SECTION LT
LIGHTING SYSTEM

CONTENTS

PRECAUTIONS

PFP:00011

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

NKS000FA

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SRS and SB section of this Service Manual.

WARNING:

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SRS section.**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

Precautions for Battery Service

NKS000FB

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

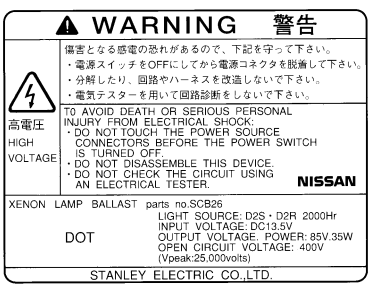
General Precautions for Service Operations

NKS000FC

- 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.

PKIB7344E

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



EL-3422D

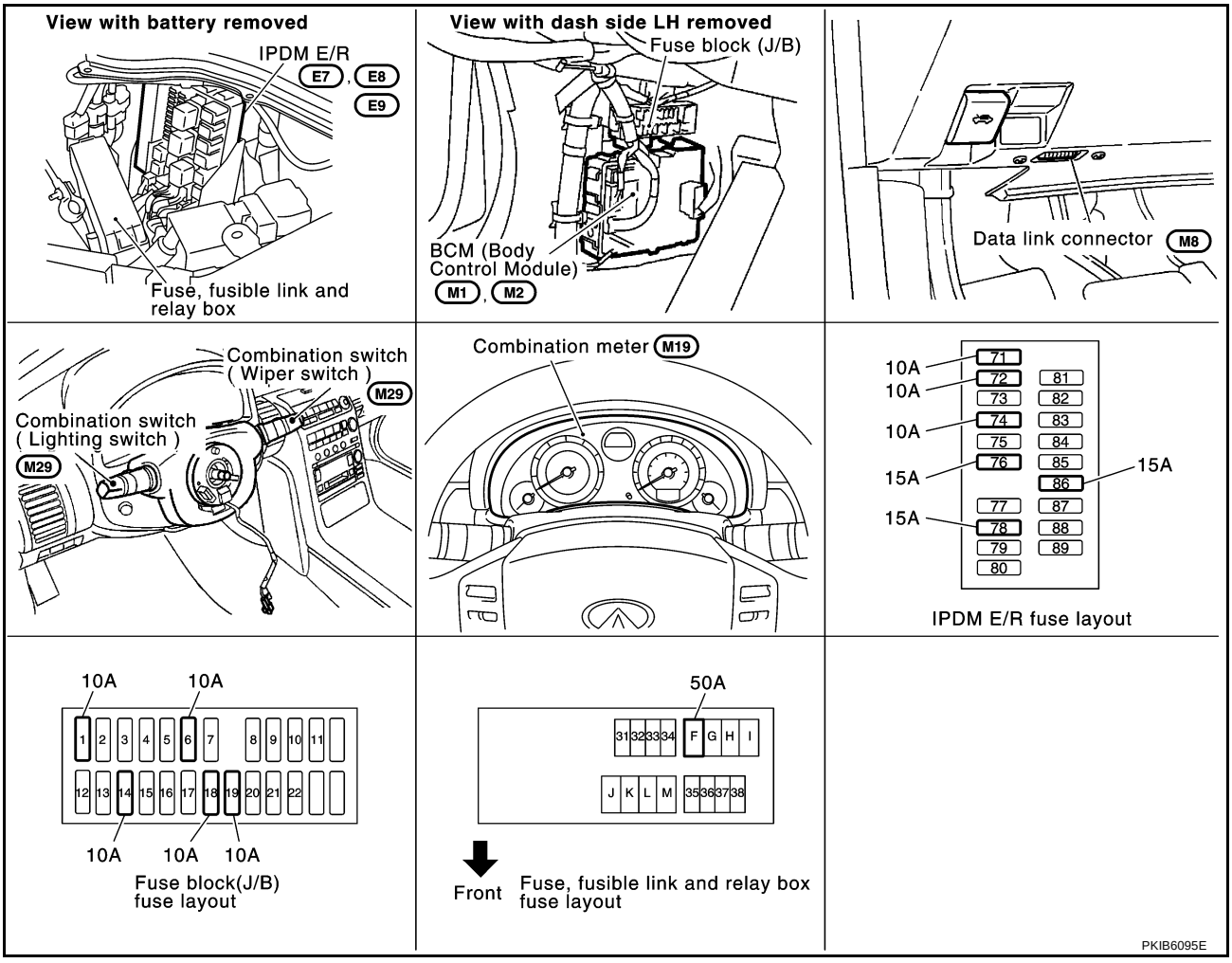
- When adjusting the headlamp aiming, turn the aiming adjustment screw only in the tightening direction. (If it is necessary to loosen the screw, first fully loosen the screw, and then turn it in the tightening direction.)
- Do not use organic solvent (paint thinner or gasoline) to clean lamps and to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

HEADLAMP - XENON TYPE -

PFP:26010

Component Parts and Harness Connector Location

NKS002ND



System Description

NKS002NE

The control of headlamp system operation is dependent upon the position of the lighting switch. When the lighting switch is placed in the 2ND position, BCM (body control module) receives input signal requesting the headlamps (and tail lamps) illuminate. This input signal is communicated to IPDM E/R (intelligent power distribution module engine room) through CAN communication lines. The CPU (central processing unit) located in the IPDM E/R controls headlamp high relay and headlamp low relay. These relays, when energized, direct power to the respective headlamps, which then illuminate.
If voltage is applied to a high beam solenoid, the bulb shade will move, even a xenon headlamp bulb comes out, and a high beam and a low beam are changed.

OUTLINE

Power is supplied at all times

- to ignition relay, located in IPDM E/R
- to headlamp high relay, located in IPDM E/R, and
- to headlamp low relay, located in IPDM E/R, from battery direct,
- through 10A 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, fusible link and relay box)
- to BCM terminal 55,
- through 10A fuse [No. 18, located in fuse block (J/B)]

- to BCM terminal 42,
- through 10A fuse [No. 19, located in fuse block (J/B)]
- to combination meter terminal 21.

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

- to ignition relay, located in IPDM E/R, from battery direct,
- through 10A 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 terminals 22 and 23.

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 M30 and M66,
- to IPDM E/R terminals 38 and 60
- through grounds E17 and E43,
- to combination meter terminals 1, 24 and 25
- through grounds M30 and M66.

HEADLAMP OPERATION

Low Beam Operation

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

Ground is supplied

- to front combination lamp RH and LH terminals 4
- through grounds E17 and E43.

With power and ground supplied, low beam headlamps illuminate.

High Beam Operation/Flash-to-Pass Operation

With the lighting switch in 2ND position and placed in HIGH BEAM or PASSING position, the BCM receives input signal requesting the headlamp high beams to illuminate. This input signal is communicated to IPDM E/R through the CAN communication lines. The CPU located in the IPDM E/R controls headlamp high relay and headlamp low relay, 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 3,
- through 15A fuse (No. 86, located in IPDM E/R)
- through IPDM E/R terminal 30
- to front combination lamp LH terminal 3,
- through 10A fuse (No. 72, located in IPDM E/R)
- through IPDM E/R terminal 27
- to front combination lamp RH terminal 2,
- through 10A fuse (No. 74, located in IPDM E/R)

- through IPDM E/R terminal 28
- to front combination lamp LH terminal 2.

Ground is supplied

- to front combination lamp RH and LH terminals 8
- through grounds E17 and E43.

With power and ground supplied, the high beam headlamps illuminate.
If voltage is applied to a high beam solenoid, the bulb shade will move, even a xenon headlamp bulb comes out, and a high beam and a low beam are changed.
The high beam indicator illuminates when combination meter receives input signal requesting high beam indicator to illuminate. This is communicated to BCM through the CAN communication lines.

COMBINATION SWITCH READING FUNCTION

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

EXTERIOR LAMP BATTERY SAVER CONTROL

When the lighting switch is in the 2ND position and the ignition switch is turned from ON or ACC to OFF, the battery saver control function is activated.
Under this condition, the headlamps remain illuminated for 5 minutes, and 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-51, "System Description" .

VEHICLE SECURITY SYSTEM

The vehicle security system will flash the high beams if the system is triggered. Refer to BL-188, "VEHICLE SECURITY (THEFT WARNING) SYSTEM" .

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

NKS002NF

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.

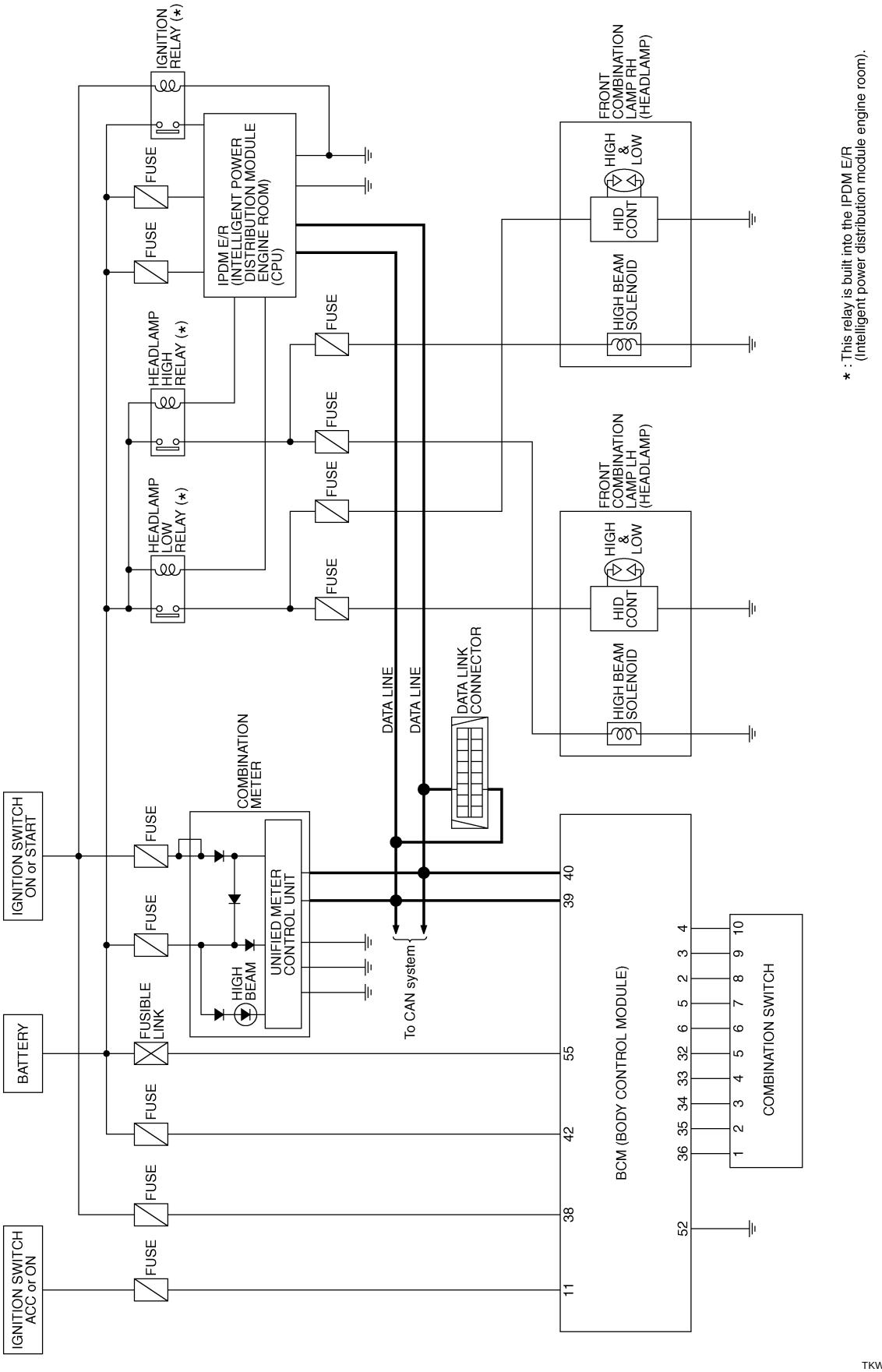
CAN Communication Unit

NKS002NG

Refer to LAN-47, "CAN System Specification Chart" .

Schematic

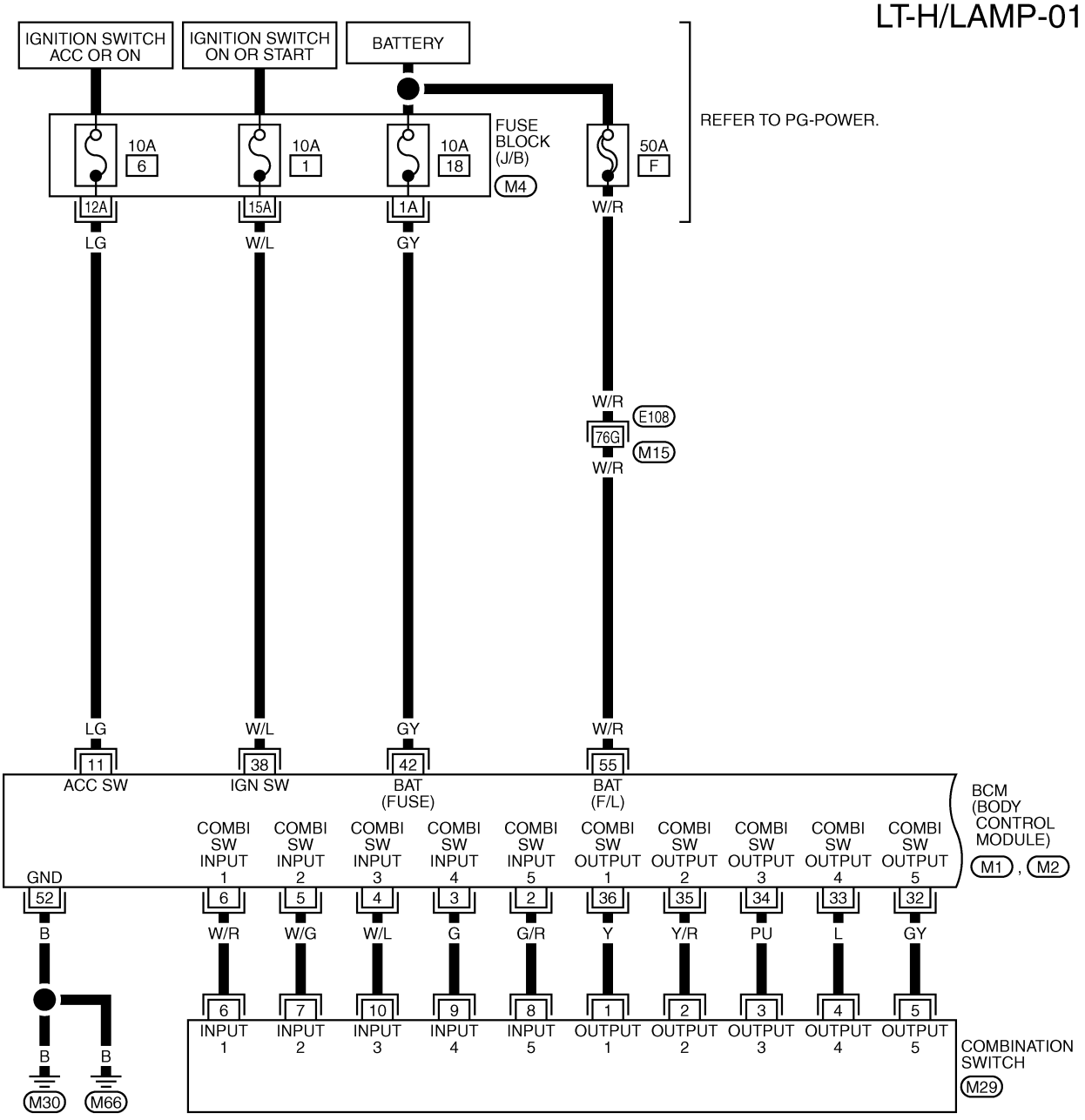
NKS002NH

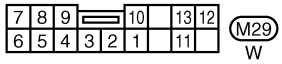


Wiring Diagram — H/LAMP —

NKS002NI

LT-H/LAMP-01





REFER TO THE FOLLOWING.

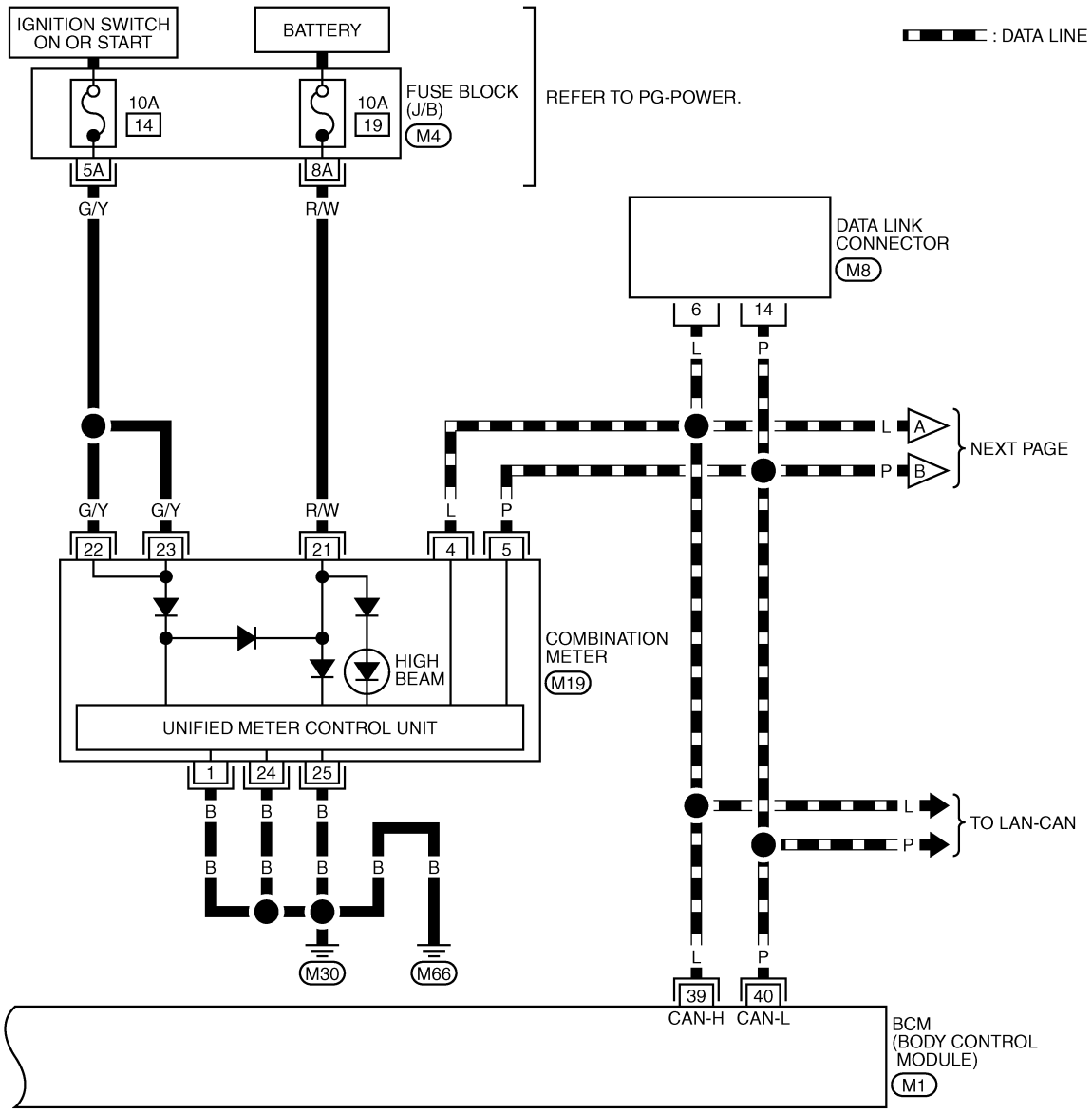
E108 -SUPER MULTIPLE JUNCTION (SMJ)

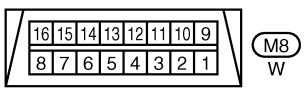
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

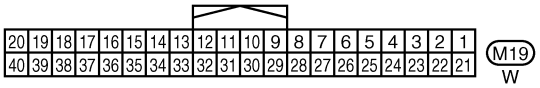
M1 , M2 -ELECTRICAL UNITS

TKWM2185E

LT-H/LAMP-02

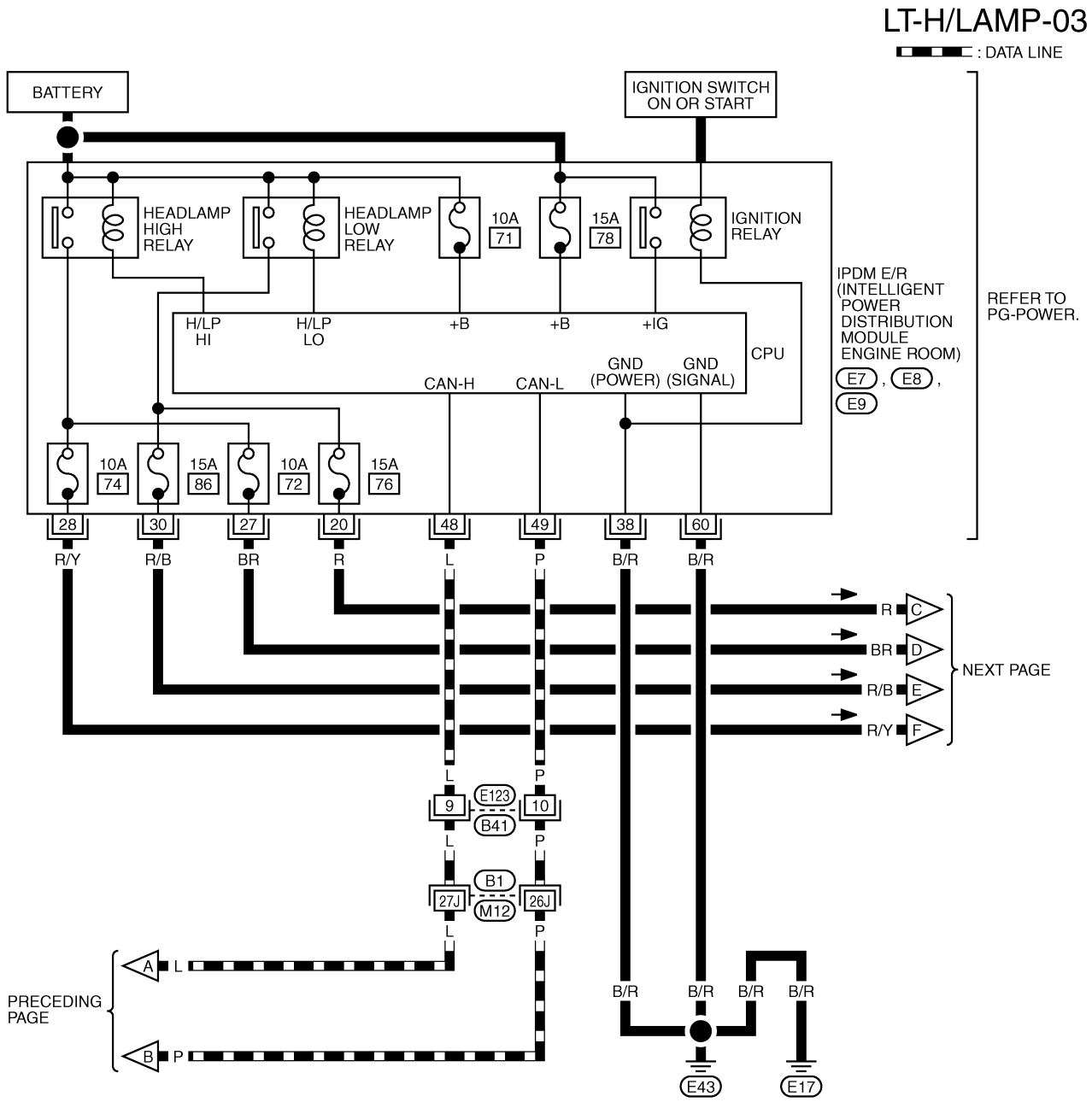






REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)
M1 -ELECTRICAL UNITS

TKWM2186E

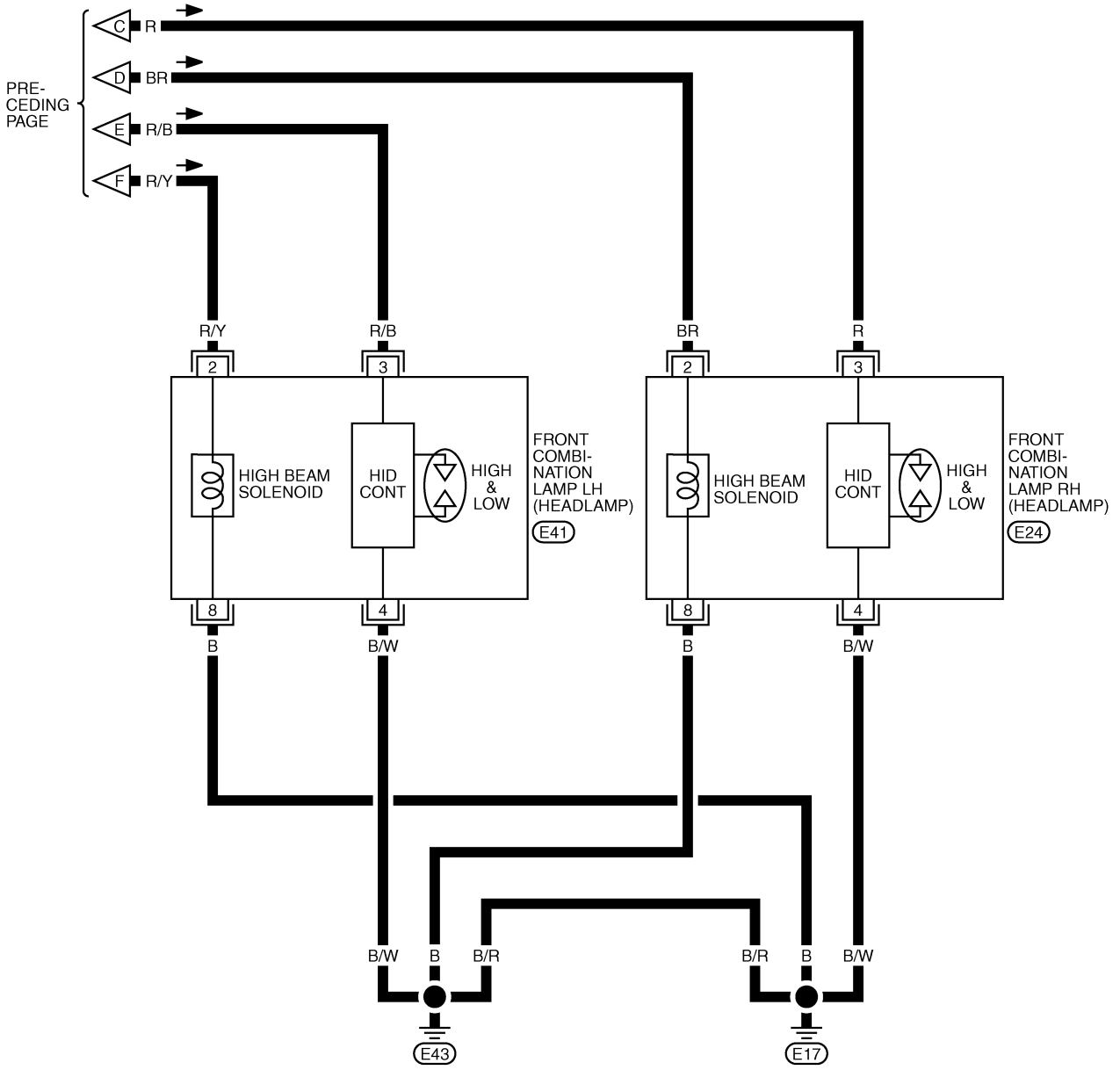


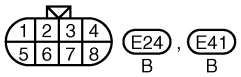
REFER TO THE FOLLOWING.

B1 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3446E

LT-H/LAMP-04





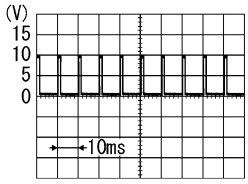
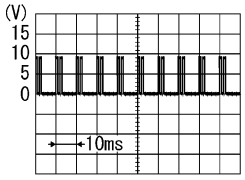
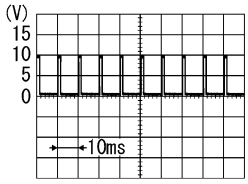
TKWM4010E

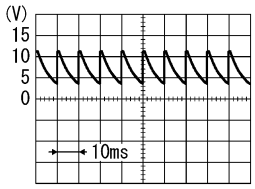
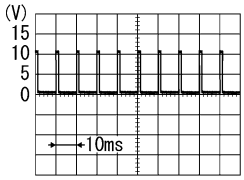
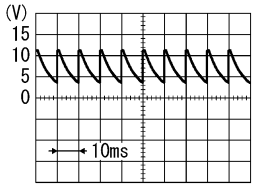
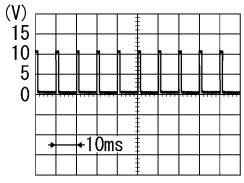
Terminals and Reference Values for BCM

NKS002NJ

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-17, "DATA MONITOR" .**

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
2	G/R	Combination switch input 5	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	Approx. 0 V
					Lighting switch HIGH beam (Operates only HIGH beam switch)	 PKIB4959J Approx. 1.0 V
					Lighting switch 2ND	 PKIB4953J Approx. 2.0 V
3	G	Combination switch input 4	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	Approx. 0 V
					Any of the conditions below ● Lighting switch 2ND ● Lighting switch PASSING (Operates only PASSING switch)	 PKIB4959J Approx. 1.0 V
11	LG	Ignition switch (ACC)	ACC	—		Battery voltage

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
34	PU	Combination switch output 3	ON	Lighting, turn, wiper switch	OFF (Wiper intermittent dial position 4)	 PKIB4960J Approx. 7.2 V
					Any of the conditions below ● Lighting switch 2ND ● Lighting switch HI beam (Operates only HI beam switch)	 PKIB4958J Approx. 1.2 V
35	Y/R	Combination switch output 2	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	 PKIB4960J Approx. 7.2 V
					Any of the conditions below ● Lighting switch 2ND ● Lighting switch PASSING (Operates only PASSING switch)	 PKIB4958J Approx. 1.2 V
38	W/L	Ignition switch (ON)	ON	—		Battery voltage
39	L	CAN – H	—	—		—
40	P	CAN – L	—	—		—
42	GY	Battery power supply	OFF	—		Battery voltage
52	B	Ground	ON	—		Approx. 0 V
55	R	Battery power supply	OFF	—		Battery voltage

Terminals and Reference Values for IPDM E/R

NKS002NK

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

How to Proceed With Trouble Diagnosis

NKS002NL

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-5, "System Description" .
3. Perform the preliminary check. Refer to LT-15, "Preliminary Check" .
4. Check symptom and repair or replace the malfunctioning parts.
5. Does headlamp operate normally? If YES, GO TO 6. If NO, GO TO 4.
6. INSPECTION END

Preliminary Check

NKS002NM

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

Refer to LT-9, "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" .

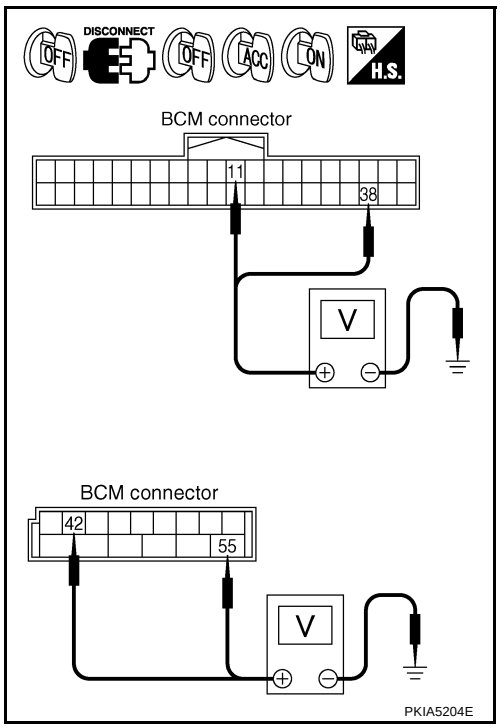
2. CHECK POWER SUPPLY CIRCUIT

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

(+)		(−)	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.



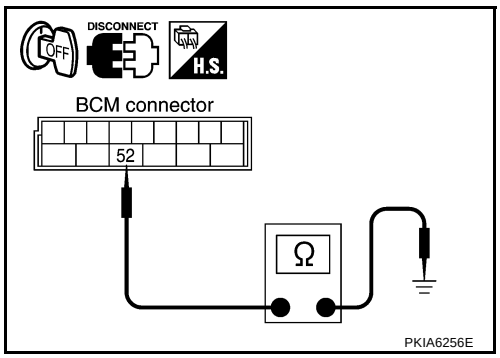
3. CHECK GROUND CIRCUIT

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)

NKS002NN

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-37, "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 “BATTERY SAVER SET” on “SELECT WORK ITEM” screen.

4. Touch “START”.
5. Touch “CHANGE SET”.
6. The setting will be changed and “CUSTOMIZING COMPLETED” will be displayed.
7. Touch “END”.

Display Item List

Item	Description
BATTERY SAVER SET	Exterior lamp battery saver control mode can be changed in this mode. Selects exterior lamp battery saver control mode between two ON/OFF. Factory setting is ON.
CUSTOM A/LIGHT SETTING	Auto light sensitivity can be changed in this mode. Sensitivity can be adjusted in 4 modes. Factory setting is MODE 1. ● MODE 1 (Normal)/MODE 2 (sensitive)/MODE 3 (Desensitized)/MODE 4 (Insensitive)
ILL DELAY SET	Auto light delay off timer period can be changed in this mode. Selects auto light delay off timer period among eight modes. Factory setting is MODE 1. ● MODE 1 (45 sec.)/MODE 2 (OFF)/MODE 3 (30 sec.)/MODE 4 (60 sec.)/MODE 5 (90 sec.)/ MODE 6 (120 sec.)/MODE 7 (150 sec.)/MODE 8 (180 sec.)

DATA MONITOR

Operation Procedure

1. Touch “HEAD LAMP” on “SELECT TEST ITEM” screen.
2. Touch “DATA MONITOR” on “SELECT DIAG MODE” screen.
3. Touch either “ALL SIGNALS” or “SELECTION FROM MENU” on “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 status (ignition switch IGN position: ON/other: OFF) of ignition switch judged from the ignition switch signal.
ACC ON SW	“ON/OFF”	Displays status (ignition switch ACC or IGN position: ON/other: OFF) of ignition switch judged from the ignition switch signal.
HI BEAM SW	“ON/OFF”	Displays status (lighting switch high beam position: ON/other: OFF) of high beam switch judged from the lighting switch signal.
HEAD LAMP SW 1	“ON/OFF”	Displays status (lighting switch 2ND position: ON/other: OFF) of headlamp 1 switch judged from the lighting switch signal.
HEAD LAMP SW 2	“ON/OFF”	Displays status (lighting switch 2ND position: ON/other: OFF) of headlamp 2 switch judged from the lighting switch signal.
LIGHT SW 1ST	“ON/OFF”	Displays status (lighting switch 1ST or 2ND position: ON/other: OFF) of lighting switch 1ST position switch judged from the lighting switch signal.
AUTO LIGHT SW NOTE 1	“ON/OFF”	Displays status (lighting switch AUTO position: ON/other: OFF) of auto light switch position judged from the lighting switch signal.
PASSING SW	“ON/OFF”	Displays status (lighting switch passing position: ON/other: OFF) of passing switch judged from the lighting switch signal.
FR FOG SW	“ON/OFF”	Displays status (lighting switch front fog lamp ON position: ON/others: OFF) of front fog lamp switch judged from the lighting switch signal.
RR FOG SW NOTE 2	“ON/OFF”	—
DOOR SW - DR	“ON/OFF”	Displays status (door is open: ON/door is closed: OFF) of driver side door switch judged from the driver side door switch signal.

Monitor item		Contents
DOOR SW - AS	“ON/OFF”	Displays status (door is open: ON/door is closed: OFF) of passenger side door switch judged from the passenger side door switch signal.
DOOR SW - RR NOTE 2	“OFF”	—
DOOR SW - RL NOTE 2	“OFF”	—
BACK DOOR SW NOTE 2	“OFF”	—
TURN SIGNAL R	“ON/OFF”	Displays status (turn signal switch right position: ON/other: OFF) of turn RH switch judged from the turn signal switch signal.
TURN SIGNAL L	“ON/OFF”	Displays status (turn signal switch left position: ON/other: OFF) of turn LH switch judged from the turn signal switch signal.
ENGINE RUN NOTE 3	“ON/OFF”	Displays status (Engine running: ON/Other: OFF) as judged from engine status signal.
PKB SW NOTE 3	“ON/OFF”	Displays status (Parking brake switch: ON/Other: OFF) of parking brake switch judged from parking brake switch signal.
CARGO LAMP SW NOTE 2	“OFF”	—
OPTICAL SENSOR NOTE 1	“0 - 5 V”	Displays status “outside brightness (close to 5 V when light/close to 0 V when dark)” of optical sensor judged from the optical sensor signal.

NOTE:
1. Vehicles without auto light system display this item, but cannot be monitored.
2. This item is displayed, but cannot be monitored.
3. Vehicles without daytime light system does not display this item.

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 “OFF” deactivates the operation.

Display Item List

Test item	Description
TAIL LAMP	Allows tail lamp relay to operate by switching ON–OFF.
HEAD LAMP	Allows headlamp high relay and headlamp low relay to operate by switching ON–OFF.
FR FOG LAMP	Allows front fog lamp relay to operate by switching ON–OFF.
DTRL NOTE1	Allows daytime light lamp operate by switching ON-OFF.
CORNERING LAMP NOTE 2	—

NOTE:
1. Vehicles without daytime light lamp system does not display this item.
2. This item is displayed, but can not be tested.

CONSULT-II Functions (IPDM E/R)

NKS002NO

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

Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	Refer to PG-18, "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-37, "CONSULT-II Start Procedure" .

DATA MONITOR

Operation Procedure

1. Touch “DATA MONITOR” on “SELECT DIAG MODE ” screen.
2. Touch “ALL SIGNALS”, “MAIN SIGNALS” or “SELECTION FROM MENU” on “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 ignition switch ON. When ignition switch is at ACC, display may not be correct.

ACTIVE TEST

Operation Procedure

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

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

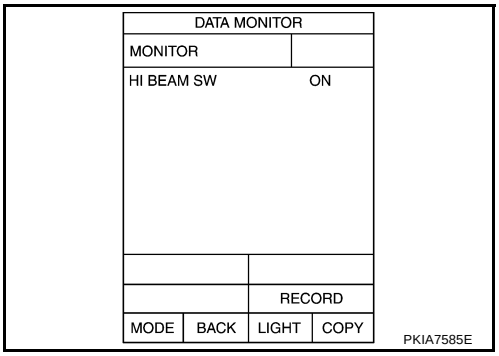
Headlamp Does Not Change To High Beam (Both Sides)

NKS002NP

1. CHECK COMBINATION SWITCH INPUT SIGNAL

With CONSULT-II

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



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

Without CONSULT-II

Refer to LT-100, "Combination Switch Inspection" .

OK or NG

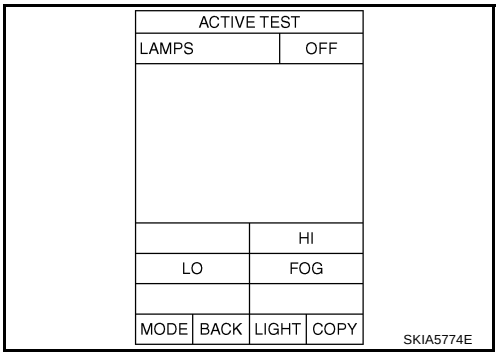
OK >> GO TO 2.

NG >> Check combination switch (lighting switch). Refer to LT-100, "Combination Switch Inspection" .

2. HEADLAMP ACTIVE TEST

With CONSULT-II

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



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

Without CONSULT-II

1. Start auto active test. Refer to PG-21, "Auto Active Test" .
2. Make sure headlamp high beam operates.

Headlamp high beam should operate.

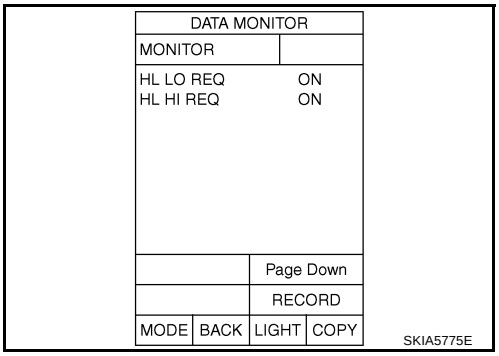
OK or NG

OK >> GO TO 3.

NG >> GO TO 4.

3. CHECK IPDM E/R

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



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

OK or NG

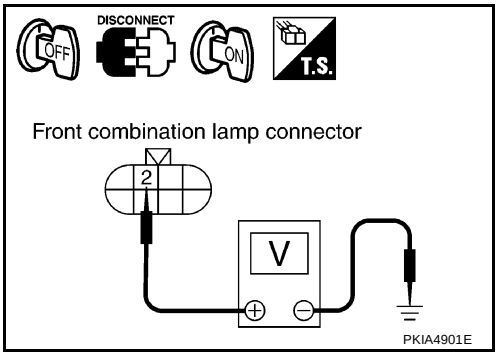
OK >> Replace IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R" .

NG >> Replace BCM. Refer to BCS-16, "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 connectors.
3. Select “IPDM E/R” on CONSULT-II, and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
4. Select “LAMPS” on “SELECT TEST ITEM” screen.
5. Touch “HI” screen.
6. When headlamp high relay is operating, check voltage between front combination lamp harness connector and ground (headlamp high beam repeats ON–OFF every 1 second).



(+)			(–)	Voltage
Front combination lamp connector		Terminal		
RH	E24	2	Ground	Battery voltage
LH	E41	2		

Without CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH and LH connectors.
3. Start auto active test. Refer to PG-21, "Auto Active Test" .
4. When headlamp high relay is operating, check voltage between front combination lamp harness connector and ground.

(+)			(–)	Voltage
Front combination lamp connector		Terminal		
RH	E24	2	Ground	Battery voltage
LH	E41	2		

OK or NG

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

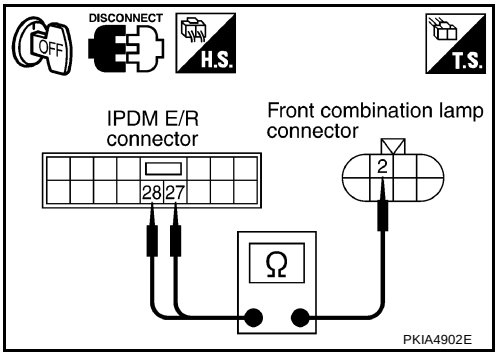
5. CHECK HEADLAMP CIRCUIT

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

27 – 2 : Continuity should exist.

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

28 – 2 : Continuity should exist.



OK or NG

OK >> Replace IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R" .
NG >> Repair harness or connector.

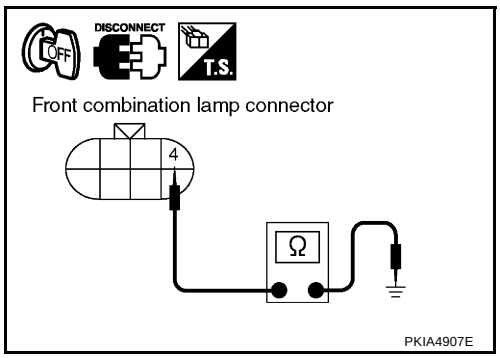
6. CHECK HEADLAMP GROUND

1. Check continuity between front combination lamp RH harness connector E24 terminal 4 and ground.

4 – Ground : Continuity should exist.

2. Check continuity between front combination lamp LH harness connector E41 terminal 4 and ground.

4 – Ground : Continuity should exist.



OK or NG

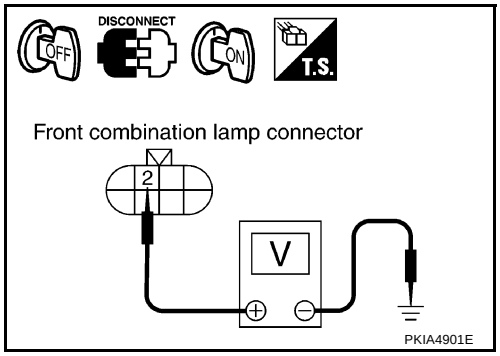
OK >> Replace front combination lamp. Refer to LT-32, "Removal and Installation" .
NG >> Repair harness or connector.

Headlamp Does Not Change To High Beam (One Side)

NKS002NQ

1. CHECK HEADLAMP INPUT SIGNAL

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



(+)			(–)	Voltage
Front combination lamp connector		Terminal		
RH	E24	2	Ground	Battery voltage
LH	E41	2		

OK or NG

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

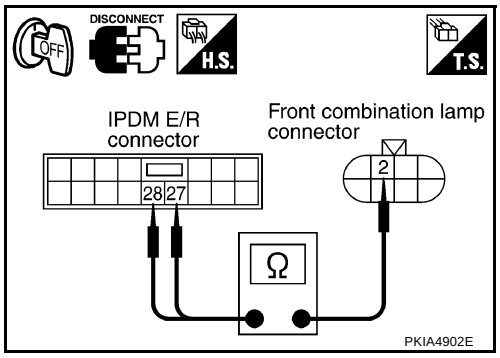
2. CHECK HEADLAMP CIRCUIT

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

27 – 2 : Continuity should exist.

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

28 – 2 : Continuity should exist.



OK or NG

OK >> Replace IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R" .
NG >> Repair harness or connector.

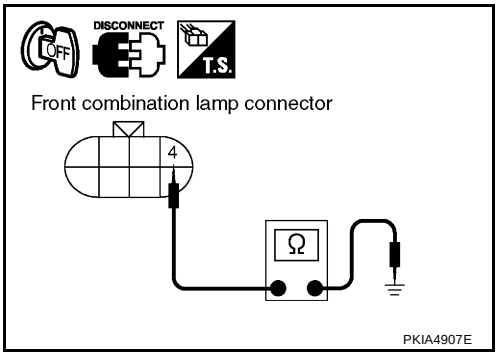
3. CHECK HEADLAMP GROUND

1. Check continuity between front combination lamp RH harness connector E24 terminal 4 and ground.

4 – Ground : Continuity should exist.

2. Check continuity between front combination lamp LH harness connector E41 terminal 4 and ground.

4 – Ground : Continuity should exist.



OK or NG

OK >> Replace front combination lamp. Refer to LT-32, "Removal and Installation" .

NG >> Repair harness or connector.

Headlamp Does Not Illuminate (Both Sides)

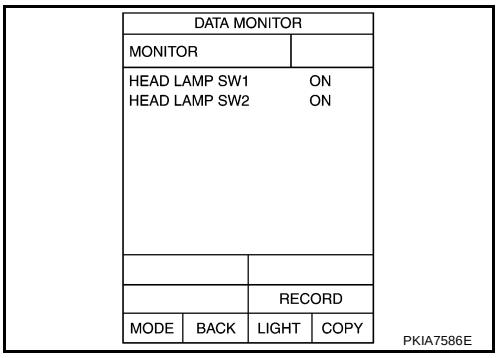
NKS002NS

1. CHECK COMBINATION SWITCH INPUT SIGNAL

With CONSULT-II

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

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



Without CONSULT-II

Refer to LT-100, "Combination Switch Inspection" .

OK or NG

OK >> GO TO 2.

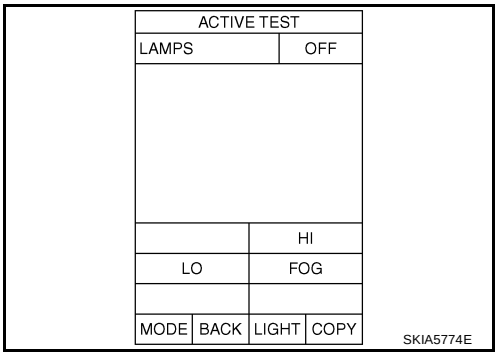
NG >> Check combination switch (lighting switch). Refer to LT-100, "Combination Switch Inspection" .

2. HEADLAMP ACTIVE TEST

With CONSULT-II

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

Headlamp low beam should operate.



Without CONSULT-II

1. Start auto active test. Refer to PG-21, "Auto Active Test" .
2. Make sure headlamp low beam operates.

Headlamp low beam should operate.

OK or NG

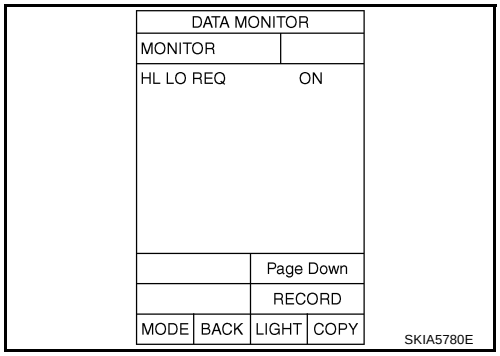
OK >> GO TO 3.

NG >> GO TO 4.

3. CHECK IPDM E/R

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

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



OK or NG

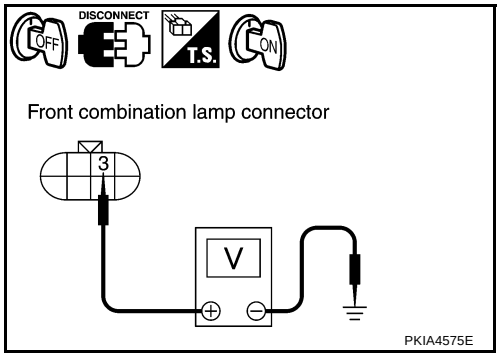
OK >> Replace IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R" .

NG >> Replace BCM. Refer to BCS-16, "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 connectors.
3. Select “IPDM E/R” on CONSULT-II, and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
4. Select “LAMPS” on “SELECT TEST ITEM” screen.
5. Touch “LO” screen.
6. When headlamp low relay is operating, check voltage between front combination lamp harness connector and ground.



(+)			(–)	Voltage
Front combination lamp connector		Terminal		
RH	E24	3	Ground	Battery voltage
LH	E41	3		

Without CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH and LH connectors.
3. Start auto active test. Refer to PG-21, "Auto Active Test" .
4. When headlamp low relay is operating, check voltage between front combination lamp harness connector and ground.

(+)			(–)	Voltage
Front combination lamp connector		Terminal		
RH	E24	3	Ground	Battery voltage
LH	E41	3		

OK or NG

OK >> GO TO 6.

NG >> GO TO 5.

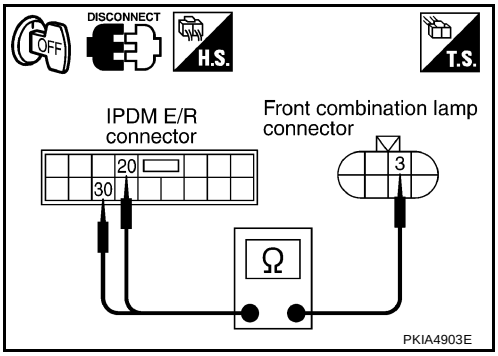
5. CHECK HEADLAMP CIRCUIT

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

20 – 3 : Continuity should exist.

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

30 – 3 : Continuity should exist.



OK or NG

OK >> Replace IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R" .
NG >> Repair harness or connector.

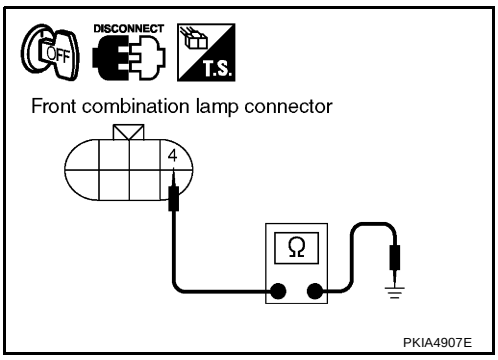
6. CHECK HEADLAMP GROUND

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

4 – Ground : Continuity should exist.

3. Check continuity between front combination lamp LH harness connector E41 terminal 4 and ground.

4 – Ground : Continuity should exist.



OK or NG

OK >> Check headlamp harness and connectors, ballasts (HID control unit), and xenon bulbs. Refer to LT-28, "Xenon Headlamp Trouble Diagnosis" .
NG >> Repair harness or connector.

Headlamp Does Not Illuminate (One Side)

NKS002NT

1. CHECK BULB

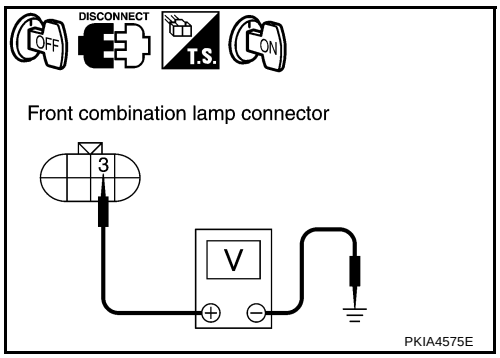
Check ballast (HID control unit) and xenon bulb of lamp which does not illuminate. Refer to LT-28, "Xenon Headlamp Trouble Diagnosis" .

OK or NG

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

2. CHECK HEADLAMP INPUT SIGNAL

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



(+)			(–)	Voltage
Front combination lamp connector		Terminal		
RH	E24	3	Ground	Battery voltage
LH	E41	3		

OK or NG

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

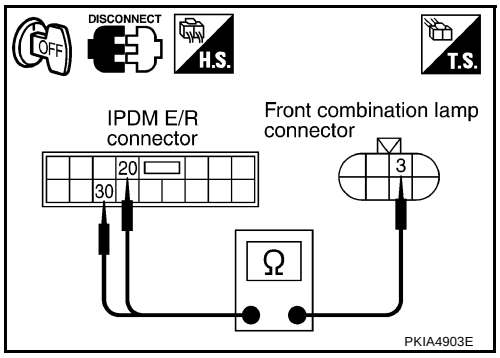
3. CHECK HEADLAMP CIRCUIT

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

20 – 3 : Continuity should exist.

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

30 – 3 : Continuity should exist.



OK or NG

OK >> Replace IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R" .
NG >> Repair harness or connector.

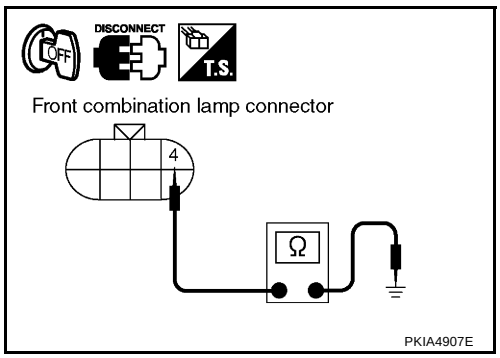
4. CHECK HEADLAMP GROUND

1. Check continuity between front combination lamp RH harness connector E24 terminal 4 and ground.

4 – Ground : Continuity should exist.

2. Check continuity between front combination lamp LH harness connector E41 terminal 4 and ground.

4 – Ground : Continuity should exist.



OK or NG

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

Headlamps Do Not Turn OFF

NKS002NW

1. CHECK HEADLAMP TURN OFF

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

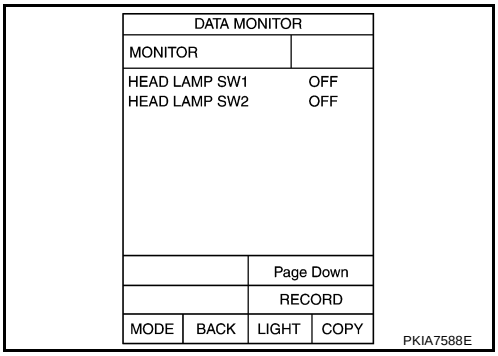
OK or NG

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

2. CHECK COMBINATION SWITCH INPUT SIGNAL

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

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



OK or NG

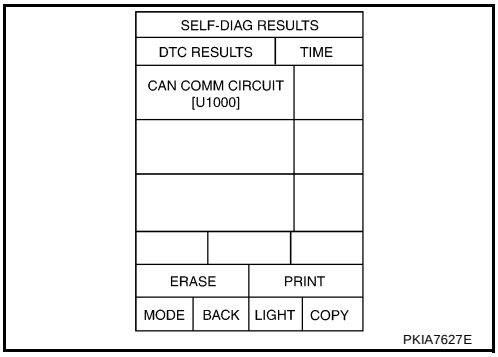
OK >> Replace IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R" .
NG >> Check combination switch (lighting switch). Refer to LT-100, "Combination Switch Inspection" .

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

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

Display of self-diagnosis results

NO DTC>> Replace IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R" .
CAN COMM CIRCUIT>> Refer to BCS-15, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .



General Information for Xenon Headlamp Trouble Diagnosis

NKS002NX

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

Caution:

NKS002NY

- Installation or removal of connector must be done with lighting switch OFF.
- Disconnect the battery cable from the negative terminal or remove power fuse.

  CAUTION:
  After the battery cables are disconnected, never open/close the driver and/or front passenger door with the window in the full up position. The automatic window adjusting function will not work and the side roof panel may be damaged.
- 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

NKS002NZ

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

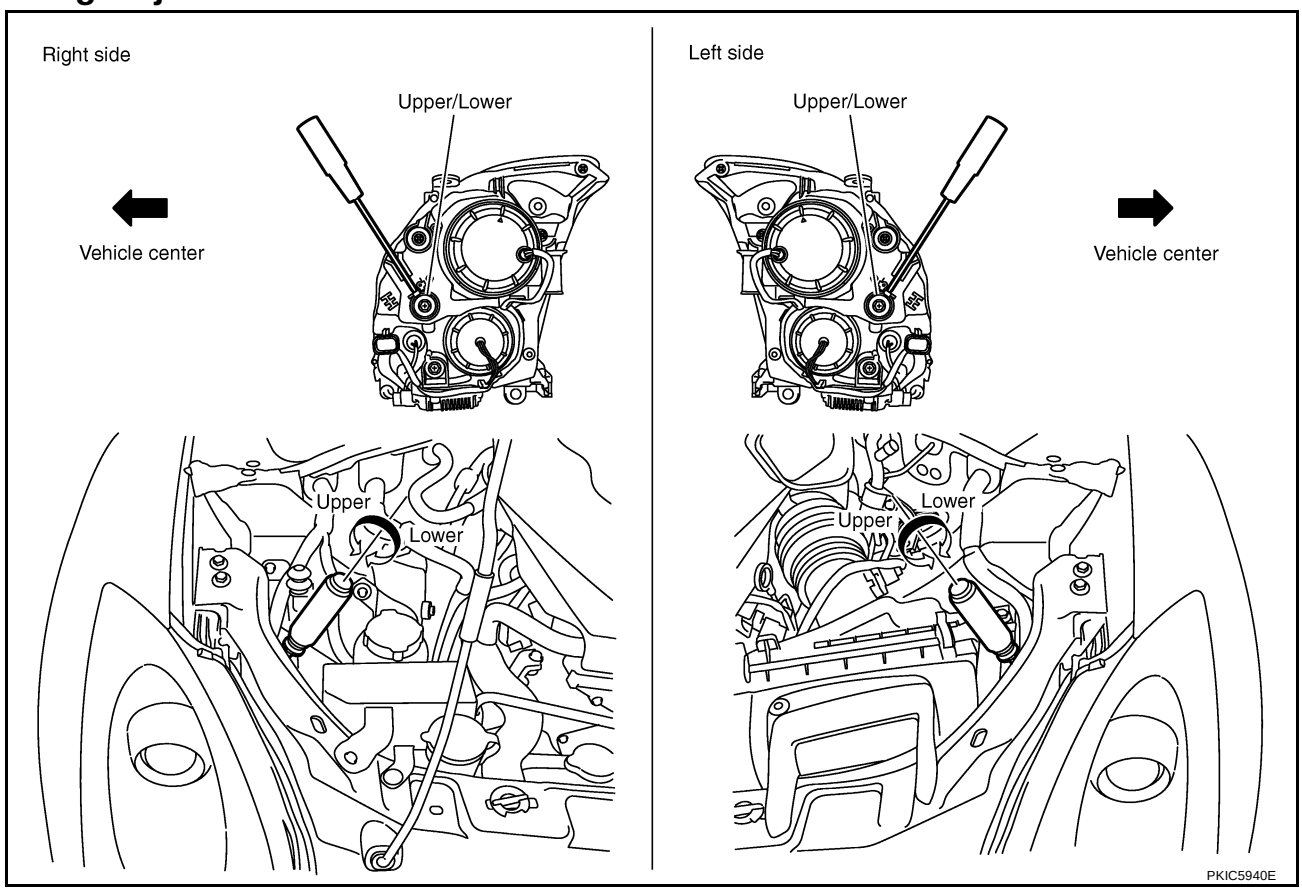
Install normal xenon lamp housing assembly to corresponding xenon headlamp, and check if lamp lights up.

OK or NG

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

Aiming Adjustment

NKS002O0



PREPARATION BEFORE ADJUSTING

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

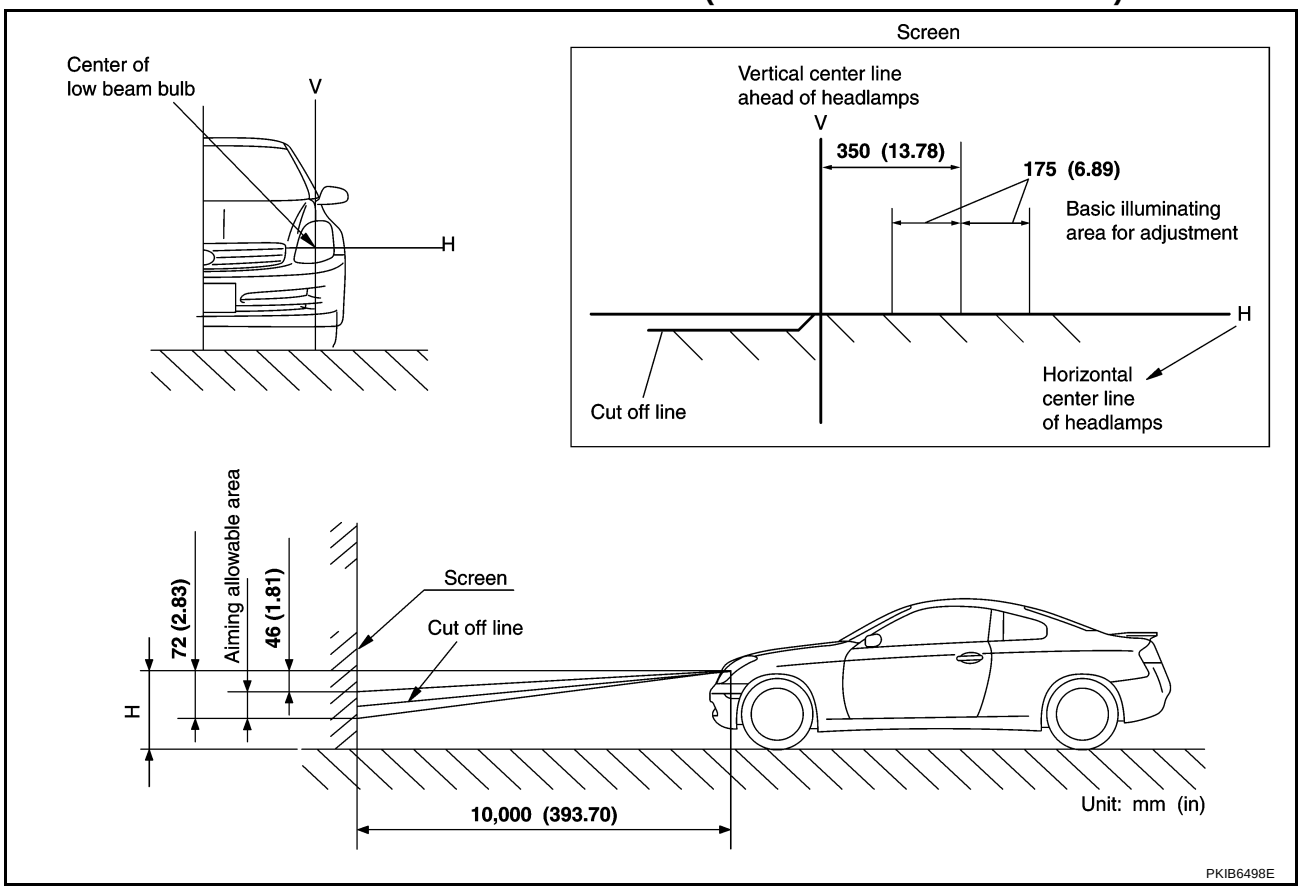
Before performing aiming adjustment, check the following.

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

LOW BEAM AND HIGH BEAM

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

ADJUSTMENT USING AN ADJUSTMENT SCREEN (LIGHT/DARK BORDERLINE)



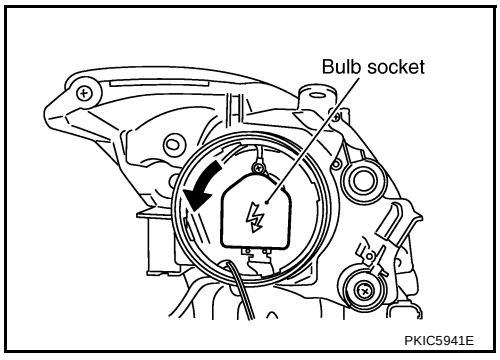
If the vehicle front body has been repaired and/or the headlamp assembly has been replaced, check aiming. Use the aiming chart shown in the figure.

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

Bulb Replacement

NKS002O1

HEADLAMP LOW/HIGH BEAM



1. Turn lighting switch OFF.
2. Open the driver and front passenger window, and then disconnect the battery cable from the negative terminal or remove power fuse.

   CAUTION:

   After the battery cables are disconnected, never open/close the driver and/or front passenger door with the window in the full up position. The automatic window adjusting function will not work and the side roof panel may be damaged.
3. Remove headlamp. Refer to LT-32, "Removal and Installation" .
4. Turn plastic cap counterclockwise and unlock it.
5. Turn bulb socket counterclockwise and unlock it.
6. Unlock retaining spring and remove bulb from headlamp.
7. Installation is the reverse order of removal.

FRONT FOG LAMP

1. Turn lighting switch OFF.
2. Open the driver and front passenger window, and then disconnect the battery cable from the negative terminal or remove power fuse.

   CAUTION:
   After the battery cables are disconnected, never open/close the driver and/or front passenger door with the window in the full up position. The automatic window adjusting function will not work and the side roof panel may be damaged.
3. Remove fender protector (front). Refer to EI-20, "FENDER PROTECTOR" .
4. Turn plastic cap counterclockwise and unlock it.
5. Disconnect bulb terminal.
6. Unlock retaining spring and remove bulb from headlamp.
7. Installation is the reverse order of removal.

PARKING LAMP

1. Turn lighting switch OFF.
2. Open the driver and front passenger window, and then disconnect the battery cable from the negative terminal or remove power fuse.

   CAUTION:
   After the battery cables are disconnected, never open/close the driver and/or front passenger door with the window in the full up position. The automatic window adjusting function will not work and the side roof panel may be damaged.
3. Remove fender protector (front). Refer to EI-20, "FENDER PROTECTOR" .
4. Push the claw of bulb socket and remove it.
5. Remove bulb from its socket.
6. Installation is the reverse order of removal.

FRONT TURN SIGNAL LAMP

1. Turn lighting switch OFF.
2. Open the driver and front passenger window, and then disconnect the battery cable from the negative terminal or remove power fuse.

   CAUTION:
   After the battery cables are disconnected, never open/close the driver and/or front passenger door with the window in the full up position. The automatic window adjusting function will not work and the side roof panel may be damaged.
3. Remove fender protector (front). Refer to EI-20, "FENDER PROTECTOR" .
4. Turn bulb socket counterclockwise and unlock it.
5. Remove bulb from its socket.
6. Installation is the reverse order of removal.

Headlamp low/high beam (Xenon)	**: 12 V - 35 W (D2S)**
Front fog lamp	**: 12 V - 55 W (H1)**
Parking lamp	**: 12 V - 5 W**
Front turn signal lamp	**: 1 2 V - 21 W (amber bulb)**

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

Removal and Installation

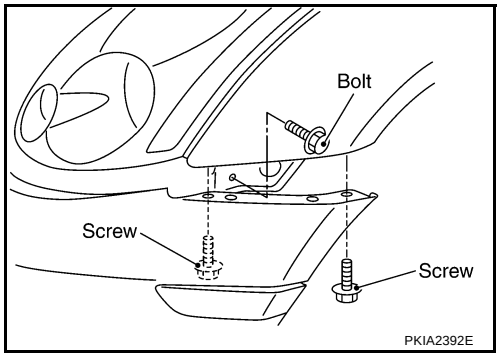
NKS002O2

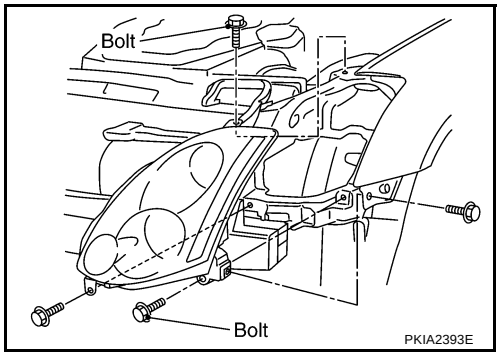
REMOVAL

1. Open the driver and front passenger window, and then disconnect the battery cable from the negative terminal or remove power fuse.

   CAUTION:
   After battery cables are disconnected, never open/close the driver and/or front passenger door with the window in the full up position. The automatic window adjusting function will not work and the side roof panel may be damaged.
2. Remove front grille. Refer to EI-18, "FRONT GRILLE" .
3. Remove front undercover and fender protector. Refer to EI-20, "FENDER PROTECTOR" .
4. Remove mounting clip on top of front bumper and screws on side of front bumper. Refer to EI-14, "FRONT BUMPER" .
5. Pull side of front bumper toward the vehicle front and disengage it from clips on the body.
6. Remove headlamp mounting bolts.
7. Pull headlamp toward the vehicle front, disconnect connector, and remove headlamp.

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





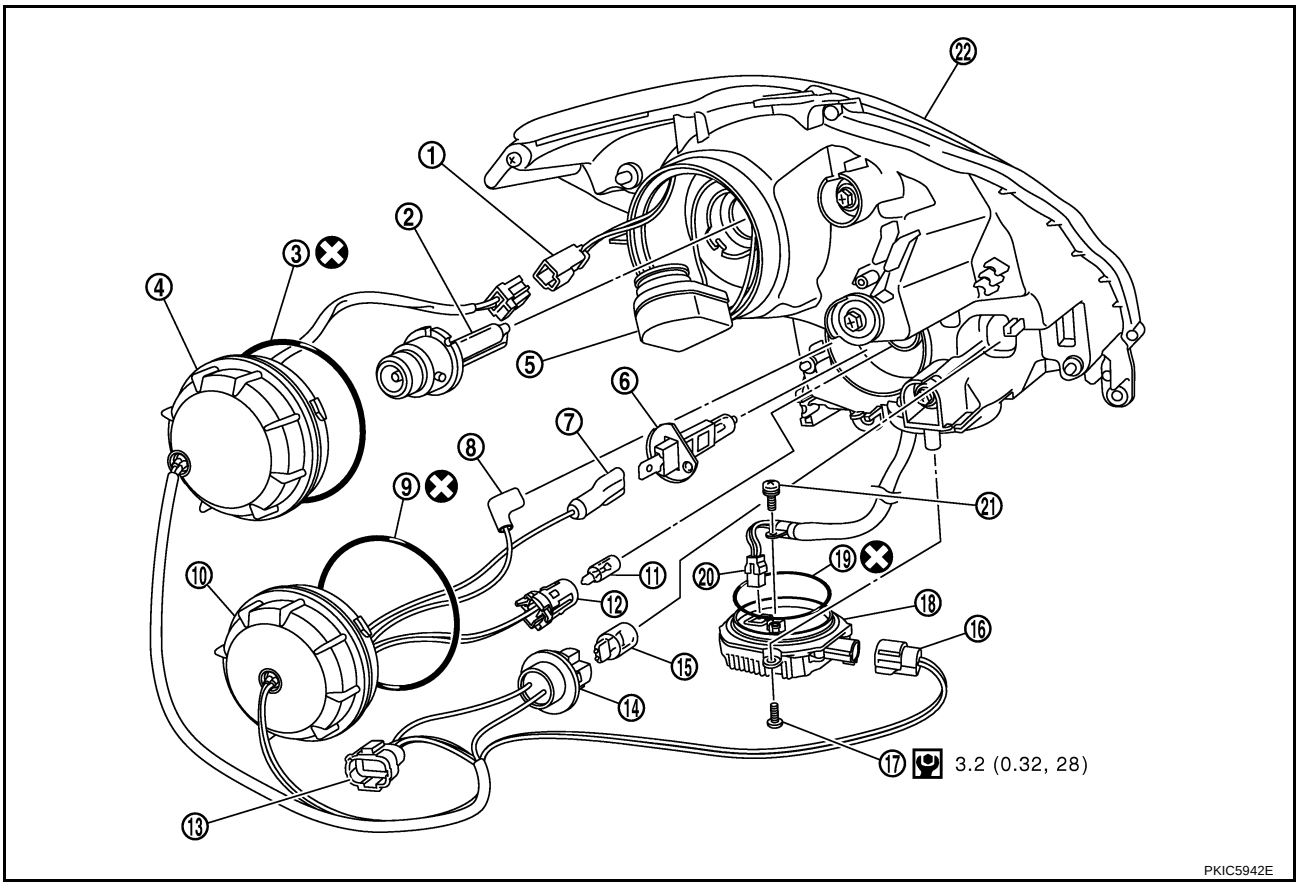
INSTALLATION

Installation is the reverse order of removal.

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

Disassembly

NKS002O3



1. High beam solenoid connector
2. Xenon bulb (high/low)
3. Seal packing
4. Plastic cap (high/low)
5. Xenon bulb socket
6. Halogen bulb (front fog)
7. Halogen bulb power supply harness
8. Halogen bulb ground harness
9. Seal packing
10. Plastic cap (front fog)
11. Parking lamp bulb
12. Parking lamp bulb socket
13. Headlamp assembly connector
14. Front turn signal lamp bulb socket
15. Front turn signal lamp bulb
16. HID C/U connector
17. Screw
18. HID C/U
19. Seal packing
20. HID connector
21. Screw
22. Headlamp housing assembly

1. Turn the plastic cap (high/low) counterclockwise and remove it.
2. Disconnect the high beam solenoid connector.
3. Turn the xenon bulb socket counterclockwise and remove it.
4. Unlock the retaining spring and remove the xenon bulb (high/low).
5. Disconnect the HID C/U connector.
6. Remove the mounting screws from the HID C/U.
7. Disconnect the HID connector and remove a screw from the HID C/U.
8. Turn the plastic cap (front fog) counterclockwise and remove it.
9. Disconnect the halogen bulb power supply harness and halogen bulb ground harness from the halogen bulb (front fog).
10. Unlock the retaining spring and remove the halogen bulb (front fog).
11. Push the claw of the parking lamp bulb socket and remove it.
12. Remove the parking lamp bulb from its socket.
13. Turn the front turn signal lamp bulb socket counterclockwise and remove it.
14. Remove the front turn signal lamp bulb from its socket.
15. Remove the headlamp assembly connector.

Assembly

NKS002O4

Assembly is the reverse order of disassembly.

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

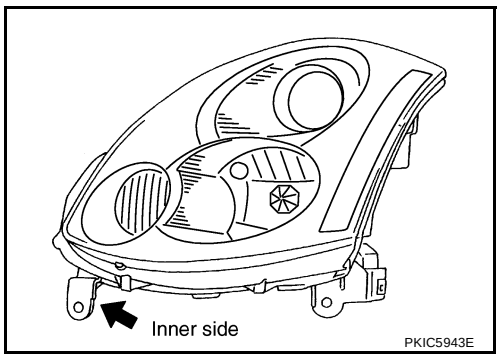
CAUTION:

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

Servicing to Replace Headlamps When Damaged

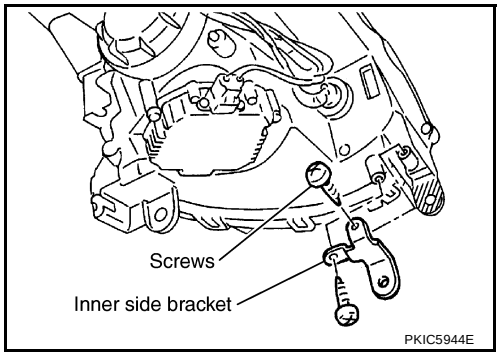
NKS002O5

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



REMOVAL AND INSTALLATION

1. Remove headlamps. Refer to LT-32, "Removal and Installation" .
2. Cut damaged section of installation part, and then shape with sandpaper.
3. Attach Inner side bracket to headlamp housing boss with 2 screws.

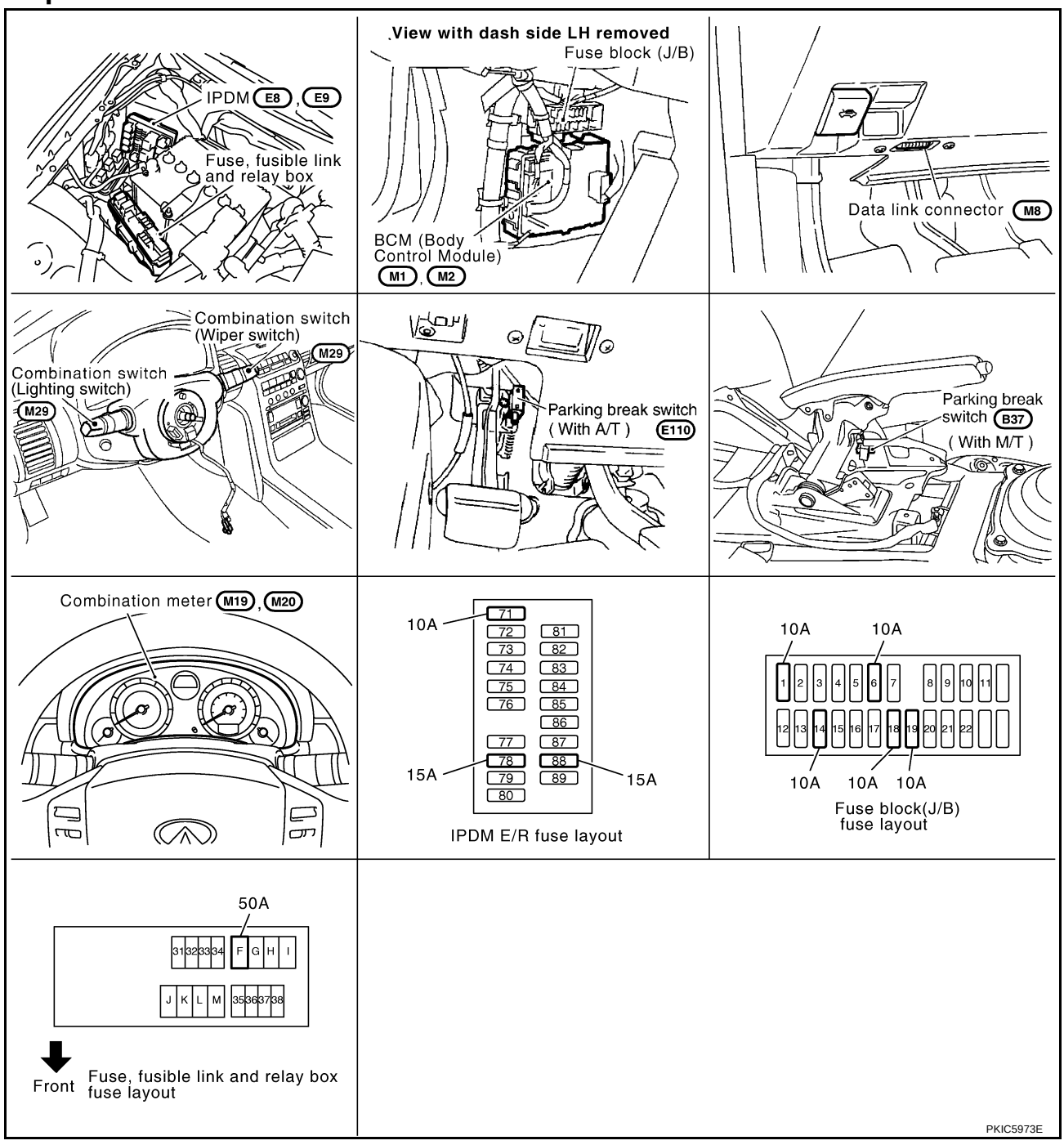


DAYTIME LIGHT SYSTEM

PFP:284B2

Component Parts and Harness Connector Location

NKS0027G



System Description

NKS0027H

Daytime light system turns ON daytime light lamps (front fog lamps) while driving. Daytime light lamps are not turned ON if engine is activated with parking brake ON. Release parking brake to turn on daytime light lamps. The lamps turn OFF when lighting switch is in the 2ND position or AUTO position (headlamp 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.

OUTLINE

Power is supplied at all times

- to ignition relay located in IPDM E/R (intelligent power distribution module engine room), from battery direct,

- through 15A fuse (No. 88, located in IPDM E/R)
- to front fog lamp relay located in IPDM E/R,
- through 10A 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. 18, located in fuse block (J/B)]
- to BCM terminal 42,
- through 10A fuse [No. 19, located in fuse block (J/B)]
- to combination meter terminal 21.

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

- to ignition relay located in IPDM E/R, from battery direct,
- through 10A 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 terminals 22 and 23.

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

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

Ground is supplied

- to BCM terminal 52 and
- to combination meter terminals 1, 24 and 25
- through grounds M30 and M66,
- to IPDM E/R terminals 38 and 60
- through grounds E17 and E43.

DAYTIME LIGHT OPERATION

With the engine running, the lighting switch in the OFF or 1ST position and parking brake released, the CPU located in the IPDM E/R grounds the coil side of the front fog lamp relay. The front fog lamp relay then directs power

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

Ground is supplied

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

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

COMBINATION SWITCH READING FUNCTION

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

EXTERIOR LAMP BATTERY SAVER CONTROL

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

AUTO LIGHT OPERATION

For auto light operation, refer to LT-51, "System Description" .

CAN Communication System Description

NKS0027I

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.

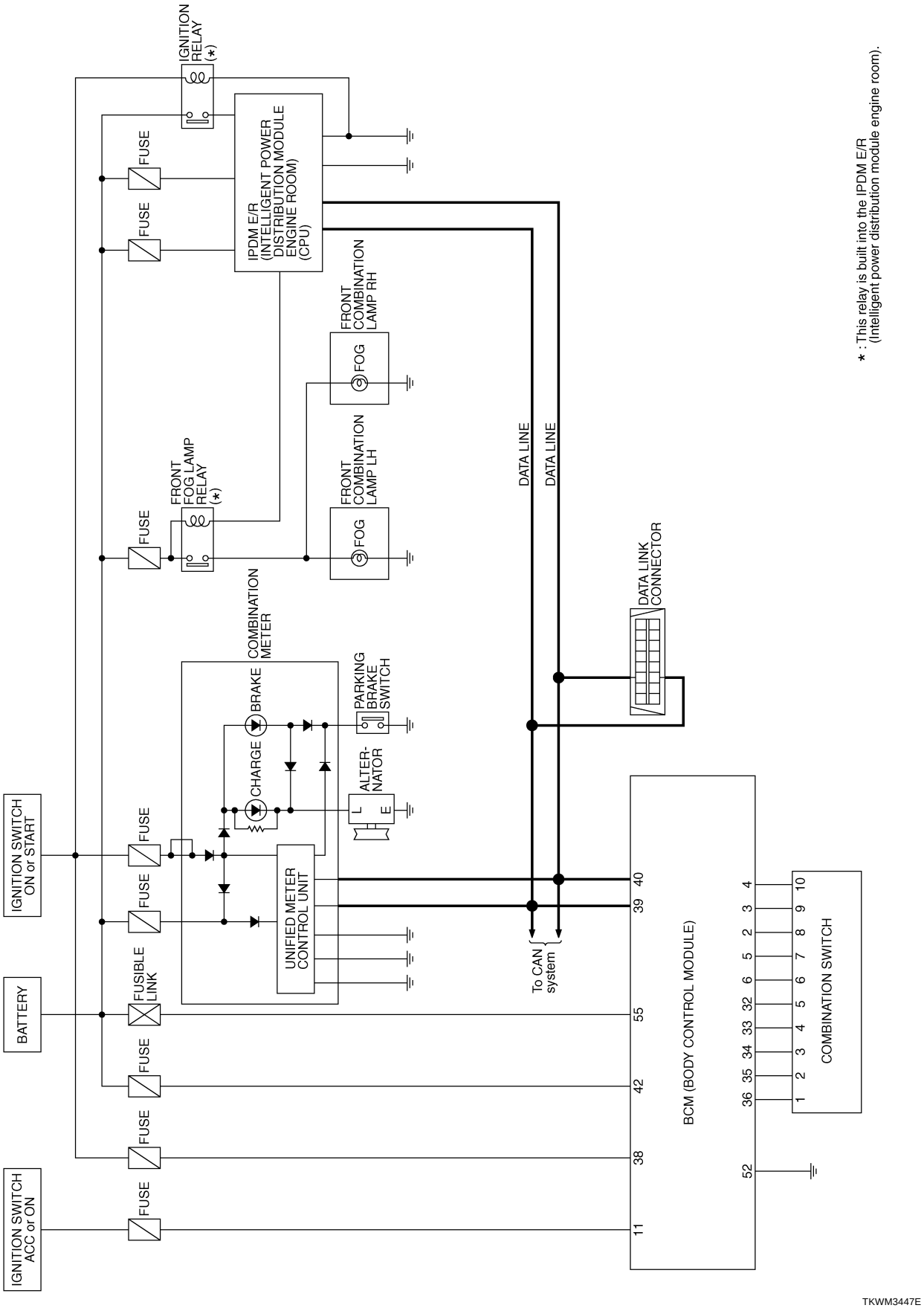
CAN Communication Unit

NKS0027J

Refer to LAN-47, "CAN System Specification Chart" .

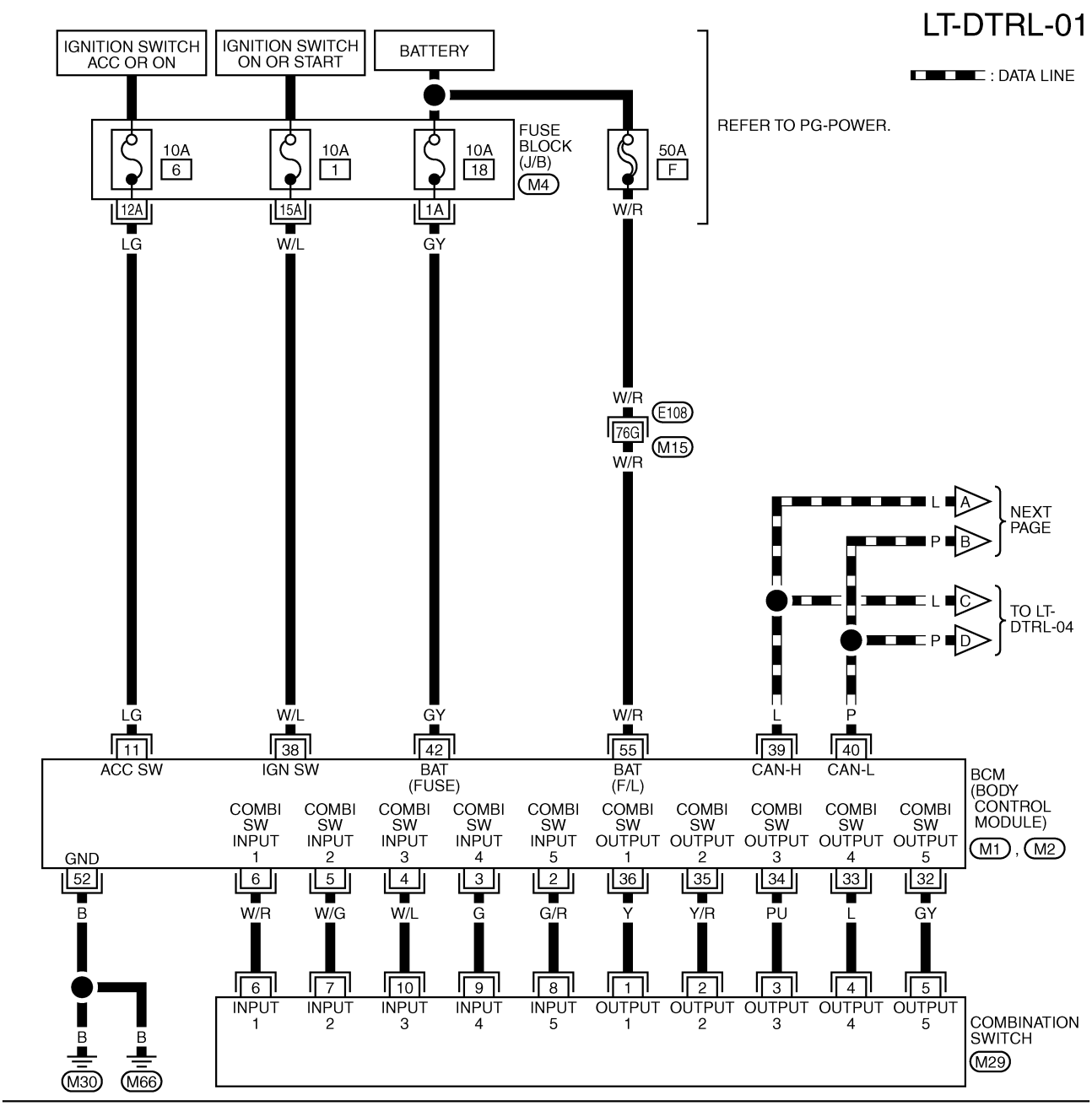
Schematic

NKS0027K



Wiring Diagram — DTRL —

NKS0027L



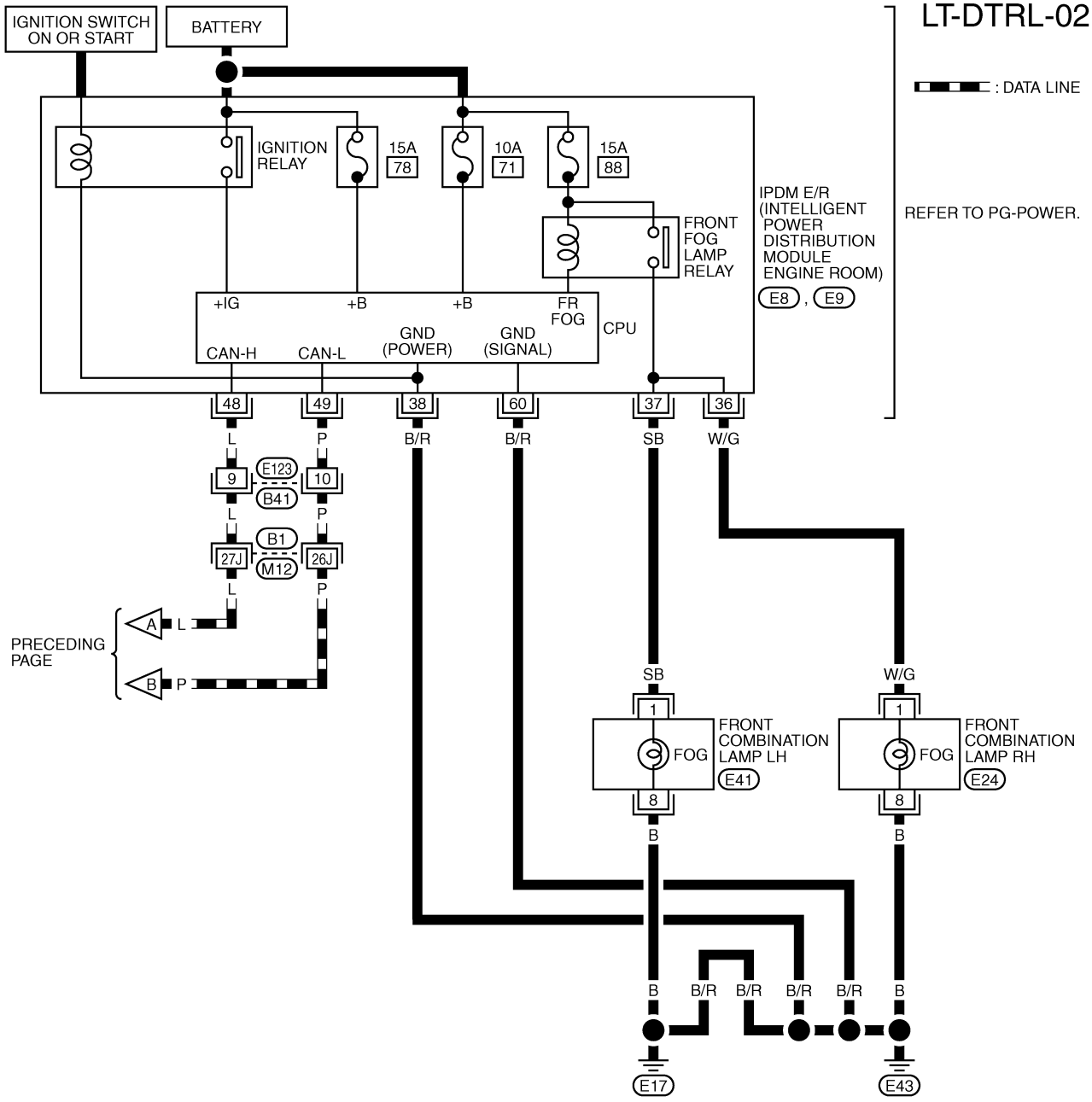
REFER TO THE FOLLOWING.

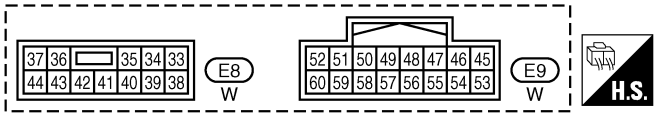
E108 -SUPER MULTIPLE JUNCTION (SMJ)

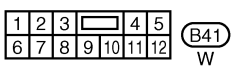
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

M1, M2 -ELECTRICAL UNITS

TKWM3448E

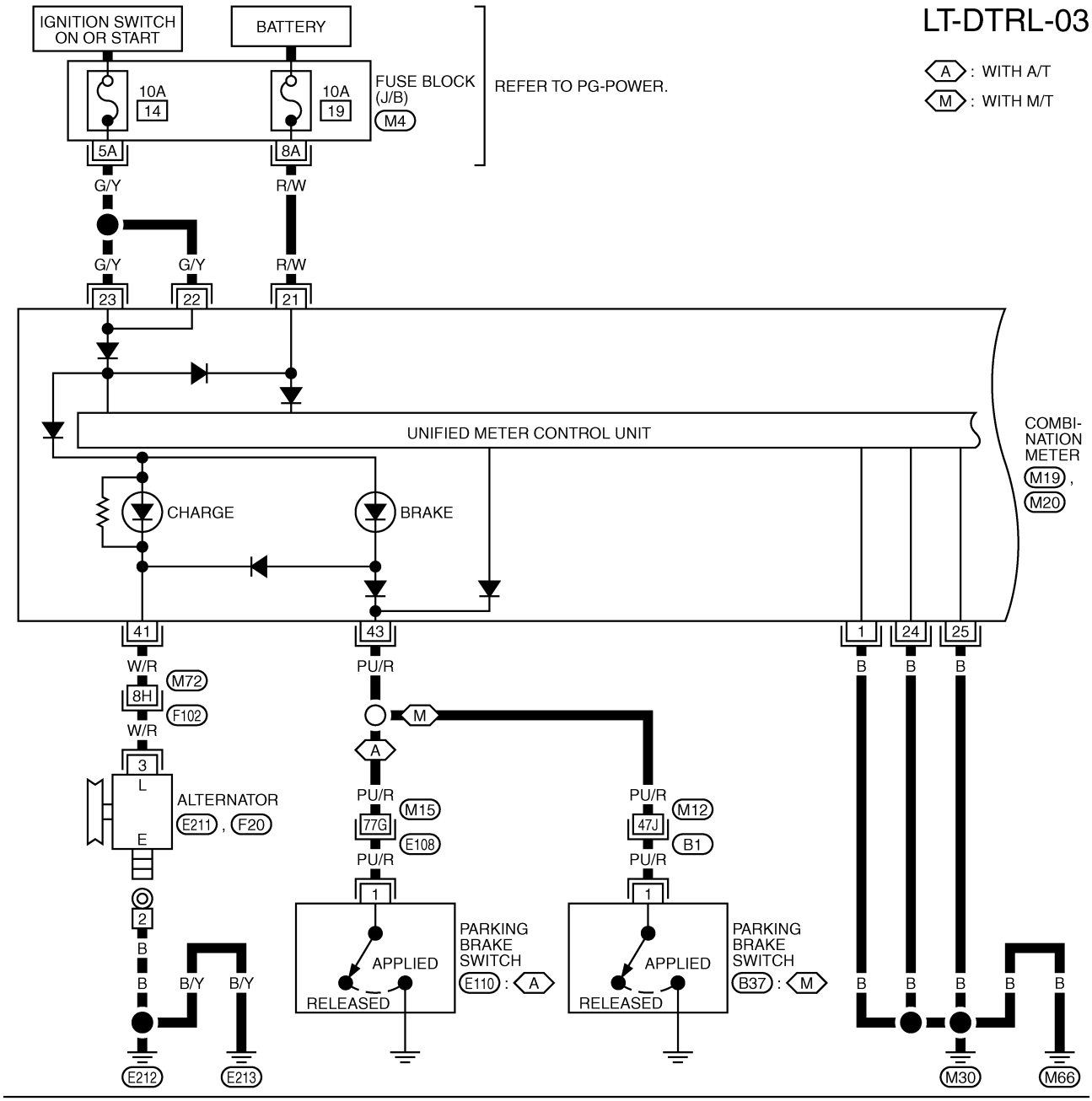






REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)

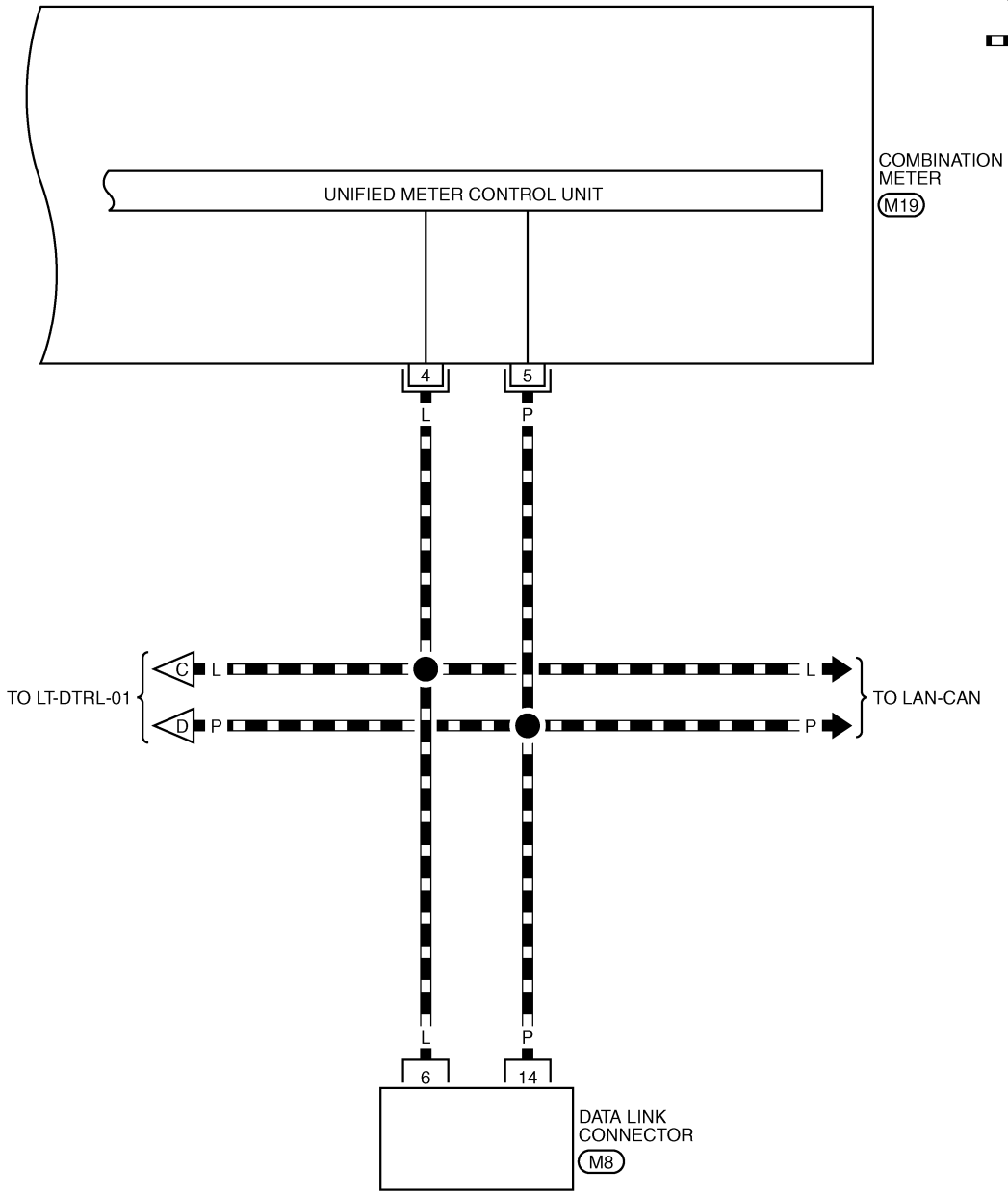
TKWM4012E

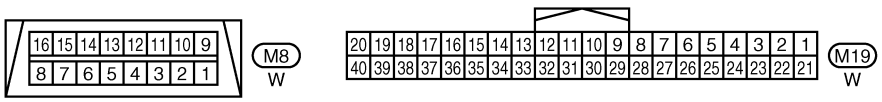


REFER TO THE FOLLOWING.
E108, F102, B1 -SUPER MULTIPLE JUNCTION (SMJ)
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWM3451E

LT-DTRL-04





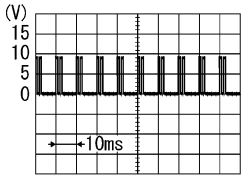
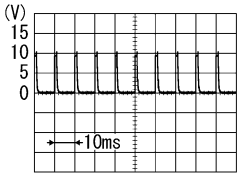
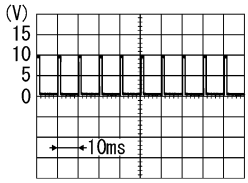
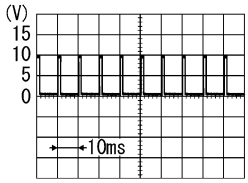
TKWM3452E

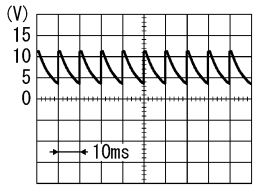
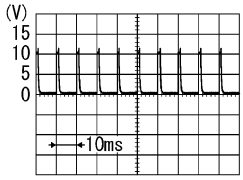
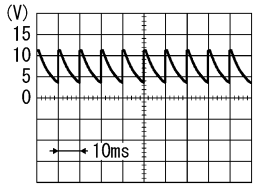
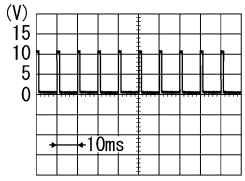
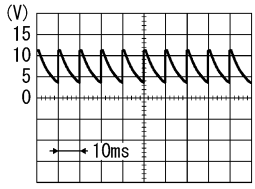
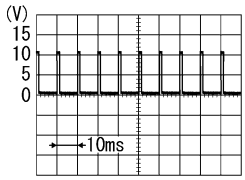
Terminals and Reference Values for BCM

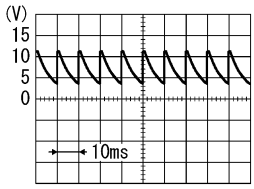
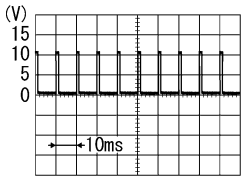
NKS0027M

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-17, "DATA MONITOR" .**

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
2	G/R	Combination switch input 5	ON	Lighting, turn, wiper switch (Wiper intermit-tent dial position 4)	OFF	Approx. 0 V
					Lighting switch 2ND	 PKIB4953J Approx. 2.0 V
3	G	Combination switch input 4	ON	Lighting, turn, wiper switch (Wiper intermit-tent dial position 4)	OFF	Approx. 0 V
					Front fog lamp switch (Operate only front fog lamp switch)	 PKIB4955J Approx. 0.8 V
					Any of the condi-tions below ● Lighting switch 2ND ● Lighting switch PASSING (Operates only PASSING switch)	 PKIB4959J Approx. 1.0 V
4	W/L	Combination switch input 3	ON	Lighting, turn, wiper switch (Wiper intermit-tent dial position 4)	OFF	Approx. 0 V
					Any of the condi-tions below ● Lighting switch AUTO	 PKIB4959J Approx. 1.0 V
11	LG	Ignition switch (ACC)	ACC	—		Battery voltage

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
32	GY	Combination switch output 5	ON	Lighting, turn, wiper switch (Wiper intermit-tent dial position 4)	OFF	 PKIB4960J Approx. 7.2 V
					Front fog lamp switch (Operates only front fog lamp switch)	 PKIB4956J Approx. 1.0 V
33	L	Combination switch output 4	ON	Lighting, turn, wiper switch (Wiper intermit-tent dial position 4)	OFF	 PKIB4960J Approx. 7.2 V
					Lighting switch AUTO	 PKIB4958J Approx. 1.2 V
34	PU	Combination switch output 3	ON	Lighting, turn, wiper switch (Wiper intermit-tent dial position 4)	OFF	 PKIB4960J Approx. 7.2 V
					Lighting switch 2ND	 PKIB4958J Approx. 1.2 V

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
35	Y/R	Combination switch output 2	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	 PKIB4960J Approx. 7.2 V
					Any of the conditions below ● Lighting switch 2ND ● Lighting switch PASSING (Operates only PASSING switch)	 PKIB4958J Approx. 1.2 V
38	W/L	Ignition switch (ON)	ON	—		Battery voltage
39	L	CAN - H	—	—		—
40	P	CAN - L	—	—		—
42	GY	Battery power supply	OFF	—		Battery voltage
52	B	Ground	ON	—		Approx. 0 V
55	W/R	Battery power supply	OFF	—		Battery voltage

Terminals and Reference Values for IPDM E/R

NKS0027N

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

How to Proceed With Trouble Diagnosis

NKS0027O

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-35, "System Description" .
3. Perform the Preliminary Check. Refer to LT-46, "Preliminary Check" .
4. Check symptom and repair or replace the cause of malfunction.
5. Does the front fog lamp operate normally? If YES, GO TO 6. If NO, GO TO 4.
6. INSPECTION END

Preliminary Check

NKS0027P

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
		18
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	88

Refer to LT-39, "Wiring Diagram — DTRL —" .

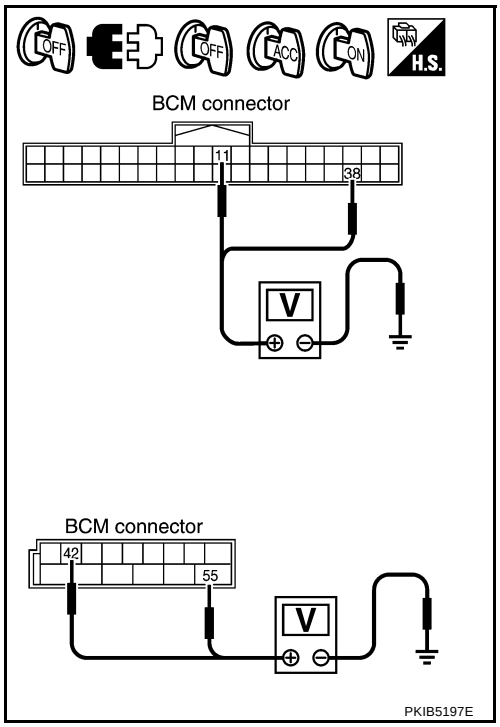
OK or NG

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.

(+)		(–)	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



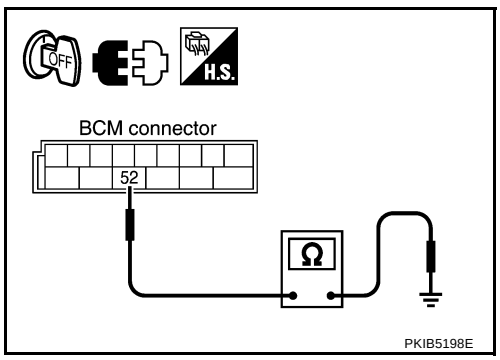
OK or NG

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.

CHECK PARKING BRAKE SWITCH CIRCUIT

1. CHECK BRAKE INDICATOR

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

OK or NG

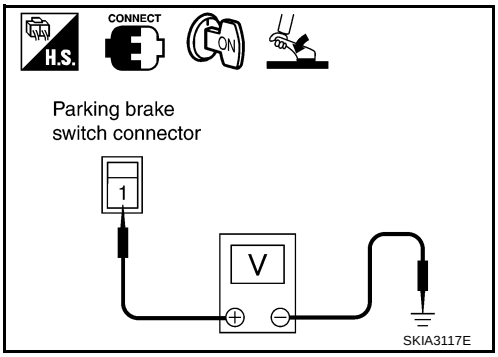
OK >> INSPECTION END
NG >> GO TO 2.

2. CHECK PARKING BRAKE SWITCH SIGNAL

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

(+)		(–)	Condition	Voltage
Parking brake switch connector	Terminal			
E110 *1 , B37 *2	1	Ground	Not released	Approx. 0 V
			Released	Battery voltage

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



OK or NG

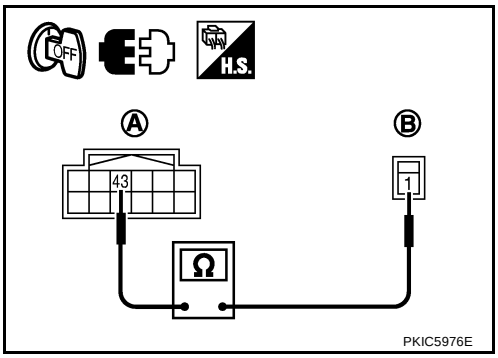
OK >> GO TO 3
NG >> Replace parking brake switch.

3. CHECK PARKING BRAKE SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect parking brake switch connector and combination meter connector.
3. Check continuity between combination meter harness connector (A) M20 terminal 43 and parking brake switch harness connector (B) E110 *1 , B37 *2 terminal 1.

43 – 1 : Continuity should exist.

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



OK or NG

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

CONSULT-II Functions (BCM)

NKS0027Q

Refer to LT-16, "CONSULT-II Functions (BCM)" .

CONSULT-II Functions (IPDM E/R)

NKS0027R

Refer to LT-18, "CONSULT-II Functions (IPDM E/R)" .

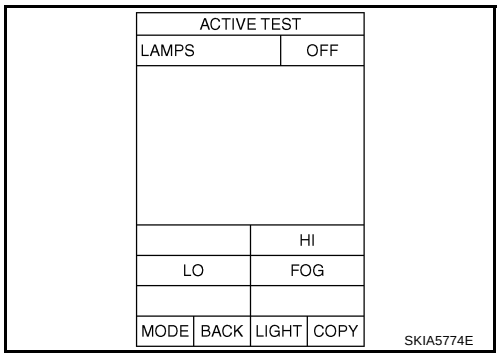
Daytime Light Control Does Not Operate Properly

NKS0027S

1. FRONT FOG LAMP ACTIVE TEST

With CONSULT-II

1. Select “IPDM E/R” on CONSULT-II, and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
2. Select “LAMPS” on “SELECT TEST ITEM” screen.
3. Touch “FOG” screen.
4. Make sure front fog lamp operates.



Front fog lamp should operate.

Without CONSULT-II

1. Start auto active test. Refer to PG-21, "Auto Active Test" .
2. Make sure front fog lamp operates.

Front fog lamp should operate.

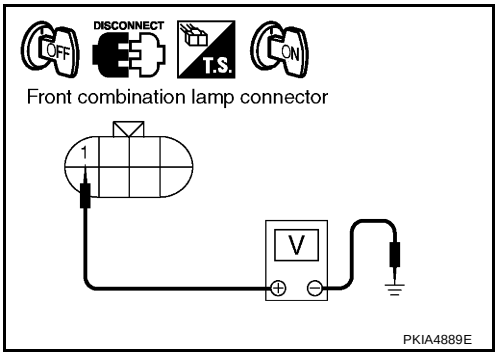
OK or NG

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

2. CHECK FRONT FOG LAMP INPUT SIGNAL

With CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH and LH connectors.
3. Select “IPDM E/R” on CONSULT-II, and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
4. Select “LAMPS” on “SELECT TEST ITEM” screen.
5. Touch “FOG” screen.
6. When front fog lamp is operating, check voltage between front combination lamp RH and LH harness connectors and ground.



(+)			(–)	Voltage
Front combination lamp connector		Terminal		
RH	E24	1	Ground	Battery voltage
LH	E41	1		

Without CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH and LH connectors.
3. Start auto active test. Refer to PG-21, "Auto Active Test" .
4. When front fog lamp is operating, check voltage between front combination lamp RH and LH harness connectors and ground.

(+)			(–)	Voltage
Front combination lamp connector		Terminal		
RH	E24	1	Ground	Battery voltage
LH	E41	1		

OK or NG

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

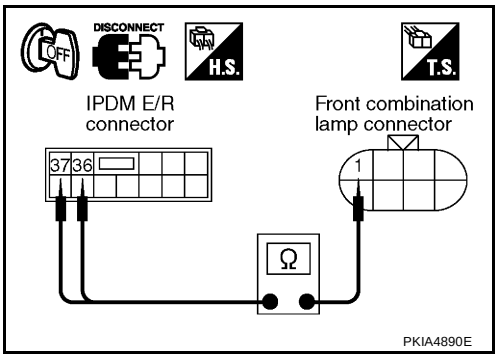
3. CHECK FRONT FOG LAMP CIRCUIT

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

36 – 1 : Continuity should exist.

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

37 – 1 : Continuity should exist.



OK or NG

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

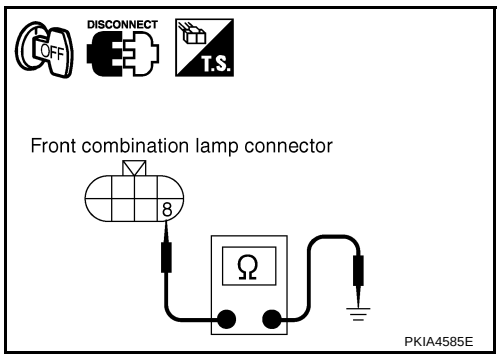
4. CHECK FRONT FOG LAMP GROUND

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

   8 – Ground : Continuity should exist.

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

   8 – Ground : Continuity should exist.



OK or NG

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

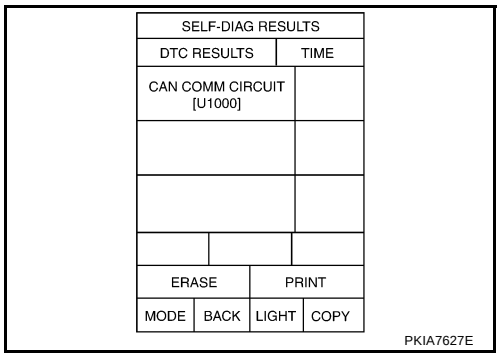
5. CHECK SELF-DIAGNOSIS

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

Displayed results of self-diagnosis

No malfunction detected>> Replace BCM. Refer to BCS-16, "Removal and Installation of BCM" .

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



Aiming Adjustment

NKS0053U

Refer to LT-29, "Aiming Adjustment" .

Bulb Replacement

NKS0053V

Refer to LT-30, "Bulb Replacement" .

Removal and Installation

NKS0053W

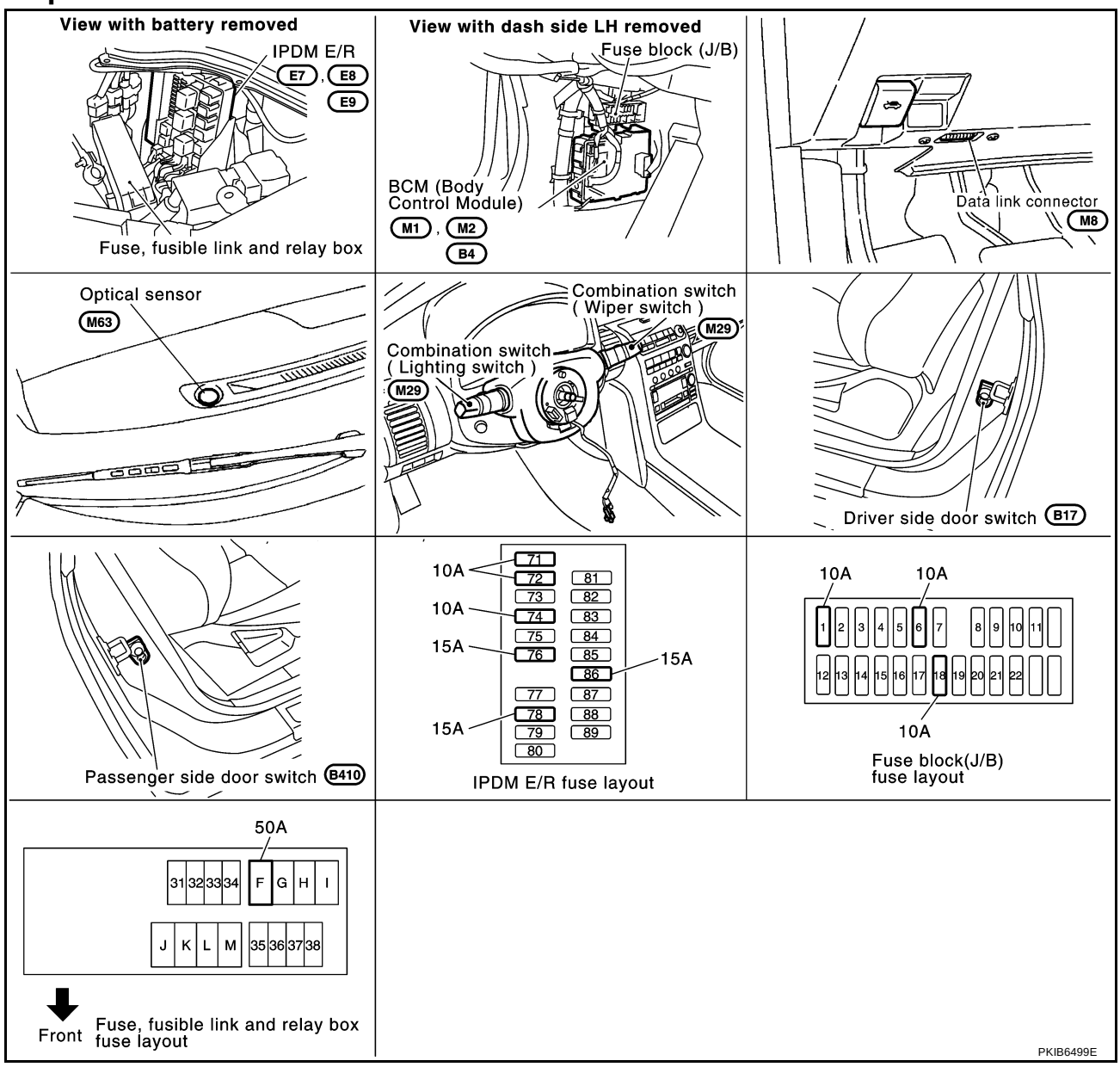
Refer to LT-32, "Removal and Installation" .

AUTO LIGHT SYSTEM

PFP:28491

Component Parts and Harness Connector Location

NKS000GY



System Description

NKS000GZ

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-59, "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-51, "System Description" .

COMBINATION SWITCH READING FUNCTION

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

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 minute timer and a 45 second timer

- When opening any door (door switch is ON), the 5 minute 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 second timer is in operation, the 5 minute 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

NKS000H0

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

NKS000H1

Refer to LAN-47, "CAN System Specification Chart" .

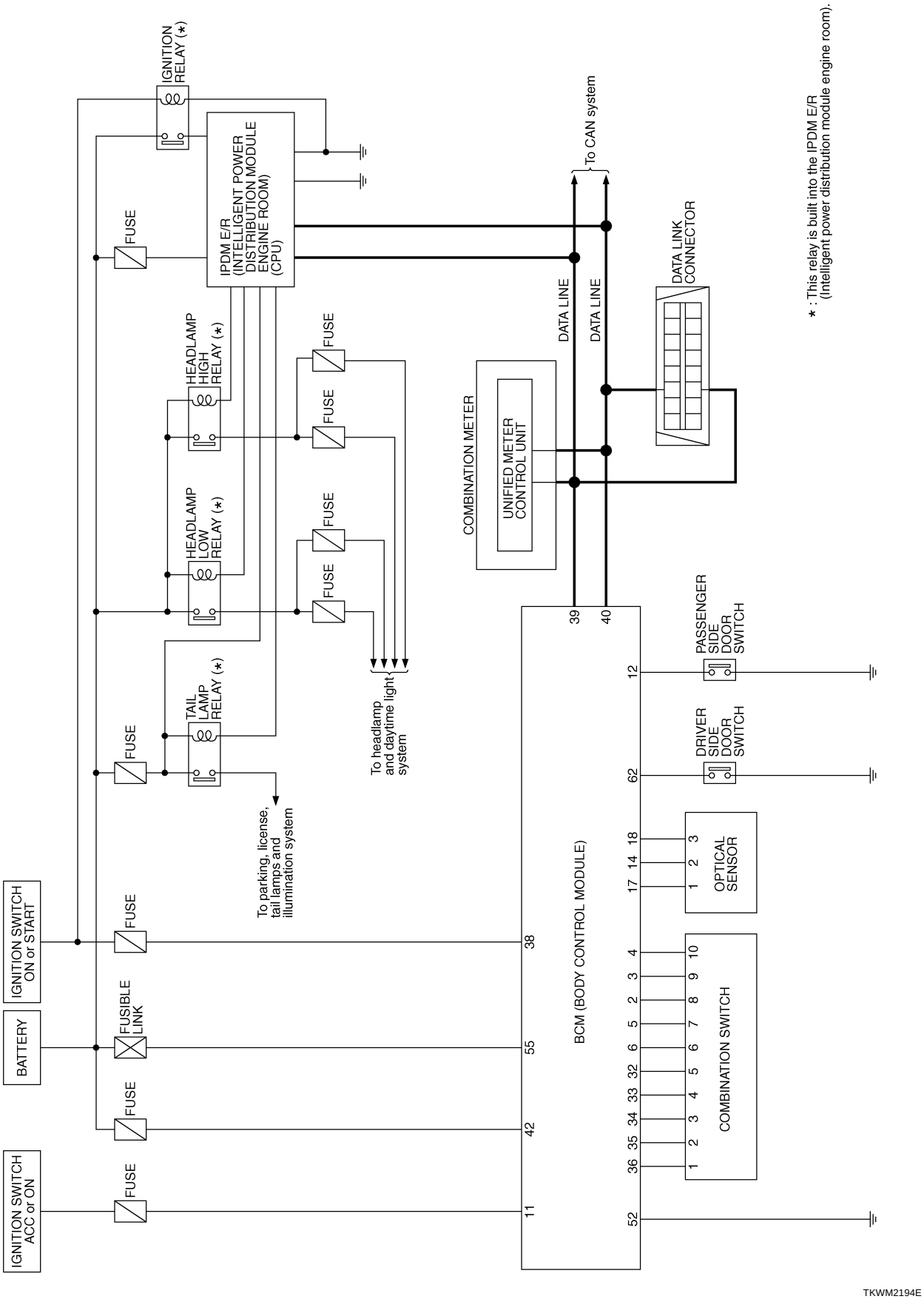
Major Components and Functions

NKS000H2

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 and ignition switch (ON, OFF).
Optical sensor	● Converts outside brightness (lux) to voltage, and sends it to BCM. (Detects brightness of 800 to 2,500 lux)

Schematic

NKS000H3

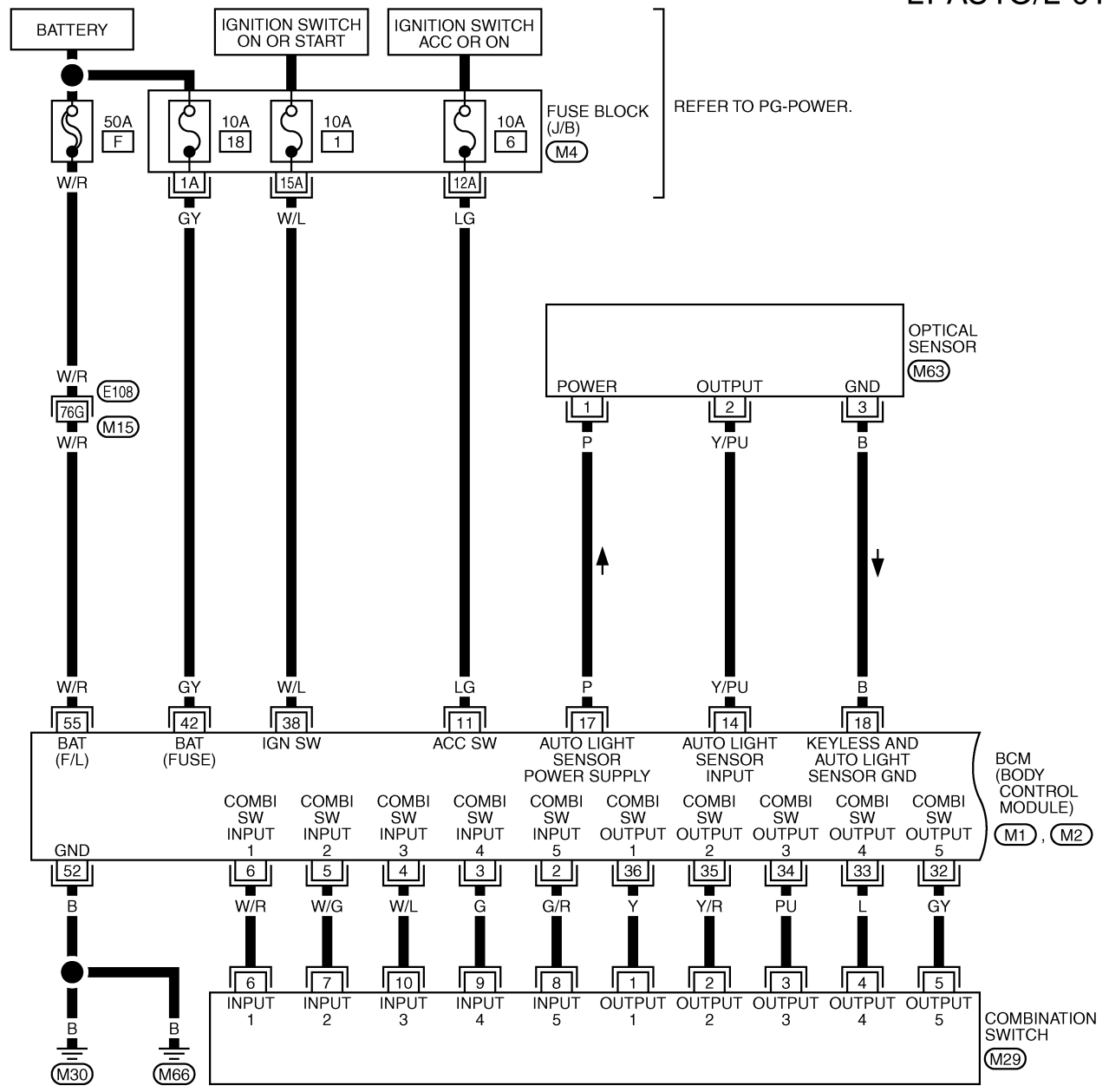


TKWM2194E

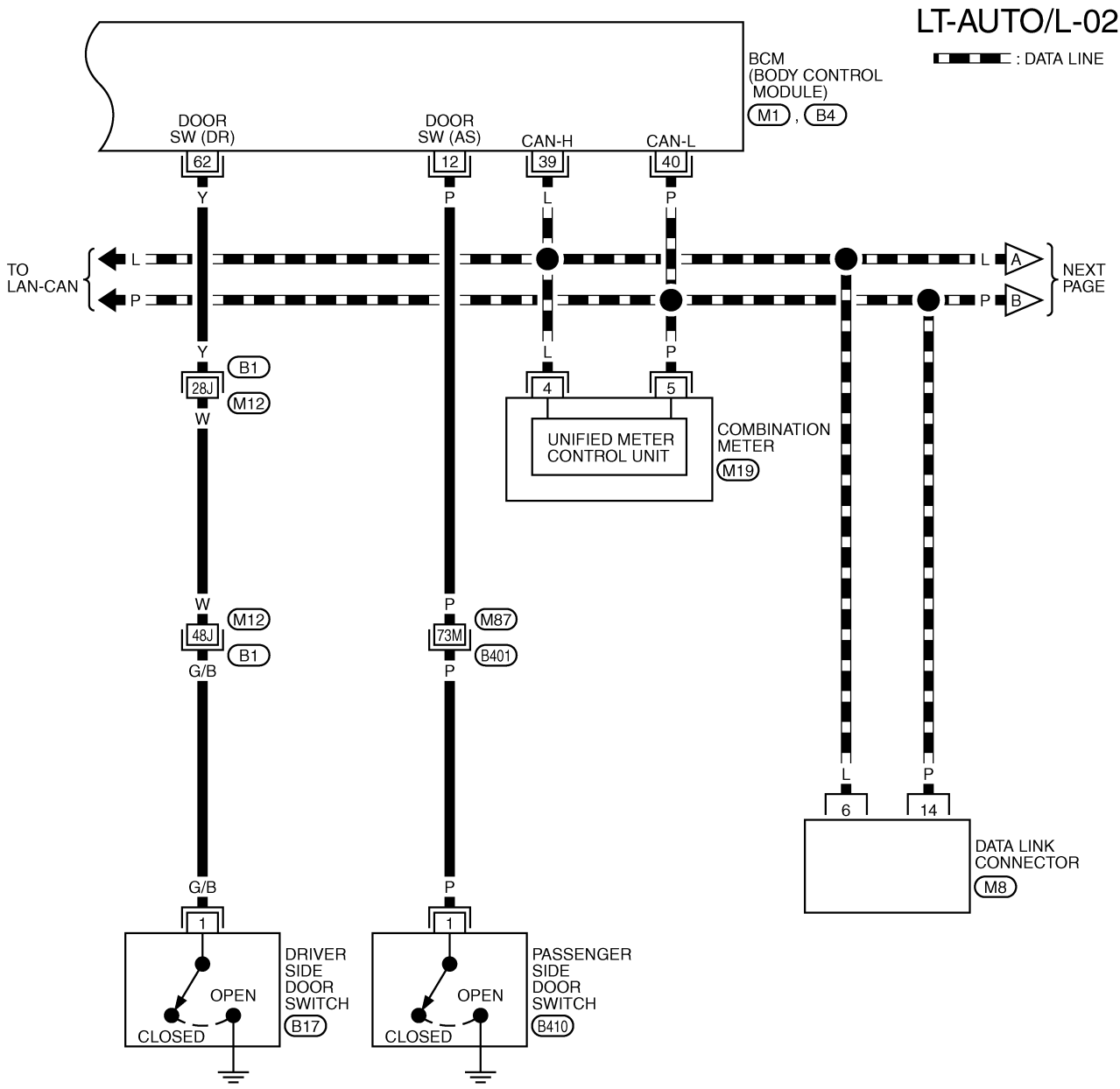
Wiring Diagram — AUTO/L —

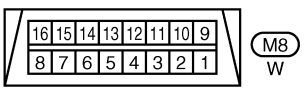
NKS000H4

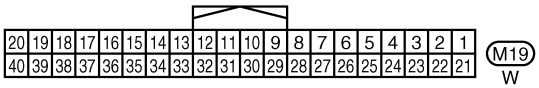
LT-AUTO/L-01

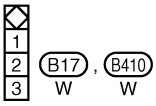


TKWM2195E



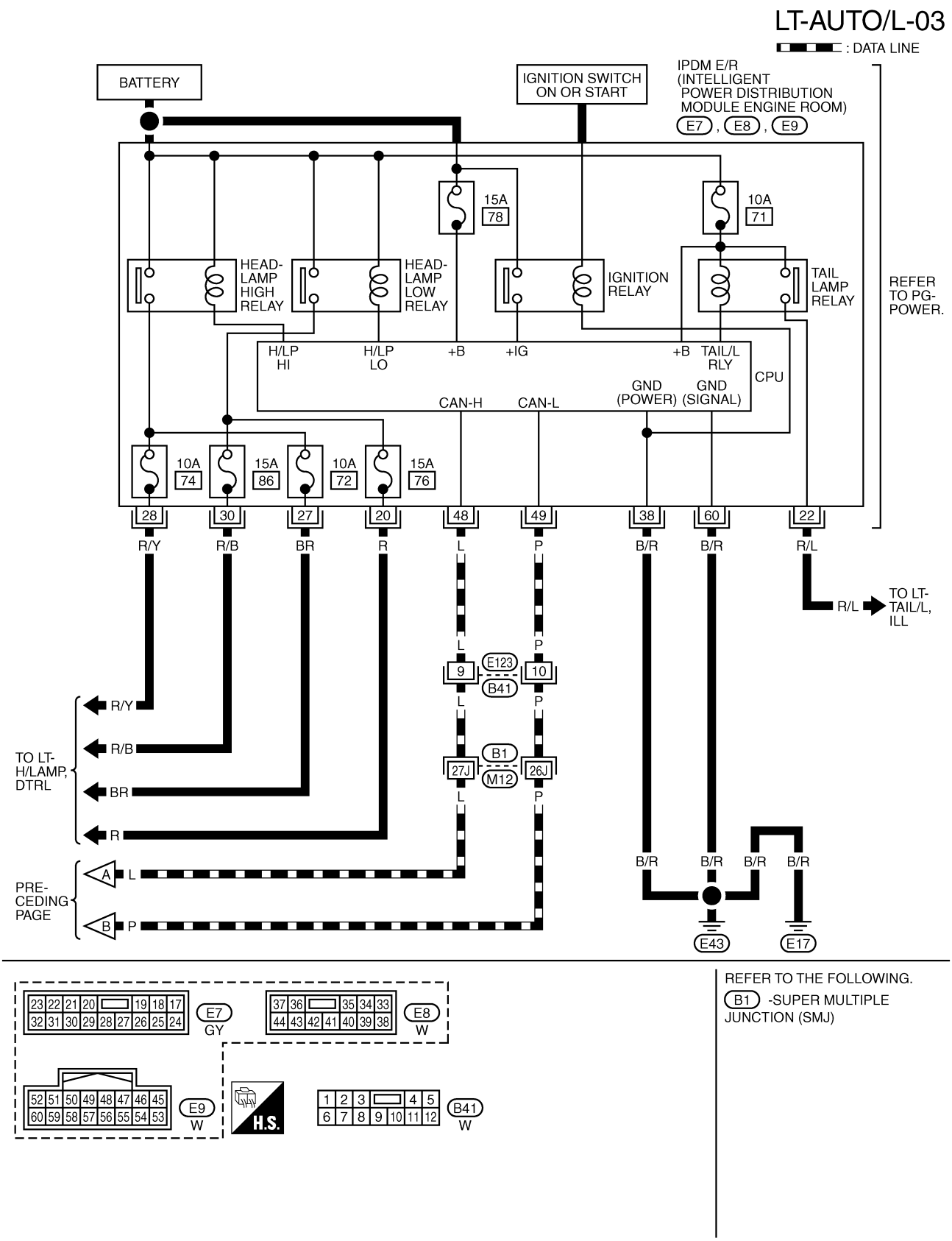






REFER TO THE FOLLOWING.
B1 , B401 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , B4 -ELECTRICAL UNITS

TKWM3453E


LT-AUTO/L-03
: DATA LINE
BATTERY
IGNITION SWITCH ON OR START
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E7 , E8 , E9
15A 78
10A 71
HEAD-LAMP HIGH RELAY
HEAD-LAMP LOW RELAY
IGNITION RELAY
TAIL LAMP RELAY
REFER TO PG-POWER.
H/LP HI
H/LP LO
+B
+IG
+B
TAIL/L RLY
CPU
GND (POWER)
GND (SIGNAL)
CAN-H
CAN-L
10A 74
15A 86
10A 72
15A 76
28
30
27
20
48
49
38
60
22
R/Y
R/B
BR
R
L
P
B/R
B/R
R/L
R/L
TO LT-TAIL/L, ILL
E123
B41
9
10
B1
M12
27J
26J
TO LT-H/LAMP, DTRL
PRE-CEDING PAGE
A
B
E43
E17
E7
GY
E8
W
E9
W
H.S.
B41
W
REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)

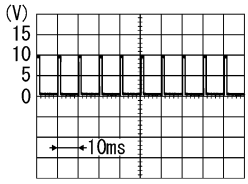
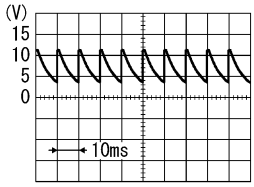
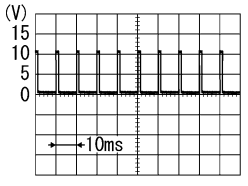
TKWM3454E

Terminals and Reference Values for BCM

NKS000H5

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-17, "DATA MONITOR" .**

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
4	W/L	Combination switch input 3	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	Approx. 0 V
					Lighting switch AUTO	 PKIB4959J Approx. 1.0 V
11	LG	Ignition switch (ACC)	ACC	—		Battery voltage
12	P	Front door switch passenger side signal	OFF	Front door switch passenger side	ON (open)	Approx. 0 V
					OFF (closed)	Battery voltage
14	Y/PU	Optical sensor signal	ON	When optical sensor is illuminated		3.1 V or more Note
				When optical sensor is not illuminated		0.6 V or less
17	P	Optical sensor power supply	ON	—		Approx. 5 V
18	B	Sensor ground	ON	—		Approx. 0 V
33	L	Combination switch output 4	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	 PKIB4960J Approx. 7.2 V
					Lighting switch AUTO	 PKIB4958J Approx. 1.2 V
38	W/L	Ignition switch (ON)	ON	—		Battery voltage
39	L	CAN - H	—	—		—
40	P	CAN - L	—	—		—
42	GY	Battery power supply	OFF	—		Battery voltage
52	B	Ground	ON	—		Approx. 0 V
55	W/R	Battery power supply	OFF	—		Battery voltage
62	Y	Front door switch driver side signal	OFF	Front door switch driver side	ON (open)	Approx. 0 V
					OFF (closed)	Battery voltage

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

Terminals and Reference Values for IPDM E/R

NKS000H6

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
20	R	Headlamp HIGH & LOW (RH)	ON	Lighting switch 2ND position	OFF	Approx. 0 V
					ON	Battery voltage
22	R/L	Parking, license plate, side marker and tail lamps	ON	Lighting switch 1ST position	OFF	Approx. 0 V
					ON	Battery voltage
27	BR	Headlamp high beam solenoid (RH)	ON	Lighting switch HIGH BEAM or PASSING position	OFF	Approx. 0 V
					ON	Battery voltage
28	R/Y	Headlamp high beam solenoid (LH)	ON	Lighting switch HIGH BEAM or PASSING position	OFF	Approx. 0 V
					ON	Battery voltage
30	R/B	Headlamp HIGH & LOW (LH)	ON	Lighting switch 2ND position	OFF	Approx. 0 V
					ON	Battery voltage
38	B/R	Ground	ON	—		Approx. 0 V
48	L	CAN - H	—	—		—
49	P	CAN - L	—	—		—
60	B/R	Ground	ON	—		Approx. 0 V

How to Proceed With Trouble Diagnosis

NKS000H7

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-51, "System Description" .
3. Perform the preliminary check. Refer to LT-59, "Preliminary Check" .
4. Check symptom and repair or replace the cause of malfunction. Refer to LT-60, "Symptom Chart" .
5. Does the auto light system operate normally? If YES, GO TO 6. If NO, GO TO 4.
6. INSPECTION END

Preliminary Check

NKS000H8

SETTING CHANGE FUNCTIONS

Sensitivity of auto light system can be adjusted using CONSULT-II. Refer to LT-16, "WORK SUPPORT" .

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
		18
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	71
		72
		74
		76
		86

Refer to LT-54, "Wiring Diagram — AUTO/L —" .

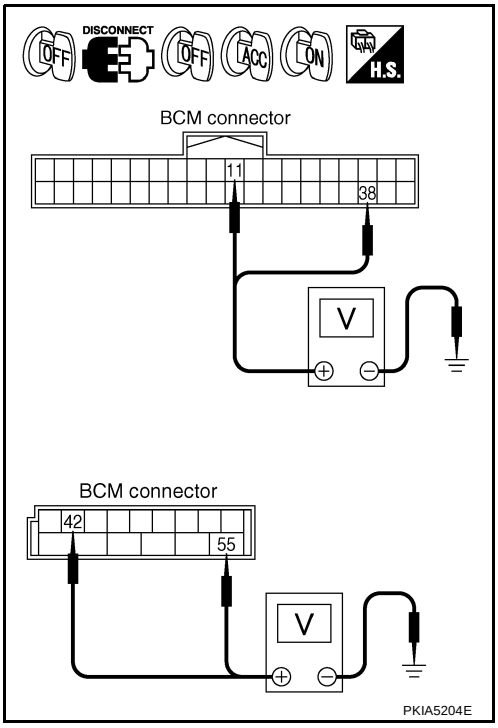
OK or NG

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.

(+)		(–)	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



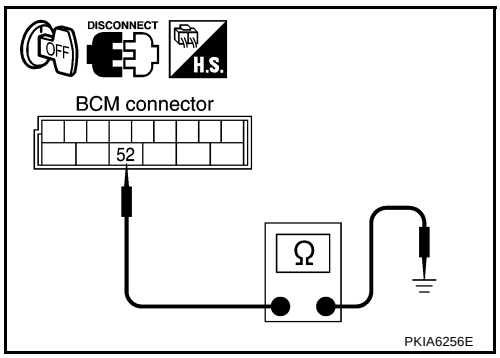
OK or NG

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)

NKS000H9

Refer to LT-16, "CONSULT-II Functions (BCM)" .

CONSULT-II Functions (IPDM E/R)

NKS000HA

Refer to LT-18, "CONSULT-II Functions (IPDM E/R)" .

Symptom Chart

NKS000HB

Phenomenon	Malfunction system and reference
● Parking, license plate, side marker and tail lamps and headlamps will not illuminate when outside of the vehicle becomes dark. (Lighting switch 1ST position and 2ND position operate normally.) ● Parking, license plate, side marker and tail lamps and headlamp will not go out when outside of the vehicle becomes light. (Lighting switch 1ST position and 2ND position operate normally.) ● Headlamps go out when outside of the vehicle becomes light, but parking lamps stay on.	● Refer to LT-16, "WORK SUPPORT" . ● Refer to LT-60, "Lighting Switch Inspection" . ● Refer to LT-61, "Optical sensor System Inspection" . If above systems are normal, replace BCM.
Auto light adjustment system will not operate. (Lighting switch AUTO, 1ST position and 2ND position operate normally.)	● Refer to LT-61, "Optical sensor System Inspection" . If above system is normal, replace BCM.
Shut off delay feature will not operate.	● CAN communication line inspection between BCM and combination meter. Refer to BCS-15, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" . ● Refer to BL-68, "Check Door Switch" . If above system is normal, replace BCM.

Lighting Switch Inspection

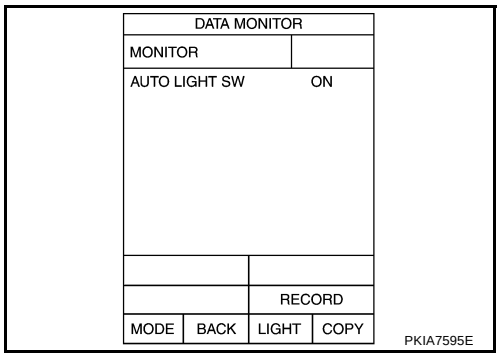
NKS000HC

1. CHECK LIGHTING SWITCH INPUT SIGNAL

With CONSULT-II

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

When lighting switch is AUTO position : AUTO LIGHT SW ON



Without CONSULT-II

Refer to LT-100, "Combination Switch Inspection" .

OK or NG

OK >> INSPECTION END
NG >> Check combination switch (lighting switch). Refer to LT-100, "Combination Switch Inspection" .

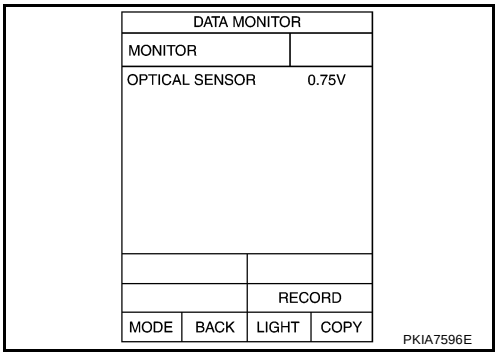
Optical sensor System Inspection

NKS000HD

1. CHECK OPTICAL SENSOR INPUT SIGNAL

With CONSULT-II

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



Illuminated

OPTICAL SENSOR : 3.1 V or more

Not illuminated

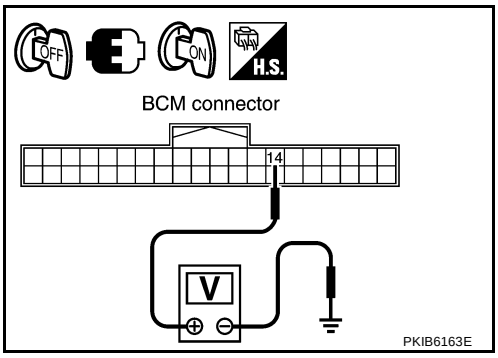
OPTICAL SENSOR : 0.6 V or less

CAUTION:

Optical sensor must be securely subjected to work lamp light. If 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 M1 terminal 14 and 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 optical sensor is insufficiently illuminated, the measured value may not satisfy the standard.

OK or NG

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

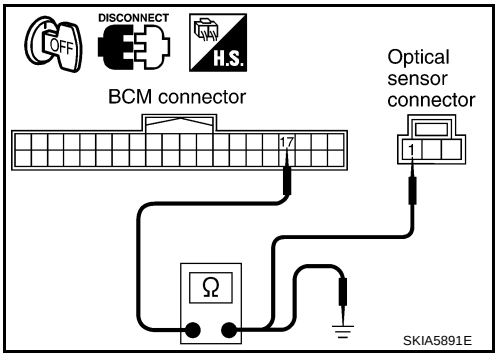
2. CHECK OPTICAL SENSOR POWER SUPPLY CIRCUIT

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

17 – 1 : Continuity should exist.

4. Check continuity (short circuit) between BCM harness connector M1 terminal 17 and ground.

17 – Ground : Continuity should not exist.



OK or NG

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

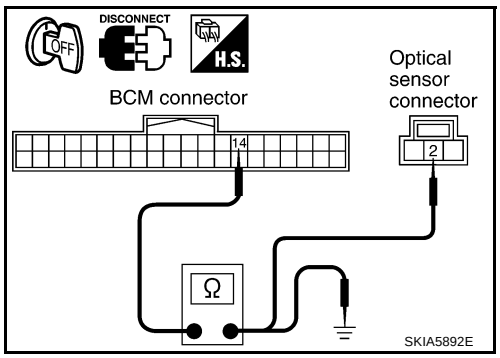
3. CHECK OPTICAL SENSOR SIGNAL CIRCUIT

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

14 – 2 : Continuity should exist.

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

14 – Ground : Continuity should not exist.



OK or NG

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

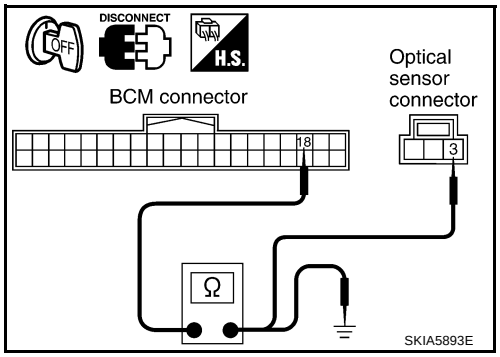
4. CHECK OPTICAL SENSOR GROUND CIRCUIT

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

18 – 3 : Continuity should exist.

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

18 – Ground : Continuity should not exist.



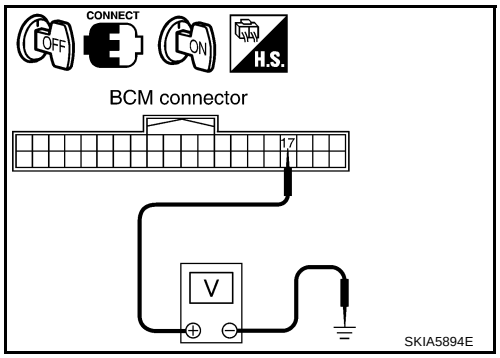
OK or NG

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

5. CHECK OPTICAL SENSOR VOLTAGE

1. Connect BCM connector.
2. Turn ignition switch ON.
3. Check voltage between BCM harness connector M1 terminal 17 and ground.

17 – Ground : Approx. 5 V



OK or NG

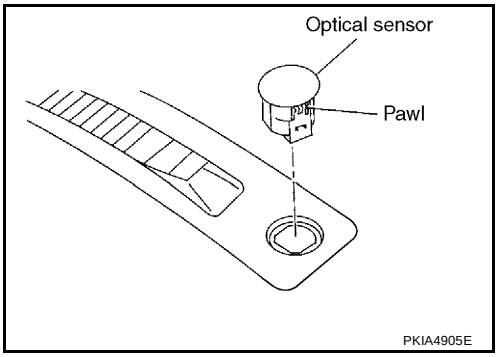
OK >> Replace optical sensor. Refer to LT-63, "Removal and Installation of Optical Sensor" .
NG >> Replace BCM. Refer to BCS-16, "Removal and Installation of BCM" .

Removal and Installation of Optical Sensor

NKS000HE

REMOVAL

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



INSTALLATION

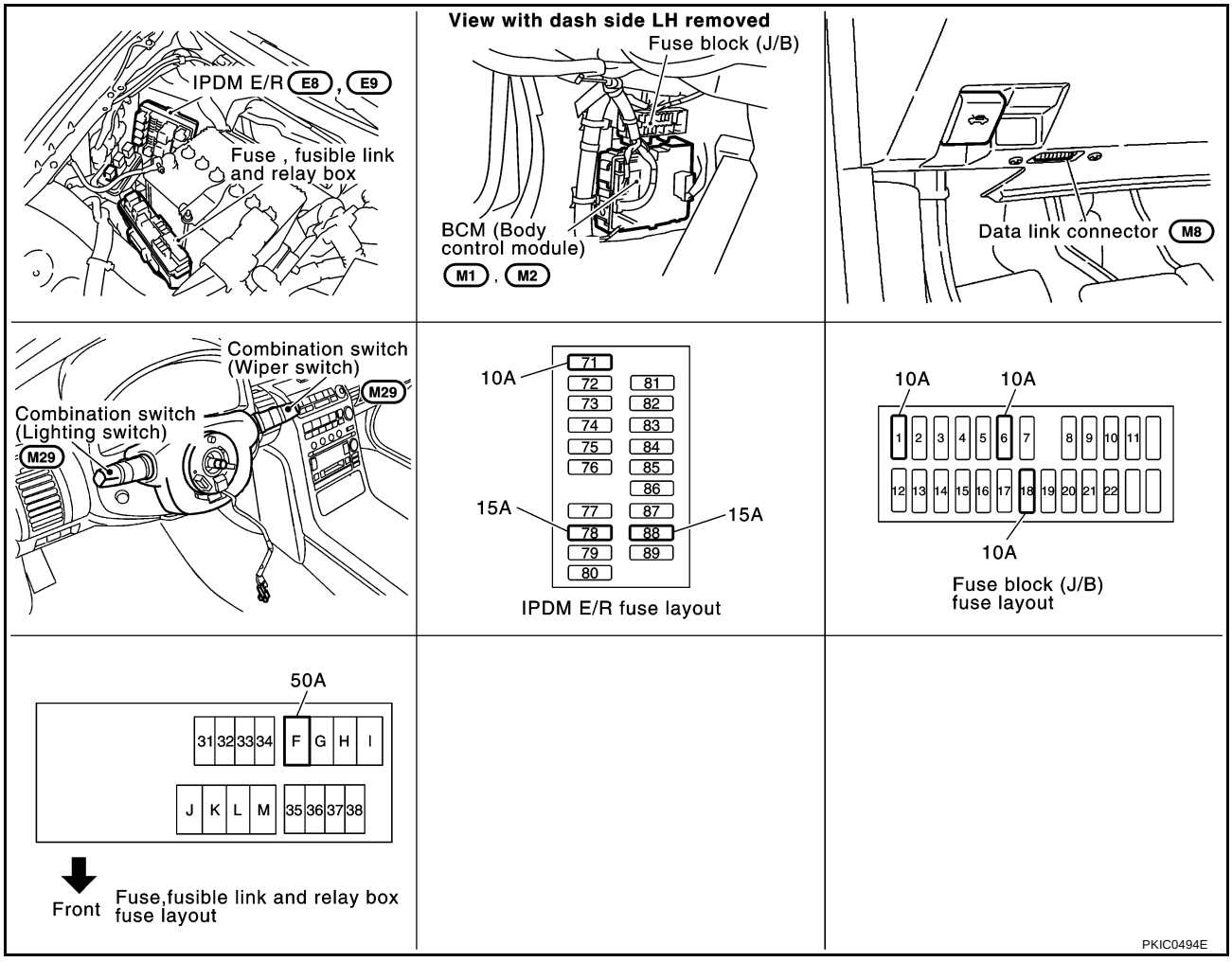
Installation is the reverse order of removal.

FRONT FOG LAMP

PFP:26150

Component Parts and Harness Connector Location

NKS002O6



System Description

NKS002O7

The control of the front fog lamps is dependent upon the position of the 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 front fog lamp switch ON position the BCM (body control module) receives input signal requesting the front 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) through the CAN communication lines. The CPU (central processing unit) located in the IPDM E/R controls the front fog lamp relay. When activated, this relay directs power to the front fog lamps.

OUTLINE

Power is supplied at all times

- to ignition relay, located in IPDM E/R, from battery direct,
- 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 10A 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 box)
- to BCM terminal 55,
- through 10A fuse [No. 18, located in fuse block (J/B)]

- to BCM terminal 42.

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

- to ignition relay, located in IPDM E/R, from battery direct,
- through ignition relay, located in IPDM E/R
- to CPU located in IPDM E/R,
- through 10A 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 M30 and M66,
- to IPDM E/R terminals 38 and 60
- through grounds E17 and E43.

FRONT FOG LAMP OPERATION

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

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

Ground is supplied

- to front combination lamp RH and LH terminals 8
- through grounds E17 and E43.

With power and grounds supplied, front fog lamps illuminate.

COMBINATION SWITCH READING FUNCTION

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

EXTERIOR LAMP BATTERY SAVER CONTROL

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

CAN Communication System Description

NKS002O8

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.

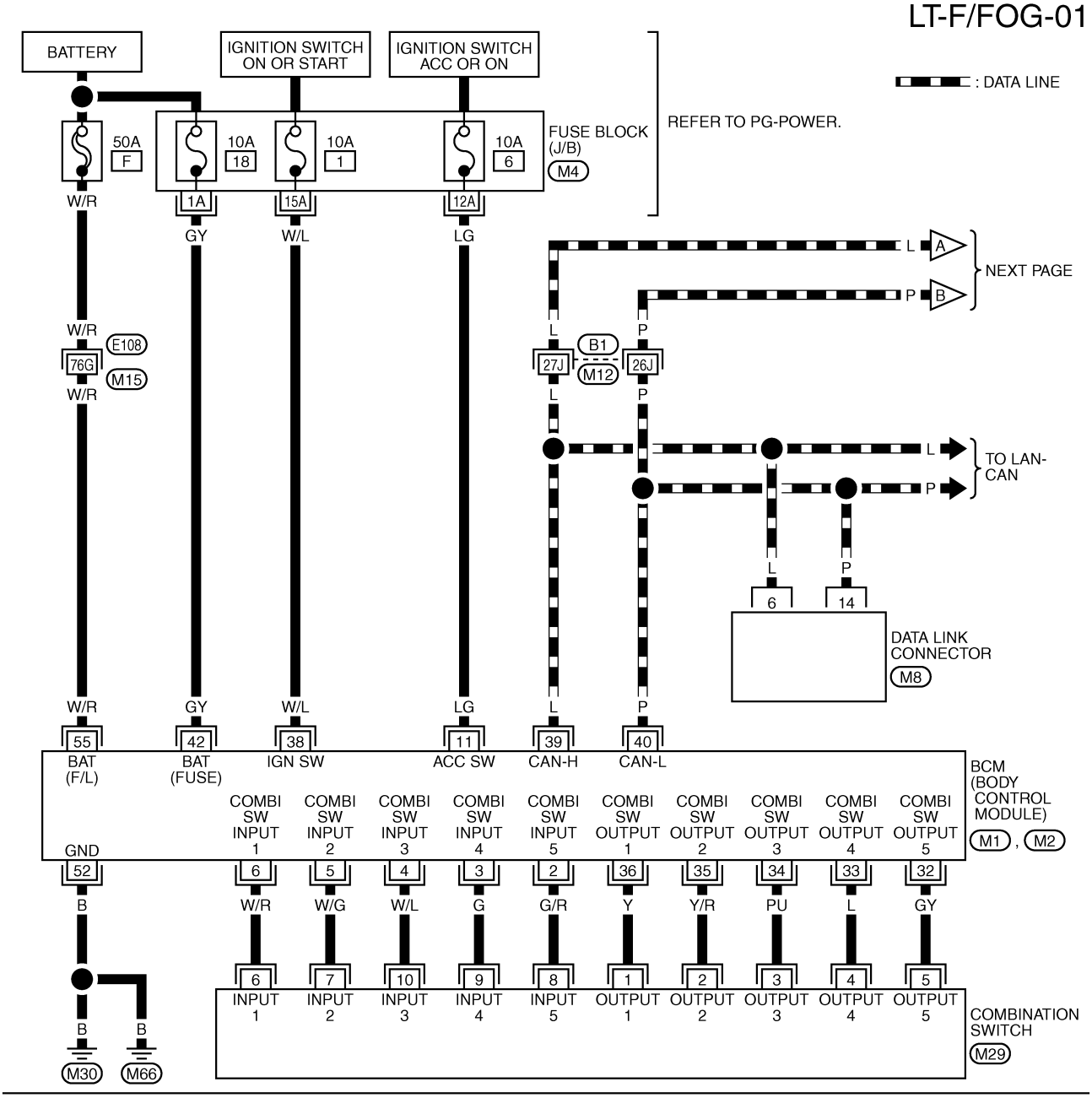
CAN Communication Unit

NKS002O9

Refer to LAN-47, "CAN System Specification Chart" .

Wiring Diagram — F/FOG —

NKS002OB



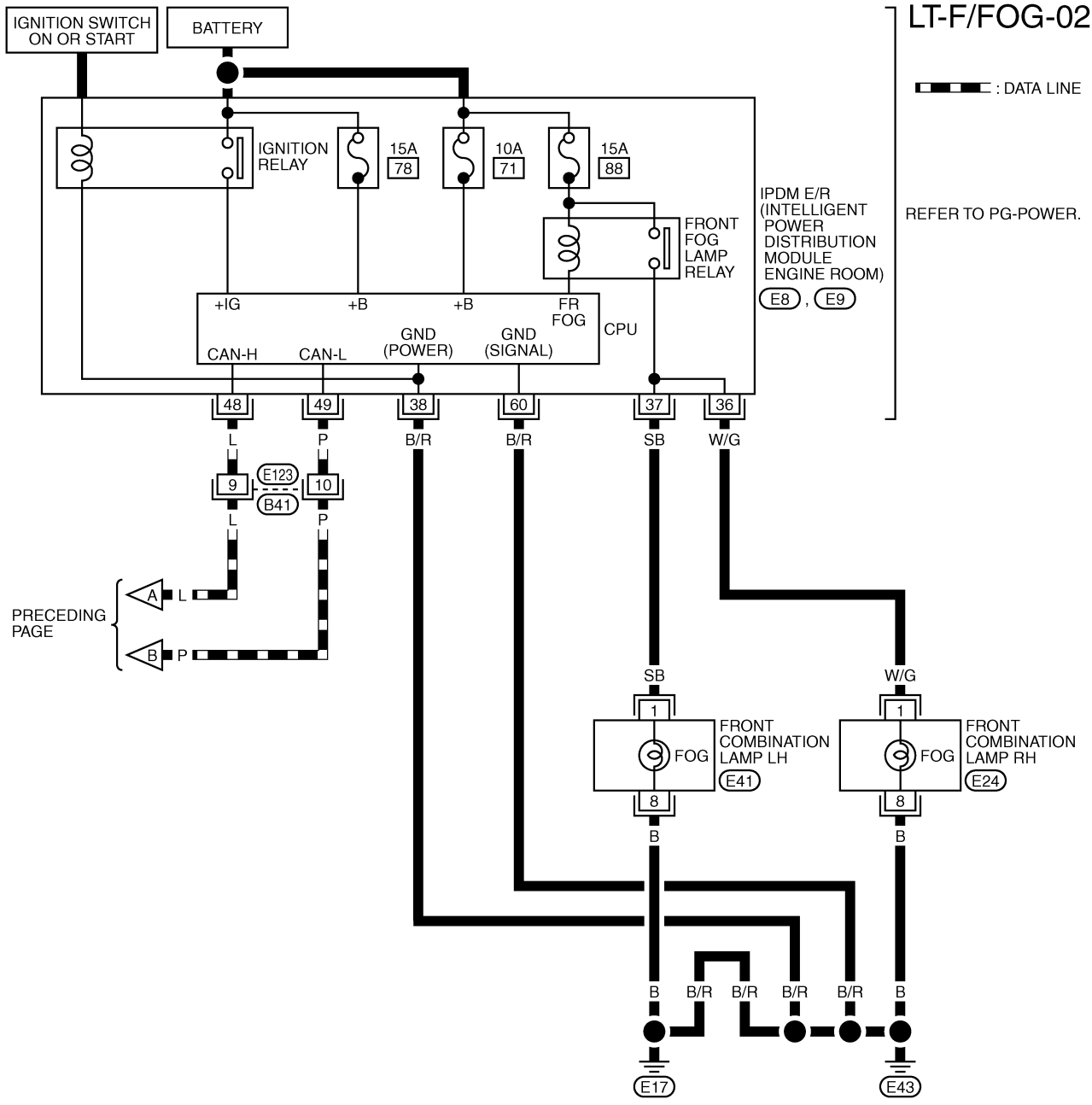
REFER TO THE FOLLOWING.

E108, B1 -SUPER MULTIPLE JUNCTION (SMJ)

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

M1, M2 -ELECTRICAL UNITS

TKWM3455E


LT-F/FOG-02
: DATA LINE
REFER TO PG-POWER.
IGNITION SWITCH ON OR START
BATTERY
IGNITION RELAY
15A 78
10A 71
15A 88
FRONT FOG LAMP RELAY
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E8 , E9
+IG
+B
+B
FR FOG
CPU
CAN-H
CAN-L
GND (POWER)
GND (SIGNAL)
48
49
38
60
37
36
L
P
B/R
B/R
SB
W/G
E123
9
10
B41
PRECEDING PAGE
A
B
SB
W/G
1
FOG
FRONT COMBINATION LAMP LH
E41
FRONT COMBINATION LAMP RH
E24
8
B
B/R
E17
E43
E8
W
E9
W
H.S.
E24 , E41
B
B41
W

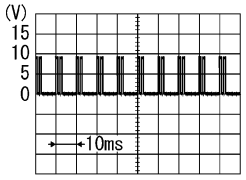
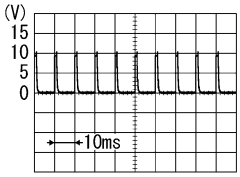
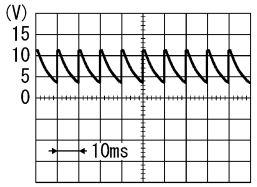
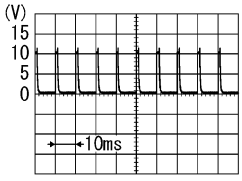
TKWM3456E

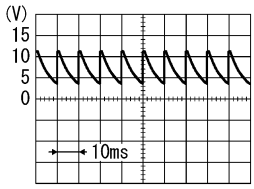
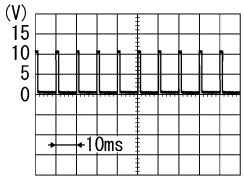
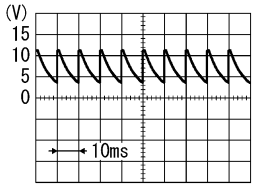
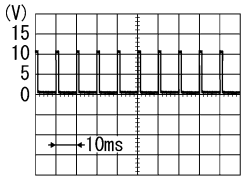
Terminals and Reference Values for BCM

NKS002OC

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-17, "DATA MONITOR" .**

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
2	G/R	Combination switch input 5	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	Approx. 0 V
					Lighting switch 2ND	 PKIB4953J Approx. 2.0 V
3	G	Combination switch input 4	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	Approx. 0 V
					Any of the conditions below ● Lighting switch 2ND ● Front fog lamp switch (Operates only front fog lamp switch)	 PKIB4955J Approx. 0.8 V
11	LG	Ignition switch (ACC)	ACC	—		Battery voltage
32	GY	Combination switch output 5	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	 PKIB4960J Approx. 7.2 V
					Front fog lamp switch (Operates only front fog lamp switch)	 PKIB4956J Approx. 1.0 V

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
34	PU	Combination switch output 3	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	 PKIB4960J Approx. 7.2 V
					Lighting switch 2ND	 PKIB4958J Approx. 1.2 V
35	Y/R	Combination switch output 2	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	 PKIB4960J Approx. 7.2 V
					Lighting switch 2ND	 PKIB4958J Approx. 1.2 V
38	W/L	Ignition switch (ON)	ON	—		Battery voltage
39	L	CAN – H	—	—		—
40	P	CAN – L	—	—		—
42	GY	Battery power supply	OFF	—		Battery voltage
52	B	Ground	ON	—		Approx. 0 V
55	R	Battery power supply	OFF	—		Battery voltage

Terminals and Reference Values for IPDM E/R

NKS002OD

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

How to Proceed With Trouble Diagnosis

NKS002OE

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-64, "System Description" .
3. Perform the Preliminary Check. Refer to LT-70, "Preliminary Check" .
4. Check symptom and repair or replace the malfunctioning parts.
5. Does the front fog lamp operate normally? If YES, GO TO 6. If NO, GO TO 4.
6. INSPECTION END

Preliminary Check

NKS002OF

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
		18
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	88

Refer to LT-66, "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" .

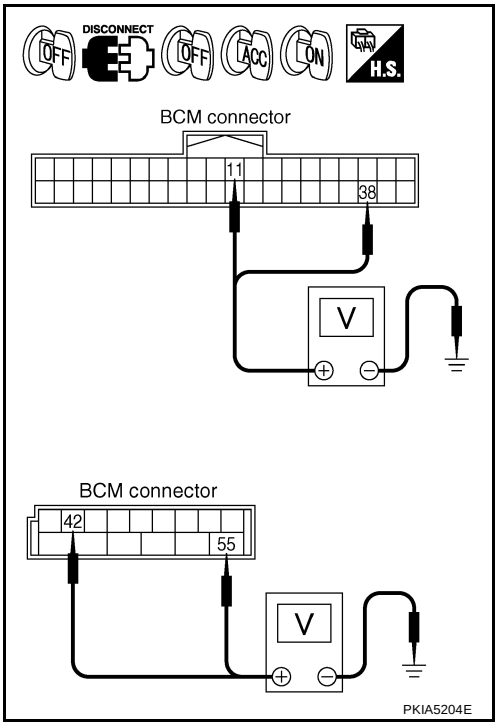
2. CHECK POWER SUPPLY CIRCUIT

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

(+)		(–)	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.



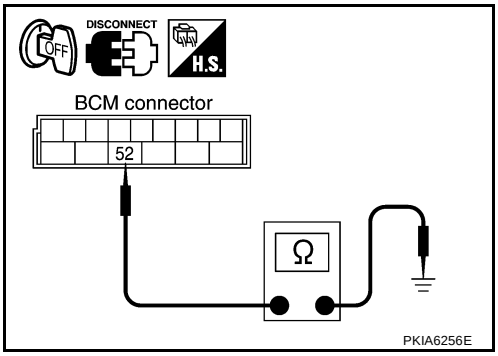
3. CHECK GROUND CIRCUIT

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)

NKS002OG

Refer to LT-16, "CONSULT-II Functions (BCM)" .

CONSULT-II Functions (IPDM E/R)

NKS002OH

Refer to LT-18, "CONSULT-II Functions (IPDM E/R)" .

Front Fog lamps Do Not Illuminate (Both Sides)

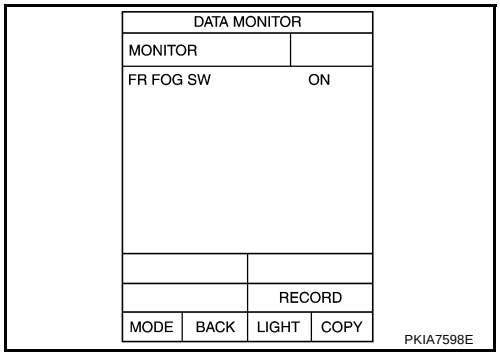
NKS002OI

1. CHECK COMBINATION SWITCH INPUT SIGNAL

With CONSULT-II

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

When front fog lamp switch is ON position : FR FOG SW ON



Without CONSULT-II

Refer to LT-100, "Combination Switch Inspection" .

OK or NG

OK >> GO TO 2.

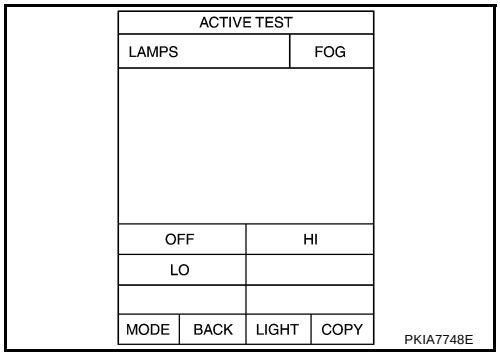
NG >> Check combination switch (lighting switch). Refer to LT-100, "Combination Switch Inspection" .

2. FOG LAMP ACTIVE TEST

With CONSULT-II

1. Select “IPDM E/R” on CONSULT-II, and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
2. Select “LAMPS” on “SELECT TEST ITEM” screen.
3. Touch “FOG” screen.
4. Make sure front fog lamp operates.

Front fog lamp should operate.



Without CONSULT-II

1. Start auto active test. Refer to PG-21, "Auto Active Test" .
2. Make sure front fog lamp operates.

Front fog lamp should operate.

OK or NG

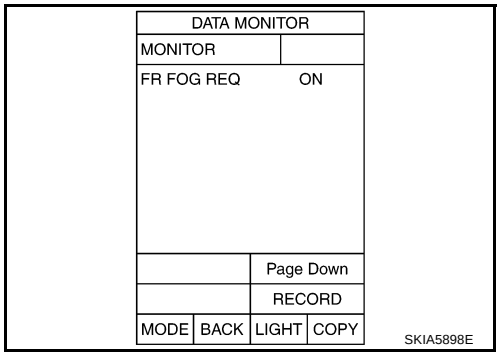
OK >> GO TO 3.

NG >> GO TO 4.

3. CHECK IPDM E/R

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

When front fog lamp switch is ON position : FR FOG REQ ON



OK or NG

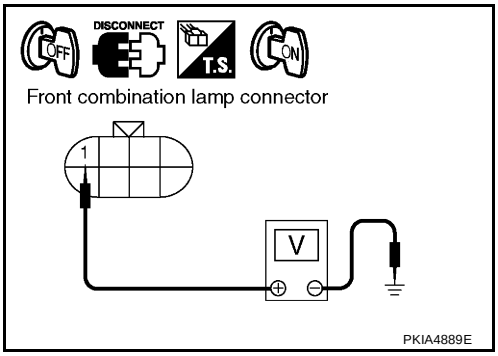
OK >> Replace IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R" .

NG >> Replace BCM. Refer to BCS-16, "Removal and Installation of BCM" .

4. CHECK FOG LAMP INPUT SIGNAL

With CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH and LH connectors.
3. Select “IPDM E/R” on CONSULT-II, and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
4. Select “LAMPS” on “SELECT TEST ITEM” screen.
5. Touch “FOG” screen.
6. When front fog lamp relay is operating, check voltage between front combination lamp harness connector and ground.



(+)			(–)	Voltage
Front combination lamp connector		Terminal		
RH	E24	1	Ground	Battery voltage
LH	E41	1		

Without CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front combination lamp RH and LH connectors.
3. Start auto active test. Refer to PG-21, "Auto Active Test" .
4. When front fog lamp relay is operating, check voltage between front combination lamp harness connector and ground.

(+)			(–)	Voltage
Front combination lamp connector		Terminal		
RH	E24	1	Ground	Battery voltage
LH	E41	1		

OK or NG

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

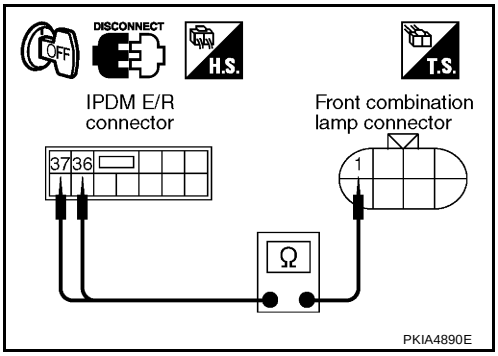
5. CHECK FOG LAMP CIRCUIT

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

36 – 1 : Continuity should exist.

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

37 – 1 : Continuity should exist.



OK or NG

OK >> Replace IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R" .
NG >> Repair harness or connector.

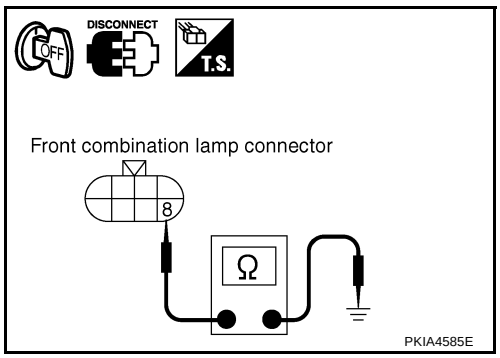
6. CHECK FOG LAMP GROUND

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

8 – Ground : Continuity should exist.

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

8 – Ground : Continuity should exist.



OK or NG

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

Front Fog Lamp Does Not Illuminate (One Side)

NKS002OJ

1. CHECK BULB

Check bulb of lamp with does not illuminate which does not illuminate.

OK or NG

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

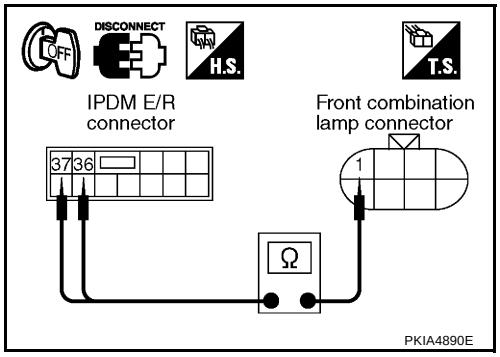
2. CHECK FOG LAMP CIRCUIT

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

36 – 1 : Continuity should exist.

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

37 – 1 : Continuity should exist.



OK or NG

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

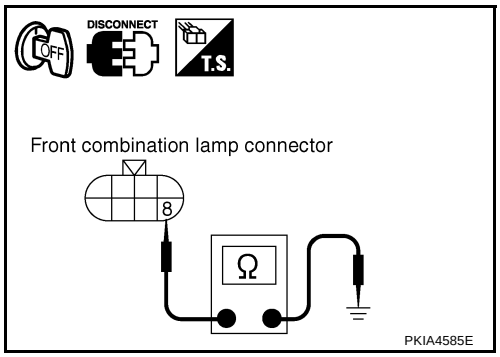
3. CHECK FOG LAMP GROUND

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

8 – Ground : Continuity should exist.

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

8 – Ground : Continuity should exist.



OK or NG

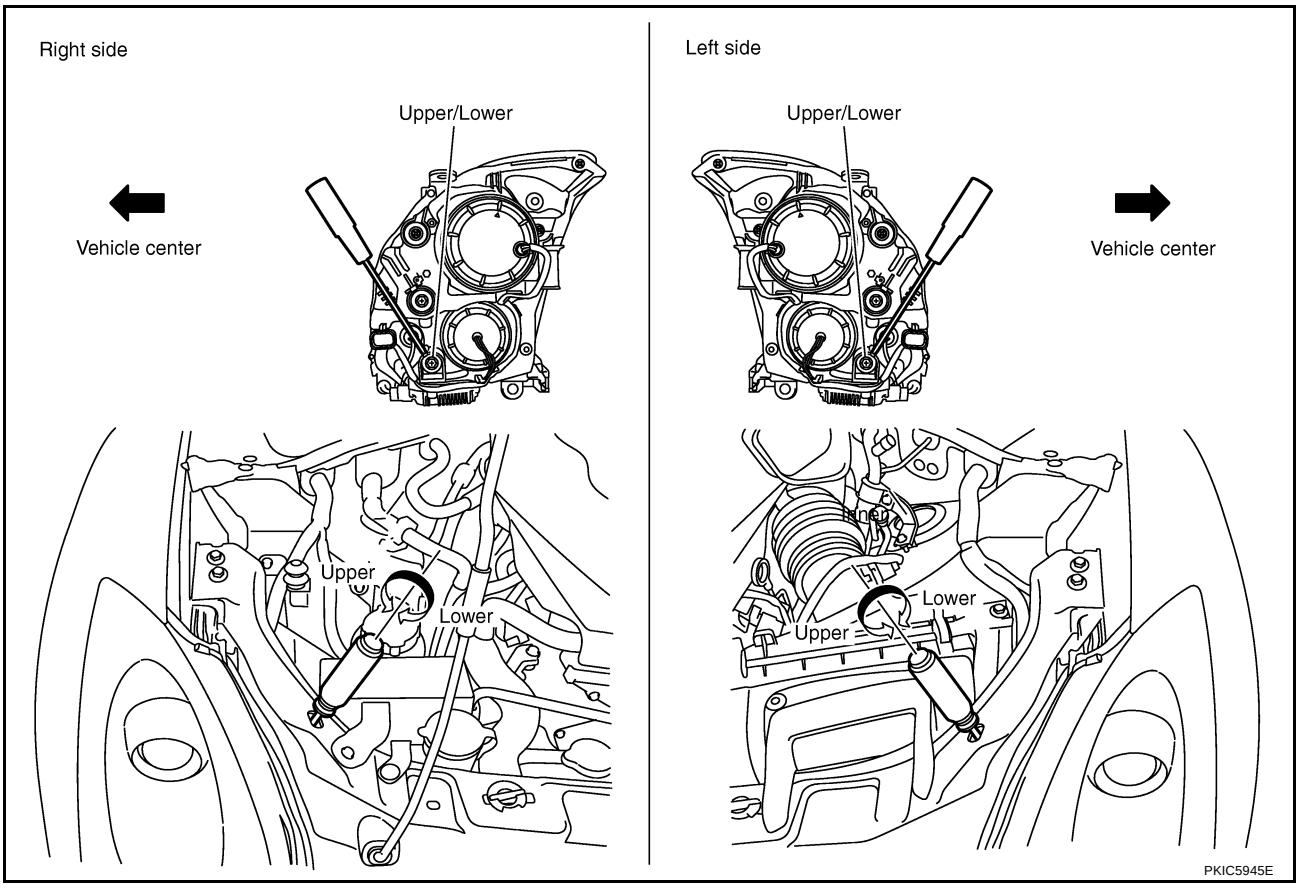
OK >> Replace IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R" .
NG >> Repair harness or connector.

Aiming Adjustment

NKS002OK

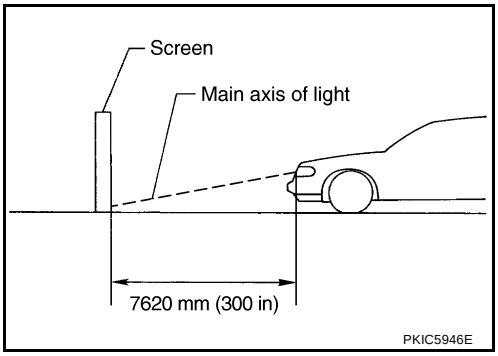
The front fog lamp is a semi-sealed beam type which uses a replaceable halogen bulb. Before performing aiming adjustment, make sure of the following.

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

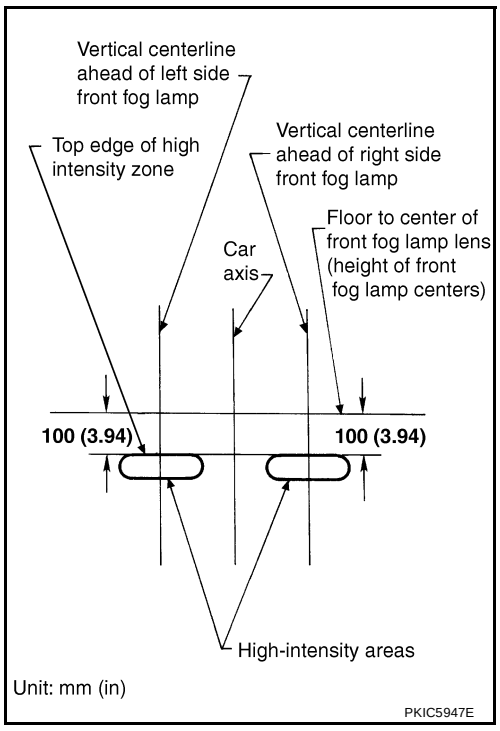


Adjust aiming in the vertical direction by turning the adjusting screw.

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



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



Bulb Replacement

NKS002OL

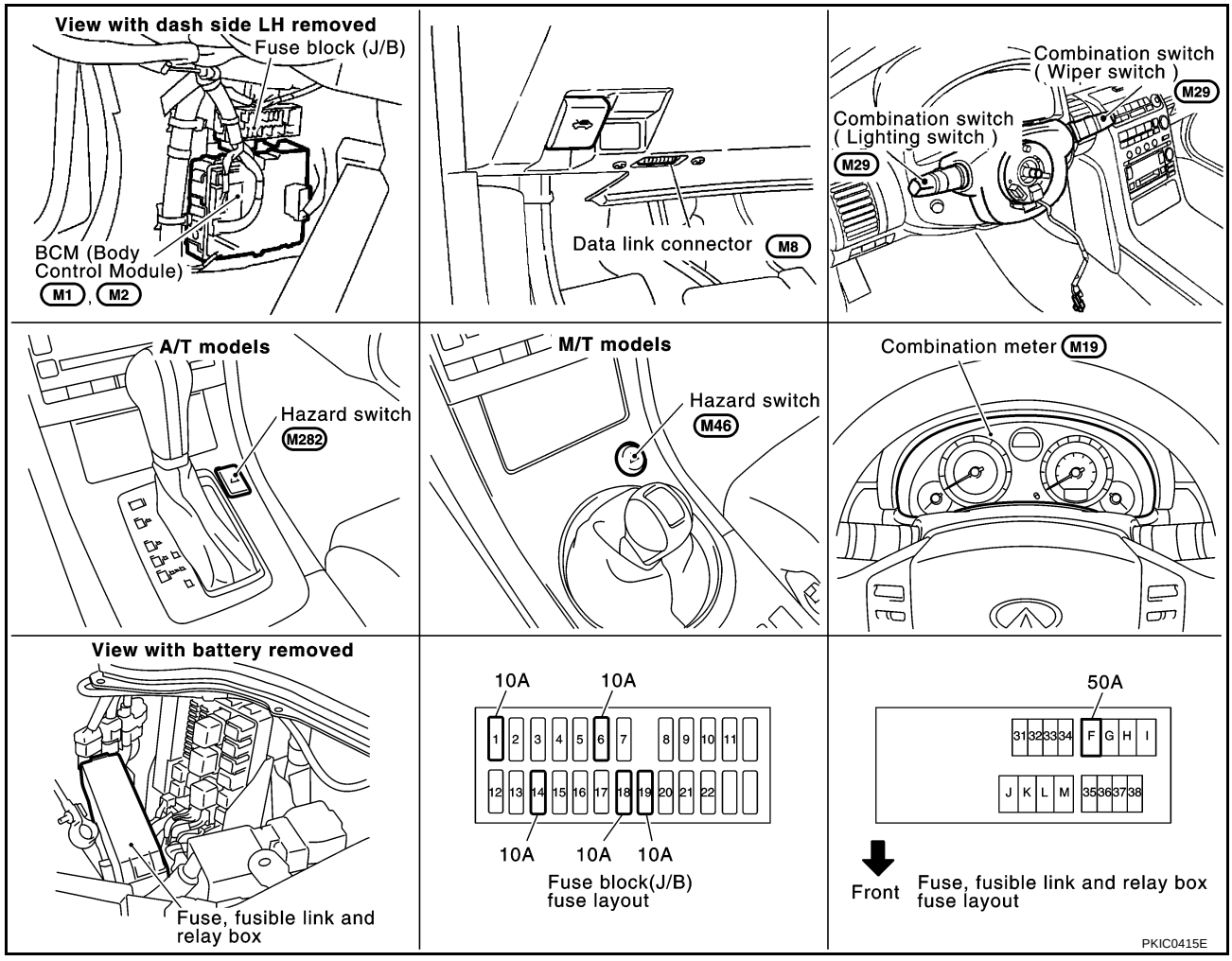
Refer to LT-30, "Bulb Replacement" .

TURN SIGNAL AND HAZARD WARNING LAMPS

PFP:26120

Component Parts and Harness Connector Location

NKS002OM



System Description

NKS002ON

TURN SIGNAL OPERATION

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

- through 10A fuse [No. 1, located in fuse block (J/B)]
- to BCM (body control module) terminal 38,
- through 10A fuse [No. 14, located in fuse block (J/B)]
- to combination meter terminals 22 and 23.

Ground is supplied

- to BCM terminal 52
- through grounds M30 and M66,
- to combination meter terminals 1, 24 and 25
- through grounds M30 and M66.

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 terminal 6 and
- to rear combination lamp LH terminal 5.

Ground is supplied

- to front combination lamp LH terminal 8

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

The BCM also supplies input to combination meter terminals 4 and 5 through CAN communication lines. This input is processed by unified meter control unit in combination meter, which in turn supplies ground to the left turn signal indicator lamp.
With power and input supplied, BCM controls flashing of LH turn signal lamps.

RH Turn 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 terminal 6 and
- to rear combination lamp RH terminal 5.

Ground is supplied

- to front combination lamp RH terminal 8
- through grounds E17 and E43,
- to rear combination lamp RH terminal 4
- through ground B103.

The BCM also supplies input to combination meter terminals 4 and 5 through CAN communication lines. This input is processed by unified meter control unit in combination meter, which in turn supplies ground to the right turn signal indicator lamp.
With power and input supplied, BCM controls flashing of RH turn signal lamps.

HAZARD LAMP OPERATION

Power is supplied at all times

- through 50A fusible link (letter F, located in fuse, fusible link and relay box)
- to BCM terminal 55,
- through 10A fuse [No. 18, located in fuse block (J/B)]
- to BCM terminal 42,
- through 10A fuse [No. 19, located in fuse block (J/B)]
- to combination meter terminal 21.

Ground is supplied

- to hazard switch terminal 1
- to combination meter terminals 1, 24 and 25, and
- to BCM terminal 52
- through grounds M30 and M66,

When hazard switch is depressed, ground is supplied

- to BCM terminal 29
- through hazard switch terminal 2.

BCM then supplies power

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

Ground is supplied

- to front combination lamp RH and LH terminals 8
- through grounds E17 and E43,
- to rear combination lamp RH and LH terminals 4
- through ground B103.

The BCM also supplies input to combination meter terminals 4 and 5 through CAN communication lines. This input is processed by unified meter control unit in combination meter, which in turn supplies ground to the left and right turn signal indicator lamps.
With power and input supplied, BCM controls flashing of hazard warning lamps.

REMOTE KEYLESS ENTRY SYSTEM OPERATION

Power is supplied at all times

- through 50A fusible link (letter F, located in fuse, fusible link and relay box)
- to BCM terminal 55,
- through 10A fuse [No. 19, located in fuse block (J/B)]
- to combination meter terminal 21.

Ground is supplied

- to BCM terminal 52 and
- to combination meter terminals 1, 24 and 25
- through grounds M30 and M66.

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

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

Ground is supplied

- to front combination lamp RH and LH terminals 8
- through grounds E17 and E43,
- to rear combination lamp RH and LH terminals 4
- through ground B103.

The BCM also supplies input to combination meter terminals 4 and 5 through CAN communication lines. This input is processed by unified meter control unit in combination meter, which in turn supplies ground to the left and right turn signal indicator lamps.
With power and ground supplied, BCM controls flashing of hazard warning lamps when key fob is used to activate remote keyless entry system.

COMBINATION SWITCH READING FUNCTION

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

CAN Communication System Description

NKS002OO

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.

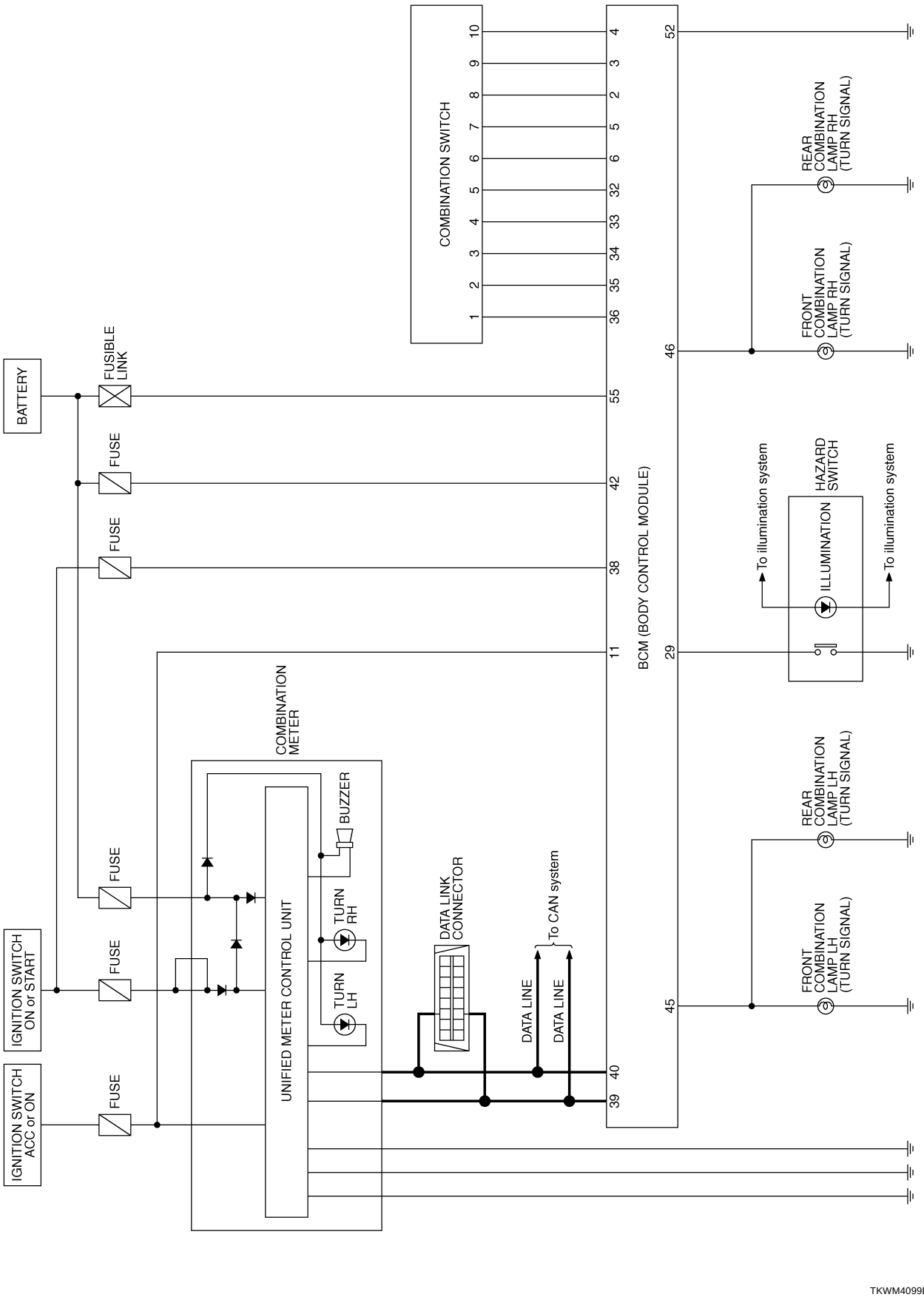
CAN Communication Unit

NKS002OP

Refer to LAN-47, "CAN System Specification Chart" .

Schematic

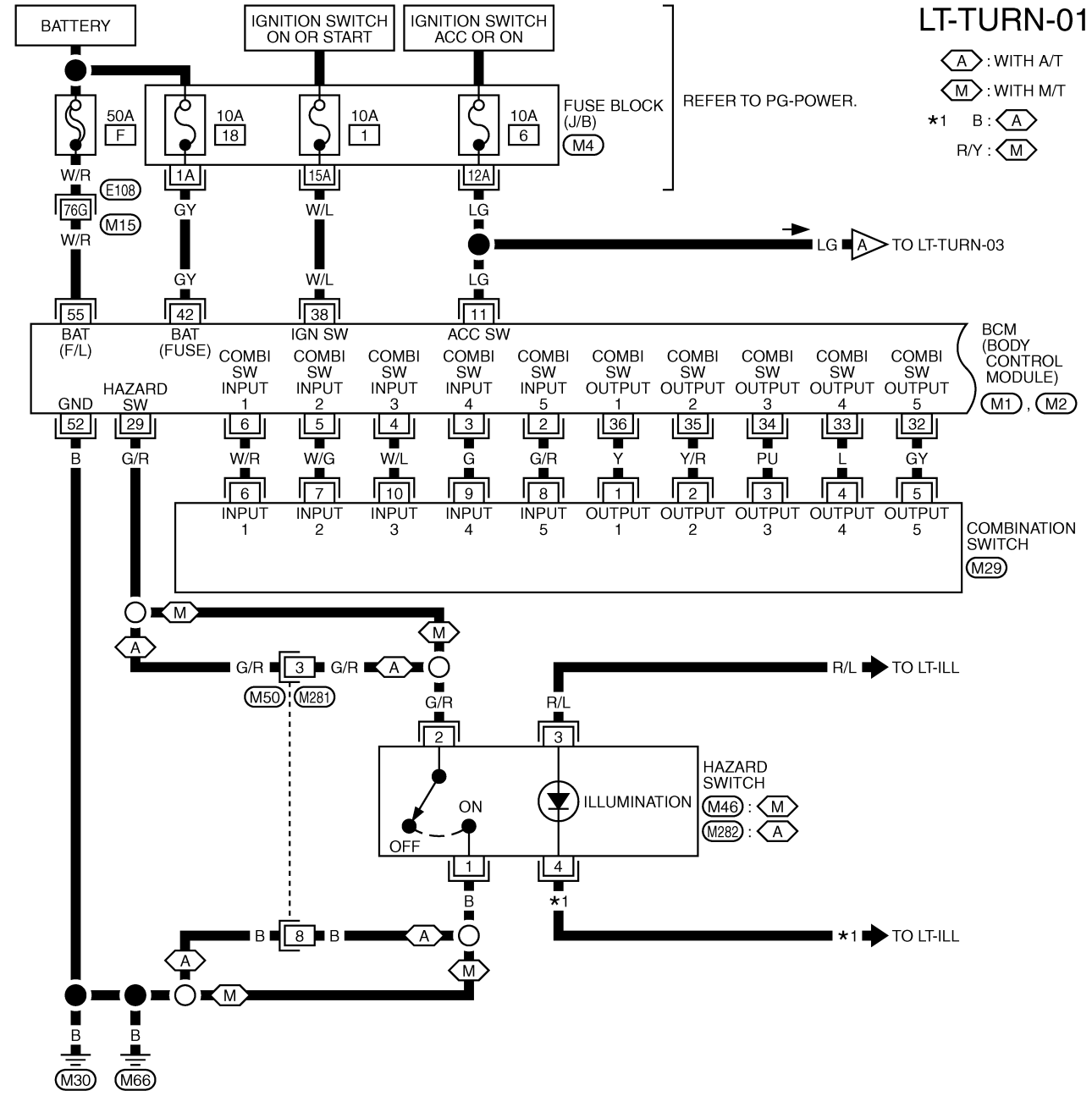
NKS002OQ

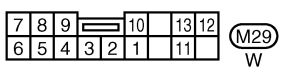


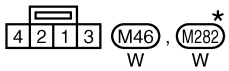
TKWM4099E

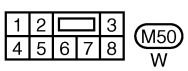
Wiring Diagram — TURN —

NKS002OR









REFER TO THE FOLLOWING.

E108 -SUPER MULTIPLE JUNCTION (SMJ)

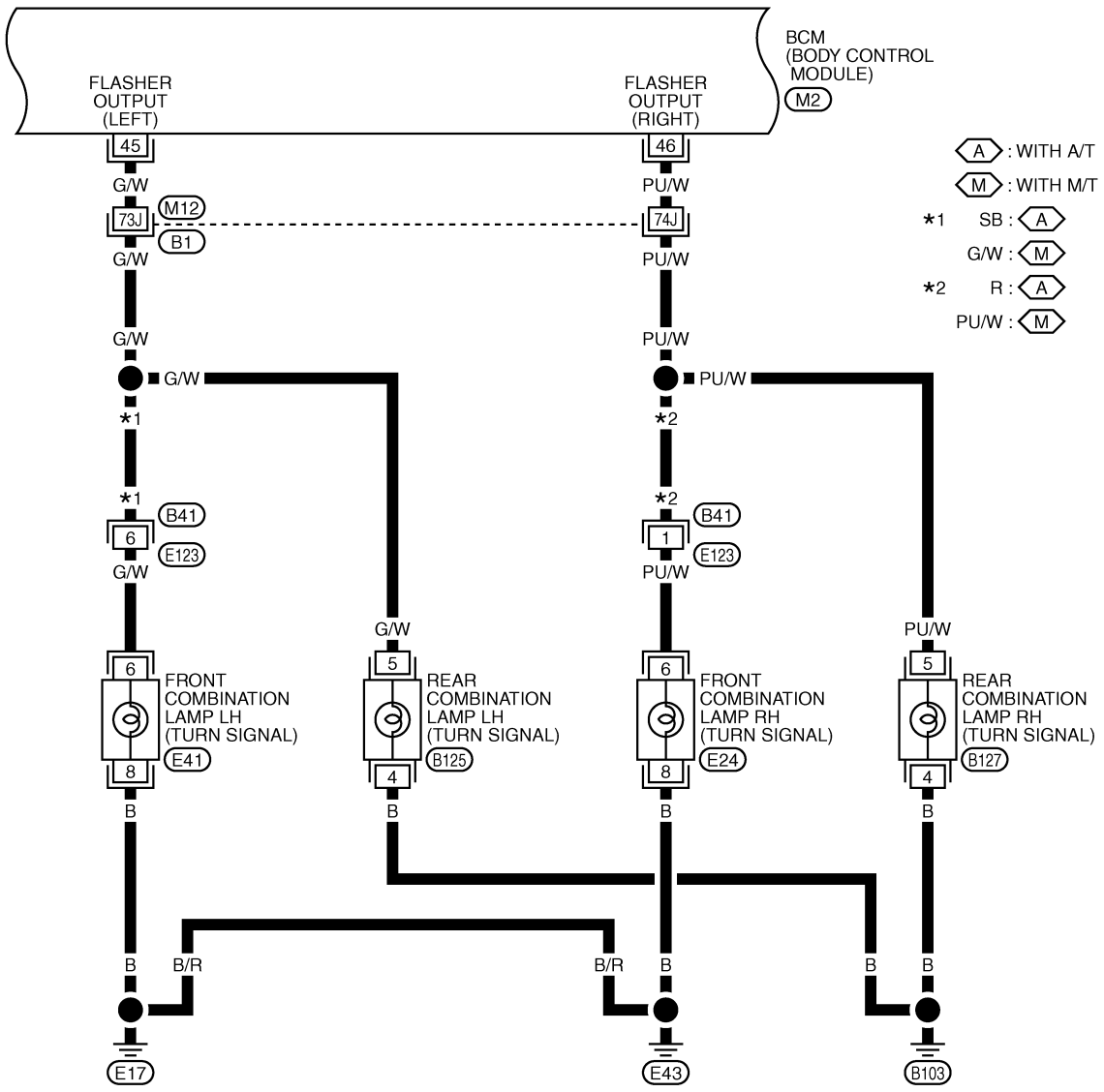
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

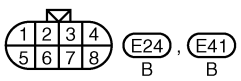
M1 , M2 -ELECTRICAL UNITS

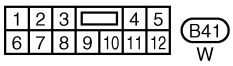
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

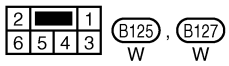
TKWM2919E

LT-TURN-02



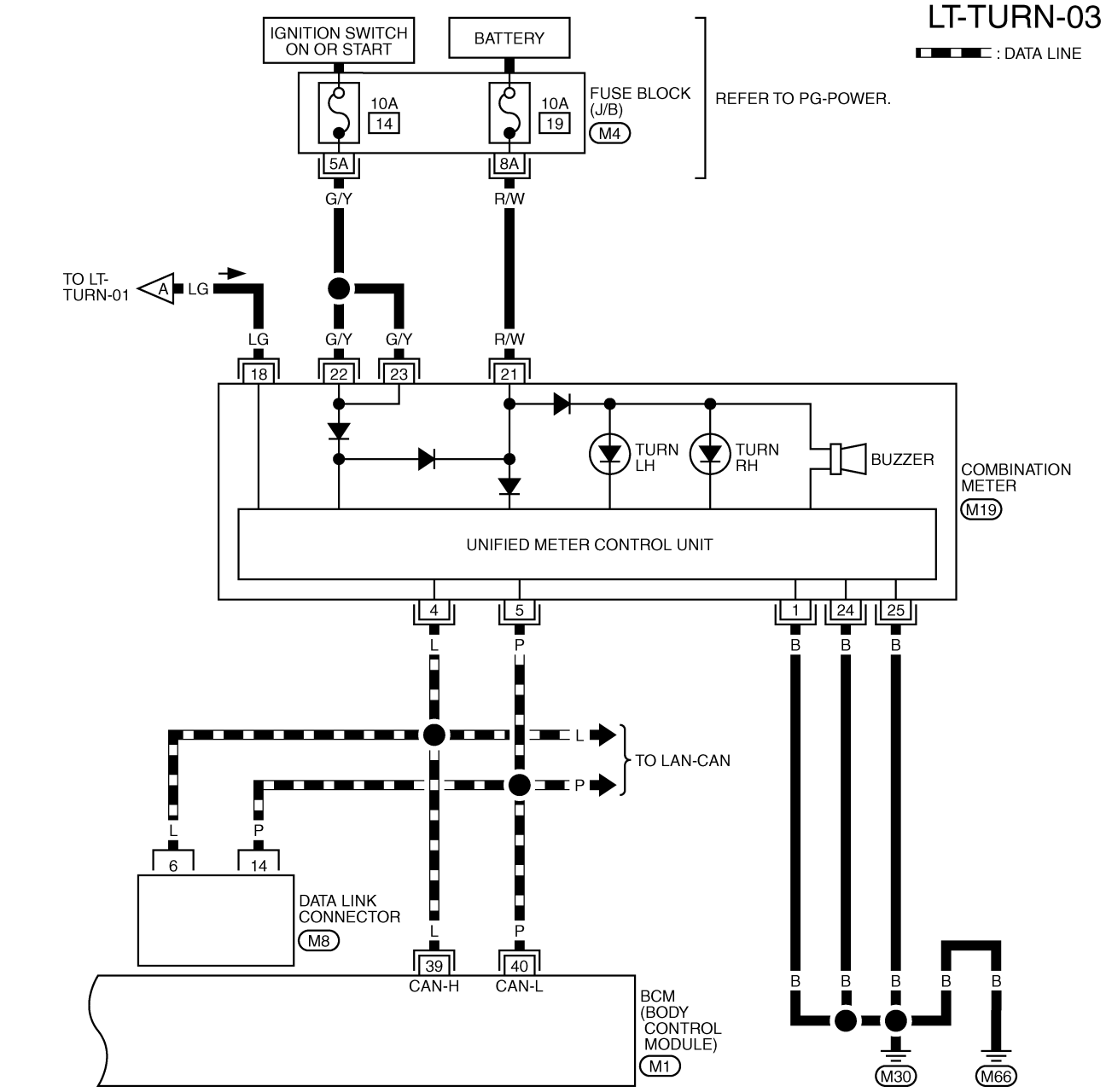


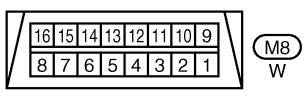


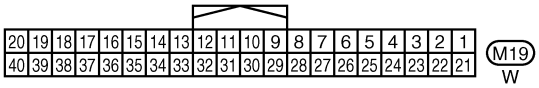


REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
M2 -ELECTRICAL UNITS

TKWM4921E







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

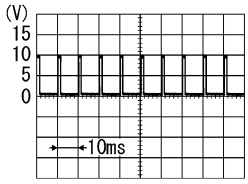
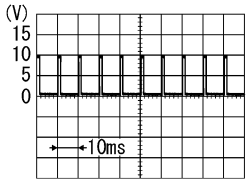
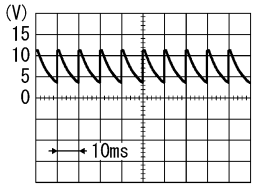
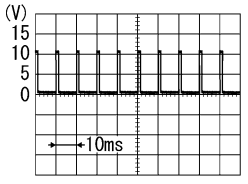
TKWM2205E

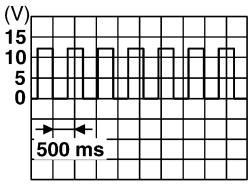
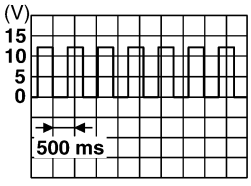
Terminals and Reference Values for BCM

NKS002OS

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-86, "DATA MONITOR" .**

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
2	G/R	Combination switch input 5	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	Approx. 0 V
					Turn signal switch to right	 PKIB4959J Approx. 1.0 V
3	G	Combination switch input 4	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	Approx. 0 V
					Turn signal switch to left	 PKIB4959J Approx. 1.0 V
11	LG	Ignition switch (ACC)	ACC	—		Battery voltage
29	GR	Hazard switch signal	OFF	Hazard switch	ON	Approx. 0 V
					OFF	Battery voltage
36	Y	Combination switch output 1	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	 PKIB4960J Approx. 7.2 V
					Any of the conditions below ● Turn signal switch to right ● Turn signal switch to left	 PKIB4958J Approx. 1.2 V
38	W/L	Ignition switch (ON)	ON	—		Battery voltage
39	L	CAN – H	—	—		—
40	P	CAN – L	—	—		—
42	GY	Battery power supply	OFF	—		Battery voltage

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
45	G/W	Turn signal (left)	ON	Combination switch	Turn left ON	 SKIA3009J
46	PU/W	Turn signal (right)	ON	Combination switch	Turn right ON	 SKIA3009J
52	B	Ground	ON	—		Approx. 0 V
55	R	Battery power supply	OFF	—		Battery voltage

How to Proceed With Trouble Diagnosis

NKS002OT

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-77, "System Description" .
3. Perform the preliminary check. Refer to LT-85, "Preliminary Check" .
4. Check symptom and repair or replace the malfunctioning parts.
5. Do turn signal and hazard warning lamps operate normally? If YES, GO TO 6. If NO, GO TO 4.
6. INSPECTION END

Preliminary Check

NKS002OU

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
		18
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
Combination meter	Battery	19
	Ignition switch ON or START position	14

Refer to LT-81, "Wiring Diagram — TURN —" .

OK or NG

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

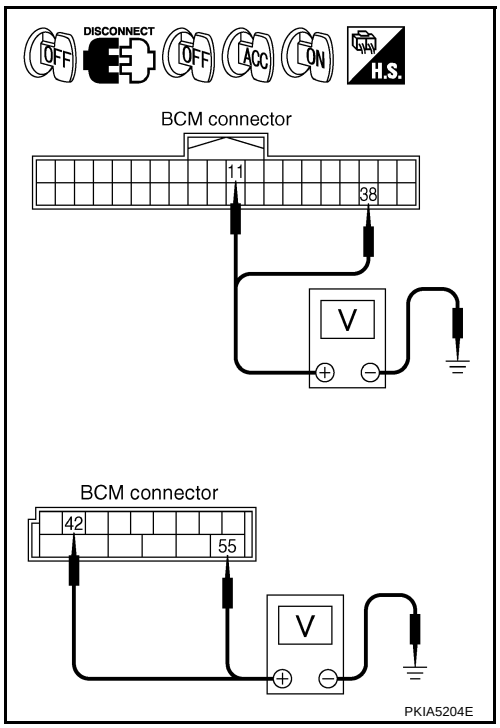
2. CHECK POWER SUPPLY CIRCUIT

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

(+)		(–)	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.



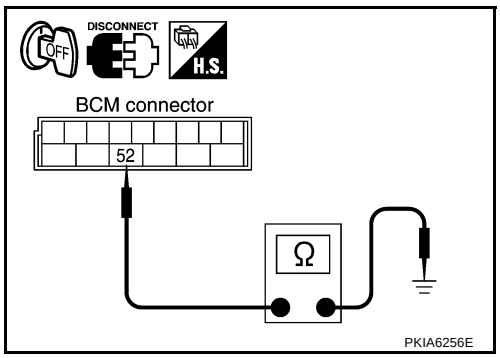
3. CHECK GROUND CIRCUIT

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)

NKS002OV

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-37, "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 “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 items will be monitored.
5. Touch “START”.
6. Touch “RECORD” while monitoring, then the status of monitored item can be recorded. To stop recording, touch “STOP”.

Display Item List

Monitor item		Contents
IGN ON SW	“ON/OFF”	Displays status (ignition switch IGN position: ON/other: OFF) of ignition switch judged from the ignition switch signal.
HAZARD SW	“ON/OFF”	Displays status (hazard switch ON position: ON/other: OFF) of hazard switch judged from the hazard switch signal.
TURN SIGNAL R	“ON/OFF”	Displays status (turn signal switch right position: ON/other: OFF) of turn RH switch judged from the turn signal switch signal.
TURN SIGNAL L	“ON/OFF”	Displays status (turn signal switch left position: ON/other: OFF) of turn LH switch judged from the turn signal switch signal.
BRAKE SW	“ON/OFF”	Displays status (brake lamp switch ON position: ON/other: OFF) of brake lamp switch judged from the brake lamp 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 “OFF” deactivates the operation.

Display Item List

Test item	Description
FLASHER	Turn signal lamp (right or left) can be operated by any ON-OFF operations.

Turn Signal Lamp Does Not Operate

NKS002OW

1. CHECK BULB

Check each turn signal lamp bulb if the proper bulb is used and if it is not blown.

OK or NG

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

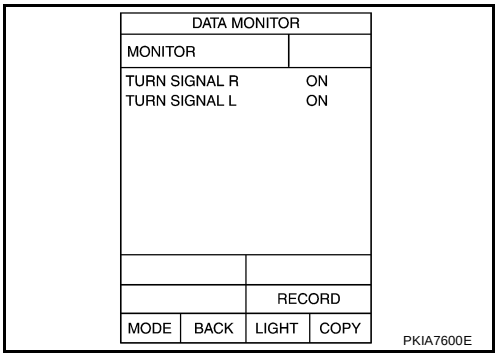
2. CHECK COMBINATION SWITCH INPUT SIGNAL

With CONSULT-II

Select “BCM” on CONSULT-II. With “FLASHER” data monitor, make sure “TURN SIGNAL R” and “TURN SIGNAL L” turns ON-OFF linked with operation of turn signal switch.

When turn signal switch is RH position : TURN SIGNAL R ON

When turn signal switch is LH position : TURN SIGNAL L ON



Without CONSULT-II

Refer to LT-100, "Combination Switch Inspection" .

OK or NG

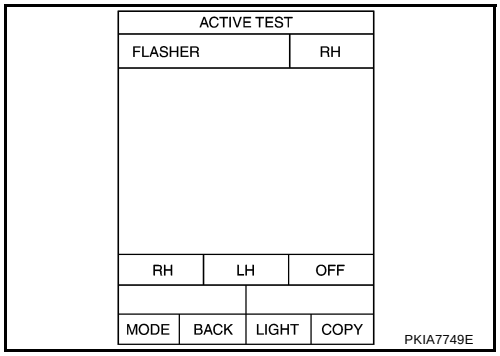
OK >> GO TO 3.
NG >> Check combination switch (lighting switch). Refer to LT-100, "Combination Switch Inspection" .

3. ACTIVE TEST

With CONSULT-II

1. Select “BCM” on CONSULT-II. Select “FLASHER” active test. Refer to LT-87, "ACTIVE TEST" .
2. Touch “RH” or “LH” screen.
3. Make sure turn signal lamp RH and LH operates.

Turn signal lamp should operate.



Without CONSULT-II

GO TO 4.

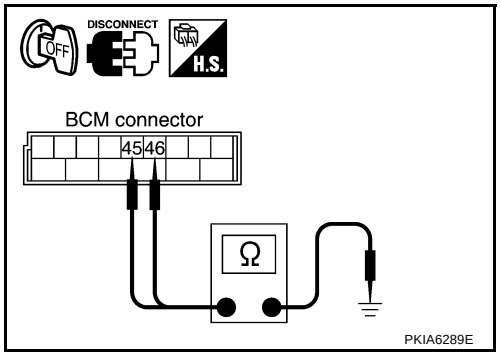
OK or NG

OK >> Replace BCM. Refer to BCS-16, "Removal and Installation of BCM" .

NG >> GO TO 4.

4. CHECK SHORT CIRCUIT

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



BCM connector		Terminal	Ground	Continuity
RH	M2	46		No
LH		45		

OK or NG

OK >> Replace BCM if turn signal lamps does not work after setting the connector again. Refer to BCS-16, "Removal and Installation of BCM" .

NG >> Repair harness or connector.

Hazard Warning Lamp Does Not Operate But Turn Signal Lamp Operates

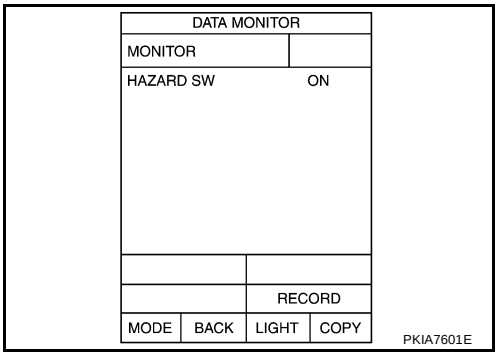
NKS002OX

1. CHECK HAZARD SWITCH INPUT SIGNAL

With CONSULT-II

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

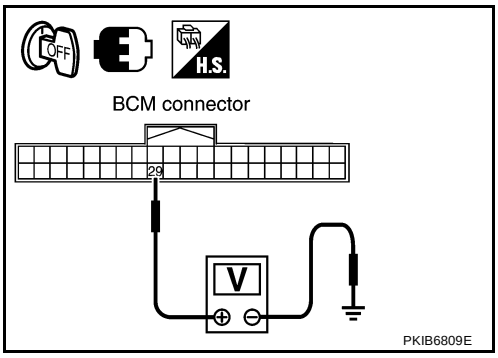
When hazard switch is ON : HAZARD SW ON position



Without CONSULT-II

Check voltage between BCM harness connector and ground.

(+)		(–)	Condition	Voltage
BCM connector	Terminal			
M1	29	Ground	Hazard switch is ON	Approx. 0 V
			Hazard switch is OFF	Battery voltage



OK or NG

OK >> Replace BCM. Refer to BCS-16, "Removal and Installation of BCM" .

NG >> GO TO 2.

2. CHECK HAZARD SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and hazard switch connector.
3. Check continuity BCM harness connector M1 terminal 29 and hazard switch harness connector M282*1 , M46*2 terminal 2.

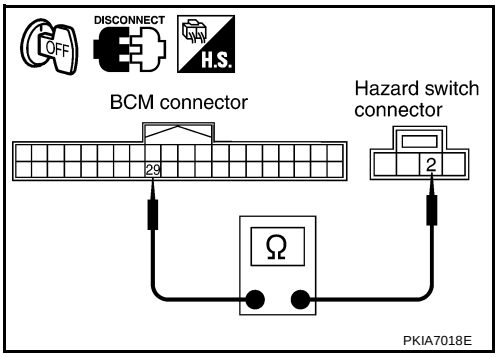
29 – 2 : Continuity should exist.

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

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.



3. CHECK HAZARD SWITCH GROUND

Check continuity hazard switch harness connector M282*1 , M46*2 terminal 1 and ground.

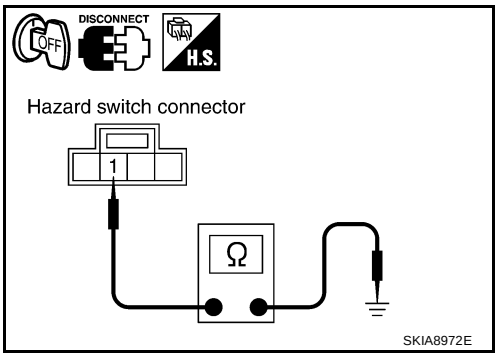
1 – Ground : Continuity should exist.

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

OK or NG

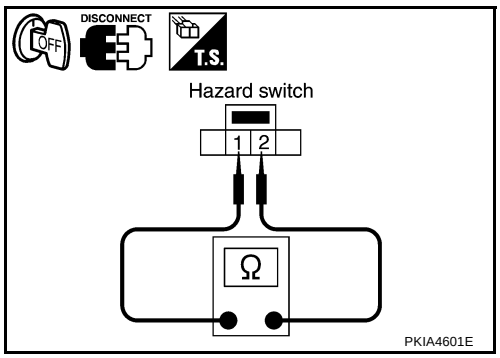
OK >> GO TO 4.

NG >> Repair harness or connector.



4. CHECK HAZARD SWITCH

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



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

OK or NG

OK >> Replace BCM if turn signal lamps does not work after setting the connector again. Refer to BCS-16, "Removal and Installation of BCM" .

NG >> Replace hazard switch.

Bulb Replacement

NKS002OZ

FRONT TURN SIGNAL LAMP

Refer to LT-30, "Bulb Replacement" .

REAR TURN SIGNAL LAMP

Refer to LT-126, "Bulb Replacement" .

Removal and Installation

NKS002P0

FRONT TURN SIGNAL LAMP

Refer to LT-32, "Removal and Installation" .

REAR TURN SIGNAL LAMP

Refer to LT-126, "Removal and Installation" .

LIGHTING AND TURN SIGNAL SWITCH

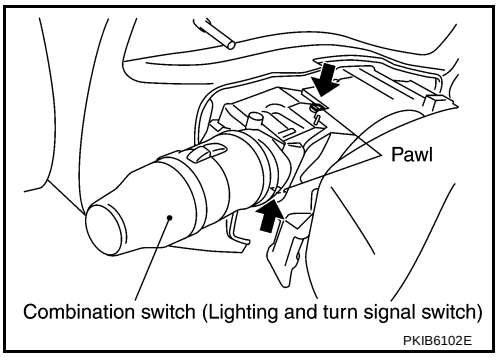
PFP:25540

Removal and Installation

NKS000ID

REMOVAL

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



INSTALLATION

Installation is the reverse order of removal.

HAZARD SWITCH

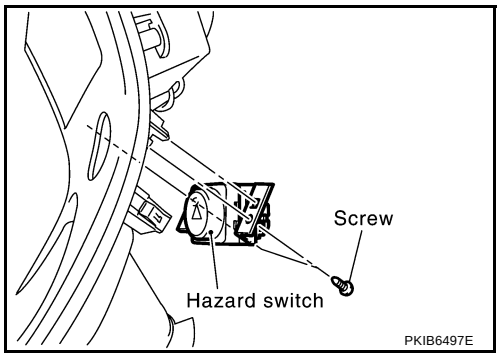
PFP:25290

Removal and Installation (M/T)

NKS000IE

REMOVAL

1. Remove console boot (M/T). Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Disconnect hazard switch connector.
3. Remove screws.
4. Remove hazard switch.



INSTALLATION

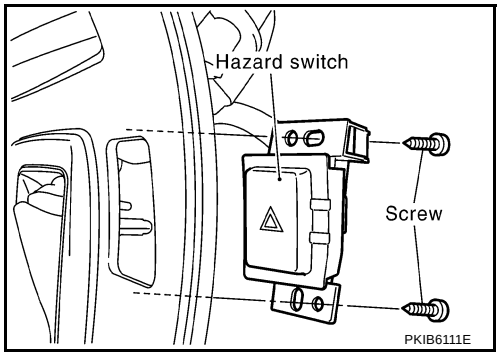
Installation is the reverse order of removal.

Removal and Installation (A/T)

NKS000IF

REMOVAL

1. Remove console finisher (A/T). Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Disconnect hazard switch connector.
3. Remove screws.
4. Remove hazard switch.



INSTALLATION

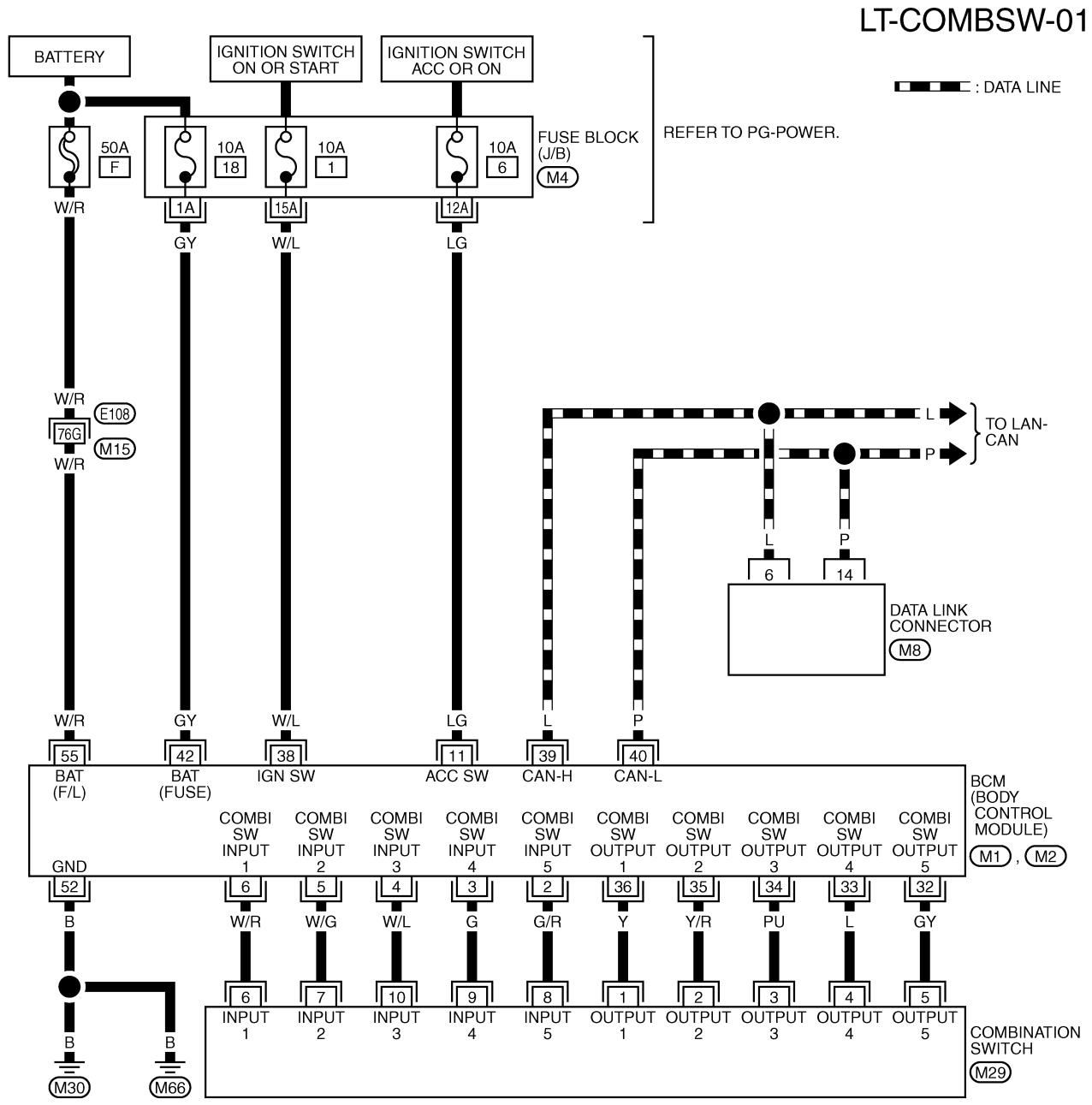
Installation is the reverse order of removal.

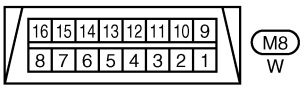
COMBINATION SWITCH

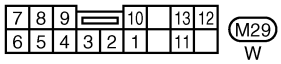
PFP:25567

Wiring Diagram — COMBSW —

NKS002P1







REFER TO THE FOLLOWING.

E108 -SUPER MULTIPLE JUNCTION (SMJ)

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

M1, M2 -ELECTRICAL UNITS

TKWM2183E

Combination Switch Reading Function

NKS002P2

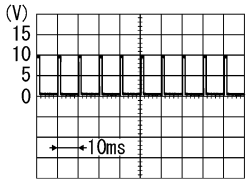
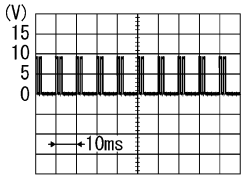
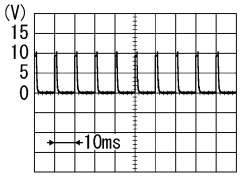
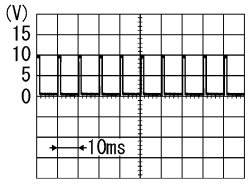
For details, refer to BCS-3, "COMBINATION SWITCH READING FUNCTION" .

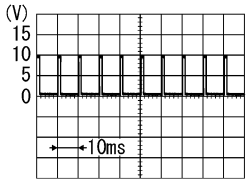
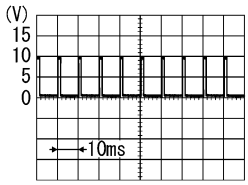
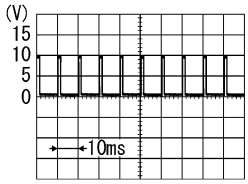
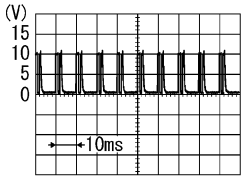
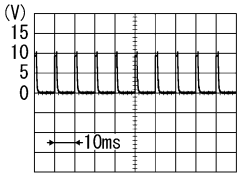
Terminals and Reference Values for BCM

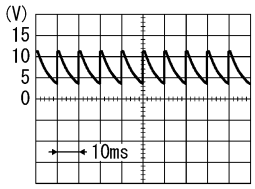
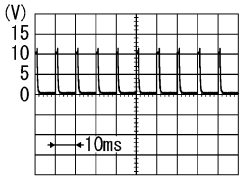
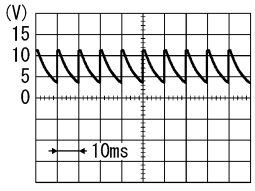
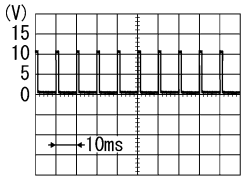
NKS002Q1

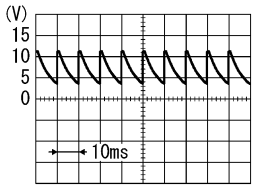
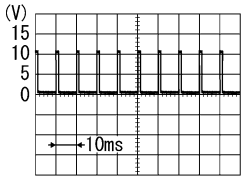
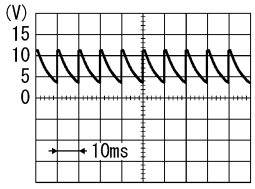
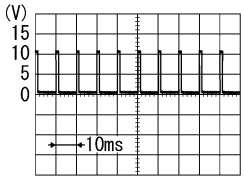
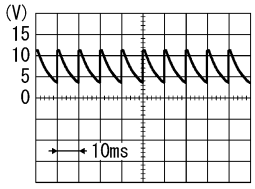
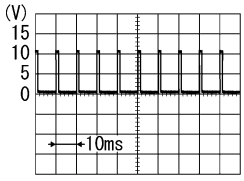
CAUTION:

- **Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal 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-99, "DATA MONITOR" .**

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
2	G/R	Combination switch input 5	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	Approx. 0 V
					Any of the conditions below ● Lighting switch 1ST ● Lighting switch HIGH beam (Operates only HIGH beam switch) ● Turn signal switch to right	 PKIB4959J Approx. 1.0 V
					Lighting switch 2ND	 PKIB4953J Approx. 2.0 V
3	G	Combination switch input 4	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	Approx. 0 V
					Front fog lamp switch (Operates only front fog lamp switch)	 PKIB4955J Approx. 0.8 V
					Any of the conditions below ● Lighting switch 2ND ● Lighting switch PASSING (Operates only PASSING switch) ● Turn signal switch to left	 PKIB4959J Approx. 1.0 V

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
4	W/L	Combination switch input 3	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	Approx. 0 V
					Any of the conditions below ● Lighting switch AUTO ● Front wiper switch MIST ● Front wiper switch INT ● Front wiper switch LO	 PKIB4959J Approx. 1.0 V
5	W/G	Combination switch input 2	ON	Lighting, turn, wiper switch	OFF	Approx. 0 V
					Any of the conditions below ● Front washer switch (Wiper intermittent dial position 4) ● Wiper intermittent dial position 1 ● Wiper intermittent dial position 5 ● Wiper intermittent dial position 6	 PKIB4959J Approx. 1.0 V
6	W/R	Combination switch input 1	ON	Lighting, turn, wiper switch	OFF	Approx. 0 V
					Any of the conditions below ● Front wiper switch HI (Wiper intermittent dial position 4) ● Wiper intermittent dial position 3	 PKIB4959J Approx. 1.0 V
					Any of the conditions below ● Wiper intermittent dial position 1 ● Wiper intermittent dial position 2	 PKIB4952J Approx. 1.7 V
					Any of the conditions below ● Wiper intermittent dial position 6 ● Wiper intermittent dial position 7	 PKIB4955J Approx. 0.8 V
11	LG	Ignition switch (ACC)	ACC	—		Battery voltage

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
32	GY	Combination switch output 5	ON	Lighting, turn, wiper switch	OFF (Wiper intermittent dial position 4)	 PKIB4960J Approx. 7.2 V
					Any of the conditions below ● Front fog lamp switch (Operates only front fog lamp switch) ● Wiper intermittent dial position 1 ● Wiper intermittent dial position 2 ● Wiper intermittent dial position 6 ● Wiper intermittent dial position 7	 PKIB4956J Approx. 1.0 V
33	L	Combination switch output 4	ON	Lighting, turn, wiper switch	OFF (Wiper intermittent dial position 4)	 PKIB4960J Approx. 7.2 V
					Any of the conditions below ● Lighting switch AUTO (Wiper dial position 4) ● Lighting switch 1ST (The same result with lighting switch 2ND) (Wiper intermittent dial position 4) ● Rear wiper switch INT ● Wiper intermittent dial position 1 ● Wiper intermittent dial position 5 ● Wiper intermittent dial position 6	 PKIB4958J Approx. 1.2 V

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
34	PU	Combination switch output 3	ON	Lighting, turn, wiper switch	OFF	 PKIB4960J Approx. 7.2 V
					Any of the conditions below ● Lighting switch 2ND ● Lighting switch HI beam (Operates only HI beam switch) ● Wiper intermittent dial position 1 ● Wiper intermittent dial position 2 ● Wiper intermittent dial position 3	 PKIB4958J Approx. 1.2 V
35	Y/R	Combination switch output 2	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	 PKIB4960J Approx. 7.2 V
					Any of the conditions below ● Lighting switch 2ND ● Lighting switch PASSING (Operates only PASSING switch) ● Front wiper switch INT ● Front wiper switch HI	 PKIB4958J Approx. 1.2 V
36	Y	Combination switch output 1	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	 PKIB4960J Approx. 7.2 V
					Any of the conditions below ● Turn signal switch to right ● Turn signal switch to left ● Front wiper switch MIST ● Front wiper switch LO ● Front washer switch	 PKIB4958J Approx. 1.2 V
38	W/L	Ignition switch (ON)	ON	—		Battery voltage

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
39	L	CAN – H	—	—	—
40	P	CAN – L	—	—	—
42	GY	Battery power supply	OFF	—	Battery voltage
52	B	Ground	ON	—	Approx. 0 V
55	W/R	Battery power supply	OFF	—	Battery voltage

CONSULT-II Function (BCM)

NKS002P3

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-37, "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 item and monitor them.

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

Display Item List

Monitor item name		Contents
TURN SIGNAL R	“ON/OFF”	Displays status (turn signal switch right position: ON/other: OFF) of turn RH switch judged from the turn signal switch signal.
TURN SIGNAL L	“ON/OFF”	Displays status (turn signal switch left position: ON/other: OFF) of turn LH switch judged from the turn signal switch signal.
HI BEAM SW	“ON/OFF”	Displays status (lighting switch high beam position: ON/other: OFF) of high beam switch judged from the lighting switch signal.
HEAD LAMP SW 1	“ON/OFF”	Displays status (lighting switch 2ND position: ON/other: OFF) of headlamp 1 switch judged from the lighting switch signal.
HEAD LAMP SW 2	“ON/OFF”	Displays status (lighting switch 2ND position: ON/other: OFF) of headlamp 2 switch judged from the lighting switch signal.
LIGHT SW 1ST	“ON/OFF”	Displays status (lighting switch 1ST or 2ND position: ON/other: OFF) of lighting switch 1ST position switch judged from the lighting switch signal.
PASSING SW	“ON/OFF”	Displays status (lighting switch passing position: ON/other: OFF) of passing switch judged from the lighting switch signal.
AUTO LIGHT SW	“ON/OFF”	Displays status (lighting switch AUTO position: ON/other: OFF) of auto light switch position judged from the lighting switch signal.
FR FOG SW	“ON/OFF”	Displays status (lighting switch front fog lamp ON position: ON/others: OFF) of front fog lamp switch judged from the lighting switch signal.
RR FOG SW NOTE	“ON/OFF”	—
FR WIPER HI	“ON/OFF”	Displays status (front wiper switch high position: ON/other: OFF) of front wiper high switch judged from the wiper switch signal.
FR WIPER LOW	“ON/OFF”	Displays status (front wiper switch low position: ON/other: OFF) of front wiper low switch judged from the wiper switch signal.
FR WIPER INT	“ON/OFF”	Displays status (front wiper switch intermittent position: ON/other: OFF) of front wiper intermittent switch judged from the wiper switch signal.
FR WASHER SW	“ON/OFF”	Displays status (front washer switch ON position: ON/other: OFF) of front washer switch judged from the wiper switch signal.
INT VOLUME	“1 - 7”	Displays status (wiper intermittent dial position setting 1-7) of intermittent volume switch judged from the wiper switch signal.

Monitor item name		Contents
RR WIPER ON NOTE	“OFF”	—
RR WIPER INT NOTE	“OFF”	—
RR WASHER SW NOTE	“OFF”	—

NOTE:
This item is displayed, but cannot be monitored.

Combination Switch Inspection

NKS002P4

1. SYSTEM CHECK

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

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

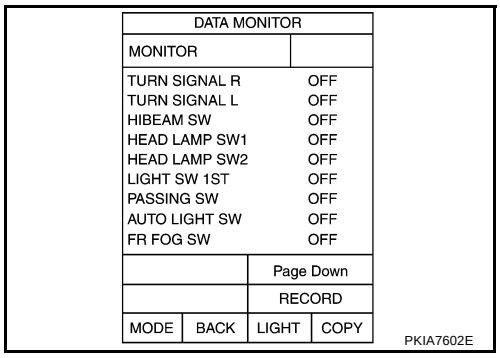
>> Check the system to which malfunctioning switch belongs, and GO TO 2.

2. SYSTEM CHECK

With CONSULT-II

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

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



Without CONSULT-II

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

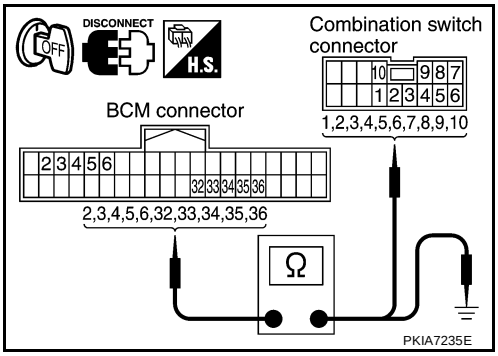
Check results

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

3. CHECK HARNESS

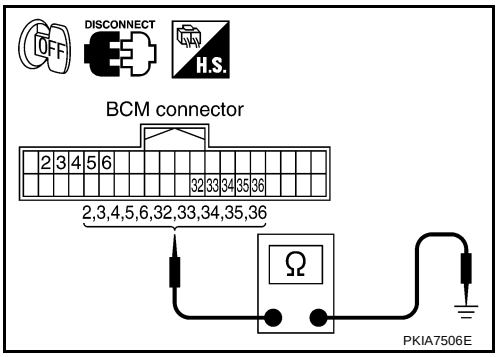
1. Turn ignition switch OFF.
2. Disconnect BCM connector and combination switch connector.
3. Check for continuity between BCM harness connector of the suspect system and the corresponding combination switch harness connector.

Suspect system	BCM			Combination switch		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 BCM harness connector in suspect malfunctioning system and ground.

Suspect system	BCM connector	Terminal			Continuity
1	M1	Input 1	6	Ground	No
		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		

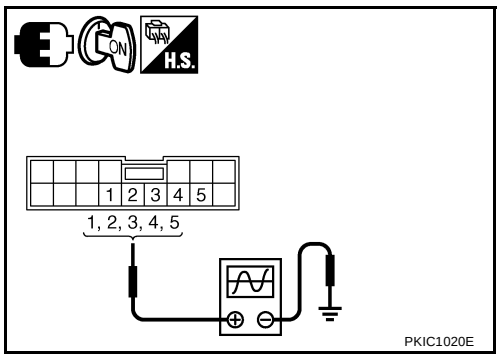


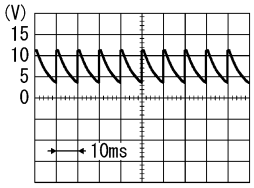
OK or NG

OK >> GO TO 4.
NG >> Check harness between BCM and combination switch for open or short circuit.

4. CHECK BCM OUTPUT TERMINAL

1. Turn lighting switch and wiper switch OFF position.
2. Set wiper dial position 4.
3. Connect BCM connector and combination switch connector.
4. Turn ignition switch ON.
5. Check BCM output terminal voltage waveform of suspect malfunctioning system.



Suspect system	(+)		(–)	Reference value
	Combination switch connector	Terminal		
1	M29	1	Ground	
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-16, "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	Confirm symptom again

>> INSPECTION END

Removal and Installation

NKS002P5

For details, refer to LT-91, "LIGHTING AND TURN SIGNAL SWITCH" .

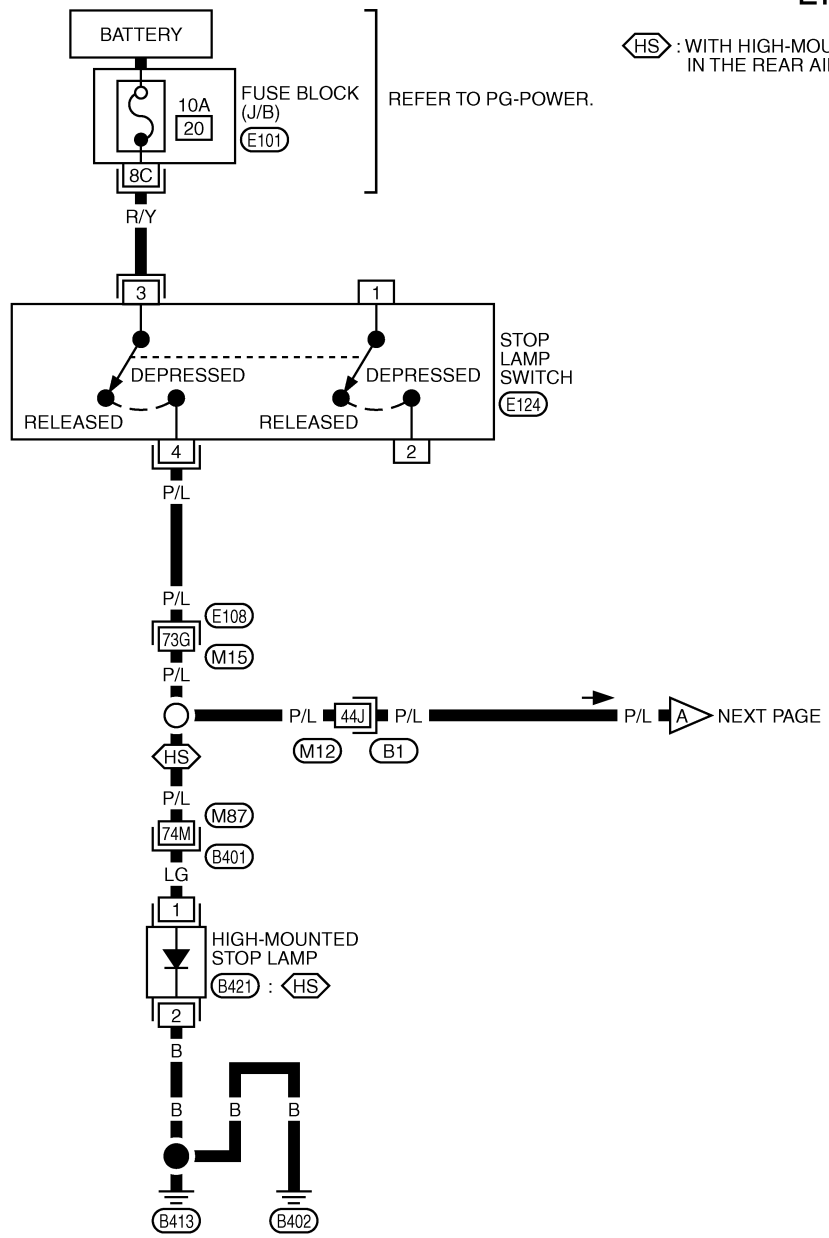
STOP LAMP

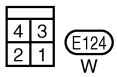
PFP:26550

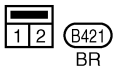
Wiring Diagram — STOP/L —

NKS000IL

LT-STOP/L-01



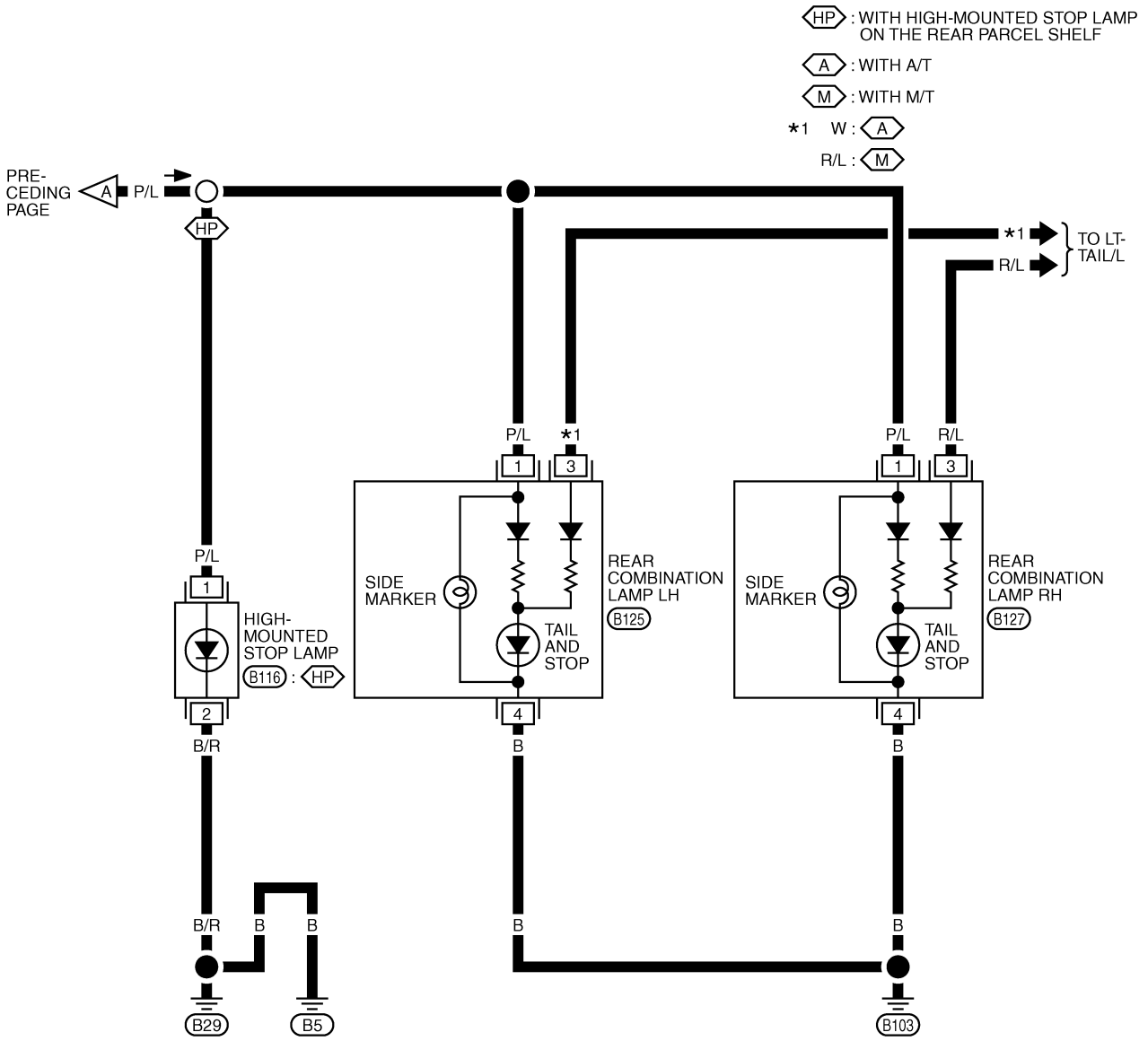


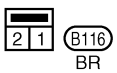


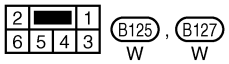
REFER TO THE FOLLOWING.
E108 , B1 , B401 -SUPER MULTIPLE JUNCTION (SMJ)
E101 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWM2206E

LT-STOP/L-02







TKWM4922E

Bulb Replacement of High-Mounted Stop Lamp

NKS000IM

WITH REAR SPOILER

1. Remove high-mounted stop lamp. Refer to LT-105, "REMOVAL (WITH REAR SPOILER)" .
2. Replace together with high-mounted stop lamp.

High-mounted stop lamp : LED

3. Installation is the reverse order of removal.

WITHOUT REAR SPOILER

1. Remove high-mounted stop lamp. Refer to LT-105, "REMOVAL (WITHOUT REAR SPOILER)" .
2. Replace together with high-mounted stop lamp.

High-mounted stop lamp : LED

3. Installation is the reverse order of removal.

Bulb Replacement of Rear Combination Lamp (Stop Lamp)

NKS000IN

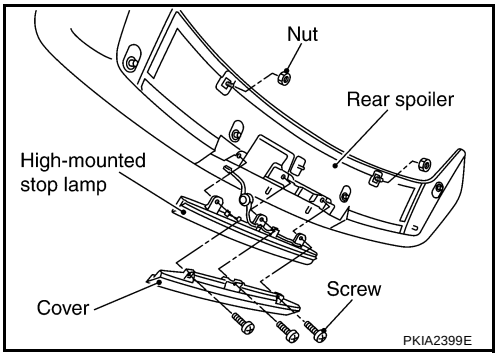
Refer to LT-126, "Bulb Replacement" .

Removal and Installation of High-Mounted Stop Lamp

NKS000IO

REMOVAL (WITH REAR SPOILER)

1. Remove rear spoiler. Refer to EI-27, "REAR SPOILER" .
2. Remove screws and remove high-mounted stop lamp from rear spoiler.
3. Disconnect high-mounted stop lamp connector.

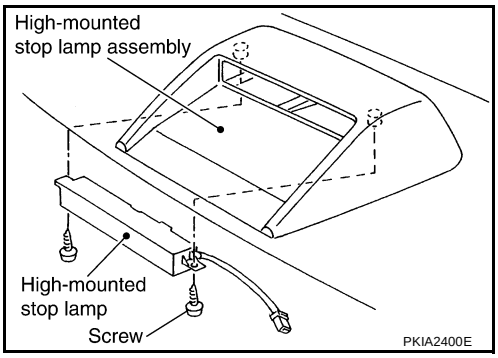


INSTALLATION

Installation is the reverse order of removal.

REMOVAL (WITHOUT REAR SPOILER)

1. Remove rear parcel shelf finisher. Refer to EI-33, "REAR PARCEL SHELF FINISHER" .
2. Remove screws and remove high-mounted stop lamp from rear parcel shelf finisher.
3. Disconnect high-mounted stop lamp connector.



INSTALLATION

Installation is the reverse order of removal.

Removal and Installation of Rear Combination Lamp (Stop Lamp)

NKS000IP

Refer to LT-126, "Removal and Installation" .

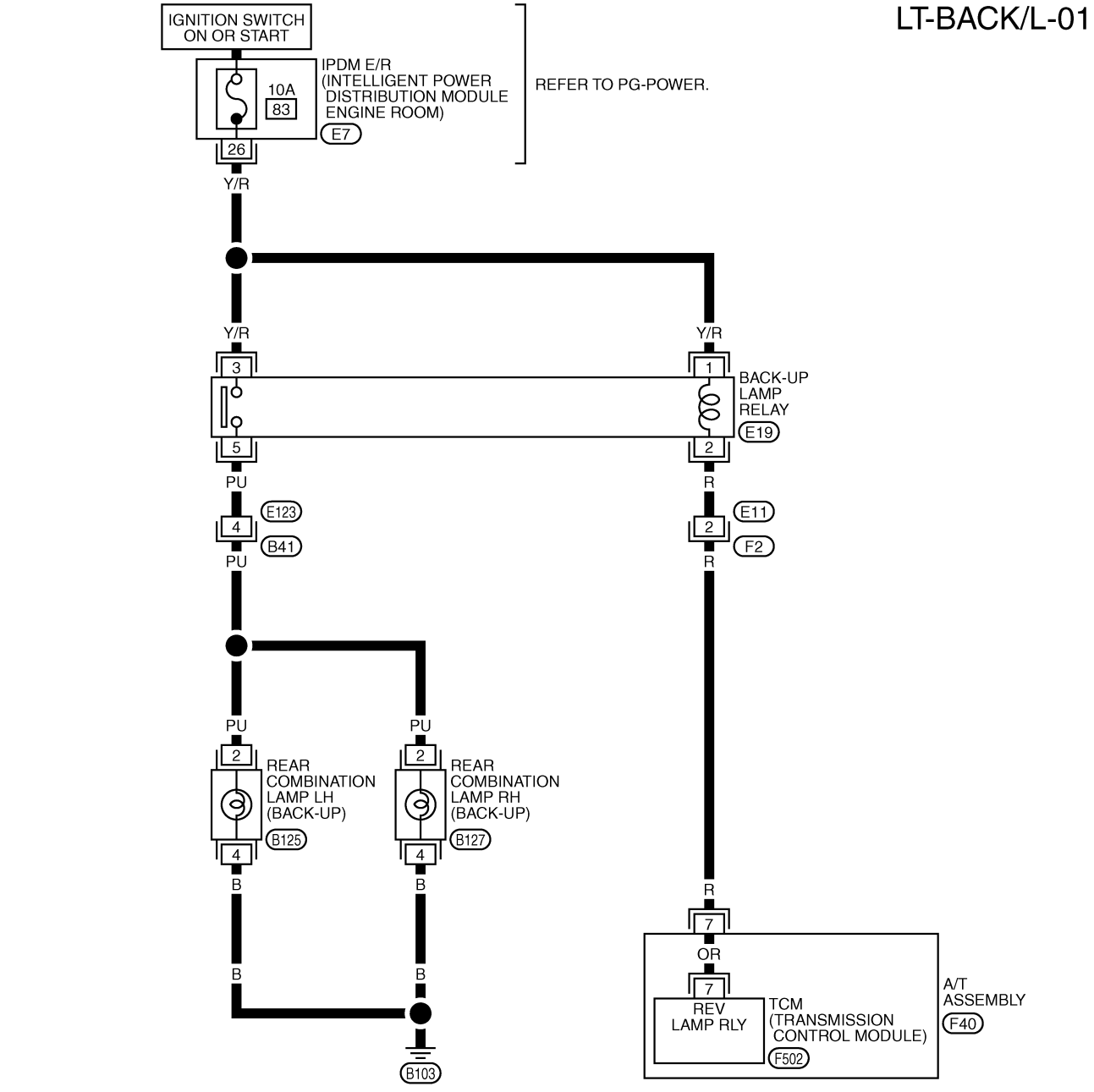
BACK-UP LAMP

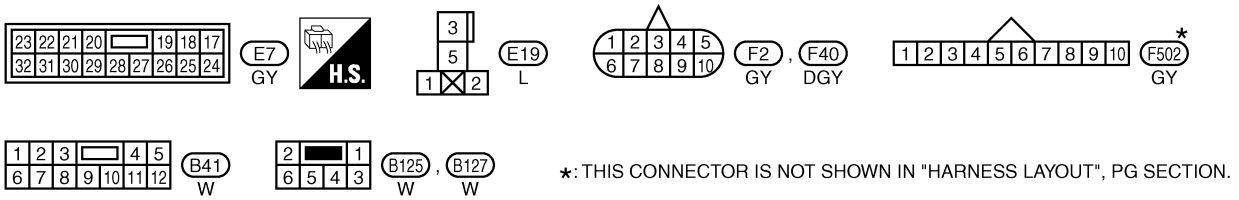
PFP:26550

Wiring Diagram — BACK/L —

NKS000IS

A/T MODELS



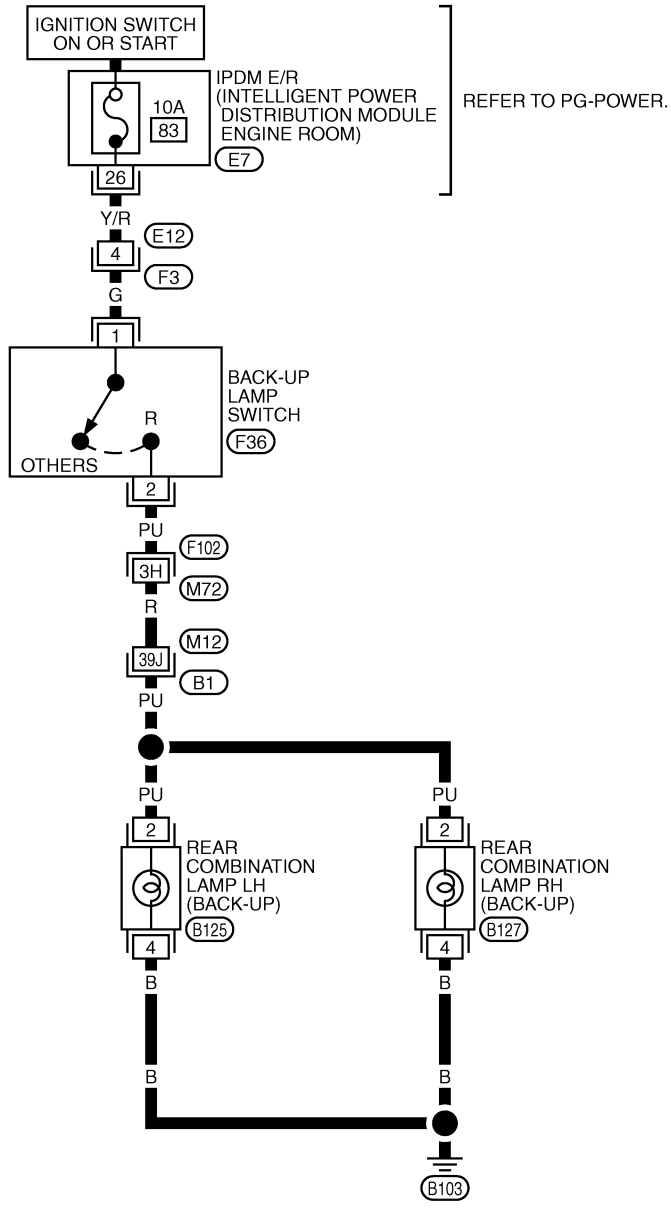


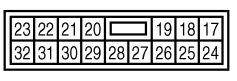
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWM2208E

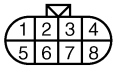
M/T MODELS

LT-BACK/L-02

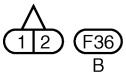




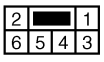
E7
GY



F3
B



F36
B



B125 , B127
W W

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

TKWM4923E

Bulb Replacement

NKS000IT

Refer to LT-126, "Bulb Replacement" .

Removal and Installation

NKS000IU

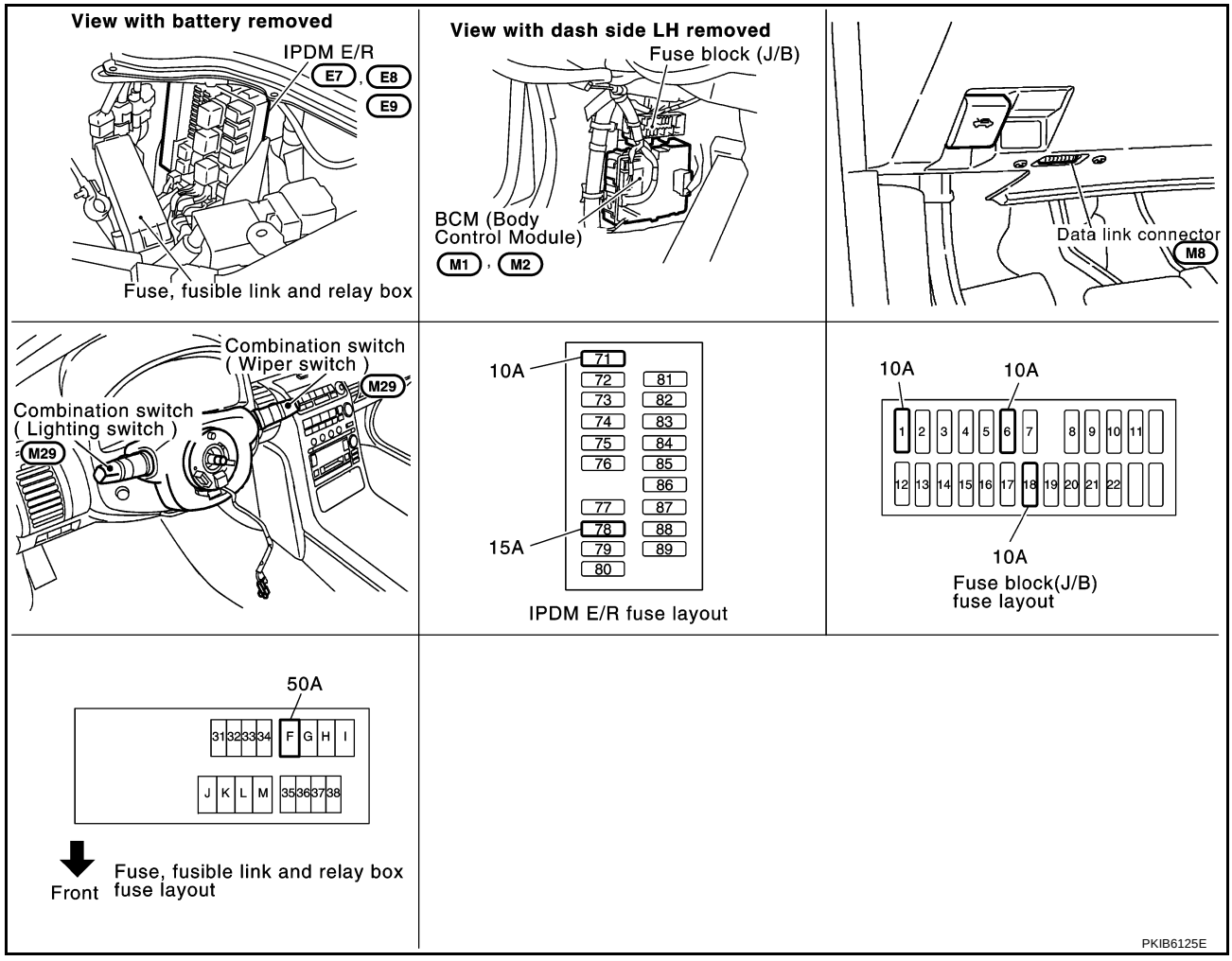
Refer to LT-126, "Removal and Installation" .

PARKING, LICENSE PLATE AND TAIL LAMPS

PFP:26550

Component Parts and Harness Connector Location

NKS002P6



System Description

NKS002P7

The control of the parking, license plate, side marker and tail lamp operation is dependent upon the position of lighting switch. When the lighting switch is placed in the 1ST position, 2ND position or AUTO position (headlamp is ON), the BCM (body control module) receives input signal requesting the parking, license plate, side marker and tail lamps to illuminate. This input signal is communicated to the IPDM E/R (intelligent power distribution module engine room) through the CAN communication lines. The CPU (central processing unit) located in the IPDM E/R controls the tail lamp relay. This relay, when energized, directs power to parking, license plate, side marker and tail lamps, which then illuminate.

Power is supplied at all times

- through 10A fuse (No. 71, located in IPDM E/R)
- 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 box)
- to BCM terminal 55,
- through 10A fuse [No. 18, located in fuse block (J/B)]
- to BCM terminal 42.

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

- to CPU located in IPDM E/R, from battery direct,
- through 10A 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 M30 and M66,
- to IPDM E/R terminals 38 and 60
- through grounds E17 and E43.

OPERATION BY LIGHTING SWITCH

With the lighting switch in the 1ST position, 2ND position or AUTO position (headlamp is ON), the BCM receives input signal requesting parking, license plate, side marker and tail lamps to illuminate. This input signal is communicated to the IPDM E/R through CAN communication lines. The CPU located in the IPDM E/R controls tail lamp relay, which when energized, directs power

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

Ground is supplied

- to front side marker lamp RH and LH terminals 2, and
- to front combination lamp RH and LH terminals 8
- through grounds E17 and E43,
- to rear combination lamp RH and LH terminals 4
- through ground B103,
- to license plate lamp RH and LH terminals 2
- through grounds B5 and B29.

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

COMBINATION SWITCH READING FUNCTION

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

EXTERIOR LAMP BATTERY SAVER CONTROL

When the 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

NKS002P8

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.

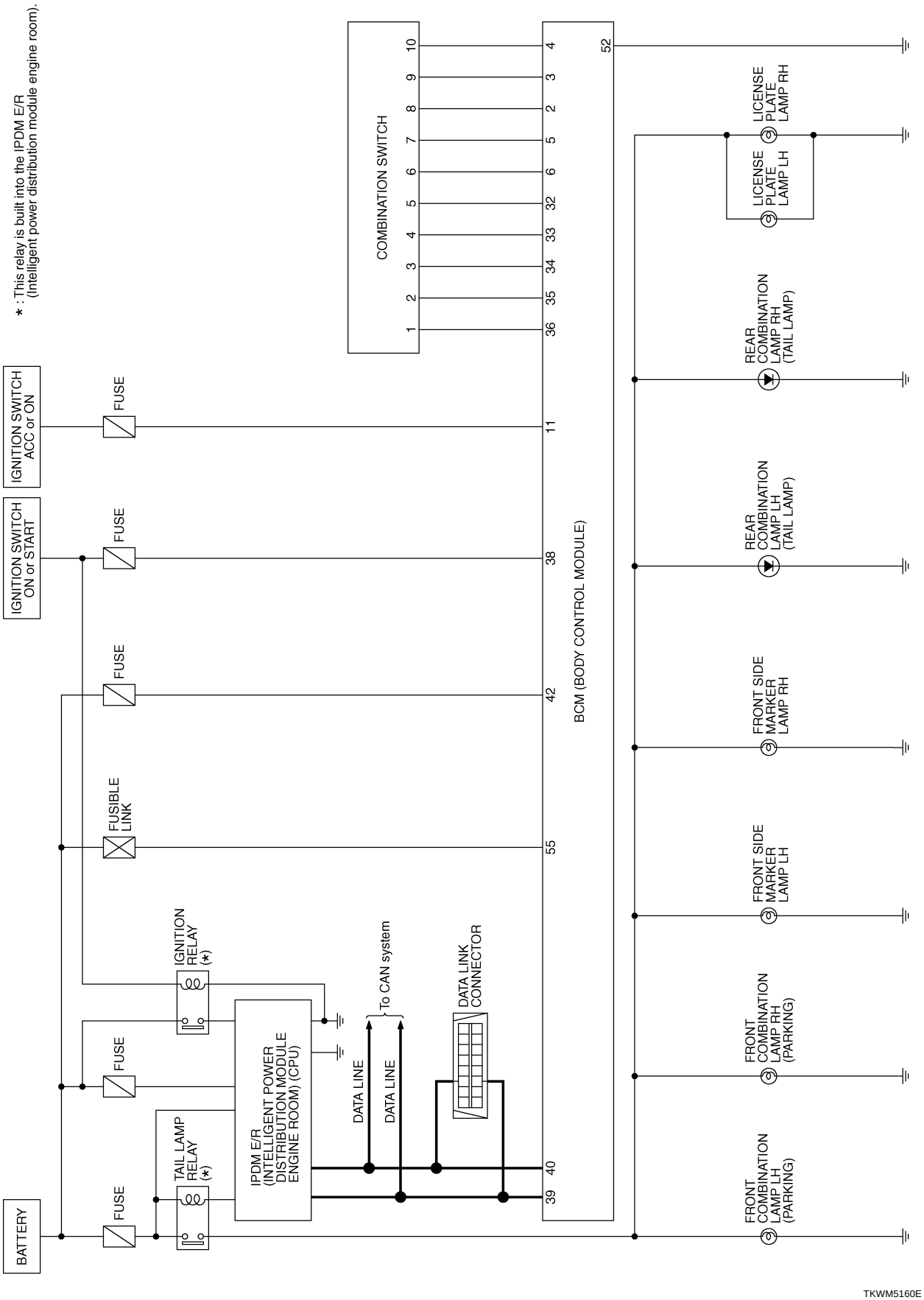
CAN Communication Unit

NKS002P9

Refer to LAN-47, "CAN System Specification Chart" .

Schematic

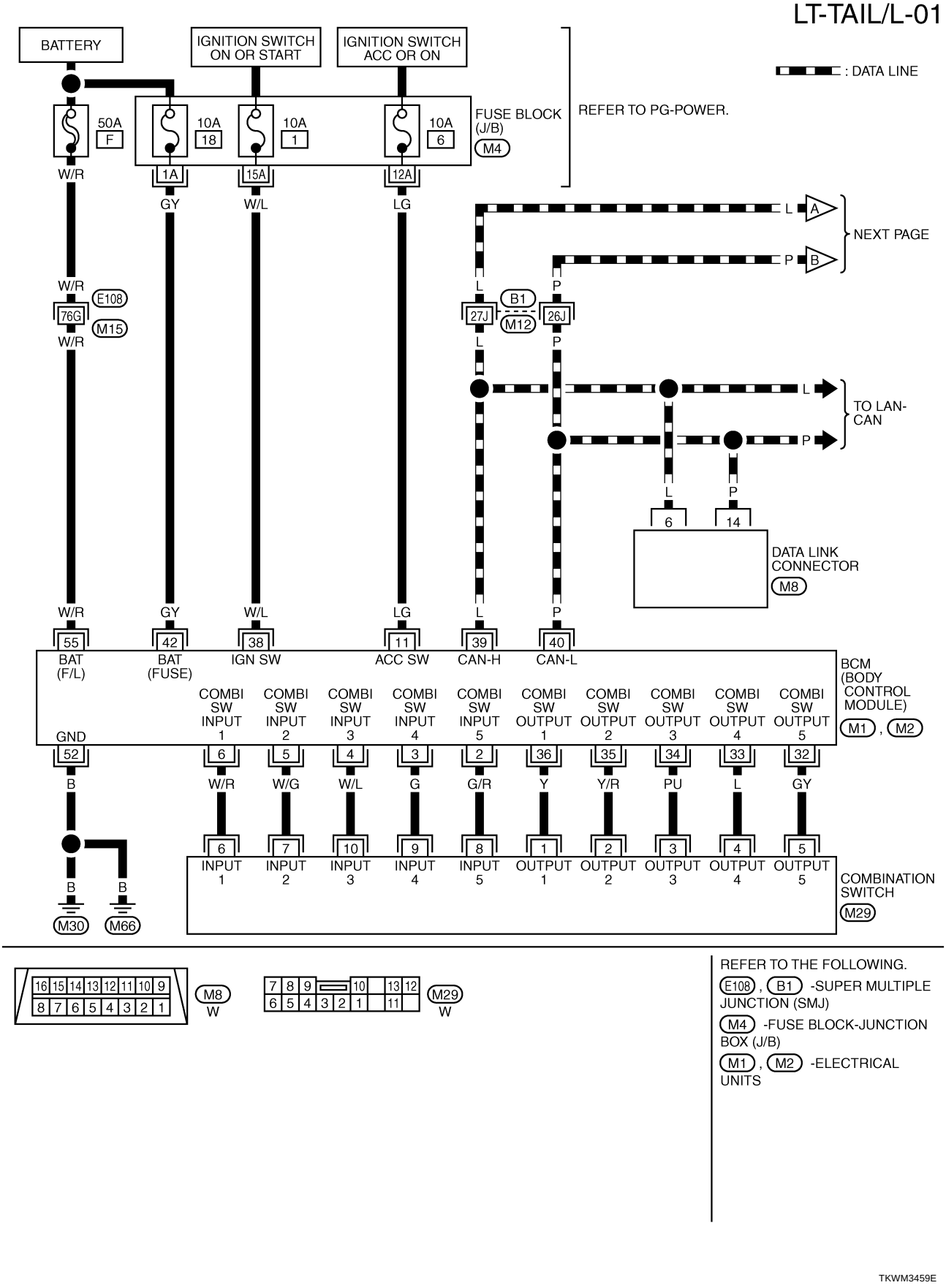
NKS002PA

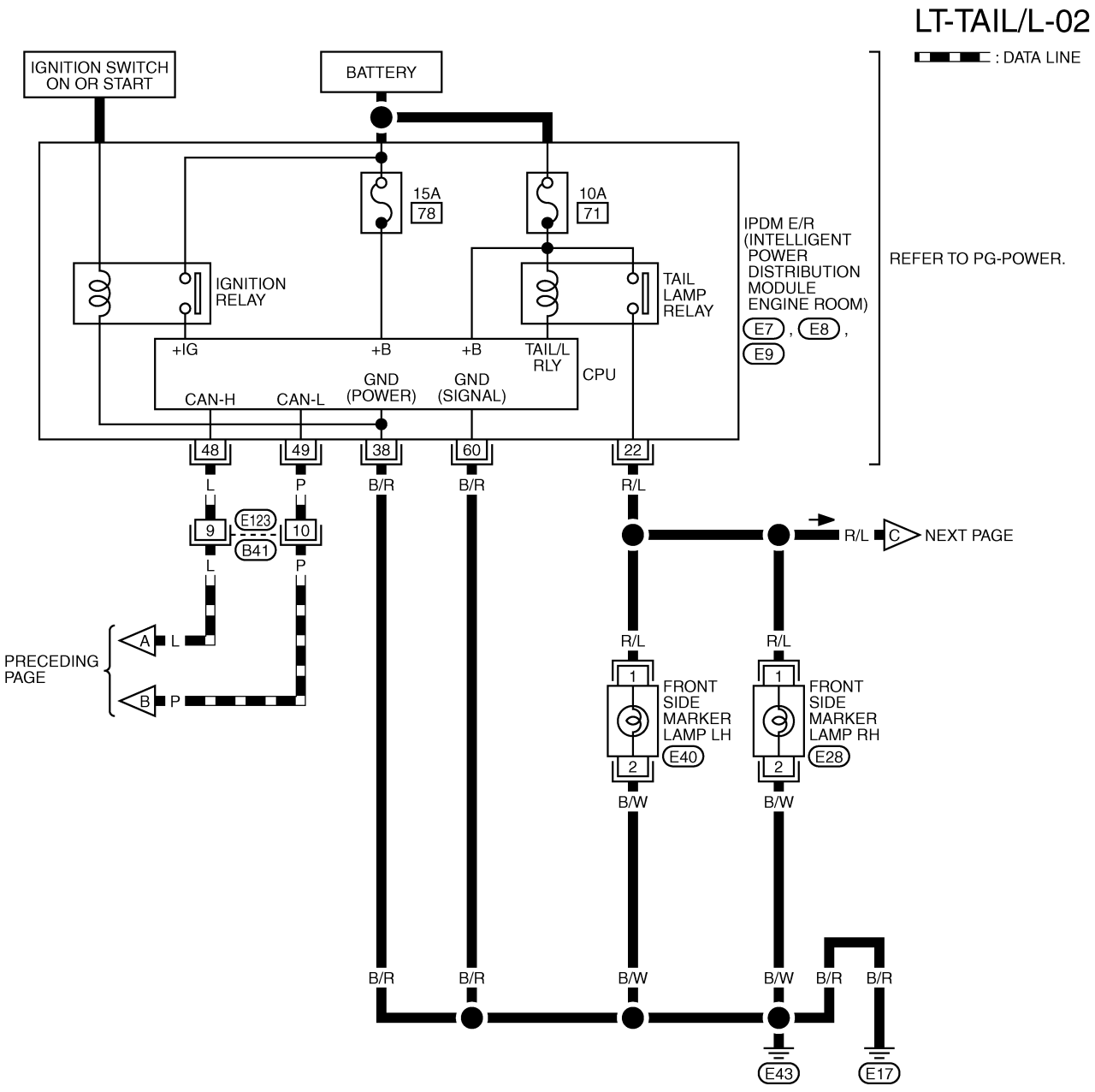


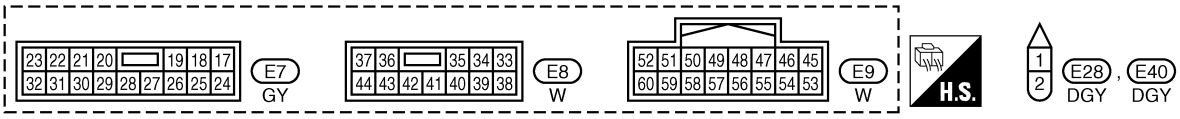
TKWM5160E

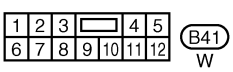
Wiring Diagram — TAIL/L —

NKS002PB



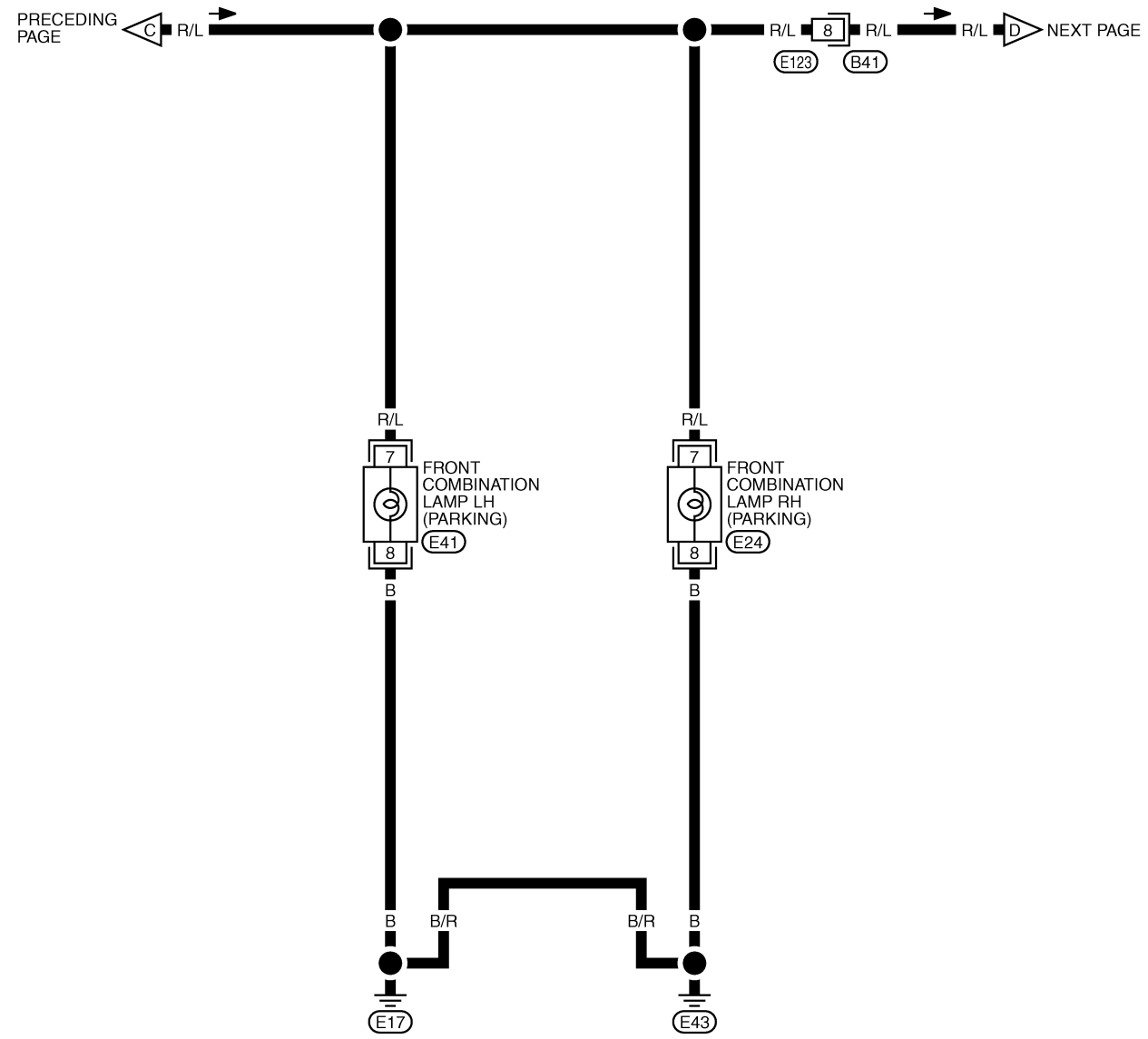

LT-TAIL/L-02
: DATA LINE
IGNITION SWITCH ON OR START
BATTERY
15A 78
10A 71
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E7, E8, E9
REFER TO PG-POWER.
IGNITION RELAY
TAIL LAMP RELAY
+IG
+B
+B
TAIL/L RLY
CPU
CAN-H
CAN-L
GND (POWER)
GND (SIGNAL)
48
49
38
60
22
L
P
B/R
B/R
R/L
9
E123
B41
10
L
P
R/L
C
NEXT PAGE
PRECEDING PAGE
A
L
B
P
R/L
R/L
1
FRONT SIDE MARKER LAMP LH
E40
2
B/W
1
FRONT SIDE MARKER LAMP RH
E28
2
B/W
B/R
B/R
B/W
B/W
B/R
B/R
E43
E17

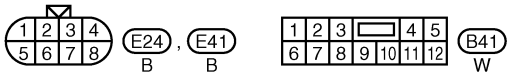

23 22 21 20 19 18 17
32 31 30 29 28 27 26 25 24
E7
GY
37 36 35 34 33
44 43 42 41 40 39 38
E8
W
52 51 50 49 48 47 46 45
60 59 58 57 56 55 54 53
E9
W
H.S.
1
2
E28, E40
DGY DGY


1 2 3 4 5
6 7 8 9 10 11 12
B41
W

TKWM3460E

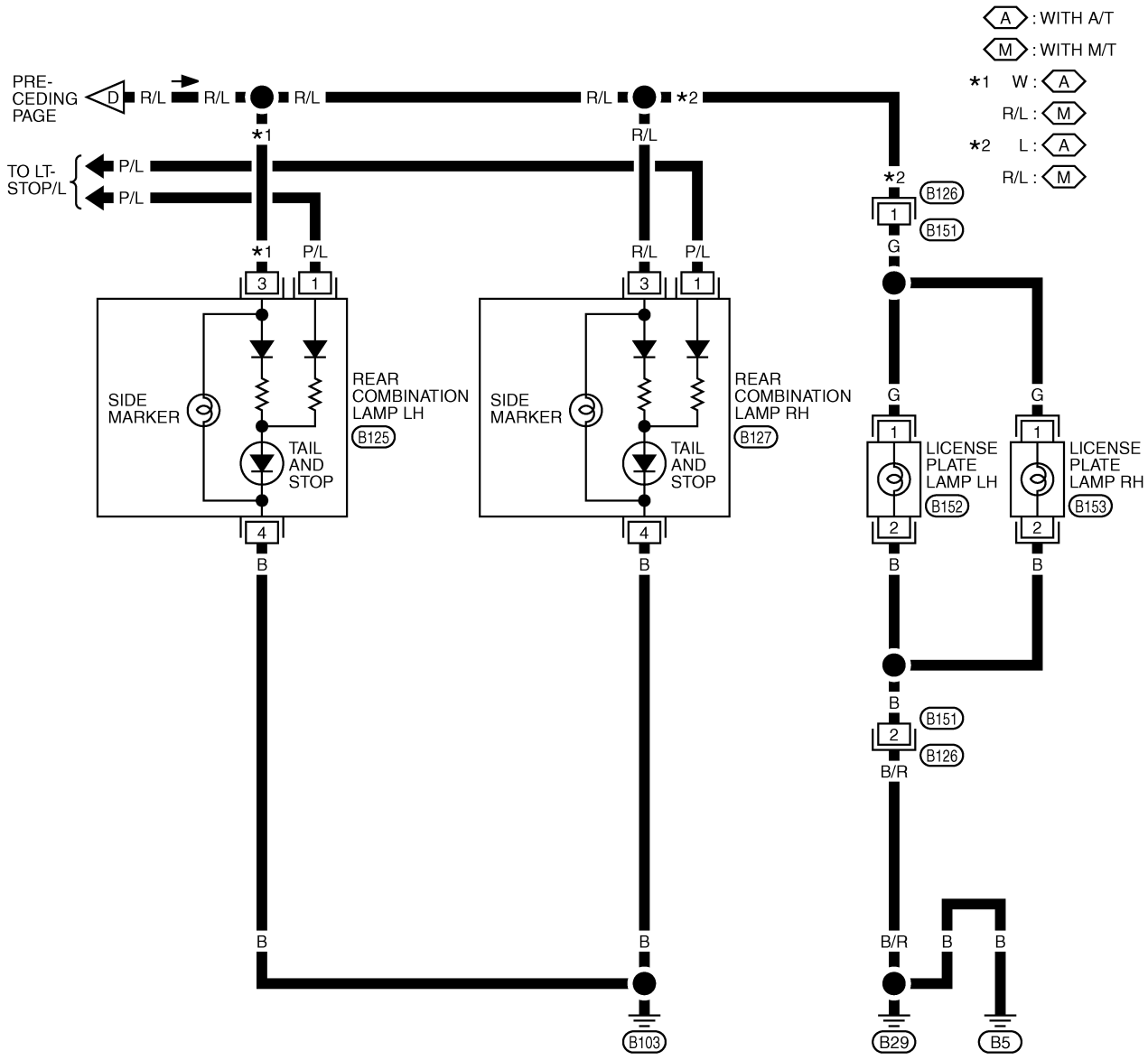
LT-TAIL/L-03





TKWM4011E

LT-TAIL/L-04



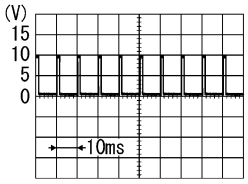
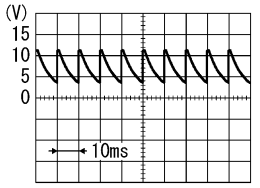
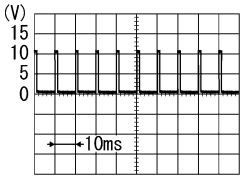
TKWM4924E

Terminals and Reference Values for BCM

NKS002PC

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-17, "DATA MONITOR" .**

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
2	G/R	Combination switch input 5	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	Approx. 0 V
					Lighting switch 1ST	 PKIB4959J Approx. 1.0 V
11	LG	Ignition switch (ACC)	ACC	—		Battery voltage
33	L	Combination switch output 4	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	 PKIB4960J Approx. 7.2 V
					Lighting switch 1ST (The same result with lighting switch 2ND)	 PKIB4958J Approx. 1.2 V
38	W/L	Ignition switch (ON)	ON	—		Battery voltage
39	L	CAN – H	—	—		—
40	P	CAN – L	—	—		—
42	GY	Battery power supply	OFF	—		Battery voltage
52	B	Ground	ON	—		Approx. 0 V
55	R	Battery power supply	OFF	—		Battery voltage

Terminals and Reference Values for IPDM E/R

NKS002PD

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

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

How to Proceed With Trouble Diagnosis

NKS002PE

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-109, "System Description" .
3. Perform the preliminary check. Refer to LT-117, "Preliminary Check" .
4. Check symptom and repair or replace the malfunctioning parts.
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

NKS002PF

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
		18
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	71

Refer to LT-112, "Wiring Diagram — TAIL/L —" .

OK or NG

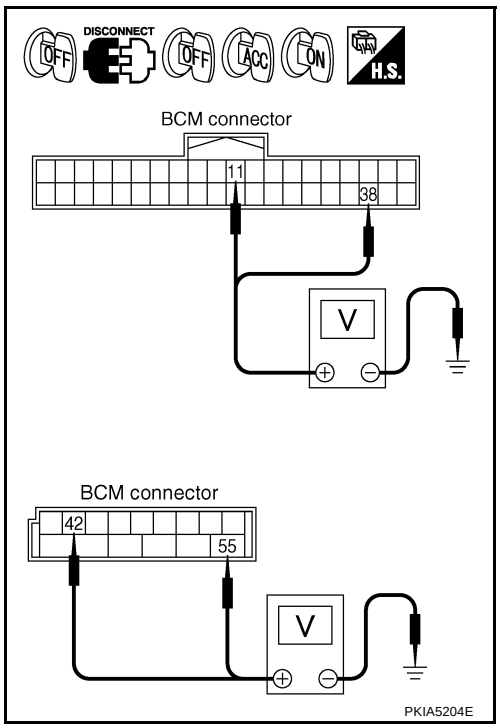
OK >> GO TO 2.

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" .

2. CHECK POWER SUPPLY CIRCUIT

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

(+)		(–)	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.

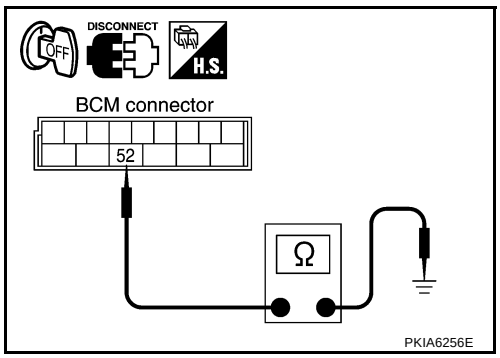
3. CHECK GROUND CIRCUIT

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)

NKS002PG

Refer to LT-16, "CONSULT-II Functions (BCM)" .

CONSULT-II Functions (IPDM E/R)

NKS002PH

Refer to LT-18, "CONSULT-II Functions (IPDM E/R)" .

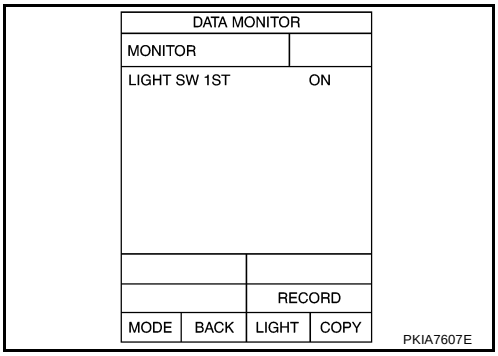
Parking, License Plate, Side Marker and Tail Lamps Do Not Illuminate

NKS002PI

1. CHECK COMBINATION SWITCH INPUT SIGNAL

With CONSULT-II

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



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

Without CONSULT-II

Refer to LT-100, "Combination Switch Inspection" .

OK or NG

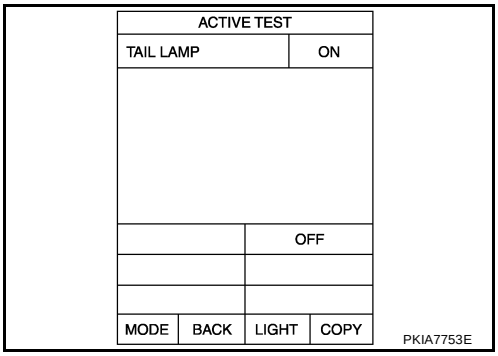
OK >> GO TO 2.

NG >> Check combination switch (lighting switch). Refer to LT-100, "Combination Switch Inspection" .

2. ACTIVE TEST

With CONSULT-II

1. Select “IPDM E/R” on CONSULT-II, and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
2. Select “TAIL LAMP” on “SELECT TEST ITEM” screen.
3. Touch “ON” screen.
4. Make sure parking, license plate, side marker and tail lamps operates.



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

Without CONSULT-II

1. Start auto active test. Refer to PG-21, "Auto Active Test" .
2. Make sure parking, license plate, side marker and tail lamps operates.

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

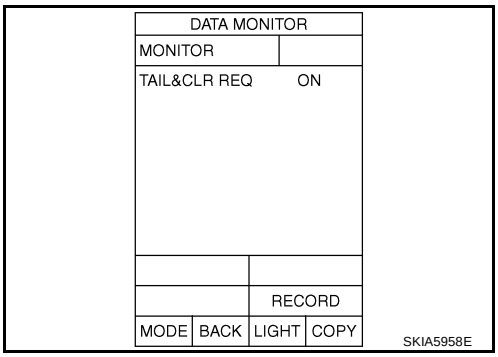
OK or NG

OK >> GO TO 3.

NG >> GO TO 4.

3. CHECK IPDM E/R

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



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

OK or NG

OK >> Replace IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R" .

NG >> Replace BCM. Refer to BCS-16, "Removal and Installation of BCM" .

4. CHECK INPUT SIGNAL

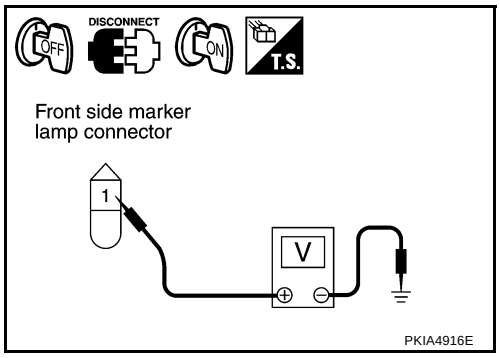
With CONSULT-II

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

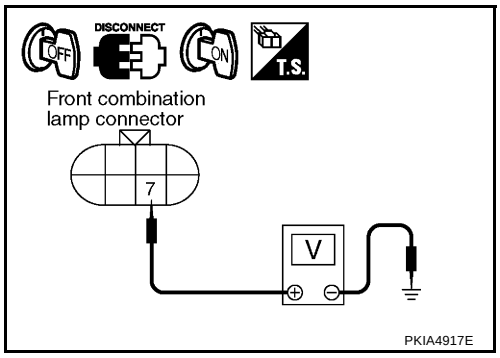
Without CONSULT-II

1. Turn ignition switch OFF.
2. Disconnect front side marker lamp RH and LH, front combination lamp RH and LH, license plate lamp RH and LH, and rear combination lamp RH and LH connectors.
3. Start auto active test. Refer to PG-21, "Auto Active Test" .
4. When tail lamp relay is operating, check voltage between front side marker lamp, front combination lamp, license plate lamp, rear combination lamp harness connector and ground.

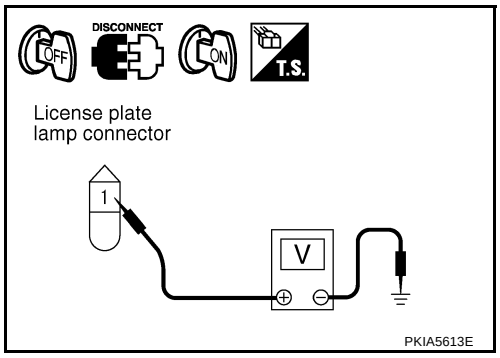
(+)			(–)	Voltage
Front side marker lamp connector		Terminal		
RH	E28	1	Ground	Battery voltage
LH	E40			



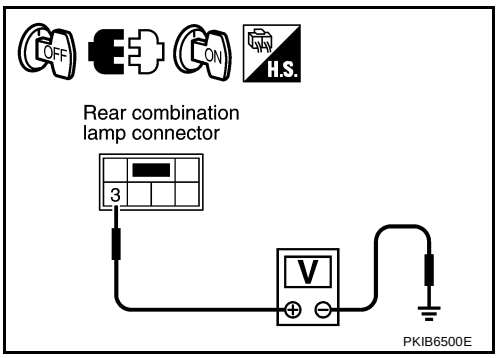
(+)			(–)	Voltage
Front side marker lamp connector (Parking)		Terminal		
RH	E24	7	Ground	Battery voltage
LH	E41			



(+)			(–)	Voltage
License plate lamp connector		Terminal		
RH	B153	1	Ground	Battery voltage
LH	B152			



(+)			(–)	Voltage
Rear combination lamp connector (Tail and side marker)		Terminal		
RH	B127	3	Ground	Battery voltage
LH	B125			



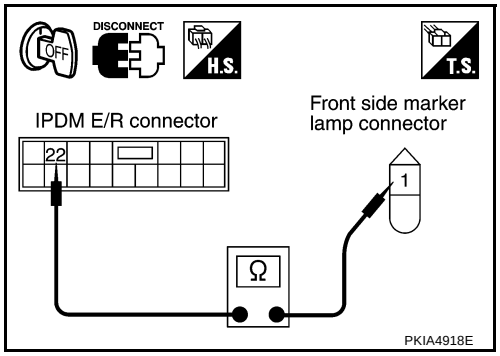
OK or NG

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

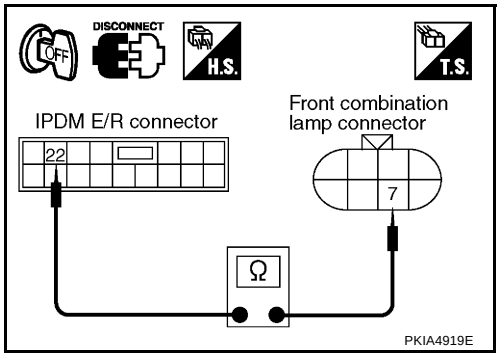
5. CHECK PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP CIRCUIT

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

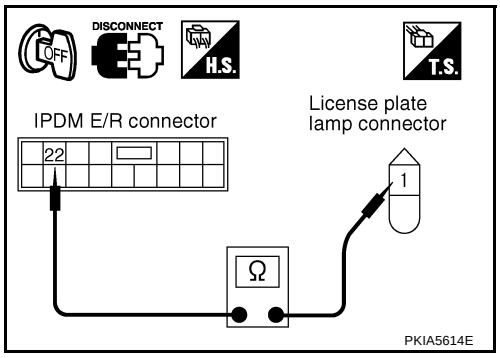
IPDM E/R		Front side marker lamp			Continuity
Connector	Terminal	Connector		Terminal	
E7	22	RH	E28	1	Yes
		LH	E40		



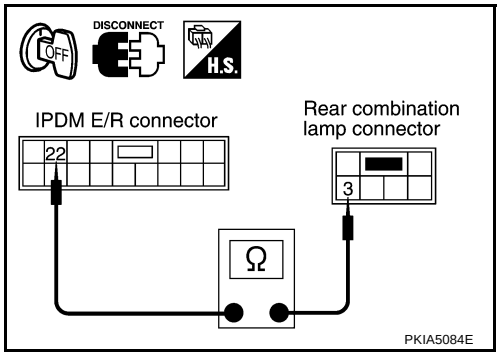
IPDM E/R		Front combination lamp (Parking)			Continuity
Connector	Terminal	Connector		Terminal	
E7	22	RH	E24	7	Yes
		LH	E41		



IPDM E/R		License plate lamp			Continuity
Connector	Terminal	Connector		Terminal	
E7	22	RH	B153	1	Yes
		LH	B152		



IPDM E/R		Rear combination lamp (Tail and side marker)			Continuity
Connector	Terminal	Connector		Terminal	
E7	22	RH	B127	3	Yes
		LH	B125		



OK or NG

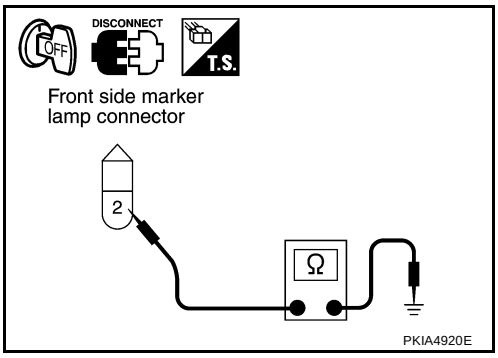
OK >> Replace IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R" .

NG >> Repair harness or connector.

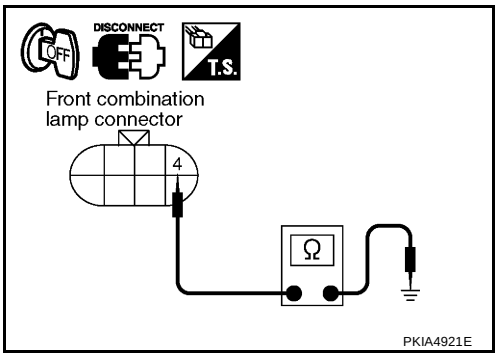
6. CHECK GROUND

Check continuity between front side maker lamp, front combination lamp, license plate lamp and rear combination lamp harness connector and ground.

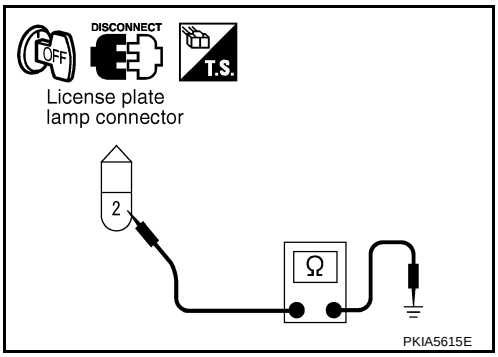
Front side marker lamp connector		Terminal	Ground	Continuity
RH	E28	2		Yes
LH	E40			



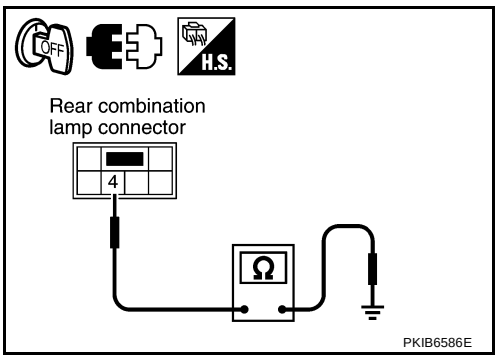
Front combination lamp connector (Parking)		Terminal	Ground	Continuity
RH	E24	8		Yes
LH	E41			



License plate lamp connector		Terminal	Ground	Continuity
RH	B153	2		Yes
LH	B152			



Rear combination lamp connector (Tail and side marker)		Terminal	Ground	Continuity
RH	B127	4		Yes
LH	B125			



OK or NG

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

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

NKS002PJ

- This symptom indicates the malfunction of ignition relay in IPDM E/R. Refer to PG-17, "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.

Bulb Replacement

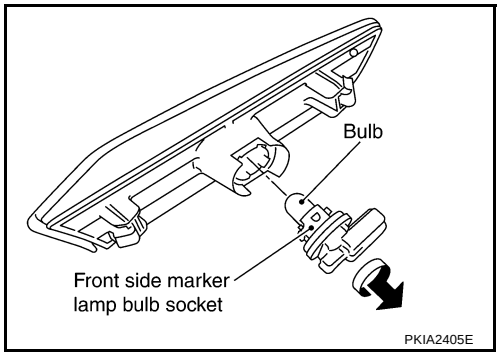
NKS002PK

FRONT SIDE MARKER LAMP

1. Remove front side marker lamp. Refer to LT-125, "FRONT SIDE MARKER LAMP" .
2. Turn bulb socket counterclockwise and unlock it.
3. Remove bulb from it's socket.

Front side marker lamp : 12 V - 3.8 W

4. Installation is the reverse order of removal.

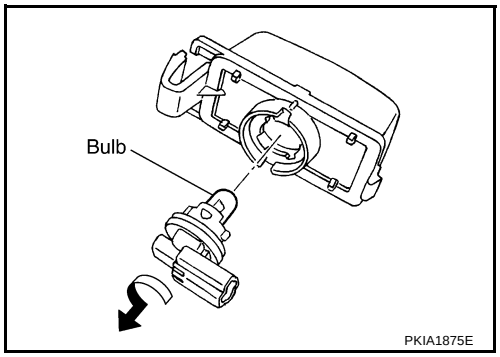


LICENSE PLATE LAMP

1. Remove license plate lamp. Refer to LT-125, "LICENSE PLATE LAMP" .
2. Turn bulb socket counter click wise and unlock it.
3. Remove bulb from it's socket.

License plate lamp : 12 V - 5 W

4. Installation is the reverse order of removal.



PARKING LAMP

For bulb replacement, refer to LT-30, "Bulb Replacement" .

TAIL LAMP

For bulb replacement, refer to LT-126, "Bulb Replacement" .

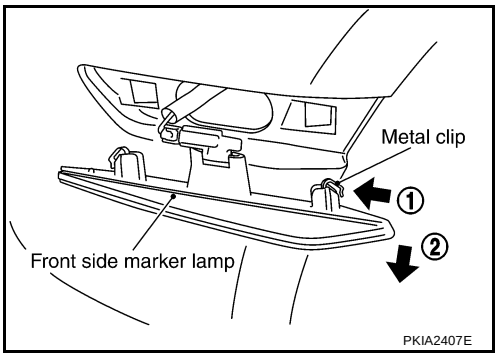
Removal and Installation

NKS002PL

FRONT SIDE MARKER LAMP

Removal

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



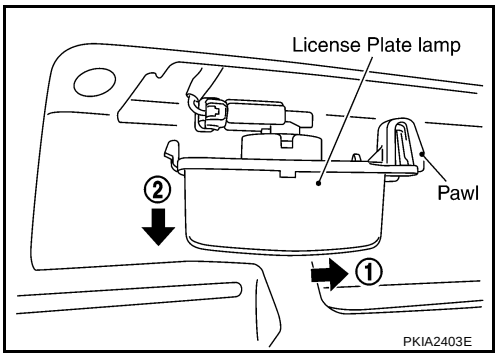
Installation

Installation is the reverse order of removal.

LICENSE PLATE LAMP

Removal

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



Installation

Installation is the reverse order of removal.

PARKING LAMP

For parking lamp removal and installation procedures, refer to LT-32, "Removal and Installation" .

TAIL LAMP

For tail lamp removal and installation procedures, refer to LT-126, "Removal and Installation" .

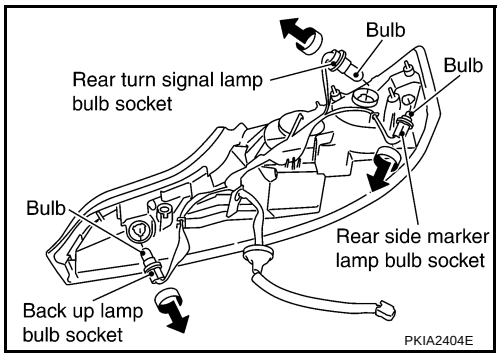
REAR COMBINATION LAMP

PFP:26554

Bulb Replacement

NKS000JB

1. Remove rear combination lamp. Refer to LT-126, "Removal and Installation" .
2. Turn bulb socket counterclockwise and unlock it.
3. Remove bulb.



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

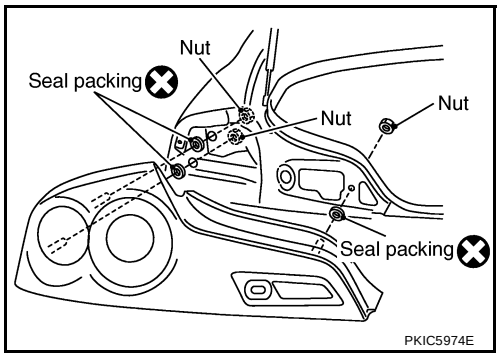
4. Installation is the reverse order of removal.

Removal and Installation

NKS000JC

REMOVAL

1. Open trunk lid and remove trunk rear finisher (end). Refer to EI-38, "TRUNK ROOM TRIM & TRUNK LID FINISHER" .
2. Disconnect rear combination lamp connector.
3. Remove rear combination lamp installation nuts.
4. Pull the rear combination lamp toward rear of the vehicle and remove from the vehicle.
5. Remove seal packing from the vehicle.



INSTALLATION

Installation is the reverse order of removal.

- Install a new seal packing to the rear combination lamp.

CAUTION:
Seal packing cannot be reused.

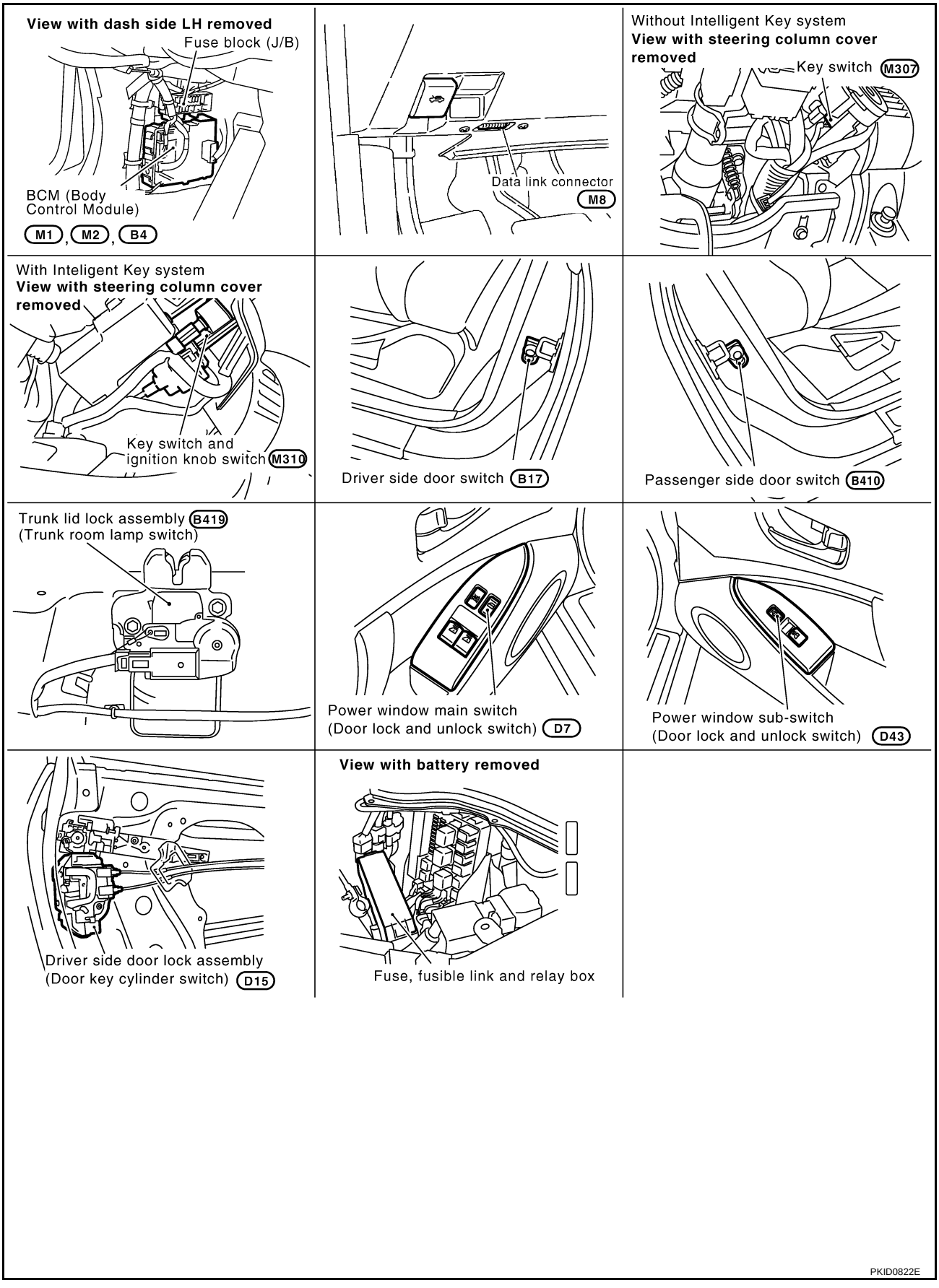
Rear combination lamp mounting nut		**: 3.2 N·m (0.33 kg-m, 28 in-lb)**

INTERIOR ROOM LAMP

PFP:26410

Component Parts and Harness Connector Location

NKS002PM



System Description

NKS002PN

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

POWER SUPPLY AND GROUND

Power is supplied at all times (without Intelligent Key system)

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

Power is supplied at all times (with Intelligent Key system)

- through 15A fuse (No.33, located in fuse, fusible link and relay box)
- to key switch and ignition knob switch terminals 1 and 3,
- through 10A fuse [No.18, located infuse block (J/B)]
- to BCM terminal 42,
- through 50A fusible link (letter F, located in fuse, fusible link and relay box)
- to BCM terminal 55.

When key plate inserted to key switch, power is supplied (without Intelligent Key system)

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

When inserted key plate to key switch, power is supplied (with Intelligent Key system)

- through key switch and ignition knob switch terminal 4
- to BCM terminal 37.

When moved ignition knob switch, power is supplied (with Intelligent Key system)

- through key switch and ignition knob switch terminal 2
- to intelligent key unit terminal 27.

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

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

Ground is supplied

- to BCM terminal 52
- through grounds terminals M30 and M66.

When driver side door is opened, ground is supplied

- to BCM terminal 62
- through front door switch driver side terminal 1
- through case ground of driver side door switch.

When passenger side door is opened, ground is supplied

- to BCM terminal 12
- through front door switch passenger side terminal 1
- through case ground of passenger side door switch.

When driver side door is unlocked by door lock and unlock switch, BCM receives a ground signal

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

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

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

When a signal, or combination of signals is received by BCM, ground is supplied

- to map lamp terminal 2
- through BCM terminal 48.

With power and ground supplied, the interior lamp illuminates.

SWITCH OPERATION

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

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

And power is supplied

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

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

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

And power is supplied

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

When map lamp switch is ON, ground is supplied

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

And power is supplied

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

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

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

And power is supplied

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

When trunk room lamp switch is OPEN, ground is supplied

- to BCM terminal 57
- through trunk room lamp switch terminals 3 and 1
- through grounds B402 and B413.

When trunk room lamp is ON, ground is supplied

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

And power is supplied

- through BCM terminal 41
- to trunk room lamp terminal 1.

ROOM LAMP TIMER OPERATION

Without Intelligent Key System

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

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

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

- to power window main switch (door lock and unlock switch) terminal 14
- through BCM terminal 22.

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

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

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

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

With Intelligent Key System

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

- through 15A fuse [No. 33, located in fuse and fuse block (J/B)]
- to key switch and ignition knob switch terminals 1 and 3.

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

- to power window main switch (door lock and unlock switch) terminal 14
- through BCM terminal 22.

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

- through key switch and ignition knob switch terminal 4
- to BCM terminal 37,
- through key switch and ignition knob switch terminal 2

- to intelligent key unit terminal 27.

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

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

INTERIOR ROOM LAMP BATTERY SAVER CONTROL

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

- Ignition key hole illumination
- Trunk room lamp
- Step lamp
- Map lamp
- Vanity mirror lamp

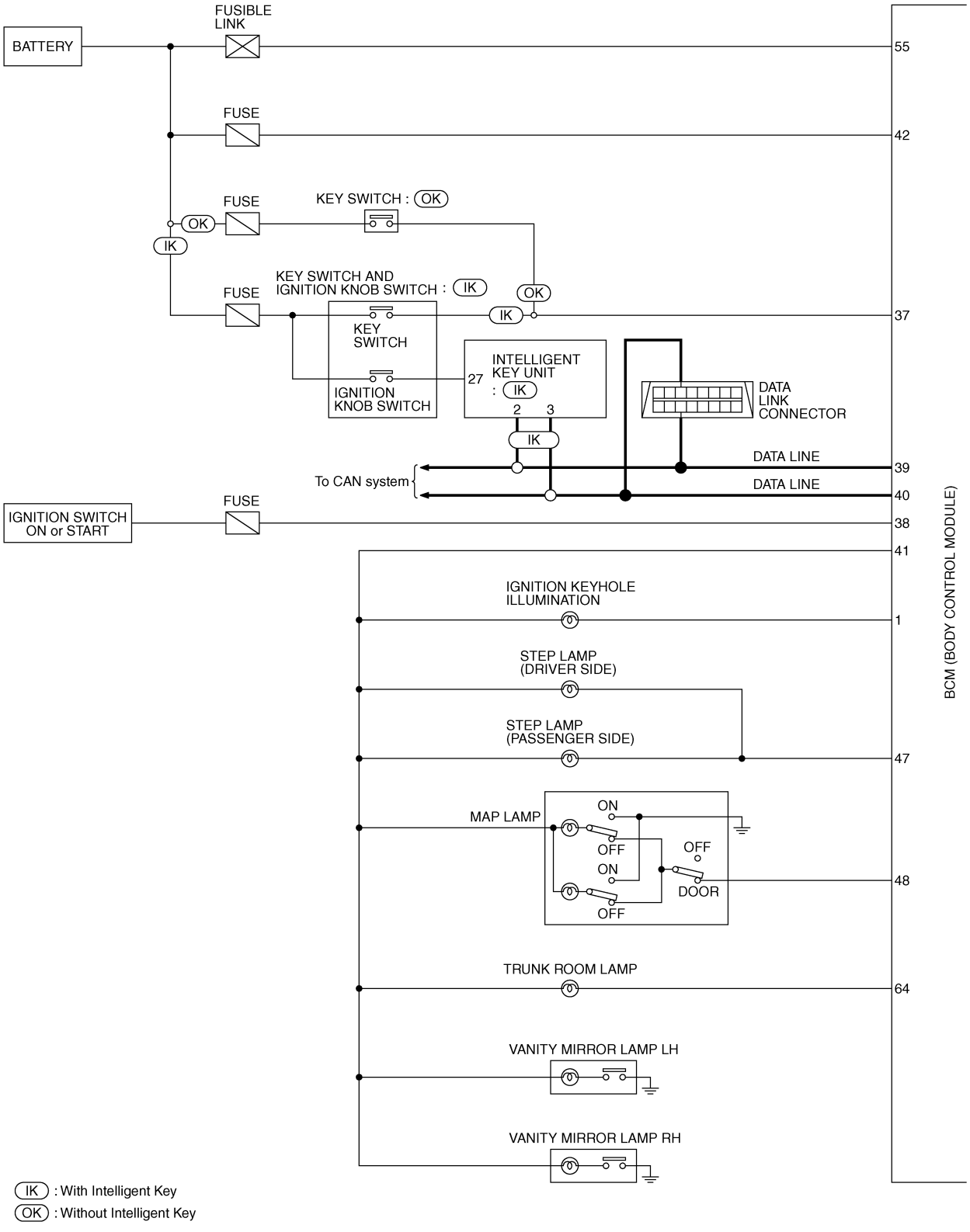
After lamps turn OFF by the battery saver system, the lamps illuminate again when

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

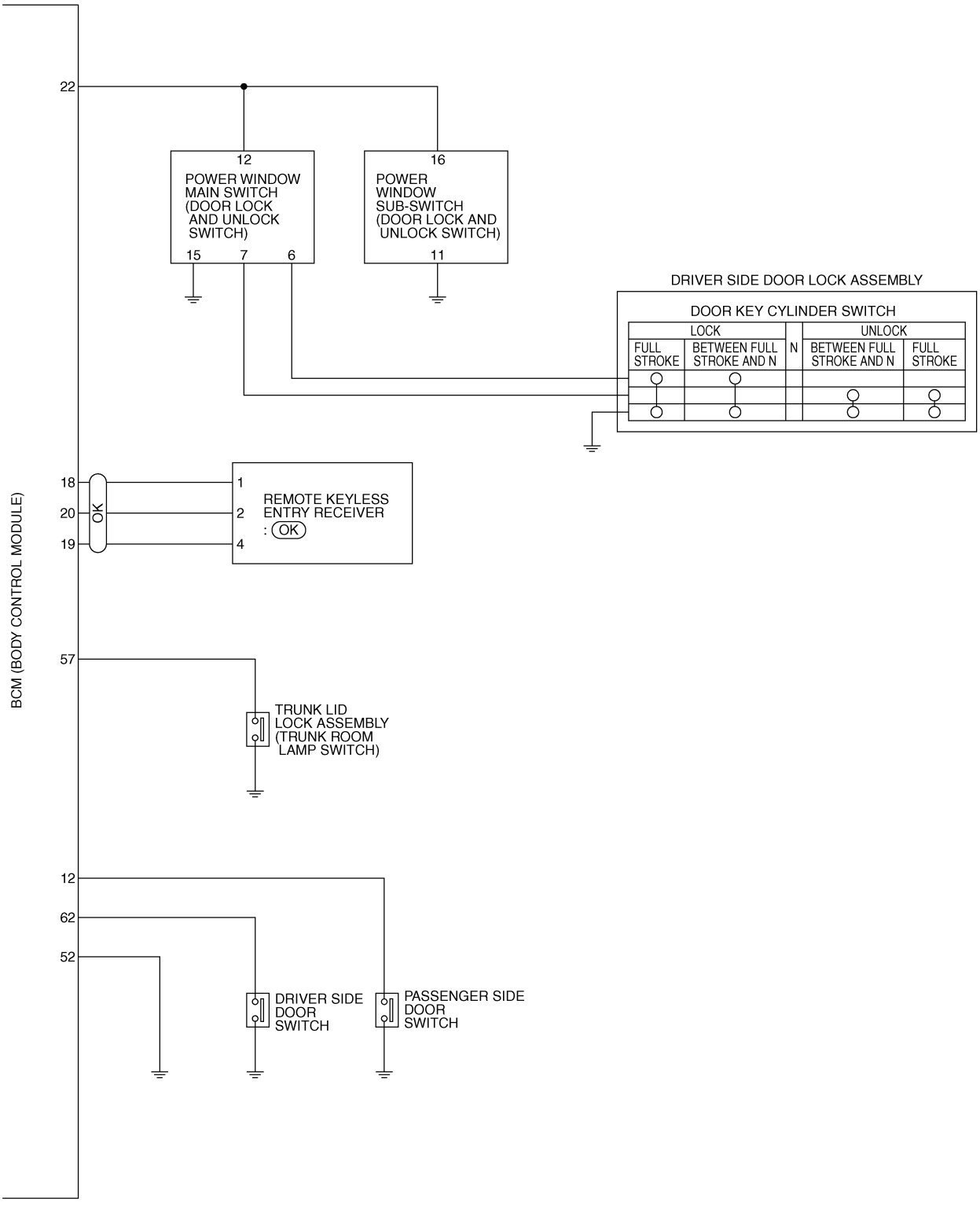
Interior lamp battery saver control period can be changed by the function setting of CONSULT-II.

Schematic

NKS002PO



TKWM3461E

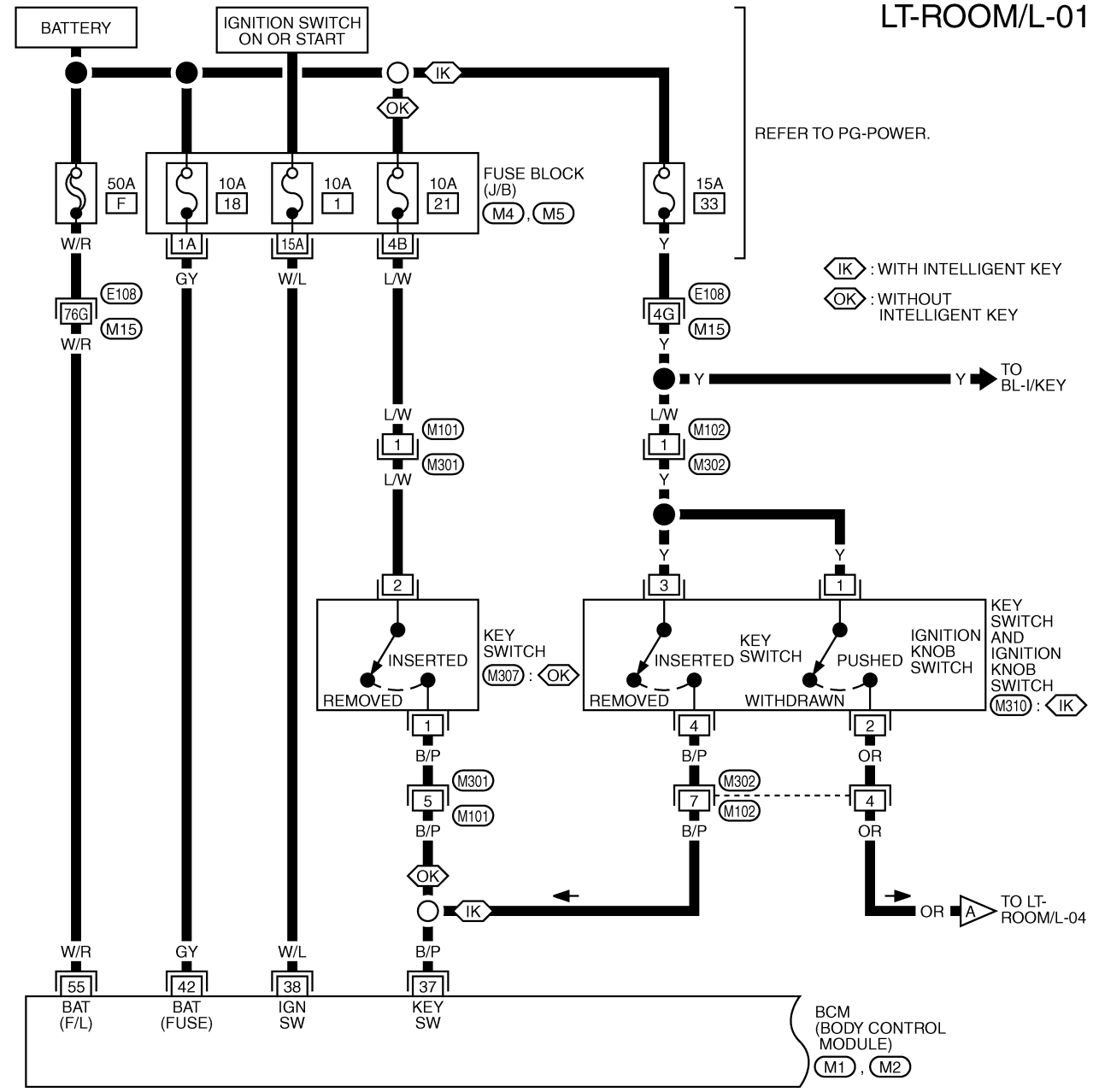


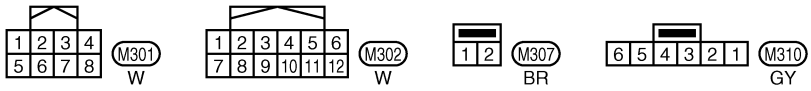
OK : Without Intelligent Key

TKWM4925E

Wiring Diagram — ROOM/L —

NKS002PP





REFER TO THE FOLLOWING.

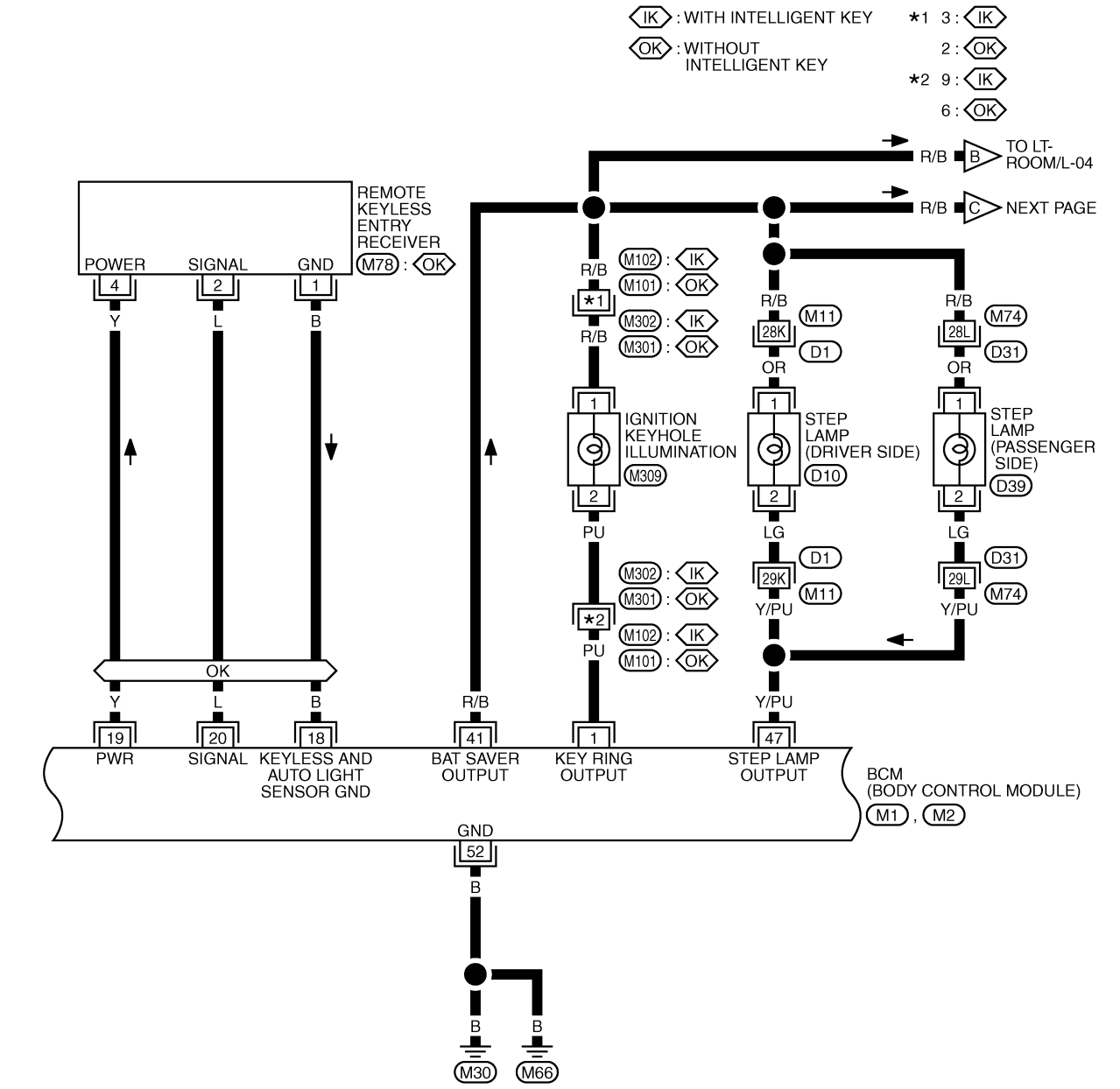
E108 -SUPER MULTIPLE JUNCTION (SMJ)

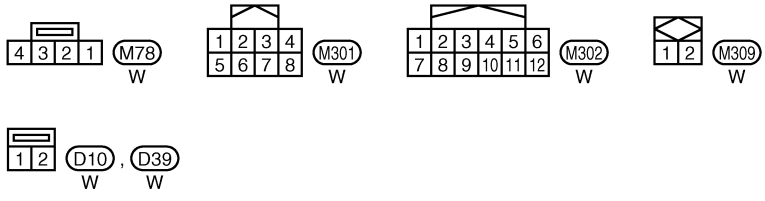
M4 , M5 -FUSE BLOCK-JUNCTION BOX (J/B)

M1 , M2 -ELECTRICAL UNITS

TKWM3463E

LT-ROOM/L-02



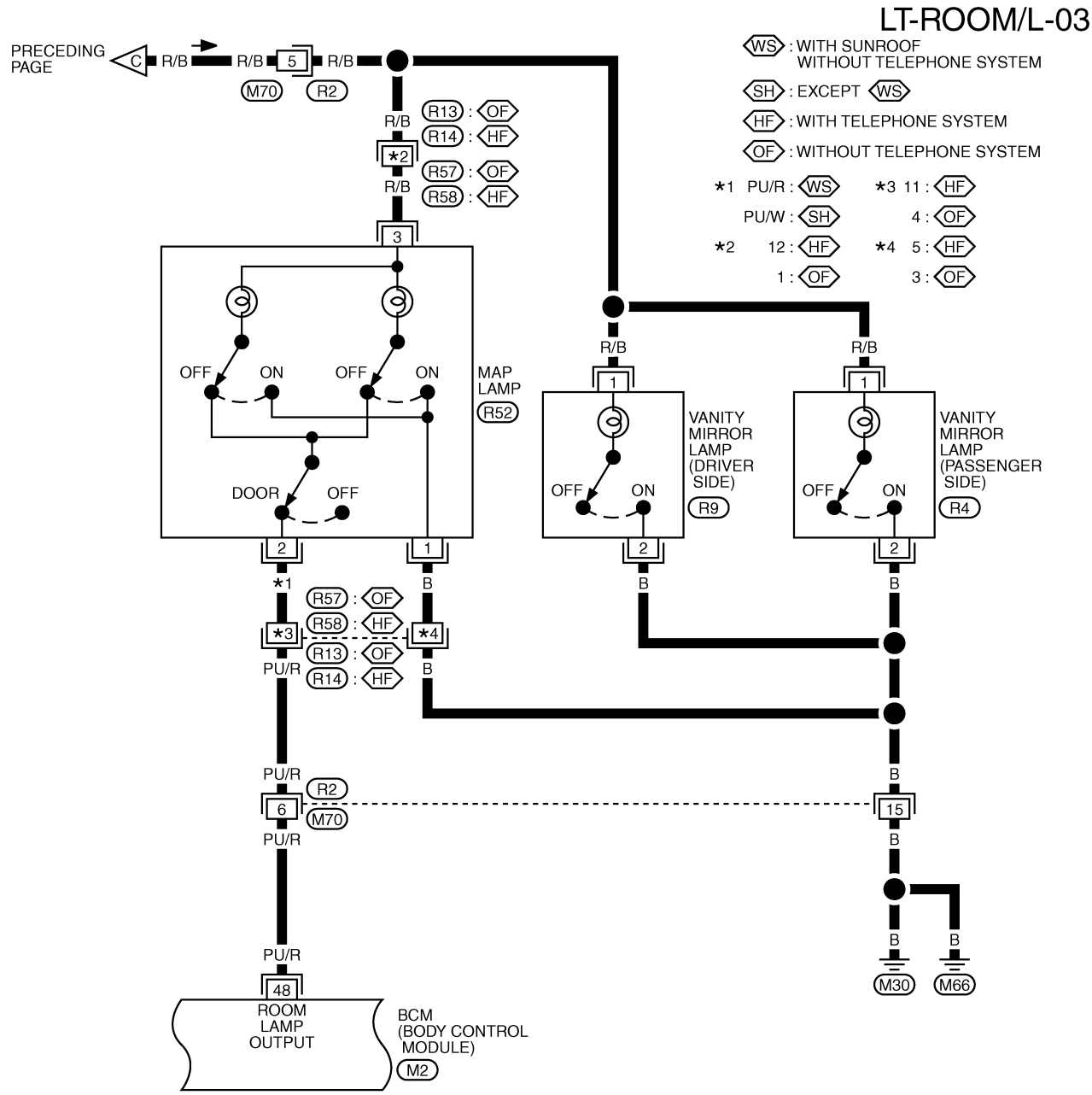


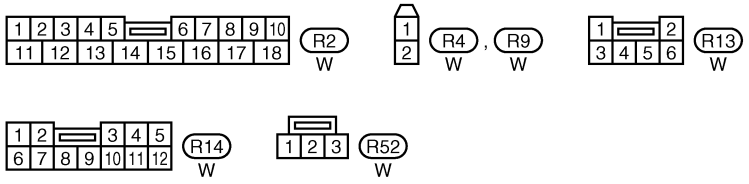
REFER TO THE FOLLOWING.

D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)

M1 , M2 -ELECTRICAL UNITS

TKWM3464E

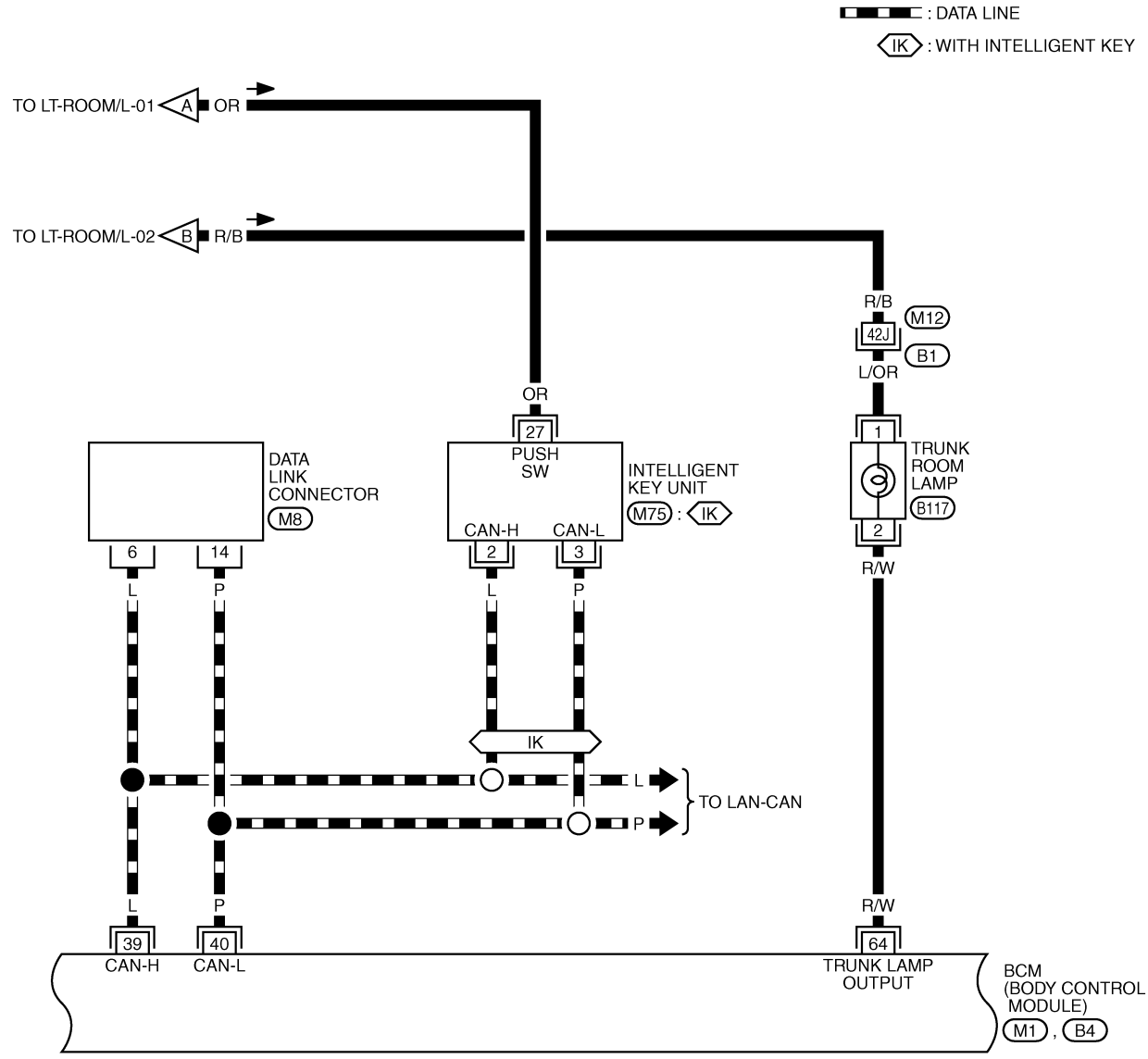


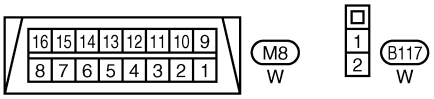


REFER TO THE FOLLOWING.
M2 -ELECTRICAL UNITS

TKWM4926E

LT-ROOM/L-04

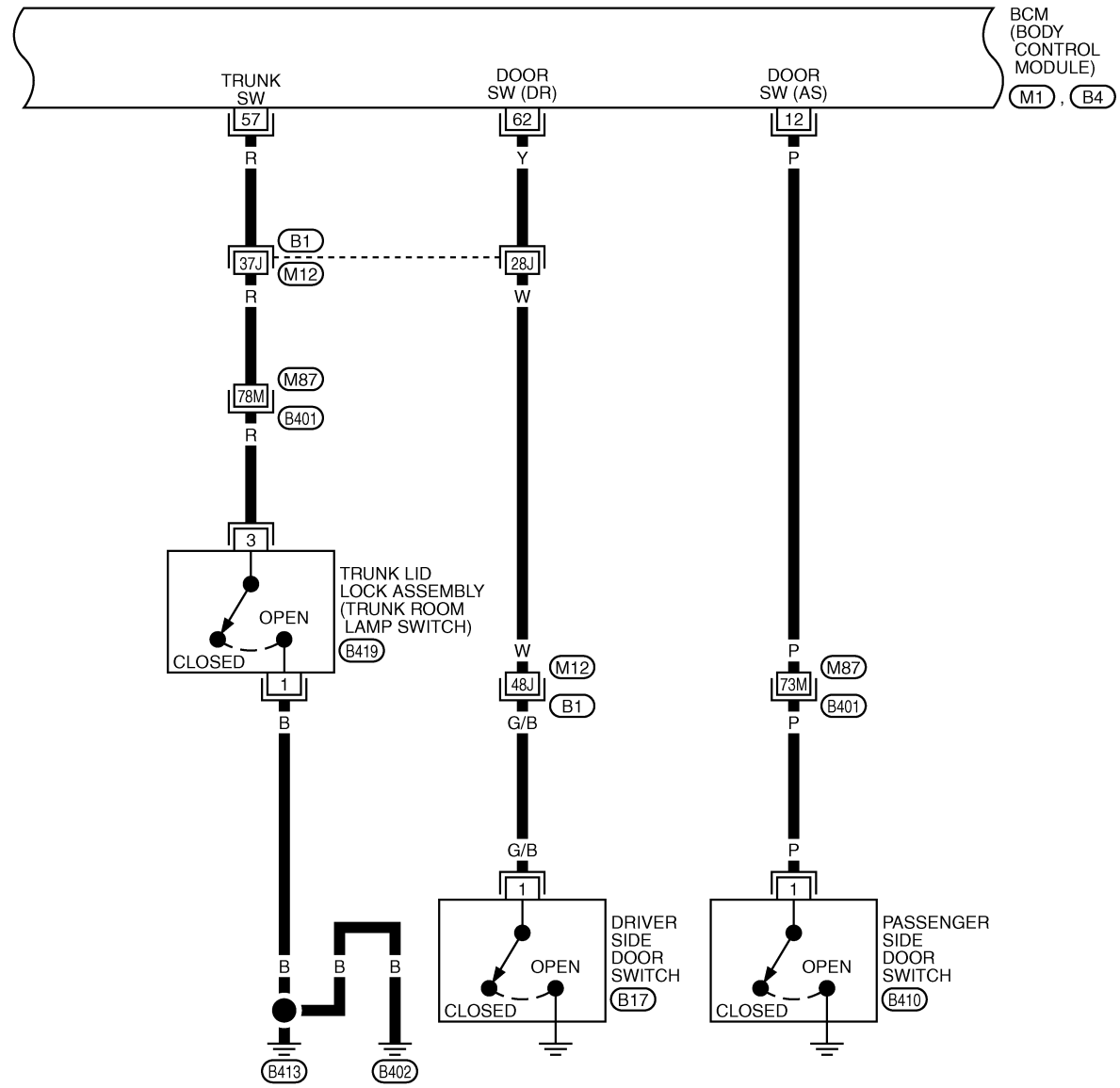


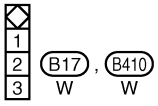


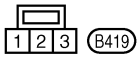
REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , M75 , B4 -ELECTRICAL UNITS

TKWM3466E

LT-ROOM/L-05



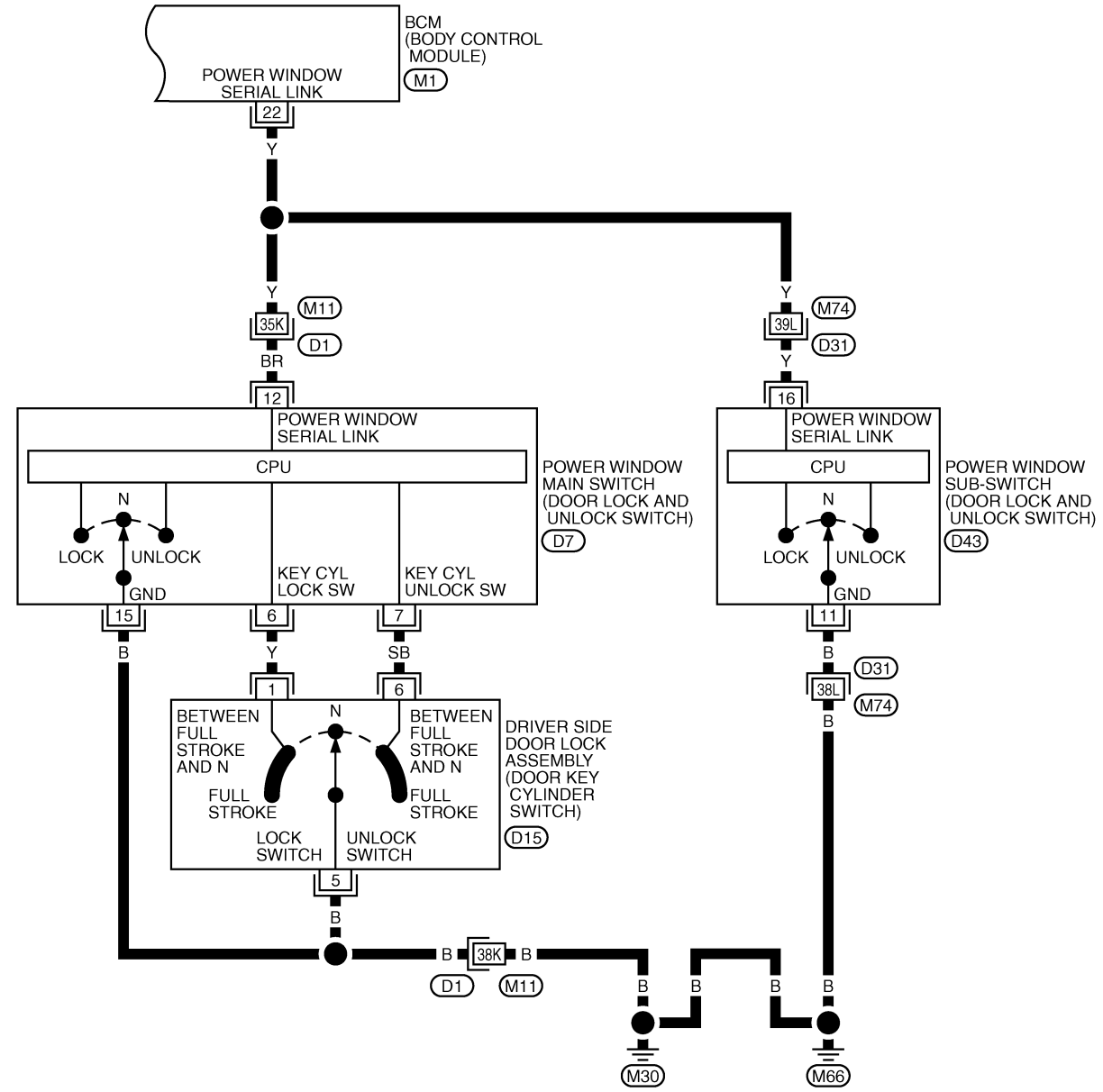


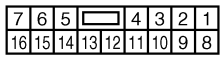


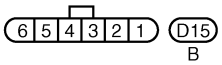
REFER TO THE FOLLOWING.
B1 , B401 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , B4 -ELECTRICAL UNITS

TKWM4927E

LT-ROOM/L-06







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

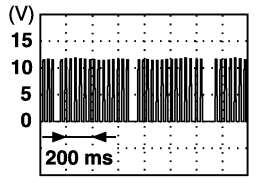
TKWM3468E

Terminals and Reference Values for BCM

NKS002PQ

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-17, "DATA MONITOR" .**

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

How to Proceed With Trouble Diagnosis

NKS002PR

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-128, "System Description" .
3. Perform the preliminary check. Refer to LT-141, "Preliminary Check" .
4. Check symptom and repair or replace the malfunctioning parts.
5. Does the interior room lamp operate normally? If YES, GO TO 6. If NO, GO TO 4.
6. INSPECTION END

Preliminary Check

NKS002PS

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
		18
		21
	Ignition switch ON or START position	1

Refer to LT-134, "Wiring Diagram — ROOM/L —" .

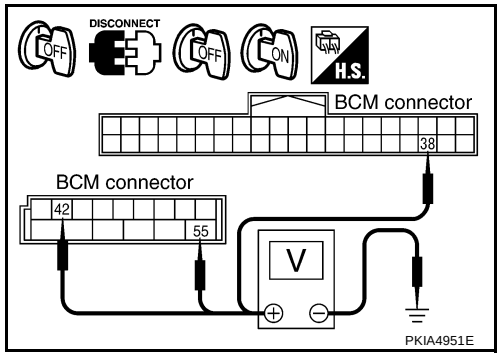
OK or NG

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.

(+)		(–)	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.

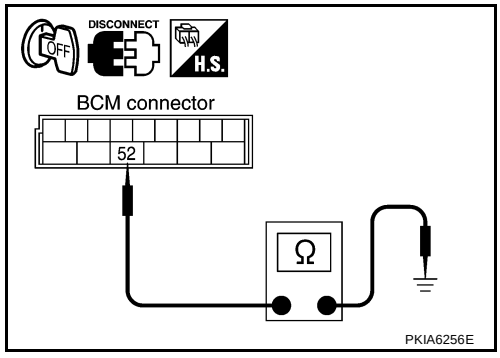
3. CHECK GROUND CIRCUIT

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.



CONSULT-II Functions (BCM)

NKS002PT

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

BCM diagnosis part	Diagnosis mode	Description
INT 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.

CONSULT-II BASIC OPERATION

Refer to GI-37, "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
SET I/L D–UNLCK INTCON	The 30 seconds glowing function interior room lamps and ignition keyhole illumination can be selected when driver door is released (unlocked).	ON/OFF
ROOM LAMP ON TIME SET	The time in order to escalate illumination can be adjusted when interior room lamps and ignition keyhole illumination is turned on.	MODE 1 – 7
ROOM LAMP OFF TIME SET	The time in order to diminish illumination can be adjusted when interior room lamps and ignition keyhole illumination is turned off.	MODE 1 – 7

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

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

DATA MONITOR (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 items will be monitored.
5. Touch “START”.
6. Touch “RECORD” while monitoring, then the status of monitored item can be recorded. To stop recording, touch “STOP”.

Display Item List

Monitor item		Contents
IGN ON SW	“ON/OFF”	Displays status (ignition switch IGN position: ON/other: OFF) of ignition switch judged from the ignition switch signal.
KEY ON SW	“ON/OFF”	Displays status (key inserted: ON/key removed: OFF) of key switch judged from the key switch signal.
DOOR SW - DR	“ON/OFF”	Displays status (door is open: ON/door is closed: OFF) of driver side door switch judged from the driver side door switch signal.
DOOR SW - AS	“ON/OFF”	Displays status (door is open: ON/door is closed: OFF) of passenger side door switch judged from the passenger side door switch signal.
DOOR SW - RR NOTE	“OFF”	—
DOOR SW - RL NOTE	“OFF”	—
BACK DOOR SW NOTE	“OFF”	—
KEY CYL LK - SW	“ON/OFF”	Displays status (door is locked: ON/other: OFF) of key cylinder lock switch from the door key cylinder switch (driver door) signal.
KEY CYL UN - SW	“ON/OFF”	Displays status (door is unlocked: ON/other: OFF) of key cylinder unlock switch from the door key cylinder switch (driver door) signal.
CDL LOCK SW	“ON/OFF”	Displays status (door is locked: ON/other: OFF) of lock switch from the door lock and unlock switch signal.
CDL UNLOCK SW	“ON/OFF”	Displays status (door is unlocked: ON/other: OFF) of unlock switch from the door lock and unlock switch signal.
I– KEY LOCK	“ON/OFF”	Displays status (door is locked: ON/other: OFF) of intelligent key system lock signal from the intelligent key unit signal.
I– KEY UNLOCK	“ON/OFF”	Displays status (door is locked: ON/other: OFF) of intelligent key system unlock signal from the intelligent key unit signal.
KEYLESS LOCK	“ON/OFF”	Displays status (door is locked: ON/other: OFF) of remote keyless entry system lock signal from the remote key less entry receiver signal.
KEYLESS UNLOCK	“ON/OFF”	Displays status (door is unlocked: ON/other: OFF) of remote keyless entry system unlock signal from the remote key less entry receiver signal.

NOTE:
This item is displayed, but cannot be monitored.

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 “OFF” deactivates the operation.

Display Item List

Test item	Description
INT LAMP	Interior room lamp can be operated by ON–OFF operations.
IGN ILLUM	Ignition key hole illumination can be operated by ON–OFF operation.
STEP LAMP TEST	All step lamp can be operated by ON–OFF operation.
LUGGAGE LAMP TEST	Trunk room lamp can be operated by ON–OFF operations.

WORK SUPPORT (BATTERY SAVER)

Operation Procedure

1. Touch “BATTERY SAVER” on “SELECT TEST ITEM” screen.
2. Touch “WORK SUPPORT” on “SELECT DIAG MODE” screen.
3. Touch “ROOM LAMP BAT SAV SET” 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 TIME SET	Interior room lamp battery saver timer setting can be changed.	MODE 1: 30min MODE 2: 60min

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

Display Item List

Monitor item		Contents
IGN ON SW	“ON/OFF”	Displays status (ignition switch IGN position: ON/other: OFF) of ignition switch judged from the ignition switch signal.
KEY ON SW	“ON/OFF”	Displays status (key inserted: ON/key removed: OFF) of key switch judged from the key switch signal.
DOOR SW - DR	“ON/OFF”	Displays status (door is open: ON/door is closed: OFF) of driver side door switch judged from the driver side door switch signal.
DOOR SW - AS	“ON/OFF”	Displays status (door is open: ON/door is closed: OFF) of passenger side door switch judged from the passenger side door switch signal.
DOOR SW - RR NOTE	“OFF”	—
DOOR SW - RL NOTE	“OFF”	—
BACK DOOR SW NOTE	“OFF”	—
KEY CYL LK - SW	“ON/OFF”	Displays status (door is locked: ON/other: OFF) of key cylinder lock switch from the door key cylinder switch (driver door) signal.
KEY CYL UN - SW	“ON/OFF”	Displays status (door is unlocked: ON/other: OFF) of key cylinder unlock switch from the door key cylinder switch (driver door) signal.
CDL LOCK SW	“ON/OFF”	Displays status (door is locked: ON/other: OFF) of lock switch from the door lock and unlock switch signal.
CDL UNLOCK SW	“ON/OFF”	Displays status (door is unlocked: ON/other: OFF) of unlock switch from the door lock and unlock switch signal.
I– KEY LOCK	“ON/OFF”	Displays status (door is locked: ON/other: OFF) of intelligent key system lock signal from the intelligent key unit signal.
I– KEY UNLOCK	“ON/OFF”	Displays status (door is locked: ON/other: OFF) of intelligent key system unlock signal from the intelligent key unit signal.
KEYLESS LOCK	“ON/OFF”	Displays status (door is locked: ON/other: OFF) of remote keyless entry system lock signal from the remote key less entry receiver signal.
KEYLESS UNLOCK	“ON/OFF”	Displays status (door is unlocked: ON/other: OFF) of remote keyless entry system unlock signal from the remote key less entry receiver 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 “OFF” deactivates the operation.

Display Item List

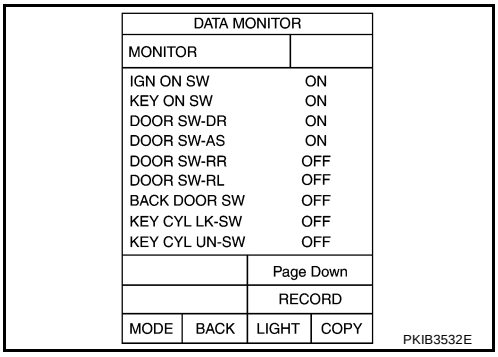
Test item	Description
BATTERY SAVER	Interior room lamp can be operated by ON–OFF operations.

Map Lamp Control Does Not Operate

NKS002PU

1. CHECK EACH SWITCH

Select “BCM” on CONSULT-II. With “INT LAMP” data monitor make sure switches listed in display item list turn ON-OFF linked with switch operation. Refer to LT-143, "Display Item List" for switches and their functions.



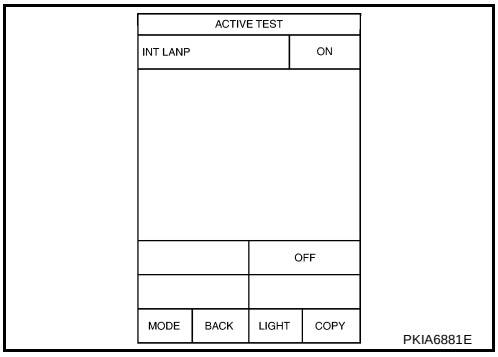
OK or NG

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

2. ACTIVE TEST

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

Map lamp should operate.



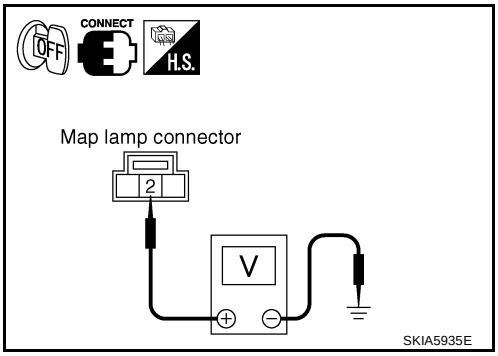
OK or NG

OK >> Replace BCM. Refer to BCS-16, "Removal and Installation of BCM" .
NG >> GO TO 3.

3. CHECK MAP LAMP INPUT

1. Turn ignition switch OFF.
2. Check voltage between map lamp harness connector R52 terminal 2 and ground.

2 – Ground : Battery voltage



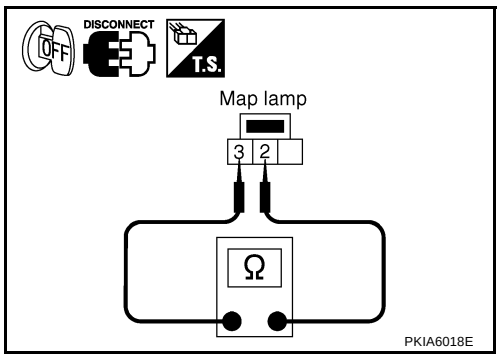
OK or NG

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

4. CHECK MAP LAMP

1. Disconnect map lamp connectors.
2. Check continuity map lamp terminals.

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



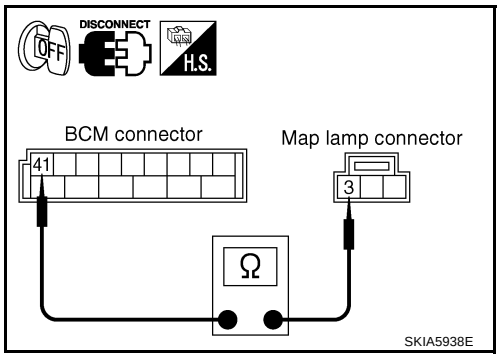
OK or NG

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

5. CHECK MAP LAMP CIRCUIT

1. Disconnect BCM connector and map lamp connector.
2. Check continuity between BCM harness connector M2 terminal 41 and map lamp harness connector R52 terminal 3.

41 – 3 : Continuity should exist.



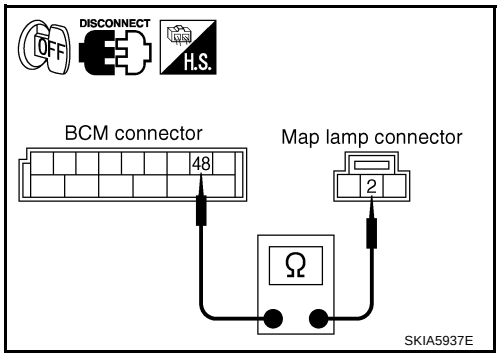
OK or NG

OK >> Replace BCM if map lamp does not work after setting the connector again. Refer to BCS-16, "Removal and Installation of BCM" .
NG >> Repair harness or connector.

6. CHECK MAP LAMP CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector M2 terminal 48 and map lamp harness connector R52 terminal 2.

48 – 2 : Continuity should exist.



OK or NG

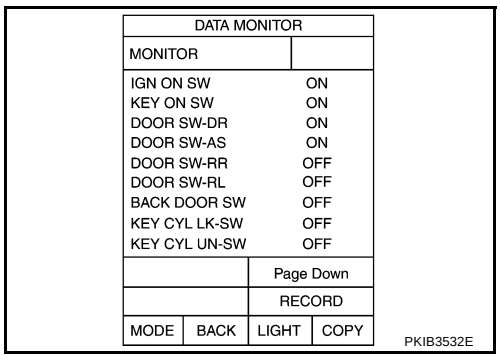
OK >> Replace BCM if map lamp does not work after setting the connector again. Refer to BCS-16, "Removal and Installation of BCM" .
NG >> Repair harness or connector.

Ignition Key Hole Illumination Control Does Not Operate

NKS002PV

1. CHECK EACH SWITCH

Select “BCM” on CONSULT-II. With “INT LAMP” data monitor, make sure switches listed in display item list turn ON-OFF linked with switch operation. Refer to LT-143, "Display Item List" for switches and their functions.



OK or NG

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

2. ACTIVE TEST

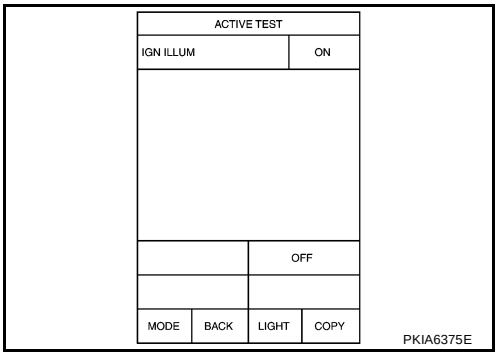
1. Select “BCM” on CONSULT-II. Select “INT LAMP”.
2. Select “IGN ILLUM” active test to make sure lamp operates.

Ignition key hole illumination should operate.

OK or NG

OK >> Replace BCM. Refer to BCS-16, "Removal and Installation of BCM" .

NG >> GO TO 3.



3. CHECK IGNITION KEY HOLE ILLUMINATION INPUT

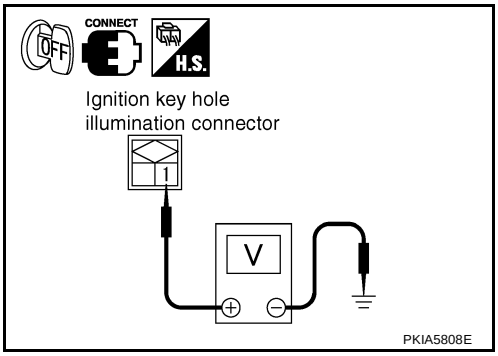
1. Turn ignition switch OFF.
2. Open the driver side door.
3. Check voltage between ignition key hole illumination harness connector M309 terminal 1 and ground.

1 – Ground : Battery voltage

OK or NG

OK >> GO TO 4.

NG >> GO TO 6.



4. CHECK IGNITION KEY HOLE ILLUMINATION BULB

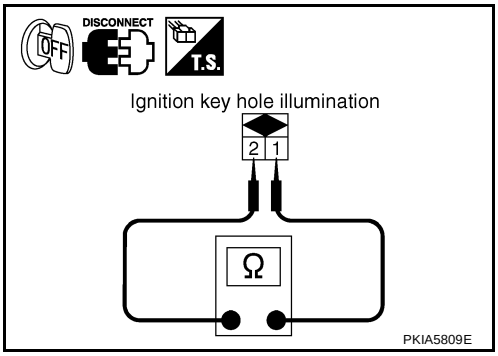
1. Disconnect ignition key hole illumination connector.
2. Check continuity between ignition key hole illumination terminals 1 and 2.

1 – 2 : Continuity should exist.

OK or NG

OK >> GO TO 5.

NG >> Replace ignition key hole illumination. Refer to LT-150, "IGNITION KEY HOLE ILLUMINATION" .



5. CHECK IGNITION KEY HOLE ILLUMINATION CIRCUIT

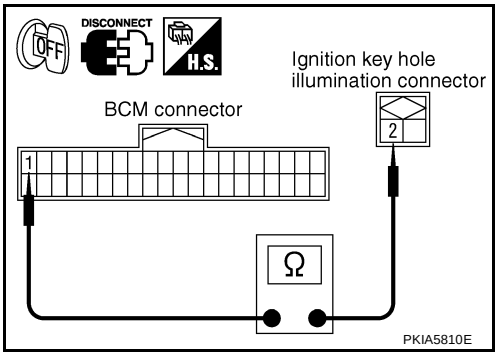
1. Disconnect BCM connector and key hole illumination connector.
2. Check continuity between BCM harness connector M1 terminal 1 and key hole illumination harness connector M309 terminal 2.

1 – 2 : Continuity should exist.

OK or NG

OK >> Replace BCM if ignition key hole illumination does not work after setting the connector again. Refer to BCS-16, "Removal and Installation of BCM" .

NG >> Repair harness or connector.



6. CHECK IGNITION KEY HOLE ILLUMINATION CIRCUIT

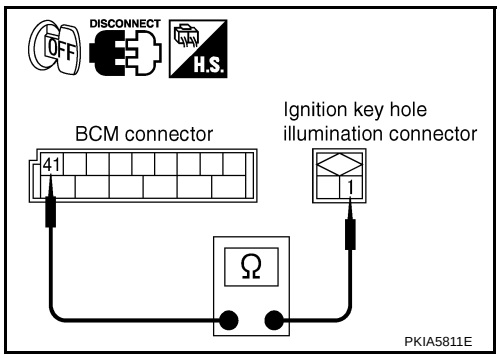
1. Disconnect BCM connector and key hole illumination connector.
2. Check continuity between BCM harness connector M2 terminal 41 and key hole illumination harness connector M309 terminal 1.

41 – 1 : Continuity should exist.

OK or NG

OK >> Replace BCM if ignition key hole illumination does not work after setting the connector again. Refer to BCS-16, "Removal and Installation of BCM" .

NG >> Repair harness or connector.



All Step Lamps Does Not Operate

NKS002PW

1. CHECK EACH DOOR SWITCH

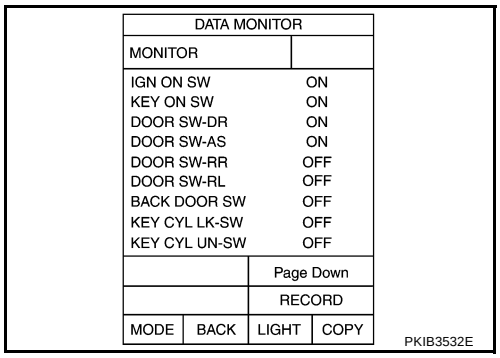
Select “BCM” on CONSULT-II. With “INT LAMP” data monitor to make sure switches listed below turn ON-OFF linked with switch operation.

Switch name	CONSULT screen
Driver side door switch	DOOR SW - DR
Passenger side door switch	DOOR SW - AS

OK or NG

OK >> GO TO 2.

NG >> Inspect malfunctioning switch system.



2. CHECK STEP LAMP INPUT

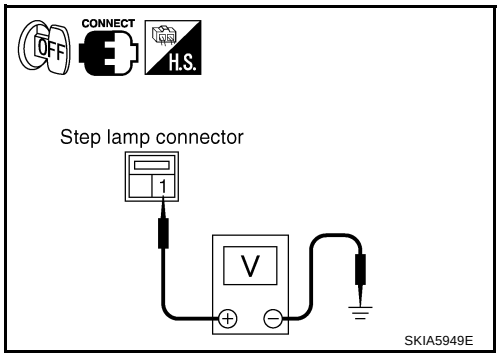
1. Turn ignition switch OFF.
2. Check voltage between step lamp (driver side) harness connector D10 terminal 1 and ground.

1 – Ground : Battery voltage

OK or NG

OK >> GO TO 3.

NG >> GO TO 4.



3. CHECK STEP LAMP CIRCUIT

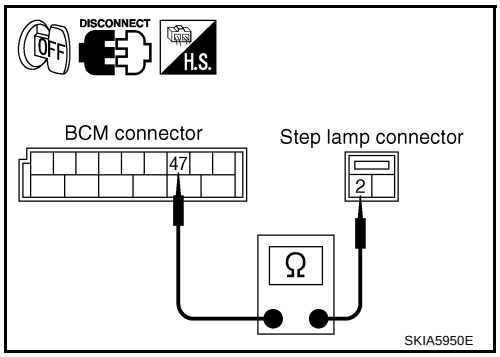
1. Disconnect BCM connector and front door driver side step lamp connector.
2. Check continuity between BCM harness connector M2 terminal 47 and step lamp (driver side) harness connector D10 terminal 2.

47 – 2 : Continuity should exist.

OK or NG

OK >> Replace BCM if step lamps does not work after setting the connector again. Refer to BCS-16, "Removal and Installation of BCM" .

NG >> Repair harness or connector.



4. CHECK STEP LAMP CIRCUIT

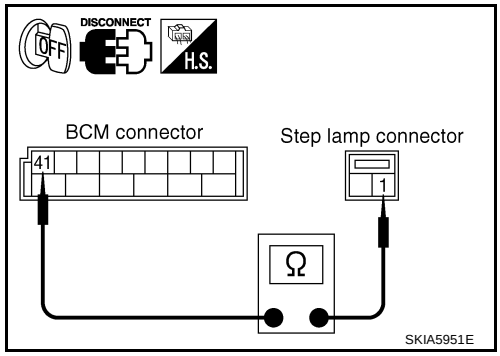
1. Disconnect BCM connector and step lamp connector.
2. Check continuity between BCM harness connector M2 terminal 41 and step lamp (driver side) harness connector D10 terminal 1.

41 – 1 : Continuity should exist.

OK or NG

OK >> Replace BCM if step lamps does not work after setting the connector again. Refer to BCS-16, "Removal and Installation of BCM" .

NG >> Repair harness or connector.



All Interior Room Lamps Does Not Operate

NKS002PX

1. CHECK POWER SUPPLY CIRCUIT

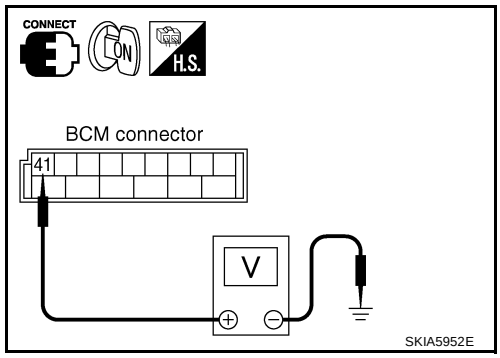
1. All interior room lamps switch are OFF.
2. Turn ignition switch ON.
3. Check voltage between BCM harness connector M2 terminal 41 and ground.

41 – Ground : Battery voltage

OK or NG

OK >> Repair harness or connector. In a case of making a short circuit, be sure to disconnect battery negative cable after repairing harness, and then reconnect.

NG >> Replace BCM. Refer to BCS-16, "Removal and Installation of BCM" .



Bulb Replacement

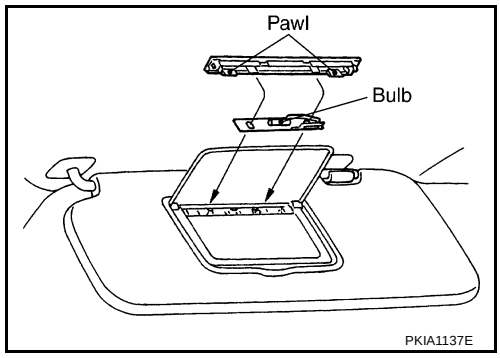
NKS002PY

VANITY MIRROR LAMP

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

Vanity mirror lamp : 12 V - 1.32 W

3. Installation is the reverse order of removal.

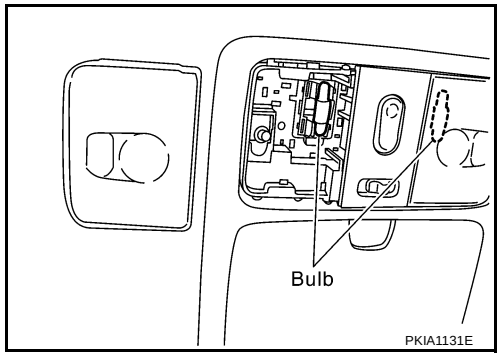


MAP LAMP

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

Map lamp : 12 V - 8 W

3. Installation is the reverse order of removal.

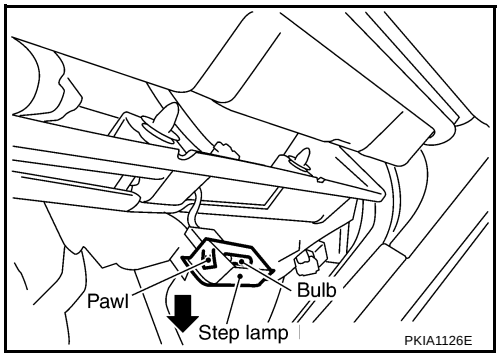


STEP LAMP

1. Remove step lamp. Refer to LT-151, "STEP LAMP" .
2. Remove bulb.

Step lamp : 12 V - 5 W

3. Installation is the reverse order of removal.

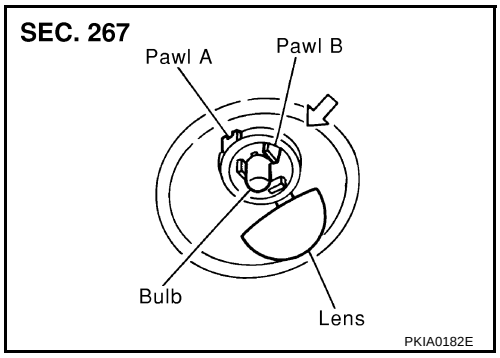


TRUNK ROOM LAMP

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

Trunk room lamp : 12 V - 3.4 W

4. Installation is the reverse order of removal.



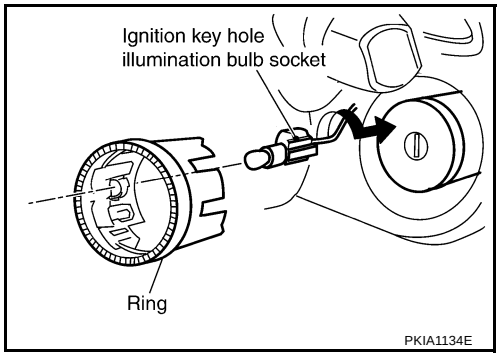
IGNITION KEY HOLE ILLUMINATION

Without Intelligent Key System

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

Ignition key hole illumination : 12 V - 1.4 W

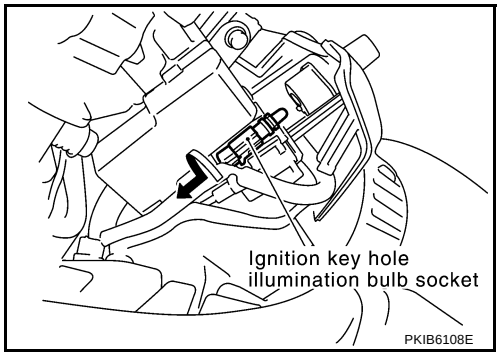
3. Installation is the reverse order of removal.



With Intelligent Key System

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

Ignition key hole illumination : 12 V - 1.4 W



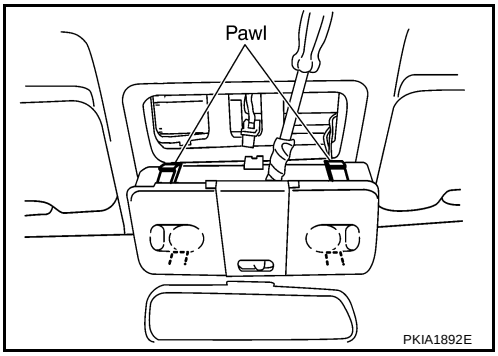
Removal and Installation

NKS002PZ

MAP LAMP

Removal

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



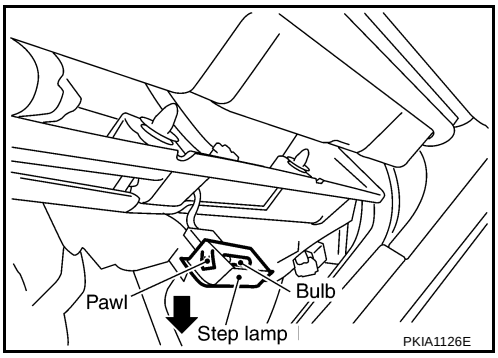
Installation

Installation is the reverse order of removal.

STEP LAMP

Removal

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



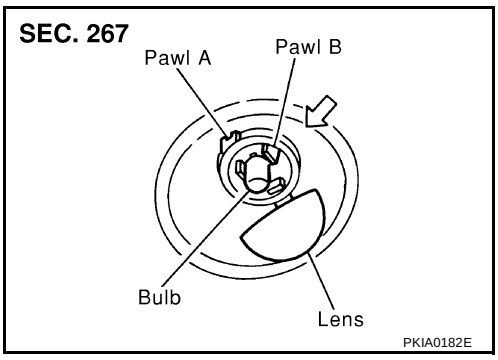
Installation

Installation is the reverse order of removal.

TRUNK ROOM LAMP

Removal

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



Installation

Installation is the reverse order of removal.

ILLUMINATION

PFP:27545

System Description

NKS000JZ

The 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 position, 2ND position or AUTO position (headlamp is ON), BCM (body control module) receives input signal requesting the illumination lamps to illuminate. This input signal is communicated to IPDM E/R (intelligent power distribution module engine room) through CAN communication lines. CPU (central processing unit) located in the IPDM E/R controls the tail lamp relay. This relay, when energized, directs power to the illumination lamps, which then illuminate.
Power is supplied at all times

- to ignition relay located in IPDM E/R, from battery direct,
- through 10A 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 box)
- to BCM terminal 55,
- through 10A fuse [No.18, located in fuse block (J/B)]
- to BCM terminal 42.

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

- to ignition relay located in IPDM E/R, from battery direct,
- through 10A 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 terminals 22 and 23,
- through 10A fuse [No.12, located in fuse block (J/B)]
- to NAVI control unit terminal 63 (with navigation system) and
- to display and A/C auto amp. terminal 2.

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 combination meter terminal 18
- to NAVI control unit terminal 5 (with navigation system)
- to display unit terminal 19 (with navigation system) and
- to NAVI switch terminal 1 (with navigation system).

Ground is supplied

- to BCM terminal 52
- to combination meter terminals 1, 24 and 25
- to NAVI control unit terminals 1 and 21 (with navigation system)
- to display unit terminals 22 and 24 (with navigation system)
- to NAVI switch terminal 7 (with navigation system) and
- to display and A/C auto amp. terminal 5
- through grounds M30 and M66,
- to IPDM E/R terminals 38 and 60
- through grounds E17 and E47.

ILLUMINATION OPERATION BY LIGHTING SWITCH

With the lighting switch in the 1ST position, 2ND position or AUTO position (headlamp is ON), BCM receives input signal requesting the illumination lamps to illuminate. This input signal is communicated to IPDM E/R through CAN communication lines. CPU located in the IPDM E/R controls the tail lamp relay, which, when energized, directs power

- through IPDM E/R terminal 22
- to combination meter terminal 10
- to NAVI control unit terminal 61 (with navigation system)
- to NAVI switch terminal 2 (with navigation system)
- to display and A/C auto amp. terminal 1
- to A/C and audio controller terminal 9
- to microphone terminal 2 (with telephone system)
- to VDC off switch (illumination) terminal 3
- to A/T illumination terminal 1 (with A/T)
- to hazard switch (illumination) terminal 3
- to ashtray illumination and cigarette lighter socket illumination terminal 5 (with A/T)
- to ashtray illumination and cigarette lighter socket illumination terminal 2 (with M/T)
- to heated seat switch (driver side) (illumination) terminal 5
- to heated seat switch (passenger side) (illumination) terminal 5
- to combination switch (spiral cable) terminal 26
- to trunk lid opener switch (illumination) terminal 3
- to illumination control switch terminal 1
- to upper glove box lamp terminal 1 (without navigation system) and
- to glove box lamp terminal 1,
- through combination switch (spiral cable) terminal 18
- to ASCD steering switch illumination and
- to steering wheel audio control switch illumination.

Ground is supplied

- to steering wheel audio control switch illumination and
- to ASCD steering switch illumination
- through combination switch (spiral cable) terminal 21,
- to combination meter terminal 9
- to NAVI switch terminal 3 (with navigation system)
- to display and A/C auto amp. terminal 21
- to A/C and audio controller terminal 10
- to VDC off switch (illumination) terminal 4
- to A/T illumination terminal 2 (with A/T)
- to hazard switch (illumination) terminal 4
- to heated seat switch (driver side) (illumination) terminal 6
- to heated seat switch (passenger side) (illumination) terminal 6
- to combination switch (spiral cable) terminal 27 and
- to trunk lid opener switch (illumination) terminal 4
- through illumination control switch terminal 2,
- to ashtray illumination and cigarette lighter socket illumination terminal 4 (with A/T)
- to ashtray illumination and cigarette lighter socket illumination terminal 3 (with M/T)
- to illumination control switch terminal 3
- to upper glove box lamp terminal 2 (without navigation system) and
- to glove box lamp terminal 2
- through grounds M30 and M66,
- to microphone
- through case ground of microphone.

With power and ground supplied, illumination lamps illuminate.

EXTERIOR LAMP BATTERY SAVER CONTROL

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

CAN Communication System Description

NKS000K0

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.

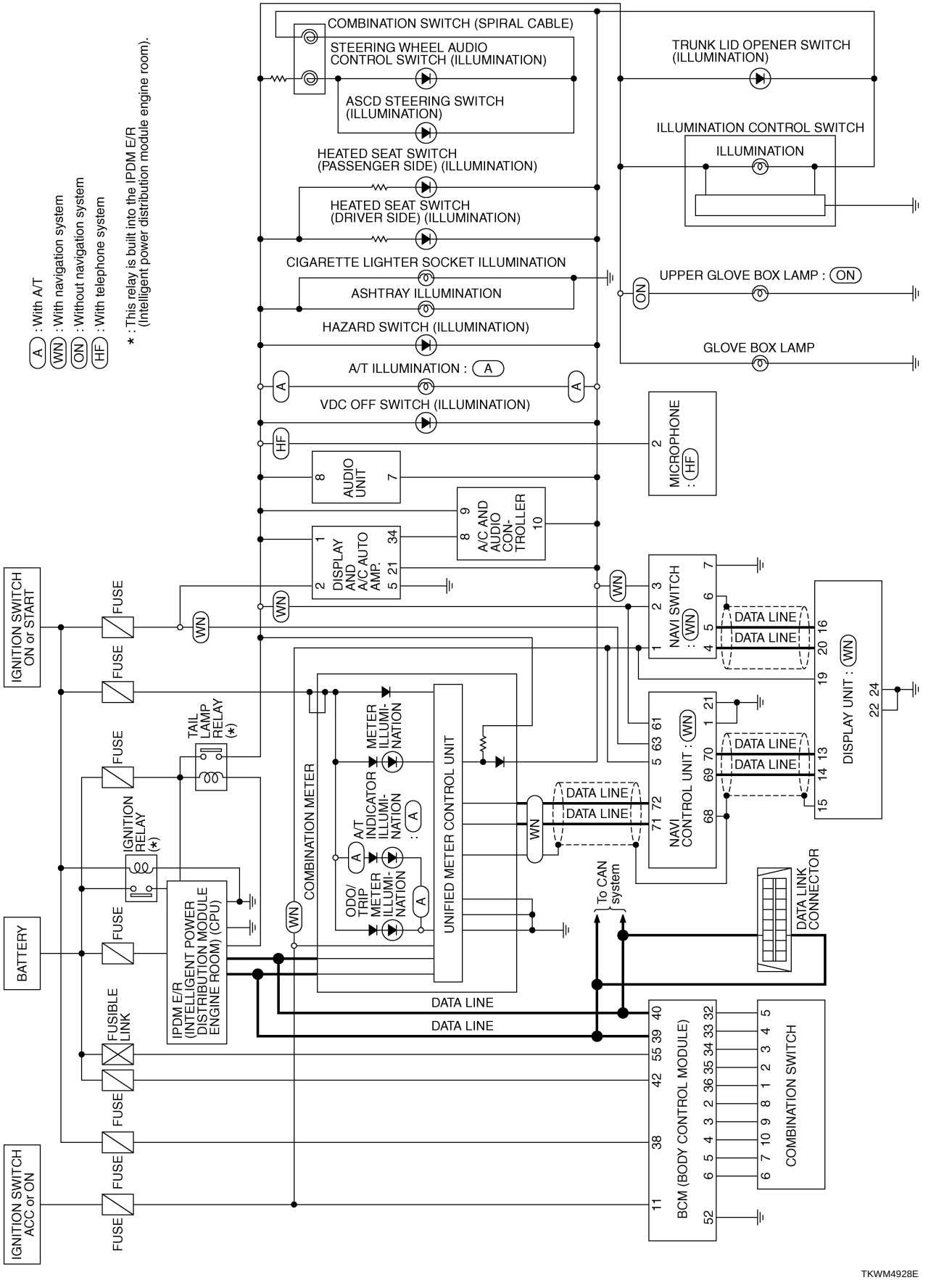
CAN Communication Unit

NKS000K1

Refer to LAN-47, "CAN System Specification Chart" .

Schematic

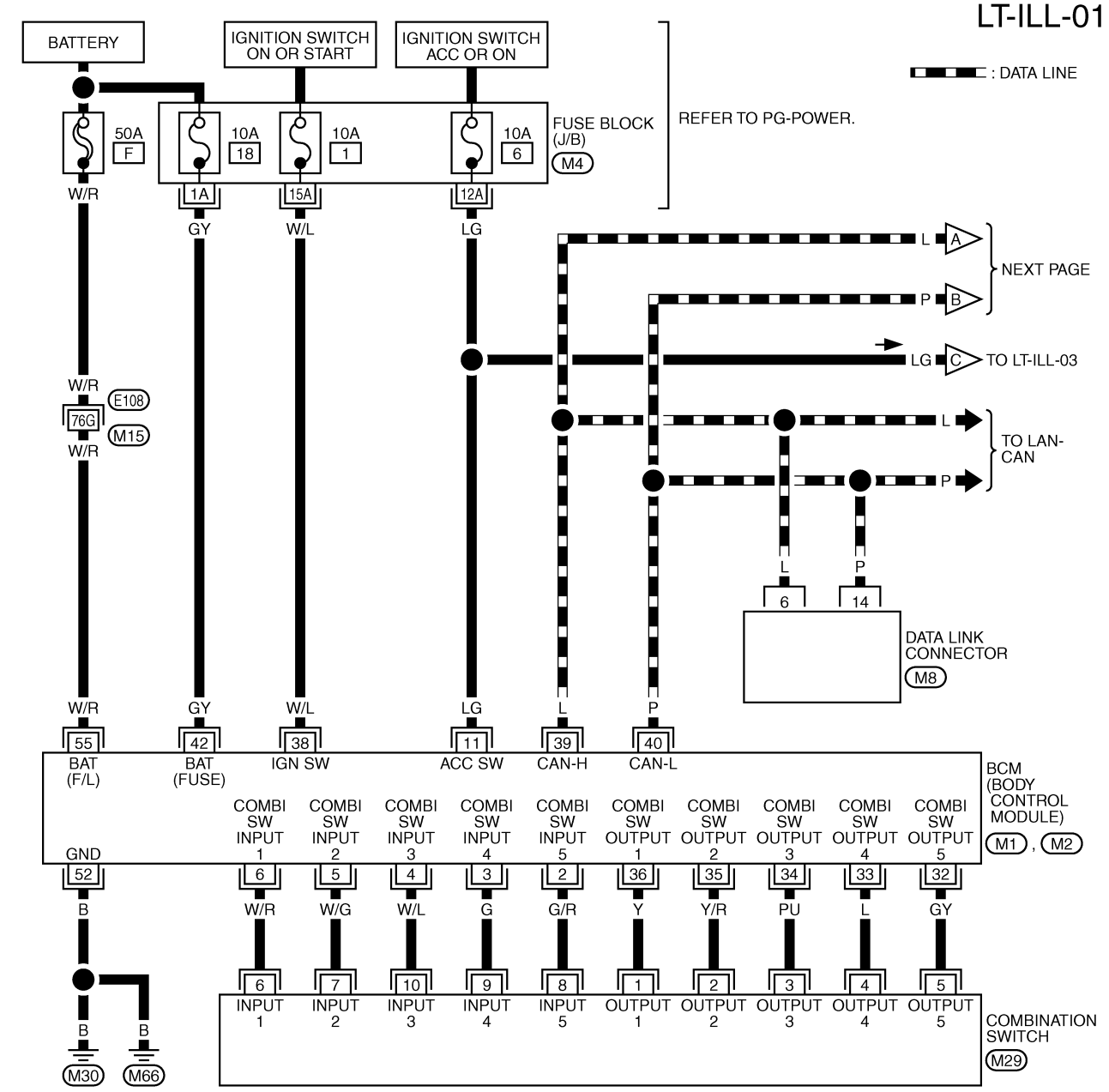
NKS000K2



TKWM4928E

Wiring Diagram — ILL —

NKS000K3



REFER TO THE FOLLOWING.

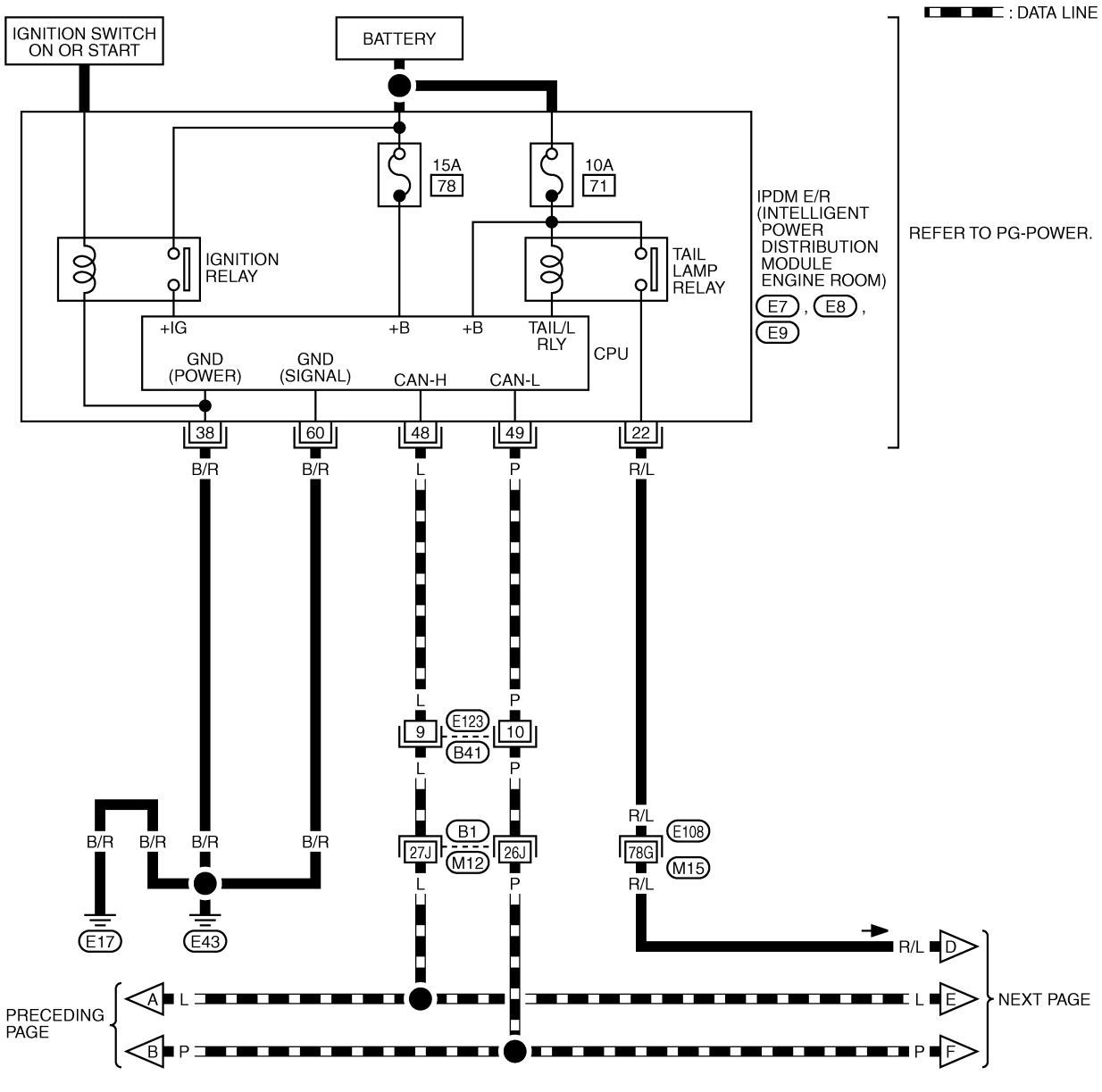
E108 -SUPER MULTIPLE JUNCTION (SMJ)

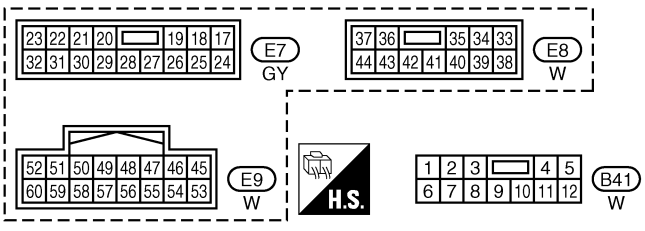
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

M1, M2 -ELECTRICAL UNITS

TKWM2219E

LT-ILL-02

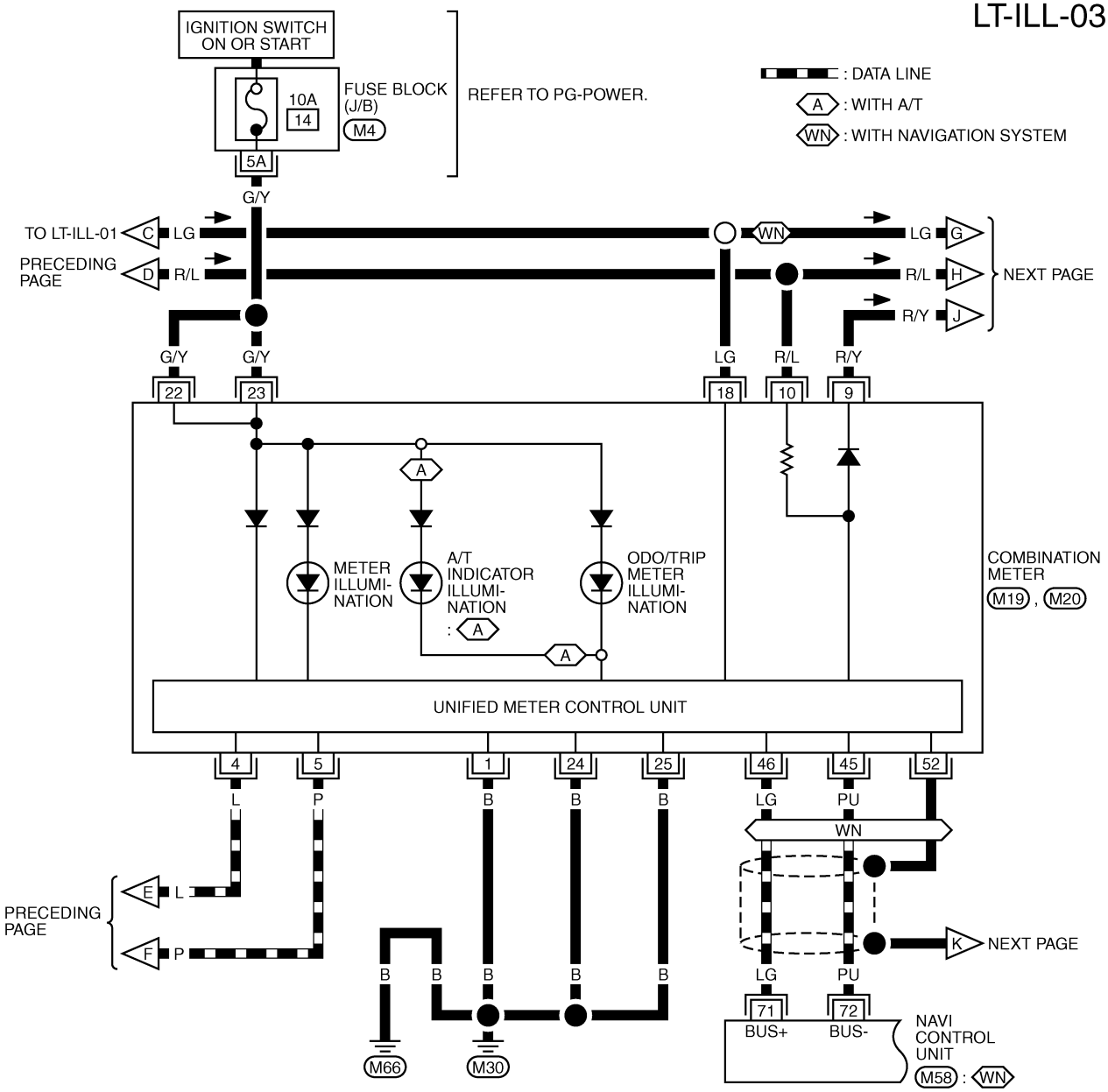


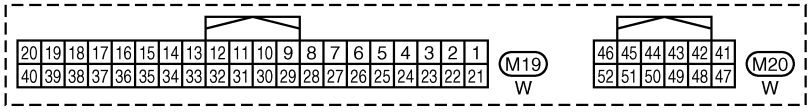


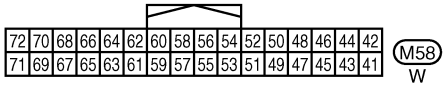
REFER TO THE FOLLOWING.
E108, B1 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3470E

LT-ILL-03



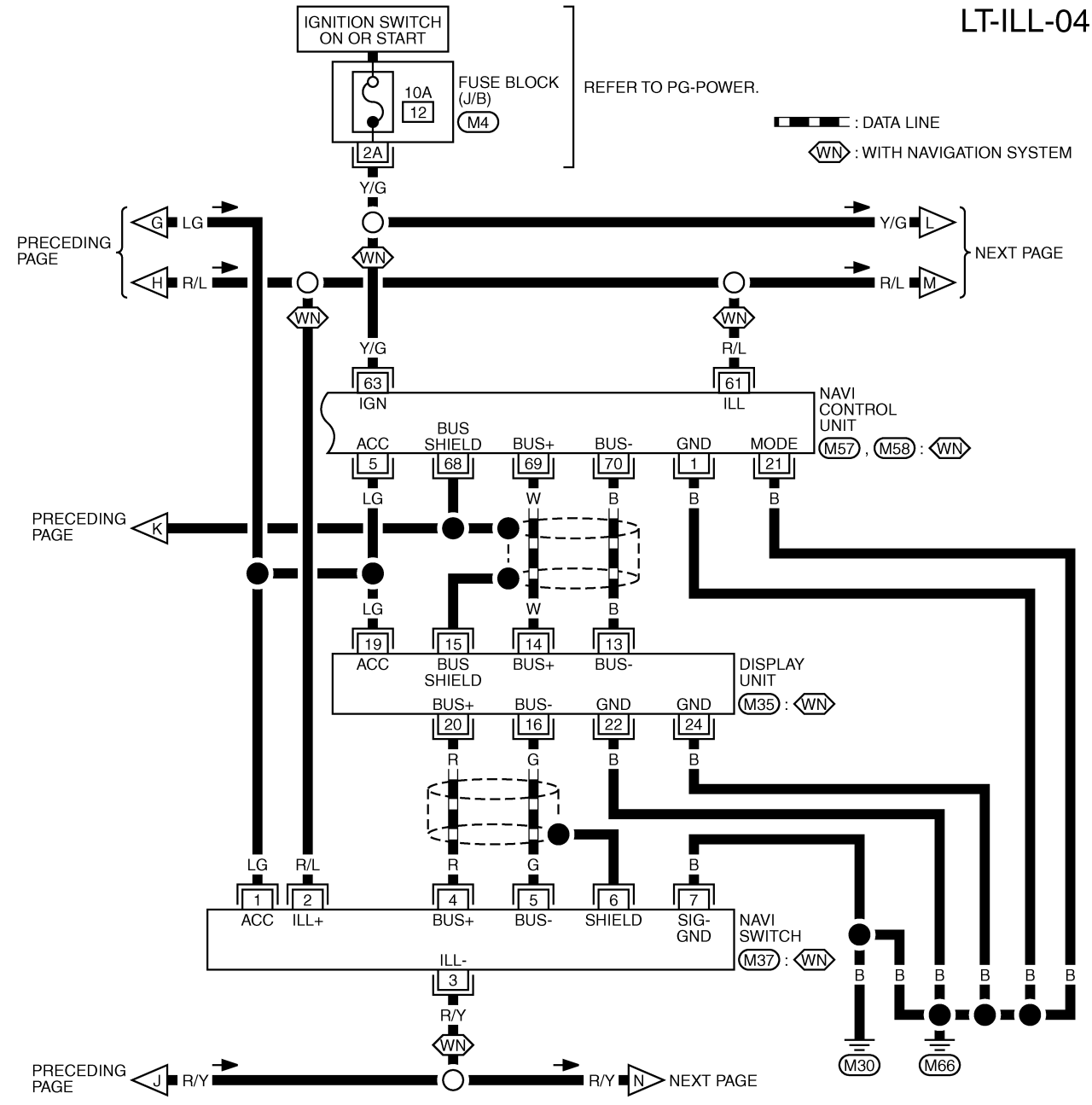


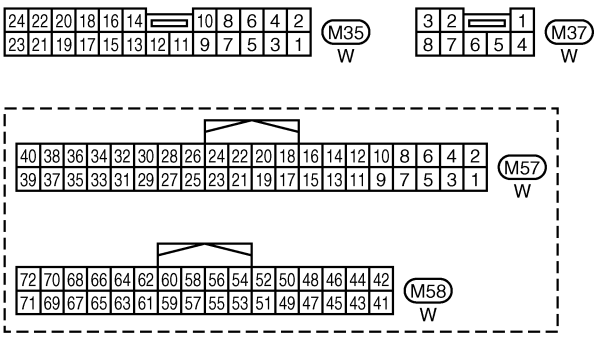


REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWM4929E

LT-ILL-04

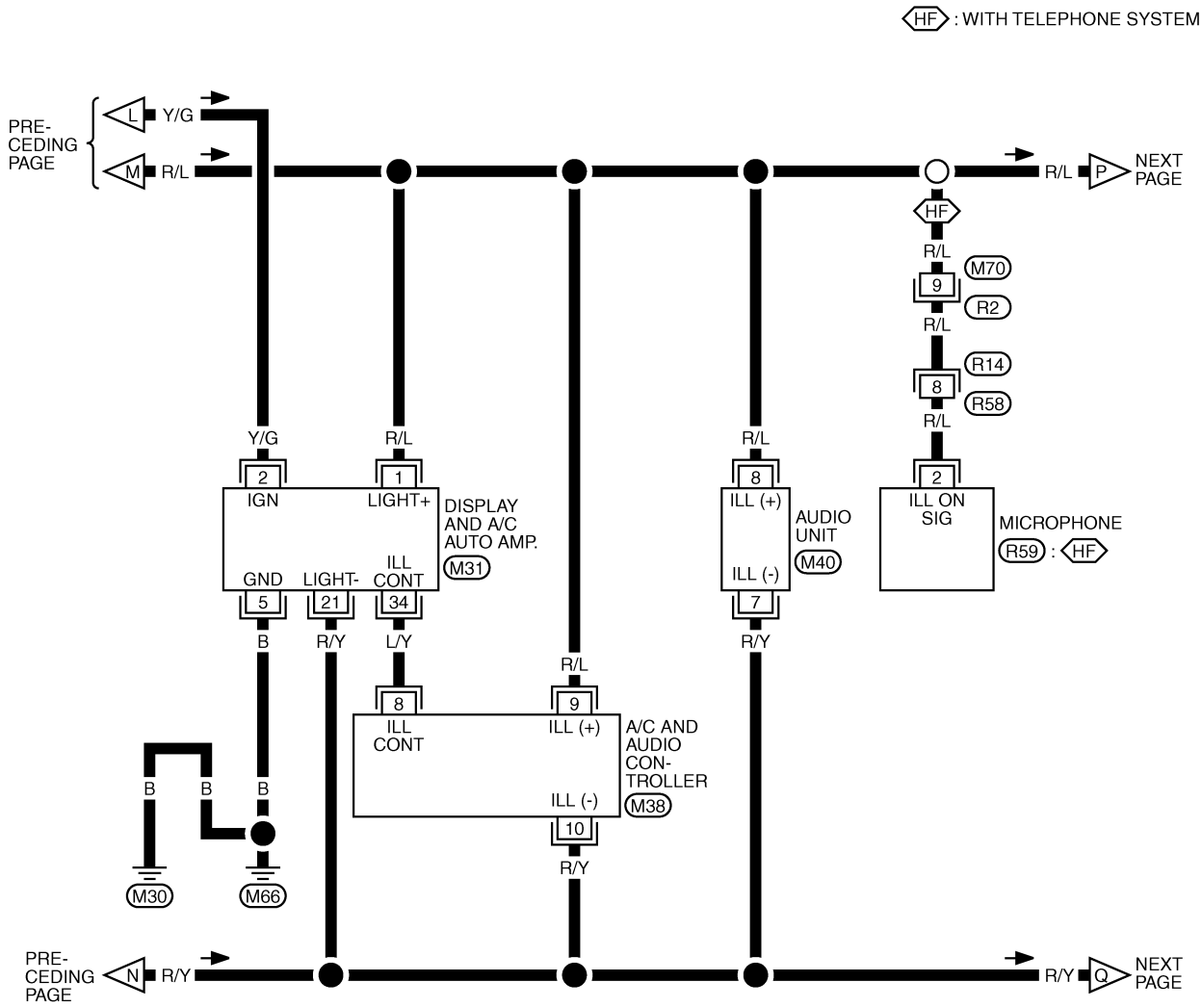


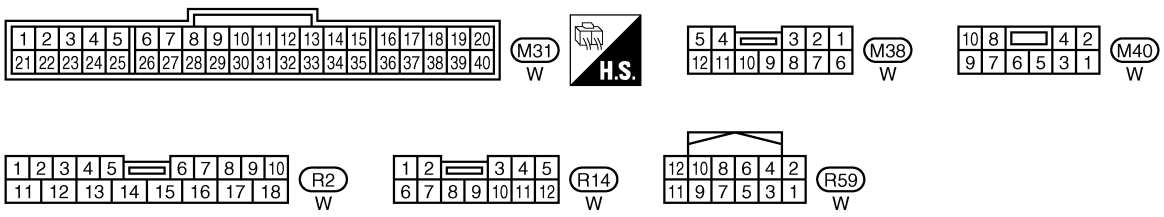


REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

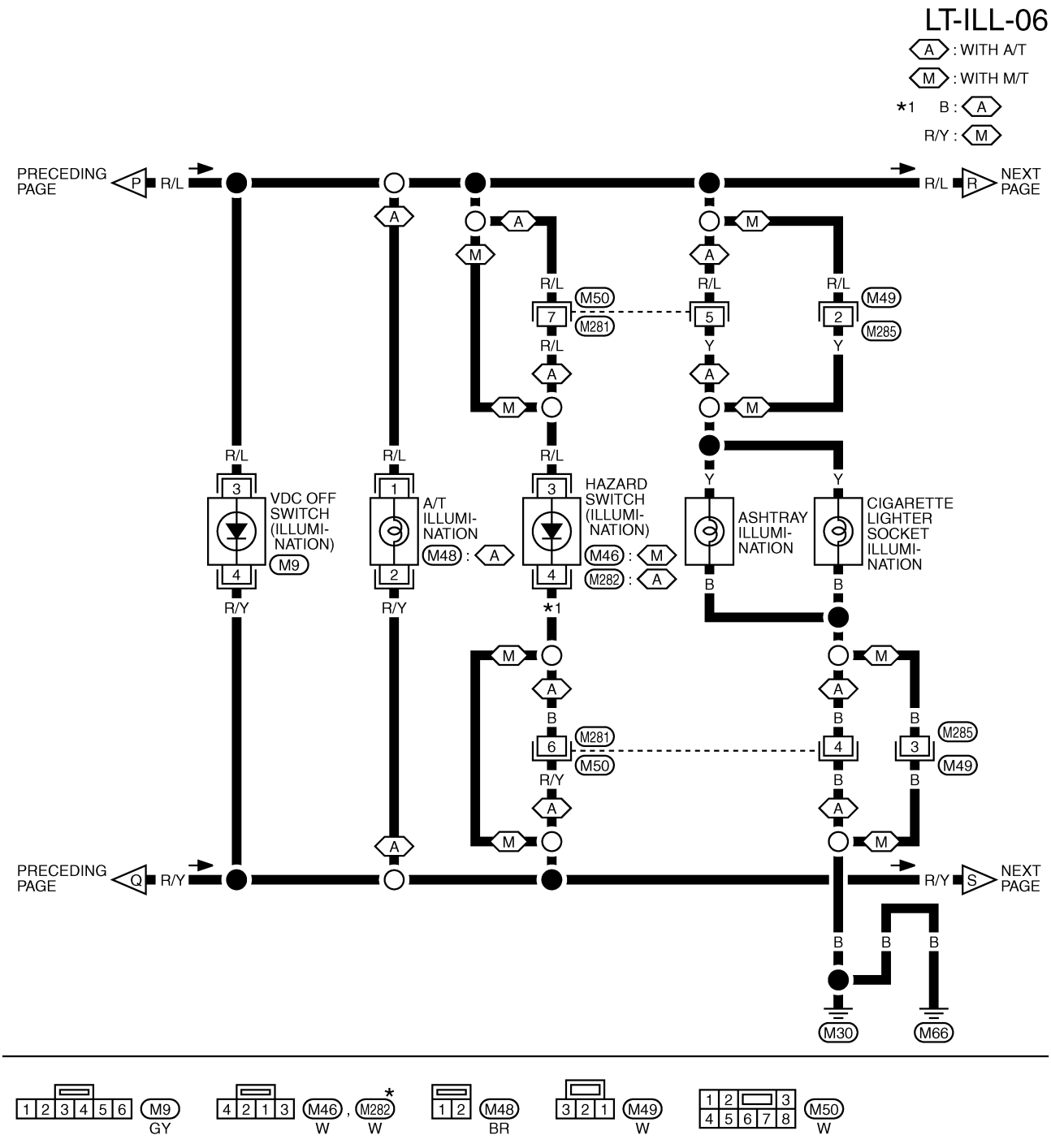
TKWM3472E

LT-ILL-05





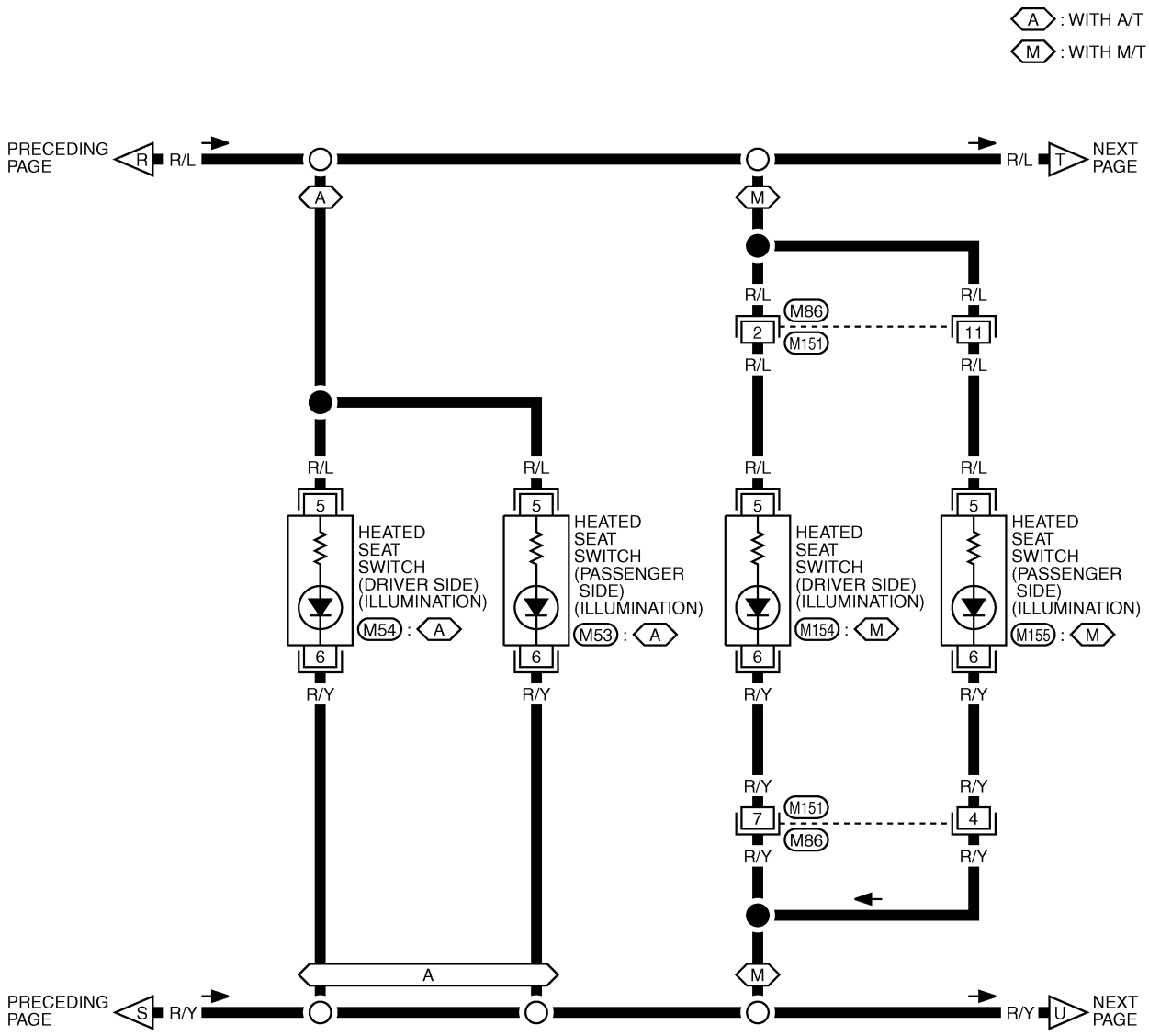
TKWM4930E

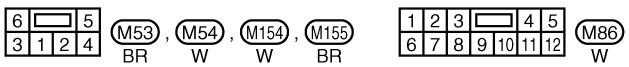


*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWM3474E

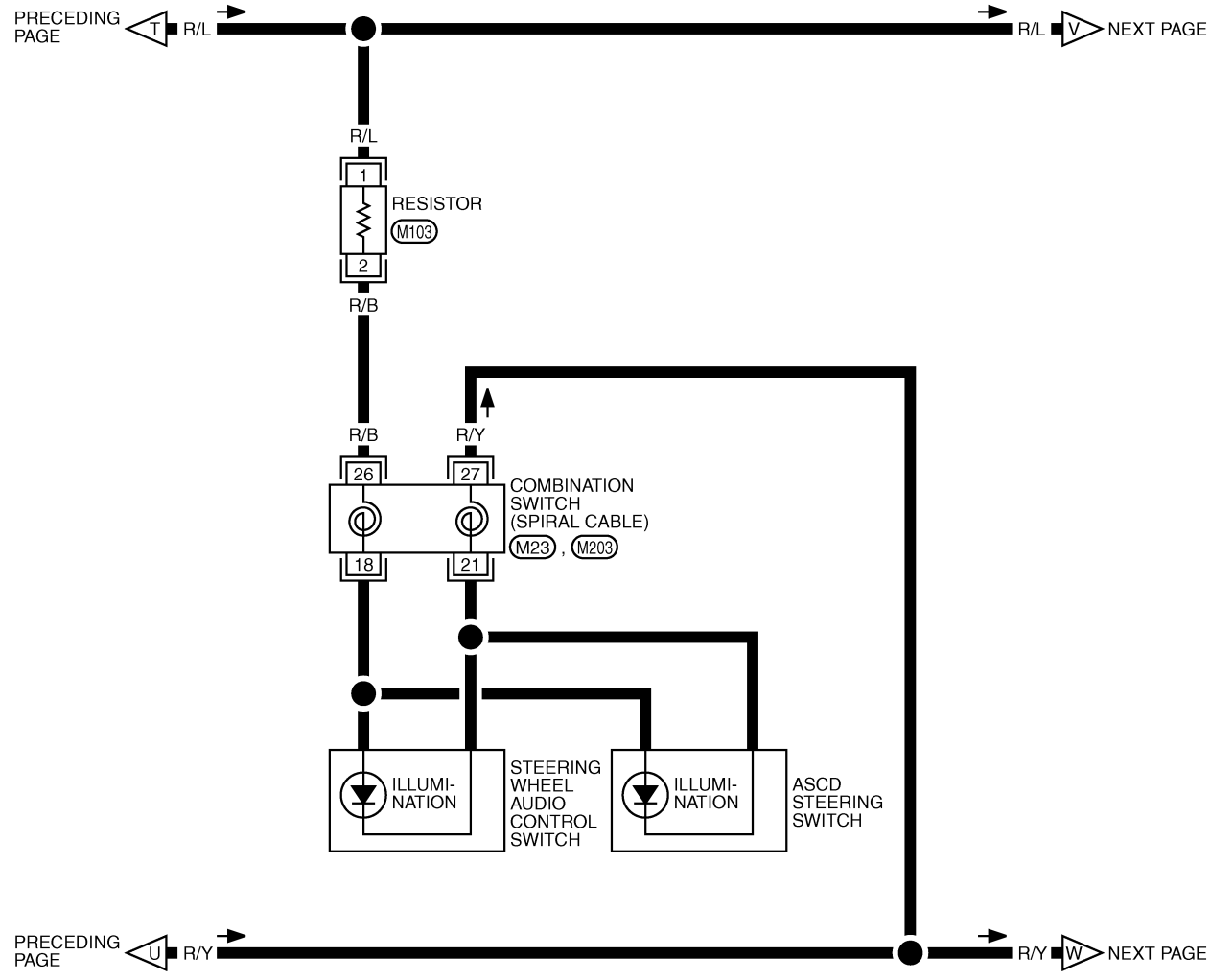
LT-ILL-07

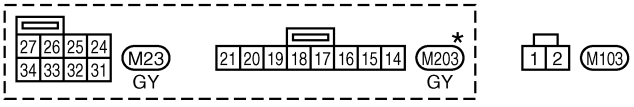




TKWM3475E

LT-ILL-08

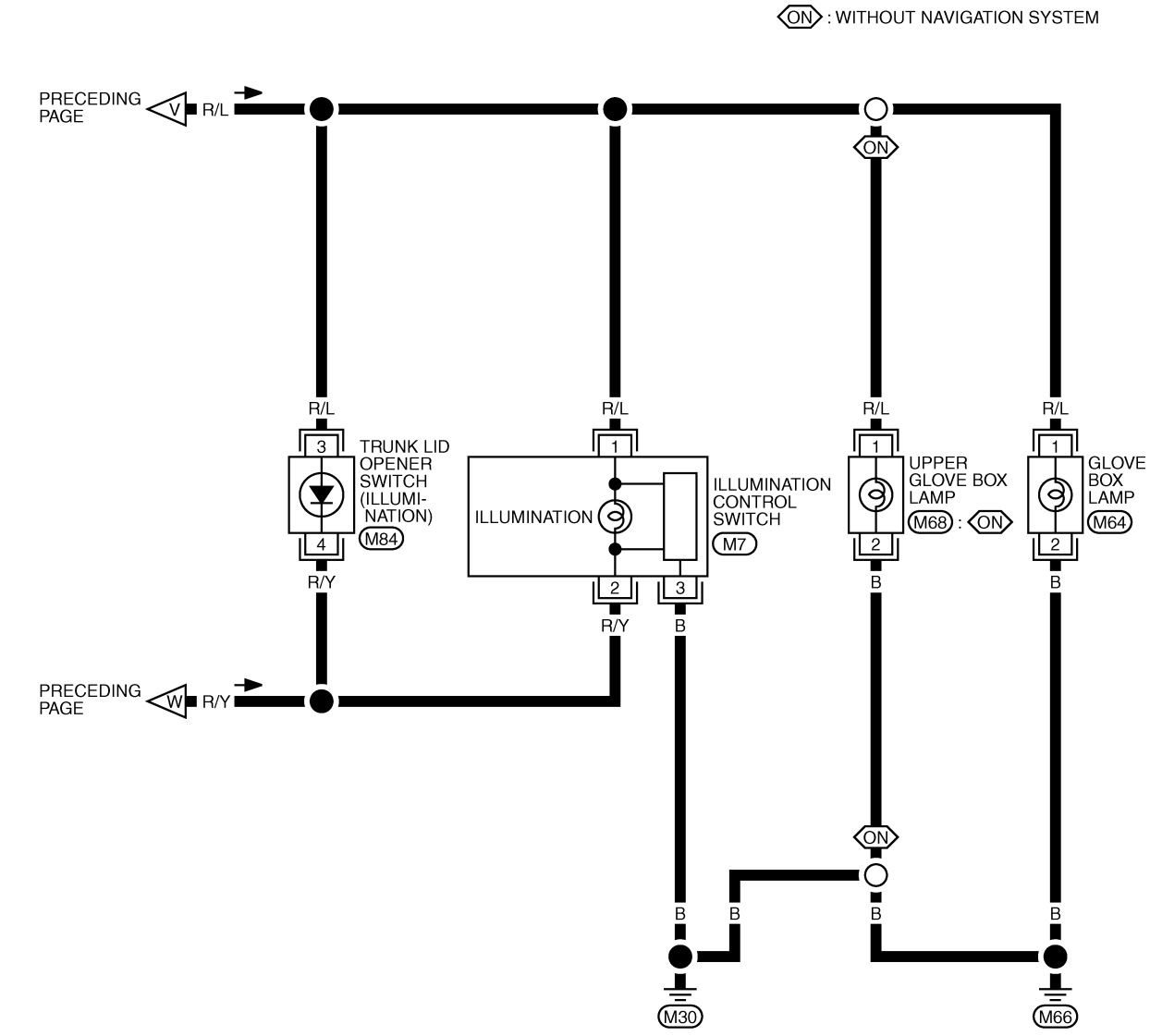




*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWM4931E

LT-ILL-09



TKWM3477E

Bulb Replacement

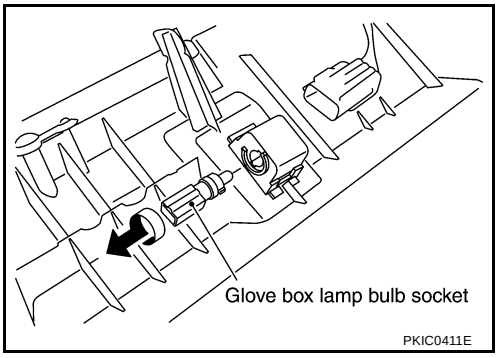
NKS0026I

GLOVE BOX LAMP

1. Remove instrument lower passenger panel. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Turn bulb socket counterclockwise and remove it.

Glove box lamp : 12 V - 1.4 W

3. Installation is the reverse order of removal.

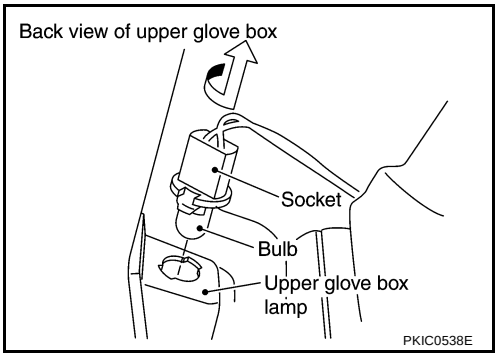


UPPER GLOVE BOX LAMP

1. Remove instrument lower passenger panel. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Turn bulb socket counterclockwise and remove it.

Upper glove box lamp : 12 V - 3.4 W

3. Installation is the reverse order of removal.

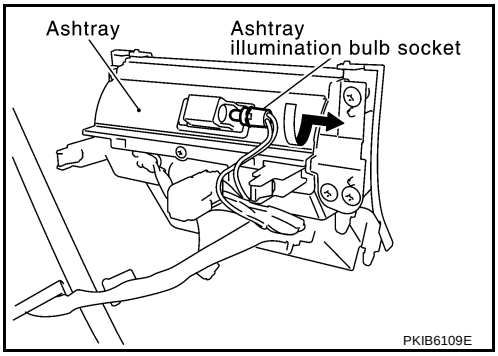


ASHTRAY ILLUMINATION

1. Remove console finisher. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Turn bulb socket to counterclockwise and remove it.

Ashtray illumination : 12 V - 1.4 W

3. Installation is the reverse order of removal.



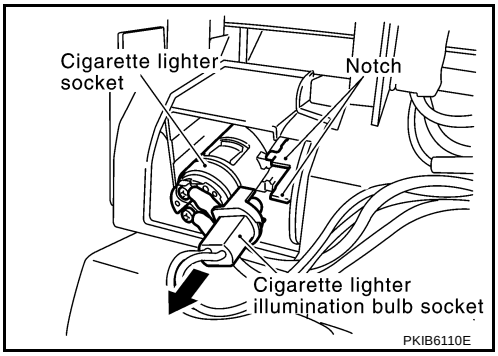
CIGARETTE LIGHTER ILLUMINATION

1. Remove console finisher. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Open hooks and remove bulb socket.

Cigarette lighter illumination : 12 V - 0.8 W

CAUTION:
When replacing bulb, replace assembly together with illumination ring.

3. Installation is the reverse order of removal.



BULB SPECIFICATIONS

PFP:26297

Headlamp

NKS000K5

Item	Wattage (W)
Low / High	35 (D2R)
FOG	55 (H1)

Exterior Lamp

NKS000K6

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

Interior Lamp/Illumination

NKS000K7

Item	Wattage (W)
Glove box lamp	1.4
Upper glove box lamp	3.4
Ignition key hole illumination lamp	1.4
Ashtray illumination lamp	1.4
Cigarette lighter illumination lamp	0.8
Map lamp	8
Step lamp	5
Trunk room lamp	3.4
Vanity mirror lamp	1.32