SECTION LT
LIGHTING SYSTEM

CONTENTS

PRECAUTIONS

PFP:00011

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

AKS00AC4

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

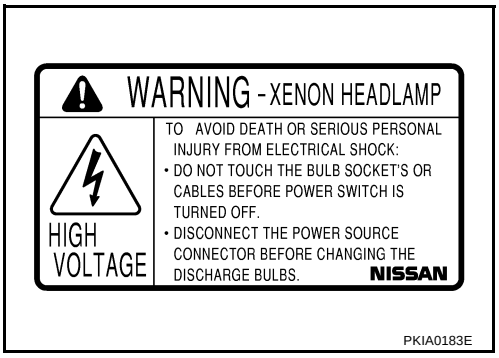
AKS003RF

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.

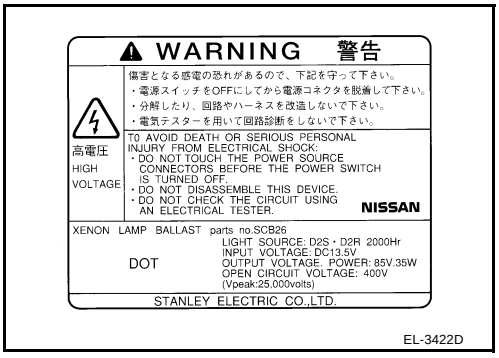
General Precautions for Service Operations

AKS000SE

- Never work with wet hands.
- Xenon headlamp includes high voltage generating part. Be sure to disconnect battery negative cable (negative terminal) or power fuse before removing, installing, or touching the xenon headlamp (including lamp bulb).
- Turn the lighting switch OFF before disconnecting and connecting the connector.
- When turning the xenon headlamp on and while it is illuminated, never touch the harness, bulb, and socket of the headlamp.
- When checking the headlamp on/off operation, check it on vehicle and with the power connected to the vehicle-side connector.



- Do not touch the headlamp bulb glass surface with bare hands or allow oil or grease to get on it. Do not touch the headlamp bulb just after the headlamp is turned off, because it is very hot.
- Install the xenon headlamp bulb socket correctly. If it is installed improperly, high-voltage leak or corona discharge may occur that can melt the bulb, connector, and housing. Do not illuminate the xenon headlamp bulb out of the headlamp housing. Doing so can cause fire and harm your eyes.
- When the bulb has burned out, wrap it in a thick vinyl bag and discard. Do not break the bulb.
- Leaving the bulb removed from the headlamp housing for a long period of time can deteriorate the performance of the lens and reflector (dirt, clouding). Always prepare a new bulb and have it on hand when replacing the bulb.



- When adjusting the headlamp aiming, turn the aiming adjustment screw only in the tightening direction. (If it is necessary to loosen the screw, first fully loosen the screw, and then turn it in the tightening direction.)
- Do not use organic solvent (paint thinner or gasoline) to clean lamps and to remove old sealant.

Wiring Diagrams and Trouble Diagnosis

AKS000SF

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:

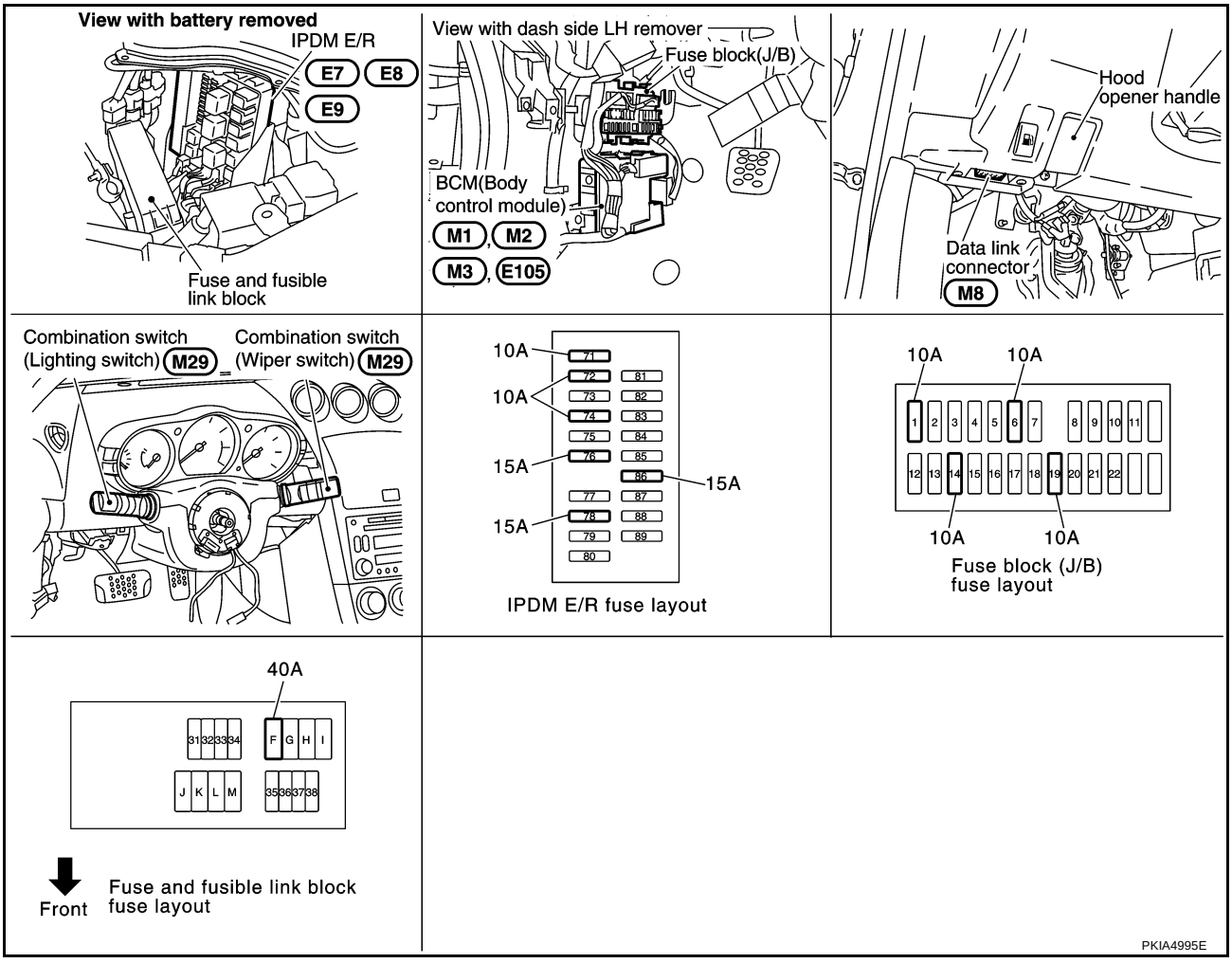
- Refer to GI-11, "HOW TO FOLLOW TEST GROUPS IN TROUBLE DIAGNOSES" in GI section.
- Refer to GI-27, "How to Perform Efficient Diagnosis for an Electrical Incident" in GI section.

HEADLAMP (FOR USA) - XENON TYPE -

PFP:26010

Component Parts and Harness Connector Location

AKS009NQ



System Description

AKS009NR

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

OUTLINE

Power is supplied at all times

- to headlamp high relay [located in IPDM E/R (intelligent power distribution module engine room)]
- to headlamp low relay [located in IPDM E/R (intelligent power distribution module engine room)]
- to BCM (body control module) terminal 7
- through 40A fusible link (letter F, located in fuse and fusible link block)
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- through 15A fuse [No.78, located in IPDM E/R (intelligent power distribution module engine room)]
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- through 10A fuse [No.71, located in IPDM E/R (intelligent power distribution module engine room)]
- to combination meter terminal 24
- through 10A fuse [No.19, located in fuse block (J/B)].

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

- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- to BCM (body control module) terminal 35
- through 10A fuse [No. 1, located in fuse block (J/B)]
- to combination meter terminal 23
- 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 36
- through 10A fuse [No. 6, located in fuse block (J/B)].

Ground is supplied

- to BCM (body control module) terminal 8
- through grounds E17, E43 and F152
- to IPDM E/R (Intelligent power distribution module engine room) terminals 38 and 60
- through grounds E17, E43 and F152
- to combination meter terminals 10, 11 and 12
- through grounds M30 and M66.

Low Beam Operation

With the lighting switch in 2ND position, the BCM receives input signal from combination switch reading function. (Refer to LT-158, "Combination Switch Reading Function") BCM communicates Low beam request signal to the IPDM E/R across the CAN communication lines. The CPU in the IPDM E/R controls the headlamp low relay coil, which when energized, power is supplied

- to 15A fuse [No. 76, located in IPDM E/R]
- through IPDM E/R terminal 20
- to headlamp RH terminal 7
- to 15A fuse [No. 86, located in IPDM E/R]
- through IPDM E/R terminal 30
- to headlamp LH terminal 7.

Ground is supplied

- to headlamp RH terminal 8
- through grounds E17,E43 and F152
- to headlamp LH terminal 8
- through grounds E17,E43 and F152.

With power and ground supplied, low beam headlamps illuminate.

High Beam Operation/Flash-to-Pass Operation

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

- to 10A fuse [No. 72, located in IPDM E/R]
- through IPDM E/R terminal 27
- to headlamp RH terminal 3
- to 10A fuse [No. 74, located in IPDM E/R]
- through IPDM E/R terminal 28
- to headlamp LH terminal 3.

Ground is supplied

- to headlamp RH terminal 4
- through grounds E17,E43 and F152, and
- to headlamp LH terminal 4
- through grounds E17,E43 and F152.

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

COMBINATION SWITCH READING FUNCTION

Refer to LT-158, "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.

VEHICLE SECURITY SYSTEM

The vehicle security system will flash the high beams if the system is triggered. Refer to BL-130, "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

AKS009NS

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

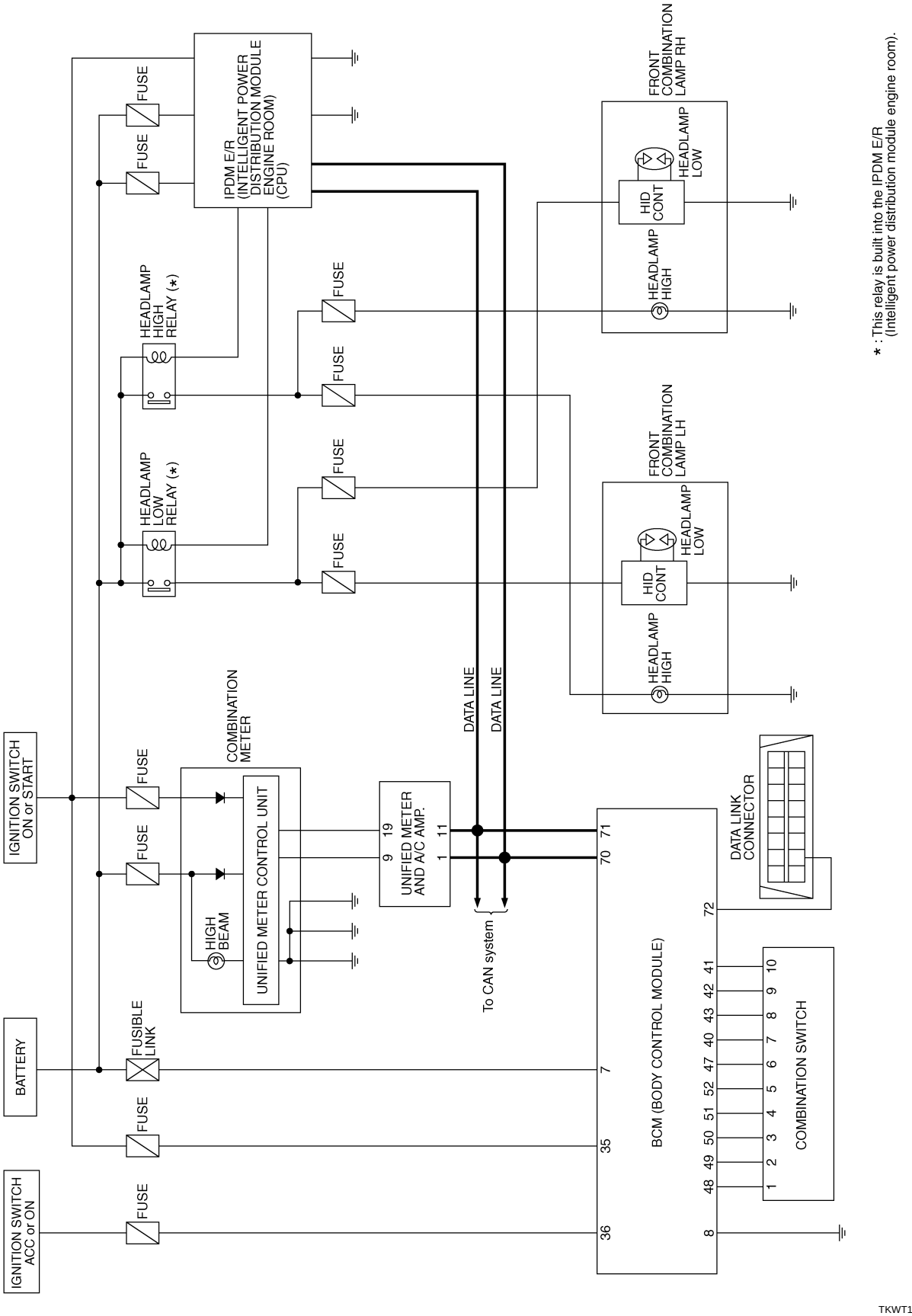
CAN Communication Unit

AKS009NT

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

Schematic

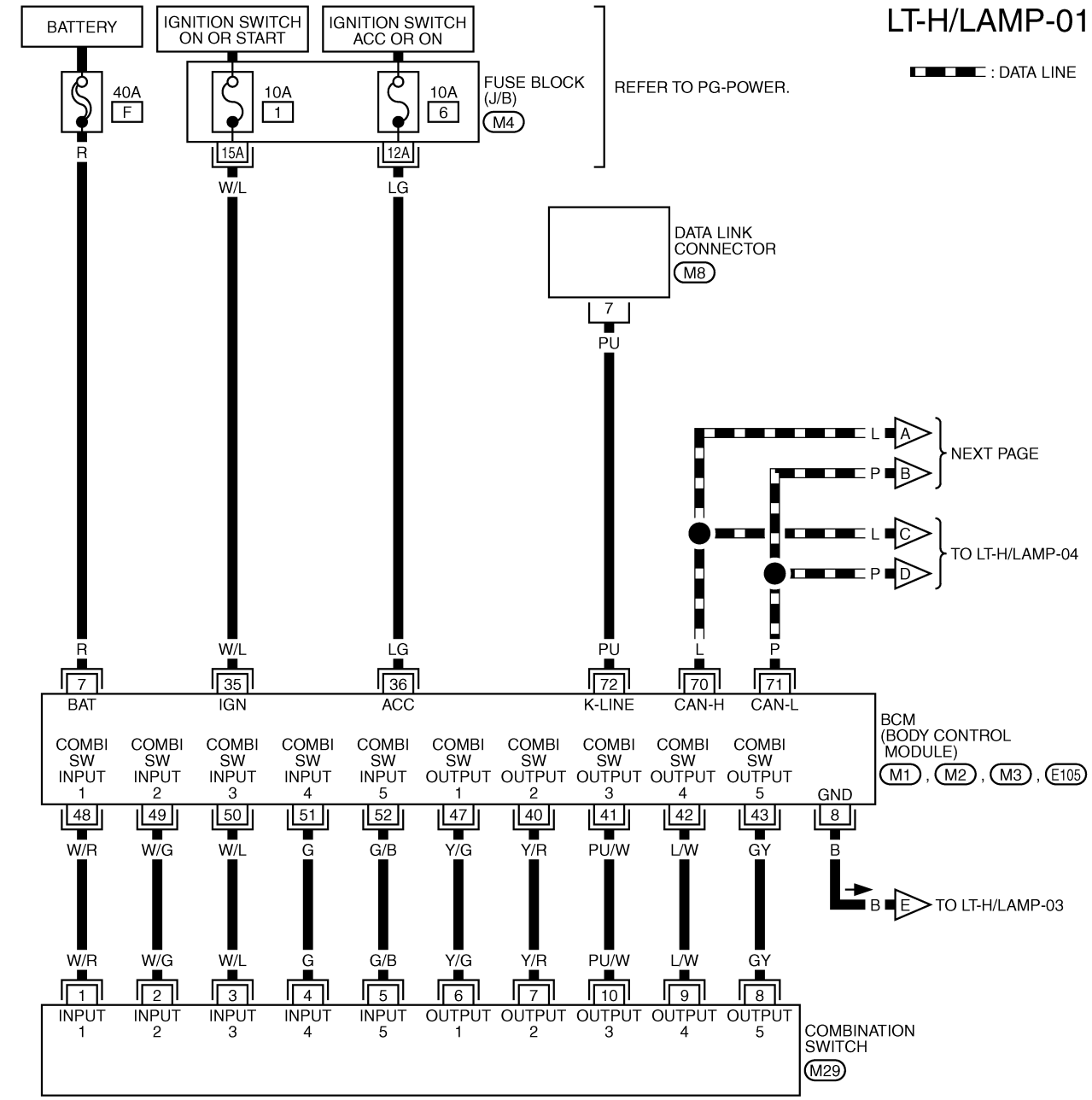
AKS009NU



TKWT1306E

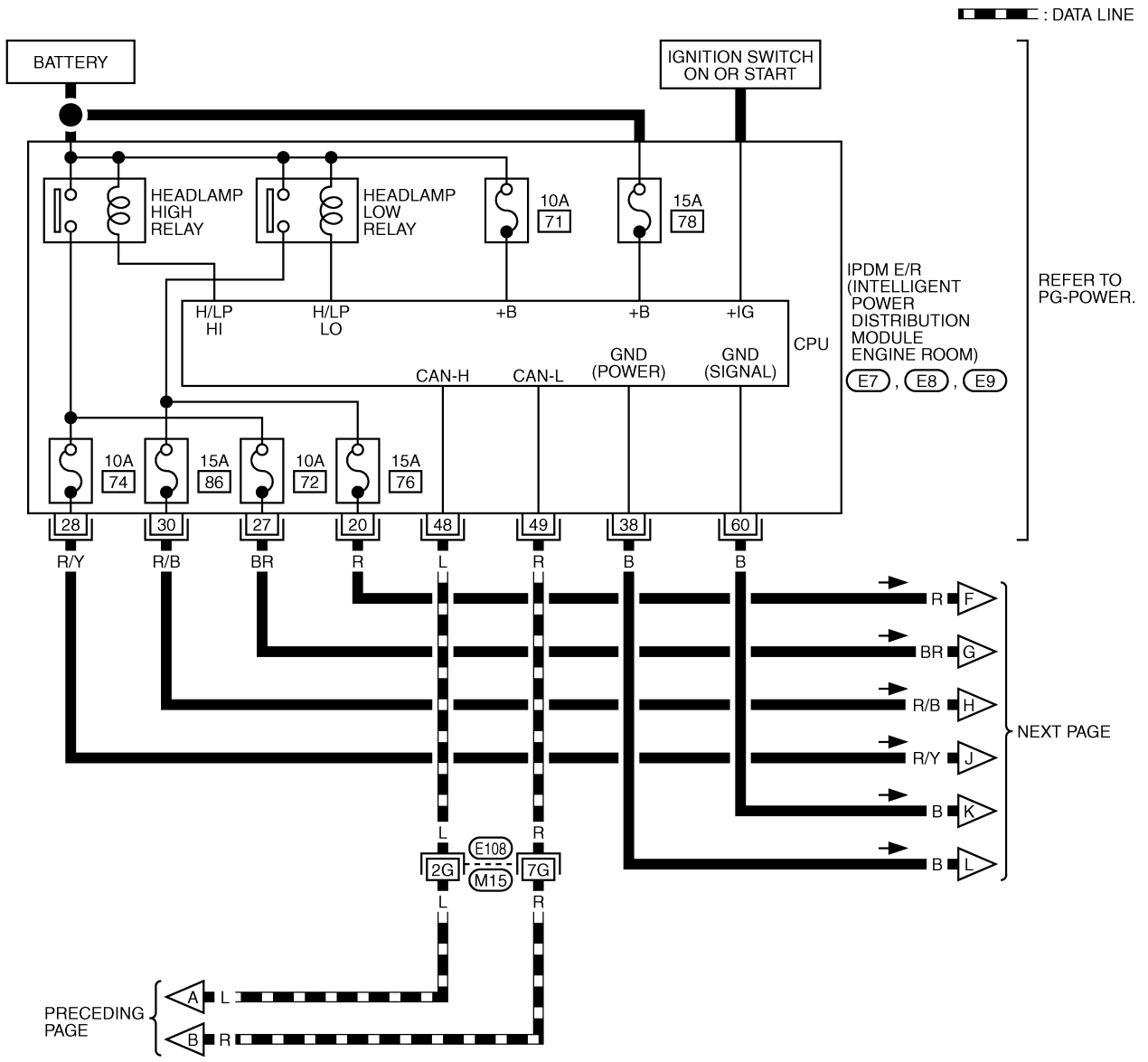
Wiring Diagram — H/LAMP —

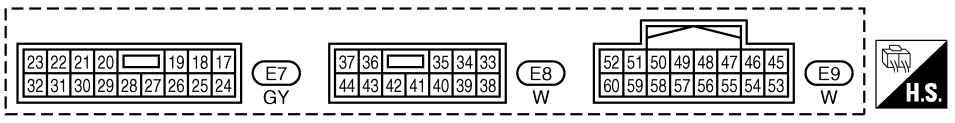
AKS009NV



TKWT1307E

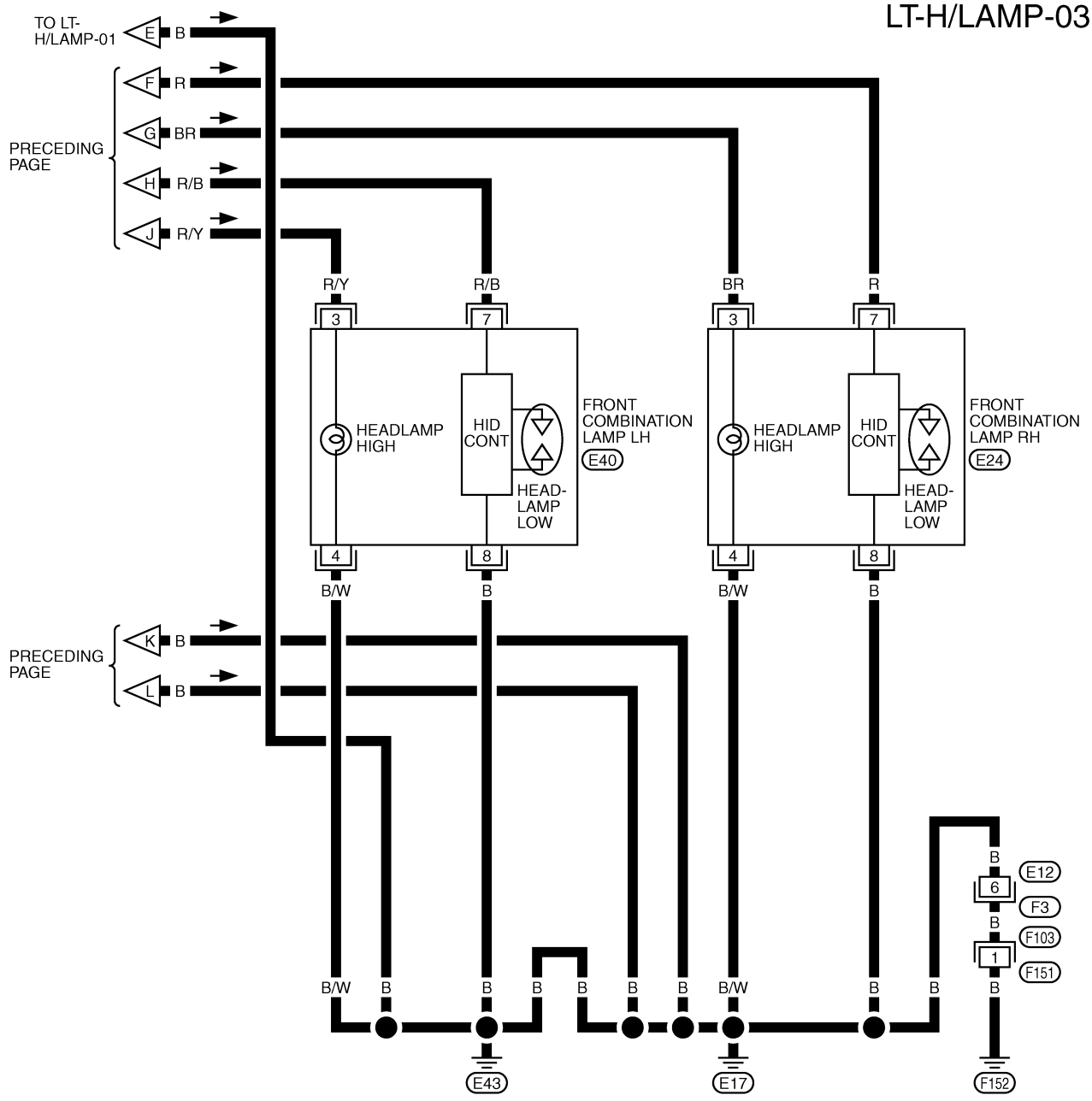
LT-H/LAMP-02





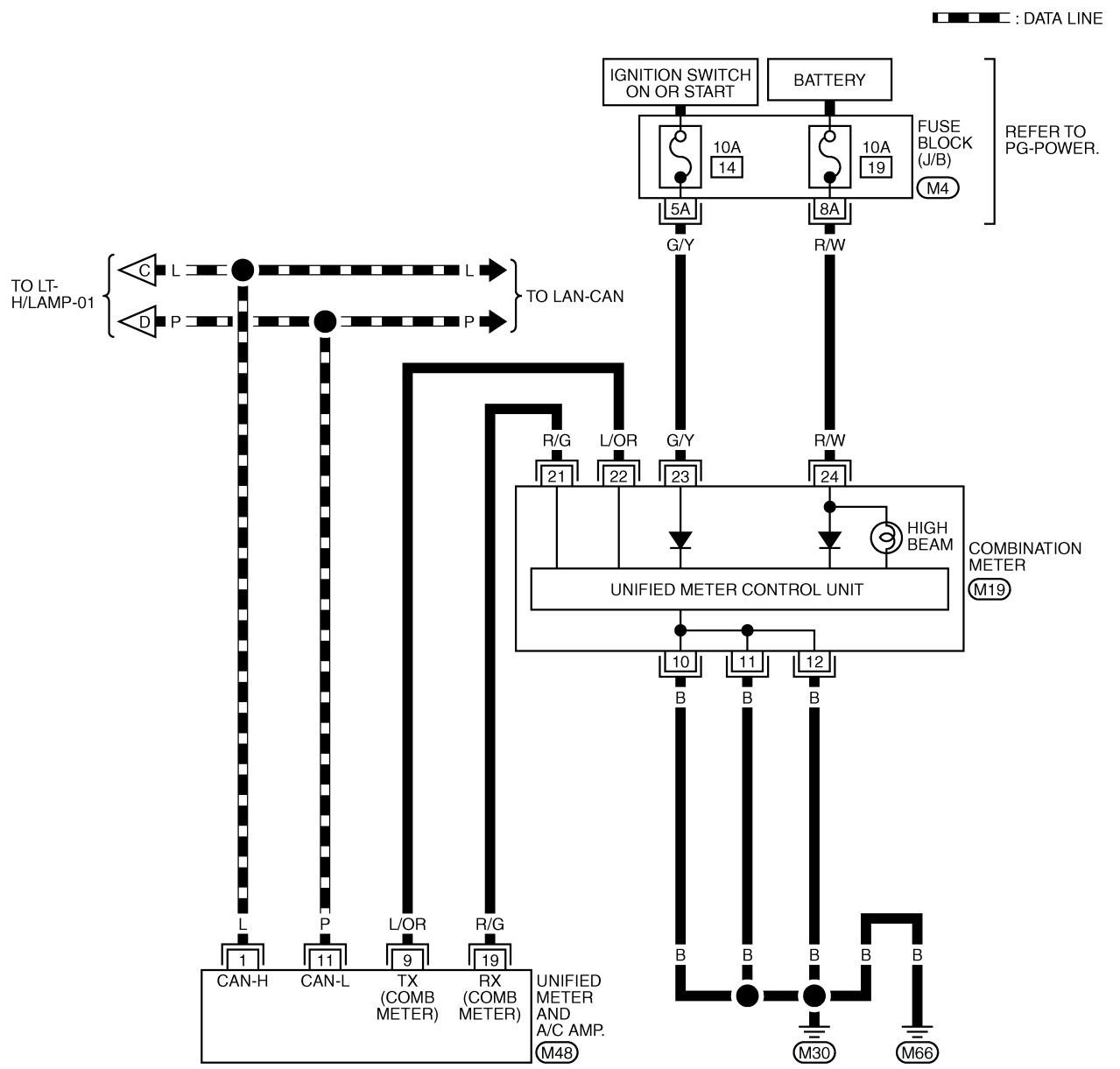
REFER TO THE FOLLOWING.
E108 -SUPER MULTIPLE JUNCTION (SMJ)

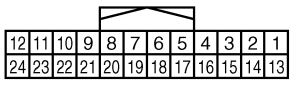
TKWT1308E


LT-H/LAMP-03
TO LT-H/LAMP-01
E
B
F
R
G
BR
H
R/B
J
R/Y
PRECEDING PAGE
R/Y
R/B
BR
R
3
7
HEADLAMP HIGH
HID CONT
HEAD-LAMP LOW
FRONT COMBINATION LAMP LH
E40
FRONT COMBINATION LAMP RH
E24
4
8
B/W
B
K
L
PRECEDING PAGE
E43
E17
F152
E12
6
F3
F103
1
F151
E24
E40
GY
F3
GY
F103
W

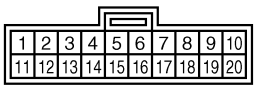
TKWT1309E

LT-H/LAMP-04





M19
W



M48
GY

H.S.

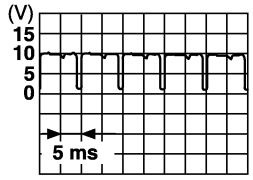
REFER TO THE FOLLOWING.

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

TKWT1728E

Terminals and Reference Values for BCM

AKS009NW

Terminal No.	Wire color	Item	Measuring condition		Reference value
			Ignition switch	Operation or condition	
7	R	Battery power supply	OFF	—	Battery voltage
8	B	Ground	ON	—	Approx. 0
35	W/L	Ignition switch (ON)	ON	—	Battery voltage
36	LG	Ignition switch (ACC)	ACC	—	Battery voltage
40	Y/R	Combination switch output 2	ON	Lighting, turn, wiper OFF	 SKIA1119J
41	PU/W	Combination switch output 3			
42	L/W	Combination switch output 4			
43	GY	Combination switch output 5			
47	Y/G	Combination switch output 1			
48	W/R	Combination switch input 1	ON	Lighting, turn, wiper OFF	4.5V or more
49	W/G	Combination switch input 2			
50	W/L	Combination switch input 3			
51	G	Combination switch input 4			
52	G/B	Combination switch input 5			
70	L	CAN– H	—	—	—
71	P	CAN– L	—	—	—
72	PU	K–LINE	—	—	—

Terminals and Reference Values for IPDM E/R

AKS009QM

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

AKS009QN

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-16, "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

AKS009QO

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

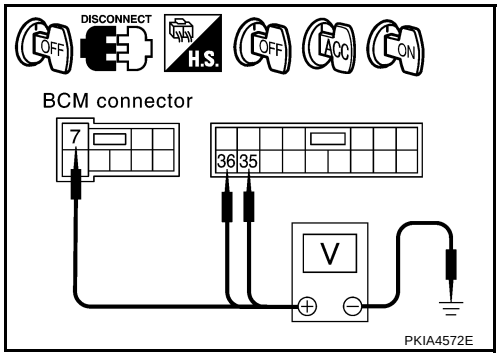
Refer to LT-11, "Wiring Diagram — H/LAMP —" .

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)				
E105	7 (R)	Ground	Battery voltage	Battery voltage	Battery voltage
M1	35 (W/L)		0V	0V	Battery voltage
M1	36 (LG)		0V	Battery voltage	Battery voltage

OK or NG

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

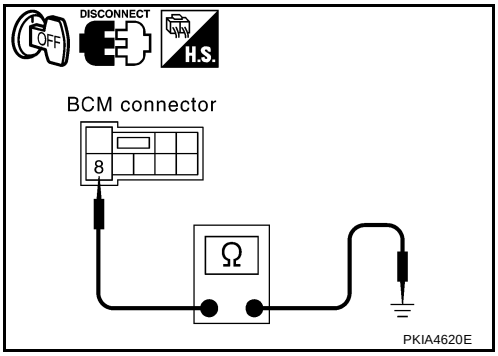
3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminals			Continuity
Connector	Terminal (wire color)	Ground	Yes
E105	8 (B)		

OK or NG

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



CONSULT-II Functions (BCM)

AKS009NZ

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

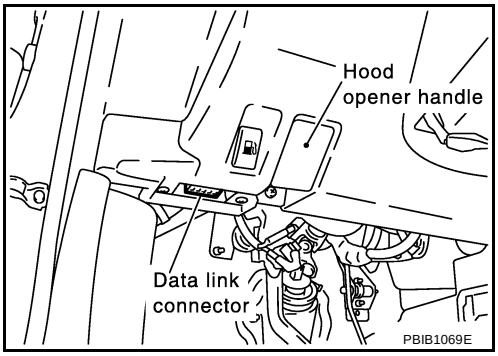
BCM diagnosis part	Check item, diagnosis mode	Description
HEADLAMP	WORK SUPPORT	Changes the setting for each function.
	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.
BCM	CAN DIAG SUPPORT MNTR	The result of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

CONSULT-II BASIC OPERATION

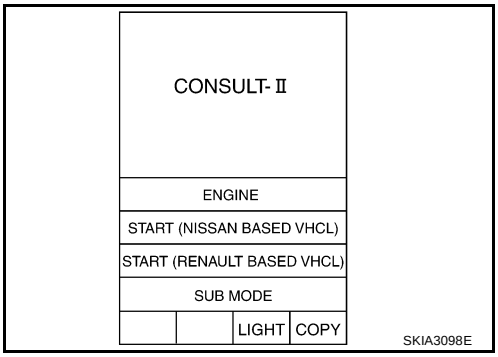
CAUTION:

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

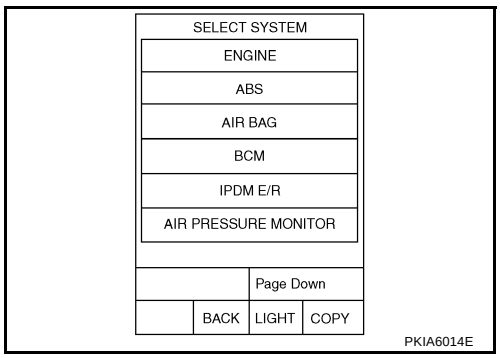
1. With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



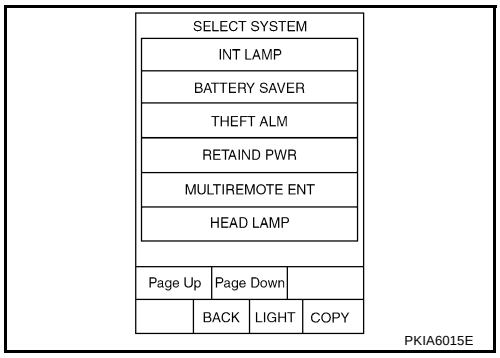
2. Touch “START (NISSAN BASED VHCL)”.



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



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



WORK SUPPORT

Operation Procedure

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

Display Item List

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

DATA MONITOR

Operation Procedure

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

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

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

Display Item List

Monitor item		Contents
IGN ON SW	“ON/OFF”	Displays “IGN position (ON)/OFF, ACC position (OFF)” judged from the ignition switch signal.
ACC ON SW	“ON/OFF”	Displays “ACC (ON)/OFF, Ignition OFF (OFF)” status judged from ignition switch signal.
AUTO LIGHT SW NOTE	“OFF”	—
LIGHT SW 1 ST	“ON/OFF”	Displays status (lighting switch 1st or 2nd position: ON/Others: OFF) of lighting switch judged from lighting switch signal.
HEAD LAMP SW 1	“ON/OFF”	Displays status (headlamp switch 1: ON/Others: OFF) of headlamp switch 1 judged 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.
PASSING SW	“ON/OFF”	Displays status (flash-to-pass switch: ON/Others: OFF) of flash-to-pass switch judged from lighting switch signal.
FR FOG SW NOTE	“OFF”	—
DOOR SW - DR	“ON/OFF”	Displays status of the driver door as judged from the driver door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - AS	“ON/OFF”	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”	—
HEAD LAMP SW 2	“ON/OFF”	Displays status (headlamp switch 2: ON/Others: OFF) of headlamp switch 2 judged from lighting switch signal.
OPTICAL SENSOR NOTE	[0.00V]	Display always indicates “0.00V”
PKB SW	“ON/OFF”	Displays status (Parking brake switch: ON/Others: OFF) as judged from parking brake switch signal.
ENGINE STATUS NOTE	“ON/OFF”	—
BACK DOOR SW	“ON/OFF”	Displays status of the back door as judged from the back door switch signal. (Door is open: ON/Door is closed: OFF)

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 NOTE	—
ILL DIM SIGNAL (CAN) NOTE	—

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

CONSULT-II Functions (IPDM E/R)

AKS009QP

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

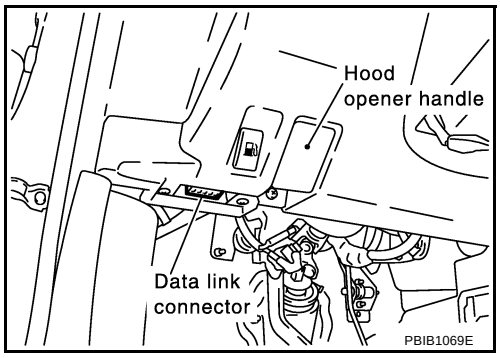
Inspection Item, Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	The IPDM E/R performs self-diagnosis of CAN communication.
DATA MONITOR	The input/output data of the IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.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

CONSULT-II BASIC OPERATION

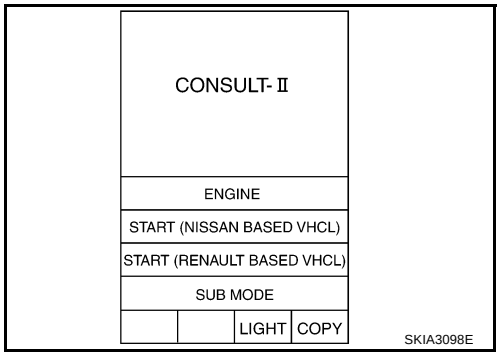
CAUTION:

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

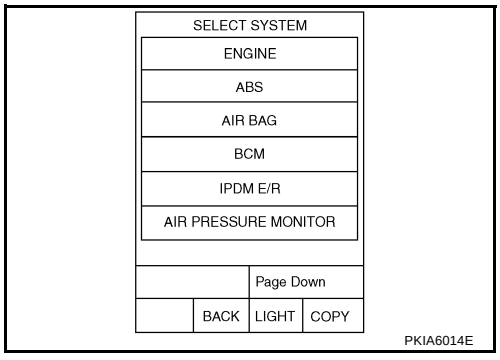
1. With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



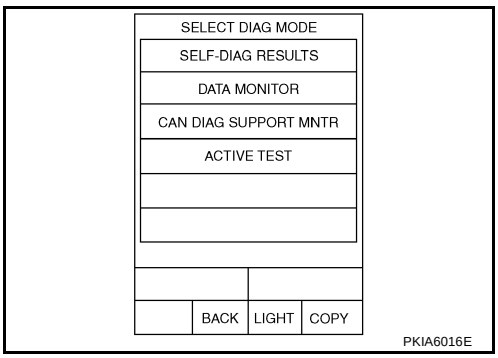
2. Touch “START (NISSAN BASED VHCL)”.



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



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



DATA MONITOR

Operation Procedure

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

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

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

All Signals, Main Signals, Selection From Menu

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

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.
Tail lamp relay output	TAIL LAMP	Allows tail lamp relay to operate by switching operation ON-OFF at your option.

SELF-DIAGNOSTIC RESULTS

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

Headlamp HI Beam Does Not Illuminate (Both Sides)

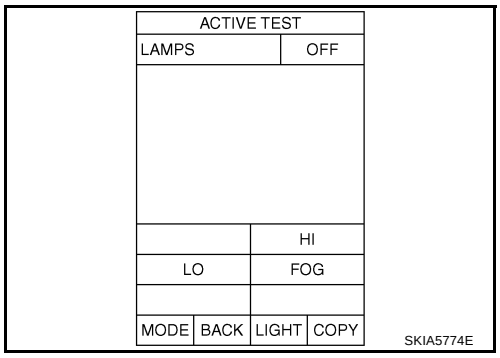
AKS009RC

1. 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.

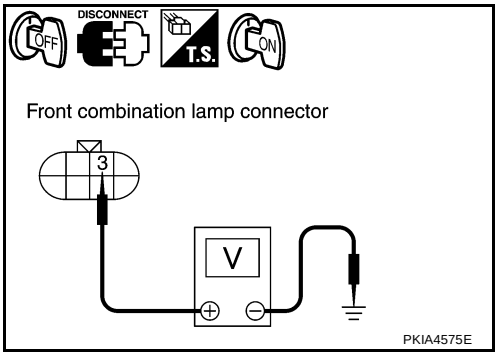
OK or NG

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

2. 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.



Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E24	3 (BR)	Ground	Battery voltage
LH	E40	3 (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	3 (BR)	Ground	Battery voltage
LH	E40	3 (R/Y)		

OK or NG

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

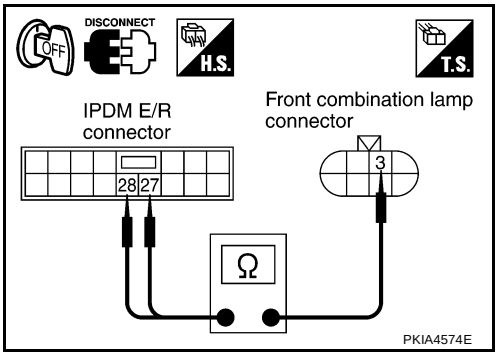
3. CHECK HEADLAMP CIRCUIT

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

27 (BR) – 3 (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 E40 terminal 3 (R/Y).

28 (R/Y) – 3(R/Y) : Continuity should exist.



OK or NG

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

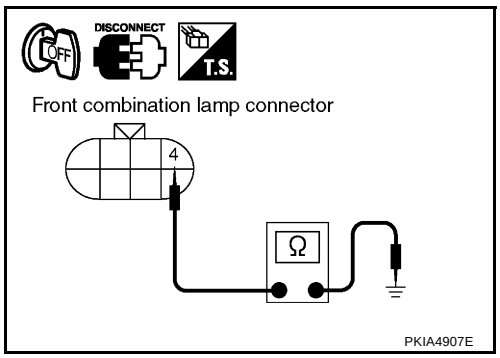
4. CHECK HEADLAMP GROUND

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

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

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

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



OK or NG

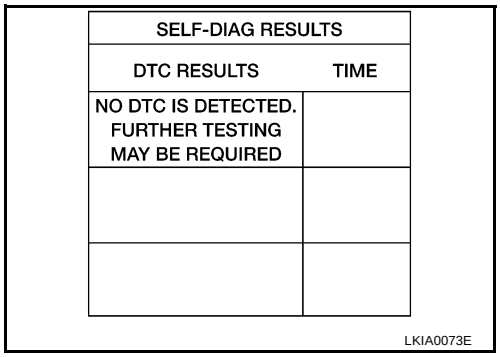
OK >> Check headlamp harness and connector and headlamp bulb.
NG >> Repair harness or connector.

5. CHECK COMBINATION SWITCH CIRCUIT

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

Displayed results of self-diagnosis

No malfunction detected>> GO TO 6.
CAN communications or CAN system>> Inspect the BCM CAN communications system. Refer to BCS-15, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .
OPEN DETECT 1 - 5>> Combination switch system malfunction. Refer to LT-162, "Combination Switch Inspection According to Self-Diagnostic Results" .



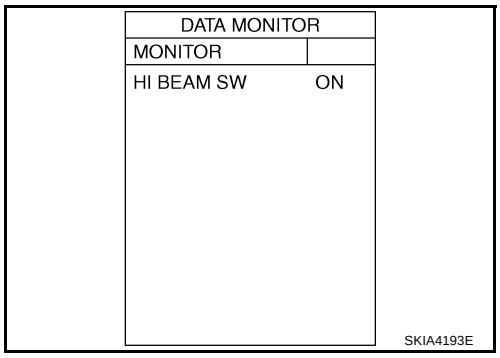
6. CHECK COMBINATION SWITCH INPUT SIGNAL

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

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

OK or NG

OK >> GO TO 7.
NG >> Replace lighting switch.



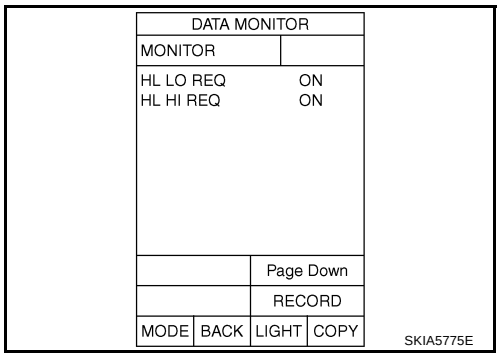
7. CHECK IPDM E/R

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 BEAM position.

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

OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-17, "Removal and Installation of BCM" .



Headlamp HI Beam Does Not Illuminate (One Side)

AKS009RF

1. CHECK BULB

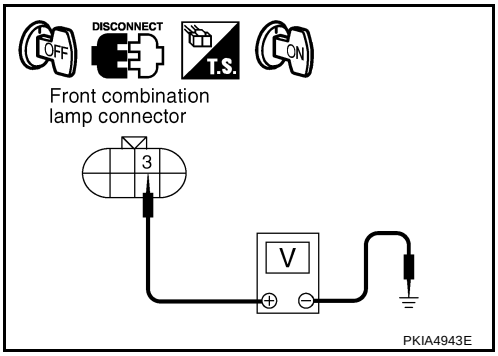
Check halogen bulb of lamp which does not illuminate.

OK or NG

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

2. CHECK HEADLAMP INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH or LH connector.
3. Turn ignition switch ON.
4. Lighting switch is turned HI 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 (BR)	Ground	Battery voltage
LH	E40	3 (R/Y)		

OK or NG

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

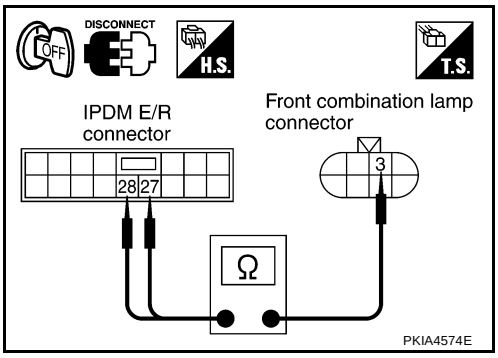
3. CHECK HEADLAMP CIRCUIT

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

27 (BR) – 3 (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 E40 terminal 3 (R/Y).

28 (R/Y) – 3 (R/Y) : Continuity should exist.



OK or NG

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

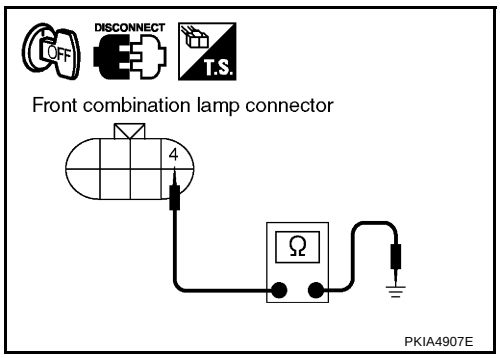
4. CHECK HEADLAMP GROUND

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

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

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

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



OK or NG

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

Headlamp Low Beam Does Not Illuminate (Both Sides)

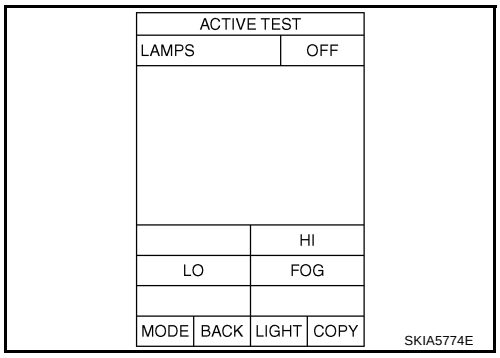
AKS009RG

1. 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.

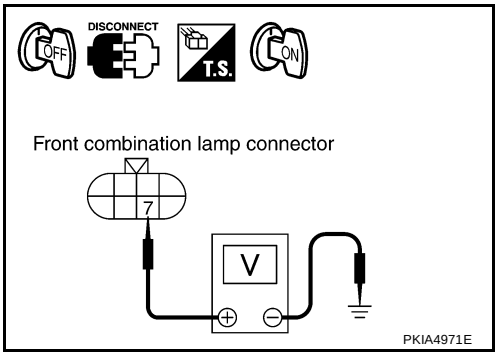
OK or NG

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

2. 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	7 (R)	Ground	Battery voltage
LH	E40	7 (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	7 (R)	Ground	Battery voltage
LH	E40	7 (R/B)		

OK or NG

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

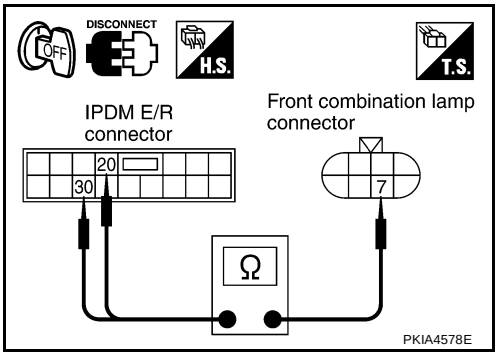
3. CHECK HEADLAMP CIRCUIT

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

20 (R) – 7 (R) : Continuity should exist.

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

30 (R/B) – 7 (R/B) : Continuity should exist.



OK or NG

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

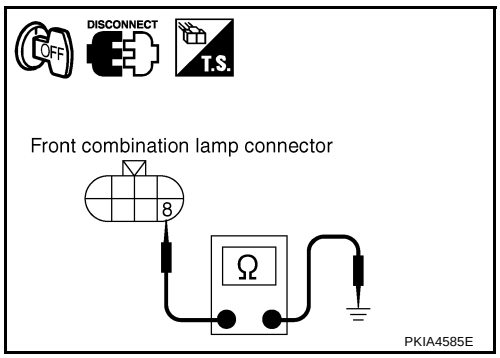
4. CHECK HEADLAMP GROUND

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

8 (B) – Ground : Continuity should exist.

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

8 (B) – Ground : Continuity should exist.



OK or NG

OK >> Check headlamp harness and connectors, ballasts (HID control unit). Refer to LT-31, "Xenon Headlamp Trouble Diagnosis" .

NG >> Repair harness or connector.

5. CHECK COMBINATION SWITCH CIRCUIT

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

Displayed results of self-diagnosis

No malfunction detected>> GO TO 6.

CAN communications or CAN system>> Inspect the BCM CAN communications system. Refer to BCS-15, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .

OPEN DETECT 1 - 5>> Combination switch system malfunction. Refer to LT-162, "Combination Switch Inspection According to Self-Diagnostic Results" .

HEAD LAMP SW 1 or HEAD LAMP SW 2>> Replace lighting switch.

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

LKIA0073E

6. CHECK COMBINATION SWITCH INPUT SIGNAL

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

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

OK or NG

OK >> GO TO 7.

NG >>
- Replace lighting switch.
- If one of “HEAD LAMP SW 1” and “HEAD LAMP SW 2” is NG, replace both BCM (Refer to BCS-17, "Removal and Installation of BCM") and lighting switch.

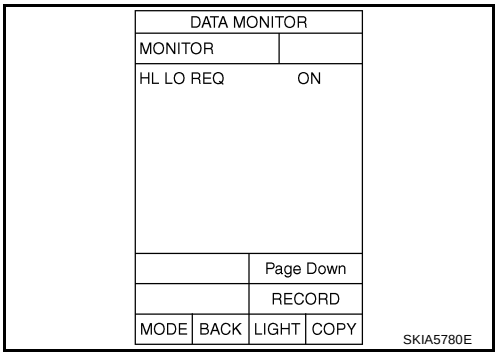
DATA MONITOR	
MONITOR	
HEAD LAMP SW1	ON
HEAD LAMP SW2	ON

SKIA4194E

7. 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-17, "Removal and Installation of BCM" .

Headlamp Low Beam Does Not Illuminate (One Side)

AKS009RH

1. CHECK BULB

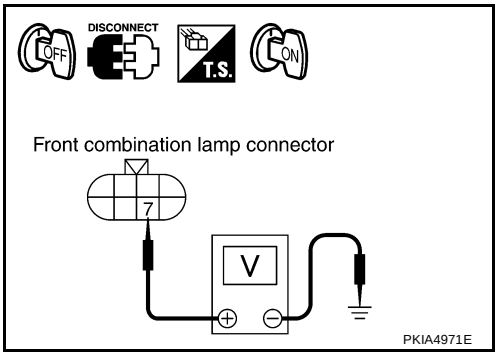
Check ballasts (HID control unit) and xenon bulb of lamp which does not illuminate. Refer to LT-31, "Xenon Headlamp Trouble Diagnosis" .

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



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

OK or NG

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

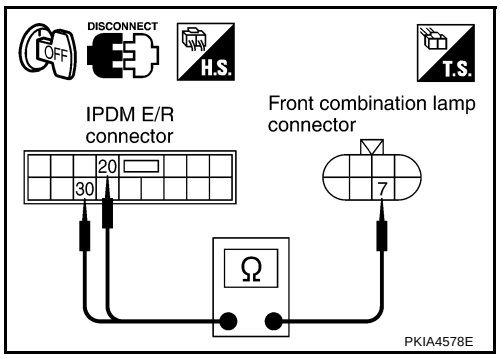
3. CHECK HEADLAMP CIRCUIT

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

20 (R) – 7 (R) : Continuity should exist.

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

30 (R/B) – 7 (R/B) : Continuity should exist.



OK or NG

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

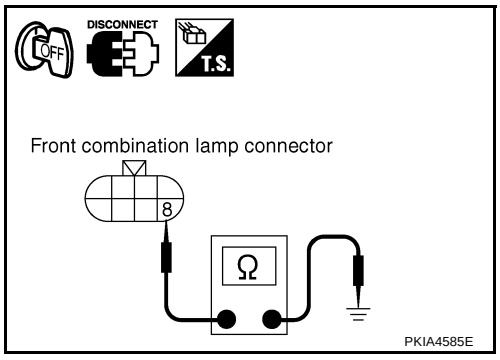
4. CHECK HEADLAMP GROUND

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

8 (B) – Ground : Continuity should exist.

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

8 (B) – Ground : Continuity should exist.



OK or NG

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

Headlamps Do Not Turn OFF

AKS009RJ

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.

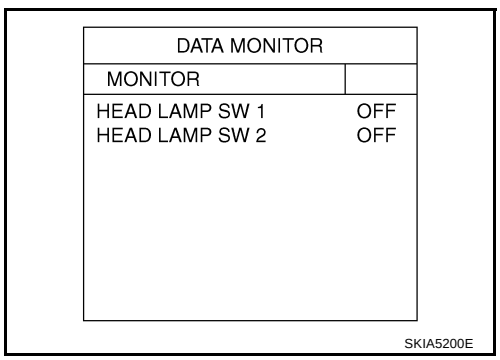
OK or NG

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

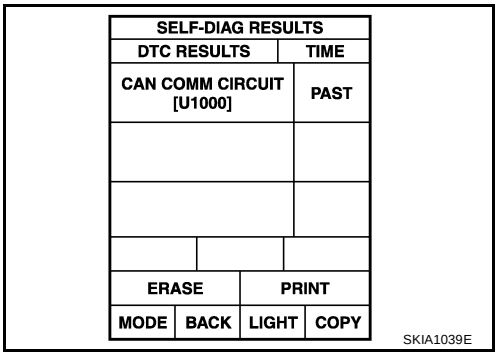
OK >> Replace IPDM E/R.
NG >> Check lighting switch. Refer to LT-162, "Combination Switch Inspection According to Self-Diagnostic Results".

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

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

Display of self-diagnosis results

NO DTC>> Replace IPDM E/R.
CAN COMM CIRCUIT>> Refer to BCS-15, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .



CAUTION:

AKS009RK

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

Xenon Headlamp Trouble Diagnosis

AKS009RL

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

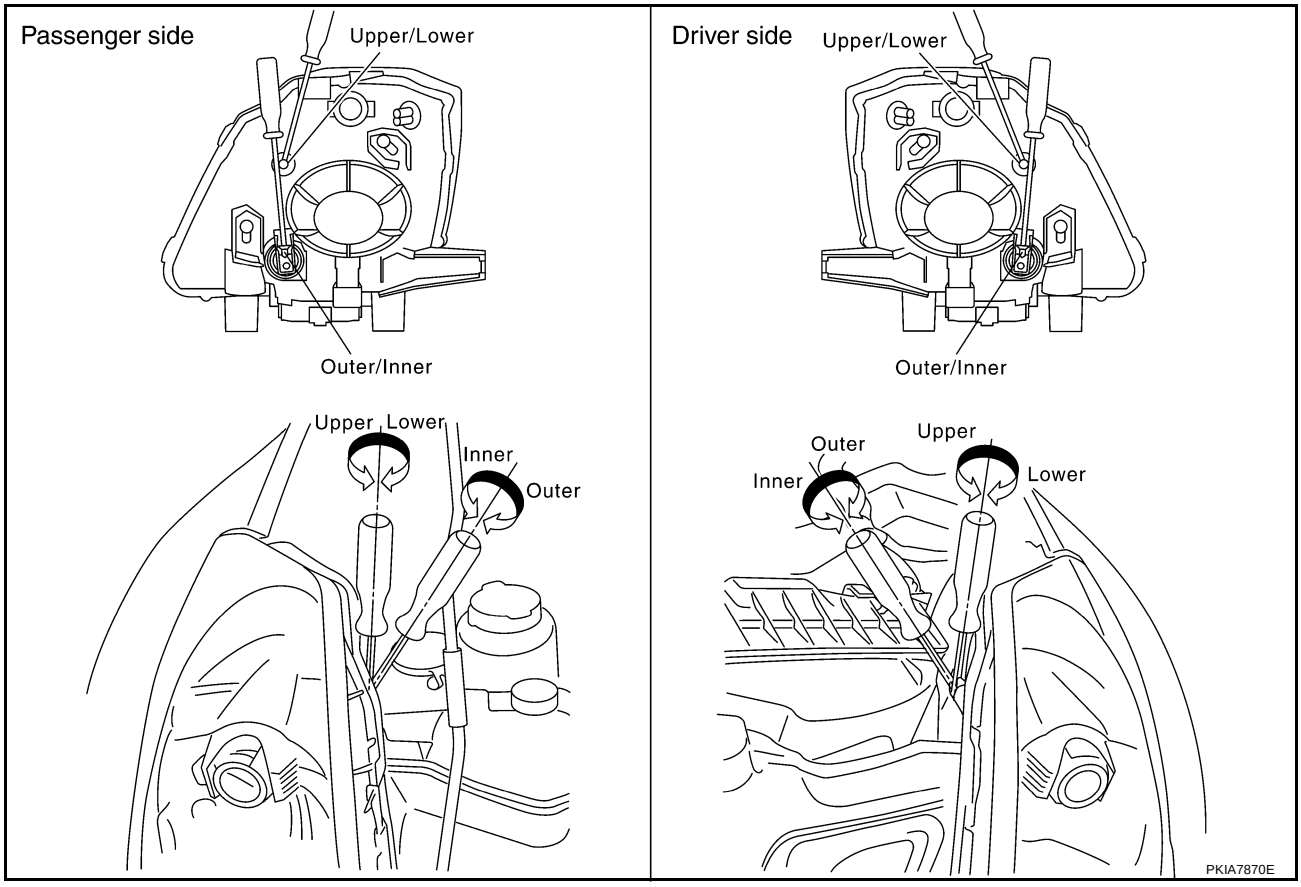
Install normal xenon lamp housing assembly to corresponding xenon headlamp, and check if lamp lights up.

OK or NG

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

Aiming Adjustment

AKS009O6



PREPARATION BEFORE ADJUSTING

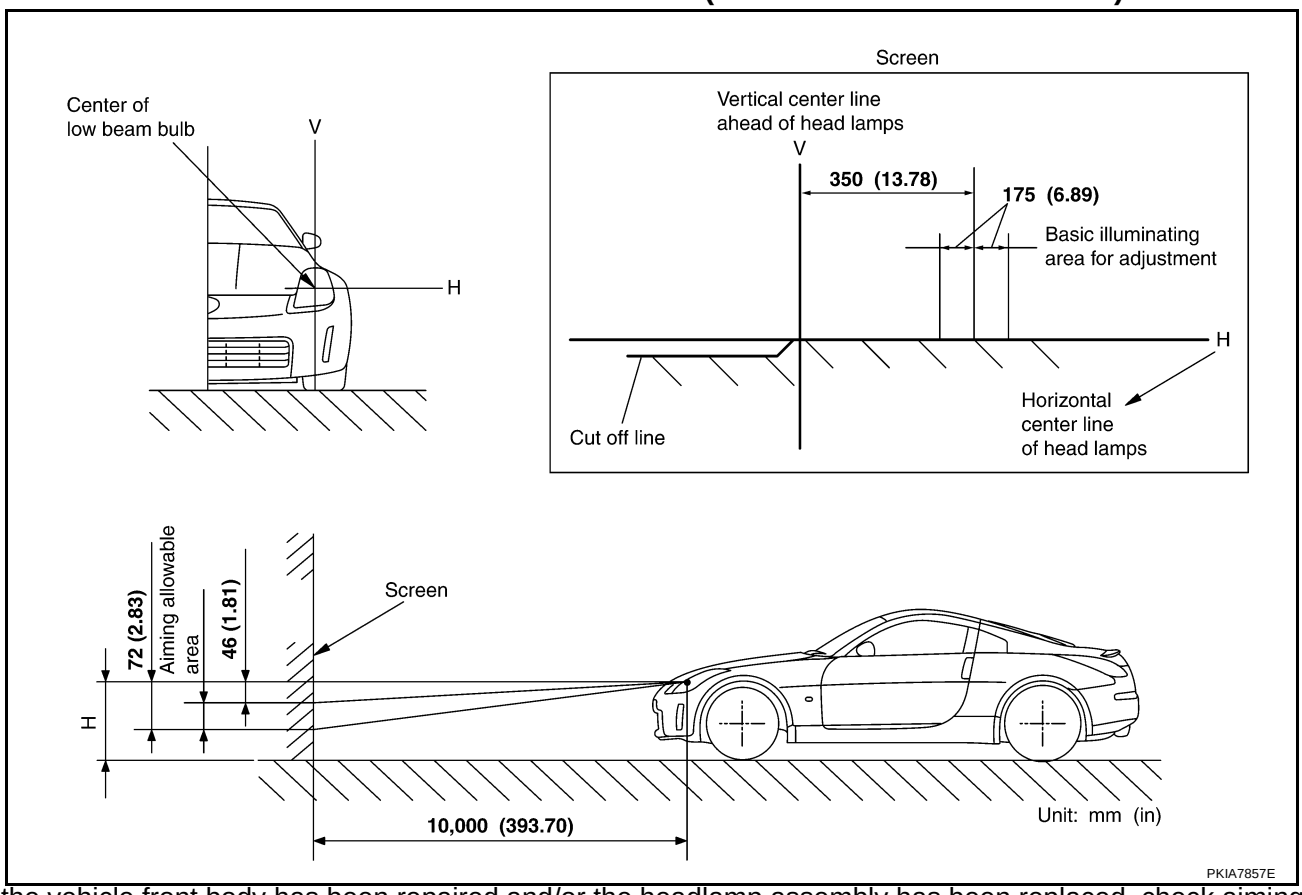
For details, refer to the regulations in your own country.
Before performing aiming adjustment, check the following.

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

LOW BEAM AND HIGH BEAM

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

ADJUSTMENT USING AN ADJUSTMENT SCREEN (LIGHT/DARK BORDERLINE)



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

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

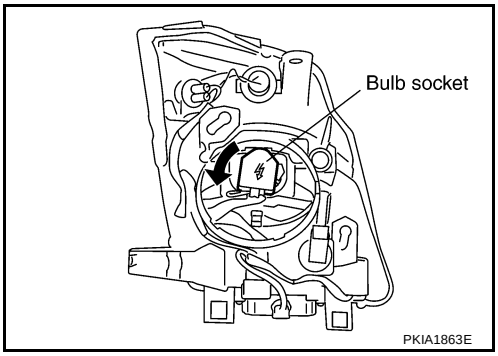
Bulb Replacement

AKS009O7

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.

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



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

HEADLAMP (LOWER) HIGH BEAM

1. Turn lighting switch OFF.
2. Open the driver and front passenger window, and then disconnect the battery negative cable.

   CAUTION:
   After the battery cables are disconnected, do not open/close the driver and/or front passenger door with the window in the full up position. The automatic window adjusting function will not work and the side roof panel may be damaged.
3. Remove fender protector (front). Refer to EI-21, "FENDER PROTECTOR" in “EI” section.
4. Turn plastic cap counterclockwise and unlock it.
5. Disconnect bulb socket.
6. Unlock retaining spring and remove bulb from headlamp.
7. Install in reverse order of removal.

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

PARKING LAMP (CLEARANCE LAMP)

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

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

FRONT TURN SIGNAL LAMP

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

Front turn signal lamp	**: 12V - 21W**

FRONT SIDE MARKER LAMP

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

Front side marker lamp	**: 12V - 5W**

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

Removal and Installation

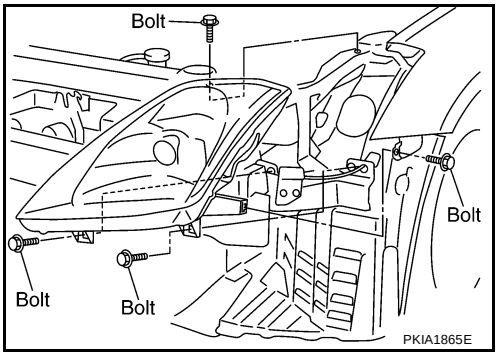
AKS009O8

REMOVAL

1. Open the driver and front passenger window, and then disconnect the battery negative cable.

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

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



INSTALLATION

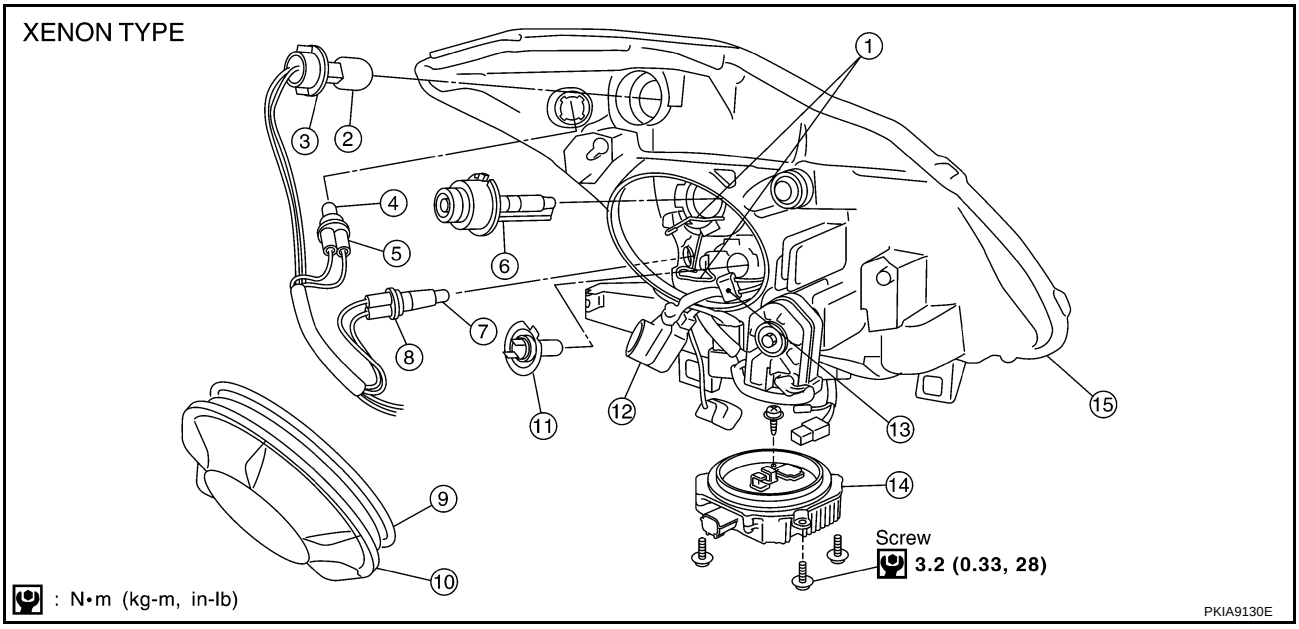
Installation in the reverse order if removal. Be careful of the following.

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

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

Disassembly and Assembly

AKS009O9



1. Retaining spring	2. Front turn signal lamp bulb	3. Front turn signal lamp bulb socket
4. Side marker lamp bulb	5. Side marker lamp bulb socket	6. Xenon bulb
7. Parking lamp (Clearance lamp) bulb	8. Parking lamp (Clearance lamp) bulb socket	9. Seal rubber
10. Plastic cap	11. Halogen bulb (high)	12. Xenon bulb socket
13. Halogen bulb socket	14. HID C/U	15. Headlamp housing assembly

DISASSEMBLY

1. Turn plastic cap counterclockwise and unlock it.
2. Turn xenon bulb socket counterclockwise, and unlock it.
3. Unlock retaining spring, and remove xenon bulb (low).
4. Disconnect HID control unit connector, and remove HID control unit screws.

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

ASSEMBLY

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

HID control unit mounting screw : 3.2 N·m (0.33 kg-m, 28 in-lb)

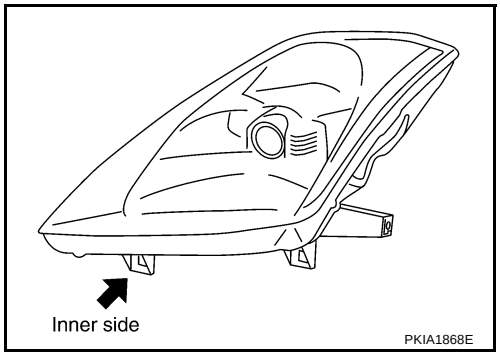
CAUTION:

- **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

AKS009OA

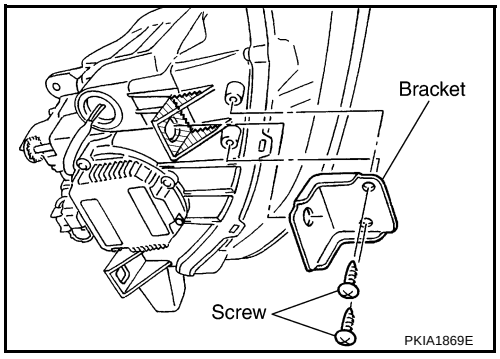
If only installation part as shown in the figure is damaged, and headlamp housing itself is not damaged, repair can be completed easily by installing correction brackets.



INSTALLATION OF HEADLAMP BRACKET

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

RH headlamp	**Inner side**	**26040 CD000**
LH headlamp	**Inner side**	**26090 CD000**

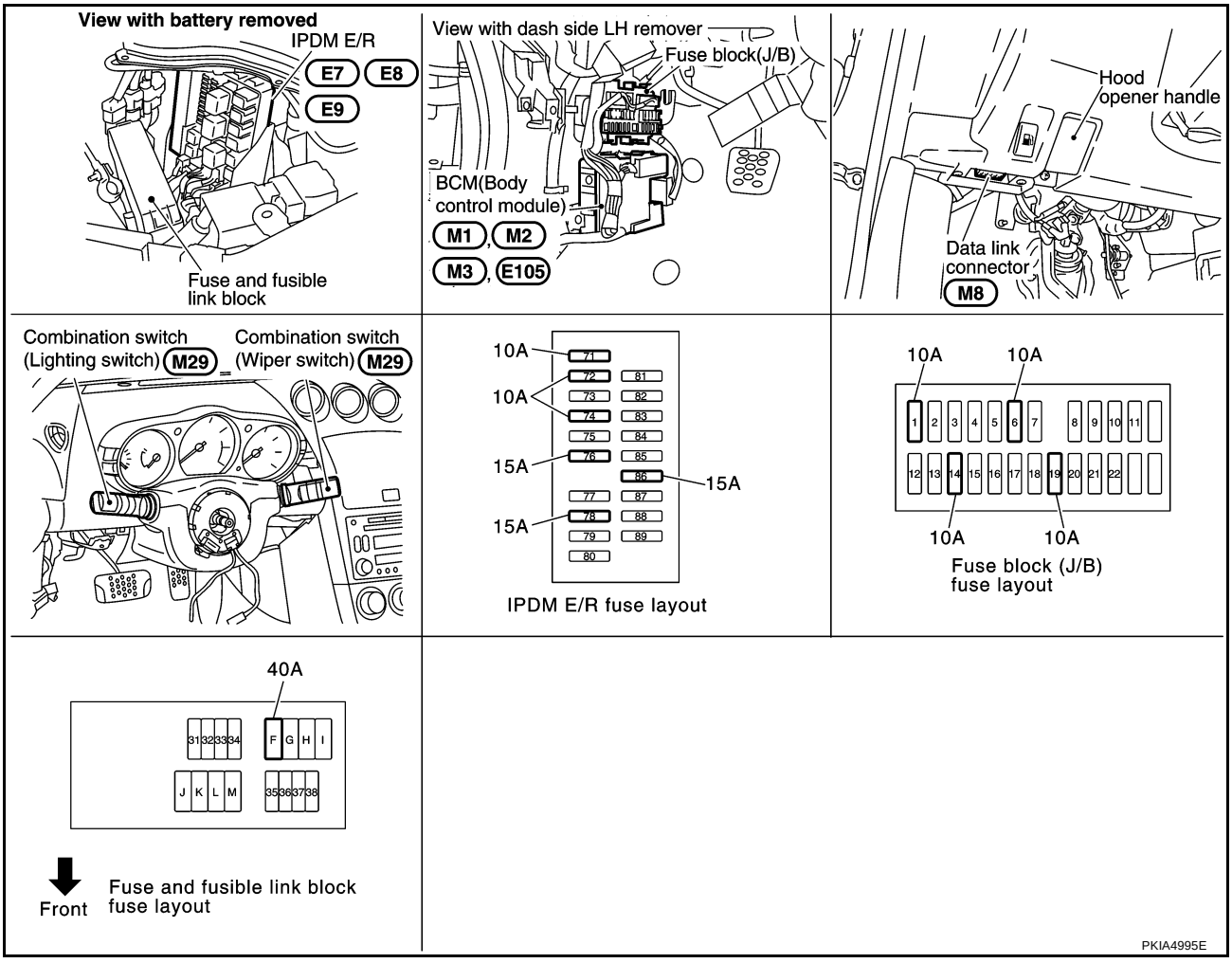


HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

PFP:26010

Component Parts and Harness Connector Location

AKS009P1



System Description

AKS009P2

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

OUTLINE

Power is supplied at all times

- to headlamp high relay [located in IPDM E/R (intelligent power distribution module engine room)]
- to headlamp low relay [located in IPDM E/R (intelligent power distribution module engine room)]
- to BCM (body control module) terminal 7
- through 40A fusible link (letter F, located in fuse and fusible link block)
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- through 10A fuse [no.71, located in IPDM E/R (intelligent power distribution module engine room)]
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- through 15A fuse[No.78, located in IPDM E/R (intelligent power distribution module engine room)]
- to combination meter terminal 24
- through 10A fuse [No.19, located in fuse block (J/B)].

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

- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- to BCM (body control module) terminal 35
- through 10A fuse [No. 1, located in fuse block (J/B)]
- to combination meter terminal 23
- 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 36
- through 10A fuse [No. 6, located in fuse block (J/B)].

Ground is supplied

- to BCM (body control module) terminal 8
- through grounds E17, E43 and F152
- to IPDM E/R (intelligent power distribution module engine room) terminals 38 and 60
- through grounds E17, E43 and F152
- to combination meter terminals 10, 11 and 12
- through grounds M30 and M66.

Low Beam Operation

With the lighting switch in 2ND position, the BCM receives input signal requesting by combination switch reading function (Refer to LT-158, "Combination Switch Reading Function") the headlamps to illuminate. This input signal is communicated to the IPDM E/R across the CAN communication lines. The CPU in the IPDM E/R controls the headlamp low relay coil, which when energized, power is supplied.

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

Ground is supplied

- to headlamp RH terminal 3
- through grounds E17, E43 and F152
- to headlamp LH terminal 3
- through grounds E17, E43 and F152.

High Beam Operation/Flash-to-Pass Operation

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

- to 10A fuse [No. 72, located in IPDM E/R]
- through IPDM E/R terminal 27
- to headlamp RH terminal 2
- to 10A fuse [No. 74, located in IPDM E/R]
- through IPDM E/R terminal 28
- to headlamp LH terminal 2

Ground is supplied

- to headlamp RH terminal 3
- through grounds E17, E43 and F152
- to headlamp LH terminal 3
- through grounds E17, E43 and F152.

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

COMBINATION SWITCH READING FUNCTION

Refer to LT-158, "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.

VEHICLE SECURITY SYSTEM

The vehicle security system will flash the high beams if the system is triggered. Refer to BL-130, "VEHICLE SECURITY (THEFT WARNING) SYSTEM" .

CAN Communication System Description

AKS009P3

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.

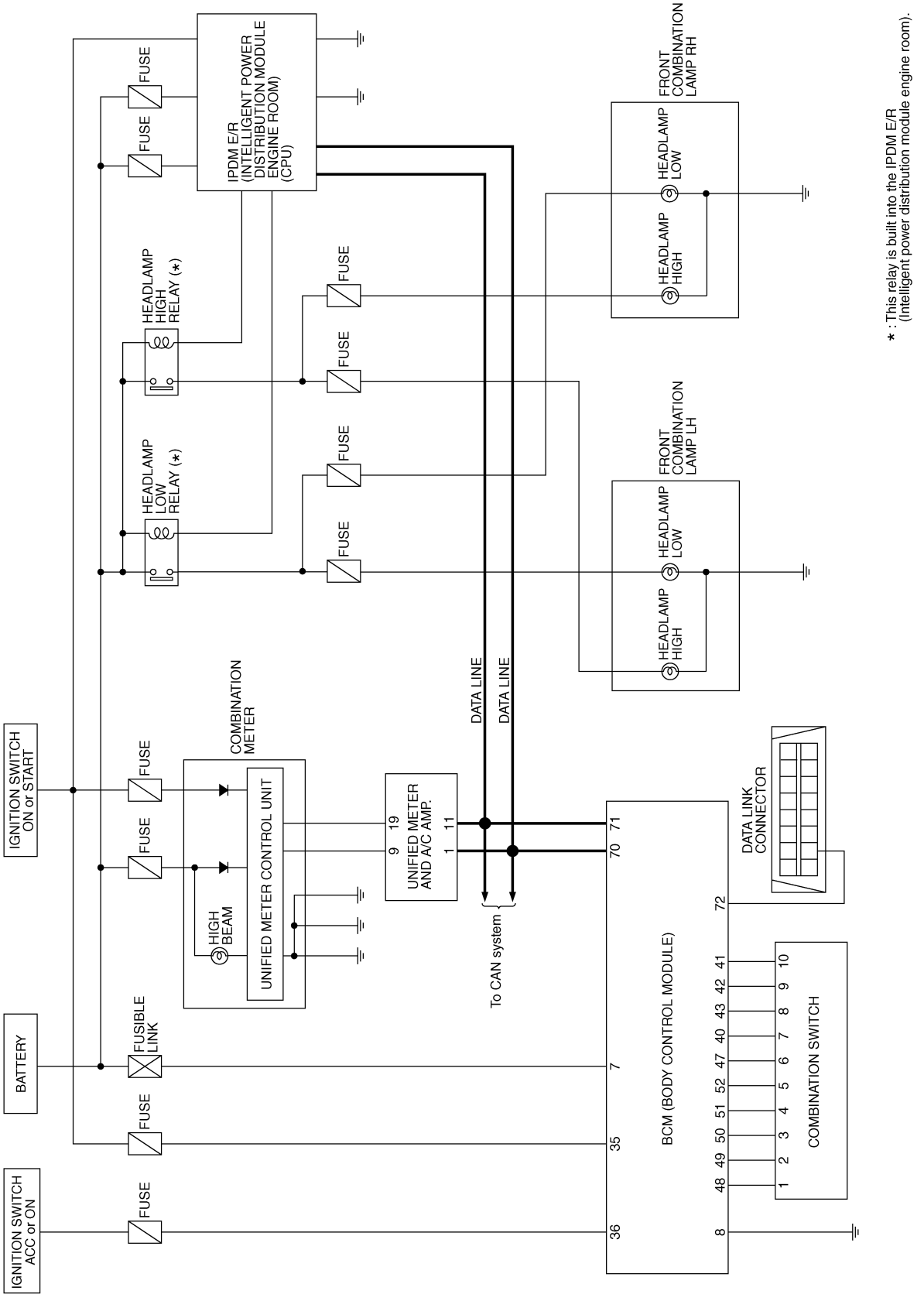
CAN Communication Unit

AKS009P4

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

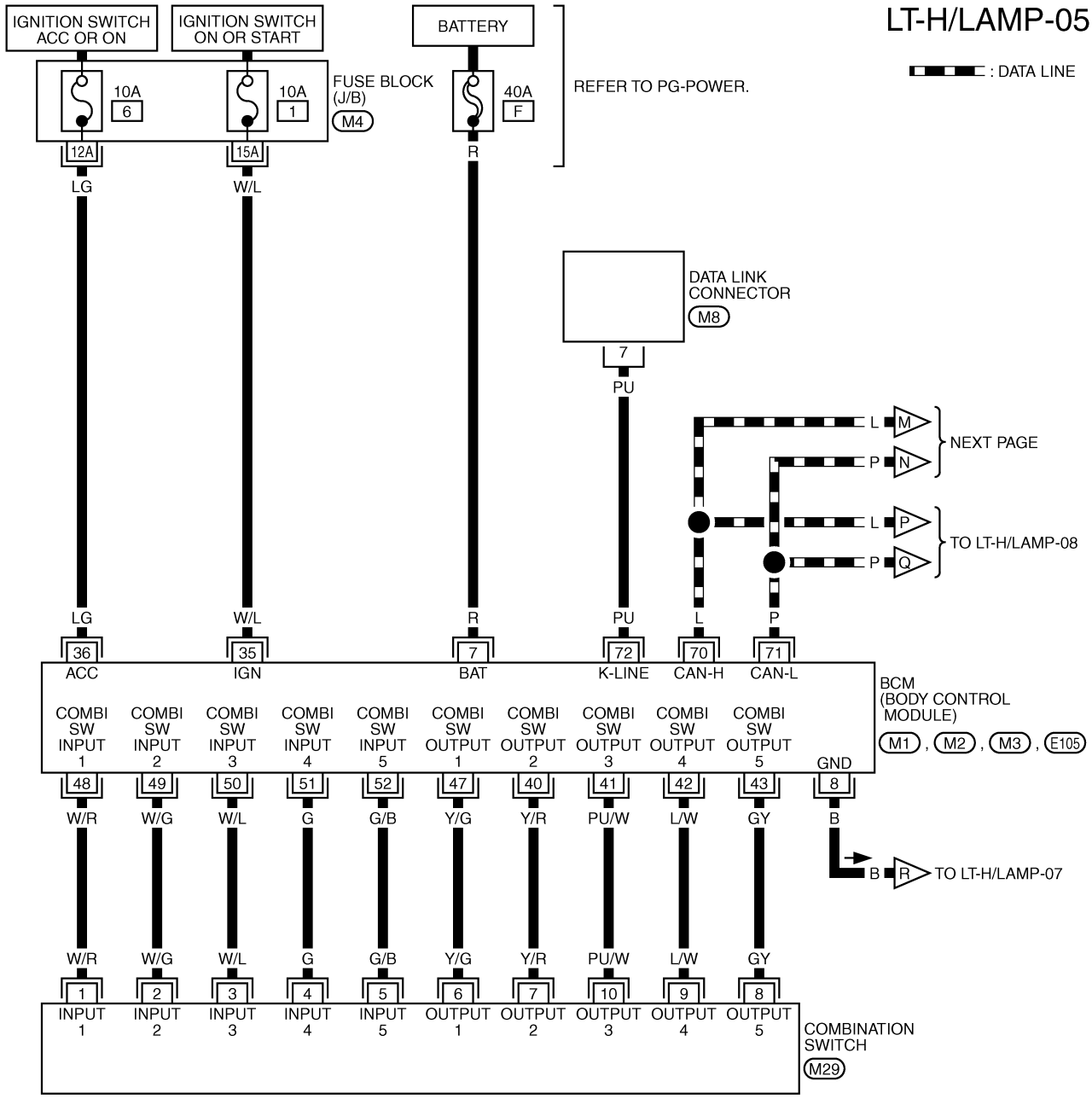
Schematic

AKS009P5



Wiring Diagram — H/LAMP —

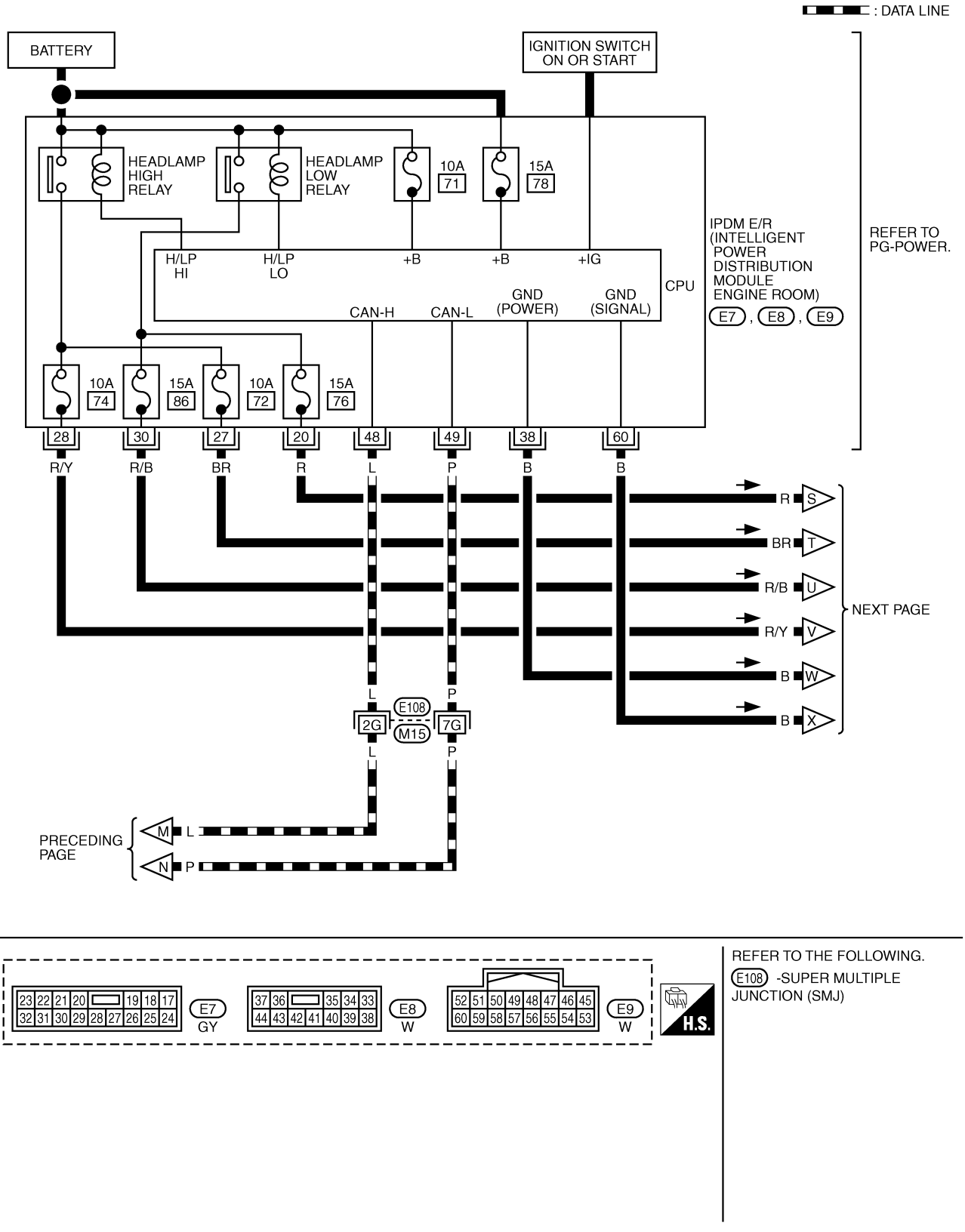
AKS009P6



REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)
M1, M2, M3, E105 -ELECTRICAL UNITS

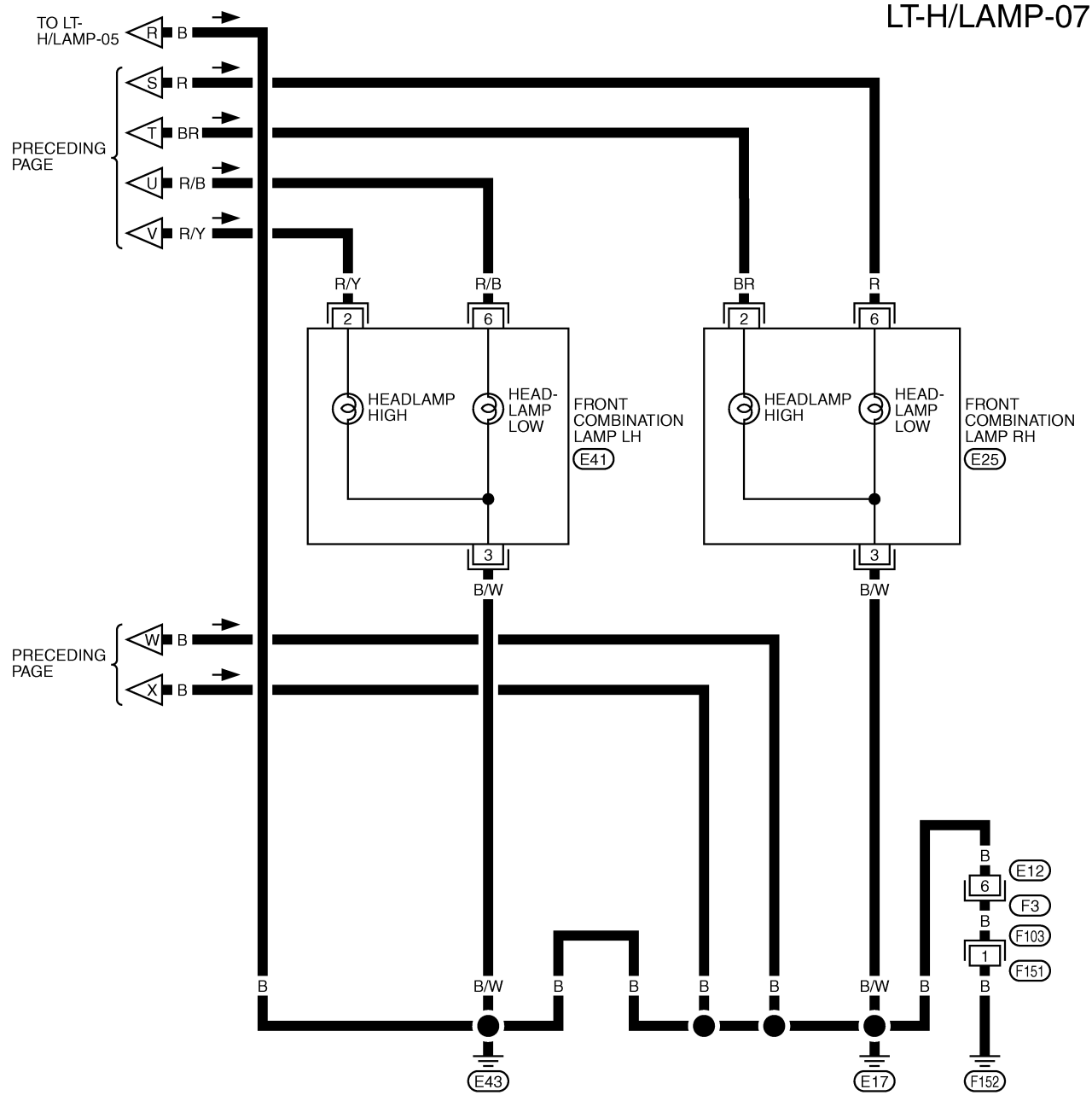
TKWT1581E

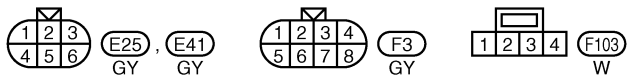
LT-H/LAMP-06



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

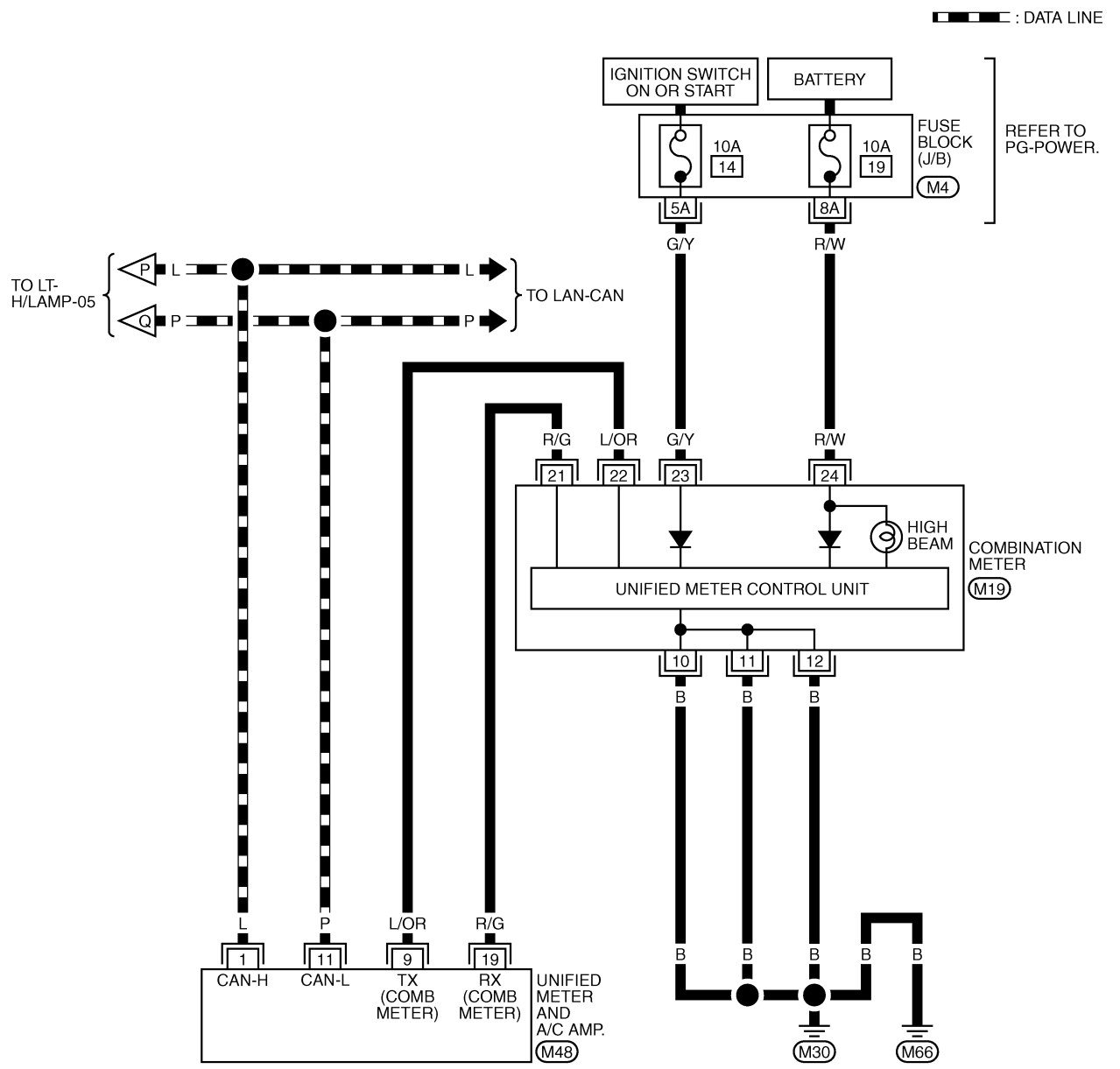
TKWT1582E

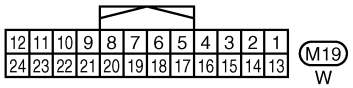

LT-H/LAMP-07
TO LT-H/LAMP-05
R B
S R
T BR
U R/B
V R/Y
PRECEDING PAGE
R/Y
R/B
BR
R
2
6
HEADLAMP HIGH
HEAD-LAMP LOW
FRONT COMBINATION LAMP LH
E41
FRONT COMBINATION LAMP RH
E25
3
B/W
W B
X B
PRECEDING PAGE
B
B/W
E12
F3
F103
F151
E43
E17
F152

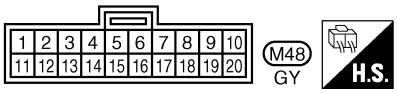

E25
GY
E41
GY
F3
GY
F103
W

TKWT1583E

LT-H/LAMP-08





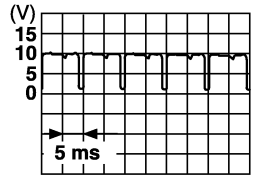


REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWT1729E

Terminals and Reference Values for BCM

AKS009P7

Terminal No.	Wire color	Item	Measuring condition		Reference value
			Ignition switch	Operation or condition	
7	R	Battery power supply	OFF	—	Battery voltage
8	B	Ground	ON	—	Approx. 0
35	W/L	Ignition switch (ON)	ON	—	Battery voltage
36	LG	Ignition switch (ACC)	ACC	—	Battery voltage
40	Y/R	Combination switch output 2	ON	Lighting, turn, wiper OFF	 SKIA1119J
41	PU/W	Combination switch output 3			
42	L/W	Combination switch output 4			
43	GY	Combination switch output 5			
47	Y/G	Combination switch output 1			
48	W/R	Combination switch input 1	ON	Lighting, turn, wiper OFF	4.5V or more
49	W/G	Combination switch input 2			
50	W/L	Combination switch input 3			
51	G	Combination switch input 4			
52	G/B	Combination switch input 5			
70	L	CAN– H	—	—	—
71	P	CAN– L	—	—	—
72	PU	K–LINE	—	—	—

Terminals and Reference Values for IPDM E/R

AKS009R9

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	P	CAN– L	—	—		—
60	B	Ground	ON	—		Approx. 0V

How to Proceed With Trouble Diagnosis

AKS009RA

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-37, "System Description" .
3. Perform the preliminary check. Refer to LT-46, "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

AKS009P9

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

- Check for blown fuses.

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

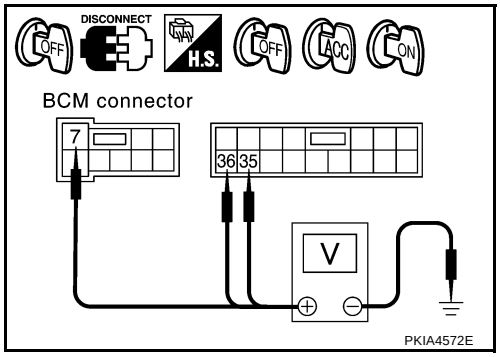
Refer to LT-41, "Wiring Diagram — H/LAMP —" .

OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-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)				
E105	7 (R)	Ground	Battery voltage	Battery voltage	Battery voltage
M1	35 (W/L)		0V	0V	Battery voltage
M1	36 (LG)		0V	Battery voltage	Battery voltage

OK or NG

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

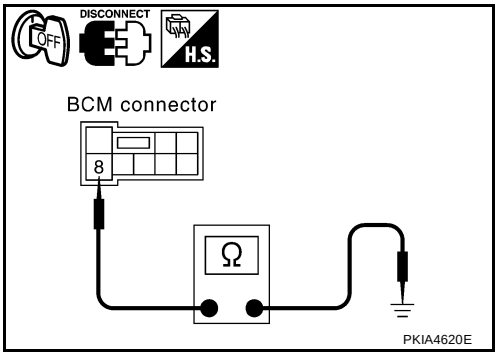
3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminals			Continuity
Connector	Terminal (wire color)	Ground	Yes
E105	8 (B)		

OK or NG

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



CONSULT-II Functions (BCM)

AKS009PA

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

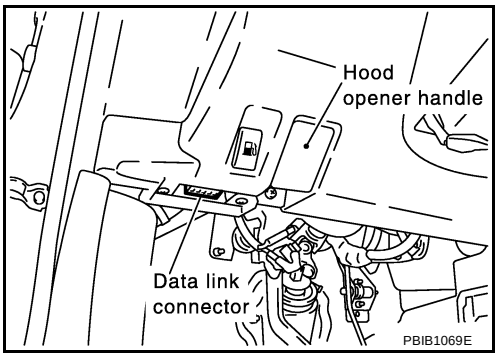
BCM diagnosis part	Check item, diagnosis mode	Description
HEADLAMP	WORK SUPPORT	Changes the setting for each function.
	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.
BCM	CAN DIAG SUPPORT MNTR	The result of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

CONSULT-II BASIC OPERATION

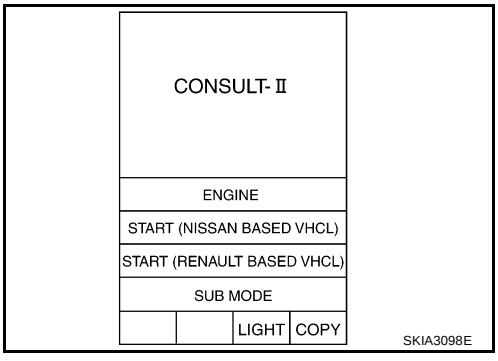
CAUTION:

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

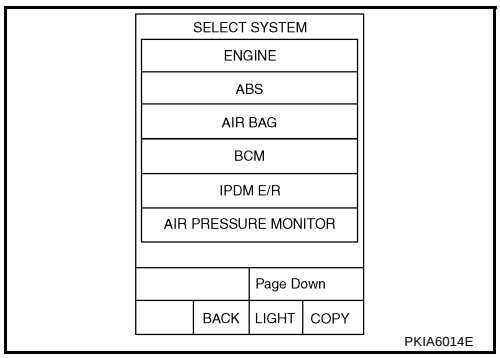
1. With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



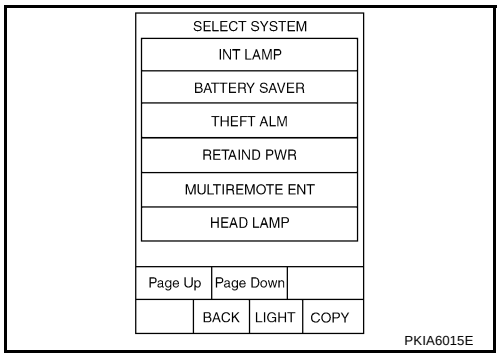
2. Touch “START (NISSAN BASED VHCL)”.



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



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



WORK SUPPORT

Operation Procedure

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

Display Item List

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

DATA MONITOR

Operation Procedure

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

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

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

Display Item List

Monitor item		Contents
IGN ON SW	“ON/OFF”	Displays “ IGN position (ON)/OFF, ACC position (OFF)” judged from the ignition switch signal.
ACC ON SW	“ON/OFF”	Displays “ACC (ON)/OFF, Ignition OFF (OFF)” status judged from ignition switch signal.
AUTO LIGHT SW[NOTE]	“OFF”	—
LIGHT SW 1 ST	“ON/OFF”	Displays status (lighting switch 1st or 2nd position: ON/Others: OFF) of lighting switch judged from lighting switch signal.
HEAD LAMP SW 1	“ON/OFF”	Displays status (headlamp switch 1: ON/Others: OFF) of headlamp switch 1 judged 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.
PASSING SW	“ON/OFF”	Displays status (flash-to-pass switch: ON/Others: OFF) of flash-to-pass switch judged from lighting switch signal.
FR FOG SW[NOTE]	“OFF”	—
DOOR SW - DR	“ON/OFF”	Displays status of the driver door as judged from the driver door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - AS	“ON/OFF”	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”	—
HEAD LAMP SW 2	“ON/OFF”	Displays status (headlamp switch 2: ON/Others: OFF) of headlamp switch 2 judged from lighting switch signal.
OPTICAL SENSOR	[0V]	Display always indicates “0.00V”
PKB SW	“ON/OFF”	Displays status (Parking brake switch: ON/Others: OFF) as judged from parking brake switch signal.
ENGINE STATUS[NOTE]	“ON/OFF”	—
BACK DOOR SW	“ON/OFF”	Displays status of the back door as judged from the back door switch signal. (Door is open: ON/Door is closed: OFF)

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[NOTE]	—
ILL DIM SIGNAL (CAN)[NOTE]	—

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

CONSULT-II Functions (IPDM E/R)

AKS009RB

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

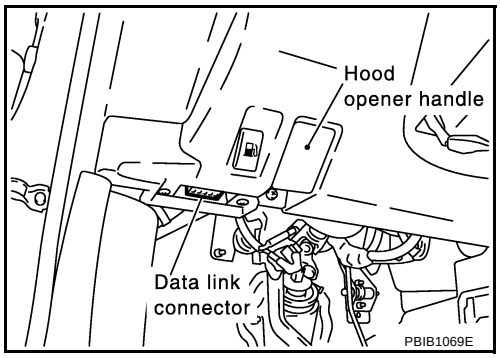
Inspection Item, Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	The IPDM E/R performs self-diagnosis of CAN communication.
DATA MONITOR	The input/output data of the IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.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

CONSULT-II OPERATION

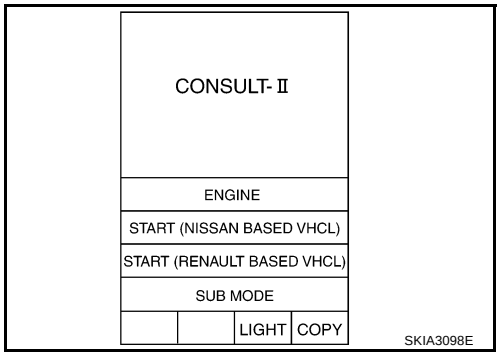
CAUTION:

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

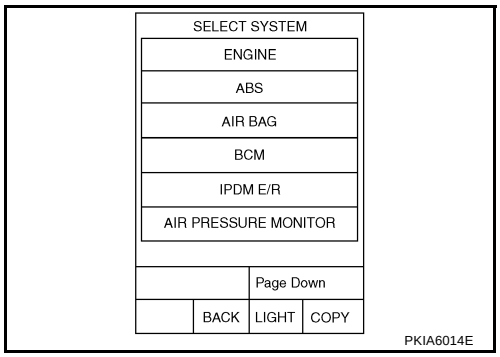
1. With ignition switch OFF, connect CONSULT-II and CON-SULT-II CONVERTER to data link connector, then turn ignition switch ON.



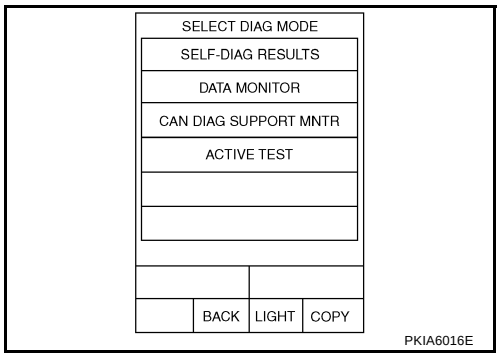
2. Touch “START (NISSAN BASED VHCL)”.



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



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



DATA MONITOR

Operation Procedure

1. Touch “DATA MONITOR” on “SELECT DIAG MODE ” screen.
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

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.
Tail lamp relay output	TAIL LAMP	Allows tail lamp relay to operate by switching operation ON-OFF at your option.

SELF-DIAGNOSTIC RESULTS

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

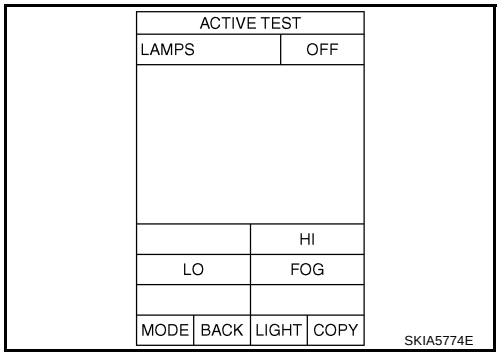
Headlamp High Beam Does Not Illuminate (Both Sides)

AKS009PB

1. 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.

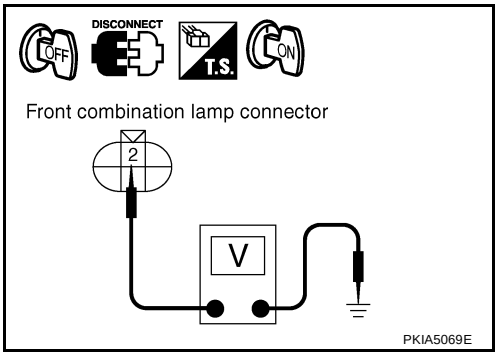
OK or NG

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

2. 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.



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

OK or NG

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

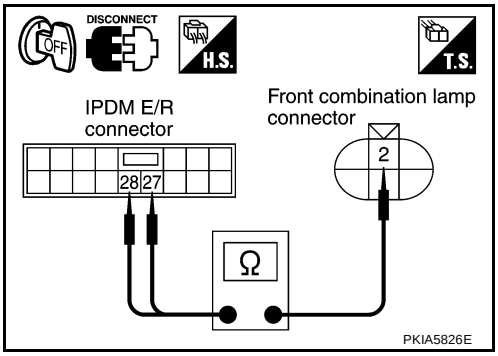
3. CHECK HEADLAMP CIRCUIT

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

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

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

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



OK or NG

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

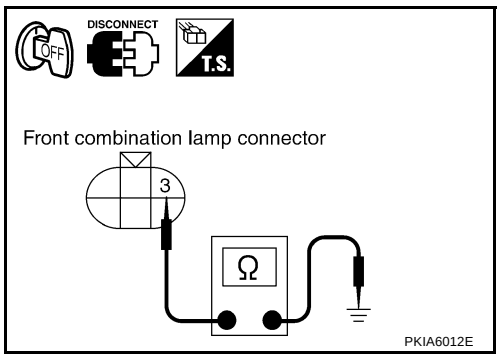
4. CHECK HEADLAMP GROUND

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

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

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

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



OK or NG

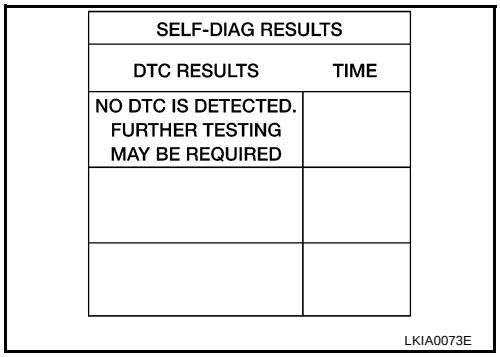
OK >> Check headlamp harness and connector and headlamp bulb.
NG >> Repair harness or connector.

5. CHECK COMBINATION SWITCH CIRCUIT

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

Displayed results of self-diagnosis

No malfunction detected>> GO TO 6.
CAN communications or CAN system>> Inspect the BCM CAN communications system. Refer to BCS-15, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .
OPEN DETECT 1 - 5>> Combination switch system malfunction. Refer to LT-162, "Combination Switch Inspection According to Self-Diagnostic Results" .



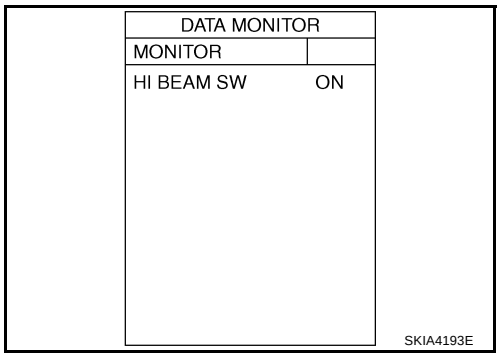
6. CHECK COMBINATION SWITCH INPUT SIGNAL

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

OK or NG

OK >> GO TO 7.
NG >> Replace lighting switch.



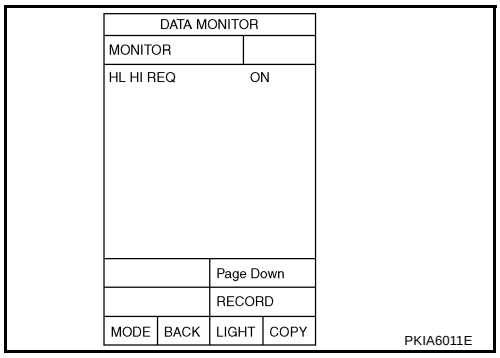
7. CHECK IPDM E/R

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

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

OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-17, "Removal and Installation of BCM" .



Headlamp High Beam Does Not Illuminate (One Sides)

AKS009SB

1. CHECK BULB

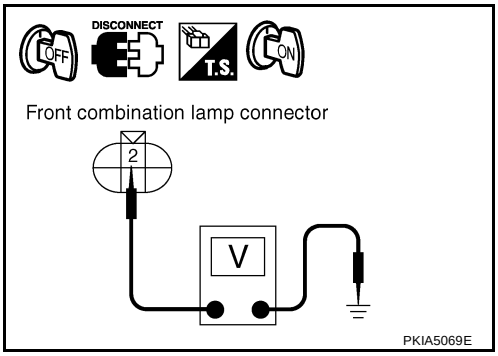
Check halogen bulb of lamp which does not illuminate.

OK or NG

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

2. CHECK HEADLAMP INPUT SIGNAL

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



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

OK or NG

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

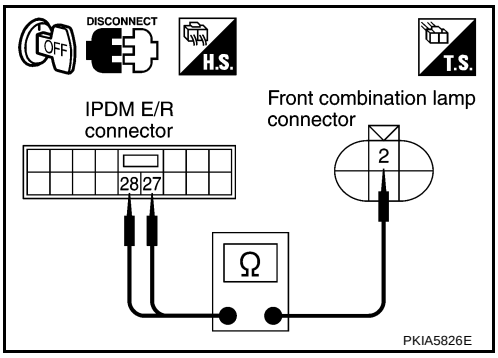
3. CHECK HEADLAMP CIRCUIT

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

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

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

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



OK or NG

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

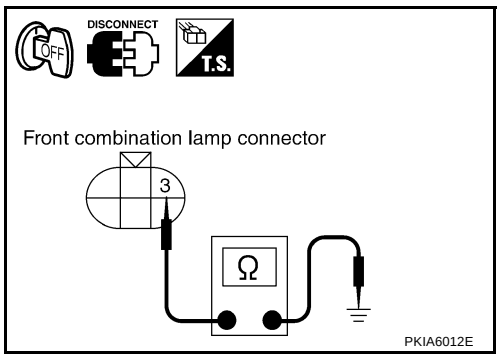
4. CHECK HEADLAMP GROUND

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

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

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

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



OK or NG

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

Headlamp Low Beam Does Not Illuminate (Both Sides)

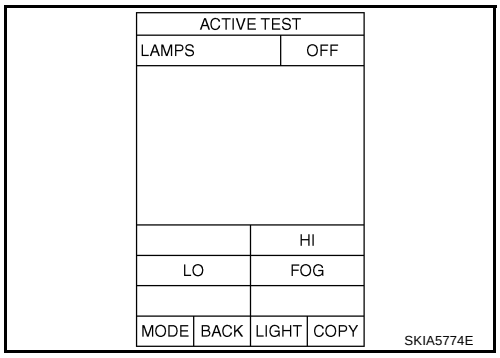
AKS009PE

1. 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.

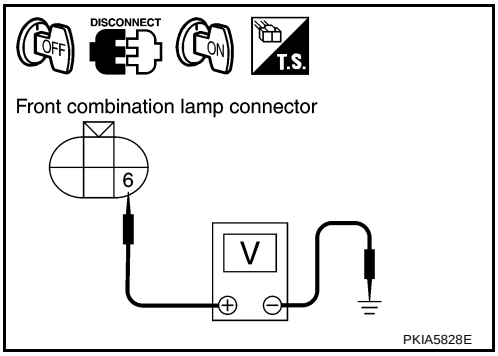
OK or NG

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

2. 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	E25	6 (R)	Ground	Battery voltage
LH	E41	6 (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	E25	6 (R)	Ground	Battery voltage
LH	E41	6 (R/B)		

OK or NG

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

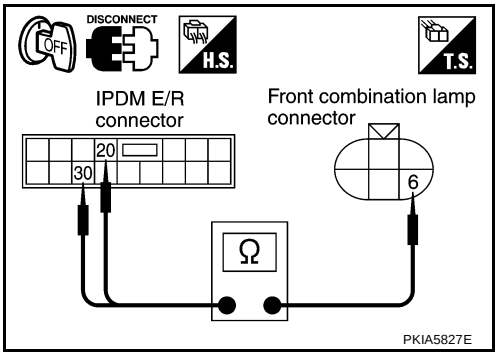
3. CHECK HEADLAMP CIRCUIT

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

20 (R) – 6 (R) : Continuity should exist.

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

30 (R/B) – 6 (R/B) : Continuity should exist.



OK or NG

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

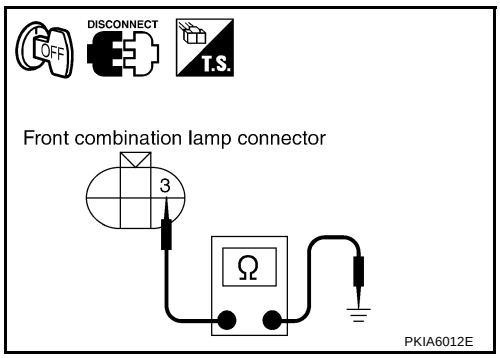
4. CHECK HEADLAMP GROUND

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

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

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

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



OK or NG

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

5. CHECK COMBINATION SWITCH CIRCUIT

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

Displayed results of self-diagnosis

No malfunction detected>> GO TO 6.
CAN communications or CAN system>> Inspect the BCM CAN communications system. Refer to BCS-15, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .
OPEN DETECT 1 - 5>> Combination switch system malfunction. Refer to LT-162, "Combination Switch Inspection According to Self-Diagnostic Results" .
HEAD LAMP SW 1 or HEAD LAMP SW 2>> Replace lighting switch.

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

LKIA0073E

6. CHECK COMBINATION SWITCH INPUT SIGNAL

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

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

DATA MONITOR	
MONITOR	
HEAD LAMP SW1	ON
HEAD LAMP SW2	ON

SKIA4194E

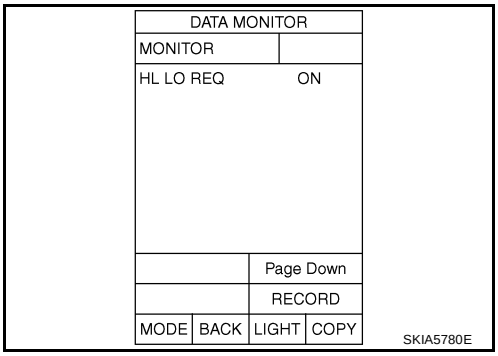
OK or NG

OK >> GO TO 7.
NG >>
- Replace lighting switch.
- If one of “HEAD LAMP SW 1” and “HEAD LAMP SW 2” is NG, replace both BCM (Refer to BCS-17, "Removal and Installation of BCM") and lighting switch.

7. 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-17, "Removal and Installation of BCM" .

Headlamp Low Beam Does Not Illuminate (One Side)

AKS009PF

1. CHECK BULB

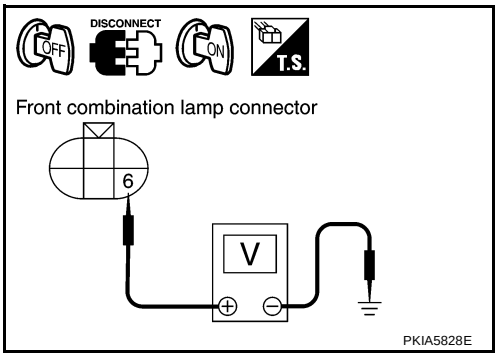
Check bulb of lamp which does not illuminate.

OK or NG

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

2. CHECK HEADLAMP INPUT SIGNAL

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



Terminals				Voltage
(+)			(-)	
Connector		Terminal (Wire color)		
RH	E25	6 (R)	Ground	Battery voltage
LH	E41	6 (R/B)		

OK or NG

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

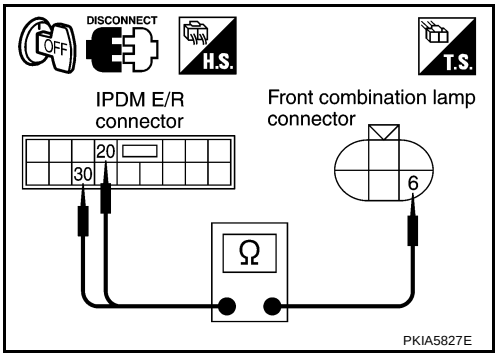
3. CHECK HEADLAMP CIRCUIT

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 E25 terminal 6 (R).

20 (R) – 6 (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 6 (R/B).

30 (R/B) – 6 (R/B) : Continuity should exist.



OK or NG

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

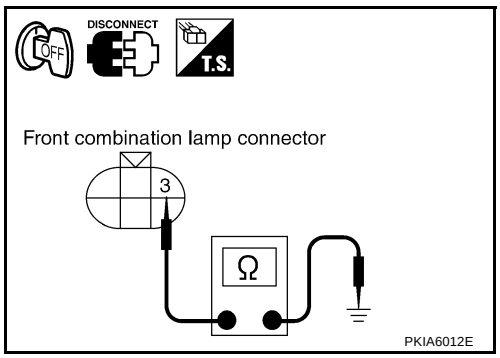
4. CHECK HEADLAMP GROUND

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

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

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

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



OK or NG

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

Headlamps Do Not Turn OFF

AKS00ABH

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.

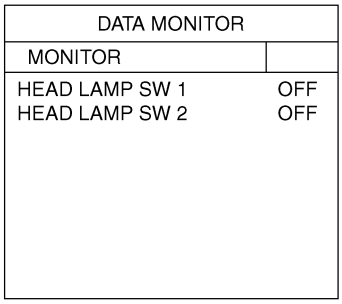
OK or NG

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

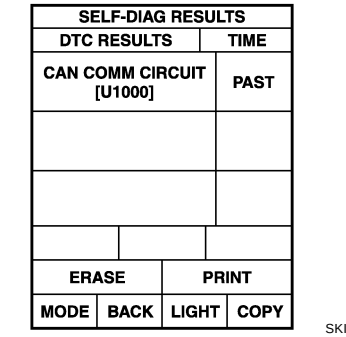
OK >> Replace IPDM E/R.
NG >> Check lighting switch. Refer to LT-162, "Combination Switch Inspection According to Self-Diagnostic Results" .

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

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

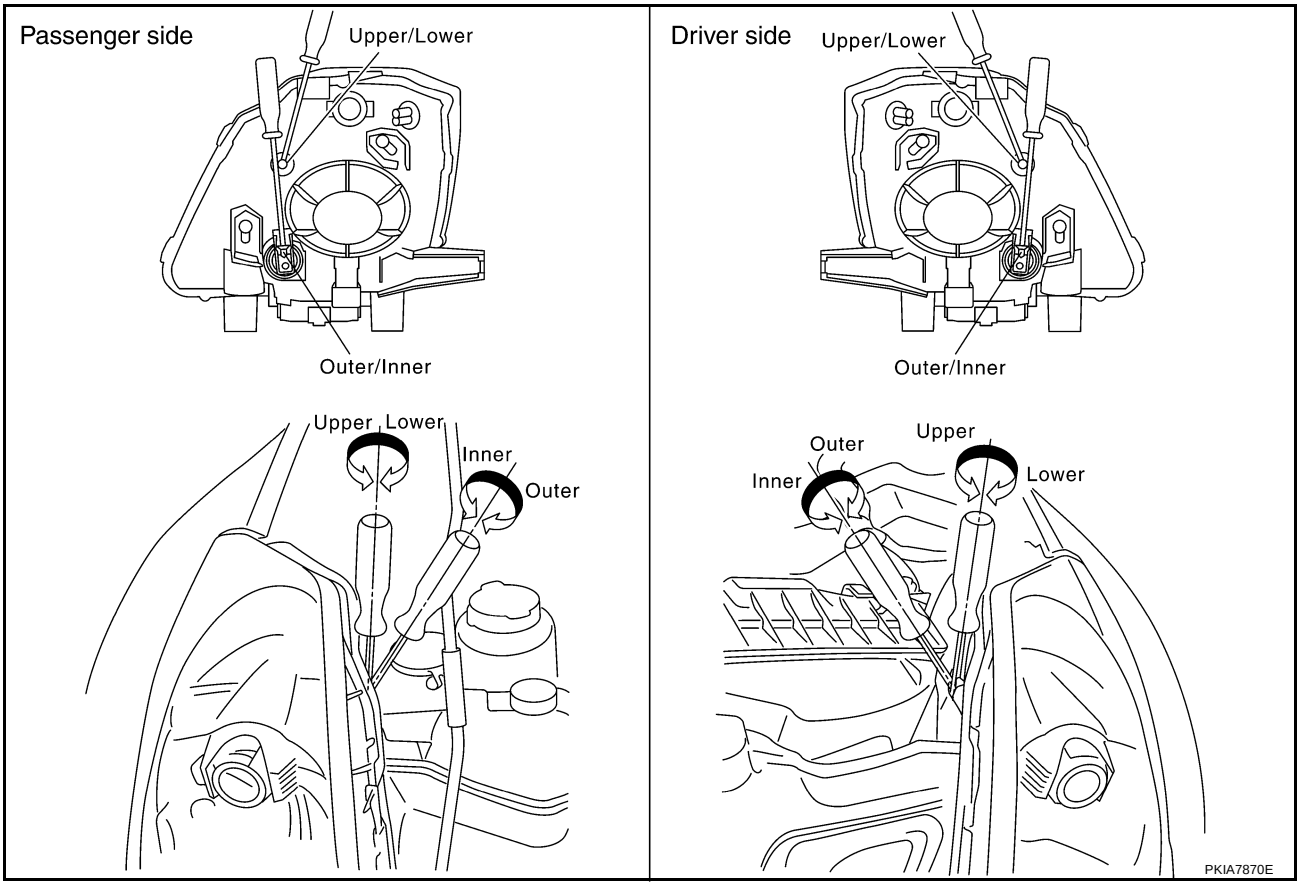
Display of self-diagnosis results

NO DTC>> Replace IPDM E/R.
CAN COMM CIRCUIT>> Refer to BCS-15, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .



Aiming Adjustment

AKS00ABI



PREPARATION BEFORE ADJUSTING

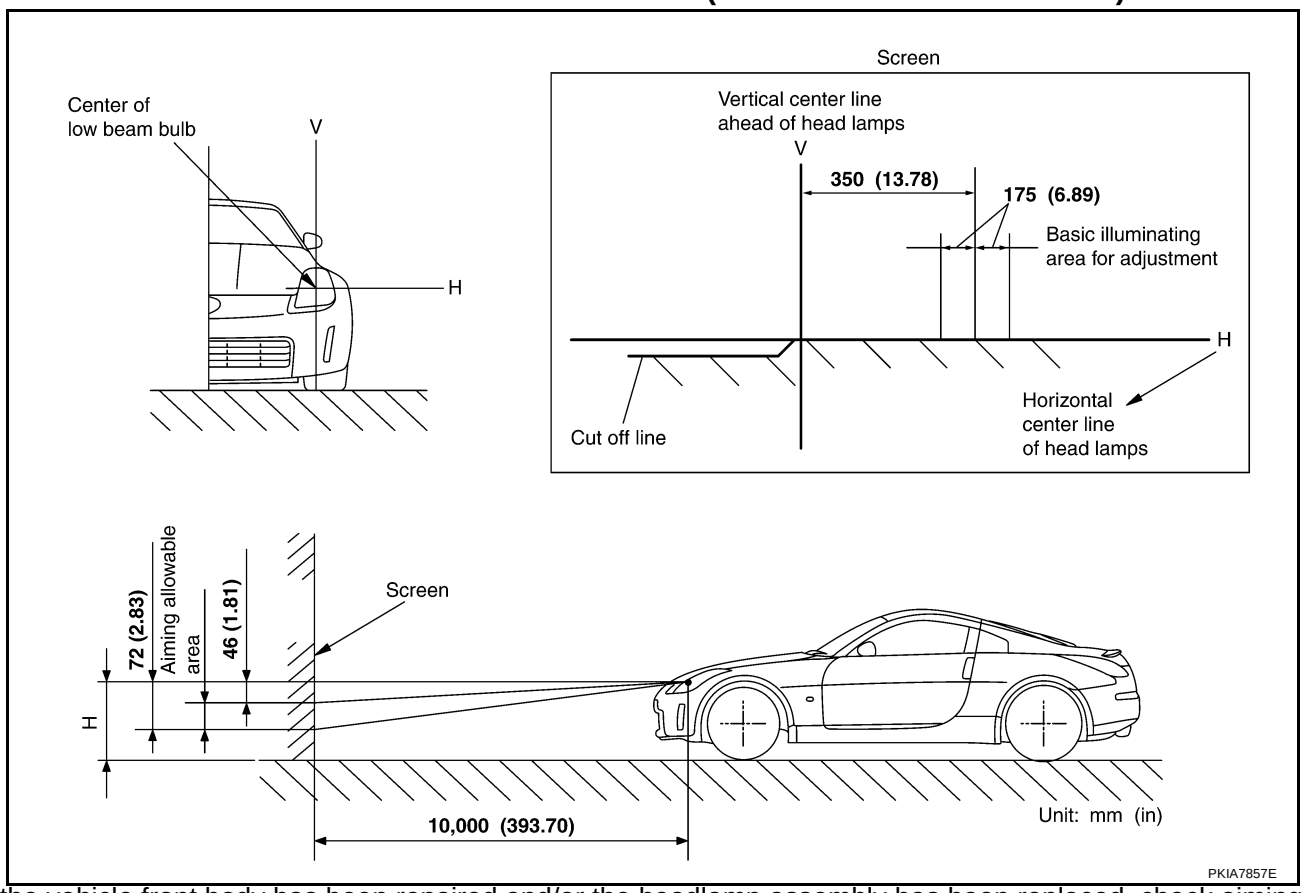
For details, refer to the regulations in your own country.
Before performing aiming adjustment, check the following.

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

LOW BEAM AND HIGH BEAM

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

ADJUSTMENT USING AN ADJUSTMENT SCREEN (LIGHT/DARK BORDERLINE)



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

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

Bulb Replacement

AKS00ABJ

HEADLAMP (UPPER) LOW BEAM

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

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

HEADLAMP (LOWER) HIGH BEAM

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

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

PARKING LAMPS (CLEARANCE LAMPS)

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.

Parking lamps (Clearance lamps) : 12V - 5W

FRONT TURN SIGNAL 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 lamp : 12V - 21W

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

FRONT SIDE MARKER LAMP

1. Turn lighting switch OFF.
2. Remove fender protector (front). Refer to EI-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 side marker lamp : 12V - 5W

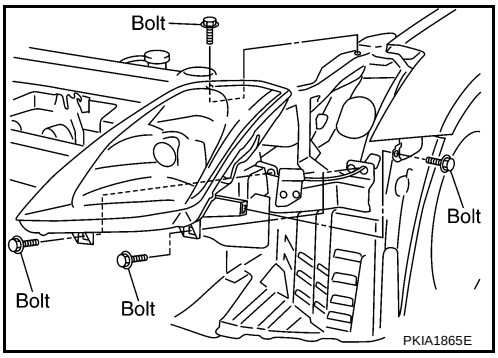
CAUTION:
After installing bulb, be sure to install plastic cap and socket securely to insure watertightness.

Removal and Installation

AKS00ABK

REMOVAL

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



INSTALLATION

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

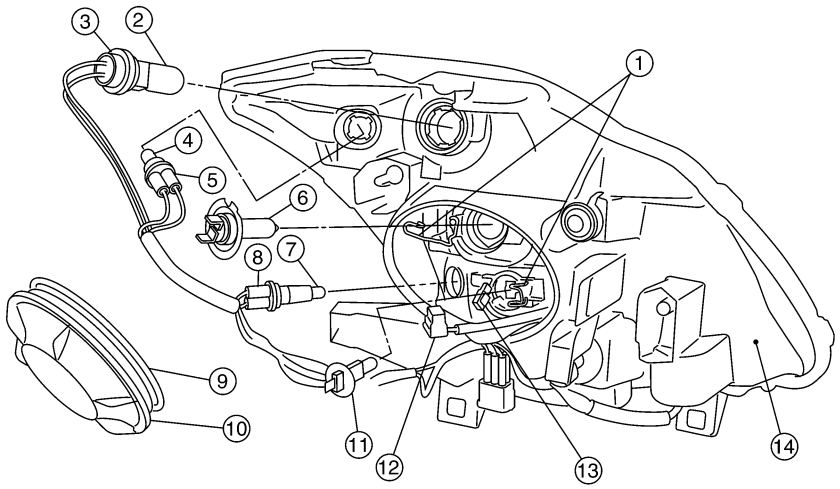
Headlamp mounting bolt : 6.1 N·m (0.62 kg-m, 54 in-lb)

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

Disassembly and Assembly

AKS00ABL

HLOGEN TYPE



1. Retaining spring	2. Front turn signal lamp bulb	3. Front turn signal lamp bulb socket
4. Side marker lamp bulb	5. Side marker lamp bulb socket	6. Halogen bulb (low)
7.	8. Clearance lamp bulb socket	9. Seal rubber
10. Plastic cap	11. Halogen bulb (high)	12. Halogen bulb socket (low)
13. Halogen bulb socket (high)	14. Headlamp housing assembly	

DISASSEMBLY

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

ASSEMBLY

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

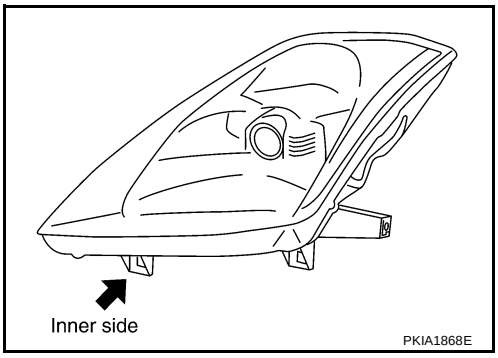
CAUTION:

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

Servicing to Replace Headlamps When Damaged

AKS00ABN

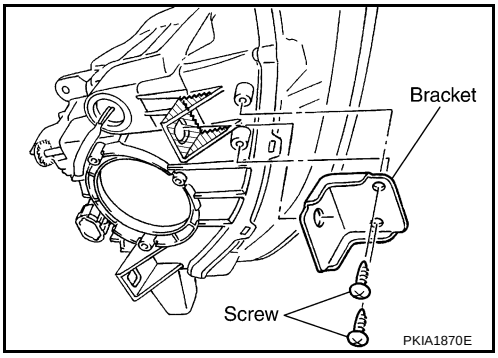
If only installation part as shown in the figure is damaged, and headlamp housing itself is not damaged, repair can be completed easily by installing correction brackets.



INSTALLATION OF HEADLAMP BRACKET

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

RH headlamp	**Inner side**	**26040 CD000**
LH headlamp	**Inner side**	**26090 CD000**

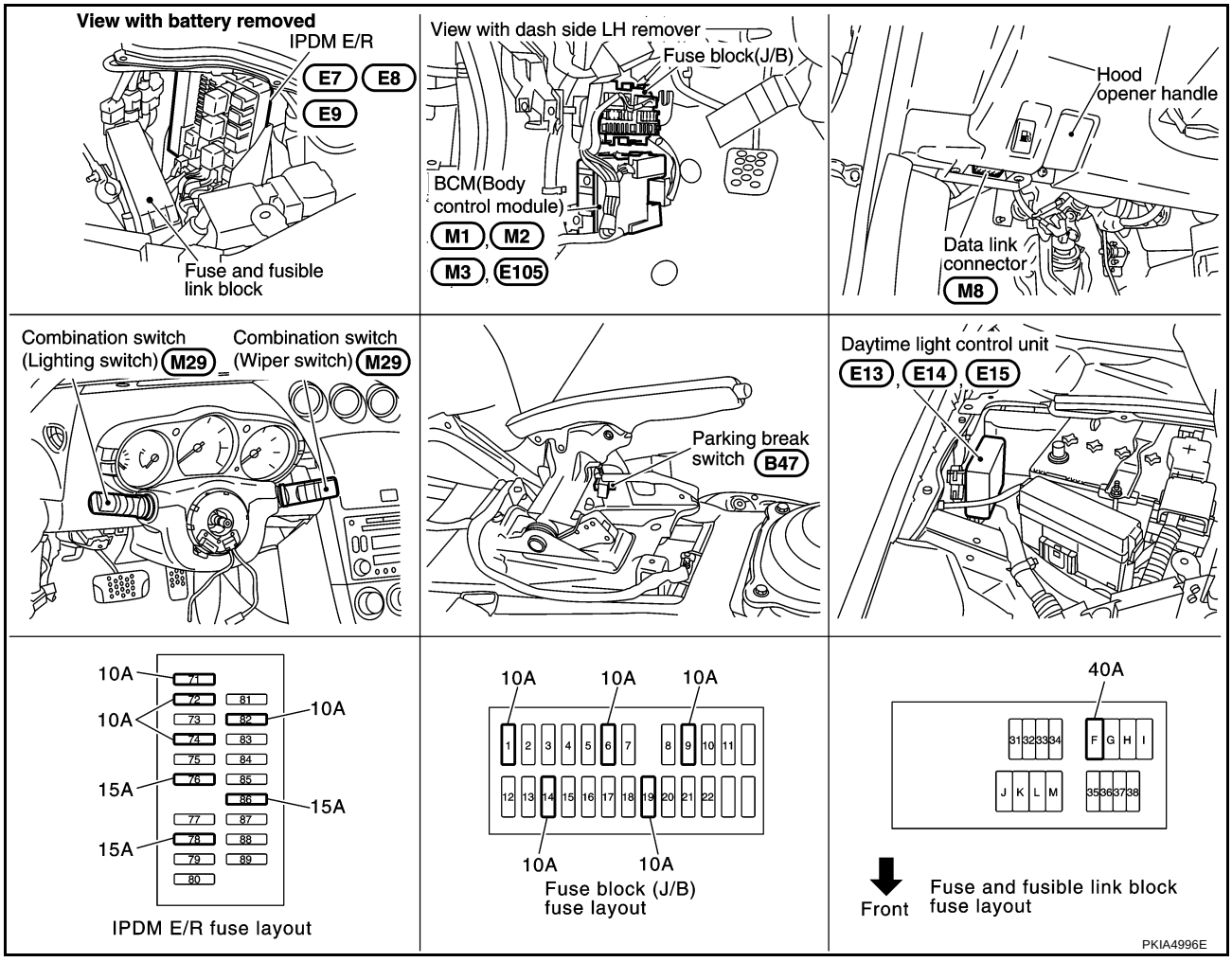


HEADLAMP (FOR CANADA) - XENON TYPE -

PFP:26010

Component Parts and Harness Connector Location

AKS009N4



System Description

AKS009N5

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

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

Power is supplied at all times

- to headlamp high and low relays located in IPDM E/R (intelligent power distribution module engine room).

Power is also supplied at all times

- to headlamp high relay [located in IPDM E/R (intelligent power distribution module engine room)]
- to headlamp low relay [located in IPDM E/R (intelligent power distribution module engine room)]
- to BCM (body control module) terminal 7
- through 40A fusible link [letter F, located in fuse and fusible link block]
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- through 15A fuse [No. 78, located in IPDM E/R (intelligent power distribution module engine room)]
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- through 10A fuse [No. 71, located in IPDM E/R (intelligent power distribution module engine room)]
- to combination meter terminal 24
- through 10A fuse [No. 19, located in fuse block (J/B)].

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

- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- to daytime light control unit terminal 3
- through 10A fuse [No. 82, located in IPDM E/R (intelligent power distribution module engine room)]
- to BCM (body control module) terminal 35
- through 10A fuse [No. 1, located in fuse block (J/B)]
- to combination meter terminal 23
- 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 36
- 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 2
- through 10A fuse [No. 9, located in fuse block (J/B)].

Ground is supplied

- to daytime light control unit terminal 16
- through grounds E17, E43 and F152
- to BCM (body control module) terminal 8
- through grounds E17, E43 and F152
- to IPDM E/R (intelligent power distribution module engine room) terminals 38 and 60
- through grounds E17, E43 and F152
- to combination meter terminals 10, 11 and 12
- through grounds M30 and M66.

HEADLAMP OPERATION

Low Beam Operation

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

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

Ground is supplied at all times

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

With power and ground supplied, low beam headlamps illuminate.

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

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

- to front combination lamp LH terminal 3
- through daytime light control unit terminals 7 and 4
- to IPDM E/R terminal 28
- through 10A fuse (No. 74, located in IPDM E/R), and
- to front combination lamp RH terminal 3

- through daytime light control unit terminals 6 and 5
- to IPDM E/R terminal 27
- through 10A fuse (No. 72, located in IPDM E/R).

Ground is supplied

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

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

COMBINATION SWITCH READING FUNCTION

Refer to LT-158, "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.

DAYTIME LIGHT OPERATION

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

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

Ground is supplied

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

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 30
- to daytime light control unit terminal 2.

Daytime light control unit is canceled power suppling from terminal 7 to terminal 8 of front combination lamp RH (series power suppling is canceled). And then low 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	Hi	Lo	P	Hi	Lo	P	Hi	Lo	P	Hi	Lo	P	Hi	Lo	P
Head-lamp	High beam	–	–	–	–	–	×	×	–	×	●*	●*	×	●*	●*	×	×	–	×
	Low beam	–	–	–	–	–	×	×	×	×	–	–	×	–	–	×	×	×	×
Tail lamp		–	–	–	×	×	×	×	×	×	–	–	–	×	×	×	×	×	×
License and instrument illumination lamp		–	–	–	×	×	×	×	×	×	–	–	–	×	×	×	×	×	×

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

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

AKS009N6

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.

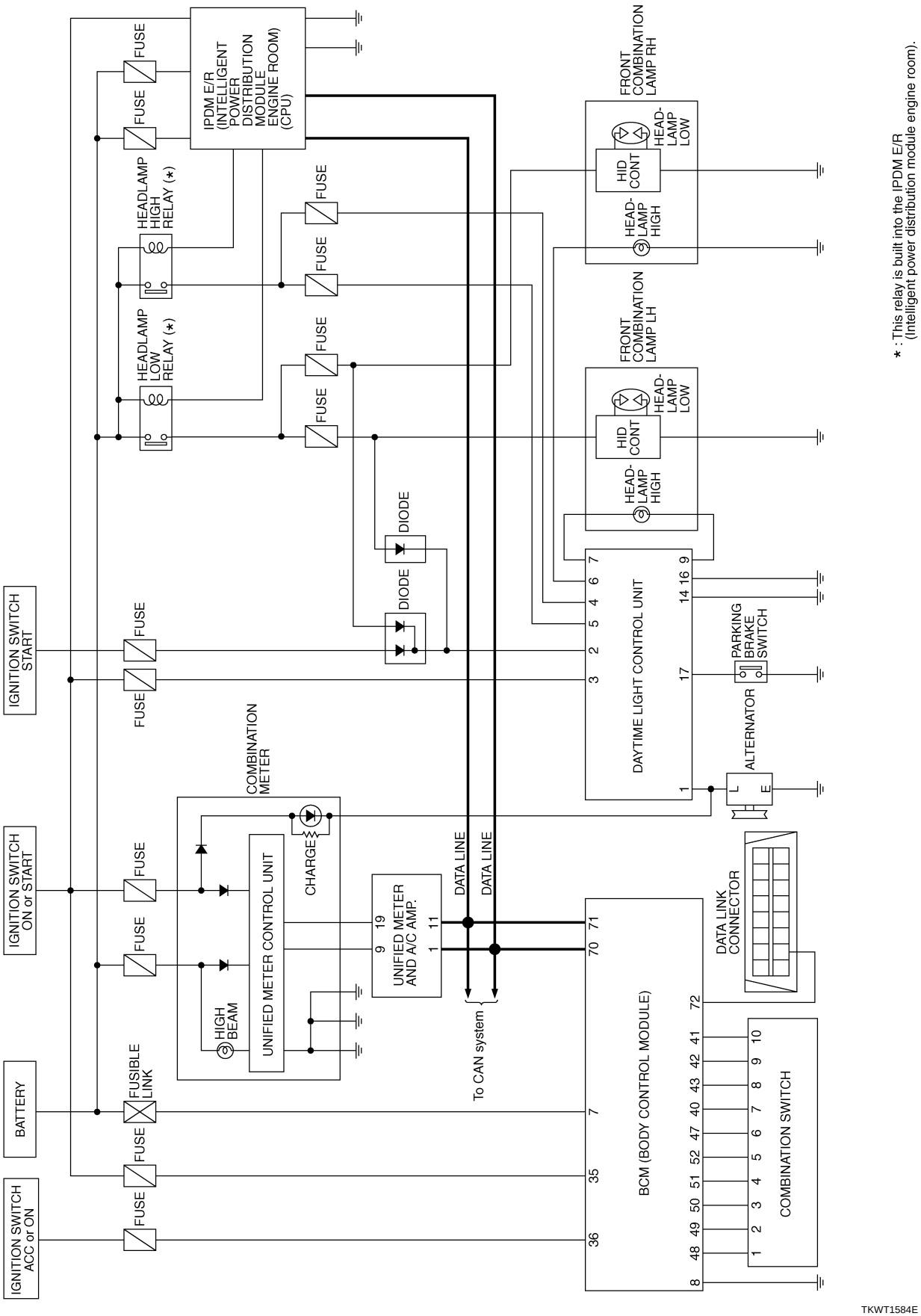
CAN Communication Unit

AKS009N7

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

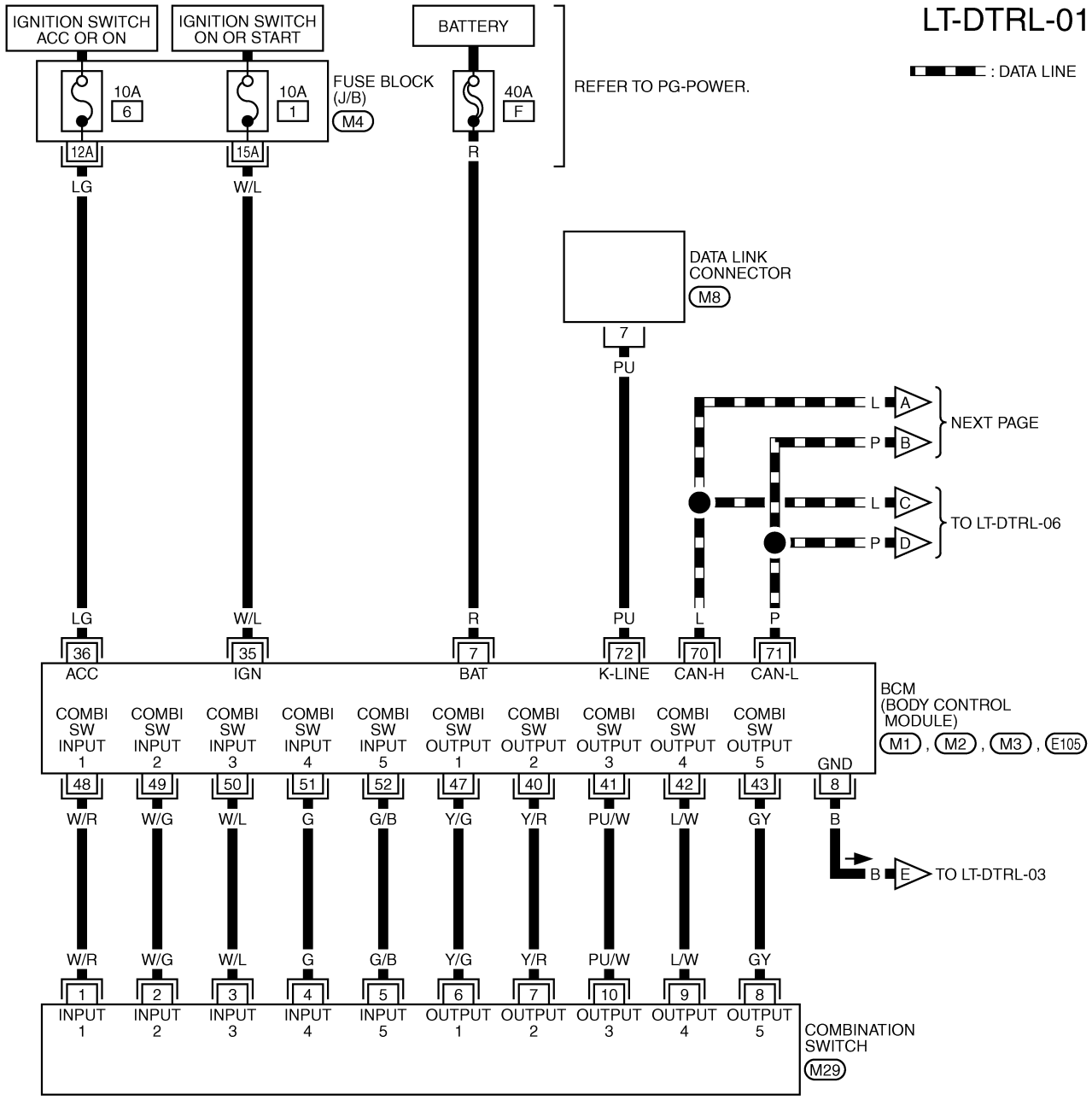
Schematic

AKS009N8

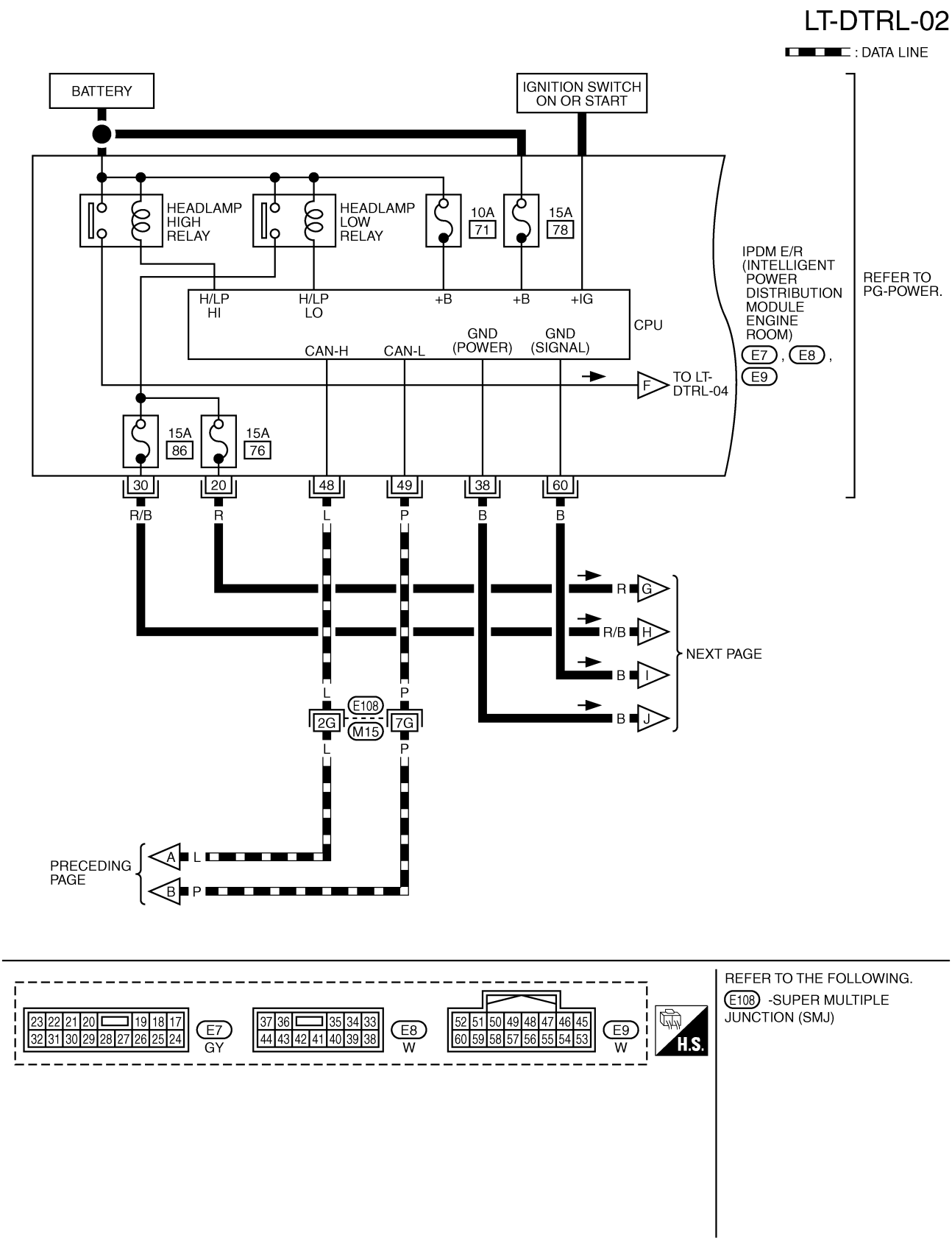


Wiring Diagram — DTRL —

AKS009N9

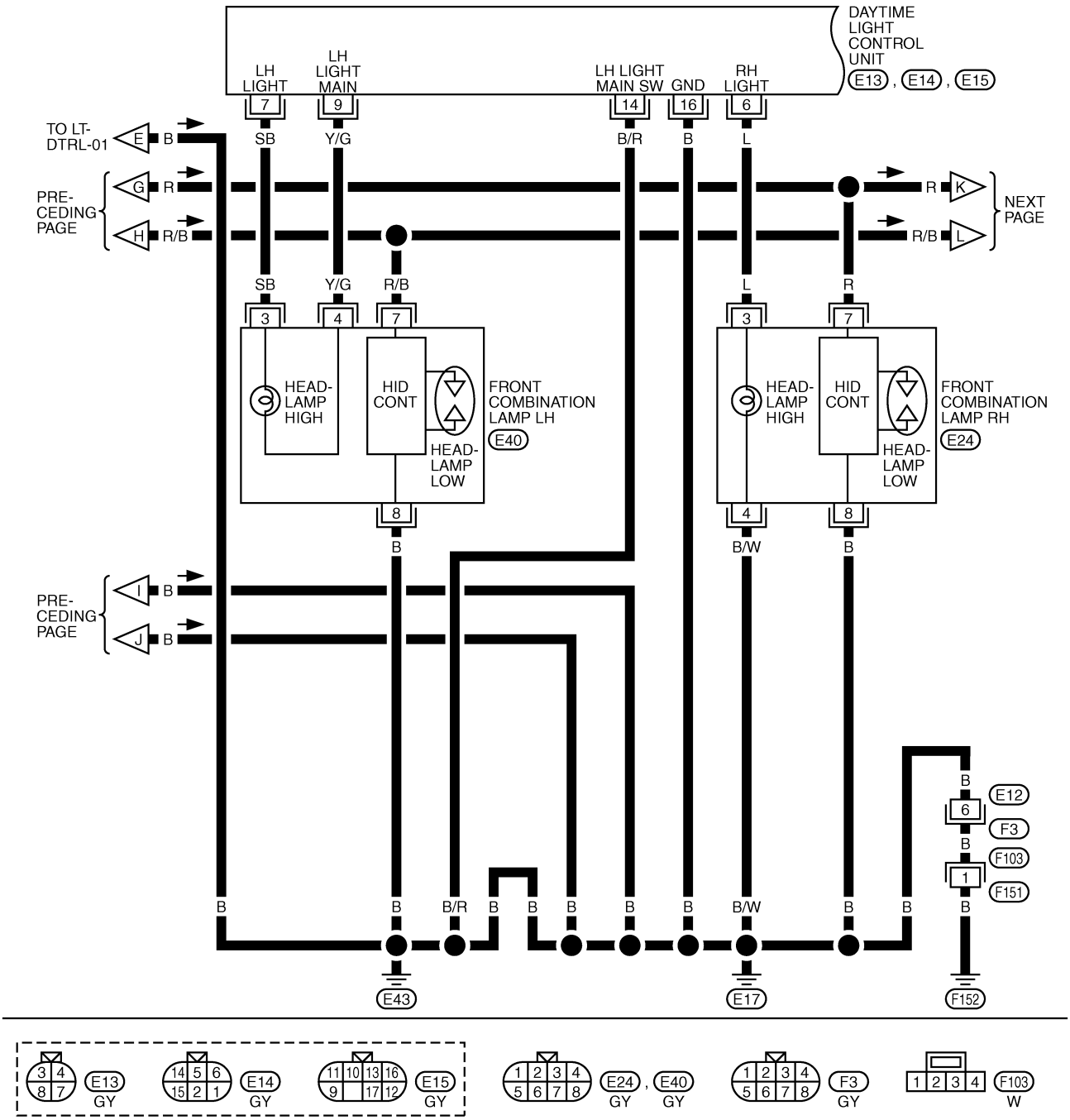


TKWT1585E


LT-DTRL-02
: DATA LINE
BATTERY
IGNITION SWITCH ON OR START
HEADLAMP HIGH RELAY
HEADLAMP LOW RELAY
10A 71
15A 78
H/LP HI
H/LP LO
+B
+B
+IG
CPU
GND (POWER)
GND (SIGNAL)
CAN-H
CAN-L
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E7 , E8 , E9
REFER TO PG-POWER.
TO LT-DTRL-04
F
15A 86
15A 76
30
20
48
49
38
60
R/B
R
L
P
B
B
R G
R/B H
B I
B J
NEXT PAGE
E108
2G
M15
7G
PRECEDING PAGE
A L
B P
23 22 21 20 19 18 17
32 31 30 29 28 27 26 25 24
E7
GY
37 36 35 34 33
44 43 42 41 40 39 38
E8
W
52 51 50 49 48 47 46 45
60 59 58 57 56 55 54 53
E9
W
H.S.
REFER TO THE FOLLOWING.
E108 -SUPER MULTIPLE JUNCTION (SMJ)

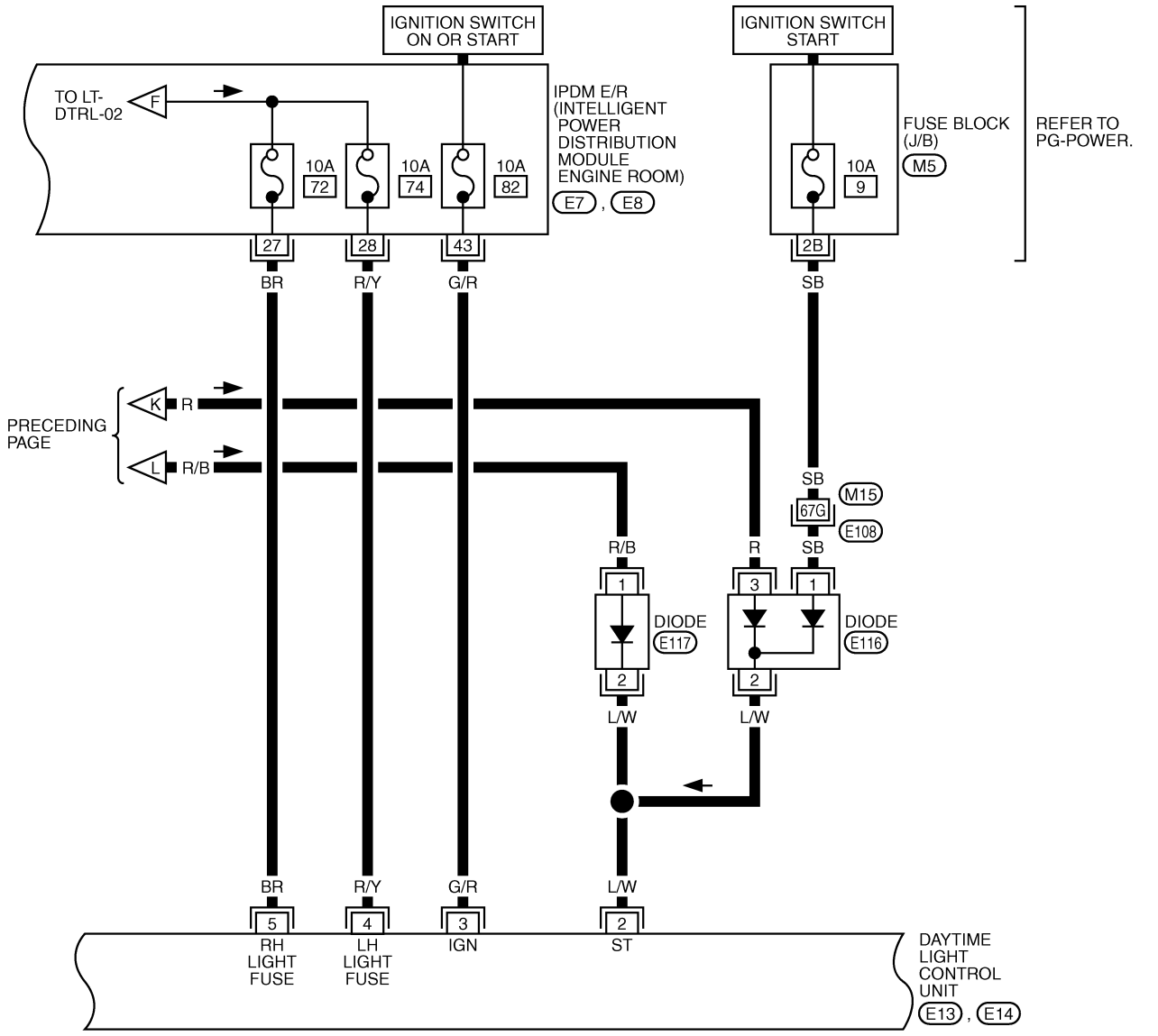
TKWT1586E

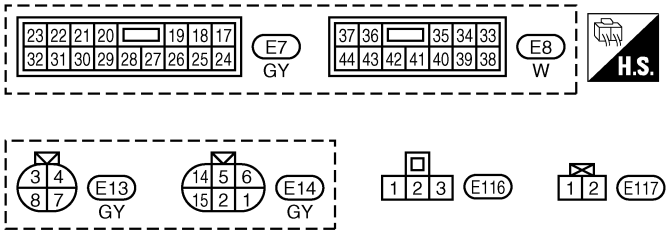
LT-DTRL-03



TKWT1587E

LT-DTRL-04





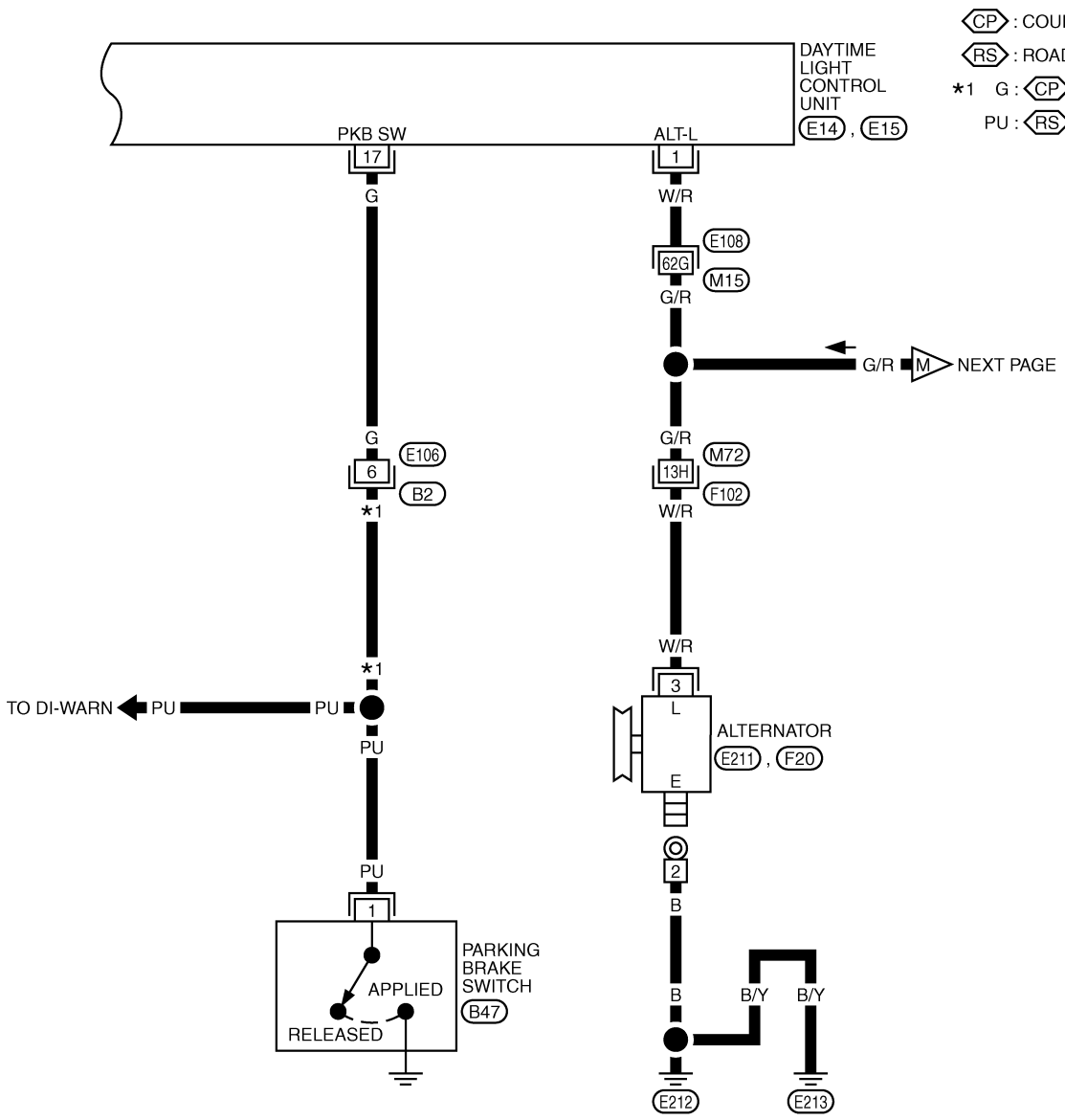
REFER TO THE FOLLOWING.

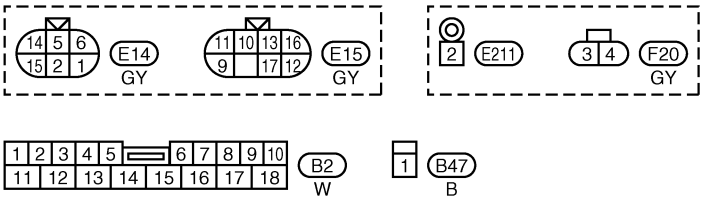
E108 -SUPER MULTIPLE JUNCTION (SMJ)

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

TKWT1588E

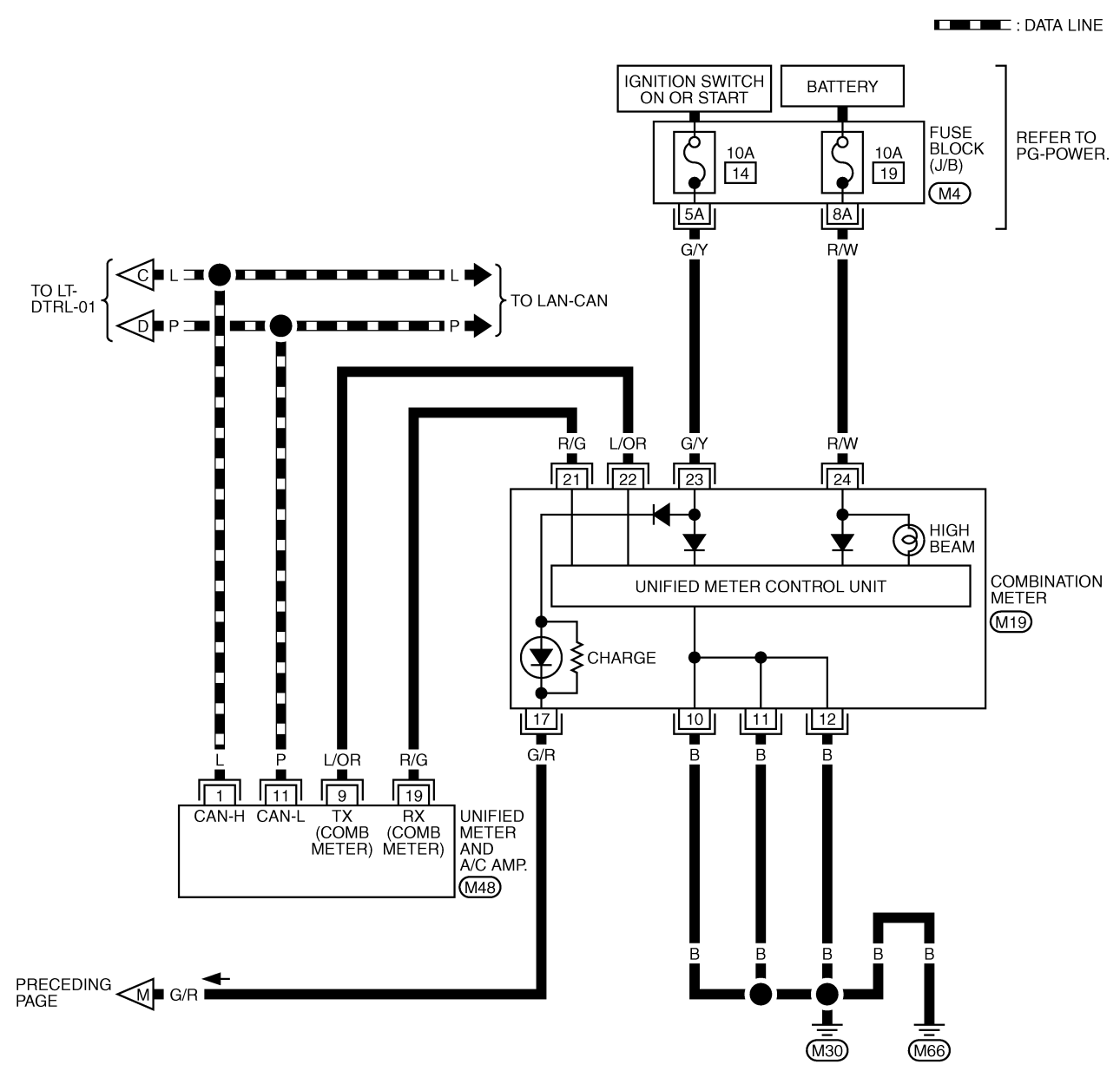
LT-DTRL-05

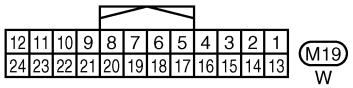


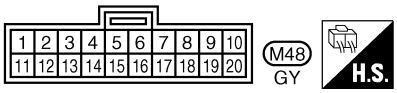


REFER TO THE FOLLOWING.
E108 , F102 -SUPER MULTIPLE JUNCTION (SMJ)

TKWT1589E







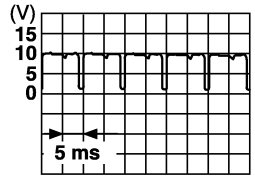
REFER TO THE FOLLOWING.

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

TKWT1730E

Terminals and Reference Values for BCM

AKS009QQ

Terminal No.	Wire color	Item	Measuring condition		Reference value
			Ignition switch	Operation or condition	
7	R	Battery power supply	OFF	—	Battery voltage
8	B	Ground	ON	—	Approx. 0
35	W/L	Ignition switch (ON)	ON	—	Battery voltage
36	LG	Ignition switch (ACC)	ACC	—	Battery voltage
40	Y/R	Combination switch output 2	ON	Lighting, turn, wiper OFF	 SKIA1119J
41	PU/W	Combination switch output 3			
42	L/W	Combination switch output 4			
43	GY	Combination switch output 5			
47	Y/G	Combination switch output 1			
48	W/R	Combination switch input 1	ON	Lighting, turn, wiper OFF	4.5V or more
49	W/G	Combination switch input 2			
50	W/L	Combination switch input 3			
51	G	Combination switch input 4			
52	G/B	Combination switch input 5			
70	L	CAN– H	—	—	—
71	P	CAN– L	—	—	—
72	PU	K–LINE	—	—	—

Terminals and Reference Values for IPDM E/R

AKS009QR

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
43	G/R	Ignition switch (ON)	ON	—		Battery voltage
48	L	CAN– H	—	—		—
49	P	CAN– L	—	—		—
60	B	Ground	ON	—		Approx. 0V

Terminals and Reference Value for Daytime Light Control Unit

AKS009NA

Terminal No.	Wire color	Item	Condition	Reference value
1	W/R	Alternator	When turning ignition switch to “ON”	Less than 1V
			When engine is running	Battery voltage
			When turning ignition switch to “OFF”	Less than 1V
2	L/W	Start signal	When turning ignition switch to “START”	Battery voltage
			When turning ignition switch to “ON” from “START”	Less than 1V
			When turning ignition switch to “OFF”	Less than 1V
3	G/R	Ignition power supply	When turning ignition switch to “ON”	Battery voltage
4	R/Y	Lighting switch (LH hi beam)	When turning lighting switch to “HI BEAM”	Battery voltage
5	BR	Lighting switch (RH hi beam)	When turning lighting switch to “HI BEAM”	Battery voltage
6	L	RH hi beam	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	SB	LH hi beam	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	Y/G	LH hi beam (ground)	When turning lighting switch to the 2ND position with “HI BEAM” or “FLASH TO PASS” position	Less than 1V
			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.**	Less than 1V
14	B/R	Ground	—	—
16	B	Ground	—	—
17	G	Parking brake switch	When parking brake is released	Battery voltage
			When parking brake is allied	Less than 1.7V

How to Proceed With Trouble Diagnosis

AKS009NB

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-66, "System Description" .
3. Perform the preliminary check. Refer to LT-79, "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

AKS009NC

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

Check for blown fuses.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	71
		72
		74
		76
		78
		86
DAYTIME LIGHT CONTROL UNIT	Ignition switch START position	9
	Ignition switch ON or START position	82

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

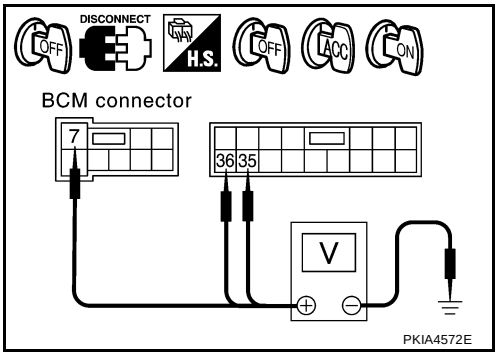
OK or NG

OK >> GO TO 2.

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

2. CHECK POWER SUPPLY CIRCUIT

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



Terminals			Ignition switch position		
(+)		(-)	OFF	ACC	ON
Connector	Terminal (Wire color)				
E105	7 (R)	Ground	Battery voltage	Battery voltage	Battery voltage
M1	35 (W/L)		0V	0V	Battery voltage
M1	36 (LG)		0V	Battery voltage	Battery voltage

OK or NG

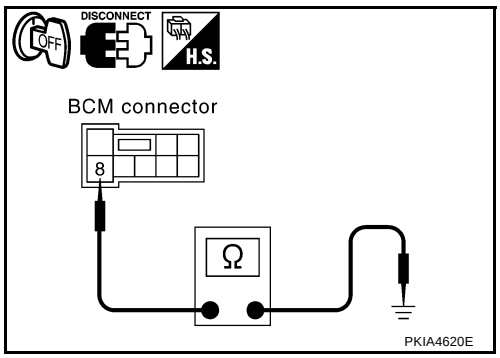
OK >> GO TO 3.

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

3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminals			Continuity
Connector	Terminal (wire color)	Ground	Yes
E105	8 (B)		



OK or NG

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

CONSULT-II Functions (BCM)

AKS009ND

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

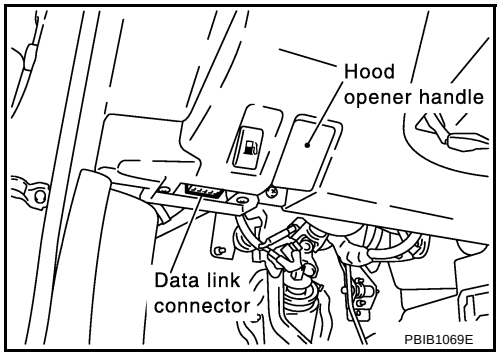
BCM diagnosis part	Check item, diagnosis mode	Description
HEADLAMP	WORK SUPPORT	Changes the setting for each function.
	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.
BCM C/U	CAN DIAG SUPPORT MNTR	The result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

CONSULT-II BASIC OPERATION

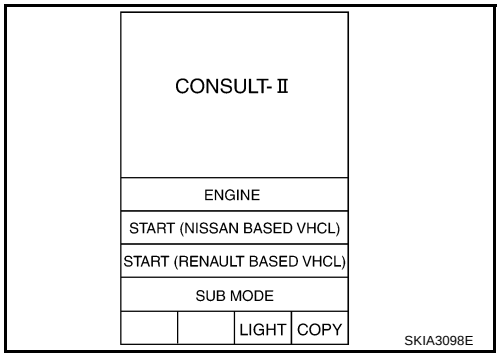
CAUTION:

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

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

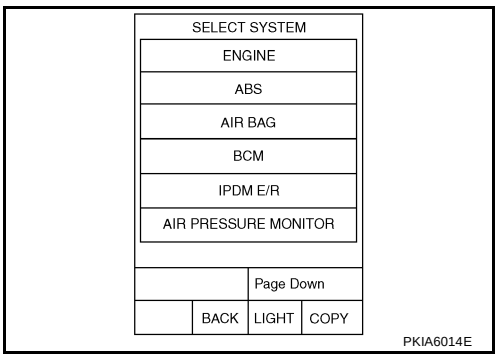


2. Touch “START(NISSAN BASED VHCL)”.

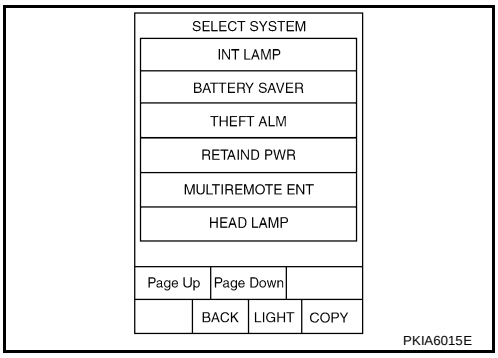


3. Touch “BCM” on “SELECT SYSTEM” screen.

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



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



WORK SUPPORT

Operation Procedure

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

Display Item List

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

DATA MONITOR

Operation Procedure

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

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

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

Display Item List

Monitor item		Contents
IGN ON SW	“ON/OFF”	Displays “IGN position (ON)/OFF, ACC position (OFF)” judged from the ignition switch signal.
ACC ON SW	“ON/OFF”	Displays “ACC (ON)/OFF, Ignition OFF (OFF)” status judged from ignition switch signal.
AUTO LIGHT SW[NOTE]	“OFF”	—
LIGH SW 1 ST	“ON/OFF”	Displays status (lighting switch 1st position: ON/Others: OFF) of lighting switch judged from lighting switch signal.
HEAD LAMP SW1	“ON/OFF”	Displays status (headlamp switch1: ON/Others: OFF) of headlamp switch1 judged 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.
PASSING SW	“ON/OFF”	Displays status (flash-to-pass switch: ON/Others: OFF) of flash-to-pass switch judged from lighting switch signal.
FR FOG SW[NOTE]	“OFF”	—
DOOR SW - DR	“ON/OFF”	Displays status of the driver door as judged from the driver door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - AS	“ON/OFF”	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”	—
HEAD LAMP SW 2	“ON/OFF”	Displays status (headlamp switch 2: ON/Others: OFF) of headlamp switch 2 judged from lighting switch signal.
OPTICAL SENSOR[NOTE]	[0V]	Display always indicates “0.00V”
PKB SW[NOTE]	“ON/OFF”	Displays status (Parking brake switch: ON/Others: OFF) as judged from parking brake switch signal.
ENGINE STATUS[NOTE]	“ON/OFF”	—
BACK DOOR SW	“ON/OFF”	Displays status of the back door as judged from the back door switch signal. (Door is open: ON/Door is closed: OFF)

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[NOTE]	—
ILL DIM SIGNAL (CAN)[NOTE]	—

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

CONSULT-II Functions (IPDM E/R)

AKS00ABO

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

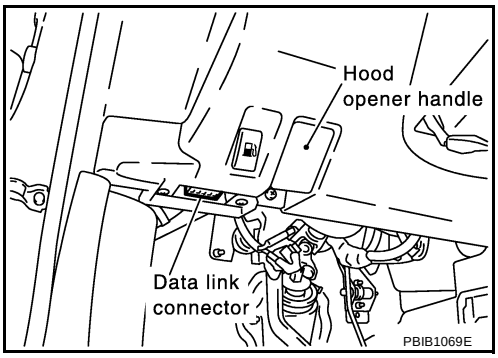
Inspection Item, Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	The IPDM E/R performs self-diagnosis of CAN communication.
DATA MONITOR	The input/output data of the IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.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

CONSULT-II BASIC OPERATION

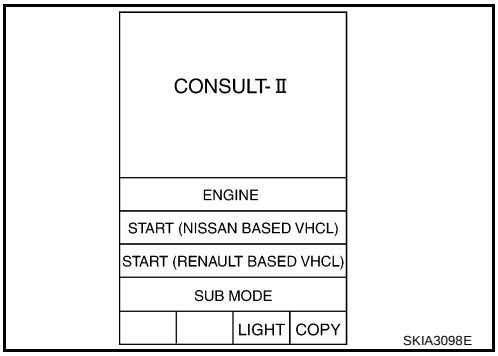
CAUTION:

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

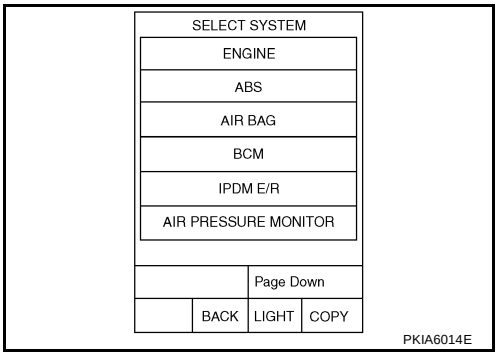
1. With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



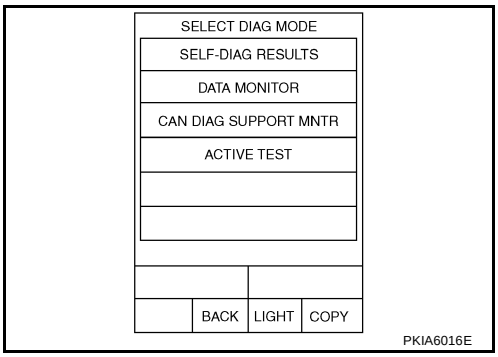
2. Touch “START (NISSAN BASED VHCL)”.



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



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



DATA MONITOR

Operation Procedure

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

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

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

All Signals, Main Signals, Selection From Menu

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

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.
Tail lamp relay output	TAIL LAMP	Allows tail lamp relay to operate by switching operation ON-OFF at your option

SELF-DIAGNOSTIC RESULTS

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

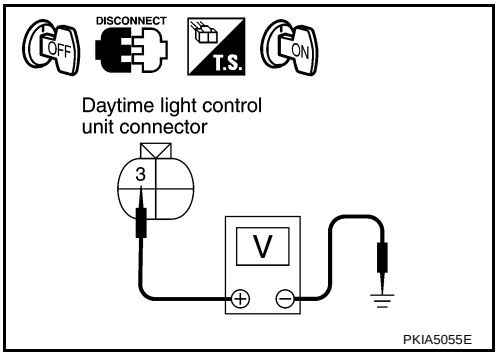
Daytime Light Control Does Not Operate Properly

AKS009NE

1. CHECK DAYTIME LIGHT CONTROL UNIT

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

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



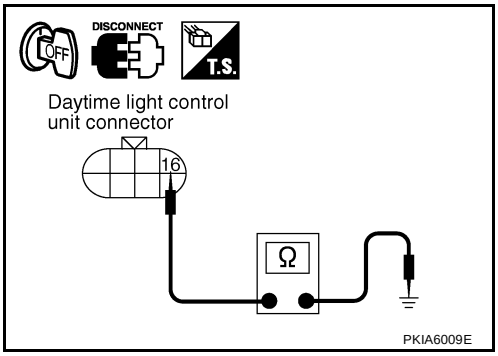
OK or NG

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 E15 terminal 16 (B) and ground.

16 (B) – Ground : Continuity should exist.



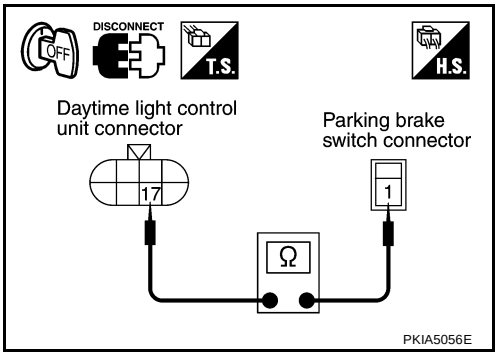
OK or NG

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

3. CHECK PARKING BRAKE SWITCH CIRCUIT

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

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



OK or NG

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

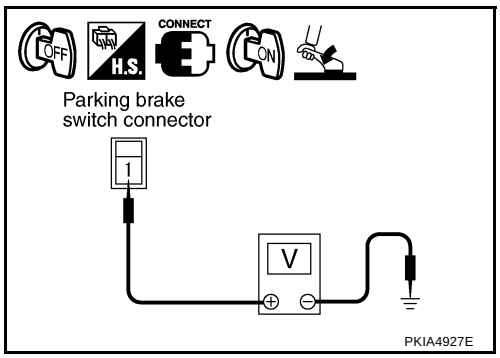
4. CHECK PARKING BRAKE SWITCH

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

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

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

1 (PU) – Ground : Approx. 0V



OK or NG

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

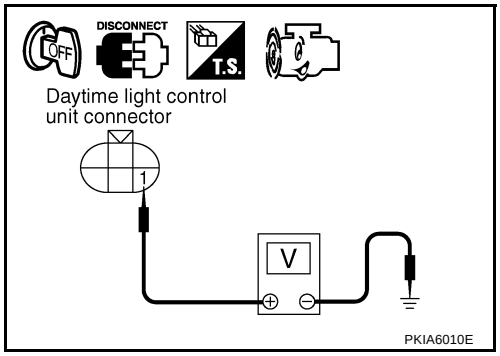
5. CHECK ALTERNATOR CIRCUIT

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

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

OK or NG

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



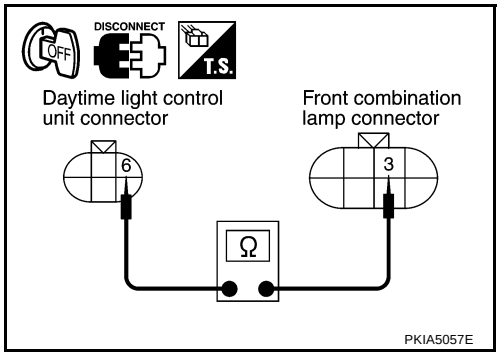
6. CHECK DAYTIME LIGHT CONTROL UNIT CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect daytime light control unit connector and front combination lamp RH connector.
3. Check harness continuity between daytime light control unit harness connector E14 terminal 6 (L) and front combination lamp RH harness connector E24 terminal 3 (L).

6 (L) – 3 (L) : Continuity should exist.

OK or NG

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



Headlamp High Beam Does Not Illuminate (Both Sides)

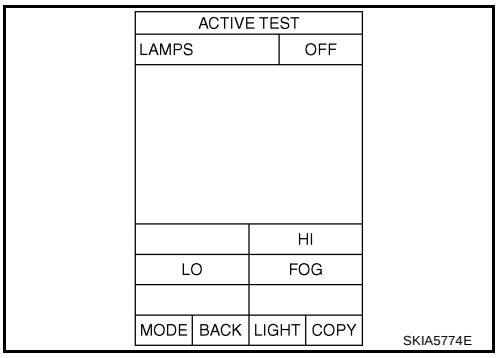
AKS009NF

1. 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

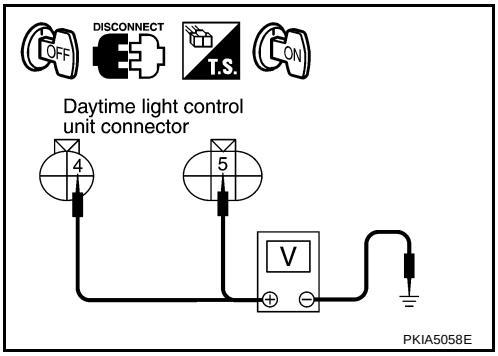
OK >> GO TO 4.
NG >> GO TO 2.

2. CHECK DAYTIME LIGHT CONTROL UNIT INPUT

With CONSULT-II

1. Disconnect daytime light control unit connector.
2. Select “IPDM E/R” on CONSULT-II and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
3. Touch “HI” screen.
4. When headlamp high beam is operating, check voltage between daytime light control unit connector E13 terminal 4 (R/Y), E14 terminal 5 (BR) and ground.

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



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 daytime light control unit connector E13 terminal 4 (R/Y), E14 terminal 5 (BR) and ground.

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

OK or NG

OK >> Replace daytime light control unit.
NG >> GO TO 3.

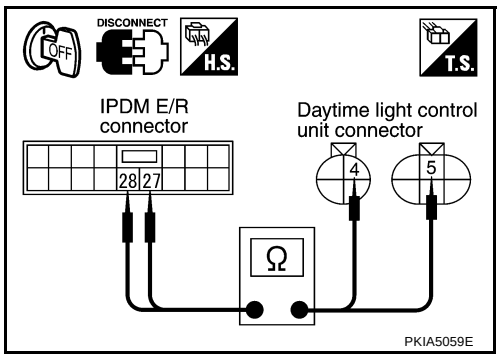
3. CHECK IPDM E/R CIRCUIT

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

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

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

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



OK or NG

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

4. CHECK COMBINATION SWITCH CIRCUIT

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

Displayed results of self-diagnosis

No malfunction detected>> GO TO 5.
CAN communications or CAN system>> Inspect the BCM CAN communications system. Refer to BCS-15, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .
OPEN DETECT 1 - 5>> Combination switch system malfunction. Refer to LT-162, "Combination Switch Inspection According to Self-Diagnostic Results" .

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

LKIA0073E

5. CHECK COMBINATION SWITCH INPUT SIGNAL

Select “BCM” on CONSULT-II. With “HEADLAMP” data monitor, check that “HI BEAM SW” turns ON-OFF linked with operation of lighting switch.

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

DATA MONITOR	
MONITOR	
HI BEAM SW	ON

SKIA4193E

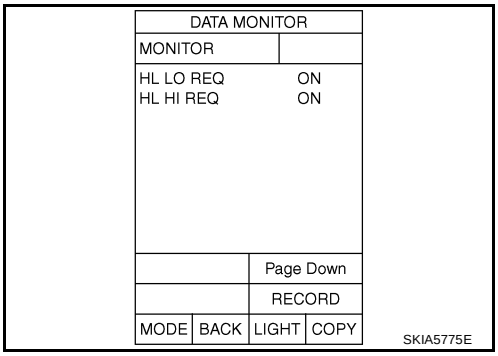
OK or NG

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

6. 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 BEAM position.

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



OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-17, "Removal and Installation of BCM" .

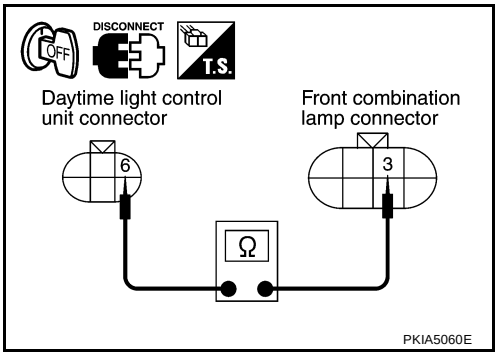
RH High Beam Does Not Illuminate But RH Low Beam Illuminates

AKS009NG

1. CHECK DAYTIME LIGHT CONTROL CIRCUIT

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

6 (L) – 3 (L) : Continuity should exist.



OK or NG

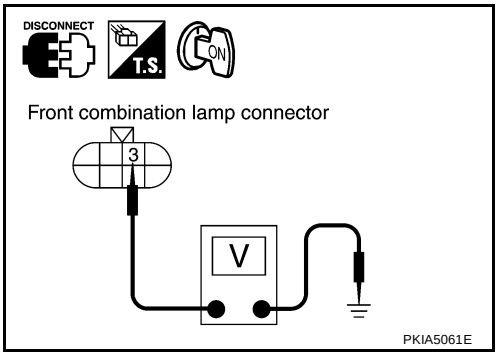
OK >> GO TO 2.
NG >> Repair harness or connector.

2. CHECK HEADLAMP INPUT SIGNAL

With CONSULT-II

1. Connect daytime light control unit connector.
2. Select “IPDM E/R” on CONSULT-II and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
3. Touch “HI” screen.
4. When headlamp high beam is operating, check voltage between front combination lamp RH harness connector E24 terminal 3 (L) and ground.

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



Without CONSULT-II

- Start auto active test. Refer to PG-23, "Auto Active Test" .
- When headlamp high beam is operating, check voltage between front combination lamp RH harness connector E24 terminal 3 (L) and ground.

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

OK or NG

OK >> GO TO 3.
NG >> Replace daytime light control unit.

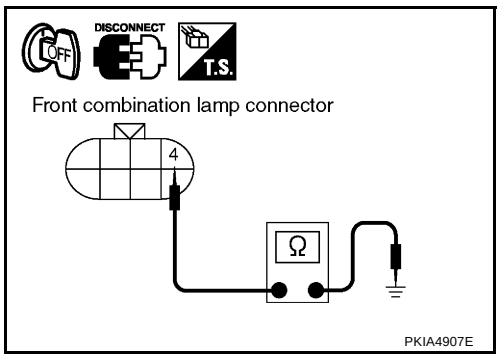
3. CHECK HEADLAMP GROUND

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

4 (B) – Ground : Continuity should exist.

OK or NG

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



LH High Beam Does Not Illuminate But LH Low Beam Illuminate

AKS009NH

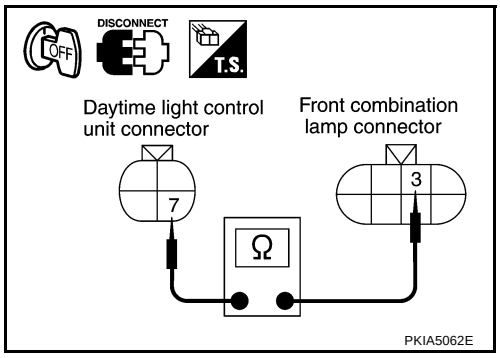
1. CHECK DAYTIME LIGHT CONTROL CIRCUIT

1. Disconnect daytime light control unit connector and front combination lamp LH connector.
2. Check continuity between daytime light control harness connector E13 terminal 7 (SB) and front combination lamp LH harness connector E40 terminal 3 (SB).

7 (SB) – 3 (SB) : Continuity should exist.

OK or NG

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



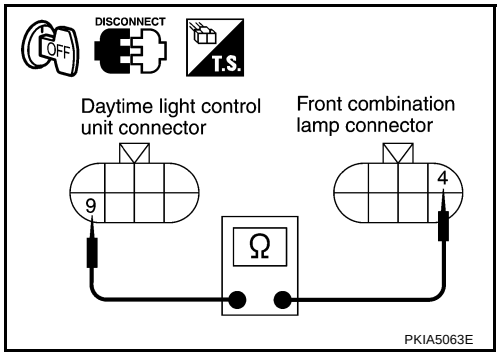
2. CHECK DAYTIME LIGHT CONTROL CIRCUIT

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

9 (Y/G) – 4 (Y/G) : Continuity should exist.

OK or NG

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

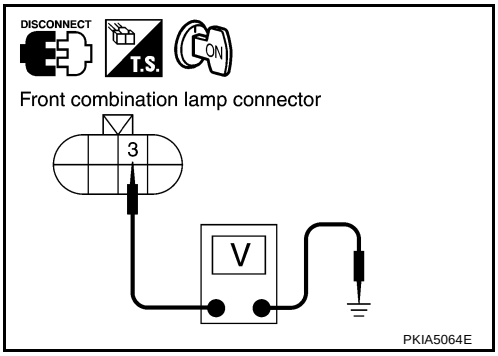


3. CHECK HEADLAMP INPUT SIGNAL

With CONSULT-II

1. Connect daytime light control unit connector.
2. Select “IPDM E/R” on CONSULT-II and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
3. Touch “HI” screen.
4. When headlamp high beam is operating, check voltage between front combination lamp LH harness connector E40 terminal 3 (SB) and ground.

3 (SB) – Ground : Battery voltage should exist.



Without CONSULT-II

- Start auto active test. Refer to PG-23, "Auto Active Test" .
- When headlamp high beam is operating, check voltage between front combination lamp LH harness connector E40 terminal 3 (SB) and ground.

3 (SB) – Ground : Battery voltage should exist.

OK or NG

OK >> Check headlamp harness and connector and headlamp bulbs.
NG >> Replace daytime light control unit.

Headlamp Low Beam Does Not Illuminate (Both Sides)

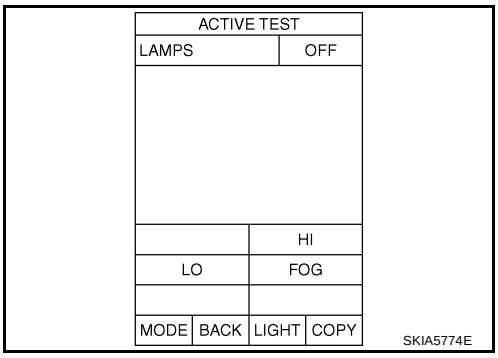
AKS00ABP

1. 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.

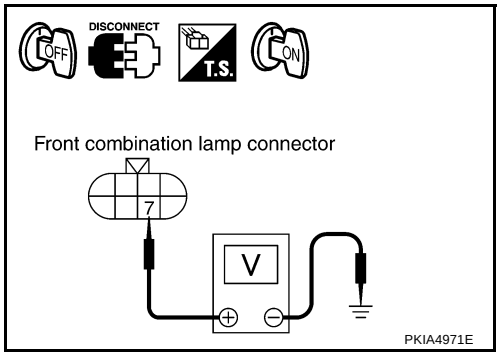
OK or NG

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

2. 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	7 (R)	Ground	Battery voltage
LH	E40	7 (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	7 (R)	Ground	Battery voltage
LH	E40	7 (R/B)		

OK or NG

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

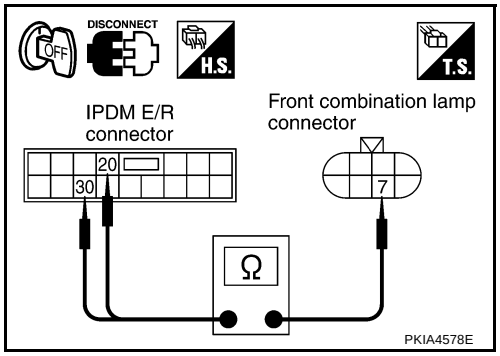
3. CHECK HEADLAMP CIRCUIT

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

20 (R) – 7 (R) : Continuity should exist.

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

30 (R/B) – 7 (R/B) : Continuity should exist.



OK or NG

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

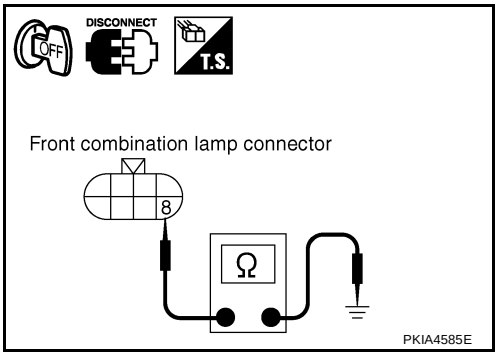
4. CHECK HEADLAMP GROUND

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

8 (B) – Ground : Continuity should exist.

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

8 (B) – Ground : Continuity should exist.



OK or NG

OK >> Check headlamp harness and connectors, ballasts (HID control unit). Refer to LT-31, "Xenon Headlamp Trouble Diagnosis" .

NG >> Repair harness or connector.

5. CHECK COMBINATION SWITCH CIRCUIT

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

Displayed results of self-diagnosis

No malfunction detected>> GO TO 6.

CAN communications or CAN system>> Inspect the BCM CAN communications system. Refer to BCS-15, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .

OPEN DETECT 1 - 5>> Combination switch system malfunction. Refer to LT-162, "Combination Switch Inspection According to Self-Diagnostic Results" .

HEAD LAMP SW 1 or HEAD LAMP SW 2>> Replace lighting switch.

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

LKIA0073E

6. CHECK COMBINATION SWITCH INPUT SIGNAL

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

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

OK or NG

OK >> GO TO 7.

NG >>
- Replace lighting switch.
- If one of “HEAD LAMP SW 1” and “HEAD LAMP SW 2” is NG, replace both BCM (Refer to BCS-17, "Removal and Installation of BCM") and lighting switch.

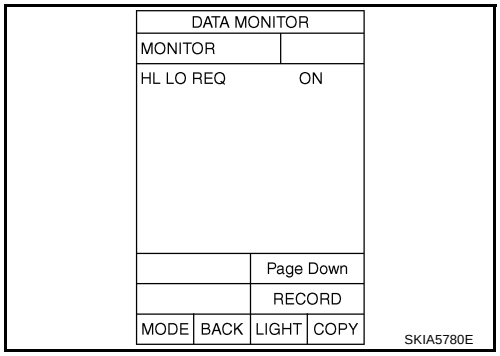
DATA MONITOR	
MONITOR	
HEAD LAMP SW1	ON
HEAD LAMP SW2	ON

SKIA4194E

7. 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-17, "Removal and Installation of BCM" .

Headlamp Low Beam Does Not Illuminate (One Side)

AKS00ABQ

1. CHECK BULB

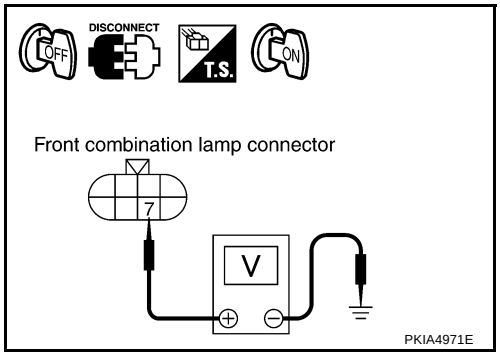
Check ballasts (HID control unit) and xenon bulb of lamp which does not illuminate. Refer to LT-31, "Xenon Headlamp Trouble Diagnosis" .

OK or NG

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

2. CHECK HEADLAMP INPUT SIGNAL

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



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

OK or NG

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

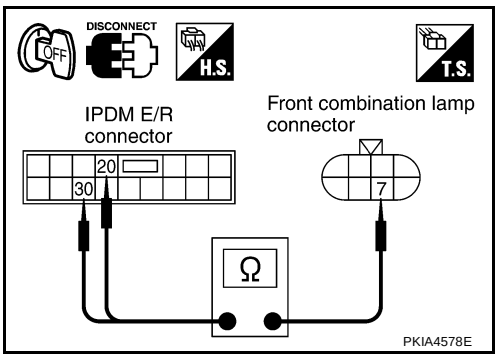
3. CHECK HEADLAMP CIRCUIT

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 7 (R).

20 (R) – 7 (R) : Continuity should exist.

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

30 (R/B) – 7 (R/B) : Continuity should exist.



OK or NG

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

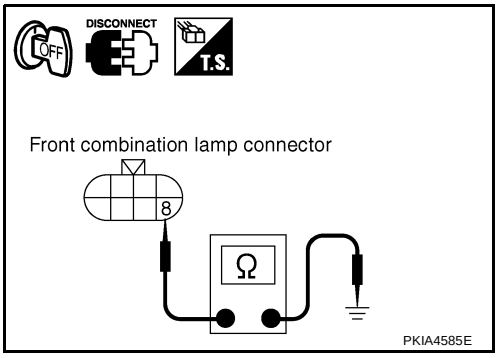
4. CHECK HEADLAMP GROUND

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

8 (B) – Ground : Continuity should exist.

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

8 (B) – Ground : Continuity should exist.

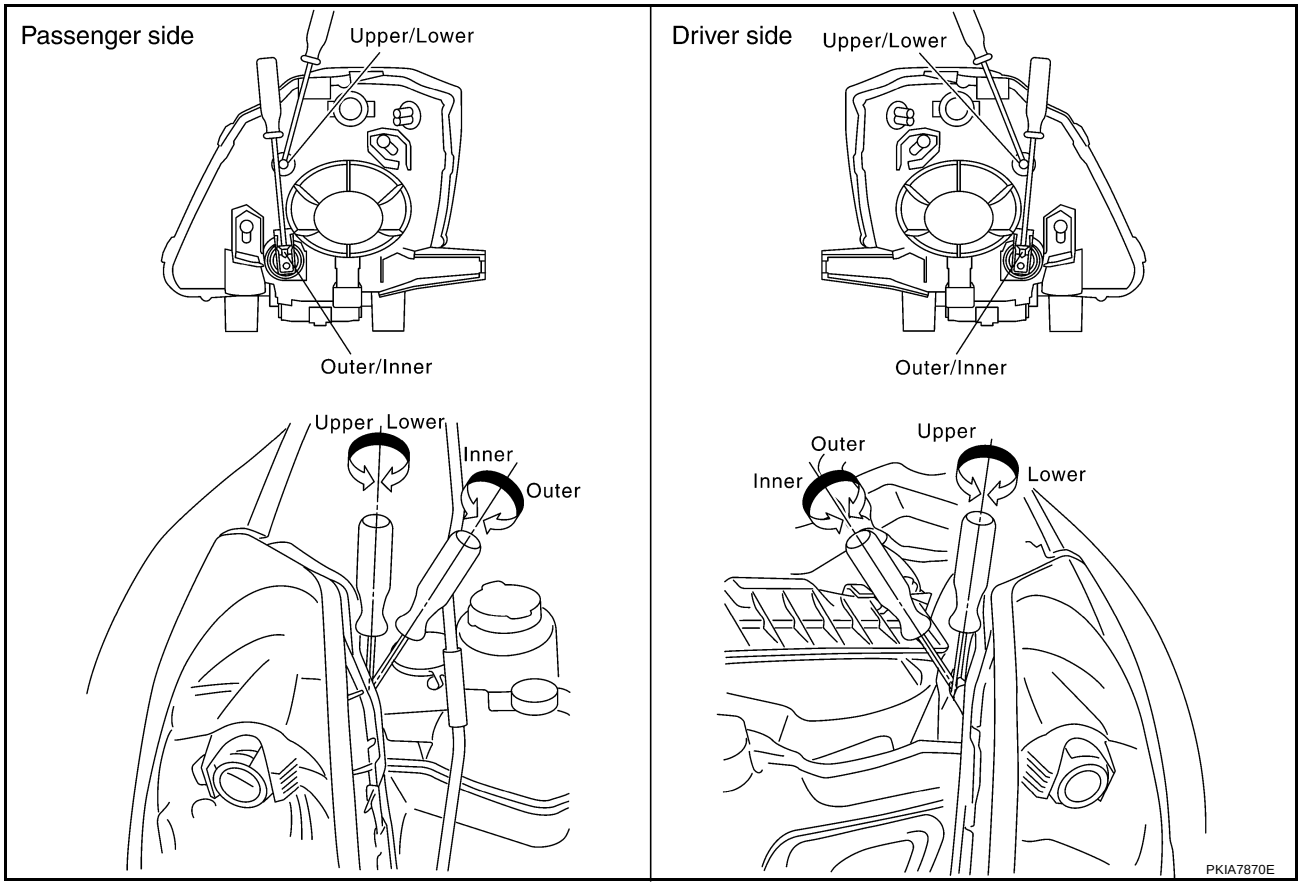


OK or NG

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

Aiming Adjustment

AKS009NL



PREPARATION BEFORE ADJUSTING

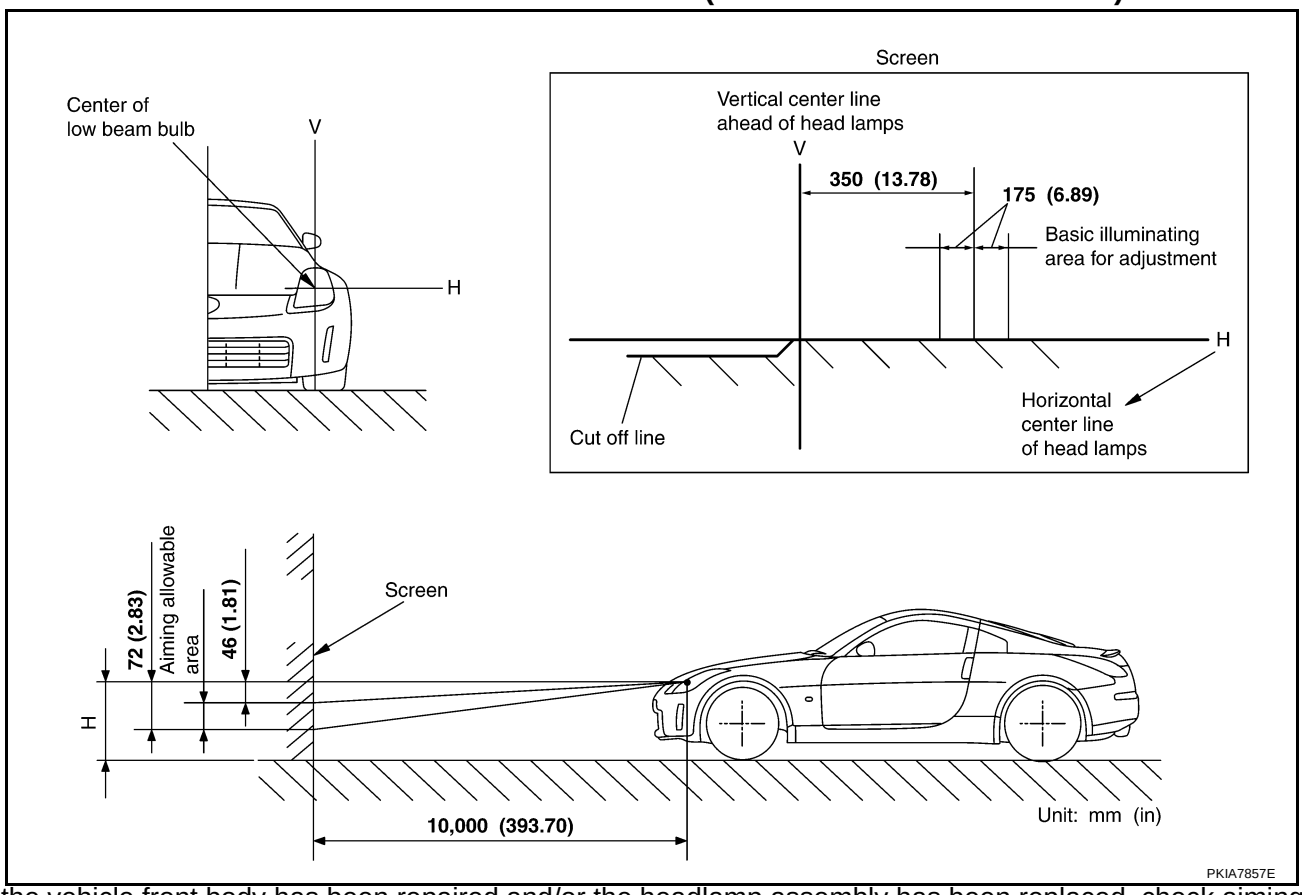
For details, refer to the regulations in your own country.
Before performing aiming adjustment, check the following.

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

LOW BEAM AND HIGH BEAM

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

ADJUSTMENT USING AN ADJUSTMENT SCREEN (LIGHT/DARK BORDERLINE)



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

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

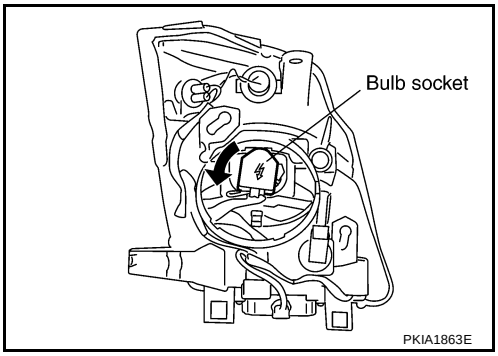
Bulb Replacement

AKS009NM

HEADLAMP (UPPER) LOW BEAM

1. Turn lighting switch OFF.
2. Remove headlamp. Refer to LT-99, "Removal and Installation" .
3. Turn plastic cap counterclockwise and unlock it.
4. Turn bulb socket counterclockwise and unlock it.
5. Unlock retaining spring and remove bulb from headlamp.
6. Install in reverse order of removal.

NOTE:
After installation, perform aiming adjustment. Refer to LT-96, "Aiming Adjustment" .



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

HEADLAMP (LOWER) HIGH BEAM

1. Turn lighting switch OFF.
2. Open the driver and front passenger window, and then disconnect the battery negative cable.

   CAUTION:
   After the battery cables are disconnected, do not open/close the driver and/or front passenger door with the window in the full up position. The automatic window adjusting function will not work and the side roof panel may be damaged.
3. Remove fender protector (front). Refer to EI-21, "FENDER PROTECTOR" in “EI” section.
4. Turn plastic cap counterclockwise and unlock it.
5. Disconnect bulb socket.
6. Unlock retaining spring and remove bulb from headlamp.
7. Install in reverse order of removal.

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

PARKING LAMP (CLEARANCE LAMP)

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

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

FRONT TURN SIGNAL LAMP

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

Front turn signal lamp	**: 12V - 21W**

FRONT SIDE MARKER LAMP

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

Front side marker lamp	**: 12V - 5W**

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

Removal and Installation

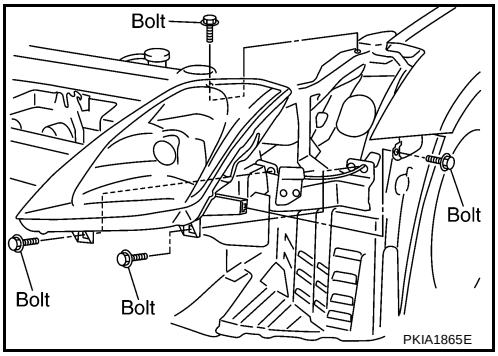
AKS009NN

REMOVAL

1. Open the driver and front passenger window, and then disconnect the battery negative cable.

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

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



INSTALLATION

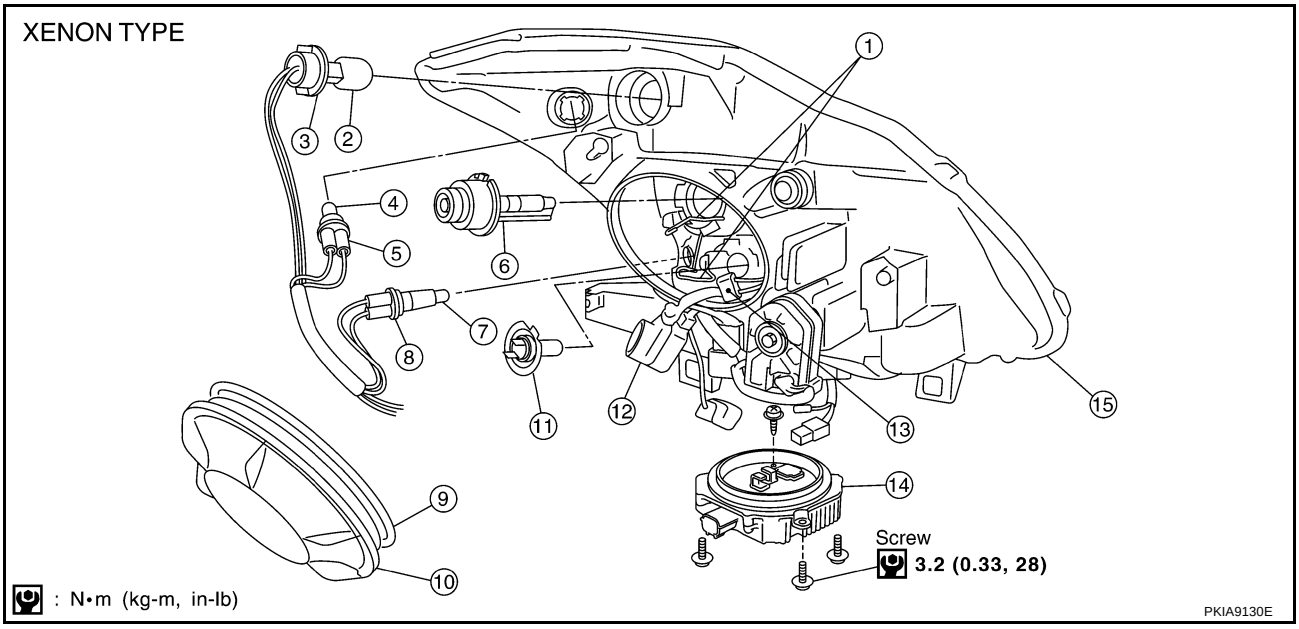
Installation in the reverse order if removal. Be careful of the following.

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

NOTE:
After installation, perform aiming adjustment. Refer to LT-96, "Aiming Adjustment" .

Disassembly and Assembly

AKS009NO



1. Retaining spring	2. Front turn signal lamp bulb	3. Front turn signal lamp bulb socket
4. Side marker lamp bulb	5. Side marker lamp bulb socket	6. Xenon bulb
7. Parking lamp (Clearance lamp) bulb	8. Parking lamp (Clearance lamp) bulb socket	9. Seal rubber
10. Plastic cap	11. Halogen bulb (high)	12. Xenon bulb socket
13. Halogen bulb socket	14. HID C/U	15. Headlamp housing assembly

DISASSEMBLY

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

ASSEMBLY

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

HID control unit mounting screw : 3.2 N·m (0.33 kg-m, 28 in-lb)

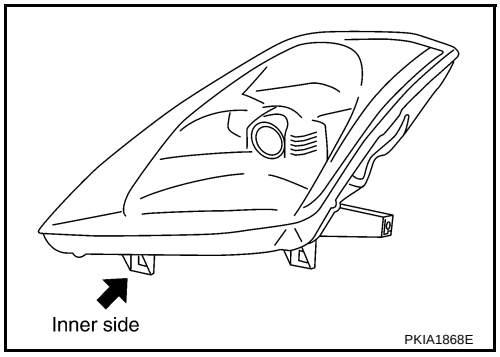
CAUTION:

- **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**

Serving to Replace Headlamps When Damaged

AKS009NP

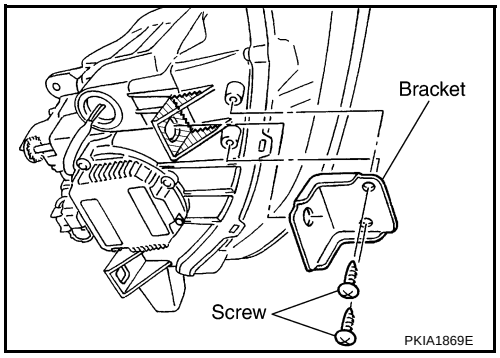
If only installation part as shown in the figure is damaged, and headlamp housing itself is not damaged, repair can be completed easily by installing correction brackets.



INSTALLATION OF HEADLAMP BRACKET

1. Remove headlamps. Refer to LT-99, "Removal and Installation" .
2. Cut damaged section of installation part, then shape with sandpaper.
3. Attach each correction bracket to headlamp housing boss with 2 screws.

RH headlamp	**Inner side**	**26040 CD000**
LH headlamp	**Inner side**	**26090 CD000**

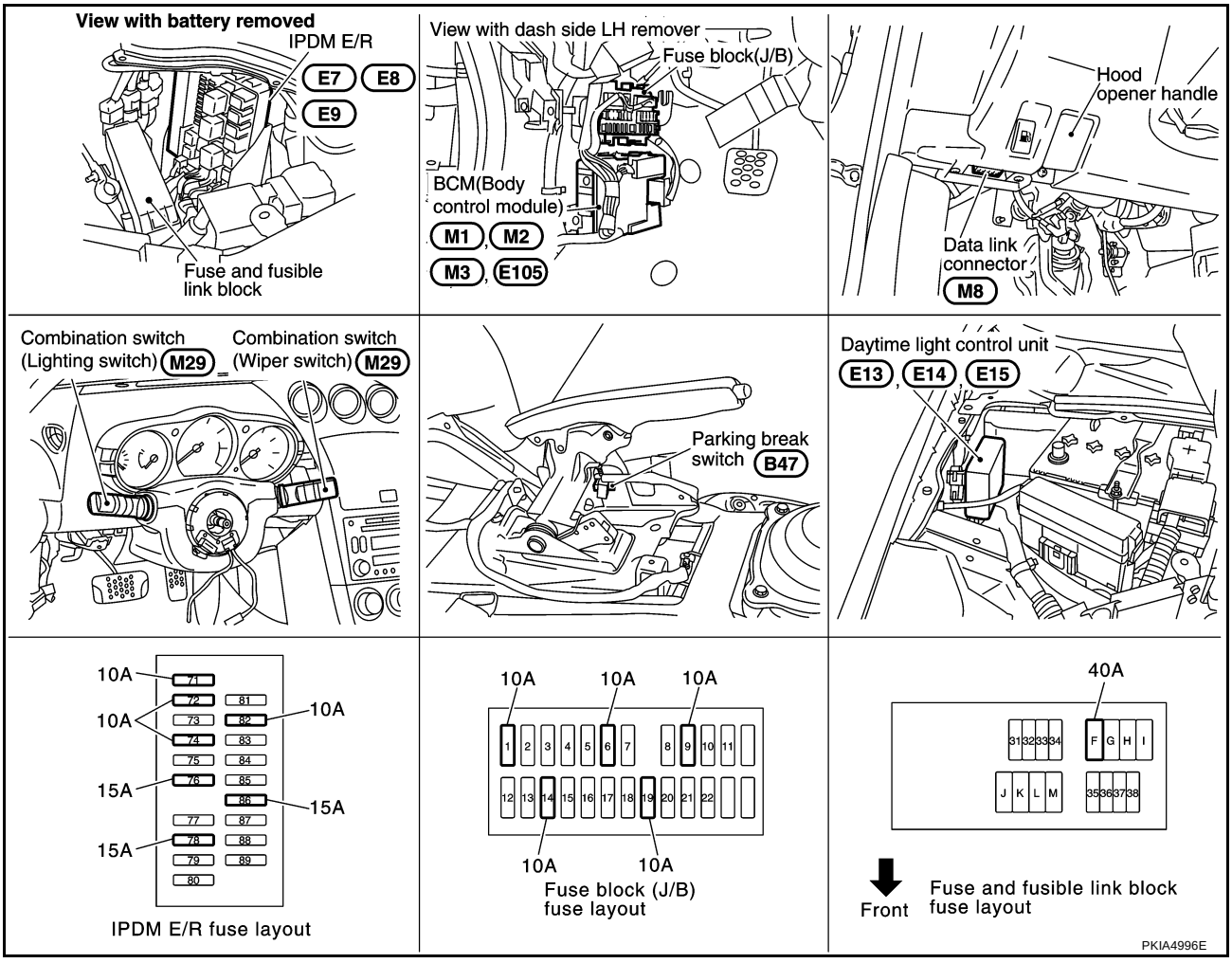


HEADLAMP (FOR CANADA) - CONVENTIONAL TYPE -

PFP:26010

Component Parts and Harness Connector Location

AKS009SK



System Description

AKS009SL

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

And battery saver system is controlled by the BCM.

Power is supplied at all times

- to headlamp high and low relays located in IPDM E/R (intelligent power distribution module engine room).

Power is also supplied at all times

- to headlamp high relay [located in IPDM E/R (intelligent power distribution module engine room)]
- to headlamp low relay [located in IPDM E/R (intelligent power distribution module engine room)]
- to BCM (body control module) terminal 7
- through 40A fusible link [letter F, located in fuse and fusible link block].
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- through 15A fuse [No. 78, located in IPDM E/R (intelligent power distribution module engine room)]
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- through 10A fuse [No. 71, located in IPDM E/R (intelligent power distribution module engine room)]
- to combination meter terminal 24
- through 10A fuse [No. 19, located in fuse block (J/B)].

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

- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- to daytime light control unit terminal 3
- through 10A fuse [No. 82, located in IPDM E/R (intelligent power distribution module engine room)]
- to BCM (body control module) terminal 35
- through 10A fuse [No. 1, located in fuse block (J/B)]
- to combination meter terminal 23
- 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 36
- 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 2
- through 10A fuse [No. 9, located in fuse block (J/B)].

Ground is supplied

- to daytime light control unit terminal 16
- through grounds E17, E43 and F152
- to BCM (body control module) terminal 8
- through grounds E17, E43 and F152
- to IPDM E/R (intelligent power distribution module engine room) terminals 38 and 60
- through grounds E17, E43 and F152
- tom combination meter terminals 10, 11 and 12
- through grounds M30and M66.

HEADLAMP OPERATION

Low Beam Operation

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

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

Ground is supplied at all times

- to front combination lamp RH terminal 3
- through grounds E17, E43 and F152
- to front combination lamp LH terminal 3
- through daytime light control unit terminal 9
- to daytime light control unit terminal 14
- through grounds E17, E43 and F152.

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, the BCM receives input signal requesting the headlamp high beams to illuminate. This input signal is communicated to the IPDM E/R across the CAN communication lines. The CPU in the IPDM E/R controls the headlamp high relay coil turned on, which when energized, directs power

- to front combination lamp LH terminal 2

- through daytime light control unit terminals 7 and 4
- to IPDM E/R terminal 28
- through 10 A fuse (No. 74, located in IPDM E/R), and
- to front combination lamp RH terminal 2
- through daytime light control unit terminals 6 and 5
- to IPDM E/R terminal 27
- through 10 A fuse (No. 72, located in IPDM E/R).

Ground is supplied

- to front combination lamp LH terminal 3
- through daytime light control unit terminals 9 and 14
- through grounds E17,E43 and F152
- to front combination lamp RH terminal 3
- through grounds E17, E43 and F152.

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

COMBINATION SWITCH READING FUNCTION

Refer to LT-158, "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 mode can be changed by the function setting of CONSULT-II.

DAYTIME LIGHT OPERATION

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

- through daytime light control unit terminal 7
- to front combination lamp LH terminal 2
- through front combination lamp LH terminal 3
- to daytime light control unit terminal 9
- through daytime light control unit terminal 6
- to front combination lamp RH terminal 2.

Ground is supplied

- to front combination lamp RH terminal 3
- through grounds E17, E43 and F152
- to daytime light control unit terminal 14
- through grounds E17, E43 and F152.

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 30
- to daytime light control unit terminal 2.

Daytime light control unit is canceled power suppling from terminal 2 to terminal 3 of front combination lamp RH (series power suppling is canceled). And then low 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	Hi	Lo	P	Hi	Lo	P	Hi	Lo	P	Hi	Lo	P	Hi	Lo	P
Headlamp	High beam	–	–	–	–	–	×	×	–	×	●*	●*	×	●*	●*	×	×	–	×
	Low beam	–	–	–	–	–	×	×	×	×	–	–	×	–	–	×	×	×	×
Tail lamp		–	–	–	×	×	×	×	×	×	–	–	–	×	×	×	×	×	×
License and instrument illumination lamp		–	–	–	×	×	×	×	×	×	–	–	–	×	×	×	×	×	×

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

CAN Communication System Description

AKS009SM

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.

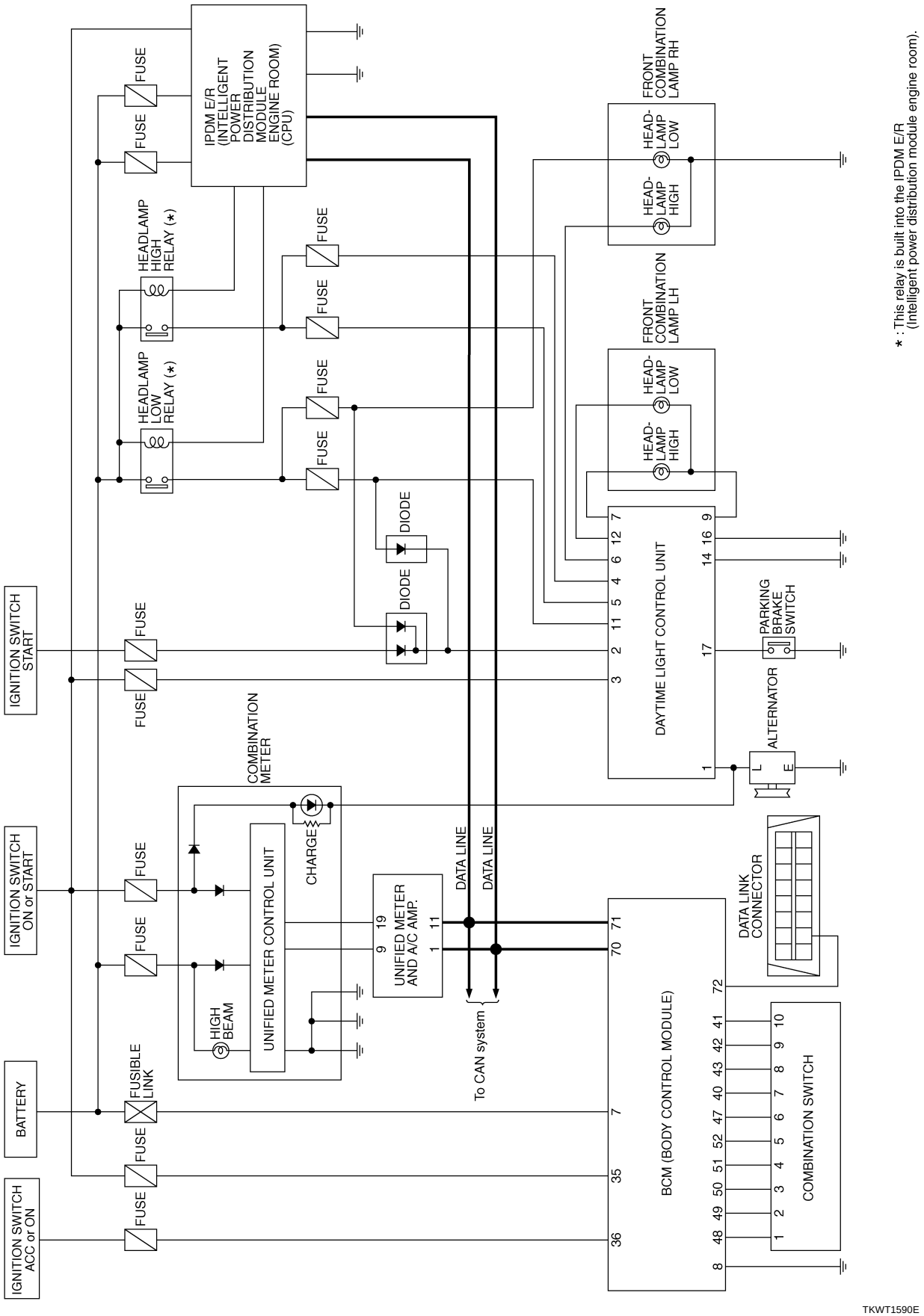
CAN Communication Unit

AKS009SN

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

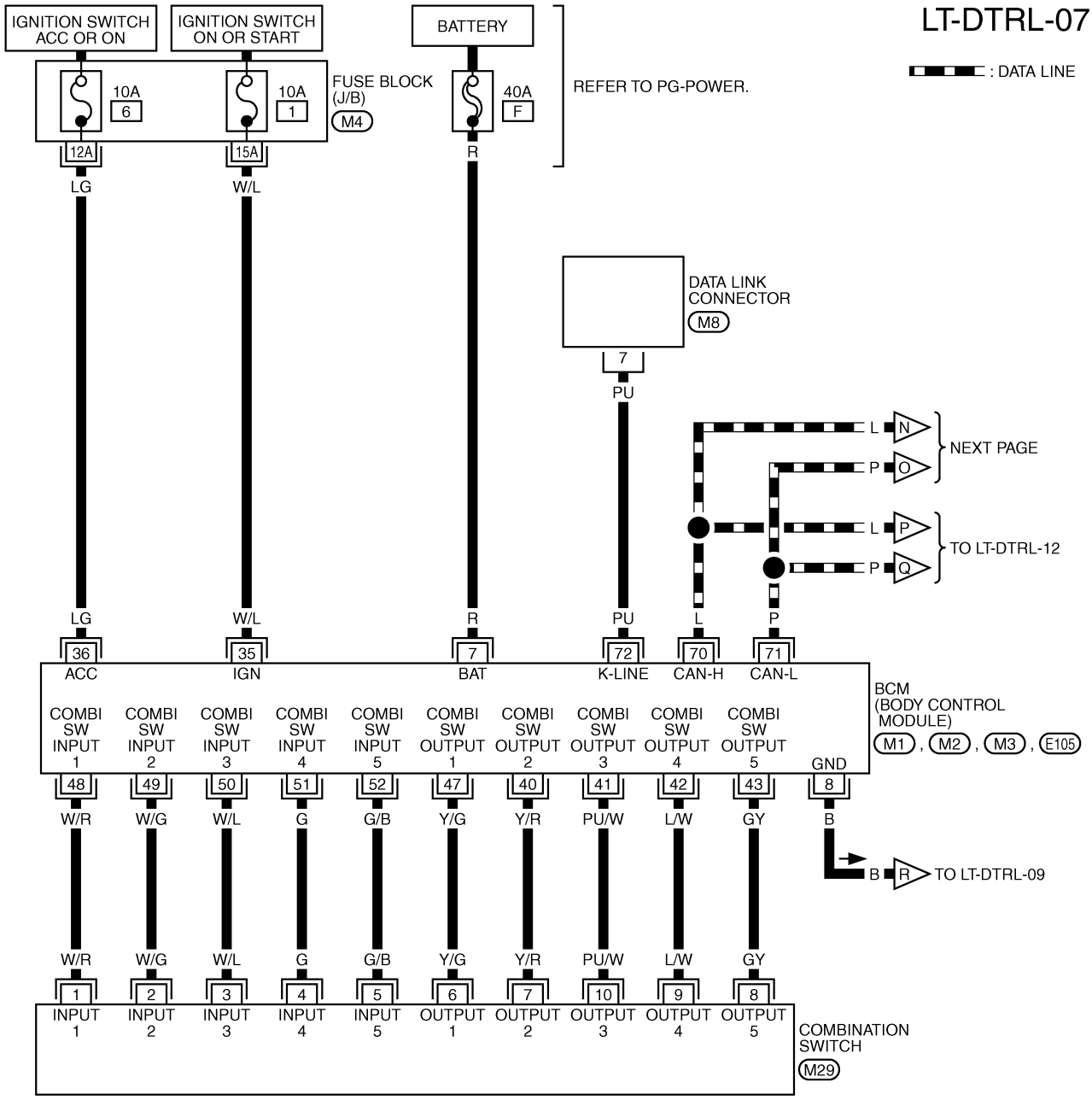
Schematic

AKS009SO



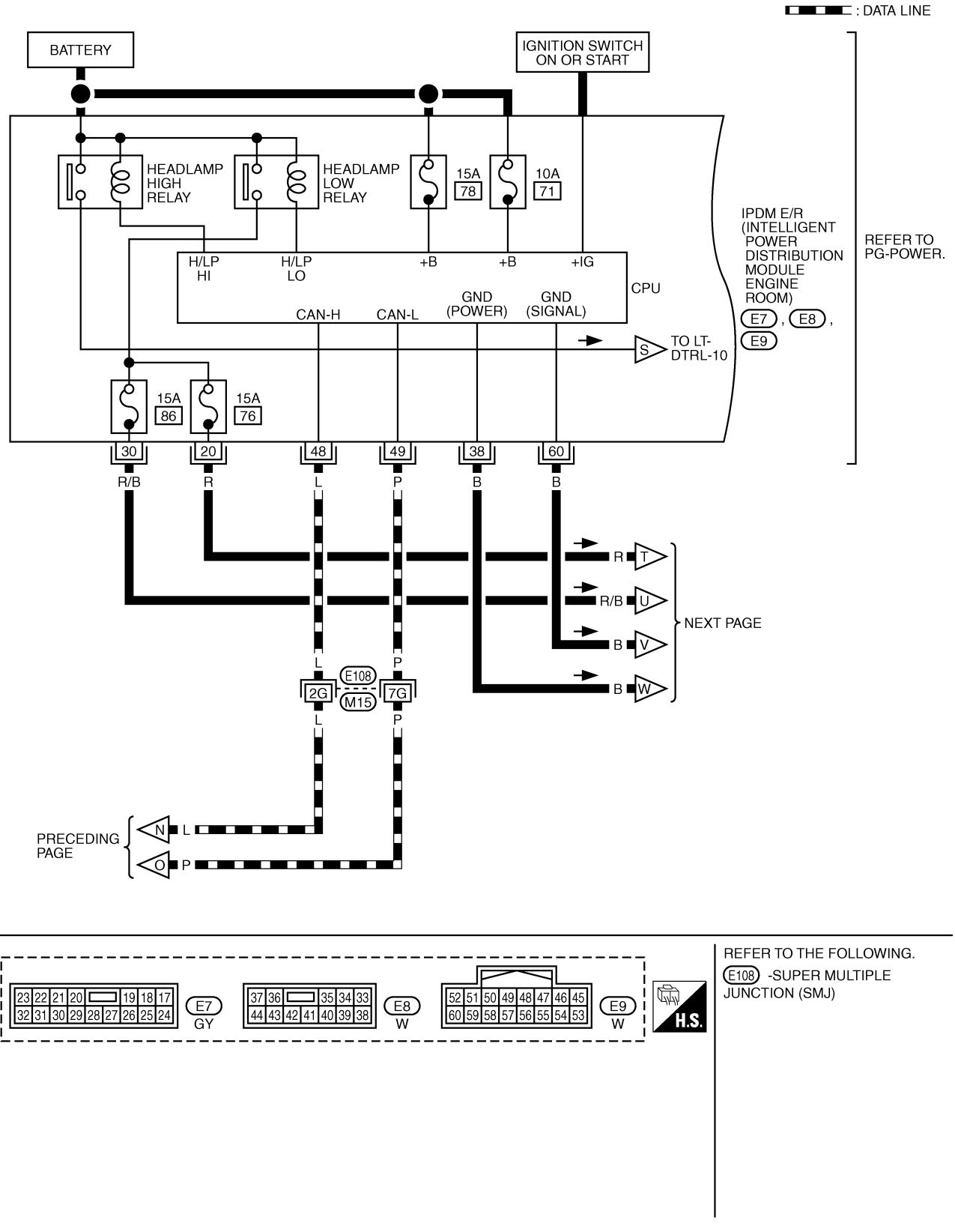
Wiring Diagram — DTRL —

AKS009SP



TKWT1591E

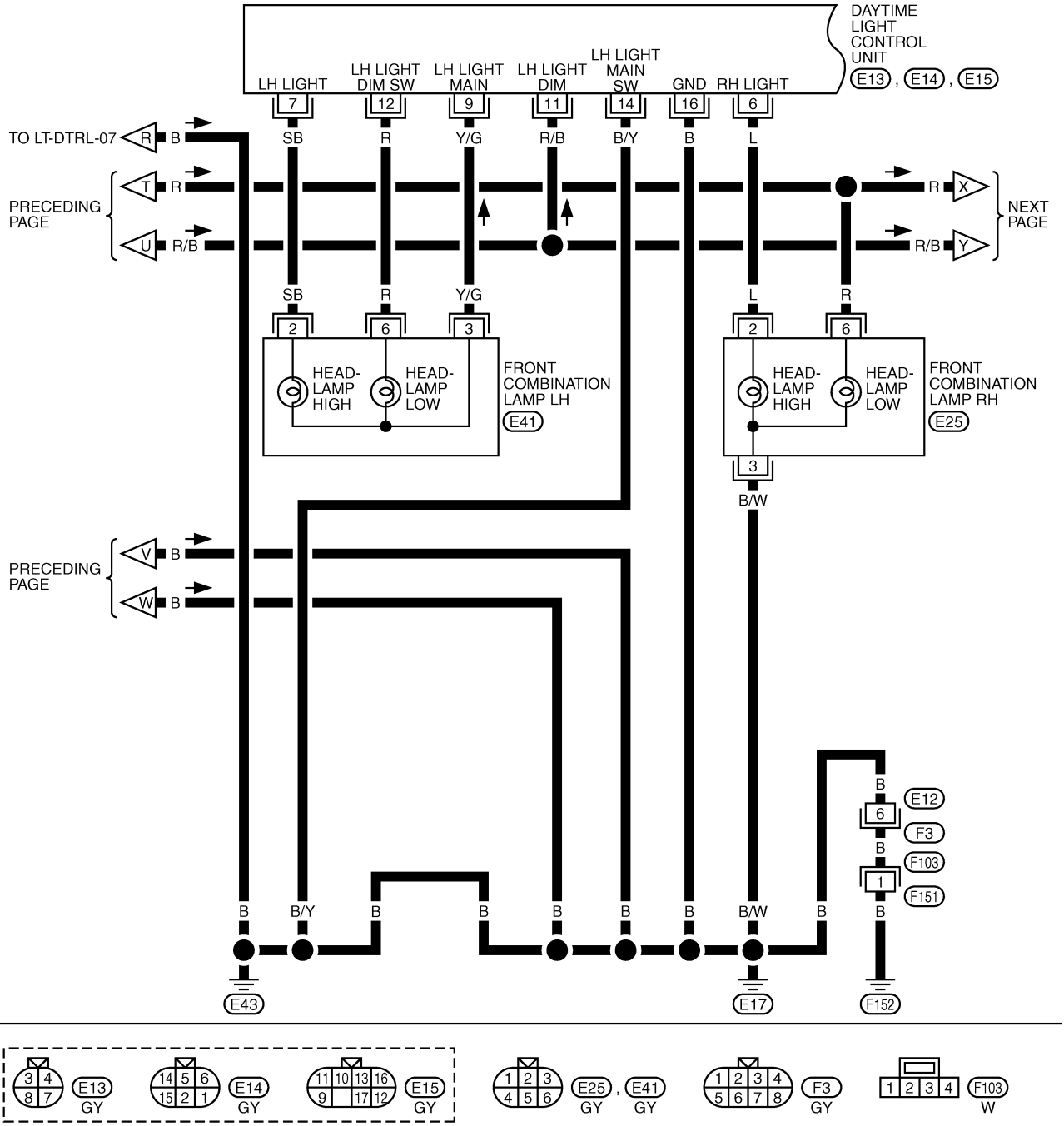
LT-DTRL-08



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

TKWT1592E

LT-DTRL-09



TKWT1593E

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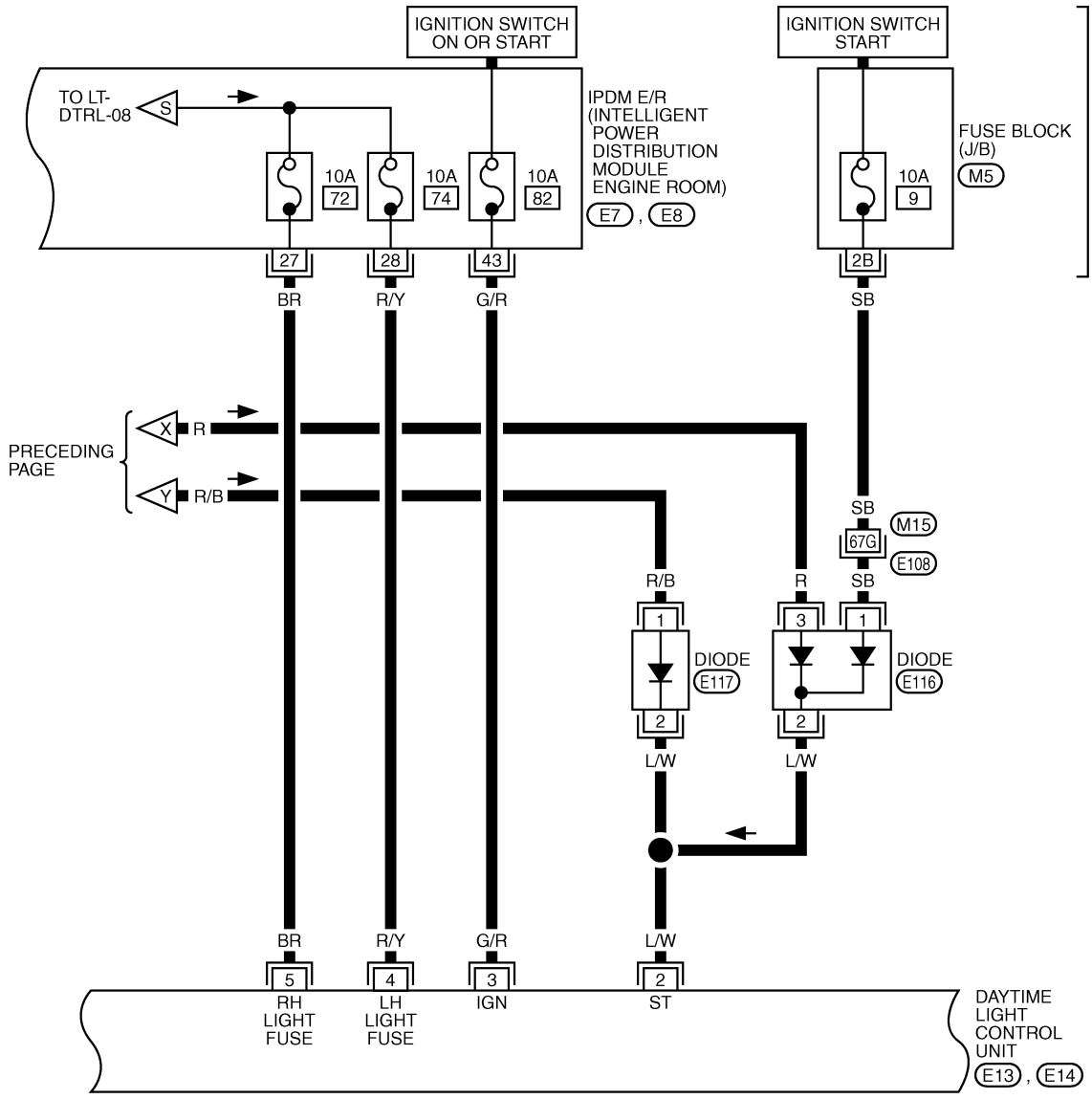
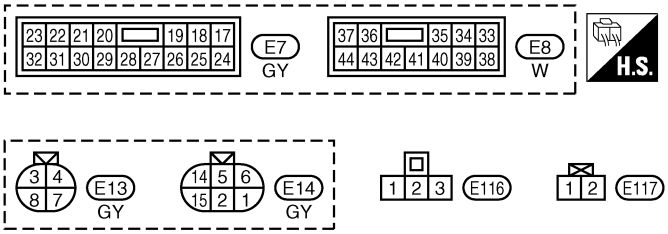




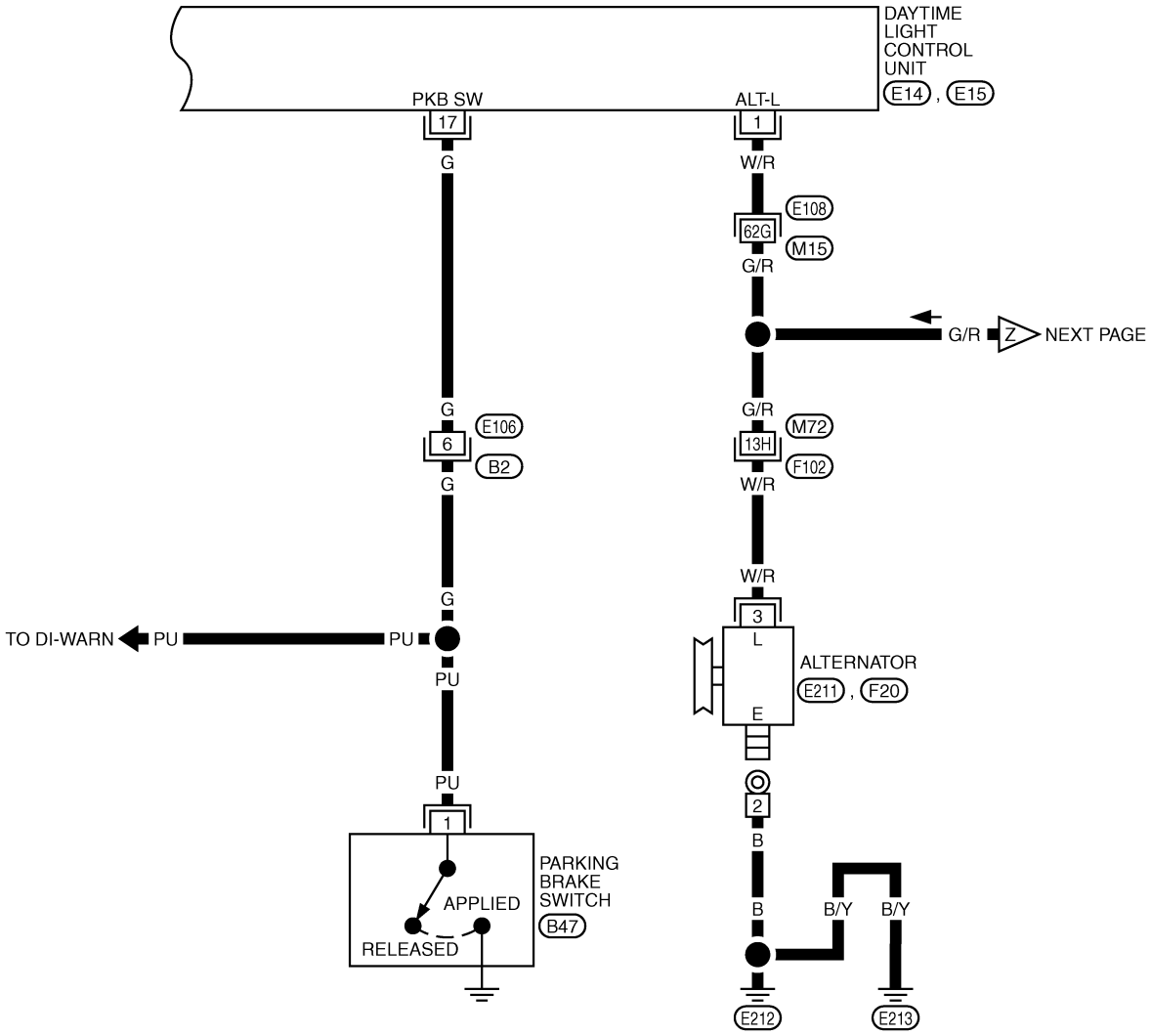
REFER TO THE FOLLOWING.

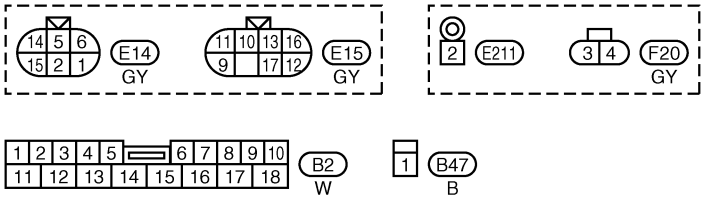
E108 -SUPER MULTIPLE JUNCTION (SMJ)

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

TKWT1594E

LT-DTRL-11



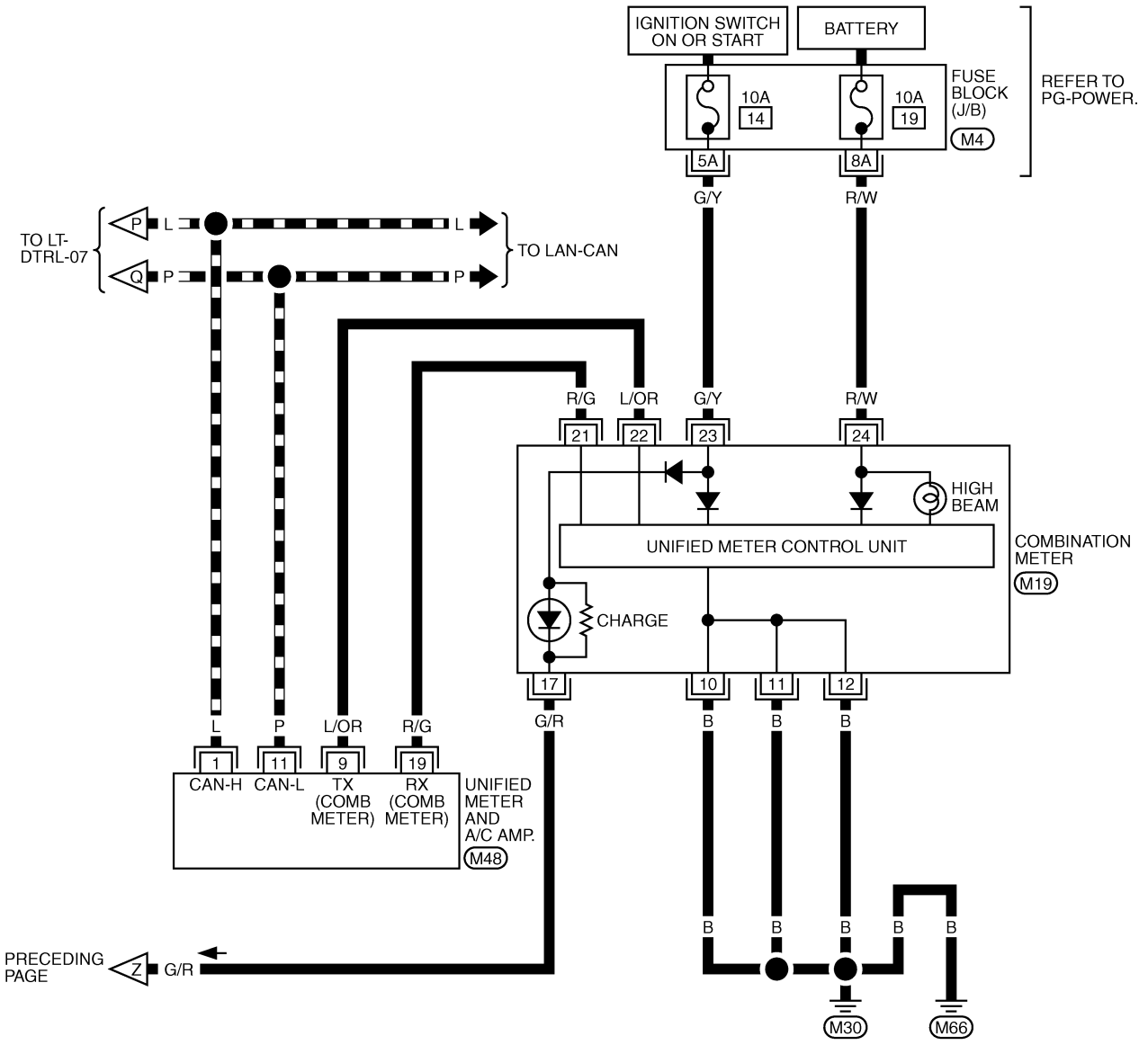


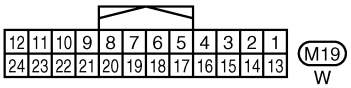
REFER TO THE FOLLOWING.
E108 , F102 -SUPER MULTIPLE JUNCTION (SMJ)

TKWT0446E

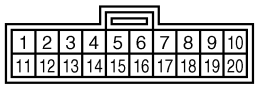
LT-DTRL-12

: DATA LINE





M19
W



M48
GY

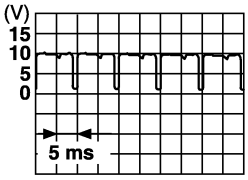
H.S.

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

TKWT1731E

Terminals and Reference Values for BCM

AKS009T7

Terminal No.	Wire color	Item	Measuring condition		Reference value
			Ignition switch	Operation or condition	
7	R	Battery power supply	OFF	—	Battery voltage
8	B	Ground	ON	—	Approx. 0
35	W/L	Ignition switch (ON)	ON	—	Battery voltage
36	LG	Ignition switch (ACC)	ACC	—	Battery voltage
40	Y/R	Combination switch output 2	ON	Lighting, turn, wiper OFF	 SKIA1119J
41	PU/W	Combination switch output 3			
42	L/W	Combination switch output 4			
43	GY	Combination switch output 5			
47	Y/G	Combination switch output 1			
48	W/R	Combination switch input 1	ON	Lighting, turn, wiper OFF	4.5V or more
49	W/G	Combination switch input 2			
50	W/L	Combination switch input 3			
51	G	Combination switch input 4			
52	G/B	Combination switch input 5			
70	L	CAN– H	—	—	—
71	P	CAN– L	—	—	—
72	PU	K–LINE	—	—	—

Terminals and Reference Values for IPDM E/R

AKS009T8

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
43	G/R	Ignition power supply	ON	—		Battery voltage
48	L	CAN– H	—	—		—
49	P	CAN– L	—	—		—
60	B	Ground	ON	—		Approx. 0V

Terminals and Reference Value for Daytime Light Control Unit

AKS009SQ

Terminal No.	Wire color	Item	Condition	Reference value
1	W/R	Alternator	When turning ignition switch to “ON”	Less than 1V
			When engine is running	Battery voltage
			When turning ignition switch to “OFF”	Less than 1V
2	L/W	Start signal	When turning ignition switch to “START”	Battery voltage
			When turning ignition switch to “ON” from “START”	Less than 1V
			When turning ignition switch to “OFF”	Less than 1V
3	G/R	Ignition power supply	When turning ignition switch to “ON”	Battery voltage
4	R/Y	Lighting switch (LH hi beam)	When turning lighting switch to “HI BEAM”	Battery voltage
5	BR	Lighting switch (RH hi beam)	When turning lighting switch to “HI BEAM”	Battery voltage
6	L	RH hi beam	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	SB	LH hi beam	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	Y/G	LH hi/low beam (ground)	When turning lighting switch to the 2ND position with “HI BEAM” or “FLASH TO PASS” position	Less than 1V
			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.**	Less than 1V
11	R/B	Lighting switch (LH low beam)	When turning lighting switch to “LOW BEAM”	Battery voltage
12	R	LH Low beam	When turning lighting switch to “LOW BEAM”	Battery voltage
14	B/Y	Ground	—	—
16	B	Ground	—	—
17	G	Parking brake switch	When parking brake is released	Battery voltage
			When parking brake is applied	Less than 1.7V

How to Proceed With Trouble Diagnosis

AKS009SR

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-101, "System Description" .
3. Perform the preliminary check. Refer to LT-114, "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

AKS009SS

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

- Check for blown fuses.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	71
		72
		74
		76
		78
		86
	Ignition switch ON or START position	82
DAYTIME LIGHT CONTROL UNIT	Ignition switch START position	9

Refer to LT-106, "Wiring Diagram — DTRL —" .

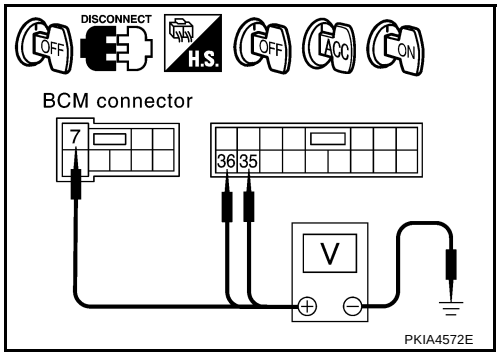
OK or NG

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



Terminals			Ignition switch position		
(+)		(-)	OFF	ACC	ON
Connector	Terminal (Wire color)				
E105	7 (R)	Ground	Battery voltage	Battery voltage	Battery voltage
M1	35 (W/L)		0V	0V	Battery voltage
M1	36 (LG)		0V	Battery voltage	Battery voltage

OK or NG

OK >> GO TO 3.

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

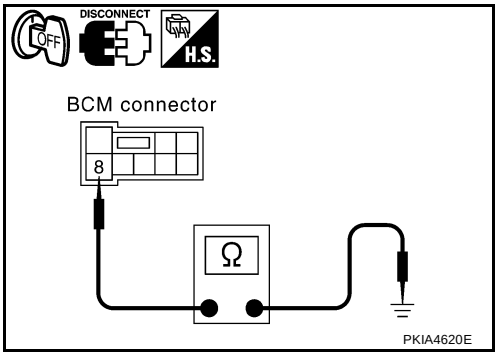
3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminals			Continuity
Connector	Terminal (wire color)	Ground	Yes
E105	8 (B)		

OK or NG

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



CONSULT-II Functions (BCM)

AKS00ABR

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

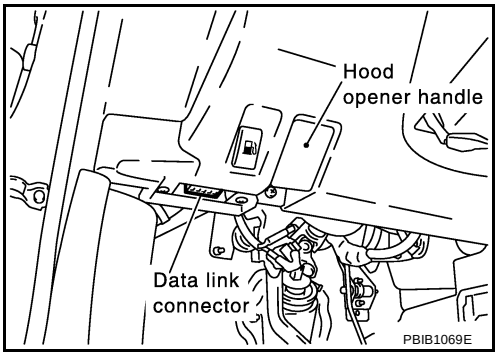
BCM diagnosis part	Check item, diagnosis mode	Description
HEAD LAMP	WORK SUPPORT	Changes the setting for each function.
	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.
BCM C/U	CAN DIAG SUPPORT MNTR	The result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

CONSULT-II BASIC OPERATION

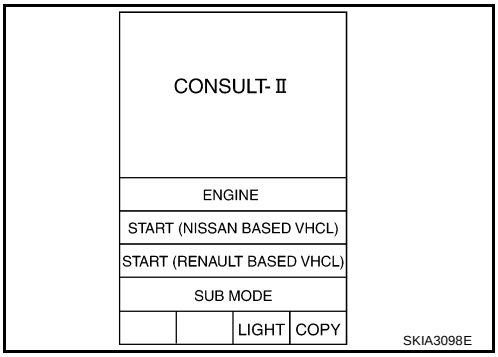
CAUTION:

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

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

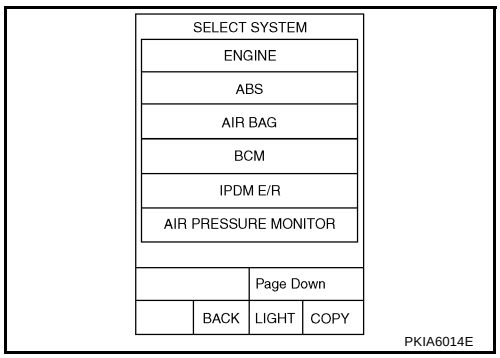


2. Touch “START(NISSAN BASED VHCL)”.

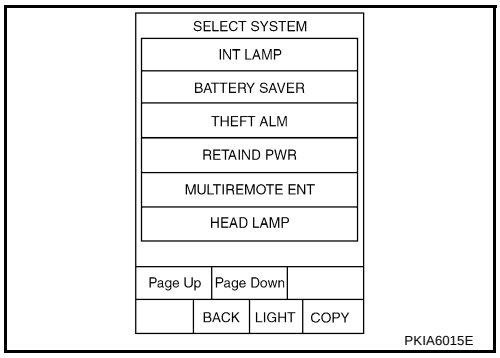


3. Touch “BCM” on “SELECT SYSTEM” screen.

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



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



WORK SUPPORT

Operation Procedure

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

Display Item List

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

DATA MONITOR

Operation Procedure

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

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

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

Display Item List

Monitor item		Contents
IGN ON SW	“ON/OFF”	Displays “IGN position (ON)/OFF, ACC position (OFF)” judged from the ignition switch signal.
ACC ON SW	“ON/OFF”	Displays “ACC (ON)/OFF, Ignition OFF (OFF)” status judged from ignition switch signal.
AUTO LIGHT SW[NOTE]	“OFF”	—
LIGH SW 1 ST	“ON/OFF”	Displays status (lighting switch 1st position: ON/Others: OFF) of lighting switch judged from lighting switch signal.
HEAD LAMP SW1	“ON/OFF”	Displays status (headlamp switch1: ON/Others: OFF) of headlamp switch1 judged 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.
PASSING SW	“ON/OFF”	Displays status (flash-to-pass switch: ON/Others: OFF) of flash-to-pass switch judged from lighting switch signal.
FR FOG SW[NOTE]	“OFF”	—
DOOR SW - DR	“ON/OFF”	Displays status of the driver door as judged from the driver door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW - AS	“ON/OFF”	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”	—
HEAD LAMP SW 2	“ON/OFF”	Displays status (headlamp switch 2: ON/Others: OFF) of headlamp switch 2 judged from lighting switch signal.
OPTICAL SENSOR[NOTE]	[0V]	Display always indicates “0.00V”
PKB SW[NOTE]	“ON/OFF”	Displays status (Parking brake switch: ON/Others: OFF) as judged from parking brake switch signal.
ENGINE STATUS[NOTE]	“ON/OFF”	—
BACK DOOR SW	“ON/OFF”	Displays status of the back door as judged from the back door switch signal. (Door is open: ON/Door is closed: OFF)

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[NOTE]	—
ILL DIM SIGNAL (CAN)[NOTE]	—

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

CONSULT-II Functions (IPDM E/R)

AKS00ABS

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

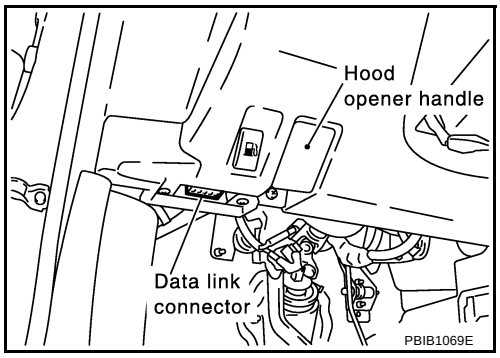
Inspection Item, Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	The IPDM E/R performs self-diagnosis of CAN communication.
DATA MONITOR	The input/output data of the IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.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

CONSULT-II BASIC OPERATION

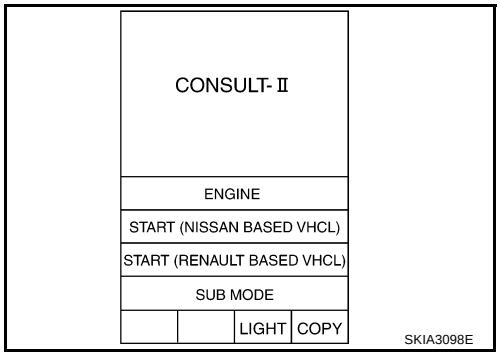
CAUTION:

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

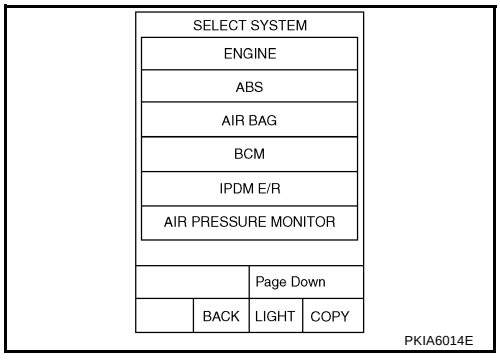
1. With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



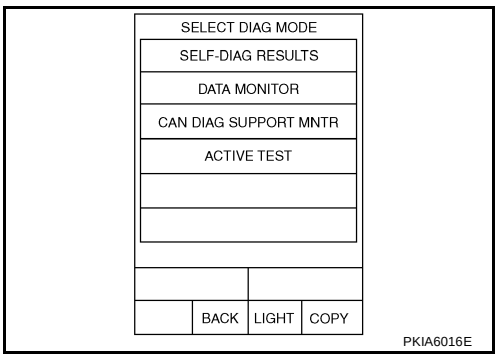
2. Touch “START (NISSAN BASED VHCL)”.



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



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



DATA MONITOR

Operation Procedure

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

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

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

All Signals, Main Signals, Selection From Menu

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

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.
Tail lamp relay output	TAIL LAMP	Allows tail lamp relay to operate by switching operation ON-OFF at your option.

SELF-DIAGNOSTIC RESULTS

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

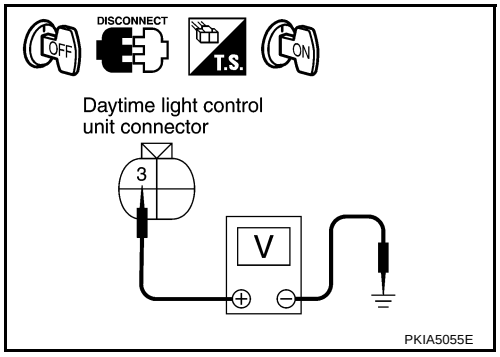
Daytime Light Control Does Not Operate Properly

AKS00ABU

1. CHECK DAYTIME LIGHT CONTROL UNIT

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

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



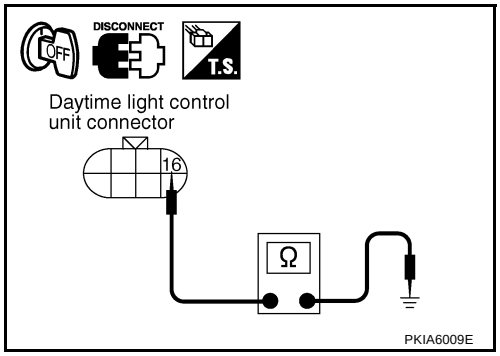
OK or NG

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 E15 terminal 16 (B) and ground.

16 (B) - Ground : Continuity should exist.



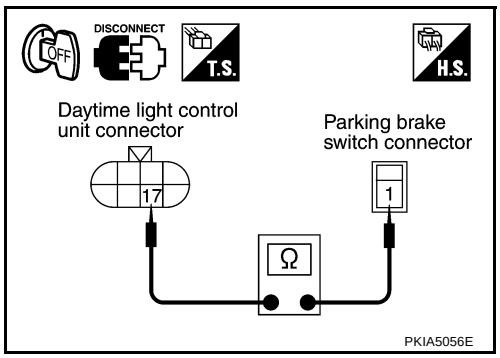
OK or NG

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

3. CHECK PARKING BRAKE SWITCH CIRCUIT

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

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



OK or NG

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

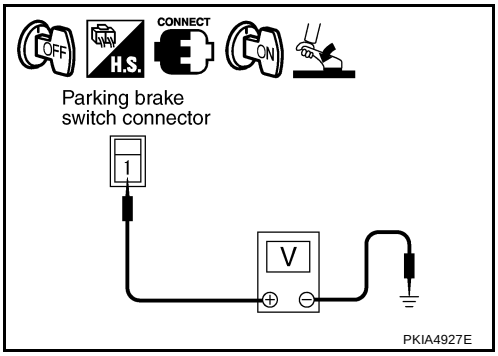
4. CHECK PARKING BRAKE SWITCH

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

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

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

1 (PU) – Ground : Approx. 0V



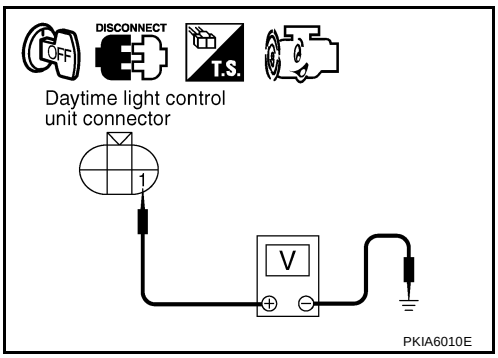
OK or NG

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

5. CHECK ALTERNATOR CIRCUIT

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

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



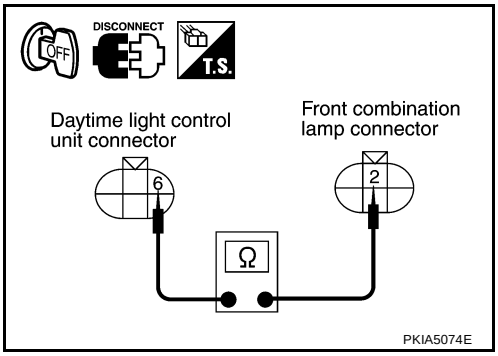
OK or NG

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

6. CHECK DAYTIME LIGHT CONTROL UNIT CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect daytime light control unit connector and front combination lamp RH connector.
3. Check harness continuity between daytime light control unit harness connector E14 terminal 6 (L) and front combination lamp RH harness connector E25 terminal 2 (L).

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



OK or NG

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

Headlamp High Beam Does Not Illuminate (Both Sides)

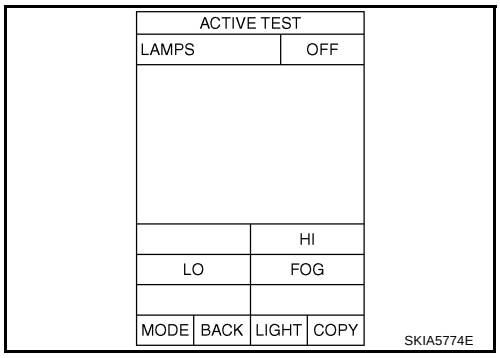
AKS00ABV

1. 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

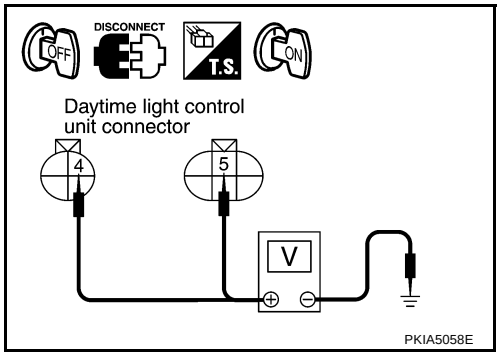
OK >> GO TO 4.
NG >> GO TO 2.

2. CHECK DAYTIME LIGHT CONTROL UNIT INPUT

With CONSULT-II

1. Disconnect daytime light control unit connector.
2. Select “IPDM E/R” on CONSULT-II and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
3. Touch “HI” screen.
4. When headlamp high beam is operating, check voltage between daytime light control unit connector E13 terminal 4 (R/Y), E14 terminal 5 (BR) and ground.

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



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 daytime light control unit connector E13 terminal 4 (R/Y), E14 terminal 5 (BR) and ground.

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

OK or NG

OK >> Replace daytime light control unit.
NG >> GO TO 3.

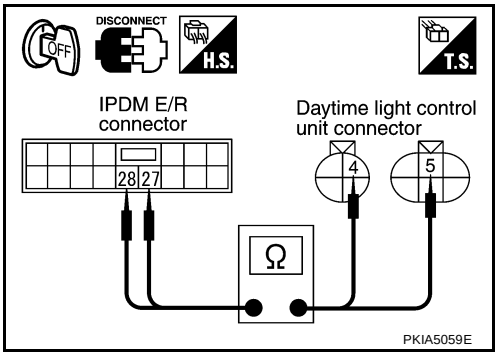
3. CHECK IPDM E/R CIRCUIT

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

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

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

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



OK or NG

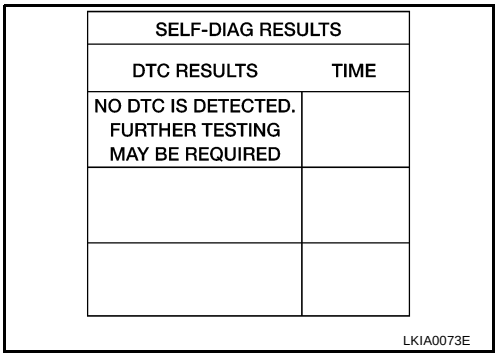
OK >> Replace IPDM E/R.
NG >> Repair harness or connector.

4. CHECK COMBINATION SWITCH CIRCUIT

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

Displayed results of self-diagnosis

No malfunction detected>> GO TO 5.
CAN communications or CAN system>> Inspect the BCM CAN communications system. Refer to BCS-15, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .
OPEN DETECT 1 - 5>> Combination switch system malfunction. Refer to LT-162, "Combination Switch Inspection According to Self-Diagnostic Results" .



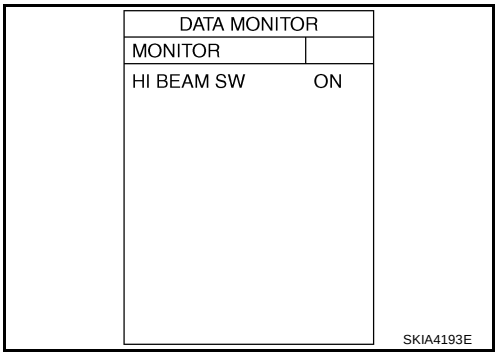
5. CHECK COMBINATION SWITCH INPUT SIGNAL

Select “BCM” on CONSULT-II. With “HEADLAMP” data monitor, check that “HI BEAM SW” turns ON-OFF linked with operation of lighting switch.

When lighting switch is HIGH position : HI BEAM SW ON

OK or NG

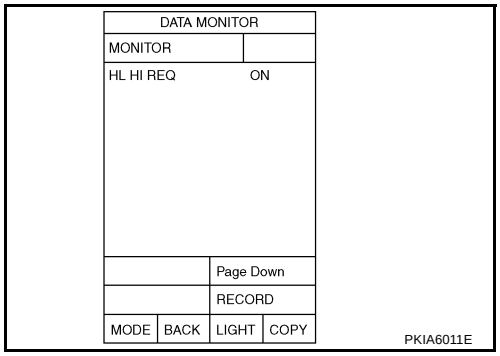
OK >> GO TO 6.
NG >> Replace lighting switch.



6. 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 HI REQ” turns ON when lighting switch is in HIGH position.

When lighting switch is HIGH position : HL HI REQ ON



OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-17, "Removal and Installation of BCM" .

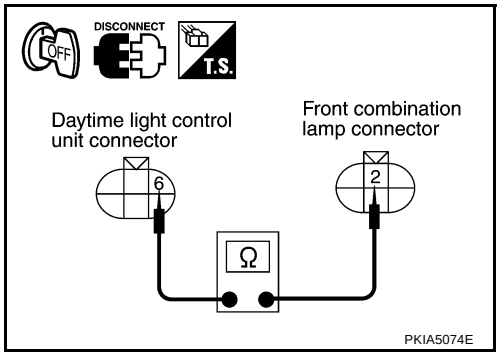
RH High Beam Does Not Illuminate But RH Low Beam Illuminates

AKS00ABW

1. CHECK DAYTIME LIGHT CONTROL CIRCUIT

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

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



OK or NG

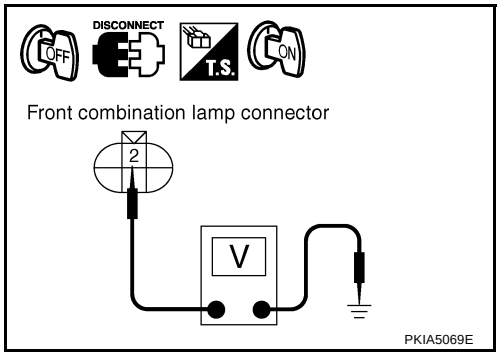
OK >> GO TO 2.
NG >> Repair harness or connector.

2. CHECK HEADLAMP INPUT SIGNAL

With CONSULT-II

1. Disconnect daytime light control unit connector.
2. Select “IPDM E/R” on CONSULT-II and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
3. Touch “HI” screen.
4. When headlamp HI is operating, check voltage between front combination lamp RH harness connector E25 terminal 2 (L) and ground.

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



Without CONSULT-II

- Start auto active test. Refer to PG-23, "Auto Active Test" .
- When headlamp HI is operating, check voltage between front combination lamp RH harness connector E25 terminal 2 (L) and ground.

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

OK or NG

OK >> GO TO 3.
NG >> Replace daytime light control unit.

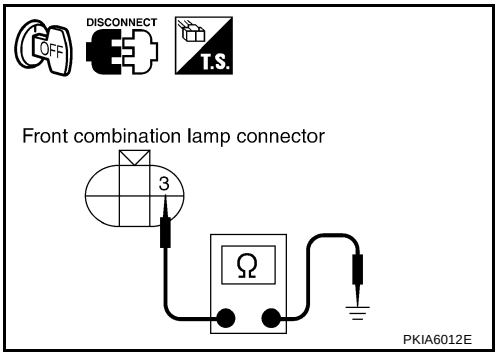
3. CHECK HEADLAMP GROUND

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

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

OK or NG

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



LH High Beam Does Not Illuminate But LH Low Beam Illuminate

AKS00ABX

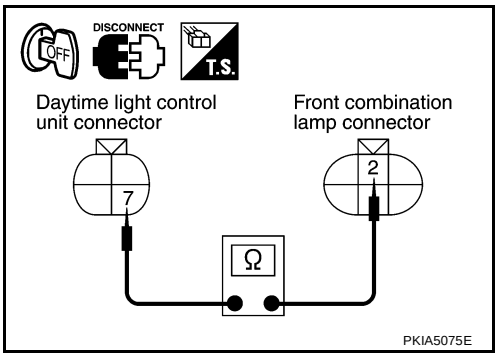
1. CHECK DAYTIME LIGHT CONTROL CIRCUIT

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

7 (SB) – 2 (SB) : Continuity should exist.

OK or NG

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



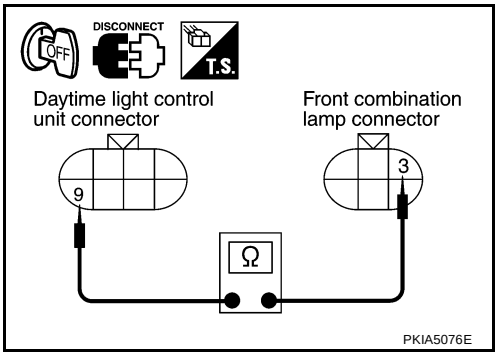
2. CHECK DAYTIME LIGHT CONTROL CIRCUIT

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

9 (Y/G) – 3 (Y/G) : Continuity should exist.

OK or NG

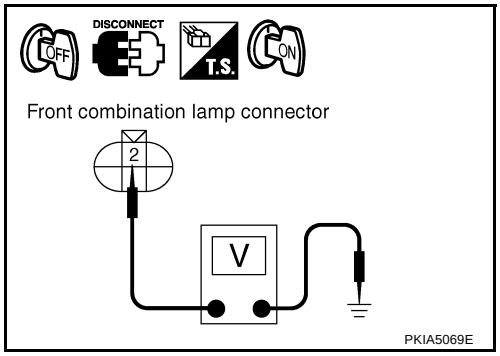
OK >> GO TO 3.
NG >> Repair harness or connector.



3. CHECK HEADLAMP INPUT SIGNAL

With CONSULT-II

1. Disconnect daytime light control unit connector.
2. Select “IPDM E/R” on CONSULT-II and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
3. Touch “HI” screen.
4. When headlamp high beam is operating, check voltage between front combination lamp LH harness connector E41 terminal 2 (SB) and ground.



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

Without CONSULT-II

- Start auto active test. Refer to PG-23, "Auto Active Test" .
- When headlamp high beam is operating, check voltage between front combination lamp LH harness connector E41 terminal 2 (SB) and ground.

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

OK or NG

OK >> Check headlamp harness and connector and headlamp bulbs.
NG >> Replace daytime light control unit.

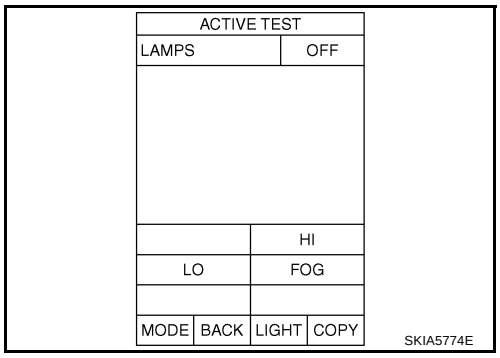
Headlamp Low Beam Does Not Illuminate (Both Sides)

AKS009SY

1. 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.

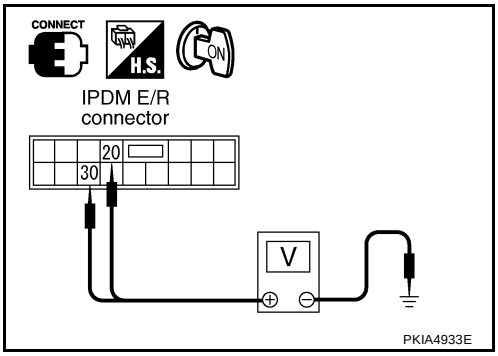
OK or NG

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

2. CHECK IPDM E/R 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 “LO” screen.
4. When headlamp low beam is operating, check voltage between IPDM E/R and ground.



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

Without CONSULT-II

- Start auto active test. Refer to PG-23, "Auto Active Test" .
- When headlamp low beam is operating, check voltage between IPDM E/R and ground.

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

OK or NG

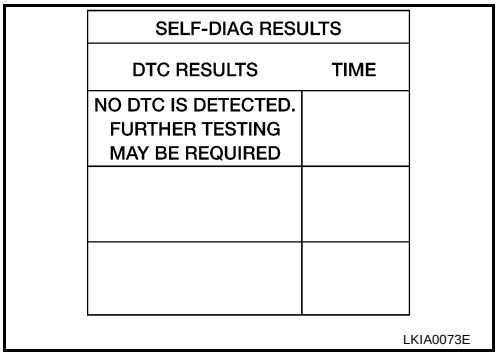
OK >> Check headlamp bulbs.
NG >> Replace IPDM E/R.

3. CHECK COMBINATION SWITCH CIRCUIT

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

Displayed results of self-diagnosis

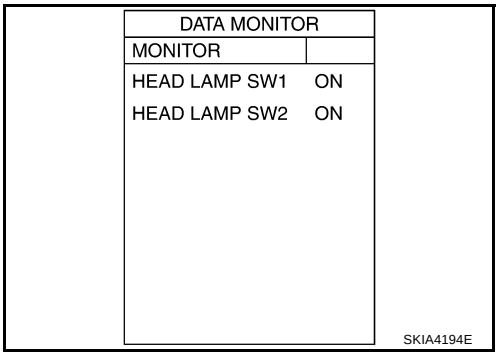
No malfunction detected>> GO TO 4.
CAN communications or CAN system>> Inspect the BCM CAN communications system. Refer to BCS-15, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .
OPEN DETECT 1 - 5>> Combination switch system malfunction. Refer to LT-162, "Combination Switch Inspection According to Self-Diagnostic Results" .
HEAD LAMP SW 1 or HEAD LAMP SW 2>> Replace lighting switch.



4. CHECK COMBINATION SWITCH INPUT SIGNAL

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

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



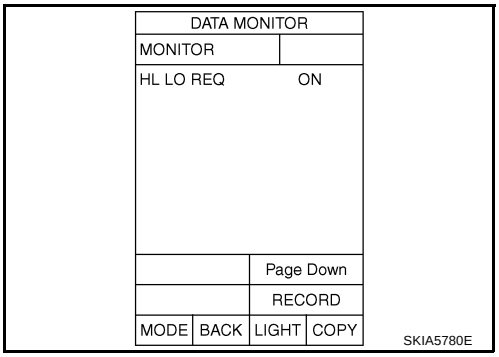
OK or NG

OK >> GO TO 5.
NG >> ● Replace lighting switch.
● If one of “HEAD LAMP SW 1” and “HEAD LAMP SW 2” is NG, replace both BCM (Refer to BCS-17, "Removal and Installation of BCM") and lighting switch.

5. 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-17, "Removal and Installation of BCM" .

RH Low Beam Does Not Illuminate But RH High Beam Illuminates

AKS009SZ

1. CHECK BULB

Inspect bulb of lamp which does not illuminate.

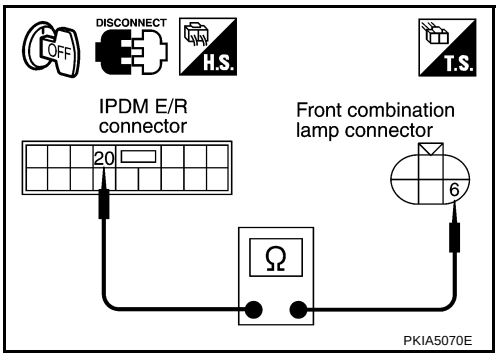
OK or NG

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

2. CHECK HEADLAMP RH CIRCUIT

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

20 (R) – 6 (R) : Continuity should exist.



OK or NG

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

LH Low Beam Does Not Illuminate But LH High Beam Illuminates

AKS009T0

1. CHECK BULB

Inspect bulb of lamp which does not illuminate.

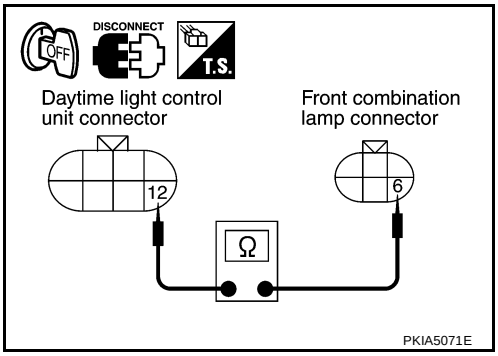
OK or NG

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

2. CHECK DAYTIME LIGHT CONTROL UNIT CIRCUIT

1. Disconnect daytime light control unit connector and front combination lamp LH connector.
2. Check harness continuity between daytime light control unit harness connector E15 terminal 12 (R)and front combination lamp LH harness connector E41 terminal 6 (R).

12 (R) – 6 (R) : Continuity should exist.



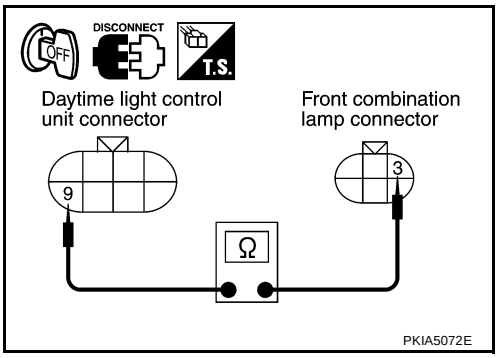
OK or NG

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

3. CHECK DAYTIME LIGHT CONTROL UNIT CIRCUIT

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

9 (Y/G) – 3 (Y/G) : Continuity should exist.



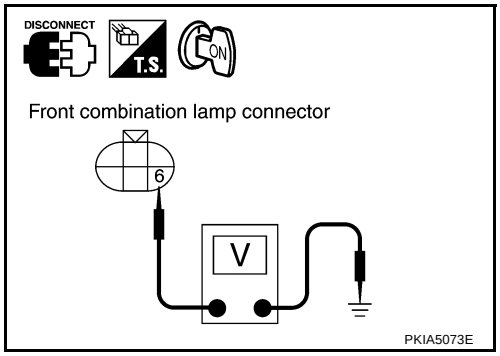
OK or NG

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

4. CHECK DAYTIME LIGHT CONTROL UNIT

With CONSULT-II

1. Connect daytime light control unit connector.
2. Select “IPDM E/R” on CONSULT-II and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
3. Select “LAMPS” on “SELECT TEST” ITEM screen.
4. Touch “LO” screen.
5. When headlamp low beam is operating, Check voltage between front combination lamp LH harness connector E41 terminal 6 (R) and ground.



6 (R) - Ground : Battery voltage should exist.

Without CONSULT-II

- Start auto active test. Refer to PG-23, "Auto Active Test" .
- When headlamp low beam operating, check voltage between front combination lamp LH harness connector E41 terminal 6 (R) and ground.

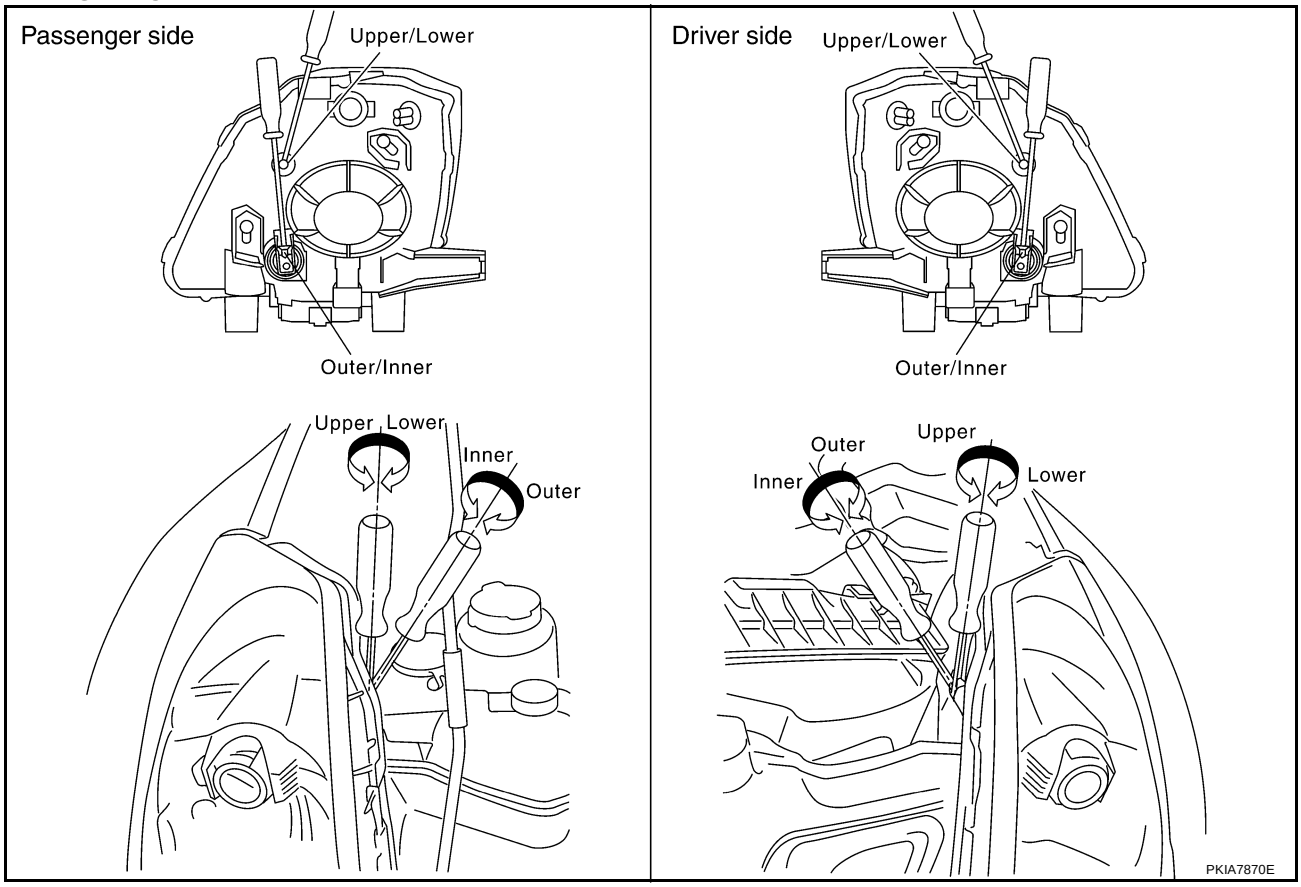
6 (R) - Ground : Battery voltage should exist.

OK or NG

OK >> Check headlamp harness and connector.
NG >> Replace daytime light control unit.

Aiming Adjustment

AKS009T1



PREPARATION BEFORE ADJUSTING

For details, refer to the regulations in your own country.
Before performing aiming adjustment, check the following.

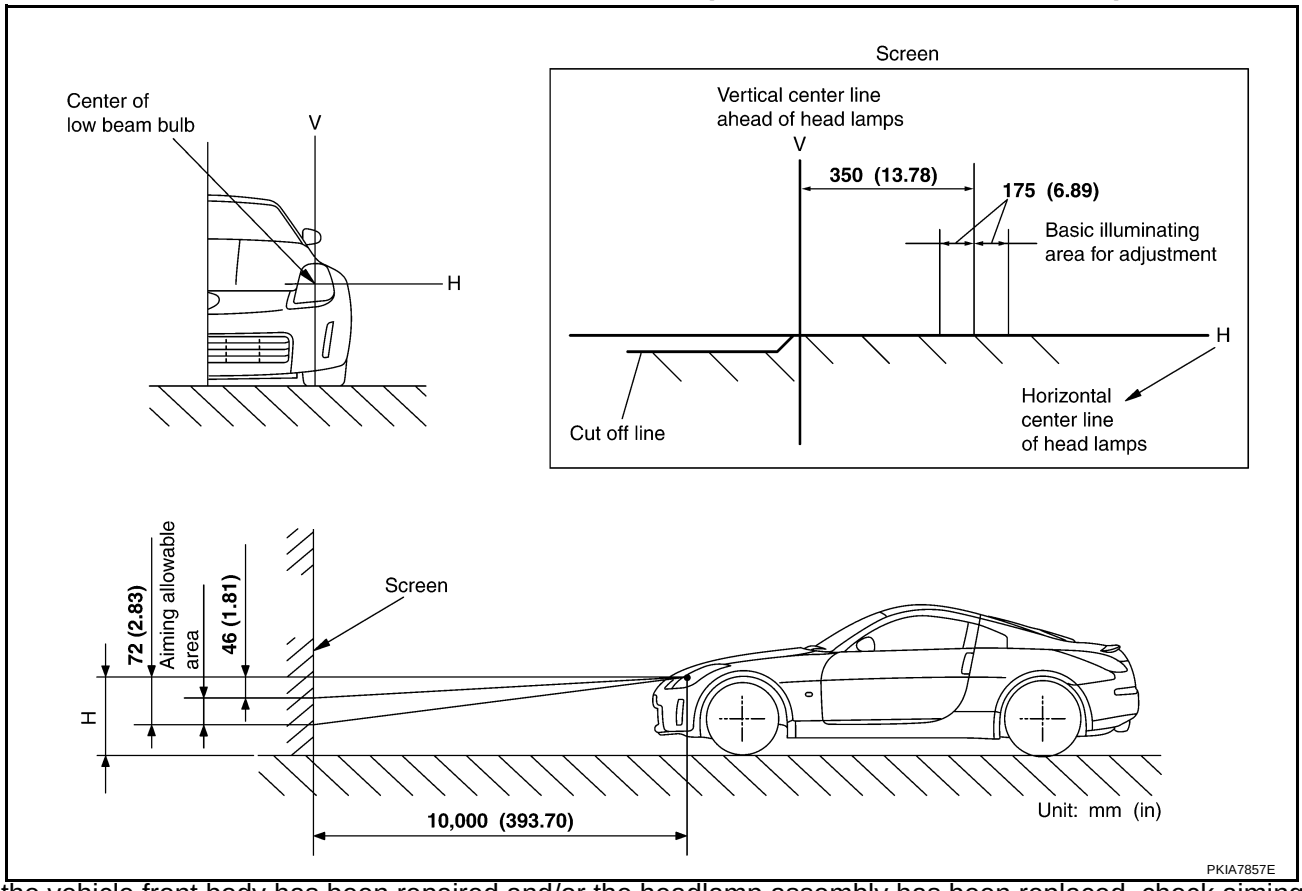
1. Keep all tires inflated to correct pressures.

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

LOW BEAM AND HIGH BEAM

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

ADJUSTMENT USING AN ADJUSTMENT SCREEN (LIGHT/DARK BORDERLINE)



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

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

Bulb Replacement

AKS009T2

HEADLAMP (UPPER) LOW BEAM

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

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

HEADLAMP (LOWER) HIGH BEAM

1. Turn lighting switch OFF.
2. Remove fender protector (front). Refer to EI-21, "FENDER PROTECTOR" in “EI” section.
3. Turn plastic cap counterclockwise and unlock it.
4. Disconnect bulb terminal.

5. Unlock retaining spring and remove bulb from headlamp.
6. Install in the reverse order of removal.

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

PARKING LAMPS (CLEARANCE LAMPS)

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.

Parking lamps (Clearance lamps) : 12V - 5W

FRONT TURN SIGNAL 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 lamp : 12V - 21W

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

FRONT SIDE MARKER LAMP

1. Turn lighting switch OFF.
2. Remove fender protector (front). Refer to EI-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 side marker lamp : 12V - 5W

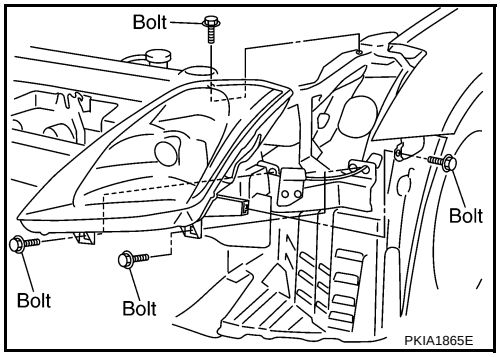
CAUTION:
After installing bulb, be sure to install plastic cap and socket securely to insure watertightness.

Removal and Installation

AKS009T3

REMOVAL

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



INSTALLATION

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

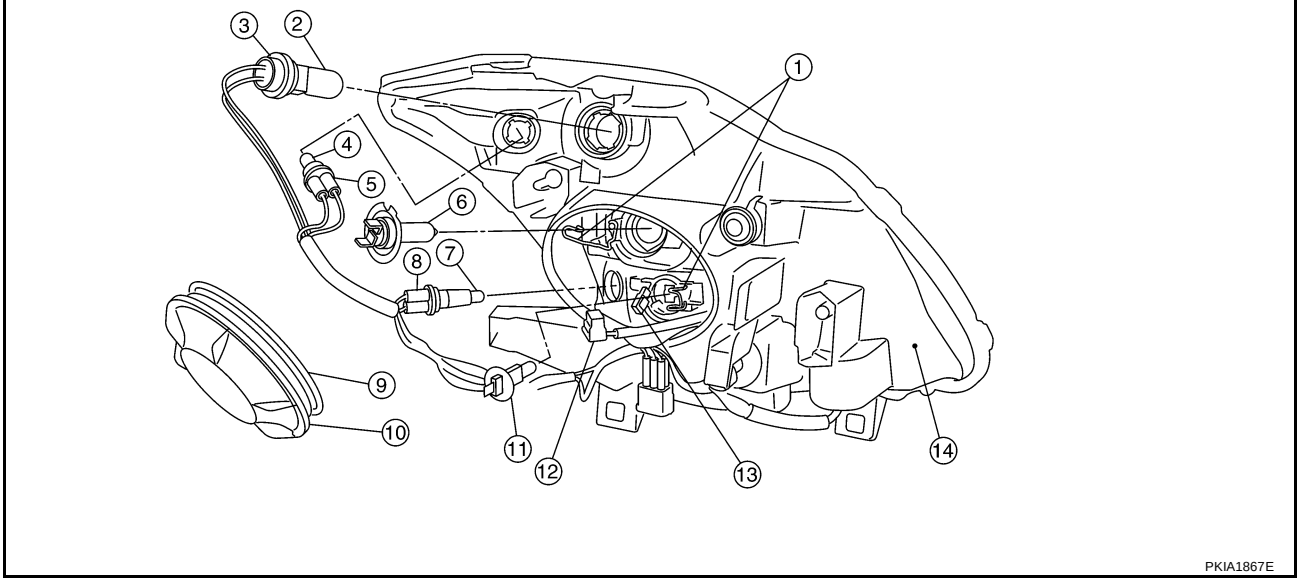
Headlamp mounting bolt : 6.1 N·m (0.62 kg-m, 54 in-lb)

NOTE:
After installation, perform aiming adjustment. Refer to LT-130, "Aiming Adjustment" .

Disassembly and Assembly

AKS009T4

HLOGEN TYPE



1. Retaining spring	2. Front turn signal lamp bulb	3. Front turn signal lamp bulb socket
4. Side marker lamp bulb	5. Side marker lamp bulb socket	6. Halogen bulb (low)
7. Halogen bulb socket	8. Clearance lamp bulb socket	9. Seal rubber
10. Plastic cap	11. Halogen bulb (high)	12. Halogen bulb socket (low)
13. Halogen bulb socket (high)	14. Headlamp housing assembly	

DISASSEMBLY

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

ASSEMBLY

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

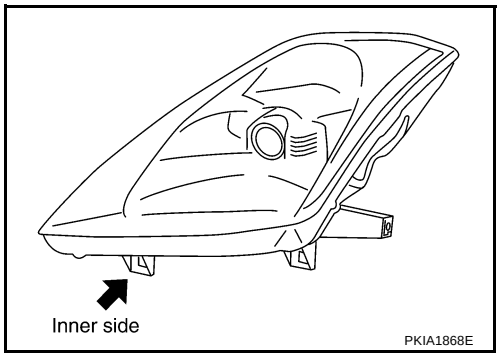
CAUTION:

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

Servicing to Replace Headlamps When Damaged

AKS009T6

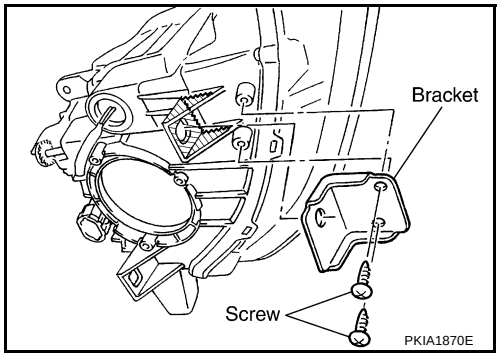
If only installation part as shown in the figure is damaged, and headlamp housing itself is not damaged, repair can be completed easily by installing correction brackets.



INSTALLATION OF HEADLAMP BRACKET

1. Remove headlamps. Refer to LT-132, "Removal and Installation" .
2. Cut damaged section of installation part, then shape with sandpaper.
3. Attach each correction bracket to headlamp housing boss with 2 screws.

RH headlamp	**Inner side**	**26040 CD000**
LH headlamp	**Inner side**	**26090 CD000**

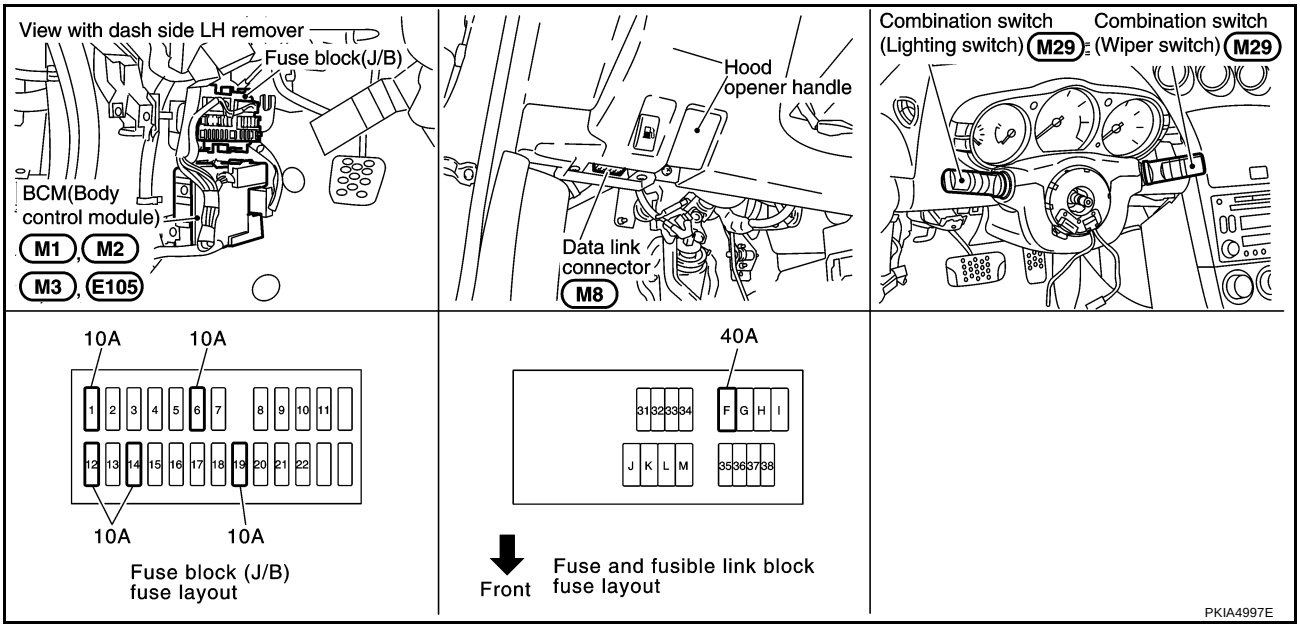


TURN SIGNAL AND HAZARD WARNING LAMPS

PFP:26120

Component Parts and Harness Connector Location

AKS009RI



System Description

AKS009QS

TURN SIGNAL OPERATION

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

- through 10A fuse [No. 1, located in fuse block (J/B)]
- to BCM (body control module) terminal 35
- through 10A fuse [No. 14, located in fuse block (J/B)]
- to combination meter terminal 23.

Ground is supplied

- to BCM (body control module) terminal 8
- through grounds E17,E43, and F152
- to combination meter terminals 10, 11 and 12
- through grounds M30 and M66.

LH Turn

When the turn signal switch (combination switch) is moved to the LH position, the BCM receives left turn signal by combination switch reading function (Refer to LT-158, "Combination Switch Reading Function"). Power is supplied

- through BCM (body control module) terminal 22
- to front combination lamp LH terminal 2*1
- to front combination lamp LH terminal 1*2
- to rear combination lamp LH terminal 2.

Ground is supplied

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

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

NOTE:
*1: Xenon headlamp, *2: Halogen headlamp

RH Turn

When the turn signal switch (combination switch) is moved to the RH position, the BCM receives right turn signal by combination switch reading function (Refer to LT-158, "Combination Switch Reading Function") power is supplied

- through BCM (body control module) terminal 21
- to front combination lamp RH terminal 2*1
- to front combination lamp RH terminal 1*2
- to rear combination lamp RH terminal 2.

Ground is supplied

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

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

NOTE:
*1: Xenon headlamp, *2: Halogen headlamp

HAZARD LAMP OPERATION

Power is supplied at all times

- through 40A fusible link [letter F, located in fuse and fusible link block]
- to BCM (body control module) terminal 7
- through 10A fuse [No. 19, located in fuse block (J/B)]
- to combination meter terminal 24.

Ground is supplied

- to hazard switch terminal 1
- through grounds M30 and M66
- to BCM terminal 8
- through grounds E17, E43 and F152
- to combination meter terminals 10, 11 and 12
- through grounds M30 and M66.

When the hazard switch is depressed, ground is supplied

- to BCM terminal 61
- through hazard lamp switch terminal 2.

The BCM then supplies power

- through BCM terminal 22
- to front combination lamp LH terminal 2*1
- to front combination lamp LH terminal 1*2
- to rear combination lamp LH terminal 2
- through BCM terminal 21
- to front combination lamp RH terminal 2*1
- to front combination lamp RH terminal 1*2
- to rear combination lamp RH terminal 2.

Ground is supplied

- to front combination lamp LH terminal 1 through grounds E17, E43 and F152*1
- to front combination lamp LH terminal 4 through grounds E17, E43 and F152*2
- to front combination lamp RH terminal 1 through grounds E17, E43 and F152*1

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

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

NOTE:
*1: Xenon headlamp, *2: Halogen headlamp

REMOTE KEYLESS ENTRY SYSTEM OPERATION

Power is supplied at all times

- through 40A fusible link [letter F, located in fuse and fusible link block]
- to BCM terminal 7
- through 10A fuse [No. 19, located in fuse block (J/B)]
- to combination meter terminal 24.

Ground is supplied

- to BCM terminal 8
- through grounds E17, E43 and F152
- to combination meter terminals 10, 11 and 12
- through grounds M30 and M66.

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

- through BCM terminal 22
- to front combination lamp LH terminal 2*1
- to front combination lamp LH terminal 1*2
- to rear combination lamp LH terminal 2
- through BCM terminal 21
- to front combination lamp RH terminal 2*1
- to front combination lamp RH terminal 1*2
- to rear combination lamp RH terminal 2.

Ground is supplied

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

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

NOTE:
*1: Xenon headlamp, *2: Halogen headlamp

COMBINATION SWITCH READING FUNCTION

Refer to LT-158, "Combination Switch Reading Function" .

CAN Communication System Description

AKS009QT

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

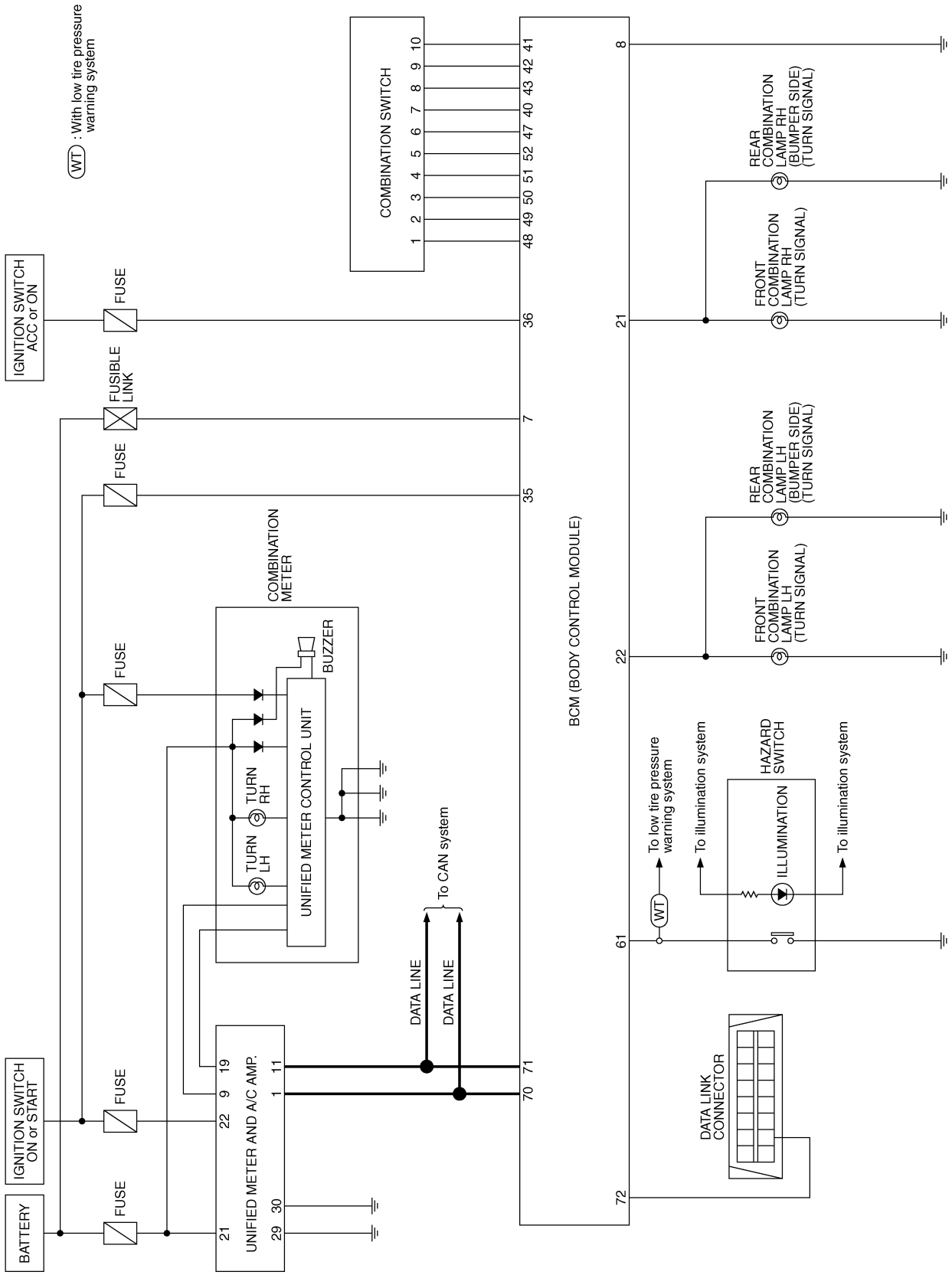
CAN Communication Unit

AKS009QU

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

Schematic

AKS009QV

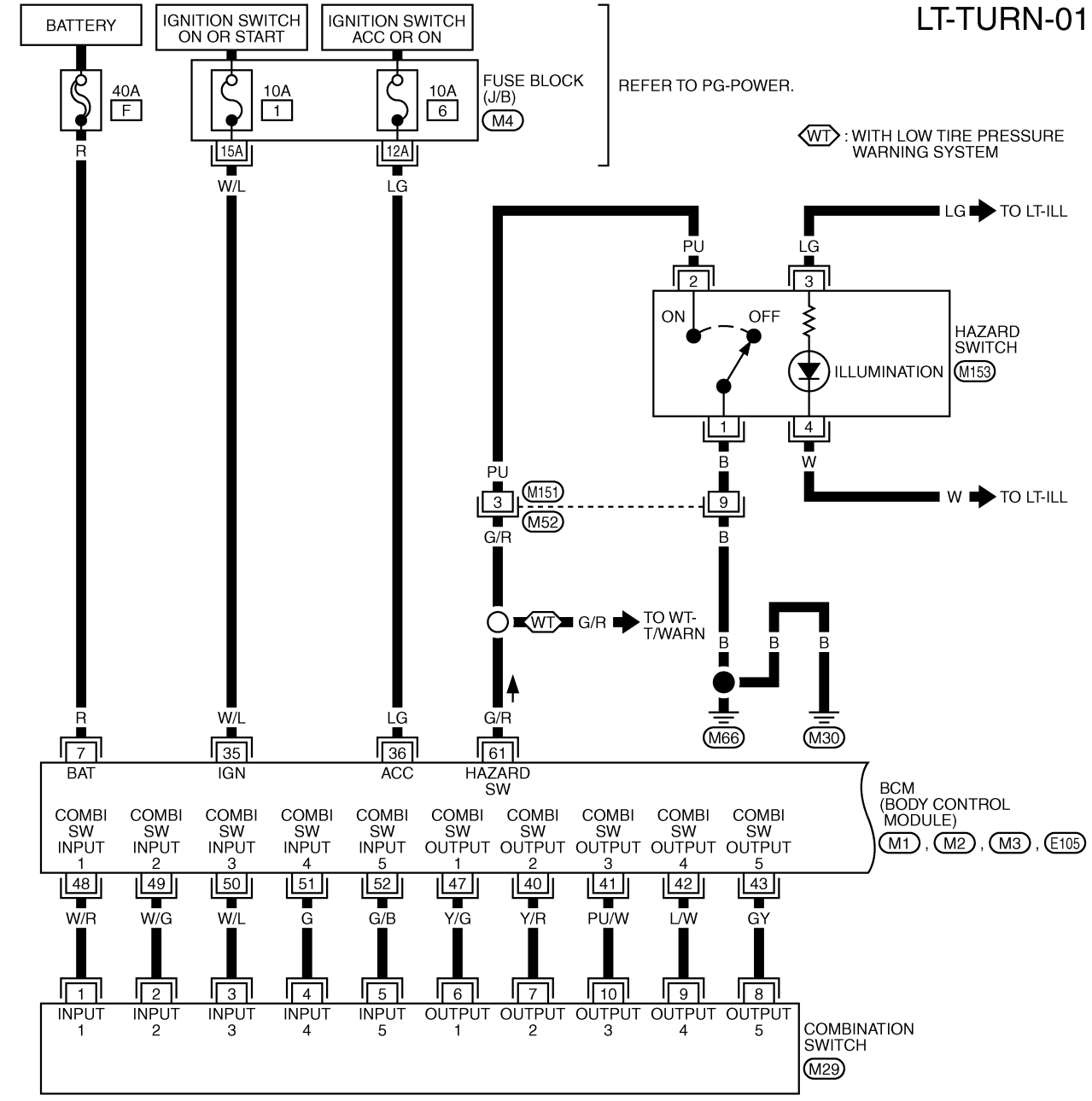


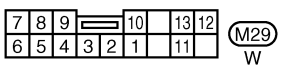
TKWT1724E

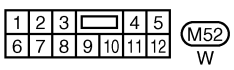
Wiring Diagram — TURN —

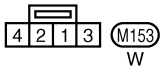
AKS009QW

COUPE MODELS





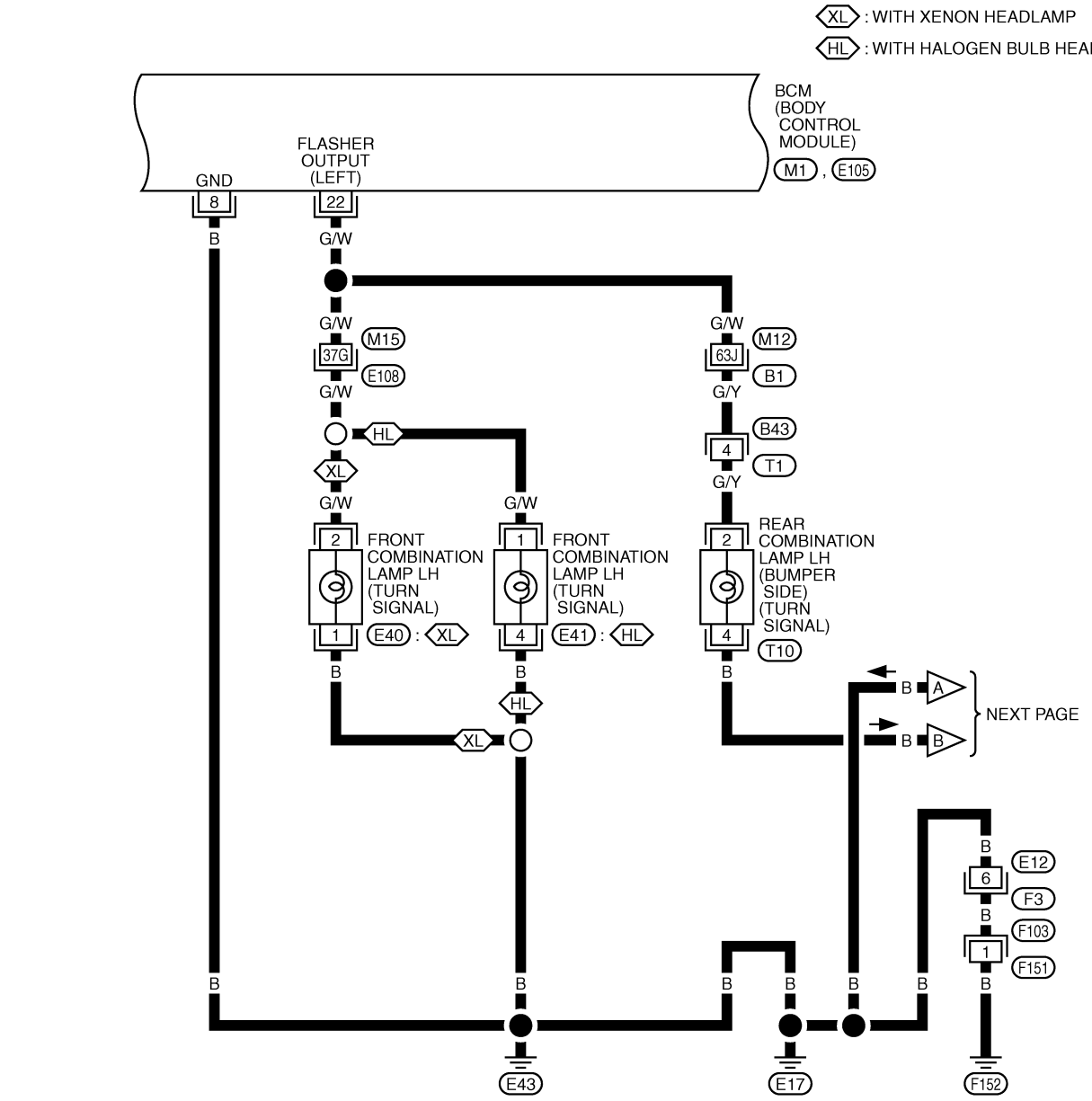


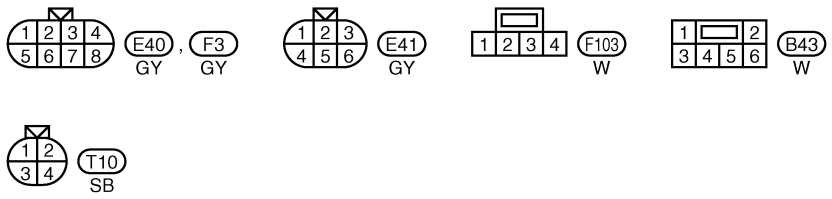


REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)
M1, M2, M3, E105 -ELECTRICAL UNITS

TKWT1725E

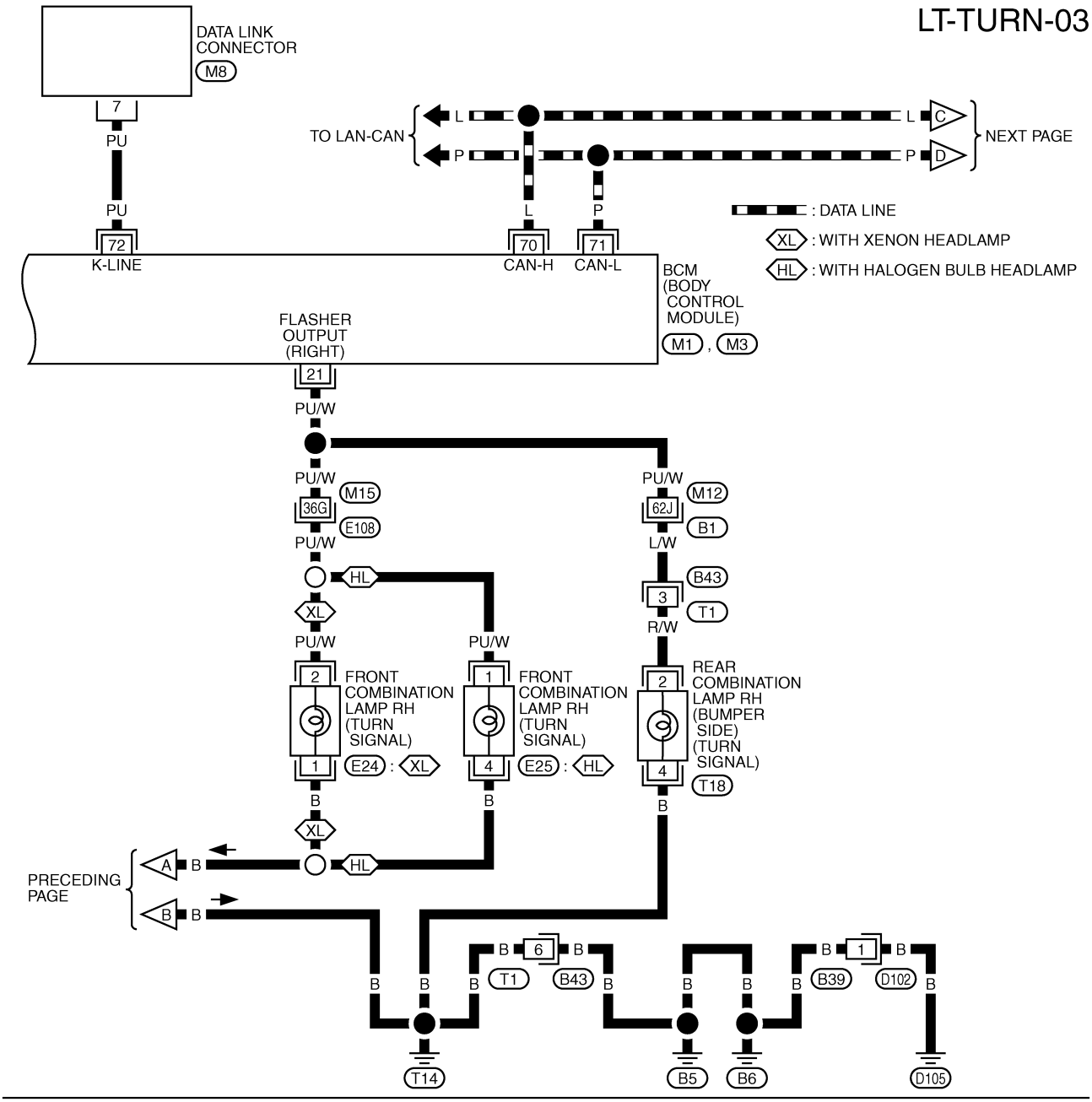
LT-TURN-02

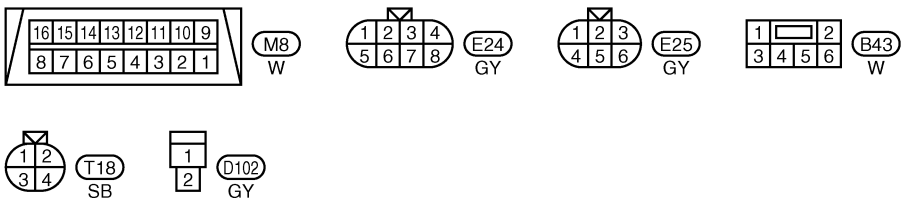




REFER TO THE FOLLOWING.
E108 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , E105 -ELECTRICAL UNITS

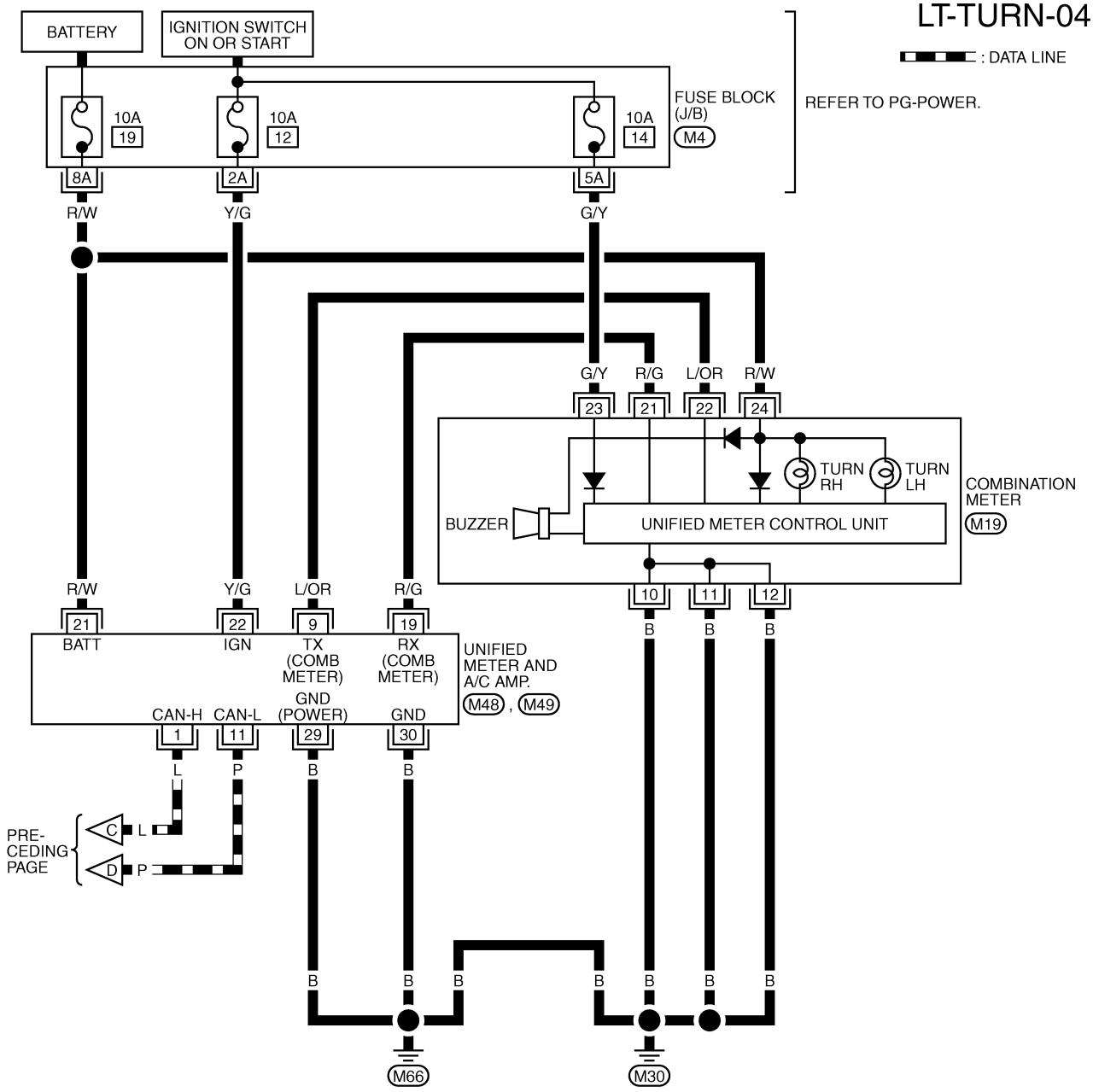
TKWT1595E





REFER TO THE FOLLOWING.
E108 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , M3 -ELECTRICAL UNITS

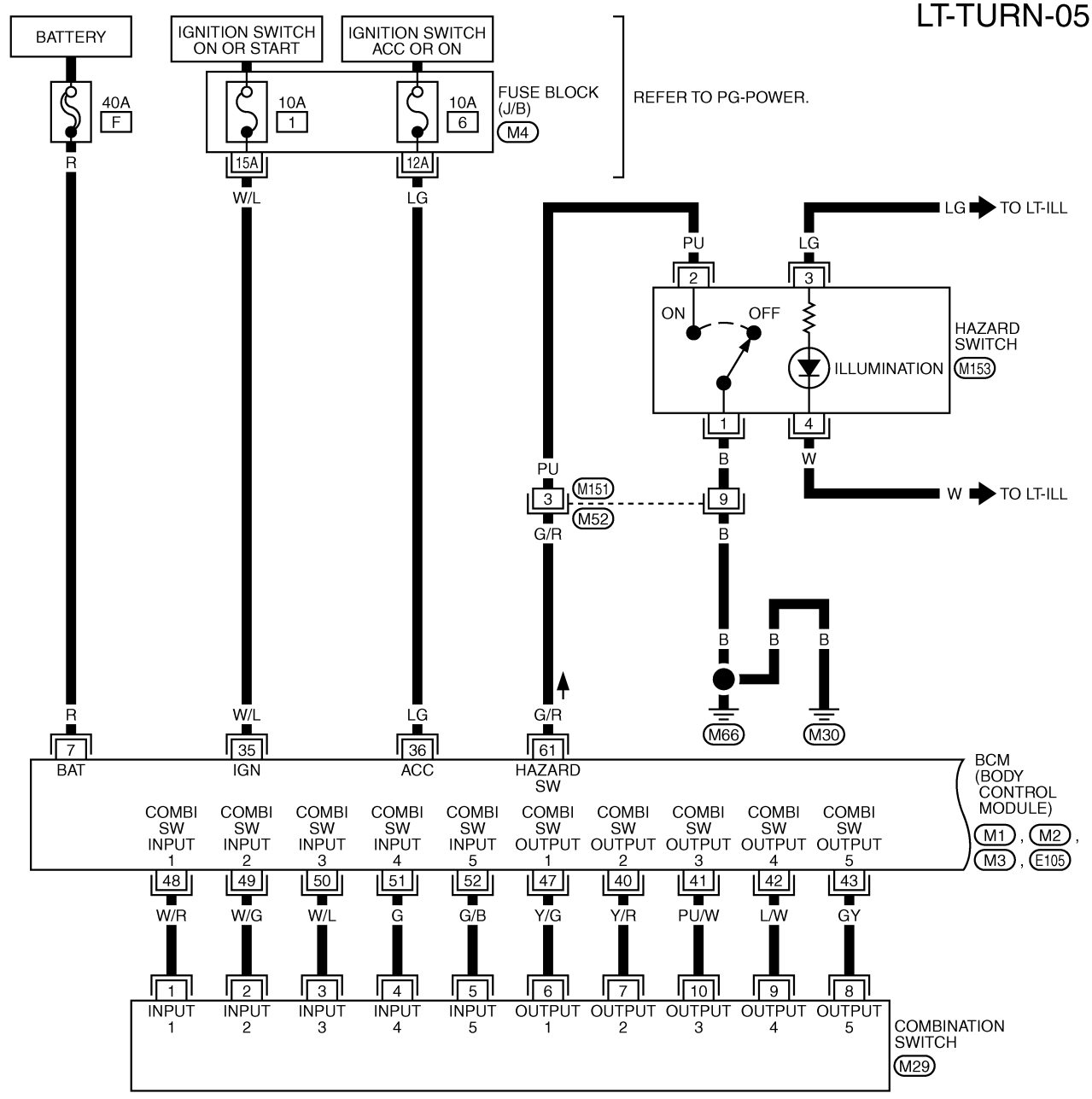
TKWT1596E

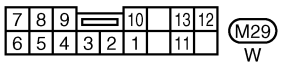

LT-TURN-04
: DATA LINE
REFER TO PG-POWER.
BATTERY
IGNITION SWITCH ON OR START
FUSE BLOCK (J/B)
M4
10A 19
10A 12
10A 14
8A
2A
5A
R/W
Y/G
G/Y
G/Y R/G L/OR R/W
23 21 22 24
BUZZER
UNIFIED METER CONTROL UNIT
TURN RH
TURN LH
COMBINATION METER
M19
R/W Y/G L/OR R/G
21 22 9 19
BATT IGN TX (COMB METER) RX (COMB METER)
GND (POWER)
GND
UNIFIED METER AND A/C AMP.
M48 , M49
CAN-H CAN-L
1 11 29 30
L P B B
10 11 12
B B B
PRE-CEDING PAGE
C L
D P
M66
M30
12 11 10 9 8 7 6 5 4 3 2 1
24 23 22 21 20 19 18 17 16 15 14 13
M19
W
1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20
M48
GY
21 22 23 24 25 26 27 28
29 30 31 32 33 34 35 36
M49
GY
H.S.
REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

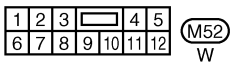
TKWT1732E

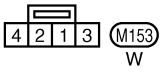
ROADSTER MODELS

LT-TURN-05





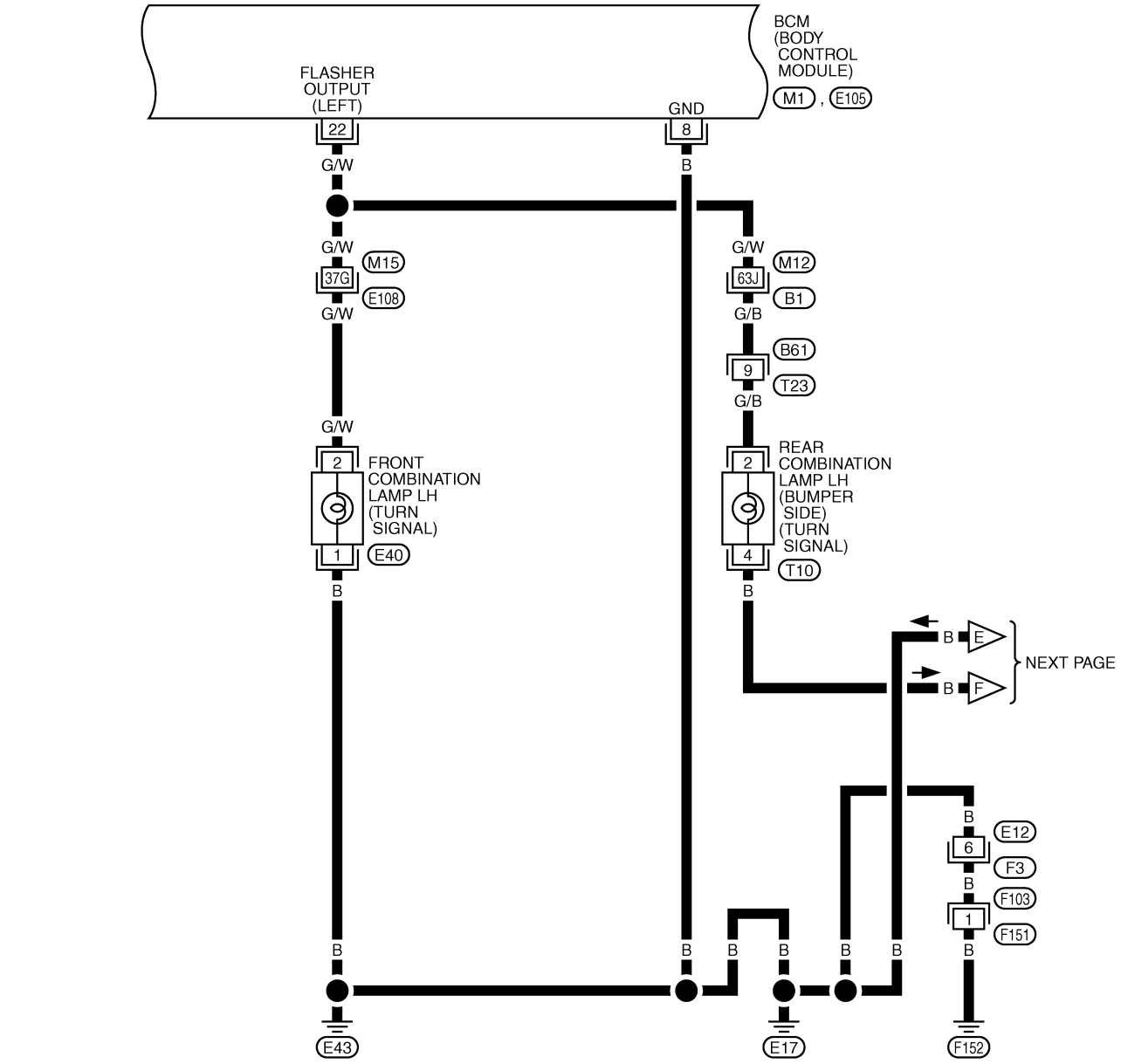


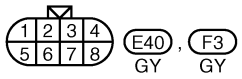


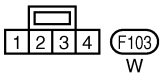
REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)
M1, M2, M3, E105 -ELECTRICAL UNITS

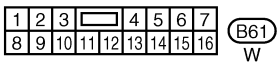
TKWT1597E

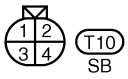
LT-TURN-06





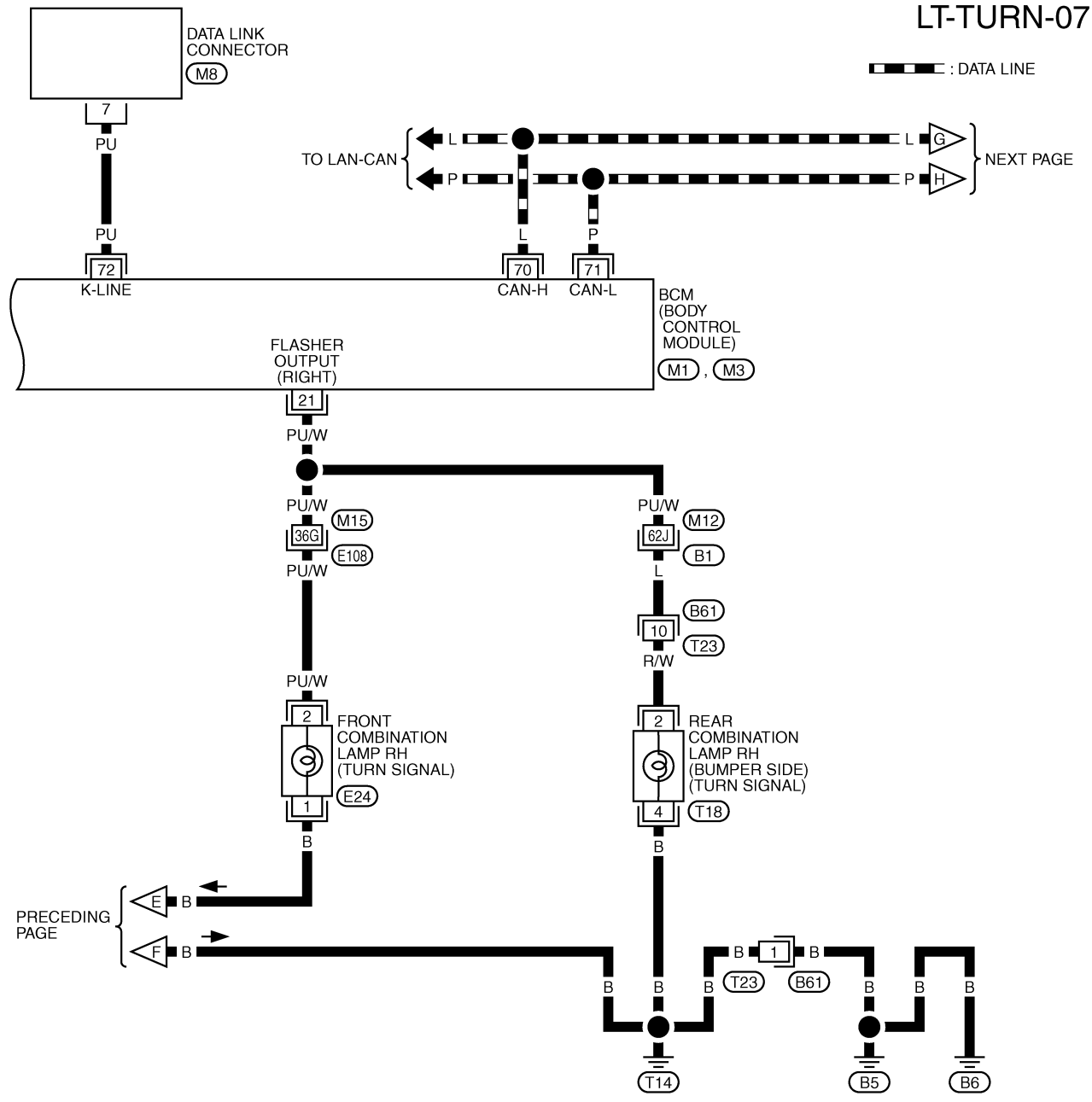


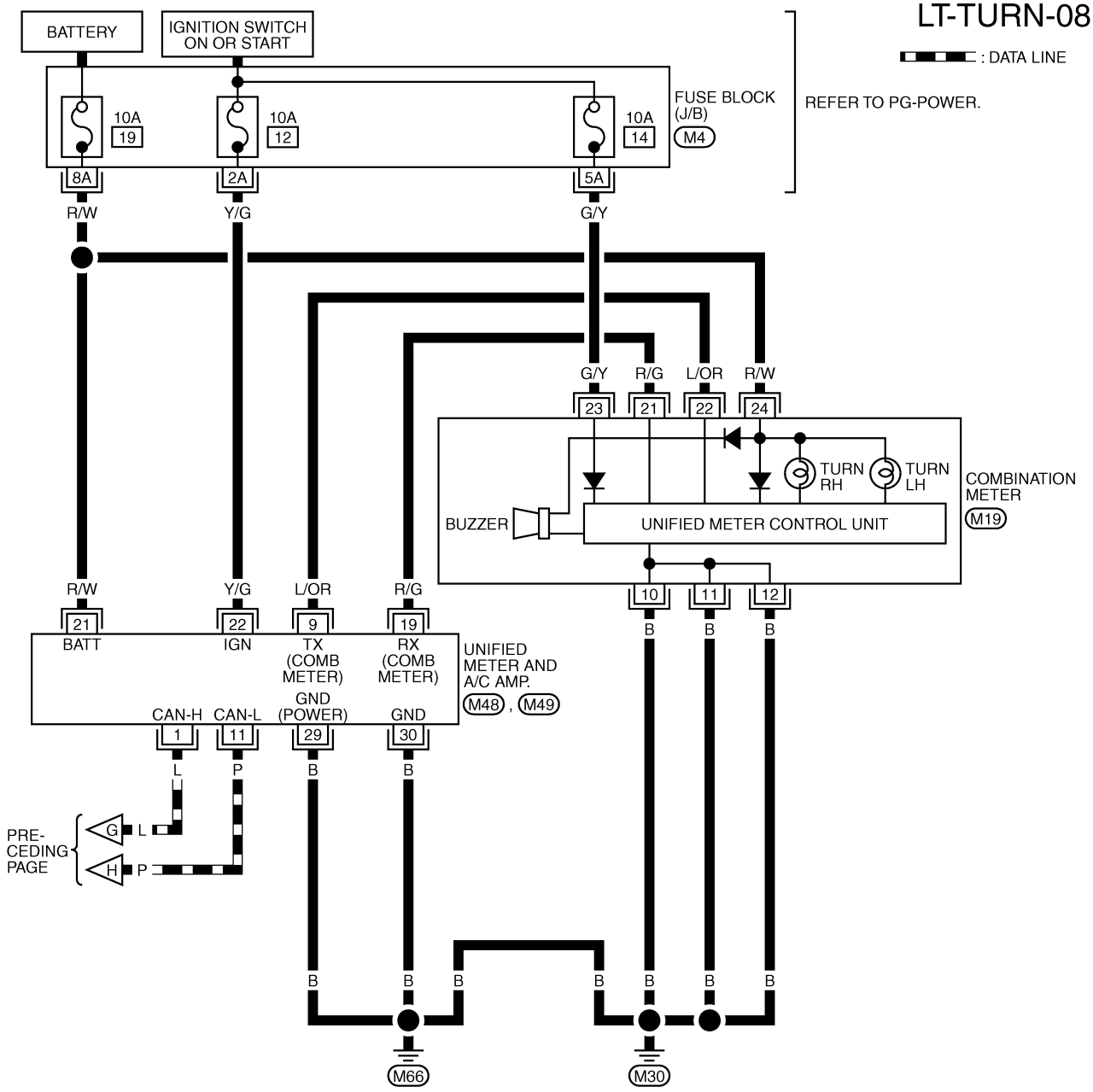


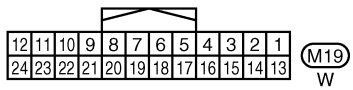


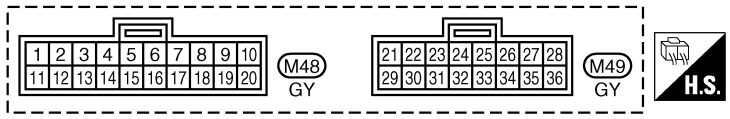
REFER TO THE FOLLOWING.
E108 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , E105 -ELECTRICAL UNITS

TKWT1598E


LT-TURN-07
DATA LINK CONNECTOR
M8
: DATA LINE
7
PU
TO LAN-CAN
L
P
L
P
G
H
NEXT PAGE
PU
72
K-LINE
L
70
CAN-H
P
71
CAN-L
BCM (BODY CONTROL MODULE)
M1 , M3
FLASHER OUTPUT (RIGHT)
21
PU/W
PU/W
M15
36G
E108
PU/W
PU/W
M12
62J
B1
L
B61
10
T23
R/W
PU/W
2
FRONT COMBINATION LAMP RH (TURN SIGNAL)
1
E24
B
2
REAR COMBINATION LAMP RH (BUMPER SIDE) (TURN SIGNAL)
4
T18
B
PRECEDING PAGE
E
B
F
B
B
B
B
B
1
B
T23
B61
B
B
B
T14
B5
B6
M8
W
E24
GY
B61
W
T18
SB
REFER TO THE FOLLOWING.
E108 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , M3 -ELECTRICAL UNITS
TKWT1599E





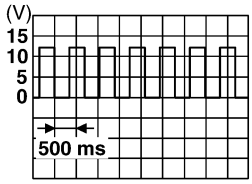
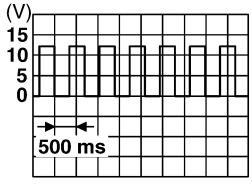
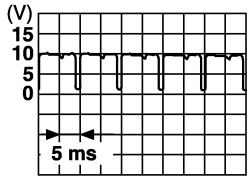


REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWT1600E

Terminals and Reference Values for BCM

AKS009QX

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
7	R	Battery power supply	OFF	—		Battery voltage
8	B	Ground	ON	—		Approx. 0V
21	PU/W	Turn signal (right)	ON	Combination switch	Turn right ON	 SKIA3009J
22	G/W	Turn signal (left)	ON	Combination switch	Turn left ON	 SKIA3009J
35	W/L	Ignition switch (ON)	ON	—		Battery voltage
36	LG	Ignition switch (ACC)	ACC	—		Battery voltage
40	Y/R	Combination switch Output 2	ON	Lighting, turn, wiper OFF		 SKIA1119J
41	PU/W	Combination switch Output 3				
42	L/W	Combination switch Output 4				
43	GY	Combination switch Output 5				
47	Y/G	Combination switch Output 1				
48	W/R	Combination switch Input 1	ON	Lighting, turn, wiper OFF		4.5V or more
49	W/G	Combination switch Input 2				
50	W/L	Combination switch Input3				
51	G	Combination switch Input 4				
52	G/B	Combination switch Input 5				
61	G/R	Hazard switch signal	OFF	Hazard switch	ON	Approx. 0V
					OFF	Approx. 5V
70	L	CAN–H	—	—		—
71	P	CAN–L	—	—		—
72	PU	K–LINE	—	—		—

How to Proceed With Trouble Diagnosis

AKS009QY

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-135, "System Description" .
3. Perform the preliminary check. Refer to LT-149, "Preliminary Check" .
4. Check symptom and repair or replace the cause of malfunction.
5. Do the turn signal and hazard warning lamps operate normally? If Yes: GO TO 6. If No: GO TO 4.
6. INSPECTION END

Preliminary Check

AKS009QZ

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

- Check for blown BCM fuses.

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

Refer to LT-140, "Wiring Diagram — TURN —" .

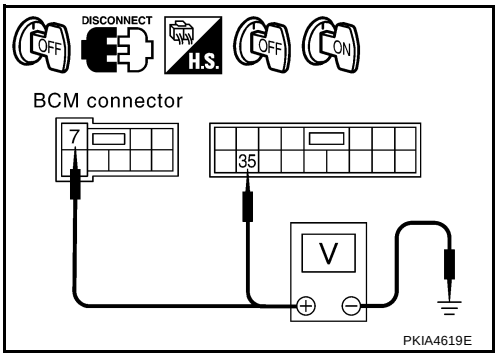
OK or NG

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

Terminals			Ignition switch position	
(+)		(-)	OFF	ON
Connector	Terminal (Wire color)			
E105	7 (R)	Ground	Battery voltage	Battery voltage
M1	35 (W/L)		0V	Battery voltage



OK or NG

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

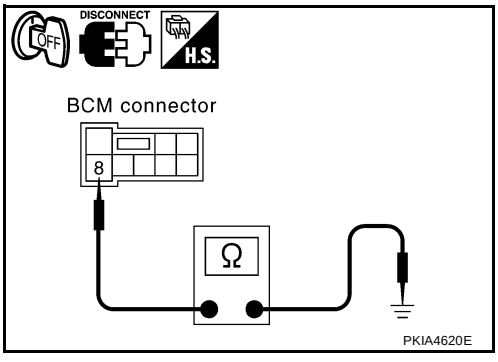
3. CHECK GROUND CIRCUIT

Check continuity between BCM and ground.

Terminals			Continuity
Connector	Terminal (wire color)	Ground	
E105	8 (B)		Yes

OK or NG

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



CONSULT-II Functions

AKS009R0

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

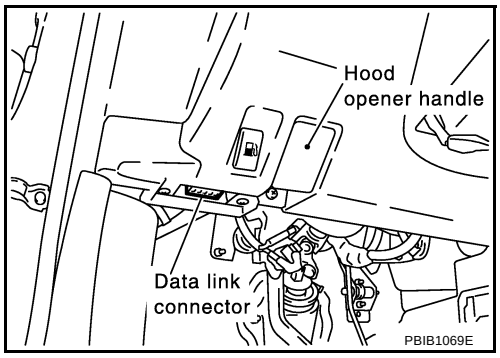
BCM diagnosis part	Check item, diagnosis mode	Description
FLASHER	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending driving signal to them.
BCM C/U	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication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

CONSULT-II BASIC OPERATION

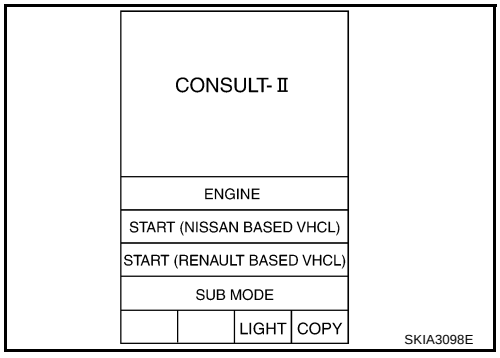
CAUTION:

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

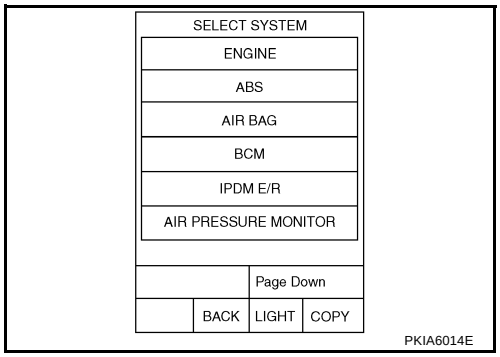
1. With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



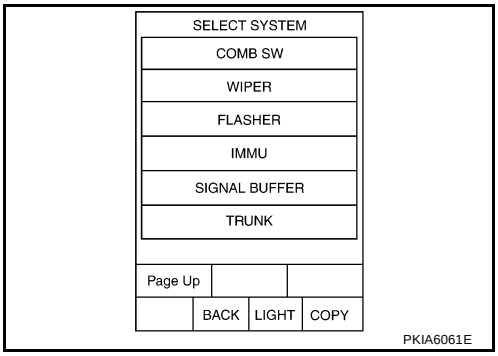
2. Touch “START(NISSAN BASED VHCL)”.



3. Touch “BCM” on “SELECT SYSTEM” screen.
If “BCM” is not indicated, refer to GI-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.

ACTIVE TEST

Operation Procedure

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

Display Item List

Test item	Description
FLASHER RIGHT	Turn signal lamp (right) can be operated by any ON-OFF operations.
FLASHER LEFT	Turn signal lamp (left) can be operated by any ON-OFF operations.
FLASHER RIGHT (CAN)	Turn signal lamp (right) indicator signal can be output by CAN communication line to gauges by any ON-OFF operations.
FLASHER LEFT (CAN)	Turn signal lamp (left) indicator signal can be output by CAN communication line to gauges by any ON-OFF operations.

Turn Signal Lamp Does Not Operate

AKS009R1

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 CIRCUIT

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

Displayed results of self-diagnosis

Diagnosis system 1 - 5>> Combination switch system malfunction. Refer to LT-162, "Combination Switch Inspection According to Self-Diagnostic Results" .
No malfunction detected>> GO TO 3.

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

LKIA0073E

3. CHECK COMBINATION SWITCH INPUT SIGNAL

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

DATA MONITOR	
MONITOR	
TURN SIGNAL R	ON
TURN SIGNAL L	ON

SKIA4499E

OK or NG

OK >> GO TO 4.
NG >> Replace lighting switch.

4. ACTIVE TEST

1. Select “FLASHER” during active test. Refer to LT-151, "ACTIVE TEST" .
2. Make sure “FLASHER RIGHT” and “FLASHER LEFT” operate.

Turn signal lamp should operate.

OK or NG

OK >> Replace BCM. Refer to BCS-17, "Removal and Installation of BCM" .
NG >> GO TO 5.

ACTIVE TEST

FLASHER RIGHT	OFF

ON	
MODE / BACK / LIGHT / COPY	

PKIA6079E

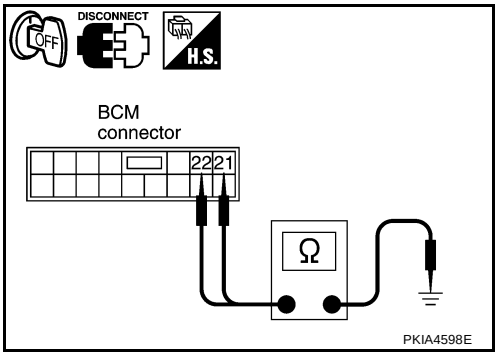
5. CHECK SHORT CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and all turn signal lamp connectors.
3. Check continuity (short circuit) between BCM harness connector M1 terminal 21(PU/W) and ground.

21 (PU/W) – Ground : Continuity should not exist.

4. Check continuity (short circuit) between BCM harness connector M1 terminal 22 (G/W) and ground.

22 (G/W) – Ground : Continuity should not exist.



OK or NG

OK >> Replace BCM if turn signal lamps does not work after setting the connector again. Refer to BCS-17, "Removal and Installation of BCM" .

NG >> After repairing harness be sure to disconnect battery negative cable, and then reconnect it.

Hazard Warning Lamps Do Not Operate But Turn Signal Lamps Operate

AKS009R2

1. CHECK BULB

Check that bulb standard of each turn signal lamp is correct.

OK or NG

OK >> GO TO 2.

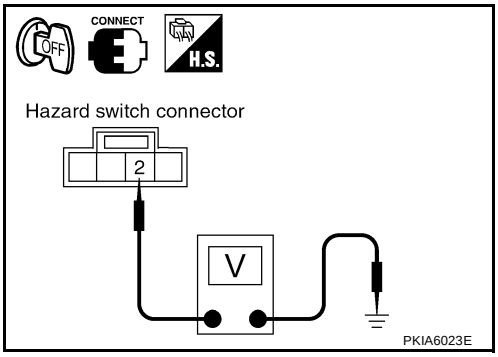
NG >> Replace turn signal lamp bulb.

2. CHECK HAZARD SWITCH INPUT SIGNAL

With out CONSULT-II

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

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



OK or NG

OK >> GO TO 4.

NG >> GO TO 3.

3. CHECK HAZARD SWITCH SIGNAL CIRCUIT

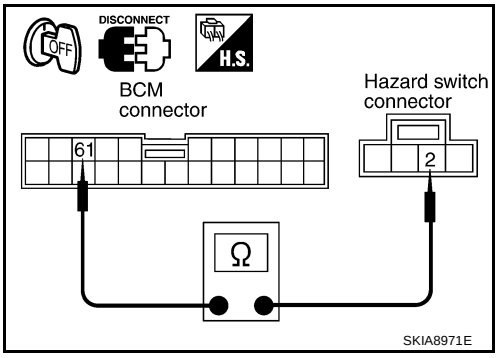
1. Turn ignition switch OFF.
2. Disconnect BCM connector and hazard switch connectors.
3. Check continuity between BCM harness connector M3 terminal 61 (G/R) and hazard switch connector M153 terminal 2 (PU).

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

OK or NG

OK >> Replace BCM. Refer to BCS-17, "Removal and Installation of BCM" .

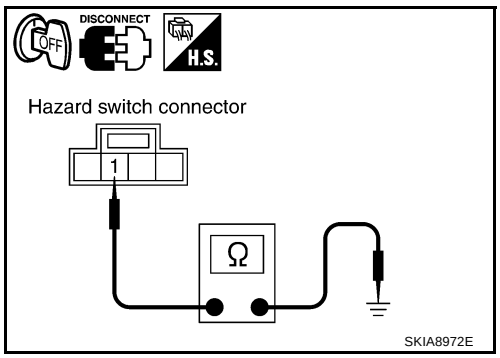
NG >> Repair harness or connector.



4. CHECK HAZARD SWITCH GROUND CIRCUIT

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

1 (B) – Ground : Continuity should exist.



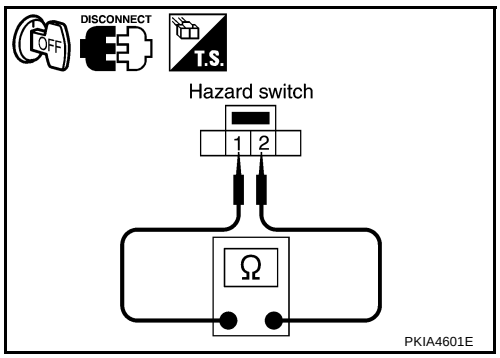
OK or NG

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

5. CHECK HAZARD SWITCH

Check continuity between hazard switch connectors.

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



OK or NG

OK >> Replace BCM. Refer to BCS-17, "Removal and Installation of BCM" .
NG >> Replace hazard switch.

Turn Signal Indicator Lamp Does Not Operate

AKS009R3

1. CHECK BULB

Inspect 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)

AKS009R4

Refer to LT-33, "Bulb Replacement" in “HEADLAMP (FOR USA)”.

Bulb Replacement (Rear Turn Signal Lamp)

AKS009R5

Refer to LT-198, "Bulb Replacement" in “REAR COMBINATION LAMP”.

Removal and Installation of Front Turn Signal Lamp

AKS009R6

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

Removal and Installation of Rear Turn Signal Lamp

AKS009R7

Refer to LT-199, "Removal and Installation" in “REAR COMBINATION LAMP”.

LIGHTING AND TURN SIGNAL SWITCH

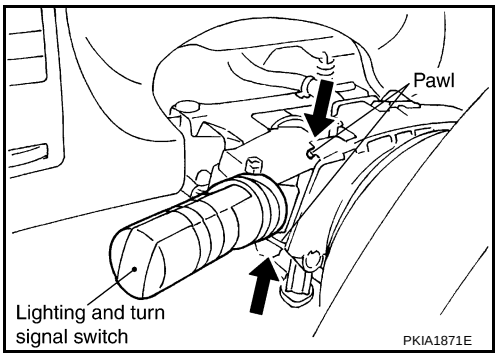
PFP:25540

Removal and Installation

AKS000UU

REMOVAL

1. Remove steering column lower cover. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" in “IP” section.
2. Remove column upper cover and combination meter assembly. 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.



INSTALLATION

Install in the reverse order of removal.

HAZARD SWITCH

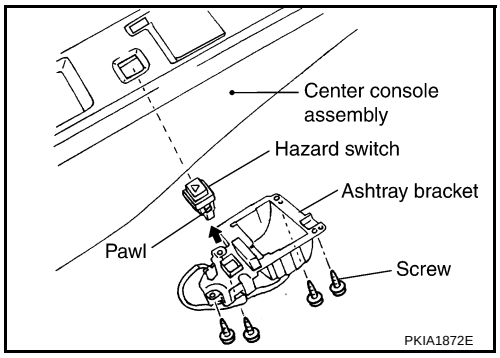
PFP:25290

Removal and Installation

AKS000UV

REMOVAL

1. Remove center console assembly. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" in “IP” section.
2. Disconnect hazard switch connector.
3. Remove ashtray bracket assembly from center console assembly.
4. Press pawl on reverse side and remove the hazard switch.



INSTALLATION

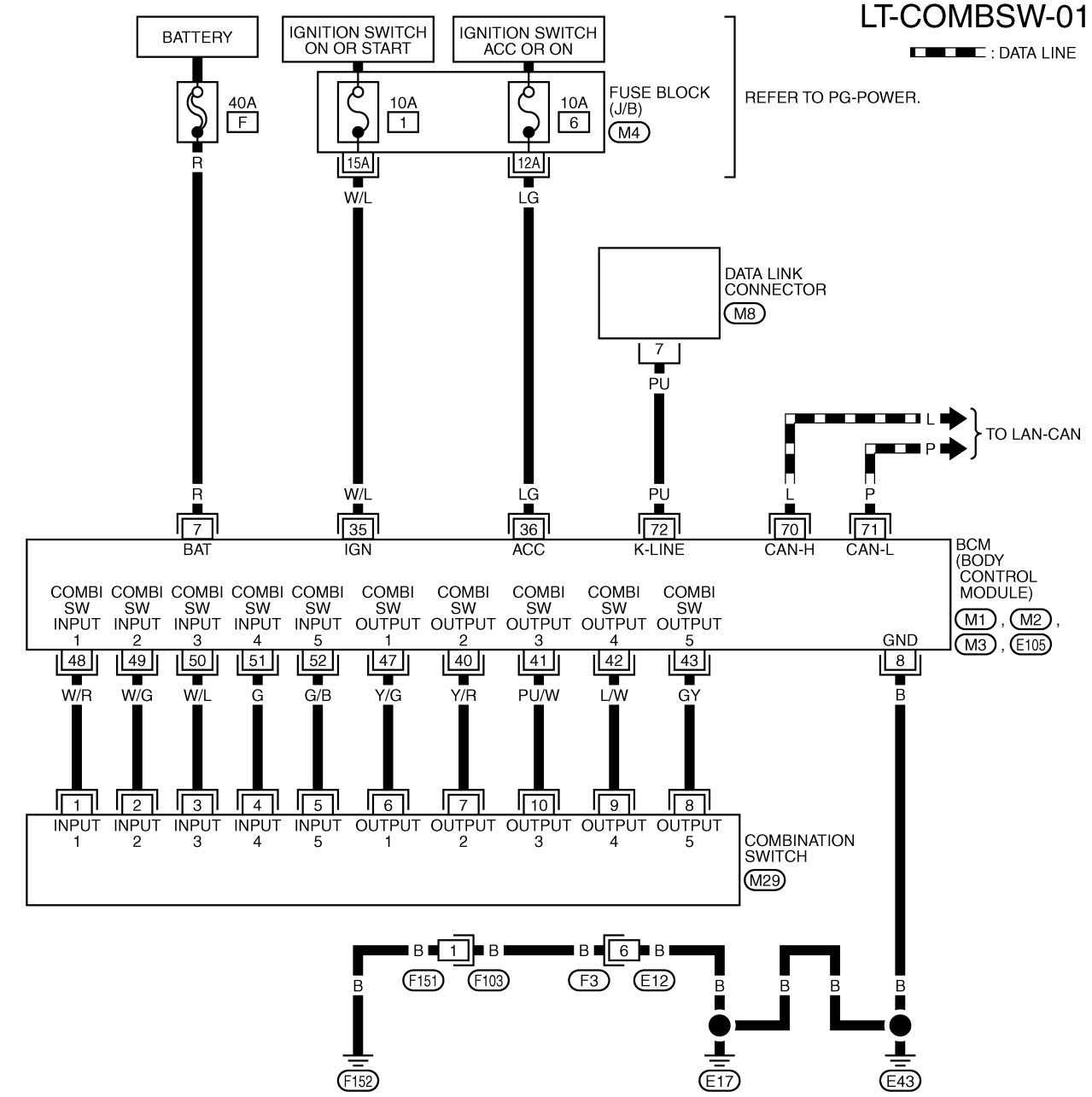
Install in the reverse order of removal.

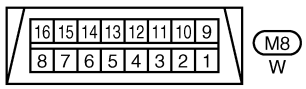
COMBINATION SWITCH

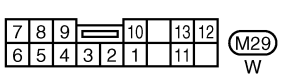
PFP:25567

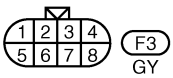
Wiring Diagram—COMBSW—

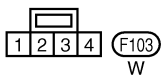
AKS009RM











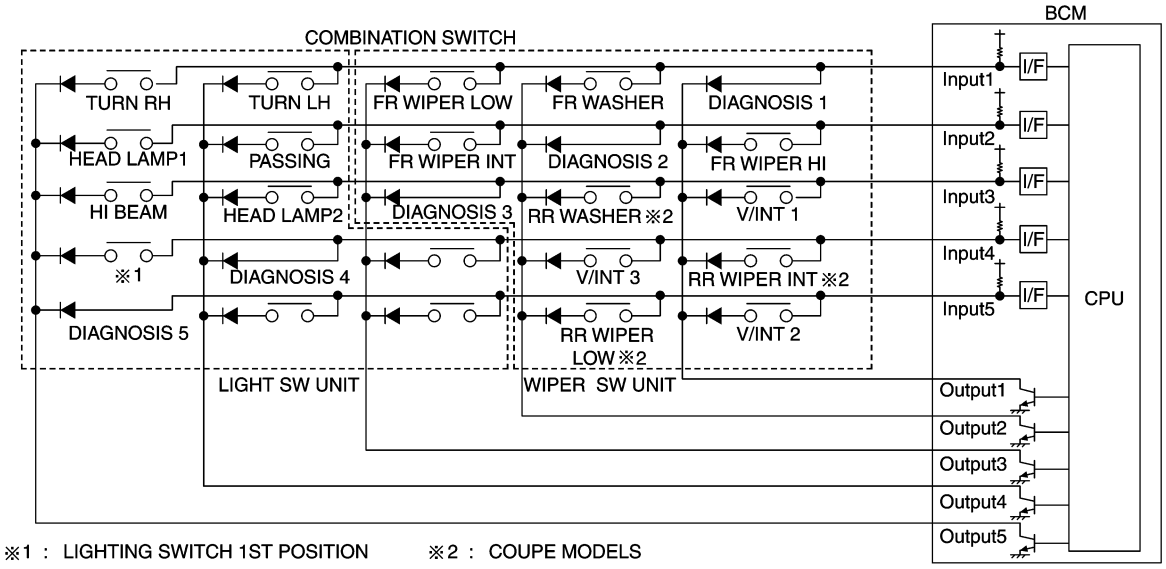
REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)
M1, M2, M3, E105 -ELECTRICAL UNITS

TKWT1320E

Combination Switch Reading Function

AKS009RN

1. Description
   - BCM reads combination switch (light, wiper washer, turn signal) status, and controls various electrical components according to the results.
   - BCM reads information of 20 switches and 5 diagnostic results by combining five output terminals (OUTPUT 1 - 5) and five input terminals (INPUT 1 - 5).
2. Operation description
   - BCM outputs battery voltage from input terminals (INPUT 1 - 5) all the time. At the same time output terminals (OUTPUT 1 - 5) activate transistors in turn, and allow current to flow. At this time, if any (1 or more) of the switches are ON, the input terminals corresponding to these switches detect current flow, and the interface of BCM detects the condition. Then BCM judges switches are ON.



PKIA5040E

3. BCM - Operation table of combination switches
   - BCM reads operation status of combination switches by the combination shown in the table.

	COMB SW INPUT 1		COMB SW INPUT 2		COMB SW INPUT 3		COMB SW INPUT 4		COMB SW INPUT 5	
	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
COMB SW OUTPUT 1	DIAGNOSIS 1 OK	DIAGNOSIS 1 NG	FR WIPER HI ON	FR WIPER HI OFF	V/INT 1 ON	V/INT 1 OFF	RR WIPER INT ON ※	RR WIPER INT OFF ※	V/INT 2 ON	V/INT 2 OFF
COMB SW OUTPUT 2	FR WASHER ON	FR WASHER OFF	DIAGNOSIS 2 OK	DIAGNOSIS 2 NG	RR WASHER ON※	RR WASHER OFF ※	V/INT 3 ON	V/INT 3 OFF	RR WIPER ON ※	RR WIPER OFF ※
COMB SW OUTPUT 3	FR WIPER LOW ON	FR WIPER LOW OFF	FR WIPER INT ON	FR WIPER INT OFF	DIAGNOSIS 3 OK	DIAGNOSIS 3 NG	—	—	—	—
COMB SW OUTPUT 4	TURN LH ON	TURN LH OFF	PASSING ON	PASSING OFF	HEAD LAMP 2 ON	HEAD LAMP 2 OFF	DIAGNOSIS 4 OK	DIAGNOSIS 4 NG	—	—
COMB SW OUTPUT 5	TURN RH ON	TURN RH OFF	HEAD LAMP 1 ON	HEAD LAMP 1 OFF	HI BEAM ON	HI BEAM OFF	LIGHTING SWITCH 1ST POSITION ON	LIGHTING SWITCH 1ST POSITION OFF	DIAGNOSIS 5 OK	DIAGNOSIS 5 NG

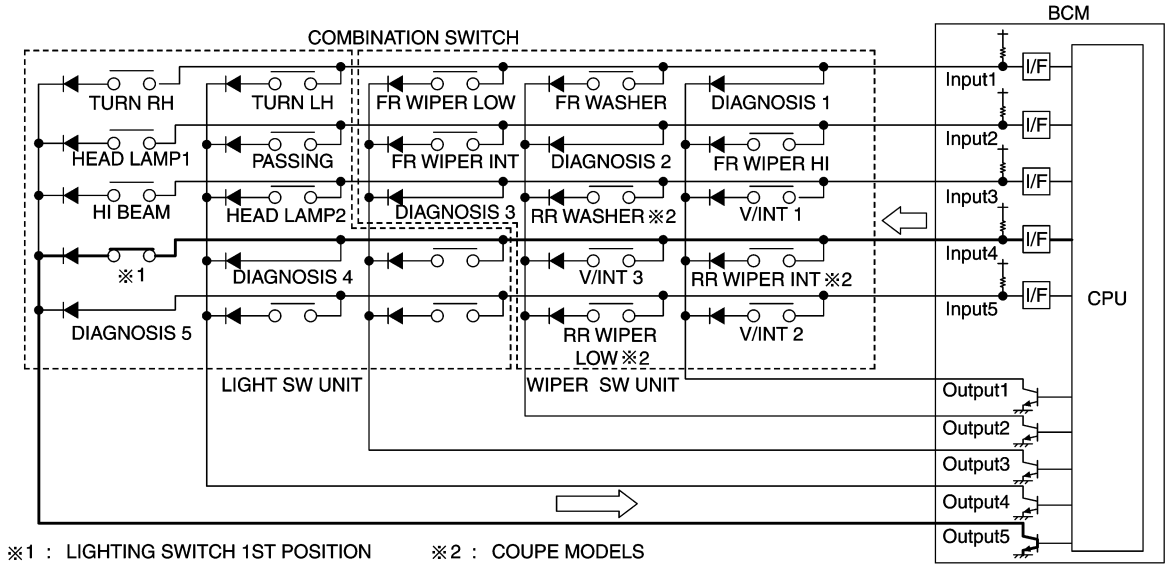
※ : COUPE MODELS

PKIA5041E

NOTE:
Dual switches are set for head lamps.

4. Example (When lighting switch 1st position switch is turned ON)

- When lighting switch 1st position switch is turned ON, contact in combination switch turns ON. At this time if OUTPUT 5 transistor is activated, BCM detects current flow in INPUT 4.
- When OUTPUT 5 transistor is ON, BCM detects current flow in INPUT 4, and judges lighting switch 1st position switch is ON. Then BCM sends tail lamp ON signal to IPDM E/R using CAN communication.
- When OUTPUT 5 transistor is activated again, BCM detects current flow in INPUT 4, and confirms lighting switch 1st position switch is continuously ON.



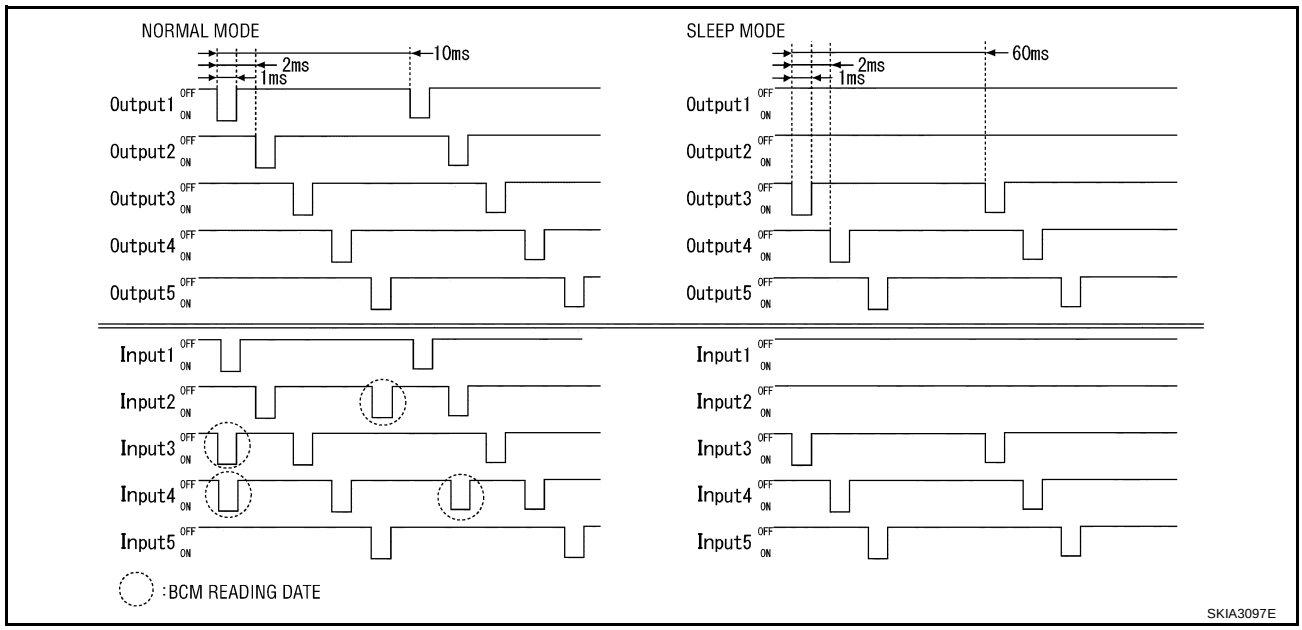
PKIA5107E

NOTE:
Each OUTPUT terminal transistor is activated at 10 ms intervals. Therefore, after a switch is turned ON, the electrical loads are activated with a time delay, but this time delay is so short that it cannot be noticed.

5. Operation mode
   - Combination switch reading function has operation modes shown below.

a. Normal mode
   - When BCM is not in sleep mode, each OUTPUT (1 - 5) terminal turns ON-OFF at 10 ms intervals.

b. Sleep mode
   - When BCM is in sleep mode, transistors of OUTPUT 1 and 2 stop the output, and BCM enters low-current-consumption mode. OUTPUTS (3 - 5) turn ON-OFF at 60 ms intervals, and receive lighting switch input only.



SKIA3097E

CONSULT-II Function

AKS009RO

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

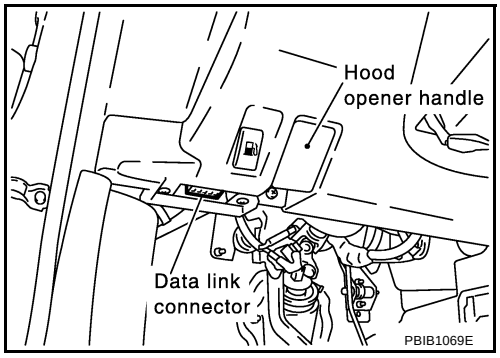
BCM diagnosis part	Check item, diagnosis mode	Description
Combination switch	Data monitor	Displays BCM input data in real time.

CONSULT-II BASIC OPERATION

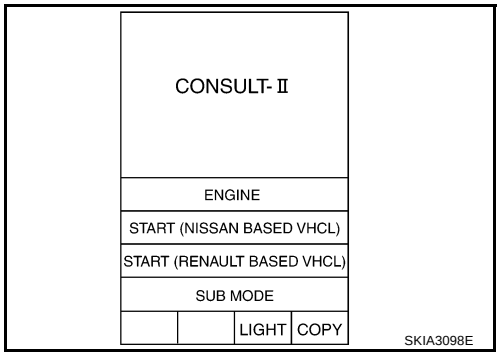
CAUTION:

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

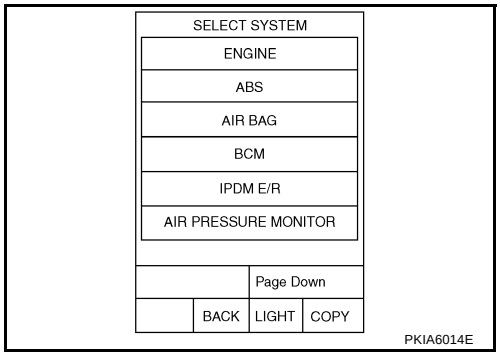
1. With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



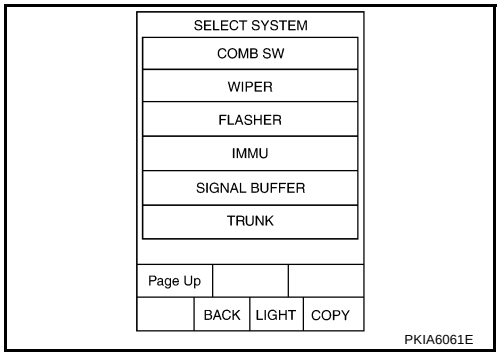
2. Touch “START(NISSAN BASED VHCL)”.



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



4. Select the desired part to be diagnosed on “SELECT TEST ITEM” screen.



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
LIGHT SW 1ST	“ON/OFF”	Displays status (lighting switch 1st position: ON/Others: OFF) of lighting 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.
HI BEAM SW	“ON/OFF”	Displays status (high beam switch: ON/Others: OFF) of high beam 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[NOTE]	“OFF”	—
FR FOG SW[NOTE]	“OFF”	—
FR WIPER HI	“ON/OFF”	Displays “Front Wiper HI (ON)/Other (OFF)” status, determined from wiper switch signal.
FR WIPER LOW	“ON/OFF”	Displays “Front Wiper LOW (ON)/Other (OFF)” status, determined from wiper switch signal.
FR WIPER INT	“ON/OFF”	Displays “Front Wiper INT (ON)/Other (OFF)” status, determined from wiper switch signal.
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.
FR WASHER SW	“ON/OFF”	Displays “Front Washer Switch (ON)/Other (OFF)” status, determined from wiper switch signal.
RR WASHER SW	“ON/OFF”	Displays “rear Washer Switch (ON)/Other (OFF)” status as judged from wiper 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.

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

Combination Switch Inspection According to Self-Diagnostic Results

AKS009RP

1. SELF-DIAGNOSTIC RESULT CHECK

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 to CONSULT–II, and select “BCM” on “SELECT SYSTEM” screen.
2. Select “BCM control unit ” on “SELECT WORK ITEM”screen, and select “SELF-DIAG RESULTS”.
3. Check display content in self-diagnostic results.

CONSULT-II display code	Self-diagnostic result content	Malfunctioning switch system	Detection conditions	Possible causes
B2049	OPEN DETECT 1	In the case you are not able to turn on the switch by pattern 1 or 2. Pattern 1 ● FRONT WIPER HI ● Intermittent control 1 ● RR WIPER INT ● Intermittent control 2 Pattern 2 ● FR WASHER ● FRONT WIPER LOW ● TURN LH ● TURN RH	BCM terminal No. 48 (Input 1) does not change. (Open circuit in diagnosis 1 system line or open malfunction in output 1 transistor.)	● Harness between BCM and combination switch ● Wiper switch ● BCM
B2050	OPEN DETECT 2	In the case you are not able to turn on the switch by pattern 1 or 2. Pattern 1 ● FR WASHER ● RR WASHER ● Intermittent control 3 ● RR WIPER LOW Pattern 2 ● FRONT WIPER HI ● FRONT WIPER INT ● PASSING ● HEAD LAMP 1	BCM terminal No. 49 (Input 2) does not change. (Open circuit in diagnosis 2 system line or open malfunction in output 2 transistor.)	● Harness between BCM and combination switch ● Wiper switch ● BCM
B2051	OPEN DETECT 3	In the case you are not able to turn on the switch by pattern 1 or 2. Pattern 1 ● FRONT WIPER LOW ● FRONT WIPER INT Pattern 2 ● Intermittent control 1 ● RR WASHER ● HEAD LAMP 2 ● HI BEAM	BCM terminal No. 50 (Input 3) does not change. (Open circuit in diagnosis 3 system line or open malfunction in output 3 transistor.)	● Harness between BCM and combination switch ● Wiper switch (Front wiper Lo, INT) ● BCM
B2052	OPEN DETECT 4	In the case you are not able to turn on the switch by pattern 1 or 2. Pattern 1 ● TURN LH ● PASSING ● HEAD LAMP 2 Pattern 2 ● RR WIPER INT ● Intermittent control 3 ● Lighting switch 1st position	BCM terminal No. 51 (Input 4) does not change. (Open circuit in diagnosis 4 system line or open malfunction in output 4 transistor.)	● Harness between BCM and combination switch ● Lighting switch ● BCM

CONSULT-II display code	Self-diagnostic result content	Malfunctioning switch system	Detection conditions	Possible causes
B2053	OPEN DETECT 5	In the case you are not able to turn on the switch by pattern 1 or 2. Pattern 1 ● TURN RH ● HEAD LAMP 1 ● HI BEAM ● TAIL LAMP Pattern 2 ● Intermittent control 2 ● RR WIPER LOW	BCM terminal No. 52 (Input 5) does not change. (Open circuit in diagnosis 5 system line or open malfunction in output 5 transistor.)	● Harness between BCM and combination switch ● Lighting switch ● BCM
B2054	HEADLAMP 1 SW NG	HEAD LAMP 1 malfunction	Headlamp 1 switch OFF Headlamp 2 switch ON	Lighting switch
B2055	HEADLAMP 2 SW NG	HEAD LAMP 2 malfunction	Headlamp 1 switch ON Headlamp 2 switch OFF	Lighting switch

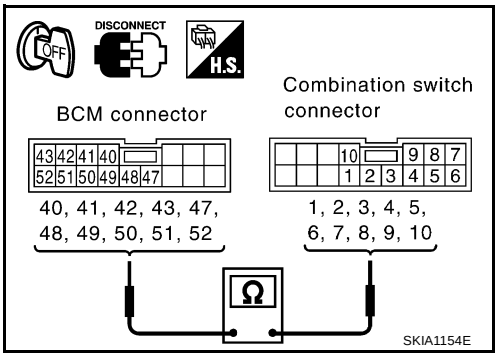
Display content

No malfunction>>INSPECTION END
Malfunction in diagnosis system>>GO TO 2.
Malfunction in headlamp switch system>>Replace Lighting switch.

2. HARNESS INSPECTION

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

Self-diagnostic result content	Terminals				Continuity
	BCM		Combination switch		
	Connector	Terminal (wire color)	Connector	Terminal (wire color)	
OPEN DETECT 1	M2	Input 1 — 48 (W/R)	M29	1 (W/R)	Yes
		Output 1 — 47 (Y/G)		6 (Y/G)	
OPEN DETECT 2		Input 2 — 49 (W/G)		2 (W/G)	
		Output 2 — 40 (Y/R)		7 (Y/R)	
OPEN DETECT 3		Input 3 — 50 (W/L)		3 (W/L)	
		Output 3 — 41 (PU/W)		10 (PU/W)	
OPEN DETECT 4		Input 4 — 51 (G)		4 (G)	
		Output 4 — 42 (L/W)		9 (L/W)	
OPEN DETECT 5		Input 5 — 52 (G/B)		5 (G/B)	
		Output 5 — 43 (GY)		8 (GY)	



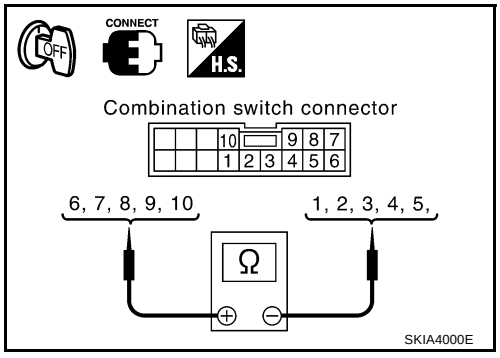
OK or NG

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

3. CHECK 1: COMBINATION SWITCH

1. Connect combination switch connector.
2. Check continuity for combination switch harness connector between input and output terminals of applicable malfunctioning system.

Self-diagnostic result content	Combination switch			Continuity
	Connector	Input (-)	Output (+)	
		Terminal (Wire color)	Terminal (Wire color)	
OPEN DETECT 1	M29	1 (W/R)	6 (Y/G)	Yes
OPEN DETECT 2		2 (W/G)	7 (Y/R)	
OPEN DETECT 3		3 (W/L)	10 (PU/W)	
OPEN DETECT 4		4 (G)	9 (L/W)	
OPEN DETECT 5		5 (G/B)	8 (GY)	



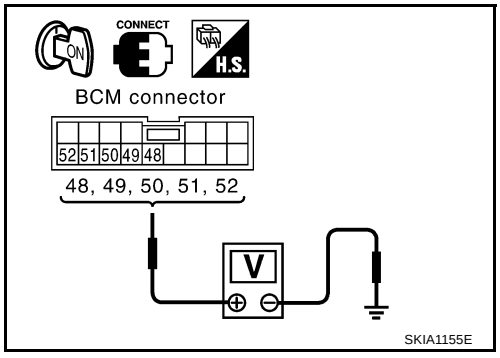
OK or NG

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

4. INSPECTION OF BCM INPUT TERMINAL VOLTAGE

Connect BCM connector, and check BCM input terminal voltage of suspect system.

Self-diagnostic result content	Terminals			Voltage
	BCM			
	Connector	Terminal (Wire color)		
OPEN DETECT 1	M2	Input 1	48 (W/R)	4.5V or more
OPEN DETECT 2		Input 2	49 (W/G)	
OPEN DETECT 3		Input 3	50 (W/L)	
OPEN DETECT 4		Input 4	51 (G)	
OPEN DETECT 5		Input 5	52 (G/B)	



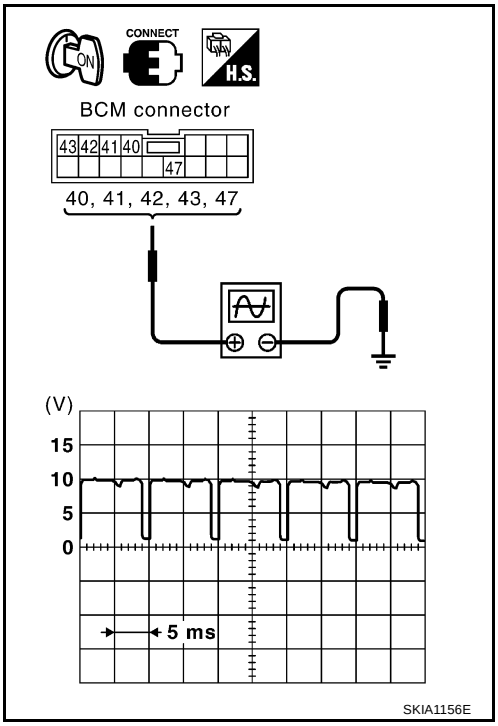
OK or NG

OK >> GO TO 5.
NG >> Replace BCM.

5. BCM OUTPUT TERMINAL INSPECTION

Connect combination switch connector, and check BCM output terminal voltage waveform of applicable malfunctioning system.

Self-diagnostic result content	Terminals		
	BCM		
	Connector	Terminal (wire color)	
OPEN DETECT 1	M2	Output 1	47 (Y/G)
OPEN DETECT 2		Output 2	40 (Y/R)
OPEN DETECT 3		Output 3	41 (PU/W)
OPEN DETECT 4		Output 4	42 (L/W)
OPEN DETECT 5		Output 5	43 (GY)



OK or NG

OK >> Combination switch malfunction, GO TO 5.
NG >> Replace BCM.

6. CHECK 2: COMBINATION SWITCH INSPECTION

Following the table below, check switches by procedure of appropriate malfunctioning system.

Self-diagnostic result content	Procedure												
	1	2		3	4		5	6		7
OPEN DETECT 1	Wiper switch replacement	Confirm self-diagnostic results again.	OK	Inspection End	Confirm self-diagnostic results again.	OK	Inspection End	—		—
			NG	Switch base replacement		NG	Confirm symptom again.			
OPEN DETECT 2	Wiper switch replacement	Confirm self-diagnostic results again.	OK	Inspection End	Confirm self-diagnostic results again.	OK	Inspection End	—		—
			NG	Switch base replacement		NG	Confirm symptom again.			
OPEN DETECT 3	Wiper switch replacement	Confirm self-diagnostic results again.	OK	Inspection End	Confirm self-diagnostic results again.	OK	Inspection End	Confirm self-diagnostic results again.	OK	Inspection End
			NG	Lighting switch replacement		NG	Switch base replacement		NG	Confirm symptom again.
OPEN DETECT 4	Lighting switch replacement	Confirm self-diagnostic results again.	OK	Inspection End	Confirm self-diagnostic results again.	OK	Inspection End	Confirm self-diagnostic results again.	OK	Inspection End
			NG	Wiper switch replacement		NG	Switch base replacement		NG	Confirm symptom again.
OPEN DETECT 5	Lighting switch replacement	Confirm self-diagnostic results again.	OK	Inspection End	Confirm self-diagnostic results again.	OK	Inspection End	Confirm self-diagnostic results again.	OK	Inspection End
			NG	Wiper switch replacement		NG	Switch base replacement		NG	Confirm symptom again.

>> INSPECTION END

Malfunctioning Operation of Lamps and Wipers

AKS009RQ

1. SYMPTOM CHECK

Confirm symptom, and confirm malfunctioning system No. from the table below.

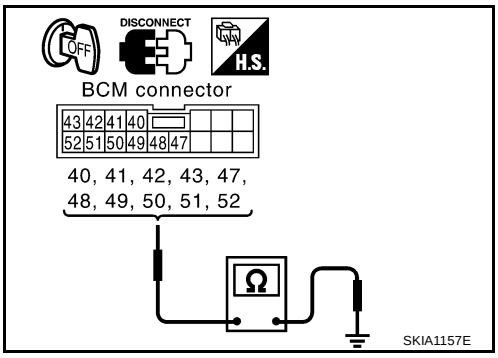
Malfunctioning system	Symptom	Possible causes
1	When the ignition switch is ON position ● LH Turn signal lamp and RH Turn signal lamp on ● Front wiper on (LOW speed)	● Short between the following harness and ground – Between BCM INPUT 1 terminal and combination switch – Between combination switch and BCM OUTPUT 1 ● BCM ● Combination switch
2	When the ignition switch is ON position ● Headlamp on (HI and LO) ● Front wiper on (HI speed) When the ignition switch is OFF position ● Headlamp on (HI and LO)	● Short between the following harness and ground – Between BCM INPUT 2 terminal and combination switch – Between combination switch and BCM OUTPUT 2 ● BCM ● Combination switch
3	When the ignition switch is ON position ● Headlamp on (HI and LO) ● Rear wiper ON When the ignition switch is OFF position ● Headlamp on (HI and LO)	● Short between the following harness and ground – Between BCM INPUT 3 terminal and combination switch – Between combination switch and BCM OUTPUT 3 ● BCM ● Combination switch
4	When the ignition switch is ON position ● Parking lamp and tail lamp on When the ignition switch is OFF position ● Parking lamp and tail lamp on	● Short between the following harness and ground – Between BCM INPUT 4 terminal and combination switch – Between combination switch and BCM OUTPUT 4 ● BCM ● Combination switch
5	When the ignition switch is ON position ● Rear wiper ON When front wiper conducts intermittent operation ● Intermittent interval does not change at intermittent operation dial position 2 and 3. ● Intermittent interval does not change at intermittent operation dial position 4 and 7. ● Intermittent interval does not change at intermittent operation dial position 5 and 6.	● Short between the following harness and ground – Between BCM INPUT 5 terminal and combination switch – Between combination switch and BCM OUTPUT 5 ● BCM ● Combination switch

>> GO TO 2.

2. HARNESS INSPECTION

1. Disconnect BCM connector and combination switch connector.
2. Check continuity between BCM harness connector of Malfunctioning system and ground.

Malfunctioning system	Terminals				Continuity
	BCM				
	Connector	Terminal (wire color)			
1	M2	Input 1	48 (W/R)	Ground	No
		Output 1	47 (Y/G)		
2		Input 2	49 (W/G)		
		Output 2	40 (Y/R)		
3		Input 3	50 (W/L)		
		Output 3	41 (PU/W)		
4		Input 4	51 (G)		
		Output 4	42 (L/W)		
5		Input 5	52 (G/B)		
		Output 5	43 (GY)		



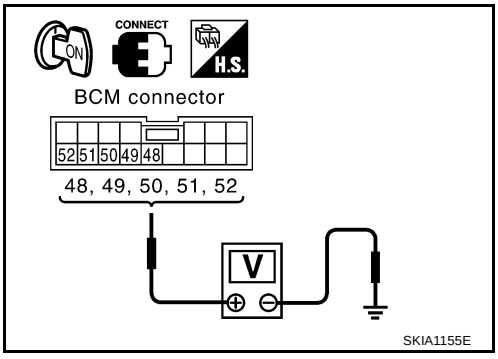
OK or NG

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

3. INSPECTION OF BCM INPUT TERMINAL VOLTAGE

Connect BCM connector. Check voltage between BCM input terminal of applicable malfunctioning system and ground.

Malfunctioning system	Terminals			Voltage
	BCM (+)		(-)	
	Connector	Terminal (wire color)		
1	M2	48 (W/R)	Ground	4.5V or more
2		49 (W/G)		
3		50 (W/L)		
4		51 (G)		
5		52 (G/B)		



OK or NG

OK >> Combination switch malfunction, GO TO 4.
NG >> Replace BCM.

4. COMBINATION SWITCH INSPECTION

Following the table below, check combination switch.

Procedure													
1	2		3	4		5	6		7
Lighting switch replacement	Confirm self-diagnostic results again.	OK	Inspection End	Confirm self-diagnostic results again.	OK	Inspection End	Confirm self-diagnostic results again.	OK	Inspection End
		NG	Wiper switch replacement		NG	Replacement of switch base		NG	Confirm symptom again.

>> INSPECTION END

Removal and Installation

AKS009RR

For details, refer to SRS-42, "Removal and Installation" in “SRS” section.

Switch Circuit Inspection

AKS009RS

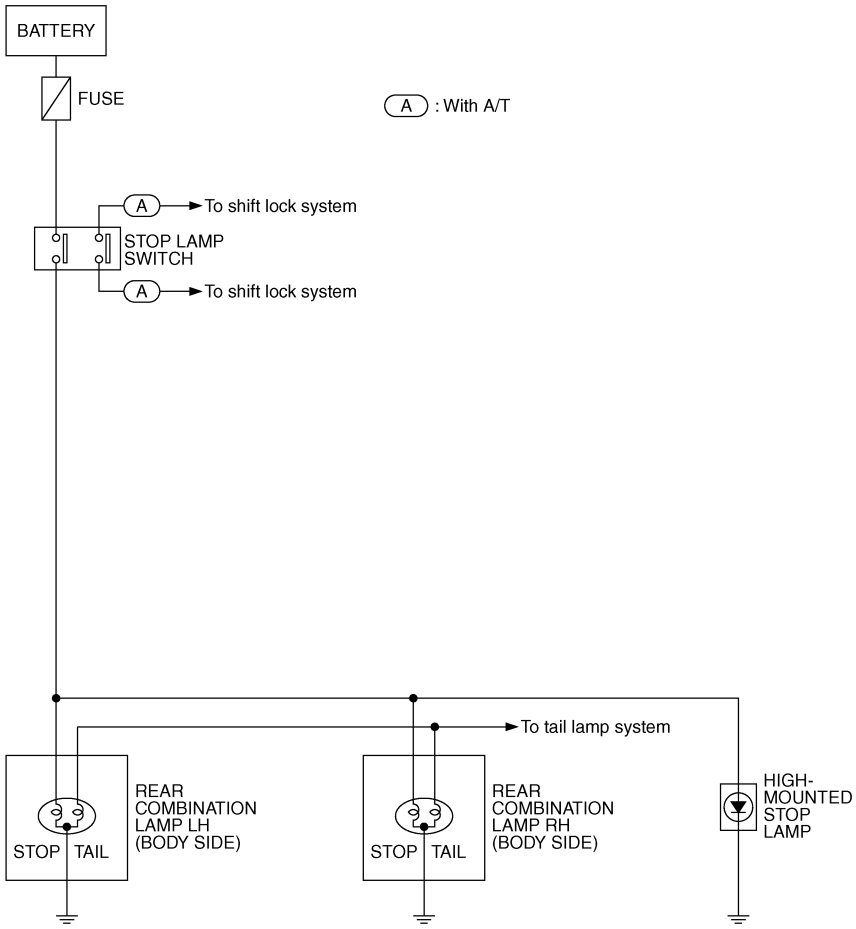
For details, refer to LT-162, "Combination Switch Inspection According to Self-Diagnostic Results" .

STOP LAMP

PFP:26550

Schematic

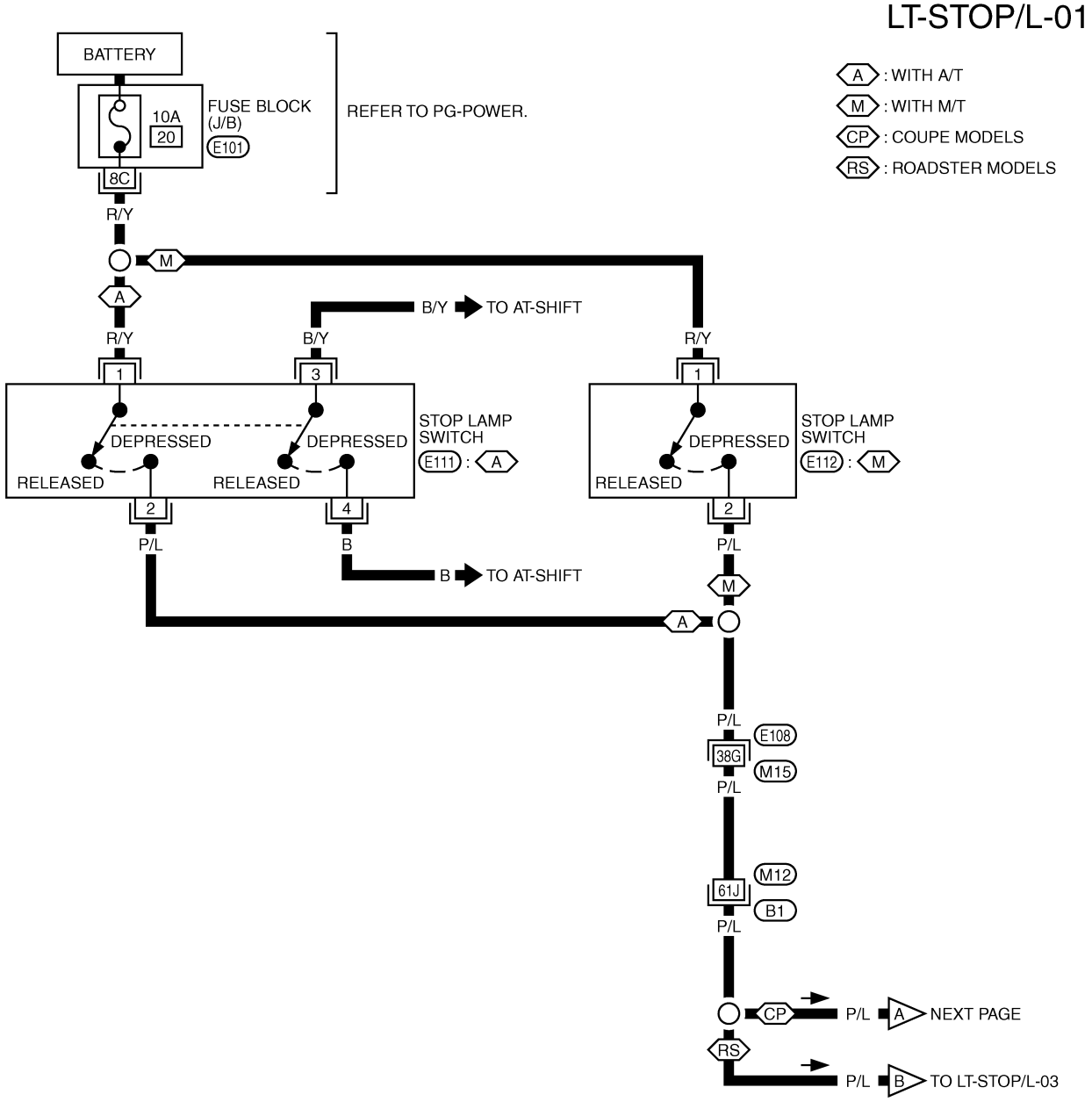
AKS00ADW

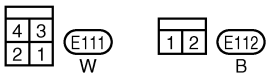


TKWT1601E

Wiring Diagram — STOP/L —

AKS009S8





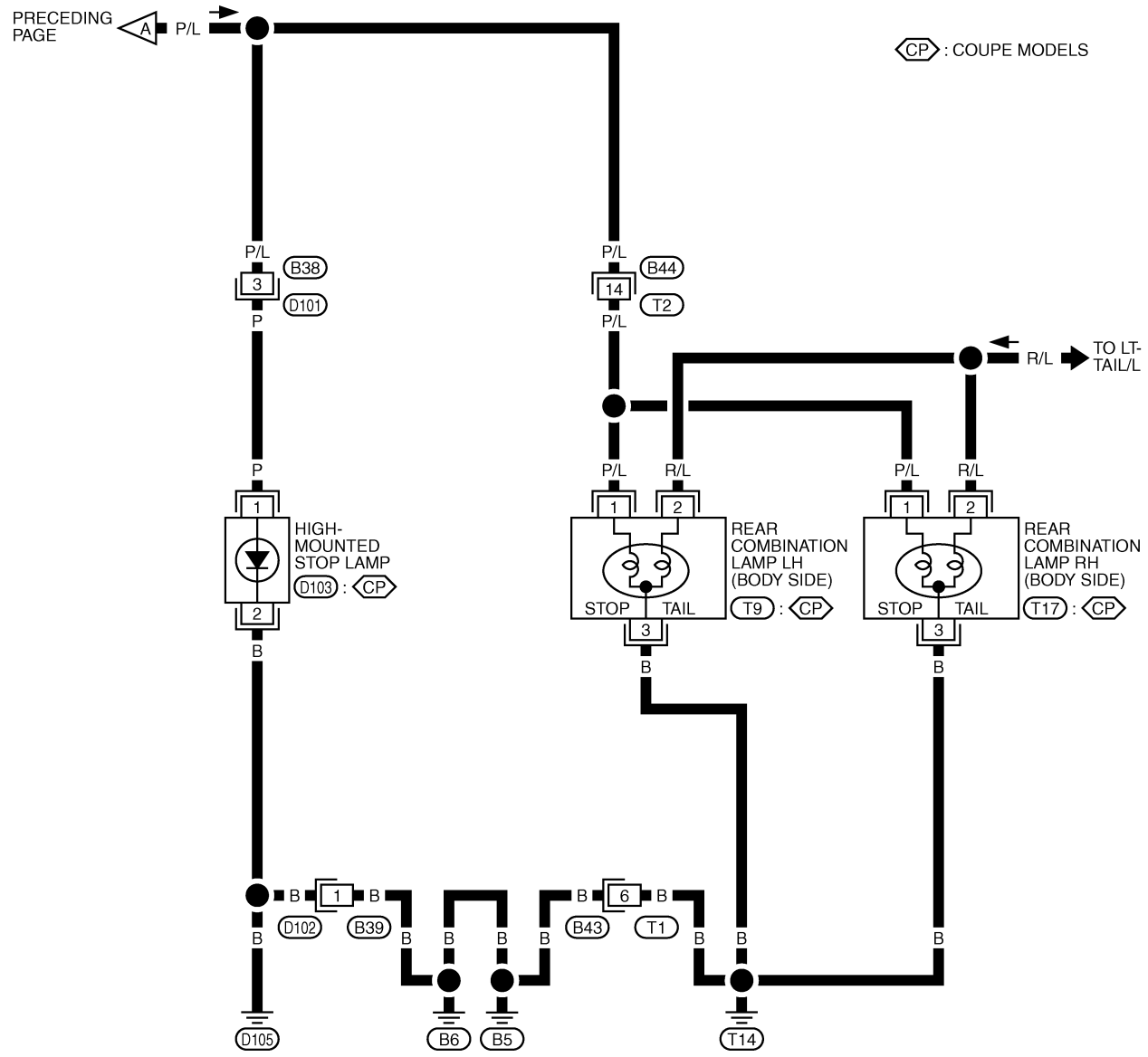
REFER TO THE FOLLOWING.

E108 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

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

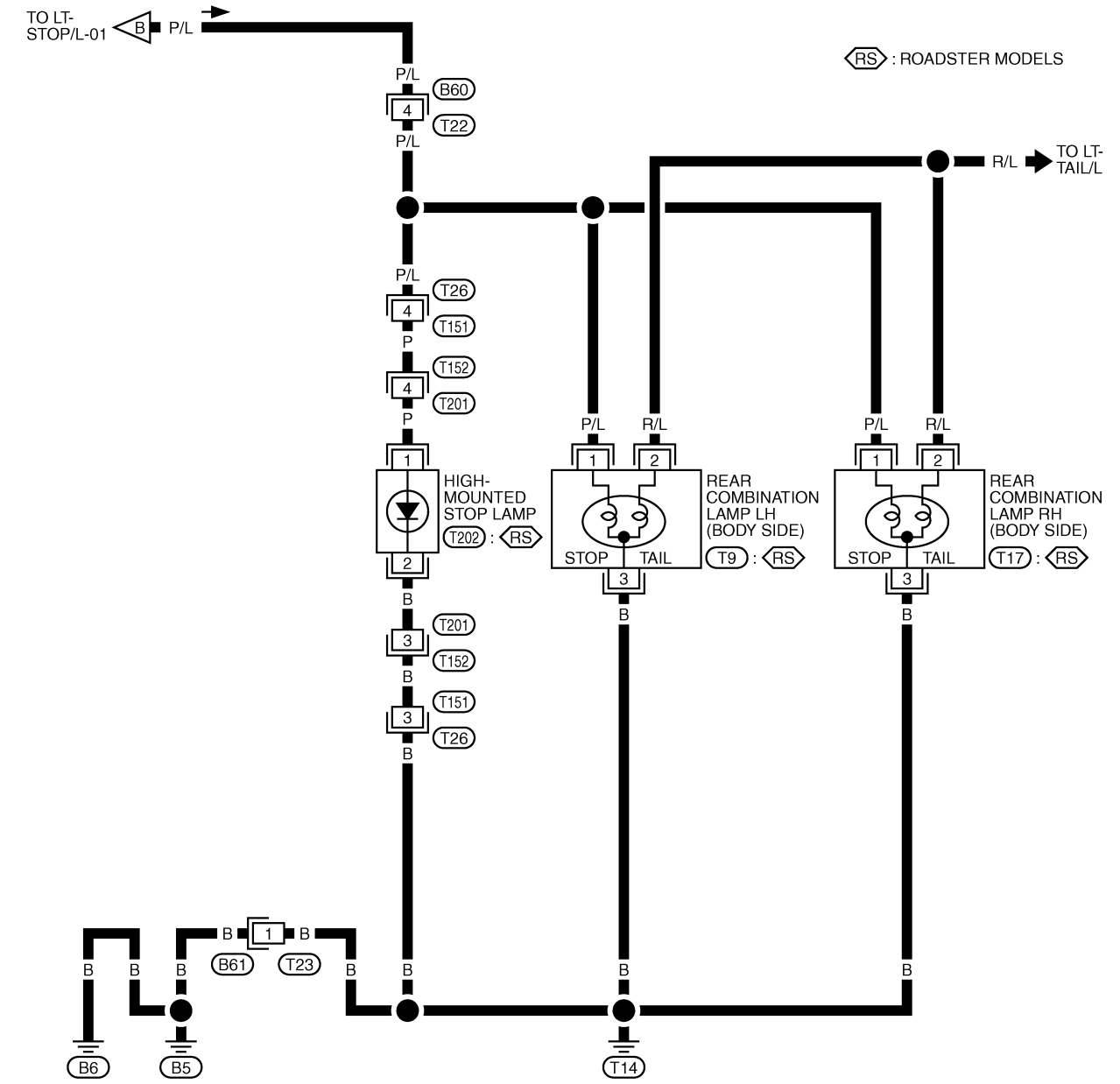
TKWT1602E

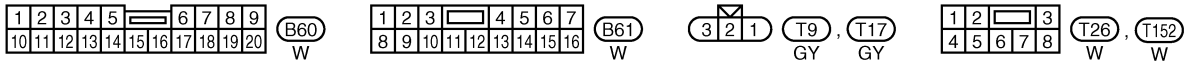
LT-STOP/L-02

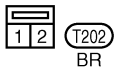


TKWT1603E

LT-STOP/L-03







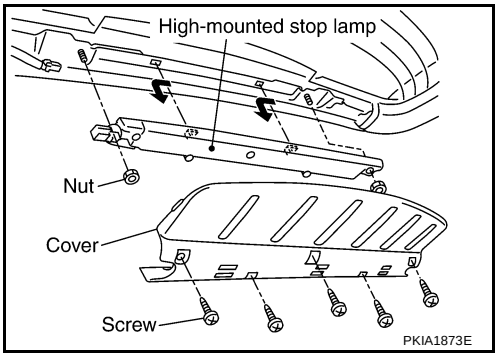
TKWT1604E

High-Mounted Stop Lamp (Coupe Models)

AKS009S9

BULB REPLACEMENT, REMOVAL AND INSTALLATION

1. Remove back door finisher upper Refer to EI-46, "BACK DOOR FINISHER" in “EI” section.
2. Disconnect high-mounted stop lamp connector.
3. Remove Nuts and remove high-mounted stop lamp with cover from back door. Be sure to pull toward the arrow in the figure.
4. Remove screws and remove high-mounted stop lamp assembly from cover.
5. Install in the reverse order of removal.



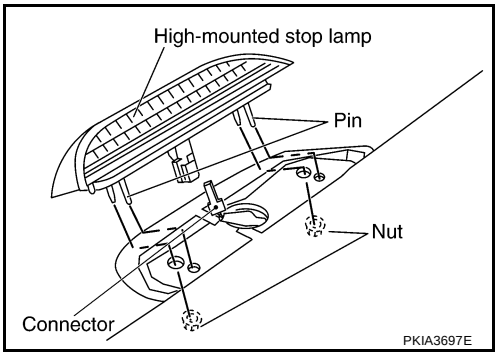
High-mounted stop lamp : LED

High-Mounted Stop Lamp (Roadster Models)

AKS003U0

BULB REPLACEMENT, REMOVAL AND INSTALLATION

1. Turn ignition switch ON, and turn soft-top OPEN/CLOSE switch ON.
2. When the storage lid is fully opened, soft-top OPEN/CLOSE switch to OFF.
3. Remove battery negative cable.
4. Disconnect high-mounted stop lamp connector.
5. Remove high-mounted stop lamp. Be sure to pull toward the arrow in the figure.
6. Remove high-mounted stop lamp assembly from storage lid.
7. Install in the reverse order of removal.



High-mounted stop lamp : LED

Stop Lamp

AKS009SA

BULB REPLACEMENT

Refer to LT-198, "Bulb Replacement" in “REAR COMBINATION LAMP”.

REMOVAL AND INSTALLATION

Refer to LT-199, "Removal and Installation" in “REAR COMBINATION LAMP”.

BACK-UP LAMP

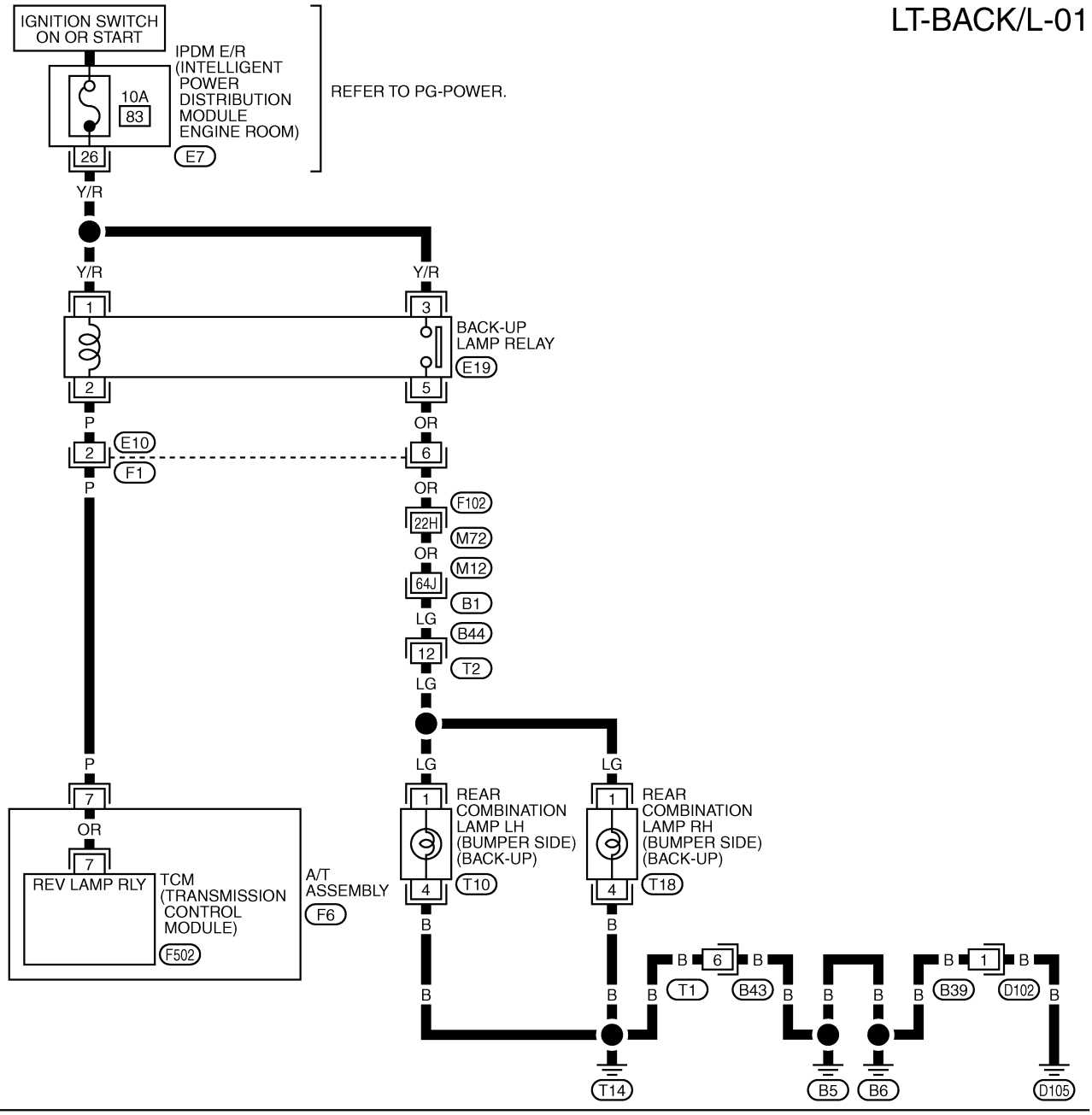
PFP:26550

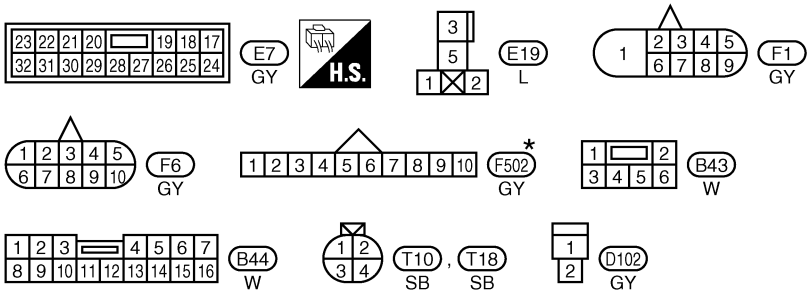
Wiring Diagram — BACK/L —

AKS009SF

COUPE MODELS (A/T)

LT-BACK/L-01





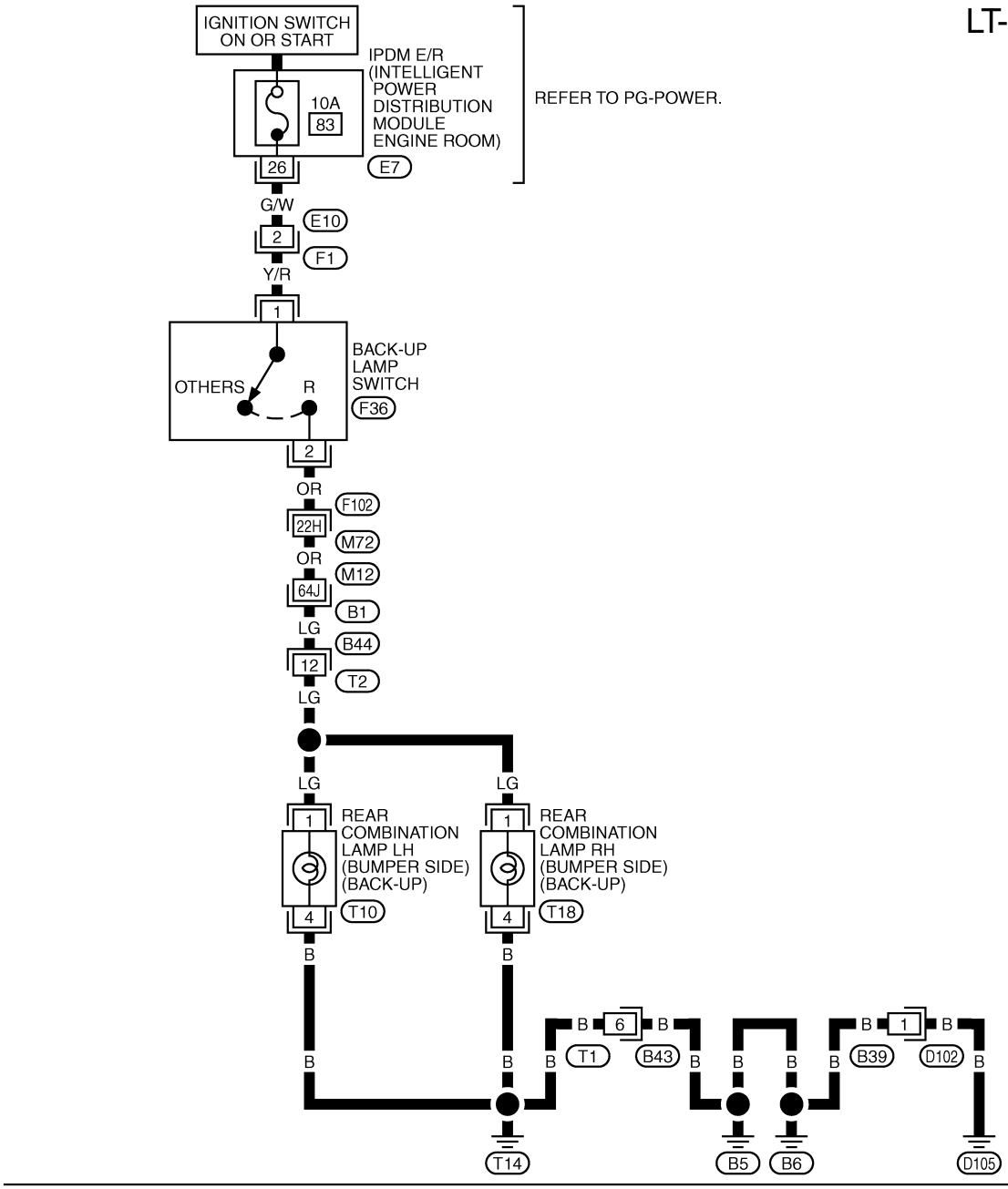
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

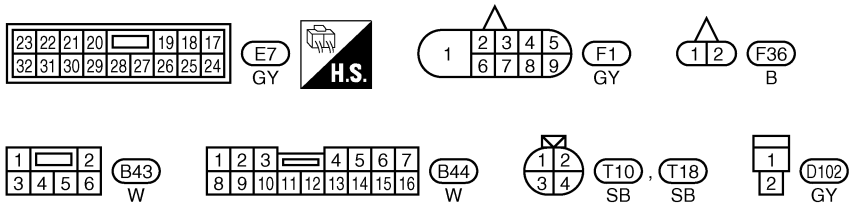
REFER TO THE FOLLOWING.
F102 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM1315E

COUPE MODELS (M/T)

LT-BACK/L-02



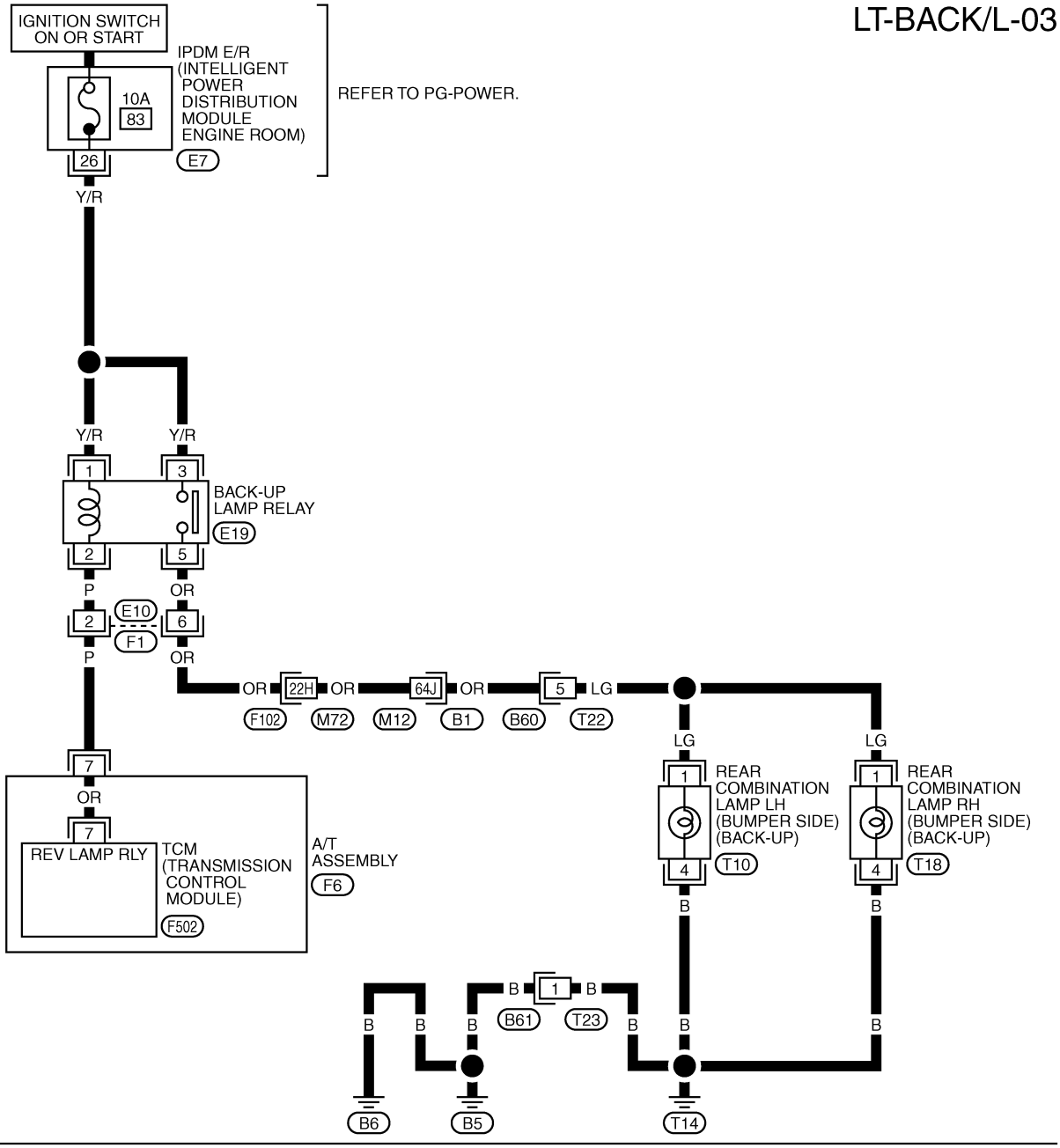


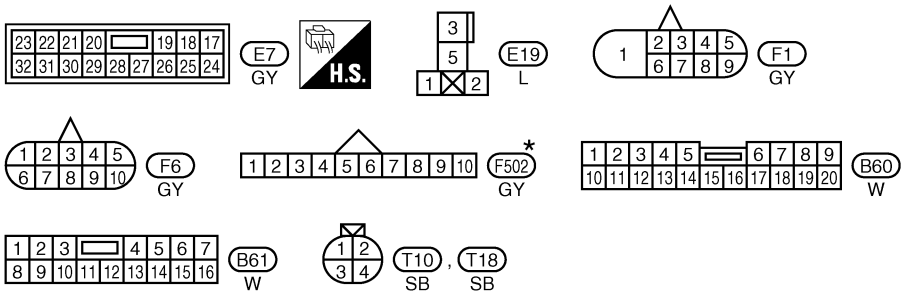
REFER TO THE FOLLOWING.
F102 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

TKWT1326E

ROADSTER MODELS (A/T)

LT-BACK/L-03





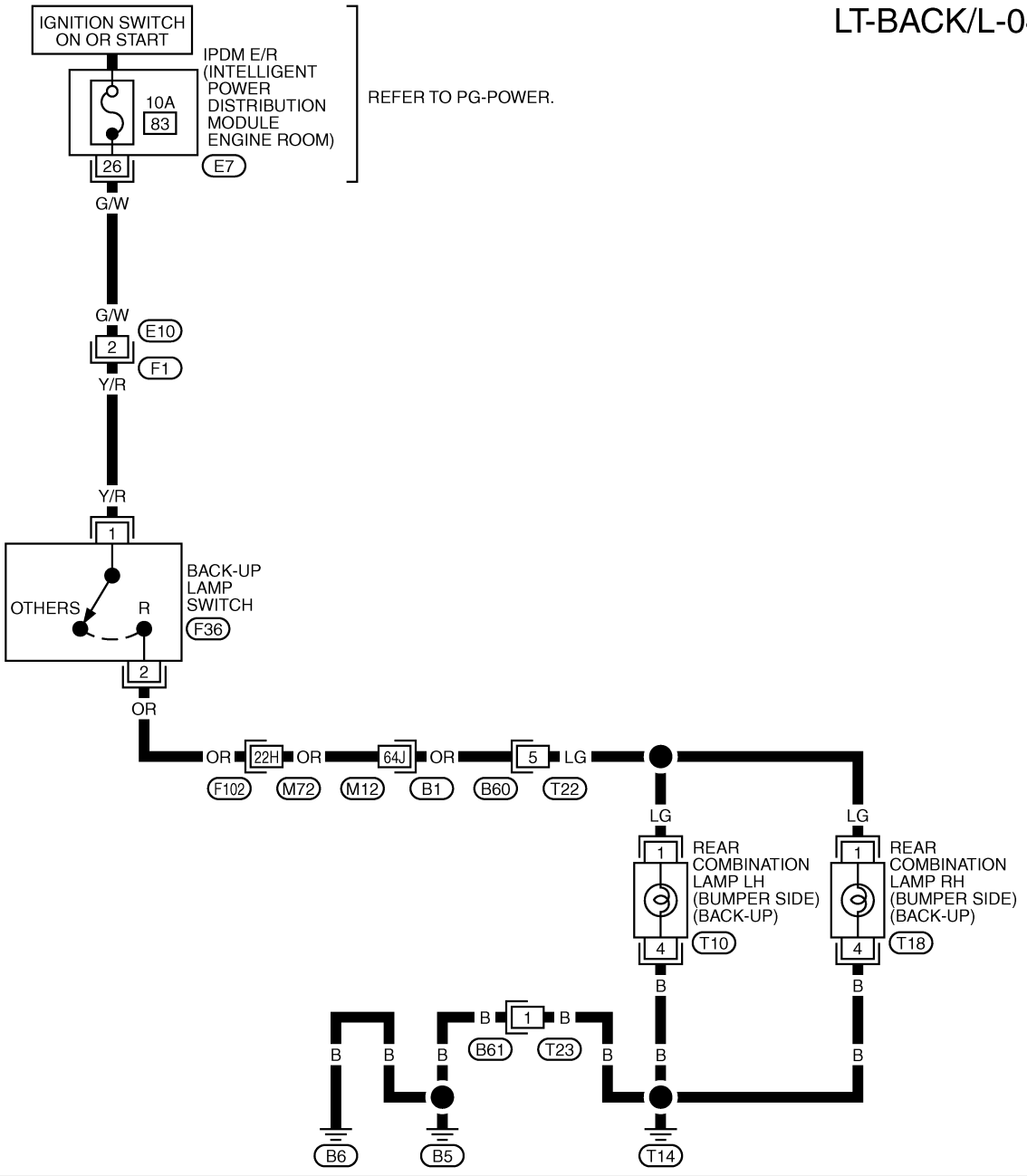
REFER TO THE FOLLOWING.
F102 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

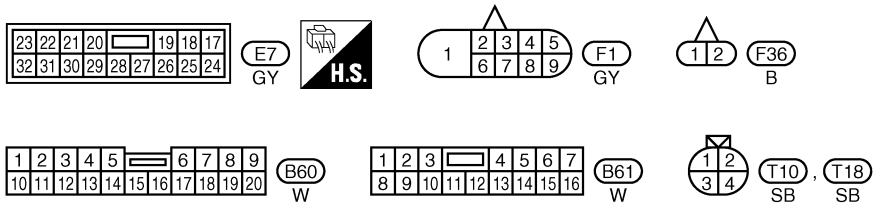
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWM1316E

ROADSTER MODELS (M/T)

LT-BACK/L-04





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

TKWT1606E

Bulb Replacement

AKS000V8

Refer to LT-198, "Bulb Replacement" in “REAR COMBINATION LAMP”.

Removal and Installation

AKS000V9

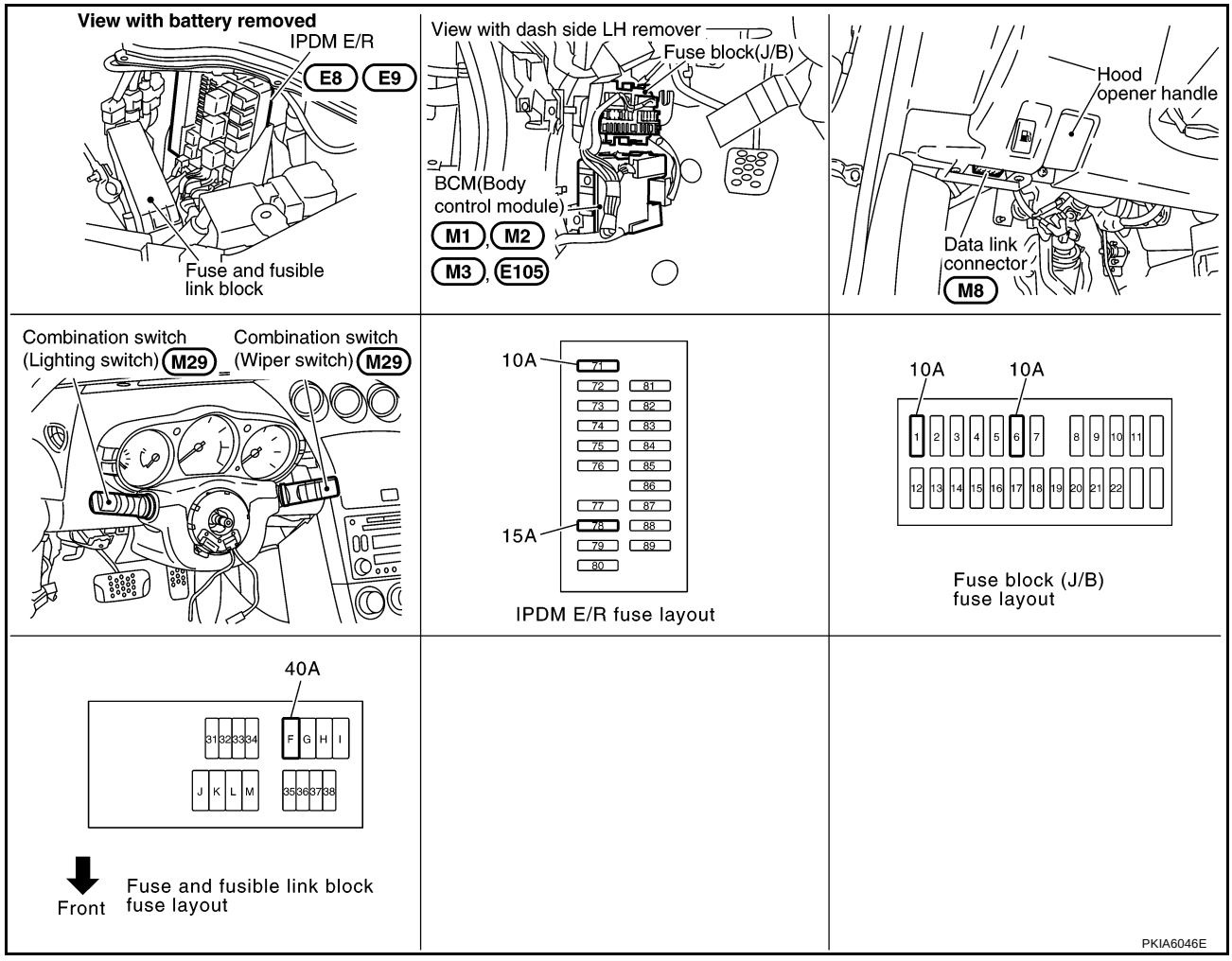
Refer to LT-199, "Removal and Installation" in “REAR COMBINATION LAMP”.

PARKING, LICENSE PLATE AND TAIL LAMPS

PFP:26550

Component Parts and Harness Connector Location

AKS00ADQ



System Description

AKS009RU

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

Power is supplied at all times

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

Power is also supplied at all times

- to BCM (body control module) terminal 7
- through 40A 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 CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- to BCM (body control module) terminal 35
- through 10A fuse [No. 1, 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 36
- through 10A fuse [No. 6, located in fuse block (J/B)].

Ground is supplied

- to BCM (body control module) terminal 8
- through grounds E17, E43 and F152
- to IPDM E/R (intelligent power distribution module engine room) terminals 38 and 60
- through grounds E17, E43 and F152.

OPERATION BY LIGHTING SWITCH

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

- through IPDM E/R terminal 22
- to front combination lamp LH terminals 5 and 6 (With xenon bulb headlamp)
- to front combination lamp LH terminal 5 (With halogen bulb headlamp)
- to front combination lamp RH terminals 5 and 6 (With xenon bulb headlamp)
- to front combination lamp RH terminal 5 (With halogen bulb headlamp)
- to rear combination lamp LH terminals 2 and 5
- to rear combination lamp RH terminals 2 and 5
- to license plate lamp LH terminal 2
- to license plate lamp RH terminal 2.

Ground is supplied at all times

- to front combination lamp LH terminal 1 (With xenon bulb headlamp)
- to front combination lamp LH terminal 4 (With halogen bulb headlamp)
- through grounds E17, E43 and F152
- to front combination lamp RH terminal 1 (With xenon bulb headlamp)
- to front combination lamp RH terminal 4 (With halogen bulb headlamp)
- through grounds E17, E43 and F152
- to rear combination lamp LH terminals 3 and 4
- through grounds D105, B5, B6 and T14 (Coupe models)
- through grounds B5, B6 and T14 (Roadster models)
- to rear combination lamp RH terminals 3 and 4
- through grounds D105, B5, B6 and T14 (Coupe models)
- through grounds B5, B6 and T14 (Roadster models)
- to license plate lamp LH terminal 1
- through grounds D105, B5, B6 and T14 (Coupe models)
- through grounds B5, B6 and T14(Roudstar models)
- to license plate lamp RH terminal 1
- through grounds D105, B5, B6 and T14 (Coupe models)
- through grounds B5, B6 and T14 (Roadster models).

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

COMBINATION SWITCH READING FUNCTION

Refer to LT-158, "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 function is activated.
Under this condition, the parking, license plate, side marker and tail lamps remain illuminated for 5 minutes, then the parking, license plate, side marker and tail lamps are turned off.
Exterior lamp battery saver control mode can be changed by the function setting of CONSULT-II.

CAN Communication System Description

AKS009RV

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

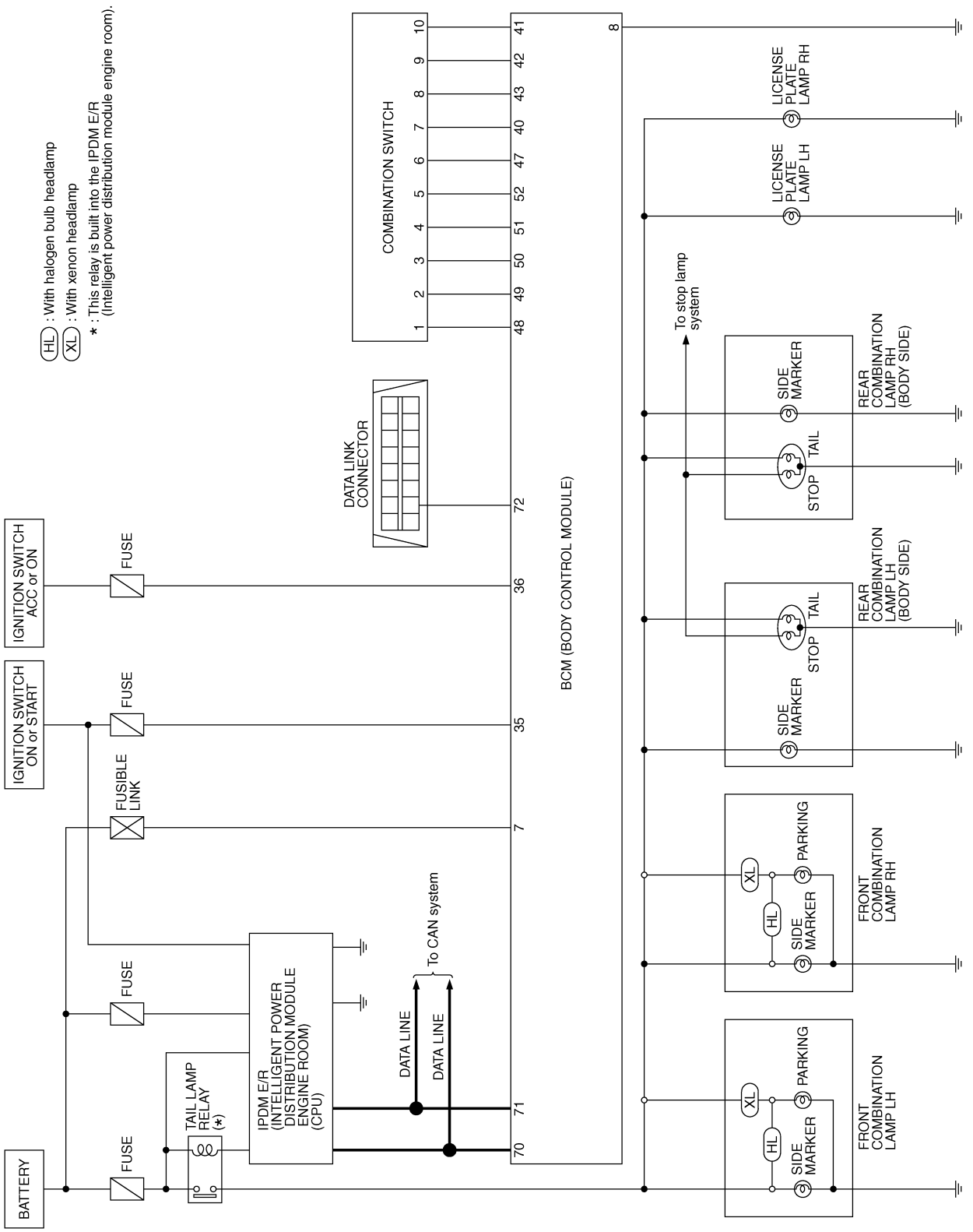
CAN Communication Unit

AKS009RW

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

Schematic

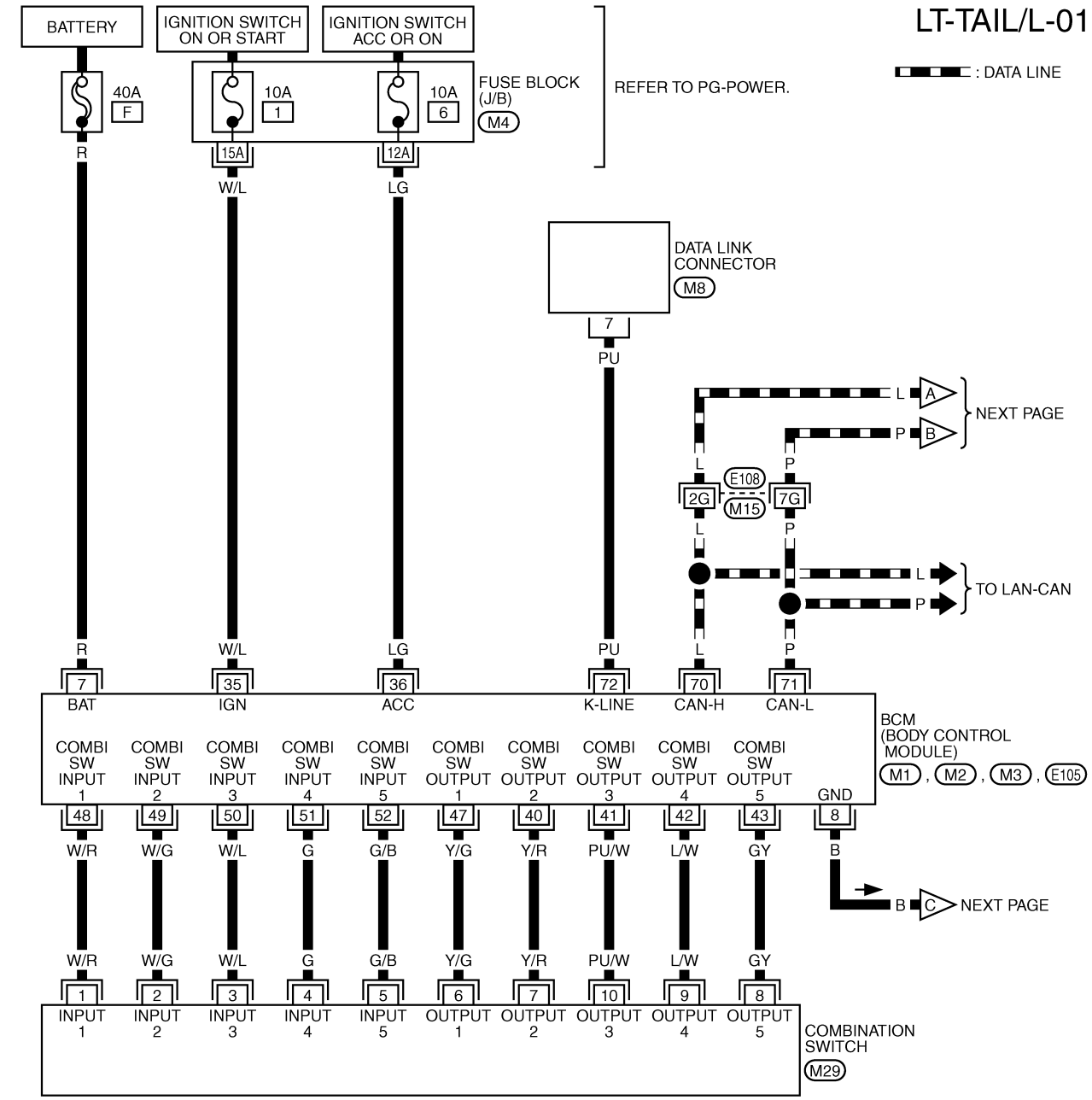
AKS009RX

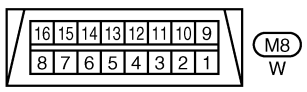


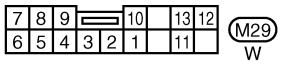
TKWT1607E

Wiring Diagram — TAIL/L —

AKS009RY







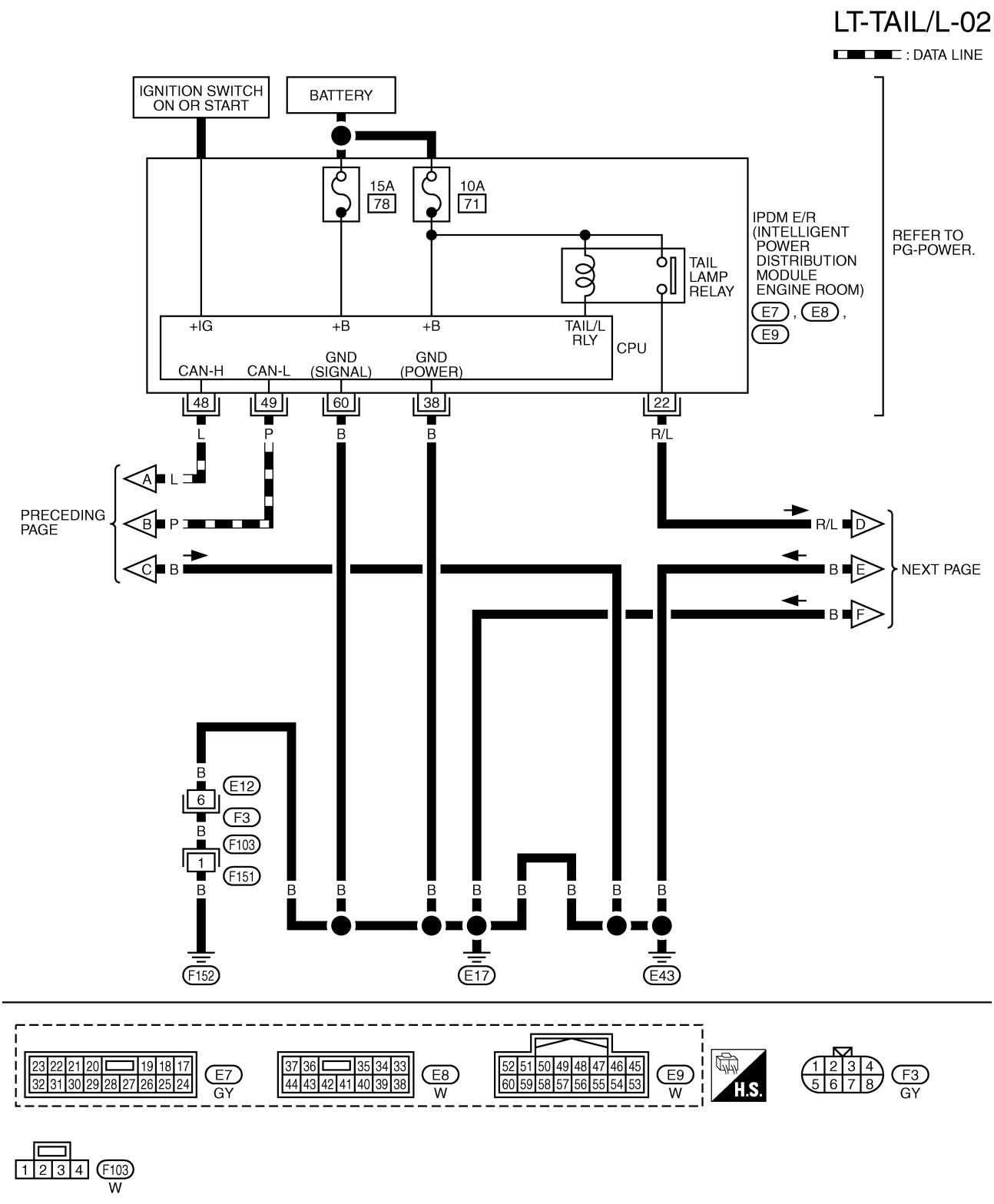
REFER TO THE FOLLOWING.

E108 -SUPER MULTIPLE JUNCTION (SMJ)

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

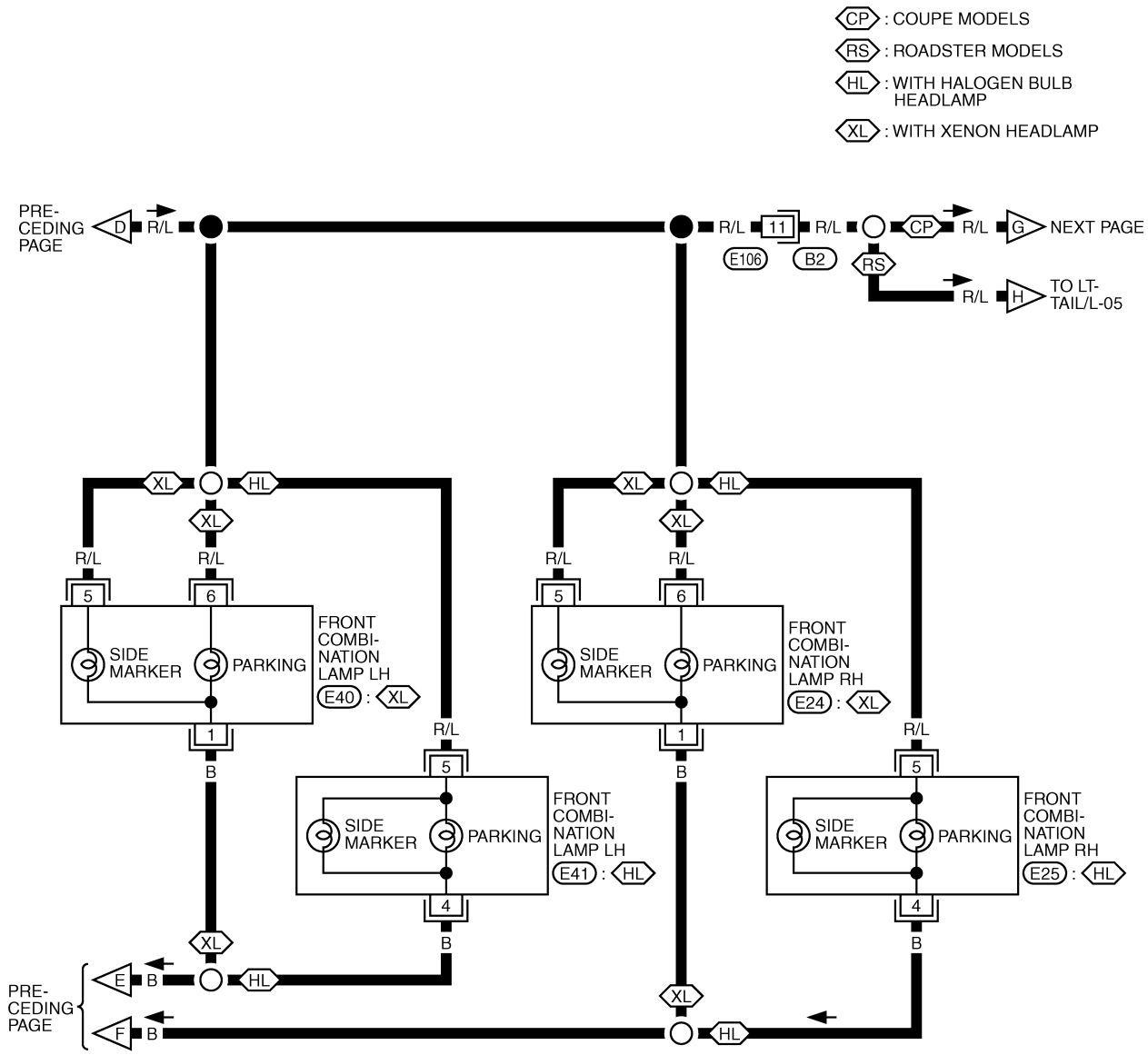
M1, M2, M3, E105 -ELECTRICAL UNITS

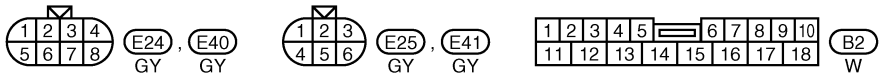
TKWT1330E


LT-TAIL/L-02
: DATA LINE
IGNITION SWITCH ON OR START
BATTERY
15A 78
10A 71
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E7 , E8 , E9
REFER TO PG-POWER.
TAIL LAMP RELAY
+IG
+B
+B
TAIL/L RLY
CPU
CAN-H
CAN-L
GND (SIGNAL)
GND (POWER)
48
49
60
38
22
L
P
B
B
R/L
PRECEDING PAGE
A L
B P
C B
R/L D
B E
B F
NEXT PAGE
B
6
E12
F3
B
1
F103
F151
B
F152
E17
E43
E7 GY
E8 W
E9 W
H.S.
F3 GY
F103 W

TKWT1331E

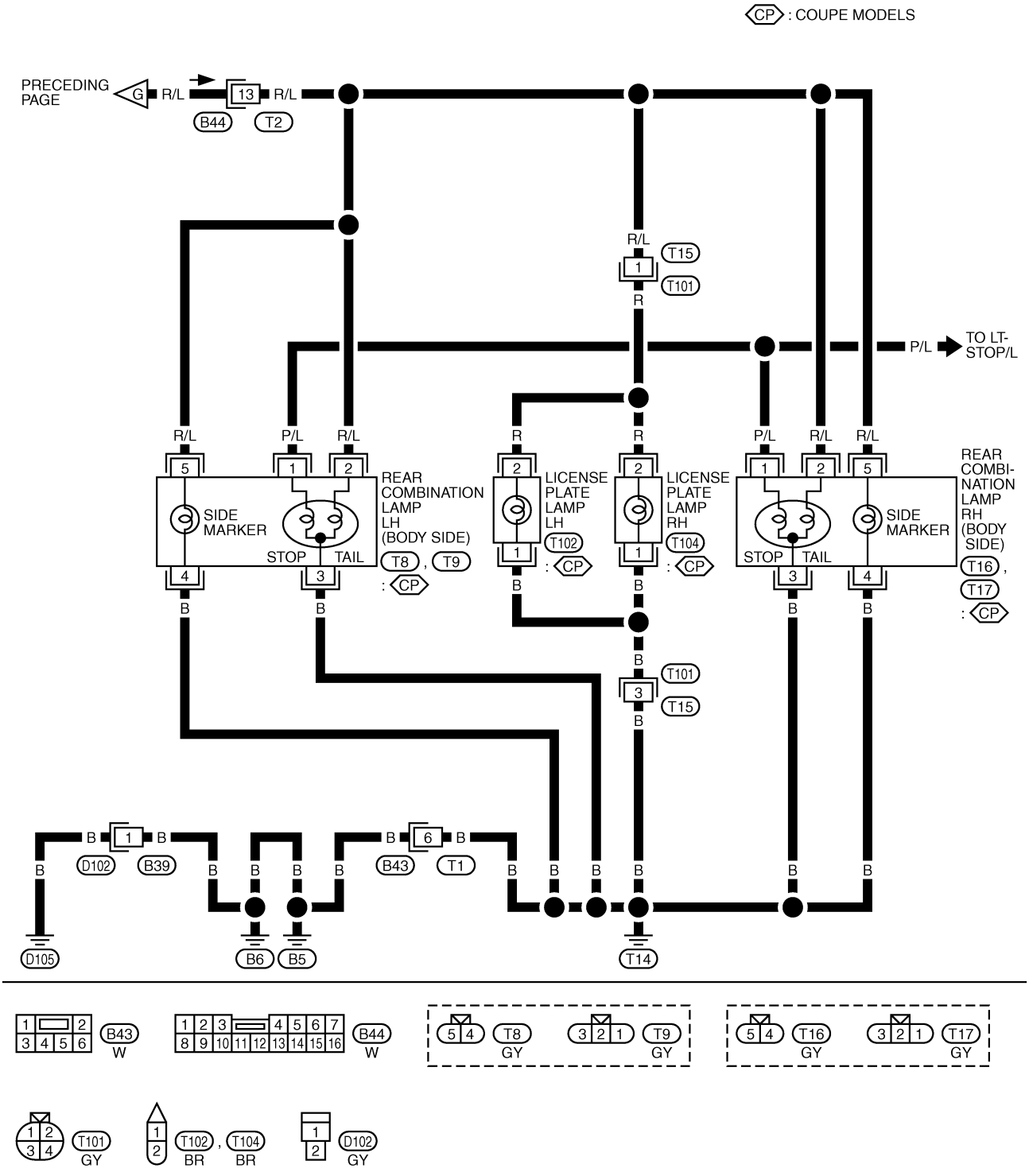
LT-TAIL/L-03





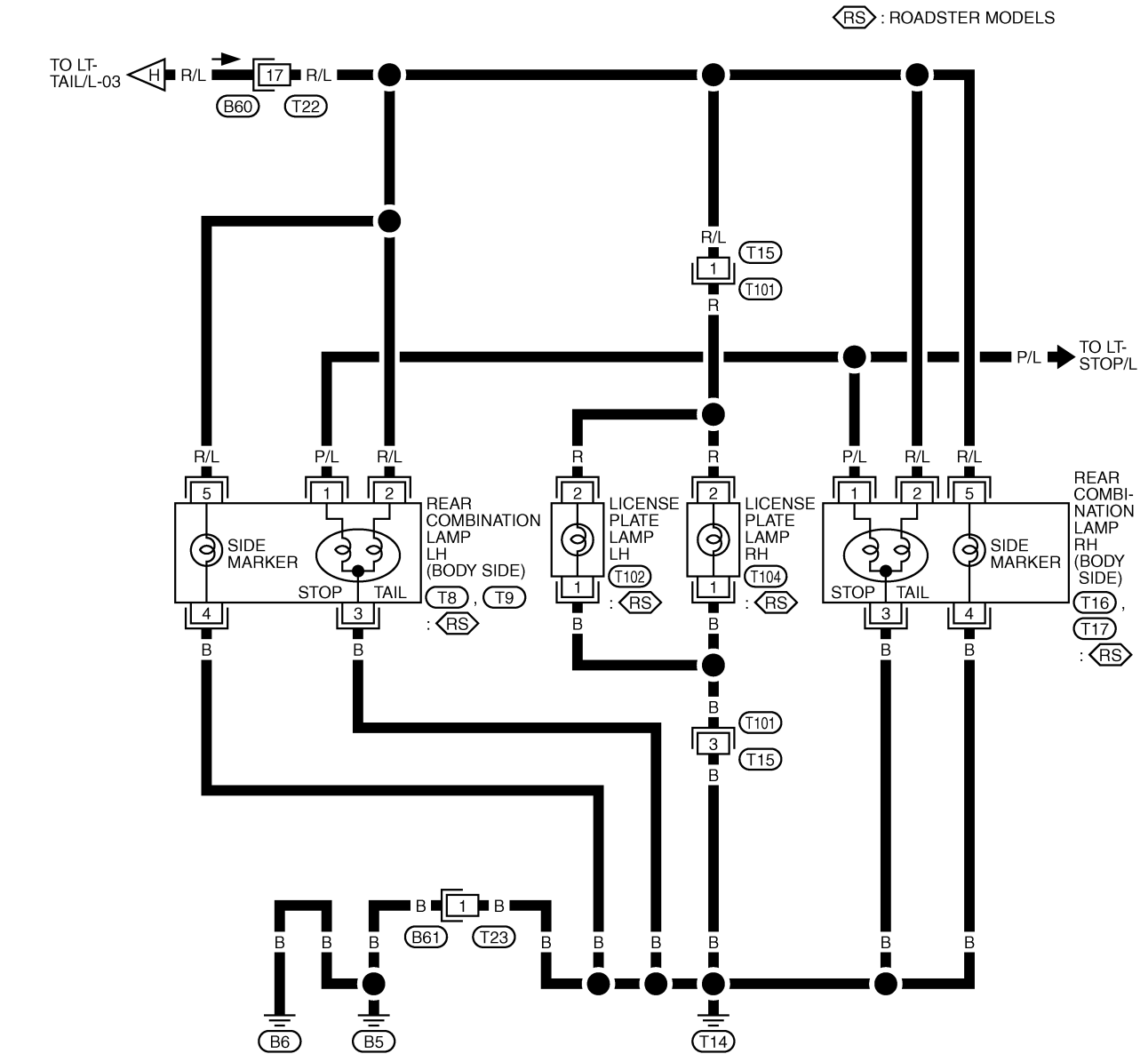
TKWT1608E

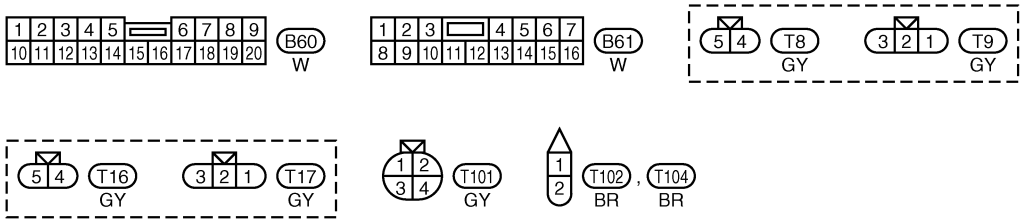
LT-TAIL/L-04



TKWT1609E

LT-TAIL/L-05

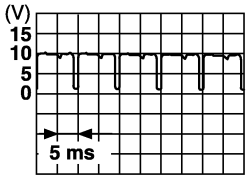




TKWT1610E

Terminals and Reference Values for BCM

AKS009RZ

Terminal No.	Wire color	Item	Measuring condition		Reference value
			Ignition switch	Operation or condition	
7	R	Battery power supply	OFF	—	Battery voltage
8	B	Ground	—	—	—
35	W/L	Ignition switch (ON)	ON	—	Battery voltage
36	LG	Ignition switch (ACC)	ACC	—	Battery voltage
40	Y/R	Combination switch output 2	ON	Lighting, turn, wiper OFF	 SKIA1119J
41	PU/W	Combination switch output 3			
42	L/W	Combination switch output 4			
43	GY	Combination switch output 5			
47	Y/G	Combination switch output 1			
48	W/R	Combination switch input 1	ON	Lighting, turn, wiper OFF	4.5V or more
49	W/G	Combination switch input 2			
50	W/L	Combination switch input 3			
51	G	Combination switch input 4			
52	G/B	Combination switch input 5			
70	L	CAN– H	—	—	—
71	P	CAN– L	—	—	—
72	PU	K–LINE	—	—	—

Terminals and Reference Values for IPDM E/R

AKS009SG

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	P	CAN– L	—	—		—
60	B	Ground	ON	—		Approx. 0V

How to Proceed With Trouble Diagnosis

AKS009S0

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-179, "System Description" .
3. Carry out the preliminary check. Refer to LT-189, "Preliminary Check" .
4. Check symptom and repair or replace the cause of malfunction.
5. Do the parking, license plate and tail lamps operate normally? If YES: GO TO 6. If NO: GO TO 4.
6. INSPECTION END

Preliminary Check

AKS009S1

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
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	71
		78

Refer to LT-183, "Wiring Diagram — TAIL/L —" .

OK or NG

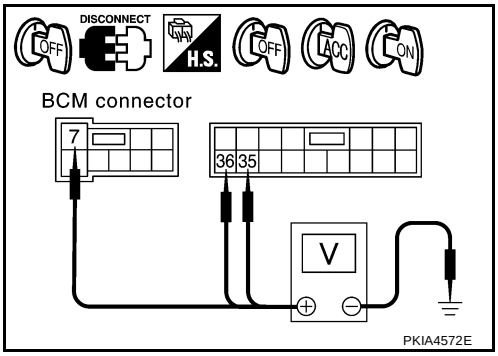
OK >> GO TO 2.

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

Terminals			Ignition switch position		
(+)		(-)			
Connector	Terminal (Wire color)		OFF	ACC	ON
E105	7 (R)	Ground	Battery voltage	Battery voltage	Battery voltage
M1	35 (W/L)		0V	0V	Battery voltage
M1	36 (LG)		0V	Battery voltage	Battery voltage



OK or NG

OK >> GO TO 3.

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

3. CHECK GROUND CIRCUIT

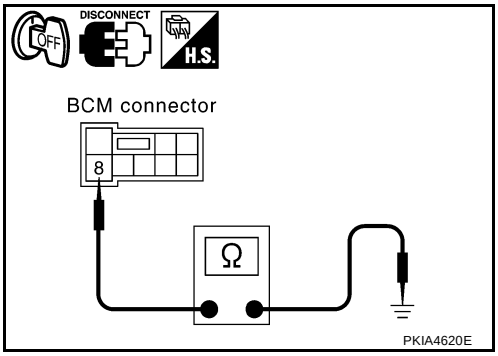
Check continuity between BCM harness connector and ground.

Terminals			Continuity
Connector	Terminal (wire color)	Ground	
E105	8 (B)		Yes

OK or NG

OK >> INSPECTION END

NG >> Check harness ground circuit.



CONSULT-II Functions (BCM)

AKS009S2

Refer to LT-17, "CONSULT-II Functions (BCM)" in XENON TYPE (FOR USA).
Refer to LT-47, "CONSULT-II Functions (BCM)" in CONVENTIONAL TYPE (FOR USA).
Refer to LT-80, "CONSULT-II Functions (BCM)" in XENON TYPE (FOR CANADA).
Refer to LT-115, "CONSULT-II Functions (BCM)" in CONVENTIONAL TYPE (FOR CANADA).

CONSULT-II Functions (IPDM E/R)

AKS00ADT

Refer to LT-20, "CONSULT-II Functions (IPDM E/R)" in XENON TYPE (FOR USA).
Refer to LT-49, "CONSULT-II Functions (IPDM E/R)" in CONVENTIONAL TYPE (FOR USA).
Refer to LT-82, "CONSULT-II Functions (IPDM E/R)" in XENON TYPE (FOR CANADA).
Refer to LT-118, "CONSULT-II Functions (IPDM E/R)" in CONVENTIONAL TYPE (FOR CANADA).

Parking, License Plate and Tail Lamps Do Not Illuminate

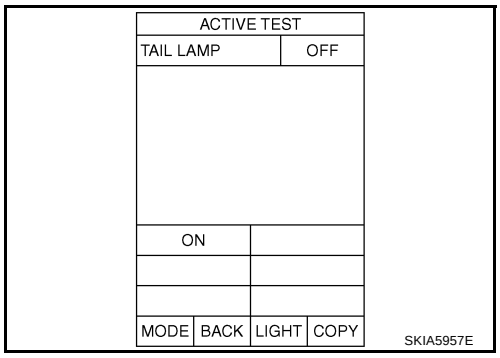
AKS009S3

1. 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 lamp, side marker and tail lamps operates.

Parking, license plate lamp, side maker and tail lamps should operate.



Without CONSULT-II

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

Parking, license plate lamp, side maker and tail lamps should operate.

OK or NG

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

2. CHECK IPDM E/R

With CONSULT-II

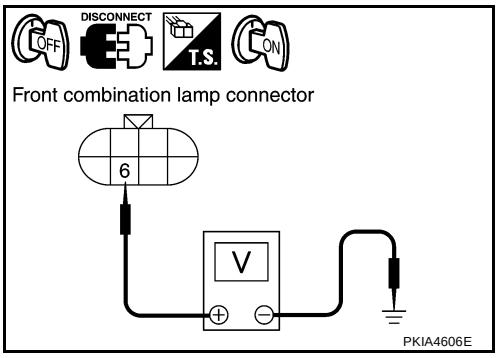
1. Turn ignition switch OFF.
2. Disconnect front combination lamp, rear combination lamp and license plate lamp connectors.
3. Select “IPDM E/R” on CONSULT-II and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
4. Select “TAIL LAMP” on “SELECT TEST ITEM” screen.
5. Touch “ON” screen.
6. When tail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

With out CONSULT-II

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

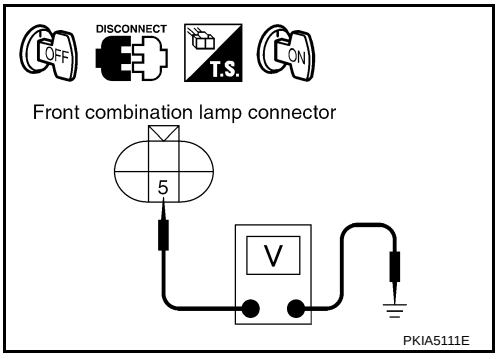
With xenon headlamp

Terminals				Voltage
Front combination lamp (+) (Parking)			(-)	
Connector		Terminal (wire color)		
RH	E24	6 (R/L)	Ground	Battery voltage
LH	E40			



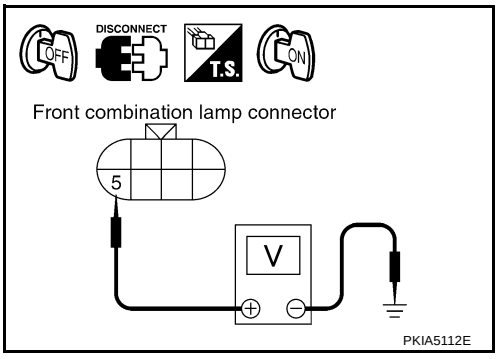
With halogen headlamp

Terminals				Voltage
Front combination lamp (+) (Parking)			(-)	
Connector		Terminal (wire color)		
RH	E25	5 (R/L)	Ground	Battery voltage
LH	E41			



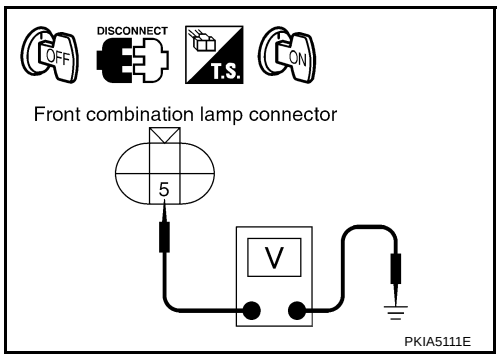
With xenon headlamp

Terminals				Voltage
Front combination lamp (+) (Side marker)			(-)	
Connector		Terminal (wire color)		
RH	E24	5 (R/L)	Ground	Battery voltage
LH	E40			

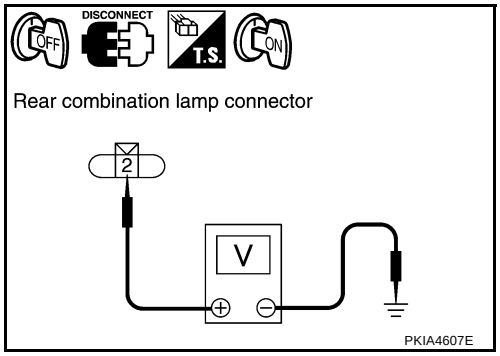


With halogen headlamp

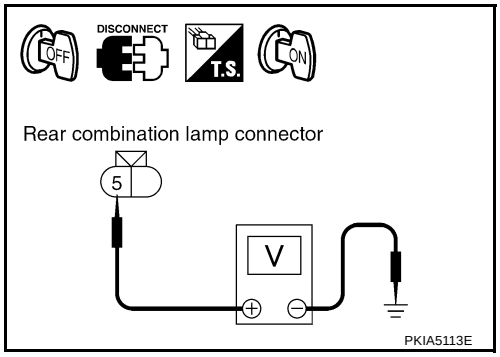
Terminals				Voltage
Front combination lamp (+) (side marker)			(-)	
Connector		Terminal (wire color)		
RH	E25	5 (R/L)	Ground	Battery voltage
LH	E41			



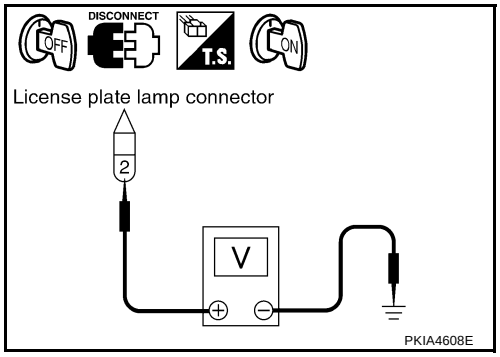
Terminals				Voltage
Rear combination lamp (+) (Tail)			(-)	
Connector		Terminal (wire color)		
RH	T17	2 (R/L)	Ground	Battery voltage
LH	T9			



Terminals				Voltage
Rear combination lamp (+) (Side marker)			(-)	
Connector		Terminal (wire color)		
RH	T16	5 (R/L)	Ground	Battery voltage
LH	T8			



Terminals				Voltage
License plate lamp (+)			(-)	
Connector		Terminal (wire color)		
RH	T104	2 (R)	Ground	Battery voltage
LH	T102			



OK or NG

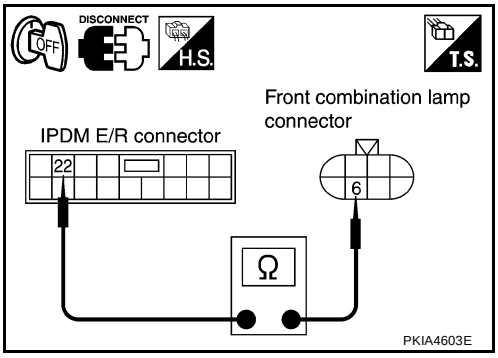
OK >> GO TO 4.
NG >> GO TO 3.

3. CHECK BETWEEN IPDM E/R AND PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS

1. Disconnect IPDM E/R connector.
2. Check harness continuity between IPDM E/R connector and front combination lamp, rear combination lamp and license plate lamp connectors.

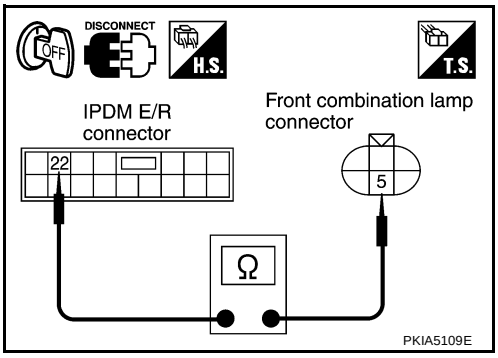
With xenon headlamp

Terminals					Continuity
IPDM E/R		Front combination lamp (Parking)			
Connector	Terminal (wire color)	Connector		Terminal (wire color)	
E7	22 (R/L)	RH	E24	6 (R/L)	Yes
		LH	E40	6 (R/L)	



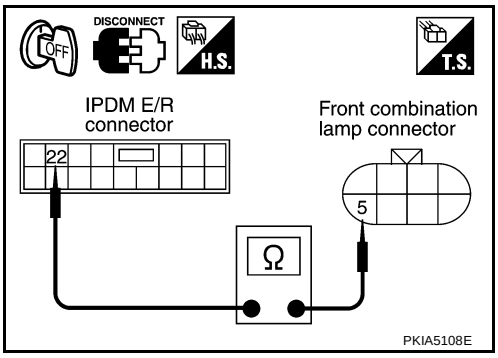
With halogen bulb headlamp

Terminals					Continuity
IPDM E/R		Front combination lamp (Parking)			
Connector	Terminal (wire color)	Connector		Terminal (wire color)	
E7	22 (R/L)	RH	E25	5 (R/L)	Yes
		LH	E41	5 (R/L)	



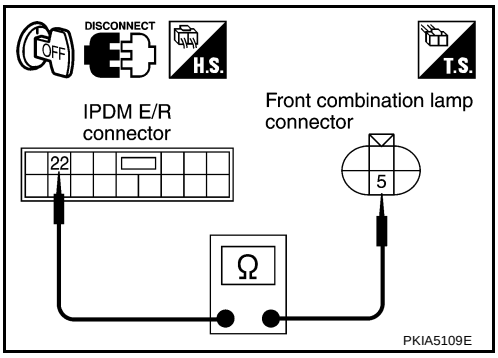
With xenon headlamp

Terminals					Continuity
IPDM E/R		Front combination lamp (side marker)			
Connector	Terminal (wire color)	Connector		Terminal (wire color)	
E7	22 (R/L)	RH	E24	5 (R/L)	Yes
		LH	E40	5 (R/L)	

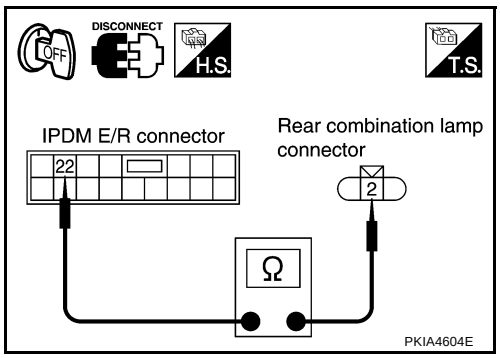


With halogen bulb headlamp

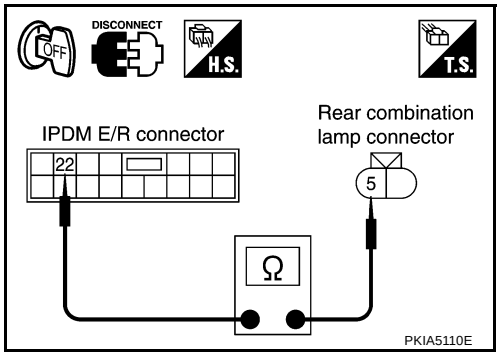
Terminals					Continuity
IPDM E/R		Front combination lamp (side marker)			
Connector	Terminal (wire color)	Connector		Terminal (wire color)	
E7	22 (R/L)	RH	E25	5 (R/L)	Yes
		LH	E41	5 (R/L)	



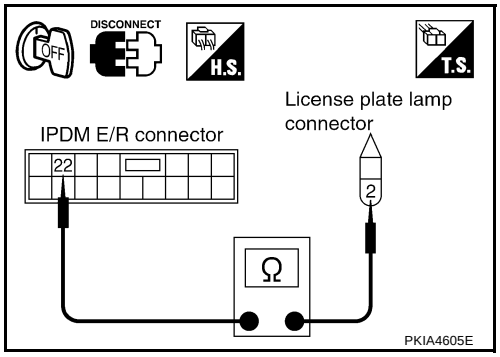
Terminals					Continuity
IPDM E/R		Rear combination lamp (Tail)			
Connector	Terminal (wire color)	Connector		Terminal (wire color)	
E7	22(R/L)	RH	T17	2 (R/L)	Yes
		LH	T9	2 (R/L)	



Terminals					Continuity
IPDM E/R		Rear combination lamp (side marker)			
Connector	Terminal (wire color)	Connector		Terminal (wire color)	
E7	22(R/L)	RH	T16	5 (R/L)	Yes
		LH	T8	5 (R/L)	



Terminals					Continuity
IPDM E/R		Licence plat lamp			
Connector	Terminal (wire color)	Connector		Terminal (wire color)	
E7	22 (R/L)	RH	T104	2 (R)	Yes
		LH	T102	2 (R)	



OK or NG

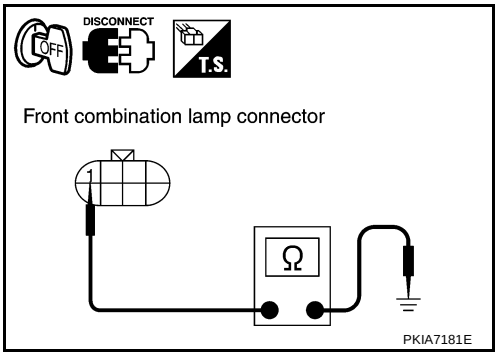
OK >> Replace IPDM E/R.
NG >> Repair harness or connector.

4. CHECK GROUND

1. Check harness continuity between front combination lamp, rear combination lamp and license plate lamp connectors and ground.

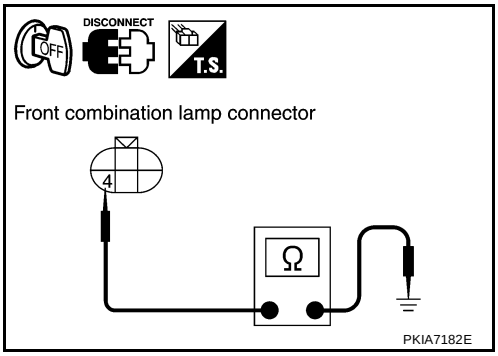
With xenon headlamp

Terminals				Continuity
Front combination lamp (Parking and side marker)			Ground	
Connector		Terminal (wire color)		
RH	E24	1 (B)		Yes
LH	E40			

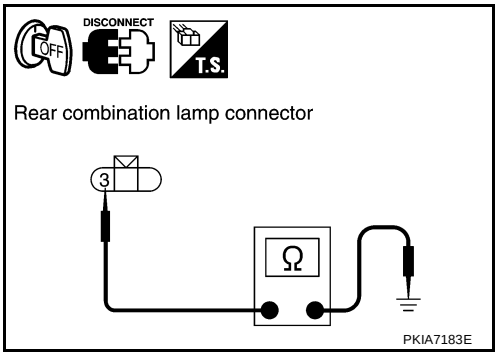


With halogen headlamp

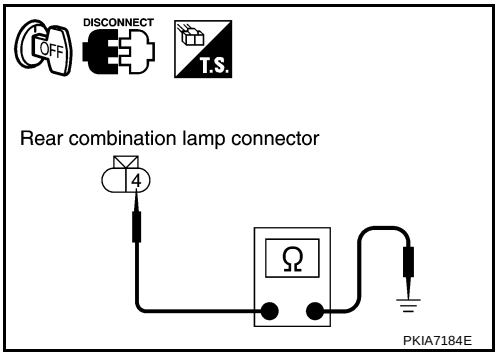
Terminals				Continuity
Front combination lamp (Parking and side marker)			Ground	
Connector		Terminal (wire color)		
RH	E25	4 (B)		Yes
LH	E41			



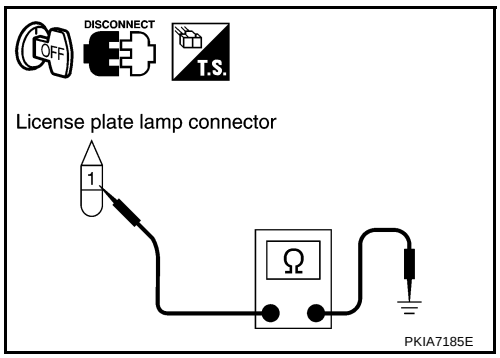
Terminals				Continuity
Rear combination lamp (Tail)			Ground	
Connector		Terminal (wire color)		
RH	T17	3 (B)		Yes
LH	T9			



Terminals				Continuity
Rear combination lamp (Side marker)			Ground	
Connector		Terminal (wire color)		
RH	T16	4 (B)		Yes
LH	T8			



Terminals				Continuity
License plate lamp			Ground	
Connector		Terminal (wire color)		
RH	T104	1 (B)		Yes
LH	T102			



OK or NG

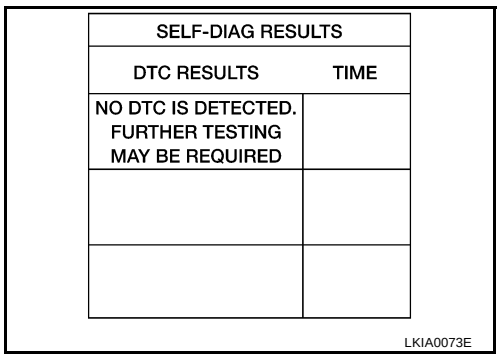
OK >> Check bulb.
NG >> Repair harness or connector.

5. CHECK COMBINATION SWITCH CIRCUIT

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

Displayed results of self-diagnosis

No malfunction detected>> GO TO 6.
CAN communications or CAN system>> Inspect the BCM CAN communications system. Refer to BCS-15, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .
OPEN DETECT 1 - 5>> Combination switch system malfunction. Refer to LT-162, "Combination Switch Inspection According to Self-Diagnostic Results" .



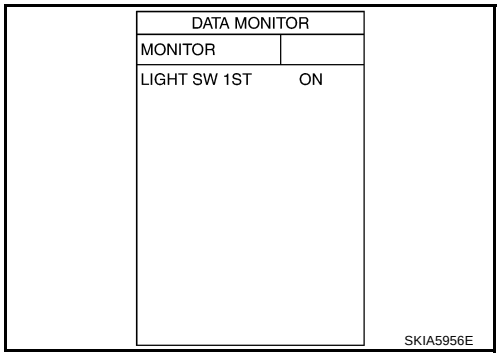
6. CHECK COMBINATION SWITCH INPUT SIGNAL

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

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

OK or NG

OK >> GO TO 7.
NG >> Replace lighting switch.



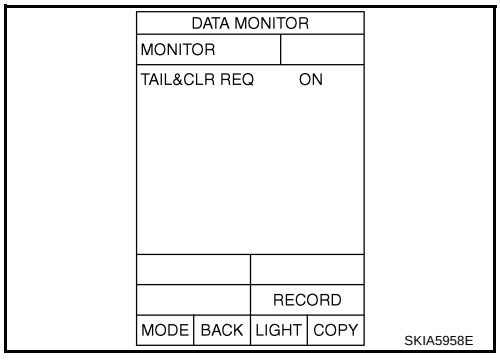
7. CHECK IPDM E/R

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

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

OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-17, "Removal and Installation of BCM" .



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

AKS009S4

1. IPDM E/R INSPECTION

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

OK or NG

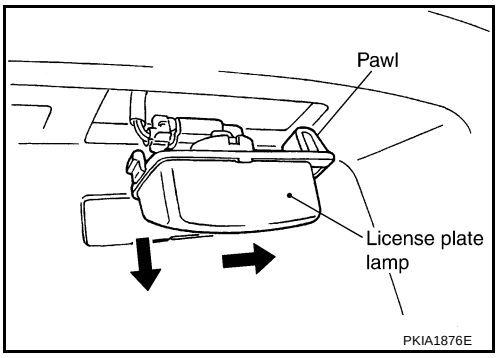
OK >> Normal.
NG >> Ignition relay malfunction. Refer to PG-18, "Function of Detecting Ignition Relay Malfunction" .

License Plate Lamp

AKS009S5

BULB REPLACEMENT, REMOVAL AND INSTALLATION

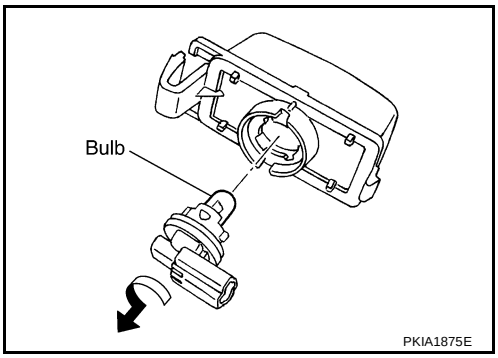
1. While pressing the license plate lamp to right side, pull left side of it and remove.
2. Disconnect the license plate lamp connector.



3. Turn bulb socket counterclockwise and unlock it.
4. Remove bulb from it's socket.

License plate lamp : 12V - 5W

5. Install in the reverse order of removal.



Front Parking (Clearance) Lamp

AKS009S6

BULB REPLACEMENT

For bulb replacement, refer to LT-33, "Bulb Replacement" in “HEAD LAMP (FOR USA)”.

REMOVAL AND INSTALLATION

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

Tail Lamp

AKS009S7

BULB REPLACEMENT

For bulb replacement, refer to LT-198, "Bulb Replacement" in “REAR COMBINATION LAMP”.

REMOVAL AND INSTALLATION

For tail lamp removal and installation procedures, refer to LT-199, "Removal and Installation" in “REAR COMBINATION LAMP”.

REAR COMBINATION LAMP

PFP:26554

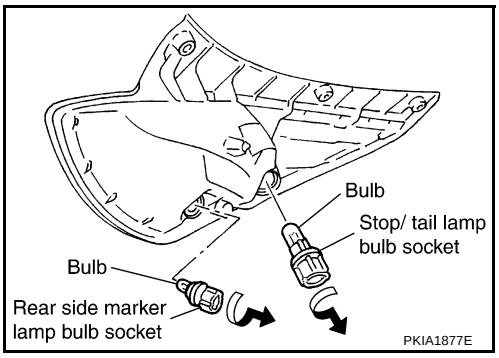
Bulb Replacement

AKS000VN

REAR FENDER SIDE (STOP & TAIL LAMP BULB, REAR SIDE MARKER LAMP BULB)

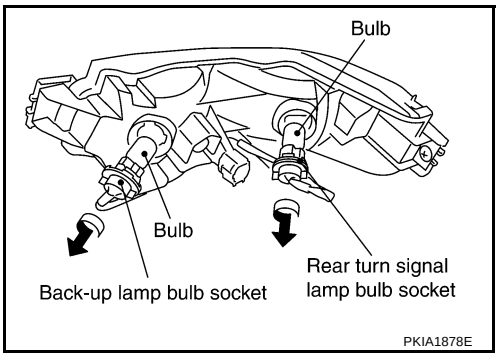
1. Remove rear combination lamp. Refer to LT-199, "Removal and Installation"
2. Turn bulb socket counterclockwise and unlock it.
3. Remove bulb.
4. Install in the reverse order of removal.

Stop/tail lamp (rear fender side)	**: 12V - 21/5W**
Rear side marker lamp (rear fender side)	**: 12V - 5W**



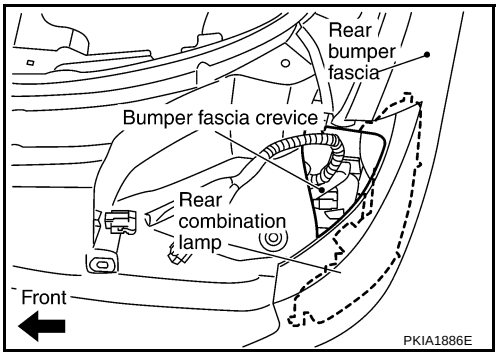
REAR BUMPER SIDE (BACK-UP LAMP BULB, REAR TURN SIGNAL LAMP BULB)

1. Remove rear combination lamp. Refer to LT-199, "Removal and Installation"
2. Turn bulb socket counterclockwise and unlock it through the bumper fascia crevice.



3. Remove bulb.
4. Install in the reverse order of removal.

Rear turn signal lamp (rear bumper side)	**: 12V - 21W (umber bulb)**
Back-up lamp (rear bumper side)	**: 12V - 21W**



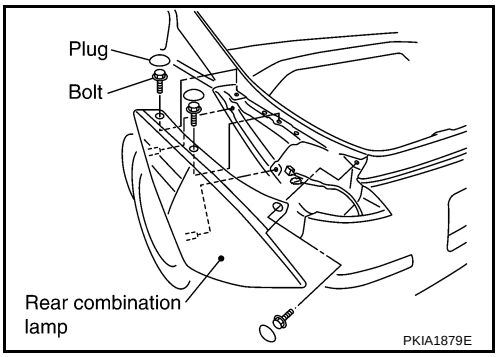
Removal and Installation

AKS000VO

REMOVAL

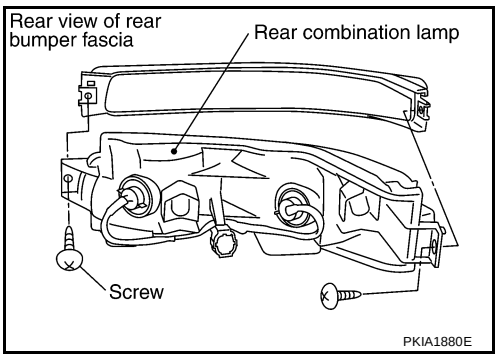
Rear Fender Side

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



Rear Bumper Side

1. Remove rear bumper fascia. Refer to EI-17, "REAR BUMPER" in “EI” section.
2. Disconnect rear combination lamp connector.
3. Remove rear combination lamp mounting screws.
4. Remove rear combination lamp from rear bumper fascia.



INSTALLATION

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

Rear combination lamp mounting bolt: (Rear fender side)

: 5.2 N·m (0.53 kg-m, 46 in-lb)

Rear combination lamp mounting screw: (Rear bumper side)

: 3.1 N·m (0.32 kg-m, 27 in-lb)

VANITY MIRROR LAMP

PFP:96400

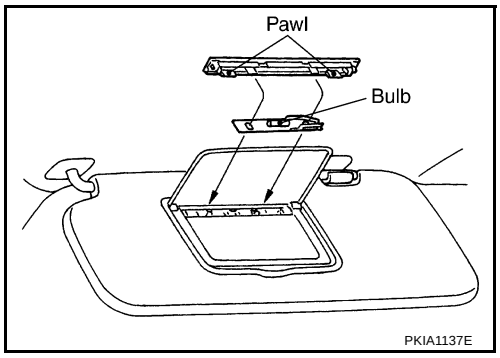
Bulb Replacement

AKS000VP

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

Vanity mirror lamp : 12V - 1.32W

3. Install in the reverse order of removal.



TRUNK ROOM LAMP

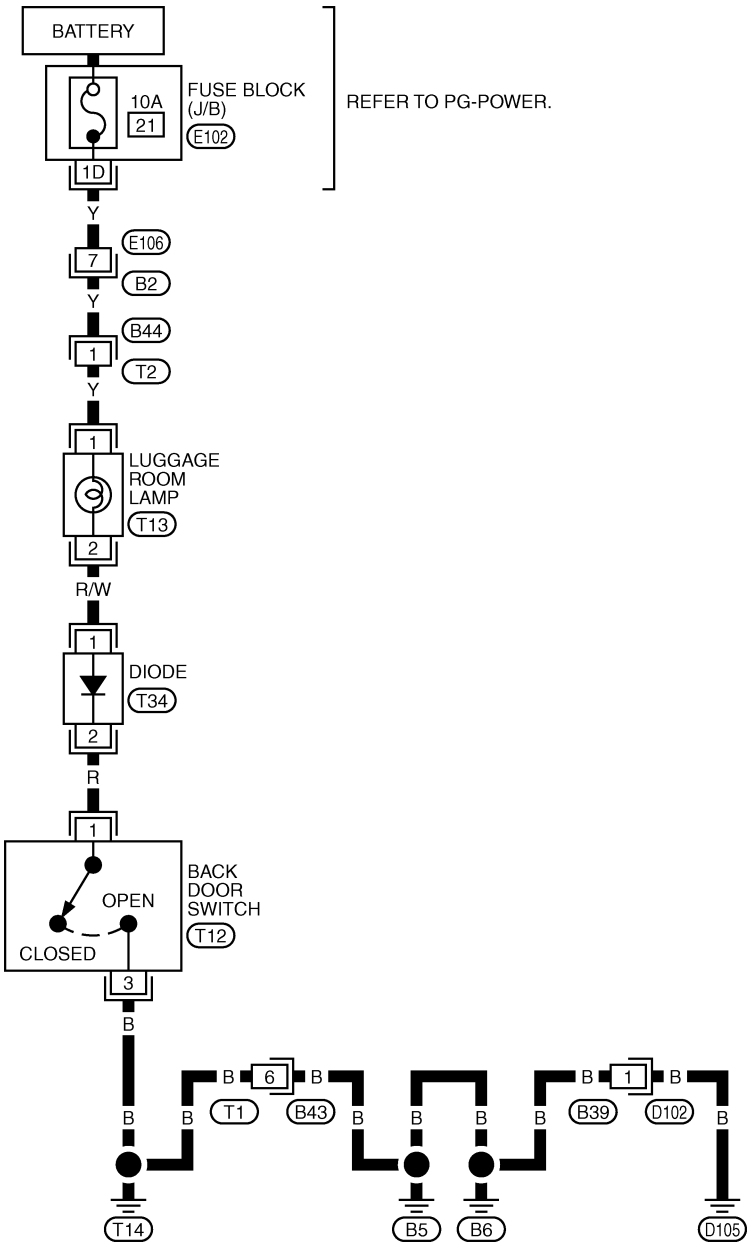
PFP:26470

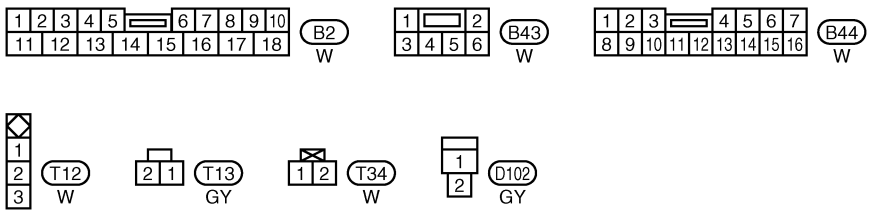
Wiring Diagram — INT/L —

AKS00996

COUPE MODELS

LT-INT/L-01





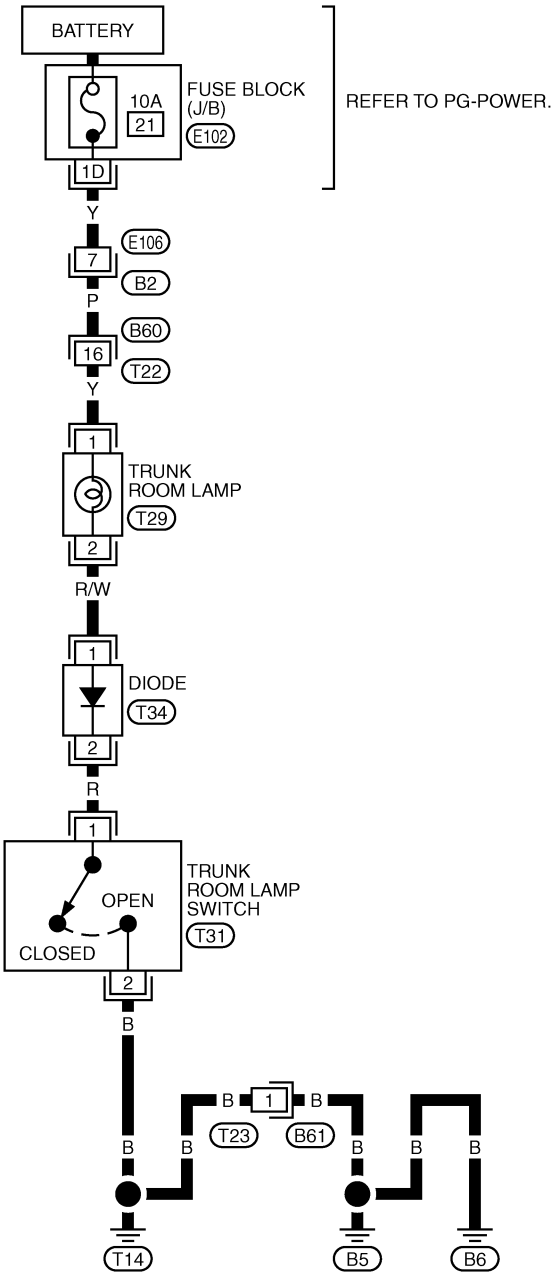
REFER TO THE FOLLOWING.

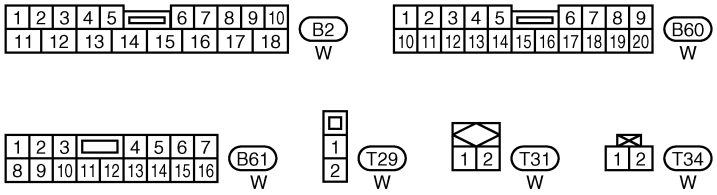
E102 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWT1337E

ROADSTER MODELS

LT-INT/L-02





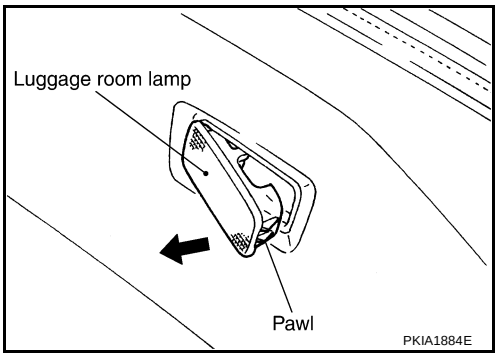
REFER TO THE FOLLOWING.
E102 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWT1611E

Bulb Replacement, Removal and Installation (Coupe models)

AKS00ADR

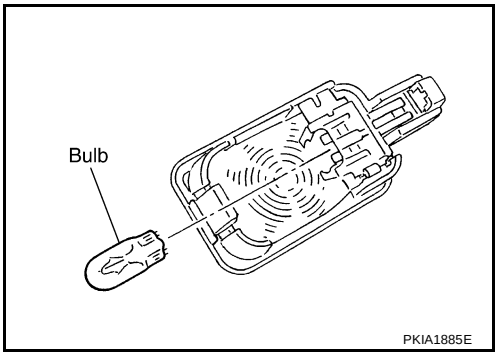
1. Pull out luggage room lamp in direction shown by the arrow in the figure.
2. Disconnect luggage room lamp connector.



3. Remove the bulb.

Luggage room lamp : 12V - 5W

4. Install in the reverse order of removal.

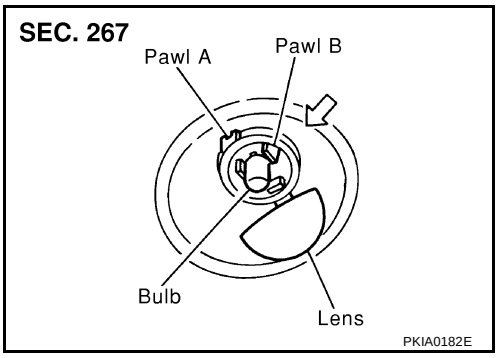


Bulb Replacement, Removal and Installation of Trunk Room Lamp (Roadster models)

AKS00997

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



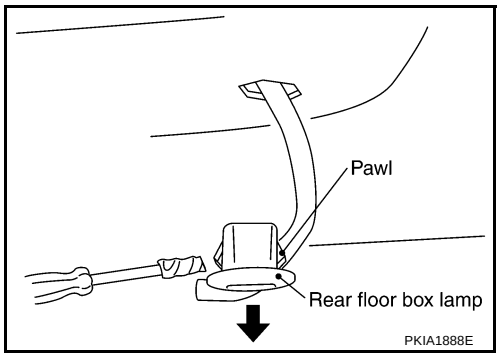
REAR FLOOR BOX LAMP

PFP:68520

Bulb Replacement, Removal and Installation

AKS003MW

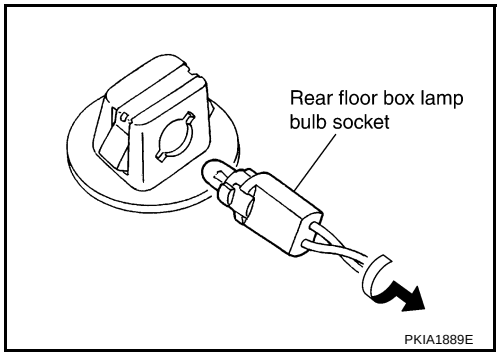
1. Pull out rear floor box lamp using screwdriver or similar tool.



2. Turn bulb socket counterclockwise to release lock and remove it.

Rear floor box lamp : 12V - 1.4W

3. Install in the reverse order of removal.



ASHTRAY ILLUMINATION

PFP:25860

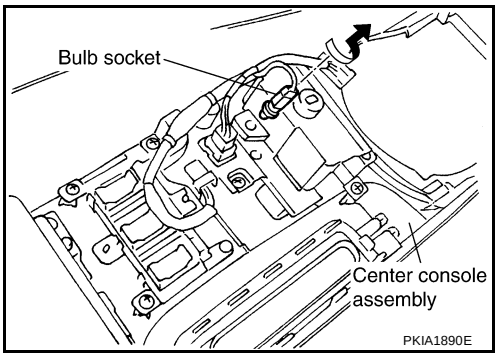
Bulb Replacement, Removal and Installation

AKS000VY

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.

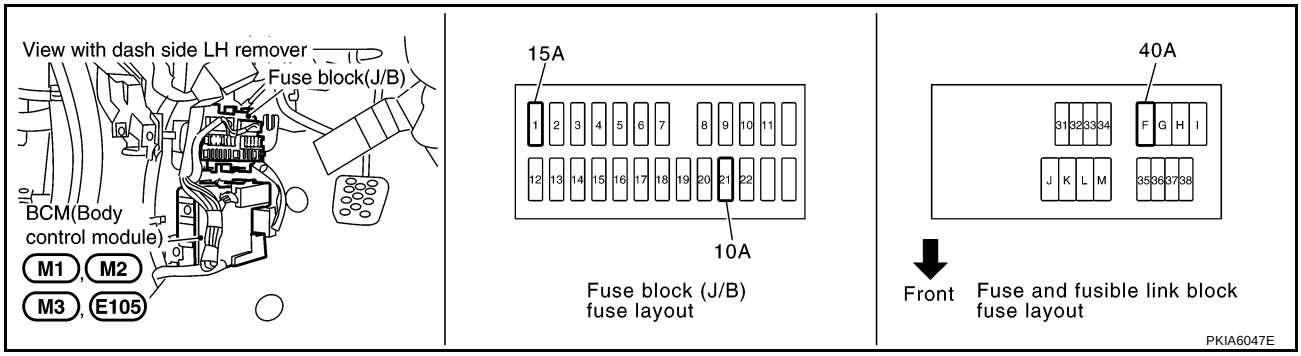


INTERIOR ROOM LAMP

PFP:26410

Component Parts and Harness Connector Location

AKS00ADS



System Description

AKS000W0

When map lamp switch is in DOOR position, map lamp ON/OFF is controlled by timer according to signals from switches including key switch, door switch driver side and assist side, unlock and lock signal from key fob, door lock and unlock switch, key cylinder lock and unlock switch, ignition switch.
When 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 the BCM (body control module).
Map lamp timer control settings can be changed with CONSULT-II.

POWER SUPPLY AND GROUND

Power is supplied at all times

- through 10A fuse [No.21, located in fuse block (J/B)]
- to key switch terminal 2
- through 40A fusible link [letter F, located in fuse and fusible link block]
- to BCM (body control module) terminal 7.

When the key is removed from ignition key cylinder, power is interrupted

- through key switch terminal 1
- to BCM (body control module) terminal 62.

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 35.

When room lamp and vanity mirror lamp power is supplied at times

- through BCM (body control module) terminal 24
- to map lamp terminal 3 and (Coupe models)
- to map lamp terminal 2 and (Roadster models)
- to vanity mirror lamp LH and RH terminals 1.

Ground is supplied

- to BCM (body control module) terminal 8
- through grounds E17,E43 and F152.

When the driver side door is opened, ground is supplied

- through case ground of driver side door switch
- to BCM (body control module) terminal 14.

When the passenger side door is opened, ground is supplied

- through case ground of passenger side door switch
- to BCM (body control module) terminal 10.

When the back door is opened, ground is supplied (Coupe models)

- through grounds B5, B6, D105 and T14
- to back door switch terminal 3

- from back door switch terminal 1
- to BCM (body control module) terminal 18.

When the driver side door or passenger side is unlocked by the door lock and unlock switch, BCM (body control module) receives unlock signal with power window serial link

- through grounds 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 and power window sub switch (door lock and unlock switch) terminal 16
- to BCM (body control module) terminal 74.

When the driver side door is unlocked by the door key cylinder switch, BCM (body control module) receives information by communicating with power window main switch

- through grounds M30 and M66
- to door key cylinder switch terminal 2
- from door key cylinder switch terminal 1
- to power window main switch terminal 7
- from power window main switch (door lock and unlock switch) terminal 12
- to BCM (body control module) terminal 74.

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

- through BCM (body control module) terminal 32
- to map lamp terminal 2 (Coupe models)
- to map lamp terminal 3 (Roadster models).

With power and ground are supplied, the map lamp illuminates.

SWITCH OPERATION

When map lamp switch is ON, ground is supplied

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

And power is supplied

- from BCM terminal 24
- to map lamp terminal 3 (Coupe models)
- to map lamp terminals 2 (Roadster models).

When vanity mirror lamp (LH and RH) is ON, ground is supplied

- to vanity mirror lamp terminal 2
- through grounds M30 and M66.

And power is supplied

- from BCM terminal 24
- to vanity mirror lamp terminal 1.

MAP LAMP TIMER OPERATION

When map lamp switch is in DOOR position, and when all conditions below are met, BCM performs timer control (maximum 30 seconds) for map lamp ON/OFF.
In addition, when map lamp 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.

When all doors are closed (all door switches OFF) and key is removed from key cylinder (key switch OFF), power will not be supplied to BCM terminal 62.
Ground is supplied

- from BCM terminal 74
- to power window main switch (door lock and unlock switch) terminal 12.

At this time, BCM detects that driver door is unlocked. It determines that map lamp timer operation conditions are met, and turns the map lamp ON for 30 seconds.
When all doors are closed (all door switches OFF) and key is in key cylinder (key switch ON),
Power is supplied

- through key switch terminal 1
- to BCM terminal 62.

When key is removed from key switch (key switch OFF), power supply to BCM terminal 62 is terminated. BCM detects that key has been removed. It determines that map lamp timer conditions are met, and turns the map lamp ON for 30 seconds.
When driver door opens → closes, and the key is not inserted in the key switch (key switch OFF), BCM terminal 14 changes between 0V (door open) → 5V (door closed). The BCM determines that conditions for spot lamp operation are met and turns the interior lamp ON for 30 seconds.
Timer control is canceled under the following conditions.

- Driver door is locked (When locked key fob or power window main switch (door lock and unlock switch, door key cylinder switch).
- Driver door is opened (driver door switch turns ON).
- Ignition switch ON.

INTERIOR LAMP BATTERY SAVER CONTROL

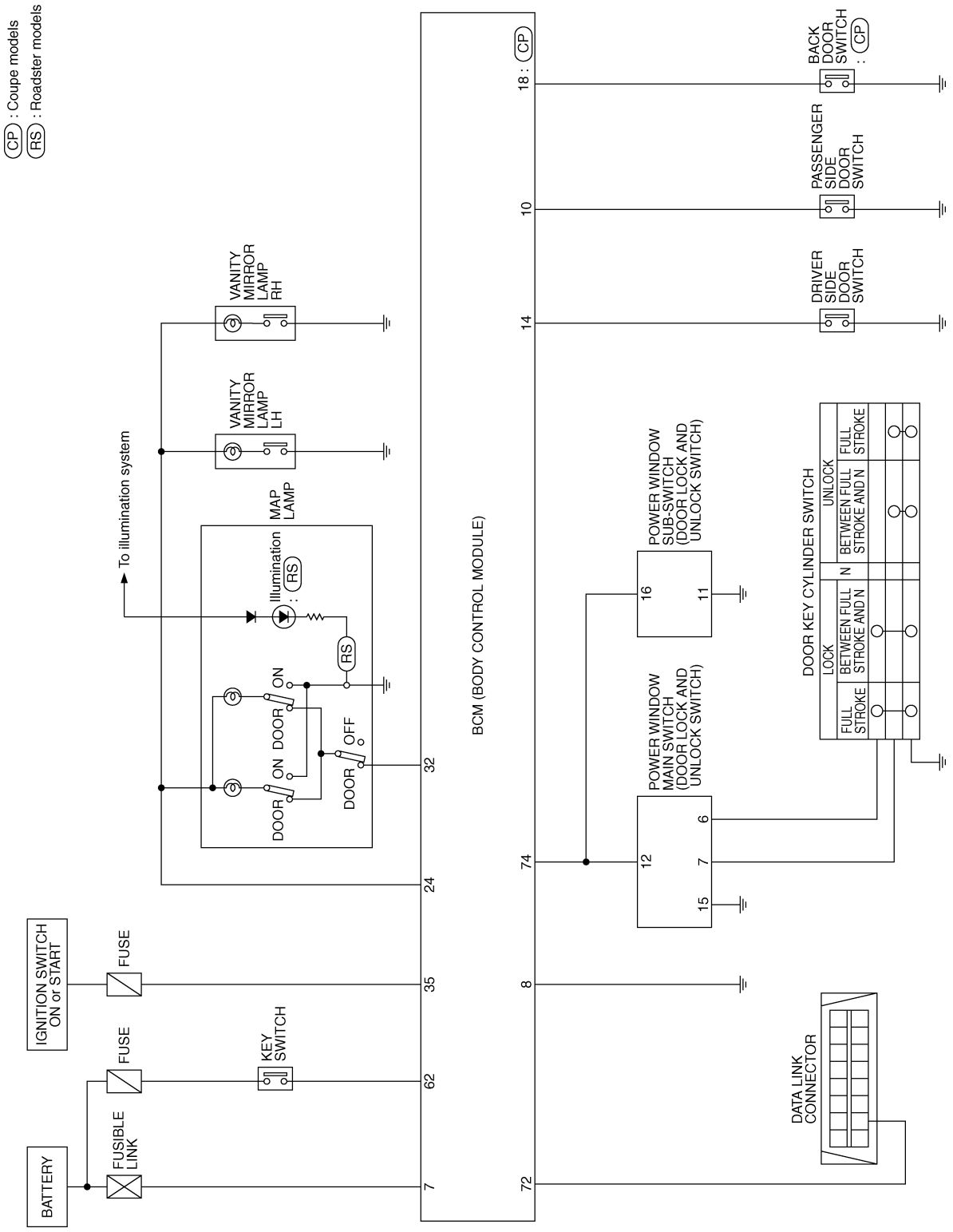
If the room lamp remains illuminated by the door switch open signal, or if the room lamp switch is in the ON position for more than 30 minutes after the ignition switch is turned to the OFF position, the BCM will automatically turn off the map lamp, step lamp, and/or personal lamp and vanity mirror lamp.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

- signal from key fob, or 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

AKS000W2

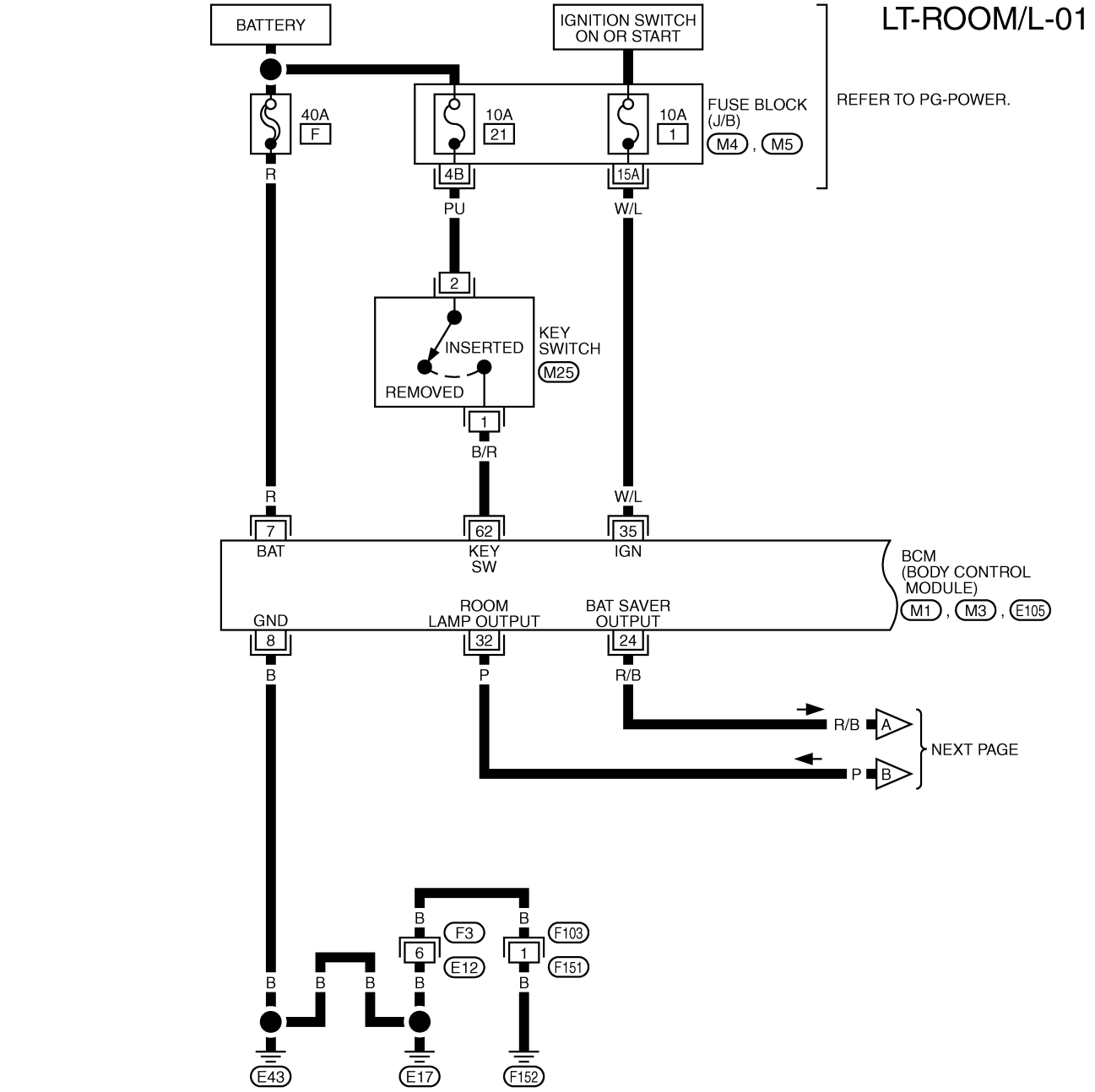


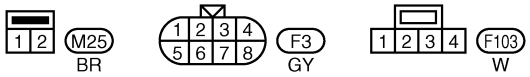
TKWT1612E

Wiring Diagram — ROOM/L —

AKS000W3

COUPE MODELS

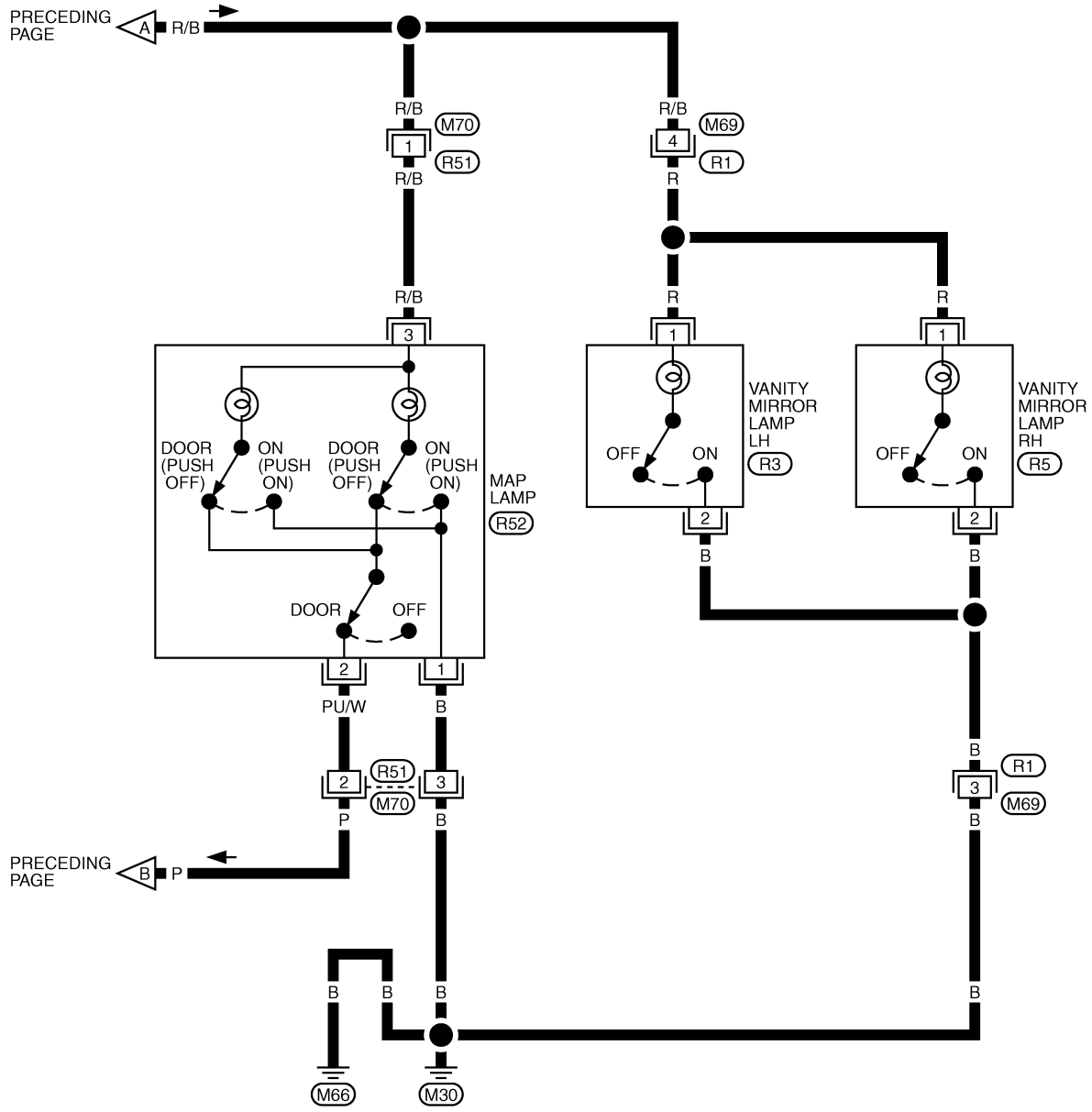


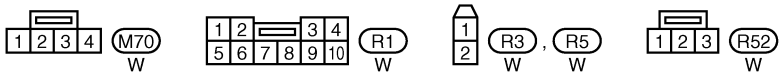


REFER TO THE FOLLOWING.
M4 , M5 -FUSE BLOCK-JUNCTION BOX (J/B)
M1 , M3 , E105 -ELECTRICAL UNITS

TKWT1340E

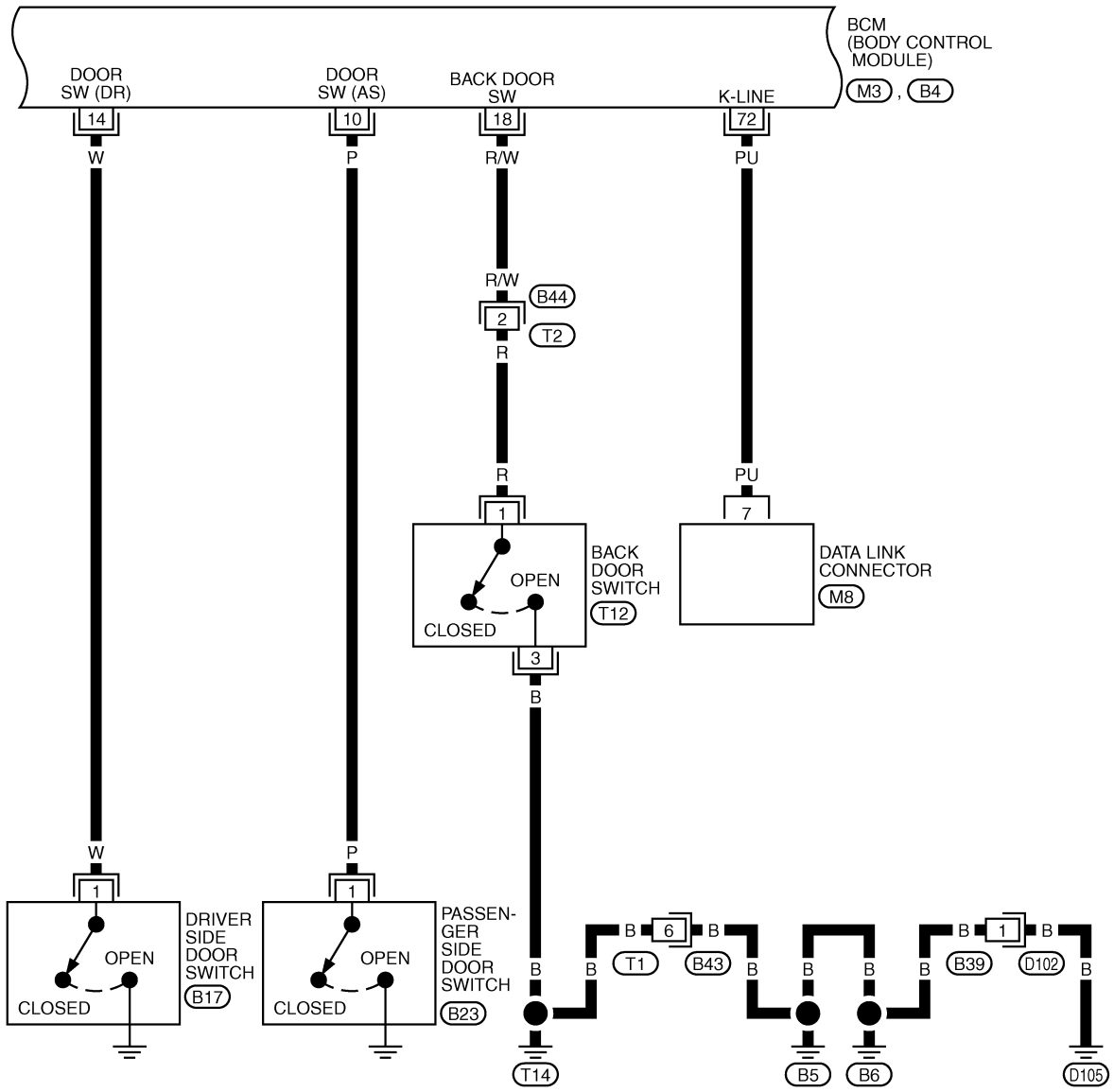
LT-ROOM/L-02

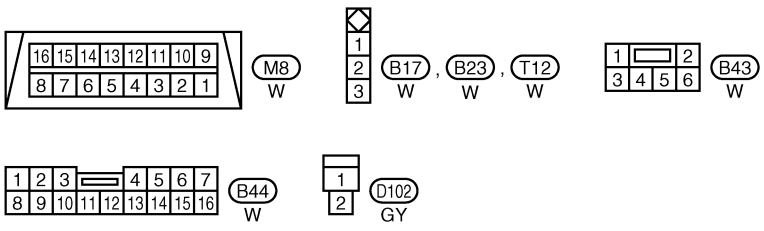




TKWT1341E

LT-ROOM/L-03

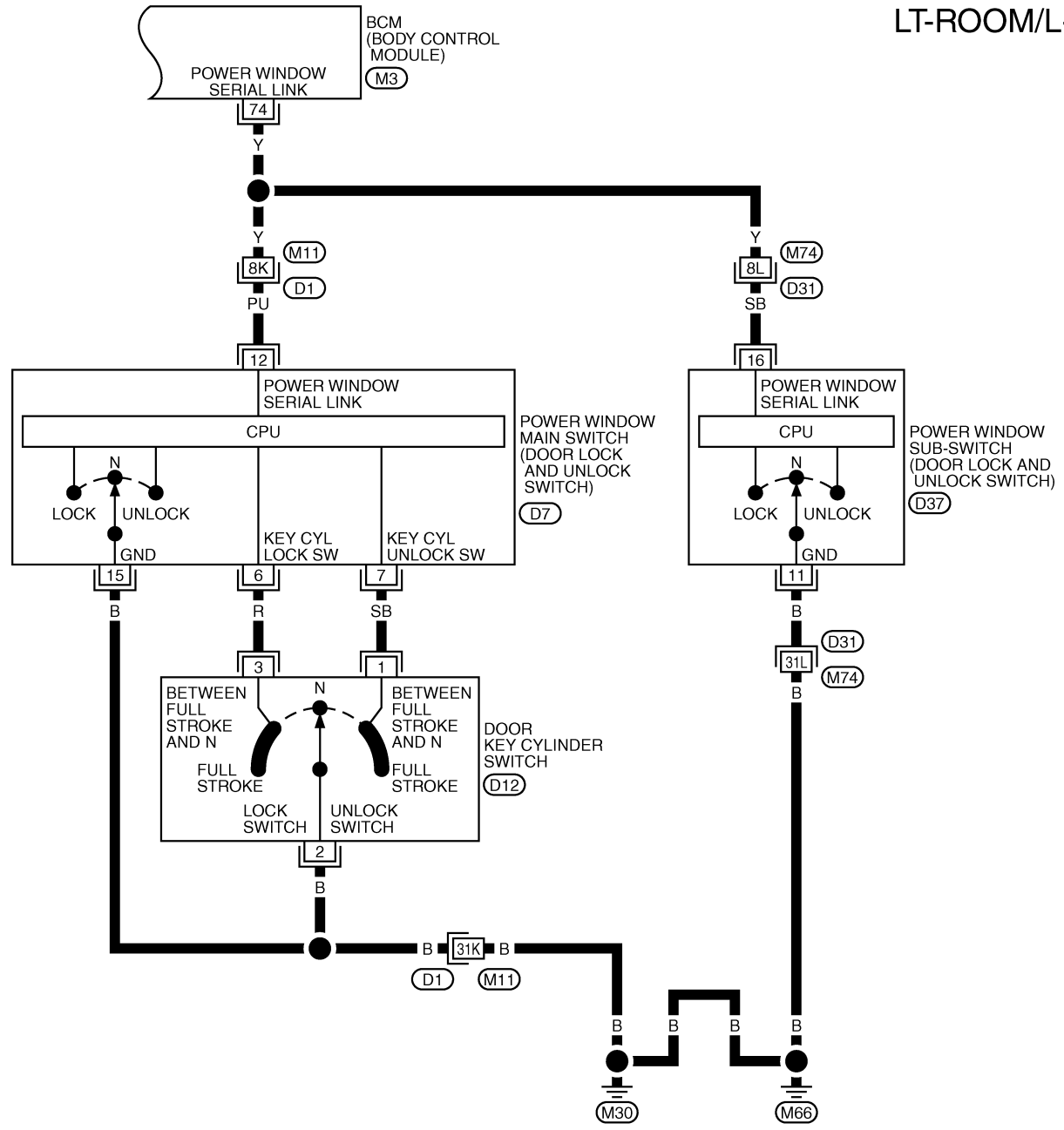


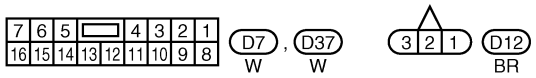


REFER TO THE FOLLOWING.
M3 , B4 -ELECTRICAL UNITS

TKWT1342E

LT-ROOM/L-04

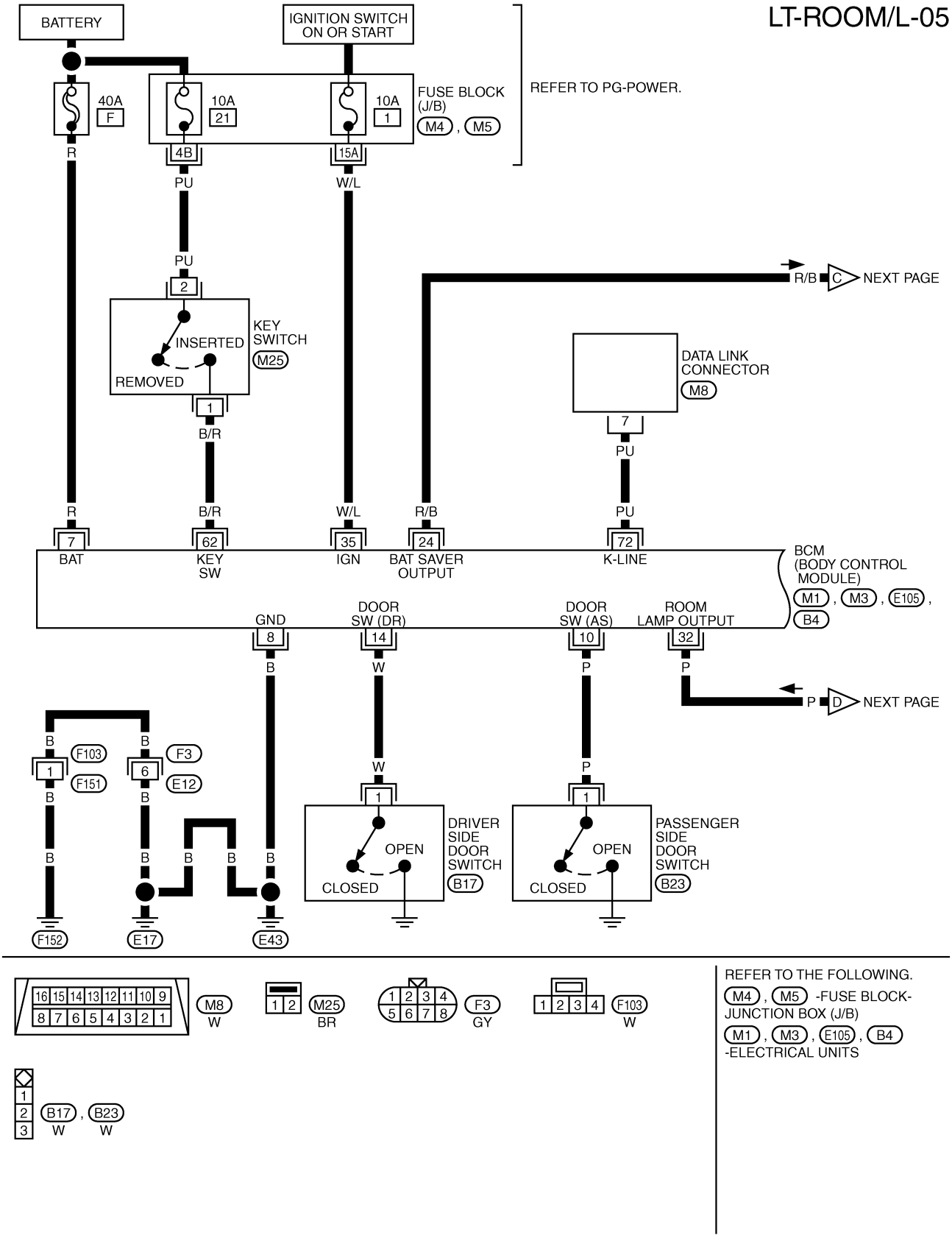




REFER TO THE FOLLOWING.
D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)
M3 -ELECTRICAL UNITS

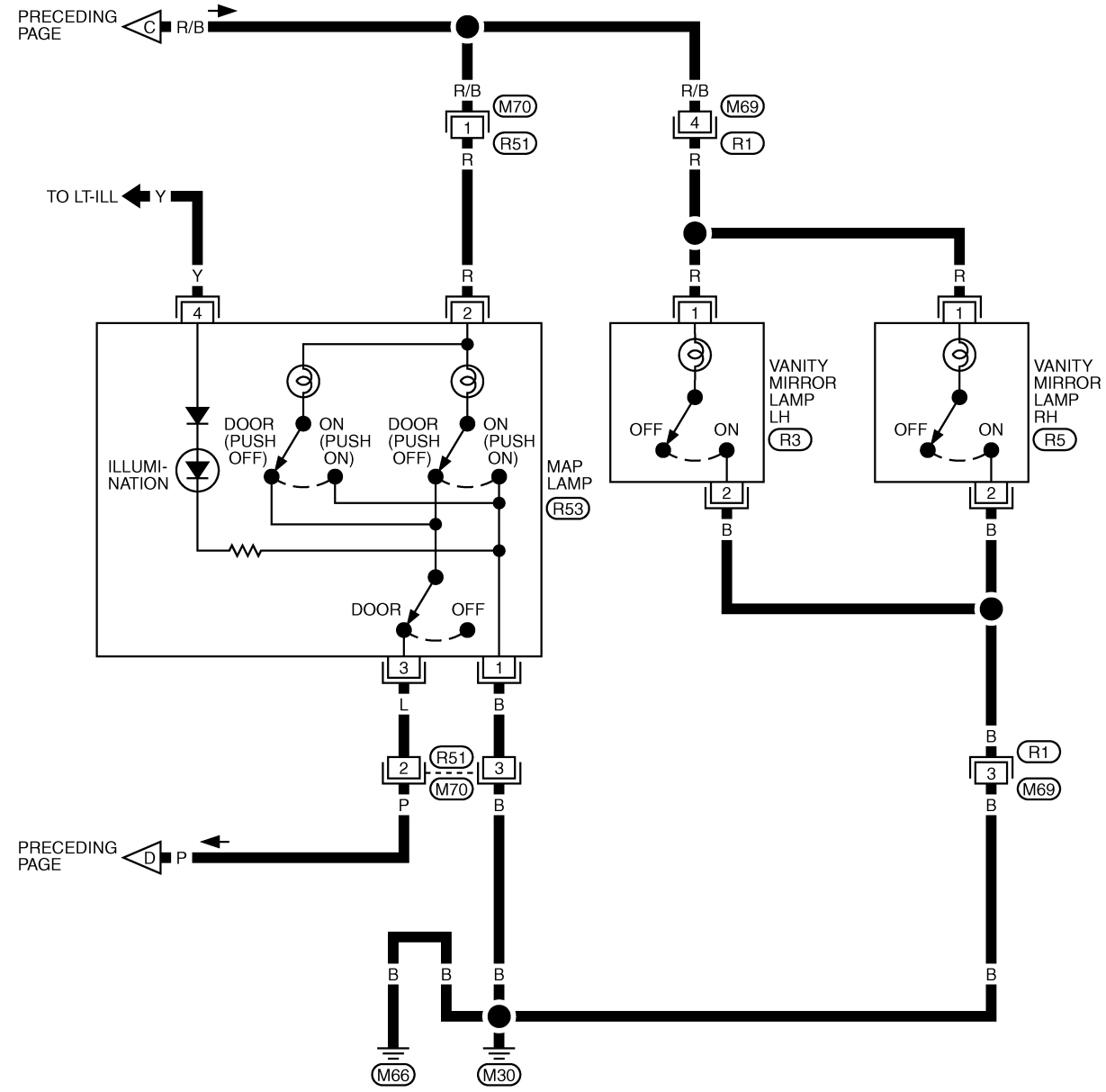
TKWT0466E

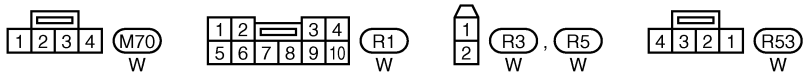
ROADSTER MODELS



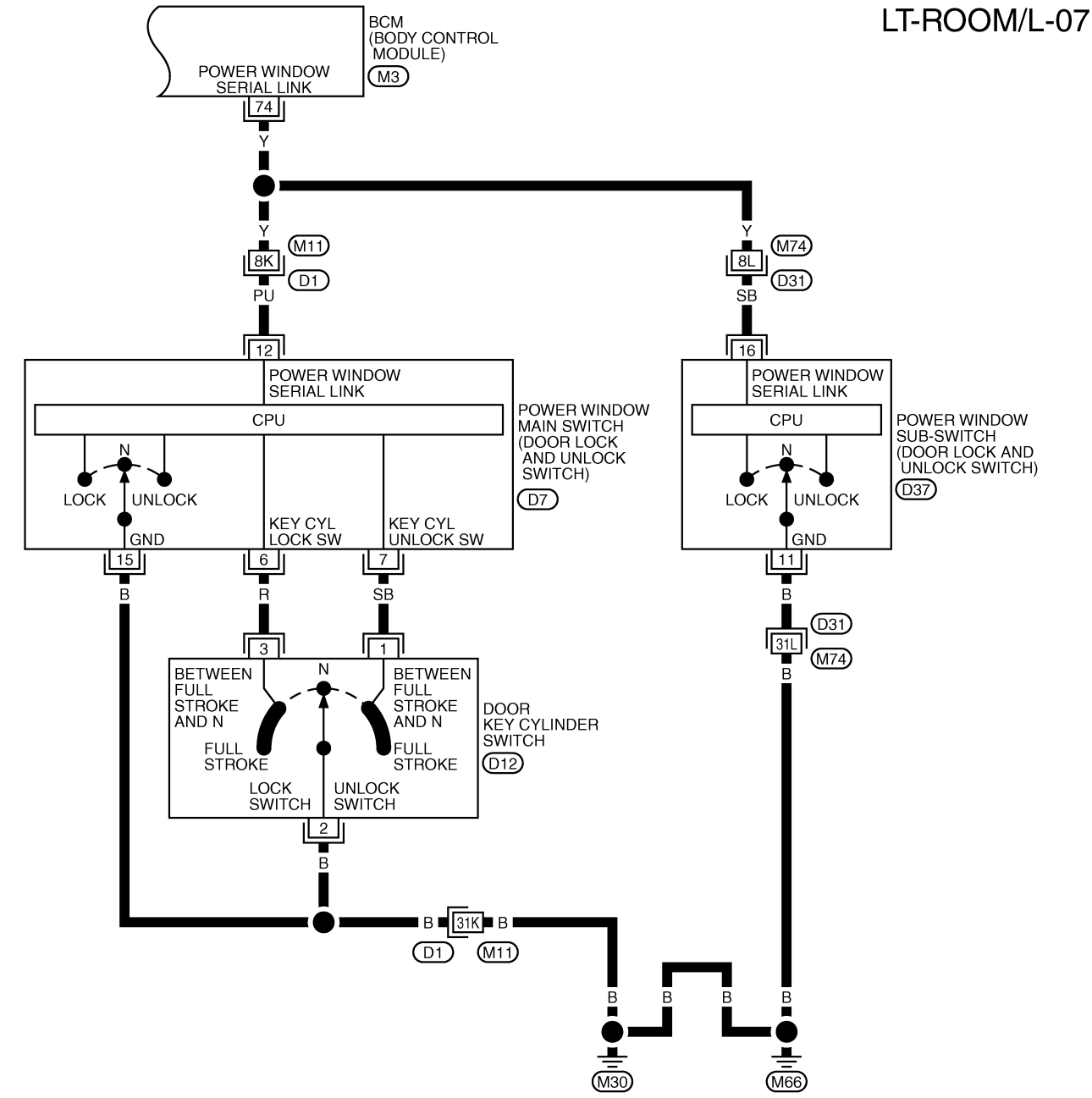
TKWT1613E

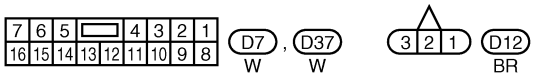
LT-ROOM/L-06





TKWT1614E





REFER TO THE FOLLOWING.

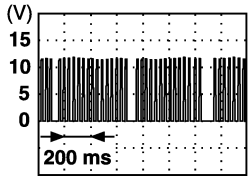
D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)

M3 -ELECTRICAL UNITS

TKWT1615E

Terminals and Reference Values for BCM

AKS000W4

Terminal No.	Wire color	Signal name	Measuring condition				Reference value
			Ignition switch	Operation or condition			
7	R	Battery power supply	OFF	—			Battery voltage
8	B	Ground	ON	—			Approx. 0V
10	P	Door switch AS signal	OFF	Door switch AS	ON (open)		Approx. 0V
					OFF (closed)		Approx. 5V
14	W	Door switch DR signal	OFF	Door switch DR	ON (open)		Approx. 0V
					OFF (closed)		Approx. 5V
18	R/W	Back door switch signal	OFF	Back door switch	ON (open)		Approx. 0V
					OFF (closed)		Battery voltage
24	R/B	Battery saver output signal	OFF	30 minutes after ignition switch is turned OFF			Approx. 0V
			ON	—			Battery voltage
32	P	Map lamp output signal	ON	Map lamp switch: DOOR position	Any door switch	ON (open)	Approx. 0V
					All door switch	OFF (closed)	Battery voltage
35	W/L	IGN power supply	ON	—			Battery voltage
62	B/R	Key detection switch signal	OFF	Vehicle key is removed.			Approx. 0V
				Vehicle key is inserted.			Battery voltage
72	PU	K-LINE	—	—			—
74	Y	Power window switch serial link	—	—			 PIIA2344J

How to Proceed With Trouble Diagnosis

AKS000W5

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-206, "System Description" .
3. Perform the preliminary check. Refer to LT-218, "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

AKS000W6

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

- Check for blown BCM fuses.

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

Refer to LT-210, "Wiring Diagram — ROOM/L —" .

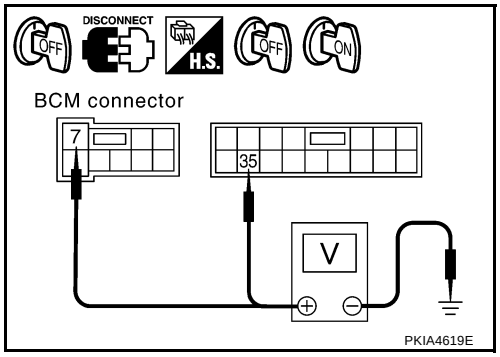
OK or NG

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



Terminals			Ignition switch position	
(+)		(-)	OFF	ON
Connector	Terminal (Wire color)			
E105	7 (R)	Ground	Battery voltage	Battery voltage
M1	35 (W/L)		0V	Battery voltage

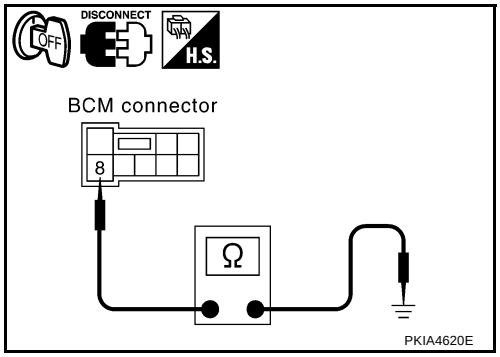
OK or NG

OK >> GO TO 3.

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

3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.



Terminals			Continuity
Connector	Terminal (wire color)	Ground	
E105	8 (B)		Yes

OK or NG

OK >> INSPECTION END

NG >> Check harness ground circuit.

CONSULT-II Functions

AKS000W7

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

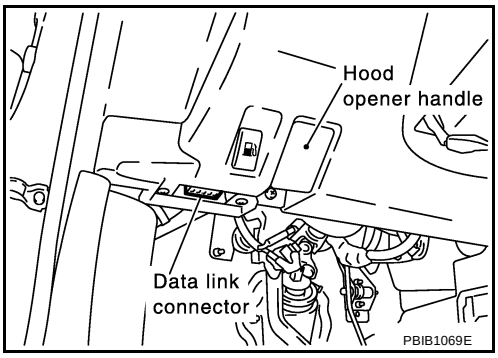
BCM diagnosis part	Check item, diagnosis mode	Description
INTERIOR LAMP	WORK SUPPORT	Changes the setting for each function.
	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending driving signal to them.

CONSULT-II BASIC OPERATION

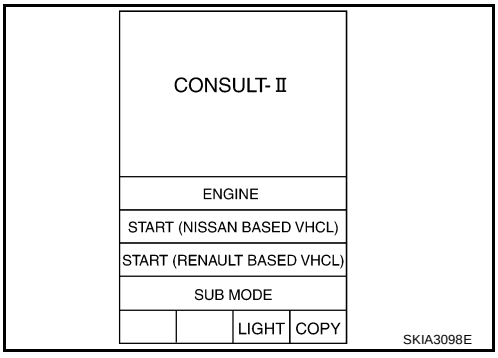
CAUTION:

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

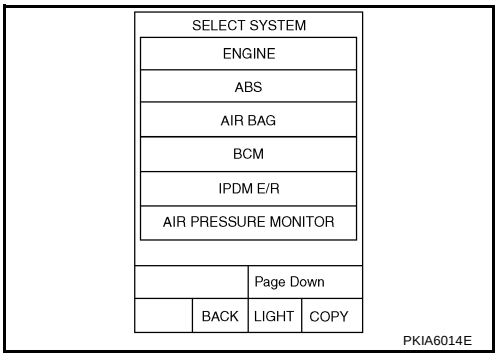
1. With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



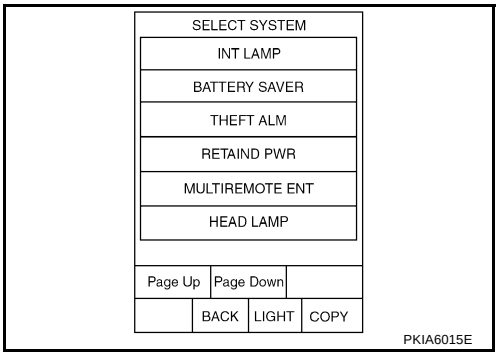
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “BCM” on “SELECT SYSTEM” screen.
If “BCM” is not indicated, refer to GI-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 “ROOM LAMP TIMER SET” on “SELECT WORK ITEM” screen.
4. Touch “START”.
5. Touch “CHANGE SET”.
6. The setting will be changed and “CUSTOMIZING COMPLETED” will be displayed.
7. Touch “END”.

Display Item List

Item	Description	CONSULT-II	Factory setting
ROOM LAMP TIMER SET	Map lamp ON/OFF can be selected for when driver door lock is released (unlocked).	ON	×
		OFF	—

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 name “operation or unit”		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.
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.
LOCK SW DR/AS	“ON/OFF”	Displays “Door locked (ON)“ status, determined from locking detection switch in driver door and passenger door.
UNLK SW DR/AS	“ON/OFF”	Displays “Door unlocked (OFF)” status, determined from locking detection switch in driver door and passenger door.
KEY CYL LK SW	“ON/OFF”	Displays “Door locked (ON)” status, determined from key cylinder lock switch in driver door.

Monitor item name “operation or unit”		Contents
KEY CYL UN SW	“ON/OFF”	Displays “Door unlocked (OFF)” status, determined from key cylinder lock switch in driver door.
LK BUTTON/SIG	“ON/OFF”	Displays “Locked (ON)/Other (OFF)” status, determined from lock signal.
UN BUTTON/SIG	“ON/OFF”	Displays “Unlocked (ON)/Other (OFF)” status, determined from unlock signal.
DOOR SW - RR[Note]	“OFF”	—

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	Spot lamp can be operated by any ON-OFF operations.
IGN ILLUMI[Note]	—

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

Map Lamp Control Does Not Operate (Coupe Models)

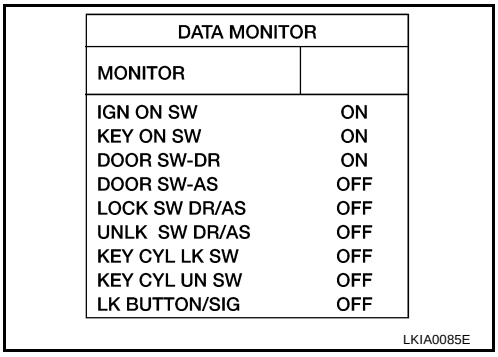
AKS009SI

1. CHECK BETWEEN EACH SWITCH AND BCM

Select BCM on CONSULT-II. Use “INT LAMP” data monitor to make sure switches listed in display item list turn ON-OFF linked with switch operation. Refer to LT-220, "Display Item List" for switches and their functions.

OK or NG

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



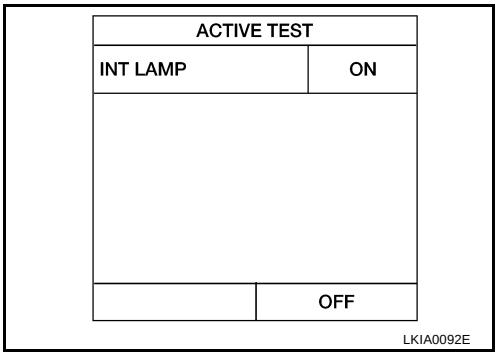
2. CHECK BETWEEN BCM AND MAP LAMP

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

Map lamp should operate.

OK or NG

OK >> Replace BCM. Refer to BCS-17, "Removal and Installation of BCM" .
NG >> GO TO 3.



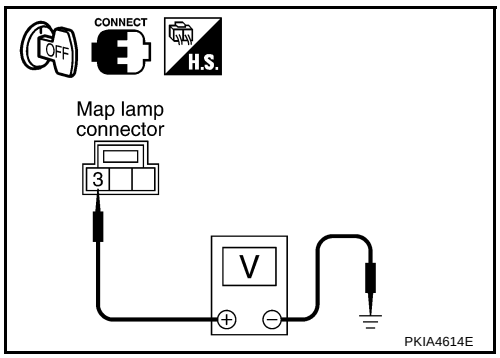
3. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Check voltage between map lamp harness connector R52 terminal 3 (R/B) and ground.

3 (R/B) – Ground : Battery voltage should exist.

OK or NG

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



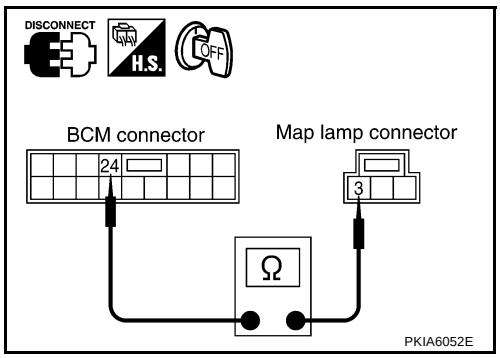
4. CHECK MAP LAMP CIRCUIT

1. Disconnect BCM connector and map lamp connector.
2. Check continuity between BCM harness connector M1 terminal 24 (R/B) and map lamp harness connector R52 terminal 3 (R/B).

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

OK or NO

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



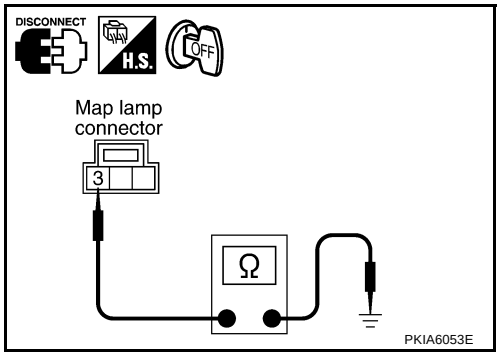
5. CHECK SHORT CIRCUIT

Check continuity between map lamp harness connector R52 terminal 3 (R/B) and ground.

3 (R/B) – Ground : Continuity should not exist.

OK or NG

OK >> Replace BCM if map lamp does not work after setting the connector again. Refer to BCS-17, "Removal and Installation of BCM" .
NG >> After repairing harness, be sure to disconnect battery negative cable, and then reconnect it.



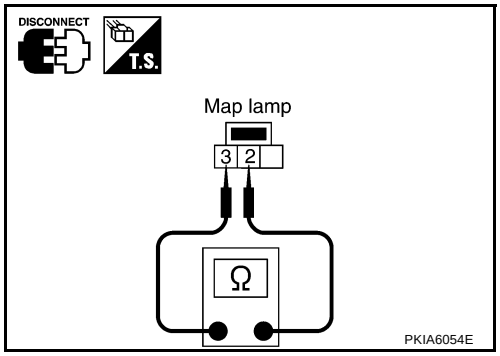
6. CHECK MAP LAMP

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

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

OK or NG

OK >> GO TO 7.
NG >> Replace map lamp.



7. CHECK MAP LAMP CIRCUIT

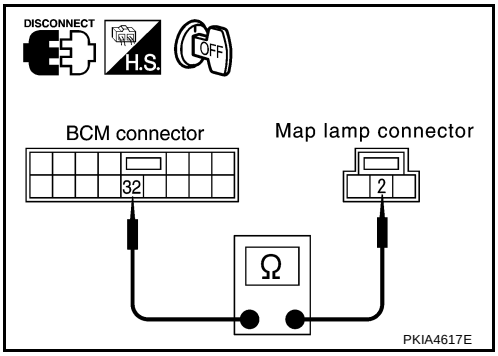
1. Disconnect BCM connector.
2. Check continuity between BCM harness connector M1terminal 32 (P) and map lamp harness connector R52 terminal 2 (PU/W).

32 (P) – 2 (PU/W) : Continuity should exist.

OK or NO

OK >> Replace BCM if map lamp does not work after setting the connector again. Refer to BCS-17, "Removal and Installation of BCM" .

NG >> Repair harness or connector.



Map Lamp Control Does Not Operate (Roadster Models)

AKS009SJ

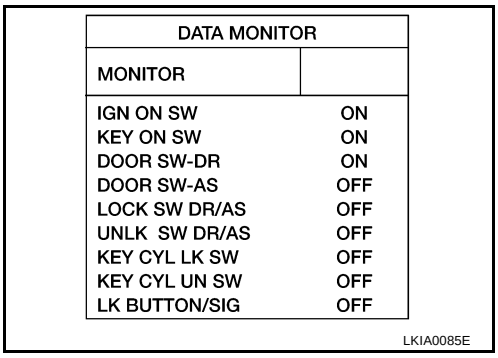
1. CHECK BETWEEN EACH SWITCH AND BCM

Select BCM on CONSULT-II. Use “INT LAMP” data monitor to check that switches listed in display item list turn ON-OFF linked with switch operation. Refer to LT-220, "Display Item List" for switches and their functions.

OK or NG

OK >> GO TO 2.

NG >> Inspect malfunctioning switch system.



2. CHECK BETWEEN BCM AND MAP LAMP

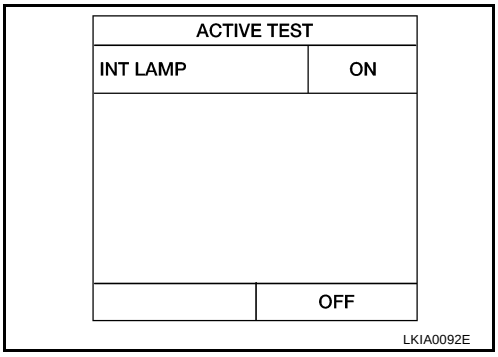
1. Select “BCM” on CONSULT-II. Select “INT LAMP” active test.
2. When map lamp switch is in DOOR position, use active test to make sure map lamp operates.

Map lamp should operate.

OK or NG

OK >> Replace BCM. Refer to BCS-17, "Removal and Installation of BCM" .

NG >> GO TO 3.



3. CHECK BETWEEN BCM AND MAP LAMP

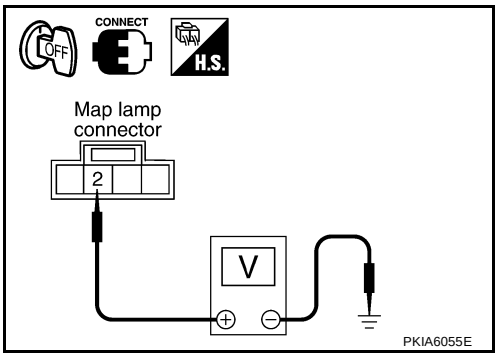
1. Turn ignition switch OFF.
2. Check voltage between map lamp harness connector R53 terminal 2 (R) and ground.

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

OK or NG

OK >> GO TO 6.

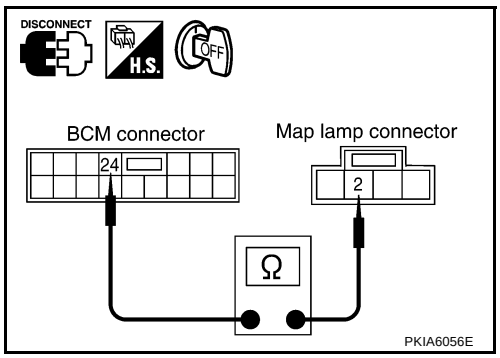
NG >> GO TO 4.



4. CHECK MAP LAMP CIRCUIT

1. Disconnect BCM connector and map lamp connector.
2. Check continuity between BCM harness connector M1 terminal 24 (R/B) and map lamp harness connector R53 terminal 2 (R/B).

24 (R/B) – 2 (R/B) : Continuity should exist.



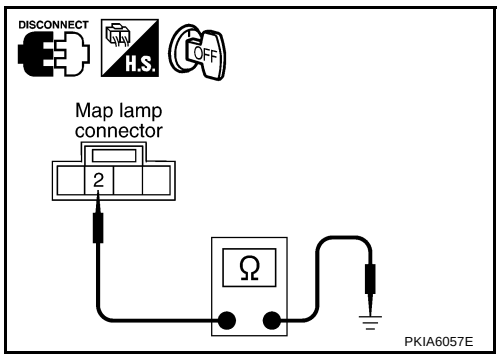
OK or NO

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

5. CHECK SHORT CIRCUIT

Check continuity between map lamp harness connector R53 terminal 2 (R) and ground.

2 (R) – Ground : Continuity should not exist.



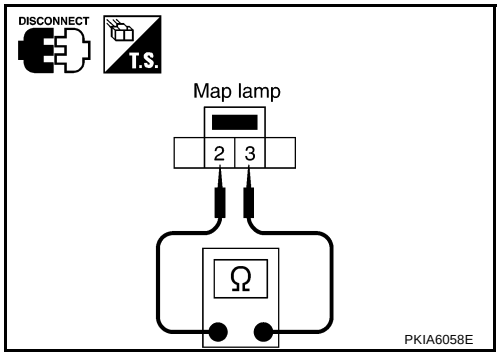
OK or NG

OK >> Replace BCM if map lamp does not work after setting the connector again. Refer to BCS-17, "Removal and Installation of BCM" .
NG >> After repairing harness, be sure to disconnect battery negative cable, and then reconnect it.

6. CHECK MAP LAMP

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

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



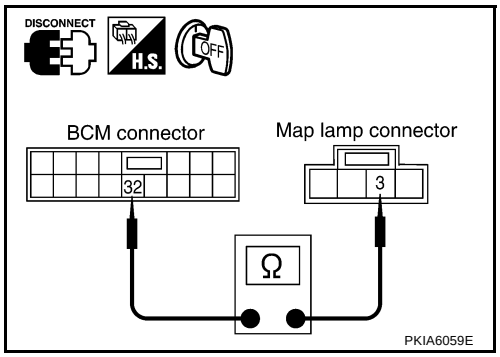
OK or NG

OK >> GO TO 7.
NG >> Replace map lamp.

7. CHECK MAP LAMP CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector M1 terminal 32 (P) and map lamp harness connector R53 terminal 3 (L).

32 (P) – 3 (L) : Continuity should exist.



OK or NO

OK >> Replace BCM if map lamp does not work after setting the connector again. Refer to BCS-17, "Removal and Installation of BCM" .
NG >> Repair harness or connector.

Bulb Replacement

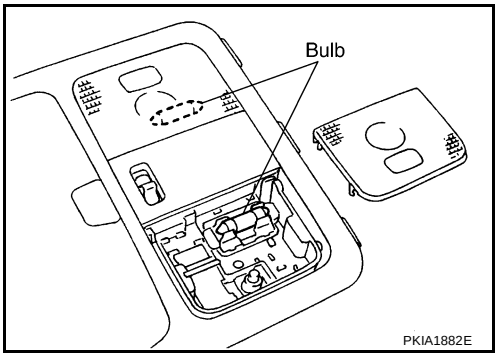
AKS00999

COUPE MODELS

1. Open the driver and passenger window, and then disconnect the battery negative cable.

   CAUTION:
   After the battery cables are disconnected, do not open/close the driver and/or passenger door with the window in the full up position. The automatic window adjusting function will not work and the side roof panel may be damaged.
2. Remove the lens using clip driver or suitable tool.
3. Remove the bulb.

   Map lamp :12V - 8 W
4. Install in the reverse order of removal.

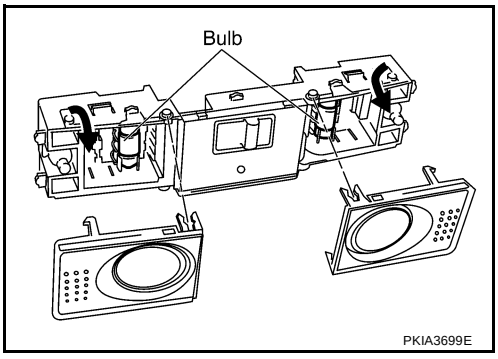


ROADSTER MODELS

1. Open the driver and passenger window, and then disconnect the battery negative cable.

   CAUTION:
   After the battery cables are disconnected, do not open/close the driver and/or passenger door with the window in the full up position. The automatic window adjusting function will not work and the side roof panel may be damaged.
2. Remove the lens using clip driver or suitable tool.
3. Remove the bulb.

   Map lamp :12V - 8 W
4. Install in the reverse order of removal.

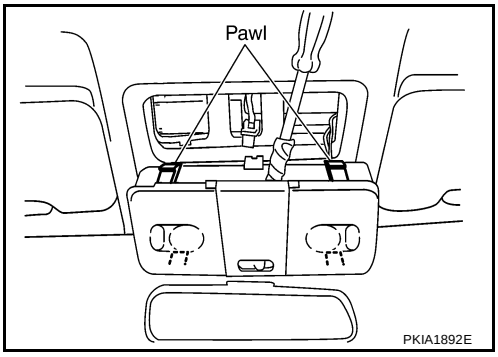


Removal and Installation

AKS0099A

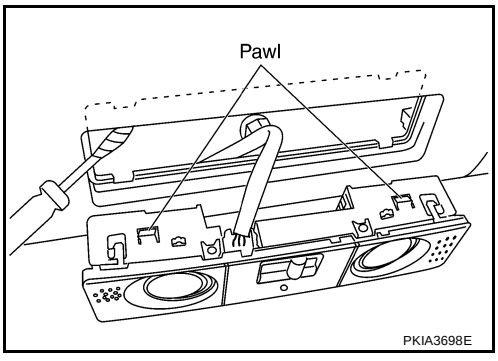
REMOVAL (COUPE MODELS)

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



REMOVAL (ROADSTER MODELS)

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



INSTALLATION

Install in the reverse order of removal.

ILLUMINATION

PFP:27545

System Description

AKS009QH

Control of the illumination lamps operation is dependent upon the position of the lighting switch (combination switch). When the lighting switch is placed in the 1ST or 2ND position, the BCM receives input signal requesting the illumination lamps to illuminate. This input signal is communicated to the IPDM E/R (intelligent power distribution module engine room) across the CAN communication lines. The CPU (central processing unit) of the IPDM E/R 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 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 7
- through 40A 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 BCM (body control module) terminal 35
- through 10A fuse [No. 1, 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 36
- through 10A fuse [No. 6, located in fuse block (J/B)].

Ground is supplied

- to BCM (body control module) terminal 8
- through grounds E17, E43 and F152.

ILLUMINATION OPERATION BY LIGHTING SWITCH

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

- through IPDM E/R terminal 22
- to NAVI control unit terminal 9 (With navigation system)
- to NAVI switch terminal 2 (With navigation system)
- to VDC off switch (illumination) terminal 3 (with VDC)
- to TCS off switch (illumination) terminal 3 (with TCS)
- to A/T device (A/T illumination) terminal 3 (With A/T)
- to hazard switch (illumination) terminal 3
- to map lamp (illumination) terminal 4 (Roadster models)
- to ashtray illumination terminal 1 (With ashtray)
- to heated seat switch (driver side) (illumination) terminal 5 (With heated seat)
- to heated seat switch (passenger side) (illumination) terminal 5 (With heated seat)
- to luggage floor box lamp terminal 1
- to soft top switch (illumination) terminal 5 (Roadster model)
- to audio unit terminal 8.

Ground is supplied at all times

- to luggage floor box lamp terminal 2
- through grounds D105, B5, B6, and T14 (Coupe model)
- through grounds B5, B6 and T14 (Roadster model)
- to ashtray illumination terminal 2 (With ashtray)
- to map lamp (illumination) terminal 1 (Roadster models)
- through grounds M30 and M66
- to soft top switch (illumination) terminal 6 (Roadster models)

- to hazard switch (illumination) terminal 4
- to VDC off switch (illumination) terminal 3 (With VDC)
- to TCS off switch (illumination) terminal 4 (With TCS)
- to A/T device (A/T illumination) terminal 5 (With A/T)
- to NAVI switch terminal 3 (With navigation system)
- to audio unit terminal 7
- to heated seat switch (driver side) (illumination) terminal 6 (With heated seat)
- to heated seat switch (passenger side) (illumination) terminal 6 (With heated seat)
- through combination meter terminal 18.

With power and ground supplied, illumination lamps illuminate.

EXTERIOR LAMP BATTERY SAVER CONTROL

When the combination switch (lighting switch) is in the 1ST or 2ND position, and the ignition switch is turned from ON or ACC to OFF, 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 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

AKS009QI

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.

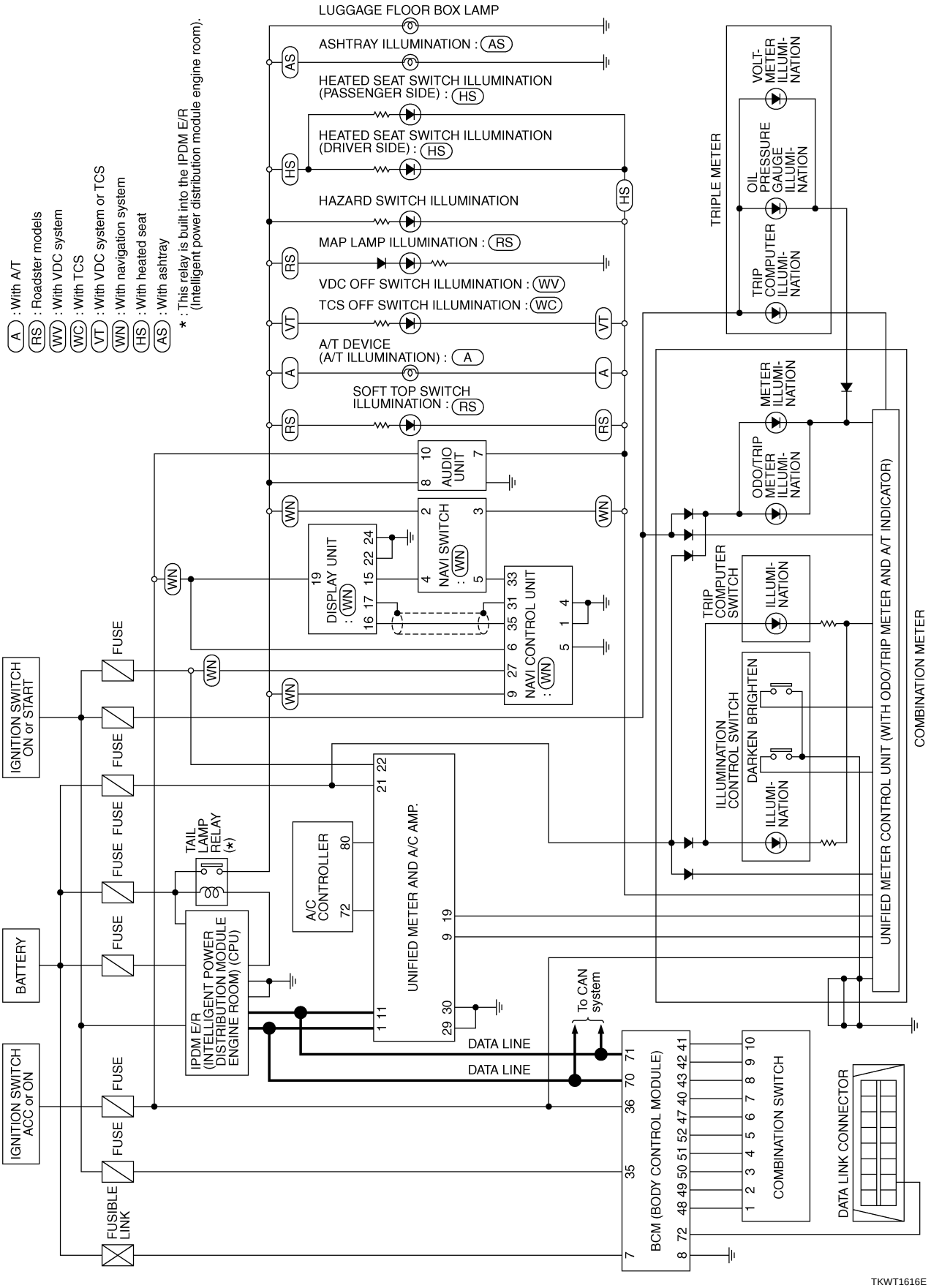
CAN Communication Unit

AKS009QJ

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

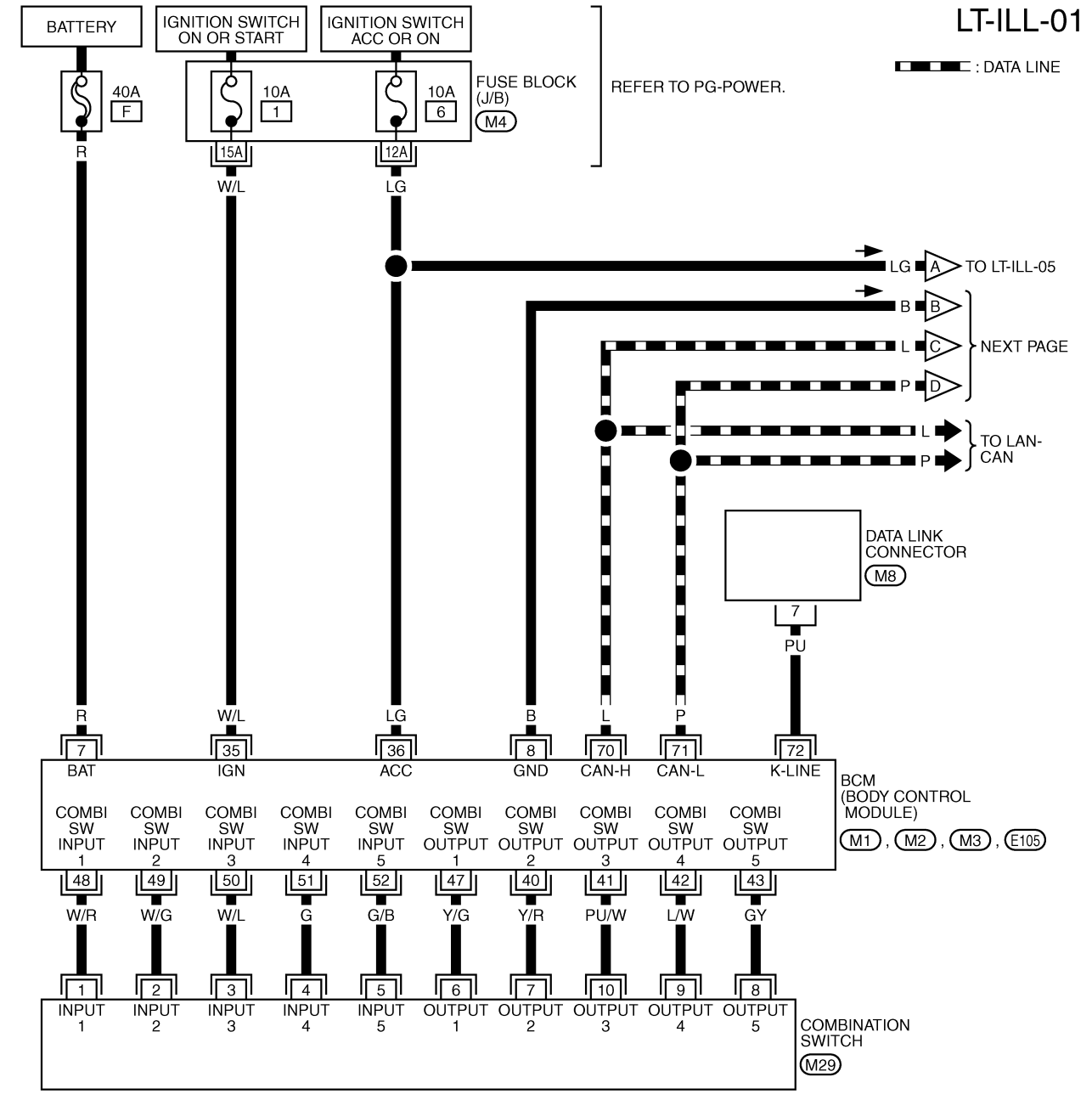
Schematic

AKS009QK



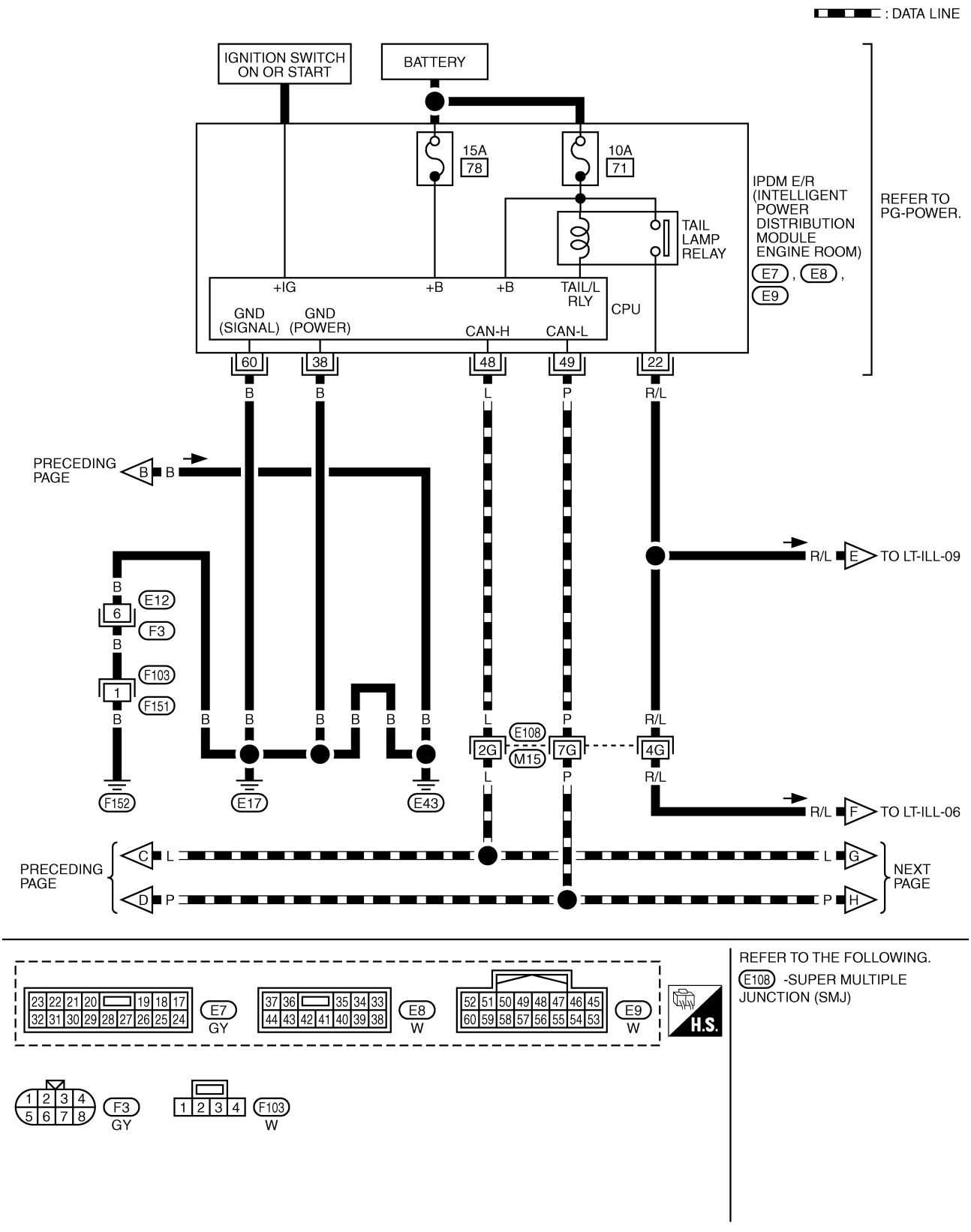
Wiring Diagram — ILL —

AKS009QL

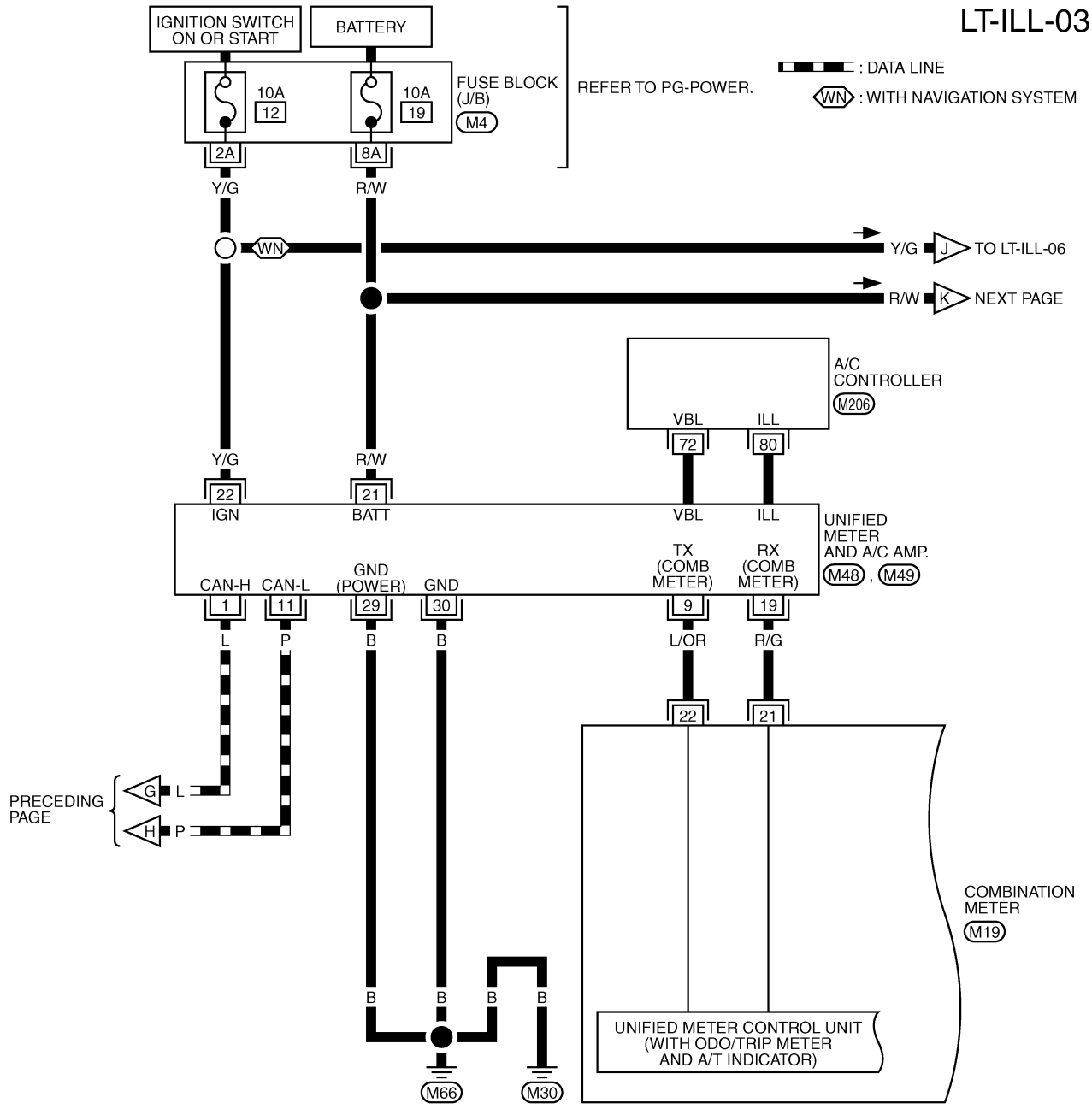


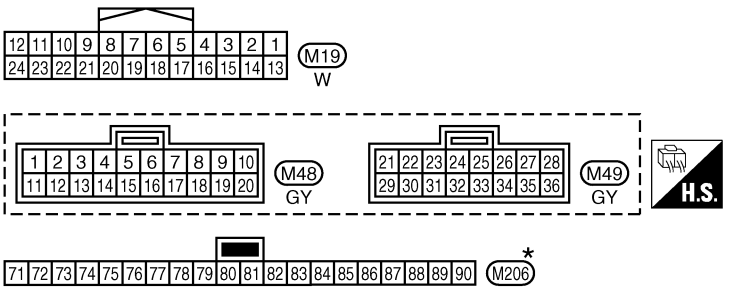
TKWT1346E

LT-ILL-02



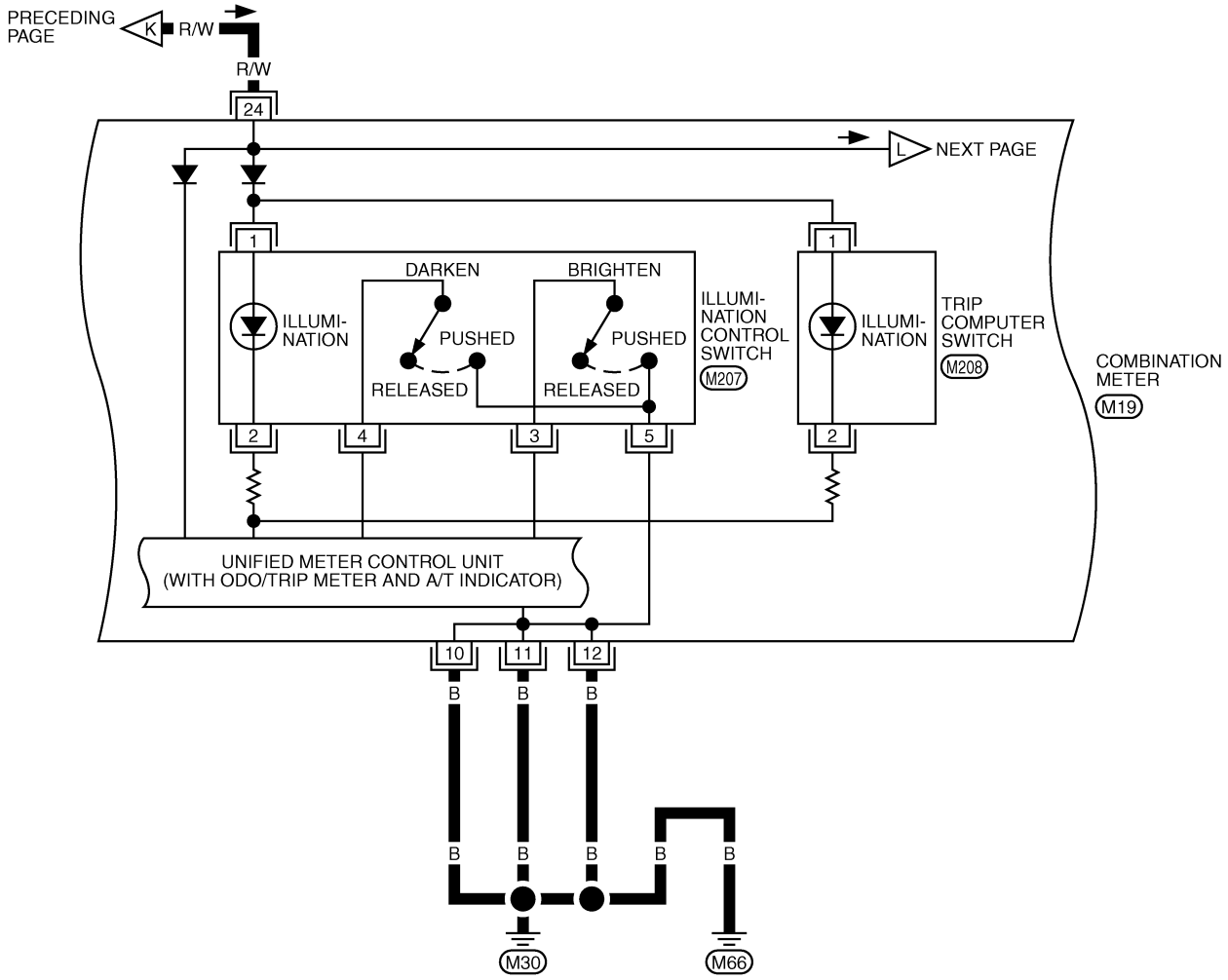
TKWT1617E

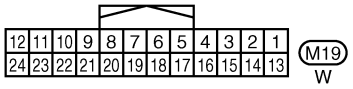


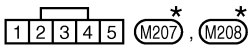


REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWT1733E



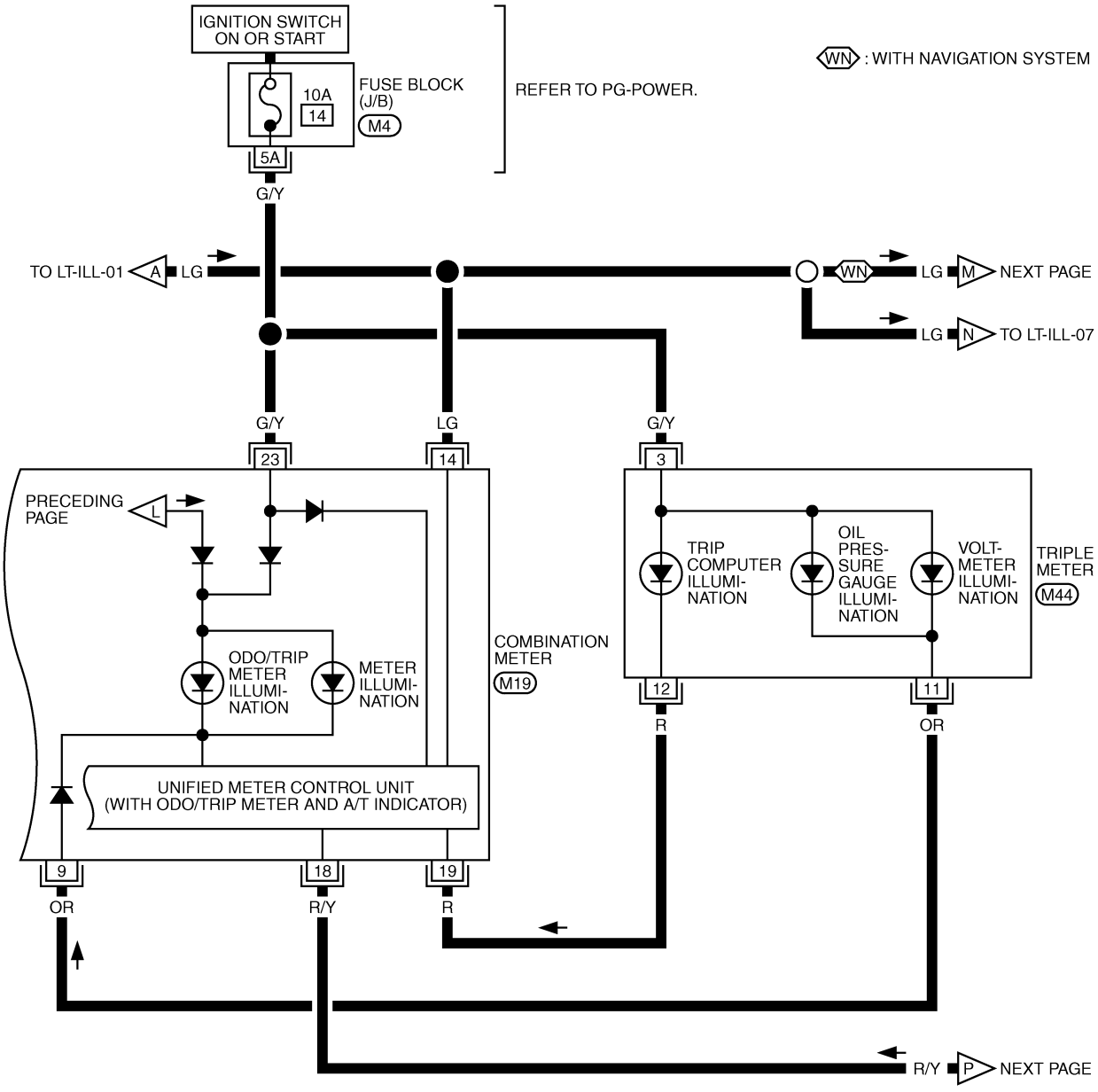


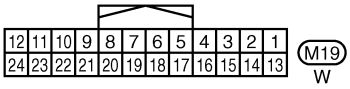


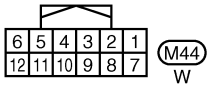
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT0471E

LT-ILL-05



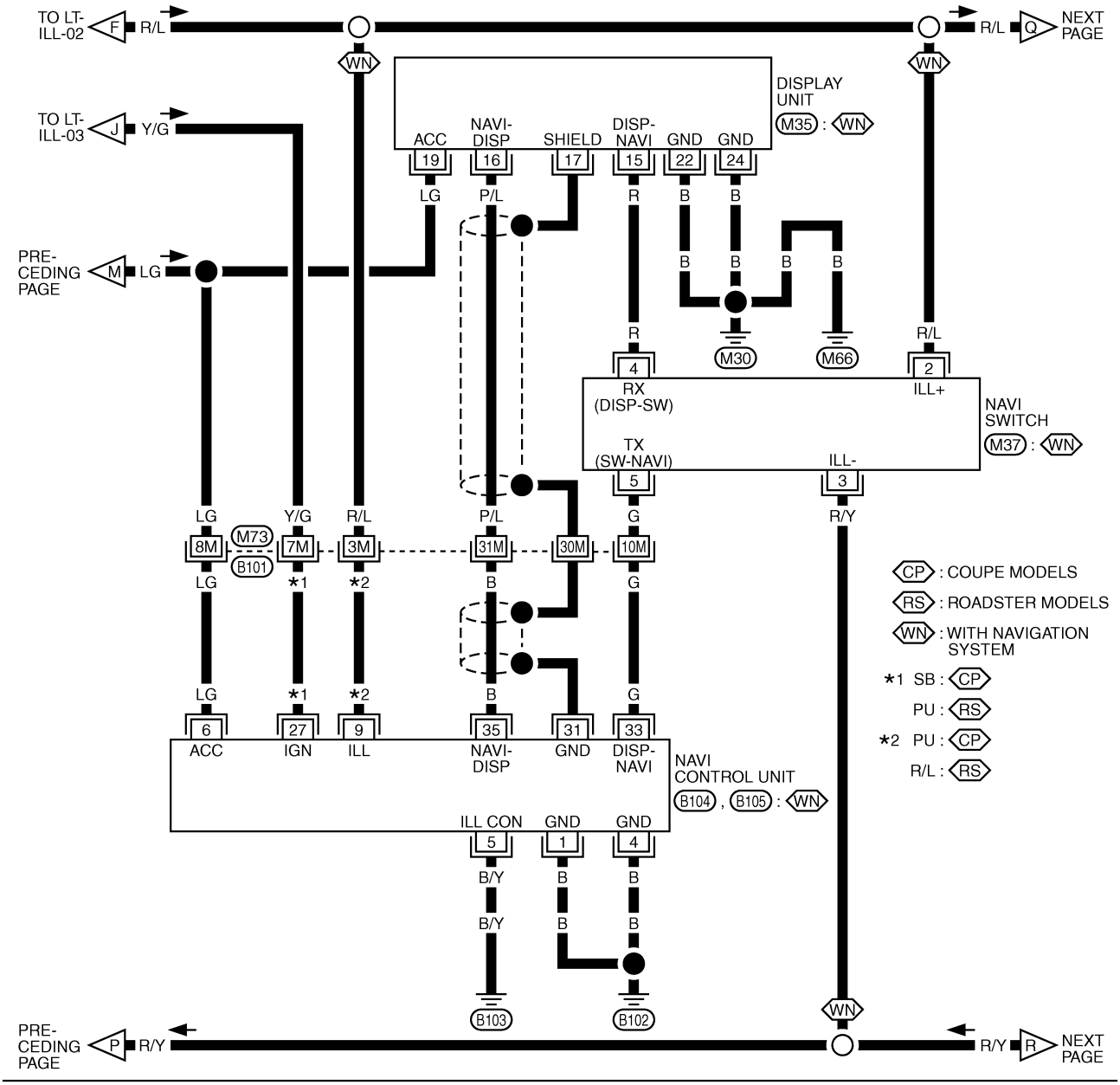


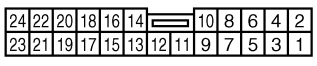


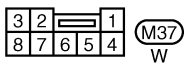
REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

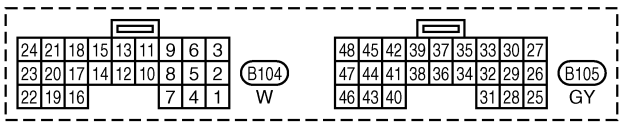
TKWT0472E

LT-ILL-06





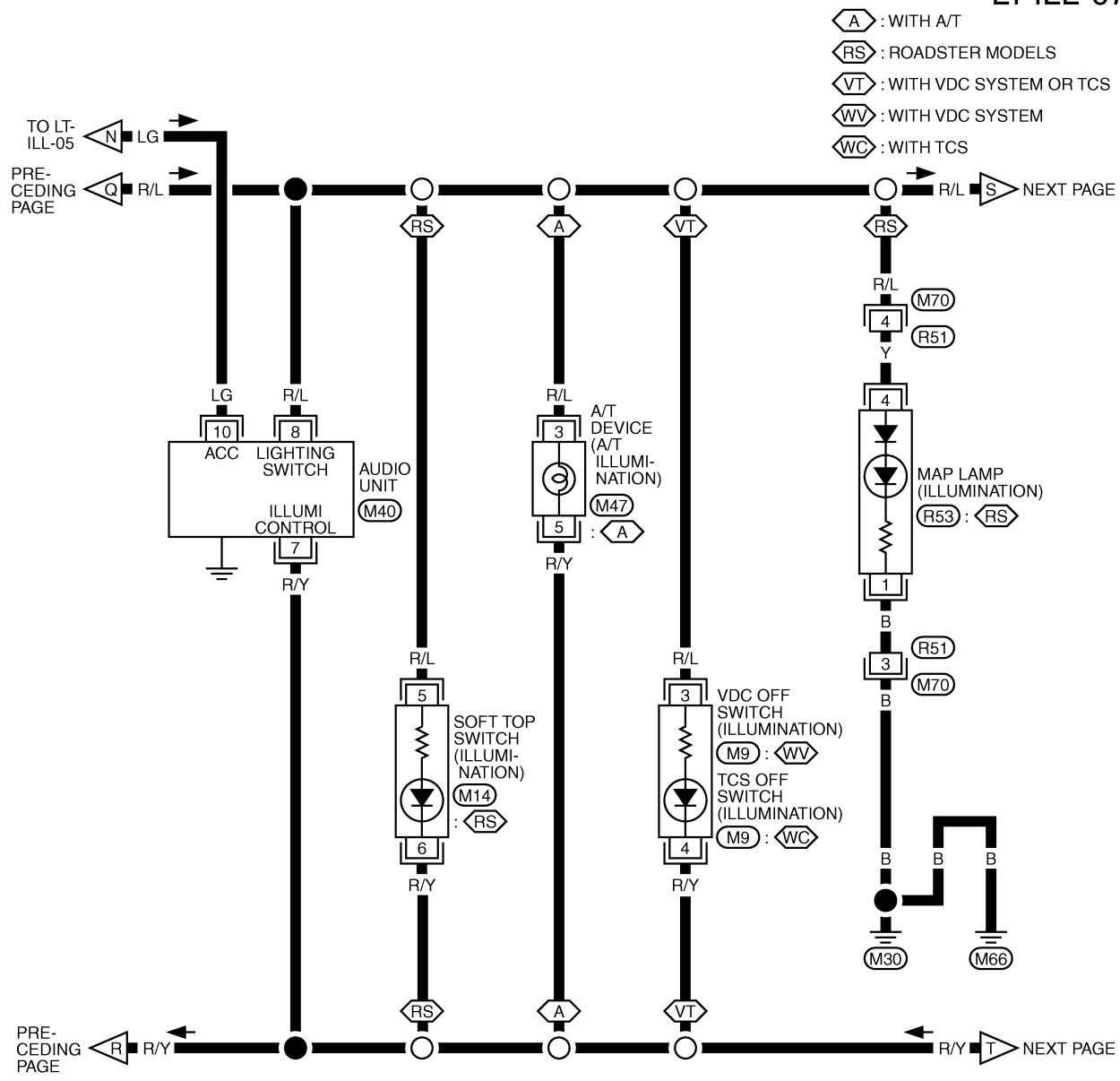


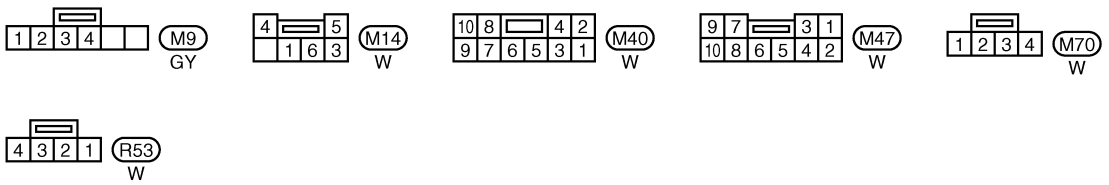


REFER TO THE FOLLOWING.
B101 -SUPER MULTIPLE JUNCTION (SMJ)

TKWT1618E

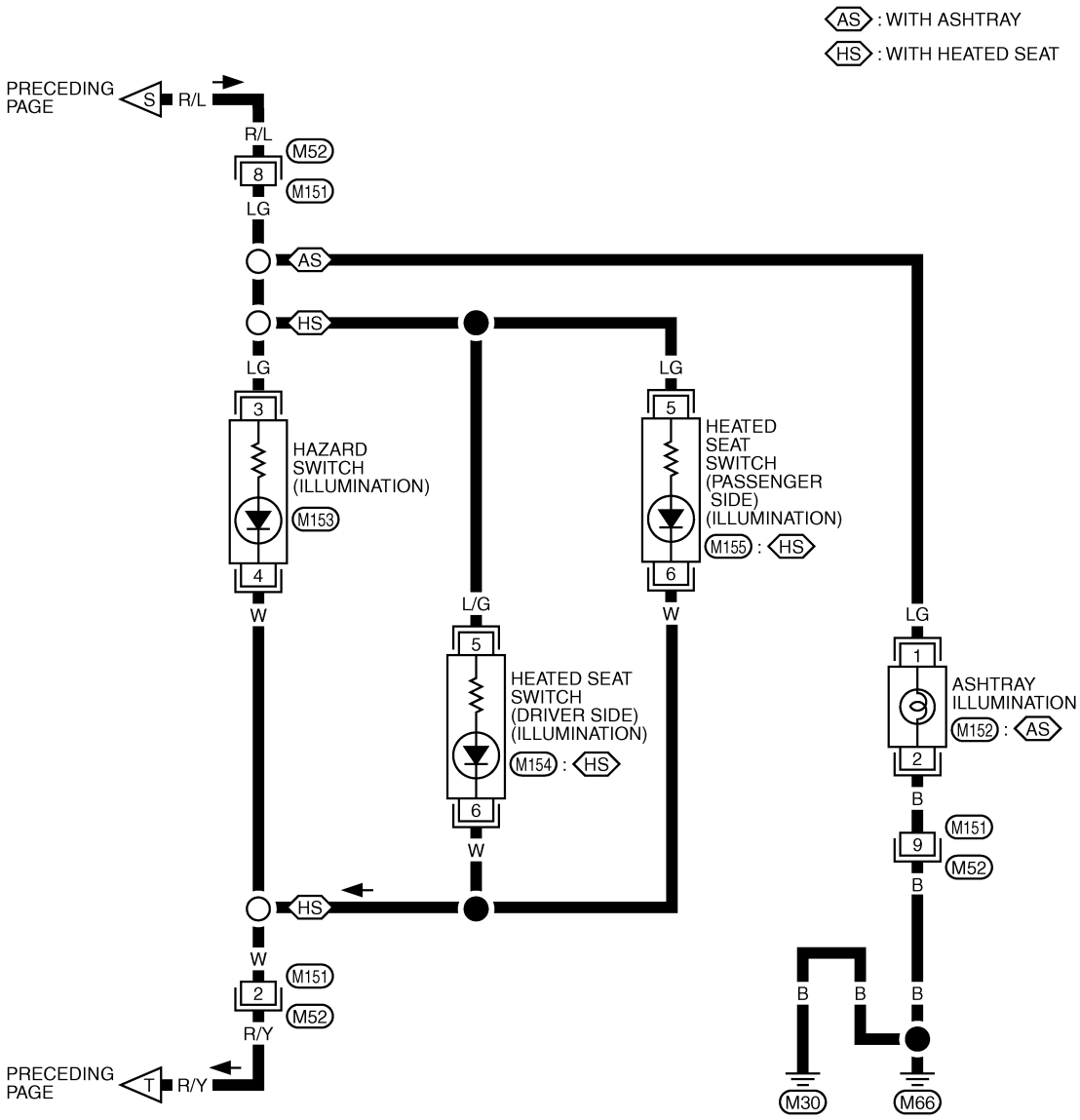
LT-ILL-07

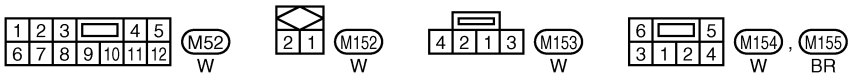




TKWT1619E

LT-ILL-08

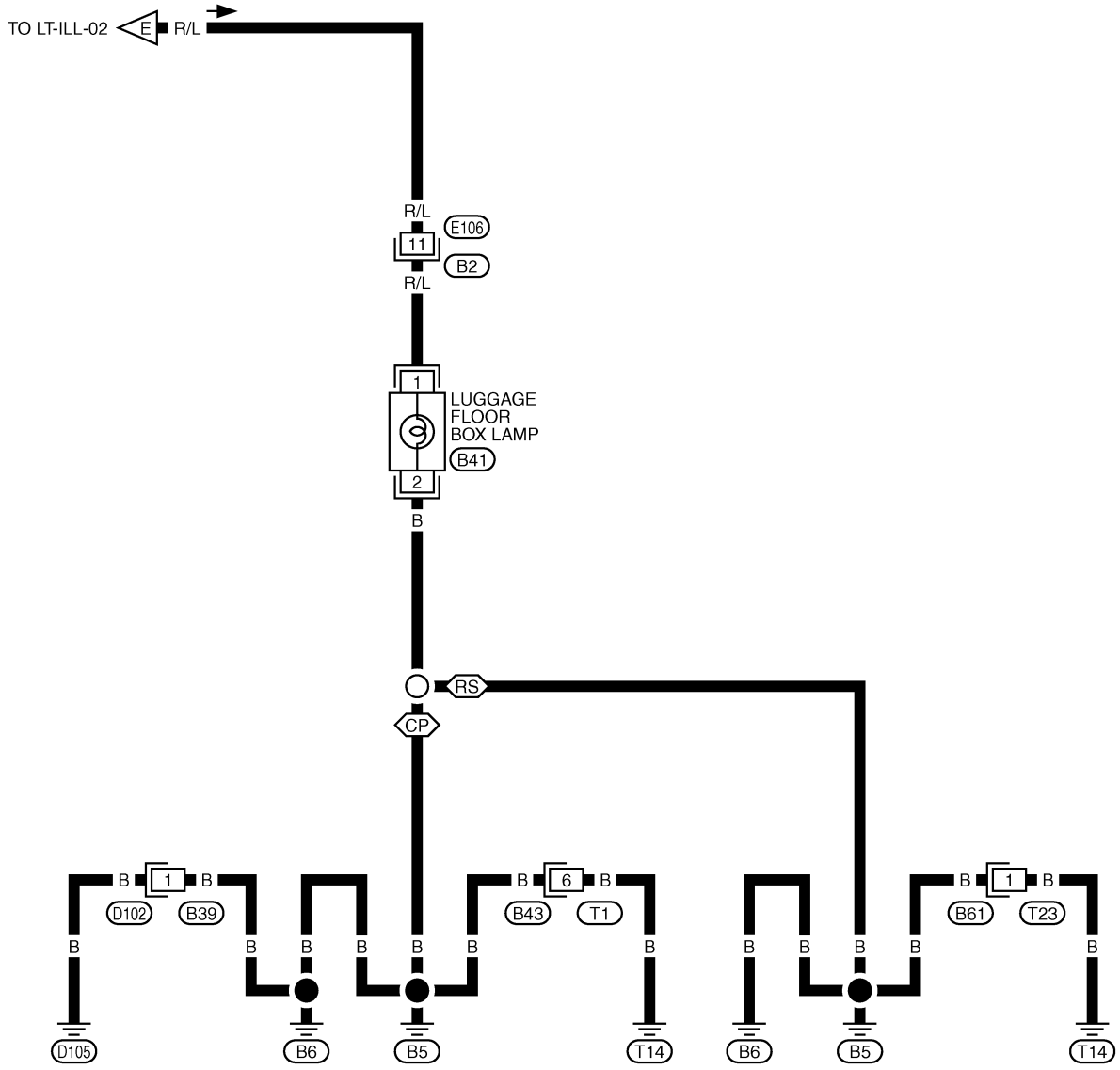


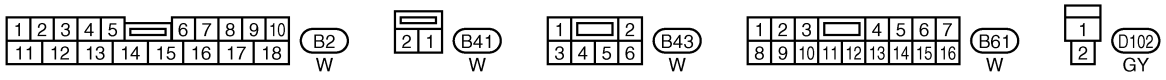


TKWT1620E

LT-ILL-09

CP : COUPE MODELS
RS : ROADSTER MODELS





TKWT1621E

BULB SPECIFICATIONS

PFP:26297

Headlamp

AKS000WI

Item	Wattage (W)
Low (Halogen type)	55 (H7)
Low (Xenon type)	35 (D2R)
High (Halogen type)	55 (H1)
High (Xenon type)	55 (H7)

Exterior Lamp

AKS000WJ

Item		Wattage (W)
Front combination lamp	Front Turn signal lamp	21 (amber)
	Parking lamp	5
	Front side marker lamp	5
Rear combination lamp	Stop/Tail lamp	21/5
	Rear Turn signal lamp	21
	Back-up lamp	21
	Rear side marker lamp	5
License plate lamp		5
High-mounted stop lamp (back door mount)		LED

Interior Lamp/Illumination

AKS000WK

Item	Wattage (W)
Rear floor box lamp	1.4
Ashtray illumination lamp	1.4
Spot lamp	8
Luggage room lamp	5
Vanity mirror lamp	1.32