SECTION LT
LIGHTING SYSTEM

CONTENTS

PRECAUTIONS

PFP:00011

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

AKS00AIG

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.**

Precautions for Battery Service

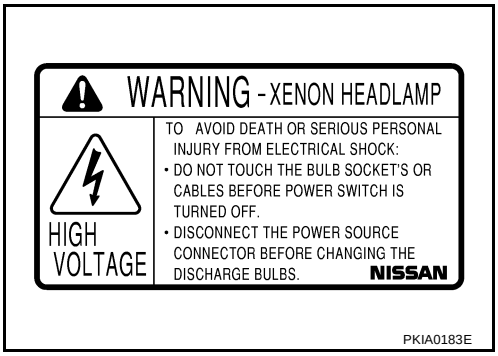
AKS00AUQ

Before disconnecting the battery, lower both the driver and passenger windows. This will prevent any interference between the window edge and the vehicle when the door is opened/closed. During normal operation, the window slightly raises and lowers automatically to prevent any window to vehicle interference. The automatic window function will not work with the battery disconnected.

General Precautions for Service Operations

AKS00AII

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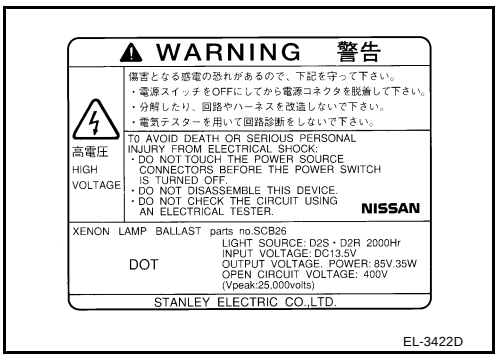
- Do not touch the headlamp bulb glass surface with bare hands or allow oil or grease to get on it. Do not touch the headlamp bulb just after the headlamp is turned off, because it is very hot.
- Install the xenon headlamp bulb socket correctly. If it is installed improperly, high-voltage leak or corona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

AKS00AIJ

When you read wiring diagrams, refer to the following:

- Refer to GI-15, "How to Read Wiring Diagrams" in GI section.
- Refer to PG-4, "POWER SUPPLY ROUTING CIRCUIT" for power distribution in PG section.

When you perform trouble diagnosis, refer to the following:

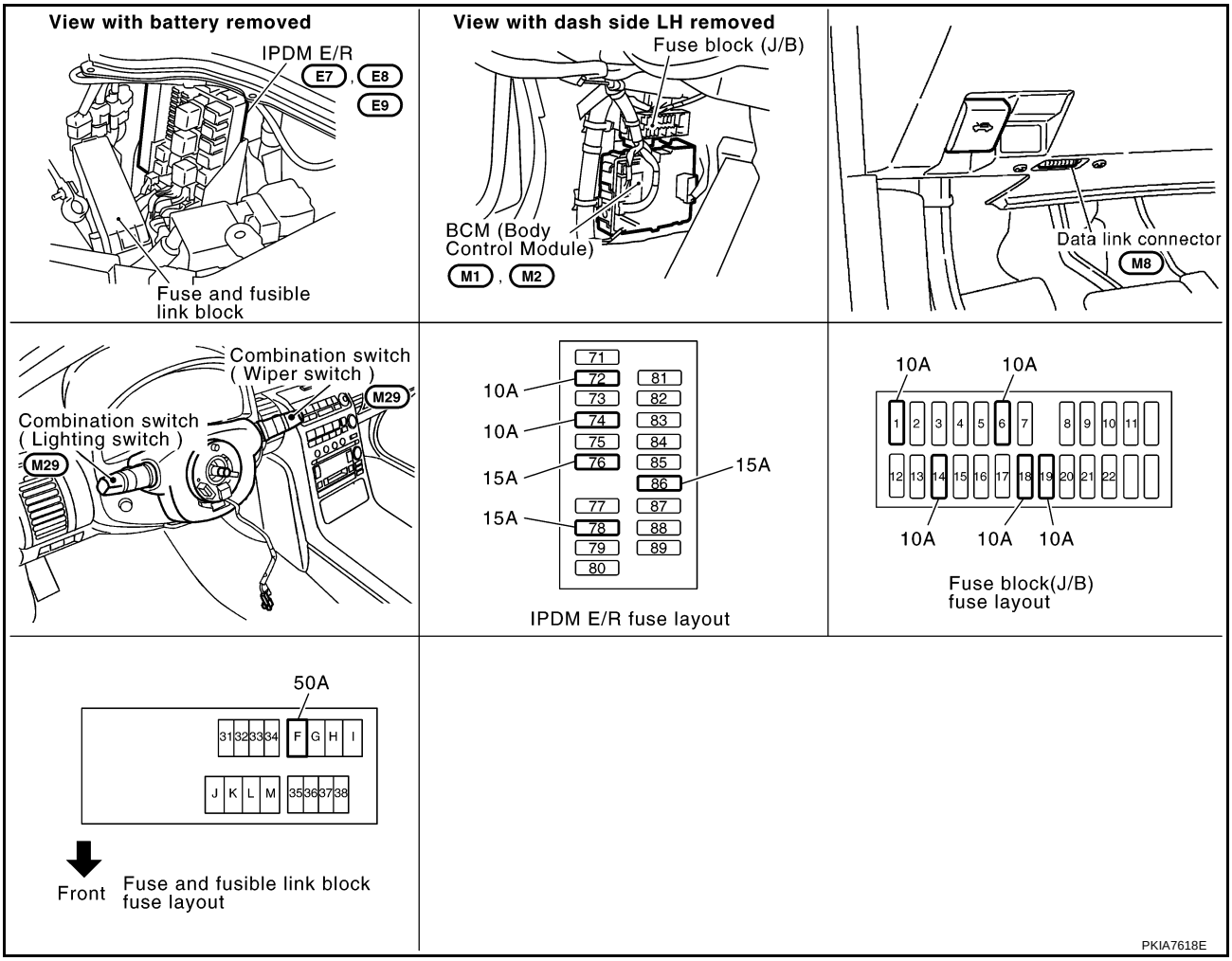
- Refer to GI-11, "HOW TO FOLLOW TEST GROUPS IN TROUBLE DIAGNOSES" in GI section.
- Refer to GI-27, "How to Perform Efficient Diagnosis for an Electrical Incident" in GI section.

HEADLAMP (FOR USA)

PFP:26010

Component Parts and Harness Connector Location

AKS00AC6



System Description

AKS00AC7

Control of the headlamp system operation is dependent upon the position of the combination switch (lighting switch). When the lighting switch is placed in the 2ND position, 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. CPU (central processing unit) of IPDM E/R controls the headlamp high and headlamp low relay coils. These relays, when energized, direct power to the respective headlamps, which then illuminate.
If voltage is applied to a high beam solenoid, the bulb shade will move, even a xenon head lamp bulb comes out, and a high beam and a low beam are changed.

OUTLINE

Power is supplied at all times

- to headlamp high relay, [located in IPDM E/R (intelligent power distribution module engine room)],
- to headlamp low relay, [located in IPDM E/R (intelligent power distribution module engine room)], and
- to ignition 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 the ignition switch in ON or START position, power is supplied

- to ignition relay, [located in IPDM E/R (intelligent power distribution module engine room)]
- through 10A fuse [No. 1, located in fuse block (J/B)]
- to BCM (body control module) terminal 38
- through 10A fuse [No. 14, located in fuse block (J/B)]
- to combination meter terminals 41 and 42.

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

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

Ground is supplied

- to BCM (body control module) 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 the 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

- to headlamp RH terminal 4
- through grounds E17 and E43
- to headlamp LH terminal 4
- through grounds E17 and E43.

With power and ground supplied, low beam headlamps illuminate.

High Beam Operation/Flash-to-Pass Operation

With the lighting switch in 2ND position and placed in HIGH or PASS position, BCM receives input signal requesting the headlamp high beams to illuminate. This input signal is communicated to IPDM E/R across CAN communication lines. CPU in IPDM E/R controls the 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 terminals 4 and 8
- through grounds E17 and E43
- to headlamp LH terminals 4 and 8
- through grounds E17 and E43.

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

COMBINATION SWITCH READING FUNCTION

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

EXTERIOR LAMP BATTERY SAVER CONTROL

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

AUTO LIGHT OPERATION

Refer to LT-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-93, "VEHICLE SECURITY (THEFT WARNING) SYSTEM" .

XENON HEADLAMP

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

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

CAN Communication System Description

AKS00AC8

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

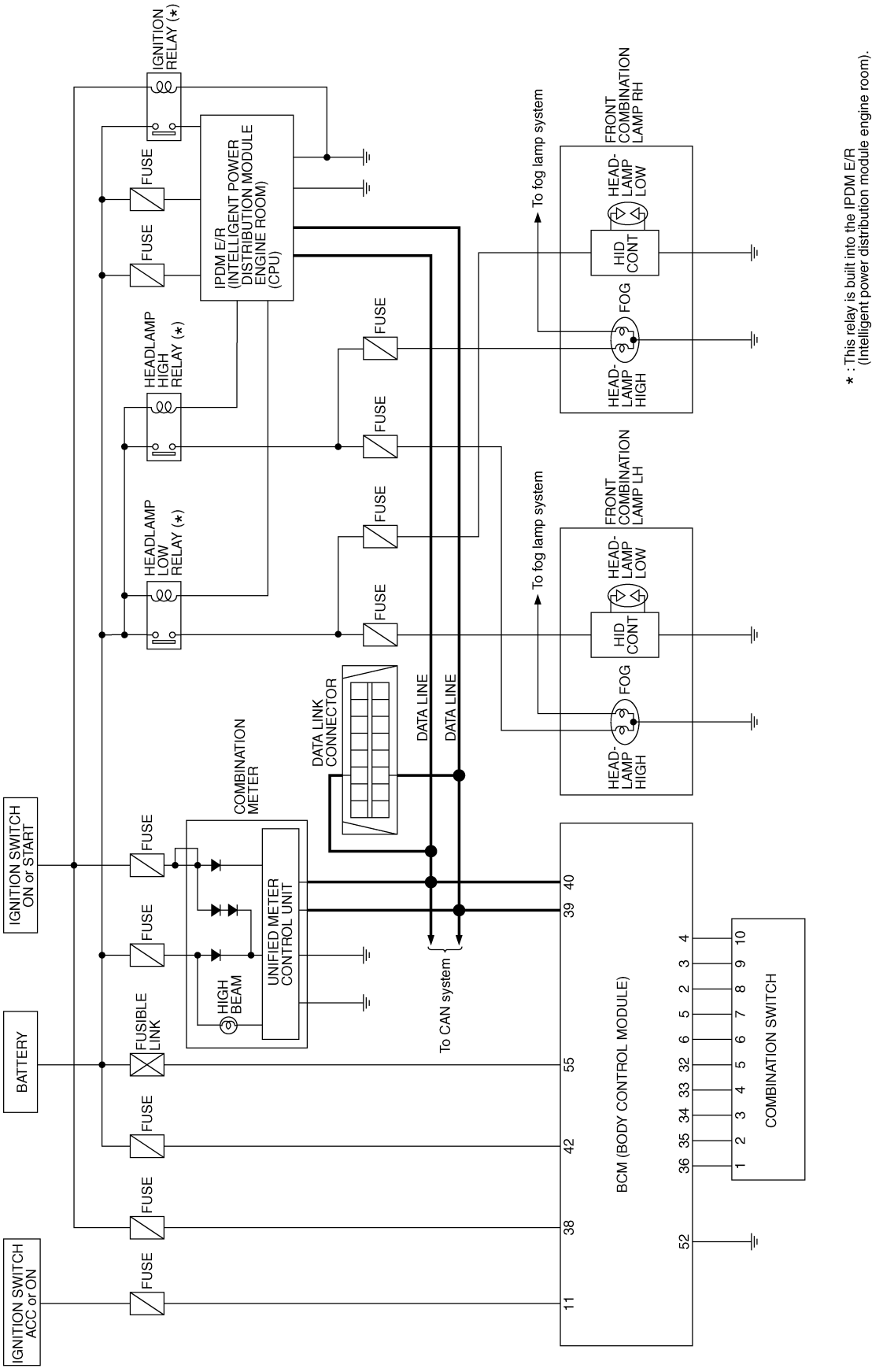
CAN Communication Unit

AKS00AC9

Refer to LAN-4, "CAN Communication Unit" .

Schematic

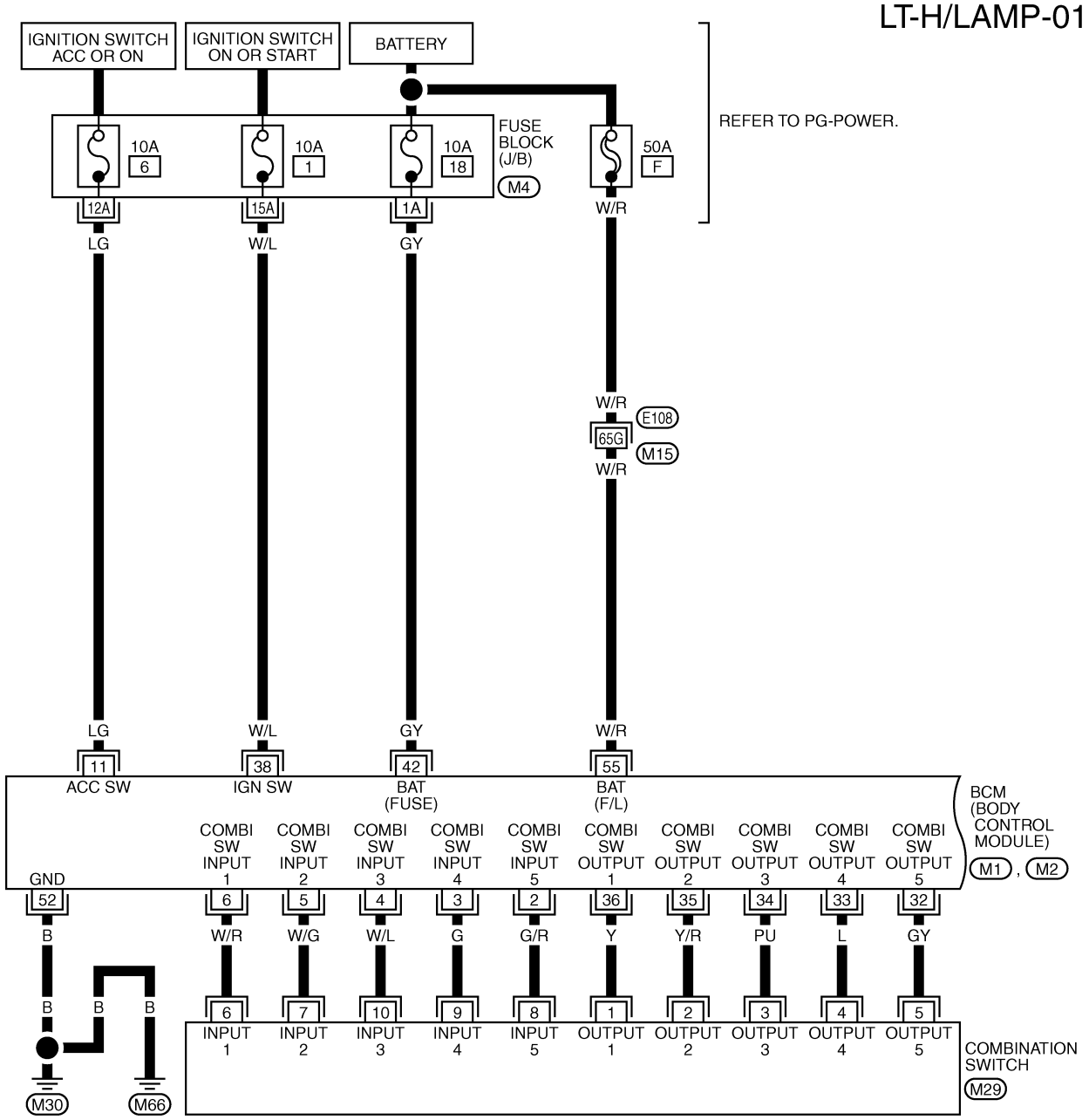
AKS00ACA

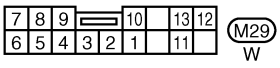


Wiring Diagram — H/LAMP —

AKS00ACB

LT-H/LAMP-01





REFER TO THE FOLLOWING.

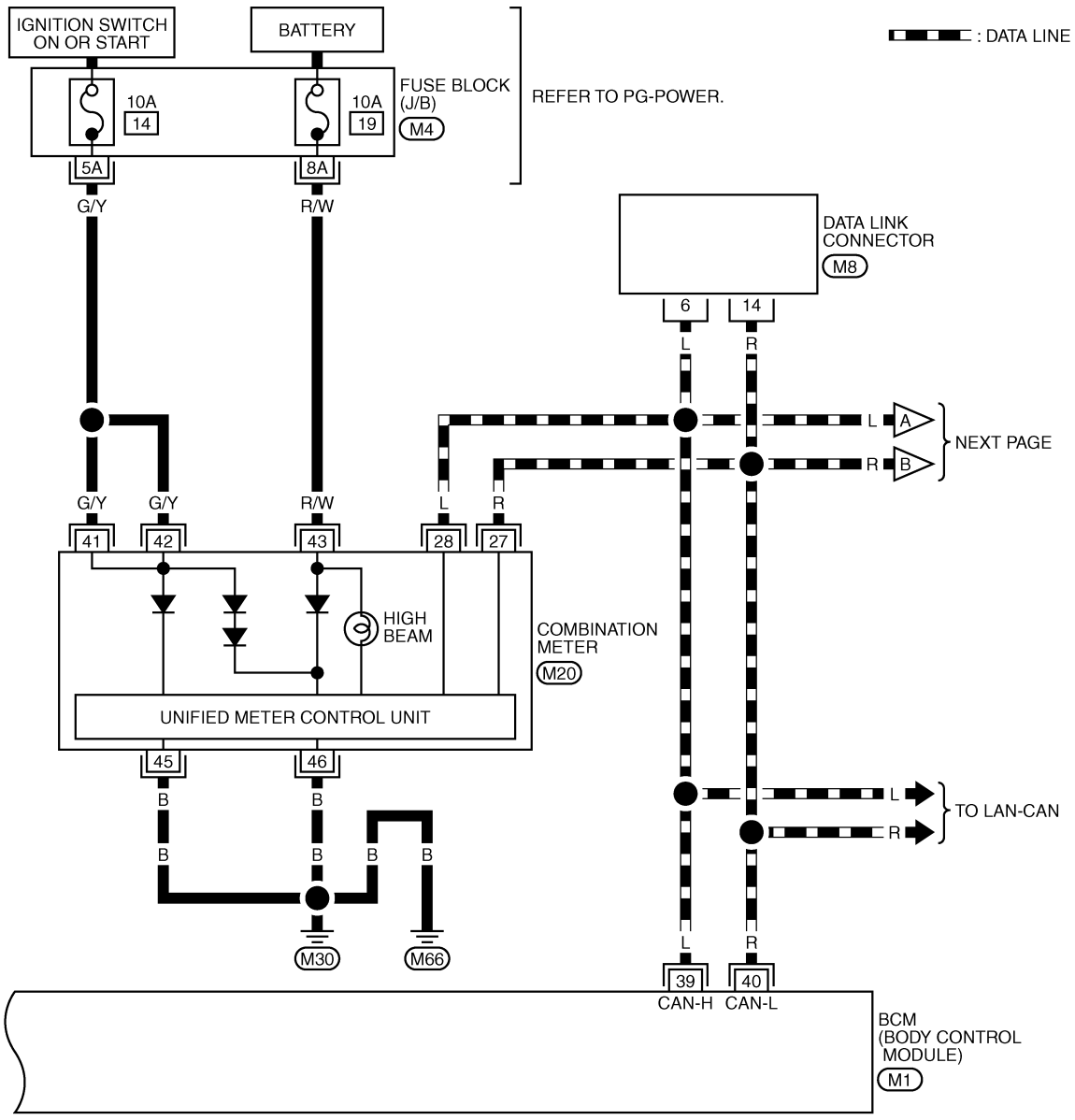
E108 -SUPER MULTIPLE JUNCTION (SMJ)

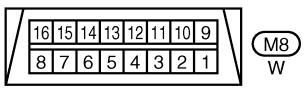
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

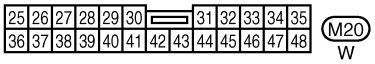
M1 , M2 -ELECTRICAL UNITS

TKWM0848E

LT-H/LAMP-02





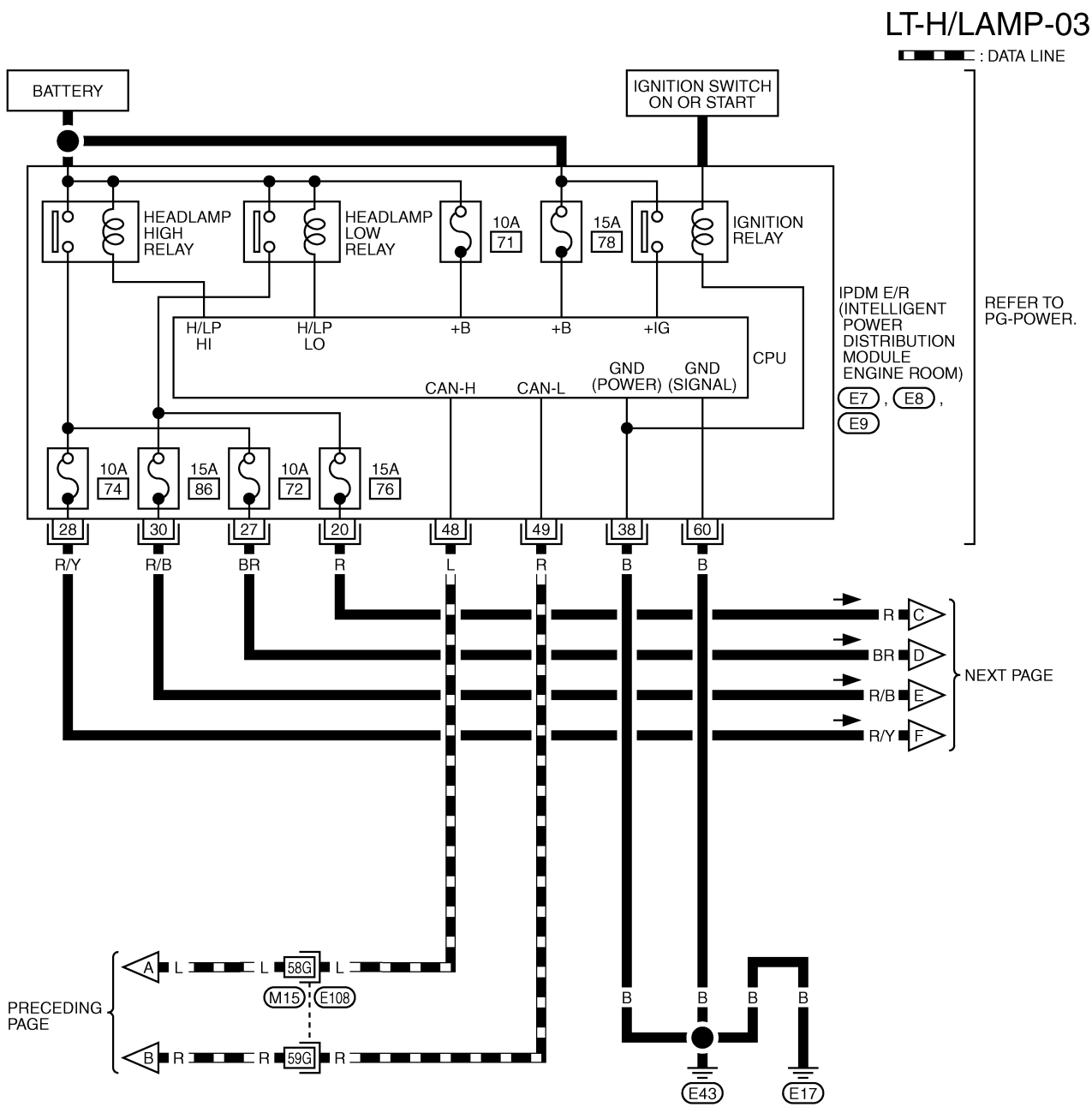


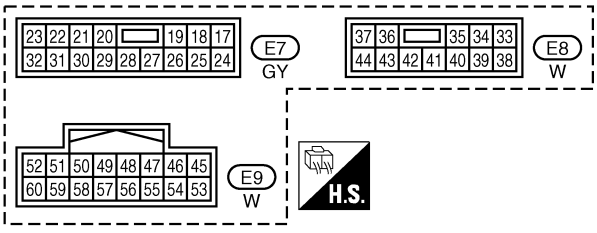
REFER TO THE FOLLOWING.

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

M1 -ELECTRICAL UNITS

TKWM0849E

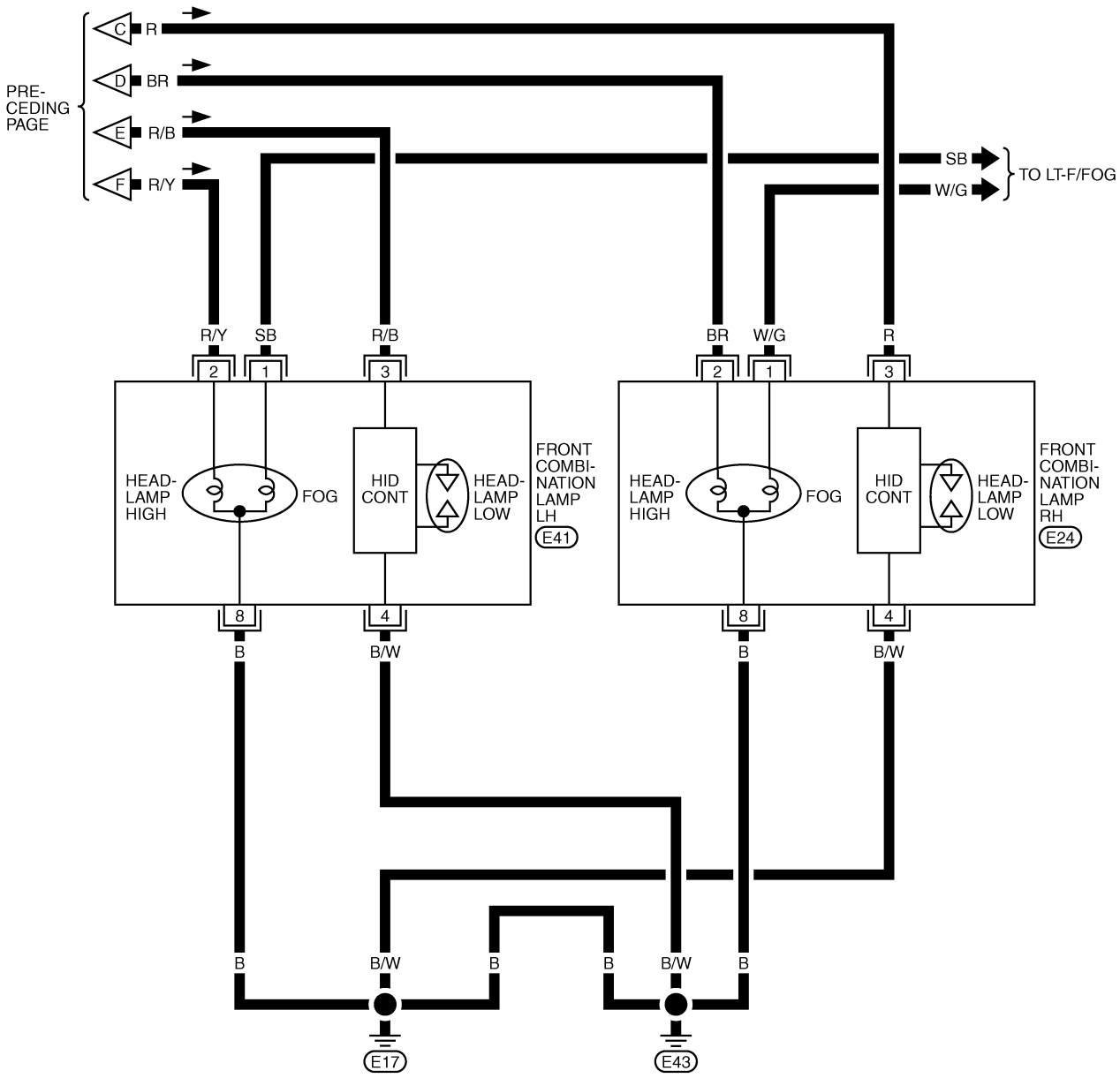


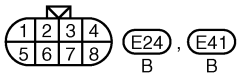


REFER TO THE FOLLOWING.
E108 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM0850E

LT-H/LAMP-04

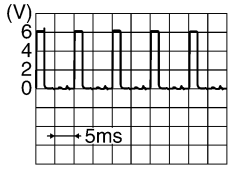
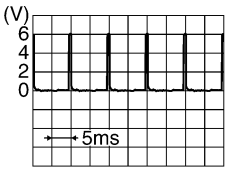
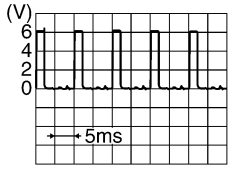
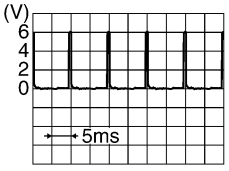
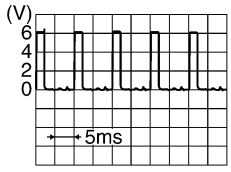
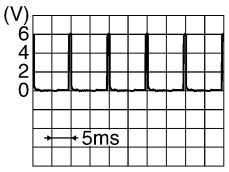
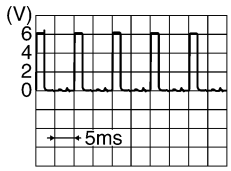


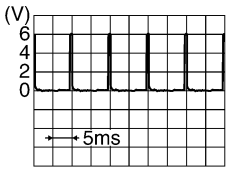


TKWM0851E

Terminals and Reference Values for BCM

AKS00ACC

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
2	G/R	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	W/L	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

AKS00ACD

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	Ground	ON	—		Approx. 0V

How to Proceed With Trouble Diagnosis

AKS00ACE

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

Preliminary Check

AKS00ACF

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
	Battery	18
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	72
		74
		76
		86

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

OK or NG

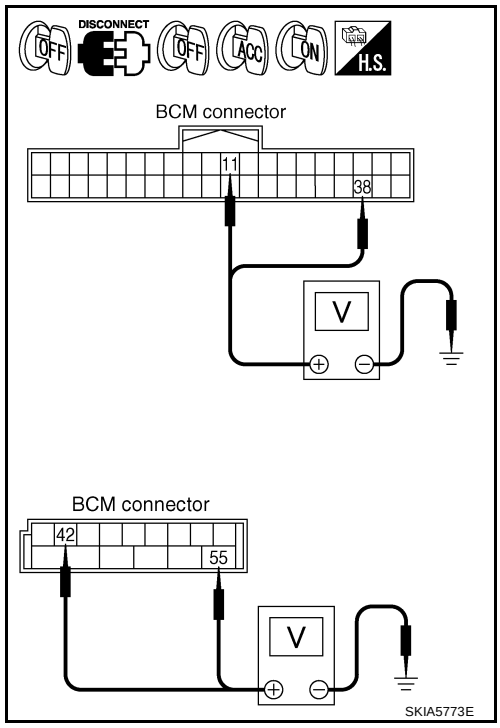
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-4, "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

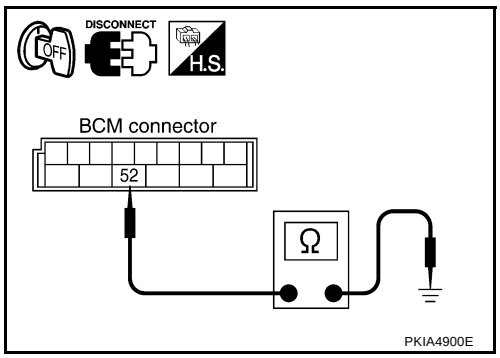
OK >> GO TO 3.

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)		
M2	52 (B)	Ground	Yes



OK or NG

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

CONSULT-II Functions (BCM)

AKS00ACG

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

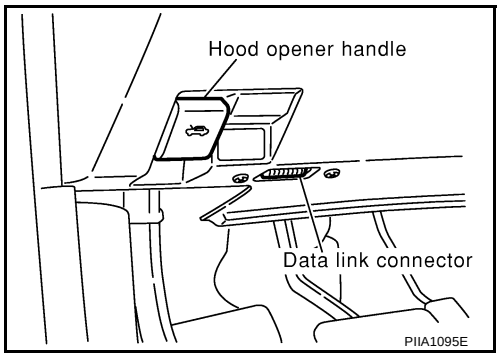
BCM diagnosis part	Check item, diagnosis mode	Description
HEAD LAMP	WORK SUPPORT	Changes the setting for each function.
	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.
BCM	CAN DIAG SUPPORT MNTR	The result of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

CONSULT-II BASIC OPERATION

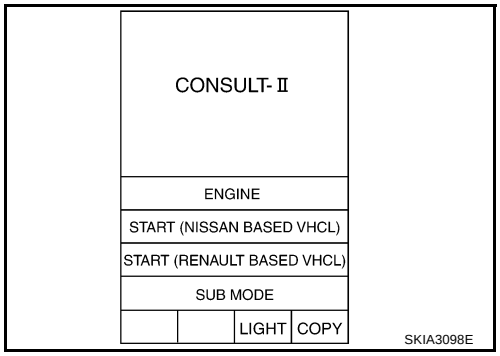
CAUTION:

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.

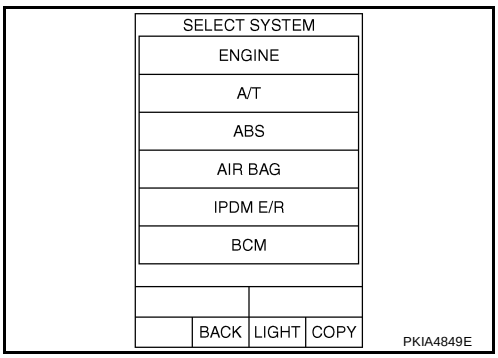
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn ignition switch ON.



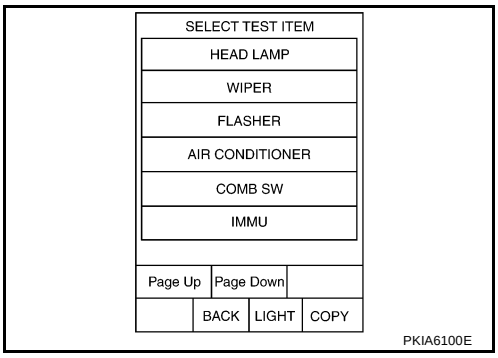
2. Touch “START (NISSAN BASED VHCL)”.



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



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



WORK SUPPORT

Operation Procedure

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

Display Item List

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

DATA MONITOR

Operation Procedure

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

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

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

Display Item List

Monitor item		Contents
IGN ON SW	“ON/OFF”	Displays “IGN position (ON)/OFF, ACC position (OFF)” judged from the ignition switch signal.
ACC ON SW	“ON/OFF”	Displays “ACC (ON)/OFF, Ignition OFF (OFF)” status judged from ignition switch signal.
HI BEAM SW	“ON/OFF”	Displays status (high beam switch: ON/Others: OFF) of high beam switch judged from lighting switch signal.
HEAD LAMP SW 1	“ON/OFF”	Displays status (headlamp switch 1: ON/Others: OFF) of headlamp switch 2 judged from lighting switch signal.
HEAD LAMP SW 2	“ON/OFF”	Displays status (headlamp switch 2: ON/Others: OFF) of headlamp switch 2 judged from lighting switch signal.
LIGHT SW 1 ST	“ON/OFF”	Displays status (lighting switch 1st position: ON/Others: OFF) of lighting switch judged from lighting switch signal.
AUTO LIGHT SW	“ON/OFF”	Displays status of the lighting switch as judged from the lighting switch signal. (AUTO position: ON/Other than AUTO position: OFF)
PASSING SW	“ON/OFF”	Displays status (flash-to-pass switch: ON/Others: OFF) of flash-to-pass switch judged from lighting switch signal.
FR FOG SW	“ON/OFF”	Displays status (front fog lamp switch: ON/Others: OFF) of front fog lamp switch judged from lighting switch signal.
DOOR SW - DR	“ON/OFF”	Displays status of the driver door as judged from the driver door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - AS	“ON/OFF”	Displays status of the passenger door as judged from the passenger door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - RR[NOTE]	“OFF”	—
DOOR SW - RL[NOTE]	“OFF”	—
BACK DOOR SW [NOTE]	“OFF”	—
TURN SIGNAL R	“ON/OFF”	Displays status (Turn right: ON/Others: OFF) as judged from lighting switch signal.
TURN SIGNAL L	“ON/OFF”	Displays status (Turn left: ON/Others: OFF) as judged from lighting switch signal.
CARGO LAMP SW[NOTE]	“OFF”	—
OPTICAL SENSOR	[0 - 5V]	Displays “ambient light (close to 5V when light/close to 0V when dark)” judged from optical sensor signal.

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

ACTIVE TEST

Operation Procedure

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

Display Item List

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

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

CONSULT-II Functions (IPDM E/R)

AKS00ACH

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

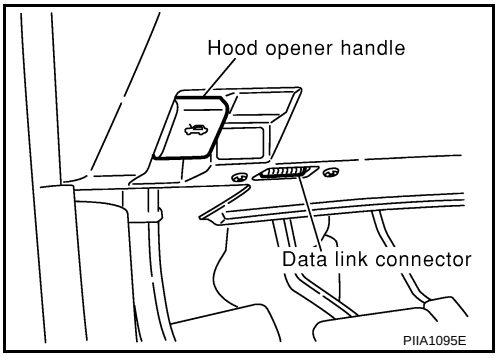
Check Item, Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	The IPDM E/R performs self-diagnosis of CAN communication.
DATA MONITOR	The input/output data of the IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE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

CONSULT-II OPERATION

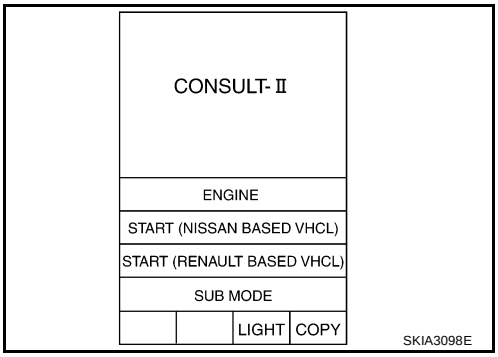
CAUTION:

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

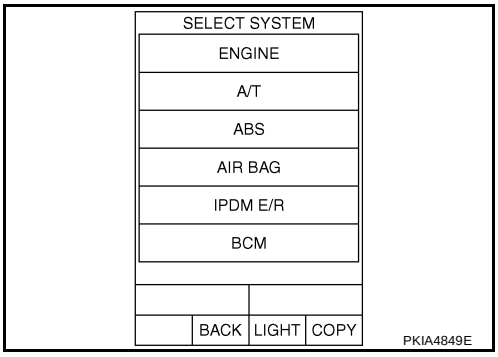
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn the ignition switch ON.



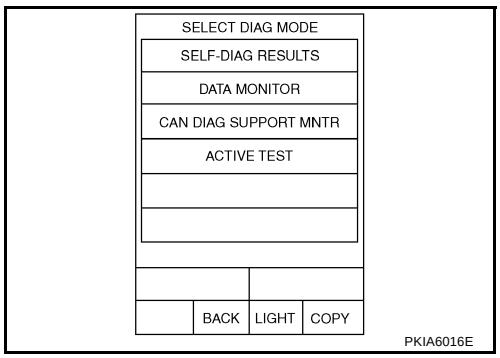
2. Touch “START (NISSAN BASED VHCL)”.



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



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



SELF-DIAGNOSTIC RESULTS

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

DATA MONITOR

Operation Procedure

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

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

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

All Signals, Main Signals, Selection From Menu

Item name	CONSULT-II screen display	Display or unit	Monitor item selection			Description
			ALL SIGNALS	MAIN SIGNALS	SELECTION FROM MENU	
Position lights request	TAIL & CLR REQ	ON/OFF	×	×	×	Signal status input from BCM
Headlamp low beam request	HL LO REQ	ON/OFF	×	×	×	Signal status input from BCM
Headlamp high beam request	HL HI REQ	ON/OFF	×	×	×	Signal status input from BCM
Font fog lights request	FR FOG REQ	ON/OFF	×	×	×	Signal status input from BCM

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

ACTIVE TEST

Operation Procedure

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

Test item	CONSULT-II screen display	Description
Headlamp relay (HI, LO) output	LAMPS	Allows headlamp relay (HI, LO) to operate by switching operation (OFF, HI ON, LO ON) at your option.
Front fog lamp relay output		Allows fog lamp relay to operate by switching operation ON-OFF at your option.
Tail lamp relay output	TAIL LAMP	Allows tail lamp relay to operate by switching operation ON-OFF at your option.

Headlamp High Beam Does Not Illuminate (Both Sides)

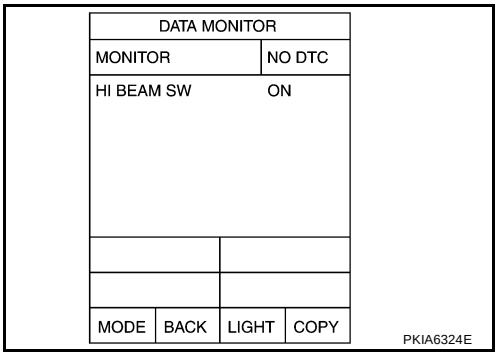
AKS00ACI

1. CHECK COMBINATION SWITCH INPUT SIGNAL

With CONSULT-II

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

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



Without CONSULT-II

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

OK or NG

OK >> GO TO 2.

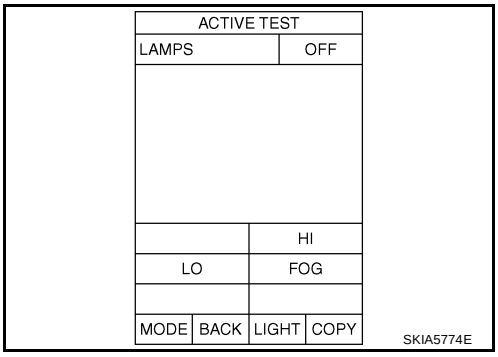
NG >> Check lighting switch. Refer to LT-128, "Combination Switch Inspection" .

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

Headlamp high beam should operate.



Without CONSULT-II

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

Headlamp high beam should operate.

OK or NG

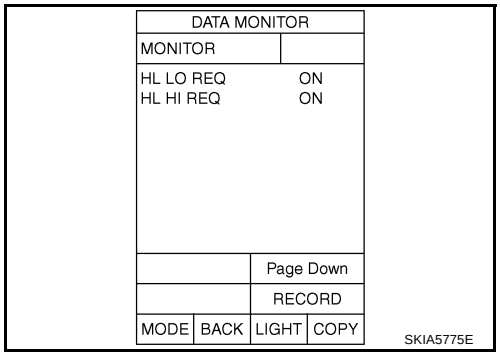
OK >> GO TO 3.

NG >> GO TO 4.

3. CHECK IPDM E/R

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

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



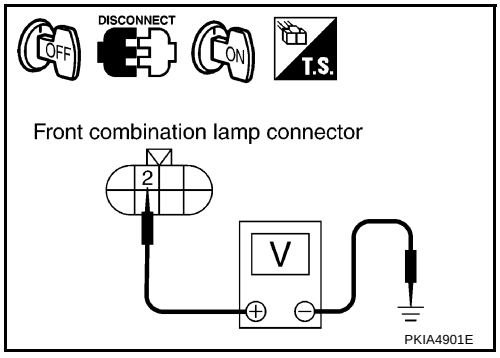
OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-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 “HI” screen.
6. When headlamp high beam is operating, check voltage between front combination lamp RH and LH harness connector and ground (Headlamp high beam repeats ON–OFF every 1 second).



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

Without CONSULT-II

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

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

OK or NG

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

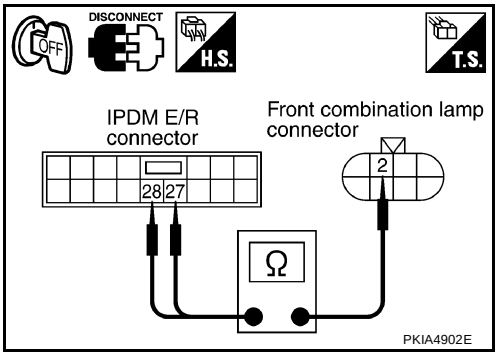
5. CHECK HEADLAMP CIRCUIT

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.

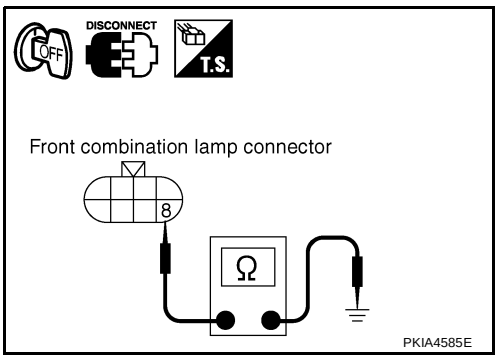
6. CHECK HEADLAMP GROUND

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 E44 terminal 8 (B) and ground.

8 (B) – Ground : Continuity should exist.



OK or NG

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

Headlamp High Beam Does Not Illuminate (One Side)

AKS00ACJ

1. CHECK BULB

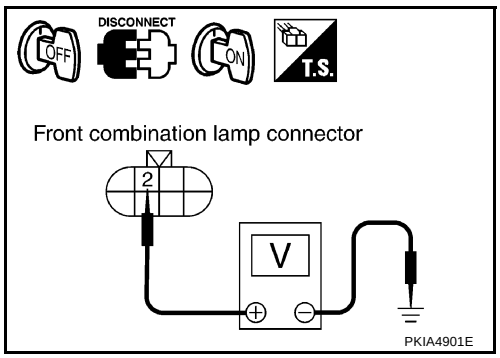
Check bulbs of lamps which do not illuminate.

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 BEAM 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.

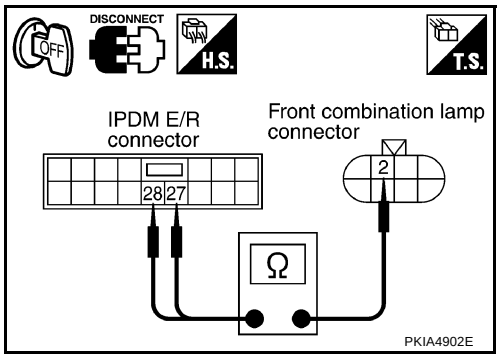
3. CHECK HEADLAMP CIRCUIT

1. Disconnect IPDM E/R connector.
2. 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.

3. 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.

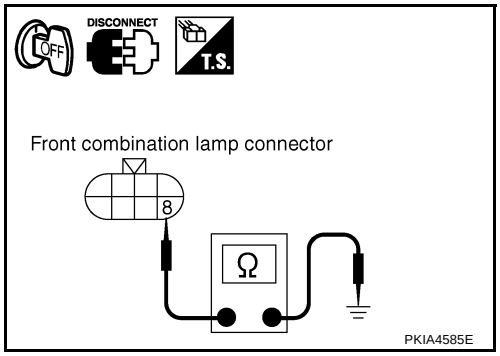
4. CHECK HEADLAMP GROUND

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 connector.
NG >> Repair harness or connector.

High Beam Indicator Lamp Does Not Illuminate

AKS00ACK

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)

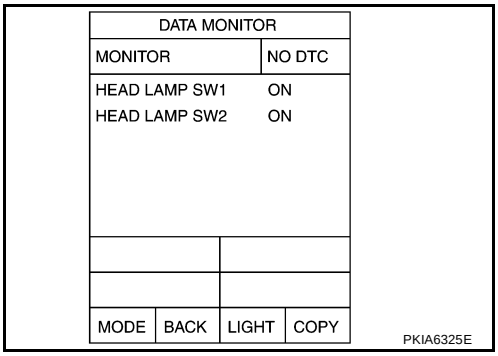
AKS00ACL

1. CHECK COMBINATION SWITCH INPUT SIGNAL

With CONSULT-II

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

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



Without CONSULT-II

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

OK or NG

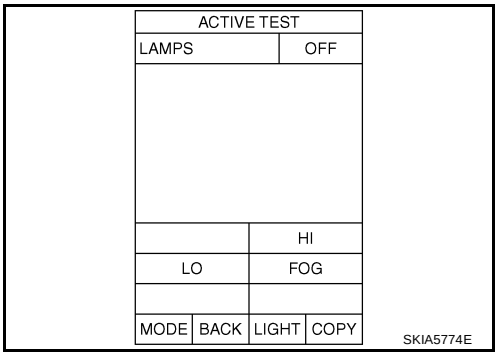
OK >> GO TO 2.
NG >> Check lighting switch. Refer to LT-128, "Combination Switch Inspection" .

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

Headlamp low beam should operate.



Without CONSULT-II

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

Headlamp low beam should operate.

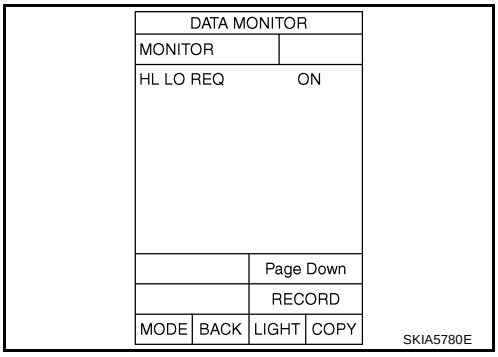
OK or NG

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

3. CHECK IPDM E/R

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

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



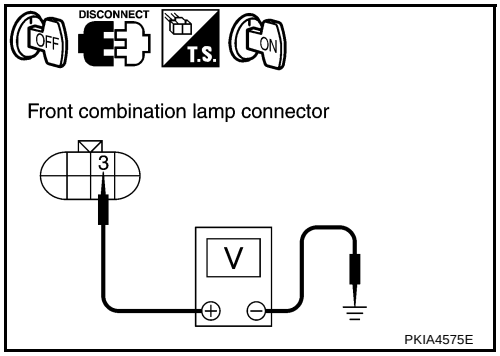
OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-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)		

Without CONSULT-II

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

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

OK or NG

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

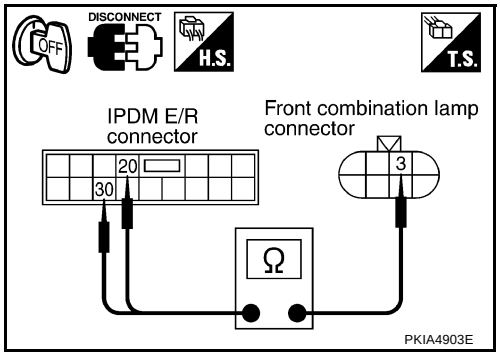
5. CHECK HEADLAMP CIRCUIT

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.

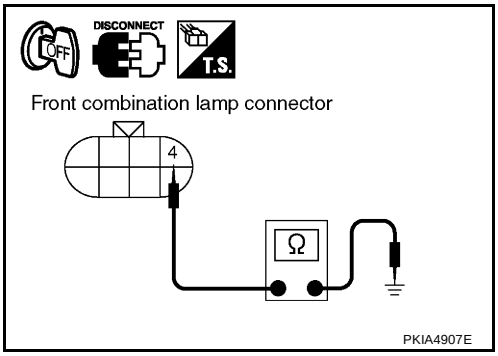
6. CHECK HEADLAMP GROUND

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

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

3. Check continuity between front combination lamp LH harness connector E41 terminal 4 (B/W) and ground.

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



OK or NG

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

NG >> Repair harness or connector.

Headlamp Low Beam Does Not Illuminate (One Side)

AKS00ACM

1. CHECK BULB

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

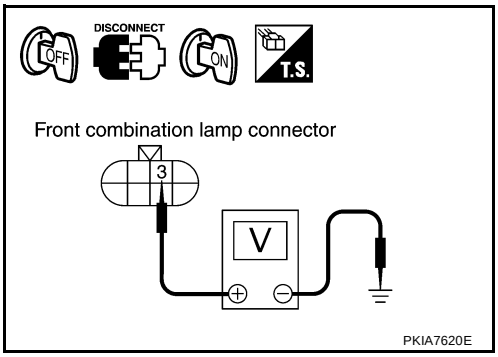
OK or NG

OK >> GO TO 2.

NG >> Repair malfunctioning part.

2. CHECK HEADLAMP 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 LOW BEAM 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.

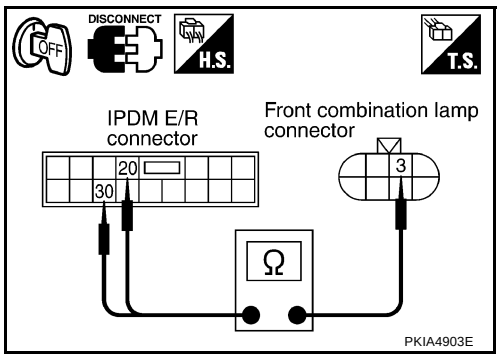
3. CHECK HEADLAMP CIRCUIT

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

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

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

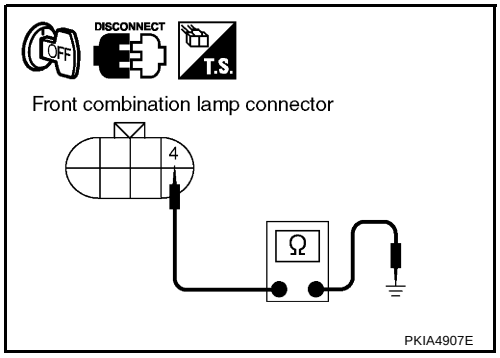
4. CHECK HEADLAMP GROUND

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

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

2. Check continuity between front combination lamp LH harness connector E41 terminal 4 (B/W) and ground.

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



OK or NG

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

Headlamps Does Not Turn OFF

AKS00ACN

1. CHECK HEADLAMP TURN OFF

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

OK or NG

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

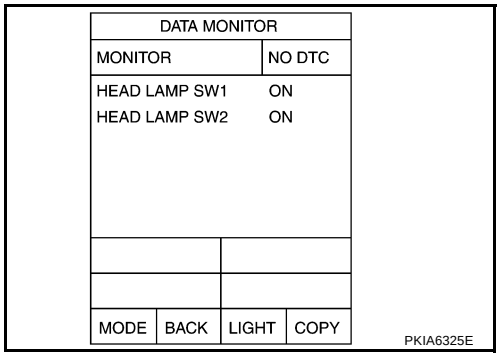
2. CHECK COMBINATION SWITCH INPUT SIGNAL

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

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

OK or NG

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



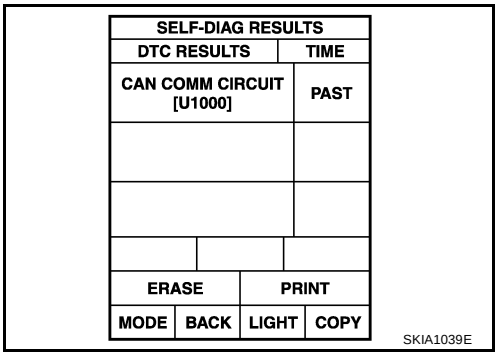
3. CHECKING CAN COMMUNICATIONS BETWEEN BCM AND IPDM E/R

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

Display of self-diagnosis results

NO DTC>> Replace IPDM E/R.

CAN COMM CIRCUIT>> Refer to BCS-14, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .



CAUTION:

AKS00ACO

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

Xenon Headlamp Trouble Diagnosis

AKS00ACP

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

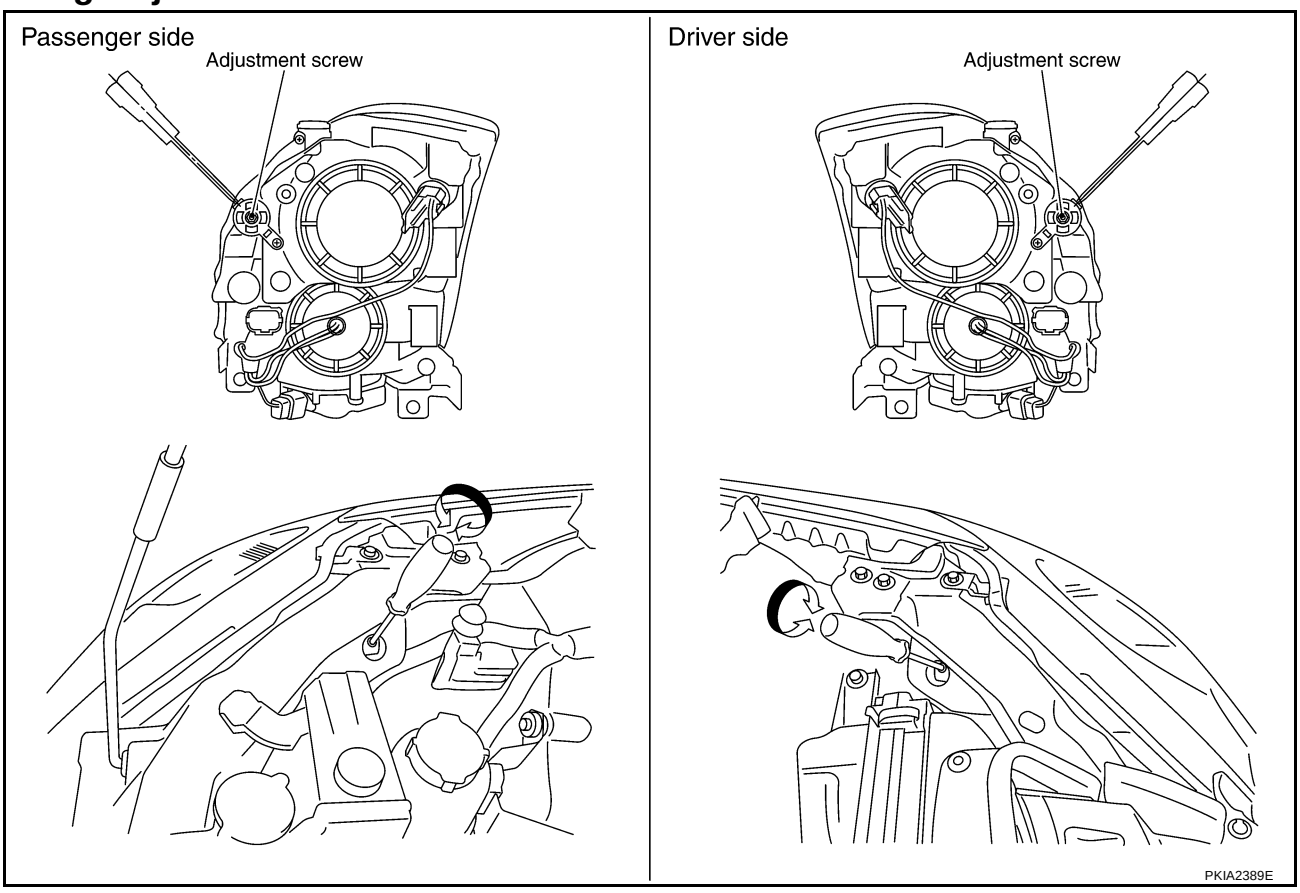
Install normal xenon lamp housing assembly to corresponding xenon headlamp, and check if lamp lights up.

OK or NG

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

Aiming Adjustment

AKS00ACQ



PREPARATION BEFORE ADJUSTING

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

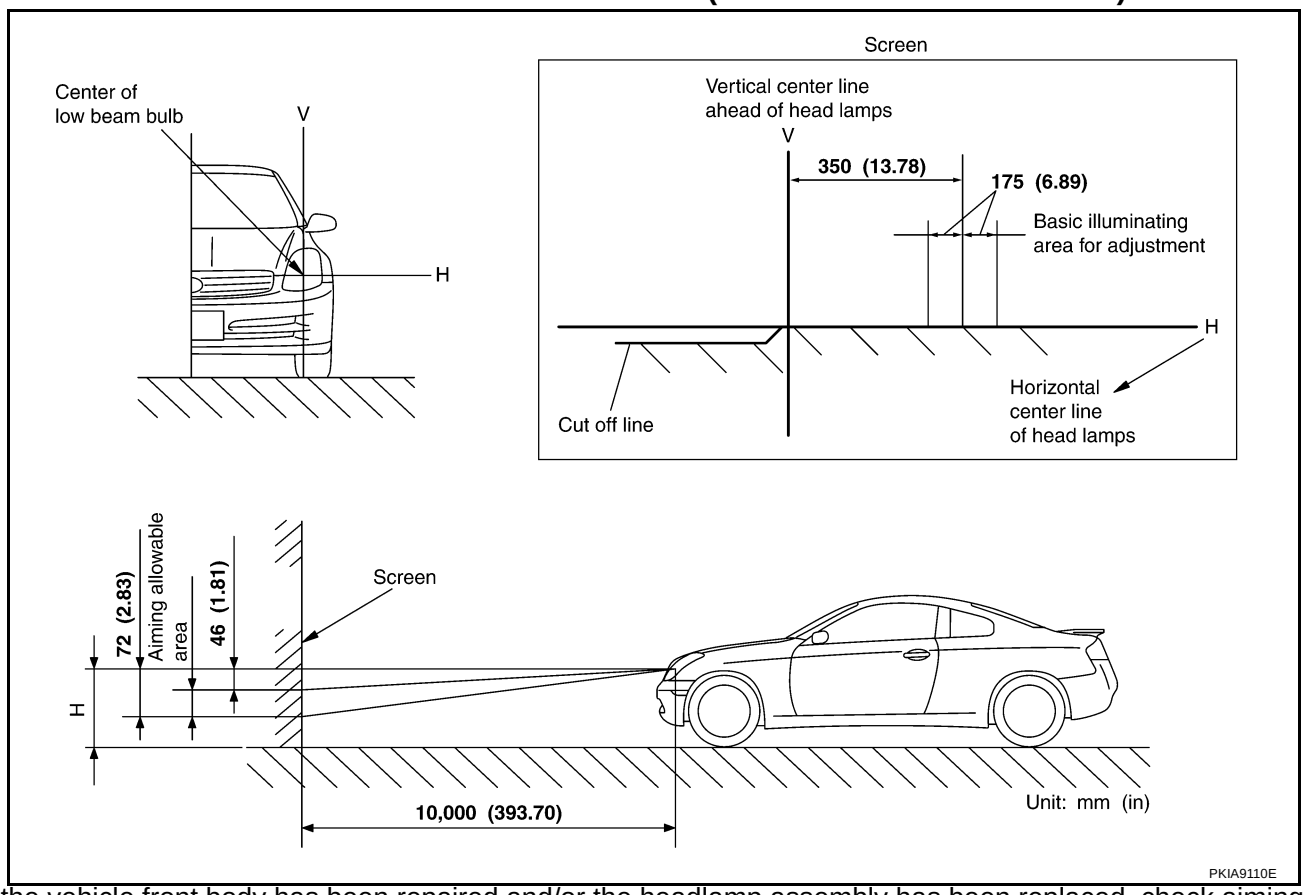
Before performing aiming adjustment, check the following.

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 adjustment screws to perform aiming adjustment.

ADJUSTMENT USING AN ADJUSTMENT SCREEN (LIGHT/DARK BORDERLINE)



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

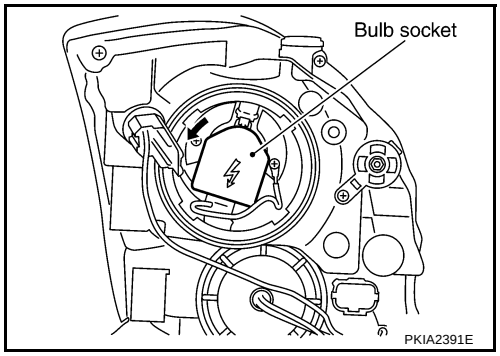
- Basic illumination area for adjustment should be within the range shown on the aiming chart. Adjust headlamp accordingly.

Bulb Replacement

AKS00ACR

HEADLAMP (UPPER) LOW BEAM

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



HEADLAMP (LOWER) HIGH BEAM/FOG LAMP

1. Turn lighting switch OFF.
2. Disconnect battery negative cable or remove power fuse.
3. Remove fender protector (front). Refer to EI-21, "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.
7. Install in the reverse order of removal.

PARKING LAMP (CLEARANCE LAMP)

1. Turn lighting switch OFF.

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

FRONT TURN SIGNAL AND PARKING LAMP

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

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

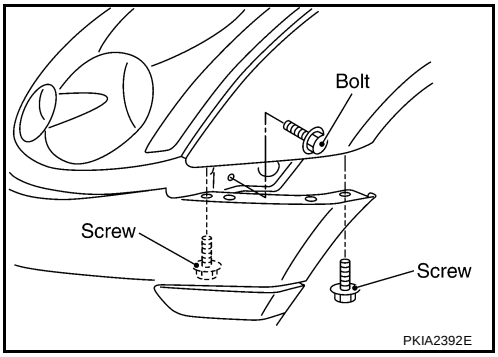
CAUTION:
After installing bulb, be sure to install plastic cap and bulb socket securely to insure watertightness.

Removal and Installation

AKS00ACS

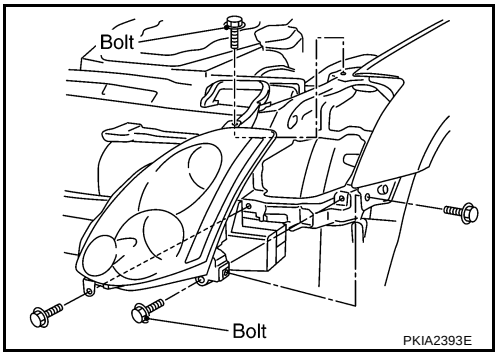
REMOVAL

1. Disconnect battery negative cable or remove power fuse.
2. Remove front bumper. Refer to EI-14, "FRONT BUMPER" in “EI” section.



3. Remove headlamp mounting bolts.
4. 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.



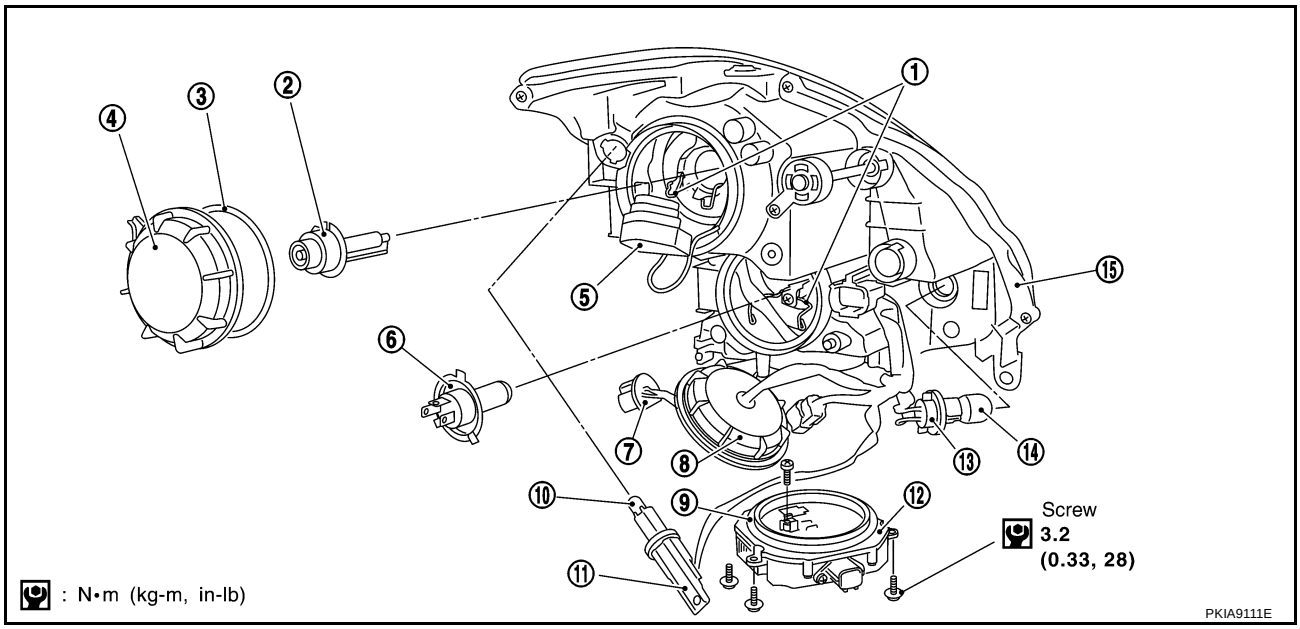
INSTALLATION

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

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

Disassembly

AKS00ACT



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.	Seal packing
10.	Parking lamp (Clearance lamp) bulb	11.	Parking lamp (Clearance lamp) bulb socket	12.	HID C/U
13.	Front turn signal and parking lamp bulb socket	14.	Front turn signal and parking lamp bulb	15.	Headlamp housing assembly

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

AKS00ACU

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)

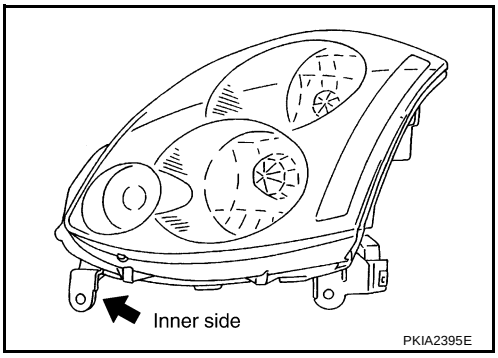
CAUTION:

- **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

AKS00ACV

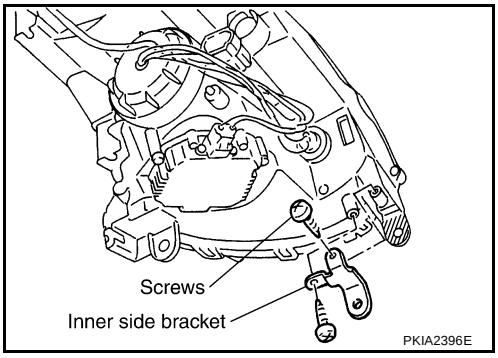
If only installation part as shown in the figure is damaged, and headlamp housing itself is not damaged, repair can be completed easily by installing correction brackets.



REMOVAL AND INSTALLATION

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

RH headlamp	**Inner side**	**26040 AM800**
LH headlamp	**Inner side**	**26090 AM800**

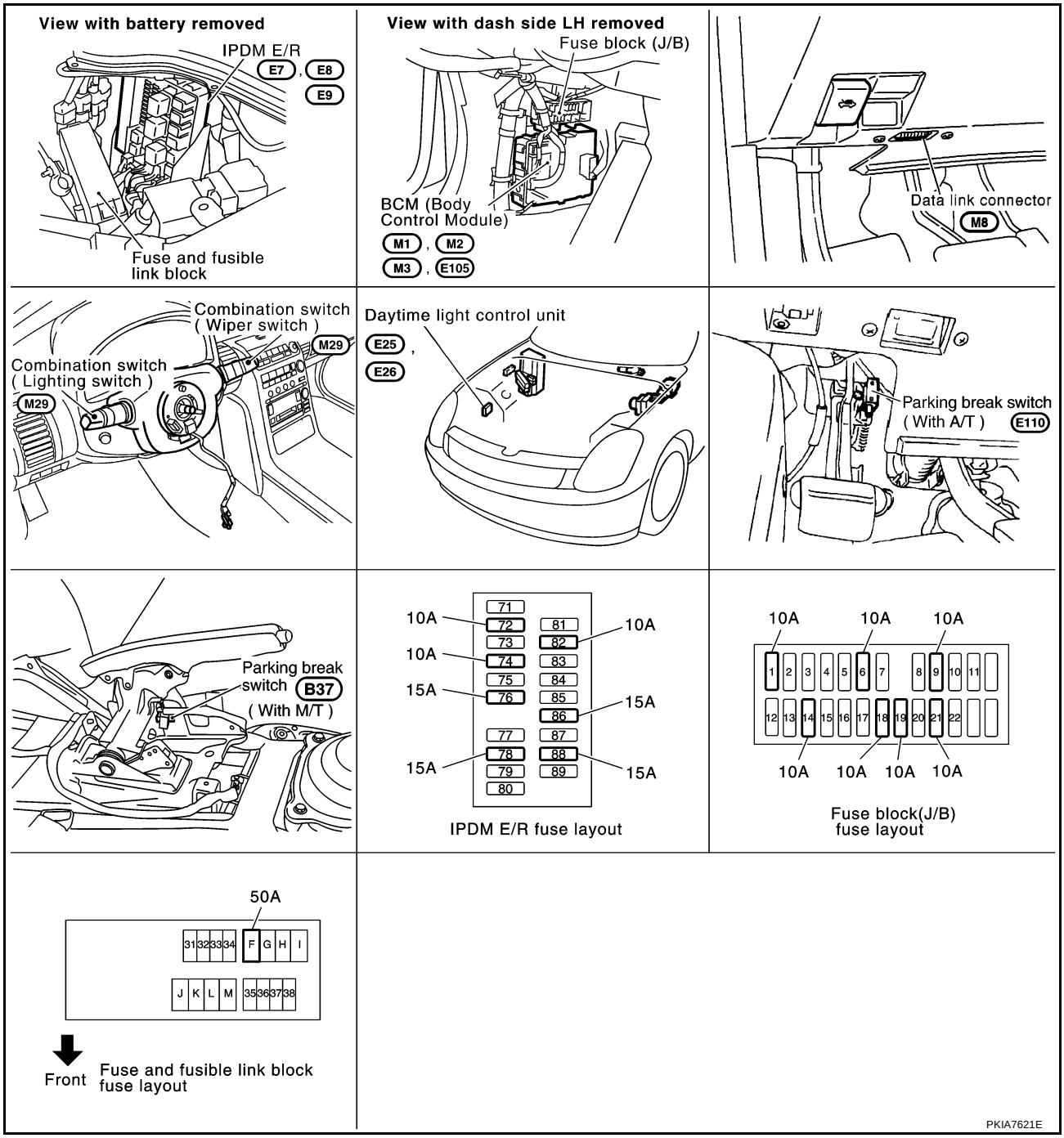


HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

PFP:26010

Component Parts and Harness Connector Location

AKS00ACW



System Description

AKS00ACX

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

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

Power is supplied at all times

- to ignition relay [located in IPDM E/R (intelligent power distribution module engine room)]
- 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)]
- through 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 the ignition switch in the ON or START position, power is supplied

- to ignition relay [located in IPDM E/R (intelligent power distribution module engine room)]
- 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 combination meter terminals 41 and 42
- through 10A fuse [No. 14, located in fuse block (J/B)].

With the 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 the 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 the 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 4
- through grounds E17 and E43
- to headlamp LH terminal 4
- 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 the lighting switch in 2ND position and placed in HIGH or PASS position, BCM receives input signal requesting the headlamp high beams to illuminate. This input signal is communicated to IPDM E/R across CAN communication lines. CPU in IPDM E/R controls the 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 IPDM E/R terminal 28
- through daytime light control unit terminal 5
- to daytime light control unit terminal 6
- through headlamp LH terminal 2
- to 10A fuse [No. 72, located in IPDM E/R]
- through IPDM E/R terminal 27
- to IPDM E/R terminal 27
- through daytime light relay-2 terminal 2 and
- through daytime light control unit terminal 1
- to 10A fuse [No. 72, located in IPDM E/R]
- through IPDM E/R terminal 27
- to IPDM E/R terminal 27
- through daytime light relay-2 terminal 5
- to daytime light relay-2 terminal 3
- through 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 LH terminal 8
- through daytime light control unit terminal 7
- to headlamp RH terminal 4
- through grounds E17 and E43
- to headlamp LH terminal 4
- through grounds E17 and E43
- to daytime light control unit terminal 9
- through grounds E17 and E43.

When power and ground supplied, the 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 CAN communication lines.

COMBINATION SWITCH READING FUNCTION

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

EXTERIOR LAMP BATTERY SAVER CONTROL

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

AUTO LIGHT OPERATION

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

DAYTIME LIGHT OPERATION

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

- through daytime light control unit terminal 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
- to daytime light control unit terminal 9
- through grounds E17 and E43.

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

- through IPDM E/R terminal 20
- 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 the engine with the lighting switch in the “OFF” or 1ST position, the headlamp high beam automatically turns on. Lighting switch operations other than the above are the 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 the low beam headlamps. Xenon bulbs do not use a filament. Instead, they produce light when a high voltage current is passed between two tungsten electrodes through a mixture of xenon (an inert gas) and certain other metal halides. In addition to added lighting power, electronic control of the power supply gives the headlamps stable quality and tone color.

Following are some of the many advantages of the xenon type headlamp.

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

CAN Communication System Description

AKS00ACY

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

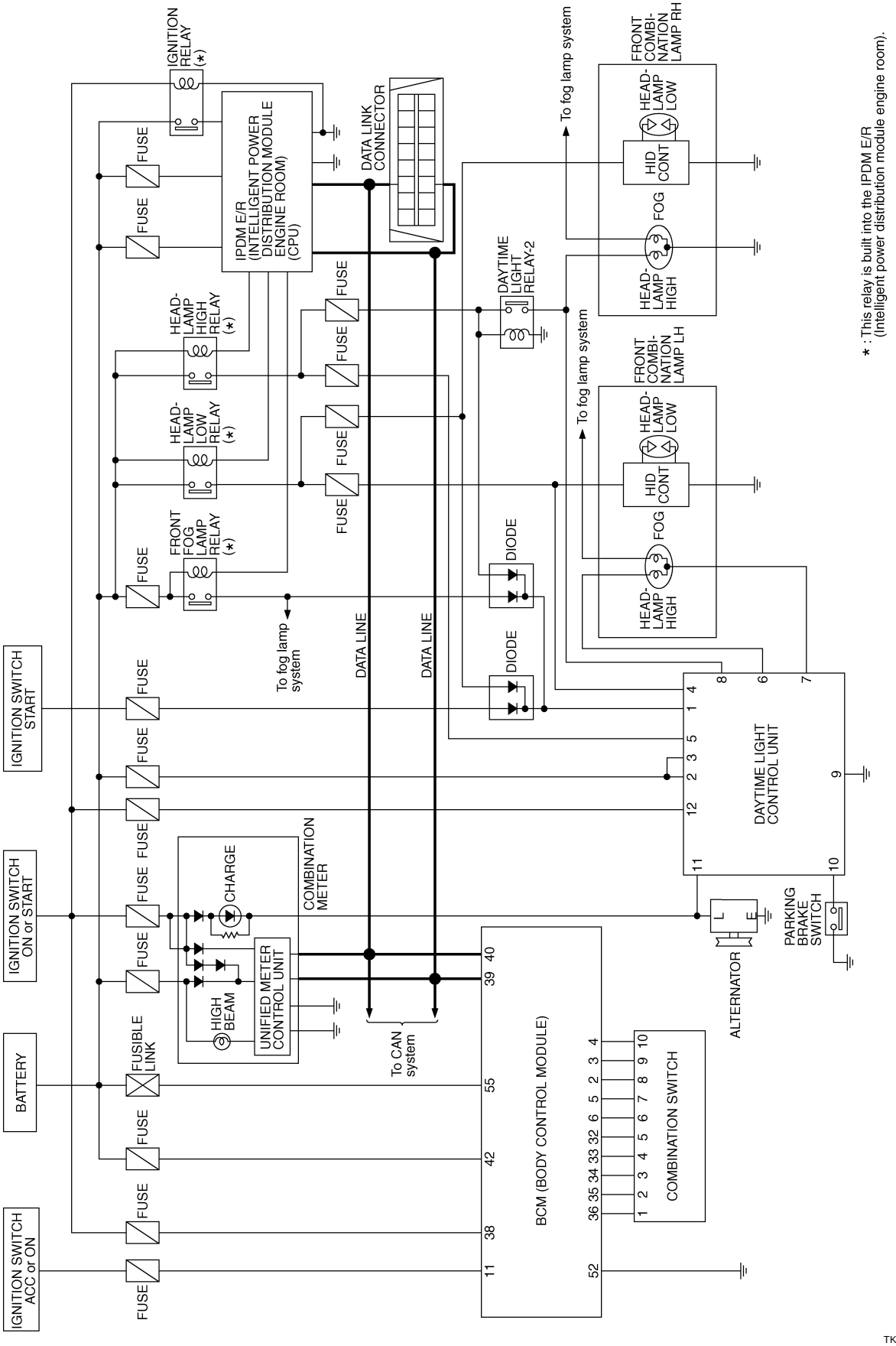
CAN Communication Unit

AKS00ACZ

Refer to LAN-4, "CAN Communication Unit" .

Schematic

AKS00AD0

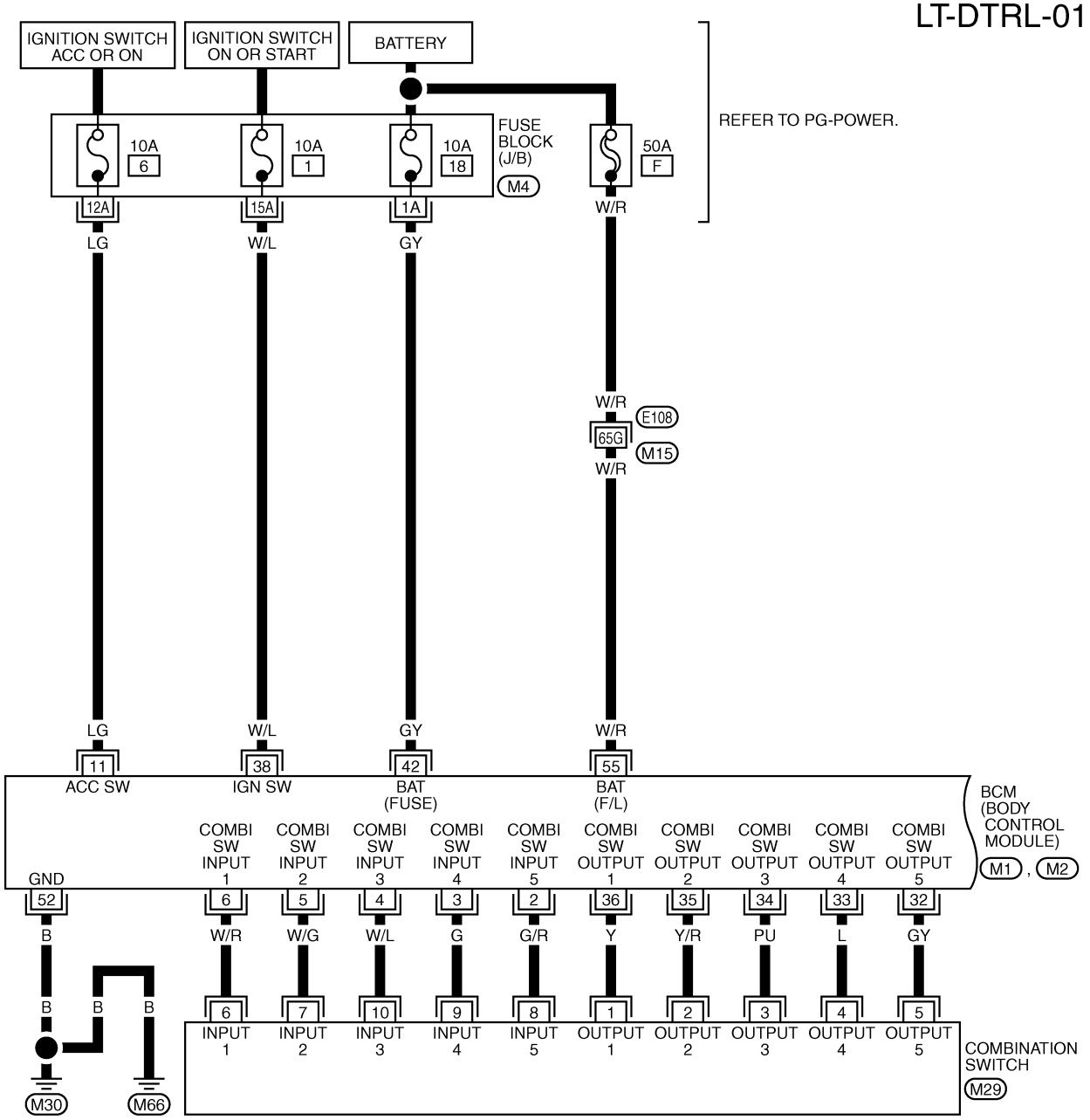


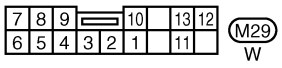
TKWM0852E

Wiring Diagram — DTRL —

AKS00AD1

LT-DTRL-01





REFER TO THE FOLLOWING.

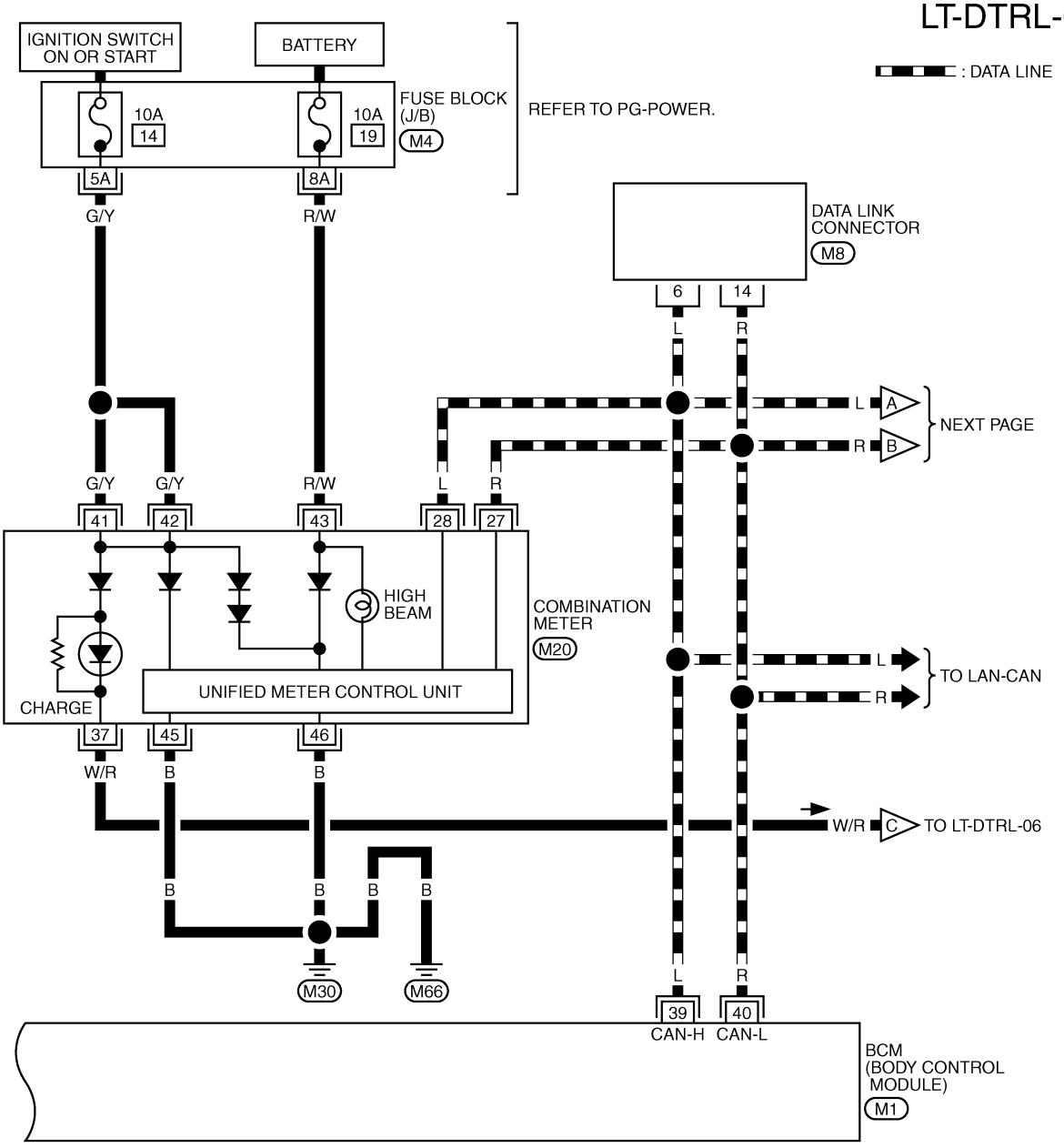
E108 -SUPER MULTIPLE JUNCTION (SMJ)

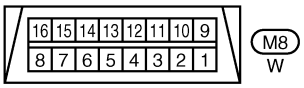
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

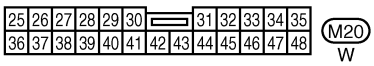
M1 , M2 -ELECTRICAL UNITS

TKWM0855E

LT-DTRL-02







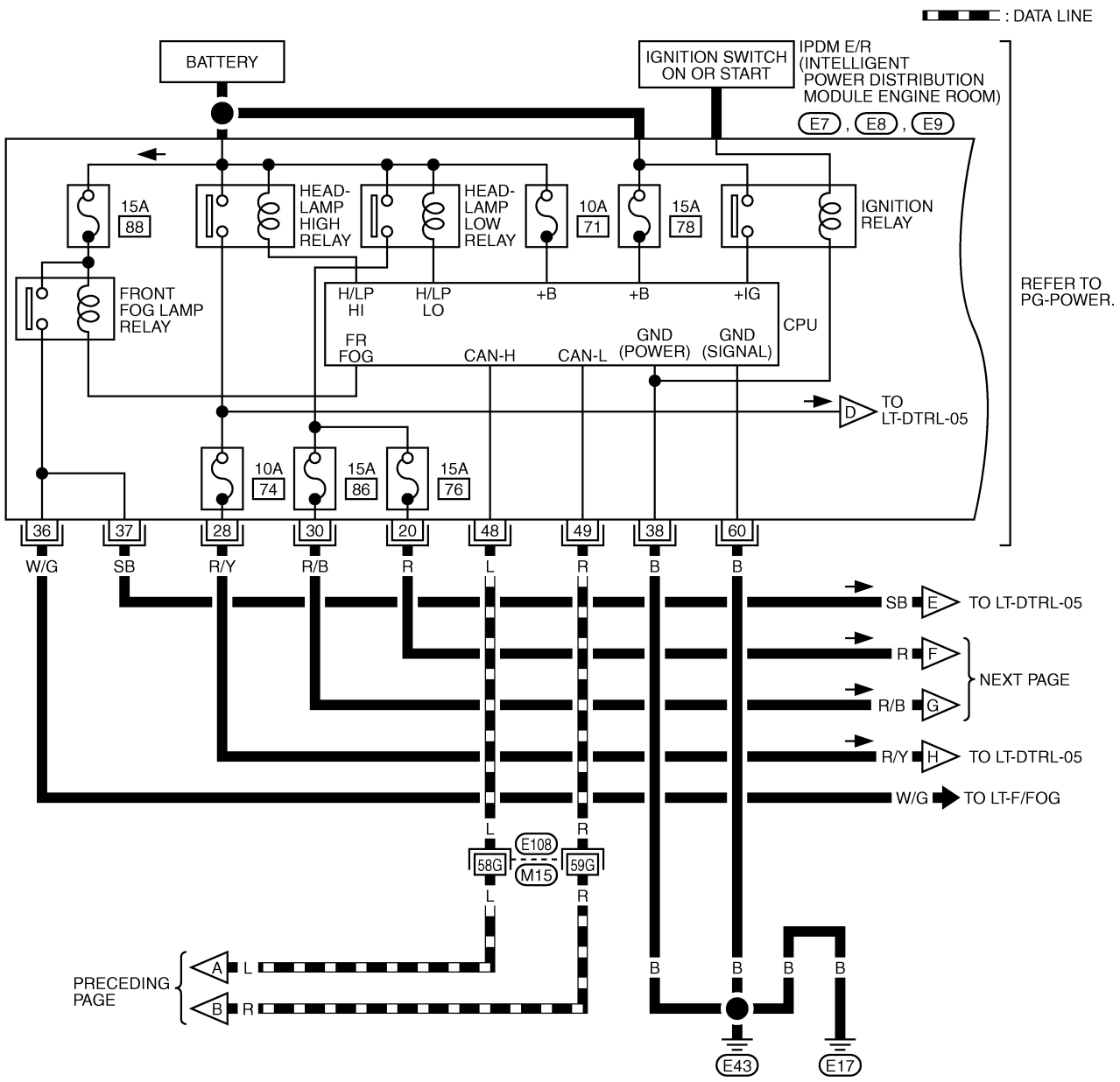
REFER TO THE FOLLOWING.

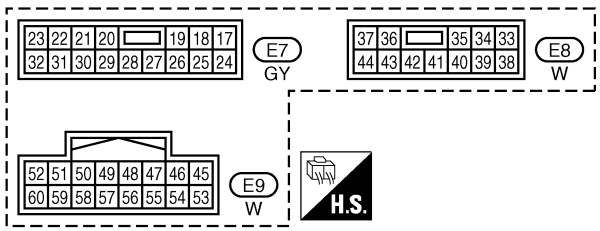
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

M1 -ELECTRICAL UNITS

TKWM0856E

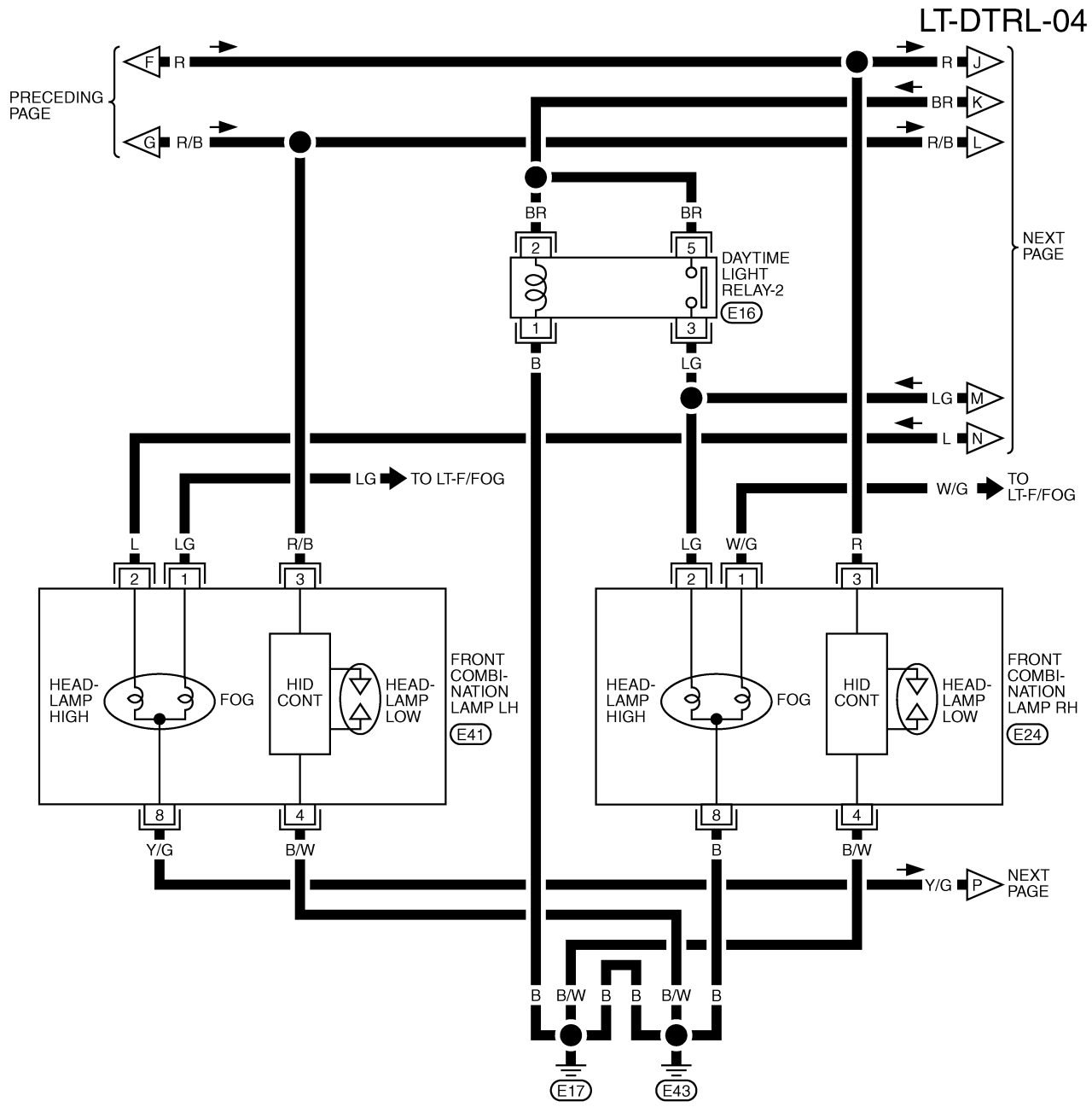
LT-DTRL-03

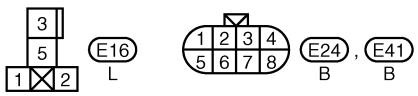




REFER TO THE FOLLOWING.
E108 -SUPER MULTIPLE JUNCTION (SMJ)

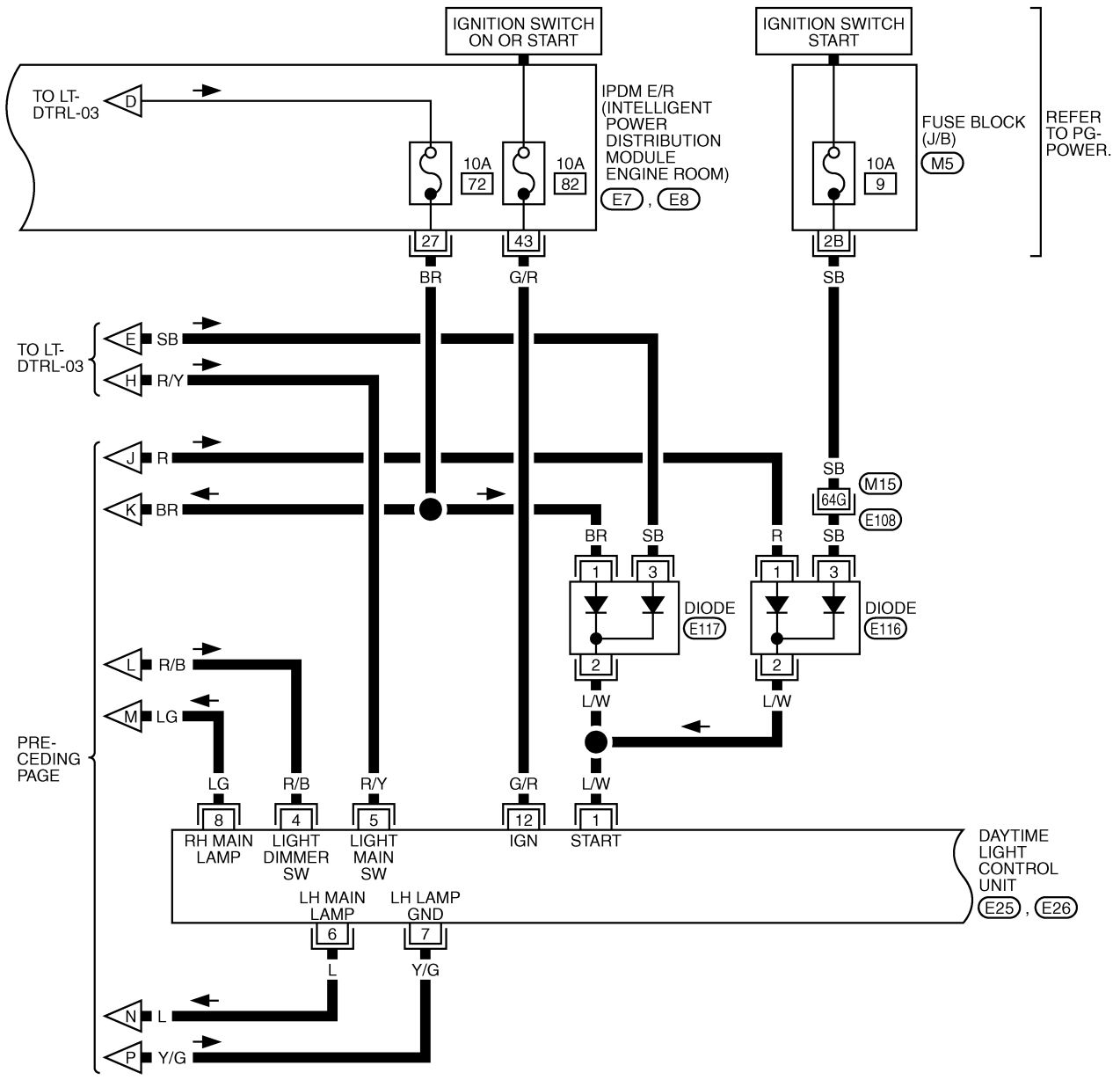
TKWM0857E

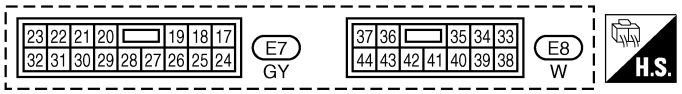

LT-DTRL-04
PRECEDING PAGE
F R
G R/B
R J
BR K
R/B L
NEXT PAGE
BR
BR
2
5
DAYTIME LIGHT RELAY-2
E16
1
3
B
LG
LG M
L N
LG
TO LT-F/FOG
W/G
TO LT-F/FOG
L
LG
R/B
LG
W/G
R
2
1
3
2
1
3
HEAD-LAMP HIGH
FOG
HID CONT
HEAD-LAMP LOW
FRONT COMBI-NATION LAMP LH
E41
HEAD-LAMP HIGH
FOG
HID CONT
HEAD-LAMP LOW
FRONT COMBI-NATION LAMP RH
E24
8
4
8
4
Y/G
B/W
B
B/W
Y/G P
NEXT PAGE
B B/W B B B/W B
E17
E43

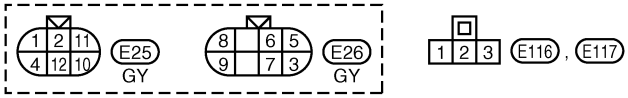

3
5
1 2
E16
L
1 2 3 4
5 6 7 8
E24
B
E41
B

TKWM0858E

LT-DTRL-05





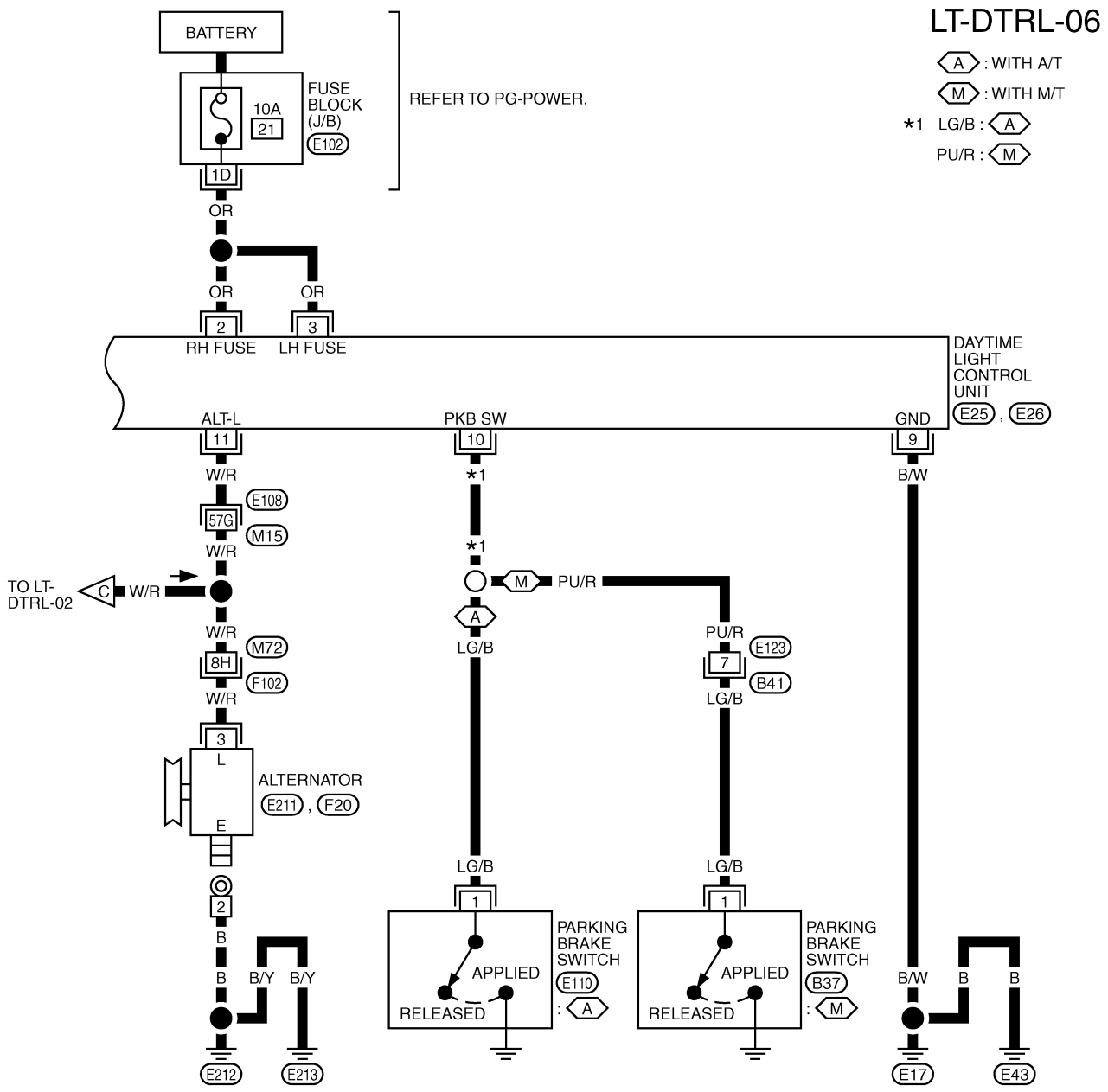


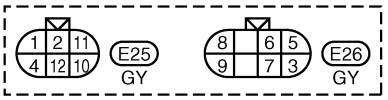
REFER TO THE FOLLOWING.

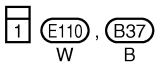
E108 -SUPER MULTIPLE JUNCTION (SMJ)

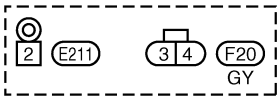
M5 -FUSE BLOCK-JUNCTION BOX (J/B)

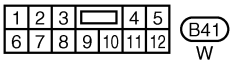
TKWM0859E











REFER TO THE FOLLOWING.

E108, F102 -SUPER MULTIPLE JUNCTION (SMJ)

E102 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWM0860E

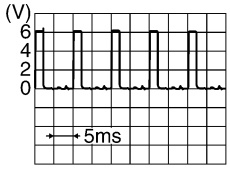
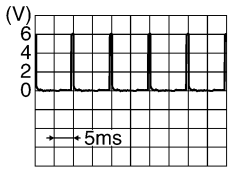
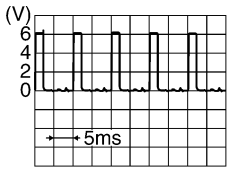
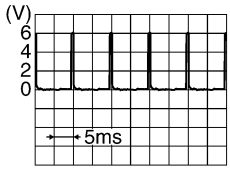
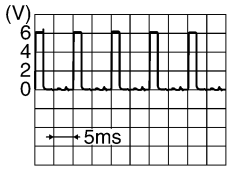
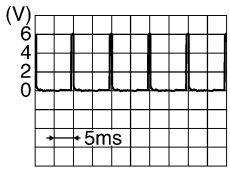
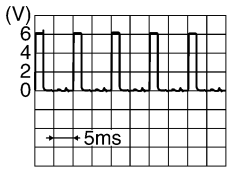
Terminals and Reference Values for Daytime Light Control Unit

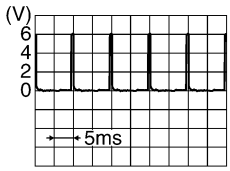
AKS00AD2

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	Light dimmer switch	When turning lighting switch to “LOW BEAM”	Battery voltage
5	R/Y	Light main switch	When turning lighting switch to “HI BEAM”	Battery voltage
6	L	LH main lamp	When lighting switch is turned to the 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 lamp (Ground)	When turning lighting switch to the 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 main lamp	When lighting switch is turned to the 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/W	Ground	—	—
10	LG/B (A/T)	Parking brake switch	When parking brake is released	Battery voltage
			When parking brake is applied	Approx. 0V
	PU/R (M/T)	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

AKS00AD3

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
2	G/R	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	W/L	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	G/Y	Battery power supply	OFF	—	Battery voltage
52	B	Ground	ON	—	Approx. 0V
55	WR	Battery power supply	OFF	—	Battery voltage

Terminals and Reference Values for IPDM E/R

AKS00AD4

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 (LH)	ON	Lighting switch HIGH or PASS position	OFF	Approx. 0V
					ON	Battery voltage
28	RY	Headlamp high (RH)	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
36	W/G	Front fog lamp	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	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
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	Ground	ON	—		Approx. 0V

How to Proceed With Trouble Diagnosis

AKS00AD5

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 cause of malfunction.
5. Does the headlamp operate normally? If YES: GO TO 6. If NO: GO TO 4.
6. INSPECTION END

Preliminary Check

AKS00AD6

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

Check for blown fuses.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
		18
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	72
		74
		76
		86
	Ignition switch ON or START	82
DAYTIME LIGHT CONTROL UNIT	Battery	21
	Ignition switch START position	9

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

OK or NG

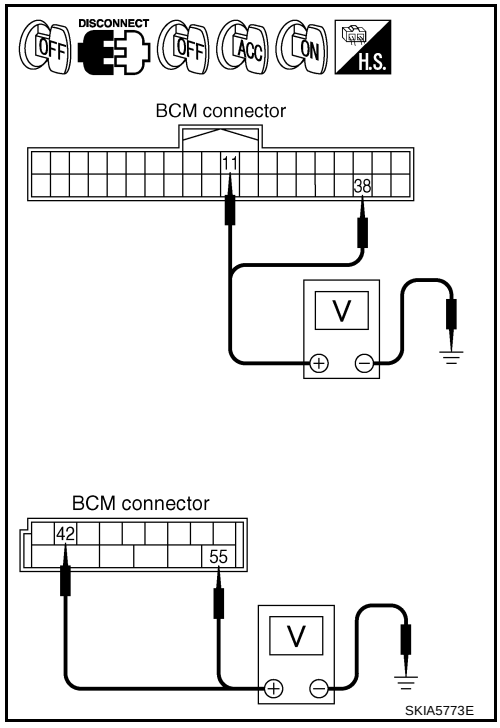
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-4, "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

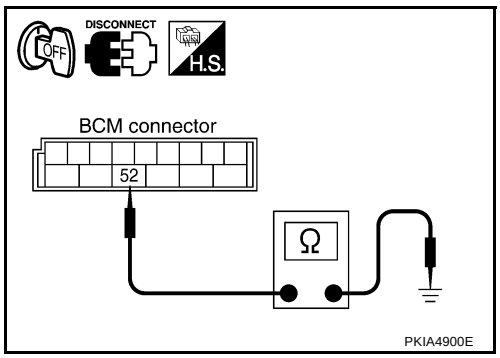
OK >> GO TO 3.

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)		
M2	52 (B)	Ground	Yes



OK or NG

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

CONSULT-II Functions (BCM)

AKS00AD7

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

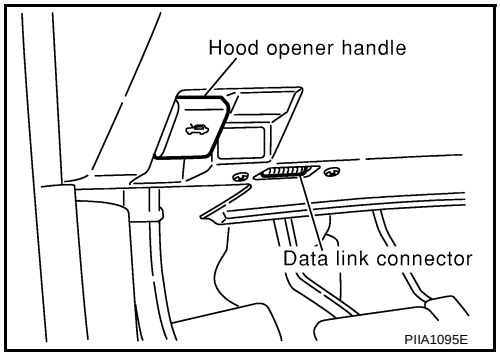
BCM diagnosis part	Check item, diagnosis mode	Description
HEAD LAMP	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.
BCM	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can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

CONSULT-II BASIC OPERATION

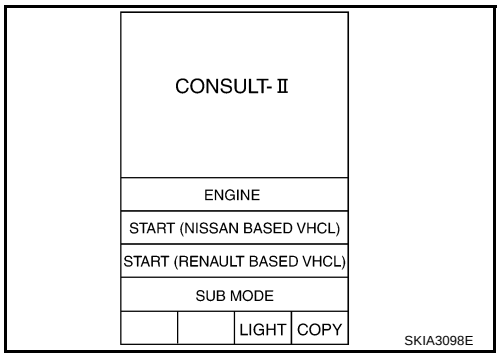
CAUTION:

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

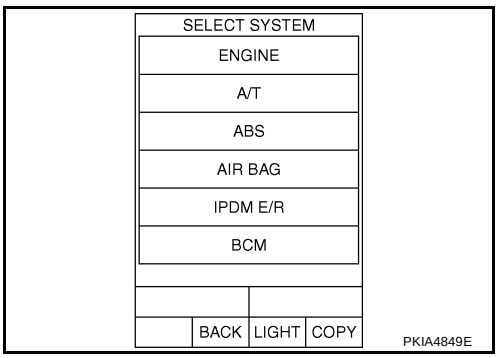
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn ignition switch ON.



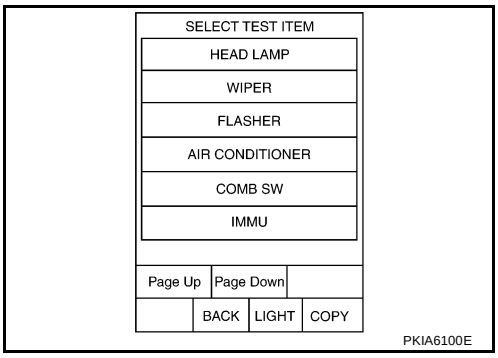
2. Touch “START (NISSAN BASED VHCL)”.



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



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



WORK SUPPORT

Operation Procedure

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

Display Item List

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

DATA MONITOR

Operation Procedure

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

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

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

Display Item List

Monitor item		Contents
IGN ON SW	“ON/OFF”	Displays “IGN position (ON)/OFF, ACC position (OFF)” judged from the ignition switch signal.
ACC ON SW	“ON/OFF”	Displays “ACC (ON)/OFF, Ignition OFF (OFF)” status judged from ignition switch signal.
HI BEAM SW	“ON/OFF”	Displays status (high beam switch: ON/Others: OFF) of high beam switch judged from lighting switch signal.
HEAD LAMP SW 1	“ON/OFF”	Displays status (headlamp switch 1: ON/Others: OFF) of headlamp switch 2 judged from lighting switch signal.
HEAD LAMP SW 2	“ON/OFF”	Displays status (headlamp switch 2: ON/Others: OFF) of headlamp switch 2 judged from lighting switch signal.
LIGHT SW 1 ST	“ON/OFF”	Displays status (lighting switch 1st position: ON/Others: OFF) of lighting switch judged from lighting switch signal.
AUTO LIGHT SW	“ON/OFF”	Displays status of the lighting switch as judged from the lighting switch signal. (AUTO position: ON/Other than AUTO position: OFF)
PASSING SW	“ON/OFF”	Displays status (flash-to-pass switch: ON/Others: OFF) of flash-to-pass switch judged from lighting switch signal.
FR FOG SW	“ON/OFF”	Displays status (front fog lamp switch: ON/Others: OFF) of front fog lamp switch judged from lighting switch signal.
DOOR SW - DR	“ON/OFF”	Displays status of the driver door as judged from the driver door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - AS	“ON/OFF”	Displays status of the passenger door as judged from the passenger door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - RR[NOTE]	“OFF”	—
DOOR SW - RL[NOTE]	“OFF”	—
BACK DOOR SW[NOTE]	“OFF”	—
TURN SIGNAL R	“ON/OFF”	Displays status (Turn right: ON/Others: OFF) as judged from lighting switch signal.
TURN SIGNAL L	“ON/OFF”	Displays status (Turn left: ON/Others: OFF) as judged from lighting switch signal.
CARGO LAMP SW[NOTE]	“OFF”	—
OPTICAL SENSOR	[0 - 5V]	Displays “ambient light (close to 5V when light/close to 0V when dark)” judged from optical sensor signal.

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

ACTIVE TEST

Operation Procedure

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

Display Item List

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

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

CONSULT-II Functions (IPDM E/R)

AKS00AD8

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

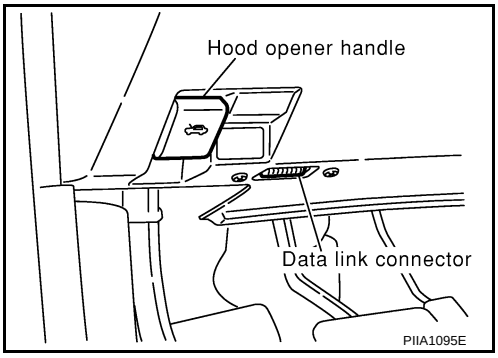
Check Item, Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	The IPDM E/R performs self-diagnosis of CAN communication.
DATA MONITOR	The input/output data of the IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE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

CONSULT-II OPERATION

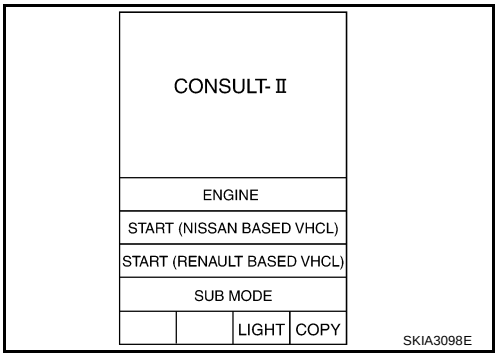
CAUTION:

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

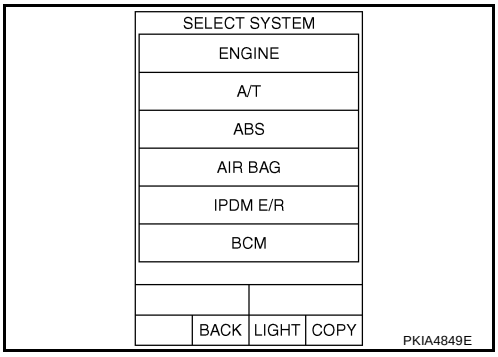
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn the ignition switch ON.



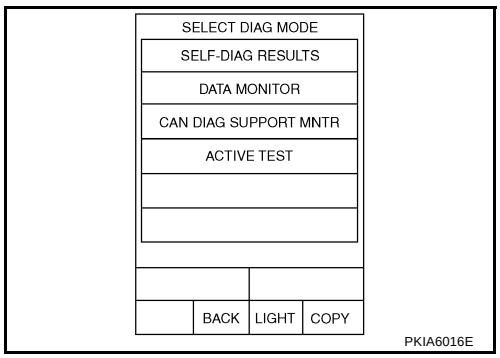
2. Touch “START (NISSAN BASED VHCL)”.



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



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



SELF-DIAGNOSTIC RESULTS

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

DATA MONITOR

Operation Procedure

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

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

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

All Signals, Main Signals, Selection From Menu

Item name	CONSULT-II screen display	Display or unit	Monitor item selection			Description
			ALL SIGNALS	MAIN SIGNALS	SELECTION FROM MENU	
Position lights request	TAIL & CLR REQ	ON/OFF	×	×	×	Signal status input from BCM
Headlamp low beam request	HL LO REQ	ON/OFF	×	×	×	Signal status input from BCM
Headlamp high beam request	HL HI REQ	ON/OFF	×	×	×	Signal status input from BCM
Font fog lights request	FR FOG REQ	ON/OFF	×	×	×	Signal status input from BCM

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

ACTIVE TEST

Operation Procedure

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

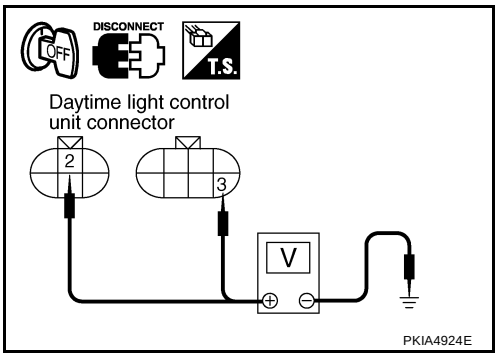
Test item	CONSULT-II screen display	Description
Headlamp relay (HI, LO) output	LAMPS	Allows headlamp relay (HI, LO) to operate by switching operation (OFF, HI ON, LO ON) at your option.
Front fog lamp relay output		Allows fog lamp relay to operate by switching operation ON-OFF at your option.
Tail lamp relay output	TAIL LAMP	Allows tail lamp relay to operate by switching operation ON-OFF at your option.

Daytime Light Control Does Not Operate Properly

AKS00AD9

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
Daytime light control unit (+)		(-)	
Connector	Terminal (Wire color)	Ground	
E25	2 (OR)		Battery voltage
E26	3 (OR)		

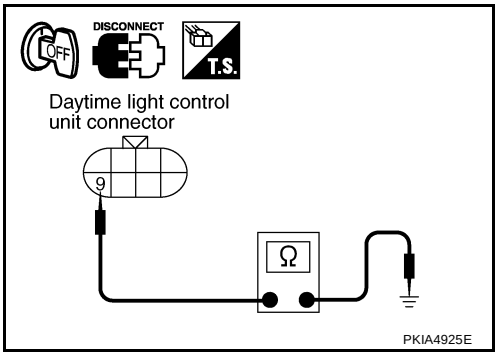
OK or NG

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 and ground.

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



OK or NG

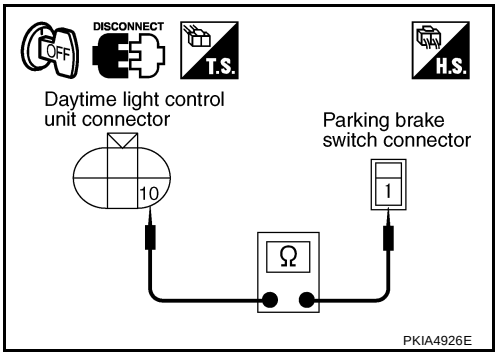
OK >> GO TO 3.
NG >> Repair harness or connector.

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*1 , LG/B*2) and parking brake switch harness connector B37*1 or E110*2 terminal 1 (LG/B).

10 (PU/R*1 , LG/B*2) – 1 (LG/B) : Continuity should exist.

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



OK or NG

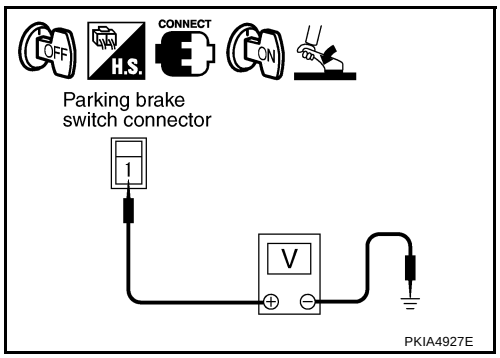
OK >> GO TO 4.
NG >> Repair harness or connector.

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 (LG/B) and ground, when parking brake is released.

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

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



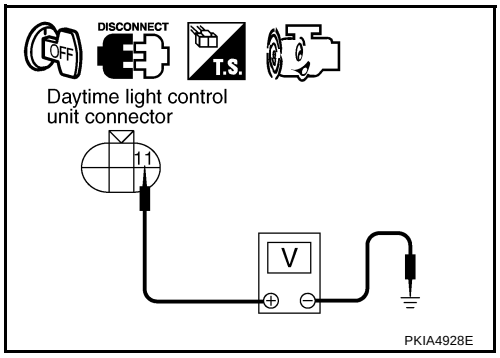
OK or NG

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.



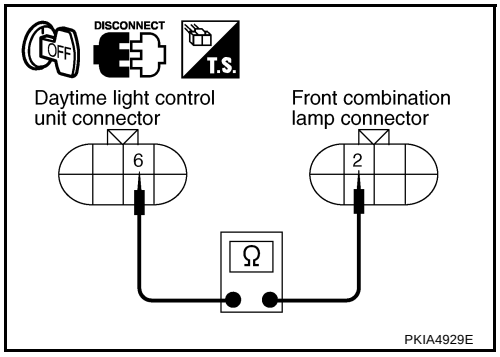
OK or NG

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 harness connector E41 terminal 2 (L).

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



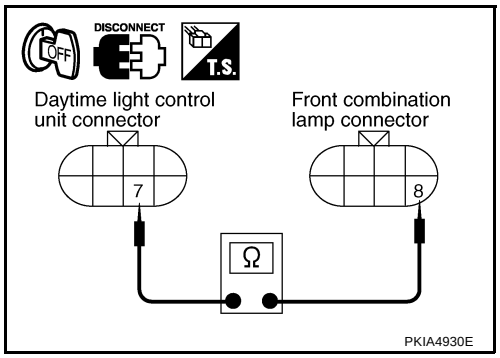
OK or NG

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 harness connector of LH front combination lamp 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.

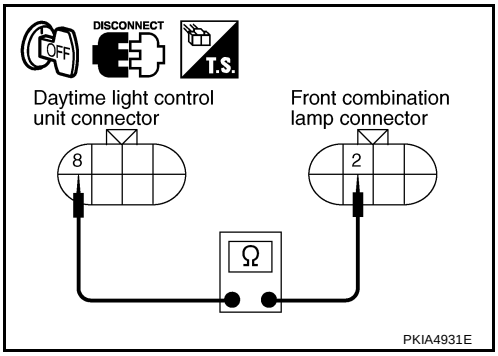
8. CHECK POWER CITCUIT BETWEEN DAYTIME LIGHT CONTROL UNIT AND HEADLAMP RH

1. Disconnect RH front combination lamp connector.
2. 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.



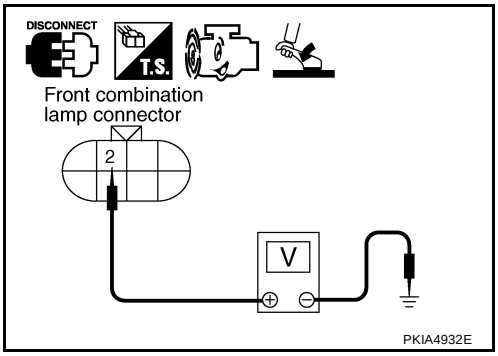
9. CHECK DAYTIME LIGHT CONTROL UNIT

1. Connect daytime light control unit connector and LH front combination lamp 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 High Beam Does Not Illuminate (Both Sides)

AKS00ADA

1. CHECK COMBINATION SWITCH INPUT SIGNAL

With CONSULT-II

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

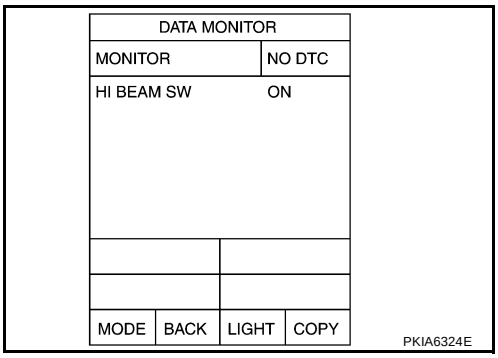
When lighting switch is HIGH BEAM position : HI BEAM SW ON

Without CONSULT-II

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

OK or NG

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

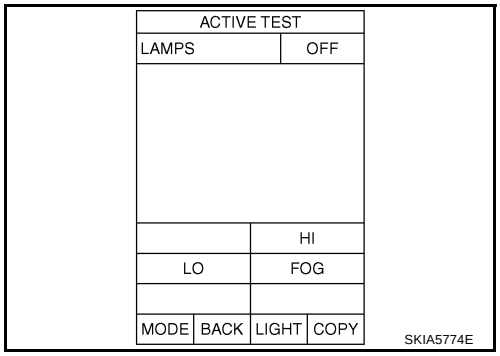


2. HEADLAMP ACTIVE TEST

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

Headlamp high beam should operate.



Without CONSULT-II

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

Headlamp high beam should operate.

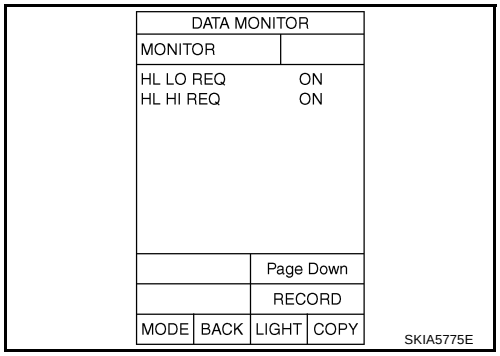
OK or NG

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

3. CHECK IPDM E/R

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

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



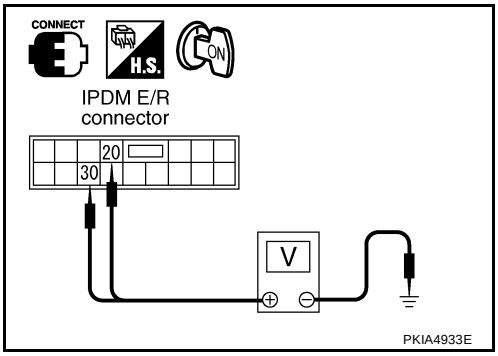
OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-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” screen.
3. Touch “HI” screen.
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)		

Without CONSULT-II

1. Start auto active test. Refer to PG-23, "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 High Beam Does Not Illuminate But RH Low Beam Illuminates

AKS00ADB

1. CHECK BULB

Check bulb of lamp.

OK or NG

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

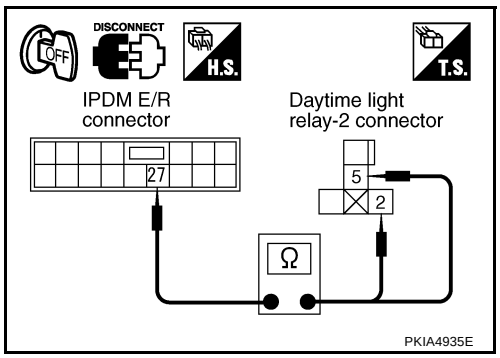
2. CHECK CIRCUIT BETWEEN IPDM E/R AND DAYTIME LIGHT RELAY–2

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.



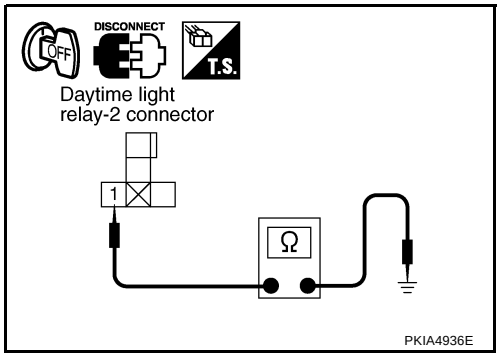
OK or NG

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

3. CHECK DAYTIME LIGHT RELAY–2 AND GROUND

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

1 (B) – Ground : Continuity should exist.



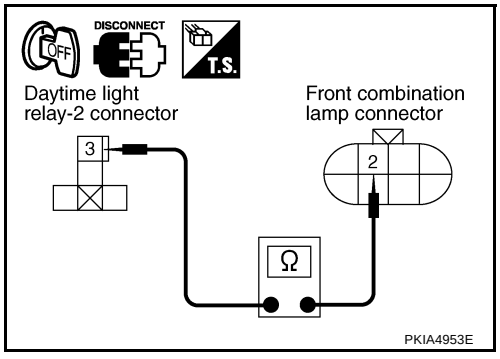
OK or NG

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.



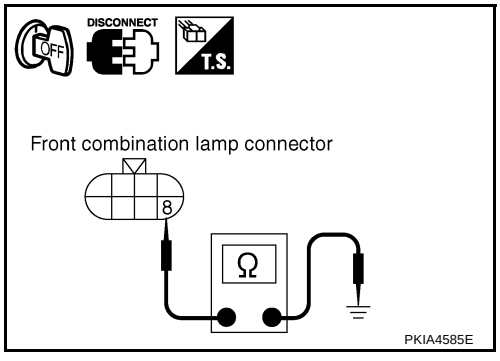
OK or NG

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.

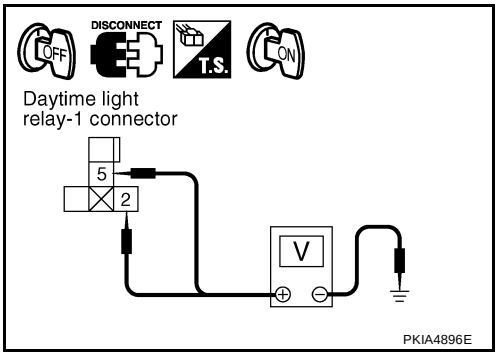
6. CHECK IPDM E/R

1. Connect IPDM E/R connector.
2. Turn ignition switch ON.
3. Lighting switch turned HIGH BEAM 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.

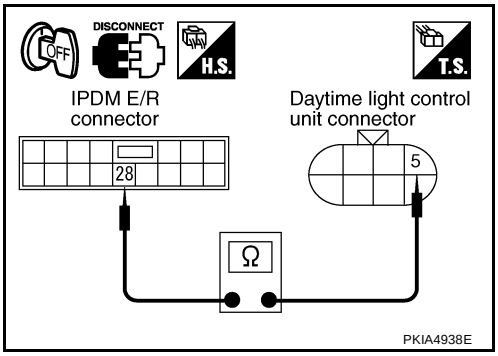
LH High Beam Does Not Illuminate But LH Low Beam Illuminates

AKS00ADC

1. CHECK CIRCUIT 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.



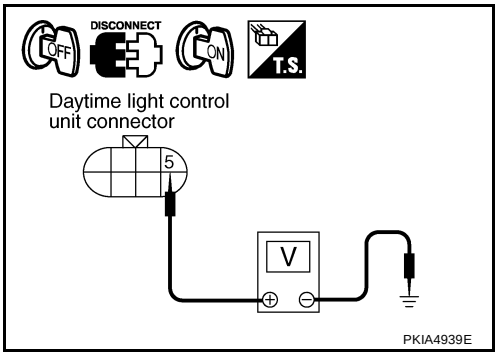
OK or NG

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 turned HIGH BEAM 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.



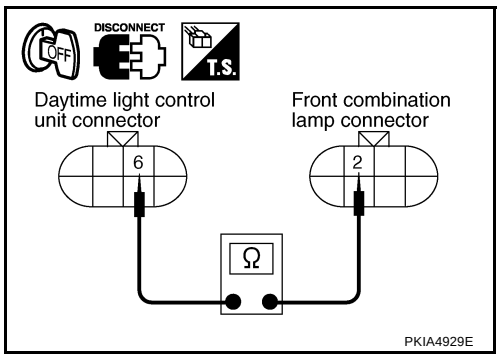
OK or NG

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 of harness connector E26 terminal 6 (L) and LH front combination lamp of harness connector LH E41 terminal 2 (L).

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



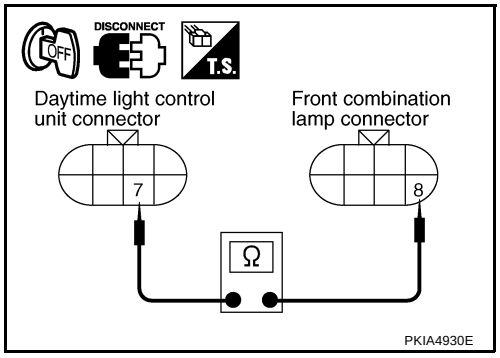
OK or NG

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.



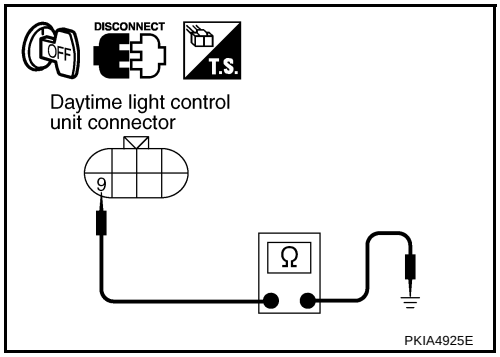
OK or NG

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/W) and ground.

9 (B/W) - Ground : Continuity should exist.



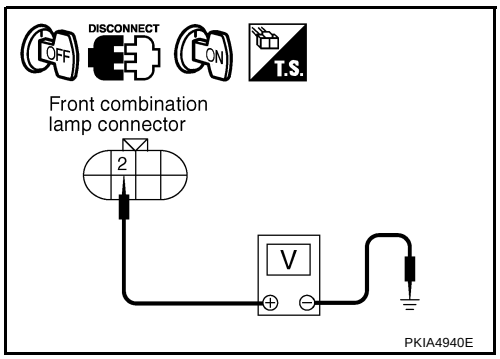
OK or NG

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 BEAM 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)

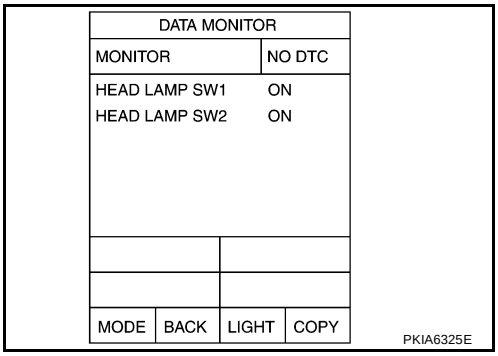
AKS00ADD

1. CHECK COMBINATION SWITCH INPUT SIGNAL

With CONSULT-II

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

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



Without CONSULT-II

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

OK or NG

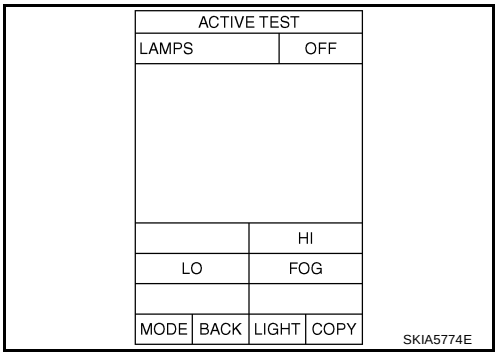
OK >> GO TO 2.
NG >> Check lighting switch. Refer to LT-128, "Combination Switch Inspection" .

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

Headlamp low beam should operate.



Without CONSULT-II

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

Headlamp low beam should operate.

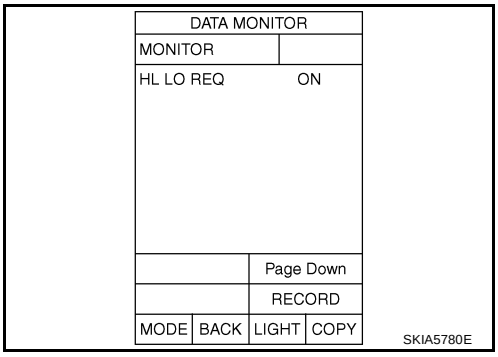
OK or NG

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

3. CHECK IPDM E/R

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

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



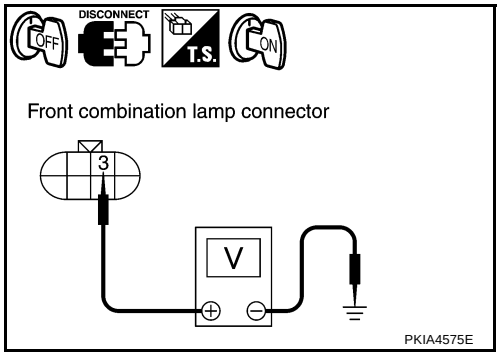
OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-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)		

Without CONSULT-II

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

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

OK or NG

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

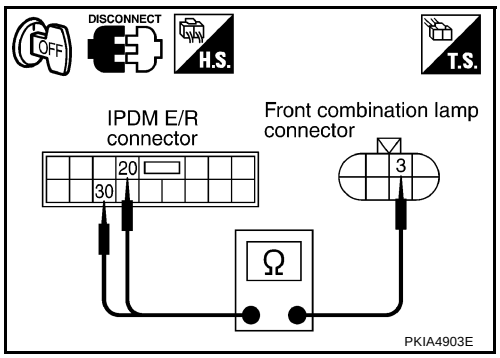
5. CHECK HEADLAMP CIRCUIT

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.

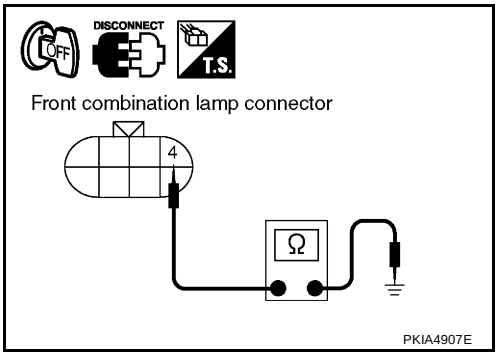
6. CHECK HEADLAMP GROUND

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

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

2. Check continuity between front combination lamp LH harness connector E41 terminal 4 (B/W) and ground.

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



OK or NG

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

NG >> Repair harness or connector.

RH Low Beam Does Not Illuminate But RH High Beam Illuminates

AKS00ADE

1. CHECK BULB

Check ballasts (HID control unit) and xenon bulb of lamp which does not illuminate. (Xenon models)

OK or NG

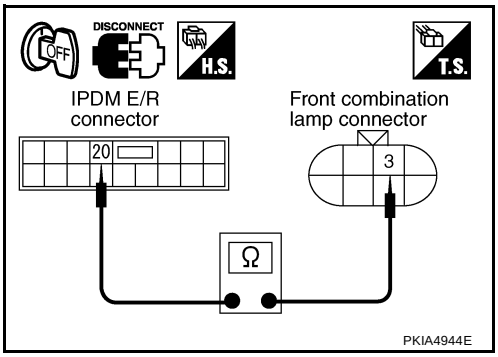
OK >> GO TO 2.

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

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

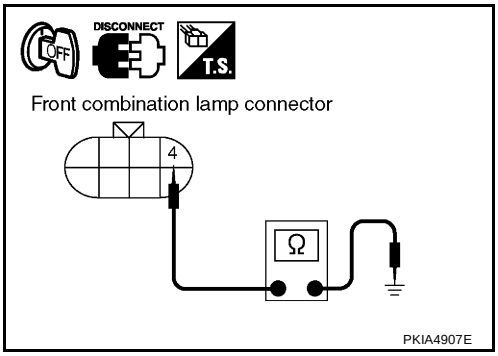
OK >> GO TO 3.

NG >> Repair harness or connector.

3. CHECK HEADLAMP RH GROUND CIRCUIT

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

4 (B/W) - Ground : Continuity should exist.



OK or NG

OK >> Replace IPDM E/R.

NG >> Repair harness or connector.

LH Low Beam Does Not Illuminate But LH High Beam Illuminates

AKS00ADF

1. CHECK BULB

Check ballasts (HID control unit) and xenon bulb of lamp which does not illuminate.

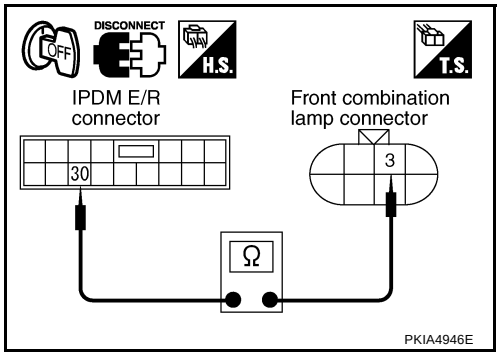
OK or NG

OK >> GO TO 2.
NG >> Check headlamp harness and connectors, ballasts (HID control unit), and xenon bulbs. Refer to LT-32, "Xenon Headlamp Trouble Diagnosis" .

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

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

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



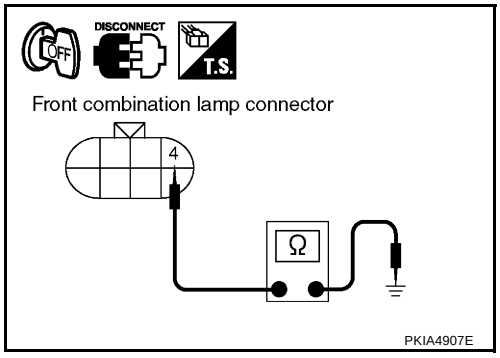
OK or NG

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

3. CHECK HEADLAMP LH AND GROUND

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

4 (B/W) - Ground : Continuity should exist.



OK or NG

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

Aiming Adjustment

AKS00ADG

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

Bulb Replacement

AKS00ADH

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

Removal and Installation

AKS00ADI

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

Disassembly and Assembly

AKS00ADJ

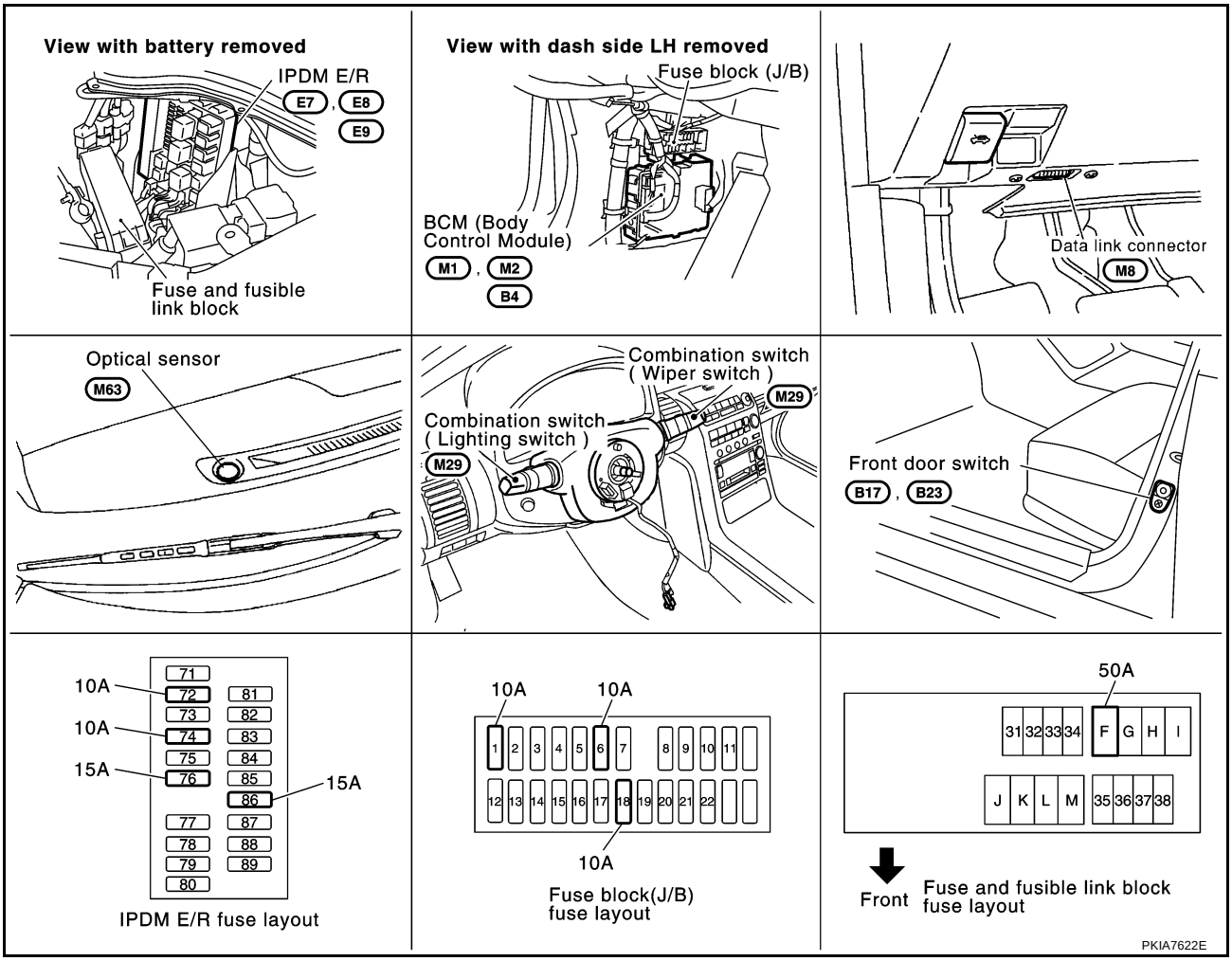
Refer to LT-36, "Disassembly" , LT-36, "Assembly" in “HEAD LAMP (FOR USA)”.

AUTO LIGHT SYSTEM

PFP:28491

Component Parts and Harness Connector Location

AKS009UL



System Description

AKS009UM

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

OUTLINE

The auto light control system has an optical sensor inside it that detects outside brightness.
When the lighting switch is in “AUTO” position, it automatically turns on/off the parking lamps and the headlamps in accordance with the ambient light. Sensitivity can be adjusted in four steps. For the details of the setting, refer to LT-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 optical sensor terminal 3
- to BCM (body control module) terminal 18.

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

DELAY TIMER FUNCTION

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

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

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

CAN Communication System Description

AKS009UN

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

CAN Communication Unit

AKS009UO

Refer to LAN-4, "CAN Communication Unit" .

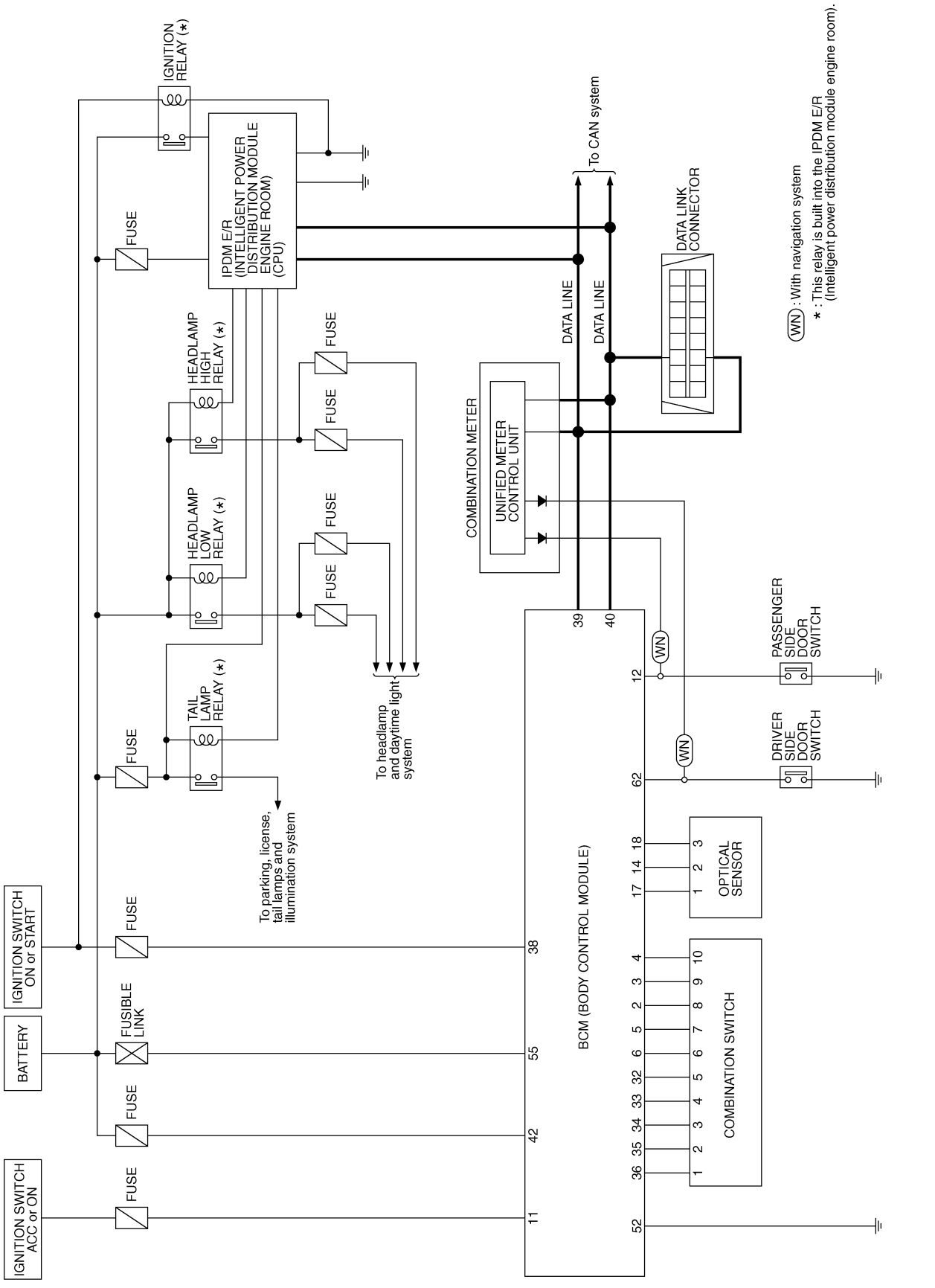
Major Components and Functions

AKS009UP

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

AKS009UQ

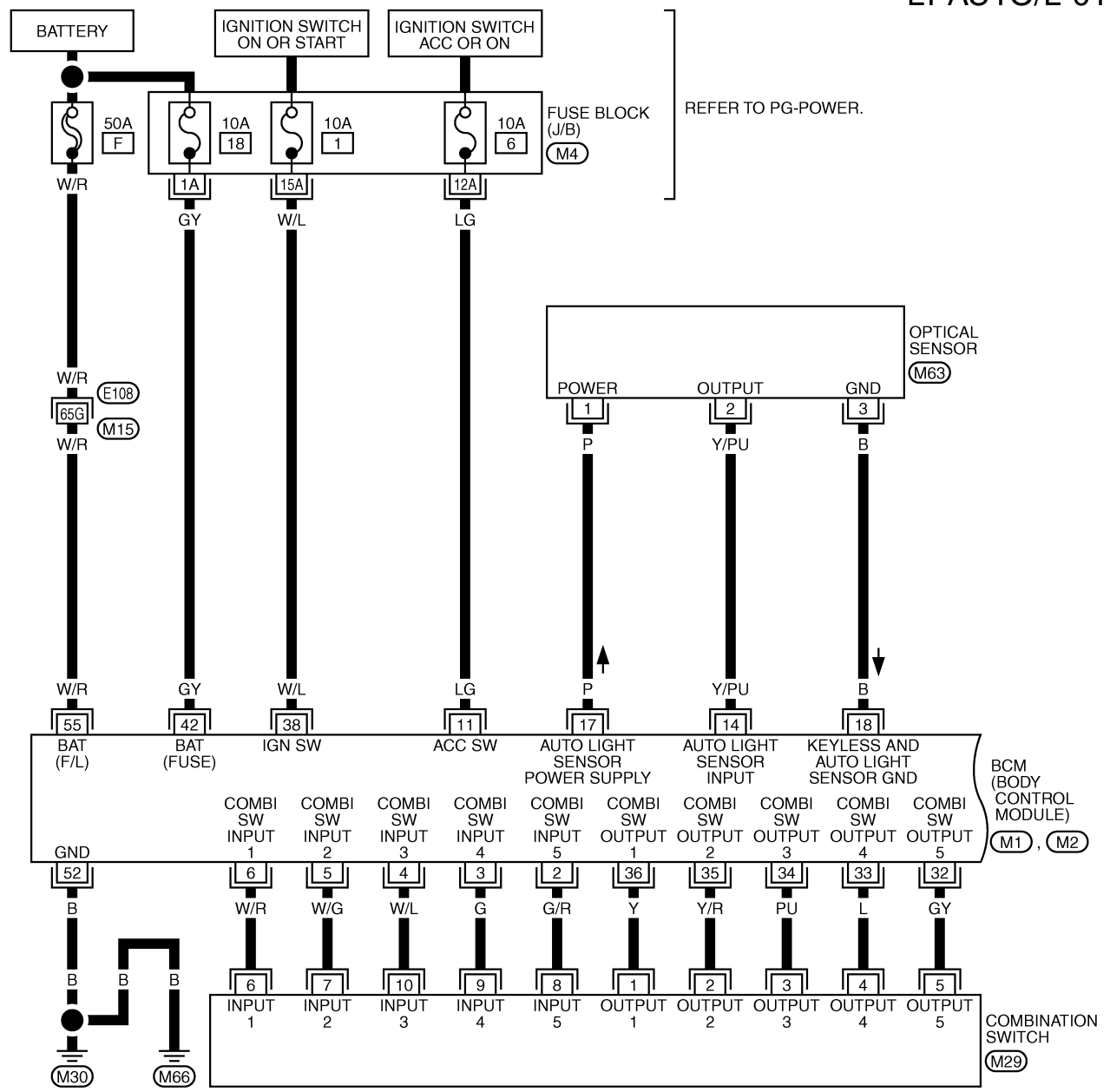


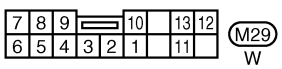
TKWM0861E

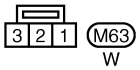
Wiring Diagram — AUTO/L —

AKS009UR

LT-AUTO/L-01







REFER TO THE FOLLOWING.

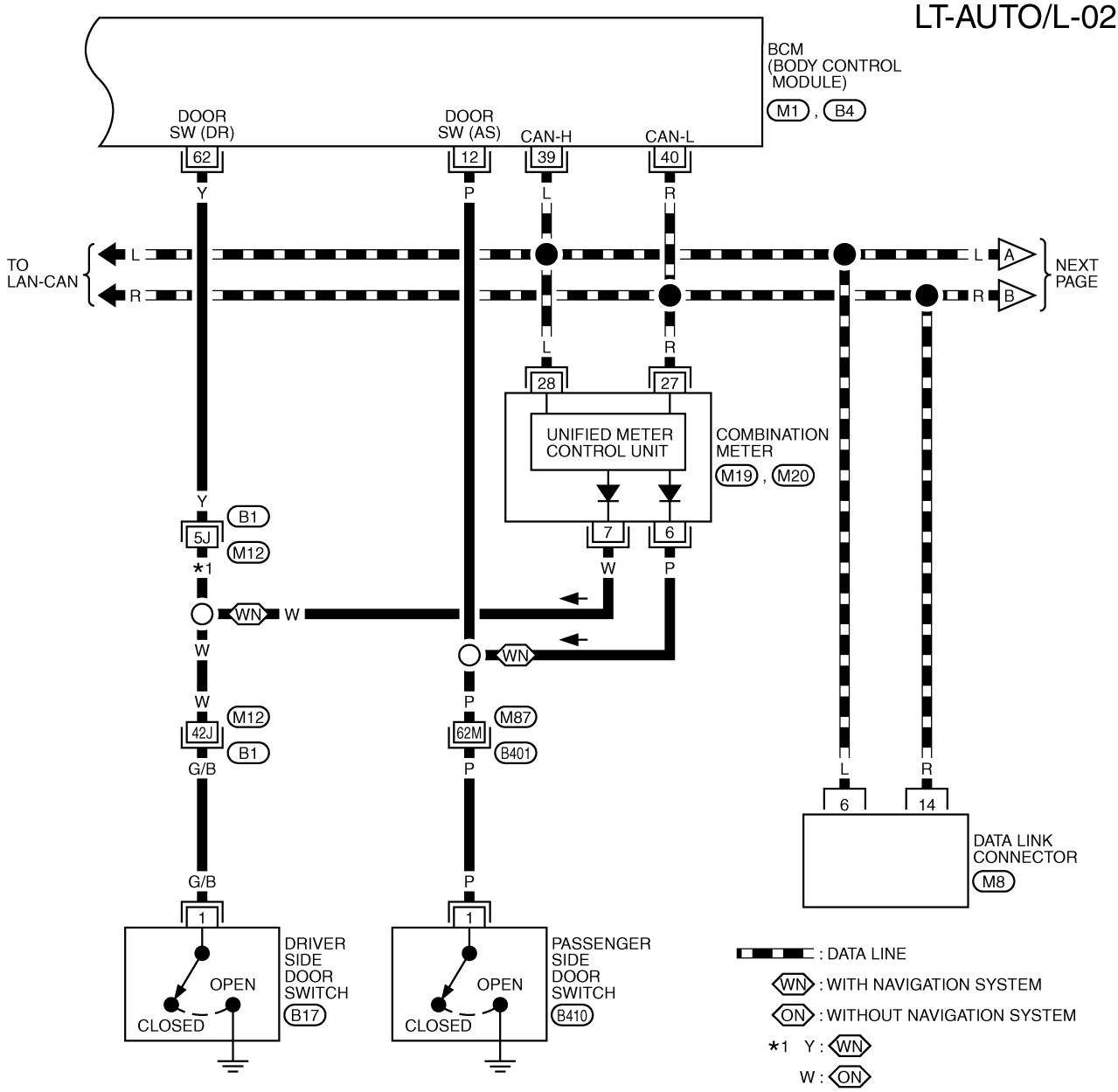
E108 -SUPER MULTIPLE JUNCTION (SMJ)

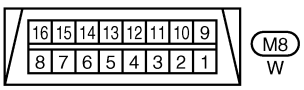
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

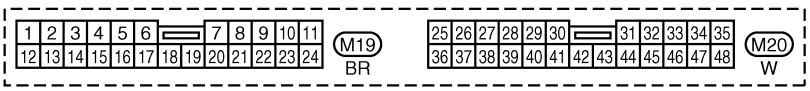
M1, M2 -ELECTRICAL UNITS

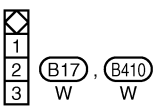
TKWM0862E

LT-AUTO/L-02



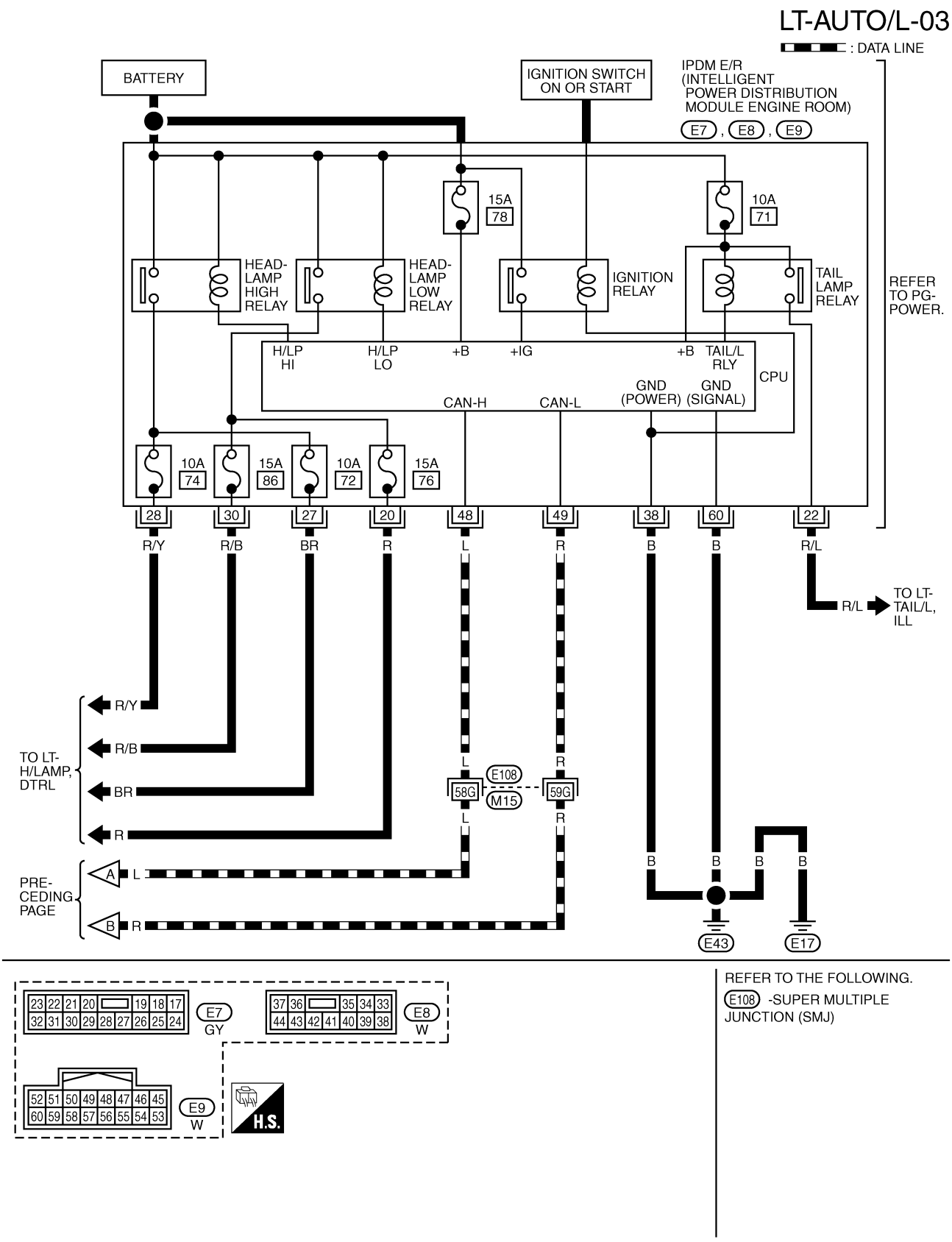






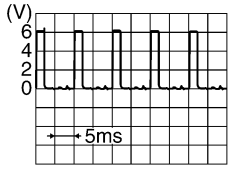
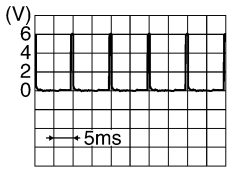
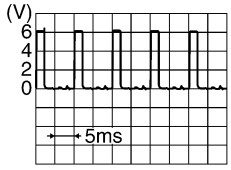
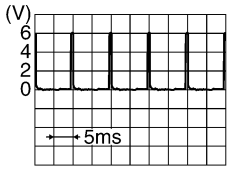
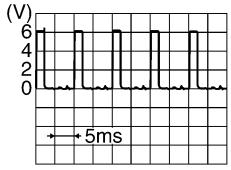
REFER TO THE FOLLOWING.
B1 , B401 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , B4 -ELECTRICAL UNITS

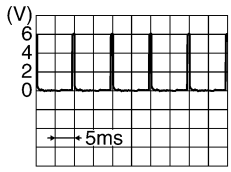
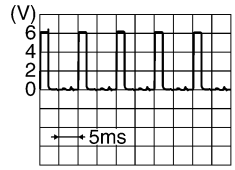
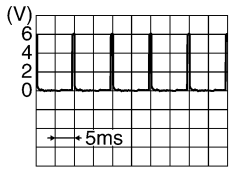
TKWM0863E


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
IGNITION RELAY
TAIL LAMP RELAY
REFER TO PG-POWER.
H/LP HI
H/LP LO
+B
+IG
+B
TAIL/L RLY
CPU
GND (POWER)
GND (SIGNAL)
CAN-H
CAN-L
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
R/L
TO LT-TAIL/L, ILL
TO LT-H/LAMP, DTRL
PRE-CEDING PAGE
A
B
E108
58G
M15
59G
B
B
B
B
E43
E17
E7
GY
E8
W
E9
W
H.S.
REFER TO THE FOLLOWING.
E108 -SUPER MULTIPLE JUNCTION (SMJ)
TKWM0864E

Terminals and Reference Values for BCM

AKS009US

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
2	G/R	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	W/L	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
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	Keyless and auto light 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	Y	Front door switch (Driver side) signal	OFF	Front door switch (Driver side)	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

AKS009UT

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
30	R/B	Headlamp low (LH)	ON	Lighting switch 2ND position	OFF	Approx. 0V
					ON	Battery voltage
38	B	Ground	ON	—		Approx. 0V

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

How to Proceed With Trouble Diagnosis

AKS009UU

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 cause of malfunction. Refer to LT-85, "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

AKS009UV

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

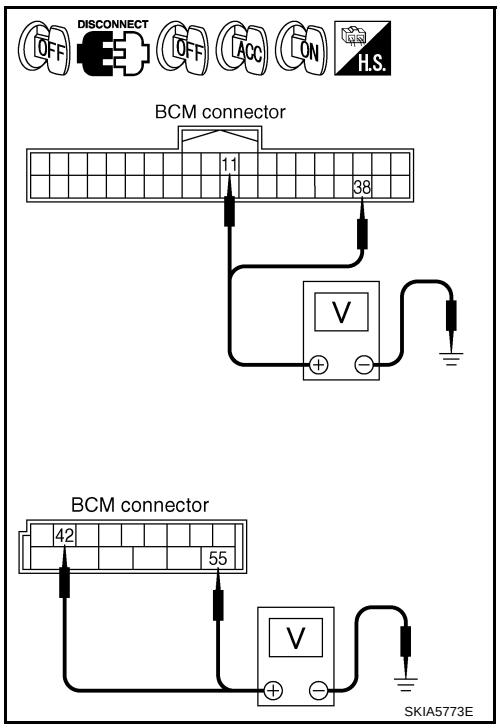
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-4, "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



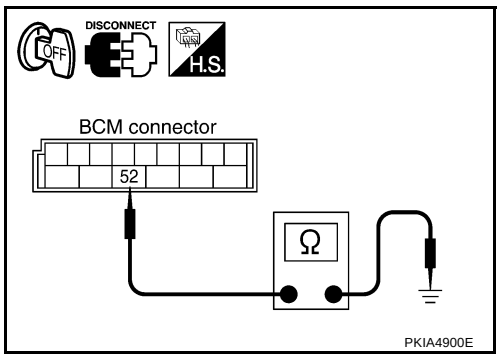
OK or NG

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)		
M2	52 (B)	Ground	Yes



OK or NG

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

CONSULT-II Functions (BCM)

AKS009UW

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

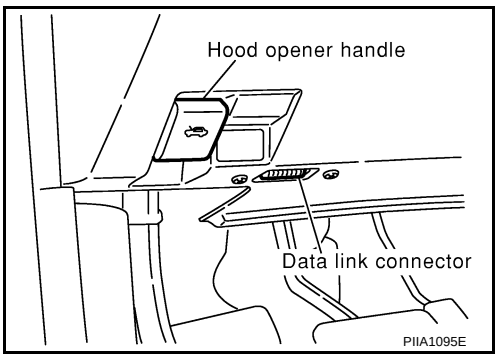
BCM diagnosis part	Check item, diagnosis mode	Description
HEAD LAMP	WORK SUPPORT	Changes the setting for each function.
	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.
BCM	CAN DIAG SUPPORT MNTR	The result of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

CONSULT-II BASIC OPERATION

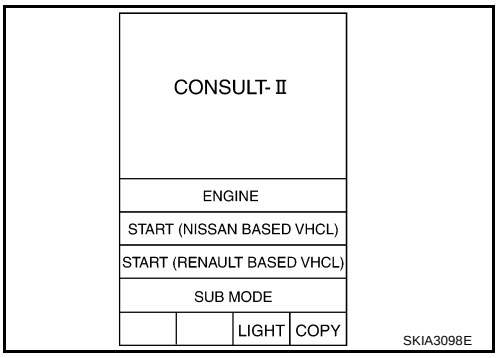
CAUTION:

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.

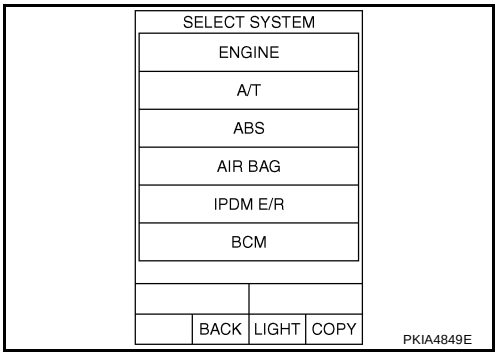
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn ignition switch ON.



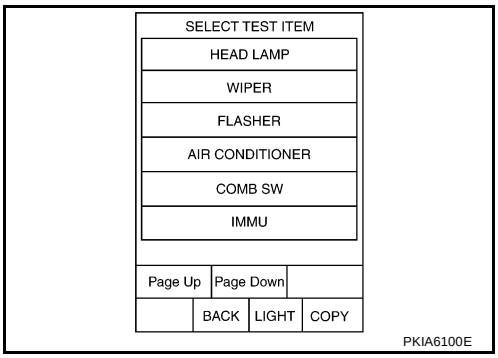
2. Touch “START (NISSAN BASED VHCL)”.



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



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



WORK SUPPORT

Operation Procedure

1. Touch “HEAD LAMP” on “SELECT TEST ITEM” screen.
2. Touch “WORK SUPPORT” on “SELECT DIAG MODE” screen.
3. Touch “CUSTOM A/LIGHT SETTING” or “ILL DELAY SET” on “SELECT WORK ITEM” screen.
4. Touch “START”.
5. Touch “NORMAL” or “MODE 2 - 4” of setting to be changed (CUSTOM A/LIGHT SETTING), 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 the “DATA MONITOR” screen.

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

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

Display Item List

Monitor item		Contents
IGN ON SW	“ON/OFF”	Displays “IGN position (ON)/OFF, ACC position (OFF)” judged from the ignition switch signal.
ACC ON SW	“ON/OFF”	Displays “ACC (ON)/OFF, Ignition OFF (OFF)” status judged from ignition switch signal.
HI BEAM SW	“ON/OFF”	Displays status (high beam switch: ON/Others: OFF) of high beam switch judged from lighting switch signal.
HEAD LAMP SW 1	“ON/OFF”	Displays status (headlamp switch 1: ON/Others: OFF) of headlamp switch 2 judged from lighting switch signal.
HEAD LAMP SW 2	“ON/OFF”	Displays status (headlamp switch 2: ON/Others: OFF) of headlamp switch 2 judged from lighting switch signal.
LIGHT SW 1 ST	“ON/OFF”	Displays status (lighting switch 1st position: ON/Others: OFF) of lighting switch judged from lighting switch signal.
AUTO LIGHT SW	“ON/OFF”	Displays status of the lighting switch as judged from the lighting switch signal. (AUTO position: ON/Other than AUTO position: OFF)
PASSING SW	“ON/OFF”	Displays status (flash-to-pass switch: ON/Others: OFF) of flash-to-pass switch judged from lighting switch signal.
FR FOG SW	“ON/OFF”	Displays status (front fog lamp switch: ON/Others: OFF) of front fog lamp switch judged from lighting switch signal.
DOOR SW - DR	“ON/OFF”	Displays status of the driver door as judged from the driver door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - AS	“ON/OFF”	Displays status of the passenger door as judged from the passenger door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - RR[NOTE]	“OFF”	—
DOOR SW - RL[NOTE]	“OFF”	—
BACK DOOR SW[NOTE]	“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.

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

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

ACTIVE TEST

Operation Procedure

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

Display Item List

Test item	Description
TAIL LAMP	Allows tail lamp relay to operate by switching ON–OFF.
HEAD LAMP (LOW)	Allows headlamp relay to operate by switching ON–OFF.
HEAD LAMP (HI)	Allows headlamp relay to operate by switching ON–OFF.
FR FOG LAMP	Allows fog lamp relay to operate by switching ON–OFF.
CORNERING LAMP[NOTE]	—
CARGO LAMP	Allow cargo lamp operate by switching ON–OFF.

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

CONSULT-II Functions (IPDM E/R)

AKS009UX

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

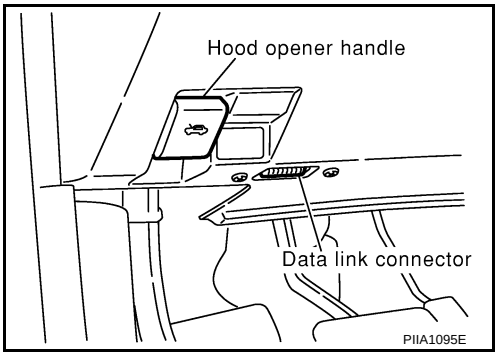
Check Item, Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	The IPDM E/R performs self-diagnosis of CAN communication.
DATA MONITOR	The input/output data of the IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE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

CONSULT-II OPERATION

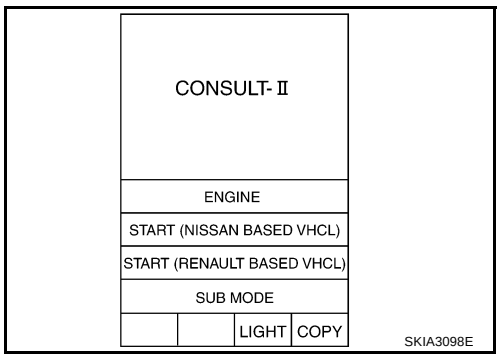
CAUTION:

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

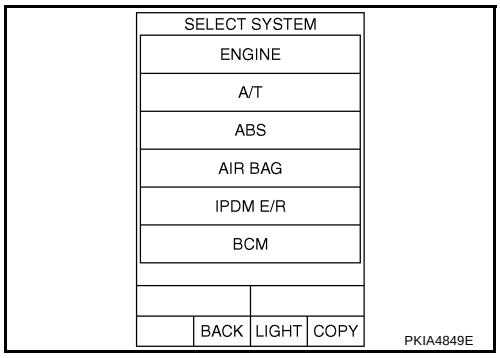
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn the ignition switch ON.



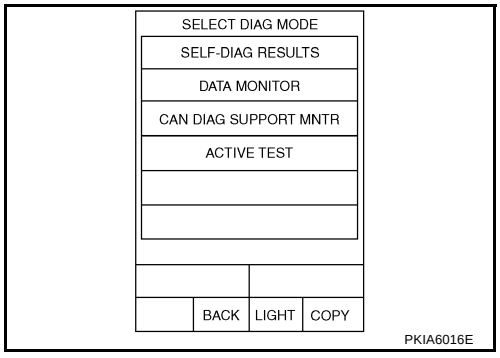
2. Touch “START (NISSAN BASED VHCL)”.



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



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



SELF-DIAGNOSTIC RESULTS

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

DATA MONITOR

Operation Procedure

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

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

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

All Signals, Main Signals, Selection From Menu

Item name	CONSULT-II screen display	Display or unit	Monitor item selection			Description
			ALL SIGNALS	MAIN SIGNALS	SELECTION FROM MENU	
Position lights request	TAIL & CLR REQ	ON/OFF	×	×	×	Signal status input from BCM
Headlamp low beam request	HL LO REQ	ON/OFF	×	×	×	Signal status input from BCM
Headlamp high beam request	HL HI REQ	ON/OFF	×	×	×	Signal status input from BCM
Font fog lights request	FR FOG REQ	ON/OFF	×	×	×	Signal status input from BCM

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

ACTIVE TEST

Operation Procedure

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

Test item	CONSULT-II screen display	Description
Headlamp relay (HI, LO) output	LAMPS	Allows headlamp relay (HI, LO) to operate by switching operation (OFF, HI ON, LO ON) at your option.
Front fog lamp relay output		Allows fog lamp relay to operate by switching operation ON-OFF at your option.
Tail lamp relay output	TAIL LAMP	Allows tail lamp relay to operate by switching operation ON-OFF at your option.

Trouble Diagnosis Chart by Symptom

AKS009UY

Trouble phenomenon	Malfunction system and reference
● Parking lamps and headlamps will not illuminate when outside of the vehicle becomes dark. (Lighting switch 1st position and 2nd position operate normally.) ● Parking lamps and headlamp will not go out when outside of the vehicle becomes light. (Lighting switch 1st position and 2nd position operate normally.) ● Headlamps go out when outside of the vehicle becomes light, but parking lamps stay on.	● Refer to LT-81, "WORK SUPPORT" . ● Refer to LT-86, "Lighting Switch Inspection" . ● Refer to LT-86, "Optical Sensor System Inspection" . If above systems are normal, replace BCM.
Parking lamps illuminate when outside of the vehicle becomes dark, but headlamps stay off. (Lighting switch 1st position and 2nd position operate normally.)	● Refer to LT-81, "WORK SUPPORT" . ● Refer to LT-86, "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-86, "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 operte.	● CAN communication line inspection between BCM and combination meter. Refer to BCS-14, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" . ● Refer to BL-33, "Check Door Switch (With Navigation System)" , BL-35, "Check Door Switch (Without Navigation System)" . If above system is normal, replace BCM.

Lighting Switch Inspection

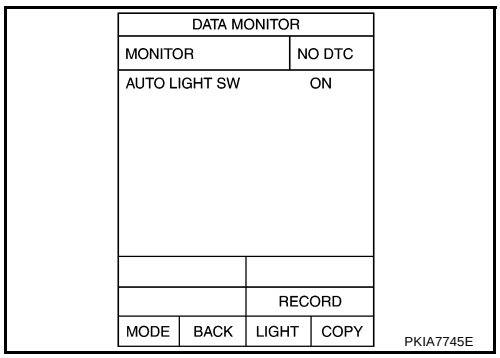
AKS009UZ

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

AKS009V0

1. CHECK OPTICAL SENSOR INPUT SIGNAL

With CONSULT-II

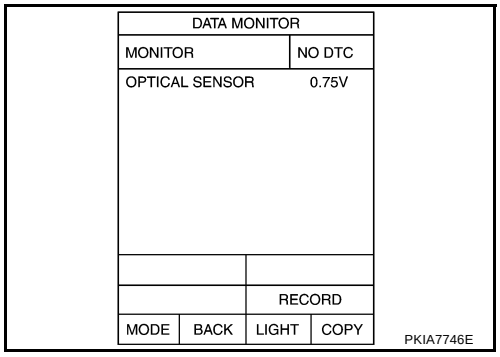
Select “BCM” on CONSULT-II. With “HEAD LAMP” data monitor, make sure “OPTICAL SENSOR”, check difference in the voltage when the auto light sensor is illuminated and not illuminated.

Illuminated

OPTICAL SENSOR : 3.1V or more

Not illuminated

OPTICAL SENSOR : 0.6V or less



CAUTION:

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

With out CONSULT-II

GO TO 2.

OK or NG

OK >> INSPECTION END

NG >> GO TO 2.

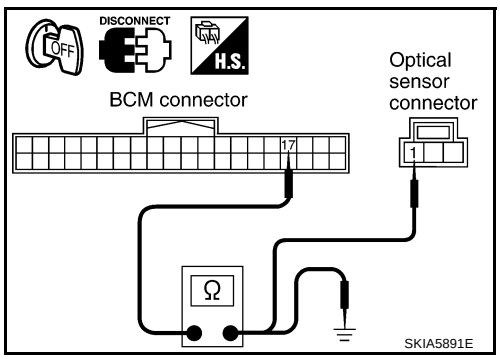
2. CHECK OPTICAL SENSOR POWER SUPPLY CIRCUIT

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 M1 terminal 17 (P) and ground.

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



OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

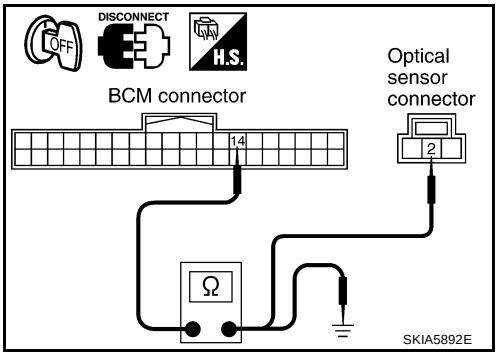
3. CHECK OPTICAL SENSOR POWER SUPPLY CIRCUIT

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 M63 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.

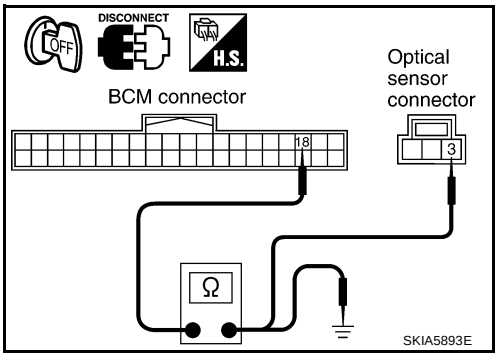
4. CHECK OPTICAL SENSOR POWER SUPPLY CIRCUIT

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 M63 terminal 18 (B) and ground.

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



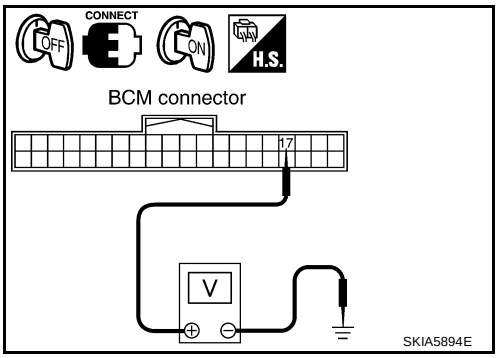
OK or NG

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

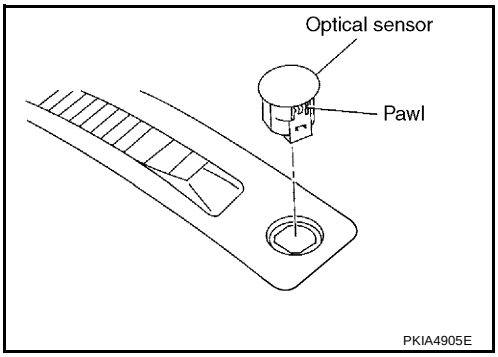
OK >> Replace the optical sensor.
NG >> Replace BCM. Refer to BCS-15, "Removal and Installation of BCM" .

Removal and Installation of Optical Sensor

AKS009V1

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

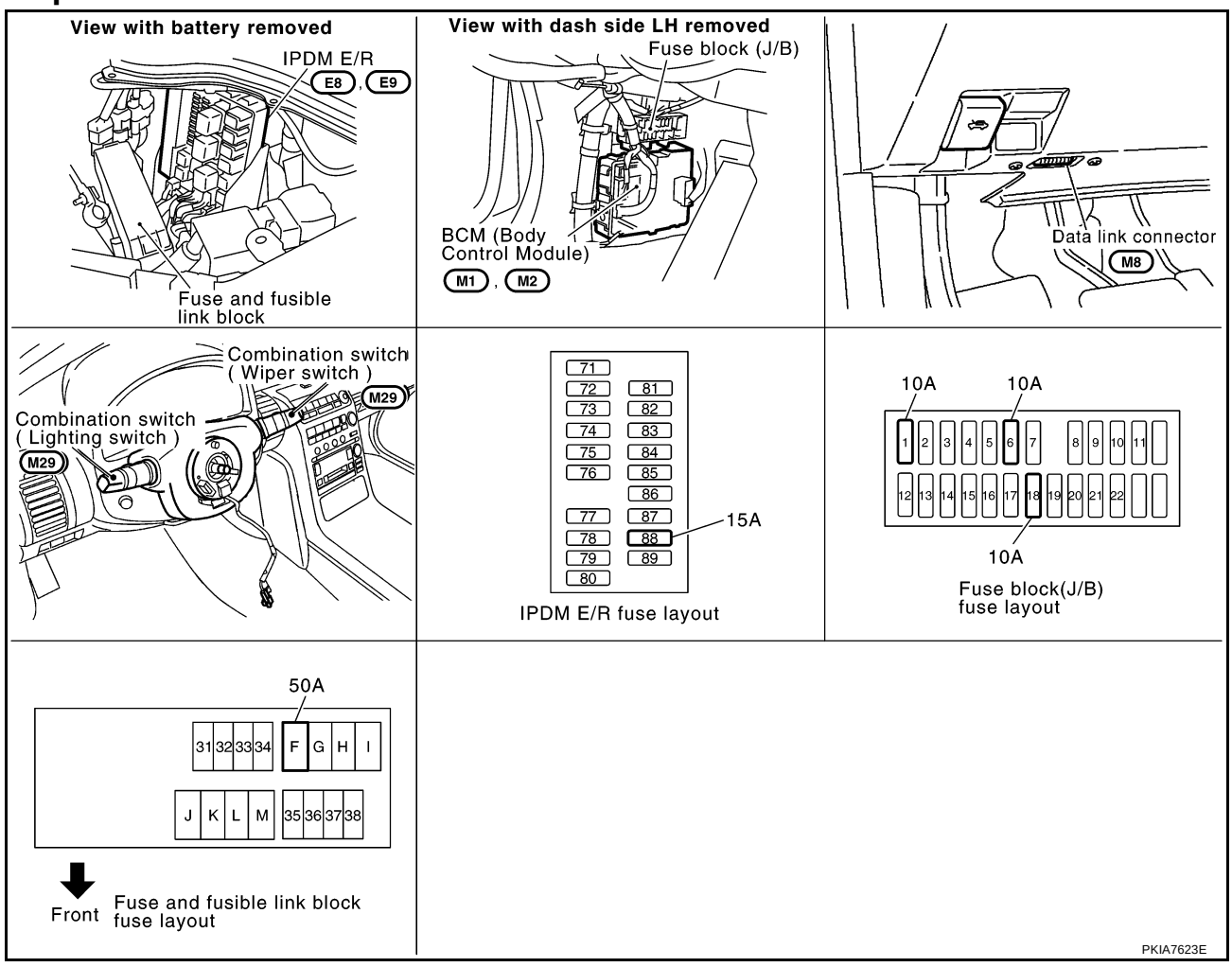
Install in the reverse order of removal.

FRONT FOG LAMP

PFP:26150

Component Parts and Harness Connector Location

AKS009V6



System Description

AKS009V7

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

OUTLINE

Power is supplied at all times

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

Power is also supplied at all times

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

- through 10A fuse [No. 18, located in fuse block (J/B)]
- to BCM (body control module) terminal 42.

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

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

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

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

Ground is supplied

- to BCM (body control module) terminal 52
- through grounds M30 and M60
- to IPDM E/R (intelligent power distribution module engine room) terminals 38 and 60
- through grounds E17 and E43.

Fog Lamp Operation (For USA)

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

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

Ground is supplied

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

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

Fog Lamp Operation (For CANADA)

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

COMBINATION SWITCH READING FUNCTION

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

EXTERIOR LAMP BATTERY SAVER CONTROL

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

CAN Communication System Description

AKS009V8

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

CAN Communication Unit

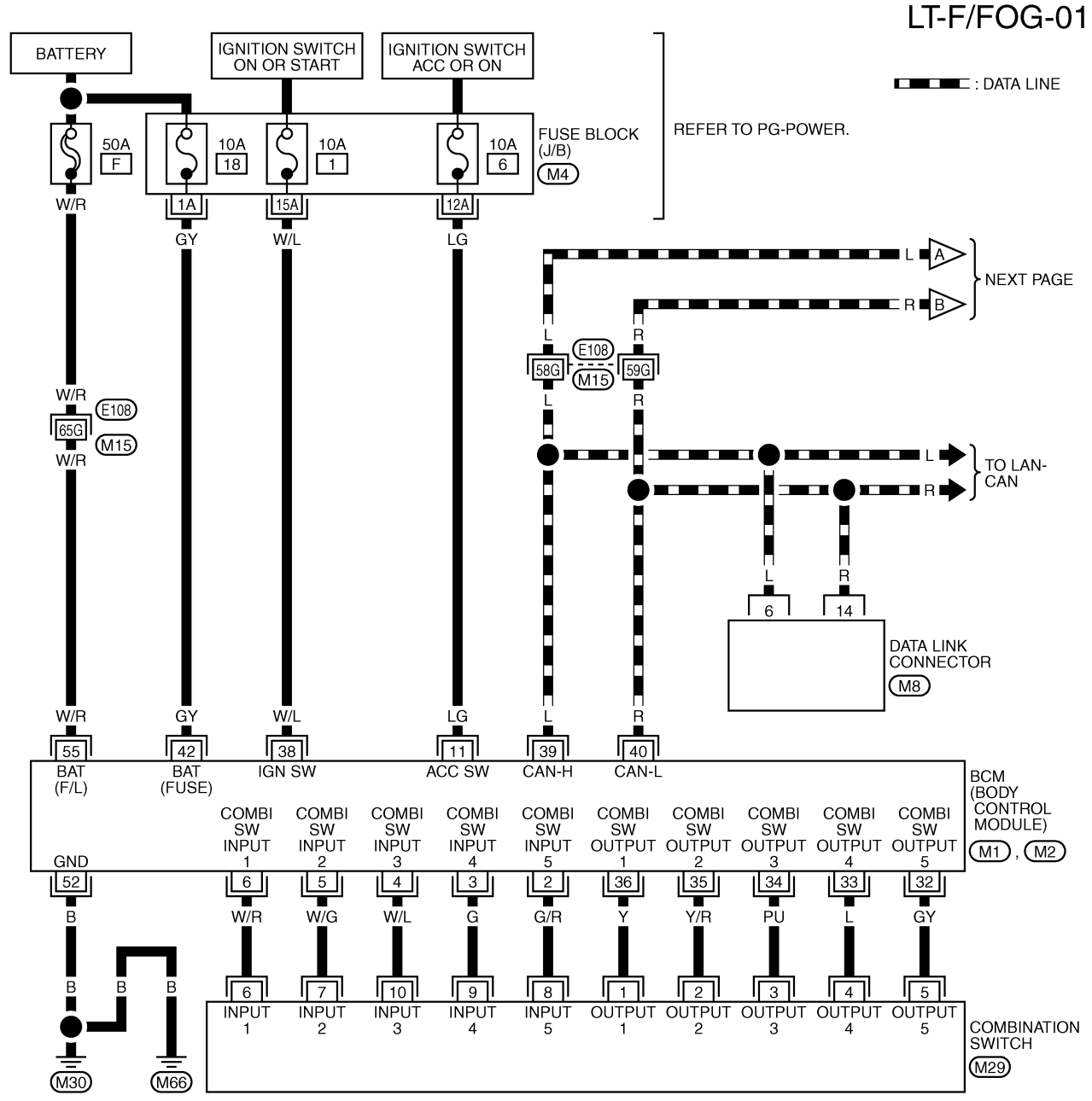
AKS009V9

Refer to LAN-4, "CAN Communication Unit" .

Wiring Diagram — F/FOG —

AKS009VA

FOR USA



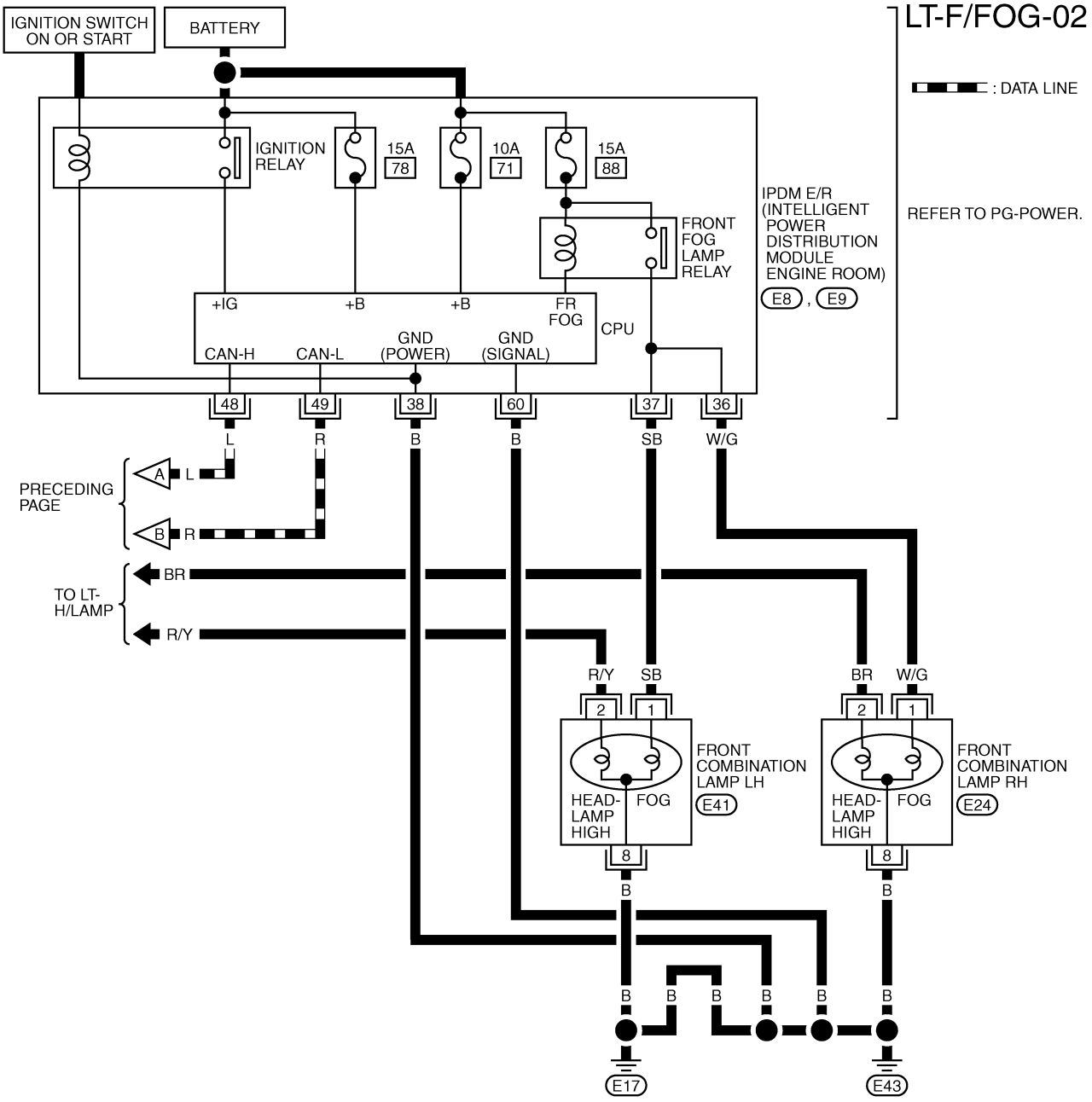
REFER TO THE FOLLOWING.

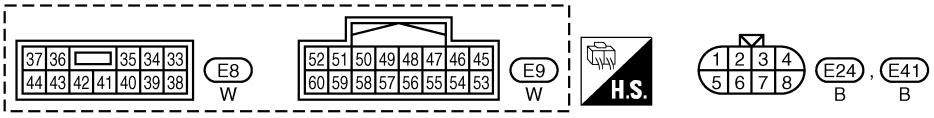
E108 -SUPER MULTIPLE JUNCTION (SMJ)

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

M1, M2 -ELECTRICAL UNITS

TKWM0865E

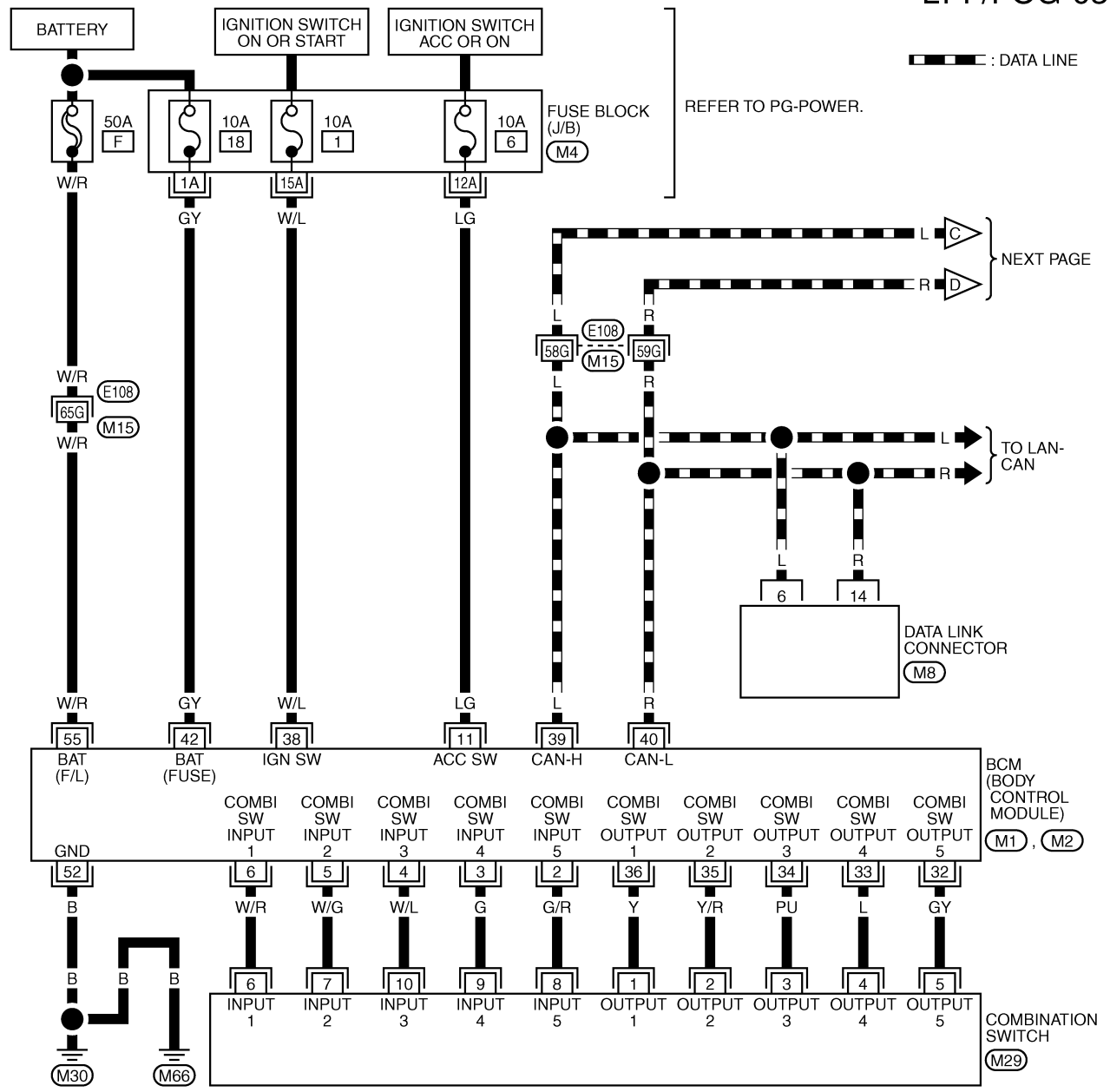

IGNITION SWITCH ON OR START
BATTERY
LT-F/FOG-02
: DATA LINE
IGNITION RELAY
15A 78
10A 71
15A 88
FRONT FOG LAMP RELAY
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E8 , E9
REFER TO PG-POWER.
+IG
+B
+B
FR FOG
CPU
CAN-H
CAN-L
GND (POWER)
GND (SIGNAL)
48
49
38
60
37
36
L
R
B
B
SB
W/G
PRECEDING PAGE
A
B
L
R
TO LT-H/LAMP
BR
R/Y
R/Y
SB
BR
W/G
2
1
2
1
FRONT COMBINATION LAMP LH
E41
HEAD-LAMP HIGH
FOG
FRONT COMBINATION LAMP RH
E24
8
8
B
B
B
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.
1 2 3 4
5 6 7 8
E24 , E41
B B

TKWM0866E

FOR CANADA

LT-F/FOG-03



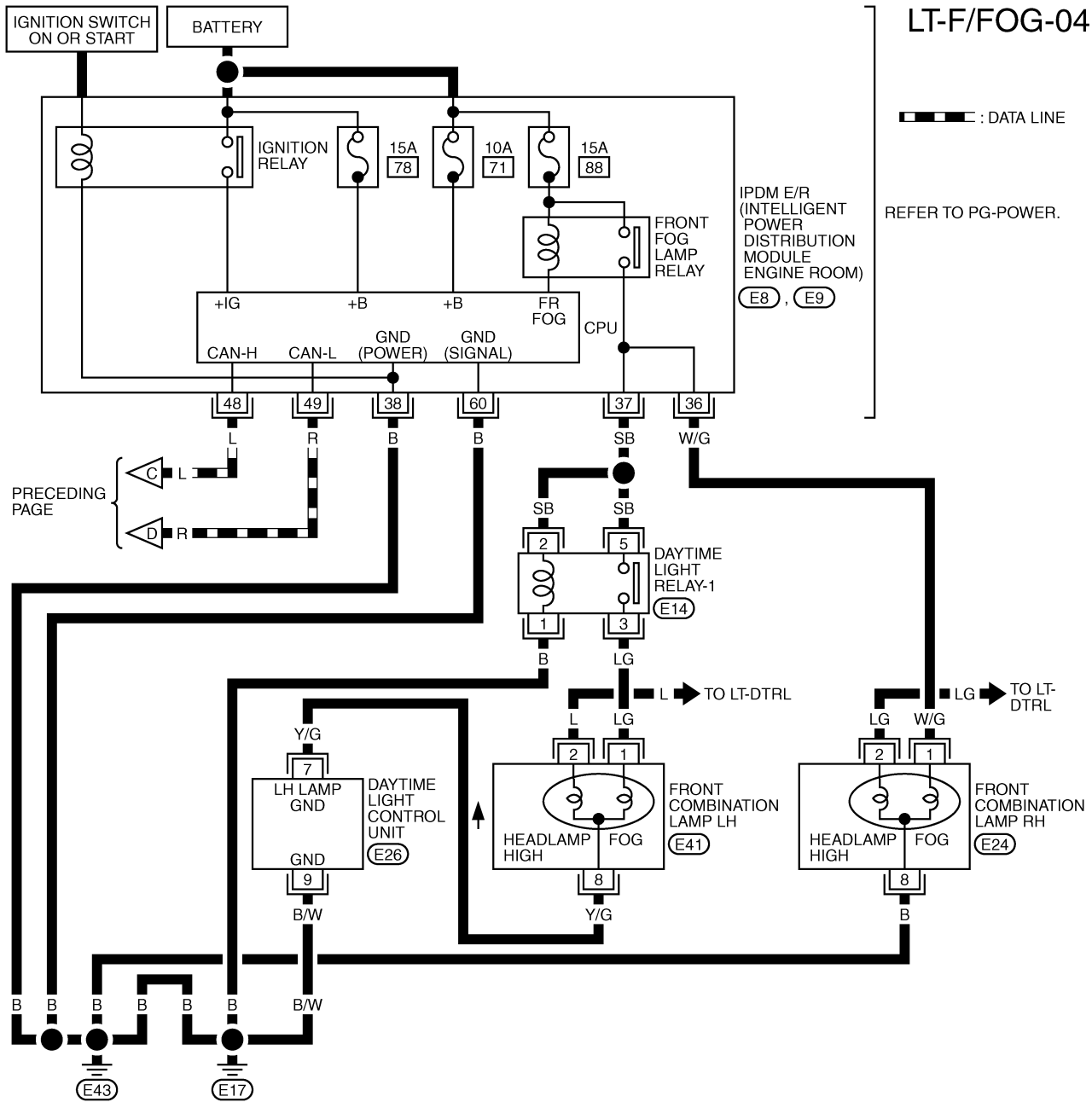
REFER TO THE FOLLOWING.

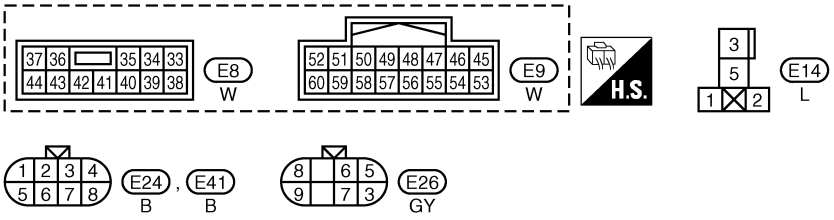
E108 -SUPER MULTIPLE JUNCTION (SMJ)

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

M1, M2 -ELECTRICAL UNITS

TKWM0867E

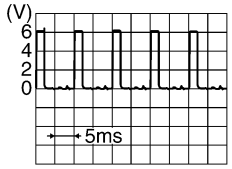
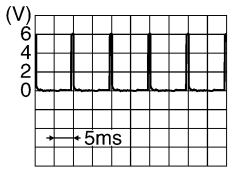
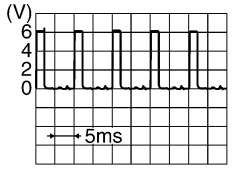
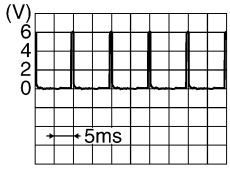
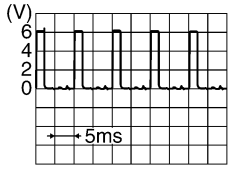
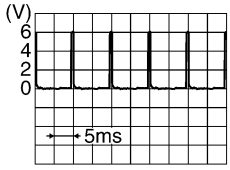
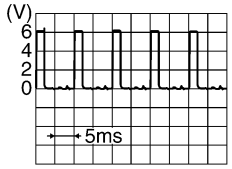

LT-F/FOG-04
: DATA LINE
REFER TO PG-POWER.
IGNITION SWITCH ON OR START
BATTERY
IGNITION RELAY
15A 78
10A 71
15A 88
FRONT FOG LAMP RELAY
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E8 , E9
+IG
+B
+B
FR FOG
CPU
CAN-H
CAN-L
GND (POWER)
GND (SIGNAL)
48
49
38
60
37
36
L
R
B
B
SB
W/G
PRECEDING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

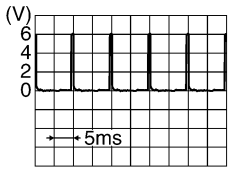

37 36 35 34 33
44 43 42 41 40 39 38
E8
W
52 51 50 49 48 47 46 45
60 59 58 57 56 55 54 53
E9
W
H.S.
3
5
1 2
E14
L
1 2 3 4
5 6 7 8
E24 , E41
B B
8 6 5
9 7 3
E26
GY

TKWM0868E

Terminals and Reference Values for BCM

AKS009VB

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
2	G/R	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	W/L	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

AKS009VC

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	Ground	ON	—		Approx. 0V

How to Proceed With Trouble Diagnosis

AKS009VD

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-98, "Preliminary Check" .
4. Check symptom and repair or replace the cause of malfunction.
5. Does the front fog lamp operate normally? If YES: GO TO 6. If NO: GO TO 4.
6. INSPECTION END

Preliminary Check

AKS009VE

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	88

Refer to LT-92, "Wiring Diagram — F/FOG —" .

OK or NG

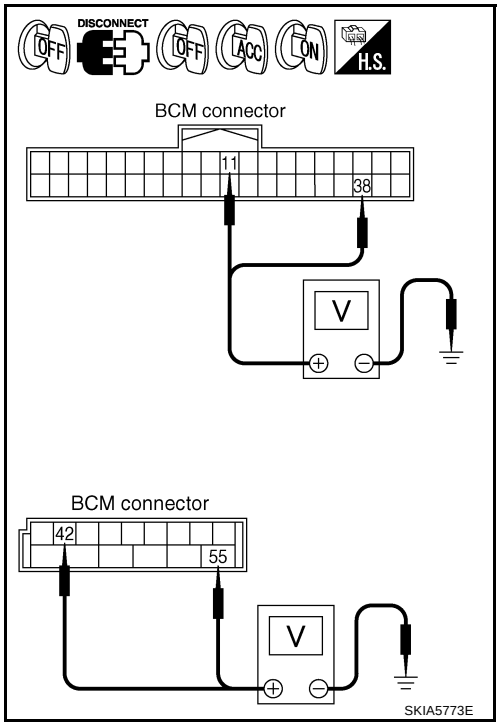
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-4, "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		
(+)		(-)			
Connector	Terminal (Wire color)		OFF	ACC	ON
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

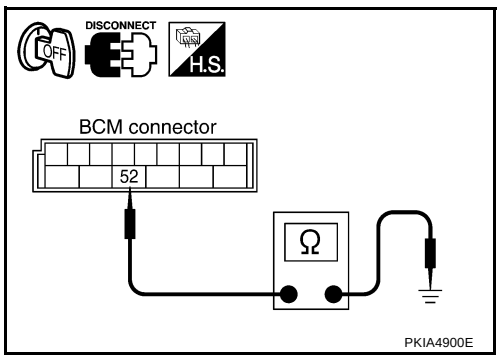
OK >> GO TO 3.

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)		
M2	52 (B)	Ground	Yes



OK or NG

OK >> INSPECTION END

NG >> Check ground circuit harness.

CONSULT-II Functions

AKS009VF

Refer to LT-18, "CONSULT-II Functions (BCM)" in “HEADLAMP”.
Refer to LT-21, "CONSULT-II Functions (IPDM E/R)" in “HEADLAMP”.
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)”.

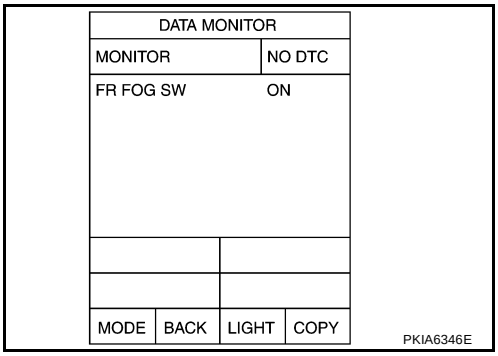
Front Fog lamps Does Not Illuminate (Both Sides) (FOR USA)

AKS009VG

1. CHECK COMBINATION SWITCH INPUT SIGNAL

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

When lighting switch is FOG position : FR FOG SW ON



Without CONSULT-II
Refer to LT-128, "Combination Switch Inspection" .

OK or NG

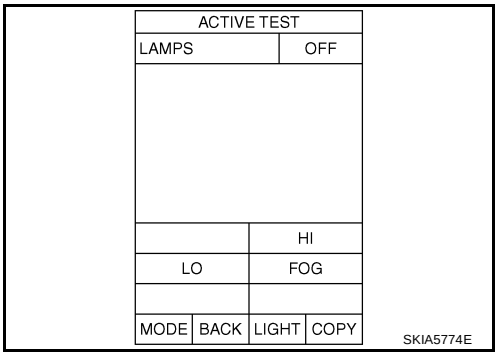
OK >> GO TO 2.
NG >> Check lighting switch. Refer to LT-128, "Combination Switch Inspection" .

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.



Without CONSULT-II

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

Fog lamp should operate.

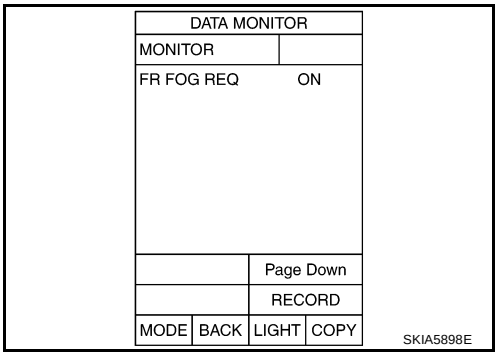
OK or NG

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

3. CHECK IPDM E/R

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

When lighting switch is FOG position : FR FOG REQ ON



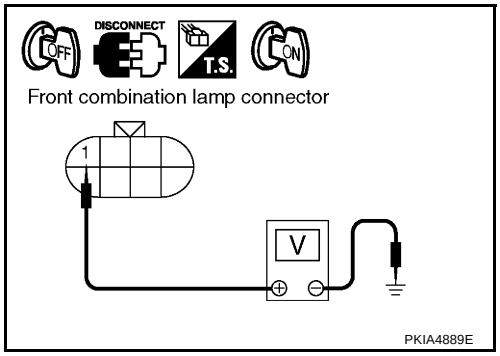
OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-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 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 “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)		

Without CONSULT-II

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

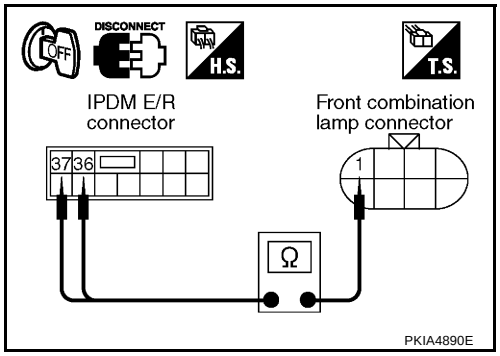
5. CHECK FOG LAMP CIRCUIT

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.

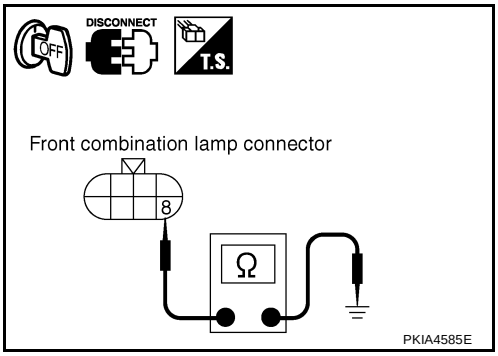
6. CHECK FOG LAMP GROUND

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 combination lamp bulbs.
NG >> Repair harness or connector.

Front Fog Lamp Does Not Illuminate (One Side) (FOR USA)

AKS009VH

1. CHECK BULB

Check bulb of lamp which do not illuminate.

OK or NG

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

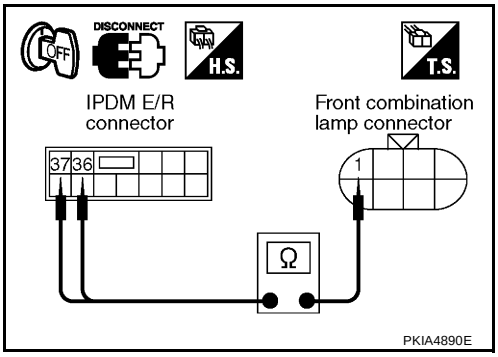
2. CHECK FOG LAMP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and front combination lamp RH or LH connectors.
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.

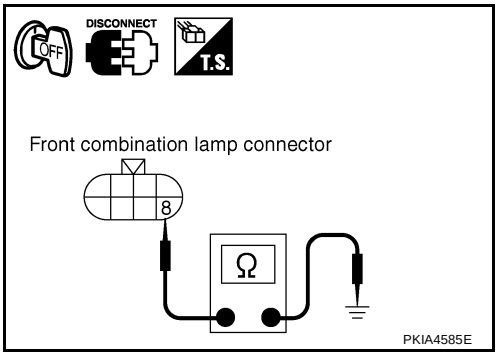
3. CHECK FOG LAMP GROUND

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)

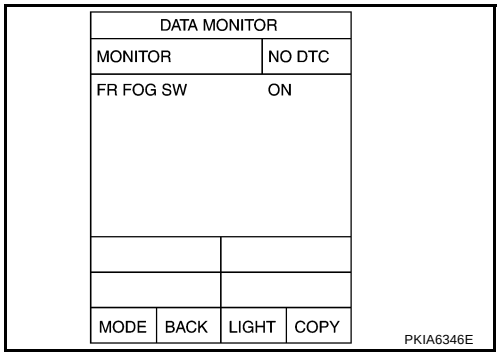
AKS00A0H

1. CHECK COMBINATION SWITCH INPUT SIGNAL

With CONSULT-II

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

When lighting switch is FOG position : FR FOG SW ON



Without CONSULT-II

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

OK or NG

OK >> GO TO 2.

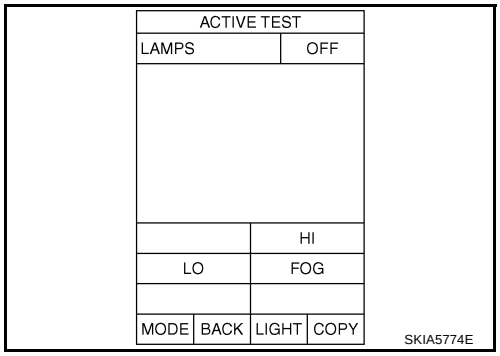
NG >> Check lighting switch. Refer to LT-128, "Combination Switch Inspection" .

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.



Without CONSULT-II

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

Fog lamp should operate.

OK or NG

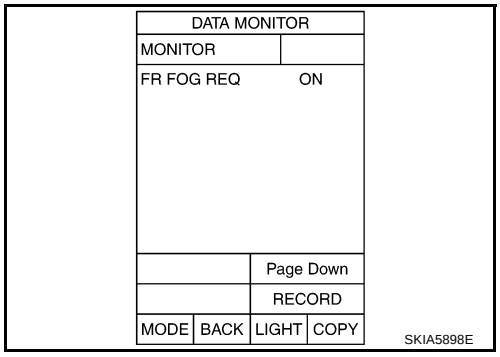
OK >> GO TO 3.

NG >> GO TO 4.

3. CHECK IPDM E/R

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

When lighting switch is FOG position : FR FOG REQ ON



OK or NG

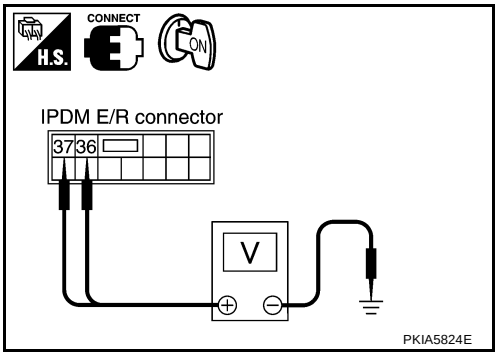
OK >> Replace IPDM E/R.

NG >> Replace BCM. Refer to BCS-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 (SB)		

With out CONSULT-II

1. Start auto active test. Refer to PG-23, "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 (SB)		

OK or NG

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

LH Front Fog Lamp Does Not Illuminate (FOR CANADA)

AKS00ADK

1. CHECK BULB

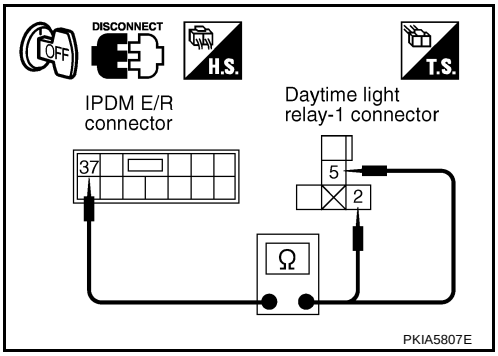
Check bulb of lamps which do not illuminate.

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.

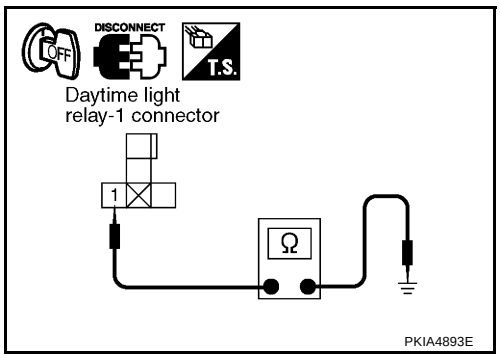
3. CHECK DAYTIME LIGHT RELAY–1 AND GROUND

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.



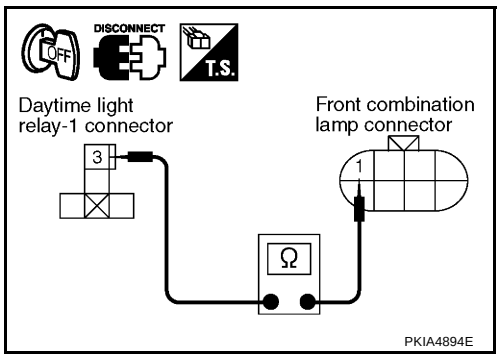
4. CHECK CIRCUIT DAYTIME LIGHT RELAY–1 AND HEADLAMP

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.



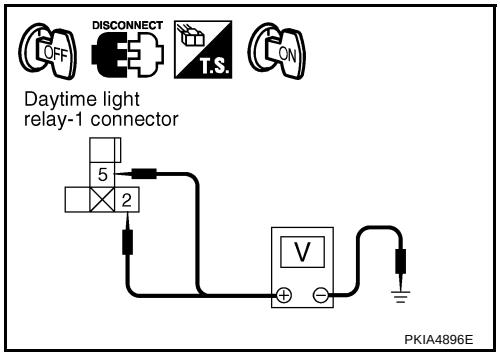
5. CHECK IPDM E/R

1. Connect IPDM E/R connector.
2. Turn ignition switch ON.
3. Lighting switch is turned 2ND and 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.



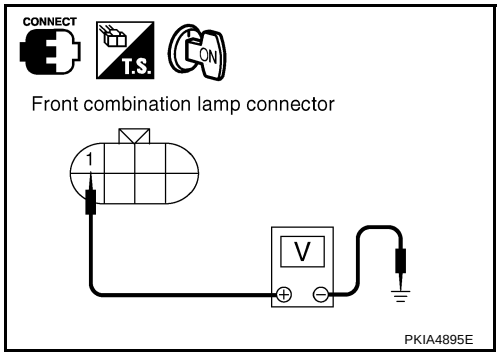
6. CHECK DAYTIME LIGHT RELAY–1

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

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

OK or NG

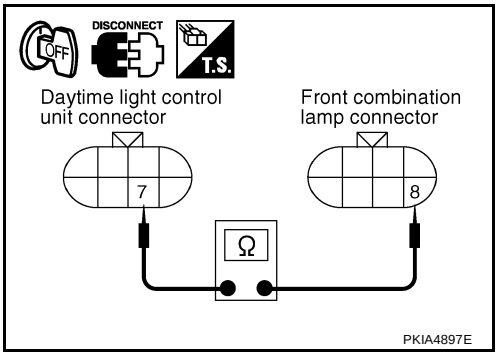
OK >> GO TO 7.
NG >> Replace daytime light relay–1.



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.



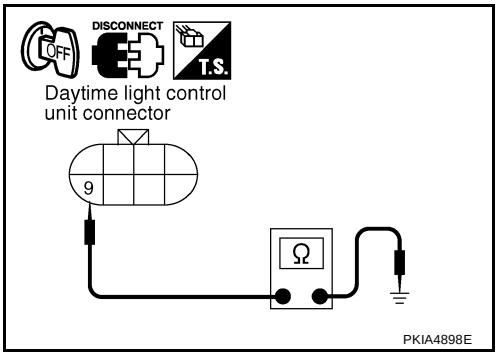
OK or NG

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/W) and ground.

9 (B/W) – 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)

AKS00ADL

1. CHECK BULB

Check bulbs of lamps which do not illuminate.

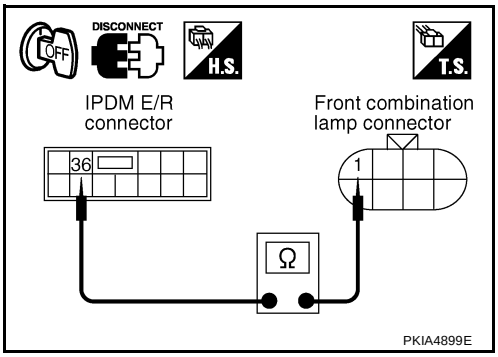
OK or NG

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.



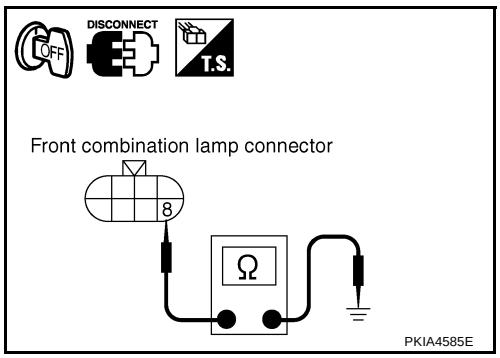
OK or NG

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 (B) – Ground : Continuity should exist.



OK or NG

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

Bulb Replacement

AKS00ADM

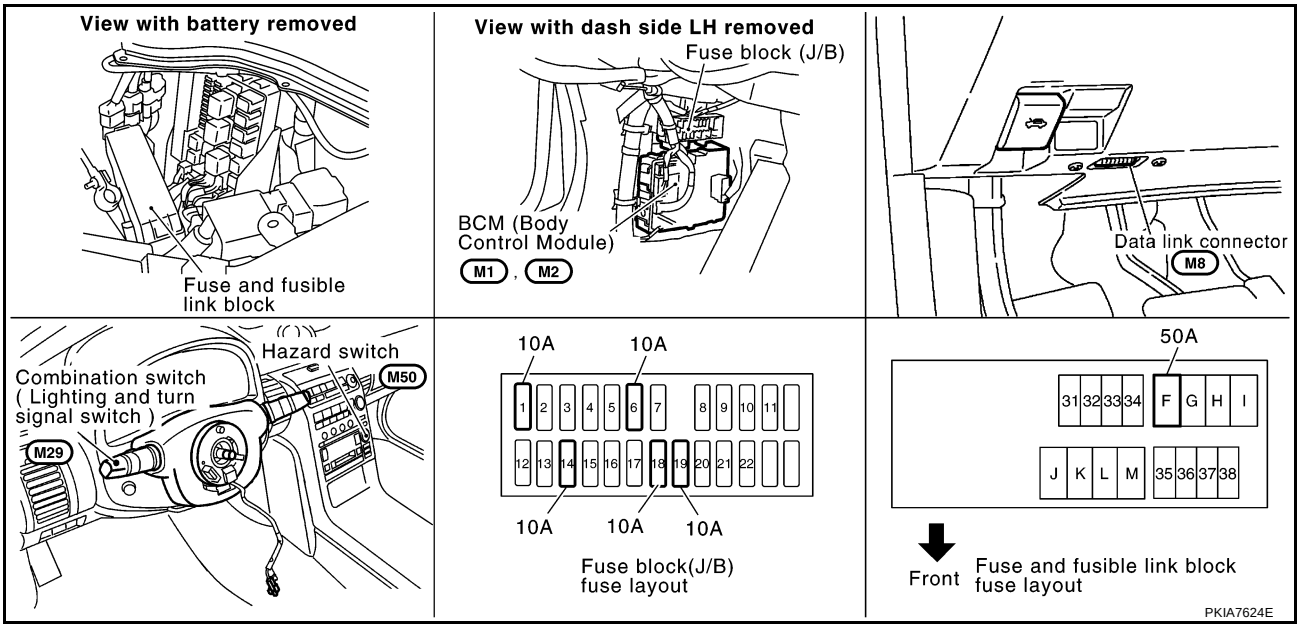
Refer to LT-34, "Bulb Replacement" in “HEADLAMP”.

TURN SIGNAL AND HAZARD WARNING LAMPS

PFP:26120

Component Parts and Harness Connector Location

AKS009VL



System Description

AKS00A11

TURN SIGNAL OPERATION

When the 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, and
- to combination meter terminals 45 and 46
- through grounds M30 and M66.

LH Turn

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

- through BCM (body control module) terminal 45
- to front combination lamp LH terminal 6, and
- to rear combination lamp LH terminal 5.

Ground is supplied to the front combination lamp LH terminal 4 through grounds E17 and E43.
Ground is supplied to the rear combination lamp LH terminal 4 through grounds B5 and B103.
BCM also supplies input to combination meter terminals 27 and 28 across the CAN communication lines. This input is processed by the unified meter control unit in the combination meter, which in turn supplies ground to the left turn signal indicator lamp.
With power and input supplied, BCM controls the flashing of the LH turn signal lamps.

RH Turn

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

- through BCM (body control module) terminal 46
- to front combination lamp RH terminal 6, and
- to rear combination lamp RH terminal 5.

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

Ground is supplied to the rear combination lamp RH terminal 4 through grounds B5 and B103.
BCM also supplies input to combination meter terminals 27 and 28 across CAN communication lines. This input is processed by the unified meter control unit in the combination meter, which in turn supplies ground to the right turn signal indicator lamp.
With power and input supplied, BCM controls the flashing of the RH turn signal lamps.

HAZARD LAMP OPERATION

Power is supplied at all times

- to BCM (body control module) 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 the hazard switch is depressed, ground is supplied

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

The BCM then supplies power

- through BCM terminal 45
- to front combination lamp LH terminal 6
- to rear combination lamp LH terminal 5
- through BCM terminal 46
- to front combination lamp RH terminal 6
- to rear combination lamp RH terminal 5.

Ground is supplied

- to the front combination lamp LH terminal 4 through grounds E17 and E43
- to the front combination lamp RH terminal 4 through grounds E17 and E43
- to the rear combination lamp LH terminal 4 through grounds B5 and B103
- to the rear combination lamp RH terminal 4 through grounds B5 and B103.

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

REMOTE KEYLESS ENTRY SYSTEM OPERATION

Power is supplied at all times

- to BCM (body control module) 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 the keyfob, BCM supplies power

- through BCM terminal 45

- to front combination lamp LH terminal 6
- to rear combination lamp LH terminal 5
- through BCM terminal 46
- to front combination lamp RH terminal 6
- to rear combination lamp RH terminal 5.

Ground is supplied

- to the front combination lamp LH terminal 4 through grounds E17 and E43
- to the front combination lamp RH terminal 4 through grounds E17 and E43
- to the rear combination lamp LH terminal 4 through grounds B5 and B103
- to the rear combination lamp RH terminal 4 through grounds B5 and B103.

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

COMBINATION SWITCH READING FUNCTION

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

CAN Communication System Description

AKS009VN

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

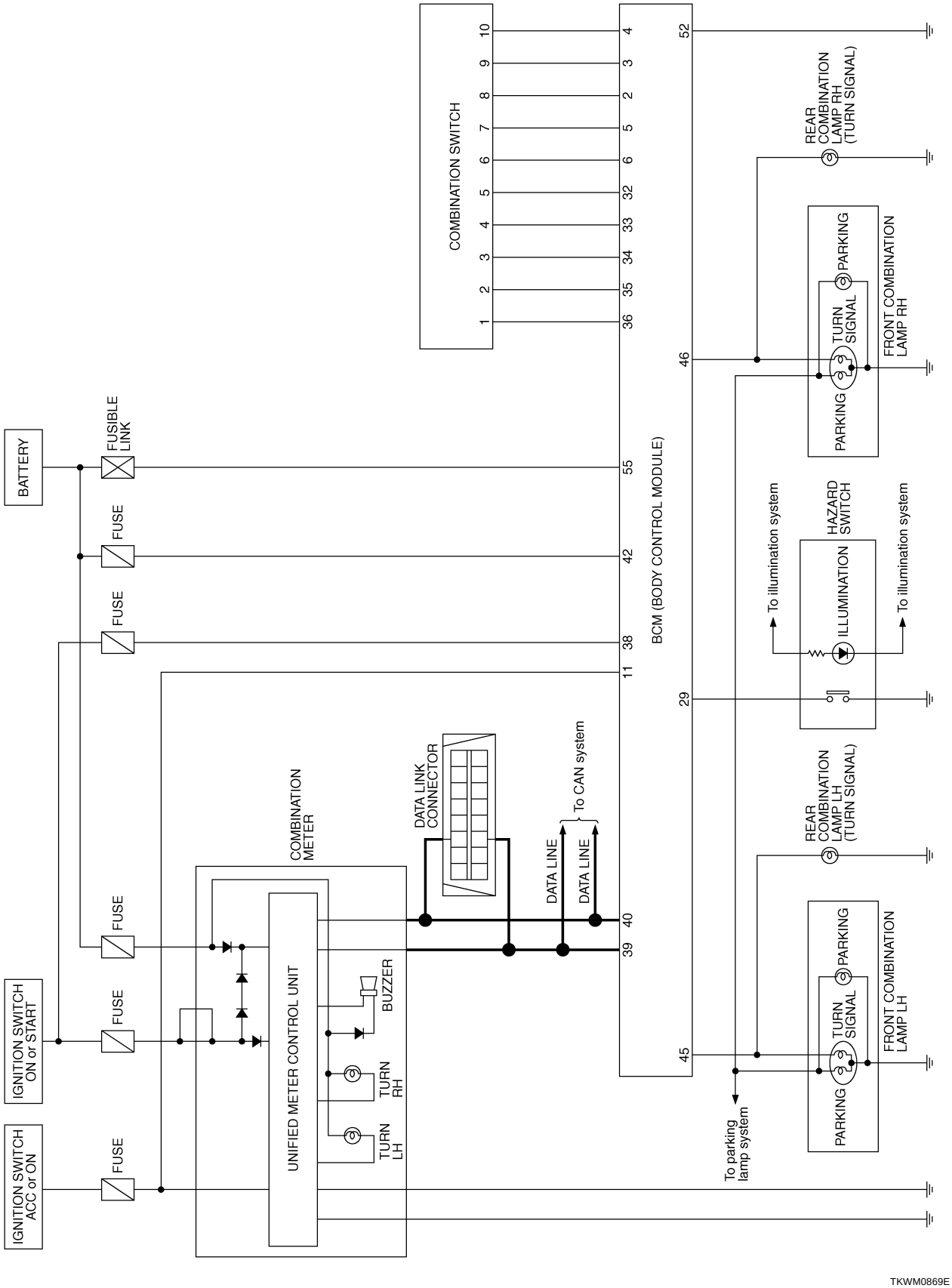
CAN Communication Unit

AKS009VO

Refer to LAN-4, "CAN Communication Unit" .

Schematic

AKS009VP

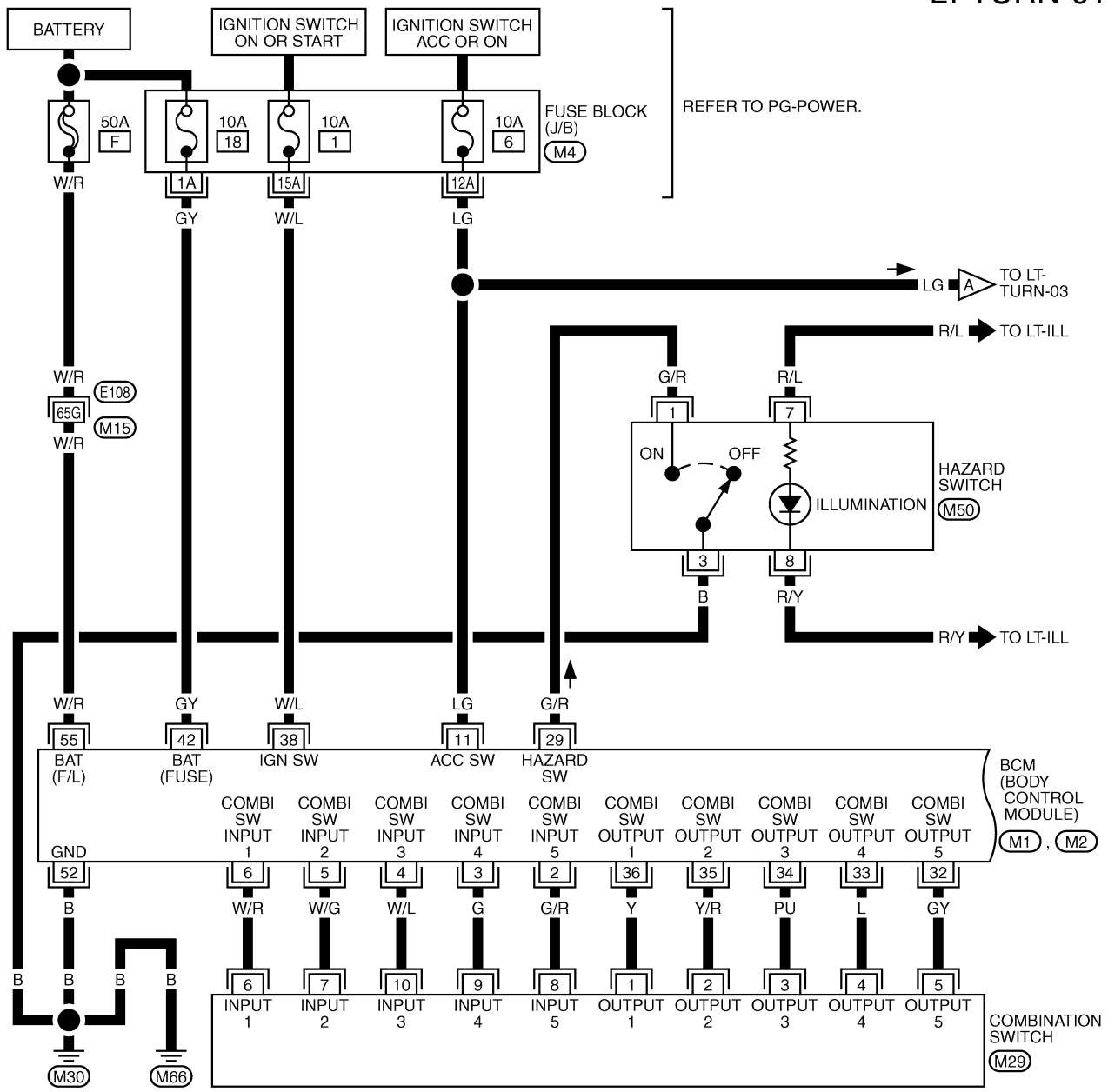


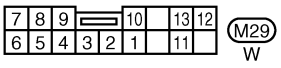
TKWM0869E

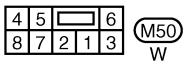
Wiring Diagram — TURN —

AKS009VQ

LT-TURN-01







REFER TO THE FOLLOWING.

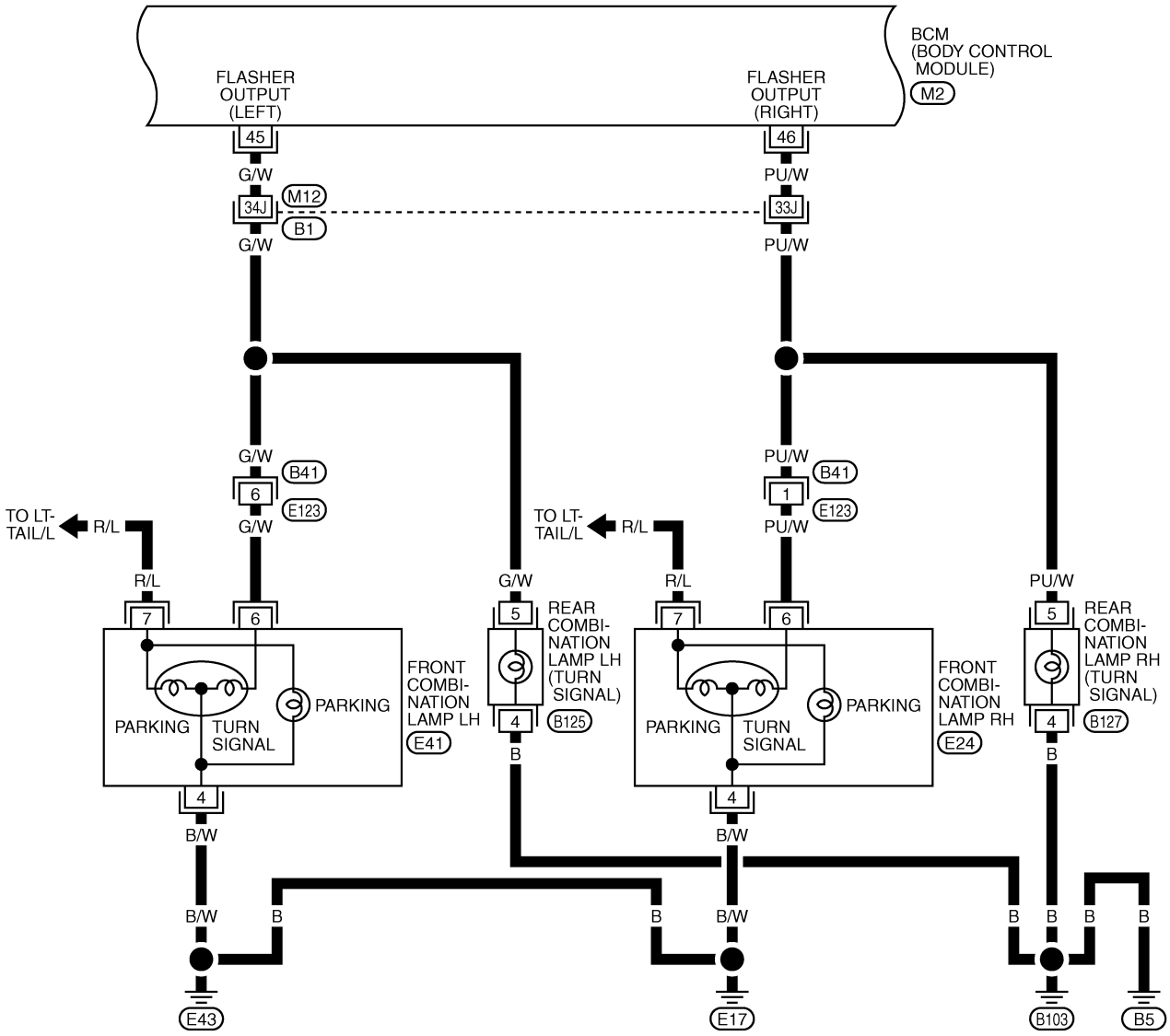
E108 -SUPER MULTIPLE JUNCTION (SMJ)

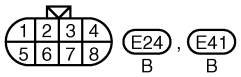
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

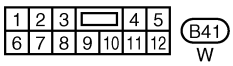
M1, M2 -ELECTRICAL UNITS

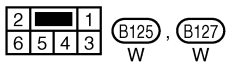
TKWM0870E

LT-TURN-02







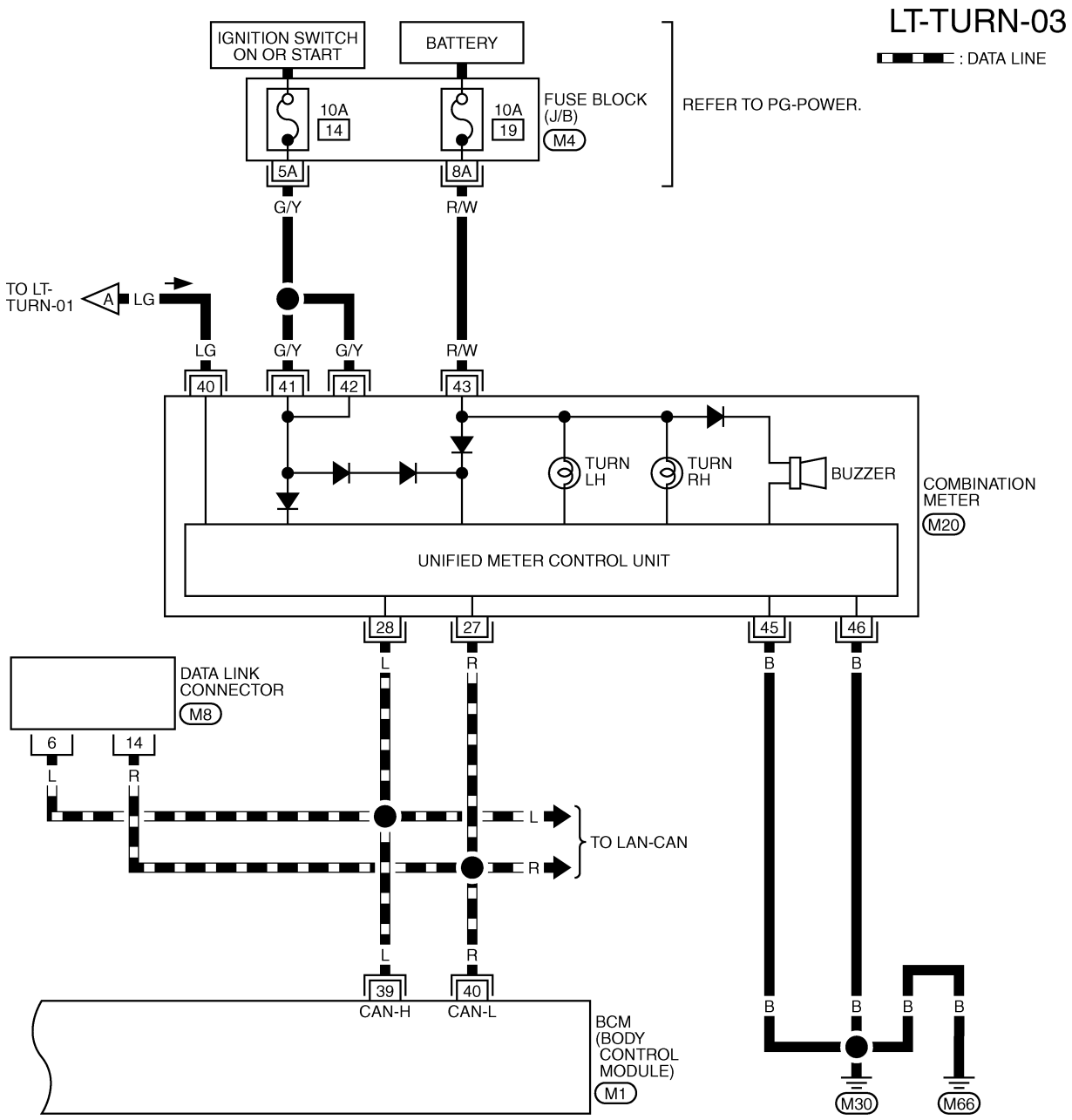


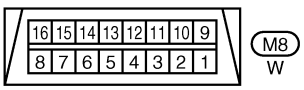
REFER TO THE FOLLOWING.

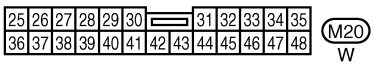
B1 -SUPER MULTIPLE JUNCTION (SMJ)

M2 -ELECTRICAL UNITS

TKWM0871E







REFER TO THE FOLLOWING.

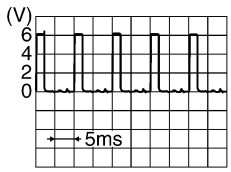
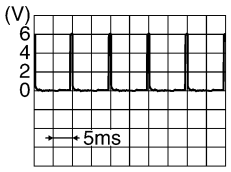
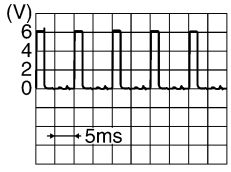
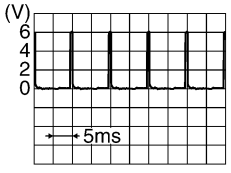
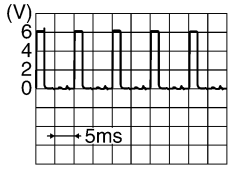
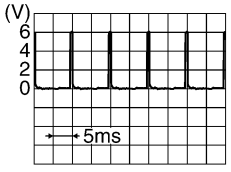
(M4) -FUSE BLOCK-JUNCTION BOX (J/B)

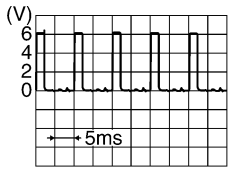
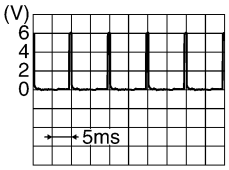
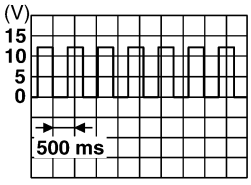
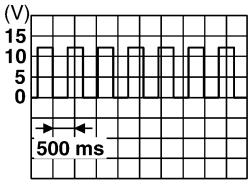
(M1) -ELECTRICAL UNITS

TKWM0872E

Terminals and Reference Value for BCM

AKS009VR

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
2	G/R	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	W/L	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. 5V
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

AKS009VS

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-107, "System Description" .
3. Perform preliminary check. Refer to LT-116, "Preliminary Check" .
4. Check symptom and repair or replace the cause of malfunction.
5. Do turn signal and hazard warning lamps operate normally? If YES: GO TO 6. If NO: GO TO 4.
6. INSPECTION END

Preliminary Check

AKS009VT

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

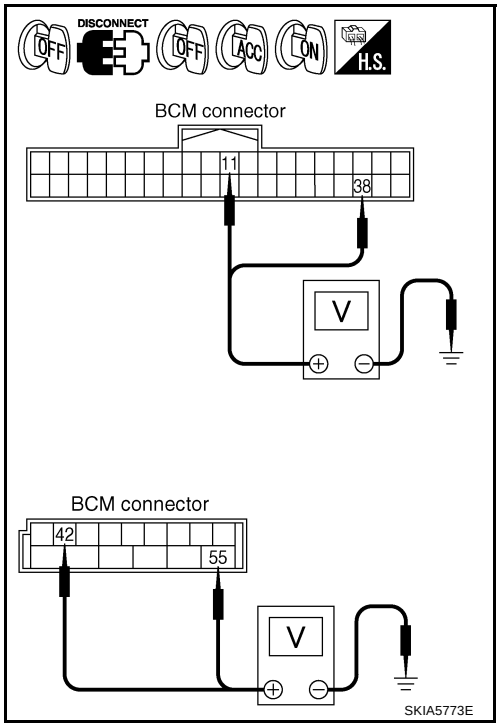
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-4, "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

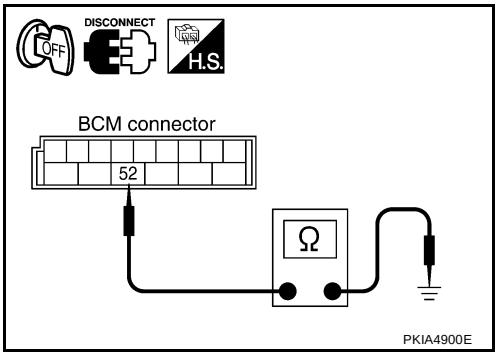
OK >> GO TO 3.

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)		
M2	52 (B)	Ground	Yes



OK or NG

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

CONSULT-II Functions

AKS009VU

CONSULT-II performs the following functions communicating with BCM.

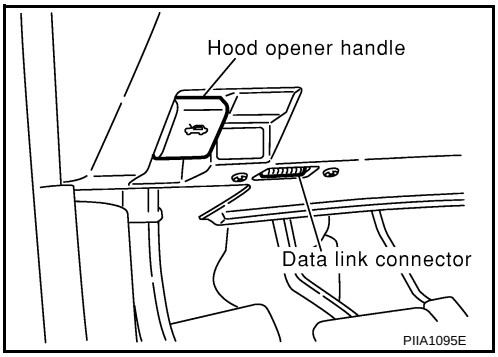
BCM diagnosis part	Check item, diagnosis mode	Description
FLASHER	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending driving signal to them.

CONSULT-II BASIC OPERATION

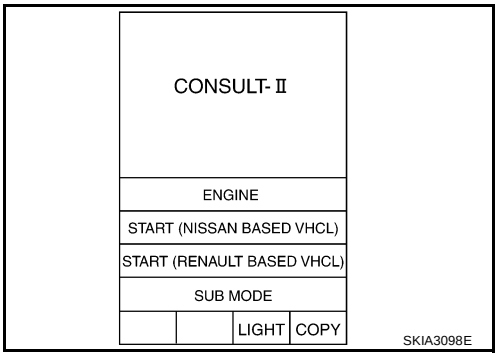
CAUTION:

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.

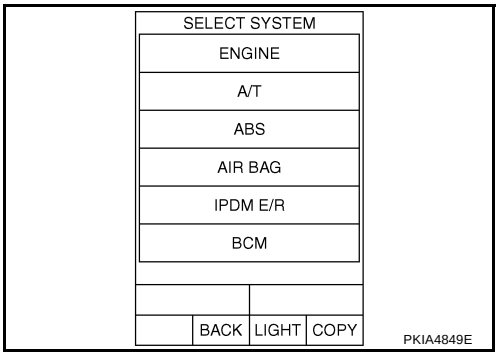
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn ignition switch ON.



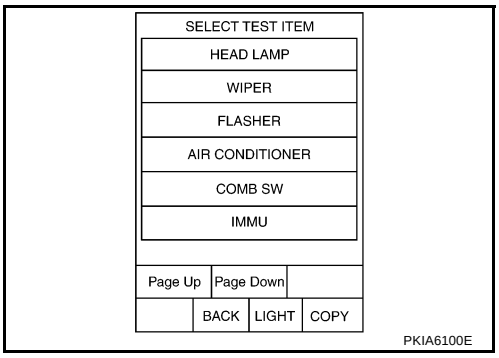
2. Touch “START (NISSAN BASED VHCL)”.



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



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



DATA MONITOR

Operation Procedure

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

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

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

Display Item List

Monitor item		Contents
IGN ON SW	“ON/OFF”	Displays “IGN position (ON)/OFF, ACC position (OFF)” judged from the ignition switch signal.
HAZARD SW	“ON/OFF”	Displays “Hazard ON (ON)/Hazard OFF (OFF)” status, determined from hazard switch signal.
TURN SIGNAL R	“ON/OFF”	Displays “Turn right (ON)/Other (OFF)” status, determined from lighting switch signal.
TURN SIGNAL L	“ON/OFF”	Displays “Turn left (ON)/Other (OFF)” status, determined from lighting switch signal.
BRAKE SW NOTE	“OFF”	—

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

ACTIVE TEST

Operation Procedure

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

Display Item List

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

Turn Signal Lamp Does Not Operate

AKS00ADN

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.

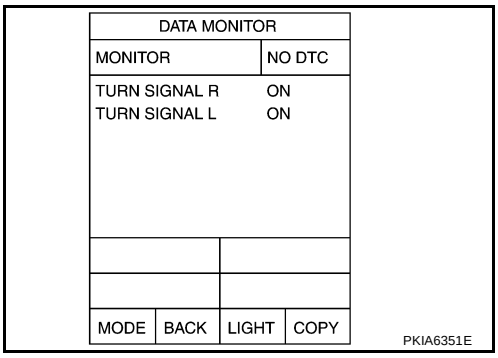
2. CHECK COMBINATION SWITCH INPUT SIGNAL

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



Without CONSULT-II

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

OK or NG

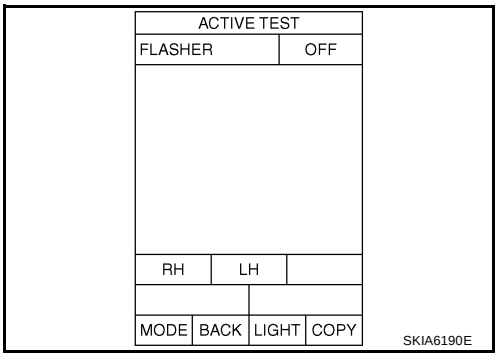
OK >> GO TO 3.
NG >> Check lighting switch. Refer to LT-128, "Combination Switch Inspection" .

3. ACTIVE TEST

With CONSULT-II

1. Select “FLASHER” during active test. Refer to LT-118, "ACTIVE TEST" .
2. Make sure “FLASHER RIGHT” and “FLASHER LEFT” operates.

Turn signal lamp should operate.



Without CONSULT-II

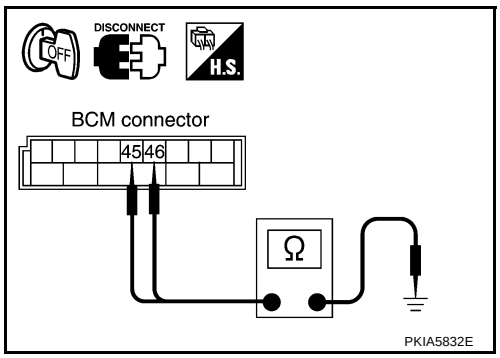
GO TO 4.

OK or NG

OK >> Replace BCM. Refer to BCS-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 Operates

AKS00ADO

1. CHECK BULB

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

OK or NG

OK >> GO TO 2.

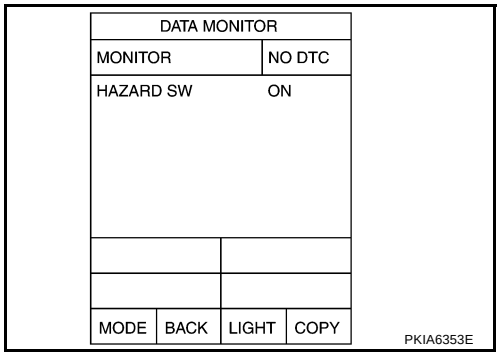
NG >> Replace bulb.

2. CHECK HAZARD SWITCH INPUT SIGNAL

With CONSULT-II

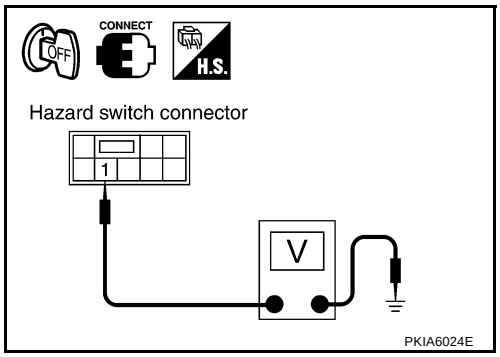
Select “BCM” on CONSULT-II. With “FLASHER” data monitor, make sure “HAZARD SW” turns ON-OFF linked with operation of hazard switch.

When hazard switch is ON : HAZARD SW ON position



Without 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. 5V

OK or NG

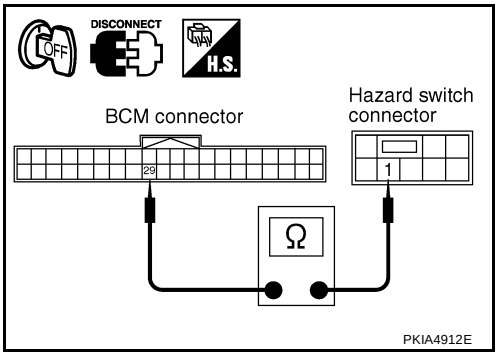
OK >> Replace BCM. Refer to BCS-15, "Removal and Installation of BCM" .

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.



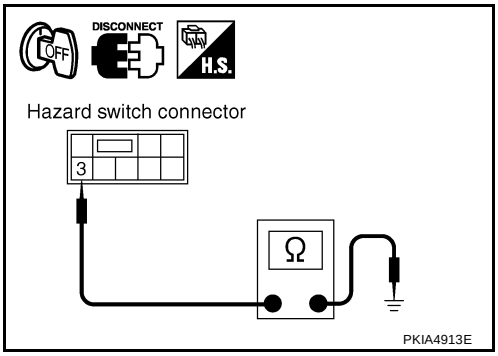
OK or NG

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.



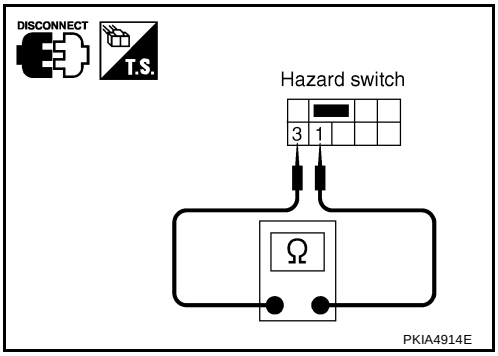
OK or NG

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

AKS009VY

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)

AKS00A1A

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

Bulb Replacement (Rear Turn Signal Lamp)

AKS00A1B

Refer to LT-156, "Bulb Replacement" in “REAR COMBINATION LAMP”.

Removal and Installation of Front Turn Signal Lamp

AKS00A1C

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

Removal and Installation of Rear Turn Signal Lamp

AKS00A1D

Refer to LT-156, "Removal and Installation" in “REAR COMBINATION LAMP”.

LIGHTING AND TURN SIGNAL SWITCH

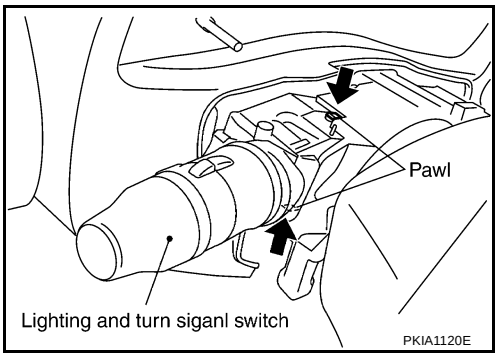
PFP:25540

Removal and Installation

AKS00A1E

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

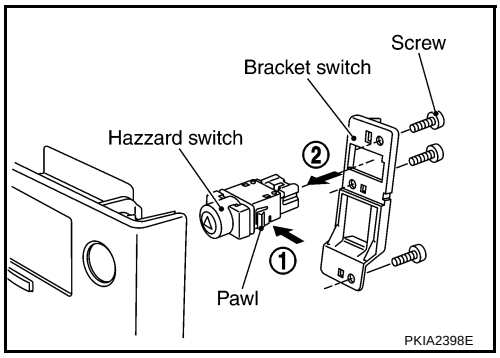
PFP:25290

Removal and Installation (M/T)

AKS00A1F

REMOVAL

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



INSTALLATION

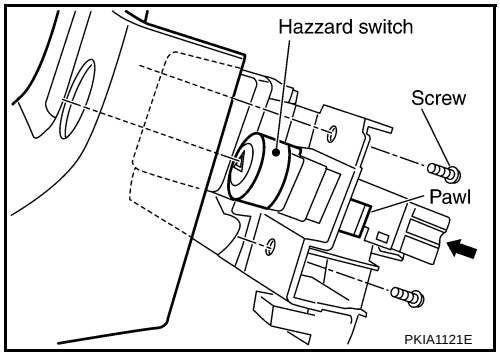
Install in the reverse order of removal.

Removal and Installation (A/T)

AKS00A1G

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 the hazard switch.



INSTALLATION

Install in the reverse order of removal.

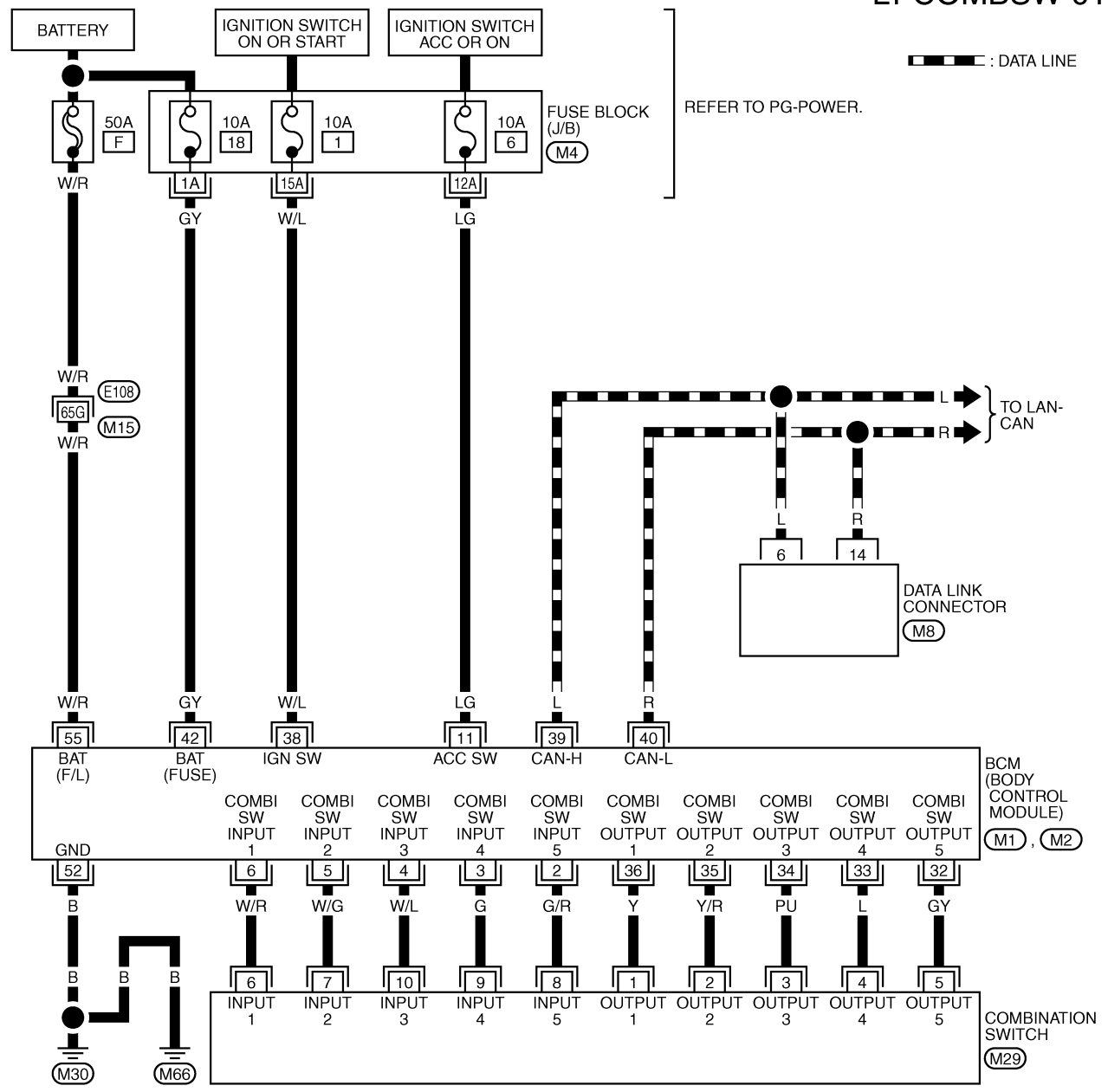
COMBINATION SWITCH

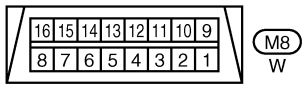
PFP:25567

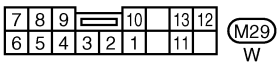
Wiring Diagram — COMBSW —

AKS009W6

LT-COMBSW-01







REFER TO THE FOLLOWING.

E108 -SUPER MULTIPLE JUNCTION (SMJ)

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

M1, M2 -ELECTRICAL UNITS

TKWM0846E

Combination Switch Reading Function

AKS009W7

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

CONSULT-II Function

AKS009W8

CONSULT-II performs the following functions communicating with BCM.

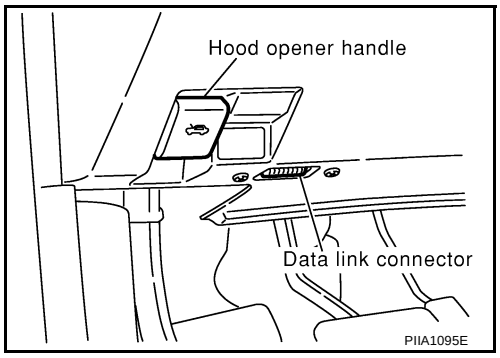
BCM diagnosis part	Check item, diagnosis mode	Description
Combination switch	DATA MONITOR	Displays BCM input data in real time.

CONSULT-II BASIC OPERATION

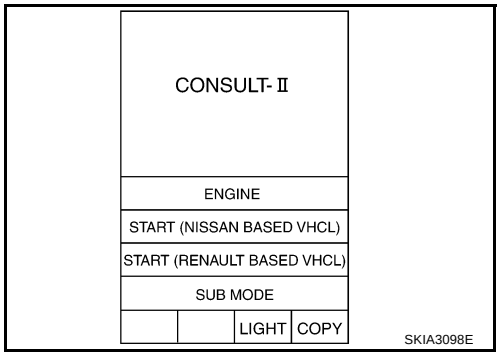
CAUTION:

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

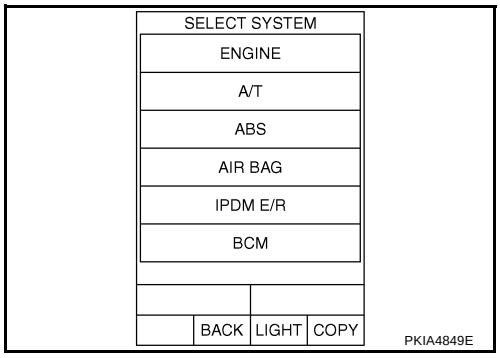
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn ignition switch ON.



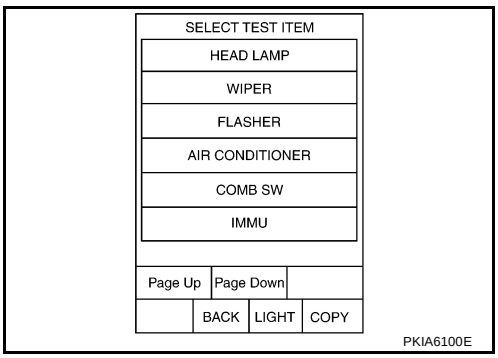
2. Touch “START (NISSAN BASED VHCL)”.



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



4. Touch “COMB SW”.



DATA MONITOR

Operation Procedure

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

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

4. Touch “START”.
5. When “SELECTION FROM MENU” is selected, touch items to be monitored. When “ALL SIGNALS” is selected, all the signals will be monitored.
6. Touch “RECORD” while monitoring, then the status of the monitored item can be recorded. To stop recording, touch “STOP”.

Display Item List

Monitor item name “OPERATION OR UNIT”		Contents
TURN SIGNAL R	“ON/OFF”	Displays “Turn Right (ON)/Other (OFF)” status, determined from lighting switch signal.
TURN SIGNAL L	“ON/OFF”	Displays “Turn Left (ON)/Other (OFF)” status, determined from lighting switch signal.
HI BEAM SW	“ON/OFF”	Displays status (high beam switch: ON/Others: OFF) of high beam switch judged from lighting switch signal.
HEAD LAMP SW 1	“ON/OFF”	Displays “Headlamp switch 1 (ON)/Other (OFF)” status, determined from lighting switch signal.
HEAD LAMP SW 2	“ON/OFF”	Displays status (headlamp switch 2: ON/Others: OFF) of headlamp switch 2 judged from lighting switch signal.
TAIL LAMP SW	“ON/OFF”	Displays status (lighting switch 1st position: ON/Others: OFF) of lighting switch judged from lighting switch signal.
PASSING SW	“ON/OFF”	Displays status (flash-to-pass switch: ON/Others: OFF) of flash-to-pass switch judged from lighting switch signal.
AUTO LIGHT SW	“ON/OFF”	Displays “Auto light switch (ON)/Other (OFF)” status, determined from lighting switch signal.
FR FOG SW	“ON/OFF”	Displays “Front fog lamp switch (ON)/Other (OFF)” status, determined from lighting switch signal.
FR WIPER HI	“ON/OFF”	Displays “Front Wiper HI (ON)/Other (OFF)” status, determined from wiper switch signal.
FR WIPER LOW	“ON/OFF”	Displays “Front Wiper LOW (ON)/Other (OFF)” status, determined from wiper switch signal.
FR WIPER INT	“ON/OFF”	Displays “Front Wiper INT (ON)/Other (OFF)” status, determined from wiper switch signal.
FR WASHER SW	“ON/OFF”	Displays “Front Washer Switch (ON)/Other (OFF)” status, determined from wiper switch signal.
INT VOLUME	[1 - 7]	Displays intermittent operation knob setting (1 - 7), determined from wiper switch signal.
RR WIPER ON	“ON/OFF”	Displays “rear Wiper (ON)/Other (OFF)” status as judged from wiper switch signal.
RR WIPER INT	“ON/OFF”	Displays “rear Wiper INT (ON)/Other (OFF)” status as judged from wiper switch signal.
RR WASHER SW	“ON/OFF”	Displays “rear Washer Switch (ON)/Other (OFF)” status as judged from wiper switch signal.

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

Combination Switch Inspection

AKS009W9

1. SYSTEM CHECK

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	—	—	HEAD LAMP2	HI BEAM
—	INT VOLUME 3	AUTO LIGHT	—	LIGHT SW 1ST
INT VOLUME 2	—	—	FR FOG	—

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

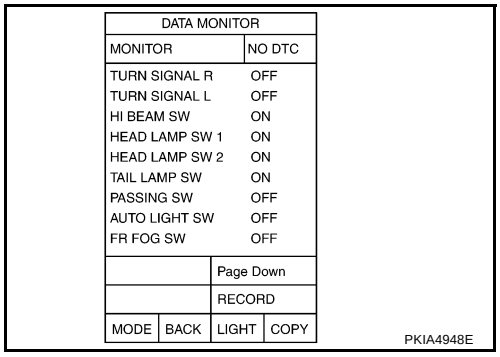
2. SYSTEM CHECK

With CONSULT-II

CAUTION:

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

1. Connect CONSULT-II, and select “COMB SW” on “SELECT TEST ITEM” screen.
2. Select “DATA MONITOR”.
3. Select “START”, and confirm that other switches in malfunctioning system operate normally.
   Example: When auto light switch is malfunctioning, confirm that “FRONT WIPER LOW” and “FRONT WIPER INT” in System 3, to which the auto light switch belongs, turn ON-OFF normally.



Without CONSULT-II

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

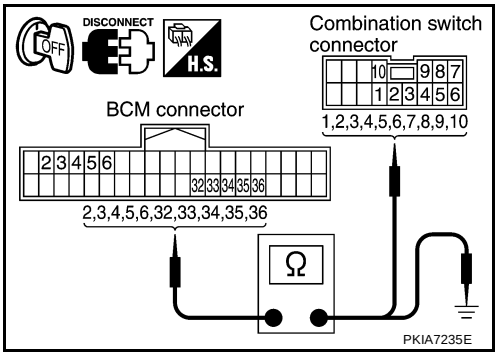
Check results

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

3. HARNESS INSPECTION

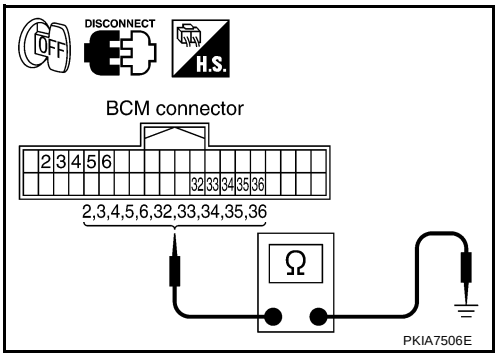
1. Disconnect BCM and combination switch connectors.
2. Check for continuity between BCM harness connector of the suspect system and the corresponding combination switch connector terminals.

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 (W/L)		10 (W/L)	
		Output 3 34 (PU)		3 (PU)	
4		Input 4 3 (G)		9 (G)	
		Output 4 33 (L)		4 (L)	
5		Input 5 2 (G/R)		8 (G/R)	
		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 (W/L)		
		Output 3	34 (PU)		
4		Input 4	3 (G)		
		Output 4	33 (L)		
5		Input 5	2 (G/R)		
		Output 5	32 (GY)		



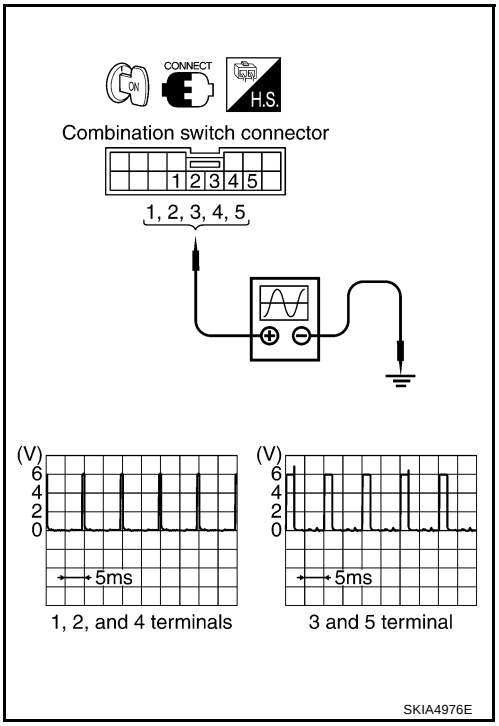
OK or NG

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.

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

AKS009WA

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

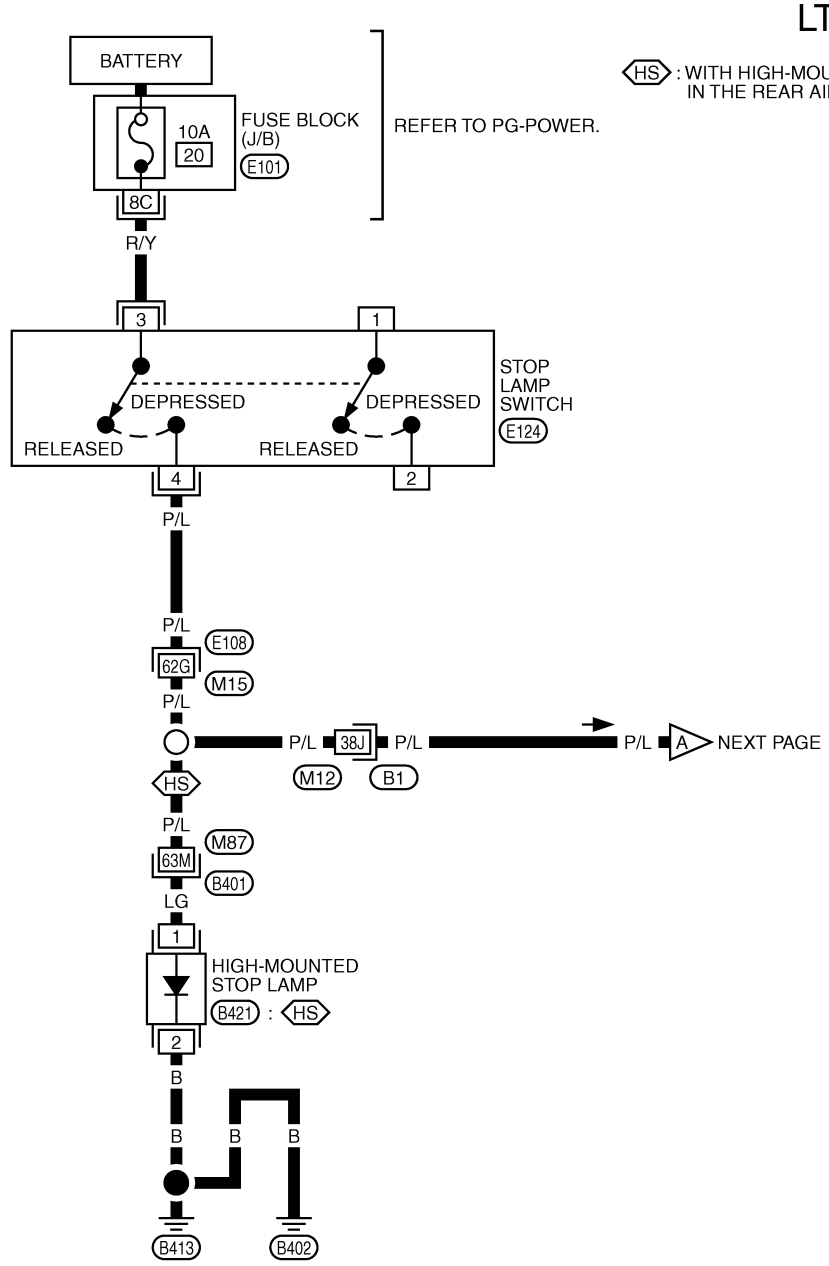
STOP LAMP

PFP:26550

Wiring Diagram — STOP/L —

AKS009WE

LT-STOP/L-01



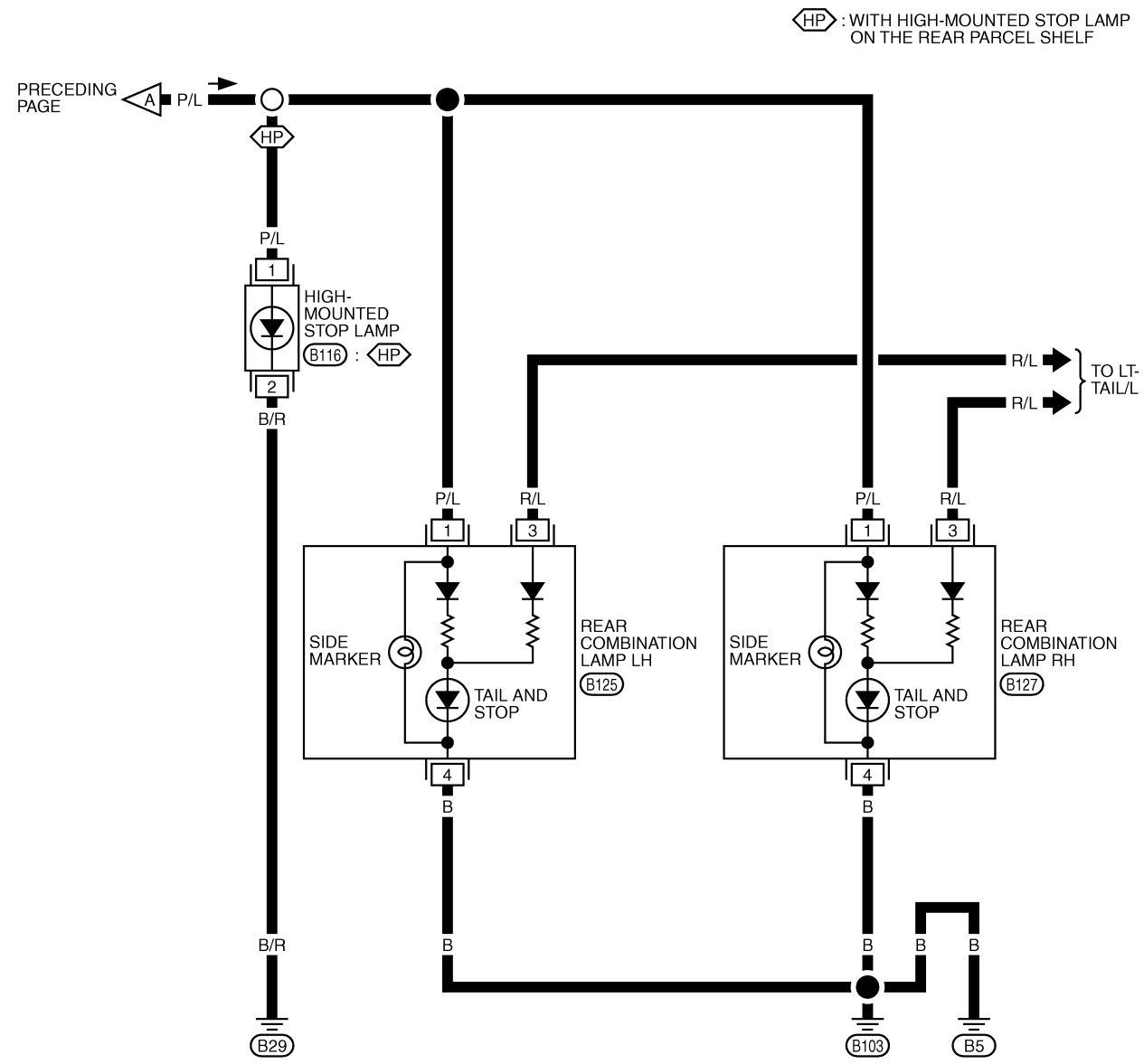
E124 W

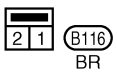
B421 BR

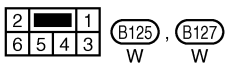
REFER TO THE FOLLOWING.
E108 , B1 , B401 -SUPER MULTIPLE JUNCTION (SMJ)
E101 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWM0873E

LT-STOP/L-02







TKWM0874E

Bulb Replacement of High-mounted Stop Lamp

AKS00A1H

WITH REAR SPOILER

1. Remove high-mounted stop lamp. Refer to LT-133, "REMOVAL (WITH REAR SPOILER)" .
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 (WITHOUT REAR SPOILER)" .
2. Replace together with high-mounted stop lamp.

High-mounted stop lamp : LED

Bulb Replacement of Rear Combination Lamp (Stop Lamp)

AKS00A1I

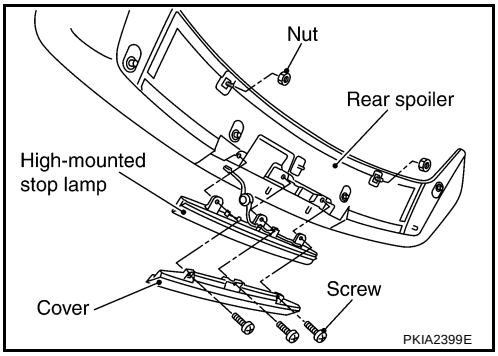
Refer to LT-156, "Bulb Replacement" in “REAR COMBINATION LAMP”.

Removal and Installation of High-mounted Stop Lamp

AKS00A1J

REMOVAL (WITH REAR SPOILER)

1. Remove rear spoiler. Refer to EI-28, "REAR SPOILER" in “EI” section.
2. Remove screws and remove high-mounted stop lamp from rear spoiler.
3. Disconnect high-mounted stop lamp connector.

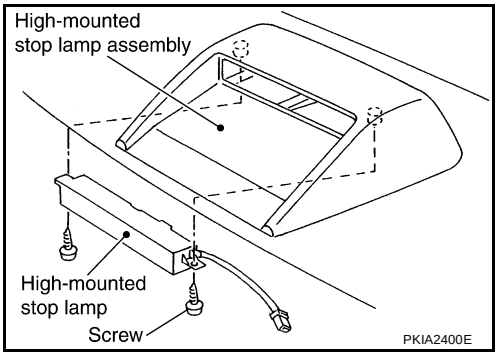


INSTALLATION

Install in the reverse order of removal.

REMOVAL (WITHOUT REAR SPOILER)

1. Remove rear parcel shelf finisher. Refer to EI-34, "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)

AKS00A1K

Refer to LT-156, "Removal and Installation" in “REAR COMBINATION LAMP”.

BACK-UP LAMP

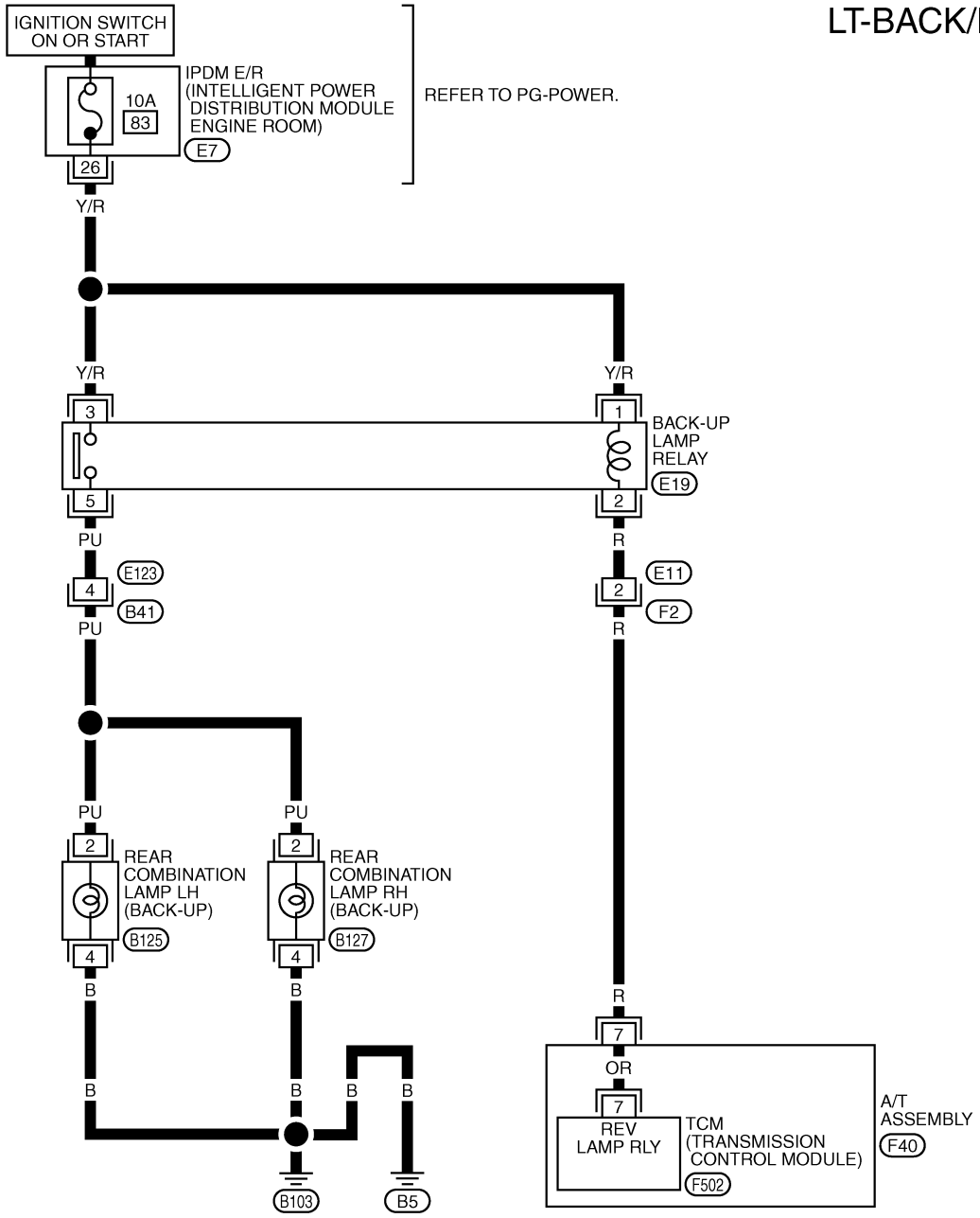
PFP:26550

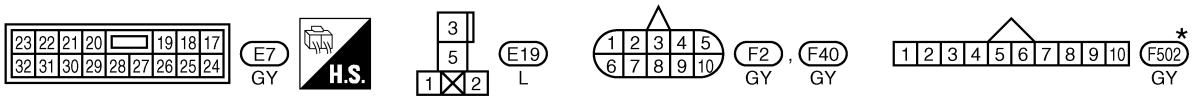
Wiring Diagram — BACK/L —

AKS009WL

A/T MODELS

LT-BACK/L-01



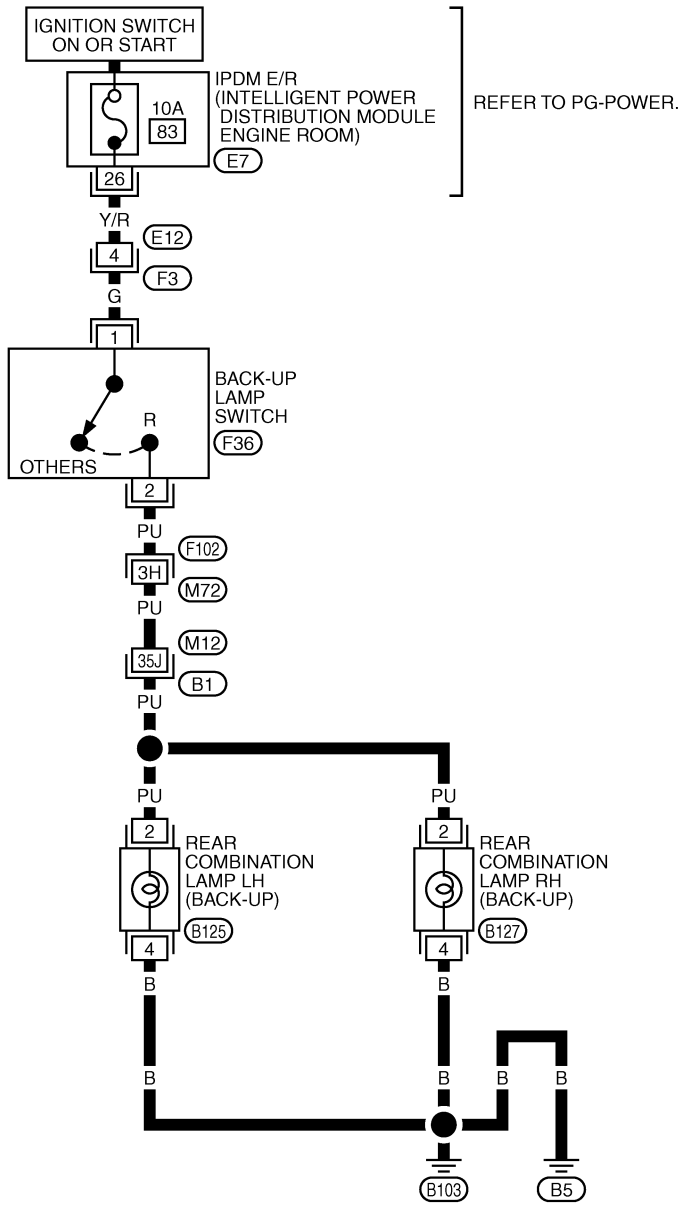


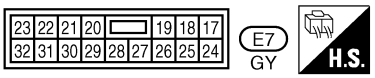
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWM1401E

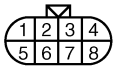
M/T MODELS

LT-BACK/L-02

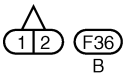




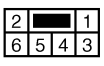
E7
GY



F3
B



F36
B



B125 , B127
W W

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

TKWM0876E

Bulb Replacement

AKS009WM

Refer to LT-156, "Bulb Replacement" in “REAR COMBINATION LAMP”.

Removal and Installation

AKS009WN

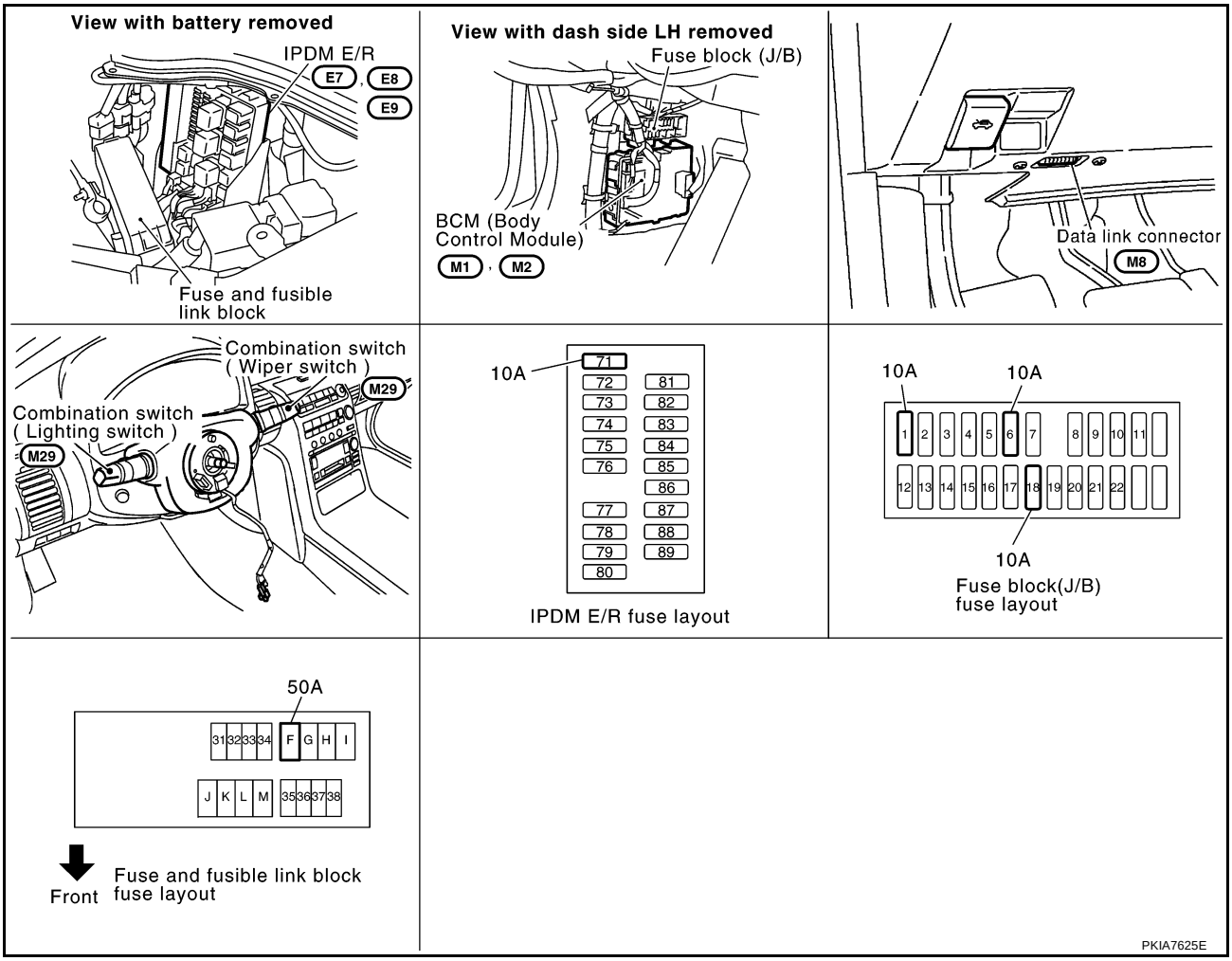
Refer to LT-156, "Removal and Installation" in “REAR COMBINATION LAMP”.

PARKING, LICENSE PLATE AND TAIL LAMPS

PFP:26550

Component Parts and Harness Connector Location

AKS009WO



System Description

AKS009WP

Control of the parking, license plate, and tail lamp operation is dependent upon the position of the lighting switch (combination switch). When the lighting switch is placed in the 1ST position, BCM (body control module) receives input signal requesting the parking, license plate, side marker and tail lamps to illuminate. This input signal is communicated to 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 the tail lamp relay coil. This relay, when energized, directs power to the parking, license plate, side marker and tail lamps, which then illuminate.

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

Power is supplied at all times

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

Power is also supplied at all times

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

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

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

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

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

Ground is supplied

- to BCM (body control module) 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 the lighting switch in the 1ST or 2ND position (or if the auto light system is activated), BCM receives input signal requesting the 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 the tail lamp relay coil, which when energized, directs power

- through IPDM E/R terminal 22
- to front side marker lamp LH terminal 1
- to front combination lamp LH terminal 7
- to license plate lamp LH terminal 1
- to rear combination lamp LH terminal 3
- to front side marker lamp RH terminal 1
- to front combination lamp RH terminal 7
- to license plate lamp RH terminal 1
- to rear combination lamp RH terminal 3.

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 LH terminal 2
- through grounds B5 and B103
- to rear combination lamp LH terminal 4
- through grounds B5 and 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 license plate lamp RH terminal 2
- through grounds B5 and B103
- to rear combination lamp RH terminal 4
- through grounds B5 and B103.

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

COMBINATION SWITCH READING FUNCTION

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

EXTERIOR LAMP BATTERY SAVER CONTROL

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

AKS009WQ

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

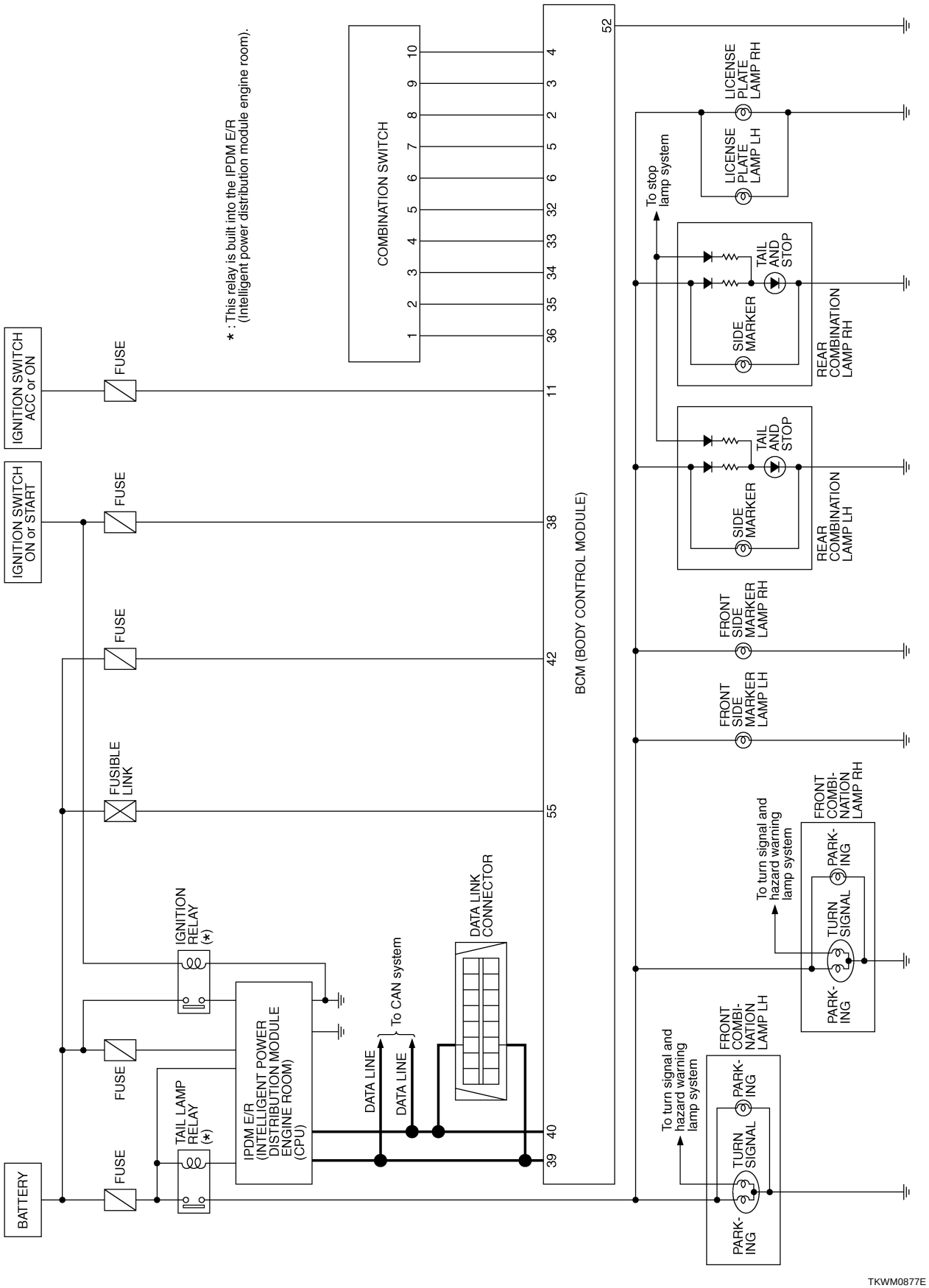
CAN Communication Unit

AKS009WR

Refer to LAN-4, "CAN Communication Unit" .

Schematic

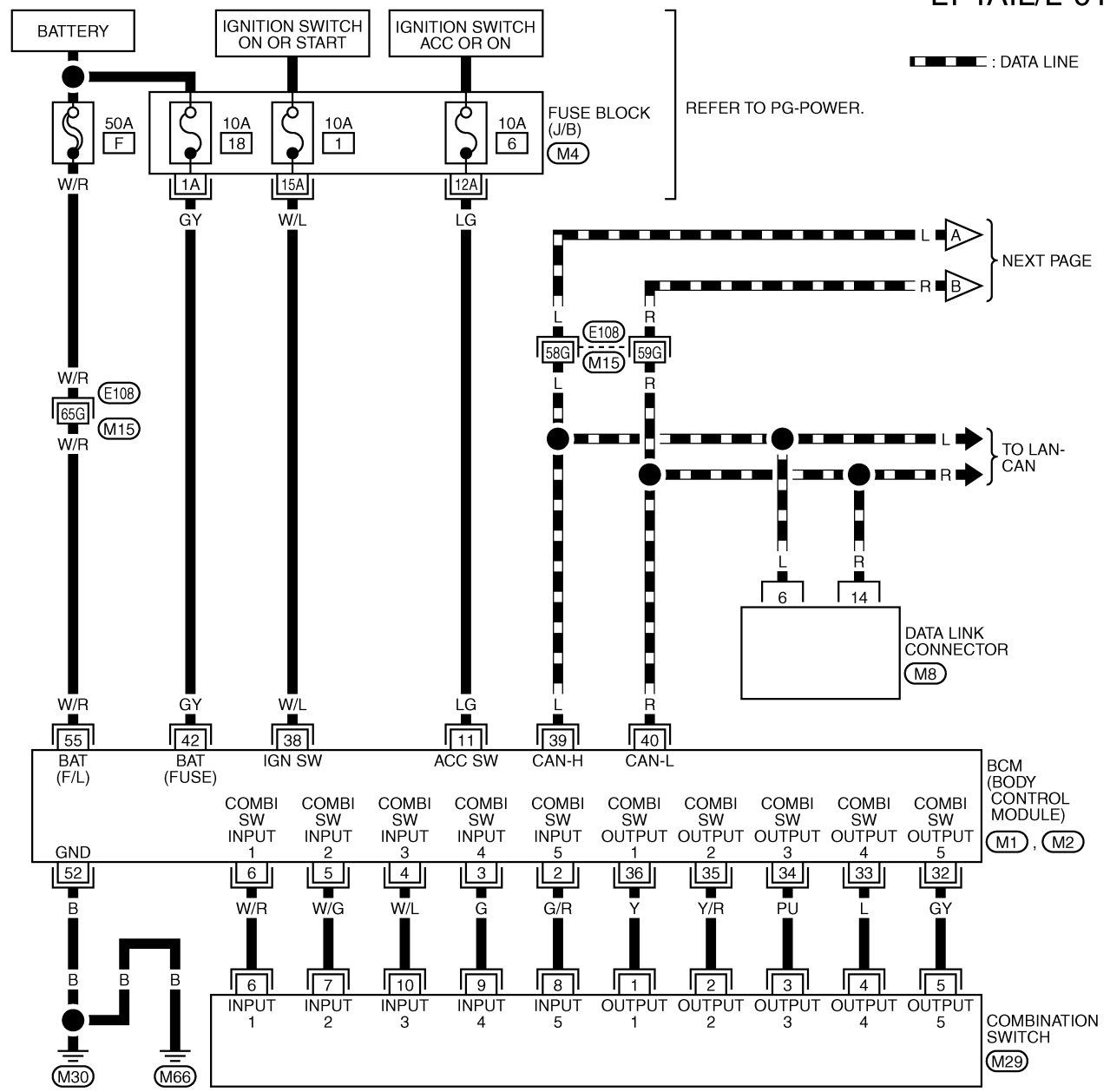
AKS009WS



Wiring Diagram — TAIL/L —

AKS009WT

LT-TAIL/L-01



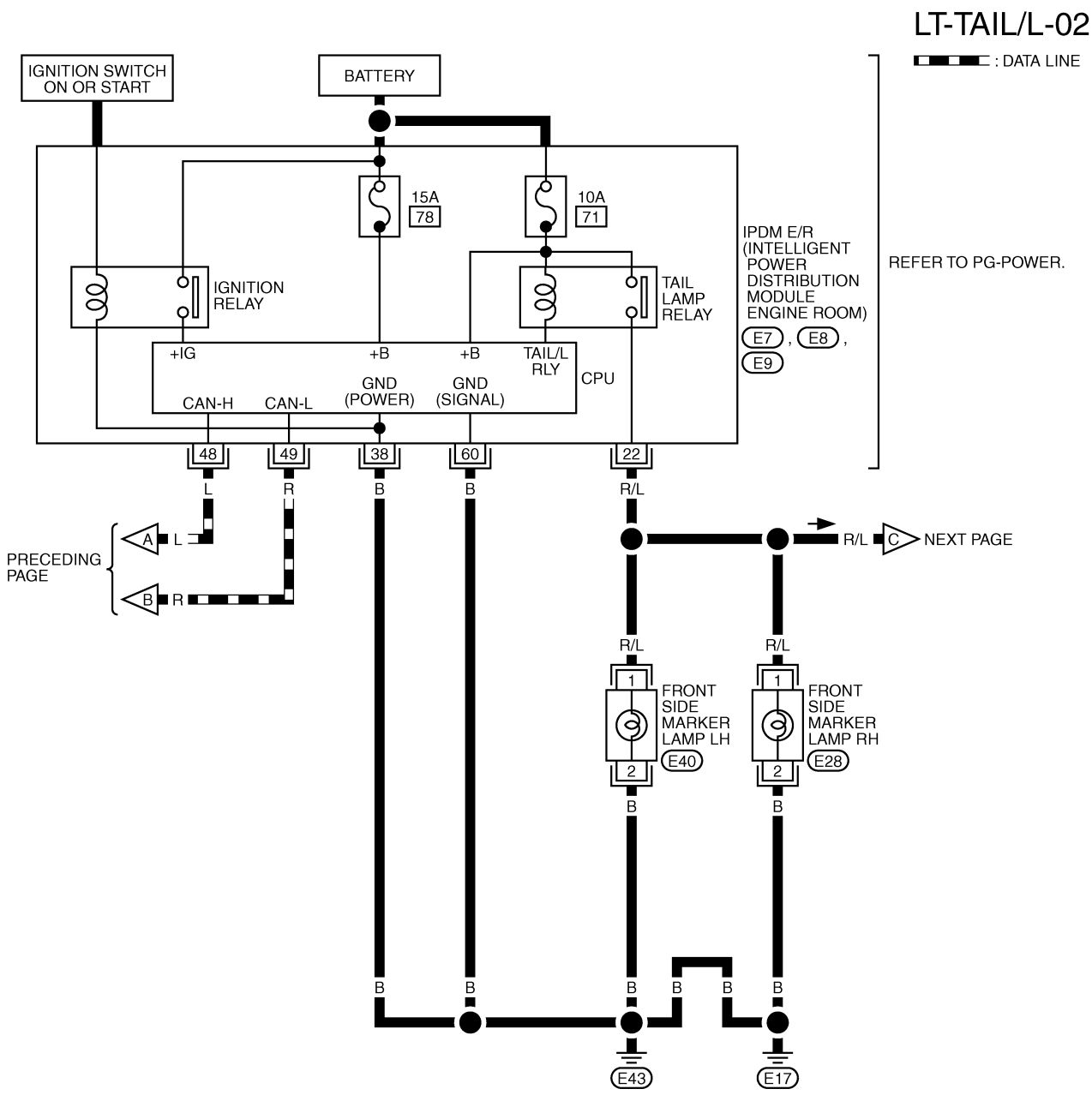
REFER TO THE FOLLOWING.

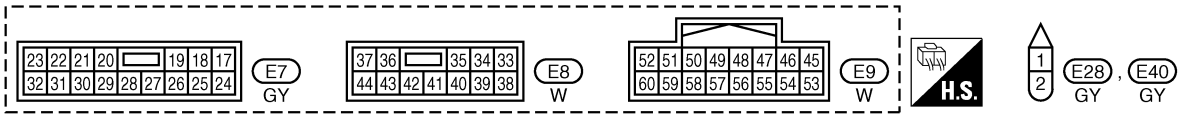
E108 -SUPER MULTIPLE JUNCTION (SMJ)

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

M1, M2 -ELECTRICAL UNITS

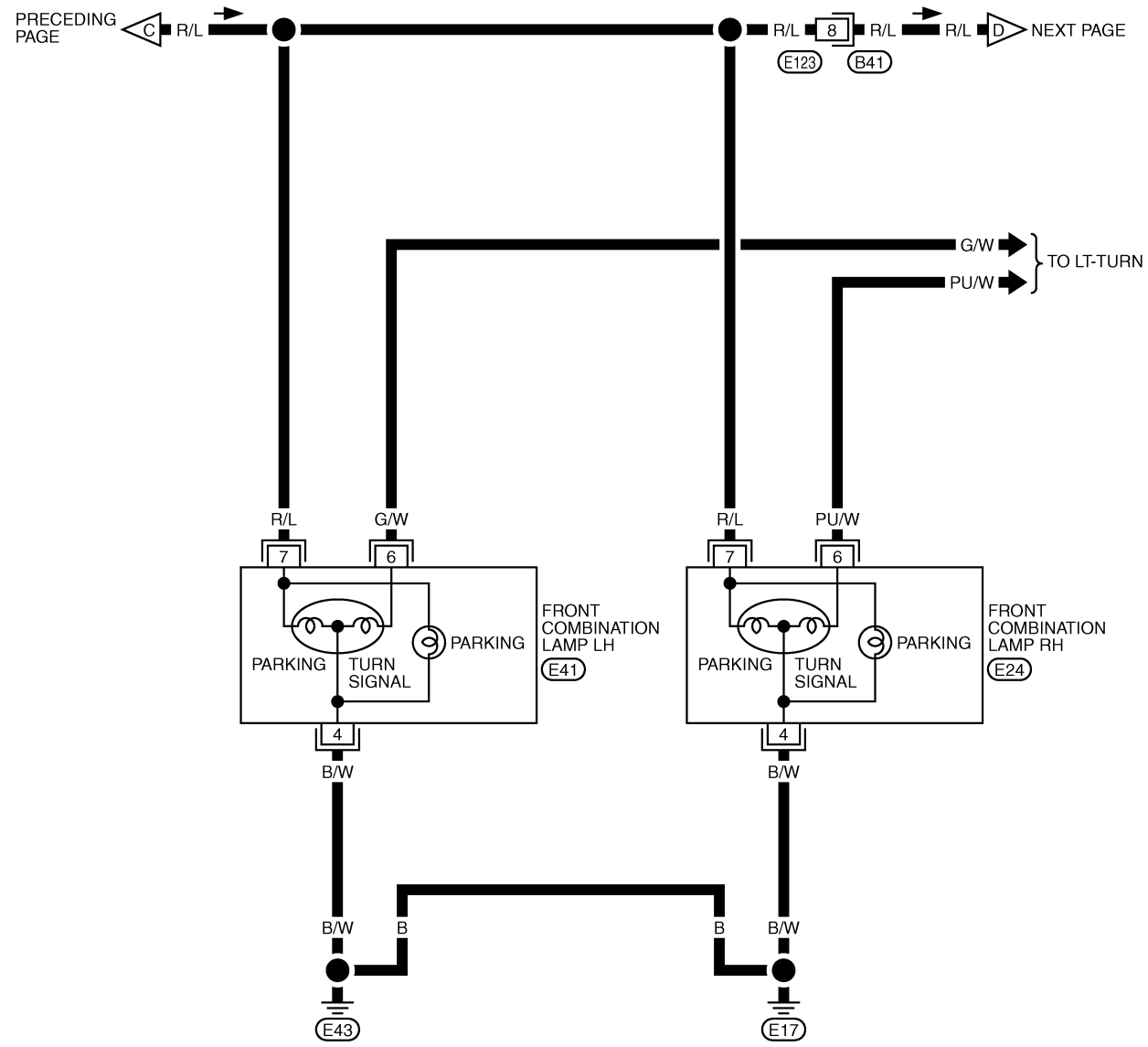
TKWM0878E

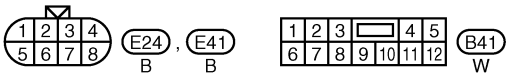

LT-TAIL/L-02
: DATA LINE
IGNITION SWITCH ON OR START
BATTERY
15A 78
10A 71
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E7 , E8 , E9
REFER TO PG-POWER.
IGNITION RELAY
TAIL LAMP RELAY
+IG
+B
+B
TAIL/L RLY
CPU
CAN-H
CAN-L
GND (POWER)
GND (SIGNAL)
48
49
38
60
22
L
R
B
B
R/L
PRECEDING PAGE
A
L
B
R
R/L
C
NEXT PAGE
R/L
R/L
1
FRONT SIDE MARKER LAMP LH
2
E40
1
FRONT SIDE MARKER LAMP RH
2
E28
B
B
B
B
B
B
B
B
E43
E17


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.
1
2
E28 , E40
GY GY

TKWM0879E

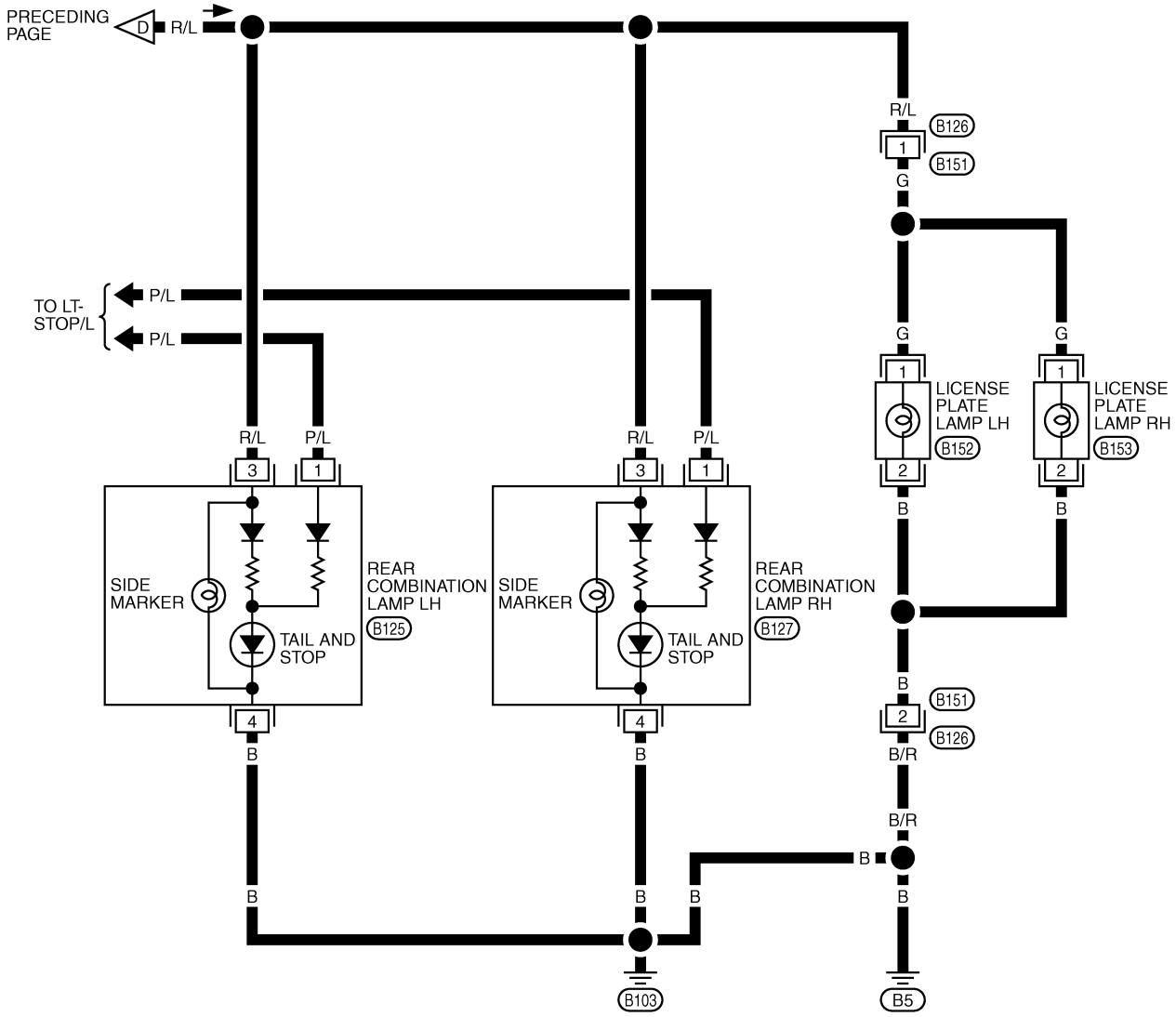
LT-TAIL/L-03





TKWM0880E

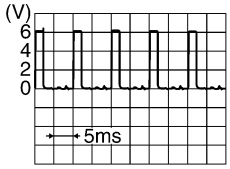
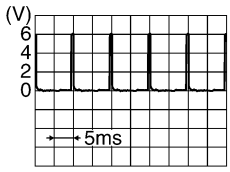
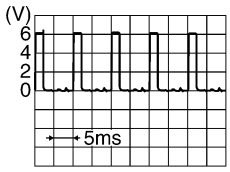
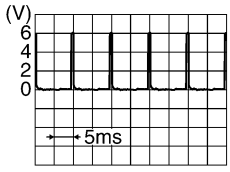
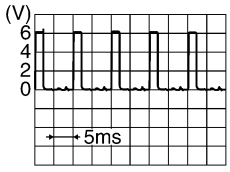
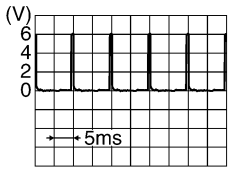
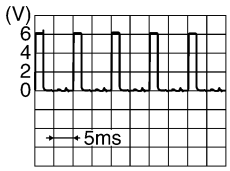
LT-TAIL/L-04

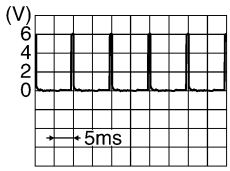


TKWM0881E

Terminals and Reference Value for BCM

AKS009WU

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
2	G/R	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	W/L	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

AKS009WV

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	Ground	ON	—		Approx. 0V

How to Proceed With Trouble Diagnosis

AKS009WW

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-147, "Preliminary Check" .
4. Check symptom and repair or replace the cause of malfunction.
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

AKS009WX

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

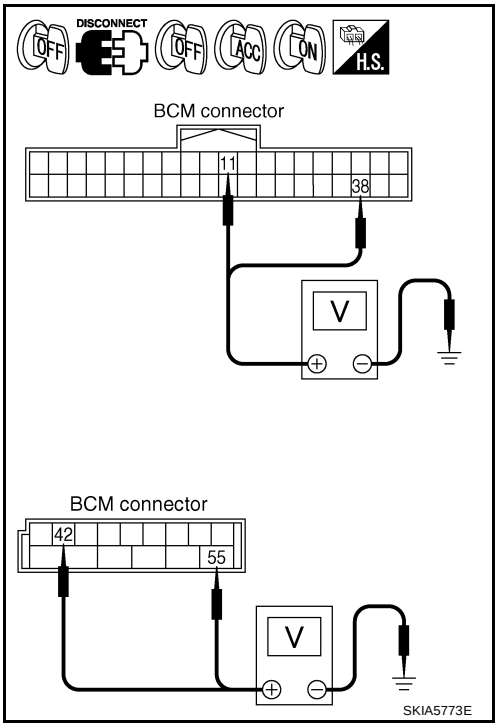
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-4, "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

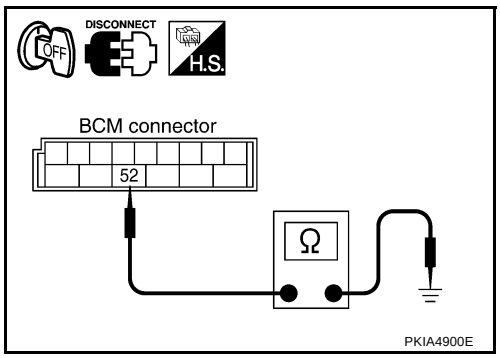
OK >> GO TO 3.

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)		
M2	52 (B)	Ground	Yes



OK or NG

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

CONSULT-II Functions

AKS009WY

Refer to LT-18, "CONSULT-II Functions (BCM)" in “HEADLAMP (USA)”.
Refer to LT-21, "CONSULT-II Functions (IPDM E/R)" in “HEADLAMP (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)”.

Parking, License Plate and Tail Lamps Do Not Illuminate

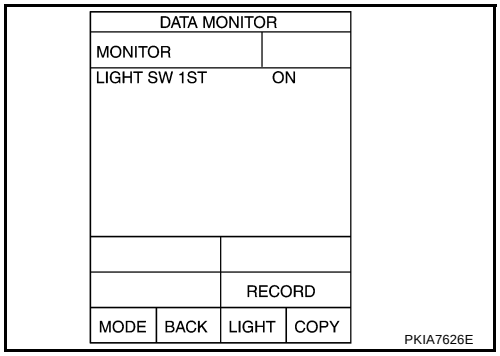
AKS009WZ

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 position : LIGHT SW 1 ST ON



Without CONSULT-II

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

OK or NG

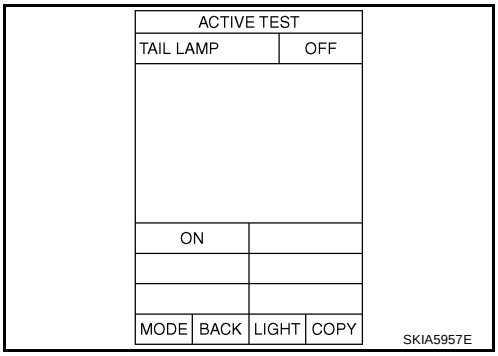
OK >> GO TO 2.
NG >> Check lighting switch. Refer to LT-128, "Combination Switch Inspection" .

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.



Without CONSULT-II

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

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

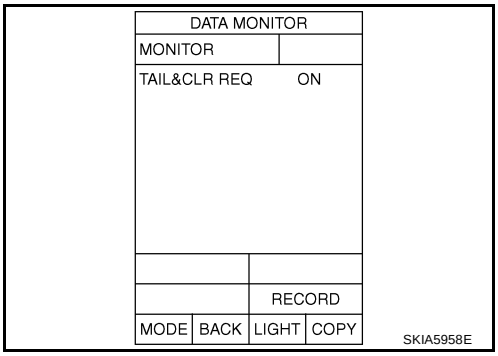
OK or NG

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 position : TAIL & CLR REQ ON



OK or NG

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

4. CHECK INPUT SIGNAL

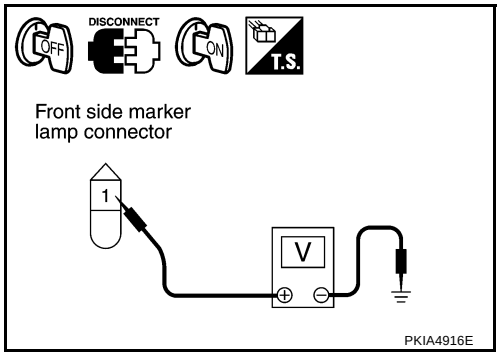
With CONSULT-II

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

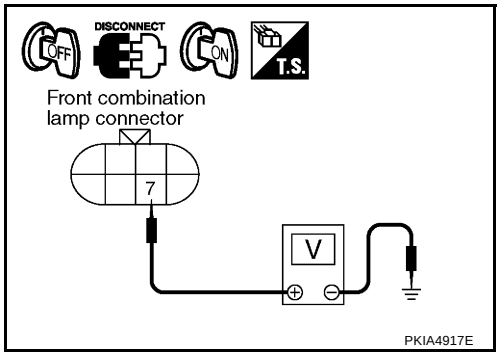
Without CONSULT-II

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

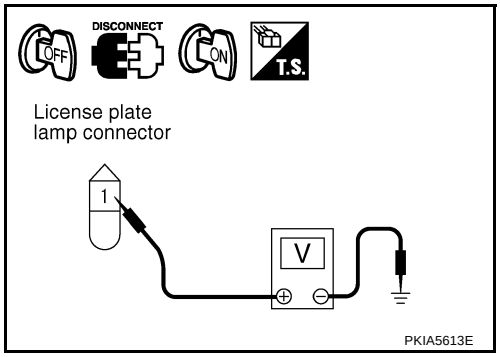
Terminals				Voltage
Front side marker lamp (+)			(-)	
Connector		Terminal (Wire color)		
RH	E28	1 (R/L)	Ground	Battery voltage
LH	E40			



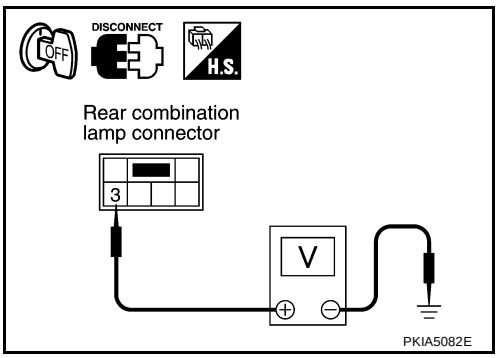
Terminals				Voltage
Front combination lamp (+) (Parking)			(-)	
Connector		Terminal (Wire color)		
RH	E24	7 (R/L)	Ground	Battery voltage
LH	E41			



Terminals				Voltage
License plate lamp (+)			(-)	
Connector		Terminal (Wire color)		
RH	B153	1 (G)	Ground	Battery voltage
LH	B152			



Terminals				Voltage
Rear combination lamp (+) (Tail and side marker)			(-)	
Connector		Terminal (Wire color)		
RH	B127	3 (R/L)	Ground	Battery voltage
LH	B125			



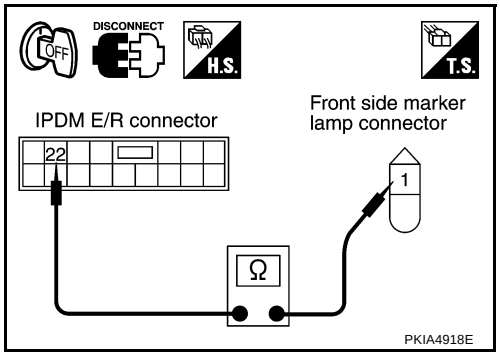
OK or NG

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

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

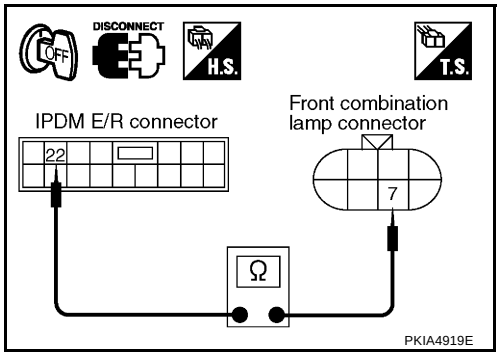
1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector and front side marker lamp harness connector.

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		



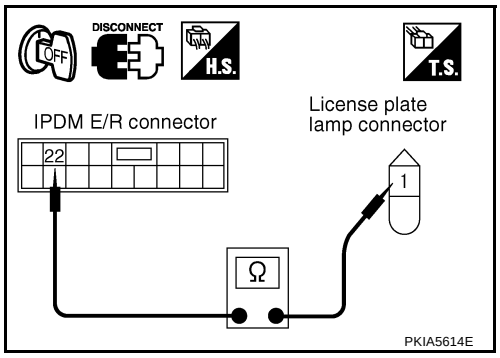
4. Check continuity between IPDM E/R harness connector and front combination lamp harness connector.

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		



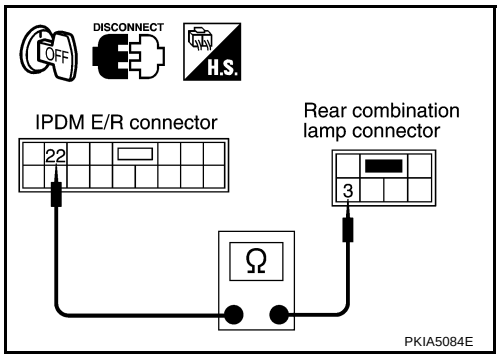
5. Check continuity between IPDM E/R harness connector and license plate lamp harness connector.

Terminals					Continuity
IPDM E/R		License plate lamp			
Connector	Terminal (Wire color)	Connector		Terminal (Wire color)	
E7	22 (B/L)	RH	B153	1 (G)	Yes
		LH	B152		



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	B127	3 (R/L)	Yes
		LH	B125		



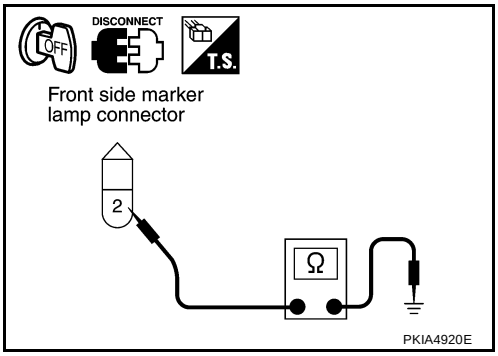
OK or NG

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

6. CHECK GROUND

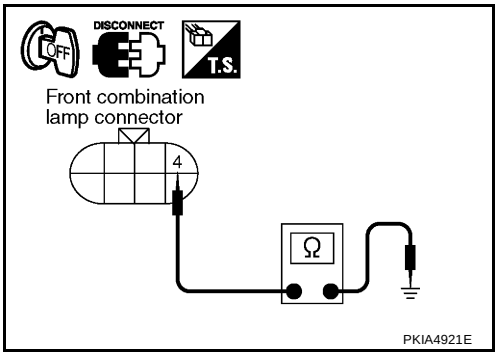
1. Check continuity between front side maker lamp harness connector and ground.

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



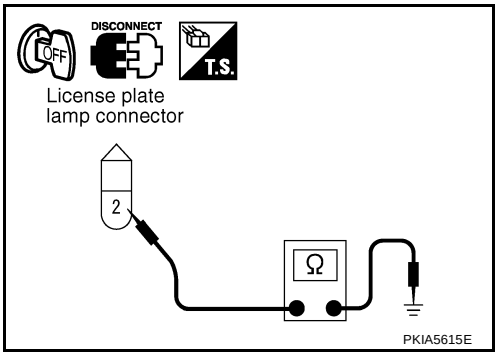
2. Check continuity between front combination lamp harness connector and ground.

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



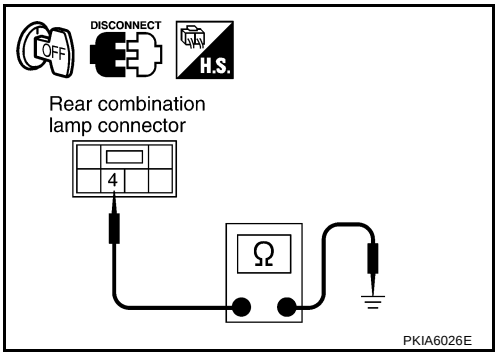
3. Check continuity between license plate lamp harness connector and ground.

Terminals			Continuity
License plate lamp		Ground	
Connector		Terminal (Wire color)	
RH	B153	2 (B)	Yes
LH	B152		



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	B127	4 (B)	Yes
LH	B125		



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)

AKS00AM0

1. CHECK IPDM E/R

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

OK or NG

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

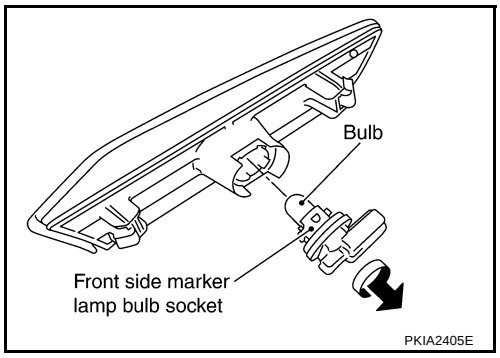
Bulb Replacement

AKS00A1X

FRONT SIDE MARKER LAMP

1. Remove front side marker lamp. Refer to LT-154, "FRONT SIDE MARKER LAMP" .
2. Turn bulb socket counterclockwise and unlock it.
3. Remove bulb from it's socket.

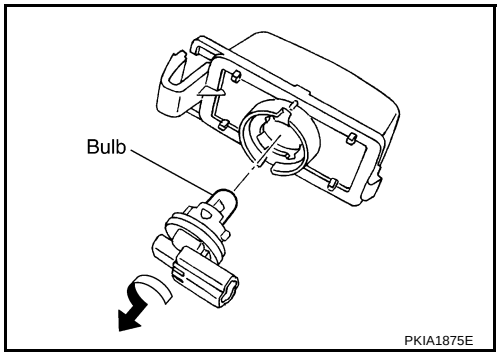
Front side marker lamp : 12V - 3.8W



LICENSE PLATE LAMP

1. Remove license plate lamp. Refer to LT-155, "LICENSE PLATE LAMP" .
2. Turn bulb socket counter click wise 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 “HEADLAMP (FOR USA)”.

TAIL LAMP

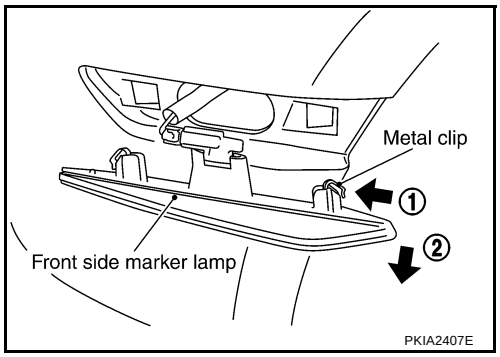
For bulb replacement, refer to LT-156, "Bulb Replacement" in “REAR COMBINATION LAMP”.

Removal and Installation

AKS00A1Y

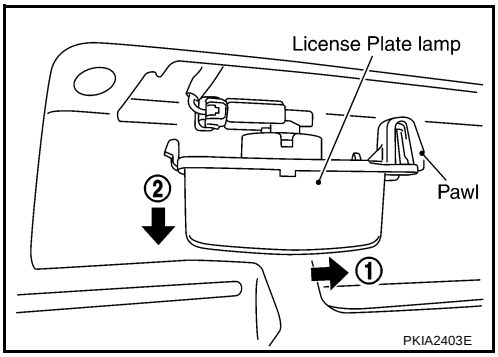
FRONT SIDE MARKER LAMP

1. Insert a slotted screwdriver or similar tool into fender protector gap to push front side marker lamp metal clip in direction 1 (see figure) while pulling in direction 2. Remove front side marker lamp from vehicle.
2. Disconnect connectors of front side marker lamp.
3. Install in the reverse order of removal.



LICENSE PLATE LAMP

1. While pressing pawl on reverse side, push license plate towards you to remove.
2. Disconnect the license plate lamp connector.
3. 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 “HEADLAMP (FOR USA)”.

TAIL LAMP

For tail lamp removal and installation procedures, refer to LT-156, "Removal and Installation" in “REAR COMBINATION LAMP”.

REAR COMBINATION LAMP

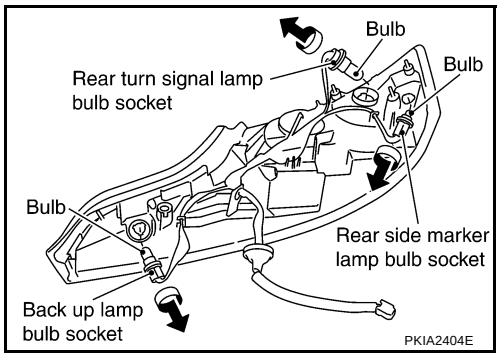
PFP:26554

Bulb Replacement

AKS00A1Z

REAR FENDER SIDE (REAR TURN SIGNAL LAMP BULB)

1. Remove rear combination lamp. Refer to LT-156, "Removal and Installation" in REAR COMBINATION LAMP.
2. Turn bulb socket counterclockwise and unlock it.
3. Remove bulb.



Stop/tail lamp	**: LED (Replace together with rear combination lamp assembly.)**
Rear turn signal lamp	**: 12V - 21W**
Back-up lamp	**: 12V - 18W**
Rear side marker lamp	**: 12V - 3.8W**

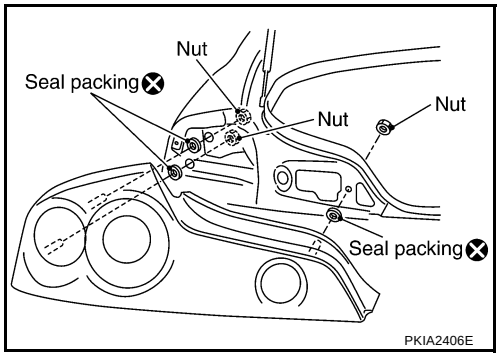
Removal and Installation

AKS00A20

REMOVAL

Rear Fender Side

1. Open trunk lid and remove trunk rear finisher (end). Refer to EI-39, "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 the vehicle and remove from the vehicle.
5. Remove seal packing from the vehicle.



INSTALLATION

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

- Install a new seal packing to the 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

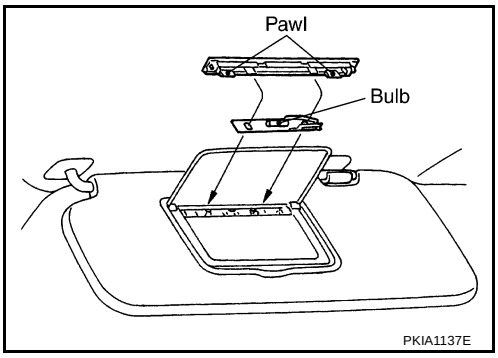
PFP:96400

Bulb Replacement

AKS00A16

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

Vanity mirror lamp : 12V - 1.32W



MAP LAMP

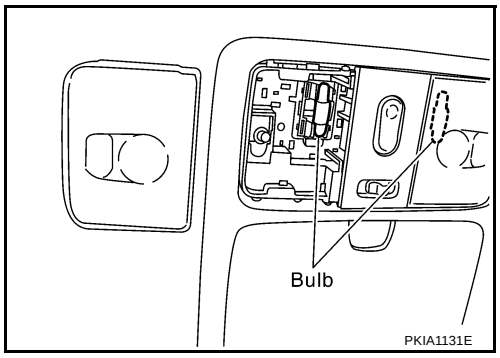
PFP:26430

Bulb Replacement of Map Lamp

AKS00A12

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

Map lamp : 12V - 8W

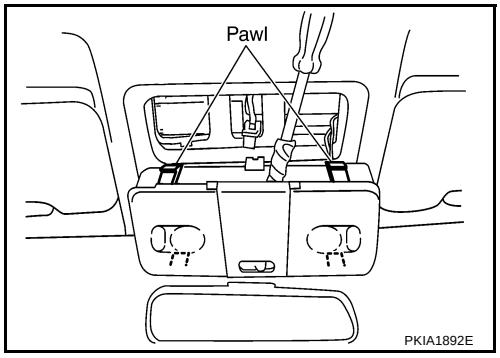


Removal and Installation of Map Lamp

AKS00A13

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

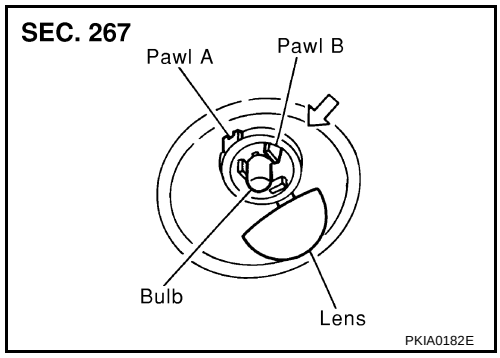
PFP:26470

Bulb Replacement, Removal and Installation of Trunk Room Lamp

AKS00A26

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



IGNITION KEY HOLE ILLUMINATION

PFP:48476

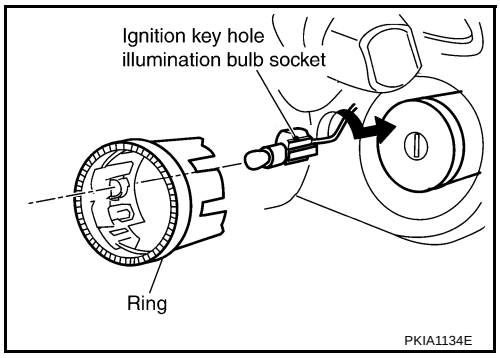
Removal and Installation

AKS00A17

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



INSTALLTION

Install in the reverse order of removal.

GLOVE BOX LAMP

PFP:68520

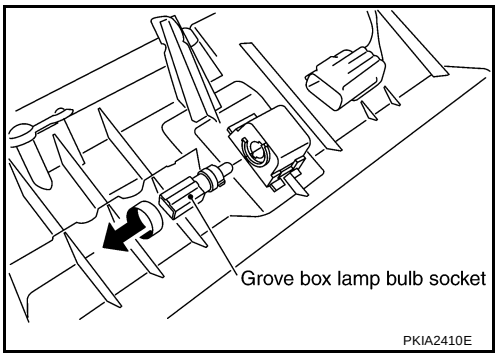
Removal and Installation

AKS00A21

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

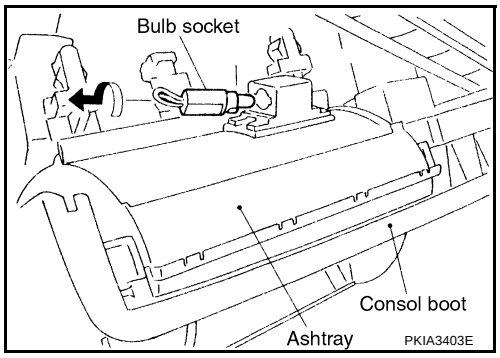
Bulb Replacement, Removal and Installation (M/T)

AKS00A22

1. Remove center console assembly. 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.



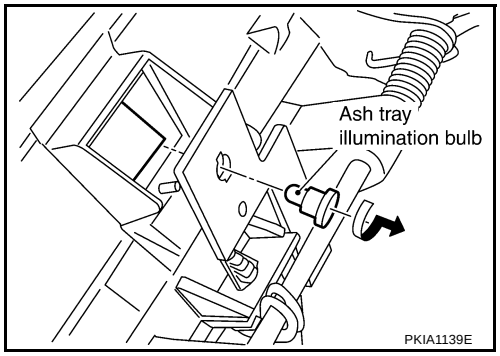
Bulb Replacement, Removal and Installation (A/T)

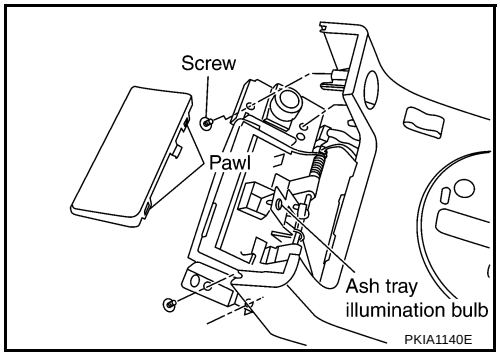
AKS00A23

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

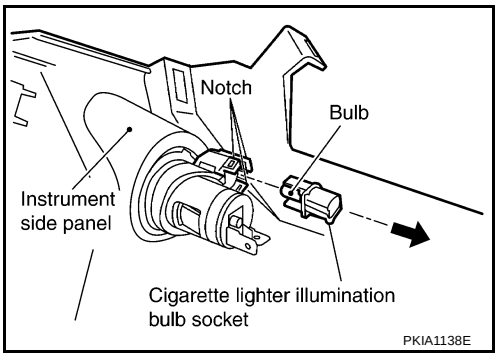
AKS00A24

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.

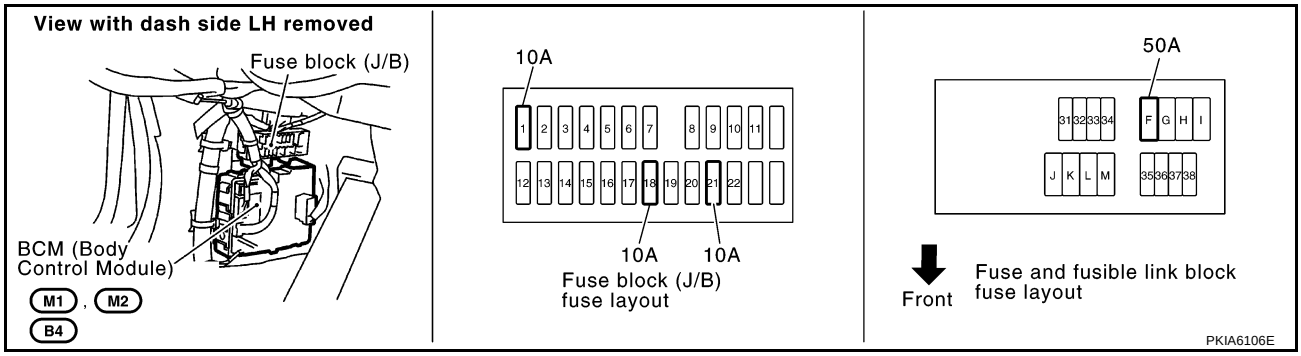


INTERIOR ROOM LAMP

PFP:26410

Component Parts and Harness Connector Location

AKS009XL



System Description

AKS009XM

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.
The 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 or passenger door is opened (door switch ON). Lamp turns OFF when driver, passenger doors are closed (all door switches OFF).

POWER SUPPLY AND GROUND

Power is supplied at all times

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

When the key plate inserted to key switch, power is supplied

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

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

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

Ground is supplied

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

When the driver side door is opened, ground is supplied

- through case ground of driver side door switch
- to BCM (body control module) terminal 62 and
- to combination meter terminal 7 (with navigation system)

When the passenger side door is opened, ground is supplied

- through case ground of passenger side door switch
- to BCM (body control module) terminal 12 and
- to combination meter terminal 6 (with navigation system)

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

- through grounds terminals M30 and M66
- to power window main switch (door lock and unlock switch) terminal 15 or power window sub-switch (door lock and unlock switch) terminal 11
- from power window main switch (door lock and unlock switch) terminal 12 or power window sub-switch (door lock and unlock switch) terminal 16
- to BCM (body control module) terminal 22.

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

- through grounds M30 and M66
- to driver side door lock assembly (door key cylinder switch) terminal 5
- from driver side door lock assembly (door key cylinder switch) terminal 6
- to power window main switch (door lock and unlock switch) terminal 7
- from power window main switch (door lock and unlock switch) terminal 12
- to BCM (body control module) terminal 22.

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

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

With power and supplied, the interior lamp illuminates.

SWITCH OPERATION

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

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

And power is supplied

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

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

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

And power is supplied

- from BCM terminal 41
- to step lamp (driver side) and step lamp (passenger side) terminal 1.

When map lamp switch is ON, ground is supplied

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

And power is supplied

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

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

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

And power is supplied

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

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 interior room lamp and 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 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

- from BCM terminal 22
- to power window main switch (door lock and unlock switch) terminal 12.

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

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

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 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). 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), door key cylinder switch].
- Driver door is opened (driver door switch turns ON).
- Ignition switch ON.

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
- Step lamp

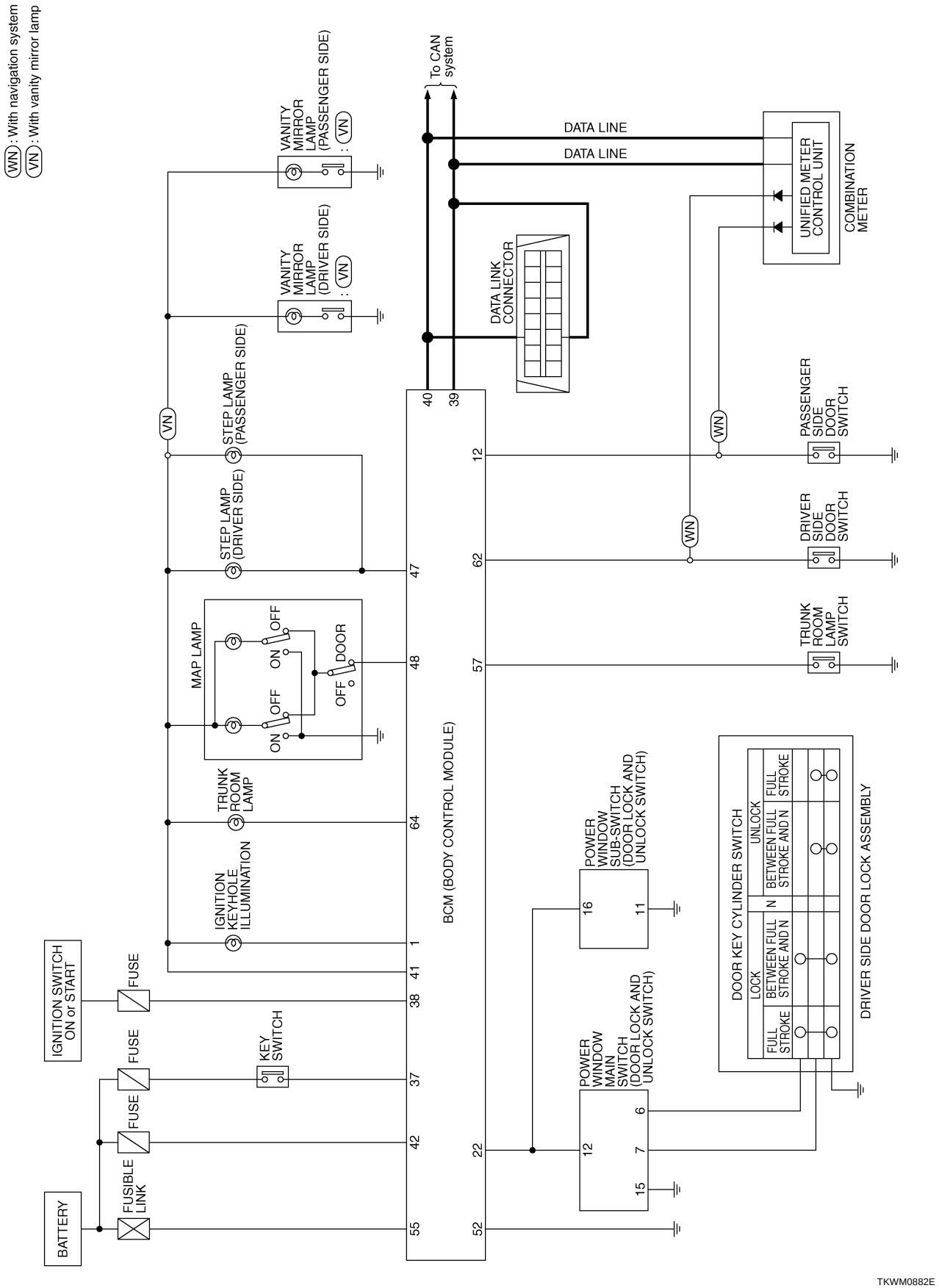
After lamps turn OFF by the battery saver system, the lamps illuminate again when

- 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

AKS009XN

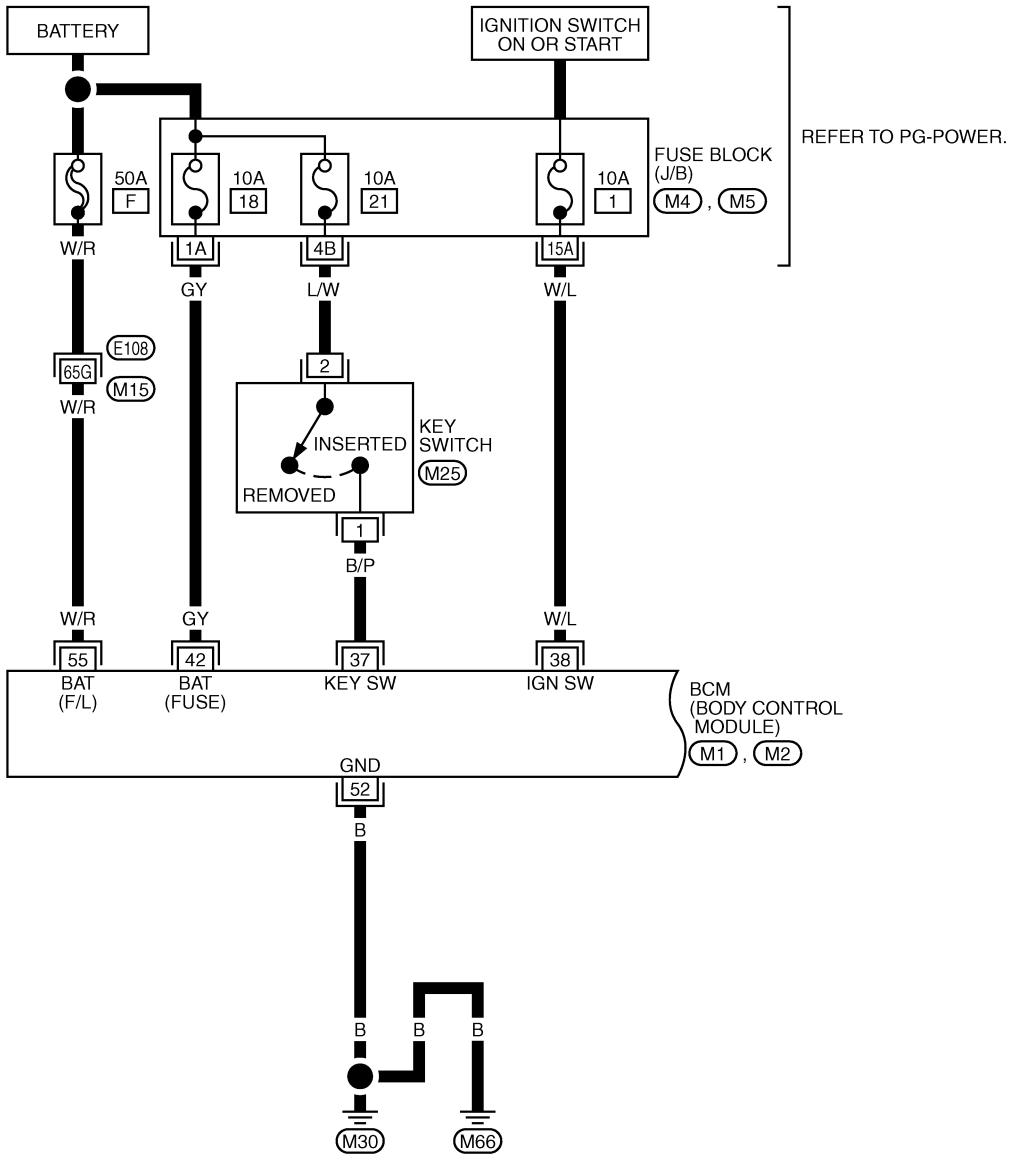


TKWM0882E

Wiring Diagram — ROOM/L —

AKS009XO

LT-ROOM/L-01

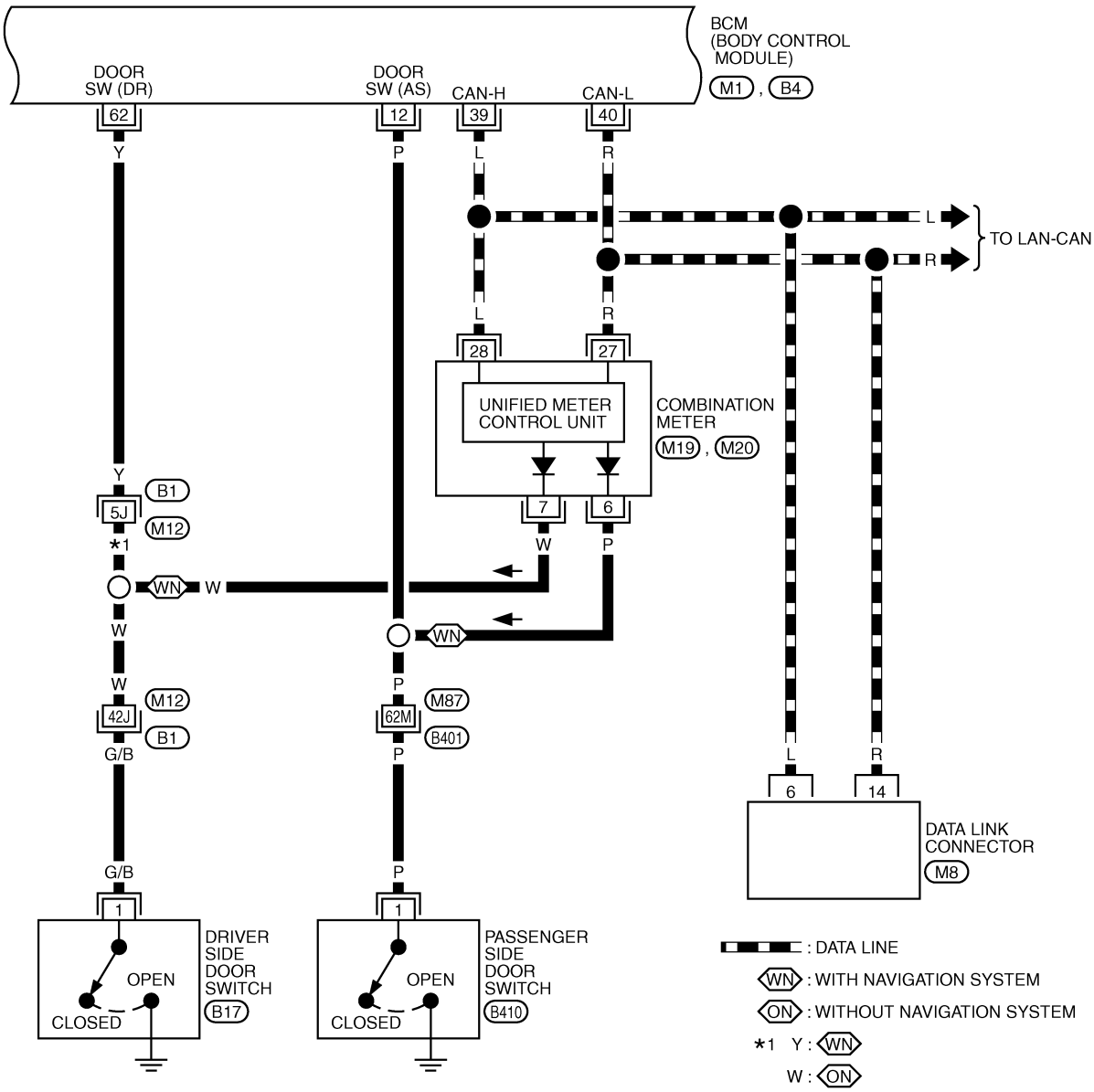


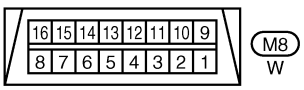
1 2 M25
BR

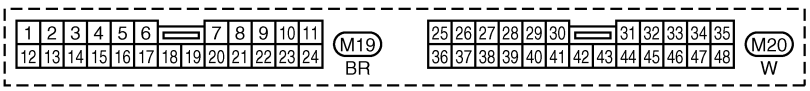
REFER TO THE FOLLOWING.
E108 -SUPER MULTIPLE JUNCTION (SMJ)
M4 , M5 -FUSE BLOCK-JUNCTION BOX (J/B)
M1 , M2 -ELECTRICAL UNITS

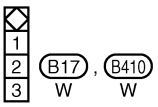
TKWM0883E

LT-ROOM/L-02





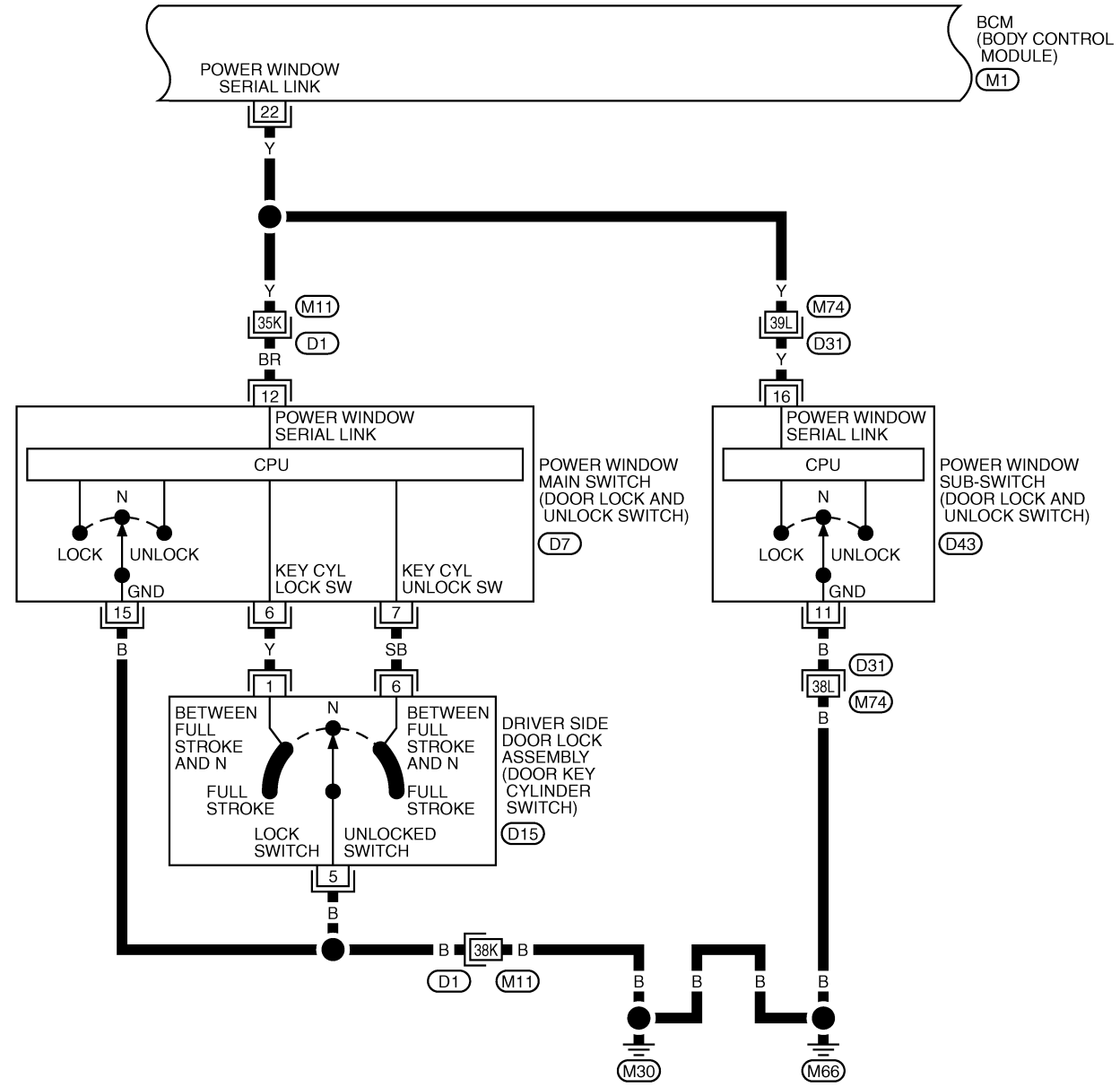


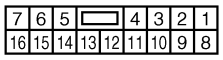


REFER TO THE FOLLOWING.
B1 , B401 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , B4 -ELECTRICAL UNITS

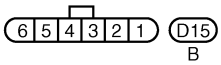
TKWM0884E

LT-ROOM/L-03





D7 , D43
W W

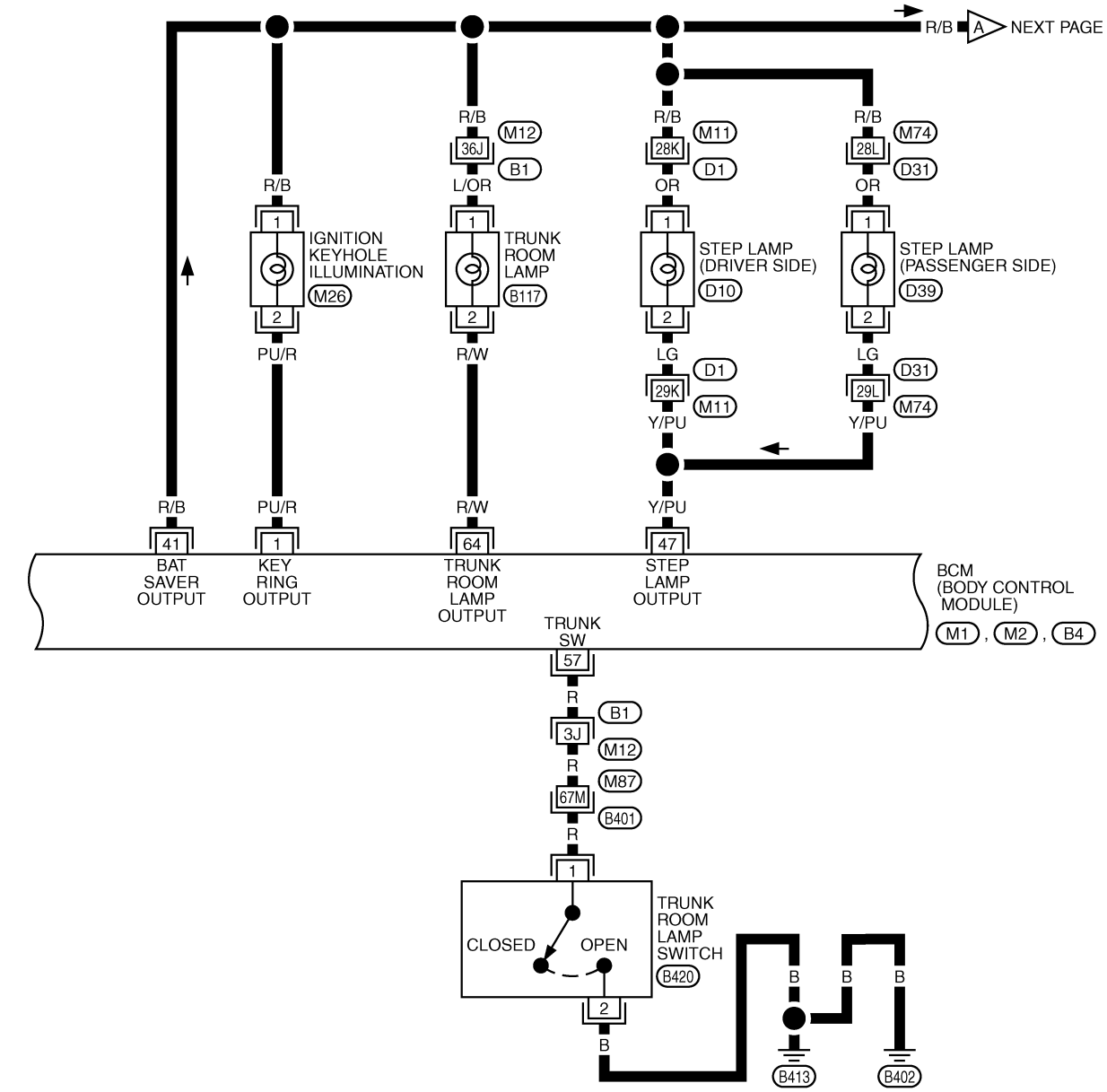


D15
B

REFER TO THE FOLLOWING.
D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)
M1 -ELECTRICAL UNITS

TKWM0885E

LT-ROOM/L-04



M26 W, B420 W

B117 W

D10 W, D39 W

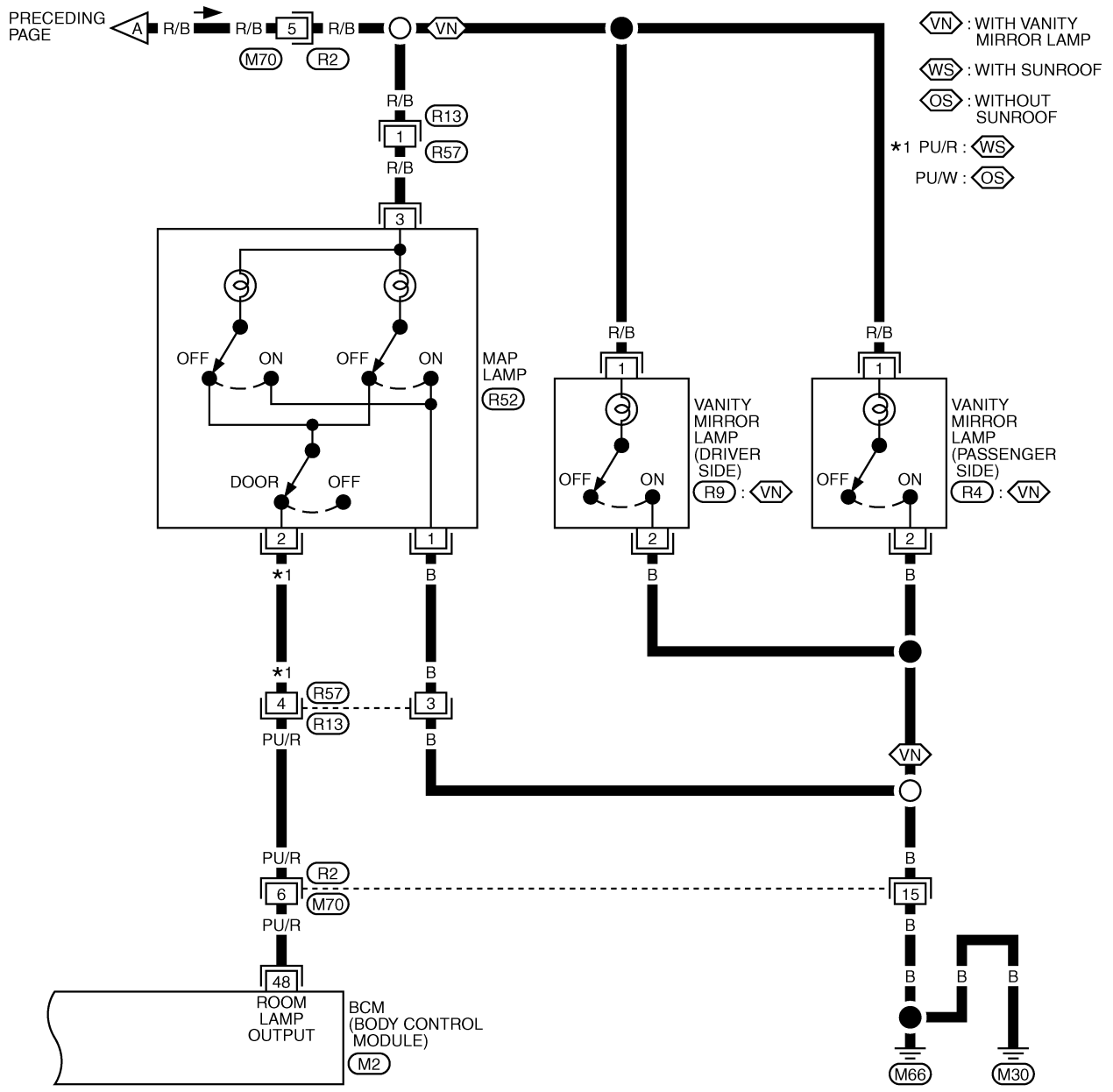
REFER TO THE FOLLOWING.

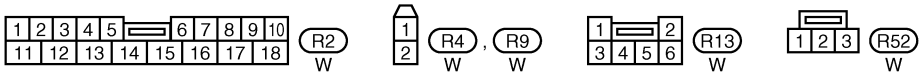
B1, B401, D1, D31
-SUPER MULTIPLE JUNCTION (SMJ)

M1, M2, B4
-ELECTRICAL UNITS

TKWM0886E

LT-ROOM/L-05



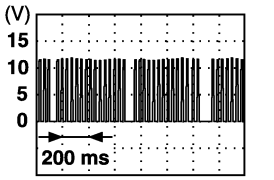


REFER TO THE FOLLOWING.
M2 -ELECTRICAL UNITS

TKWM0887E

Terminals and Reference Values for BCM

AKS009XP

Terminal No.	Wire color	Signal name	Measuring condition				Reference value
			Ignition switch	Operation or condition			
1	PU/R	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
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	Trunk room lamp switch signal	OFF	Trunk room lamp switch	ON (open)		Approx. 0V
					OFF (closed)		Battery voltage
62	Y	Front door switch DR signal	OFF	Front door switch DR	ON (open)		Approx. 0V
					OFF (closed)		Battery voltage
64	R/W	Trunk room lamp switch signal	OFF	Trunk room lamp switch	ON (open)		Approx. 0V
					OFF (closed)		Battery voltage

How to Proceed With Trouble Diagnosis

AKS009XQ

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-174, "Preliminary Check" .
4. Check symptom and repair or replace the cause of malfunction.
5. Does the interior room lamp operate normally? If YES: GO TO 6. If NO: GO TO 4.
6. INSPECTION END

Preliminary Check

AKS009XR

CHECK FOR POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

Check for blown BCM fuses.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
		18
		21
	Ignition switch ON or START position	1

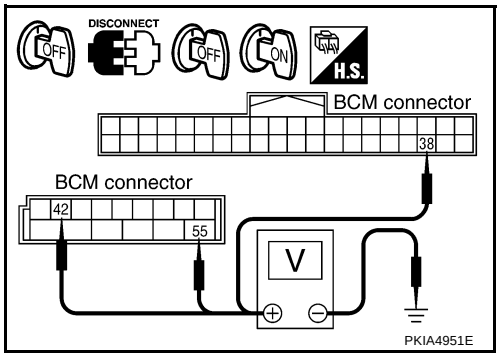
Refer to LT-168, "Wiring Diagram — ROOM/L —" .

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-4, "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

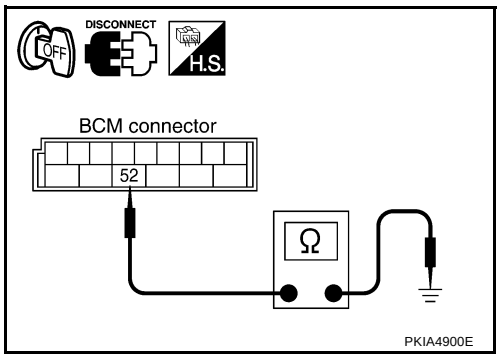
OK or NG

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)		
M2	52 (B)	Ground	Yes



OK or NG

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

CONSULT-II Functions

AKS009XS

CONSULT-II performs the following functions communication with BCM.

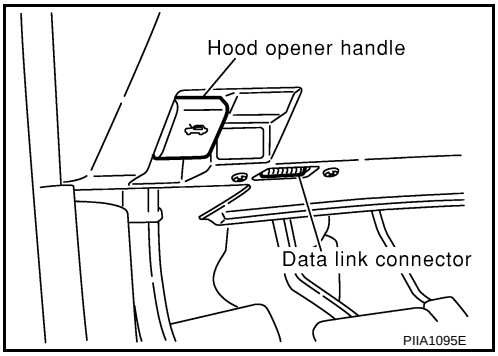
BCM diagnosis part	Check item, diagnosis mode	Description
INTERIOR LAMP	WORK SUPPORT	Changes the setting for each function.
	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending driving signal to them.

CONSULT-II BASIC OPERATION

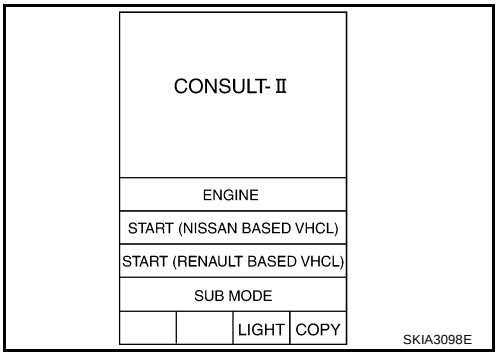
CAUTION:

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.

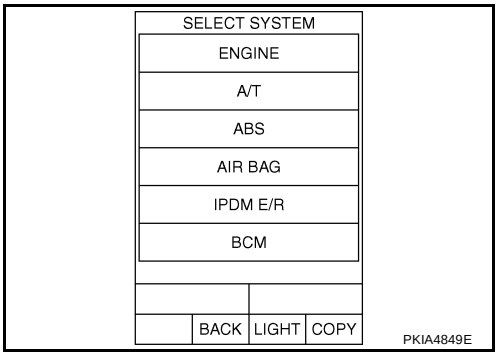
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn ignition switch ON.



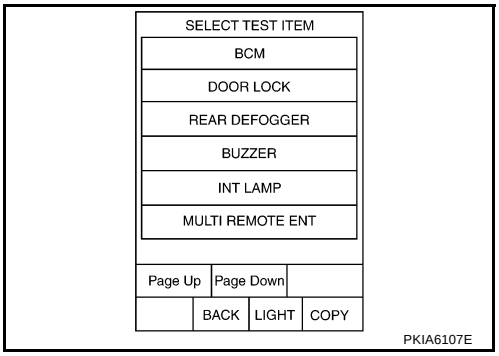
2. Touch “START (NISSAN BASED VHCL)”.



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



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



WORK SUPPORT

Operation Procedure

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

Display Item List

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

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

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

DATA MONITOR

Operation Procedure

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

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

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

Display Item List

Monitor item		Contents
IGN ON SW	“ON/OFF”	Displays “IGN position (ON)/OFF, ACC position (OFF)” judged from the ignition switch signal.
KEY ON SW	“ON/OFF”	Displays “Key inserted (ON)/key removed (OFF)” status judged from the key switch signal.

Monitor item		Contents
DOOR SW - DR	“ON/OFF”	Displays status of the driver door as judged from the driver door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - AS	“ON/OFF”	Displays “Door open (ON)/Door closed (OFF)” status, determined from passenger door switch signal.
DOOR SW - RR[NOTE]	“OFF”	—
DOOR SW - RL[NOTE]	“OFF”	—
BACK DOOR SW [NOTE]	“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	Map 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

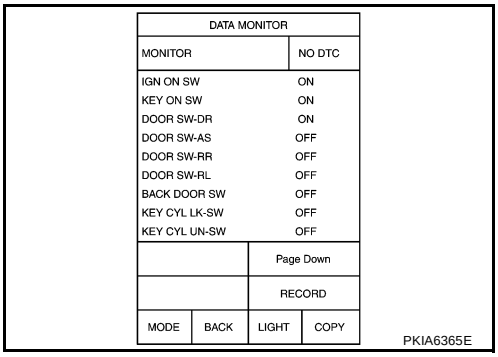
AKS009XU

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-176, "Display Item List" for switches and their functions.

OK or NG

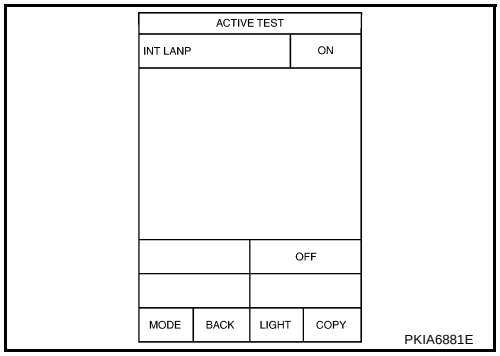
OK >> GO TO 2.
NG >> Inspect malfunctioning switch system.



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.

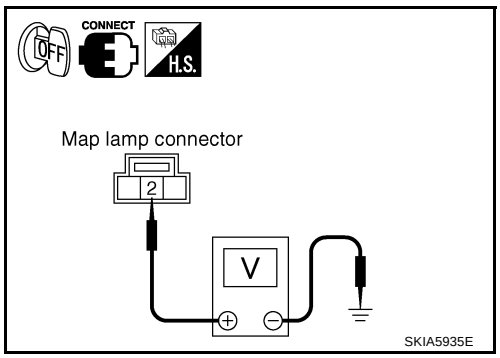
3. CHECK MAP LAMP INPUT

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

2 (PU/R)*1 or (PU/W)*2 – Ground

: Battery voltage should exist.

*1: with sunroof, *2: without sunroof



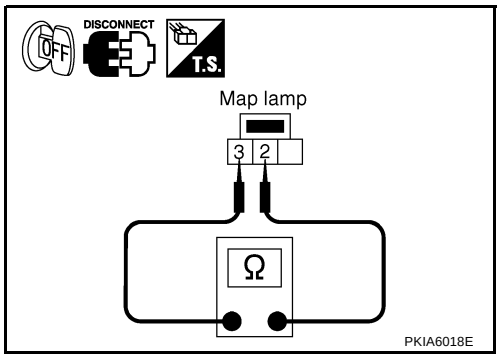
OK or NG

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



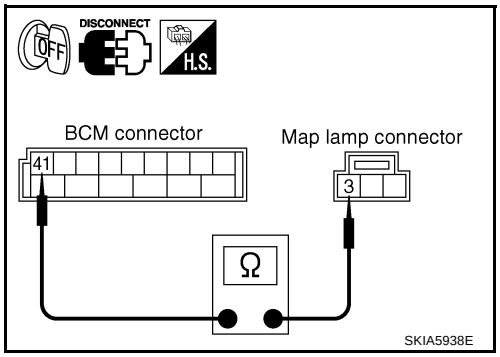
OK or NG

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.

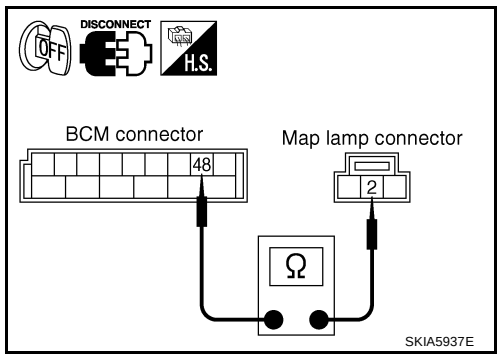
6. CHECK MAP LAMP CIRCUIT

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/R)*1 or (PU/W)*2 .

48 (PU/R) – 2 (PU/R)*1 or (PU/W)*2

: Continuity should exist.

*1: with sunroof, *2: without sunroof



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" .

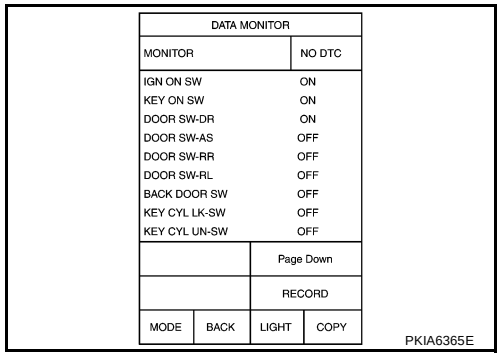
NG >> Repair harness or connector.

Ignition key Hole illumination Control Does Not Operate

AKS009XW

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-176, "Display Item List" for switches and their functions.



OK or NG

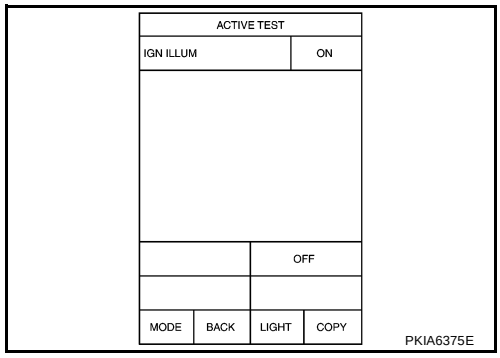
OK >> GO TO 2.

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

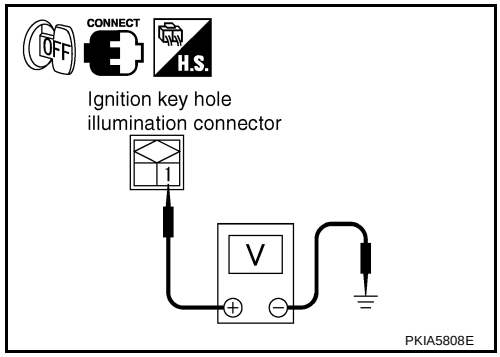
OK >> Replace BCM. Refer to BCS-15, "Removal and Installation of BCM" .

NG >> GO TO 3.

3. CHECK IGNITION KEY HOLE ILLUMINATION INPUT

1. Turn ignition switch OFF.
2. 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.

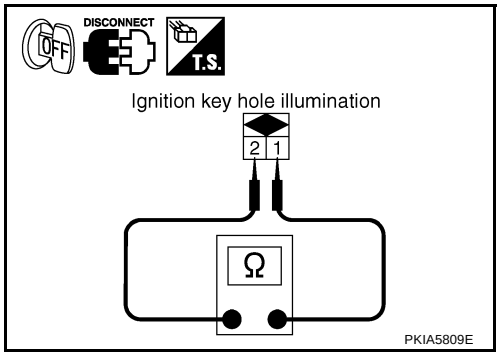
4. CHECK IGNITION KEY HOLE ILLUMINATION BULB

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" .



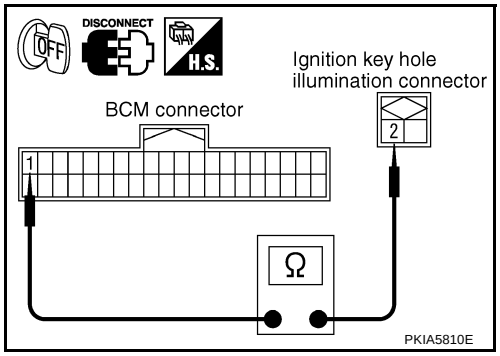
5. CHECK IGNITION KEY HOLE ILLUMINATION CIRCUIT

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

1 (PU/R) – 2 (PU/R) : Continuity should exist.

OK or NG

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



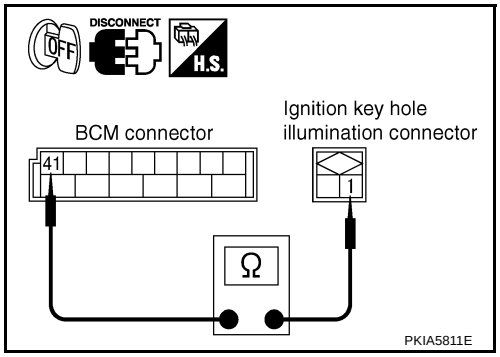
6. CHECK IGNITION KEY HOLE ILLUMINATION CIRCUIT

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 lamp 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 Do Not Operate

AKS009XX

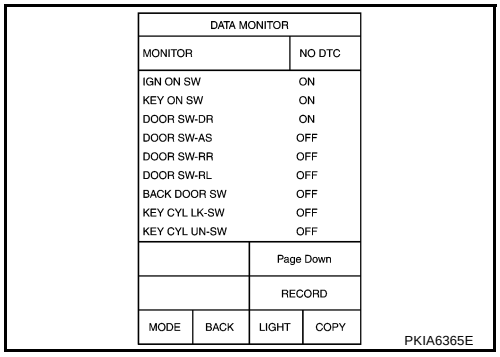
1. CHECK EACH DOOR SWITCH

Select “BCM” on CONSULT-II. With “INT LAMP” data monitor, 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

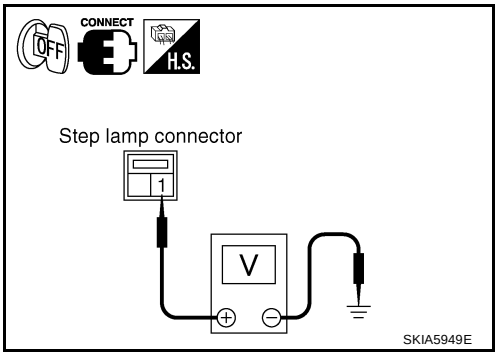
OK >> GO TO 2.
NG >> Inspect malfunctioning switch system.



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 (OR) and ground.

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



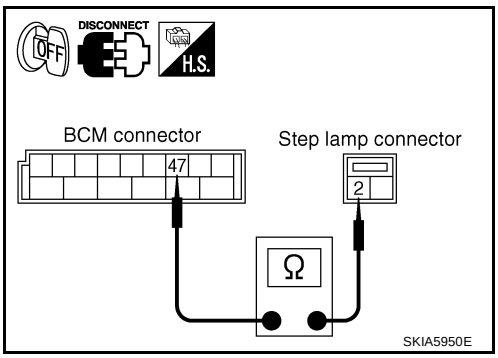
OK or NG

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 (LG).

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



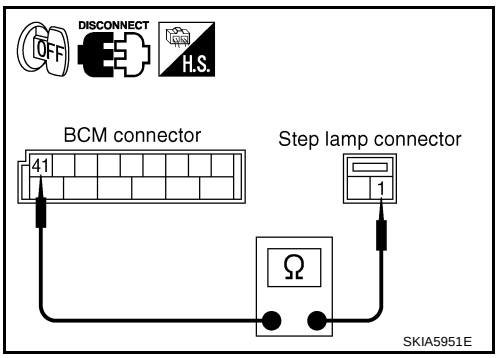
OK or NG

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 (OR).

41 (R/B) – 1 (OR) : 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.

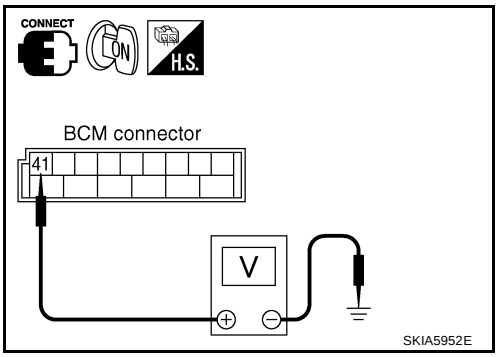
All Interior Room Lamps Do Not Operate

AKS009XY

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" .

Removal and Installation

AKS009Y0

MAP LAMP

Refer to LT-158, "Removal and Installation of Map Lamp" in “MAP LAMP”.

STEP LAMP

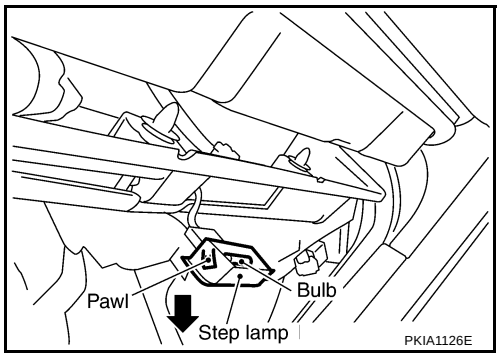
Bulb Replacement

1. Remove step lamp.
2. Remove bulb.

Step lamp : 12V - 5W

Removal and Installation

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.



ILLUMINATION

PFP:27545

System Description

AKS009Y1

Control of the illumination lamps operation is dependent upon the position of the lighting switch (combination switch). When the lighting switch is placed in the 1ST or 2ND position (or if the auto light system is activated) BCM (body control module) receives input signal requesting the 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 the tail lamp relay coil. This relay, when energized, directs power to the illumination lamps, which then illuminate.

Power is supplied at all times

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

With the 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 auto A/C amp. terminal 24
- to combination meter terminals 45, 46, and 47
- 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 the lighting switch in the 1ST or 2ND position (or if the auto light system is activated), BCM receives input signal requesting the illumination lamps to illuminate. This input signal is communicated to IPDM E/R across CAN communication lines. CPU of IPDM E/R controls the tail lamp relay coil, which, when energized, directs power

- through IPDM E/R terminal 22
- to glove box lamp terminal 1

- to upper glove box lamp terminal 1 (with NAVI)
- 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. (illumination) terminal 28
- to front cigarette lighter socket terminal 3
- to ashtray (illumination) terminal 1
- to NAVI control unit (illumination) terminal 9
- to NAVI switch (illumination) terminal 2 (with NAVI).

Ground is supplied at all times

- to glove box lamp terminal 2
- to upper glove box lamp terminal 2 (with NAVI)
- to ashtray (illumination) terminal 2
- 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 the combination switch (lighting switch) is in the 1ST or 2ND position (or if auto light system is activated), and the ignition switch is turned from ON or ACC to OFF, the battery saver control function is activated. Under this condition, the illumination lamps remain illuminated for 5 minutes, then the illumination lamps are turned off.
When the lighting switch is turned from OFF to 1ST or 2ND position (or if auto light system is activated) after illumination lamps are turned off by the battery saver control, and illumination lamps illuminate again.
Exterior lamp battery saver control mode can be changed by the function setting of CONSULT-II.

CAN Communication System Description

AKS009Y2

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

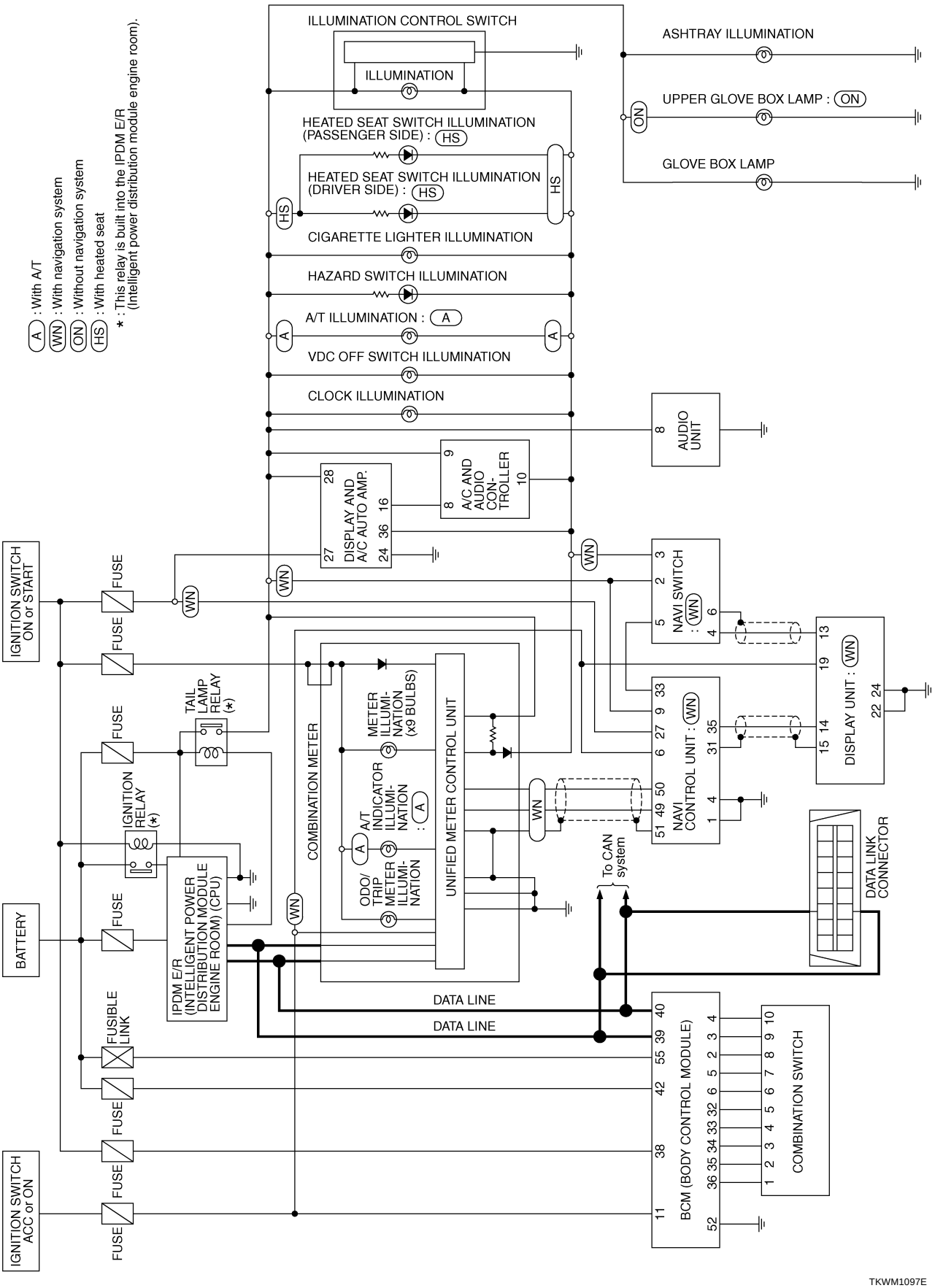
CAN Communication Unit

AKS009Y3

Refer to LAN-4, "CAN Communication Unit" .

Schematic

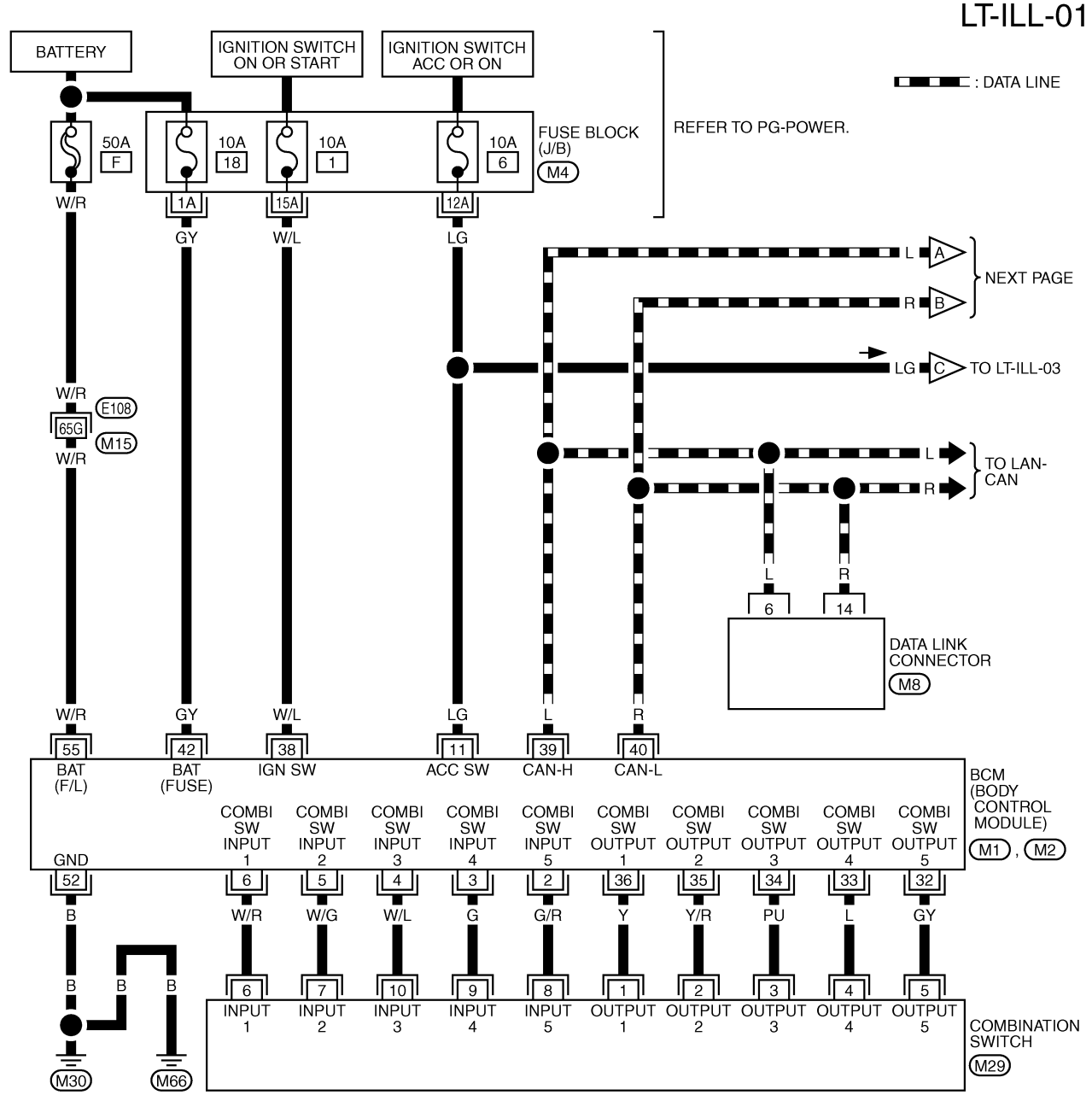
AKS009Y4

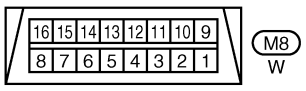


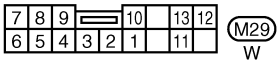
TKWM1097E

Wiring Diagram — ILL —

AKS009Y5







REFER TO THE FOLLOWING.

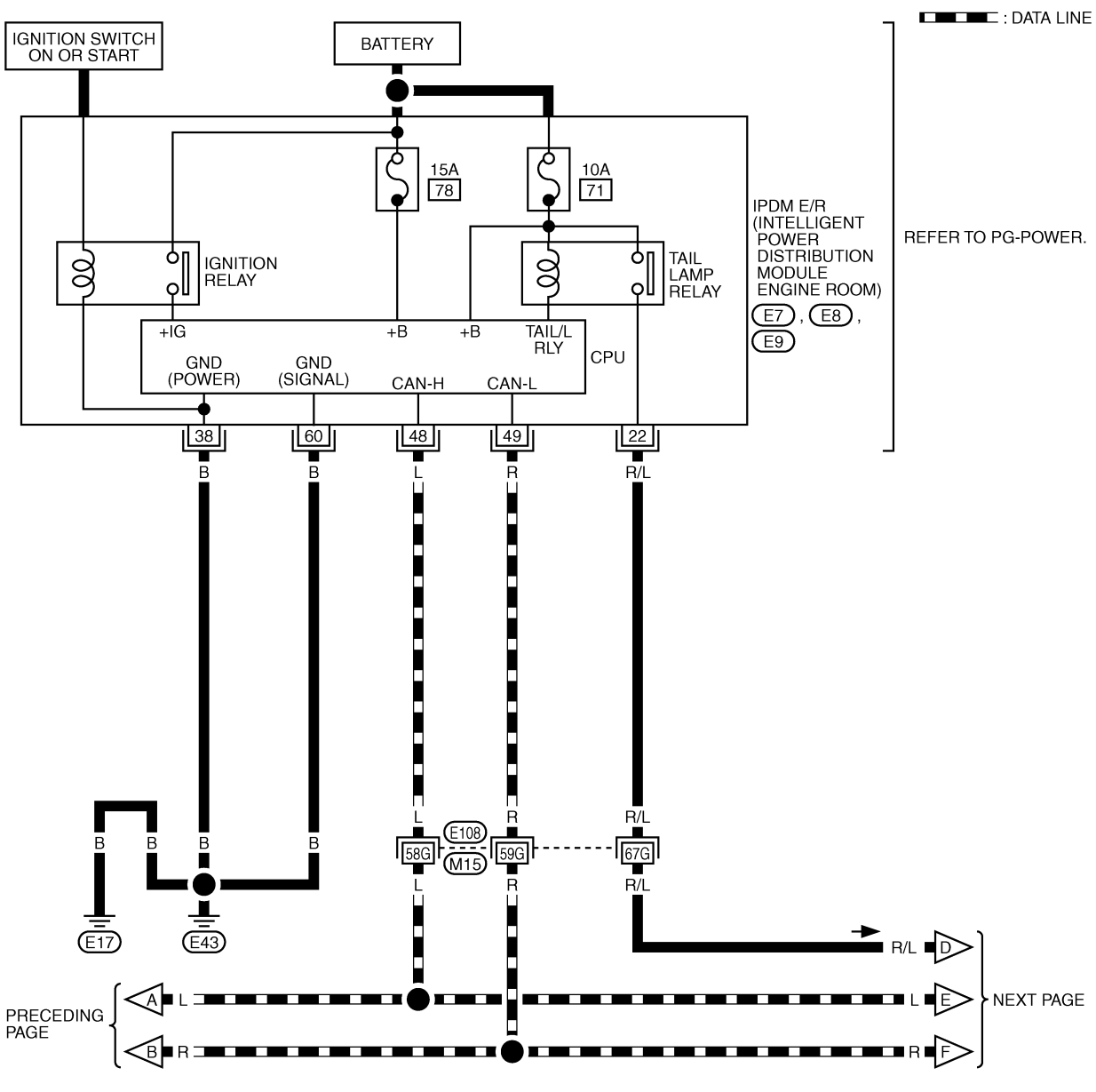
E108 -SUPER MULTIPLE JUNCTION (SMJ)

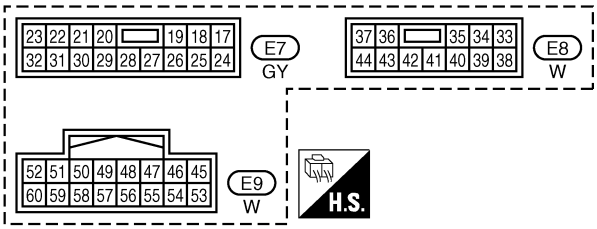
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

M1, M2 -ELECTRICAL UNITS

TKWM0889E

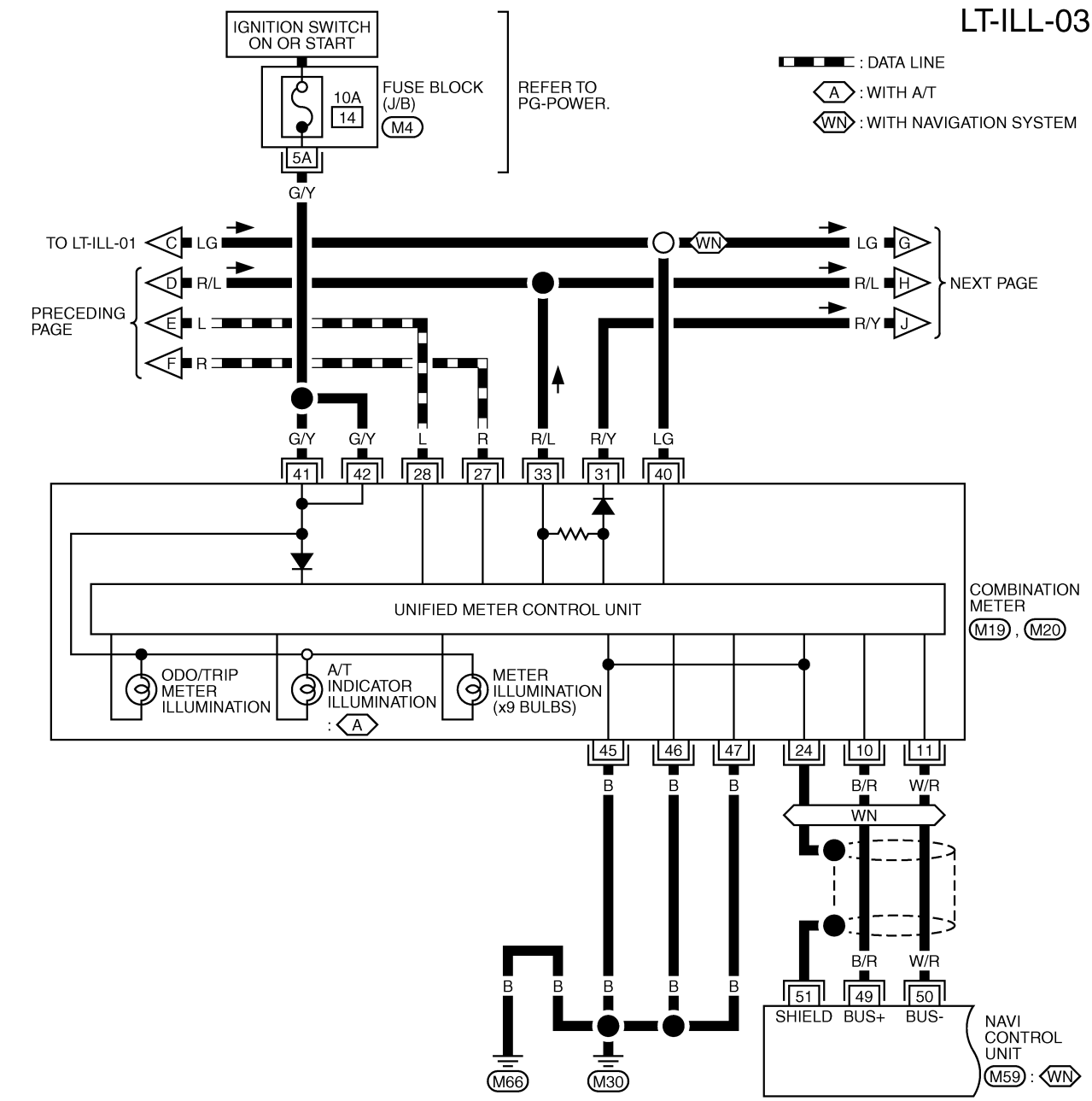
LT-ILL-02

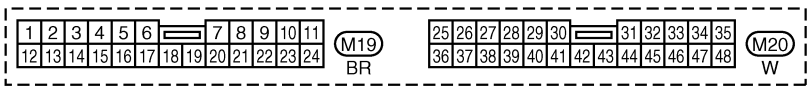


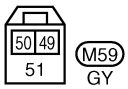


REFER TO THE FOLLOWING.
E108 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM0890E



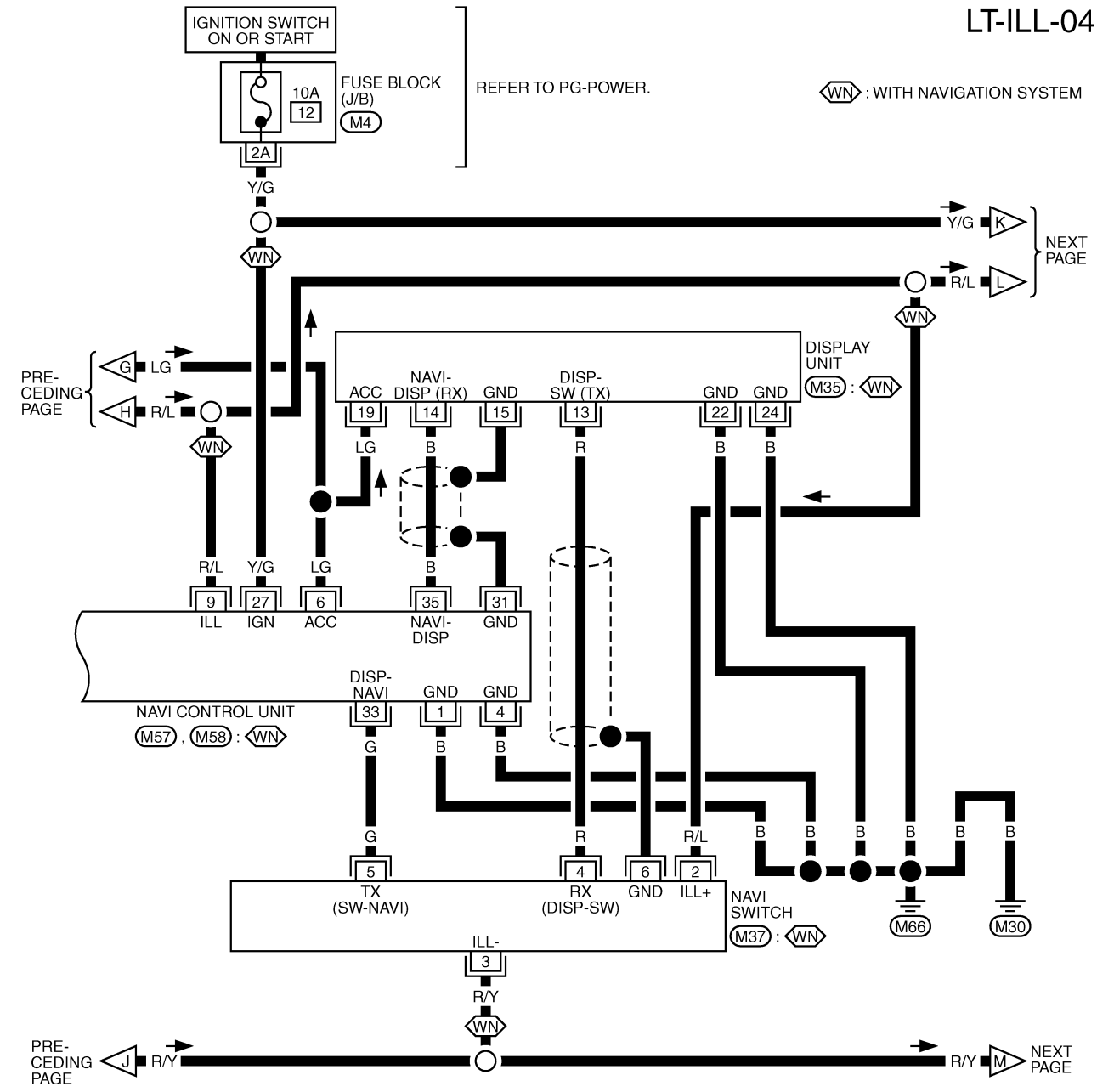


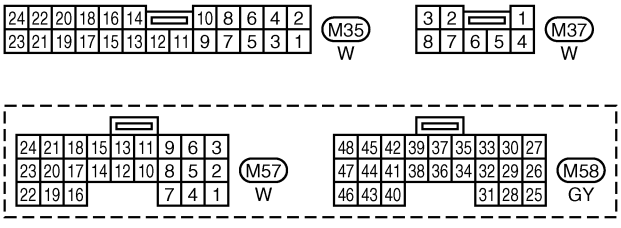


REFER TO THE FOLLOWING.

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

TKWM1012E

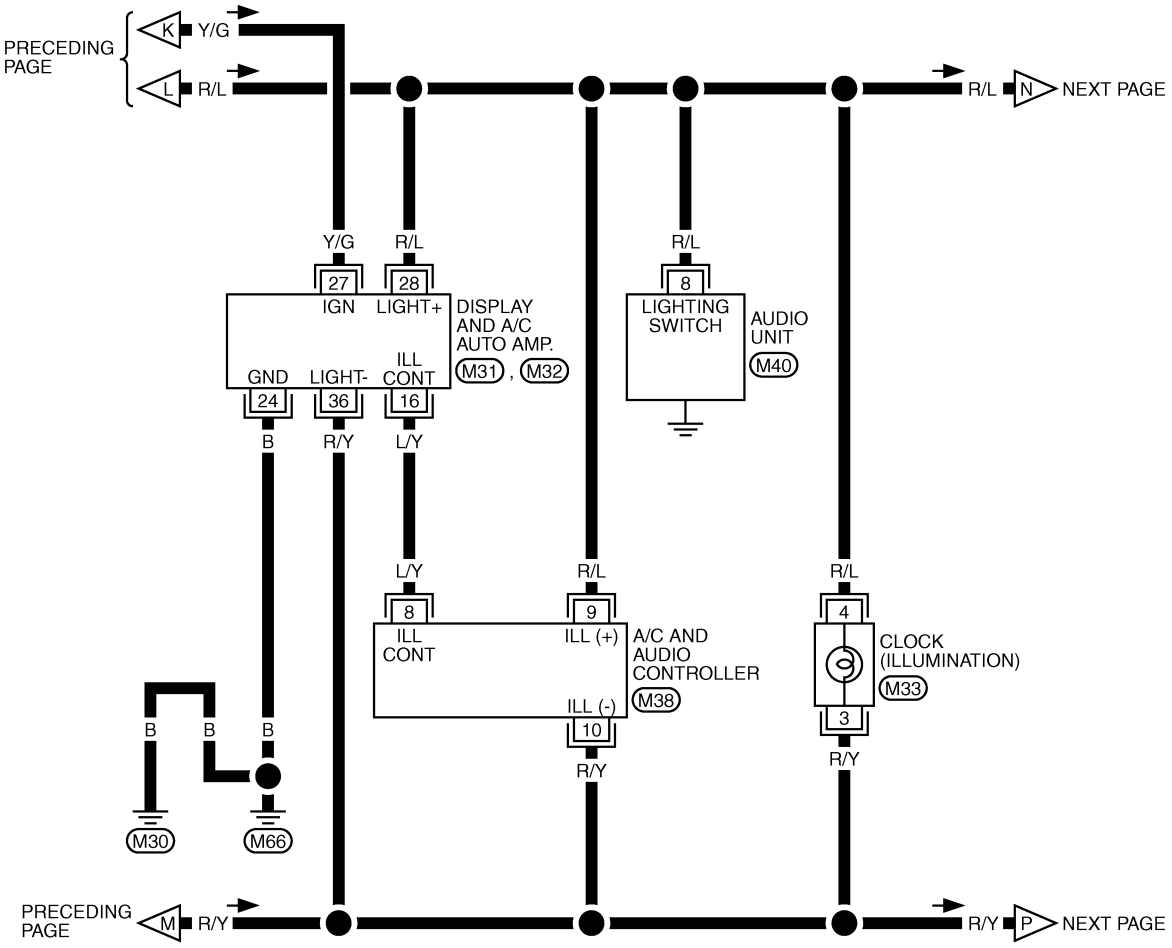


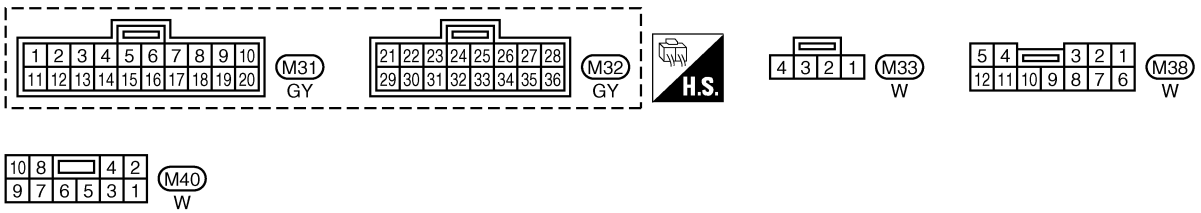


REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWT0631E

LT-ILL-05

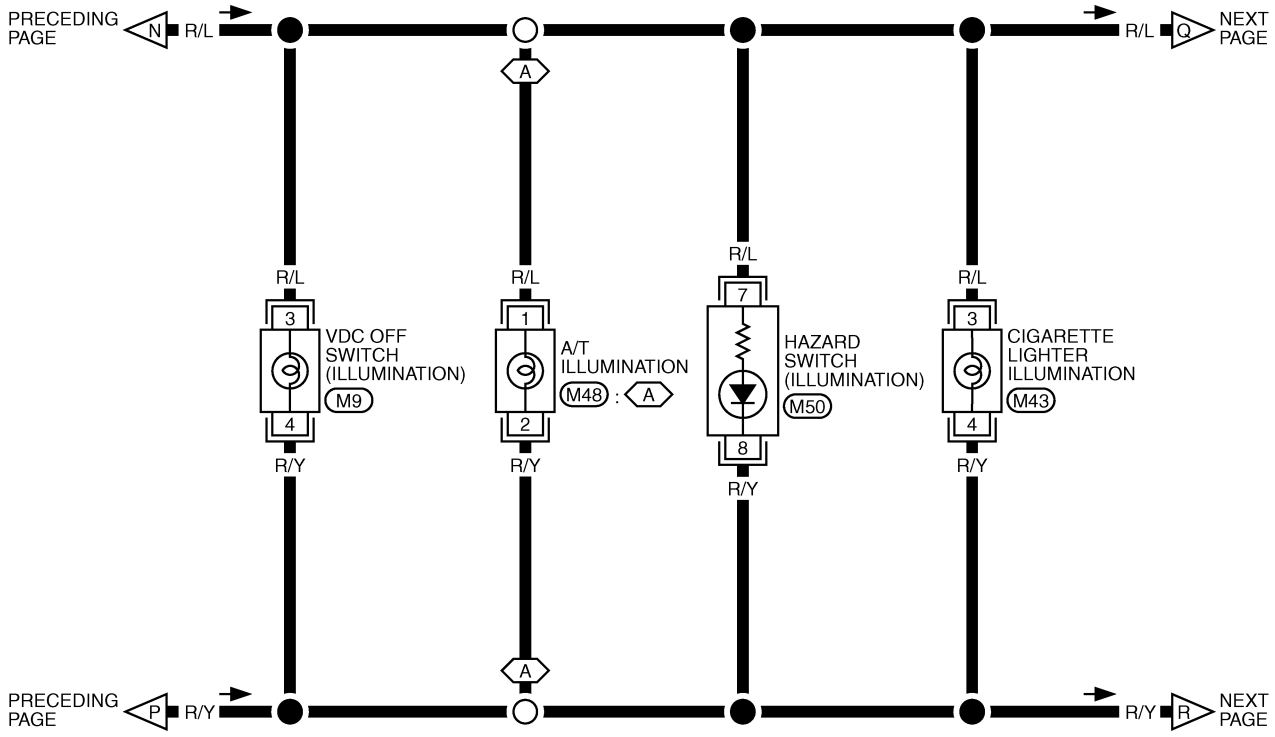


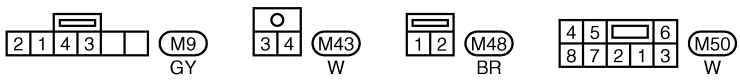


TKWT0632E

LT-ILL-06

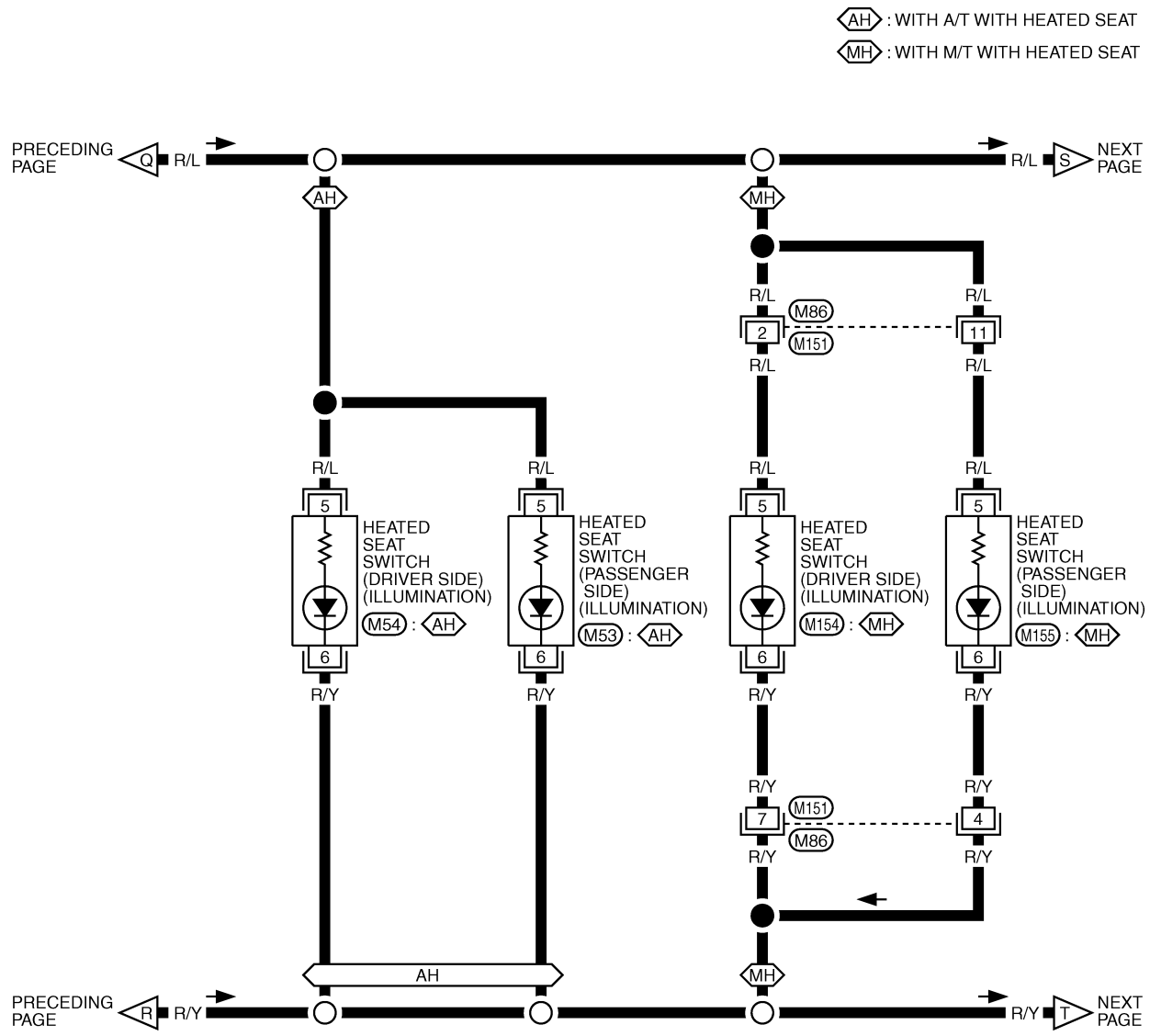
A : WITH A/T

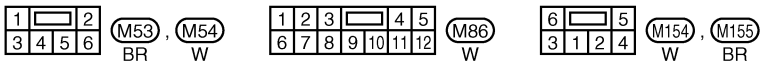




TKWT0633E

LT-ILL-07





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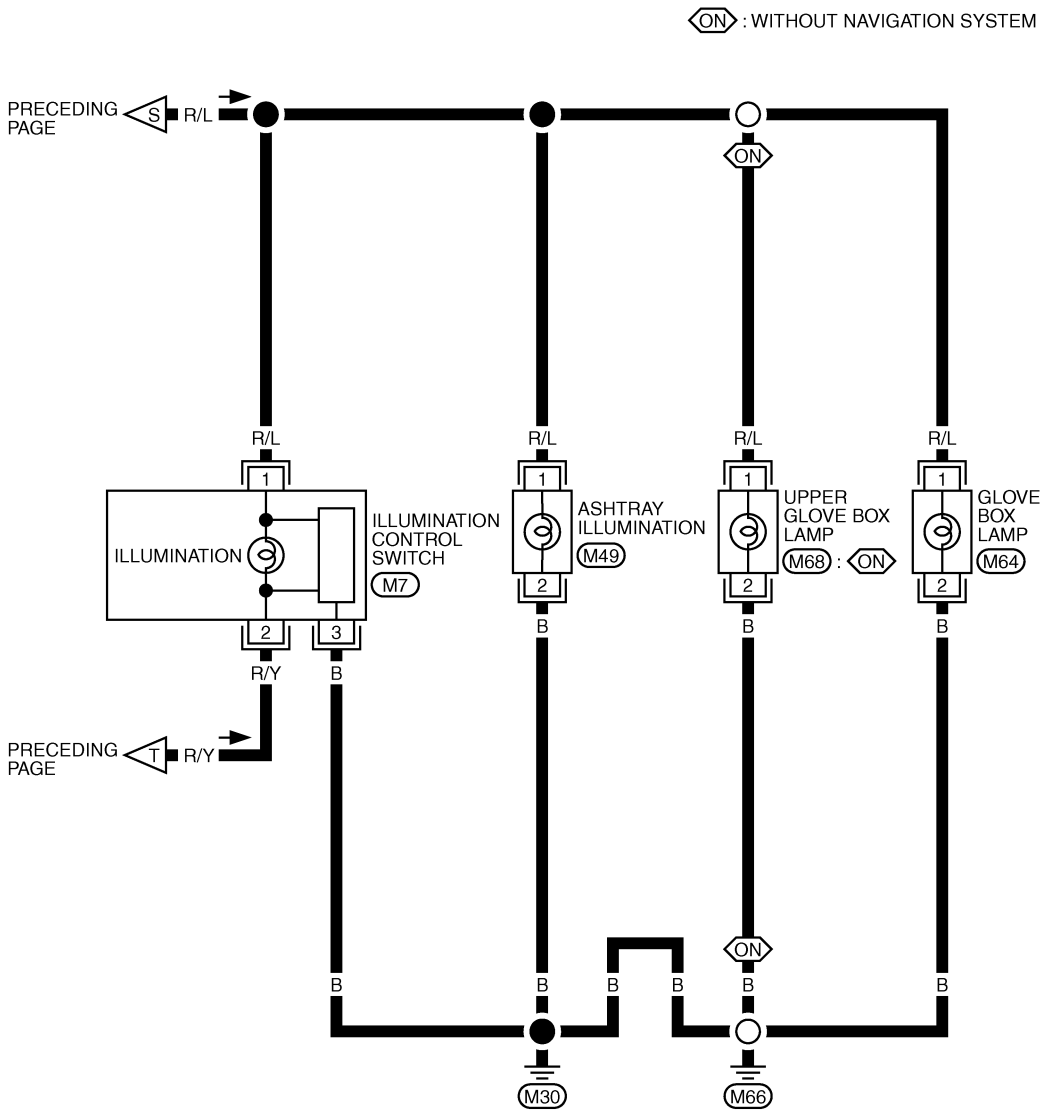
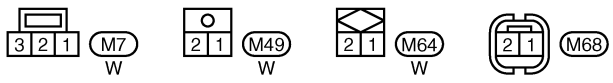

ON : WITHOUT NAVIGATION SYSTEM
PRECEDING PAGE
S
R/L
ON
R/L
R/L
R/L
R/L
1
ILLUMINATION
ILLUMINATION CONTROL SWITCH
M7
2
3
R/Y
B
ASHTRAY ILLUMINATION
M49
UPPER GLOVE BOX LAMP
M68 : ON
GLOVE BOX LAMP
M64
PRECEDING PAGE
T
R/Y
ON
M30
M66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M7
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TKWM0893E

Removal and Installation

AKS009Y6

GLOVE BOX LAMP

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

BULB SPECIFICATIONS

PFP:26297

Headlamp

AKS00A27

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

Exterior Lamp

AKS00A28

Item		Wattage (W)
Front combination lamp	Turn signal and parking lamp	21/5
	Parking lamp	5
Rear combination lamp	Stop/Tail lamp	LED
	Turn signal lamp	21
	Back-up lamp	18
	Rear side marker lamp	3.8
Front side marker lamp		3.8
License plate lamp		5
High-mounted stop lamp		LED

Interior Lamp/Illumination

AKS00A29

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
Step lamp	5
Trunk room lamp	3.4
Vanity mirror lamp	1.32