SECTION LT
LIGHTING SYSTEM

CONTENTS

PRECAUTIONS

PFP:00011

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

NKS000SM

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

WARNING:

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

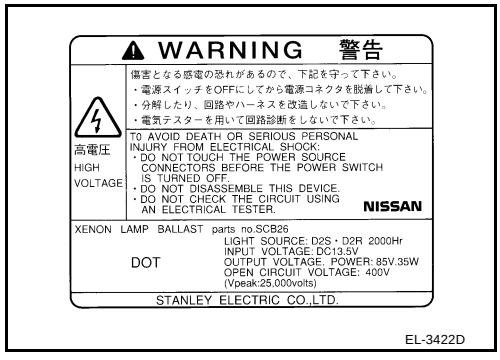
General Precautions for Service Operations

NKS000SN

- 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

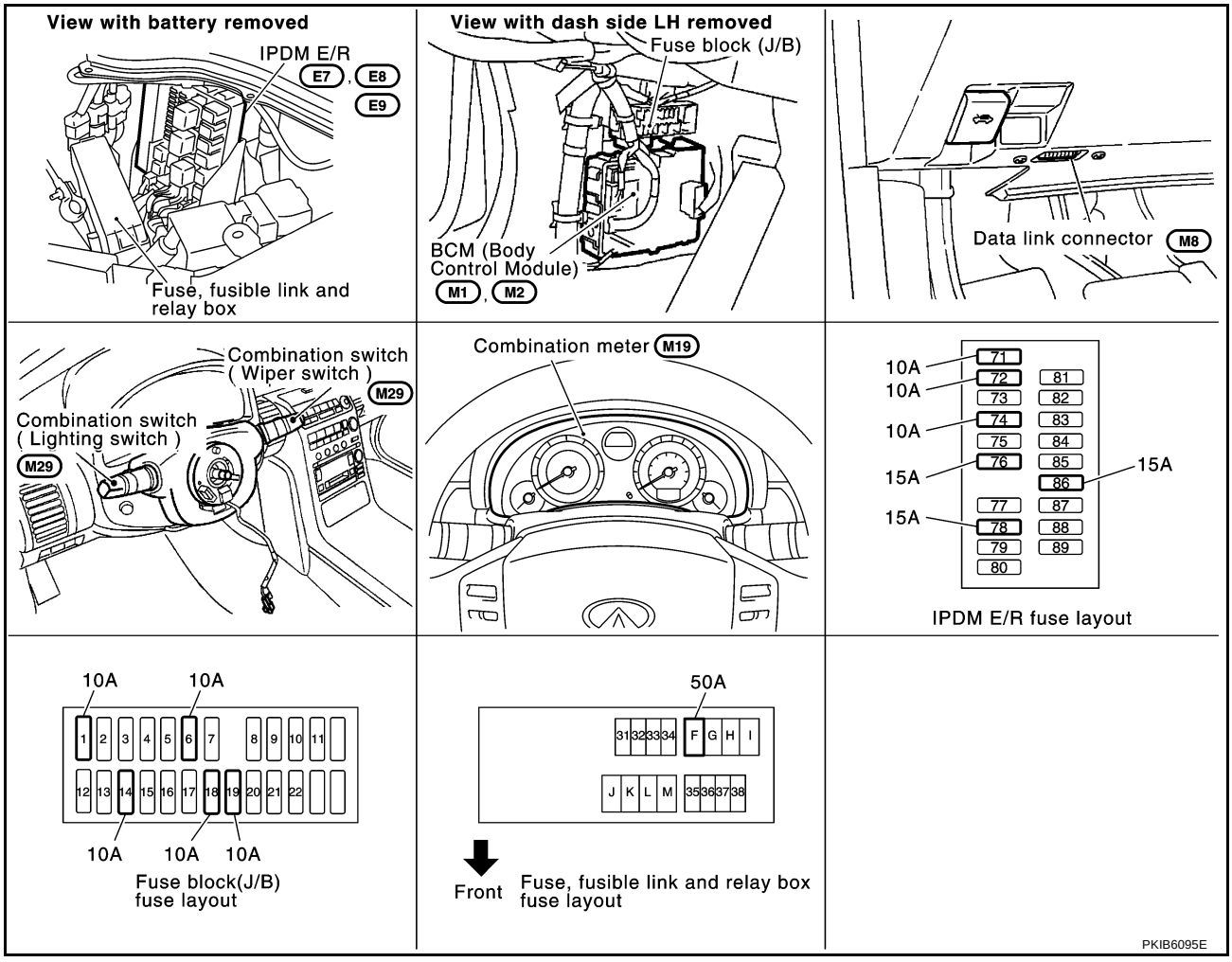
- When adjusting the headlamp aiming, turn the aiming adjustment screw only in the tightening direction. (If it is necessary to loosen the screw, first fully loosen the screw, and then turn it in the tightening direction.)
- Do not use organic solvent (paint thinner or gasoline) to clean lamps and to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

HEADLAMP (FOR USA)

PFP:26010

Component Parts and Harness Connector Location

NKS000SP



System Description

NKS000SQ

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

OUTLINE

Power is supplied at all times

- to headlamp high relay, located in IPDM E/R 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

- 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 terminal 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 through 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 terminal 4
- through grounds E17 and E43,
- to front combination lamp LH terminal 4
- through grounds E17 and E43.

With power and ground supplied, low beam headlamps illuminate.

High Beam Operation/Flash-to-Pass Operation

With the lighting switch in 2ND position and placed in HIGH 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 CAN communication lines. The CPU located in the IPDM E/R controls headlamp high relay coil and low relay coil, which when energized, directs power

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

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

COMBINATION SWITCH READING FUNCTION

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

EXTERIOR LAMP BATTERY SAVER CONTROL

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

AUTO LIGHT OPERATION (IF EQUIPPED)

Refer to LT-73, "System Description" .

VEHICLE SECURITY SYSTEM

The vehicle security system will flash the high beams if the system is triggered. Refer to BL-244, "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

NKS000SR

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

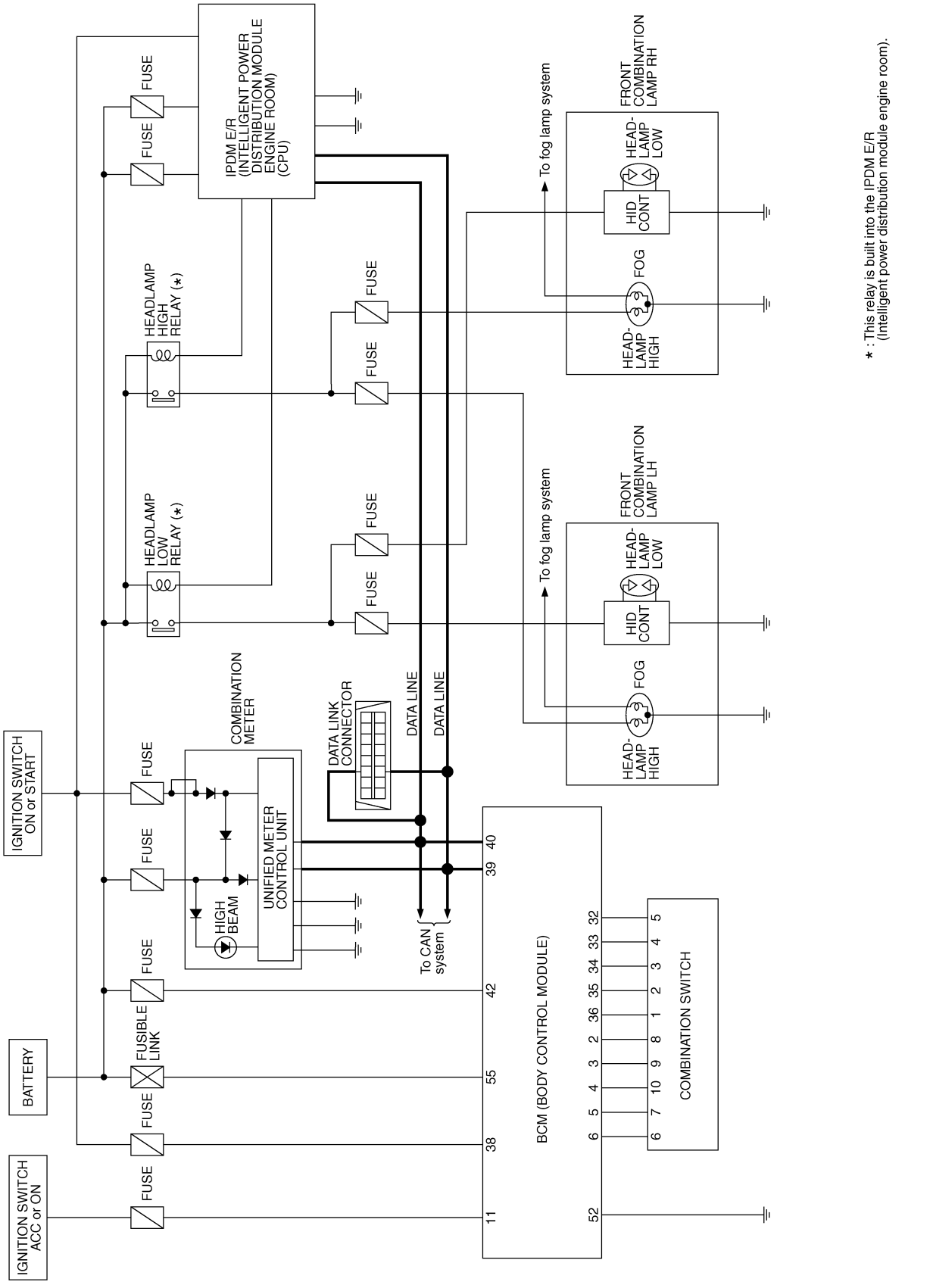
CAN Communication Unit

NKS000SS

Refer to LAN-27, "CAN Communication Unit" .

Schematic

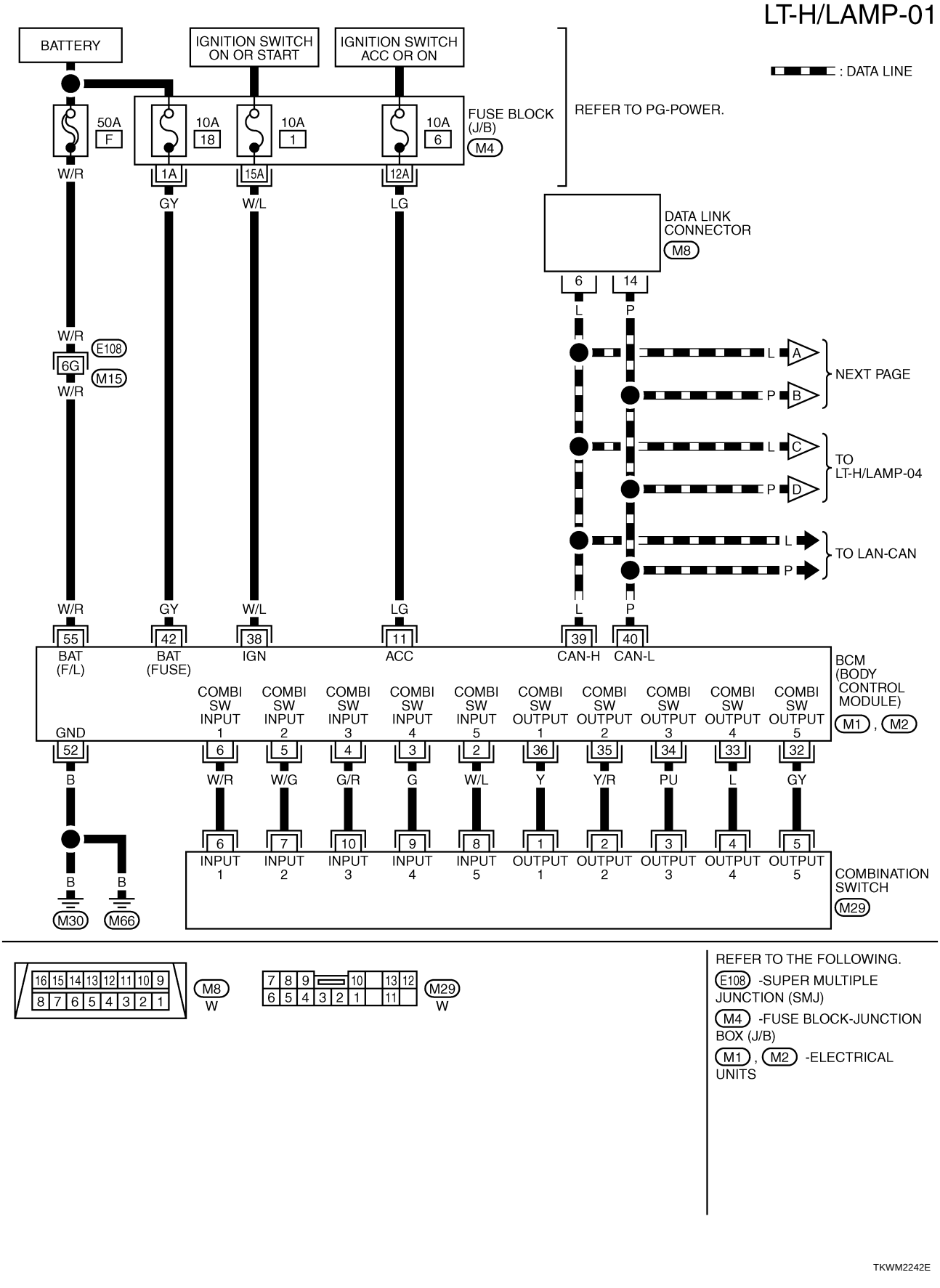
NKS000ST



TKWM2241E

Wiring Diagram — H/LAMP —

NKS000SU



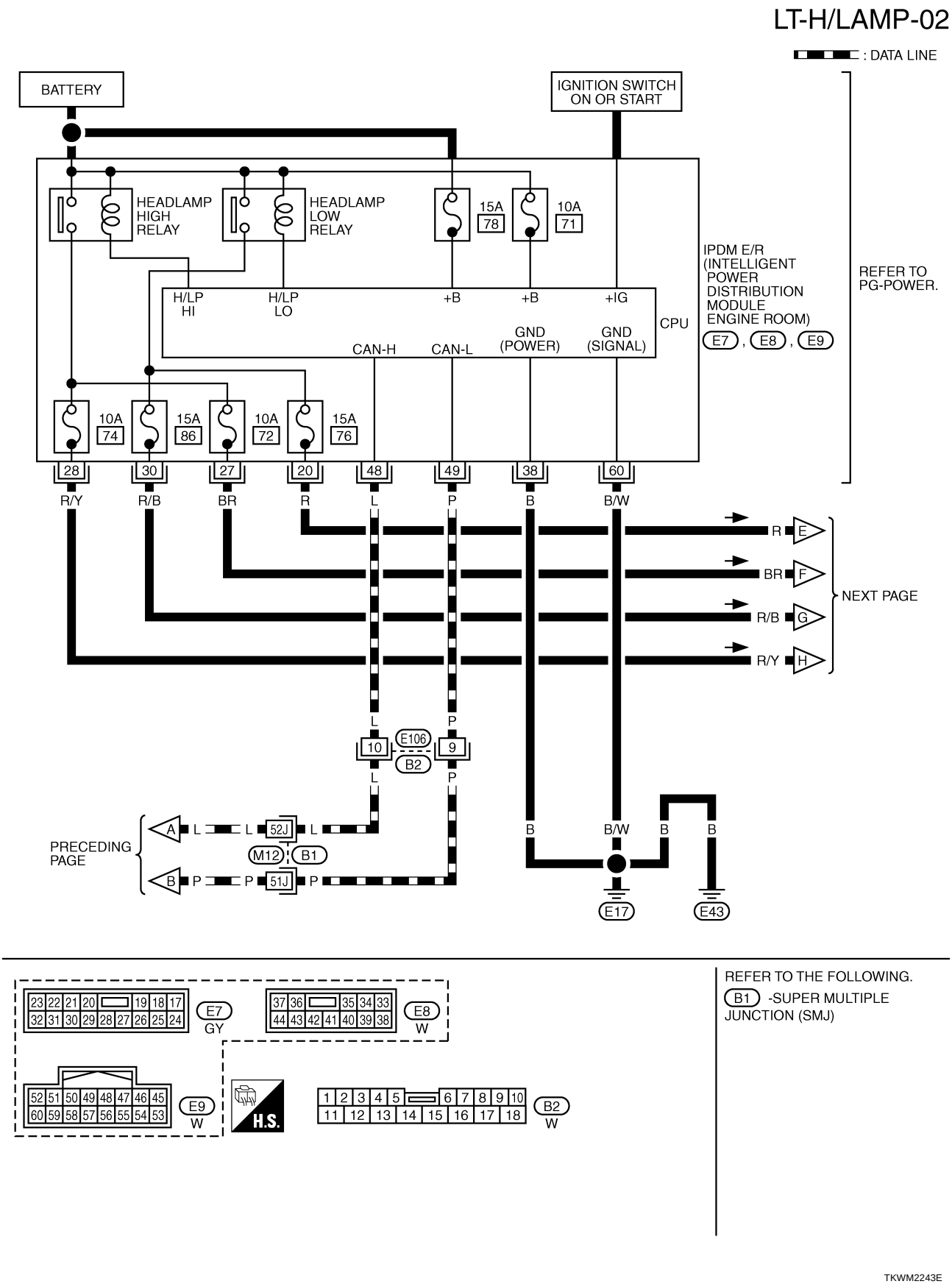
REFER TO THE FOLLOWING.

E108 -SUPER MULTIPLE JUNCTION (SMJ)

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

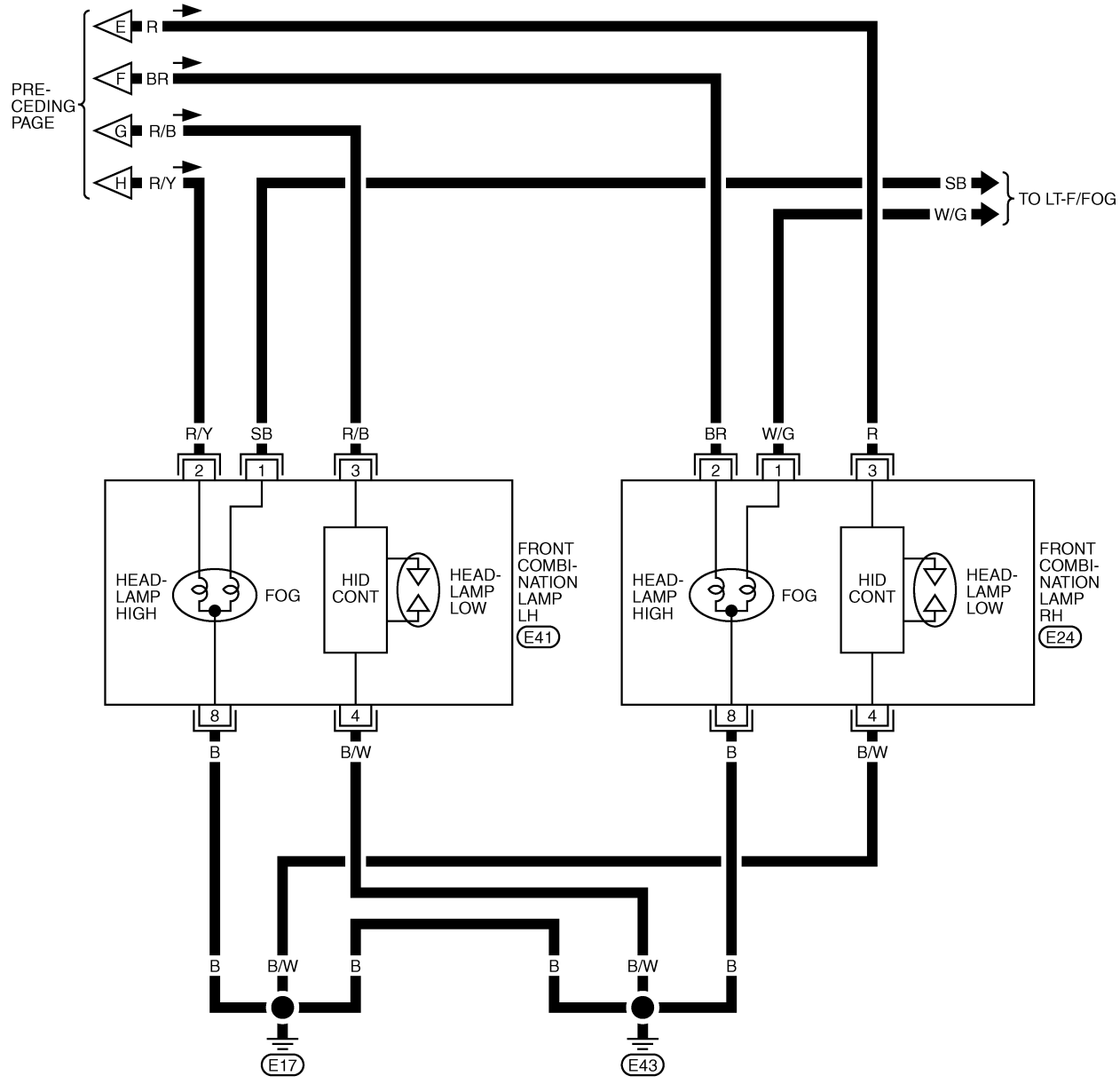
M1, M2 -ELECTRICAL UNITS

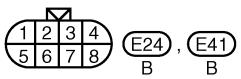
TKWM2242E


LT-H/LAMP-02
: DATA LINE
BATTERY
IGNITION SWITCH ON OR START
HEADLAMP HIGH RELAY
HEADLAMP LOW RELAY
15A 78
10A 71
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E7, E8, E9
REFER TO PG-POWER.
H/LP HI
H/LP LO
+B
+B
+IG
CPU
CAN-H
CAN-L
GND (POWER)
GND (SIGNAL)
10A 74
15A 86
10A 72
15A 76
28 30 27 20 48 49 38 60
R/Y R/B BR R L P B B/W
R E
BR F
R/B G
R/Y H
NEXT PAGE
L P
10 E106 9
B2
L P
PRECEDING PAGE
A L L 52J L
M12 B1
B P P 51J P
B B/W B B
E17 E43
23 22 21 20 19 18 17
32 31 30 29 28 27 26 25 24
E7 GY
37 36 35 34 33
44 43 42 41 40 39 38
E8 W
52 51 50 49 48 47 46 45
60 59 58 57 56 55 54 53
E9 W
H.S.
1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18
B2 W
REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM2243E

LT-H/LAMP-03

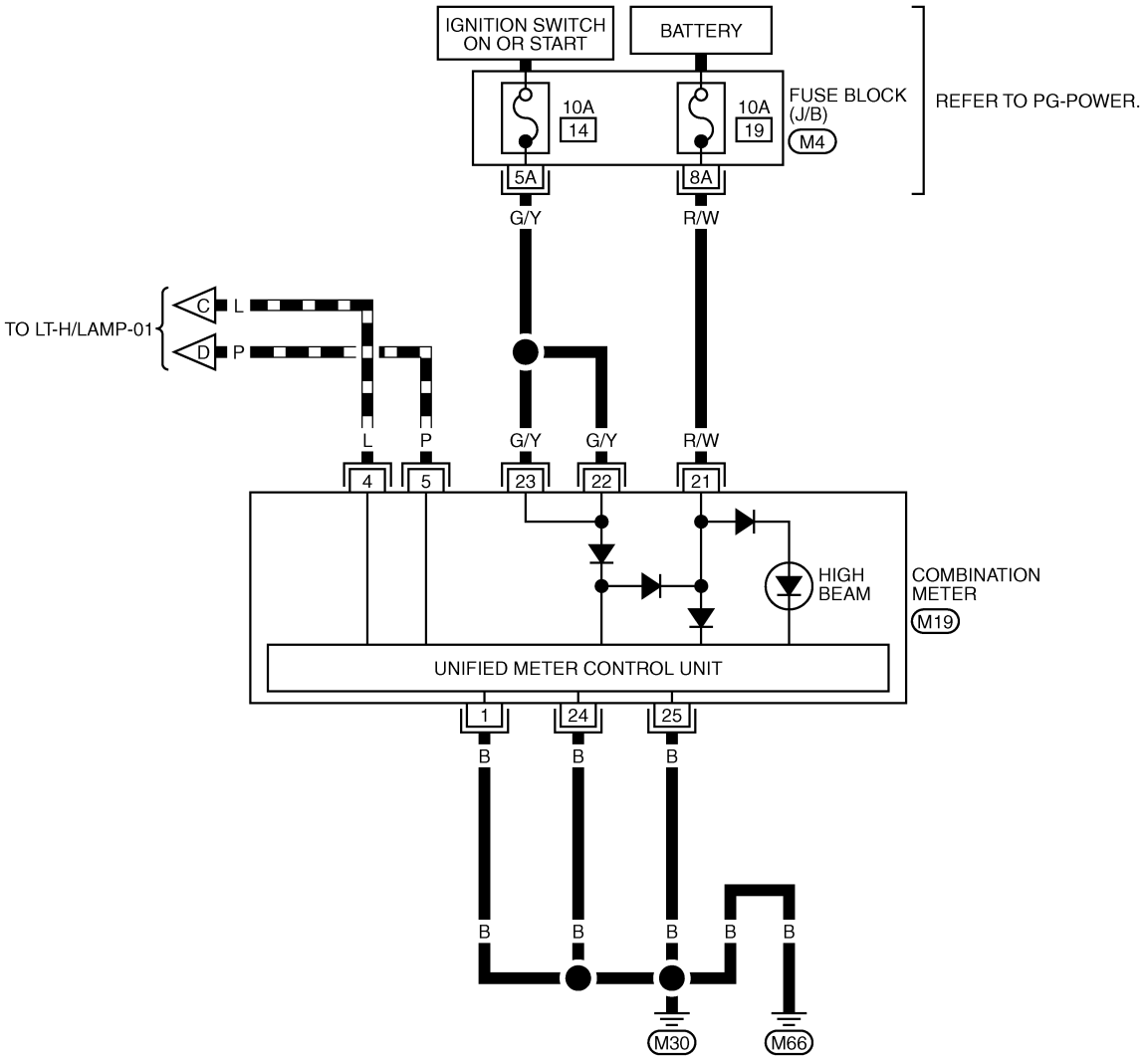


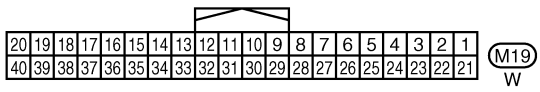


TKWM2244E

LT-H/LAMP-04

: DATA LINE



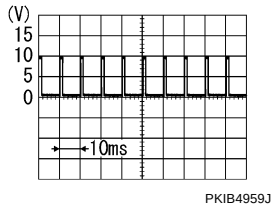
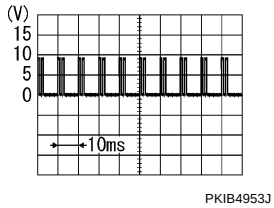
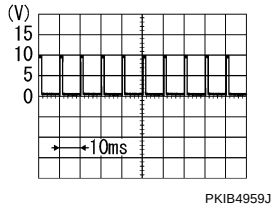
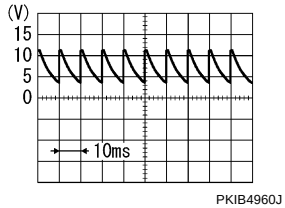
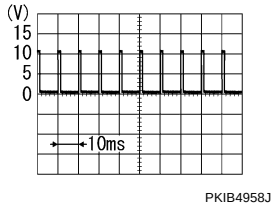


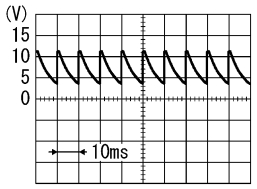
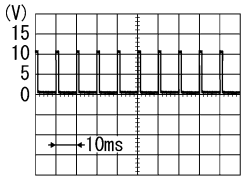
REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWM2245E

Terminals and Reference Values for BCM

NKS002MD

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
2	W/L	Combination switch input 5	ON	Lighting, turn, wiper 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
34	PU	Combination switch output 3	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 HI beam (Operates only HI beam switch)	 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

NKS000SW

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

How to Proceed With Trouble Diagnosis

NKS000SX

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-6, "System Description" .
3. Perform the preliminary check. Refer to LT-16, "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

NKS000SY

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

Check for blown fuses.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
		18
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	71
		72
		74
		76
		78
		86

Refer to LT-10, "Wiring Diagram — H/LAMP —" .

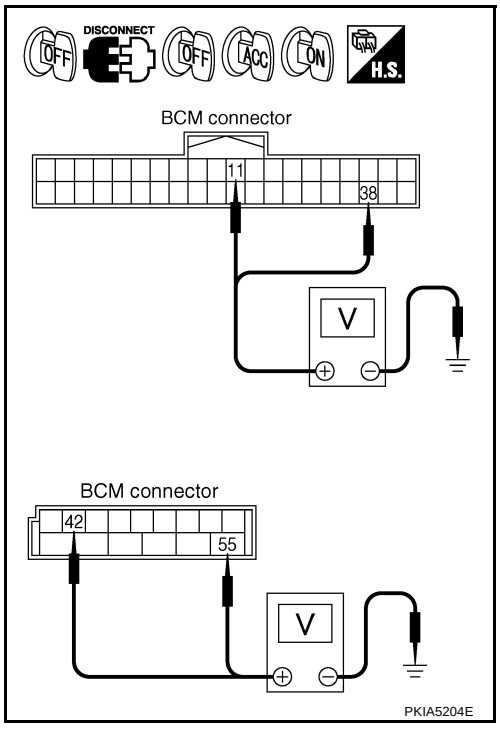
OK or NG

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

2. CHECK POWER SUPPLY CIRCUIT

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

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



OK or NG

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

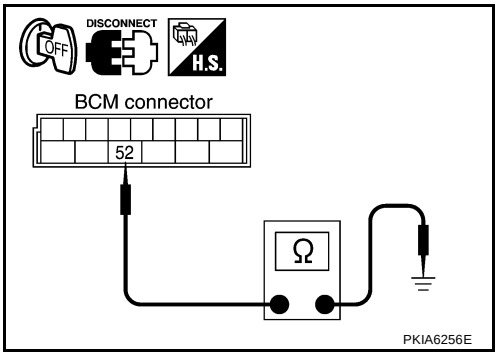
3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminal			Continuity
Connector	Terminal	Ground	Yes
M2	52		

OK or NG

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



CONSULT-II Functions (BCM)

NKS000SZ

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

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

CONSULT-II BASIC OPERATION

Refer to GI-38, "CONSULT-II Start Procedure" .

WORK SUPPORT

Operation Procedure

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

Display Item List

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

DATA MONITOR

Operation Procedure

1. Touch “HEAD LAMP” on “SELECT TEST ITEM” screen.
2. Touch “DATA MONITOR” on “SELECT DIAG MODE” screen.
3. Touch either “ALL SIGNALS” or “SELECTION FROM MENU” on “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 1 ST	“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	“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.
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	“ON/OFF”	Displays status (door is open: ON/door is closed: OFF) of rear door switch (RH) judged from the rear door switch (RH) signal.
DOOR SW - RL	“ON/OFF”	Displays status (door is open: ON/door is closed: OFF) of rear door switch (LH) judged from the rear door switch (LH) signal.
BACK DOOR SW NOTE 1	“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.
CARGO LAMP SW NOTE 1	“OFF”	—
OPTICAL SENSOR NOTE 2	“0 - 5V”	Displays status “outside brightness (close to 5V when light/close to 0V when dark)” of optical sensor judged from the optical sensor signal.

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

ACTIVE TEST

Operation Procedure

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

Display Item List

Test item	Description
TAIL LAMP	Allows tail lamp relay to operate by switching ON–OFF.
HEAD LAMP	Allows headlamp high relay and headlamp low relay to operate by switching ON–OFF.

Test item	Description
FR FOG LAMP	Allows front fog lamp relay to operate by switching ON–OFF.
CORNERING LAMP NOTE	—

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

CONSULT-II Functions (IPDM E/R)

NKS000T0

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

Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	Refer to PG-19, "SELF-DIAG RESULTS" .
DATA MONITOR	The input/output data of IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE TEST	IPDM E/R sends a drive signal to electronic components to check their operation.

CONSULT-II BASIC OPERATION

Refer to GI-38, "CONSULT-II Start Procedure" .

DATA MONITOR

Operation Procedure

1. Touch “DATA MONITOR” on “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.

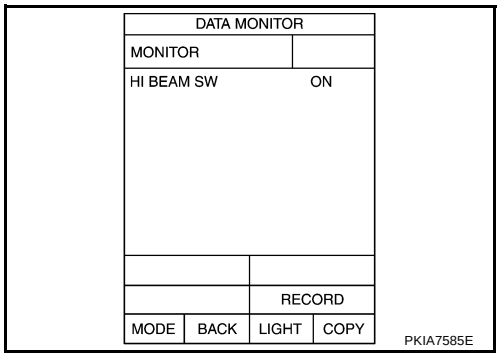
Headlamp High Beam Does Not Illuminate (Both Sides)

NKS000T1

1. CHECK COMBINATION SWITCH INPUT SIGNAL

With CONSULT-II

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



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

Without CONSULT-II

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

OK or NG

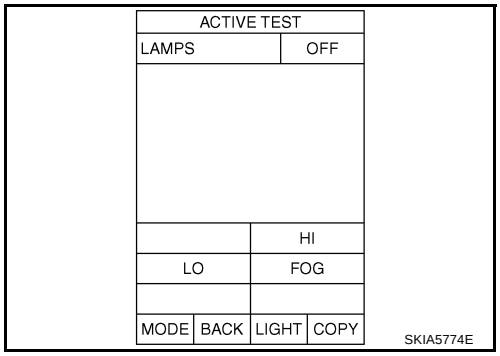
OK >> GO TO 2.

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

2. HEADLAMP ACTIVE TEST

With CONSULT-II

1. Select “IPDM E/R” on CONSULT-I, 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-22, "Auto Active Test" .
2. Make sure headlamp high beam operates.

Headlamp high beam should operate.

OK or NG

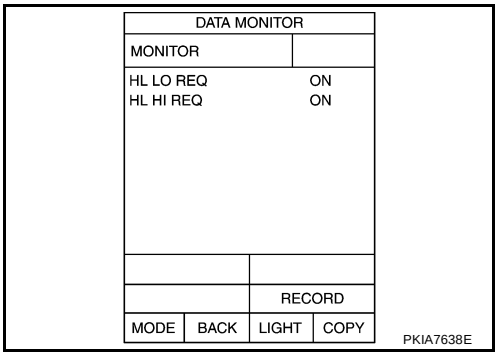
OK >> GO TO 3.

NG >> GO TO 4.

3. CHECK IPDM E/R

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

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



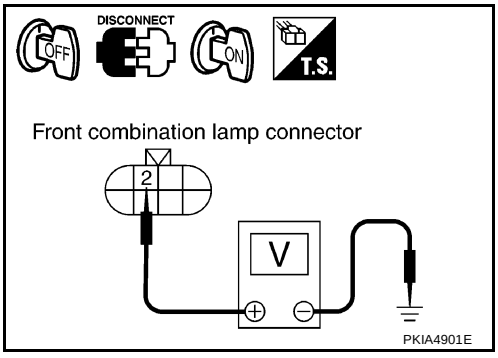
OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-18, "Removal and Installation of BCM" .

4. CHECK HEADLAMP INPUT SIGNAL

With CONSULT-II

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



Terminal				Voltage
(+)			(-)	
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 connector.
3. Start auto active test. Refer to PG-22, "Auto Active Test" .
4. When headlamp high relay is operating, check voltage between front combination lamp harness connector and ground.

Terminal				Voltage
(+)			(-)	
Connector		Terminal		
RH	E24	2	Ground	Battery voltage
LH	E41	2		

OK or NG

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

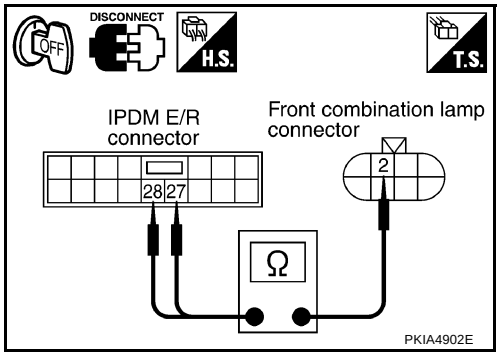
5. CHECK HEADLAMP CIRCUIT

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.
NG >> Repair harness or connector.

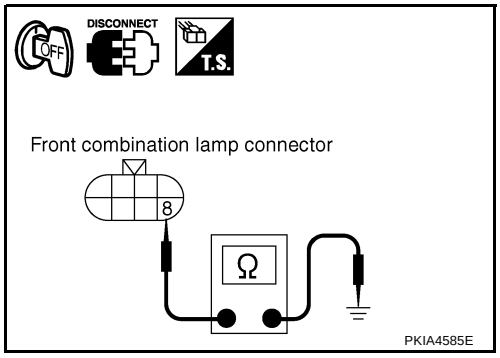
6. CHECK HEADLAMP GROUND

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 headlamp bulb.
NG >> Repair harness or connector.

Headlamp High Beam Does Not Illuminate (One Side)

NKS000T2

1. CHECK BULB

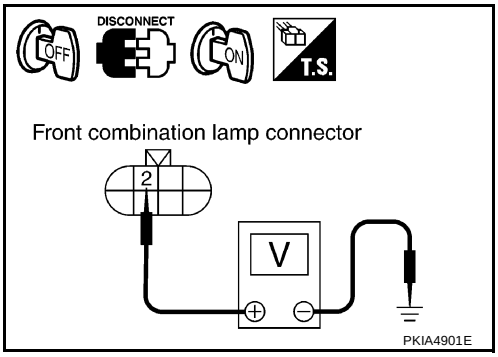
Check bulbs of lamps which does not illuminate.

OK or NG

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

2. CHECK HEADLAMP INPUT SIGNAL

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



Terminal				Voltage
(+)			(-)	
Connector		Terminal		
RH	E24	2	Ground	Battery voltage
LH	E41	2		

OK or NG

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

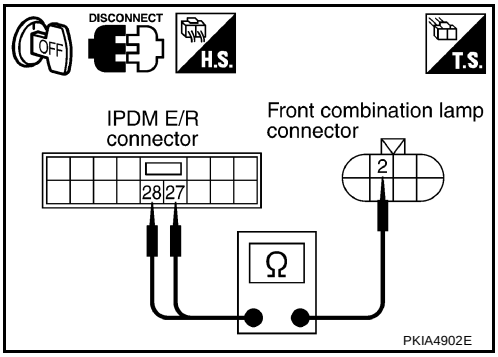
3. CHECK HEADLAMP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector E7 terminal 27 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.
NG >> Repair harness or connector.

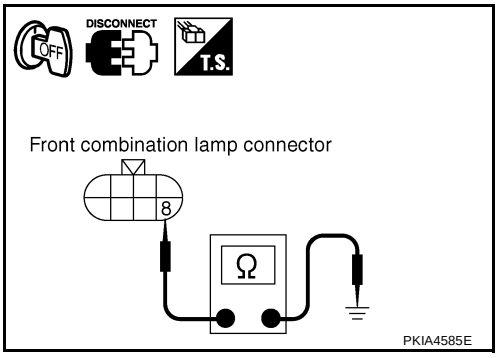
4. CHECK HEADLAMP GROUND

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

Headlamp Low Beam Does Not Illuminate (Both Sides)

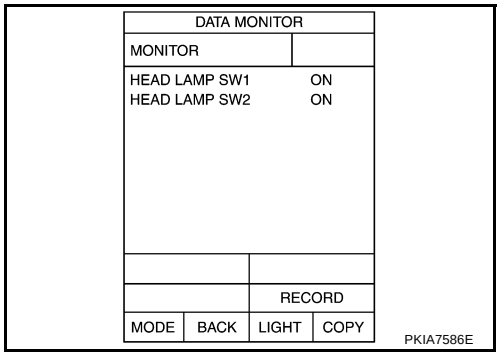
NKS000T4

1. CHECK COMBINATION SWITCH INPUT SIGNAL

With CONSULT-II

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

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



Without CONSULT-II

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

OK or NG

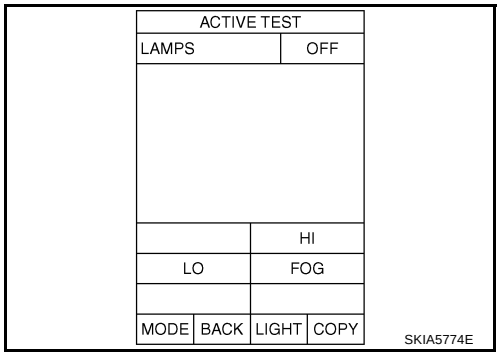
OK >> GO TO 2.
NG >> Check combination switch (lighting switch). Refer to LT-128, "Combination Switch Inspection" .

2. HEADLAMP ACTIVE TEST

With CONSULT-II

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

Headlamp low beam should operate.



With out CONSULT-II

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

Headlamp low beam should operate.

OK or NG

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

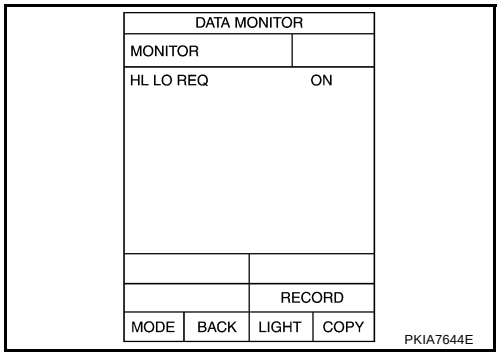
3. CHECK IPDM E/R

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

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

OK or NG

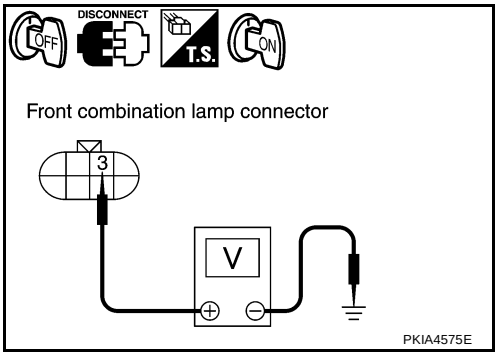
OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-18, "Removal and Installation of BCM" .



4. CHECK HEADLAMP INPUT SIGNAL

With CONSULT-II

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



Terminal				Voltage
(+)			(-)	
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 connector.
3. Start auto active test. Refer to PG-22, "Auto Active Test" .
4. When headlamp low relay is operating, check voltage between front combination lamp harness connector and ground.

Terminal				Voltage
(+)			(-)	
Connector		Terminal		
RH	E24	3	Ground	Battery voltage
LH	E41	3		

OK or NG

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

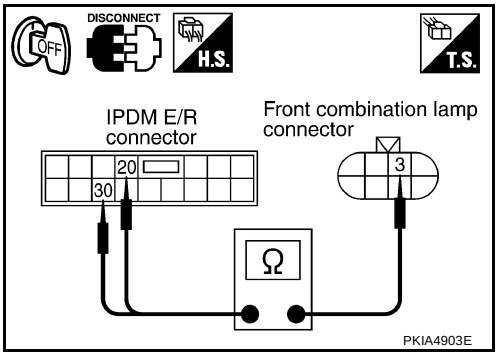
5. CHECK HEADLAMP CIRCUIT

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.
NG >> Repair harness or connector.

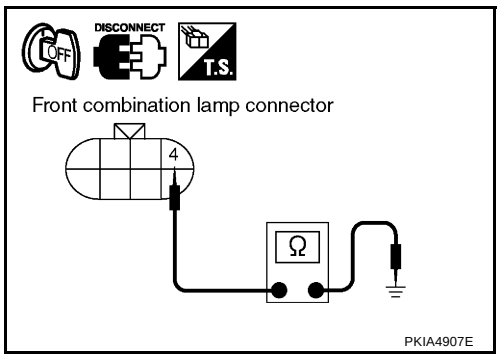
6. CHECK HEADLAMP GROUND

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-29, "Xenon Headlamp Trouble Diagnosis" .

NG >> Repair harness or connector.

Headlamp Low Beam Does Not Illuminate (One Side)

NKS000T5

1. CHECK BULB

Check ballast (HID control unit) and xenon bulb of lamp which does not illuminate. Refer to LT-29, "Xenon Headlamp Trouble Diagnosis" .

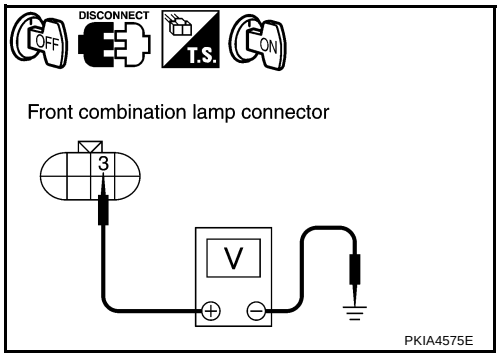
OK or NG

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 connector.
3. Turn ignition switch ON.
4. Lighting switch is turned 2ND position.
5. Check voltage between front combination lamp harness connector and ground.



Terminal				Voltage
(+)			(-)	
Connector		Terminal		
RH	E24	3	Ground	Battery voltage
LH	E41	3		

OK or NG

OK >> GO TO 4.

NG >> GO TO 3.

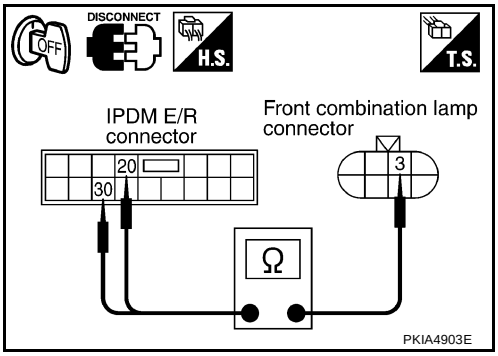
3. CHECK HEADLAMP CIRCUIT

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.
NG >> Repair harness or connector.

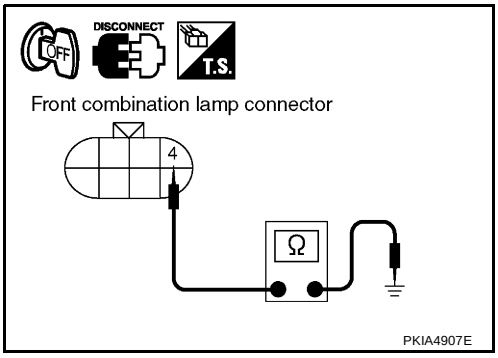
4. CHECK HEADLAMP GROUND

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 connectors.
NG >> Repair harness or connector.

Headlamps Does Not Turn OFF

NKS000T6

1. CHECK HEADLAMP TURN OFF

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

OK or NG

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

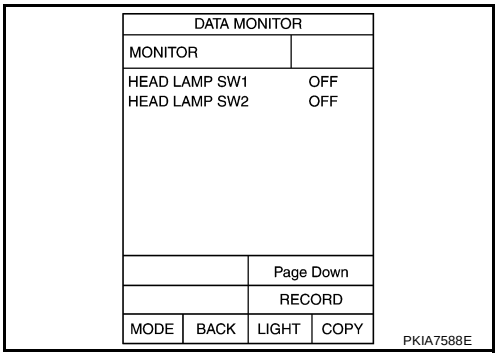
2. CHECK COMBINATION SWITCH INPUT SIGNAL

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

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

OK or NG

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



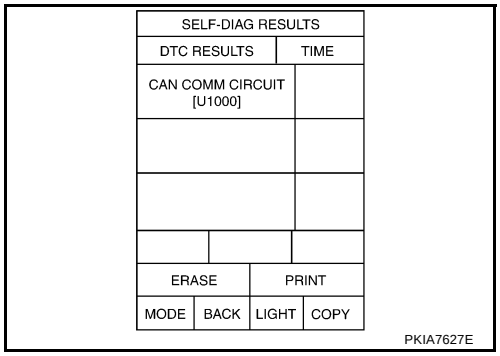
3. CHECKING CAN COMMUNICATIONS BETWEEN BCM AND IPDM E/R

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

Display of self-diagnosis results

NO DTC>> Replace IPDM E/R.

CAN COMM CIRCUIT>> Refer to BCS-17, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .



General Information for Xenon Headlamp Trouble Diagnosis

NKS000T7

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:

NKS000T8

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

Xenon Headlamp Trouble Diagnosis

NKS000T9

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

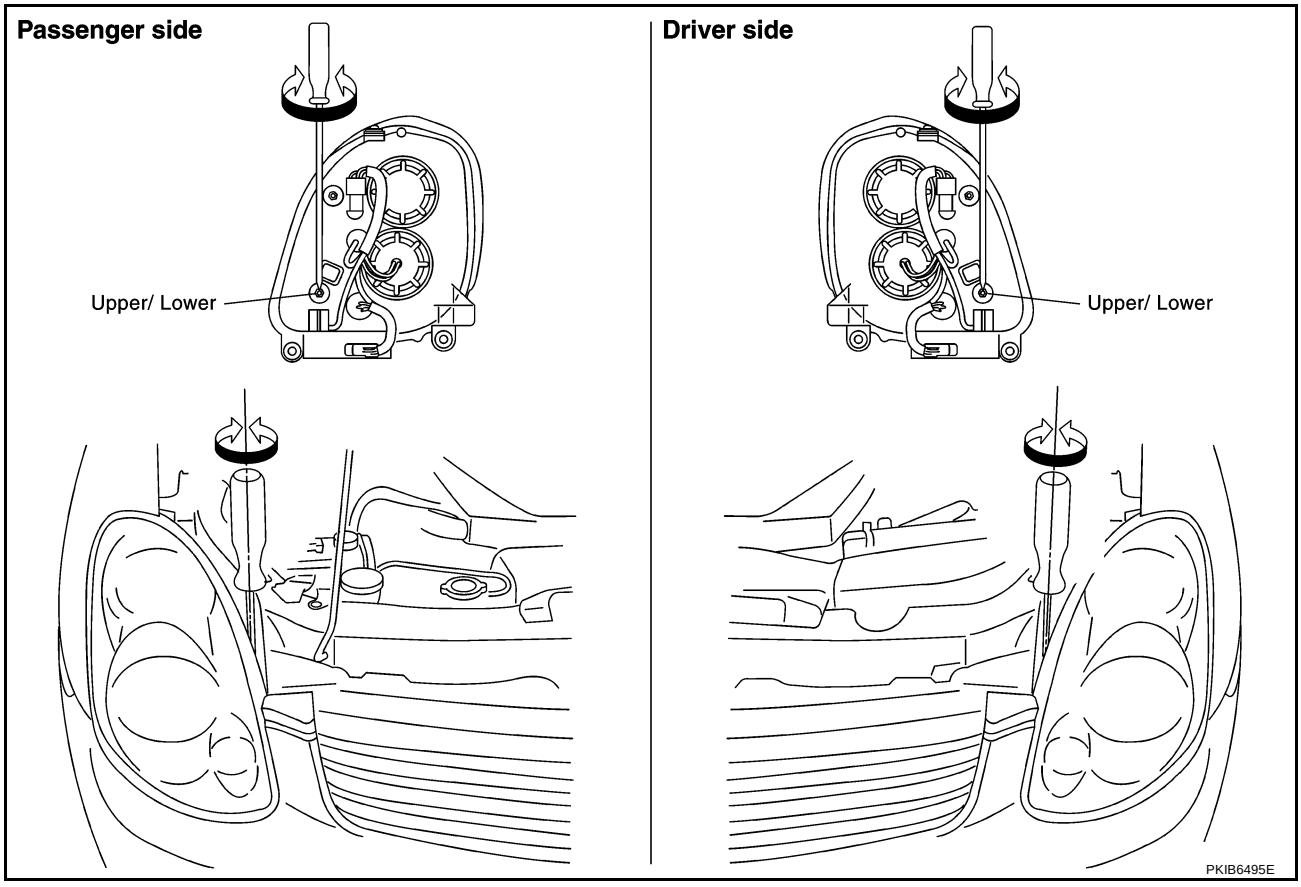
Install normal xenon lamp housing assembly to corresponding xenon headlamp, and check if lamp lights up.

OK or NG

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

Aiming Adjustment

NKS000TA



PREPARATION BEFORE ADJUSTING

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

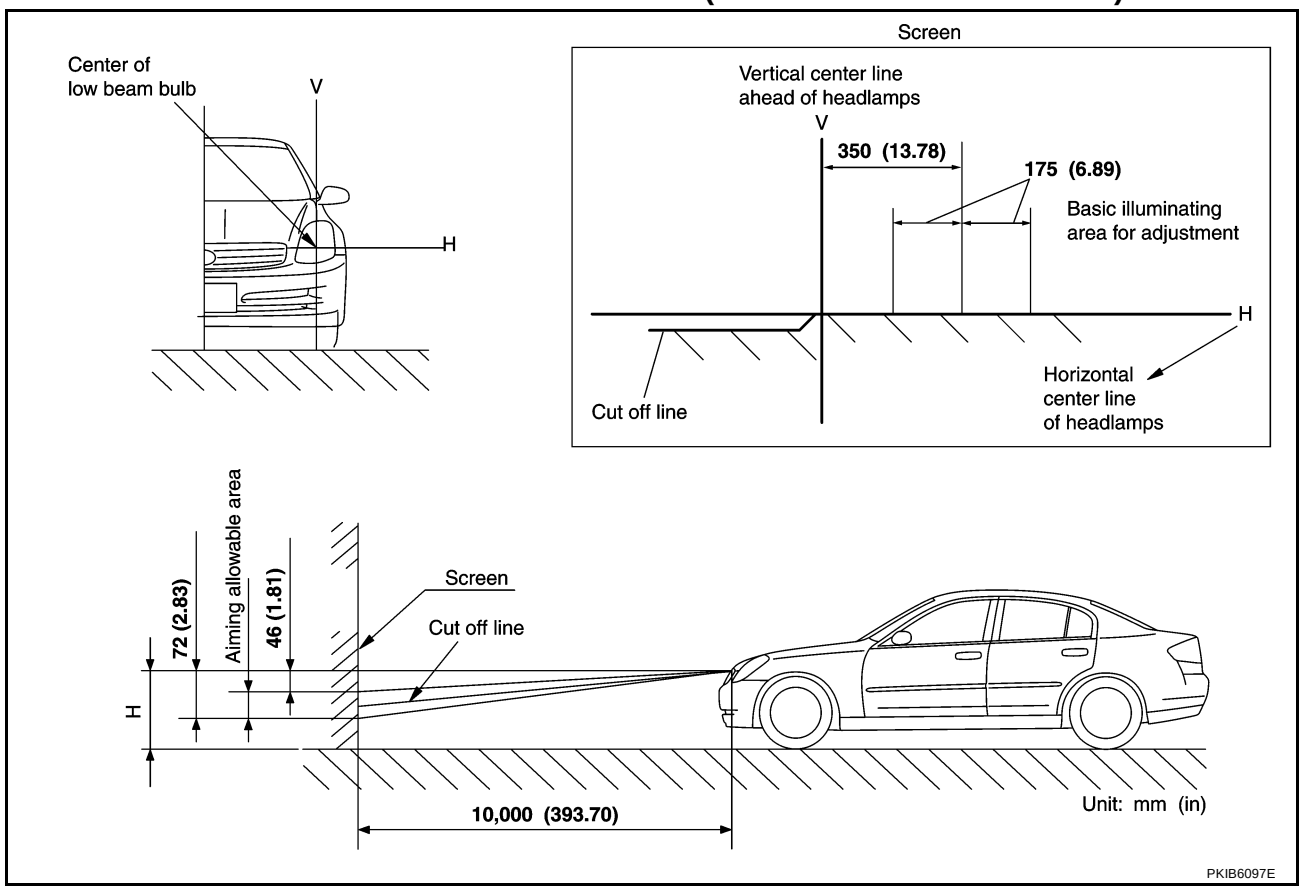
Before performing aiming adjustment, check the following.

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

LOW BEAM AND HIGH BEAM

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

ADJUSTMENT USING AN ADJUSTMENT SCREEN (LIGHT/DARK BORDERLINE)



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

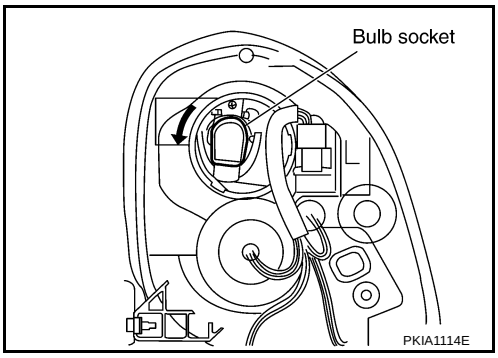
- Basic illumination area for adjustment should be within the range shown on the aiming chart. Adjust headlamp accordingly.

Bulb Replacement

NKS000TB

HEADLAMP (UPPER) LOW BEAM

1. Turn lighting switch OFF.
2. Disconnect the battery cable from the negative terminal or remove power fuse.
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.



HEADLAMP (LOWER) HIGH BEAM/FOG LAMP

1. Turn lighting switch OFF.
2. Disconnect the battery cable from the negative terminal or remove power fuse.
3. Remove fender protector (front). Refer to EI-22, "FENDER PROTECTOR" .
4. Turn plastic cap counterclockwise and unlock it.
5. Disconnect bulb socket.
6. Unlock retaining spring and remove bulb from headlamp.
7. Installation is the reverse order of removal.

FRONT TURN SIGNAL/PARKING LAMP

1. Turn lighting switch OFF.
2. Remove fender protector (front). Refer to EI-22, "FENDER PROTECTOR" .
3. Turn bulb socket counterclockwise and unlock it.
4. Remove bulb from its socket.
5. Installation is the reverse order of removal.

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

CAUTION:

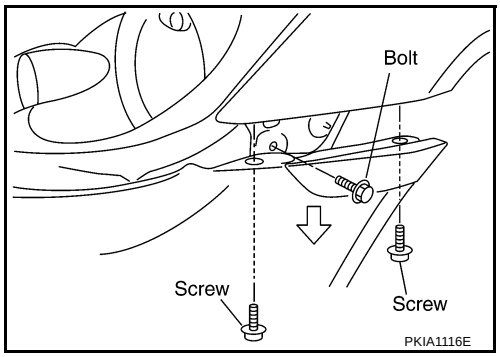
After installing bulb, be sure to install plastic cap and bulb socket securely to insure watertightness.

Removal and Installation

NKS000TC

REMOVAL

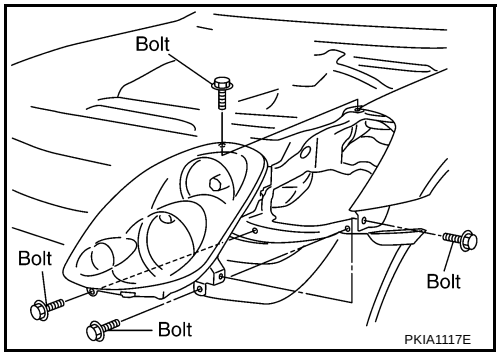
1. Disconnect the battery cable from the negative terminal or remove power fuse.
2. Remove front grille. Refer to EI-20, "FRONT GRILLE" .
3. Remove front undercover and fender protector. Refer to EI-22, "FENDER PROTECTOR" .
4. Remove mounting clip on top of front bumper and screws on side of front bumper. 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.



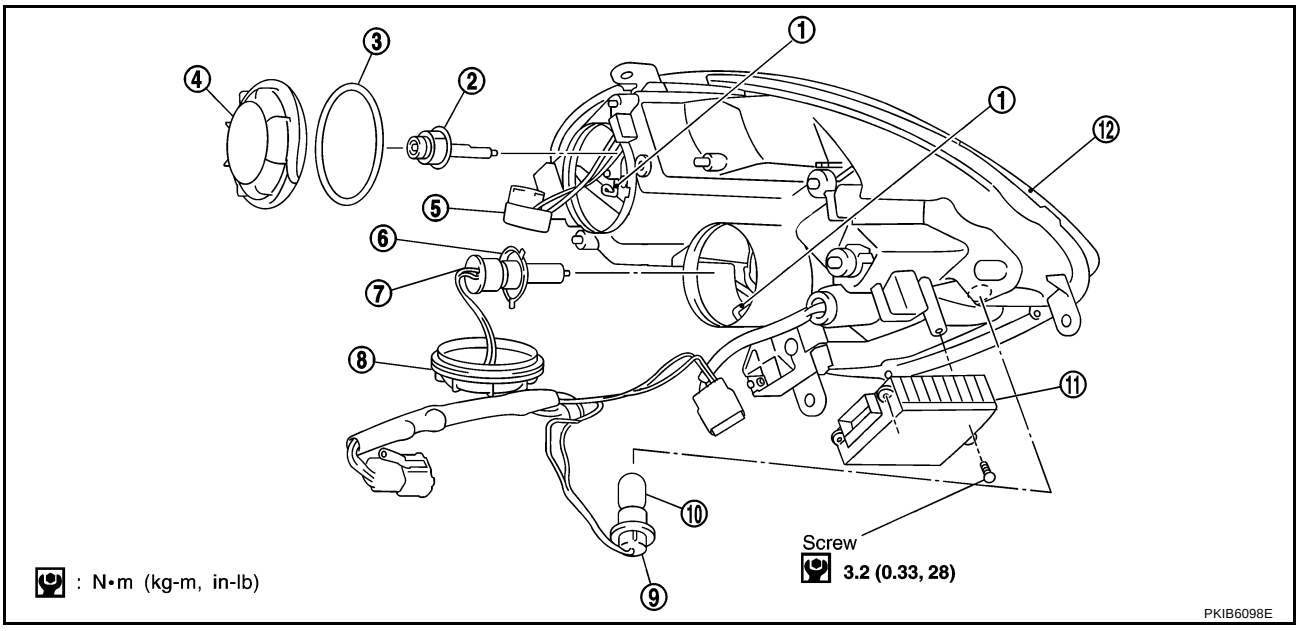
INSTALLATION

Installation is the reverse order of removal.

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

Disassembly

NKS000TD



1. Retaining spring	2. Xenon bulb (low)	3. Seal rubber
4. Plastic cap (low)	5. Xenon bulb socket (low)	6. Halogen bulb (high/fog)
7. Halogen bulb (high/fog) socket	8. Plastic cap (high/fog)	9. Front turn signal/Parking lamp bulb socket
10. Front turn signal/Parking lamp bulb	11. HID control unit	12. Headlamp housing assembly

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

Assembly

NKS000TE

Assembly is the reverse order of disassembly.

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

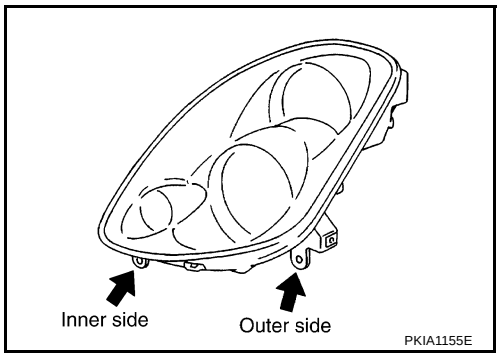
CAUTION:

- **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

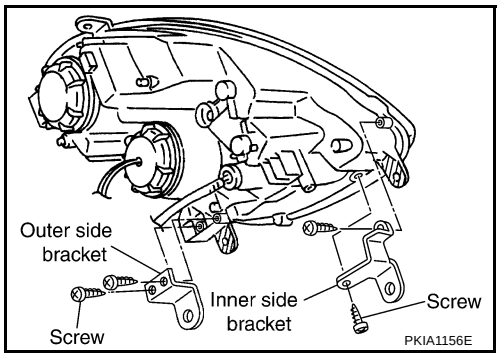
NKS000TF

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, then shape with sandpaper.
3. Attach each correction bracket to headlamp housing boss with 2 screws.

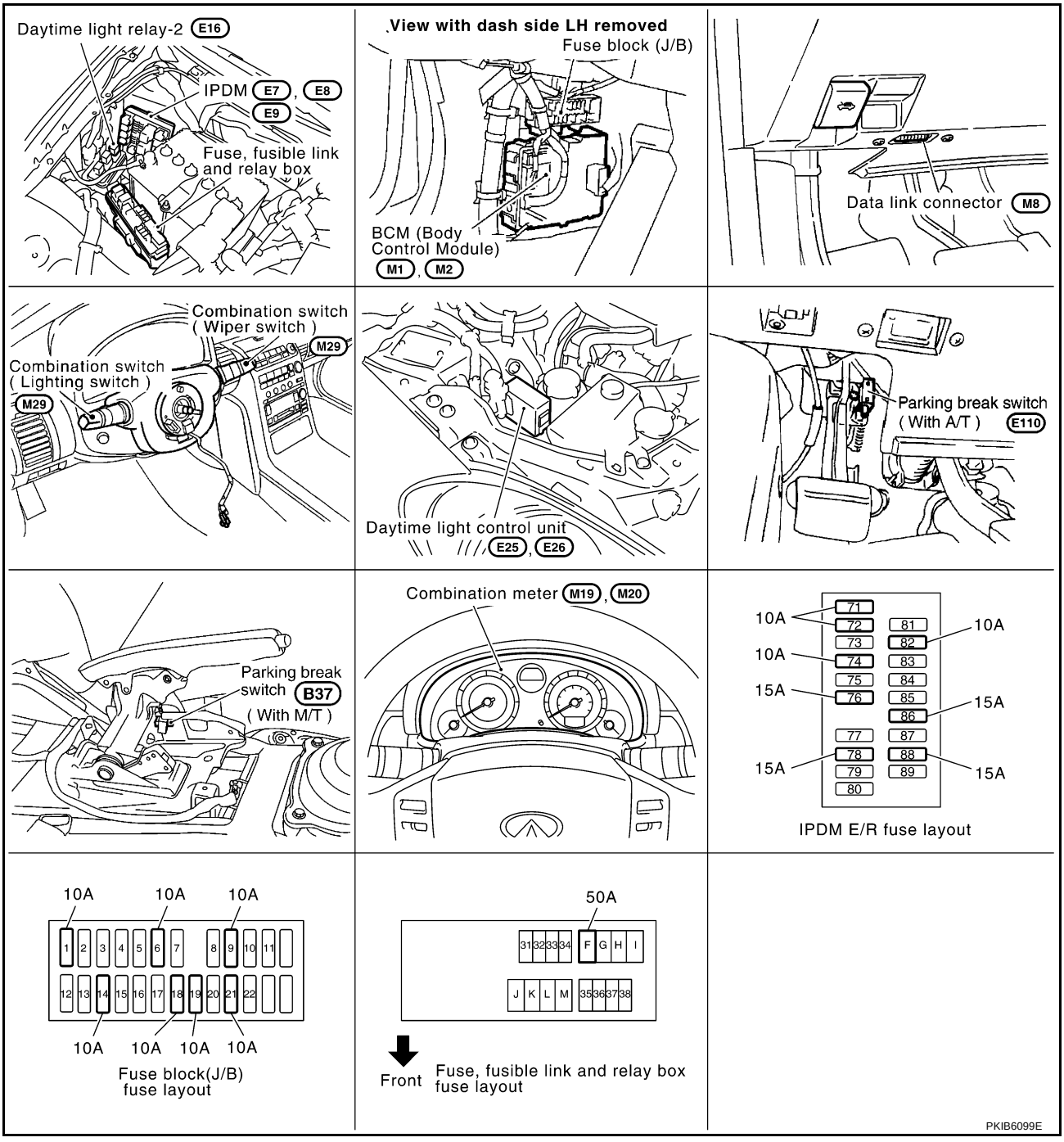


HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

PFP:26010

Component Parts and Harness Connector Location

NKS000TG



System Description

NKS000TH

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

OUTLINE

Power is supplied at all times

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

- through 15A fuse (No. 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 15A fuse (No. 88, located in IPDM E/R)
- to front fog lamp relay, located in IPDM E/R,
- through 10A fuse [No. 19, located in fuse block (J/B)]
- to combination meter terminal 21,
- through 10A fuse [No. 21, located in fuse block (J/B)]
- to daytime light control unit terminals 2 and 3,
- 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. 82, located in IPDM E/R)
- to daytime light control unit terminal 12,
- 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.

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

- through 10A fuse [No. 9, located in fuse block (J/B)]
- to daytime light control unit terminal 1.

Ground is supplied

- to daytime light control unit terminal 9
- through grounds E17 and E43,
- 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 the headlamps to illuminate. This input signal is communicated to IPDM E/R through CAN communication lines. The CPU located in the IPDM E/R controls the headlamp low relay coil, which when energized, directs power

- through 15A fuse (No. 76, located in IPDM E/R)
- through IPDM E/R terminal 20
- to front combination lamp RH terminal 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 terminal 4
- through grounds E17 and E43,
- to front combination lamp LH terminal 4
- through grounds E17 and E43.

With power and ground supplied, low beam headlamps illuminate.

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

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

- through 10A fuse (No. 74, located in IPDM E/R)
- through IPDM E/R terminal 28
- to daytime light control unit terminal 5
- through daytime light control unit terminal 6
- to front combination lamp LH terminal 2,
- through 10A fuse (No. 72, located in IPDM E/R)
- through IPDM E/R terminal 27
- to daytime light relay-2 terminal 2 and 5, and
- to daytime light control unit terminal 1,
- through daytime light relay-2 terminal 3
- to front combination lamp RH terminal 2,
- through 15A fuse (No. 76, located in IPDM E/R)
- through IPDM E/R terminal 20
- to front combination lamp RH terminal 3, and
- to daytime light control unit terminal 1,
- through 15A fuse (No. 86, located in IPDM E/R)
- through IPDM E/R terminal 30
- to front combination lamp LH terminal 3, and
- to daytime light control unit terminal 4.

Ground is supplied

- to daytime light relay-2 terminal 1
- through grounds E17 and E43,
- to front combination lamp RH terminal 8
- through grounds E17 and E43,
- to front combination lamp RH terminal 4
- through grounds E17 and E43,
- to front combination lamp LH terminal 4
- through grounds E17 and E43,
- to front combination lamp LH terminal 8
- through daytime light control unit terminal 7
- through daytime light control unit terminal 9
- through grounds E17 and E43.

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

DAYTIME LIGHT OPERATION

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

- through daytime light control unit terminal 6
- to front combination lamp LH terminal 2
- through front combination lamp LH terminal 8
- to daytime light control unit terminal 7
- through daytime light control unit terminal 8
- to front combination lamp RH terminal 2.

Ground is supplied

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

Because high beam headlamps are now wired in series, they operate at half illumination.
If lighting switch is in 2ND or PASSING position, daytime light operation is canceled. On this occasion, power is supplied

- through IPDM E/R terminal 20 (with lighting switch in 2ND position)
- through IPDM E/R terminal 27 (with lighting switch in PASSING position)
- to daytime light control unit terminal 1.

Daytime light control unit is canceled power supplying from front combination lamp RH terminal 8 to terminal 2 (series power supplying is canceled). And then high beam is ON.

OPERATION

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

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

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

COMBINATION SWITCH READING FUNCTION

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

EXTERIOR LAMP BATTERY SAVER CONTROL

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

AUTO LIGHT OPERATION (IF EQUIPPED)

For auto light operation, refer to LT-73, "System Description" in “AUTO LIGHT SYSTEM”.

VEHICLE SECURITY SYSTEM

The vehicle security system will flash the high beams if the system is triggered. Refer to BL-244, "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

NKS000TI

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

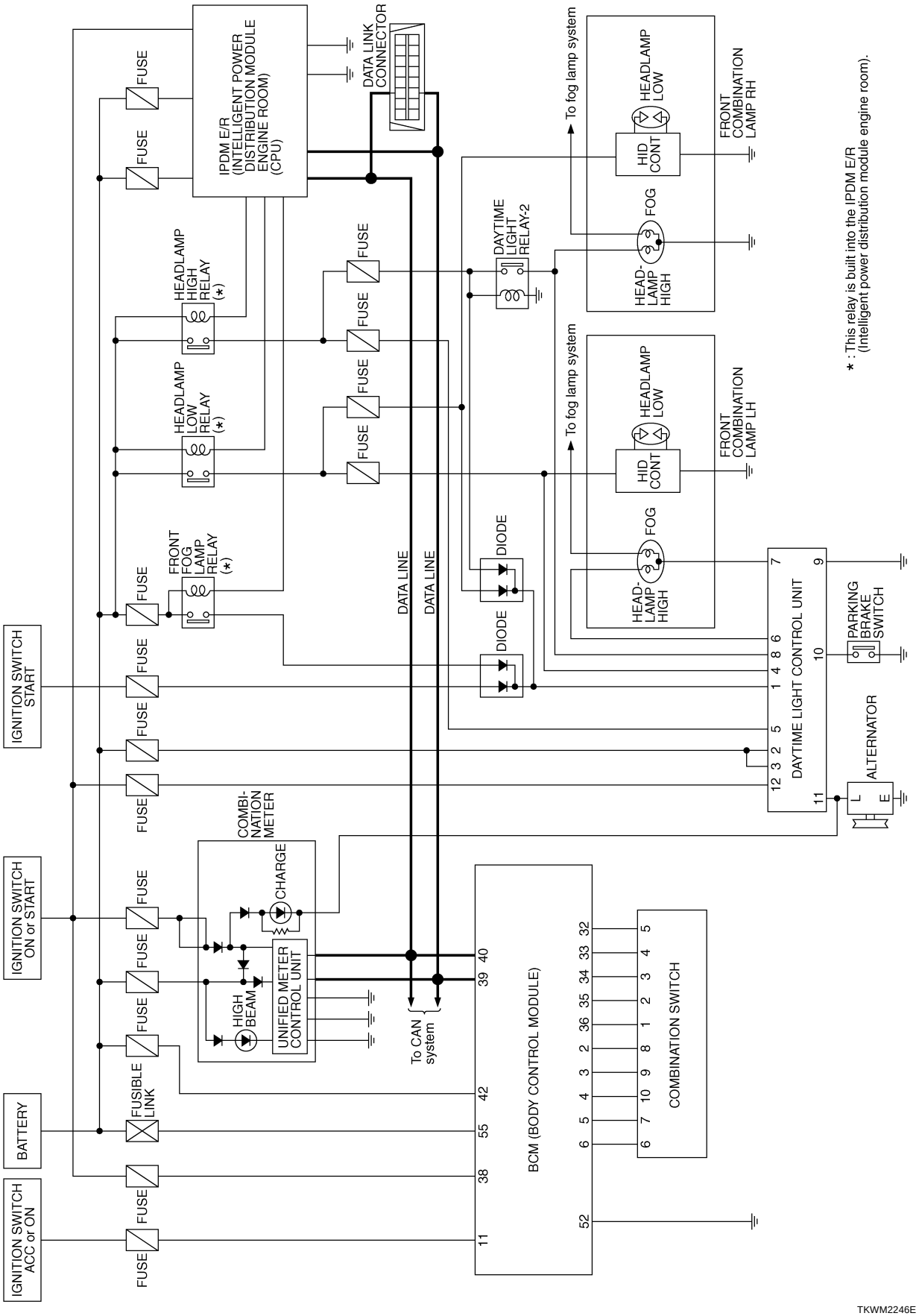
CAN Communication Unit

NKS000TJ

Refer to LAN-27, "CAN Communication Unit" .

Schematic

NKS000TK

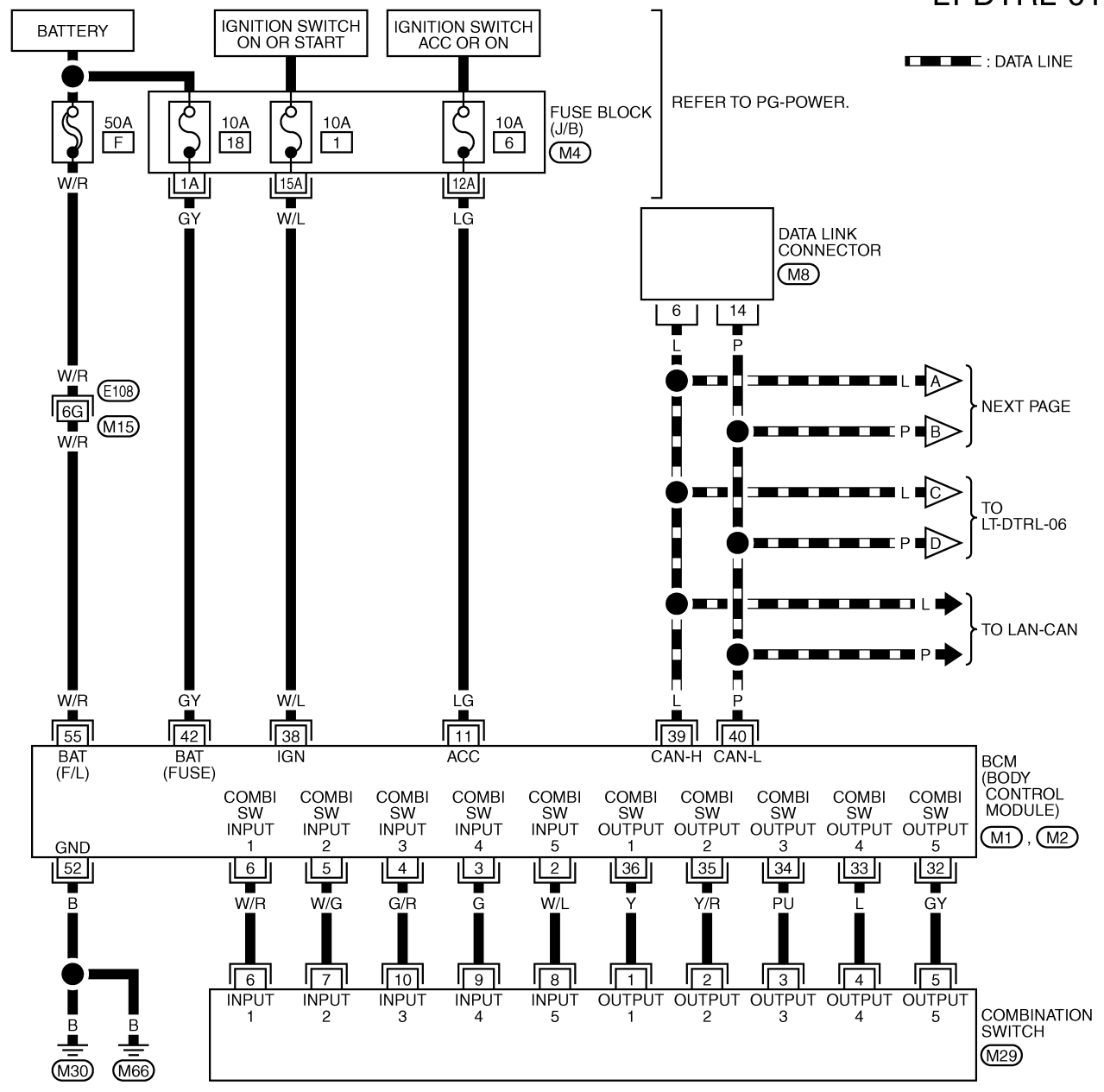


TKWM2246E

Wiring Diagram — DTRL —

NKS000TL

LT-DTRL-01



REFER TO THE FOLLOWING.

E108 -SUPER MULTIPLE JUNCTION (SMJ)

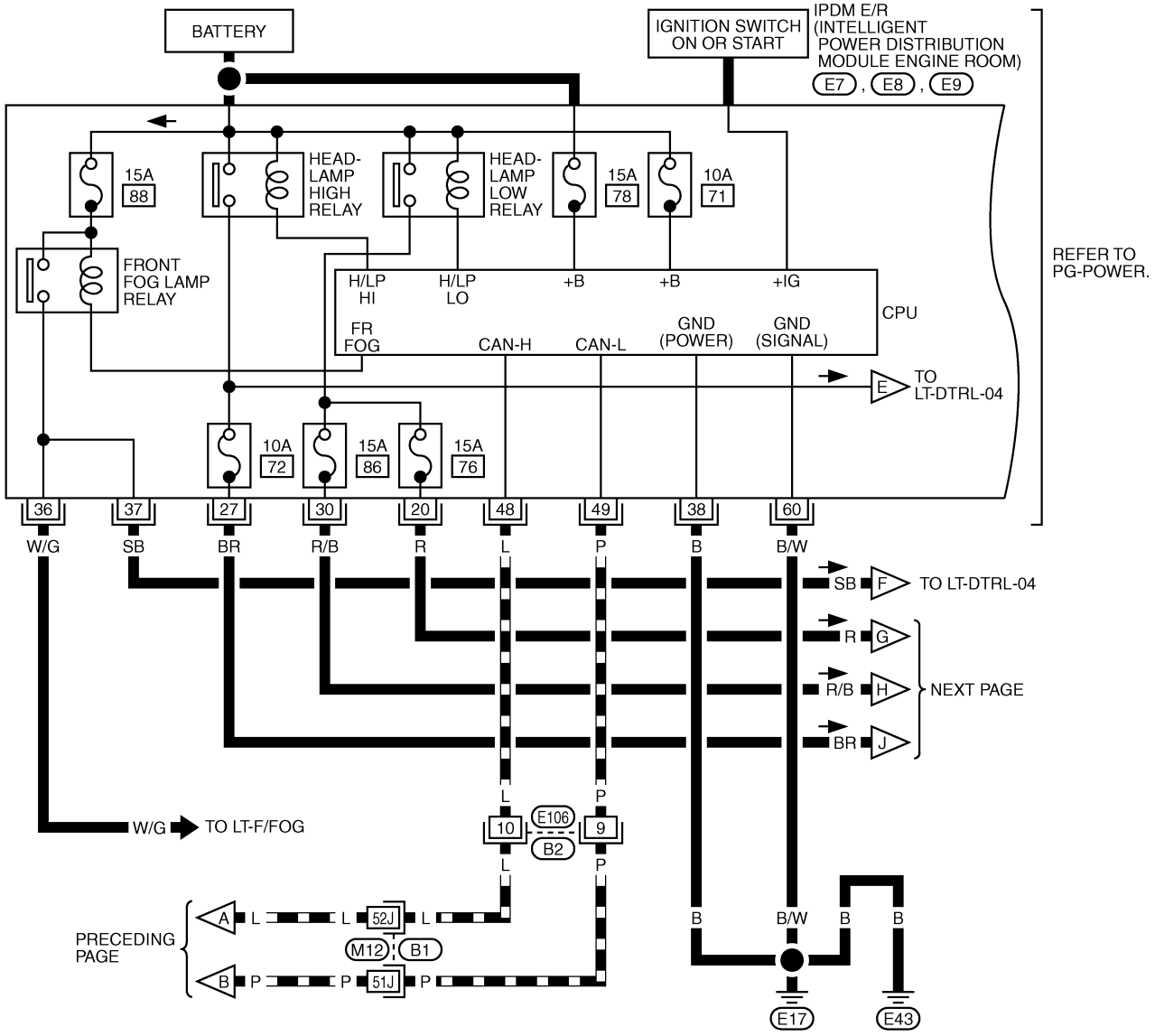
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

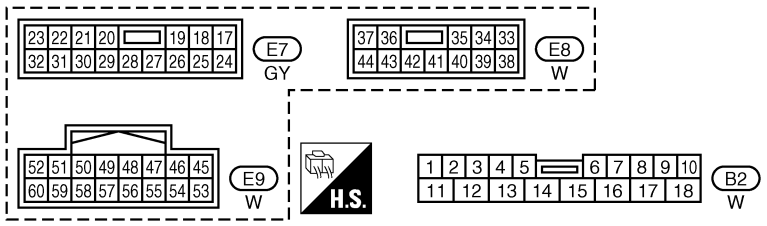
M1, M2 -ELECTRICAL UNITS

TKWM3383E

LT-DTRL-02

: DATA LINE

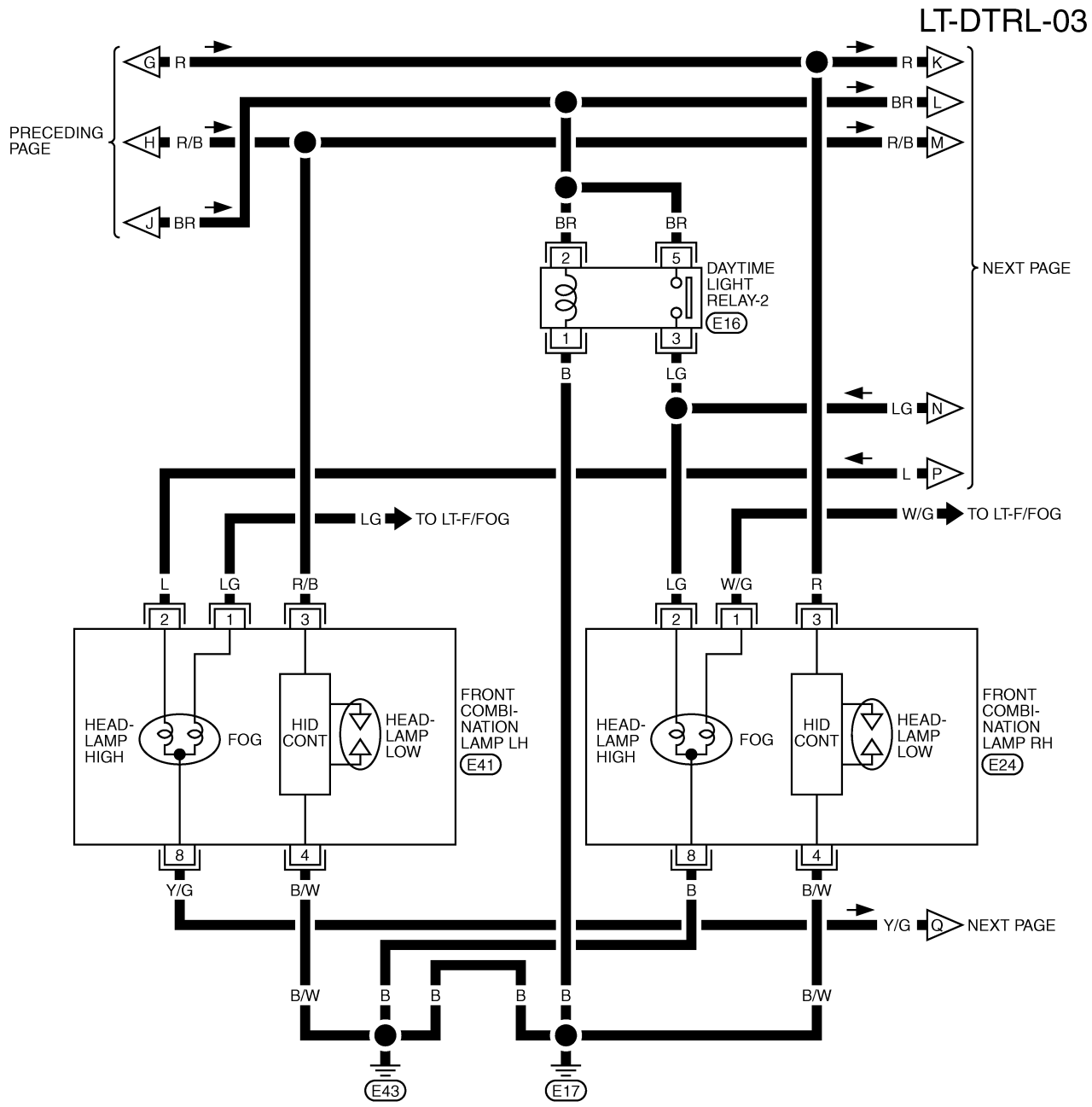


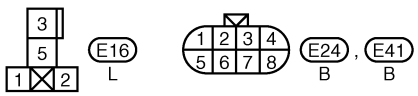


REFER TO THE FOLLOWING.

B1 -SUPER MULTIPLE JUNCTION (SMJ)

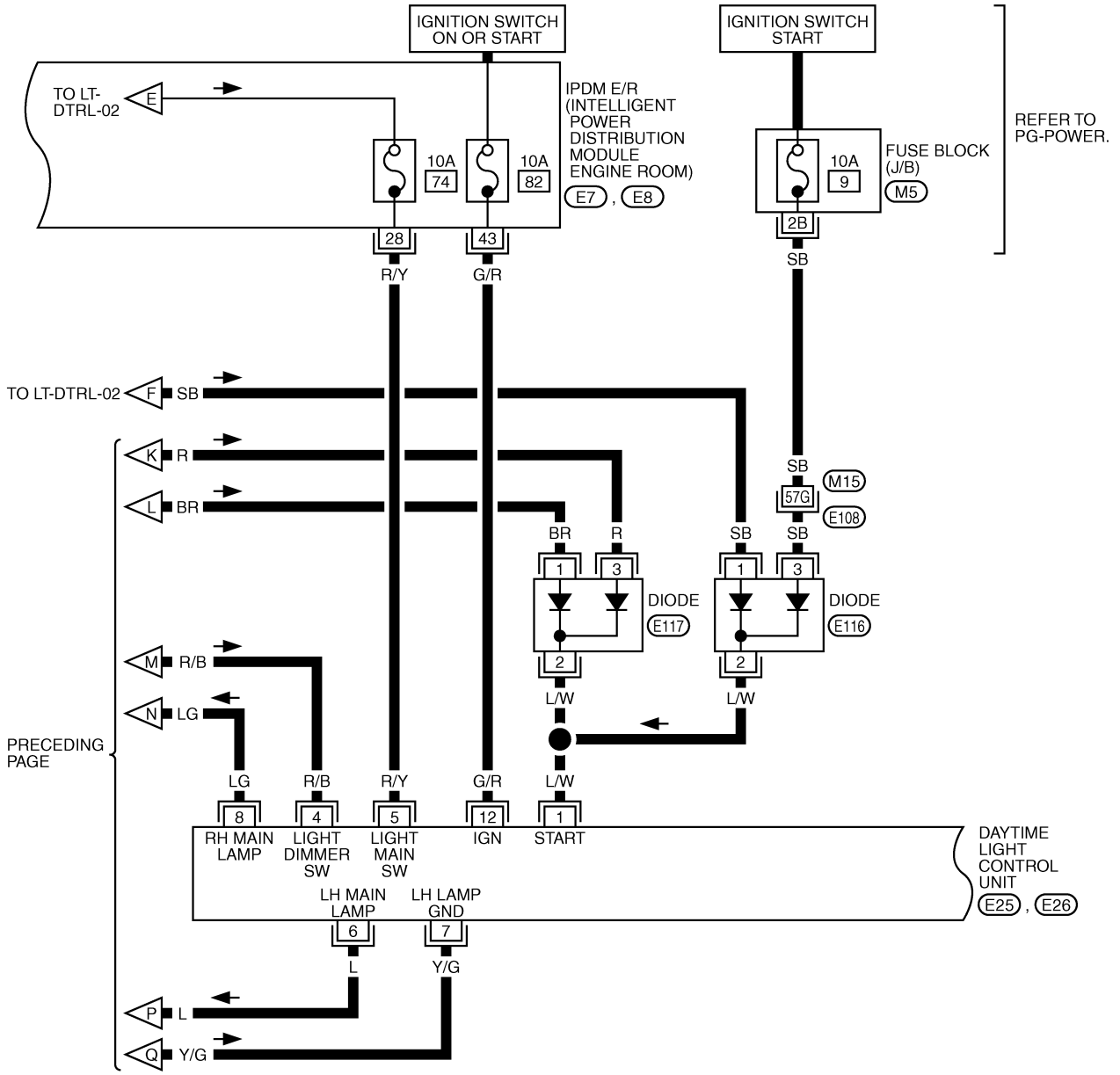
TKWM2248E

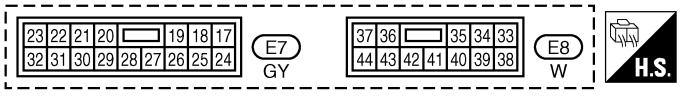

LT-DTRL-03
PRECEDING PAGE
G R
H R/B
J BR
R K
BR L
R/B M
NEXT PAGE
BR
BR
DAYTIME LIGHT RELAY-2
E16
B
LG
LG N
L P
LG TO LT-F/FOG
W/G TO LT-F/FOG
L
LG
R/B
LG
W/G
R
HEAD-LAMP HIGH
FOG
HID CONT
HEAD-LAMP LOW
FRONT COMBI-NATION LAMP LH
E41
FRONT COMBI-NATION LAMP RH
E24
Y/G
B/W
B
B/W
Y/G Q NEXT PAGE
B/W
B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

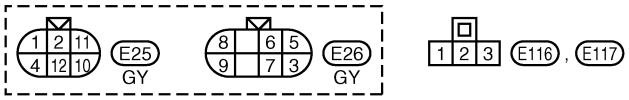

E16
L
E24
B
E41
B

TKWM2249E

LT-DTRL-04



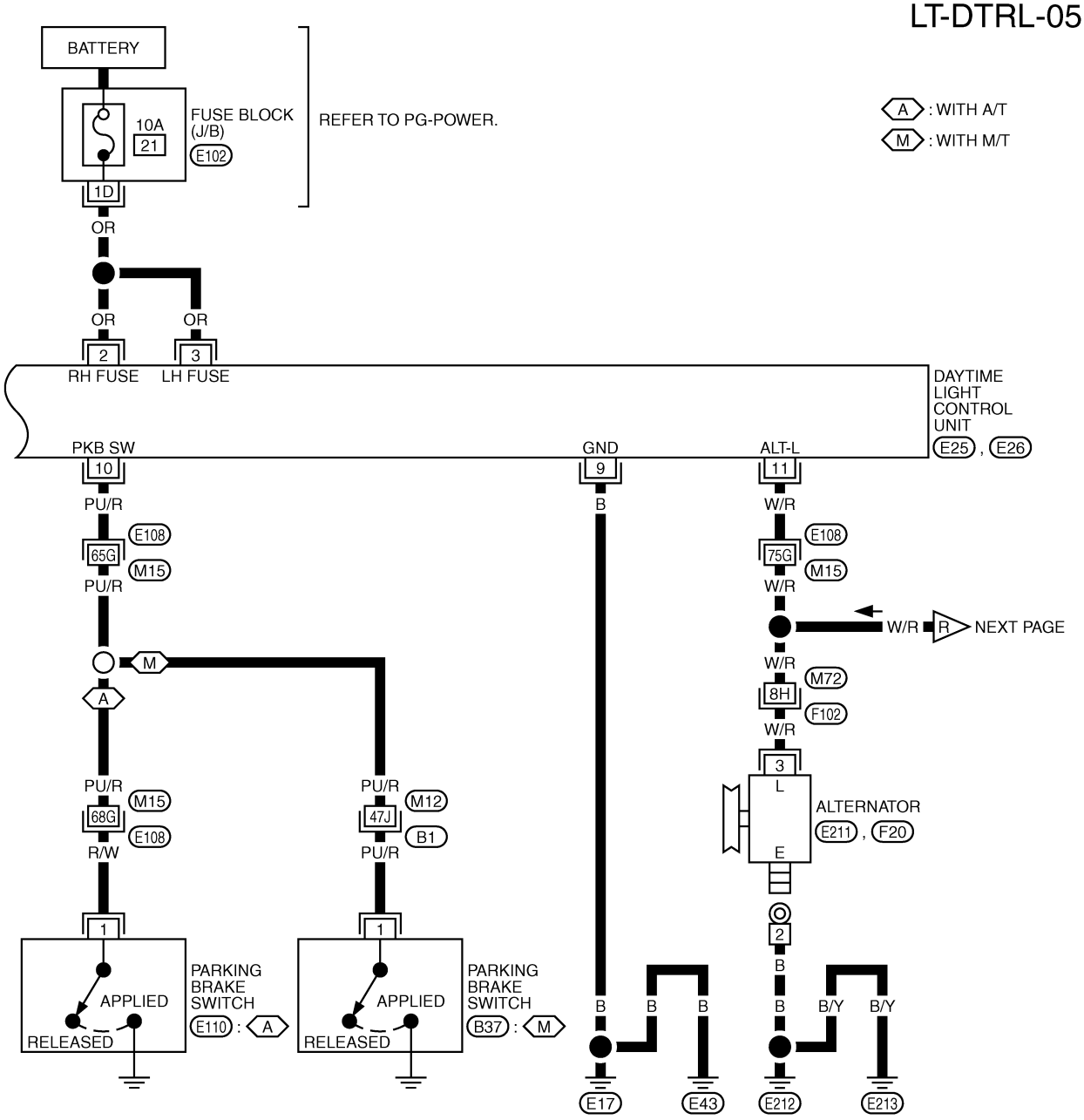




REFER TO THE FOLLOWING.
E108 -SUPER MULTIPLE JUNCTION (SMJ)
M5 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWM2250E

LT-DTRL-05

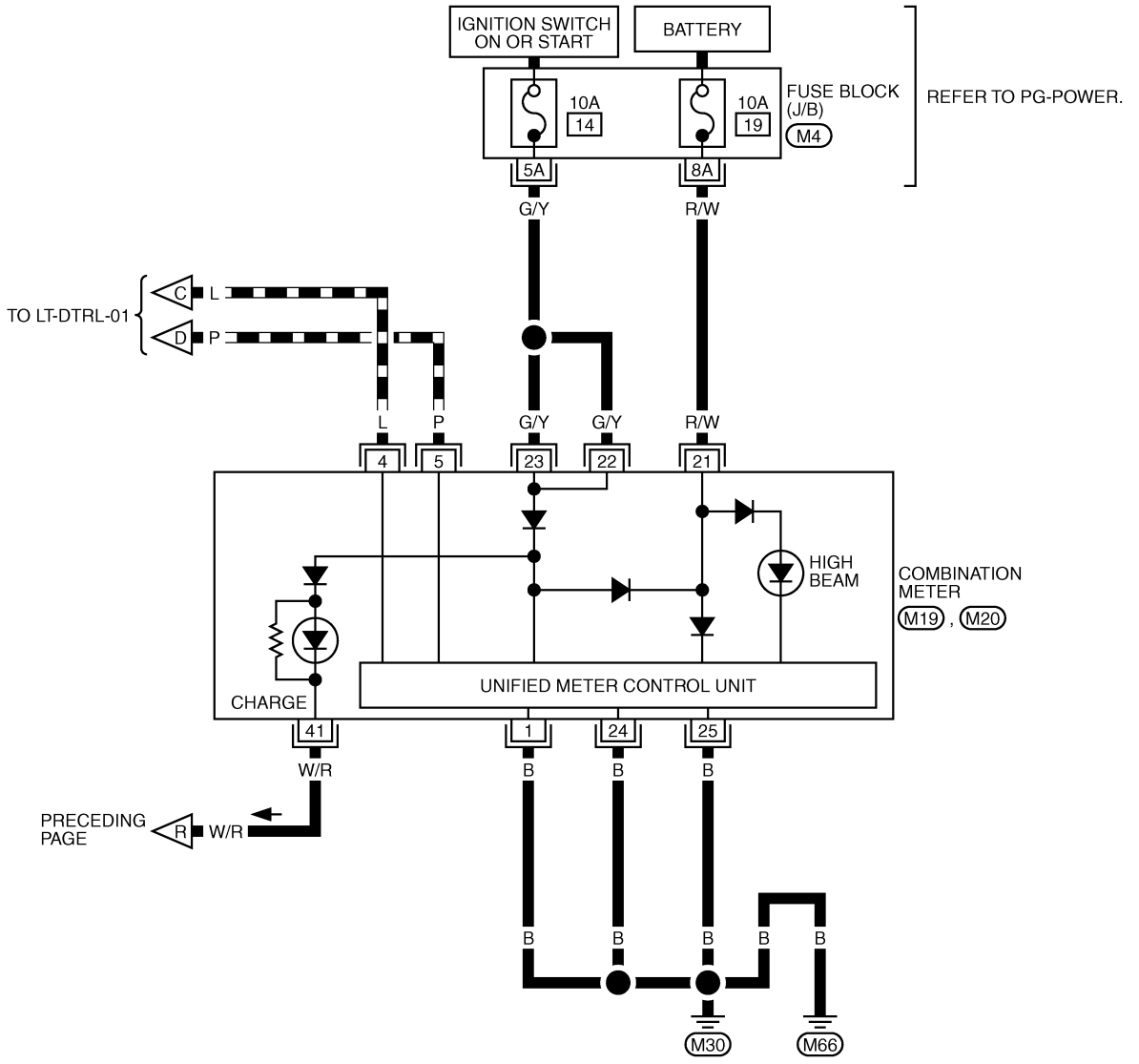


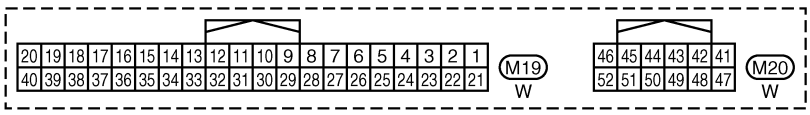
REFER TO THE FOLLOWING.
E108 , F102 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
E102 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWM2251E

LT-DTRL-06

: DATA LINE





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

TKWM2252E

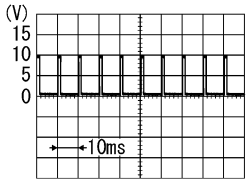
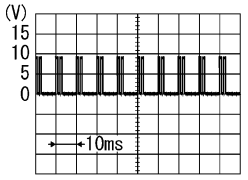
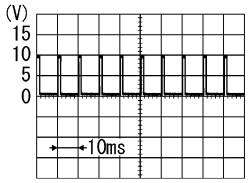
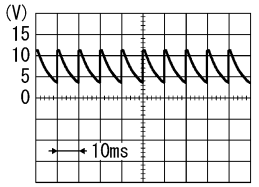
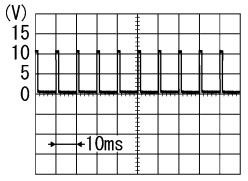
Terminals and Reference Values for Daytime Light Control Unit

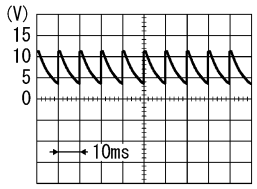
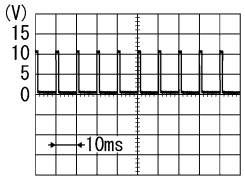
NKS000TM

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

Terminals and Reference Values for BCM

NKS002MH

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
2	W/L	Combination switch input 5	ON	Lighting, turn, wiper 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
34	PU	Combination switch output 3	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 HI beam (Operates only HI beam switch)	 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

NKS000TO

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

How to Proceed With Trouble Diagnosis

NKS000TP

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-50, "Preliminary Check" .
4. Check symptom and repair or replace the malfunctioning parts.
5. Does the headlamp operate normally? If YES, GO TO 6. If NO, GO TO 4.
6. INSPECTION END

Preliminary Check

NKS000TQ

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

Check for blown fuses.

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

Refer to LT-41, "Wiring Diagram — DTRL —" .

OK or NG

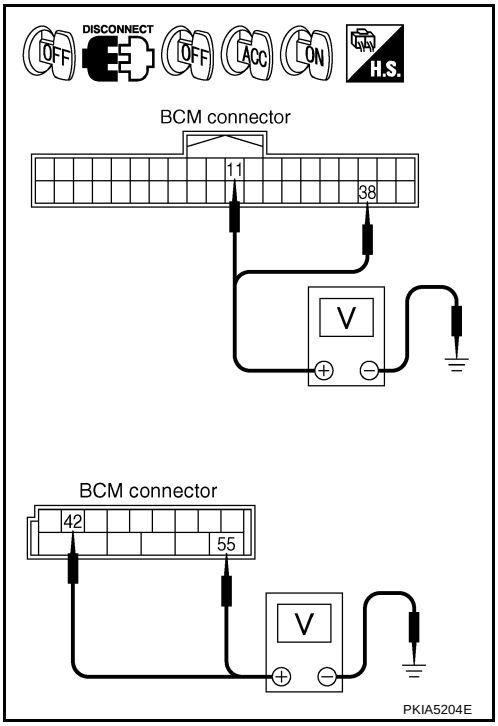
OK >> GO TO 2.

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.

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



OK or NG

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

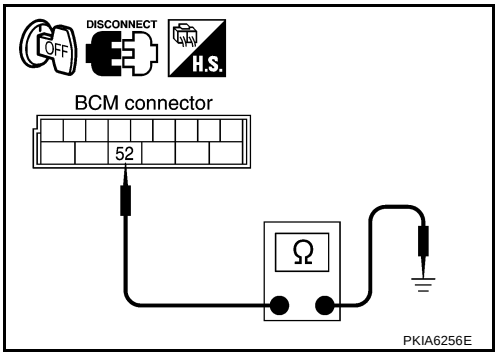
3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminal			Continuity
Connector	Terminal	Ground	Yes
M2	52		

OK or NG

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



CONSULT-II Functions (BCM)

NKS000TR

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

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

CONSULT-II BASIC OPERATION

Refer to GI-38, "CONSULT-II Start Procedure" .

WORK SUPPORT

Operation Procedure

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

Display Item List

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

DATA MONITOR

Operation Procedure

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

Monitor item		Contents
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 1 ST	“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	“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.
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	“ON/OFF”	Displays status (door is open: ON/door is closed: OFF) of rear door switch (RH) judged from the rear door switch (RH) signal.
DOOR SW - RL	“ON/OFF”	Displays status (door is open: ON/door is closed: OFF) of rear door switch (LH) judged from the rear door switch (LH) signal.
BACK DOOR SW NOTE 1	“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.
CARGO LAMP SW NOTE 1	“OFF”	—
OPTICAL SENSOR NOTE 2	“0 - 5V”	Displays status “outside brightness (close to 5V when light/close to 0V when dark)” of optical sensor judged from the optical sensor signal.

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

ACTIVE TEST

Operation Procedure

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

Display Item List

Test item	Description
TAIL LAMP	Allows tail lamp relay to operate by switching ON–OFF.
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.
CORNERING LAMP NOTE	—

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

CONSULT-II Functions (IPDM E/R)

NKS000TS

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

Check Item, Diagnosis Mode	Description
SELF-DIAGNOSTIC RESULTS	Refer to PG-19, "SELF-DIAG RESULTS" .
DATA MONITOR	The input/output data of IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE TEST	IPDM E/R sends a drive signal to electronic components to check their operation.

CONSULT-II BASIC OPERATION

Refer to GI-38, "CONSULT-II Start Procedure" .

DATA MONITOR

Operation Procedure

1. Touch “DATA MONITOR” on “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

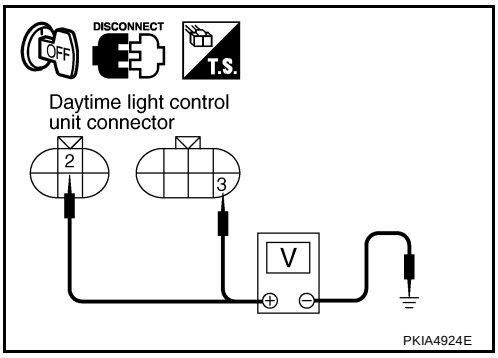
Daytime Light Control Does Not Operate Properly

NKS000TT

1. CHECK DAYTIME LIGHT CONTROL UNIT

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

Terminal			
(+)		(-)	Voltage
Connector	Terminal		
E25	2	Ground	Battery voltage
E26	3		



OK or NG

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

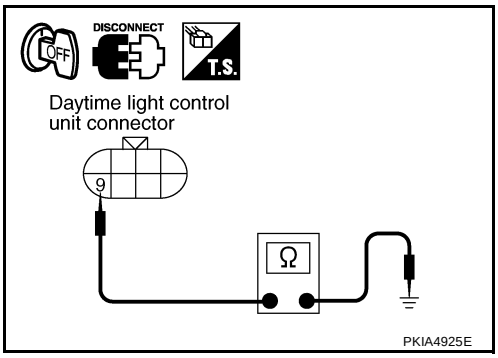
2. CHECK GROUND FOR DAYTIME LIGHT CONTROL UNIT

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

9 – Ground : Continuity should exist.

OK or NG

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



3. CHECK PARKING BRAKE SWITCH CIRCUIT

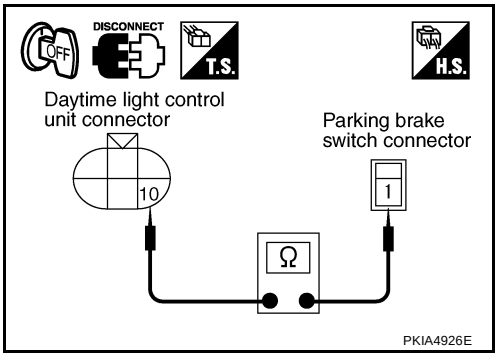
1. Disconnect parking brake switch connector.
2. Check continuity between daytime light control unit harness connector E25 terminal 10 and parking brake switch harness connector B37*1 or E110*2 terminal 1.

10 – 1 : Continuity should exist.

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

OK or NG

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

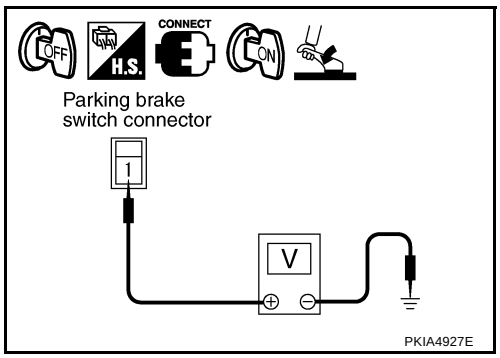


4. CHECK PARKING BRAKE SWITCH

1. Connect daytime light control unit connector and parking brake switch connector.
2. Turn ignition switch ON.
3. When parking brake is released, check voltage between parking brake switch harness connector B37*1 or E110*2 terminal 1 and ground.

1 – Ground : Battery voltage.

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



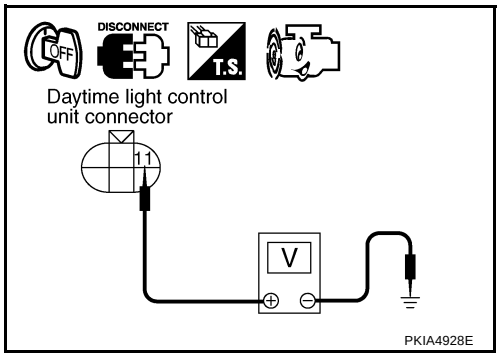
OK or NG

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

5. CHECK ALTERNATOR CIRCUIT

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

11 – Ground : Battery voltage.



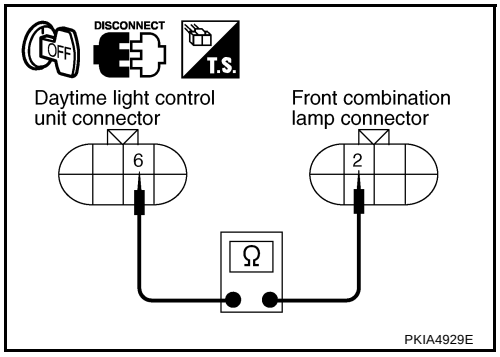
OK or NG

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

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

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

6 – 2 : Continuity should exist.



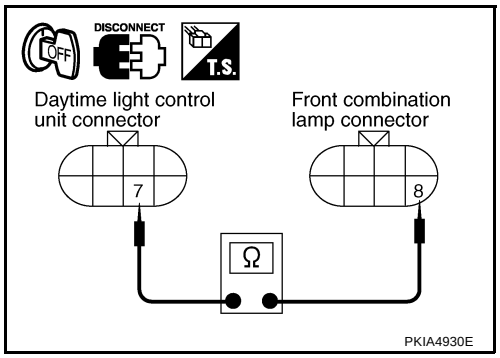
OK or NG

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

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

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

7 – 8 : Continuity should exist.



OK or NG

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

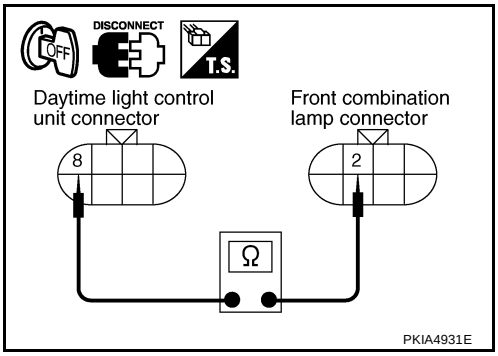
8. CHECK POWER CIRCUIT BETWEEN DAYTIME LIGHT CONTROL UNIT AND HEADLAMP RH

1. Disconnect front combination lamp RH connector.
2. Check continuity between daytime light control unit harness connector E26 terminal 8 and front combination lamp RH harness connector E24 terminal 2.

8 – 2 : Continuity should exist.

OK or NG

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



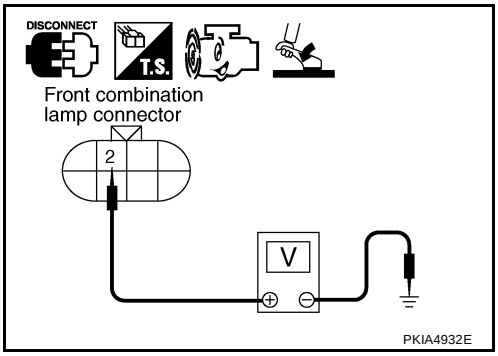
9. CHECK DAYTIME LIGHT CONTROL UNIT

1. Connect daytime light control unit connector.
2. Parking brake is released and engine is run.
3. Check voltage between front combination lamp LH harness connector E41 terminal 2 and ground, when releasing parking brake with engine running and turning lighting switch to OFF.

2 – Ground : Battery voltage.

OK or NG

OK >> ● Check connector for connection, bend and loose fit and repair.
● Check headlamp bulb.
NG >> Replace daytime light control unit.



Headlamp High Beam Does Not Illuminate (Both Sides)

NKS000TU

1. CHECK COMBINATION SWITCH INPUT SIGNAL

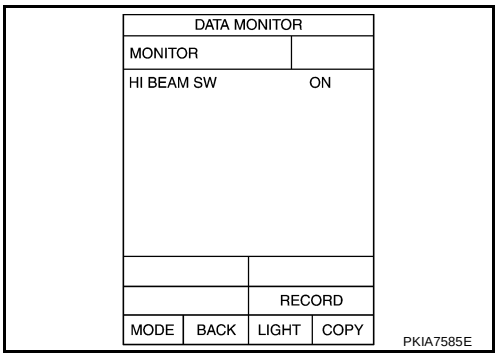
With CONSULT-II
Select “BCM” on CONSULT-II. With “HEAD LAMP” data monitor, make sure “HI BEAM SW” turns ON-OFF linked with operation of lighting switch.

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

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

OK or NG

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

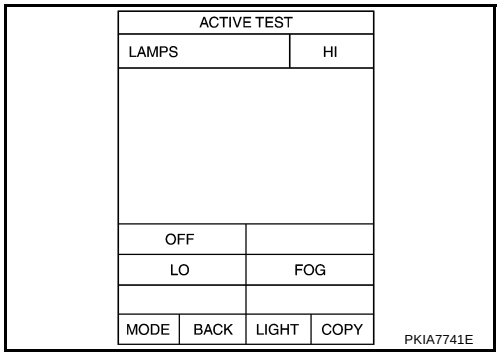


2. HEADLAMP ACTIVE TEST

With CONSULT-II

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

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



Without CONSULT-II

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

Headlamp high beam should operate.

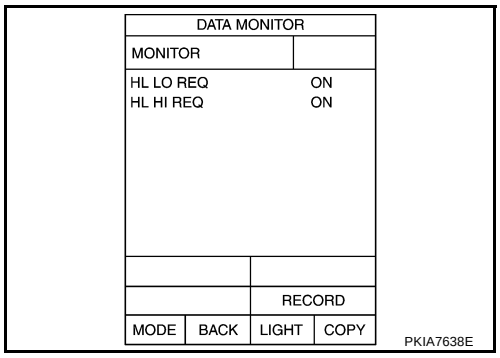
OK or NG

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

3. CHECK IPDM E/R

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

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



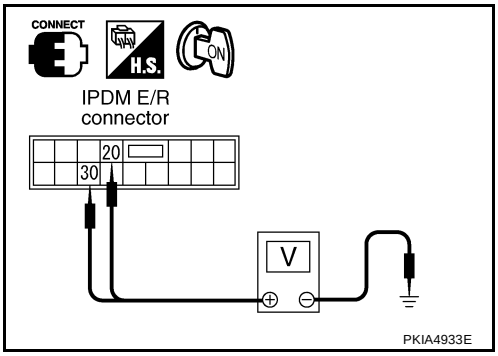
OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-18, "Removal and Installation of BCM" .

4. CHECK HEADLAMP INPUT SIGNAL

With CONSULT-II

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



Terminal			Voltage
(+)		(-)	
Connector	Terminal		
E7	20	Ground	Battery voltage
	30		

Without CONSULT-II

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

Terminal			Voltage
(+)		(-)	
Connector	Terminal		
E7	20	Ground	Battery voltage
	30		

OK or NG

OK >> Check connector for connection, bend and loose fit and repair.
NG >> Replace IPDM E/R.

RH High Beam Does Not Illuminate But RH Low Beam Illuminates

NKS000TV

1. CHECK BULB

Check bulb of lamp which does not illuminate.

OK or NG

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

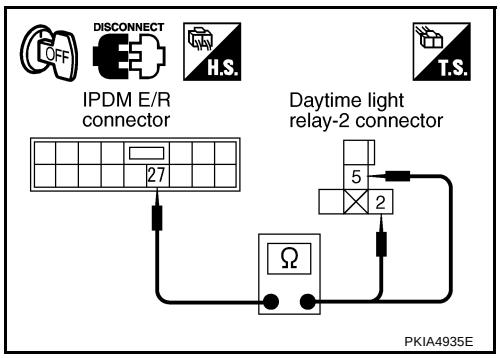
2. CHECK CIRCUIT BETWEEN IPDM E/R AND DAYTIME LIGHT RELAY–2

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

27 – 2 : Continuity should exist.

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

27 – 5 : Continuity should exist.



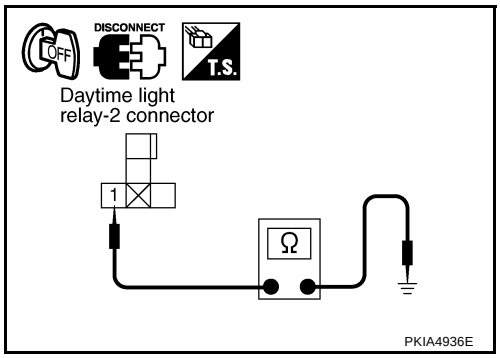
OK or NG

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

3. CHECK DAYTIME LIGHT RELAY–2 GROUND

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

1 – Ground : Continuity should exist.



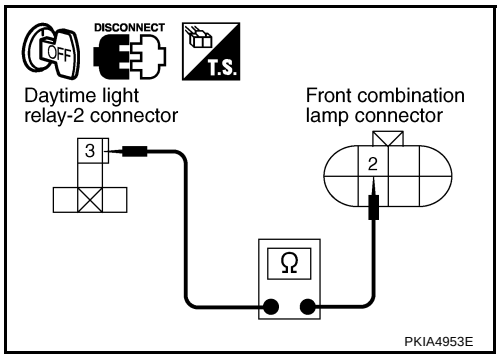
OK or NG

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

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

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

3 – 2 : Continuity should exist.



OK or NG

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

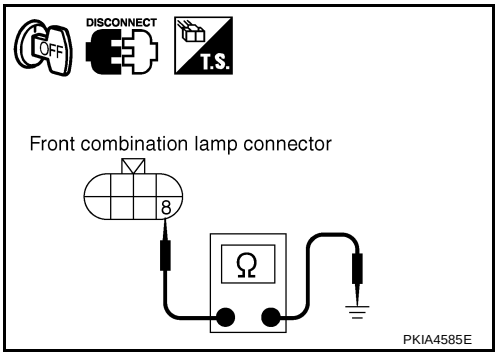
5. CHECK HEADLAMP RH GROUND CIRCUIT

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

8 – Ground : Continuity should exist.

OK or NG

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



6. CHECK IPDM E/R

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

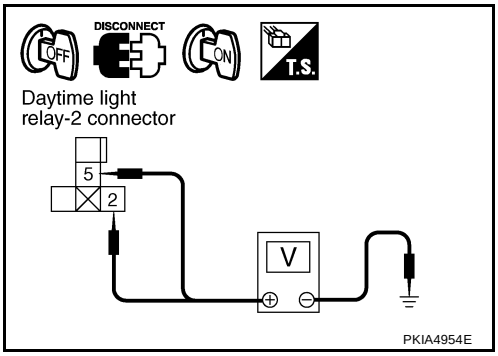
2 – Ground : Battery voltage.

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

5 – Ground : Battery voltage.

OK or NG

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



LH High Beam Does Not Illuminate But LH Low Beam Illuminates

NKS000TW

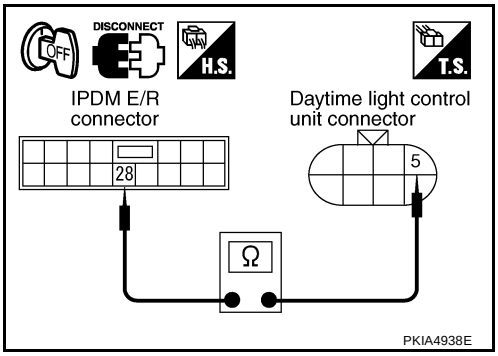
1. CHECK CIRCUIT BETWEEN IPDM E/R AND DAYTIME LIGHT CONTROL UNIT

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

28 – 5 : Continuity should exist.

OK or NG

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



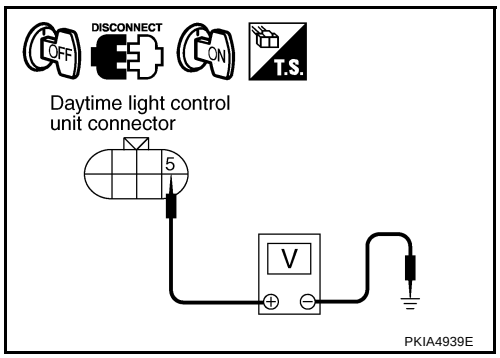
2. CHECK IPDM E/R

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

5 – Ground : Battery voltage.

OK or NG

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



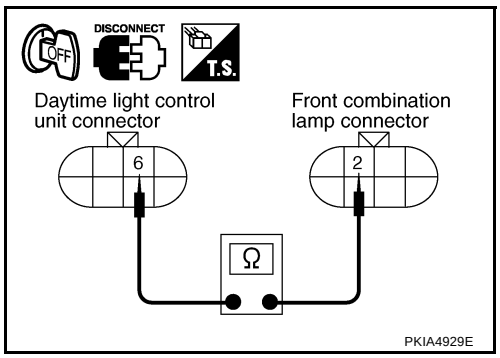
3. CHECK POWER CIRCUIT BETWEEN DAYTIME LIGHT CONTROL UNIT AND HEADLAMP LH

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

6 – 2 : Continuity should exist.

OK or NG

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



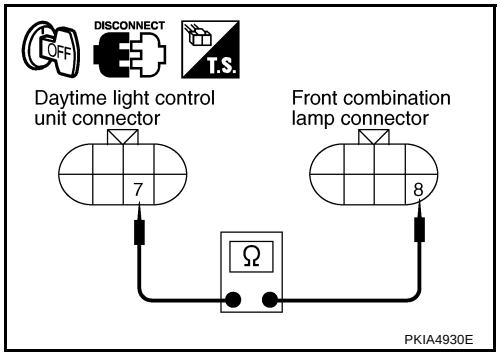
4. CHECK CIRCUIT BETWEEN DAYTIME LIGHT CONTROL UNIT AND HEADLAMP LH

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

7 – 8 : Continuity should exist.

OK or NG

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



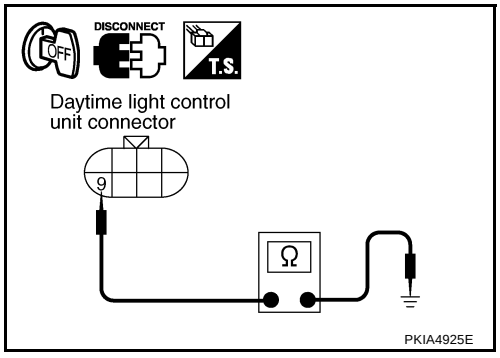
5. CHECK DAYTIME LIGHT CONTROL UNIT AND GROUND

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

9 – Ground : Continuity should exist.

OK or NG

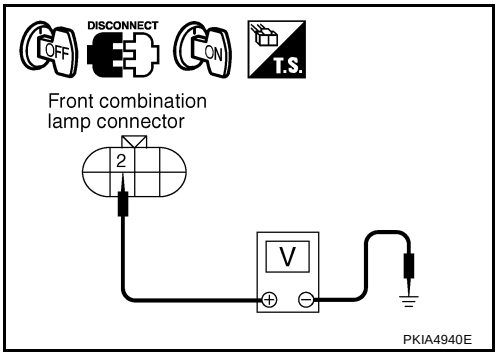
OK >> GO TO 6.
NG >> Repair harness or connector.



6. CHECK DAYTIME LIGHT CONTROL UNIT

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

2 – Ground : Battery voltage.



OK or NG

OK >> ● Check connector for connection, bend and loose fit and repair.
● Check headlamp bulb.

NG >> Replace daytime light control unit.

Headlamp Low Beam Does Not Illuminate (Both Sides)

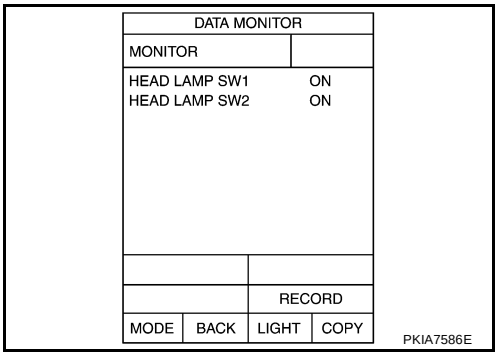
NKS000TX

1. CHECK COMBINATION SWITCH INPUT SIGNAL

With CONSULT-II

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

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



Without CONSULT-II

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

OK or NG

OK >> GO TO 2.

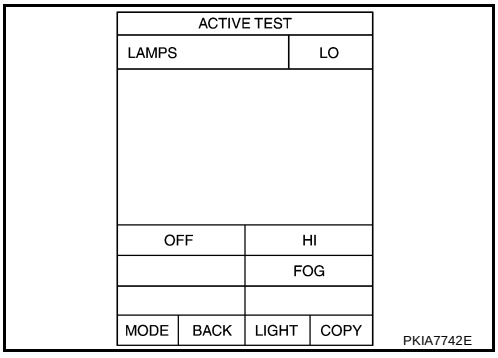
NG >> Check combination switch lighting switch. Refer to LT-128, "Combination Switch Inspection" .

2. HEADLAMP ACTIVE TEST

With CONSULT-II

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

Headlamp low beam should operate.



Without CONSULT-II

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

Headlamp low beam should operate.

OK or NG

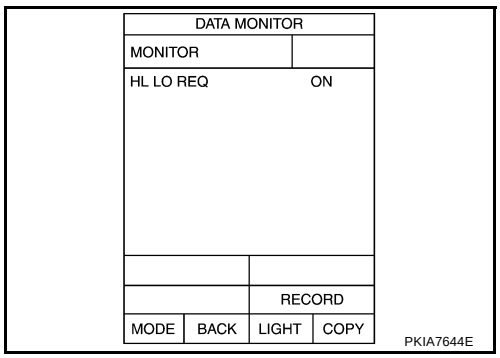
OK >> GO TO 3.

NG >> GO TO 4.

3. CHECK IPDM E/R

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

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



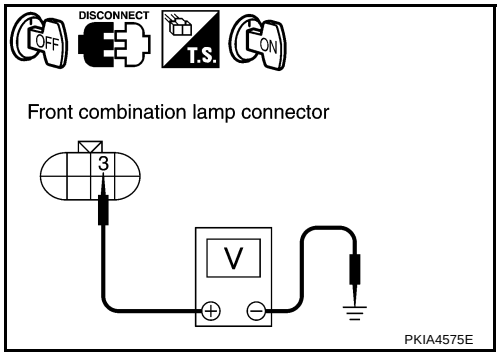
OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-18, "Removal and Installation of BCM" .

4. CHECK HEADLAMP INPUT SIGNAL

With CONSULT-II

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



Terminal			Voltage
(+)		(-)	
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 connector.
3. Start auto active test. Refer to PG-22, "Auto Active Test" .
4. When headlamp low relay is operating, check voltage between front combination lamp harness connector and ground.

Terminal			Voltage
(+)		(-)	
Connector		Terminal	
RH	E24	3	Ground	Battery voltage
LH	E41	3		

OK or NG

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

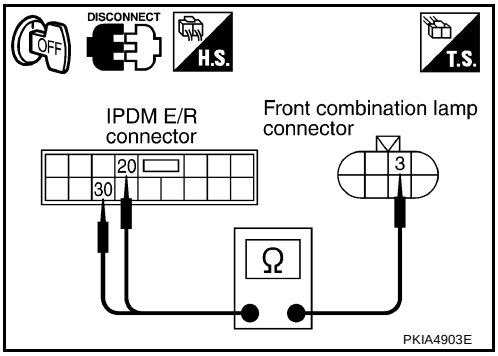
5. CHECK HEADLAMP CIRCUIT

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.
NG >> Repair harness or connector.

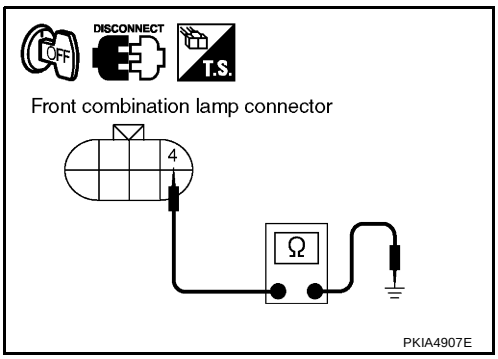
6. CHECK HEADLAMP GROUND

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-67, "Xenon Headlamp Trouble Diagnosis" .
NG >> Repair harness or connector.

RH Low Beam Does Not Illuminate But RH High Beam Illuminates

NKS000TY

1. CHECK BULB

Check ballast (HID control unit) and xenon bulb of lamp which does not illuminate. Refer to LT-67, "Xenon Headlamp Trouble Diagnosis" .

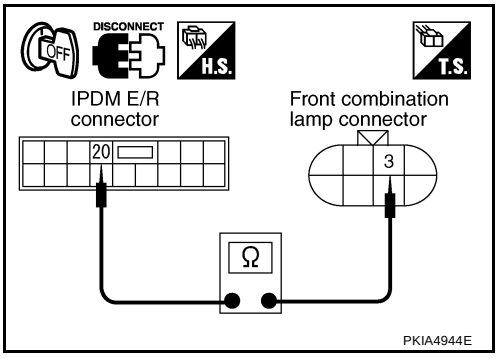
OK or NG

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

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

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



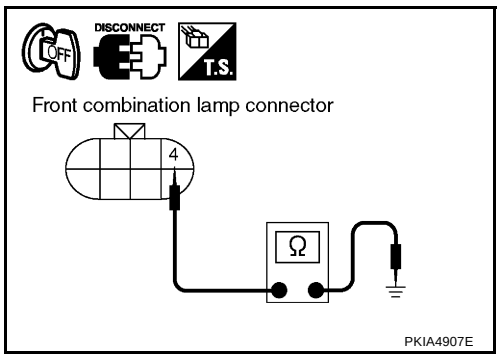
OK or NG

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

3. CHECK HEADLAMP RH GROUND CIRCUIT

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

4 – Ground : Continuity should exist.



OK or NG

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

LH Low Beam Does Not Illuminate But LH High Beam Illuminates

NKS000TZ

1. CHECK BULB

Check ballast (HID control unit) and xenon bulb of lamp which does not illuminate. Refer to LT-67, "Xenon Headlamp Trouble Diagnosis" .

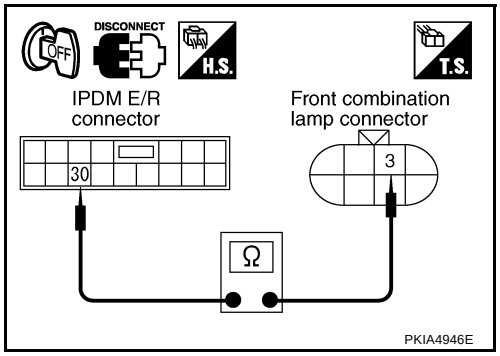
OK or NG

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

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

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

30 – 3 : Continuity should exist.



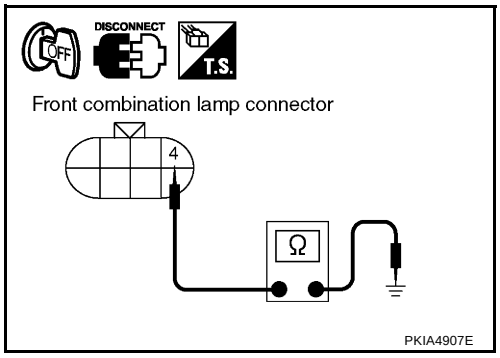
OK or NG

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

3. CHECK HEADLAMP AND GROUND

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

4 – Ground : Continuity should exist.



OK or NG

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

General Information for Xenon Headlamp Trouble Diagnosis

NKS000U0

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:

NKS000U1

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

Xenon Headlamp Trouble Diagnosis

NKS000U2

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

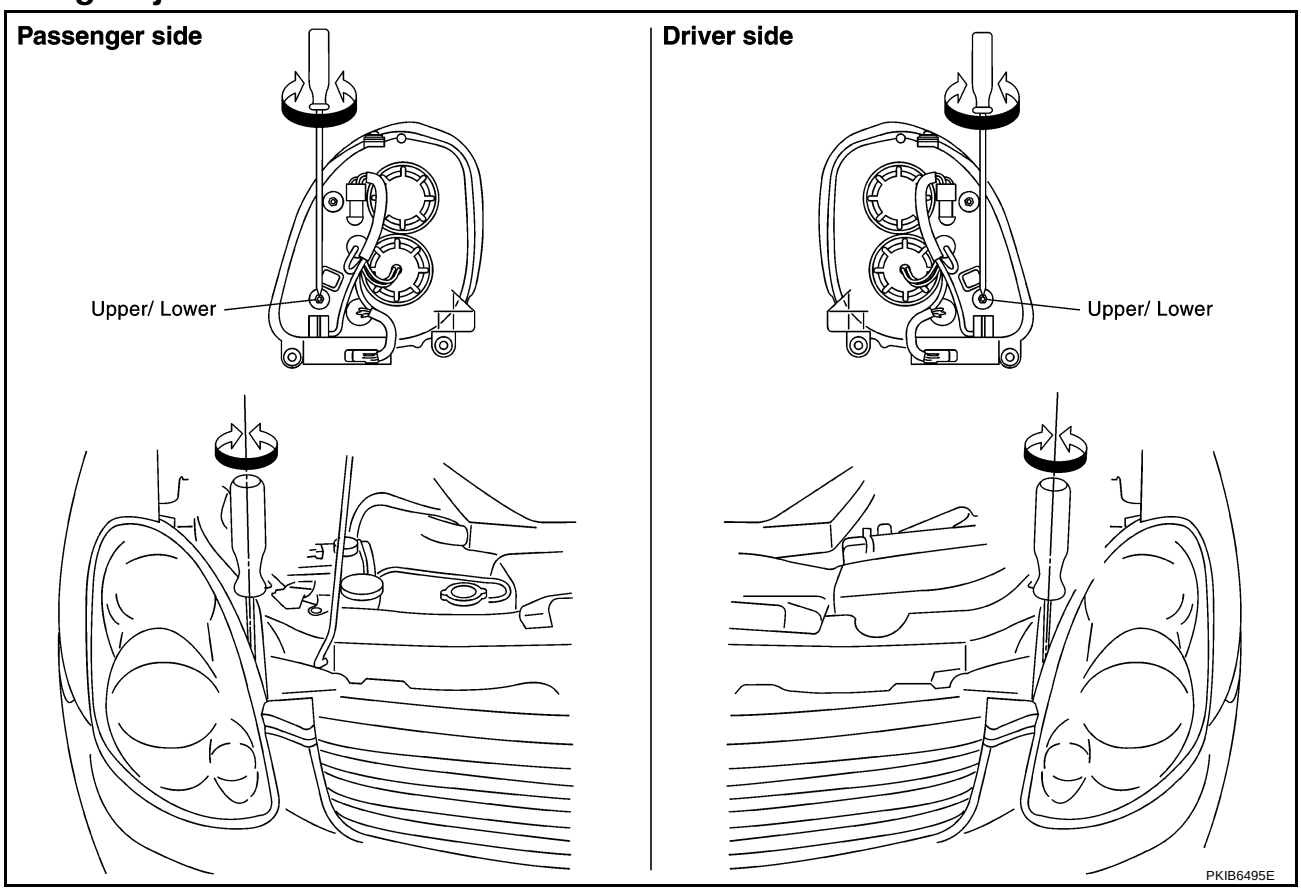
Install normal xenon lamp housing assembly to corresponding xenon headlamp, and check if lamp lights up.

OK or NG

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

Aiming Adjustment

NKS000U3



PREPARATION BEFORE ADJUSTING

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

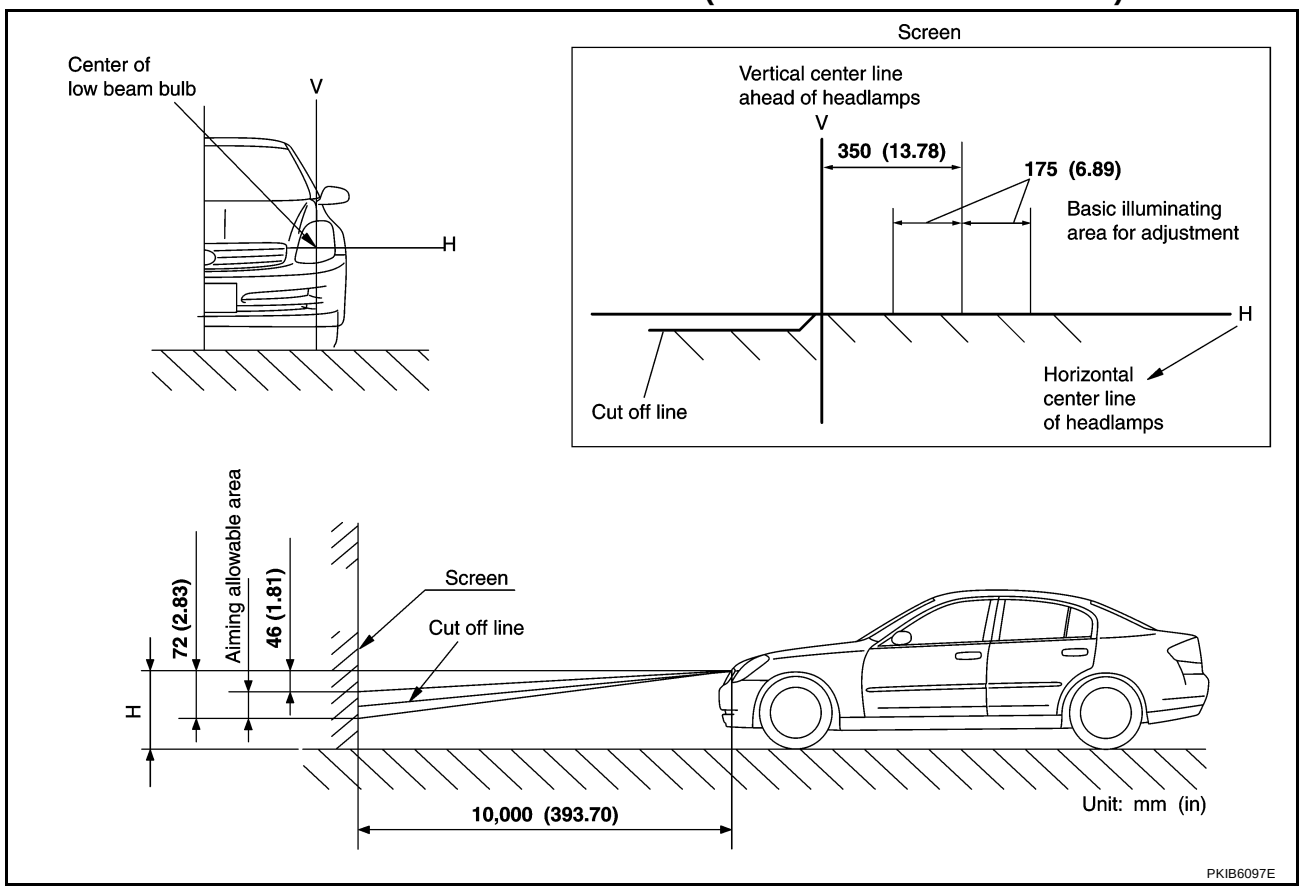
Before performing aiming adjustment, check the following.

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

LOW BEAM AND HIGH BEAM

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

ADJUSTMENT USING AN ADJUSTMENT SCREEN (LIGHT/DARK BORDERLINE)



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

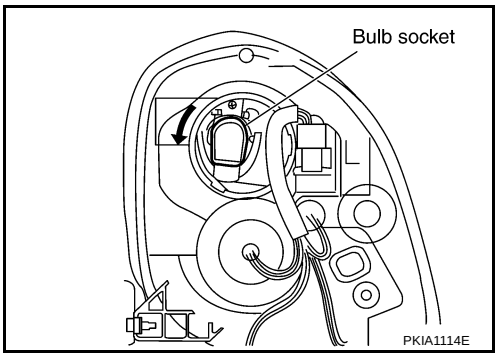
- Basic illumination area for adjustment should be within the range shown on the aiming chart. Adjust headlamp accordingly.

Bulb Replacement

NKS000U4

HEADLAMP (UPPER) LOW BEAM

1. Turn lighting switch OFF.
2. Disconnect the battery cable from the negative terminal or remove power fuse.
3. Remove headlamp. Refer to LT-70, "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.



HEADLAMP (LOWER) HIGH BEAM/FOG LAMP

1. Turn lighting switch OFF.
2. Disconnect the battery cable from the negative terminal or remove power fuse.
3. Remove fender protector (front). Refer to EI-22, "FENDER PROTECTOR" .
4. Turn plastic cap counterclockwise and unlock it.
5. Disconnect bulb socket.
6. Unlock retaining spring and remove bulb from headlamp.
7. Installation is the reverse order of removal.

FRONT TURN SIGNAL/PARKING LAMP

1. Turn lighting switch OFF.
2. Remove fender protector (front). Refer to EI-22, "FENDER PROTECTOR" .
3. Turn bulb socket counterclockwise and unlock it.
4. Remove bulb from its socket.
5. Installation is the reverse order of removal.

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

CAUTION:

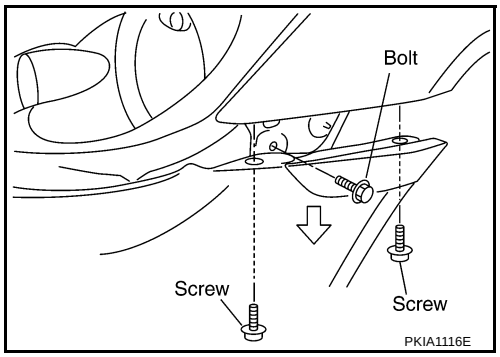
After installing bulb, be sure to install plastic cap and bulb socket securely to insure watertightness.

Removal and Installation

NKS000U5

REMOVAL

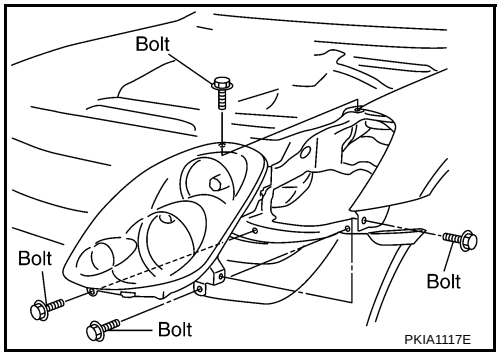
1. Disconnect the battery cable from the negative terminal or remove power fuse.
2. Remove front grille. Refer to EI-20, "FRONT GRILLE" .
3. Remove front undercover and fender protector. Refer to EI-22, "FENDER PROTECTOR" .
4. Remove mounting clip on top of front bumper and screws on side of front bumper. 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.



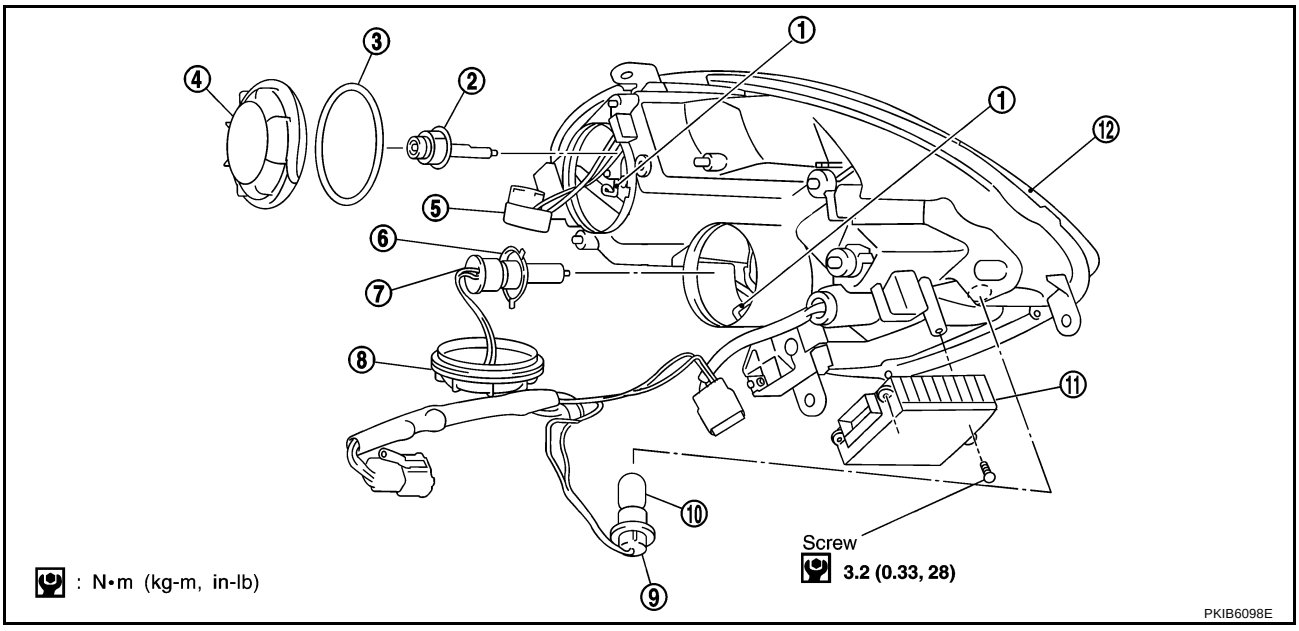
INSTALLATION

Installation is the reverse order of removal.

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

Disassembly

NKS000U6



1. Retaining spring	2. Xenon bulb (low)	3. Seal rubber
4. Plastic cap (low)	5. Xenon bulb socket (low)	6. Halogen bulb (high/fog)
7. Halogen bulb (high/fog) socket	8. Plastic cap (high/fog)	9. Front turn signal/Parking lamp bulb socket
10. Front turn signal/Parking lamp bulb	11. HID control unit	12. Headlamp housing assembly

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

Assembly

NKS000U7

Assembly is the reverse order of disassembly.

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

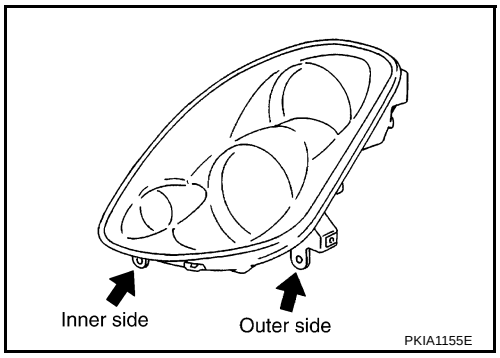
CAUTION:

- **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

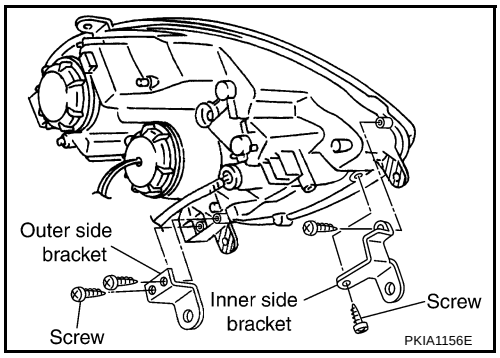
NKS000U8

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-70, "Removal and Installation" .
2. Cut damaged section of installation part, then shape with sandpaper.
3. Attach each correction bracket to headlamp housing boss with 2 screws.

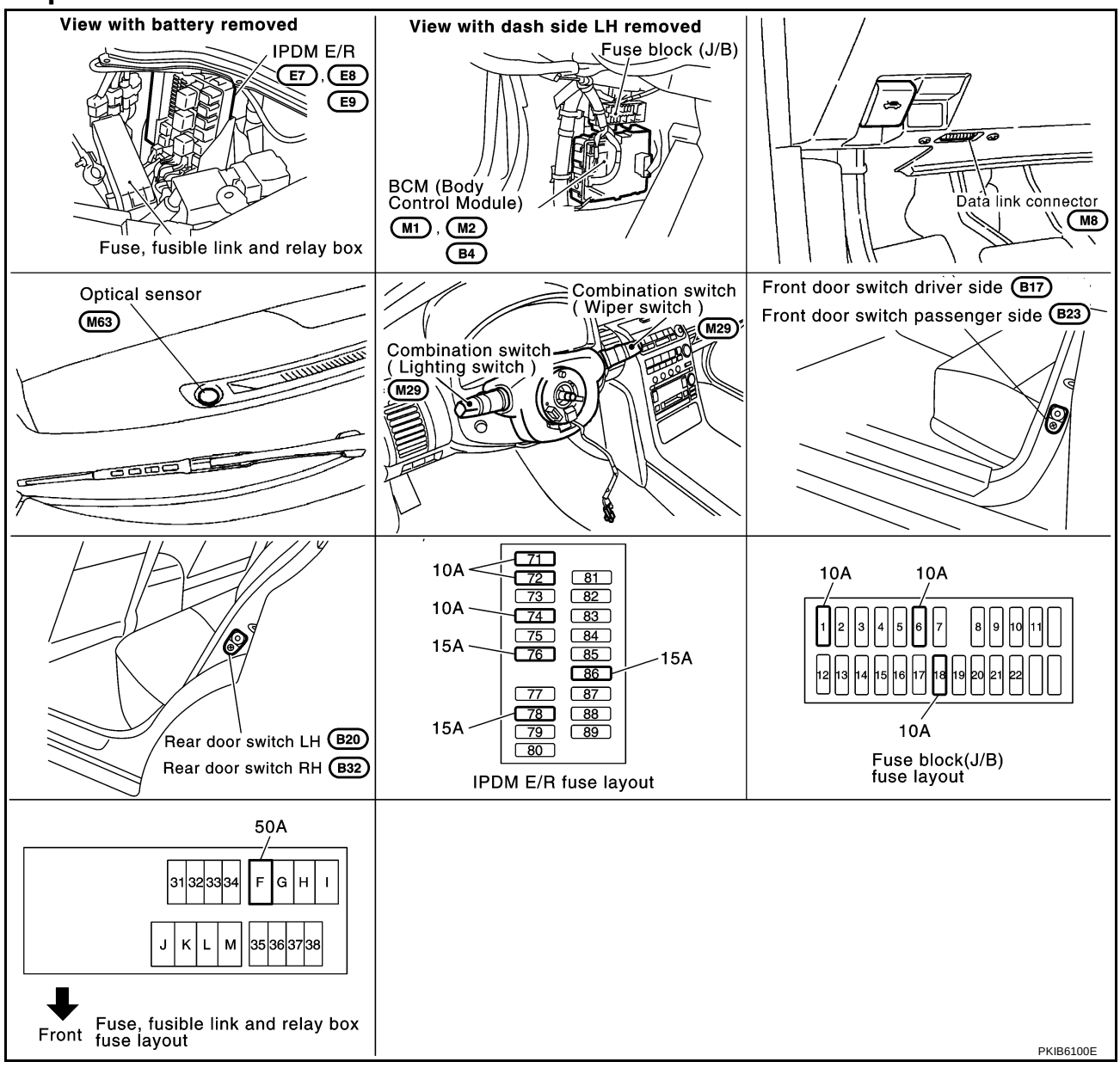


AUTO LIGHT SYSTEM

PFP:28491

Component Parts and Harness Connector Location

NKS000U9



System Description

NKS000UA

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-81, "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-73, "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

NKS000UB

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

CAN Communication Unit

NKS000UC

Refer to LAN-27, "CAN Communication Unit" .

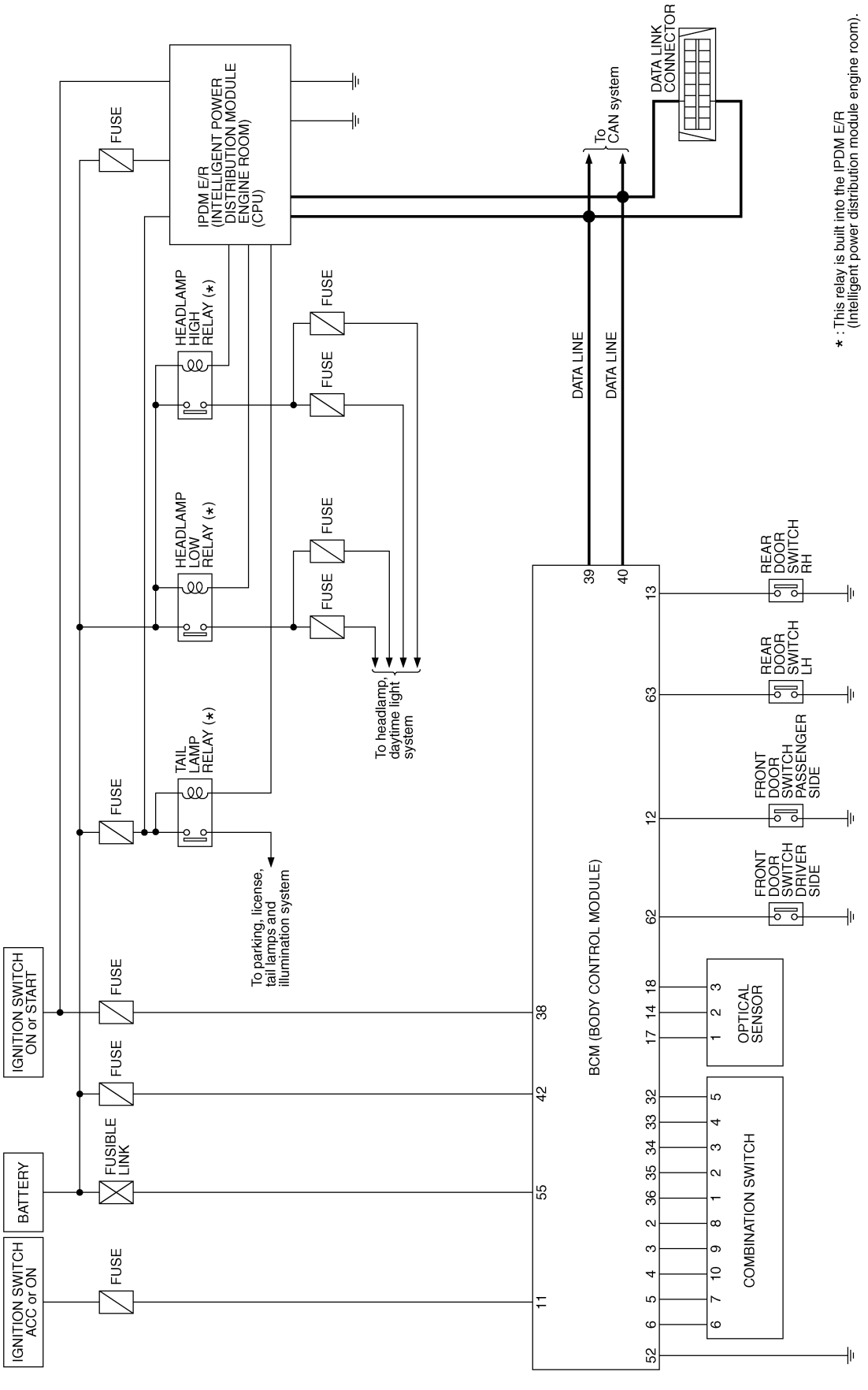
Major Components and Functions

NKS000UD

Components	Functions
BCM	● Turns on/off circuits of tail light and headlamp according to signals from light sensor, lighting switch (AUTO), driver door switch, passenger door switch, rear door switch, and ignition switch (ON, OFF).
Optical sensor	● Converts outside brightness (lux) to voltage, and sends it to BCM. (Detects brightness of 800 to 2,500 lux)

Schematic

NKS000UE

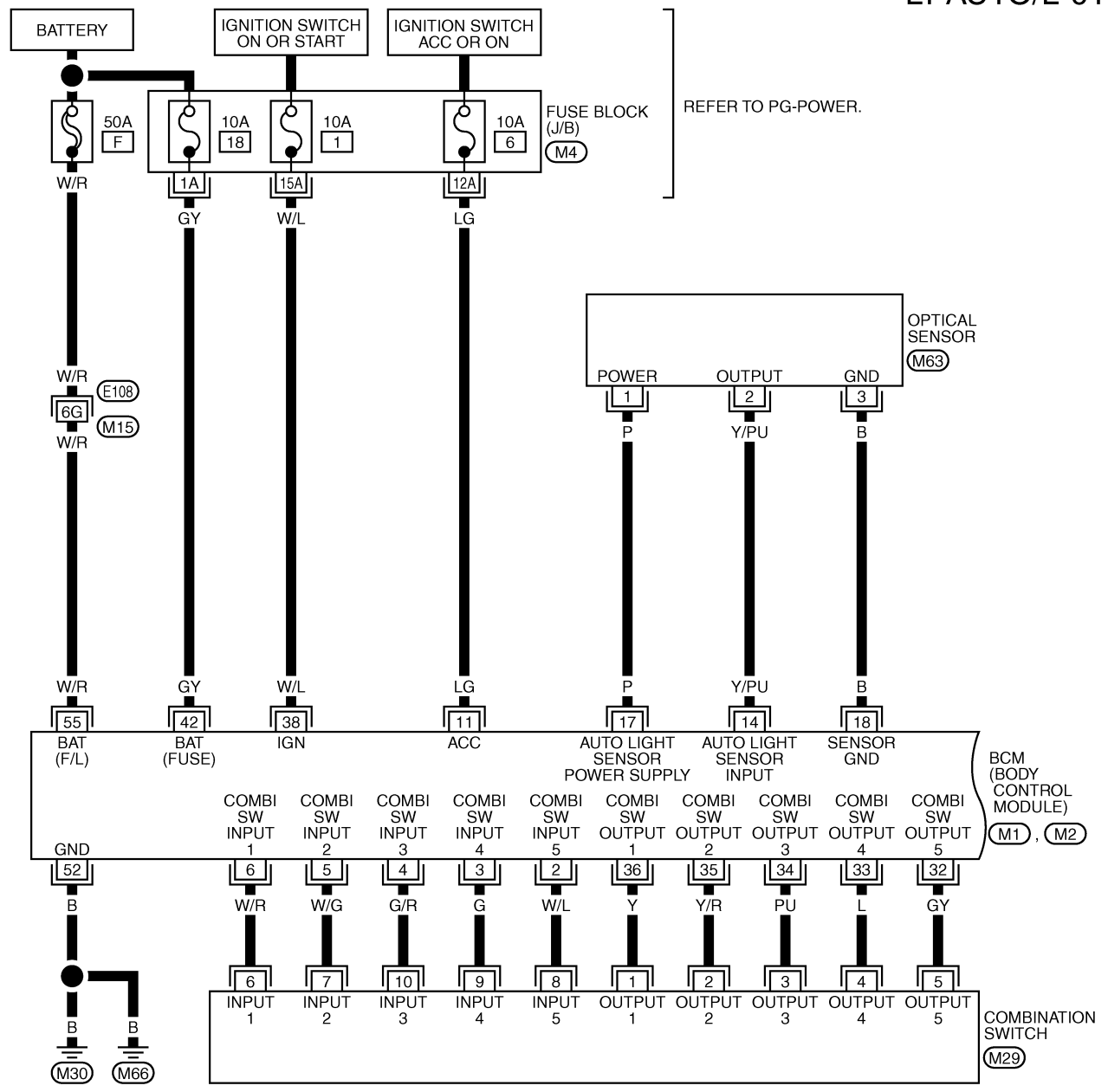


TKWM2253E

Wiring Diagram — AUTO/L —

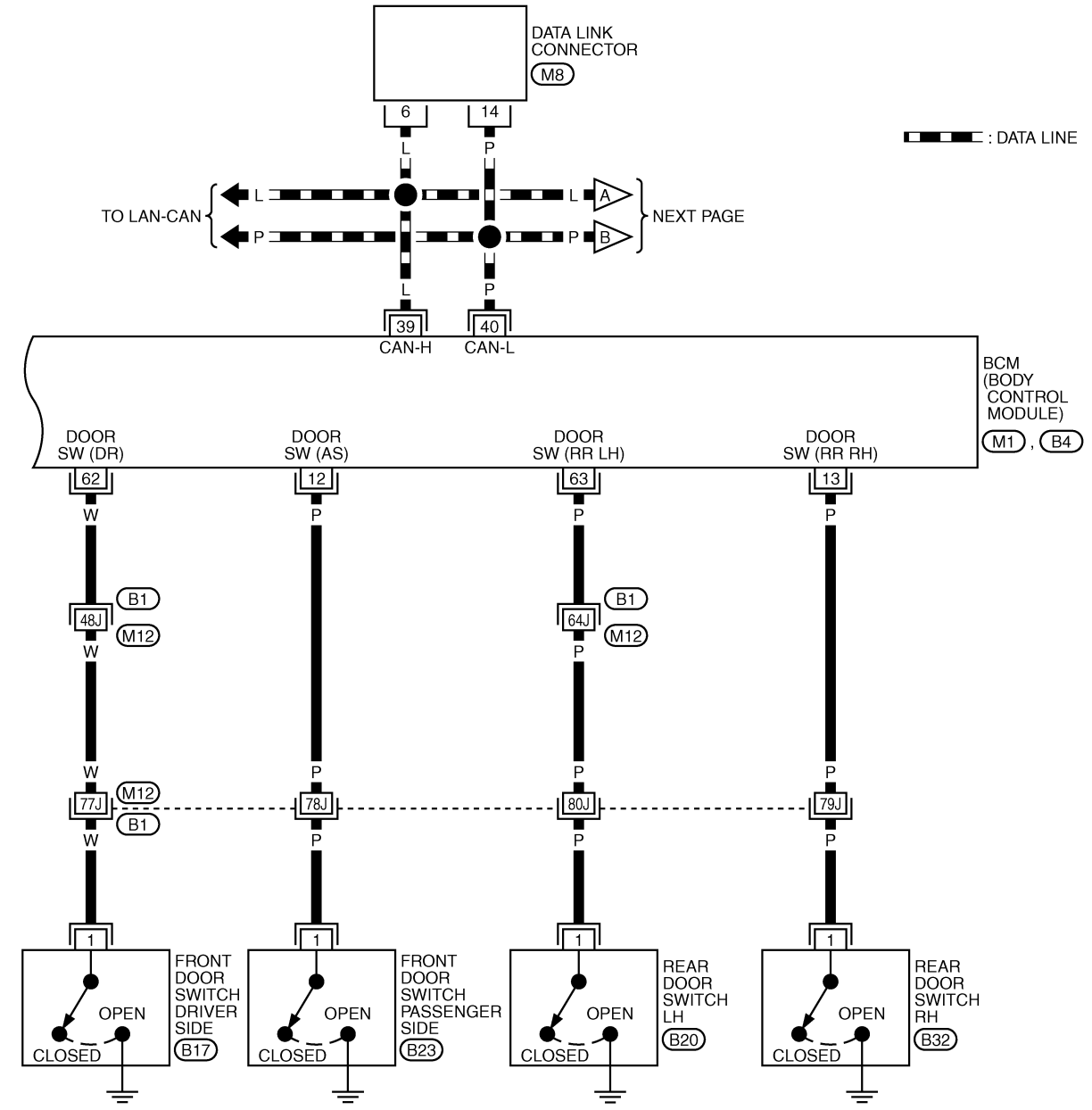
NKS000UF

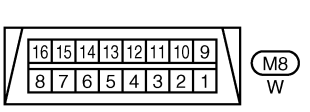
LT-AUTO/L-01

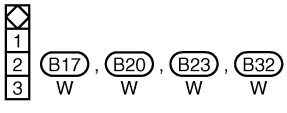


TKWT1416E

LT-AUTO/L-02

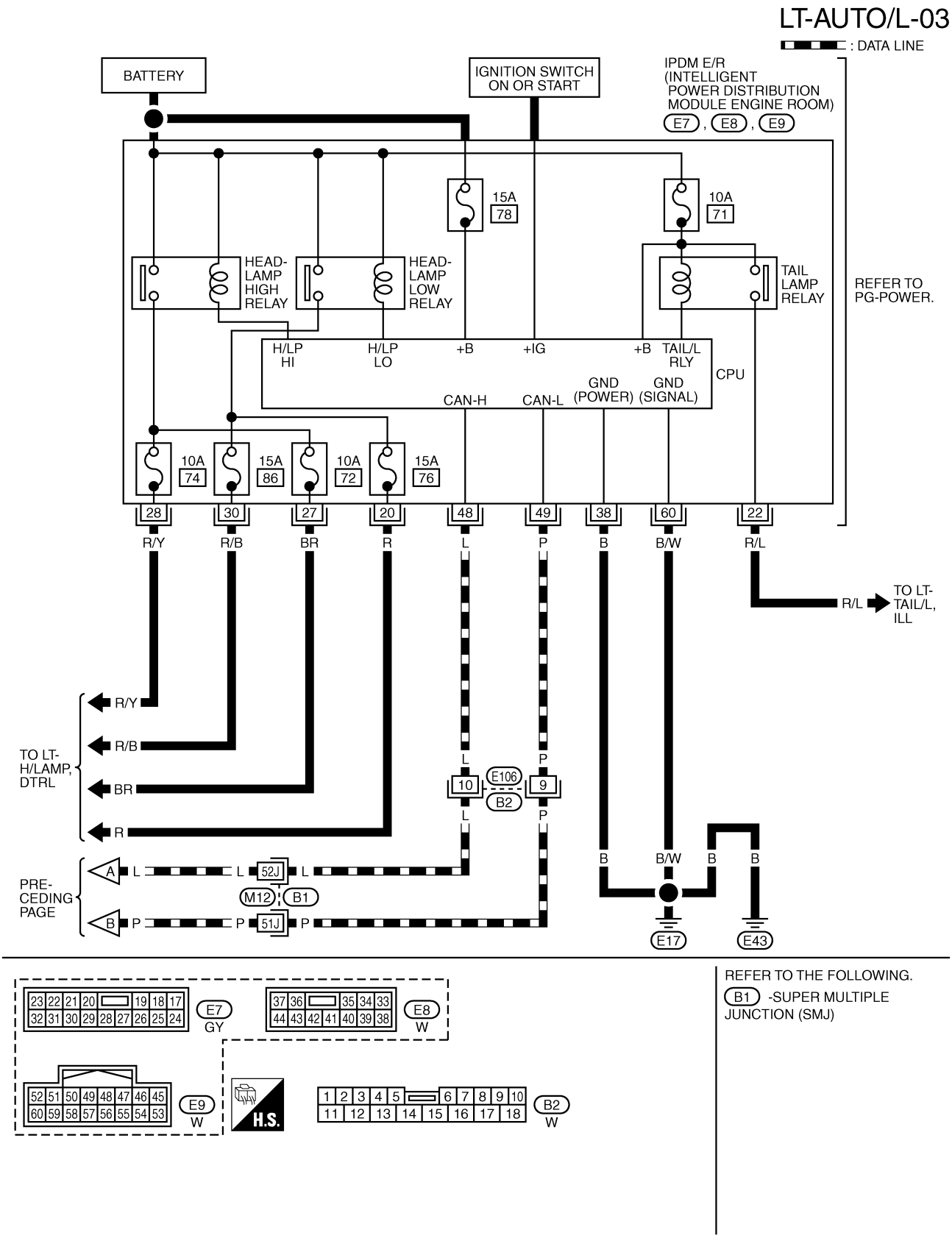






REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , B4 -ELECTRICAL UNITS

TKWM2254E



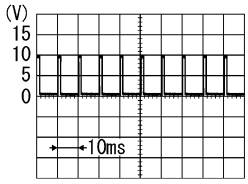
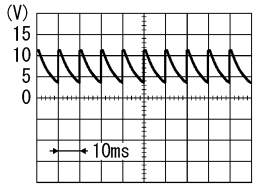
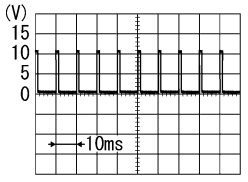
REFER TO THE FOLLOWING.

B1 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM2255E

Terminals and Reference Values for BCM

NKS002MI

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
4	G/R	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
13	P	Rear door switch RH signal	OFF	Rear door switch RH	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

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
62	W	Front door switch driver side signal	OFF	Front door switch driver side	ON (open)	Approx. 0 V
					OFF (closed)	Battery voltage
63	P	Rear door switch LH signal	OFF	Rear door switch LH	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

NKS000UH

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
20	R	Headlamp low (RH)	ON	Lighting switch 2ND position	OFF	Approx. 0 V
					ON	Battery voltage
22	R/L	Parking, license, and tail lamp	ON	Lighting switch 1ST 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 low (LH)	ON	Lighting switch 2ND position	OFF	Approx. 0 V
					ON	Battery voltage
38	B	Ground	ON	—		Approx. 0 V
48	L	CAN – H	—	—		—
49	P	CAN – L	—	—		—
60	B/W	Ground	ON	—		Approx. 0 V

How to Proceed With Trouble Diagnosis

NKS000UI

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-73, "System Description" .
3. Perform the preliminary check. Refer to LT-81, "Preliminary Check" .
4. Check symptom and repair or replace the malfunctioning parts. Refer to LT-84, "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

NKS000UJ

SETTING CHANGE FUNCTIONS

Sensitivity of auto light system can be adjusted using CONSULT-II. Refer to LT-82, "WORK SUPPORT" .

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

Check for blown fuses.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
		18
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	71
		72
		74
		76
		86

Refer to LT-76, "Wiring Diagram — AUTO/L —" .

OK or NG

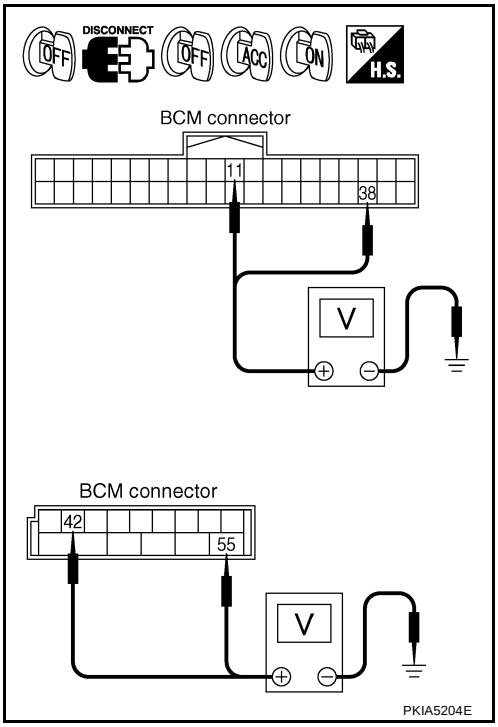
OK >> GO TO 2.

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

2. CHECK POWER SUPPLY CIRCUIT

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

Terminal			Ignition switch position		
(+)		(-)	OFF	ACC	ON
Connector	Terminal				
M1	11	Ground	Approx. 0V	Battery voltage	Battery voltage
	38		Approx. 0V	Approx. 0V	Battery voltage
M4	42		Battery voltage	Battery voltage	Battery voltage
	55		Battery voltage	Battery voltage	Battery voltage



OK or NG

OK >> GO TO 3.

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

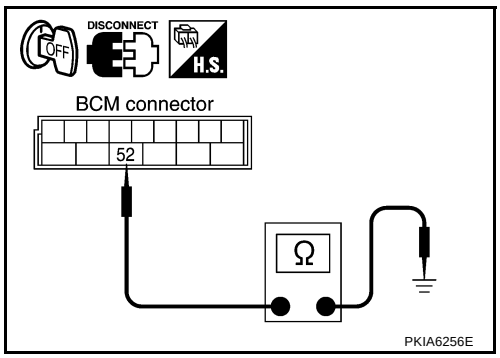
3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminal			Continuity
Connector	Terminal	Ground	Yes
M2	52		

OK or NG

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



CONSULT-II Functions (BCM)

NKS000UK

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

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

CONSULT-II BASIC OPERATION

Refer to GI-38, "CONSULT-II Start Procedure" .

WORK SUPPORT

Operation Procedure

1. Touch “HEAD LAMP” on “SELECT TEST ITEM” screen.
2. Touch “WORK SUPPORT” on “SELECT DIAG MODE” screen.
3. Touch “CUSTOM A/LIGHT SETTING” or “ILL DELAY SET” on “SELECT WORK ITEM” screen.
4. Touch “START”.
5. Touch “MODE 1 - 4” of setting to be changed (CUSTOM A/LIGHT SETTING), Touch “MODE1 - 8” of setting to be changed (ILL DELAY SET).
6. Touch “SETTING CHANGE”.
7. The setting will be changed and “CUSTOMIZING COMPLETED” will be displayed.
8. Touch “END”.

Work Support Setting Item

Sensitivity of auto light can be selected and set from four modes.

Work item	Description
CUSTOM A/LIGHT SETTING	Auto light sensitivity can be changed in this mode. Sensitivity can be adjusted in four modes. ● MODE 1 (Normal)/ MODE 2 (sensitive)/MODE 3 (Desensitized)/MODE4 (Insensitive)
ILL DELAY SET	Auto light delay off timer period can be changed in this mode. Selects auto light delay off timer period among eight modes. ● MODE 1 (45 sec.)/MODE 2 (OFF)/MODE 3 (30 sec.)/MODE 4 (60 sec.)/MODE 5 (90 sec.)/ MODE 6 (120 sec.)/MODE 7 (150 sec.)/MODE 8 (180 sec.)

DATA MONITOR

Operation Procedure

1. Touch “HEAD LAMP” on “SELECT TEST ITEM” screen.
2. Touch “DATA MONITOR” on “SELECT DIAG MODE” screen.
3. Touch either “ALL SIGNALS” or “SELECTION FROM MENU” on “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 1 ST	“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	“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.
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	“ON/OFF”	Displays status (door is open: ON/door is closed: OFF) of rear door switch (RH) judged from the rear door switch (RH) signal.
DOOR SW - RL	“ON/OFF”	Displays status (door is open: ON/door is closed: OFF) of rear door switch (LH) judged from the rear door switch (LH) signal.
BACK DOOR SW NOTE 1	“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.
CARGO LAMP SW NOTE 1	“OFF”	—
OPTICAL SENSOR NOTE 2	“0 - 5V”	Displays status “outside brightness (close to 5V when light/close to 0V when dark)” of optical sensor judged from the optical sensor signal.

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

ACTIVE TEST

Operation Procedure

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

4. During the operation check, touching “BACK” deactivates the operation.

Display Item List

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

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

Symptom Chart

NKS000UM

Phenomenon	Malfunction system and reference
● Parking, license plate, side marker and tail lamps and headlamps will not illuminate when outside of 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 vehicle becomes light. (Lighting switch 1ST position and 2ND position operate normally.) ● Headlamps go out when outside of vehicle becomes light, but parking lamps stay on.	● Refer to LT-82, "WORK SUPPORT" . ● Refer to LT-84, "Lighting Switch Inspection" . ● Refer to LT-85, "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-85, "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-17, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" . ● Refer to BL-41, "Check Door Switch" . If above system is normal, replace BCM.

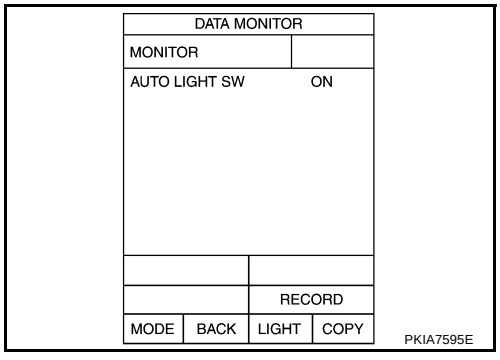
Lighting Switch Inspection

NKS000UN

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-128, "Combination Switch Inspection" .

OK or NG

OK >> INSPECTION END
NG >> Check combination switch (lighting switch). Refer to LT-128, "Combination Switch Inspection" .

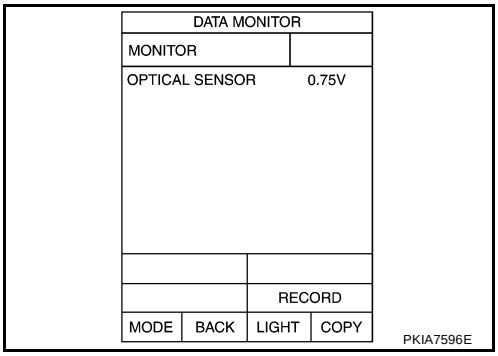
Optical Sensor System Inspection

NKS000UO

1. CHECK OPTICAL SENSOR INPUT SIGNAL

With CONSULT-II

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



Illuminated

OPTICAL SENSOR : 3.1V or more

Not illuminated

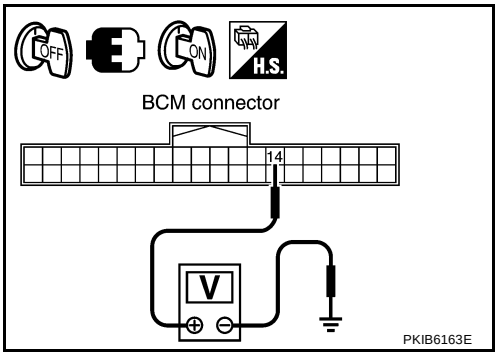
OPTICAL SENSOR : 0.6V or less

CAUTION:

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

Without CONSULT-II

1. Turn ignition switch ON.
2. Check voltage between BCM harness connector M1 terminal 14 (Y/PU) and ground.



Illuminated

OPTICAL SENSOR : 3.1V or more

Not illuminated

OPTICAL SENSOR : 0.6V or less

CAUTION:

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

OK or NG

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

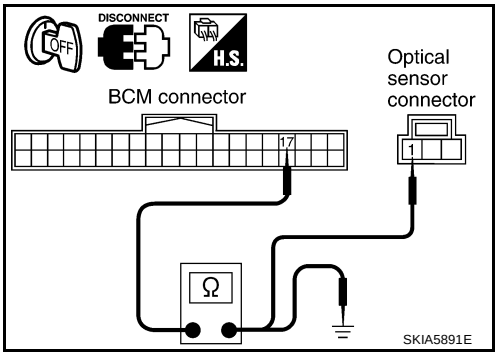
2. CHECK OPTICAL SENSOR POWER SUPPLY CIRCUIT

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 M3 terminal 17 and ground.

17 – Ground : Continuity should not exist.



OK or NG

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

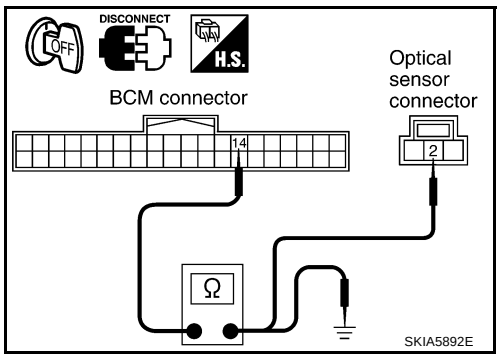
3. CHECK OPTICAL SENSOR SIGNAL CIRCUIT

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.

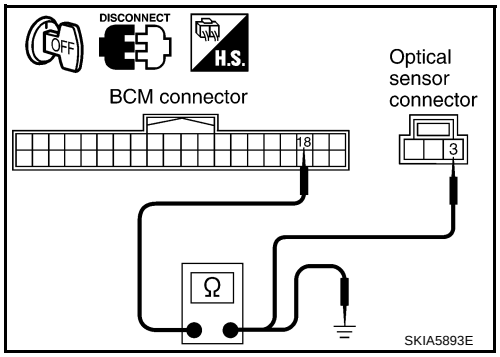
4. CHECK OPTICAL SENSOR GROUND CIRCUIT

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.



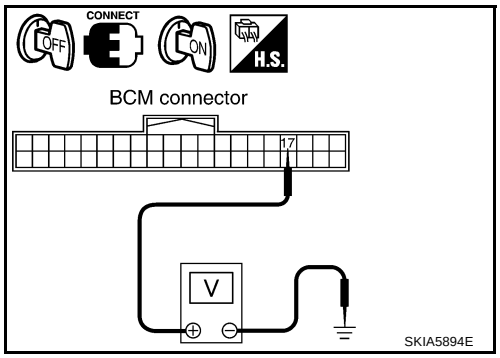
OK or NG

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. 5V



OK or NG

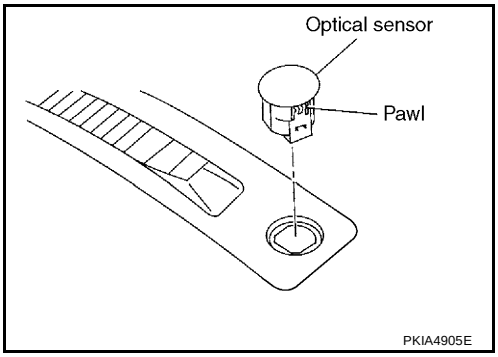
OK >> Replace optical sensor.
NG >> Replace BCM. Refer to BCS-18, "Removal and Installation of BCM" .

Removal and Installation for Optical Sensor

NKS000UP

REMOVAL

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



INSTALLATION

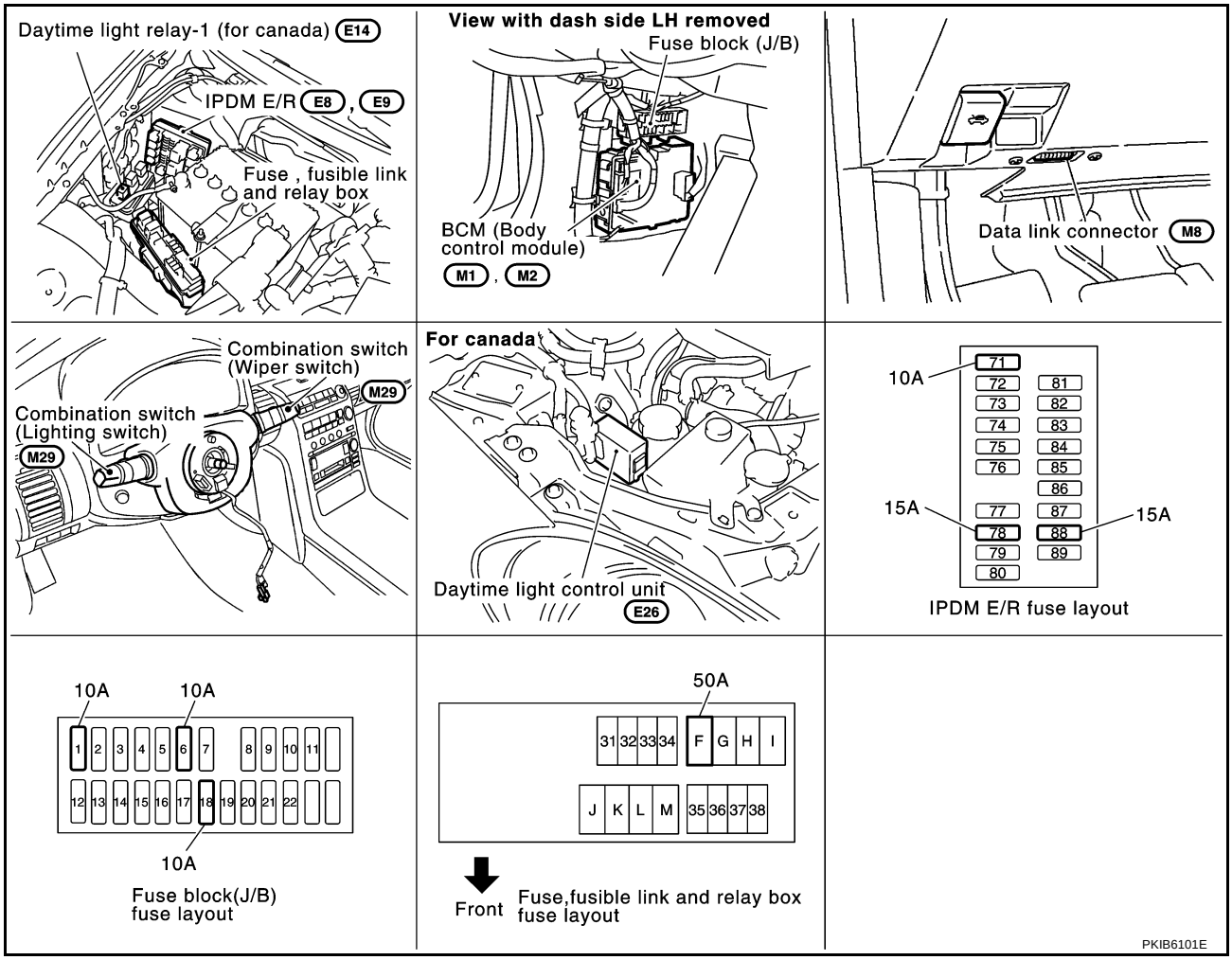
Installation is the reverse order of removal.

FRONT FOG LAMP

PFP:26150

Component Parts and Harness Connector Location

NKS000UQ



System Description

NKS000UR

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

OUTLINE

Power is supplied at all times

- through 15A fuse (No. 88, located in IPDM E/R)
- to front fog lamp relay, located in IPDM E/R,
- through 15A fuse (No. 78, located in IPDM E/R)
- to CPU located in IPDM E/R,
- through 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 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.

FOG LAMP OPERATION (FOR USA)

The fog lamp switch is built in combination switch. The lighting switch must be in 2ND position or AUTO position (headlamp is ON) and fog lamp switch must be ON for fog lamp operation.
With the fog lamp switch in the ON position, the CPU located in the IPDM E/R grounds coil side of the fog lamp relay. Fog lamp relay then directs power
- through IPDM E/R terminal 37
- to front fog lamp LH terminal 1,
- through IPDM E/R terminal 36
- to front fog lamp RH terminal 1.

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

With power and grounds supplied, front fog lamps illuminate.

FOG LAMP OPERATION (FOR CANADA)

The fog lamp switch is built in combination switch. The lighting switch must be in 2ND position or AUTO position (headlamp is ON) and fog lamp switch must be ON for fog lamp operation.
With the fog lamp switch in the ON position, the CPU located in the IPDM E/R grounds coil side of the fog lamp relay. Fog lamp relay then directs power
- through IPDM E/R terminal 37
- to daytime light relay-1 terminals 2 and 5
- through daytime light relay-1 terminal 3
- to front combination lamp LH terminal 1,
- through IPDM E/R terminal 36
- to front combination lamp RH terminal 1.

Ground is supplied
- to daytime light relay-1 terminal 1
- through grounds E17 and E43,
- to front combination lamp LH terminal 8
- through daytime light control unit terminal 7
- through daytime light control unit terminal 9
- through grounds E17 and E43,
- to front combination lamp RH terminal 8
- through grounds E17 and E43.

With power and grounds supplied, front fog lamps illuminate.

COMBINATION SWITCH READING FUNCTION

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

EXTERIOR LAMP BATTERY SAVER CONTROL

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

CAN Communication System Description

NKS000US

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

CAN Communication Unit

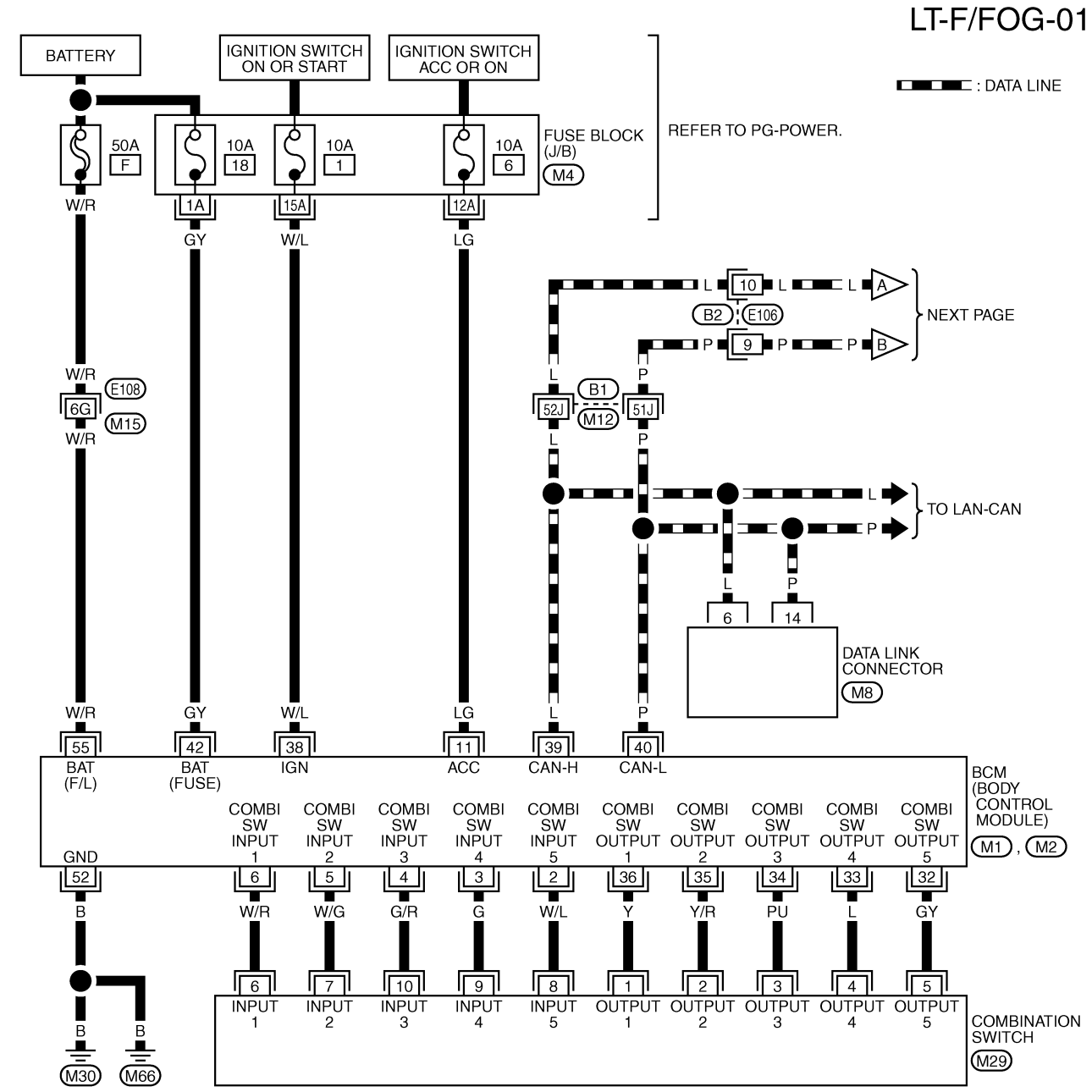
NKS000UT

Refer to LAN-27, "CAN Communication Unit" .

Wiring Diagram — F/FOG —

NKS000UU

FOR USA



REFER TO THE FOLLOWING.

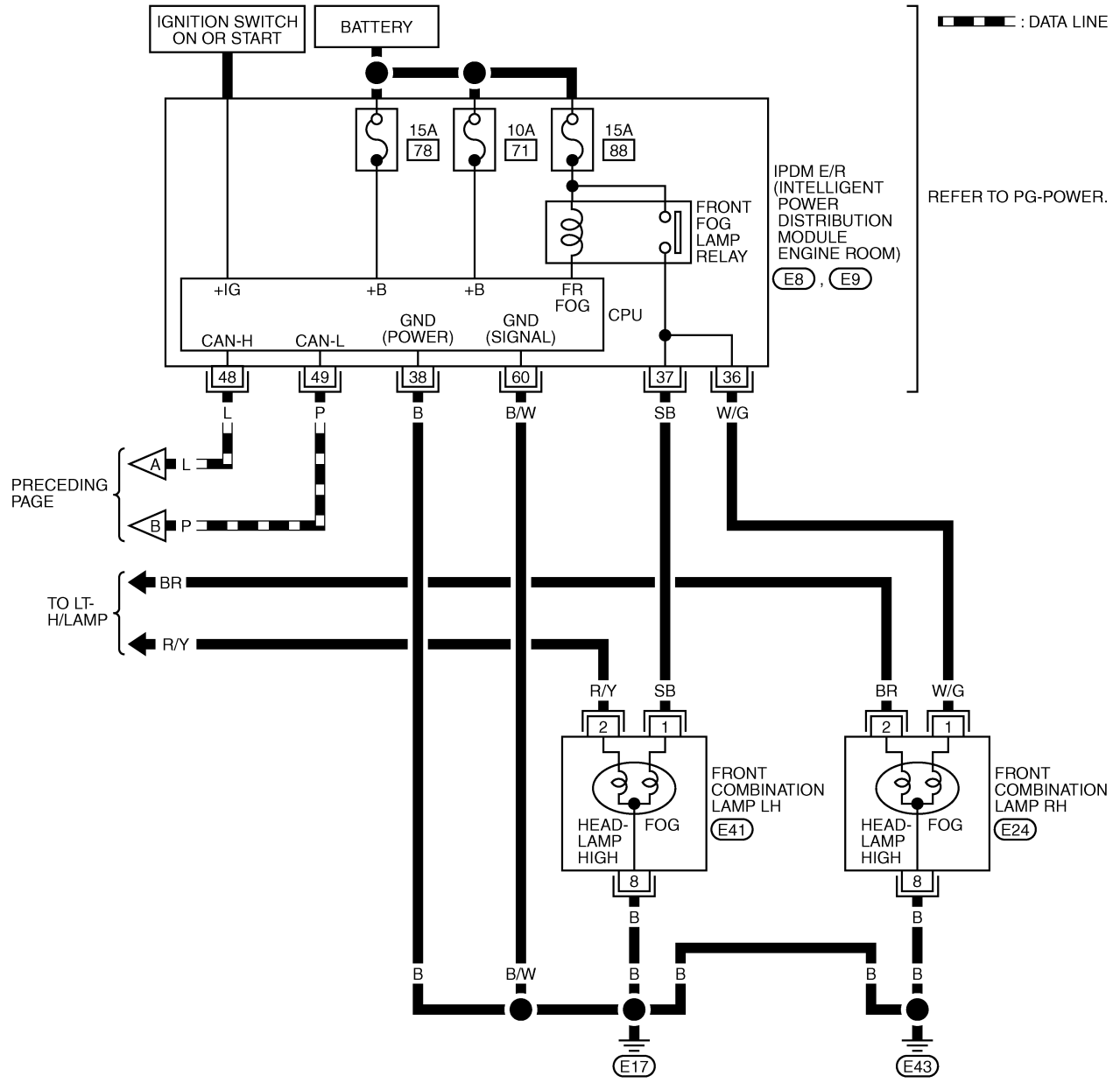
E108 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

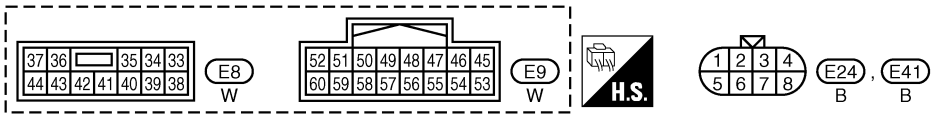
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

M1 , M2 -ELECTRICAL UNITS

TKWM2256E

LT-F/FOG-02

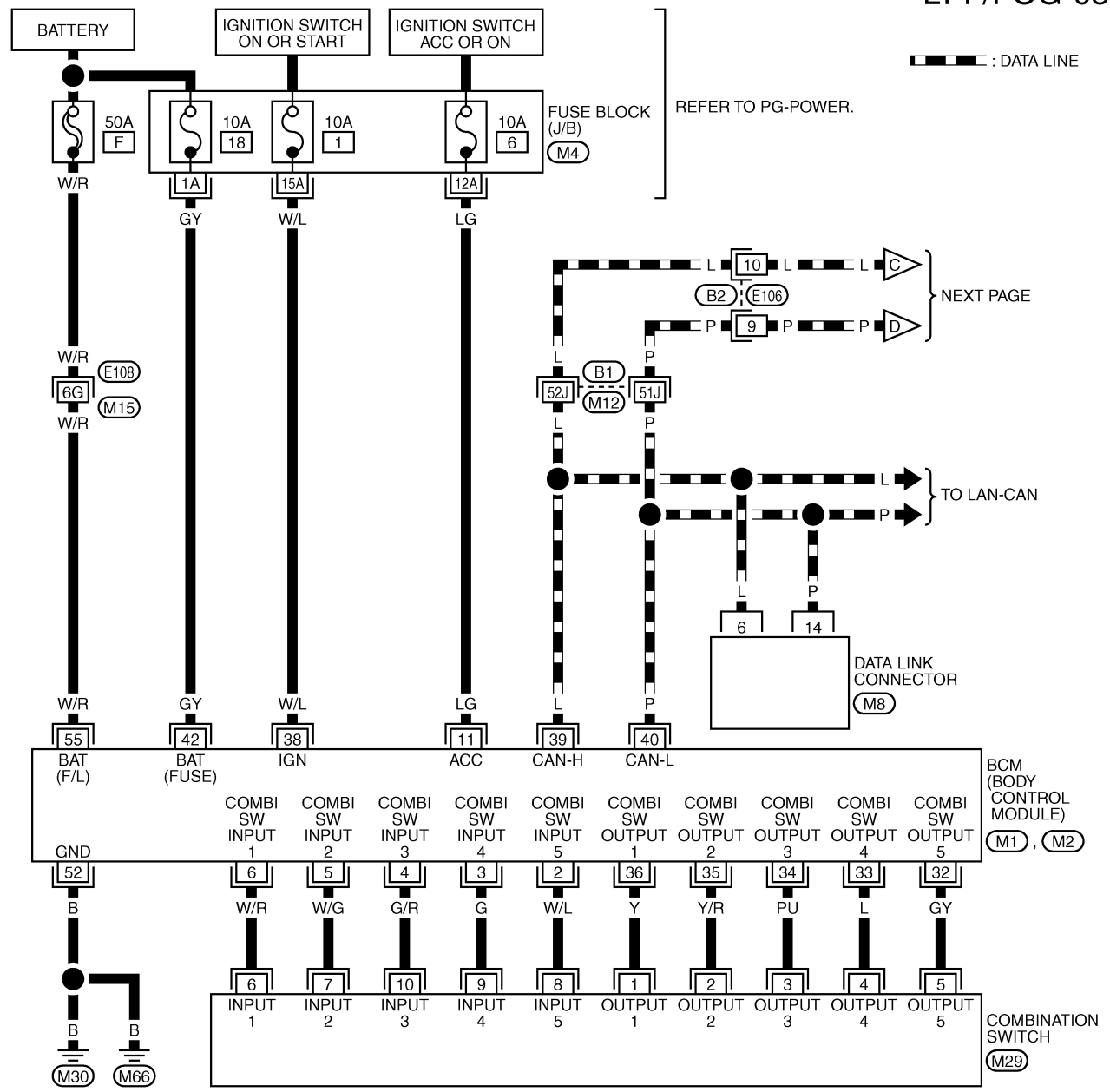




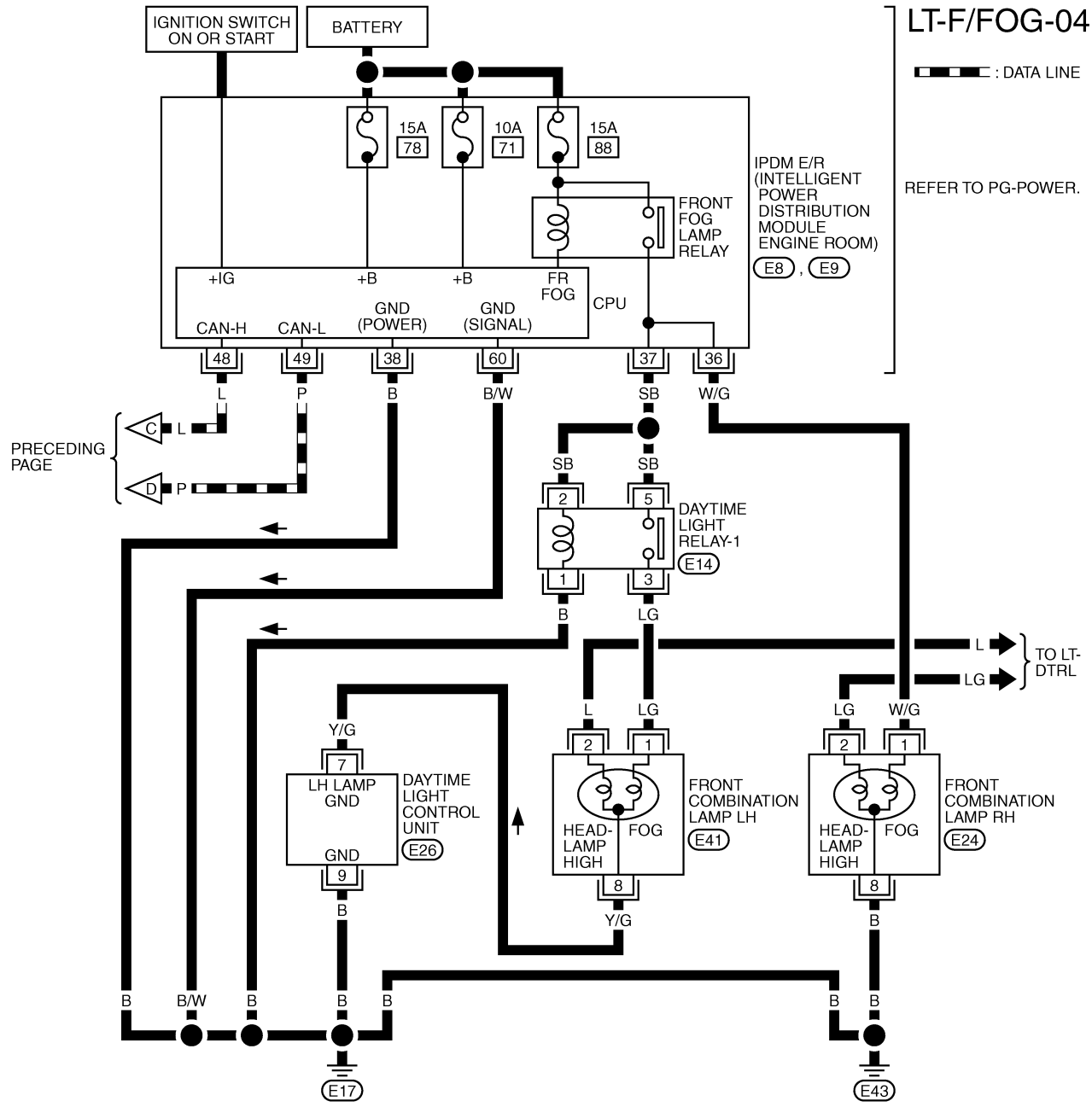
TKWM2257E

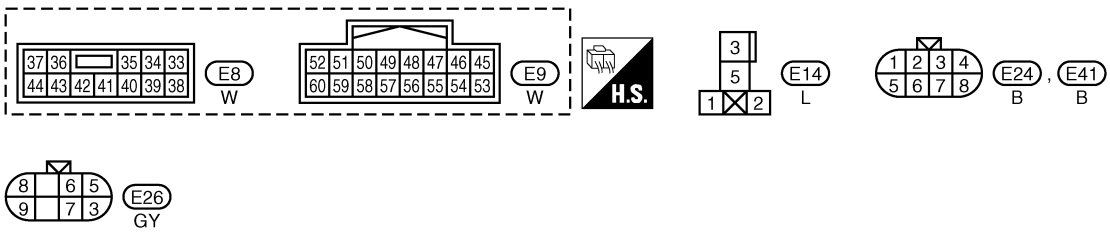
FOR CANADA

LT-F/FOG-03



TKWM2258E

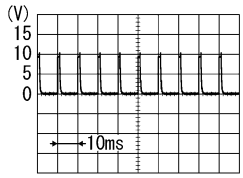
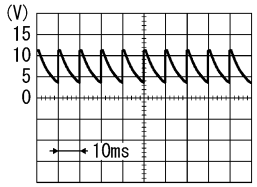
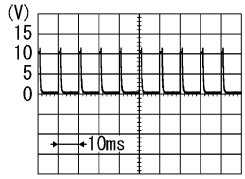

LT-F/FOG-04
: DATA LINE
REFER TO PG-POWER.
IGNITION SWITCH ON OR START
BATTERY
15A 78
10A 71
15A 88
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E8 , E9
FRONT FOG LAMP RELAY
+IG
+B
+B
FR FOG
CPU
CAN-H
CAN-L
GND (POWER)
GND (SIGNAL)
48
49
38
60
37
36
L
P
B
B/W
SB
W/G
PRECEDING PAGE
C L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


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

TKWM2259E

Terminals and Reference Values for BCM

NKS002MJ

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
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
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
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

NKS002MK

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. 0V
					ON	Battery voltage
37	SB	Front fog lamp (LH)			OFF	Approx. 0V
					ON	Battery voltage
38	B	Ground	ON	—		Approx. 0V
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/W	Ground	ON	—	Approx. 0V

How to Proceed With Trouble Diagnosis

NKS000UX

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-88, "System Description" .
3. Perform the Preliminary Check. Refer to LT-96, "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

NKS000UY

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

Check for blown fuses.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
		18
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	88

Refer to LT-91, "Wiring Diagram — F/FOG —" .

OK or NG

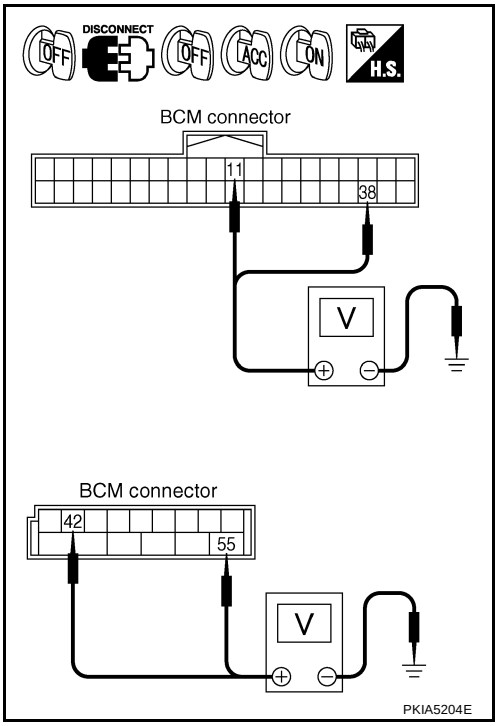
OK >> GO TO 2.

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

2. CHECK POWER SUPPLY CIRCUIT

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

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



OK or NG

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

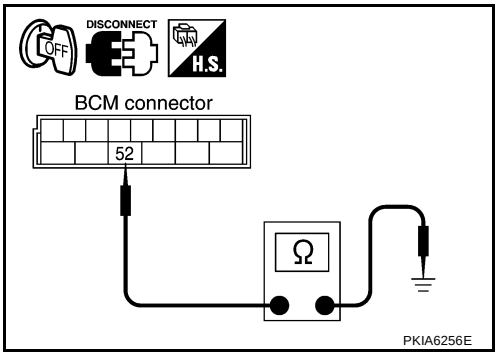
3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminal			Continuity
Connector	Terminal	Ground	Yes
M2	52		

OK or NG

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



CONSULT-II Functions (BCM)

NKS000UZ

Refer to LT-17, "CONSULT-II Functions (BCM)" in HEADLAMP (FOR USA).
Refer to LT-52, "CONSULT-II Functions (BCM)" in HEADLAMP (FOR CANADA).

CONSULT-II Functions (IPDM E/R)

NKS000V0

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

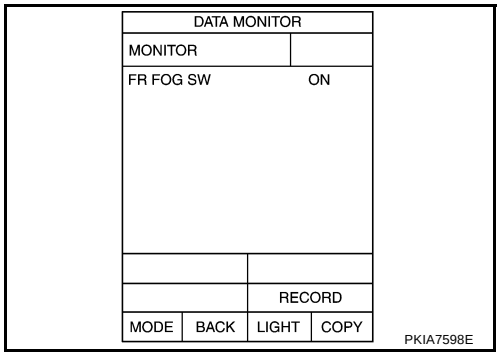
Front Fog lamps Does Not Illuminate (Both Sides) (FOR USA)

NKS000V1

1. CHECK COMBINATION SWITCH INPUT SIGNAL

With CONSULT-II

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



When lighting switch is FOG position : FR FOG SW ON

Without CONSULT-II

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

OK or NG

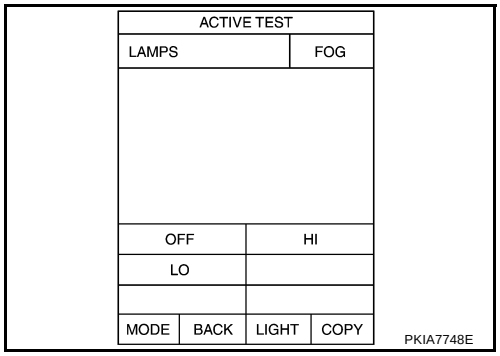
OK >> GO TO 2.

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

2. FOG LAMP ACTIVE TEST

With CONSULT-II

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



Fog lamp should operate.

Without CONSULT-II

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

Fog lamp should operate.

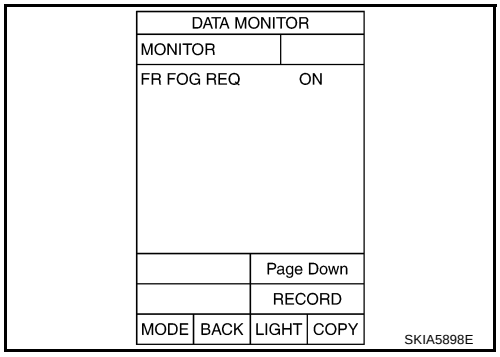
OK or NG

OK >> GO TO 3.

NG >> GO TO 4.

3. CHECK IPDM E/R

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



When lighting switch is FOG position : FR FOG REQ ON

OK or NG

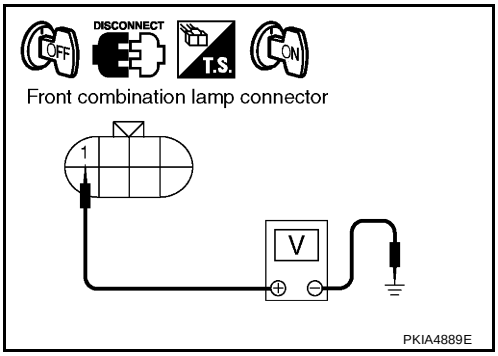
OK >> Replace IPDM E/R.

NG >> Replace BCM. Refer to BCS-18, "Removal and Installation of BCM" .

4. CHECK FOG LAMP INPUT SIGNAL

With CONSULT-II

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



Terminal				Voltage
(+)			(-)	
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 connector.
3. Start auto active test. Refer to PG-22, "Auto Active Test" .
4. When front fog lamp relay is operating, check voltage between front combination lamp harness connector and ground.

Terminal				Voltage
(+)			(-)	
Connector		Terminal		
RH	E24	1	Ground	Battery voltage
LH	E41	1		

OK or NG

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

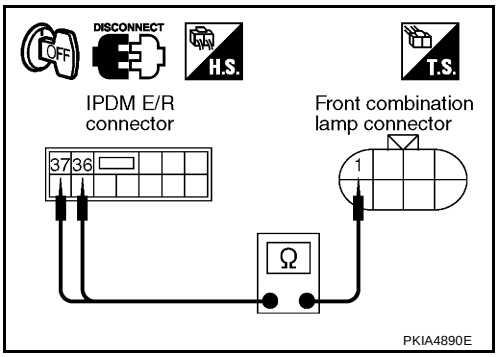
5. CHECK FOG LAMP CIRCUIT

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.
NG >> Repair harness or connector.

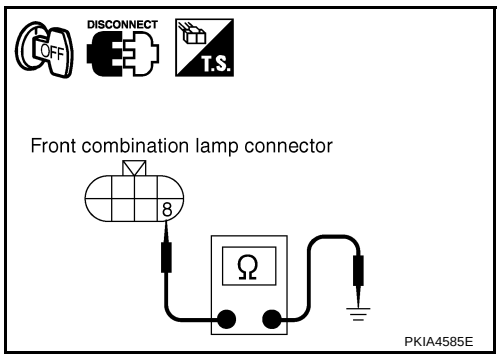
6. CHECK FOG LAMP GROUND

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) (FOR USA)

NKS000V2

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.

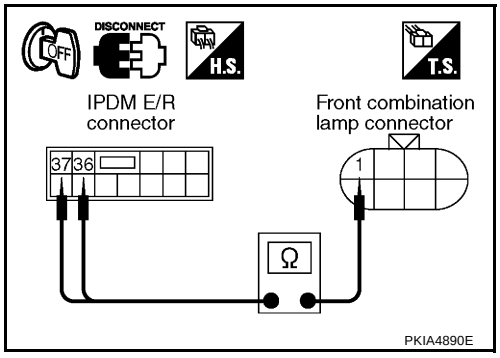
2. CHECK FOG LAMP CIRCUIT

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.

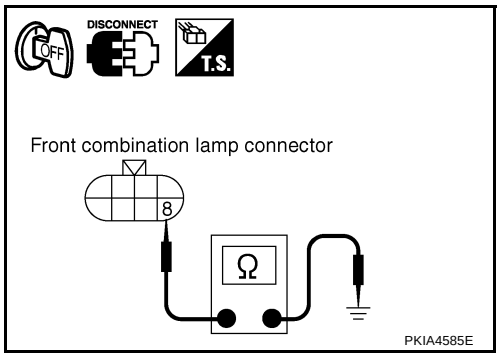
3. CHECK FOG LAMP GROUND

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.
NG >> Repair harness or connector.

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

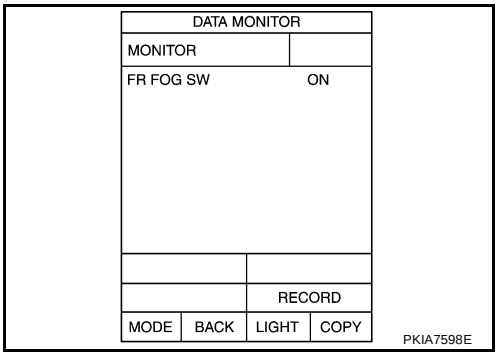
NKS000V3

1. CHECK COMBINATION SWITCH INPUT SIGNAL

With CONSULT-II

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

When lighting switch is FOG position : FR FOG SW ON



Without CONSULT-II

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

OK or NG

OK >> GO TO 2.

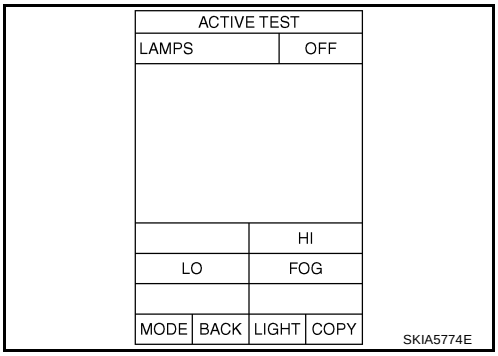
NG >> Check combination switch (lighting switch). Refer to LT-128, "Combination Switch Inspection" .

2. FOG LAMP ACTIVE TEST

With CONSULT-II

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

Fog lamp should operate.



Without CONSULT-II

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

Fog lamp should operate.

OK or NG

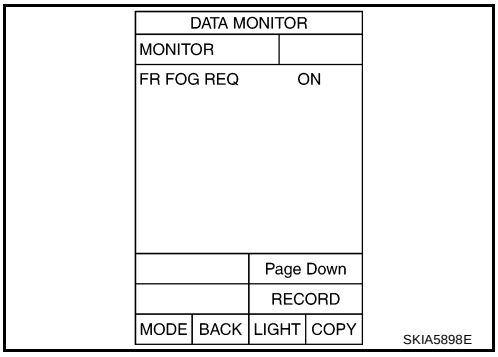
OK >> GO TO 3.

NG >> GO TO 4.

3. CHECK IPDM E/R

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

When lighting switch is FOG position : FR FOG REQ ON



OK or NG

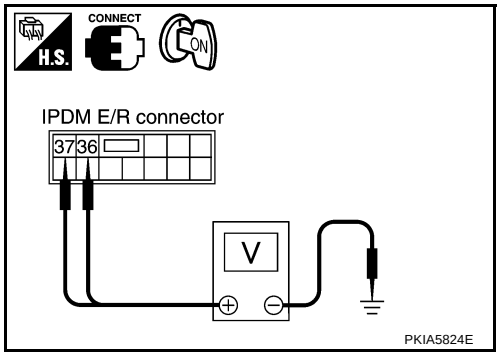
OK >> Replace IPDM E/R.

NG >> Replace BCM. Refer to BCS-18, "Removal and Installation of BCM" .

4. CHECK IPDM E/R

With CONSULT-II

1. Select “IPDM E/R” on CONSULT-II, and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
2. Select “TAIL LAMP” on “SELECT TEST ITEM” screen.
3. Touch “FOG” screen.
4. When front fog lamp relay is operating, check voltage between IPDM E/R harness connector and ground.



Terminal				Voltage
(+)			(-)	
Connector		Terminal		
RH	E8	36	Ground	Battery voltage
LH		37		

Without CONSULT-II

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

Terminal				Voltage
(+)			(-)	
Connector		Terminal		
RH	E8	36	Ground	Battery voltage
LH		37		

OK or NG

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

LH Front Fog Lamp Does Not Illuminate (FOR CANADA)

NKS000V4

1. CHECK BULB

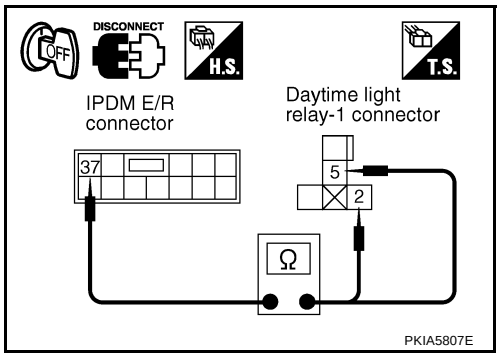
Check bulb of lamp which does not illuminate.

OK or NG

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

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

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



Terminal				Continuity
IPDM E/R		Daytime light relay-1		
Connector	Terminal	Connector	Terminal	
E8	37	E14	2	Yes
			5	

OK or NG

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

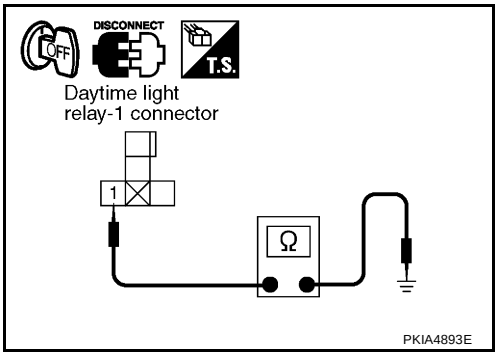
3. CHECK DAYTIME LIGHT RELAY–1 AND GROUND

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

1 – Ground : Continuity should exist.

OK or NG

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



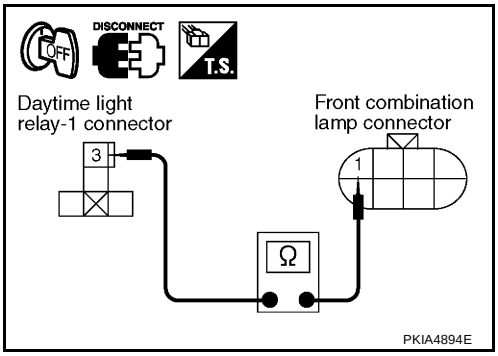
4. CHECK CIRCUIT DAYTIME LIGHT RELAY–1 AND HEADLAMP

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

3 – 1 : Continuity should exist.

OK or NG

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



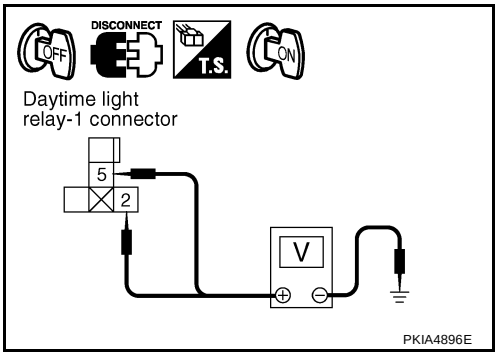
5. CHECK IPDM E/R

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

2, 5 – Ground : Battery voltage.

OK or NG

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



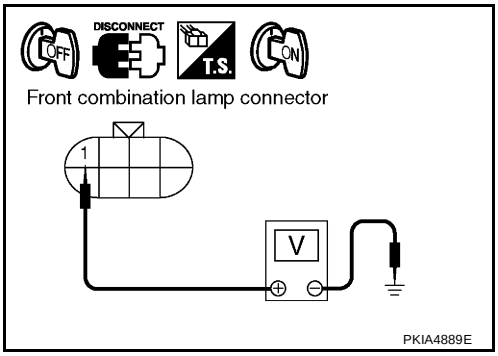
6. CHECK DAYTIME LIGHT RELAY–1

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

1 – Ground : Battery voltage.

OK or NG

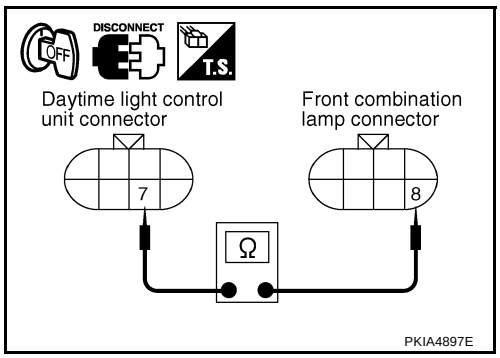
OK >> GO TO 7.
NG >> Replace daytime light relay–1.



7. CHECK CIRCUIT BETWEEN HEADLAMP AND DAYTIME LIGHT CONTROL UNIT

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

8 – 7 : Continuity should exist.



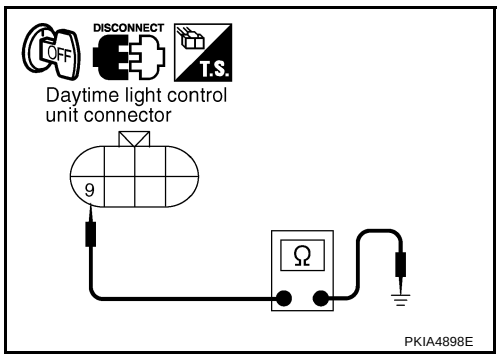
OK or NG

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

8. CHECK CIRCUIT BETWEEN HEADLAMP AND DAYTIME LIGHT CONTROL UNIT

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

9 – Ground : Continuity should exist.



OK or NG

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

RH Front Fog Lamp Does Not Illuminate (FOR CANADA)

NKS000V5

1. CHECK BULB

Check bulb of lamp which does not illuminate.

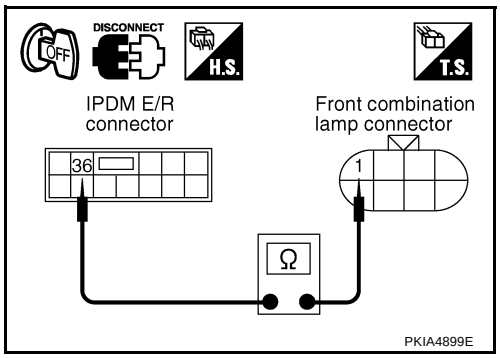
OK or NG

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

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

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

36 – 1 : Continuity should exist.



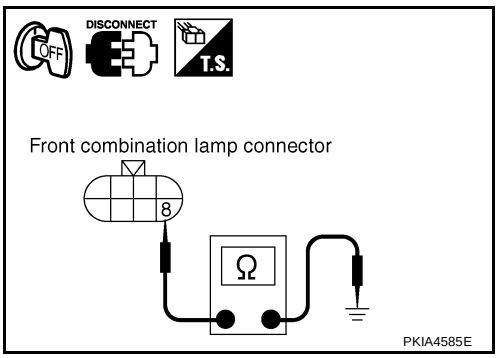
OK or NG

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

3. CHECK FRONT FOG LAMP GROUND

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

8 – Ground : Continuity should exist.



NKS000V6

OK or NG

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

Bulb Replacement

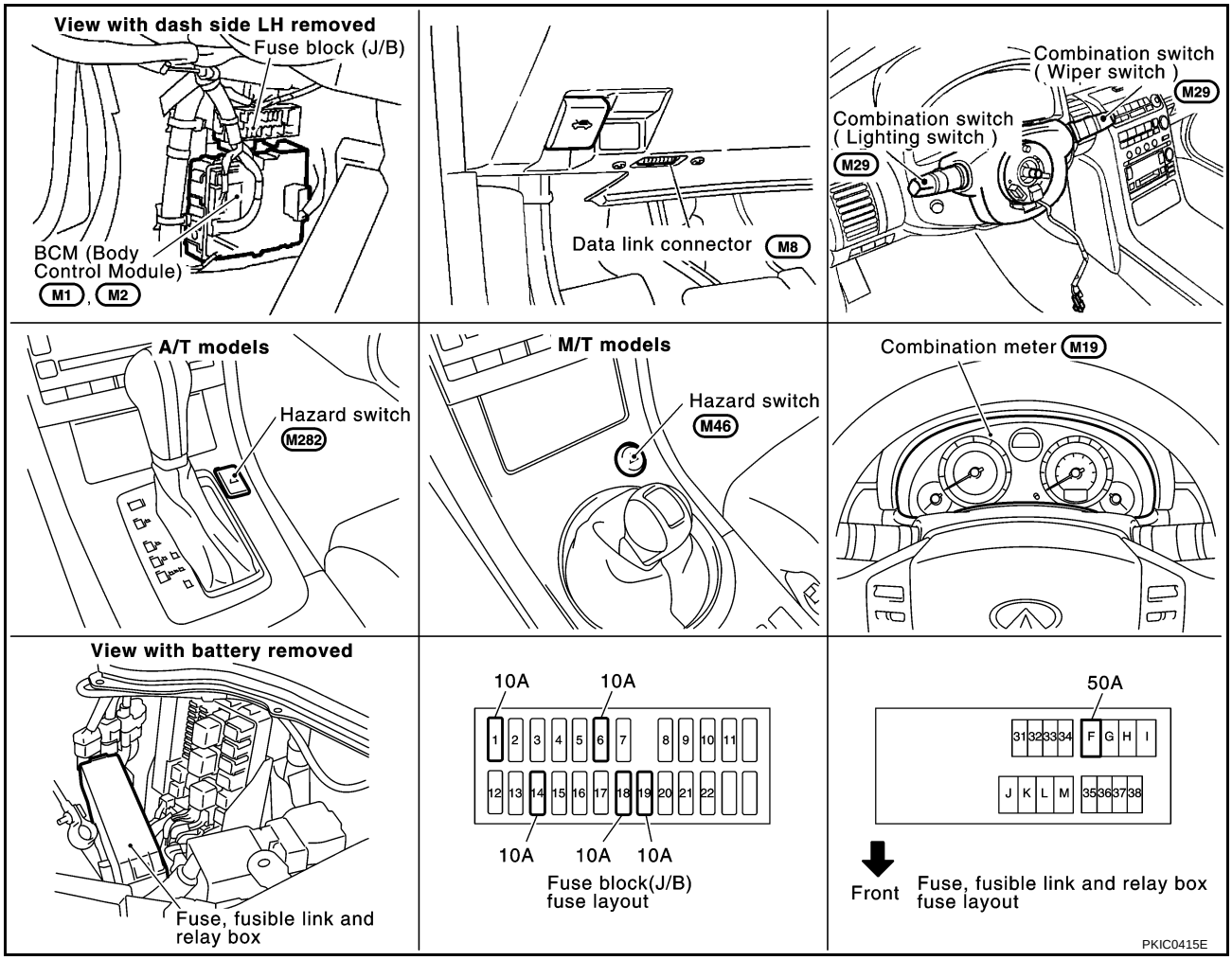
Refer to LT-31, "Bulb Replacement" in "HEADLAMP".

TURN SIGNAL AND HAZARD WARNING LAMPS

PFP:26120

Component Parts and Harness Connector Location

NKS000V7



System Description

NKS000V8

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 3.

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 3.

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
- through grounds M30 and M66,
- to BCM terminal 52
- through grounds M30 and M66,
- to combination meter terminals 1, 24 and 25
- 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 3,
- through BCM terminal 46
- to front combination lamp RH terminal 6, and
- to rear combination lamp RH terminal 3.

Ground is supplied

- to front combination lamp LH terminal 8, and
- to front combination lamp RH terminal 8

- through grounds E17 and E43,
- to rear combination lamp LH terminal 4, and
- 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 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
- through grounds M30 and M66,
- 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 3,
- through BCM terminal 46
- to front combination lamp RH terminal 6, and
- to rear combination lamp RH terminal 3.

Ground is supplied

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

NKS000V9

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

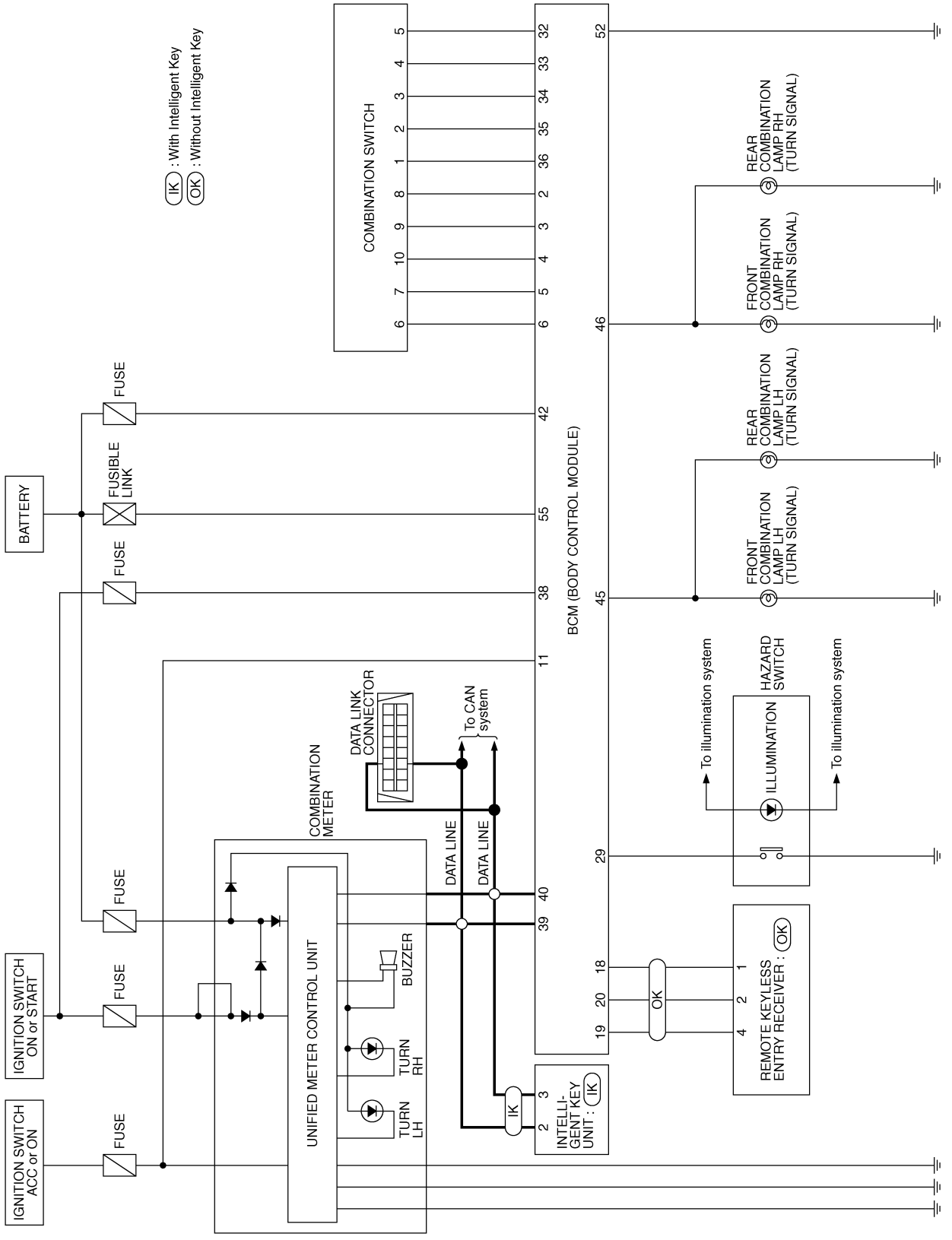
CAN Communication Unit

NKS000VA

Refer to LAN-27, "CAN Communication Unit" .

Schematic

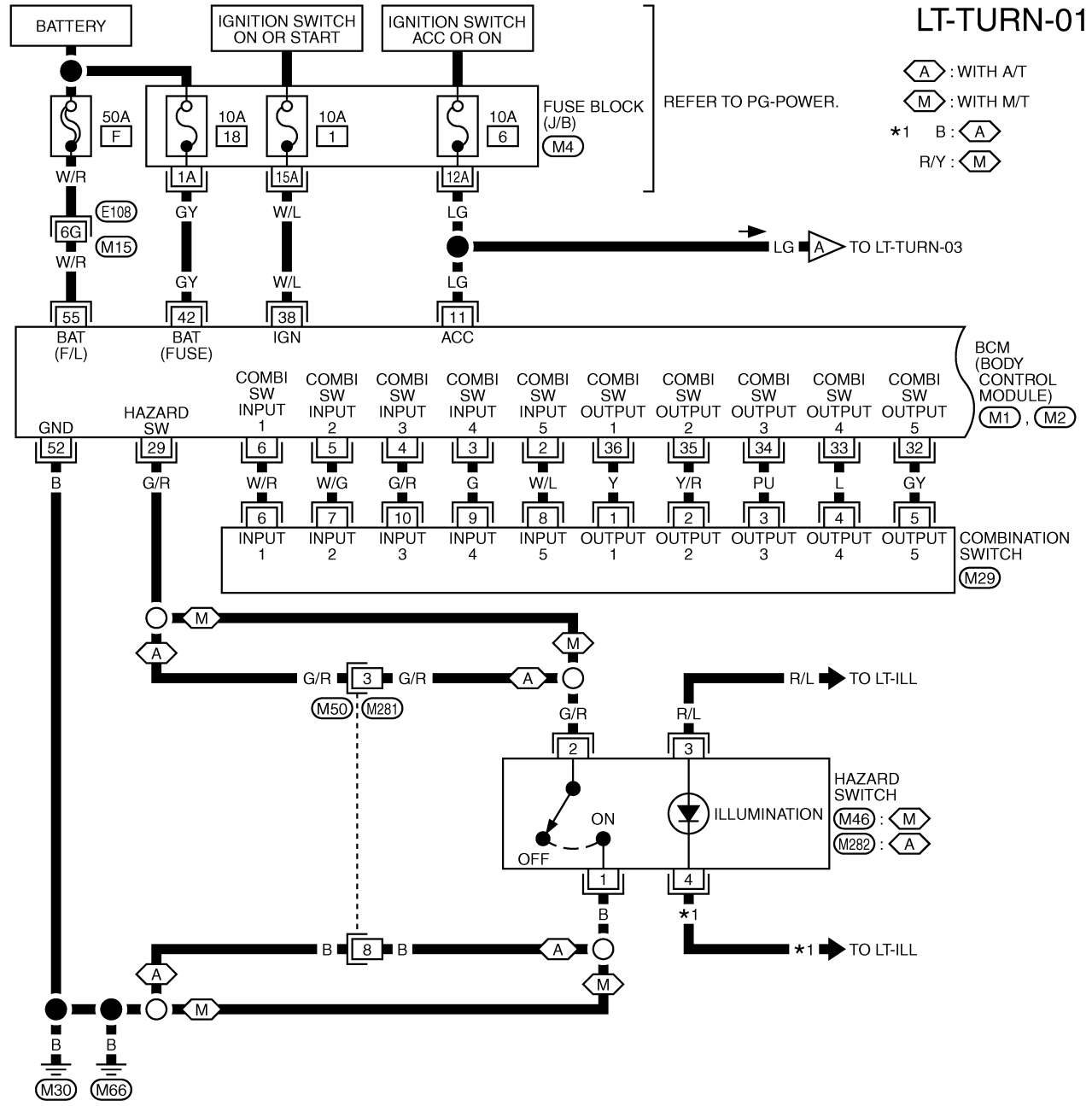
NKS000VB

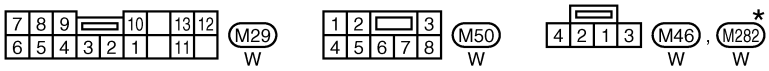


TKWM2260E

Wiring Diagram — TURN —

NKS000VC





REFER TO THE FOLLOWING.

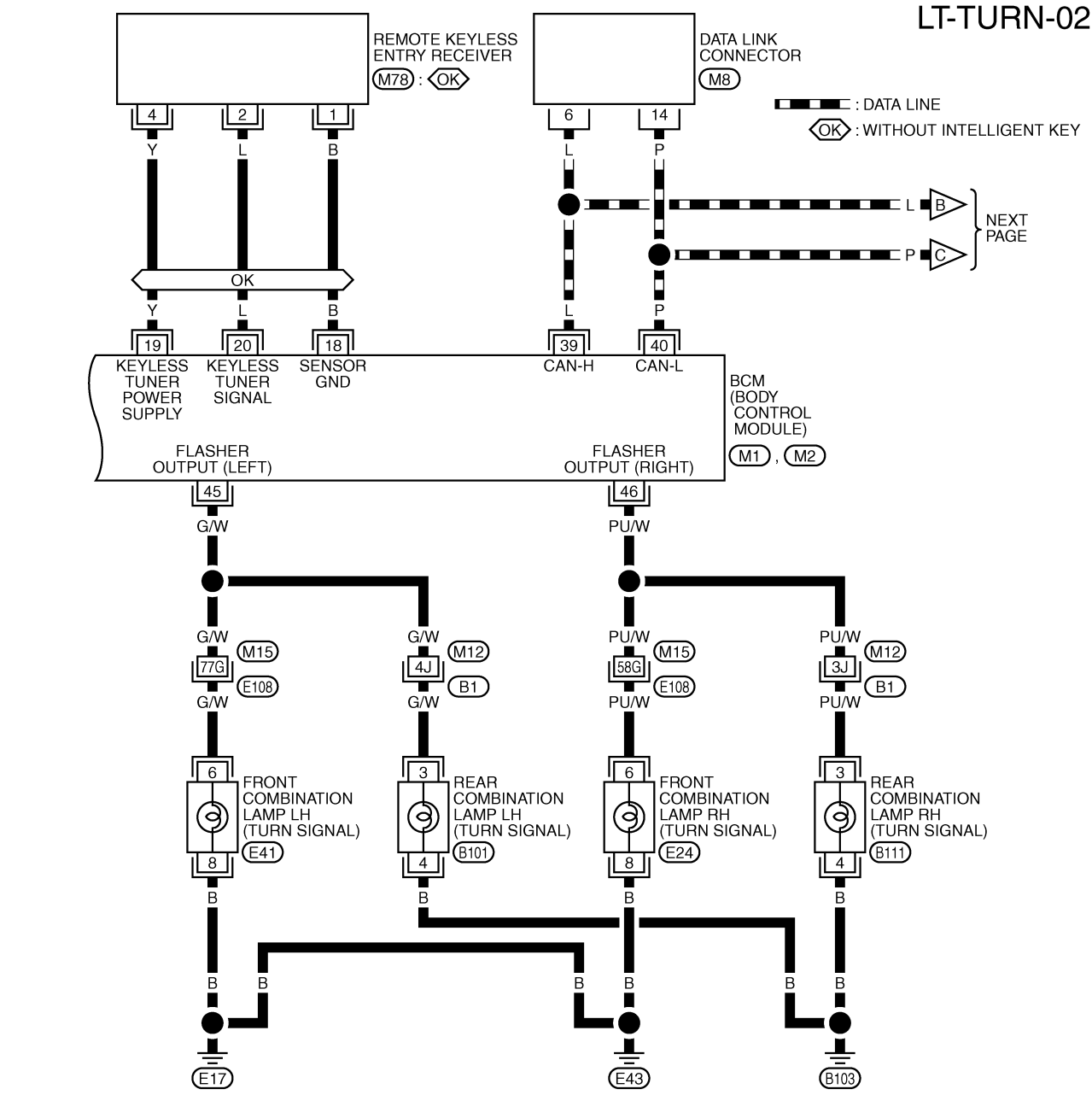
E108 -SUPER MULTIPLE JUNCTION (SMJ)

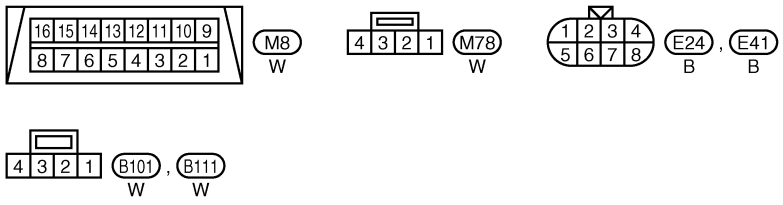
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

M1 , M2 -ELECTRICAL UNITS

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

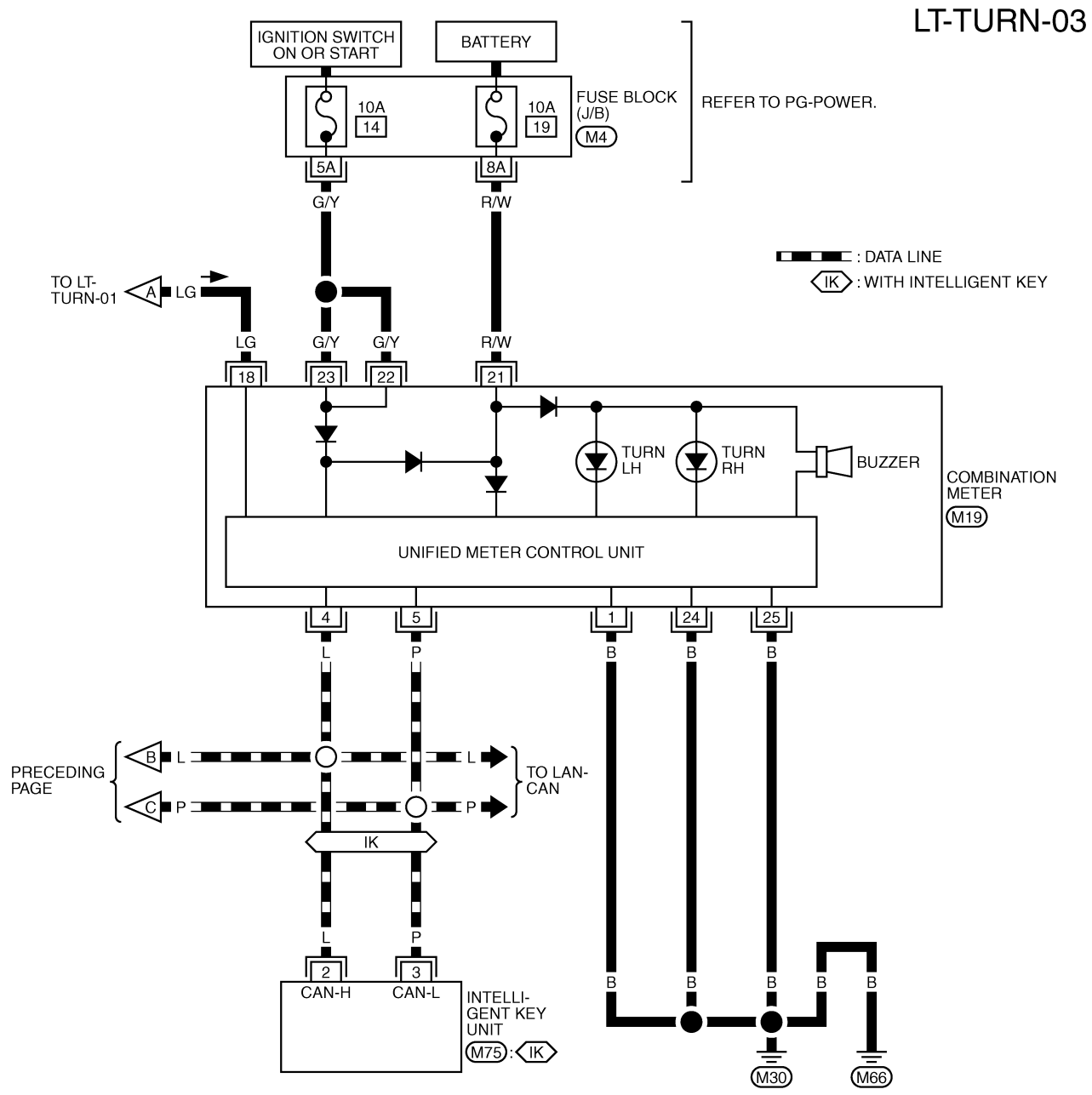
TKWM2933E

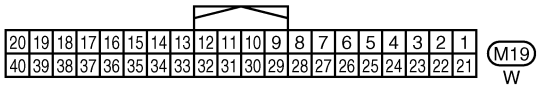




REFER TO THE FOLLOWING.
E108 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , M2 -ELECTRICAL UNITS

TKWM4005E



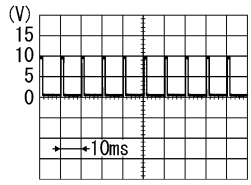
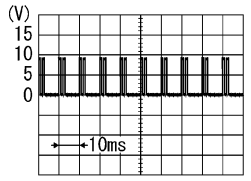
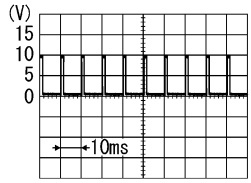
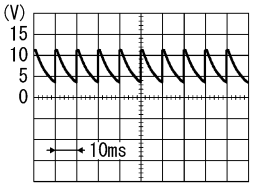
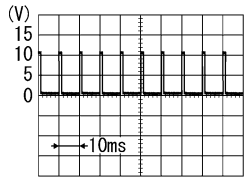


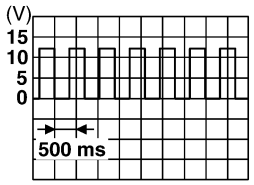
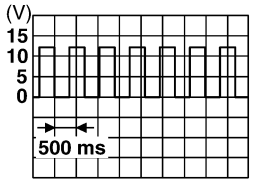
REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)
M75 -ELECTRICAL UNITS

TKWM2263E

Terminals and Reference Values for BCM

NKS000VD

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
2	W/L	Combination switch input 5	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	Approx. 0 V
					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
					Turn signal switch to left	 PKIB4959J Approx. 1.0 V
11	LG	Ignition switch (ACC)	ACC	—		Battery voltage
29	G/R	Hazard switch signal	OFF	Hazard switch	ON	Approx. 0V
					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

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
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	W/R	Battery power supply	OFF	—		Battery voltage

How to Proceed With Trouble Diagnosis

NKS000VE

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-106, "System Description" .
3. Perform the preliminary check. Refer to LT-114, "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

NKS000VF

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

Check for blown fuses.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
		18
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
Combination meter	Battery	19
	Ignition switch ON or START position	14

Refer to LT-110, "Wiring Diagram — TURN —" .

OK or NG

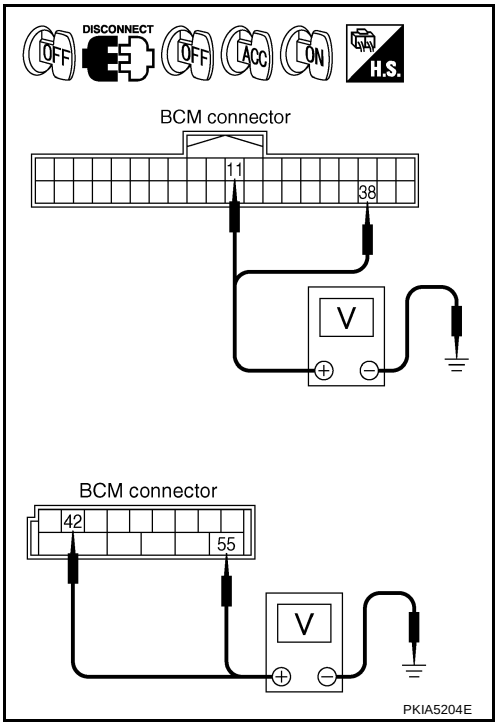
OK >> GO TO 2.

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

2. CHECK POWER SUPPLY CIRCUIT

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

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



OK or NG

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

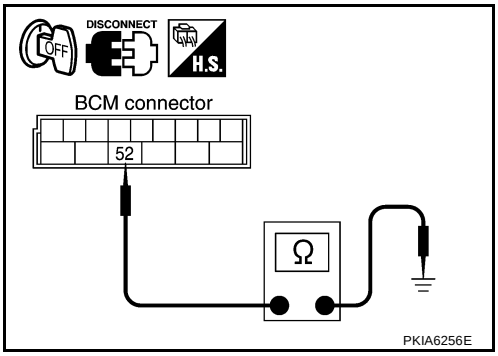
3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminal			Continuity
Connector	Terminal		
M2	52	Ground	Yes

OK or NG

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



CONSULT-II Functions (BCM)

NKS000VG

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

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

CONSULT-II BASIC OPERATION

Refer to GI-38, "CONSULT-II Start Procedure" .

DATA MONITOR

Operation Procedure

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

NKS000VH

1. CHECK BULB

Check bulb standard of each turn signal lamp is correct.

OK or NG

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

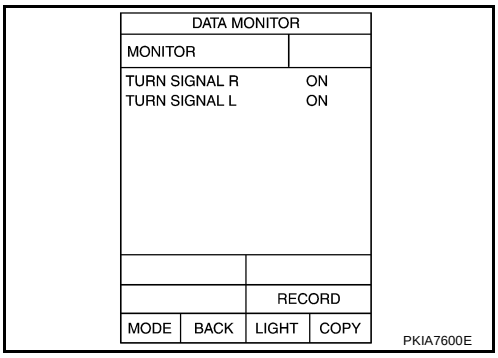
2. CHECK COMBINATION SWITCH INPUT SIGNAL

With CONSULT-II

Select “BCM” on CONSULT-II. With “FLASHER” data monitor, make sure “TURN SIGNAL R” and “TURN SIGNAL L” turns ON-OFF linked with operation of 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-128, "Combination Switch Inspection" .

OK or NG

OK >> GO TO 3.

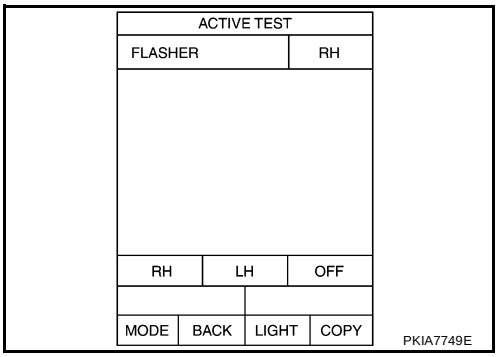
NG >> Check combination switch (lighting switch). Refer to LT-128, "Combination Switch Inspection" .

3. ACTIVE TEST

With CONSULT-II

1. Select “BCM” on CONSULT-II. Select “FLASHER” active test. Refer to LT-116, "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

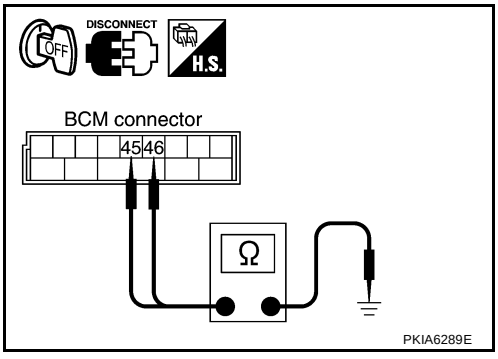
OK >> Replace BCM. Refer to BCS-18, "Removal and Installation of BCM" .

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.

Terminal				Continuity
BCM			Ground	
Connector		Terminal		
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-18, "Removal and Installation of BCM" .

NG >> Repair harness or connector.

Hazard Warning Lamp Does Not Operate But Turn Signal Lamp Operate

NKS000VI

1. CHECK BULB

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

OK or NG

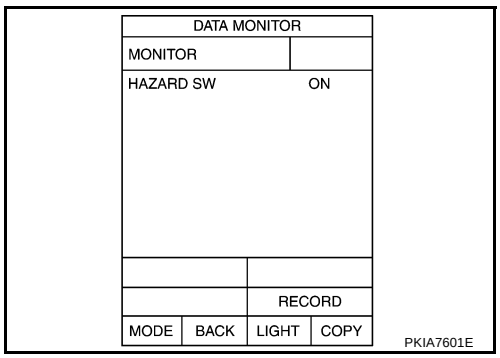
OK >> GO TO 2.
NG >> Replace bulb.

2. CHECK HAZARD SWITCH INPUT SIGNAL

With CONSULT-II

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

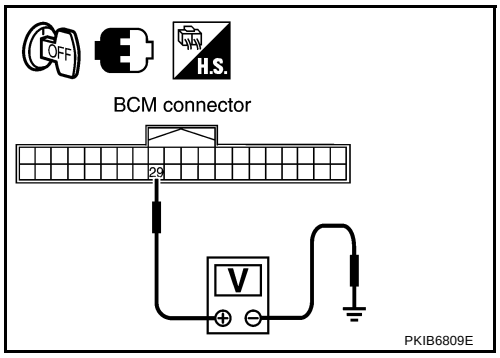
When hazard switch is ON : HAZARD SW ON position



Without CONSULT-II

Check voltage between BCM harness connector M1 terminal 29 (G/R) and ground.

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



OK or NG

OK >> Replace BCM. Refer to BCS-18, "Removal and Installation of BCM" .
NG >> GO TO 3.

3. CHECK HAZARD SWITCH CIRCUIT

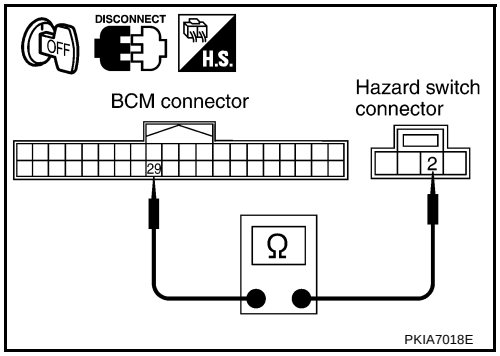
1. Turn ignition switch OFF.
2. Disconnect BCM connector and hazard switch connector.
3. Check continuity BCM harness connector M1 terminal 29 and hazard switch harness connector M282*1 , M46*2 terminal 2.

29 – 2 : Continuity should exist.

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

OK or NG

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



4. CHECK GROUND

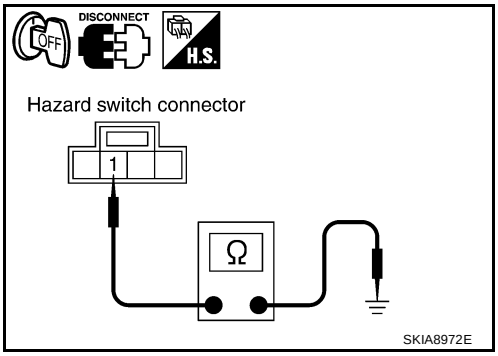
Check continuity hazard switch harness connector M282*1 , M46*2 terminal 1 and ground.

1 – Ground : Continuity should exist.

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

OK or NG

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



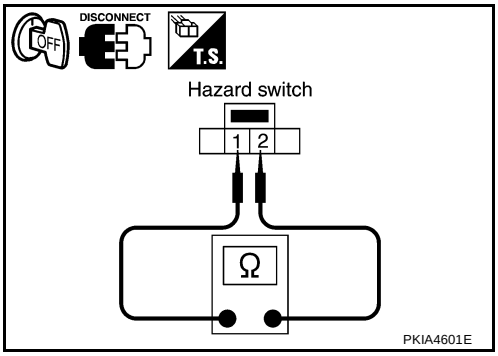
5. CHECK HAZARD SWITCH

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

Terminal		Condition	Continuity
Hazard switch			
1	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-18, "Removal and Installation of BCM" .
NG >> Replace hazard switch.



Turn Signal Indicator Lamp Does Not Operate

NKS000VJ

1. CHECK BULB

Check bulb of turn signal indicator lamp in combination meter.

OK or NG

OK >> Replace combination meter.
NG >> Replace indicator bulb.

Bulb Replacement (Front Turn Signal Lamp)

NKS000VK

Refer to LT-31, "Bulb Replacement" .

Bulb Replacement (Rear Turn Signal Lamp)

NKS000VL

Refer to LT-152, "Bulb Replacement" .

Removal and Installation of Front Turn Signal Lamp

NKS000VM

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

Removal and Installation of Rear Turn Signal Lamp

NKS000VN

Refer to LT-152, "Removal and Installation" .

LIGHTING AND TURN SIGNAL SWITCH

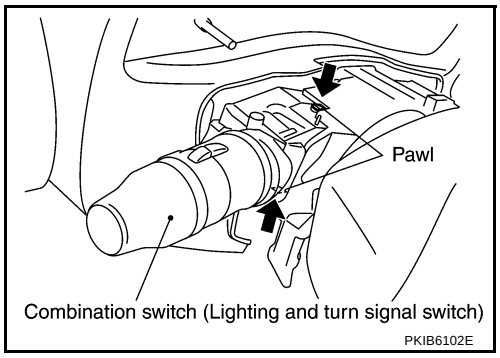
PFP:25540

Removal and Installation

NKS000VO

REMOVAL

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



INSTALLATION

Installation is the reverse order of removal.

HAZARD SWITCH

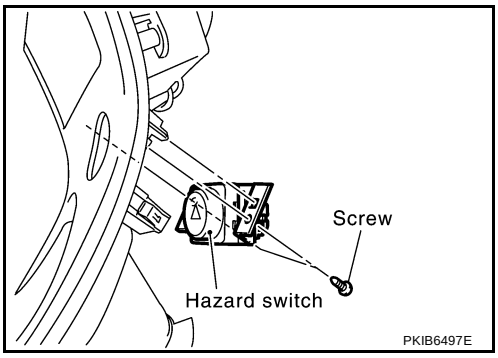
PFP:25290

Removal and Installation (M/T)

NKS000VP

REMOVAL

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



INSTALLATION

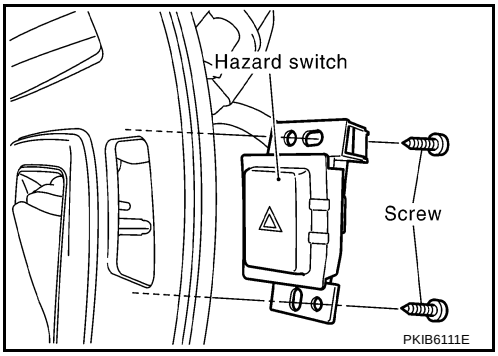
Installation is the reverse order of removal.

Removal and Installation (A/T)

NKS000VQ

REMOVAL

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



INSTALLATION

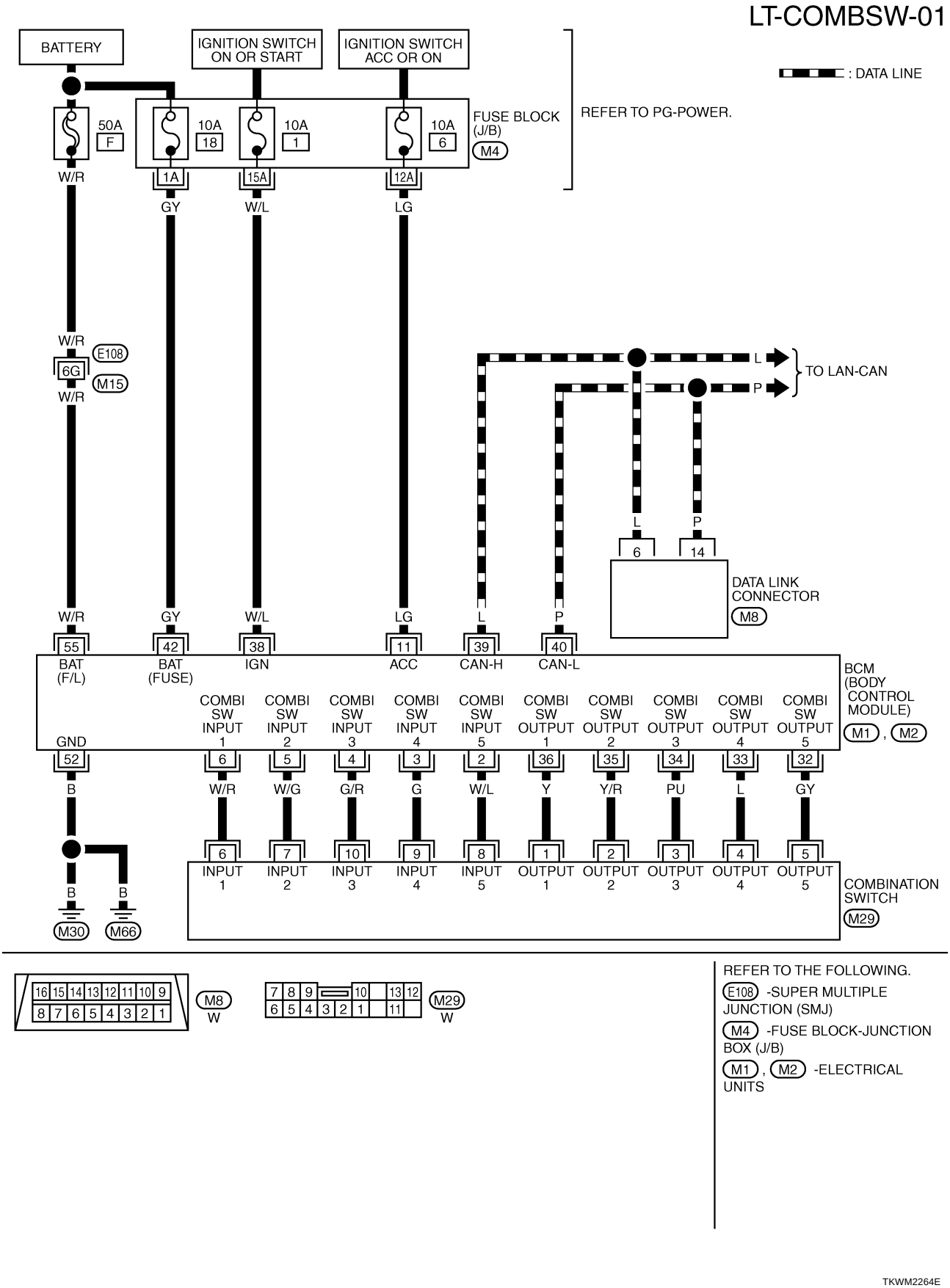
Installation is the reverse order of removal.

COMBINATION SWITCH

PFP:25567

Wiring Diagram — COMBSW —

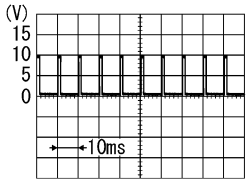
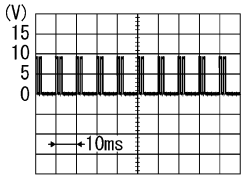
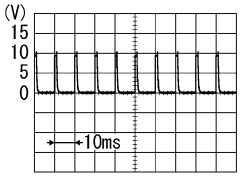
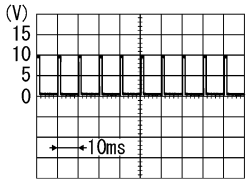
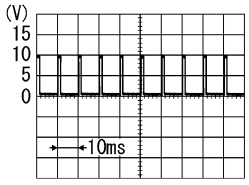
NKS000VR

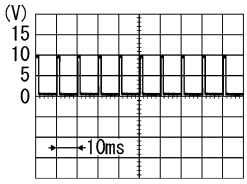
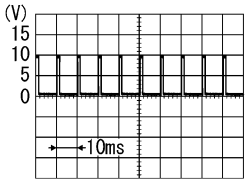
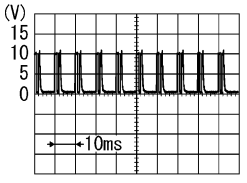
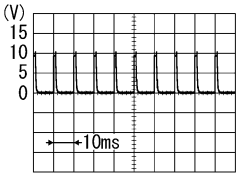


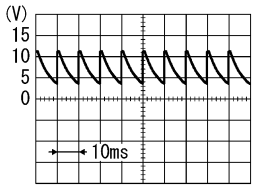
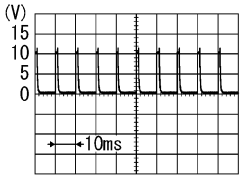
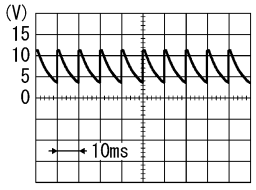
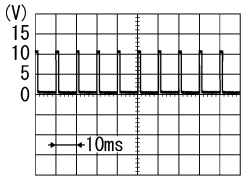
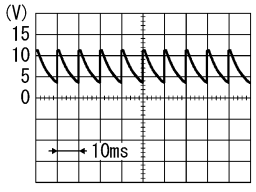
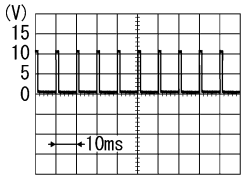
TKWM2264E

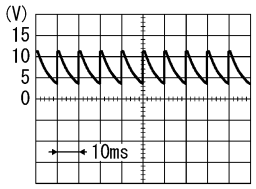
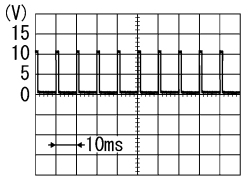
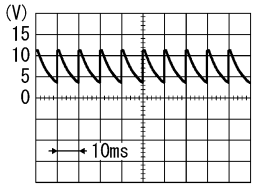
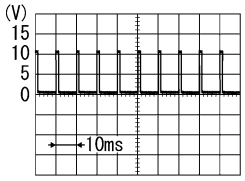
Terminals and Reference Values for BCM

NKS002Q9

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
2	W/L	Combination switch input 5	ON	Lighting, turn, wiper 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 AUTO ● Lighting switch 2ND ● Lighting switch PASSING (Operates only PASSING switch) ● Turn signal switch to left	 PKIB4959J Approx. 1.0 V
4	G/R	Combination switch input 3	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	Approx. 0 V
					Any of the conditions below ● Front wiper switch MIST ● Front wiper switch INT ● Front wiper switch LO	 PKIB4959J Approx. 1.0 V

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
5	W/G	Combination switch input 2	ON	Lighting, turn, wiper switch	OFF (Wiper intermittent dial position 4)	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 (Wiper intermittent dial position 4)	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 intermittent dial position 4) ● Lighting switch 1ST (The same result with lighting switch 2ND) (Wiper intermittent dial position 4) ● Wiper intermittent dial position 1 ● Wiper intermittent dial position 5 ● Wiper intermittent dial position 6	 PKIB4958J Approx. 1.2 V
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) ● Wiper intermittent dial position 1 ● Wiper intermittent dial position 2 ● Wiper intermittent dial position 3	 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) ● 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
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

Combination Switch Reading Function

NKS000VS

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

CONSULT-II Function (BCM)

NKS000VT

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

BCM diagnosis part	Diagnosis mode	Description
COMB SW	DATA MONITOR	Displays BCM input data in real time.

CONSULT-II BASIC OPERATION

Refer to GI-38, "CONSULT-II Start Procedure" .

DATA MONITOR

Operation Procedure

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

ALL SIGNALS	Monitors all the signals.
SELECTION FROM MENU	Selects 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.
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.

Monitor item name		Contents
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.

Combination Switch Inspection

NKS000VU

1. SYSTEM CHECK

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

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

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

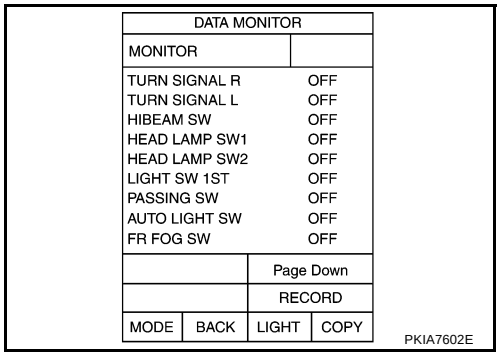
2. SYSTEM CHECK

With CONSULT-II

CAUTION:

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

1. Connect CONSULT-II, and select “COMB SW” on “SELECT TEST ITEM” screen.
2. Select “DATA MONITOR”.
3. Select “START”, and confirm that other switches in malfunctioning system operate normally.
   Example: When 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 auto light switch belongs, operate normally.

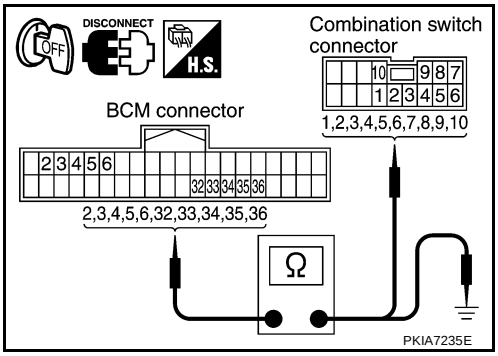
Check results

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

3. HARNESS INSPECTION

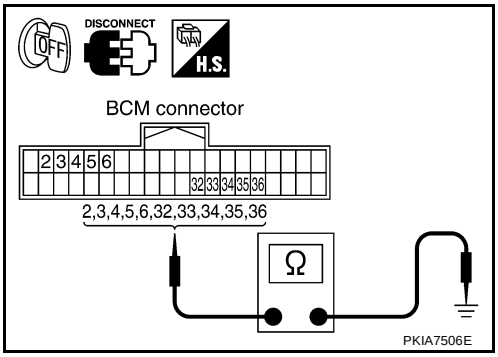
1. Turn ignition switch OFF.
2. Disconnect BCM connector and combination switch connector.
3. Check for continuity between BCM harness connector of the suspect system and the corresponding combination switch harness connector.

Suspect system	Terminal				Continuity
	BCM		Combination switch		
	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	Terminal			Continuity
	BCM			
	Connector	Terminal		
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		



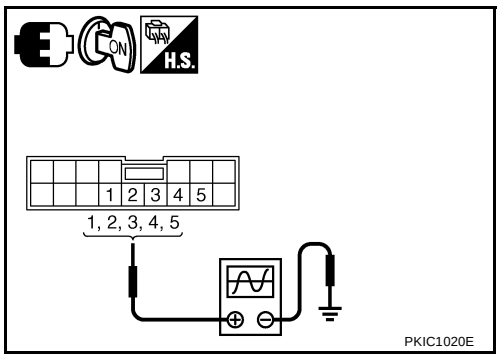
OK or NG

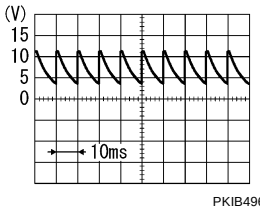
OK >> GO TO 4.

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	Terminal			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-18, "Removal and Installation of BCM" .

5. COMBINATION SWITCH INSPECTION

Referring to table below, perform combination switch inspection.

Procedure										
1	2		3	4		5	6		7
Replace lighting switch	Confirm check results	OK	INSPECTION END	Confirm check results	OK	INSPECTION END	Confirm check results	OK	INSPECTION END
		NG	Replace wiper switch		NG	Replace switch base		NG	Confirm symptom again

>> INSPECTION END

Removal and Installation

NKS000VV

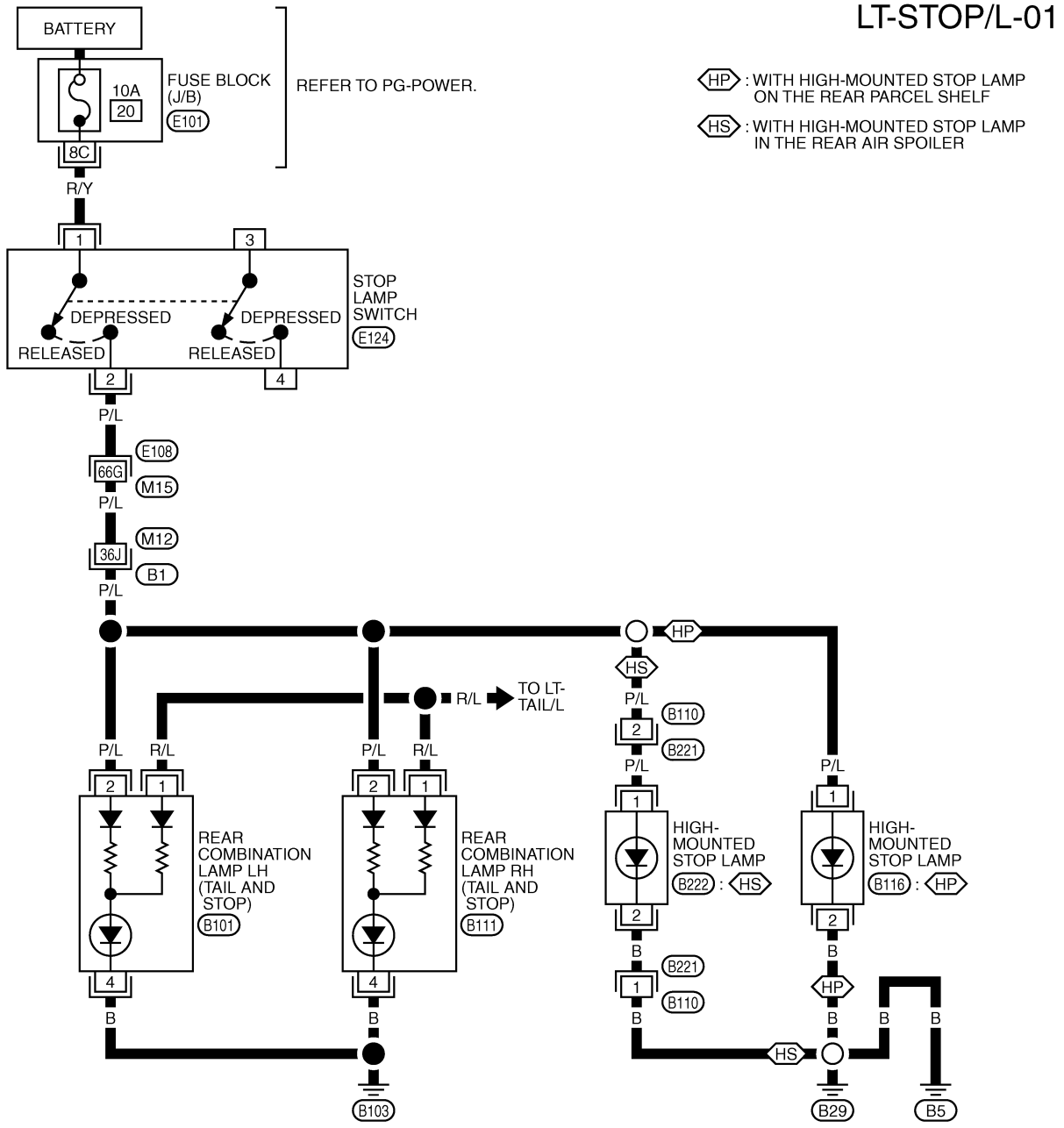
For details, refer to LT-120, "LIGHTING AND TURN SIGNAL SWITCH" .

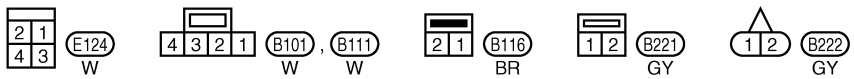
STOP LAMP

PFP:26550

Wiring Diagram — STOP/L —

NKS000VW





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

TKWM2265E

Bulb Replacement of High-Mounted Stop Lamp

NKS000VX

WITH REAR SPOILER

1. Remove high-mounted stop lamp. Refer to LT-132, "Removal and Installation of High-Mounted Stop Lamp" .
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-132, "Removal and Installation of High-Mounted Stop Lamp" .
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)

NKS000VY

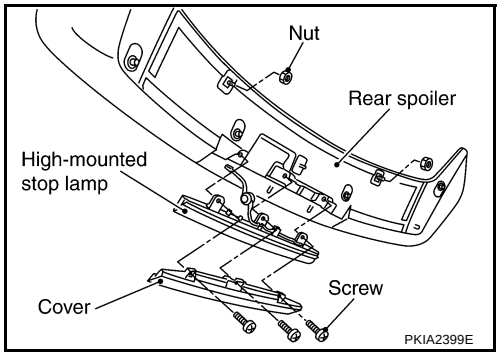
Refer to LT-152, "Bulb Replacement" in “REAR COMBINATION LAMP”.

Removal and Installation of High-Mounted Stop Lamp

NKS000VZ

REMOVAL (WITH REAR SPOILER)

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

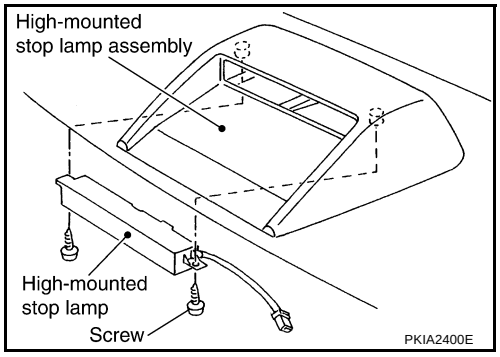


INSTALLATION

Installation is the reverse order of removal.

REMOVAL (WITHOUT REAR SPOILER)

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



INSTALLATION

Installation is the reverse order of removal.

Removal and Installation of Rear Combination Lamp (Stop Lamp)

NKS000W0

Refer to LT-152, "Removal and Installation" in “REAR COMBINATION LAMP”.

BACK-UP LAMP

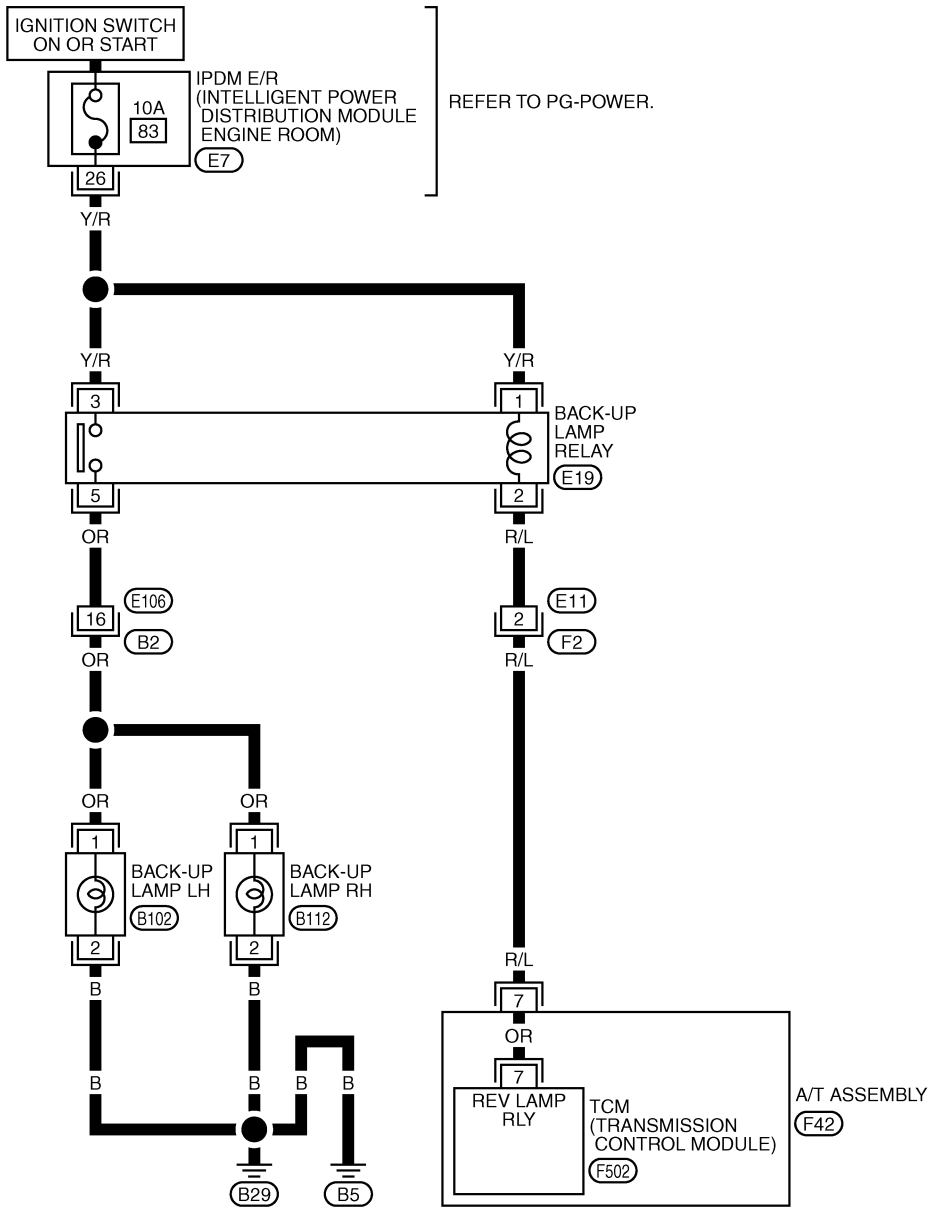
PFP:26550

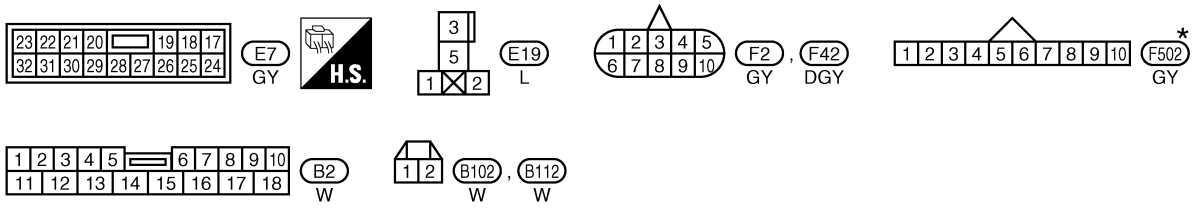
Wiring Diagram — BACK/L —

NKS000W3

A/T MODELS

LT-BACK/L-01



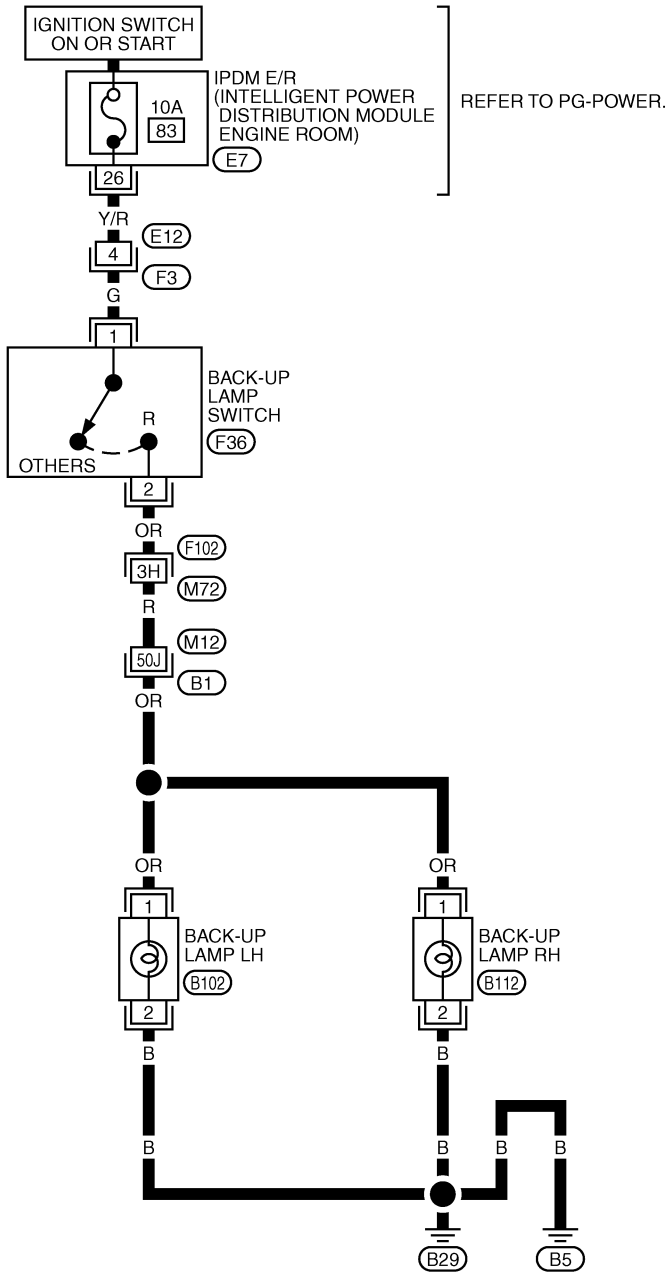


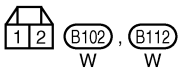
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWM2266E

M/T MODELS

LT-BACK/L-02





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

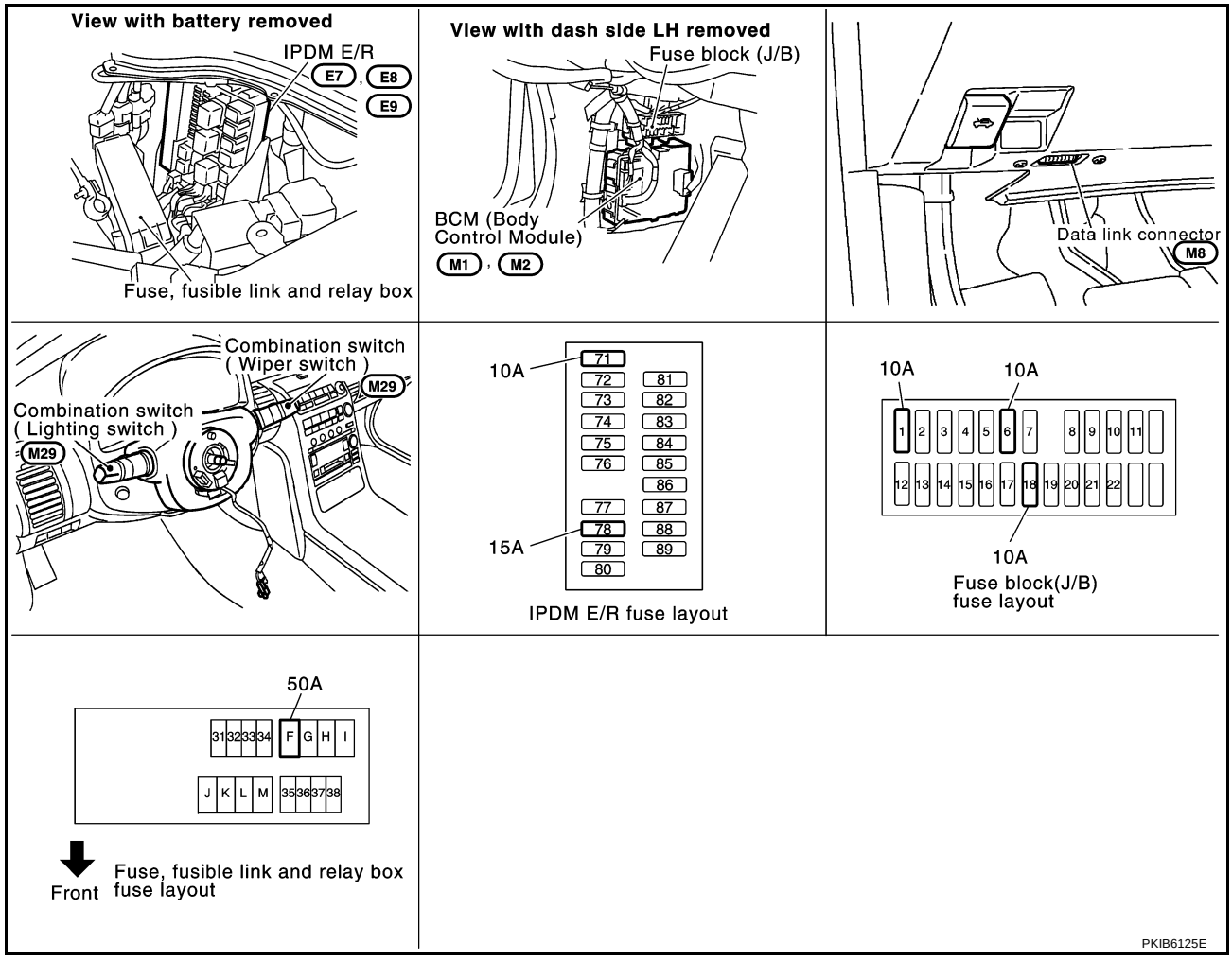
TKWM2934E

PARKING, LICENSE PLATE AND TAIL LAMPS

PFP:26550

Component Parts and Harness Connector Location

NKS000W4



System Description

NKS000W5

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

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

Ground is supplied

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

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

COMBINATION SWITCH READING FUNCTION

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

EXTERIOR LAMP BATTERY SAVER CONTROL

When the combination switch (lighting switch) is in the 1ST or 2ND position, and ignition switch is turned from ON or ACC to OFF, battery saver control feature is activated.
Under this condition, parking, license plate, side marker and tail lamps remain illuminated for 5 minutes, then the parking, license plate, side marker and tail lamps are turned off.
Exterior lamp battery saver control mode can be changed by the function setting of CONSULT-II.

CAN Communication System Description

NKS000W6

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

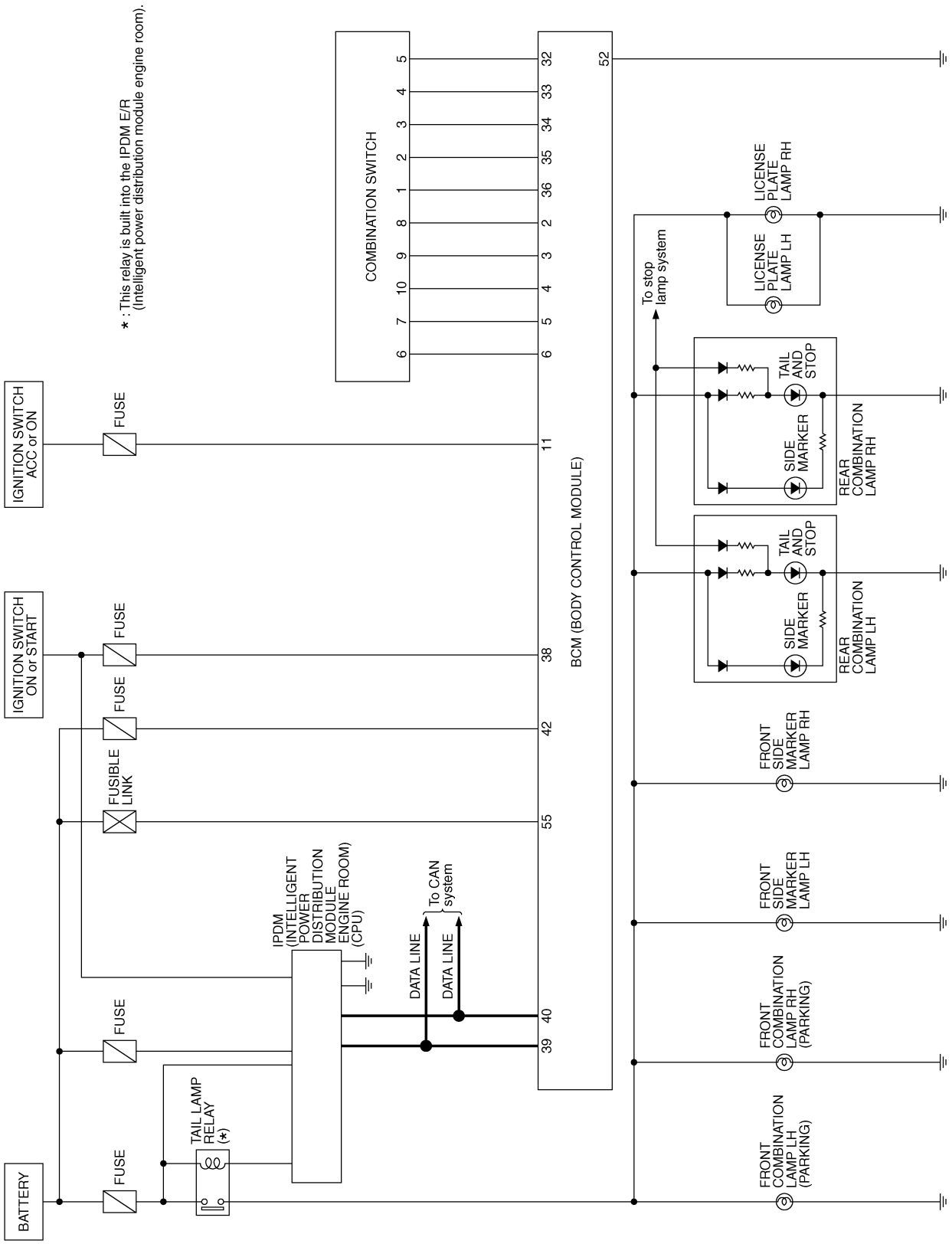
CAN Communication Unit

NKS000W7

Refer to LAN-27, "CAN Communication Unit" .

Schematic

NKS000W8

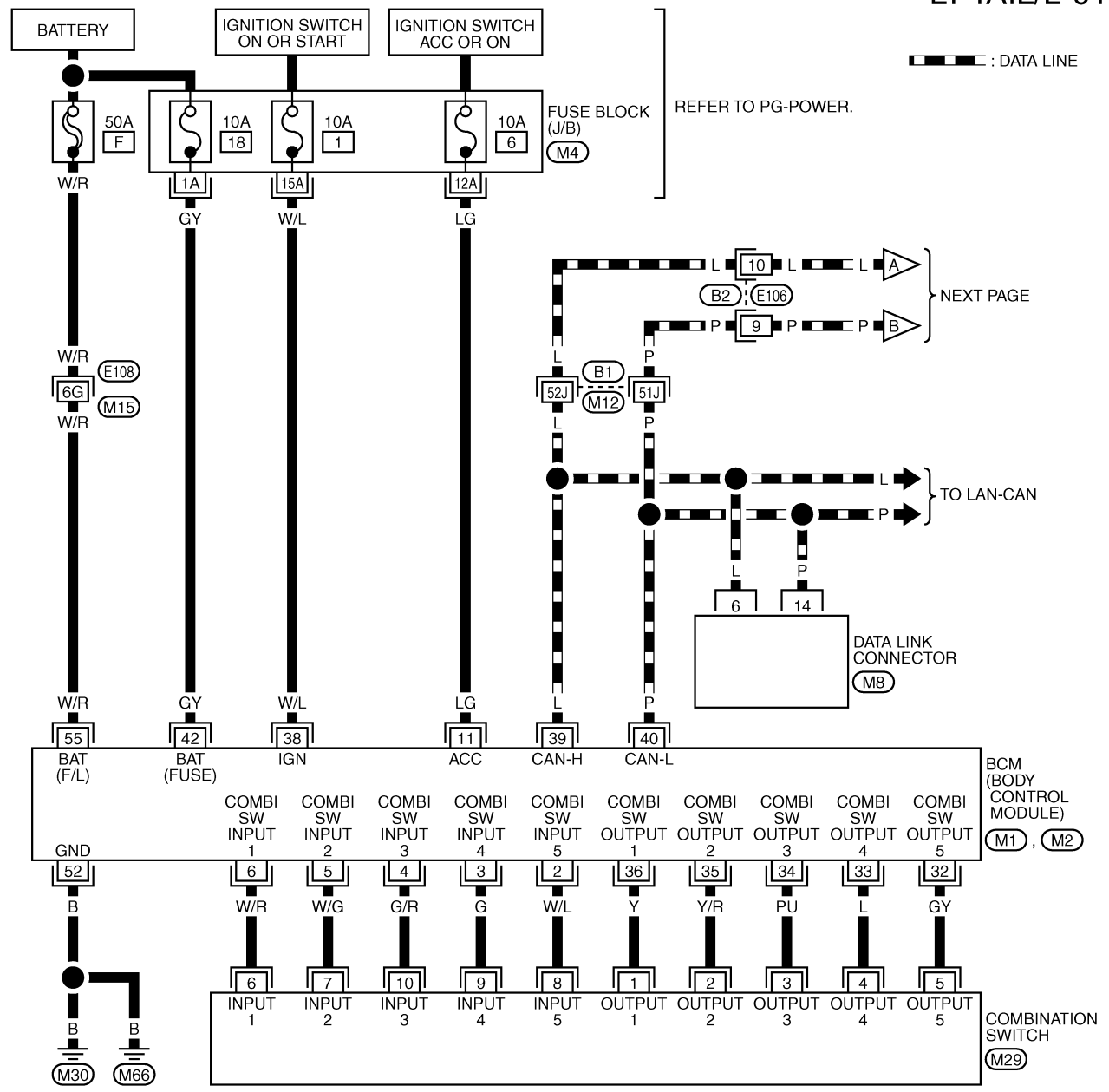


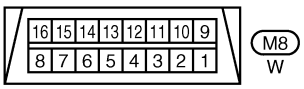
TKWM2529E

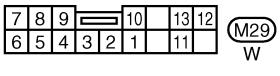
Wiring Diagram — TAIL/L —

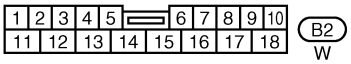
NKS000W9

LT-TAIL/L-01









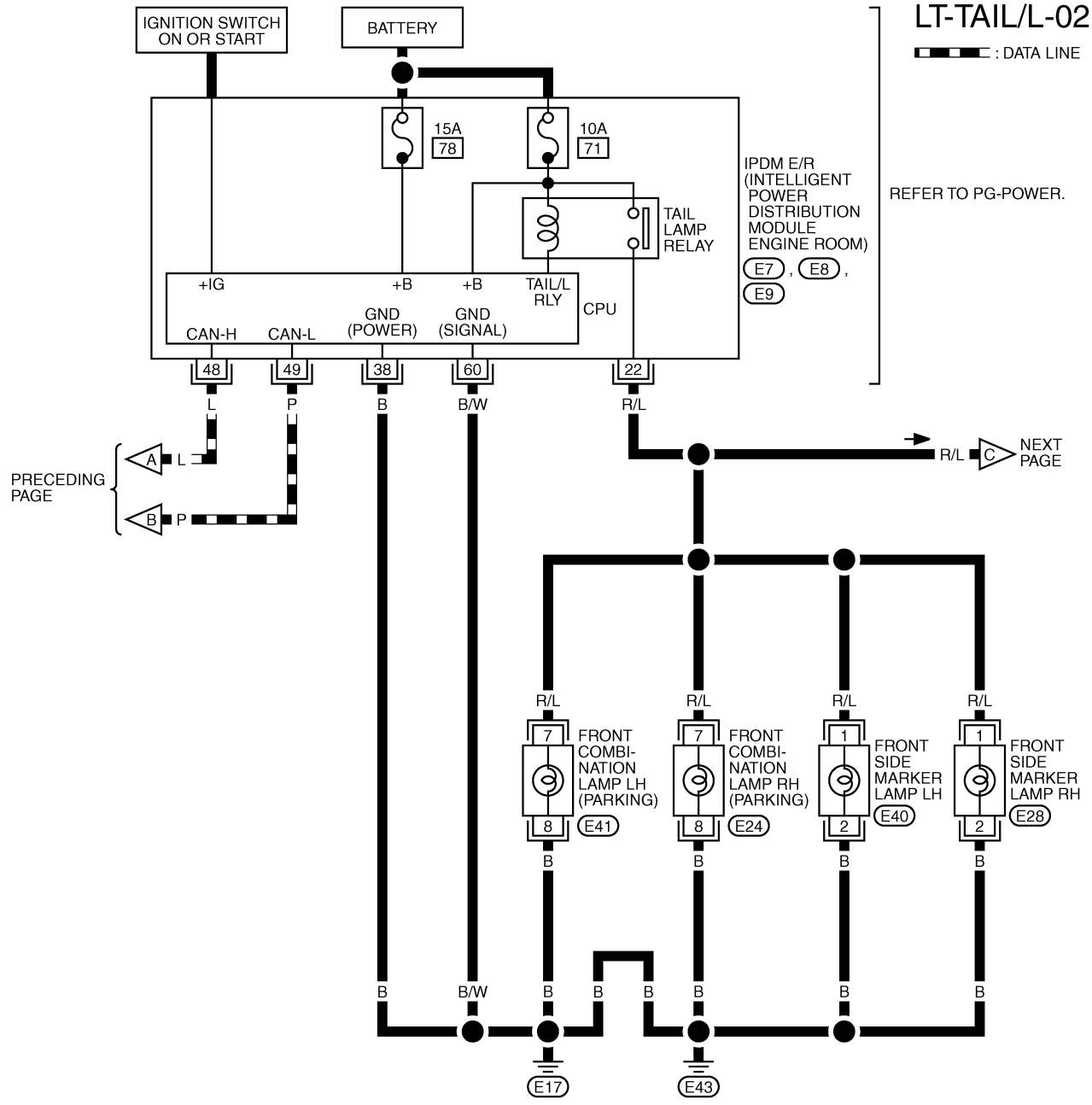
REFER TO THE FOLLOWING.

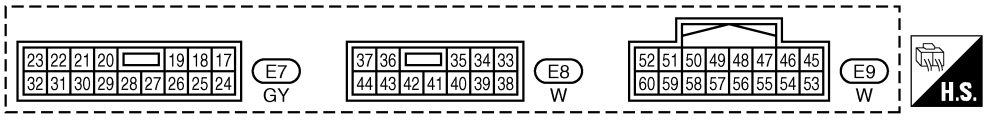
E108, B1 -SUPER MULTIPLE JUNCTION (SMJ)

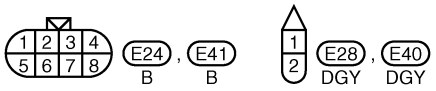
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

M1, M2 -ELECTRICAL UNITS

TKWM2268E

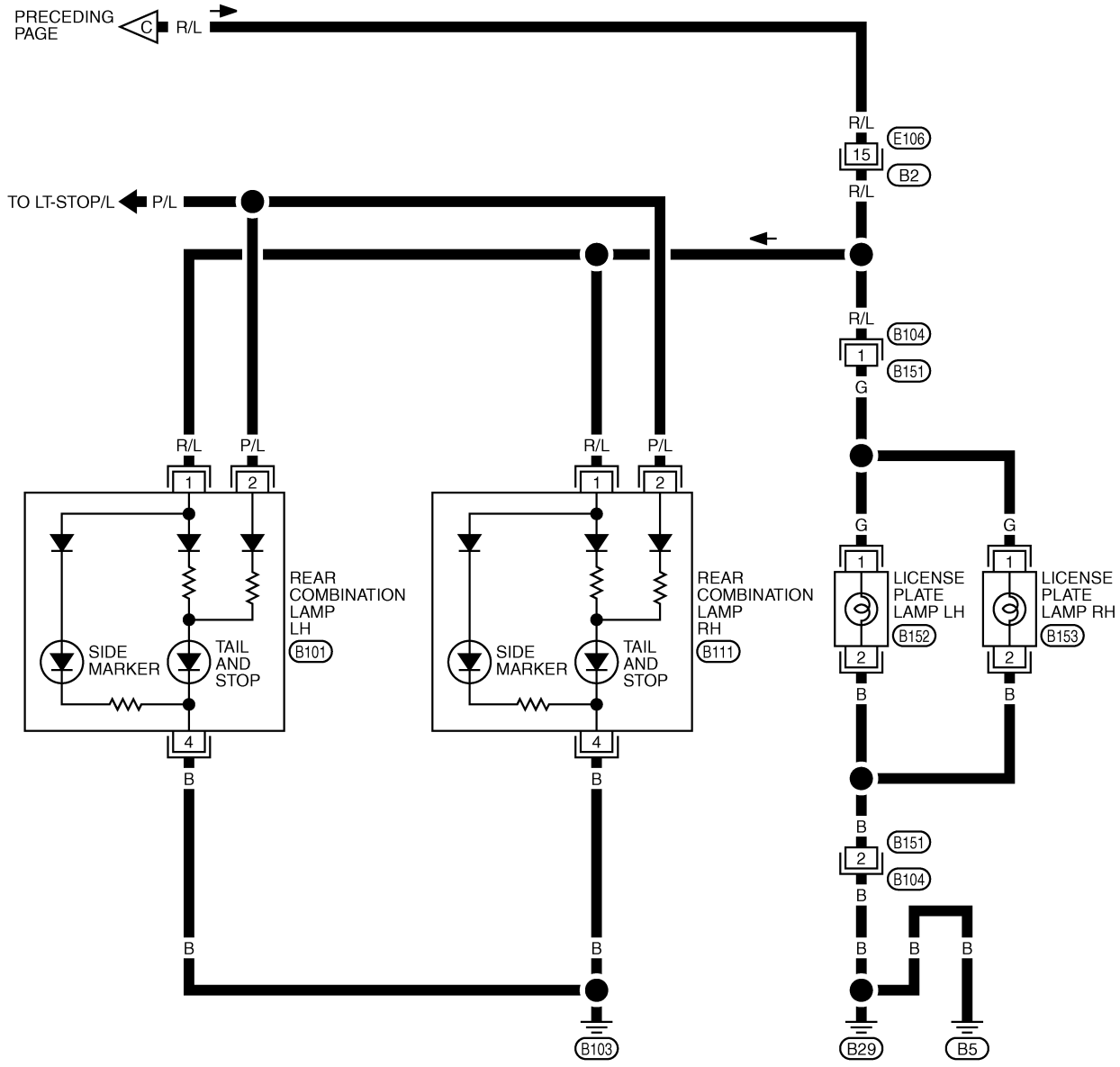

LT-TAIL/L-02
: DATA LINE
IGNITION SWITCH ON OR START
BATTERY
15A 78
10A 71
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E7 , E8 , E9
REFER TO PG-POWER.
TAIL LAMP RELAY
+IG
+B
+B
TAIL/L RLY
CPU
CAN-H
CAN-L
GND (POWER)
GND (SIGNAL)
48
49
38
60
22
L
P
B
B/W
R/L
PRECEDING PAGE
A L
B P
R/L C NEXT PAGE
R/L
7
8
FRONT COMBI-NATION LAMP LH (PARKING)
E41
FRONT COMBI-NATION LAMP RH (PARKING)
E24
1
2
FRONT SIDE MARKER LAMP LH
E40
FRONT SIDE MARKER LAMP RH
E28
E17
E43

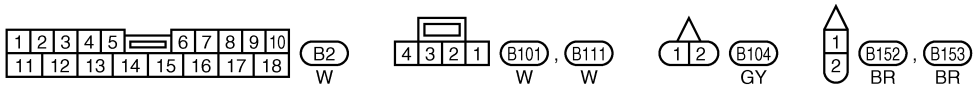

23 22 21 20 19 18 17
32 31 30 29 28 27 26 25 24
E7
GY
37 36 35 34 33
44 43 42 41 40 39 38
E8
W
52 51 50 49 48 47 46 45
60 59 58 57 56 55 54 53
E9
W
H.S.


1 2 3 4
5 6 7 8
E24 , E41
B B
1
2
E28 , E40
DGY DGY

TKWM4006E

LT-TAIL/L-03

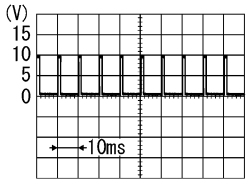
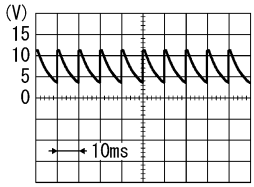
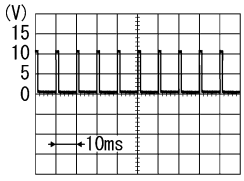




TKWM2270E

Terminals and Reference Values for BCM

NKS000WA

Terminal No.	Wire color	Signal name	Measuring condition			Reference value
			Ignition switch	Operation or condition		
2	W/L	Combination switch input 5	ON	Lighting, turn, wiper 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	W/R	Battery power supply	OFF	—		Battery voltage

Terminals and Reference Values for IPDM E/R

NKS000WB

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 lamp	ON	Lighting switch 1ST position	OFF	Approx. 0V
					ON	Battery voltage
38	B	Ground	ON	—		Approx. 0V
48	L	CAN – H	—	—		—
49	P	CAN – L	—	—		—
60	B/W	Ground	ON	—		Approx. 0V

How to Proceed With Trouble Diagnosis

NKS000WC

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-135, "System Description" .
3. Perform the preliminary check. Refer to LT-143, "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

NKS000WD

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

Check for blown fuses.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	F
		18
	Ignition switch ON or START position	1
	Ignition switch ACC or ON position	6
IPDM E/R	Battery	71

Refer to LT-139, "Wiring Diagram — TAIL/L —" .

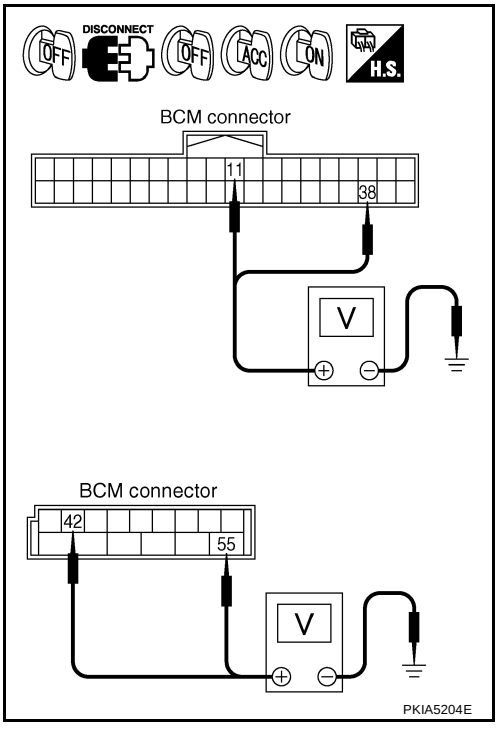
OK or NG

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.

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



OK or NG

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

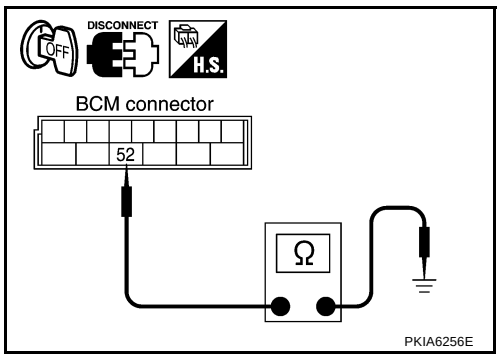
3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminal			Continuity
Connector	Terminal	Ground	Yes
M2	52		

OK or NG

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



CONSULT-II Functions (BCM)

NKS000WE

Refer to LT-17, "CONSULT-II Functions (BCM)" in HEADLAMP (FOR USA).
Refer to LT-52, "CONSULT-II Functions (BCM)" in HEADLAMP (FOR CANADA).

CONSULT-II Functions (IPDM E/R)

NKS000WF

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

Parking, License Plate and Tail Lamps Do Not Illuminate

NKS000WG

1. CHECK COMBINATION SWITCH INPUT SIGNAL

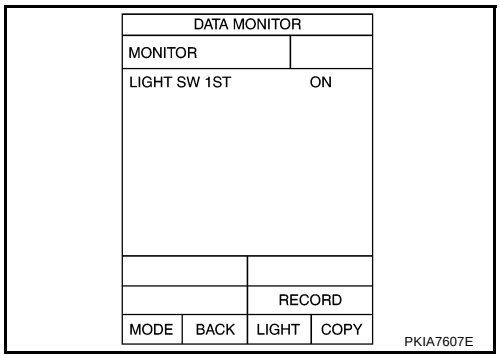
With CONSULT-II
Select “BCM” on CONSULT-II. With “HEAD LAMP” data monitor, make sure “LIGHT SW 1 ST” turns ON-OFF linked with operation of lighting switch.

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

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

OK or NG

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

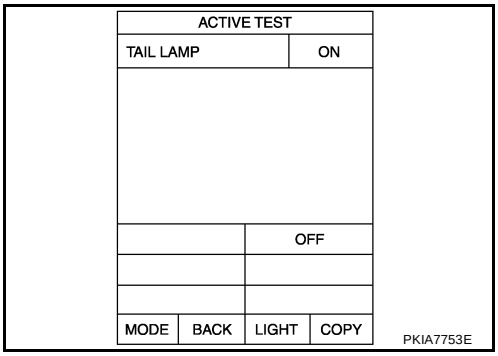


2. ACTIVE TEST

With CONSULT-II

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

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



Without CONSULT-II

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

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

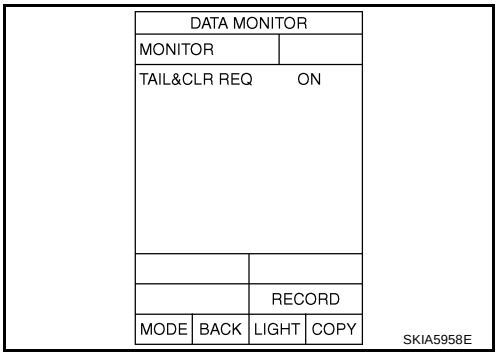
OK or NG

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

3. CHECK IPDM E/R

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

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



OK or NG

OK >> Replace IPDM E/R.
NG >> Replace BCM. Refer to BCS-18, "Removal and Installation of BCM" .

4. CHECK INPUT SIGNAL

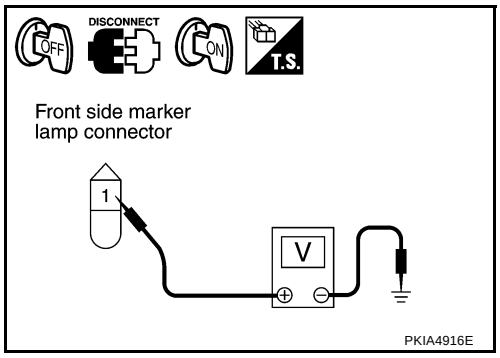
With CONSULT-II

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.

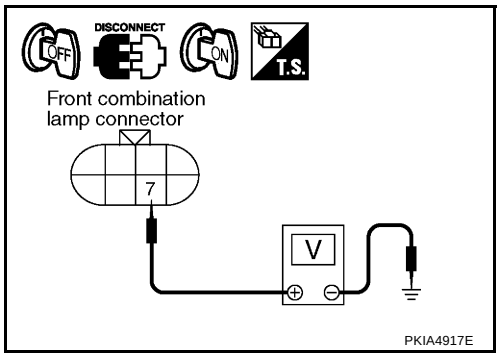
Without CONSULT-II

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-22, "Auto Active Test" .
4. 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.

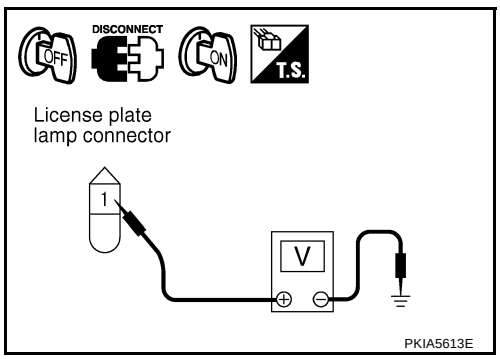
Terminal				Voltage
Front side marker lamp (+)			(-)	
Connector		Terminal		
RH	E28	1	Ground	Battery voltage
LH	E40			



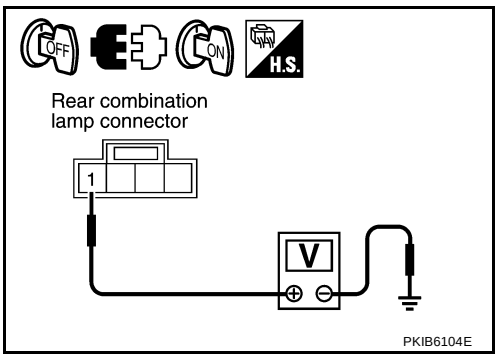
Terminal				Voltage
Front combination lamp (+) (Parking)			(-)	
Connector		Terminal		
RH	E24	7	Ground	Battery voltage
LH	E41			



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



Terminal				
Rear combination lamp (+) (Tail and side marker)			(-)	Voltage
Connector		Terminal		
RH	B111	1	Ground	Battery voltage
LH	B101			



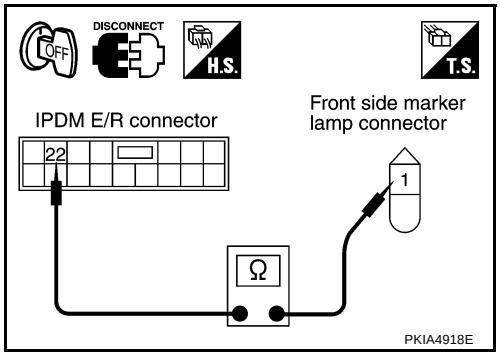
OK or NG

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

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

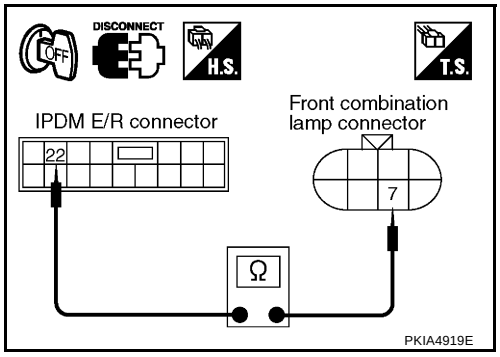
1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector and front side marker lamp harness connector.

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



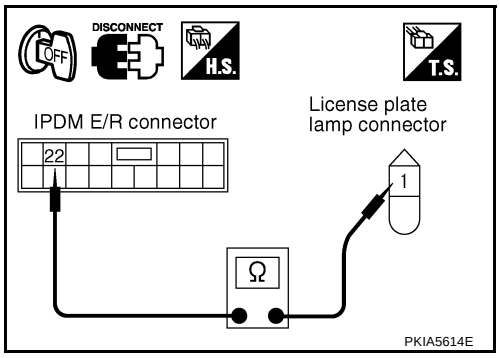
4. Check continuity between IPDM E/R harness connector and front combination lamp harness connector.

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



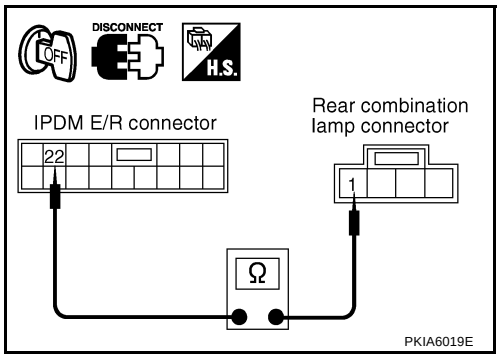
5. Check continuity between IPDM E/R harness connector and license plate lamp harness connector.

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



6. Check continuity between IPDM E/R harness connector and rear combination lamp harness connector.

Terminal				Continuity
IPDM E/R		Rear combination lamp (Tail and side marker)		
Connector	Terminal	Connector	Terminal	
E7	22	RH B111 / LH B101	1	Yes



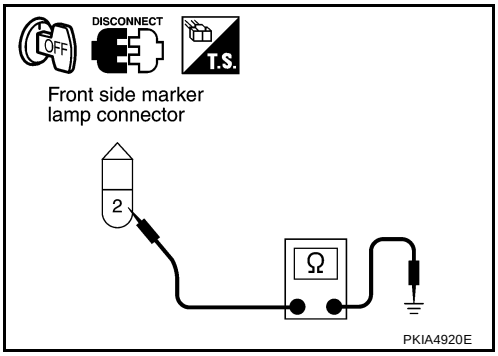
OK or NG

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

6. CHECK GROUND

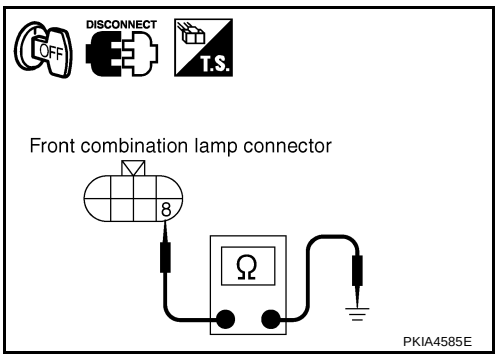
1. Check continuity between front side maker lamp harness connector and ground.

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



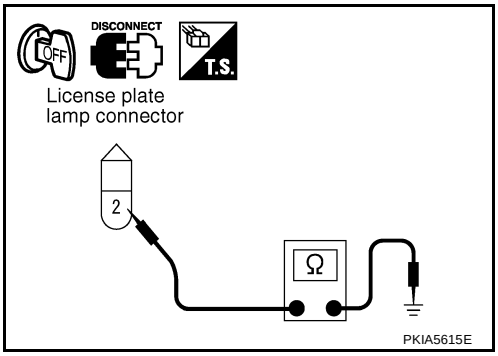
2. Check continuity between front combination lamp harness connector and ground.

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



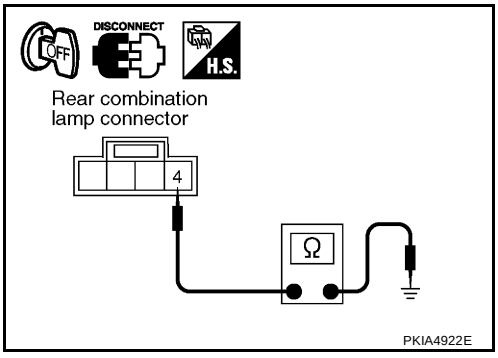
3. Check continuity between license plate lamp harness connector and ground.

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



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

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



OK or NG

OK >> Check bulb or 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)

NKS000WH

- 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

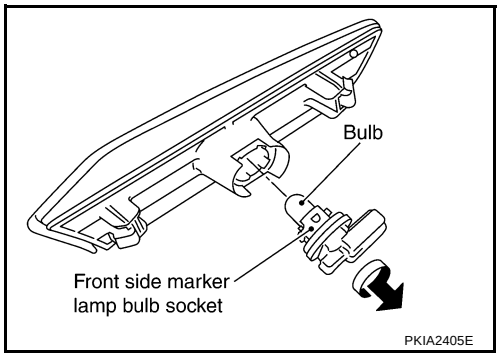
NKS000WI

FRONT SIDE MARKER LAMP

1. Remove front side marker lamp. Refer to LT-150, "FRONT SIDE MARKER LAMP" .
2. Turn bulb socket left to release lock and remove it.
3. Remove bulb.

Front side marker lamp : 12V - 3.8W

4. Installation is the reverse order of removal.

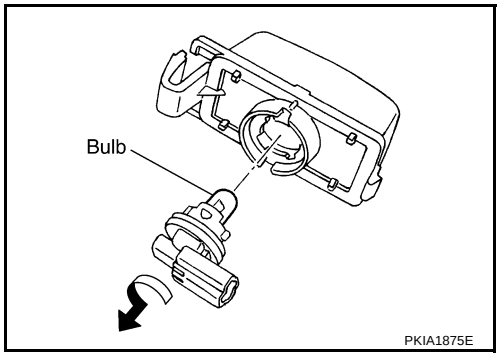


LICENSE PLATE LAMP

1. Remove license plate lamp. Refer to LT-151, "Removal" .
2. Turn bulb socket counterclockwise and unlock it.
3. Remove bulb from it's socket.

License plate lamp : 12V - 5W

4. Installation is the reverse order of removal.



FRONT TURN SIGNAL (PARKING) LAMP

For bulb replacement, refer to LT-31, "Bulb Replacement" .

TAIL LAMP

For bulb replacement, refer to LT-152, "Bulb Replacement" .

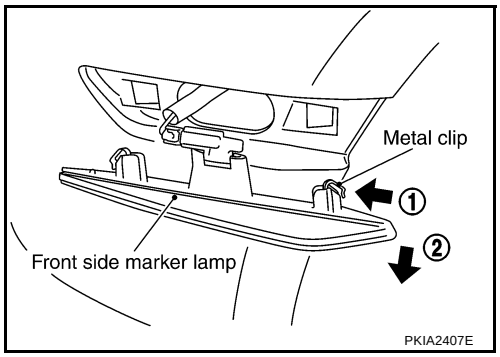
Removal and Installation

NKS000WJ

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 side marker lamp connector.



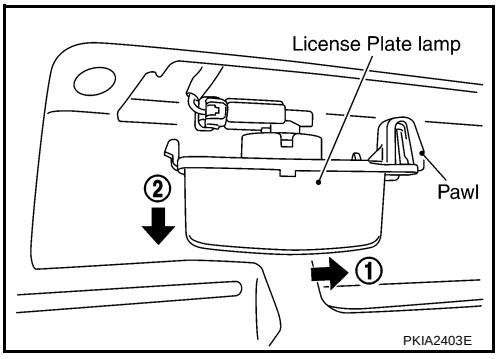
Installation

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.

FRONT TURN SIGNAL (PARKING) LAMP

For front turn signal (parking) lamp removal and installation procedures, refer to LT-32, "Removal and Installation" .

TAIL LAMP

Removal

For tail lamp removal and installation procedures, refer to LT-152, "Removal and Installation" .

REAR COMBINATION LAMP

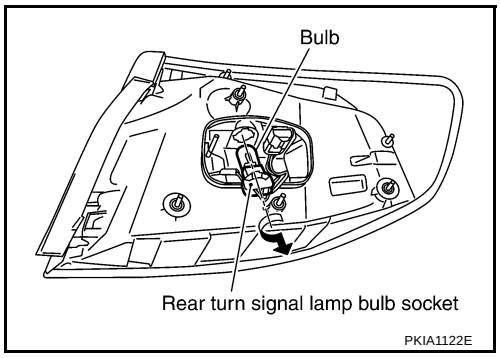
PFP:26554

Bulb Replacement

NKS000WK

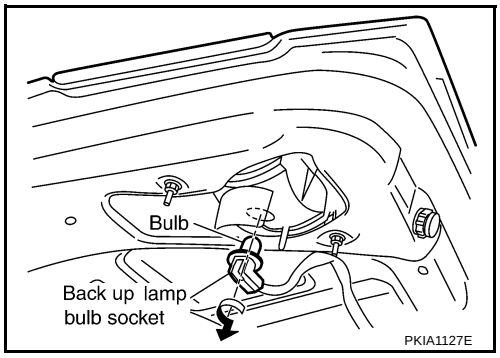
REAR FENDER SIDE (REAR TURN SIGNAL LAMP BULB)

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



TRUNK LID SIDE (BACK-UP LAMP)

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



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

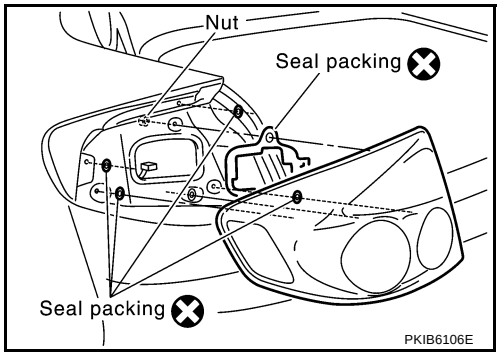
Removal and Installation

NKS000WL

REMOVAL

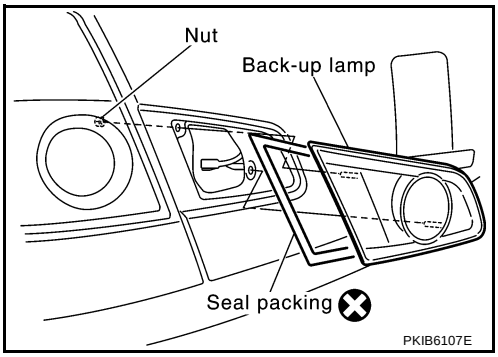
Rear Fender Side

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



Trunk Lid Side

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



INSTALLATION

Installation is the reverse order of removal.

- Install a new seal packing to rear combination lamp.

CAUTION:
Seal packing cannot be reused.

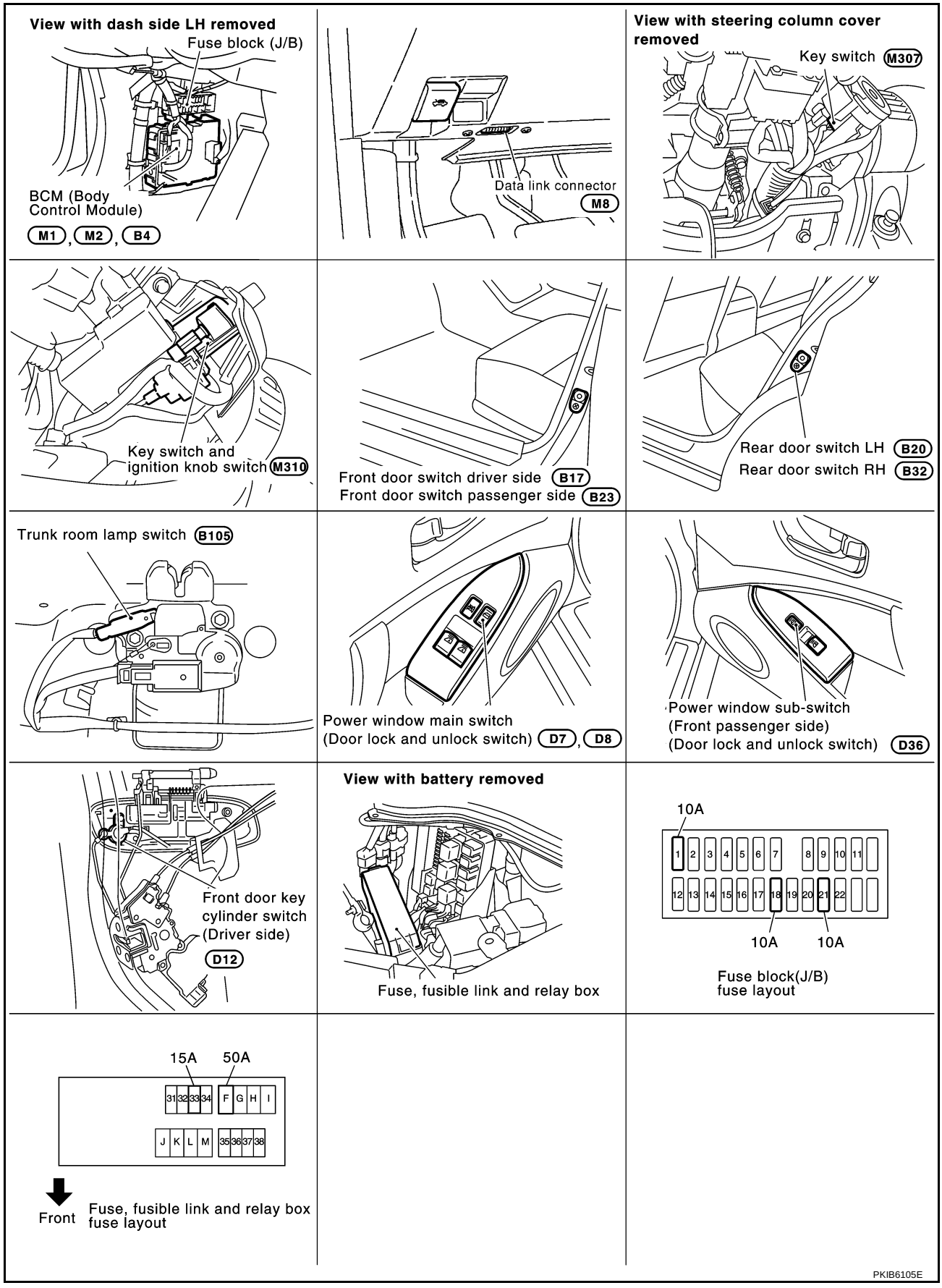
Rear combination lamp mounting nut : 3.2 N·m (0.33 kg-m, 28 in-lb)

INTERIOR ROOM LAMP

PFP:26410

Component Parts and Harness Connector Location/ Up to Vehicle Identification Number JNKCV51E26M516168 and JNKCV51F36M612030

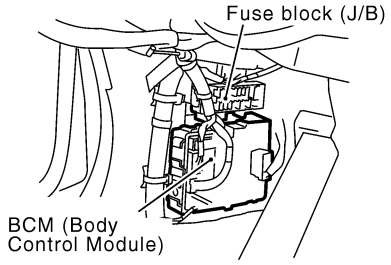
NKS000WW

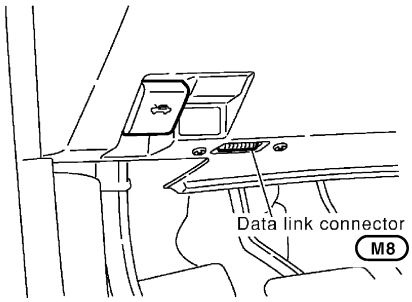

View with dash side LH removed
Fuse block (J/B)
BCM (Body Control Module)
M1, M2, B4
Data link connector
M8
View with steering column cover removed
Key switch
M307
Key switch and ignition knob switch
M310
Front door switch driver side
B17
Front door switch passenger side
B23
Rear door switch LH
B20
Rear door switch RH
B32
Trunk room lamp switch
B105
Power window main switch
(Door lock and unlock switch)
D7, D8
Power window sub-switch
(Front passenger side)
(Door lock and unlock switch)
D36
Front door key cylinder switch
(Driver side)
D12
View with battery removed
Fuse, fusible link and relay box
10A
1 2 3 4 5 6 7 8 9 10 11
12 13 14 15 16 17 18 19 20 21 22
10A 10A
Fuse block(J/B) fuse layout
15A 50A
31 32 33 34 F G H I
J K L M 35 36 37 38
Front
Fuse, fusible link and relay box fuse layout
PKIB6105E

Component Parts and Harness Connector Location/ From Vehicle Identification Number JNKCV51E26M516169 and JNKCV51F36M612031

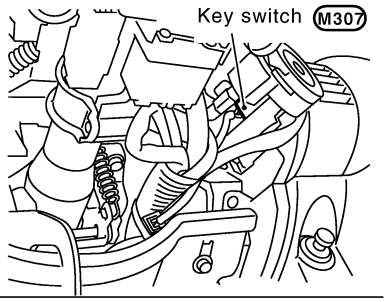
NKS0054G

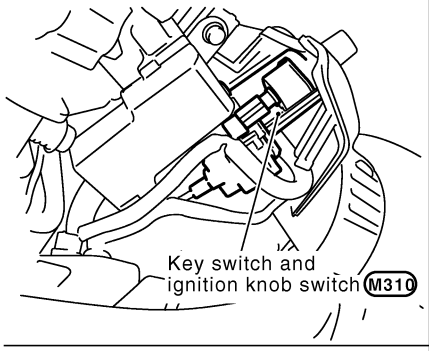
View with dash side LH removed

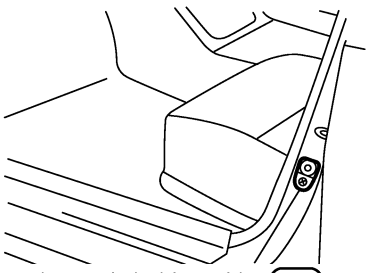


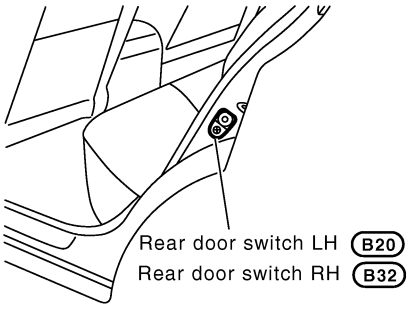


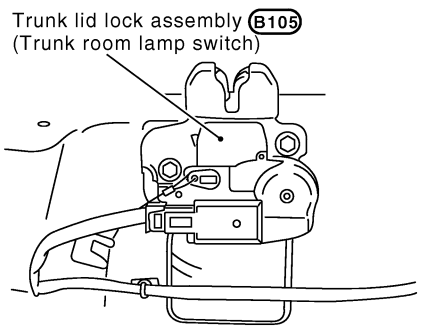
View with steering column cover removed

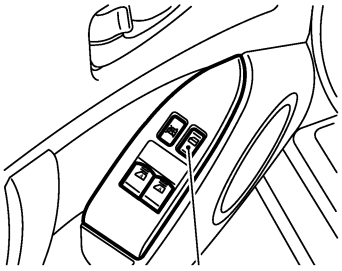


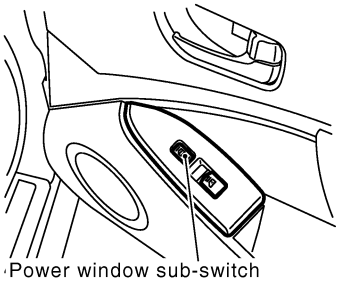


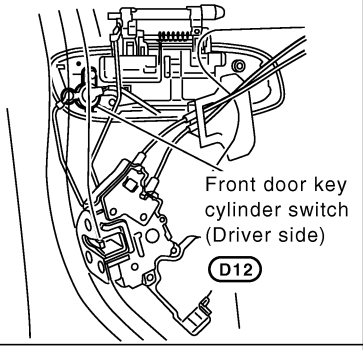




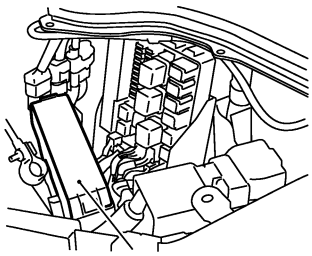


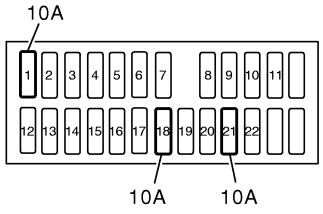


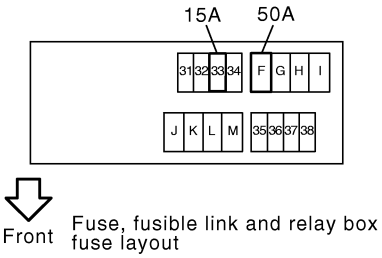




View with battery removed







PKID1074E

System Description

NKS000WX

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

POWER SUPPLY AND GROUND

Power is supplied at all times (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 front door switch driver side.

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 front door switch passenger side.

When rear door LH is opened, ground is supplied
- to BCM terminal 63, and
- to personal lamp LH terminal 1
- through rear door switch LH terminal 1
- through case ground of rear door switch LH.

When rear door RH is opened, ground is supplied
- to BCM terminal 13, and
- to personal lamp RH terminal 1
- through rear door switch RH terminal 1
- through case ground of rear door switch RH.

When driver side door is unlocked by door lock and unlock switch, BCM receives a ground signal
- to BCM terminal 22
- from power window main switch (door lock and unlock switch) terminal 14 and power window sub switch (front passenger side) (door lock and unlock switch) terminal 16
- to power window main switch (door lock and unlock switch) terminal 17 and power window sub switch (front passenger side) (door lock and unlock switch) terminal 11
- through grounds terminals M30 and M66.

When front 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 14
- to power window main switch (door lock and unlock switch) terminal 6
- through front door key cylinder switch (driver side) terminal 3
- to front door key cylinder switch (driver side) terminal 2
- 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 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 rear door switch LH or RH is ON (door is opened), ground is supplied

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

And power is supplied

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

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 1^{*1} or 3^{*2} and 2^{*1} or 1^{*2}
- through grounds B5 and B29.

NOTE:

*1: Up to Vehicle Identification Number JNKCV51E26M516168
Up to Vehicle Identification Number JNKCV51F36M612030
*2: From Vehicle Identification Number JNKCV51E26M516169
From Vehicle Identification Number JNKCV51F36M612031

When trunk room lamp is ON, ground is supplied

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

And power is supplied

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

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 0V (door open) → 12V (door closed). The BCM determines that conditions for map lamp operation is met, and turns the map lamp ON for 30 seconds.
Timer control is canceled under the following conditions.

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

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 $\rightarrow$ closes, and key is not inserted in key switch (or not turned ignition knob switch), BCM terminal 62 changes between 0V (door open) $\rightarrow$ 12V (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 LAMP BATTERY SAVER CONTROL

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

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

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

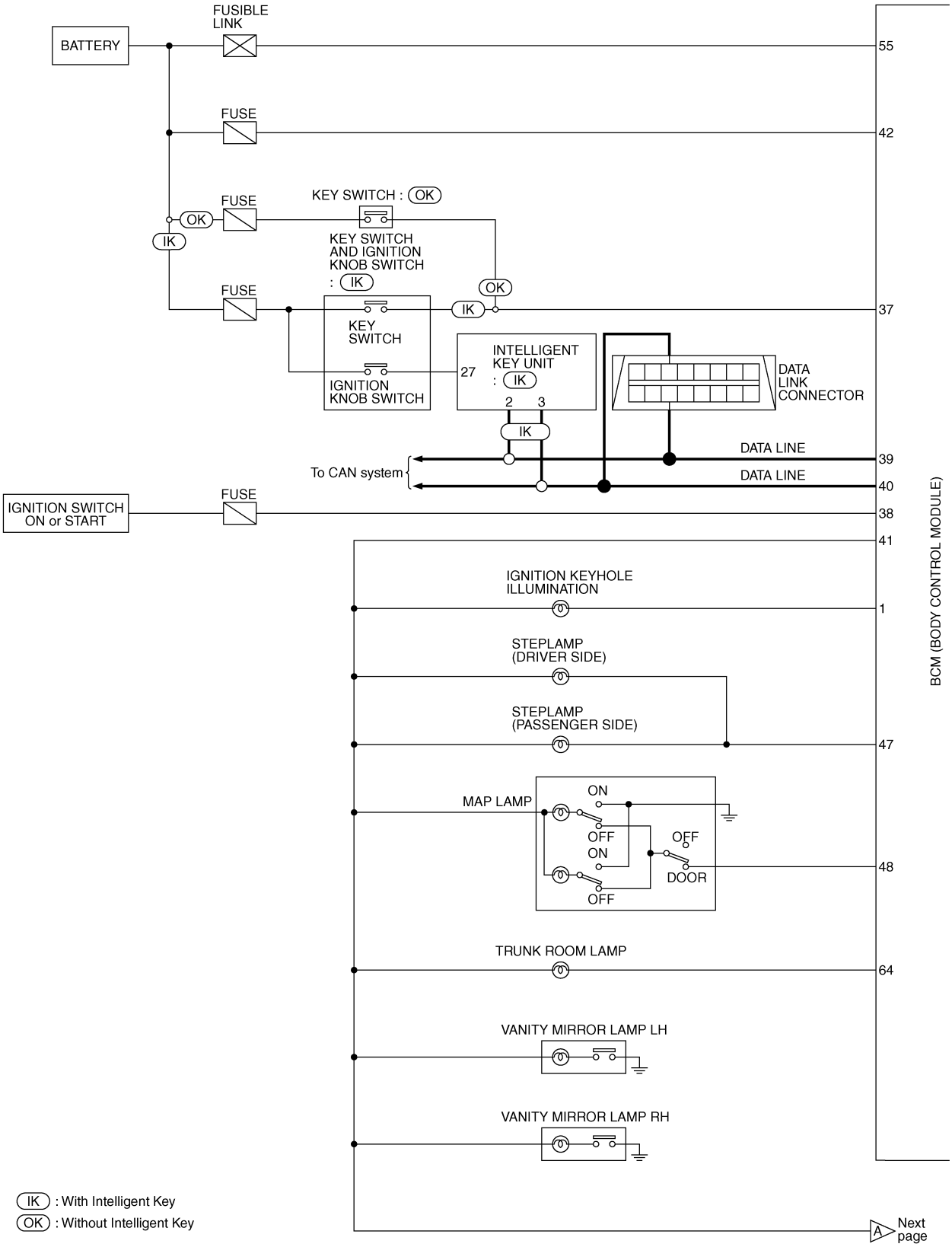
- signal from power window main switch (door lock and unlock switch) or key cylinder is locked or unlocked,
- door is opened or closed,
- key is removed from ignition key cylinder or inserted in ignition key cylinder, or turned ignition knob switch.

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

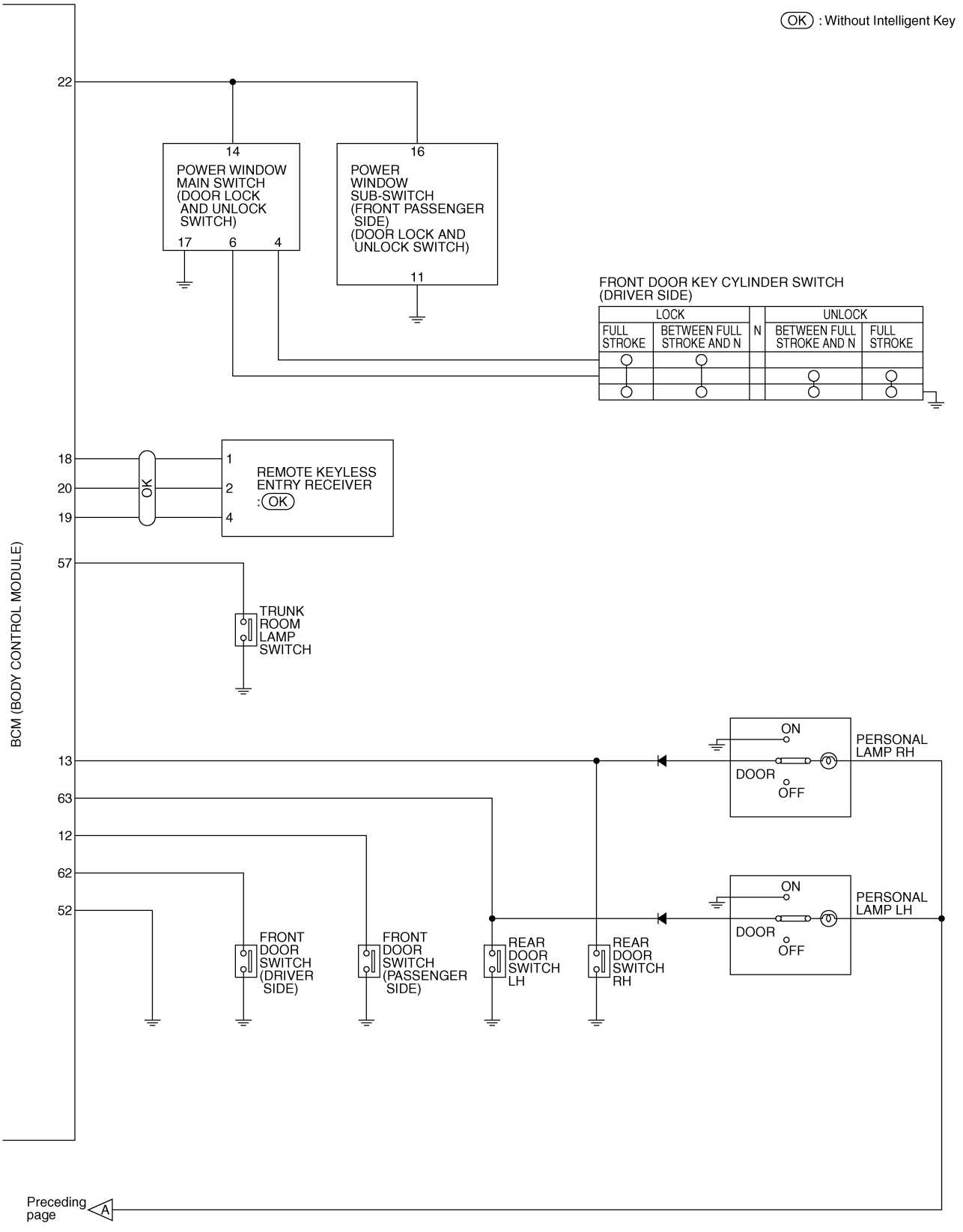
Schematic

NKS000WY

Up to Vehicle Identification Number JNKCV51E26M516168
Up to Vehicle Identification Number JNKCV51F36M612030



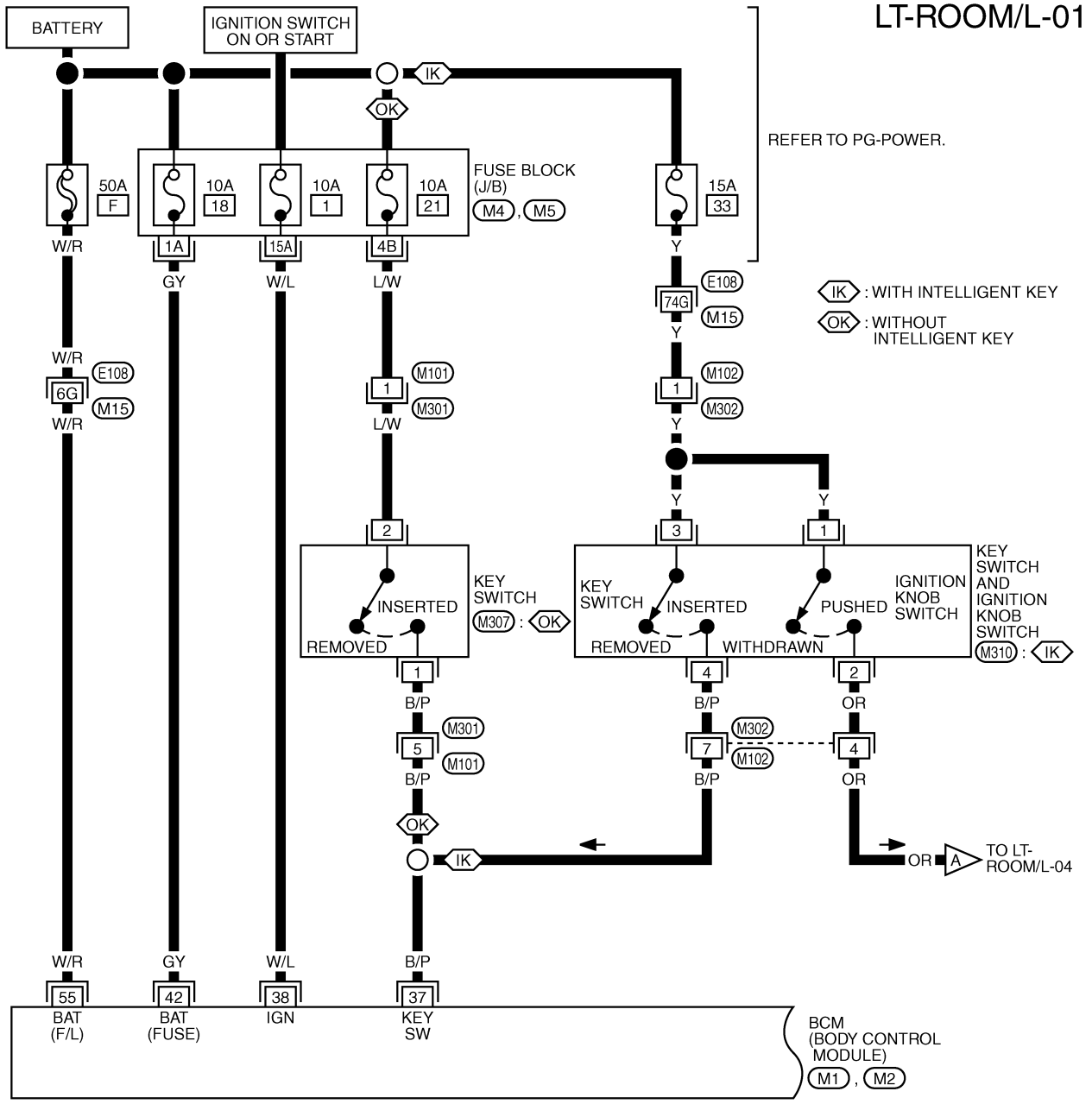
TKWM2271E

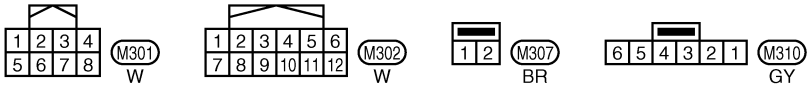

OK : Without Intelligent Key
22
14
POWER WINDOW MAIN SWITCH (DOOR LOCK AND UNLOCK SWITCH)
17 6 4
16
POWER WINDOW SUB-SWITCH (FRONT PASSENGER SIDE) (DOOR LOCK AND UNLOCK SWITCH)
11
FRONT DOOR KEY CYLINDER SWITCH (DRIVER SIDE)
LOCK
UNLOCK
FULL STROKE
BETWEEN FULL STROKE AND N
N
BETWEEN FULL STROKE AND N
FULL STROKE
18
20
19
OK
1
2
4
REMOTE KEYLESS ENTRY RECEIVER :OK
57
TRUNK ROOM LAMP SWITCH
BCM (BODY CONTROL MODULE)
13
63
12
62
52
ON
DOOR
OFF
PERSONAL LAMP RH
PERSONAL LAMP LH
FRONT DOOR SWITCH (DRIVER SIDE)
FRONT DOOR SWITCH (PASSENGER SIDE)
REAR DOOR SWITCH LH
REAR DOOR SWITCH RH
Preceding page
A
TKWM2272E

Wiring Diagram — ROOM/L —

NKS000WZ

Up to Vehicle Identification Number JNKCV51E26M516168
Up to Vehicle Identification Number JNKCV51F36M612030

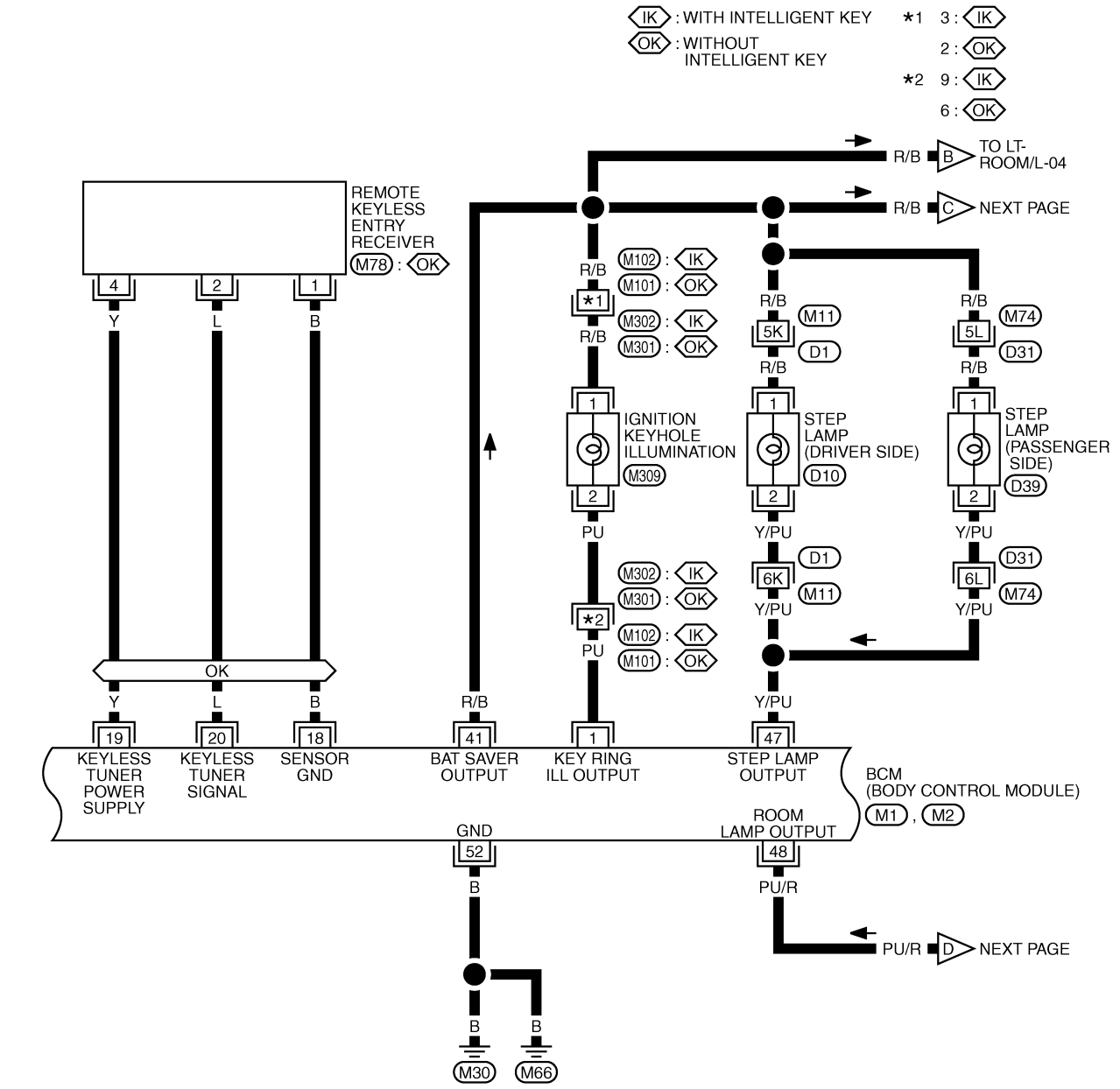


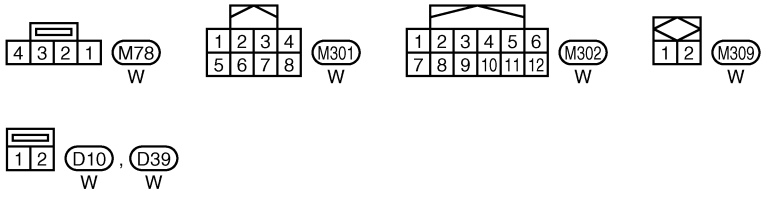


REFER TO THE FOLLOWING.
E108 -SUPER MULTIPLE JUNCTION (SMJ)
M4 , M5 -FUSE BLOCK-JUNCTION BOX (J/B)
M1 , M2 -ELECTRICAL UNITS

TKWM2273E

LT-ROOM/L-02





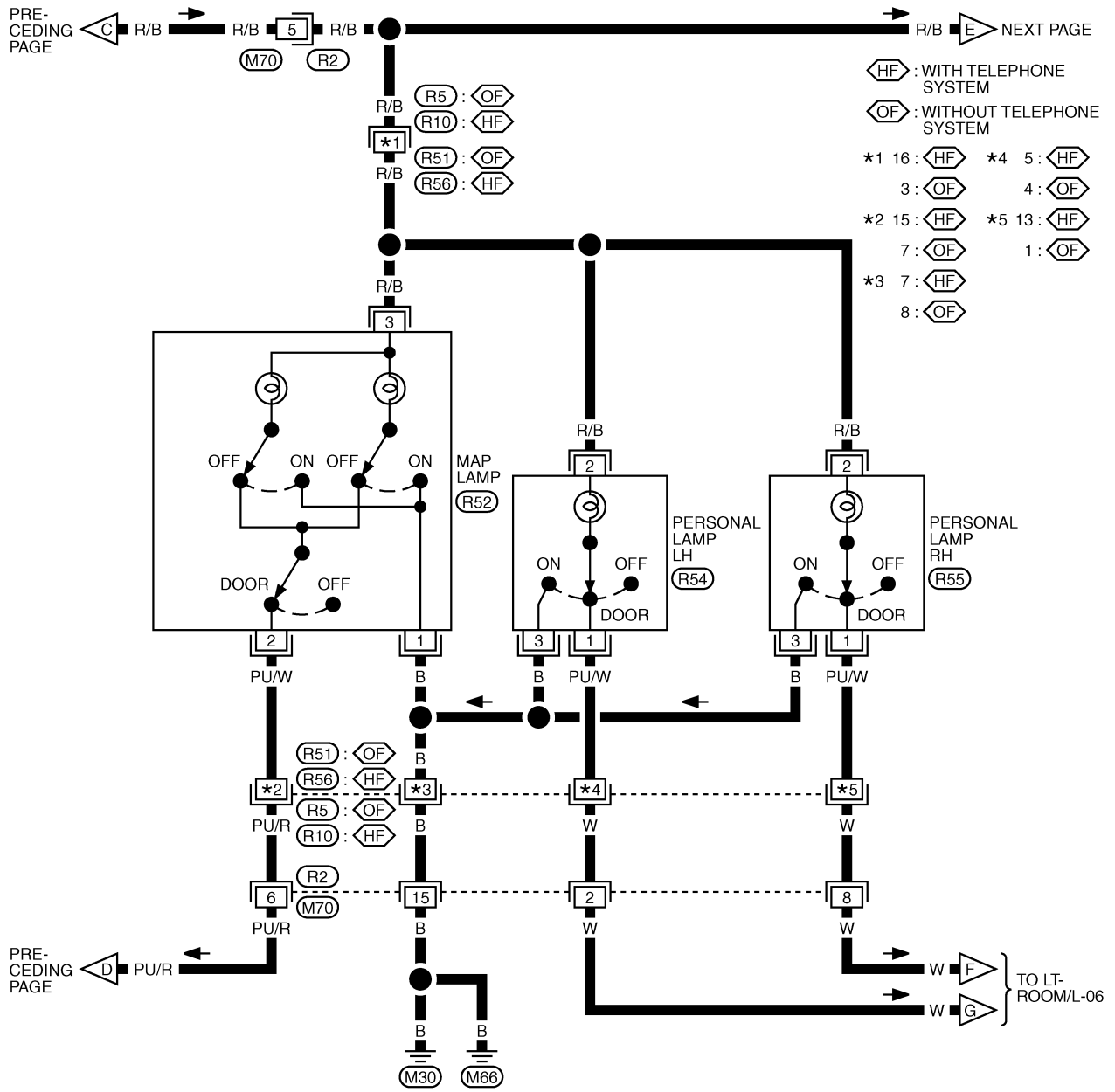
REFER TO THE FOLLOWING.

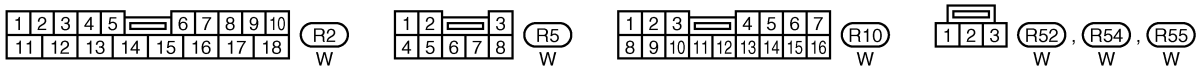
D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)

M1 , M2 -ELECTRICAL UNITS

TKWM2274E

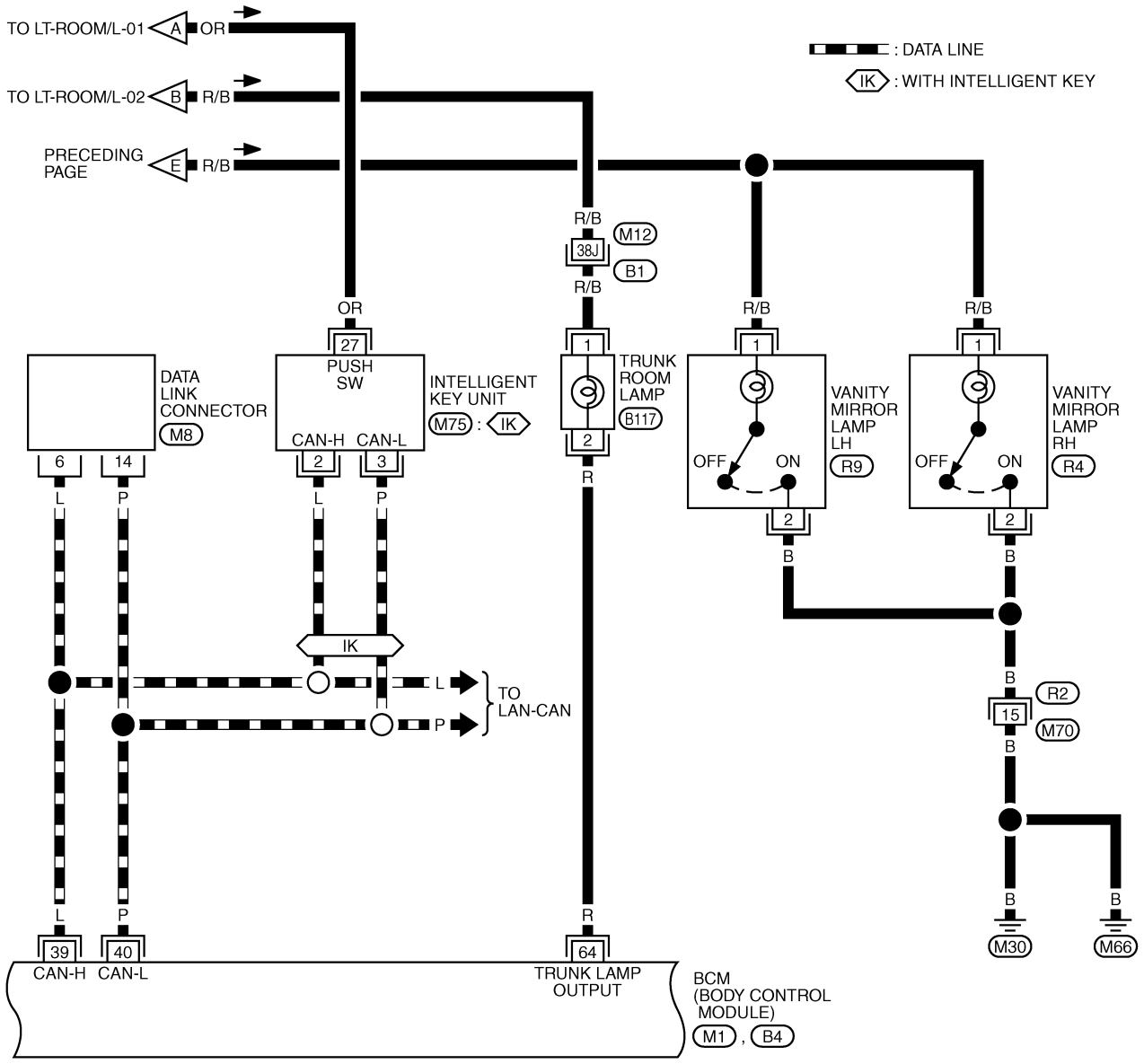
LT-ROOM/L-03

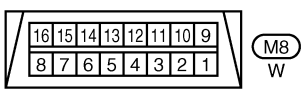


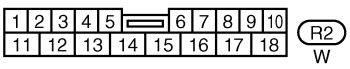


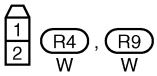
TKWM3387E

LT-ROOM/L-04





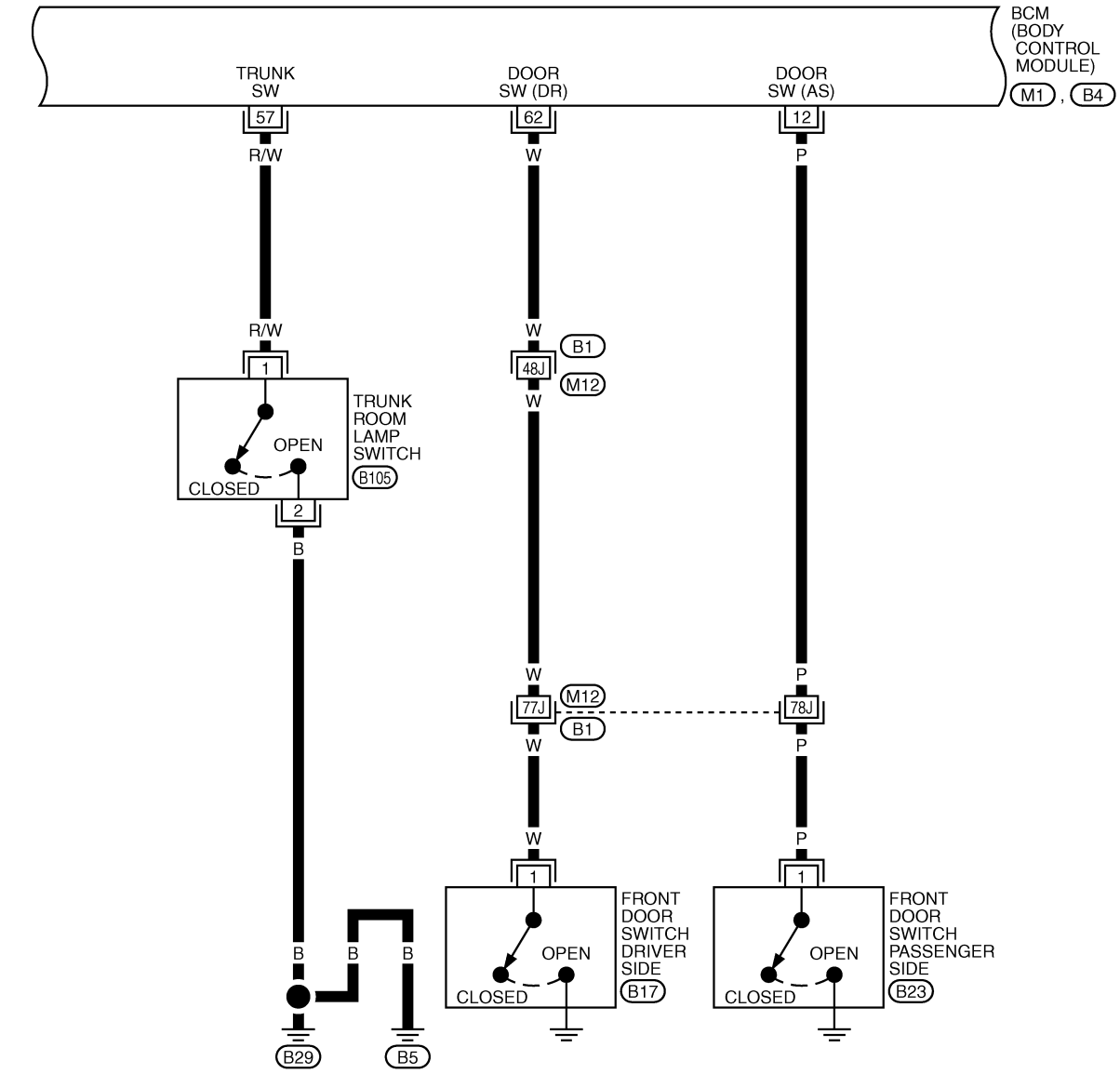


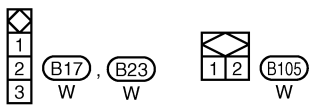


REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , M75 , B4 -ELECTRICAL UNITS

TKWM2276E

LT-ROOM/L-05

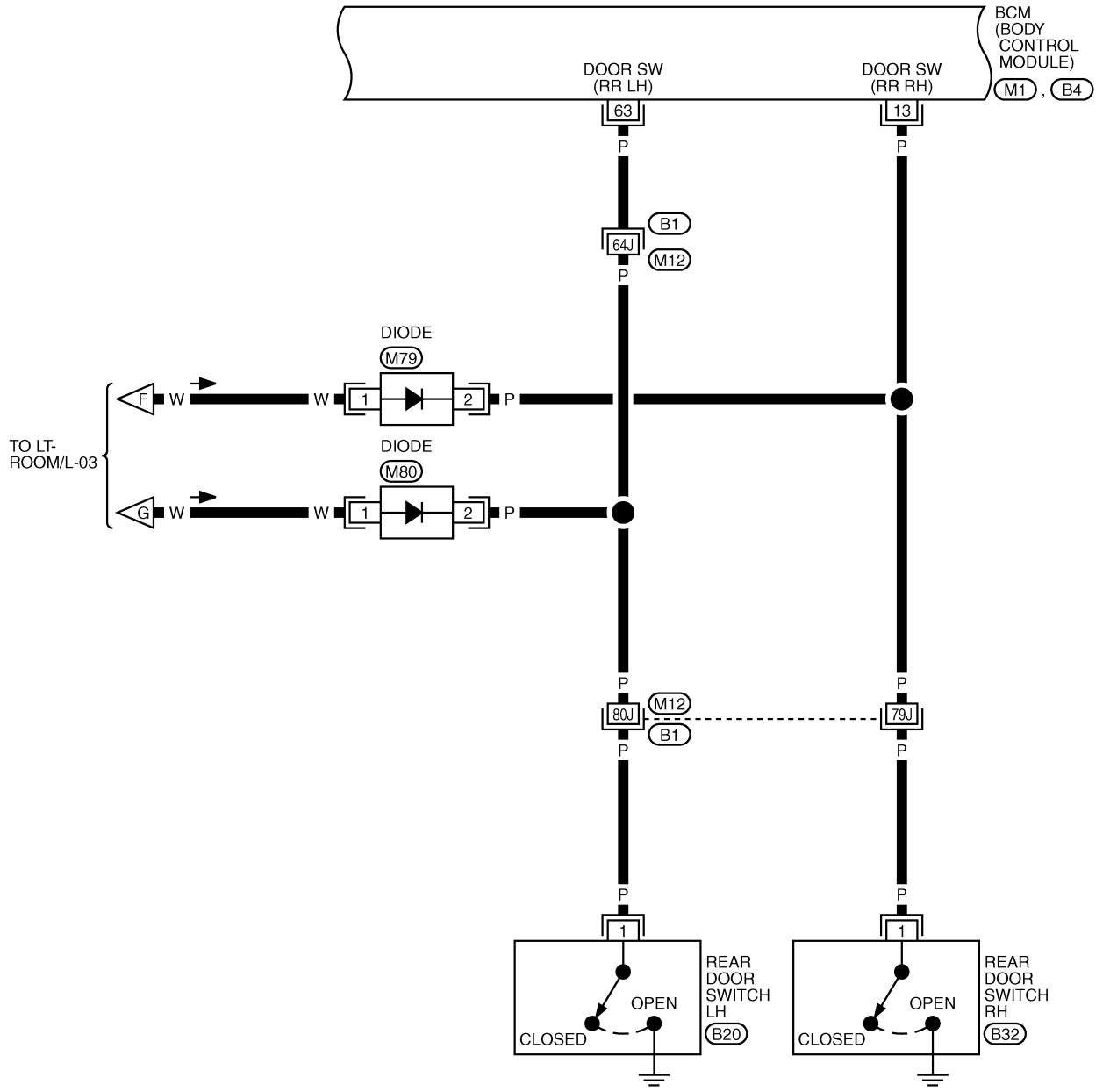




REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , B4 -ELECTRICAL UNITS

TKWM2277E

LT-ROOM/L-06



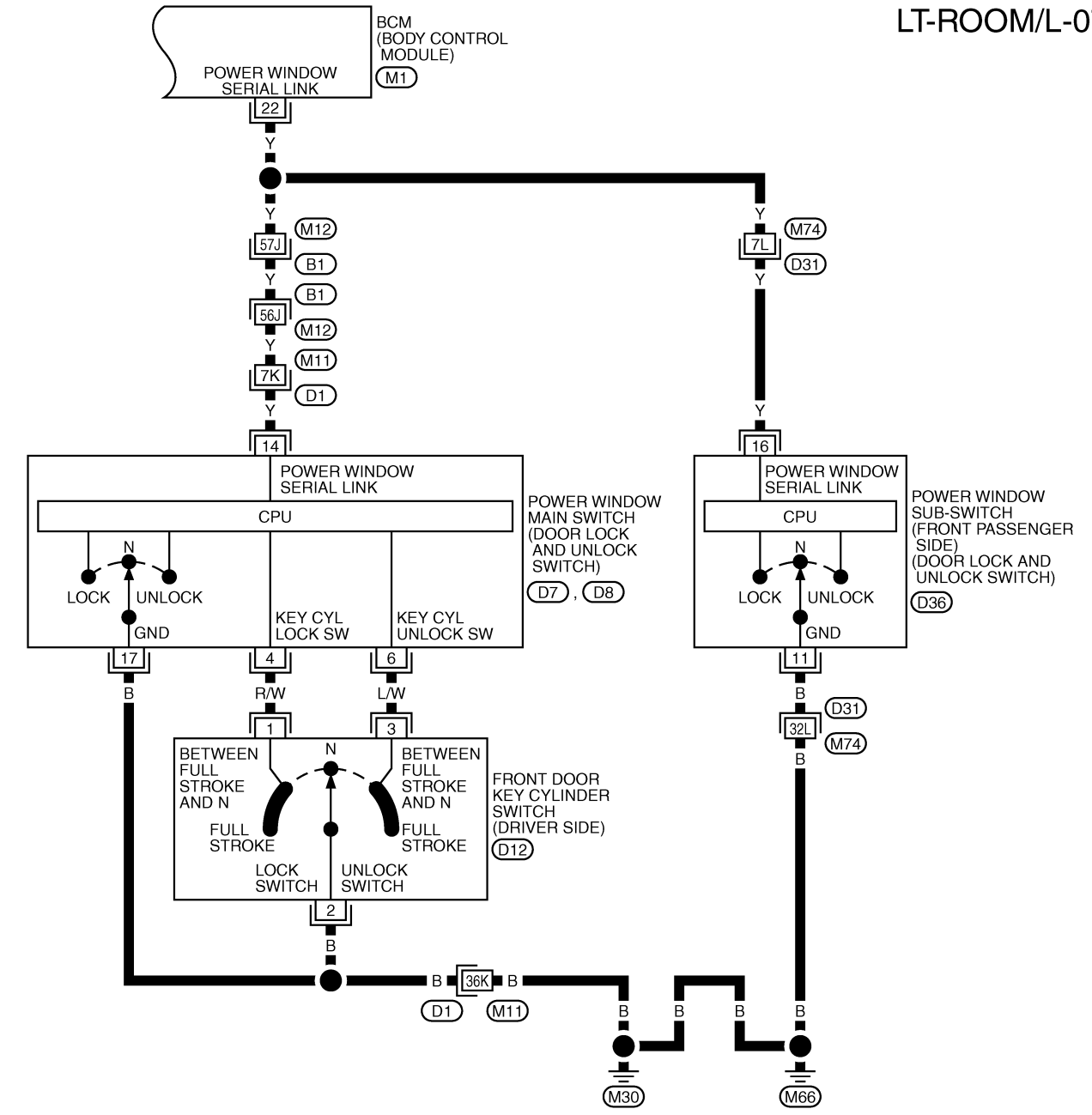
1 2 M79 , M80
W W

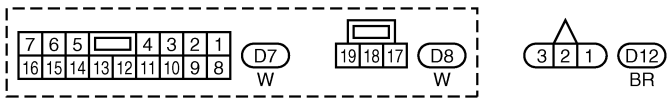
1 2 3 B20 , B32
W W

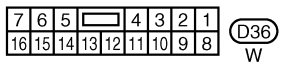
REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , B4 -ELECTRICAL UNITS

TKWM2278E

LT-ROOM/L-07







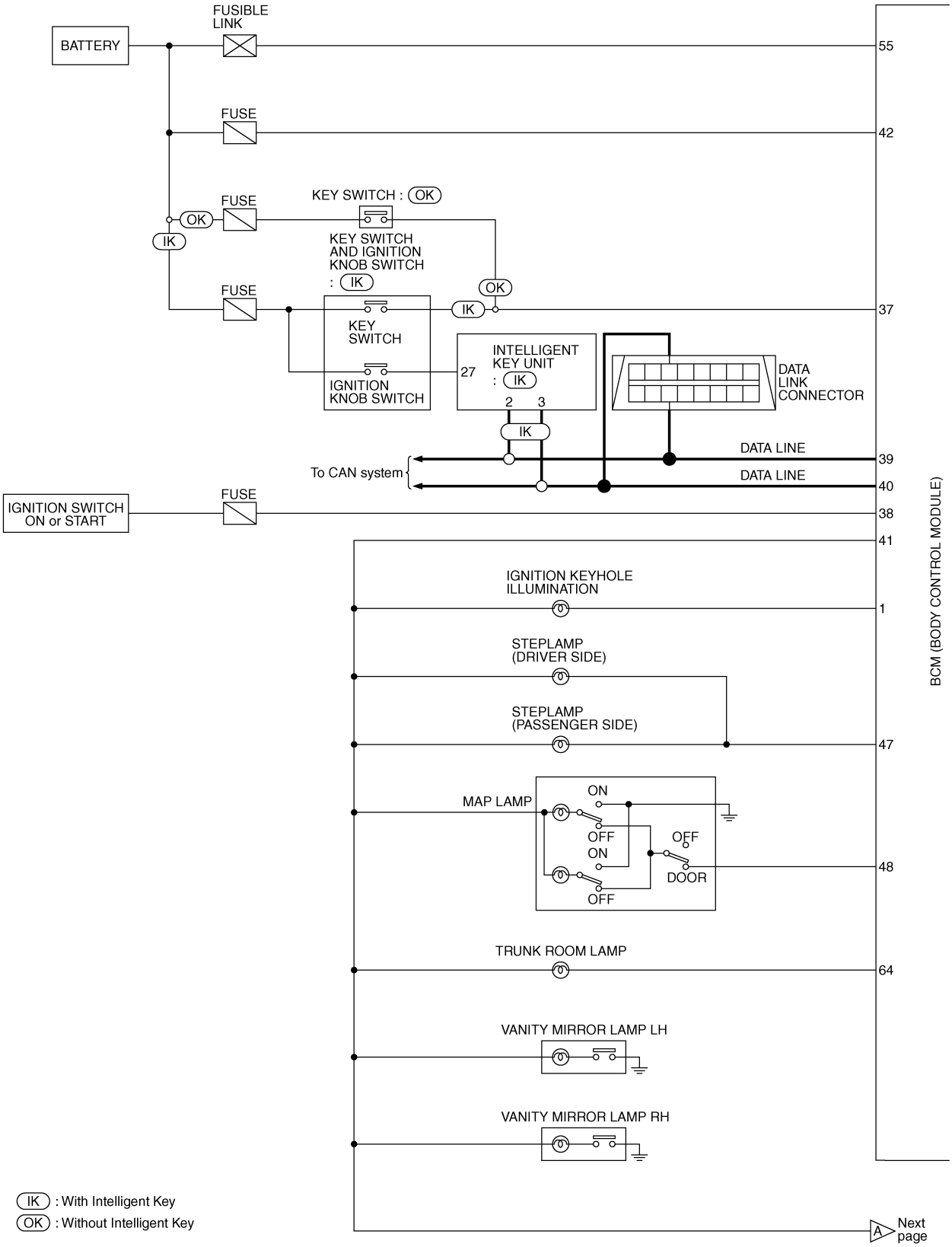
REFER TO THE FOLLOWING.
B1 , D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)
M1 -ELECTRICAL UNITS

TKWM2279E

Schematic

NKS0053R

From Vehicle Identification Number JNKCV51E26M516169
From Vehicle Identification Number JNKCV51F36M612031



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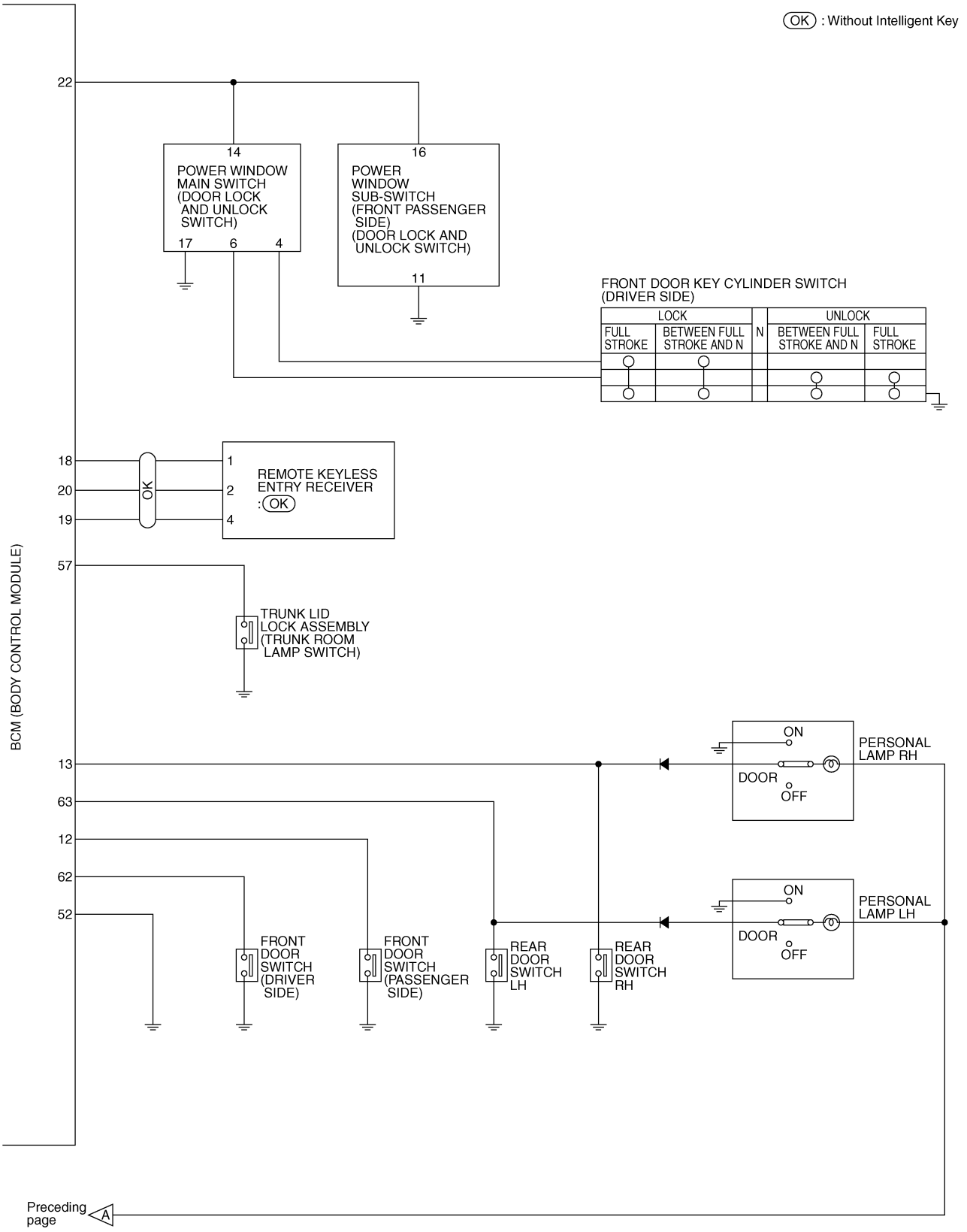
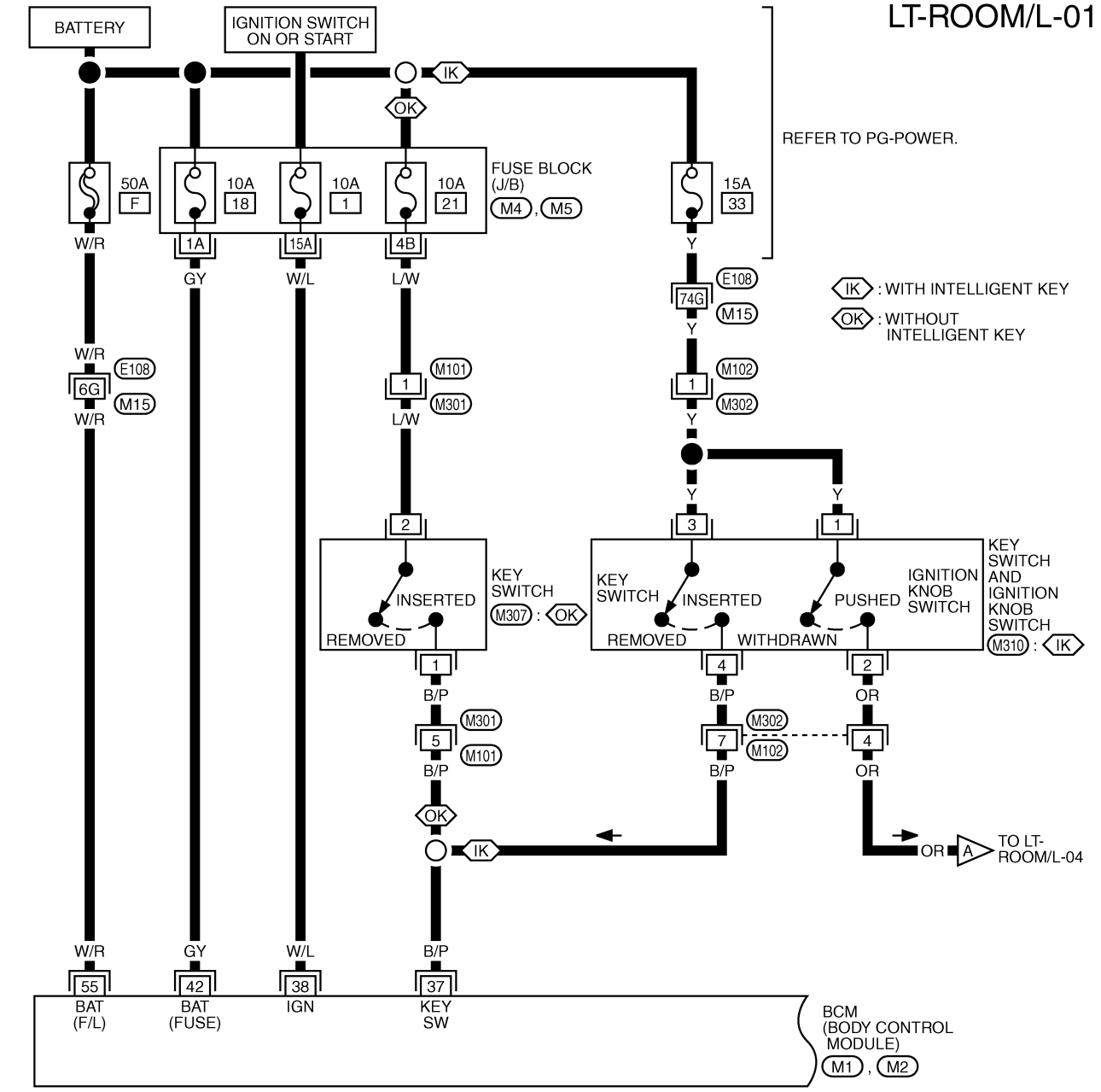

OK : Without Intelligent Key
BCM (BODY CONTROL MODULE)
22
14
POWER WINDOW MAIN SWITCH (DOOR LOCK AND UNLOCK SWITCH)
17 6 4
16
POWER WINDOW SUB-SWITCH (FRONT PASSENGER SIDE) (DOOR LOCK AND UNLOCK SWITCH)
11
FRONT DOOR KEY CYLINDER SWITCH (DRIVER SIDE)
LOCK
UNLOCK
FULL STROKE
BETWEEN FULL STROKE AND N
N
BETWEEN FULL STROKE AND N
FULL STROKE
18
20
19
OK
1
2
4
REMOTE KEYLESS ENTRY RECEIVER
:OK
57
TRUNK LID LOCK ASSEMBLY (TRUNK ROOM LAMP SWITCH)
13
63
12
62
52
ON
DOOR
OFF
PERSONAL LAMP RH
PERSONAL LAMP LH
FRONT DOOR SWITCH (DRIVER SIDE)
FRONT DOOR SWITCH (PASSENGER SIDE)
REAR DOOR SWITCH LH
REAR DOOR SWITCH RH
Preceding page
A

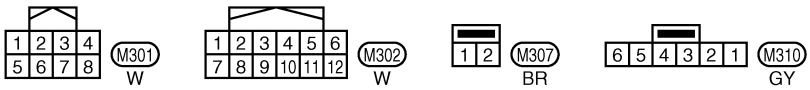
TKWB4329E

Wiring Diagram — ROOM/L —

NKS0053S

From Vehicle Identification Number JNKCV51E26M516169
From Vehicle Identification Number JNKCV51F36M612031

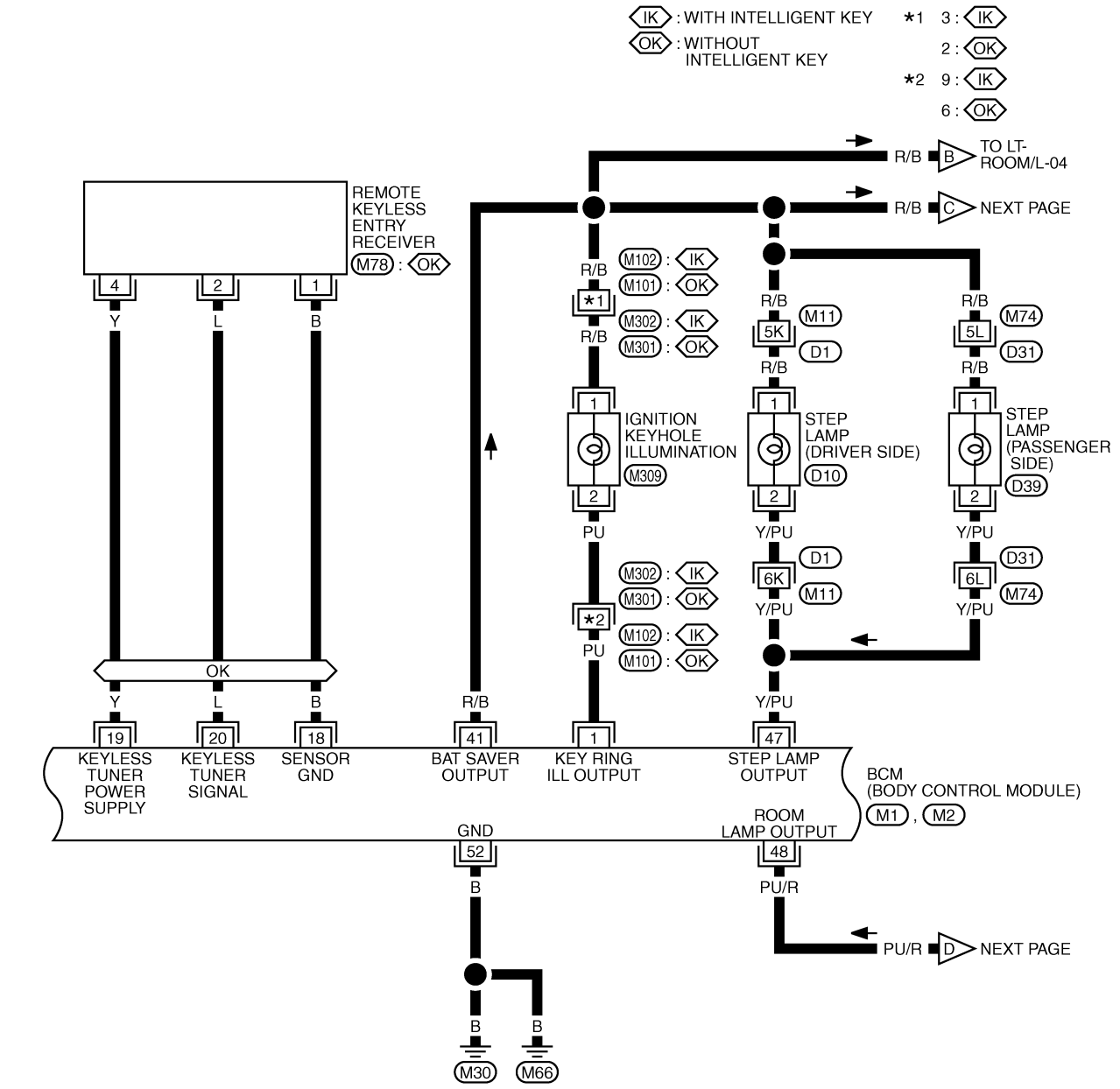


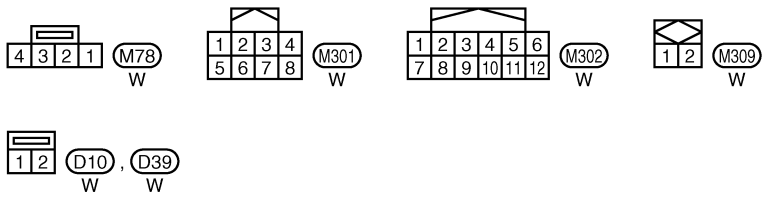


REFER TO THE FOLLOWING.
E108 -SUPER MULTIPLE JUNCTION (SMJ)
M4 , M5 -FUSE BLOCK-JUNCTION BOX (J/B)
M1 , M2 -ELECTRICAL UNITS

TKWM2273E

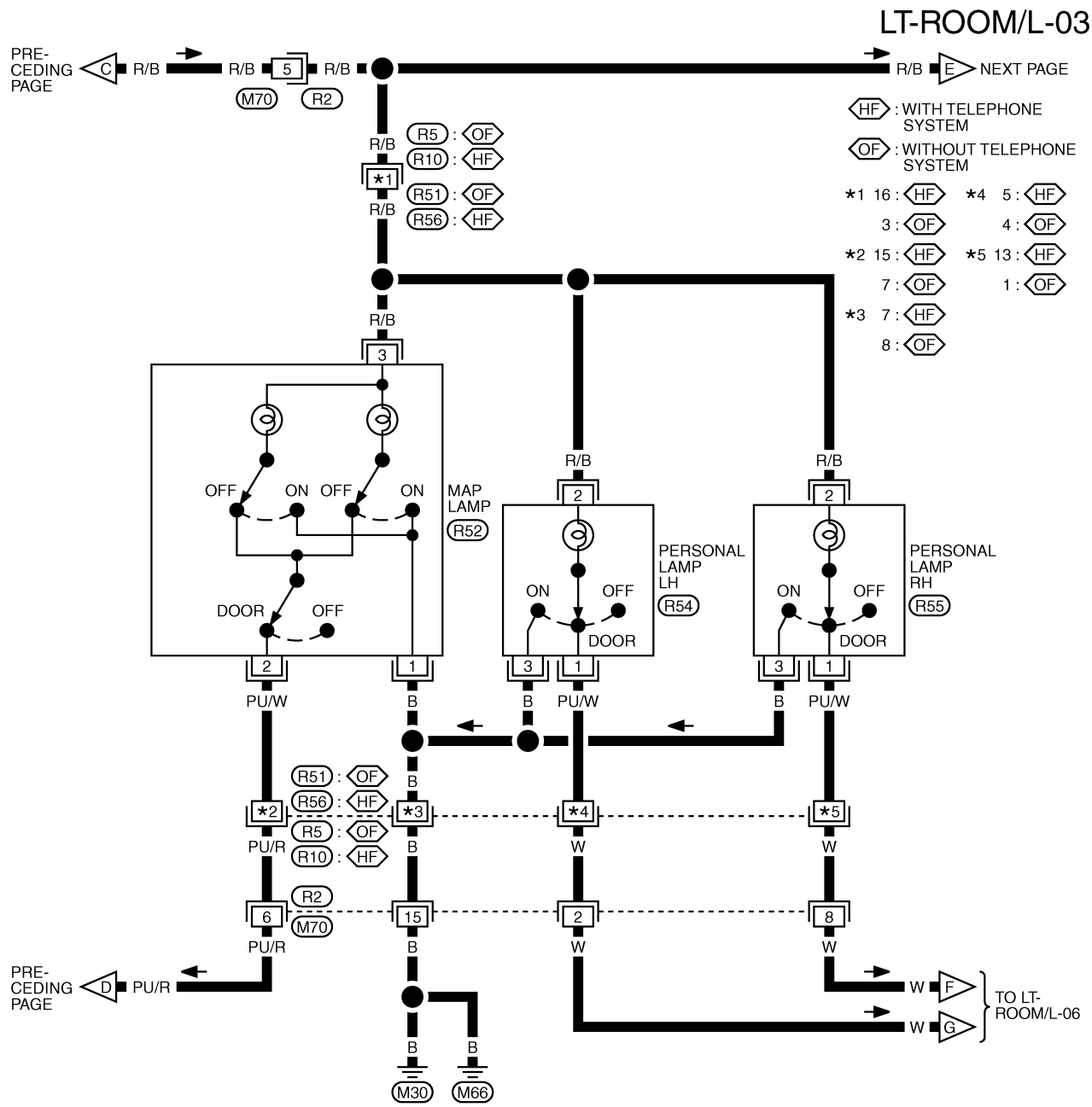
LT-ROOM/L-02





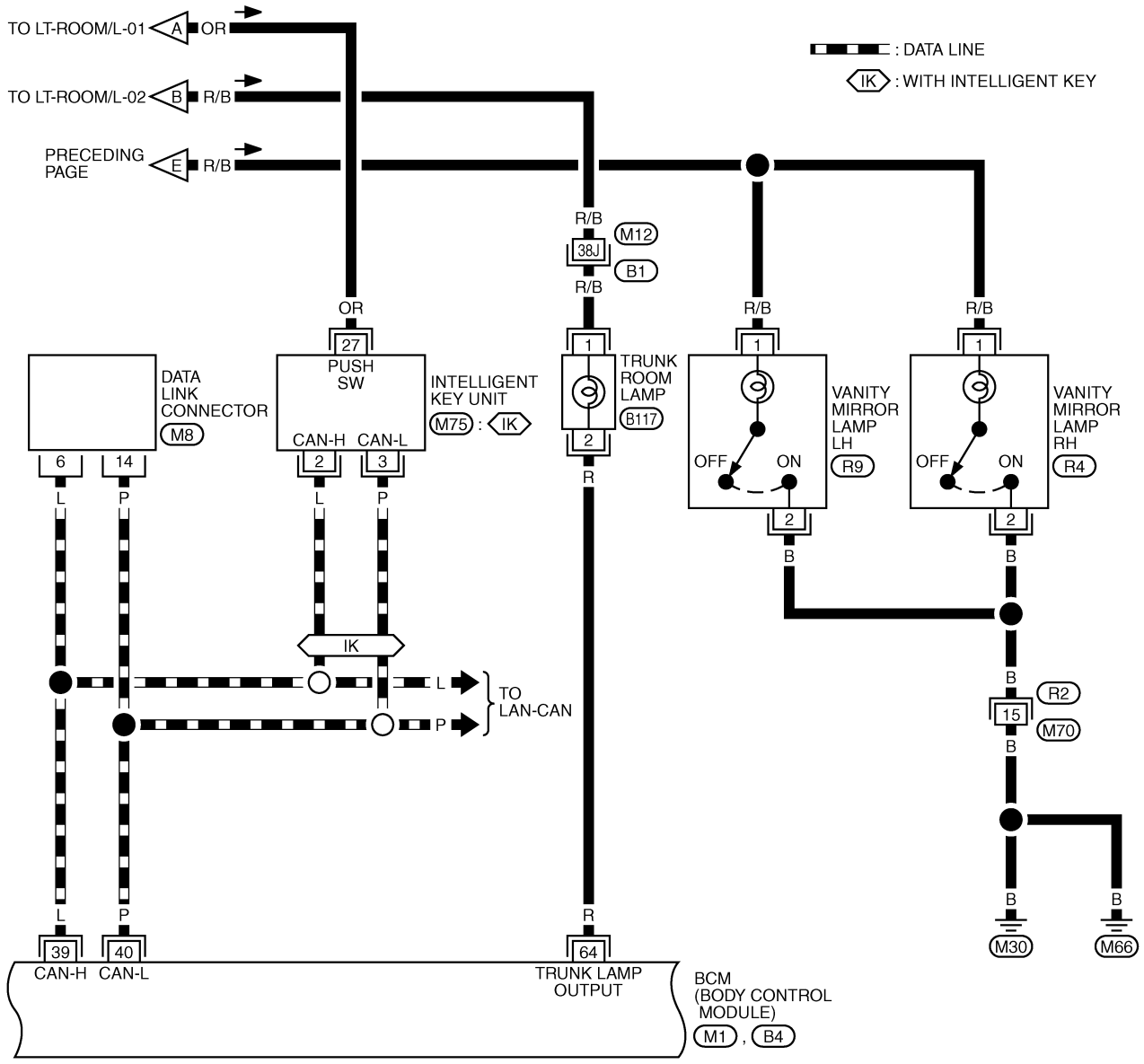
REFER TO THE FOLLOWING.
D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , M2 -ELECTRICAL UNITS

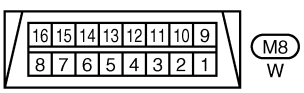
TKWM2274E

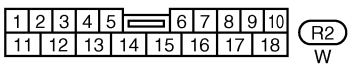

LT-ROOM/L-03
PRE-CEDING PAGE
C
R/B
5
M70
R2
NEXT PAGE
E
HF : WITH TELEPHONE SYSTEM
OF : WITHOUT TELEPHONE SYSTEM
*1 16 : HF
3 : OF
*2 15 : HF
7 : OF
*3 7 : HF
8 : OF
*4 5 : HF
4 : OF
*5 13 : HF
1 : OF
R5 : OF
R10 : HF
R51 : OF
R56 : HF
*1
3
OFF
ON
DOOR
MAP LAMP
R52
PERSONAL LAMP LH
R54
PERSONAL LAMP RH
R55
PU/W
B
PU/R
W
*2
*3
*4
*5
6
15
2
8
R2
M70
M30
M66
TO LT-ROOM/L-06
F
G
R52 , R54 , R55

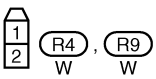
TKWM3387E

LT-ROOM/L-04





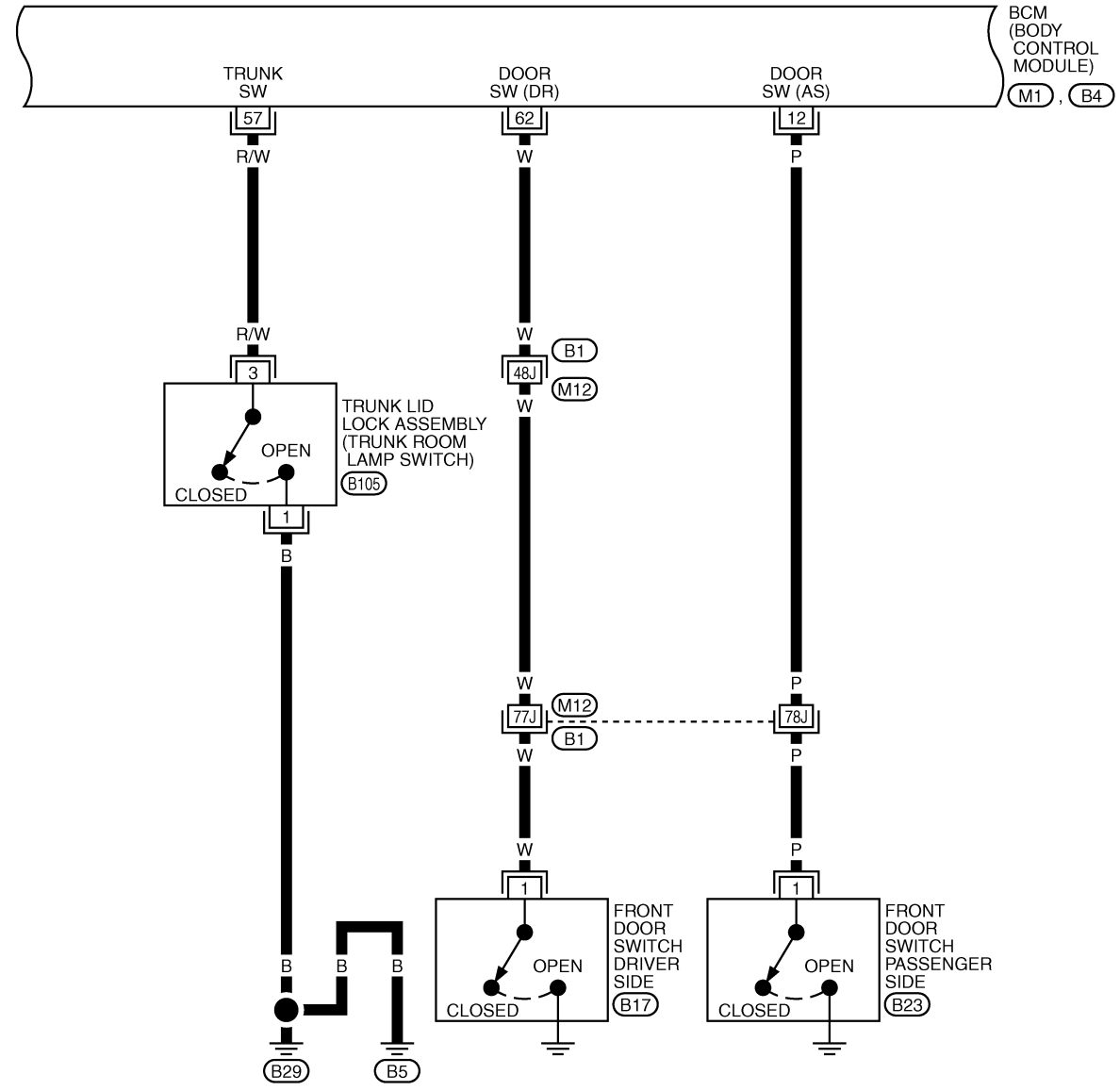


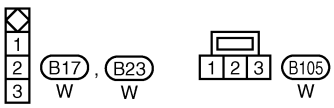


REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , M75 , B4 -ELECTRICAL UNITS

TKWM2276E

LT-ROOM/L-05

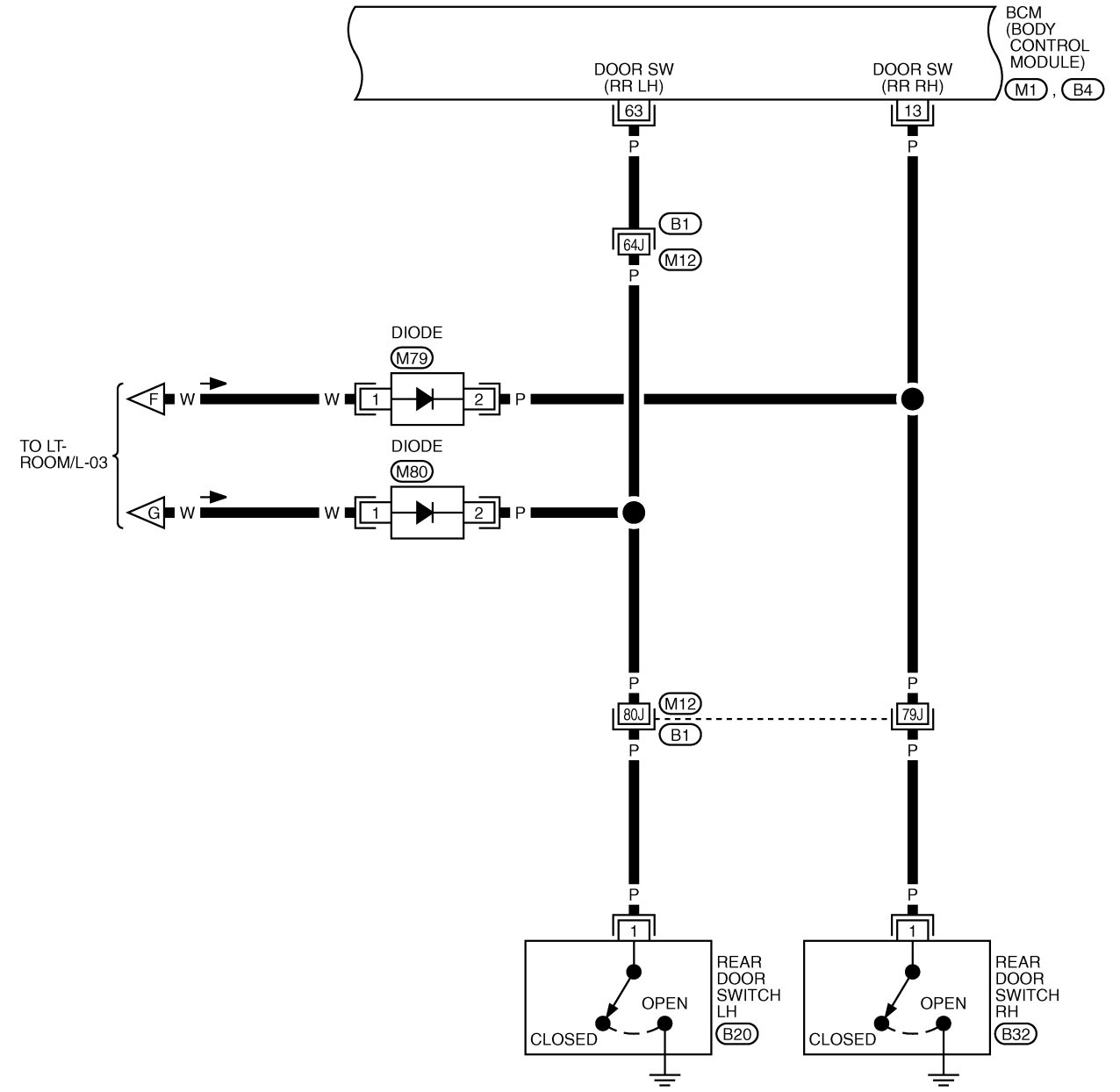




REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , B4 -ELECTRICAL UNITS

TKWB4330E

LT-ROOM/L-06

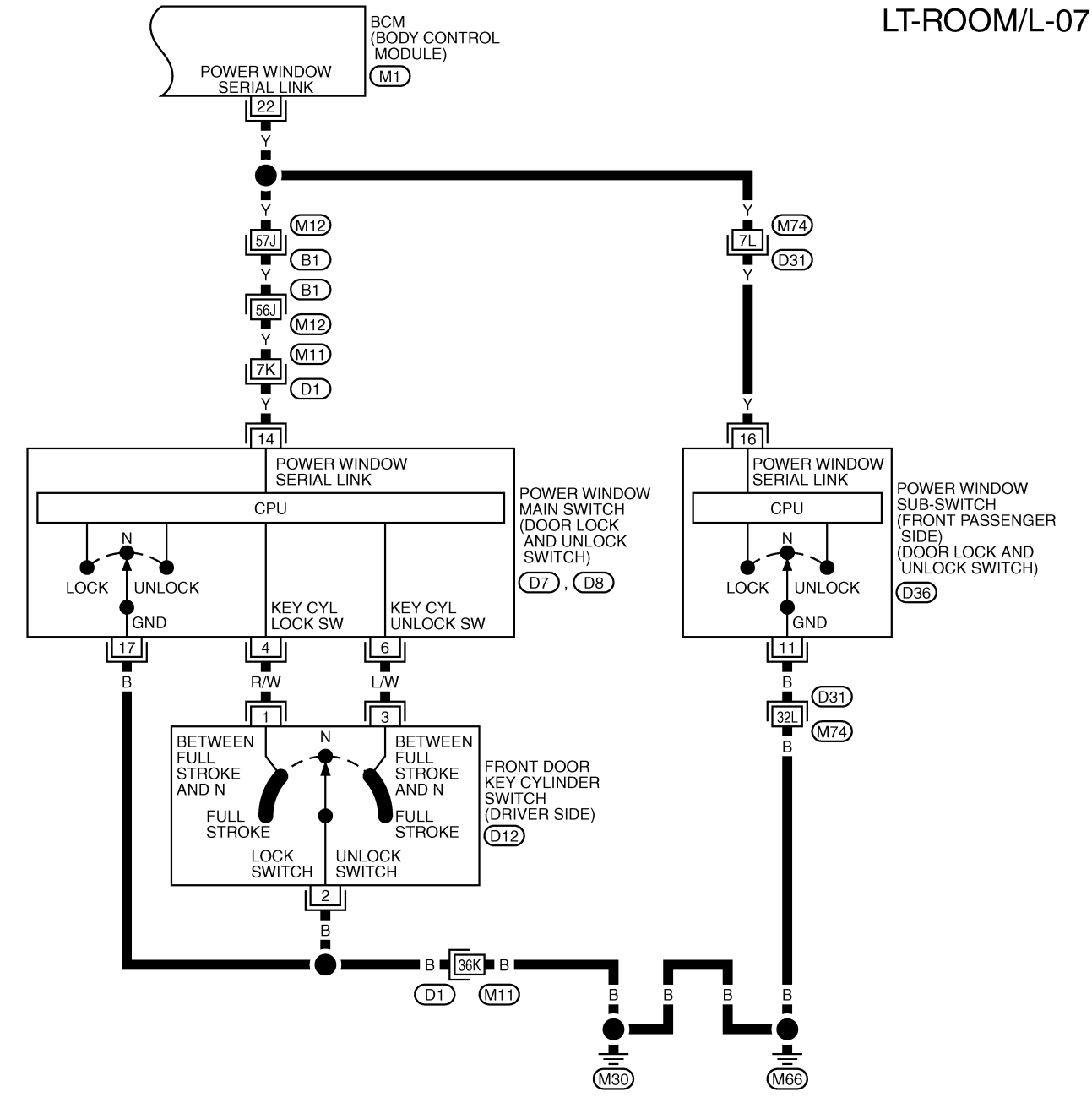


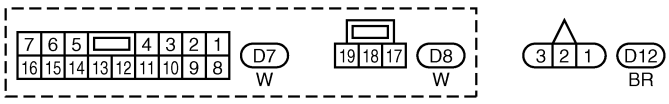
1 2 M79 , M80
W W

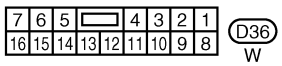
1 2 3 B20 , B32
W W

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

TKWM2278E





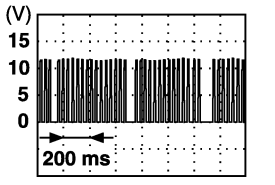


REFER TO THE FOLLOWING.
B1 , D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)
M1 -ELECTRICAL UNITS

TKWM2279E

Terminals and Reference Values for BCM

NKS000X0

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

How to Proceed With Trouble Diagnosis

NKS000X1

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-157, "System Description" .
3. Perform the preliminary check. Refer to LT-180, "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

NKS000X2

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

Check for blown fuses.

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

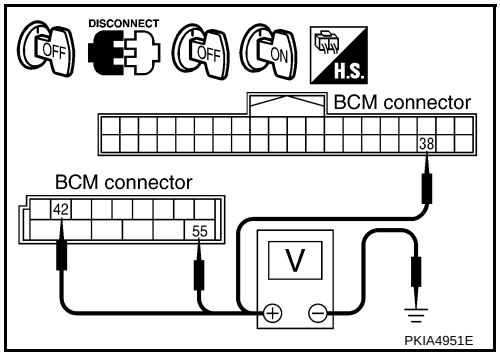
Refer to LT-163, "Wiring Diagram — ROOM/L —" .

OK or NG

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

2. CHECK POWER SUPPLY CIRCUIT

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



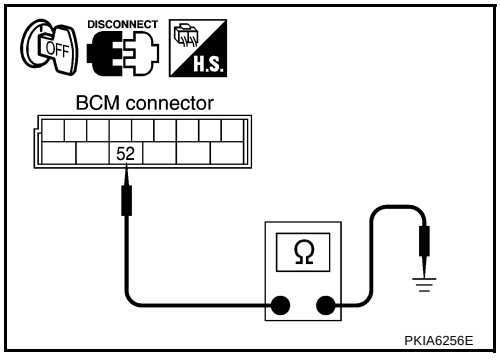
Terminal			Ignition switch position	
(+)		(-)	OFF	ON
Connector	Terminal			
M2	42	Ground	Battery voltage	Battery voltage
	55		Battery voltage	Battery voltage
M1	38		Approx. 0V	Battery voltage

OK or NG

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

3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.



Terminal			Continuity
Connector	Terminal	Ground	Yes
M2	52		

OK or NG

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

CONSULT-II Functions (BCM)

NKS000X3

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

CONSULT-II BASIC OPERATION

Refer to GI-38, "CONSULT-II Start Procedure" .

WORK SUPPORT

Operation Procedure

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

Display Item List

Item	Description	CONSULT-II
SET I/L D–UNLCK INTCON	The 30 seconds glowing function interior room lamps and ignition keyhole illumination can be selected when driver door is released (unlocked).	ON/OFF
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

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.

Monitor item		Contents
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	“ON/OFF”	Displays status (door is open: ON/door is closed: OFF) of rear door switch (RH) judged from the rear door switch (RH) signal.
DOOR SW - RL	“ON/OFF”	Displays status (door is open: ON/door is closed: OFF) of rear door switch (LH) judged from the rear door switch (LH) signal.
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 unlocked: 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

Operation Procedure

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

Display Item List

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

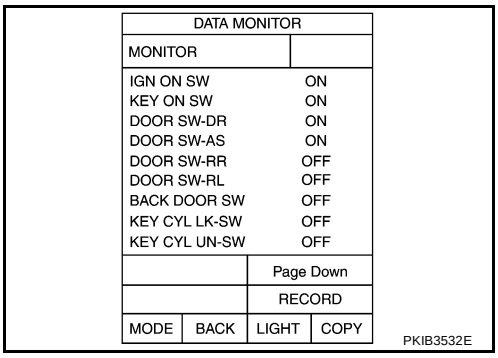
NOTE:
This item is displayed, but cannot be tested.

Map Lamp Control Does Not Operate

NKS000X4

1. CHECK EACH SWITCH

Select “BCM” on CONSULT-II. With “INT LAMP” data monitor to make sure switches listed in display item list turn ON-OFF linked with switch operation. Refer to LT-181, "Display Item List" for switches and their functions.



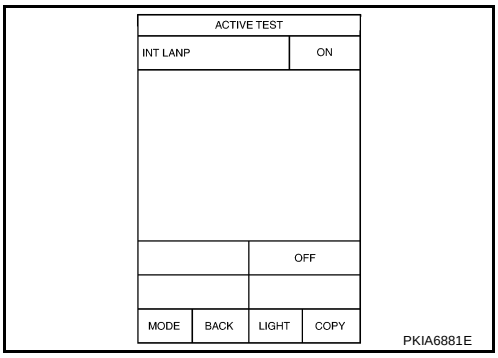
OK or NG

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.



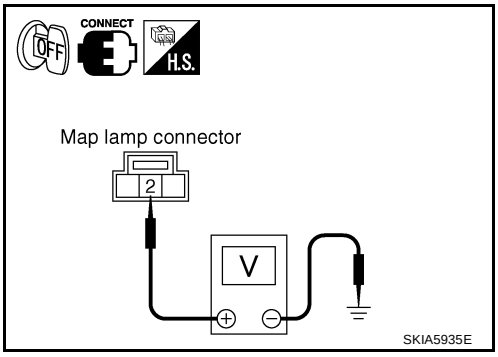
OK or NG

OK >> Replace BCM. Refer to BCS-18, "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.



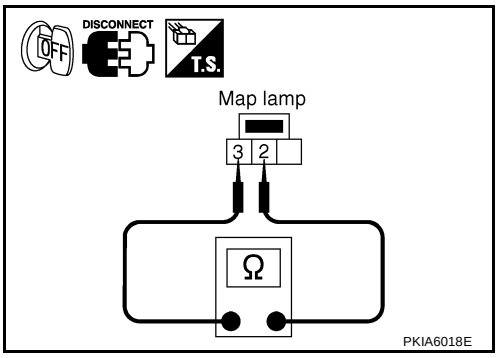
OK or NG

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

4. CHECK MAP LAMP

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

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

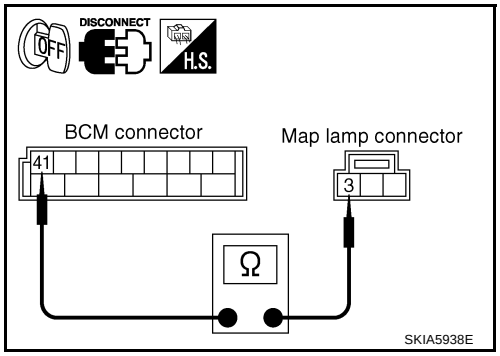
1. Disconnect BCM connector and map lamp connector.
2. Check continuity between BCM harness connector M2 terminal 41 and map lamp harness connector R52 terminal 3.

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-18, "Removal and Installation of BCM" .

NG >> Repair harness or connector.



6. CHECK MAP LAMP CIRCUIT

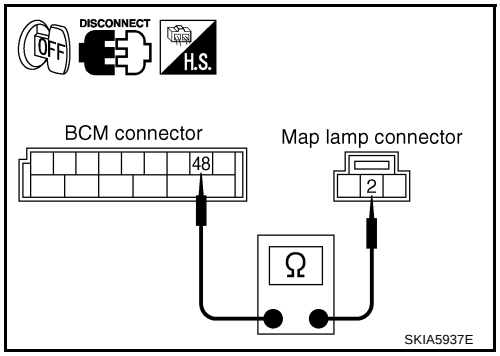
1. Disconnect BCM connector.
2. Check continuity between BCM harness connector M2 terminal 48 and map lamp harness connector R52 terminal 2.

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-18, "Removal and Installation of BCM" .

NG >> Repair harness or connector.



Ignition Key Hole Illumination Control Does Not Operate

NKS000X5

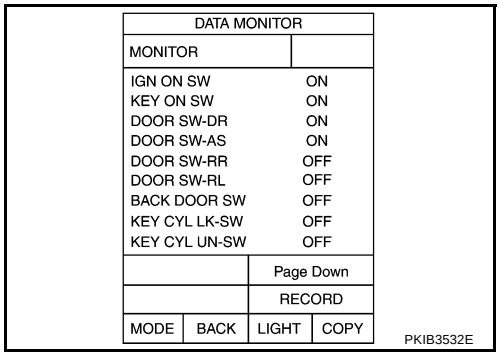
1. CHECK EACH SWITCH

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-181, "Display Item List" for switches and their functions.

OK or NG

OK >> GO TO 2.

NG >> Inspect malfunctioning switch system.



2. ACTIVE TEST

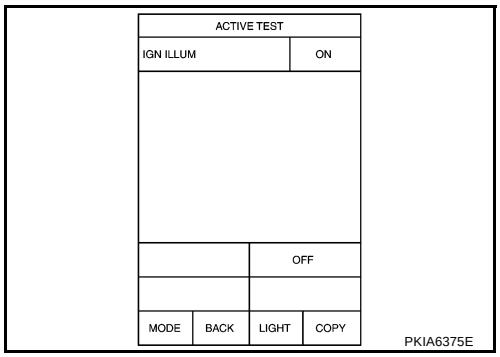
1. Select “BCM” on CONSULT-II. Select “INT LAMP”.
2. Select “IGN ILLUM” active test to make sure lamp operates.

Ignition key hole illumination should operate.

OK or NG

OK >> Replace BCM. Refer to BCS-18, "Removal and Installation of BCM" .

NG >> GO TO 3.



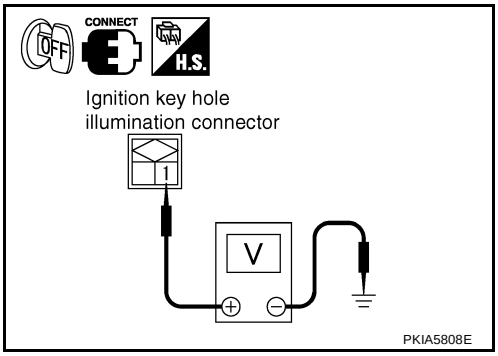
3. CHECK IGNITION KEY HOLE ILLUMINATION INPUT

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.



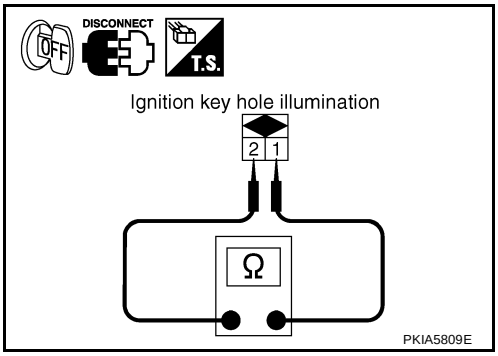
4. CHECK IGNITION KEY HOLE ILLUMINATION BULB

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-188, "IGNITION KEY HOLE ILLUMINATION" .



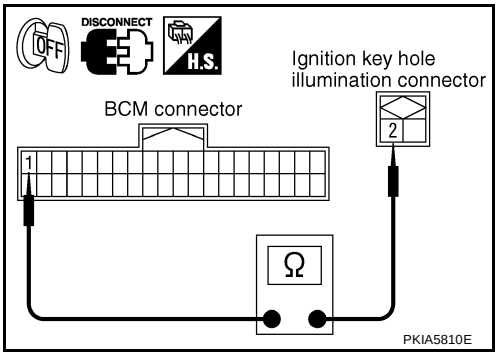
5. CHECK IGNITION KEY HOLE ILLUMINATION CIRCUIT

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-18, "Removal and Installation of BCM" .
NG >> Repair harness or connector.



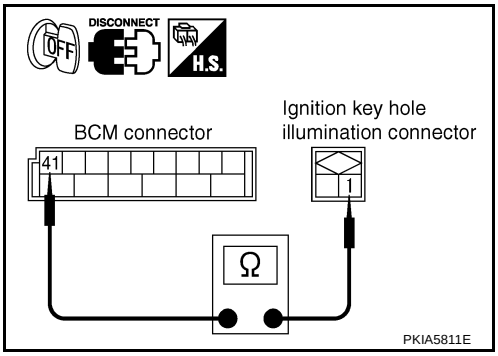
6. CHECK IGNITION KEY HOLE ILLUMINATION CIRCUIT

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-18, "Removal and Installation of BCM" .
NG >> Repair harness or connector.



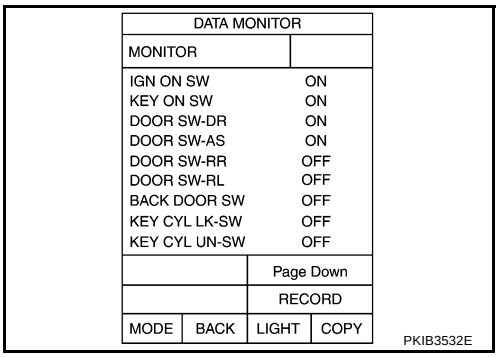
All Step Lamps Does Not Operate

NKS000X6

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



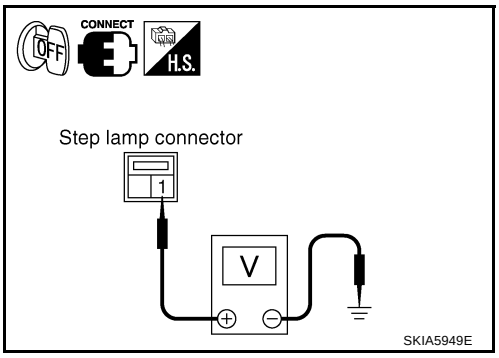
OK or NG

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.



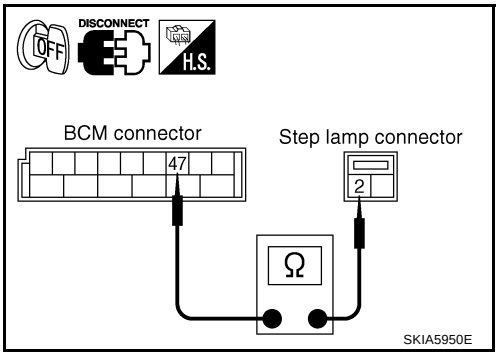
OK or NG

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 front door step lamp (driver side) harness connector D10 terminal 2.

47 – 2 : Continuity should exist.



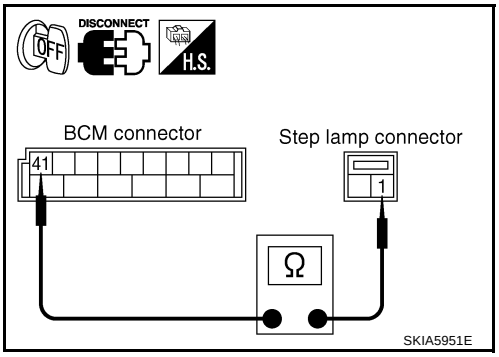
OK or NG

OK >> Replace BCM if step lamps does not work after setting the connector again. Refer to BCS-18, "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 front door 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-18, "Removal and Installation of BCM" .
NG >> Repair harness or connector.

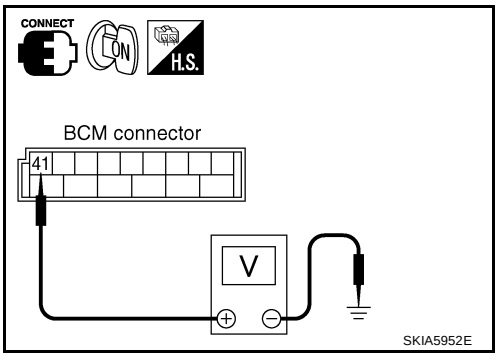
All Interior Room Lamps Does Not Operate

NKS000X7

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-18, "Removal and Installation of BCM" .

Bulb Replacement

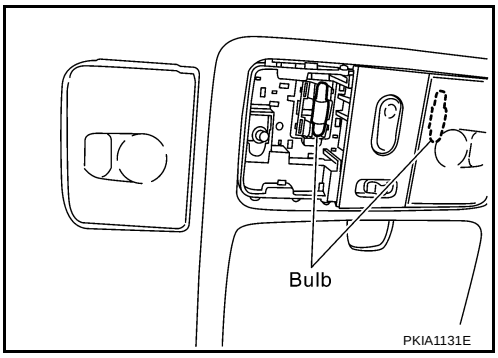
NKS002M7

MAP LAMP

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

Map lamp : 12V - 8W

3. Installation is the reverse order of removal.

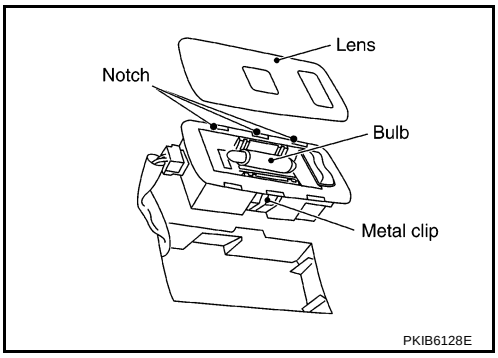


PERSONAL LAMP

1. Remove personal lamp. Refer to LT-189, "Removal and Installation" .
2. Insert a screwdriver or similar tool and remove lens.
3. Remove bulb.

Personal lamp : 12V - 8W

4. Installation is the reverse order of removal.



STEP LAMP

1. Remove step lamp. Refer to LT-189, "Removal and Installation" .
2. Remove bulb.

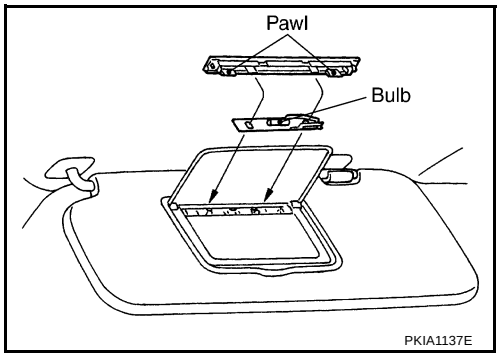
Step lamp : 12V - 5W

3. Installation is the reverse order of removal.

VANITY MIRROR LAMP

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

Vanity mirror lamp : 12V - 1.32W

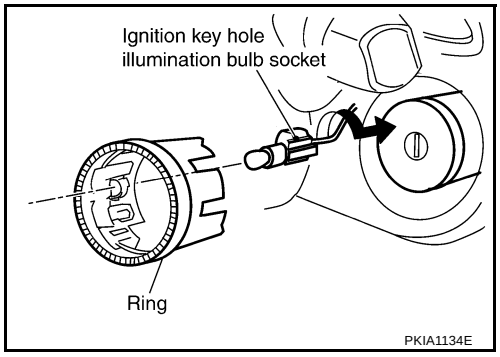


IGNITION KEY HOLE ILLUMINATION

Without Intelligent Key System

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

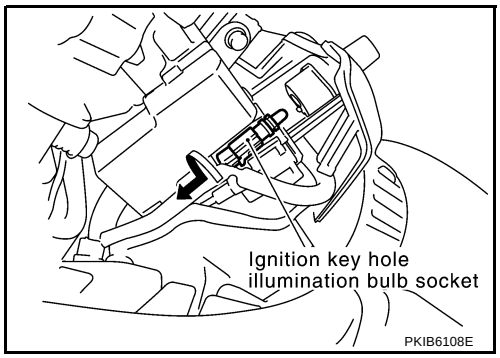
Ignition key hole illumination : 12V - 1.4W



With Intelligent Key System

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

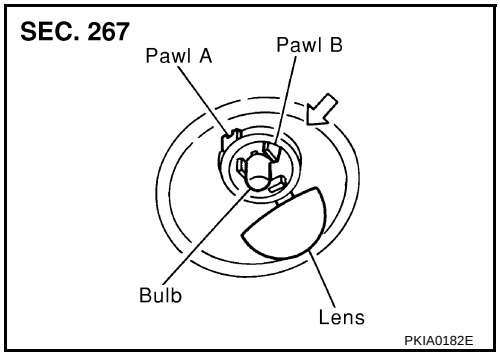
Ignition key hole illumination : 12V - 1.4W



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 : 12V - 3.4W



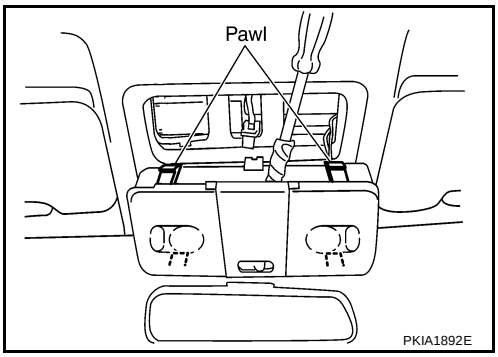
Removal and Installation

NKS002M8

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.

PERSONAL LAMP

Removal

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

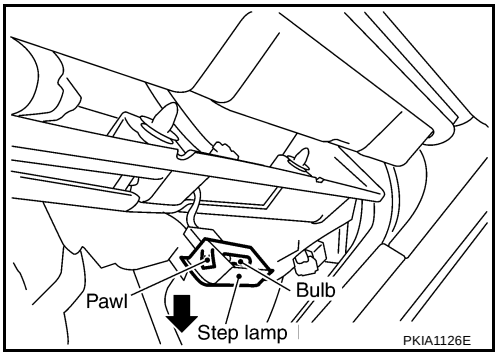
Installation

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.

ILLUMINATION

PFP:27545

System Description

NKS000XA

The control of illumination lamps operation is dependent upon the position of lighting switch (combination switch). When lighting switch is placed in the 1ST or 2ND position (or if auto light system is activated), BCM (body control module) receives input signal requesting illumination lamps to illuminate. This input signal is communicated to IPDM E/R (intelligent power distribution module engine room) through CAN communication lines. CPU (central processing unit) located in the IPDM E/R controls tail lamp relay coil. This relay, when energized, directs power to illumination 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 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 15A fuse (No. 78 located in IPDM E/R)
- to CPU located in IPDM E/R.

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,
- 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 display and A/C auto amp. terminal 2, and
- to NAVI control unit terminal 63 (with navigation system).

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), and
- to display unit terminal 19 (with navigation system).

Ground is supplied

- to BCM terminal 52
- to display and A/C auto amp. terminal 5
- to combination meter terminal 1, 24, and 25
- to NAVI control unit terminal 1 and 21 (with navigation system), and
- to display unit terminal 22 and 24 (with navigation system)
- through grounds M30 and M66,
- to IPDM E/R terminals 38 and 60
- through grounds E17 and E43.

ILLUMINATION OPERATION BY LIGHTING SWITCH

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

- through IPDM E/R terminal 22
- to combination meter terminal 10

- to glove box lamp terminal 1
- to A/T illumination terminal 1 (with A/T)
- to illumination control switch terminal 1
- to VDC off switch (illumination) terminal 3
- to hazard switch (illumination) terminal 3
- to heated seat switch (driver side) (illumination) terminal 5 (with heater seat)
- to heated seat switch (passenger side) (illumination) terminal 5 (with heater seat)
- to A/C and audio controller terminal 9
- to display and A/C auto amp. terminal 1
- 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 NAVI control unit (illumination) terminal 61 (with navigation system)
- to NAVI switch (illumination) terminal 2 (with navigation system)
- to snow mode switch (illumination) terminal 5 (AWD models)
- to audio unit terminal 8
- to microphone terminal 2 (with telephone system)
- to upper grove box lamp terminal 1 (without navigation system)
- to trunk lid opener switch (illumination) terminal 3, and
- to combination switch (spiral cable) terminal 26
- through combination switch (spiral cable) terminal 18
- to ASCD steering switch illumination
- to steering wheel audio control switch illumination.

Ground is supplied at all times

- to combination meter terminal 9
- to NAVI switch terminal 3 (with navigation system)
- to VDC off switch (illumination) terminal 4
- to A/T illumination terminal 2 (with A/T)
- to hazard switch (illumination) terminal 4
- to display and A/C auto amp. terminal 21
- to A/C and audio controller terminal 10
- to heated seat switch (driver side) (illumination) terminal 6 (with heated seat)
- to heated seat switch (passenger side) (illumination) terminal 6 (with heated seat)
- to combination switch (spiral cable) terminals 21 and 27
- to snow mode switch (illumination) terminal 6 (AWD models)
- to audio unit terminal 7, 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 grove box lamp terminal 2 (without navigation system), and
- to glove box lamp terminal 2
- through grounds M30 and M66.
- to microphone (with telephone system)
- 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 or 2ND position 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

NKS000XB

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

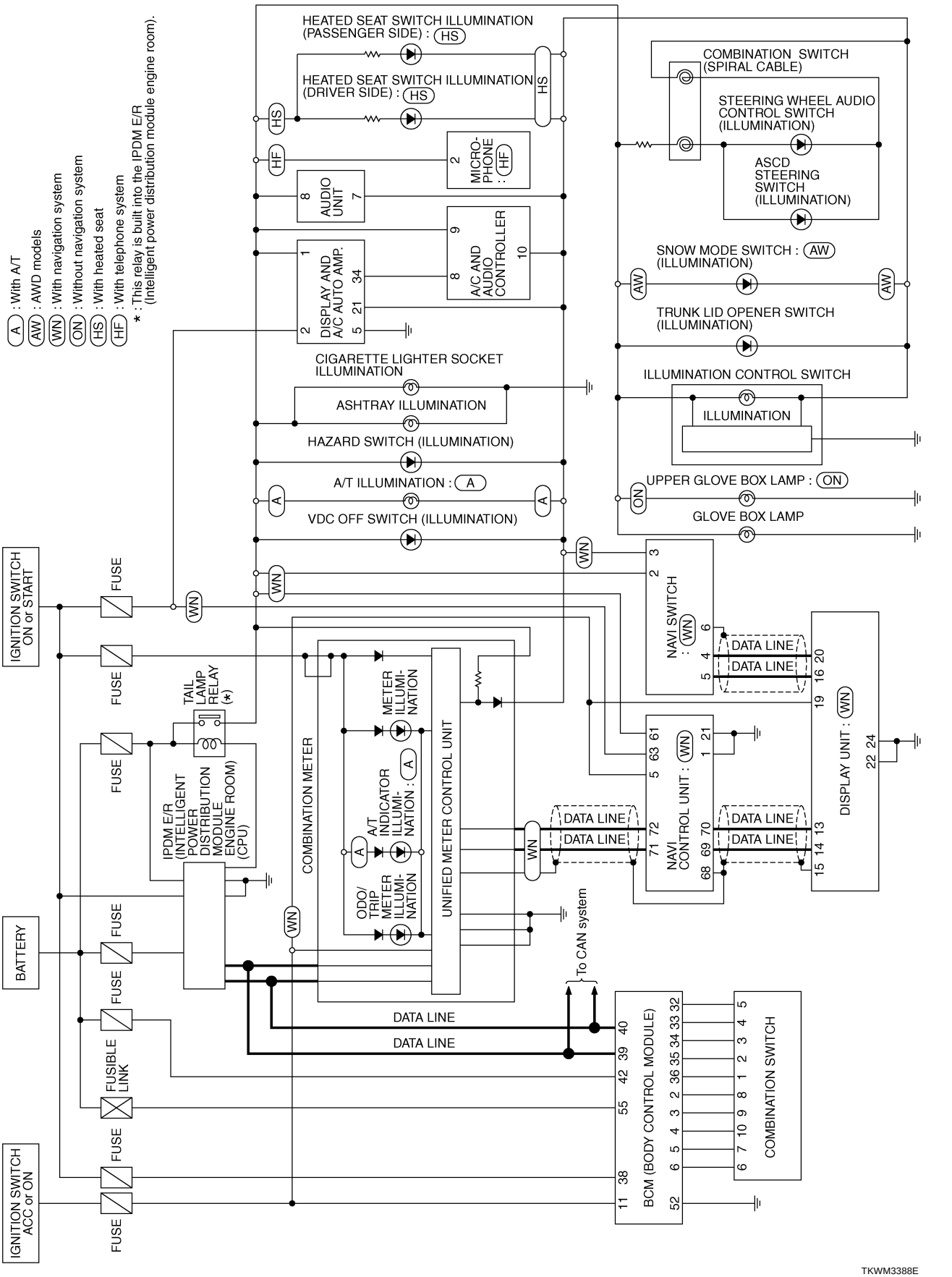
CAN Communication Unit

NKS000XC

Refer to LAN-27, "CAN Communication Unit" .

Schematic

NKS000XD

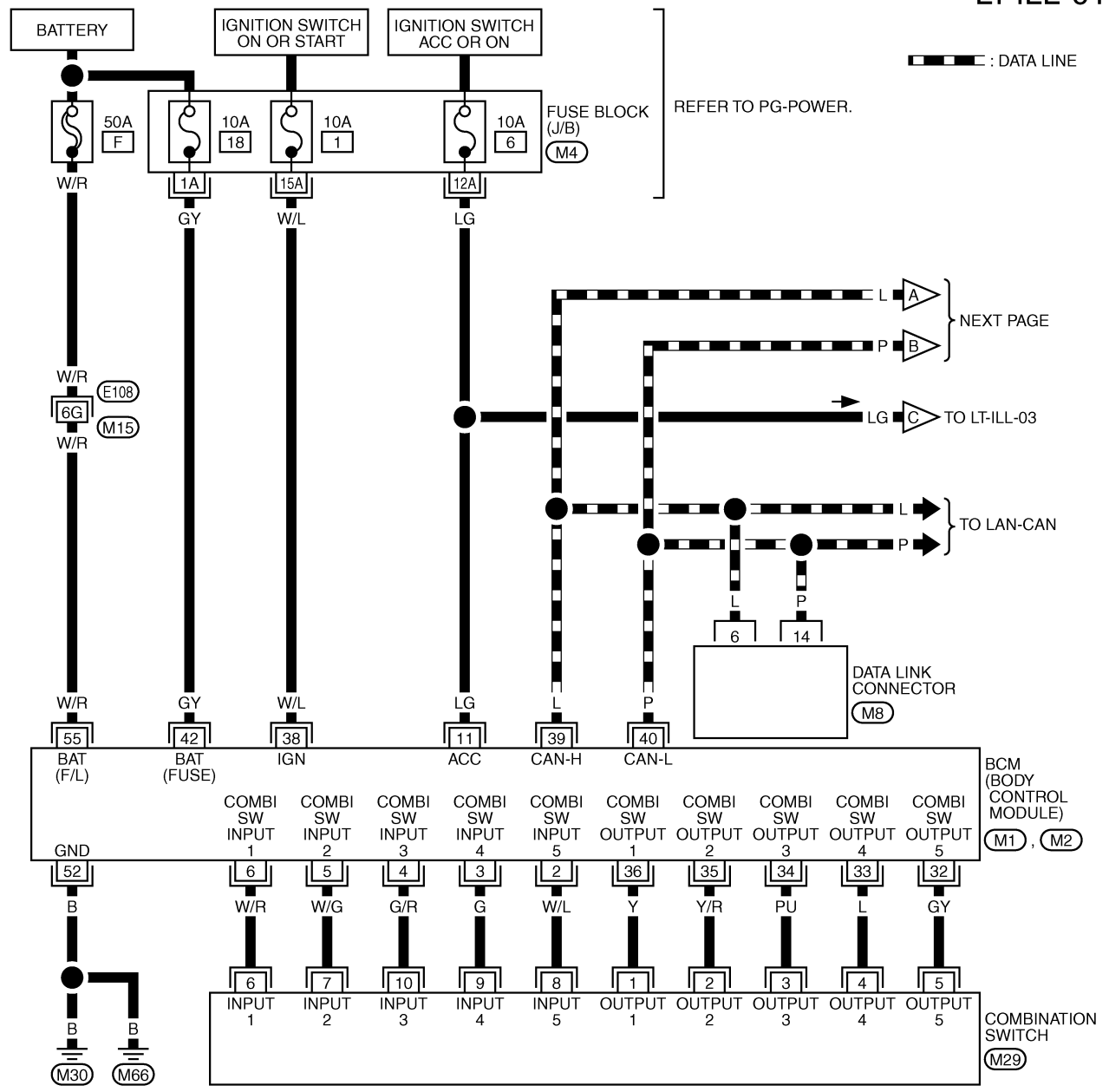


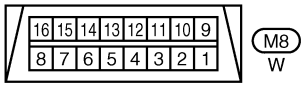
TKWM3388E

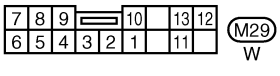
Wiring Diagram — ILL —

NKS000XE

LT-ILL-01







REFER TO THE FOLLOWING.

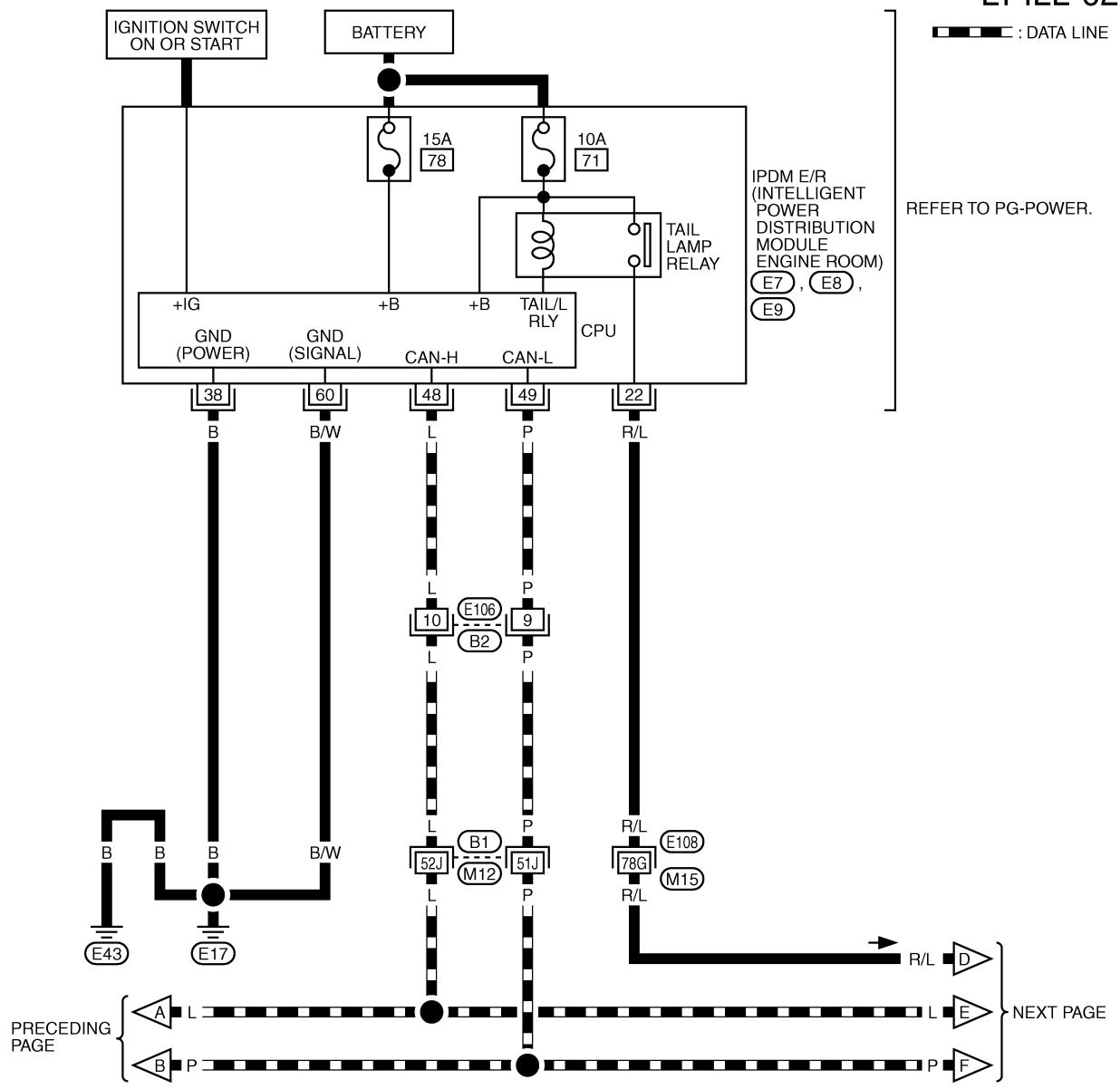
E108 -SUPER MULTIPLE JUNCTION (SMJ)

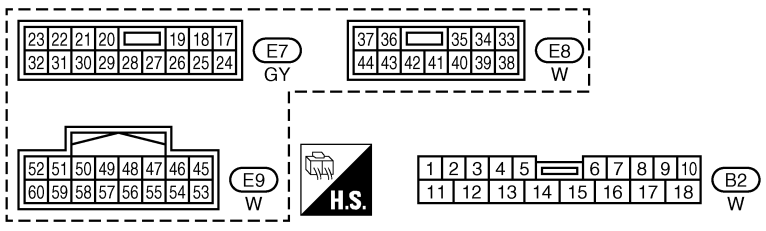
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

M1, M2 -ELECTRICAL UNITS

TKWM2281E

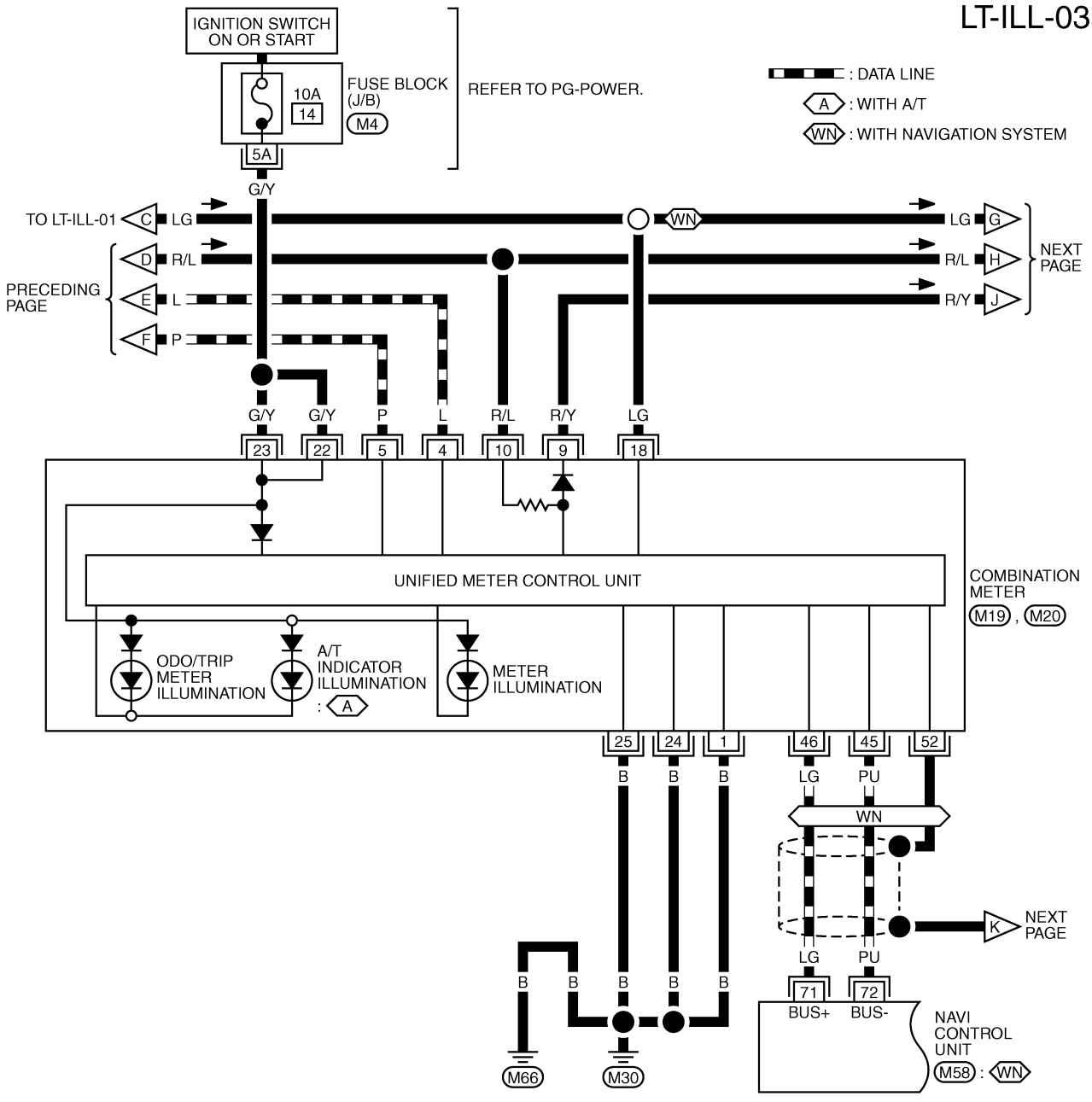
LT-ILL-02



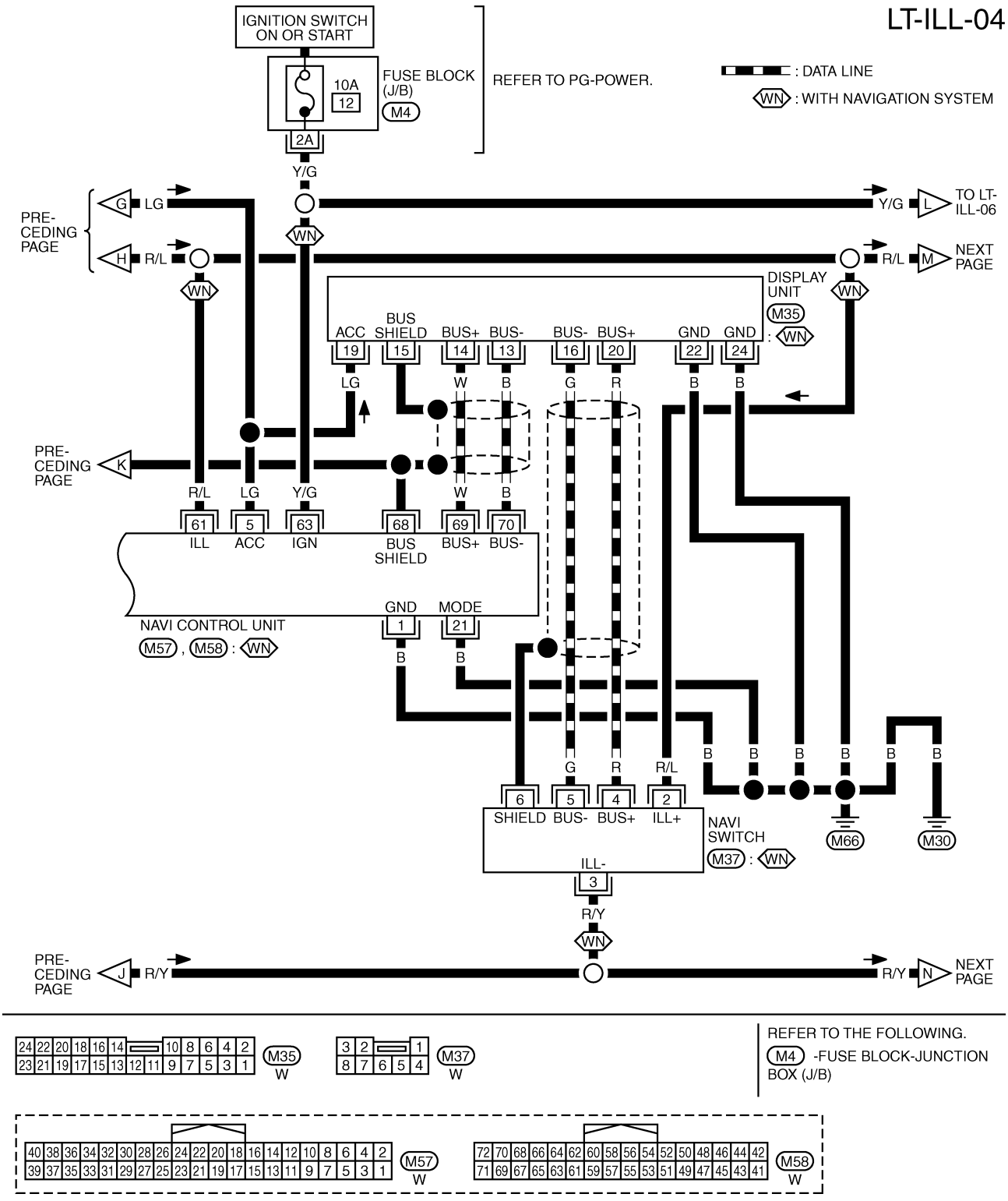


REFER TO THE FOLLOWING.
E108, B1 -SUPER MULTIPLE JUNCTION (SMJ)

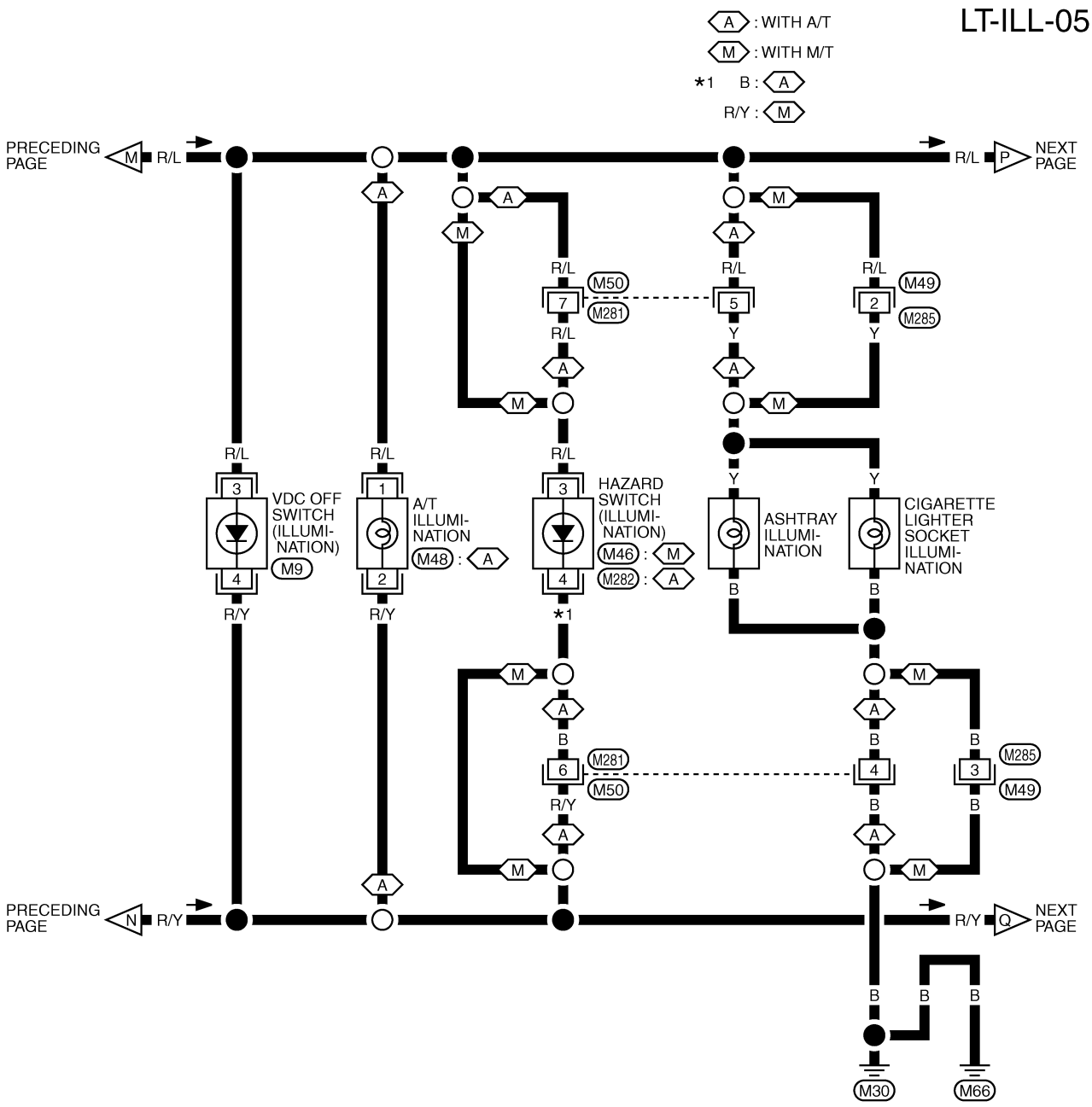
TKWM2282E

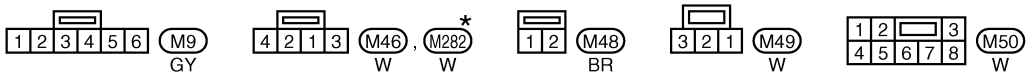

LT-ILL-03
IGNITION SWITCH ON OR START
FUSE BLOCK (J/B)
M4
10A
14
5A
REFER TO PG-POWER.
: DATA LINE
A : WITH A/T
WN : WITH NAVIGATION SYSTEM
G/Y
TO LT-ILL-01
C LG
D R/L
E L
F P
PRECEDING PAGE
WN
LG G
R/L H
R/Y J
NEXT PAGE
G/Y G/Y P L R/L R/Y LG
23 22 5 4 10 9 18
UNIFIED METER CONTROL UNIT
COMBINATION METER
M19 , M20
ODO/TRIP METER ILLUMINATION
A/T INDICATOR ILLUMINATION
: A
METER ILLUMINATION
25 24 1 46 45 52
B B B LG PU
WN
NEXT PAGE
K
LG PU
71 72
BUS+ BUS-
NAVI CONTROL UNIT
M58 : WN
B B B B B
M66 M30
20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21
M19
W
46 45 44 43 42 41
52 51 50 49 48 47
M20
W
72 70 68 66 64 62 60 58 56 54 52 50 48 46 44 42
71 69 67 65 63 61 59 57 55 53 51 49 47 45 43 41
M58
W
REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)

TKWM3389E


LT-ILL-04
IGNITION SWITCH ON OR START
FUSE BLOCK (J/B)
M4
10A
12
2A
REFER TO PG-POWER.
: DATA LINE
WN : WITH NAVIGATION SYSTEM
Y/G
PRE-CEDING PAGE
G LG
H R/L
WN
TO LT-ILL-06
NEXT PAGE
DISPLAY UNIT
M35
WN
ACC BUS SHIELD BUS+ BUS- BUS- BUS+ GND GND
19 15 14 13 16 20 22 24
LG W B G R B B
K
R/L LG Y/G W B
61 5 63 68 69 70
ILL ACC IGN BUS SHIELD BUS+ BUS-
NAVI CONTROL UNIT
M57 , M58 : WN
GND MODE
1 21
B B
G R R/L B B B B B B
6 5 4 2
SHIELD BUS- BUS+ ILL+
NAVI SWITCH
M37 : WN
M66
M30
ILL-
3
R/Y
J R/Y
R/Y N
NEXT PAGE
M35 W
M37 W
REFER TO THE FOLLOWING.
M4 -FUSE BLOCK-JUNCTION BOX (J/B)
M57 W
M58 W

TKWM3390E

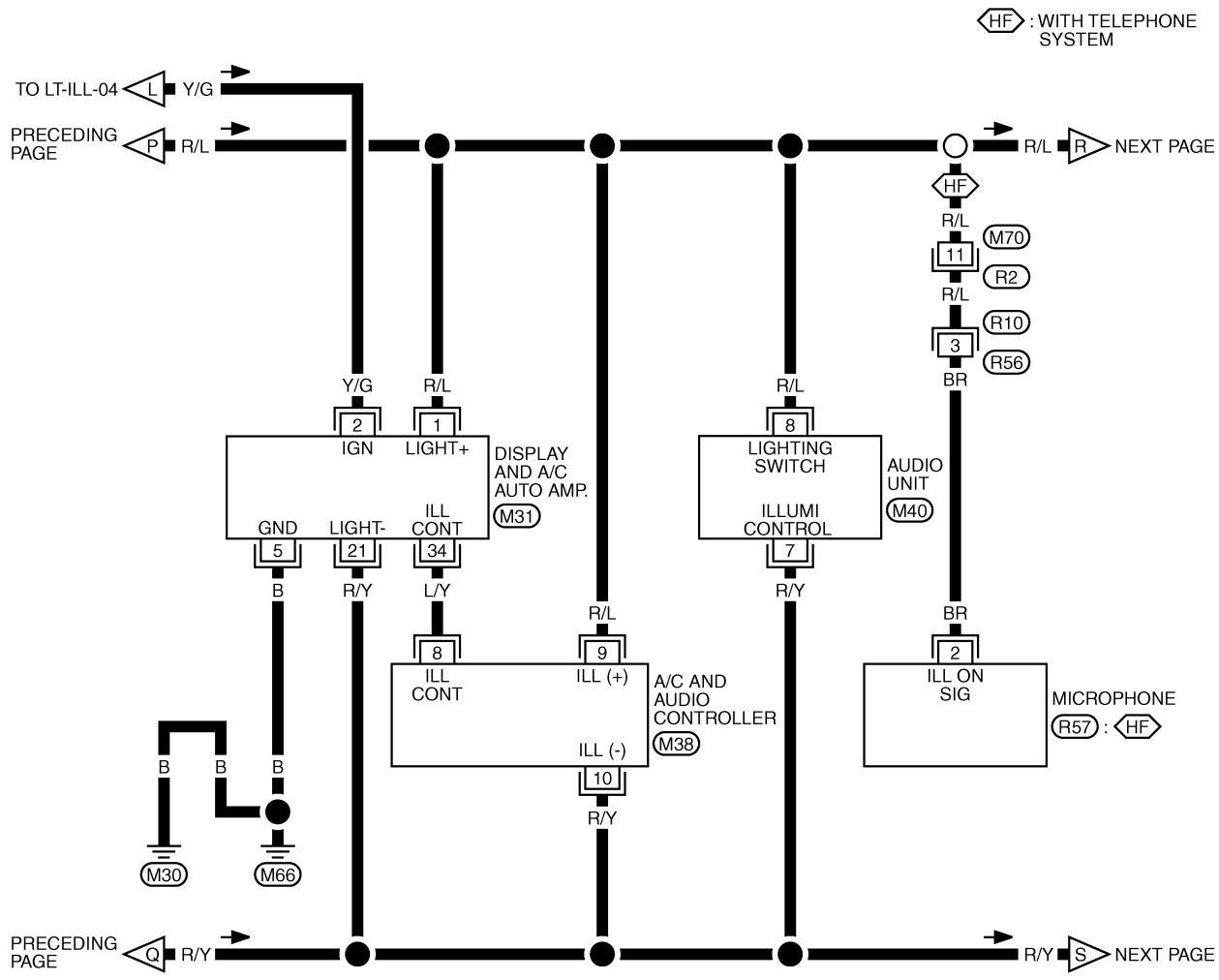


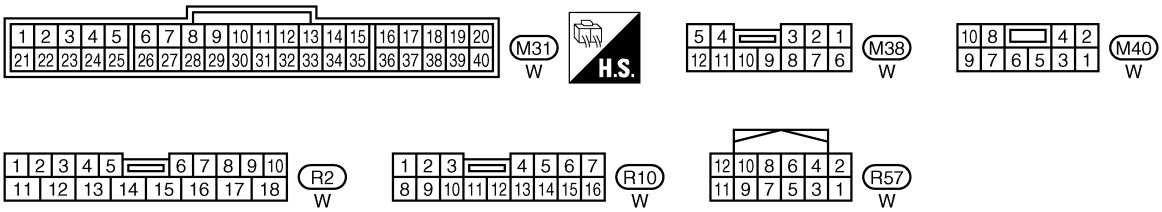


*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWM3391E

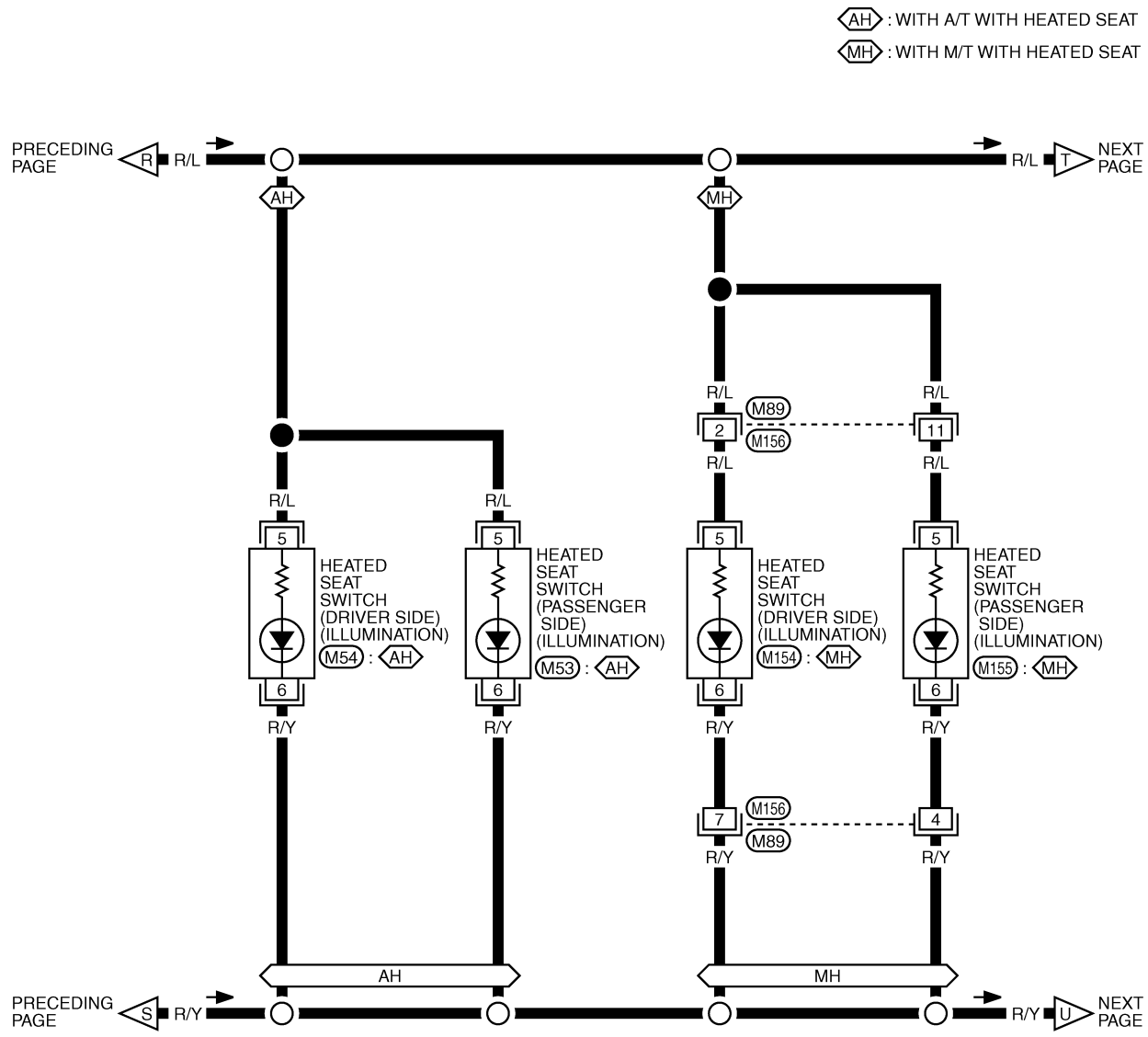
LT-ILL-06





TKWM3392E

LT-ILL-07

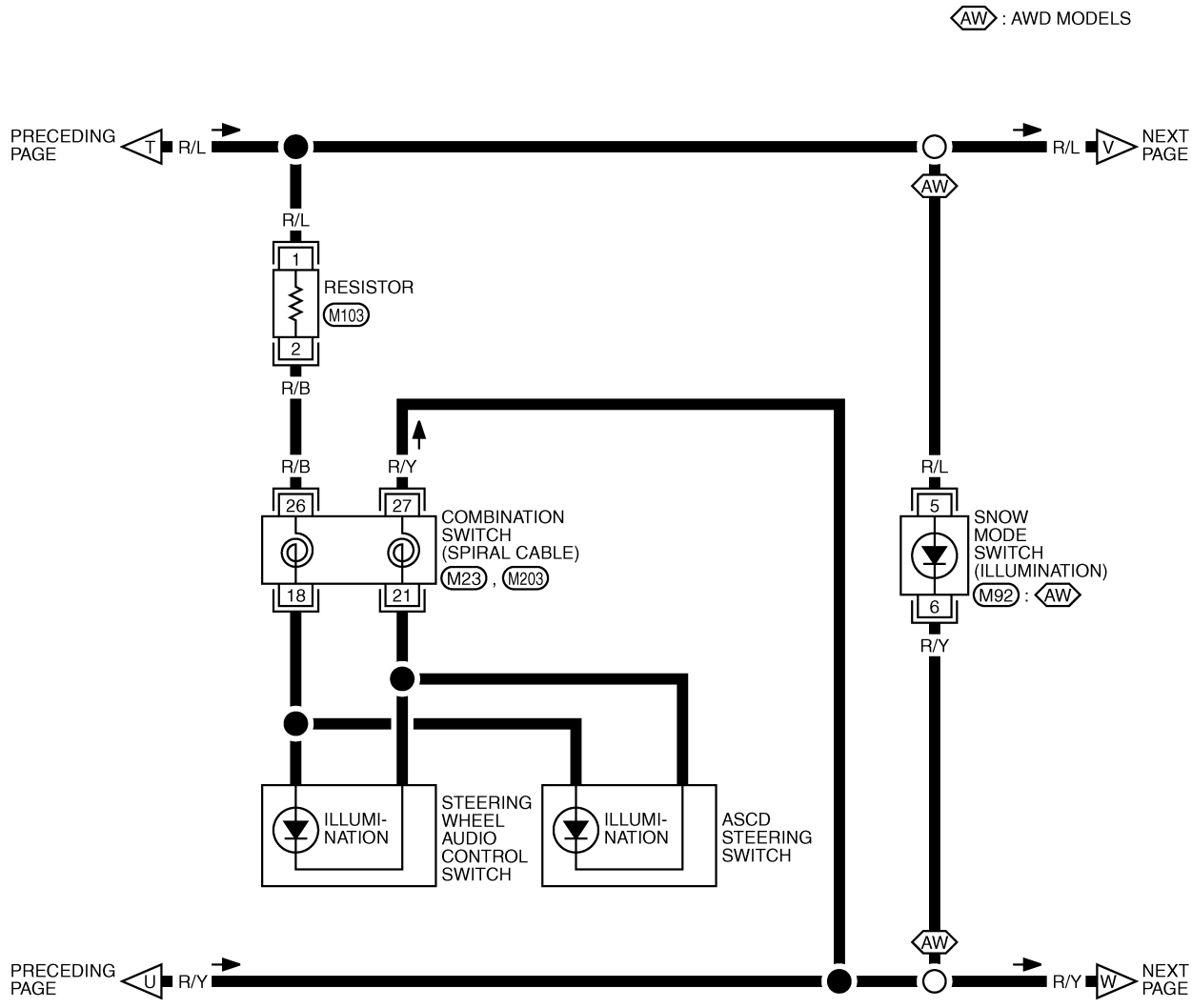


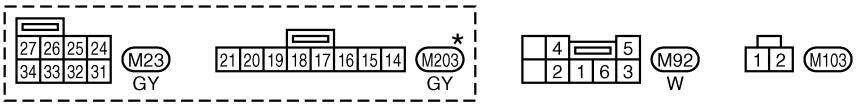
M53, M54, M154, M155 (BR, W, W, BR)

M89 (W)

TKWM3393E

LT-ILL-08

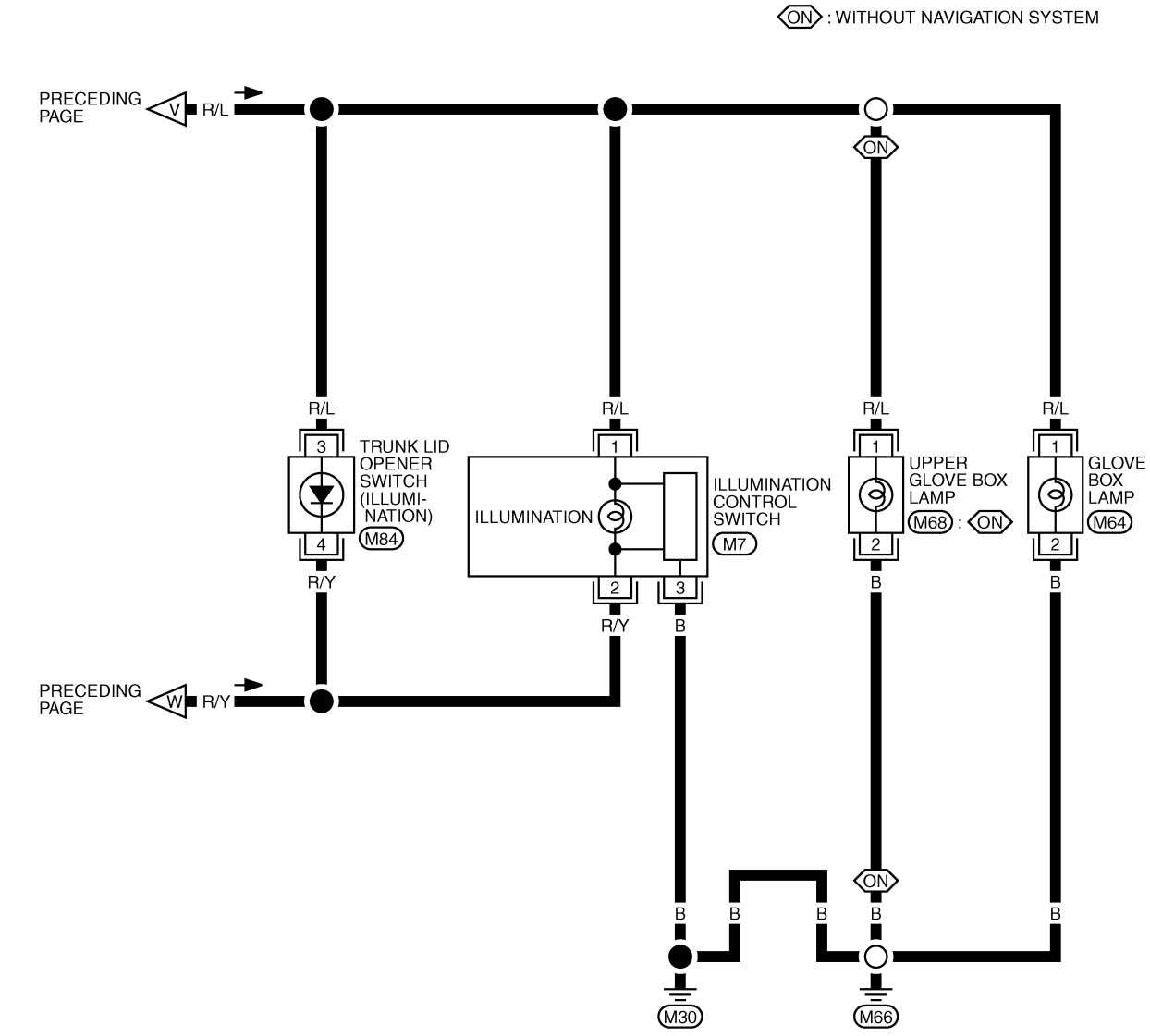




*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWM3394E

LT-ILL-09



TKWM3395E

Removal and Installation

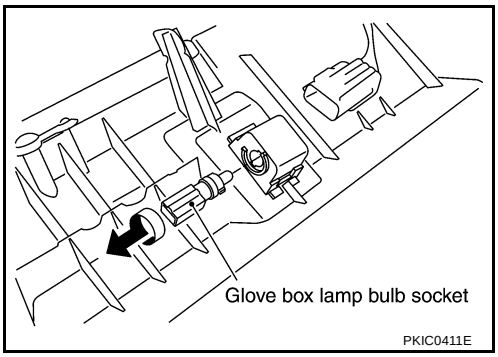
NKS000XF

GLOVE BOX LAMP

Removal

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

Glove box lamp : 12V - 1.4W



Installation

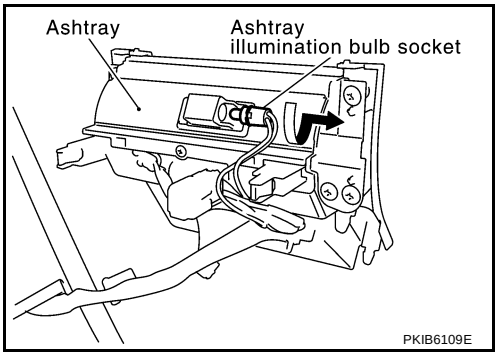
Installation is the reverse order of removal.

ASHTRAY ILLUMINATION

Removal

1. Remove console finisher (A/T) or console boot (M/T). Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Turn bulb socket to left to release lock and remove it.

Ashtray illumination : 12V - 1.4W



Installation

Installation is the reverse order of removal.

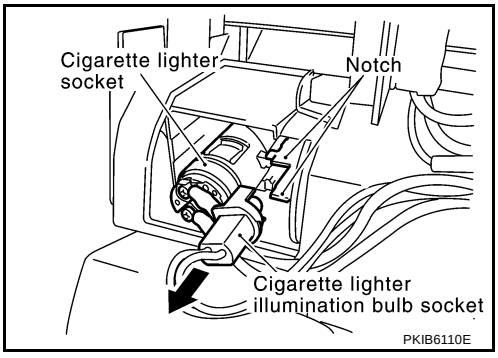
CIGARETTE LIGHTER ILLUMINATION

Removal

1. Remove console finisher (A/T) or console boot (M/T). Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Open hooks and remove bulb socket.

Cigarette lighter illumination : 12V - 0.8W

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



Installation

Installation is the reverse order of removal.

BULB SPECIFICATIONS

PFP:26297

Headlamp

NKS000XG

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

Exterior Lamp

NKS000XH

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

Interior Lamp/Illumination

NKS000XI

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