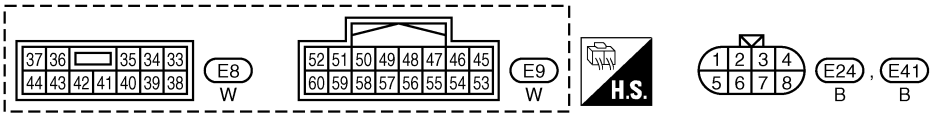
Wiring Diagram — F/FOG —

AKS009KN



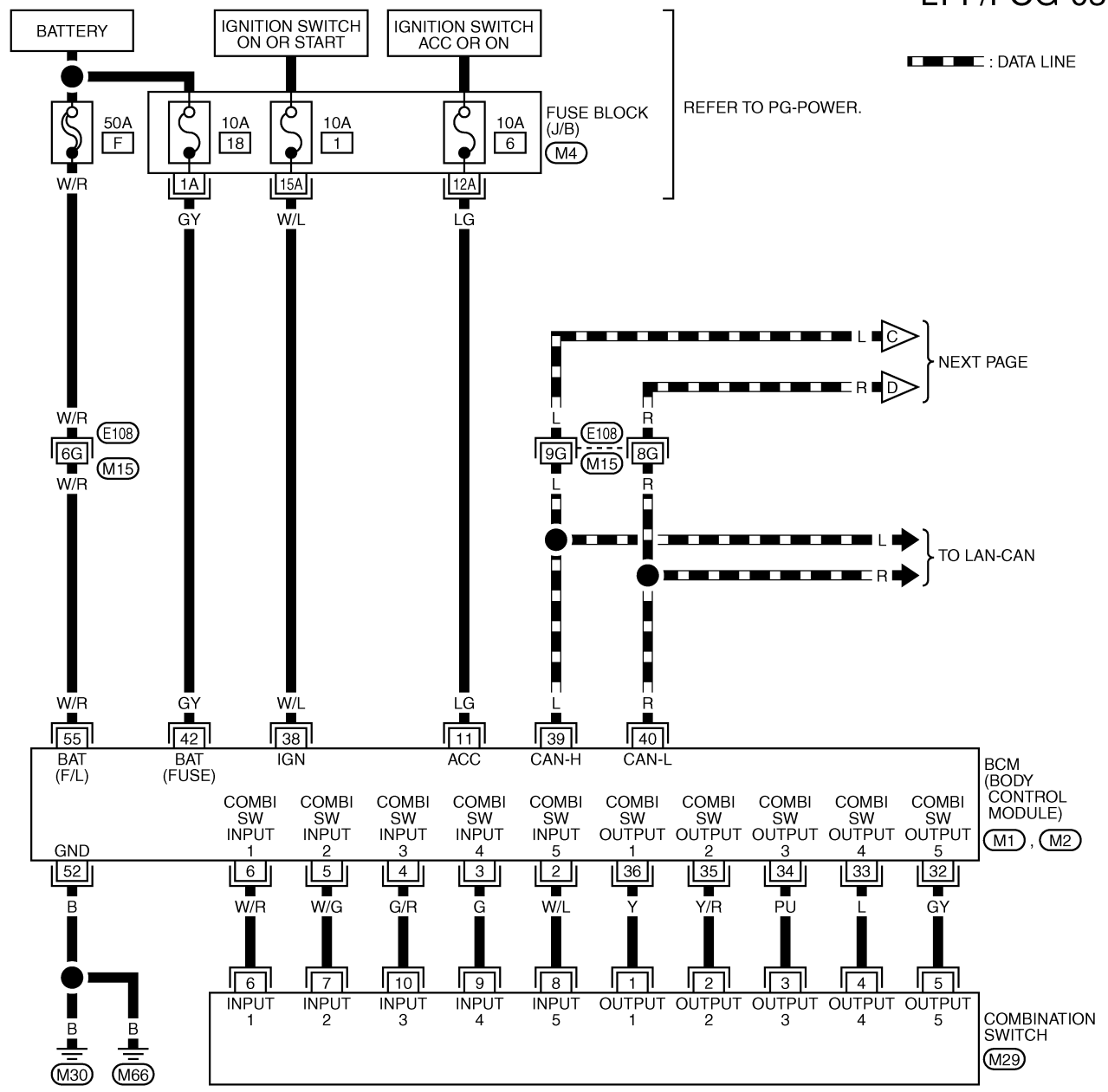
LT-F/FOG-02

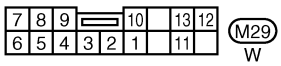




TKWT1420E

LT-F/FOG-03





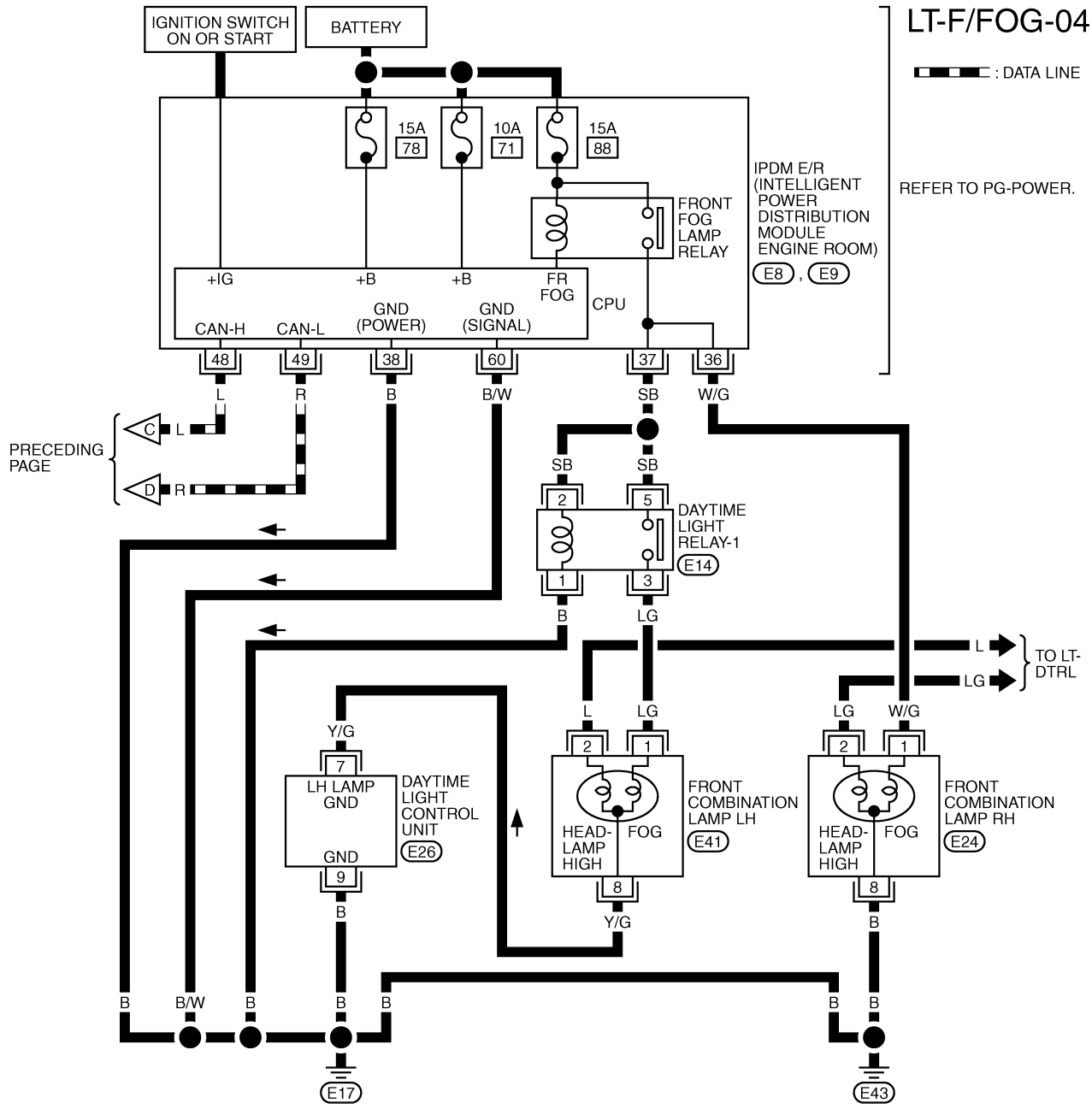
REFER TO THE FOLLOWING.

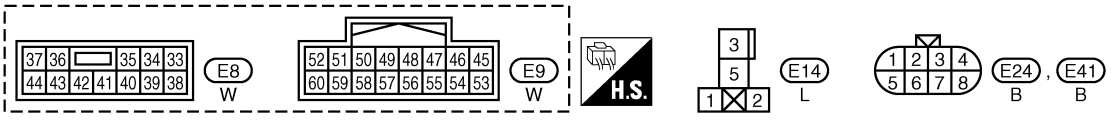
E108 -SUPER MULTIPLE JUNCTION (SMJ)

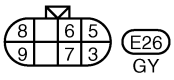
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

M1, M2 -ELECTRICAL UNITS

TKWT1421E


LT-F/FOG-04
: DATA LINE
REFER TO PG-POWER.
IGNITION SWITCH ON OR START
BATTERY
15A 78
10A 71
15A 88
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E8 , E9
FRONT FOG LAMP RELAY
+IG
+B
+B
FR FOG
CPU
CAN-H
CAN-L
GND (POWER)
GND (SIGNAL)
48
49
38
60
37
36
L
R
B
B/W
SB
W/G
PRECEDING PAGE
C L
D R
SB
SB
2
5
DAYTIME LIGHT RELAY-1
E14
1
3
B
LG
L
LG
TO LT-DTRL
Y/G
7
LH LAMP GND
DAYTIME LIGHT CONTROL UNIT
E26
GND
9
B
L
LG
2
1
HEAD-LAMP HIGH
FOG
FRONT COMBINATION LAMP LH
E41
8
Y/G
LG
W/G
2
1
HEAD-LAMP HIGH
FOG
FRONT COMBINATION LAMP RH
E24
8
B
B
B/W
B
B
B
B
B
E17
E43

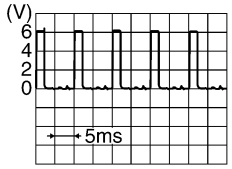
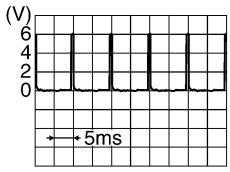
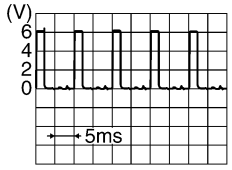
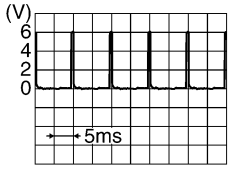
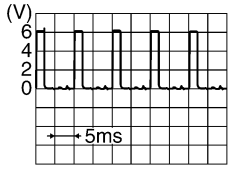
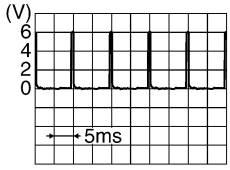
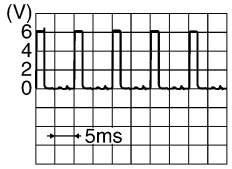

37 36 35 34 33
44 43 42 41 40 39 38
E8
W
52 51 50 49 48 47 46 45
60 59 58 57 56 55 54 53
E9
W
H.S.
3
5
1 2
E14
L
1 2 3 4
5 6 7 8
E24 , E41
B B

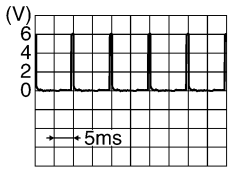

8 6 5
9 7 3
E26
GY

TKWT1422E

Terminals and Reference Values for BCM

AKS009KO

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
2	W/L	Combination switch input 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
3	G	Combination switch input 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
4	G/R	Combination switch input 3	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
5	W/G	Combination switch input 2	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
6	W/R	Combination switch input 1			
11	LG	Ignition switch (ACC)	ACC	—	Battery voltage
32	GY	Combination switch output 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
33	L	Combination switch output 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
34	PU	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	Y/R	Combination switch output 2	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
36	Y	Combination switch output 1			
38	W/L	Ignition switch (ON)	ON	—	Battery voltage
39	L	CAN– H	—	—	—
40	R	CAN– L	—	—	—
42	GY	Battery power supply	OFF	—	Battery voltage
52	B	Ground	ON	—	Approx. 0V
55	W/R	Battery power supply	OFF	—	Battery voltage

Terminals and Reference Values for IPDM E/R

AKS009KP

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
36	W/G	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	SB	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	R	CAN– L	—	—		—
60	B/W	Ground	ON	—		Approx. 0V

How to Proceed With Trouble Diagnosis

AKS009KQ

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-89, "System Description" .
3. Perform the Preliminary Check. Refer to LT-97, "Preliminary Check" .
4. Check symptom and repair or replace the malfunctioning parts.
5. Does the front fog lamp operate normally? If YES: GO TO 6. If NO: GO TO 4.
6. INSPECTION END

Preliminary Check

AKS009KR

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-92, "Wiring Diagram — F/FOG —" .

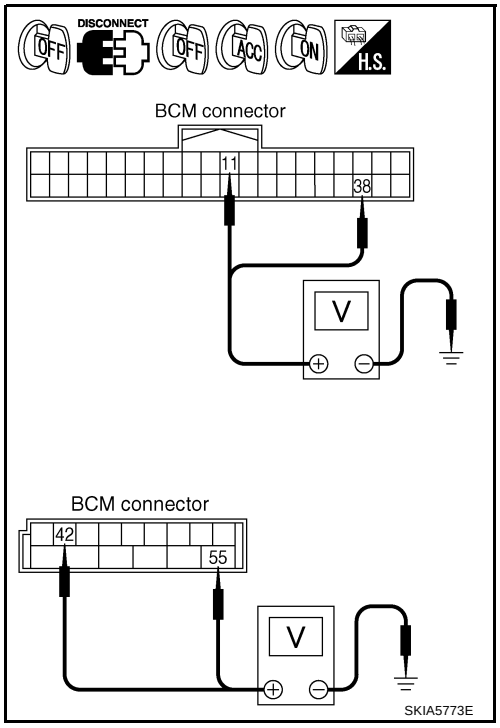
OK or NG

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)				
M1	11 (LG)	Ground	0V	Battery voltage	Battery voltage
	38 (W/L)		0V	0V	Battery voltage
M2	42 (GY)		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.

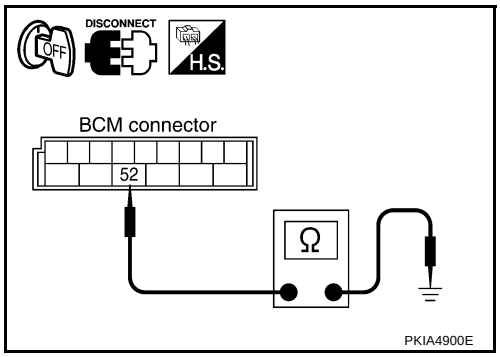
3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminals			Continuity
Connector	Terminal (Wire color)	Ground	Yes
M2	52 (B)		

OK or NG

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



CONSULT-II Functions

AKS009KS

Refer to LT-19, "CONSULT-II Functions (BCM)" in HEAD LAMP (FOR USA).
Refer to LT-22, "CONSULT-II Functions (IPDM E/R)" in HEAD LAMP (FOR USA).
Refer to LT-54, "CONSULT-II Functions (BCM)" in HEADLAMP (FOR CANADA).
Refer to LT-57, "CONSULT-II Functions (IPDM E/R)" in HEADLAMP (FOR CANADA).

Front Fog lamps Does Not Illuminate (Both Sides) (FOR USA)

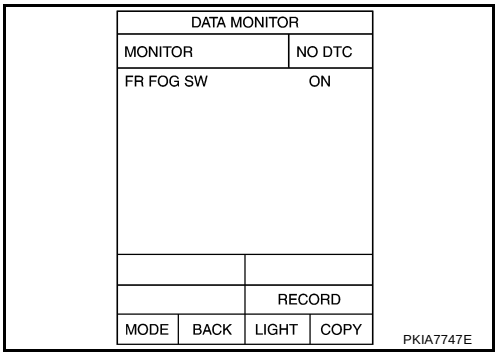
AKS009KT

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



With out CONSULT-II

Refer to LT-128, "Combination Switch Inspection" .

OK or NG

OK >> GO TO 2.

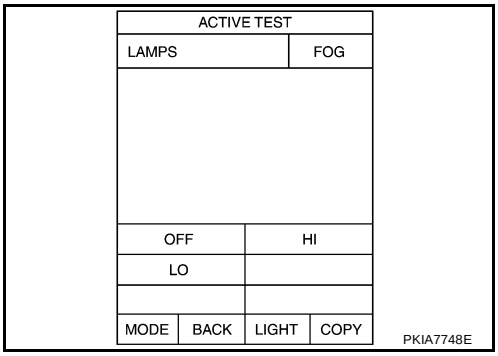
NG >> Check lighting switch. Refer to LT-128, "Combination Switch Inspection" .

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.



With out CONSULT-II

1. Start auto active test. Refer to PG-22, "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

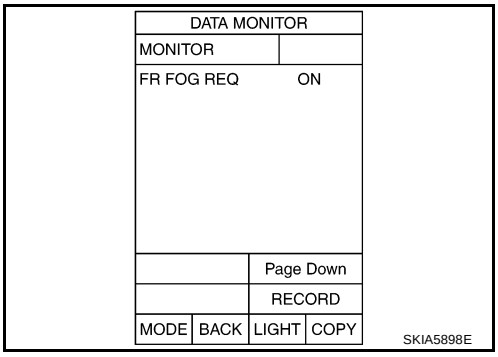
1. Select “IPDM E/R” on CONSULT-II. and select “DATA MONITOR” on “SELECT DIAG MODE” screen.
2. Make sure “FR FOG REQ” turns ON when lighting switch is in FOG position.

When lighting switch is FOG position : FR FOG REQ ON

OK or NG

OK >> Replace IPDM E/R.

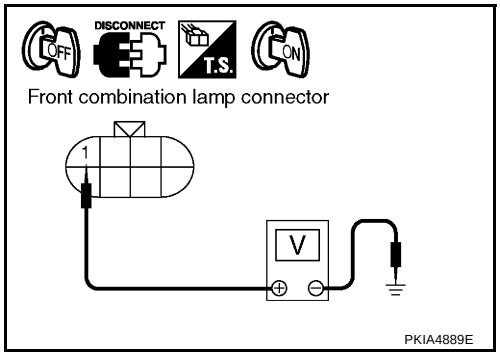
NG >> Replace BCM. Refer to BCS-15, "Removal and Installation of BCM" .



4. CHECK FOG LAMP 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 “TAIL LAMP” on “SELECT TEST ITEM” screen.
5. Touch “FOG” screen.
6. When fog lamp is operating, check voltage between front combination lamp RH and LH harness connector and ground.



Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E24	1 (W/G)	Ground	Battery voltage
LH	E41	1 (SB)		

With out CONSULT-II

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

Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E24	1 (W/G)	Ground	Battery voltage
LH	E41	1 (SB)		

OK or NG

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

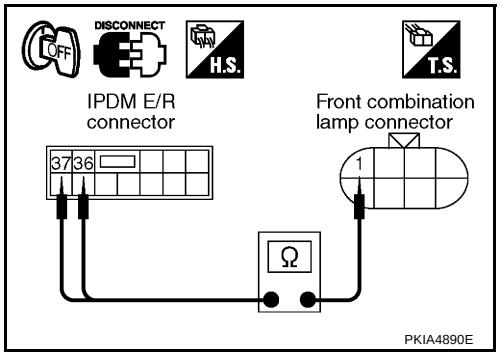
5. CHECK FOG LAMP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector E8 terminal 36 (W/G) and front combination lamp RH harness connector E24 terminal 1 (W/G).

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

4. Check continuity between IPDM E/R harness connector E8 terminal 37 (SB) and front combination lamp LH harness connector E41 terminal 1 (SB).

37 (SB) – 1(SB) : Continuity should exist.



OK or NG

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

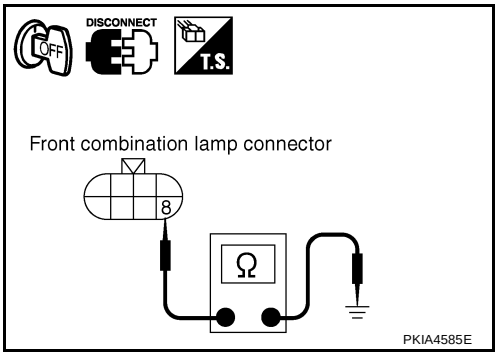
6. CHECK FOG LAMP GROUND

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

8 (B) – Ground : Continuity should exist.

2. Check continuity between front combination lamp LH harness connector E41 terminal 8 (B) and ground.

8 (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) (FOR USA)

AKS009KU

1. CHECK BULB

Check bulb of lamp which do not illuminate.

OK or NG

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

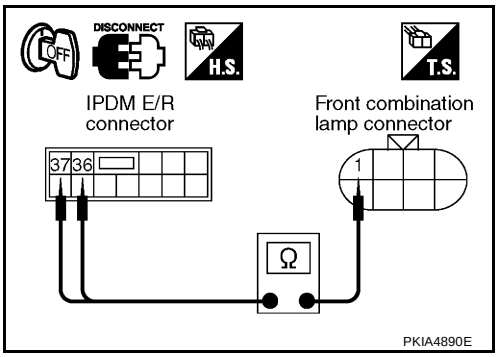
2. CHECK FOG LAMP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and front combination lamp RH or LH connector.
3. Check continuity between IPDM E/R harness connector E8 terminal 36 (W/G) and front combination lamp RH harness connector E24 terminal 1 (W/G).

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

4. Check continuity between IPDM E/R harness connector E8 terminal 37 (SB) and front combination lamp LH harness connector E41 terminal 1 (SB).

37 (SB) – 1 (SB) : Continuity should exist.



OK or NG

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

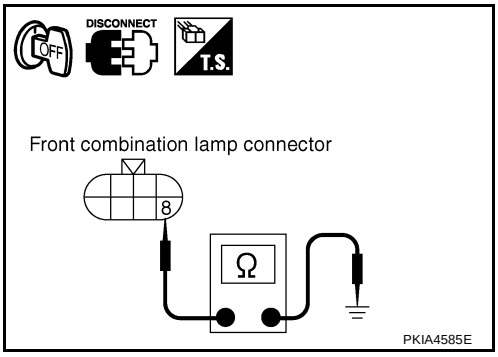
3. CHECK FOG LAMP GROUND

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

8 (B) – Ground : Continuity should exist.

2. Check continuity between front combination lamp LH harness connector E41 terminal 8 (B) and ground.

8 (B) – Ground : Continuity should exist.



OK or NG

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

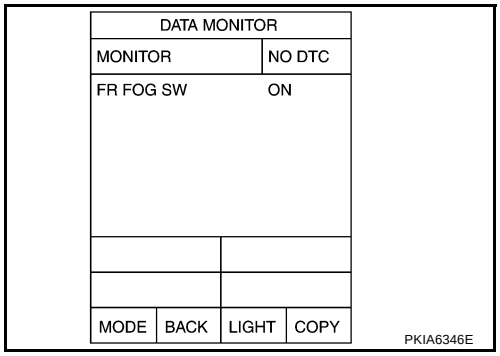
Front Fog lamps Does Not Illuminate (Both Sides) (FOR CANADA)

AKS009KV

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

With out CONSULT-II

Refer to LT-128, "Combination Switch Inspection" .

OK or NG

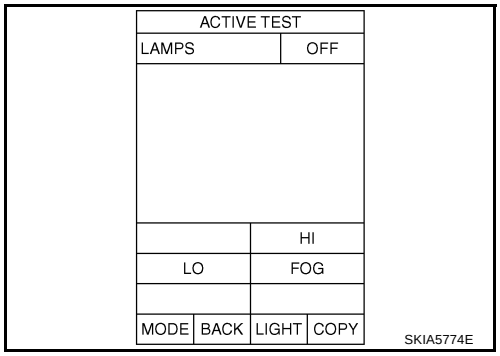
OK >> GO TO 2.

NG >> Check lighting switch. Refer to LT-128, "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.

With out CONSULT-II

1. Start auto active test. Refer to PG-22, "Auto Active Test" .
2. Make sure fog lamp operates.

Fog lamp should operate.

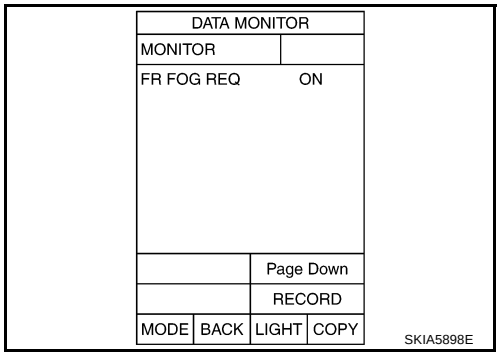
OK or NG

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

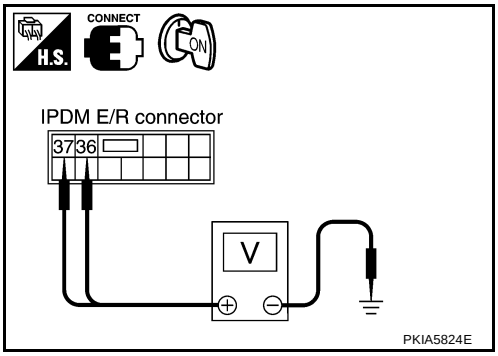
OK >> Replace IPDM E/R.

NG >> Replace BCM. Refer to BCS-15, "Removal and Installation of BCM" .

4. CHECK IPDM E/R

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 “FOG” screen.
4. When fog lamp is operating, check voltage between IPDM E/R and LH harness connector and ground.



Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E8	36 (W/G)	Ground	Battery voltage
LH		37 (LG)		

With out CONSULT-II

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

Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E8	36 (W/G)	Ground	Battery voltage
LH		37 (LG)		

OK or NG

OK >> Check front fog lamp bulbs.
NG >> Replace IPDM E/R.

LH Front Fog Lamp Does Not Illuminate (FOR CANADA)

AKS009KW

1. CHECK BULB

Check bulb of lamp.

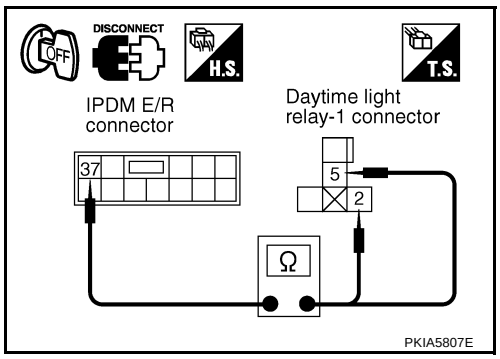
OK or NG

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

2. CHECK CIRCUIT BETWEEN IPDM E/R AND DAYTIME LIGHT RELAY–1

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and daytime light relay–1.
3. Check continuity between harness connector of IPDM E/R and harness connector of daytime light relay–1.

Terminals				Continuity
IPDM E/R		Daytime light relay-1		
Connector	Terminal (Wire color)	Connector	Terminal (Wire color)	
E8	37 (SB)	E14	2 (SB)	Yes
			5 (SB)	



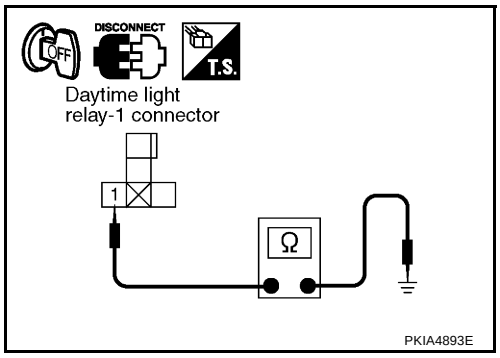
OK or NG

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

3. CHECK DAYTIME LIGHT RELAY–1 AND GROUND

Check continuity between daytime light relay–1 harness connector E14 terminal 1 (B) and ground.

1 (B) – Ground : Continuity should exist.



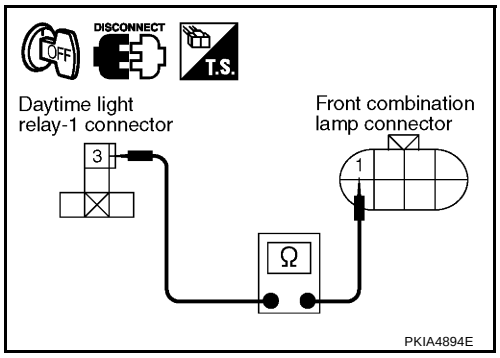
OK or NG

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

4. CHECK CIRCUIT DAYTIME LIGHT RELAY–1 AND HEADLAMP

1. Disconnect LH front combination lamp connector.
2. Check continuity between daytime light relay–1 harness connector E14 terminal 3 (LG) and LH front combination lamp harness connector E41 terminal 1 (LG).

3 (LG) – 1 (LG) : Continuity should exist.



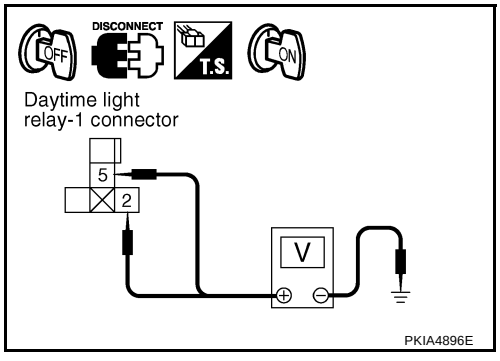
OK or NG

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

5. CHECK IPDM E/R

1. Connect IPDM E/R connector.
2. Turn ignition switch ON.
3. Lighting switch is turned FOG ON position.
4. Check voltage between daytime light relay–1 harness connector E14 terminal 2 (SB) and 5 (SB) and ground.

2 (SB), 5 (SB) – Ground : Battery voltage should exist.



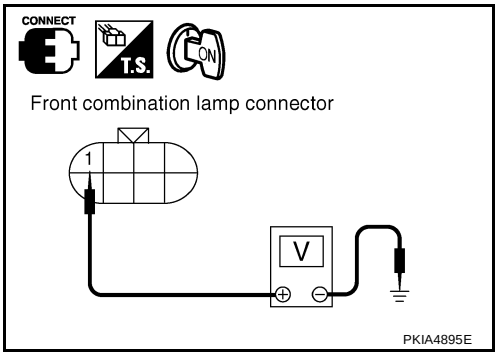
OK or NG

OK >> GO TO 6.
NG >> Replace IPDM E/R.

6. CHECK DAYTIME LIGHT RELAY–1

1. Turn ignition switch OFF.
2. Connect daytime light relay–1.
3. Turn ignition switch ON.
4. Lighting switch is turned FOG ON position.
5. Check voltage between front combination lamp LH harness connector E41 terminal 1 (G) and ground.

1 (LG) – Ground : Battery voltage should exist.



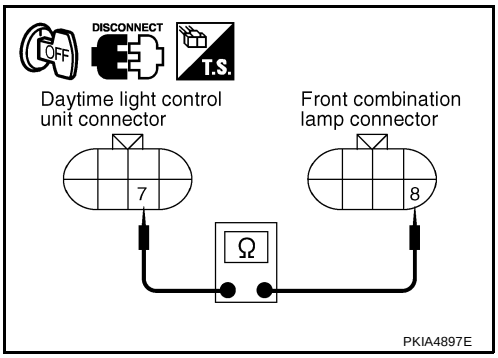
OK or NG

OK >> GO TO 7.
NG >> Replace daytime light relay–1.

7. CHECK CIRCUIT BETWEEN HEADLAMP AND DAYTIME LIGHT CONTROL UNIT

1. Turn ignition switch OFF.
2. Disconnect daytime light control unit connector.
3. Check continuity between front combination lamp LH harness connector E41 terminal 8 (Y/G) and daytime light control unit harness connector E26 terminal 7 (Y/G).

8 (Y/G) – 7 (Y/G) : Continuity should exist.



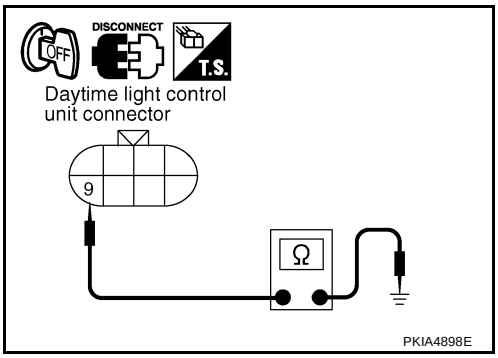
OK or NG

OK >> GO TO 8.
NG >> Repair harness or connector.

8. CHECK CIRCUIT BETWEEN HEADLAMP AND DAYTIME LIGHT CONTROL UNIT

Check continuity between daytime light control unit harness connector E26 terminal 9 (B) and ground.

9 (B) – Ground : Continuity should exist.



OK or NG

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

RH Front Fog Lamp Does Not Illuminate (FOR CANADA)

AKS00AB2

1. CHECK BULB

Check bulbs of lamp.

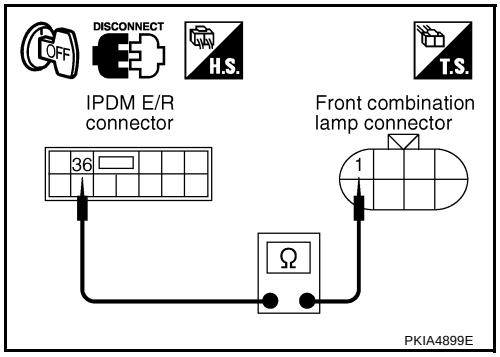
OK or NG

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

2. CHECK CIRCUIT BETWEEN IPDM E/R AND FRONT FOG LAMP

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and RH front combination lamp connector.
3. Check continuity between harness IPDM E/R harness connector E8 terminal 36 (W/G) and front combination lamp RH harness connector E24 terminal 1 (W/G).

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



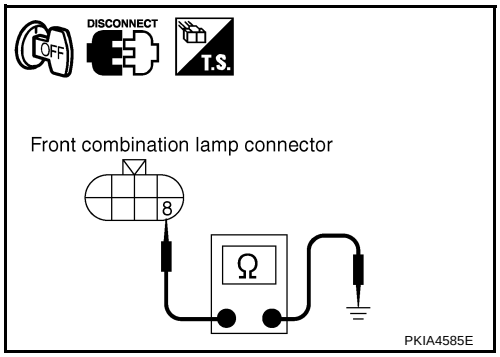
OK or NG

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

3. CHECK FRONT FOG LAMP GROUND

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

8 (G) – Ground : Continuity should exist.



OK or NG

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

Bulb Replacement

AKS009KX

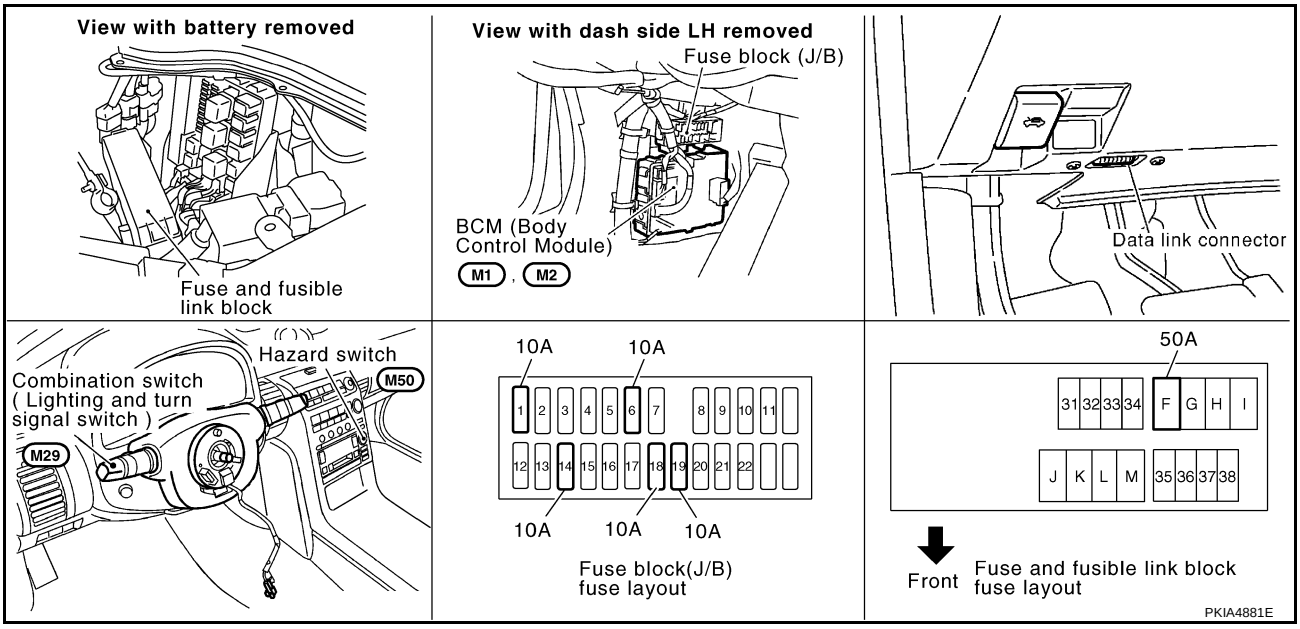
Refer to LT-34, "Bulb Replacement" in "HEAD LAMP".

TURN SIGNAL AND HAZARD WARNING LAMPS

PFP:26120

Component Parts and Harness Connector Location

AKS009MF



System Description

AKS005KK

TURN SIGNAL OPERATION

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

- to BCM (body control module) terminal 38
- through 10A fuse [No. 1, located in fuse block (J/B)]
- to combination meter terminals 41 and 42
- through 10A fuse [No. 14, located in fuse block (J/B)].

Ground is supplied

- to BCM (body control module) terminal 52
- through grounds M30 and M66,
- to combination meter terminals 45 and 46
- through grounds M30 and M66.

LH Turn

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

- to front combination lamp LH terminal 6
- to rear combination lamp LH terminal 3
- through BCM terminal 45.

Ground is supplied to front combination lamp LH terminal 4 through grounds E17 and E43.
Ground is supplied to rear combination lamp LH terminal 4 through ground B103.
The BCM also supplies input to combination meter terminals 27 and 28 across CAN communication lines. This input is processed by unified meter control unit in combination meter, which in turn supplies ground to the left turn signal indicator lamp.
With power and input supplied, BCM controls flashing of LH turn signal lamps.

RH Turn

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

- to front combination lamp RH terminal 6
- to rear combination lamp RH terminal 3
- through BCM terminal 46.

Ground is supplied to front combination lamp RH terminal 4 through grounds E17 and E43.

Ground is supplied to rear combination lamp RH terminal 4 through ground B103.
BCM also supplies input to combination meter terminals 27 and 28 across CAN communication lines. This input is processed by unified meter control unit in combination meter, which in turn supplies ground to right turn signal indicator lamp.
With power and input supplied, BCM controls flashing of RH turn signal lamps.

HAZARD LAMP OPERATION

Power is supplied at all times

- to BCM terminal 55
- through 50A fusible link [letter F, located in fuse and fusible link block], and
- to combination meter terminal 43
- through 10A fuse [No. 19, located in fuse block (J/B)].

Ground is supplied

- to hazard switch terminal 3
- through grounds M30 and M66,
- to BCM terminal 52,
- through grounds M30 and M66, and
- to combination meter terminals 45 and 46
- through grounds M30 and M66.

When hazard switch is depressed, ground is supplied

- to BCM terminal 29
- through hazard switch terminal 1.

BCM then supplies power

- to front combination lamp LH terminal 6
- to rear combination lamp LH terminal 3
- through BCM terminal 45
- to front combination lamp RH terminal 6
- to rear combination lamp RH terminal 3
- through BCM terminal 46.

Ground is supplied

- to front combination lamp LH terminal 4 through grounds E17 and E43
- to front combination lamp RH terminal 4 through grounds E17 and E43
- to rear combination lamp LH terminal 4 through ground B103
- to rear combination lamp RH terminal 4 through ground B103.

BCM also supplies input to combination meter terminals 27 and 28 across CAN communication lines. This input is processed by unified meter control unit in combination meter, which in turn supplies ground to left and right turn signal indicator lamps.
With power and input supplied, BCM controls flashing of the hazard warning lamps.

REMOTE KEYLESS ENTRY SYSTEM OPERATION

Power is supplied at all times

- to BCM terminal 55
- through 50A fusible link [letter F, located in fuse and fusible link block], and
- to combination meter terminal 43
- through 10A fuse [No. 19, located in fuse block (J/B)].

Ground is supplied

- to BCM terminal 52
- through grounds M30 and M66, and
- to combination meter terminals 45 and 46
- through grounds M30 and M66.

When the remote keyless entry system is triggered by input from keyfob, BCM supplies power

- to front combination lamp LH terminal 6

- to rear combination lamp LH terminal 3
- through BCM terminal 45
- to front combination lamp RH terminal 6
- to rear combination lamp RH terminal 3
- through BCM terminal 46.

Ground is supplied

- to front combination lamp LH terminal 4 through grounds E17 and E43.
- to front combination lamp RH terminal 4 through grounds E17 and E43.
- to rear combination lamp LH terminal 4 through ground B103.
- to rear combination lamp RH terminal 4 through ground B103.

BCM also supplies input to combination meter terminals 27 and 28 across CAN communication lines. This input is processed by unified meter control unit in combination meter, which in turn supplies ground to left and right turn signal indicator lamps.
With power and ground supplied, BCM controls the flashing of hazard warning lamps when key fob is used to activate remote keyless entry system.

COMBINATION SWITCH READING FUNCTION

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

CAN Communication System Description

AKS009MG

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 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.

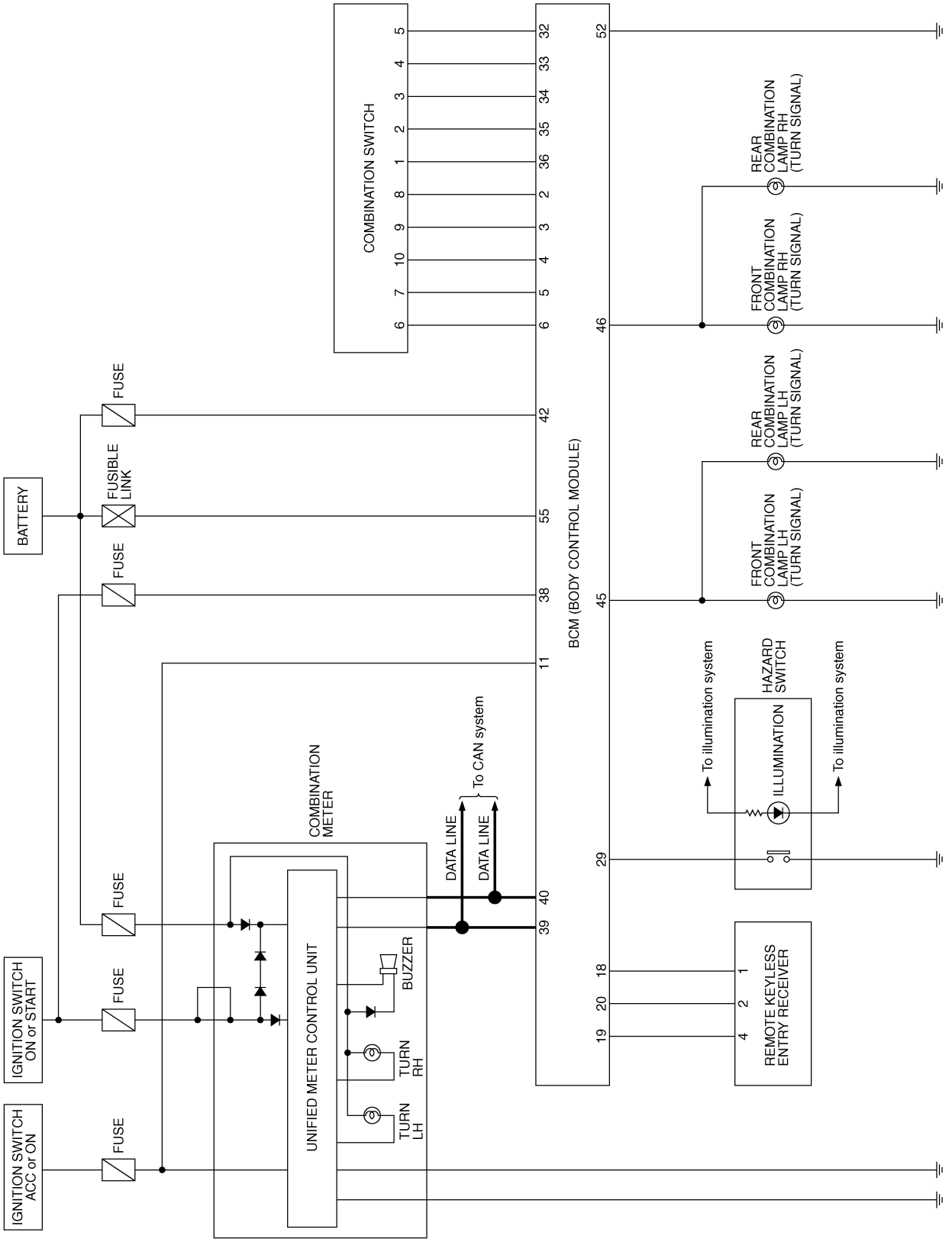
CAN Communication Unit

AKS009MH

Refer to LAN-5, "CAN Communication Unit" .

Schematic

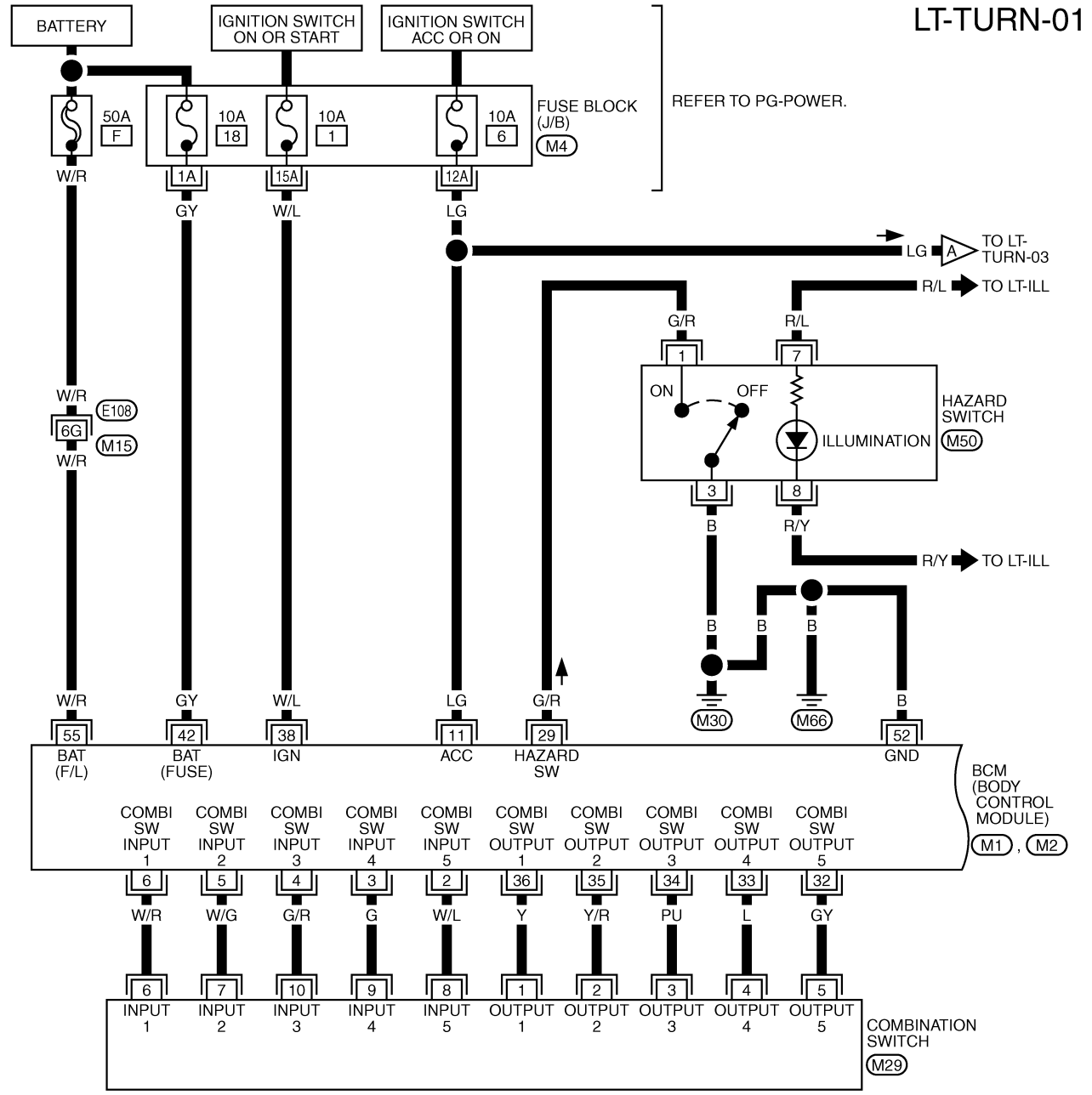
AKS009MI

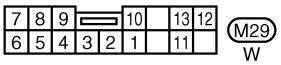


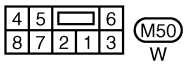
TKWT1423E

Wiring Diagram — TURN —

AKS009MJ







REFER TO THE FOLLOWING.

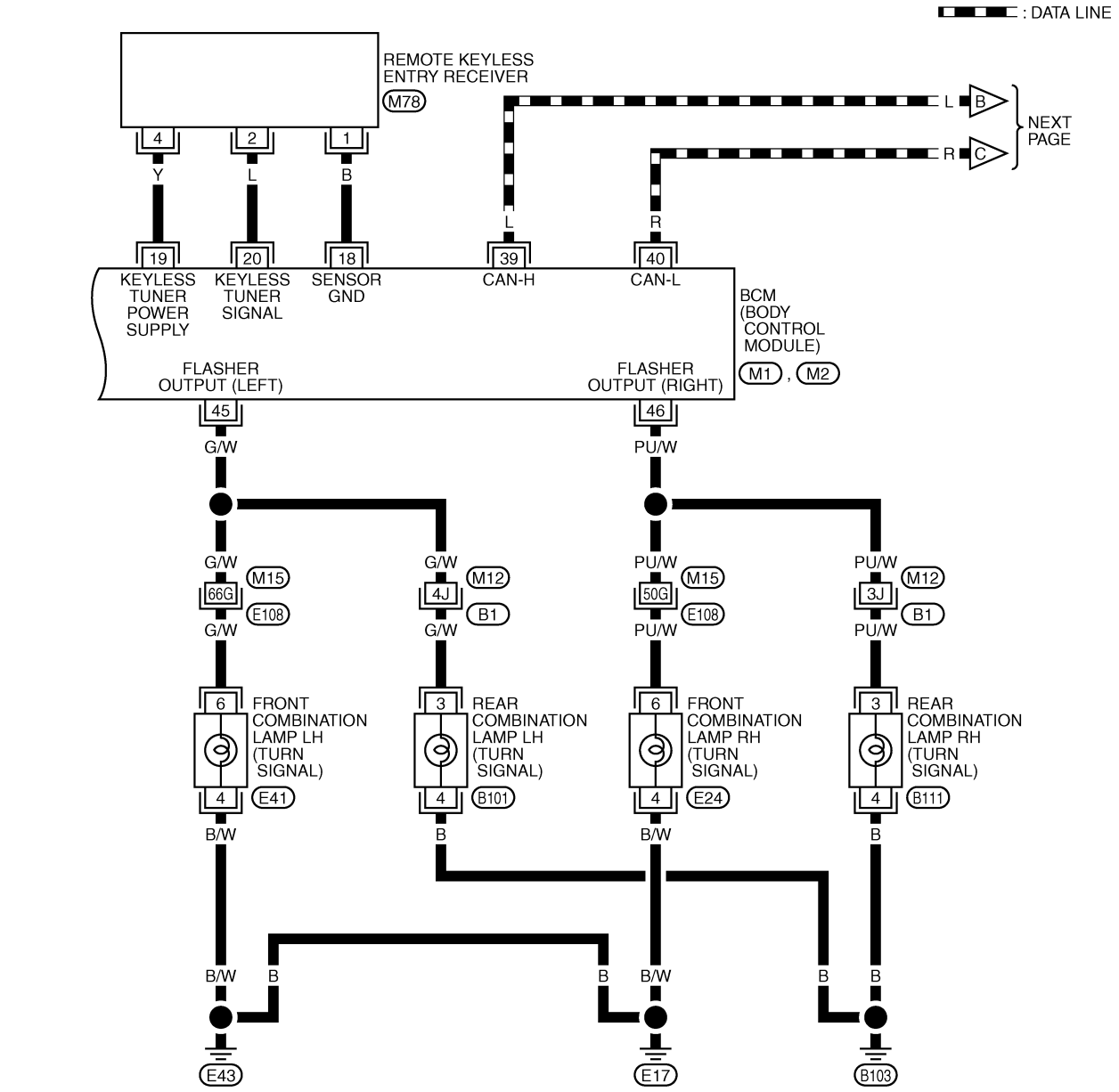
E108 -SUPER MULTIPLE JUNCTION (SMJ)

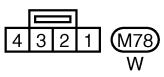
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

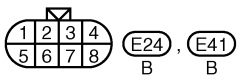
M1 , M2 -ELECTRICAL UNITS

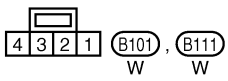
TKWT1424E

LT-TURN-02







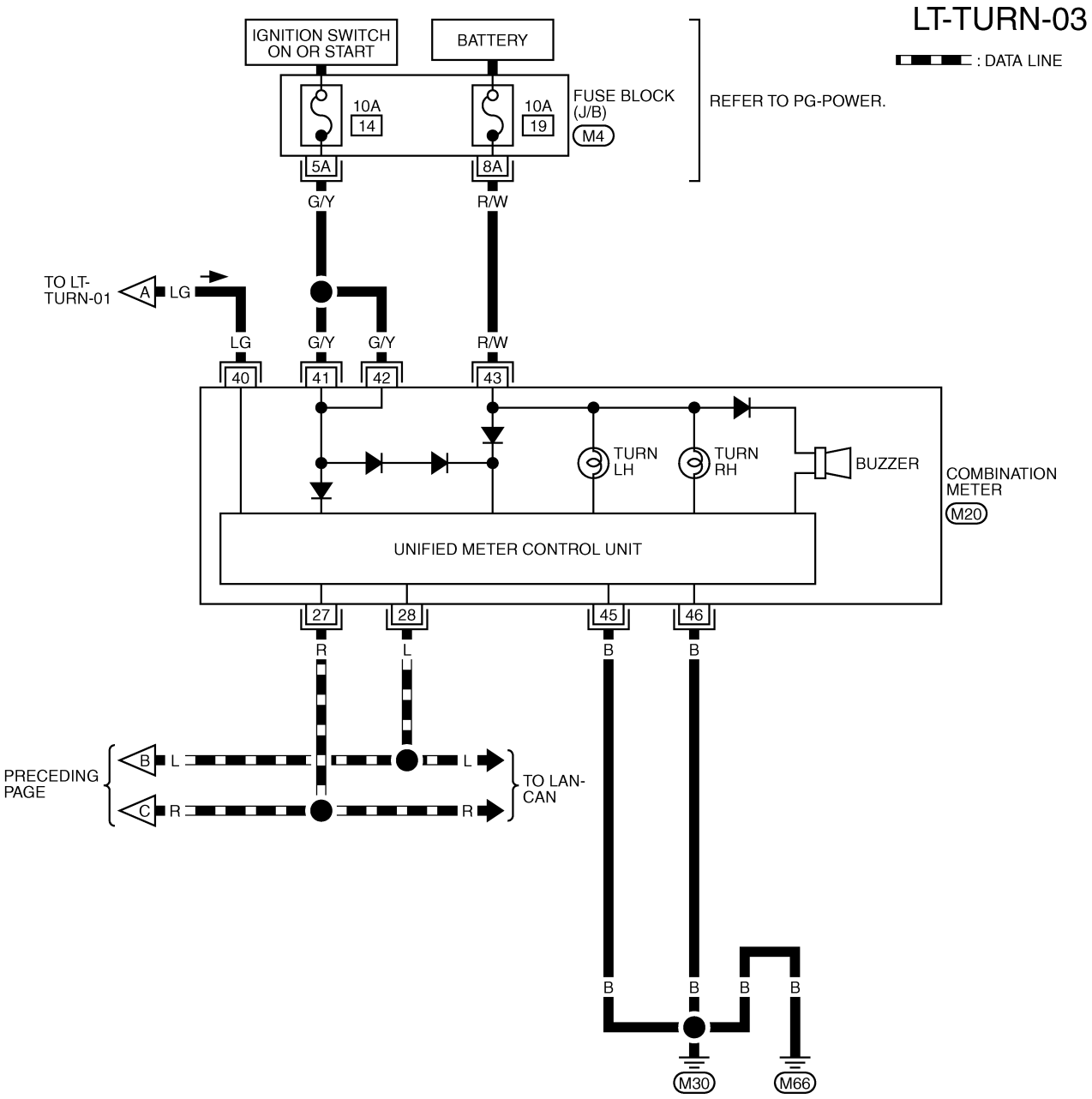


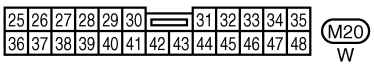
REFER TO THE FOLLOWING.

E108 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

M1 , M2 -ELECTRICAL UNITS

TKWT1425E



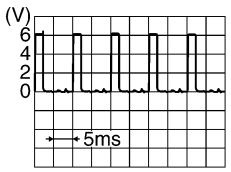
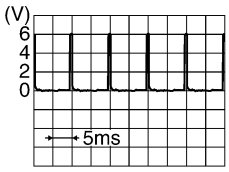
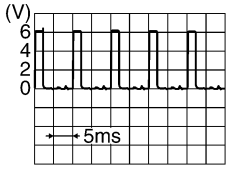
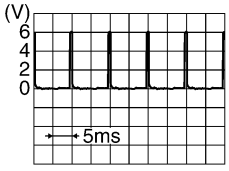
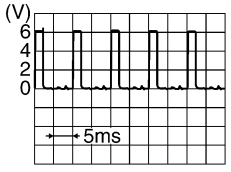


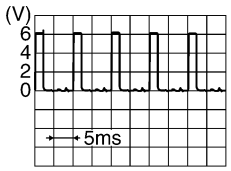
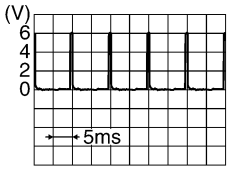
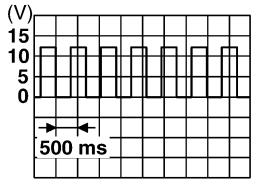
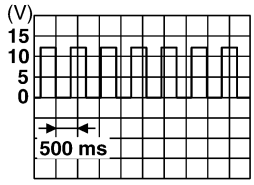
REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWT0310E

Terminals and Reference Values for BCM

AKS009MK

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
2	W/L	Combination switch input 5	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5291E
3	G	Combination switch input 4	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5292E
4	G/R	Combination switch input 3	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5291E
5	W/G	Combination switch input 2	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5292E
6	W/R	Combination switch input 1				
11	LG	Ignition switch (ACC)	ACC	—		Battery voltage
29	G/R	Hazard switch signal	OFF	Hazard switch	ON	Approx. 0V
					OFF	Approx. 12V
32	GY	Combination switch output 5	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5291E
33	L	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	PU	Combination switch output 3	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5291E
35	Y/R	Combination switch output 2	ON	Lighting, turn, wiper OFF Wiper dial position 4		 SKIA5292E
36	Y	Combination switch output 1				
38	W/L	Ignition switch (ON)	ON	—		Battery voltage
39	L	CAN–H	—	—		—
40	R	CAN–L	—	—		—
42	GY	Battery power supply	OFF	—		Battery voltage
45	G/W	Turn signal (left)	ON	Combination switch	Turn left ON	 SKIA3009J
46	PU/W	Turn signal (right)	ON	Combination switch	Turn right ON	 SKIA3009J
52	B	Ground	ON	—		Approx. 0V
55	W/R	Battery power supply	OFF	—		Battery voltage

How to Proceed With Trouble Diagnosis

AKS009ML

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-116, "Preliminary Check" .
4. Check symptom and repair or replace the malfunctioning parts.
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

AKS009MM

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
Combination meter	Battery	19
	Ignition switch ON or START position	14

Refer to LT-111, "Wiring Diagram — TURN —" .

OK or NG

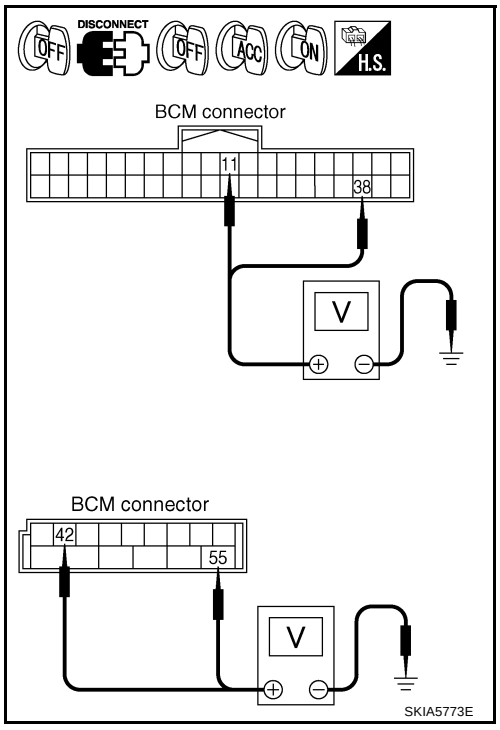
OK >> GO TO 2.

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)				
M1	11 (LG)	Ground	0V	Battery voltage	Battery voltage
	38 (W/L)		0V	0V	Battery voltage
M2	42 (GY)		Battery voltage	Battery voltage	Battery voltage
	55 (W/R)		Battery voltage	Battery voltage	Battery voltage



OK or NG

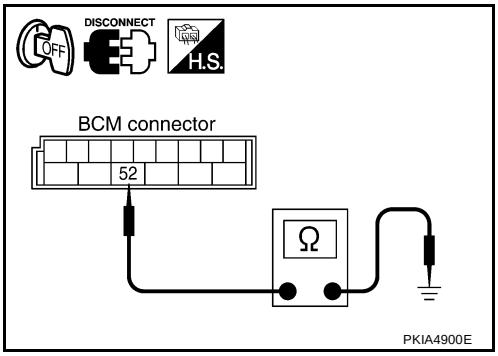
OK >> GO TO 3.

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)	Ground	Yes
M2	52 (B)		



OK or NG

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

CONSULT-II Functions

AKS009MN

CONSULT-II performs the following functions communicating with BCM.

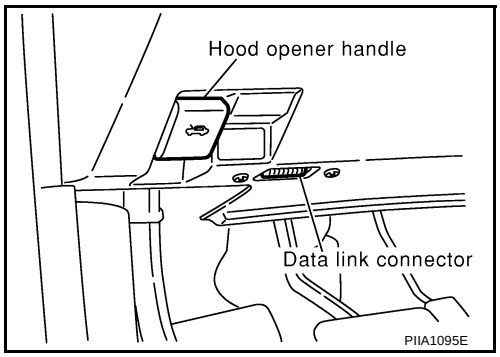
BCM diagnosis part	Check item, diagnosis mode	Description
FLASHER	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending driving signal to them.

CONSULT-II BASIC OPERATION

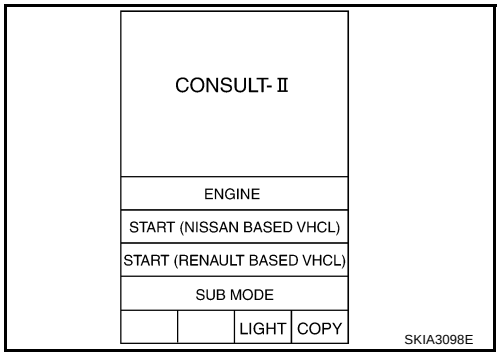
CAUTION:

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.

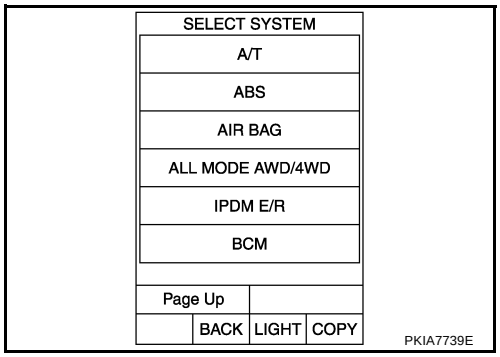
1. With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



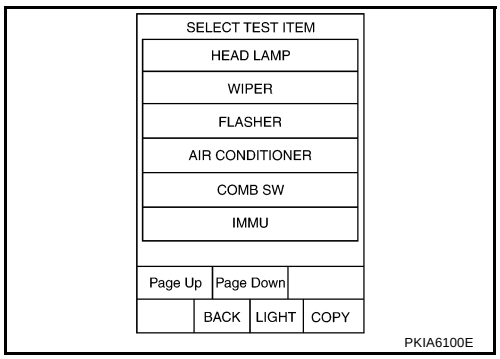
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “BCM” on “SELECT SYSTEM” screen.
   If “BCM” is not indicated, refer to GI-38, "CONSULT-II Data Link Connector (DLC) Circuit" .



4. Touch “HEAD LAMP” 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 items will be monitored.
6. Touch “RECORD” while monitoring, then the status of monitored item can be recorded. To stop recording, touch “STOP”.

Display Item List

Monitor item		Contents
IGN ON SW	“ON/OFF”	Displays “IGN position (ON)/OFF, ACC position (OFF)” judged from ignition switch signal.
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	“ON/OFF”	Displays “Brake lamp (ON)/Other (OFF)” status, determined from brake switch signal.

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 (RIGHT)	Turn signal lamp (right) can be operated by any ON-OFF operations.
FLASHER (LEFT)	Turn signal lamp (left) can be operated by any ON-OFF operations.

Turn Signal Lamp Does Not Operate

AKS009MO

1. CHECK BULB

Check bulb standard of each turn signal lamp is correct.

OK or NG

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

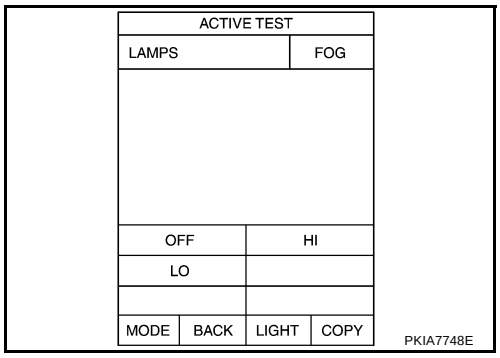
2. CHECK COMBINATION SWITCH INPUT SIGNAL

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



With out CONSULT-II

Refer to LT-128, "Combination Switch Inspection" .

OK or NG

OK >> GO TO 3.

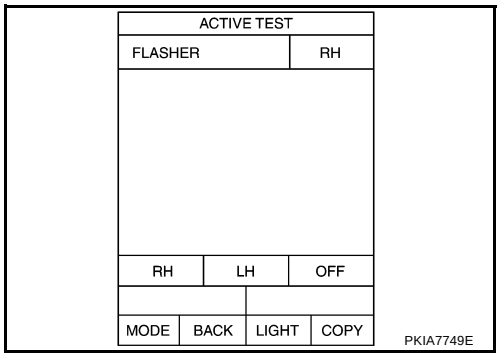
NG >> Check lighting switch. Refer to LT-128, "Combination Switch Inspection" .

3. ACTIVE TEST

With CONSULT-II

1. Select “FLASHER” during active test. Refer to LT-119, "ACTIVE TEST" .
2. Make sure “FLASHER RIGHT” and “FLASHER LEFT” operates.

Turn signal lamp should operate



With out CONSULT-II

GO TO 4.

OK or NG

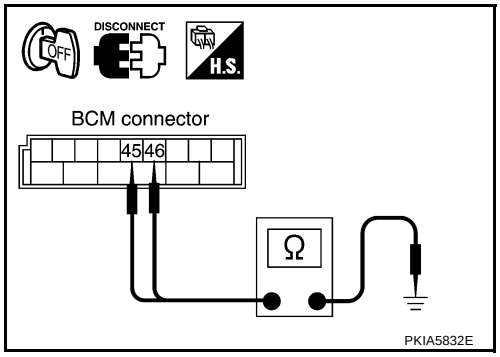
OK >> Replace BCM. Refer to BCS-15, "Removal and Installation of BCM" .

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	M2	46 (PU/W)		No
LH		45 (G/W)		



OK or NG

OK >> Replace BCM if turn signal lamps does not work after setting the connector again. Refer to BCS-15, "Removal and Installation of BCM" .

NG >> Repair harness or connector.

Hazard Warning Lamp Does Not Operate But Turn Signal Lamp Operate

AKS009MQ

1. CHECK BULB

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

OK or NG

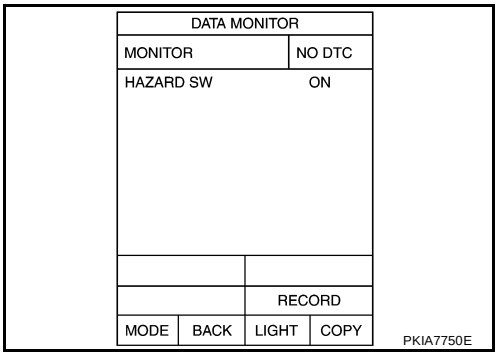
OK >> GO TO 2.
NG >> Replace bulb.

2. CHECK HAZARD SWITCH INPUT SIGNAL

With CONSULT-II

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

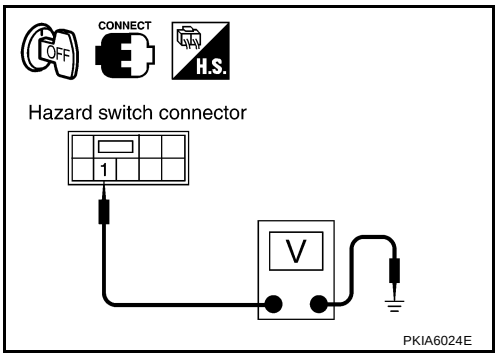
When hazard switch is ON : HAZARD SW ON position



With out CONSULT-II

Check voltage between BCM harness connector M50 terminal 1 (G/R) and ground.

Terminals			Condition	Voltage
(+)		(-)		
Connector	Terminal (Wire color)			
M50	1 (G/R)	Ground	Hazard switch is ON	Approx. 0V
			Hazard switch is OFF	Approx. 12V



OK or NG

OK >> Replace BCM. Refer to BCS-15, "Removal and Installation of BCM" .
NG >> GO TO 3.

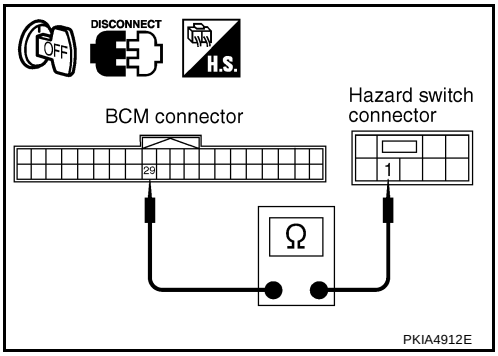
3. CHECK HAZARD SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and hazard switch connector.
3. Check continuity BCM harness connector M1 terminal 29 (G/R) and hazard switch harness connector M50 terminal 1 (G/R).

29 (G/R) – 1 (G/R) : Continuity should exist.

OK or NG

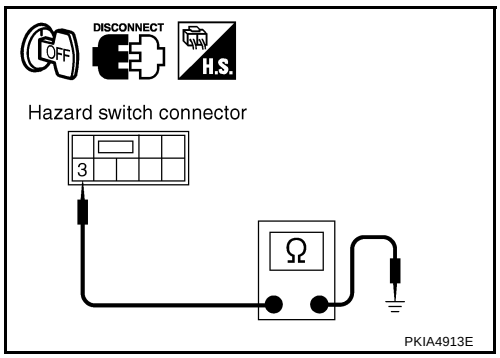
OK >> GO TO 4.
NG >> Repair harness or connector.



4. CHECK GROUND

Check continuity hazard switch harness connector M50 terminal 3 (B) and ground.

3 (B) – Ground : Continuity should exist.



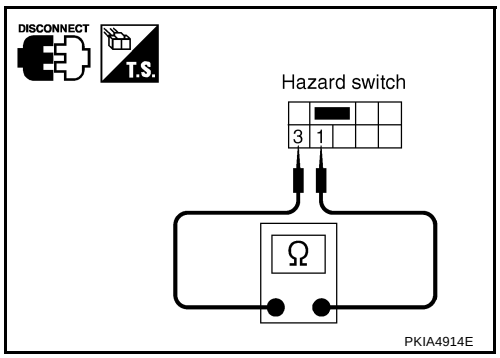
OK or NG

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

5. CHECK HAZARD SWITCH

1. Disconnect hazard switch connector.
2. Check continuity hazard switch.

Terminal		Condition	Continuity
Hazard switch			
1	3	Hazard switch is ON	Yes
		Hazard switch is OFF	No



OK or NG

OK >> Replace BCM if turn signal lamps does not work after setting the connector again. Refer to BCS-15, "Removal and Installation of BCM" .
NG >> Replace hazard switch.

Turn Signal Indicator Lamp Does Not Operate

AKS005KV

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)

AKS009MW

Refer to LT-34, "Bulb Replacement" in "HEAD LAMP (FOR USA)".

Bulb Replacement (Rear Turn Signal Lamp)

AKS009MX

Refer to LT-154, "Bulb Replacement" in "REAR COMBINATION LAMP".

Removal and Installation of Front Turn Signal Lamp

AKS009MY

Refer to LT-35, "Removal and Installation" in "HEAD LAMP (FOR USA)".

Removal and Installation of Rear Turn Signal Lamp

AKS009MZ

Refer to LT-154, "Removal and Installation" in "REAR COMBINATION LAMP".

LIGHTING AND TURN SIGNAL SWITCH

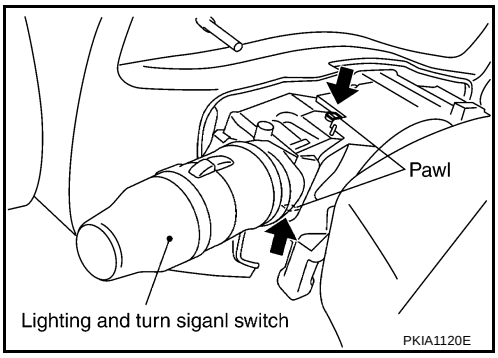
PFP:25540

Removal and Installation

AKS000M4

REMOVAL

1. Remove steering column cover. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" in “IP”section.
2. Remove mounting bolts of cluster lid A and combination meter. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" in “IP” section.
3. While pressing pawls in direction as shown in the figure, pull lighting and turn signal switch toward driver door and disconnect from the base.
4. Disconnect lighting and turn signal switch connector.



INSTALLATION

Install in the reverse order of removal.

HAZARD SWITCH

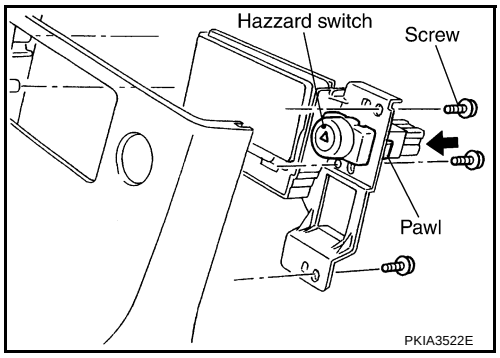
PFP:25290

Removal and Installation (M/T)

AKS0081D

REMOVAL

1. Remove console boot (M/T). Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" in “IP” section.
2. Remove connector.
3. Remove screws (5) and remove bracket from console boot (M/T).
4. Press pawl on reverse side and remove hazard switch.



INSTALLATION

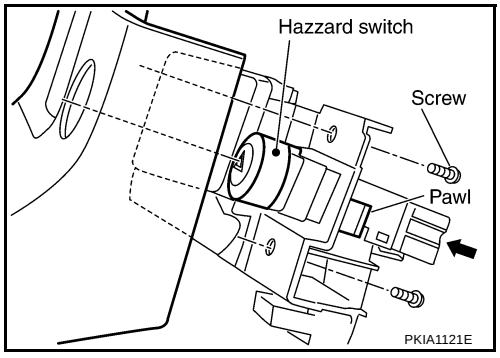
Install in the reverse order of removal.

Removal and Installation (A/T)

AKS0081E

REMOVAL

1. Remove console finisher (A/T). Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" in “IP” section.
2. Remove connector.
3. Remove screws and remove ashtray assembly from console finisher (A/T).
4. Press pawl on reverse side and remove hazard switch.



INSTALLATION

Install in the reverse order of removal.

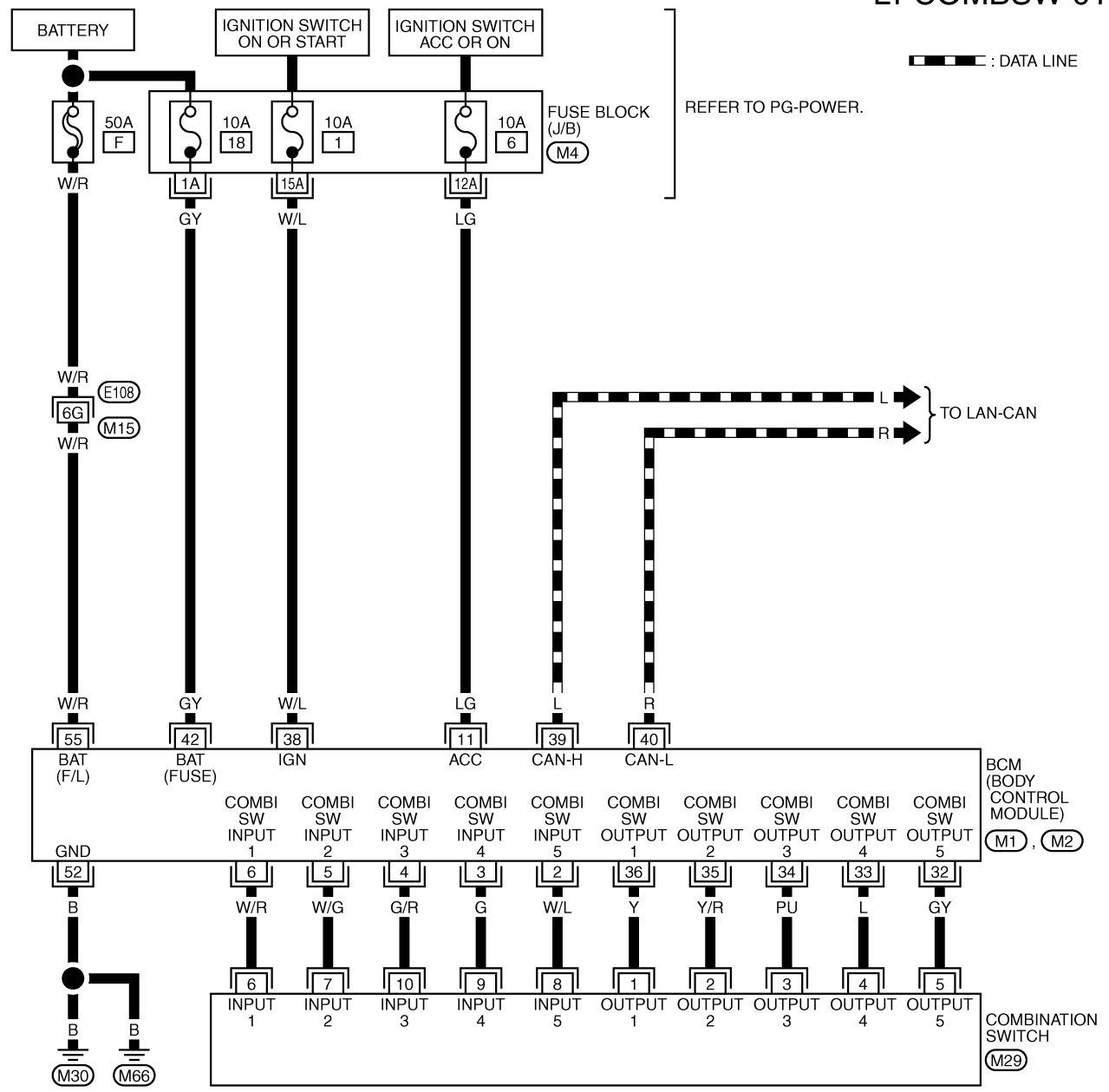
COMBINATION SWITCH

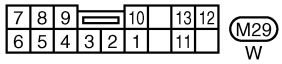
PFP:25567

Wiring Diagram — COMBSW —

AKS009M3

LT-COMBSW-01





REFER TO THE FOLLOWING.

E108 -SUPER MULTIPLE JUNCTION (SMJ)

M4 -FUSE BLOCK-JUNCTION BOX (J/B)

M1, M2 -ELECTRICAL UNITS

TKWT1426E

Combination Switch Reading Function

AKS009M4

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

CONSULT-II Function

AKS009M5

CONSULT-II performs the following functions communicating with the BCM.

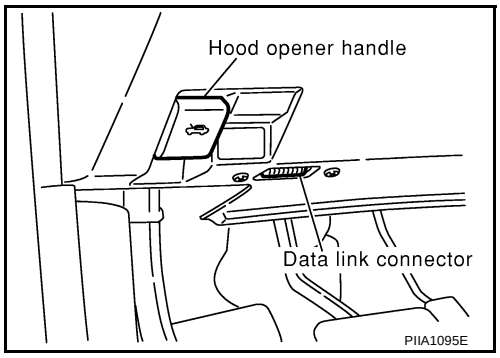
BCM diagnosis part	Check item, diagnosis mode	Description
Combination switch	DATA MONITOR	Displays BCM input data in real time.

CONSULT-II BASIC OPERATION

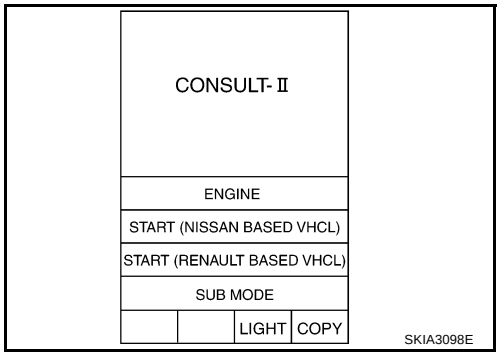
CAUTION:

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.

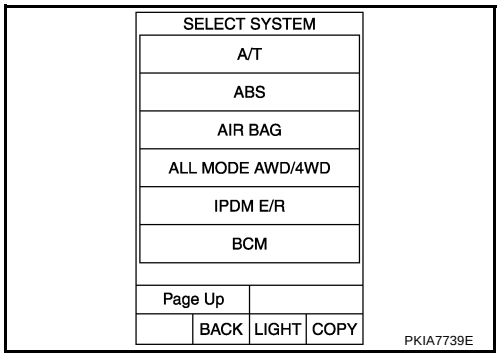
1. With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



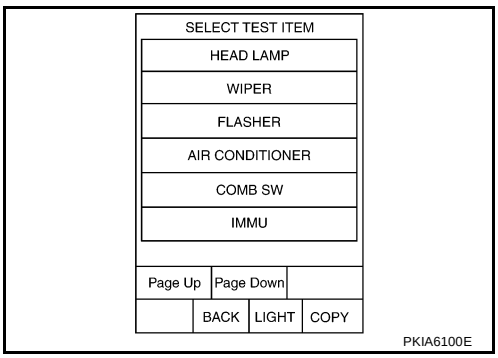
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “BCM” on “SELECT SYSTEM” screen.
If “BCM” is not indicated, refer to GI-38, "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 signals will be monitored.
6. Touch “RECORD” while monitoring, then the status of 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.
LIGHT SW 1ST	“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.

Combination Switch Inspection

AKS009M6

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.

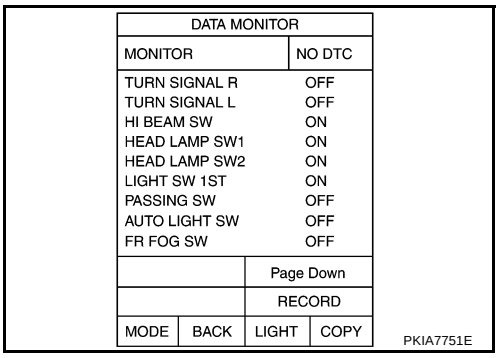
2. SYSTEM CHECK

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 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.

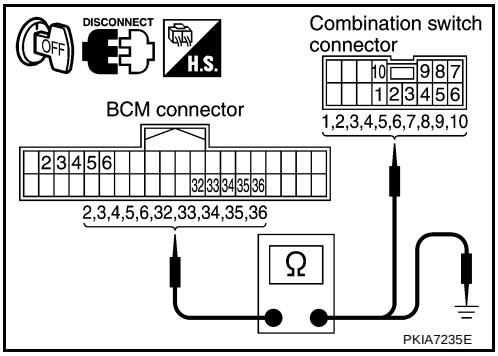
Check results

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

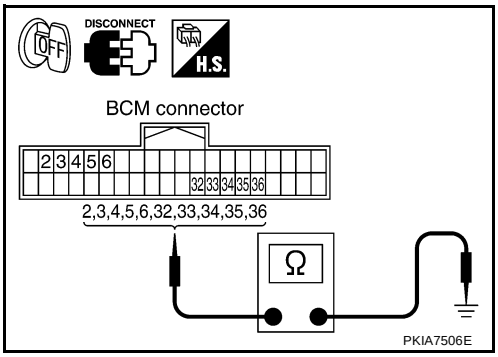
1. Disconnect BCM and combination switch connectors.
2. Check for continuity between BCM harness connector of the suspect system and the corresponding combination switch connector terminals.

Suspect system	Terminals				Continuity
	BCM		Combination switch		
	Connector	Terminal (Wire color)	Connector	Terminal (Wire color)	
1	M1	Input 1 6 (W/R)	M29	6 (W/R)	Yes
		Output 1 36 (Y)		1 (Y)	
2		Input 2 5 (W/G)		7 (W/G)	
		Output 2 35 (Y/R)		2 (Y/R)	
3		Input 3 4 (G/R)		10 (G/R)	
		Output 3 34 (PU)		3 (PU)	
4		Input 4 3 (G)		9 (G)	
		Output 4 33 (L)		4 (L)	
5		Input 5 2 (W/L)		8 (W/L)	
		Output 5 32 (GY)		5 (GY)	



3. 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	M1	Input 1 6 (W/R)	Ground	No
		Output 1 36 (Y)		
2		Input 2 5 (W/G)		
		Output 2 35 (Y/R)		
3		Input 3 4 (G/R)		
		Output 3 34 (PU)		
4		Input 4 3 (G)		
		Output 4 33 (L)		
5		Input 5 2 (W/L)		
		Output 5 32 (GY)		



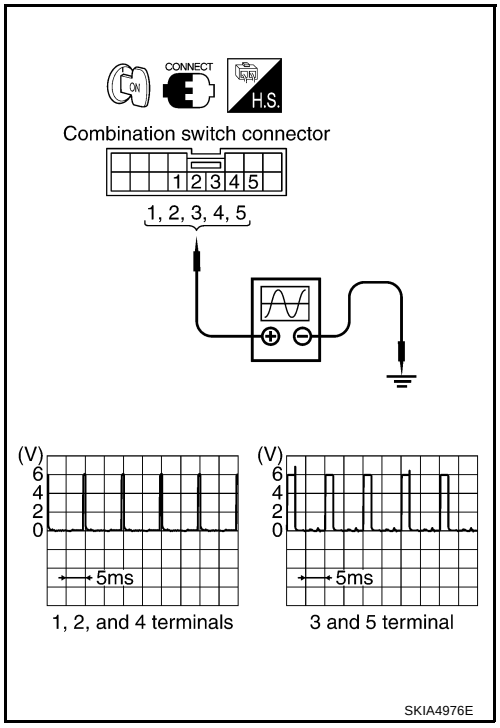
OK or NG

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	M29	1 (Y)
2		2 (Y/R)
3		3 (PU)
4		4 (L)
5		5 (GY)



OK or NG

OK >> Open circuit in combination switch, GO TO 5.
NG >> Replace BCM. Refer to BCS-15, "Removal and Installation of BCM" .

5. COMBINATION SWITCH INSPECTION

Referring to table below, perform combination switch inspection.

Procedure									
1	2		3	4		5	6		7
Replace 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

AKS009M7

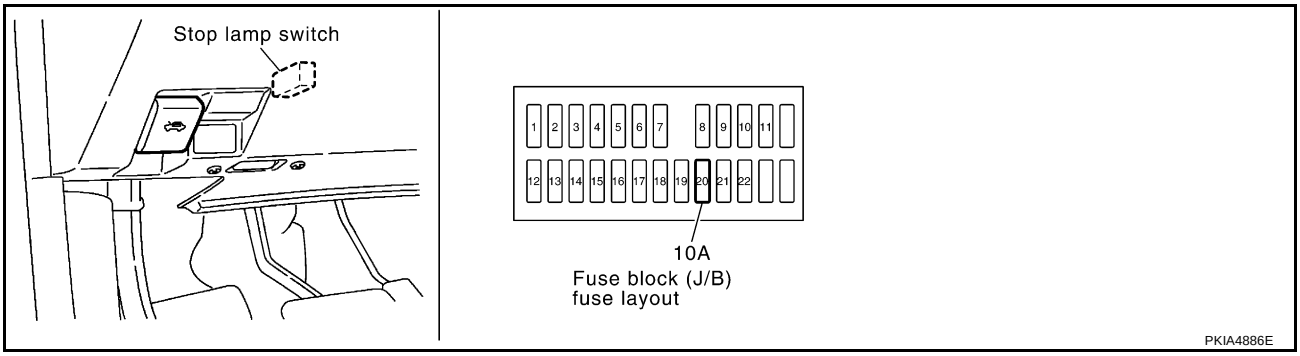
For details, refer to LT-123, "LIGHTING AND TURN SIGNAL SWITCH" .

STOP LAMP

PFP:26550

Component Parts and Harness Connector Location

AKS009M8



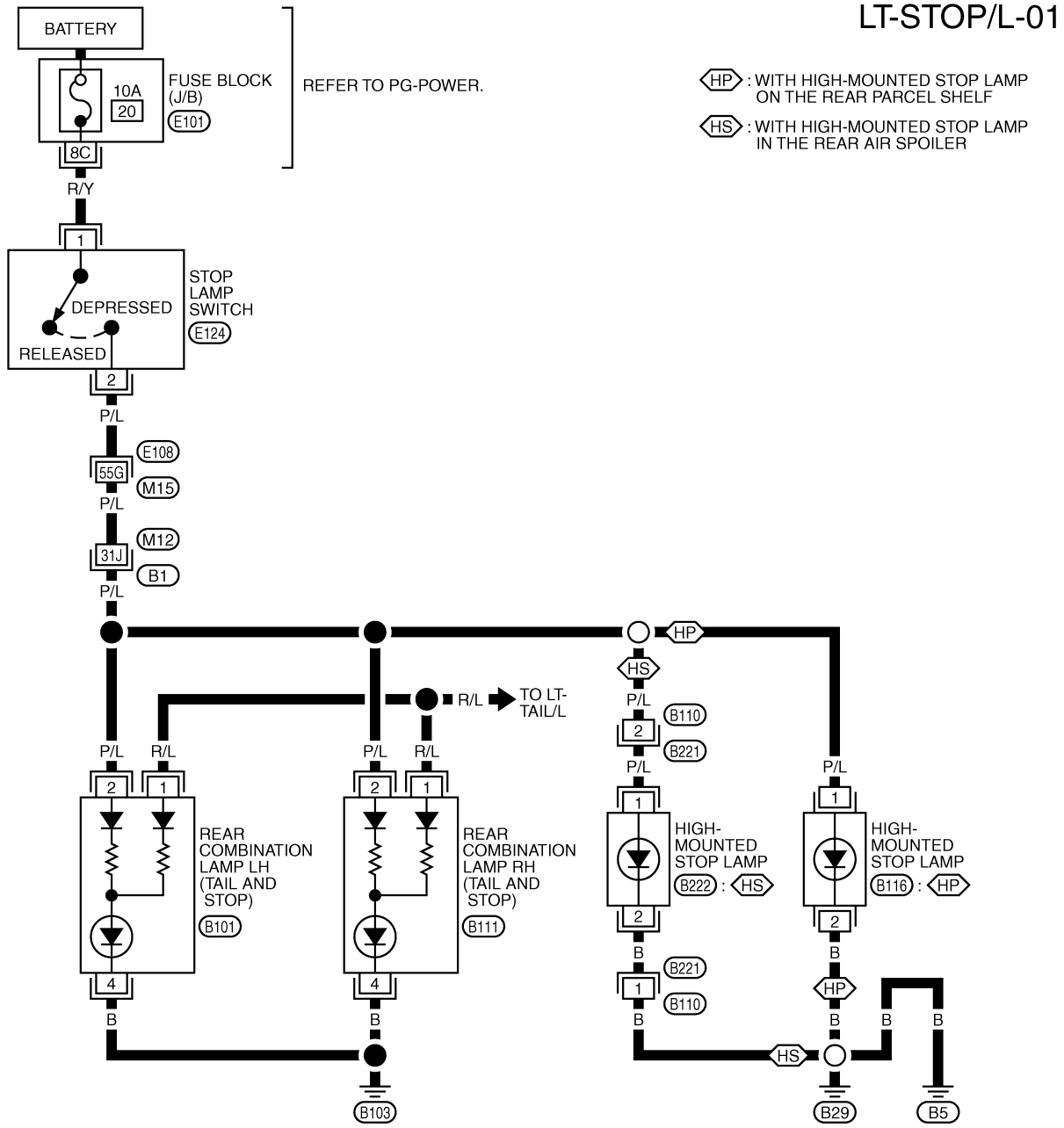
System Description

AKS009M9

The current that flows by Rear combination lamp unit is controlled, and a stop lamp (LED) is made to turn on.

Wiring Diagram — STOP/L —

AKS009MA



E124 W

B101 , B111 W W

B116 BR

B221 * GY

B222 * GY

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

REFER TO THE FOLLOWING.

E108 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

E101 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWT1427E

Bulb Replacement of High-mounted Stop Lamp

AKS009MB

WITH REAR SPOILER

1. Remove high-mounted stop lamp. Refer to LT-133, "Removal and Installation of High-mounted Stop Lamp" .
2. Replace together with high-mounted stop lamp.

High-mounted stop lamp : LED

WITHOUT REAR SPOILER

1. Remove high-mounted stop lamp. Refer to LT-133, "Removal and Installation of High-mounted Stop Lamp" .
2. Replace together with high-mounted stop lamp.

High-mounted stop lamp : LED

Bulb Replacement of Rear Combination Lamp (Stop Lamp)

AKS009MC

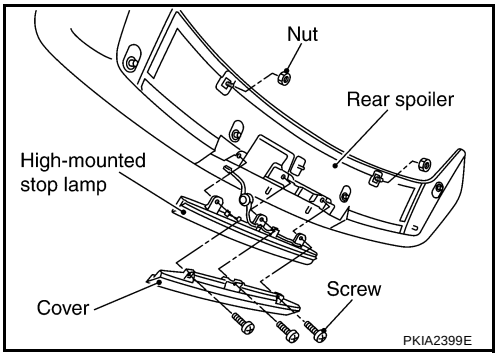
Refer to LT-154, "Bulb Replacement" in “REAR COMBINATION LAMP”.

Removal and Installation of High-mounted Stop Lamp

AKS009MD

REMOVAL (WITH REAR SPOILER)

1. Remove rear spoiler. Refer to EI-35, "REAR SPOILER" in “EI” section.
2. Remove screws and remove high-mounted stop lamp from rear spoiler.
3. Disconnect high-mounted stop lamp connector.

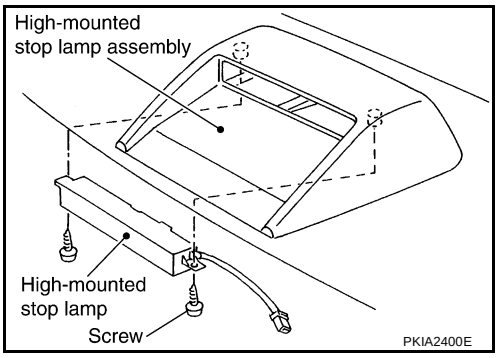


INSTALLATION

Install in the reverse order of removal

REMOVAL (WITHOUT REAR SPOILER)

1. Remove rear parcel shelf finisher. Refer to EI-41, "REAR PARCEL SHELF FINISHER" in “EI” section.
2. Remove screws and remove high-mounted stop lamp from rear parcel shelf finisher.
3. Disconnect high-mounted stop lamp connector.



INSTALLATION

Install in the reverse order of removal.

Removal and Installation of Rear Combination Lamp (Stop Lamp)

AKS009ME

Refer to LT-154, "Removal and Installation" in “REAR COMBINATION LAMP”.

STEP LAMP

PFP:26420

Bulb Replacement

AKS000M5

1. Remove step lamp. Refer to LT-134, "Removal and Installation" .
2. Remove bulb.

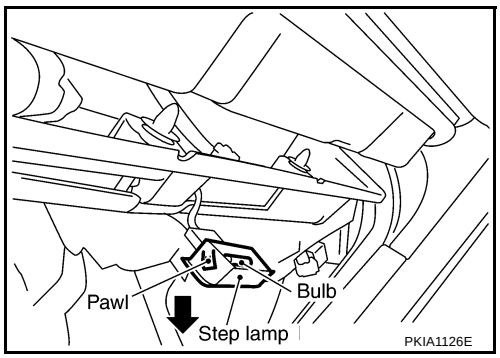
Step lamp : 12V - 5W

Removal and Installation

AKS000M6

REMOVAL

1. Undo clips on lower part of front door finisher and lift finisher up.
2. Disconnect step lamp connector.
3. Press pawl on reverse side and remove the step lamp.



INTALLATION

Install in the reverse order of removal.

BACK-UP LAMP

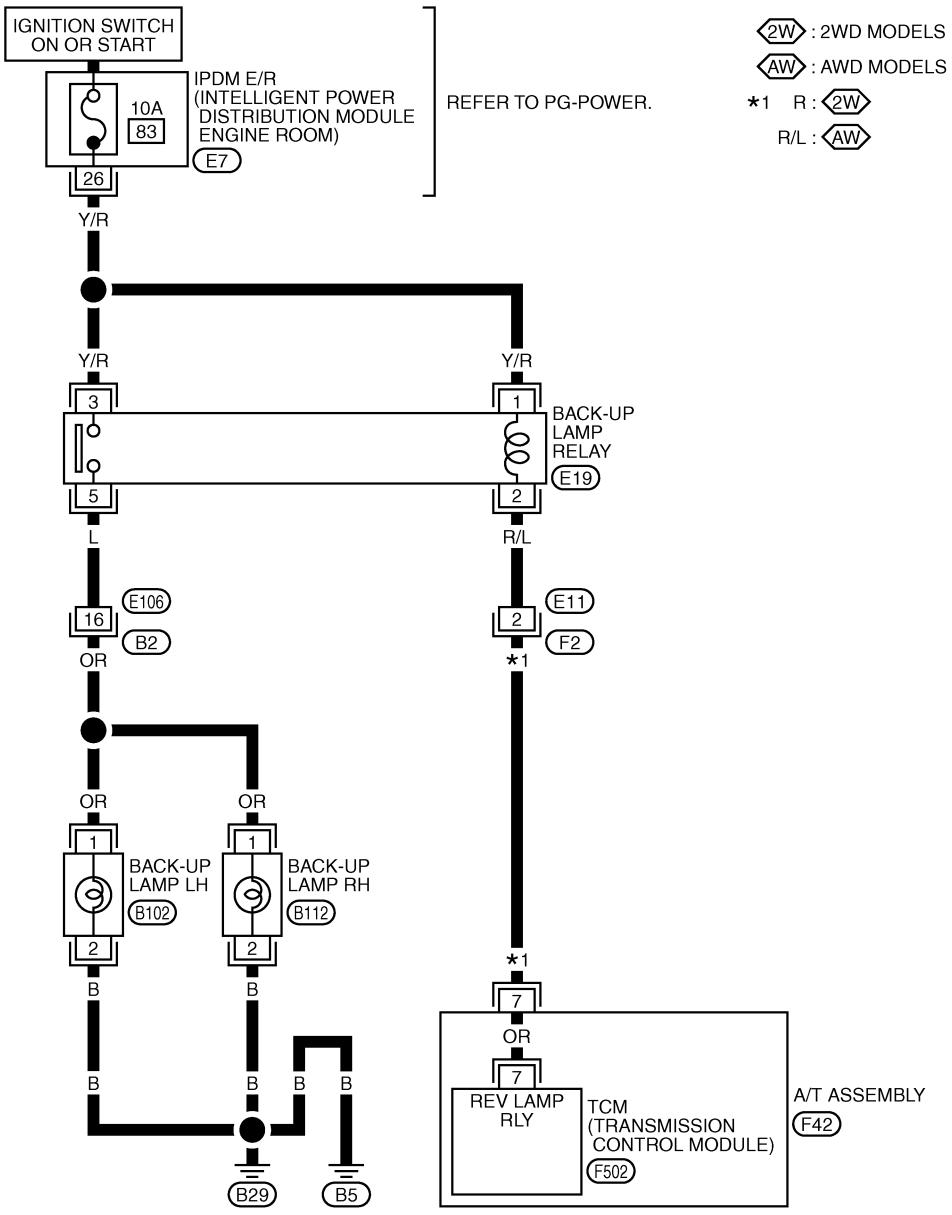
PFP:26550

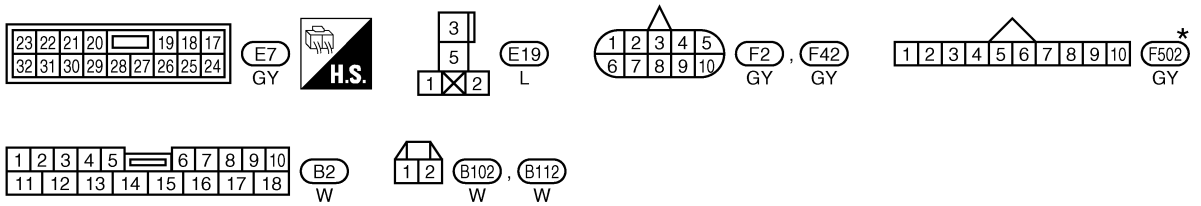
Wiring Diagram — BACK/L —

AKS0007X

A/T MODELS

LT-BACK/L-01



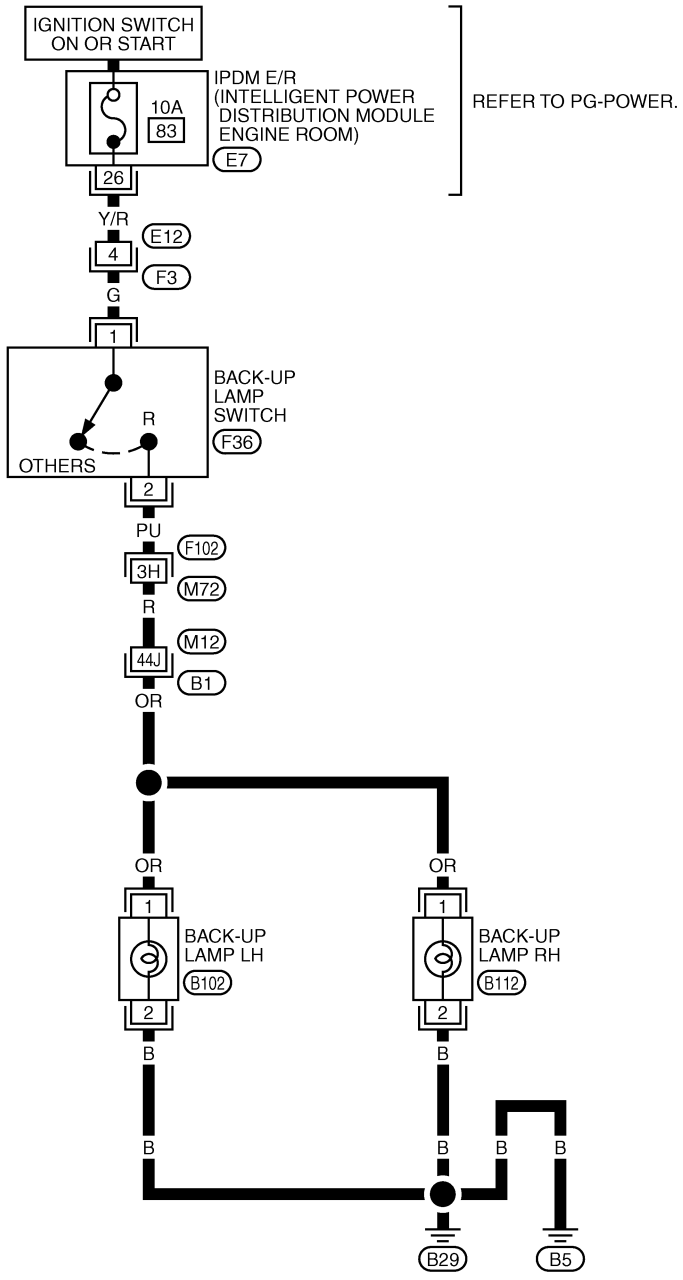


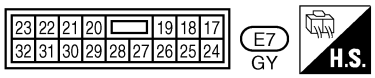
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

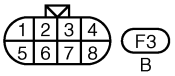
TKWM1415E

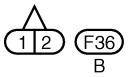
M/T MODELS

LT-BACK/L-02









REFER TO THE FOLLOWING.
F102 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

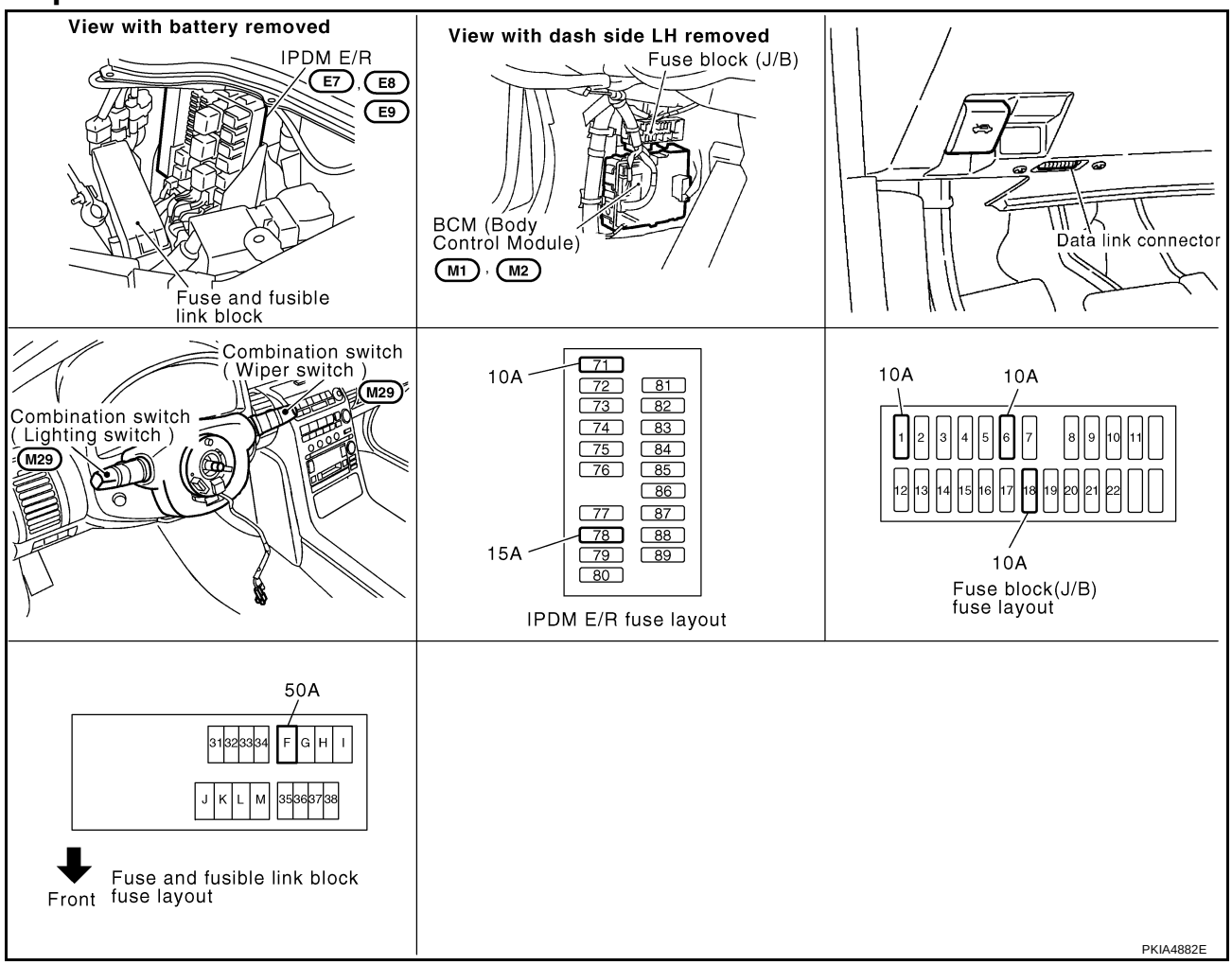
TKWT2093E

PARKING, LICENSE PLATE AND TAIL LAMPS

PFP:26550

Component Parts and Harness Connector Location

AKS009K2



System Description

AKS009K6

Control of the parking, license plate, and tail lamp operation is dependent upon the position of lighting switch (combination switch). When lighting switch is placed in 1ST position, BCM (body control module) receives input signal requesting parking, license plate, side marker and tail lamps to illuminate. This input signal is communicated to IPDM E/R (intelligent power distribution module engine room) across CAN communication lines.CPU (central processing unit) of IPDM E/R controls tail lamp relay coil. This relay, when energized, directs power to parking, license plate, side marker and tail lamps, which then illuminate.

Power is supplied at all times

- to tail 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)].

Power is also supplied at all times

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

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

- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- to BCM (body control module) terminal 38
- through 10A fuse [No. 1, located in fuse block (J/B)].

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

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

Ground is supplied

- to BCM (body control module) terminal 52
- through grounds M30 and M66
- to IPDM E/R (intelligent power distribution module engine room) terminals 38 and 60
- through grounds E17 and E43.

OPERATION BY LIGHTING SWITCH

With lighting switch in 1ST or 2ND position (or if auto light system is activated), BCM receives input signal requesting parking, license plate, side marker and tail lamps to illuminate. This input signal is communicated to IPDM E/R across CAN communication lines. CPU in IPDM E/R controls tail lamp relay coil, which when energized, directs power

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

Ground is supplied at all times

- to front side marker lamp LH terminal 2
- through grounds E17 and E43
- to front combination lamp LH terminal 4
- through grounds E17 and E43
- to license plate lamp terminal 2
- through grounds B5 and B29
- to rear combination lamp LH terminal 4
- through ground B103
- to front side marker lamp RH terminal 2
- through grounds E17 and E43
- to front combination lamp RH terminal 4
- through grounds E17 and E43
- to rear combination lamp RH terminal 4
- through ground B103.

With power and ground supplied, parking, license plate, side marker and tail lamps illuminate.

COMBINATION SWITCH READING FUNCTION

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

EXTERIOR LAMP BATTERY SAVER CONTROL

When combination switch (lighting switch) is in the 1ST (or 2ND) position, and ignition switch is turned from ON or ACC to OFF, battery saver control feature is activated.
Under this condition, parking, license, 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

AKS009K7

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 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.

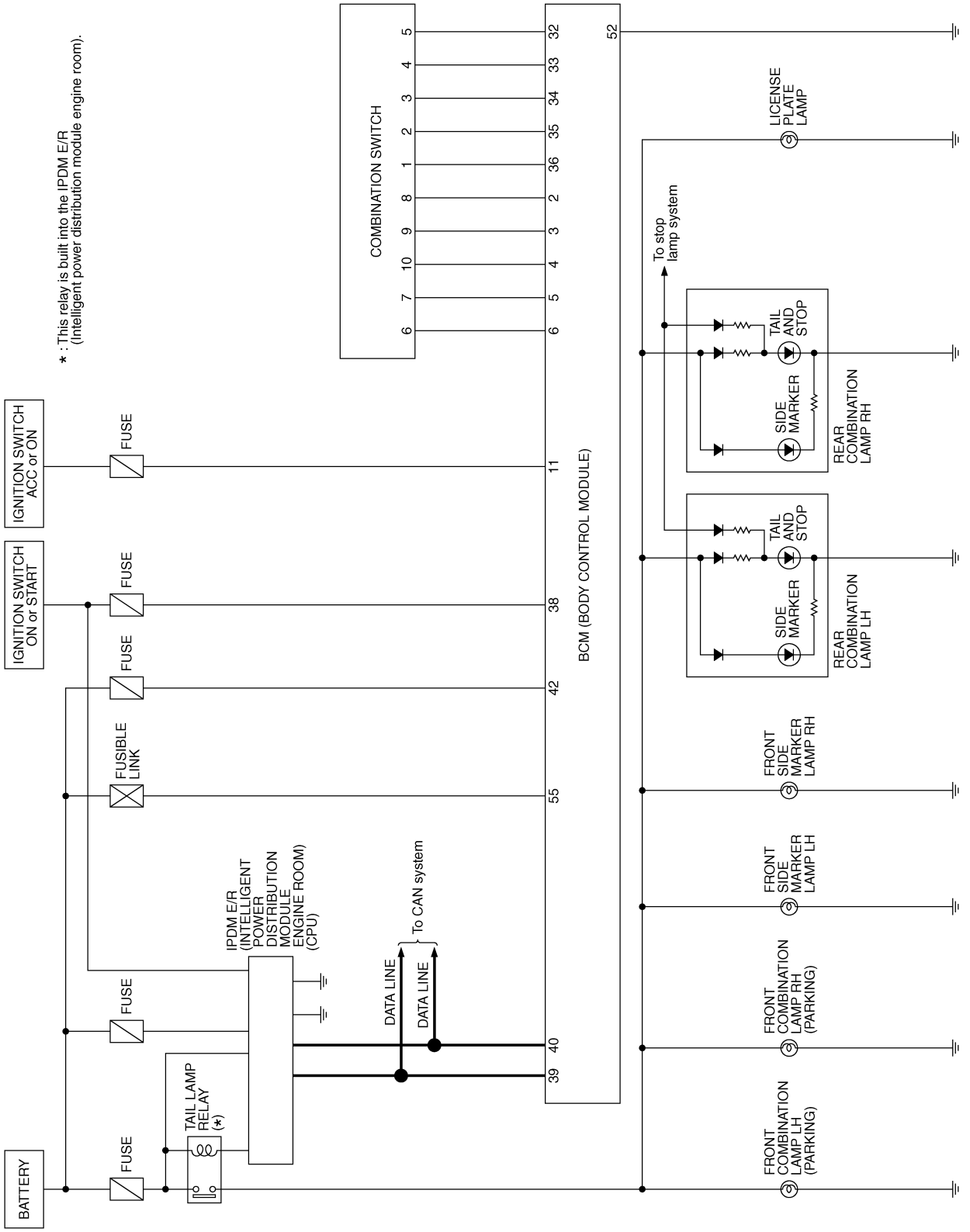
CAN Communication Unit

AKS009K8

Refer to LAN-5, "CAN Communication Unit" .

Schematic

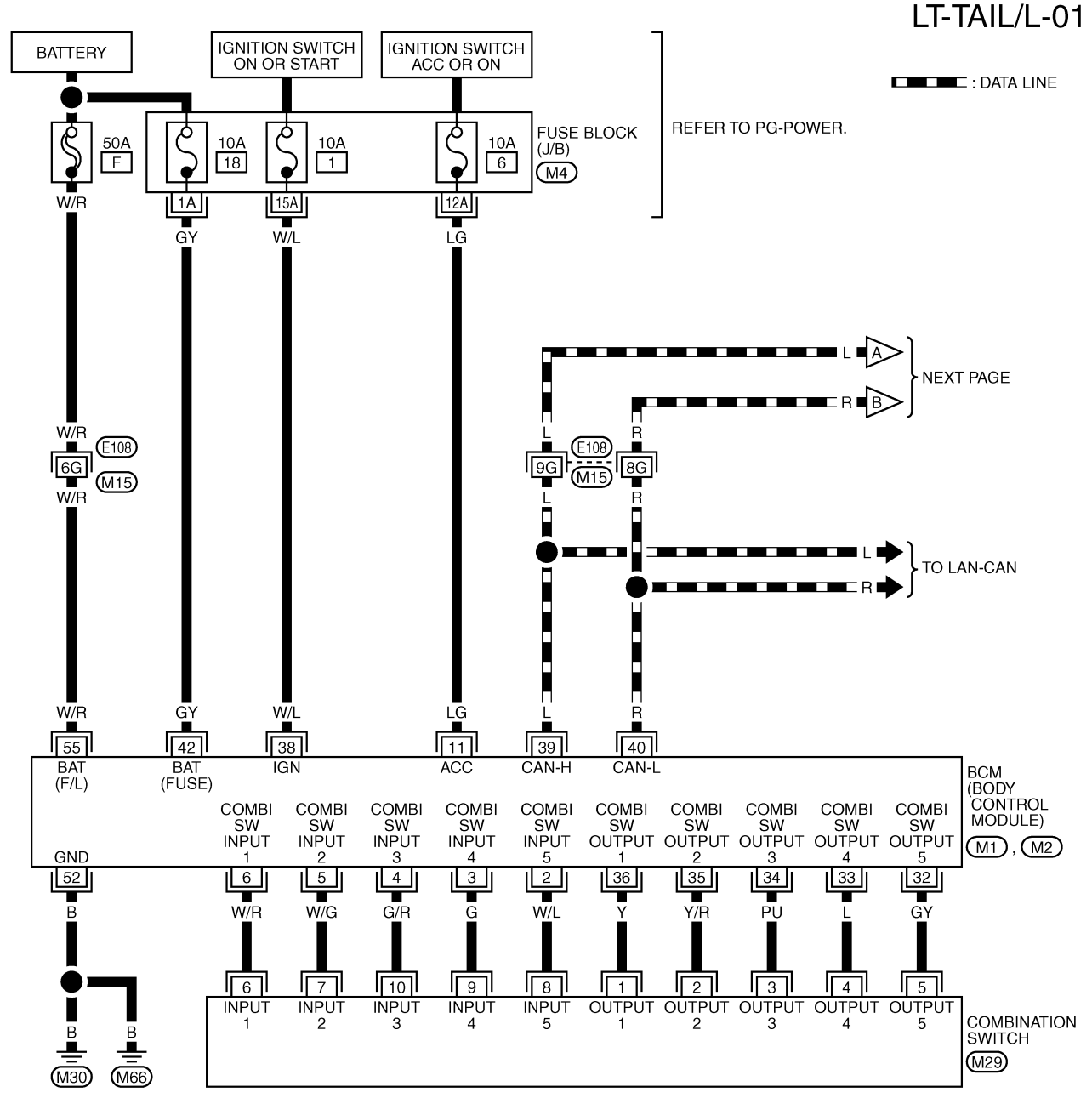
AKS009K9

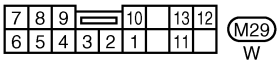


TKWT1430E

Wiring Diagram — TAIL/L —

AKS009KA





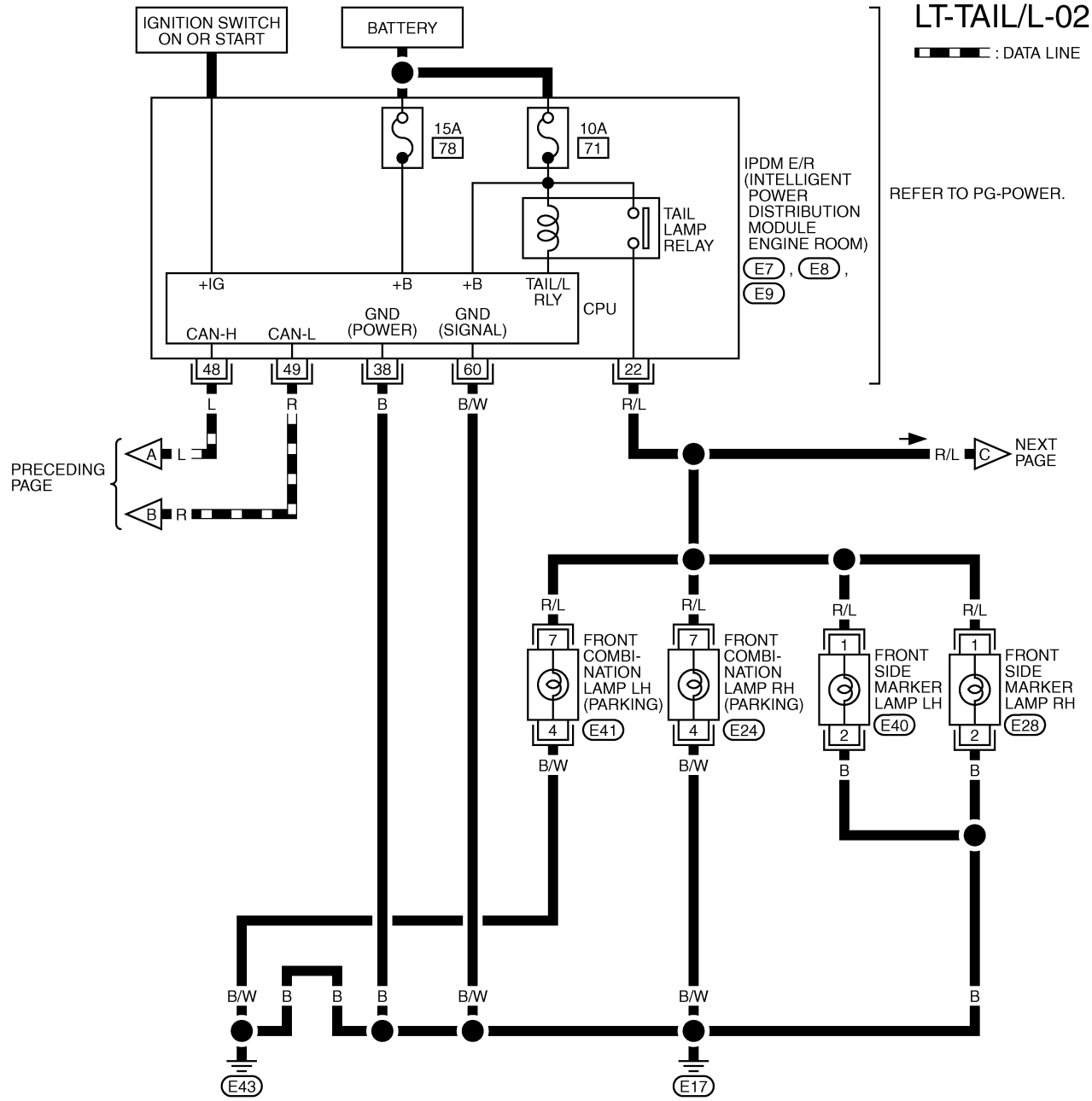
REFER TO THE FOLLOWING.

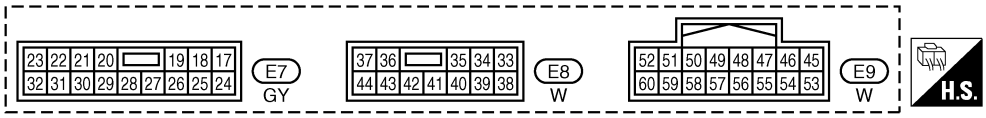
E108 -SUPER MULTIPLE JUNCTION (SMJ)

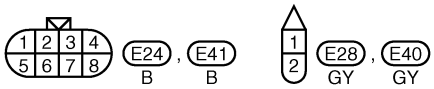
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

M1, M2 -ELECTRICAL UNITS

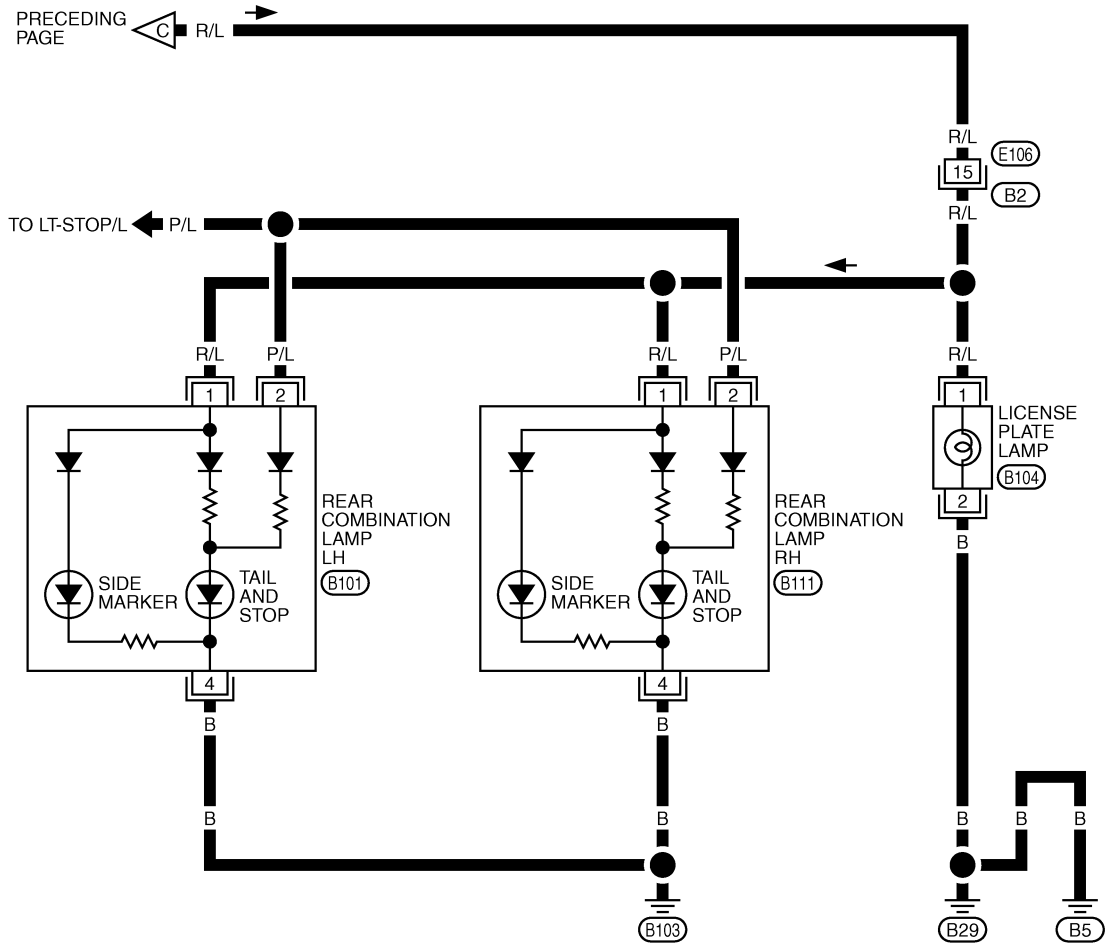
TKWT1431E

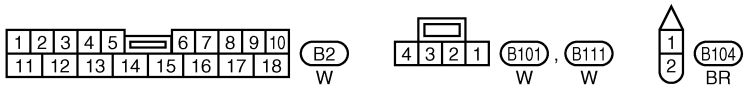

LT-TAIL/L-02
: DATA LINE
IGNITION SWITCH ON OR START
BATTERY
15A 78
10A 71
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E7 , E8 , E9
REFER TO PG-POWER.
TAIL LAMP RELAY
+IG
+B
+B
TAIL/L RLY
CPU
CAN-H
CAN-L
GND (POWER)
GND (SIGNAL)
48
49
38
60
22
L
R
B
B/W
R/L
PRECEDING PAGE
A
B
L
R
R/L
C
NEXT PAGE
FRONT COMBI-NATION LAMP LH (PARKING)
E41
FRONT COMBI-NATION LAMP RH (PARKING)
E24
FRONT SIDE MARKER LAMP LH
E40
FRONT SIDE MARKER LAMP RH
E28
B/W
B
E43
E17


E7
GY
E8
W
E9
W
H.S.


E24 , E41
B B
E28 , E40
GY GY

TKWT1432E

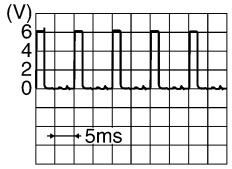
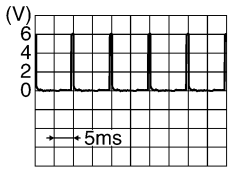
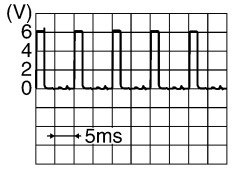
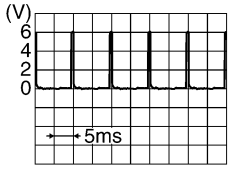
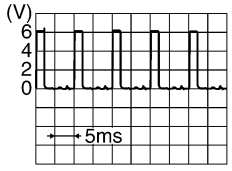
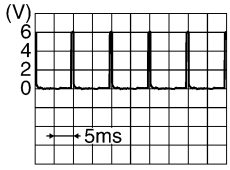
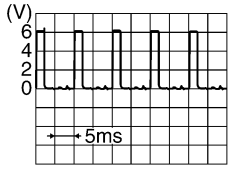

PRECEDING PAGE
C
R/L
TO LT-STOP/L
P/L
R/L
15
E106
B2
R/L
R/L
P/L
1
2
REAR COMBINATION LAMP LH
B101
SIDE MARKER
TAIL AND STOP
4
B
B
R/L
P/L
1
2
REAR COMBINATION LAMP RH
B111
SIDE MARKER
TAIL AND STOP
4
B
B
B103
R/L
1
LICENSE PLATE LAMP
B104
2
B
B
B
B
B29
B5


1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18
B2
W
4 3 2 1
B101
W
B111
W
1
2
B104
BR

TKWT1433E

Terminals and Reference Values for BCM

AKS009KB

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
2	W/L	Combination switch input 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
3	G	Combination switch input 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
4	G/R	Combination switch input 3	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
5	W/G	Combination switch input 2	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
6	W/R	Combination switch input 1			
11	LG	Ignition switch (ACC)	ACC	—	Battery voltage
32	GY	Combination switch output 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
33	L	Combination switch output 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
34	PU	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	Y/R	Combination switch output 2	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
36	Y	Combination switch output 1			
38	W/L	Ignition switch (ON)	ON	—	Battery voltage
39	L	CAN– H	—	—	—
40	R	CAN– L	—	—	—
42	GY	Battery power supply	OFF	—	Battery voltage
52	B	Ground	ON	—	Approx. 0V
55	W/R	Battery power supply	OFF	—	Battery voltage

Terminals and Reference Values for IPDM E/R

AKS009KC

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
22	R/L	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	R	CAN– L	—	—		—
60	B/W	Ground	ON	—		Approx. 0V

How to Proceed With Trouble Diagnosis

AKS009KD

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-137, "System Description" .
3. Perform the preliminary check. Refer to LT-145, "Preliminary Check" .
4. Check symptom and repair or replace the malfunctioning parts.
5. Do the parking, license and tail lamps operate normally? If YES: GO TO 6. If NO: GO TO 4.
6. INSPECTION END

Preliminary Check

AKS009KE

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
IPDM E/R	Battery	71
		78

Refer to LT-141, "Wiring Diagram — TAIL/L —" .

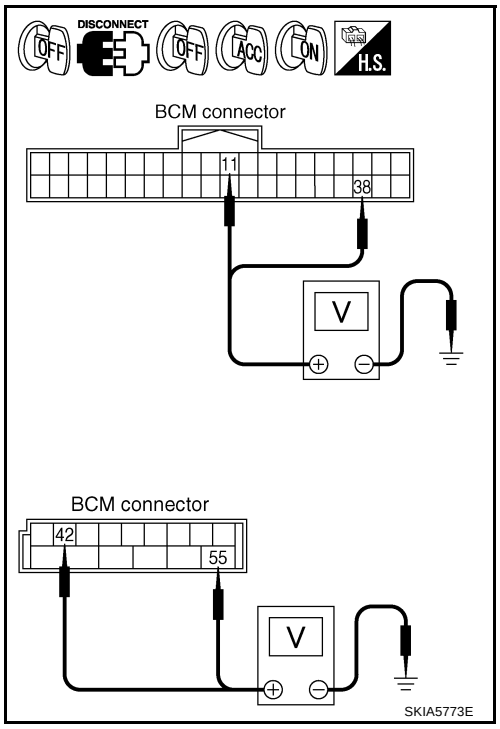
OK or NG

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)				
M1	11 (LG)	Ground	0V	Battery voltage	Battery voltage
	38 (W/L)		0V	0V	Battery voltage
M2	42 (GY)		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.

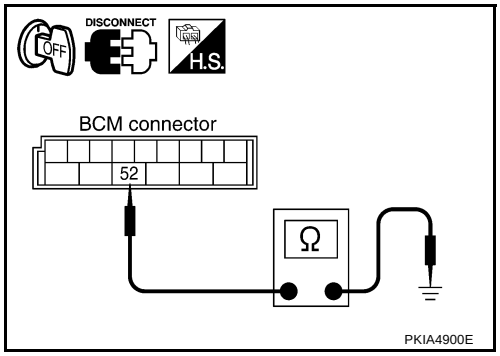
3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminals			Continuity
Connector	Terminal (Wire color)	Ground	Yes
M2	52 (B)		

OK or NG

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



CONSULT-II Functions

AKS009KF

Refer to LT-19, "CONSULT-II Functions (BCM)" in HEAD LAMP.
Refer to LT-22, "CONSULT-II Functions (IPDM E/R)" in HEAD LAMP.
Refer to LT-54, "CONSULT-II Functions (BCM)" in HEADLAMP (FOR CANADA).
Refer to LT-57, "CONSULT-II Functions (IPDM E/R)" in HEADLAMP (FOR CANADA).

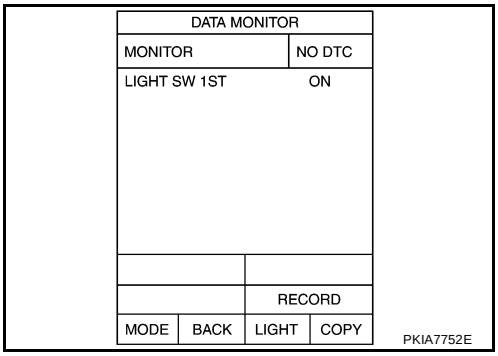
Parking, License Plate and Tail Lamps Do Not Illuminate

AKS009KG

1. CHECK COMBINATION SWITCH INPUT SIGNAL

With CONSULT-II

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



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

With out CONSULT-II

Refer to LT-128, "Combination Switch Inspection" .

OK or NG

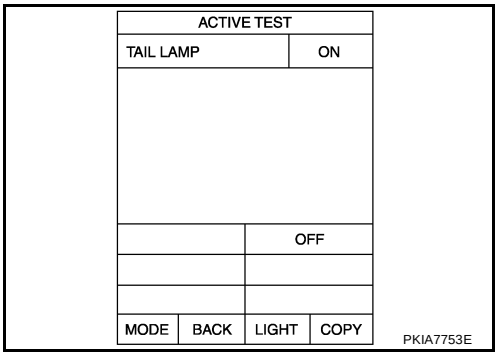
OK >> GO TO 2.

NG >> Check lighting switch. Refer to LT-128, "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 lamp operates.



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

With out CONSULT-II

1. Start auto active test. Refer to PG-22, "Auto Active Test" .
2. Make sure parking, license plate, side marker and tail lamp operates.

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

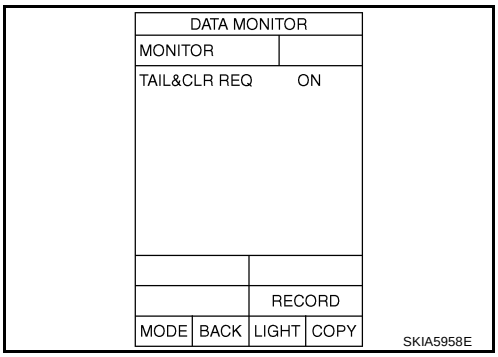
OK or NG

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 : TAIL & CLR REQ ON position

OK or NG

OK >> Replace IPDM E/R.

NG >> Replace BCM. Refer to BCS-15, "Removal and Installation of BCM" .

4. CHECK INPUT SIGNAL

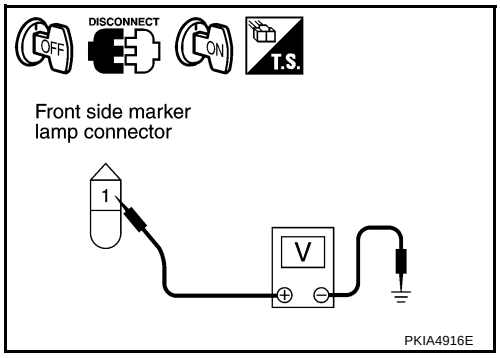
With CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front side marker, clearance lamp, license plate lamp and rear combination lamp connectors.
3. Select “IPDM E/R” on CONSULT-II. and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
4. Select “TAIL LAMP” on “SELECT TEST ITEM” screen.
5. Touch “ON” screen.
6. When tail lamp relay is operating, check voltage between front side marker lamp, clearance lamp, license plate lamp, rear combination lamp harness connector and ground.

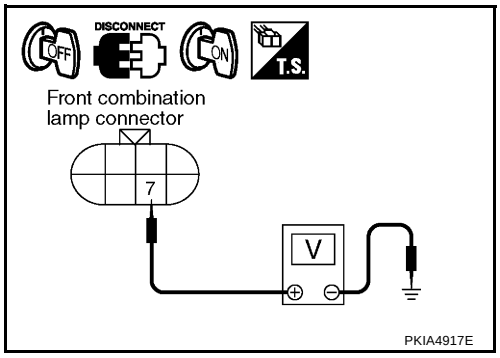
With out CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front side marker, clearance lamp, license plate lamp and rear combination lamp connectors.
3. Start auto active test. Refer to PG-22, "Auto Active Test" .
4. When tail lamp relay is operating, check voltage between front side marker lamp, clearance lamp, license plate lamp, rear combination lamp harness connector and ground.

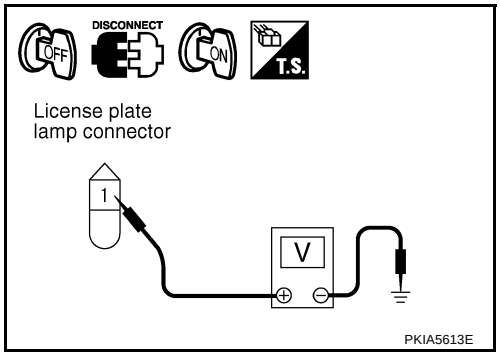
Terminals				Voltage
Front side marker lamp (+)			(-)	
Connector		Terminal (Wire color)		
RH	E28	1 (R/L)	Ground	Battery voltage
LH	E40			



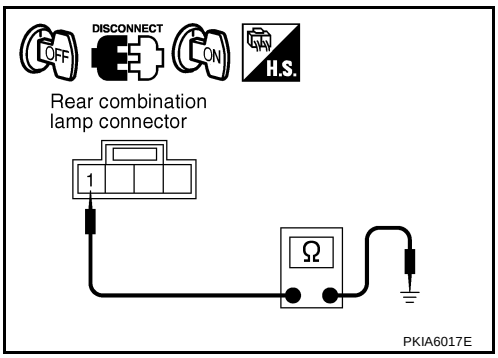
Terminals				Voltage
Front combination lamp (+) (Parking)			(-)	
Connector		Terminal (Wire color)		
RH	E24	7 (R/L)	Ground	Battery voltage
LH	E41			



Terminals			Voltage
License plate lamp (+)		(-)	
Connector	Terminal (Wire color)		
B104	1 (R/L)	Ground	Battery voltage



Terminals				Voltage
Rear combination lamp (Tail and side marker)			Ground	
Connector		Terminal (Wire color)		
RH	B111	1 (R/L)		Battery voltage
LH	B101			



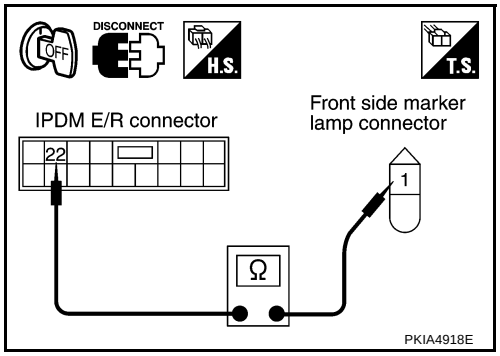
OK or NG

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

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

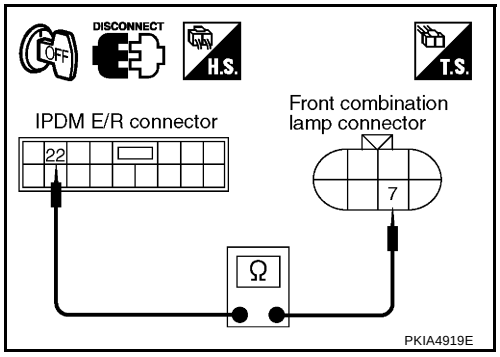
1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector and front side marker lamp harness connector.

Terminals					Continuity
IPDM E/R		Front side marker lamp			
Connector	Terminal (Wire color)	Connector		Terminal (Wire color)	
E7	22 (R/L)	RH	E28	1 (R/L)	Yes
		LH	E40		



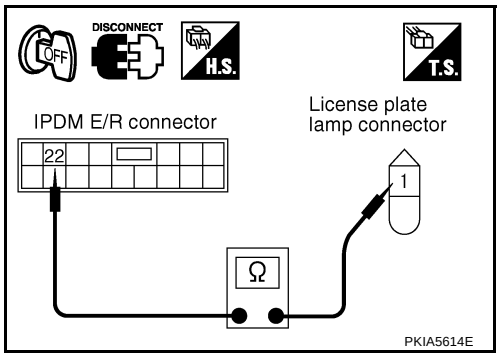
4. Check continuity between IPDM E/R harness connector and front combination lamp harness connector.

Terminals					Continuity
IPDM E/R		Front combination lamp (Parking)			
Connector	Terminal (Wire color)	Connector		Terminal (Wire color)	
E7	22 (R/L)	RH	E24	7 (R/L)	Yes
		LH	E41		



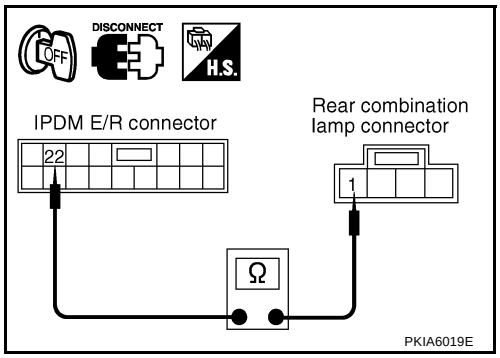
5. Check continuity between IPDM E/R harness connector and license plate lamp harness connector.

Terminals				Continuity
IPDM E/R		License plate lamp		
Connector	Terminal (Wire color)	Connector	Terminal (Wire color)	
E7	22 (R/L)	B104	1 (R/L)	Yes



6. 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	B111	1 (R/L)	Yes
		LH	B101		



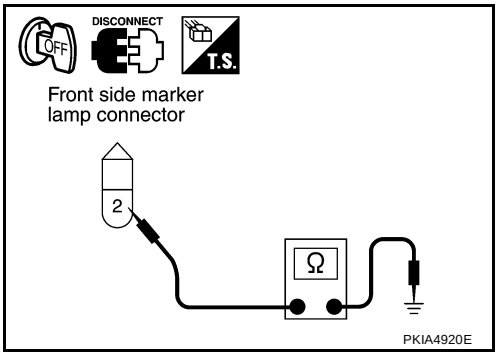
OK or NG

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

6. CHECK GROUND

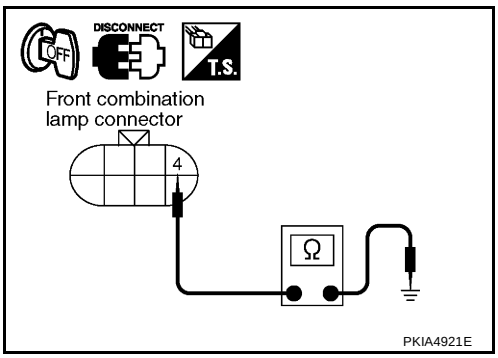
1. Check continuity between front side maker lamp harness connector and ground.

Terminals				Continuity
Front side marker lamp			Ground	
Connector		Terminal (Wire color)		
RH	E28	2 (B)		Yes
LH	E40			



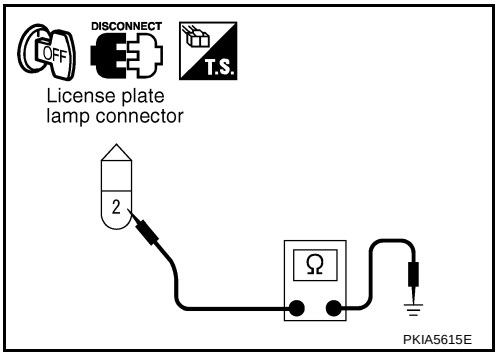
2. Check continuity between front combination lamp harness connector and ground.

Terminals				Continuity
Front combination lamp (Parking)			Ground	
Connector		Terminal (Wire color)		
RH	E24	4 (B/W)		Yes
LH	E41			



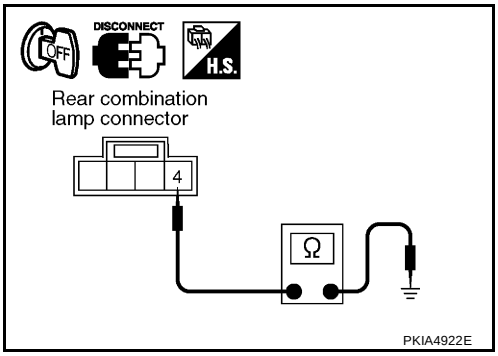
3. Check continuity between license plate lamp harness connector and ground.

Terminals			Continuity
License plate lamp		Ground	
Connector	Terminal (Wire color)		
B104	2 (B)		Yes



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

Terminals				Continuity
Rear combination lamp (Tail and side marker)			Ground	
Connector		Terminal (Wire color)		
RH	B111	4 (B)		Yes
LH	B101			



OK or NG

OK >> Check bulb or replace rear combination lamp.
NG >> Repair harness or connector.

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

AKS004R0

1. CHECK IPDM E/R

1. Turn ignition switch ON. Place combination switch (lighting switch) in ON position. Turn ignition switch OFF.
2. Make sure 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-17, "Function of Detecting Ignition Relay Malfunction" .

Bulb Replacement

AKS005ID

FRONT SIDE MARKER LAMP

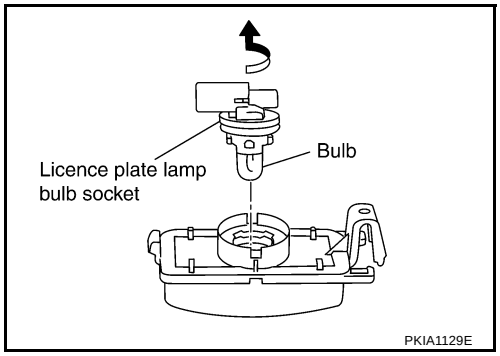
1. Remove front side marker lamp. Refer to LT-152, "FRONT SIDE MARKER LAMP" .
2. Turn bulb socket left to release lock and remove it.
3. Remove bulb.

Front side marker lamp : 12V - 3.8W

LICENSE PLATE LAMP

1. Remove license plate lamp. Refer to LT-153, "Removal" .
2. Turn bulb socket counterclockwise and unlock it.
3. Remove bulb from it's socket.

License plate lamp : 12V - 5W



FRONT TURN SIGNAL (PARKING) LAMP

For bulb replacement, refer to LT-34, "Bulb Replacement" in “HEAD LAMP (FOR USA)”.

TAIL LAMP

For bulb replacement, refer to LT-154, "Bulb Replacement" in “REAR COMBINATION LAMP”.

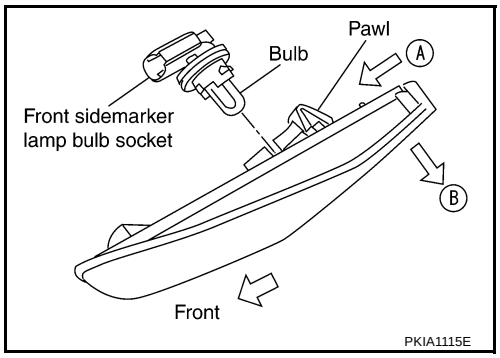
Removal and Installation

AKS005IE

FRONT SIDE MARKER LAMP

Removal

1. Insert a slotted screwdriver or similar tool into fender protector gap to push front side marker lamp pawl in direction A (see figure) while pulling in direction B. Remove from vehicle.
2. Disconnect connectors of front side marker lamp.



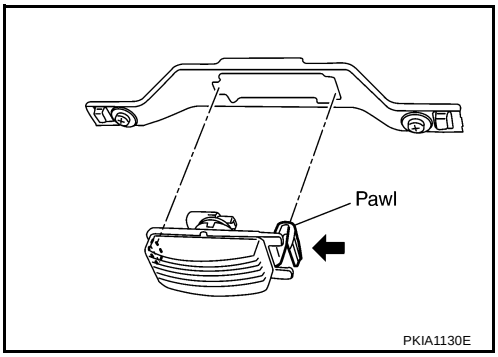
Installation

Install in the reverse order of removal.

LICENSE PLATE LAMP

Removal

1. While pressing pawl on reverse side, push license plate towards you to remove.
2. Disconnect license plate lamp connector.



Installation

Install in the reverse order of removal.

FRONT TURN SIGNAL (PARKING) LAMP

For front turn signal (parking) lamp removal and installation procedures, refer to LT-35, "Removal and Installation" in “HEAD LAMP (FOR USA)”.

TAIL LAMP

Removal

For tail lamp removal and installation procedures, refer to LT-154, "Removal and Installation" in “REAR COMBINATION LAMP”.

REAR COMBINATION LAMP

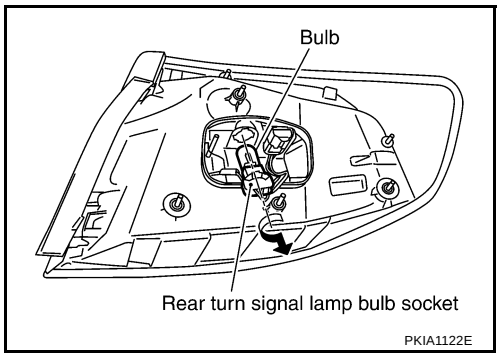
PFP:26554

Bulb Replacement

AKS00AB3

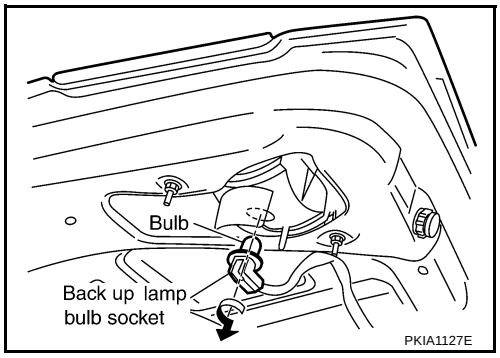
REAR FENDER SIDE (REAR TURN SIGNAL LAMP BULB)

1. Open trunk and remove trunk rear finisher. Refer to EI-47, "TRUNK ROOM TRIM & TRUNK LID FINISHER" in “EI” section.
2. Turn bulb socket counterclockwise and unlock it.
3. Remove bulb.



TRUNK LID SIDE (BACK-UP LAMP)

1. Remove trunk lid finisher. Refer to EI-47, "TRUNK ROOM TRIM & TRUNK LID FINISHER" in “EI” section.
2. Turn bulb socket counterclockwise and unlock it.
3. Remove bulb.



Stop/tail lamp (rear fender side)	**: LED (Replace together with rear combination lamp assembly.)**
Rear turn signal lamp (rear fender side)	**: 12V - 21W**
Back-up lamp (trunk lid side)	**: 12V - 18W**
Rear side marker lamp (rear fender side)	**: LED (Replace together with rear combination lamp assembly.)**

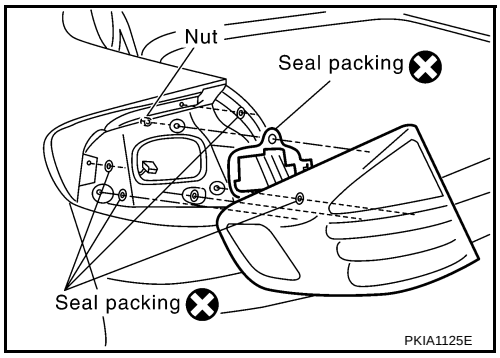
Removal and Installation

AKS00AB4

REMOVAL

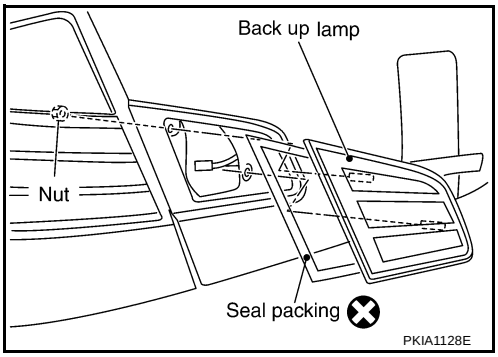
Rear Fender Side

1. Open trunk and remove trunk rear finisher. Refer to EI-47, "TRUNK ROOM TRIM & TRUNK LID FINISHER" in “EI” section.
2. Disconnect rear combination lamp connector.
3. Remove rear combination lamp installation nuts.
4. Pull the rear combination lamp toward rear of vehicle and remove from vehicle.
5. Remove seal packing from vehicle.



Trunk Lid Side

1. Remove trunk lid finisher. Refer to EI-47, "TRUNK ROOM TRIM & TRUNK LID FINISHER" in “EI” section.
2. Disconnect rear combination lamp connector.
3. Remove rear combination lamp installation nuts.
4. Remove rear combination lamp from trunk lid.
5. Remove seal packing from trunk lid.



INSTALLATION

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

- Install a new seal packing to rear combination lamp.

CAUTION:
Seal packing cannot be reused.

Rear combination lamp mounting nut:

: 3.2 N·m (0.33 kg-m, 28 in-lb)

VANITY MIRROR LAMP

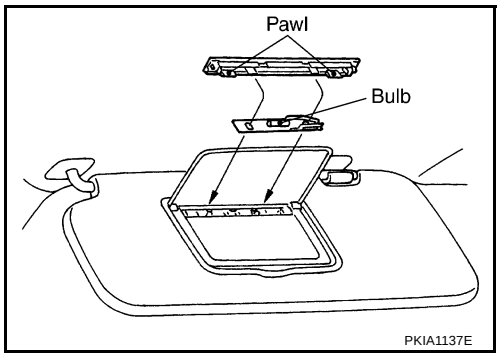
PFP:96400

Bulb Replacement

AKS000N3

1. Insert a thin screwdriver in lens end and remove lens.
2. Remove bulb together with substrate.

Vanity mirror lamp : 12V - 1.32W



MAP LAMP

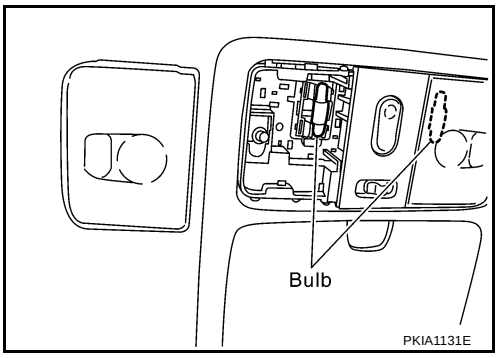
PFP:26430

Bulb Replacement of Map Lamp

AKS0092S

1. Insert a small screwdriver into lens hinge gap and remove lens.
2. Remove bulb.

Map lamp : 12V - 8W

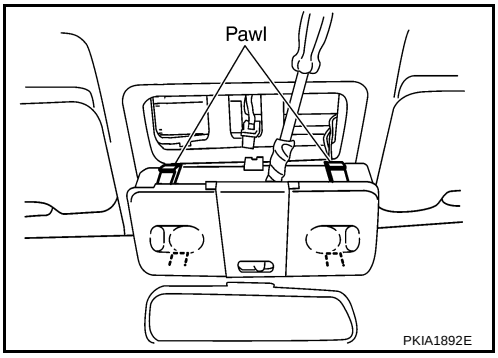


Removal and Installation of Map Lamp

AKS0092T

REMOVAL

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



INSTALLATION

Install in the reverse order of removal.

TRUNK ROOM LAMP

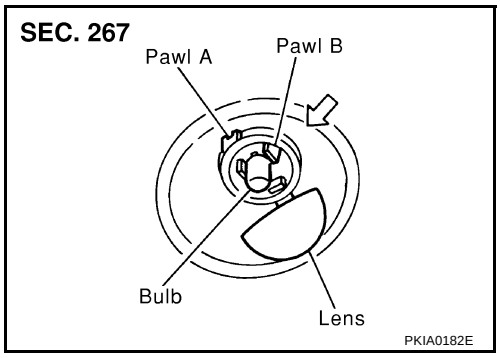
PFP:26470

Bulb Replacement, Removal and Installation of Trunk Room Lamp

AKS0092V

1. Unfold pawl A and remove lens.
2. Remove trunk room lamp while pressing pawl B in the direction of the arrow.
3. Disconnect trunk room lamp connector.

Trunk room lamp : 12V - 3.4W



PERSONAL LAMP

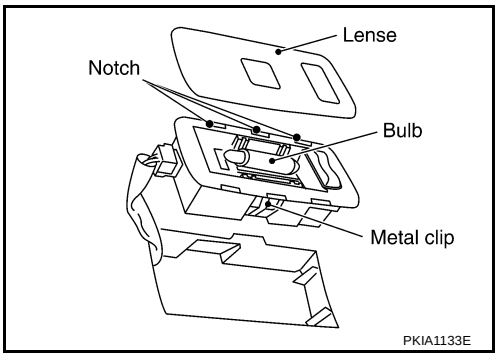
PFP:26415

Bulb Replacement

AKS000MY

1. Remove personal lamp. Refer to LT-159, "Removal and Installation" .
2. Insert a screwdriver or similar tool and remove lens.
3. Remove bulb.

Personal lamp : 12V - 8W



Removal and Installation

AKS000MZ

REMOVAL

1. Use a clip driver or similar tool to press metal clip and remove personal lamp.
2. Disconnect personal lamp connector.

INSTALLATION

Install in the reverse order of removal.

IGNITION KEY HOLE ILLUMINATION

PFP:48476

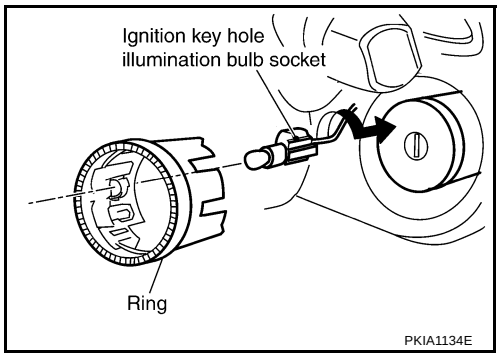
Removal and Installation

AKS000JY

REMOVAL

1. Remove cluster lid A and steering lock escutcheon. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" in “IP” section.
2. Pull out ring and turn bulb socket to left to release lock.

Key cylinder illumination : 12V - 1.4W



INSTALLATION

Install in the reverse order of removal.

GLOVE BOX LAMP

PFP:68520

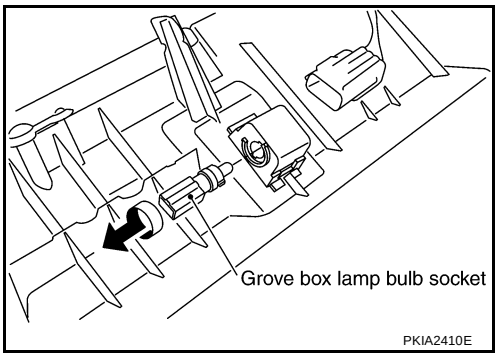
Removal and Installation

AKS000JZ

REMOVAL

1. Remove instrument lower passenger panel. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" in “IP” section.
2. Turn bulb socket left to release lock and remove it.

Glove box lamp : 12V - 1.4W



INSTALLATION

Install in the reverse order of removal.

ASHTRAY ILLUMINATION

PFP:25860

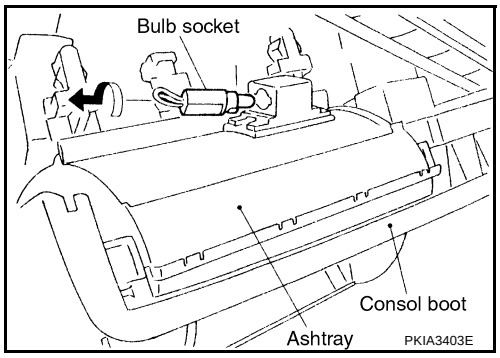
Bulb Replacement, Removal and Installation (M/T)

AKS00AB5

1. Remove console boot. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" in “IP” section.
2. Turn bulb socket counterclockwise to undo lock and remove bulb socket.

Ashtray illumination : 12V - 1.4W

3. Install in the reverse order of removal.



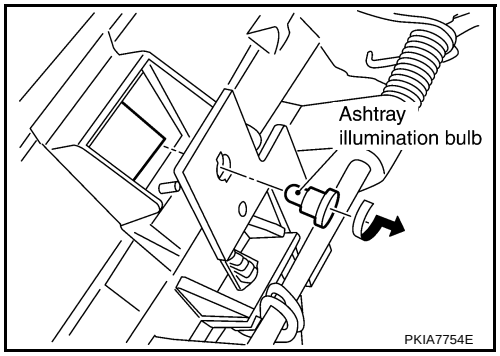
Bulb Replacement, Removal and Installation (A/T)

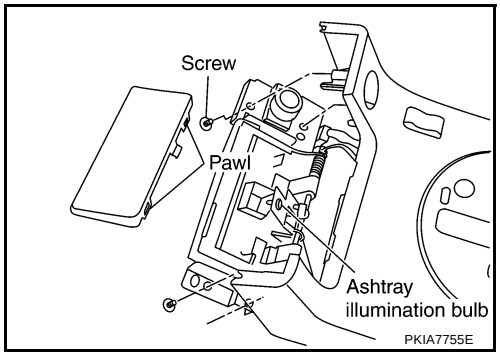
AKS00AB6

1. Remove console finisher (A/T). Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" in “IP” section.
2. Remove instrument panel ashtray. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" in “IP” section.
3. Use a screwdriver to undo ashtray finisher hooks.
4. Turn bulb socket on circuit board to left to undo lock. Remove bulb socket.

Ashtray illumination : 12V - 1.4W

5. Install in the reverse order of removal.





CIGARETTE LIGHTER ILLUMINATION

PFP:25331

Removal and Installation

AKS000K1

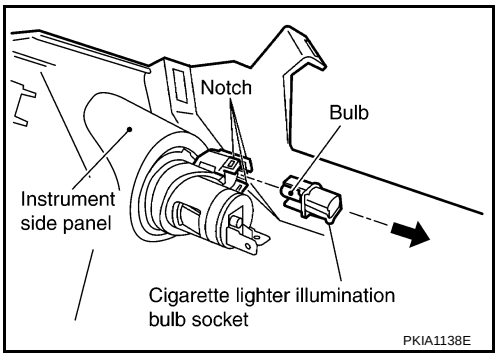
1. Remove instrument side panel. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" in “IP” section.
2. Open hooks and remove bulb socket.

Cigarette lighter illumination : 12V - 1.4W

CAUTION:

When replacing bulb, replace assembly together with illumination ring.

3. Install in the reverse order of removal.

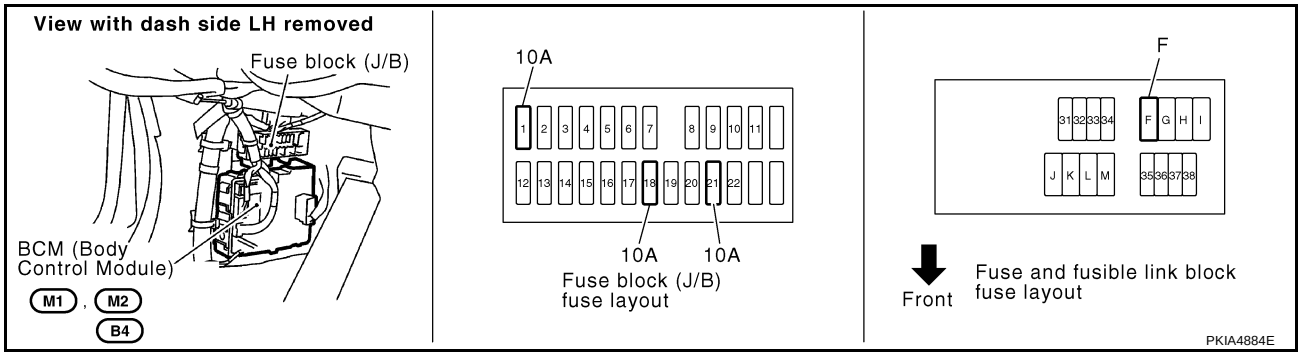


INTERIOR ROOM LAMP

PFP:26410

Component Parts and Harness Connector Location

AKS005PZ



System Description

AKS009KY

When map lamp switch is in DOOR position, map 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 map lamp turns ON, there is a gradual brightening over 1 second. When map lamp turns OFF, there is a gradual dimming over 1 second.
Map lamp timer is controlled by BCM (body control module).
Map lamp timer control settings can be changed with CONSULT-II.
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, passenger door, RH rear door, or LH rear 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

- to key switch terminal 2
- through 10A fuse [No. 21, located in fuse block (J/B)]
- to BCM (body control module) terminal 42
- through 10A fuse [No. 18, located in fuse block (J/B)]
- to BCM (body control module) terminal 55
- through 50A fusible link [letter F, located in fuse and fusible link block].

When key plate inserted to key switch, power is supplied

- to BCM (body control module) terminal 37
- through key switch terminal 1.

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

- to BCM (body control module) terminal 38
- through 10A fuse [No. 1, located in fuse block (J/B)].

Ground is supplied

- through grounds terminals M30 and M66
- to BCM (body control module) terminal 52.

When driver side door is opened, ground is supplied

- to BCM (body control module) terminal 62 and
- to combination meter terminal 7[*1]
- through case ground of door switch driver side.

When passenger side door is opened, ground is supplied

- to BCM (body control module) terminal 12 and
- to combination meter terminal 6[*1]
- through case ground of door switch passenger side.

When rear door LH is opened, ground is supplied

- to BCM (body control module) terminal 63 and
- to combination meter terminal 9[*1] and
- to personal lamp LH terminal 1
- through case ground of door switch rear door LH.

When rear door RH is opened, ground is supplied

- to BCM (body control module) terminal 13, and
- to combination meter terminal 8[*1] and
- to personal lamp RH terminal 1
- through case ground of door switch rear door RH.

NOTE:
*1: With navigation system.

When driver side door is unlocked by door lock and unlock switch, BCM (body control module) receives a ground signal (With anti pinch system for all door window)

- to power window main switch (door lock and unlock switch) terminal 15 and power window sub switch (passenger side) (door lock and unlock switch) terminal 7
- from power window main switch (door lock and unlock switch) terminal 9 and power window sub switch (passenger side) (door lock and unlock switch) terminal 11
- to BCM (body control module) terminal 22
- through grounds terminals M30 and M66.

When driver side door is unlocked by door lock and unlock switch, BCM (body control module) receives a ground signal (Except anti pinch system for all door window)

- to power window main switch (door lock and unlock switch) terminal 5 and power window sub switch (passenger side) (door lock and unlock switch) terminal 7
- from power window main switch (door lock and unlock switch) terminal 8 and power window sub switch (passenger side) (door lock and unlock switch) terminal 11
- to BCM (body control module) terminal 22
- through grounds terminals M30 and M66.

When front driver side door is unlocked by driver side door lock assembly (door key cylinder switch), BCM (body control module) receives a ground signal (With anti pinch system for all door window)

- to front door key cylinder switch (driver side) terminal 2
- through grounds M30 and M66
- to power window main switch (door lock and unlock switch) terminal 5
- through front door key cylinder switch (driver side) terminal 3
- to BCM (body control module) terminal 22
- through power window main switch (door lock and unlock switch) terminal 9.

When front driver side door is unlocked by driver side door lock assembly (door key cylinder switch), BCM (body control module) receives a ground signal (Except anti pinch system for all door window)

- to front door key cylinder switch (driver side) terminal 2
- through grounds M30 and M66
- to power window main switch (door lock and unlock switch) terminal 19
- through front door key cylinder switch (driver side) terminal 3
- to BCM (body control module) terminal 22
- through power window main switch (door lock and unlock switch) terminal 8.

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

- to map lamp terminal 2
- through BCM (body control module) terminal 48.

With power and supplied, the interior lamp illuminates.

SWITCH OPERATION

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

- to ignition keyhole illumination terminal 2

- through BCM terminal 1.

And power is supplied

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

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

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

And power is supplied

- to every step lamp driver side and passenger side terminal 1
- through BCM terminal 41.

When map lamp switch is ON, ground is supplied

- to map lamp terminal 1
- through grounds M30 and M66.

And power is supplied

- to map lamp terminal 3
- through BCM terminal 41.

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

- to rear door switch terminal 1
- through personal lamp LH and RH terminal 1.

And power is supplied

- to personal lamp LH and RH terminal 2
- through BCM terminal 41.

When vanity mirror lamp (driver side and passenger side) is ON, ground is supplied

- to vanity mirror lamp (driver side and passenger side) terminal 2
- through grounds M30 and M66.

And power is supplied

- to vanity mirror lamp (driver side and passenger side) terminal 1
- through BCM terminal 41.

When trunk room lamp SW is OPEN, ground is supplied

- to trunk room lamp SW terminal 2
- through grounds B5 and B29.

When trunk room lamp is ON, ground is supplied

- to trunk room lamp terminal 2
- through BCM terminal 64.

And power is supplied

- to trunk room lamp terminal 1
- through BCM terminal 1.

ROOM LAMP TIMER OPERATION

When map lamp switch is in DOOR position, and when all conditions below are met, BCM performs timer control (maximum 30 seconds) for map lamp ON/OFF.
In addition, when spot turns ON or OFF there is gradual brightening or dimming over 1 second.
Power is supplied

- to 10A fuse [No. 21, located in the fuse block (J/B)]
- through key switch terminal 2.

Key is removed from ignition key cylinder (key switch OFF), power will not be supplied to BCM terminal 37.
Ground is supplied

- to power window main switch (door lock and unlock switch) terminal 9*1 or
- to power window main switch (door lock and unlock switch) terminal 8*2
- through BCM terminal 22.

At the time that driver door is opened, BCM detects that driver door is unlocked. It determines that map lamp timer operation condition is met, and turns the map lamp ON for 30 seconds.
Key is in ignition key cylinder (key switch ON),
Power is supplied

- to BCM terminal 37
- through key switch terminal 1.

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

- Driver door is locked [when locked power window main switch (door lock and unlock switch) or door key cylinder switch]
- Driver door is opened (driver door switch turns ON)
- Ignition switch ON.

NOTE:
*1: With anti pinch system for all door window
*2: Except anti pinch system for all door window

INTERIOR LAMP BATTERY SAVER CONTROL

If interior lamp is left “ON”, it will not be turned out even when door is closed.
BCM turns off interior lamp automatically to save battery 30 minutes after ignition switch is turned off.
BCM controls interior lamps listed below:

- Trunk room lamp
- Vanity mirror lamp
- Map lamp
- Personal lamp

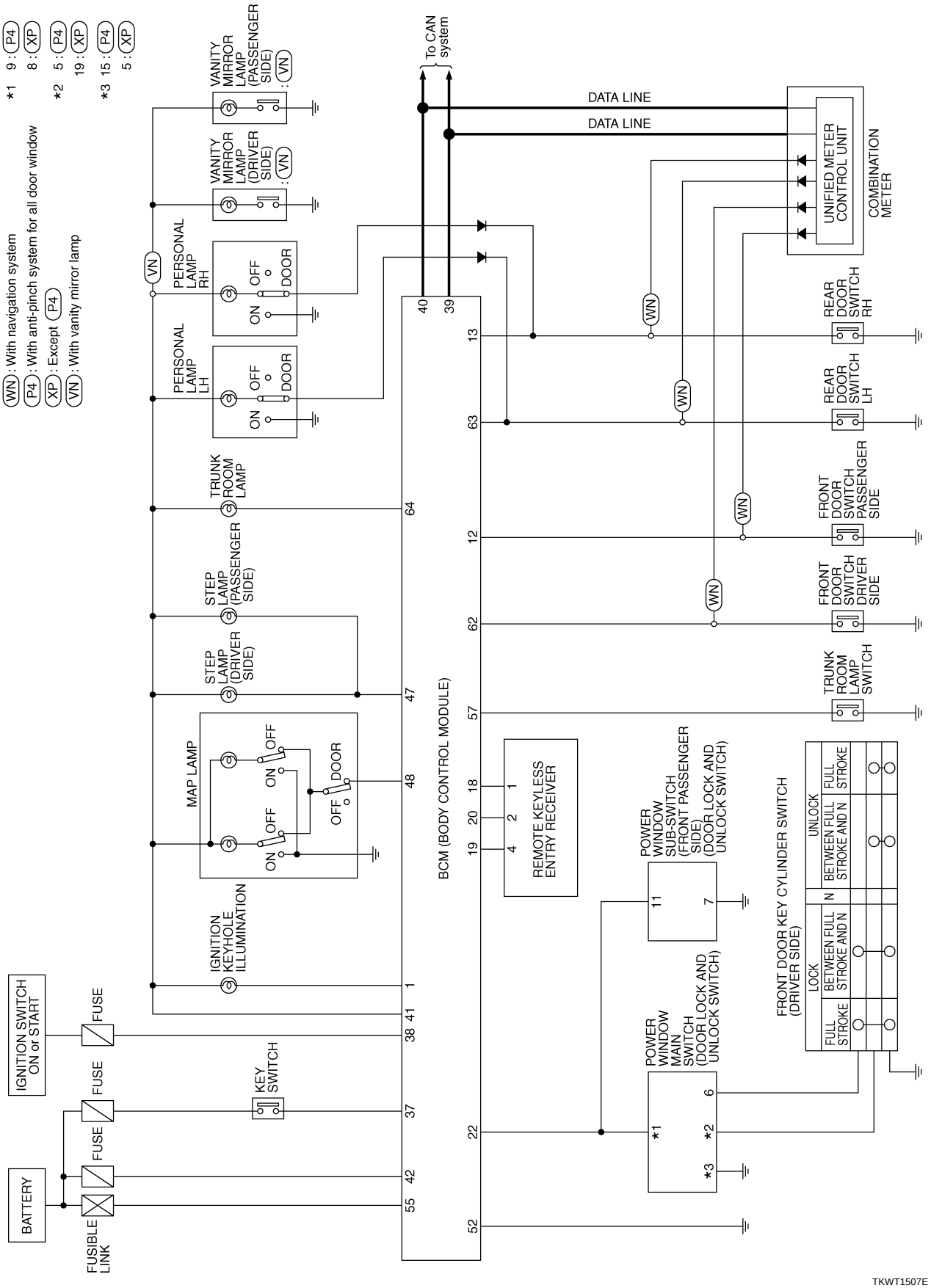
After lamps turn OFF by the battery saver system, the lamps illuminate again when

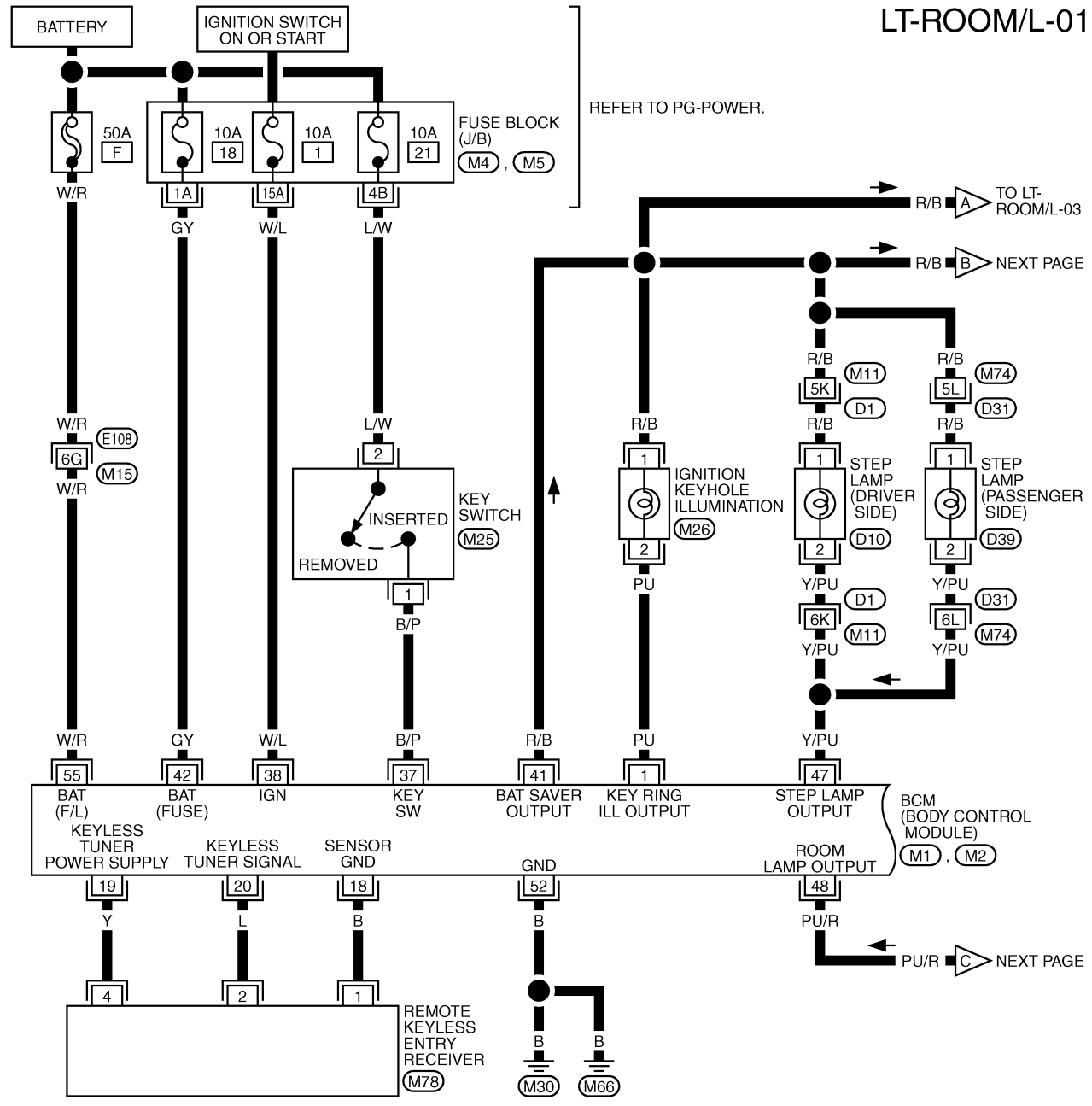
- signal from power window main switch (door lock and unlock switch) or key cylinder is locked or unlocked,
- door is opened or closed,
- key is removed from ignition key cylinder or inserted in ignition key cylinder.

Interior lamp battery saver control period can be changed by the function setting of CONSULT-II.

Schematic

AKS005Q0





1 2 M25 BR

1 2 M26 W

4 3 2 1 M78 W

1 2 D10, D39 W W

REFER TO THE FOLLOWING.

E108, D1, D31 -SUPER MULTIPLE JUNCTION (SMJ)

M4, M5 -FUSE BLOCK-JUNCTION BOX (J/B)

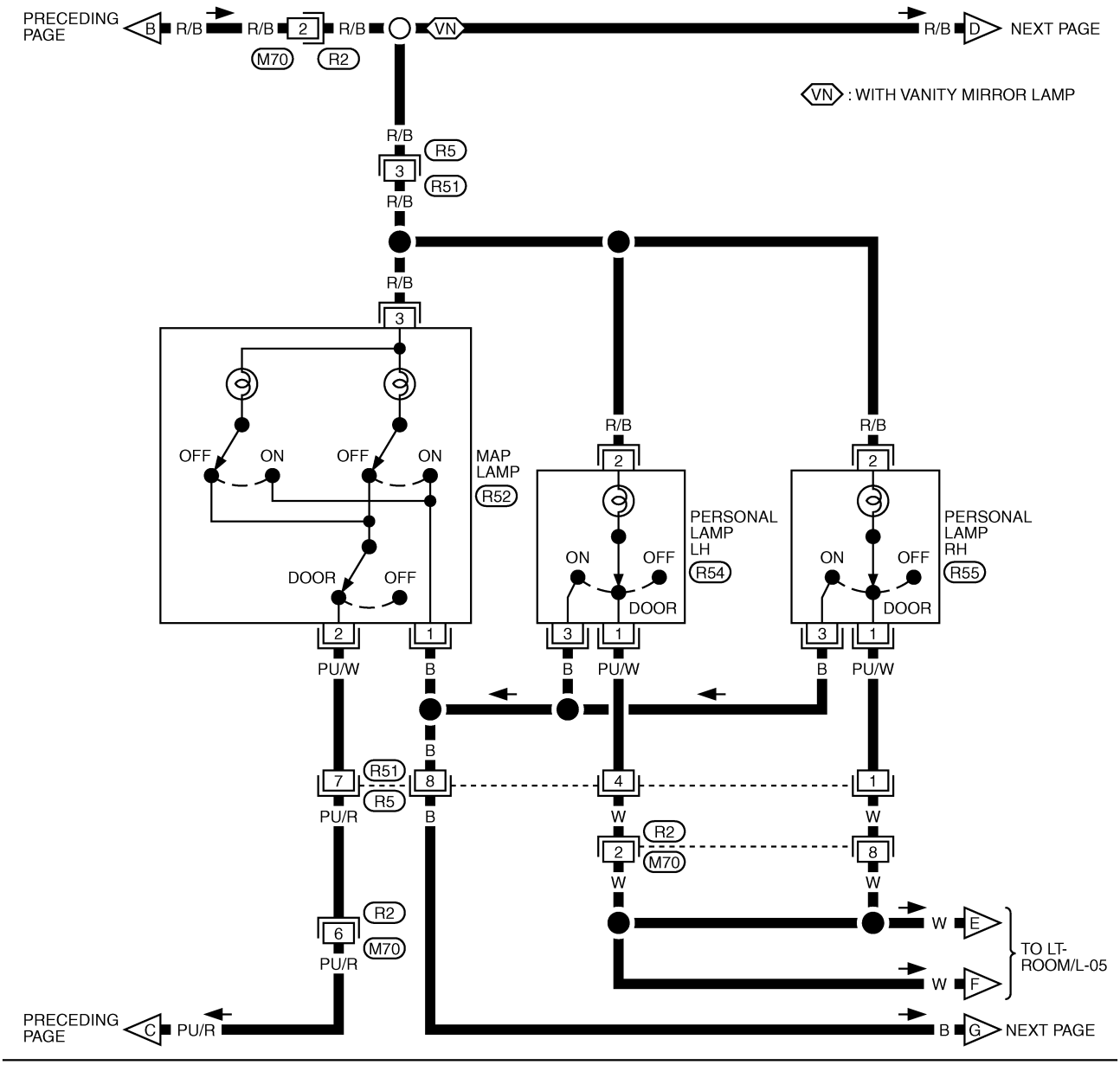
M1, M2 -ELECTRICAL UNITS

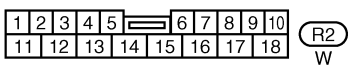
TKWT1508E

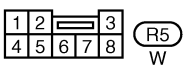
Wiring Diagram — ROOM/L —

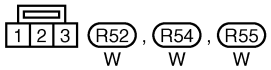
AKS005Q1

LT-ROOM/L-02



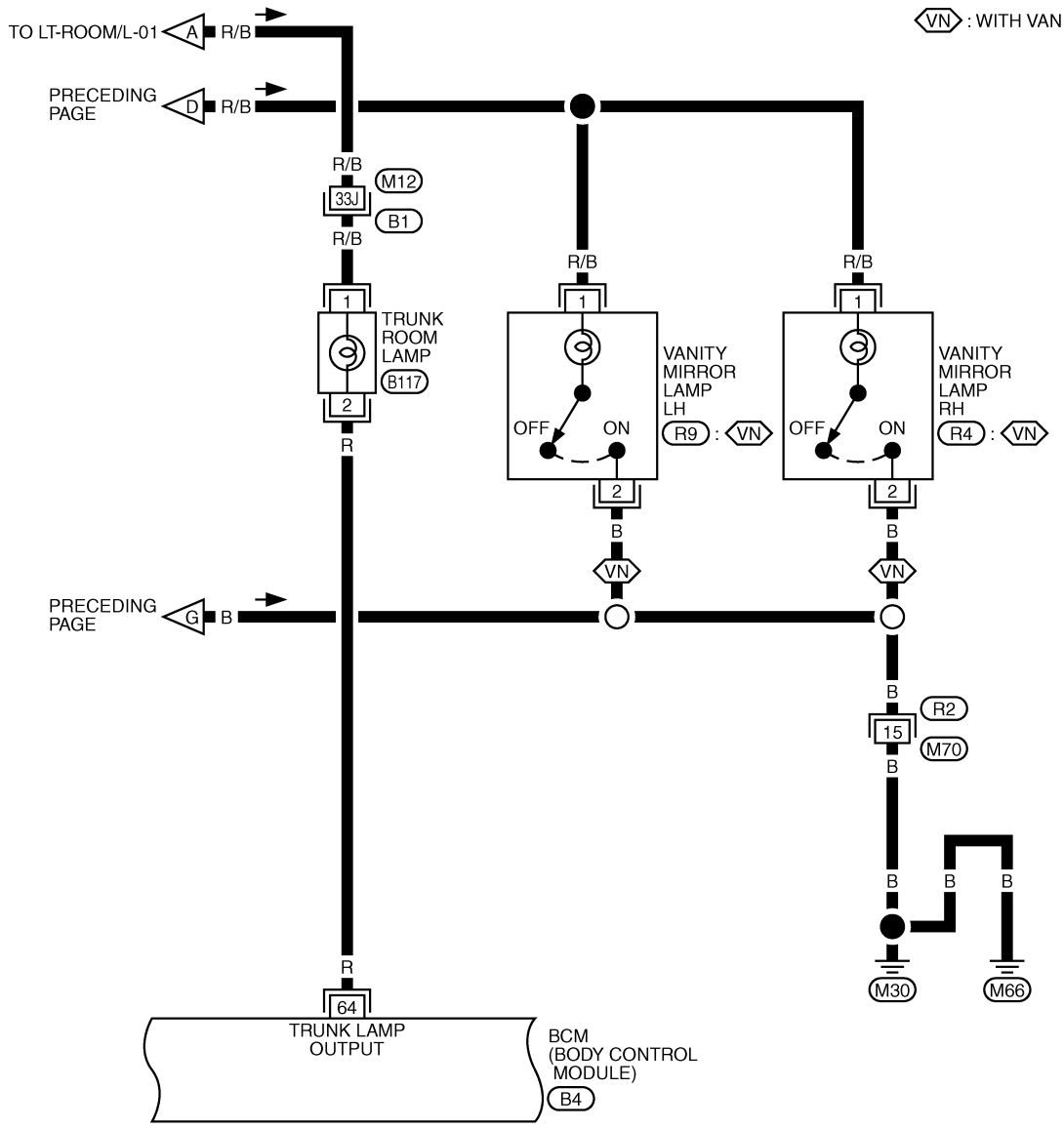


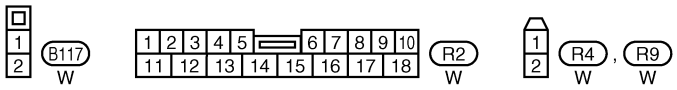




TKWT1509E

LT-ROOM/L-03





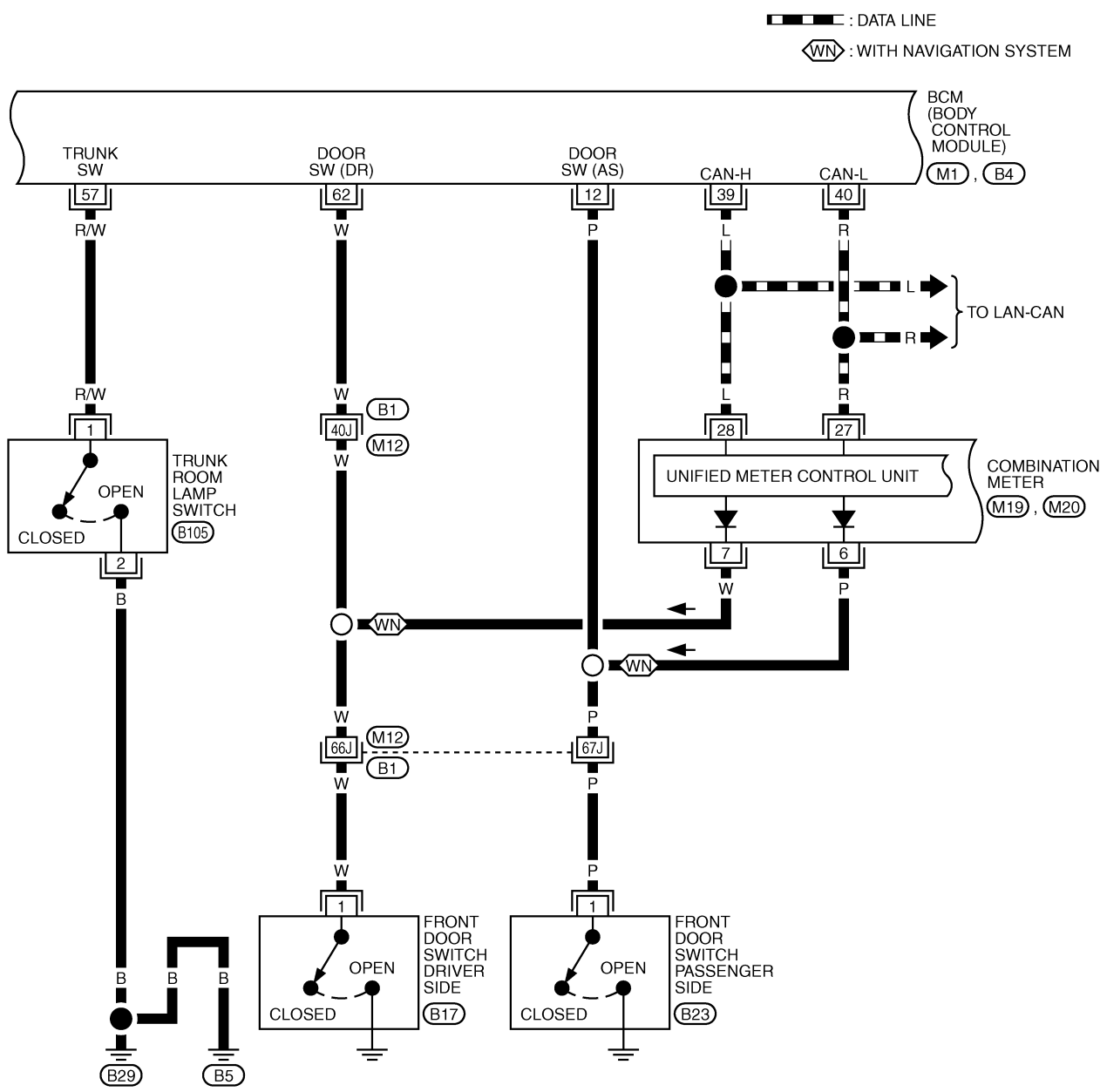
REFER TO THE FOLLOWING.

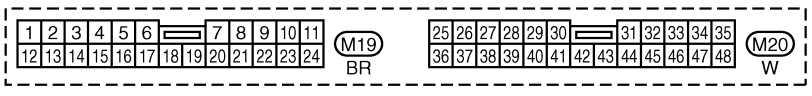
B1 -SUPER MULTIPLE JUNCTION (SMJ)

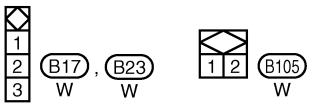
B4 -ELECTRICAL UNITS

TKWT2094E

LT-ROOM/L-04







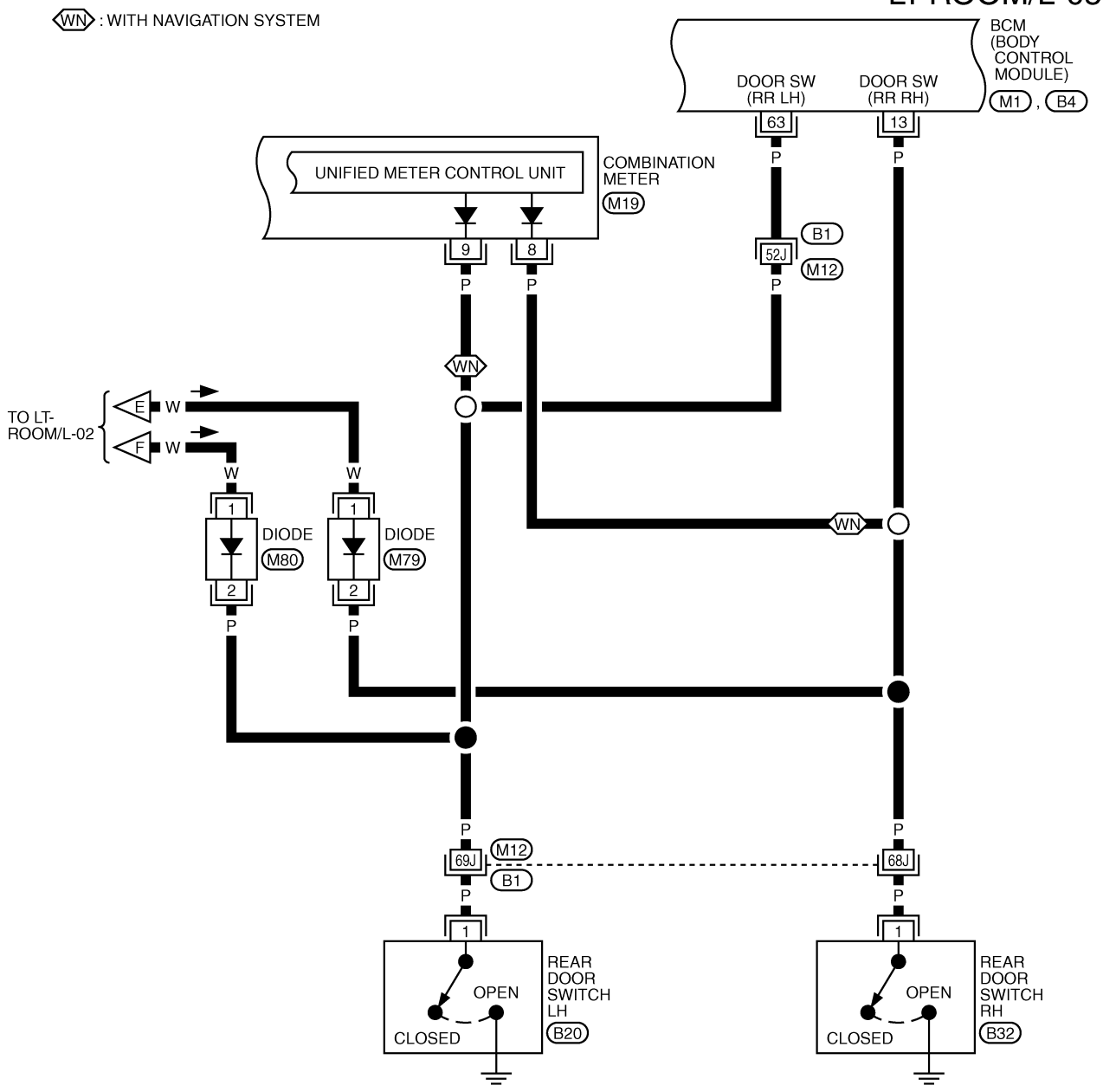
REFER TO THE FOLLOWING.

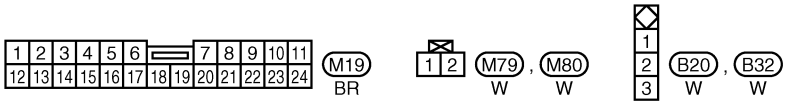
B1 -SUPER MULTIPLE JUNCTION (SMJ)

M1 , B4 -ELECTRICAL UNITS

TKWT1511E

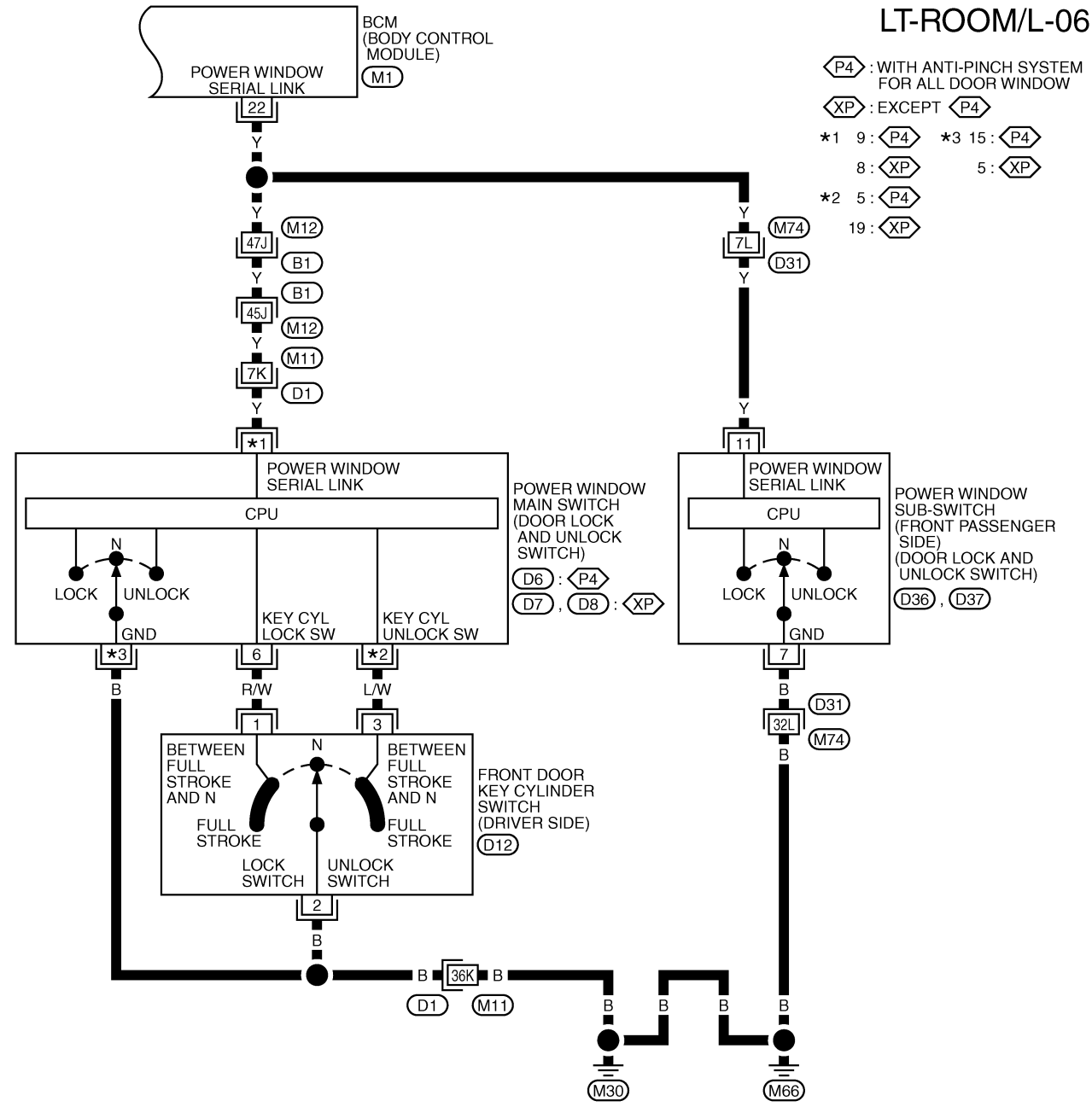
LT-ROOM/L-05

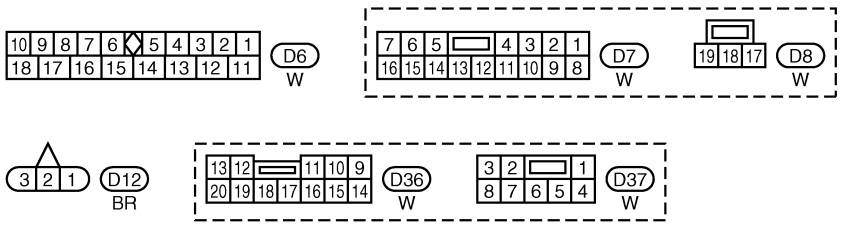




REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , B4 -ELECTRICAL UNITS

TKWT1512E





REFER TO THE FOLLOWING.

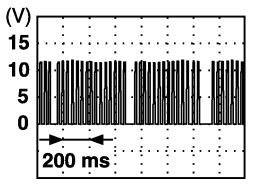
B1 , D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)

M1 -ELECTRICAL UNITS

TKWT1513E

Terminals and Reference Values for BCM

AKS009KZ

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

How to Proceed With Trouble Diagnosis

AKS009L0

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-164, "System Description" .
3. Perform the preliminary check. Refer to LT-176, "Preliminary Check" .
4. Check symptom and repair or replace the malfunctioning parts.
5. Does the interior room lamp operate normally? If YES: GO TO 6. If NO: GO TO 4.
6. INSPECTION END

Preliminary Check

AKS009L1

CHECK 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

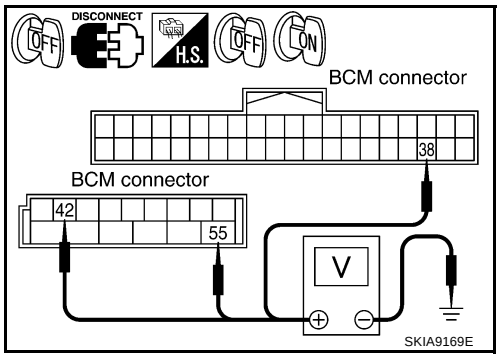
Refer to LT-170, "Wiring Diagram — ROOM/L —" .

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



Terminals			Ignition switch position	
(+)		(-)	OFF	ON
Connector	Terminal (Wire color)			
M2	42 (GY)	Ground	Battery voltage	Battery voltage
	55 (W/R)		Battery voltage	Battery voltage
M1	38 (W/L)		0V	Battery voltage

OK or NG

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

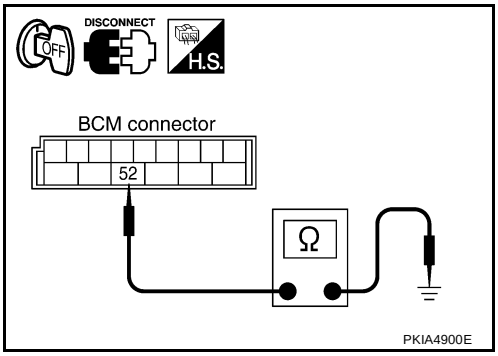
3. CHECK GROUND CIRCUIT

Check continuity between BCM and ground.

Terminals			Continuity
Connector	Terminal (Wire color)	Ground	Yes
M2	52 (B)		

OK or NG

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



CONSULT-II Functions

AKS009L2

CONSULT-II perform the following functions communicating with BCM.

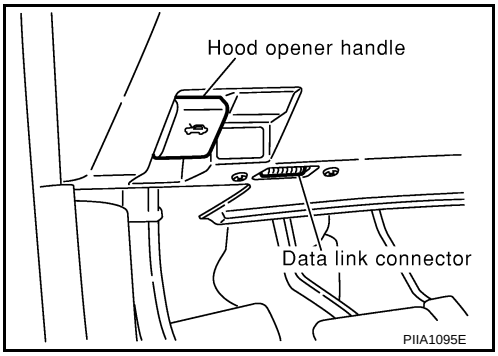
BCM diagnosis part	Check item, diagnosis mode	Description
INTERIOR LAMP	WORK SUPPORT	Changes the setting for each function.
	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending driving signal to them.

CONSULT-II BASIC OPERATION

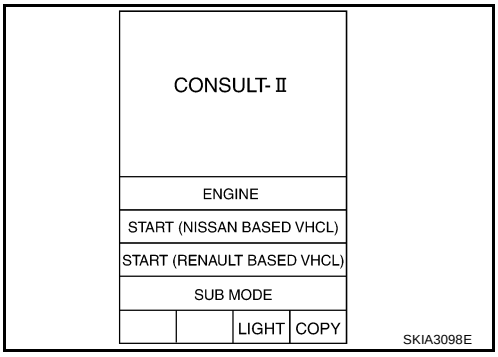
CAUTION:

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.

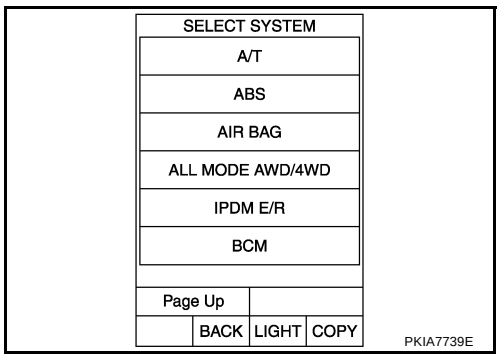
1. With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



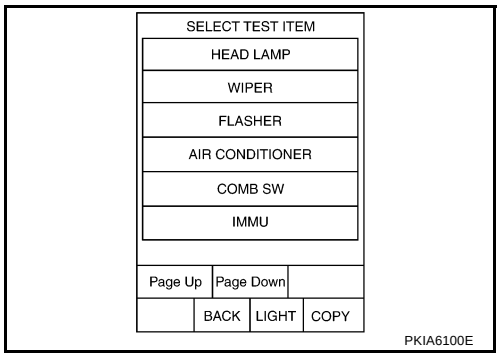
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “BCM” on “SELECT SYSTEM” screen.
If “BCM” is not indicated, refer to GI-38, "CONSULT-II Data Link Connector (DLC) Circuit" .



4. Touch “INT LAMP” on “SELECT TEST ITEM” screen.



WORK SUPPORT

Operation Procedure

1. Touch “INT LAMP” on “SELECT TEST ITEM” screen.
2. Touch “WORK SUPPORT” on “SELECT DIAG MODE” screen.
3. Touch “SET I/L D– UNLCK INTCON” on “SELECT WORK ITEM” screen.
4. Touch “START”.
5. Touch “CHANGE SETT”.
6. The setting will be changed and “CUSTOMIZING COMPLETED ” will be displayed.
7. Touch “END”.

Display Item List

Item	Description	CONSULT-II
SET I/L D–UNLCK INTCON	The 30 seconds glowing function interior room lamps and ignition keyhole illumination can be selected when driver door is released (unlocked).	ON/OFF
TURN ON TIME	The time in order to escalate illumination can be adjusted when interior room lamps and ignition keyhole illumination is turned on.	MODE 1 – 7
TURN OFF TIME	The time in order to diminish illumination can be adjusted when interior room lamps and ignition keyhole illumination is turned off.	MODE 1 – 7

Reference between “MODE” and “TIME” for “TURN ON/OFF”

MODE	1	2	3	4	5	6	7
Time (sec.)	0.5	1	2	3	4	5	0

DATA MONITOR

Operation Procedure

1. Touch “INT LAMP” on “SELECT TEST ITEM” screen.
2. Touch “DATA MONITOR” on “SELECT DIAG MODE” screen.
3. Touch either “ALL SIGNALS” or “SELECTION FROM MENU” on “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 items will be monitored.
6. Touch “RECORD” while monitoring, then the status of monitored item can be recorded. To stop recording, touch “STOP”.

Display Item List

Monitor item		Contents
IGN ON SW	“ON/OFF”	Displays “IGN position (ON)/OFF, ACC position (OFF)” judged from ignition switch signal.
KEY ON SW	“ON/OFF”	Displays “Key inserted (ON)/key removed (OFF)” status judged from key switch signal.
DOOR SW - DR	“ON/OFF”	Displays status of driver door as judged from driver door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - AS	“ON/OFF”	Displays “Door open (ON)/Door closed (OFF)” status, determined from passenger door switch signal.
DOOR SW - RR	“ON/OFF”	Displays “Door open (ON)/Door closed (OFF)” status, determined from rear door switch RH signal.
DOOR SW - RL	“ON/OFF”	Displays “Door open (ON)/Door closed (OFF) ” status, determined from rear door switch LH signal.
BACK DOOR SW[Note 1]	“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.

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

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

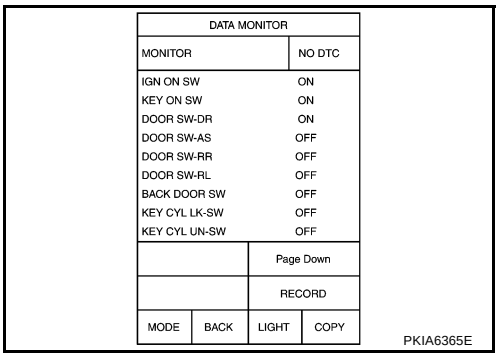
Test item	Description
INT LAMP	Interior room lamp can be operated by any ON-OFF operations.
IGN ILLUM	Ignition key hole illumination can be operated by ON– OFF operation.

Map Lamp Control Does Not Operate

AKS009L3

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-179, "Display Item List" for switches and their functions.



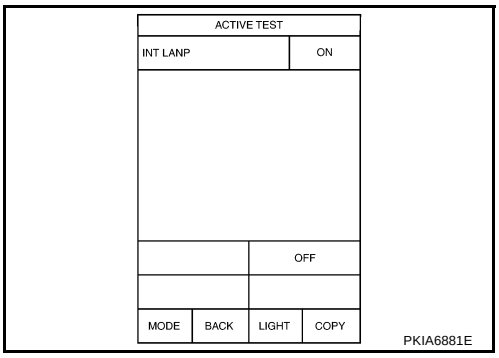
OK or NG

OK >> GO TO 2.
NG >> Inspect malfunctioning switch system.

2. ACTIVE TEST

1. Select “BCM” on CONSULT-II. Select “INT LAMP” active test.
2. When map lamp switch is in “DOOR” position, use active test to make sure map lamp operates.

Map lamp should operate.



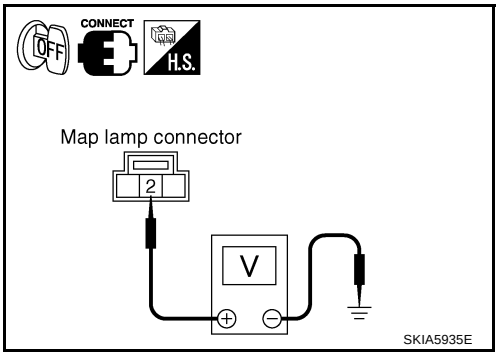
OK or NG

OK >> Replace BCM. Refer to BCS-15, "Removal and Installation of BCM" .
NG >> GO TO 3.

3. CHECK MAP LAMP INPUT

1. Turn ignition switch OFF.
2. Check voltage between map lamp harness connector R52 terminal 2 (PU/W) and ground.

2 (PU/W) - Ground : Battery voltage should exist.



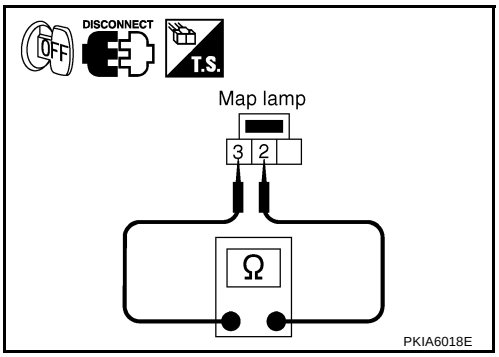
OK or NG

OK >> GO TO 6.
NG >> GO TO 4.

4. CHECK MAP LAMP

1. Disconnect map lamp connector.
2. Check continuity between map lamp.

Terminal		Condition	Continuity
Map lamp			
2	3	Map lamp switch is DOOR	Yes
		Map lamp switch is ON	No



OK or NG

OK >> GO TO 5.
NG >> Replace Map lamp.

5. CHECK MAP LAMP CIRCUIT

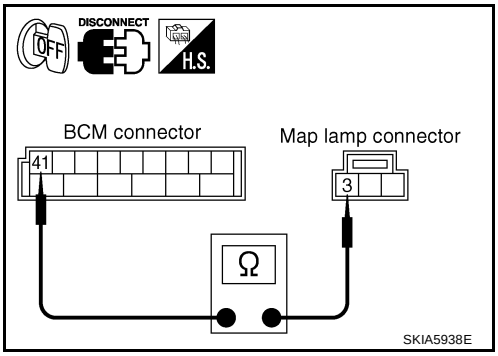
1. Disconnect BCM connector and map lamp connector.
2. Check continuity between BCM harness connector M2 terminal 41 (R/B) and map lamp harness connector R52 terminal 3 (R/B).

41 (R/B) - 3 (R/B) : Continuity should exist.

OK or NG

OK >> Replace BCM if map lamp does not work after setting the connector again. Refer to BCS-15, "Removal and Installation of BCM" .

NG >> Repair harness or connector.



6. CHECK MAP LAMP CIRCUIT

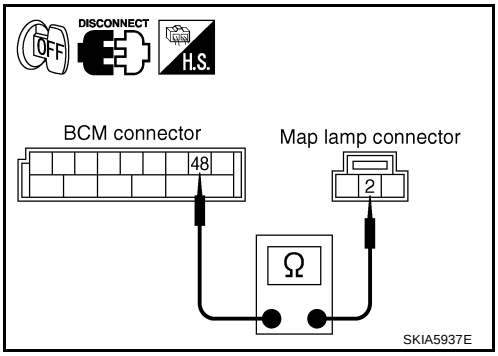
1. Disconnect BCM connector.
2. Check continuity between BCM harness connector M2 terminal 48 (PU/R) and map lamp harness connector R52 terminal 2 (PU/W).

48 (PU/R) - 2 (PU/W) : Continuity should exist.

OK or NG

OK >> Replace BCM if map lamp does not work after setting the connector again. Refer to BCS-15, "Removal and Installation of BCM" .

NG >> Repair harness or connector.



Ignition key Hole illumination Control Does Not Operate

AKS009L5

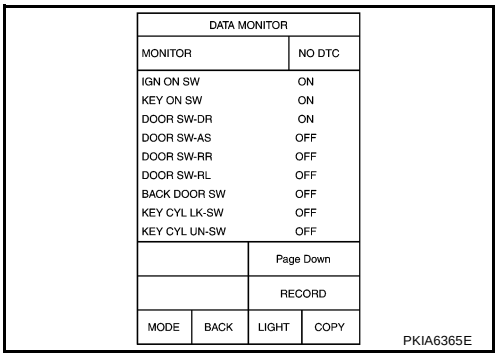
1. CHECK EACH SWITCH

Select “BCM” on CONSULT-II. With “INT LAMP” data monitor, make sure switches listed in display item list turn ON-OFF linked with switch operation. Refer to LT-179, "Display Item List" for switches and their functions.

OK or NG

OK >> GO TO 2.

NG >> Inspect malfunctioning switch system.



2. ACTIVE TEST

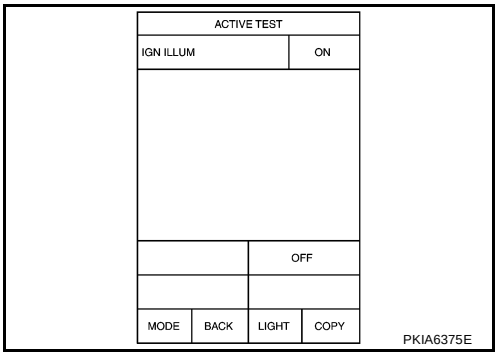
1. Select “BCM” on CONSULT-II. Select “INT LAMP”.
2. Select “IGN ILLUM” active test to make sure lamp operates.

Ignition key hole illumination should operate.

OK or NG

OK >> Replace BCM.

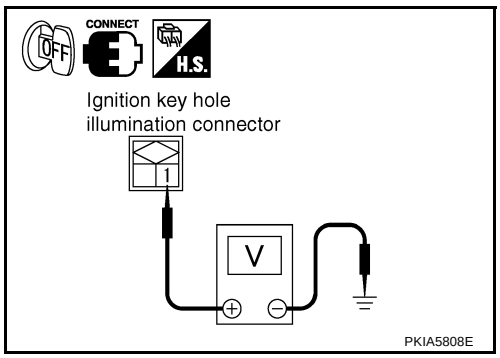
NG >> GO TO 3.



3. CHECK IGNITION KEY HOLE ILLUMINATION INPUT

1. Turn ignition switch OFF.
2. Open the driver side door.
3. Check voltage between ignition key hole illumination harness connector M26 terminal 1 (R/B) and ground.

1 (R/B) - Ground : Battery voltage should exist.



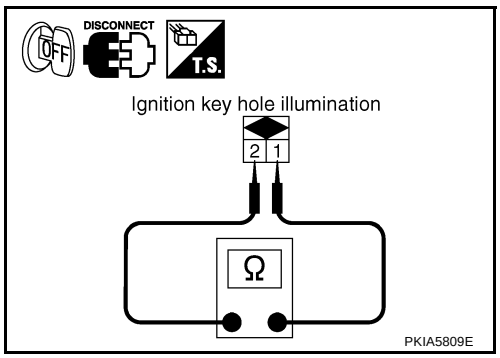
OK or NG

OK >> GO TO 4.
NG >> GO TO 6.

4. CHECK IGNITION KEY HOLE ILLUMINATION BULB

1. Disconnect ignition key hole illumination connector.
2. Check continuity between ignition key hole illumination terminal 1 and 2.

1 - 2 : Continuity should exist.



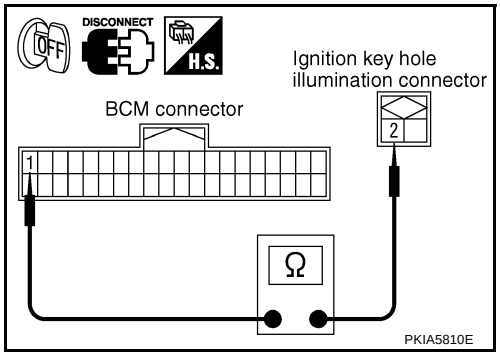
OK or NG

OK >> GO TO 5.
NG >> Replace ignition key hole illumination. Refer to LT-160, "Removal and Installation" .

5. CHECK IGNITION KEY HOLE ILLUMINATION CIRCUIT

1. Disconnect BCM connector and key hole illumination connector.
2. Check continuity between BCM harness connector M1 terminal 1 (PU) and key hole illumination harness connector M26 terminal 2 (PU).

1 (PU) - 2 (PU) : Continuity should exist.



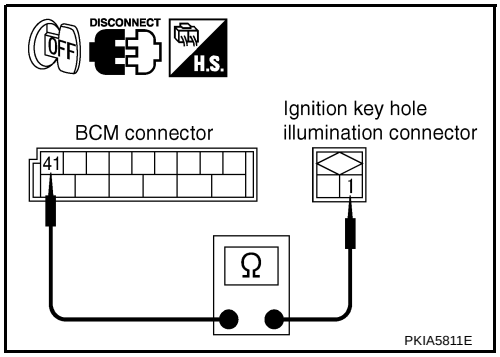
OK or NG

OK >> Replace BCM if ignition key hole illumination does not work after setting the connector again. Refer to BCS-15, "Removal and Installation of BCM" .
NG >> Repair harness or connector.

6. CHECK IGNITION KEY HOLE ILLUMINATION CIRCUIT

1. Disconnect BCM connector and key hole illumination connector.
2. Check continuity between BCM harness connector M2 terminal 41 (R/B) and key hole illumination harness connector M26 terminal 1 (R/B).

41 (R/B) - 1 (R/B) : Continuity should exist.



OK or NG

OK >> Replace BCM if ignition key hole illumination does not work after setting the connector again. Refer to BCS-15, "Removal and Installation of BCM" .
NG >> Repair harness or connector.

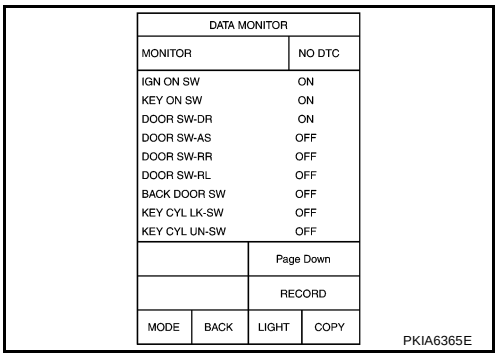
All Step Lamps Does Not Operate

AKS009L6

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



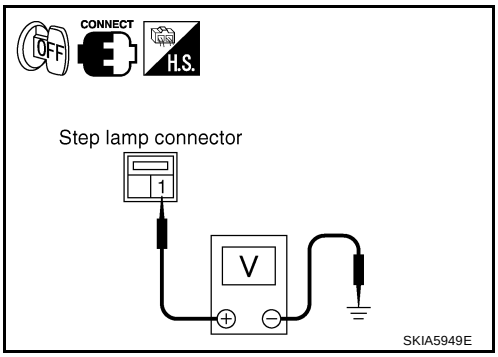
OK or NG

OK >> GO TO 2.
NG >> Inspect malfunctioning switch system.

2. CHECK STEP LAMP INPUT

1. Turn ignition switch OFF.
2. Check voltage between front door driver side step lamp harness connector D10 terminal 1 (R/B) and ground.

1 (R/B) - Ground : Battery voltage should exist.



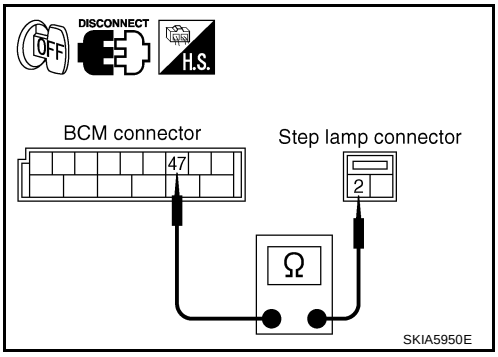
OK or NG

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

3. CHECK STEP LAMP CIRCUIT

1. Disconnect BCM connector and front door driver side step lamp connector.
2. Check continuity between BCM harness connector M2 terminal 47 (Y/PU) and front door driver side step lamp harness connector D10 terminal 2 (Y/PU).

47 (Y/PU) - 2 (Y/PU) : Continuity should exist.



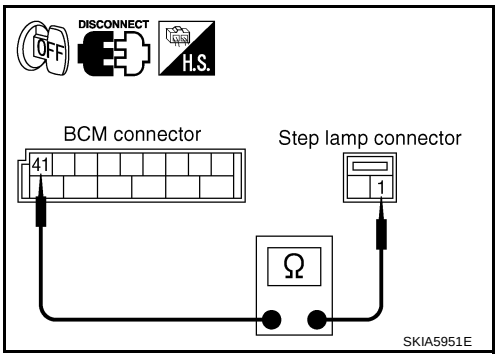
OK or NG

OK >> Replace BCM if step lamps does not work after setting the connector again. Refer to BCS-15, "Removal and Installation of BCM" .
NG >> Repair harness or connector.

4. CHECK STEP LAMP CIRCUIT

1. Disconnect BCM connector and step lamp connector.
2. Check continuity between BCM harness connector M2 terminal 41 (R/B) and front door driver side step lamp harness connector D10 terminal 1 (R/B).

41 (R/B) - 1 (R/B) : Continuity should exist.



OK or NG

OK >> Replace BCM if step does not work after setting the connector again. Refer to BCS-15, "Removal and Installation of BCM" .
NG >> Repair harness or connector.

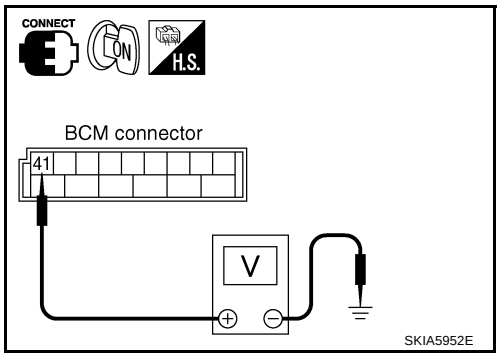
All Interior Room Lamps Does Not Operate

AKS009L7

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 M2 terminal 41 (R/B) and ground.

41 (R/B) 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-15, "Removal and Installation of BCM" .

Bulb Replacement

AKS009L8

MAP LAMP

Refer to LT-157, "Bulb Replacement of Map Lamp" in “MAP LAMP”.

Removal and Installation

AKS009L9

MAP LAMP

Refer to LT-157, "Removal and Installation of Map Lamp" in “MAP LAMP”.

ILLUMINATION

PFP:27545

System Description

AKS009MR

Control of illumination lamps operation is dependent upon the position of lighting switch (combination switch). When lighting switch is placed in 1ST or 2ND position (or if auto light system is activated) BCM (body control module) receives input signal requesting illumination lamps to illuminate. This input signal is communicated to IPDM E/R (intelligent power distribution module engine room) across CAN communication lines. CPU (central processing unit) of IPDM E/R (intelligent power distribution module engine room) controls tail lamp relay coil. This relay, when energized, directs power to illumination lamps, which then illuminate.

Power is supplied at all times

- to tail 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)].

Power is also supplied at all times

- to BCM (body control module) terminal 55
- through 50A fusible link (letter F, located in fuse and fusible link block)
- to BCM (body control module) terminal 42
- through 15A fuse[No.18 located in fuse block (J/B)]
- 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)].

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

- to BCM (body control module) terminal 38
- through 10A fuse [No. 1, located in fuse block (J/B)]
- to ignition relay [located in IPDM E/R (intelligent power distribution module engine room)]
- through ignition switch
- to combination meter terminal 41 and 42
- through 10A fuse [No. 14 located in fuse block (J/B)]
- to display and A/C auto amp. terminal 27
- to NAVI control unit terminal 27 (with NAVI)
- through 10A fuse [No.12 located in fuse block (J/B)].

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

- to BCM (body control module) terminal 11
- to combination meter terminal 40
- to NAVI control unit terminal 6 (with NAVI)
- to display unit terminal 19 (with NAVI)
- through 10A fuse [No. 6, located in fuse block (J/B)].

Ground is supplied

- to BCM (body control module) terminal 52
- to display and A/C auto amp. terminal 24
- to combination meter terminal 45, 46, and 47
- to NAVI control unit terminal 1 and 4 (with NAVI)
- to display unit terminal 22 and 24 (with NAVI)
- through grounds M30 and M66
- to IPDM E/R (intelligent power distribution module engine room) terminals 38 and 60
- through grounds E17 and E43.

ILLUMINATION OPERATION BY LIGHTING SWITCH

With lighting switch in 1ST or 2ND position (or if auto light system is activated), BCM receives input signal requesting illumination lamps to illuminate. This input signal is communicated to IPDM E/R across CAN communication lines. CPU of IPDM E/R controls tail lamp relay coil, which, when energized, directs power

- to glove box lamp terminal 1
- to A/T device (illumination) terminal 1

- to illumination control switch (illumination) terminal 1
- to VDC off switch (illumination) terminal 3 (with VDC)
- to clock (illumination) terminal 4
- to hazard switch (illumination) terminal 7
- 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 A/C and audio controller (illumination) terminal 9
- to audio unit terminal 8
- to display and A/C auto amp. terminal 28
- to cigarette lighter socket terminal 3
- to ashtray (illumination) terminal 1
- to NAVI control unit (illumination) terminal 9 (with NAVI) and
- to NAVI switch RH (illumination) terminal 2 (with NAVI)
- through IPDM E/R terminal 22.

Ground is supplied at all times

- to ashtray (illumination) terminal 2 and
- to illumination control switch terminal 3
- through grounds M30 and M66.

With power and ground supplied, illumination lamps illuminate.

EXTERIOR LAMP BATTERY SAVER CONTROL

When combination switch (lighting switch) is in 1ST or 2ND position (or if auto light system is activated), and ignition switch is turned from ON or ACC to OFF, the battery saver control function is activated.
Under this condition, illumination lamps remain illuminated for 5 minutes, then illumination lamps are turned off.
When 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 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

AKS009MS

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 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.

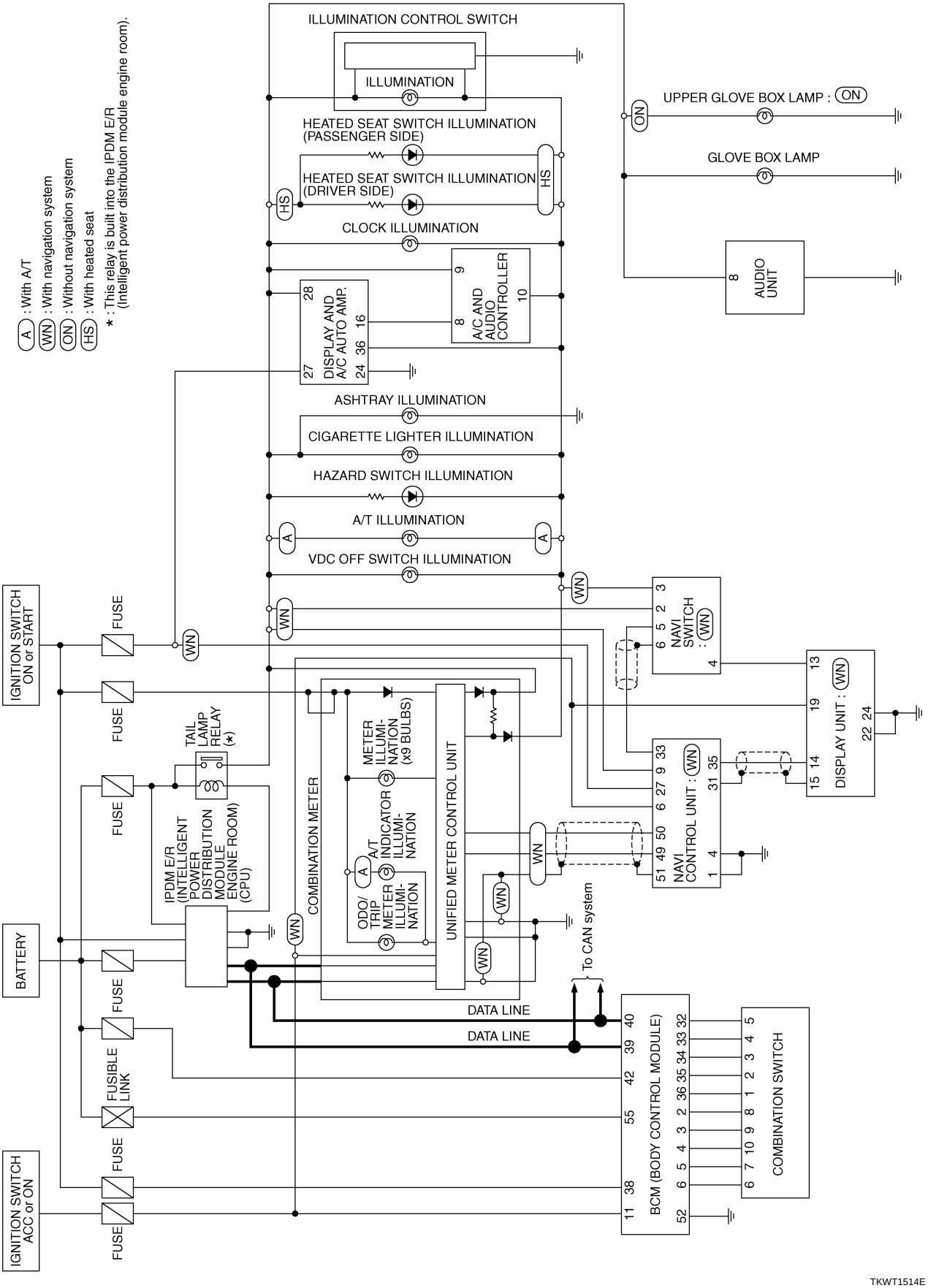
CAN Communication Unit

AKS0093P

Refer to LAN-5, "CAN Communication Unit" .

Schematic

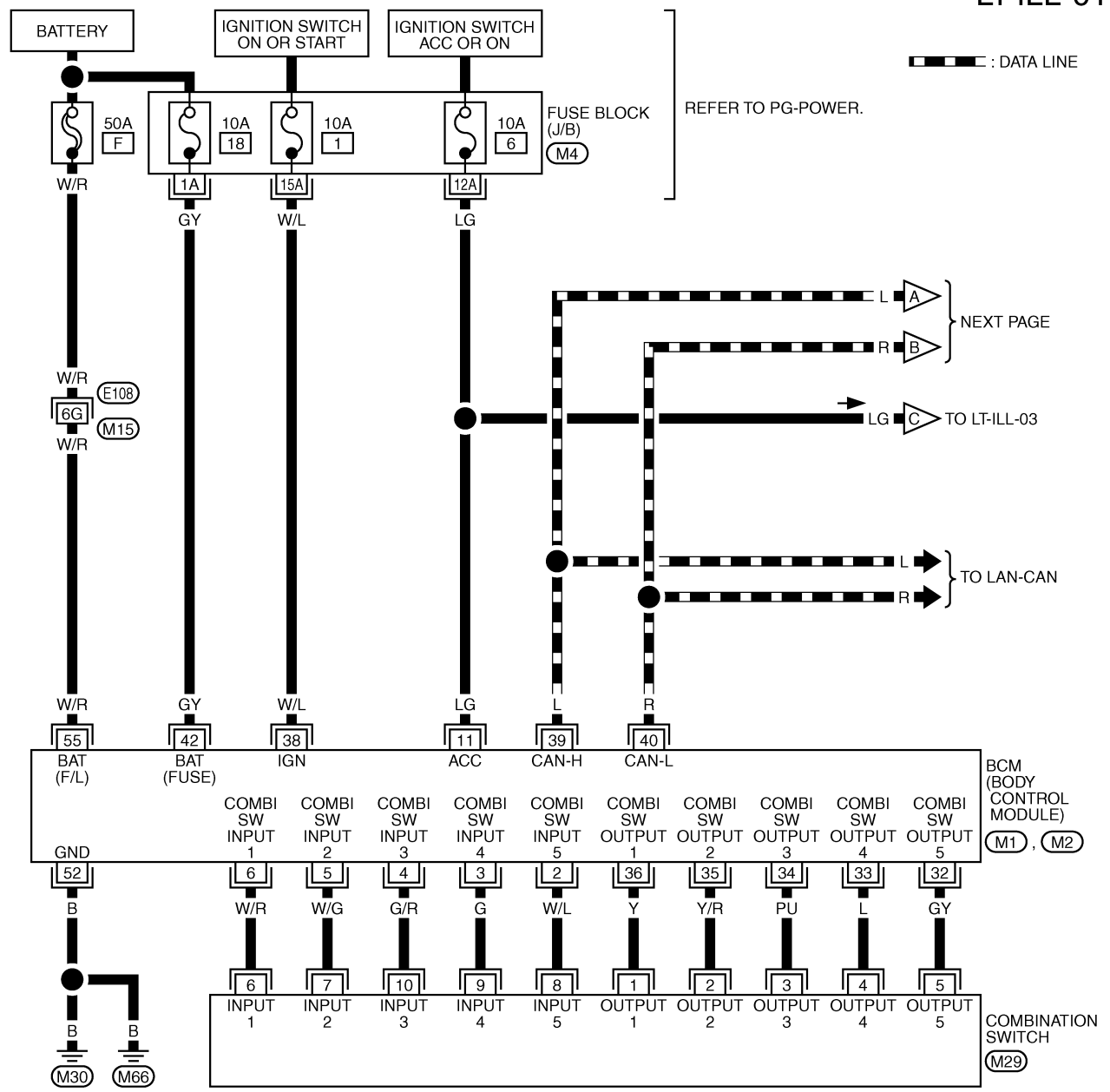
AKS009MT

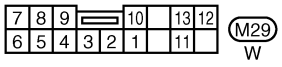


Wiring Diagram — ILL —

AKS009MU

LT-ILL-01





REFER TO THE FOLLOWING.

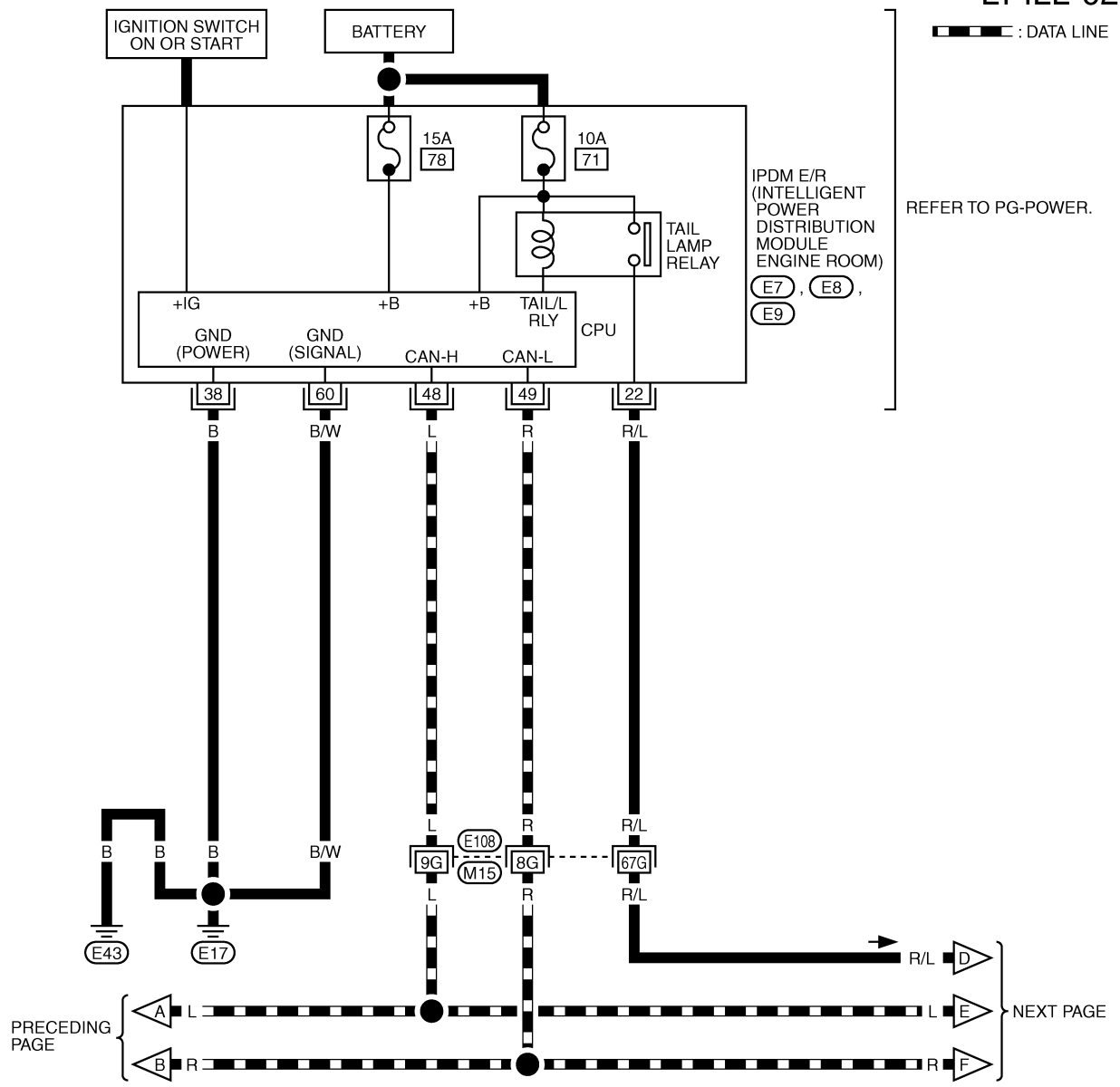
E108 -SUPER MULTIPLE JUNCTION (SMJ)

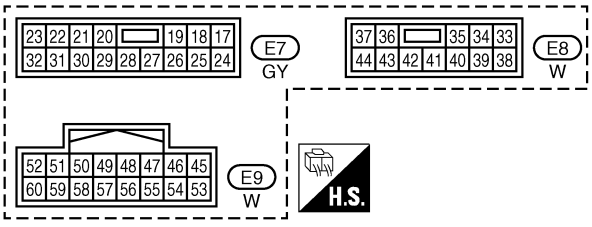
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

M1 , M2 -ELECTRICAL UNITS

TKWT1515E

LT-ILL-02

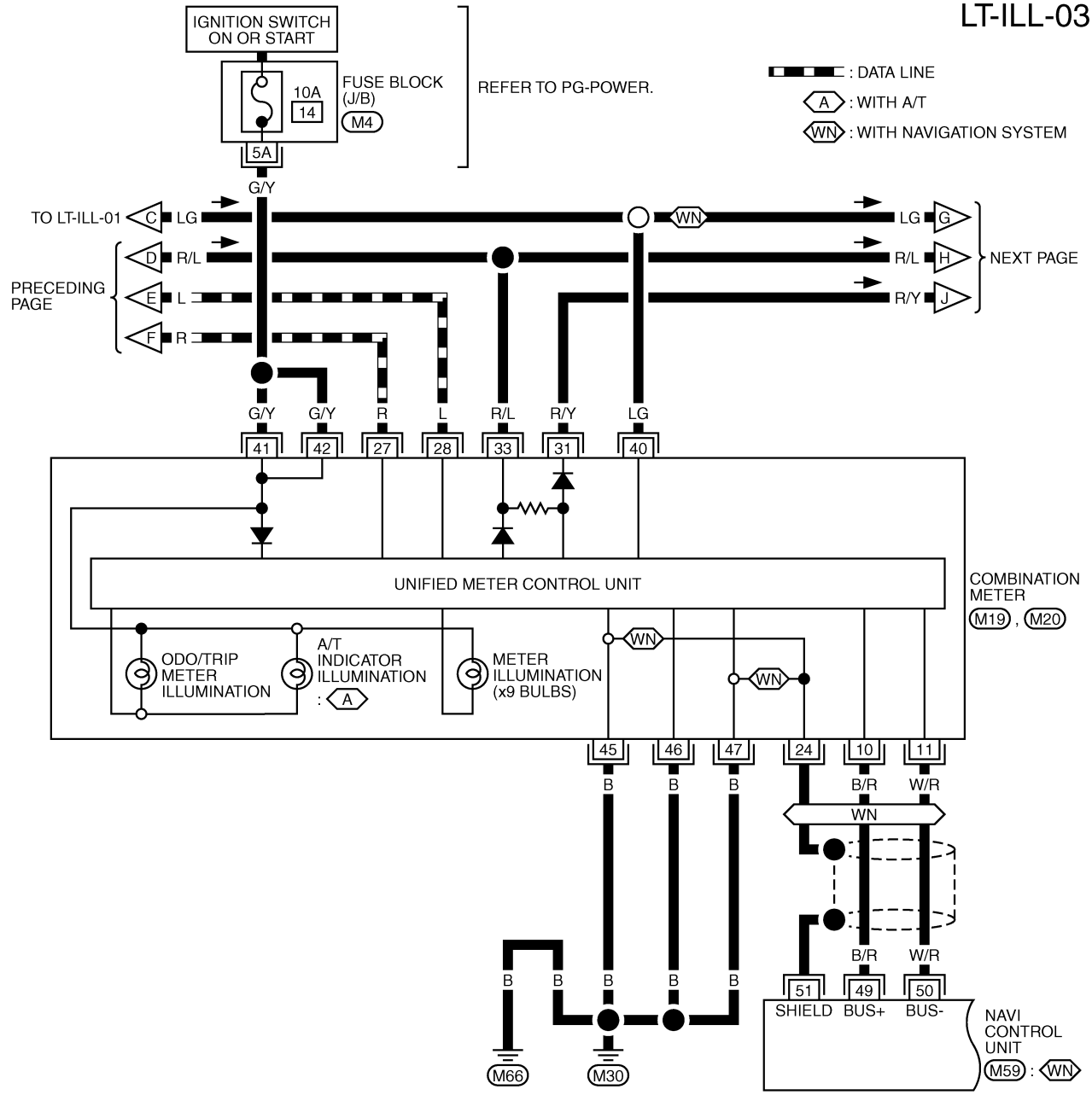


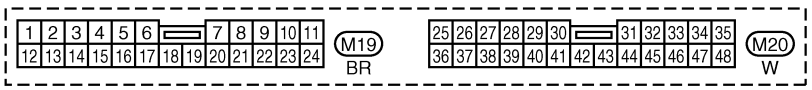


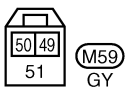
REFER TO THE FOLLOWING.
E108 -SUPER MULTIPLE JUNCTION (SMJ)

TKWT1516E

LT-ILL-03





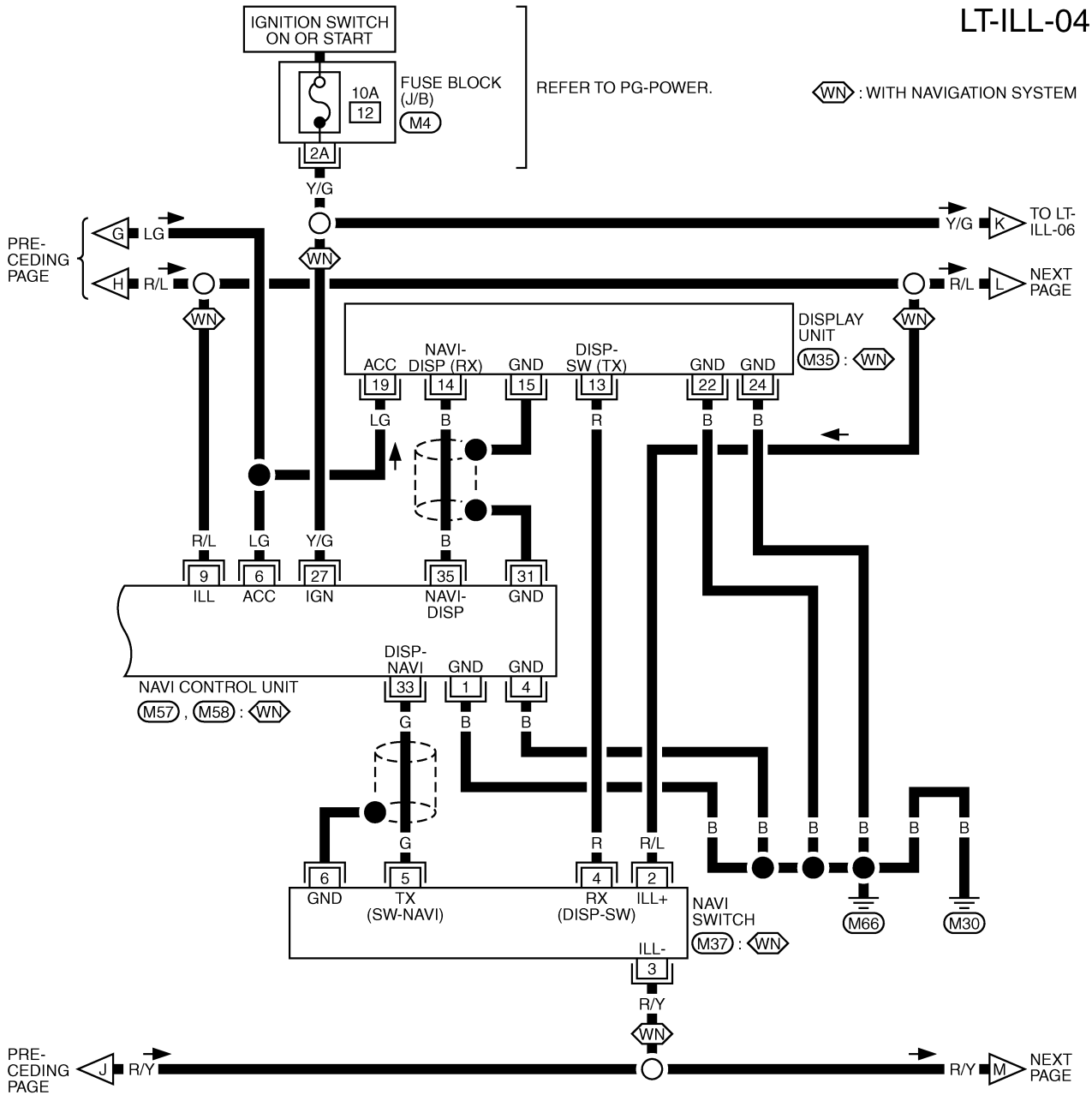


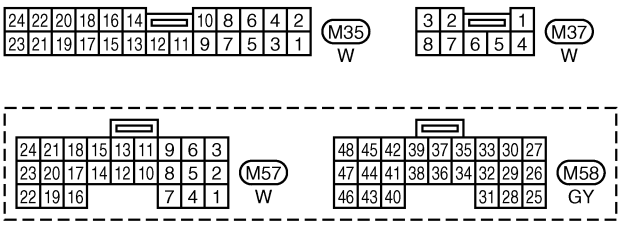
REFER TO THE FOLLOWING.

M4 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWT2095E

LT-ILL-04



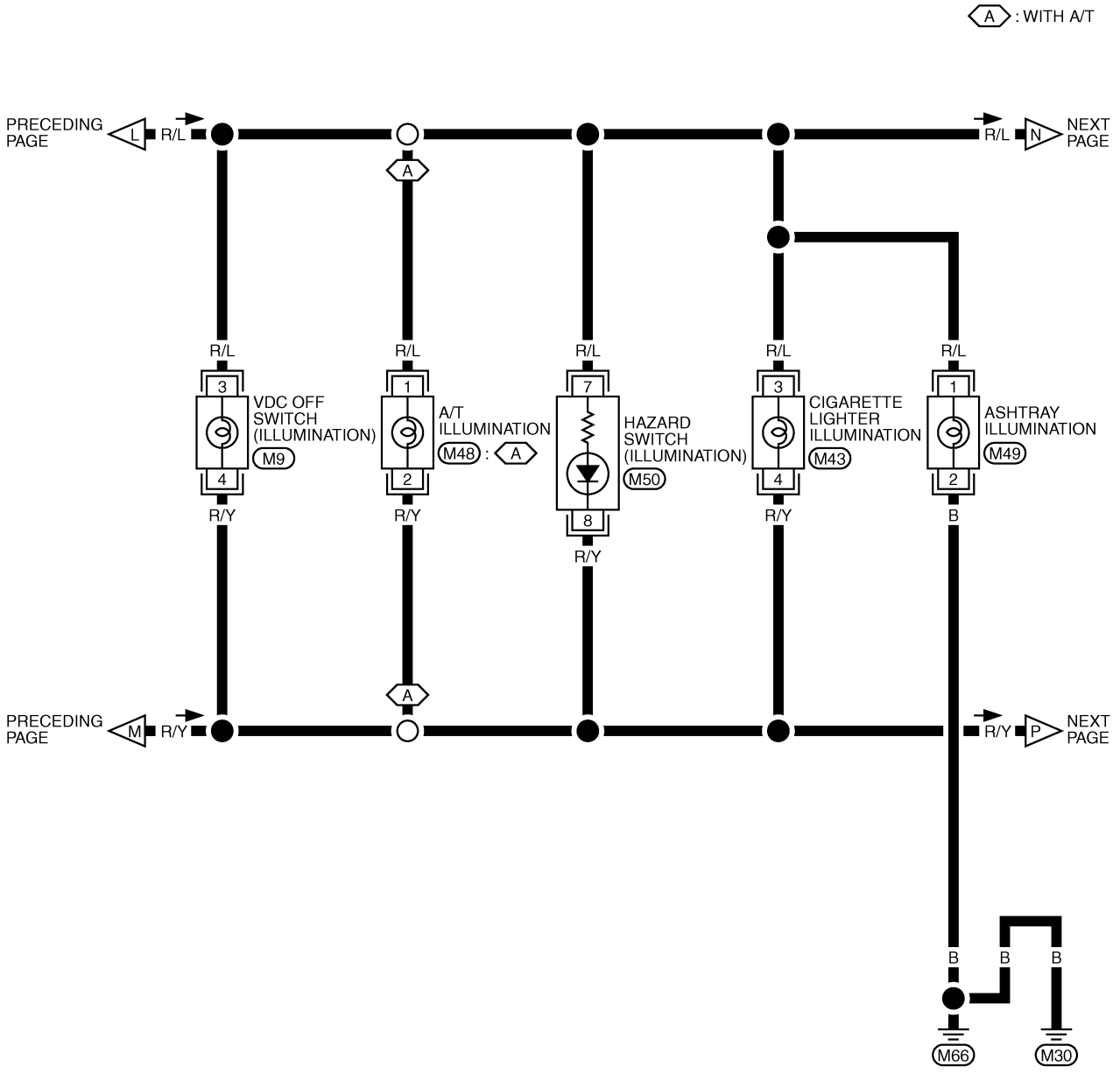


REFER TO THE FOLLOWING.

M4 -FUSE BLOCK-JUNCTION BOX (J/B)

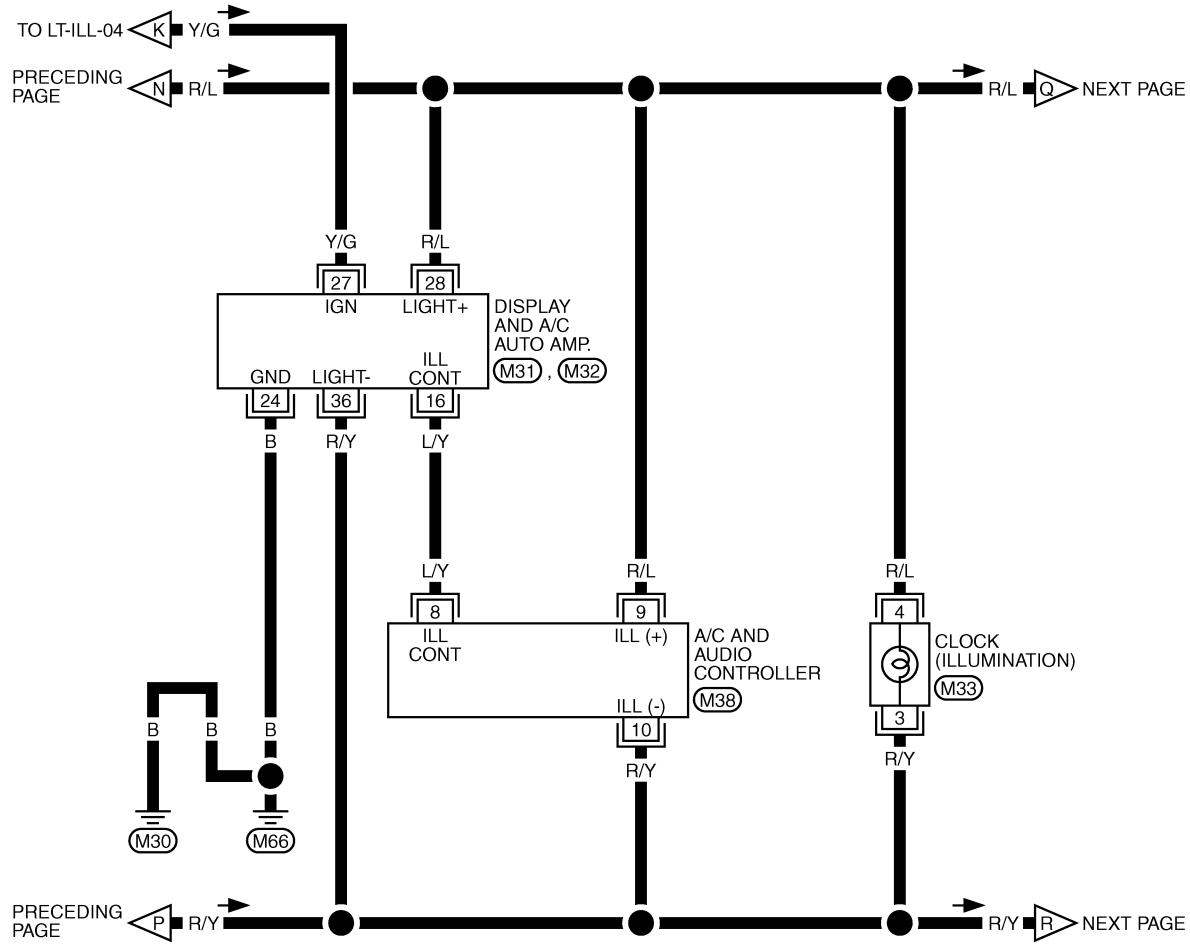
TKWT0708E

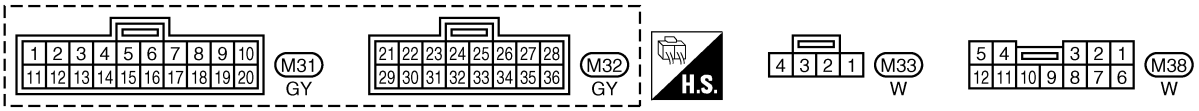
LT-ILL-05



TKWT0935E

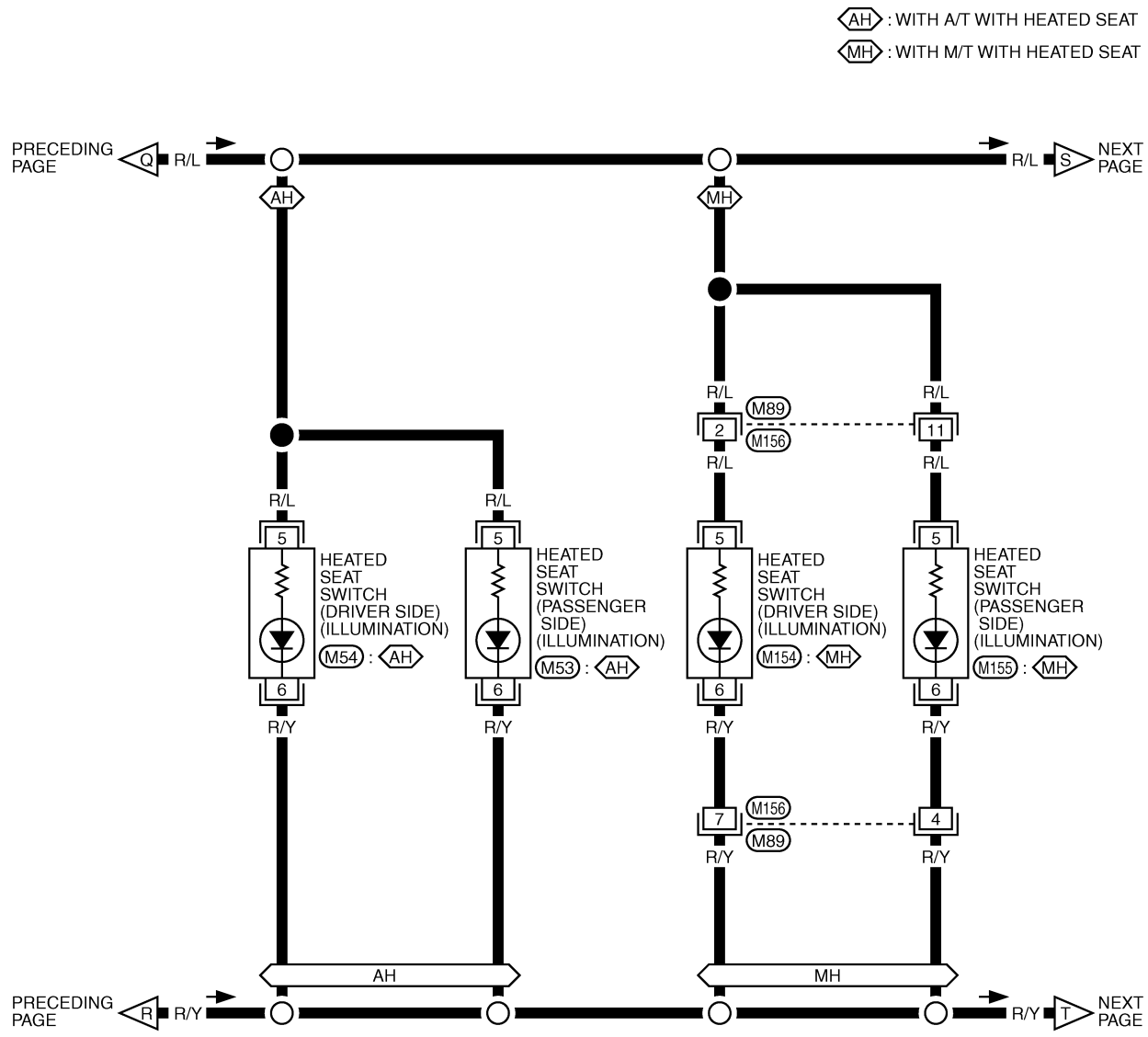
LT-ILL-06

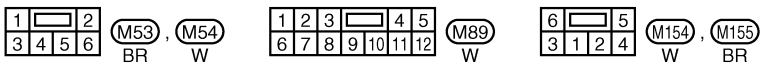




TKWT0936E

LT-ILL-07





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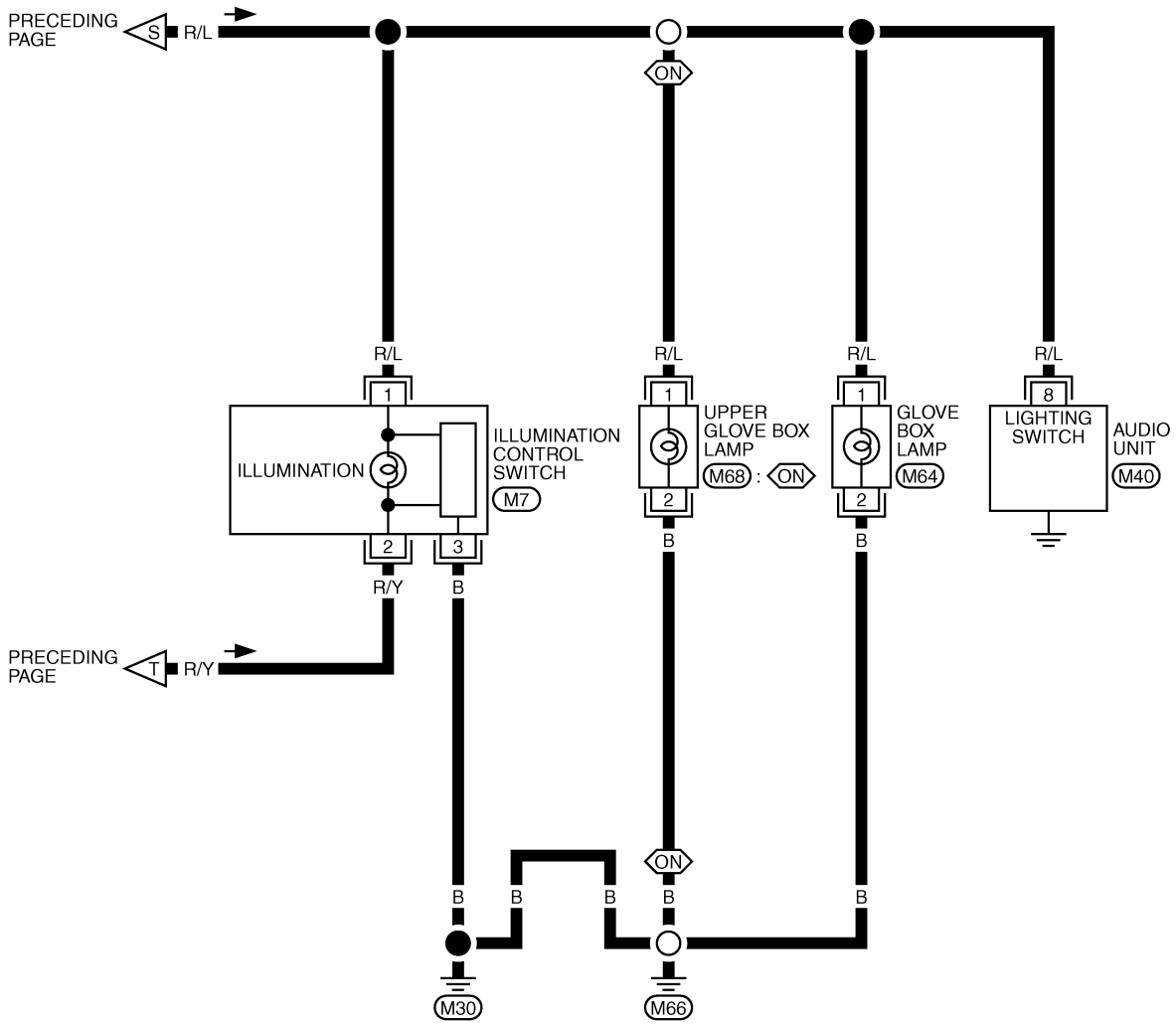
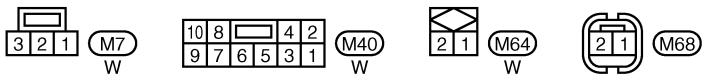
LT-ILL-08

ON : WITHOUT NAVIGATION SYSTEM





TKWT0938E

Removal and Installation

AKS009MV

GLOVE BOX LAMP

Refer to LT-161, "Removal and Installation" .

BULB SPECIFICATIONS

PFP:26297

Headlamp

AKS000MP

Item	Wattage (W)
Low (Halogen)	55 (H1)
Low (Xenon)	35 (D2R)
High/FOG	60/55 (HB2)

Exterior Lamp

AKS000MQ

Item		Wattage (W)
Front combination lamp	Turn signal lamp	21 (amber)
	Parking lamp	5
Rear combination lamp	Stop/Tail lamp	LED
	Turn signal lamp	21
	Back-up lamp	18
	Rear side marker lamp	LED
Front side marker lamp		3.8
License plate lamp		5
High-mounted stop lamp (parcel shelf mount)		LED
High-mounted stop lamp (rear air spoiler mount)		LED

Interior Lamp/Illumination

AKS000MR

Item	Wattage (W)
Glove box lamp	1.4
Ignition key hole illumination lamp	1.4
Ashtray illumination lamp	1.4
Cigarette lighter illumination lamp	1.4
Map lamp	8
Personal lamp	8
Step lamp	5
Trunk room lamp	3.4
Vanity mirror lamp	1.32