

LT
SECTION
LIGHTING SYSTEM

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PRECAUTIONS

PRECAUTIONS

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

NKS003NW

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:

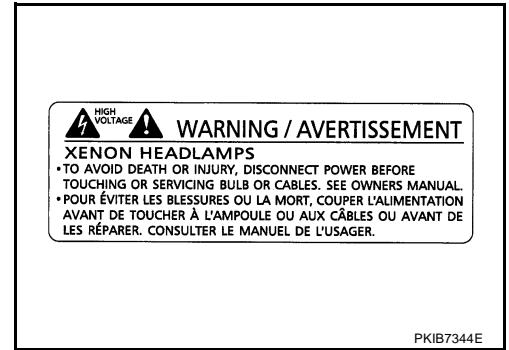
- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation 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

General Precautions for Service Operations

NKS003NX

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



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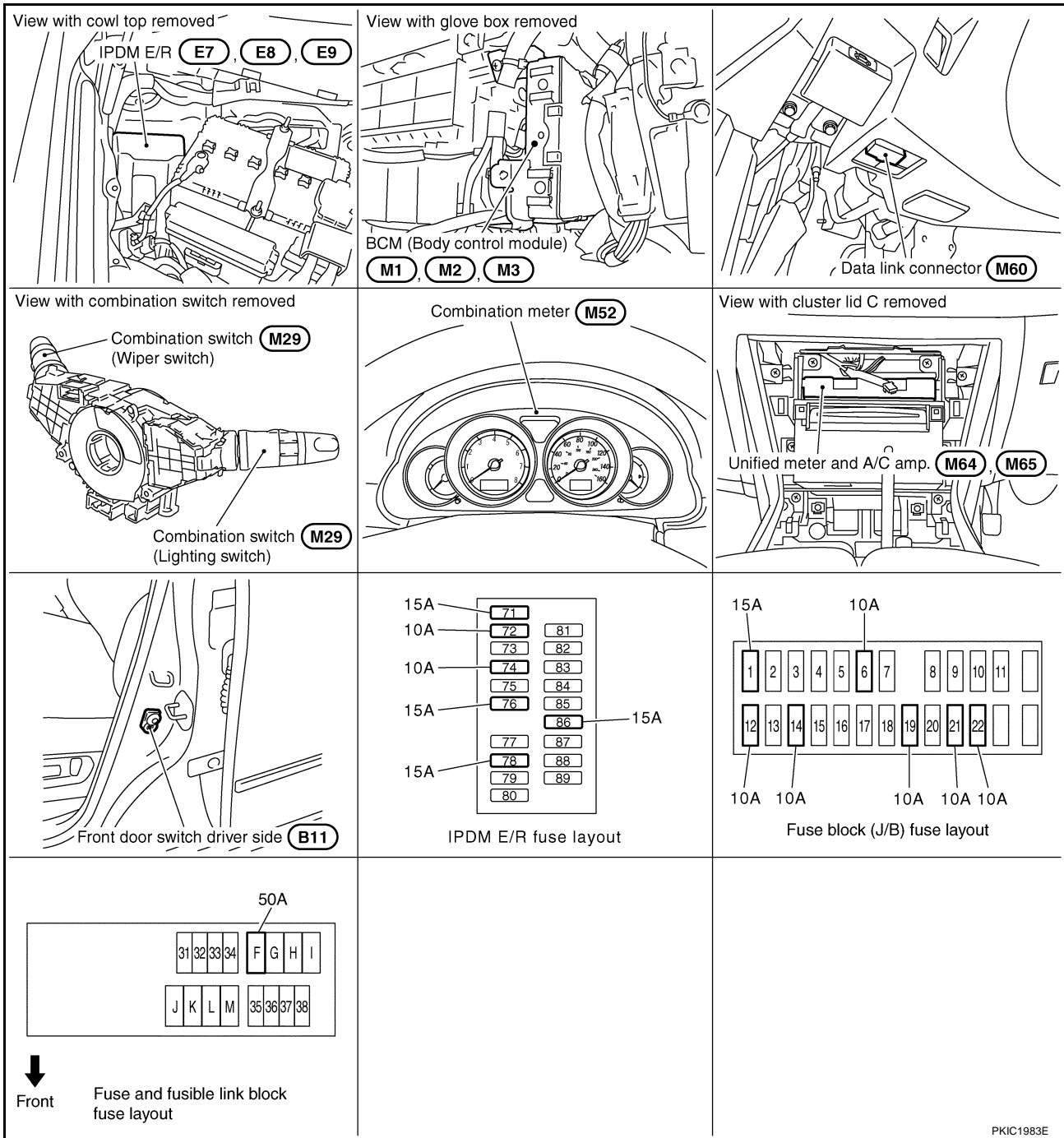
HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

PFP:26010

Component Parts and Harness Connector Location

NKS003NY



System Description

NKS003NZ

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

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

OUTLINE

Power is supplied at all times

- to headlamp high relay, located in IPDM E/R and
- to headlamp low relay, located in IPDM E/R, from battery direct,
- through 15A fuse (No. 71, located in IPDM E/R)
- to CPU, located in IPDM E/R,
- through 15A fuse (No. 78, located in IPDM E/R)
- to CPU, located in IPDM E/R,
- through 50A fusible link (letter F, located in fuse and fusible link block)
- to BCM terminal 55,
- through 10A fuse [No. 21, located in fuse block (J/B)]
- to BCM terminal 42 and
- to combination meter terminal 23,
- through 10A fuse [No. 19, located in fuse block (J/B)]
- to unified meter and A/C amp. terminal 54,
- through 10A fuse [No. 22, located in fuse block (J/B)]
- to key slot terminal 1.

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

- to CPU, located in IPDM E/R,
- through 15A fuse [No. 1, located in fuse block (J/B)]
- to BCM terminal 38,
- through 10A fuse [No. 14, located in fuse block (J/B)]
- to combination meter terminal 12,
- through 10A fuse [No. 12, located in fuse block (J/B)]
- to unified meter and A/C amp. terminal 53.

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

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

Ground is supplied

- to BCM terminal 52
- to combination meter terminals 9, 10, and 11
- to unified meter and A/C amp. terminals 55 and 71
- to push-button ignition switch (push switch) terminal 1
- to key slot terminal 8
- through grounds M16 and M70,
- to IPDM E/R terminals 38 and 51
- through grounds E22 and E43.

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HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

HEADLAMP OPERATION

Low Beam Operation

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

- through 15A fuse (No. 76, located in IPDM E/R)
- through IPDM E/R terminal 20
- to front combination lamp RH terminal 8,
- through 15A fuse (No. 86, located in IPDM E/R)
- through IPDM E/R terminal 30
- to front combination lamp LH terminal 8.

Ground is supplied

- to front combination lamp RH terminal 4
- to front combination lamp LH terminal 4
- through grounds E22 and E43.

With power and ground supplied, low beam headlamps illuminate.

High Beam Operation/Flash-to-Pass Operation

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

- through 15A fuse (No. 76, located in IPDM E/R)
- through IPDM E/R terminal 20
- to front combination lamp RH terminal 8,
- through 15A fuse (No. 86, located in IPDM E/R)
- through IPDM E/R terminal 30
- to front combination lamp LH terminal 8,
- through 10A fuse (No. 72, located in IPDM E/R)
- through IPDM E/R terminal 27
- to front combination lamp RH terminal 6,
- through 10A fuse (No. 74, located in IPDM E/R)
- through IPDM E/R terminal 28
- to front combination lamp LH terminal 6.

Ground is supplied

- to front combination lamp RH terminal 4
- to front combination lamp LH terminal 4
- to front combination lamp RH terminal 2
- to front combination lamp LH terminal 2
- through grounds E22 and E43.

With power and ground supplied, the high beam and low beam headlamps illuminate.

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

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

COMBINATION SWITCH READING FUNCTION

Refer to [BCS-3, "COMBINATION SWITCH READING FUNCTION"](#) .

A

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.

B

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.

C

AUTO LIGHT OPERATION

Refer to [LT-115, "System Description"](#) .

CAN Communication System Description

NKS00300

D

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.

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CAN Communication Unit

NKS00301

Refer to [LAN-50, "CAN System Specification Chart"](#) .

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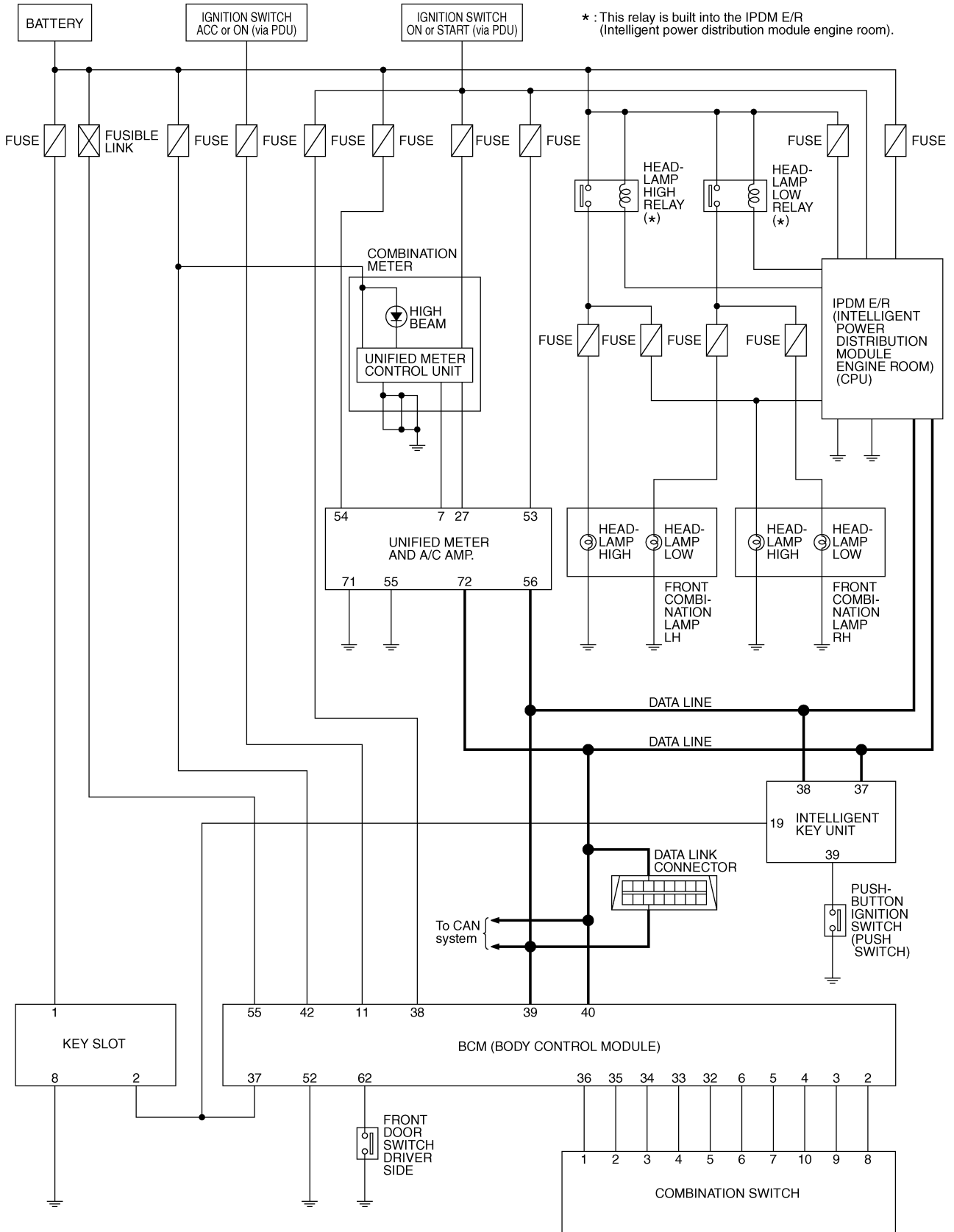
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HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

Schematic

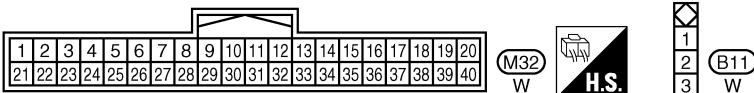
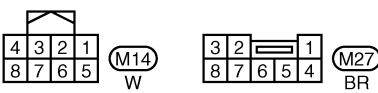
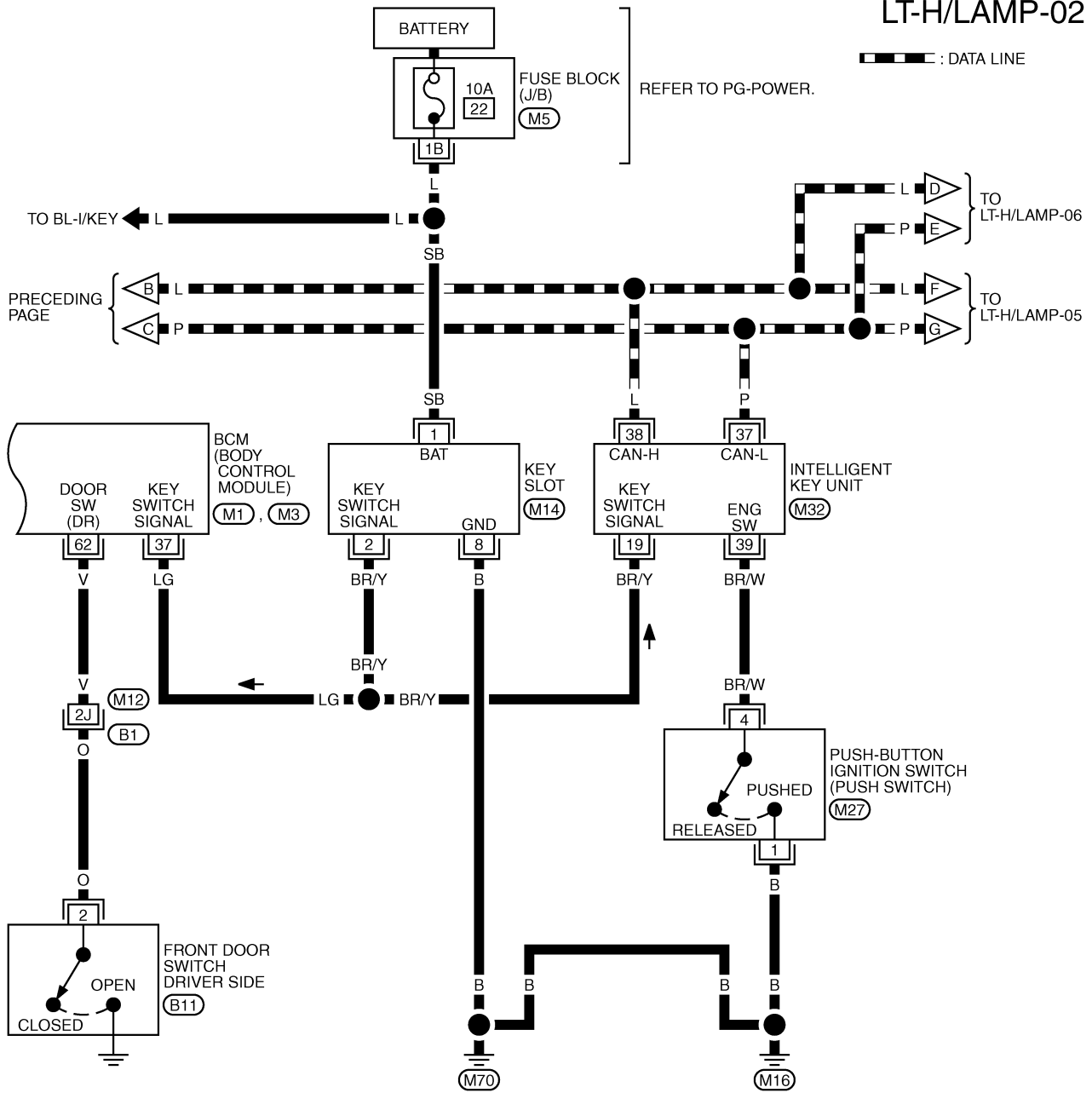
NKS00302



TKWT3350E

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

LT-H/LAMP-02



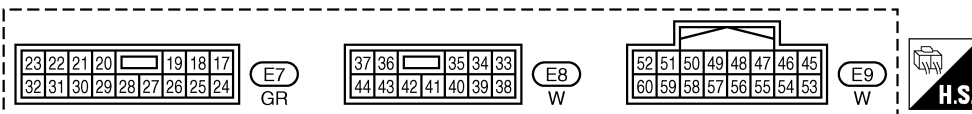
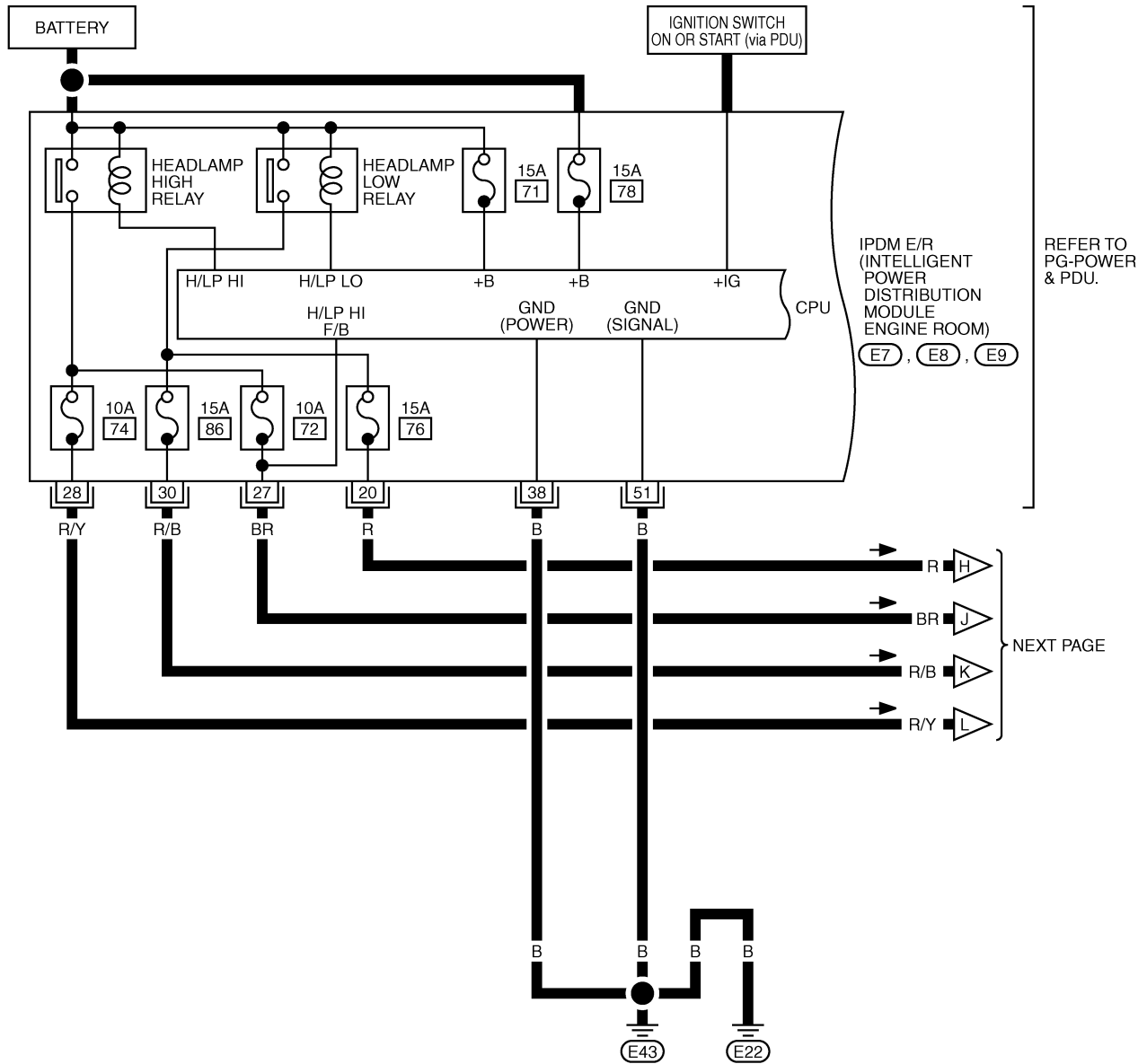
REFER TO THE FOLLOWING.

- (B1) -SUPER MULTIPLE JUNCTION (SMJ)
- (M5) -FUSE BLOCK-JUNCTION BOX (J/B)
- (M1), (M3) -ELECTRICAL UNITS

TKWT5252E

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

LT-H/LAMP-03



A

B

C

D

E

F

G

H

I

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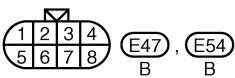
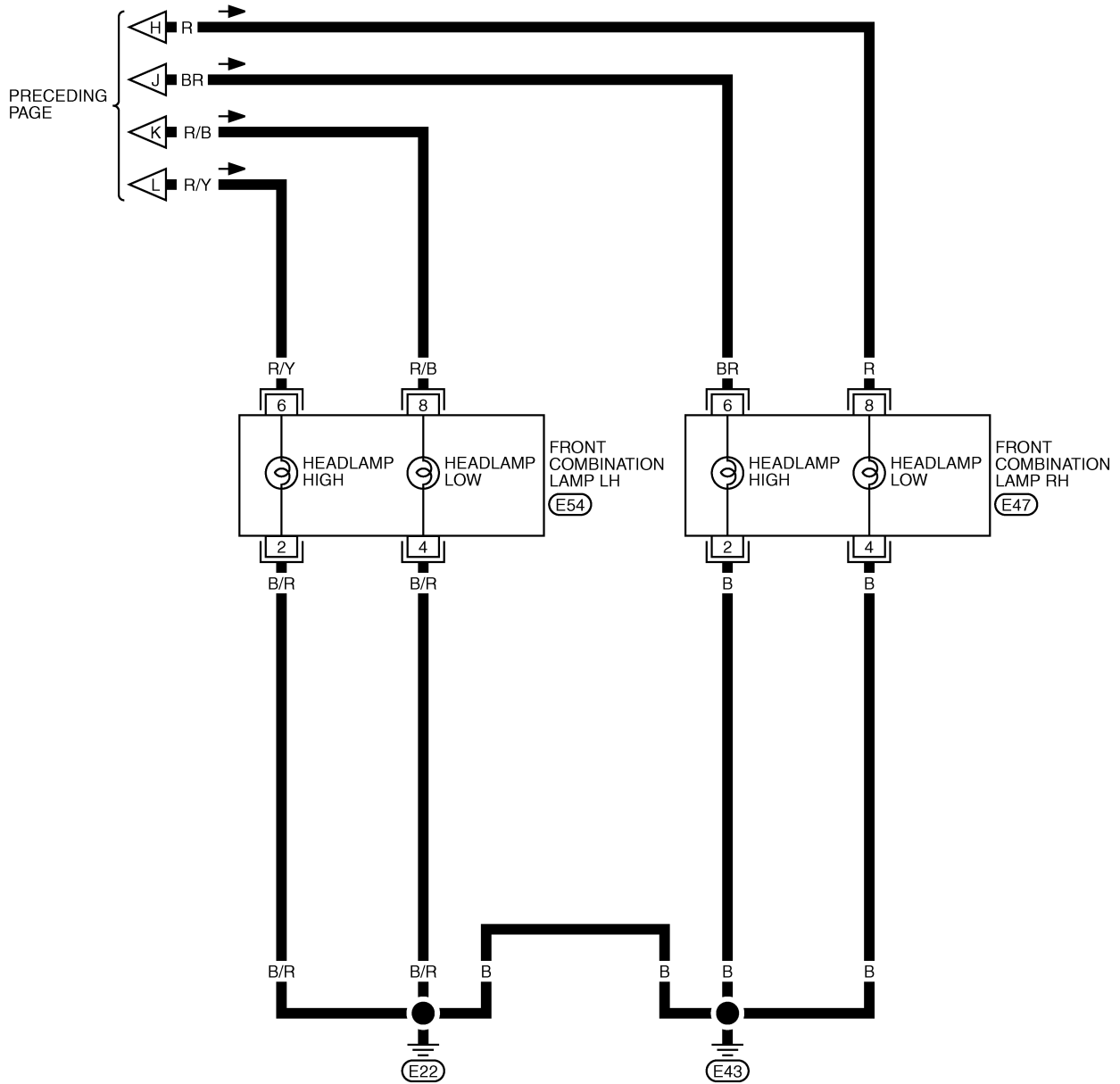
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L

M

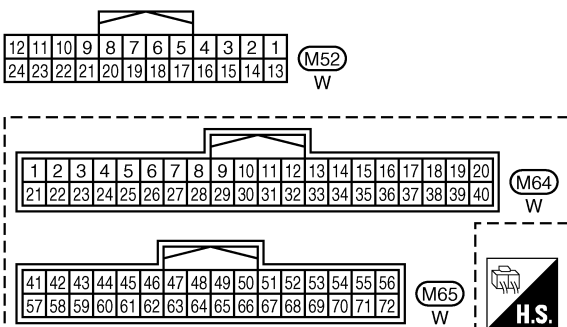
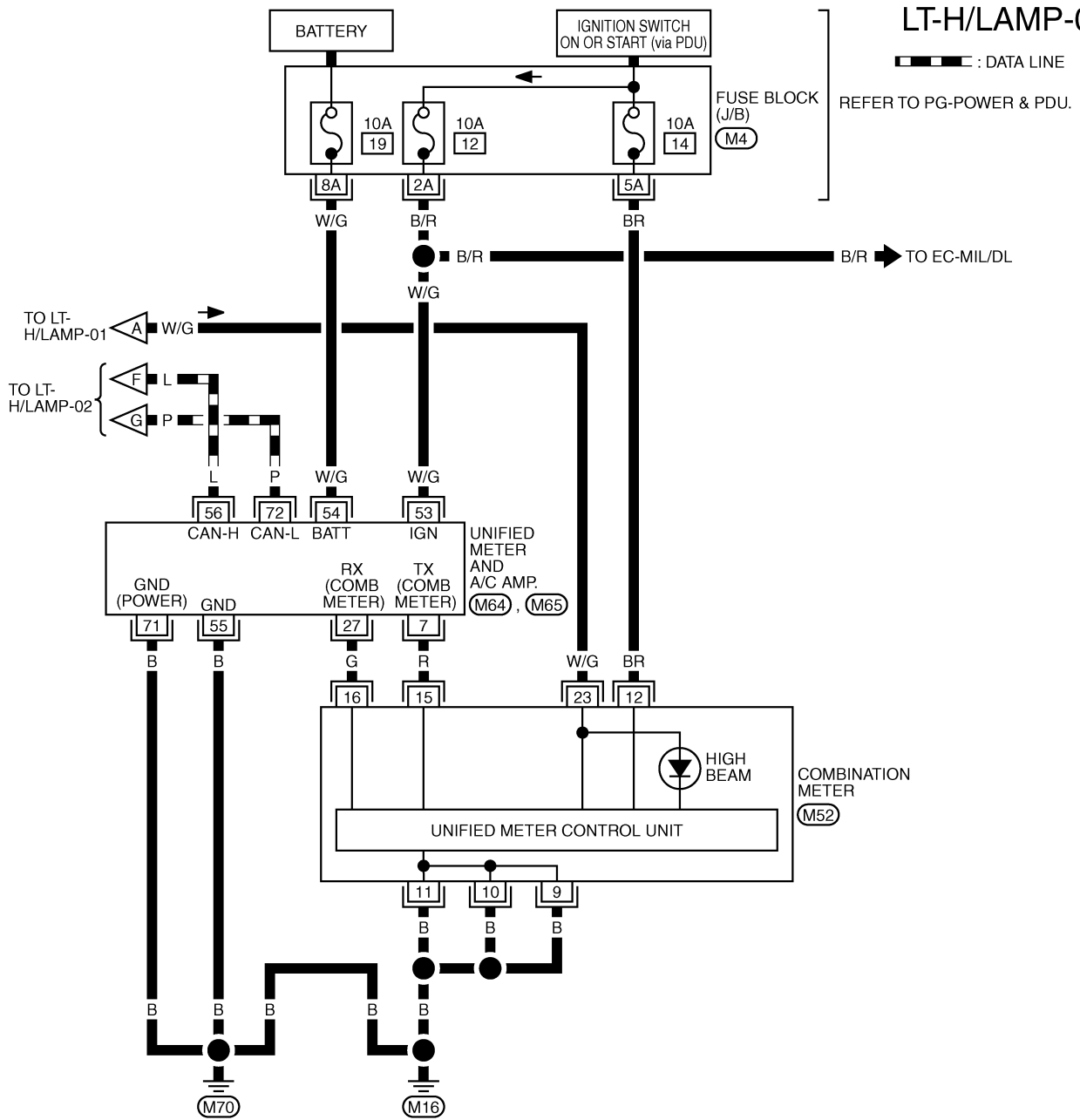
HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

LT-H/LAMP-04



TKWT3354E

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -



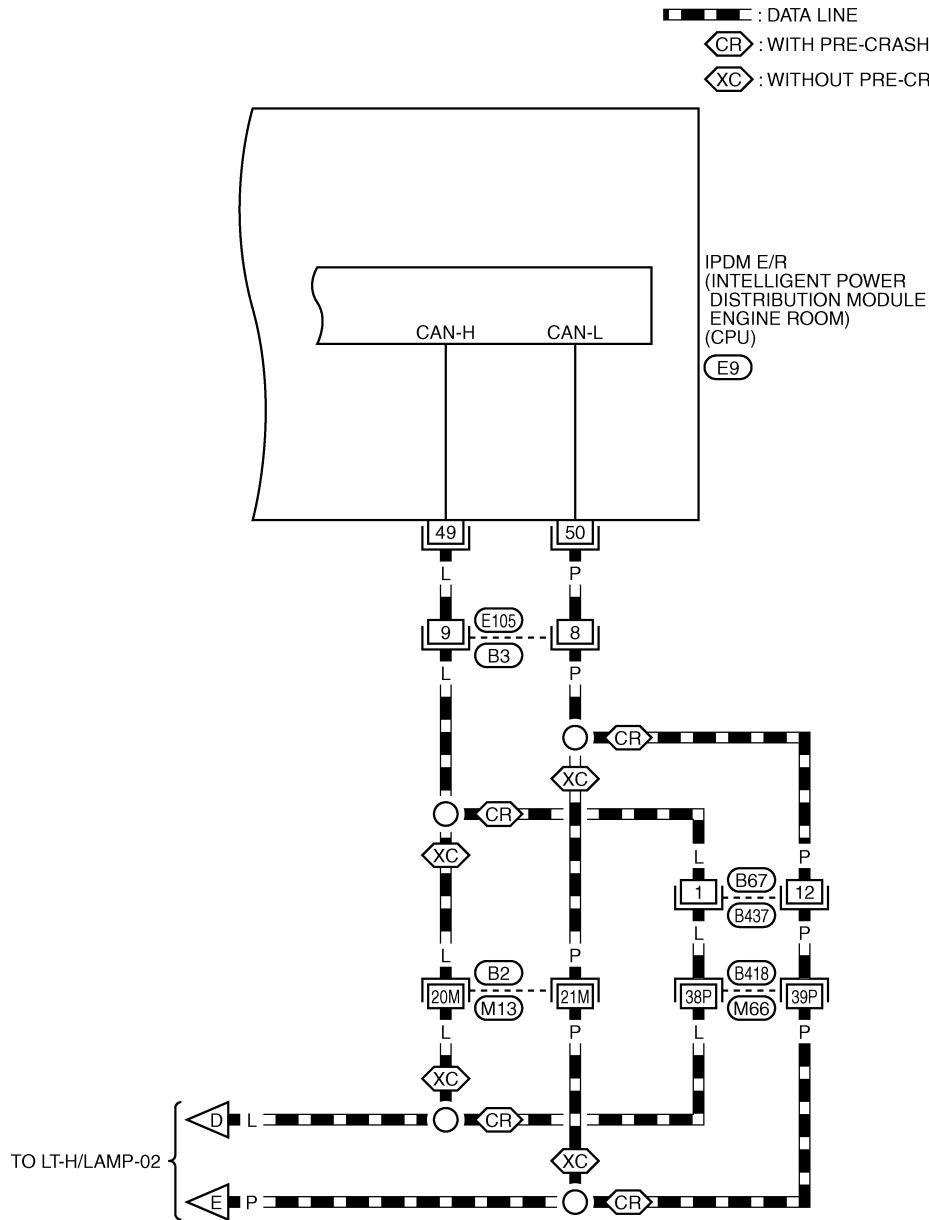
REFER TO THE FOLLOWING.

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

TKWT5061E

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

LT-H/LAMP-06



52	51	50	49	48	47	46	45
60	59	58	57	56	55	54	53

E9
W



1	2	3	4	5	6	7	8	9	10	11		
12	13	14	15	16	17	18	19	20	21	22	23	24

B3, B437
W BR

REFER TO THE FOLLOWING.

B2, B418 -SUPER MULTIPLE
JUNCTION (SMJ)

TKWT5274E

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

Terminals and Reference Values for BCM

NKS00304

CAUTION:

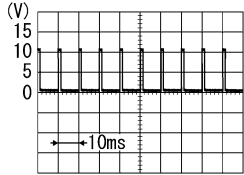
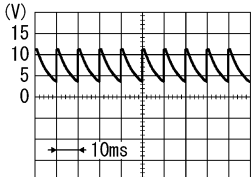
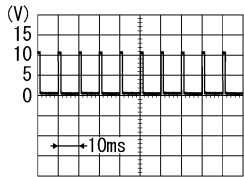
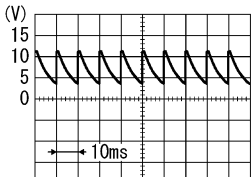
- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF not to be fluctuated by overloaded.
- Turn wiper dial position to 4 except when checking waveform or voltage of wiper dial position. Wiper dial position can be confirmed on CONSULT-II. Refer to [LT-238, "DATA MONITOR"](#) .

Terminal No.	Wire color	Signal name	Measuring condition		Reference value	
			Ignition switch	Operation or condition		
2	L/R	Combination switch input 5	ON	Lighting, turn, wiper switch (Wiper dial position 4)	Lighting switch HI beam (Operates only HI beam switch)	<p>Approx. 1.0 V</p>
					Lighting switch 2ND	<p>Approx. 2.0 V</p>
				OFF	Approx. 0 V	
3	O/L	Combination switch input 4	ON	Lighting, turn, wiper switch (Wiper dial position 4)	Any of several conditions below <ul style="list-style-type: none"> ● Lighting switch 2ND ● Lighting switch PASSING (Operates only PASSING switch) 	<p>Approx. 1.0 V</p>
					OFF	Approx. 0 V
11	V	Ignition switch (ACC)	ACC	—	Battery voltage	

A
B
C
D
E
F
G
H
I
J
L
M

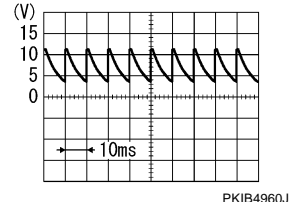
LT

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
34	L	Combination switch output 3	ON	Lighting, turn, wiper switch (Wiper dial position 4)	Any of several conditions below <ul style="list-style-type: none"> ● Lighting switch 2ND ● Lighting switch HI beam (Operates only HI beam switch)  <p style="text-align: right;">PKIB4958J</p> <p style="text-align: center;">Approx. 1.2 V</p>
					OFF  <p style="text-align: right;">PKIB4960J</p> <p style="text-align: center;">Approx. 7.0 - 7.5 V</p>
35	SB	Combination switch output 2	ON	Lighting, turn, wiper switch (Wiper dial position 4)	Any of several conditions below <ul style="list-style-type: none"> ● Lighting switch 2ND ● Lighting switch PASSING (Operates only PASSING switch)  <p style="text-align: right;">PKIB4958J</p> <p style="text-align: center;">Approx. 1.2 V</p>
					OFF  <p style="text-align: right;">PKIB4960J</p> <p style="text-align: center;">Approx. 7.0 - 7.5 V</p>
37	LG	Key switch signal	OFF	Intelligent Key is inserted into key slot.	Battery voltage
				Intelligent Key is removed from key slot.	Approx. 0 V
38	W	Ignition switch (ON)	ON	—	Battery voltage
39	L	CAN - H	—	—	—
40	P	CAN - L	—	—	—
42	P	Battery power supply	OFF	—	Battery voltage
52	B	Ground	ON	—	Approx. 0 V
55	W	Battery power supply	OFF	—	Battery voltage

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
62	V	Front door switch driver side signal	OFF	Front door switch driver side	ON (open) Approx. 0 V
				OFF (closed)	OFF (closed) Approx. 7.5 - 8.0 V



Terminals and Reference Values for IPDM E/R

NKS00305

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. 0 V
				ON	ON Battery voltage
27	BR	Headlamp high (RH)	ON	Lighting switch HIGH or PASSING position	OFF Approx. 0 V
				ON	ON Battery voltage
28	R/Y	Headlamp high (LH)	ON	Lighting switch HIGH or PASSING position	OFF Approx. 0 V
				ON	ON Battery voltage
30	R/B	Headlamp low (LH)	ON	Lighting switch 2ND position	OFF Approx. 0 V
				ON	ON Battery voltage
38	B	Ground	ON	—	Approx. 0 V
49	L	CAN - H	—	—	—
50	P	CAN - L	—	—	—
51	B	Ground	ON	—	Approx. 0 V

How to Perform Trouble Diagnoses

NKS00306

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to [LT-8, "System Description"](#) .
3. Perform the Preliminary Check. Refer to [LT-22, "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

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

NKS00307

Preliminary Check CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES AND FUSIBLE LINK

Check for blown fuses and fusible link.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
		21
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	71
		72
		74
		76
		78
		86

Refer to [LT-13, "Wiring Diagram — H/LAMP —"](#) .

OK or NG

OK >> GO TO 2.

NG >> If fuse or fusible link is blown, be sure to eliminate cause of malfunction before installing new fuse or fusible link. Refer to [PG-3, "POWER SUPPLY ROUTING CIRCUIT"](#) .

2. CHECK POWER SUPPLY CIRCUIT

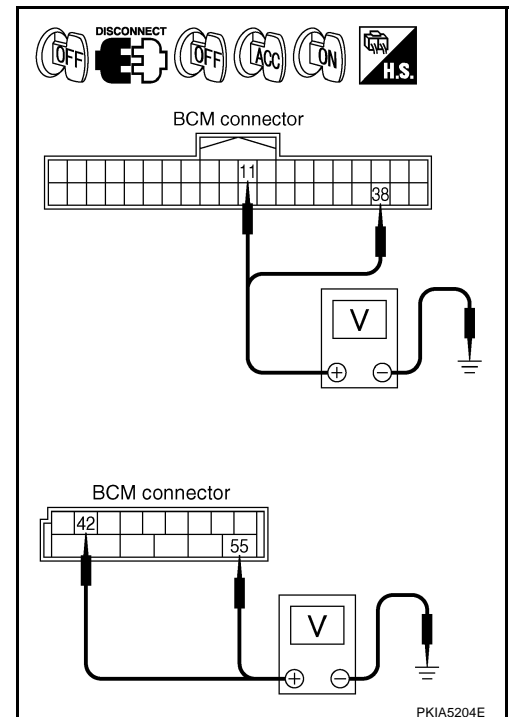
1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector and ground.

Terminal (+)		Terminal (-)	Ignition switch position		
BCM connector	Terminal		OFF	ACC	ON
M1	11	Ground	Approx. 0 V	Battery voltage	Battery voltage
	38		Approx. 0 V	Approx. 0 V	Battery voltage
M2	42		Battery voltage	Battery voltage	Battery voltage
	55		Battery voltage	Battery voltage	Battery voltage

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.



HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

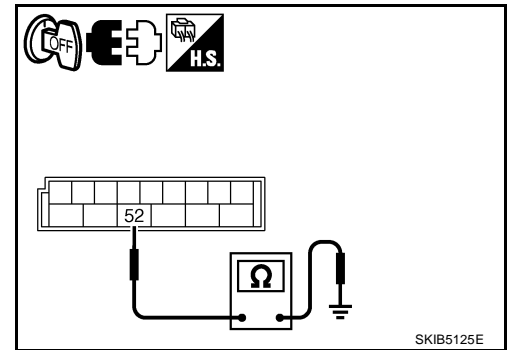
3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

BCM connector	Terminal	Ground	Continuity
M2	52		Yes

OK or NG

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



CONSULT-II Functions (BCM)

NKS00308

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

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

NOTE:

Cannot change the setting for headlamp.

CONSULT-II BASIC OPERATION

Refer to [GI-38, "CONSULT-II Start Procedure"](#) .

DATA MONITOR

Operation Procedure

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

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

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

Display Item List

Monitor item	Contents
IGN ON SW "ON/OFF"	Displays "IGN position (ON)/OFF, ACC position (OFF)" judged from the ignition switch signal.
ACC ON SW "ON/OFF"	Displays "ACC (ON)/OFF, Ignition OFF (OFF)" status judged from ignition switch signal.
KEY ON SW "ON/OFF"	Displays "Intelligent Key inserted into key slot (ON)/Intelligent Key removed from key slot (OFF)" status judged from the key switch signal.
TURN SIGNAL R "ON/OFF"	Displays status (turn right: ON/others: OFF) as judged from lighting switch signal.
TURN SIGNAL L "ON/OFF"	Displays status (turn left: ON/others: OFF) as judged from lighting switch signal.
HI BEAM SW "ON/OFF"	Displays status (high beam switch: ON/others: OFF) of high beam switch judged from lighting switch signal.

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

Monitor item	Contents
HEAD LAMP SW 1	"ON/OFF" Displays status (headlamp switch 1: ON/others: OFF) of headlamp switch 1 judged from lighting switch signal.
HEAD LAMP SW 2	"ON/OFF" Displays status (headlamp switch 2: ON/others: OFF) of headlamp switch 2 judged from lighting switch signal.
TAIL LAMP SW	"ON/OFF" Displays status (lighting switch 1ST or 2ND position: ON/others: OFF) of lighting switch judged from lighting switch signal.
AUTO LIGHT SW	"ON/OFF" Displays status of the lighting switch as judged from the lighting switch signal. (AUTO position: ON/other than AUTO position: OFF)
PASSING SW	"ON/OFF" Displays status (flash-to-passing switch: ON/others: OFF) of flash-to-passing switch judged from lighting switch signal.
FR FOG SW	"ON/OFF" Displays status (front fog lamp switch: ON/others: OFF) of front fog lamp switch judged from lighting switch signal.
DOOR SW - DR	"ON/OFF" Displays status of the driver door as judged from the driver door switch signal. (door is open: ON/door is closed: OFF)
DOOR SW - AS	"ON/OFF" Displays status of the passenger door as judged from the passenger door switch signal. (door is open: ON/door is closed: OFF)
DOOR SW - RR	"ON/OFF" Displays status of the rear door as judged from the rear door switch (RH) signal. (door is open: ON/door is closed: OFF)
DOOR SW - RL	"ON/OFF" Displays status of the rear door as judged from the rear door switch (LH) signal. (door is open: ON/door is closed: OFF)
BACK DOOR SW ^{NOTE}	"OFF" —
I - KEY LOCK	"ON/OFF" Displays "locked (ON)/other (OFF)" status, determined from lock signal.
OPTICAL SENSOR	"0 - 5V" Displays "outside brightness (close to 5 V when light/close to 0 V when dark)" judged from optical sensor signal.
VEHICLE SPEED	"km/h" Displays vehicle speed as judged from vehicle speed signal.

NOTE:

This item is displayed, but cannot be monitored.

ACTIVE TEST

Operation Procedure

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

Display Item List

Test item	Description
TAIL LAMP	Allows tail lamp relay to operate by switching ON-OFF.
FR FOG LAMP	Allows front fog lamp relay to operate by switching ON-OFF.
DAYTIME RUNNING LIGHT ^{NOTE}	—
HEAD LAMP (HI, LO)	Allows headlamp relay to operate by switching ON-OFF.

NOTE:

This item is displayed, but cannot be tested.

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

CONSULT-II Functions (IPDM E/R)

NKS00309

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

Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	Refer to PG-20, "SELF-DIAG RESULTS" .
DATA MONITOR	The input/output data of IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE TEST	IPDM E/R sends a drive signal to electronic components to check their operation.

CONSULT-II BASIC OPERATION

Refer to [GI-38, "CONSULT-II Start Procedure"](#).

DATA MONITOR

Operation Procedure

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

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

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

All Signals, Main Signals, Selection From Menu

Item name	CONSULT-II 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
Front fog lights request	FR FOG REQ	ON/OFF	×	×	×	Signal status input from BCM

NOTE:

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

ACTIVE TEST

Operation Procedure

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

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

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

NKS0030A

Headlamp High Beam Does Not Illuminate (Both Sides)

1. CHECK COMBINATION SWITCH INPUT SIGNAL

④ With CONSULT-II

1. Select "BCM" on CONSULT-II. Select "HEAD LAMP" on "SELECT TEST ITEM" screen.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "HI BEAM SW" turns ON-OFF linked with operation of lighting switch.

When lighting switch is HIGH position : HI BEAM SW ON

DATA MONITOR			
MONITOR			
HI BEAM SW	ON		
RECORD			
MODE	BACK	LIGHT	COPY

PKIA7585E

⊗ Without CONSULT-II

Refer to [LT-239, "Combination Switch Inspection"](#).

OK or NG

OK >> GO TO 2.

NG >> Check combination switch (lighting switch). Refer to [LT-239, "Combination Switch Inspection"](#).

2. HEADLAMP ACTIVE TEST

④ With CONSULT-II

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

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

ACTIVE TEST			
LAMPS	OFF		
		HI	
LO	FOG		
MODE	BACK	LIGHT	COPY

SKIA5774E

⊗ Without CONSULT-II

1. Start auto active test. Refer to [PG-23, "Auto Active Test"](#).
2. Make sure headlamp high beam operation.

Headlamp high beam should operate.

OK or NG

OK >> GO TO 3.

NG >> GO TO 4.

3. CHECK IPDM E/R

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

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

DATA MONITOR			
MONITOR			
HL LO REQ	ON		
HL HI REQ	ON		
RECORD			
MODE	BACK	LIGHT	COPY

PKIA7638E

OK or NG

OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#).

NG >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#).

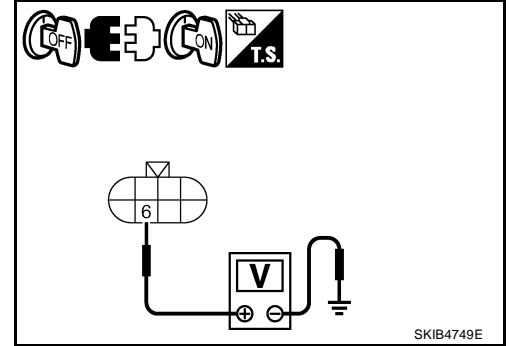
HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

4. CHECK HEADLAMP INPUT SIGNAL

 With CONSULT-II

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

Terminal			(-)	Voltage (Approx.)
(+)		Terminal		
Front combination lamp connector				Ground
RH	E47	6		
LH	E54	6		



 Without CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp 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.

Terminal			(-)	Voltage (Approx.)
(+)		Terminal		
Front combination lamp connector				Ground
RH	E47	6		
LH	E54	6		

OK or NG

- OK >> GO TO 5.
 NG >> GO TO 7.

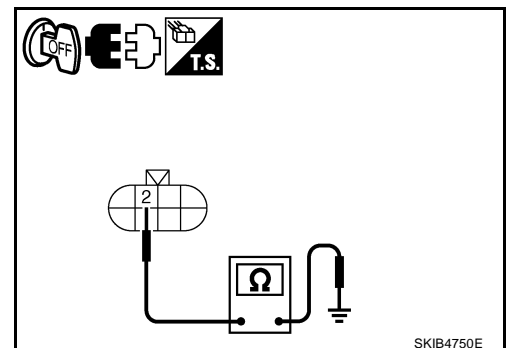
5. CHECK HEADLAMP GROUND

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

Front combination lamp connector		Terminal	Ground	Continuity
RH	E47	2		Ground
LH	E54	2		

OK or NG

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



HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

6. CHECK BULB

Check bulbs of lamp (both side).

OK or NG

OK >> Check connecting condition headlamp harness connector.

NG >> Replace headlamp bulb.

7. CHECK CIRCUIT BETWEEN IPDM E/R AND FRONT COMBINATION LAMP

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

Circuit	A		B		Continuity
	Connector	Terminal	Connector	Terminal	
RH	E7	27	E47	6	Yes
LH		28	E54	6	

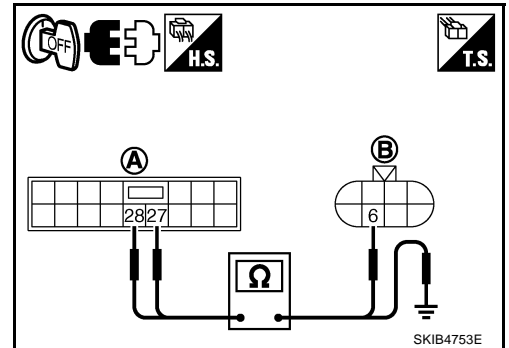
4. Check continuity between IPDM E/R harness connector (A) and ground.

A			Ground	Continuity
Connector		Terminal		
RH	E7	27		No
LH		28		

OK or NG

OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#) .

NG >> Repair harness or connector.



HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

NKS0030B

Headlamp High Beam Does Not Illuminate (One Side)

1. CHECK BULB

Check bulb of lamp which does not illuminate.

OK or NG

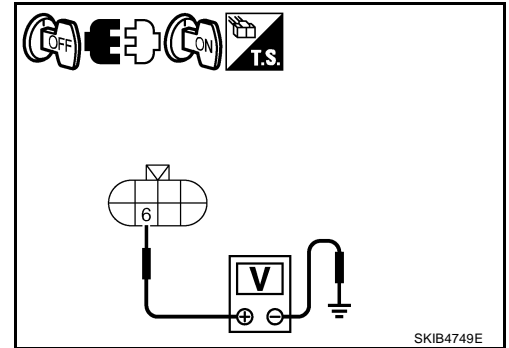
OK >> GO TO 2.

NG >> Replace headlamp bulb.

2. CHECK HEADLAMP INPUT SIGNAL

 With CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH or LH connector.
3. Select "IPDM E/R" on CONSULT-II. 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 or LH harness connector and ground. (Headlamp high beam repeats ON-OFF every 1 second.)



Terminal			(-)	Voltage (Approx.)
(+)				
Front combination lamp connector		Terminal	Ground	Battery voltage
RH	E47	6		
LH	E54	6		

 Without CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH or 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 or LH harness connector and ground.

Terminal			(-)	Voltage (Approx.)
(+)				
Front combination lamp connector		Terminal	Ground	Battery voltage
RH	E47	6		
LH	E54	6		

OK or NG

OK >> GO TO 3.

NG >> GO TO 4.

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

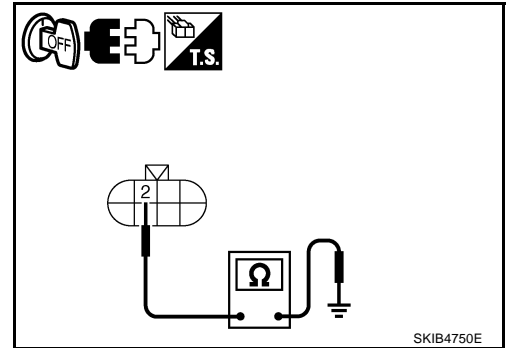
3. CHECK HEADLAMP GROUND

1. Turn ignition switch OFF.
2. Check continuity between front combination lamp RH or LH harness connector and ground.

Front combination lamp connector		Terminal	Ground	Continuity
RH	E47	2		Yes
LH	E54	2		

OK or NG

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



4. CHECK CIRCUIT BETWEEN IPDM E/R AND FRONT COMBINATION LAMP

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 (A) and front combination lamp RH or LH harness connector (B).

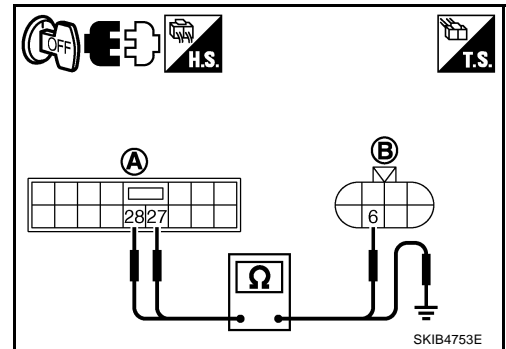
Circuit	A		B		Continuity
	Connector	Terminal	Connector	Terminal	
RH	E7	27	E47	6	Yes
LH		28	E54	6	

4. Check continuity between IPDM E/R harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
RH	E7	27	No
LH		28	

OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#) .
 NG >> Repair harness or connector.



High Beam Indicator Lamp Does Not Illuminate

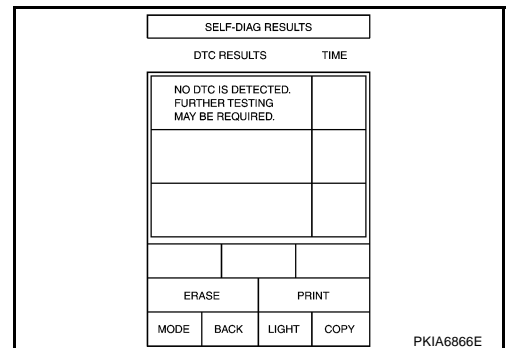
NKS0030C

1. CHECK UNIFIED METER AND A/C AMP.

1. Select "METER A/C AMP" on CONSULT-II, and perform self-diagnosis for "METER A/C AMP".
2. Check if malfunction is indicated.

Is malfunction indicated?

- YES >> Repair or replace malfunctioning parts.
 NO >> GO TO 2.



HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

2. CHECK COMBINATION METER INPUT SIGNAL

1. Select "METER A/C AMP" on CONSULT-II.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "HI-BEAM IND" turns ON-OFF linked with operation of lighting switch.

When lighting switch is in the HIGH BEAM position : HI-BEAM IND ON

OK or NG

- OK >> Replace combination meter. Refer to [DI-27, "Removal and Installation of Combination Meter"](#) .
- NG >> Replace unified meter and A/C amp. Refer to [DI-38, "Removal and Installation of Unified Meter and A/C Amp."](#) .

DATA MONITOR			
MONITOR		NO DTC	
HI-BEAM IND		ON	
		RECORD	
MODE	BACK	LIGHT	COPY

PKID0081E

Headlamp Low Beam Does Not Illuminate (Both Sides)

NKS0030D

1. CHECK COMBINATION SWITCH INPUT SIGNAL

☑ With CONSULT-II

1. Select "BCM" on CONSULT-II. Select "HEAD LAMP" on "SELECT TEST ITEM" screen.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "HEAD LAMP SW 1" and "HEAD LAMP SW 2" turns ON-OFF linked with operation of lighting switch.

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

☒ Without CONSULT-II

Refer to [LT-239, "Combination Switch Inspection"](#) .

OK or NG

- OK >> GO TO 2.
- NG >> Check combination switch (lighting switch). Refer to [LT-239, "Combination Switch Inspection"](#) .

DATA MONITOR			
MONITOR			
HEAD LAMP SW1		ON	
HEAD LAMP SW2		ON	
		RECORD	
MODE	BACK	LIGHT	COPY

PKIA7586E

2. HEADLAMP ACTIVE TEST

☑ With CONSULT-II

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

Headlamp low beam should operate.

☒ Without CONSULT-II

1. Start auto active test. Refer to [PG-23, "Auto Active Test"](#) .
2. Make sure headlamp low beam operation.

Headlamp low beam should operate.

OK or NG

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

ACTIVE TEST			
LAMPS		OFF	
		HI	
LO		FOG	
MODE	BACK	LIGHT	COPY

SKIA5774E

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

3. CHECK IPDM E/R

1. Select "IPDM E/R" on CONSULT-II. 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 : HL LO REQ ON position

DATA MONITOR			
MONITOR			
HL LO REQ		ON	
		RECORD	
MODE	BACK	LIGHT	COPY

PKIA7644E

OK or NG

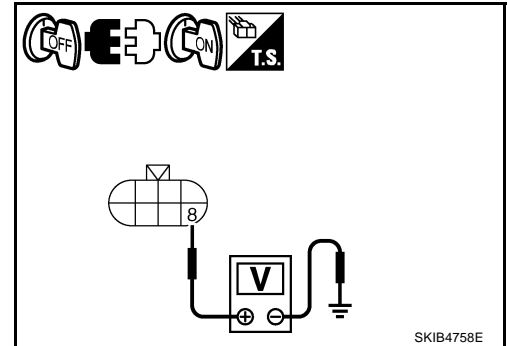
- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#).
- NG >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#).

4. CHECK HEADLAMP INPUT SIGNAL

☐ With CONSULT-II

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

Terminal			(-)	Voltage (Approx.)
(+)		terminal		
Front combination lamp connector				Ground
RH	E47	8		
LH	E54	8		



☒ 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.

Terminal			(-)	Voltage (Approx.)
(+)		terminal		
Front combination lamp connector				Ground
RH	E47	8		
LH	E54	8		

OK or NG

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

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

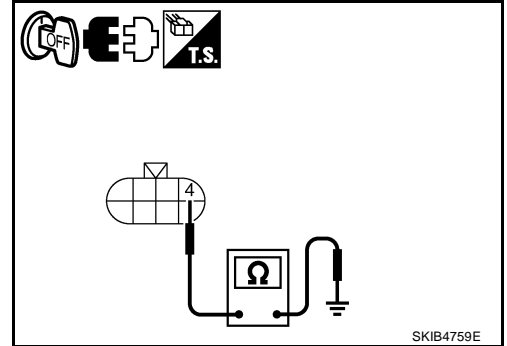
5. CHECK HEADLAMP GROUND

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

Front combination lamp connector		Terminal	Ground	Continuity
RH	E47	4		Yes
LH	E54	4		

OK or NG

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



6. CHECK CIRCUIT BETWEEN IPDM E/R AND FRONT COMBINATION LAMP

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

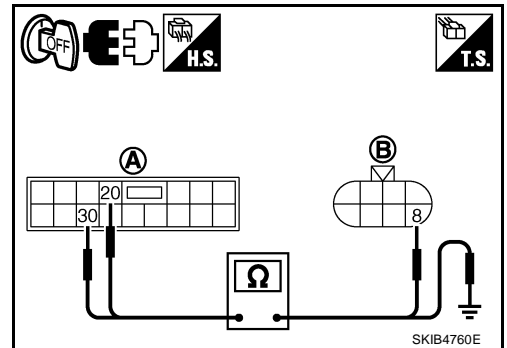
Circuit	A		B		Continuity
	Connector	Terminal	Connector	Terminal	
RH	E7	20	E47	8	Yes
LH		30	E54	8	

4. Check continuity between IPDM E/R harness connector (A) and ground.

A			Ground	Continuity
Connector	Terminal			
RH	E7	20	No	
LH		30		

OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#) .
 NG >> Repair harness or connector.



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HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

NKS0030E

Headlamp Low Beam Does Not Illuminate (One Side)

1. CHECK BULB

Check bulb of lamp which does not illuminate.

OK or NG

OK >> GO TO 2.

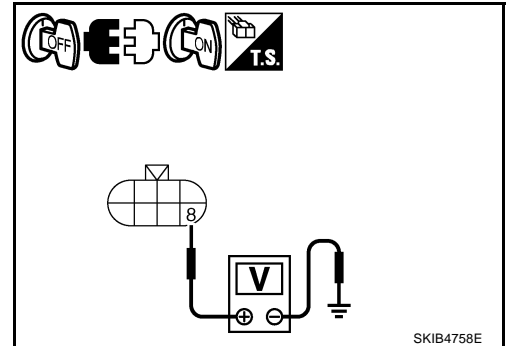
NG >> Replace headlamp bulb.

2. CHECK HEADLAMP INPUT SIGNAL

 With CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH or LH connector.
3. Select "IPDM E/R" on CONSULT-II. 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 or LH harness connector and ground.

Terminal			(-)	Voltage (Approx.)
(+)		terminal		
Front combination lamp connector				Ground
RH	E47	8		
LH	E54	8		



 Without CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH or 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 or LH harness connector and ground.

Terminal			(-)	Voltage (Approx.)
(+)		terminal		
Front combination lamp connector				Ground
RH	E47	8		
LH	E54	8		

OK or NG

OK >> GO TO 3.

NG >> GO TO 4.

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

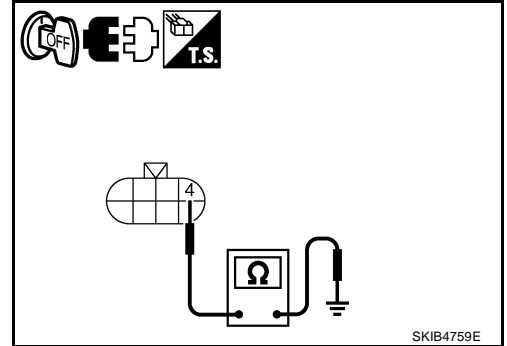
3. CHECK HEADLAMP GROUND

1. Turn ignition switch OFF.
2. Check continuity between front combination lamp RH or LH harness connector and ground.

Front combination lamp connector		Terminal	Ground	Continuity
RH	E47	4		Yes
LH	E54	4		

OK or NG

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



4. CHECK CIRCUIT BETWEEN IPDM E/R AND FRONT COMBINATION LAMP

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

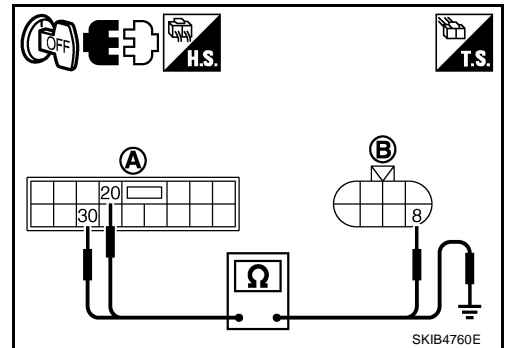
Circuit	A		B		Continuity
	Connector	Terminal	Connector	Terminal	
RH	E7	20	E47	8	Yes
LH		30	E54	8	

4. Check continuity between IPDM E/R harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
RH	E7	20	No
LH		30	

OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#) .
 NG >> Repair harness or connector.



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HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

NKS0030F

Headlamps Do Not Turn OFF

1. CHECK HEADLAMP TURN OFF

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

OK or NG

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

2. CHECK COMBINATION SWITCH INPUT SIGNAL

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

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

OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#).
- NG >> Check combination switch (lighting switch). Refer to [LT-239, "Combination Switch Inspection"](#).

DATA MONITOR			
MONITOR			
HEAD LAMP SW1	OFF		
HEAD LAMP SW2	OFF		
		Page Down	
		RECORD	
MODE	BACK	LIGHT	COPY

PKIA7588E

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

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

Display of self-diagnosis results

- NO DTC>> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#).
- CAN COMM CIRCUIT>> Refer to [BCS-13, "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#).

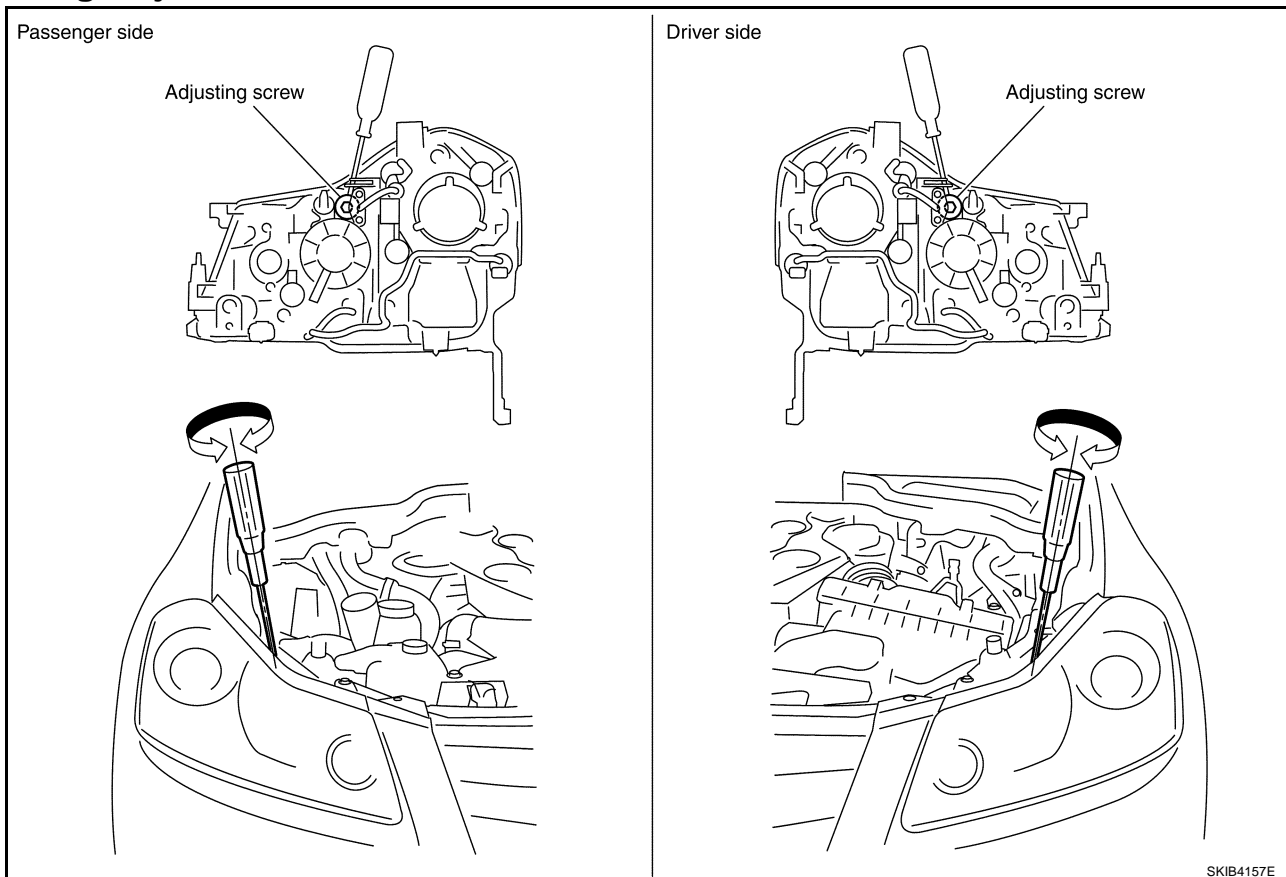
SELF-DIAG RESULTS			
DTC RESULTS		TIME	
CAN COMM CIRCUIT [U1000]			
ERASE		PRINT	
MODE	BACK	LIGHT	COPY

PKIA7627E

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

Aiming Adjustment

NKS0030G



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.

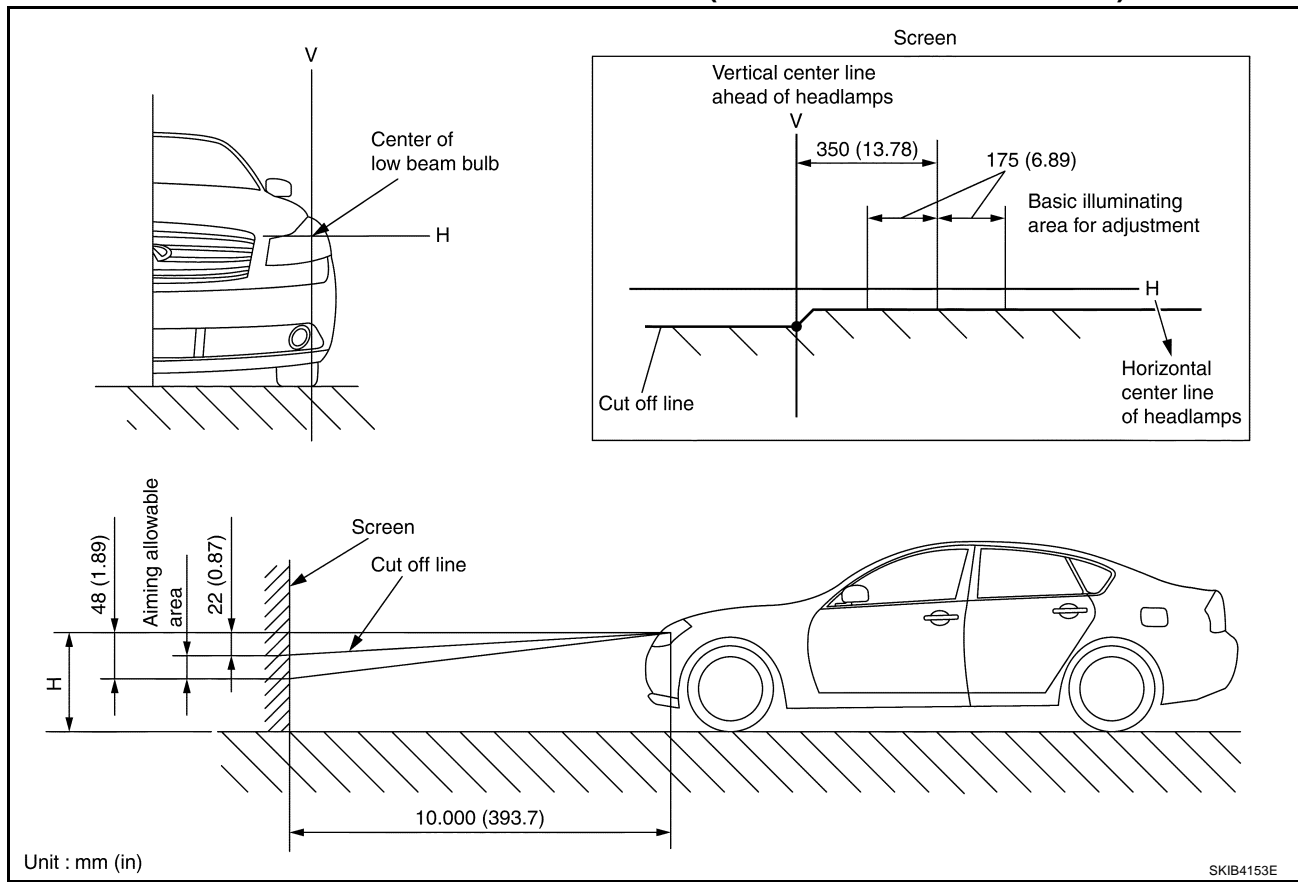
LOW BEAM AND HIGH BEAM

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

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HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

ADJUSTMENT USING AN ADJUSTMENT SCREEN (LIGHT/DARK BORDERLINE)



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

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

Bulb Replacement HEADLAMP (INNER) HIGH BEAM

NKS0030H

1. Turn lighting switch OFF.
2. Disconnect negative battery cable or remove circuit fuse.
3. Remove air cleaner case when replacing bulb LH. Refer to [EM-19, "Removal and Installation"](#) (VQ35) or [EM-177, "Removal and Installation"](#) (VK45).
4. Remove washer tank inlet when replacing bulb RH. Refer to [WW-48, "Removal and Installation of Washer Tank"](#).
5. Turn plastic cap counterclockwise and unlock it.
6. Turn bulb socket counterclockwise and unlock it.
7. Disconnect connector, and remove bulb.

Headlamp (inner) high beam

: 12V - 60W (HB3)

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

HEADLAMP (OUTER) LOW BEAM

1. Turn lighting switch OFF.
2. Disconnect negative battery cable or remove circuit fuse.
3. Remove fender protector (front). Refer to [EI-20, "Removal and Installation"](#).
4. Turn plastic cap counterclockwise and unlock it.
5. Unlock retaining spring and remove bulb from headlamp.
6. Remove the socket connected the bulb.

Headlamp (outer) low beam : 12V - 55W (H1)

PARKING LAMP LAMP

1. Turn bulb socket counterclockwise and unlock it.
2. Remove bulb from its socket.

Parking lamp : 12V - 5W

FRONT TURN SIGNAL LAMP

1. Remove washer tank inlet when replaced bulb RH. Refer to [WW-48, "Removal and Installation of Washer Tank"](#).
Remove air cleaner case when replacing bulb LH. Refer to [EM-19, "Removal and Installation"](#) (VQ35) or [EM-177, "Removal and Installation"](#) (VK45).
2. Turn bulb socket counterclockwise and unlock it.
3. Remove bulb from its socket.

Front turn signal lamp : 12V - 21W

FRONT SIDE MARKER LAMP

1. Remove fender protector (front) to obtain work space between the fender protector and fender.
2. Turn bulb socket counterclockwise and unlock it.
3. Remove bulb from its socket.

Front side marker lamp : 12V - 5W

CAUTION:

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

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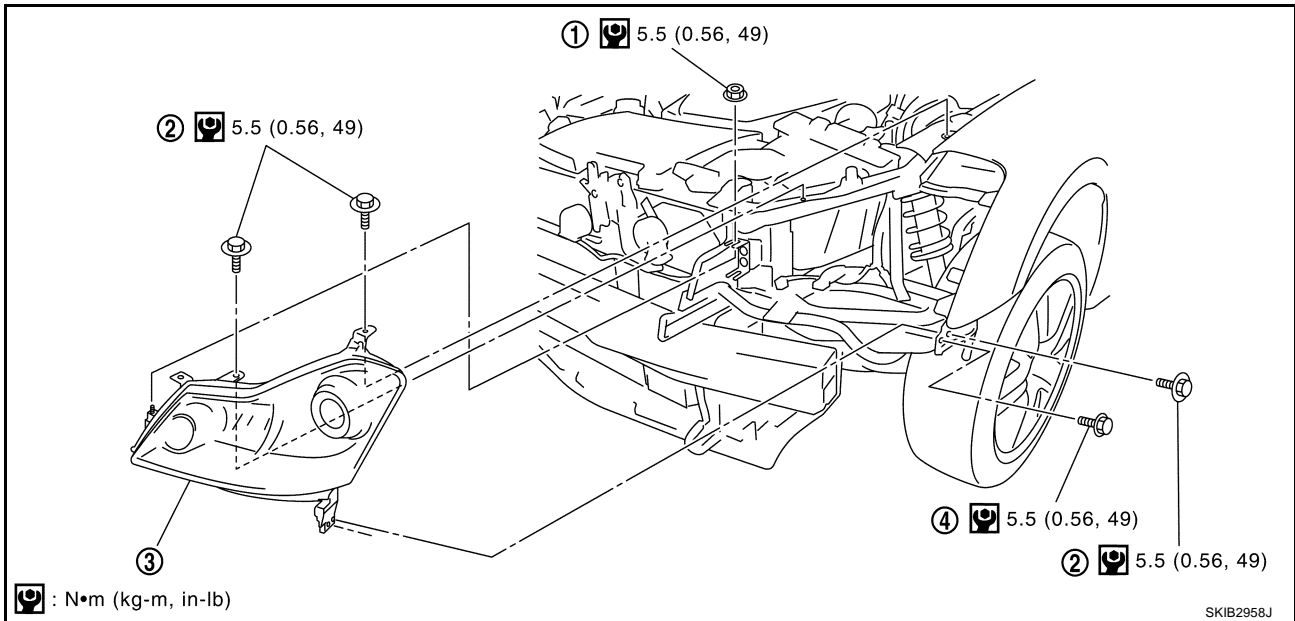
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HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

Removal and Installation

NKS00301




1. Nut

2. Bolt

3. Headlamp assembly

4. Bolt

 : N•m (kg-m, in-lb)

REMOVAL

1. Disconnect the battery cable from the negative terminal.
2. Remove front bumper. Refer to [EI-11, "Removal and Installation"](#).
3. Remove front bumper retainer (upper). Refer to [EI-11, "Removal and Installation"](#).
4. Remove front bumper clips. Refer to [EI-11, "Removal and Installation"](#).
5. Remove headlamp mounting bolts and nuts.
6. Remove plastic bumper bracket, then pull headlamp toward vehicle front, disconnect connector, and remove headlamp.

INSTALLATION

Note the following, and installation is the reverse order of removal.

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

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

NOTE:

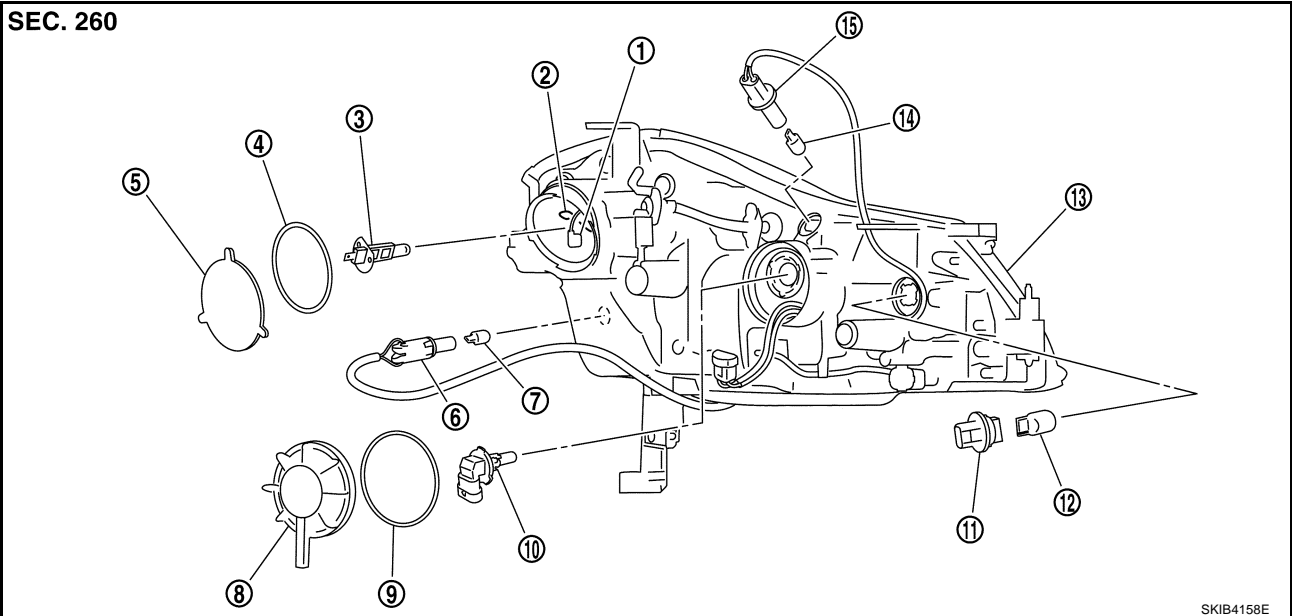
After installation, perform aiming adjustment. Refer to [LT-37, "Aiming Adjustment"](#).

HEADLAMP (FOR USA) - CONVENTIONAL TYPE -

Disassembly and Assembly

NKS0030J

SEC. 260



- | | | |
|-------------------------------|--|---------------------------------|
| 1. Bulb socket (low) | 2. Retaining spring | 3. Bulb (low) |
| 4. Seal packing | 5. Plastic cap | 6. Side marker lamp bulb socket |
| 7. Side marker lamp bulb | 8. Plastic cap | 9. Seal packing |
| 10. Bulb (high) | 11. Front turn signal lamp bulb socket | 12. Front turn signal lamp bulb |
| 13. Headlamp housing assembly | 14. Parking lamp bulb | 15. Parking lamp bulb socket |

DISASSEMBLY

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

ASSEMBLY

Note the following, and installation is the reverse order of removal.

CAUTION:

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

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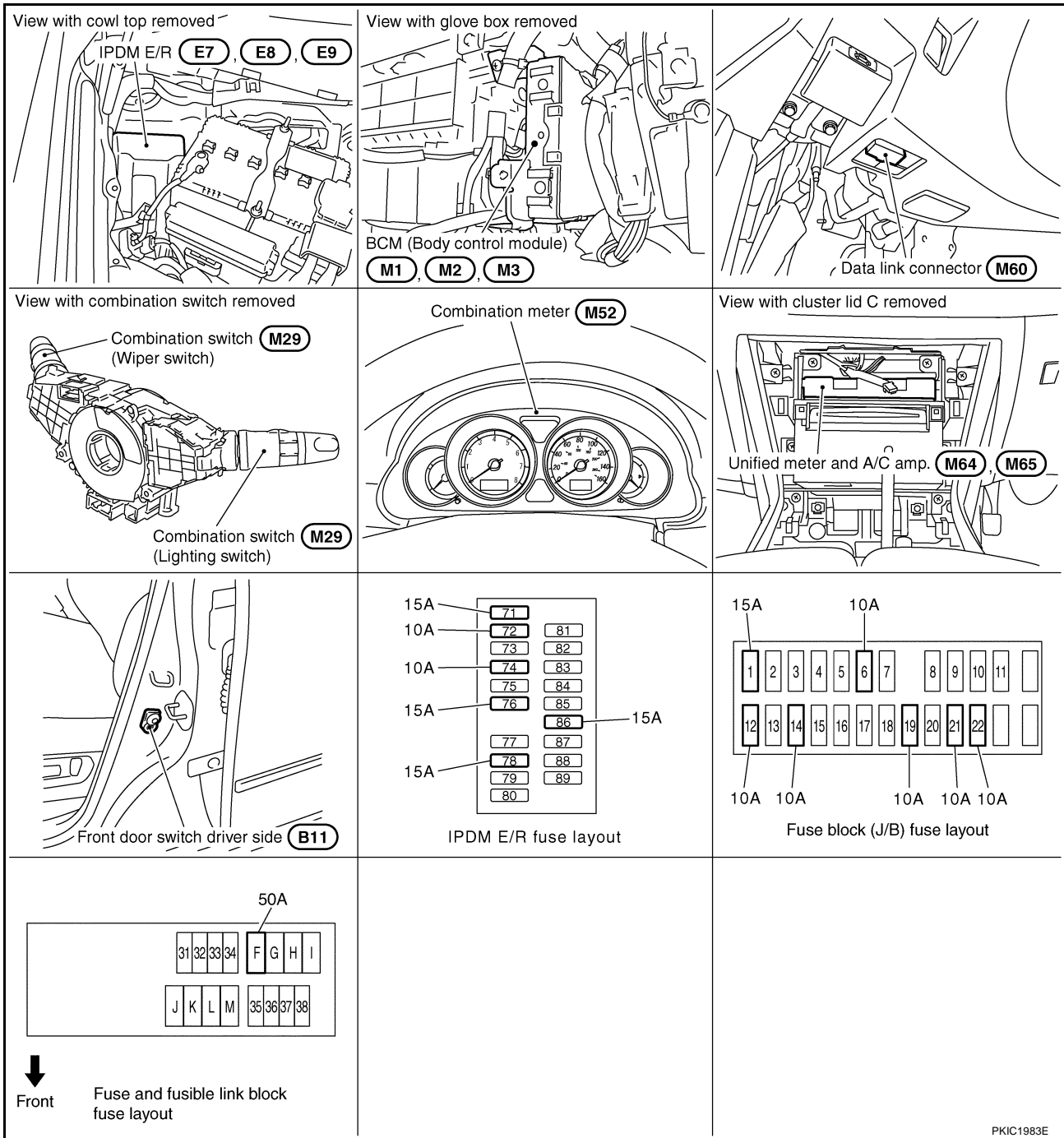
HEADLAMP (FOR USA) - XENON TYPE -

HEADLAMP (FOR USA) - XENON TYPE -

PFP:26010

Component Parts and Harness Connector Location

NKS0030K



PKIC1983E

System Description

NKS0030L

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

HEADLAMP (FOR USA) - XENON TYPE -

OUTLINE

Power is supplied at all times

- to headlamp high relay, located in IPDM E/R and
- to headlamp low relay, located in IPDM E/R, from battery direct,
- through 15A fuse (No. 71, located in IPDM E/R)
- to CPU, located in IPDM E/R,
- through 15A fuse (No. 78, located in IPDM E/R)
- to CPU, located in IPDM E/R,
- through 50A fusible link (letter F, located in fuse and fusible link block)
- to BCM terminal 55,
- through 10A fuse [No. 21, located in fuse block (J/B)]
- to BCM terminal 42 and
- to combination meter terminal 23,
- through 10A fuse [No. 19, located in fuse block (J/B)]
- to unified meter and A/C amp. terminal 54,
- through 10A fuse [No. 22, located in fuse block (J/B)]
- to key slot terminal 1.

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

- to CPU, located in IPDM E/R,
- through 15A fuse [No. 1, located in fuse block (J/B)]
- to BCM terminal 38,
- through 10A fuse [No. 14, located in fuse block (J/B)]
- to combination meter terminal 12,
- through 10A fuse [No. 12, located in fuse block (J/B)]
- to unified meter and A/C amp. terminal 53.

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

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

Ground is supplied

- to BCM terminal 52
- to combination meter terminals 9, 10, and 11
- to unified meter and A/C amp. terminals 55 and 71
- to push-button ignition switch (push switch) terminal 1
- to key slot terminal 8
- through grounds M16 and M70,
- to IPDM E/R terminals 38 and 51
- through grounds E22 and E43.

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HEADLAMP (FOR USA) - XENON TYPE -

HEADLAMP OPERATION

Low Beam Operation

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

- through 15A fuse (No. 76, located in IPDM E/R)
- through IPDM E/R terminal 20
- to front combination lamp RH terminal 8,
- through 15A fuse (No. 86, located in IPDM E/R)
- through IPDM E/R terminal 30
- to front combination lamp LH terminal 8.

Ground is supplied

- to front combination lamp RH terminal 4
- to front combination lamp LH terminal 4
- through grounds E22 and E43.

With power and ground supplied, low beam headlamps illuminate.

High Beam Operation/Flash-to-Pass Operation

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

- through 15A fuse (No. 76, located in IPDM E/R)
- through IPDM E/R terminal 20
- to front combination lamp RH terminal 8,
- through 15A fuse (No. 86, located in IPDM E/R)
- through IPDM E/R terminal 30
- to front combination lamp LH terminal 8,
- through 10A fuse (No. 72, located in IPDM E/R)
- through IPDM E/R terminal 27
- to front combination lamp RH terminal 6,
- through 10A fuse (No. 74, located in IPDM E/R)
- through IPDM E/R terminal 28
- to front combination lamp LH terminal 6.

Ground is supplied

- to front combination lamp RH terminal 4
- to front combination lamp LH terminal 4
- to front combination lamp RH terminal 2
- to front combination lamp LH terminal 2
- through grounds E22 and E43.

With power and ground supplied, the high beam and low beam headlamps illuminate.

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

HEADLAMP (FOR USA) - XENON TYPE -

COMBINATION SWITCH READING FUNCTION

Refer to [BCS-3, "COMBINATION SWITCH READING FUNCTION"](#) .

EXTERIOR LAMP BATTERY SAVER CONTROL

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

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

AUTO LIGHT OPERATION

Refer to [LT-115, "System Description"](#) .

XENON HEADLAMP

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

Followings are some advantages of the xenon type headlamp.

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

CAN Communication System Description

NKS0030M

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

NKS0030N

Refer to [LAN-50, "CAN System Specification Chart"](#) .

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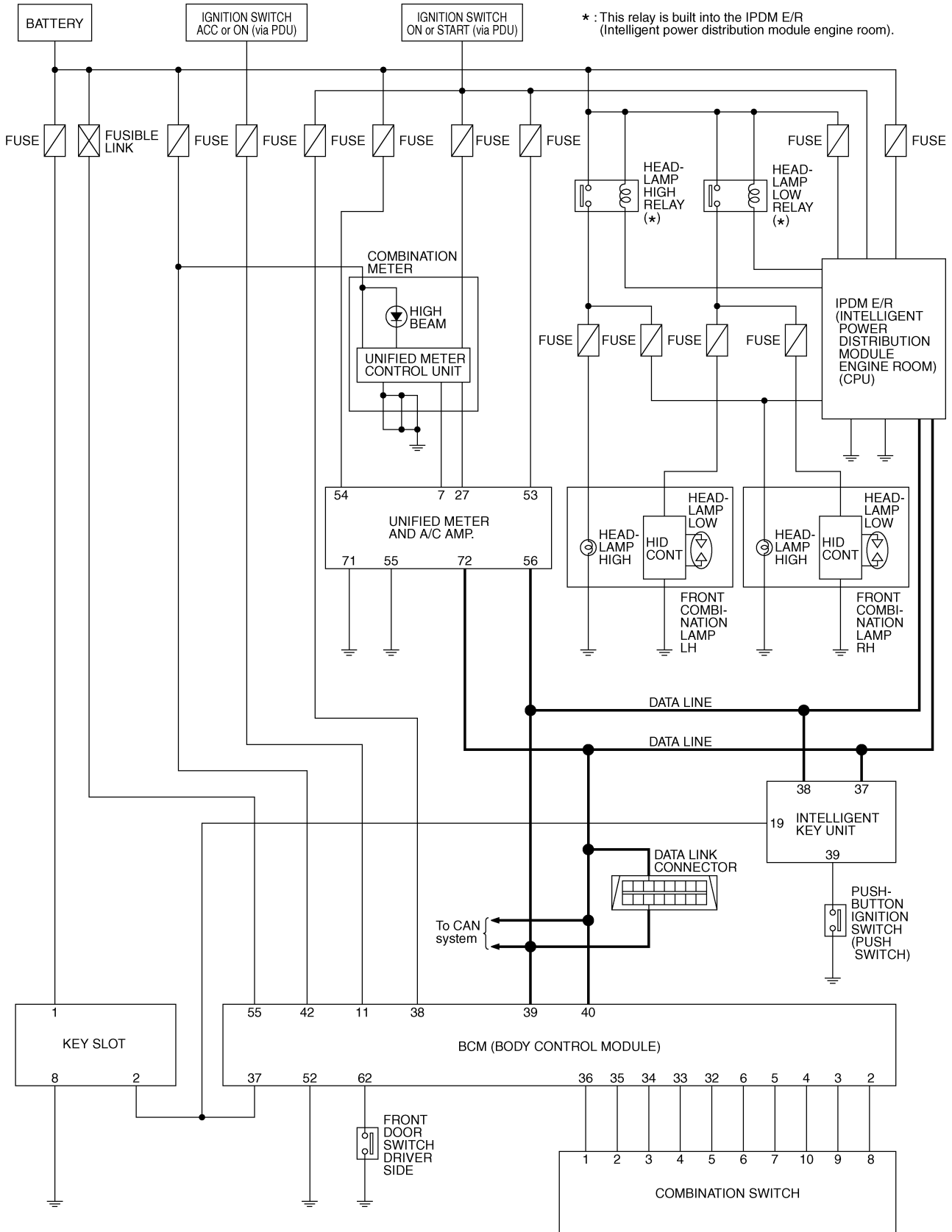
L

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HEADLAMP (FOR USA) - XENON TYPE -

Schematic

NKS00300



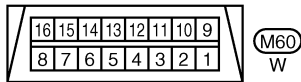
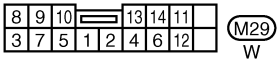
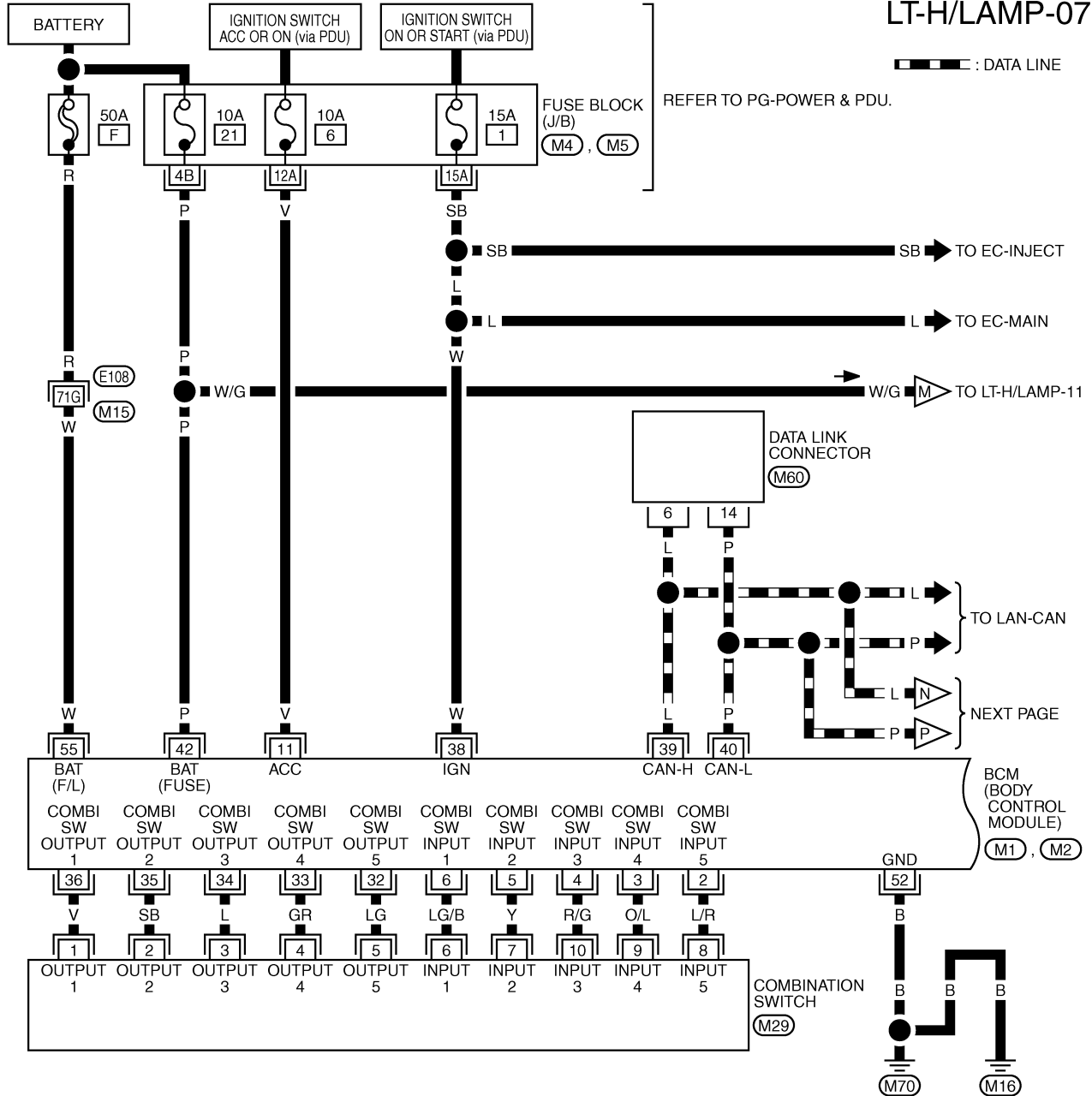
TKWT3356E

HEADLAMP (FOR USA) - XENON TYPE -

Wiring Diagram — H/LAMP —

NKS0030P

LT-H/LAMP-07



REFER TO THE FOLLOWING.

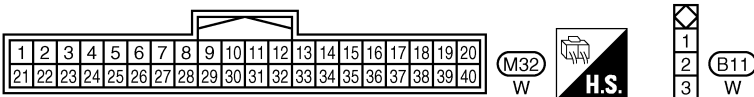
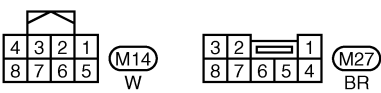
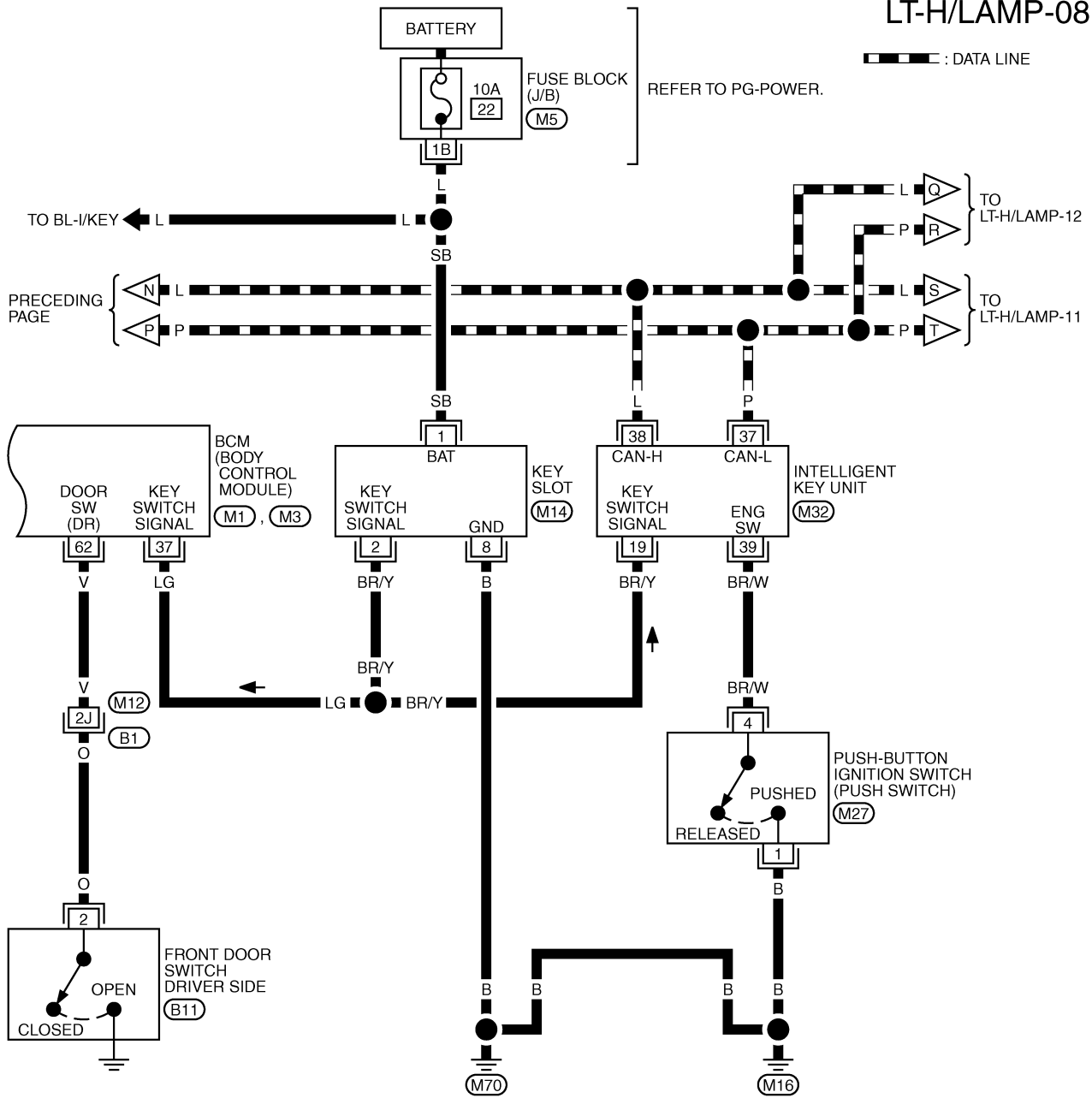
- (E108) -SUPER MULTIPLE JUNCTION (SMJ)
- (M4), (M5) -FUSE BLOCK-JUNCTION BOX (J/B)
- (M1), (M2) -ELECTRICAL UNITS

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HEADLAMP (FOR USA) - XENON TYPE -

LT-H/LAMP-08



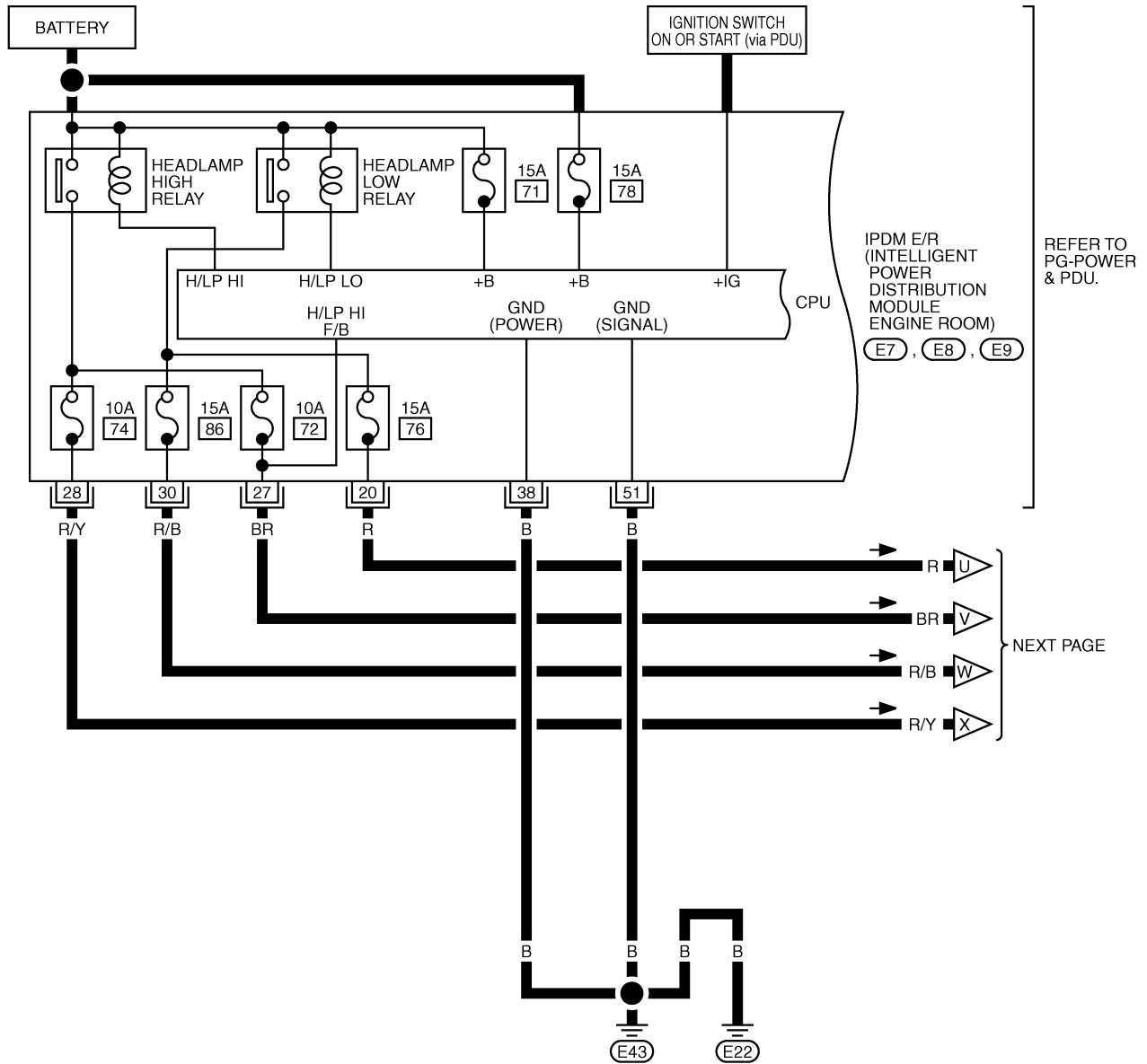
REFER TO THE FOLLOWING.

- (B1) -SUPER MULTIPLE JUNCTION (SMJ)
- (M5) -FUSE BLOCK-JUNCTION BOX (J/B)
- (M1), (M3) -ELECTRICAL UNITS

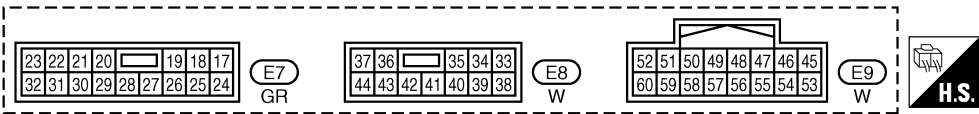
TKWT5255E

HEADLAMP (FOR USA) - XENON TYPE -

LT-H/LAMP-09



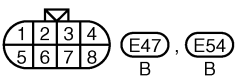
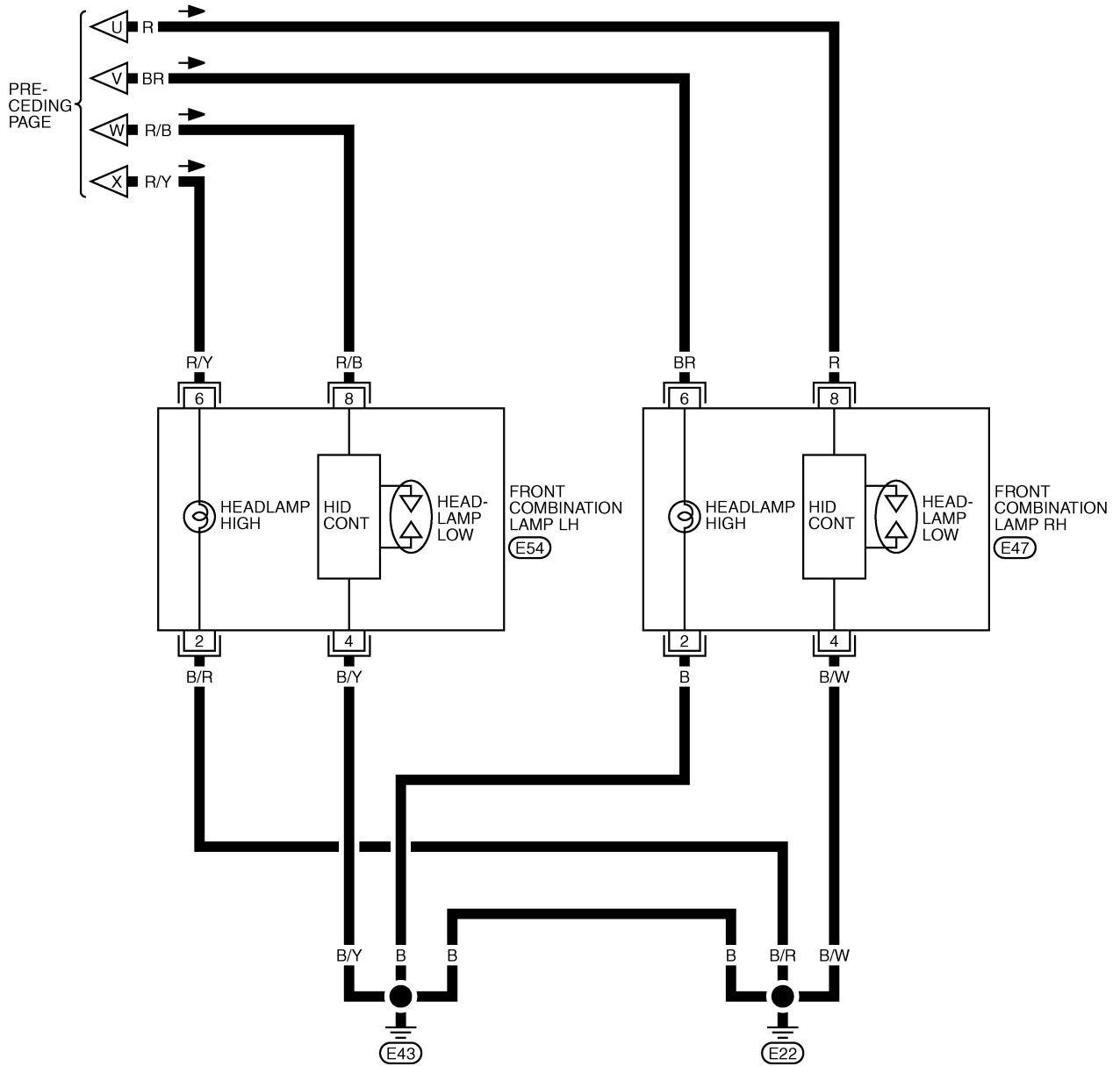
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TKWT5256E

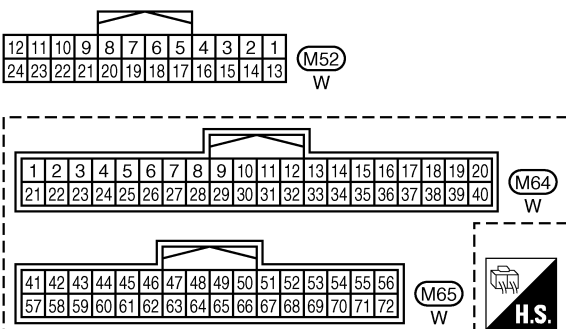
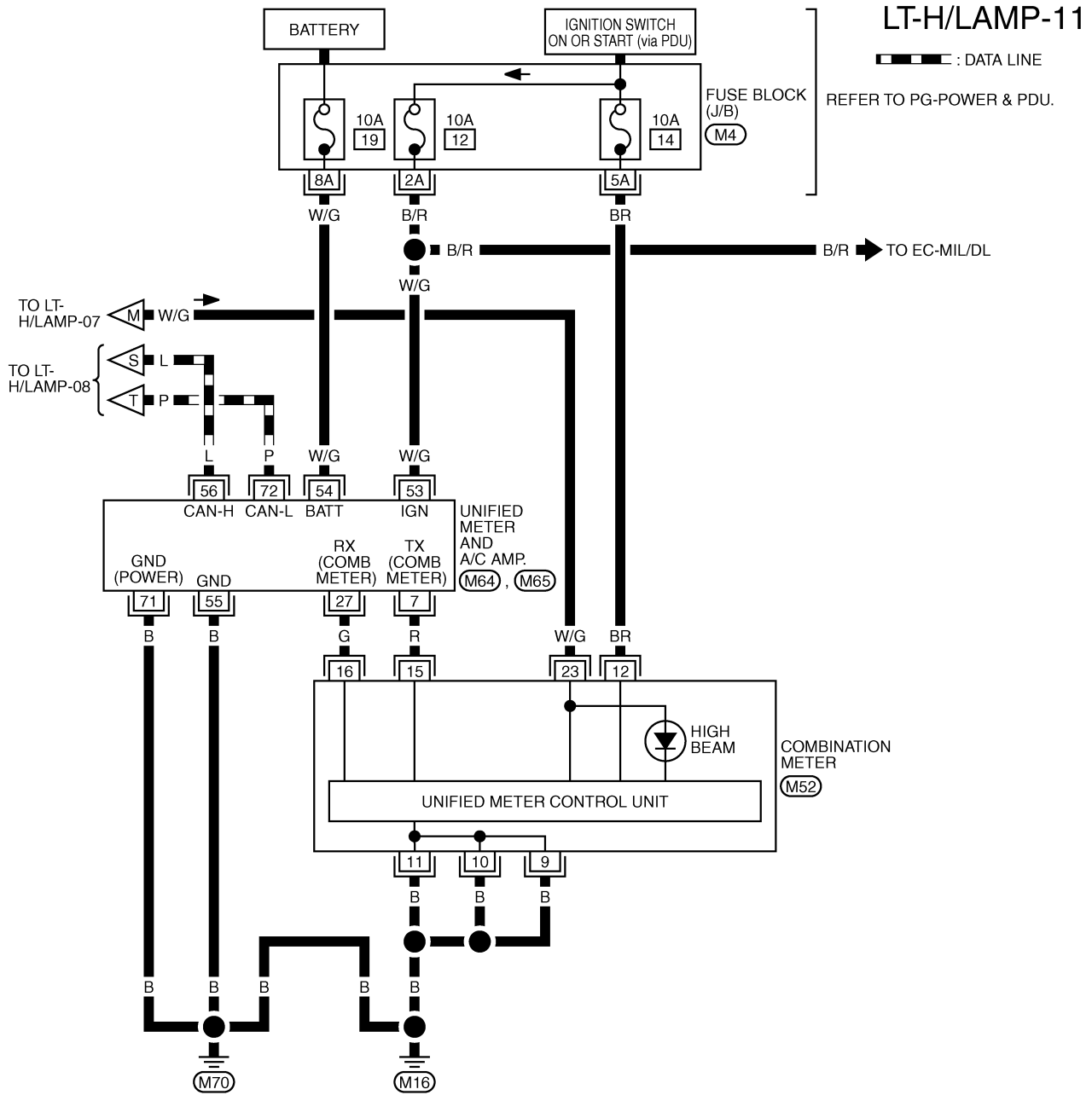
HEADLAMP (FOR USA) - XENON TYPE -

LT-H/LAMP-10



TKWT5257E

HEADLAMP (FOR USA) - XENON TYPE -



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

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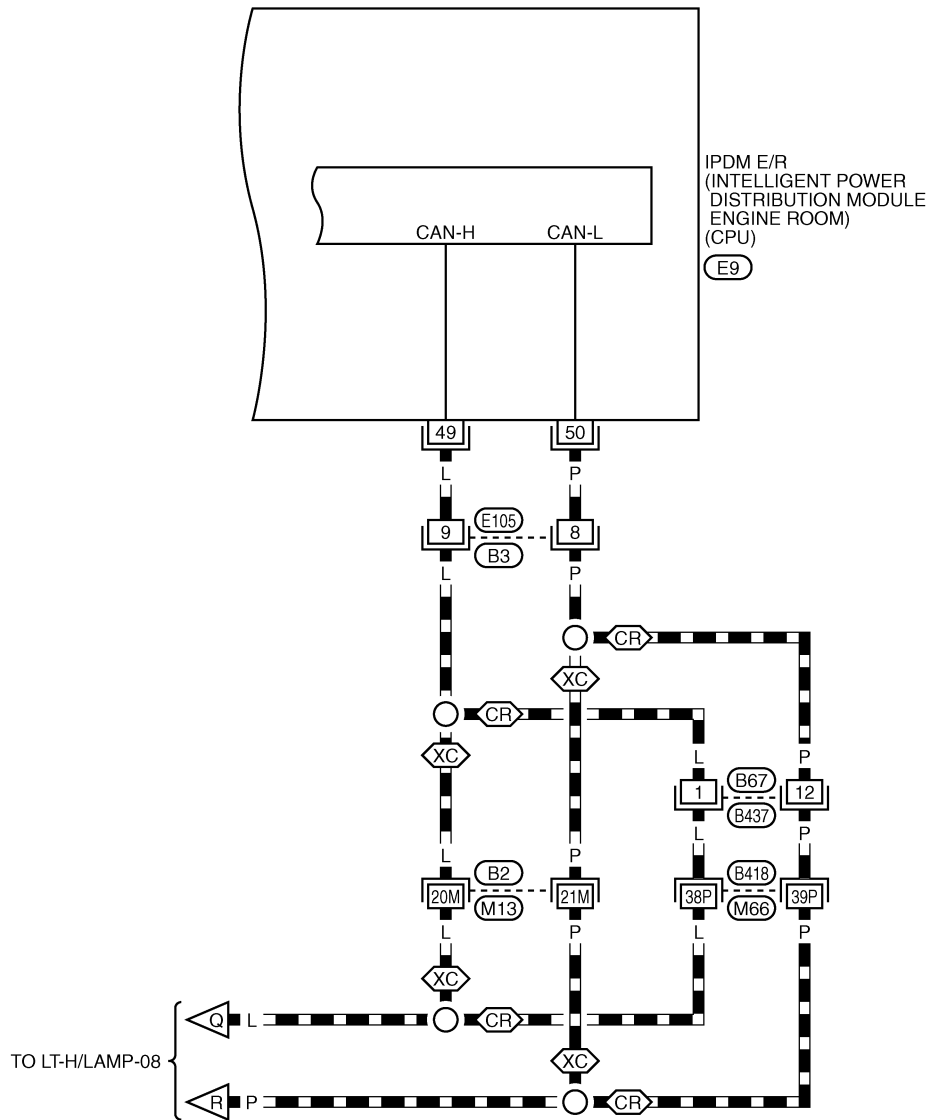
HEADLAMP (FOR USA) - XENON TYPE -

LT-H/LAMP-12

▬ : DATA LINE

⬠ : WITH PRE-CRASH SEAT BELT OR RAS

⬡ : WITHOUT PRE-CRASH SEAT BELT AND RAS



52	51	50	49	48	47	46	45
60	59	58	57	56	55	54	53

E9
W



1	2	3	4	5	6	7	8	9	10	11		
12	13	14	15	16	17	18	19	20	21	22	23	24

B3 B437
W BR

REFER TO THE FOLLOWING.

B2, B418 -SUPER MULTIPLE JUNCTION (SMJ)

TKWT5275E

HEADLAMP (FOR USA) - XENON TYPE -

Terminals and Reference Values for BCM

NKS0030Q

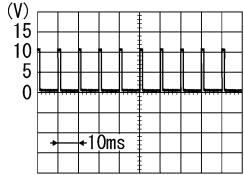
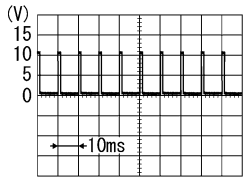
CAUTION:

- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF not to be fluctuated by overloaded.
- Turn wiper dial position to 4 except when checking waveform or voltage of wiper dial position. Wiper dial position can be confirmed on CONSULT-II. Refer to [LT-238, "DATA MONITOR"](#) .

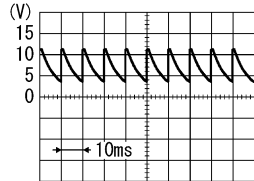
Terminal No.	Wire color	Signal name	Measuring condition		Reference value	
			Ignition switch	Operation or condition		
2	L/R	Combination switch input 5	ON	Lighting, turn, wiper switch (Wiper dial position 4)	Lighting switch HI beam (Operates only HI beam switch)	<p>Approx. 1.0 V</p>
					Lighting switch 2ND	<p>Approx. 2.0 V</p>
				OFF	Approx. 0 V	
3	O/L	Combination switch input 4	ON	Lighting, turn, wiper switch (Wiper dial position 4)	Any of several conditions below <ul style="list-style-type: none"> ● Lighting switch 2ND ● Lighting switch PASSING (Operates only PASSING switch) 	<p>Approx. 1.0 V</p>
					OFF	Approx. 0 V
11	V	Ignition switch (ACC)	ACC	—	Battery voltage	

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HEADLAMP (FOR USA) - XENON TYPE -

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
34	L	Combination switch output 3	ON	Lighting, turn, wiper switch (Wiper dial position 4)	Any of several conditions below <ul style="list-style-type: none"> ● Lighting switch 2ND ● Lighting switch HI beam (Operates only HI beam switch)  <p style="text-align: right;">PKIB4958J</p> <p style="text-align: center;">Approx. 1.2 V</p>
					OFF
35	SB	Combination switch output 2	ON	Lighting, turn, wiper switch (Wiper dial position 4)	Any of several conditions below <ul style="list-style-type: none"> ● Lighting switch 2ND ● Lighting switch PASSING (Operates only PASSING switch)  <p style="text-align: right;">PKIB4958J</p> <p style="text-align: center;">Approx. 1.2 V</p>
					OFF
38	W	Ignition switch (ON)	ON	—	Battery voltage
37	LG	Key switch signal	OFF	Intelligent Key is inserted into key slot.	Battery voltage
				Intelligent Key is removed from key slot.	Approx. 0 V
39	L	CAN - H	—	—	—
40	P	CAN - L	—	—	—
42	P	Battery power supply	OFF	—	Battery voltage
52	B	Ground	ON	—	Approx. 0 V
55	W	Battery power supply	OFF	—	Battery voltage

HEADLAMP (FOR USA) - XENON TYPE -

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
62	V	Front door switch driver side signal	OFF	Front door switch driver side	ON (open) Approx. 0 V
				OFF (closed)	 <p style="text-align: right;">PKIB4960J Approx. 7.5 - 8.0 V</p>

Terminals and Reference Values for IPDM E/R

NKS0030R

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. 0 V
					ON Battery voltage
27	BR	Headlamp high (RH)	ON	Lighting switch HIGH or PASSING position	OFF Approx. 0 V
					ON Battery voltage
28	R/Y	Headlamp high (LH)	ON	Lighting switch HIGH or PASSING position	OFF Approx. 0 V
					ON Battery voltage
30	R/B	Headlamp low (LH)	ON	Lighting switch 2ND position	OFF Approx. 0 V
					ON Battery voltage
38	B	Ground	ON	—	Approx. 0 V
49	L	CAN - H	—	—	—
50	P	CAN - L	—	—	—
51	B	Ground	ON	—	Approx. 0 V

How to Perform Trouble Diagnoses

NKS0030S

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to [LT-42, "System Description"](#) .
3. Perform the Preliminary Check. Refer to [LT-56, "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

HEADLAMP (FOR USA) - XENON TYPE -

NKS0030T

Preliminary Check CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES AND FUSIBLE LINK

Check for blown fuses and fusible link.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
		21
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	71
		72
		74
		76
		78
		86

Refer to [LT-47, "Wiring Diagram — H/LAMP —"](#) .

OK or NG

OK >> GO TO 2.

NG >> If fuse or fusible link is blown, be sure to eliminate cause of malfunction before installing new fuse or fusible link. Refer to [PG-3, "POWER SUPPLY ROUTING CIRCUIT"](#) .

2. CHECK POWER SUPPLY CIRCUIT

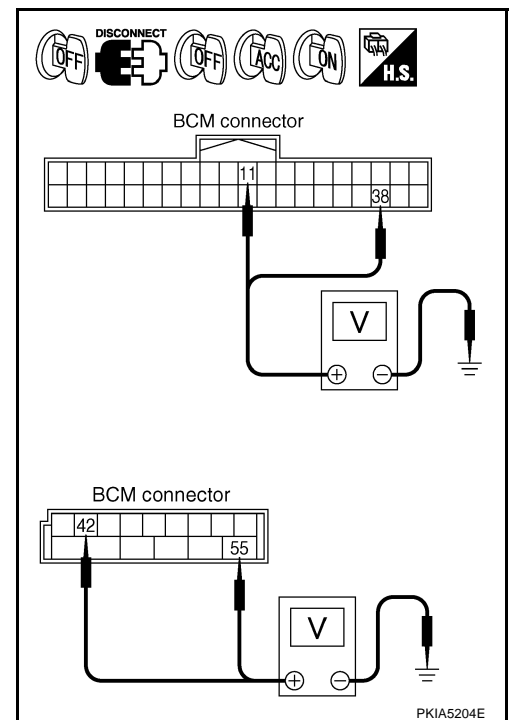
- Turn ignition switch OFF.
- Disconnect BCM connector.
- Check voltage between BCM harness connector and ground.

Terminal (+)		Terminal (-)	Ignition switch position		
BCM connector	Terminal		OFF	ACC	ON
M1	11	Ground	Approx. 0 V	Battery voltage	Battery voltage
	38		Approx. 0 V	Approx. 0 V	Battery voltage
M2	42		Battery voltage	Battery voltage	Battery voltage
	55		Battery voltage	Battery voltage	Battery voltage

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.



HEADLAMP (FOR USA) - XENON TYPE -

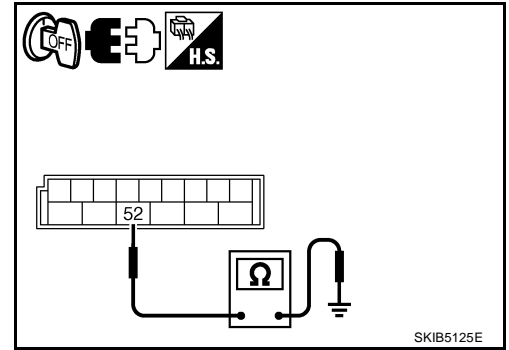
3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

BCM connector	Terminal	Ground	Continuity
M2	52		Yes

OK or NG

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



CONSULT-II Functions (BCM)

NKS0030U

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

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

NOTE:

Cannot change the setting for headlamp.

CONSULT-II BASIC OPERATION

Refer to [GI-38, "CONSULT-II Start Procedure"](#) .

DATA MONITOR

Operation Procedure

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

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

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

Display Item List

Monitor item	Contents
IGN ON SW	"ON/OFF" Displays "IGN position (ON)/OFF, ACC position (OFF)" judged from the ignition switch signal.
ACC ON SW	"ON/OFF" Displays "ACC (ON)/OFF, Ignition OFF (OFF)" status judged from ignition switch signal.
KEY ON SW	"ON/OFF" Displays "Intelligent Key inserted into key slot (ON)/Intelligent Key removed from key slot (OFF)" status judged from the key switch signal.
TURN SIGNAL R	"ON/OFF" Displays status (turn right: ON/others: OFF) as judged from lighting switch signal.
TURN SIGNAL L	"ON/OFF" Displays status (turn left: ON/others: OFF) as judged from lighting switch signal.
HI BEAM SW	"ON/OFF" Displays status (high beam switch: ON/others: OFF) of high beam switch judged from lighting switch signal.

HEADLAMP (FOR USA) - XENON TYPE -

Monitor item	Contents
HEAD LAMP SW 1	"ON/OFF" Displays status (headlamp switch 1: ON/others: OFF) of headlamp switch 1 judged from lighting switch signal.
HEAD LAMP SW 2	"ON/OFF" Displays status (headlamp switch 2: ON/others: OFF) of headlamp switch 2 judged from lighting switch signal.
TAIL LAMP SW	"ON/OFF" Displays status (lighting switch 1ST or 2ND position: ON/others: OFF) of lighting switch judged from lighting switch signal.
AUTO LIGHT SW	"ON/OFF" Displays status of the lighting switch as judged from the lighting switch signal. (AUTO position: ON/other than AUTO position: OFF)
PASSING SW	"ON/OFF" Displays status (flash-to-passing switch: ON/others: OFF) of flash-to-passing switch judged from lighting switch signal.
FR FOG SW	"ON/OFF" Displays status (front fog lamp switch: ON/others: OFF) of front fog lamp switch judged from lighting switch signal.
DOOR SW - DR	"ON/OFF" Displays status of the driver door as judged from the driver door switch signal. (door is open: ON/door is closed: OFF)
DOOR SW - AS	"ON/OFF" Displays status of the passenger door as judged from the passenger door switch signal. (door is open: ON/door is closed: OFF)
DOOR SW - RR	"ON/OFF" Displays status of the rear door as judged from the rear door switch (RH) signal. (door is open: ON/door is closed: OFF)
DOOR SW - RL	"ON/OFF" Displays status of the rear door as judged from the rear door switch (LH) signal. (door is open: ON/door is closed: OFF)
BACK DOOR SW ^{NOTE}	"OFF" —
I - KEY LOCK	"ON/OFF" Displays "locked (ON)/other (OFF)" status, determined from lock signal.
OPTICAL SENSOR	"0 - 5V" Displays "outside brightness (close to 5 V when light/close to 0 V when dark)" judged from optical sensor signal.
VEHICLE SPEED	"km/h" Displays vehicle speed as judged from vehicle speed signal.

NOTE:

This item is displayed, but cannot be monitored.

ACTIVE TEST

Operation Procedure

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

Display Item List

Test item	Description
TAIL LAMP	Allows tail lamp relay to operate by switching ON-OFF.
FR FOG LAMP	Allows front fog lamp relay to operate by switching ON-OFF.
DAYTIME RUNNING LIGHT ^{NOTE}	—
HEAD LAMP (HI, LO)	Allows headlamp relay to operate by switching ON-OFF.

NOTE:

This item is displayed, but cannot be tested.

HEADLAMP (FOR USA) - XENON TYPE -

CONSULT-II Functions (IPDM E/R)

NKS0030V

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

Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	Refer to PG-20. "SELF-DIAG RESULTS" .
DATA MONITOR	The input/output data of IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE TEST	IPDM E/R sends a drive signal to electronic components to check their operation.

CONSULT-II BASIC OPERATION

Refer to [GI-38. "CONSULT-II Start Procedure"](#) .

DATA MONITOR

Operation Procedure

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

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

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

All Signals, Main Signals, Selection From Menu

Item name	CONSULT-II 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
Front fog lights request	FR FOG REQ	ON/OFF	×	×	×	Signal status input from BCM

NOTE:

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

ACTIVE TEST

Operation Procedure

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

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

HEADLAMP (FOR USA) - XENON TYPE -

NKS0030W

Headlamp High Beam Does Not Illuminate (Both Sides)

1. CHECK COMBINATION SWITCH INPUT SIGNAL

Ⓜ With CONSULT-II

1. Select "BCM" on CONSULT-II. Select "HEAD LAMP" on "SELECT TEST ITEM" screen.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "HI BEAM SW" turns ON-OFF linked with operation of lighting switch.

When lighting switch is HIGH position : HI BEAM SW ON

DATA MONITOR			
MONITOR			
HI BEAM SW	ON		
		RECORD	
MODE	BACK	LIGHT	COPY

PKIA7585E

ⓧ Without CONSULT-II

Refer to [LT-239, "Combination Switch Inspection"](#).

OK or NG

OK >> GO TO 2.

NG >> Check combination switch (lighting switch). Refer to [LT-239, "Combination Switch Inspection"](#).

2. HEADLAMP ACTIVE TEST

Ⓜ With CONSULT-II

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

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

ACTIVE TEST			
LAMPS	OFF		
		HI	
LO	FOG		
MODE	BACK	LIGHT	COPY

SKIA5774E

ⓧ Without CONSULT-II

1. Start auto active test. Refer to [PG-23, "Auto Active Test"](#).
2. Make sure headlamp high beam operation.

Headlamp high beam should operate.

OK or NG

OK >> GO TO 3.

NG >> GO TO 4.

3. CHECK IPDM E/R

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

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

DATA MONITOR			
MONITOR			
HL LO REQ	ON		
HL HI REQ	ON		
		RECORD	
MODE	BACK	LIGHT	COPY

PKIA7638E

OK or NG

OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#).

NG >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#).

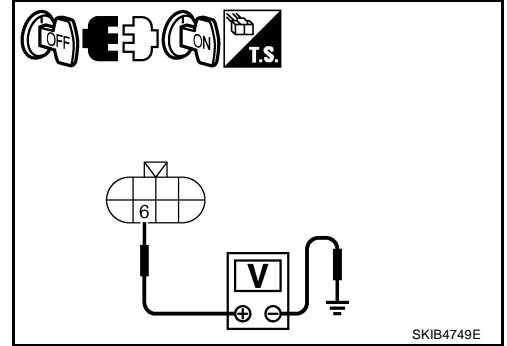
HEADLAMP (FOR USA) - XENON TYPE -

4. CHECK HEADLAMP INPUT SIGNAL

 With CONSULT-II

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

Terminal			(-)	Voltage (Approx.)
(+)		Terminal		
Front combination lamp connector				Ground
RH	E47	6		
LH	E54	6		



 Without CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp 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.

Terminal			(-)	Voltage (Approx.)
(+)		Terminal		
Front combination lamp connector				Ground
RH	E47	6		
LH	E54	6		

OK or NG

- OK >> GO TO 5.
 NG >> GO TO 7.

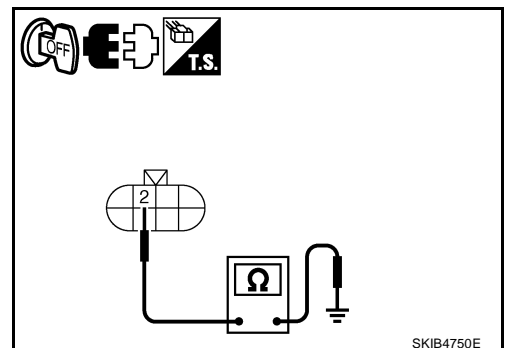
5. CHECK HEADLAMP GROUND

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

Front combination lamp connector		Terminal	Ground	Continuity
RH	E47	2		Ground
LH	E54	2		

OK or NG

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



HEADLAMP (FOR USA) - XENON TYPE -

6. CHECK BULB

Check bulbs of lamp (both side).

OK or NG

OK >> Check connecting condition headlamp harness connector.

NG >> Replace headlamp bulb.

7. CHECK CIRCUIT BETWEEN IPDM E/R AND FRONT COMBINATION LAMP

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

Circuit	A		B		Continuity
	Connector	Terminal	Connector	Terminal	
RH	E7	27	E47	6	Yes
LH		28	E54	6	

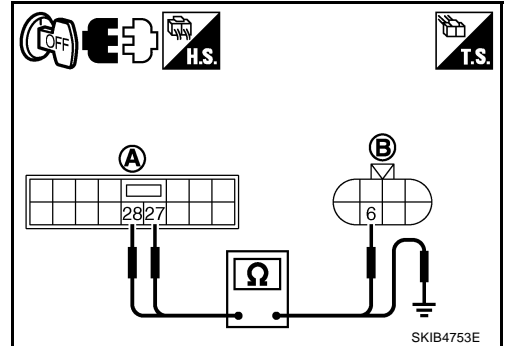
4. Check continuity between IPDM E/R harness connector (A) and ground.

A			Ground	Continuity
Connector	Terminal			
RH	E7	27		No
LH		28		

OK or NG

OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#) .

NG >> Repair harness or connector.



HEADLAMP (FOR USA) - XENON TYPE -

NKS0030X

Headlamp High Beam Does Not Illuminate (One Side)

1. CHECK BULB

Check bulb of lamp which does not illuminate.

OK or NG

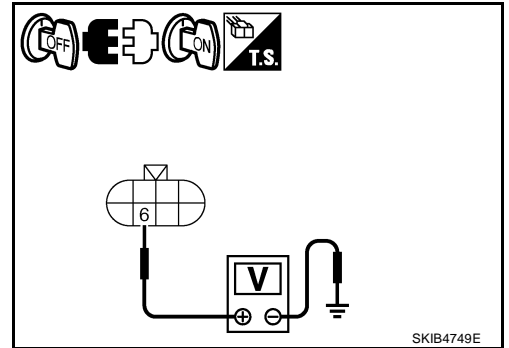
OK >> GO TO 2.

NG >> Replace headlamp bulb.

2. CHECK HEADLAMP INPUT SIGNAL

 With CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH or LH connector.
3. Select "IPDM E/R" on CONSULT-II. 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 or LH harness connector and ground. (Headlamp high beam repeats ON-OFF every 1 second.)



Terminal			(-)	Voltage (Approx.)
(+)				
Front combination lamp connector		Terminal	Ground	Battery voltage
RH	E47	6		
LH	E54	6		

 Without CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH or 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 or LH harness connector and ground.

Terminal			(-)	Voltage (Approx.)
(+)				
Front combination lamp connector		Terminal	Ground	Battery voltage
RH	E47	6		
LH	E54	6		

OK or NG

OK >> GO TO 3.

NG >> GO TO 4.

HEADLAMP (FOR USA) - XENON TYPE -

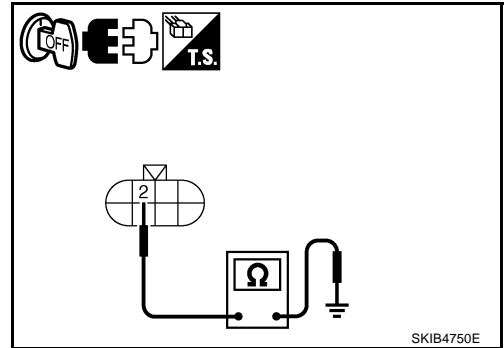
3. CHECK HEADLAMP GROUND

1. Turn ignition switch OFF.
2. Check continuity between front combination lamp RH or LH harness connector and ground.

Front combination lamp connector		Terminal	Ground	Continuity
RH	E47	2		Yes
LH	E54	2		

OK or NG

- OK >> Check connecting condition headlamp harness connector.
 NG >> Repair harness or connector.



4. CHECK CIRCUIT BETWEEN IPDM E/R AND FRONT COMBINATION LAMP

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 (A) and front combination lamp RH or LH harness connector (B).

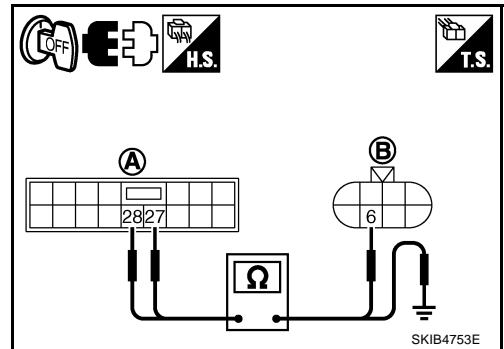
Circuit	A		B		Continuity
	Connector	Terminal	Connector	Terminal	
RH	E7	27	E47	6	Yes
LH		28	E54	6	

4. Check continuity between IPDM E/R harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
RH	E7	27	No
LH		28	

OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#) .
 NG >> Repair harness or connector.



High Beam Indicator Lamp Does Not Illuminate

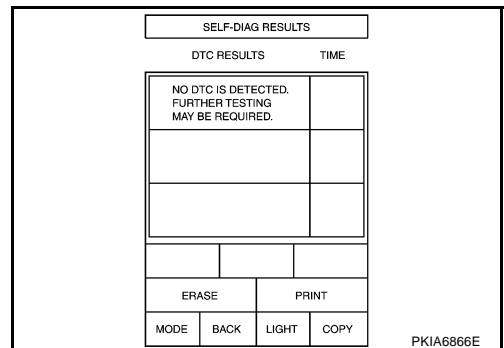
NKS0030Y

1. CHECK UNIFIED METER AND A/C AMP.

1. Select "METER A/C AMP" on CONSULT-II, and perform self-diagnosis for "METER A/C AMP".
2. Check if malfunction is indicated.

Is malfunction indicated?

- YES >> Repair or replace malfunctioning parts.
 NO >> GO TO 2.



HEADLAMP (FOR USA) - XENON TYPE -

2. CHECK COMBINATION METER INPUT SIGNAL

1. Select "METER A/C AMP" on CONSULT-II.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "HI-BEAM IND" turns ON-OFF linked with operation of lighting switch.

When lighting switch is in the HIGH BEAM position : HI-BEAM IND ON

OK or NG

- OK >> Replace combination meter. Refer to [DI-27, "Disassembly and Assembly of Combination Meter"](#).
- NG >> Replace unified meter and A/C amp. Refer to [DI-38, "Removal and Installation of Unified Meter and A/C Amp."](#).

DATA MONITOR			
MONITOR		NO DTC	
HI-BEAM IND		ON	
		RECORD	
MODE	BACK	LIGHT	COPY

PKID0081E

Headlamp Low Beam Does Not Illuminate (Both Sides)

NKS0030Z

1. CHECK COMBINATION SWITCH INPUT SIGNAL

☑ With CONSULT-II

1. Select "BCM" on CONSULT-II. Select "HEAD LAMP" on "SELECT TEST ITEM" screen.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "HEAD LAMP SW 1" and "HEAD LAMP SW 2" turns ON-OFF linked with operation of lighting switch.

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

☒ Without CONSULT-II

Refer to [LT-239, "Combination Switch Inspection"](#).

OK or NG

- OK >> GO TO 2.
- NG >> Check combination switch (lighting switch). Refer to [LT-239, "Combination Switch Inspection"](#).

DATA MONITOR			
MONITOR			
HEAD LAMP SW1		ON	
HEAD LAMP SW2		ON	
		RECORD	
MODE	BACK	LIGHT	COPY

PKIA7586E

2. HEADLAMP ACTIVE TEST

☑ With CONSULT-II

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

Headlamp low beam should operate.

☒ Without CONSULT-II

1. Start auto active test. Refer to [PG-23, "Auto Active Test"](#).
2. Make sure headlamp low beam operation.

Headlamp low beam should operate.

OK or NG

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

ACTIVE TEST			
LAMPS		OFF	
		HI	
LO		FOG	
MODE	BACK	LIGHT	COPY

SKIA5774E

HEADLAMP (FOR USA) - XENON TYPE -

3. CHECK IPDM E/R

1. Select "IPDM E/R" on CONSULT-II. 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 : HL LO REQ ON position

DATA MONITOR			
MONITOR			
HL LO REQ		ON	
		RECORD	
MODE	BACK	LIGHT	COPY

PKIA7644E

OK or NG

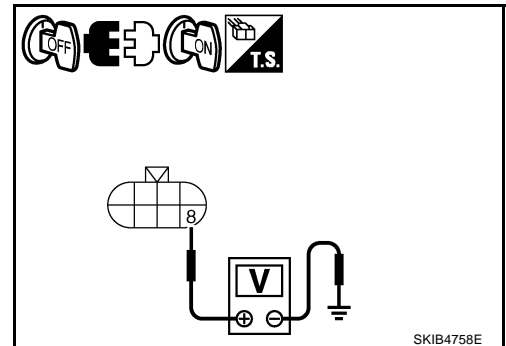
- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#).
- NG >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#).

4. CHECK HEADLAMP INPUT SIGNAL

☑ With CONSULT-II

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

Terminal			(-)	Voltage (Approx.)
(+)		terminal		
Front combination lamp connector				Ground
RH	E47	8		
LH	E54	8		



☒ 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.

Terminal			(-)	Voltage (Approx.)
(+)		terminal		
Front combination lamp connector				Ground
RH	E47	8		
LH	E54	8		

OK or NG

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

HEADLAMP (FOR USA) - XENON TYPE -

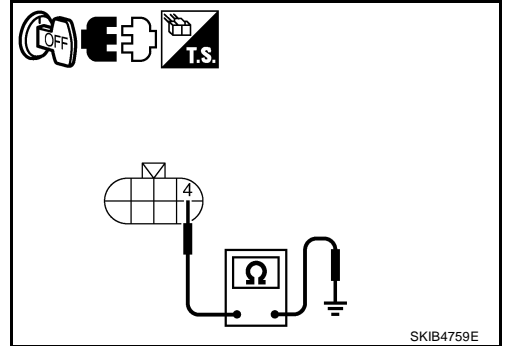
5. CHECK HEADLAMP GROUND

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

Front combination lamp connector		Terminal	Ground	Continuity
RH	E47	4		Yes
LH	E54	4		

OK or NG

- OK >> Check headlamp harness and connectors, ballasts (HID control unit), and xenon bulbs. Refer to [LT-71, "Xenon Headlamp Trouble Diagnosis"](#) .
- NG >> Repair harness or connector.



6. CHECK CIRCUIT BETWEEN IPDM E/R AND FRONT COMBINATION LAMP

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

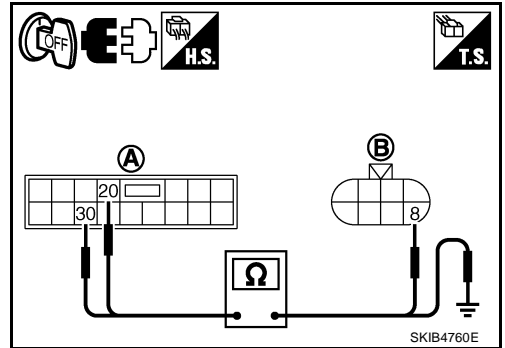
Circuit	A		B		Continuity
	Connector	Terminal	Connector	Terminal	
RH	E7	20	E47	8	Yes
LH		30	E54	8	

4. Check continuity between IPDM E/R harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
RH	E7	20	No
LH		30	

OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#) .
- NG >> Repair harness or connector.



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HEADLAMP (FOR USA) - XENON TYPE -

NKS003P0

Headlamp Low Beam Does Not Illuminate (One Side)

1. CHECK BULB

Check ballast (HID control unit) and xenon bulb of lamp which does not illuminate. Refer to [LT-71, "Xenon Headlamp Trouble Diagnosis"](#).

OK or NG

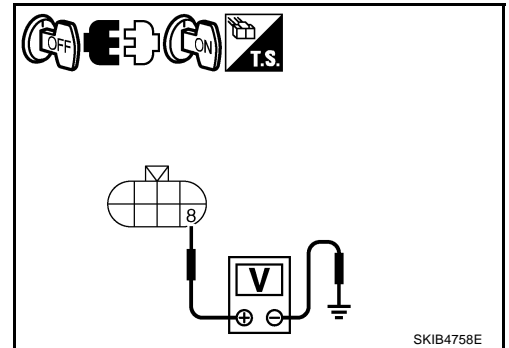
- OK >> GO TO 2.
- NG >> Repair malfunctioning part.

2. CHECK HEADLAMP INPUT SIGNAL

With CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH or LH connector.
3. Select "IPDM E/R" on CONSULT-II. 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 or LH harness connector and ground.

Terminal			(-)	Voltage (Approx.)
(+)		terminal		
Front combination lamp connector				
RH	E47	8	Ground	Battery voltage
LH	E54	8		



Without CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH or 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 or LH harness connector and ground.

Terminal			(-)	Voltage (Approx.)
(+)		terminal		
Front combination lamp connector				
RH	E47	8	Ground	Battery voltage
LH	E54	8		

OK or NG

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

HEADLAMP (FOR USA) - XENON TYPE -

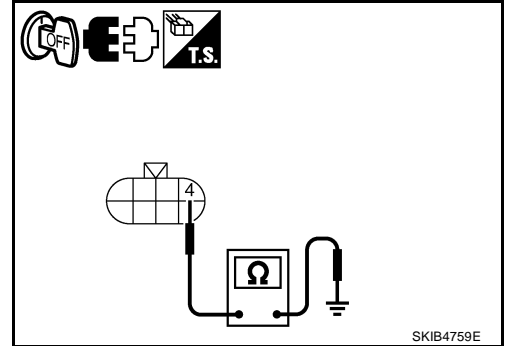
3. CHECK HEADLAMP GROUND

1. Turn ignition switch OFF.
2. Check continuity between front combination lamp RH or LH harness connector and ground.

Front combination lamp connector		Terminal	Ground	Continuity
RH	E47	4		Yes
LH	E54	4		

OK or NG

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



4. CHECK CIRCUIT BETWEEN IPDM E/R AND FRONT COMBINATION LAMP

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

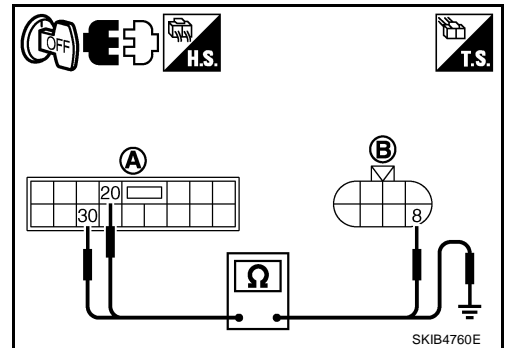
Circuit	A		B		Continuity
	Connector	Terminal	Connector	Terminal	
RH	E7	20	E47	8	Yes
LH		30	E54	8	

4. Check continuity between IPDM E/R harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
RH	E7	20	No
LH		30	

OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#) .
 NG >> Repair harness or connector.



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HEADLAMP (FOR USA) - XENON TYPE -

NKS003P1

Headlamps Do Not Turn OFF

1. CHECK HEADLAMP TURN OFF

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

OK or NG

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

2. CHECK COMBINATION SWITCH INPUT SIGNAL

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

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

OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#).
- NG >> Check combination switch (lighting switch). Refer to [LT-239, "Combination Switch Inspection"](#).

DATA MONITOR			
MONITOR			
HEAD LAMP SW1	OFF		
HEAD LAMP SW2	OFF		
		Page Down	
		RECORD	
MODE	BACK	LIGHT	COPY

PKIA7588E

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

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

Display of self-diagnosis results

- NO DTC>> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#).
- CAN COMM CIRCUIT>> Refer to [BCS-13, "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#).

SELF-DIAG RESULTS			
DTC RESULTS		TIME	
CAN COMM CIRCUIT [U1000]			
ERASE		PRINT	
MODE	BACK	LIGHT	COPY

PKIA7627E

HEADLAMP (FOR USA) - XENON TYPE -

General Information for Xenon Headlamp Trouble Diagnosis

NKS003P2

In most cases, malfunction of xenon headlamp - "does not illuminate", "flickers" or "dark" - is caused by a malfunctioning xenon bulb. A HID control unit or lamp housing, however, may be a cause of malfunction. Be sure to perform trouble diagnosis following the steps described below.

Caution:

NKS003P3

- Installation or removal of connector must be done with lighting switch OFF.
- Disconnect the battery cable from the negative terminal or remove power fuse.
- When the lamp is illuminated (when lighting switch is ON), never touch harness, HID control unit, inside of lamp, or lamp metal parts.
- To check illumination, temporarily install lamp in vehicle. Be sure to connect power at vehicle side connector.
- If error can be traced directly to electrical system, first check for items such as blown fuses and fusible links, broken wires or loose connectors, dislocated terminals, and improper connections.
- Never work with wet hands.
- Using a tester for HID control unit circuit trouble diagnosis is prohibited.
- Disassembling HID control unit or harnesses (bulb socket harness, ECM harness) is prohibited.
- Immediately after illumination, light intensity and color will fluctuate, but there is nothing wrong.
- When bulb has come to end of its life, brightness will drop significantly, it will flash repeatedly, or light color will turn reddish.

Xenon Headlamp Trouble Diagnosis

NKS003P4

1. CHECK 1: XENON HEADLAMP LIGHTING

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

OK or NG

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

2. CHECK 2: XENON HEADLAMP LIGHTING

Install normal HID control unit to corresponding xenon headlamp, and check if lamp lights up.

OK or NG

- OK >> Replace HID control unit.
- NG >> GO TO 3.

3. CHECK 3: XENON HEADLAMP LIGHTING

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

OK or NG

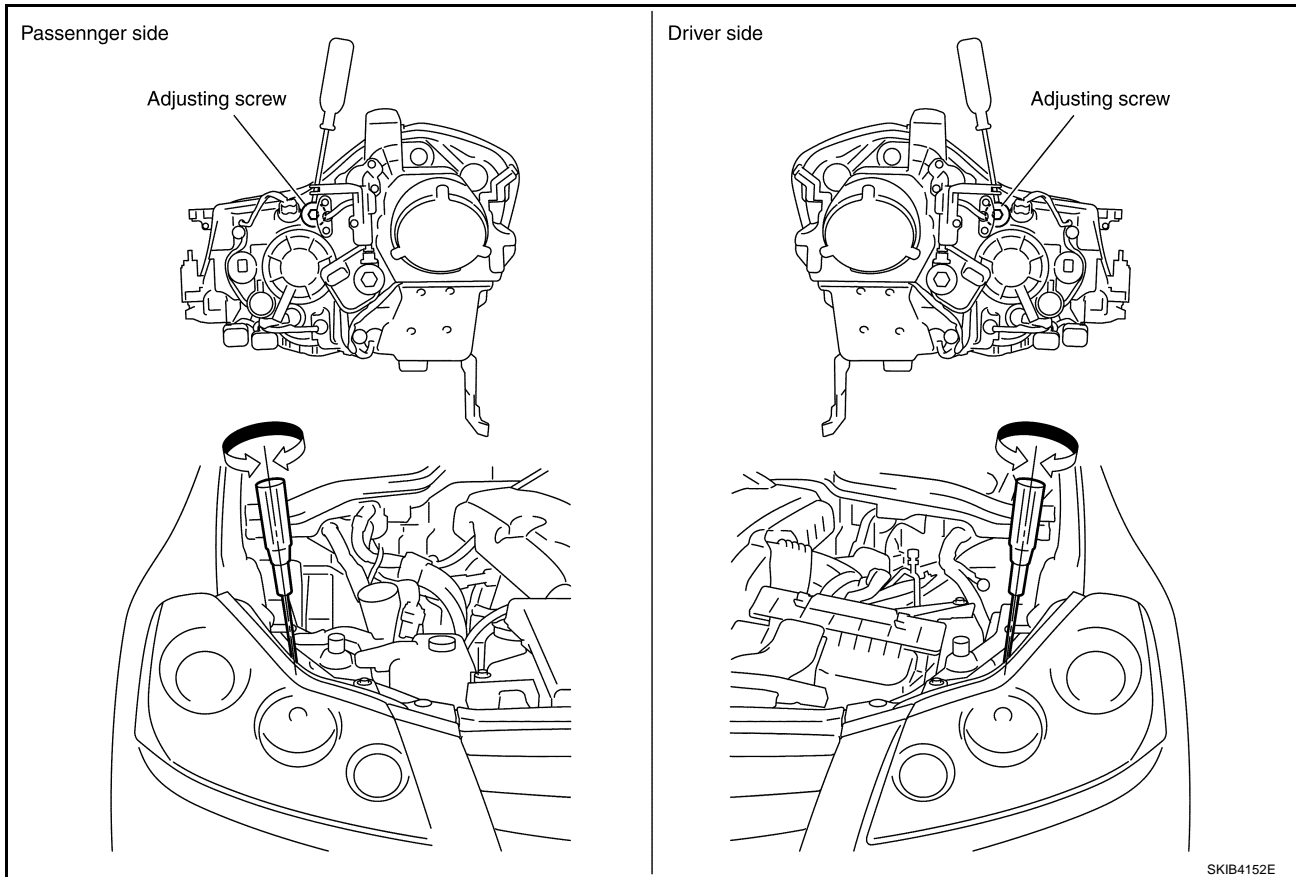
- OK >> Replace xenon headlamp housing assembly.
- NG >> INSPECTION END

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HEADLAMP (FOR USA) - XENON TYPE -

Aiming Adjustment

NKS003P5



PREPARATION BEFORE ADJUSTING

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

Before performing aiming adjustment, check the following.

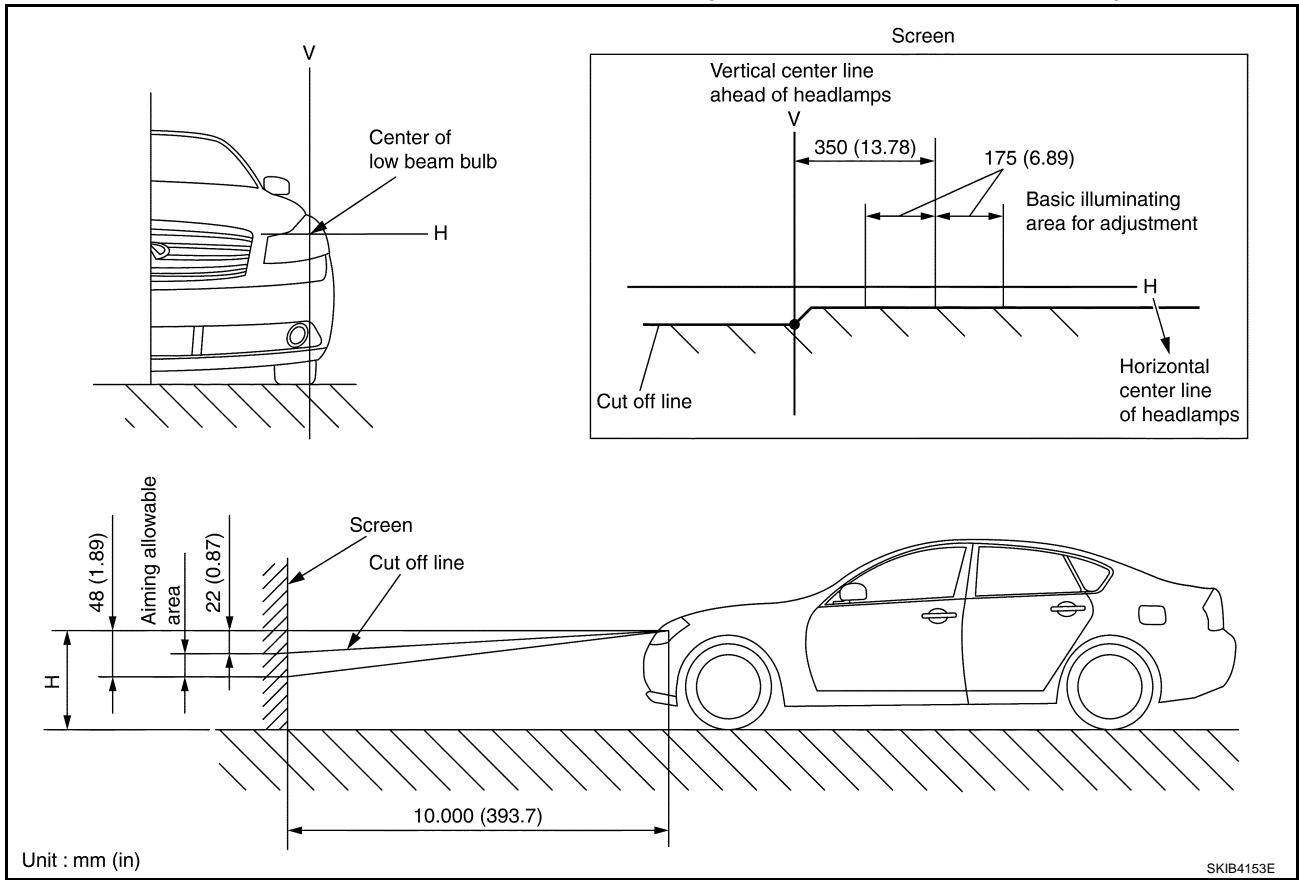
1. Keep all tires inflated to correct pressures.
2. Place vehicle on flat surface.
3. Set that there is no-load in vehicle other than the driver (or equivalent weight placed in driver's position).
Coolant, engine oil filled up to correct level and full fuel tank.

LOW BEAM AND HIGH BEAM

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

HEADLAMP (FOR USA) - XENON TYPE -

ADJUSTMENT USING AN ADJUSTMENT SCREEN (LIGHT/DARK BORDERLINE)



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

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

Bulb Replacement HEADLAMP (INNER) HIGH BEAM

NKS003P6

LT

1. Turn lighting switch OFF.
2. Disconnect negative battery cable or remove circuit fuse.
3. Remove air cleaner case when replacing bulb LH. Refer to [EM-19, "Removal and Installation"](#) (VQ35) or [EM-177, "Removal and Installation"](#) (VK45).
4. Remove washer tank inlet when replacing bulb RH. Refer to [WW-48, "Removal and Installation of Washer Tank"](#).
5. Turn plastic cap counterclockwise and unlock it.
6. Turn bulb socket counterclockwise and unlock it.
7. Disconnect connector, and remove bulb.

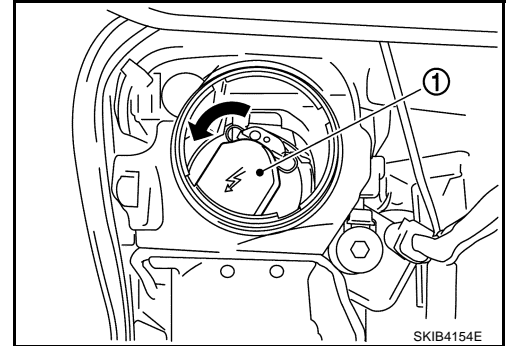
Headlamp (inner) high beam : 12V - 60W (HB3)

HEADLAMP (FOR USA) - XENON TYPE -

HEADLAMP (OUTER) LOW BEAM

1. Turn lighting switch OFF.
2. Disconnect negative battery cable or remove circuit fuse.
3. Remove fender protector (front). Refer to [EI-20, "Removal and Installation"](#) .
4. Turn plastic cap counterclockwise and unlock it.
5. Turn bulb socket (1) counterclockwise and unlock it.
6. Unlock retaining spring and remove bulb from headlamp.

Headlamp (outer) low beam : 12V - 35W (D2S)



PARKING LAMP

1. Turn bulb socket counterclockwise and unlock it.
2. Remove bulb from its socket.

Parking lamp : 12V - 5W

FRONT TURN SIGNAL LAMP

1. Remove washer tank inlet when replacing bulb RH. Refer to [WW-48, "Removal and Installation of Washer Tank"](#) .
2. Remove air cleaner case when replacing bulb LH. Refer to [EM-19, "Removal and Installation"](#) (VQ35) or [EM-177, "Removal and Installation"](#) (VK45).
3. Turn bulb socket counterclockwise and unlock it.
4. Remove bulb from its socket.

Front turn signal lamp : 12V - 21W

FRONT SIDE MARKER LAMP

1. Turn off the fender protector (front) to obtain work space between the fender protector and fender.
2. Turn bulb socket counterclockwise and unlock it.
3. Remove bulb from its socket.

Front side marker lamp : 12V - 5W

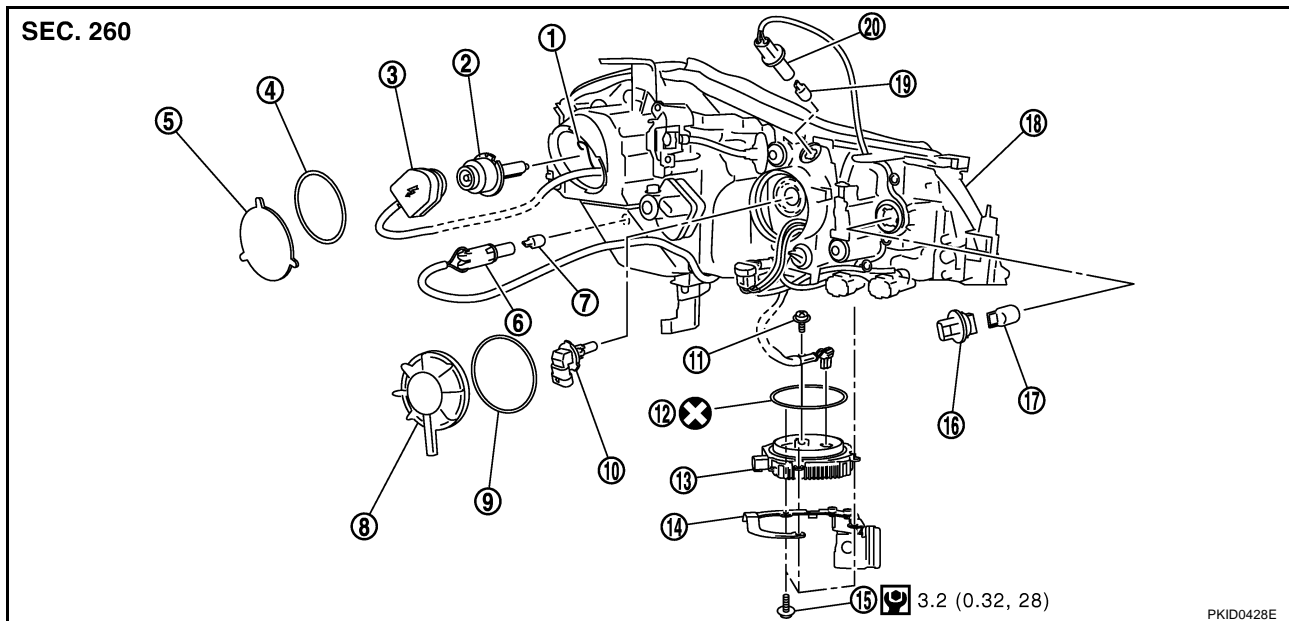
CAUTION:

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


HEADLAMP (FOR USA) - XENON TYPE -


Disassembly and Assembly

NKS003P8



- | | | |
|--|---------------------------------|---------------------------------|
| 1. Retaining spring | 2. Xenon bulb (low) | 3. Xenon bulb socket (low) |
| 4. Seal packing | 5. Plastic cap | 6. Side marker lamp bulb socket |
| 7. Side marker lamp bulb | 8. Plastic cap | 9. Seal packing |
| 10. Halogen bulb (high) | 11. Screw | 12. Seal packing |
| 13. HID control unit | 14. Bracket | 15. Screw |
| 16. Front turn signal lamp bulb socket | 17. Front turn signal lamp bulb | 18. Headlamp housing assembly |
| 19. Parking lamp bulb | 20. Parking lamp bulb socket | |

 : N·m (kg·m, in·lb)

 : Always replace after every disassembly.

DISASSEMBLY

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

HEADLAMP (FOR USA) - XENON TYPE -

ASSEMBLY

Note the following, and installation is the reverse order of removal.

HID control unit mounting screw  : 3.2 N·m (0.32 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

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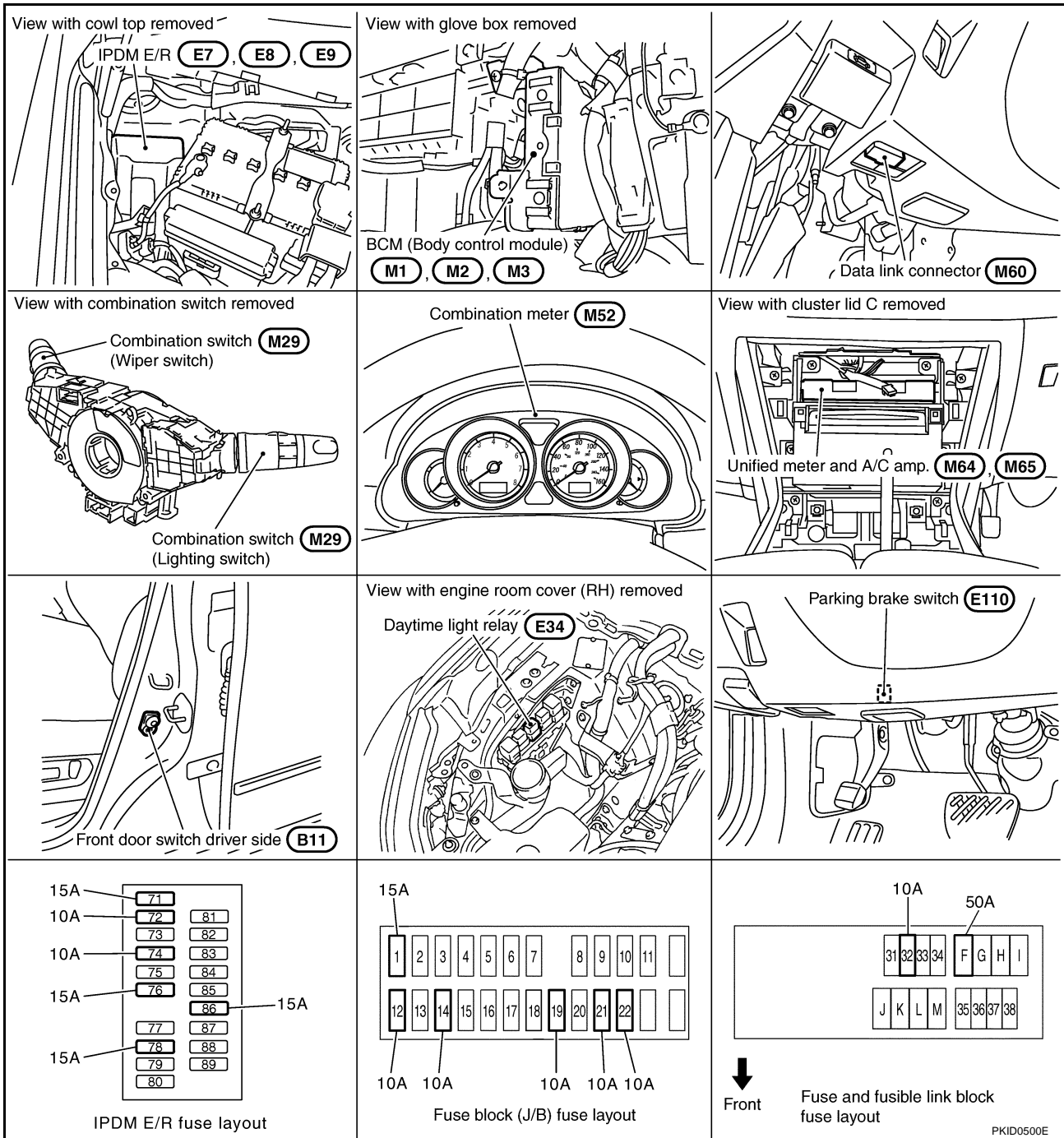
HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

PFP:26010

Component Parts and Harness Connector Location

NKS003P9



System Description

NKS003PA

DAYTIME LIGHT SYSTEM turns on daytime light lamps while driving. Daytime light lamps are not turned on if engine is activated with parking brake on. Take off parking brake to turn on daytime light lamps. The lamps turn off when lighting switch is in the 2ND position or AUTO position (Head lamp is "ON") and when lighting switch is in the PASSING position. (Daytime light lamps are not turned off only by parking brake itself.) A parking brake signal and engine run or stop signal are sent to BCM (body control module) by CAN communication line, and control daytime light system.

HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

OUTLINE

Power is supplied at all times

- to headlamp high relay, located in IPDM E/R (intelligent power distribution module engine room) and
- to headlamp low relay, located in IPDM E/R, from battery direct,
- through 15A fuse (No. 71, located in IPDM E/R)
- to CPU (central processing unit), located in IPDM E/R,
- through 15A fuse (No. 78, located in IPDM E/R)
- to CPU, located in IPDM E/R,
- through 50A fusible link (letter F, located in fuse and fusible link block)
- to BCM terminal 55,
- through 10A fuse [No. 21, located in fuse block (J/B)]
- to BCM terminal 42 and
- to combination meter terminal 23,
- through 10A fuse (No. 32, located in IPDM E/R)
- to daytime light relay terminals 2 and 5,
- through 10A fuse [No. 19, located in fuse block (J/B)]
- to unified meter and A/C amp. terminal 54,
- through 10A fuse [No. 22, located in fuse block (J/B)]
- to key slot terminal 1.

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

- to CPU, located in IPDM E/R,
- through 15A fuse [No. 1, located in fuse block (J/B)]
- to BCM terminal 38,
- through 10A fuse [No. 14, located in fuse block (J/B)]
- to combination meter terminal 12,
- through 10A fuse [No. 12, located in fuse block (J/B)]
- to unified meter and A/C amp. terminal 53.

Ground is supplied

- to BCM terminal 52
- to combination meter terminals 9, 10, and 11
- to unified meter and A/C amp. terminal 55 and 71
- to push-button ignition switch (push switch) terminal 1
- to key slot terminal 8
- through grounds M16 and M70,
- to IPDM E/R terminals 38 and 51
- through grounds E22 and E43.

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HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

HEADLAMP OPERATION

Low Beam Operation

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

- through 15A fuse (No. 76, located in IPDM E/R)
- through IPDM E/R terminal 20
- to front combination lamp RH terminal 8,
- through 15A fuse (No. 86, located in IPDM E/R)
- through IPDM E/R terminal 30
- to front combination lamp LH terminal 8.

Ground is supplied

- to front combination lamp RH terminal 4
- to front combination lamp LH terminal 4
- through grounds E22 and E43.

With power and ground supplied, low beam headlamps illuminate.

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

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

- through 10A fuse (No. 72, located in IPDM E/R)
- through IPDM E/R terminal 27
- through front combination lamp RH terminals 6 and 2
- to daytime light relay terminal 3,
- through 10A fuse (No. 74, located in IPDM E/R)
- through IPDM E/R terminal 28
- to front combination lamp LH terminal 6,
- through 15A fuse (No. 76, located in IPDM E/R)
- through IPDM E/R terminal 20
- to front combination lamp RH terminal 8,
- through 15A fuse (No. 86, located in IPDM E/R)
- through IPDM E/R terminal 30
- to front combination lamp LH terminal 8.

Ground is supplied

- to daytime light relay terminal 4
- to front combination lamp RH terminal 4
- to front combination lamp LH terminal 2
- to front combination lamp LH terminal 4
- through grounds E22 and E43.

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

High beam indicator illuminates when combination meter receives input signal requesting high beam indicator to illuminate. This is communicated to BCM across the CAN communication lines.

HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

DAYTIME LIGHT OPERATION

With the engine running, the lighting switch in the OFF or AUTO position (headlamp is not illuminate) and parking brake released, the IPDM E/R receives input request signal from BCM to turn on daytime light. This input is communicated across the CAN communication lines. The CPU of the IPDM E/R controls the daytime light relay coil. When energized, this relay directs power

- through daytime light relay terminals 5 and 3
- through front combination lamp RH terminal 2
- through front combination lamp RH terminal 6
- through IPDM E/R terminal 27
- through 10A fuse (No. 72, located in IPDM E/R)
- through 10A fuse (No. 74, located in IPDM E/R)
- through IPDM E/R terminal 28
- to front combination lamp LH terminal 6.

Ground is supplied

- to combination lamp LH terminal 2
- through grounds E22 and E43.

With power and grounds supplied, the daytime lights illuminate. The high beam headlamps are now wired in series and illuminate at a reduced intensity.

COMBINATION SWITCH READING FUNCTION

Refer to [BCS-3, "COMBINATION SWITCH READING FUNCTION"](#) .

AUTO LIGHT OPERATION

For auto light operation, refer to [LT-115, "System Description"](#) .

CAN Communication System Description

NKS004HQ

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

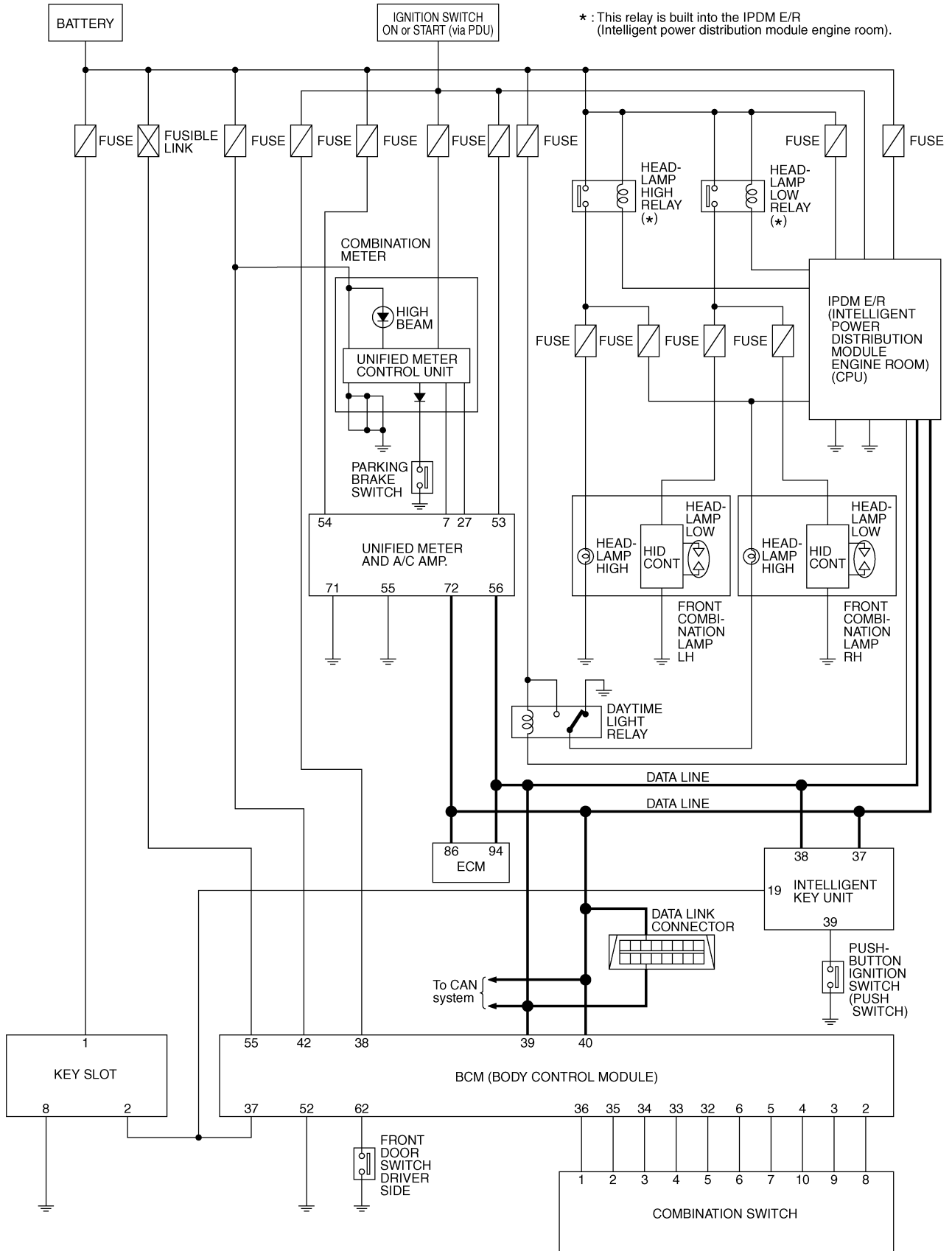
NKS004HR

Refer to [LAN-50, "CAN System Specification Chart"](#) .

HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

Schematic

NKS003PC



TKWT3362E

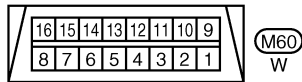
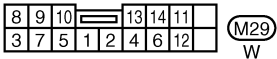
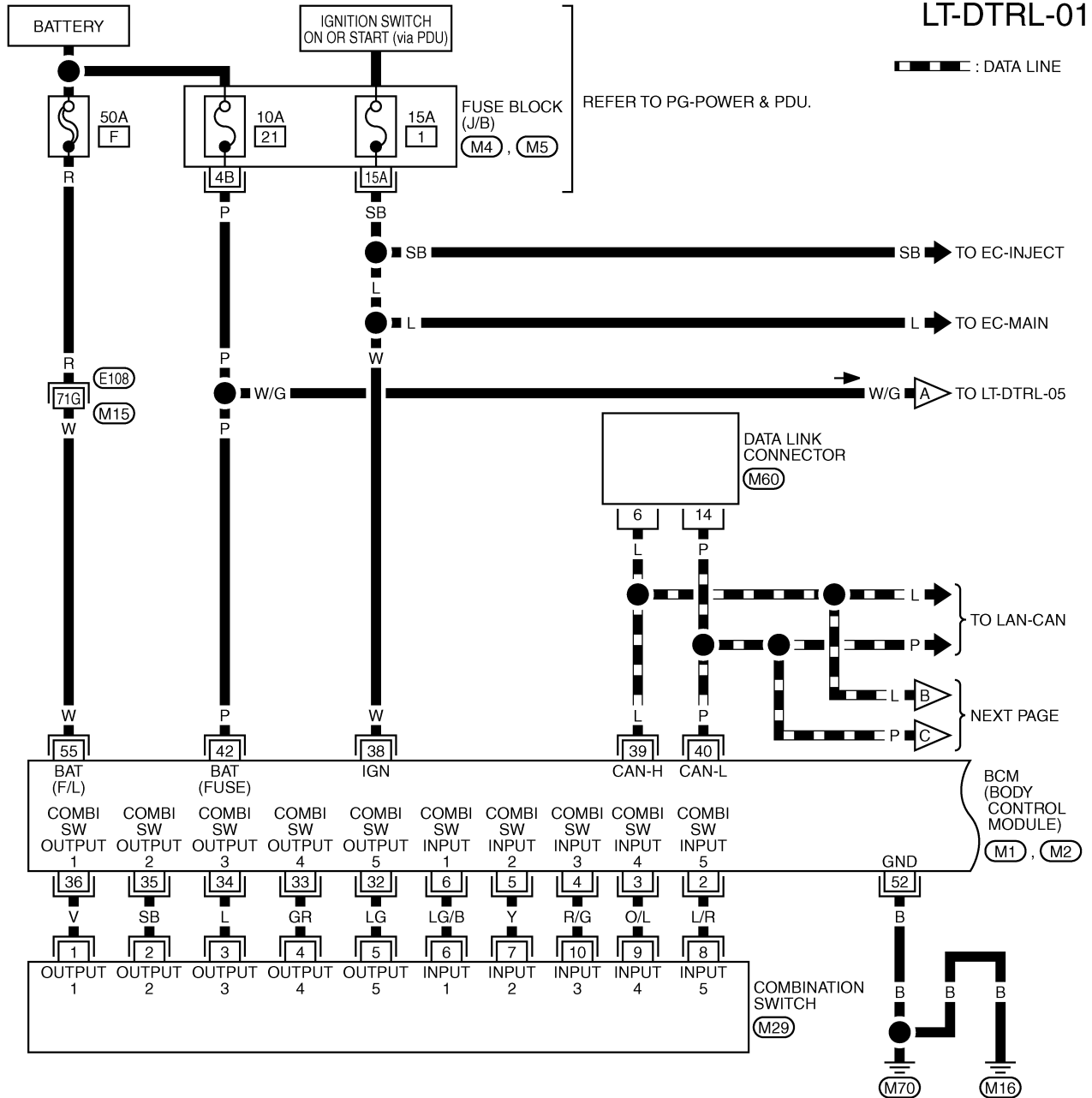
HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

Wiring Diagram — DTRL —

NKS003PD

LT-DTRL-01

▬ : DATA LINE



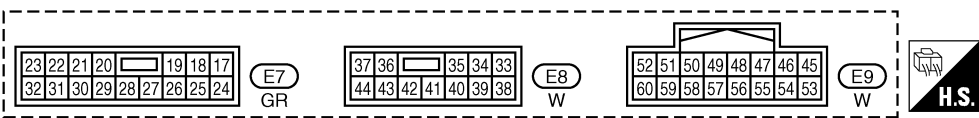
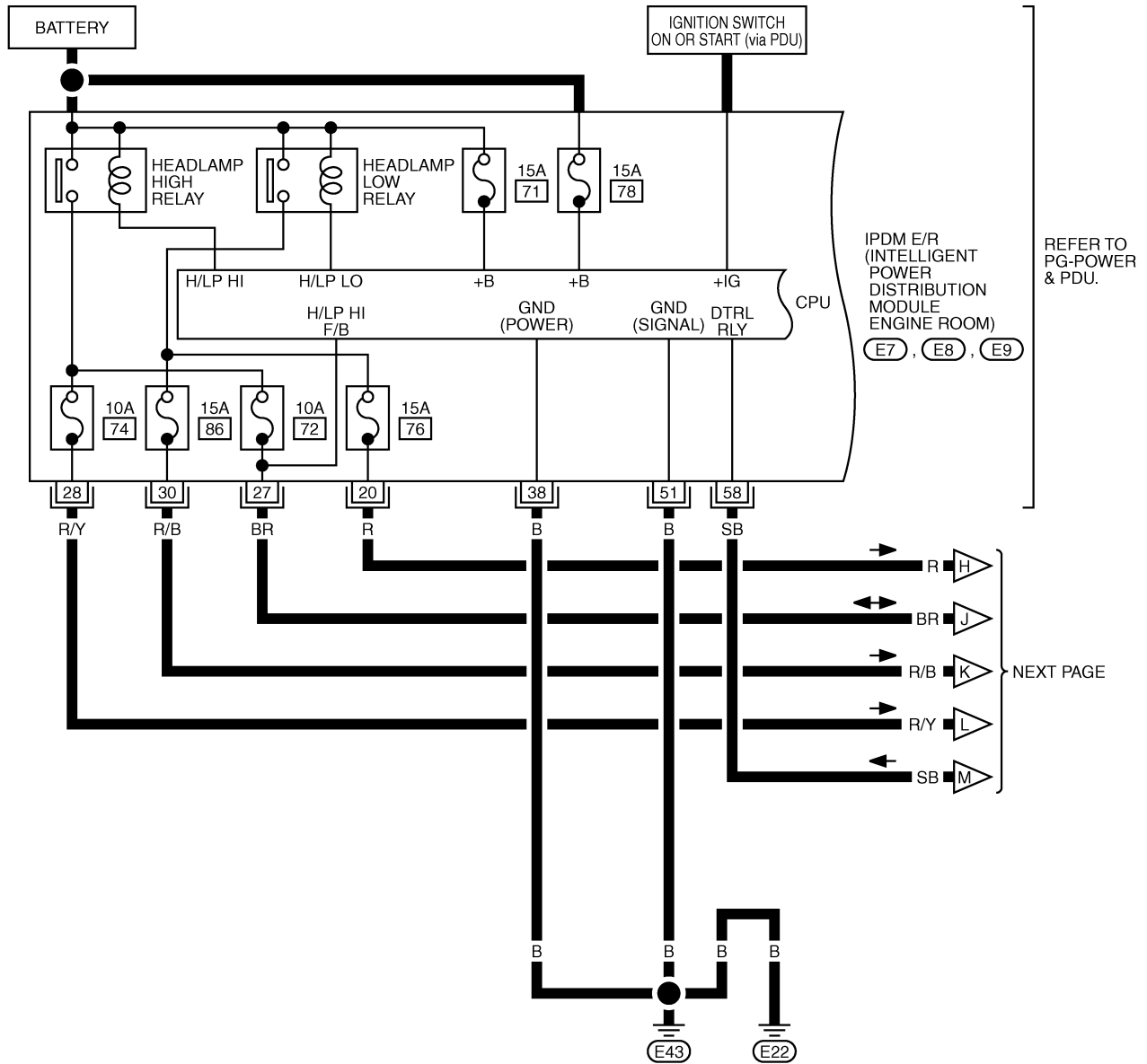
REFER TO THE FOLLOWING.

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

TKWT3363E

HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

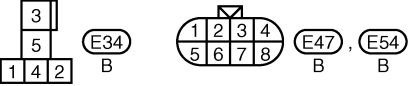
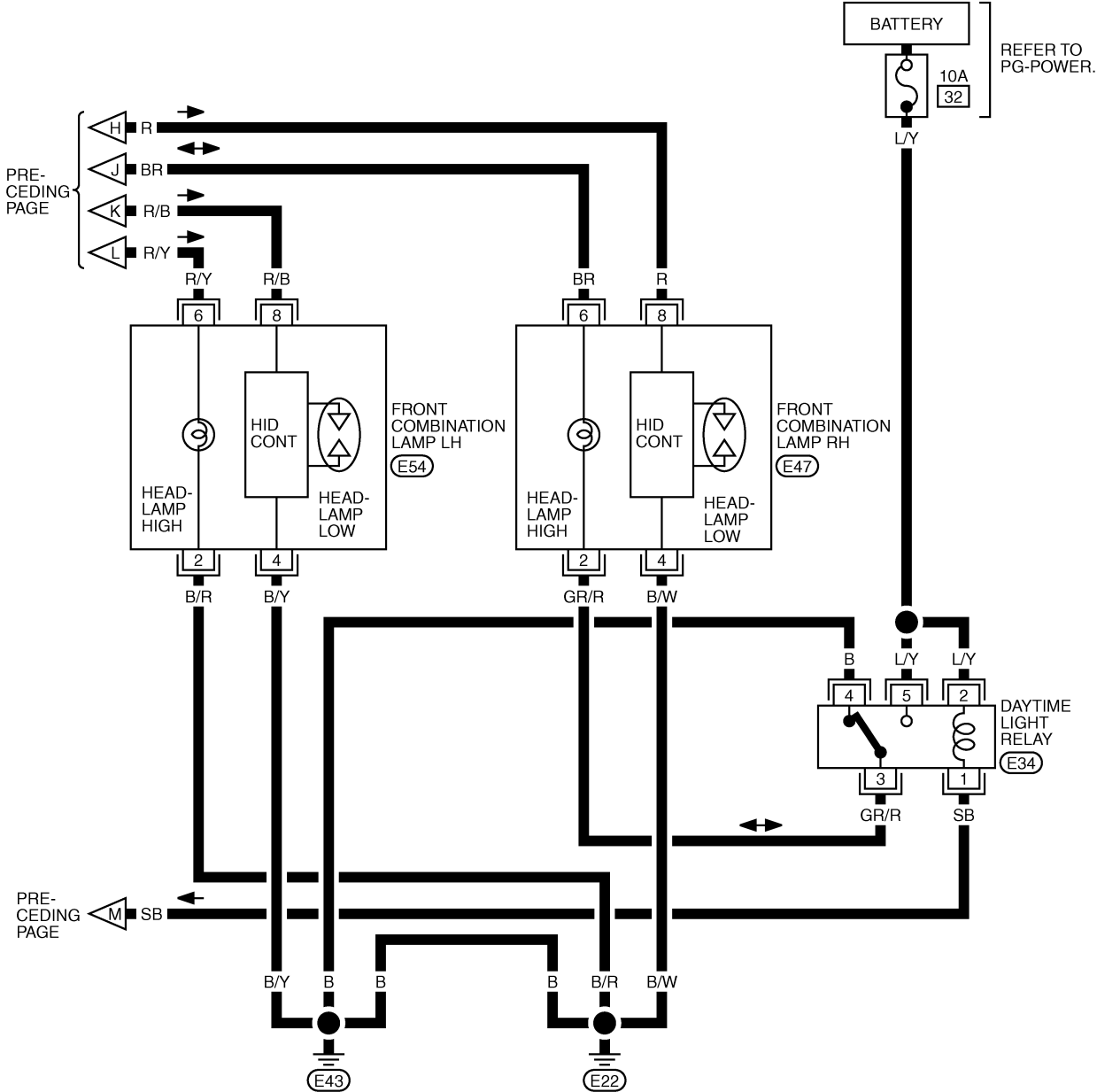
LT-DTRL-03



TKWT5259E

HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

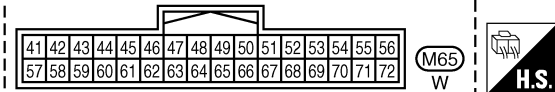
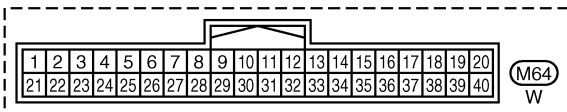
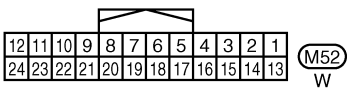
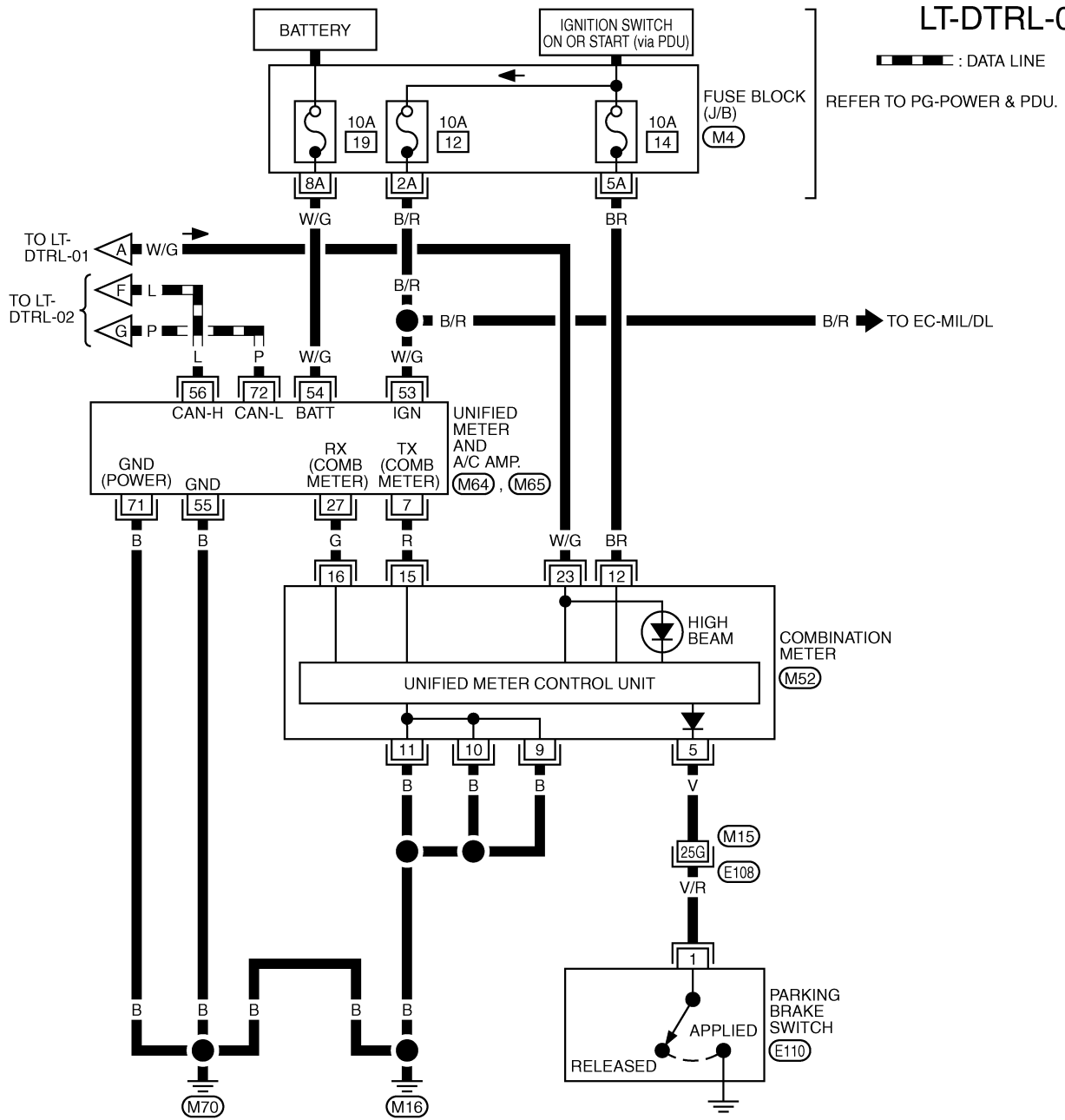
LT-DTRL-04



TKWT3366E

HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

LT-DTRL-05



REFER TO THE FOLLOWING.

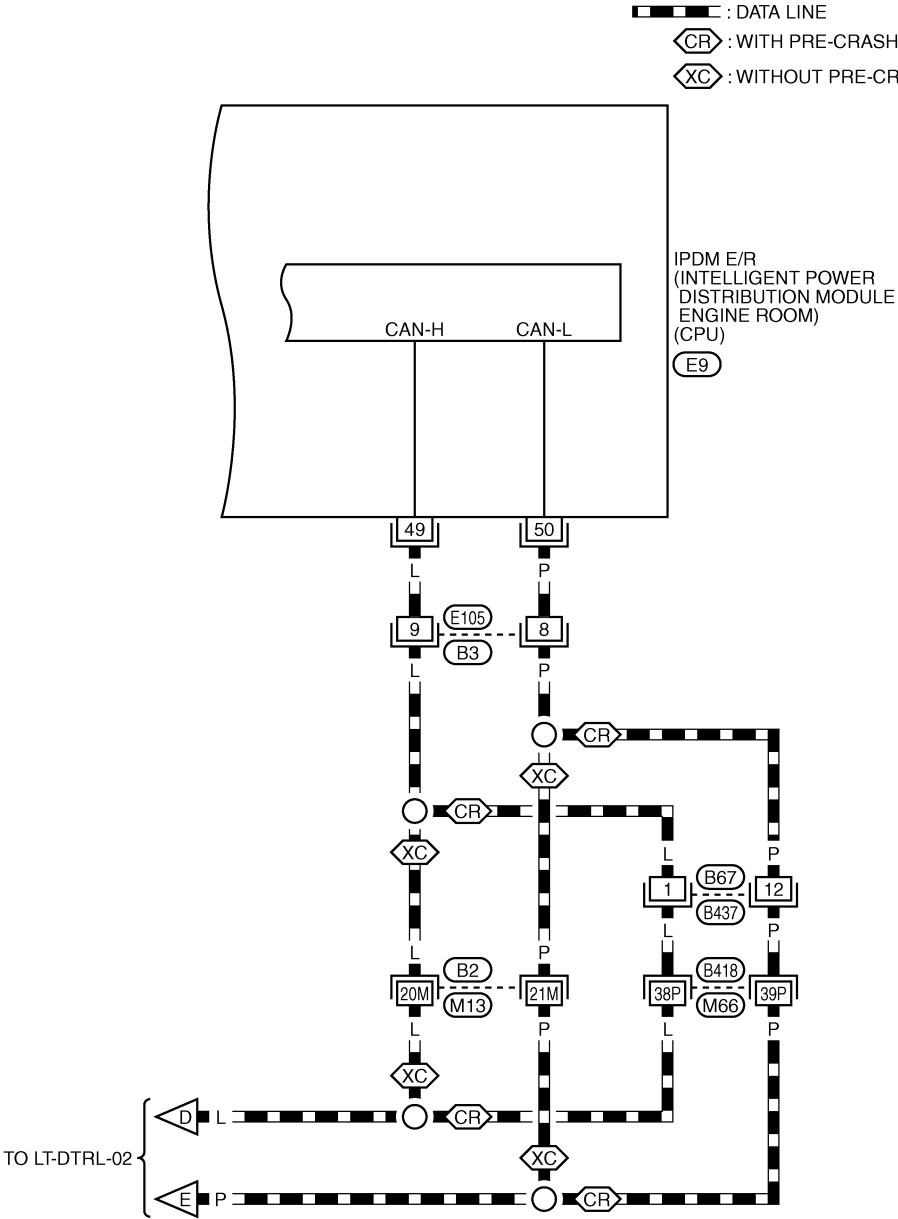
- (E108) -SUPER MULTIPLE JUNCTION (SMJ)
- (M4) -FUSE BLOCK-JUNCTION BOX (J/B)

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HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

LT-DTRL-06



52	51	50	49	48	47	46	45
60	59	58	57	56	55	54	53

(E9)
W



1	2	3	4	5	6	7	8	9	10	11		
12	13	14	15	16	17	18	19	20	21	22	23	24

(B3) , (B437)
W BR

REFER TO THE FOLLOWING.
 (B2) , (B418) -SUPER MULTIPLE
 JUNCTION (SMJ)

TKWT5276E

HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

Terminals and Reference Values for BCM

NKS003PE

CAUTION:

- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF not to be fluctuated by overloaded.
- Turn wiper dial position to 4 except when checking waveform or voltage of wiper dial position. Wiper dial position can be confirmed on CONSULT-II. Refer to [LT-238, "DATA MONITOR"](#).

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
2	L/R	Combination switch input 5	ON	Lighting, turn, wiper switch (Wiper dial position 4)	<p style="text-align: right;">PKIB4957J</p> <p style="text-align: center;">Approx. 1.0 V</p>
				Lighting switch 2ND	<p style="text-align: right;">PKIB4953J</p> <p style="text-align: center;">Approx. 2.0 V</p>
				OFF	Approx. 0 V
3	O/L	Combination switch input 4	ON	Any of several conditions below	<p style="text-align: right;">PKIB4957J</p> <p style="text-align: center;">Approx. 1.0 V</p>
				<ul style="list-style-type: none"> ● Lighting switch 2ND ● Lighting switch PASSING (Operates only PASSING switch) 	
34	L	Combination switch output 3	ON	Any of several conditions below	<p style="text-align: right;">PKIB4958J</p> <p style="text-align: center;">Approx. 1.2 V</p>
				<ul style="list-style-type: none"> ● Lighting switch 2ND ● Lighting switch HI beam (Operates only HI beam switch) 	
				OFF	<p style="text-align: right;">PKIB4960J</p> <p style="text-align: center;">Approx. 7.0 - 7.5 V</p>

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HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

Terminal No.	Wire color	Signal name	Measuring condition		Reference value	
			Ignition switch	Operation or condition		
35	SB	Combination switch output 2	ON	Lighting, turn, wiper switch (Wiper dial position 4)	Any of several conditions below <ul style="list-style-type: none"> ● Lighting switch 2ND ● Lighting switch PASSING (Operates only PASSING switch) 	
					OFF	
37	LG	Key switch signal	OFF	Intelligent Key is inserted into key slot.	Battery voltage	
				Intelligent Key is removed from key slot.	Approx. 0 V	
38	W	Ignition switch (ON)	ON	—	Battery voltage	
39	L	CAN – H	—	—	—	
40	P	CAN – L	—	—	—	
42	P	Battery power supply	OFF	—	Battery voltage	
52	B	Ground	ON	—	Approx. 0 V	
55	W	Battery power supply	OFF	—	Battery voltage	
62	V	Front door switch driver side signal	OFF	Front door switch driver side	ON (open)	Approx. 0 V
					OFF (closed)	

HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

Terminals and Reference Values for IPDM E/R

NKS003PF

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. 0 V
					ON	Battery voltage
27	BR	Headlamp high (RH)	ON	Lighting switch HIGH or PASSING position	OFF	Approx. 0 V
					ON	Battery voltage
				Daytime running light is operating ^{NOTE}		Approx. 6.5 V
28	R/Y	Headlamp high (LH)	ON	Lighting switch HIGH or PASSING position	OFF	Approx. 0 V
					ON	Battery voltage
				Daytime running light is operating ^{NOTE}		Approx. 6.5 V
30	R/B	Headlamp low (LH)	ON	Lighting switch 2ND position	OFF	Approx. 0 V
					ON	Battery voltage
38	B	Ground	ON	—	Approx. 0 V	
49	L	CAN – H	—	—	—	
50	P	CAN – L	—	—	—	
51	B	Ground	ON	—	Approx. 0 V	
58	SB	Daytime light relay signal	ON	Daytime running light is operating ^{NOTE}		Approx. 0 V
				Daytime running light is not operating		Battery voltage

NOTE:

Daytime running light is operating: Lighting switch in OFF position with engine running and parking brake is released.

How to Perform Trouble Diagnosis

NKS003PG

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to [LT-78, "System Description"](#) .
3. Perform the Preliminary Check. Refer to [LT-92, "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

HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

NKS003PH

Preliminary Check INSPECTION FOR POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES AND FUSIBLE LINK

Check for blown fuses and fusible link.

Unit	Power source	Fuse No.
BCM	Battery	F
		21
	Ignition switch ON or START position	1
Daytime light relay	Battery	32

Refer to [LT-83, "Wiring Diagram — DTRL —"](#).

OK or NG

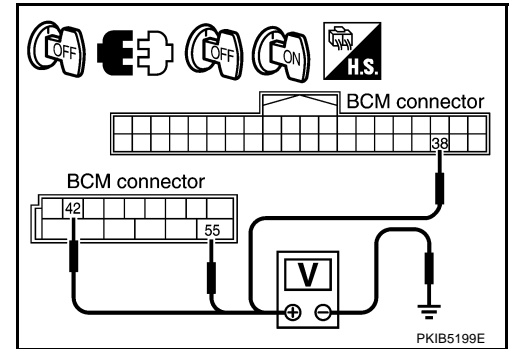
OK >> GO TO 2.

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

2. CHECK POWER SUPPLY CIRCUIT

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

Terminals		Ignition switch position	
(+)		(-)	
BCM connector	Terminal	OFF	ON
M1	38	Ground	Approx. 0 V
			Battery voltage
M2	42	Ground	Battery voltage
	55		Battery voltage



OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

3. CHECK GROUND CIRCUIT

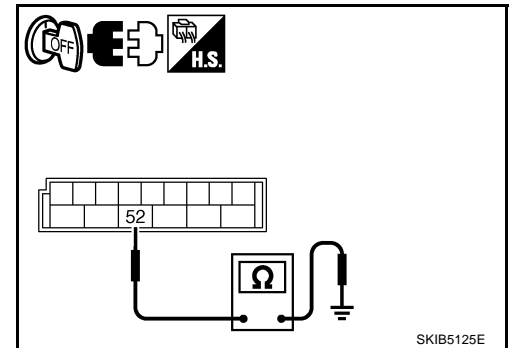
Check continuity between BCM harness connector and ground.

BCM connector	Terminal	Ground	Continuity
M2	52		Yes

OK or NG

OK >> INSPECTION END.

NG >> Repair harness or connector.



HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

INSPECTION FOR PARKING BRAKE SWITCH CIRCUIT

1. CHECK BRAKE INDICATOR

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

OK or NG

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

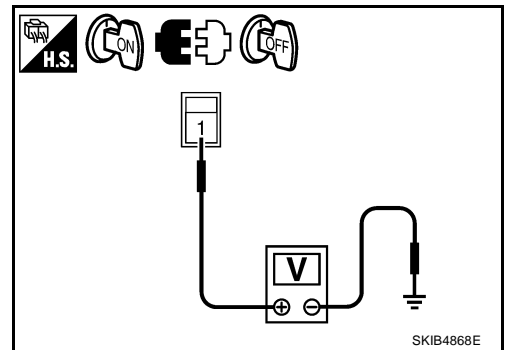
2. CHECK PARKING BRAKE SWITCH SIGNAL

1. Turn ignition switch OFF.
2. Disconnect parking brake switch connector.
3. Turn ignition switch ON.
4. Check voltage between parking brake switch harness connector and ground.

Terminals		(-)	Voltage (Approx.)
(+) Terminal			
Parking brake switch connector	Terminal	Ground	Battery voltage
E110	1		

OK or NG

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



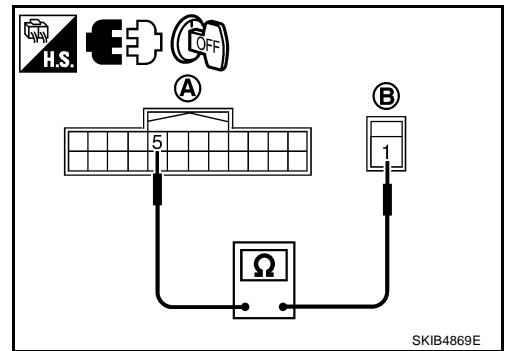
3. CHECK PARKING BRAKE SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector.
3. Check continuity between combination meter harness connector (A) and parking brake switch harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
M52	5	E110	1	Yes

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness or connector.



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HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

CONSULT-II Functions (BCM)

NKS003PI

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

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

NOTE:

Cannot change setting for headlamp.

CONSULT-II BASIC OPERATION

Refer to [GI-38, "CONSULT-II Start Procedure"](#).

DATA MONITOR

Operation Procedure

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

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

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

Display Item List

Monitor item	Contents
IGN ON SW	"ON/OFF" Displays "IGN position (ON)/OFF, ACC position (OFF)" judged from the ignition switch signal.
ACC ON SW	"ON/OFF" Displays "ACC (ON)/OFF, Ignition OFF (OFF)" status judged from ignition switch signal.
KEY ON SW	"ON/OFF" Displays "Intelligent Key inserted into key slot (ON)/Intelligent Key removed from key slot (OFF)" status judged from the key switch signal.
TURN SIGNAL R	"ON/OFF" Displays status (turn right: ON/others: OFF) as judged from lighting switch signal.
TURN SIGNAL L	"ON/OFF" Displays status (turn left: ON/others: OFF) as judged from lighting switch signal.
HI BEAM SW	"ON/OFF" Displays status (high beam switch: ON/others: OFF) of high beam switch judged from lighting switch signal.
HEAD LAMP SW 1	"ON/OFF" Displays status (headlamp switch 1: ON/others: OFF) of headlamp switch 1 judged from lighting switch signal.
HEAD LAMP SW 2	"ON/OFF" Displays status (headlamp switch 2: ON/others: OFF) of headlamp switch 2 judged from lighting switch signal.
TAIL LAMP SW	"ON/OFF" Displays status (lighting switch 1ST or 2ND position: ON/others: OFF) of lighting switch judged from lighting switch signal.
AUTO LIGHT SW	"ON/OFF" Displays status of the lighting switch as judged from the lighting switch signal. (AUTO position: ON/other than AUTO position: OFF)
PASSING SW	"ON/OFF" Displays status (flash-to-passing switch: ON/others: OFF) of flash-to-passing switch judged from lighting switch signal.
FR FOG SW	"ON/OFF" Displays status (front fog lamp switch: ON/others: OFF) of front fog lamp switch judged from lighting switch signal.
DOOR SW - DR	"ON/OFF" Displays status of the driver door as judged from the driver door switch signal. (door is open: ON/door is closed: OFF)

HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

Monitor item	Contents
DOOR SW - AS	"ON/OFF" Displays status of the passenger door as judged from the passenger door switch signal. (door is open: ON/door is closed: OFF)
DOOR SW - RR	"ON/OFF" Displays status of the rear door as judged from the rear door switch (RH) signal. (door is open: ON/door is closed: OFF)
DOOR SW - RL	"ON/OFF" Displays status of the rear door as judged from the rear door switch (LH) signal. (door is open: ON/door is closed: OFF)
BACK DOOR SW ^{NOTE}	"OFF" —
PKB SW	"ON/OFF" Displays status (parking brake released: ON/ parking brake applied: OFF) of parking brake switch judged from parking brake switch signal.
ENGINE RUN	"ON/OFF" Displays status (engine running: ON/ engine stopped: OFF) of engine judged from engine run signal.
I - KEY LOCK	"ON/OFF" Displays "locked (ON)/other (OFF)" status, determined from lock signal.
OPTICAL SENSOR	"0 - 5V" Displays "outside brightness (close to 5 V when light/close to 0 V when dark)" judged from optical sensor signal.
VEHICLE SPEED	"km/h" Displays vehicle speed as judged from vehicle speed signal.

NOTE:

This item is displayed, but cannot be monitored.

ACTIVE TEST

Operation Procedure

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

Display Item List

Test item	Description
TAIL LAMP	Allows tail lamp relay to operate by switching ON-OFF.
FR FOG LAMP	Allows front fog lamp relay to operate by switching ON-OFF.
DAYTIME RUNNING LIGHT	Allows daytime relay to operate by switching ON-OFF.
HEAD LAMP (HI, LO)	Allows headlamp relay to operate by switching ON-OFF.

HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

CONSULT-II Functions (IPDM E/R)

NKS003PJ

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

Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	Refer to PG-20. "SELF-DIAG RESULTS" .
DATA MONITOR	The input/output data of IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE TEST	IPDM E/R sends a drive signal to electronic components to check their operation.

CONSULT-II BASIC OPERATION

Refer to [GI-38. "CONSULT-II Start Procedure"](#) .

DATA MONITOR

Operation Procedure

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

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

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

All Signals, Main Signals, Selection From Menu

Item name	CONSULT-II 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
Front fog lights request	FR FOG REQ	ON/OFF	×	×	×	Signal status input from BCM
Daytime running light request	DTRL 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
Tail lamp relay output	TAIL LAMP	Allows tail lamp relay to operate by switching operation ON-OFF at your option.
Headlamp relay (HI, LO) output	LAMPS	Allows headlamp relay (HI, LO) to operate by switching operation (OFF, HI ON, LO ON) at your option (Headlamp high beam repeats ON-OFF every 1 second).
Front fog lamp relay output		Allows fog lamp relay to operate by switching operation ON-OFF at your option.

HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

Daytime Light Control Does Not Operate Properly (Normal Headlamps Operate Properly)

NKS003PK

1. DAYTIME LIGHT ACTIVE TEST

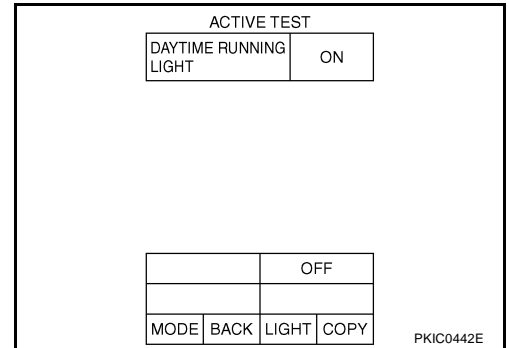
Ⓟ With CONSULT-II

1. Select "BCM" on CONSULT-II, and select "HEAD LAMP" on "SELECT TEST ITEM" screen.
2. Select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Select "DAYTIME RUNNING LIGHT" on "SELECT TEST ITEM" screen.
4. Touch "ON" screen.
5. Make sure daytime light operation.

Daytime light should operate.

OK or NG

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



2. CHECK INPUT SIGNAL

1. Select "BCM" on CONSULT-II. With "HEAD LAMP" data monitor, make sure "ENGINE RUN" turns ON-OFF linked with operation of engine running or stop.

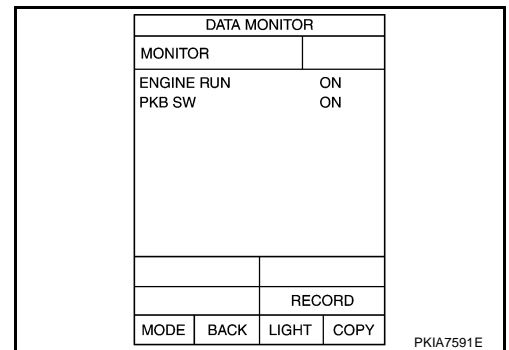
Engine running : ENGINE RUN ON
Engine stop : ENGINE RUN OFF

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

Parking brake ON : PKB SW ON
Parking brake OFF : PKB SW OFF

OK or NG

- OK >> GO TO 3.
NG >> Check BCM CAN communication system. Refer to [BCS-13, "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#).



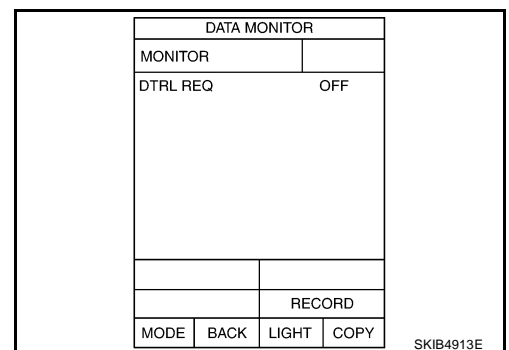
3. CHECK INPUT SIGNAL

1. Start engine and release parking brake. Headlamp switch OFF.
2. Select "IPDM E/R" on CONSULT-II. With data monitor, make sure "DTRL REQ" turns ON-OFF linked with operation of parking brake switch.

Parking brake ON : DTRL REQ ON
Parking brake OFF : DTRL REQ OFF

OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#).
NG >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#).



HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

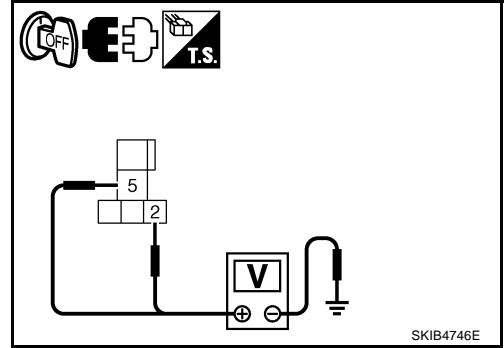
4. CHECK DAYTIME LIGHT RELAY POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Remove daytime light relay.
3. Check voltage between daytime light relay harness connector and ground.

Terminals		(-)	Voltage (Approx.)
(+) Daytime light relay connector			
E34	2	Ground	Battery voltage
	5		

OK or NG

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



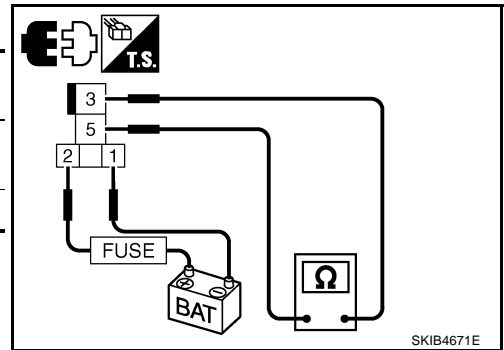
5. CHECK DAYTIME LIGHT RELAY

Check continuity between daytime light relay terminals.

Daytime light relay terminals		Condition	Continuity
3	5	Applying battery voltage to between daytime light relay terminals 1 and 2	Yes
		No battery voltage	No

OK or NG

- OK >> GO TO 6.
 NG >> Replace daytime light relay.



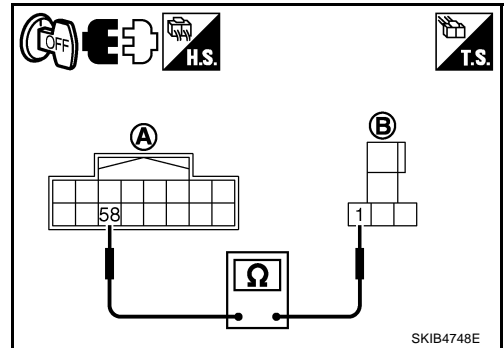
6. CHECK CIRCUIT BETWEEN DAYTIME LIGHT RELAY AND IPDM E/R

1. Disconnect IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector (A) and daytime light relay harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
E9	58	E34	1	Yes

OK or NG

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



HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

7. CHECK DAYTIME LIGHT RELAY SIGNAL

1. Connect IPDM E/R connector.
2. Install daytime light relay.
3. Turn ignition switch ON.
4. Applied parking brake.
5. Check voltage between IPDM E/R harness connector and ground.

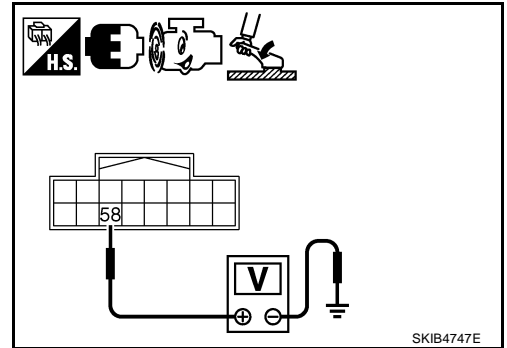
Terminals		(-)	Voltage (Approx.)
(+) IPDM E/R connector			
Terminal			
E9	58	Ground	Battery voltage

6. Start engine and release parking break. Headlamp switch OFF.
7. Check voltage between IPDM E/R harness connector and ground.

Terminals		(-)	Voltage (Approx.)
(+) IPDM E/R connector			
Terminal			
E9	58	Ground	0 V

OK or NG

- OK >> Check connecting condition daytime light relay harness connector.
 NG >> GO TO 8.



8. CHECK CAN COMMUNICATIONS

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

Displayed self-diagnosis results

- NO DTC>>Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#) .
 CAN COMM CIRCUIT>>Check BCM CAN communication system. Refer to [BCS-13, "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#) .

SELF-DIAG RESULTS			
DTC RESULTS		TIME	
CAN COMM CIRCUIT [U1000]			
ERASE		PRINT	
MODE	BACK	LIGHT	COPY

PKIA7627E

HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

NKS003PL

Headlamp High Beam Does Not Illuminate (Both Sides)

1. CHECK COMBINATION SWITCH INPUT SIGNAL

④ With CONSULT-II

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

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

⊗ Without CONSULT-II

Refer to [LT-239, "Combination Switch Inspection"](#) .

OK or NG

OK >> GO TO 2.

NG >> Check combination switch (lighting switch). Refer to [LT-239, "Combination Switch Inspection"](#) .

DATA MONITOR			
MONITOR		NO DTC	
HI BEAM SW		ON	
MODE	BACK	LIGHT	COPY

PKIA6324E

2. HEADLAMP ACTIVE TEST

④ With CONSULT-II

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

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

⊗ Without CONSULT-II

1. Start auto active test. Refer to [PG-23, "Auto Active Test"](#) .
2. Make sure headlamp high beam operation.

Headlamp high beam should operate.

OK or NG

OK >> GO TO 3.

NG >> GO TO 4.

ACTIVE TEST			
LAMPS		OFF	
MODE	BACK	LIGHT	COPY

SKIA5774E

3. CHECK IPDM E/R

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

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

OK or NG

OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#) .

NG >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#) .

DATA MONITOR			
MONITOR		NO DTC	
HL LO REQ		ON	
HL HI REQ		ON	
		Page Down	
		RECORD	
MODE	BACK	LIGHT	COPY

SKIA5775E

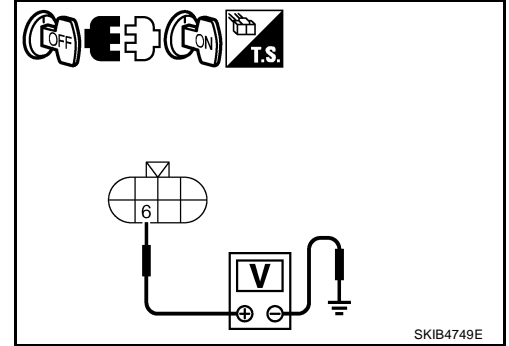
HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

4. CHECK HEADLAMP INPUT SIGNAL

 With CONSULT-II

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

Terminal			(-)	Voltage (Approx.)
(+)		Terminal		
Front combination lamp connector				Ground
RH	E47	6		
LH	E54	6		



 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.

Terminal			(-)	Voltage (Approx.)
(+)		Terminal		
Front combination lamp connector				Ground
RH	E47	6		
LH	E54	6		

OK or NG

- OK >> GO TO 5.
NG >> GO TO 8.

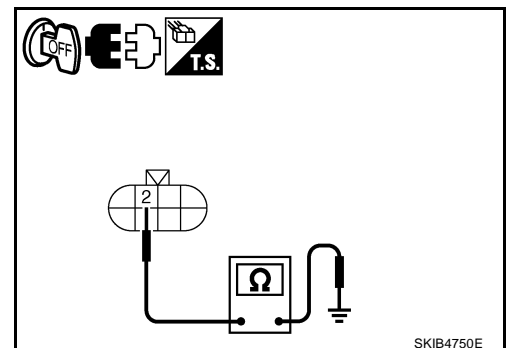
5. CHECK HEADLAMP (LH SIDE) GROUND

1. Turn ignition switch OFF.
2. Check continuity between front combination lamp LH harness connector and ground.

Front combination lamp LH connector	Terminal	Ground	Continuity
E54	2		

OK or NG

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

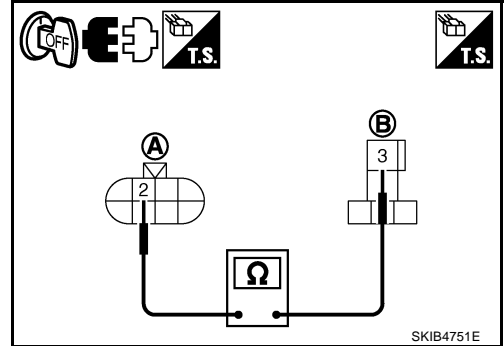


HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

6. CHECK HEADLAMP (RH SIDE) GROUND

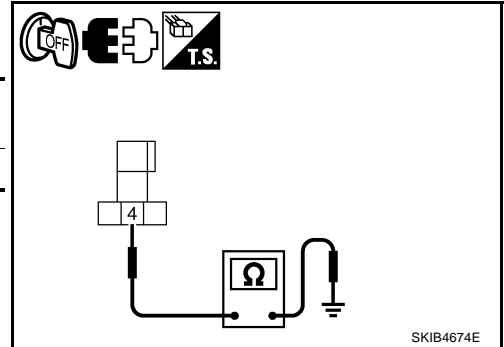
1. Remove daytime light relay.
2. Check continuity between front combination lamp RH harness connector (A) and daytime light relay harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
E47	2	E34	3	Yes



3. Check continuity between daytime light relay harness connector and ground.

Daytime light relay connector	Terminal	Ground	Continuity
E34	4		Yes



OK or NG

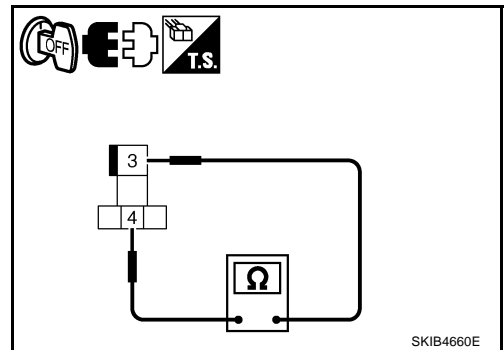
- OK >> GO TO 7.
 NG >> Repair harness or connector.

7. CHECK DAYTIME LIGHT RELAY

Check continuity between daytime light relay terminals.

Daytime light relay terminals		Continuity
3	4	Yes

- OK >> Check headlamp bulb and connecting condition combination lamp terminal connector.
 NG >> Replace daytime light relay.



HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

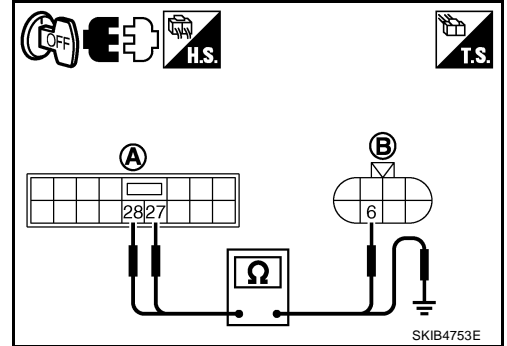
8. CHECK CIRCUIT BETWEEN IPDM E/R AND FRONT COMBINATION LAMP

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

Circuit	A		B		Continuity
	Connector	Terminal	Connector	Terminal	
RH	E7	27	E47	6	Yes
LH		28	E54	6	

4. Check continuity between IPDM E/R harness connector (A) and ground.

A			Ground	Continuity
Connector		Terminal		
RH	E7	27		No
LH		28		



OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#) .
 NG >> Repair harness or connector.

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HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

RH High Beam Does Not Illuminate But LH High Beam Illuminates

NKS003PM

1. CHECK BULB

Check bulb of lamp.

OK or NG

OK >> GO TO 2.

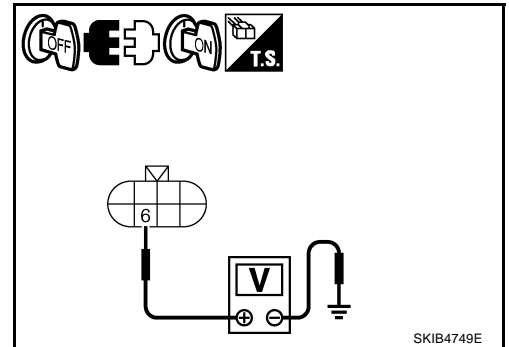
NG >> Replace headlamp bulb.

2. CHECK HEADLAMP INPUT SIGNAL

① With CONSULT-II

1. Disconnect front combination lamp RH 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 and ground. (Headlamp high beam repeats ON-OFF every 1 second.)

Terminals		(-)	Voltage (Approx.)
(+)	Terminal		
Front combination lamp RH connector	6	Ground	Battery voltage
E47	6	Ground	Battery voltage



② Without CONSULT-II

1. Disconnect front combination lamp RH connector.
2. Start auto active test. Refer to [PG-23, "Auto Active Test"](#).
3. When headlamp HI is operating, check voltage between front combination lamp RH harness connector and ground.

Terminals		(-)	Voltage (Approx.)
(+)	Terminal		
Front combination lamp RH connector	6	Ground	Battery voltage
E47	6	Ground	Battery voltage

OK or NG

OK >> GO TO 4.

NG >> GO TO 3.

HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

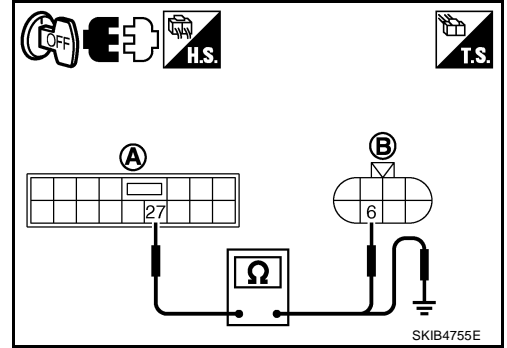
3. CHECK CONTINUITY BETWEEN IPDM E/R AND FRONT COMBINATION LAMP

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

A		B		Continuity
Connector	Terminal	Connector	Terminal	
E7	27	E47	6	Yes

4. Check continuity between IPDM E/R harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
E7	27		No



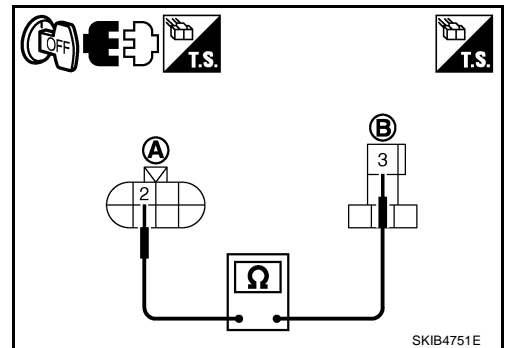
OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#).
- NG >> Repair harness or connector.

4. CHECK HEADLAMP GROUND (1)

1. Turn ignition switch OFF.
2. Remove daytime light relay.
3. Check continuity between front combination lamp RH harness connector (A) and daytime light relay harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
E47	2	E34	3	Yes



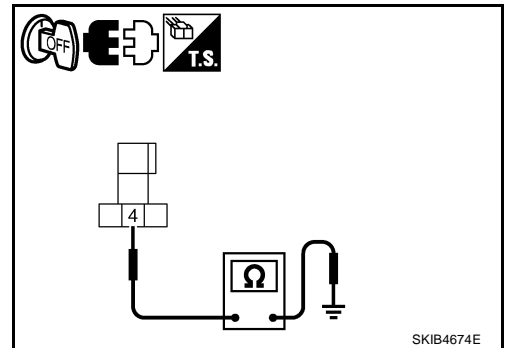
OK or NG

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

5. CHECK HEADLAMP GROUND (2)

Check continuity between daytime light relay harness connector and ground.

Daytime light relay connector	Terminal	Ground	Continuity
E34	4		Yes



OK or NG

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

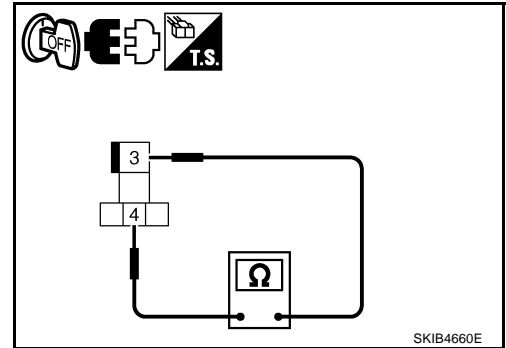
HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

6. CHECK DAYTIME RELAY

Check continuity between daytime light relay terminals.

Daytime light relay terminals		Continuity
3	4	Yes

- OK >> Check connecting condition front combination lamp RH harness connector.
 NG >> Replace daytime light relay.



LH High Beam Does Not Illuminate But RH High Beam Illuminates

NKS003PN

1. CHECK BULB

Check bulb of lamp.

OK or NG

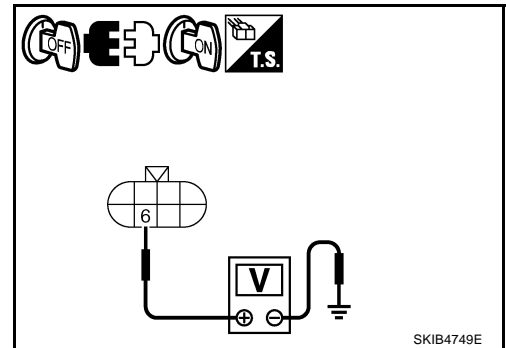
- OK >> GO TO 2.
 NG >> Replace bulb of lamp.

2. CHECK HEADLAMP INPUT SIGNAL

Ⓟ With CONSULT-II

1. Disconnect front combination lamp LH 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 and ground. (Headlamp high beam repeats ON-OFF every 1 second.)

Terminals		(-)	Voltage (Approx.)
(+)			
Front combination lamp LH connector	Terminal	Ground	Battery voltage
E54	6		



ⓧ Without CONSULT-II

1. Disconnect front combination lamp LH connector.
2. Start auto active test. Refer to [PG-23, "Auto Active Test"](#).
3. When headlamp high beam is operating, check voltage between front combination lamp LH harness connector and ground.

Terminals		(-)	Voltage (Approx.)
(+)			
Front combination lamp LH connector	Terminal	Ground	Battery voltage
E54	6		

OK or NG

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

HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

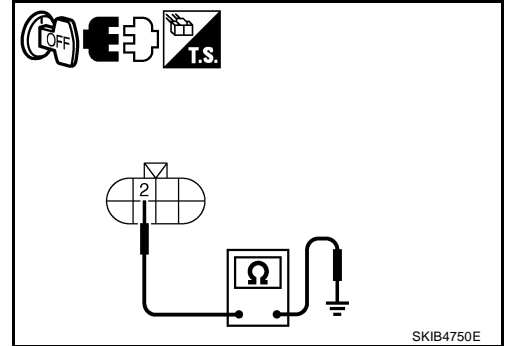
3. CHECK HEADLAMP GROUND

1. Turn ignition switch OFF.
2. Check continuity front combination lamp harness connector and ground.

Front combination lamp LH connector	Terminal	Ground	Continuity
E54	2		Yes

OK or NG

- OK >> Check connecting condition front headlamp LH connector harness.
- NG >> Repair harness or connector.



4. CHECK CIRCUIT BETWEEN IPDM E/R AND FRONT COMBINATION LAMP

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

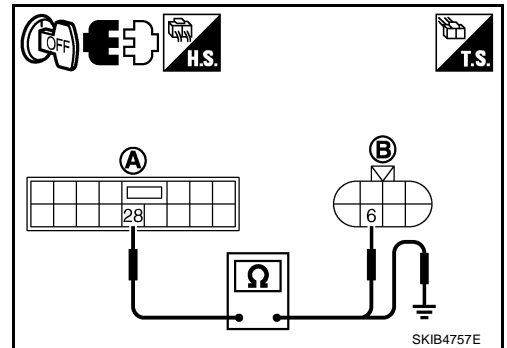
A		B		Continuity
Connector	Terminal	Connector	Terminal	
E7	28	E54	6	Yes

4. Check continuity between IPDM E/R harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
E7	28		No

OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#).
- NG >> Repair harness or connector.



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HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

Headlamp Low Beam Does Not Illuminate (Both Sides)

NKS003PO

1. CHECK COMBINATION SWITCH INPUT SIGNAL

④ With CONSULT-II

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

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

⊗ Without CONSULT-II

Refer to [LT-239, "Combination Switch Inspection"](#) .

OK or NG

OK >> GO TO 2.

NG >> Check lighting switch. Refer to [LT-239, "Combination Switch Inspection"](#) .

DATA MONITOR			
MONITOR		NO DTC	
HEAD LAMP SW1	ON		
HEAD LAMP SW2	ON		
MODE	BACK	LIGHT	COPY

PKIA6325E

2. HEADLAMP ACTIVE TEST

④ With CONSULT-II

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

Headlamp low beam should operate.

⊗ Without CONSULT-II

1. Start auto active test. Refer to [PG-23, "Auto Active Test"](#) .
2. Make sure headlamp low beam operation.

Headlamp low beam should operate.

OK or NG

OK >> GO TO 3.

NG >> GO TO 4.

3. CHECK IPDM E/R

1. Select "IPDM E/R" on CONSULT-II, and select "DATA 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. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#) .

NG >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#) .

ACTIVE TEST			
LAMPS		OFF	
		HI	
LO		FOG	
MODE	BACK	LIGHT	COPY

SKIA5774E

DATA MONITOR			
MONITOR		NO DTC	
HL LO REQ	ON		
		Page Down	
		RECORD	
MODE	BACK	LIGHT	COPY

SKIA5780E

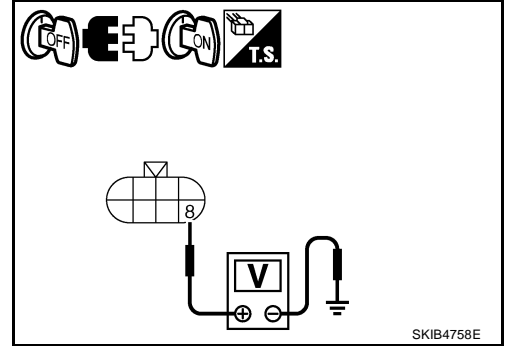
HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

4. CHECK HEADLAMP INPUT SIGNAL

With CONSULT-II

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

Terminal			(-)	Voltage (Approx.)
(+)		terminal		
Front combination lamp connector				
RH	E47	8	Ground	Battery voltage
LH	E54	8		



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.

Terminal			(-)	Voltage (Approx.)
(+)		terminal		
Front combination lamp connector				
RH	E47	8	Ground	Battery voltage
LH	E54	8		

OK or NG

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

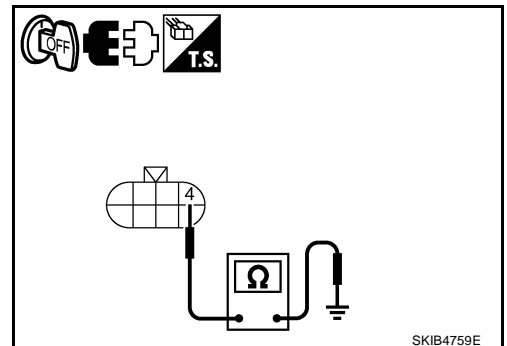
5. CHECK HEADLAMP GROUND

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

Front combination lamp connector	Terminal	Ground	Continuity
RH	E47		4
LH	E54	4	

OK or NG

- OK >> Check headlamp harness, connectors, ballasts (HID control unit), and xenon bulbs. Refer to [LT-114, "Xenon Headlamp Trouble Diagnosis"](#).
- NG >> Repair harness or connector.



HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

6. CHECK CIRCUIT BETWEEN IPDM E/R AND FRONT COMBINATION LAMP

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

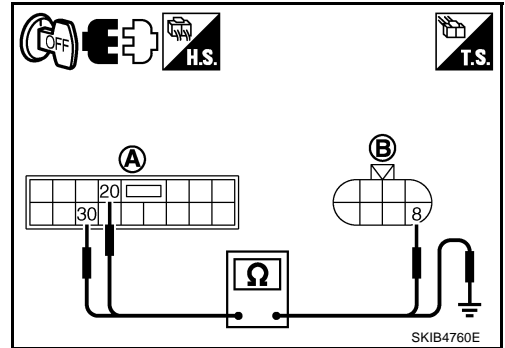
Circuit	A		B		Continuity
	Connector	Terminal	Connector	Terminal	
RH	E7	20	E47	8	Yes
LH		30	E54	8	

4. Check continuity between IPDM E/R harness connector (A) and ground.

A			Ground	Continuity
Connector		Terminal		
RH	E7	20		No
LH		30		

OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#) .
 NG >> Repair harness or connector.



HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

NKS003PP

Headlamp Low Beam Does Not Illuminate (One Side)

1. CHECK BULB

Check ballast (HID control unit) and xenon bulb of lamp which does not illuminate. Refer to [LT-114, "Xenon Headlamp Trouble Diagnosis"](#).

OK or NG

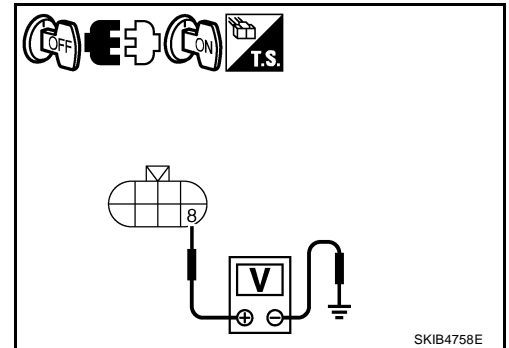
- OK >> GO TO 2.
- NG >> Repair malfunctioning part.

2. CHECK HEADLAMP INPUT SIGNAL

With CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH or LH connector.
3. Select "IPDM E/R" on CONSULT-II. 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 or LH harness connector and ground.

Terminal			(-)	Voltage (Approx.)
(+)				
Front combination lamp connector	Terminal			
RH	E47	8	Ground	Battery voltage
LH	E54	8		



Without CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH or 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 or LH harness connector and ground.

Terminal			(-)	Voltage (Approx.)
(+)				
Front combination lamp connector	Terminal			
RH	E47	8	Ground	Battery voltage
LH	E54	8		

OK or NG

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

HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

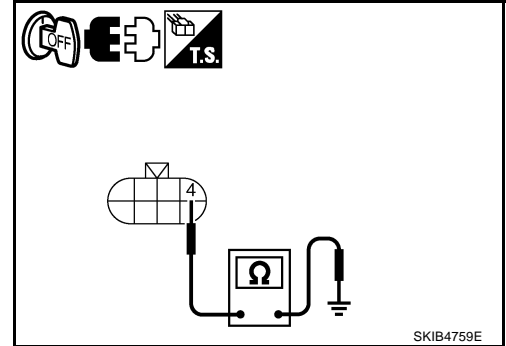
3. CHECK HEADLAMP GROUND

1. Turn ignition switch OFF.
2. Check continuity between front combination lamp RH or LH harness connector and ground.

Front combination lamp connector		Terminal	Ground	Continuity
RH	E47	4		Yes
LH	E54	4		

OK or NG

- OK >> Check connecting condition headlamp harness connector.
- NG >> Repair harness or connector.



4. CHECK CIRCUIT BETWEEN IPDM E/R AND FRONT COMBINATION LAMP

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

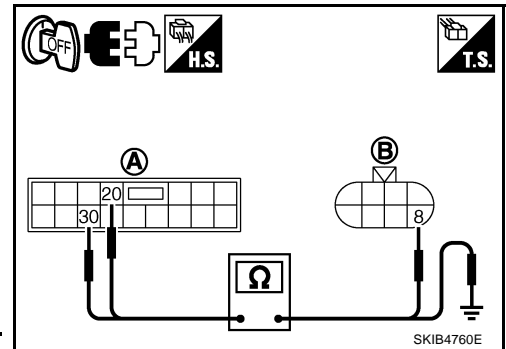
Circuit	A		B		Continuity
	Connector	Terminal	Connector	Terminal	
RH	E7	20	E47	8	Yes
LH		30	E54	8	

4. Check continuity between IPDM E/R harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
RH	E7	20	No
LH		30	

OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#) .
- NG >> Repair harness or connector.



HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

Headlamps Do Not Turn OFF

NKS003PQ

1. CHECK HEADLAMP TURN OFF

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

OK or NG

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

2. CHECK COMBINATION SWITCH INPUT SIGNAL

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

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

OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#) .
- NG >> Check lighting switch. Refer to [LT-239, "Combination Switch Inspection"](#) .

DATA MONITOR			
MONITOR		NO DTC	
HEAD LAMP SW 1		OFF	
HEAD LAMP SW 2		OFF	
		Page Down	
RECORD			
MODE	BACK	LIGHT	COPY

PKIA7011E

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

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

Display of self-diagnosis results

- NO DTC>> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#) .
- CAN COMM CIRCUIT>> Refer to [BCS-13, "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#) .

SELF-DIAG RESULTS			
DTC RESULTS		TIME	
CAN COMM CIRCUIT [U1000]			
ERASE		PRINT	
MODE	BACK	LIGHT	COPY

PKIA7627E

HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

General Information for Xenon Headlamp Trouble Diagnosis

NKS003PR

In most cases, malfunction of xenon headlamp - "does not illuminate", "flickers" or "dark" - is caused by a malfunctioning xenon bulb. A HID control unit or lamp housing, however, may be a cause of malfunction. Be sure to perform trouble diagnosis following the steps described below.

CAUTION:

NKS003PS

- Installation or removal of connector must be done with lighting switch OFF.
- When lamp is illuminated (when lighting switch is ON), do not touch harness, HID control unit, inside of lamp, or lamp metal parts.
- To check illumination, temporarily install lamp in 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

NKS003PT

1. CHECK 1: XENON HEADLAMP LIGHTING

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

OK or NG

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

2. CHECK 2: XENON HEADLAMP LIGHTING

Install normal HID control unit to corresponding xenon headlamp, and check if lamp lights up.

OK or NG

- OK >> Replace HID control unit.
- NG >> GO TO 3.

3. CHECK 3: XENON HEADLAMP LIGHTING

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

OK or NG

- OK >> Replace xenon headlamp housing assembly.
- NG >> INSPECTION END

Aiming Adjustment

NKS003PU

Refer to [LT-72, "Aiming Adjustment"](#) .

Bulb Replacement

NKS003PV

Refer to [LT-73, "Bulb Replacement"](#) .

Removal and Installation

NKS003PW

Refer to [LT-75, "Removal and Installation"](#) .

Disassembly and Assembly

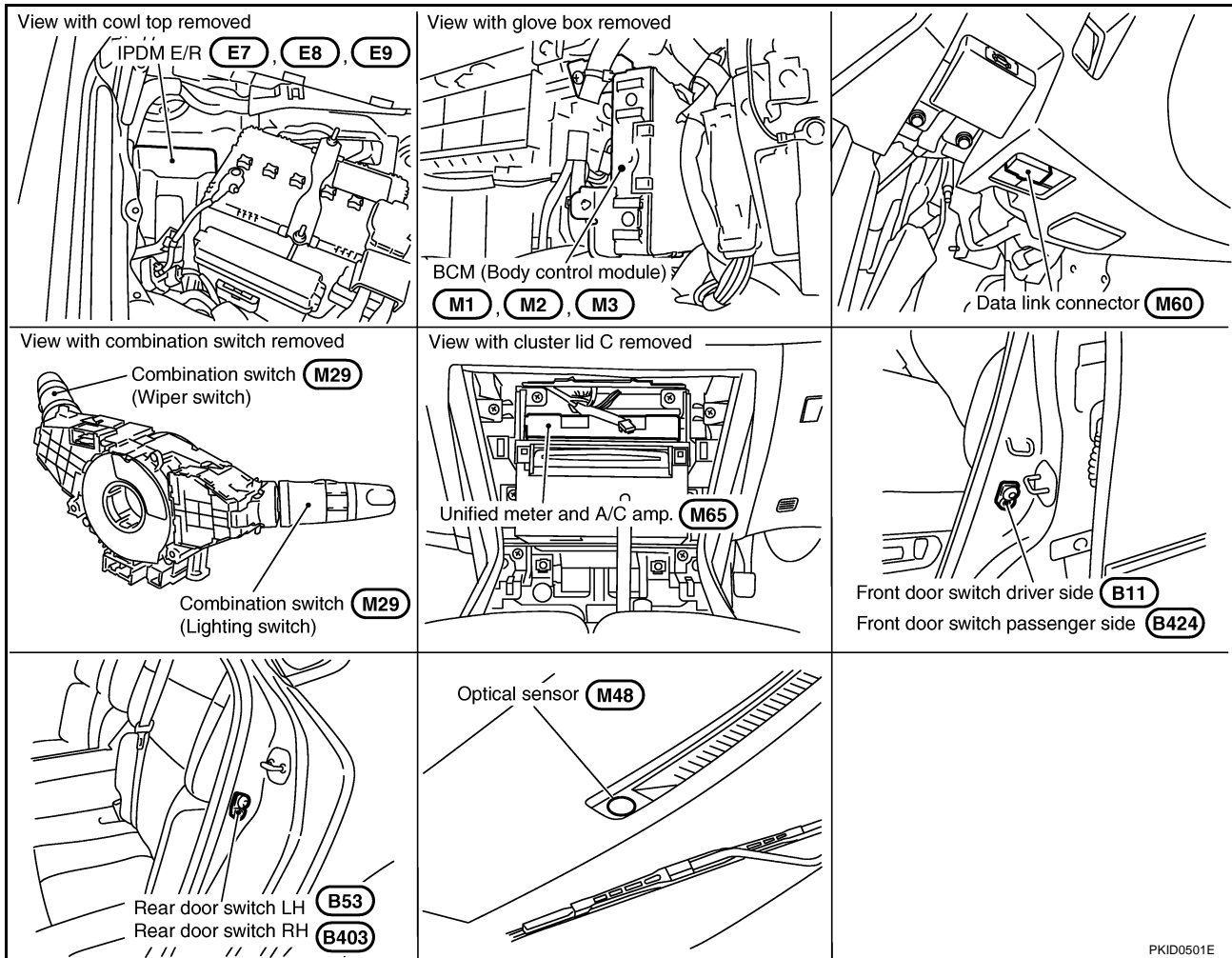
NKS003PX

Refer to [LT-76, "Disassembly and Assembly"](#) .

AUTO LIGHT SYSTEM

Component Parts and Harness Connector Location

NKS003PY



PKID0501E

System Description

NKS003PZ

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

OUTLINE

The auto light control system has an optical sensor inside it that detects outside brightness. When the lighting switch is in AUTO position, it automatically turns ON/OFF the parking lamps and the headlamps in accordance with ambient light. Sensitivity can be adjusted in four steps. For the details of the setting, Refer to [LT-127, "SETTING CHANGE FUNCTIONS"](#).

Optical sensor, power is supplied

- from BCM (body control module) terminal 17
- to optical sensor terminal 1.

Optical sensor, ground is supplied

- to optical sensor terminal 3
- through BCM terminal 18.

When ignition switch is turn to ON position, and

When outside brightness is darker than prescribed level, input is supplied

- from optical sensor terminal 2
- to BCM terminal 14.

The headlamps will then illuminate. For a description of headlamp operation, Refer to [LT-115, "System Description"](#).

AUTO LIGHT SYSTEM

COMBINATION SWITCH READING FUNCTION

Refer to [BCS-3, "COMBINATION SWITCH READING FUNCTION"](#) .

EXTERIOR LAMP BATTERY SAVER CONTROL

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

DELAY TIMER FUNCTION

Delay timer function carries out a function that BCM activates the timer and controls lights out of headlamps by door switch signal and lightning switch signal when turning the Ignition switch OFF while it is ON and headlamps are ON by the auto light function.

Timer types are a 5 minutes timer and a 45 seconds timer

- When opening any door (door switch is ON), the 5 minutes timer starts and then headlamps go out five minutes later
- When all the doors are closed (from door switch ON to OFF), the 45 second timer starts and then headlamps go out 45 seconds later. If any door is opened (door switch ON) while the 45 seconds timer is in operation, the 5 minutes timer starts again
- The timer stops when turning on the ignition switch or turning off the auto light switch under the above conditions.

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

CAN Communication System Description

NKS003Q0

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

CAN Communication Unit

NKS003Q1

Refer to [LAN-50, "CAN System Specification Chart"](#) .

Major Components and Functions

NKS003Q2

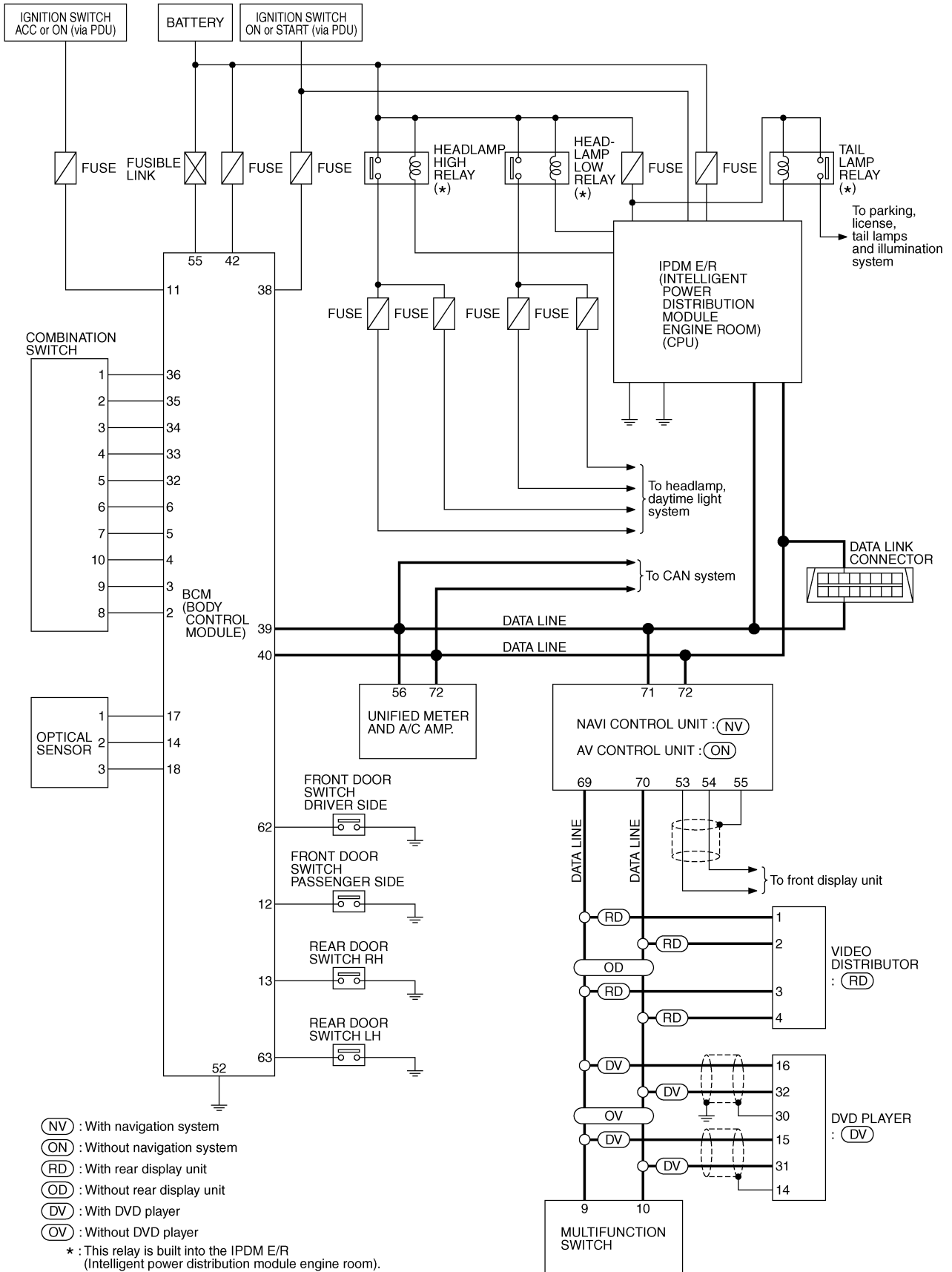
Components	Functions
BCM	● Turns on/off circuits of tail light and headlamp according to signals from optical sensor, lighting switch (AUTO), driver door switch, passenger door switch, rear door switch, and ignition switch (ON, OFF).
Optical sensor	● Converts outside brightness (lux) to voltage, and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

AUTO LIGHT SYSTEM

Schematic

NKS003Q3

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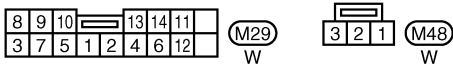
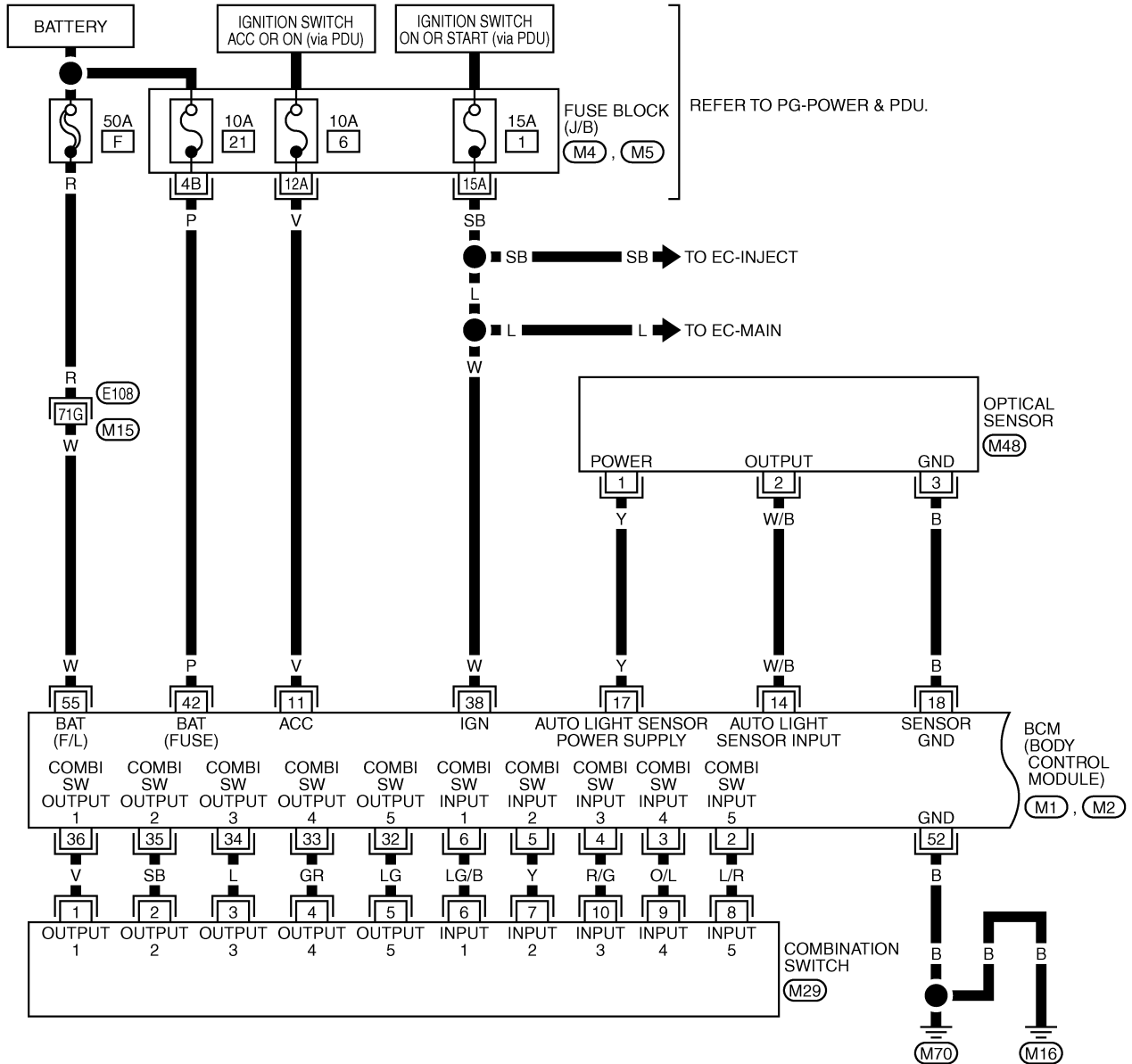
TKWT3368E

AUTO LIGHT SYSTEM

Wiring Diagram — AUTO/L —

NKS003Q4

LT-AUTO/L-01



REFER TO THE FOLLOWING.

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

TKWT3369E

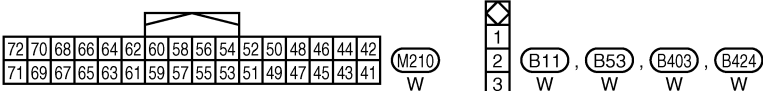
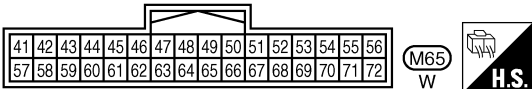
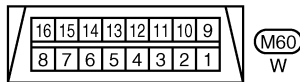
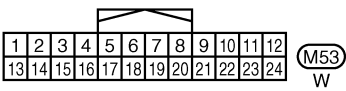
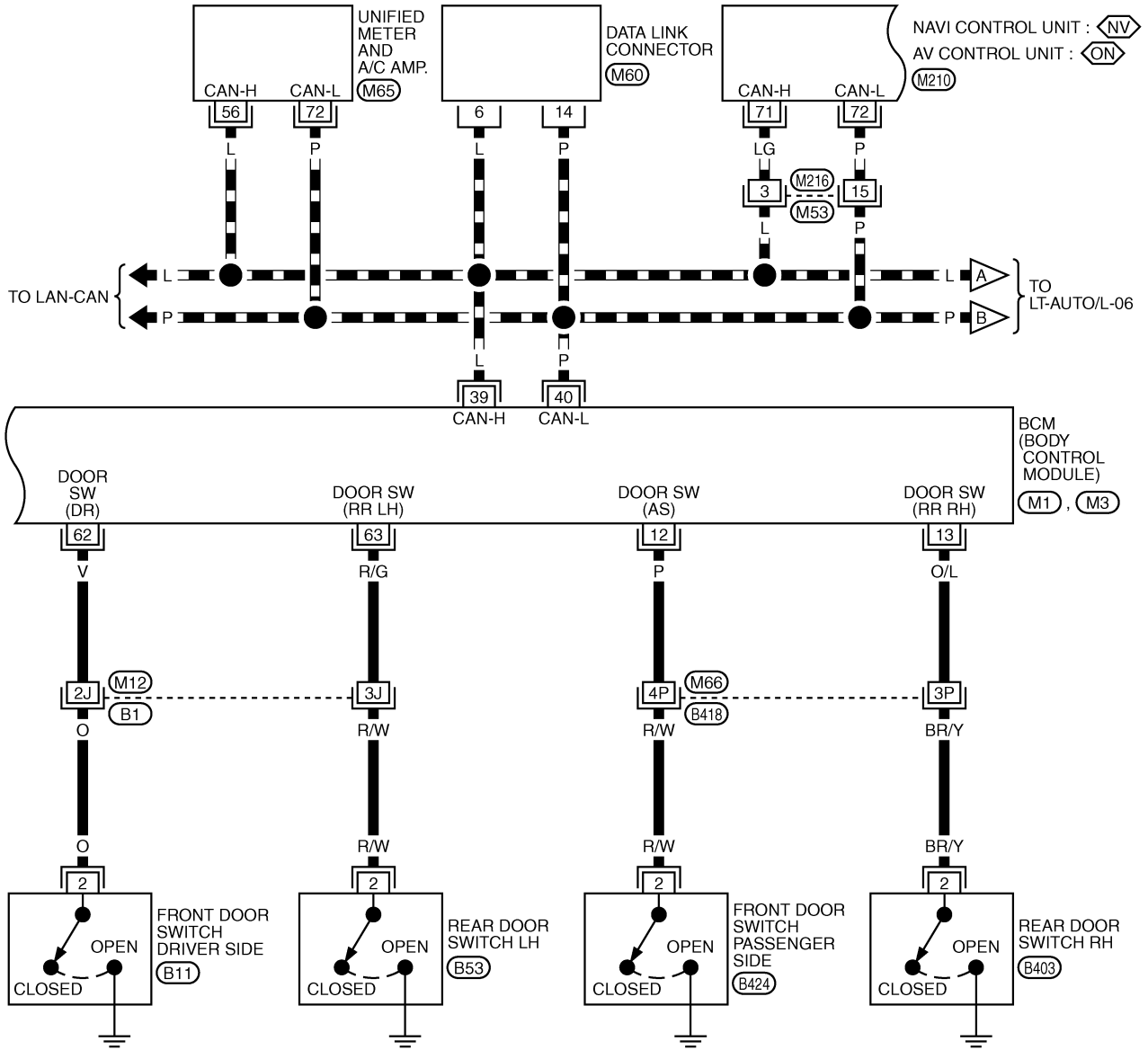
AUTO LIGHT SYSTEM

LT-AUTO/L-02

▬ : DATA LINE

(NV) : WITH NAVIGATION SYSTEM

(ON) : WITHOUT NAVIGATION SYSTEM



REFER TO THE FOLLOWING.

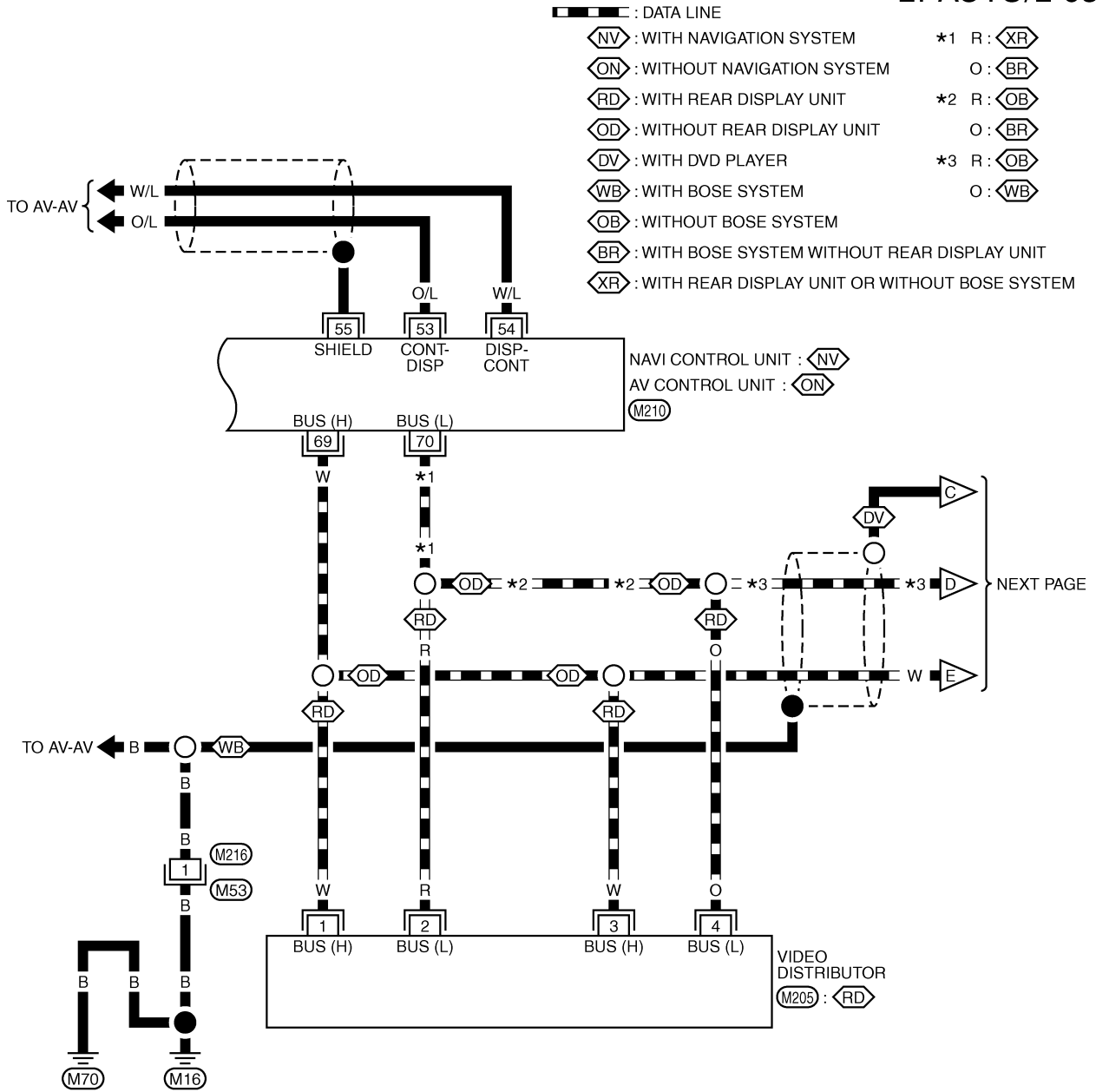
(B1), (B418) -SUPER MULTIPLE JUNCTION (SMJ)

(M1), (M3) -ELECTRICAL UNITS

TKWT5064E

AUTO LIGHT SYSTEM

LT-AUTO/L-03



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

(M53)
W

24	22	20	18	16	14	12	10	8	6	4	2
23	21	19	17	15	13	11	9	7	5	3	1

(M205)
W

72	70	68	66	64	62	60	58	56	54	52	50	48	46	44	42
71	69	67	65	63	61	59	57	55	53	51	49	47	45	43	41

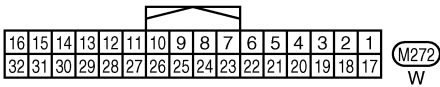
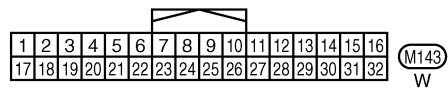
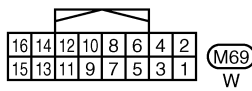
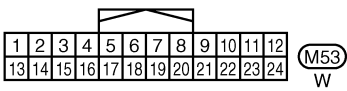
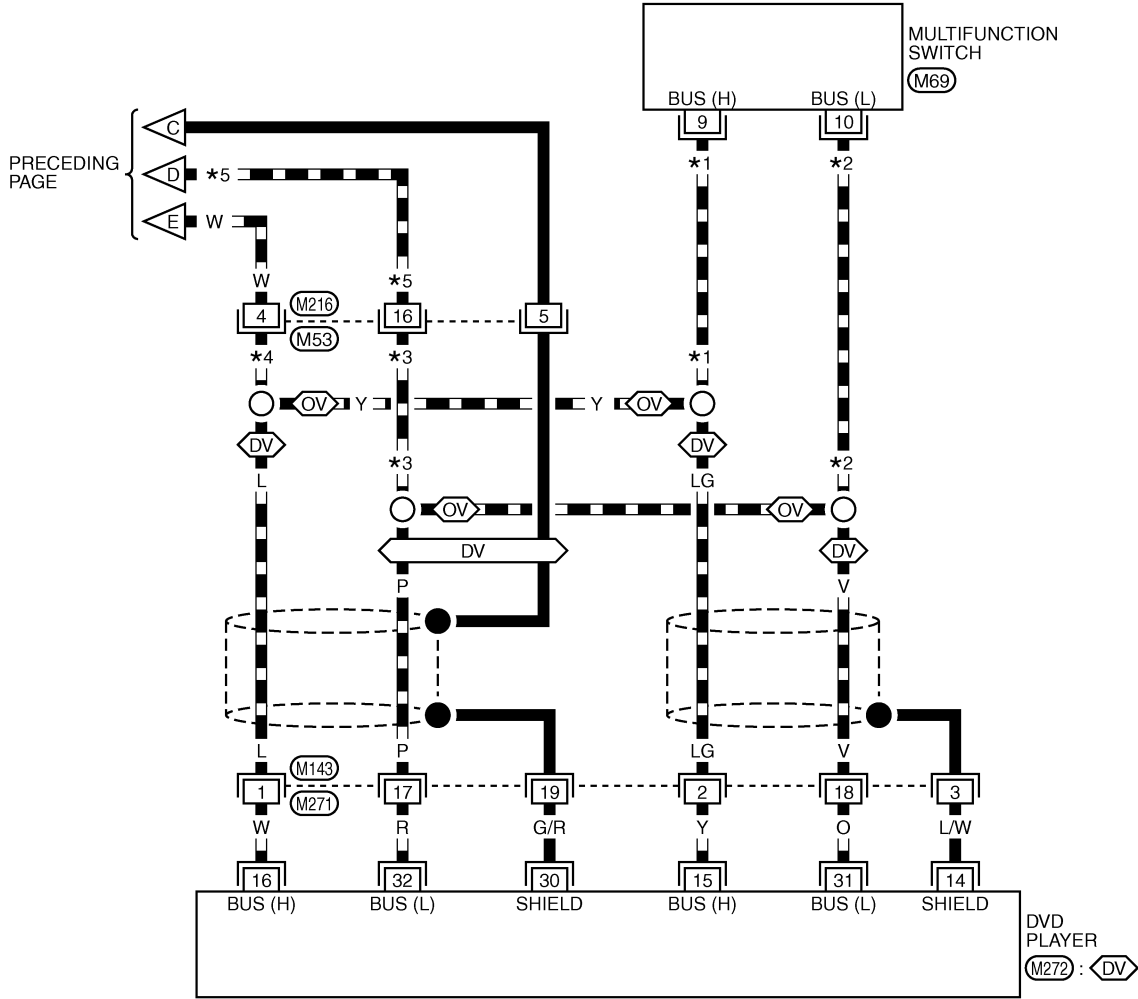
(M210)
W

TKWT5065E

AUTO LIGHT SYSTEM

LT-AUTO/L-04

- ▬ : DATA LINE
 - ◊DV◊ : WITH DVD PLAYER
 - ◊OV◊ : WITHOUT DVD PLAYER
 - ◊WB◊ : WITH BOSE SYSTEM
 - ◊OB◊ : WITHOUT BOSE SYSTEM
 - ◊A1◊ : 2WD MODELS WITHOUT BOSE SYSTEM, NAVIGATION SYSTEM AND RAS
 - ◊VR◊ : WITHOUT DVD PLAYER EXCEPT ◊A1◊
- *1 LG: ◊DV◊ *3 P: ◊DV◊
 - Y: ◊OV◊ R: ◊VR◊
 - *2 V: ◊DV◊ O: ◊A1◊
 - R: ◊VR◊ *4 L: ◊DV◊
 - O: ◊A1◊ Y: ◊OV◊
 - *5 R: ◊OB◊
 - O: ◊WB◊

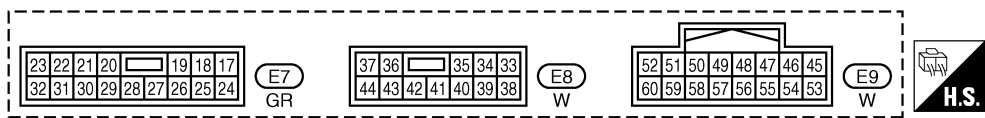
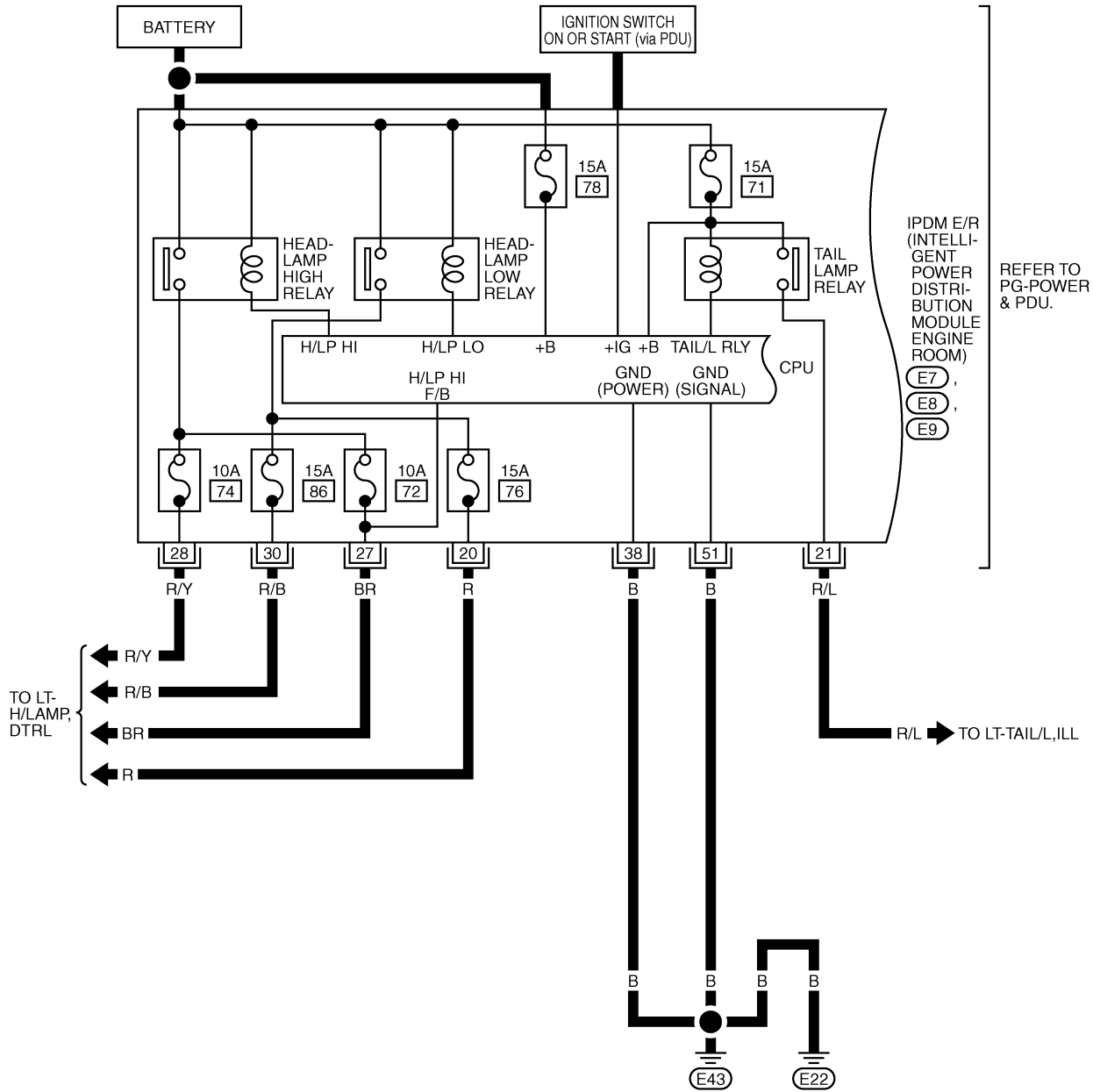


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TKWT5066E

AUTO LIGHT SYSTEM

LT-AUTO/L-05



TKWT5067E

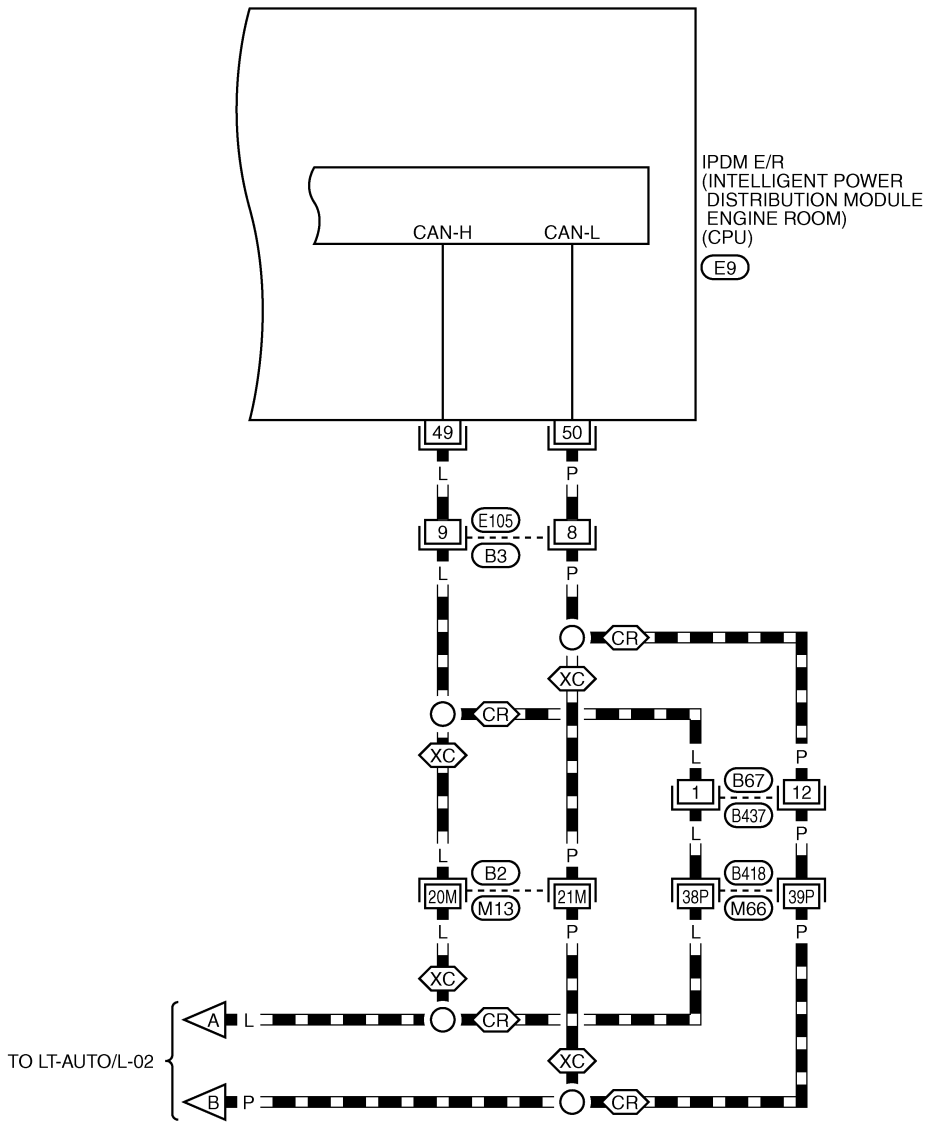
AUTO LIGHT SYSTEM

LT-AUTO/L-06

▬ : DATA LINE

⬡ : WITH PRE-CRASH SEAT BELT OR RAS

⬢ : WITHOUT PRE-CRASH SEAT BELT AND RAS



52	51	50	49	48	47	46	45
60	59	58	57	56	55	54	53

E9
W



1	2	3	4	5	6	7	8	9	10	11		
12	13	14	15	16	17	18	19	20	21	22	23	24

B3, B437
W BR

REFER TO THE FOLLOWING.

B2, B418 -SUPER MULTIPLE JUNCTION (SMJ)

TKWT5277E

AUTO LIGHT SYSTEM

Terminals and Reference Values for BCM

NKS003Q5

CAUTION:

- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF not to be fluctuated by overloaded.
- Turn wiper dial position to 4 except when checking waveform or voltage of wiper dial position. Wiper dial position can be confirmed on CONSULT-II. Refer to [LT-238. "DATA MONITOR"](#) .

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
4	R/G	Combination switch input 3	ON	Lighting, turn, wiper OFF (Wiper dial position 4)	Lighting switch AUTO PKIB4957J Approx. 1.0 V
					OFF Approx. 0 V
11	V	Ignition switch (ACC)	ACC	—	Battery voltage
12	P	Front door switch passenger side signal	OFF	Front door switch passenger side	ON (open) Approx. 0 V
					OFF (closed) SKIB3419J Approx. 8.0 - 8.5 V
13	O/L	Rear door switch RH signal	OFF	Rear door switch RH	ON (open) Approx. 0 V
					OFF (closed) SKIB4865E Approx. 8.5 - 9.0 V
14	W/B	Optical sensor signal	ON	When optical sensor is illuminated.	3.1 V or more ^{NOTE}
				When optical sensor is not illuminated.	0.6 V or less
17	Y	Optical sensor power supply	ON	—	Approx. 5 V
18	B	Optical sensor ground	ON	—	Approx. 0 V

AUTO LIGHT SYSTEM

Terminal No.	Wire color	Signal name	Measuring condition		Reference value	
			Ignition switch	Operation or condition		
33	GR	Combination switch output 4	ON	Lighting, turn, wiper OFF (Wiper dial position 4)	<p style="text-align: right;">PKIB4958J</p> <p style="text-align: center;">Approx. 1.2 V</p>	
				Lighting switch AUTO	<p style="text-align: right;">PKIB4960J</p> <p style="text-align: center;">Approx. 7.0 - 7.5 V</p>	
38	W	Ignition switch (ON)	ON	—	Battery voltage	
39	L	CAN - H	—	—	—	
40	P	CAN - L	—	—	—	
42	P	Battery power supply	OFF	—	Battery voltage	
52	B	Ground	ON	—	Approx. 0 V	
55	W	Battery power supply	OFF	—	Battery voltage	
62	V	Front door switch driver side signal	OFF	Front door switch driver side	ON (open)	Approx. 0 V
				OFF (closed)	<p style="text-align: right;">PKIB4960J</p> <p style="text-align: center;">Approx. 7.5 - 8.0 V</p>	
63	R/G	Rear door switch LH signal	OFF	Rear door switch LH	ON (open)	Approx. 0V
				OFF (closed)	<p style="text-align: right;">PKIB4960J</p> <p style="text-align: center;">Approx. 7.5 - 8.0 V</p>	

NOTE:

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

AUTO LIGHT SYSTEM

Terminals and Reference Values for IPDM E/R

NKS003Q6

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. 0 V
					ON	Battery voltage
21	R/L	Parking, license plate, and tail lamp	ON	Lighting switch 1ST position	OFF	Approx. 0 V
					ON	Battery voltage
27	BR	Headlamp high (RH)	ON	Lighting switch HIGH or PASSING position	OFF	Approx. 0 V
					ON	Battery voltage
28	R/Y	Headlamp high (LH)	ON	Lighting switch HIGH or PASSING position	OFF	Approx. 0 V
					ON	Battery voltage
30	R/B	Headlamp low (LH)	ON	Lighting switch 2ND position	OFF	Approx. 0 V
					ON	Battery voltage
38	B	Ground	ON	—	Approx. 0 V	
49	L	CAN – H	—	—	—	
50	P	CAN – L	—	—	—	
51	B	Ground	ON	—	Approx. 0 V	

How to Perform Trouble Diagnoses

NKS003Q7

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to [LT-115, "System Description"](#) .
3. Perform the Preliminary Check. Refer to [LT-127, "Preliminary Check"](#) .
4. Check symptom and repair or replace the cause of malfunction. Refer to [LT-130, "Symptom Chart"](#) .
5. Does the auto light system operate normally? If YES, GO TO 6. If NO, GO TO 4.
6. INSPECTION END.

AUTO LIGHT SYSTEM

NKS003Q8

Preliminary Check SETTING CHANGE FUNCTIONS

- Sensitivity of auto light system can be adjusted using CONSULT-II. Refer to [LT-128, "WORK SUPPORT"](#).

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSE AND FUSIBLE LINK

Check for blown fuses and fusible link.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
		21
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	71
		72
		74
		76
		78
		86

Refer to [LT-118, "Wiring Diagram — AUTO/L —"](#).

OK or NG

OK >> GO TO 2.

NG >> If fuse or fusible link is blown, be sure to eliminate cause of malfunction before installing new fuse or fusible link. Refer to [PG-3, "POWER SUPPLY ROUTING CIRCUIT"](#).

2. CHECK POWER SUPPLY CIRCUIT

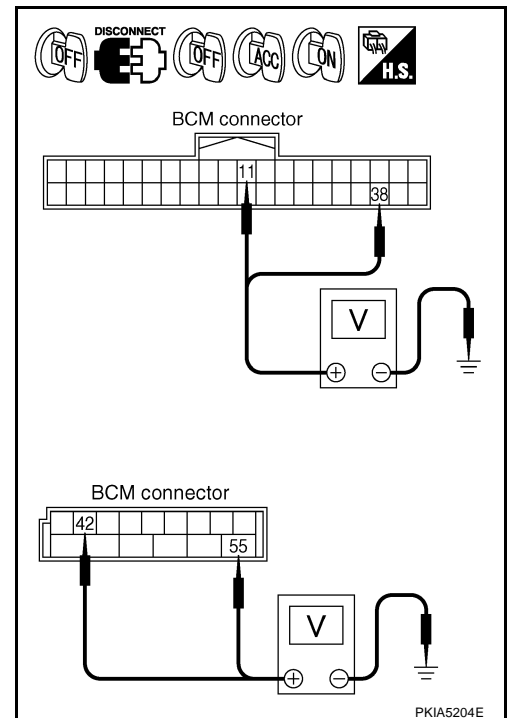
1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector and ground.

Terminal (+)		Terminal (-)	Ignition switch position		
BCM connector	Terminal		OFF	ACC	ON
M1	11	Ground	Approx. 0 V	Battery voltage	Battery voltage
	38		Approx. 0 V	Approx. 0 V	Battery voltage
M2	42		Battery voltage	Battery voltage	Battery voltage
	55		Battery voltage	Battery voltage	Battery voltage

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.



AUTO LIGHT SYSTEM

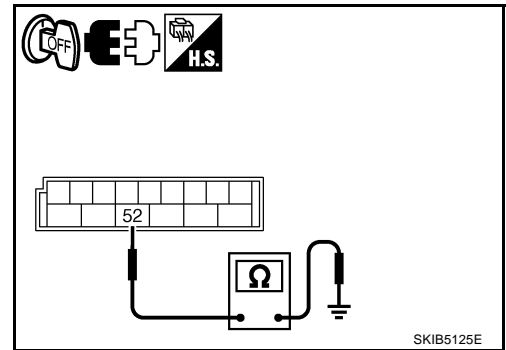
3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

BCM connector	Terminal	Ground	Continuity
M2	52		Yes

OK or NG

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



CONSULT-II Functions (BCM)

NKS003Q9

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

BCM diagnosis part	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	SELF-DIAG RESULTS	BCM performs self-diagnosis of CAN communication.
	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.

CONSULT-II BASIC OPERATION

Refer to [GI-38, "CONSULT-II Start Procedure"](#).

WORK SUPPORT

Operation Procedure

1. Touch "HEAD LAMP" on "SELECT TEST ITEM" screen.
2. Touch "WORK SUPPORT" on "SELECT DIAG MODE" screen.
3. Touch "CUSTOM A/LIGHT SETTING" or "ILL DELAY SET" on "SELECT WORK ITEM" screen.
4. Touch "START".
5. Touch "MODE 1 - 4" of setting to be changed (CUSTOM A/LIGHT SETTING), Touch "MODE 1 - 8" of setting to be changed (ILL DELAY SET).
6. Touch "CHANGE SET".
7. The setting will be changed and "CUSTOMIZING COMPLETED" will be displayed.
8. Touch "END".

Work Support Setting Item

- Customizing Auto Light Setting

Work item	Description
CUSTOM A/LIGHT SETTING	Auto light sensitivity can be changed in this mode. Sensitivity can be adjusted in four modes. <ul style="list-style-type: none"> ● Mode 1 (Factory settings)/Mode 2 (More sensitive Mode 1)/ Mode 3 (More sensitive than Mode 2)/Mode 4 (Less sensitive than Mode 1)
ILL DELAY SET	Auto light delay off timer period can be changed in this mode. Selects Auto light delay off timer period among eight modes. <ul style="list-style-type: none"> ● Mode 1 (45 sec.)^{NOTE} /Mode 2 (OFF)/Mode 3 (30 sec.)/Mode 4 (60 sec.)/ Mode 5 (90 sec.)/Mode 6 (120 sec.)/Mode 7 (150 sec.)/Mode 8 (180 sec.)

NOTE:

Factory settings

AUTO LIGHT SYSTEM

DATA MONITOR

Operation Procedure

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

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

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

Display Item List

Monitor item	Contents
IGN ON SW "ON/OFF"	Displays "IGN position (ON)/OFF, ACC position (OFF)" judged from the ignition switch signal.
ACC ON SW "ON/OFF"	Displays "ACC (ON)/OFF, Ignition OFF (OFF)" status judged from ignition switch signal.
KEY ON SW "ON/OFF"	Displays "Intelligent Key inserted into key slot (ON)/Intelligent Key removed from key slot (OFF)" status judged from the key switch signal.
TURN SIGNAL R "ON/OFF"	Displays status (turn right: ON/others: OFF) as judged from lighting switch signal.
TURN SIGNAL L "ON/OFF"	Displays status (turn left: ON/others: OFF) as judged from lighting switch signal.
HI BEAM SW "ON/OFF"	Displays status (high beam switch: ON/others: OFF) of high beam switch judged from lighting switch signal.
HEAD LAMP SW 1 "ON/OFF"	Displays status (headlamp switch 1: ON/others: OFF) of headlamp switch 1 judged from lighting switch signal.
HEAD LAMP SW 2 "ON/OFF"	Displays status (headlamp switch 2: ON/others: OFF) of headlamp switch 2 judged from lighting switch signal.
TAIL LAMP SW "ON/OFF"	Displays status (lighting switch 1ST or 2ND position: ON/others: OFF) of lighting switch judged from lighting switch signal.
AUTO LIGHT SW "ON/OFF"	Displays status of the lighting switch as judged from the lighting switch signal. (AUTO position: ON/other than AUTO position: OFF)
PASSING SW "ON/OFF"	Displays status (flash-to-passing switch: ON/others: OFF) of flash-to-passing switch judged from lighting switch signal.
FR FOG SW "ON/OFF"	Displays status (front fog lamp switch: ON/others: OFF) of front fog lamp switch judged from lighting switch signal.
DOOR SW - DR "ON/OFF"	Displays status of the driver door as judged from the driver door switch signal. (door is open: ON/door is closed: OFF)
DOOR SW - AS "ON/OFF"	Displays status of the passenger door as judged from the passenger door switch signal. (door is open: ON/door is closed: OFF)
DOOR SW - RR "ON/OFF"	Displays status of the rear door as judged from the rear door switch (RH) signal. (door is open: ON/door is closed: OFF)
DOOR SW - RL "ON/OFF"	Displays status of the rear door as judged from the rear door switch (LH) signal. (door is open: ON/door is closed: OFF)
BACK DOOR SW ^{NOTE} "OFF"	—
I - KEY LOCK "ON/OFF"	Displays "locked (ON)/other (OFF)" status, determined from lock signal.
OPTICAL SENSOR "0 - 5V"	Displays "outside brightness (close to 5 V when light/close to 0 V when dark)" judged from optical sensor signal.
VEHICLE SPEED "km/h"	Displays vehicle speed as judged from vehicle speed signal.

NOTE:

This item is displayed, but cannot be monitored.

AUTO LIGHT SYSTEM

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.
FR FOG LAMP	Allows front fog lamp relay to operate by switching ON-OFF.
DAYTIME RUNNING LIGHT ^{NOTE}	Allows daytime light relay to operate by switching ON-OFF.
HEAD LAMP (HI, LO)	Allows headlamp relay to operate by switching ON-OFF.

NOTE:

This item is tested only for CANADA models.

Symptom Chart

NKS003QA

Phenomenon	Malfunction system and reference
<ul style="list-style-type: none"> ● Parking lamps and headlamps will not illuminate when outside of the vehicle becomes dark. (Lighting switch 1ST position and 2ND position operate normally.) ● Parking lamps and headlamp will not go out when outside of the vehicle becomes light. (Lighting switch 1ST position and 2ND position operate normally.) ● Headlamps go out when outside of the vehicle becomes light, but parking lamps stay on. 	<ul style="list-style-type: none"> ● Refer to LT-128, "WORK SUPPORT" . ● Refer to LT-131, "Lighting Switch Inspection" . ● Refer to LT-131, "Optical Sensor System Inspection" . <p>If above systems are normal, replace BCM.</p>
<p>Parking lamps illuminate when outside of the vehicle becomes dark, but headlamps stay off. (Lighting switch 1ST position and 2ND position operate normally.)</p>	<ul style="list-style-type: none"> ● Refer to LT-128, "WORK SUPPORT" . ● Refer to LT-131, "Optical Sensor System Inspection" . <p>If above systems are normal, replace BCM.</p>
<p>With the ignition key in ACC position, headlamps, clearance lamps, tail lamps, etc. will not go out when the driver's door is opened.</p>	<ul style="list-style-type: none"> ● Refer to BL-94, "Check Door Switch" . <p>If above system is normal, replace BCM.</p>
<p>Auto light adjustment system will not operate. (Lighting switch AUTO, 1ST position and 2ND position operate normally.)</p>	<ul style="list-style-type: none"> ● Refer to LT-131, "Optical Sensor System Inspection" . <p>If above system is normal, replace BCM.</p>
<p>Auto light adjustment system of combination meter will not operate.</p>	<ul style="list-style-type: none"> ● CAN communication line inspection between BCM and combination meter: Refer to BCS-13, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .

AUTO LIGHT SYSTEM

Lighting Switch Inspection

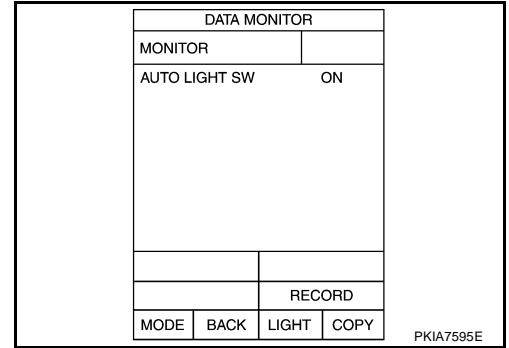
NKS003QB

1. CHECK LIGHTING SWITCH INPUT SIGNAL

☑ With CONSULT-II

1. Select "BCM" on CONSULT-II, and select "HEAD LAMP" on "SELECT TEST ITEM" screen.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen, and make sure "AUTO LIGHT SW" turns ON-OFF linked with operation of lighting switch.

When lighting switch is AUTO : AUTO LIGHT SW ON position



☒ Without CONSULT-II

Refer to [LT-239, "Combination Switch Inspection"](#).

OK or NG

OK >> INSPECTION END

NG >> Replace combination switch (lighting switch). Refer to [LT-239, "Combination Switch Inspection"](#).

Optical Sensor System Inspection

NKS003QC

1. CHECK OPTICAL SENSOR INPUT SIGNAL

☑ With CONSULT-II

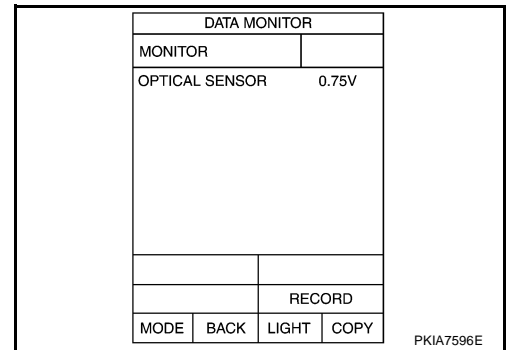
1. Select "BCM" on CONSULT-II, and select "HEAD LAMP" on "SELECT TEST ITEM" screen.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. On "OPTICAL SENSOR", check difference in the voltage when optical sensor is illuminated and not illuminated.

Illuminated

OPTICAL SENSOR : 3.1 V or more

Not illuminated

OPTICAL SENSOR : 0.6 V or less



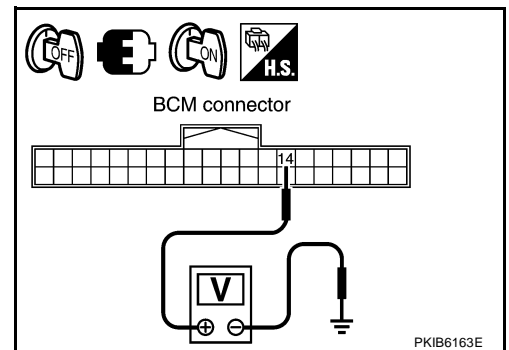
CAUTION:

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

☒ Without CONSULT-II

1. Turn ignition switch ON.
2. Check voltage between BCM harness connector and ground.

Terminal (+)		Terminal (-)	Condition	Voltage (Approx.)
BCM connector	Terminal			
M1	14	Ground	Illuminated Optical sensor	3.1 V or more
			Not illuminated Optical sensor	0.6 V or less



CAUTION:

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

OK or NG

OK >> INSPECTION END

NG >> GO TO 2.

AUTO LIGHT SYSTEM

2. CHECK OPTICAL SENSOR POWER SUPPLY CIRCUIT

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

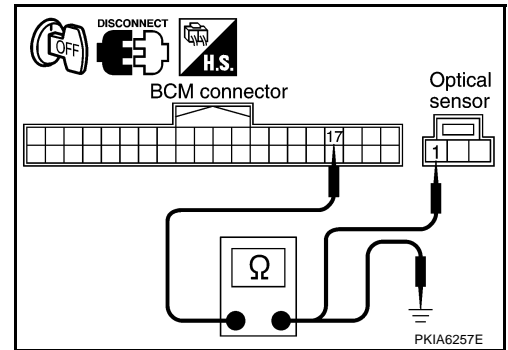
BCM		Optical sensor		Continuity
Connector	Terminal	Connector	Terminal	
M1	17	M48	1	Yes

4. Check continuity (short circuit) between BCM harness connector and ground.

BCM connector	Terminal	Ground	Continuity
M1	17		No

OK or NG

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



3. CHECK OPTICAL SENSOR SIGNAL CIRCUIT

1. Check continuity (open circuit) between BCM harness connector and optical sensor harness connector.

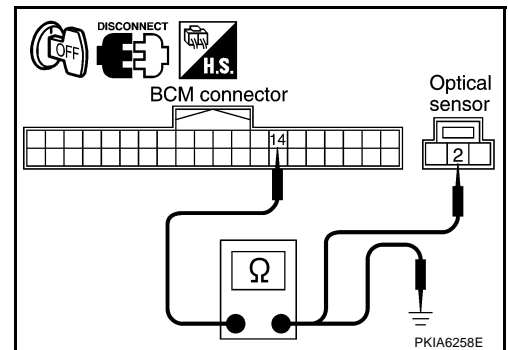
BCM		Optical sensor		Continuity
Connector	Terminal	Connector	Terminal	
M1	14	M48	2	Yes

2. Check continuity between (short circuit) BCM harness connector and ground.

BCM connector	Terminal	Ground	Continuity
M1	14		No

OK or NG

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



4. CHECK OPTICAL SENSOR GROUND CIRCUIT

1. Check continuity (open circuit) between BCM harness connector and optical sensor harness connector.

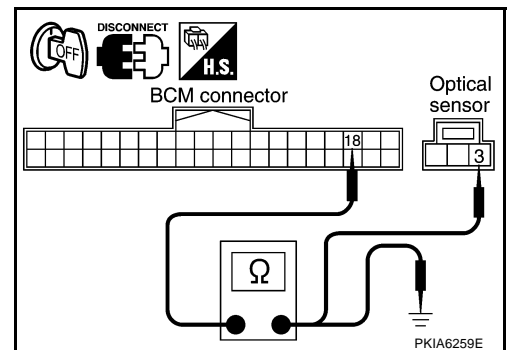
BCM		Optical sensor		Continuity
Connector	Terminal	Connector	Terminal	
M1	18	M48	3	Yes

2. Check continuity (short circuit) between BCM harness connector and ground.

BCM connector	Terminal	Ground	Continuity
M1	18		No

OK or NG

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



AUTO LIGHT SYSTEM

5. CHECK OPTICAL SENSOR VOLTAGE

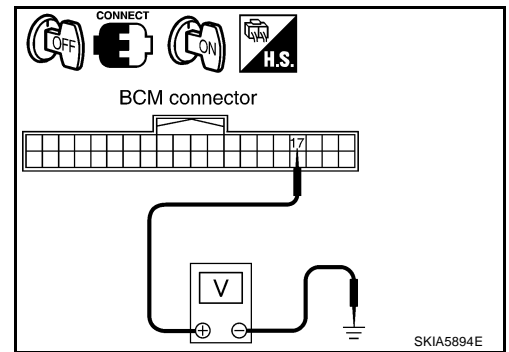
1. Connect BCM connector.
2. Turn ignition switch ON.
3. Check voltage between BCM harness connector and ground.

Terminal		Voltage (Approx.)
(+)	(-)	
BCM connector	Terminal	
M1	17	5.0 V

OK or NG

OK >> Replace optical sensor. Refer to [LT-133, "Removal and Installation for Optical Sensor"](#) .

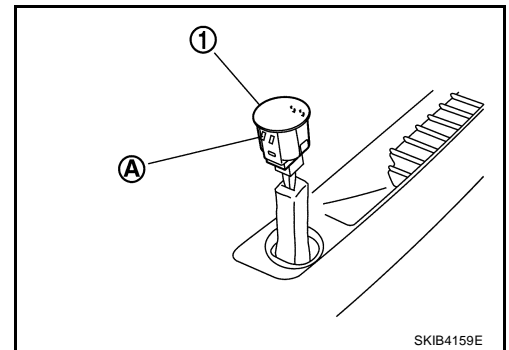
NG >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#) .



Removal and Installation for Optical Sensor

REMOVAL

1. Disengage the tab (A) and disconnect connector.
2. Remove optical sensor (1).



INSTALLATION

Installation is the reverse order of removal.

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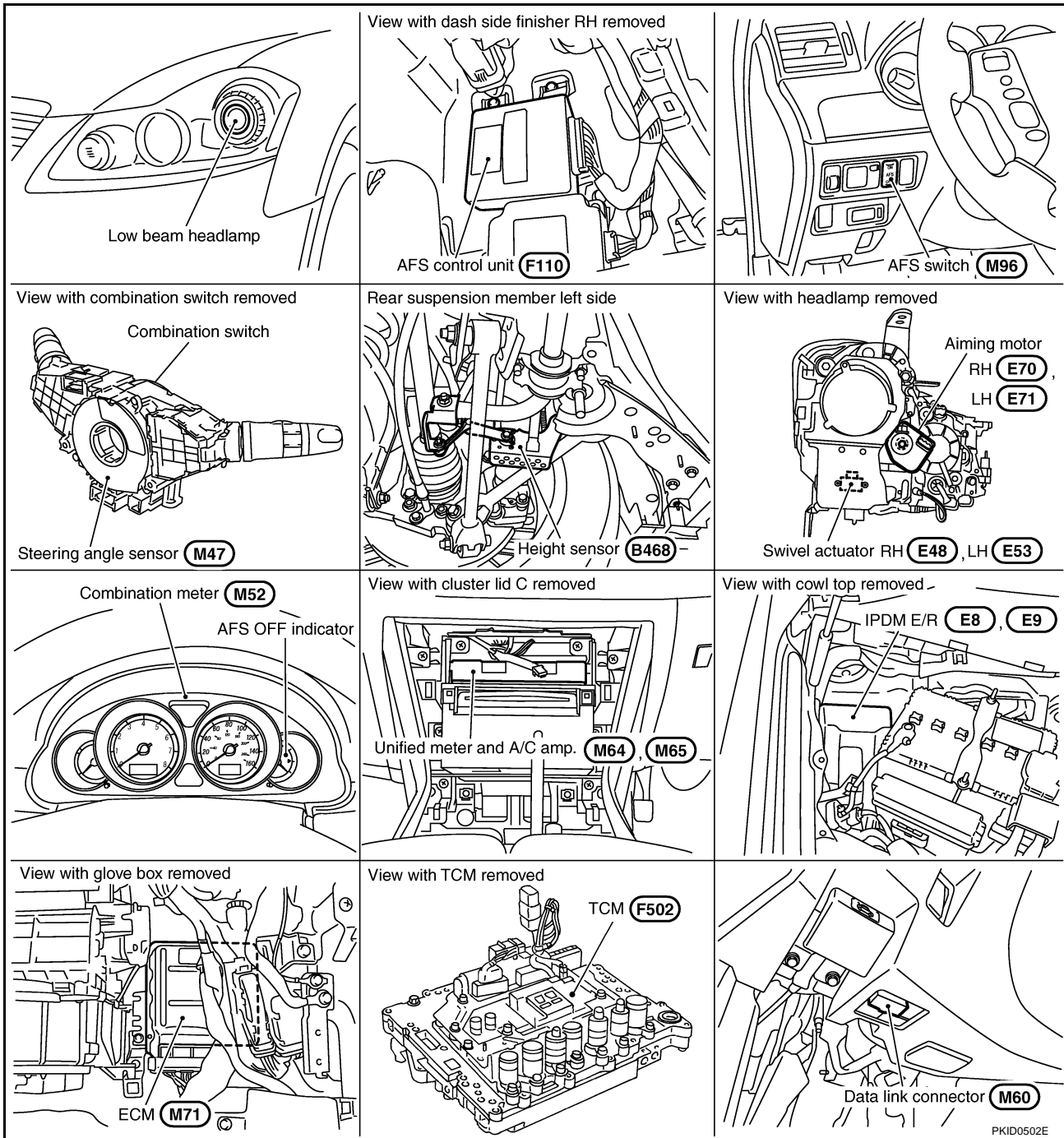
LT

ACTIVE AFS

PF2:253C0

Component Parts and Harness Connector Location

NKS003QE



System Description

NKS003QF

AFS control unit controls AFS and headlamp auto aiming.
The following signals are input to AFS control unit via CAN communication:

- Steering angle sensor signal
- A/T position indicator signal
- Low beam status signal
- Vehicle speed signal
- Engine speed signal

Other signals are input as follows:

- AFS switch signal from AFS switch connected to AFS control unit

ACTIVE AFS

- Height sensor signal from height sensor connected to AFS control unit
- Swivel position sensor signal from swivel position sensor built into both right and left swivel actuators connected to AFS control unit

In response to the state of control, AFS control unit switches commands of AFS off indicator signal sent to unified meter and A/C amp. via CAN communication; and then turns on/off or blinks AFS off indicator lamp built in the combination meter.

AFS (ADAPTIVE FRONT-LIGHTING SYSTEM)

AFS increases viewability of cornering direction by changing light axis automatically to the direction of travel with low beam headlamps during vehicle's cornering.

AFS switch allows AFS function to be stopped.

AFS control unit determines the current vehicle conditions by each received signals, and sends commands to the low beam headlamp to swivel. With the headlamps (HIGH/LOW) illuminated, the AFS switch on, engine running and the A/T select lever in any position but range P or range R, the low beam headlamps are operative by AFS control unit commands.

As the steering wheel is turned to the left (right), the left (right) low beam headlamp will automatically swivel angle in accordance with the steering angle and vehicle speed, and stop the operation when the steering wheel is returned to the straight-ahead position.

Swivel operation allows drive signal to be sent to the swivel actuator on the side that AFS control unit is actuated. Step motor built in swivel actuator adjusts low beam projector of headlamp to swivel angle that matches drive signal. Swivel position sensor built in swivel actuator detects swivel angle and transmits a swivel position sensor signal to the AFS control unit. AFS control unit monitors if swivel operation is performed normally via swivel position sensor signal.

● Swivel operation

	Low beam status	A/T selector lever position	Vehicle speed	AFS switch	Engine speed	Low beam headlamp LH (swivel)	Low beam headlamp RH (swivel)
Left turn	Illuminated*1	Except P, R	Running*2	ON	While engine running*3	×	
Right turn	Illuminated*1	Except P, R	Irrespective	ON	While engine running*3		×

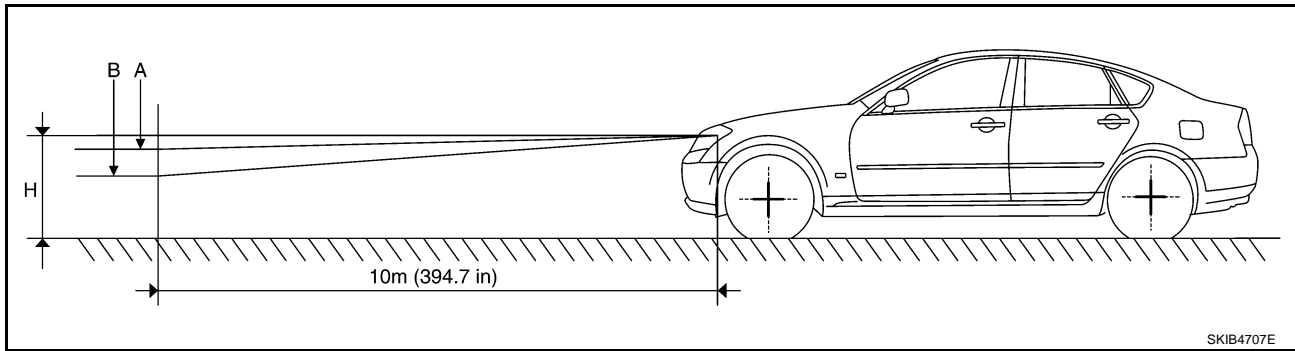
*1: Included high beam illuminated.

*2: The swivel operates when running at approx. 25 km/h (15.5 MPH). When swivel operation is started, it works on until vehicle stops.

*3: The low beam headlamps perform small movements when AFS control unit detects start of the engine. This is normal with initialization of swivel actuator by AFS control unit.

ACTIVE AFS

HEADLAMP AUTO AIMING



Operating range	With 18-inch wheel (Reference value)	With 19-inch wheel (Reference value)	Vehicle height
A	0 mm (Standard position)	0 mm (Standard position)	Unloaded vehicle position
B	Approx. 200 mm (7.9 in)	Approx. 180 mm (7.1 in)	Low

Headlamp auto aiming control automatically corrects vertical deviation of light axis that is brought by the change of vehicle height with changing number of passenger and laden weight, and relieves dazzle to oncoming vehicles.

AFS control unit determines the current vehicle conditions by each received signals, and sends commands to the low beam headlamps to auto aiming. With the headlamps (HIGH/LOW) illuminated and engine running, the low beam headlamps are operative by AFS control unit commands.

The height sensor is located on the left side of the rear suspension member and detects rear vehicle height change by sensing the displacement of the rear suspension arm. And transmits a height sensor signal to the AFS control unit.

With reference to the rear vehicle height under the empty condition, light axis of low beam with low rear vehicle height is relatively higher than that with the empty condition. AFS control unit switches drive signal corrects height of low beam axis to maintain height of light axis with empty condition.

Light axis of low beam with high rear vehicle height is relatively lower than that with empty condition. Light axis of low beam with empty condition is set as upper limit of headlamp auto aiming control operation. Control to correct deviation is not performed when light axis of low beam gets relatively higher than that with empty condition. Timing of control is switched in accordance with driving conditions.

● Headlamp auto aiming operation

Low beam status	Vehicle speed	Engine speed	AFS switch
Illuminated*1	Control switch by driving conditions*2	While engine running	Irrespective*3

*1: Included high beam illuminated

*2: Control timing of drive signal is switched by vehicle speed and accelerating/decelerating vehicle.

*3: Control is performed without regard to the condition of AFS switch. Headlamp auto aiming control function cannot be cancelled.

OUTLINE

Power is supplied

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

- through 10A fuse [No.12, located in fuse block (J/B)]
- to AFS control unit terminal 1
- to front combination lamp LH and RH terminal 13
- to AFS switch terminal 1
- to unified meter and A/C amp. terminal 53.

Ground is supplied

- to AFS control unit terminal 25
- through grounds M16 and M70,
- to front combination lamp LH and RH terminal 11
- through grounds E22 and E43.

AFS OPERATION

When The Steering Wheel Is Turned To The Left

Swivel motor driving signal (1-phase) is transmitted when the steering wheel is turned to left approximately more than 10* degrees (predetermined), with vehicle speed at approximately 25 km/h (15.5 MPH) or more, headlamps (HIGH/LOW) illuminated, AFS switch ON and the engine running and the A/T select lever in any position except range P or R.

* : Slightly different from the case when it is turned to the right.

Swivel motor driving signal (1-phase) is sent

- to front combination lamp LH terminal 17
- through AFS control unit terminal 15,
- to AFS control unit terminal 38
- through front combination lamp LH terminal 21.

And swivel motor driving signal (2-phase) is sent:

- to front combination lamp LH terminal 16
- through AFS control unit terminal 17,
- to AFS control unit terminal 36
- through front combination lamp LH terminal 20.

Swivel position sensor detects swivel angle during ignition switch ON, and transmits swivel position sensor signals to the AFS control unit:

When ignition switch is turn to ON position, power is supplied

- to front combination lamp LH terminal 15
- through AFS control unit terminal 24.

When ignition switch is turn to ON position, swivel position sensor signal input is supplied

- to AFS control unit terminal 29
- through front combination lamp LH terminal 14.

Ground is supplied

- to front combination lamp LH terminal 19
- through AFS control unit terminal 27.

The low beam headlamp LH starts to swivel to the left.

The swivel motor driving signals are blocked and the swivel motion stops when the steering angle reaches approximately more than 80 degrees (predetermined). The low beam headlamp will not swivel any further no matter how further left. As the steering wheel is turned back to the right, the swivel motor driving signals (both 1-phase and 2-phase) will be reversed, causing low beam headlamp LH to start swiveling to the right. When steering angle becomes smaller than predetermined value, the low beam headlamp is set in the straight-ahead position, swivel motor driving signals are blocked and low beam headlamps stop swiveling.

When The Steering Wheel Is Turned To The Right

Swivel motor driving signal (1-phase) is transmitted when the steering wheel is turned to right approximately more than 10* degrees (predetermined), with headlamps (HIGH/LOW) illuminated, AFS switch ON, the engine running and the A/T select lever in any position except range P or R.

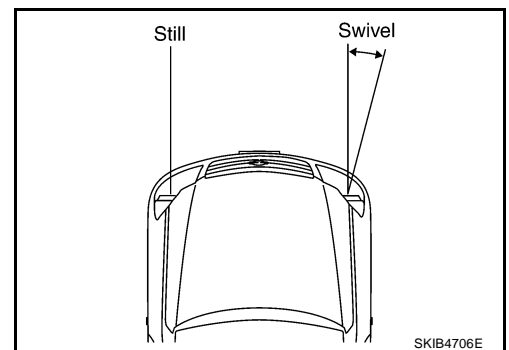
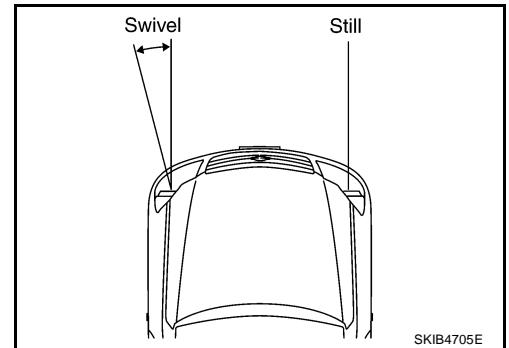
* : Slightly different from the case when it is turned to the left.

Swivel motor driving signal (1-phase) is sent

- to front combination lamp RH terminal 16
- through AFS control unit terminal 34,
- to AFS control unit terminal 11
- through front combination lamp RH terminal 20.

And swivel motor driving signal (2-phase) is sent

- to front combination lamp RH terminal 17
- through AFS control unit terminal 32,
- to AFS control unit terminal 13



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ACTIVE AFS

- through front combination lamp RH terminal 21.

Swivel position sensor detects swivel angle during ignition switch ON, and transmits swivel position sensor signals to the AFS control unit:

When ignition switch is turn to ON position, power is supplied

- to front combination lamp RH terminal 15
- through AFS control unit terminal 4.

When ignition switch is turn to ON position, swivel position sensor input signal is supplied

- to AFS control unit terminal 9
- through front combination lamp RH terminal 14.

Ground is supplied

- to front combination lamp RH terminal 19
- through AFS control unit terminal 2.

The low beam headlamp RH starts to swivel to the right.

The swivel motor driving signals are blocked and the swivel motion stops when the steering angle reaches approximately more than 80 degrees (predetermined). The low beam headlamp will not swivel any further no matter how further right. As the steering wheel is turned back to the left, the swivel motor driving signals (both 1-phase and 2-phase) will be reversed, causing low beam headlamp RH to start swiveling to the left. When steering angle becomes smaller than predetermined value, the low beam headlamp is set in the straight-ahead position, swivel motor driving signals are blocked and low beam headlamps stop swiveling.

AFS OFF INDICATOR OPERATION

In response to the state of control, AFS control unit switches commands of AFS off indicator signal sent to unified meter and A/C amp. via CAN communication; and then turns on/off or blinks AFS off indicator lamp built in the combination meter depending on the following condition.

- Bulb check operation
AFS off indicator lamp is turned off after illuminating for one second as a bulb check for AFS off indicator lamp when turn ignition switch ON is detected.

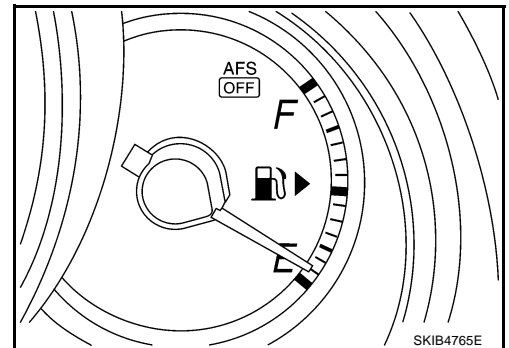
NOTE:

AFS off indicator lamp is turned off without a lapse of one second when start of the engine is detected.

- AFS switch operation
AFS off indicator lamp is illuminated while AFS switch is OFF.
AFS off indicator lamp is turned off while AFS switch is ON.
- System warning operation
AFS off indicator lamp illuminates at intervals of approximately one second when AFS control unit detects any specific DTC (diagnosis trouble code), or when unified meter and A/C amp. cannot receive AFS off indicator signals.

NOTE:

Unified meter and A/C amp. transmits a command to combination meter to blink AFS off indicator lamp when they cannot receive AFS off indicator signal.



SWIVEL ACTUATOR INITIALIZATION

AFS control unit performs swivel operation to initialize swivel actuator when start of the engine is detected. Straight-ahead position of low beam headlamps is adjusted by turning low beam headlamps to outside vehicle with specified swivel angle after turning it to the center of vehicle and making sure that it reaches the stopper. Swivel actuator initialization shall be performed every time when start of the engine is detected.

ACTIVE AFS

HEADLAMP AUTO AIMING OPERATION

The height sensor detects a change in height of rear vehicle with ignition switch ON, and transmits signals to the AFS control unit:

When ignition switch is turn to ON position, power is supplied

- to height sensor terminal 1
- through AFS control unit terminal 6.

When ignition switch is turned to ON position, height sensor input signal is supplied

- to AFS control unit terminal 28
- through height sensor terminal 2.

Ground is supplied

- to height sensor terminal 3
- through AFS control unit terminal 8.

Aiming motor driving signal (voltage signal that corresponds to the vehicle height) is transmitted depending on the height sensor signal at the start of the engine

- to front combination lamp LH terminal 12
- through AFS control unit terminal 40,
- to front combination lamp RH terminal 12
- through AFS control unit terminal 19.

Output of aiming motor driving signal is maintained unless headlamp (HIGH/LOW) illuminate detected.

Auto aiming control operation starts when headlamps (HIGH/LOW) illuminate detected.

When headlamps (HIGH/LOW) illuminate, output of aiming motor driving signal is changed according to the height sensor signal. After the change, it is changed according to height sensor signals with predetermined timing based on driving condition while headlamps are ON.

Auto Aiming Operation

AFS control unit starts outputting aiming motor drive signal when the engine starts, and continues to output it until the engine stops. Aiming motor drive signal changes output when the specified conditions described below are met.

Headlamp aiming motors set the low beam projectors according to aiming motor drive signals received from AFS control unit, both headlamp aiming motors cause the low beam projectors to move to the position commanded by the signal.

The aiming motor drive signal level retains when the following conditions are not met.

- AFS control unit operation when the vehicle is stopped (low beam headlamps illuminated)
Headlamp aiming motor drive signal is changed when vehicle height is stabilized with a parked condition, depending on the height sensor signal detected with height sensor signal by AFS control unit.
- AFS control unit operation when the vehicle is running (low beam headlamps illuminated)
When vehicle is running, headlamp aiming motor drive signal is changed depending on the height sensor signal which is detected when AFS control unit detects constant steady speed of vehicle.
When the vehicle is accelerating or decelerating, AFS control unit keeps headlamp aiming motor drive signal voltage level rather than changing it, so that the low beam projectors of both headlamps do not operate.

CAN COMMUNICATION SYSTEM DESCRIPTION

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

CAN COMMUNICATION UNIT

Refer to [LAN-50, "CAN System Specification Chart"](#) .

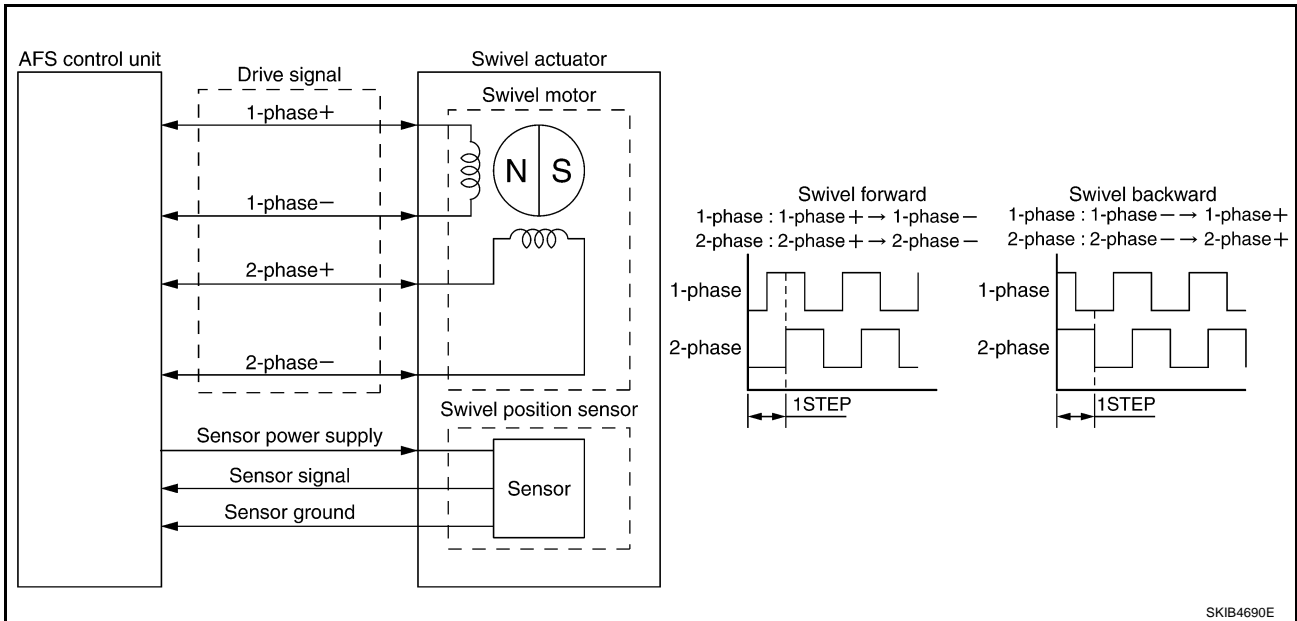
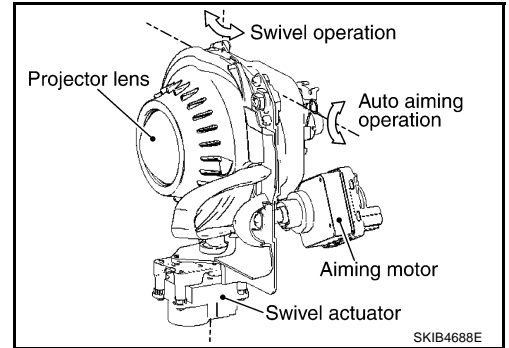
Component Parts Description

AFS CONTROL UNIT

AFS control unit determines current vehicle conditions by received signals and controls AFS and headlamp auto aiming.

SWIVEL ACTUATOR

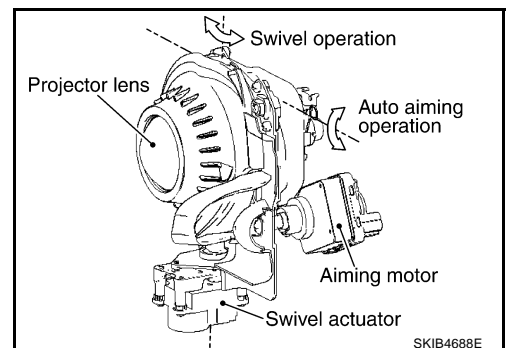
Swivel actuator is configured with swivel motor and swivel position sensor and is built in headlamps.



- **Swivel motor (step motor)**
Swivel motor is a two-phase step motor. It is driven according to drive signals from AFS control unit when two drive windings are energized in set sequences, and adjusts low beam projector of headlamp. The direction of actuator rotation can be changed as desired by selecting appropriate energizing sequences.
- **Swivel position sensor**
Swivel position sensor detects swivel angle and transmits a swivel position sensor signal to the AFS control unit.

AIMING MOTOR

Aiming motor is installed outside the headlamps. Headlamp aiming motors set the low beam projectors according to headlamp aiming motor drive signals received from AFS control unit.

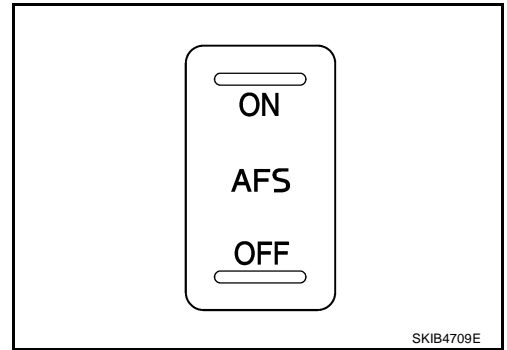


ACTIVE AFS

AFS SWITCH

AFS switch transmits state of ON/OFF as AFS switch signals to AFS control unit.

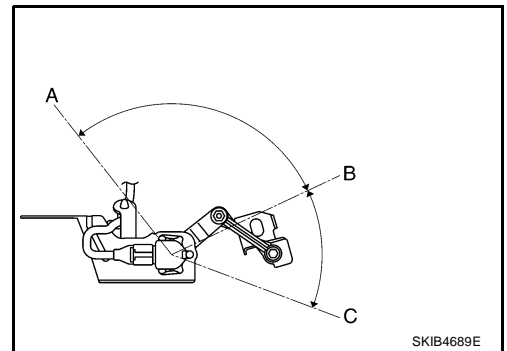
- AFS control unit performs AFS operation when AFS switch is ON and turns off AFS off indicator lamp.
- AFS control unit does not perform AFS operation when AFS switch is OFF, and turns on AFS off indicator lamp.



HEIGHT SENSOR

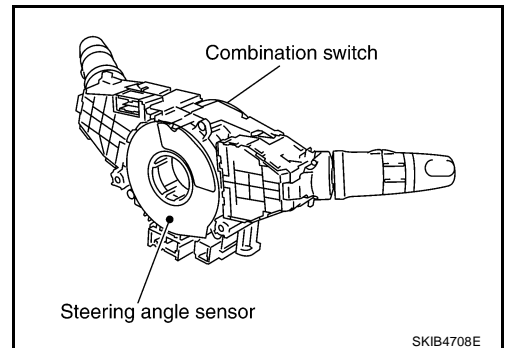
The height sensor is located on the left side of the rear suspension member and detects rear vehicle height change by sensing the displacement of the rear suspension arm. And transmits a height sensor signal to the AFS control unit.

	Sensor angle	Vehicle height
A	Approx. -103° (Link stopper angle)	Low side
B	0° (Standard position)	Approx. unloaded vehicle position
C	Approx. 46° (Link stopper angle)	High side



STEERING ANGLE SENSOR

The steering angle sensor is located combination switch and detects steering angle. And transmits a steering angle sensor signal to the AFS control unit.



IPDM E/R

IPDM E/R detects ON/OFF state of low beam headlamps. It transmits a low beam state signal to the AFS control unit.

ECM

ECM transmits an engine speed signal to the AFS control unit.

TCM

TCM transmits an A/T position indicator signal to the AFS control unit.

UNIFIED METER AND A/C AMP.

- Unified meter and A/C amp. transmits vehicle speed signals to the AFS control unit.
- Unified meter and A/C amp. transmits AFS off indicator signals received from the AFS control unit to the combination meter.

COMBINATION METER

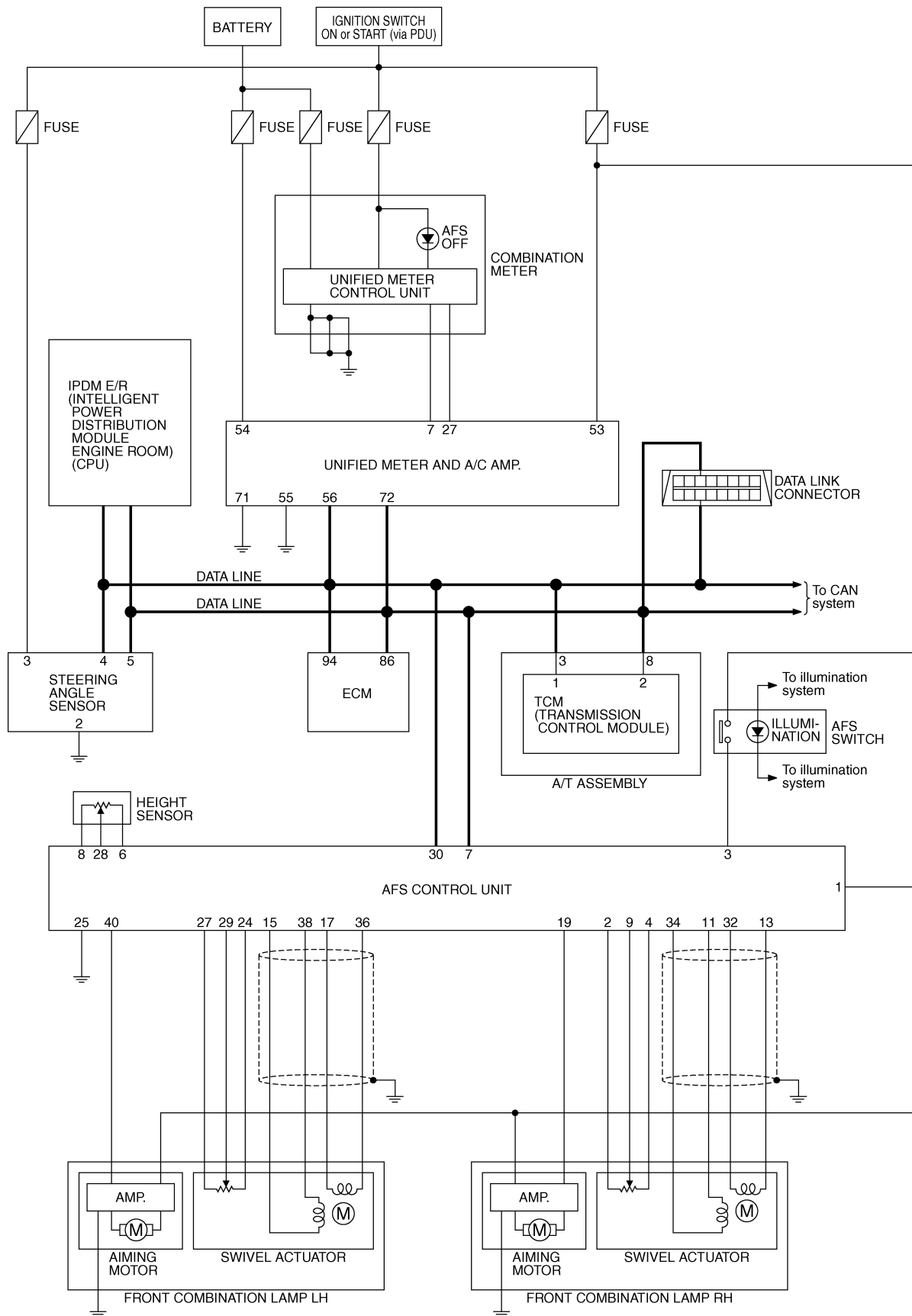
Combination meter turns on/off or blinks built-in AFS off indicator lamp depending on AFS off indicator signal received from unified meter and A/C amp.

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ACTIVE AFS

Schematic

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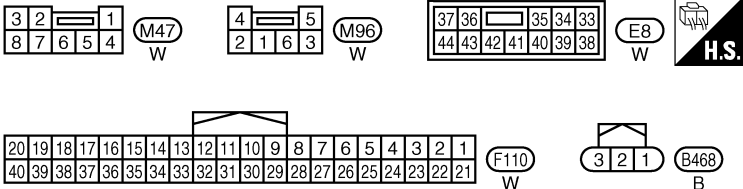
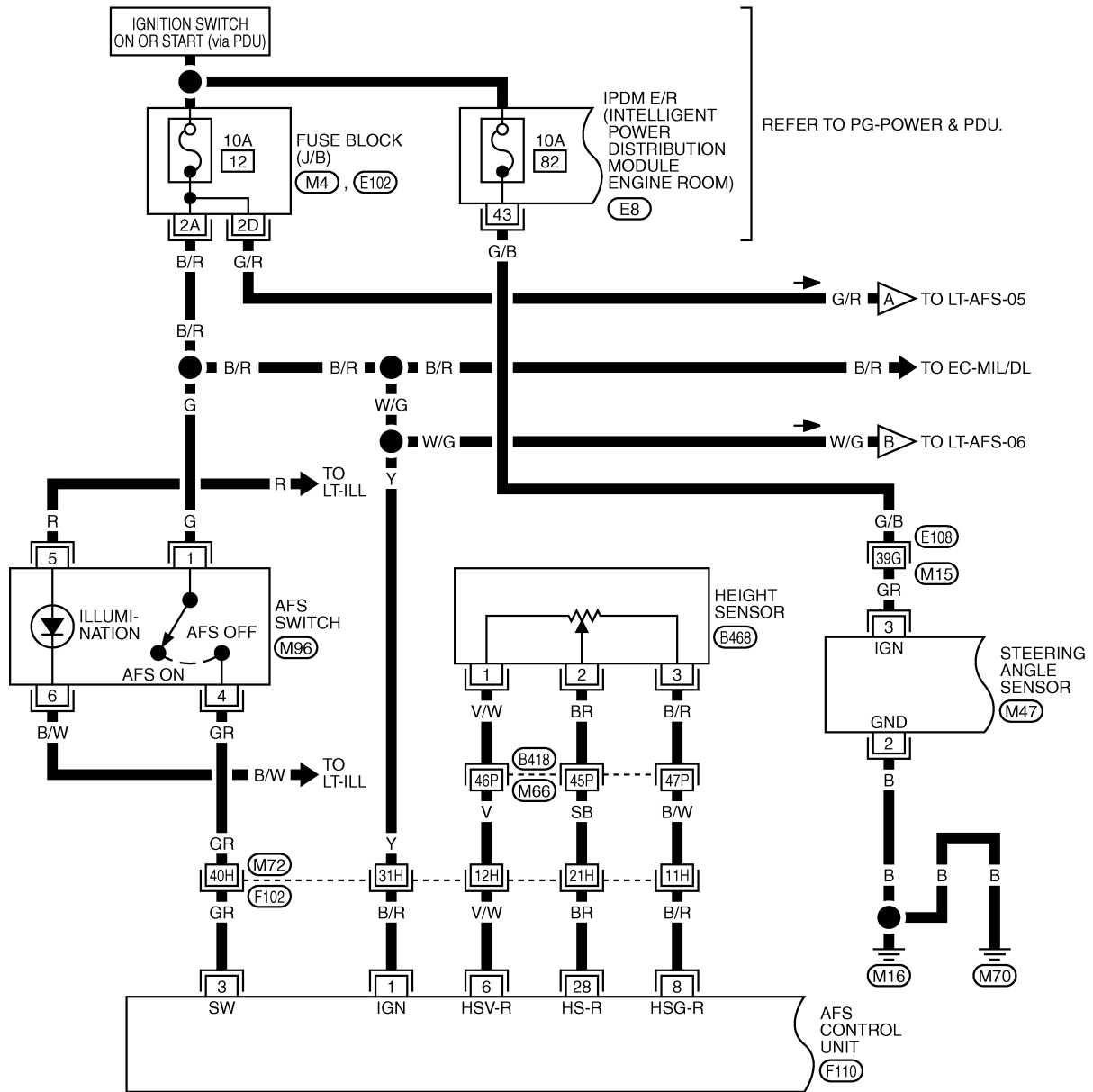
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ACTIVE AFS

Wiring Diagram — AFS —

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LT-AFS-01



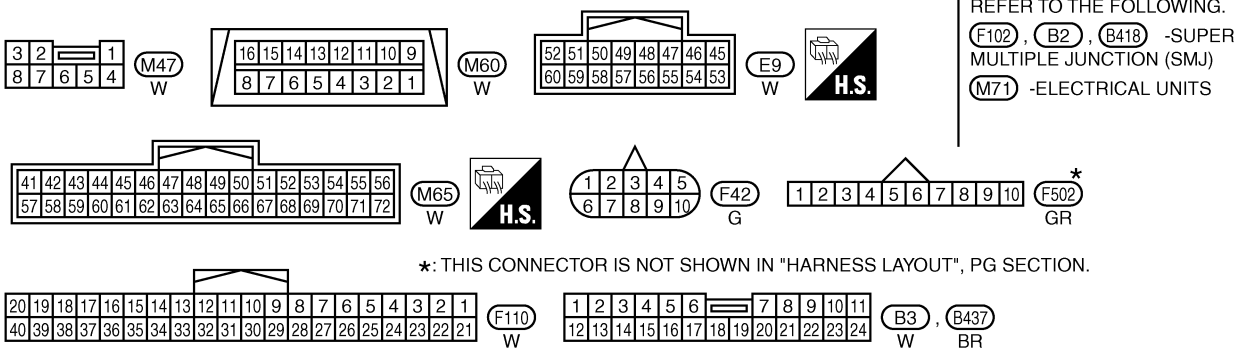
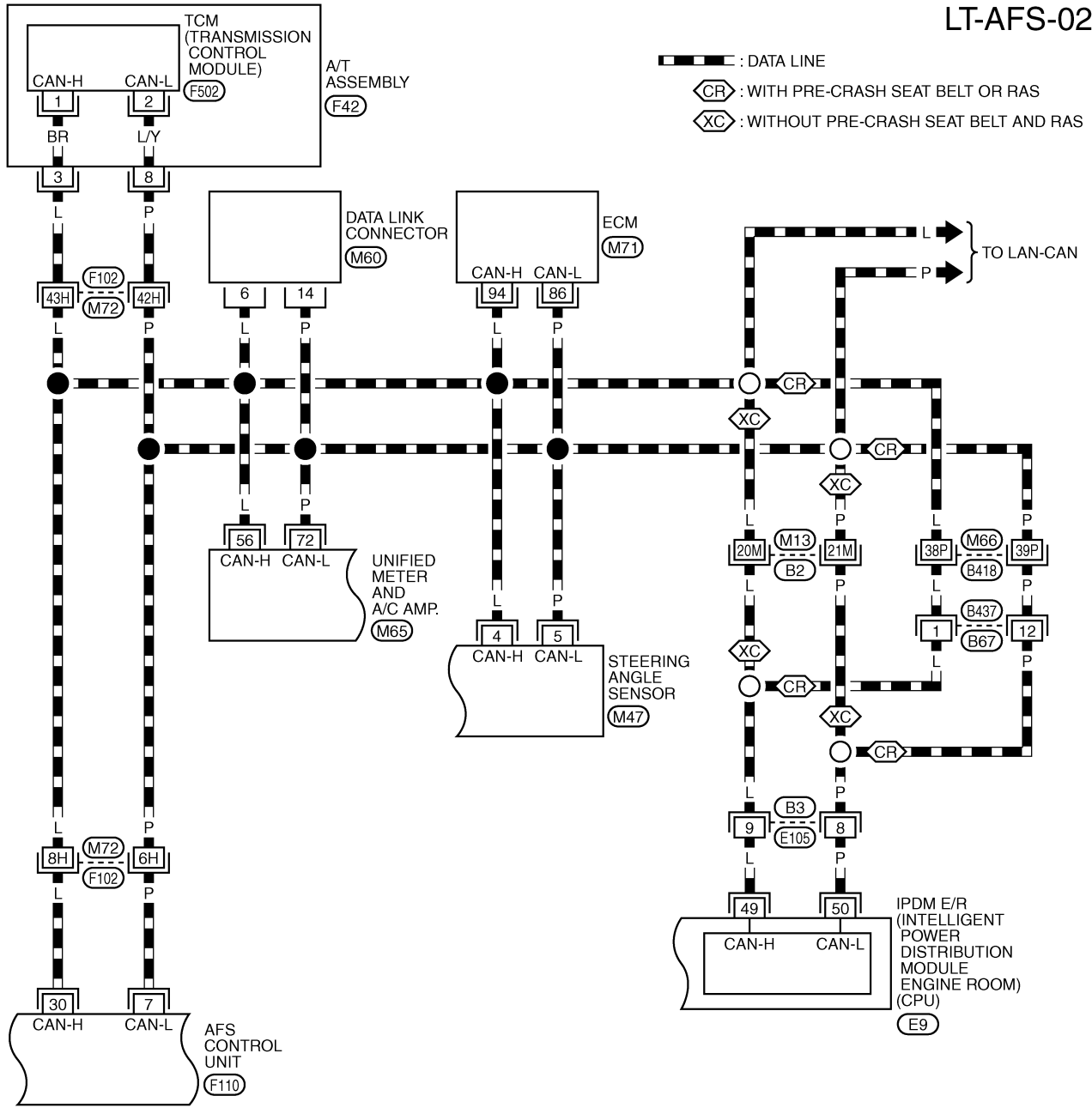
REFER TO THE FOLLOWING.
 (E108), (F102), (B418) -SUPER MULTIPLE JUNCTION (SMJ)
 (M4), (E102) -FUSE BLOCK-JUNCTION BOX (J/B)

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ACTIVE AFS

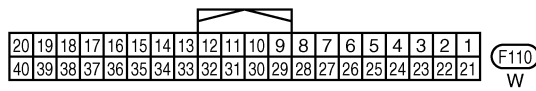
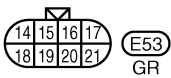
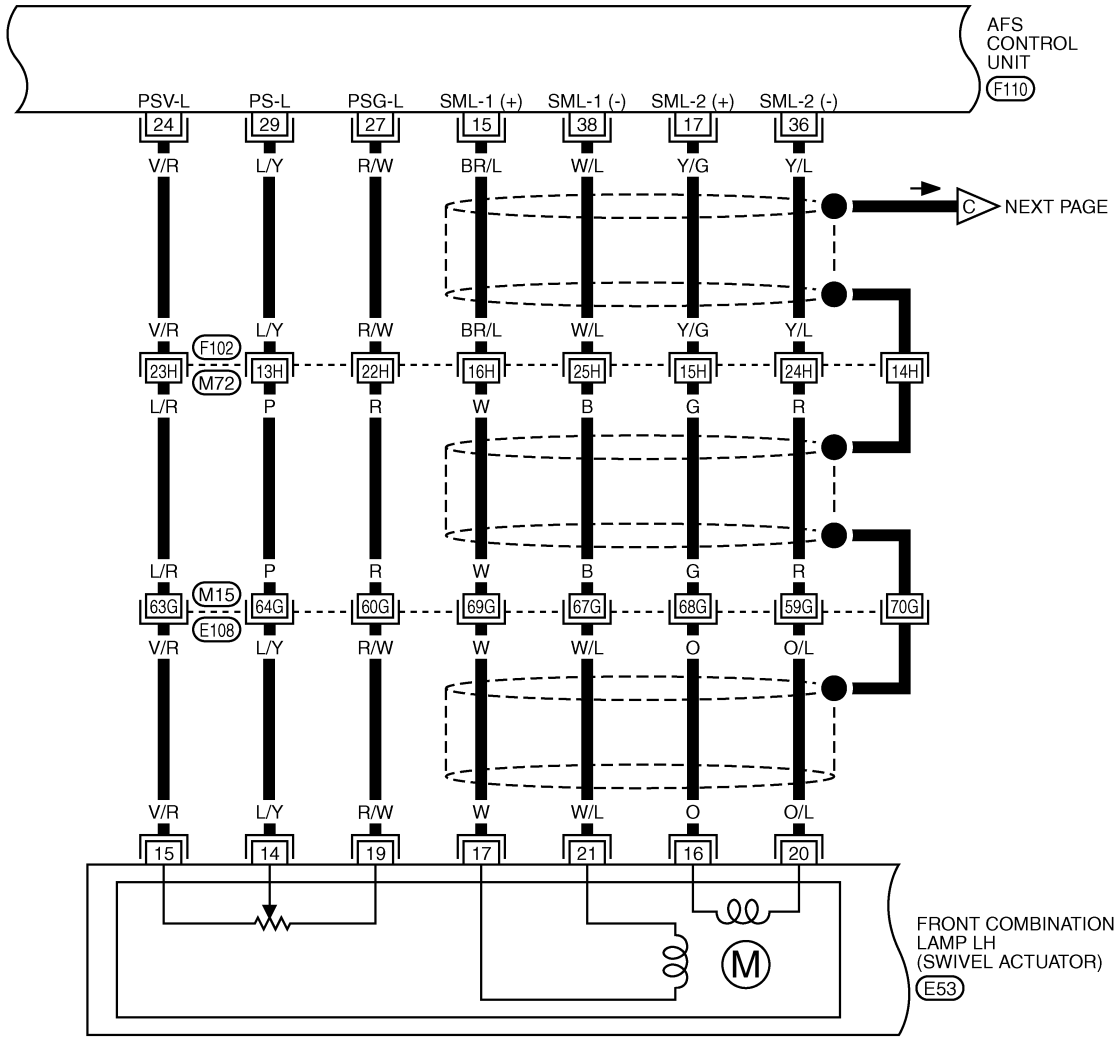
LT-AFS-02



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ACTIVE AFS

LT-AFS-03

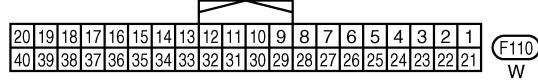
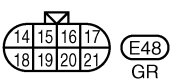
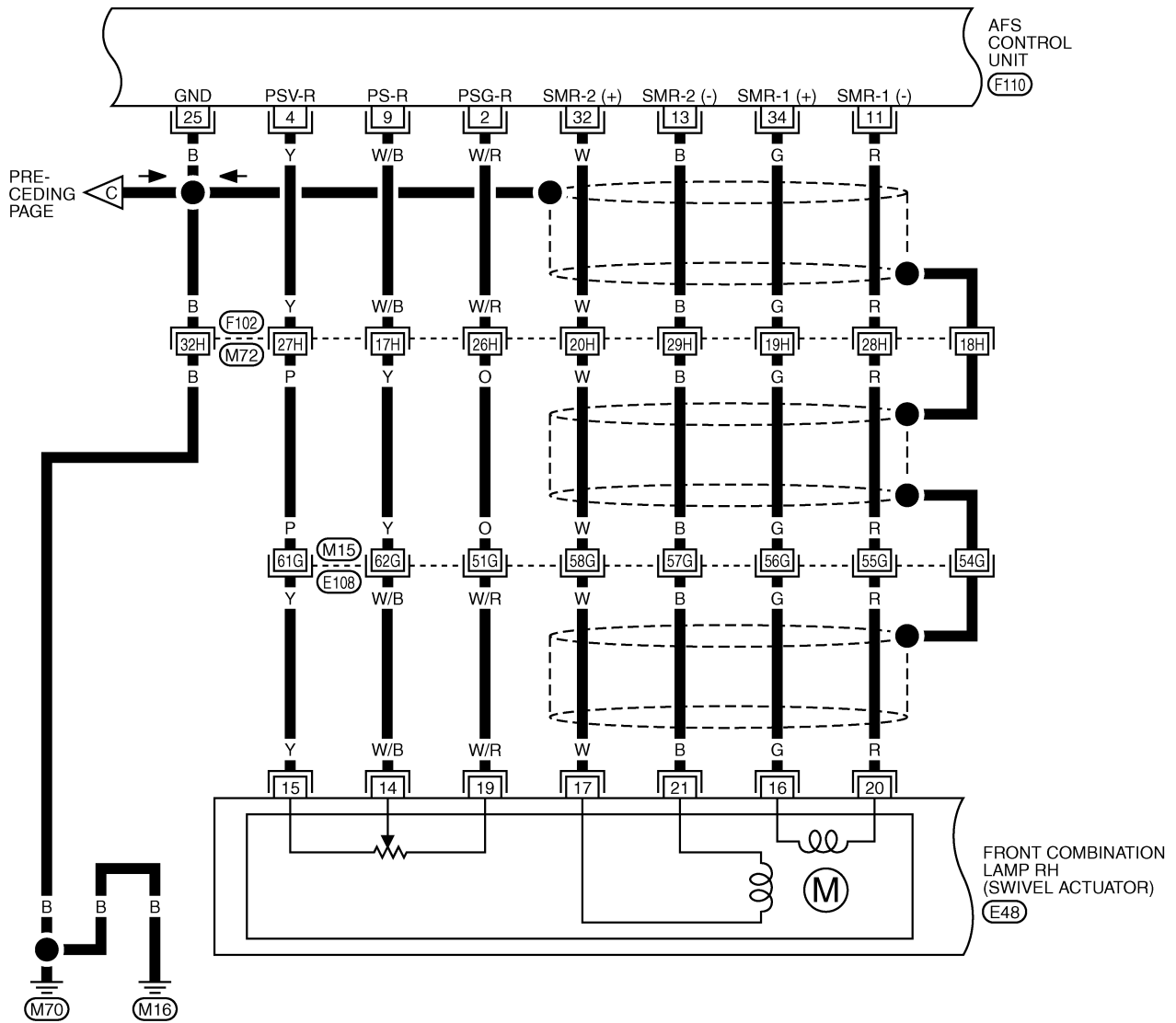


REFER TO THE FOLLOWING.
 (E108), (F102) -SUPER MULTIPLE
 JUNCTION (SMJ)

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ACTIVE AFS

LT-AFS-04

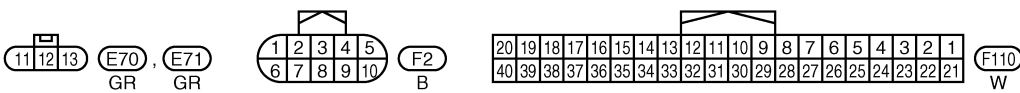
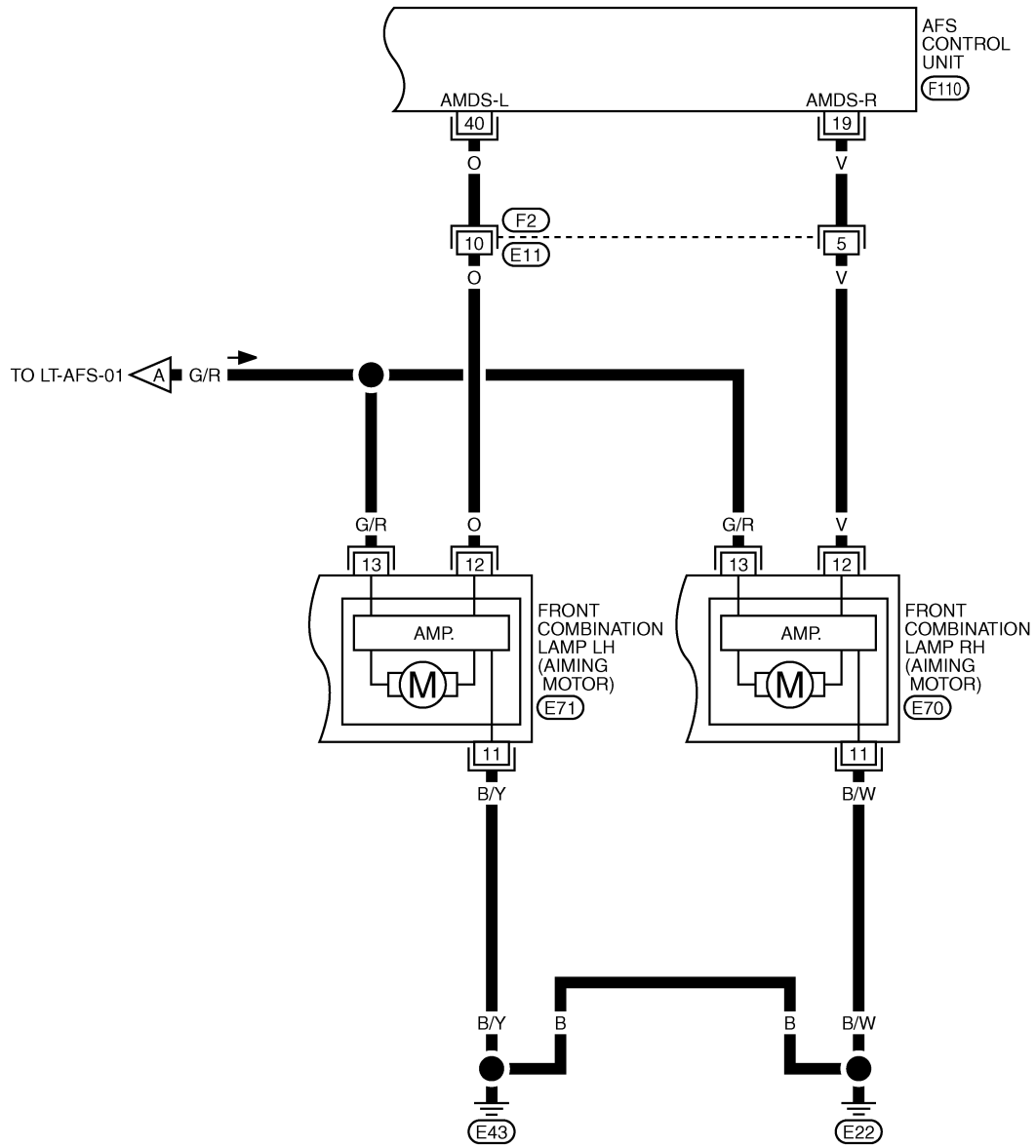


REFER TO THE FOLLOWING.
 (E108), (F102) -SUPER MULTIPLE
 JUNCTION (SMJ)

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ACTIVE AFS

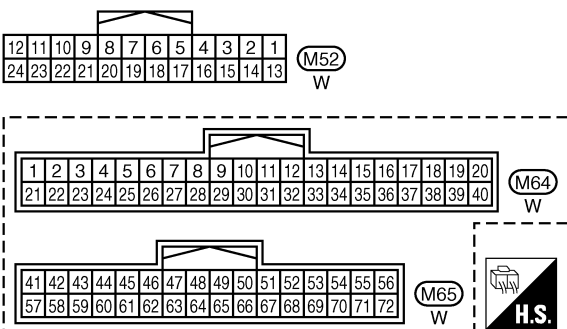
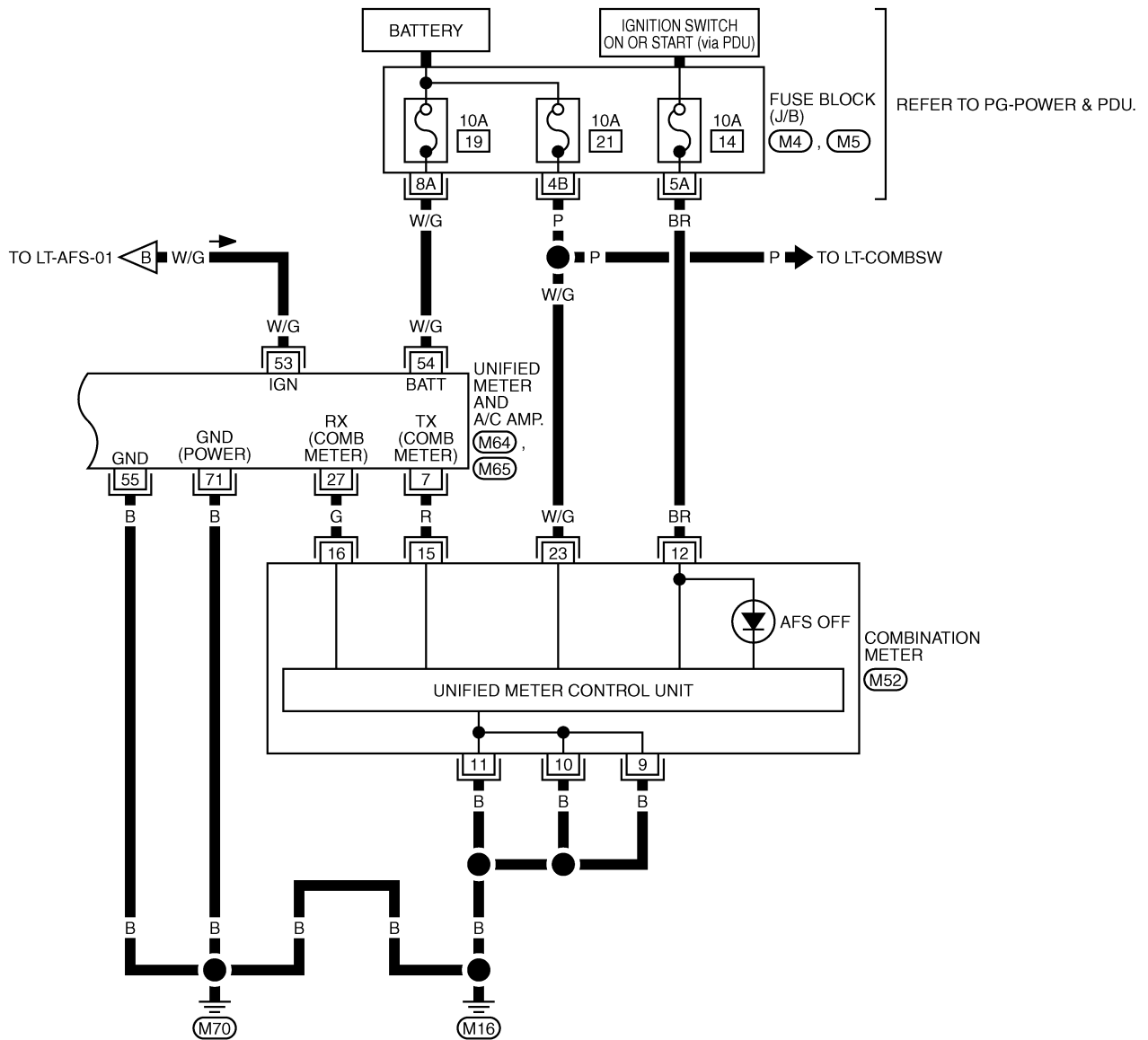
LT-AFS-05



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ACTIVE AFS

LT-AFS-06



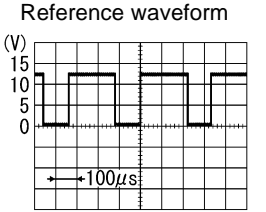
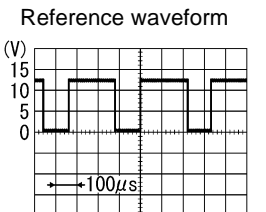
REFER TO THE FOLLOWING.
 (M4), (M5) - FUSE BLOCK-
 JUNCTION BOX (J/B)

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ACTIVE AFS

Terminals and Reference Values for AFS Control Unit

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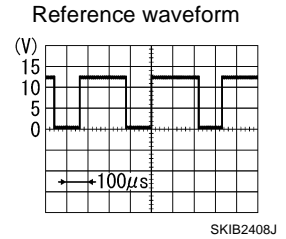
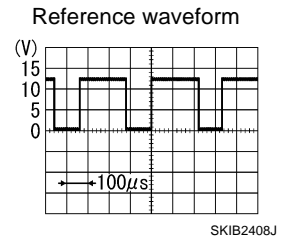
Terminal No.	Wire color	Item	Measuring condition		Reference value	
			Ignition switch	Operation or condition		
1	B/R	IGN power supply	ON	—	Battery voltage	
2	W/R	Swivel position sensor ground (right)	ON	—	Approx. 0 V	
3	GR	AFS switch signal	ON	AFS switch	ON	Approx. 0 V
					OFF	Battery voltage
4	Y	Swivel position sensor power supply (right)	ON	—	Approx. 5 V	
6	V/W	Height sensor power supply	ON	—	Approx. 5 V	
7	P	CAN-L	—	—	—	
8	B/R	Height sensor ground	ON	—	Approx. 0 V	
9	W/B	Swivel position sensor signal (right)	ON	Low beam headlamp (right) swivel angle	0°	Approx. 1.5 V
					Maximum angle	Approx. 2.5 V
11	R	Swivel motor 1 phase- (right)	ON	Low beam headlamp (right) swivel	ON	<p style="text-align: center;">Reference waveform</p>  <p style="text-align: center;">Approx. 8 - 12 V</p>
13	B	Swivel motor 2 phase- (right)	ON		OFF	Approx. 9.5 - 11.5 V
15	BR/L	Swivel motor 1 phase+ (left)	ON	Low beam headlamp (left) swivel	ON	<p style="text-align: center;">Reference waveform</p>  <p style="text-align: center;">Approx. 8 - 12 V</p>
17	Y/G	Swivel motor 2 phase+ (left)	ON		OFF	Approx. 9.5 - 11.5 V
19	V	Aiming motor drive signal (right)	ON	Low beam headlamp (right) auto aiming	Unloaded vehicle position	Approx. 9 V
					Maximum laden condition	Approx. 4.8 V (With 18-inch wheel) Approx. 5.2 V (With 19-inch wheel)
24	V/R	Swivel position sensor power supply (left)	ON	—	Approx. 5 V	
25	B	Ground	ON	—	Approx. 0 V	
27	R/W	Swivel position sensor ground (left)	ON	—	Approx. 0 V	

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ACTIVE AFS

Terminal No.	Wire color	Item	Measuring condition		Reference value
			Ignition switch	Operation or condition	
28	BR	Height sensor signal	ON	Vehicle height	Unloaded vehicle position
					Approx. 2.5 V
29	L/Y	Swivel position sensor signal (left)	ON	Low beam headlamp (left) swivel angle	Maximum laden condition
					Approx. 1.0 V (With 18-inch wheel) Approx. 1.3 V (With 19-inch wheel)
29	L/Y	Swivel position sensor signal (left)	ON	Low beam headlamp (left) swivel angle	0°
30	L	CAN-H	—	—	Approx. 1.5 V
30	L	CAN-H	—	—	Approx. 3.5 V
30	L	CAN-H	—	—	—
32	W	Swivel motor 2 phase+ (right)	ON	Low beam headlamp (right) swivel	ON
					Reference waveform
34	G	Swivel motor 1 phase+ (right)	ON	OFF	Approx. 8 - 12 V
34	G	Swivel motor 1 phase+ (right)	ON	OFF	Approx. 9.5 - 11.5 V
36	Y/L	Swivel motor 2 phase- (left)	ON	Low beam headlamp (left) swivel	ON
					Reference waveform
38	W/L	Swivel motor 1 phase- (left)	ON	OFF	Approx. 8 - 12 V
38	W/L	Swivel motor 1 phase- (left)	ON	OFF	Approx. 9.5 - 11.5 V
40	O	Aiming motor drive signal (left)	ON	Low beam headlamp (left) auto aiming	Unloaded vehicle position
					Approx. 9 V
40	O	Aiming motor drive signal (left)	ON	Low beam headlamp (left) auto aiming	Maximum laden condition
40	O	Aiming motor drive signal (left)	ON	Low beam headlamp (left) auto aiming	Approx. 4.8 V (With 18-inch wheel) Approx. 5.2 V (With 19-inch wheel)



ACTIVE AFS

NKS003QK

How to Proceed with Trouble Diagnosis

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to [LT-134, "System Description"](#) .
3. Perform the preliminary check. Refer to [LT-151, "Preliminary Check"](#) .
4. Perform self-diagnosis by CONSULT-II. Refer to [LT-153, "SELF-DIAG RESULTS"](#) .
5. Check symptom and repair or replace the cause of malfunction.
6. Does the AFS operate normally? If YES: GO TO 7. If NO: GO TO 4.
7. INSPECTION END

Preliminary Check

NKS003QL

1. CHECK FUSES AND FUSIBLE LINK

Check for blown fuses and fusible link.

Unit	Power source	Fuse No.
AFS control unit	Ignition switch ON or START	12

Refer to [LT-143, "Wiring Diagram — AFS —"](#) .

OK or NG

OK >> GO TO 2.

NG >> If the fuse is brown be sure to eliminate cause of malfunction before installing new fuse. Refer to [PG-3, "POWER SUPPLY ROUTING CIRCUIT"](#) .

2. CHECK AFS CONTROL UNIT VOLTAGE

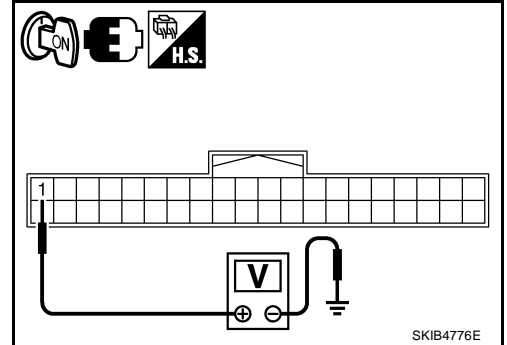
1. Turn ignition switch ON.
2. Check voltage between AFS control unit harness connector and ground.

Terminals		(-)	Voltage (Approx.)
(+)			
AFS control unit connector	Terminal		
F110	1	Ground	Battery voltage

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.



3. CHECK GROUND CIRCUIT

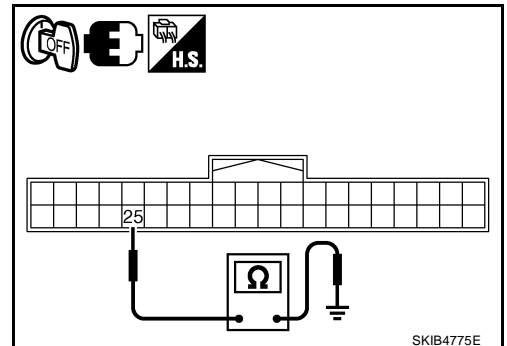
1. Turn ignition switch OFF.
2. Check continuity between AFS control unit harness connector and ground.

AFS control unit connector	Terminal	Ground	Continuity
F110	25		Yes

OK or NG

OK >> INSPECTION END

NG >> Repair harness or connector.



CONSULT-II Function (ADAPTIVE LIGHT)

NKS003QM

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

System part	Check item, diagnosis mode	Description
ADAPTIVE LIGHT	WORK SUPPORT	Adjusts steering angle sensor (Never use this function but on VDC side) and adjusts levelizer.
	SELF-DIAG RESULTS	Displays self-diagnosis
	DATA MONITOR	Displays AFS control unit inputs and outputs in real time.
	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
	ACTIVE TEST	AFS control unit sends a drive signal to electronic components to check their operation.
	ECU PART NUMBER	AFS control unit part number can be read.

CONSULT-II BASIC OPERATION

Refer to [GI-38, "CONSULT-II Start Procedure"](#) .

WORK SUPPORT (STEERING ANGLE SENSOR ADJUSTMENT)

Work Support Item List

Item	Description
ST ANG SEN ADJUSTMENT	Adjust steering angle sensor neutral point (straight-ahead position).

CAUTION:

Never use this function but on VDC side.

Notes on Steering Angle Sensor (Neutral Point) Adjustment

- Be sure to adjust steering angle sensor neutral point before driving if any of the following has been removed/installed or replaced: Steering angle sensor; Steering system part, Suspension system part.
- On vehicle with VDC, perform steering angle sensor neutral point adjustment only on VDC side. Never perform the adjustment on ADAPTIVE LIGHT side as this may lead to VDC malfunctions. If the adjustment has been performed on AFS side, readjust on VDC side. For steering angle sensor neutral point adjustment procedures on VDC side, refer to [BRC-6, "Adjustment of Steering Angle Sensor Neutral Position"](#) in "ON-VEHICLE SERVICE".
- When replaced steering angle sensor, AFS control unit detects "DTC B2515 ST ANG SEN SIG". Delete the malfunction history after adjust steering angle sensor on VDC side.
- Steering angle sensor neutral point adjustment should be performed using CONSULT-II. (The adjustment will not be possible without CONSULT-II.)

Operation Procedure

Refer to [BRC-6, "Adjustment of Steering Angle Sensor Neutral Position"](#) .

WORK SUPPORT (LEVELIZER ADJUSTMENT)

Work Support Item List

Item	Description
LEVELIZER ADJUSTMENT	Adjust the height sensor signal value at unloaded vehicle position recognized by AFS control unit.

Operation Procedure

1. Set the vehicle in unload condition. (Removal all loads in driver, passenger and trunk rooms.)
2. Touch "ADAPTIVE LIGHT" on "SELECT SYSTEM" screen.
3. Touch "WORK SUPPORT" on "SELECT DIAG MODE" screen.
4. Touch "LEVELIZER ADJUSTMENT".
5. Touch "START".
6. "ADJUSTMENT COMPLETE" will be displayed.

CAUTION:

When "CAN NOT BE TESTED" is displayed, AFS control unit stops levelizer adjustment as it detected the change of height sensor signal. AFS control unit detects "DTC B2519 LEVELIZER CALIB".

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Turn ignition switch OFF not to change the vehicle height. Then turn ignition switch ON and perform levelizer adjustment again.

- When “ADJUSTMENT COMPLETE” is displayed, and “NO DTC IS DETECTED” is displayed on self-diagnosis results, levelizer adjustment is completed.
- When “ADJUSTMENT COMPLETE” is displayed, and “B2514 HI SEN UNUSUAL” is displayed on self-diagnosis results, refer to [LT-175, "DTC B2514 HI SEN UNUSUAL RR"](#) .

7. Touch “END”.

8. Turn ignition switch OFF.

SELF-DIAG RESULTS

Operation Procedure

1. Touch “ADAPTIVE LIGHT” on “SELECT SYSTEM” screen.
2. Touch “SELF-DIAG RESULTS” on the “SELECT DIAG MODE” screen.
3. Check display content in self-diagnostic results.

CAUTION:

DTC B2503 and B2504 cannot be detected before the swivel operation. Thus, perform swivel operation first, and then check the display in self-diagnostic results.

Description of DTC and Solutions after Detection

CONSULT-II can detect DTC (Diagnosis trouble code). The descriptions and solutions of DTC are listed below.

Details of error indication detected by CONSULT-II	Conditions of error detection	Fail-safe	Reference
CAN COMM CIRCUIT [U1000]	Any of several items below have errors. <ul style="list-style-type: none"> ● TRANSMIT DIAG ● Reception from ECM ● Reception from unified meter and A/C amp. ● Reception from TCM ● Reception from steering angle sensor ● Reception from IPDM E/R 	1. Swivel operation 2. Auto aiming operation 3. AFS OFF indicator operation 4. Cancellation	Reference LAN-50, "CAN System Specification Chart" .
CONTROL UNIT (CAN) [U1010]	AFS control unit malfunctions.	1. Stop the swivel motor RH and LH when the malfunction occurred. 2. Stop aiming motors when the malfunction occurred. 3. Flash at intervals of approx. 1 second when keeping error state for 2 seconds or longer. 4. Turn ignition switch OFF.	Replace AFS control unit. LT-192

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Details of error indication detected by CONSULT-II	Conditions of error detection	Fail-safe	Reference
SWIVEL ACTUATOR [RH] [B2503]	<p>Any of several statuses below</p> <ul style="list-style-type: none"> ● Large difference between swivel motor drive signal (swivel angle command signal) transmitted by AFS control unit and swivel position sensor signal (swivel angle feed back signal) by swivel position sensor exists for 2 seconds or longer. Or swivel position sensor signal does not change for 2 seconds or longer even when AFS control unit transmit swivel motor drive signal. <p>CAUTION: Detects when swivel operating (excludes initialization).</p> <ul style="list-style-type: none"> ● Short or open circuit exists for 2 seconds or longer on one of swivel motor circuits (AFS control unit terminals 11, 13, 32 or 34). <p>CAUTION: Detects when swivel operating (excludes initialization).</p> <ul style="list-style-type: none"> ● Voltage of swivel position sensor power supply (AFS control unit terminal 4) had more than 6 V or had less than 4 V for 2 seconds or longer. ● Voltage of swivel position sensor signal (AFS control unit terminal 9) had more than 4.75 V or had less than 0.25 V for 2 seconds or longer. 	<p>Fail-safe</p> <ol style="list-style-type: none"> 1. Swivel operation 2. Auto aiming operation 3. AFS OFF indicator operation 4. Cancellation 	<p>Reference</p> <p style="color: green; text-decoration: underline;">LT-161. "DTC B2503 SWIVEL ACTUATOR RH"</p>
SWIVEL ACTUATOR [LH] [B2504]	<p>Any of several statuses below</p> <ul style="list-style-type: none"> ● Large difference between swivel motor drive signal (swivel angle command signal) transmitted by AFS control unit and swivel position sensor signal (swivel angle feed back signal) by swivel position sensor exists for 2 seconds or longer. Or swivel position sensor signal does not change for 2 seconds or longer even when AFS control unit transmit swivel motor drive signal. <p>CAUTION: Detects when swivel operating (excludes initialization).</p> <ul style="list-style-type: none"> ● Short or open circuit exists for 2 seconds or longer on one of swivel motor circuits (AFS control unit terminals 15, 17, 36 or 38). <p>CAUTION: Detects when swivel operating (excludes initialization).</p> <ul style="list-style-type: none"> ● Voltage of swivel position sensor power supply (AFS control unit terminal 24) had more than 6 V or had less than 4 V for 2 seconds or longer. ● Voltage of swivel position sensor signal (AFS control unit terminal 29) had more than 4.75 V or had less than 0.25 V for 2 seconds or longer. 	<ol style="list-style-type: none"> 1. Stop the swivel motor RH and LH when the malfunction occurred. 2. Reduce approx. 2 V of the aiming motor drive signal value from that of when error is detected. 3. Flash at intervals of approx. 1 second when keeping error state for 2 seconds or longer. 4. Turn ignition switch OFF. 	<p style="color: green; text-decoration: underline;">LT-168. "DTC B2504 SWIVEL ACTUATOR LH"</p>
HI SEN UNUSUAL [RR] [B2514]	<p>Any of several statuses below</p> <ul style="list-style-type: none"> ● Voltage of height sensor power supply (AFS control unit terminal 6) had more than 6 V or had less than 4 V for 2 seconds or longer. ● Voltage of height sensor signal (AFS control unit terminal 28) had more than 4.75 V or had less than 0.25 V for 2 seconds or longer. 	<ol style="list-style-type: none"> 1. Normal operation 2. Stop aiming motors when the malfunction occurred. 3. Remains OFF. 4. Turn ignition switch OFF. 	<p style="color: green; text-decoration: underline;">LT-175. "DTC B2514 HI SEN UNUSUAL RR"</p>

ACTIVE AFS

Details of error indication detected by CONSULT-II	Conditions of error detection	Fail-safe	Reference
		1. Swivel operation 2. Auto aiming operation 3. AFS OFF indicator operation 4. Cancellation	
ST ANG SEN SIG [B2515]	Any of several statuses below <ul style="list-style-type: none"> ● Cannot receive steering angle sensor signal. ● Receives steering angle sensor error. ● Receives steering angle sensor signal except -943° to +943°. 	1. Back to the initial position. 2. Normal operation 3. Flash at intervals of approx. 1 second when keeping error state for 2 seconds or longer. 4. Turn ignition switch OFF.	BRC-24. "Self-Diagnosis" . If above system is normal, replace AFS control unit.
SHIFT SIG [P, R] [B2516]	Cannot receive A/T position indicator signal.	1. Back to the initial position. 2. Normal operation 3. Flash at intervals of approx. 1 second when keeping error state for 2 seconds or longer. 4. Turn ignition switch OFF.	AT-92. "SELF-DIAGNOSTIC RESULT MODE" . If above system is normal, replace AFS control unit.
VEHICLE SPEED SIG [B2517]	Cannot receive vehicle speed signal.	1. Back to the initial position. 2. Stop when the malfunction occurred. 3. Flash at intervals of approx. 1 second when keeping error state for 2 seconds or longer. 4. Turn ignition switch OFF.	DI-31. "SELF-DIAG RESULTS" . If above system is normal, replace AFS control unit.
HEAD LAMP SIG [B2518]	Cannot receive low beam status signal.	1. Back to the initial position. 2. Stop aiming motors when the malfunction occurred. 3. Flash at intervals of approx. 1 second when keeping error state for 2 seconds or longer. 4. Turn ignition switch OFF.	PG-20. "SELF-DIAG RESULTS" . If above system is normal, replace AFS control unit.
LEVELIZER CALIB [B2519]	Cannot recognize height sensor signal value at unloaded vehicle position.	1. Normal operation 2. Stop aiming motors when the malfunction occurred. 3. Remains OFF. 4. When levelizer adjustment is completed	LT-152. "WORK SUPPORT (LEVELIZER ADJUSTMENT)"
ST ANGLE SEN CALIB [B2520]	Cannot recognize steering angle sensor neutral point (straight-ahead position).	1. Back to the initial position. 2. Normal operation 3. Flash at intervals of approx. 1 second when keeping error state for 2 seconds or longer. 4. When steering angle sensor adjustment is completed	BRC-6. "Adjustment of Steering Angle Sensor Neutral Position" .

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ACTIVE AFS

Details of error indication detected by CONSULT-II	Conditions of error detection	Fail-safe	Reference
ECU CIRC [B2521]	<p>Any of several statuses below</p> <ul style="list-style-type: none"> ● Short circuit exists for 2 seconds or longer on power supply (approx. 12 V) or ground of swivel position sensor (RH) power supply (AFS control unit terminal 4). ● Short circuit exists for 2 seconds or longer on power supply (approx. 12 V) of swivel position sensor (RH) signal (AFS control unit terminal 9). ● Short circuit exists for 2 seconds or longer on power supply (approx. 12 V) or ground of swivel position sensor (LH) power supply (AFS control unit terminal 24). ● Short circuit exists for 2 seconds or longer on power supply (approx. 12 V) of swivel position sensor (LH) signal (AFS control unit terminal 29). ● Short circuit exists for 2 seconds or longer on power supply (approx. 12 V) or ground of height sensor power supply (AFS control unit terminal 6). ● Short circuit exists for 2 seconds or longer on power supply (approx. 12 V) of height sensor signal (AFS control unit terminal 28). ● AFS control unit (RAM/ROM) malfunctions. 	<p>1. Swivel operation</p> <p>2. Auto aiming operation</p> <p>3. AFS OFF indicator operation</p> <p>4. Cancellation</p>	<p>Reference</p> <p>LT-179, "DTC B2521 ECU CIRC"</p>
ECM SIG [B2522]	Cannot receive engine speed signal.	<p>1. Back to the initial position.</p> <p>2. Stop when the malfunction occurred.</p> <p>3. Flash at intervals of approx. 1 second when keeping error state for 2 seconds or longer.</p> <p>4. Turn ignition switch OFF.</p>	<p>EC-126, "SELF-DIAG RESULTS MODE".</p> <p>If above system is normal, replace AFS control unit.</p>
AFS SIG [B2523]	Cannot transmit AFS off indicator signal.	<p>1. Back to the initial position.</p> <p>2. Normal operation</p> <p>3. Flashes at intervals of approx. 1 second when keeping error state for 2 seconds or longer.</p> <p>4. Turn ignition switch OFF.</p>	<p>Replace AFS control unit LT-192</p>

CAUTION:

- If DTC relating to CAN communication [U1000] and other components are displayed at the same time, diagnose CAN communication first.
- Make sure of the normal operation after the parts (except AFS control unit) replacement according to the self-diagnosis results. Delete the malfunction history.

Display Results

- 0: There is malfunction now.
- 1 – 39: Displays when it is normal at present and finds malfunction in the past. It increases in order of 0→1→2...38→39 after returning to the normal condition whenever IGN OFF→ON. If it is over 39, it is fixed to 39 until the self-diagnostic results are erased. It returns to 0 when malfunction is detected again in the process.

ACTIVE AFS

DATA MONITOR

Operation Procedure

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

ALL SIGNALS	Monitors all items.
SELECTION FROM MENU	Selects items and monitors them.

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

Data Monitor item

Monitors item	Measuring condition			Description
	Operation or condition	Reference value		
STR ANGLE SIG " ° "	Steering wheel	Straight-ahead	Approx. 0°	Displays steering angle based on steering angle sensor signals.
		Turned	Approx. -550° to 550°	
VHCL SPD " km/h "	—			Displays vehicle speed based on vehicle speed sensor signals.
SLCT LVR POSI " P - 1 "	—			Displays A/T selector lever position based on AT position indicator signals.
HEAD LAMP " ON/OFF "	Lighting switch	2ND	ON	Displays low beam headlamps on/off status based on low beam status signal.
		Out of 2ND	OFF	
AFS SW " ON/OFF "	AFS switch	ON	ON	Displays AFS switch ON/OFF position based on AFS switch signals.
		OFF	OFF	
HI SEN OTP RR " V "	Vehicle height (With 18-inch wheel)	Unloaded vehicle position	Approx. 2.5 V	Displays vehicle height value based on height sensor signals.
		Maximum laden condition	Approx. 1.0 V	
	Vehicle height (With 19-inch wheel)	Unloaded vehicle position	Approx. 2.5 V	
		Maximum laden condition	Approx. 1.3 V	
LEV ACTR VLTG "% "	Low beam headlamp auto aiming (With 18-inch wheel)	Unloaded vehicle position	Approx. 70.0%	Displays aiming motor drive signal based on AFS control unit interpretation of various vehicle sensor signals. The value is a ratio to IGN power supply.
		Maximum laden condition	Approx. 38.0%	
	Low beam headlamp auto aiming (With 19-inch wheel)	Unloaded vehicle position	Approx. 70.0%	
		Maximum laden condition	Approx. 41.8%	
SWVL SEN RH* " ° "	Low beam headlamp (right) swivel	OFF	Approx. 0°	Displays low beam headlamp (right) swivel angle based on swivel position sensor signals (right).
		ON	+°	
SWVL SEN LH* " ° "	Low beam headlamp (left) swivel	OFF	Approx. 0°	Displays low beam headlamp (left) swivel angle based on swivel position sensor signals (left).
		ON	+°	

ACTIVE AFS

Monitors item	Measuring condition			Description
	Operation or condition		Reference value	
SWVL ANGLE RH*	“ ° ” Low beam headlamp (right) swivel	OFF	Approx. 0°	Displays swivel motor drive signal (right) based on AFS control unit interpretation of various vehicle sensor signals.
		ON	+°	
SWVL ANGLE LH*	“ ° ” Low beam headlamp (left) swivel	OFF	Approx. 0°	Displays swivel motor drive signal (left) based on AFS control unit interpretation of various vehicle sensor signals.
		ON	+°	

CAUTION:

*: The value can be slightly different between that is displayed on “SWVL SEN RH/LH” and that on “SWVL ANGLE RH/LH”.

ACTIVE AFS

ACTIVE TEST

Operation Procedure

1. Start the engine. (Swivel actuator is initialized.)
2. Touch "ADAPTIVE LIGHT" on "SELECT SYSTEM" screen.
3. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
4. Touch "LOW BEAM TEST RIGHT", "LOW BEAM TEST LEFT", or "LEVELIZER TEST" on "SELECT TEST ITEM" screen.

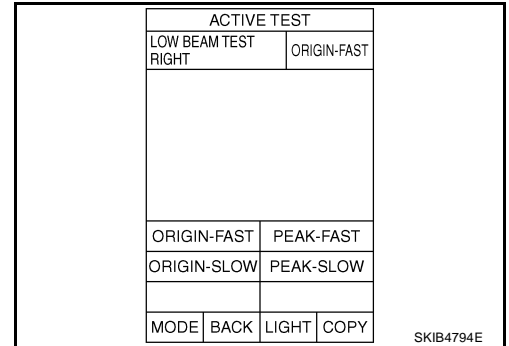
CAUTION:

Can be tested only when swivel actuator initialization is completed. If initialization is not completed, "RETRY COMMAND" is displayed and cannot be tested.

- LOW BEAM TEST RIGHT

Low beam headlamp (right) can be operated to swivel angle 0° by touching "ORIGIN", and to maximum angle by "PEAK".

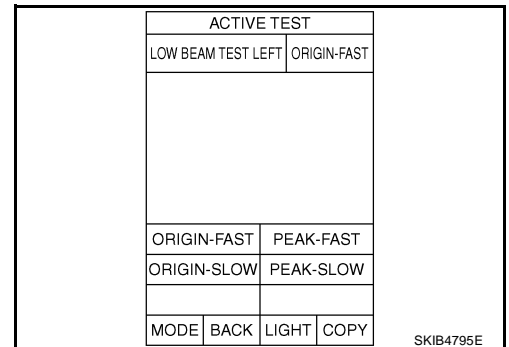
Test Item	Swivel Speed	Mode
ORIGIN/PEAK - FAST	Three times fast as SLOW	Normal operation
ORIGIN/PEAK - SLOW	—	Initialization



- LOW BEAM TEST LEFT

Low beam headlamp (left) can be operated to swivel angle 0° by touching "ORIGIN", and to maximum angle by "PEAK".

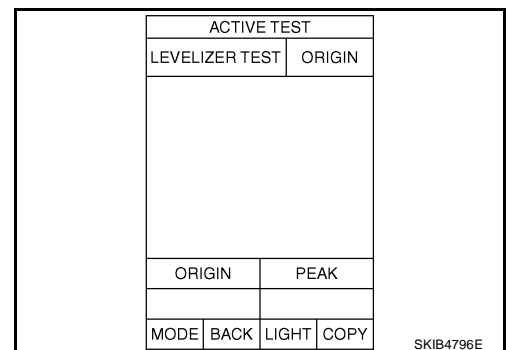
Test Item	Swivel Speed	Mode
ORIGIN/PEAK - FAST	Three times fast as SLOW	Normal operation
ORIGIN/PEAK - SLOW	—	Initialization



- LEVELIZER TEST

Aiming motor drive signal can be changed to approx. 85% (ratio to IGN power supply) by touching "ORIGIN", and to approx. 15% by "PEAK". That angles headlamp LO up and down.

Test Item	Aiming Motor Drive Signal		Light Axis (Reference Value)
	Ratio to IGN power supply	Voltage	
ORIGIN	Approx. 85%	Approx. 10.6 V	0°
PEAK	Approx. 15%	Approx. 1.9 V	Approx. 2.5° (Relatively lower than that of origin)



5. During the operation check, touching "BACK" deactivates the operation.

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ACTIVE AFS

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Symptom Chart

CAUTION:

The low beam headlamps performs small movements when AFS control unit detects the engine start. This is normal with initialization of swivel actuator by AFS control unit.

Symptom	AFS OFF indicator	Causal system	Reference
<ul style="list-style-type: none"> AFS operates, but cannot judge normal/abnormal. (AFS function test) 	Normal	Check swivel operation.	LT-182, "AFS Operation Check (Function Test)"
		Check steering angle sensor neutral point (straight-ahead position).	
<ul style="list-style-type: none"> Auto aiming operates, but cannot judge normal/abnormal. (Auto aiming function test) 	Normal	Check auto aiming operation.	LT-184, "Auto Aiming Operation Check (Function Test)"
		Check height sensor signal value recognized by AFS control unit at unloaded vehicle position.	
		Check height sensor signal and aiming motor drive signal.	
<ul style="list-style-type: none"> Neither AFS operates nor auto aiming operates. 	Blinking	Check AFS control unit self-diagnostic results.	LT-153, "SELF-DIAG RESULTS"
		Check AFS control unit power supply and ground circuit. NOTE: Check only when "ADAPTIVE LIGHT" is not displayed on CONSULT-II "SELECT SYSTEM" screen.	LT-151, "Preliminary Check"
<ul style="list-style-type: none"> AFS does not operate. (Auto aiming operation is normal.) 	Blinking	Check AFS control unit self-diagnostic results.	LT-153, "SELF-DIAG RESULTS"
	Illuminated	Check AFS switch system circuit.	LT-186, "AFS Switch Does Not Operate"
<ul style="list-style-type: none"> Auto aiming does not operate. (AFS operation is normal.) 	Normal	Check AFS control unit self-diagnostic results.	LT-153, "SELF-DIAG RESULTS"
		Check aiming motor system circuit.	LT-188, "Auto Aiming Does Not Operate (Check Aiming Motor System Circuit)"
<ul style="list-style-type: none"> Auto aiming operates in the reverse way. (Lowering vehicle height angles light axis up.) 	Normal	Replace AFS control unit.	LT-192, "Removal and Installation of AFS Control Unit"
<ul style="list-style-type: none"> AFS OFF indicator does not illuminate. (AFS operation and auto aiming operation are normal.) 	Not illuminated	Check circuit between unified meter and A/C amp. and combination meter.	LT-191, "AFS OFF Indicator Does Not Operate"
<ul style="list-style-type: none"> AFS OFF indicator blinks. (AFS operation and auto aiming operation are normal.) 	Blinking	Check receive state of AFS off indicator signal from unified meter and A/C amp.	
<ul style="list-style-type: none"> AFS cannot be cancelled. (AFS switch does not operate.) 	Normal	Check AFS switch system circuit.	LT-186, "AFS Switch Does Not Operate"

ACTIVE AFS

NKS00300

DTC B2503 SWIVEL ACTUATOR RH

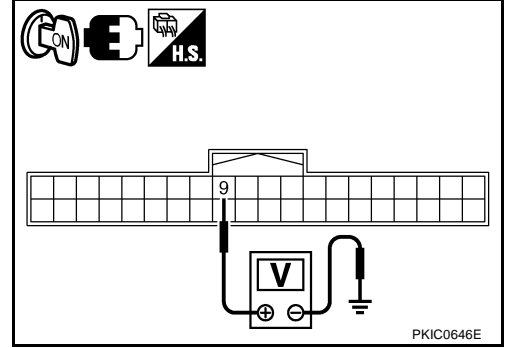
1. CHECK SWIVEL POSITION SENSOR SIGNAL

1. Turn ignition switch ON.
2. Check voltage between AFS control unit harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(-)	
AFS control unit connector	Terminal		
F110	9	Ground	0.25 - 4.75 V

OK or NG

- OK >> GO TO 2.
 NG >> ● If voltage is less than approx. 0.25V, GO TO 3.
 ● If voltage is more than approx. 4.75V, GO TO 6.



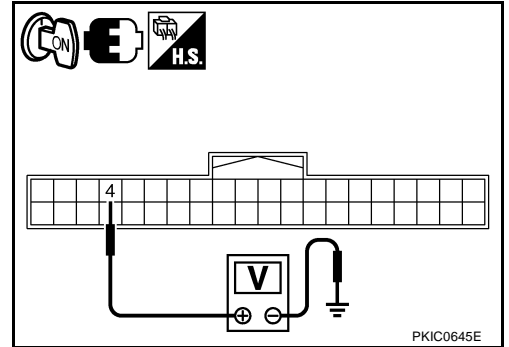
2. CHECK SWIVEL POSITION SENSOR POWER SUPPLY

Check voltage between AFS control unit harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(-)	
AFS control unit connector	Terminal		
F110	4	Ground	4.0 - 6.0 V

OK or NG

- OK >> GO TO 12.
 NG >> Replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#).



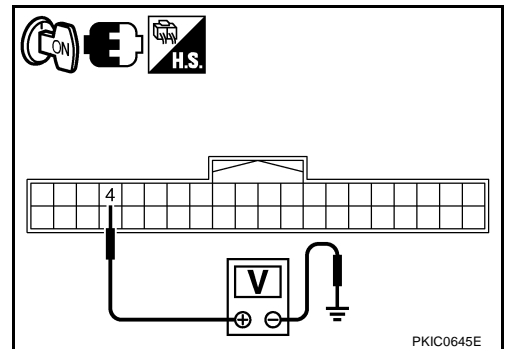
3. CHECK SWIVEL POSITION SENSOR POWER SUPPLY

Check voltage between AFS control unit harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(-)	
AFS control unit connector	Terminal		
F110	4	Ground	4.0 - 6.0 V

OK or NG

- OK >> GO TO 4.
 NG >> GO TO 8.



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ACTIVE AFS

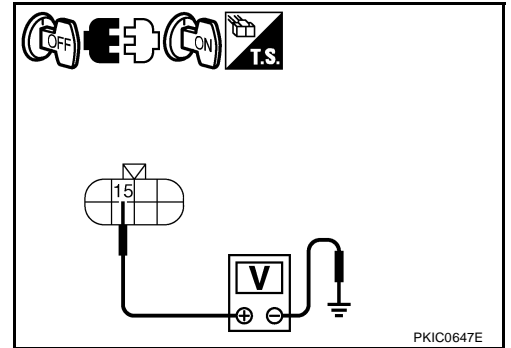
4. CHECK SWIVEL POSITION SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH connector.
3. Turn ignition switch ON.
4. Check voltage between front combination lamp RH harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(-)	
Front combination lamp RH connector	Terminal		
E48	15	Ground	4.0 - 6.0 V

OK or NG

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



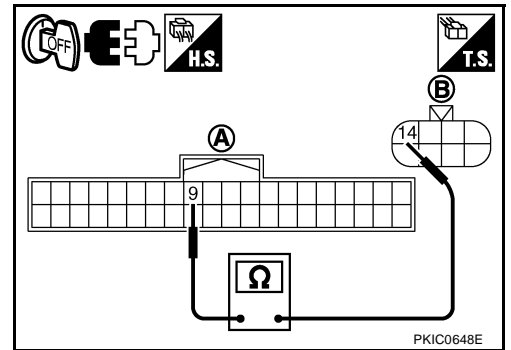
5. CHECK SWIVEL POSITION SENSOR SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector.
3. Check continuity between AFS control unit harness connector (A) and front combination lamp RH harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
F110	9	E48	14	Yes

OK or NG

- OK >> Replace front combination lamp RH (swivel position sensor malfunction). Refer to [LT-191, "Removal and Installation of Front Combination Lamp"](#) .
 NG >> Repair harness or connector.



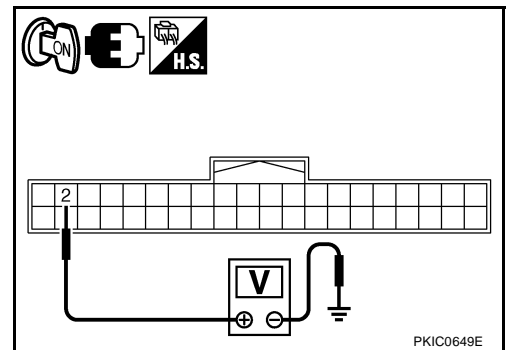
6. CHECK SWIVEL POSITION SENSOR GROUND

Check voltage between AFS control unit harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(-)	
AFS control unit connector	Terminal		
F110	2	Ground	0 V

OK or NG

- OK >> GO TO 7.
 NG >> Check connector for connection, bend and loose fit. If it is normal, replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#) .



ACTIVE AFS

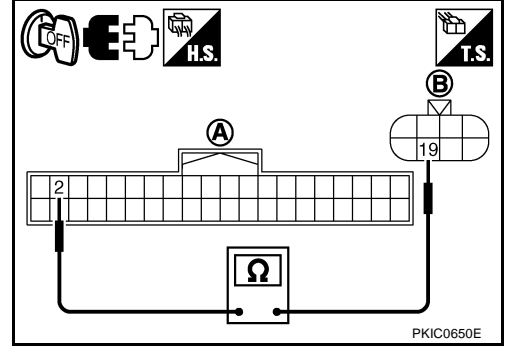
7. CHECK SWIVEL POSITION SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector and front combination lamp RH connector.
3. Check continuity between AFS control unit harness connector (A) and front combination lamp RH harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
F110	2	E48	19	Yes

OK or NG

- OK >> Replace front combination lamp RH (swivel position sensor malfunction). Refer to [LT-191, "Removal and Installation of Front Combination Lamp"](#).
- NG >> Repair harness or connector.



8. CHECK DIAGNOSIS RESULT

Select "ADAPTIVE LIGHT" on CONSULT-II. Select "SELF-DIAG RESULTS" on "SELECT DIAG MODE" screen.

Is DTC B2521 ECU CIRC detected?

- YES >> Refer to [LT-179, "DTC B2521 ECU CIRC"](#).
- NO >> GO TO 9.

Example)

SELF-DIAG RESULTS	
DTC RESULTS	TIME
SWIVEL ACTUATOR [RH] [B2503]	0
SWIVEL ACTUATOR [LH] [B2504]	0
ECU CIRC [B2521]	0
ERASE PRINT	
MODE BACK	LIGHT COPY

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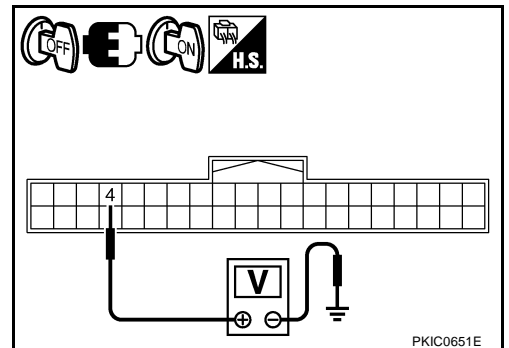
9. CHECK SWIVEL POSITION SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH connector.
3. Turn ignition switch ON.
4. Check voltage between AFS control unit harness connector and ground.

Terminals		Voltage (Approx.)
(+)	(-)	
AFS control unit connector	Terminal	
F110	4	Ground 4.0 - 6.0 V

OK or NG

- OK >> GO TO 10.
- NG >> GO TO 11.



ACTIVE AFS

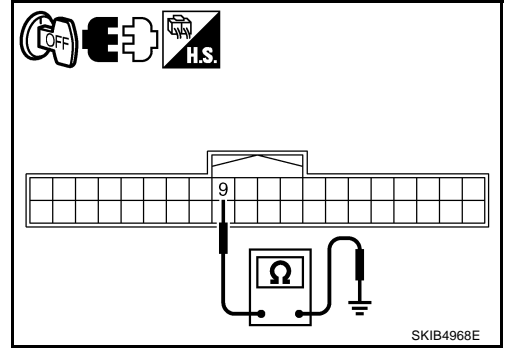
10. CHECK SWIVEL POSITION SENSOR SIGNAL CIRCUIT (SHORT CIRCUIT)

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector.
3. Check continuity between AFS control unit harness connector and ground.

AFS control unit connector	Terminal	Ground	Continuity
F110	9		No

OK or NG

- OK >> Replace front combination lamp RH (swivel position sensor malfunction). Refer to [LT-191, "Removal and Installation of Front Combination Lamp"](#).
- NG >> Repair harness or connector.



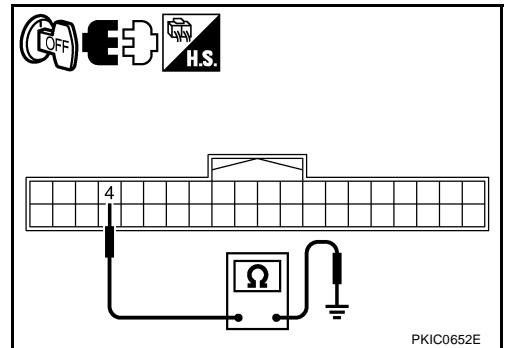
11. CHECK SWIVEL POSITION SENSOR POWER SUPPLY CIRCUIT (SHORT CIRCUIT)

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector.
3. Check continuity between AFS control unit harness connector and ground.

AFS control unit connector	Terminal	Ground	Continuity
F110	4		No

OK or NG

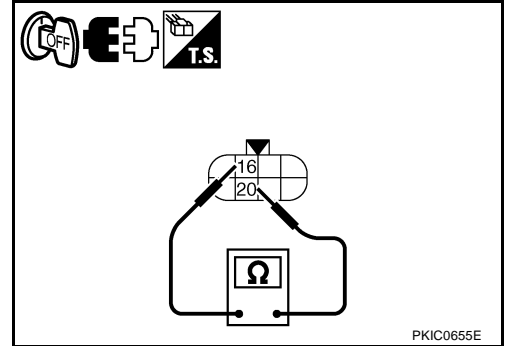
- OK >> Replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#).
- NG >> Repair harness or connector.



12. CHECK SWIVEL MOTOR

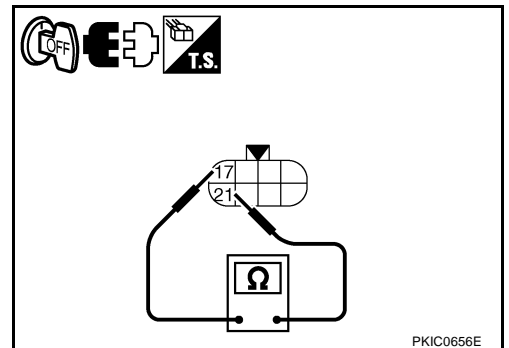
1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH connector.
3. Check continuity between front combination lamp RH connector terminals.

Front combination lamp RH terminals (1 phase)		Resistance
16	20	Approx. 7.4 Ω



4. Check continuity between front combination lamp RH connector terminals.

Front combination lamp RH terminals (2 phase)		Resistance
17	21	Approx. 7.4 Ω

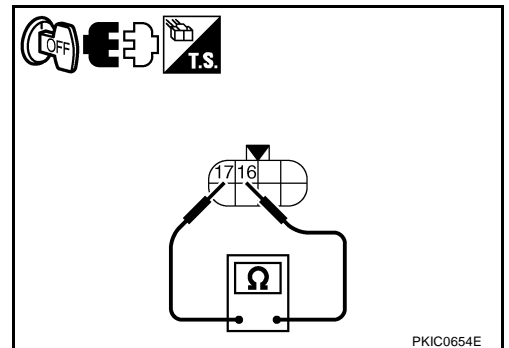


5. Check continuity between front combination lamp RH connector terminals (insulation resistance).

Front combination lamp RH terminals		Resistance
16	17	Approx. 1 MΩ or more

OK or NG

- OK >> GO TO 13.
- NG >> Replace front combination lamp RH (swivel motor malfunction). Refer to [LT-191, "Removal and Installation of Front Combination Lamp"](#).



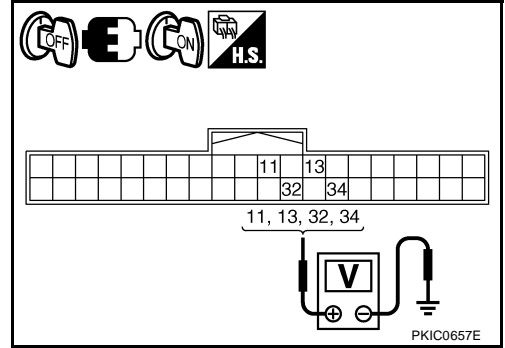
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ACTIVE AFS

13. CHECK SWIVEL MOTOR CIRCUIT 1

1. Connect front combination lamp RH connector.
2. Turn ignition switch ON.
3. Check voltage between AFS control unit harness connector and ground.

(+)		(-)	Voltage (Approx.)
AFS control unit connector	Terminal		
F110	11	Ground	9.5 - 11.5 V
	13		
	32		
	34		



OK or NG

- OK >> GO TO 14.
 NG >> GO TO 16.

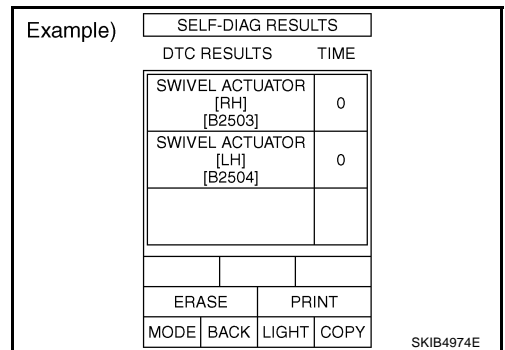
14. CHECK DIAGNOSIS RESULT 1

Select "ADAPTIVE LIGHT" on CONSULT-II. Select "SELF-DIAG RESULTS" on "SELECT DIAG MODE" screen.

Is DTC of present malfunction detected?

- YES >> ● If detect DTC B2503 and B2504, refer to [LT-168, "DTC B2504 SWIVEL ACTUATOR LH"](#) .
 ● If detect DTC B2503 only, replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#) .
 ● If detect any DTC except B2503 and B2504, refer to [LT-153, "SELF-DIAG RESULTS"](#) .

NO >> GO TO 15.



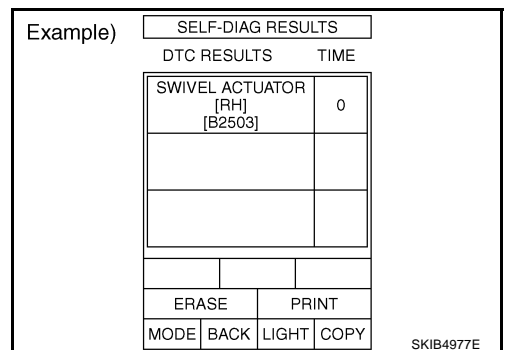
15. CHECK DIAGNOSIS RESULT 2

Check "SELF-DIAG RESULTS" with steering turning 180° or more to right under swivel operative condition to keep more than 2 seconds.

Is DTC B2503 of present malfunction detected?

- YES >> Replace front combination lamp RH (swivel actuator malfunction). Refer to [LT-191, "Removal and Installation of Front Combination Lamp"](#) .

NO >> The swivel actuator system RH is normal at present.

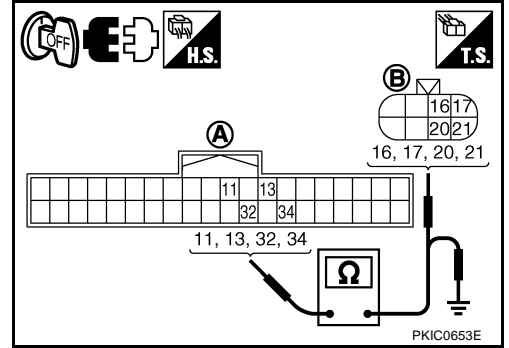


ACTIVE AFS

16. CHECK SWIVEL MOTOR CIRCUIT 2

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector and front combination lamp RH connector.
3. Check continuity between AFS control unit harness connector (A) and front combination lamp RH harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
F110	11	E48	20	Yes
	13		21	
	32		17	
	34		16	



4. Check continuity between AFS control unit harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
F110	11	Ground	No
	13		
	32		
	34		

OK or NG

- OK >> Replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#).
- NG >> Repair or replace harness or connector.

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DTC B2504 SWIVEL ACTUATOR LH

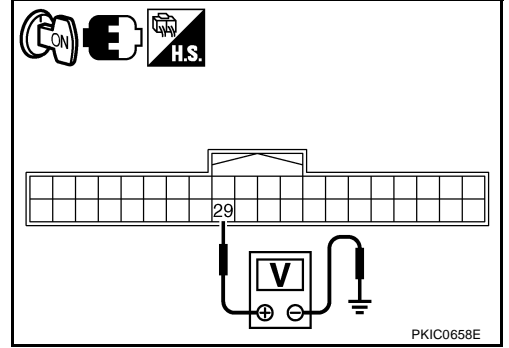
1. CHECK SWIVEL POSITION SENSOR SIGNAL

1. Turn ignition switch ON.
2. Check voltage between AFS control unit harness connector and ground.

Terminals		(-)	Voltage (Approx.)
(+)			
AFS control unit connector	Terminal		
F110	29	Ground	0.25 - 4.75 V

OK or NG

- OK >> GO TO 2.
 NG >> ● If voltage is less than approx. 0.25V, GO TO 3.
 ● If voltage is more than approx. 4.75V, GO TO 6.



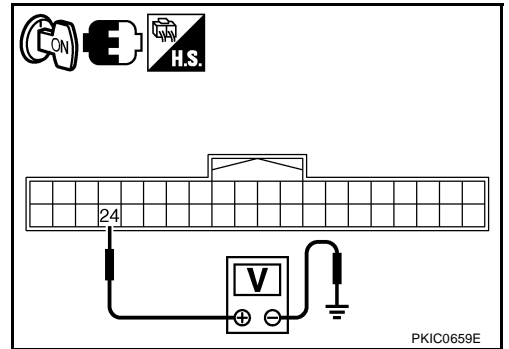
2. CHECK SWIVEL POSITION SENSOR POWER SUPPLY

Check voltage between AFS control unit harness connector and ground.

Terminals		(-)	Voltage (Approx.)
(+)			
AFS control unit connector	Terminal		
F110	24	Ground	4.0 - 6.0 V

OK or NG

- OK >> GO TO 12.
 NG >> Replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#).



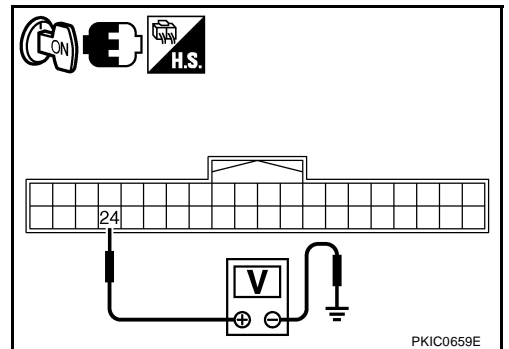
3. CHECK SWIVEL POSITION SENSOR POWER SUPPLY

Check voltage between AFS control unit harness connector and ground.

Terminals		(-)	Voltage (Approx.)
(+)			
AFS control unit connector	Terminal		
F110	24	Ground	4.0 - 6.0 V

OK or NG

- OK >> GO TO 4.
 NG >> GO TO 8.



ACTIVE AFS

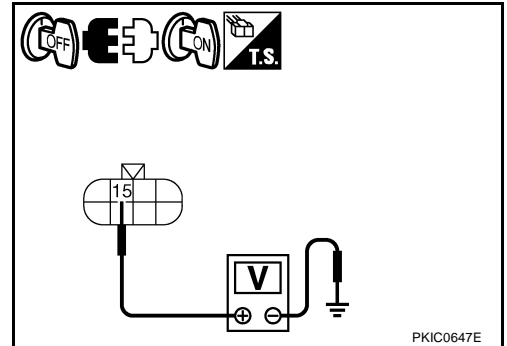
4. CHECK SWIVEL POSITION SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front combination lamp LH connector.
3. Turn ignition switch ON.
4. Check voltage between front combination lamp LH harness connector and ground.

Terminals		(-)	Voltage (Approx.)
(+)			
Front combination lamp LH connector	Terminal		
E53	15	Ground	4.0 - 6.0 V

OK or NG

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



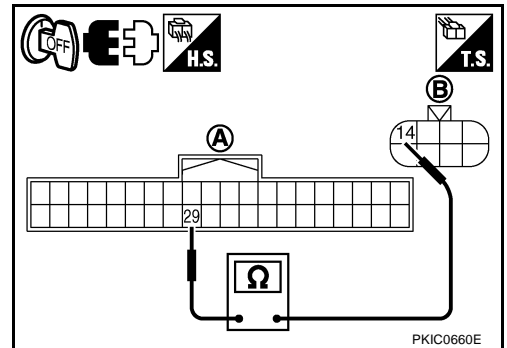
5. CHECK SWIVEL POSITION SENSOR SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector.
3. Check continuity between AFS control unit harness connector (A) and front combination lamp LH harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
F110	29	E53	14	Yes

OK or NG

- OK >> Replace front combination lamp LH (swivel position sensor malfunction). Refer to [LT-191, "Removal and Installation of Front Combination Lamp"](#) .
 NG >> Repair harness or connector.



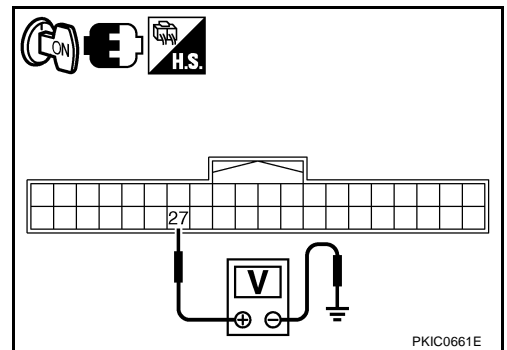
6. CHECK SWIVEL POSITION SENSOR GROUND

Check voltage between AFS control unit harness connector and ground.

Terminals		(-)	Voltage (Approx.)
(+)			
AFS control unit connector	Terminal		
F110	27	Ground	0 V

OK or NG

- OK >> GO TO 7.
 NG >> Check connector for connection, bend and loose fit. If it is normal, replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#) .



ACTIVE AFS

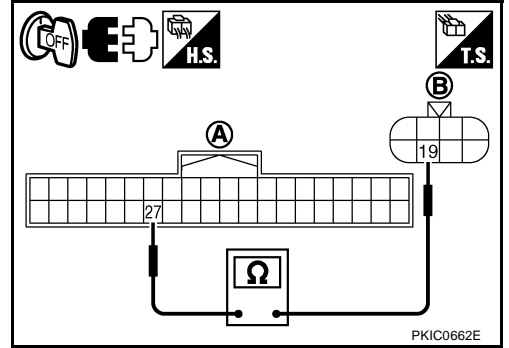
7. CHECK SWIVEL POSITION SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector and front combination lamp LH connector.
3. Check continuity between AFS control unit harness connector (A) and front combination lamp LH harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
F110	27	E53	19	Yes

OK or NG

- OK >> Replace front combination lamp LH (swivel position sensor malfunction). Refer to [LT-191, "Removal and Installation of Front Combination Lamp"](#).
- NG >> Repair harness or connector.



8. CHECK DIAGNOSIS RESULT

Select "ADAPTIVE LIGHT" on CONSULT-II. Select "SELF-DIAG RESULTS" on "SELECT DIAG MODE" screen.

Is DTC B2521 ECU CIRC detected?

- YES >> Refer to [LT-179, "DTC B2521 ECU CIRC"](#).
- NO >> GO TO 9.

Example)

SELF-DIAG RESULTS	
DTC RESULTS	TIME
SWIVEL ACTUATOR [RH] [B2503]	0
SWIVEL ACTUATOR [LH] [B2504]	0
ECU CIRC [B2521]	0
ERASE PRINT	
MODE BACK	LIGHT COPY

SKIB4975E

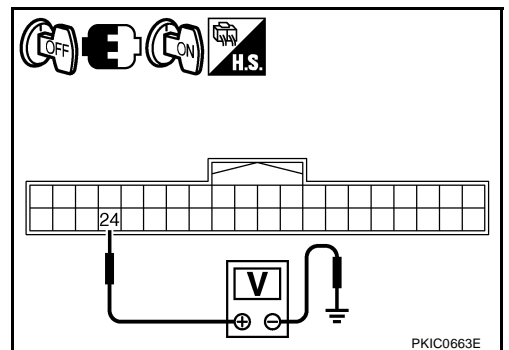
9. CHECK SWIVEL POSITION SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front combination lamp LH connector.
3. Turn ignition switch ON.
4. Check voltage between AFS control unit harness connector and ground.

Terminals		Voltage (Approx.)
(+)	(-)	
AFS control unit connector	Terminal	
F110	24	Ground 4.0 - 6.0 V

OK or NG

- OK >> GO TO 10.
- NG >> GO TO 11.



ACTIVE AFS

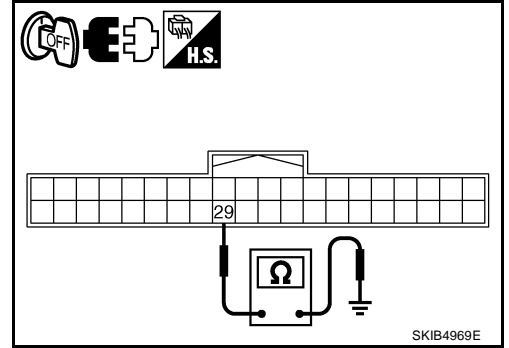
10. CHECK SWIVEL POSITION SENSOR SIGNAL CIRCUIT (SHORT CIRCUIT)

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector.
3. Check continuity between AFS control unit harness connector and ground.

AFS control unit connector	Terminal	Ground	Continuity
F110	29		No

OK or NG

- OK >> Replace front combination lamp LH (swivel position sensor malfunction). Refer to [LT-191, "Removal and Installation of Front Combination Lamp"](#).
- NG >> Repair harness or connector.



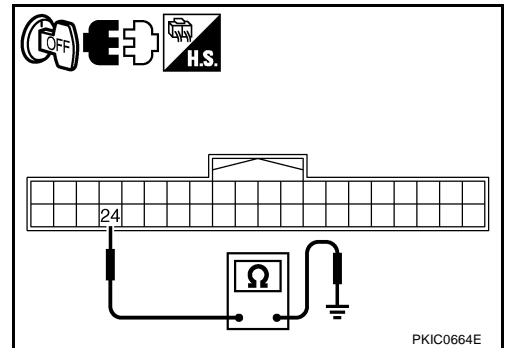
11. CHECK SWIVEL POSITION SENSOR POWER SUPPLY CIRCUIT (SHORT CIRCUIT)

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector.
3. Check continuity between AFS control unit harness connector and ground.

AFS control unit connector	Terminal	Ground	Continuity
F110	24		No

OK or NG

- OK >> Replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#).
- NG >> Repair harness or connector.

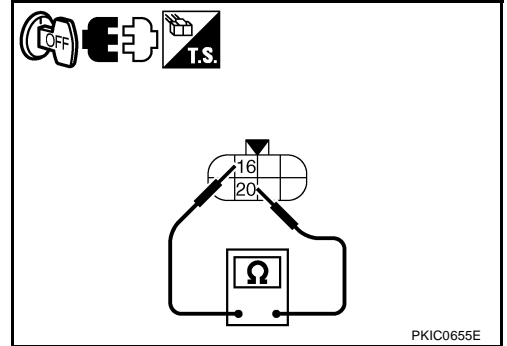


A
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12. CHECK SWIVEL MOTOR

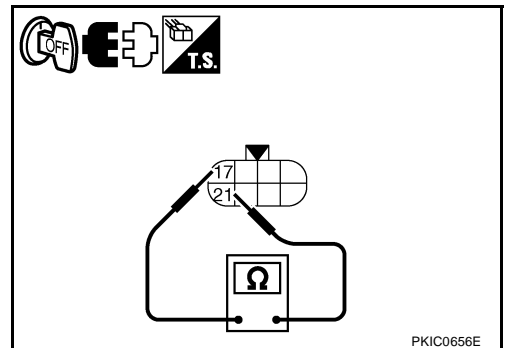
1. Turn ignition switch OFF.
2. Disconnect front combination lamp LH connector.
3. Check continuity between front combination lamp LH connector terminals.

Front combination lamp LH terminals (2 phase)		Resistance
16	20	Approx. 7.4 Ω



4. Check continuity between front combination lamp LH connector terminals.

Front combination lamp LH terminals (1 phase)		Resistance
17	21	Approx. 7.4 Ω



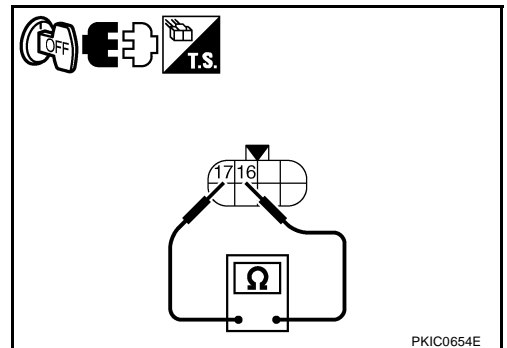
5. Check continuity between front combination lamp LH connector terminals (insulation resistance).

Front combination lamp LH terminals		Resistance
16	17	Approx. 1 M Ω or more

OK or NG

OK >> GO TO 13.

NG >> Replace front combination lamp LH (swivel motor malfunction). Refer to [LT-191, "Removal and Installation of Front Combination Lamp"](#).

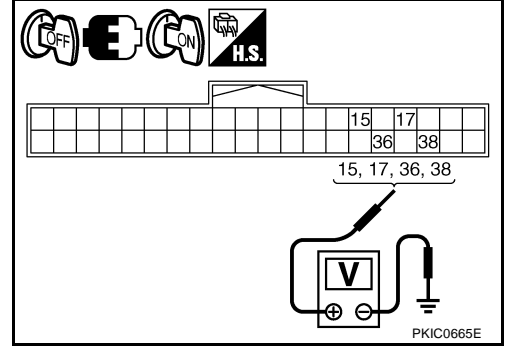


ACTIVE AFS

13. CHECK SWIVEL MOTOR CIRCUIT 1

1. Connect front combination lamp LH connector.
2. Turn ignition switch ON.
3. Check voltage between AFS control unit harness connector and ground.

(+)		(-)	Voltage (Approx.)
AFS control unit connector	Terminal		
F110	15	Ground	9.5 - 11.5 V
	17		
	36		
	38		



OK or NG

- OK >> GO TO 14.
 NG >> GO TO 16.

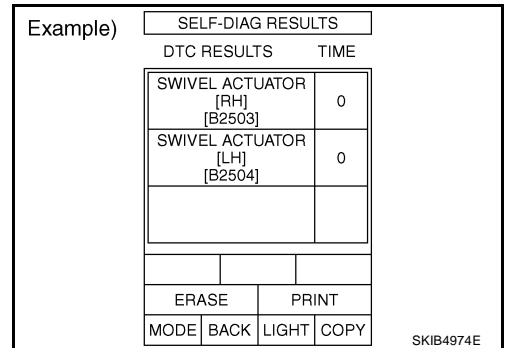
14. CHECK DIAGNOSIS RESULT 1

Select "ADAPTIVE LIGHT" on CONSULT-II. Select "SELF-DIAG RESULTS" on "SELECT DIAG MODE" screen.

Is DTC of present malfunction detected?

- YES >> ● If detect DTC B2503 and B2504, refer to [LT-168, "DTC B2504 SWIVEL ACTUATOR LH"](#) .
 ● If detect DTC B2504 only, replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#) .
 ● If detect any DTC except B2503 and B2504, refer to [LT-153, "SELF-DIAG RESULTS"](#) .

NO >> GO TO 15.



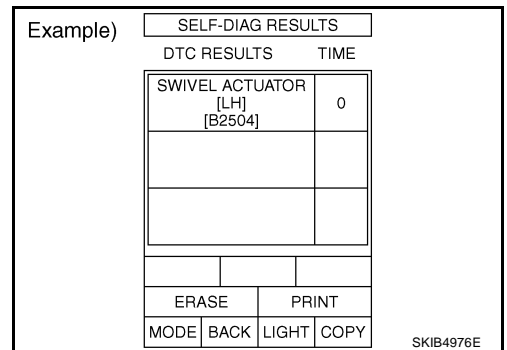
15. CHECK DIAGNOSIS RESULT 2

Check "SELF-DIAG RESULTS" with steering turning 180° or more to left under swivel operative condition to keep more than 2 seconds.

Is DTC B2504 of present malfunction detected?

- YES >> Replace front combination lamp LH (swivel actuator malfunction). Refer to [LT-191, "Removal and Installation of Front Combination Lamp"](#) .

NO >> The swivel actuator system LH is normal at present.

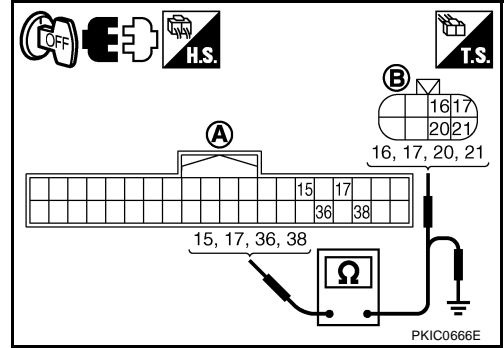


ACTIVE AFS

16. CHECK SWIVEL MOTOR CIRCUIT 2

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector and front combination lamp LH connector.
3. Check continuity between AFS control unit harness connector (A) and front combination lamp LH harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
F110	15	E53	17	Yes
	17		16	
	36		20	
	38		21	



4. Check continuity between AFS control unit harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
F110	15	Ground	No
	17		
	36		
	38		

OK or NG

- OK >> Replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#) .
- NG >> Repair or replace harness or connector.

ACTIVE AFS

NKS003Q0

DTC B2514 HI SEN UNUSUAL RR

1. CHECK HEIGHT SENSOR SIGNAL

1. Turn ignition switch ON.
2. Select "ADAPTIVE LIGHT" on CONSULT-II. Select "DATA MONITOR" on "SELECT DIAG MODE" screen.
3. Check "HI SEN OTP RR" in "Data Monitor".

HI SEN OTP RR : Approx. 0.25 – 4.75 V

OK or NG

- OK >> GO TO 2.
 NG >> ● If voltage is less than approx. 0.25V, GO TO 3.
 ● If voltage is more than approx. 4.75V, GO TO 7.

DATA MONITOR	
MONITOR	NO DTC
STR ANGLE SIG	0.0 °
VHCL SPD	0 km/h
SLCT LVR POSI	P
HEAD LAMP	ON
AFS SW	ON
HI SEN OTP RR	2.500 V
LEV ACTR VLTG	70.000 %
SWVL SEN RH	+0.0615 °
SWVL SEN LH	-0.6680 °
SWVL ANGLE RH	0.00 °
SWVL ANGLE LH	0.00 °
Page Up Page Down	
RECORD	
MODE	BACK LIGHT COPY

SKIB4793E

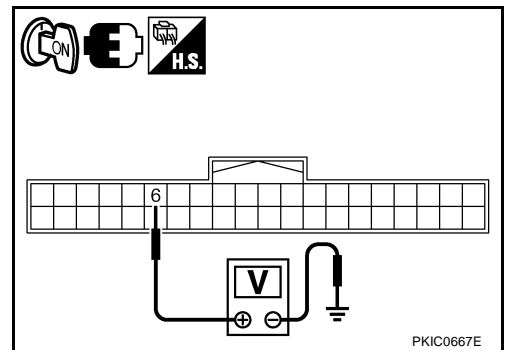
2. CHECK HEIGHT SENSOR POWER SUPPLY

Check voltage between AFS control unit harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(-)	
AFS control unit connector	Terminal		
F110	6	Ground	4.0 - 6.0 V

OK or NG

- OK >> The height sensor system is normal at present.
 NG >> Replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#).



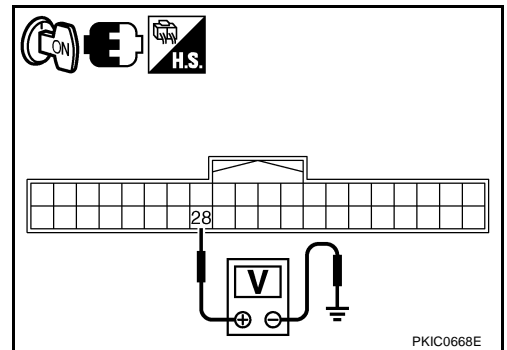
3. CHECK HEIGHT SENSOR SIGNAL

Check voltage between AFS control unit harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(-)	
AFS control unit connector	Terminal		
F110	28	Ground	0.25 - 4.75 V

OK or NG

- OK >> Replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#).
 NG >> ● If voltage is less than approx. 0.25V, GO TO 4.
 ● If voltage is more than approx. 4.75V, GO TO 7.



ACTIVE AFS

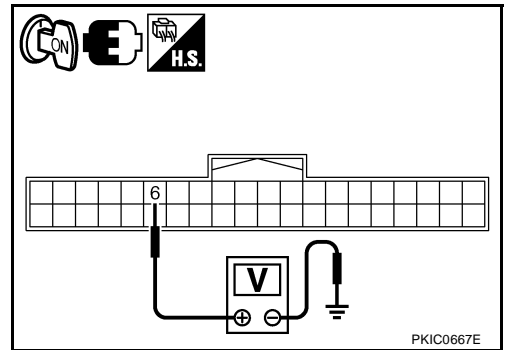
4. CHECK HEIGHT SENSOR POWER SUPPLY

Check voltage between AFS control unit harness connector and ground.

Terminals		(-)	Voltage (Approx.)
(+)			
AFS control unit connector	Terminal		
F110	6	Ground	4.0 - 6.0 V

OK or NG

- OK >> GO TO 5.
- NG >> GO TO 9.



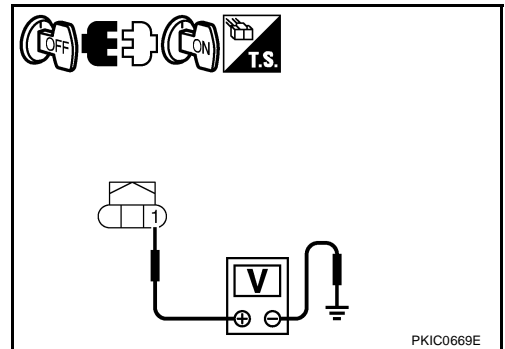
5. CHECK HEIGHT SENSOR POWER SUPPLY CIRCUIT

- Turn ignition switch OFF.
- Disconnect height sensor connector.
- Turn ignition switch ON.
- Check voltage between height sensor harness connector and ground.

Terminals		(-)	Voltage (Approx.)
(+)			
Height sensor connector	Terminal		
B468	1	Ground	4.0 - 6.0 V

OK or NG

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



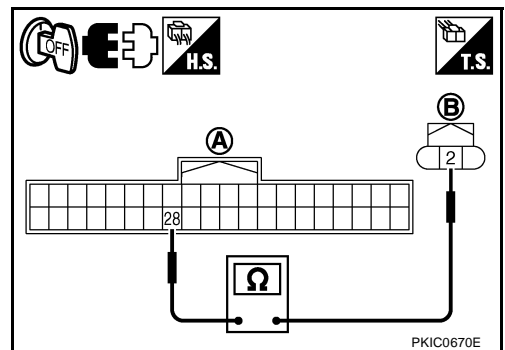
6. CHECK HEIGHT SENSOR SIGNAL CIRCUIT

- Disconnect AFS control unit connector.
- Check continuity between AFS control unit harness connector (A) and height sensor harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
F110	28	B103	2	Yes

OK or NG

- OK >> Replace height sensor. Refer to [LT-193, "Removal and Installation of Height Sensor"](#).
- NG >> Repair harness or connector.



ACTIVE AFS

7. CHECK HEIGHT SENSOR GROUND

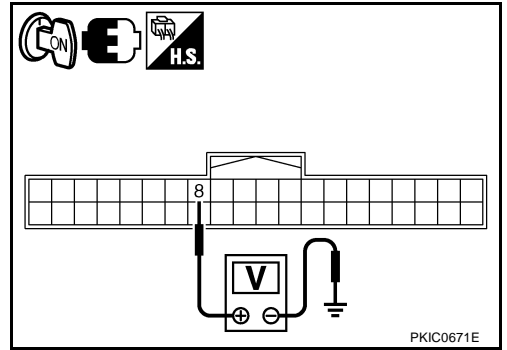
Check voltage between AFS control unit harness connector and ground.

Terminals		(-)	Voltage (Approx.)
(+)			
AFS control unit connector	Terminal		
F110	8	Ground	0 V

OK or NG

OK >> GO TO 8.

NG >> Check connector for connection, bend and loose fit. If it is normal, replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#).



8. CHECK HEIGHT SENSOR GROUND CIRCUIT

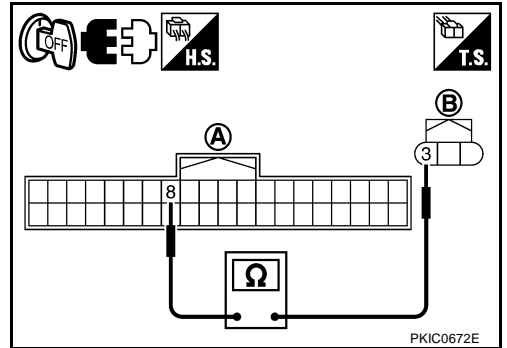
1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector and height sensor connector.
3. Check continuity between AFS control unit harness connector (A) and height sensor harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
F110	8	B468	3	Yes

OK or NG

OK >> Replace height sensor. Refer to [LT-193, "Removal and Installation of Height Sensor"](#).

NG >> Repair harness or connector.



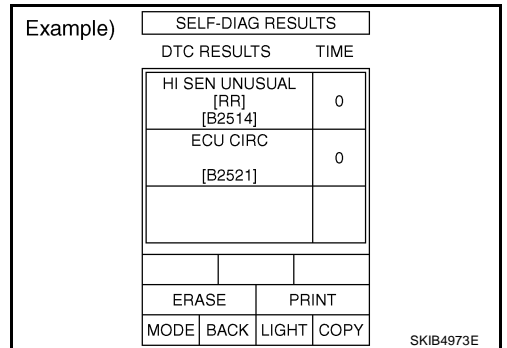
9. CHECK DIAGNOSIS RESULT

Select "ADAPTIVE LIGHT" on CONSULT-II. Select "SELF-DIAG RESULTS" on "SELECT DIAG MODE" screen.

Is DTC B2521 ECU CIRC detected?

YES >> Refer to [LT-179, "DTC B2521 ECU CIRC"](#).

NO >> GO TO 10.



ACTIVE AFS

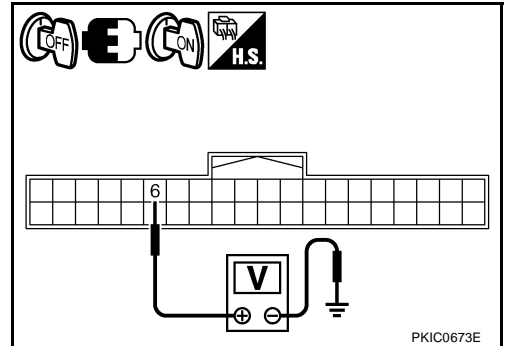
10. CHECK HEIGHT SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect height sensor connector.
3. Turn ignition switch ON.
4. Check voltage between AFS control unit harness connector and ground.

Terminals		Voltage (Approx.)
(+)	(-)	
AFS control unit connector	Terminal	
F110	6	Ground
		4.0 - 6.0 V

OK or NG

- OK >> GO TO 11.
 NG >> GO TO 12.



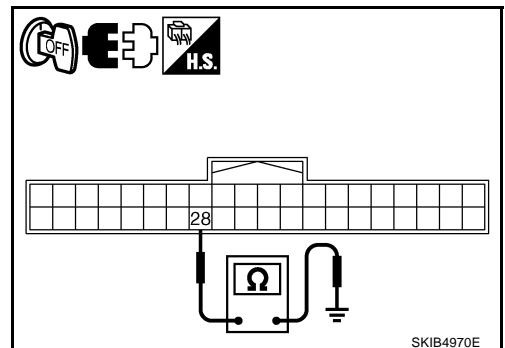
11. CHECK HEIGHT SENSOR SIGNAL CIRCUIT (SHORT CIRCUIT)

1. Disconnect AFS control unit connector.
2. Check continuity between AFS control unit harness connector and ground.

AFS control unit connector	Terminal	Ground	Continuity
F110	28		No

OK or NG

- OK >> Replace height sensor. Refer to [LT-193, "Removal and Installation of Height Sensor"](#) .
 NG >> Repair harness or connector.



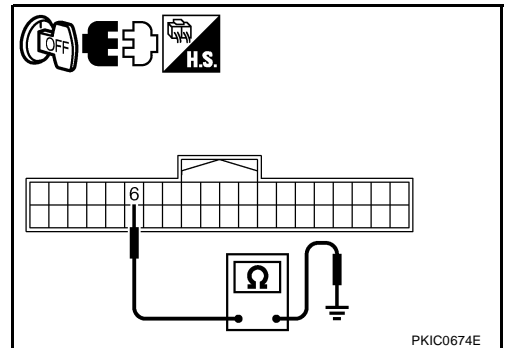
12. CHECK HEIGHT SENSOR POWER SUPPLY CIRCUIT (SHORT CIRCUIT)

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector.
3. Check continuity between AFS control unit harness connector and ground.

AFS control unit connector	Terminal	Ground	Continuity
F110	6		No

OK or NG

- OK >> Replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#) .
 NG >> Repair harness or connector.



ACTIVE AFS

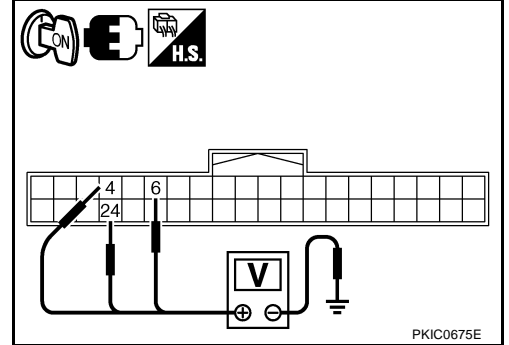
NKS003QR

DTC B2521 ECU CIRC

1. CHECK SENSOR POWER SUPPLY

1. Turn ignition switch ON.
2. Check voltage between AFS control unit harness connector and ground.

(+)		(-)	Voltage (Approx.)
AFS control unit connector	Terminal		
F110	4	Ground	4.0 - 6.0 V
	6		
	24		



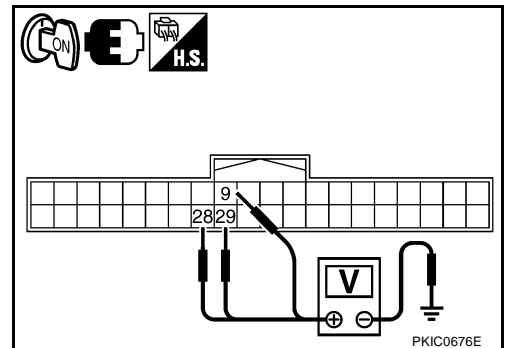
OK or NG

- OK >> GO TO 2.
 NG >> ● If voltage is less than approx. 4 V, GO TO 3.
 ● If voltage is more than approx. 6 V, GO TO 4.

2. CHECK SENSOR SIGNAL

Check voltage between AFS control unit harness connector and ground.

(+)		(-)	Voltage (Approx.)
AFS control unit connector	Terminal		
F110	9	Ground	0.25 - 4.75 V
	28		
	29		



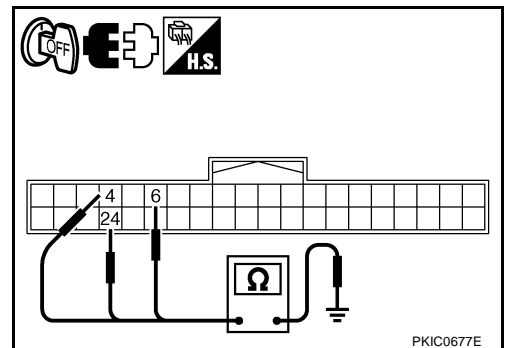
OK or NG

- OK >> Replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#).
 NG >> ● If voltage is less than approx. 0.25 V, GO TO 5.
 ● If voltage is more than approx. 4.75 V, GO TO 6.

3. CHECK SENSOR POWER SUPPLY CIRCUIT (GROUND SHORT CIRCUIT)

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector.
3. Check continuity between AFS control unit harness connector and ground.

AFS control unit connector	Terminal	Ground	Continuity
F110	4		Ground
	6		
	24		



OK or NG

- OK >> Replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#).
 NG >> GO TO 7.

ACTIVE AFS

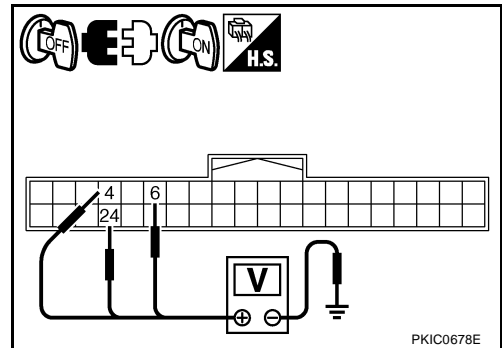
4. CHECK SENSOR POWER SUPPLY CIRCUIT (IGN POWER SUPPLY SHORT CIRCUIT)

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector.
3. Turn ignition switch ON.
4. Check voltage between AFS control unit harness connector and ground.

(+)		(-)	Voltage (Approx.)
AFS control unit connector	Terminal		
F110	4	Ground	0 V
	6		
	24		

OK or NG

- OK >> Replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#).
- NG >> GO TO 8.



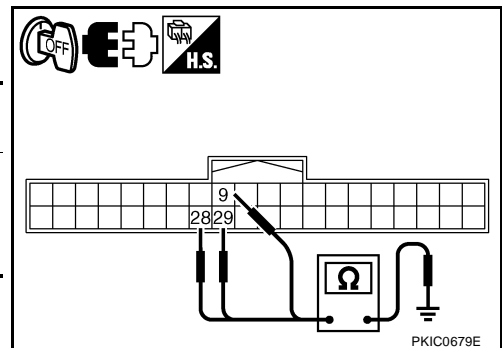
5. CHECK SENSOR SIGNAL CIRCUIT (GROUND SHORT CIRCUIT)

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector.
3. Check continuity between AFS control unit harness connector and ground.

AFS control unit connector	Terminal	Ground	Continuity
F110	9		Ground
	28		
	29		

OK or NG

- OK >> Replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#).
- NG >> GO TO 7.



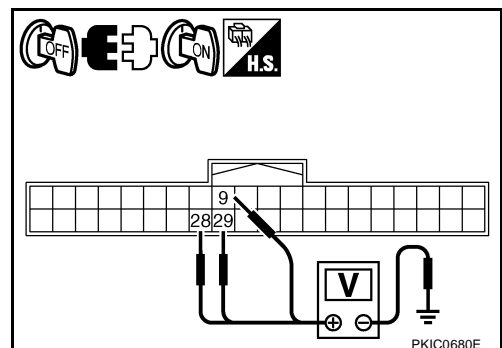
6. CHECK SENSOR SIGNAL CIRCUIT (IGN POWER SUPPLY SHORT CIRCUIT)

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector.
3. Turn ignition switch ON.
4. Check voltage between AFS control unit harness connector and ground.

(+)		(-)	Voltage (Approx.)
AFS control unit connector	Terminal		
F110	9	Ground	0 V
	8		
	29		

OK or NG

- OK >> Replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#).
- NG >> GO TO 8.

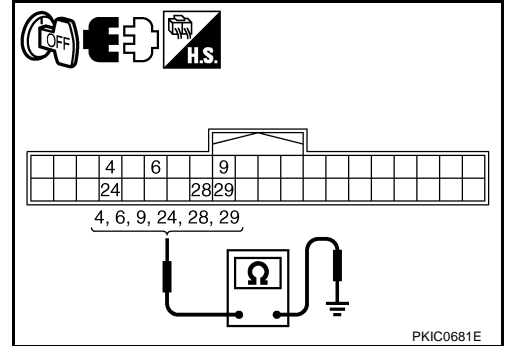


ACTIVE AFS

7. CHECK SENSOR SIGNAL AND POWER SUPPLY CIRCUIT (GROUND SHORT CIRCUIT)

1. Disconnect height sensor connector, front combination lamp LH and RH connector.
2. Check continuity between AFS control unit harness connector and ground.

AFS control unit connector	Terminal		Continuity
F110	4	Ground	No
	6		
	9		
	24		
	28		
	29		



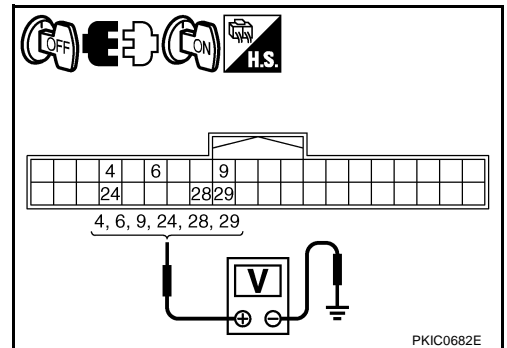
OK or NG

- OK >> Replace height sensor, front combination lamp LH or RH with malfunction at the preceding process 3 or 5. Refer to [LT-193, "Removal and Installation of Height Sensor"](#) or [LT-191, "Removal and Installation of Front Combination Lamp"](#).
- NG >> Repair harness or connector.

8. CHECK SENSOR SIGNAL AND POWER SUPPLY CIRCUIT (IGN POWER SUPPLY SHORT CIRCUIT)

1. Turn ignition switch OFF.
2. Disconnect height sensor connector, front combination lamp LH and RH connector.
3. Turn ignition switch ON.
4. Check voltage between AFS control unit harness connector and ground.

(+)		(-)	Voltage (Approx.)
AFS control unit connector	Terminal		
F110	4	Ground	0 V
	6		
	9		
	24		
	28		
	29		



OK or NG

- OK >> Replace height sensor, front combination lamp LH or RH with malfunction at the preceding process 4 or 6. Refer to [LT-193, "Removal and Installation of Height Sensor"](#) or [LT-191, "Removal and Installation of Front Combination Lamp"](#).
- NG >> Repair harness or connector.

ACTIVE AFS

NKS003QS

AFS Operation Check (Function Test)

1. CHECK SWIVEL ACTUATOR

1. Start engine and turn lighting switch to 2ND position.
2. Select "ADAPTIVE LIGHT" on CONSULT-II. Select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Select "LOW BEAM TEST RIGHT" or "LOW BEAM TEST LEFT" on "SELECT TEST ITEM" screen.
4. Touch "ORIGIN-FAST/SLOW" and "PEAK-FAST/SLOW" screen.
5. Make sure of swivel operation.

ACTIVE TEST			
LOW BEAM TEST RIGHT	ORIGIN-FAST		
ORIGIN-FAST	PEAK-FAST		
ORIGIN-SLOW	PEAK-SLOW		
MODE	BACK	LIGHT	COPY

SKIB4794E

TEST ITEM	ORIGIN	PEAK	Light axis range at 10 m (394.7 in) off (Reference value)
LOW BEAM TEST RIGHT	Swivel angle 0°	Swivel angle 7° to 13°	Approx. 1.200 to 2.300 mm (48 to 90 in)
LOW BEAM TEST LEFT	Swivel angle 0°	Swivel angle 17° to 23°	Approx. 3.000 to 4.200 mm (120 to 167 in)

OK or NG

OK >> GO TO 2.

NG >> ● When interference or poor fitment is found, perform aiming adjustment. Refer to [LT-72, "Aiming Adjustment"](#) . If it is normal, replace headlamp. Refer to [LT-191, "Removal and Installation of Front Combination Lamp"](#) .

- When the operation range is irregular, perform aiming adjustment. Refer to [LT-72, "Aiming Adjustment"](#) . If it is normal, GO TO 3.

2. CHECK STEERING ANGLE SENSOR

Check "STR ANGLE SIG" in "Data Monitor" when driving straight and steering turn 90° to right or left.

Steering condition	STR ANGLE SIG (Data monitor)
Driving straight	- 5.0 ° to + 5.0°
Turn 90° to right	Approx. + 90°
Turn 90° to left	Approx. - 90°

DATA MONITOR	
MONITOR	NO DTC
STR ANGLE SIG	0.0 °
VHCL SPD	0 km/h
SLCT LVR POSI	P
HEAD LAMP	ON
AFS SW	ON
HI SEN OTP RR	2.500 V
LEV ACTR VLTG	70.000 %
SWVL SEN RH	+0.0615 °
SWVL SEN LH	-0.6680 °
SWVL ANGLE RH	0.00 °
SWVL ANGLE LH	0.00 °
Page Up	Page Down
RECORD	
MODE	BACK
LIGHT	COPY

SKIB4793E

OK or NG

OK >> GO TO 3.

NG >> ● When steering is out of range while driving straight, perform steering angle sensor adjustment. Refer to [BRC-6, "Adjustment of Steering Angle Sensor Neutral Position"](#) in "ON-VEHICLE SERVICE".

- When the function is normal while driving straight but the displayed value is different from actual steering position with turning to right or left, replace steering angle sensor. Refer to [LT-191, "Removal and Installation of Steering Angle Sensor"](#) .

ACTIVE AFS

3. CHECK SWIVEL ACTUATOR AND AFS CONTROL UNIT

Check "SWVL SEN RH/LH" and "SWVL ANGLE RH/LH" in "Data Monitor" with steering turning to right or left under swivel operative condition.

TEST ITEM	Turn 180° or more to left	Turn 180° or more to right
● SWVL SEN RH ● SWVL ANGLE RH	Approx. 0°	7° to 13°
● SWVL SEN LH ● SWVL ANGLE LH	17° to 23°	Approx. 0°

NOTE:

The angle can be slightly different between the displayed value on "SWVL SEN" and that on "SWVL ANGLE" even when AFS operation is normal.

OK or NG

- OK >> AFS function is normal.
- NG >> ● When the difference is 4.5° or more between the displayed value on "SWVL ANGLE" and that on "SWVL SEN", replace headlamp.
- When the displayed angle on "SWVL ANGLE" is irregular, replace AFS control unit.

DATA MONITOR			
MONITOR		NO DTC	
STR ANGLE SIG	0.0 °		
VHCL SPD	0 km/h		
SLCT LVR POSI	P		
HEAD LAMP	ON		
AFS SW	ON		
HI SEN OTP RR	2.500 V		
LEV ACTR VLTG	70.000 %		
SWVL SEN RH	+0.0615 °		
SWVL SEN LH	-0.6680 °		
SWVL ANGLE RH	0.00 °		
SWVL ANGLE LH	0.00 °		
Page Up		Page Down	
RECORD			
MODE	BACK	LIGHT	COPY

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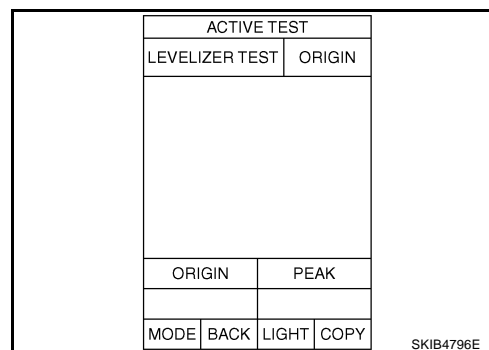
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LT

Auto Aiming Operation Check (Function Test)

1. CHECK AIMING MOTOR

1. Start engine and turn lighting switch to 2ND position.
2. Select "ADAPTIVE LIGHT" on CONSULT-II. Select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Select "LEVELIZER TEST" on "SELECT TEST ITEM" screen.
4. Touch "ORIGIN" and "PEAK" screen.
5. Make sure of auto aiming operation.



TEST ITEM	ORIGIN	PEAK (Reference value)	Light axis range at 10 m (394.7 in) off (Reference value)
LEVELIZER TEST	Light axis angle 0°	Light axis angle approx. 2.5°	Approx. 450 mm (17.7 in)

OK or NG

OK >> GO TO 2.

- NG >> ● When interference or poor fitment is found, perform aiming adjustment. Refer to [LT-72, "Aiming Adjustment"](#) . If it is normal, replace headlamp. Refer to [LT-191, "Removal and Installation of Front Combination Lamp"](#) .
- When the operation range is irregular, perform aiming adjustment. Refer to [LT-72, "Aiming Adjustment"](#) . If it is normal, GO TO 4.

2. PERFORM STATE LEVELIZER ADJUSTMENT 1

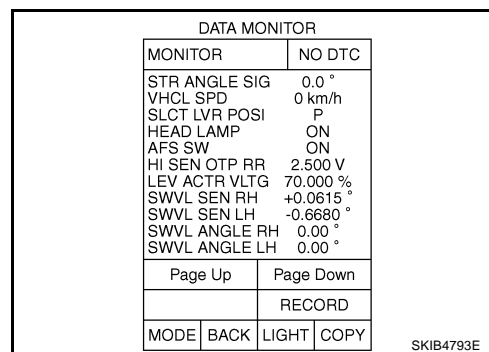
Check "LEV ACTR VLTG" in "Data Monitor" with unloaded vehicle position. (Remove all loads in driver, passenger and trunk rooms.)

TEST ITEM	Unloaded vehicle position
LEV ACTR VLTG	Approx. 70%

OK or NG

OK >> GO TO 3.

- NG >> Perform LEVELIZER ADJUSTMENT. Refer to [LT-152, "WORK SUPPORT \(LEVELIZER ADJUSTMENT\)"](#) .



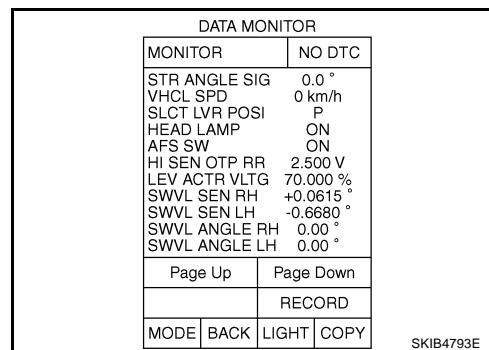
3. PERFORM STATE LEVELIZER ADJUSTMENT 2

Check if "LEV ACTR VLTG" changes approx. 3 seconds after lowering vehicle height as low as approx. -0.5V from the value of "HI SEN OTP RR" in "Data Monitor" at unloaded vehicle position. (Remove all loads in driver, passenger and trunk rooms.)

OK or NG

OK >> GO TO 4.

- NG >> Perform LEVELIZER ADJUSTMENT. Refer to [LT-152, "WORK SUPPORT \(LEVELIZER ADJUSTMENT\)"](#) .

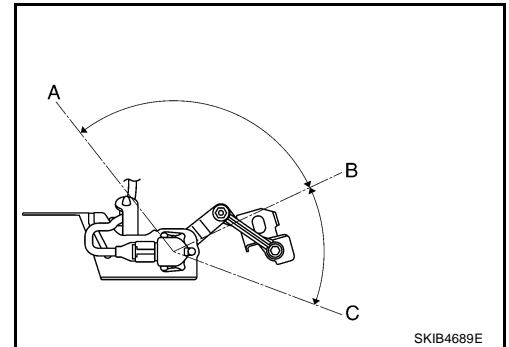


ACTIVE AFS

4. CHECK HEIGHT SENSOR SIGNAL AND AIMING MOTOR DRIVE SIGNAL

Remove height sensor link bracket mounting nuts (rear stabilizer side). For details, refer to [LT-193. "Removal and Installation of Height Sensor"](#) . Change sensor angle from the basic point of sensor angle 0° (standard position) and check "HI SEN OTP RR" and "LEV ACTR VLTG" of "Data Monitor".

	Sensor angle	Vehicle height
A	Approx. -103° (Link stopper angle)	Low side
B	0° (Standard position)	Unloaded vehicle position
C	Approx. 46° (Link stopper angle)	High side



With 18-inch wheel

	Sensor angle	"HI SEN OTP RR"	"LEV ACTR VLTG"	Light axis range at 10 m (394.7 in) off (Reference value)
Limit value of vehicle height (high side)	Approx. 45°	Approx. 4.5 V	Approx. 70.0%	—
Maximum angle of auto aiming operation ^{NOTE1} (Unloaded vehicle position)	Approx. 0°	Approx. 2.5 V	Approx. 70.0%	0
Minimum angle of auto aiming operation ^{NOTE1} (Maximum laden condition)	Approx. -35°	Approx. 1.0 V ^{NOTE2}	Approx. 38.0%	Approx. 200 mm (7.9 in)
Limit value of vehicle height (low side)	Approx. -45°	Approx. 0.5 V	Approx. 38.0%	—

NOTE:

- Reference value. The value can be different from that of sensor angle and HI SEN OTP RR of maximum/minimum angle of auto aiming operation depending on LEVELIZER ADJUSTMENT state.
- Reference value. Approx. -1.5 V from the LEVELIZER ADJUSTMENT value.

With 19-inch wheel

	Sensor angle	"HI SEN OTP RR"	"LEV ACTR VLTG"	Light axis range at 10m (394.7 in) off (Reference value)
Limit value of vehicle height (high side)	Approx. 45°	Approx. 4.5 V	Approx. 70.0%	—
Maximum angle of auto aiming operation ^{NOTE1} (Unloaded vehicle position)	Approx. 0°	Approx. 2.5 V	Approx. 70.0%	0
Minimum angle of auto aiming operation ^{NOTE1} (Maximum laden condition)	Approx. -27°	Approx. 1.3 ^{NOTE2}	Approx. 41.8%	Approx. 180 mm (7.1 in)
Limit value of vehicle height (low side)	Approx. -45°	Approx. 0.5 V	Approx. 41.8%	—

NOTE:

- Reference value. The value can be different from that of sensor angle and HI SEN OTP RR of maximum/minimum angle of auto aiming operation depending on LEVELIZER ADJUSTMENT state.
- Reference value. Approx. -1.2 V from LEVELIZER ADJUSTMENT value.

OK or NG

- OK >> Auto aiming operation function is normal.
- NG >> ● When approx. 4.5 V or 0.5 V is not displayed on "HI SEN OTP RR" screen with sensor angle approx. 45° or -45°, check connector for connection, bend and loose fit. If it is normal, replace height sensor. Refer to [LT-193. "Removal and Installation of Height Sensor"](#) .
- When "HI SEN OTP RR" value is normal but "LEV ACTR VLTG" value differs from maximum/minimum angle of auto aiming operation, replace AFS control unit. Refer to [LT-192. "Removal and Installation of AFS Control Unit"](#) .
 - When "LEV ACTR VLTG" value is normal but operation range is irregular, check aiming motor system circuit. Refer to [LT-188. "Auto Aiming Does Not Operate \(Check Aiming Motor System\)"](#) .

ACTIVE AFS

[Circuit\)](#) .

AFS Switch Does Not Operate

NKS003QU

1. CHECK AFS SWITCH SIGNAL 1

1. Turn ignition switch ON.
2. Select "ADAPTIVE LIGHT" on CONSULT-II. Select "DATA MONITOR" on "SELECT DIAG MODE" screen.
3. Make sure that "AFS SW" turn ON-OFF according to AFS switch operation.

OK or NG

- OK >> Replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#) .
- NG >> GO TO 2.

DATA MONITOR	
MONITOR	NO DTC
STR ANGLE SIG	0.0 °
VHCL SPD	0 km/h
SLCT LVR POSI	P
HEAD LAMP	ON
AFS SW	ON
HI SEN OTP RR	2.500 V
LEV ACTR VLTG	70.000 %
SWVL SEN RH	+0.0615 °
SWVL SEN LH	-0.6680 °
SWVL ANGLE RH	0.00 °
SWVL ANGLE LH	0.00 °
Page Up	Page Down
RECORD	
MODE	BACK LIGHT COPY

SKIB4793E

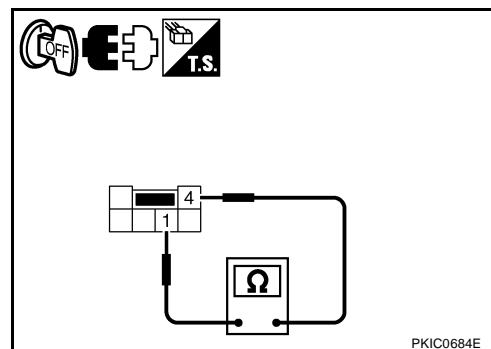
2. CHECK AFS SWITCH

1. Turn ignition switch OFF.
2. Disconnect AFS switch connector.
3. Check continuity AFS switch.

AFS switch		Condition	Continuity
Terminal			
1	4	AFS switch is ON.	No
		AFS switch is OFF.	Yes

OK or NG

- OK >> GO TO 3.
- NG >> Replace AFS switch. Refer to [LT-192, "Removal and Installation of AFS Switch"](#) .



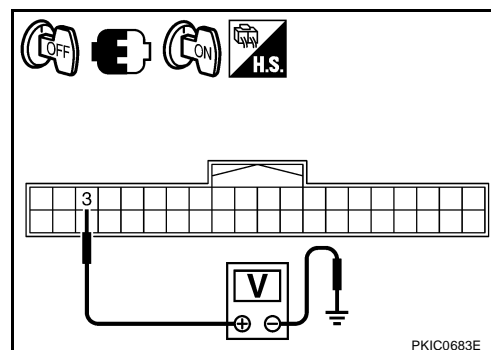
3. CHECK AFS SWITCH SIGNAL 2

1. Connect AFS switch connector.
2. Turn ignition switch ON.
3. Check voltage between AFS control unit harness connector and ground according to AFS switch operation.

(+) AFS control unit connector		(-)	Condition	Voltage (Approx.)
Terminal				
F110	3	Ground	AFS switch is ON.	0 V
			AFS switch is OFF.	Battery voltage

OK or NG

- OK >> Replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#) .
- NG >> ● If voltage is approx. 0 V and stays unchanged, GO TO 4.
● If voltage is battery voltage and stays unchanged, GO TO 6.



ACTIVE AFS

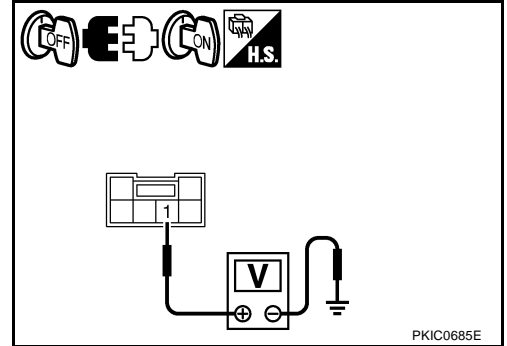
4. CHECK AFS SWITCH POWER SUPPLY CIRCUIT

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

Terminals			Voltage (Approx.)
(+)		(-)	
AFS switch connector	Terminal		
M96	1	Ground	Battery voltage

OK or NG

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



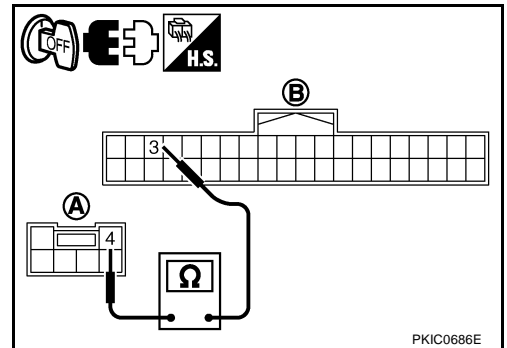
5. CHECK AFS SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector.
3. Check continuity between AFS switch harness connector (A) and AFS control unit harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
M96	4	F110	3	Yes

OK or NG

- OK >> Check connector for connection, bend and loose fit.
 NG >> Repair harness or connector.



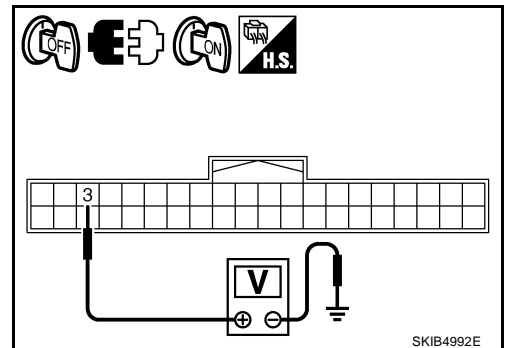
6. CHECK AFS SWITCH CIRCUIT (IGN POWER SUPPLY SHORT CIRCUIT)

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector and AFS switch connector.
3. Turn ignition switch ON.
4. Check voltage between AFS control unit harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(-)	
AFS control unit connector	Terminal		
F110	3	Ground	Battery voltage

OK or NG

- OK >> Replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#) .
 NG >> Repair harness or connector.



ACTIVE AFS

NKS003QV

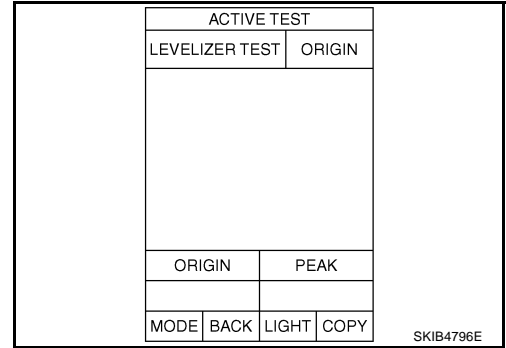
Auto Aiming Does Not Operate (Check Aiming Motor System Circuit)

1. CHECK AIMING MOTOR

1. Start engine and turn lighting switch to 2ND position.
2. Select "ADAPTIVE LIGHT" on CONSULT-II. Select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Select "LEVELIZER TEST" on "SELECT TEST ITEM" screen.
4. Touch "ORIGIN" or "PEAK" screen.
5. Make sure of aiming motor operation.

OK or NG

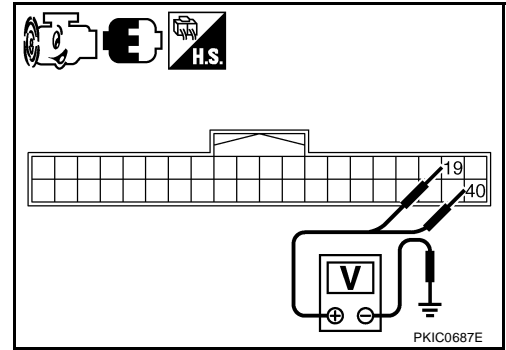
- OK >> Replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#).
- NG >> GO TO 2.



2. CHECK AIMING MOTOR DRIVE SIGNAL

1. Touch "ORIGIN" or "PEAK" screen in "LEVELIZER TEST".
2. Check voltage between AFS control unit harness connector and ground.

(+)		Terminal	(-)	Condition	Voltage (Approx.)
AFS control unit connector					
RH	F110	19	Ground	ORIGIN	10.6 V
				PEAK	1.9 V
LH	40	ORIGIN		10.6 V	
		PEAK		1.9 V	



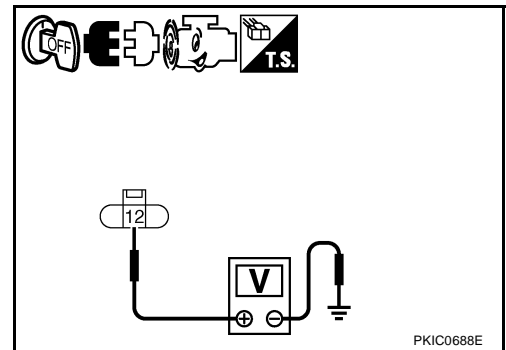
OK or NG

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

3. CHECK AIMING MOTOR DRIVE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH and LH connector.
3. Start engine.
4. Touch "ORIGIN" or "PEAK" screen in "LEVELIZER TEST".
5. Check voltage between front combination lamp (LH and RH) harness connector and ground.

(+)		Terminal	(-)	Condition	Voltage (Approx.)
Front combination lamp connector					
RH	E70	12	Ground	ORIGIN	10.6 V
				PEAK	1.9 V
LH	E71	12		ORIGIN	10.6 V
				PEAK	1.9 V



OK or NG

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

ACTIVE AFS

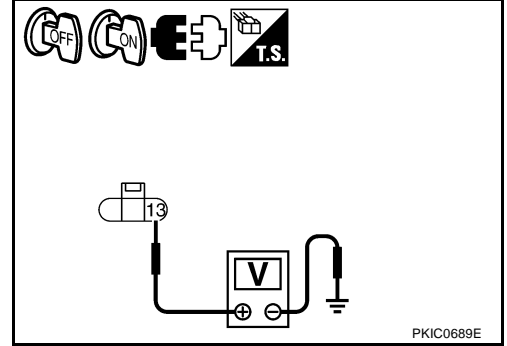
4. CHECK AIMING MOTOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Turn ignition switch ON.
3. Check voltage between front combination lamp (RH and LH) harness connector and ground.

(+)		Terminal	(-)	Voltage (Approx.)
Front combination lamp connector				
RH	E70	13	Ground	Battery voltage
LH	E71	13		

OK or NG

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



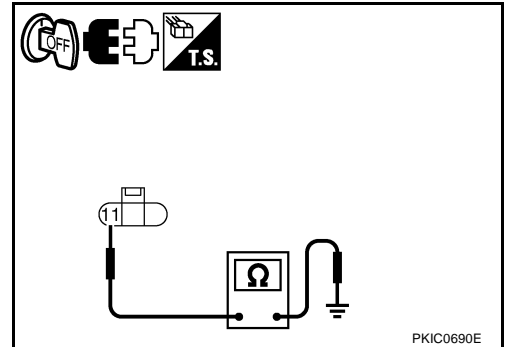
5. CHECK AIMING MOTOR GROUND

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

Front combination lamp connector	Terminal	Ground	Continuity
RH	E70		11
LH	E71	11	

OK or NG

- OK >> Replace front combination lamp RH and LH (aiming motor malfunction). Refer to [LT-191, "Removal and Installation of Front Combination Lamp"](#) .
 NG >> Repair harness or connector.



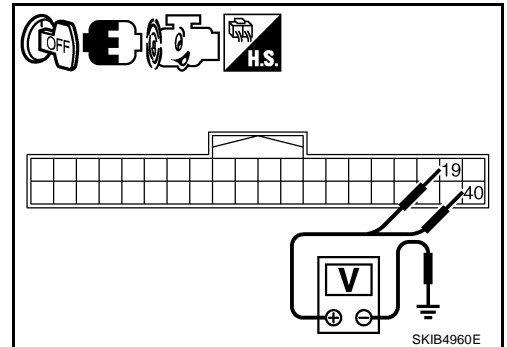
6. CHECK AIMING MOTOR DRIVE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH and LH connector.
3. Start engine.
4. Touch "ORIGIN" or "PEAK" screen in "LEVELIZER TEST".
5. Check voltage between AFS control unit harness connector and ground.

(+)		Terminal	(-)	Condition	Voltage (Approx.)
AFS control unit connector					
RH	F110	19	Ground	ORIGIN	10.6 V
				PEAK	1.9 V
LH		40		ORIGIN	10.6 V
				PEAK	1.9 V

OK or NG

- OK >> Replace front combination lamp RH and LH (aiming motor malfunction). Refer to [LT-191, "Removal and Installation of Front Combination Lamp"](#) .
 NG >> GO TO 7.



ACTIVE AFS

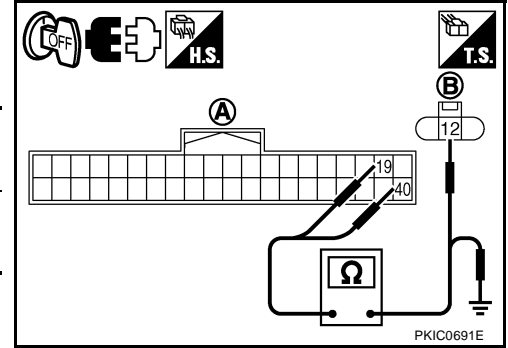
7. CHECK AIMING MOTOR DRIVE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector.
3. Check continuity between AFS control unit harness connector (A) and front combination lamp (LH or RH) harness connector (B).

Circuit	A		B		Continuity
	Connector	Terminal	Connector	Terminal	
RH	F110	19	E70	12	Yes
LH		40	E71	12	

4. Check continuity between AFS control unit harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
F110	19		No
	40		



OK or NG

- OK >> Replace AFS control unit. Refer to [LT-192, "Removal and Installation of AFS Control Unit"](#) .
- NG >> Repair harness or connector.

ACTIVE AFS

AFS OFF Indicator Does Not Operate

NKS003QW

1. CHECK DIAGNOSIS RESULT (AFS CONTROL UNIT)

Select "ADAPTIVE LIGHT" on CONSULT-II. Select "SELF-DIAG RESULTS" on "SELECT DIAG MODE" screen.

Is DTC detected?

YES >> Refer to [LT-153, "SELF-DIAG RESULTS"](#) .

NO >> GO TO 2.

SELF-DIAG RESULTS			
DTC RESULTS		TIME	
NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED.			
ERASE		PRINT	
MODE	BACK	LIGHT	COPY

PKIA6866E

2. CHECK DIAGNOSIS RESULT (UNIFIED METER AND A/C AMP.)

Select "METER A/C AMP" on CONSULT-II. Select "SELF-DIAG RESULTS" on "SELECT DIAG MODE" screen.

Is DTC detected?

YES >> Refer to [DI-31, "SELF-DIAG RESULTS"](#) .

NO >> GO TO 3.

SELF-DIAG RESULTS			
DTC RESULTS		TIME	
NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED.			
ERASE		PRINT	
MODE	BACK	LIGHT	COPY

PKIA6866E

3. CHECK AFS OFF INDICATOR SIGNAL (UNIFIED METER AND A/C AMP.)

Check "AFS OFF IND" in "Data Monitor" according to AFS switch operation.

Condition	"AFS OFF IND"
AFS switch is OFF.	ON
AFS switch is ON.	OFF

OK or NG

OK >> Replace combination meter.

NG >> Replace unified meter and A/C amp.

DATA MONITOR			
MONITOR		NO DTC	
AFS OFF IND		ON	
RECORD			
MODE	BACK	LIGHT	COPY

SKIB4971E

Removal and Installation of Steering Angle Sensor

NKS003QX

Refer to [BRC-60, "STEERING ANGLE SENSOR"](#) .

Removal and Installation of Front Combination Lamp

NKS003QY

Refer to [LT-75, "Removal and Installation"](#) .

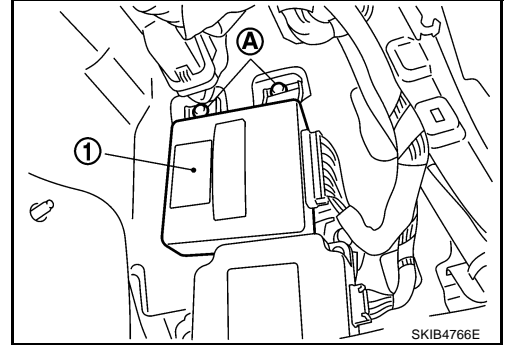
ACTIVE AFS

Removal and Installation of AFS Control Unit

NKS003QZ

REMOVAL

1. Remove dash side finisher RH. Refer to [EI-37, "BODY SIDE TRIM"](#) .
2. Remove screw (A).
3. Disconnect AFS control unit connector.
4. Remove AFS control unit (1).



INSTALLATION

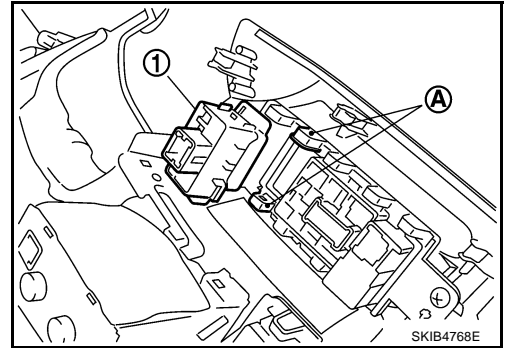
Installation is the reverse order of removal.

Removal and Installation of AFS Switch

NKS003R0

REMOVAL

1. Remove instrument lower driver panel. Refer to [IP-10, "INSTRUMENT PANEL ASSEMBLY"](#) .
2. Press AFS switch fixing pawls (A) and remove unit (1) from instrument lower driver panel.



INSTALLATION

Installation is the reverse order of removal.

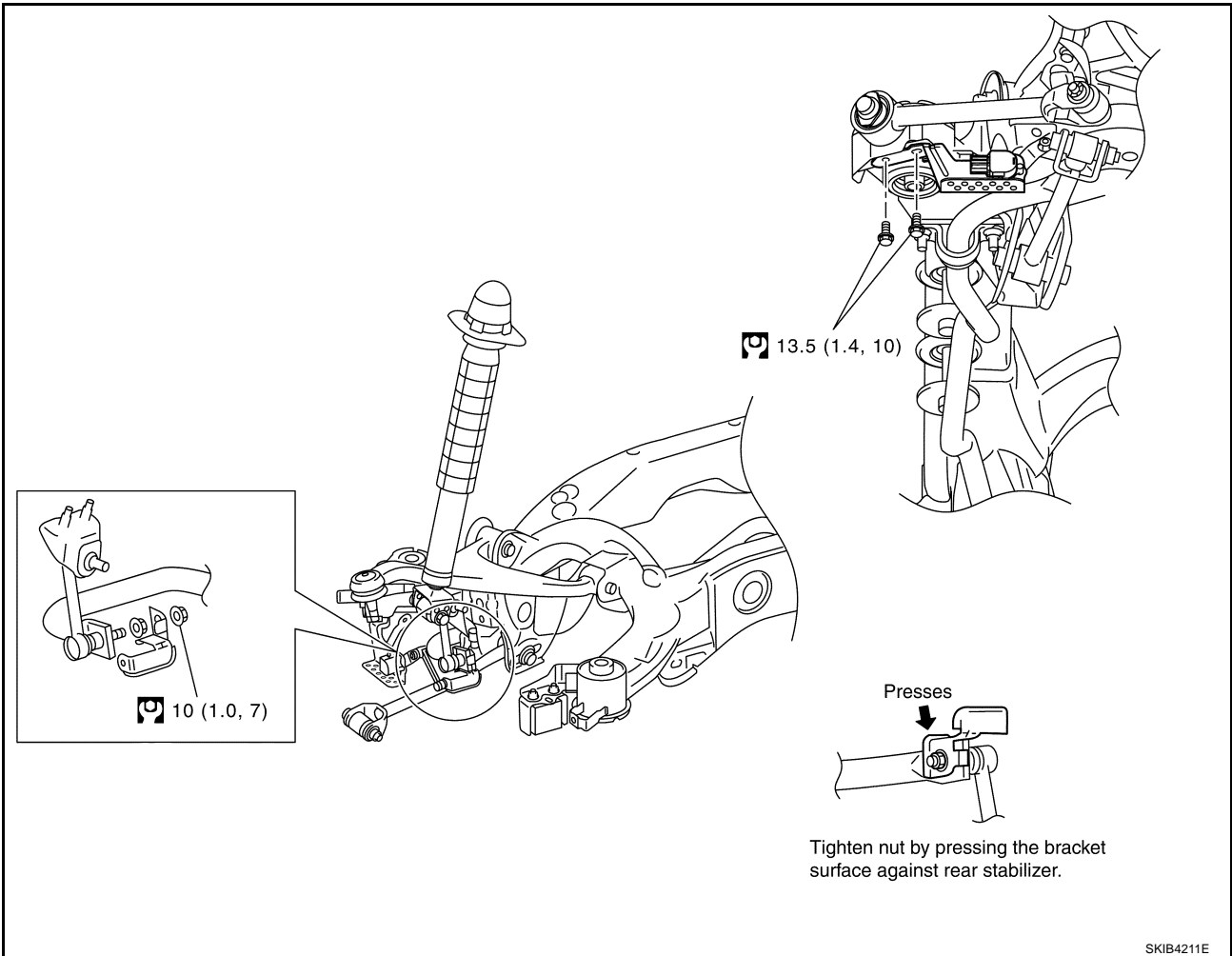
Removal and Installation of Height Sensor**REMOVAL**

1. Disconnect height sensor connector.
2. Remove height sensor link bracket mounting nut. (rear stabilizer side)

CAUTION:

Never remove from the installation nut of height sensor link bracket (height sensor link side).

3. Remove bolts, and remove height sensor.



: N·m (kg-m, ft-lb)

INSTALLATION

Installation is the reverse order of removal.

CAUTION:

Tighten the bracket while pushing onto rear stabilizer when installing the installation nut of height sensor link bracket (stabilizer side).

NOTE:

Adjust levelizer when replacing height sensor. For details, refer to [LT-152, "WORK SUPPORT \(LEVELIZER ADJUSTMENT\)"](#).

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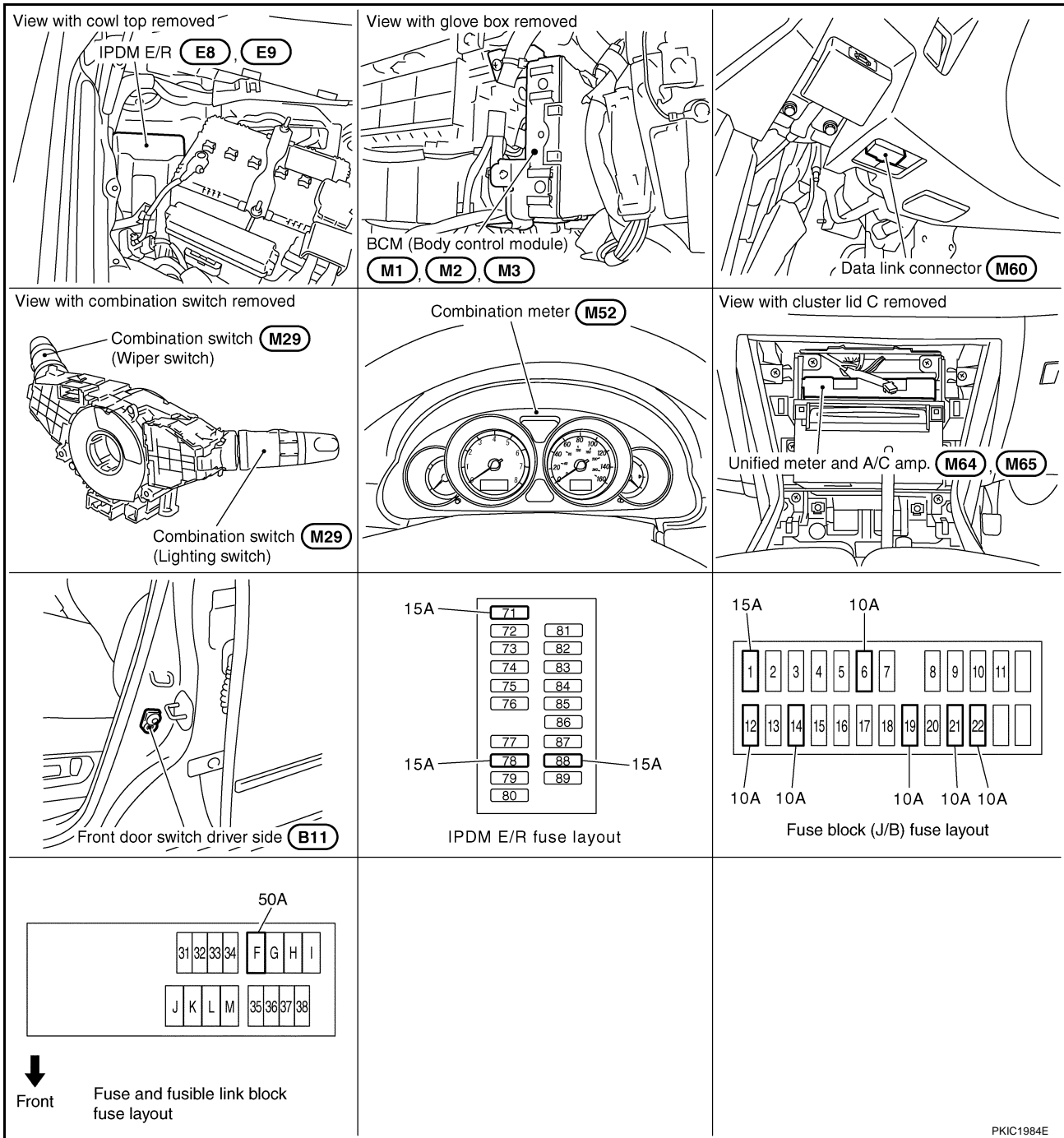
FRONT FOG LAMP

FRONT FOG LAMP

PFP:26150

Component Parts and Harness Connector Location

NKS003R2



System Description

NKS003R3

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

FRONT FOG LAMP

OUTLINE

Power is supplied at all times

- through 15A fuse (No. 88, located in IPDM E/R)
- to front fog lamp relay, located in IPDM E/R,
- through 15A fuse (No. 78, located in IPDM E/R)
- to CPU, located in IPDM E/R,
- through 15A fuse (No. 71, located in IPDM E/R)
- to CPU, located in IPDM E/R,
- through 50A fusible link (letter F, located in fuse fusible link and relay block)
- to BCM terminal 55,
- through 10A fuse [No. 21, located in fuse block (J/B)]
- to BCM terminal 42, and
- to combination meter terminal 23,
- through 10A fuse [No. 19, located in fuse block (J/B)]
- to unified meter and A/C amp. terminal 54,
- through 10A fuse [No. 22, located in fuse block (J/B)]
- to key slot terminal 1.

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

- to CPU, located in IPDM E/R,
- through 15A fuse [No. 1, located in fuse block (J/B)]
- to BCM terminal 38,
- through 10A fuse [No. 14, located in fuse block (J/B)]
- to combination meter terminal 12,
- through 10A fuse [No. 12, located in fuse block (J/B)]
- to unified meter and A/C amp. terminal 53.

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

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

Ground is supplied

- to BCM terminal 52
- to combination meter terminals 9, 10 and 11
- to unified meter and A/C amp. terminals 55 and 71
- to push-button ignition switch (push switch) terminal 1
- to key slot terminal 8
- through grounds M16 and M70,
- to IPDM E/R terminals 38 and 51
- through grounds E22 and E43.

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FRONT FOG LAMP

FOG LAMP OPERATION

The fog lamp switch is built in combination switch. The lighting switch must be in 2ND position or AUTO position (headlamp is ON) and fog lamp switch must be ON for fog lamp operation.

With the fog lamp switch in the ON position, the CPU located in IPDM E/R grounds coil side of the fog lamp relay. Fog lamp relay then directs power

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

Ground is supplied

- to front fog lamp RH terminal 2
- through grounds E22 and E43,
- to front fog lamp LH terminal 2
- through grounds E22 and E43.

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

The unified meter and A/C amp. that received the front fog lamp request signal by BCM across the CAN communication makes a front fog lamp indicator lamp turn on in combination meter.

COMBINATION SWITCH READING FUNCTION

Refer to [BCS-3, "COMBINATION SWITCH READING FUNCTION"](#) .

EXTERIOR LAMP BATTERY SAVER CONTROL

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

Under this condition, the headlamps remain illuminated for 5 minutes, then the headlamps are turned off.

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

CAN Communication System Description

NKS003R4

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

NKS003R5

Refer to [LAN-50, "CAN System Specification Chart"](#) .

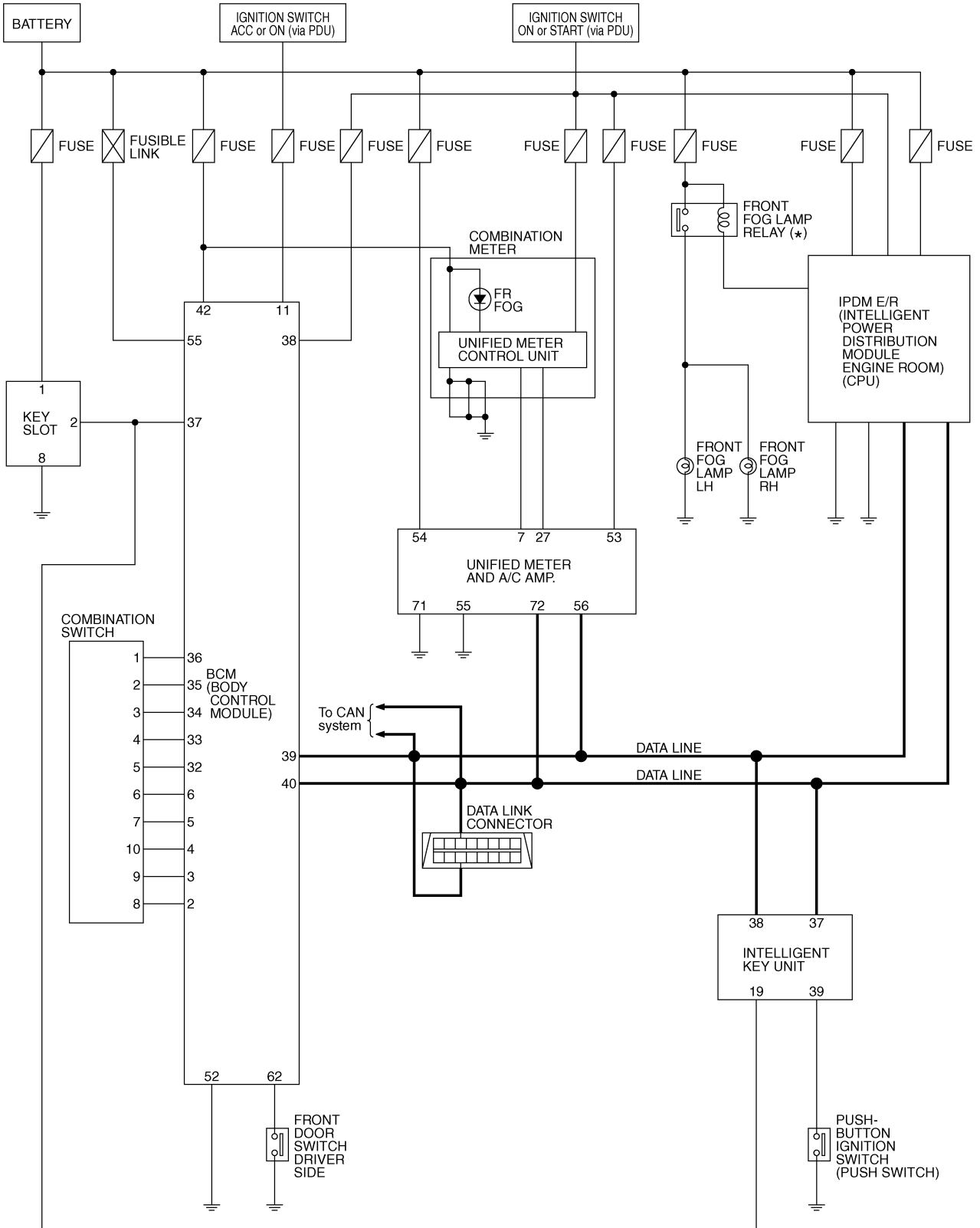
FRONT FOG LAMP

Schematic

NKS003R6

* : This relay is built into the IPDM E/R (Intelligent power distribution module engine room).

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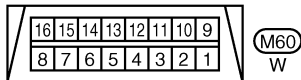
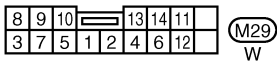
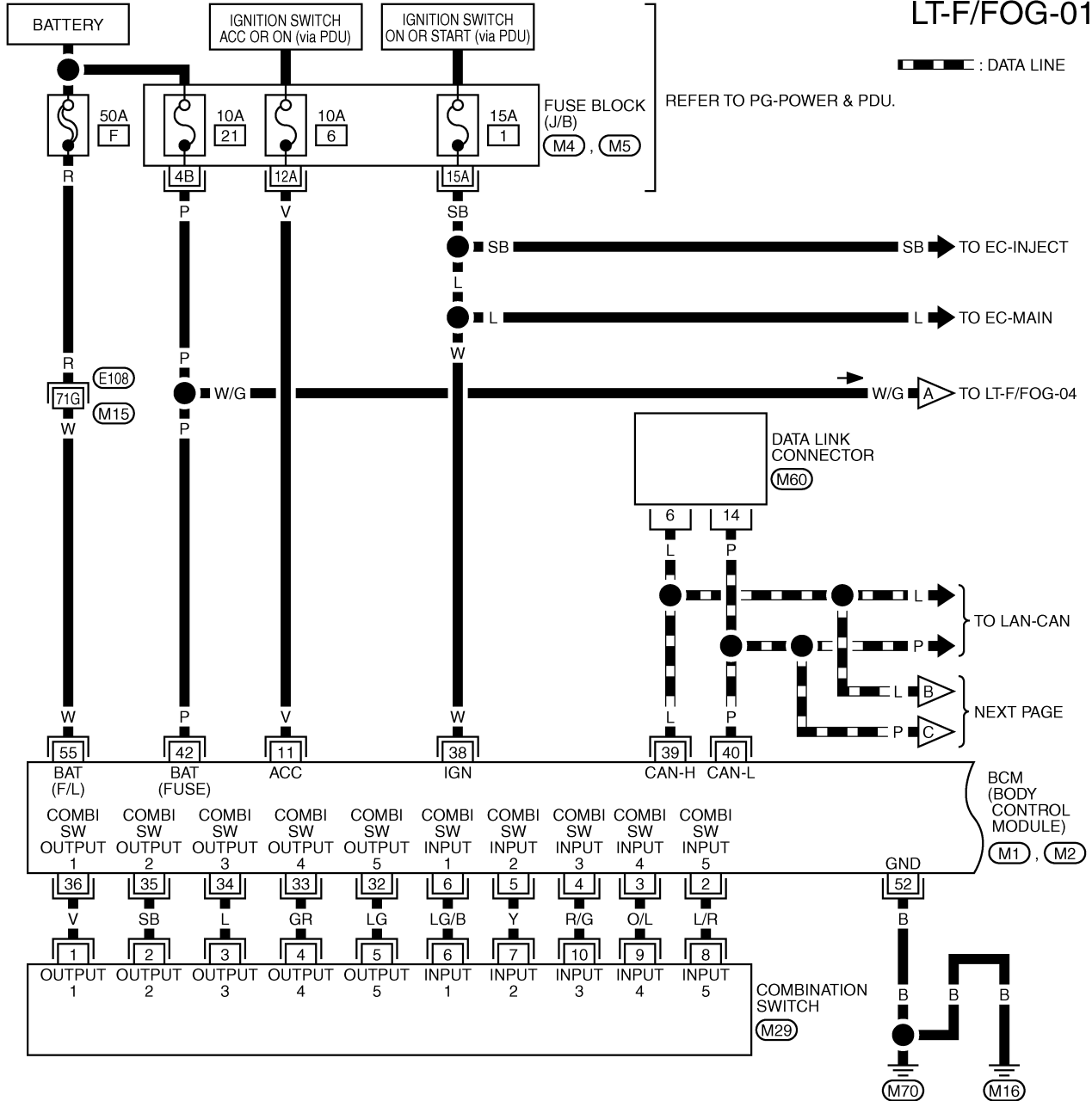
TKWT3386E

FRONT FOG LAMP

NKS003R7

Wiring Diagram — F/FOG —

LT-F/FOG-01



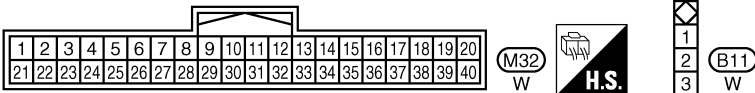
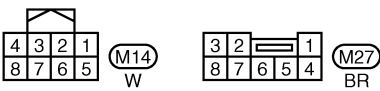
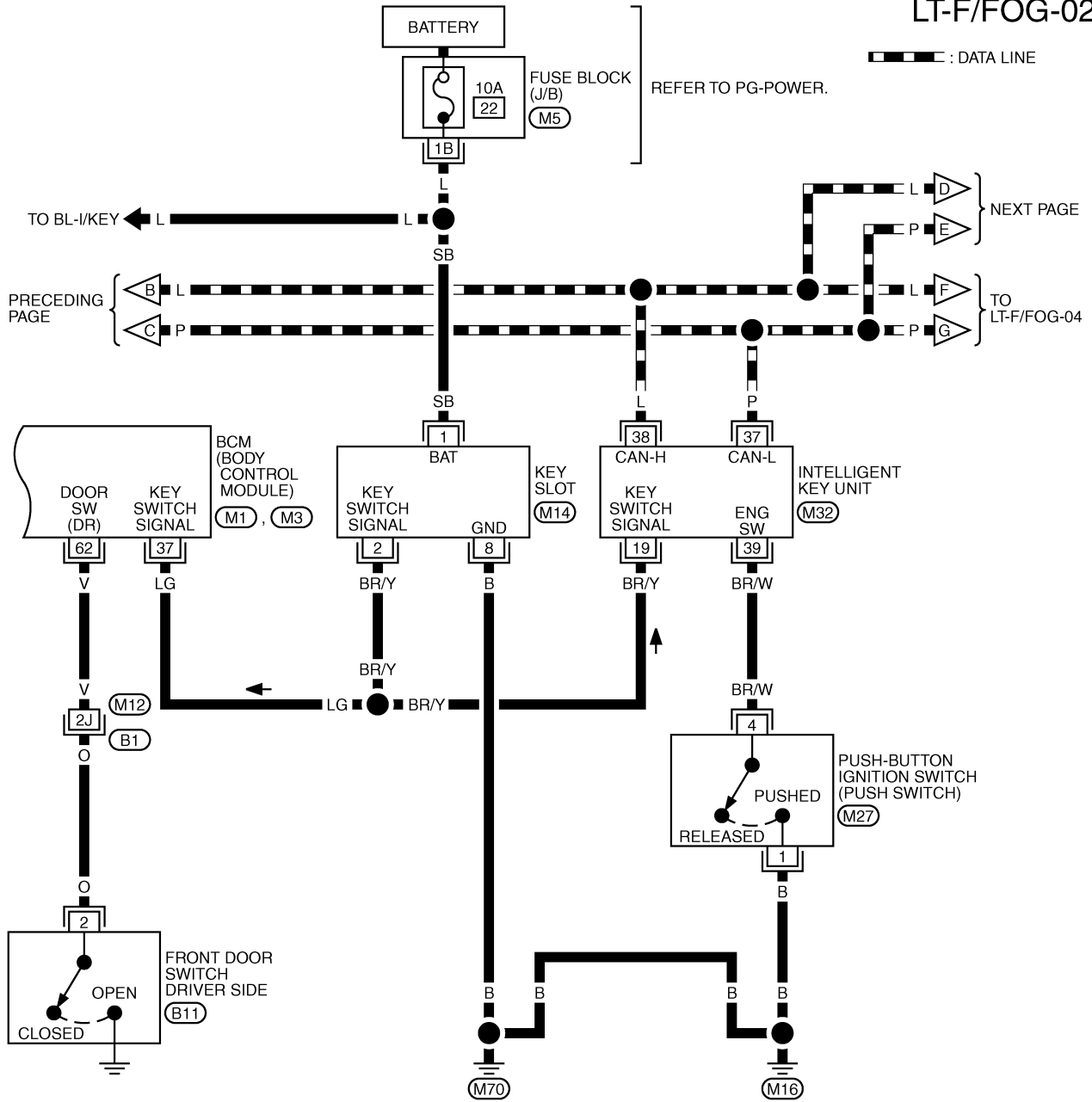
REFER TO THE FOLLOWING.

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

TKWT3387E

FRONT FOG LAMP

LT-F/FOG-02



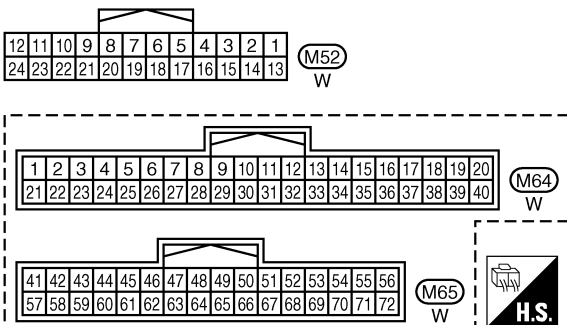
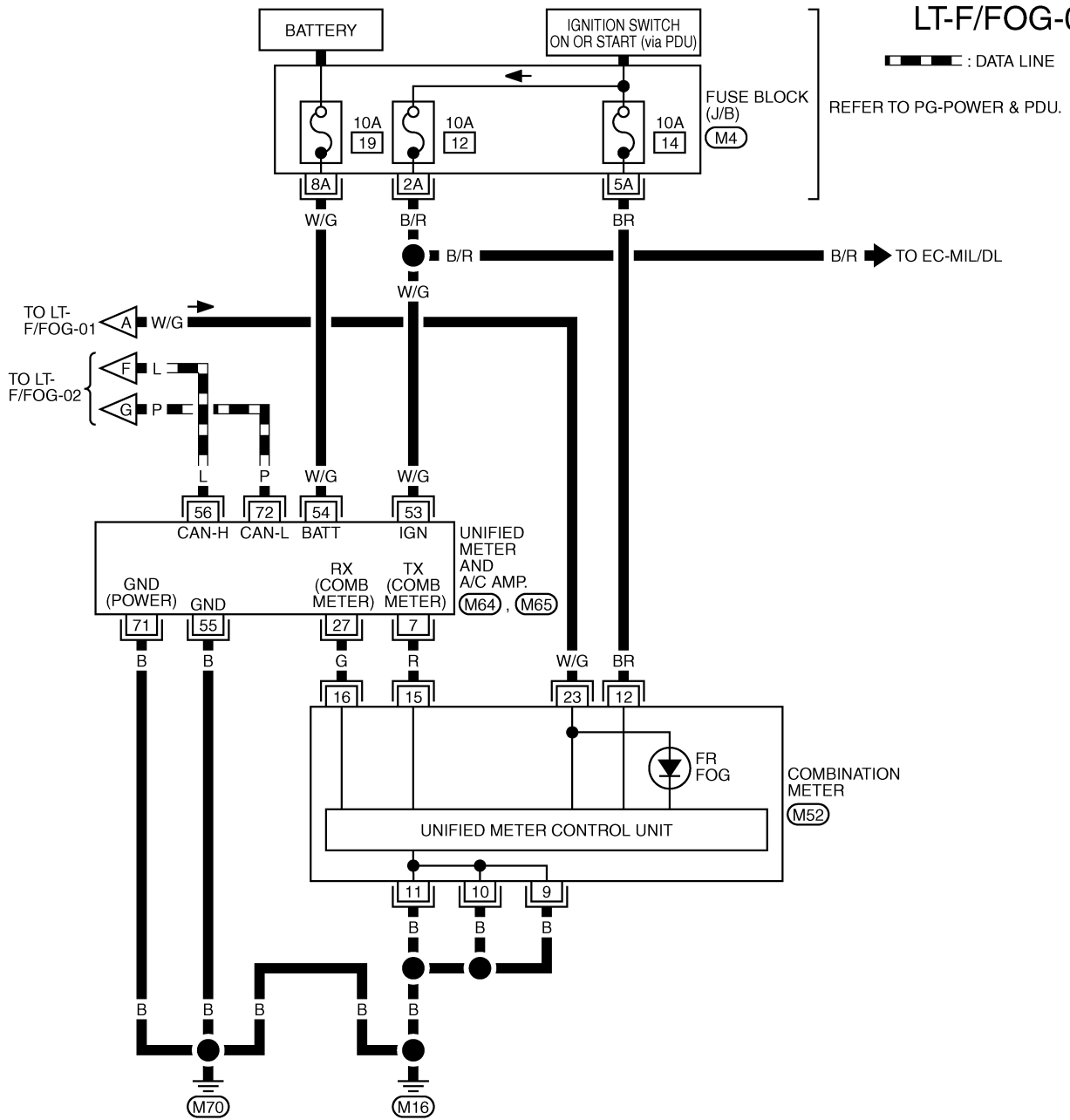
REFER TO THE FOLLOWING.

- (B1) -SUPER MULTIPLE JUNCTION (SMJ)
- (M5) -FUSE BLOCK-JUNCTION BOX (J/B)
- (M1), (M3) -ELECTRICAL UNITS

TKWT5262E

FRONT FOG LAMP

LT-F/FOG-04



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

TKWT4854E

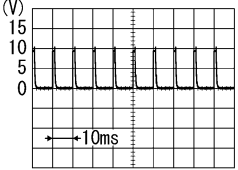
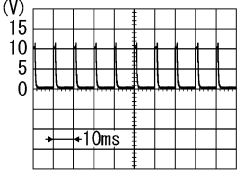
FRONT FOG LAMP

NKS003R8

Terminals and Reference Values for BCM

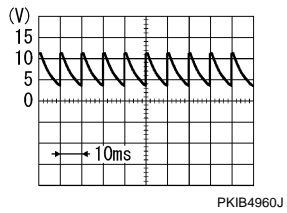
CAUTION:

- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF not to be fluctuated by overloaded.
- Turn wiper dial position to 4 except when checking waveform or voltage of wiper dial position. Wiper dial position can be confirmed on CONSULT-II. Refer to [LT-238. "DATA MONITOR"](#) .

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
3	O/L	Combination switch input 4	ON	Lighting, turn, wiper switch (Wiper dial position 4)	 <p style="text-align: right;">PKIB4955J</p> <p style="text-align: center;">Approx. 0.8 V</p>
					OFF
11	V	Ignition switch (ACC)	ACC	—	Battery voltage
32	LG	Combination switch output 5	ON	Lighting, turn, wiper switch (Wiper dial position 4)	 <p style="text-align: right;">PKIB4956J</p> <p style="text-align: center;">Approx. 1.0 V</p>
					OFF
37	LG	Key switch signal	OFF	Intelligent Key is inserted into key slot.	Battery voltage
				Intelligent Key is removed from key slot.	Approx. 0 V
38	W	Ignition switch (ON)	ON	—	Battery voltage
39	L	CAN – H	—	—	—
40	P	CAN – L	—	—	—
42	P	Battery power supply	OFF	—	Battery voltage
52	B	Ground	ON	—	Approx. 0 V
55	W	Battery power supply	OFF	—	Battery voltage

FRONT FOG LAMP

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
62	V	Front door switch driver side signal	OFF	Front door switch driver side	ON (open) Approx. 0 V
				OFF (closed)	OFF (closed) Approx. 7.5 - 8.0 V



PKIB4960J

Terminals and Reference Values for IPDM E/R

NKS003R9

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

How to Perform Trouble Diagnoses

NKS003RA

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to [LT-194, "System Description"](#) .
3. Perform the Preliminary Check. Refer to [LT-203, "Preliminary Check"](#) .
4. Check symptom and repair or replace the cause of malfunction.
5. Does the front fog lamp operate normally? If YES, GO TO 6. If NO, GO TO 4.
6. INSPECTION END

Preliminary Check

NKS003RB

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES AND FUSIBLE LINK

Check for blown fuses and fusible link.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
		21
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	71
		88
		78

FRONT FOG LAMP

Refer to [LT-198, "Wiring Diagram — F/FOG —"](#).

OK or NG

OK >> GO TO 2.

NG >> If fuse or fusible link is blown, be sure to eliminate cause of malfunction before installing new fuse or fusible link. Refer to [PG-3, "POWER SUPPLY ROUTING CIRCUIT"](#).

2. CHECK POWER SUPPLY CIRCUIT

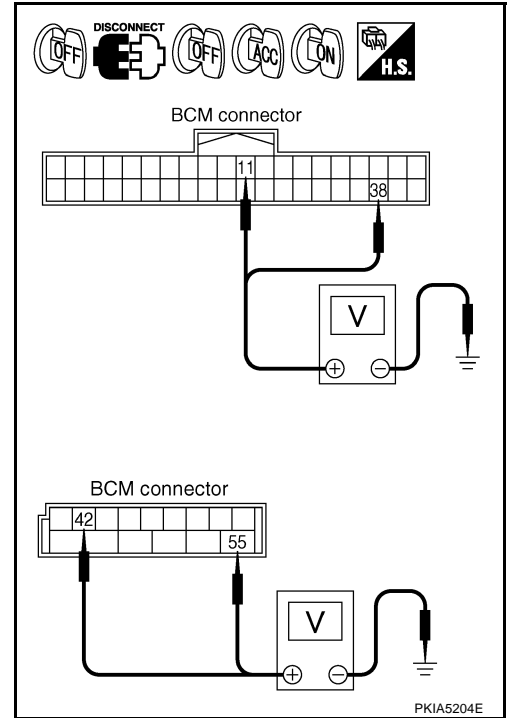
1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector and ground.

Terminal		Ignition switch position			
(+)		(-)	OFF	ACC	ON
BCM connector	Terminal		OFF	ACC	ON
M1	11	Ground	Approx. 0 V	Battery voltage	Battery voltage
	38		Approx. 0 V	Approx. 0 V	Battery voltage
M2	42		Battery voltage	Battery voltage	Battery voltage
	55		Battery voltage	Battery voltage	Battery voltage

OK or NG

OK >> GO TO 3.

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



3. CHECK GROUND CIRCUIT

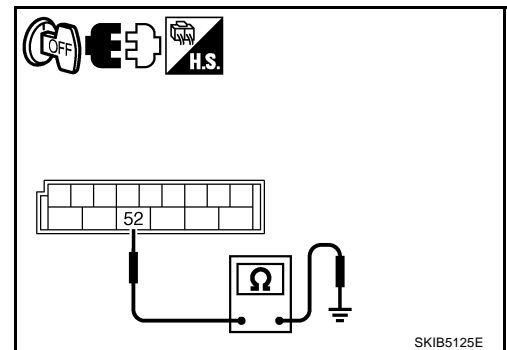
Check continuity between BCM harness connector and ground.

BCM connector	Terminal	Ground	Continuity
M2	52		Yes

OK or NG

OK >> INSPECTION END

NG >> Check harness ground circuit.



CONSULT-II Functions (BCM)

Refer to [LT-57, "CONSULT-II Functions \(BCM\)"](#) in HEADLAMP (FOR USA) -XENON TYPE-.

Refer to [LT-23, "CONSULT-II Functions \(BCM\)"](#) in HEADLAMP (FOR USA) -CONVENTIONAL TYPE-.

Refer to [LT-94, "CONSULT-II Functions \(BCM\)"](#) in HEADLAMP (FOR CANADA).

CONSULT-II Functions (IPDM E/R)

Refer to [LT-59, "CONSULT-II Functions \(IPDM E/R\)"](#) in HEADLAMP (FOR USA) -XENON TYPE-.

Refer to [LT-25, "CONSULT-II Functions \(IPDM E/R\)"](#) in HEADLAMP (FOR USA) -CONVENTIONAL TYPE-.

Refer to [LT-96, "CONSULT-II Functions \(IPDM E/R\)"](#) in HEADLAMP (FOR CANADA).

FRONT FOG LAMP

NKS003RE

Front Fog Lamps Do Not Illuminate (Both Sides)

1. CHECK COMBINATION SWITCH INPUT SIGNAL

☑ With CONSULT-II

1. Select "BCM" on CONSULT-II. Select "HEAD LAMP" on "SELECT TEST ITEM" screen.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure "FR FOG SW" turns ON-OFF linked with operation of fog lamp switch.

When fog lamp switch is ON : FR FOG SW ON

DATA MONITOR			
MONITOR			
FR FOG SW	ON		
		RECORD	
MODE	BACK	LIGHT	COPY

PKIA7598E

☒ Without CONSULT-II

Refer to [LT-239, "Combination Switch Inspection"](#).

OK or NG

OK >> GO TO 2.

NG >> Check combination switch (lighting switch). Refer to [LT-239, "Combination Switch Inspection"](#).

2. FRONT FOG LAMP ACTIVE TEST

☑ With CONSULT-II

1. Select "IPDM E/R" on CONSULT-II. Select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
2. Select "LAMPS" on "SELECT TEST ITEM" screen.
3. Touch "FOG" screen.
4. Make sure fog lamp operation.

Front fog lamps should operate.

ACTIVE TEST			
LAMPS		FOG	
OFF	HI		
LO			
MODE	BACK	LIGHT	COPY

PKIA7748E

☒ Without CONSULT-II

1. Start auto active test. Refer to [PG-23, "Auto Active Test"](#).
2. Make sure fog lamp operation.

Front fog lamp should operate.

OK or NG

OK >> GO TO 3.

NG >> GO TO 4.

3. CHECK IPDM E/R

1. Select "IPDM E/R" on CONSULT-II. Select "DATA MONITOR" on "SELECT DIAG MODE" screen.
2. Make sure "FR FOG REQ" turns ON when fog lamp switch is in ON position.

When lighting switch is ON : FR FOG REQ ON position

DATA MONITOR			
MONITOR			
FR FOG REQ	ON		
		Page Down	
		RECORD	
MODE	BACK	LIGHT	COPY

SKIA5898E

OK or NG

OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#).

NG >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#).

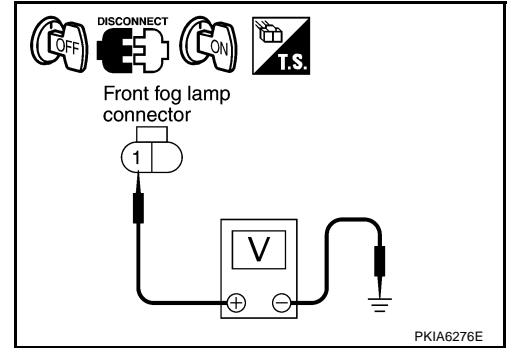
FRONT FOG LAMP

4. CHECK FOG LAMP INPUT SIGNAL

☑ With CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front fog lamp RH and LH connector.
3. Select "IPDM E/R" on CONSULT-II. Select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
4. Select "LAMPS" on "SELECT TEST ITEM" screen.
5. Touch "FOG" screen.
6. Check voltage between front fog lamp (RH and LH) harness connector and ground.

Terminal			(-)	Voltage (Approx.)
(+) Front fog lamp connector		Terminal		
RH	E45	1	Ground	Battery voltage
LH	E60	1		



☒ Without CONSULT-II

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

Terminal			(-)	Voltage (Approx.)
(+) Front fog lamp connector		Terminal		
RH	E45	1	Ground	Battery voltage
LH	E60	1		

OK or NG

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

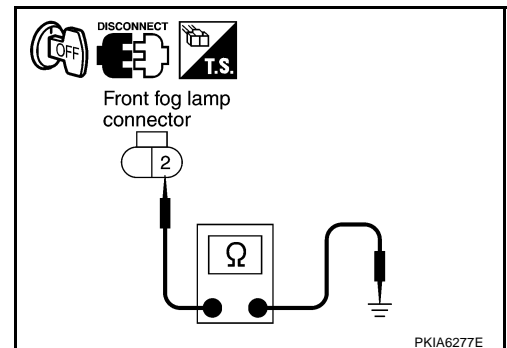
5. CHECK FOG LAMP GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between front fog lamp (RH and LH) harness connector and ground.

Front fog lamp connector		Terminal	Ground	Continuity
RH	E45	2		Ground
LH	E60	2		

OK or NG

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



FRONT FOG LAMP

6. CHECK FRONT FOG LAMP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector (A) and front fog lamp (RH and LH) harness connector (B).

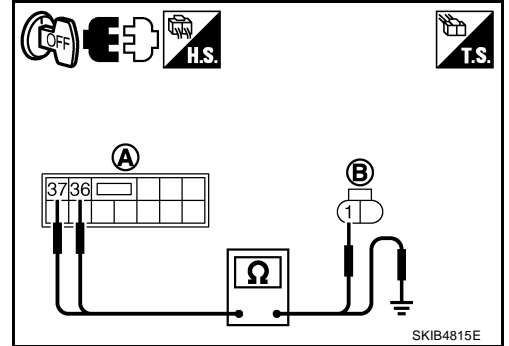
Circuit	A		B		Continuity
	Connector	Terminal	Connector	Terminal	
RH	E8	37	E45	1	Yes
LH		36	E60	1	

4. Check continuity between IPDM E/R harness connector (A) and ground.

A			Ground	Continuity
Connector	Terminal			
RH	E8	37		No
LH		38		

OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#) .
- NG >> Repair harness or connector.



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FRONT FOG LAMP

NKS003RF

Front Fog Lamp Does Not Illuminate (One Side)

1. CHECK BULB

Check bulb of fog lamp which does not illuminate.

OK or NG

OK >> GO TO 2.

NG >> Replace front fog lamp bulb.

2. CHECK FOG LAMP INPUT SIGNAL

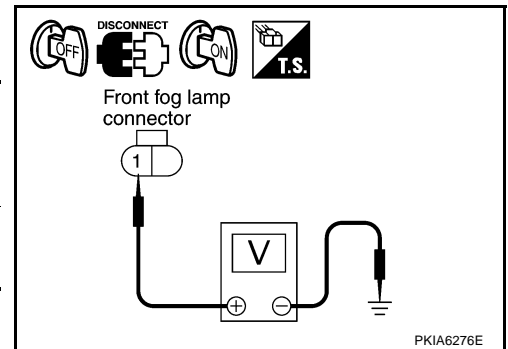
1. Turn ignition switch OFF.
2. Disconnect front fog lamp RH or LH connector.
3. Turn ignition switch ON.
4. Lighting switch is turned 2ND position and fog lamp ON position.
5. Check voltage between front fog lamp RH or LH harness connector and ground.

Terminal			Voltage (Approx.)
(+)		(-)	
Front fog lamp connector	Terminal		
RH	E45	1	Battery voltage
LH	E60	1	

OK or NG

OK >> GO TO 3.

NG >> GO TO 4.



3. CHECK FRONT FOG LAMP GROUND CIRCUIT

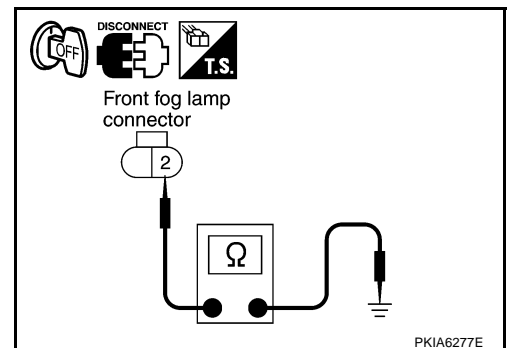
1. Turn ignition switch OFF.
2. Check continuity between front fog lamp RH or LH harness connector and ground.

Front fog lamp connector			Ground	Continuity
Front fog lamp connector	Terminal			
RH	E45	2	Ground	Yes
LH	E60	2		

OK or NG

OK >> Check connecting condition front fog lamp harness connector.

NG >> Repair harness or connector.



FRONT FOG LAMP

4. CHECK FOG LAMP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector (A) and front fog lamp RH or LH harness connector (B).

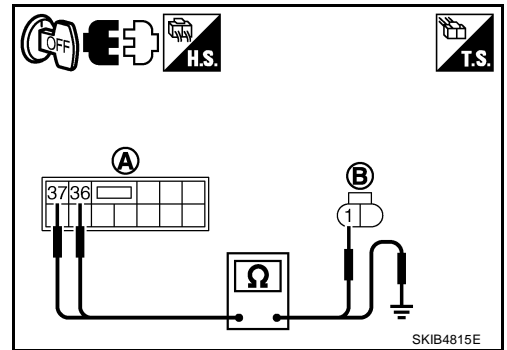
Circuit	A		B		Continuity
	Connector	Terminal	Connector	Terminal	
RH	E8	36	E60	1	Yes
LH		37	E45	1	

4. Check continuity between IPDM E/R harness connector (A) and ground.

A			Ground	Continuity
Connector		Terminal		
RH	E8	36		No
LH		37		

OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#) .
 NG >> Repair harness or connector.



Front Fog Lamps Do Not Turn OFF

NKS003RG

1. CHECK FRONT FOG LAMP TURN OFF

Make sure that lighting switch is OFF. And make sure front fog lamp turns off when ignition switch is turned OFF.

OK or NG

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

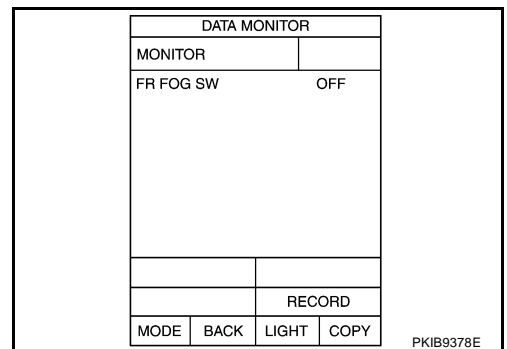
2. CHECK COMBINATION SWITCH INPUT SIGNAL

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

When fog lamp switch is OFF position : FR FOG SW OFF

OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#) .
 NG >> Check combination switch (lighting switch). Refer to [LT-239, "Combination Switch Inspection"](#) .



FRONT FOG LAMP

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

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

Display of self-diagnosis results

NO DTC>> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#) .

CAN COMM CIRCUIT>> Refer to [BCS-13, "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#) .

SELF-DIAG RESULTS			
DTC RESULTS		TIME	
CAN COMM CIRCUIT [U1000]			
ERASE		PRINT	
MODE	BACK	LIGHT	COPY

PKIA7627E

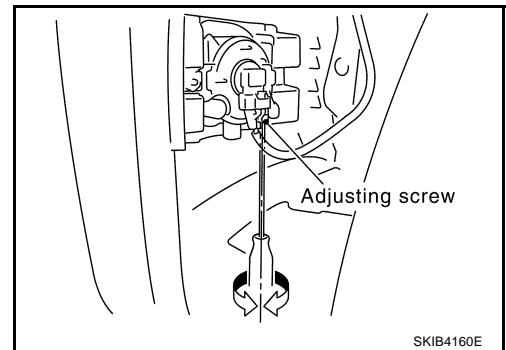
Aiming Adjustment

NKS003RH

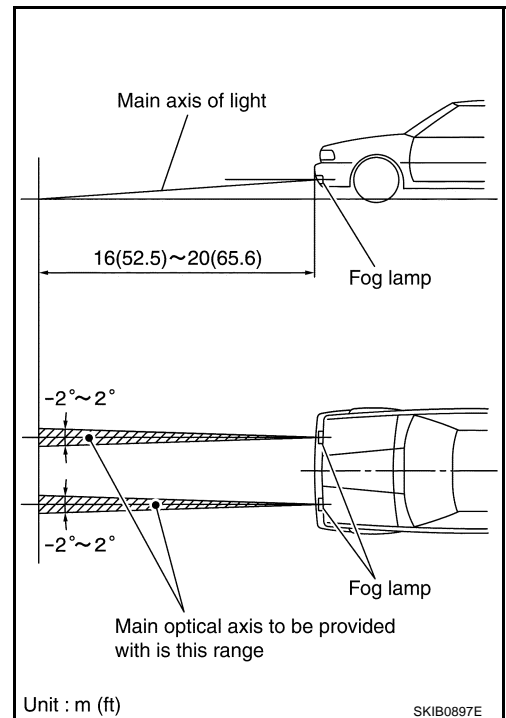
The fog lamp is a semi-sealed beam type which uses a replaceable halogen bulb. Before performing aiming adjustment, make sure of the following.

- Keep all tires inflated to correct pressure.
- Place vehicle on level ground.

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



1. Set the distance between the screen and the center of fog lamp lens as shown.
2. Turn front fog lamps ON.
3. Adjust front fog lamps using adjusting screw so that the top edge of the high intensity zone is in the figure. When performing adjustment, if necessary, cover the headlamps and opposite fog lamp.



FRONT FOG LAMP

Bulb Replacement

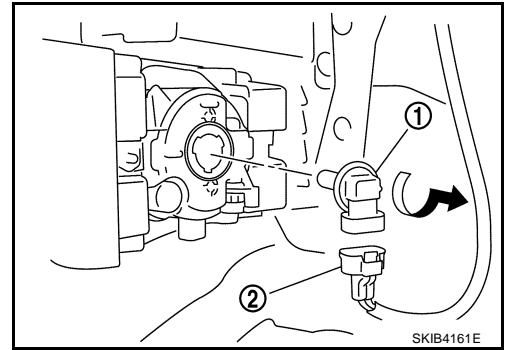
NKS003RI

1. Turn lighting switch OFF.
2. Remove fender protector (front). Refer to [EI-20, "FENDER PROTECTOR"](#) .
3. Turn bulb (1) counterclockwise and unlock it.
4. Disconnect connector (2), and remove bulb (1).

Front fog lamp : 12V - 55W (H11)

CAUTION:

- Never touch the glass of bulb directly by hand. Keep grease and other oily matters away from it. Never touch bulb by hand while it is lit or right after being turned off.
- Never leave bulb out of fog lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of fog lamp. When replacing bulb, be sure to replace it with new one.




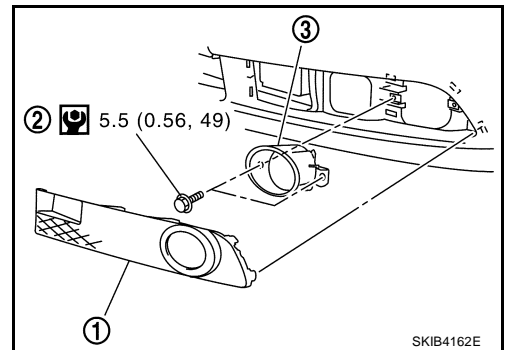
Removal and Installation

REMOVAL

NKS003RJ

1. Remove front bumper grille (1). Refer to [EI-13, "Removal and Installation of Front Bumper Grille"](#) .
2. Remove screws (2) and remove front fog lamp (3) from vehicle.

: N·m (kg·m, in-lb)



INSTALLATION

Installation is the reverse order of removal.

Front fog lamp mounting bolt  : 5.5 N·m (0.56 kg·m, 49 in-lb)

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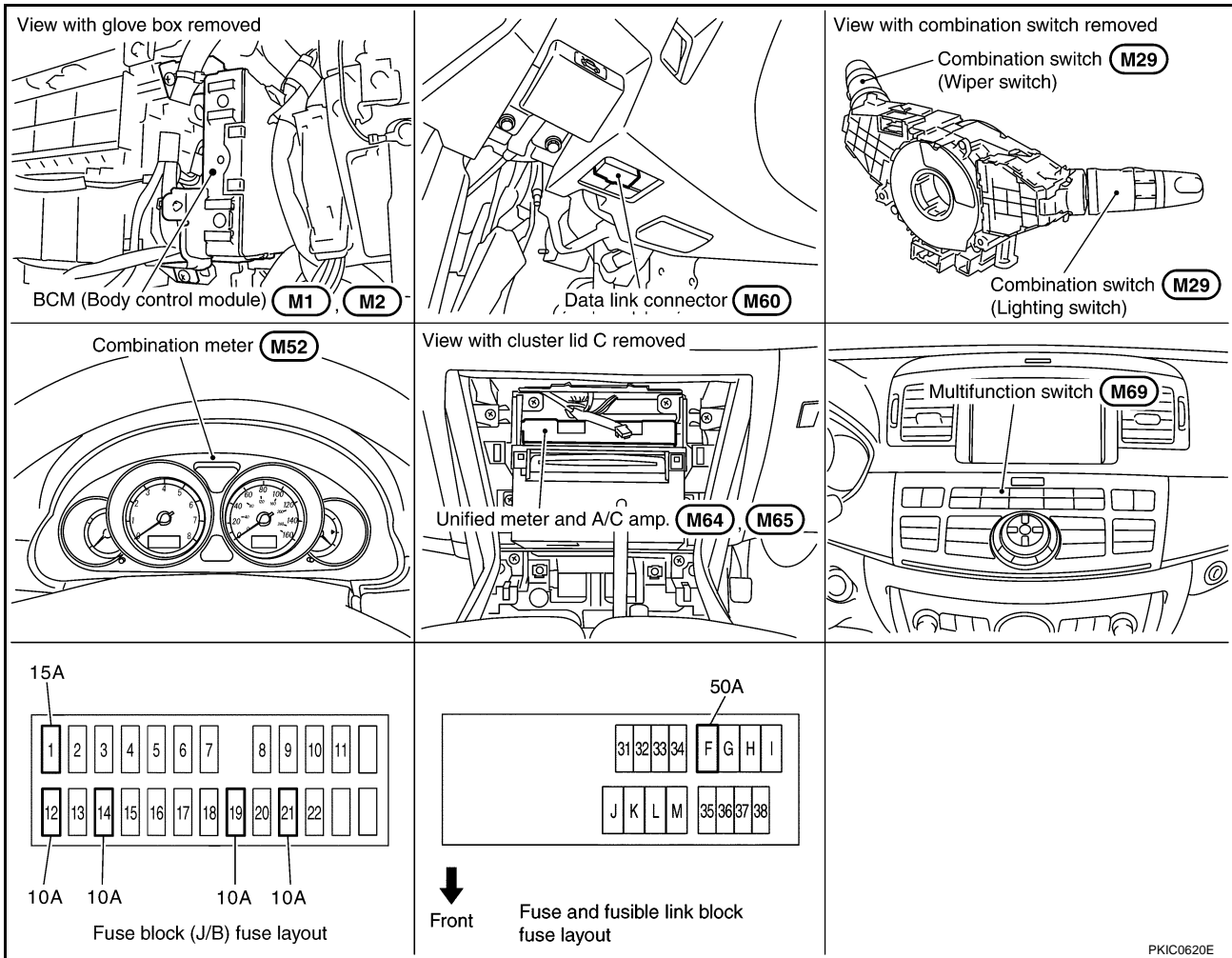
TURN SIGNAL AND HAZARD WARNING LAMPS

TURN SIGNAL AND HAZARD WARNING LAMPS

PFP:26120

Component Parts and Harness Connector Location

NKS003RK



PKIC0620E

System Description TURN SIGNAL OPERATION

NKS003RL

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

- through 15A fuse [No. 1, located in fuse block (J/B)]
- to BCM (body control module) terminal 38,
- through 10A fuse [No. 14, located in fuse block (J/B)]
- to combination meter terminal 12,
- through 10A fuse [No. 12, located in fuse block (J/B)]
- to unified meter and A/C amp. terminal 53.

Ground is supplied

- to BCM terminal 52
- to combination meter terminals 9, 10 and 11
- to unified meter and A/C amp. terminals 55 and 71
- through grounds M16 and M70.

TURN SIGNAL AND HAZARD WARNING LAMPS

LH Turn Signal Lamp

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

- through BCM terminal 45
- to front combination lamp LH (turn signal) terminal 10
- to side turn signal lamp LH terminal 1, and
- to rear combination lamp LH (turn signal) terminal 3.

Ground is supplied

- to front combination lamp LH (turn signal) terminal 9
- to side turn signal lamp LH terminal 2
- through grounds E22 and E43,
- to rear combination lamp LH (turn signal) terminal 4
- through grounds B5, B40 and B131.

The BCM also supplies input to unified meter and A/C amp. terminals 56 and 72 across the CAN communication lines.

The unified meter and A/C amp. which received the turn indicator signal makes the left turn signal indicator turn on in combination meter.

With power and input supplied, the BCM controls the flashing of the LH turn signal lamps.

RH Turn Signal Lamp

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

- through BCM terminal 46
- to front combination lamp RH (turn signal) terminal 10
- to side turn signal lamp RH terminal 1, and
- to rear combination lamp RH (turn signal) terminal 3.

Ground is supplied

- to front combination lamp RH (turn signal) terminal 9
- to side turn signal lamp RH terminal 2
- through grounds E22 and E43,
- to rear combination lamp RH (turn signal) terminal 4
- through grounds B5, B40 and B131.

The BCM also supplies input to unified meter and A/C amp. terminals 56 and 72 across the CAN communication lines.

The unified meter and A/C amp. which received the turn indicator signal makes the right turn signal indicator turn on in combination meter.

With power and input supplied, the BCM controls the flashing of the RH turn signal lamps.

HAZARD LAMP OPERATION

Power is supplied at all times

- through 50A fusible link (letter F, located in fuse, fusible link and relay block)
- to BCM terminal 55,
- through 10A fuse [No. 21, located in fuse block (J/B)]
- to BCM terminal 42
- to combination meter terminal 23,
- through 10A fuse [No. 19, located in fuse block (J/B)]
- to unified meter and A/C amp. terminal 54.

When the hazard switch is depressed, ground is supplied

- to BCM terminal 29
- through multifunction switch terminal 6.

Ground is supplied

- to multifunction switch terminal 14

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TURN SIGNAL AND HAZARD WARNING LAMPS

- to BCM terminal 52
- to combination meter terminals 9, 10 and 11
- to unified meter and A/C amp. terminals 55 and 71
- through grounds M16 and M70.

BCM then supplies power

- through BCM terminal 45
- to front combination lamp LH (turn signal) terminal 10
- to side turn signal lamp LH terminal 1
- to rear combination lamp LH (turn signal) terminal 3,
- through BCM terminal 46
- to front combination lamp RH (turn signal) terminal 10
- to side turn signal lamp RH terminal 1
- to rear combination lamp RH (turn signal) terminal 3.

Ground is supplied

- to front combination lamp LH (turn signal) terminal 9
- to front combination lamp RH (turn signal) terminal 9
- to side turn signal lamp LH terminal 2
- to side turn signal lamp RH terminal 2
- through grounds E22 and E43,
- to rear combination lamp LH (turn signal) terminal 4
- to rear combination lamp RH (turn signal) terminal 4
- through grounds B5, B40 and B131.

The BCM also supplies input to unified meter and A/C amp. terminals 56 and 72 across the CAN communication lines.

The unified meter and A/C amp. which received the turn indicator signal makes the left and right turn signal indicator turn on in combination meter.

With power and input supplied, the BCM controls the flashing of the hazard warning lamps.

COMBINATION SWITCH READING FUNCTION

Refer to [BCS-3, "COMBINATION SWITCH READING FUNCTION"](#) .

CAN Communication System Description

NKS003RM

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

NKS003RN

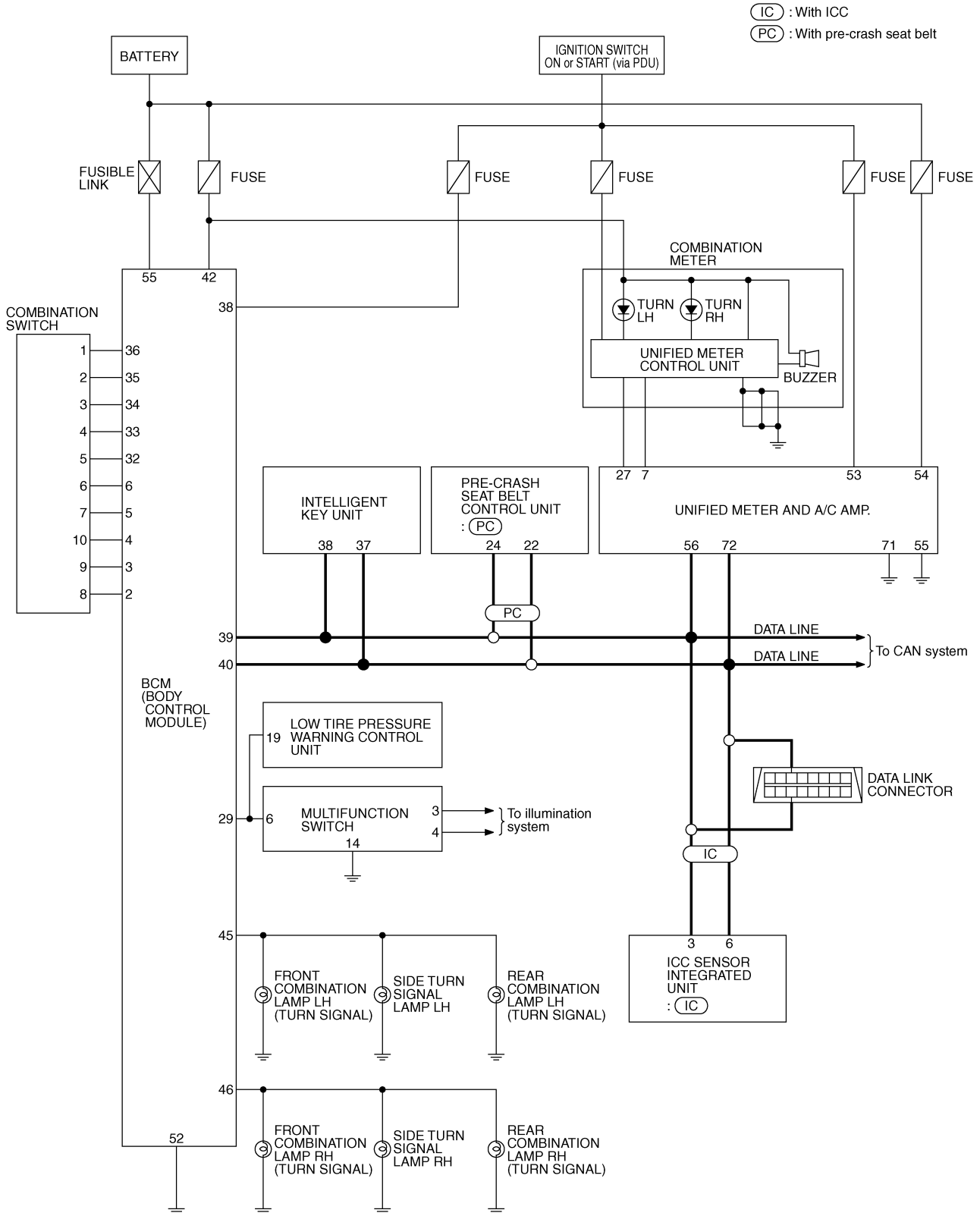
Refer to [LAN-50, "CAN System Specification Chart"](#) .

TURN SIGNAL AND HAZARD WARNING LAMPS

Schematic

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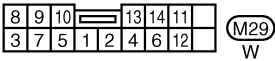
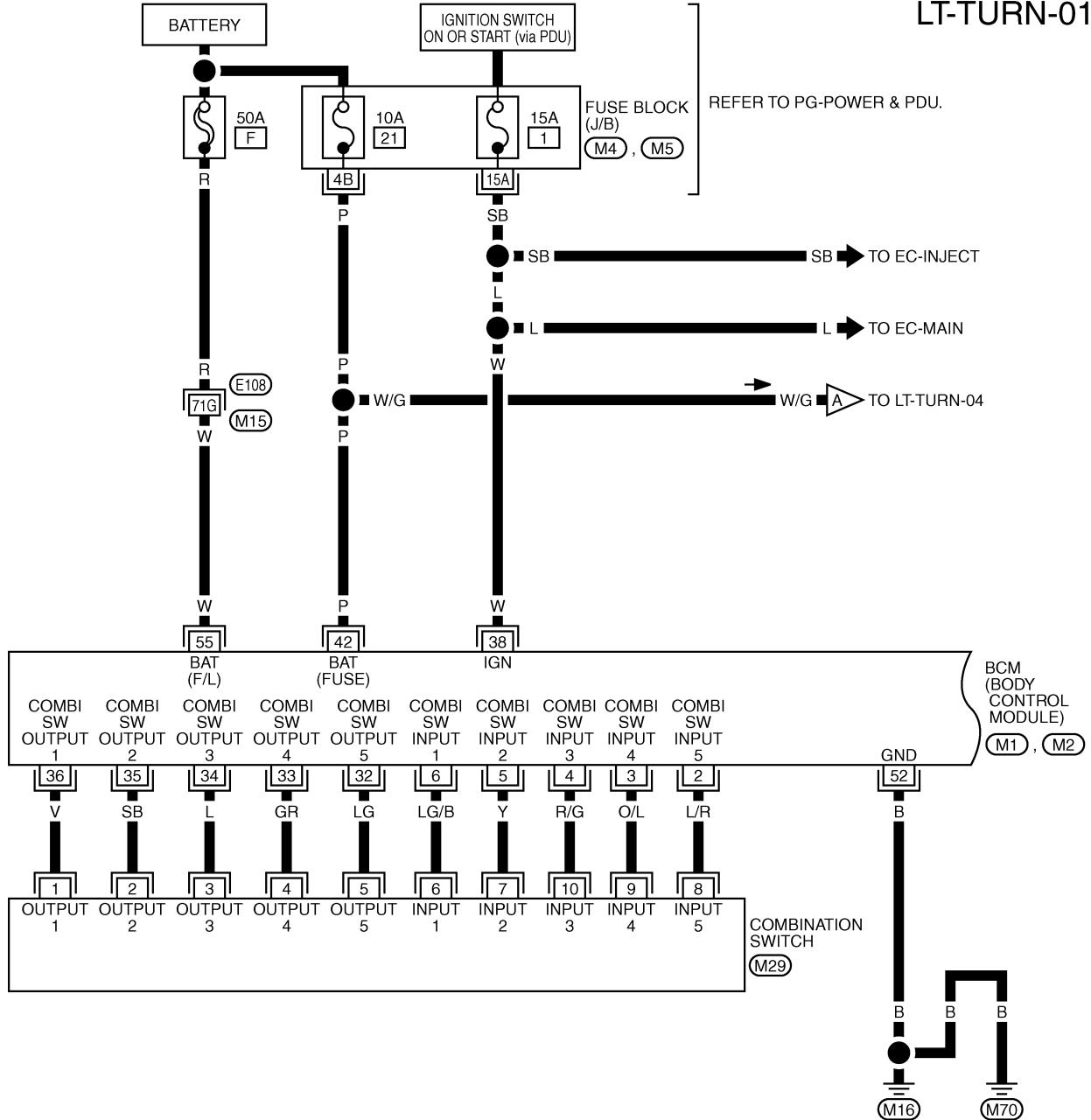
TKWT3380E

TURN SIGNAL AND HAZARD WARNING LAMPS

Wiring Diagram — TURN —

NKS003RP

LT-TURN-01



REFER TO THE FOLLOWING.

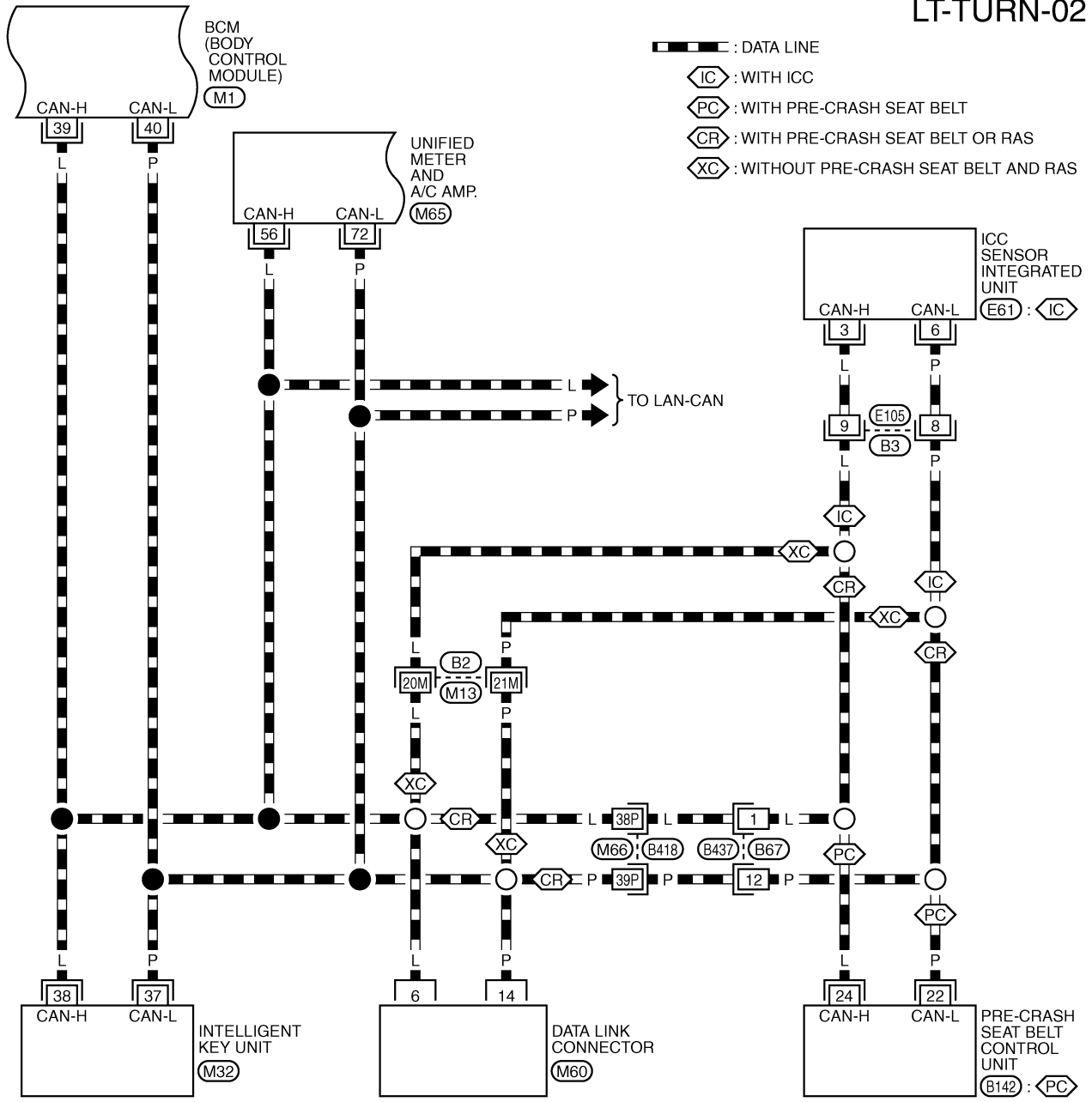
- (E108) -SUPER MULTIPLE JUNCTION (SMJ)
- (M4), (M5) -FUSE BLOCK-JUNCTION BOX (J/B)
- (M1), (M2) -ELECTRICAL UNITS

TKWT3381E

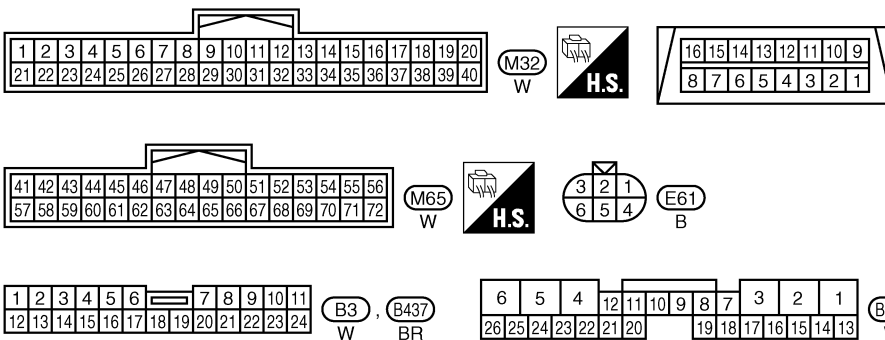
TURN SIGNAL AND HAZARD WARNING LAMPS

LT-TURN-02

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- ▬ : DATA LINE
- ⬡ : WITH ICC
- ⬢ : WITH PRE-CRASH SEAT BELT
- ⬣ : WITH PRE-CRASH SEAT BELT OR RAS
- ⬤ : WITHOUT PRE-CRASH SEAT BELT AND RAS

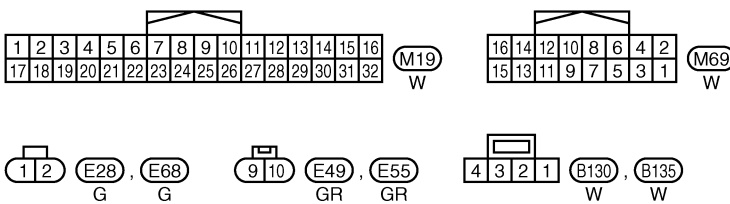
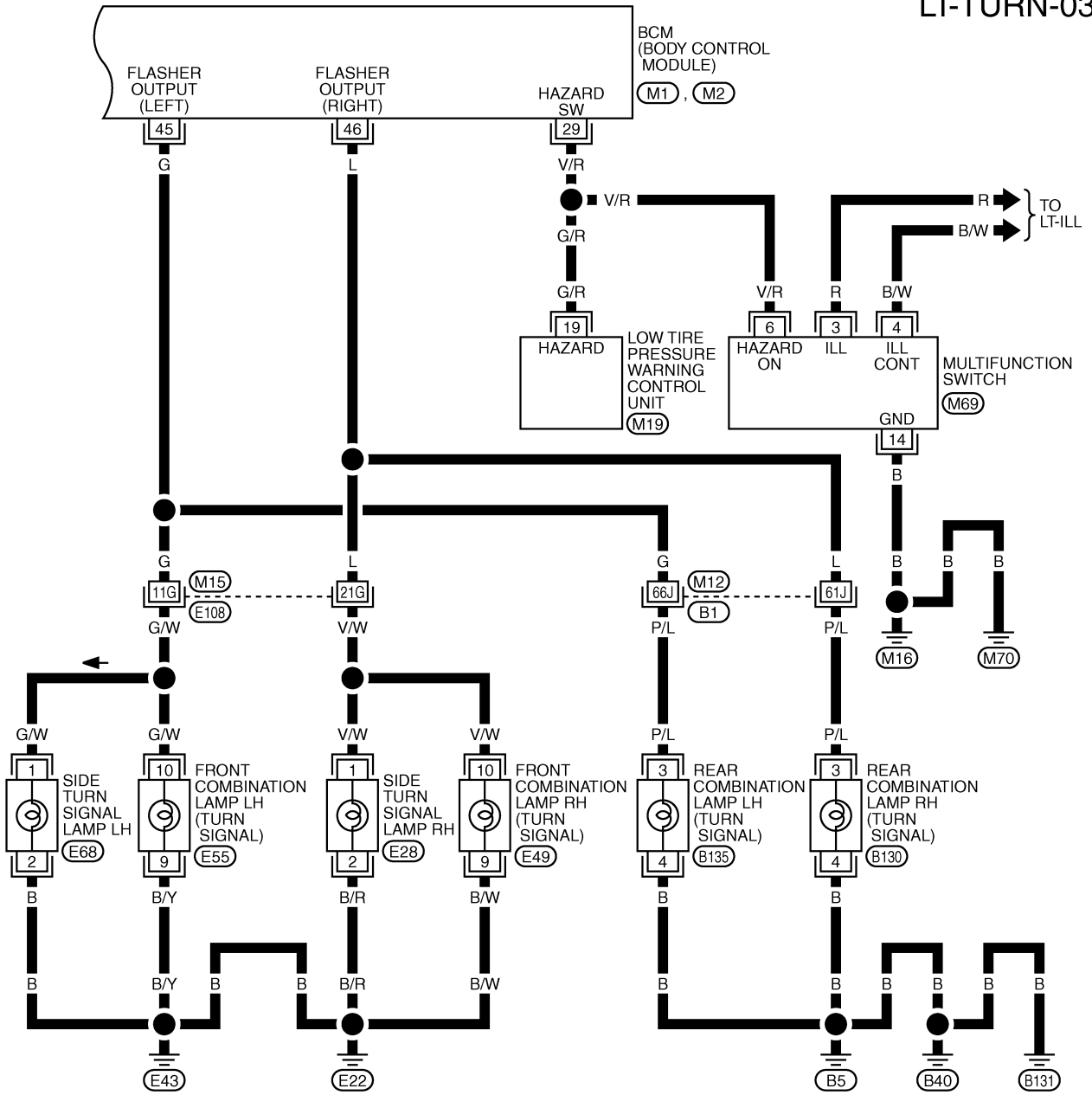


REFER TO THE FOLLOWING.
 (B2), (B418) -SUPER MULTIPLE JUNCTION (SMJ)
 (M1) -ELECTRICAL UNITS

TKWT5264E

TURN SIGNAL AND HAZARD WARNING LAMPS

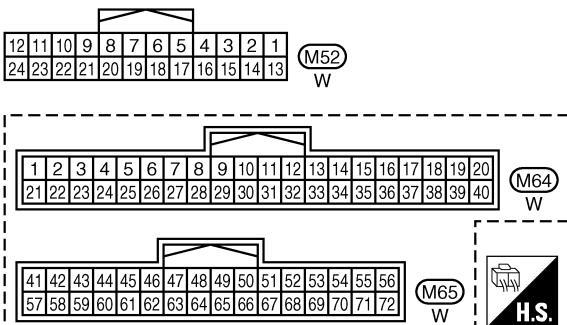
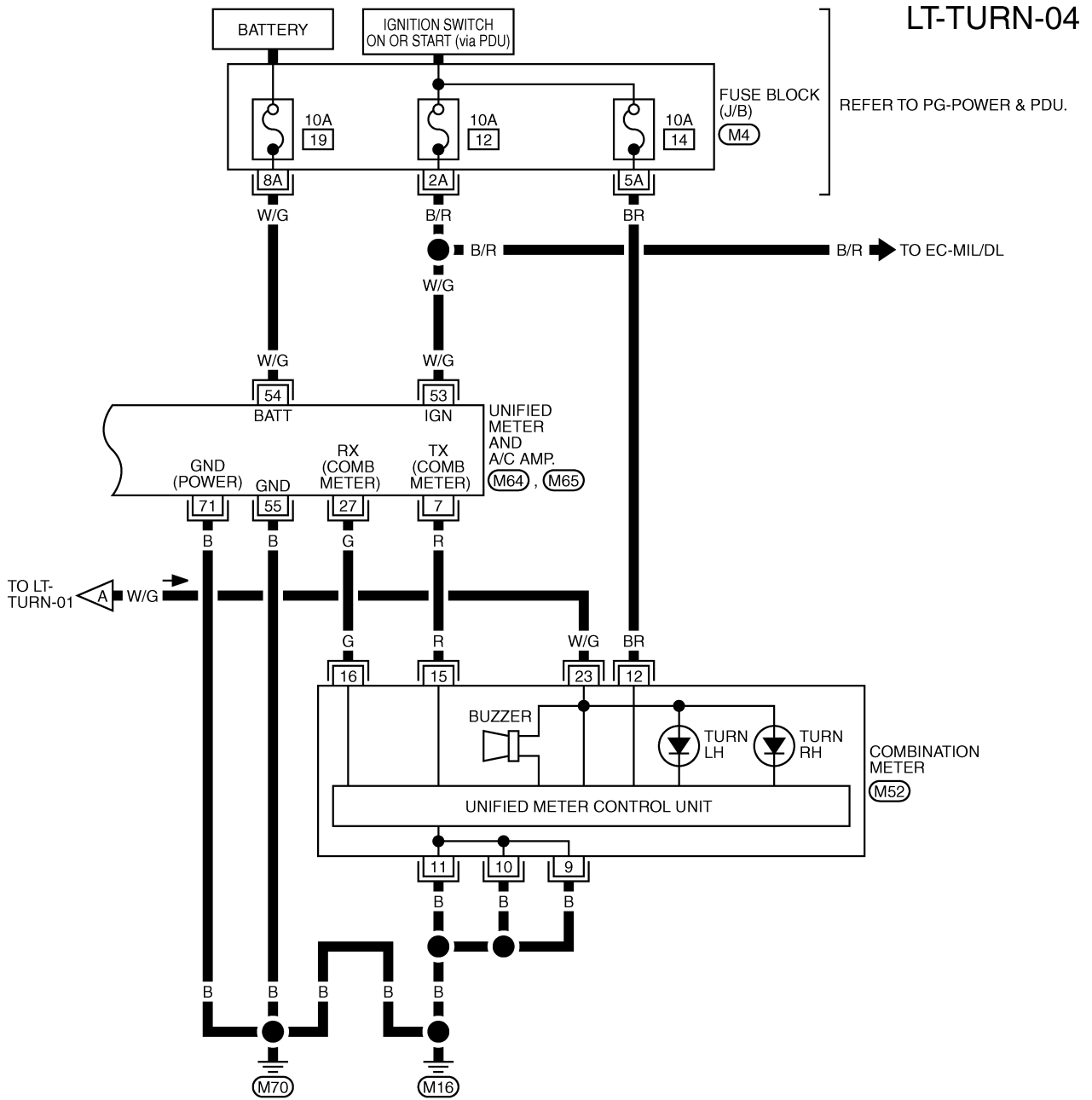
LT-TURN-03



REFER TO THE FOLLOWING.
 (E108), (B1) -SUPER MULTIPLE JUNCTION (SMJ)
 (M1), (M2) -ELECTRICAL UNITS

TKWT5278E

TURN SIGNAL AND HAZARD WARNING LAMPS



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

TKWT4859E

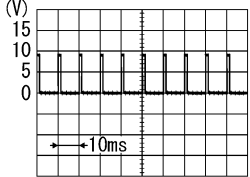
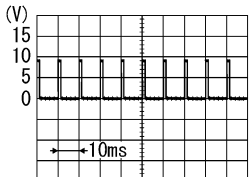
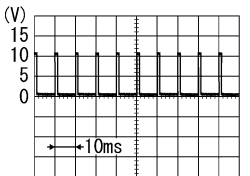
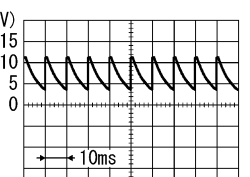
TURN SIGNAL AND HAZARD WARNING LAMPS

NKS003RQ

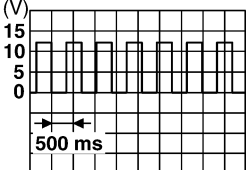
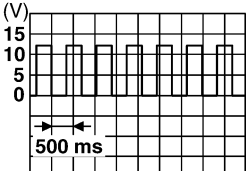
Terminals and Reference Values for BCM

CAUTION:

- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF not to be fluctuated by overloaded.
- Turn wiper dial position to 4 except when checking waveform or voltage of wiper dial position. Wiper dial position can be confirmed on CONSULT-II. Refer to [LT-238. "DATA MONITOR"](#) .

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
2	L/R	Combination switch input 5	ON	Lighting, turn, wiper switch (Wiper dial position 4)	Turn signal switch to right  PKIB4957J Approx. 1.0 V
					OFF Approx. 0 V
3	O/L	Combination switch input 4	ON	Lighting, turn, wiper switch (Wiper dial position 4)	Turn signal switch to left  PKIB4957J Approx. 1.0 V
					OFF Approx. 0 V
29	V/R	Hazard switch signal	OFF	Hazard switch	ON Approx. 0 V
					OFF Battery voltage
36	V	Combination switch output 1	ON	Lighting, turn, wiper switch (Wiper dial position 4)	Any of several conditions below <ul style="list-style-type: none"> ● Turn signal switch to right ● Turn signal switch to left  PKIB4958J Approx. 1.2 V
					OFF Approx. 7.0 - 7.5 V  PKIB4960J
38	W	Ignition switch (ON)	ON	—	Battery voltage
39	L	CAN - H	—	—	—
40	P	CAN - L	—	—	—
42	P	Battery power supply	OFF	—	Battery voltage

TURN SIGNAL AND HAZARD WARNING LAMPS

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
45	G	Flasher output (Left)	ON	Turn signal switch	To left 
					OFF
46	L	Flasher output (Right)	ON	Turn signal switch	To right 
					OFF
52	B	Ground	ON	—	Approx. 0 V
55	W	Battery power supply	OFF	—	Battery voltage

How to Perform Trouble Diagnoses

NKS003RR

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to [LT-212, "System Description"](#) .
3. Perform the Preliminary Check. Refer to [LT-222, "Preliminary Check"](#) .
4. Check symptom and repair or replace the cause of malfunction.
5. Do turn signal and hazard warning lamps operate normally? If YES, GO TO 6. If NO, GO TO 4.
6. INSPECTION END

LT

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TURN SIGNAL AND HAZARD WARNING LAMPS

NKS003RS

Preliminary Check CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES AND FUSIBLE LINK

Check for blown fuses and fusible link.

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

Refer to [LT-216, "Wiring Diagram — TURN —"](#) .

OK or NG

OK >> GO TO 2.

NG >> If fuse or fusible link is blown, be sure to eliminate cause of malfunction before installing new fuse or fusible link. Refer to [PG-3, "POWER SUPPLY ROUTING CIRCUIT"](#) .

2. CHECK POWER SUPPLY CIRCUIT

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

Terminal (+)		Terminal (-)	Ignition switch position	
BCM connector	Terminal		OFF	ON
M1	38	Ground	Approx. 0 V	Battery voltage
M2	42		Battery voltage	Battery voltage
	55		Battery voltage	Battery voltage

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

3. CHECK GROUND CIRCUIT

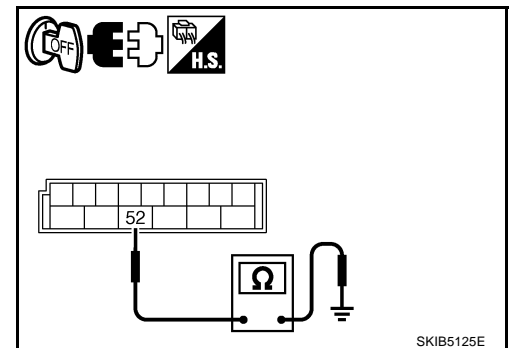
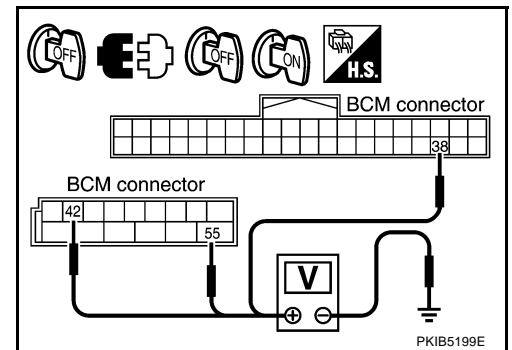
Check continuity between BCM harness connector and ground.

BCM connector	Terminal	Ground	Continuity
M2	52		Yes

OK or NG

OK >> INSPECTION END

NG >> Repair harness or connector.



TURN SIGNAL AND HAZARD WARNING LAMPS

CONSULT-II Functions (BCM)

NKS003RT

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

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

CONSULT-II BASIC OPERATION

Refer to [GI-38, "CONSULT-II Start Procedure"](#).

DATA MONITOR

Operation Procedure

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

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

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

Display Item List

Monitor item	Contents
IGN ON SW "ON/OFF"	Displays "IGN position (ON)/OFF, ACC position (OFF)" judged from 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.

TURN SIGNAL AND HAZARD WARNING LAMPS

NKS003RU

Turn Signal Lamp Does Not Operate

1. CHECK BULB

Check bulb standard of each turn signal lamp is correct.

OK or NG

OK >> GO TO 2.

NG >> Replace turn signal lamp bulb.

2. CHECK COMBINATION SWITCH INPUT SIGNAL

 With CONSULT-II

1. Select "BCM" on CONSULT-II. Select "FLASHER" on "SELECT TEST ITEM" screen.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure "TURN SIGNAL R" and "TURN SIGNAL L" turns ON-OFF linked with operation of lighting switch.

**When lighting switch is : TURN SIGNAL R ON
TURN RH position**

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

DATA MONITOR			
MONITOR			
TURN SIGNAL R	ON		
TURN SIGNAL L	ON		
RECORD			
MODE	BACK	LIGHT	COPY

PKIA7600E

 Without CONSULT-II

Refer to [LT-239, "Combination Switch Inspection"](#) .

OK or NG

OK >> GO TO 3.

NG >> Check combination switch (lighting switch). Refer to [LT-239, "Combination Switch Inspection"](#) .

3. ACTIVE TEST

 With CONSULT-II

1. Select "BCM" on CONSULT-II. Select "FLASHER" on "SELECT TEST ITEM" screen.
2. Select "ACTIVE TEST" on "SELECT DIAG MODE" screen. Select "FLASHER" on "SELECT TEST ITEM" screen.
3. Make sure operation of turn signal lamps.

Turn signal lamp should operate.

 Without CONSULT-II

GO TO 4.

OK or NG

OK >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#) .

NG >> GO TO 4.

ACTIVE TEST			
FLASHER		OFF	
RH		LH	
MODE	BACK	LIGHT	COPY

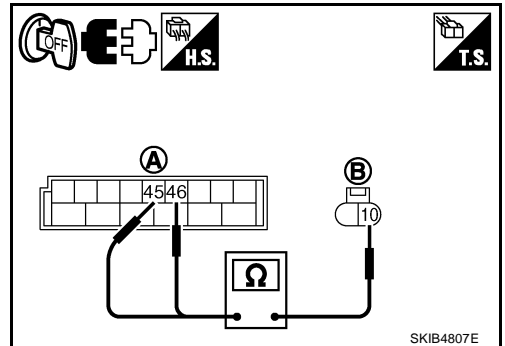
SKIA6190E

TURN SIGNAL AND HAZARD WARNING LAMPS

4. CHECK TURN SIGNAL LAMP CIRCUIT

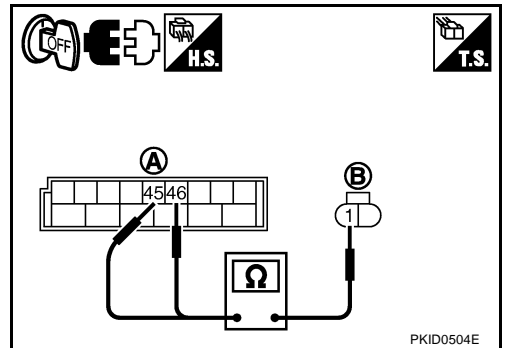
1. Turn ignition switch OFF.
2. Disconnect BCM connector, front combination lamp RH and LH connector, side turn signal lamp RH and LH connector, rear combination lamp RH and LH connector.
3. Check continuity between BCM harness connector (A) and front combination lamp (RH and LH) harness connector (B).

Circuit	A		B		Continuity
	Connector	Terminal	Connector	Terminal	
LH	M2	45	E55	10	Yes
RH		46	E49	10	



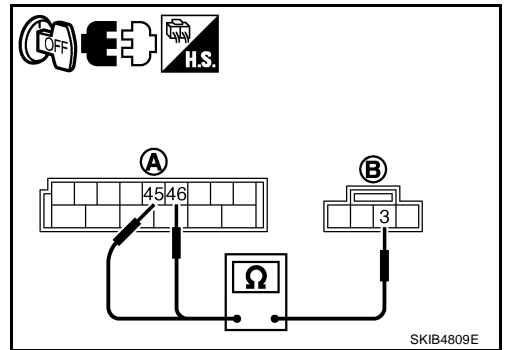
4. Check continuity between BCM harness connector (A) and side turn signal lamp (RH and LH) harness connector (B).

Circuit	A		B		Continuity
	Connector	Terminal	Connector	Terminal	
LH	M2	45	E68	1	Yes
RH		46	E28	1	



5. Check continuity between BCM harness connector (A) and rear combination lamp (RH and LH) harness connector (B).

Circuit	A		B		Continuity
	Connector	Terminal	Connector	Terminal	
LH	M2	45	B135	3	Yes
RH		46	B130	3	



OK or NG

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

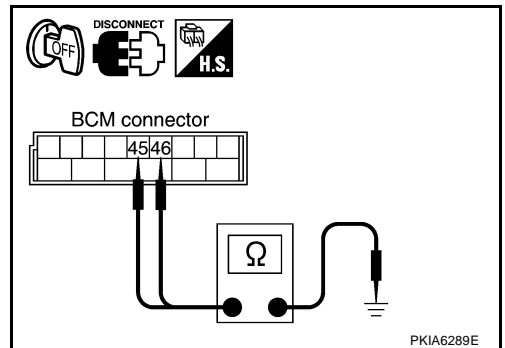
5. CHECK SIGNAL LAMP CIRCUIT (SHORT CIRCUIT)

Check continuity between BCM harness connector and ground.

BCM connector	Terminal	Ground	Continuity
M2	45		No
	46		

OK or NG

- OK >> Replace BCM. Replace BCM if turn signal lamp does not work after setting the connector again. Refer to [BCS-15, "Removal and Installation of BCM"](#).
- NG >> Repair harness or connector.



TURN SIGNAL AND HAZARD WARNING LAMPS

Hazard Warning Lamp Does Not Operate But Turn Signal Lamp Operate

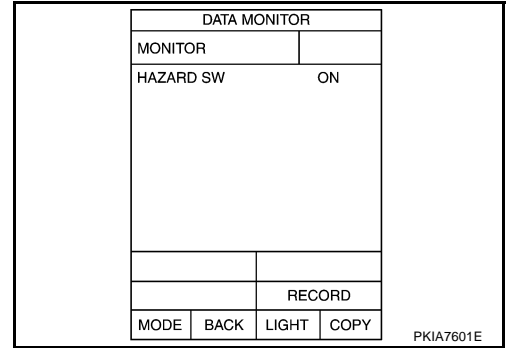
NKS003RV

1. CHECK CIRCUIT BETWEEN HAZARD SWITCH AND BCM

☑ With CONSULT-II

1. Select "BCM" on CONSULT-II. Select "FLASHER" on "SELECT TEST ITEM" screen.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure "HAZARD SW" turns ON-OFF linked with operation of multifunction switch (hazard switch).

When hazard switch is ON position : HAZARD SW ON



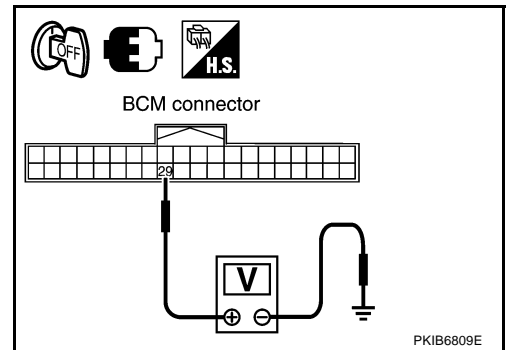
☒ Without CONSULT-II

Check voltage between BCM harness connector and ground.

Terminal (+)		Terminal (-)	Condition	Voltage (Approx.)
Connector	Terminal			
M1	29	Ground	Hazard switch is ON.	0 V
			Hazard switch is OFF.	Battery Voltage

OK or NG

- OK >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#).
- NG >> GO TO 2.



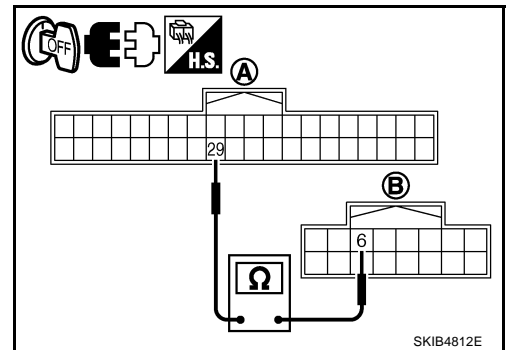
2. CHECK HAZARD SWITCH BCM CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and multifunction switch connector.
3. Check continuity between BCM harness connector (A) and multifunction switch harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
M1	29	M69	6	Yes

OK or NG

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



TURN SIGNAL AND HAZARD WARNING LAMPS

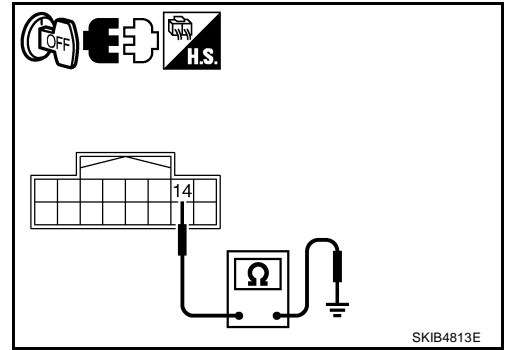
3. CHECK HAZARD SWITCH GROUND CIRCUIT

Check continuity between multifunction switch harness connector and ground.

Multifunction switch connector	Terminal	Ground	Continuity
M69	14		Yes

OK or NG

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



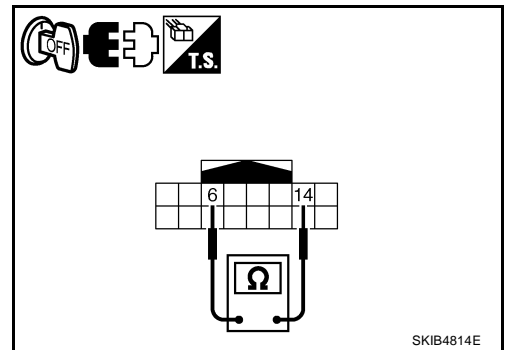
4. CHECK HAZARD SWITCH

Check continuity multifunction switch (hazard switch).

Multifunction switch (Hazard switch)		Condition	Continuity
Terminal			
6	14	Hazard switch is ON.	Yes
		Hazard switch is OFF.	No

OK or NG

- OK >> Replace BCM. Replace BCM if turn signal lamp does not work after setting the connector again. Refer to [BCS-15, "Removal and Installation of BCM"](#).
- NG >> Replace multifunction switch. Refer to [AV-284, "Multifunction Switch"](#).



Turn Signal Indicator Lamp Does Not Operate

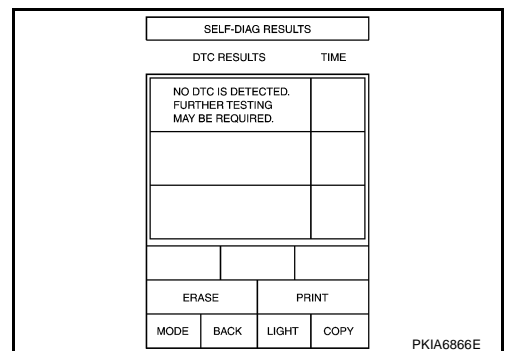
NKS003RW

1. CHECK UNIFIED METER AND A/C AMP.

1. Select "METER A/C AMP" on CONSULT-II, and perform self-diagnosis for "METER A/C AMP".
2. Check if malfunction is indicated.

Is malfunction indicated?

- YES >> Repair or replace malfunctioning parts.
- NO >> GO TO 2.



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TURN SIGNAL AND HAZARD WARNING LAMPS

2. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

1. Select "METER A/C AMP" on CONSULT-II.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "TURN IND" turns ON-OFF according to turn signal switch operation.

**When turn signal switch is in : TURN IND ON
the RH or LH position**

OK or NG

- OK >> Replace combination meter. Refer to [DI-27, "Removal and Installation of Combination Meter"](#) .
- NG >> Replace unified meter and A/C amp. Refer to [DI-38, "Removal and Installation of Unified Meter and A/C Amp."](#) .

DATA MONITOR			
MONITOR		NO DTC	
TURN IND		ON	
		RECORD	
MODE	BACK	LIGHT	COPY

PKID0104E

TURN SIGNAL AND HAZARD WARNING LAMPS

Bulb Replacement/Removal and Installation of Side Turn Signal Lamp

NKS003RX

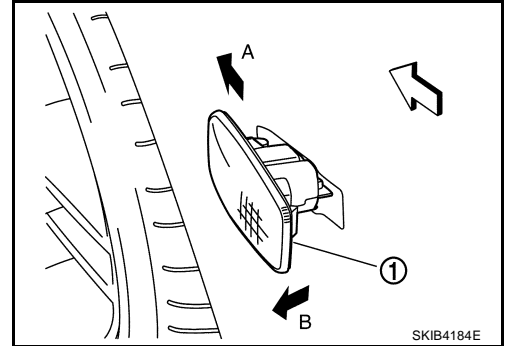
↔: Vehicle front

REMOVAL

1. While pressing the side turn signal lamp (1) to direction A (Vehicle front), pull direction B of it and remove.
2. Disconnect side turn signal lamp connector.

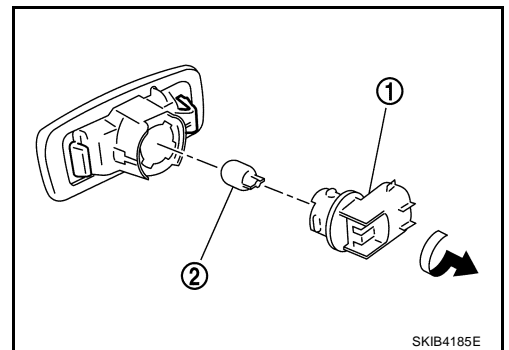
CAUTION:

- Support side turn signal lamp harness with tape so that it won't fall into the front fender.
- Fix the pawl side of side turn signal lamp housing back at first. Then install side turn signal lamp while pushing resin clip side.



3. Turn bulb socket (1) counterclockwise and unlock it.
4. Remove bulb (2).

Side turn signal lamp : 12V - 5W



INSTALLATION

Installation is the reverse order of removal.

Bulb Replacement (Front Turn Signal Lamp)

NKS003RY

Refer to [LT-38, "Bulb Replacement"](#) in "HEADLAMP -CONVENTIONAL TYPE-".
Refer to [LT-73, "Bulb Replacement"](#) in "HEADLAMP -XENON TYPE-".

Bulb Replacement (Rear Turn Signal Lamp)

NKS003RZ

Refer to [LT-265, "Bulb Replacement"](#) .

Removal and Installation of Front Turn Signal Lamp

NKS003S0

Refer to [LT-40, "Removal and Installation"](#) in "HEADLAMP -CONVENTIONAL TYPE-".
Refer to [LT-75, "Removal and Installation"](#) in "HEADLAMP -XENON TYPE-".

Removal and Installation of Rear Turn Signal Lamp

NKS003S1

Refer to [LT-265, "Removal and Installation"](#) .

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LIGHTING AND TURN SIGNAL SWITCH

LIGHTING AND TURN SIGNAL SWITCH

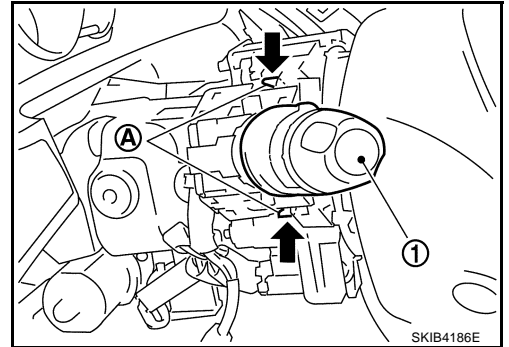
PFP:25540

Removal and Installation

NKS003S2

REMOVAL

1. Remove steering column lower cover. Refer to [IP-10, "INSTRUMENT PANEL ASSEMBLY"](#).
2. While pressing pawls (A) in direction as shown in the figure, pull lighting and turn signal switch (1) toward driver door and disconnect from the base.



INSTALLATION

Installation is the reverse order of removal.

Switch Circuit Inspection

NKS003S3

Refer to [LT-239, "Combination Switch Inspection"](#).

HAZARD SWITCH

HAZARD SWITCH

PPF:25290

Removal and Installation REMOVAL

NKS003S4

Refer to [AV-133. "Multifunction Switch"](#) .

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COMBINATION SWITCH

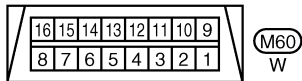
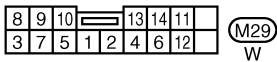
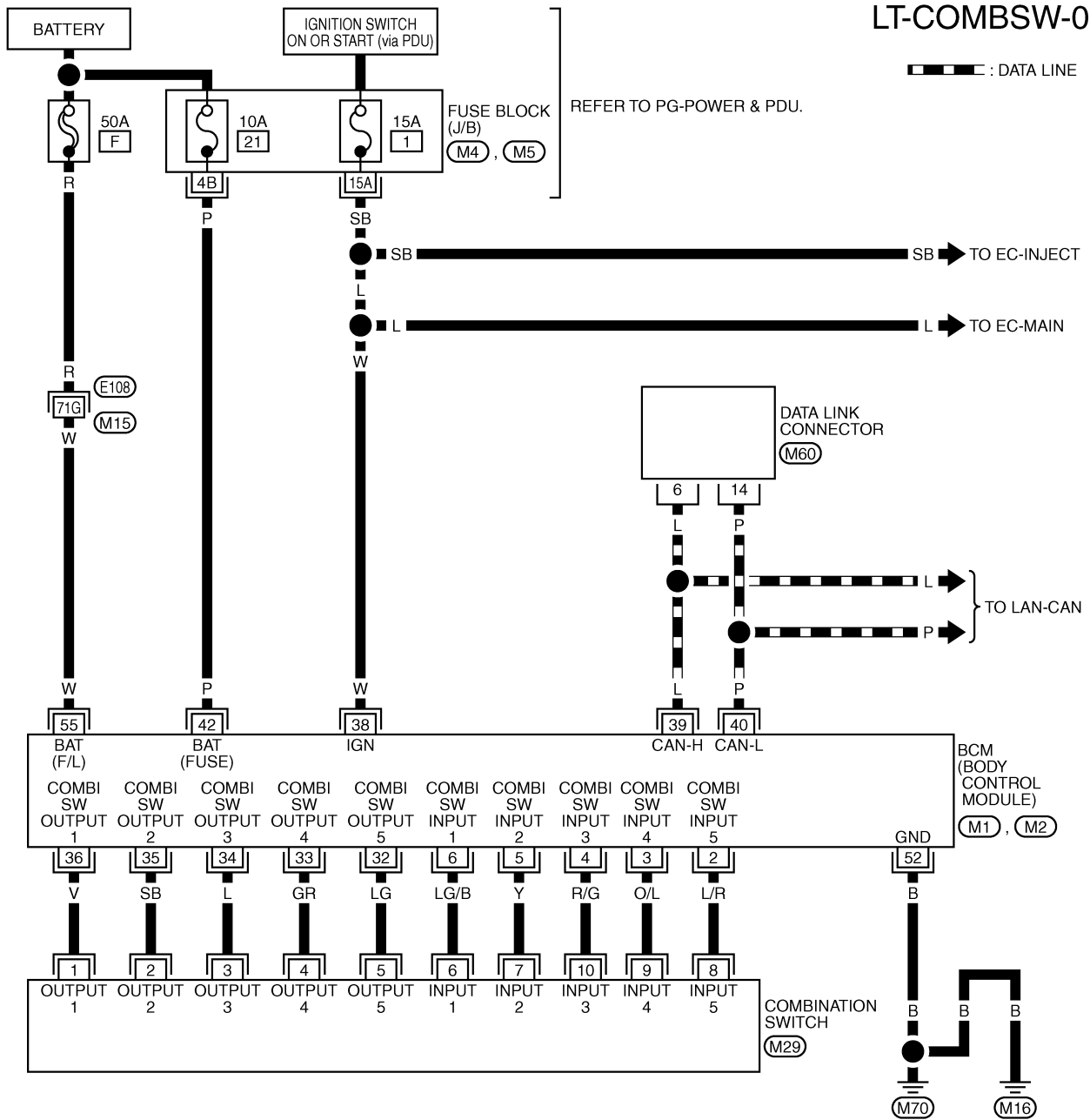
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NKS003S5

COMBINATION SWITCH

Wiring Diagram — COMBSW —

LT-COMBSW-01



REFER TO THE FOLLOWING.

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

TKWT3385E

COMBINATION SWITCH

Combination Switch Reading Function

NKS003S6

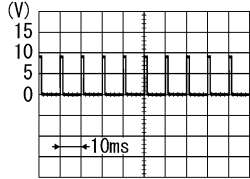
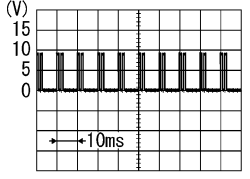
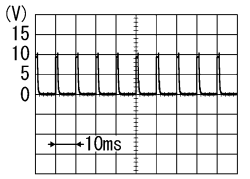
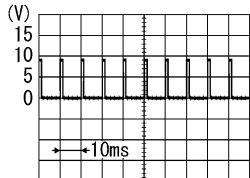
For details, refer to [BCS-3, "COMBINATION SWITCH READING FUNCTION"](#).

Terminals and Reference Values for BCM

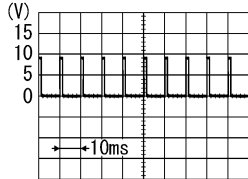
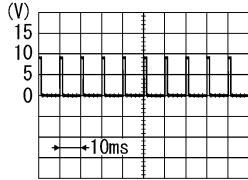
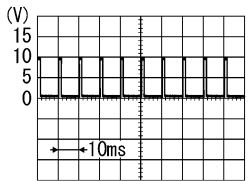
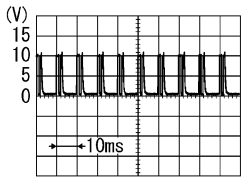
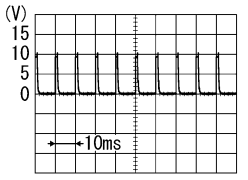
NKS003S7

CAUTION:

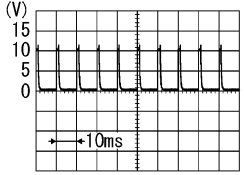
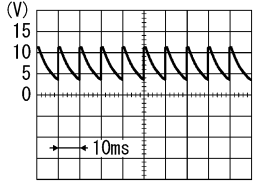
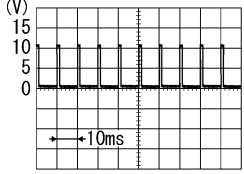
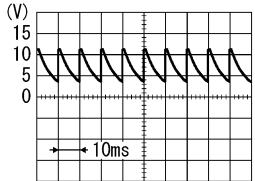
- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF not to be fluctuated by overloaded.
- Turn wiper dial position to 4 except when checking waveform or voltage of wiper dial position. Wiper dial position can be confirmed on CONSULT-II. Refer to [LT-238, "DATA MONITOR"](#).

Terminal No.	Wire color	Signal name	Measuring condition		Reference value	
			Ignition switch	Operation or condition		
2	L/R	Combination switch input 5	ON	Lighting, turn, wiper switch (Wiper dial position 4)	Any of several conditions below <ul style="list-style-type: none"> ● Lighting switch 1ST ● Turn signal switch to right ● Lighting switch HI beam (Operates only HI beam switch)  <p>PKIB4957J Approx. 1.0 V</p>	
					Lighting switch 2ND	 <p>PKIB4953J Approx. 2.0 V</p>
					OFF	Approx. 0 V
3	O/L	Combination switch input 4	ON	Lighting, turn, wiper switch (Wiper dial position 4)	Front fog lamp switch ON  <p>PKIB4955J Approx. 0.8 V</p>	
					Any of several conditions below <ul style="list-style-type: none"> ● Lighting switch 2ND ● Lighting switch PASSING (Operates only PASSING switch) ● Turn signal switch to left  <p>PKIB4957J Approx. 1.0 V</p>	
					OFF	Approx. 0 V

COMBINATION SWITCH

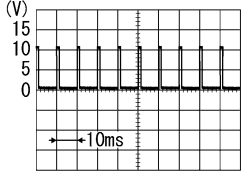
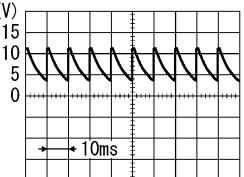
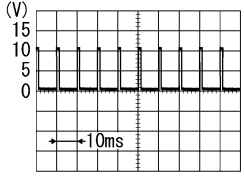
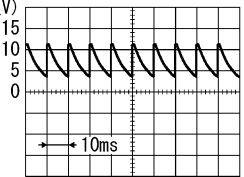
Terminal No.	Wire color	Signal name	Measuring condition		Reference value	
			Ignition switch	Operation or condition		
4	R/G	Combination switch input 3	ON	Lighting, turn, wiper switch (Wiper dial position 4)	Any of several conditions below <ul style="list-style-type: none"> ● Lighting switch AUTO ● Front wiper switch MIST ● Front wiper switch INT ● Front wiper switch LO 	 <p style="text-align: right; font-size: small;">PKIB4957J</p>
					OFF	Approx. 0 V
5	Y	Combination switch input 2	ON	Lighting, turn, wiper switch	Any of several conditions below <ul style="list-style-type: none"> ● Front washer switch (Wiper dial position 4) ● Wiper dial position 1 ● Wiper dial position 5 ● Wiper dial position 6 	 <p style="text-align: right; font-size: small;">PKIB4957J</p>
					OFF (Wiper dial position 4)	Approx. 0 V
6	LG/B	Combination switch input 1	ON	Lighting, turn, wiper switch	Any of several conditions below <ul style="list-style-type: none"> ● Front wiper switch HI (Wiper dial position 4) ● Wiper dial position 3 	 <p style="text-align: right; font-size: small;">PKIB4959J</p>
					Any of several conditions below <ul style="list-style-type: none"> ● Wiper dial position 1 ● Wiper dial position 2 	 <p style="text-align: right; font-size: small;">PKIB4952J</p>
					Any of several conditions below <ul style="list-style-type: none"> ● Wiper dial position 6 ● Wiper dial position 7 	 <p style="text-align: right; font-size: small;">PKIB4955J</p>
					OFF (Wiper dial position 4)	Approx. 0 V

COMBINATION SWITCH

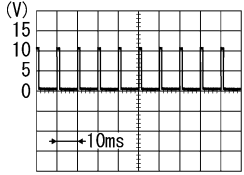
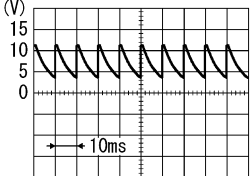
Terminal No.	Wire color	Signal name	Measuring condition		Reference value	
			Ignition switch	Operation or condition		
32	LG	Combination switch output 5	ON	Lighting, turn, wiper switch	<p>Any of several conditions below</p> <ul style="list-style-type: none"> ● Front fog lamp switch (Operates only front fog lamp switch) (Wiper dial position 4) ● Wiper dial position 1 ● Wiper dial position 2 ● Wiper dial position 6 ● Wiper dial position 7 	 <p style="text-align: right; font-size: small;">PKIB4956J</p> <p style="text-align: center;">Approx. 1.0 V</p>
					<p>OFF (Wiper dial position 4)</p>	 <p style="text-align: right; font-size: small;">PKIB4960J</p> <p style="text-align: center;">Approx. 7.0 - 7.5 V</p>
33	GR	Combination switch output 4	ON	Lighting, turn, wiper switch	<p>Any of several conditions below</p> <ul style="list-style-type: none"> ● Lighting switch AUTO (Wiper dial position 4) ● Lighting switch 1ST (The same result with lighting switch 2ND) (Wiper dial position 4) ● Wiper dial position 1 ● Wiper dial position 5 ● Wiper dial position 6 	 <p style="text-align: right; font-size: small;">PKIB4958J</p> <p style="text-align: center;">Approx. 1.2 V</p>
					<p>OFF (Wiper dial position 4)</p>	 <p style="text-align: right; font-size: small;">PKIB4960J</p> <p style="text-align: center;">Approx. 7.0 - 7.5 V</p>

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COMBINATION SWITCH

Terminal No.	Wire color	Signal name	Measuring condition		Reference value	
			Ignition switch	Operation or condition		
34	L	Combination switch output 3	ON	Lighting, turn, wiper switch	<p>Any of several conditions below</p> <ul style="list-style-type: none"> ● Lighting switch 2ND (Wiper dial position 4) ● Lighting switch HI beam (Operates only HI beam switch) (Wiper dial position 4) ● Wiper dial position 1 ● Wiper dial position 2 ● Wiper dial position 3 	 <p style="text-align: right;">PKIB4958J</p> <p style="text-align: center;">Approx. 1.2 V</p>
				OFF (Wiper dial position 4)	 <p style="text-align: right;">PKIB4960J</p> <p style="text-align: center;">Approx. 7.0 - 7.5 V</p>	
35	SB	Combination switch output 2	ON	Lighting, turn, wiper switch (Wiper dial position 4)	<p>Any of several conditions below</p> <ul style="list-style-type: none"> ● Lighting switch 2ND ● Lighting switch PASSING (Operates only PASSING switch) ● Front wiper switch INT ● Front wiper switch HI 	 <p style="text-align: right;">PKIB4958J</p> <p style="text-align: center;">Approx. 1.2 V</p>
				OFF	 <p style="text-align: right;">PKIB4960J</p> <p style="text-align: center;">Approx. 7.0 - 7.5 V</p>	

COMBINATION SWITCH

Terminal No.	Wire color	Signal name	Measuring condition		Reference value	
			Ignition switch	Operation or condition		
36	V	Combination switch output 1	ON	Lighting, turn, wiper switch (Wiper dial position 4)	<p>Any of several conditions below</p> <ul style="list-style-type: none"> ● Turn signal switch right ● Turn signal switch left ● Front wiper switch MIST ● Front wiper switch LO ● Front washer switch 	 <p style="text-align: right;">PKIB4958J</p> <p style="text-align: center;">Approx. 1.2 V</p>
				OFF (Wiper dial position 4)	 <p style="text-align: right;">PKIB4960J</p> <p style="text-align: center;">Approx. 7.0 - 7.5 V</p>	
38	W	Ignition switch (ON)	ON	—	Battery voltage	
39	L	CAN - H	—	—	—	
40	P	CAN - L	—	—	—	
42	P	Battery power supply	OFF	—	Battery voltage	
52	B	Ground	ON	—	Approx. 0 V	
55	W	Battery power supply	OFF	—	Battery voltage	

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COMBINATION SWITCH

CONSULT-II Functions (BCM)

NKS003S8

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

BCM diagnosis part	Diagnosis mode	Description
COMB SW	DATA MONITOR	Displays BCM input data in real time.

CONSULT-II BASIC OPERATION

Refer to [GI-38, "CONSULT-II Start Procedure"](#).

DATA MONITOR

Operation Procedure

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

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

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

Display Item List

Monitor item name	Contents
TURN SIGNAL R "ON/OFF"	Displays "turn right (ON)/other (OFF)" status, determined from lighting switch signal.
TURN SIGNAL L "ON/OFF"	Displays "turn left (ON)/other (OFF)" status, determined from lighting switch signal.
HI BEAM SW "ON/OFF"	Displays status (high beam switch: ON/others: OFF) of high beam switch judged from lighting switch signal.
HEAD LAMP SW 1 "ON/OFF"	Displays status (headlamp switch 1: ON/others: OFF) of headlamp switch 1 judged from lighting switch signal.
HEAD LAMP SW 2 "ON/OFF"	Displays status (headlamp switch 2: ON/others: OFF) of headlamp switch 2 judged from lighting switch signal.
TAIL LAMP SW "ON/OFF"	Displays status (lighting switch 1ST or 2ND position: ON/others: OFF) of lighting switch judged from lighting switch signal.
PASSING SW "ON/OFF"	Displays status (flash-to-pass switch: ON/others: OFF) of flash-to-pass switch judged from lighting switch signal.
AUTO LIGHT SW "ON/OFF"	Displays "auto light switch (ON)/other (OFF)" status, determined from lighting switch signal.
FR FOG SW "ON/OFF"	Displays "front fog lamp switch (ON)/other (OFF)" status, determined from lighting switch signal.
FR WIPER HI "ON/OFF"	Displays "front wiper HI (ON)/other (OFF)" status, determined from wiper switch signal.
FR WIPER LOW "ON/OFF"	Displays "front wiper LOW (ON)/other (OFF)" status, determined from wiper switch signal.
FR WIPER INT "ON/OFF"	Displays "front wiper INT (ON)/other (OFF)" status, determined from wiper switch signal.
FR WASHER SW "ON/OFF"	Displays "front washer switch (ON)/other (OFF)" status, determined from wiper switch signal.
INT VOLUME "1 - 7"	Displays intermittent operation knob setting (1 - 7), determined from wiper switch signal.

COMBINATION SWITCH

Combination Switch Inspection

NKS003S9

1. SYSTEM CHECK

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

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

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

2. SYSTEM CHECK

Ⓜ With CONSULT-II

CAUTION:

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

1. Connect CONSULT-II, and select "COMB SW" on "SELECT TEST ITEM" screen.
2. Select "DATA MONITOR".
3. Select "START", and confirm that other switches in malfunctioning system operate normally.

Example: When the HI BEAM switch is malfunctioning, confirm that "TURN RH", "HEAD LAMP 1" and "TAIL LAMP SW" in System 5, to which the HI BEAM switch belongs, turn ON-OFF normally.

DATA MONITOR			
MONITOR			
TURN SIGNAL R	OFF		
TURN SIGNAL L	OFF		
HI BEAM SW	OFF		
HEAD LAMP SW1	OFF		
HEAD LAMP SW2	OFF		
TAIL LAMP SW	OFF		
PASSING SW	OFF		
AUTO LIGHT SW	OFF		
FR FOG SW	OFF		
		Page Down	
		RECORD	
MODE	BACK	LIGHT	COPY

SKIB4816E

Ⓧ Without CONSULT-II

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

Check results

Other switches in malfunctioning system operate normally.>>Replace lighting switch or wiper switch.

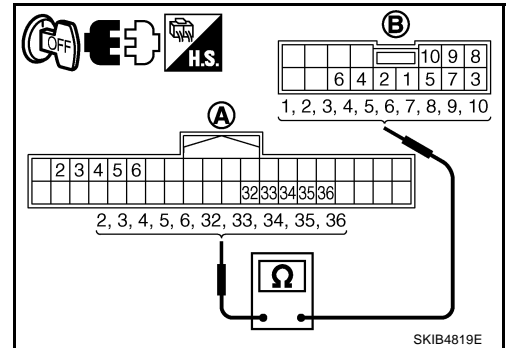
Other switches in malfunctioning system do not operate normally.>>GO TO 3.

COMBINATION SWITCH

3. CHECK HARNESS

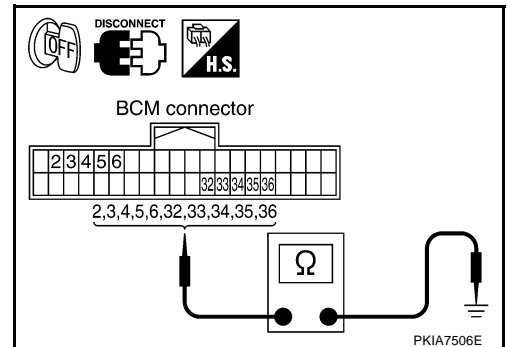
1. Turn ignition switch OFF.
2. Disconnect BCM and combination switch connectors.
3. Check for continuity between BCM harness connector (A) of the suspect system and the corresponding combination switch connector (B).

Suspect system	A		B		Continuity	
	Connector	Terminal	Connector	Terminal		
1	M1	Input 1	6	M29	6	Yes
		Output 1	36		1	
2		Input 2	5		7	
		Output 2	35		2	
3		Input 3	4		10	
		Output 3	34		3	
4		Input 4	3		9	
		Output 4	33		4	
5		Input 5	2		8	
		Output 5	32		5	



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

Suspect system	BCM connector	Terminal		Continuity	
1	M1	Input 1	6		Ground
		Output 1	36		
2		Input 2	5		
		Output 2	35		
3		Input 3	4		
		Output 3	34		
4		Input 4	3		
		Output 4	33		
5		Input 5	2		
		Output 5	32		



OK or NG

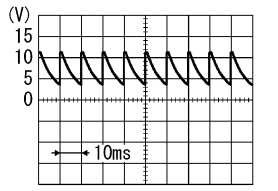
OK >> GO TO 4.

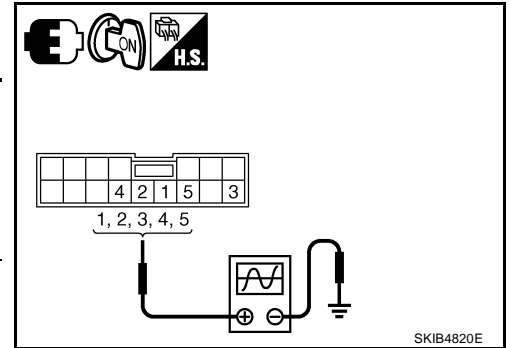
NG >> Check harness between BCM and combination switch for open or short circuit.

COMBINATION SWITCH

4. CHECK BCM OUTPUT TERMINAL

1. Connect BCM and combination switch connectors.
2. Turn ignition switch ON.
3. Turn lighting switch and wiper switch into OFF.
4. Set wiper dial position 4.
5. Check BCM output terminal voltage waveform of suspect malfunctioning system.

Suspect system	Terminal (+)		Terminal (-)	Reference value
	Combination switch connector	Terminal		
1	M29	1	Ground	 <p>Approx. 7.0 - 7.5 V</p>
2		2		
3		3		
4		4		
5		5		



OK or NG

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

5. CHECK COMBINATION SWITCH

Referring to table below, perform combination switch inspection.

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

>> INSPECTION END

Removal and Installation

Refer to [LT-230, "LIGHTING AND TURN SIGNAL SWITCH"](#) .

STOP LAMP

PF:26550

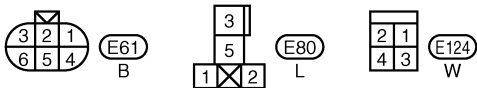
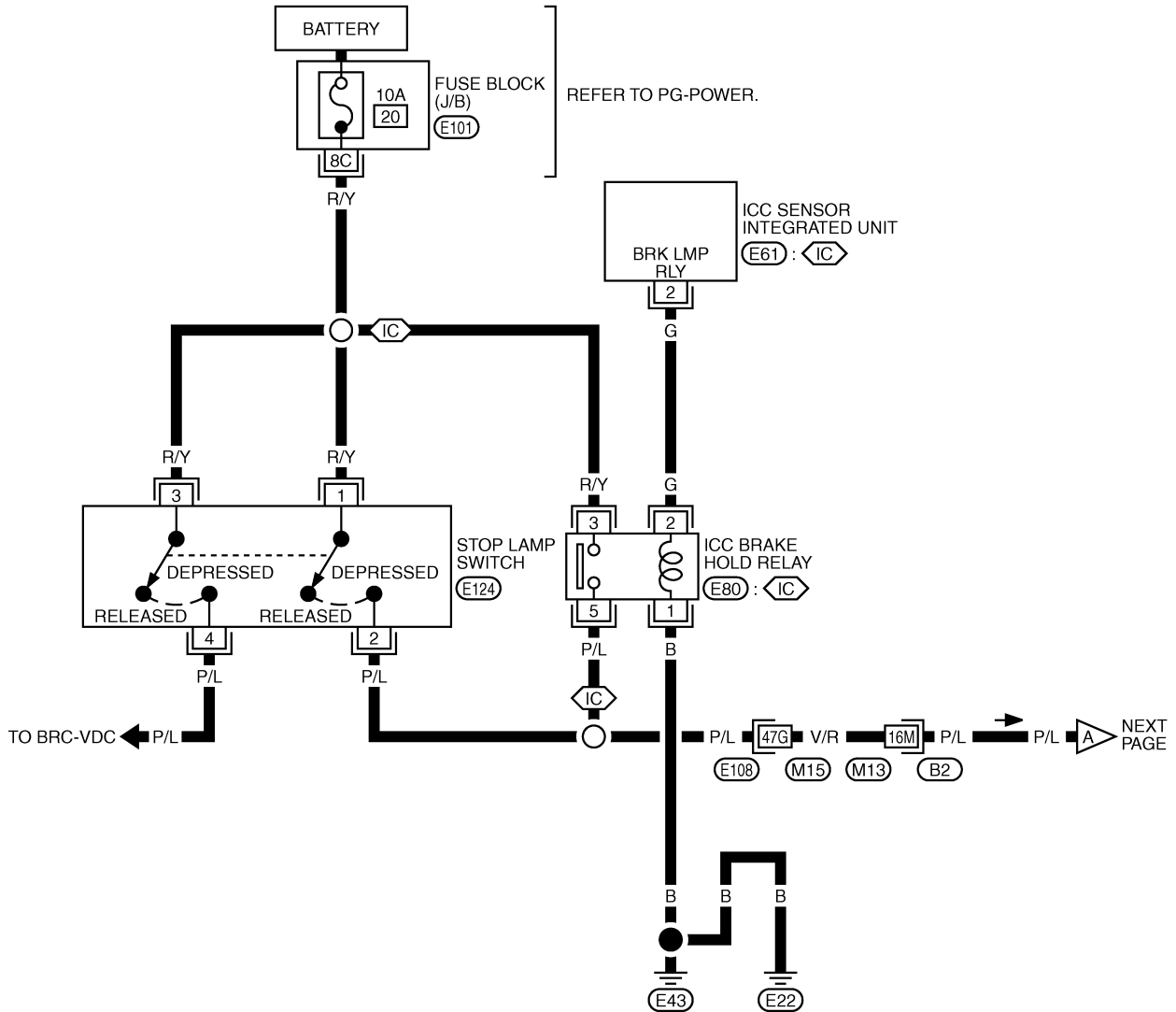
STOP LAMP

Wiring Diagram — STOP LAMP —

NKS003SB

LT-STOP/L-01

⬡ : WITH ICC



REFER TO THE FOLLOWING.

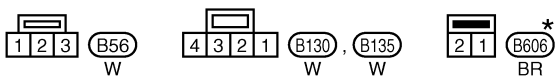
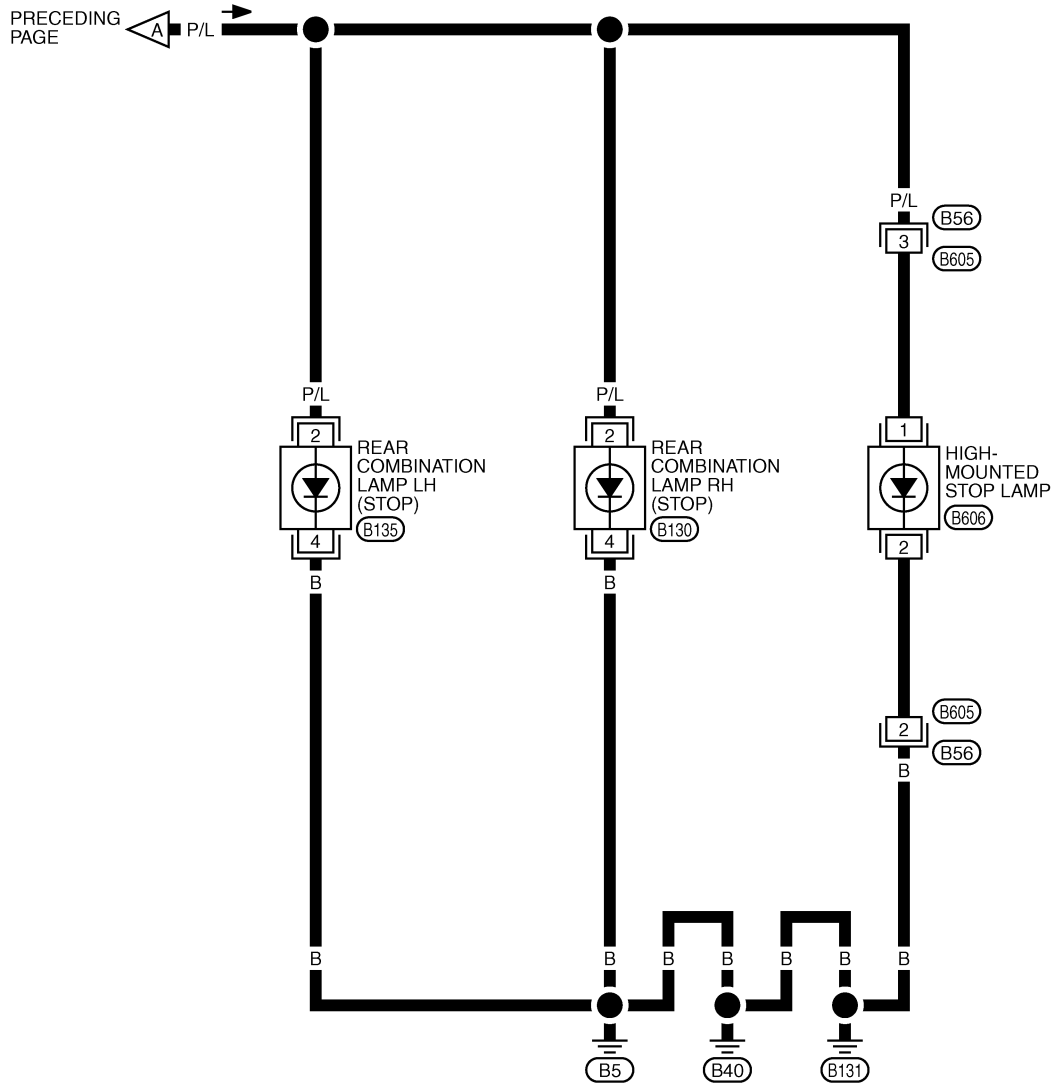
⬡, ⬡ -SUPER MULTIPLE JUNCTION (SMJ)

⬡ -FUSE BLOCK-JUNCTION BOX (J/B)

TKWT3397E

STOP LAMP

LT-STOP/L-02



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

TKWT3398E

STOP LAMP

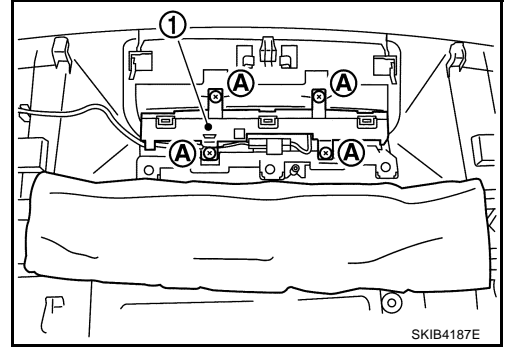
NKS003SC

High-Mounted Stop Lamp

BULB REPLACEMENT, REMOVAL AND INSTALLATION

1. Remove rear parcel shelf finisher. Refer to [EI-42, "REAR PARCEL SHELF FINISHER"](#) .
2. Turned over protection sheet and disconnect connector.
3. Remove screws (A) and remove high-mounted stop lamp (1) from rear parcel shelf finisher.

High-mounted stop lamp : LED



SKIB4187E

NKS003SD

Stop Lamp

BULB REPLACEMENT

Refer to [LT-265, "Bulb Replacement"](#) .

REMOVAL AND INSTALLATION

Refer to [LT-265, "Removal and Installation"](#) .

BACK-UP LAMP

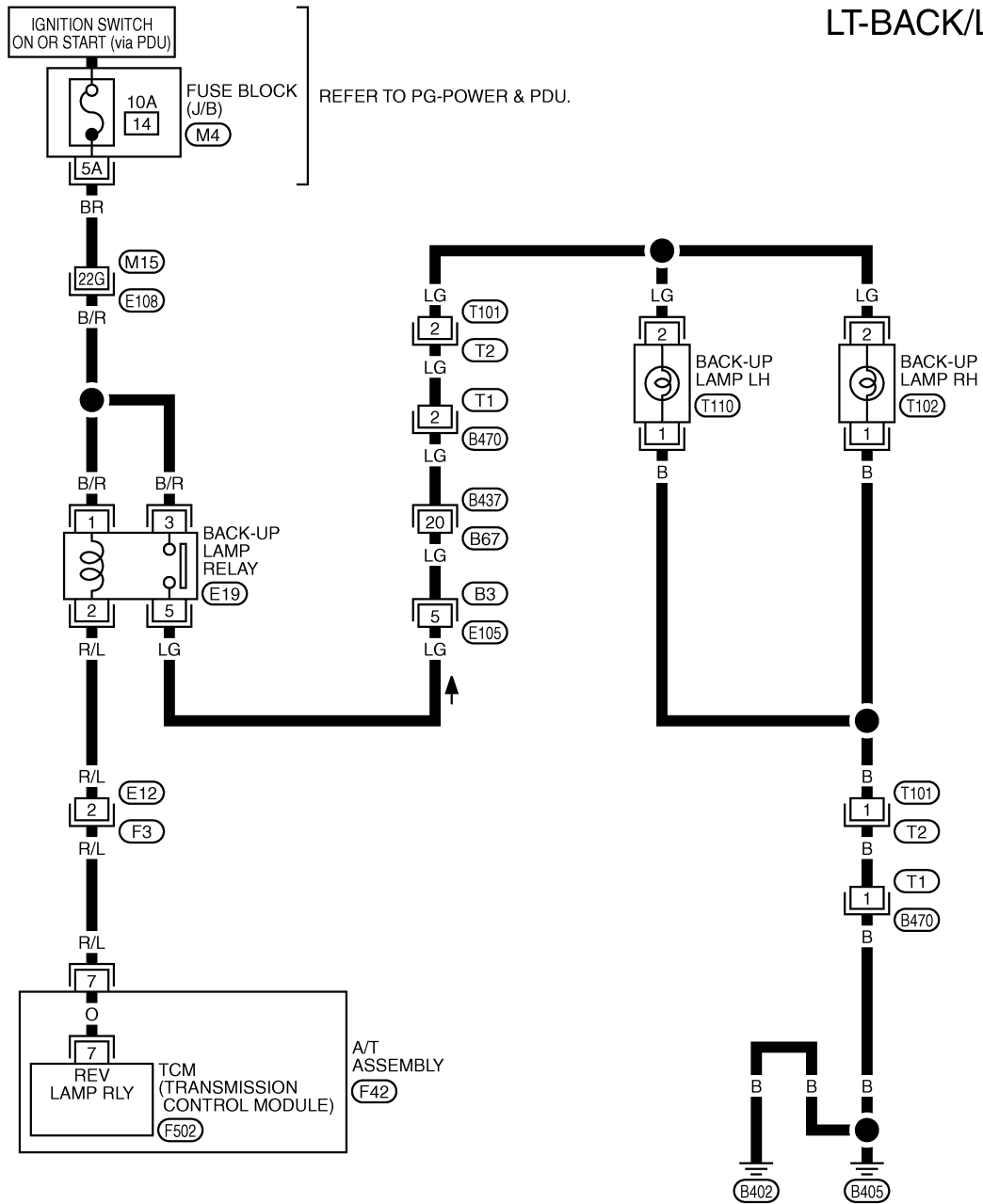
PPF:26550

BACK-UP LAMP

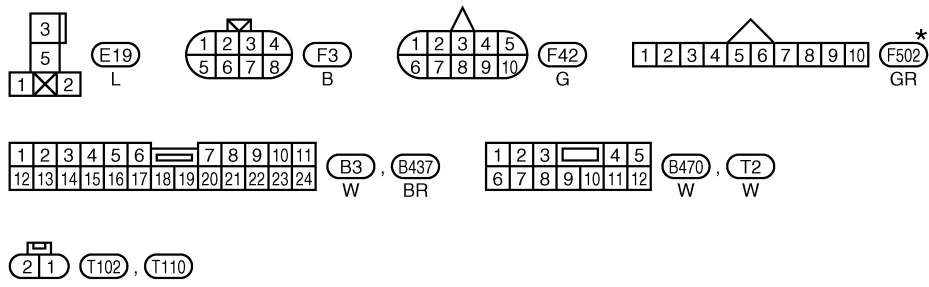
Wiring Diagram — B/LAMP —

NKS003SE

LT-BACK/L-01



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REFER TO THE FOLLOWING.
 (E108) -SUPER MULTIPLE JUNCTION (SMJ)
 (M4) -FUSE BLOCK-JUNCTION BOX (J/B)

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

TKWT5069E

BACK-UP LAMP

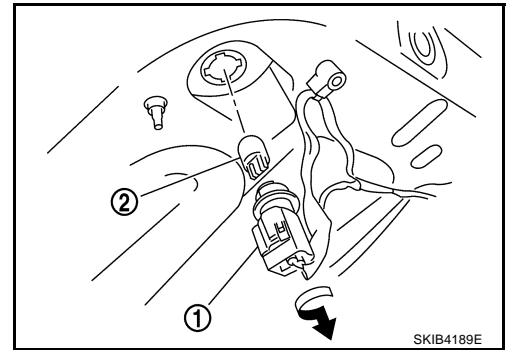
NKS003SF

Bulb Replacement

1. Remove trunk lid finisher inner. Refer to [EI-33, "TRUNK LID FINISHER"](#).
2. Turn bulb socket (1) counterclockwise and unlock it.
3. Remove bulb (2) from its socket.

Back-up lamp

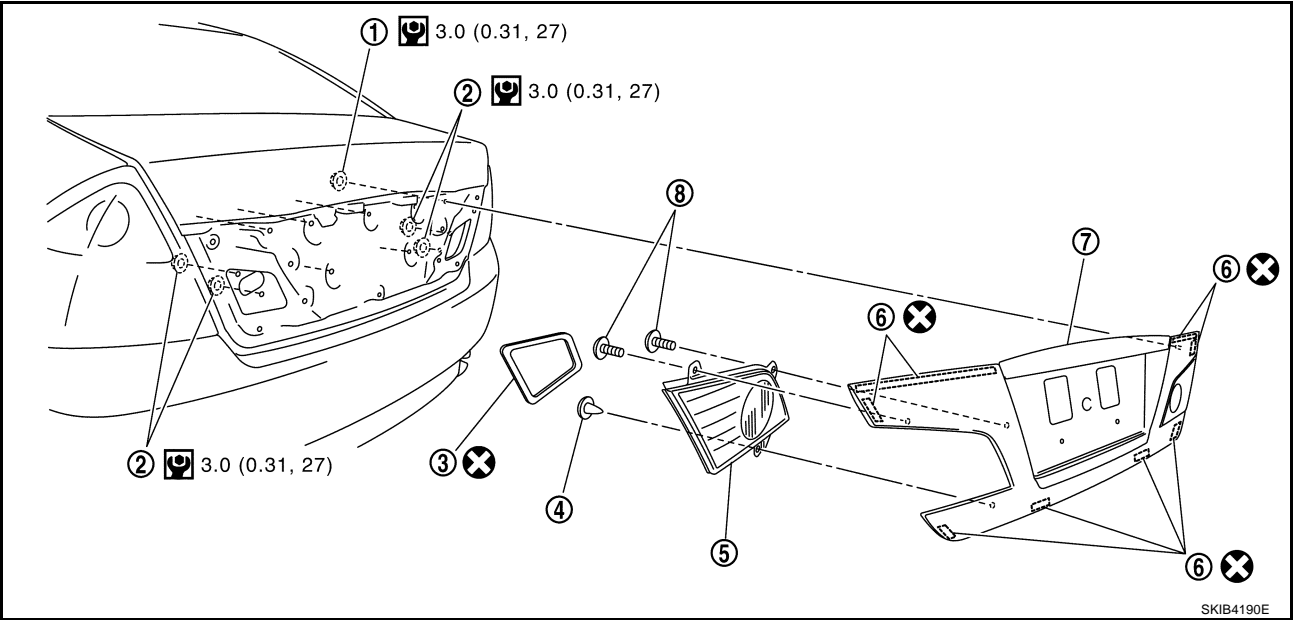
: 12V-18W




BACK-UP LAMP


Removal and Installation

NKS003SG



- | | | |
|-----------------------------|-----------------|-------------------|
| 1. Nut | 2. Nut | 3. Seal packing |
| 4. Clip | 5. Back up lamp | 6. Two-sided tape |
| 7. Trunk lid finisher outer | 8. Screw | |

 : N·m (kg·m, in·lb)

 : Always replace after every disassembly.


REMOVAL

1. Remove trunk lid finisher inner. Refer to [EI-33, "TRUNK LID FINISHER"](#).
2. Disconnect back up lamp and trunk lid request switch connector.
3. Remove trunk lid finisher outer. Refer to [EI-33, "TRUNK LID FINISHER"](#).
4. Remove screws and clip, and then remove back up lamp.
5. Remove seal packing from back up lamp.

INSTALLATION

Installation is the reverse order of removal.

Back up lamp mounting nut  : **3.0 N·m (0.31 kg·m, 27 in·lb)**

Trunk lid finisher mounting nut  : **3.0 N·m (0.31 kg·m, 27 in·lb)**

Install a new seal packing to the back up lamp.

CAUTION:

Seal packing cannot be reused.

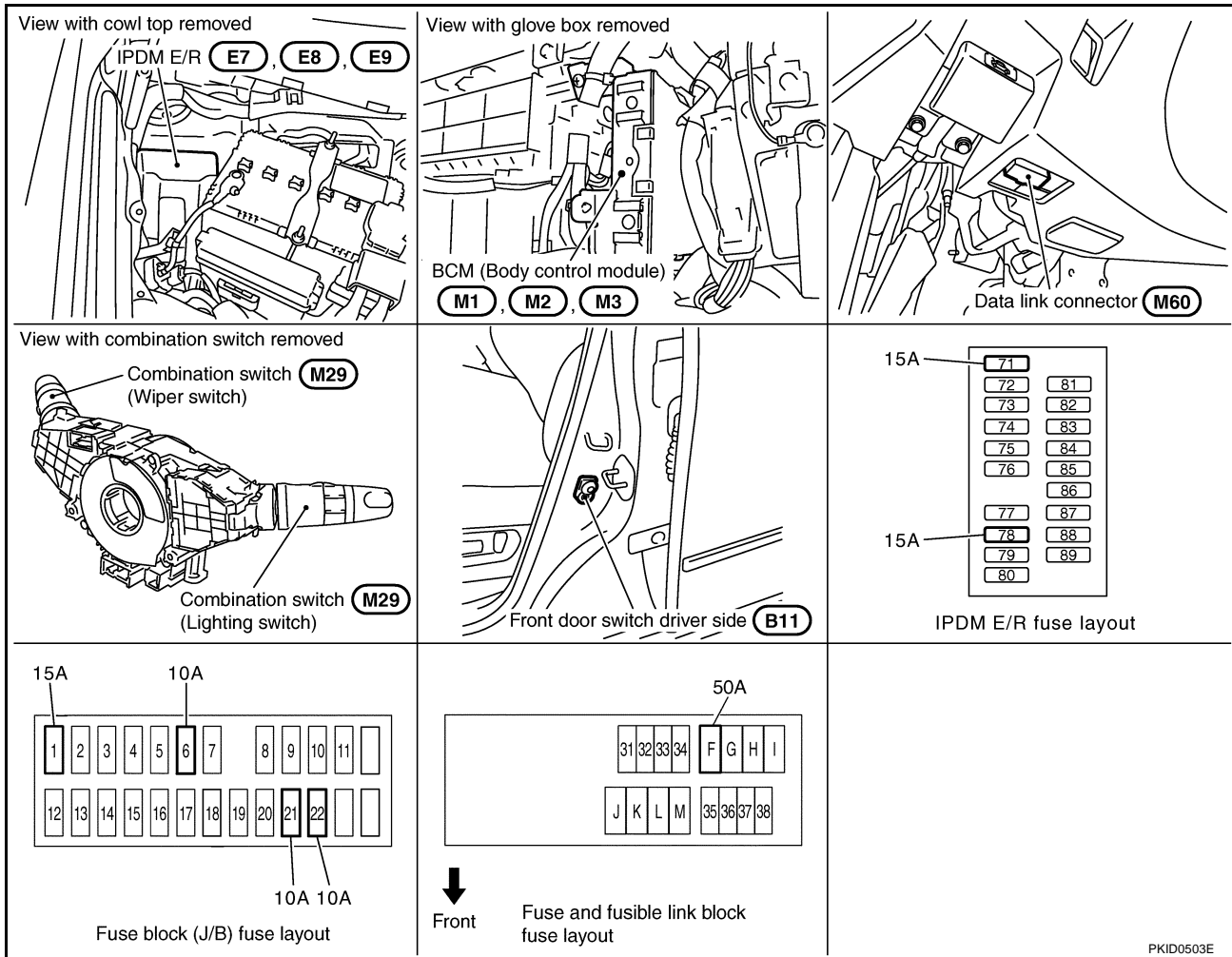
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PARKING, LICENSE PLATE AND TAIL LAMPS

PFP:26550

Component Parts and Harness Connector Location

NKS003SH



PKID0503E

System Description

NKS003SI

The 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 and tail lamps to illuminate. This input signal is communicated to the IPDM E/R (intelligent power distribution module engine room) across the CAN communication lines. The CPU (central processing unit) located in the IPDM E/R controls the tail lamp relay coil. This relay, when energized, directs power to parking, license plate and tail lamps, which then illuminate.

OUTLINE

Power is supplied at all times

- through 15A fuse (No. 71, located in IPDM E/R)
- to CPU located in IPDM E/R, and
- to tail lamp relay located in IPDM E/R,
- through 15A fuse (No. 78, located in IPDM E/R)
- to CPU located in IPDM E/R,
- through 50A fusible link (letter F, located in fuse, fusible link and relay block)
- to BCM terminal 55,
- through 10A fuse [No. 21, located in fuse block (J/B)]
- to BCM terminal 42,
- through 10A fuse [No. 22, located in fuse block (J/B)]
- to key slot terminal 1.

PARKING, LICENSE PLATE AND TAIL LAMPS

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

- to CPU located in IPDM E/R,
- through 15A fuse [No. 1, located in fuse block (J/B)]
- to BCM terminal 38.

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

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

Ground is supplied

- to BCM terminal 52
- through grounds M16 and M70,
- to IPDM E/R terminals 38 and 51
- through grounds E22 and E43.

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 and tail lamps to illuminate. This input signal is communicated to the IPDM E/R across the CAN communication lines. The CPU located in the IPDM E/R controls the tail lamp relay coil, which when energized, directs power

- through IPDM E/R terminal 21
- to front combination lamp LH and RH terminals 5 (parking)
- to front combination lamp LH and RH terminals 7 (side marker)
- to rear combination lamp LH and RH terminals 1 (tail and side marker)
- to license plate lamp LH and RH terminals 1.

Ground is supplied at all times

- to front combination lamp LH and RH terminals 1 (parking and side marker)
- through grounds E22 and E43,
- to rear combination lamp LH and RH terminals 4 (tail and side marker)
- through grounds B5, B40 and B131.
- to license plate lamp LH and RH terminals 2
- through grounds B402 and B405.

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

COMBINATION SWITCH READING FUNCTION

Refer to [BCS-3, "COMBINATION SWITCH READING FUNCTION"](#) .

EXTERIOR LAMP BATTERY SAVER CONTROL

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

Under this condition, 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

NKS003SJ

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

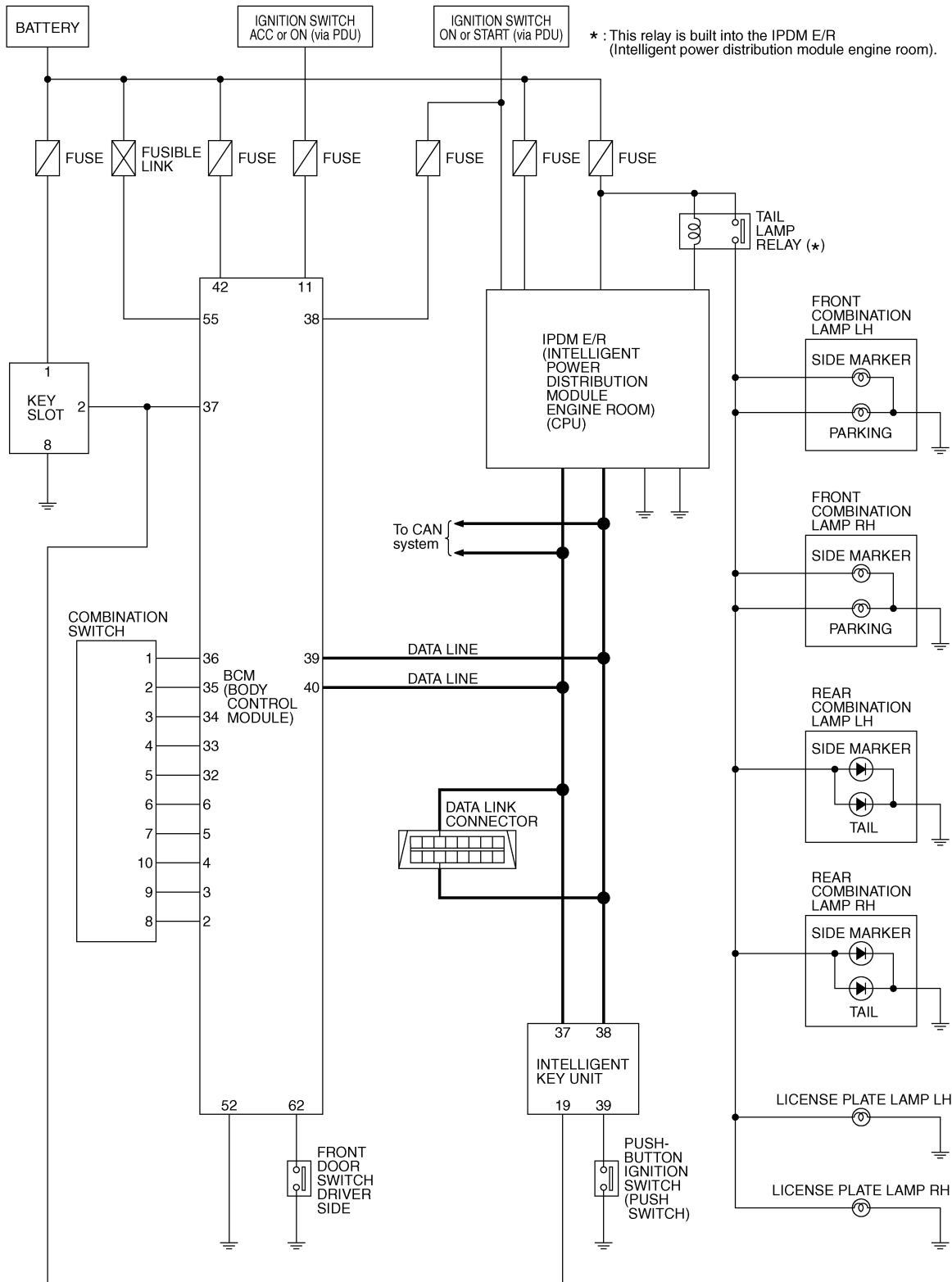
NKS003SK

Refer to [LAN-50, "CAN System Specification Chart"](#) .

PARKING, LICENSE PLATE AND TAIL LAMPS

Schematic

NKS003SL



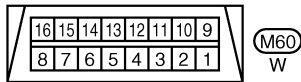
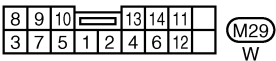
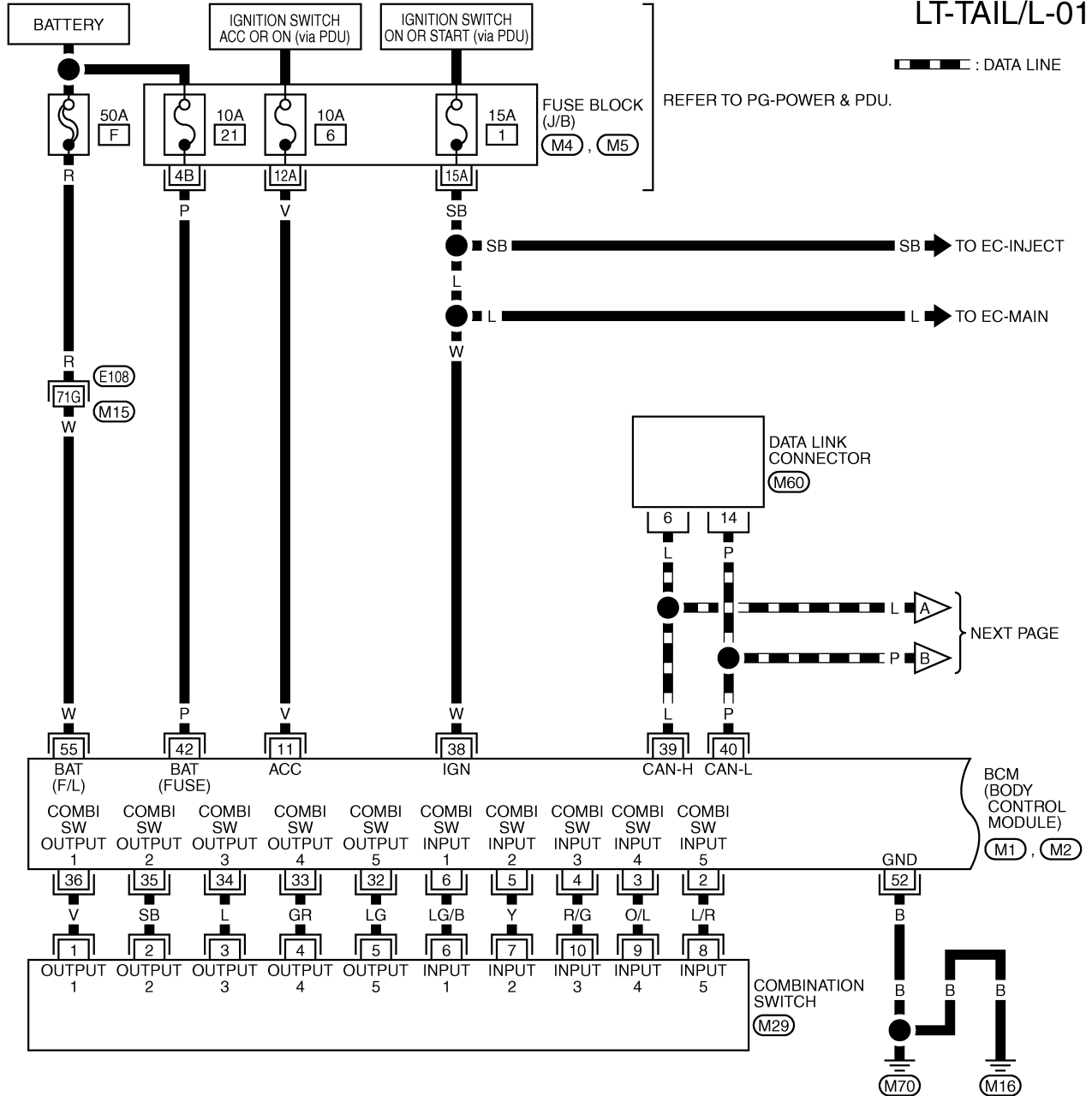
TKWT3391E

PARKING, LICENSE PLATE AND TAIL LAMPS

Wiring Diagram — TAIL/L —

NKS003SM

LT-TAIL/L-01



REFER TO THE FOLLOWING.

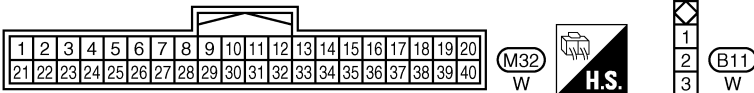
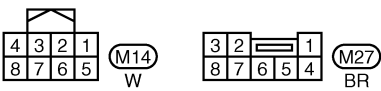
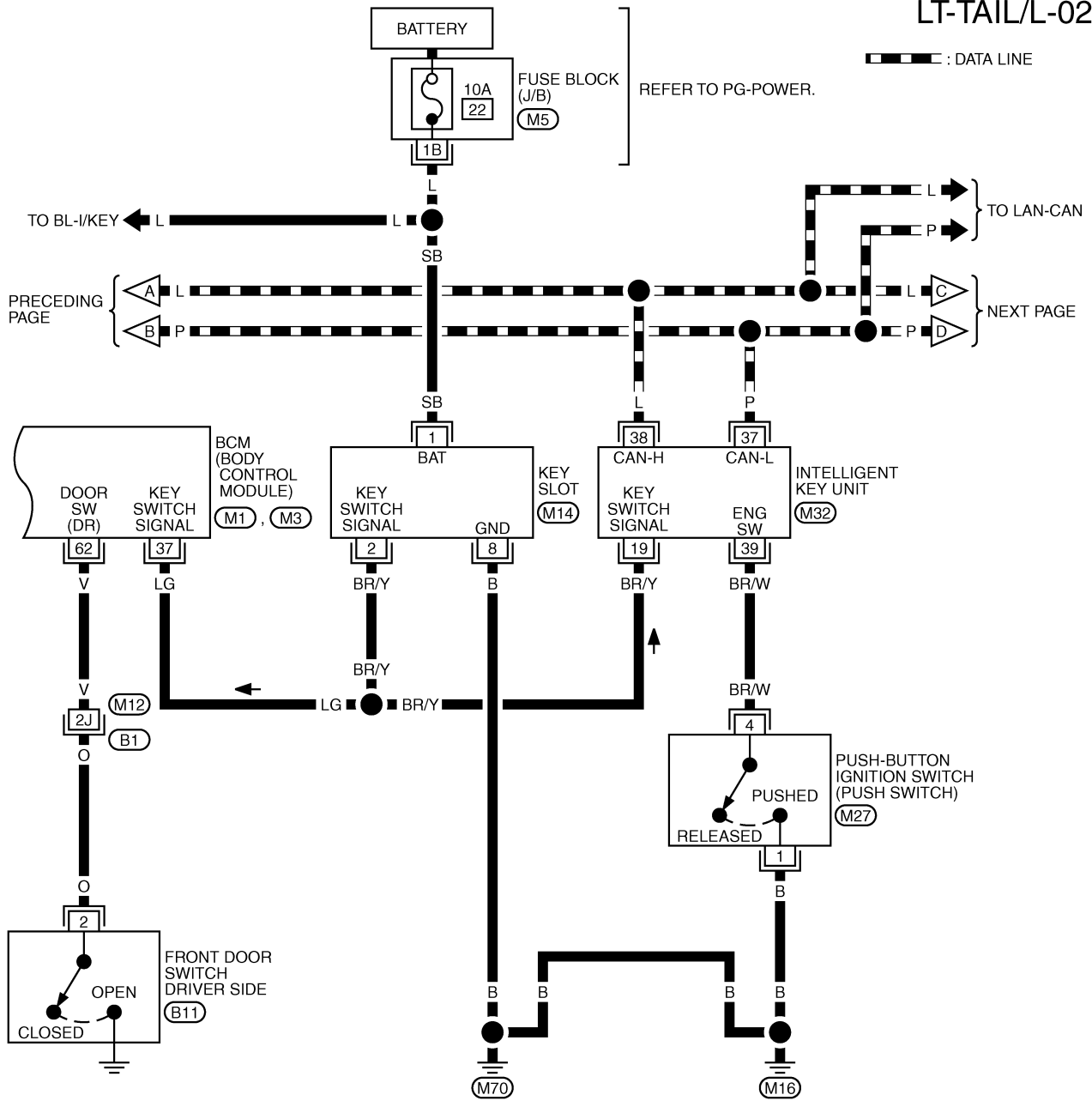
- (E108) -SUPER MULTIPLE JUNCTION (SMJ)
- (M4), (M5) -FUSE BLOCK-JUNCTION BOX (J/B)
- (M1), (M2) -ELECTRICAL UNITS

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PARKING, LICENSE PLATE AND TAIL LAMPS

LT-TAIL/L-02



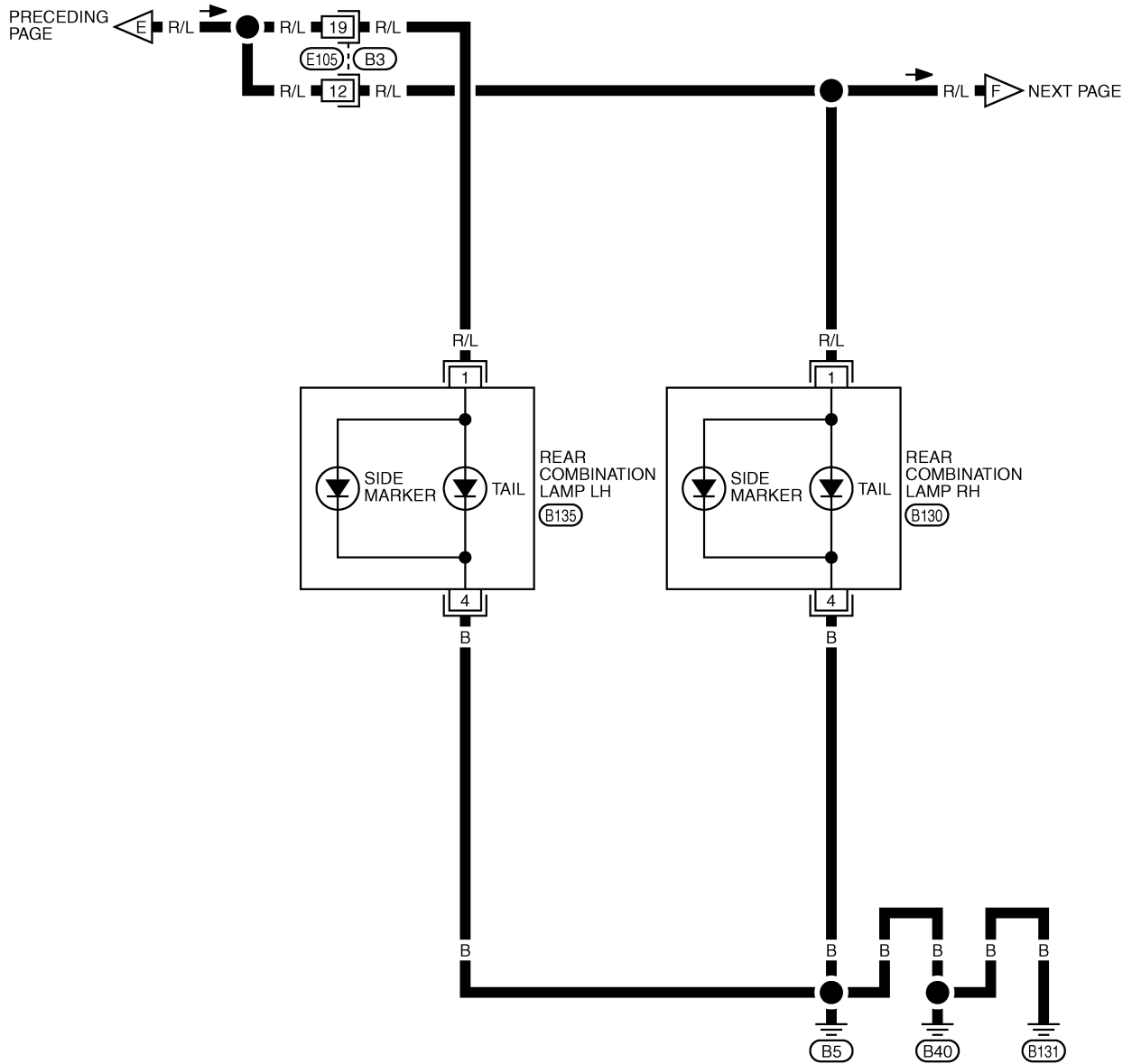
REFER TO THE FOLLOWING.

- (B1) -SUPER MULTIPLE JUNCTION (SMJ)
- (M5) -FUSE BLOCK-JUNCTION BOX (J/B)
- (M1), (M3) -ELECTRICAL UNITS

TKWT5265E

PARKING, LICENSE PLATE AND TAIL LAMPS

LT-TAIL/L-04



1	2	3	4	5	6	7	8	9	10	11		
12	13	14	15	16	17	18	19	20	21	22	23	24

(B3)
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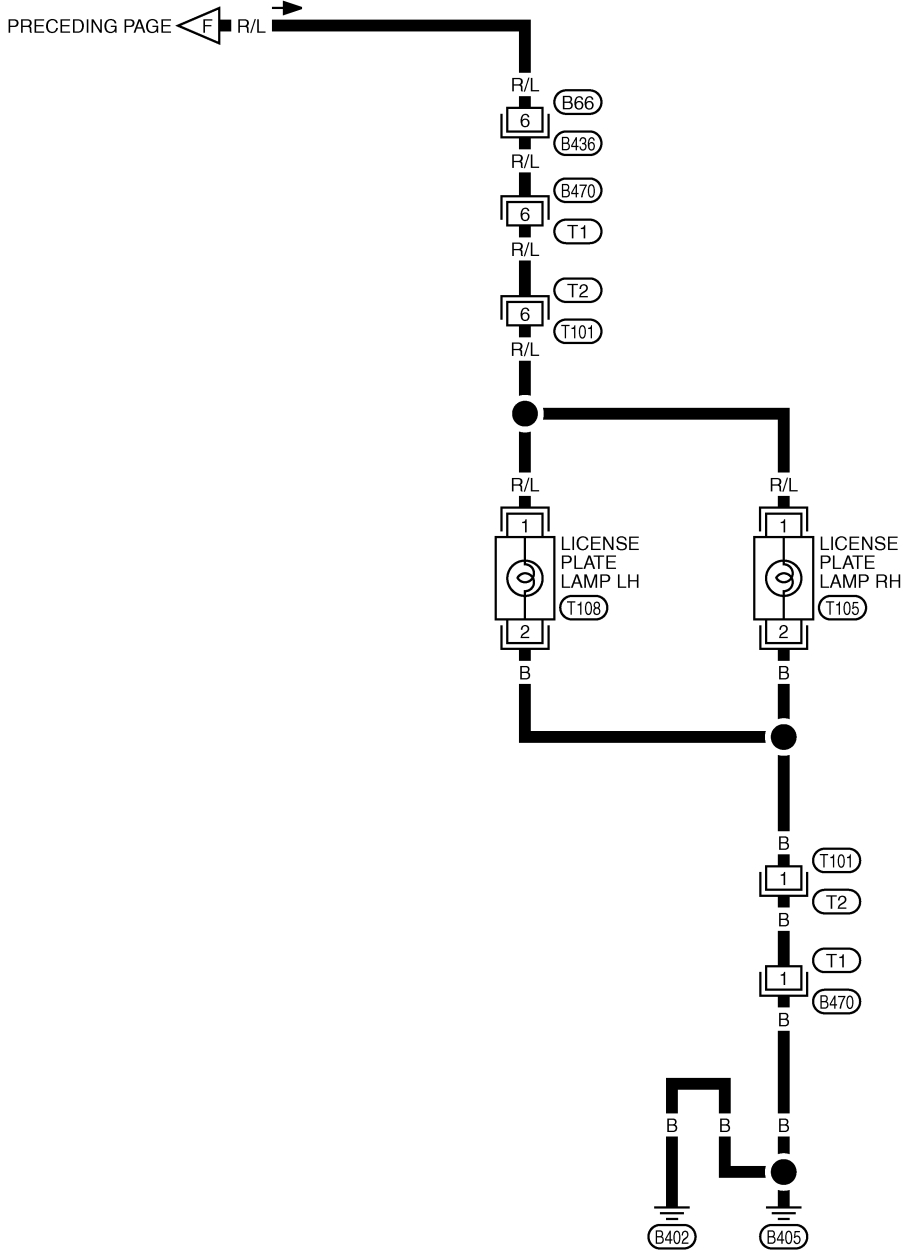


(B130), (B135)
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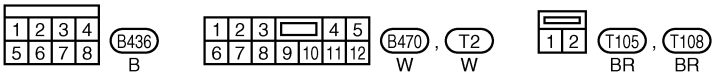
TKWT5267E

PARKING, LICENSE PLATE AND TAIL LAMPS

LT-TAIL/L-05



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TKWT5268E

PARKING, LICENSE PLATE AND TAIL LAMPS

NKS003SN

Terminals and Reference Values for BCM

CAUTION:

- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF not to be fluctuated by overloaded.
- Turn wiper dial position to 4 except when checking waveform or voltage of wiper dial position. Wiper dial position can be confirmed on CONSULT-II. Refer to [LT-238. "DATA MONITOR"](#) .

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
2	L/R	Combination switch input 5	ON	Lighting, turn, wiper switch (Wiper dial position 4)	Lighting switch 1ST PKIB4957J Approx. 1.0 V
					OFF Approx. 0 V
11	V	Ignition switch (ACC)	ACC	—	Battery voltage
33	GR	Combination switch output 4	ON	Lighting, turn, wiper switch (Wiper dial position 4)	Lighting switch 1ST (The same result with lighting switch 2ND) PKIB4958J Approx. 1.2 V
					OFF PKIB4960J Approx. 7.0 - 7.5 V
38	W	Ignition switch (ON)	ON	—	Battery voltage
39	L	CAN - H	—	—	—
40	P	CAN - L	—	—	—
42	P	Battery power supply	OFF	—	Battery voltage
52	B	Ground	ON	—	Approx. 0 V
55	W	Battery power supply	OFF	—	Battery voltage

PARKING, LICENSE PLATE AND TAIL LAMPS

Terminals and Reference Values for IPDM E/R

NKS003SO

Terminal No.	Wire color	Signal name	Measuring condition		Reference value	
			Ignition switch	Operation or condition		
21	R/L	Parking, license plate, and tail lamp output	ON	Lighting switch 1ST	OFF	Approx. 0 V
					ON	Battery voltage
38	B	Ground	ON	—	Approx. 0 V	
49	L	CAN – H	—	—	—	
50	P	CAN – L	—	—	—	
51	B	Ground	ON	—	Approx. 0 V	

How to Perform Trouble Diagnoses

NKS003SP

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to [LT-248, "System Description"](#) .
3. Carry out the Preliminary Check. Refer to [LT-257, "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

NKS003SQ

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES AND FUSIBLE LINK

Check for blown fuses and fusible link.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
		21
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	71
		78

Refer to [LT-251, "Wiring Diagram — TAIL/L —"](#) .

OK or NG

OK >> GO TO 2.

NG >> If fuse or fusible link is blown, be sure to eliminate cause of malfunction before installing new fuse or fusible link. Refer to [PG-3, "POWER SUPPLY ROUTING CIRCUIT"](#) .

PARKING, LICENSE PLATE AND TAIL LAMPS

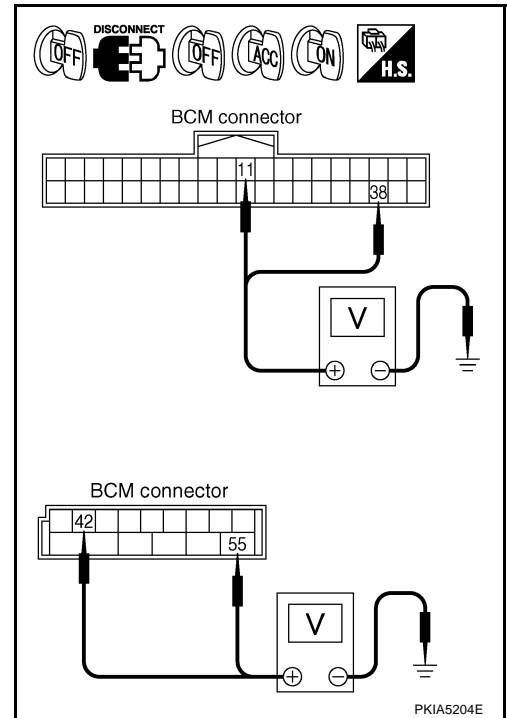
2. CHECK POWER SUPPLY CIRCUIT

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

Terminal (+)		Terminal (-)	Ignition switch position		
BCM connector	Terminal		OFF	ACC	ON
M1	11	Ground	Approx. 0 V	Battery voltage	Battery voltage
	38		Approx. 0 V	Approx. 0 V	Battery voltage
M2	42		Battery voltage	Battery voltage	Battery voltage
	55		Battery voltage	Battery voltage	Battery voltage

OK or NG

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



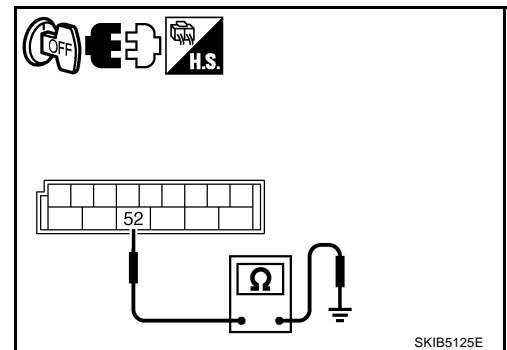
3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

BCM connector	Terminal	Ground	Continuity
M2	52		Yes

OK or NG

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



CONSULT-II Functions (BCM)

NKS003SR

- Refer to [LT-57, "CONSULT-II Functions \(BCM\)"](#) in HEADLAMP (FOR USA) -XENON TYPE-.
 Refer to [LT-23, "CONSULT-II Functions \(BCM\)"](#) in HEADLAMP (FOR USA) -CONVENTIONAL TYPE-.
 Refer to [LT-94, "CONSULT-II Functions \(BCM\)"](#) in HEADLAMP (FOR CANADA).

CONSULT-II Functions (IPDM E/R)

NKS003SS

- Refer to [LT-59, "CONSULT-II Functions \(IPDM E/R\)"](#) in HEADLAMP (FOR USA) -XENON TYPE-.
 Refer to [LT-25, "CONSULT-II Functions \(IPDM E/R\)"](#) in HEADLAMP (FOR USA) -CONVENTIONAL TYPE-.
 Refer to [LT-96, "CONSULT-II Functions \(IPDM E/R\)"](#) in HEADLAMP (FOR CANADA).

PARKING, LICENSE PLATE AND TAIL LAMPS

Parking, License Plate and Tail Lamps Do Not Illuminate

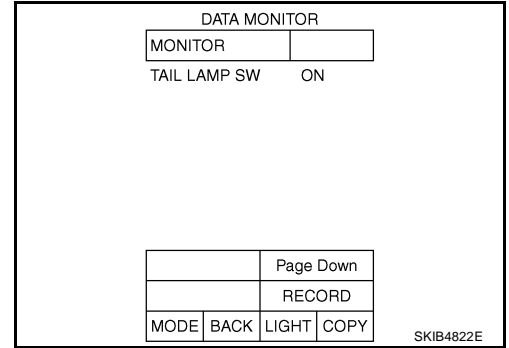
NKS003ST

1. CHECK COMBINATION SWITCH INPUT SIGNAL

Ⓜ With CONSULT-II

1. Select "BCM" on CONSULT-II. Select "HEAD LAMP" on "SELECT TEST ITEM" screen.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure "TAIL LAMP SW" turns ON-OFF linked with operation of lighting switch.

When lighting switch is 1ST : TAIL LAMP SW ON position



ⓧ Without CONSULT-II

Refer to [LT-239, "Combination Switch Inspection"](#).

OK or NG

OK >> GO TO 2.

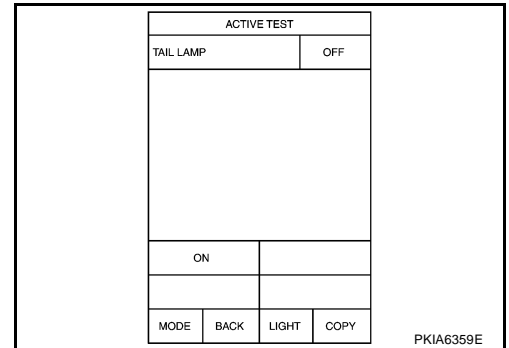
NG >> Check combination switch (lighting switch). Refer to [LT-239, "Combination Switch Inspection"](#).

2. ACTIVE TEST

Ⓜ With CONSULT-II

1. Select "IPDM E/R" on CONSULT-II. 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 and tail lamp operation.

Parking, license plate 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 and tail lamp operation.

Parking, license plate and tail lamps should operate.

OK or NG

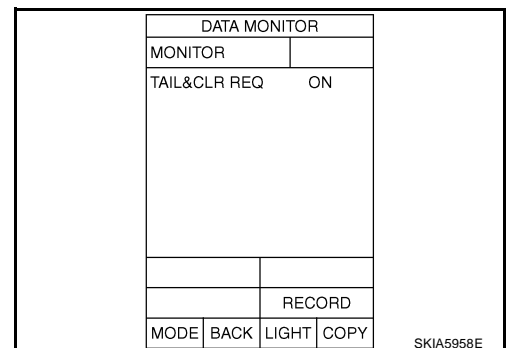
OK >> GO TO 3.

NG >> GO TO 4.

3. CHECK IPDM E/R

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

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



OK or NG

OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#).

NG >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#).

PARKING, LICENSE PLATE AND TAIL LAMPS

4. CHECK INPUT SIGNAL

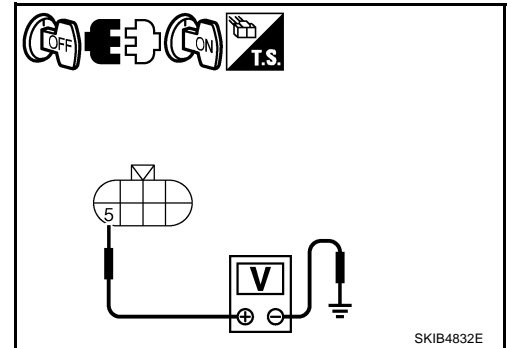
☑ With CONSULT-II

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

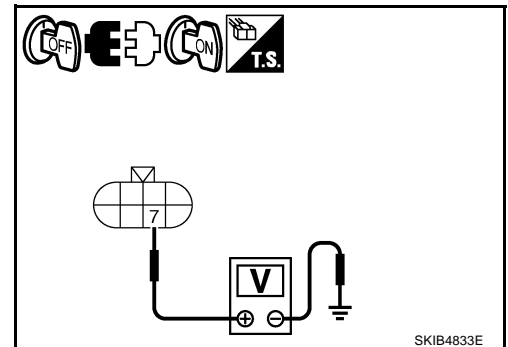
☒ Without CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp, license plate lamp and rear combination lamp connectors.
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, license plate lamp, rear combination lamp harness connector and ground.

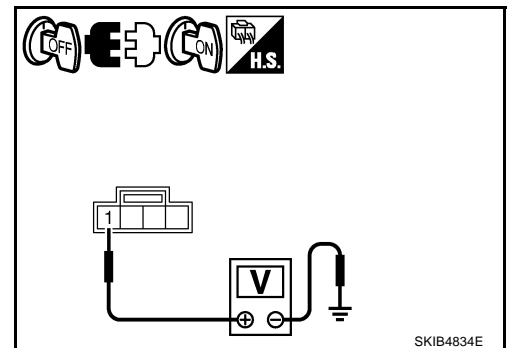
Terminal				Voltage (Approx.)
(+)		Terminal	(-)	
Front combination lamp (parking) connector				
RH	E47	5	Ground	
LH	E54			



Terminal				Voltage (Approx.)
(+)		Terminal	(-)	
Front combination lamp (side marker) connector				
RH	E47	7	Ground	
LH	E54			



Terminal				Voltage (Approx.)
(+)		Terminal	(-)	
Rear combination lamp (tail) connector				
RH	B130	1	Ground	
LH	B135			

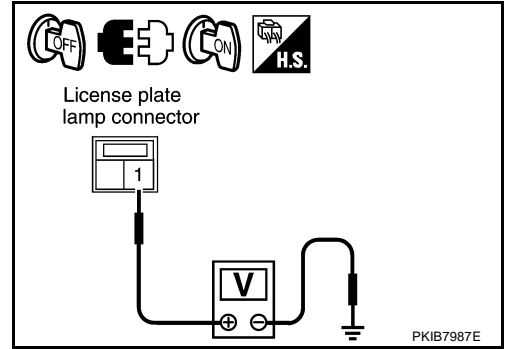


PARKING, LICENSE PLATE AND TAIL LAMPS

Terminal		Terminal	(-)	Voltage (Approx.)
(+)				
License plate lamp connector		1	Ground	Battery voltage
RH	T105			
LH	T108			

OK or NG

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



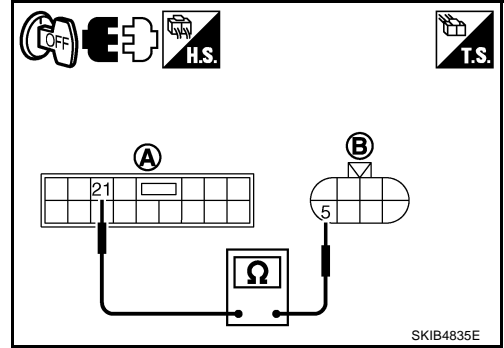
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PARKING, LICENSE PLATE AND TAIL LAMPS

5. CHECK PARKING, LICENSE PLATE AND TAIL LAMP CIRCUIT

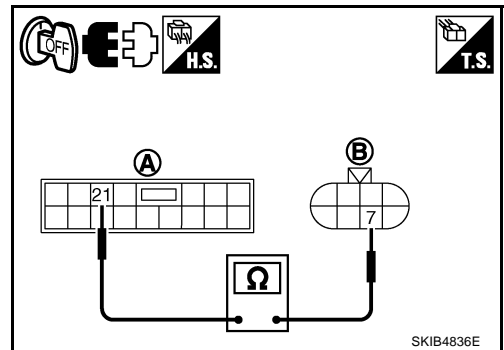
1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector (A) and front combination lamp harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
E7	21	RH	E47	Yes
		LH	E54	



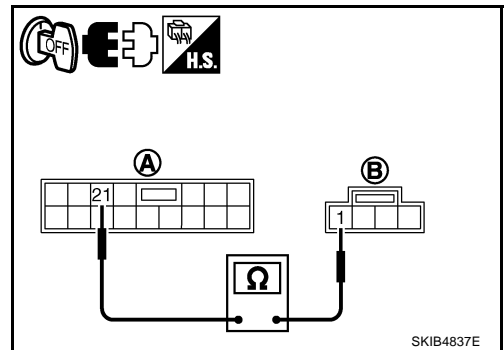
4. Check continuity between IPDM E/R harness connector (A) and front combination lamp harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
E7	21	RH	E47	Yes
		LH	E54	



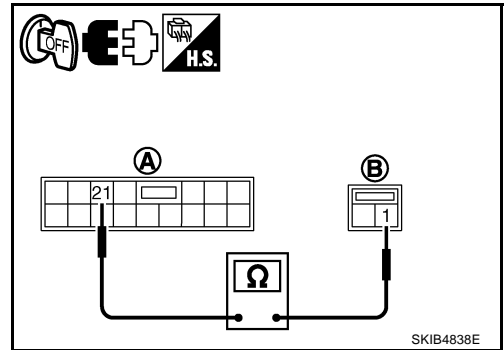
5. Check continuity between IPDM E/R harness connector (A) and rear combination lamp harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
E7	21	RH	B130	Yes
		LH	B135	



6. Check continuity between IPDM E/R harness connector (A) and license plate lamp harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
E7	21	RH	T105	Yes
		LH	T108	



OK or NG

OK >> Replace IPDM E/R. Refer to [PG-31, "Removal and Installation of IPDM E/R"](#).

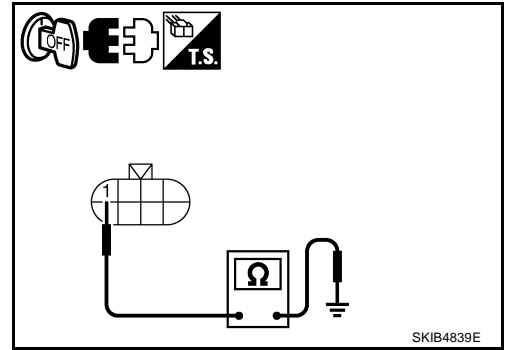
NG >> Repair harness or connector.

PARKING, LICENSE PLATE AND TAIL LAMPS

6. CHECK PARKING, LICENSE PLATE AND TAIL LAMPS GROUND CIRCUIT

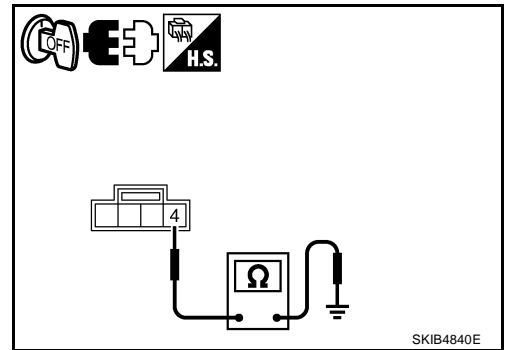
1. Check continuity between front combination lamp harness connector and ground.

Front combination lamp (parking and side marker) connector		Terminal	Ground	Continuity
RH	E47	1		Yes
LH	E54			



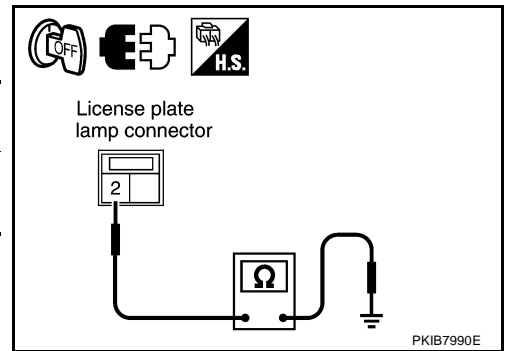
2. Check continuity between rear combination lamp harness connector and ground.

Rear combination lamp (tail and side marker) connector		Terminal	Ground	Continuity
RH	B130	4		Yes
LH	B135			



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

License plate lamp connector		Terminal	Ground	Continuity
RH	T105	2		Yes
LH	T108			



OK or NG

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

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

NKS003SU

- This symptom indicates the malfunction of ignition relay in IPDM E/R. Refer to [PG-19, "Function of Detecting Ignition Relay Malfunction"](#).
- Select "BCM" on CONSULT-II. Select "HEADLAMP" on "SELECT TEST ITEM" screen and select "DATA MONITOR" on "SELECT DIAG MODE" screen. If "LIGHT SW 1ST" is OFF when lighting switch is OFF, replace IPDM E/R.

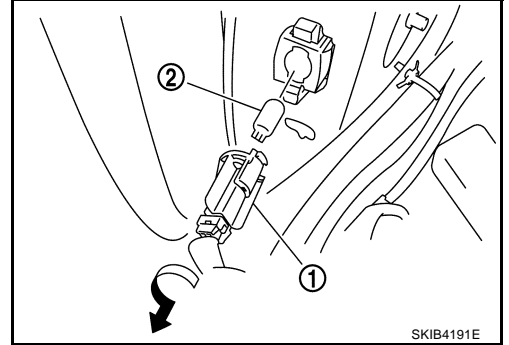
PARKING, LICENSE PLATE AND TAIL LAMPS

License Plate Lamp BULB REPLACEMENT

NKS003SV

1. Remove trunk lid finisher inner. Refer to [EI-56, "Removal and Installation for Trunk Room Trim"](#) .
2. Turn bulb socket (1) counterclockwise and unlock it.
3. Remove bulb (2) from its socket.

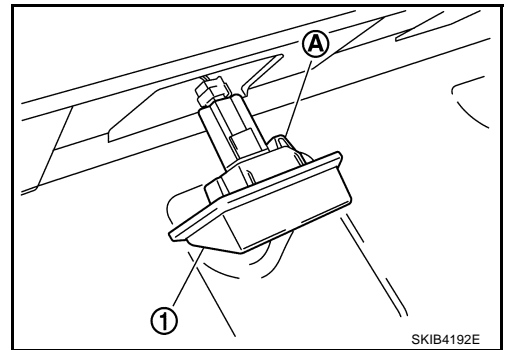
License plate lamp : 12V - 5W



Removal and Installation REMOVAL

NKS003SW

1. Remove trunk lid finisher inner. Refer to [EI-56, "Removal and Installation for Trunk Room Trim"](#) .
2. From the trunk room inside, push a lamp to outside while pushing a resin clip (A).
3. Disconnect connector and remove license plate lamp (1).



INSTALLATION

Installation is the reverse order of removal.

Front Parking (Clearance) Lamp BULB REPLACEMENT

NKS003SX

Refer to [LT-38, "Bulb Replacement"](#) in "HEAD LAMP - CONVENTIONAL TYPE-".
Refer to [LT-73, "Bulb Replacement"](#) in "HEAD LAMP - XENON TYPE-".

REMOVAL AND INSTALLATION

Refer to [LT-40, "Removal and Installation"](#) .

REAR COMBINATION LAMP

REAR COMBINATION LAMP

PFP:26554

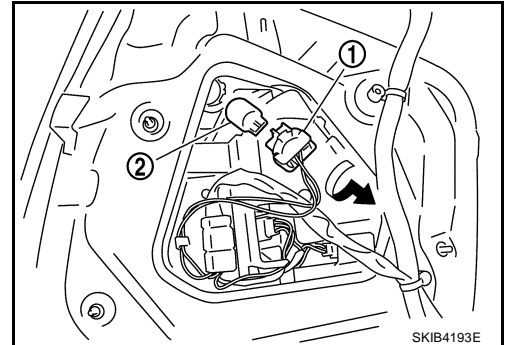
Bulb Replacement

NKS003SY

REAR TURN SIGNAL LAMP BULB, STOP/TAIL LAMP BULB

1. Remove trunk side finisher. Refer to [EI-56, "Removal and Installation for Trunk Room Trim"](#).
2. Turn rear turn signal lamp bulb socket (1) counterclockwise and unlock it.
3. Remove bulb (2).

Rear turn signal lamp : 12V - 21W (amber bulb)
Stop tail lamp : LED





Removal and Installation

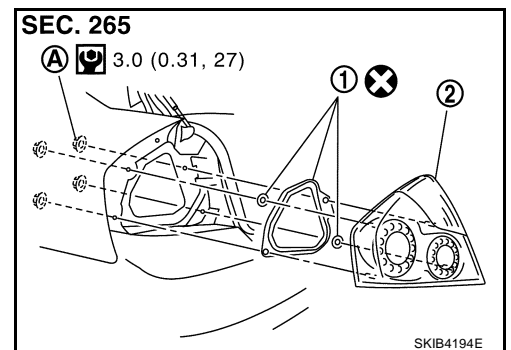
REMOVAL

NKS003SZ

Rear Fender Side

1. Remove trunk side finisher. Refer to [EI-56, "Removal and Installation for Trunk Room Trim"](#).
2. Disconnect rear combination lamp connector.
3. Remove rear combination lamp mounting nuts (A).
4. Pull the rear combination lamp (2) toward rear of the vehicle and remove from the vehicle.
5. Remove seal packing (1) from the vehicle.

 : N·m (kg-m, in-lb)
 : Always replace after every disassembly



INSTALLATION

Installation is the reverse order of removal.

CAUTION:

Seal packing cannot be reused.

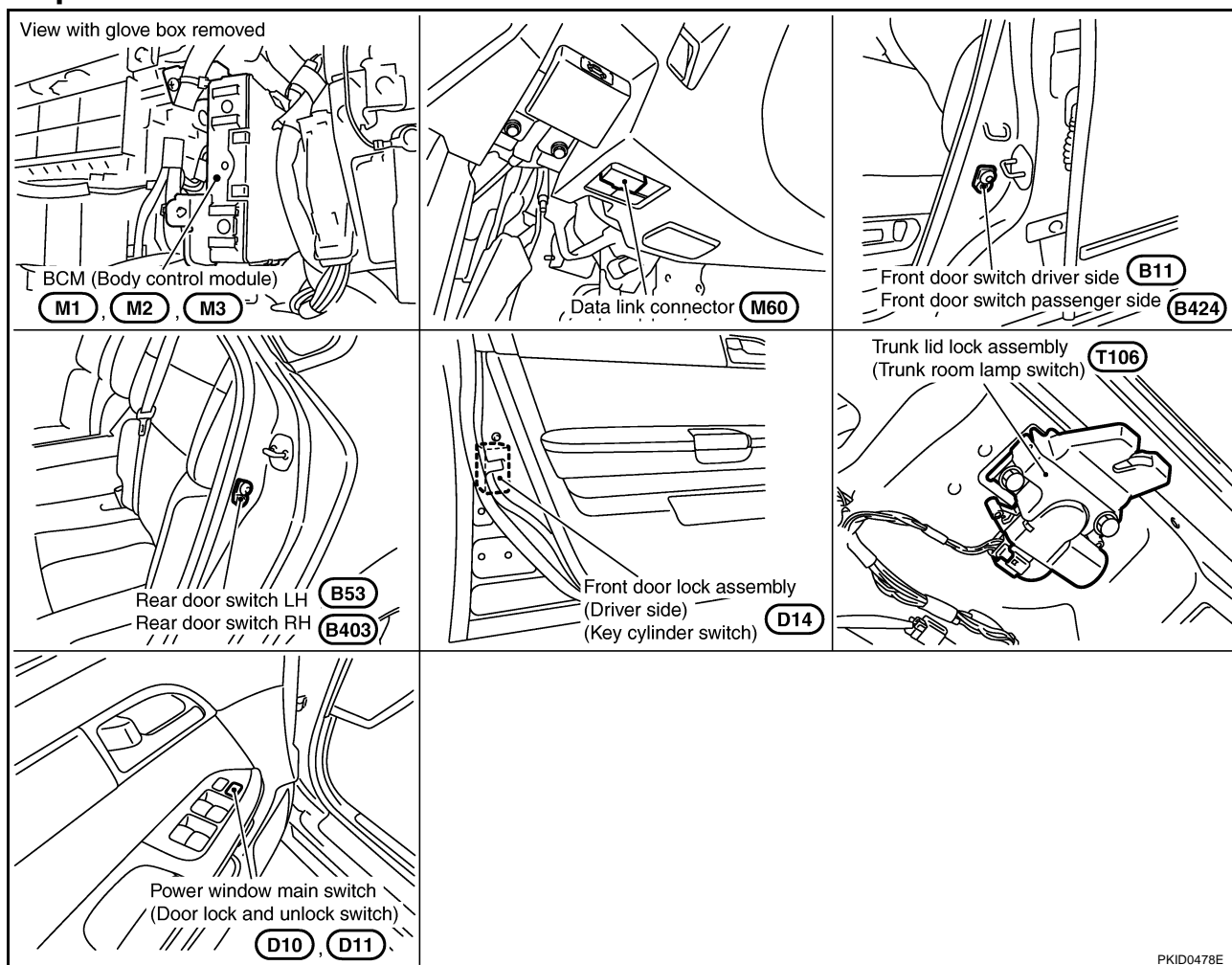
INTERIOR ROOM LAMP

INTERIOR ROOM LAMP

PFP:26410

Component Parts and Harness Connector Location

NKS003T0



System Description

NKS003T1

BCM (body control module) controls interior lamp, room lamp timer and interior lamp battery saver. The following signals are input to BCM:

- Door lock/unlock trunk open request signal from the Intelligent Key unit via CAN communication
- Key cylinder switch status signal from power window main switch via power window serial link
- Door switch signal from door switches (driver side, passenger side, rear LH and RH)
- IGN power supply (signal) from PDU (power distribution unit)
- ACC power supply (signal) from PDU

ROOM LAMP TIMER BASIC OPERATION

Applicable lamps

- Room lamp system: map lamp, foot lamp (driver side and passenger side) and personal lamp (rear LH and rear RH).
1. When getting on the vehicle
 - Lamps illuminate by timer operation when driver side door or passenger side door is unlocked.*
 - Lamps illuminate by timer operation after any door is open and then all doors are closed.*
 - Timer operation stops and lamps are OFF, when driver side door is locked or the push-button ignition switch (push switch) is turned to ACC or ON from OFF.

*: This setting can be changed by CONSULT-II. Refer to [LT-283, "WORK SUPPORT \(INT LAMP\)"](#).

INTERIOR ROOM LAMP

2. When getting off the vehicle

- Lamps illuminate by timer operation when the push-button ignition switch (push switch) is turned OFF.*
- Lamps illuminate by timer operation after any door is open and then all doors are closed.*
- Timer operation stops and lamps are OFF, when driver side door is locked.

*: This setting can be changed by CONSULT-II. Refer to [LT-283, "WORK SUPPORT \(INT LAMP\)"](#) .

POWER SUPPLY AND GROUND

Power is supplied at all times

- through 50A fusible link (letter F, located in fuse and fusible link block)
- to BCM terminal 55,
- through 10A fuse [No. 21, located in fuse block (J/B)]
- to BCM (body control module) terminal 42,
- through 10A fuse [No. 22, located in fuse block (J/B)]
- to key slot terminal 1.

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

- through 15A fuse [No. 1, located in fuse block (J/B)]
- to BCM terminal 38.

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

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

Ground is supplied

- to BCM terminal 52
- through grounds M16 and M70.

When the driver side door is opened, ground is supplied

- to BCM terminal 62
- through front door switch driver side terminal 2
- through case ground of front door switch driver side.

When the passenger side door is opened, ground is supplied

- to BCM terminal 12
- through front door switch passenger side terminal 2
- through case ground of front door switch passenger side.

When the rear door LH is opened, ground is supplied

- to BCM terminal 63
- through rear door switch LH terminal 2
- through case ground of rear door switch LH.

When the rear door RH is opened, ground is supplied

- to BCM terminal 13
- through rear door switch RH terminal 2
- through case ground of rear door switch RH.

When driver side door is unlocked by door lock and unlock switch, BCM receives a ground signal

- to BCM terminal 22
- through power window main switch (door lock and unlock switch) terminal 14 or power window sub-switch (front passenger side) (door lock and unlock switch) terminal 16
- through power window main switch (door lock and unlock switch) terminal 17 or power window sub-switch (front passenger side) (door lock and unlock switch) terminal 11
- through grounds M16 and M70.

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

- to BCM terminal 22
- through power window main switch (door lock and unlock switch) terminals 14 and 6

INTERIOR ROOM LAMP

- through front door lock assembly (driver side) (key cylinder switch) terminals 5 and 4
- through grounds M16 and M70.

When a signal, or combination of door open signals is received by BCM, ground is supplied

- to foot lamp driver side and passenger side terminals 2
- to personal lamp LH and RH terminals 1
- to map lamp terminal 2 and 5
- through BCM terminal 48,
- to step lamp (driver side, passenger side, rear LH and RH) terminals 2
- to kicking plate illumination (driver side and passenger side) terminals 2
- through BCM terminal 47.

With power and ground supplied, the interior lamps illuminate.

SWITCH OPERATION

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

- to step lamp (driver side, passenger side, rear LH and RH) terminals 2
- to kicking plate illumination (driver side and passenger side) terminals 2
- through BCM terminal 47.

And power is supplied

- through BCM terminal 41
- to step lamp (driver side, passenger side, rear LH and RH) terminals 1
- to kicking plate illumination (driver side and passenger side) terminals 1.

When any door switch is ON (door is opened) and personal lamp and map lamp is DOOR position, ground is supplied

- to personal lamp LH and RH terminal 1
- to map lamp terminals 2 and 5
- through BCM terminal 48.

And power is supplied

- through BCM terminal 41
- to personal lamp LH and RH terminals 3
- to map lamp terminal 3.

When map lamp switch is ON, ground is supplied

- to map lamp terminal 1
- through grounds M16 and M70.

And power is supplied

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

When personal lamp LH and RH switch is ON, ground is supplied

- to personal lamp LH and RH terminals 2
- through grounds M16 and M70.

And power is supplied

- through BCM terminal 41
- to personal lamp LH and RH terminals 3.

When trunk lid lock assembly (trunk room lamp switch) is ON, ground is supplied

- to trunk room lamp (upper and lower) terminals 2
- through trunk lid lock assembly (trunk room lamp switch) terminals 1 and 2
- through grounds B405 and B475.

And power is supplied

- through BCM terminal 41
- to trunk room lamp (upper and lower) terminals 1.

When vanity mirror lamp LH and RH switch is ON, ground is supplied

INTERIOR ROOM LAMP

- to vanity mirror lamp LH and RH terminals 2
- through grounds M16 and M70.

And power is supplied

- through BCM terminal 41
- to vanity mirror lamp (LH and RH) terminals 1.

ROOM LAMP TIMER OPERATION

BCM controls applicable lamps to illuminate for 15 seconds (can be set maximum 30 seconds) by timer operation under following conditions. BCM also controls applicable lamps to brighten for 1 second (can be set maximum 5 seconds) when turned ON, or to dim for 3 seconds (can be set maximum 5 seconds) when turned OFF. (Timer operating time and dimming/brightening time can be changed with CONSULT-II. Refer to [LT-283, "WORK SUPPORT \(INT LAMP\)"](#) .) This control operates as follows.

Applicable lamps

- Room lamp system: map lamp, foot lamp (driver side and passenger side) and personal lamp (rear LH and rear RH).

BCM controls room lamp timer operation under following condition.

- Condition 1: Door lock state changes.*
BCM judges as the door lock is unlocked under either case below.
 - The Intelligent Key unit sends door lock/unlock trunk open request signal (driver side unlock or passenger side unlock) to BCM through CAN communication line by unlock operation of intelligent key, outside key antenna and front door request switch (driver side) or outside key antenna and front door request switch (passenger side).
 - Key cylinder switch state (unlock) signal is sent to BCM through power window serial link when front door lock assembly (driver side) (key cylinder switch) is unlocked (ON) by power window main switch unlock operation.

And fulfills all the conditions below.

- The engine switch (push switch) is OFF.
- All the doors are closed.

*: This setting can be changed by CONSULT-II. Refer to [LT-283, "WORK SUPPORT \(INT LAMP\)"](#) .

- Condition 2: Any door switch state changes.*
The BCM terminal value of operated door switch is changed when any door is opened and then closed. From that BCM judges as the door is opened and then closed.

And fulfills all the conditions below.

- The engine switch (push switch) is OFF.
- All the doors are closed.

*: This setting can be changed by CONSULT-II. Refer to [LT-283, "WORK SUPPORT \(INT LAMP\)"](#) .

- Condition 3: Engine switch (push switch) state changes.*
The Intelligent Key unit judges as the engine switch (push switch) is OFF and sends push-button ignition switch (push switch) signal to PDU (power distribution unit) when push-button ignition switch (push switch) turned OFF. Then PDU (power distribution unit) turns OFF, IGN power supply and ACC power supply.

And fulfills the conditions below.

- All the doors are closed.

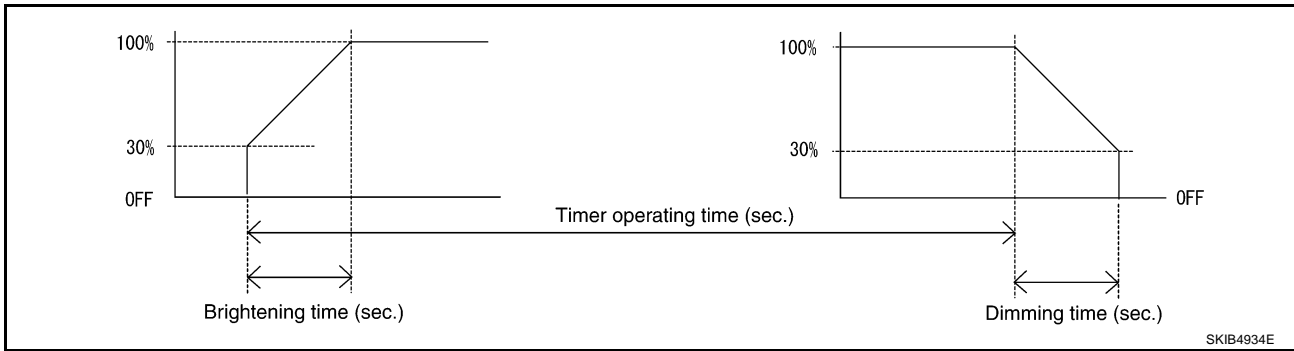
*:This setting can be changed by CONSULT-II. Refer to [LT-283, "WORK SUPPORT \(INT LAMP\)"](#) .

NOTE:

When timer operation signal is input during former timer operation, BCM goes for latter timer operation.

INTERIOR ROOM LAMP

ROOM LAMP TIMER OPERATING TIME



CONDITIONS FOR CANCELING TIMER

Timer operation is cancelled in any of the following conditions.

- Driver door is locked.
- Any door is opened.
- Turn ignition switch is ACC or ON.

ROOM LAMP TIMER INAPPLICABLE LAMPS OPERATION

- Step lamp system: step lamp (driver side, passenger side, rear LH and rear RH) and kicking plate illumination (driver side and passenger side).
Step lamp system lamps are ON/OFF linked with any door (driver side, passenger side, rear LH and rear RH) opened and then closed.
- Vanity mirror lamp LH and RH.
Operated side vanity mirror lamp is ON/OFF linked with vanity mirror opened and then closed.
- Trunk room lamp (lower) and trunk room lamp (upper).
Trunk room lamps (lower and upper) are ON/OFF linked with trunk opened and then closed.

INTERIOR ROOM LAMP BATTERY SAVER FUNCTION

Applicable lamps

- Room lamp system: map lamp, foot lamp (driver side and passenger side) and personal lamp (rear LH and rear RH).
- Step lamp system: step lamp (driver side, passenger side, rear LH and rear RH) and kicking plate illumination (driver side and passenger side).
- Vanity mirror lamp LH and RH.
- Trunk room lamp (lower) and trunk room lamp (upper).

If the any applicable lamp is left illuminated, BCM turns OFF the battery saver output power supply 30 or 60 minutes to prevent run down of the battery. (Factory setting time is 30 minutes. And timer setting can be changed by CONSULT-II. Refer to [LT-285, "WORK SUPPORT \(BATTERY SAVER\)"](#) .)

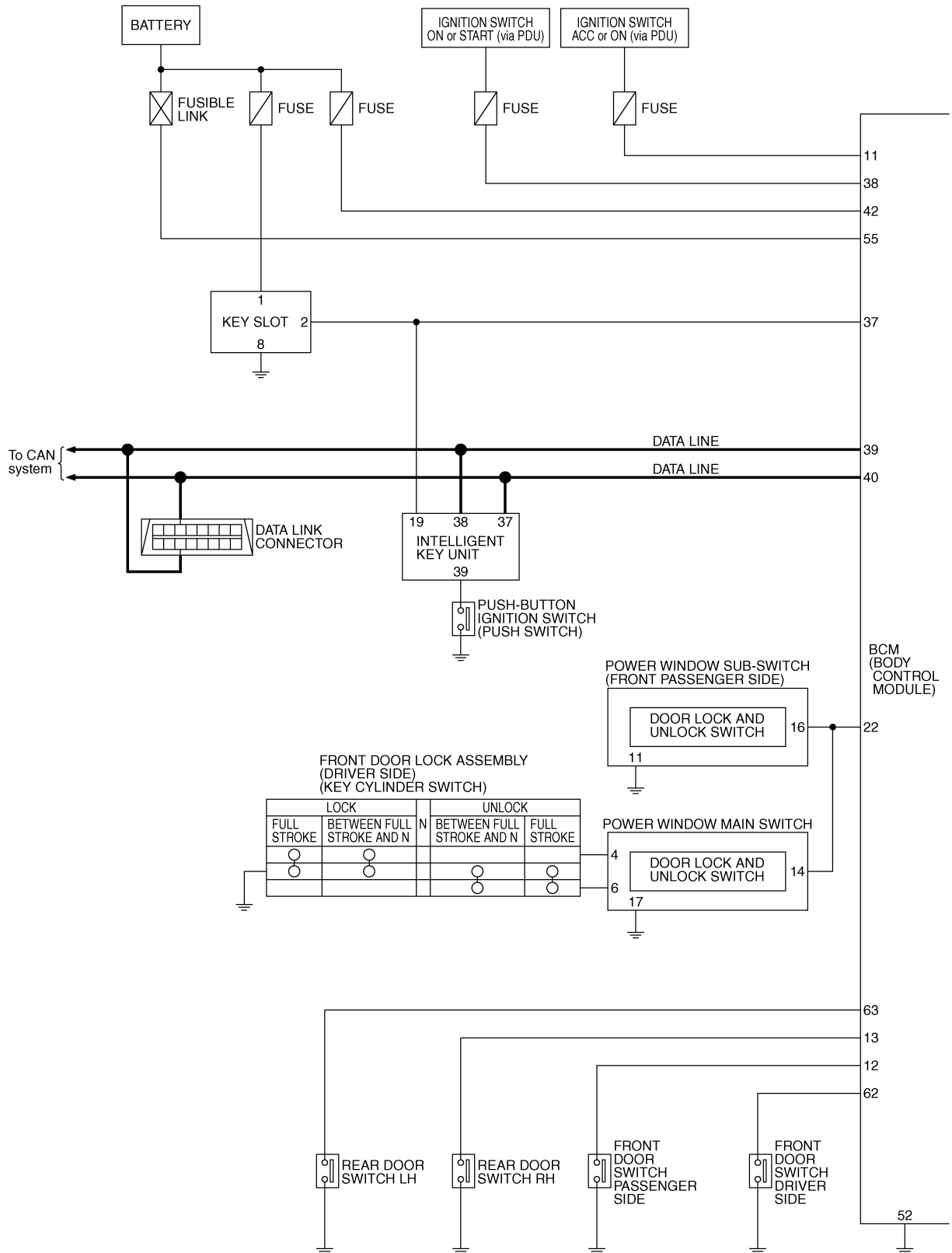
- When the push-button ignition switch (push switch) is turned from ON to OFF, the timer is activated.
- If any of the following door switch signal condition is changed with the push-button ignition switch (push switch) in OFF position, the timer is activated when the change is occurred.

Door switch signals (driver side, passenger side, rear LH and RH), front door lock assembly (driver side) (key cylinder switch) signal and Intelligent Key unlock signal.

INTERIOR ROOM LAMP

Schematic

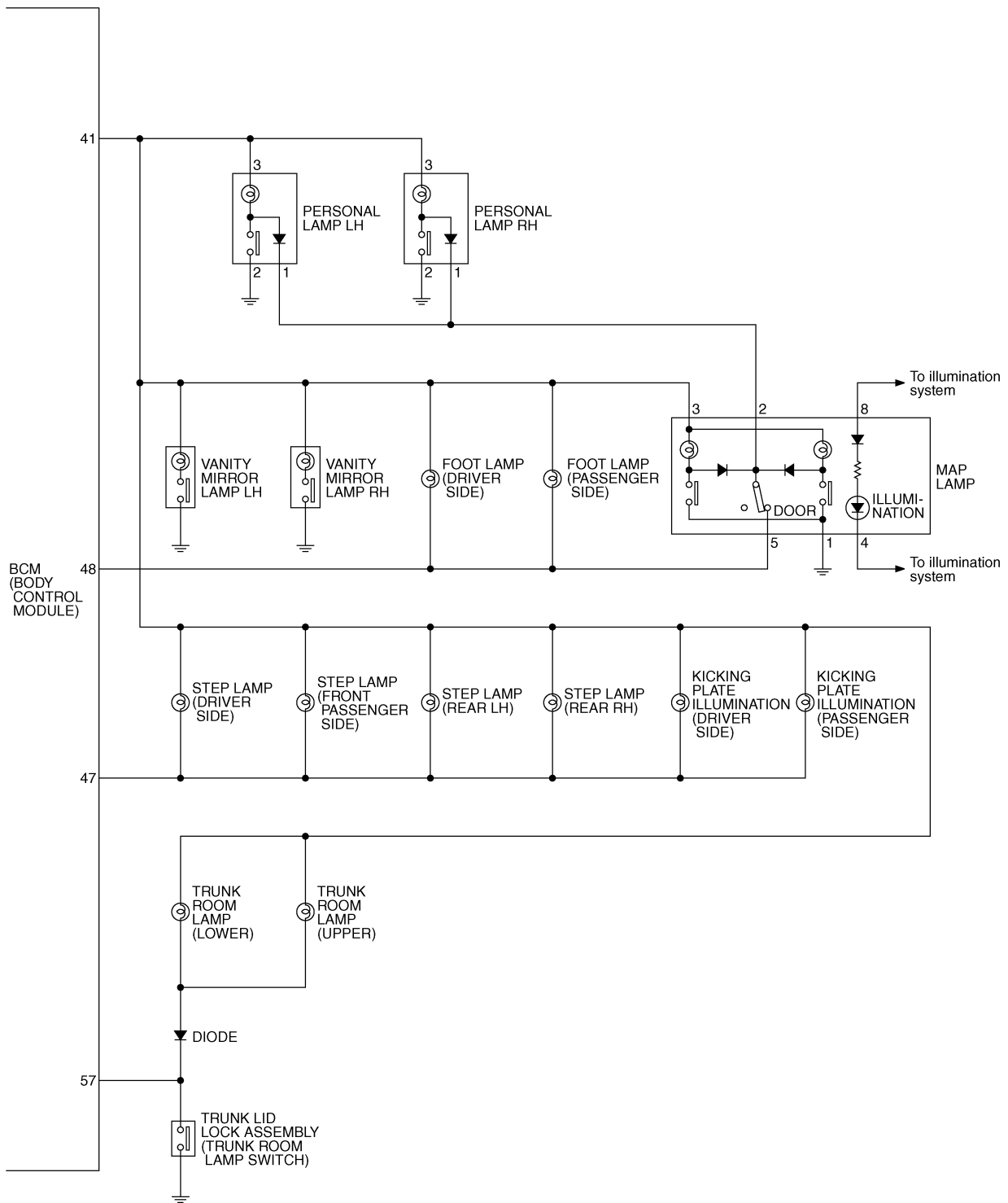
NKS003T2



A
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TKWT3400E

INTERIOR ROOM LAMP



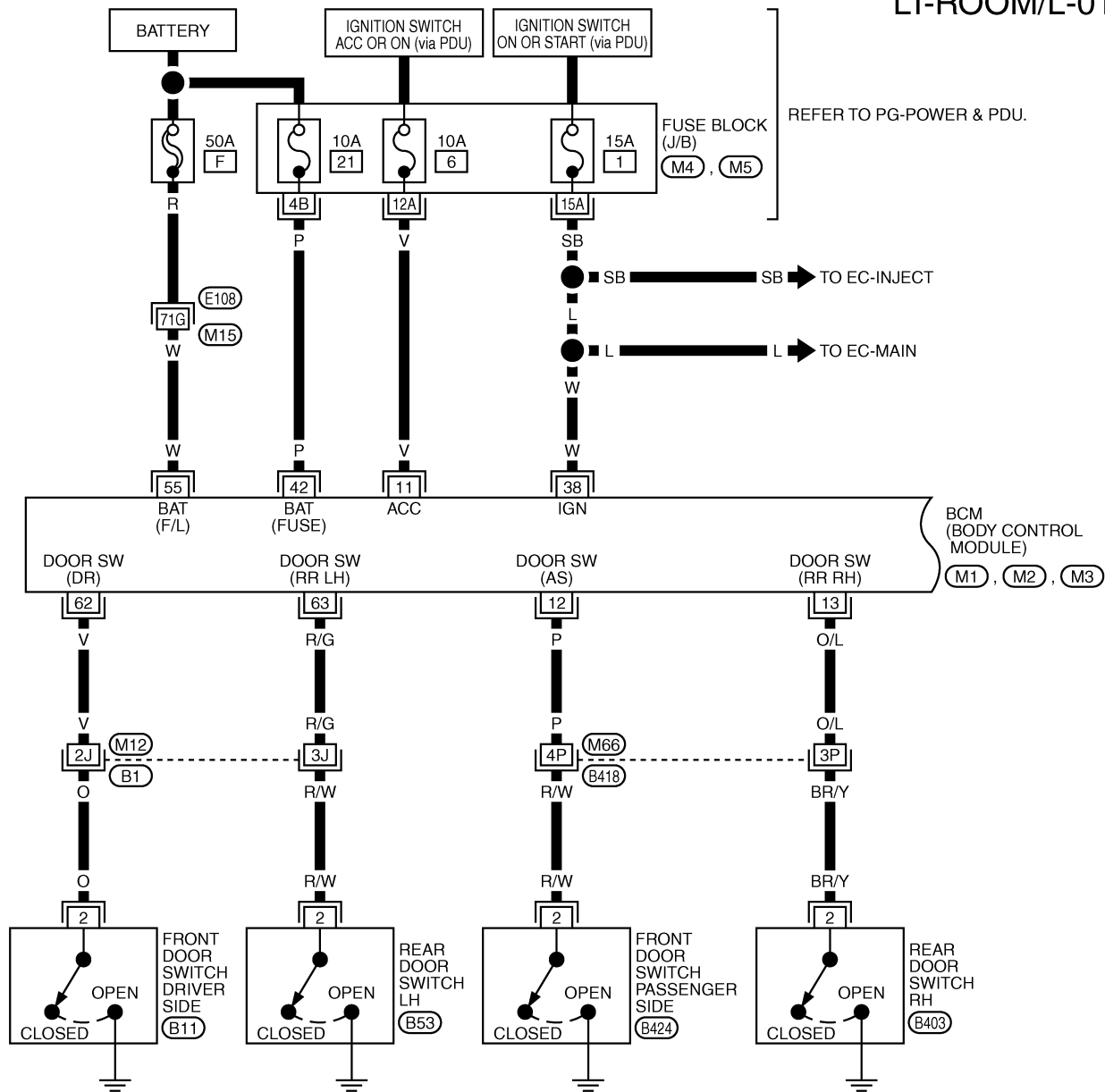
TKWT3401E

INTERIOR ROOM LAMP

Wiring Diagram — ROOM/L —

NKS003T3

LT-ROOM/L-01



1	
2	(B11), (B53), (B403), (B424)
3	W W W W

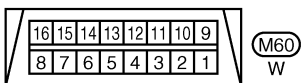
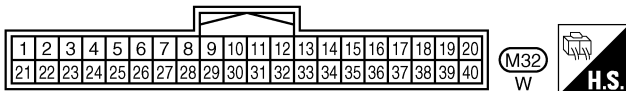
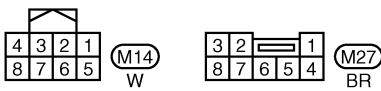
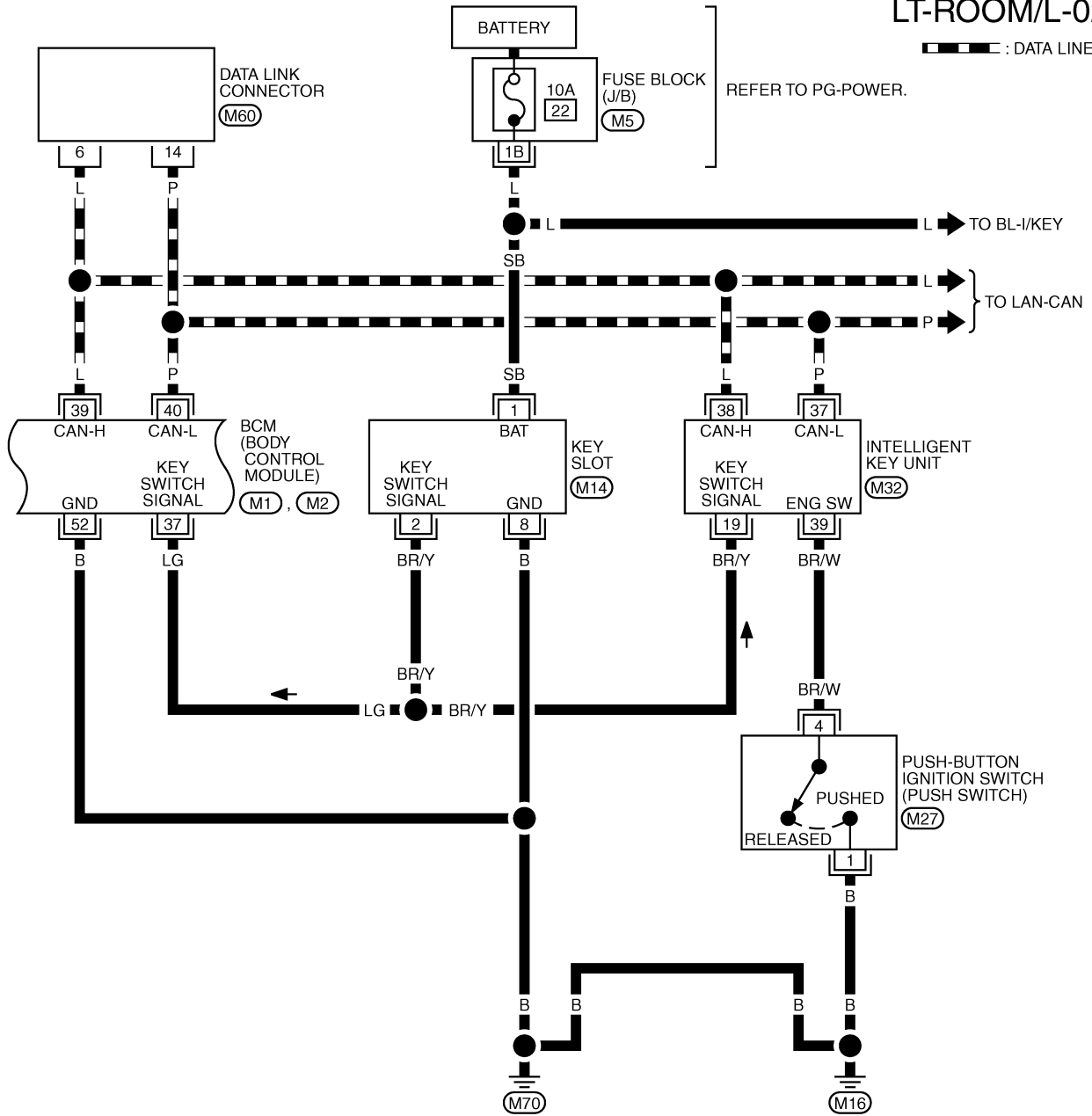
REFER TO THE FOLLOWING.
 (E108), (B1), (B418) -SUPER MULTIPLE JUNCTION (SMJ)
 (M4), (M5) -FUSE BLOCK-JUNCTION BOX (J/B)
 (M1), (M2), (M3) -ELECTRICAL UNITS

TKWT5269E

INTERIOR ROOM LAMP

LT-ROOM/L-02

▬ : DATA LINE

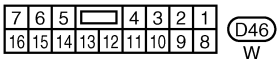
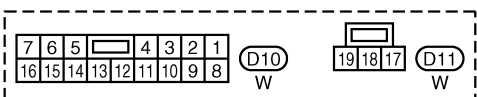
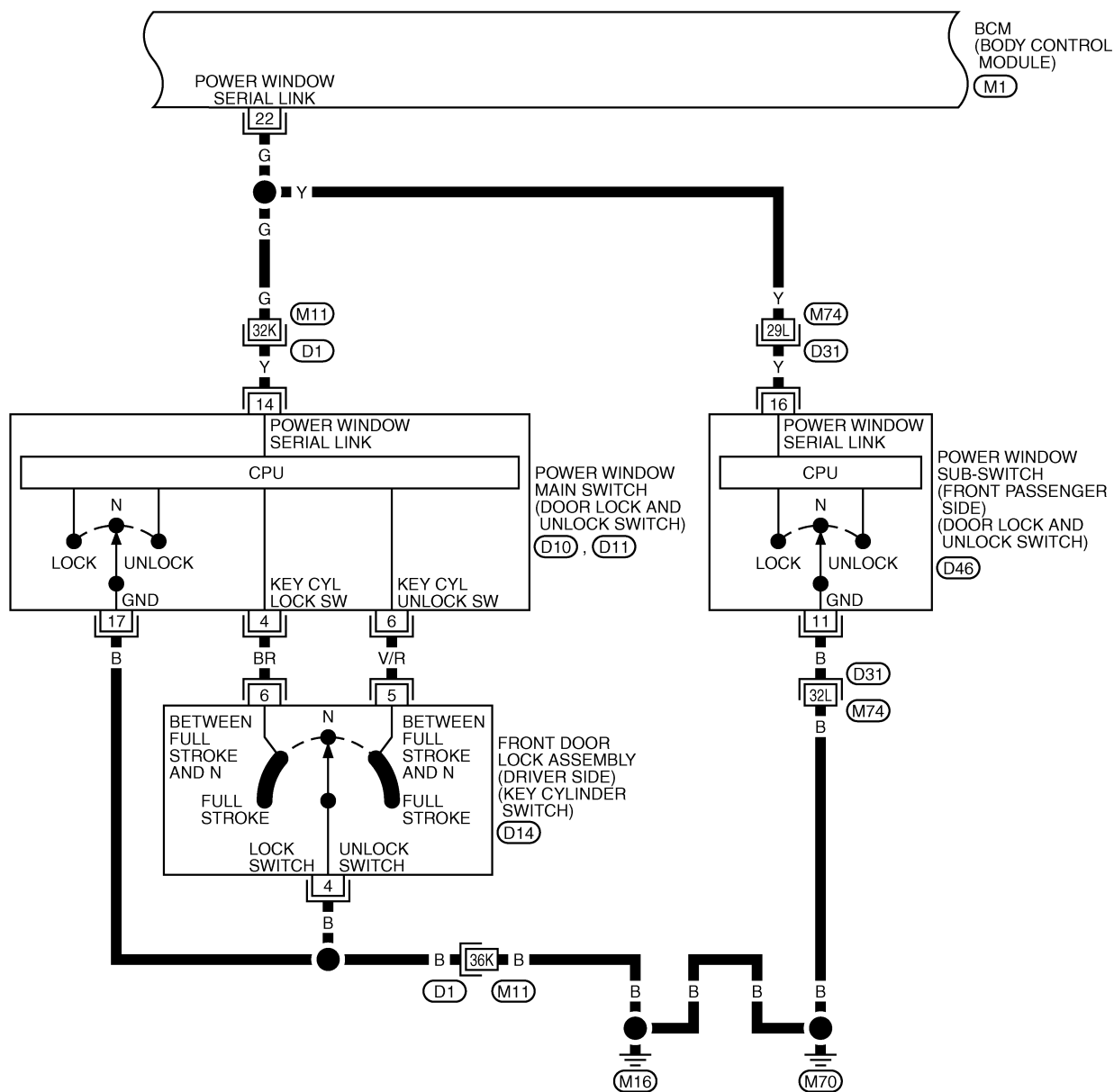


REFER TO THE FOLLOWING.
 (M5) - FUSE BLOCK-JUNCTION BOX (J/B)
 (M1), (M2) - ELECTRICAL UNITS

TKWT3403E

INTERIOR ROOM LAMP

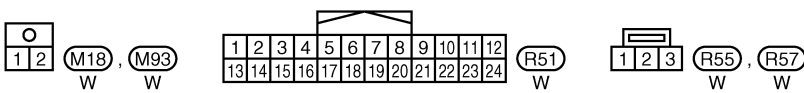
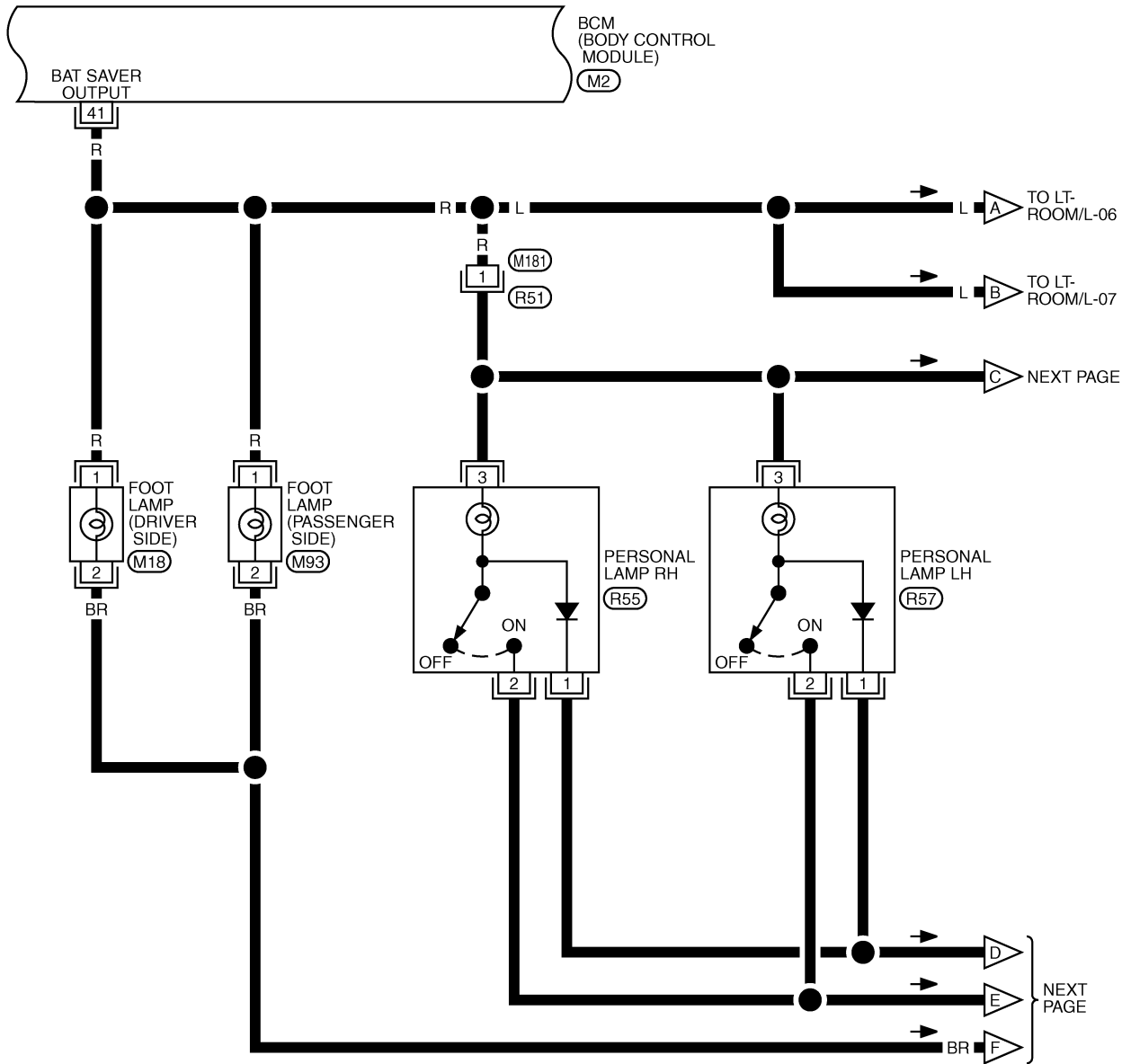
LT-ROOM/L-03



TKWT3404E

INTERIOR ROOM LAMP

LT-ROOM/L-04

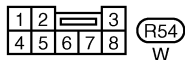
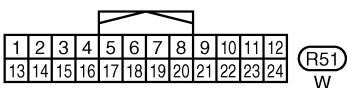
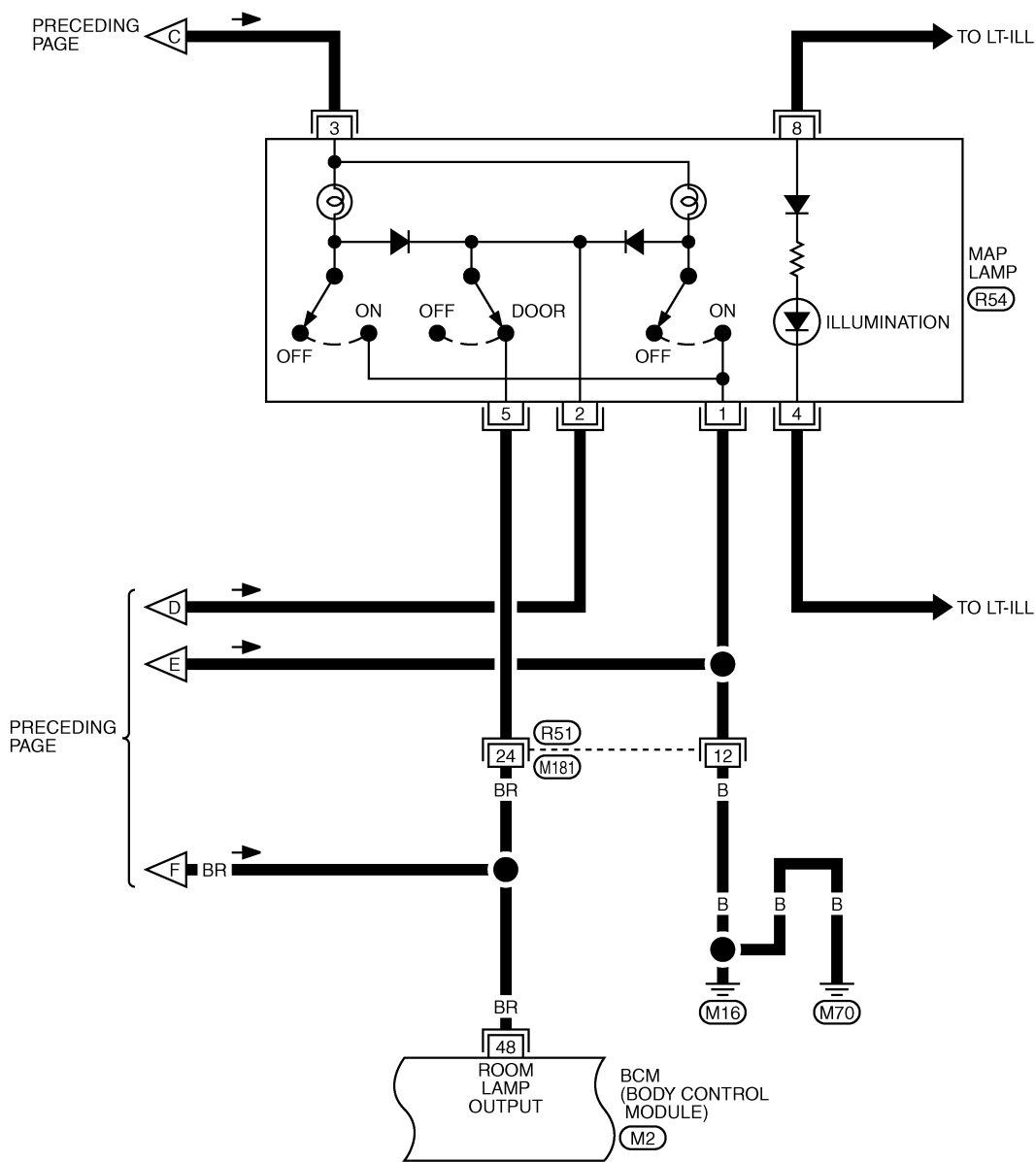


REFER TO THE FOLLOWING.
(M2) -ELECTRICAL UNITS

TKWT3405E

INTERIOR ROOM LAMP

LT-ROOM/L-05

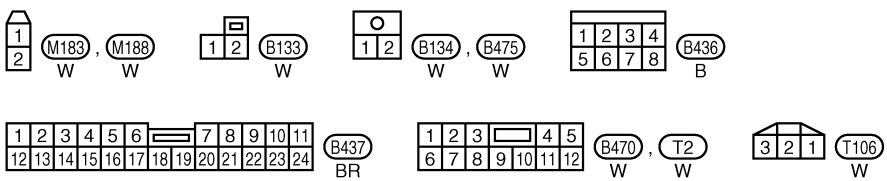
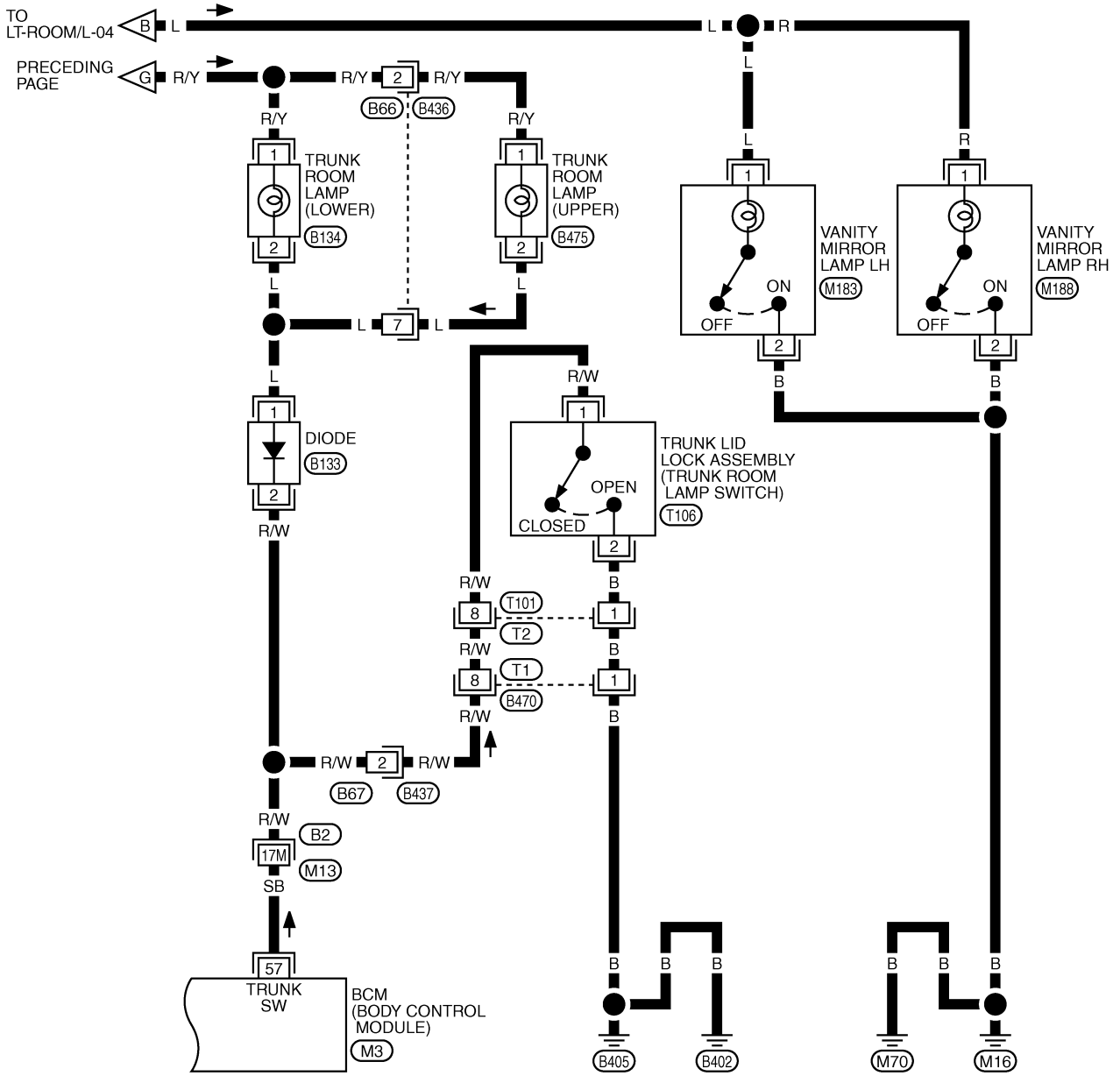


REFER TO THE FOLLOWING.
 (M2) -ELECTRICAL UNITS

TKWT3406E

INTERIOR ROOM LAMP

LT-ROOM/L-07



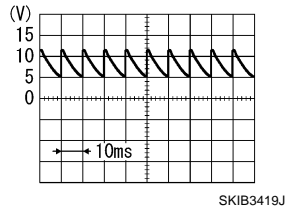
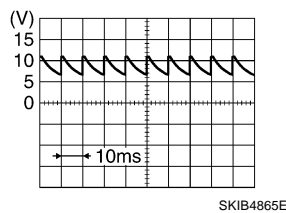
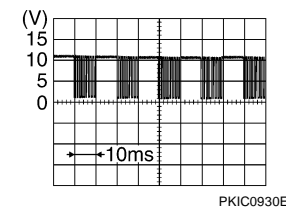
REFER TO THE FOLLOWING.
 (B2) -SUPER MULTIPLE JUNCTION (SMJ)
 (M3) -ELECTRICAL UNITS

TKWT5070E

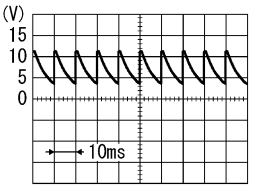
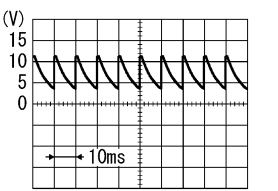
INTERIOR ROOM LAMP

Terminals and Reference Values for BCM

NKS003T4

Terminal No.	Wire color	Signal name	Measuring condition		Reference value	
			Ignition switch	Operation or condition		
11	V	Ignition switch (ACC)	ACC	—	Battery voltage	
12	P	Front door switch passenger side signal	OFF	Front door switch passenger side	ON (open)	Approx. 0 V
					OFF (closed)	 <p style="text-align: right; margin-right: 20px;">SKIB3419J</p> Approx. 8.0 - 8.5 V
13	O/L	Rear door switch RH signal	OFF	Rear door switch RH	ON (open)	Approx. 0 V
					OFF (closed)	 <p style="text-align: right; margin-right: 20px;">SKIB4865E</p> Approx. 8.5 - 9.0 V
22	G	Power window serial link	OFF	Power window main switch (door lock and unlock switch) and power window sub-switch (front passenger side) (door lock and unlock switch)	Lock or unlock switch ON	 <p style="text-align: right; margin-right: 20px;">PKIC0930E</p>
					OFF	<p>NOTE: 10 seconds just after door lock and unlock switch (driver side and passenger side) is turned "LOCK" or "UNLOCK".</p> Battery voltage
37	LG	Key switch signal	OFF	Intelligent Key is inserted into key slot.	Battery voltage	
				Intelligent Key is removed from key slot.	Approx. 0 V	
38	W	Ignition power supply	ON	—	Battery voltage	
39	L	CAN - H	—	—	—	
40	P	CAN - L	—	—	—	
41	R	BAT saver output signal	OFF	—	Battery voltage	
42	P	Battery power supply	OFF	—	Battery voltage	
47	V	Step lamp output signal	OFF	Any door switch	ON (open)	Approx. 0 V
					OFF (close)	Battery voltage
48	BR	Room lamp output signal	ON	Any door switch	ON (open)	Approx. 0 V
					OFF (close)	Battery voltage
			—	All doors are closed	Turn ignition switch ON → OFF	Approx. 0 V (When room lamp timer is operating)
					Turn ignition switch ON	Battery voltage

INTERIOR ROOM LAMP

Terminal No.	Wire color	Signal name	Measuring condition		Reference value	
			Ignition switch	Operation or condition		
52	B	Ground	ON	—	Approx. 0 V	
55	W	Battery power supply	OFF	—	Battery voltage	
57	SB	Trunk switch signal	OFF	Trunk room lamp switch	ON (open)	Approx. 0 V
					OFF (close)	Battery voltage
62	V	Front door switch driver side signal	OFF	Front door switch driver side	ON (open)	Approx. 0 V
					OFF (closed)	 <p>Approx. 7.5 - 8.0 V</p>
63	R/G	Rear door switch LH signal	OFF	Rear door switch LH	ON (open)	Approx. 0 V
					OFF (closed)	 <p>Approx. 7.5 - 8.0 V</p>

How to Perform Trouble Diagnoses

NKS003T5

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to [LT-266, "System Description"](#) .
3. Perform the Preliminary Check. Refer to [LT-282, "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

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INTERIOR ROOM LAMP

NKS00376

Preliminary Check CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES AND FUSIBLE LINK

Check for blown fuses and fusible link.

Unit	Power source	Fuse or fusible link No.
BCM	Battery	F
		21
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
Key slot	Battery	22

Refer to [LT-273. "Wiring Diagram — ROOM/L —"](#).

OK or NG

OK >> GO TO 2.

NG >> If fuse or fusible link is blown, be sure to eliminate cause of malfunction before installing new fuse or fusible link. Refer to [PG-3. "POWER SUPPLY ROUTING CIRCUIT"](#).

2. CHECK POWER SUPPLY CIRCUIT

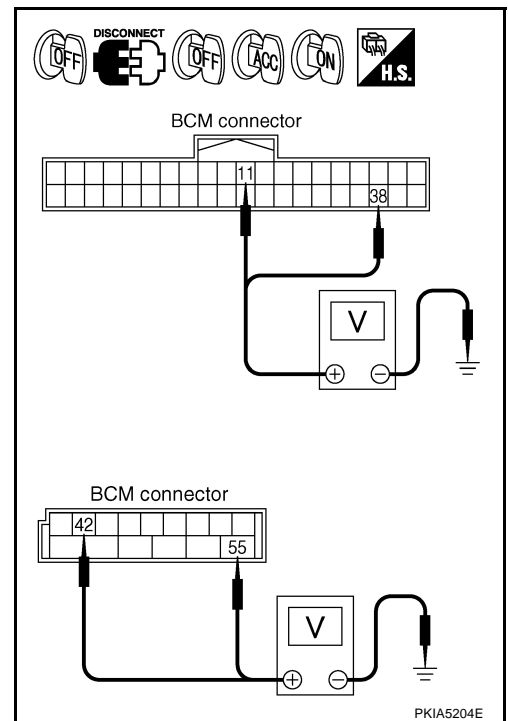
1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector and ground.

Terminal (+)		Terminal (-)	Ignition switch position		
BCM connector	Terminal		OFF	ACC	ON
M1	11	Ground	Approx. 0 V	Battery voltage	Battery voltage
	38		Approx. 0 V	Approx. 0 V	Battery voltage
M2	42		Battery voltage	Battery voltage	Battery voltage
	55		Battery voltage	Battery voltage	Battery voltage

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.



3. CHECK GROUND CIRCUIT

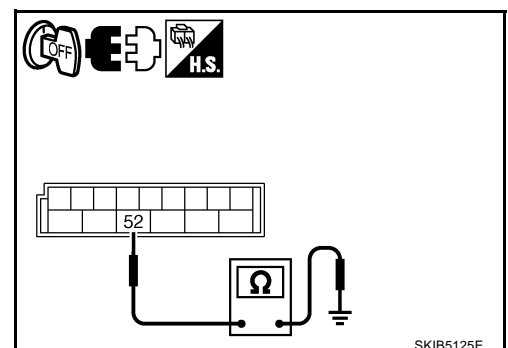
Check continuity between BCM harness connector and ground.

BCM connector	Terminal	Ground	Continuity
M2	52		Yes

OK or NG

OK >> INSPECTION END

NG >> Repair harness or connector.



INTERIOR ROOM LAMP

CONSULT-II Functions (BCM)

NKS00377

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

BCM diagnosis part	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.
BATTERY SAVER	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.
BCM	SELF-DIAG RESULTS	BCM performs self-diagnosis of CAN communication.
	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.

CONSULT-II BASIC OPERATION

Refer to [GI-38, "CONSULT-II Start Procedure"](#) .

WORK SUPPORT (INT LAMP)

Operation Procedure

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

Display Item List

Item	Description	CONSULT-II
ROOM LAMP TIMER SET	The lighting time can be selected when the interior room lamps are unlocked by Intelligent Key or any door request switch. ● Mode 1 (0 sec.)/Mode 2 (7.5 sec.)/Mode 3 ^{NOTE} (15 sec.)/Mode 4 (30 sec.)	MODE 1 – 4
SET I/L D-UNLCK INTCON	Room lamp timer operation can be selected. ● ON ^{NOTE} (Room lamp timer operates)/OFF (Room lamp timer does not operate)	ON/OFF
ROOM LAMP ON TIME SET	The time to escalate illumination can be selected when the interior room lamp is turned on. ● Mode 1 (0.5 sec.)/Mode 2 ^{NOTE} (1 sec.)/Mode 3 (2 sec.)/Mode 4 (3 sec.)/Mode 5 (4 sec.)/Mode 6 (5 sec.)/Mode 7 (0 sec.)	MODE 1 – 7
ROOM LAMP OFF TIME SET	The time to diminish illumination can be selected when the interior room lamp is turned off. ● Mode 1 (0.5 sec.)/Mode 2 (1 sec.)/Mode 3 (2 sec.)/Mode 4 ^{NOTE} (3 sec.)/Mode 5 (4 sec.)/Mode 6 (5 sec.)/Mode 7 (0 sec.)	MODE 1 – 7
R LAMP TIMER LOGIC SET	The lighting condition of room lamp timer can be selected when the door is opened/closed. ● Mode 1 ^{NOTE} (Connected with all doors)/Mode 2 (Connected with driver door only)	MODE 1 – 2
ROOM LAMP ON AT LOCK	The connected operation with room lamp timer can be selected when engine switch (push switch) is turned OFF. ● ON ^{NOTE} (Connected with room lamp timer operation) /OFF (Disconnected with room lamp operation)	ON/OFF

NOTE:

Factory setting

INTERIOR ROOM LAMP

DATA MONITOR (INT LAMP)

Operation Procedure

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

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

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

Display Item List

Monitor item	Contents
IGN ON SW "ON/OFF"	Displays "IGN ON position (ON)/OFF, ACC position (OFF)" judged from the ignition switch signal.
ACC ON SW "ON/OFF"	Displays "IGN ACC, ON position (ON)/OFF position (OFF)" status judged from the key switch signal.
KEY ON SW "ON/OFF"	Displays "Intelligent Key inserted into key slot (ON)/Intelligent Key removed from key slot (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.
DOOR SW - RR "ON/OFF"	Displays "door open (ON)/door closed (OFF)" status, determined from rear door switch RH signal.
DOOR SW - RL "ON/OFF"	Displays "door open (ON)/door closed (OFF)" status, determined from rear door switch LH signal.
BACK DOOR SW ^{NOTE} "OFF"	—
CDL LOCK SW "ON/OFF"	Displays "door locked (ON)/other (OFF)" status, determined from central door lock switch LOCK signal.
CDL UNLOCK SW "ON/OFF"	Displays "door unlocked (ON)/other (OFF)" status, determined from central door lock switch UNLOCK signal.
KEY CYL LK - SW "ON/OFF"	Displays "door locked (ON)" status, determined from key cylinder switch in driver door.
KEY CYL UN - SW "ON/OFF"	Displays "door unlocked (OFF)" status, determined from key cylinder switch in driver door.
I - KEY LOCK "ON/OFF"	Displays "locked (ON)/other (OFF)" status, determined from lock signal.
I - KEY UNLOCK "ON/OFF"	Displays "unlocked (ON)/other (OFF)" status, determined from unlock signal.
TRNK/HAT MNTR "ON/OFF"	Displays "trunk open (ON)/trunk close (OFF)" status, determined from trunk room lamp switch.
I - KEY DR UNLK "ON/OFF"	Displays "ON" when only driver door is unlocked or "OFF" other cases by intelligent Key or any door request switch, determined from unlock signal.
I - KEY AS UNLK "ON/OFF"	Displays "unlocked (ON)/locked (OFF)" states of passenger door by passenger side door request switch, determined from unlock signal.

NOTE:

This item is displayed, but cannot be monitored.

INTERIOR ROOM LAMP

ACTIVE TEST (INT LAMP)

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	Personal lamps and map lamps can be operated by any ON-OFF operations.
STEP LAMP TEST	Step lamp can be operated by any ON-OFF operations.

WORK SUPPORT (BATTERY SAVER)

Operation procedure

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

Display Item List

Item	Description	CONSULT-II
ROOM LAMP TIMER SET	Interior room lamp battery saver timer setting can be changed.	MODE 1: 30 min. MODE 2: 60 min.

DATA MONITOR (BATTERY SAVER)

Operation Procedure

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

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

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

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INTERIOR ROOM LAMP

Display Item List

Monitor item	Contents
IGN ON SW "ON/OFF"	Displays "IGN ON position (ON)/OFF, ACC position (OFF)" judged from the ignition switch signal.
ACC ON SW "ON/OFF"	Displays "IGN ACC, ON position (ON)/OFF position (OFF)" status judged from the key switch signal.
KEY ON SW "ON/OFF"	Displays "Intelligent Key inserted into key slot (ON)/Intelligent Key removed from key slot (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.
DOOR SW - RR "ON/OFF"	Displays "door open (ON)/door closed (OFF)" status, determined from rear door switch RH signal.
DOOR SW - RL "ON/OFF"	Displays "door open (ON)/door closed (OFF)" status, determined from rear door switch LH signal.
BACK DOOR SW ^{NOTE} "OFF"	—
CDL LOCK SW "ON/OFF"	Displays "door locked (ON)/other (OFF)" status, determined from central door lock switch LOCK signal.
CDL UNLOCK SW "ON/OFF"	Displays "door unlocked (ON)/other (OFF)" status, determined from central door lock switch UNLOCK signal.
KEY CYL LK – SW "ON/OFF"	Displays "door locked (ON)" status, determined from key cylinder switch in driver door.
KEY CYL UN – SW "ON/OFF"	Displays "door unlocked (OFF)" status, determined from key cylinder switch in driver door.
I - KEY LOCK "ON/OFF"	Displays "locked (ON)/other (OFF)" status, determined from lock signal.
I - KEY UNLOCK "ON/OFF"	Displays "unlocked (ON)/other (OFF)" status, determined from unlock signal.
TRNK/HAT MNTR "ON/OFF"	Displays "trunk open (ON)/trunk close (OFF)" status, determined from trunk room lamp switch.
I - KEY DR UNLK "ON/OFF"	Displays "ON" when only driver door is unlocked or "OFF" other cases by Intelligent Key or any door request switch, determined from unlock signal.
I - KEY AS UNLK "ON/OFF"	Displays "unlocked (ON)/locked (OFF)" states of passenger door by passenger side door request switch, determined from unlock signal.

NOTE:

This item is displayed, but cannot be monitored.

ACTIVE TEST (BATTERY SAVER)

Operation Procedure

1. Touch "BATTERY SAVER" 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
BATTERY SAVER	Personal lamps and map lamps can be operated by any ON-OFF operations.

INTERIOR ROOM LAMP

Interior Room Lamp Control Does Not Operate

NKS00378

1. SELF-DIAGNOSIS

④ With CONSULT-II

1. Select "BCM" on CONSULT-II. Select "BCM" on "SELECT TEST ITEM" screen.
2. Select "SELF-DIAG RESULTS" on "SELECT DIAG MODE" screen.

SELF-DIAG RESULTS			
DTC RESULTS		TIME	
CAN COMM CIRCUIT [U1000]			
ERASE		PRINT	
MODE	BACK	LIGHT	COPY

PKIA7627E

⊗ Without CONSULT-II
GO TO 2.

Self-diagnostic result

NO DTC>>GO TO 2.

CAN communication>>Check CAN communication system of BCM. Refer to [PG-30, "Inspection with CONSULT-II \(Self-Diagnosis\)"](#).

2. CHECK CIRCUIT BETWEEN EACH SWITCH AND BCM

④ With CONSULT-II

1. Select "BCM" on CONSULT-II. Select "INT LAMP" on "SELECT TEST ITEM" screen.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen.
3. Make sure switches turn ON-OFF linked with switch operation. Refer to [LT-284, "Display Item List"](#) for switches and their functions.

DATA MONITOR			
MONITOR			
IGN ON SW	ON		
KEY ON SW	ON		
DOOR SW-DR	ON		
DOOR SW-AS	ON		
DOOR SW-RR	OFF		
DOOR SW-RL	OFF		
BACK DOOR SW	OFF		
KEY CYL LK-SW	OFF		
KEY CYL UN-SW	OFF		
		Page Down	
		RECORD	
MODE	BACK	LIGHT	COPY

PKIA3532E

⊗ Without CONSULT-II

Check each switch. Refer to [BL-94, "Check Door Switch"](#).

OK or NG

OK >> GO TO 3.

NG >> Inspect malfunctioning switch system. Refer to [BL-94, "Check Door Switch"](#).

3. CHECK CIRCUIT BETWEEN BCM AND LAMP (1)

④ With CONSULT-II

1. Set map lamp switch and rear personal lamp switches to DOOR.
2. Select "BCM" on CONSULT-II. Select "INT LAMP" on "SELECT TEST ITEM" screen.
3. Select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
4. Check map lamps, personal lamps LH and RH operation.

Map lamps, personal lamps LH and RH operate normally.

⊗ Without CONSULT-II

GO TO 4.

OK or NG

OK >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#).

NG >> GO TO 4.

ACTIVE TEST			
INT LAMP		ON	
		OFF	
MODE	BACK	LIGHT	COPY

PKIA6881E

INTERIOR ROOM LAMP

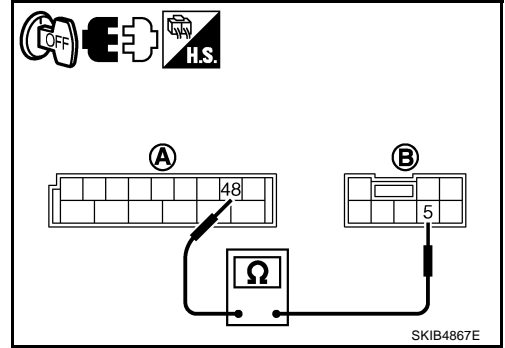
4. CHECK CIRCUIT BETWEEN BCM AND MAP LAMP (2)

1. Turn ignition switch OFF.
2. Disconnect BCM connector and map lamp connector.
3. Check continuity between BCM harness connector (A) and map lamp harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
M2	48	R54	5	Yes

OK or NG

- OK >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#) . (Reconnect BCM connector and check the operation of map lamp. If it is faulty, replace BCM.)
- NG >> Repair harness or connector between BCM and map lamp.



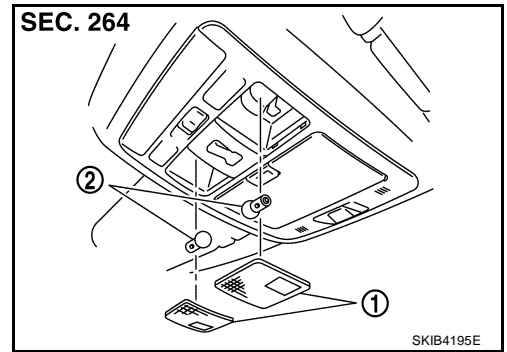
INTERIOR ROOM LAMP

Map Lamp BULB REPLACEMENT

NKS003T9

1. Remove lens (1) using clip driver or suitable tool.
2. Remove bulb (2).

Map lamp : 12V - 8 W



REMOVAL AND INSTALLATION

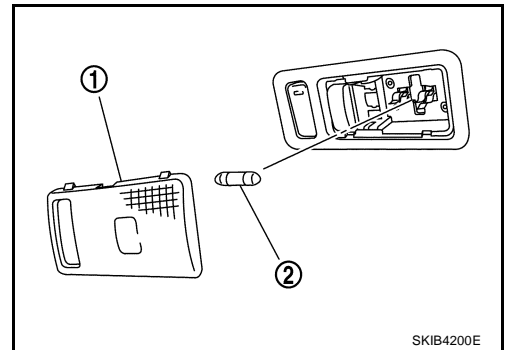
Refer to [EI-52, "HEADLINING"](#).

Personal Lamp BULB REPLACEMENT

NKS003TA

1. Insert a screwdriver or similar tool and remove lens (1).
2. Remove bulb (2).

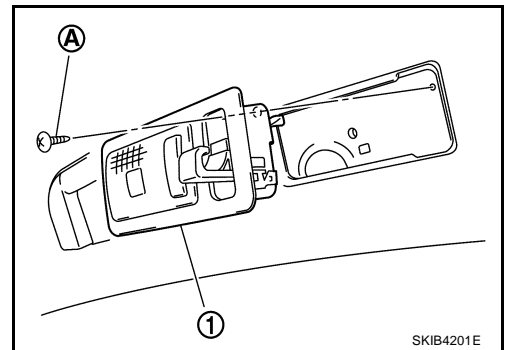
Personal lamp : 12V - 8W



REMOVAL AND INSTALLATION

Removal

1. Remove screw (A).
2. Use a clip driver or similar tool and remove personal lamp (1).
3. Disconnect connector.



Installation

Installation is the reverse order of removal.

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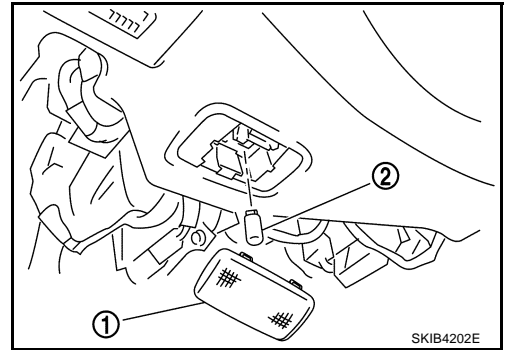
INTERIOR ROOM LAMP

Foot Lamp (Driver Side) BULB REPLACEMENT

NKS003TB

1. Insert a screwdriver or similar tool and remove lens (1).
2. Remove bulb (2).

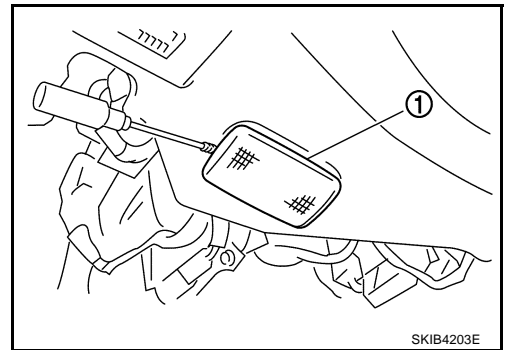
Foot lamp (Driver side) : 12V - 3.4W



REMOVAL AND INSTALLATION

Removal

1. Use a clip driver or similar tool and remove foot lamp (driver side) (1).
2. Disconnect connector.



Installation

Installation is the reverse order of removal.

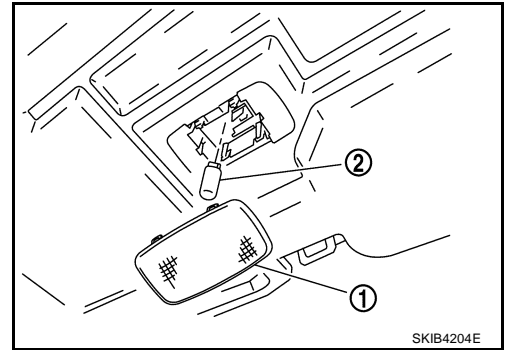
INTERIOR ROOM LAMP

Foot Lamp (Passenger Side) BULB REPLACEMENT

NKS003TC

1. Insert a screwdriver or similar tool and remove lens (1).
2. Remove bulb (2).

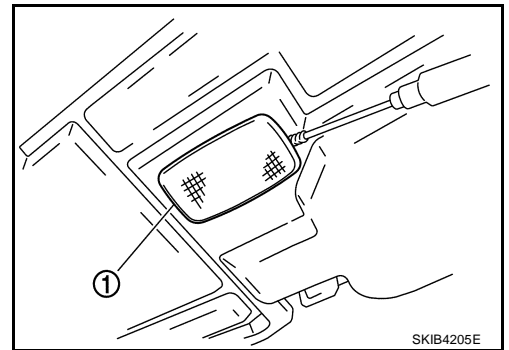
Foot lamp (Passenger side) : 12V - 3.4W



REMOVAL AND INSTALLATION

Removal

1. Use a clip driver or similar tool and remove foot lamp (passenger side) (1).
2. Disconnect connector.



Installation

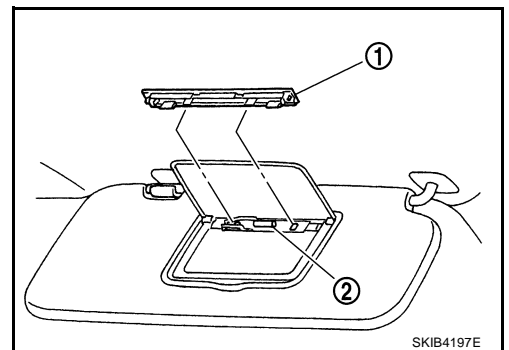
Installation is the reverse order of removal.

Vanity Mirror Lamp BULB REPLACEMENT

NKS003TD

1. Insert a thin screwdriver in the lens end and remove lens (1).
2. Remove bulb (2).

Vanity mirror lamp : 12V - 1.8 W



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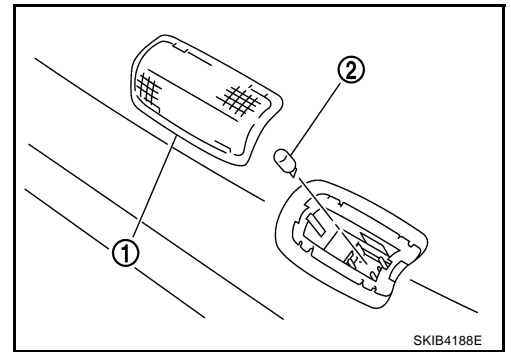
INTERIOR ROOM LAMP

Step Lamp BULB REPLACEMENT

NKS003TE

1. Insert a screwdriver or similar tool and remove lens (1).
2. Remove bulb.

Step lamp : 12V - 5W



REMOVAL AND INSTALLATION

Remove step lamp integral with door trim. Refer to [EI-37, "Removal and Installation"](#) .

Kicking Plate Illumination BULB REPLACEMENT

NKS003TF

Replacement integral with front kicking plate inner.

REMOVAL AND INSTALLATION

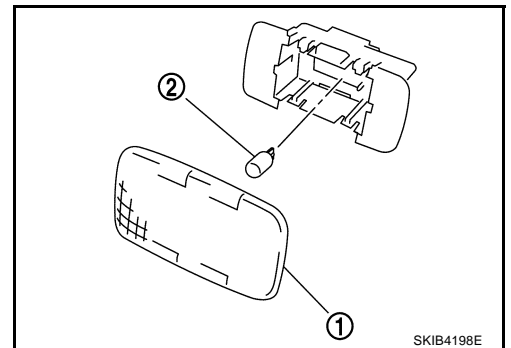
Remove integral with front kicking plate inner. Refer to [EI-37, "Removal and Installation"](#) .

Trunk Room Lamp (Upper/Lower) BULB REPLACEMENT

NKS003TG

1. Insert a screwdriver or similar tool and remove lens (1).
2. Remove bulb (2).

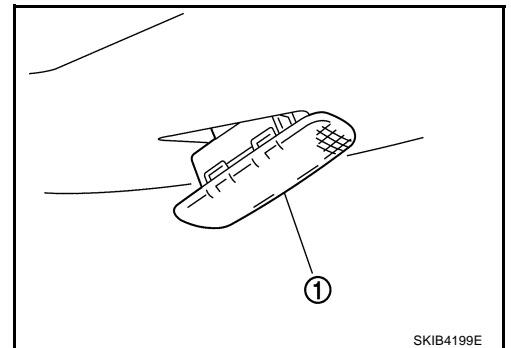
Trunk room lamp (upper/lower) : 12V - 5W



REMOVAL AND INSTALLATION

Removal

1. Insert a screwdriver or similar tool and remove trunk room lamp (1).
2. Disconnect connector.



Installation

Installation is the reverse order of removal.

ILLUMINATION

PFP:27545

System Description

NKS003TH

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

OUTLINE

Power is supplied at all times

- through 15A fuse (No. 71, located in IPDM E/R)
- to tail lamp relay, located in IPDM E/R, and
- to CPU located in IPDM E/R,
- through 15A fuse (No. 78, located in IPDM E/R)
- to CPU located in IPDM E/R,
- through 50A fusible link (letter F, located in fuse, fusible link and relay block)
- to BCM terminal 55,
- through 10A fuse [No. 21, located in fuse block (J/B)]
- to BCM terminal 42 and
- to combination meter terminal 23,
- through 10A fuse [No. 19, located in fuse block (J/B)]
- to unified meter and A/C amp. terminal 54,
- through 10A fuse [No. 22, located in fuse block (J/B)]
- to intelligent key unit terminals 1, 41 and 57.

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

- through 15A fuse [No. 1, located in fuse block (J/B)]
- to BCM terminal 38,
- through 10A fuse [No. 14, located in fuse block (J/B)]
- to combination meter terminal 12,
- through 10A fuse [No. 12, located in fuse block (J/B)]
- to unified meter and A/C amp. terminal 53 and
- to rear sunshade cancel relay terminal 1.

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

- through 10A fuse [No. 6, located in fuse block (J/B)]
- to BCM terminal 11
- to unified meter and A/C amp. terminal 41 and
- to combination meter terminal 2.

Ground is supplied

- to BCM terminal 52
- to unified meter and A/C amp. terminals 55 and 71
- to combination meter terminals 9, 10, and 11
- to Intelligent Key unit terminals 20, 40, 56 and 72, and
- to illumination control switch terminal 3
- through grounds M16 and M70,
- to IPDM E/R terminals 38 and 51
- through grounds E22 and E43.

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ILLUMINATION

ILLUMINATION OPERATION BY LIGHTING SWITCH

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

- through IPDM E/R terminal 21
- to combination meter terminal 13
- to LDW switch (illumination) terminal 5 (with lane departure warning)
- to VDC off switch (illumination) terminal 3
- to trunk lid opener switch (illumination) terminal 3
- to combination switch (spiral cable) terminal 24
- to door mirror remote control switch (illumination) terminal 16
- to AFS switch (illumination) terminal 5 (with AFS)
- to rear sunshade front switch (illumination) terminal 5 (with rear control switch)
- to A/T illumination terminal 1
- to snow mode switch (illumination) terminal 5 (AWD models)
- to rear control cancel switch (illumination) terminal 4 (with rear control switch)
- to clock terminal 3
- to multifunction switch terminal 3
- to audio unit terminal 9
- to DVD player terminal 18 (with DVD player)
- to NAVI control unit terminal 61 (with navigation system)
- to AV control unit terminal 61 (without navigation system)
- to climate controlled seat switch driver side (illumination) terminal 7 (with climate controlled seat)
- to climate controlled seat switch passenger side (illumination) terminal 7 (with climate controlled seat)
- to ashtray illumination (rear LH) terminal 1
- to ashtray illumination (rear RH) terminal 1
- to illumination control switch terminal 1
- to cigarette lighter socket (illumination) terminal 2
- to map lamp (illumination) terminal 8
- to power window main switch illumination terminal 1
- to glove box lamp terminal 1
- to rear control switch terminal 2
- to rear power seat switch RH (illumination) terminal 4 (with rear control switch)
- to rear heated seat switch RH (illumination) terminal 7 (with rear control switch)
- to rear sunshade cancel relay terminal 6 (with rear control switch)
- to automatic return cancel switch (illumination) terminal 4 (with rear control switch)
- to rear power seat switch LH (illumination) terminal 4 (with rear control switch) and
- to rear heated seat switch LH (illumination) terminal 7 (with rear control switch),
- through Intelligent Key unit terminal 12
- to push button ignition switch (illumination) terminal 3.

Ground is supplied

- to combination meter terminal 14
- to combination meter terminal 9, 10 and 11
- to push button ignition switch (illumination) terminal 2
- to LDW switch (illumination) terminal 4 (with lane departure warning)
- to VDC off switch (illumination) terminal 4
- to trunk lid opener switch (illumination) terminal 4
- to combination switch (spiral cable) terminal 25

ILLUMINATION

- to door mirror remote control switch (illumination) terminal 15
- to AFS switch (illumination) terminal 6 (with AFS)
- to rear sunshade front switch (illumination) terminal 6 (with rear control switch)
- to A/T illumination terminal 2
- to snow mode switch (illumination) terminal 6 (ADW models)
- to rear control cancel switch (illumination) terminal 5 (with rear control switch)
- to clock terminal 4
- to multifunction switch terminal 4
- to audio unit terminal 8
- to DVD player terminal 17 (With DVD player)
- to climate controlled seat switch driver side (illumination) terminal 8 (with climate controlled seat) and
- to climate controlled seat switch passenger side (illumination) terminal 8 (with climate controlled seat)
- through illumination control switch terminal 2
- to illumination control switch terminal 3
- through grounds M16 and M70,
- to cigarette lighter socket (illumination) terminal 1
- to map lamp (illumination) terminal 4
- to power window main switch illumination terminal 2 and
- to glove box lamp terminal 2
- through grounds M16 and M70,
- to ashtray illumination (rear RH) terminal 2
- through grounds B402, B405,
- to ashtray illumination (rear LH) terminal 2
- to automatic return cancel switch (illumination) terminal 2 (With rear control switch)
- to rear power seat switch LH (illumination) terminal 3 (With rear control switch)
- to rear heated seat switch LH (illumination) terminal 8 (With rear control switch)
- through grounds B5, B40 and B131,
- through rear sunshade cancel relay terminal 7(With rear control switch)
- to rear sunshade rear switch (illumination) terminal 7 (With rear control switch)
- through grounds B5, B40, B131 and B559.
- to rear control switch terminal 4
- to rear power seat switch RH (illumination) terminal 3 (With rear control switch)
- to rear heated seat switch RH (illumination) terminal 8 (With rear control switch)
- through grounds B5, B40, B131 and B559.

With power and ground supplied, illumination lamps illuminate.

EXTERIOR LAMP BATTERY SAVER CONTROL

BCM activates the exterior lamp battery saver control function and turns off the exterior lamps to prevent battery from over discharge when the combination switch (lighting switch) is in 1ST or 2ND position and/or the front fog lamp switch ON and the door lock operation is performed by keyless entry system.

CAN Communication System Description

NKS0037I

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

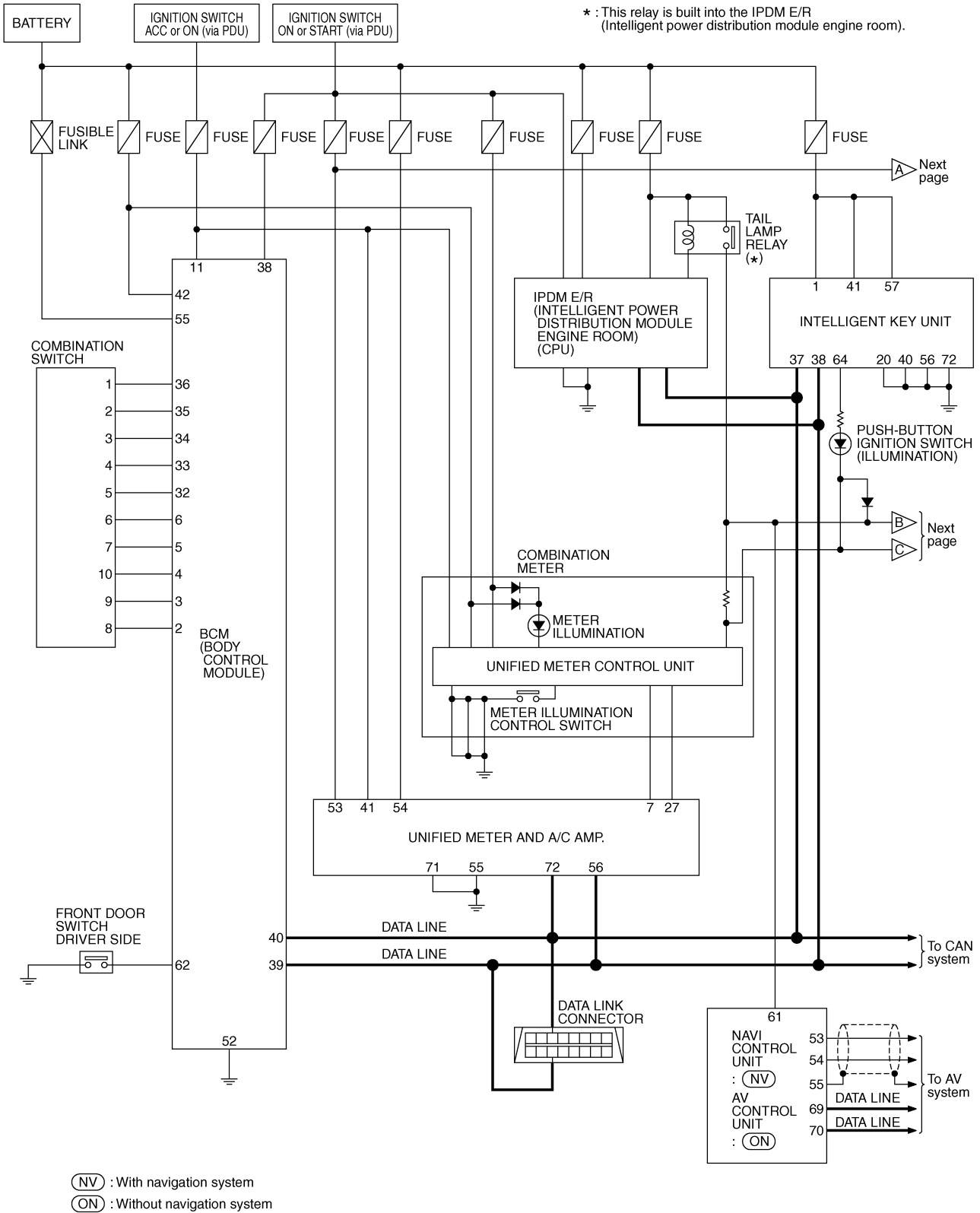
NKS0037J

Refer to [LAN-50, "CAN System Specification Chart"](#) .

ILLUMINATION

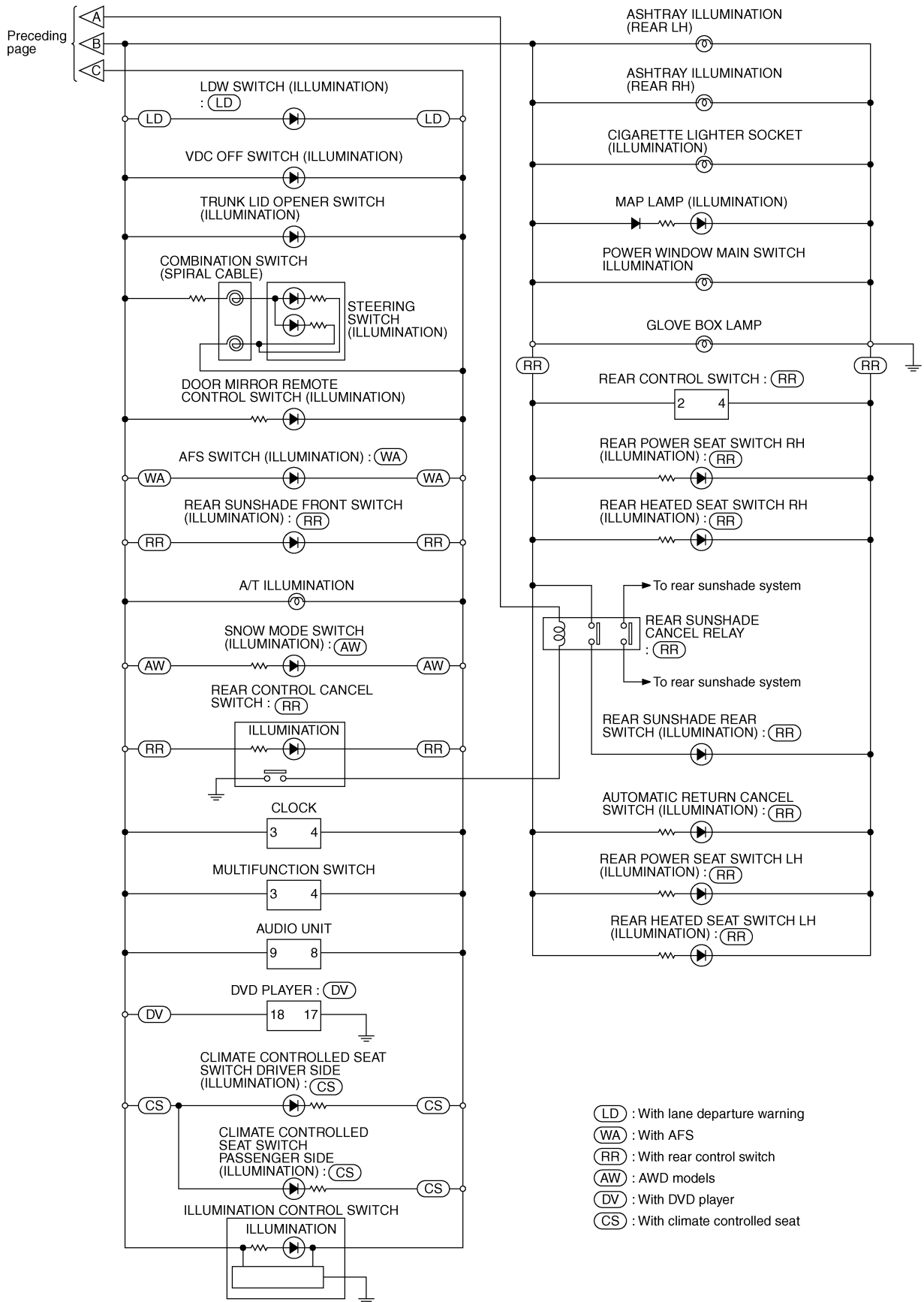
Schematic

NKS003TK



TKWT5071E

ILLUMINATION



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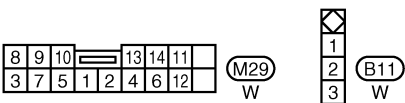
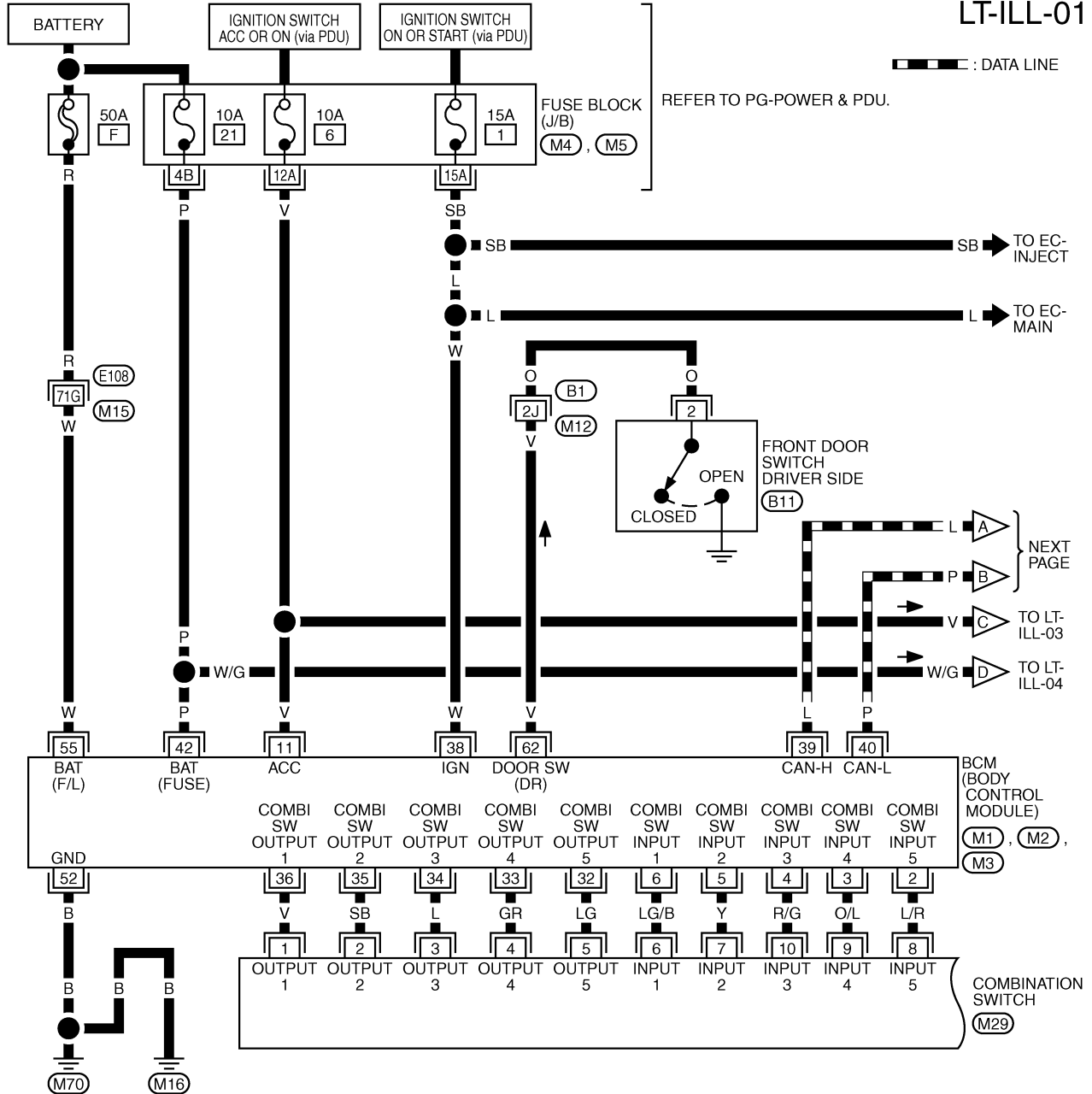
TKWT5072E

ILLUMINATION

Wiring Diagram — ILL —

NKS003TL

LT-ILL-01

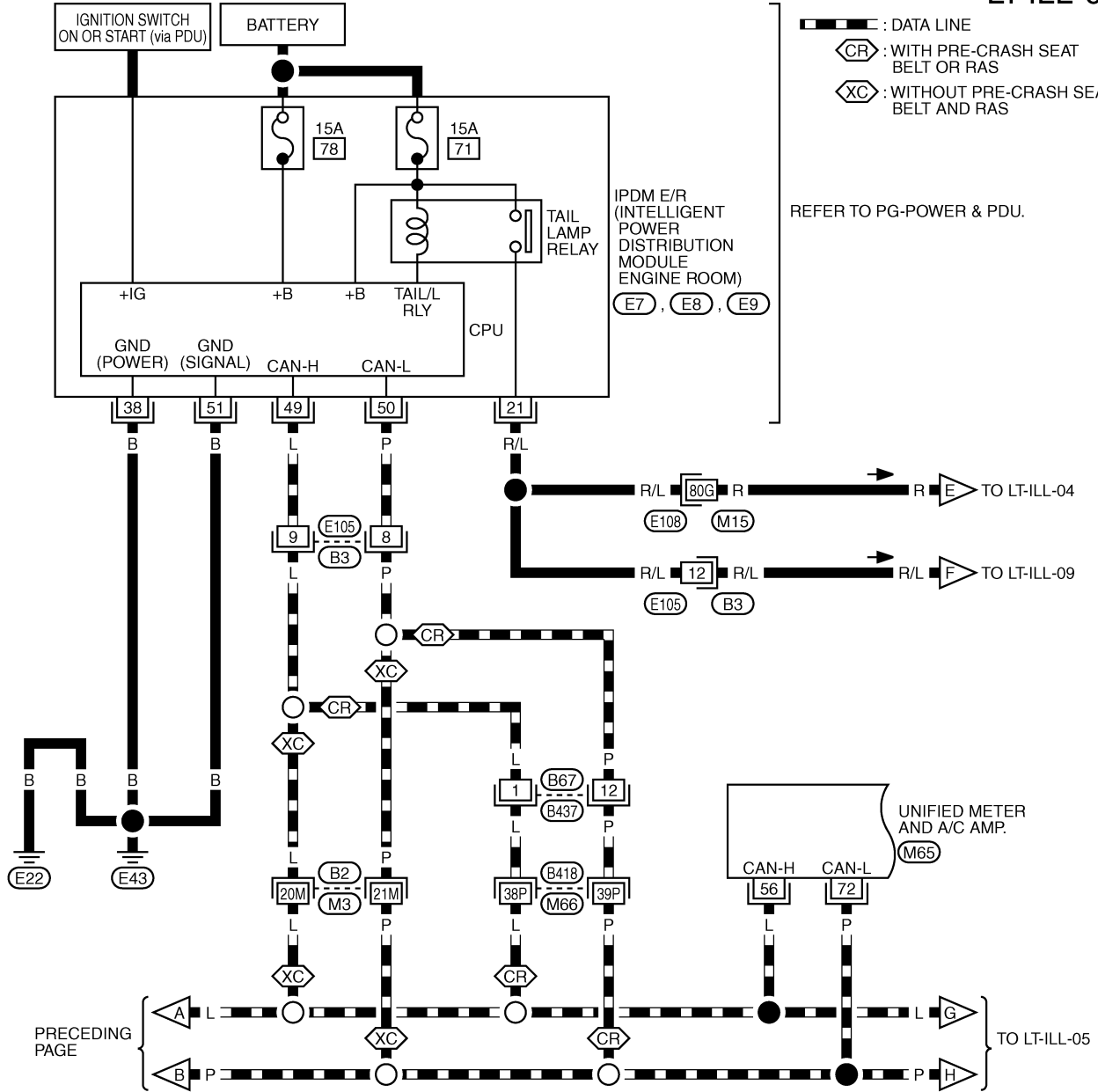


REFER TO THE FOLLOWING.
 (E108), (B1) -SUPER MULTIPLE JUNCTION (SMJ)
 (M4), (M5) -FUSE BLOCK-JUNCTION BOX (J/B)
 (M1), (M2), (M3) -ELECTRICAL UNITS

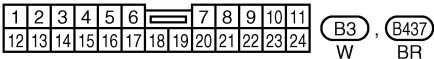
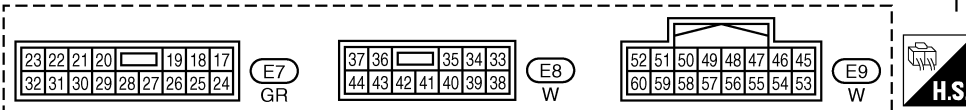
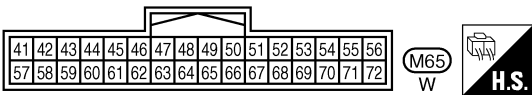
TKWT5073E

ILLUMINATION

LT-ILL-02



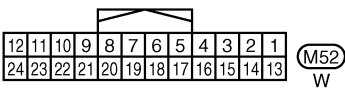
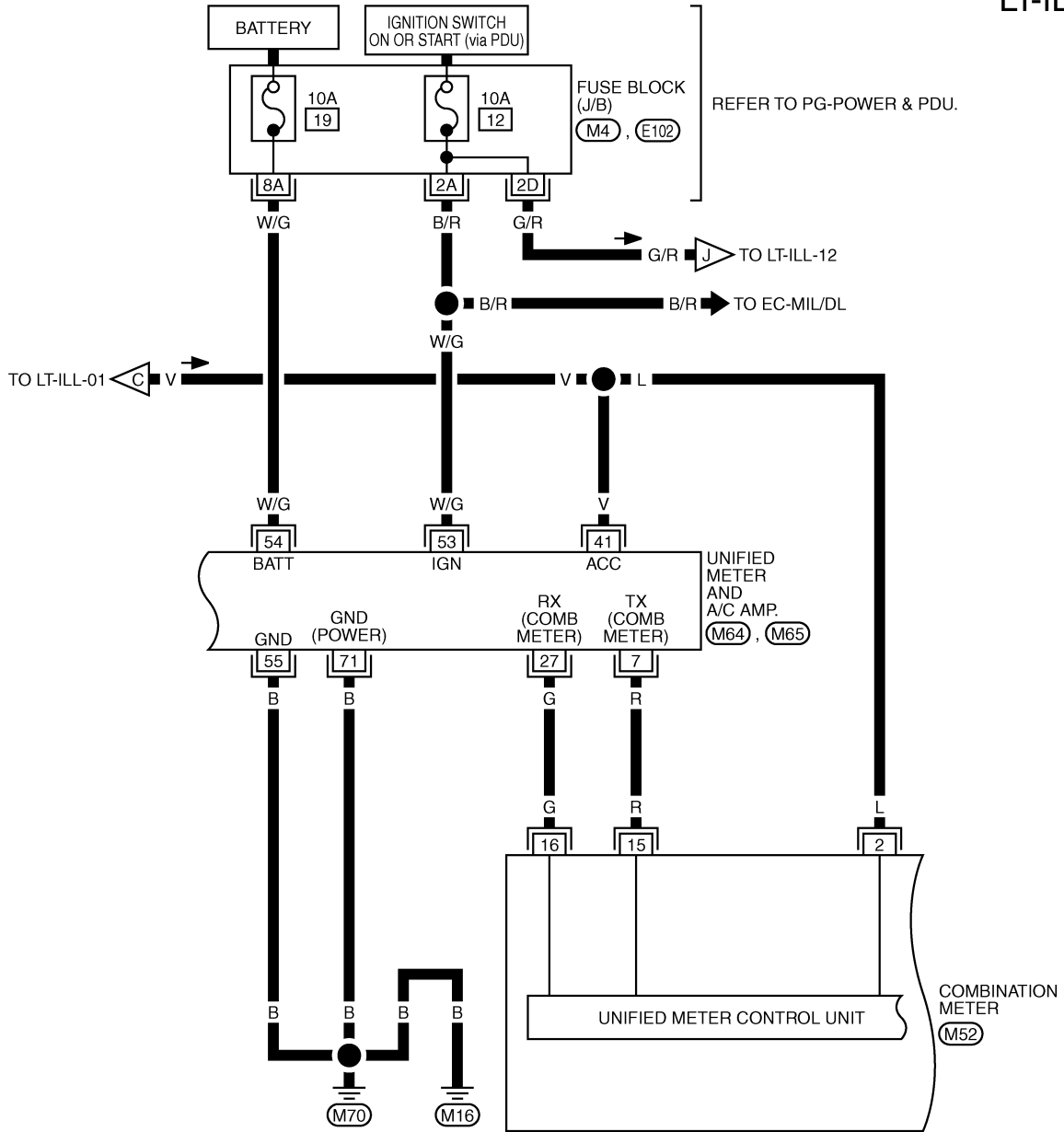
REFER TO THE FOLLOWING.
E108, B2, B418 -SUPER
MULTIPLE JUNCTION (SMJ)



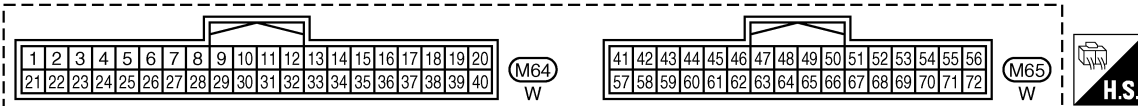
TKWT5271E

ILLUMINATION

LT-ILL-03



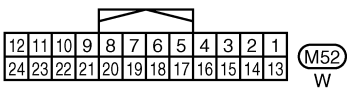
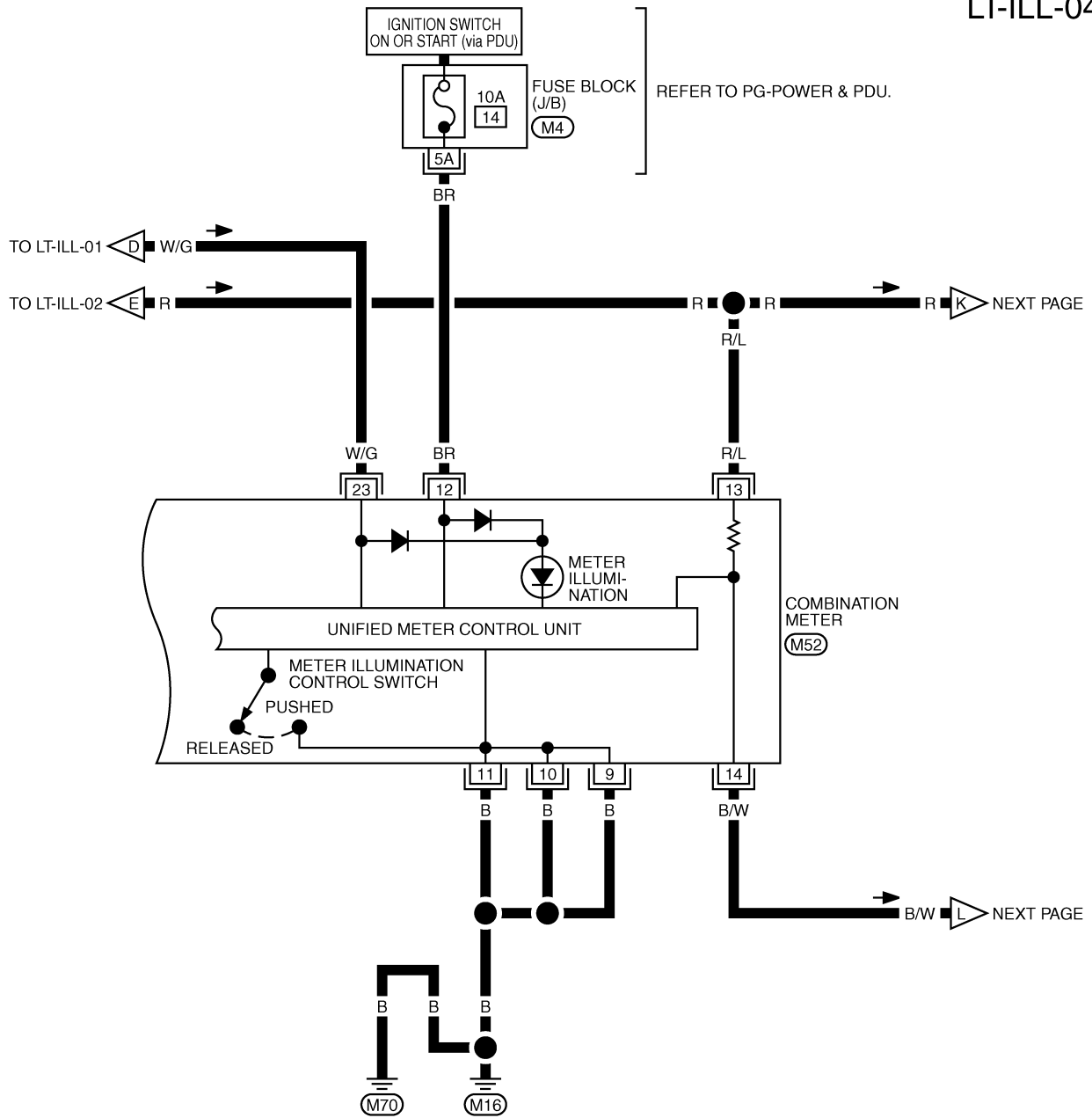
REFER TO THE FOLLOWING.
 (M4), (E102) - FUSE BLOCK-
 JUNCTIONBOX (J/B)



TKWT3585E

ILLUMINATION

LT-ILL-04



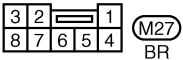
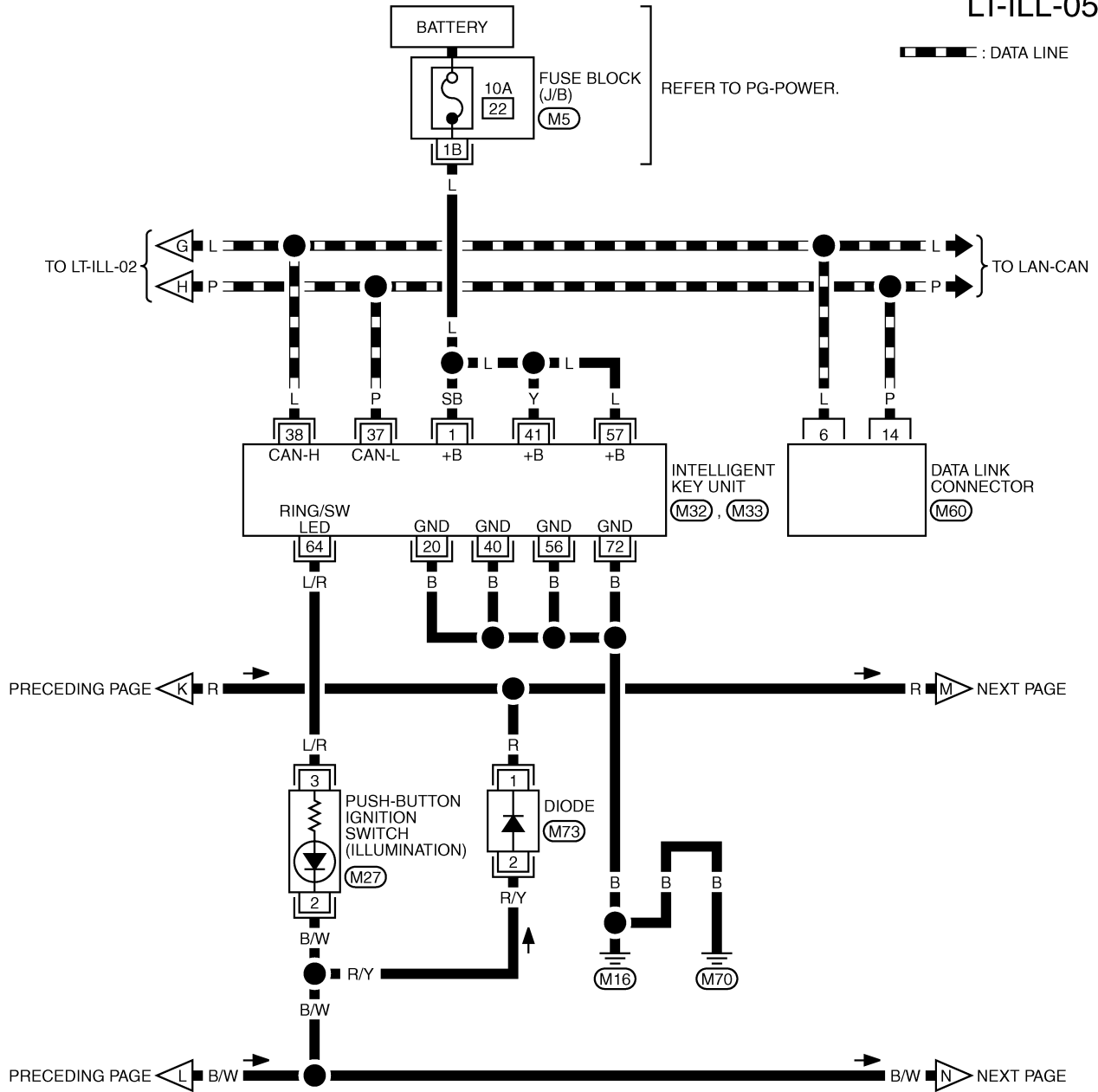
REFER TO THE FOLLOWING.
(M4) - FUSE BLOCK-JUNCTION BOX (J/B)

TKWT5074E

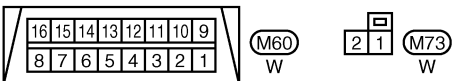
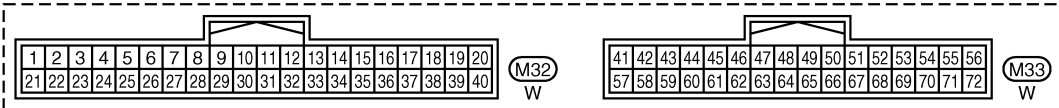
ILLUMINATION

LT-ILL-05

▬ : DATA LINE



REFER TO THE FOLLOWING.
 (M5) - FUSE BLOCK-JUNCTION BOX (J/B)

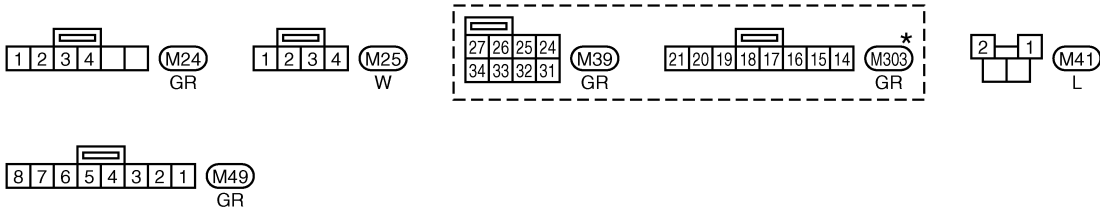
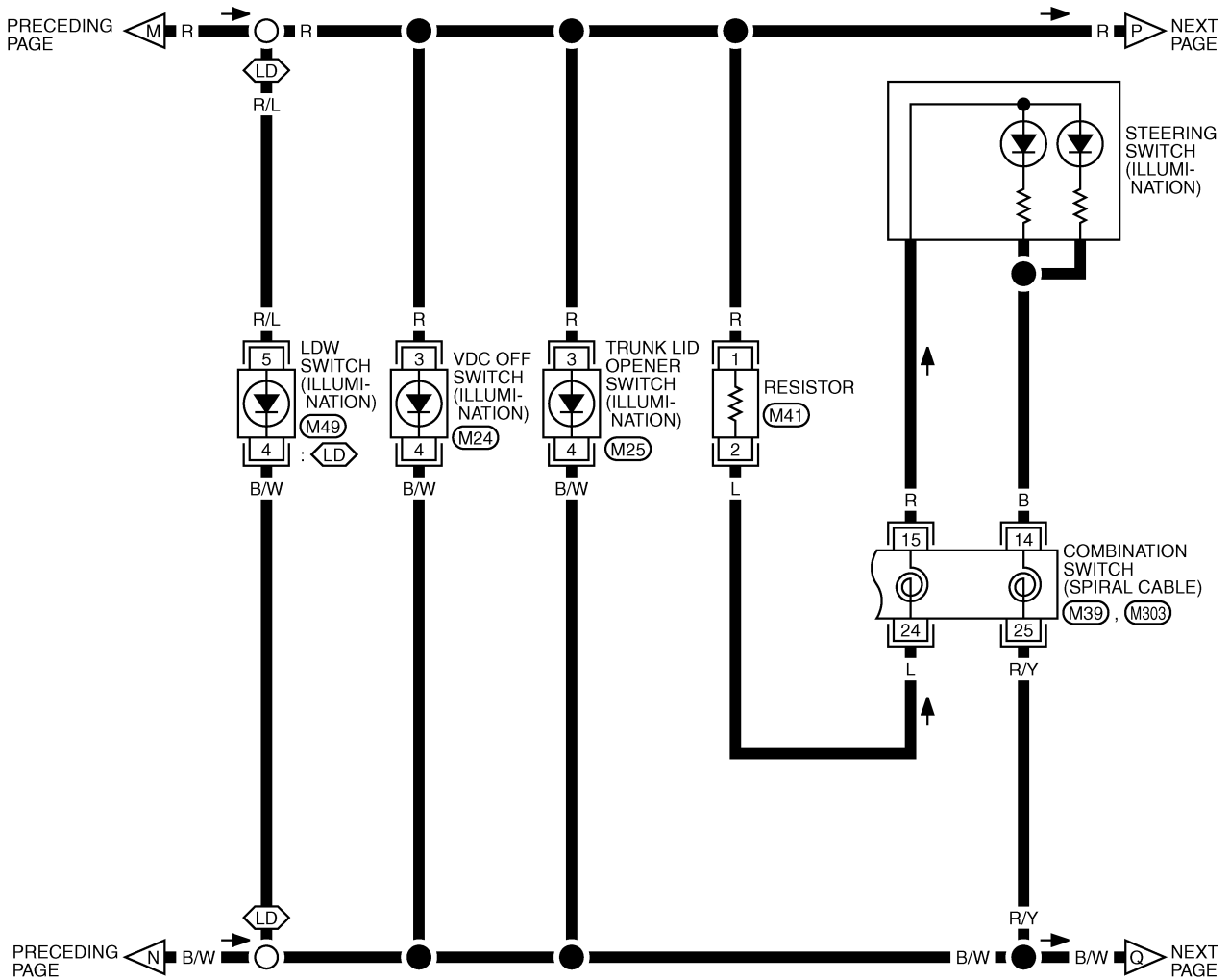


TKWT5075E

ILLUMINATION

LT-ILL-06

: WITH LANE DEPARTURE WARNING

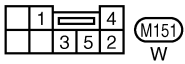
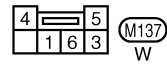
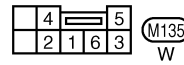
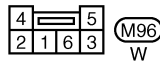
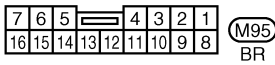
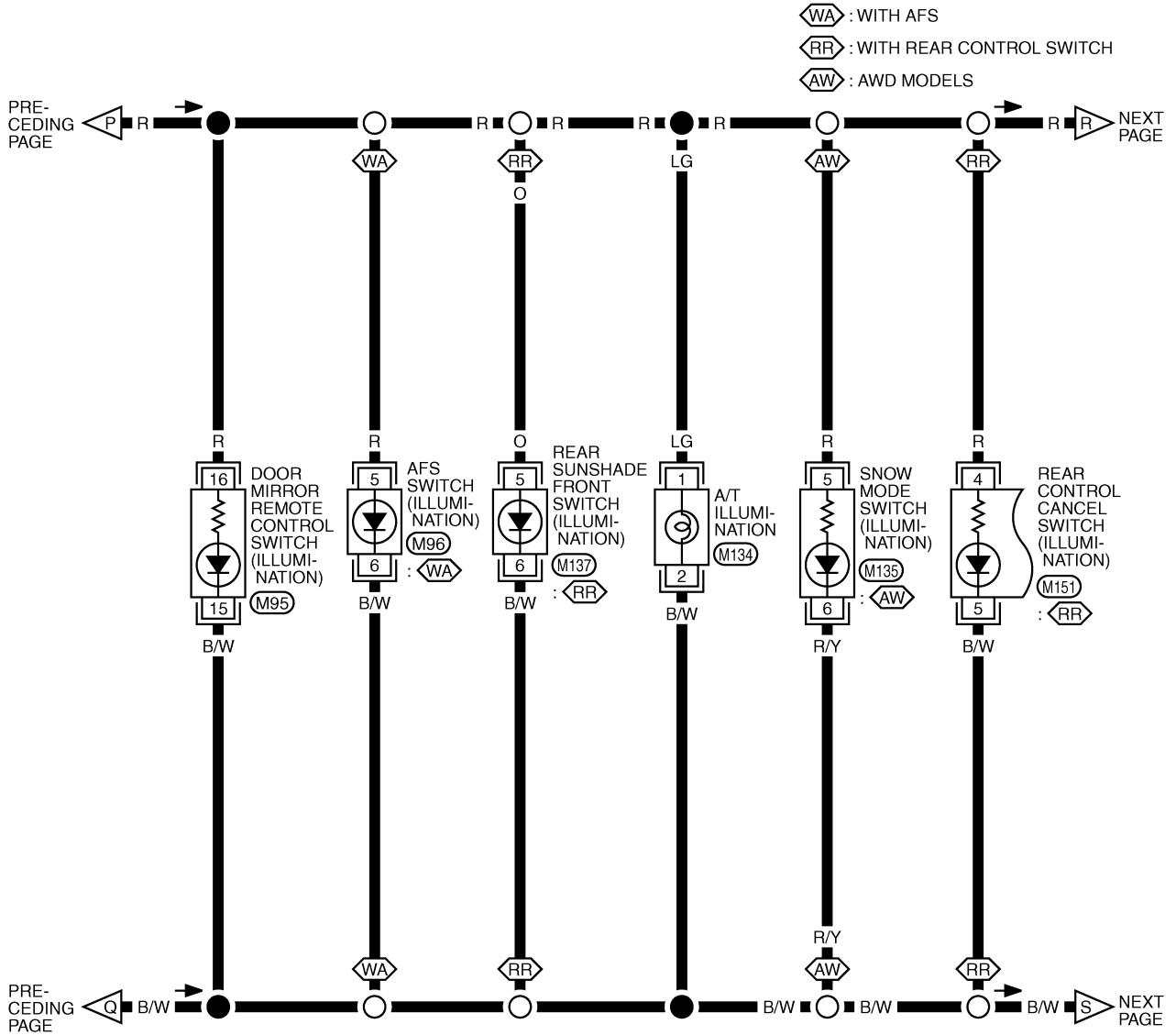


*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT5076E

ILLUMINATION

LT-ILL-07



TKWT5272E

ILLUMINATION

LT-ILL-08

▬ : DATA LINE

◊NV : WITH NAVIGATION SYSTEM

◊ON : WITHOUT NAVIGATION SYSTEM

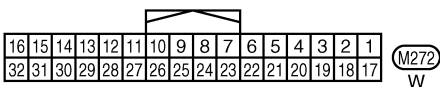
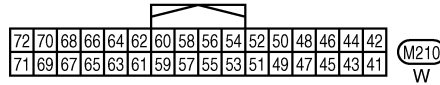
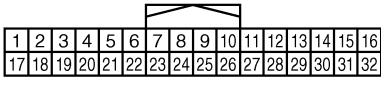
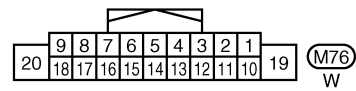
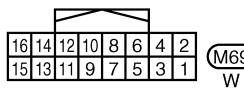
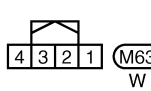
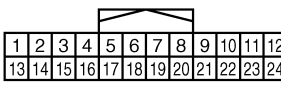
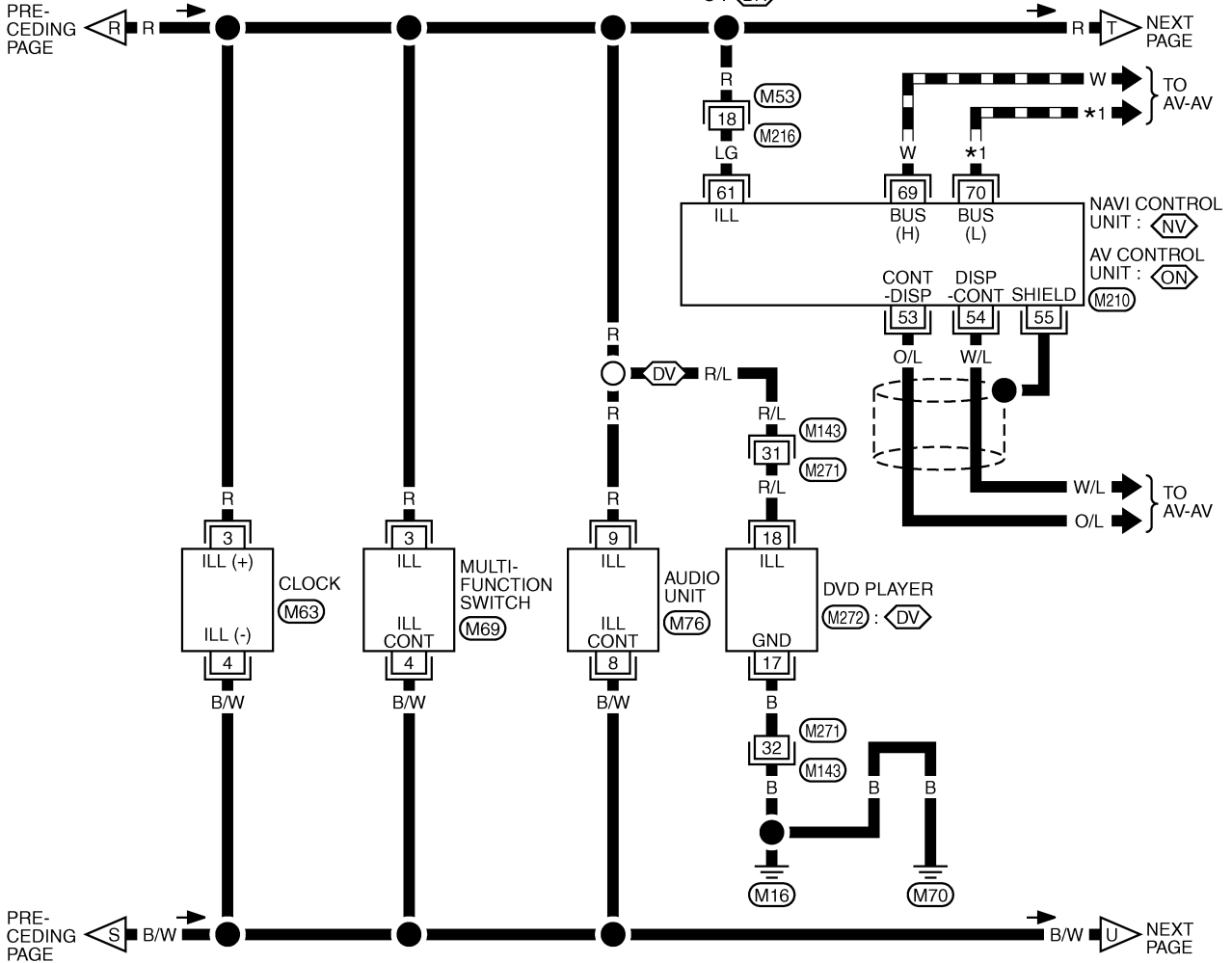
◊DV : WITH DVD PLAYER

◊XR : WITH REAR DISPLAY UNIT OR WITHOUT BOSE SYSTEM

◊BR : WITH BOSE SYSTEM WITHOUT REAR DISPLAY UNIT

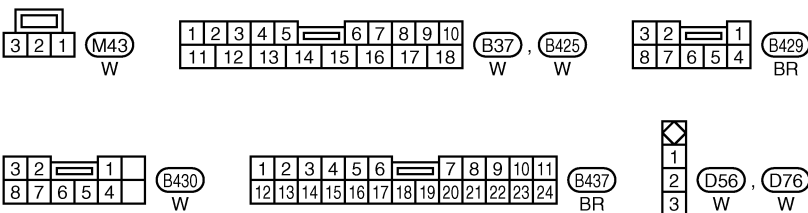
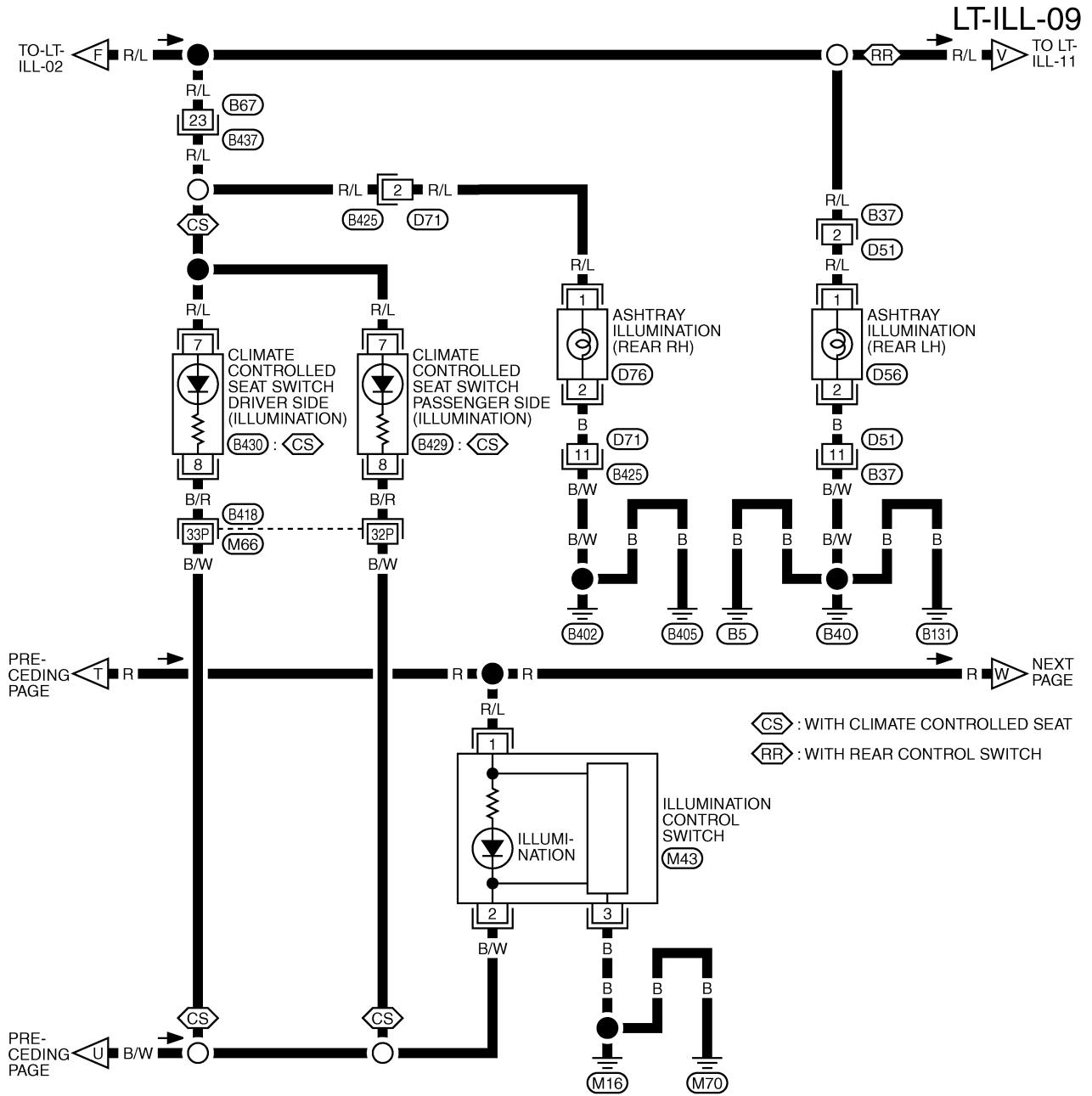
*1 R : ◊XR

O : ◊BR



TKWT5077E

ILLUMINATION



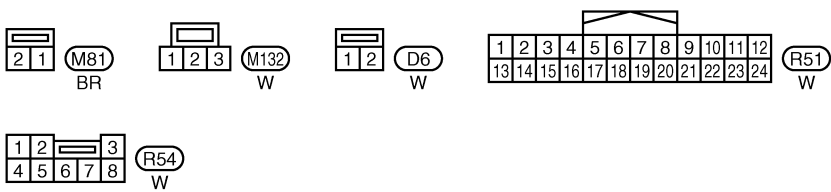
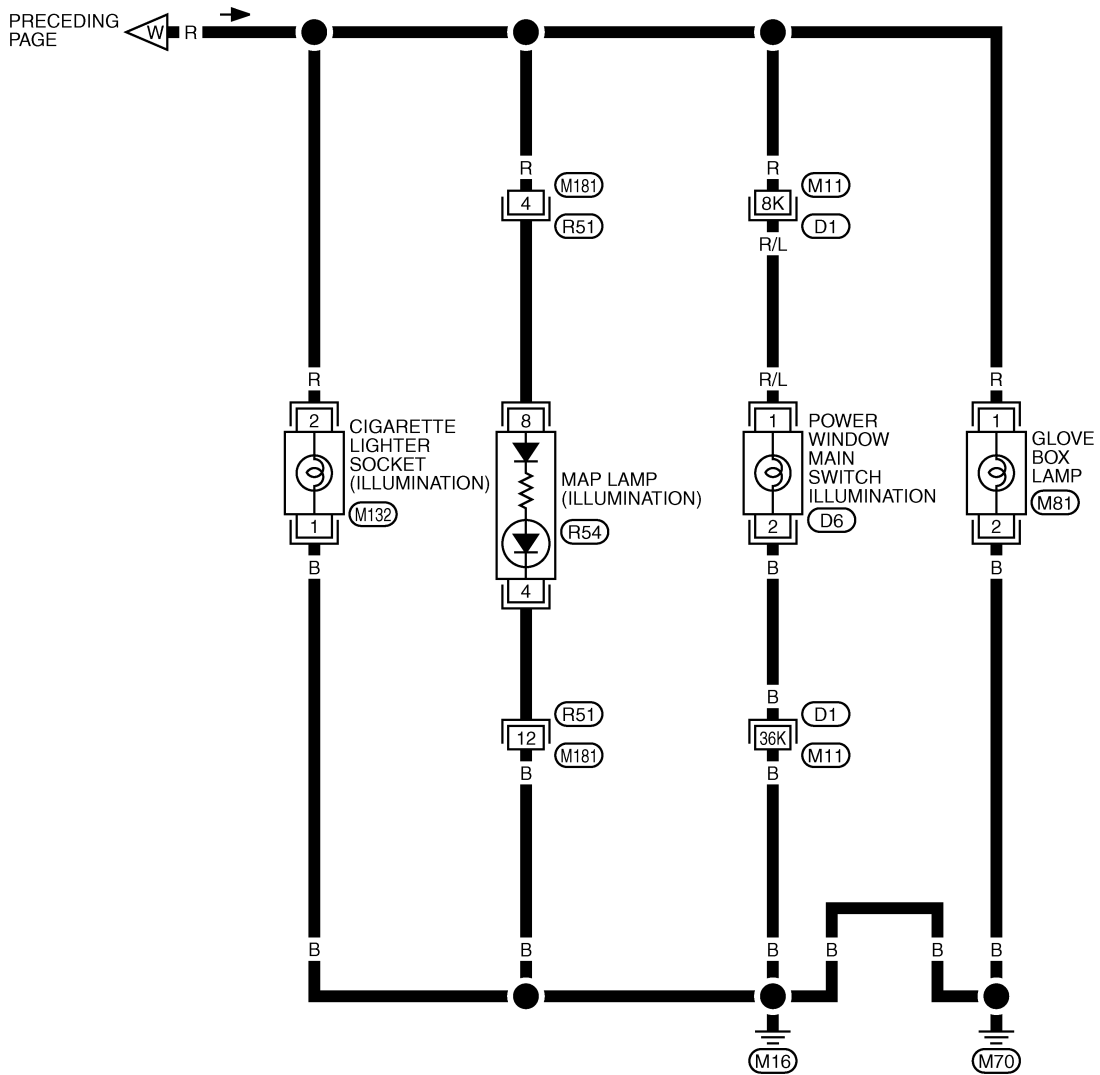
REFER TO THE FOLLOWING.

(B418) -SUPER MULTIPLE JUNCTION (SMJ)

TKWT5078E

ILLUMINATION

LT-ILL-10

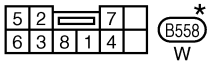
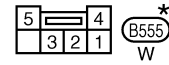
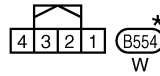
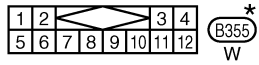
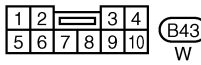
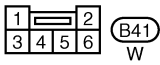
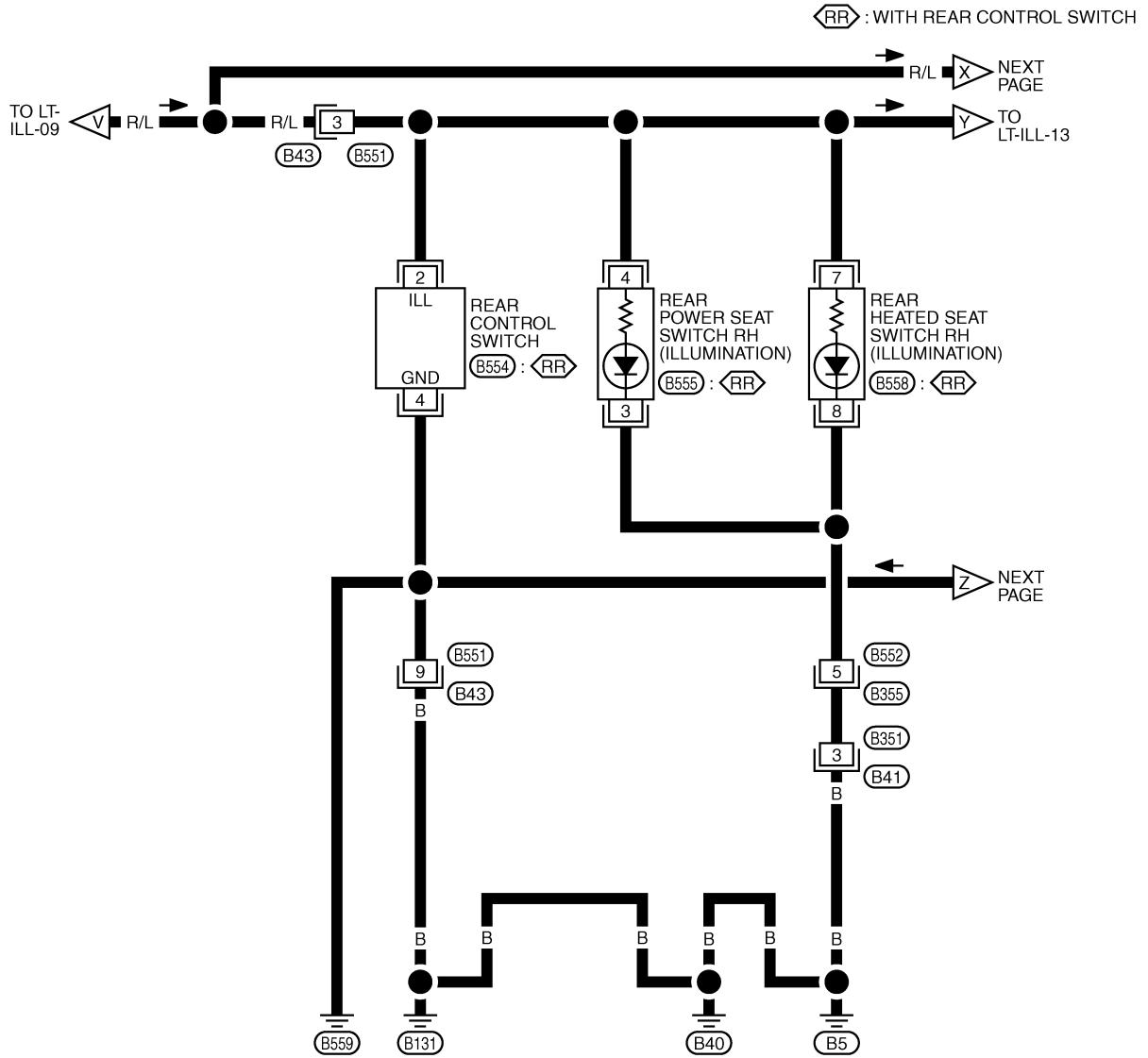


REFER TO THE FOLLOWING.
 (D1) -SUPER MULTIPLE JUNCTION (SMJ)

TKWT3592E

ILLUMINATION

LT-ILL-11

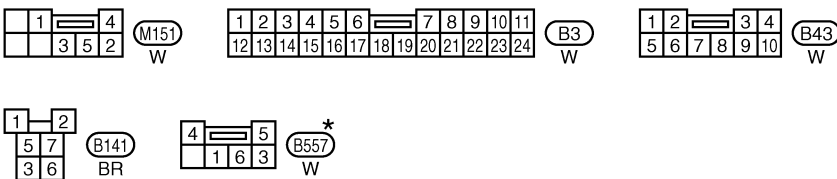
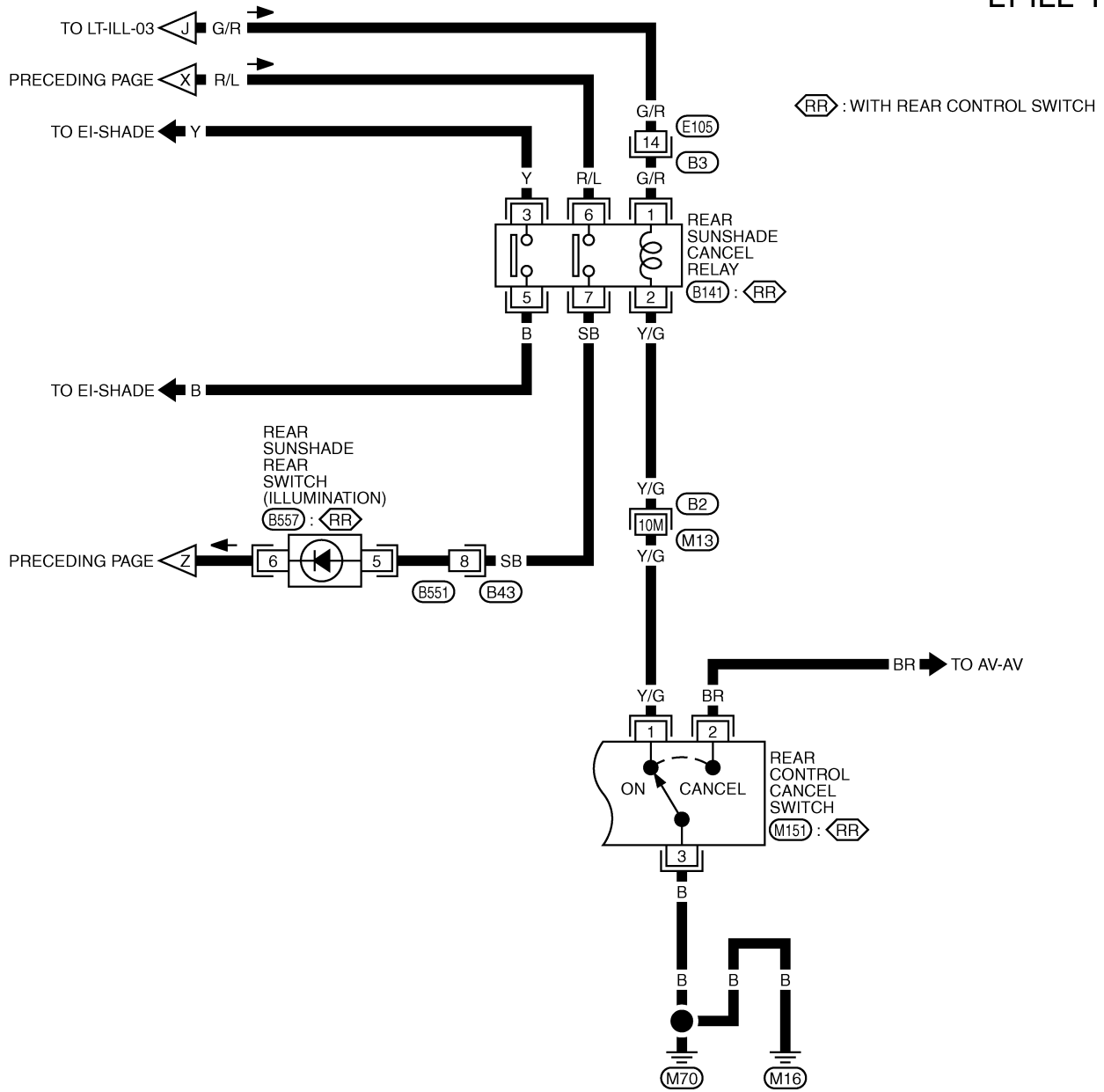


*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWT3593E

ILLUMINATION

LT-ILL-12



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

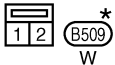
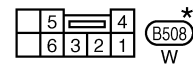
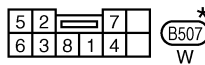
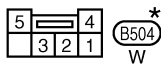
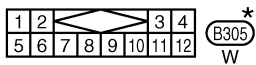
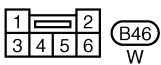
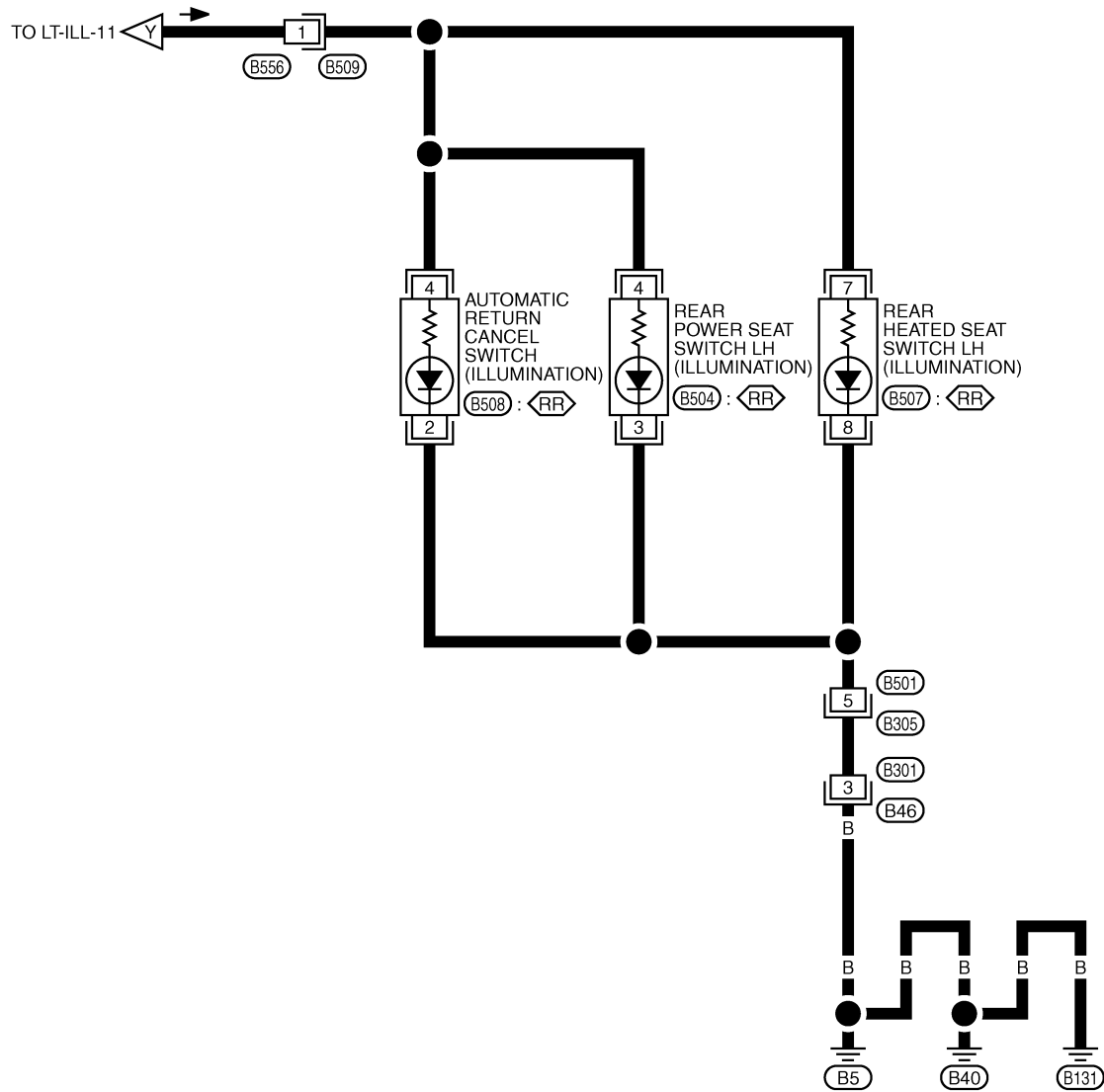
REFER TO THE FOLLOWING.
 (B2) -SUPER MULTIPLE JUNCTION (SMJ)

TKWT5273E

ILLUMINATION

LT-ILL-13

⬡RR⬡ : WITH REAR CONTROL SWITCH



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

TKWT3594E

ILLUMINATION

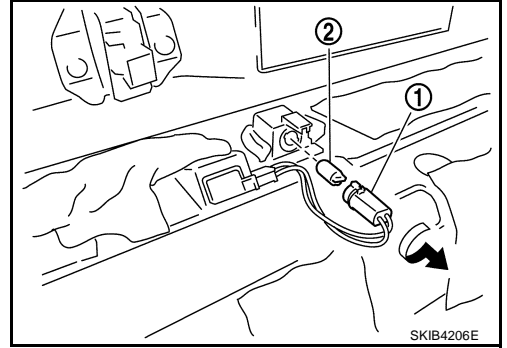
Glove Box Lamp BULB REPLACEMENT, REMOVAL AND INSTALLATION

NKS0037M

Removal

1. Remove glove box cover. Refer to [IP-10, "INSTRUMENT PANEL ASSEMBLY"](#).
2. Turn globe box lamp bulb socket (1) counterclockwise and unlock it.
3. Remove bulb (2).

Glove box lamp : 12V - 1.4W



Installation

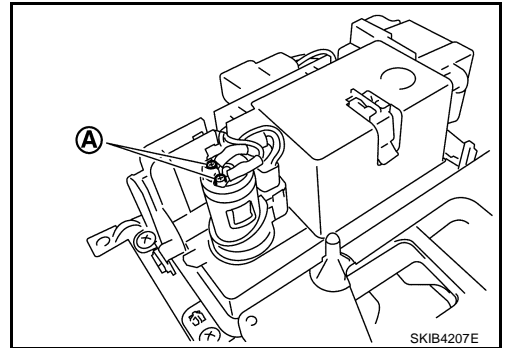
Installation is the reverse order of removal.

Cigarette Lighter Illumination BULB REPLACEMENT, REMOVAL AND INSTALLATION

NKS0037N

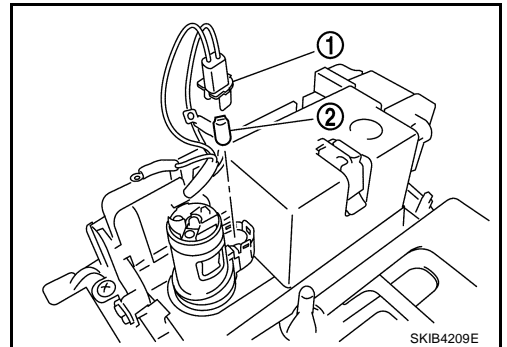
Removal

1. Remove A/T console finisher. Refer to [IP-11, "Removal and Installation of Instrument Panel & Pad"](#).
2. Remove screws (A).



3. Use a screwdriver to undo hooks, remove bulb sockets (1).
4. Remove bulb (2).

Front ashtray and cigarette lighter illumination : 12V - 1.4W



Installation

Installation is the reverse order of removal.

A
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ILLUMINATION

Front Ashtray Illumination BULB REPLACEMENT, REMOVAL AND INSTALLATION

NKS0037O

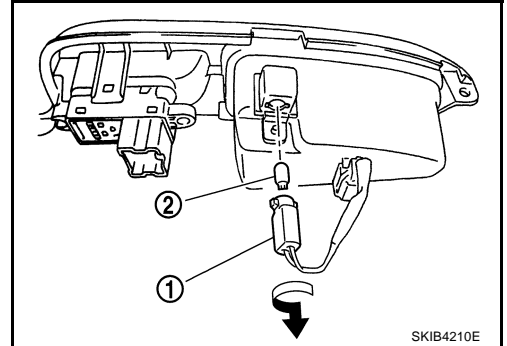
Refer to [LT-312, "Front Ashtray Illumination"](#) .

Rear Ashtray Illumination REMOVAL AND INSTALLATION

NKS0037P

1. Remove rear door finisher. Refer to [EI-34, "DOOR FINISHER"](#) .
2. Turn rear ashtray illumination bulb socket (1) counterclockwise and unlock it.
3. Remove bulb (2).

Rear ashtray illumination : 12V - 1.4W



INSTALLATION

Installation is the reverse order of removal.

BULB SPECIFICATIONS

BULB SPECIFICATIONS

PFP:26297

Headlamp

NKS003TQ

Item	Wattage (W)
Low (Halogen type)	55 (H1)
Low (Xenon type)	35 (D2S)
High	60 (HB3)

Exterior Lamp

NKS003TR

Item	Wattage (W)	
Front combination lamp	Front turn signal lamp	21
	Parking lamp	5
	Front side marker lamp	5
Rear combination lamp	Stop/Tail lamp	LED
	Rear turn signal lamp	21 (amber)
	Rear side marker lamp	LED
Back-up lamp	18	
Side turn signal lamp	5	
Front fog lamp	55 (H11)	
License plate lamp	5	
High-mounted stop lamp	LED	

Interior Lamp/Illumination

NKS003TS

Item	Wattage (W)	
Map lamp	8	
Personal lamp	8	
Trunk room lamp	Upper	5
	Lower	
Front ashtray and front cigarette lighter illumination ^{NOTE}	1.4	
Rear ashtray illumination	1.4	
Step lamp	5	
Vanity mirror lamp	1.8	
Center console indirect illumination	LED	
Glove box lamp	1.4	
Foot lamp	Driver side	3.4
	Passenger side	
Kicking plate	Driver side	LED
	Passenger side	
Power window indirect illumination	LED	

NOTE:

This lamp is used as both front ashtray and front cigarette lighter.

BULB SPECIFICATIONS
