SECTION LT
LIGHTING SYSTEM

CONTENTS

PRECAUTIONS

PFP:00011

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

NKS00171

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.

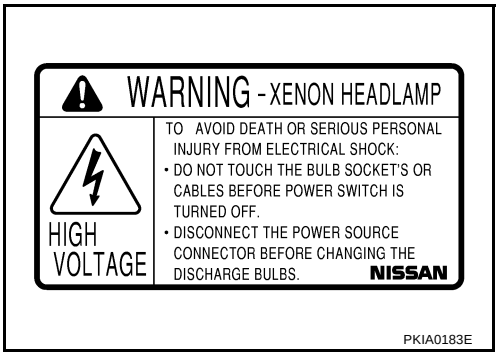
WARNING:

- **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.**

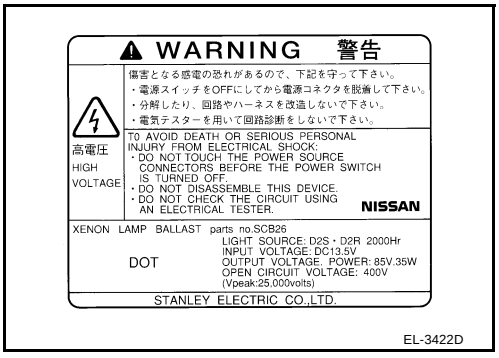
General Precautions for Service Operations

NKS00172

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



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



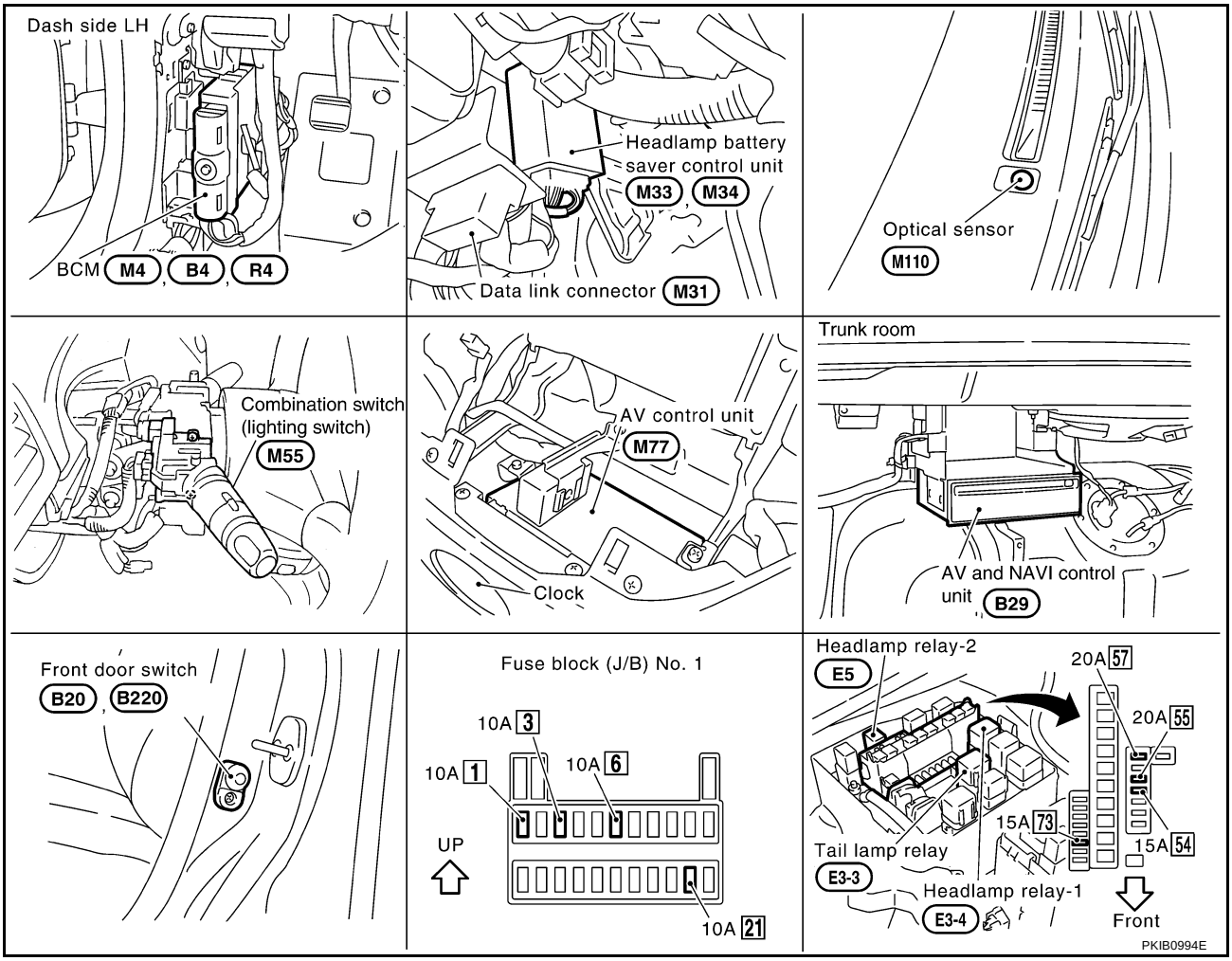
- When adjusting the headlamp aiming, turn the aiming adjustment screw only in the tightening direction. (If it is necessary to turn the screw in loosening direction, first fully loosen the screw, and then turn it in tightening direction.)
- Do not use organic solvent (paint thinner or gasoline) to clean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

HEADLAMP (FOR USA)

PFP:26010

Component Parts and Harness Connector Location

NKS00174



System Description

NKS00175

The headlamp operation is controlled by the combination switch (lighting switch), which is connected to the spiral cable and headlamp battery saver control unit. And the headlamp battery saver system is controlled by the headlamp battery saver control unit and BCM (body control module).

OUTLINE

Power is supplied at all times

- headlamp relay-1 terminal 2 from battery,
- to BCM terminal 105
- through 10A fuse [No. 3, located in fuse block (J/B) No. 1],
- to headlamp relay-1 terminal 3
- through 20A fuse [No. 57, located in fuse, fusible link and relay block (J/B)],
- to headlamp relay-1 terminal 7
- through 20A fuse [No. 55, located in fuse, fusible link and relay block (J/B)],
- to headlamp relay-2 terminals 2 and 5
- through 15A fuse [No. 73, located in fuse, fusible link and relay box],
- to headlamp battery saver control unit terminal 7
- through 10A fuse [No. 6, located in fuse block (J/B) No. 1],
- to tail lamp relay terminals 2 and 6
- through 15A fuse [No. 54, located in fuse, fusible link and relay block (J/B)].

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

- to headlamp battery saver control unit terminal 1, and
- to BCM terminal 68
- through 10A fuse [No. 1, located in fuse block (J/B) No. 1].

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

- to BCM terminal 60
- through 10A fuse [No. 21, located in fuse block (J/B) No. 1].

Ground is supplied

- to BCM terminals 56 and 113
- through grounds M24 and M114,
- to headlamp battery saver control unit terminals 4 and 11
- through grounds M25 and M115.

Power Supply to Low Beam and High Beam

When lighting switch is in 2ND or PASS position, ground is supplied

- to headlamp relay-1 and 2 terminals 1 from headlamp battery saver control unit terminals 2 and 8
- through headlamp battery saver control unit terminals 3 and 9,
- through lighting switch terminals 12 and 8,
- through grounds M25 and M115.

Headlamp relays are energized and then power is supplied to headlamps.

Low Beam Operation

When lighting switch is turned to 2ND position and moved to (LOW position), power is supplied

- from headlamp relay-1 terminals 5 and 6
- to each front combination lamp terminal 7.

Ground is supplied

- to each front combination lamp terminal 8
- through grounds E24, E42 and E62.

With power and ground supplied, low beam headlamps illuminate.

High Beam Operation/Flash-to-pass Operation

When lighting switch is turned to 2ND position and moved to (HIGH position or PASS position), power is supplied

- from headlamp relay-2 terminal 3
- to each front combination lamp terminal 13, and
- to combination meter terminal 48 for HIGH BEAM indicator.

Ground is supplied

- to front combination lamp LH terminal 14
- to combination meter terminal 47 for HIGH BEAM indicator
- through lighting switch terminals 9 and 8
- through grounds M25 and M115, and
- to front combination lamp RH terminal 14
- through lighting switch terminals 6 and 5
- through grounds M25 and M115.

With power and ground supplied, the high beams headlamps and the HIGH BEAM indicator illuminate.

NOTE:
Headlamps will be forced to turn off when the driver door is opened with the ignition switch in OFF or ACC position (when except for lighting switch is in “AUTO” position).

BATTERY SAVER CONTROL

When the ignition switch is turned from ON (or START) to OFF (or ACC) positions while headlamps are illuminated, the RAP signal is supplied to terminal 10 of the headlamp battery saver control unit from BCM terminal 135.

After counting 45 seconds by the RAP signal from the BCM to headlamp battery saver control unit, the ground supply to terminal 1 of the headlamp relay-1 and -2 from headlamp battery saver control unit terminals 2 and 8 is terminated.
Then the headlamps are turned off.
The headlamps are turned off when driver or passenger door is opened even if 45 seconds have not passed after the ignition switch is turned from ON (or START) to OFF (or ACC) positions while headlamps are illuminated.
When the lighting switch is turned from OFF to 2ND after headlamps are turned to off by the battery saver control, ground is supplied

- to headlamp battery saver control unit terminals 5 and 13 from lighting switch terminal 11, and then,
- to headlamp relay-1 and -2 terminals 1 from headlamp battery saver control unit terminals 2 and 8
- through headlamp battery saver control unit terminals 3 and 9, and
- through lighting switch terminal 12.

Then headlamps illuminate again.

AUTO LIGHT OPERATION

The auto light control system has an optical sensor inside it that detects outside brightness.
When the lighting switch is in AUTO position, it automatically turns on/off the parking lamps and the headlamps in accordance with the outside brightness. Sensitivity can be adjusted in four steps. For details of setting, refer to LT-17, "SETTING CHANGE FUNCTION FOR AUTO LIGHT SYSTEM" .
When lighting switch is in “AUTO” position, ground is supplied

- to BCM terminal 14
- from lighting switch terminal 42.

When ignition switch is turn to “ON” or “START” position and
Outside brightness is darker than predetermined level, ground is supplied

- to headlamp relay-1 and 2 terminals 1
- through headlamp battery saver control unit terminal 2, 8 and 4, 11, and
- to tail lamp relay terminal 1
- through headlamp battery saver control unit terminals 6, 14 and 4, 11.

Then headlamp relay-1, 2 and tail lamp relay are energized, headlamps (low or high) and tail lamps are illuminated according to switch position.

Shut Off Delay

While the headlamps are lit in the auto-light operation mode, the ignition switch is turned from “ON” to “OFF” position. The BCM no longer receives a voltage signal at terminal 68. This starts the auto light shut off delay timer. The timer is set based on the resistance value at BCM terminal 6. With the timer running, the headlamps remain lit. When the timer reaches the end of its cycle, the headlamps turn off. Headlamp lighting time can be adjusted from about 0 to 3 minutes. (This function is not applicable to the tail lamps.)
Auto light shut off delay timer can be adjusted in seven steps. For the details of the setting, refer to LT-17, "SETTING CHANGE FUNCTION FOR AUTO LIGHT SYSTEM" .

VEHICLE SECURITY SYSTEM

The vehicle security system will cause the high beams to flash if the system is triggered. Refer to BL-155, "VEHICLE SECURITY (THEFT WARNING) SYSTEM" .

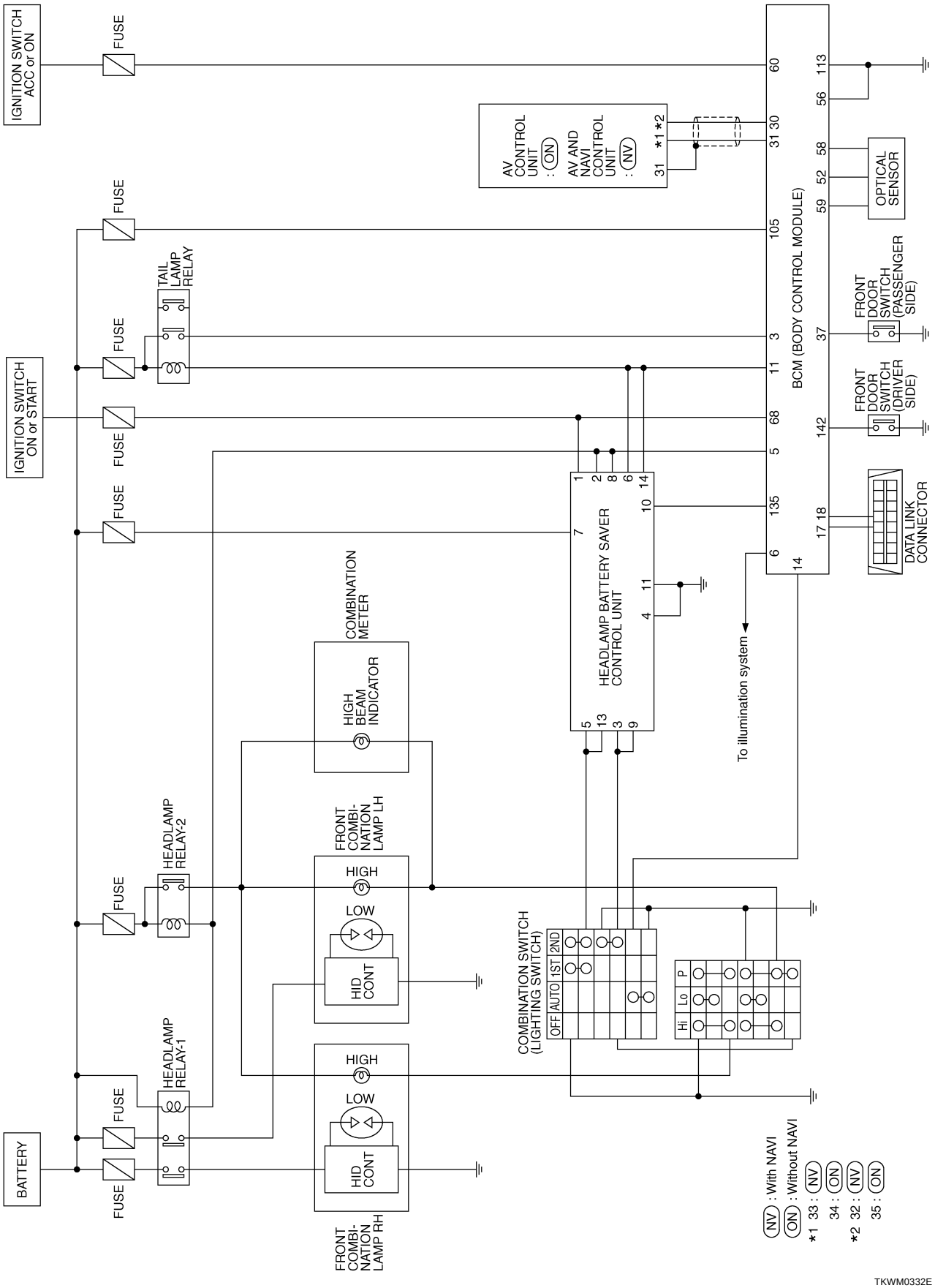
XENON HEADLAMP

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.
- Retroreflected 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.

Schematic

NKS00176

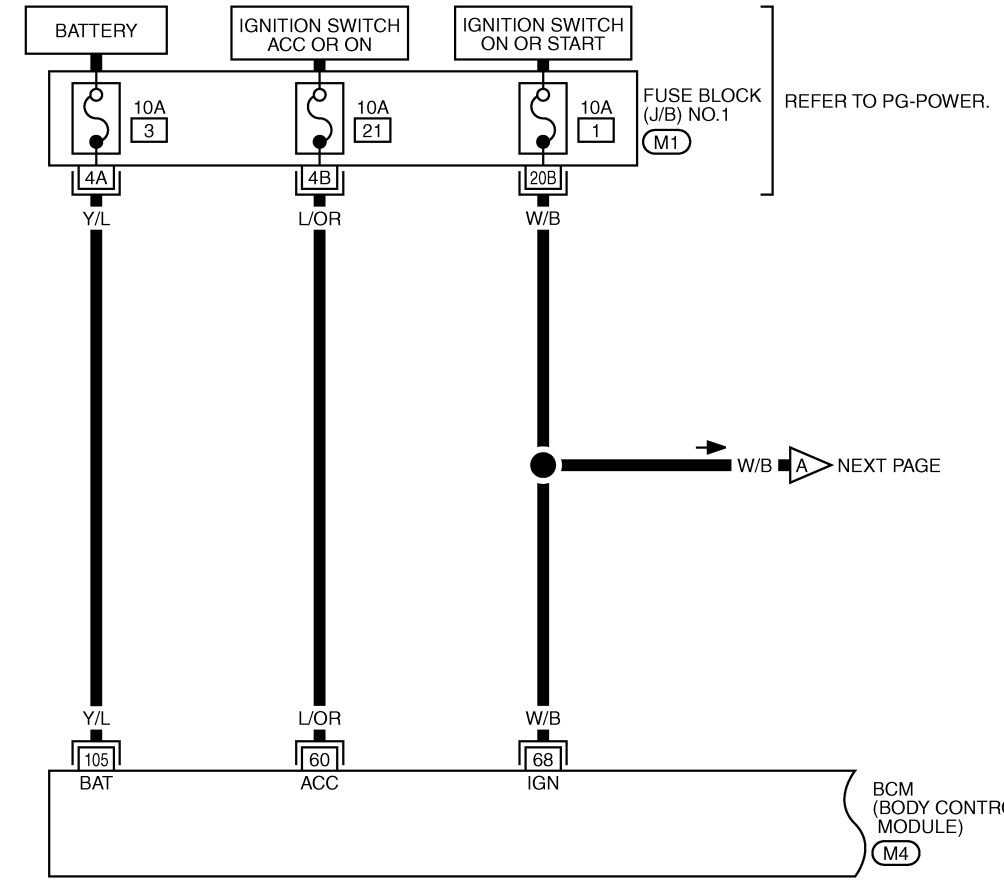


TKWM0332E

Wiring Diagram — H/LAMP —

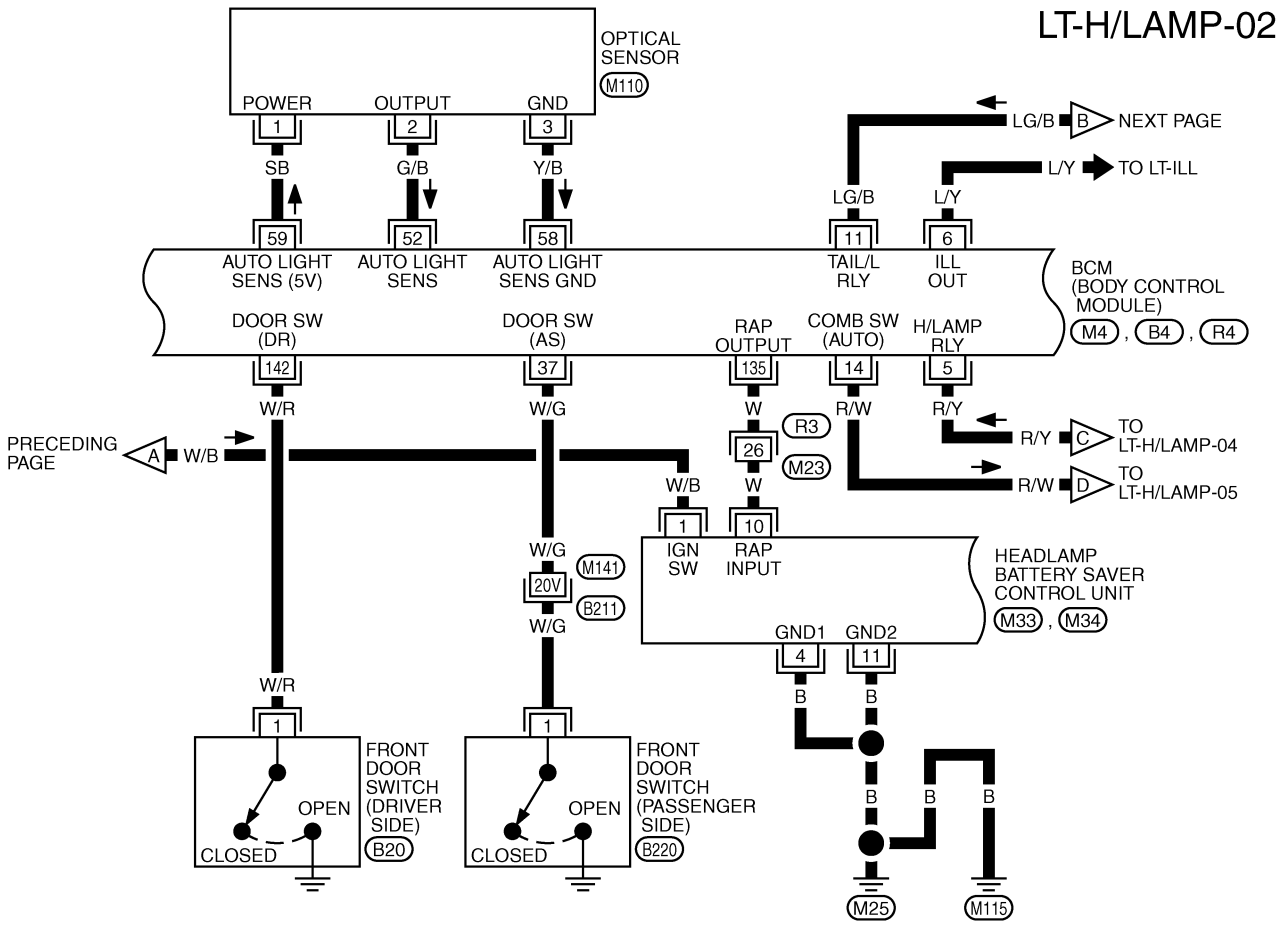
NKS00177

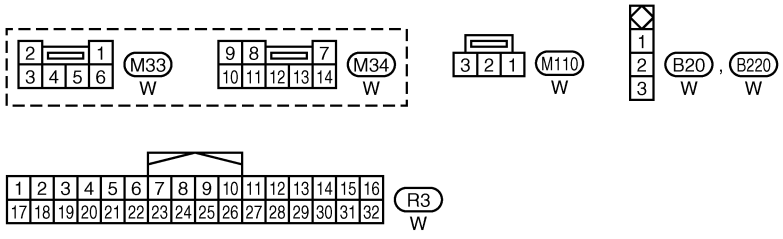
LT-H/LAMP-01



REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1
M4 -ELECTRICAL UNITS

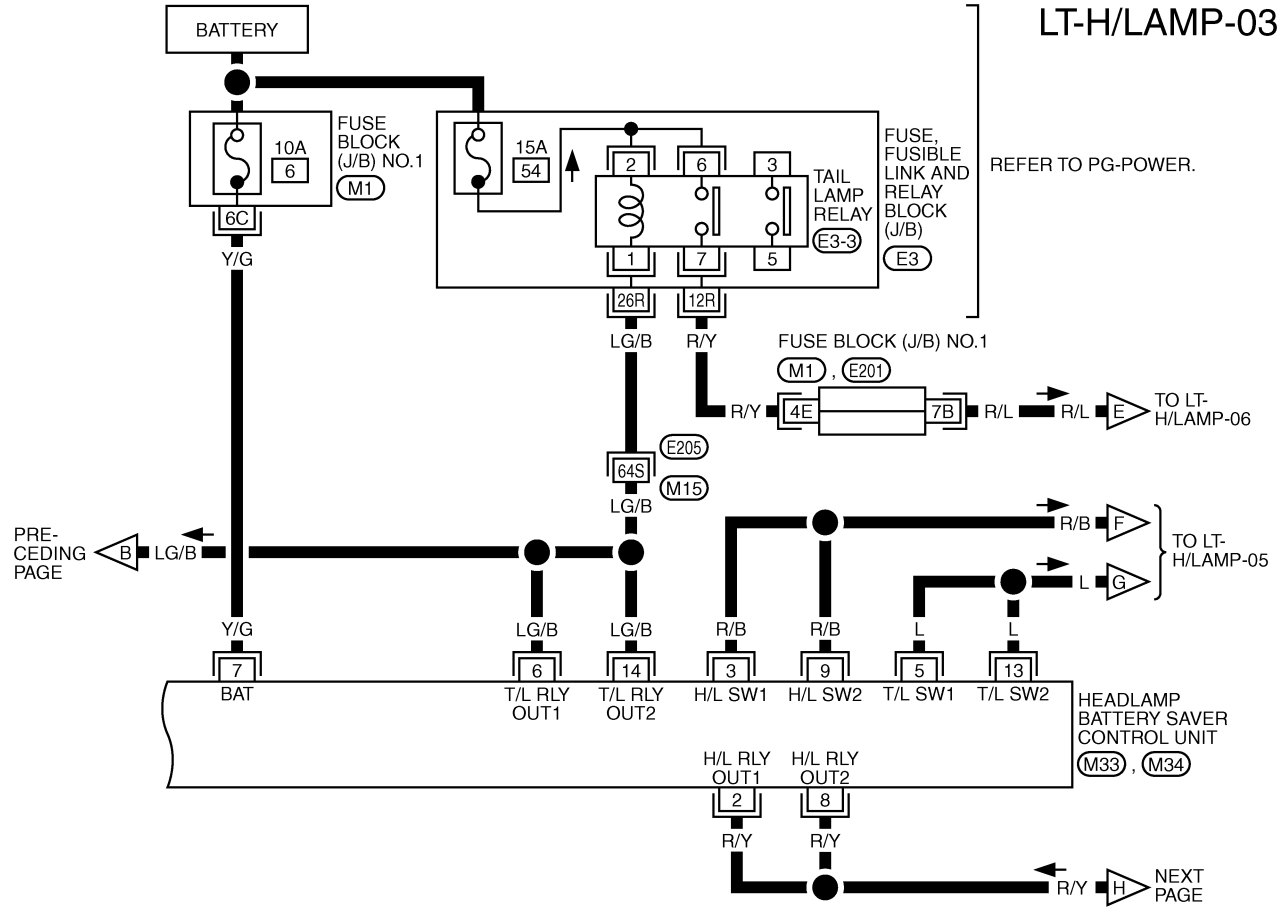
TKWM3682E



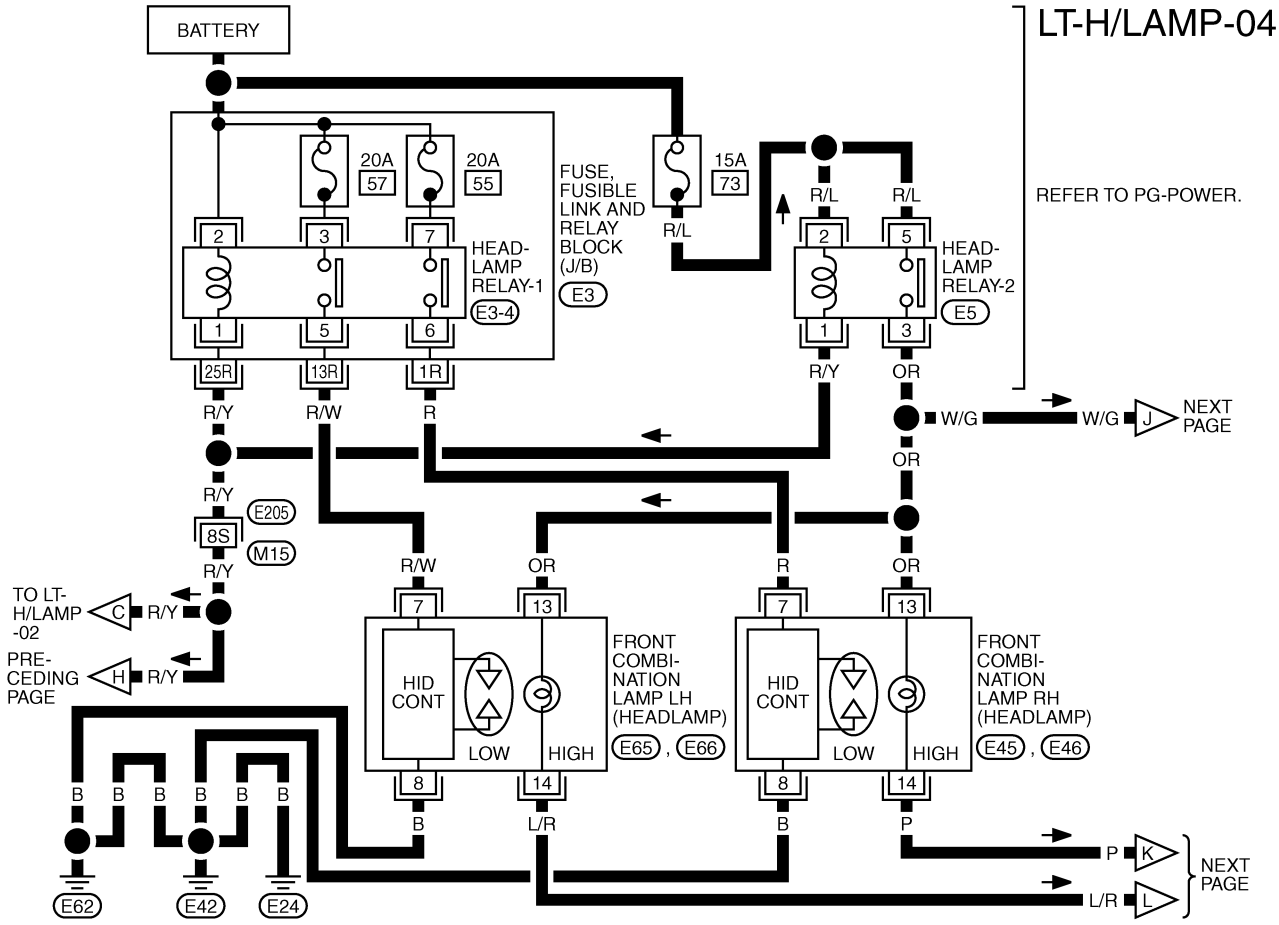


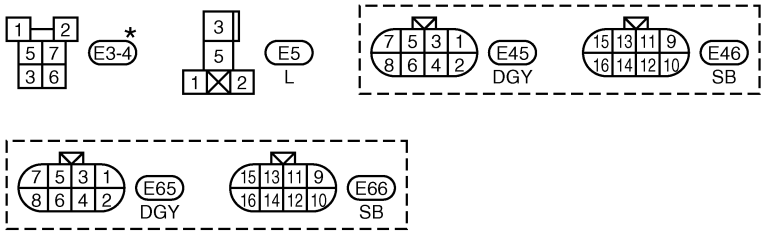
REFER TO THE FOLLOWING.
B211 -SUPER MULTIPLE JUNCTION (SMJ)
M4 , B4 , R4 -ELECTRICAL UNITS

TKWM3683E


LT-H/LAMP-03
BATTERY
FUSE BLOCK (J/B) NO.1
10A
6
M1
6C
Y/G
15A
54
FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)
E3
TAIL LAMP RELAY
E3-3
REFER TO PG-POWER.
26R
12R
LG/B
R/Y
FUSE BLOCK (J/B) NO.1
M1 , E201
4E
7B
R/L
TO LT-H/LAMP-06
E205
64S
M15
PRE-CEDING PAGE
B
R/B
F
L
G
TO LT-H/LAMP-05
7
BAT
6
T/L RLY OUT1
14
T/L RLY OUT2
3
H/L SW1
9
H/L SW2
5
T/L SW1
13
T/L SW2
HEADLAMP BATTERY SAVER CONTROL UNIT
M33 , M34
H/L RLY OUT1
H/L RLY OUT2
2
8
NEXT PAGE
H
M33
W
M34
W
E3-3
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.
REFER TO THE FOLLOWING.
E205 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , E201 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1
E3 -FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)

TKWM1467E





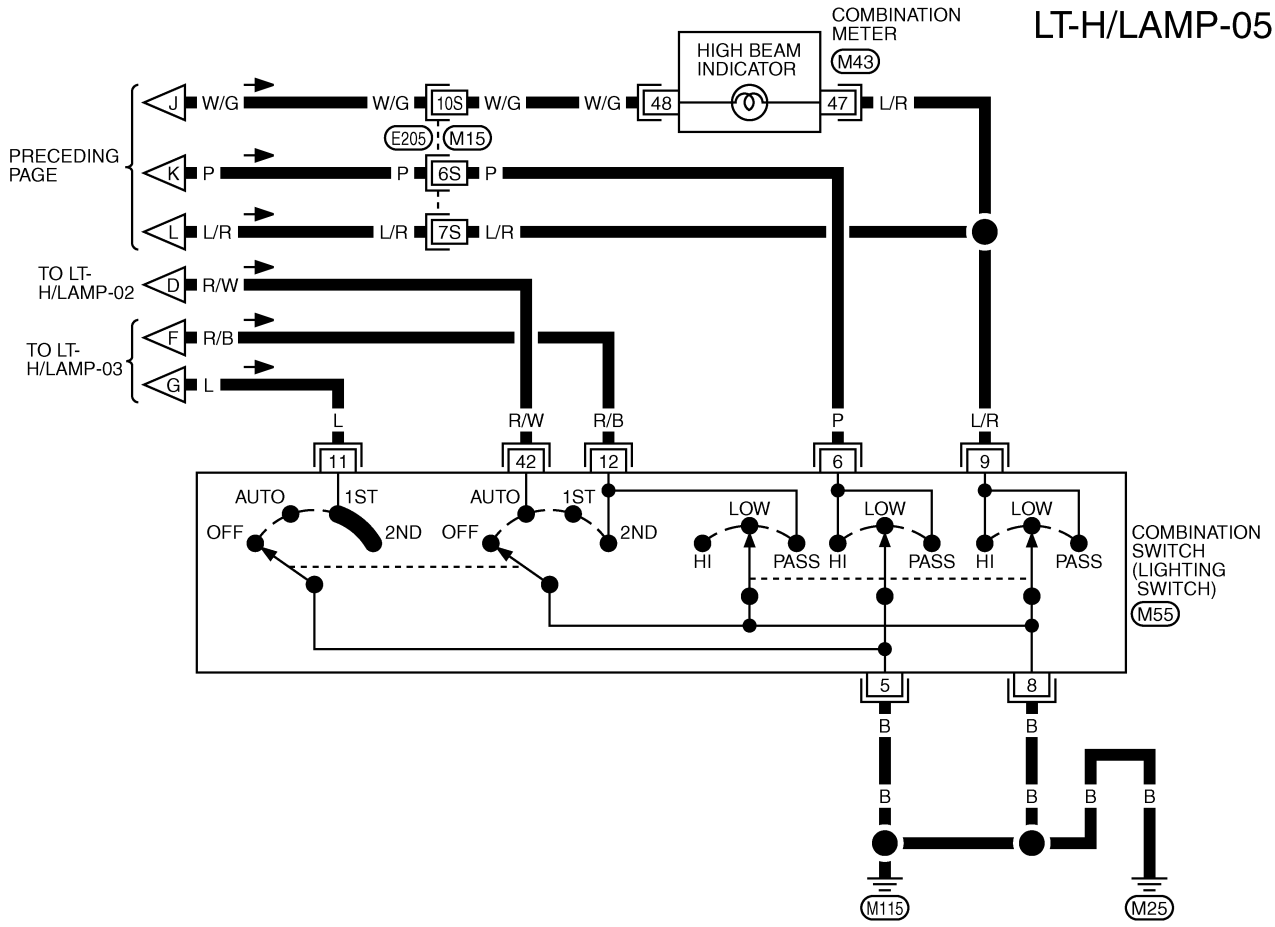
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

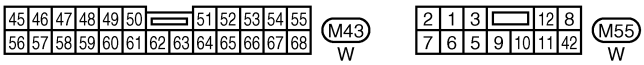
REFER TO THE FOLLOWING.

E205 -SUPER MULTIPLE JUNCTION (SMJ)

E3 -FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)

TKWM3684E

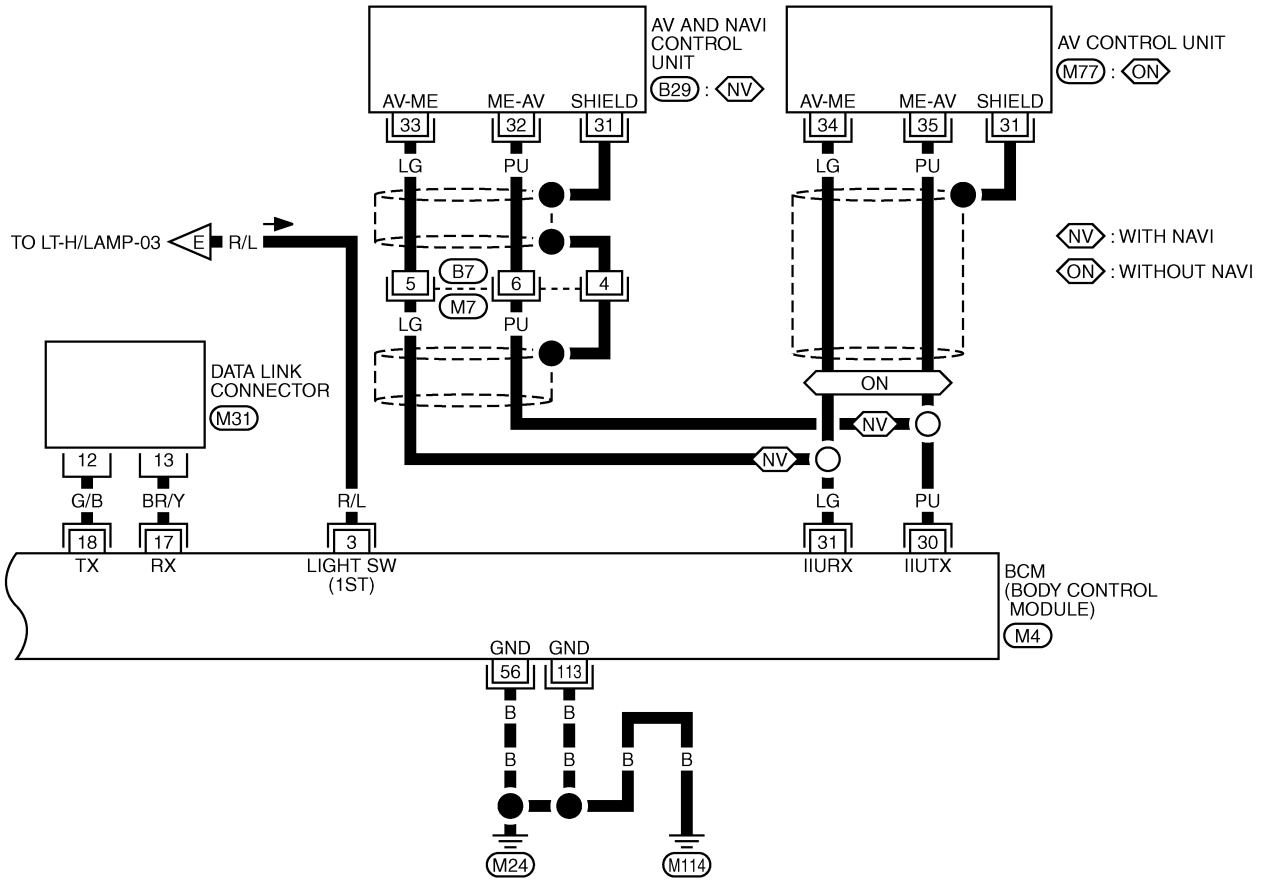


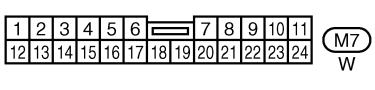


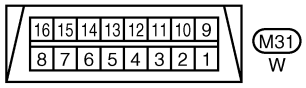
REFER TO THE FOLLOWING.
E205 -SUPER MULTIPLE JUNCTION (SMJ)

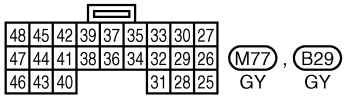
TKWM3685E

LT-H/LAMP-06









REFER TO THE FOLLOWING.
M4 -ELECTRICAL UNITS

TKWM3686E

Terminals and Reference Values for Headlamp Battery Saver Control Unit

NKS00178

Terminal No.	Wire color	Item	Condition			Reference value
1	W/B	Ignition switch	Ignition switch	OFF or ACC		Approx. 0 V
				ON or START		Battery voltage
2	R/Y	Headlamp relay OUT 1	Ignition switch (with lighting switch except OFF or 1ST)	OFF or ACC	More than 45 seconds after ignition switch is turned OFF or ACC	Battery voltage
					Within 45 seconds after ignition switch is turned OFF or ACC	Approx. 0 V
				ON or START		Approx. 0 V
			Headlamps illuminate by auto light control.			Approx. 0 V
3	R/B	Headlamp switch 1	Lighting switch	1ST		Approx. 2.4 V
				PASS or 2ND		Approx. 0 V
			Headlamps illuminate by auto light control.			Approx. 0 V
4	B	Ground	—			—
5	L	Tail lamp switch 1	lighting switch	OFF or AUTO		Battery voltage
				1ST or 2ND		Approx. 0 V
6	LG/B	Tail lamp relay OUT 1	Ignition switch (with lighting switch 1ST or 2ND)	OFF or ACC	More than 45 seconds after ignition switch is turned OFF or ACC	Battery voltage
					Within 45 seconds after ignition switch is turned OFF or ACC	Approx. 0 V
				ON or START		Approx. 0 V
			Headlamps illuminate by auto light control.			Approx. 0 V
7	Y/G	Battery power supply	—			Battery voltage
8	R/Y	Headlamp relay OUT 2	Ignition switch (with lighting switch except OFF or 1ST)	OFF or ACC	More than 45 seconds after ignition switch is turned OFF or ACC	Battery voltage
					With in 45 seconds after ignition switch is turned OFF or ACC	Approx. 0 V
				ON or START		Approx. 0 V
			Headlamps illuminate by auto light control.			Approx. 0 V
9	R/B	Headlamp switch 2	Lighting switch	1ST		Approx. 2.4 V
				PASS or 2ND		Approx. 0 V
			Headlamps illuminate by auto light control.			Approx. 0 V
10	W	RAP input signal	Ignition switch	OFF or ACC (After more than 45 seconds with ignition switch turned OFF or ACC)		Battery voltage
				ON or START		Approx. 0 V
11	B	Ground	—			—
13	L	Tail lamp switch 2	Lighting switch	OFF		Battery voltage
				1ST or 2ND		Approx. 0 V
14	LG/B	Tail lamp relay OUT 2	Ignition switch (with lighting switch 1ST or 2ND)	OFF or ACC	More than 45 seconds after ignition switch is turned OFF or ACC	Battery voltage
					Within 45 seconds after ignition switch is turned OFF or ACC	Approx. 0 V
				ON or START		Approx. 0 V
			Headlamps illuminate by auto light control.			Approx. 0 V

Terminals and Reference Values for BCM

NKS00179

Terminal No.	Wire color	Item	Measuring condition			Reference value
			Ignition switch	Operation or condition		
3	R/L	Parking lamp signal	—	Lighting switch: 1ST	OFF	Approx. 0 V
					ON	Battery voltage
5	R/Y	Headlamp relay signal	ON	Lighting switch: AUTO	Light is applied to optical sensor.	Battery voltage
					Light is not applied to optical sensor.	Approx. 0 V
6	L/Y	Automatic brightness adjustment signal	ON	Lighting switch: ON	Light is applied to optical sensor.	Approx. 0 V
					Light is not applied to optical sensor.	Battery voltage
11	LG/B	Tail lamp relay control signal	ON	Lighting switch: AUTO	Light is applied to optical sensor.	Battery voltage
					Light is not applied to optical sensor.	Approx. 0 V
14	R/W	Lighting switch AUTO signal	ON	Lighting switch	AUTO	Approx. 0 V
					OFF	Approx. 8 V
17	BR/Y	Data link RX	—	—		—
18	G/B	Data link TX	—	—		—
30	PU	Communication signal TX (BCM-AV: Transmission)	—	—		—
31	LG	Communication signal RX (AV-BCM: Receiving)	—	—		—
37	W/G	Front door switch (Passenger side) signal	OFF	Passenger door switch	ON (open)	Approx. 0 V
					OFF (close)	Battery voltage
52	G/B	Optical sensor signal	ON	Light is applied to optical sensor.		Approx. 3 V
				Light is not applied to optical sensor.		Approx. 0 V
56	B	Ground	ON	—		Approx. 0 V
58	Y/B	Optical sensor ground	ON	—		Approx. 0 V
59	SB	Optical sensor power supply	ON	—		Approx. 5 V
60	L/OR	Ignition switch (ACC)	ACC	—		Battery voltage
68	W/B	Ignition switch (ON)	ON	—		Battery voltage
105	Y/L	Battery power supply	OFF	—		Battery voltage
113	B	Ground	—	—		—
135	W	RAP output signal	OFF	When headlamp battery saver timer is operated.		Approx. 0 V
142	W/R	Front door switch (driver side) signal	OFF	Driver door switch	ON (open)	Approx. 0 V
					OFF (close)	Battery voltage

Work Flow

NKS0017A

1. Confirm the symptom or customer complaint.
2. Understand system description. Refer to LT-5, "System Description" .
3. Perform the preliminary check. Refer to LT-17, "Preliminary Check" .
4. Find the cause of trouble following the symptom chart and repair or replace as necessary. Refer to LT-22, "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

NKS0017B

SETTING CHANGE FUNCTION FOR AUTO LIGHT SYSTEM

- Setting for each operation can be changed using CONSULT-II and a display unit.

Setting mode change	Explanation	CONSULT-II (Work support)	Display Unit (Preset at each vehicle status)	Factory-preset data
AUTO LIGHT SENS ADJ (CONSULT-II) Sensitivity of Automatic Headlights (Display unit)	Auto light sensitivity is set at four grades.	Mode 1	Lower (Dull) ↕ Higher (Sensitive)	
		Mode 2		
		Normal		×
		Mode 3		
Automatic headlights off delay (Display unit)	Auto light time delay is set at seven grades.	–	OFF	
			20 sec.	
			45 sec.	×
			90 sec.	
			120 sec.	
			150 sec.	
			180 sec.	

Note: When setting is changed, even though the battery is removed, mode will be after setting mode.

SKIA3782E

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSE

Check for blown fuses.

Unit	Power source	Fuse No.
BCM	Battery	3
	Ignition switch ACC or ON	21
	Ignition switch ON or START	1

Refer to LT-9, "Wiring Diagram — H/LAMP —" .

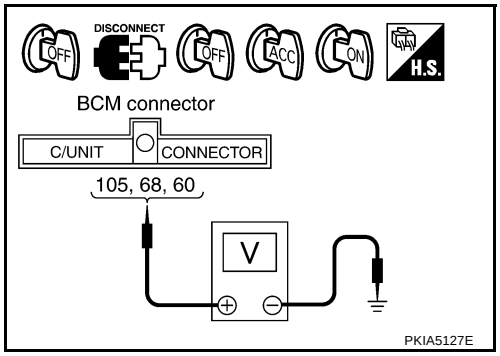
OK or NG

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

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				
M4	105	Ground	Battery voltage	Battery voltage	Battery voltage
	68		Approx. 0V	Approx. 0V	Battery voltage
	60		Approx. 0V	Battery voltage	Battery voltage



OK or NG

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

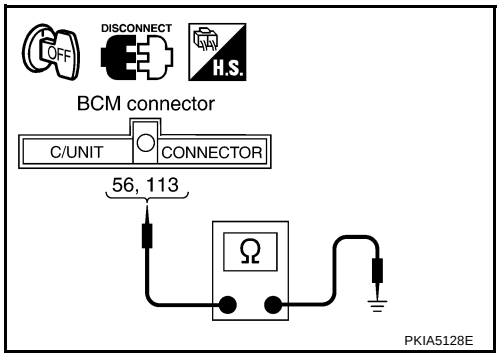
3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

Terminal			Continuity
Connector	Terminal		
M4	56	Ground	Yes
	113		

OK or NG

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



CONSULT-II Function (IVMS)

NKS0017C

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

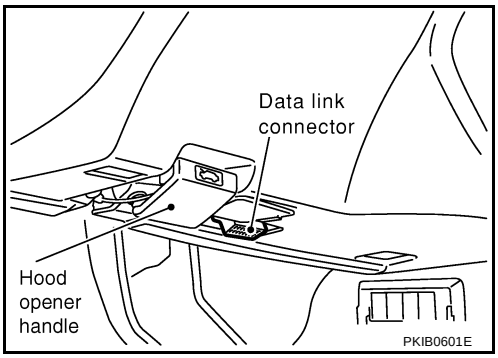
IVMS diagnosis position	Diagnosis mode	Description
AUTO LIGHT SYSTEM	WORK SUPPORT	Changes setting of each function.
	DATA MONITOR	Displays input data of the BCM and each LCU in real-time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending driving signal to them.
BCM PART NUMBER		Displays BCM part number.

CONSULT-II BASIC OPERATION PROCEDURE

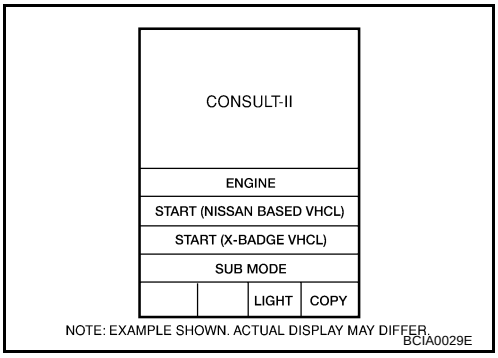
CAUTION:

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

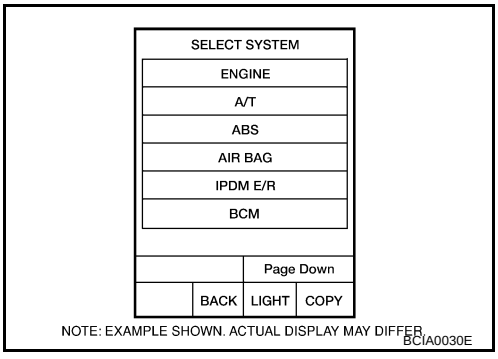
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, and then turn ignition switch ON.



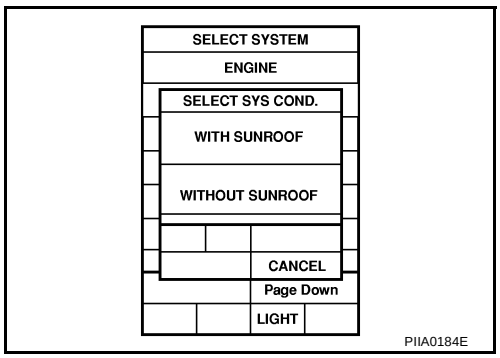
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “IVMS” on “SELECT SYSTEM” screen. If “IVMS” is not indicated, refer to GI-37, "CONSULT-II Data Link Connector (DLC) Circuit" .



4. Select “WITH SUNROOF” on “SELECT SYS COND” screen.
5. Touch “OK”. If the selection is wrong, touch “CANCEL”.
6. Select the desired part to be diagnosed on the “SELECT TEST ITEM” screen.



WORK SUPPORT

Operation Procedure

1. Touch “AUTO LIGHT SYSTEM” on “SELECT TEST ITEM” screen.
2. Touch “WORK SUPPORT” on “SELECT DIAG MODE” screen.
3. Touch “AUTO LIGHT SENS ADJ” on “SELECT WORK ITEM” screen.
4. Touch “START”.
5. Touch “NORMAL” and “MODE 1 - 3” of which setting is to be changed.
6. Touch “CHANGE SETT”.
7. Setting will be changed and “CURRENT SETTING STATUS” will be displayed.
8. Touch “END”.

Display Item List

Refer to LT-17, "SETTING CHANGE FUNCTION FOR AUTO LIGHT SYSTEM" .

DATA MONITOR

Operation Procedure

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

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

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

Data Monitor Item

Monitored item [“OPERATION OR UNIT”]		Contents
IGN ON SW	[ON/OFF]	Displays status of the ignition switch as judged from the ignition switch signal. (ignition switch is in ON position: ON/ignition switch is in ACC or OFF position: OFF)
DOOR SW-DR	[ON/OFF]	Displays status of the driver door as judged from the driver door switch signal. (Door is open: ON/Door is closed: OFF)
AUTO LIGHT SW	[ON/OFF]	Displays status of the lighting switch as judged from the lighting switch signal. (AUTO position: ON/Other than AUTO position: OFF)
HD/LMP 1ST SW	[ON/OFF]	Displays status of the lighting switch as judged from the lighting switch signal. (OFF or AUTO position: OFF/Other than OFF and AUTO position: ON)
OPTICAL SEN	[ON/OFF]	Displays “outside brightness (close to 5V when bright/close to 0V when dark)” as judged from the optical sensor signal.

ACTIVE TEST

Operation Procedure

1. Touch “AUTO LIGHT SYSTEM” on “SELECT TEST ITEM” screen.
2. Touch “ACTIVE TEST” on “SELECT DIAG MODE” screen.
3. Touch item to be tested and check operation of selected item.
4. Touch “OFF” while testing and the operation will be stopped.

Active Test Item

Test item	Display on CONSULT–II screen	Description
Headlamp relay output	HEAD LAMP RELAY	Headlamp relay can be operated by any on-off operation of the headlamp.
Tail lamp relay output	TAIL LAMP RELAY	Tail lamp relay can be operated by any on-off operation of the tail lamp.
Auto light adjustment output	ILL DIM SIGNAL	Night time dimming signal can be operated by any on-off operation.

On Board Diagnosis

NKS0017D

- BCM can check communication diagnosis, switch monitor, and central locking system self diagnosis using on board diagnosis.
- Map lamps and step lamps (all seats) act as the indicators for on board diagnosis.

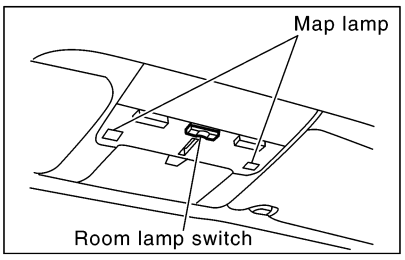
DIAGNOSIS ITEM

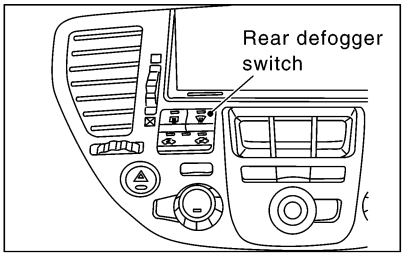
Diagnosis item	Description
Switch monitor	Checks for malfunction in switch systems that input to BCM and each LCU.

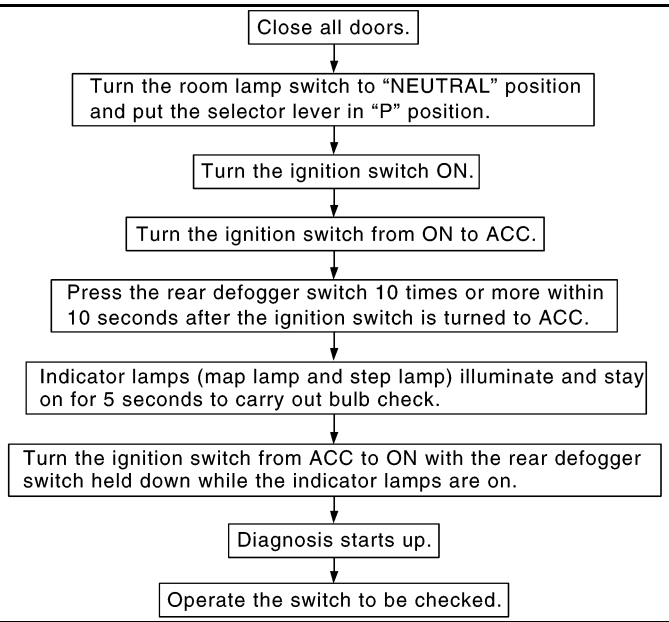
SWITCH MONITOR

- Performs diagnosis on the switch system to each control unit.

How to Perform Switch Monitor

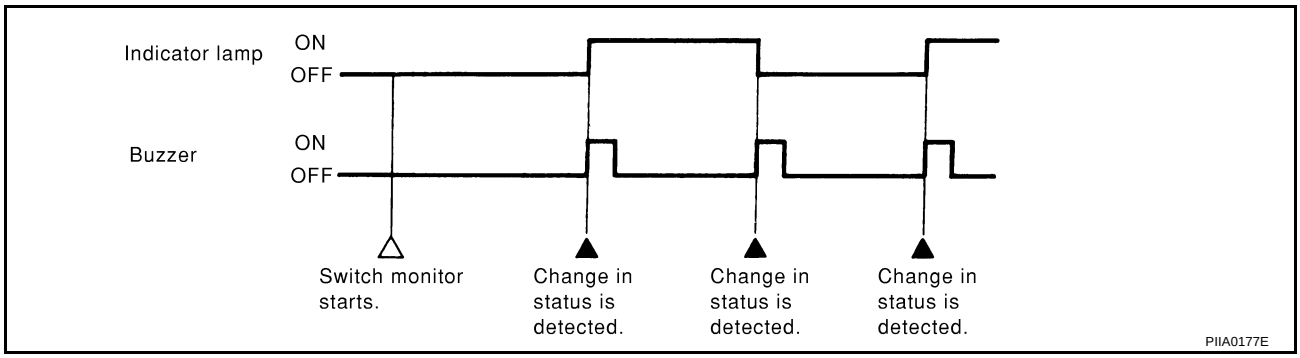






Description

- Detects the status change (switch ON/OFF operation) of switch to be checked, and turns ON/OFF indicator lamps (the map lamp and step lamp). Also sounds the buzzer for 0.5 seconds.
- If a malfunction is detected, no indicator lamp and buzzer react.



Switch Monitor Item

- The status of the switch (except the ignition switch, interior lamp illumination switch, and map lamp switch) as input to each control unit can be monitored.

Control unit	Item
BCM	Lighting switch (AUTO, 1ST position)
	Driver door switch

Switch Monitor Cancellation

Either or both the following conditions are satisfied, the communication diagnosis is cancelled.

- Turn ignition switch OFF.
- Drive vehicle more at speed higher than 7 km/h (4 MPH).

Symptom Chart

NKS0017E

HEADLAMP SYSTEM

Symptom	Repair Procedure
Headlamp (Both side) do not operate.	1. Check 10A fuse [No. 6, located in fuse block (J/B) No. 1]. Verify battery positive voltage is present at terminal 7 of headlamp battery saver control unit. 2. Check lighting switch. Refer to LT-28, "Switch Circuit Inspection" . 3. Check headlamp battery saver control unit. Refer to LT-15, "Terminals and Reference Values for Headlamp Battery Saver Control Unit" .
Low beam headlamps do not operate, but high beam headlamps operate.	1. Check headlamp relay-1. 2. Check harness between headlamp relay-1 and headlamp battery saver control unit. 3. Check headlamp battery saver control unit. Refer to LT-15, "Terminals and Reference Values for Headlamp Battery Saver Control Unit" .
High beam headlamps do not operate, but low beam headlamps operate.	1. Check 15A fuse (No. 73, located in fuse, fusible link and relay box). Verify battery positive voltage is present at terminals 2 and 5 of headlamp relay-2. 2. Check headlamp relay-2. 3. Check harness between headlamp relay-2 and battery saver control unit. 4. Check lighting switch. Refer to LT-28, "Switch Circuit Inspection" . 5. Check headlamp battery saver control unit. Refer to LT-15, "Terminals and Reference Values for Headlamp Battery Saver Control Unit" .

Symptom	Repair Procedure
RH low beam headlamp does not operate, but LH low beam headlamp operates.	1. Check 20A fuse [No. 55, located in fuse, fusible link and relay block (J/B)]. Verify battery positive voltage is present at terminal 7 of headlamp relay-1. 2. Check headlamp relay-1. 3. Check harness between headlamp relay-1 terminal 6 and front combination lamp RH for open circuit. 4. Check continuity between front combination lamp RH terminal 8 and ground. 5. Replace xenon bulb with other side bulb or new one. (If headlamps illuminate correctly, replace bulb.) 6. Replace HID control unit with other side control unit or new one. (If headlamps illuminate correctly, replace HID control unit.)
LH low beam headlamp does not operate, but RH low beam headlamp operates.	1. Check 20A fuse [No. 57, located in fuse, fusible link and relay block (J/B)]. Verify battery positive voltage is present at terminal 3 of headlamp relay-1. 2. Check headlamp relay-1. 3. Check harness between headlamp relay-1 terminal 5 and front combination lamp LH for open circuit. 4. Check continuity between front combination lamp LH terminal 8 and ground. 5. Replace xenon bulb with other side bulb or new one. (If headlamps illuminate correctly, replace bulb.) 6. Replace HID control unit with other side control unit or new one. (If headlamps illuminate correctly, replace HID control unit.)
RH high beam headlamp does not operate, but LH high beam headlamp operates.	1. Check bulb. 2. Check harness between headlamp relay-2 terminal 3 and front combination lamp RH terminal 13. 3. Check lighting switch. Refer to LT-28, "Switch Circuit Inspection" . 4. Check harness between front combination lamp RH terminal 14 and lighting switch. 5. Check lighting switch ground circuit.
LH high beam headlamp does not operate, but RH high beam headlamp operates.	1. Check bulb. 2. Check harness between headlamp relay-2 terminal 3 and headlamp LH terminal 13. 3. Check lighting switch. Refer to LT-28, "Switch Circuit Inspection" . 4. Check harness between front combination lamp LH terminal 14 and lighting switch. 5. Check lighting switch ground circuit.
High beam indicator does not work.	1. Check bulb in combination meter. 2. Check harness between headlamp relay-2 terminal 3 and lighting switch for open circuit.
Battery saver control does not operate properly.	1. Verify 12 positive voltage from BCM is present at terminal 10 of headlamp battery saver control unit: – Within 45 seconds after ignition switch turned off. – Front door is opened or more than 45 seconds after ignition switch is turn off. 2. Check the following. – Harness between BCM and LH or RH front door switch for open or short circuit. – LH or RH front door switch ground circuit. – LH or RH front door switch. 3. Check the following. – Harness between headlamp battery saver control unit terminals 5 or 13 and lighting switch terminal 11 for open or short circuit. – Harness between lighting switch terminal 5 and ground. – Lighting switch. Refer to LT-28, "Switch Circuit Inspection" . 4. Check headlamp battery saver control unit. Refer to LT-15, "Terminals and Reference Values for Headlamp Battery Saver Control Unit" . 5. Check BCM. Refer to LT-16, "Terminals and Reference Values for BCM" .

AUTO LIGHT SYSTEM

Symptom	Malfunctioning system and reference
● Parking lamps and headlamps do not illuminate when outside brightness becomes low. (Lighting switch 1st position and 2nd position operate normally.) ● Parking lamps and headlamp do not go out when outside brightness becomes high. (Lighting switch 1st position and 2nd position operate normally.)	● Lighting switch (AUTO) system. Refer to LT-25, "Lighting Switch (AUTO) System Check" . ● Optical sensor system. Refer to LT-26, "Optical Sensor System Check" . If above systems are normal, replace the BCM.
Parking lamps illuminate when outside brightness becomes low, but headlamp stay off. (Lighting switch 1st position and 2nd position operate normally.)	● Headlamp relay system. Refer to LT-27, "Headlamp Relay System Check" . ● Optical sensor system. Refer to LT-26, "Optical Sensor System Check" . If above systems are normal, replace the BCM.
● Headlamps illuminate when outside brightness becomes low, but Parking lamps stay off. (Lighting switch 1st position and 2nd position operate normally.) ● Headlamps go out when outside brightness becomes high, but Parking lamps stay on.	● Tail lamp relay system. Refer to LT-28, "Tail Lamp Relay System Check" . If above system is normal, replace the BCM.

Lighting Switch (AUTO) System Check

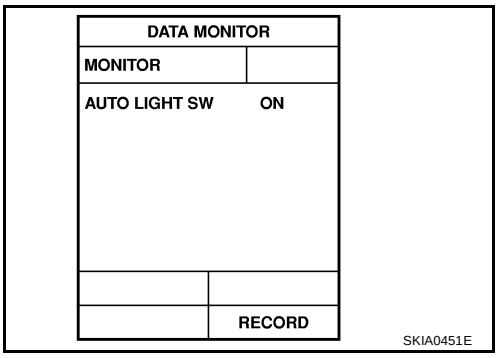
NKS0017F

1. CHECK LIGHTING SWITCH AUTO SIGNAL

With CONSULT-II

- Operate the lighting switch via “AUTO LIGHT SW” on DATA MONITOR screen and make sure that the lamp turns on and off as commanded.

Lighting switch AUTO : AUTO LIGHT SW ON
Lighting switch OFF : AUTO LIGHT SW OFF



Without CONSULT-II

- Operate the lighting switch via “switch monitor” of self-diagnosis function make sure that the lamp turns on and off as commanded.

OK or NG

OK >> Lighting switch (AUTO) is OK.
NG >> GO TO 2.

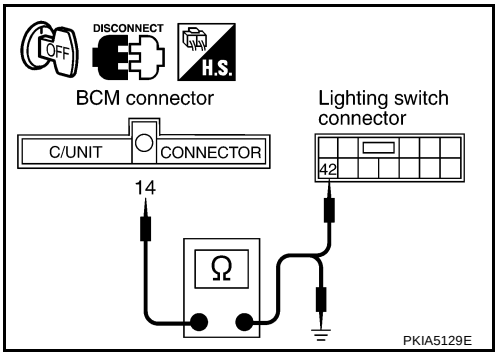
2. CHECK WIRE HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect BCM connector and lighting switch connector.
3. Check continuity between harness between BCM harness connector M4 terminal 14 and lighting switch harness connector M55 terminal 42.

14 - 42 : Continuity should exist.

4. Check continuity between BCM harness connector M4 terminal 14 and ground.

14 - Ground : Continuity should not exist.



OK or NG

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

3. CHECK LIGHTING SWITCH

Check continuity of the lighting switch. Refer to LT-28, "Switch Circuit Inspection" .

OK or NG

OK >> Replace BCM.
NG >> Replace lighting switch.

Optical Sensor System Check

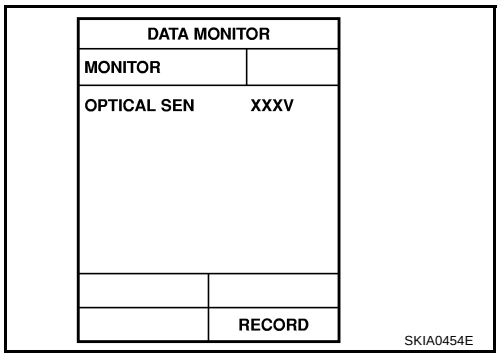
NKS0017G

1. CHECK OPTICAL SENSOR OUTPUT SIGNAL

With CONSULT-II

- Using “OPTICAL SEN” on DATA MONITOR screen, check difference in the voltage when light is applied to optical sensor and light is not applied to optical sensor.

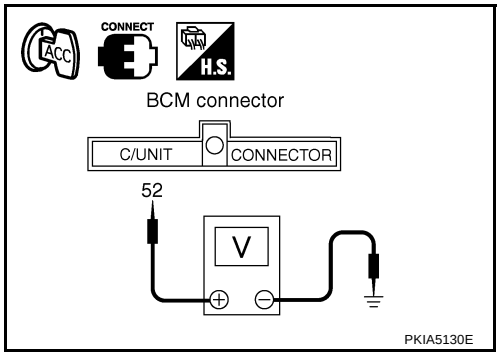
Condition	Reference value of data monitor
Light is applied to optical sensor.	More than 3 V
Light is not applied to optical sensor.	Approx. 0.5 V



Without CONSULT-II

1. Turn ignition switch ACC.
2. Check voltage between BCM harness connector and ground when light is applied to optical sensor and light is not applied to optical sensor.

Terminal			Condition	Voltage
(+)		(–)		
Connector	Terminal			
M4	52	Ground	Light is applied to optical sensor.	More than 3 V
			Light is not applied to optical sensor.	Approx. 0.5 V



OK or NG

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

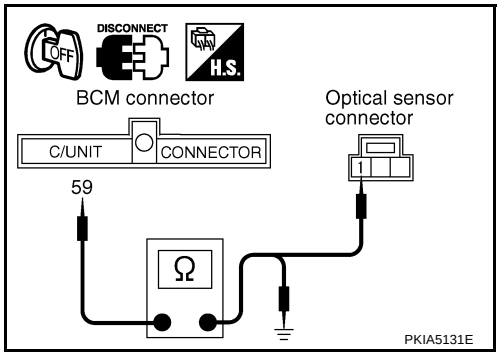
2. CHECK OPTICAL SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the BCM connector and optical sensor connector.
3. Check continuity between BCM harness connector M4 terminal 59 and optical sensor harness connector M110 terminal 1.

59 - 1 : Continuity should exist.

4. Check continuity between BCM harness connector M4 terminal 59 and ground.

59 - 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 between BCM harness connector M4 terminal 52 and optical sensor harness connector M110 terminal 2.

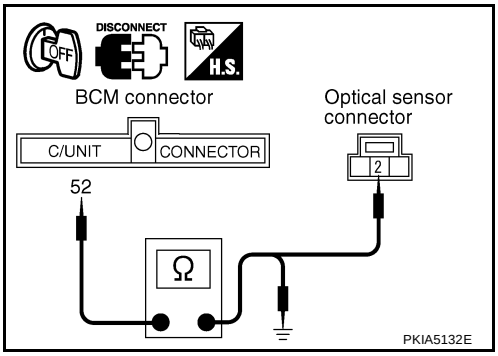
52 - 2 : Continuity should exist.

2. Check continuity between BCM harness connector M4 terminal 52 and ground.

52 - 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 between BCM harness connector M4 terminal 58 and optical sensor harness connector M110 terminal 3.

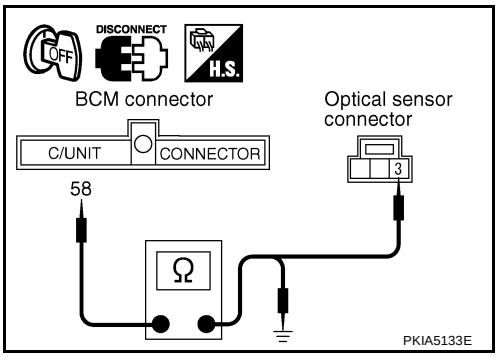
58 - 3 : Continuity should exist.

2. Check continuity between BCM harness connector M4 terminal 58 and ground.

58 - Ground : Continuity should not exist.

OK or NG

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



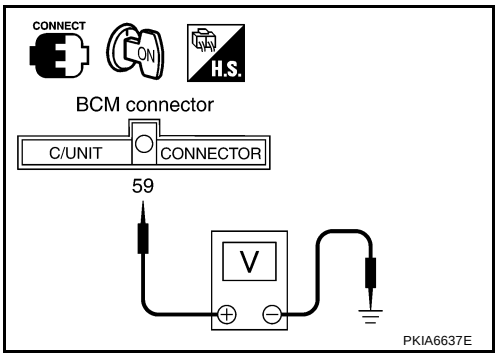
5. CHECK OPTICAL SENSOR POWER SUPPLY OUTPUT SIGNAL

1. Connect BCM connector.
2. Turn ignition switch ON.
3. Check voltage between BCM harness connector M4 terminal 59 and ground.

59 - Ground : Approx. 5 V

OK or NG

OK >> Replace optical sensor.
NG >> Replace BCM.



Headlamp Relay System Check

NKS0017H

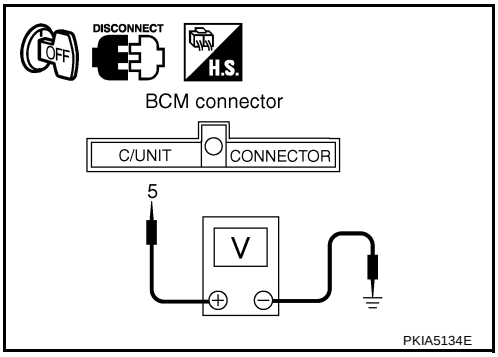
1. CHECK HEADLAMP RELAY CONTROL SIGNAL VOLTAGE

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector M4 terminal 5 and ground while operating lighting switch in OFF position.

5 - Ground : Battery voltage

OK or NG

OK >> Headlamp relay is OK.
NG >> Check harness for open or short between BCM and headlamp relay-1 and 2.



Tail Lamp Relay System Check

NKS0017I

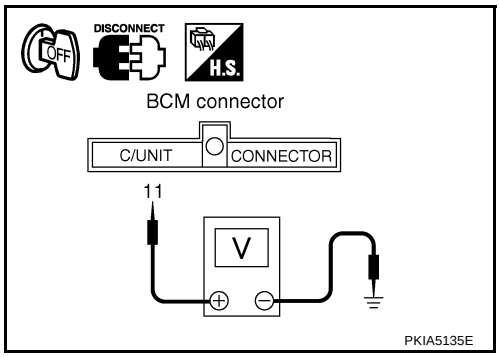
1. CHECK TAIL LAMP RELAY CONTROL SIGNAL VOLTAGE

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector M4 terminal 11 and ground while operating lighting switch in OFF position.

11 - Ground : Battery voltage

OK or NG

OK >> GO TO 2.
NG >> Check harness for open or short between BCM and tail lamp relay.



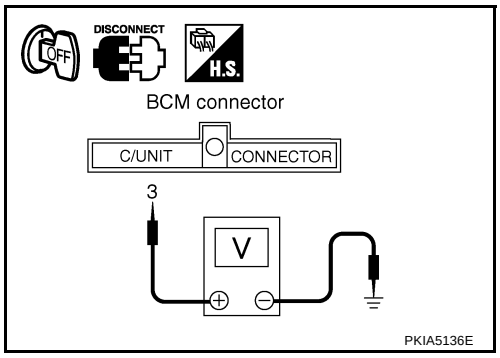
2. CHECK TAIL LAMP SIGNAL VOLTAGE

Check voltage between BCM harness connector M4 terminal 3 and ground while operating lighting switch in 1ST position.

3 - Ground : Battery voltage

OK or NG

OK >> Tail lamp relay is OK.
NG >> GO TO 3.



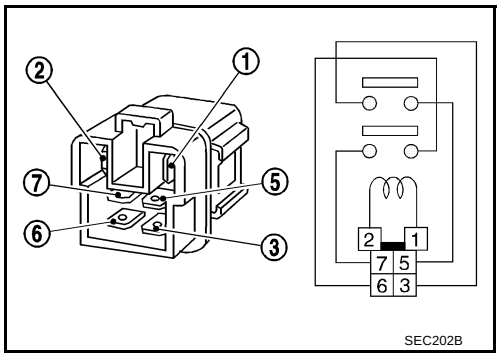
3. CHECK TAIL LAMP RELAY

1. Remove the tail lamp relay.
2. Apply 12V between tail lamp relay terminals 2 and 1, and check continuity between terminals 6 and 7.

6 - 7 : Continuity should exist.

OK or NG

OK >> Check harness for open or short between BCM and tail lamp relay.
NG >> Replace tail lamp relay.



Switch Circuit Inspection

NKS0017J

- Using circuit tester, check continuity between lighting switch connector terminals in each operation status of switch.

LIGHTING SWITCH

	OFF	AUTO	1ST	2ND
5			○	○
11			○	○
8				○
12				○
42		○		
(8)		○		

	Hi	Lo	P
(5)	○	○	○
7	|	○	
6	○		○
(8)	○	○	○
10	|	○	
9	○		○
(12)			○

8	12					
42	11	10	9	5	6	7

M55
W

○—○ :countinuity should exists

PKIA7897E

Hi: “HIGH BEAM” position, Lo: “LOW BEAM” position, P: “FLASH TO PASS” position

- If malfunctioning, replace switch.

General Information for Xenon Headlamp Trouble Diagnosis

NKS0017K

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

Caution:

NKS0017L

- 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

NKS0017M

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

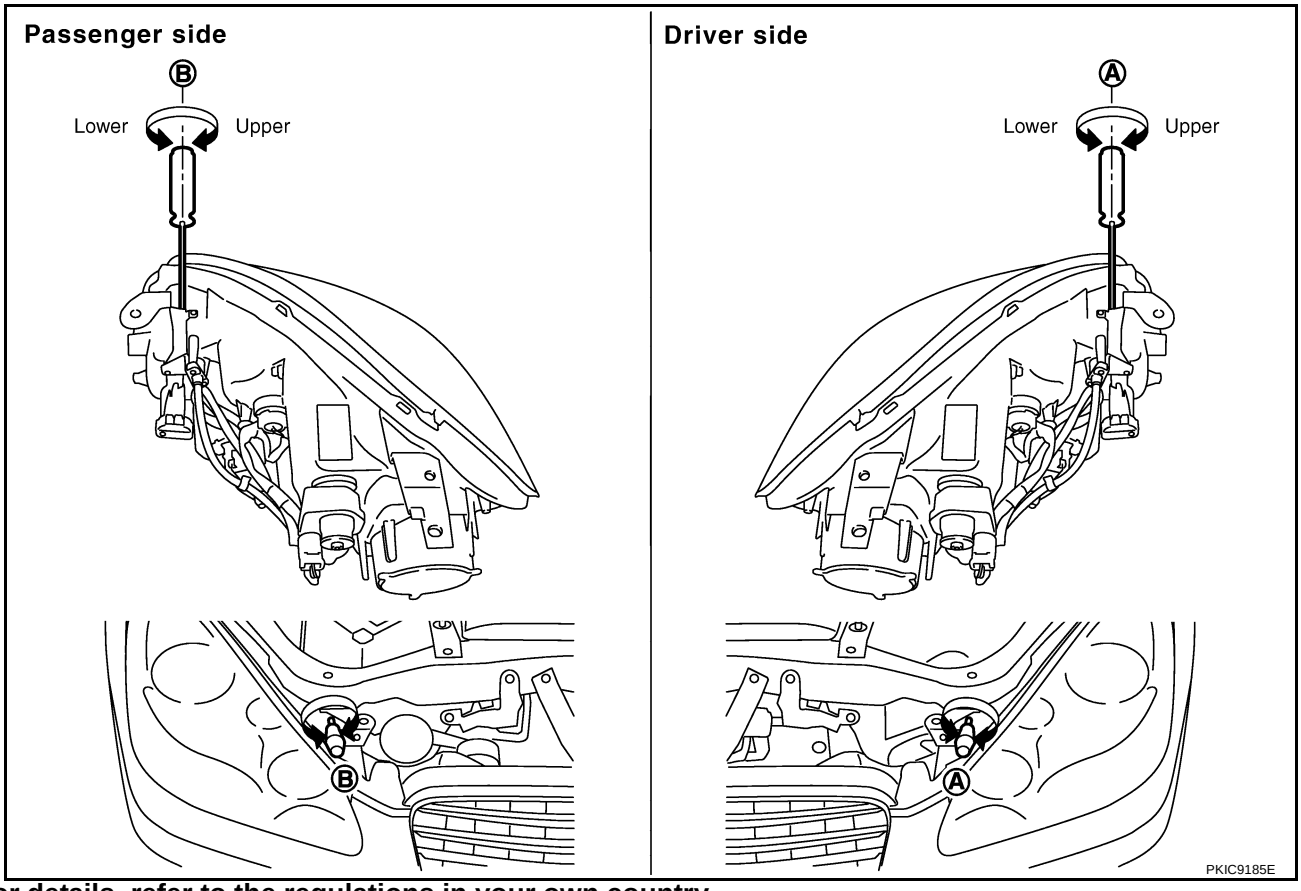
Install normal xenon lamp housing assembly to corresponding xenon headlamp, and check if lamp lights up.

OK or NG

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

Aiming Adjustment

NKS0017N



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

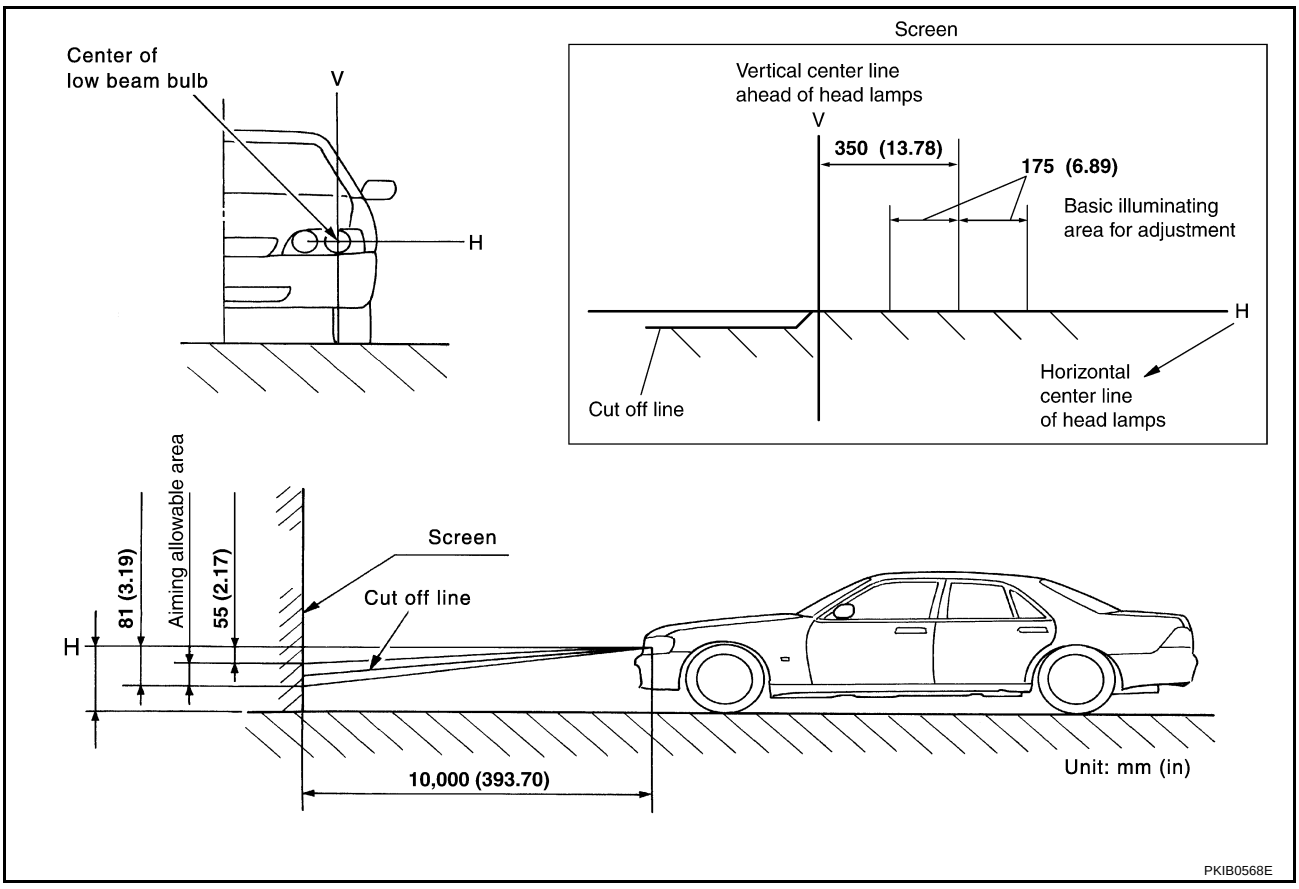
Before performing aiming adjustment, check the following.

1. Keep all tires inflated to correct pressures.
2. Place vehicle on flat surface.
3. See that there is no load in vehicle other than driver (or equivalent weight placed in driver's seat) and that coolant and engine oil are filled up to correct levels and fuel tank is full of fuel.

LOW BEAM AND HIGH BEAM

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

- **First tighten the adjusting screw all the way and then make adjustment by loosening the screw.**



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

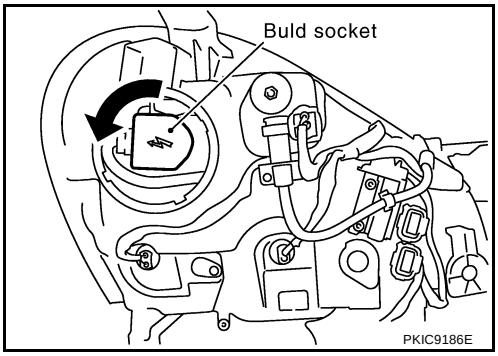
- **Basic illuminating area for adjustment should be within the range shown on the aiming chart. Adjust headlamps accordingly.**

Bulb Replacement

NKS0017O

HEADLAMP (OUTER SIDE), FOR LOW BEAM

1. Disconnect the battery cable from the negative terminal or remove the power fuse.
2. Remove headlamps. Refer to LT-33, "Removal and Installation" .
3. Turn plastic cap counterclockwise and unlock it.
4. Disconnect headlamp connector.
5. Turn bulb socket counterclockwise and unlock it.
6. Unlock retaining spring and remove bulb from headlamp.



HEADLAMP (INNER SIDE), FOR HIGH BEAM

1. Disconnect the battery cable from the negative terminal or remove the power fuse.
2. Disconnect headlamp connector.
3. Remove mass airflow sensor cover and air cleaner (when replacing LH bulb). Refer to EM-17, "Removal and Installation" .
4. Remove battery cover and battery (when replacing RH bulb). Refer to SC-8, "Removal and Installation" .
5. Turn plastic cap counterclockwise and unlock it.
6. Disconnect terminal connected to bulb.
7. Unlock retaining spring and remove bulb from headlamp.

PARKING LAMP

1. Turn lighting switch OFF.
2. Disconnect the battery cable from the negative terminal or remove the power fuse.
3. Disconnect headlamp connector.
4. Remove mass airflow sensor cover and air cleaner (when replacing LH bulb). Refer to EM-17, "Removal and Installation" .
5. Remove battery cover and battery (when replacing RH bulb). Refer to SC-8, "Removal and Installation" .
6. Turn bulb socket counterclockwise and unlock it.
7. Remove bulb from its socket.

FRONT TURN SIGNAL LAMP

1. Turn lighting switch OFF.
2. Disconnect the battery cable from the negative terminal or remove the power fuse.
3. Disconnect headlamp connector.
4. Remove mass airflow sensor cover and air cleaner assembly (when replacing LH bulb). Refer to EM-17, "Removal and Installation" .
5. Remove battery cover and battery (when replacing RH bulb). Refer to SC-8, "Removal and Installation" .
6. Turn bulb socket counterclockwise and unlock it.
7. Remove bulb from its socket.

FRONT SIDE MARKER LAMP

1. Turn lighting switch OFF.
2. Disconnect the battery cable from the negative terminal or remove the power fuse.
3. Disconnect headlamp connector.
4. Remove engine undercover and fender protector.
5. Remove washer tank (when replacing LH bulb).
6. Turn bulb socket counterclockwise and unlock it.
7. Remove bulb from its socket.

Headlamp (outer side), for low beam	**: 12V - 35W (D2S)**
Headlamp (inner side), for high beam	**: 12V - 60W (HB3)**
Parking lamp	**: 12V - 5W**
Front turn signal lamp	**: 12V - 21W (amber)**
Front side marker lamp	**: 12V - 5W**

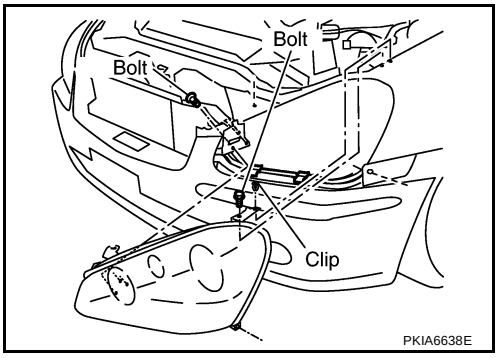
CAUTION:
After installing bulb, be sure to install plastic cap and bulb socket securely to ensure watertightness.

Removal and Installation

NKS0017P

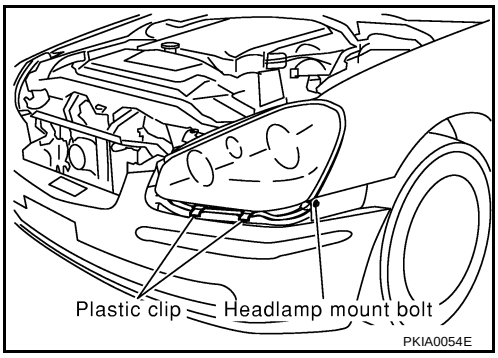
REMOVAL

1. Disconnect the battery cable from the negative terminal or remove the power fuse.
2. Remove front grille. Refer to EI-21, "FRONT GRILLE" .
3. Remove filler cap on washer tank and front air guide.
4. Remove front undercover and fender protector. Refer to EI-24, "FENDER PROTECTOR" .
5. Remove mounting clip on top of the front bumper and mounting bolts on the side of the front bumper. Refer to EI-14, "FRONT BUMPER" .



6. Pull the side of the front bumper toward the front of the vehicle and disengage it from clips on the body.
7. Remove headlamp mounting bolts and clip.
8. Remove headlamp mounting bolts inside headlamp.
9. Pull the headlamp toward the front of the vehicle, disconnect the connector, and remove from the vehicle.

CAUTION:
When removing headlamp, place a rag between headlamp and bumper to protect the bumper.



INSTALLATION

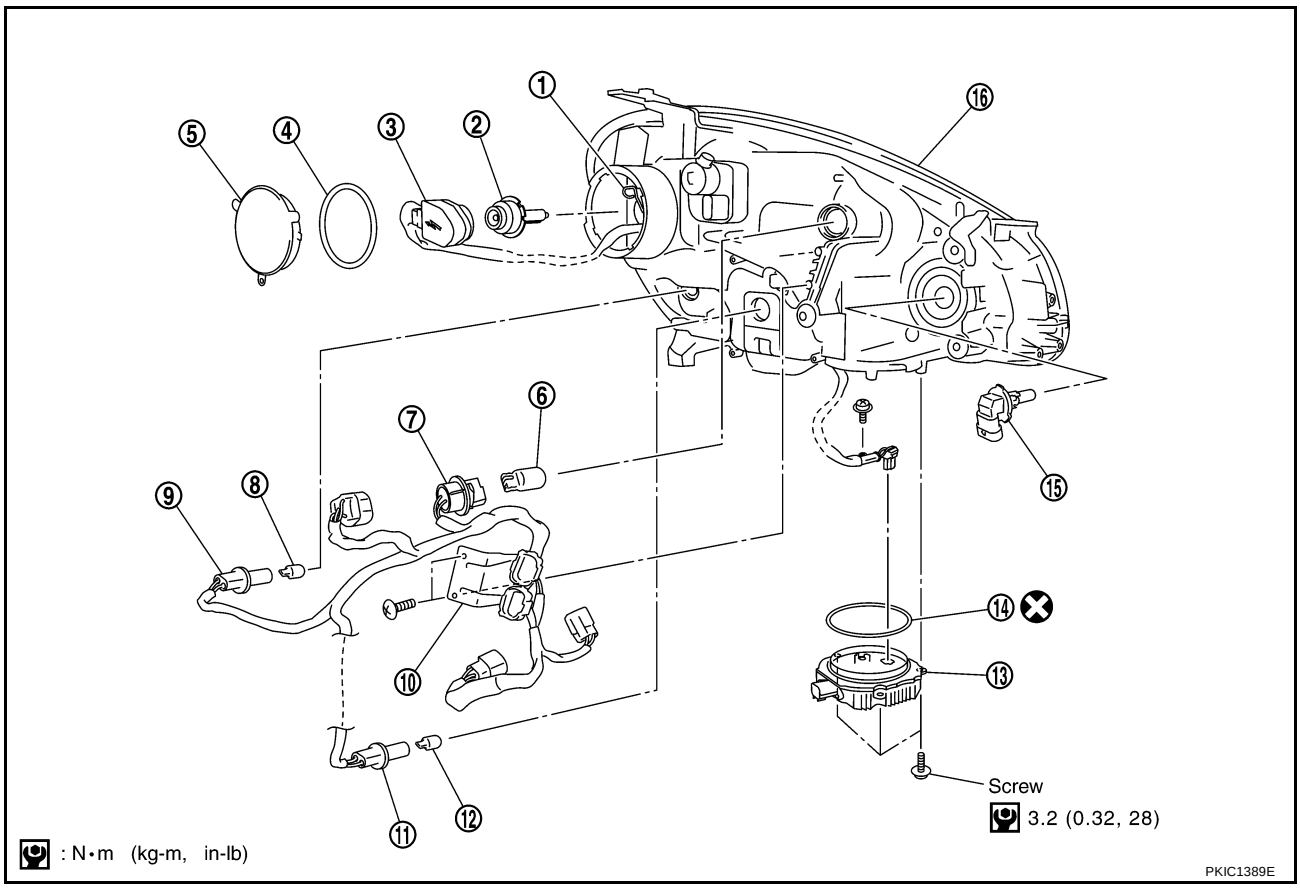
Note the following, and installation is the reverse order of removal.

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

Disassembly and Assembly

NKS0017Q

DISASSEMBLY



1. Retaining spring
2. Xenon bulb (low)
3. Xenon bulb (low) socket
4. Seal packing
5. Plastic cap
6. Front turn signal lamp bulb
7. Front turn signal lamp bulb socket
8. Front side marker lamp bulb
9. Front side marker lamp bulb socket
10. Harness connector and bracket
11. Parking lamp bulb
12. Parking lamp bulb socket
13. HID control unit
14. Seal packing
15. Halogen bulb (high)
16. Headlamp housing assembly

1. Turn plastic cap counterclockwise and remove it.
2. Turn xenon bulb socket counterclockwise and disconnect it.
3. Release retaining spring and remove xenon bulb (low).
4. Remove HID control unit mounting screws.
5. Disconnect connector and ground cable from HID control unit.
6. Turn front side marker lamp bulb socket counter clockwise and remove it.
7. Remove front side marker lamp bulb from its socket.
8. Turn parking lamp bulb socket counterclockwise and remove it.
9. Remove front side marker lamp bulb from its socket.
10. Turn front turn signal lamp bulb socket counterclockwise and remove it.
11. Remove front turn signal lamp bulb from its socket.
12. Disconnect connector from halogen bulb (high).
13. Turn halogen bulb (high) counterclockwise and remove it.
14. Disconnect headlamp auto levelizer connector. Remove two screws and remove harness connector and bracket.

ASSEMBLY

Note the following, and assembly is the reverse order of disassembly.

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

CAUTION:

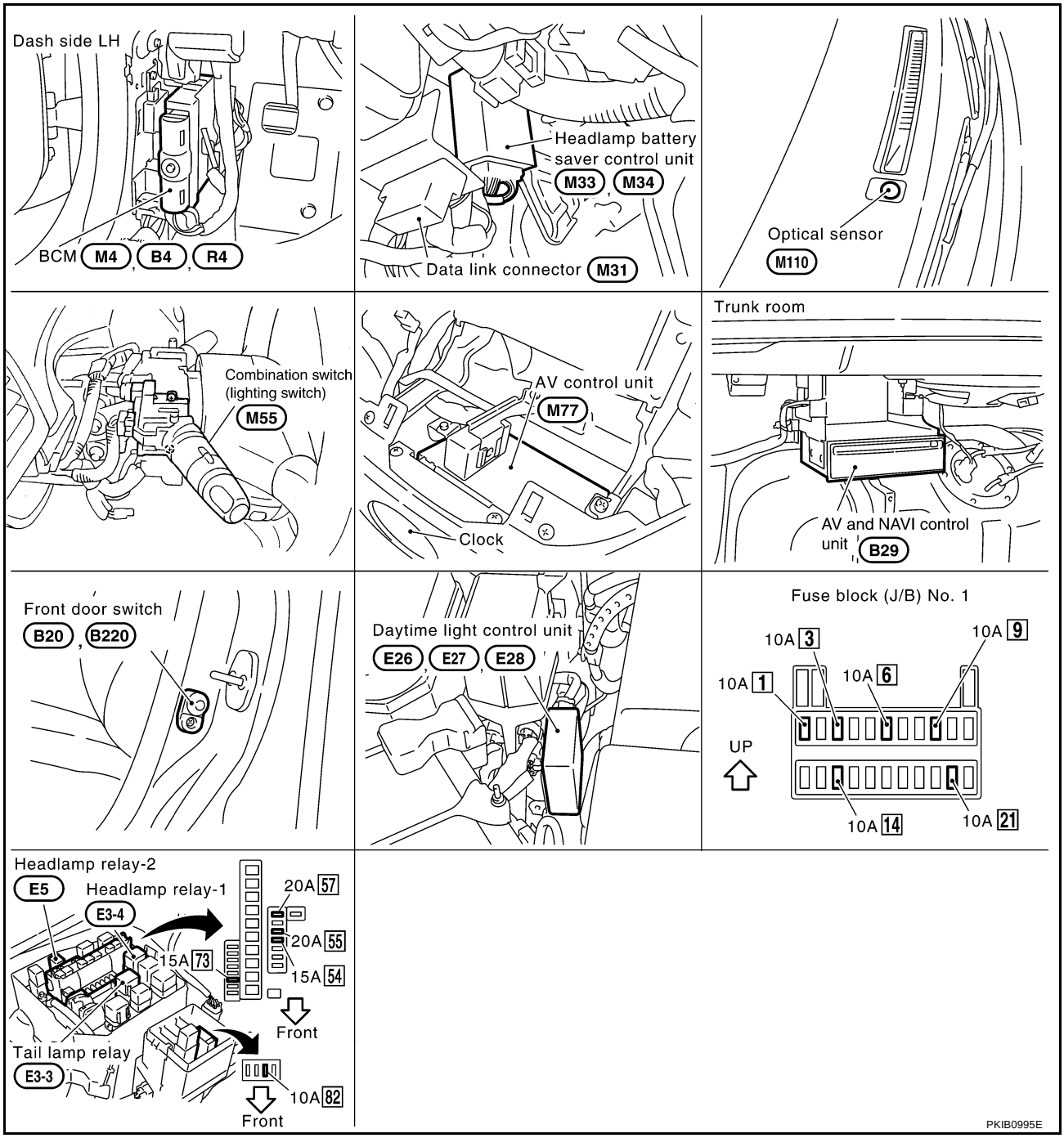
- **When HID control unit is removed, reinstall it securely and avoid any looseness.**
- **After installing bulb, be sure to install plastic cap and bulb socket securely to ensure watertightness.**

HEADLAMP (FOR CANADA) - DAYTIME LIGHT SYSTEM -

PFP:26010

Component Parts and Harness Connector Location

NKS0017R



System Description

NKS0017S

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

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

Power is supplied at all times

- headlamp relay-1 terminal 2 from battery,
- to headlamp relay-1 terminal 3

- through 20A fuse [No. 57, located in fuse, fusible link and relay block (J/B)],
- to headlamp relay-1 terminal 7
- through 20A fuse [No. 55, located in fuse, fusible link and relay block (J/B)],
- to headlamp relay-2 terminals 2 and 5
- through 15A fuse [No. 73, located in fuse, fusible link and relay box],
- to tail lamp relay terminals 2 and 6
- through 15A fuse [No. 54, located in fuse, fusible link and relay block (J/B)],
- to headlamp battery saver control unit terminal 7
- through 10A fuse [No. 6, located in fuse block (J/B) No. 1],
- to BCM terminal 105
- through 10A fuse [No. 3, located in fuse block (J/B) No. 1].

Ground is supplied

- to daytime light control unit terminal 16
- through grounds E24, E42 and E62
- to headlamp battery saver control unit terminals 4 and 11
- through grounds M25 and M115.

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

- to daytime light control unit terminal 3
- through 10A fuse [No. 82, located in fuse block],
- to headlamp battery saver control unit terminal 1, and
- to BCM terminal 68
- through 10A fuse [No. 1, located in fuse block (J/B) No. 1].

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

- to BCM terminal 60
- through 10A fuse [No. 21, located in fuse block (J/B) No. 1].

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

- to daytime light control unit terminal 2
- through 10A fuse [No. 14, located in fuse block (J/B) No. 1].

HEADLAMP OPERATION

Power Supply to Low Beam and High Beam

When lighting switch is in 2ND or PASS position, ground is supplied

- to headlamp relay-1 and 2 terminals 1
- from headlamp battery saver control unit terminals 2 and 8
- through headlamp battery saver control unit terminals 3 and 9
- through lighting switch terminals 12 and 8
- through grounds M25 and M115.

Headlamp relays are energized and then power is supplied to headlamps.

Low Beam Operation

When lighting switch is turned to 2ND position and moved to (LOW positions), power is supplied

- from headlamp relay-1 terminals 5 and 6
- to each front combination lamp terminal 7

Ground is supplied

- to each front combination lamp terminal 8
- through grounds E24, E42 and E62.

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

High Beam Operation/Flash-to-pass Operation

When lighting switch is turned to 2ND position and moved to (HIGH position or PASS position), power is supplied

- through headlamp relay-2 terminal 3
- to daytime light control unit terminals 4 and 5
- to combination meter terminal 48 for the HIGH BEAM indicator.

Ground is supplied

- to daytime light control unit terminals 6 or 7
- through each front combination lamp terminal 13
- to each front combination lamp terminal 14
- through daytime light control unit terminals 9 or 10
- to daytime light control unit terminals 13 and 14
- through lighting switch terminals 6 and 9
- to daytime light control unit terminal 13
- through combination meter terminal 47 for the HIGH BEAM indicator
- to lighting switch terminals 5 and 8
- through grounds M25 and M115.

With power and ground supplied, the high beam headlamps and HIGH BEAM indicator illuminate.

BATTERY SAVER CONTROL

When the ignition switch is turned from ON (or START) to OFF (or ACC) positions while headlamps are illuminated, The RAP signal is supplied to terminal 10 of the headlamp battery saver control unit from BCM terminal 135.
After counting 45 seconds by the RAP signal from the BCM to headlamp battery saver control unit, the ground supply to terminals 1 of headlamp relay-1 and -2 from headlamp battery saver control unit terminals 2 and 8 is terminated.
Then headlamps are turned off.
The headlamps are turned off when driver or passenger door is opened even if 45 seconds have not passed after the ignition switch is turned from ON (or START) to OFF (or ACC) positions while headlamps are illuminated.
When the lighting switch is turned from OFF to 2ND after headlamps are turned to off by the battery saver control, ground is supplied

- to headlamp battery saver control unit terminals 5 and 13 from lighting switch terminal 11, and then
- to headlamp relay-1 and -2 terminals 1 from headlamp battery saver control unit terminals 2 and 8
- through headlamp battery saver control unit terminals 3 and 9, and
- through lighting switch terminal 12.

Then headlamps illuminate again.

AUTO LIGHT OPERATION

For auto light operation, refer to LT-7, "AUTO LIGHT OPERATION" .

DAYTIME LIGHT OPERATION

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

- through daytime light control unit terminal 7
- to front combination lamp RH terminal 13
- through front combination lamp RH terminal 14
- to daytime light control unit terminal 9
- through daytime light control unit terminal 6
- to front combination lamp LH terminal 13.
- through front combination lamp LH terminal 14
- to daytime light control unit terminal 10.

Ground is supplied

- to daytime light control unit terminal 16
- through grounds E24, E42 and E62.

Because the high beam headlamps are now wired in series, they operate at half illumination.

OPERATION

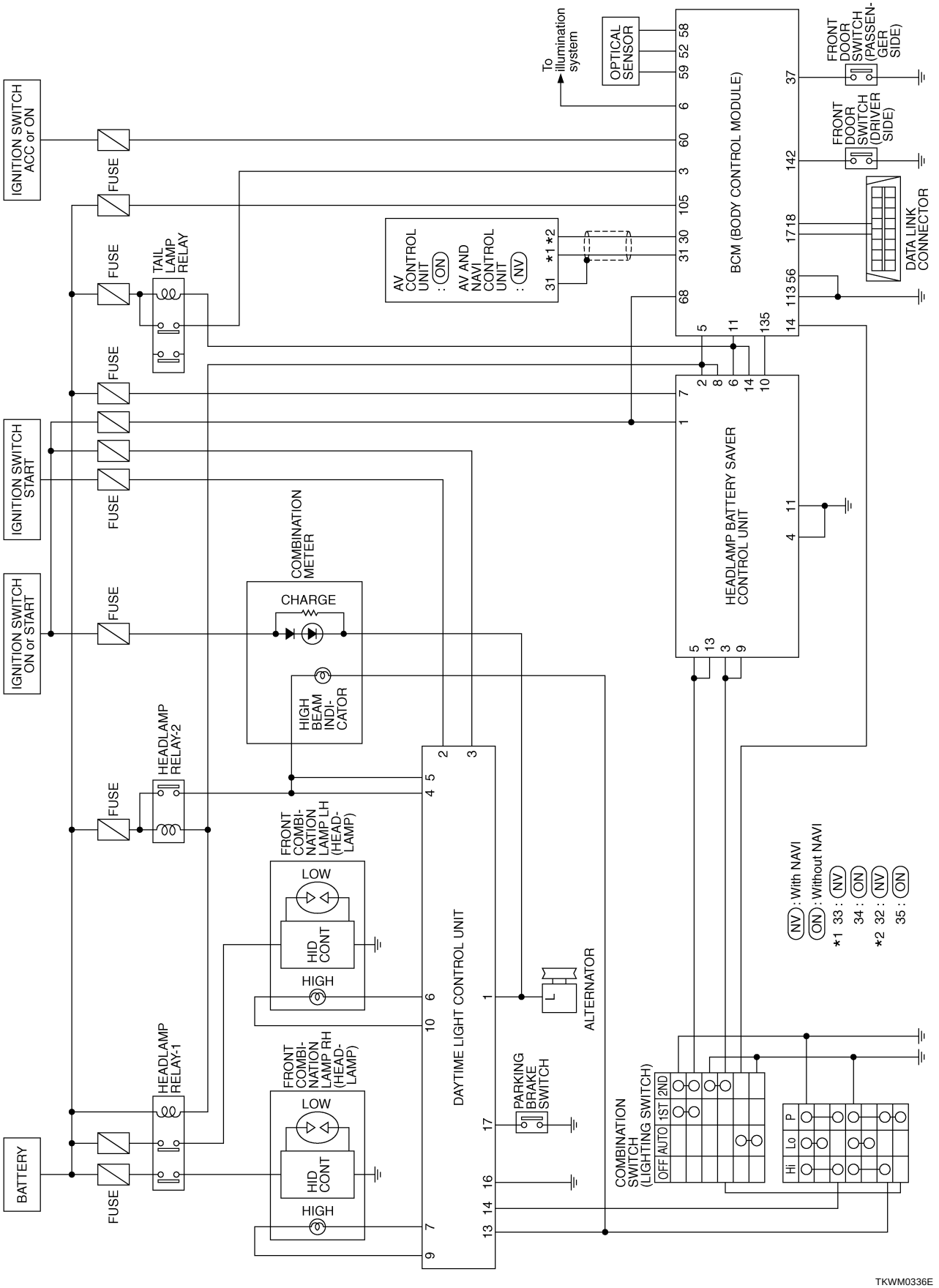
After starting the engine with the lighting switch in the “OFF” or “1ST” position, the headlamp high beam automatically turns on. Lighting switch operations other than the above are the same as conventional light systems.

Engine		Engine stopped									Engine running								
Lighting switch		OFF			1ST			2ND			OFF			1ST			2ND		
		Hi	Lo	P	Hi	Lo	P	Hi	Lo	P	Hi	Lo	P	Hi	Lo	P	Hi	Lo	P
Headlamp	High beam	–	–	–	–	–	×	×	–	×	●*	●*	×	●*	●*	×	×	–	×
	Low beam	–	–	–	–	–	×	×	×	×	–	–	×	–	–	×	×	×	×
Parking, side marker and tail lamp		–	–	–	×	×	×	×	×	×	–	–	–	×	×	×	×	×	×
License and instrument illumination lamp		–	–	–	×	×	×	×	×	×	–	–	–	×	×	×	×	×	×

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

Schematic

NKS0017T

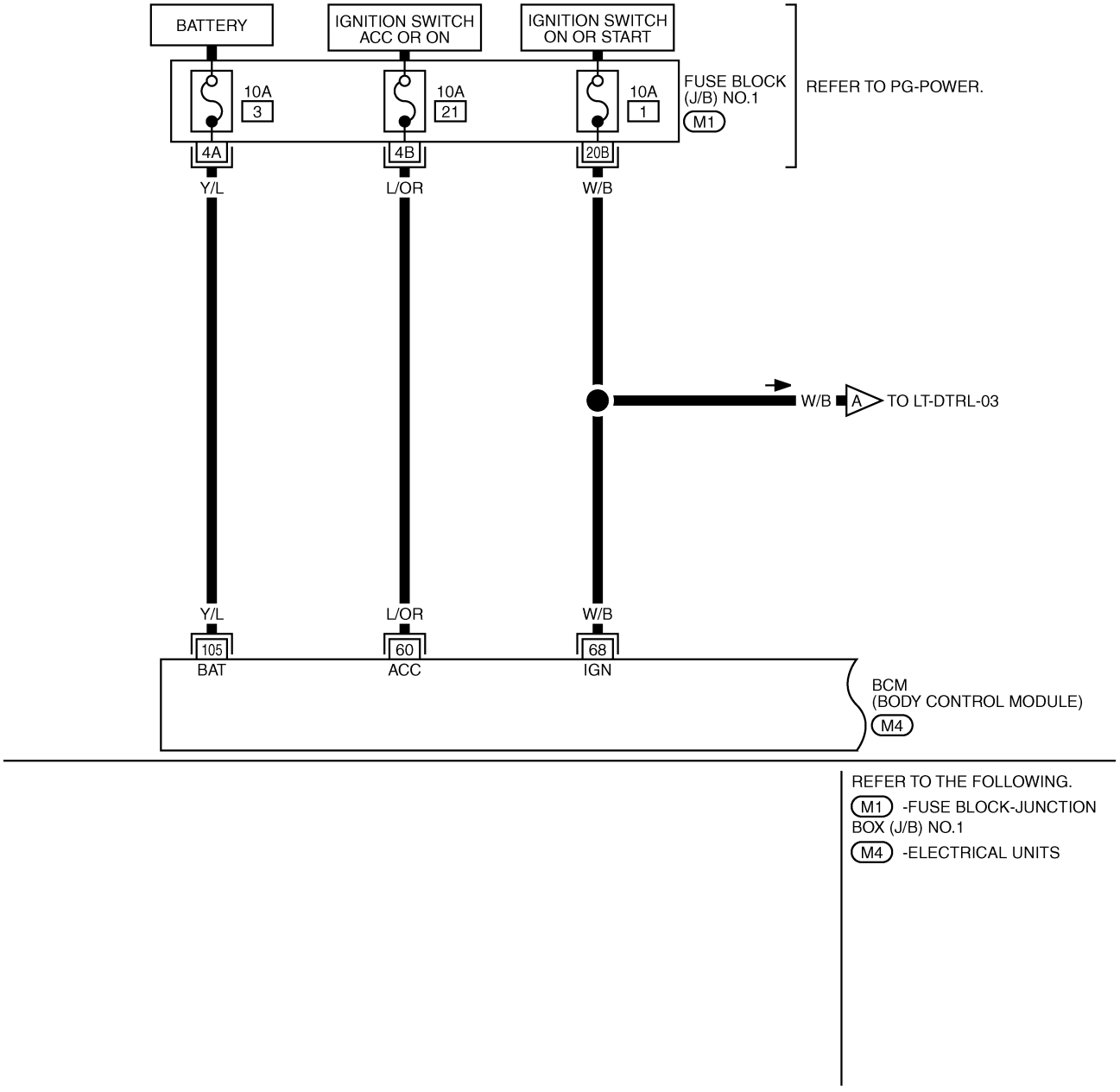


TKWM0336E

Wiring Diagram — DTRL —

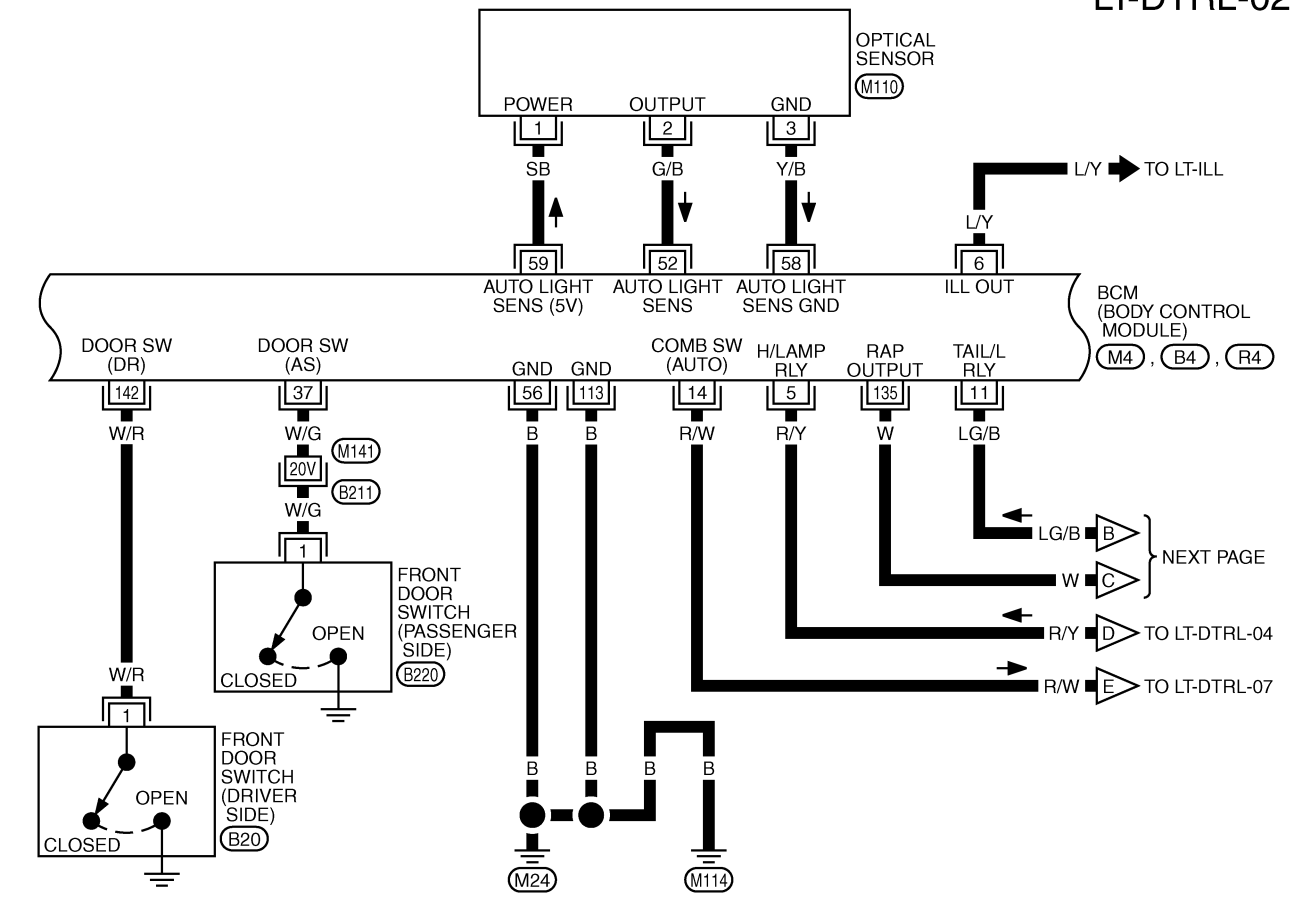
NKS0017U

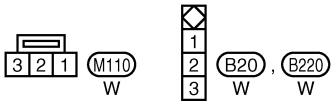
LT-DTRL-01



TKWM3687E

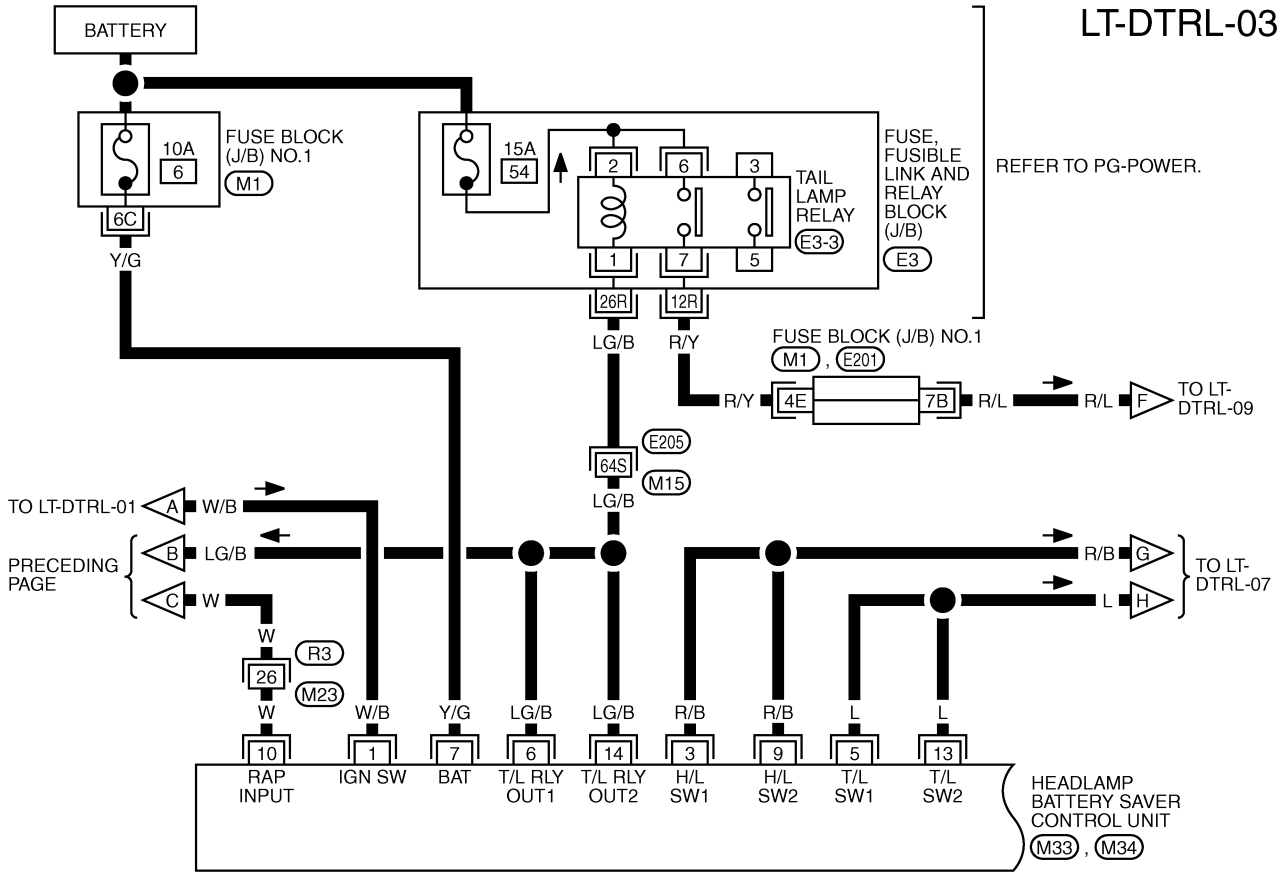
LT-DTRL-02

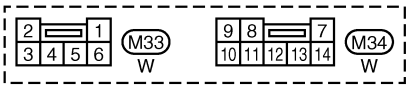


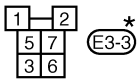


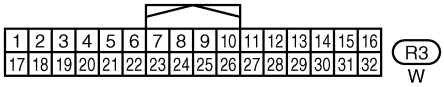
REFER TO THE FOLLOWING.
B211 -SUPER MULTIPLE JUNCTION (SMJ)
M4 , B4 , R4 -ELECTRICAL UNITS

TKWM3688E









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

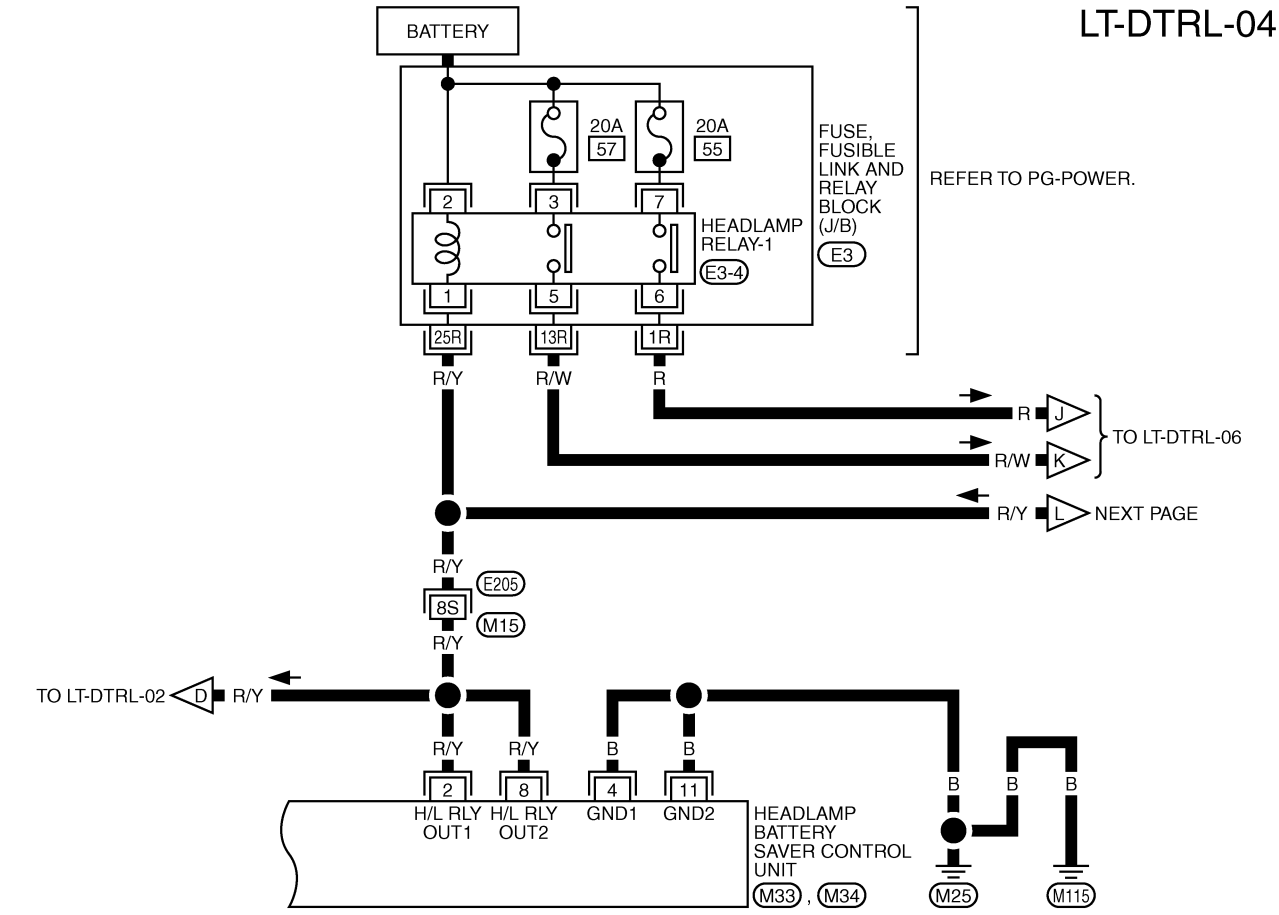
REFER TO THE FOLLOWING.

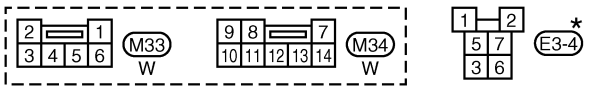
E205 -SUPER MULTIPLE JUNCTION (SMJ)

M1 , E201 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

E3 -FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)

TKWM3689E





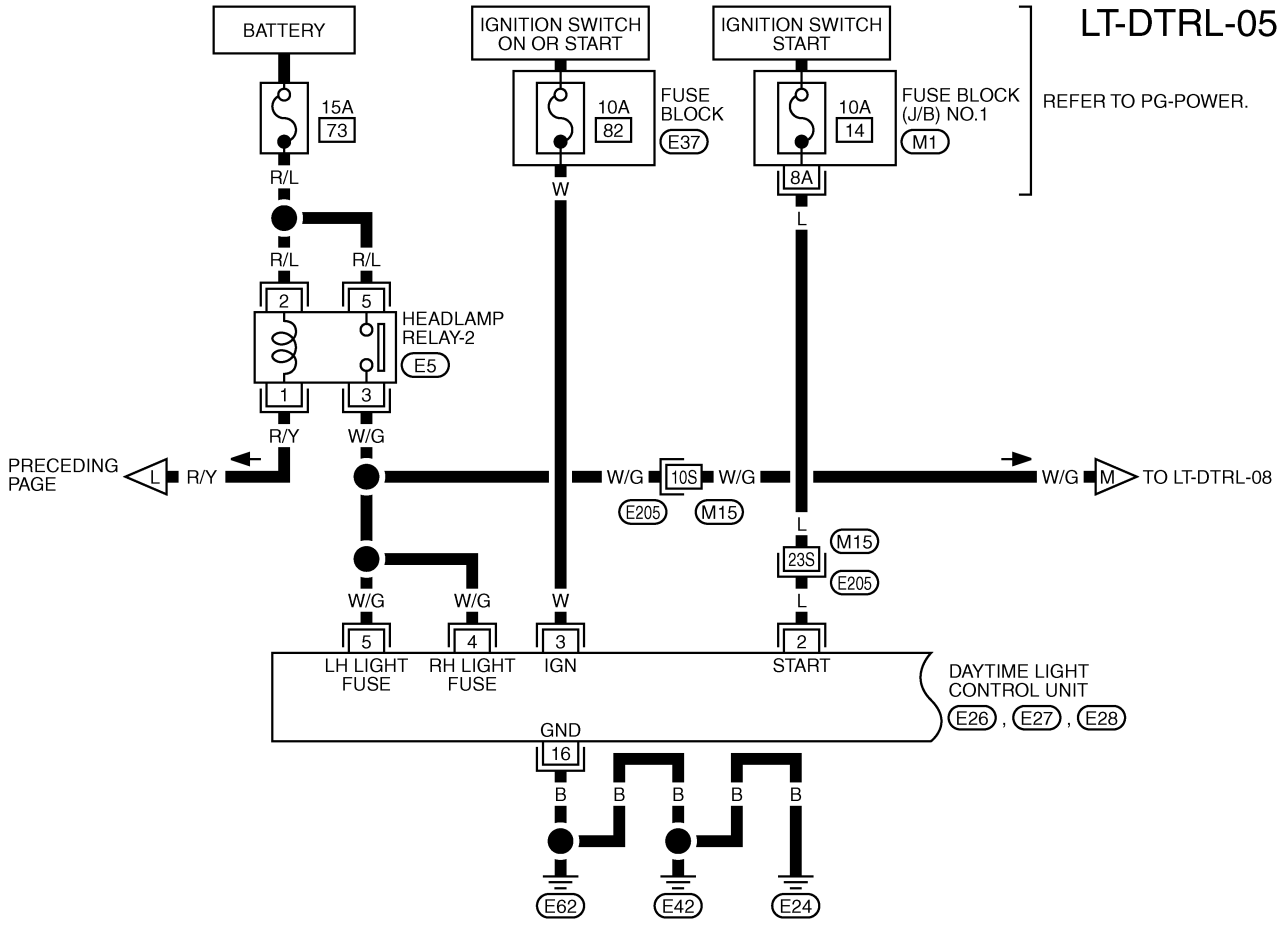
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

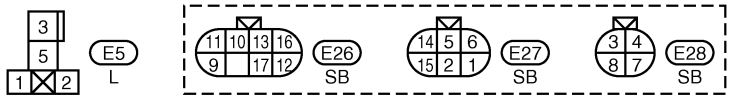
REFER TO THE FOLLOWING.

E205 -SUPER MULTIPLE JUNCTION (SMJ)

E3 -FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)

TKWM1474E





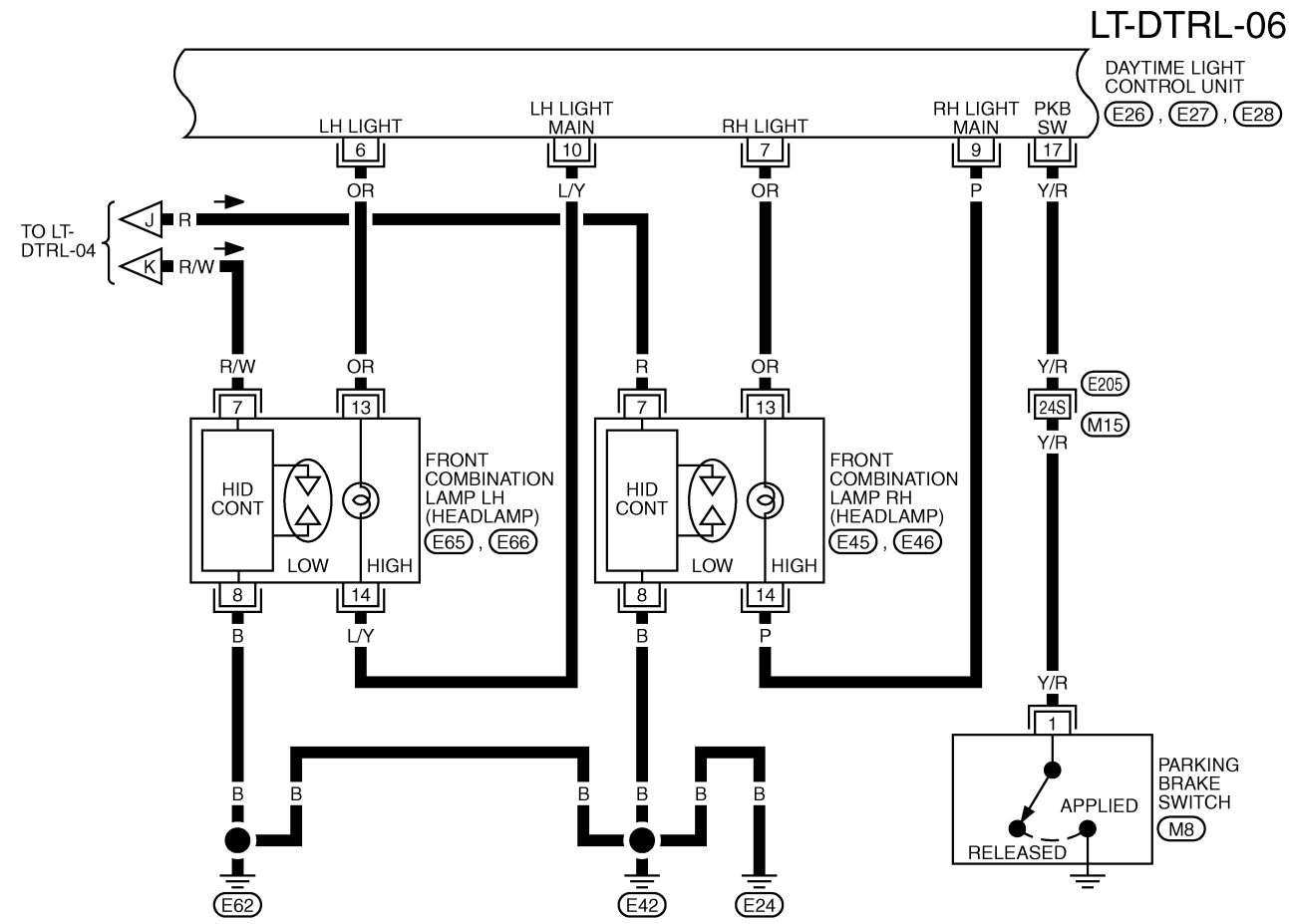
REFER TO THE FOLLOWING.

E205 -SUPER MULTIPLE JUNCTION (SMJ)

M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

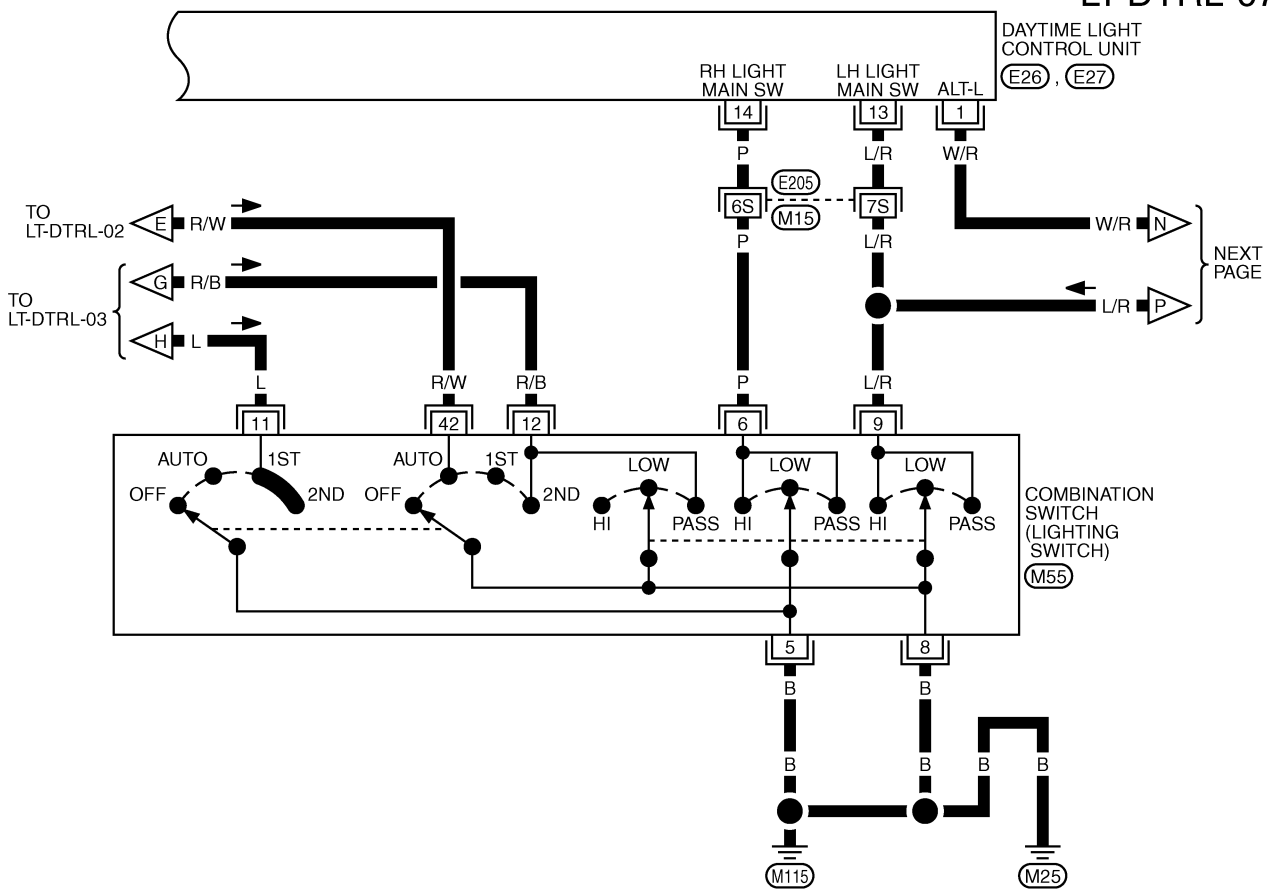
E37 -FUSE BLOCK

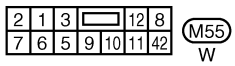
TKWM3690E

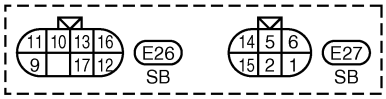

LT-DTRL-06
DAYTIME LIGHT CONTROL UNIT
E26, E27, E28
LH LIGHT
LH LIGHT MAIN
RH LIGHT
RH LIGHT MAIN
PKB SW
6
10
7
9
17
OR
L/Y
OR
P
Y/R
TO LT-DTRL-04
J
R
K
R/W
R/W
OR
R
OR
Y/R
E205
24S
M15
Y/R
7
13
7
13
HID CONT
LOW
HIGH
FRONT COMBINATION LAMP LH (HEADLAMP)
E65, E66
FRONT COMBINATION LAMP RH (HEADLAMP)
E45, E46
8
14
8
14
B
L/Y
B
P
Y/R
1
PARKING BRAKE SWITCH
APPLIED
RELEASED
M8
B
B
B
B
B
B
E62
E42
E24
M8
B
E26
SB
E27
SB
E28
SB
E45
DGY
E46
SB
E65
DGY
E66
SB
REFER TO THE FOLLOWING.
E205 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3691E

LT-DTRL-07

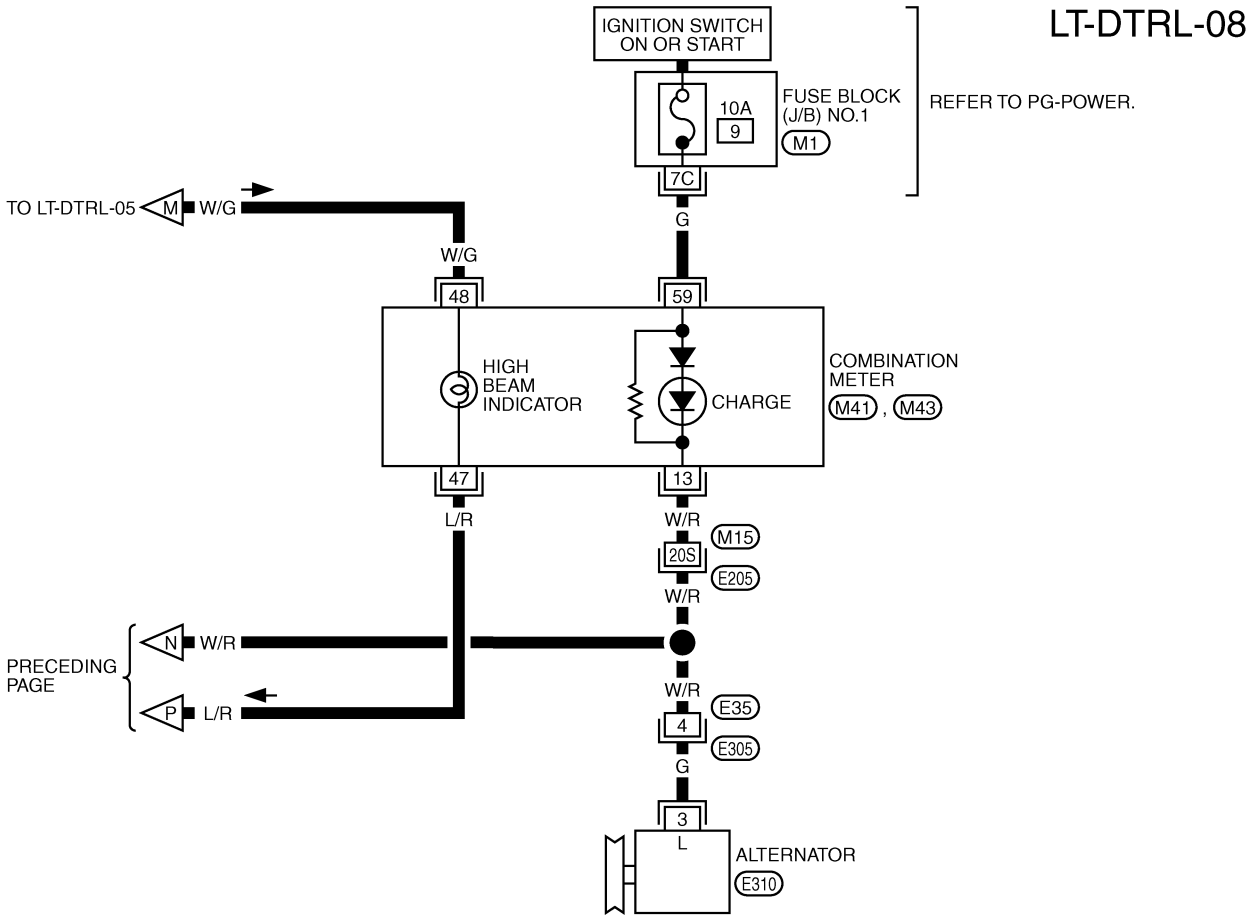


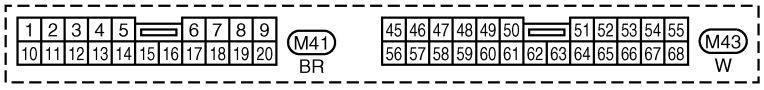


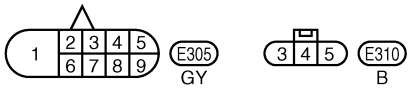


REFER TO THE FOLLOWING.
E205 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3692E



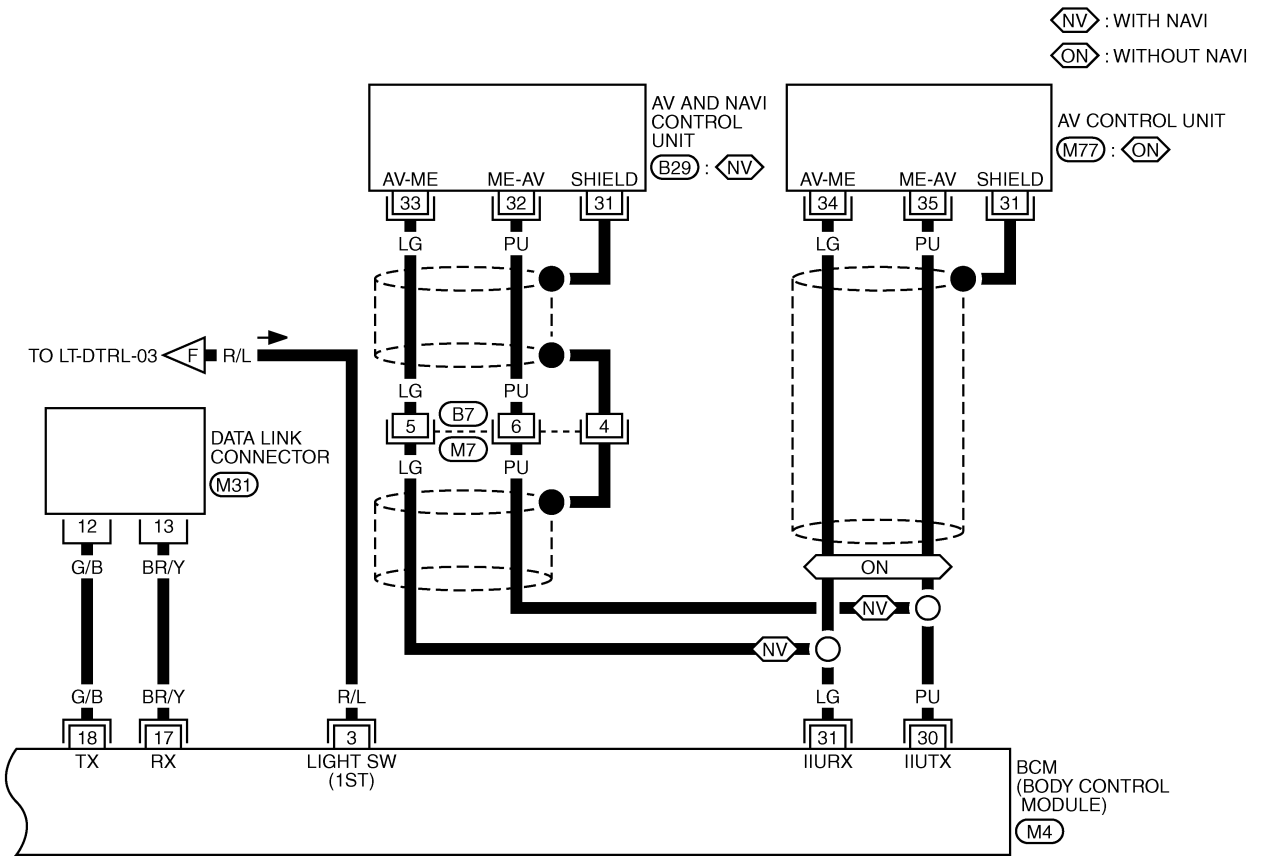


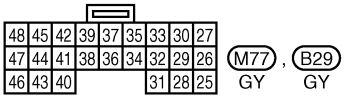


REFER TO THE FOLLOWING.
E205 -SUPER MULTIPLE JUNCTION (SMJ)
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

TKWM1478E

LT-DTRL-09





REFER TO THE FOLLOWING.
M4 -ELECTRICAL UNITS

TKWM3693E

Terminals and Reference Value for Daytime Light Control Unit

NKS0017V

Terminal No.	Wire color	Item	Condition	Reference value
1	W/R	Alternator	When turning ignition switch to “ON”	Approx. 0 V
			When engine is running	Battery voltage
			When turning ignition switch to “OFF”	Approx. 0 V
2	L	Start signal	When turning ignition switch to “START”	Battery voltage
			When turning ignition switch to “ON” from “START”	Approx. 0 V
			When turning ignition switch to “ACC” or “OFF”	Approx. 0 V
3	W	Power source	When turning ignition switch to “ON”	Battery voltage
			When turning ignition switch to “START”	Battery voltage
			When turning ignition switch to “ACC” or “OFF”	Approx. 0 V
4	W/G	RH light fuse	When lighting switch is turned to the 2ND position with “HI BEAM” or “FLASH TO PASS” position	Battery voltage
			When lighting switch is turned to “FLASH TO PASS” position with ignition switch “ON” position	Battery voltage
5	W/G	LH light fuse	When lighting switch is turned to the 2ND position with “HI BEAM” or “FLASH TO PASS” position	Battery voltage
			When lighting switch is turned to “FLASH TO PASS” position with ignition switch “ON” position	Battery voltage
6	OR	LH hi beam	When lighting switch is turned to the 2ND position with “HI BEAM” or “FLASH TO PASS” position	Battery voltage
			When releasing parking brake with engine running and turning lighting switch to “OFF” (daytime light operation) **CAUTION:** **Block wheels and ensure selector lever is in N or P position.**	Half battery voltage
7	OR	RH hi beam	When lighting switch is turned to the 2ND position with “HI BEAM” or “FLASH TO PASS” position	Battery voltage
			When releasing parking brake with engine running and turning lighting switch to “OFF” (daytime light operation) **CAUTION:** **Block wheels and ensure selector lever is in N or P position.**	Battery voltage
9	P	RH hi beam (ground)	When turning lighting switch to the 2ND position with “HI BEAM“ or “FLASH TO PASS” position	Approx. 0 V
			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.**	Half battery voltage
10	L/Y	LH hi beam (ground)	When turning lighting switch to the 2ND position with “HI BEAM” or “FLASH TO PASS” position	Approx. 0 V
			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. 0 V
13	L/R	LH lighting switch (Hi beam)	When turning lighting switch to the 2ND position with “HI BEAM” or “FLASH TO PASS” position	Approx. 0 V
14	P	RH lighting switch (Hi beam)	When turning lighting switch to the 2ND position with “HI BEAM” or “FLASH TO PASS” position	Approx. 0 V
16	B	Ground	—	Approx. 0 V
17	Y/R	Parking brake switch	When parking brake is released	Battery voltage
			When parking brake is pulled	Approx. 0 V

Terminals and Reference Value for BCM

NKS0017W

Refer to LT-16, "Terminals and Reference Values for BCM" .

Terminals and Reference Value for Battery saver Control Unit

NKS0017X

Refer to LT-15, "Terminals and Reference Values for Headlamp Battery Saver Control Unit" .

Symptom Chart

NKS0017Y

Symptom	Repair Procedure
Headlamps (both side) do not operate.	1. Check 10A fuse [No. 6, located in fuse block (J/B) No. 1]. Verify battery positive voltage is present at terminal 7 of headlamp battery saver control unit. 2. Check lighting switch. Refer to LT-100, "Switch Circuit Inspection" . 3. Check headlamp battery saver control unit. Refer to LT-15, "Terminals and Reference Values for Headlamp Battery Saver Control Unit" .
Low beam headlamps do not operate, but high beam headlamps operate.	1. Check headlamp relay-1. 2. Check harness between headlamp relay-1 and headlamp battery saver control unit. 3. Check headlamp battery saver control unit. Refer to LT-15, "Terminals and Reference Values for Headlamp Battery Saver Control Unit" .
High beam headlamps do not operate, but low beam headlamps operate.	1. Check 15A fuse [No. 73, located in fuse, fusible link and relay box]. Verify battery positive voltage is present at terminals 2 and 5 of headlamp relay-2. 2. Check headlamp relay-2. 3. Check harness between headlamp relay-2 and headlamp battery saver control unit. 4. Check headlamp battery saver control unit. Refer to LT-15, "Terminals and Reference Values for Headlamp Battery Saver Control Unit" .
RH low beam headlamp does not operate, but LH low beam headlamp operates.	1. Check 20A fuse [No. 55, located in fuse, fusible link and relay block (J/B)]. Verify battery positive voltage is present at terminal 7 of headlamp relay-1. 2. Check headlamp relay-1. 3. Check harness between headlamp relay-1 terminal 6 and front combination lamp RH for open circuit. 4. Check continuity between front combination lamp RH terminal 8 and ground. 5. Replace xenon bulb with other side bulb or new one. (If headlamps illuminate correctly, replace bulb.) 6. Replace HID control unit with other side control unit or new one. (If headlamps illuminate correctly, replace HID control unit.)
LH low beam headlamp does not operate, but RH low beam headlamp operates.	1. Check 20A fuse [No. 57, located in fuse, fusible link and relay block (J/B)]. Verify battery positive voltage is present at terminal 3 of headlamp relay-1. 2. Check headlamp relay-1. 3. Check harness between headlamp relay-1 terminal 5 and front combination lamp LH for open circuit. 4. Check continuity between front combination lamp LH terminal 8 and ground. 5. Replace xenon bulb with other side bulb or new one. (If headlamps illuminate correctly, replace bulb.) 6. Replace HID control unit with other side control unit or new one. (If headlamps illuminate correctly, replace HID control unit.)
RH high beam headlamp does not operate, but LH high beam headlamp operates.	1. Check bulb. 2. Check the following. – Check harness between headlamp relay-2 terminal 3 and daytime light control unit terminal 4. – Check harness between daytime light control unit and front combination lamp RH. 3. Check lighting switch. Refer to LT-100, "Switch Circuit Inspection" . 4. Check harness between daytime light control unit and lighting switch. 5. Check daytime light control unit. Refer to LT-50, "Terminals and Reference Value for Daytime Light Control Unit" .

Symptom	Repair Procedure
LH high beam headlamp does not operate, but RH high beam headlamp operates.	1. Check bulb. 2. Check the following. – Check harness between headlamp relay-2 terminal 3 and daytime light control unit terminal 5. – Check harness between daytime light control unit and front combination lamp LH. 3. Check lighting switch. Refer to LT-100, "Switch Circuit Inspection" . 4. Check harness between daytime light control unit and lighting switch. 5. Check daytime light control unit. Refer to LT-50, "Terminals and Reference Value for Daytime Light Control Unit" .
High beam indicator does not work.	1. Check bulb in combination meter. 2. Check harness between headlamp relay-2 terminal 3 and combination meter for open circuit.
Battery saver control does not operate properly.	1. Verify 12 positive voltage from BCM is present at terminal 10 of headlamp battery saver control unit: – Within 45 seconds after ignition switch turned off. – Front door is opened or more than 45 seconds after ignition switch is turned off. 2. Check the following. – Harness between BCM and LH or RH front door switch for open or short circuit. – LH or RH front door switch ground circuit. – LH or RH front door switch. 3. Check the following. – Harness between headlamp battery saver control unit terminals 5 or 13 and lighting switch terminal 11 for open or short circuit. – Harness between lighting switch terminal 5 and ground. – Lighting switch. Refer to LT-100, "Switch Circuit Inspection" . 4. Check headlamp battery saver control unit. 5. Check BCM. Refer to LT-16, "Terminals and Reference Values for BCM" .
Daytime light control does not operate properly.	1. Check 10A fuse [No. 82, located in fuse block]. Verify battery positive voltage is present at terminal 3 of daytime light control unit. 2. Check parking brake switch. 3. Check harness between parking brake switch and daytime light control unit. 4. Check harness between alternator and daytime light control unit. 5. Check daytime light control unit. Refer to LT-50, "Terminals and Reference Value for Daytime Light Control Unit" .

Aiming Adjustment

NKS0017Z

Refer to LT-30, "Aiming Adjustment" .

Bulb Replacement

NKS00180

Refer to LT-31, "Bulb Replacement" .

Removal and Installation

NKS00181

Refer to LT-33, "Removal and Installation" .

Disassembly and Assembly

NKS00182

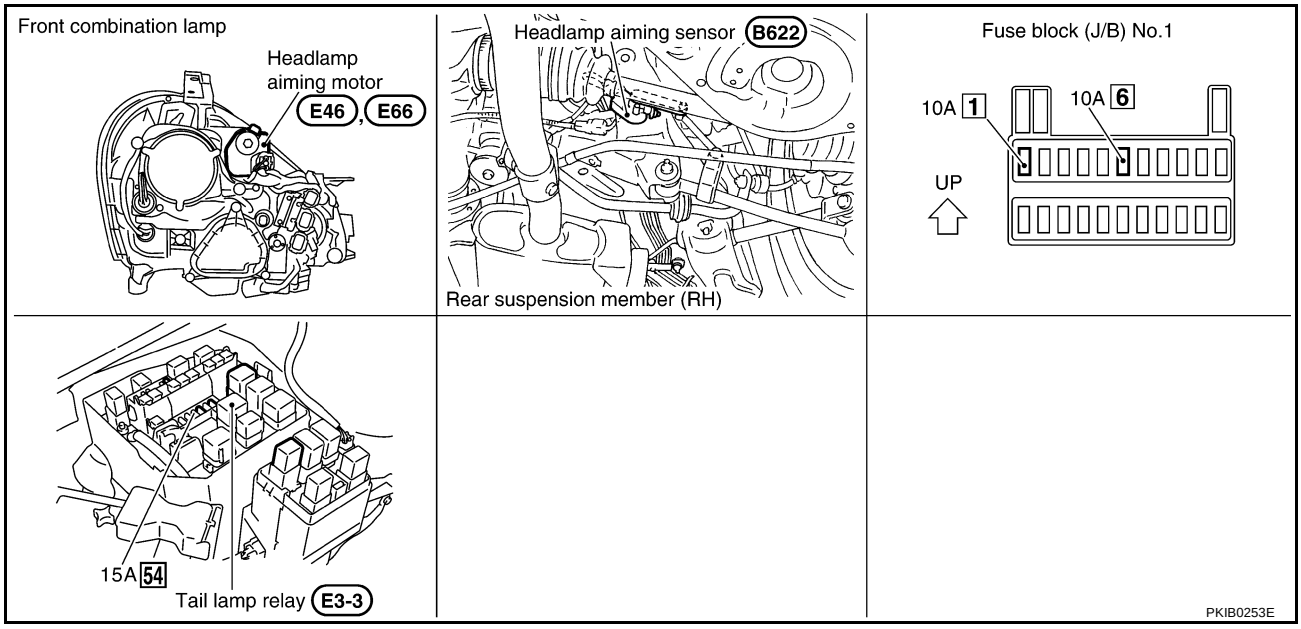
Refer to LT-34, "Disassembly and Assembly" .

HEADLAMP AIMING CONTROL (AUTO)

PFP:53821

Component Parts and Harness Connector Location

NKS00183



System Description

NKS00184

With the lighting switch in the first or second position, the headlamp aiming sensor detects change in the vehicle height and transmits a corresponding signal to the headlamp aiming motors. The signal drives the headlamp aiming motors, which adjusts the low beam reflector of each headlamp to an angle appropriate for the vehicle height.

When the vehicle is stationary, the motors move the reflectors if the vehicle height changes to a certain height and the height is maintained for a predetermined period. When the vehicle is running (excluded when accelerating/decelerating), the reflector angle is adjusted at predetermined intervals.

OUTLINE

Power is supplied all items

- to tail lamp relay terminal 2 and
- to tail lamp relay terminal 6
- through 15A fuse [No. 54 located in fuse, fusible link and relay block (J/B)],
- to headlamp battery saver control unit terminal 7
- through 10A fuse [No. 6 located in fuse block (J/B) No.1].

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

- to headlamp battery saver control unit terminal 1
- to headlamp aiming sensor terminal 2
- to front combination lamp RH terminal 12 and
- to front combination lamp LH terminal 12
- through 10A fuse [No.1 located in fuse block (J/B) No.1].

Ground is supplied

- to headlamp battery saver control unit terminals 4 and 11
- through grounds M25 and M115,
- to headlamp aiming sensor terminal 1
- through grounds B17 and B57,
- to front combination lamp RH terminal 10 and
- to front combination lamp LH terminal 10
- through grounds E24, E42 and E62.

When lighting switch is in 1st or 2nd position, ground is supplied

- to headlamp battery saver control unit terminals 5 and 13
- through lighting switch terminal 11
- through lighting switch terminal 5
- through grounds M25 and M115.

HEADLAMP AIMING CONTROL OPERATION

The headlamp aiming sensor is located on the right side of the rear suspension member and detects vehicle height change by sensing the displacement of the suspension arm.
When the ignition switch is turned to the ON position, power is supplied

- to headlamp aiming sensor terminal 2 and
- to each headlamp aiming motor terminal 12
- through 10A fuse [No. 1 located in fuse block (J/B) No.1].

At the same time, the vehicle height signal (voltage signal that corresponds to the vehicle height) is applied

- to each headlamp aiming motor terminal 9
- through headlamp aiming sensor terminal 7.

Ground is supplied

- to each front combination lamp (headlamp aiming motor) terminal 10
- through grounds E24, E42 and E62,
- to headlamp aiming sensor terminal 1
- through grounds B17 and B57.

And the voltage level of this signal is maintained.
When the lighting switch is placed in the 1ST or 2ND position, power is supplied

- to headlamp aiming sensor terminal 6
- through tail lamp relay terminal 7.

Ground is supplied

- to headlamp aiming sensor terminal 1
- through grounds B17 and B57.

to trigger the aiming control of the sensor.
When the stopped vehicle changes the height and keeps it for more than 15 seconds, the headlamp aiming sensor outputs a headlamp aiming motor drive signal. And headlamp aiming sensor keeps supplying voltage to headlamp aiming motor. (Voltage depends on the vehicle height.)
Upon reception of the headlamp aiming motor drive signal, both headlamp aiming motors cause the low beam reflectors to move to the position commanded by the signal.
When the vehicle is running (excluded when accelerating/decelerating), the headlamp aiming sensor transmits headlamp aiming motor drive signal to headlamp aiming motors at the predetermined intervals. The voltage level of every signal input is maintained unchanged until the next signal is input.
Upon reception of the headlamp aiming motor drive signal, both headlamp aiming motors cause the low beam reflectors to move to the position commanded by the signal.
When the vehicle is accelerating or decelerating, the headlamp aiming sensor keeps the same headlamp aiming motor drive signal voltage level rather than changing it, so that the low beam reflectors of both headlamps do not operate.
When the lighting switch is turned OFF, the headlamp aiming sensor retains the headlamp aiming motor drive signal level at that moment and stops transmitting the signal.

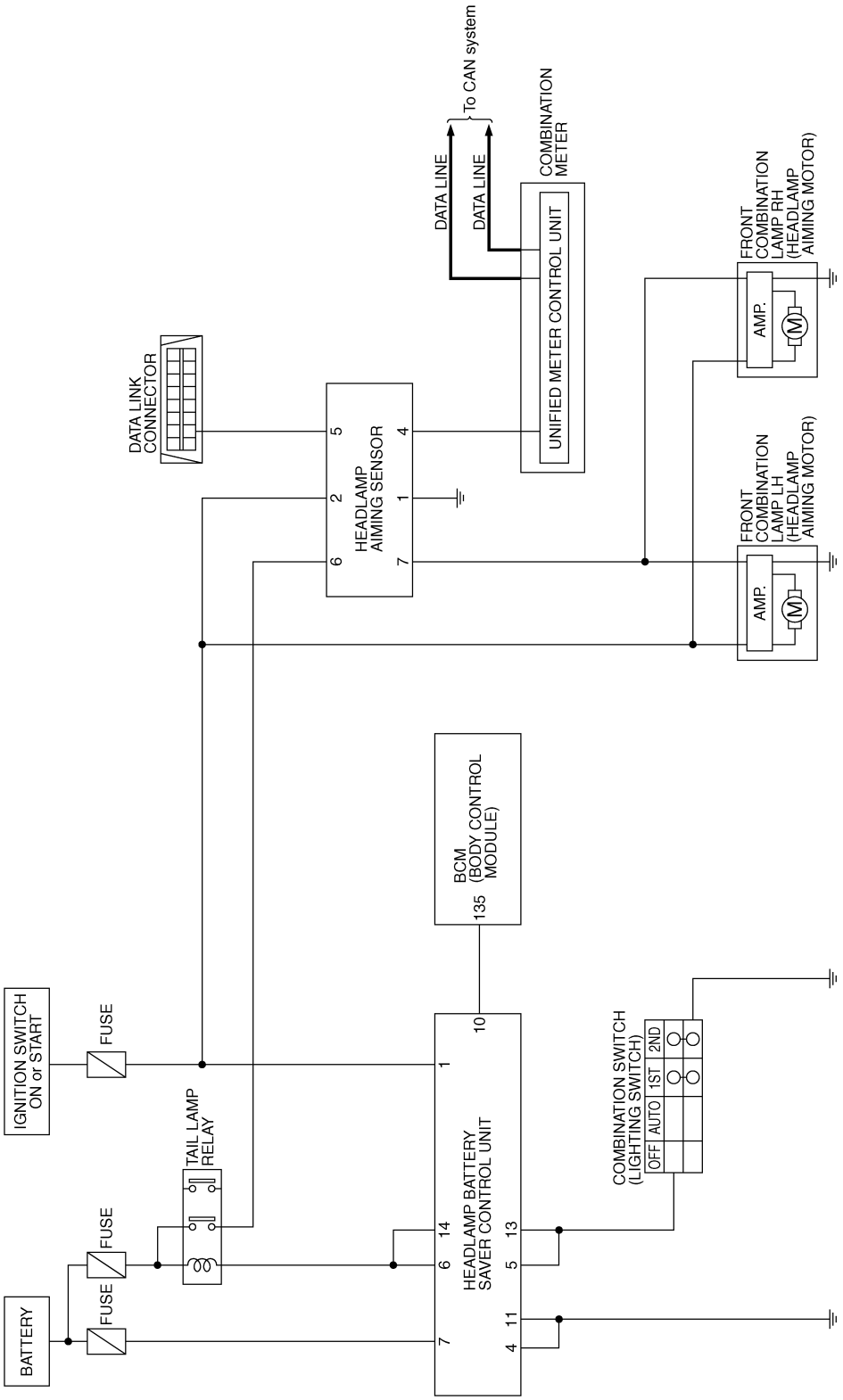
Headlamp Aiming Sensor Control Operation

Headlamp aiming sensor operating control interval	Vehicle is stopped *1	Headlamp aiming motor starts after vehicle is stopped for approx. 15 seconds.					
	Vehicle is running *2	Up to 31 seconds, and every 10 seconds after starting running with a constant speed	About 41 seconds	About 82 seconds	About 161 seconds	About 323 seconds	After 323 seconds or more, every 323 seconds

*1 Excluded when running less than or equal to 4 km/h (2.84 MPH) and when accelerating/decelerating.
*2 Excluded when running not less than 4 km/h (2.84 MPH) and when accelerating/decelerating.

Schematic

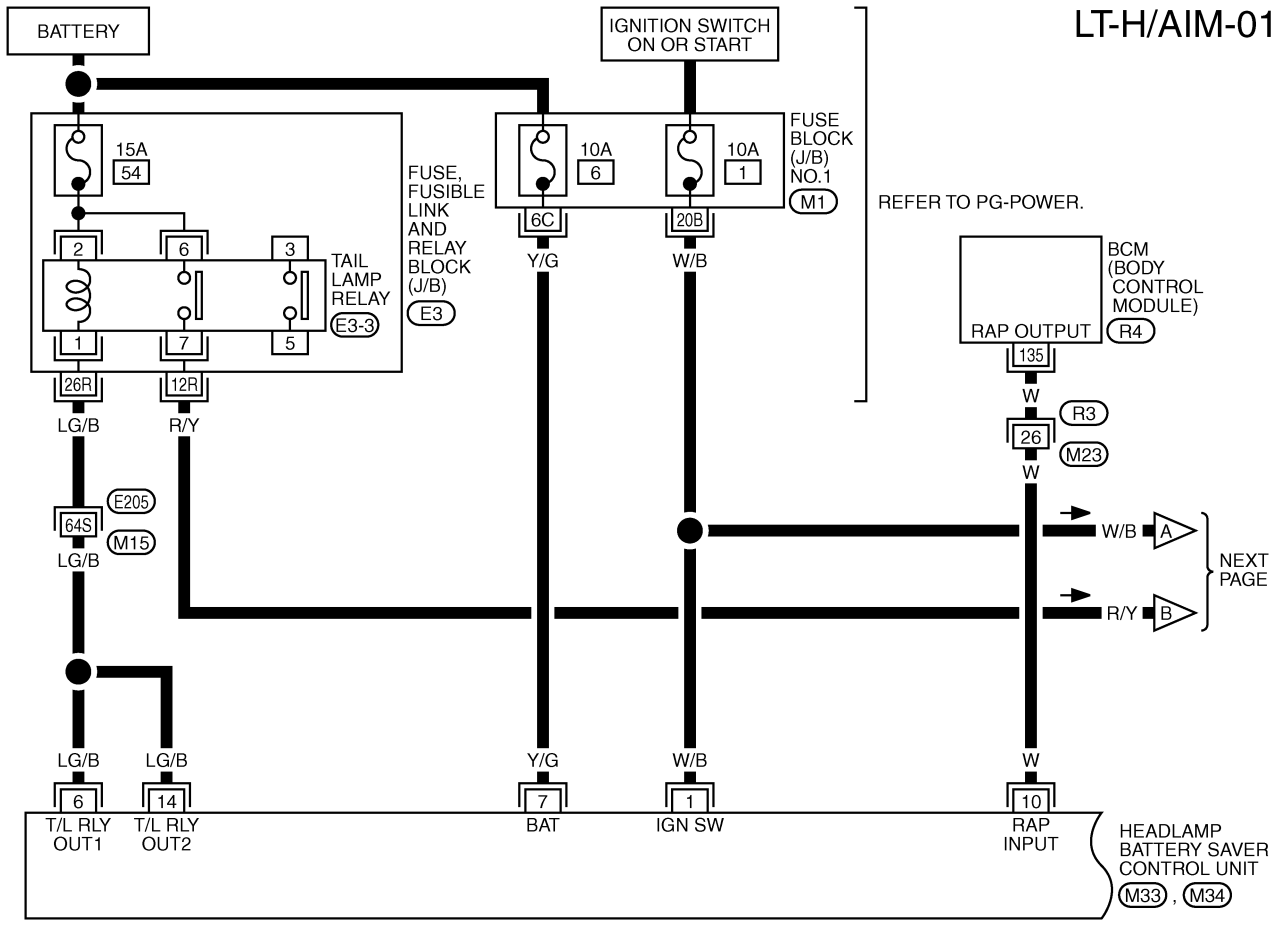
NKS00185



TKWM1484E

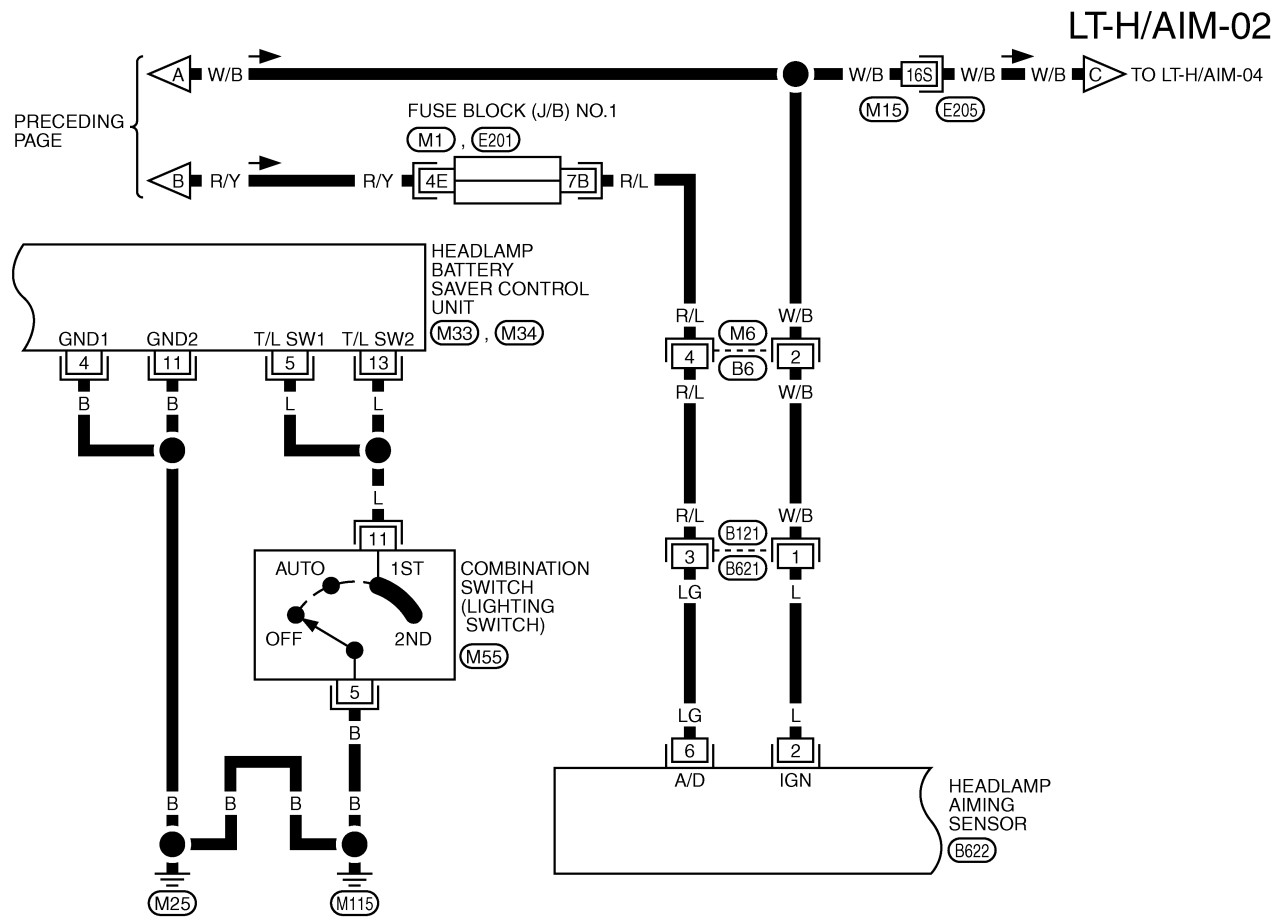
Wiring Diagram —LT-H/AIM—

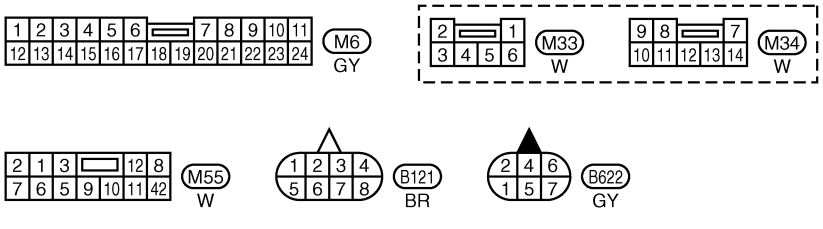
NKS00186



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

TKWM3694E





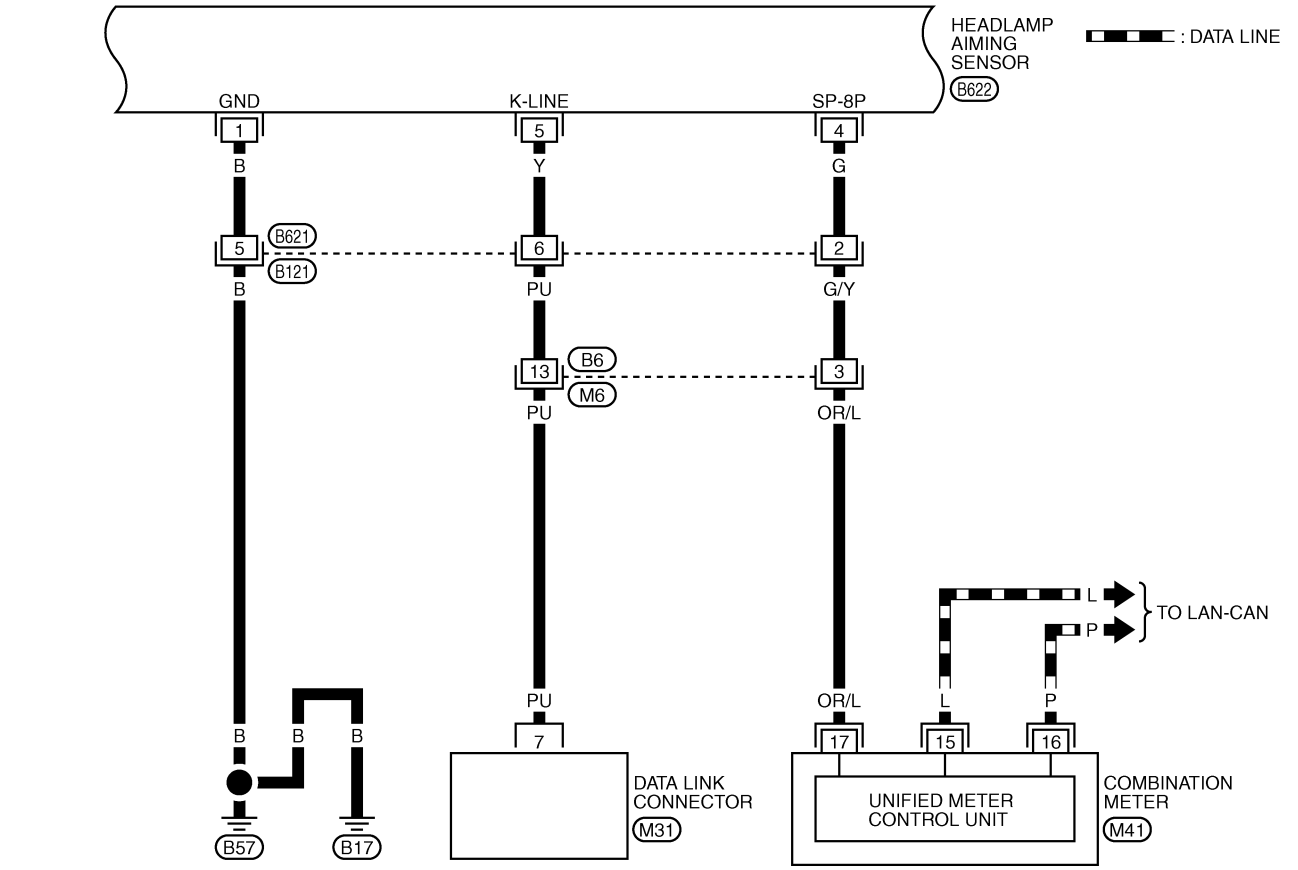
REFER TO THE FOLLOWING.

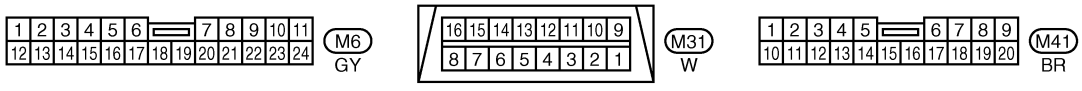
E205 -SUPER MULTIPLE JUNCTION (SMJ)

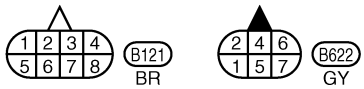
M1 , E201 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

TKWM1486E

LT-H/AIM-03

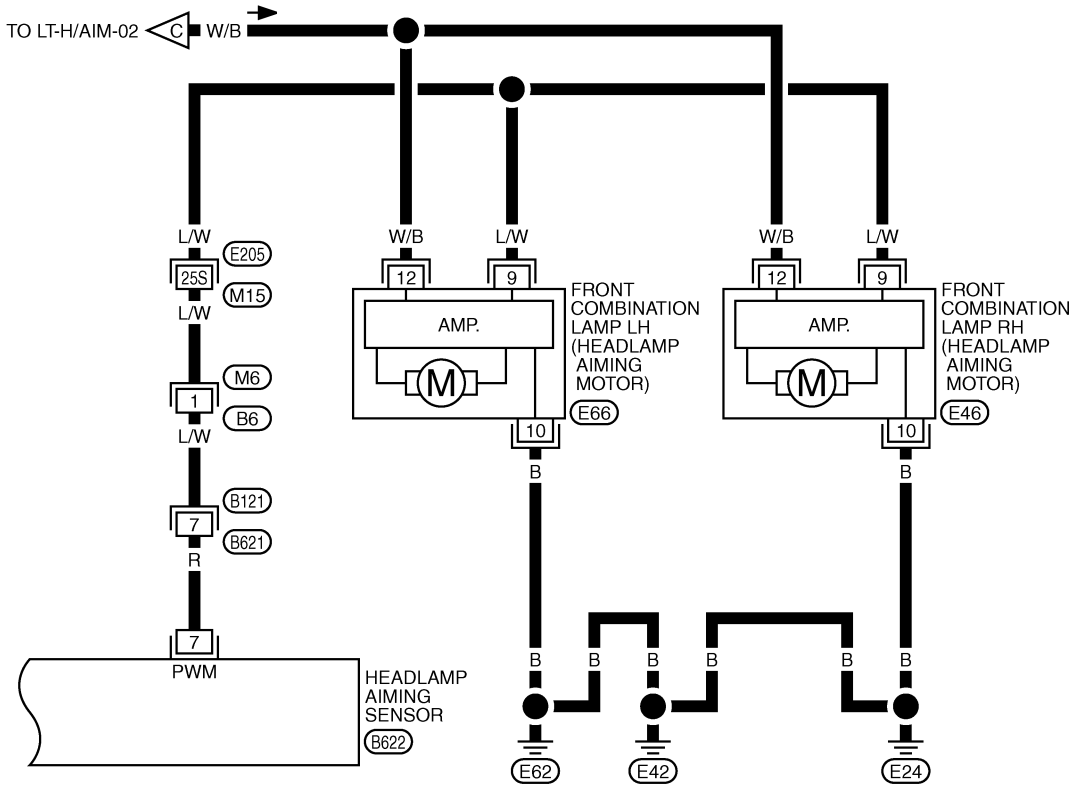


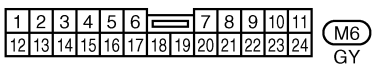


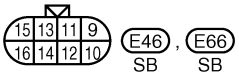


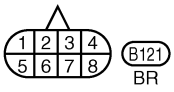
TKWM3695E

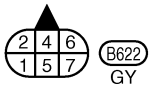
LT-H/AIM-04









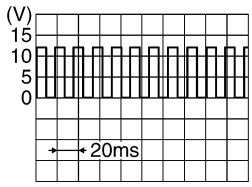


REFER TO THE FOLLOWING.
E205 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3696E

Terminals and Reference Values for Headlamp Aiming Sensor

NKS00187

Terminal No.	Wire color	Signal	Measuring condition			Reference value
			Ignition switch	Operation or condition		
1	B	Ground	ON	—		Approx. 0
2	L	Ignition switch (ON)	ON	—		Battery voltage
4	G	Vehicle speed signal	ON	Approx. 40 km/h (25 MPH)		 PKIA1935E
5	Y	K-line	—	—		—
6	LG	Tail lamp relay signal	—	Combination switch	OFF	Approx. 0 - 2 V
					1ST	Battery voltage
7	R	Headlamp aiming motor drive signal	ON	Combination switch 1ST vehicle speed 0 km/h (0 MPH)		Approx. 2.5 - 7.8 V

How to Proceed with Trouble Diagnosis

NKS00188

1. Confirm the symptom or customer complaint.
2. Understand operation description and function description. Refer to LT-54, "System Description" .
3. Perform the preliminary check. Refer to LT-62, "Preliminary Check" .
4. Perform self-diagnosis by CONSULT-II. Refer to LT-65, "SELF-DIAG RESULTS" .
5. Check symptom and repair or replace the cause of malfunction.
6. Does the headlamp aiming control operate normally? If YES: GO TO 7. If NO: GO TO 5.
7. INSPECTION END

Preliminary Check

NKS00189

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSE

Check for blown fuses.

Unit	Power source	Fuse No.
Headlamp aiming sensor, headlamp aiming motor	Ignition switch ON or START	1
Headlamp aiming sensor	Battery	54
Headlamp battery saver control unit		6

Refer to LT-57, "Wiring Diagram —LT-H/AIM—" .

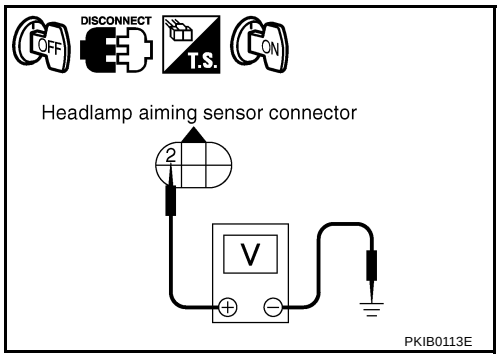
OK or NG

OK >> GO TO 2.
NG >> If the fuse is brown be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-2, "POWER SUPPLY ROUTING" .

2. CHECK HEADLAMP AIMING SENSOR VOLTAGE

1. Turn ignition switch OFF.
2. Disconnect headlamp aiming sensor connector.
3. Turn ignition switch ON.
4. Check voltage between headlamp aiming sensor harness connector B622 terminal 2 and ground.

2 - Ground : Battery voltage



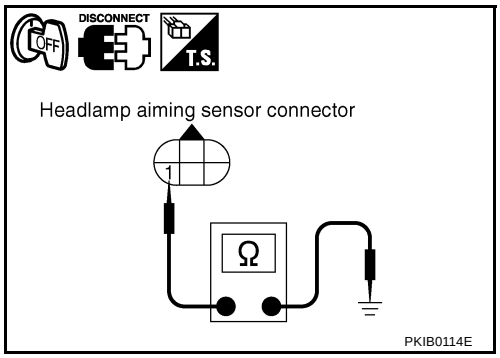
OK or NG

YES >> GO TO 3.
NO >> Repair harness and connector.

3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between headlamp aiming sensor harness connector B622 terminal 1 and ground.

1 - Ground : Continuity should exist.



OK or NG

OK >> Replace headlamp aiming sensor.
NG >> Repair harness or connector.

CONSULT-II Function (HEAD LAMP LEVELIZER)

NKS0018A

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

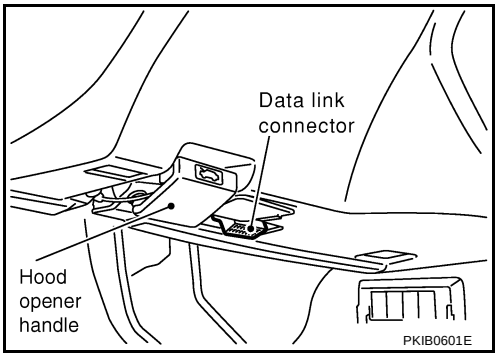
Diagnosis mode	Description
WORK SUPPORT	Headlamp aiming sensor can be initialized.
SELF-DIAG RESULTS	The result of self-diagnosis for headlamp aiming sensor can be displayed and erased.
ACTIVE TEST	Operation of headlamp aiming motor can be confirmed with “UP”, “MID” or “DOWN” touched.
ECU PART NUMBER	Headlamp aiming sensor part number can be read.

CONSULT-II BASIC OPERATION PROCEDURE

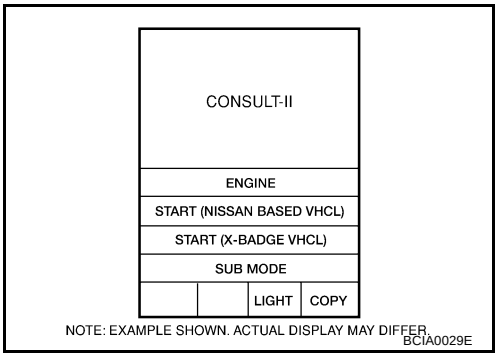
CAUTION:

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

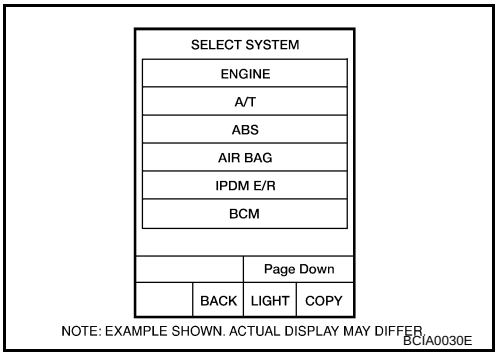
1. With the ignition switch OFF, connect “CONSULT-II” and “CONSULT-II CONVERTER” to the data link connector, and then turn ignition switch ON.



2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “HEAD LAMP LEVELIZER” on “SELECT SYSTEM” screen. If “HEAD LAMP LEVELIZER” is not indicated, refer to GI-37, "CONSULT-II Data Link Connector (DLC) Circuit" .



WORK SUPPORT

Work Support Item List

Item	Description
SENSOR INITIALISE	Make it memorize headlamp aiming sensor stroke of unloaded vehicle condition. Perform when replacing headlamp aiming sensor.

Operation Procedure

Headlamp aiming sensor initialize

1. Set the vehicle in unload condition. (Removal all loads in passenger and trunk rooms.)
2. Touch “HEAD LAMP LEVELIZER” on “SELECT SYSTEM” screen.
3. Touch “WORK SUPPORT” on “SELECT DIAG MODE” screen.
4. Touch “SENSOR INITIALISE”.
5. Touch “WRITE”.
6. “INITIALIZE COMPLETE” will be displayed.
7. Touch “END”.

Instruction of initialized results

Item (CONSULT-II screen terms)	Description of indications
INITIALIZE COMPLETE	Initialization completed.
INCORRECT CONDITION	Improper condition. (Wrong connection of headlamp aiming sensor connector or CONSULT-II connector.)
NO CAR TYPE SELECT	Program error of the headlamp aiming sensor.
INITIALIZE NOT DONE	Initialization uncompleted.

ACTIVE TEST

Operation Procedure

1. Touch “HEAD LAMP LEVELIZER” on “SELECT SYSTEM” screen.
2. Touch “ACTIVE TEST” on “SELECT DIAG MODE” screen.
3. Touch “LAMP TEST”, then “UP”, “MID” or “DOWN” to change aiming line.
4. Touch “END” after the test.

Display Item List

Item (CONSULT-II screen terms)	Test item	Description
LAMP TEST	Aiming direction change	Operation of headlamp aiming motor can be confirmed with “UP”, “MID” or “DOWN” touched.

SELF-DIAG RESULTS

Operation Procedure

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

Description of DTC and Solutions after Detection

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

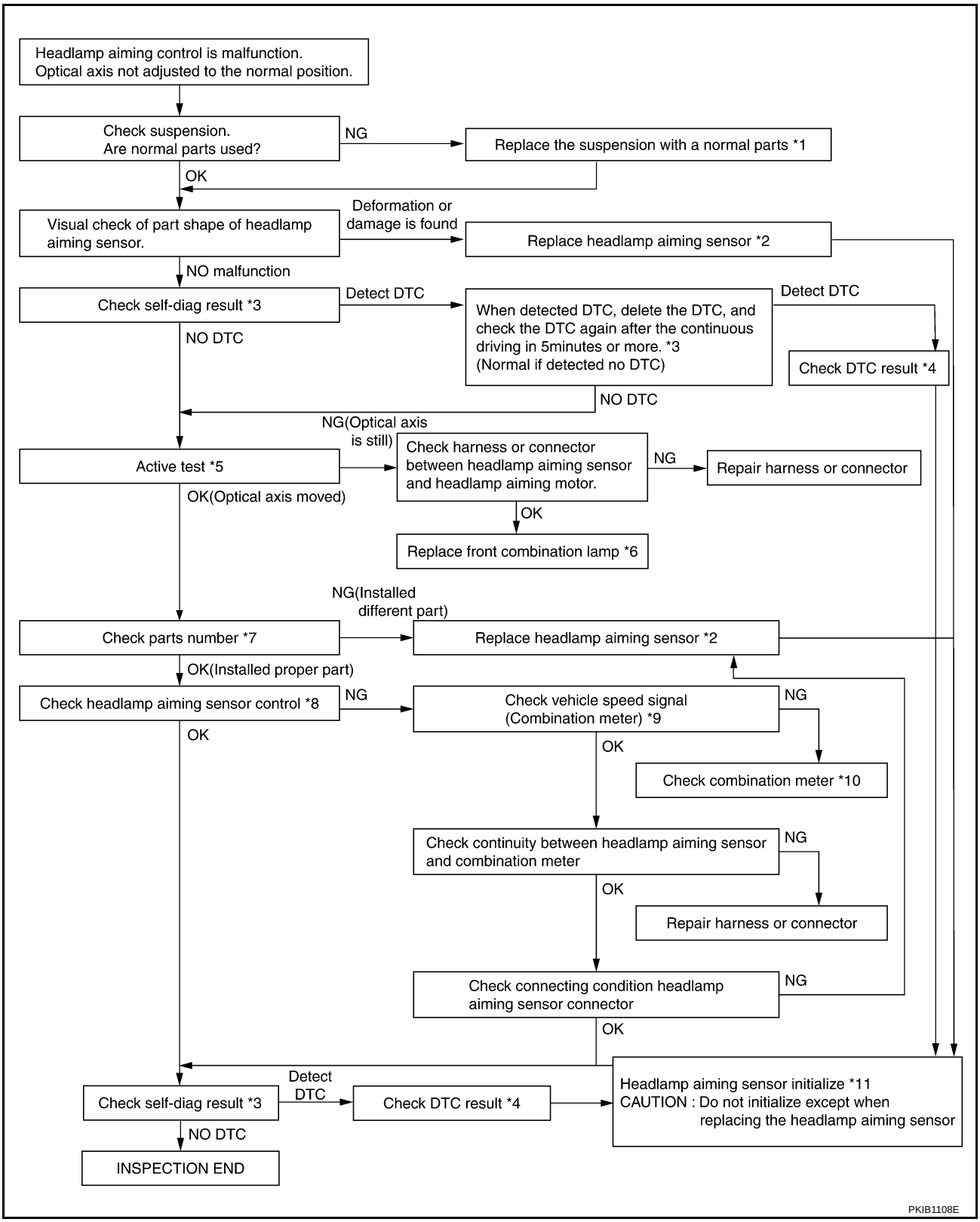
Details of error indication detected by CONSULT-II	Conditions of error detection	Code storage	Fail-safe		Reference
			Within 5 seconds after starting vehicle, or vehicle speed less than or equal to 4 km/h (2.84 MPH).	5 seconds and more after starting vehicle, or vehicle speed more than or equal to 4 km/h (2.84 MPH).	
[B2080] [ECU TROUBLE]	ECU error of the headlamp aiming sensor.	YES	● Fix headlamp aiming motor drive signal around 0 V. ● Maintain a current position of light axis.		Replace headlamp aiming sensor, and initialize it. Refer to LT-76, "Removal and Installation" .
[B2081] [INITIAL NOT DONE]	Initialization has not completed.	NO	Set and maintain light axis downward.		Refer to LT-72, "DTC B2081 [INITIAL NOT DONE]" .
[B2082] [SENSOR OUT OF RANGE]	Vehicle height detected by headlamp aiming sensor is unusual.				Refer to LT-72, "DTC B2082 [SENSOR OUT OF RANGE], DTC B2083 [SEN SIG NOT PLAUSIBLE]" .
[B2083] [SEN SIG NOT PLAUSIBLE]	Vehicle height detected by headlamp aiming sensor while running does not change more than 60-second stretch.	YES	Maintain a current position of light axis.		Refer to LT-72, "DTC B2082 [SENSOR OUT OF RANGE], DTC B2083 [SEN SIG NOT PLAUSIBLE]" .
[B2084] [VOLTAGE UNDER LIMIT]	Voltage of headlamp aiming sensor terminal 2 kept having less than or equal to 9 V for 1.5 seconds and over.		Set and maintain light axis downward.	Maintain a current position of light axis.	Refer to LT-72, "DTC B2084 [VOLTAGE UNDER LIMIT]" .
[B2085] [LOW BEAM SIG OPEN LINE]	Headlamp aiming sensor terminal 6 had less than 6 V at lighting switch 1st, or had more than 2V for 1.5 seconds or more at lighting switch OFF.				Refer to LT-73, "DTC B2085 [LOW BEAM SIG OPEN LINE]" .
[B2086] [FRQ. OVER LIMIT]	Vehicle speed signal kept showing over 255 km/h (158 MPH) for more than 1.5 seconds.				Refer to LT-73, "DTC B2086 [FRQ. OVER LIMIT]" .
[B2087] [SHORT TO GROUND]	Headlamp aiming sensor terminal 7 had short-circuit with a ground more than 1.5 seconds.		Maintain a current position of light axis.		Refer to LT-74, "DTC B2087 [SHORT TO GROUND]" .
[B2088] [SHORT TO BATTERY]	Headlamp aiming sensor terminal 7 had short-circuit with a power supply line more than 1.5 seconds.				Refer to LT-75, "DTC B2088 [SHORT TO BATTERY]" .
[B2089] [NO CAR TYPE SELECTED]	Program error of the headlamp aiming sensor.		● Fix headlamp aiming motor drive signal around 0 V. ● Maintain a current position of light axis.		Replace headlamp aiming sensor, and initialize it. Refer to LT-76, "Removal and Installation" .

CAUTION:

- **As for [B2083], codes are erased after detecting a change of vehicle height.**
- **As for [B2084] to [B2086], fail-safe is performed in accordance with running condition when code is detected, and maintains the condition until ignition switch is turned off.**
  When ignition switch is turned on, fail-safe is set to "within 5 seconds after starting vehicle" or "vehicle speed less than or equal to 4 km/h (2.84 MPH)". Perform fail-safe only when having a current abnormality.
- **As for [B2084] to [B2088], perform fail-safe only when having a current abnormality.**

Check Aiming Control System

NKS0018B



*1 Refer to FSU-5, "FRONT SUSPENSION ASSEMBLY" in "FSU section" and RSU-5, "REAR SUSPENSION ASSEMBLY" in" RSU section".

*2 Refer to LT-76, "Removal and Installation" .

*3 Refer to LT-65, "SELF-DIAG RESULTS" .

*4 Refer to LT-65, "Description of DTC and Solutions after Detection" .

*5 Refer to LT-64, "ACTIVE TEST" .

*6 Refer to LT-33, "Removal and Installation" in "HEADLAMP (FOR USA)".

*7	Refer to LT-63, "CONSULT-II Function (HEAD LAMP LEVELIZER)" .	*8	Refer to LT-55, "Headlamp Aiming Sensor Control Operation" .	*9	Refer to DI-15, "Terminals and Reference Value for Combination Meter" in “DI section”.
*10	Refer to DI-18, "Vehicle Speed Signal Inspection" in “DI section”.	*11	Refer to LT-64, "WORK SUPPORT" .		

CAUTION:

If the vehicle height is outside the proper height, aiming control may not be performed normally even when the headlamp aiming control system is normal.

Symptom Chart

NKS0018C

Symptom	Reference
Headlamp aiming motor does not operate (Both sides)	Refer to LT-69, "Headlamp Aiming Motor Does Not Operate (Both Sides)" .
Headlamp aiming motor does not operate (One side)	Refer to LT-71, "Headlamp Aiming Motor Does Not Operate (One Side)" .

Headlamp Aiming Motor Does Not Operate (Both Sides)

NKS0018D

1. CHECK DIAGNOSIS RESULT

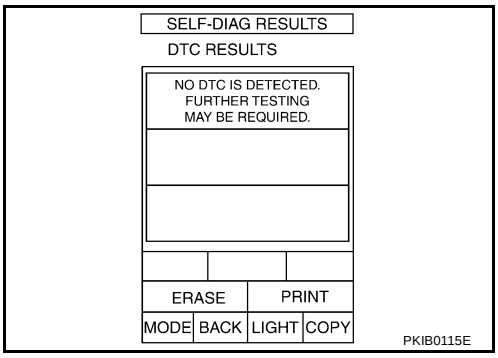
WITH CONSULT-II

1. Turn ignition switch ON.
2. Select “HEADLAMP LEVELIZER” on CONSULT-II, and select “SELF-DIAG RESULT” on “SELECT DIAG MODE” screen.

Is DTC detected?

YES >> Refer to LT-65, "Description of DTC and Solutions after Detection" .

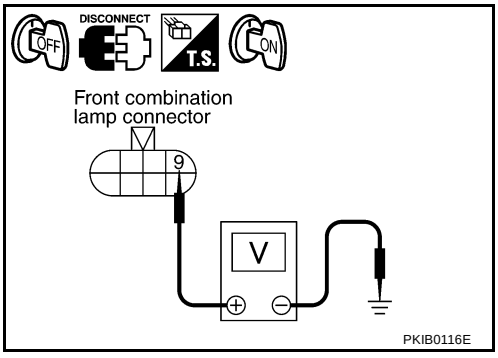
NO >> GO TO 2.



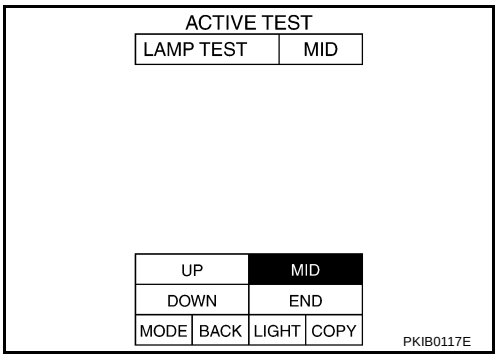
2. CHECK HEADLAMP AIMING MOTOR DRIVE SIGNAL

WITH CONSULT II

1. Disconnect front combination lamp connector (LH and RH).
2. Turn ignition switch ON.
3. Select “HEAD LAMP LEVELIZER” on CONSULT-II, and select “ACTIVE TEST” on “SELECT DIAG MODE” screen.
4. Touch “LAMP TEST”.



5. Check voltage between front combination lamp harness connector terminal 9 and ground for each of UP, MID, and DOWN active test positions.



Terminal			Condition	Voltage
(+)		(–)		
Connector	Terminal			
E46, E66	9	Ground	UP	Approx. 2.5 V
			MID	Approx. 6 V
			DOWN	Approx. 7.8 V

OK or NG

OK >> GO TO 3.

NG >>
- If voltage is detected but does not vary according to positions, replace and initialize headlamp aiming sensor. Refer to LT-64, "WORK SUPPORT" .
- If voltage is 0 V and stays unchanged, GO TO 7.

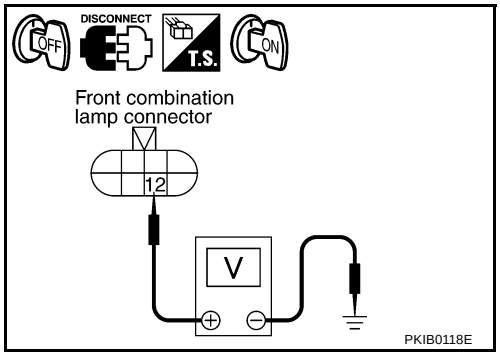
3. CHECK VOLTAGE HEADLAMP AIMING MOTOR

Check voltage between front combination lamp harness connector (E46 and E66) terminal 12 and ground.

12 - Ground : Battery voltage

OK or NG

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



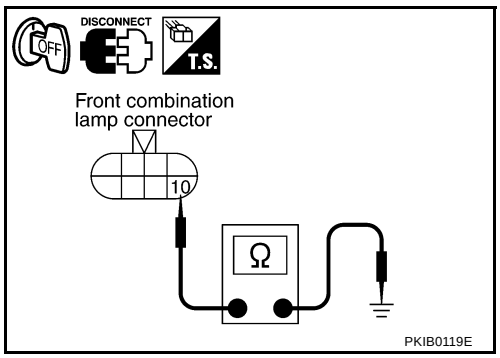
4. CHECK HEADLAMP AIMING MOTOR GROUND

Check continuity between front combination lamp connector (E46 and E66) terminal 10 and ground.

10 - Ground : Continuity should exist.

OK or NG

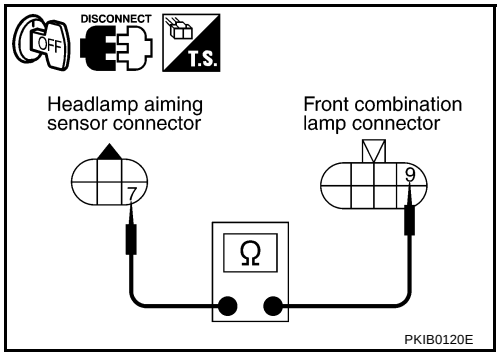
OK >> Replace front combination lamp assembly. Refer to LT-33, "Removal and Installation" .
NG >> Repair harness or connector.



5. CHECK CONTINUITY BETWEEN HEADLAMP AIMING SENSOR AND FRONT COMBINATION LAMP

1. Turn ignition switch OFF.
2. Disconnect headlamp aiming sensor connector.
3. Check continuity between headlamp aiming sensor harness connector and front combination lamp harness connector.

Terminal					Continuity
Front combination lamp connector		Terminal	Headlamp aiming sensor connector	Terminal	
RH	E46	9	B622	7	Yes
LH	E66				



OK or NG

OK >> Replace headlamp aiming sensor and initialize it. Refer to LT-76, "Removal and Installation" and LT-64, "WORK SUPPORT" .
NG >> Repair harness or connector.

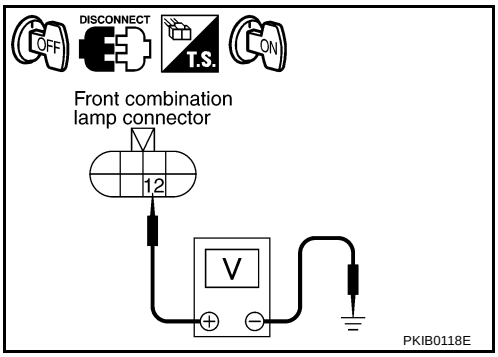
Headlamp Aiming Motor Does Not Operate (One Side)

NKS0018E

1. CHECK VOLTAGE HEADLAMP AIMING MOTOR

1. Turn ignition switch OFF.
2. Disconnect front combination lamp connector (LH and RH).
3. Turn ignition switch ON.
4. Check voltage between front combination lamp harness connector (E46 or E66) terminal 12 and ground.

12 - Ground : Battery voltage



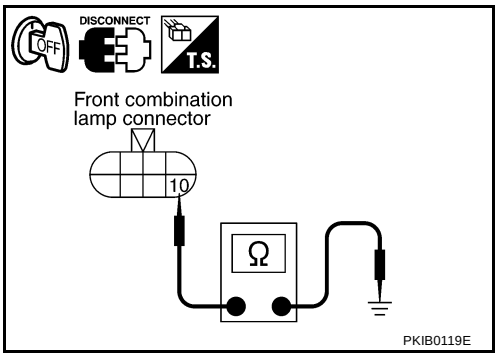
OK or NG

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

2. CHECK HEADLAMP AIMING MOTOR GROUND

1. Turn ignition switch OFF.
2. Check continuity between front combination lamp harness connector (E46 or E66) terminal 10 and ground.

10 - Ground : Continuity should exist.



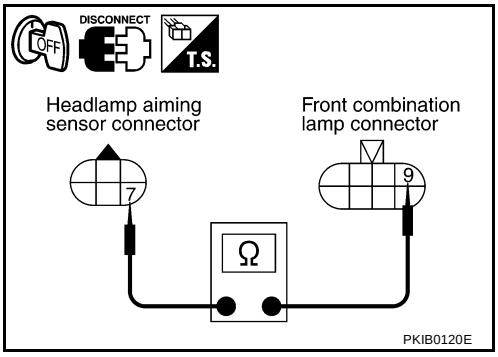
OK or NG

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

3. CHECK CONTINUITY BETWEEN HEADLAMP AIMING SENSOR AND FRONT COMBINATION LAMP

1. Disconnect headlamp aiming sensor connector.
2. Check continuity between headlamp aiming sensor harness connector and front combination lamp harness connector.

Terminal					Continuity
Front combination lamp connector		Terminal	Headlamp aiming sensor connector	Terminal	
RH	E46	9	B622	7	Yes
LH	E66				



OK or NG

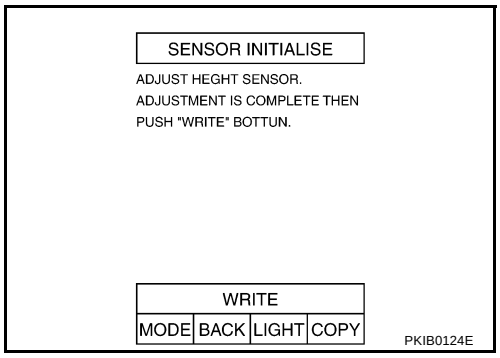
OK >> Replace front combination lamp assembly. Refer to LT-33, "Removal and Installation" .
NG >> Repair harness or connector.

DTC B2081 [INITIAL NOT DONE]

NKS0018F

1. INITIALIZE HEADLAMP AIMING SENSOR

1. Turn ignition switch OFF.
2. Set the vehicle in unload condition. (Removal all loads in passenger and trunk rooms.)
3. Select “HEAD LAMP LEVELIZER” on CONSULT-II, and select “WORK SUPPORT” on “SELECT DIAG MODE” screen.
4. Select “SENSOR INITIALISE” on “SELECT WORK ITEM” screen.
5. Touch “WRITE”.
6. When “INITIALISE COMPLETE” is indicated, touch “END”.
7. Check if headlamp aiming motor operates.



OK or NG

OK >> INSPECTION END

NG >>
- When “INCORRECT CONDITION” is displayed, check connect CONSULT-II and headlamp aiming sensor connector, and then initialize again. Refer to LT-64, "WORK SUPPORT" .
- When “NO CAR TYPE SELECT” is displayed, replace headlamp aiming sensor and initialize it. Refer to LT-76, "Removal and Installation" and LT-64, "WORK SUPPORT" .
- When “INITIALISE NOT DONE“ is displayed, initialize again. If “ INITIALISE NOT DONE” is displayed again, replace headlamp aiming sensor and initialize it. Refer to LT-76, "Removal and Installation" and LT-64, "WORK SUPPORT" .

DTC B2082 [SENSOR OUT OF RANGE], DTC B2083 [SEN SIG NOT PLAUSIBLE]

NKS0018G

1. CHECK THE HEADLAMP AIMING SENSOR

Check the installation condition of the headlamp aiming sensor.

OK or NG

OK >> Replace headlamp aiming sensor and initialize it. Refer to LT-76, "Removal and Installation" and LT-64, "WORK SUPPORT" .

NG >> Adjust the headlamp aiming sensor, and erase self-diagnosis result.

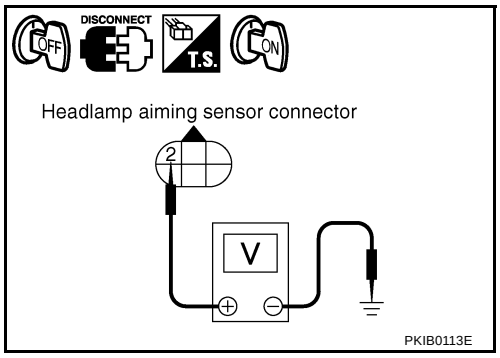
DTC B2084 [VOLTAGE UNDER LIMIT]

NKS0018H

1. CHECK HEADLAMP AIMING SENSOR VOLTAGE

1. Turn ignition switch OFF.
2. Disconnect headlamp aiming sensor connector.
3. Turn ignition switch ON.
4. Check voltage between headlamp aiming sensor harness connector B622 terminal 2 and ground.

2 - Ground : Battery voltage



OK or NG

OK >> If the self-diagnosis result code [B2084] reappears when performing the self-diagnosis again after erasing the self-diagnosis result, replace and initialize the headlamp aiming sensor. Refer to LT-76, "Removal and Installation" and LT-64, "WORK SUPPORT" .

NG >> Repair harness or connector.

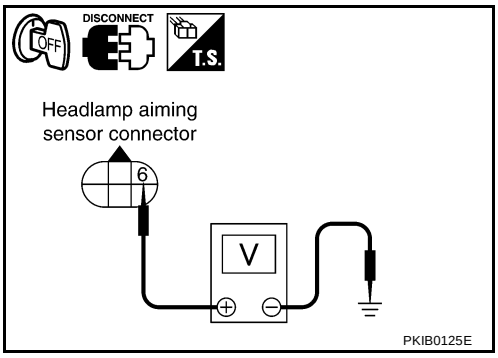
DTC B2085 [LOW BEAM SIG OPEN LINE]

NKS0018I

1. CHECK TAIL LAMP RELAY SIGNAL

1. Turn ignition switch OFF.
2. Disconnect headlamp aiming sensor connector.
3. Turn ignition switch ON.
4. Turn lighting switch 1st position.
5. Check voltage between headlamp aiming sensor harness connector B622 terminal 6 and ground.

6 - Ground : Battery voltage



OK or NG

OK >> If the self-diagnosis result code [B2085] reappears when performing the self-diagnosis again after erasing the self-diagnosis result, replace and initialize the headlamp aiming sensor. Refer to LT-76, "Removal and Installation" and LT-64, "WORK SUPPORT" .

NG >> Repair harness or connector.

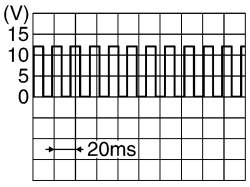
DTC B2086 [FRQ. OVER LIMIT]

NKS0018J

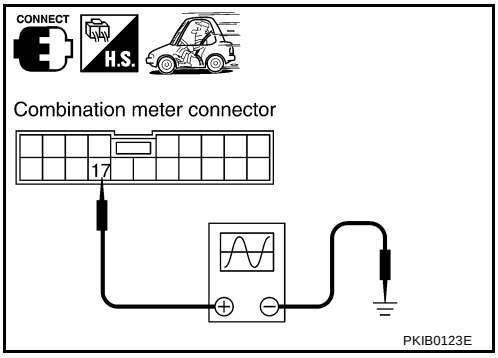
1. CHECK VEHICLE SPEED

1. Start engine and place vehicle in a driving condition.
2. Check the waveform of voltage between combination meter harness connector terminal 17 and body ground when the vehicle is in driving condition at a speed of about 40 km/h (25 MPH).

17 - Ground :



PKIA1935E



OK or NG

OK >> If the self-diagnosis result code [B2086] reappears when performing the test drive after erasing the self-diagnosis result, replace and initialize the headlamp aiming sensor. Refer to LT-76, "Removal and Installation" and LT-64, "WORK SUPPORT" .

NG >> Refer to DI-18, "Vehicle Speed Signal Inspection" .

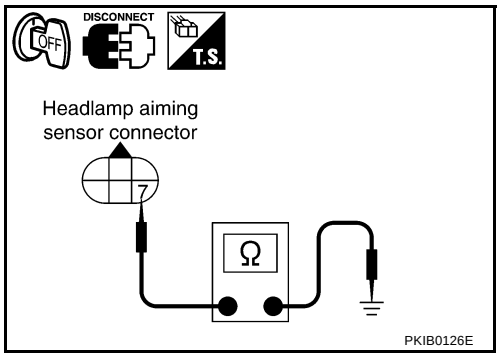
DTC B2087 [SHORT TO GROUND]

NKS0018K

1. CHECK SHORT CIRCUIT (1)

1. Turn ignition switch OFF.
2. Disconnect headlamp aiming sensor connector and front combination lamp connector LH and RH.
3. Check continuity between headlamp aiming sensor harness connector B622 terminal 7 and ground.

7 - Ground : Continuity should not exist.



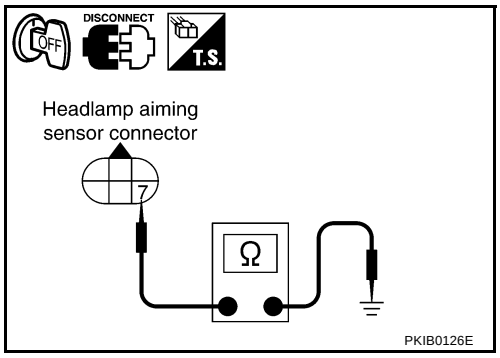
OK or NG

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

2. CHECK SHORT CIRCUIT (2)

1. Connect front combination lamp connector RH only.
2. Check continuity between headlamp aiming sensor harness connector B622 terminal 7 and ground.

7 - Ground : Continuity should not exist.



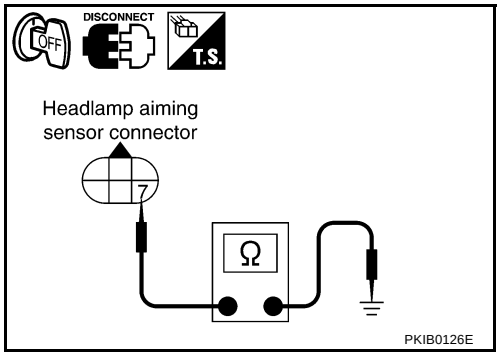
OK or NG

OK >> GO TO 3.
NG >> Replace front combination lamp assembly RH. Refer to LT-33, "Removal and Installation" .

3. CHECK SHORT CIRCUIT (3)

1. Disconnect front combination lamp connector RH.
2. Connect front combination lamp connector LH.
3. Check continuity between headlamp aiming sensor harness connector B622 terminal 7 and ground.

7 - Ground : Continuity should not exist.



OK or NG

OK >> If the self-diagnosis result code [B2087] reappears when performing the self-diagnosis again after erasing the self-diagnosis result, replace and initialize the headlamp aiming sensor. Refer to LT-76, "Removal and Installation" and LT-64, "WORK SUPPORT" .
NG >> Replace front combination lamp assembly LH. Refer to LT-33, "Removal and Installation" .

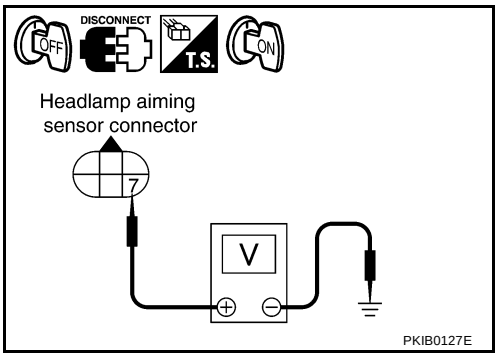
DTC B2088 [SHORT TO BATTERY]

NKS0018L

1. CHECK SHORT CIRCUIT (1)

1. Turn ignition switch OFF.
2. Disconnect headlamp aiming sensor connector and front combination lamp connector LH and RH.
3. Turn ignition switch ON.
4. Check voltage between headlamp aiming sensor harness connector B622 terminal 7 and ground.

7 - Ground : Approx. 0 V



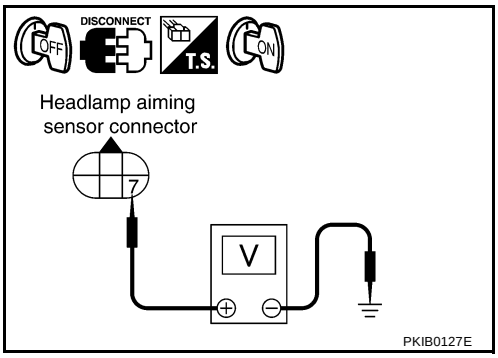
OK or NG

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

2. CHECK SHORT CIRCUIT (2)

1. Turn ignition switch OFF.
2. Connect front combination lamp connector RH only.
3. Turn ignition switch ON.
4. Check voltage between headlamp aiming sensor harness connector B622 terminal 7 and ground.

7 - Ground : Approx. 0 V



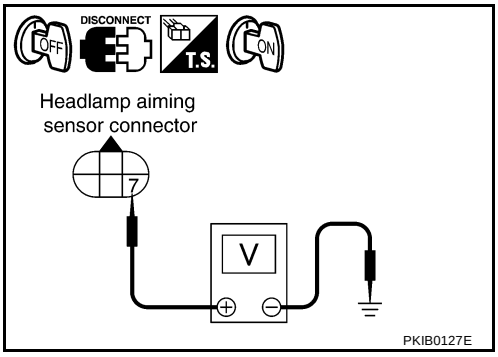
OK or NG

OK >> GO TO 3.
NG >> Replace front combination lamp assembly RH. Refer to LT-33, "Removal and Installation" .

3. CHECK SHORT CIRCUIT (3)

1. Turn ignition switch OFF.
2. Disconnect front combination lamp connector RH.
3. Connect front combination lamp connector LH.
4. Turn ignition switch ON.
5. Check continuity between headlamp aiming sensor harness connector terminal 7 and ground.

7 - Ground : Approx. 0 V



OK or NG

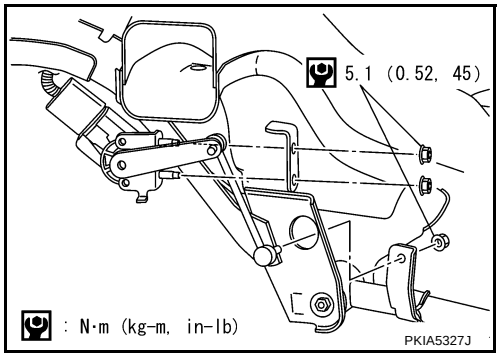
OK >> If the self-diagnosis result code [B2088] reappears when performing the self-diagnosis again after erasing the self-diagnosis result, replace and initialize the headlamp aiming sensor. Refer to LT-76, "Removal and Installation" and LT-64, "WORK SUPPORT" .
NG >> Replace front combination lamp assembly LH. Refer to LT-33, "Removal and Installation" .

Removal and Installation

NKS0018M

REMOVAL

1. Turn ignition switch OFF.
2. Lift up the vehicle.
3. Disconnect headlamp aiming sensor connector.
4. Remove nut of linkage rod on headlamp aiming sensor.
5. Remove nuts headlamp aiming sensor.
6. Remove headlamp aiming sensor from the bracket.



INSTALLATION

Installation is the reverse order of removal.

NOTE:

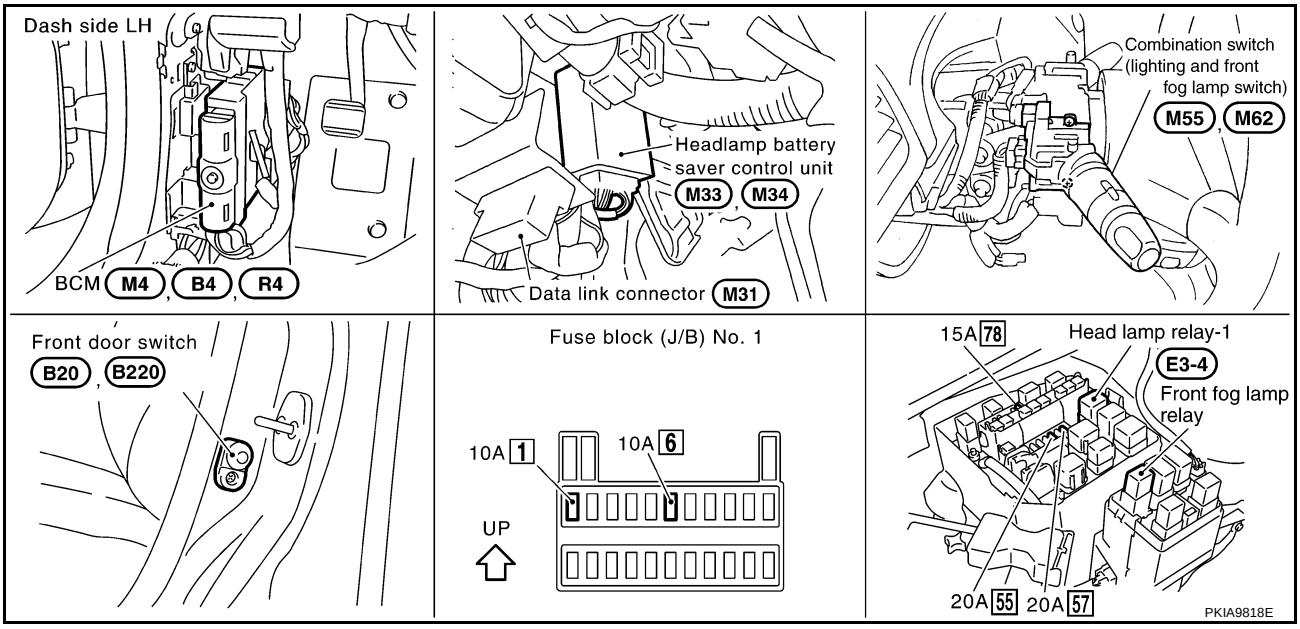
Initialize whenever replacing the headlamp aiming sensor. Refer to LT-64, "WORK SUPPORT" .

FRONT FOG LAMP

PFP:26150

Component Parts and Harness Connector Location

NKS0018N



System Description

NKS0018O

OUTLINE

Power is supplied at all times

- headlamp relay-1 terminal 2 from battery,
- to headlamp relay-1 terminal 3
- through 20A fuse [No. 57, located in fuse, fusible link and relay block (J/B)],
- to headlamp relay-1 terminal 7
- through 20A fuse [No. 55, located in fuse, fusible link and relay block (J/B)],
- to headlamp battery saver control unit terminal 7
- through 10A fuse [No. 6, located in fuse block (J/B) No. 1],
- to front fog lamp relay terminal 5
- through 15A fuse [No. 78, located in fuse, fusible link and relay box].

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

- to headlamp battery saver control unit terminal 1
- through 10A fuse [No. 1, located in fuse block (J/B) No. 1].

Ground is supplied

- to headlamp battery saver control unit terminals 4 and 11
- through grounds M25 and M115.

When lighting switch is in 2ND position, ground is supplied

- to headlamp relay-1 terminal 1 from headlamp battery saver control unit terminals 2 and 8
- through headlamp battery saver control unit terminals 3 and 9
- through lighting switch terminals 8 and 12
- through grounds M25 and M115.

Front Fog Lamp Operation

The front fog lamp switch is built in the combination switch. The lighting switch must be in the 2ND position and LOW position, and the front fog lamp switch must be ON for front fog lamp operation.
With the front fog lamp switch in the ON position, ground is supplied

- to front fog lamp relay terminal 1
- through front fog lamp switch terminal 31
- to front fog lamp switch terminal 32

- through lighting switch terminal 10
- to lighting switch terminal 8
- through grounds M25 and M115.

The front fog lamp relay is energized and power is supplied

- from front fog lamp relay terminal 3
- to front fog lamp LH and RH terminals 1.

Ground is supplied

- to front fog lamp LH and RH terminals 2
- through grounds E24, E42 and E62.

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

BATTERY SAVER CONTROL

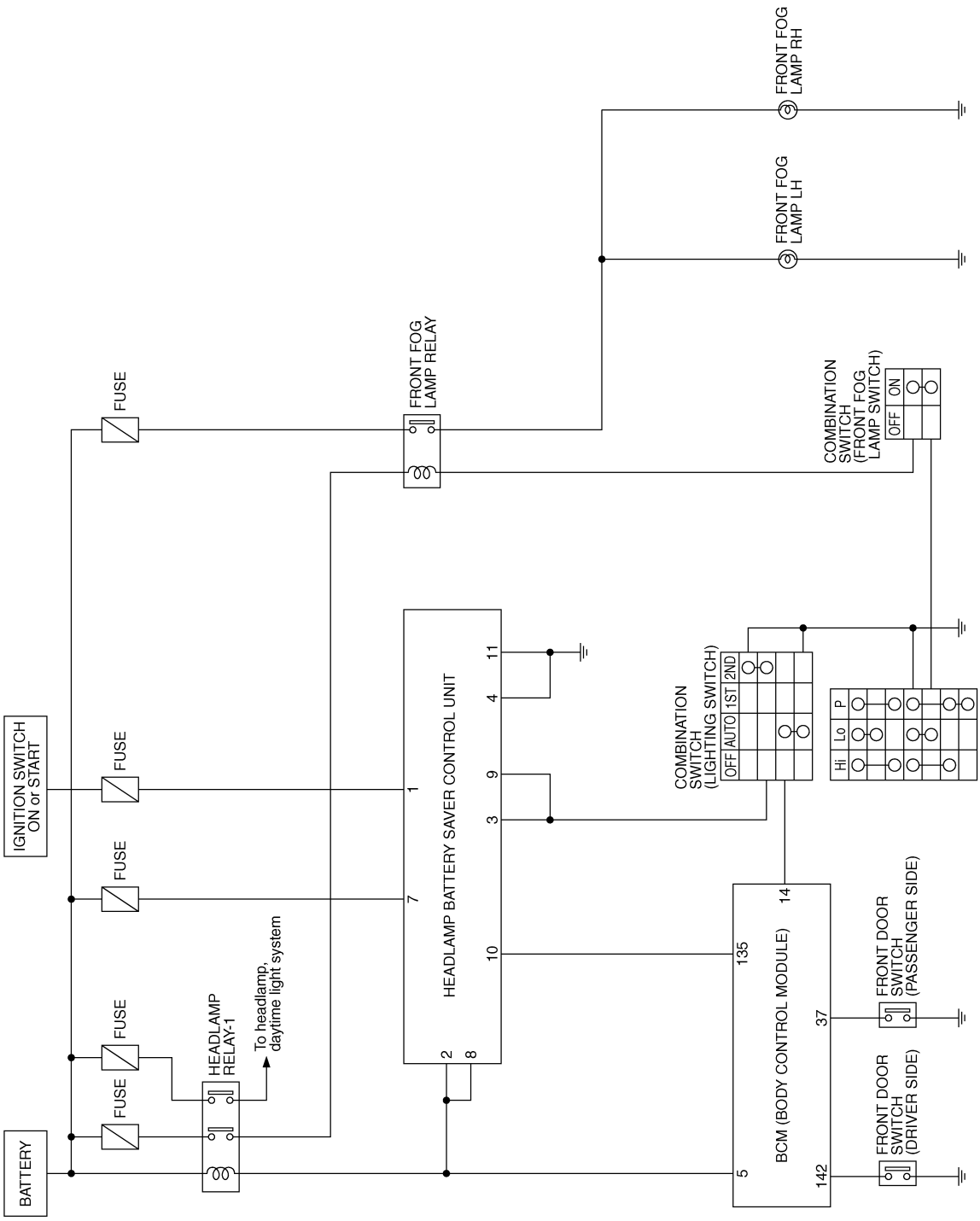
When the ignition switch is turned from ON (or START) to OFF (or ACC) positions while front fog lamps are illuminated, the RAP signal is supplied to terminal 10 of the headlamp battery saver control unit from BCM terminal 135.
After counting 45 seconds by the RAP signal from the BCM to headlamp battery saver control unit, the ground supply to headlamp relay-1 terminal 1 from headlamp battery saver control unit terminals 2 and 8 is terminated.
Then the front fog lamps are turned off.
The front fog lamps are turned off when driver or passenger door is opened even if 45 seconds have not passed after ignition switch is turned from ON (or START) to OFF (or ACC) positions while front fog lamp are illuminated.
When the lighting switch is turned from OFF to 2ND after front fog lamps are turned to off by the battery saver control, ground is supplied

- to headlamp relay-1 terminal 1 from headlamp battery saver control unit terminals 2 and 8
- through headlamp battery saver control unit terminals 3 and 9 from lighting switch terminal 12.

Then front fog lamps illuminate again.

Schematic

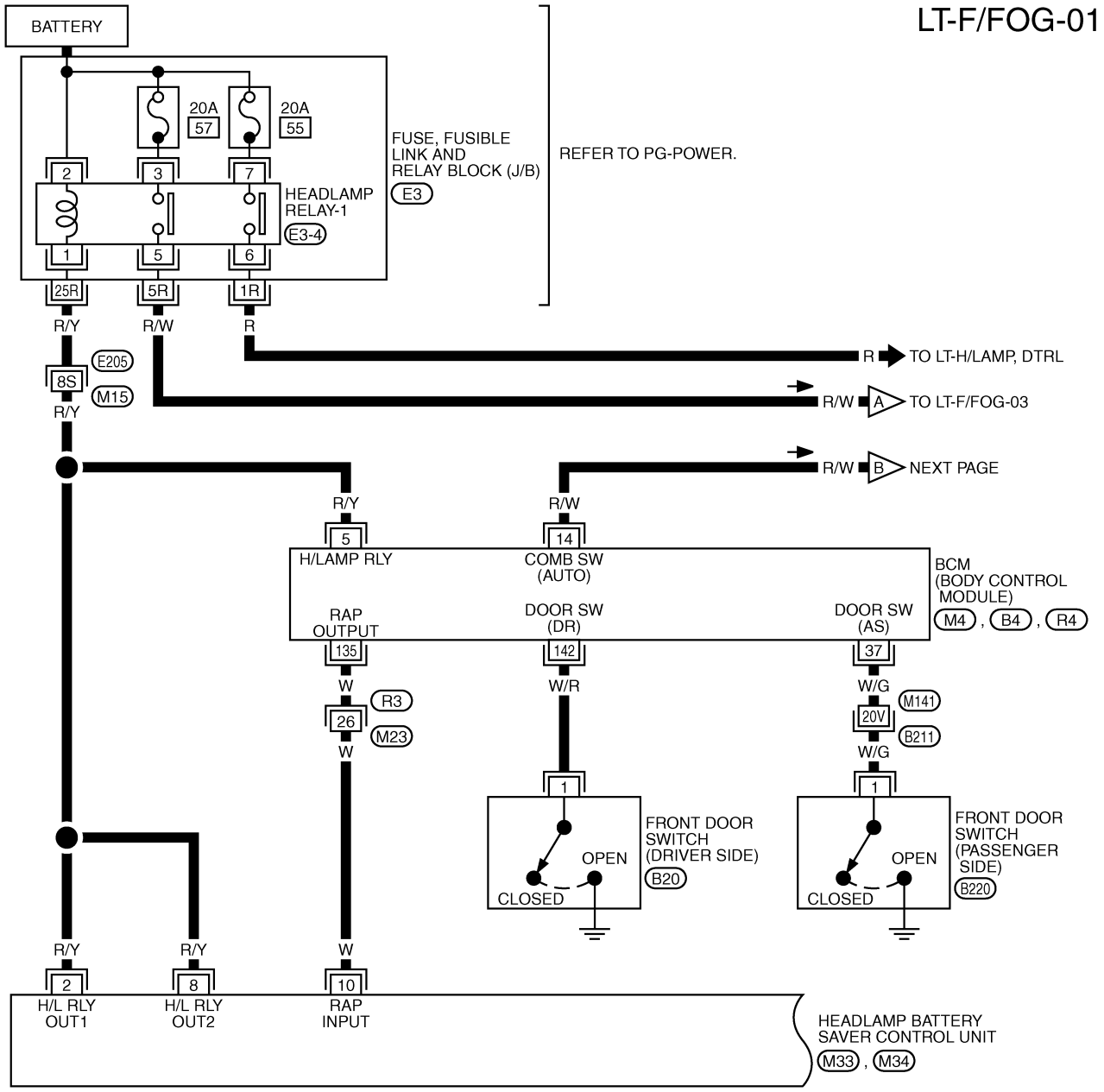
NKS0018P

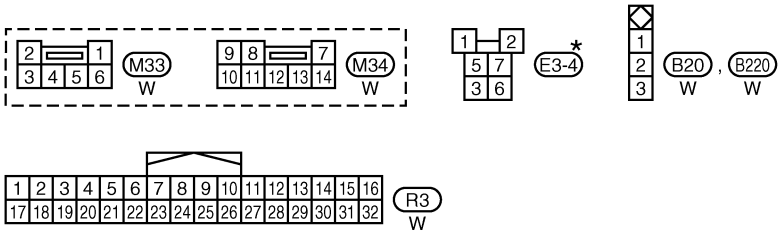


TKWM1528E

Wiring Diagram — F/FOG —

NKS0018Q





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

REFER TO THE FOLLOWING.

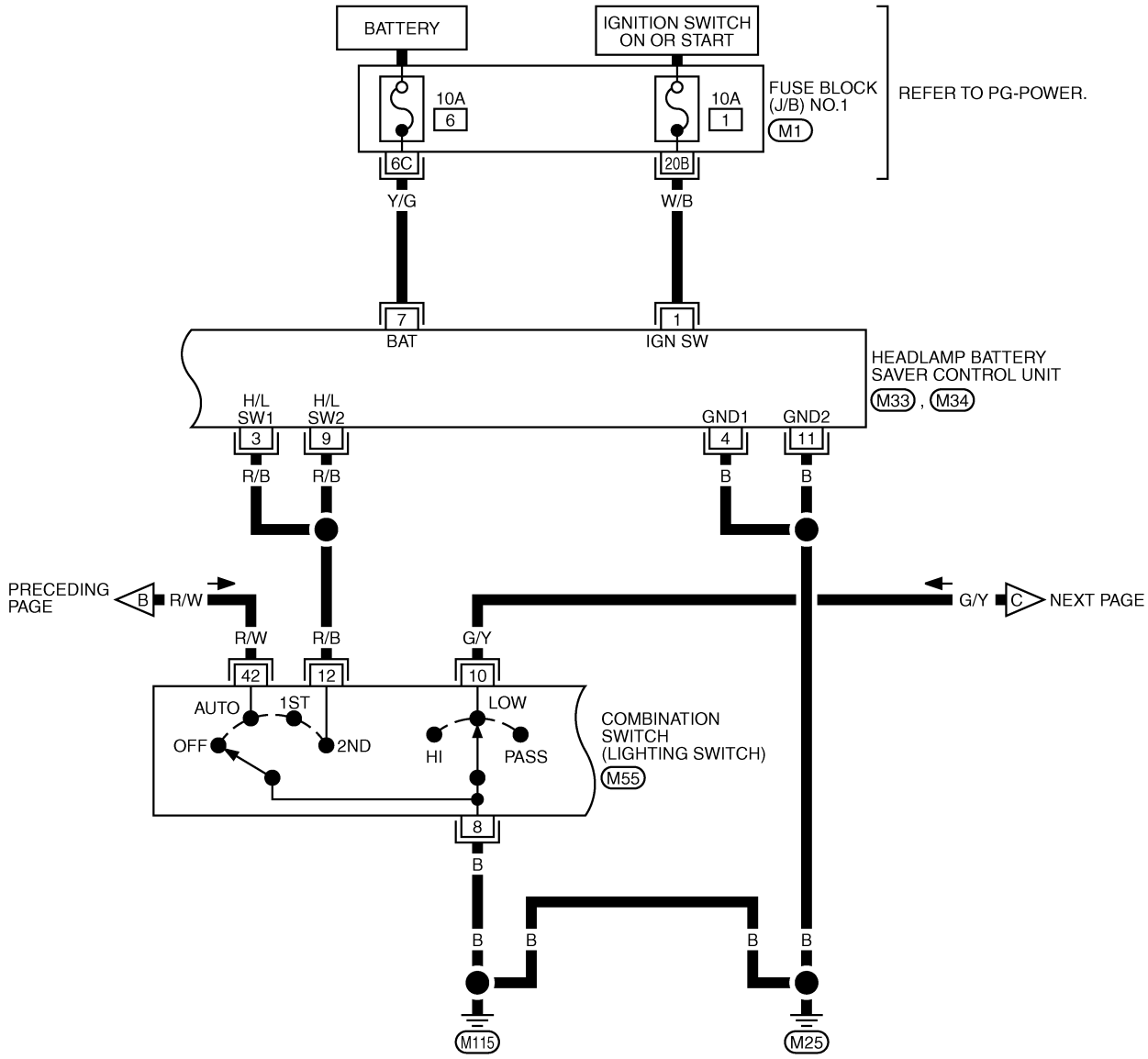
E205, B211 -SUPER MULTIPLE JUNCTION (SMJ)

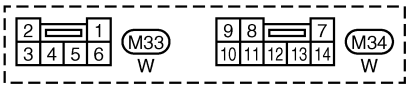
E3 -FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)

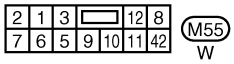
M4, B4, R4 -ELECTRICAL UNITS

TKWM3720E

LT-F/FOG-02



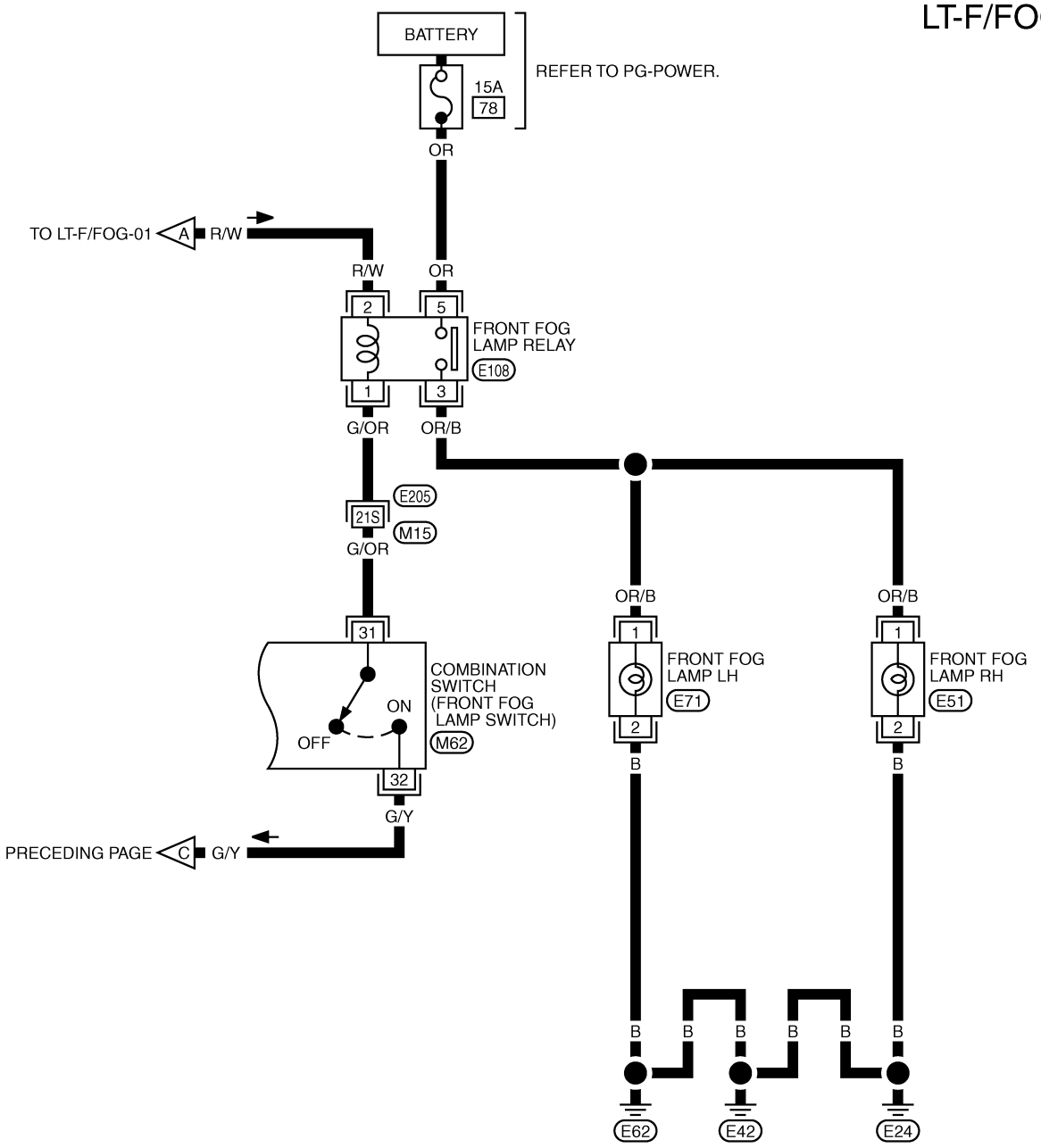


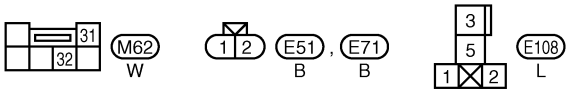


REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

TKWM3721E

LT-F/FOG-03





REFER TO THE FOLLOWING.
E205 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3722E

Terminals and Reference Values for Headlamp Battery Saver Control Unit

NKS0018R

Terminal No.	Wire color	Item	Operation or condition			Reference value
1	W/B	Ignition switch	Ignition switch	OFF or ACC		Approx. 0 V
				ON or START		Battery voltage
2	R/Y	Headlamp relay OUT 1	Ignition switch (with lighting switch except OFF or 1ST)	OFF or ACC	More than 45 seconds after ignition switch is turned OFF or ACC	Battery voltage
					Within 45 seconds after ignition switch is turned OFF or ACC	Approx. 0 V
				ON or START		Approx. 0 V
			Headlamps illuminate by auto light control.			Approx. 0 V
3	R/B	Headlamp switch 1	Lighting switch	1ST		Approx. 2.4 V
				PASS or 2ND		Approx. 0 V
			Headlamps illuminate by auto light control.			Approx. 0 V
4	B	Ground	—			Approx. 0 V
7	Y/G	Battery power supply	—			Battery voltage
8	R/Y	Headlamp relay OUT 2	Ignition switch (with lighting switch except OFF or 1ST)	OFF or ACC	More than 45 seconds after ignition switch is turned OFF or ACC	Battery voltage
					With 45 seconds after ignition switch is turned OFF or ACC	Approx. 0 V
				ON or START		Approx. 0 V
			Headlamps illuminate by auto light control.			Approx. 0 V
9	R/B	Headlamp switch 2	Lighting switch	1ST		Approx. 2.4 V
				PASS or 2ND		Approx. 0 V
			Headlamps illuminate by auto light control.			Approx. 0 V
10	W	RAP input signal	Ignition switch	OFF or ACC (After more than 45 seconds with ignition switch turned OFF or ACC)		Battery voltage
				ON or START		Approx. 0 V
11	B	Ground	—			Approx. 0 V

Terminals and Reference Values for BCM

NKS0018S

Terminal No.	Wire color	Item	Measuring condition			Reference value
			Ignition switch	Operation or condition		
5	R/Y	Headlamp relay signal	ON	Lighting switch: AUTO	Light is applied to optical sensor.	Battery voltage
					Light is not applied to optical sensor.	Approx. 0 V
14	R/W	Lighting switch AUTO signal	ON	Lighting switch	AUTO	Approx. 0 V
					OFF	Approx. 8 V
37	W/G	Front door switch (Passenger side) signal	OFF	Front door switch (Passenger side)	ON (open)	Approx. 0 V
					OFF (close)	Battery voltage
135	W	RAP output signal	OFF	When headlamp battery saver timer is operated		Approx. 0 V
142	W/R	Front door switch (Driver side) signal	OFF	Front door switch (Driver side) signal	ON (open)	Approx. 0 V
					OFF (close)	Battery voltage

Work Flow

NKS0018T

1. Confirm the symptom or customer complaint.
2. Understand system description. Refer to LT-77, "System Description" .
3. Perform the preliminary check. Refer to LT-84, "Preliminary Check" .
4. Check symptom and repair or replace the cause of malfunction.
5. Does front fog lamp operate normally? If YES, GO TO 6. If NO, GO TO 4.
6. INSPECTION END

Preliminary Check

NKS0018U

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSE

Check for blown fuses.

Unit	Power source	Fuse No.
Headlamp battery saver control unit	Ignition switch ACC or ON	1
	Battery	6
Front fog lamp relay	Battery	78

Refer to LT-80, "Wiring Diagram — F/FOG —" .

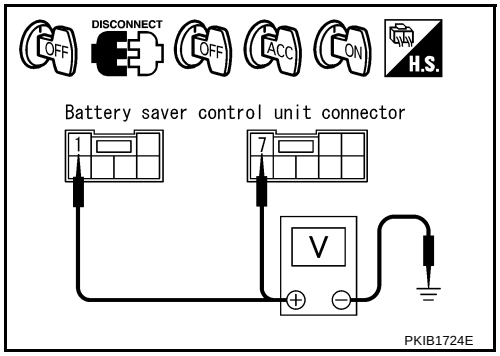
OK or NG

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

2. CHECK POWER SUPPLY CIRCUIT

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

Terminal			Ignition switch position		
(+)		(–)	OFF	ACC	ON
Connector	Terminal				
M33	1	Ground	Approx. 0V	Approx. 0V	Battery voltage
M34	7		Battery voltage	Battery voltage	Battery voltage



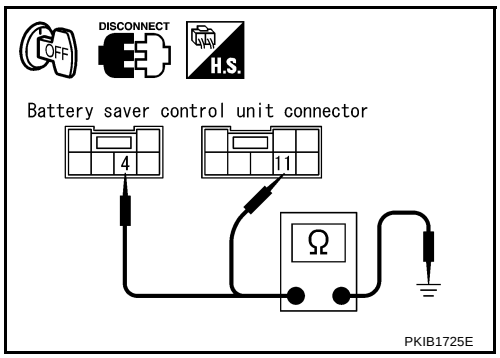
OK or NG

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

3. CHECK GROUND CIRCUIT

Check continuity between battery saver control unit harness connector and ground.

Terminal			Continuity
Connector	Terminal		
M33	4	Ground	Yes
M34	11		



OK or NG

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

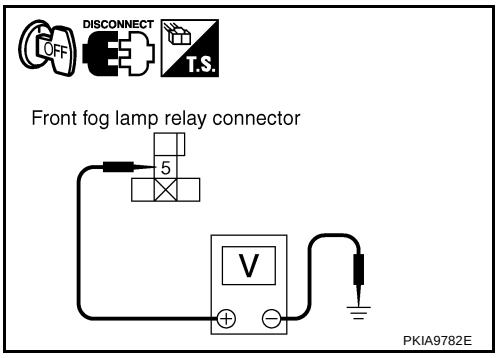
Front Fog Lamps Do Not Illuminate (Both Sides)

NKS0018V

1. CHECK FRONT FOG LAMP RELAY POWER SUPPLY CIRCUIT (1)

1. Turn ignition switch OFF.
2. Remove front fog lamp relay.
3. Check voltage between front fog lamp relay harness connector E108 terminal 5 and ground.

5 - Ground : Battery voltage



OK or NG

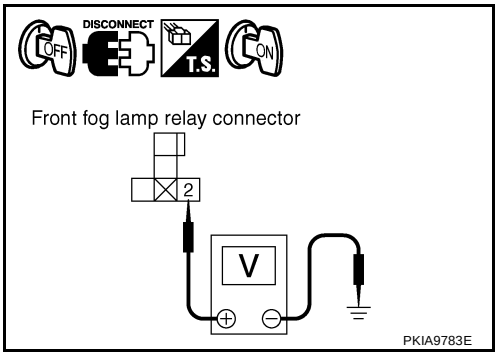
OK >> GO TO 2.
NG >> Check the following.

- 15A fuse [No. 78, located in fuse, fusible link and relay box]
- Harness for open or short between front fog lamp relay and fuse

2. CHECK FRONT FOG LAMP RELAY POWER SUPPLY CIRCUIT (2)

1. Turn ignition switch ON.
2. Lighting switch is turned 2ND position and LOW position.
3. Check voltage between front fog lamp relay harness connector E108 terminal 2 and ground.

2 - Ground : Battery voltage



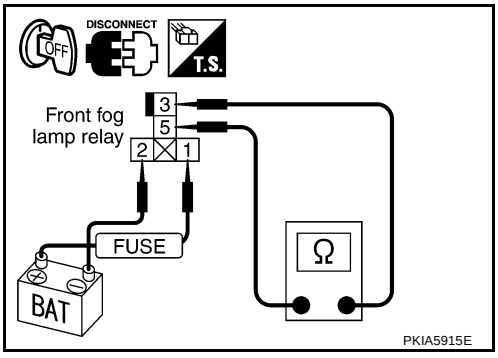
OK or NG

OK >> GO TO 3.
NG >> GO TO 7.

3. CHECK FRONT FOG LAMP RELAY

Apply 12V between front fog lamp relay terminals 1 and 2, and check continuity between terminals 3 and 5.

3 - 5 : Continuity should exist.

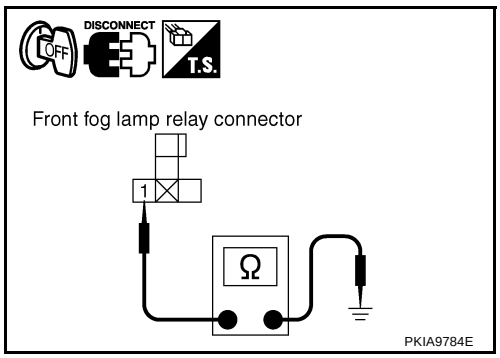


OK or NG

OK >> GO TO 4.
NG >> Replace front fog lamp relay.

4. CHECK FRONT FOG LAMP SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Lighting switch is turned 2ND position and LOW position.
3. Check continuity between front fog lamp relay harness connector E108 terminal 1 and ground.



Terminal			Front fog lamp switch condition	Continuity
Connector	Terminal	Ground		
E108	1		ON	Yes
			OFF	No

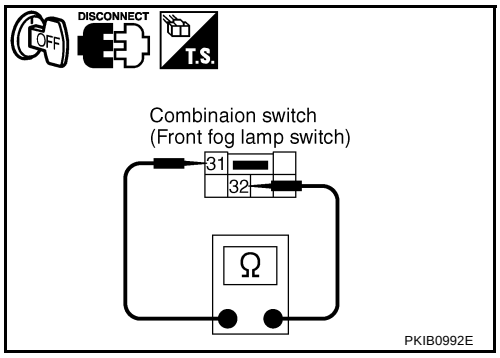
OK or NG

OK >> Check the following.
- Harness for open or short between front fog lamp relay and front fog lamps.
- Harness continuity between front fog lamp LH and RH harness connector E71 and E51 terminal 2 and ground.

NG >> GO TO 5.

5. CHECK FRONT FOG LAMP SWITCH

1. Disconnect combination switch (front fog lamp switch) connector.
2. Check continuity between combination switch terminals 31 and 32 while operating front fog lamp switch.



Terminal		Front fog lamp switch condition	Continuity
31	32	ON	Yes
		OFF	No

OK or NG

OK >> GO TO 6.
NG >> Replace combination switch (front fog lamp switch).

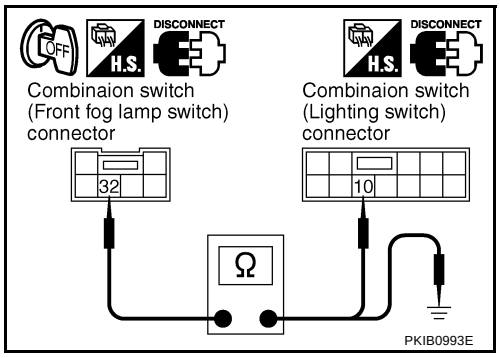
6. CHECK LIGHTING SWITCH CIRCUIT

1. Disconnect combination switch (lighting switch).
2. Check continuity between combination switch harness connector M62 terminal 32 and combination harness connector M55 terminal 10.

32 - 10 : Continuity should exist.

3. Check continuity between combination switch harness connector M62 terminal 32 and ground.

32 - Ground : Continuity should not exist.



OK or NG

OK >> Check combination switch (lighting switch and front fog lamp switch). Refer to LT-100, "Switch Circuit Inspection" .
NG >> Replace harness or connector.

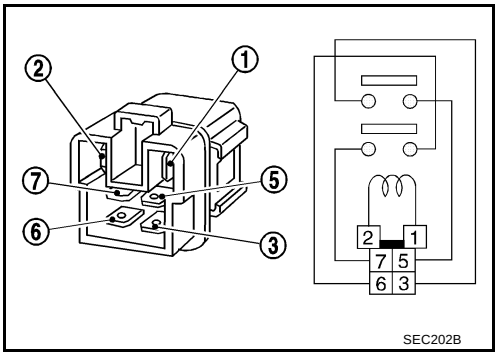
7. CHECK HEADLAMP RELAY-1

1. Remove headlamp relay-1.
2. Apply 12V between headlamp relay-1 terminals 2 and 1, and check continuity between terminals 3 and 5.

3 - 5 : Continuity should exist.

OK or NG

OK >> Check harness for open or short between front fog lamp relay and headlamp relay-1.
NG >> Replace headlamp relay-1.



SEC202B

Front Fog Lamp Does Not Illuminate (One Side)

NKS0018W

1. BULB INSPECTION

1. Replace bulb with other side bulb or new one.
2. Check if front fog lamp illuminates correctly.

OK or NG

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

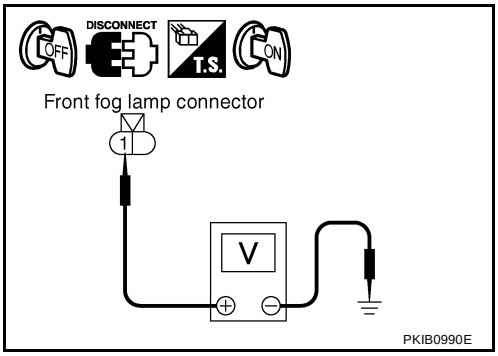
2. CHECK FRONT FOG LAMP POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front fog lamp connector.
3. Turn ignition switch ON.
4. Lighting switch is turned 2ND position and LOW position. Also turn front fog lamp switch ON position.
5. Check voltage between front fog lamp LH and RH harness connector E71 and E51 terminal 1 and ground.

1 - Ground : Battery voltage

OK or NG

OK >> GO TO 3.
NG >> Check harness for open or short between front fog lamp relay and front fog lamp.



PKIB0990E

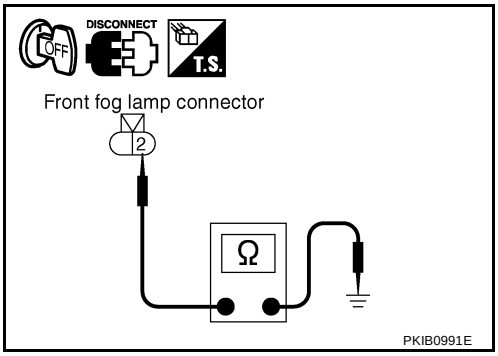
3. CHECK FRONT FOG LAMP GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between front fog lamp LH and RH harness connector E71 and E51 terminal 2 and ground.

2 - Ground : Continuity should exist.

OK or NG

OK >> Check connecting condition front fog lamp harness connector.
NG >> Repair harness and connector.



PKIB0991E

Aiming Adjustment

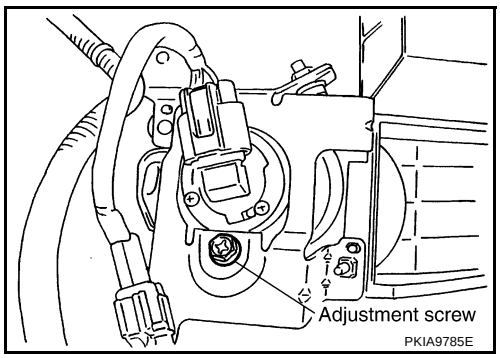
NKS0018X

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

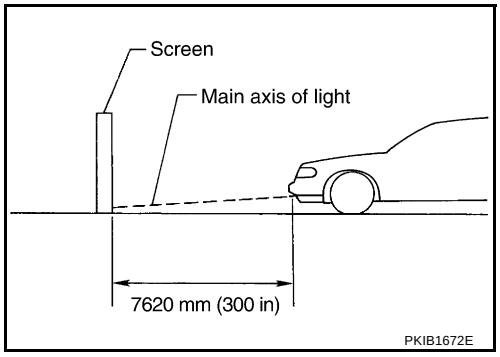
- Keep all tires inflated to correct pressure.
- Place vehicle on level ground.

- See that vehicle is unloaded (except for full levels of coolant, engine oil and fuel, and spare tire, jack, and tools). Have the driver or equivalent weight placed in driver seat.

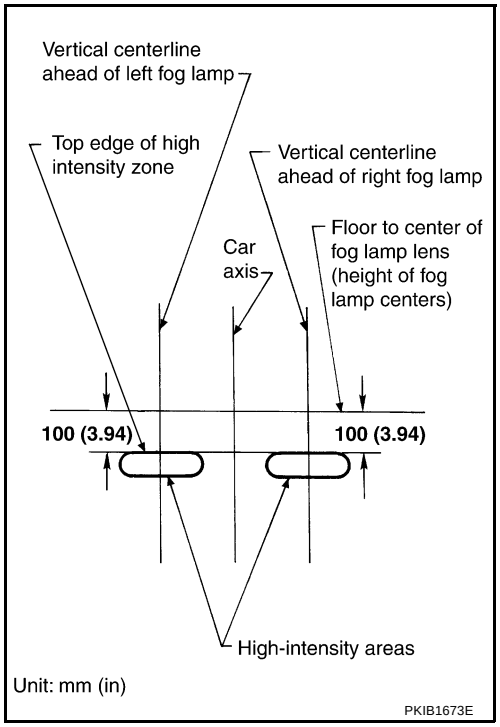
Adjust aiming in the vertical direction by turning the adjusting screw.



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



3. Adjust front fog lamps using adjusting screw so that the top edge of the high intensity zone is 100 mm (3.94 in) below the height of the fog lamp centers as shown.
   - When performing adjustment, if necessary, cover headlamps and opposite fog lamp.

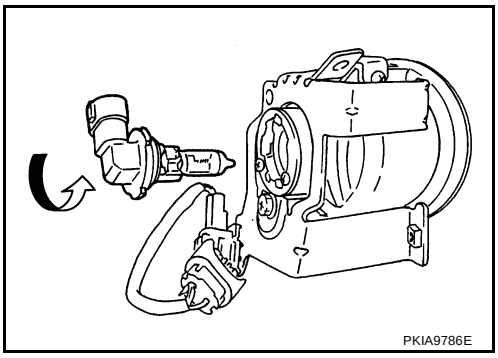


Bulb Replacement

NKS0018Y

1. Remove fender protector. Refer to EI-24, "FENDER PROTECTOR" .
2. Disconnect front fog lamp connector.
3. Turn bulb socket counterclockwise and unlock it.

Front fog lamp : 12V - 51W (HB4 halogen)



CAUTION:

- **Never touch the glass of bulb directly by hand. Keep grease and other oily matters away from it. Never touch bulb by hand while it is lit or right after being turned off. Burning may result.**
- **Never leave bulb out of front fog lamp reflector for a long time because dust, moisture smoke, etc. May affect the performance of front fog lamp. When replacing bulb, be sure to replace it with new one.**

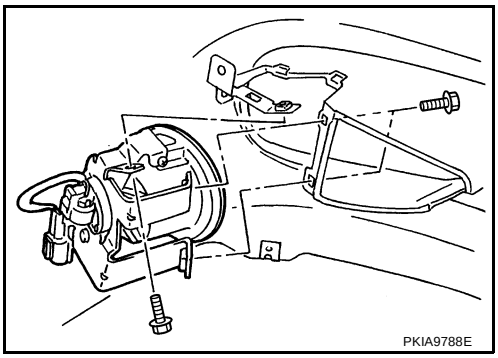
Removal and Installation

NKS0018Z

REMOVAL

1. Remove fender protector. Refer to EI-24, "FENDER PROTECTOR" .
2. Remove bumper grille. Refer to EI-14, "FRONT BUMPER" .
3. Disconnect front fog lamp connector.
4. Remove front fog lamp mounting bolt from front fog lamp bracket.
5. Pull the lamp unit toward the rear of the vehicle and remove it.

Front fog lamp mounting bolt : 5.5 N·m (0.56 kg-m, 49 in-lb)



INSTALLATION

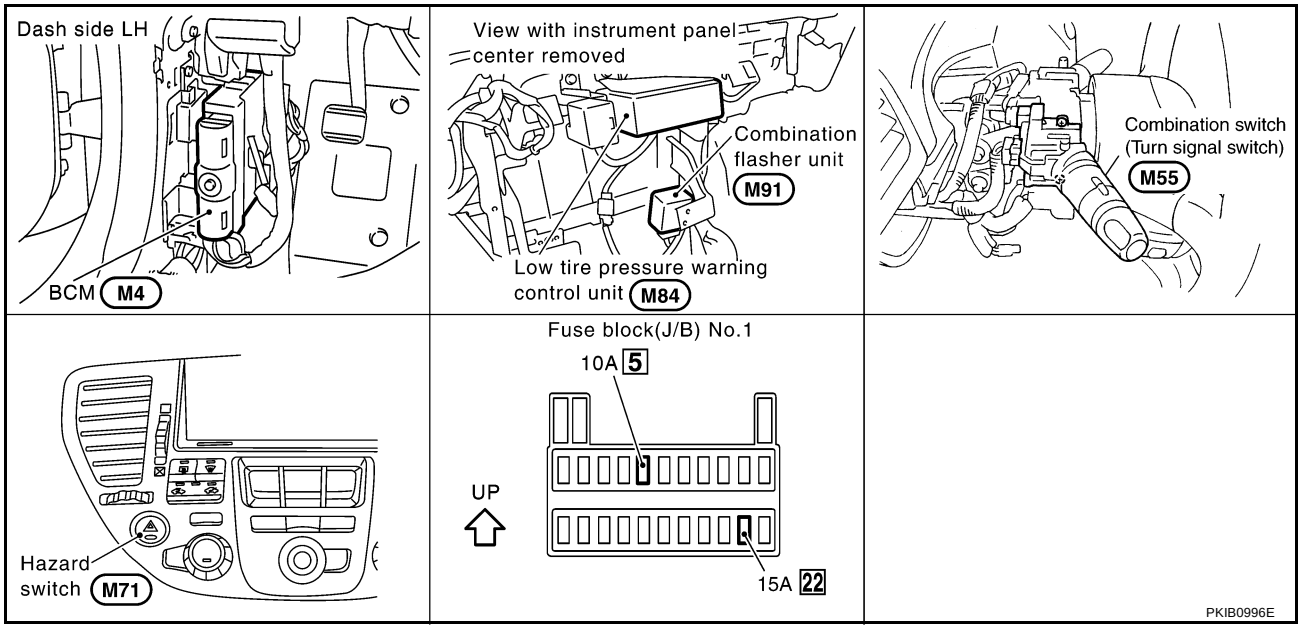
Installation is the reverse order of removal.

TURN SIGNAL AND HAZARD WARNING LAMPS

PFP:26120

Component Parts and Harness Connector Location

NKS00190



System Description

NKS00191

OUTLINE

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

- through 10A fuse [No. 5, located in fuse block (J/B) No.1]
- to combination flasher unit terminal 1
- through combination flasher unit terminal 2
- to combination switch (turn signal) terminal 1.

Ground is supplied to combination flasher unit terminal 7 through grounds M24 and M114.

LH Turn Signal Lamps Operation

When the turn signal switch is moved to the left turn position, power is supplied

- from combination switch (turn signal) terminal 3
- to front combination lamp LH (turn signal) terminal 1
- to rear combination lamp LH (turn signal) terminal 5
- to door mirror (driver side) (turn signal) terminal 7
- to combination meter (turn signal) terminal 45.

Ground is supplied

- to front combination lamp LH (turn signal) terminal 2
- through grounds E24, E42 and E62,
- to rear combination lamp LH (turn signal) terminal 6
- through grounds B17 and B57,
- to door mirror (driver side) (turn signal) terminal 5
- through grounds M24 and M114,
- to combination meter (turn signal) terminals 60 and 62
- through grounds M24 and M114.

With power and ground supplied, the combination flasher unit controls the flashing of the LH turn signal lamps.

RH Turn Signal Lamps Operation

When the turn signal switch is moved to the right turn position, power is supplied

- from combination switch (turn signal) terminal 2
- to front combination lamp RH (turn signal) terminal 1

- to rear combination lamp RH (turn signal) terminal 5
- to door mirror (passenger side)(turn signal) terminal 7
- to combination meter (turn signal) terminal 46.

Ground is supplied

- to front combination lamp RH (turn signal) terminal 2
- through grounds E24, E42 and E62,
- to rear combination lamp RH (turn signal) terminal 6
- through grounds B17 and B57,
- to door mirror (passenger side)(turn signal) terminal 5
- through grounds M24 and M114,
- to combination meter (turn signal) terminals 60 and 62
- through grounds M24 and M114.

With power and ground supplied, the combination flasher unit controls the flashing of the RH turn signal lamps.

Hazard Warning Lamps Operation

Power is supplied at all times

- through 15A fuse [No. 22, located in fuse block (J/B) No.1]
- to combination flasher unit terminal 4
- through combination flasher unit terminal 6
- to hazard switch terminal 1.

With the hazard switch in ON position, ground is supplied

- to hazard switch terminal 2
- through grounds M24 and M114.

Power is supplied

- through combination flasher unit terminal 8
- to front combination lamp LH (turn signal) terminal 1
- to rear combination lamp LH (turn signal) terminal 5
- to door mirror (driver side)(turn signal) terminal 7
- to combination meter (turn signal) terminal 45.

Power is supplied

- through combination flasher unit terminal 3
- to front combination lamp RH (turn signal) terminal 1
- to rear combination lamp RH (turn signal) terminal 5
- to door mirror (passenger side)(turn signal) terminal 7
- to combination meter (turn signal) terminal 46.

Ground is supplied

- to each front combination lamp (turn signal) terminal 2
- through grounds E24, E42 and E62,
- to each rear combination lamp (turn signal) terminal 6
- through grounds B17and B57,
- to each door mirror (turn signal) terminal 5
- through grounds M24 and M114,
- to combination meter (turn signal) terminals 60 and 62
- through grounds M24 and M114.

With power and ground supplied, the combination flasher unit controls the flashing of the hazard warning lamps.

MULTI-REMOTE CONTROL SYSTEM OPERATION

Power is supplied at all times

- through 15A fuse [No. 22, located in fuse block (J/B) No.1]
- to combination flasher unit terminal 4.

Ground is supplied to combination flasher unit terminal 6, when the multi-remote control system is triggered through the BCM.
Refer to BL-53, "REMOTE KEYLESS ENTRY SYSTEM" .
The BCM is energized.
Power is supplied

- through combination flasher unit terminal 8
- to front combination lamp LH (turn signal) terminal 1
- to rear combination lamp LH (turn signal) terminal 5
- to door mirror (driver side) (turn signal) terminal 7
- to combination meter (turn signal) terminal 45.

Power is supplied

- through combination flasher unit terminal 3
- to front combination lamp RH (turn signal) terminal 1
- to rear combination lamp RH (turn signal) terminal 5
- to door mirror (passenger side)(turn signal) terminal 7
- to combination meter (turn signal) terminal 46.

Ground is supplied

- to each front combination lamp (turn signal) terminal 2
- through grounds E24, E42 and E62,
- to each rear combination lamp (turn signal) terminal 6
- through grounds B17and B57,
- to each door mirror (turn signal) terminal 5
- through grounds M24 and M114,
- to combination meter (turn signal) terminals 60 and 62
- through grounds M24 and M114.

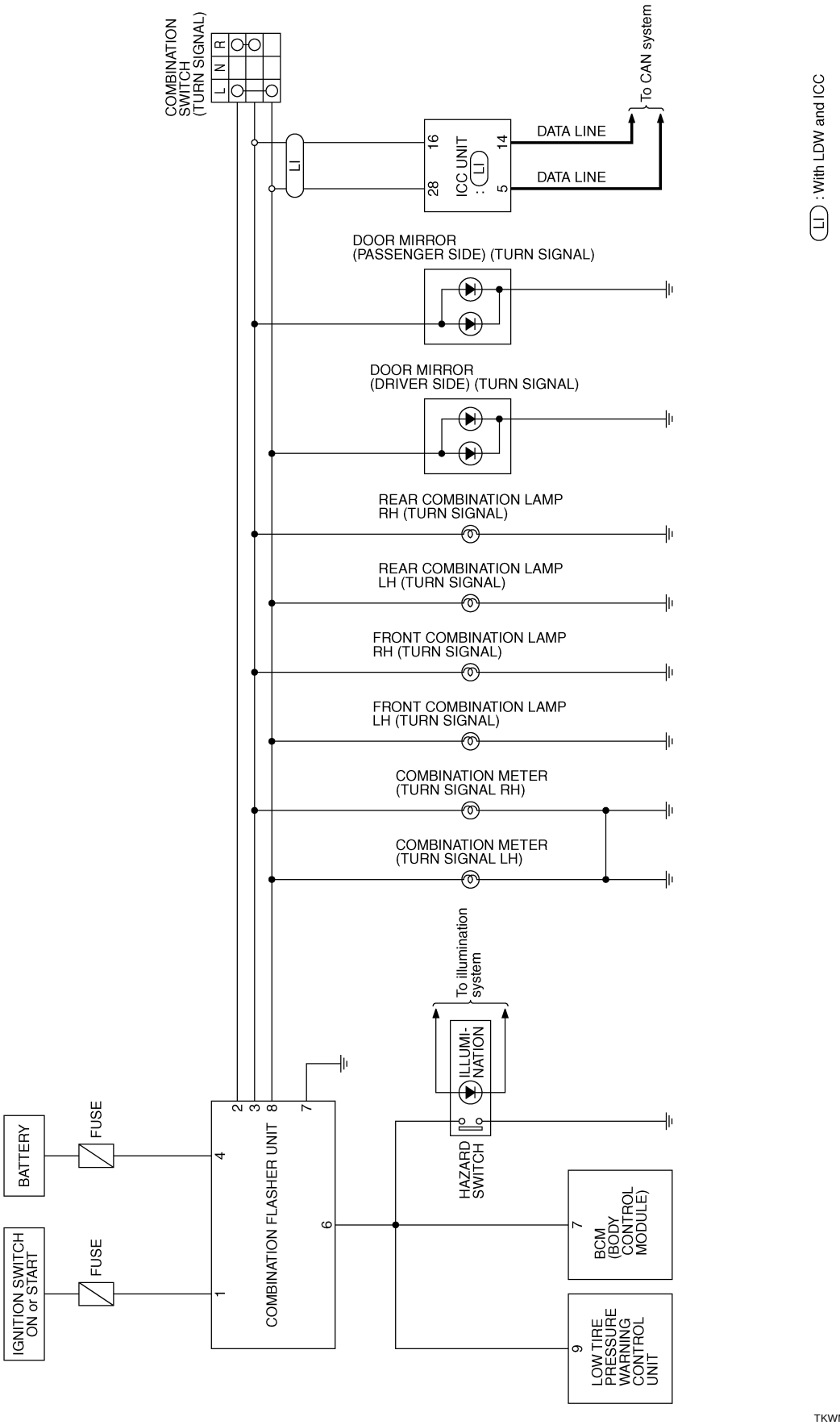
With power and ground supplied, the BCM controls the flashing of the hazard warning lamps.

LOW TIRE PRESSURE WARNING CONTROL SYSTEM

When ID is normally registered to each transmitter in the LOW TIRE PRESSURE WARNING CONTROL UNIT, the hazard warning lamp flashes twice. Refer to WT-24, "ID Registration Procedure" .

Schematic

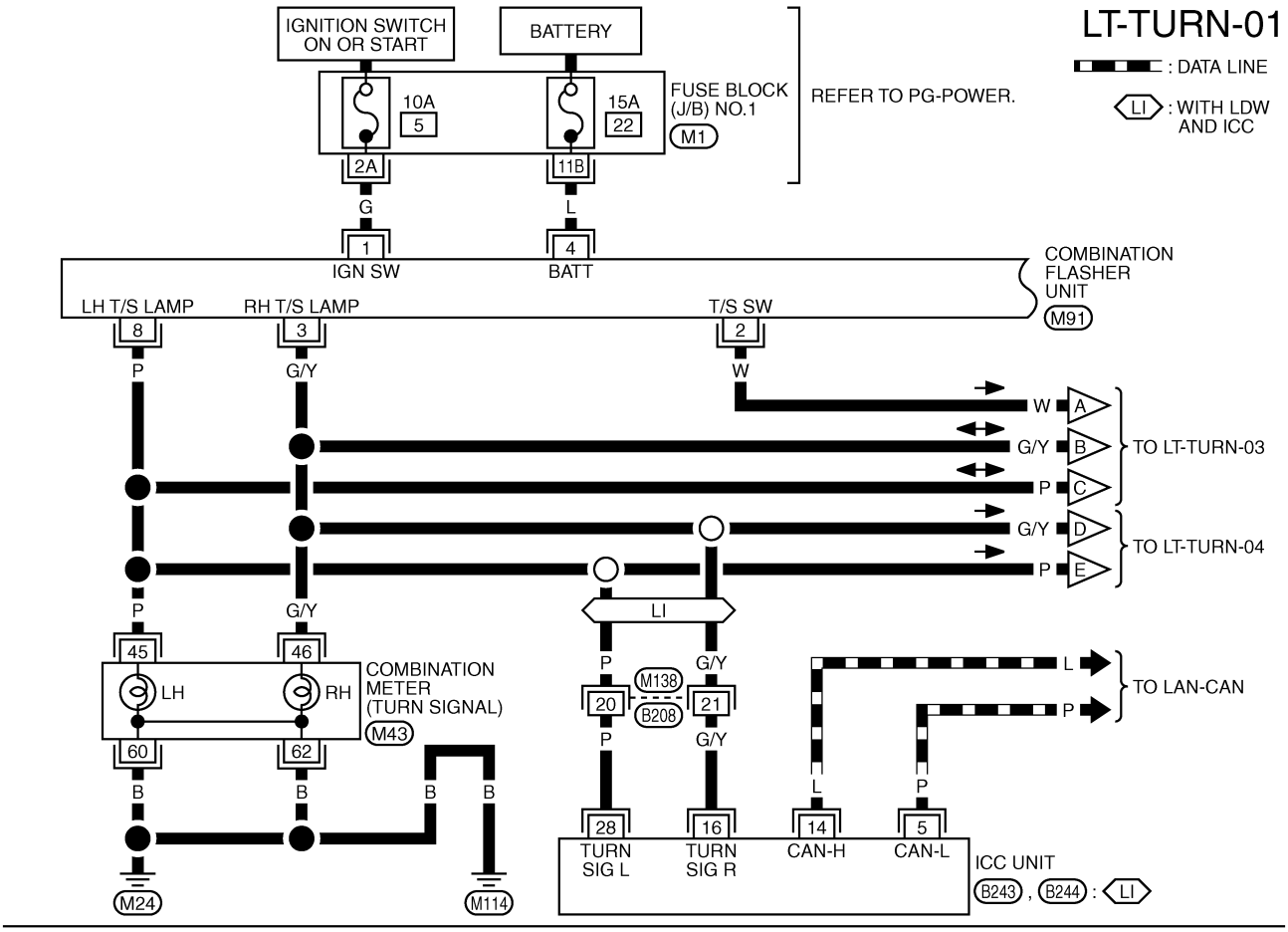
NKS00192

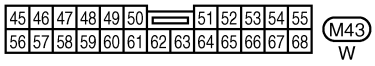


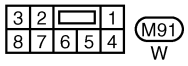
TKWM3702E

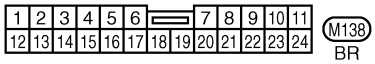
Wiring Diagram — TURN —

NKS00193





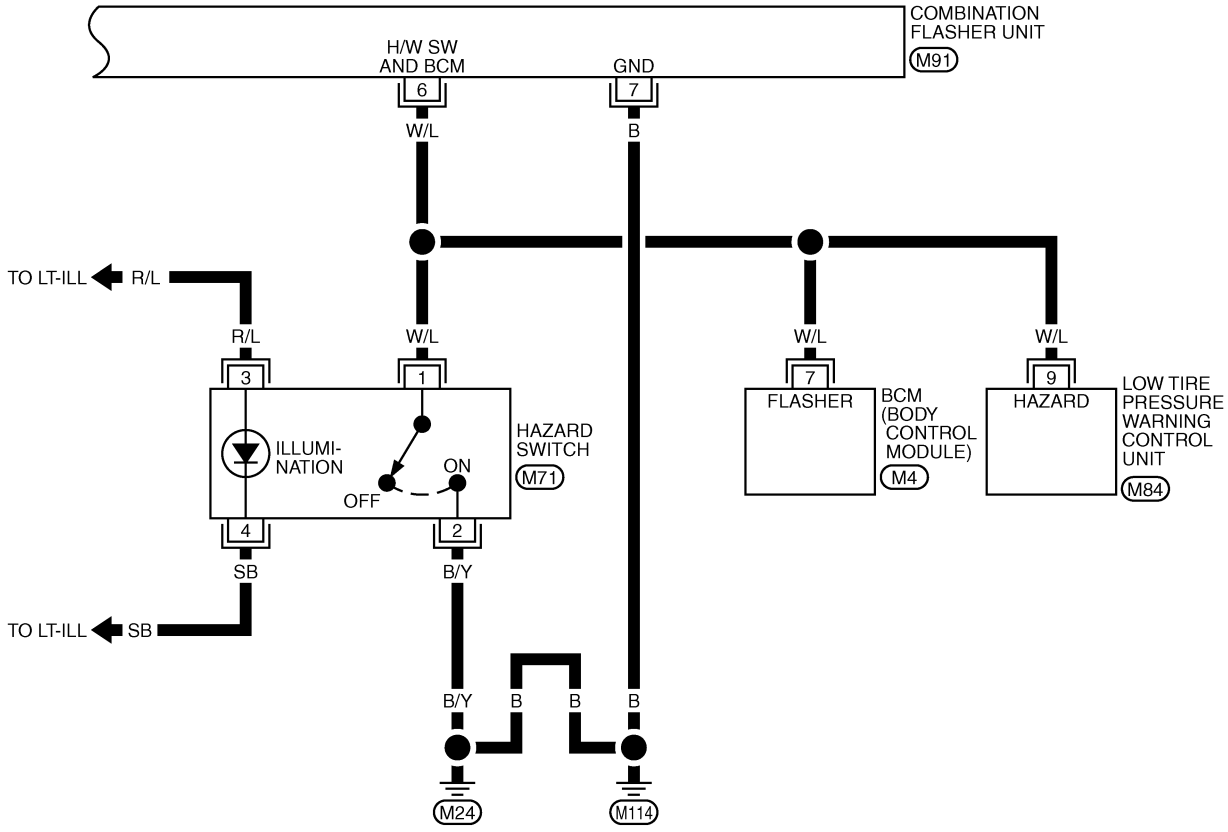


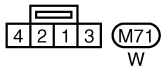


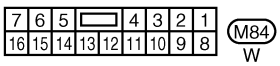
REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1
B243 , B244 -ELECTRICAL UNITS

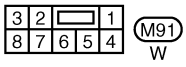
TKWM3703E

LT-TURN-02



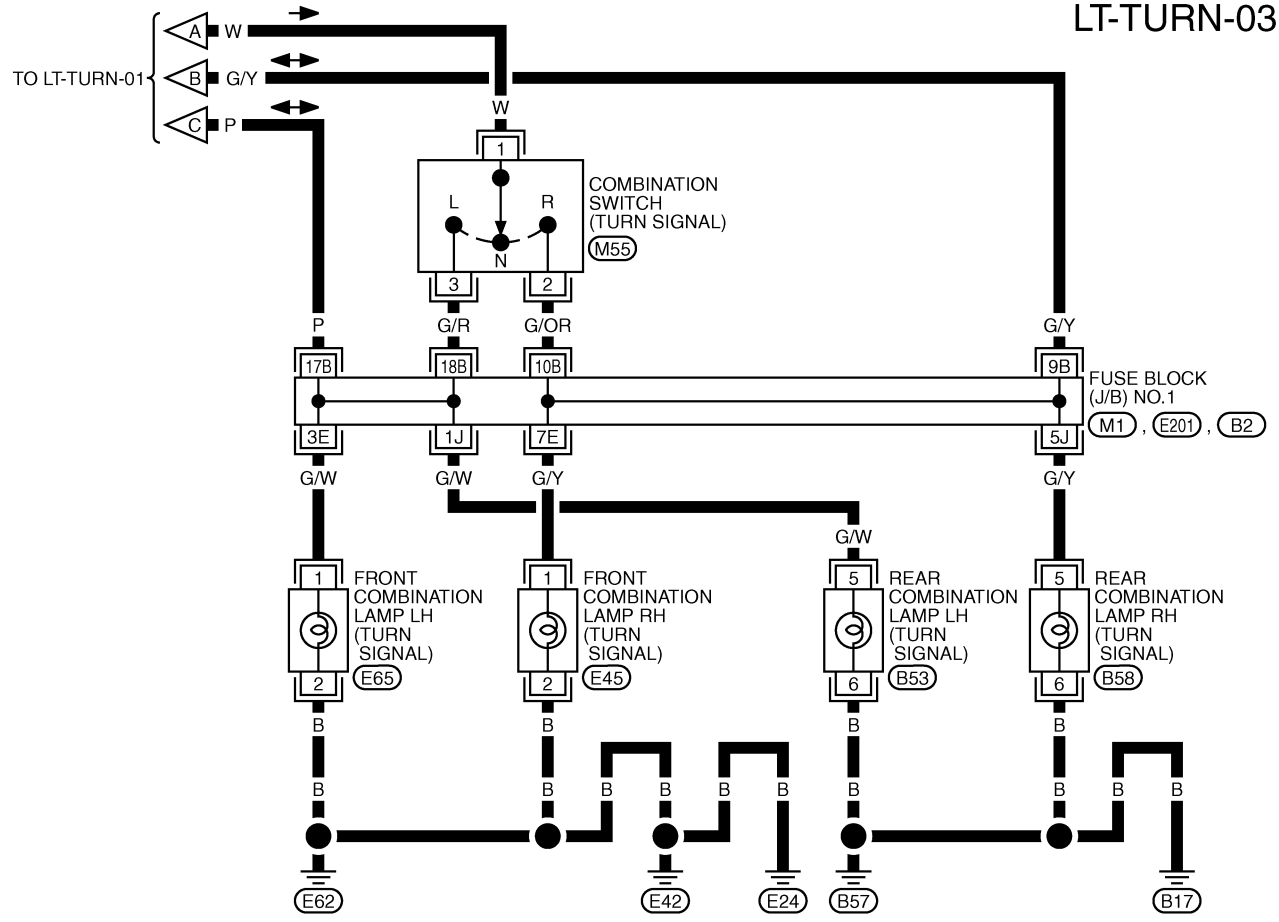






REFER TO THE FOLLOWING.
M4 -ELECTRICAL UNITS

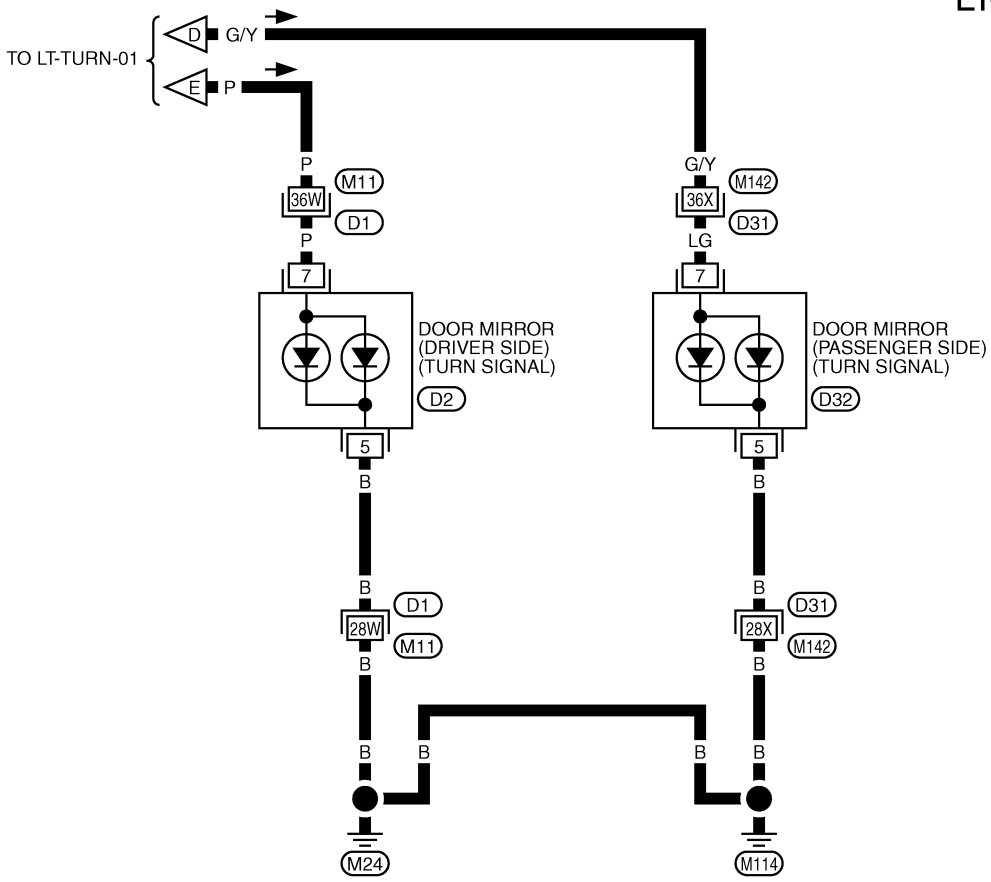
TKWM1498E

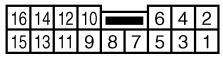


REFER TO THE FOLLOWING.
M1 , E201 , B2 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

TKWM3704E

LT-TURN-04





D2 BR , D32 BR

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

TKWM1500E

Symptom Chart

NKS00194

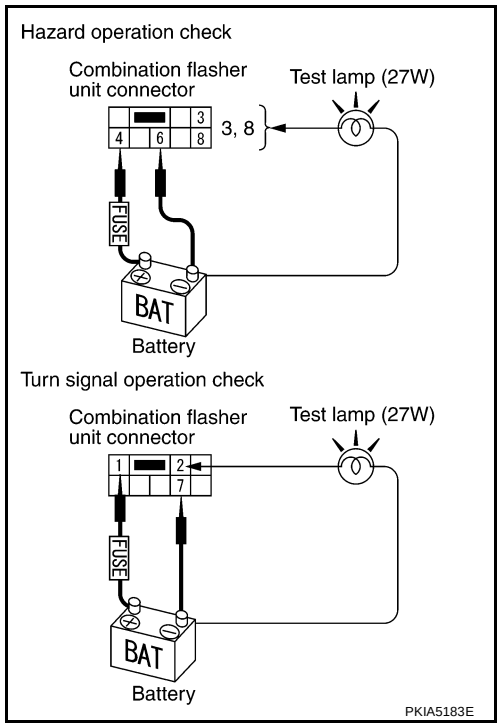
Symptom	Possible cause	Repair Procedure
Turn signal and hazard warning lamps do not operate.	1. Combination flasher unit 2. Open in combination flasher unit circuit	1. Check combination flasher unit. Refer to LT-99, "Electrical Components Inspection" . 2. Check wiring to combination flasher unit for open circuit.
Turn signal lamps do not operate but hazard warning lamps operate.	1. 10A fuse 2. Combination flasher unit 3. Turn signal switch 4. Open in turn signal switch circuit	1. Check 10A fuse [No. 5, located in fuse block (J/B) No.1]. Turn ignition switch ON and verify battery positive voltage is present at terminal 1 of combination flasher unit. 2. Check combination flasher unit. Refer to LT-99, "Electrical Components Inspection" . 3. Check turn signal switch. Refer to LT-100, "Switch Circuit Inspection" . 4. Check harness between combination flasher unit terminal 2 and turn signal switch terminal 1 for open circuit.
Hazard warning lamps do not operate but turn signal lamps operate.	1. 15A fuse 2. Combination flasher unit 3. Hazard switch 4. Open in hazard switch circuit 5. Grounds M24 and M114	1. Check 15A fuse [No. 22, located in fuse block (J/B) No.1]. Verify battery positive voltage is present at terminal 4 of combination flasher unit. 2. Check combination flasher unit. Refer to LT-99, "Electrical Components Inspection" . 3. Check hazard switch. 4. Check harness between combination flasher unit terminal 6 and hazard switch terminal 1 for open circuit. 5. Check grounds M24 and M114.
Front turn signal lamp LH or RH does not operate.	1. Bulb 2. Grounds E24, E42 and E62 3. Open in front turn signal lamp circuit	1. Check bulb. 2. Check grounds E24, E42 and E62. 3. Check harness between combination switch and front turn signal lamp for open circuit.
Rear turn signal lamp LH or RH does not operate.	1. Bulb 2. Grounds B17 and B57 3. Open in rear turn signal lamp circuit	1. Check bulb. 2. Check grounds B17 and B57. 3. Check harness between combination switch and rear turn signal lamp for open circuit.
LH and RH turn indicators do not operate.	1. Grounds M24 and M114	1. Check grounds M24 and M114.
LH or RH turn indicator does not operate.	1. Bulb 2. Open in turn indicator circuit	1. Check bulb in combination meter. 2. Check harness between combination flasher unit and combination meter (turn indicator) for open circuit.

Electrical Components Inspection

NKS00195

COMBINATION FLASHER UNIT CHECK

- Before checking, ensure that bulbs meet specifications.
- Connect a battery and test lamp to the combination flasher unit, as shown. Combination flasher unit is properly functioning if it flashes when power is supplied to the circuit.



Bulb Replacement

NKS00196

FRONT TURN SIGNAL LAMP

Refer to LT-31, "Bulb Replacement" .

REAR TURN SIGNAL LAMP

Refer to LT-115, "REAR COMBINATION LAMP" .

Removal and Installation

NKS00197

FRONT TURN SIGNAL LAMP

Refer to LT-33, "Removal and Installation" .

SIDE TURN SIGNAL LAMP

Refer to GW-117, "Disassembly and Assembly" .

REAR TURN SIGNAL LAMP

Refer to LT-116, "REAR COMBINATION LAMP" .

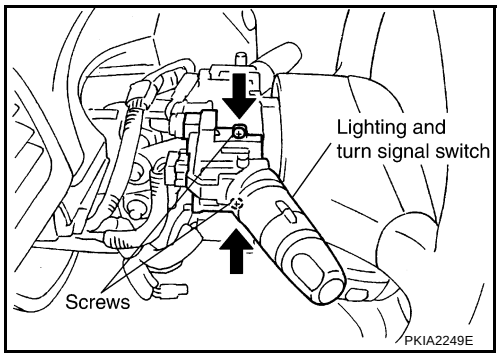
LIGHTING AND TURN SIGNAL SWITCH

PFP:25540

Removal and Installation

NKS00198

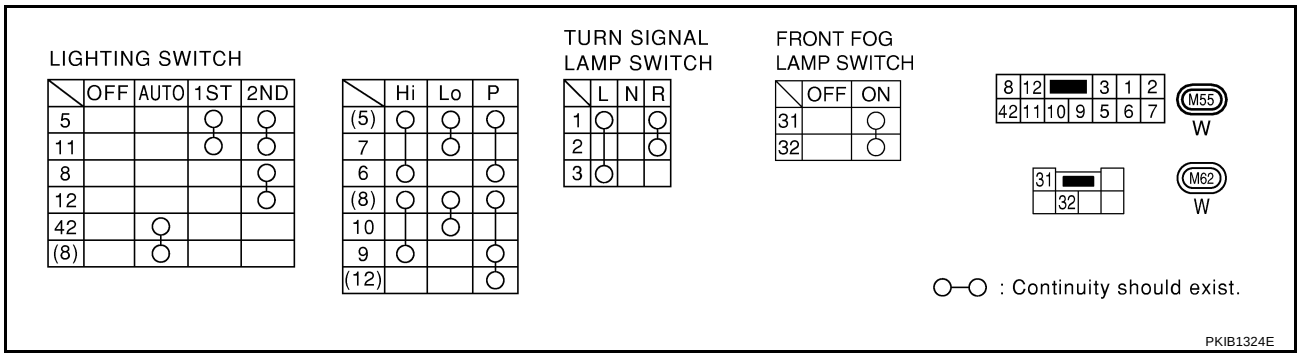
1. Remove steering column cover. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove lighting and turn signal switch mounting screws and remove lighting and turn signal switch from harness.
3. Disconnect lighting and turn signal switch connector.



Switch Circuit Inspection

NKS00199

Using circuit tester, check continuity between the lighting and turn signal switch connector terminals in each position of the switch.



Hi: “HIGH BEAM” position, Lo: “LOW BEAM” position, P: “FLASH TO PASS” position

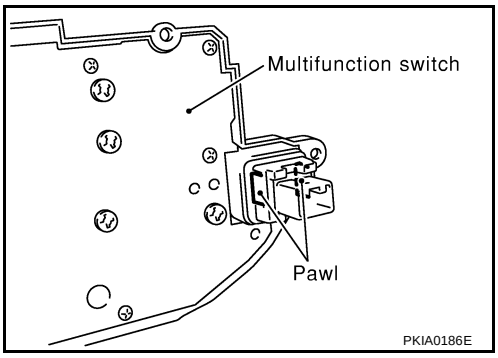
HAZARD SWITCH

PFP:25290

Removal and Installation

NKS0019A

Refer to DI-150, "Disassembly and Assembly for Multifunction Switch" (without navigation system) or DI-171, "Disassembly and Assembly for Multifunction Switch" (with navigation system).



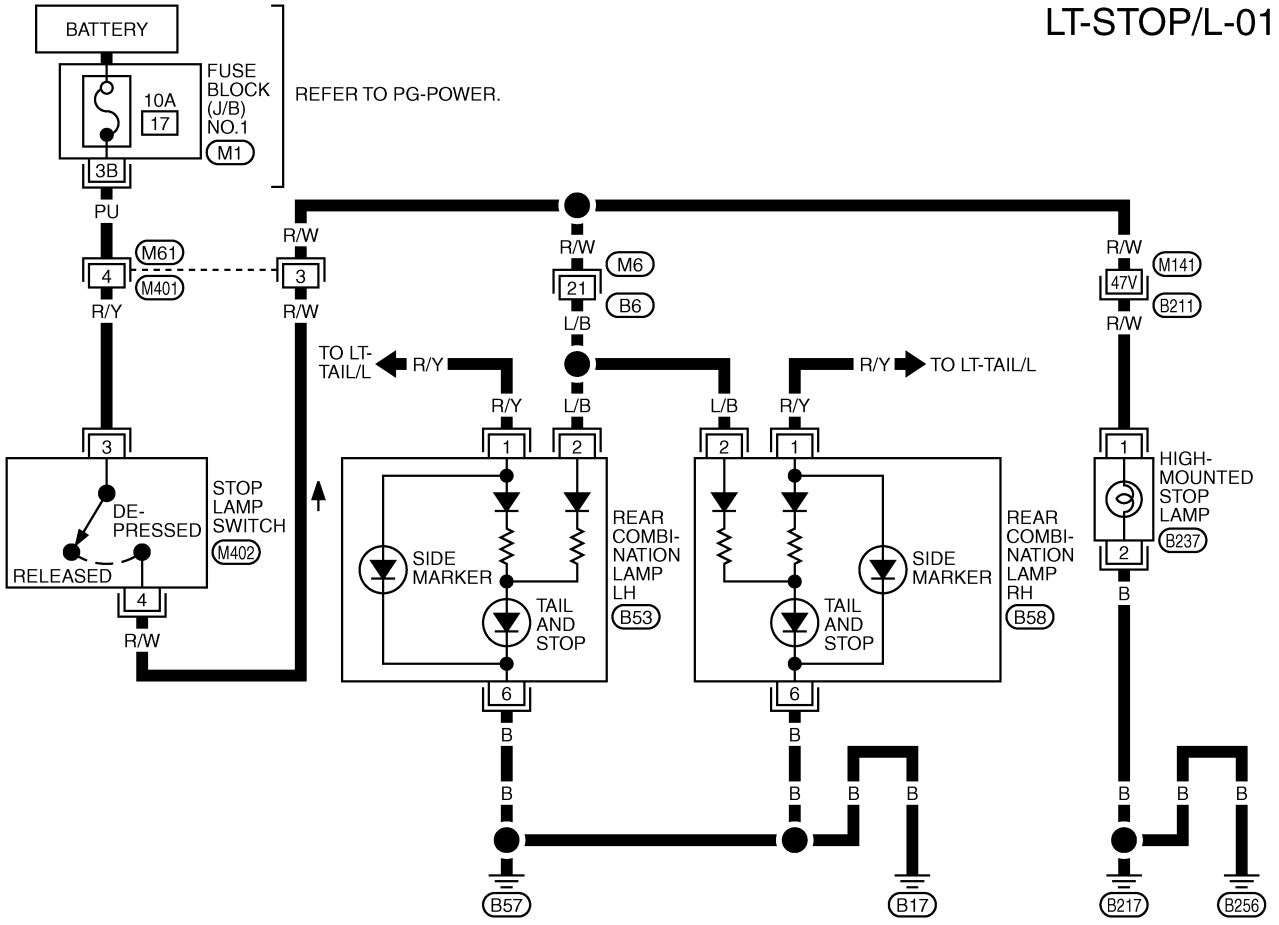
STOP LAMP

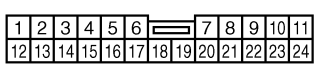
PFP:26550

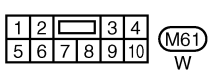
Wiring Diagram — STOP/L —

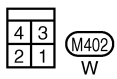
NKS0019B

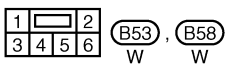
LT-STOP/L-01

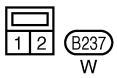












REFER TO THE FOLLOWING.

B211 -SUPER MULTIPLE JUNCTION (SMJ)

M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

TKWM3700E

Bulb Replacement

NKS0019C

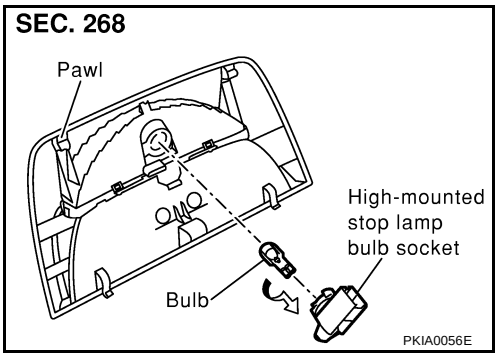
STOP LAMP

Refer to LT-115, "REAR COMBINATION LAMP" .

HIGH-MOUNTED STOP LAMP

1. Remove high-mounted stop lamp. Refer to LT-103, "HIGH-MOUNTED STOP LAMP" .
2. Turn high-mounted stop lamp bulb socket counterclockwise and unlock it.
3. Remove bulb.

High-mounted stop lamp : 12V 18W



Removal and Installation

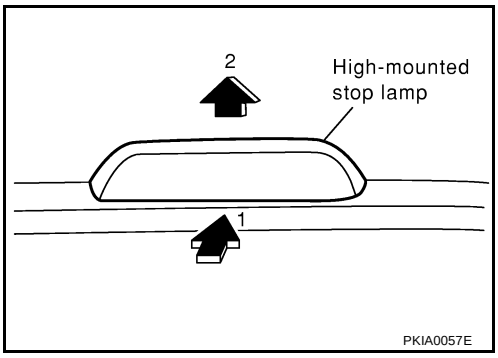
NKS0019D

STOP LAMP

Refer to LT-116, "REAR COMBINATION LAMP" .

HIGH-MOUNTED STOP LAMP

1. Pull up high-mounted stop lamp while pressing it toward rear of the vehicle and remove from the vehicle.
2. Disconnect high-mounted stop lamp connector.

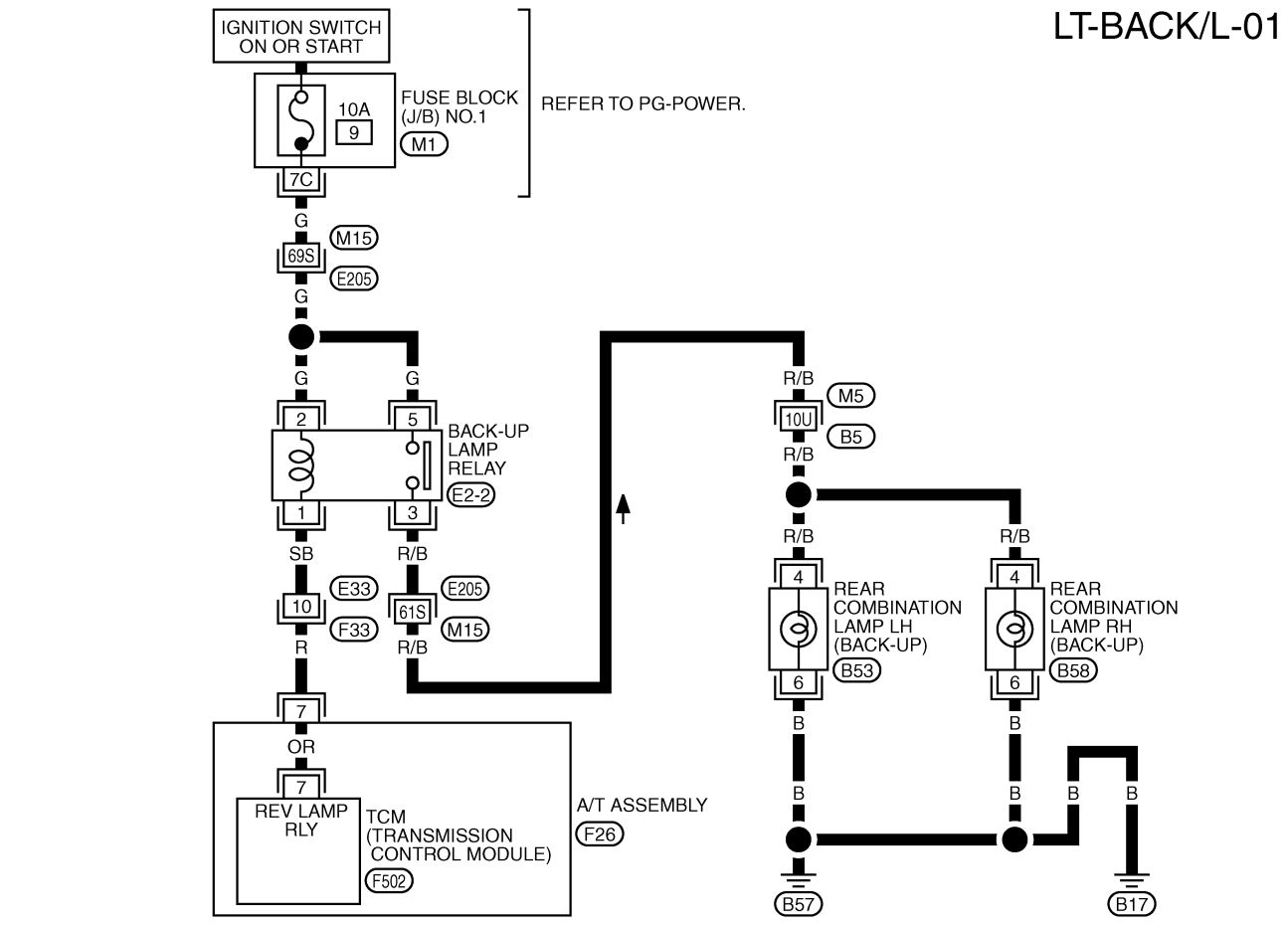


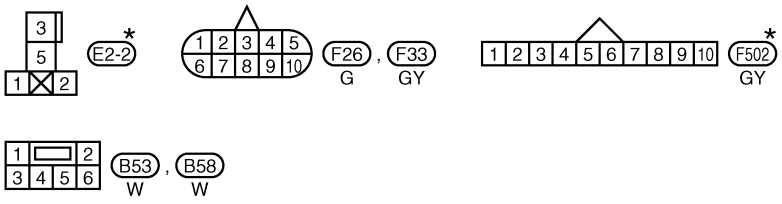
BACK-UP LAMP

PFP:26550

Wiring Diagram — BACK/L —

NKS0019E





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

REFER TO THE FOLLOWING.

M5 , E205 -SUPER MULTIPLE JUNCTION (SMJ)

M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

TKWM3701E

Bulb Replacement

NKS0019F

Refer to LT-115, "REAR COMBINATION LAMP" .

Removal and Installation

NKS0019G

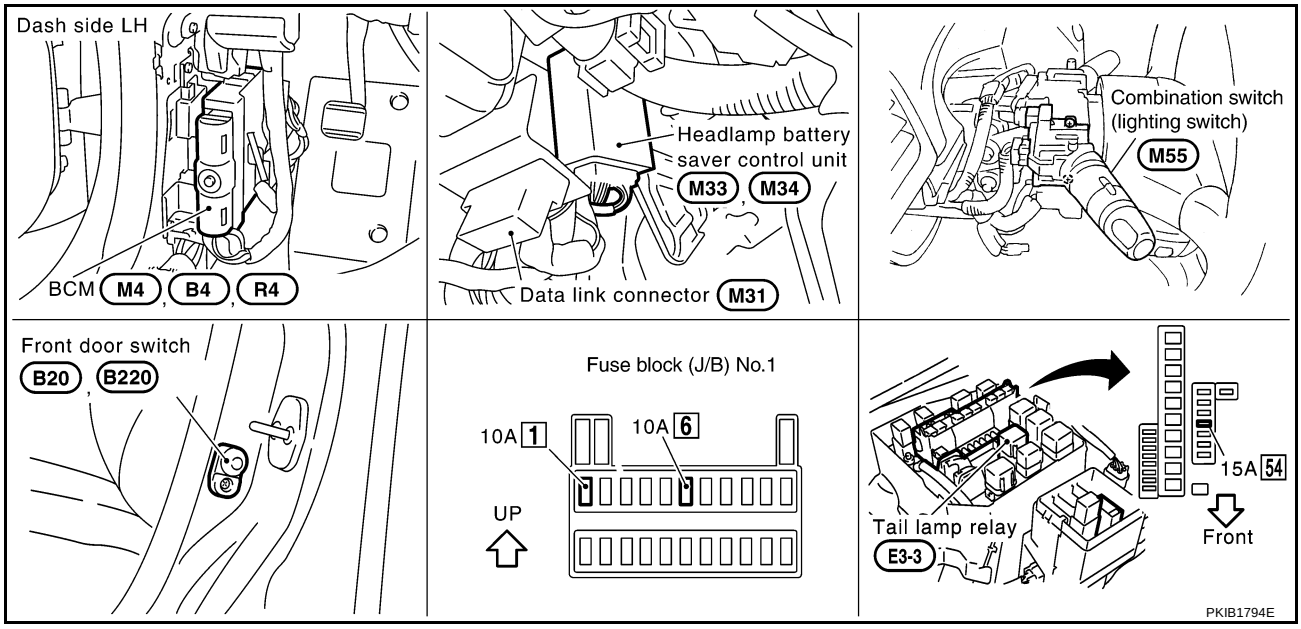
Refer to LT-116, "REAR COMBINATION LAMP" .

PARKING, LICENSE PLATE AND TAIL LAMPS

PFP:26550

Component Parts and Harness Connector Location

NKS0019H



System Description

NKS0019I

The parking, license plate, side marker and tail lamp operations are controlled by combination switch (lighting switch) which is connected to the spiral cable and BCM (body control module). The battery saver system is controlled by the headlamp battery saver control unit and BCM.

OUTLINE

Power is supplied at all times

- to tail lamp relay terminals 2 and 6
- through 15A fuse [No. 54, located in fuse, fusible link and relay block (J/B)], and
- to headlamp battery saver control unit terminal 7
- through 10A fuse [No. 6, located in fuse block (J/B) No.1].

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

- to headlamp battery saver control unit terminal 1
- through 10A fuse [No. 1, located in fuse block (J/B) No.1].

Ground is supplied

- to headlamp battery saver control unit terminals 4 and 11
- through grounds M25 and M115.

LIGHTING OPERATION BY LIGHTING SWITCH

When lighting switch is in 1ST (or 2ND) position, ground is supplied

- to tail lamp relay terminal 1
- through headlamp battery saver control unit terminals 6 and 14
- to headlamp battery saver control unit terminals 5 and 13
- through lighting switch terminal 11
- to lighting switch terminal 5
- through grounds M25 and M115.

Tail lamp relay is then energized and the parking, license plate, side marker and tail lamps illuminate.

BATTERY SAVER CONTROL

When the ignition switch is turned from ON (or START) to OFF (or ACC) positions while parking, license, side marker and tail lamps are illuminated, the RAP signal is supplied to terminal 10 of headlamp battery saver control unit terminal from BCM terminal 135.

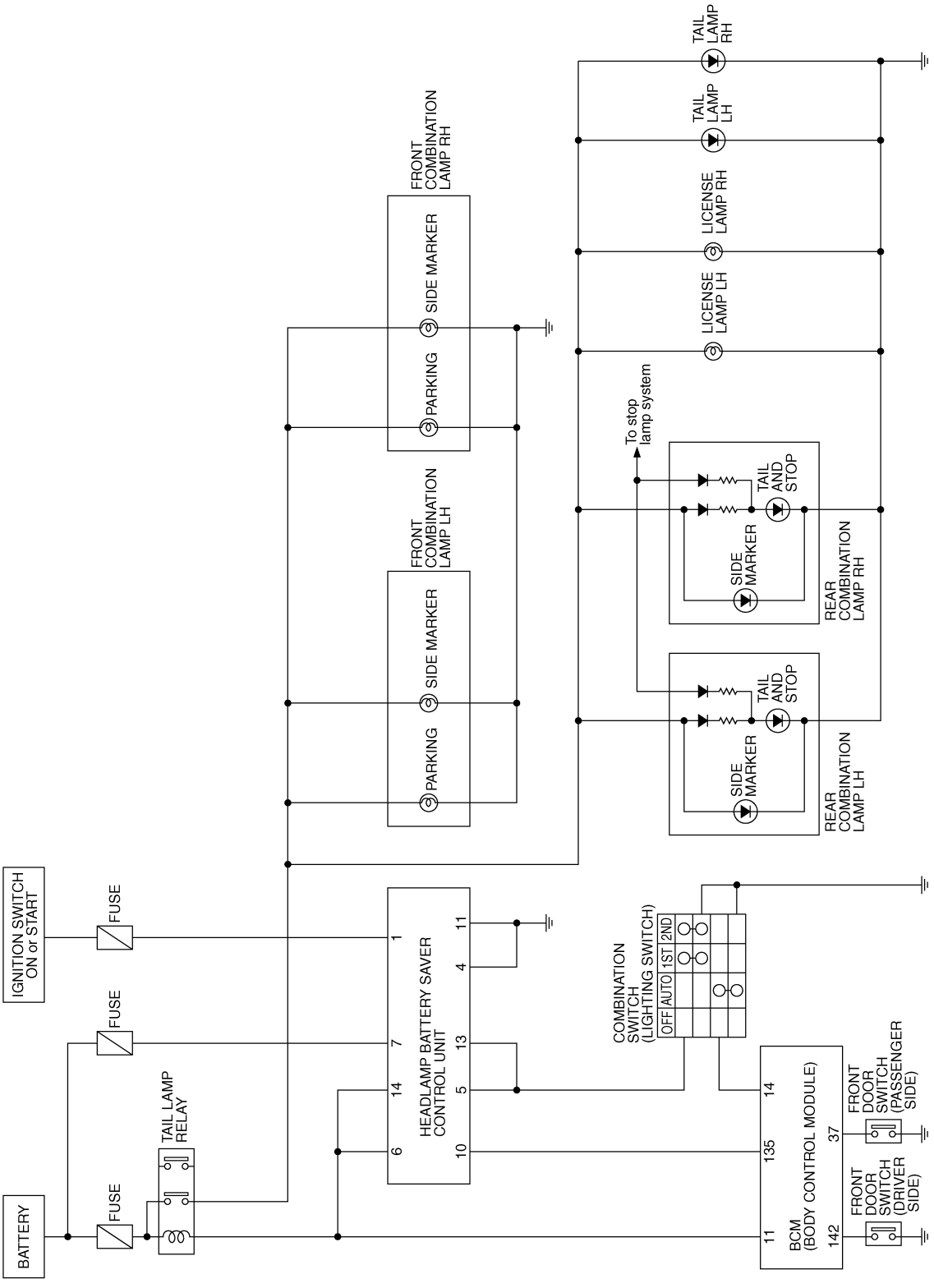
After counting 45 seconds by the RAP signal from the BCM to headlamp battery saver control unit, the ground supply to terminal 1 of the tail lamp relay from headlamp battery saver control unit terminals 6 and 14 is terminated.
Then the parking, license plate, side marker and tail lamps are turned off.
The parking, license plate, side marker and tail lamps are turned off when driver or passenger door is opened even if 45 seconds have not passed after the ignition switch is turned from ON (or START) to OFF (or ACC) positions while the parking, license plate, side marker and tail lamps are illuminated.
When the lighting switch is turned from OFF to 1ST (or 2ND) after the parking, license plate, side marker and tail lamps are turned off by the headlamp battery saver control, ground is supplied.

- to headlamp battery saver control unit terminals 5 and 13 from lighting switch terminal 11, and
- to tail lamp relay terminal 1 from headlamp battery saver control unit terminals 6 and 14.

Then the parking, license plate, side marker and tail lamps illuminate again.

Schematic

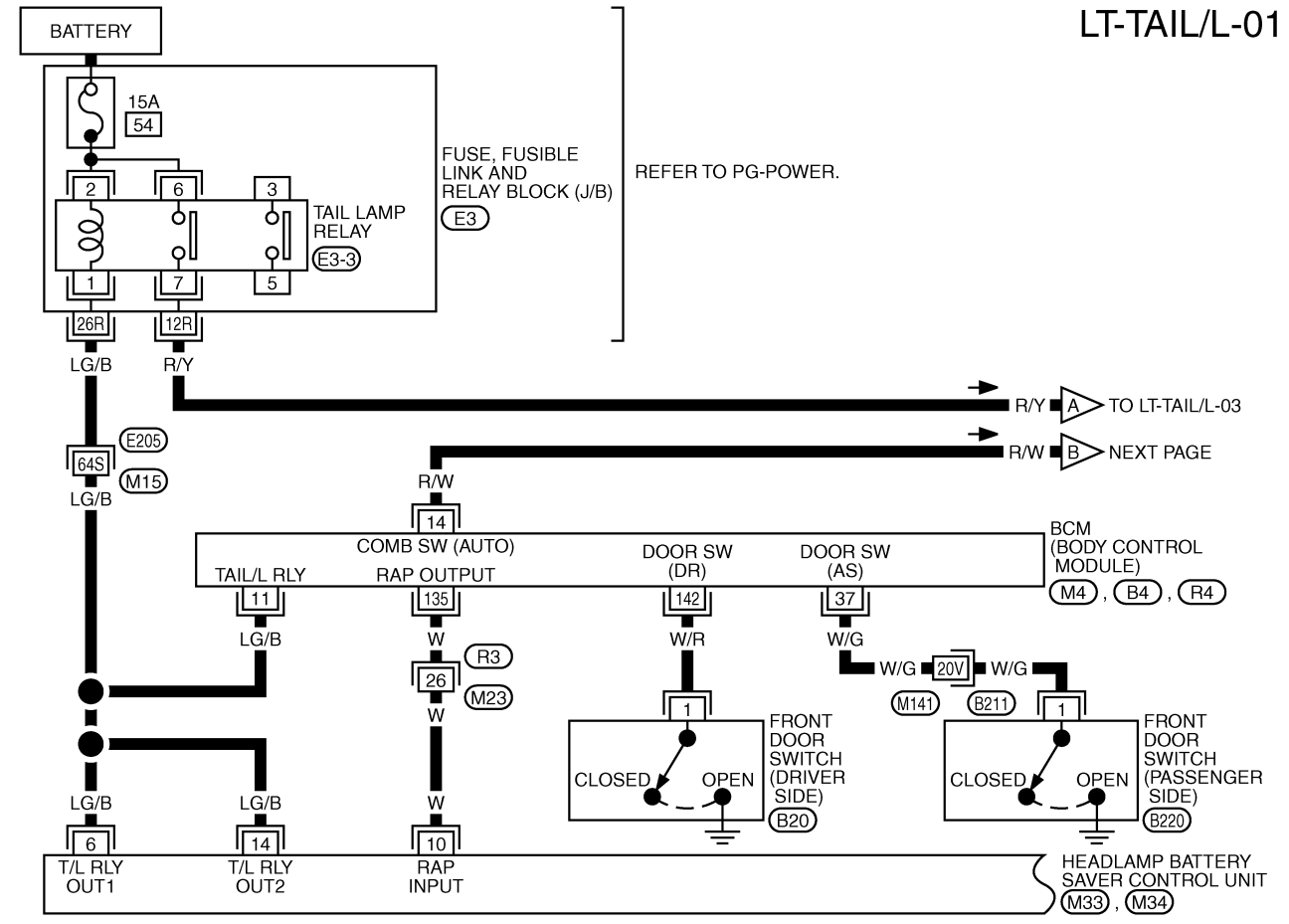
NKS0019J

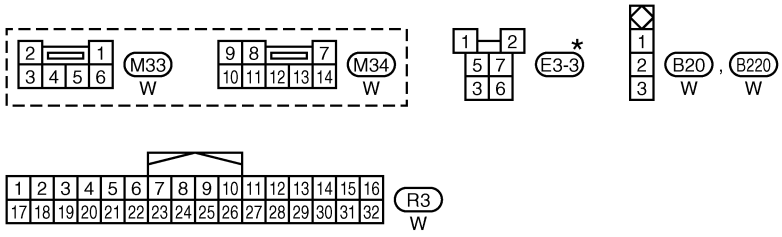


TKWM1489E

Wiring Diagram — TAIL/L —

NKS0019K

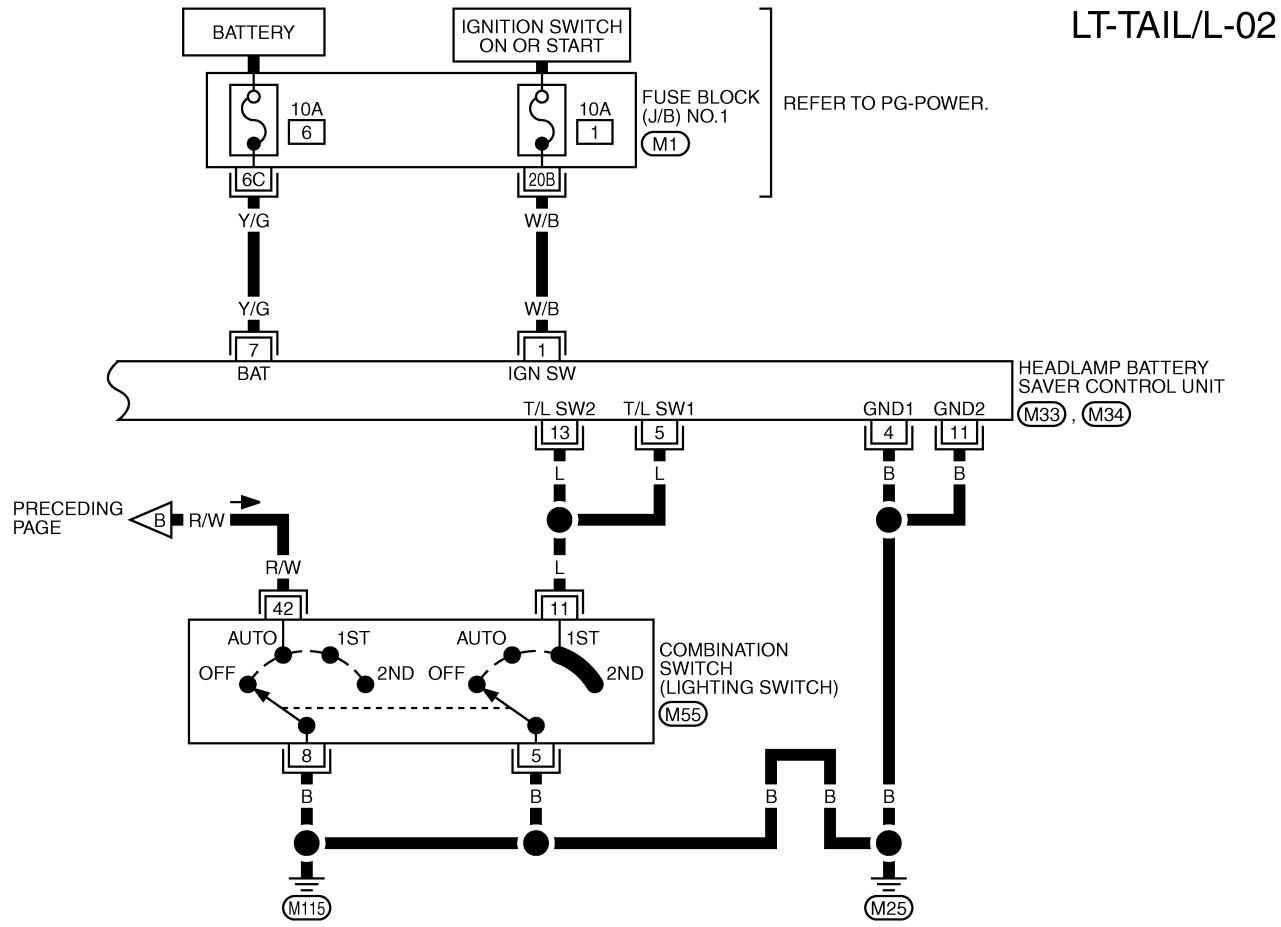


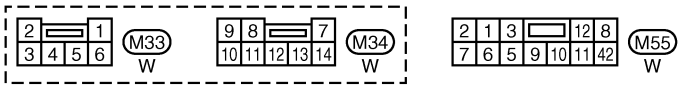


REFER TO THE FOLLOWING.
E205 , B211 -SUPER MULTIPLE JUNCTION (SMJ)
E3 -FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)
M4 , B4 , R4 -ELECTRICAL UNITS

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

TKWM3697E

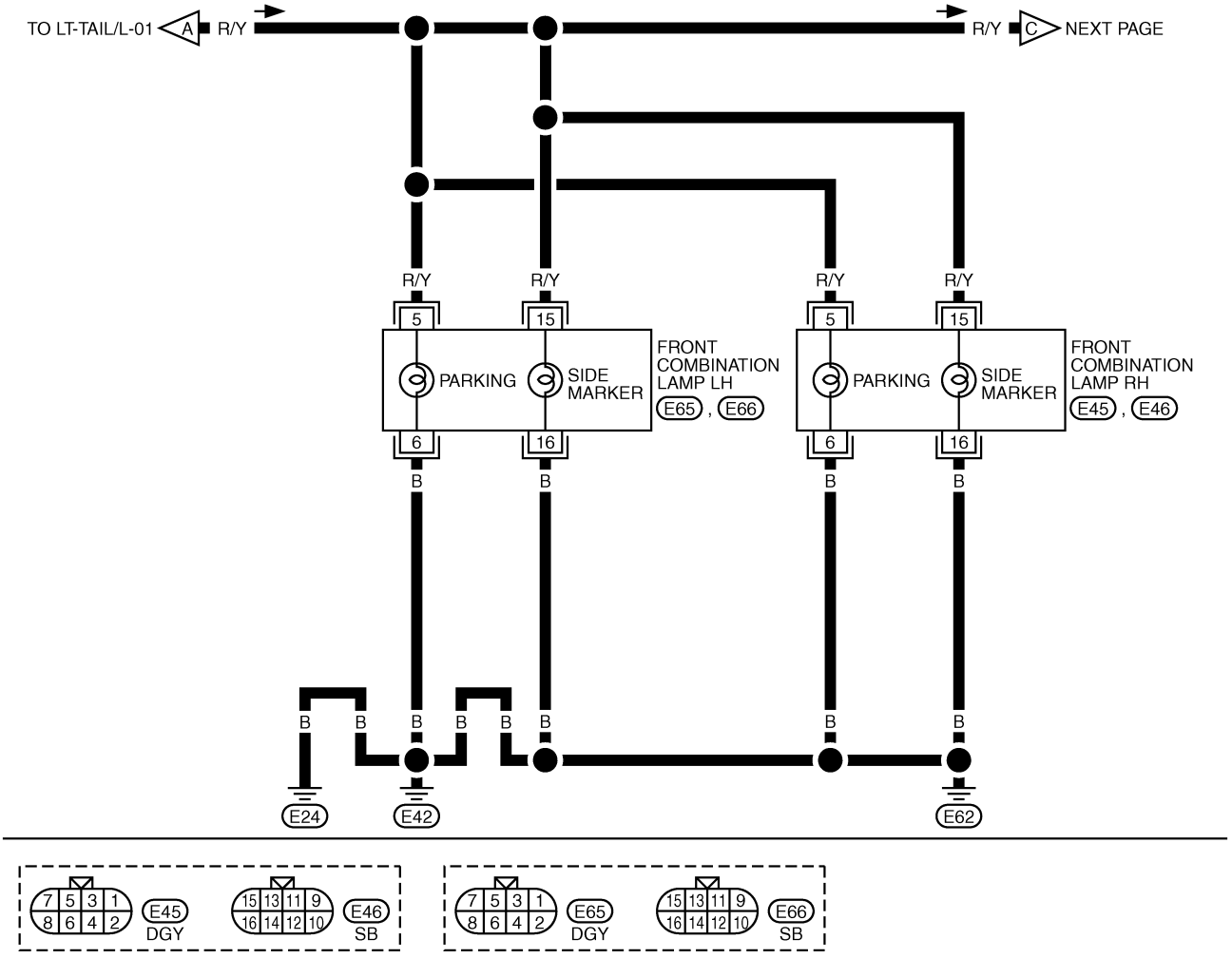




REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

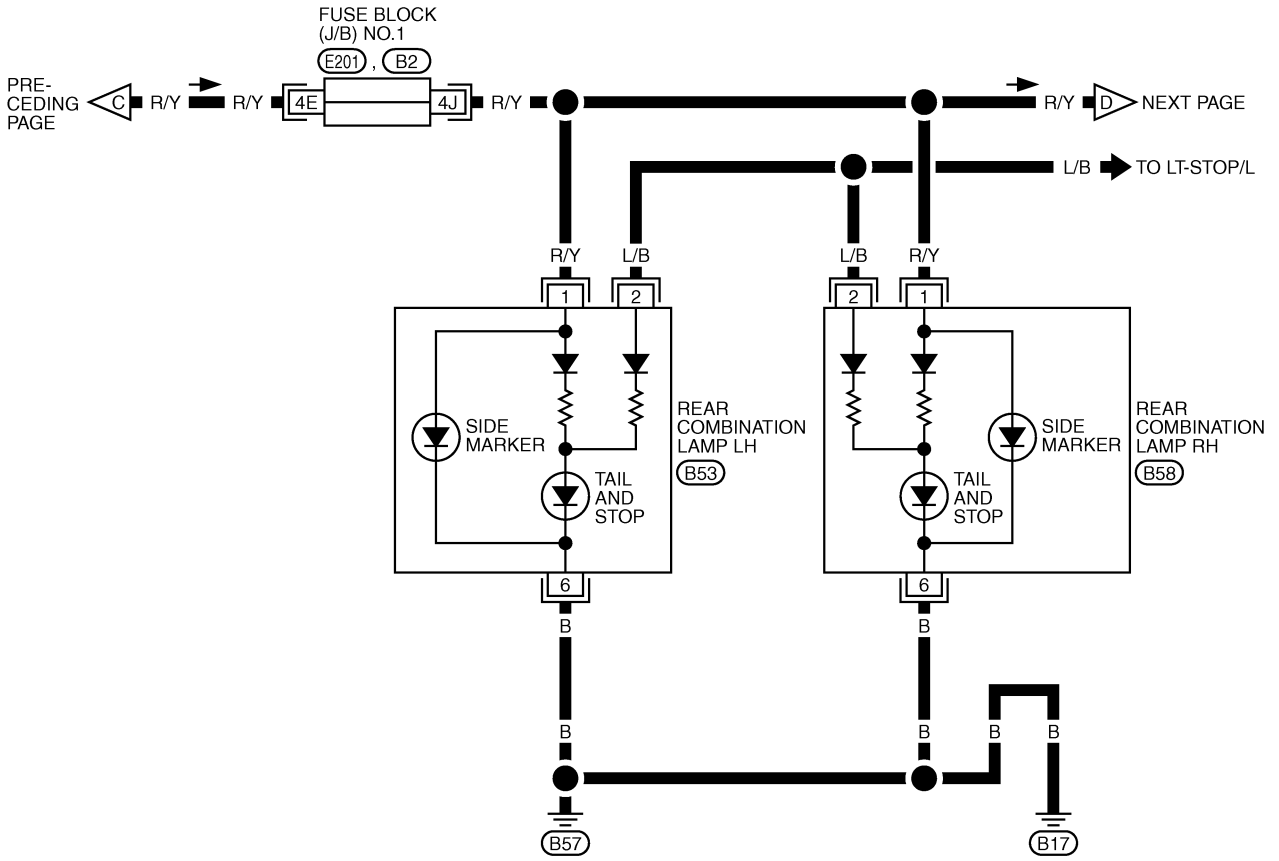
TKWM3698E

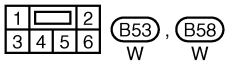
LT-TAIL/L-03



TKWM1492E

LT-TAIL/L-04

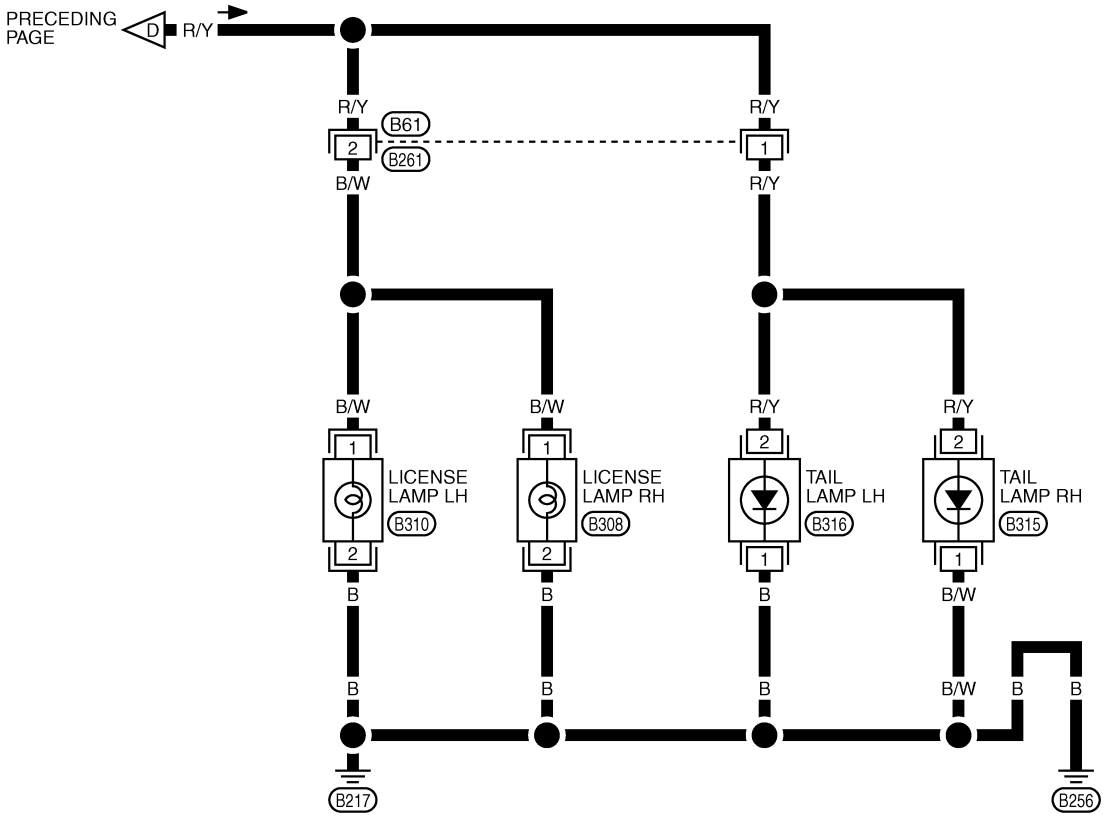


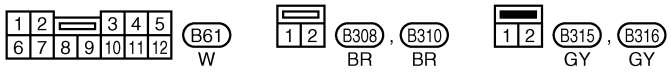


REFER TO THE FOLLOWING.
E201 , B2 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

TKWM1493E

LT-TAIL/L-05





TKWM3699E

Trouble Diagnoses

NKS0019L

Symptom	Repair Procedure
No lamps operate (including headlamps).	1. Check 10A fuse [No. 6, located in fuse block (J/B) No.1]. Verify battery positive voltage is present at terminal 7 of headlamp battery saver control unit. 2. Check lighting switch. Refer to LT-100, "Switch Circuit Inspection" . 3. Check headlamp battery saver control unit. Refer to LT-15, "Terminals and Reference Values for Headlamp Battery Saver Control Unit" .
Parking, side marker, license plate and tail lamps do not operate, but headlamps operate.	1. Check 15A fuse [No. 54, located in fuse, fusible link and relay block (J/B)]. Verify battery positive voltage is present at terminals 6 and 2 of tail lamp relay. 2. Check tail lamp relay. 3. Check harness between headlamp battery saver control unit terminals 6 and 14 and tail lamp relay terminal 1. Check harness between tail lamp relay terminal 7 and terminals of each combination lamp. 4. Check lighting switch. Refer to LT-100, "Switch Circuit Inspection" . 5. Check harness between lighting switch terminal 11 and headlamp battery saver control unit terminals 5 and 13. Check harness between lighting switch terminal 5 and ground. 6. Check headlamp battery saver control unit. Refer to LT-15, "Terminals and Reference Values for Headlamp Battery Saver Control Unit" .
Battery saver control does not operate properly.	1. Check RAP signal. Verify 12 positive voltage from BCM is present at terminal 10 of headlamp battery saver control unit: – Within 45 seconds after ignition switch turned off. – Front door is opened or more than 45 seconds after ignition switch is turned off. 2. Check the following. – Harness between BCM and front door switch (driver side) or front door switch (passenger side) for open or short circuit. – Front door switch (driver side) or front door switch (passenger side) ground circuit. – Front door switch (driver side) or front door switch (passenger side). 3. Check the following. – Harness between headlamp battery saver control unit terminals 5 or 13 and lighting switch terminal 11 for open or short circuit. – Harness between lighting switch terminal 5 and ground. – Lighting switch. Refer to LT-100, "Switch Circuit Inspection" . 4. Check headlamp battery saver control unit. Refer to LT-15, "Terminals and Reference Values for Headlamp Battery Saver Control Unit" . 5. Check BCM. Refer to LT-16, "Terminals and Reference Values for BCM" .

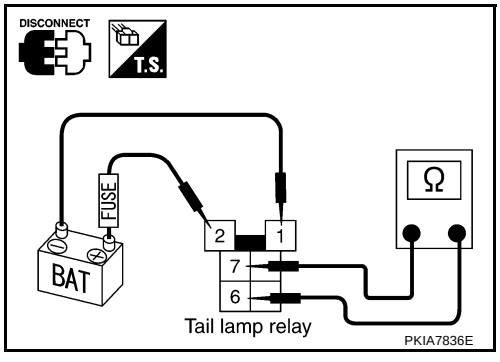
Tail Lamp Relay Inspection

NKS0019M

1. Remove tail lamp relay.
2. Apply battery voltage between tail lamp relay terminals 2 and 1, and check continuity between terminals 6 and 7.

   6 - 7 : Continuity should exist.

3. If there is a malfunction, replace tail lamp relay.



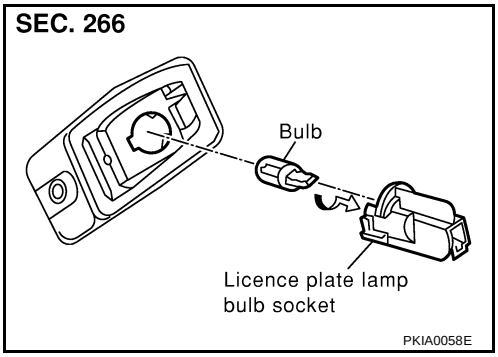
Bulb Replacement

NKS0019N

LICENSE PLATE LAMP

1. Remove license plate lamp. Refer to LT-115, "Removal and Installation" .
2. Turn bulb socket counterclockwise and unlock it.
3. Remove bulb from its socket.

License plate lamp : 12V - 5W



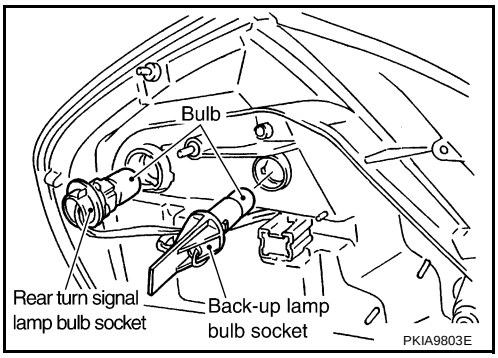
FRONT COMBINATION LAMP

Refer to LT-31, "Bulb Replacement" .

REAR COMBINATION LAMP

1. Open the trunk and remove the trunk side finisher. Refer to EI-60, "TRUNK ROOM TRIM & TRUNK LID FINISHER" .
2. Turn bulb socket counterclockwise and unlock it.
3. Remove bulb.

Stop/tail lamp	**: LED (Replace as the rear combination lamp assembly.)**
Rear turn signal lamp	**: 12V - 21W (amber)**
Buck-up lamp	**: 12V - 18W**
Rear side marker lamp	**: LED (Replace as the rear combination lamp assembly.)**



TAIL LAMP

Refer to LT-116, "TAIL LAMP (TRUNK LID)" .

Tail lamp : LED (Replace as the tail lamp assembly.)

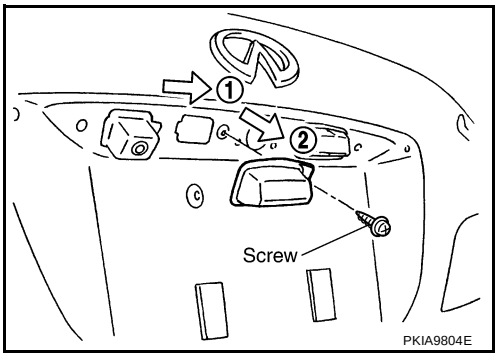
Removal and Installation

NKS0019O

LICENSE PLATE LAMP

Removal

1. Remove trunk lid finisher. Refer to EI-34, "TRUNK LID FINISHER" .
2. Remove license plate lamp mount screw.
3. Slide license plate lamp to the right and then remove it.
4. Disconnect license plate lamp connector.



Installation

Note the following, and install in the reverse order of removal.

License plate lamp mounting screw : 2.4 N·m (0.24 kg-m, 21 in-lb)

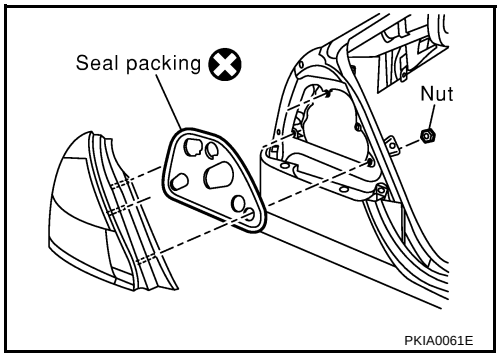
FRONT COMBINATION LAMP

Refer to LT-33, "Removal and Installation" .

REAR COMBINATION LAMP

Removal

1. Open trunk and remove trunk side finisher. Refer to EI-60, "TRUNK ROOM TRIM & TRUNK LID FINISHER" .
2. Disconnect rear combination lamp connector.
3. Remove rear combination lamp mounting nuts.
4. Pull rear combination lamp toward rear of vehicle to remove it from the vehicle.
5. Remove seal packing from vehicle.



Installation

Note the following, and install in the reverse order of removal.

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

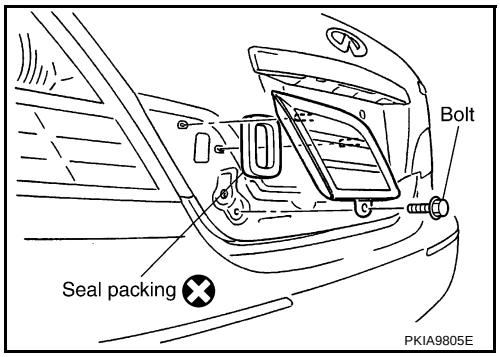
CAUTION:
Seal packing cannot be reused.

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

TAIL LAMP (TRUNK LID)

Removal

1. Open trunk and remove trunk lid finisher lower. Refer to EI-34, "TRUNK LID FINISHER" .
2. Disconnect tail lamp connector.
3. Remove trunk lid finisher lower. Refer to EI-34, "TRUNK LID FINISHER" .
4. Remove tail lamp mounting bolt.
5. Pull tail lamp toward rear of vehicle to remove it from the vehicle.



Installation

Note the following, and install in the reverse order of removal.

- Install a new seal packing to tail lamp.

CAUTION:
Seal packing cannot be reused.

Rear combination lamp mounting bolt : 5.5 N·m (0.56 kg-m, 49 in-lb)

INTERIOR ROOM LAMP

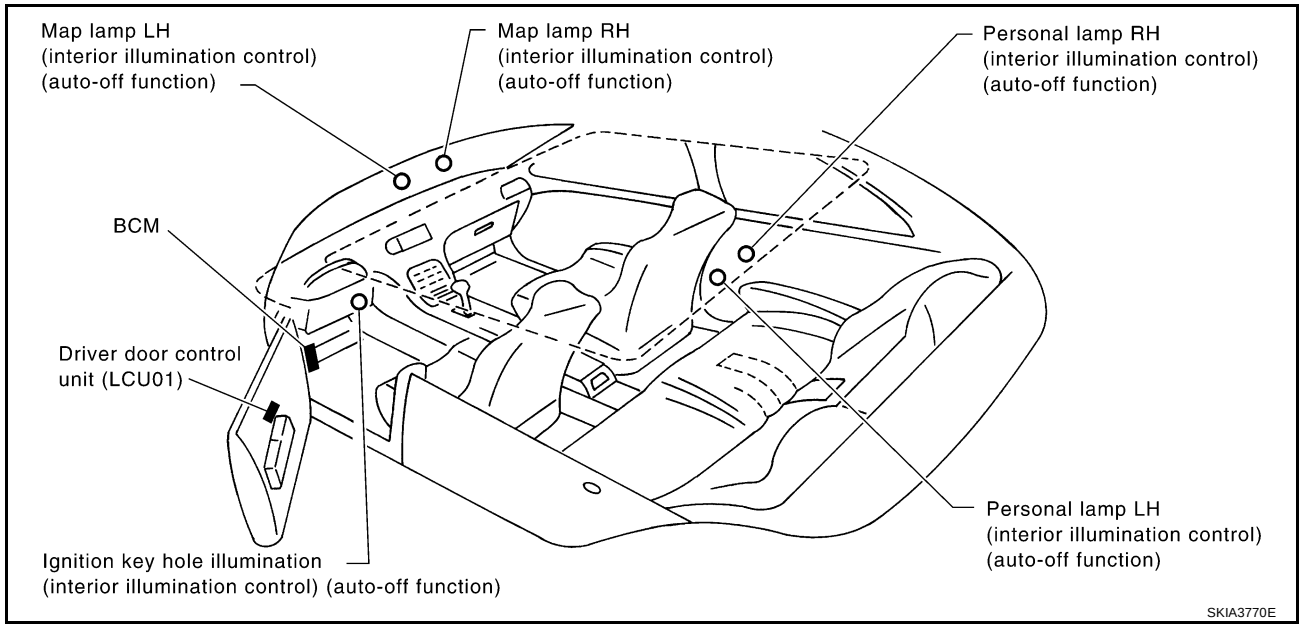
PFP:26410

System Description

NKS0019P

OUTLINE

Controls on/off and afterglow time of the map lamp (front personal light), personal lamp (rear personal light), and ignition key hole illumination.



TIMER FUNCTION

Controls the illumination duration of the lamps and illuminations according to the signals from the door unlock sensor, front door switch (driver side), ignition switch, and key switch.

- The timer operates for approx. 30 seconds.
- The timer will be actuated or cancelled by the signals from the following switches.

Components	Operation
Front door lock actuator (driver side) (Door unlock sensor)	● Timer will be actuated by input of the switch ON (door unlocked) signal when the driver door switch is OFF (door closed) and the key-in detection switch is OFF (key withdrawn). ● Timer will be cancelled by input of the switch OFF (door locked) signal.
Front door switch (driver side)	● Timer will be cancelled by input of the switch ON (door open) signal. ● Timer will be actuated by input of the switch ON→OFF (door open→closed) signal when the key-in detection switch is OFF.
Ignition switch	● Timer will be cancelled by input of the switch ACC or ON signal.
Key switch and key lock solenoid (Key switch)	● Timer will be actuated by input of the switch ON→OFF (key inserted→withdrawn) signal when the driver door switch is OFF (door closed).

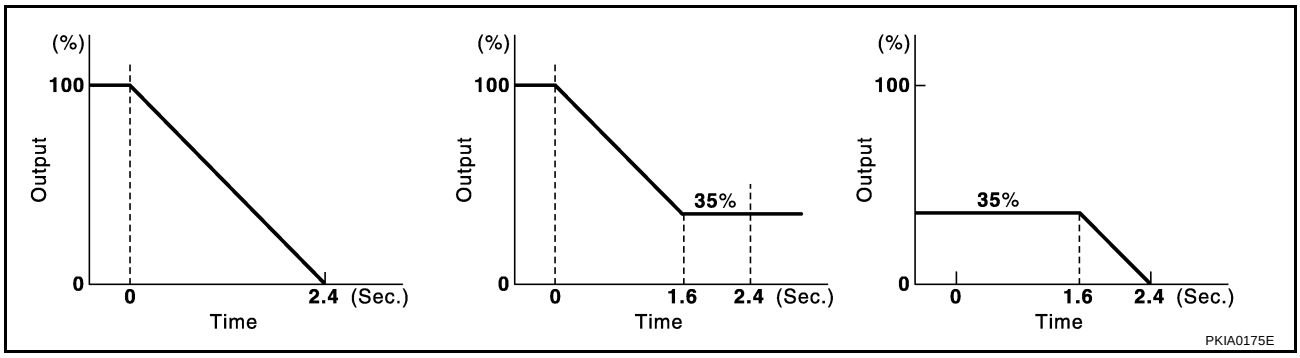
- If a new timer actuation signal is input while the timer is operating, the later input will have priority.
- If any lamp switch is operated and a separate actuation signal is input while the timer is operating, the lamp operation will be prioritized. However, the timer operation will not be renewed or cancelled.

LAMP OUTPUT CONTROL FUNCTION

This function controls output of lamps except for the ignition key hole illumination.

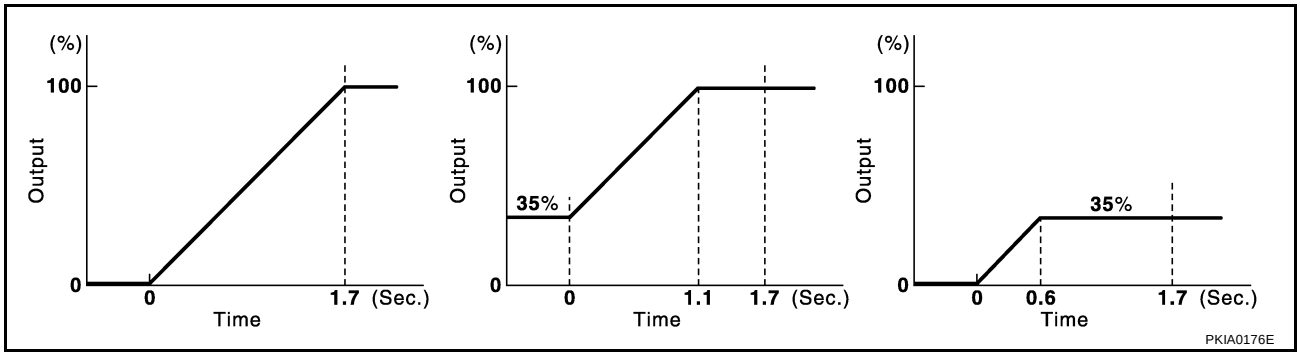
- Full illumination → off, from full illumination → half illumination, and from half illumination → off

  NOTE:
  In full illumination, brightness of the lamps is 100%. In half illumination, it is 35% (25% for the personal lamp).



- Off → full illumination, half illumination → full illumination, off → half illumination

  NOTE:
  In full illumination, brightness of the lamps is 100%. In half illumination, it is 35% (25% for the personal lamp).



AUTO OFF FUNCTION

When ignition switch is in OFF, and following condition is continued for approximately 30 minutes without the change, then interior room lamps are automatically turned OFF.

- Interior lamp illumination switch and personal lamps switch are “AUTO” position, and then door switch of either is opened.
- Interior lamp illumination switch is “ON” position.
- Personal lamp switch is “FULL” position.

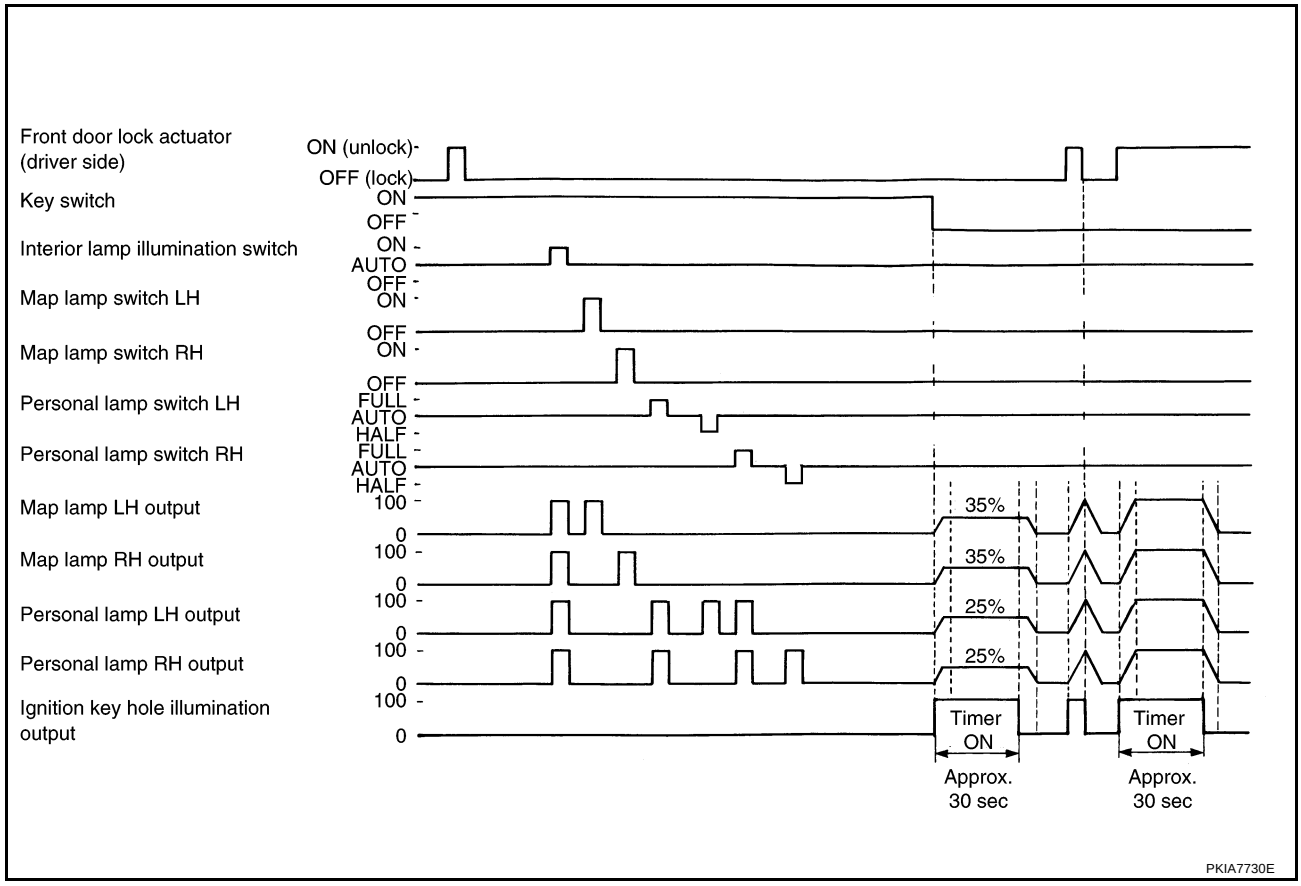
The auto off function is turned OFF when the one of following change is operated, and executes a usual operation control thereafter.

- Ignition switch is turned from OFF to ON.
- Each door switch is switched from OFF to ON. (Door closed → open)
- Interior lamp illumination switch is switched from OFF to ON.
- Personal lamp switch is switched from AUTO to ON.

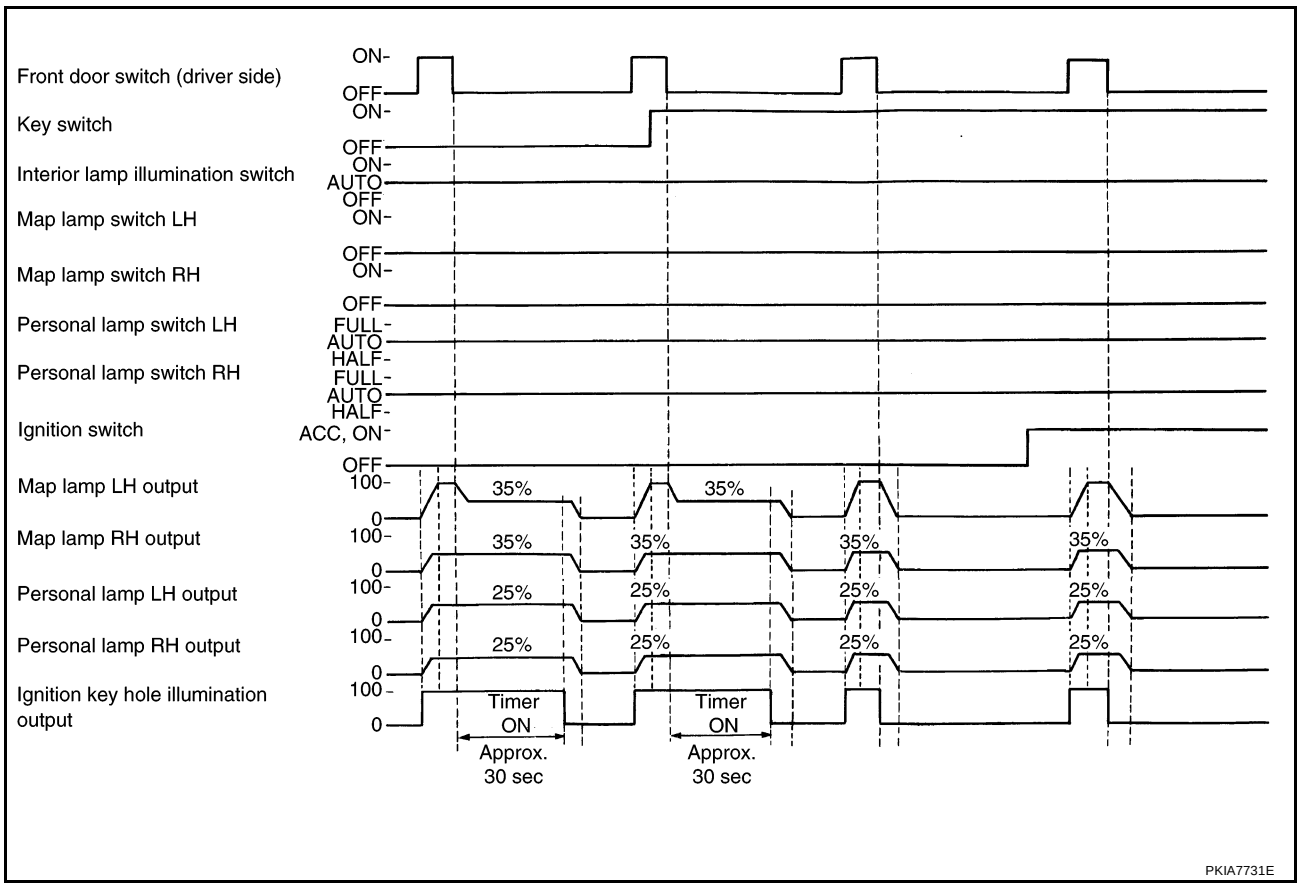
LIGHTS ON/OFF MODES

Separate signal from each switch and signals of higher output have priority over these modes.

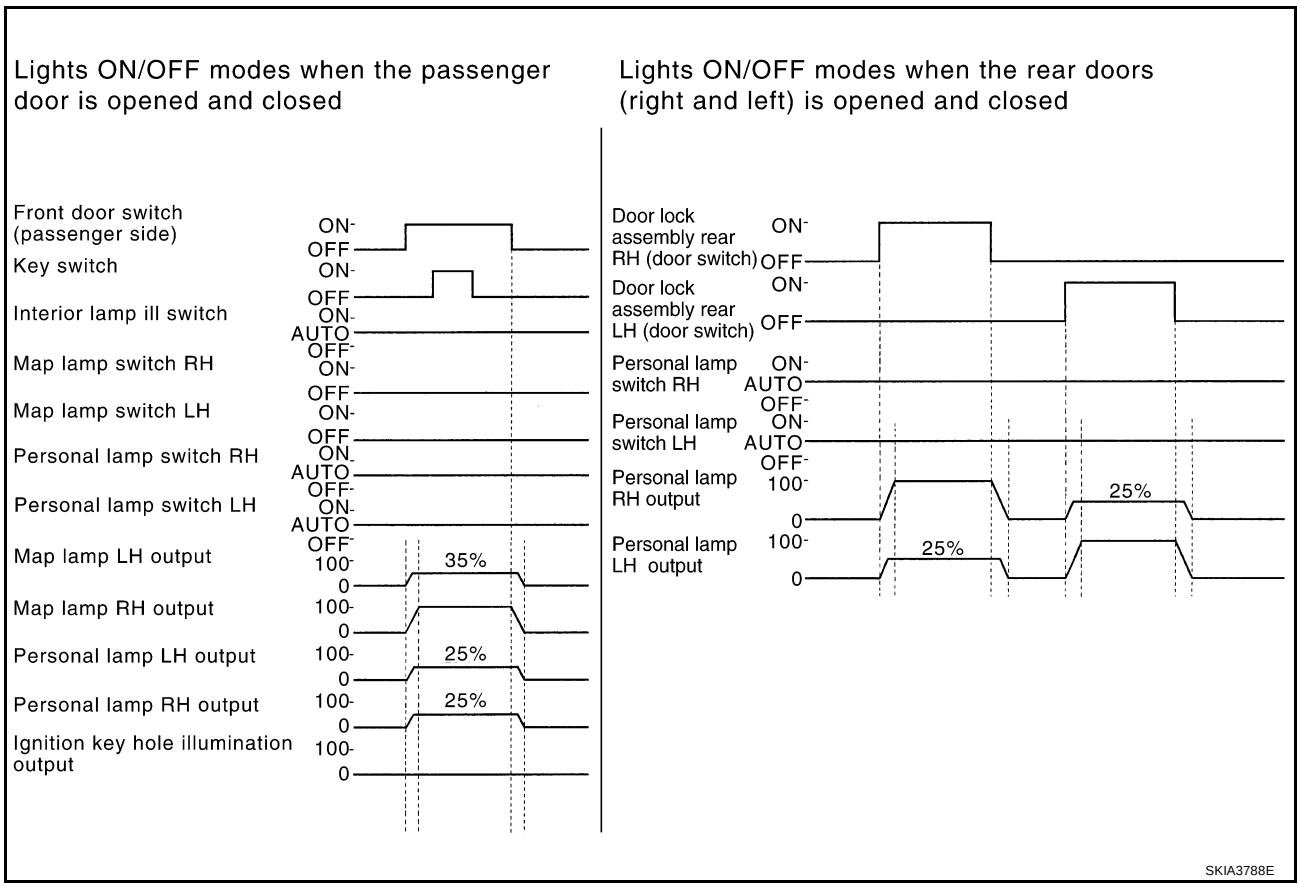
1. Lights on-off modes when each lamp switch is operated.



2. Lights on-off modes when the driver door is opened and closed.



3. Lights on-off modes when the passenger door is opened and closed, lights on-off modes when rear doors (LH, RH) are opened and closed.



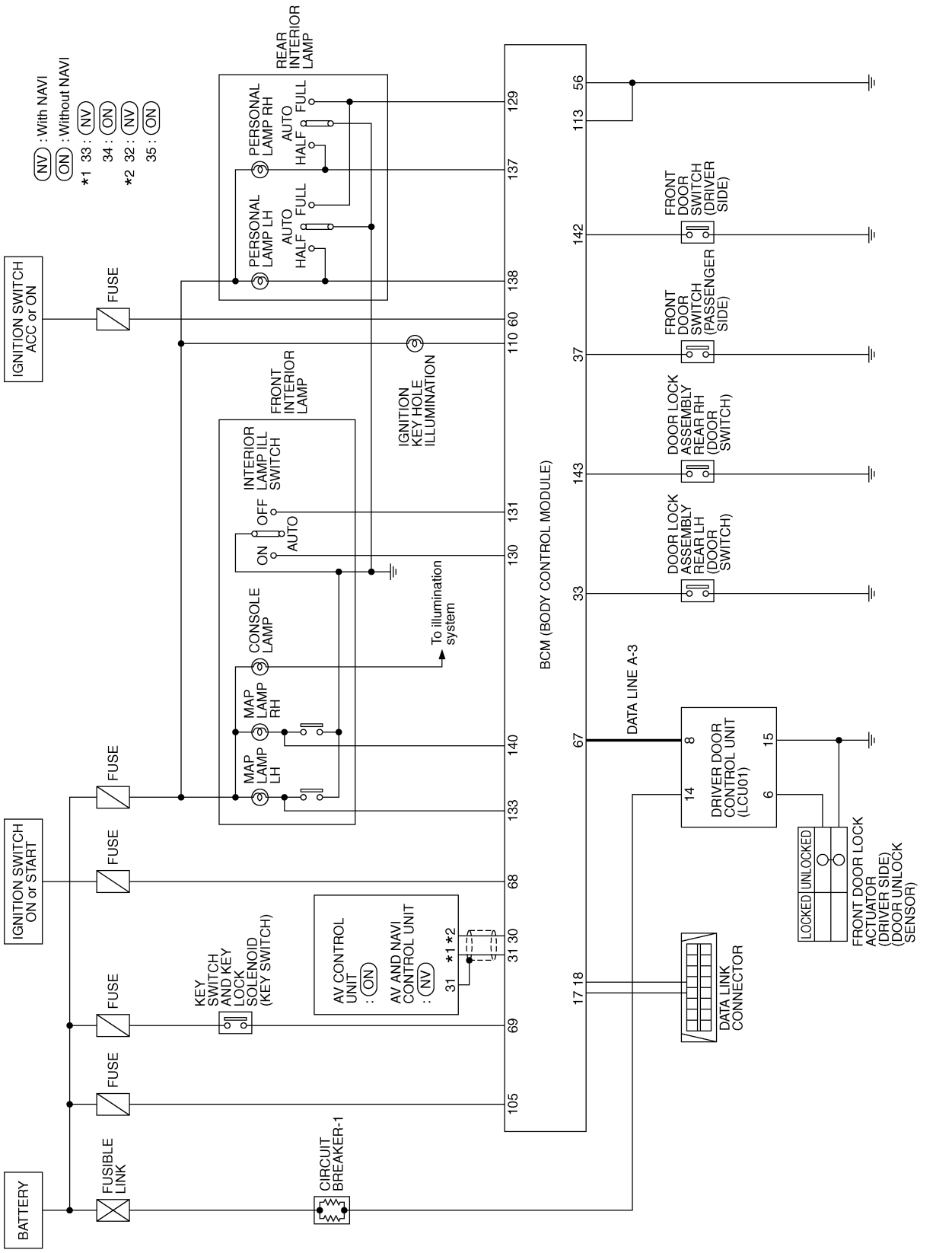
Major Components and the Functions

NKS0019Q

Component	Function
BCM	Controls on/off and afterglow time of the interior lamps and illuminations according to signals from ignition switch, key switch, lighting switch, each door switch, door unlock sensor, and each lamp switch. **CAUTION:** **On/off control varies with signal input from each switch. Refer to LT-119, "LIGHTS ON/OFF MODES".**
Door unlock sensor	Detects driver door lock (switch OFF)/unlock (switch ON) status and inputs it to the BCM via the driver door LCU.
Driver door switch	Detects driver door open (switch ON)/closed (switch OFF) status and inputs it to the BCM.
Ignition switch	Detects ignition switch OFF (OFF), ACC·IGN (ON) status and inputs it to the BCM.
Key-in detection switch	Detects ignition key inserted (ON)/withdrawn (OFF) status and inputs it to the BCM.

Schematic

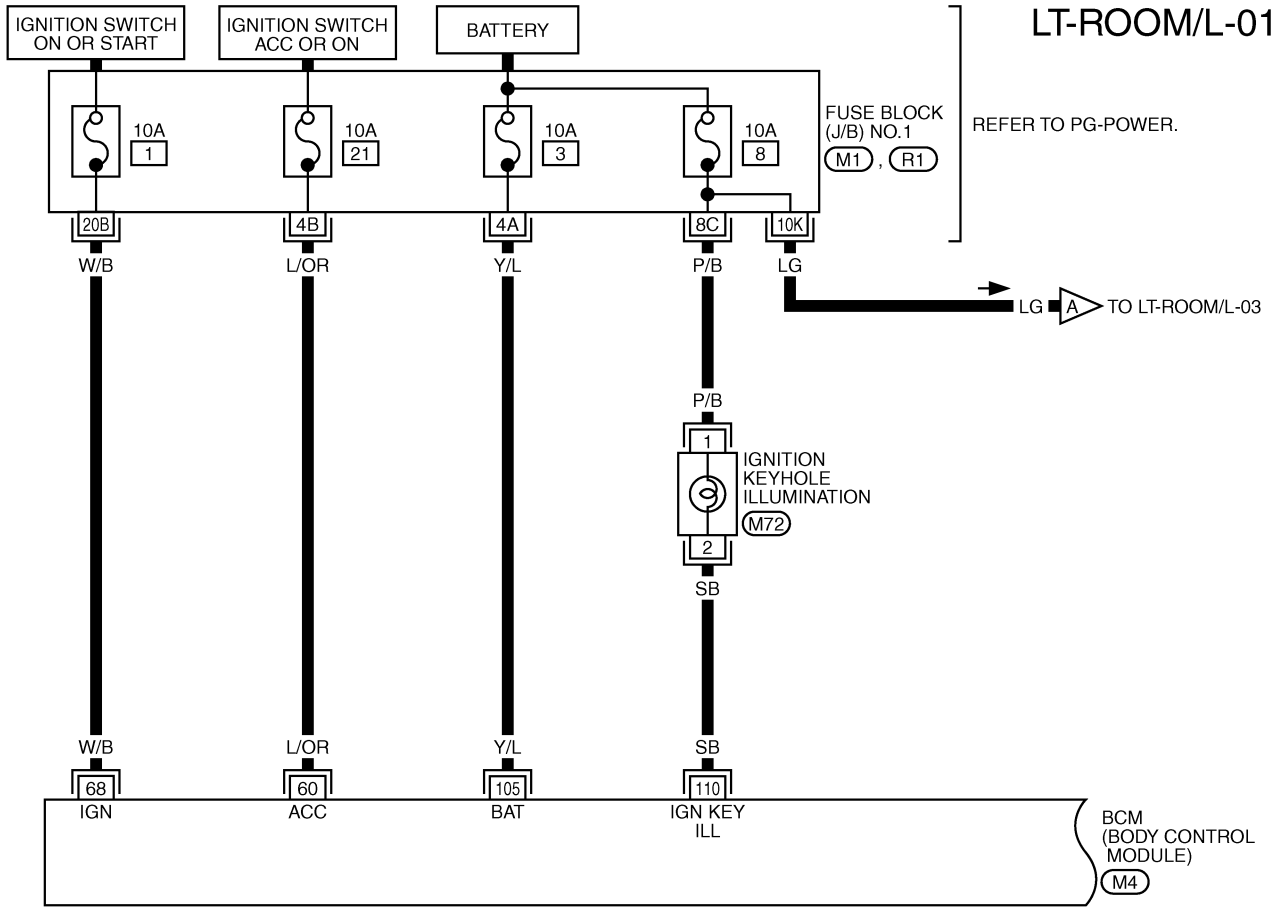
NKS0019R



TKWM1040E

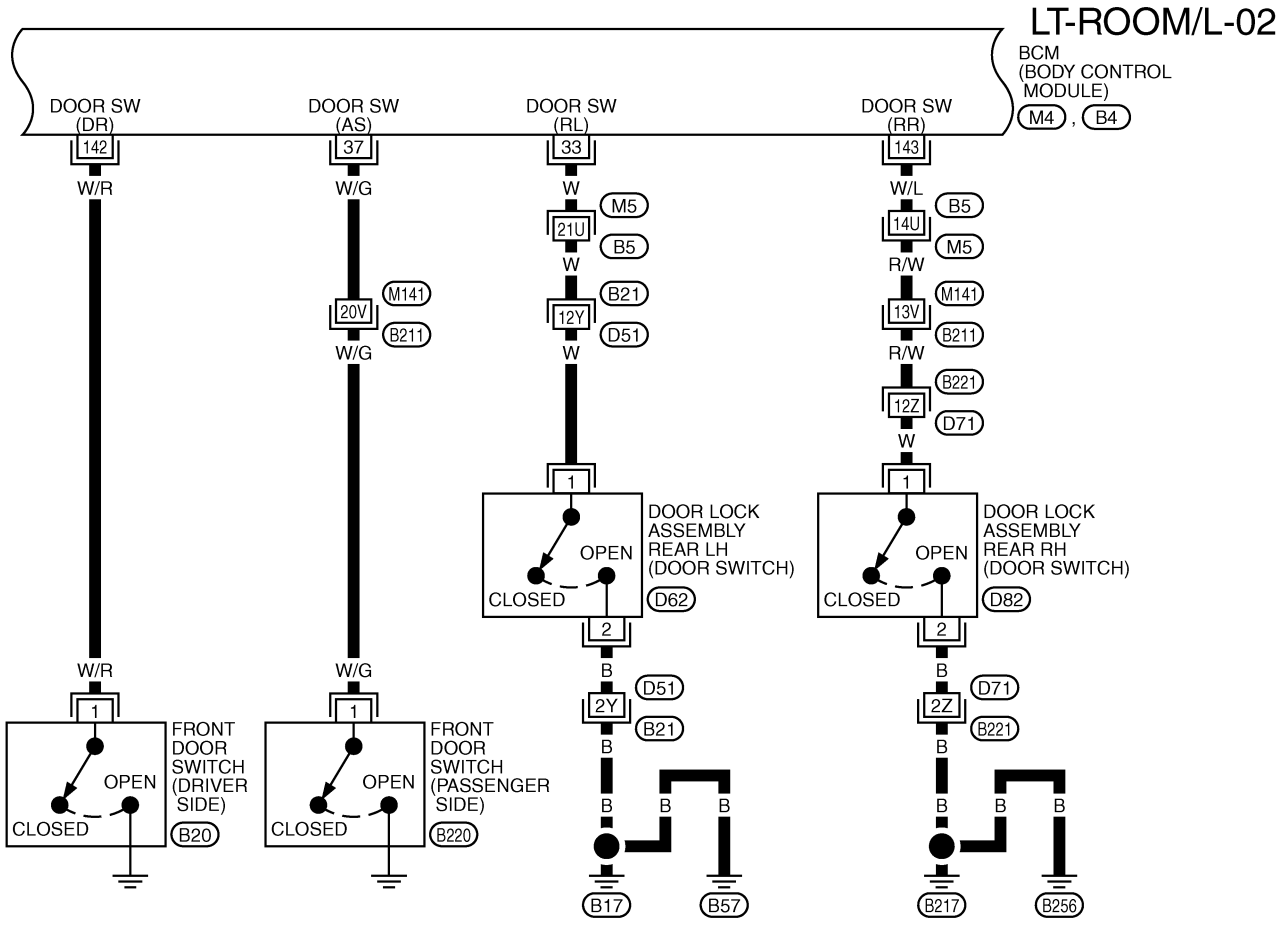
Wiring Diagram — INT/L —

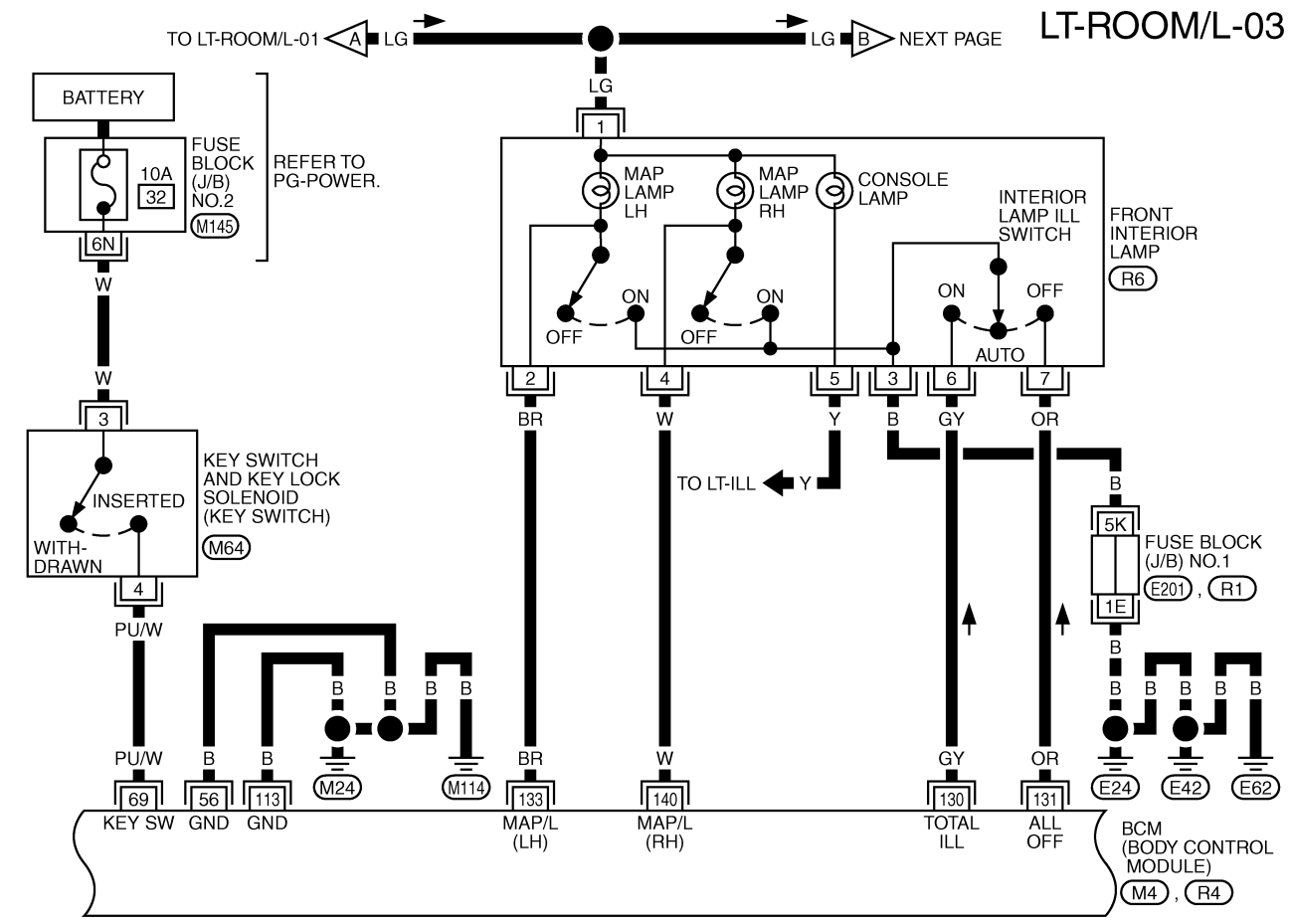
NKS0019S



REFER TO THE FOLLOWING.
M1 , R1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1
M4 -ELECTRICAL UNITS

TKWM1515E


LT-ROOM/L-02
BCM
(BODY CONTROL
MODULE)
M4 , B4
DOOR SW
(DR)
142
W/R
DOOR SW
(AS)
37
W/G
DOOR SW
(RL)
33
W
DOOR SW
(RR)
143
W/L
M5
21U
B5
W
B21
12Y
D51
W
R/W
M141
13V
B211
R/W
B221
12Z
D71
W
M141
20V
B211
W/G
1
OPEN
CLOSED
DOOR LOCK
ASSEMBLY
REAR LH
(DOOR SWITCH)
D62
2
B
2Y
D51
B21
B
DOOR LOCK
ASSEMBLY
REAR RH
(DOOR SWITCH)
D82
2Z
D71
B221
W/R
FRONT
DOOR
SWITCH
(DRIVER
SIDE)
B20
W/G
FRONT
DOOR
SWITCH
(PASSENGER
SIDE)
B220
B17
B57
B217
B256
1
2
3
B20 , B220
W W
1 2
D62 , D82
B B
REFER TO THE FOLLOWING.
M5 , B21 , B211 , B221
-SUPER MULTIPLE JUNCTION
(SMJ)
M4 , B4 -ELECTRICAL
UNITS
TKWM1516E



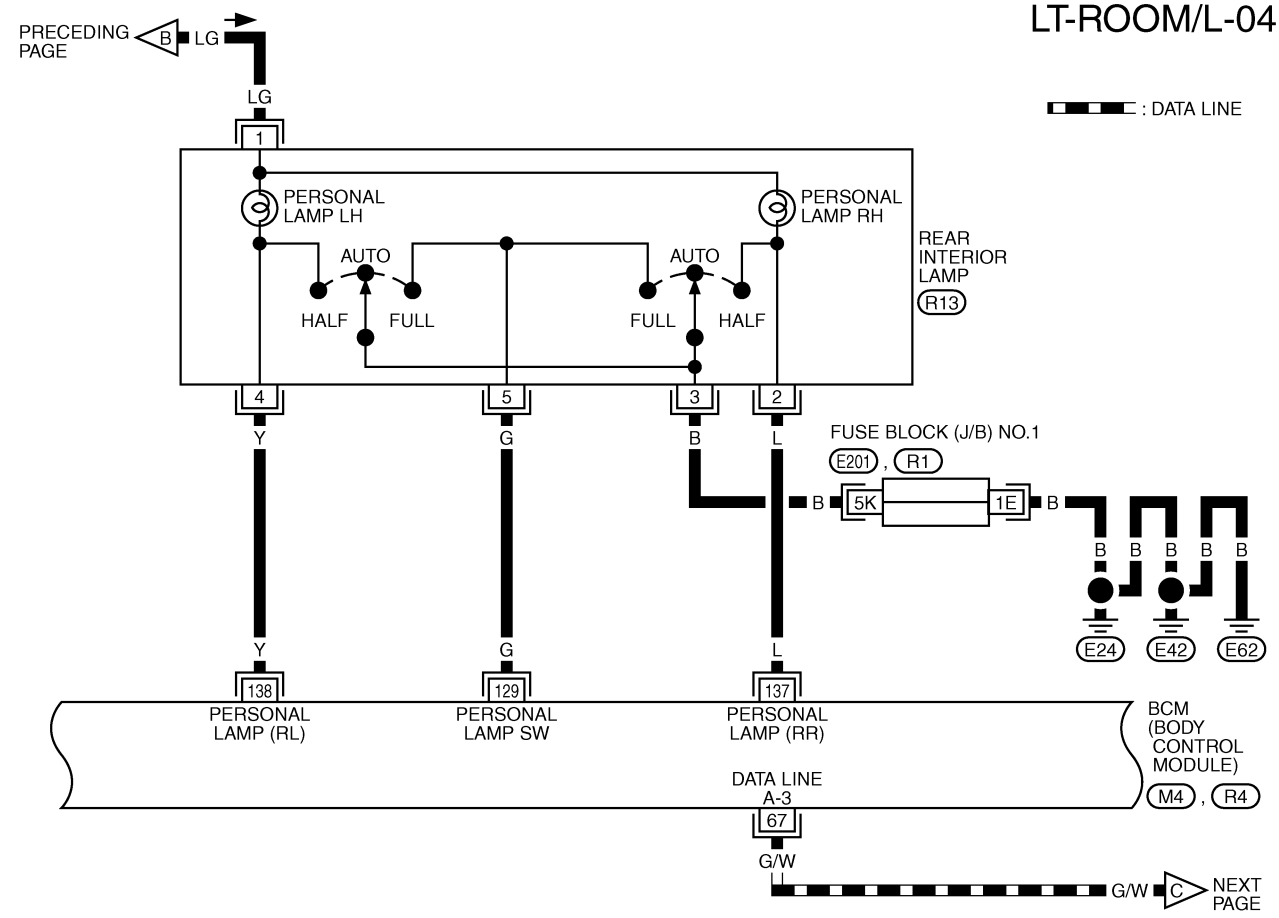
REFER TO THE FOLLOWING.

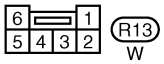
E201 , R1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

M145 -FUSE BLOCK-JUNCTION BOX (J/B) NO.2

M4 , R4 -ELECTRICAL UNITS

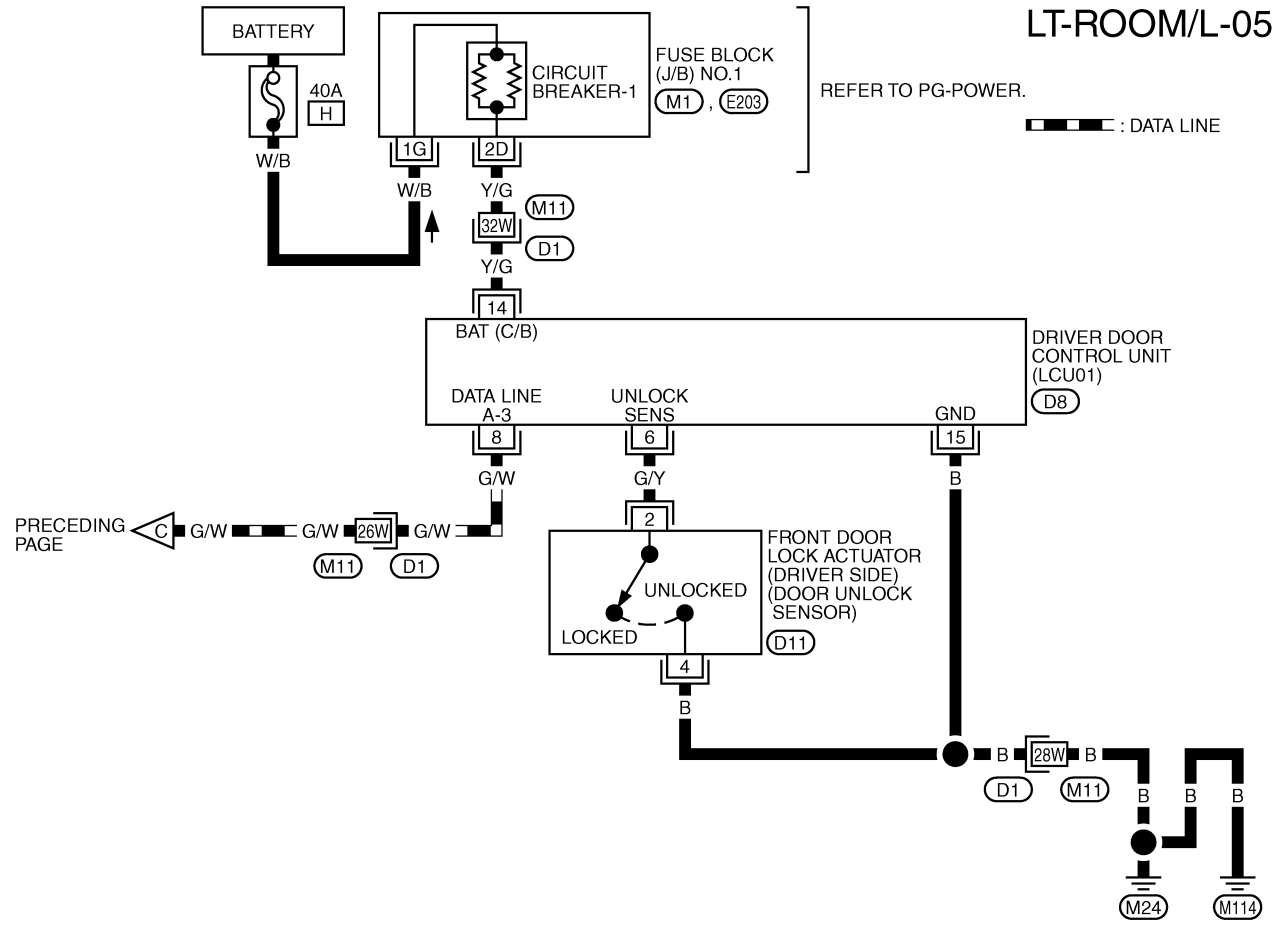
TKWM1517E

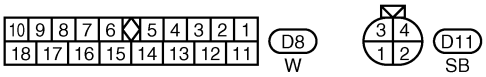




REFER TO THE FOLLOWING.
E201 , R1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1
M4 , R4 -ELECTRICAL UNITS

TKWM1518E





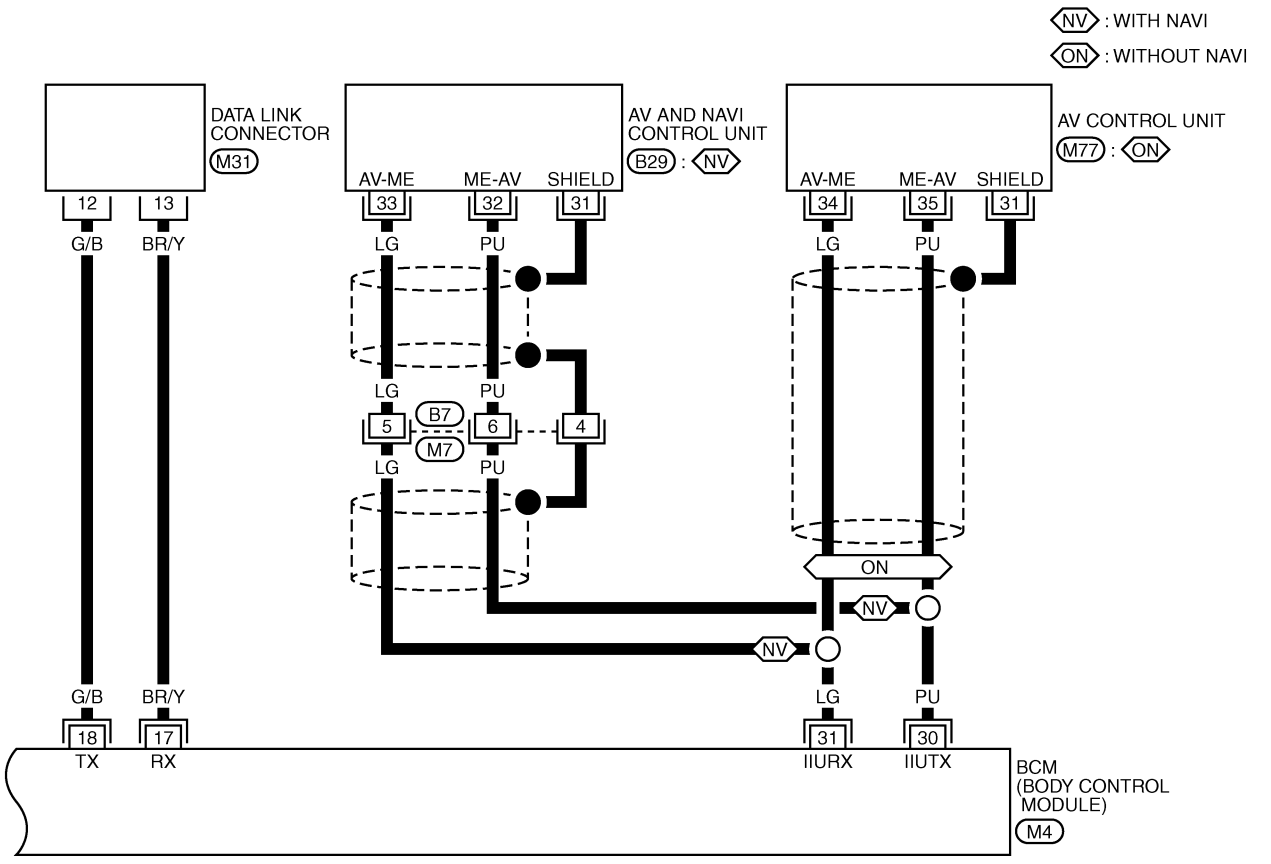
REFER TO THE FOLLOWING.

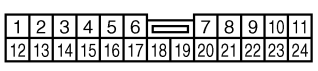
D1 -SUPER MULTIPLE JUNCTION (SMJ)

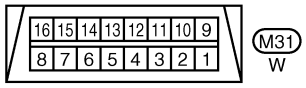
M1 , E203 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

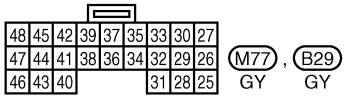
TKWM1519E

LT-ROOM/L-06









REFER TO THE FOLLOWING.
M4 -ELECTRICAL UNITS

TKWM3715E

Terminals and Reference Values for BCM

NKS0019T

Terminal No.	Wire color	Item	Measuring condition			Reference value
			Ignition switch	Operation or condition		
17	BR/Y	Data link RX	—	—		—
18	G/B	Data link TX	—	—		—
30	PU	Communication signal TX (BCM-AV: Transmission)	—	—		—
31	LG	Communication signal RX (AV-BCM: Receiving)	—	—		—
33	W	Rear LH door switch signal	OFF	Rear LH door switch	ON (open)	Approx. 0 V
					OFF (closed)	Battery voltage
37	W/G	Front door switch (passenger side) signal	OFF	Front door switch (passenger side) signal	ON (open)	Approx. 0 V
					OFF (closed)	Battery voltage
56	B	Ground	—	—		—
60	L/OR	Ignition switch (ACC)	ACC	—		Battery voltage
67	G/W	Data line A-3	—	—		—
68	W/B	Ignition switch	ON	—		Battery voltage
69	PU/W	Key switch and key lock solenoid signal	OFF	Key withdrawn (OFF)		Approx. 0 V
				Key inserted (ON)		Battery voltage
105	Y/L	Battery power supply	OFF	—		Battery voltage
110	SB	Ignition switch illumination signal	OFF	Turned OFF		Battery voltage
				Turned ON		Approx. 0 V
113	B	Ground	—	—		—
129	G	Personal lamp switch signal	OFF	Personal lamp switch	One switch ON	Approx. 5 V
					AUTO	Approx. 5 V
					Both switch ON	Approx. 0 V
130	GY	Interior lamp illumination switch ON signal	OFF	Interior lamp illumination switch	ON	Approx. 0 V
					AUTO	Approx. 5 V
					OFF	Approx. 5 V
131	OR	Interior lamp illumination switch OFF signal	OFF	Interior lamp illumination switch	ON	Approx. 5 V
					AUTO	Approx. 5 V
					OFF	Approx. 0 V
133	BR	Map lamp LH signal	OFF	Turned OFF		Battery voltage
				Dimming		Approx. 8 V
				Turned ON		Approx. 0 V
137	L	Personal lamp RH signal	OFF	Turned OFF		Battery voltage
				Dimming		Approx. 8 V
				Turned ON		Approx. 0 V
138	Y	Personal lamp LH signal	OFF	Turned OFF		Battery voltage
				Dimming		Approx. 8 V
				Turned ON		Approx. 0 V
140	W	Map lamp RH signal	OFF	Turned OFF		Battery voltage
				Dimming		Approx. 8 V
				Turned ON		Approx. 0 V

Terminal No.	Wire color	Item	Measuring condition			Reference value
			Ignition switch	Operation or condition		
142	W/R	Driver door switch signal	OFF	Driver door switch	ON (open)	Approx. 0 V
					OFF (closed)	Battery voltage
143	W/L	Rear RH door switch signal	OFF	Rear RH door switch	ON (open)	Approx. 0 V
					OFF (closed)	Battery voltage

Terminals and Reference Values for Driver Door Control Unit (LCU01)

NKS0019U

Terminal No.	Wire color	Item	Measuring condition		Reference value
			Ignition switch	Operation or condition	
6	G/Y	Door unlock sensor	OFF	ON (unlocked)	Approx. 0 V
				OFF (locked)	Approx. 5 V
8	G/W	Data line A-3	—	—	—
14	Y/G	Power source (circuit breaker)	OFF	—	Battery voltage
15	B	Ground	ON	—	Approx. 0 V

Work Flow

NKS0019V

1. Confirm the symptom or customer complaint.
2. Understand system description. Refer to LT-117, "System Description" .
3. Perform the preliminary check. Refer to LT-130, "Preliminary Check" .
4. Does the door lock system operate normally? If YES, GO TO 5. If NO, GO TO Power door lock system BL-44, "Symptom Chart" in “BODY LOCK & SECURITY SYSTEM (BL)” section.
5. Find the cause of trouble following the trouble diagnosis chart by symptom and repair or replace as necessary. Refer to LT-137, "Symptom Chart" .
6. Does the total coordinated interior illumination operate normally? If YES, GO TO 7. If NO, GO TO 5.
7. INSPECTION END

Preliminary Check

NKS0019W

SETTING CHANGE FUNCTION

- Setting for each operation can be changed using CONSULT-II and a display unit.

Item	Description	CONSULT-II (Work support)	Display unit (Setting of various vehicle conditions)	Factory setting
SET I/L LGC-D- UNLCK (CONSULT-II) Illuminate Interior When Unlocking Vehicle (display unit)	Selects ON-OFF of the interior lamp illumination at the time the driver door is unlocked.	ON	ON: Indicator ON	×
		OFF	OFF: indicator OFF	—
SET INT- L LOGIC-TIM (CONSULT-II) Interior Lights Off Delay (display unit)	Selects interior lamp timer set time in four steps.	Mode 1 (off)	OFF: Display OFF	—
		Mode 2 (15 seconds)	15 seconds: Display 15 sec.	—
		Normal (30 seconds)	30 seconds: Display 30 sec.	×
		Mode 3 (45 seconds)	45 seconds: Display 45 sec.	—

CAUTION:

After the setting is changed, the new setting will be maintained even if the battery is disconnected.

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSE

Check for blown fuses.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	3
	Ignition switch ACC or ON	21
	Ignition switch ON or START	1
Driver door control unit (LCU01)	Battery	H

Refer to LT-123, "Wiring Diagram — INT/L —" .

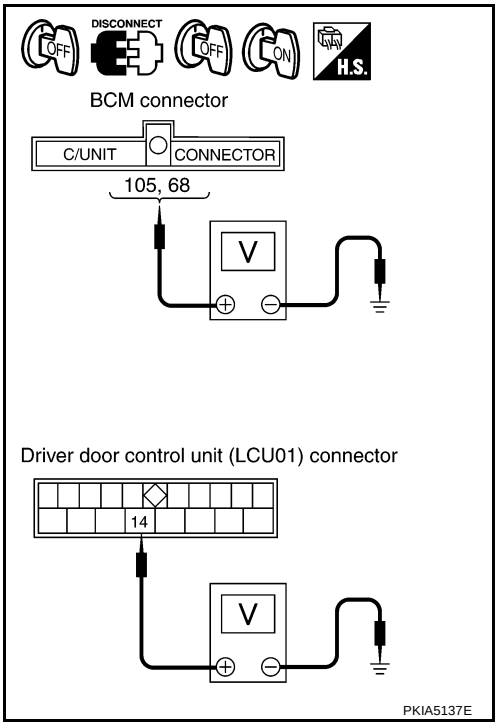
OK or NG

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-2, "POWER SUPPLY ROUTING" .

2. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and driver door control unit (LCU01) connector.
3. Check voltage between BCM and driver door control unit (LCU01) harness connector, and ground.

Terminal			Ignition switch position	
(+)		(–)	OFF	ON
Connector	Terminal			
BCM (M4)	105	Ground	Battery voltage	Battery voltage
	68		Approx. 0 V	Battery voltage
Driver door LCU (D8)	14		Battery voltage	Battery voltage



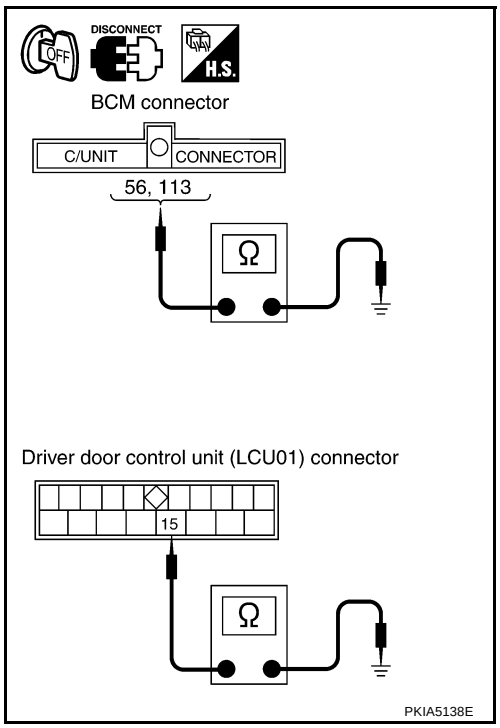
OK or NG

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

3. CHECK GROUND CIRCUIT

Check continuity between BCM and driver door control unit (LCU01) harness connector, and ground.

Terminal			Continuity
Connector	Terminal		
BCM (M4)	56	Ground	Yes
	113		
Driver door LCU (D8)	15		



OK or NG

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

CONSULT-II Function (IVMS)

NKS0019X

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

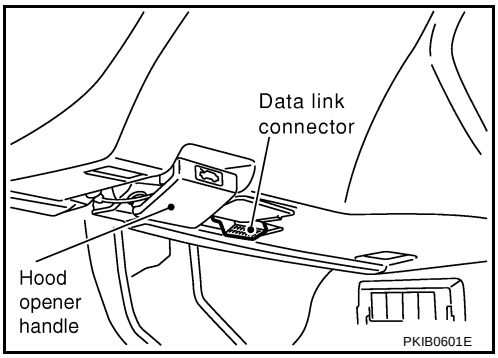
IVMS diagnosis position	Diagnosis mode	Description
INTERIOR ILLUMINATION	WORK SUPPORT	Changes setting of each function.
	DATA MONITOR	Displays input data of the BCM and each LCU in real-time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending driving signal to them.
BCM PART NUMBER		Displays BCM part number.

CONSULT-II BASIC OPERATION PROCEDURE

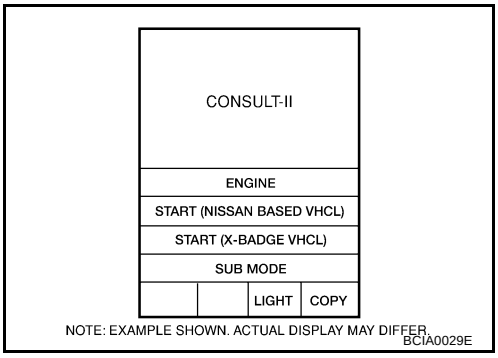
CAUTION:

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

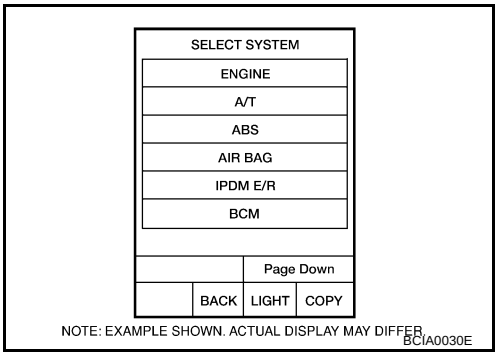
1. With the ignition switch OFF, connect “CONSULT-II” and “CONSULT-II CONVERTER” to the data link connector, and then turn ignition switch ON.



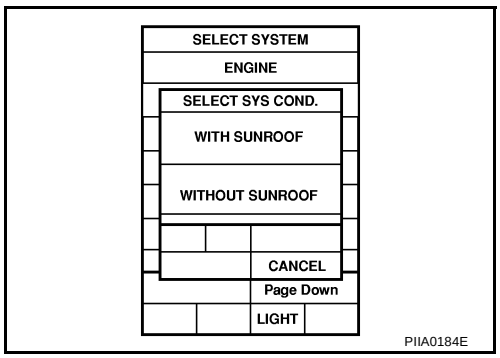
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “IVMS” on “SELECT SYSTEM” screen. If “IVMS” is not indicated, refer to GI-37, "CONSULT-II Data Link Connector (DLC) Circuit" .



4. Select “WITH SUNROOF” on “SELECT SYS COND” screen.
5. Touch “OK”. If the selection is wrong, touch “CANCEL”.
6. Select the desired part to be diagnosed on “SELECT TEST ITEM” screen.



WORK SUPPORT

Operation Procedure

1. Touch “INTERIOR ILLUMINATION” on “SELECT TEST ITEM” screen.
2. Touch “WORK SUPPORT” on “SELECT DIAG MODE” screen.
3. Touch “SET INT-L LOGIC-TIM” or “SET I/L LGC-D-UNLCK” on “SELECT WORK ITEM” screen.
4. Touch “START”.
5. Touch “NORMAL”/“MODE 1 - 3” of which setting is to be changed (for the interior lamp logic timer setting only).
6. Touch “CHANGE SET”.
7. The setting will be changed and the current setting status will be displayed.
8. Touch “END”.

Display Item List

Refer to LT-130, "SETTING CHANGE FUNCTION" .

DATA MONITOR

Operation Procedure

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

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

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

Display Item List

Monitored item [“OPERATION OR UNIT”]		Contents
IGN ON SW	[ON/OFF]	Displays status of the ignition switch as judged from the ignition switch signal. (Key is in ON position: ON/Key is in ACC or OFF position: OFF)
DOOR SW-DR	[ON/OFF]	Displays status of the driver door as judged from the driver door switch signal. (Door is open: ON/Door is closed: OFF)
DOOR SW-AS	[ON/OFF]	Displays “Door open (ON)/door closed (OFF)” status judged from the door switch AS signal.
DOOR SW-RR	[ON/OFF]	Displays “Door open (ON)/door closed (OFF)” status judged from the door switch RR signal.
DOOR SW-RL	[ON/OFF]	Displays “Door open (ON)/door closed (OFF)” status judged from the door switch RL signal.
HD/LMP 1ST SW	[ON/OFF]	Displays status of the lighting switch as judged from the lighting switch signal. (OFF or AUTO position: OFF/Other than OFF and AUTO position: ON)
IGN KEY SW	[ON/OFF]	Displays “Key inserted (ON)/key withdrawn (OFF)” status judged from the key remainder detection switch signal.

Monitored item ["OPERATION OR UNIT"]		Contents
IGN ACC SW	[ON/OFF]	Displays "Ignition ON or ACC (ON)/ignition OFF (OFF)" status judged from the ignition switch signal.
LOCK SIG-DR	[LOCK/UNLK]	Displays "Door locked (LOCK)/door unlocked (UNLK)" status judged from the locking detection switch DR signal.

ACTIVE TEST

Operation Procedure

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

Display Item List

Test items	Display on CONSULT-II screen	Description
Map lamp output	FR PERSONAL LAMP	Map lamp can be operated by any ON-OFF operation of lights.
Personal lamp output	RR PERSONAL LAMP	Personal lamp can be operated by any ON-OFF operation of lights.
Ignition key hole illumination output	KEY RING ILLUM	Ignition key hole illumination can be operated by any ON-OFF operation of lights.

CAUTION:

Active test should be performed with the lamp switch in AUTO position.

On Board Diagnosis

NKS0019Y

- BCM can check communication diagnosis, switch monitor, and central locking system self diagnosis using on board diagnosis.
- Map lamps and step lamps (all seats) act as the indicators for on board diagnosis.

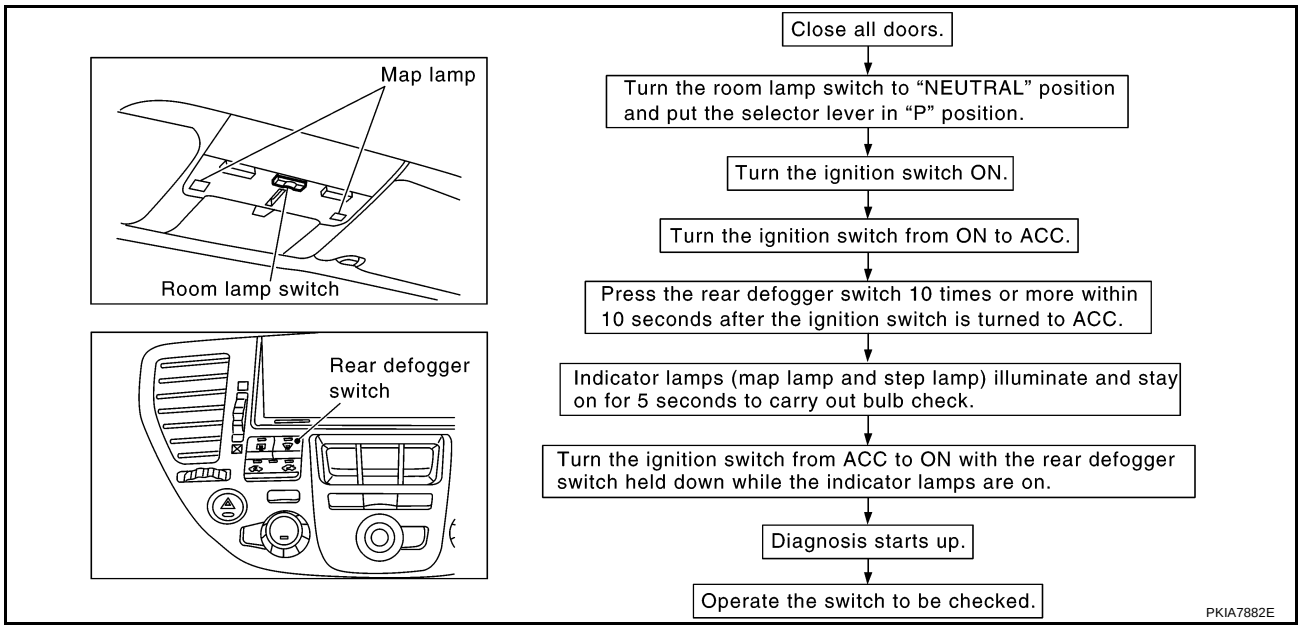
DIAGNOSIS ITEM

Diagnosis item	Description
Switch monitor	Checks for malfunction in switch systems that input to BCM and each LCU.

SWITCH MONITOR

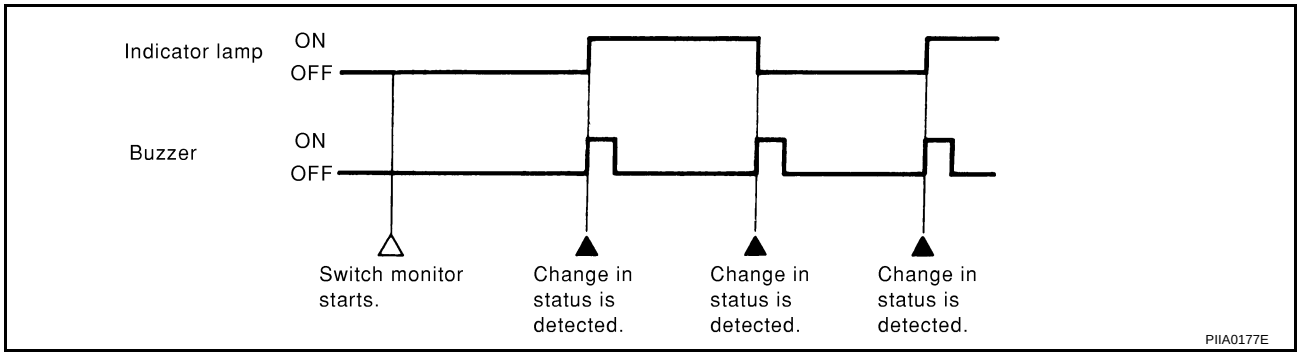
- Perform diagnosis on the switch system connected to each control unit.

How to Perform Switch Monitor



Description

- Detects the status change (switch ON/OFF operation) of switch to be checked, and turns ON/OFF indicator lamps (the map lamp and step lamp). Also sounds the buzzer for 0.5 seconds.
- If a malfunction is detected, no indicator lamp and buzzer react.



Switch Monitor Item

- The status of the switch (except the ignition switch, interior lamp illumination switch, and map lamp switch) as input to each control unit can be monitored.

Control unit	Item
BCM	Lighting switch (AUTO, 1ST position)
	Each door switch
Driver door LCU	Door locking detection switch

Switch Monitor Cancellation

If the following conditions are satisfied, the communication diagnosis is cancelled.

- Turn ignition switch OFF.
- Drive the vehicle more than 7 km/h (4 MPH).

Symptom Chart

NKS0019Z

Symptom	Malfunctioning system and reference
● Map lamp and personal lamp will not illuminate when the interior lamp illumination switch is turned ON with the personal lamp switch in AUTO position. ● Map lamp and personal lamp will not go out when the interior lamp illumination switch is turned OFF with the personal lamp switch in AUTO position.	● Interior lamp illumination switch system. Refer to LT-137, "Interior Lamp Illumination Switch System Check" . If above system is normal, replace the BCM.
● Personal lamp will not illuminate when RH personal lamp switch is turned ON with LH personal lamp switch in AUTO position. ● Personal lamp will not illuminate when LH personal lamp switch is turned ON with RH personal lamp switch in AUTO position. ● Personal lamp switch will not go out when both RH and LH personal lamp switches are turned to AUTO position.	● Personal lamp switch system. Refer to LT-138, "Personal Lamp Switch System Check" . If above system is normal, replace the BCM.
● All lamps (except step lamp) will not illuminate in the lamp illumination conditions with the interior lamp illumination switch and RH and LH personal lamp switches in AUTO position. ● All lamps (except step lamp) will not go out in the lamp off conditions with the interior lamp switch and RH and LH personal lamp switches in AUTO position.	● Interior lamp illumination switch system. Refer to LT-137, "Interior Lamp Illumination Switch System Check" . ● Door switch system. Refer to LT-139, "Door Switch System Check" . ● Key-in detection switch system. Refer to LT-141, "Key Switch and Key Lock Solenoid System Check" . If above system is normal, replace the BCM.
● Lamps illuminate fully in half illumination conditions. ● Dimming function will not operate when turning the lamp off.	Replace the BCM.*1

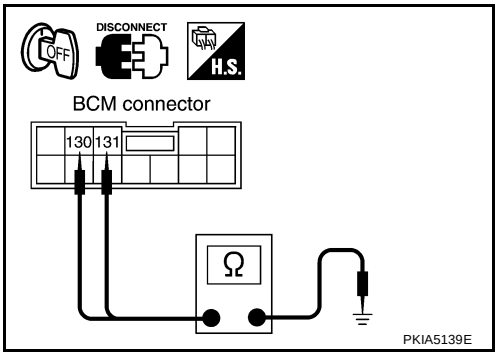
*1: **When BCM input/output signal are normal** .

Interior Lamp Illumination Switch System Check

NKS001A0

1. CHECK INTERIOR LAMP ILLUMINATION SWITCH SIGNAL

1. Turn ignition switch OFF.
2. Disconnect the BCM connector.
3. Check continuity between BCM harness connector and ground while operating interior lamp illumination switch.



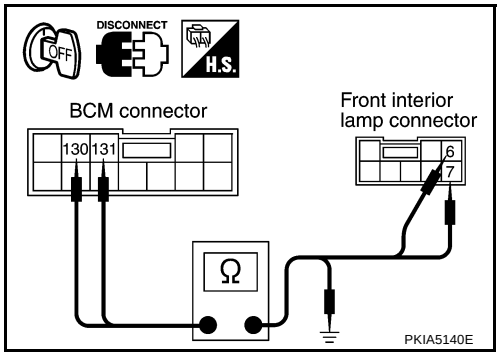
Terminal			Condition	Continuity
Connector	Terminal			
R4	130	Ground	Interior lamp switch ON	Yes
			Interior lamp switch OFF and AUTO	No
	131		Interior lamp switch OFF	Yes
			Interior lamp switch OFF and AUTO	No

OK or NG

OK >> Interior lamp illumination switch is OK.
NG >> GO TO 2.

2. CHECK WIRE HARNESS CONTINUITY

1. Disconnect front interior lamp connector.
2. Check continuity between BCM harness connector and front interior lamp harness connector.
3. Check continuity between BCM harness connector and ground.



Terminal				Continuity
Connector	Terminal	Connector	Terminal	
R4	130	R6	6	Yes
	131		7	
	130	Ground		No
	131			

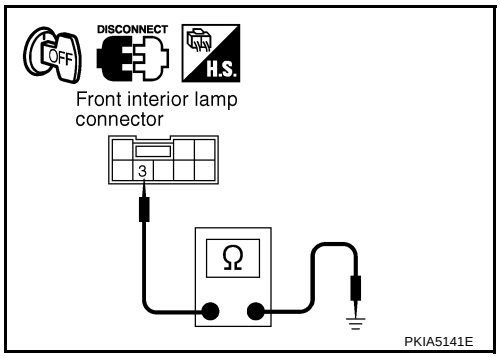
OK or NG

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

3. CHECK GROUND CIRCUIT

Check continuity between front interior lamp harness connector R6 terminal 3 and ground.

3 - Ground : Continuity should exist.



OK or NG

OK >> Check interior lamp illumination switch.
NG >> Repair harness or connector.

Personal Lamp Switch System Check

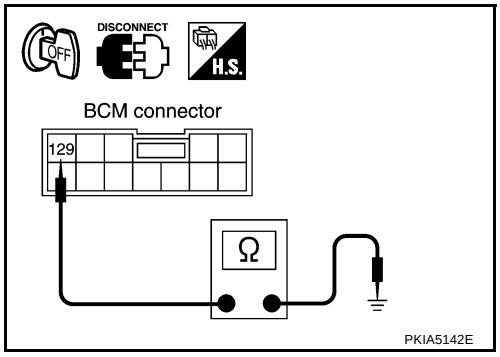
NKS001A1

1. CHECK PERSONAL LAMP SWITCH SIGNAL

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check continuity between BCM harness connector R4 terminal 129 and ground while operating personal lamp switch.

RH and LH personal lamp switches in HALF or AUTO position : Continuity should not exist.

RH or LH personal lamp switch in FULL position : Continuity should exist.



OK or NG

OK >> Personal lamp switch is OK.
NG >> GO TO 2.

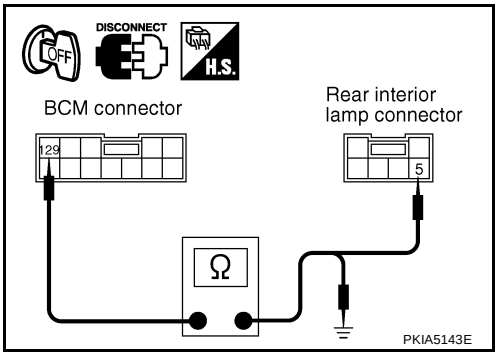
2. CHECK WIRE HARNESS CONTINUITY

1. Disconnect rear interior lamp connector.
2. Check continuity between BCM harness connector R4 terminal 129 and rear interior lamp harness connector R13 terminal 5.

129 - 5 : Continuity should exist.

3. Check continuity between BCM harness connector R4 terminal 129 and ground.

129 - Ground : Continuity should not exist.



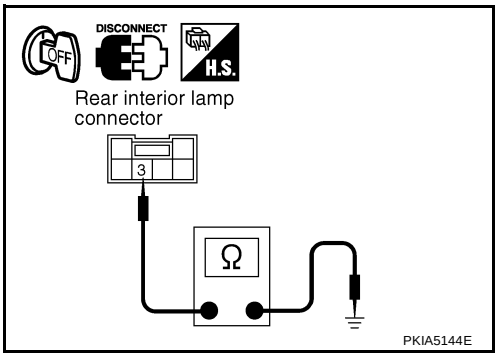
OK or NG

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

3. CHECK GROUND CIRCUIT

Check continuity between rear interior lamp harness connector R13 terminal 3 and ground.

3 - Ground : Continuity should exist.



OK or NG

OK >> Replace personal lamp switch.
NG >> Repair harness or connector.

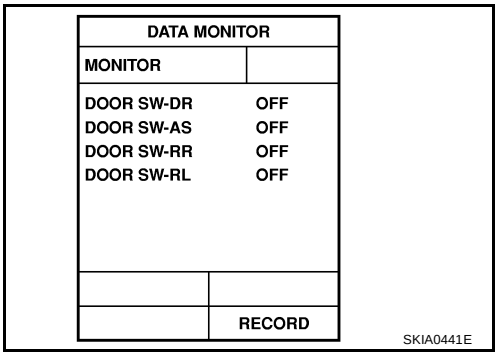
Door Switch System Check

NKS001A2

1. CHECK DOOR SWITCH SIGNAL

With CONSULT-II

- Operate each door via “DOOR SW” on DATA MONITOR screen and make sure that switch turns on and off as commanded.



Without CONSULT-II

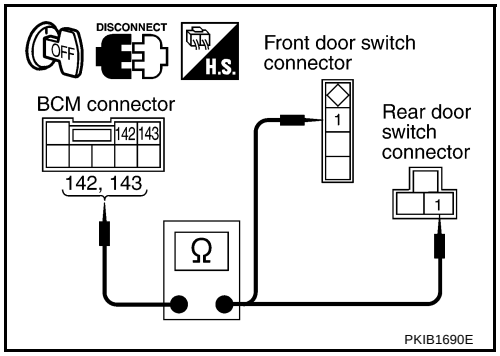
- Operate each door and via “switch monitor” of self-diagnosis function and make sure that the switch turns on and off as commanded.

OK or NG

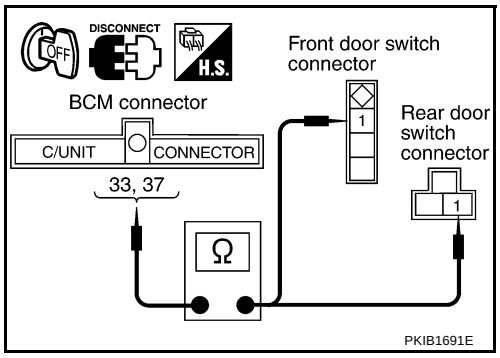
OK >> Door switch is OK.
NG >> GO TO 2.

2. CHECK DOOR SWITCH HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect each door switch connector and BCM connector.
3. Check continuity between each door switch harness connector and BCM harness connector.



Terminal					Continuity
BCM connector	Terminal	Door switch connector		Terminal	
B4	142	B20	Front door switch (driver side)	1	Yes
	143	D82	Door lock assembly rear RH (door switch)	1	
M4	33	D62	Door lock assembly rear LH (door switch)	1	
	37	B220	Front door switch (passenger side)	1	



OK or NG

OK >> ● Check door switch ground condition.
● Replace door switch.

NG >> Repair harness or connector.

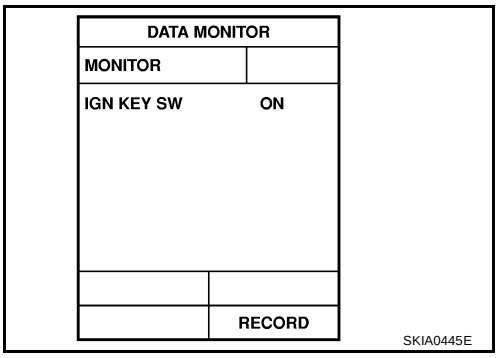
Key Switch and Key Lock Solenoid System Check

NKS001A3

1. CHECK KEY SWITCH AND KEY LOCK SOLENOID SIGNAL

With CONSULT-II

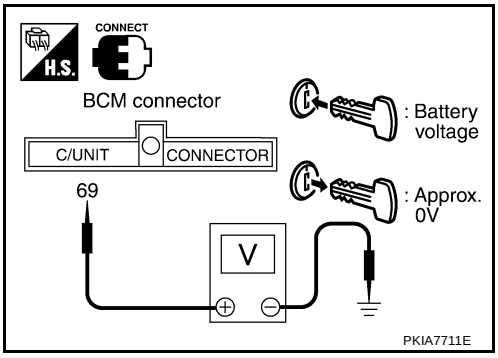
- Insert and withdrawn the key via “IGN KEY SW” on DATA MONITOR screen and make sure that switch turns on and off accordingly.



Without CONSULT-II

- Check voltage between BCM connector M4 terminal 69 and ground while inserting and withdrawn the key.

Key withdrawn (switch OFF) : Approx. 0 V
Key inserted (switch ON) : Battery voltage



OK or NG

OK >> Key switch and key lock solenoid is OK.
NG >> GO TO 2.

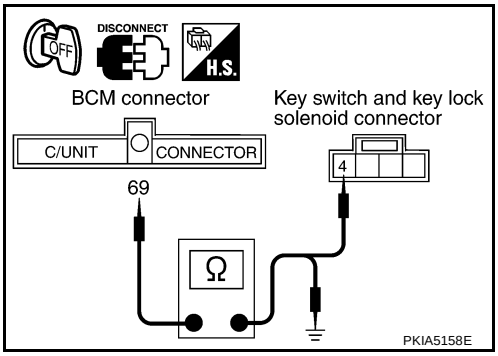
2. CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect BCM connector and key switch connector.
3. Check continuity between BCM harness connector M4 terminal 69 and key switch and key lock solenoid harness connector M64 terminal 4.

69 - 4 : Continuity should exist.

4. Check continuity between BCM harness connector M4 terminal 69 and ground.

69 - Ground : Continuity should not exist.



OK or NG

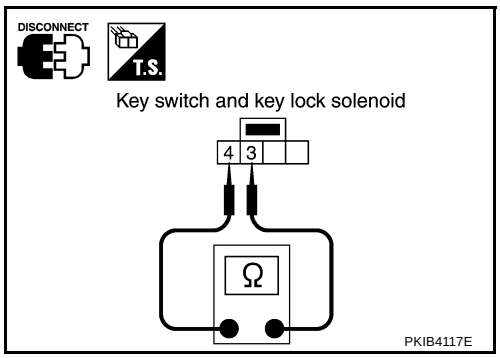
OK >> GO TO 3.
NG >> Repair harness or connector.

3. CHECK KEY SWITCH AND KEY LOCK SOLENOID

Check continuity between key switch and key lock solenoid terminals 3 and 4 while inserting and withdrawing the ignition key.

Key withdrawn (switch OFF) **: Continuity should not exist.**

Key inserted (switch ON) **: Continuity should exist.**



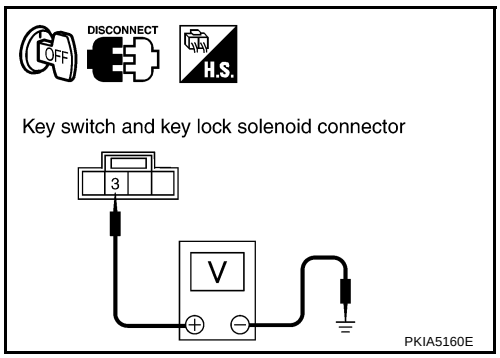
OK or NG

OK >> GO TO 4.
NG >> Replace key switch and key lock solenoid.

4. CHECK POWER SUPPLY CIRCUIT

Check voltage between key switch and key lock solenoid harness connector M64 terminal 3 and ground.

3 - Ground **: Battery voltage**



OK or NG

OK >> Key switch and key lock solenoid is OK.
NG >> Check harness for open and short between key switch and key lock solenoid and fuse.

Bulb Replacement

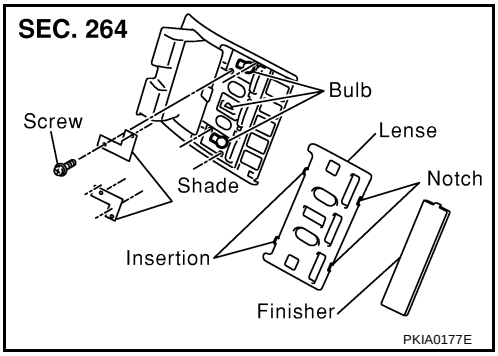
NKS001A4

MAP LAMP (FRONT PERSONAL LIGHT) AND CONSOLE LAMP (CONSOLE LIGHT)

Map Lamp

1. Remove finisher using a clip driver or a suitable tool.
2. Insert a thin screwdriver in the notch and remove lens.
3. Remove screw and remove shade.
4. Remove bulb.

Map lamp (Front personal light) : 12V - 8W



Console Lamp

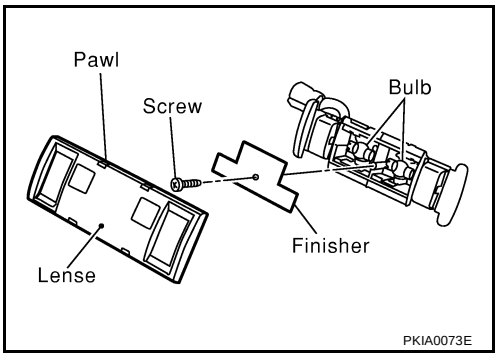
1. Remove front interior lamp. Refer to LT-143, "FRONT INTERIOR LAMP" .
2. Turn console lamp bulb socket counterclockwise and unlock it.

Console lamp (Console light) : 12V - 1.4W

PERSONAL LAMP (REAR PERSONAL LIGHT)

1. Remove rear interior lamp. Refer to LT-143, "REAR INTERIOR LAMP" .
2. Unfold the tabs and remove lens.
3. Remove shade mounting screw and remove shade from personal lamp.
4. Remove bulb.

Personal lamp (Rear personal light) : 12V - 8W

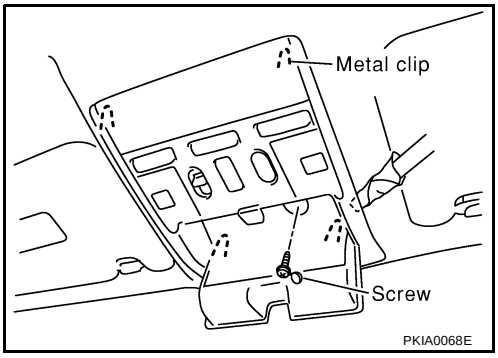


Removal and Installation

NKS001A5

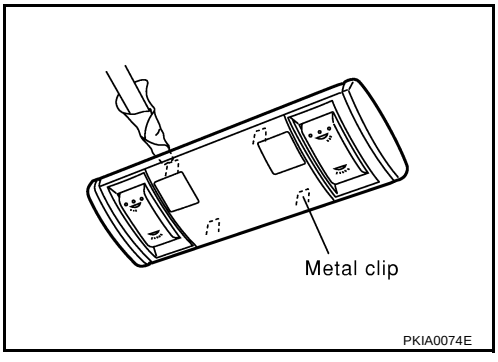
FRONT INTERIOR LAMP

1. Open front interior lamp box and remove screw.
2. Insert a clip driver or a suitable tool and disengage the metal clip fittings of front interior lamp.
3. Disconnect connector and remove front interior lamp.



REAR INTERIOR LAMP

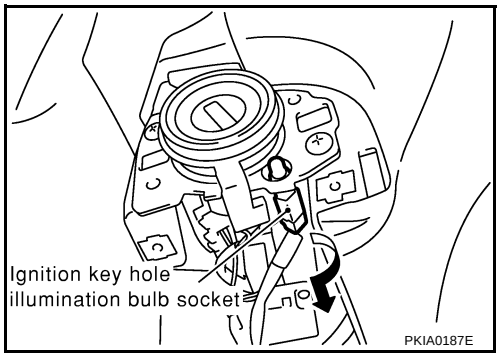
1. Using a clip driver or a suitable tool, press and remove metal clip of rear interior lamp.
2. Disconnect rear interior lamp connector.



IGNITION KEY HOLE ILLUMINATION

1. Remove lower instrument panel (driver side). Refer to IP-10, "Removal and Installation" .
2. Turn bulb socket counterclockwise and unlock it.

Ignition key hole illumination : 12V - 1.4W

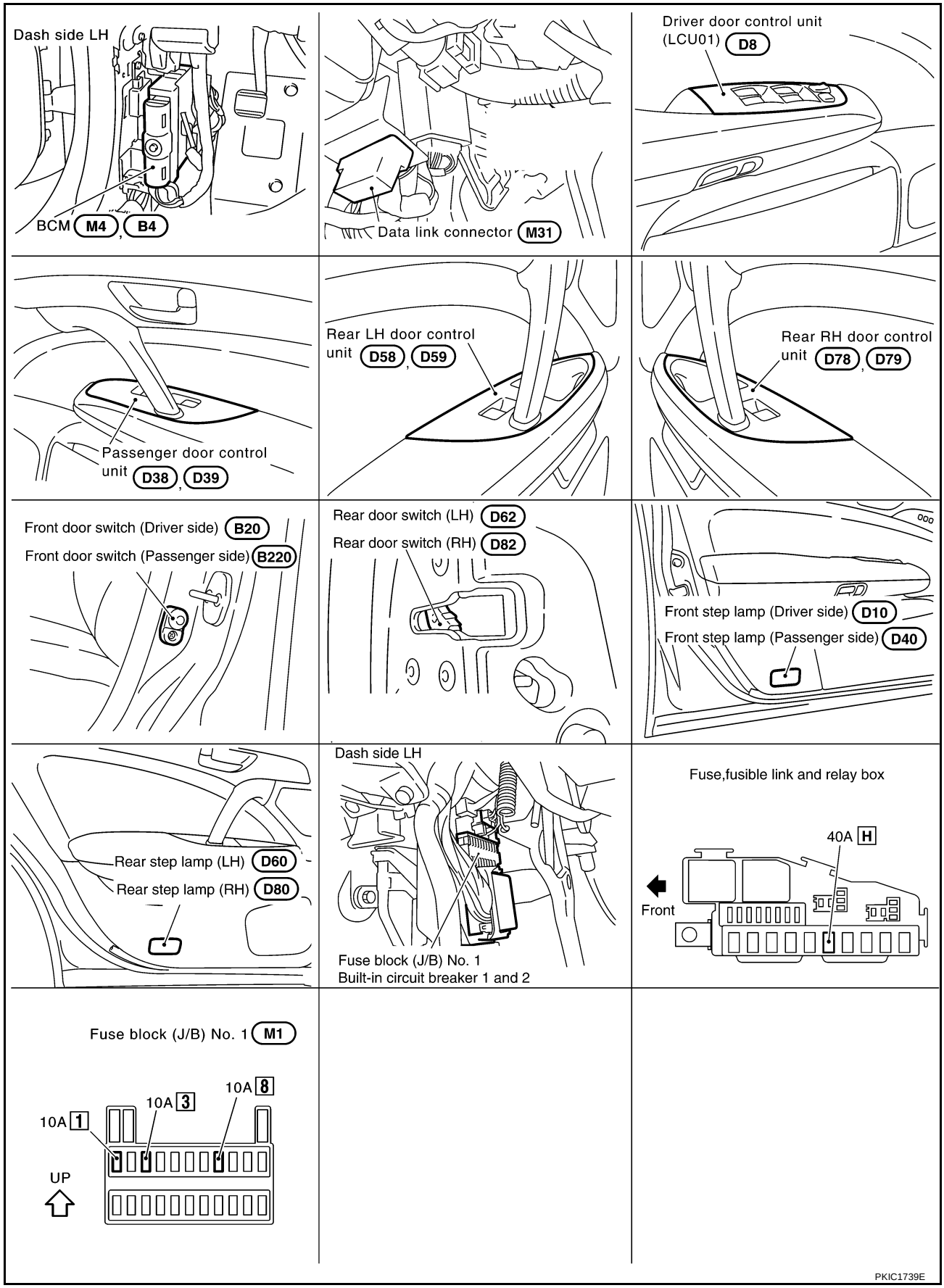


STEP LAMP

PFP:26420

Component Parts and Harness Connector Location

NKS001A6



System Description

NKS001A7

POWER SUPPLY AND GROUND

Power is supplied at all times

- to driver door control unit (LCU 01) terminal 14, and
- to rear LH door control unit terminal 6
- through circuit breaker-1, located in the fuse block (J/B) No. 1
- to BCM (body control module) terminal 105
- through 10A fuse [No. 3, located in the fuse block (J/B) No. 1]
- to all step lamps terminal 1
- through 10A fuse [No. 8, located in the fuse block (J/B) No. 1]
- to passenger door control unit terminal 6, and
- to rear RH door control unit terminal 6
- through circuit breaker-2, located in the fuse block (J/B) No. 1.

Ground is supplied

- to driver door control unit terminal 15
- through grounds M24 and M114
- to passenger door control unit terminal 7
- through grounds M24 and M114
- to rear LH door control unit terminal 7
- through grounds B17 and B57
- to rear RH door control unit terminal 7
- through grounds B217 and B256
- to BCM (body control module) terminal 56 and 113 through grounds M24 and M114.

OPERATING PROCEDURE

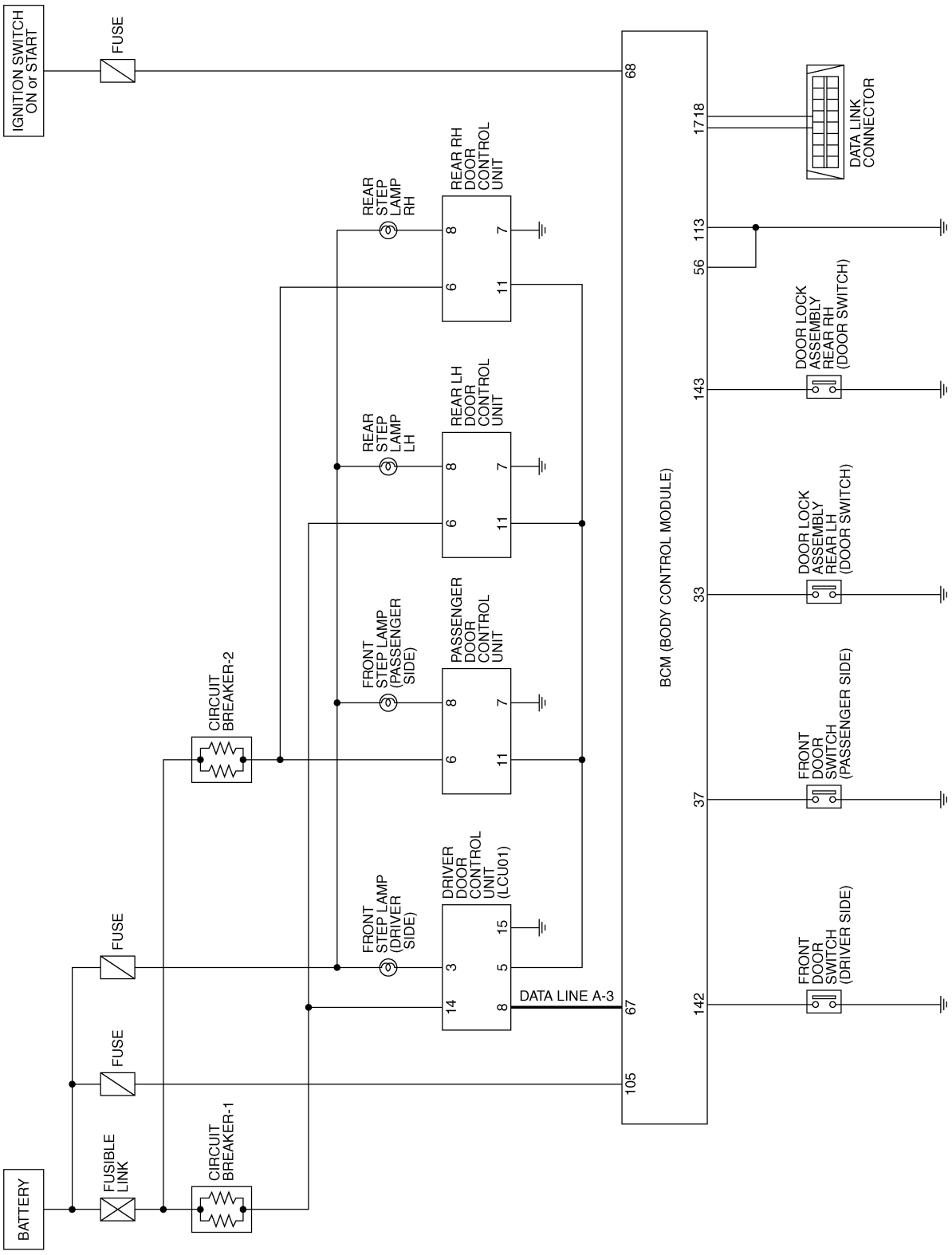
BCM is connected to driver door control unit as DATA LINE A-3.
Then driver door control unit is connected to each door control unit.
When any door switch is in OPEN position, ground is supplied

- to BCM terminals 33, 37, 142, or 143
- through driver side, passenger side, rear LH or RH door switch.

Then BCM sends a signal to the driver door control unit (LCU 01) to turn on step lamp. With ground supplied, step lamp turns on.

Schematic

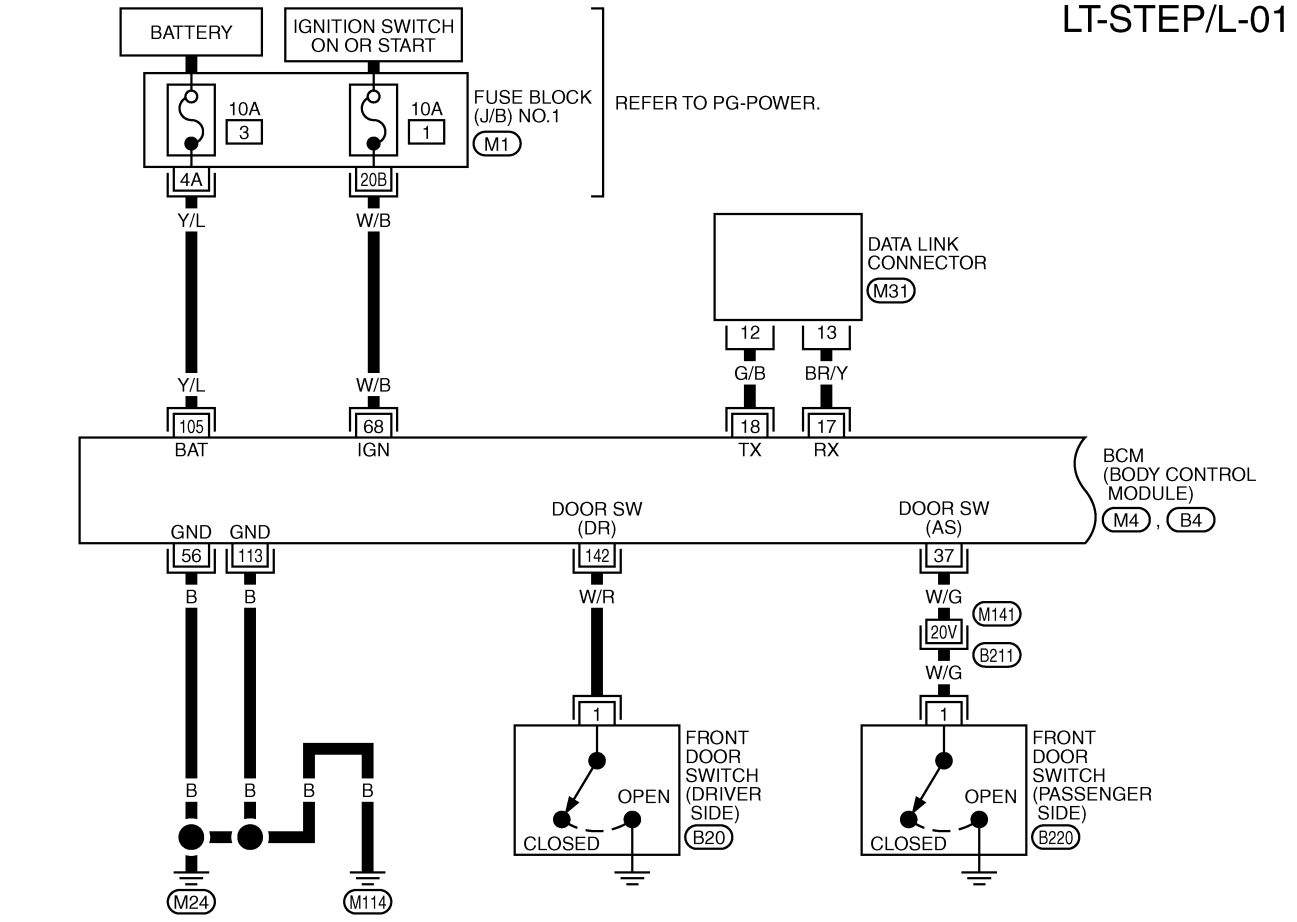
NKS001A8



TKWM0205E

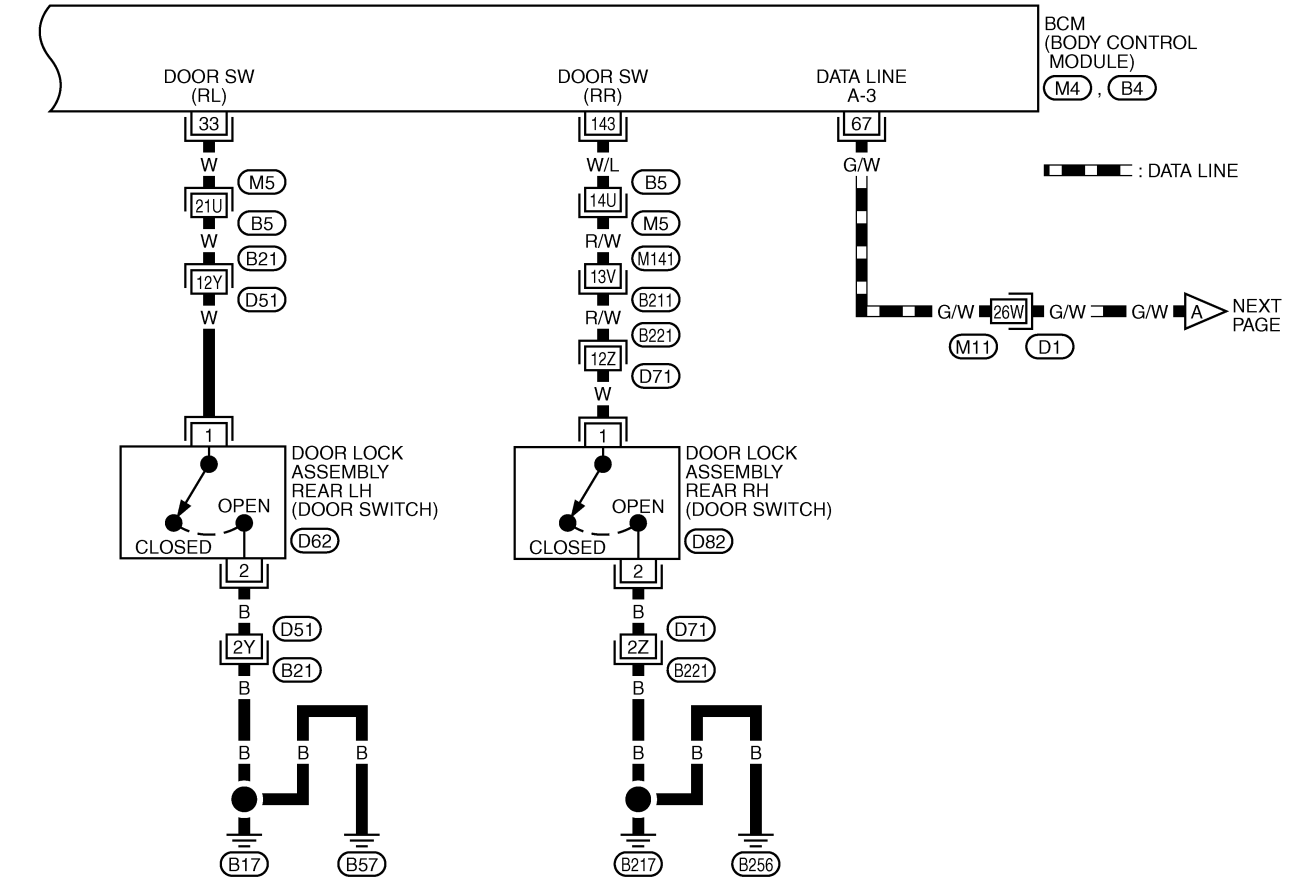
Wiring Diagram — STEP/L —

NKS001A9



TKWM3716E

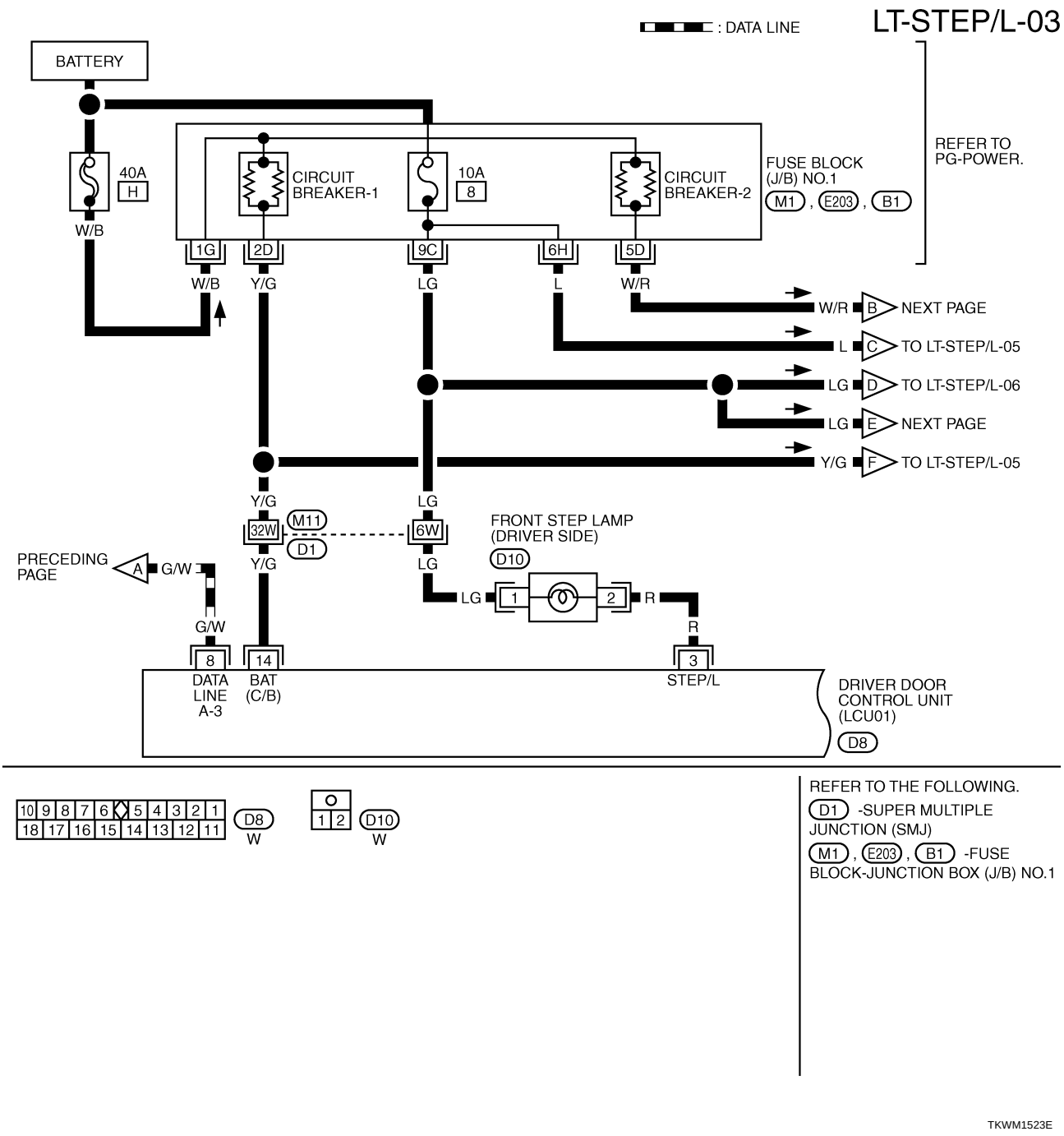
LT-STEP/L-02



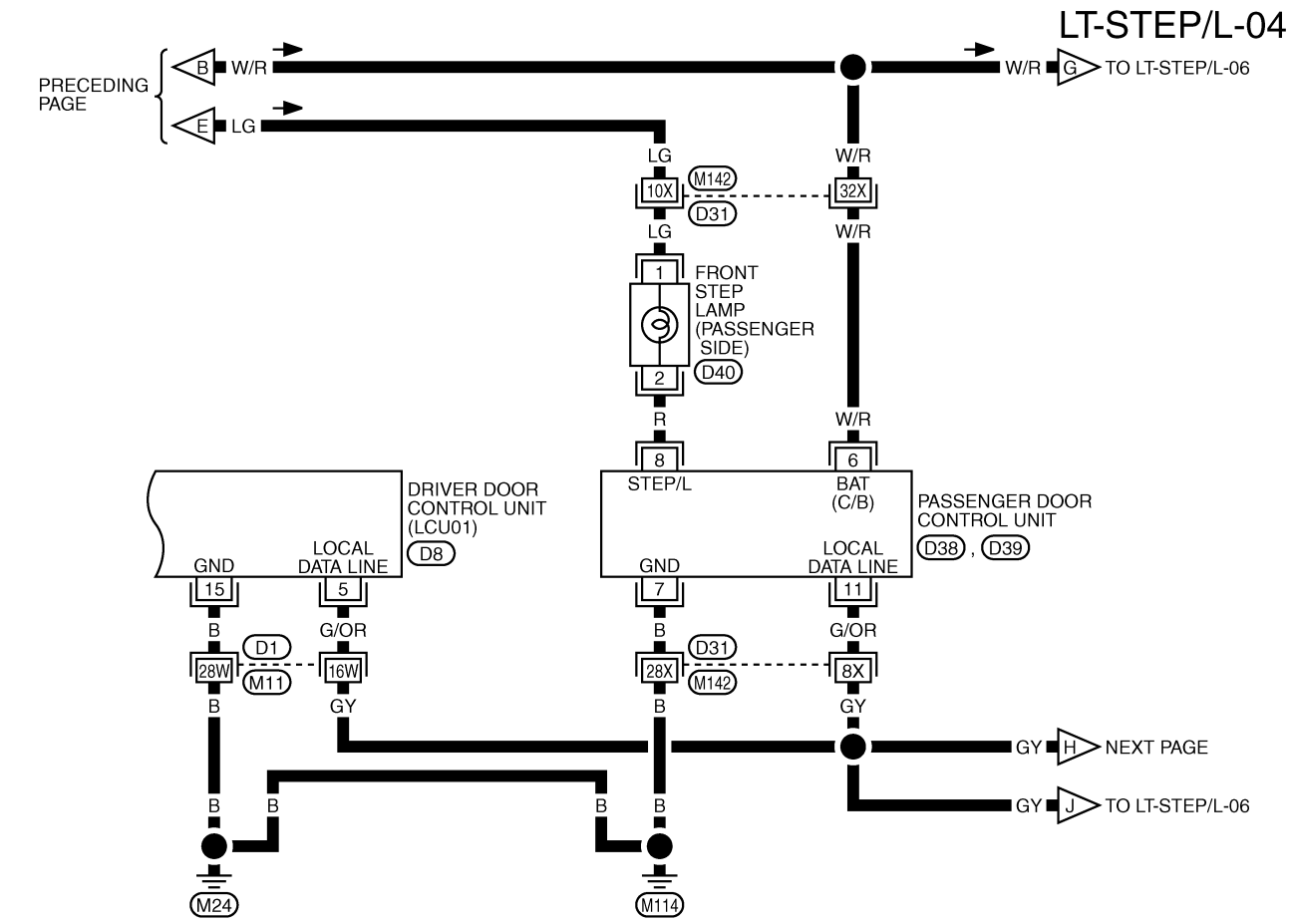
1 2 D62 , D82
B B

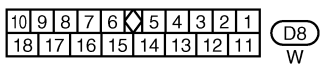
REFER TO THE FOLLOWING.
M5 , B21 , B211 , B221 ,
D1 -SUPER MULTIPLE JUNCTION (SMJ)
M4 , B4 -ELECTRICAL UNITS

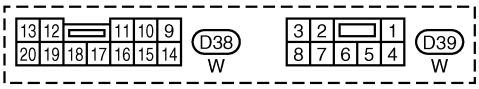
TKWM1522E

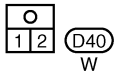

: DATA LINE
LT-STEP/L-03
BATTERY
40A
H
W/B
CIRCUIT BREAKER-1
10A
8
CIRCUIT BREAKER-2
FUSE BLOCK (J/B) NO.1
M1 , E203 , B1
REFER TO PG-POWER.
1G
2D
9C
6H
5D
W/B
Y/G
LG
L
W/R
W/R B NEXT PAGE
L C TO LT-STEP/L-05
LG D TO LT-STEP/L-06
LG E NEXT PAGE
Y/G F TO LT-STEP/L-05
Y/G
32W
M11
D1
LG
6W
FRONT STEP LAMP (DRIVER SIDE)
D10
PRECEDING PAGE
A
G/W
Y/G
LG
1
2
R
G/W
R
8
14
3
DATA LINE A-3
BAT (C/B)
STEP/L
DRIVER DOOR CONTROL UNIT (LCU01)
D8
10 9 8 7 6 5 4 3 2 1
18 17 16 15 14 13 12 11
D8
W
1 2
D10
W
REFER TO THE FOLLOWING.
D1 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , E203 , B1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

TKWM1523E



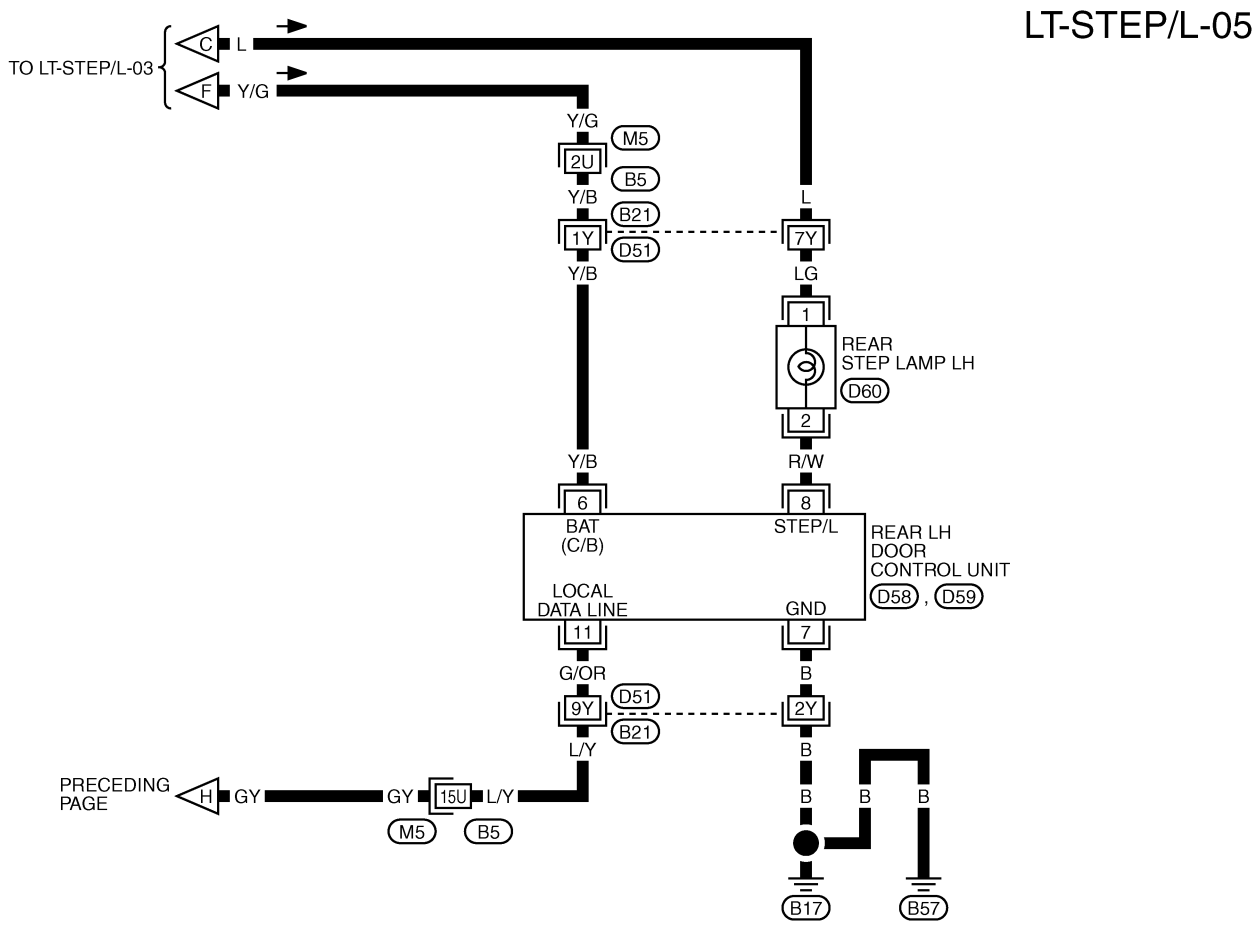


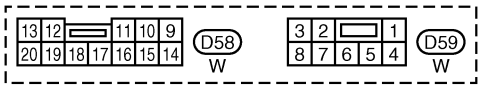




REFER TO THE FOLLOWING.
D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)

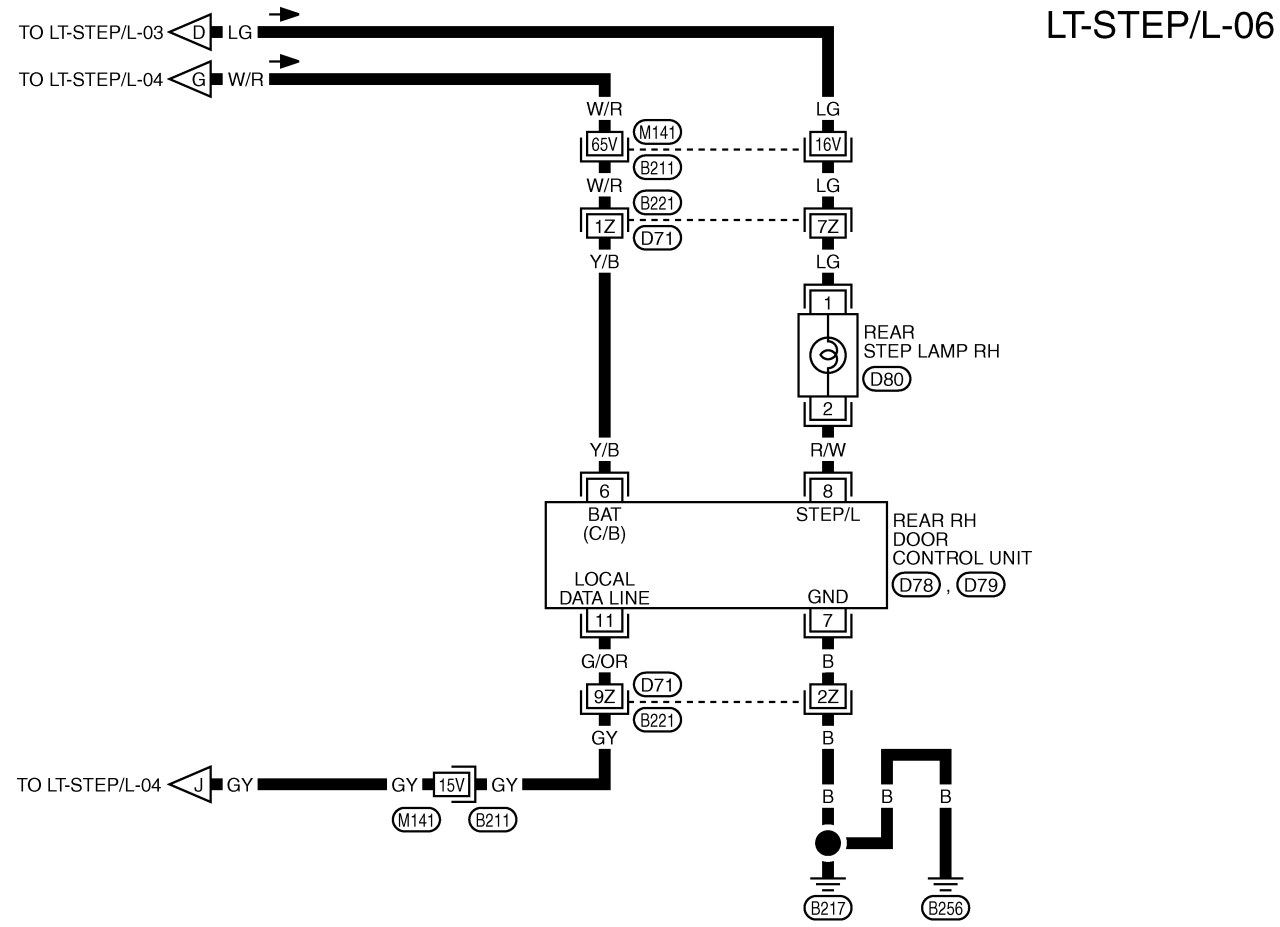
TKWM3717E

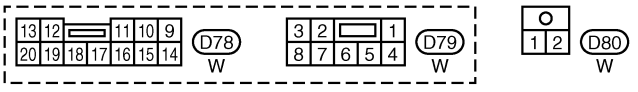




REFER TO THE FOLLOWING.
M5 , B21 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3718E





REFER TO THE FOLLOWING.
B211 , B221 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3719E

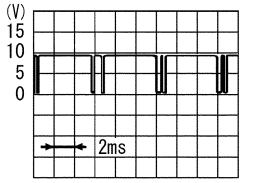
Terminals and Reference Values for BCM

NKS001AA

Terminal No.	Wire color	Item	Measuring condition			Reference value
			Ignition switch	Operation or condition		
17	BR/Y	Data link RX	—	—		—
18	G/B	Data link TX	—	—		—
33	W	Door rock assembly rear LH (door switch) signal	OFF	Rear LH door switch	ON (open)	Approx. 0 V
					OFF (closed)	Battery voltage
37	W/G	Front door switch (passenger side) signal	OFF	Passenger door switch	ON (open)	Approx. 0 V
					OFF (closed)	Battery voltage
56	B	Ground	—	—		—
67	G/W	Data line A-3	—	—		—
68	W/B	IGN power supply	ON	—		Battery voltage
105	Y/L	Battery power supply	OFF	—		Battery voltage
113	B	Ground	—	—		—
142	W/R	Front door switch (driver side) signal	OFF	Driver door switch	ON (open)	Approx. 0 V
					OFF (closed)	Battery voltage
143	W/L	Door lock assembly rear RH (door switch) signal	OFF	Rear RH door switch	ON (open)	Approx. 0 V
					OFF (closed)	Battery voltage

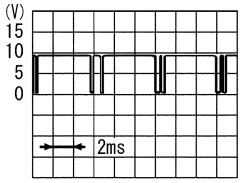
Terminals and Reference Values for Driver Door Control Unit (LCU01)

NKS001AB

Terminal No.	Wire color	Item	Measuring condition			Reference value
			Ignition switch	Operation or condition		
3	R	Step lamp	OFF	Each door switch	ON (open)	Approx. 0 V
					OFF (closed)	Battery voltage
5	G/OR	Local data line	—	—		 SIIA0591J
8	G/W	Data line A-3	—	—		—
14	Y/G	Power source (circuit breaker)	OFF	—		Battery voltage
15	B	Ground	ON	—		Approx. 0 V

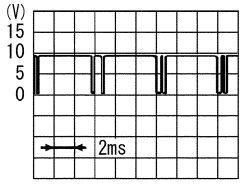
Terminals and Reference Values for Passenger Door Control Unit

NKS001AC

Terminal No.	Wire color	Item	Measuring condition			Reference value
			Ignition switch	Operation or condition		
6	W/R	Battery power supply	OFF	—		Battery voltage
7	B	Ground	ON	—		Approx. 0 V
8	R	Step lamp	OFF	Each door switch	ON (open)	Approx. 0 V
					OFF (closed)	Battery voltage
11	G/OR	Local data line	—	—		 SIIA0591J

Terminals and Reference Values for Rear LH, RH Door Control Unit

NKS001AD

Termi-nal No.	Wire color	Item	Measuring condition			Reference value
			Ignition switch	Operation or condition		
6	Y/B	Battery power supply	OFF	—		Battery voltage
7	B	Ground	ON	—		Approx. 0 V
8	R/W	Step lamp	OFF	Each door switch	ON (open)	Approx. 0 V
					OFF (closed)	Battery voltage
11	G/OR	Local data line	—	—		 SIIA0591J

Work Flow

NKS001AE

1. Confirm the symptom or customer complaint.
2. Understand system description. Refer to LT-146, "System Description" .
3. Perform preliminary check. Refer to LT-156, "Preliminary Check" .
4. Does the door lock system operate normally? If YES, GO TO 5. If NO, GO TO Power door lock system BL-44, "Symptom Chart" in “BODY LOCK & SECURITY SYSTEM (BL)” section.
5. Find the cause of trouble following the trouble diagnosis chart by symptom and repair or replace as necessary. Refer to LT-161, "Symptom Chart" .
6. Does the total coordinated interior illumination operate normally? If YES, GO TO 7. If NO, GO TO 5.
7. INSPECTION END

Preliminary Check

NKS001AF

CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSE

Check for blown fuses.

Unit	Power source	Fuse and fusible link No.
BCM	Battery	3
	Ignition switch ON or START	1
Driver/passenger/rear LH/rear RH door control unit	Battery voltage	H

Refer to LT-148, "Wiring Diagram — STEP/L —" .

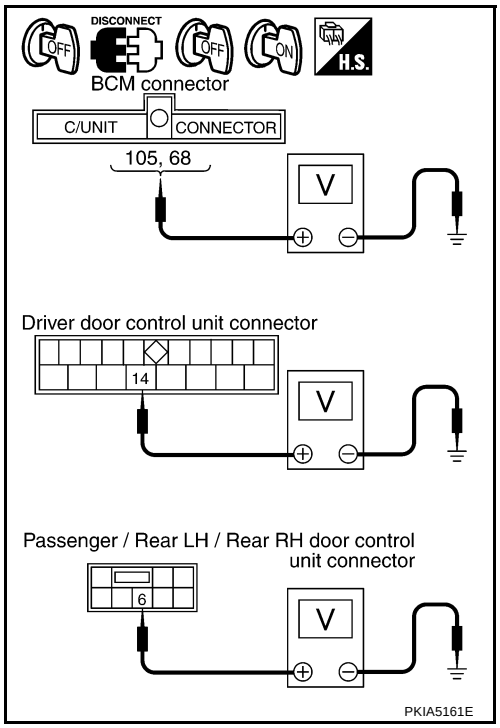
OK or NG

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

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector and driver/passenger/rear LH/rear RH door control unit connectors.
2. Check voltage between BCM and driver/passenger/rear LH/rear RH door control unit harness connector, and ground.

Terminal			Ignition switch position	
(+)		(–)	OFF	ON
Connector	Terminal			
BCM (M4)	105	Ground	Battery voltage	Battery voltage
	68		Approx. 0 V	
Driver door control unit (D8)	14		Battery voltage	
Passenger door control unit (D39)	6			
Rear LH door control unit (D59)	6			
Rear RH door control unit (D79)	6			



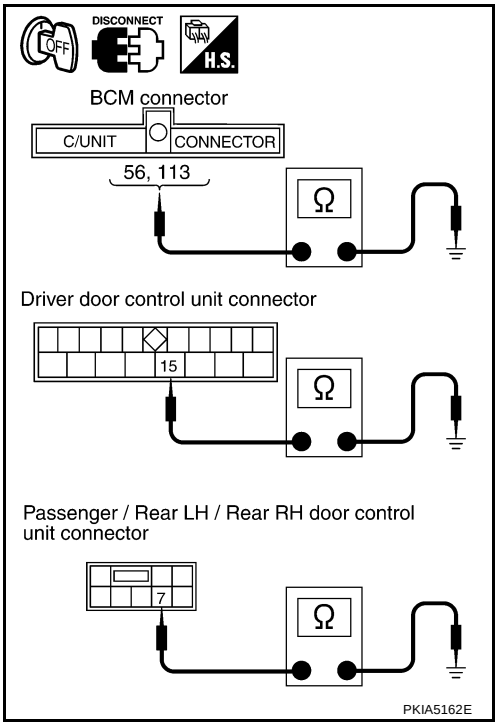
OK or NG

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

3. CHECK GROUND CIRCUIT

Check continuity between BCM and driver/passenger/rear LH/rear RH door control unit harness connector, and ground.

Terminal			Continuity
Connector	Terminal		
BCM (M4)	56	Ground	Yes
	113		
Driver door control unit (D8)	15		
Passenger door control unit (D39)	7		
Rear LH door control unit (D59)			
Rear RH door control unit (D79)			



OK or NG

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

CONSULT-II Function (IVMS)

NKS001AG

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

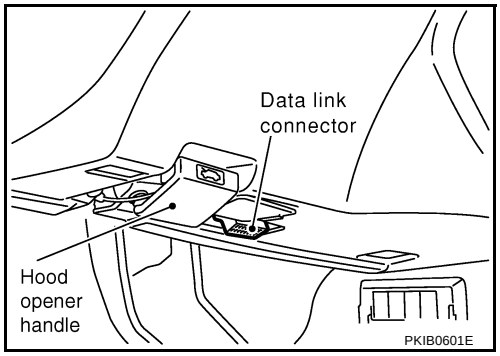
IVMS diagnosis position	Diagnosis mode	Description
STEP LAMP	DATA MONITOR	Displays input data of the BCM and each LCU in real-time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending driving signal to them.
BCM PART NUMBER		Displays BCM part number.

CONSULT-II BASIC OPERATION PROCEDURE

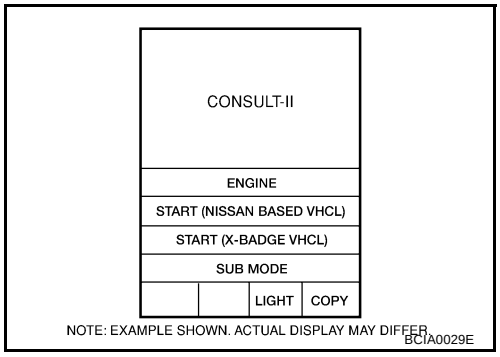
CAUTION:

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

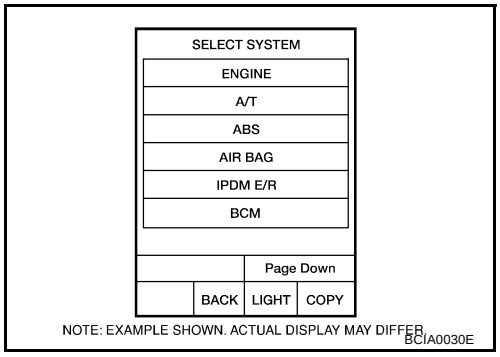
1. With the ignition switch OFF, connect “CONSULT-II” and “CONSULT-II CONVERTER” to the data link connector, and then turn ignition switch ON.



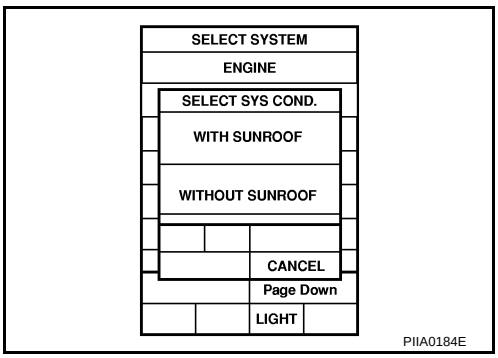
2. Touch “START (NISSAN BASED VHCL)”.



3. Touch “IVMS” on “SELECT SYSTEM” screen. If “IVMS” is not indicated, refer to GI-37, "CONSULT-II Data Link Connector (DLC) Circuit" .



4. Select “WITH SUNROOF” on “SELECT SYS COND” screen.
5. Touch “OK”. If the selection is wrong, touch “CANCEL”.
6. Select the desired part to be diagnosed on “SELECT TEST ITEM” screen.



DATA MONITOR

Operation Procedure

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

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

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

Data Monitor Item

Monitored item [“OPERATION OR UNIT”]		Contents
DOOR SW-DR	[ON/OFF]	Displays status of the driver door as judged from the driver door switch signal. (Door is open: ON/ Door is closed: OFF)
DOOR SW-AS	[ON/OFF]	Displays “Door open (ON)/door closed (OFF)” status judged from the passenger door switch signal.
DOOR SW-RR	[ON/OFF]	Displays “Door open (ON)/door closed (OFF)” status judged from the Rear RH door switch signal.
DOOR SW-RL	[ON/OFF]	Displays “Door open (ON)/door closed (OFF)” status judged from the Rear LH door switch signal.

ACTIVE TEST

Operation Procedure

1. Touch “STEP 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. Touch “OFF” while testing and the operation will be stopped.

Active Test Item

Test item	Display on CONSULT-II screen	Description
Driver door step lamp output	STEP LAMP-DR	Driver door step lamp can be operated by any ON-OFF operation of lights.
Passenger door step lamp output	STEP LAMP-AS	Passenger door step lamp can be operated by any ON-OFF operation of lights.
Rear RH door step lamp output	STEP LAMP-RR/RH	Rear RH door step lamp can be operated by any ON-OFF operation of lights.
Rear LH door step lamp output	STEP LAMP-RR/LH	Rear LH door step lamp can be operated by any ON-OFF operation of lights.

On Board Diagnosis

NKS001AH

- BCM can check communication diagnosis, switch monitor, and central locking system self diagnosis using on board diagnosis.
- Map lamps and step lamps (all seats) act as the indicators for on board diagnosis.

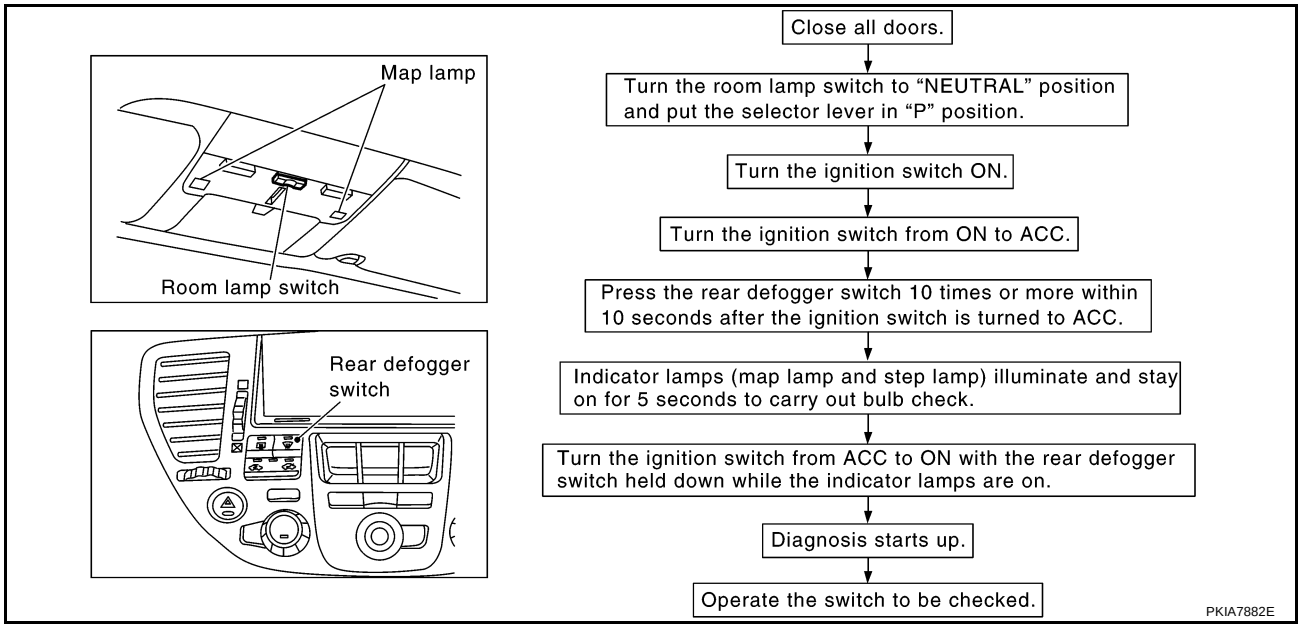
DIAGNOSIS ITEM

Diagnosis item	Description
Switch monitor	Checks for malfunction in switch systems that input to BCM and each LCU.

SWITCH MONITOR

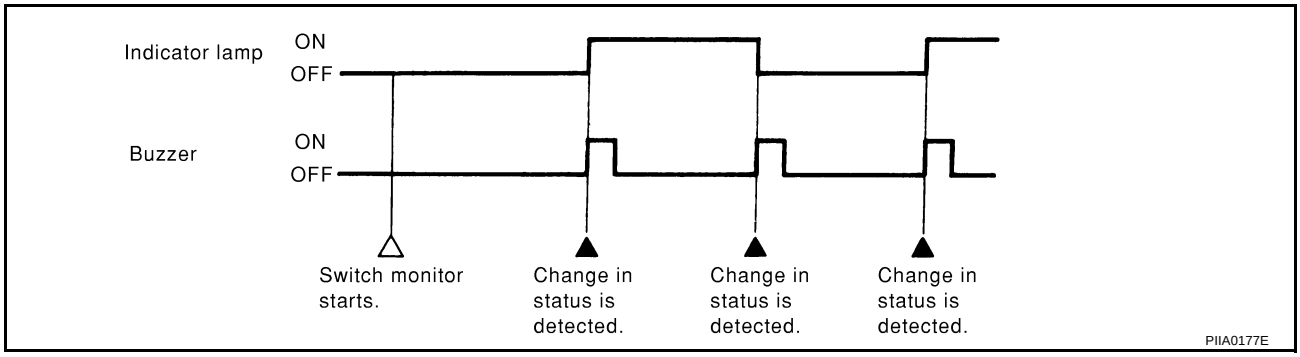
- Perform diagnosis on the switch system connected to each control unit.

How to Perform Switch Monitor



Description

- Detects the status change (switch ON/OFF operation) of switch to be checked, and turns ON/OFF indicator lamps (the map lamp and step lamp). Also sounds the buzzer for 0.5 seconds.
- If a malfunction is detected, no indicator lamp and buzzer react.



Switch Monitor Item

- The status of the switch (except the ignition switch, interior lamp illumination switch, and map lamp switch) as input to each control unit can be monitored.

Control unit	Item
BCM	Each door switch

Switch Monitor Cancellation

If the following conditions are satisfied, the communication diagnosis is cancelled.

- Turn ignition switch OFF.
- Drive the vehicle more than 7 km/h (4 MPH).

Symptom Chart

NKS001AI

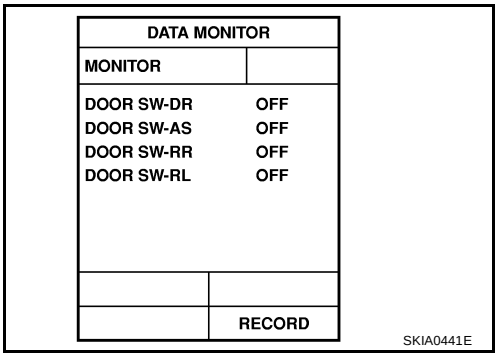
DIAGNOSTIC PROCEDURE

SYMPTOM: Step Lamp Does Not Illuminate/Dose Not Go Off When Door Is Opened/Closed

1. CHECK DOOR SWITCH SIGNAL

With CONSULT-II

- Operate each door via “DOOR SW” on DATA MONITOR screen and make sure that switch turns on and off as commanded.



Without CONSULT-II

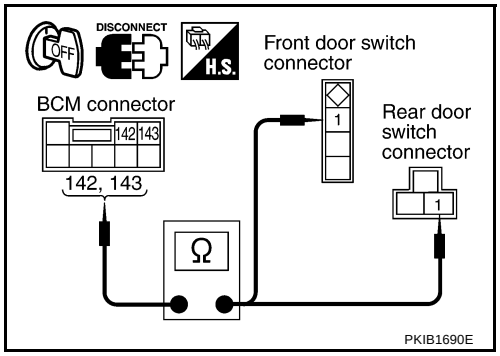
- Operate each door and via “switch monitor” of self-diagnosis function and make sure that switch turns on and off as commanded.

OK or NG

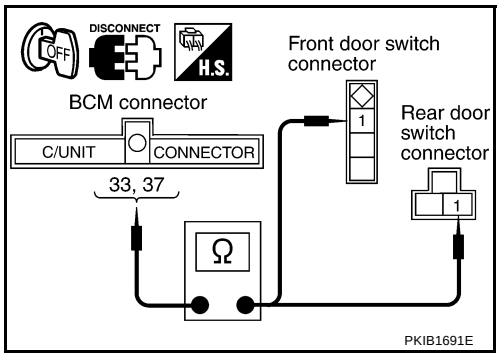
OK >> GO TO 3.
NG >> GO TO 2.

2. CHECK DOOR SWITCH HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect each door switch connector and BCM connector.
3. Check continuity between each door switch harness connector and BCM harness connector.



Terminal					Continuity
BCM connector	Terminal	Door switch connector		Terminal	
B4	142	B20	Front door switch (driver side)	1	Yes
	143	D82	Door lock assembly rear RH (door switch)	1	
M4	33	D62	Door lock assembly rear LH (door switch)	1	
	37	B220	Front door switch (passenger side)	1	



OK or NG

OK >> ● Check door switch ground condition.
● Replace door switch.

NG >> Repair harness or connector.

3. CHECK BULB

Check step lamp bulb.

OK or NG

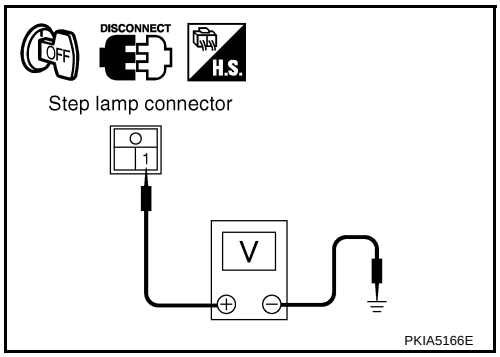
OK >> GO TO 4.

NG >> Replace bulb.

4. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect step lamp connector.
3. Check voltage between step lamp connector D10, D40, D60, D80 terminal 1 and ground.

1 - Ground : Battery voltage



OK or NG

OK >> Check harness for open or short between step lamp and door control unit.

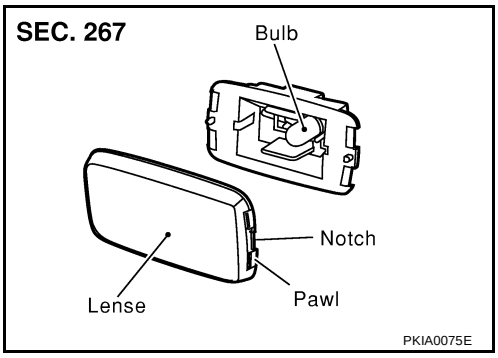
NG >> Check the following.
● 10A fuse [No. 8, located in fuse block (J/B) No. 1]
● Harness for open or short between fuse and step lamp

Bulb Replacement

NKS001AJ

1. Remove step lamp. Refer to LT-163, "Removal and Installation" .
2. Insert a screwdriver in the notch and remove lens.
3. Remove bulb.

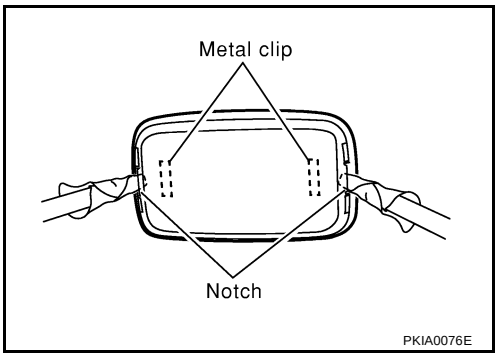
Step lamp : 12V - 2.7W



Removal and Installation

NKS001AK

1. Using a clip driver or a suitable tool, press and remove metal clip of step lamp.
2. Disconnect step lamp connector.



DOOR MIRROR LAMP

PFP:96301

System Description

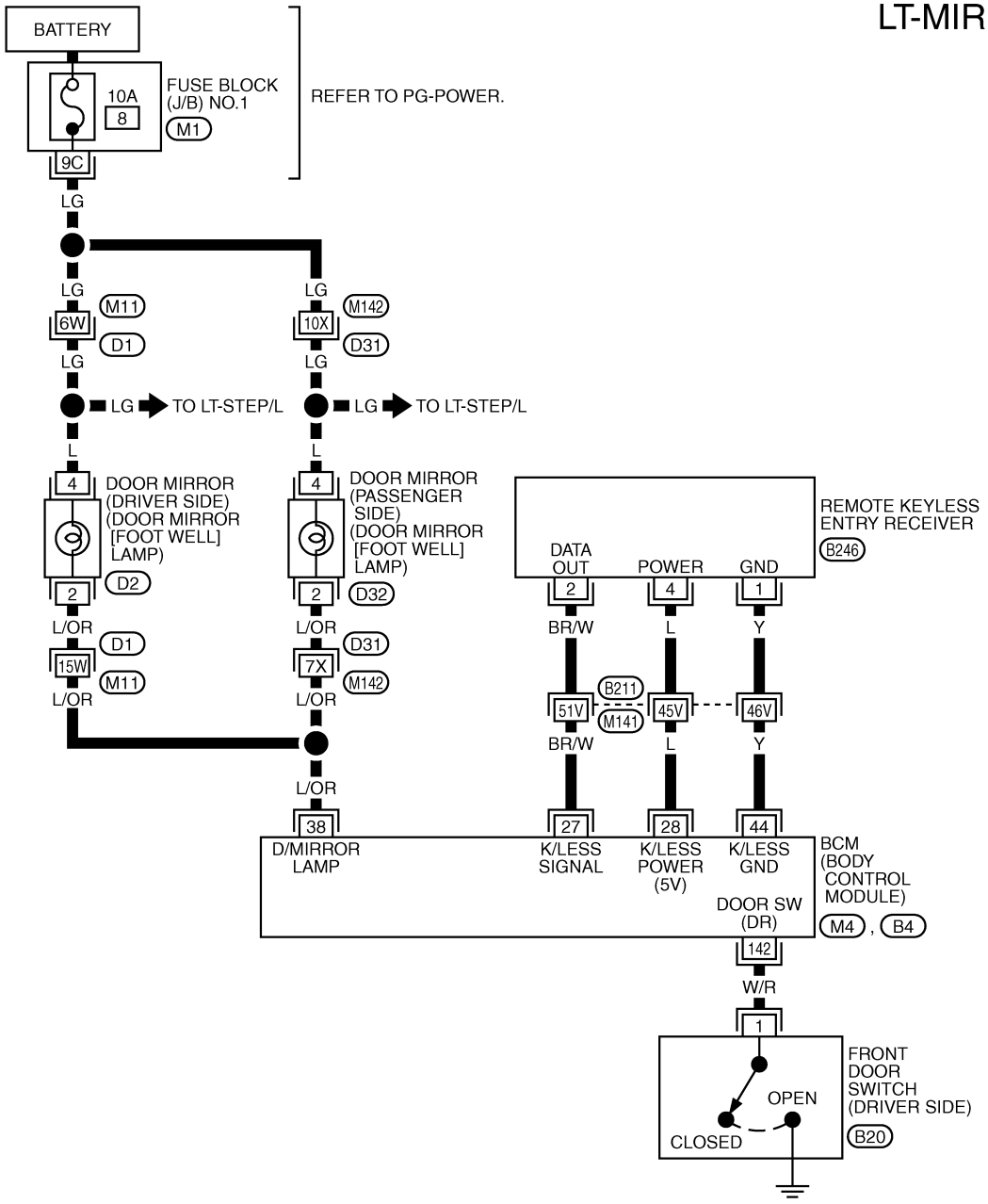
NKS001AL

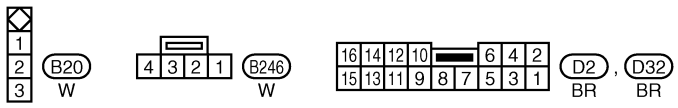
The door mirror foot well lamp for approx. 15 seconds when door unlocking operation is commanded with remote controller.
It goes off when the driver door is opened during illumination after the door unlocking operation with remote controller.
Power is supplied at all times

- to each door mirror [door mirror (foot well) lamp] terminal 4
- through 10A fuse [No. 8, located in fuse block (J/B) No.1].

Wiring Diagram — MIRR/L —

NKS001AM





REFER TO THE FOLLOWING.

B211 , D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)

M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

M4 , B4 -ELECTRICAL UNITS

TKWM1527E

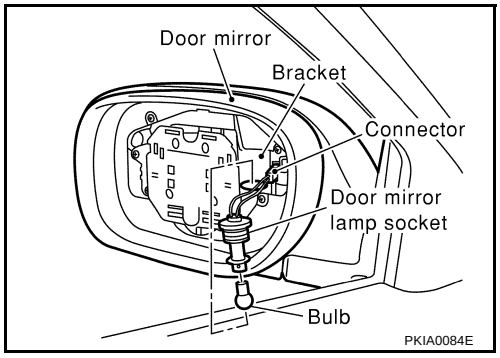
Bulb Replacement

NKS001AN

DOOR MIRROR LAMP

1. Remove mirror from door mirror. Refer to GW-116, "DOOR MIRROR" .
2. Remove lamp socket.
3. Remove bulb from lamp socket.

Door mirror lamp : 12V-8W



ILLUMINATION

PFP:27545

System Description

NKS001AO

The illumination lamp operation is controlled by the lighting switch which is built into the spiral cable and headlamp battery saver control unit. The battery saver system is controlled by headlamp battery saver control unit and BCM (body control module).
Power is supplied at all times

- to tail lamp relay terminals 2 and 6
- through 15A fuse [No. 54, located in fuse, fusible link and relay block (J/B)], and
- to headlamp battery saver control unit terminal 7
- through 10A fuse [No. 6, located in fuse block (J/B) No. 1].

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

- to headlamp battery saver control unit terminal 1
- through 10A fuse [No. 1, located in fuse block (J/B) No. 1].

Ground is supplied

- to headlamp battery saver control unit terminals 4 and 11
- through grounds M25 and M115.

LIGHTING OPERATION BY LIGHTING SWITCH

When lighting switch is 1ST (or 2ND) position, ground is supplied

- to tail lamp relay terminal 1 from headlamp battery saver control unit terminals 6 and 14
- through headlamp battery saver control unit terminals 5 and 13, and
- through lighting switch and grounds M25 and M115.

Tail lamp relay is then energized and illumination lamps illuminate.
The lighting switch must be in the 1ST or 2ND position for illumination.
The illumination control switch that controls the amount of current to the illumination system. As the amount of current increases, the illumination becomes brighter.
The ground for all of the components except for grove box lamp, cigarette lighter socket, ashtray, auto return cancel switch, rear control switch, rear sunshade rear switch, rear power seat switch and console box lamp are controlled through terminals 2 and 3 of the illumination control switch and body grounds M25 and M115.

BATTERY SAVER CONTROL

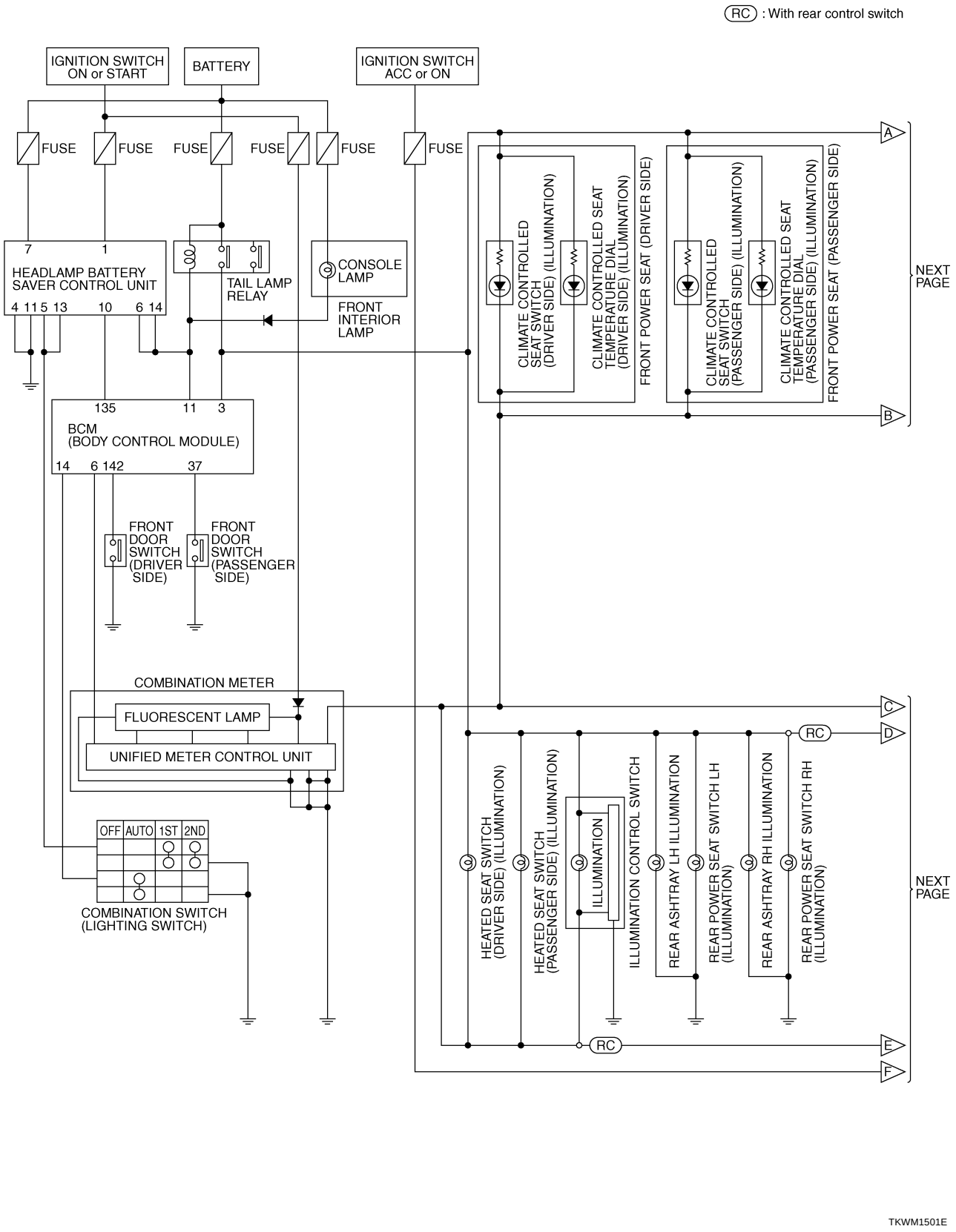
When the ignition switch is turned from ON (or START) to OFF (or ACC) positions while illumination lamps are illuminated, the RAP signal is supplied to terminal 10 of the headlamp battery saver control unit from BCM terminal 135.
After counting 45 seconds by the RAP signal from the BCM to headlamp battery saver control unit, the ground supply to terminal 1 of the tail lamp relay from headlamp battery saver control unit terminals 6 and 14 is terminated.
Then illumination lamps are turned off.
Illumination lamps are turned off when driver or passenger door is opened even if 45 seconds have not passed after the ignition switch is turned from ON (or START) to OFF (or ACC) positions while illumination lamps are illuminated.
When the lighting switch is turned from OFF to 1ST (or 2ND) after illumination lamps are turned off by the battery saver control, ground is supplied

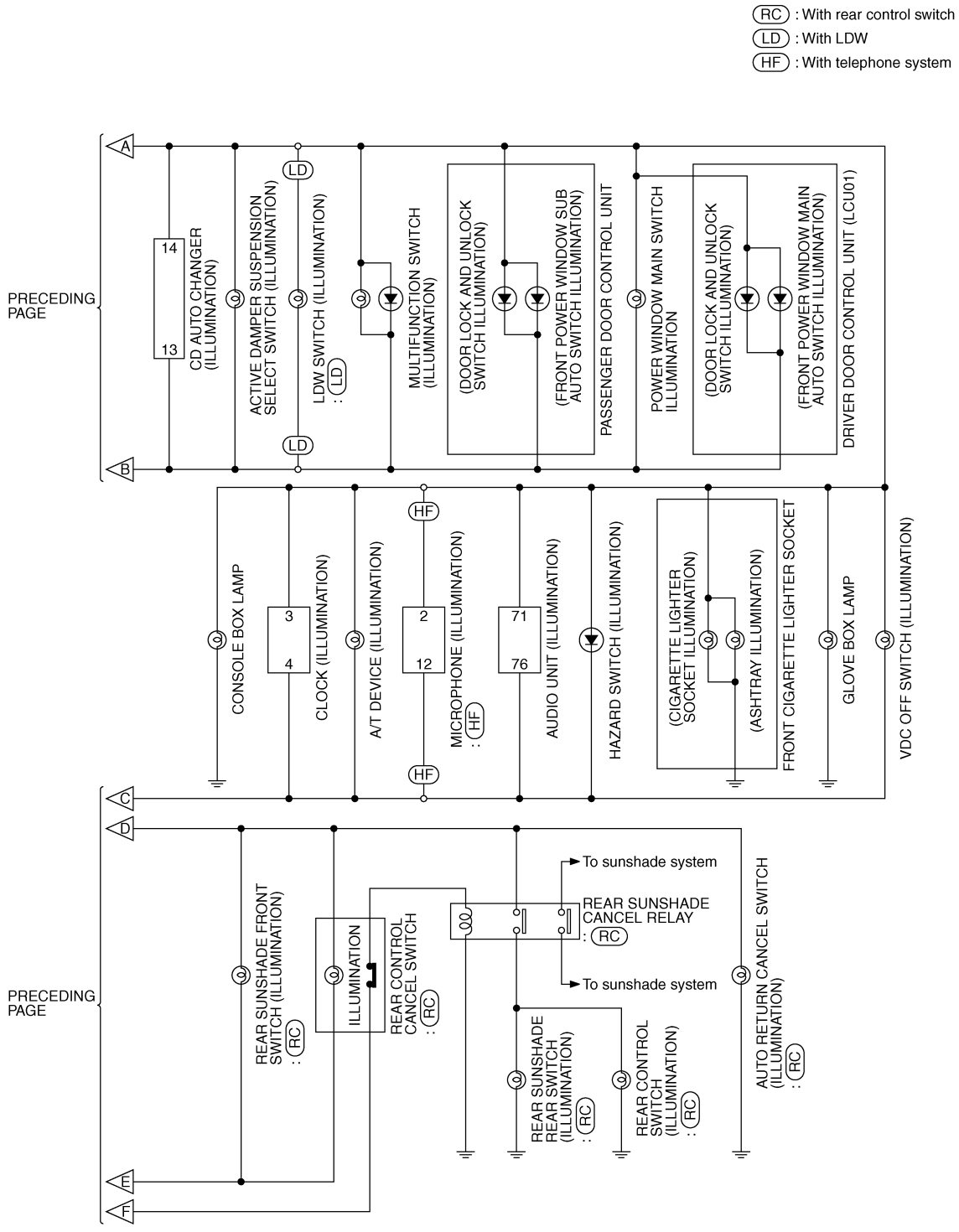
- to headlamp battery saver control unit terminals 5 and 13 from lighting switch terminal 11, and
- to tail lamp relay terminal 1 from headlamp battery saver control unit terminals 6 and 14.

Then illumination lamps illuminate again.

Schematic

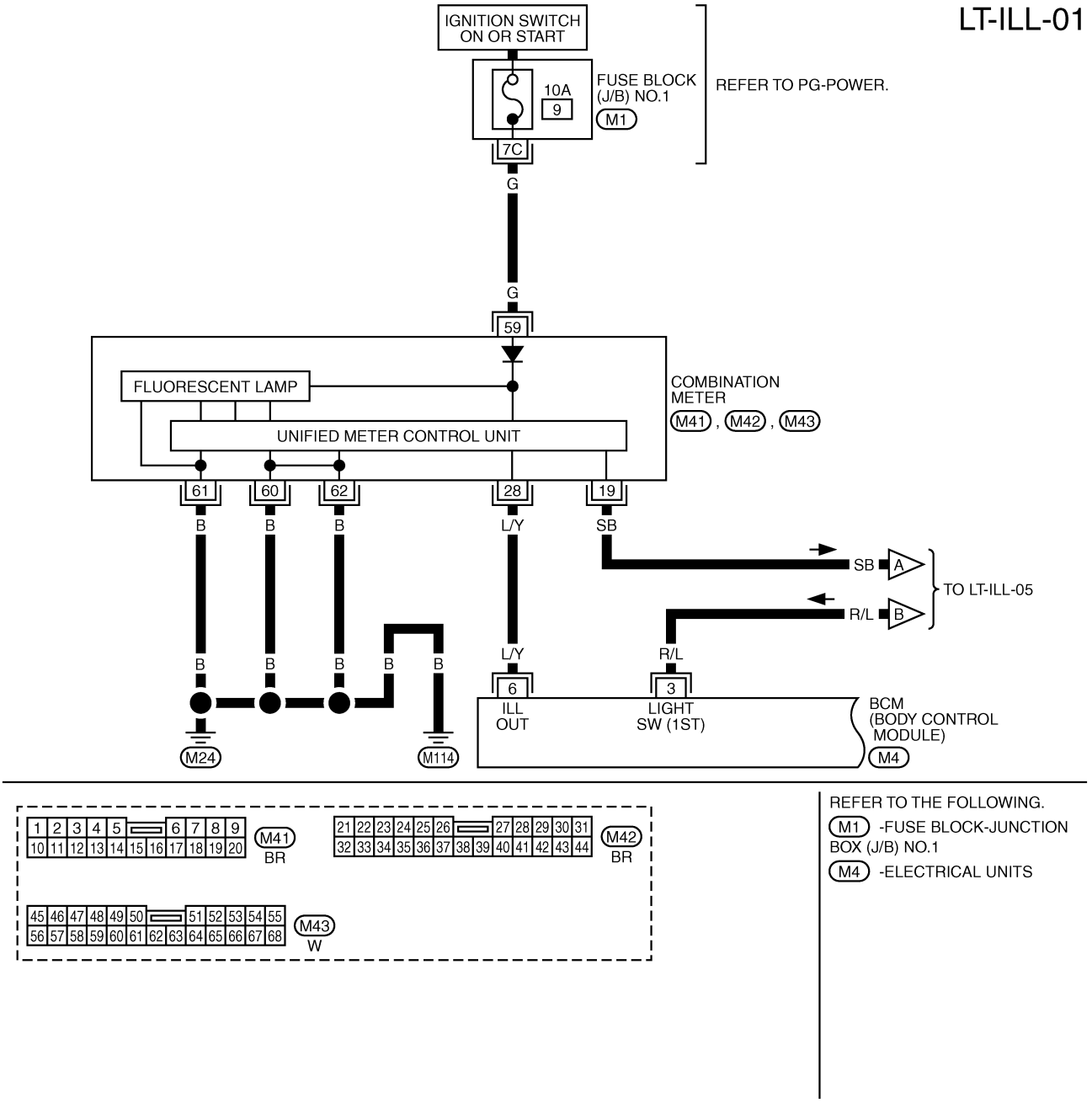
NKS001AP




RC : With rear control switch
LD : With LDW
HF : With telephone system
PRECEDING PAGE
CD AUTO CHANGER (ILLUMINATION)
ACTIVE DAMPER SUSPENSION SELECT SWITCH (ILLUMINATION)
LDW SWITCH (ILLUMINATION) : LD
MULTIFUNCTION SWITCH (ILLUMINATION)
(DOOR LOCK AND UNLOCK SWITCH ILLUMINATION)
(FRONT POWER WINDOW SUB AUTO SWITCH ILLUMINATION)
PASSENGER DOOR CONTROL UNIT
POWER WINDOW MAIN SWITCH ILLUMINATION
(DOOR LOCK AND UNLOCK SWITCH ILLUMINATION)
(FRONT POWER WINDOW MAIN AUTO SWITCH ILLUMINATION)
DRIVER DOOR CONTROL UNIT (LCU01)
CONSOLE BOX LAMP
CLOCK (ILLUMINATION)
A/T DEVICE (ILLUMINATION)
MICROPHONE (ILLUMINATION) : HF
AUDIO UNIT (ILLUMINATION)
HAZARD SWITCH (ILLUMINATION)
(CIGARETTE LIGHTER SOCKET ILLUMINATION)
(ASHTRAY ILLUMINATION)
FRONT CIGARETTE LIGHTER SOCKET
GLOVE BOX LAMP
VDC OFF SWITCH (ILLUMINATION)
PRECEDING PAGE
REAR SUNSHADE FRONT SWITCH (ILLUMINATION) : RC
ILLUMINATION
REAR CONTROL CANCEL SWITCH : RC
To sunshade system
REAR SUNSHADE CANCEL RELAY : RC
To sunshade system
REAR SUNSHADE REAR SWITCH (ILLUMINATION) : RC
REAR CONTROL SWITCH (ILLUMINATION) : RC
AUTO RETURN CANCEL SWITCH (ILLUMINATION) : RC
TKWM3705E

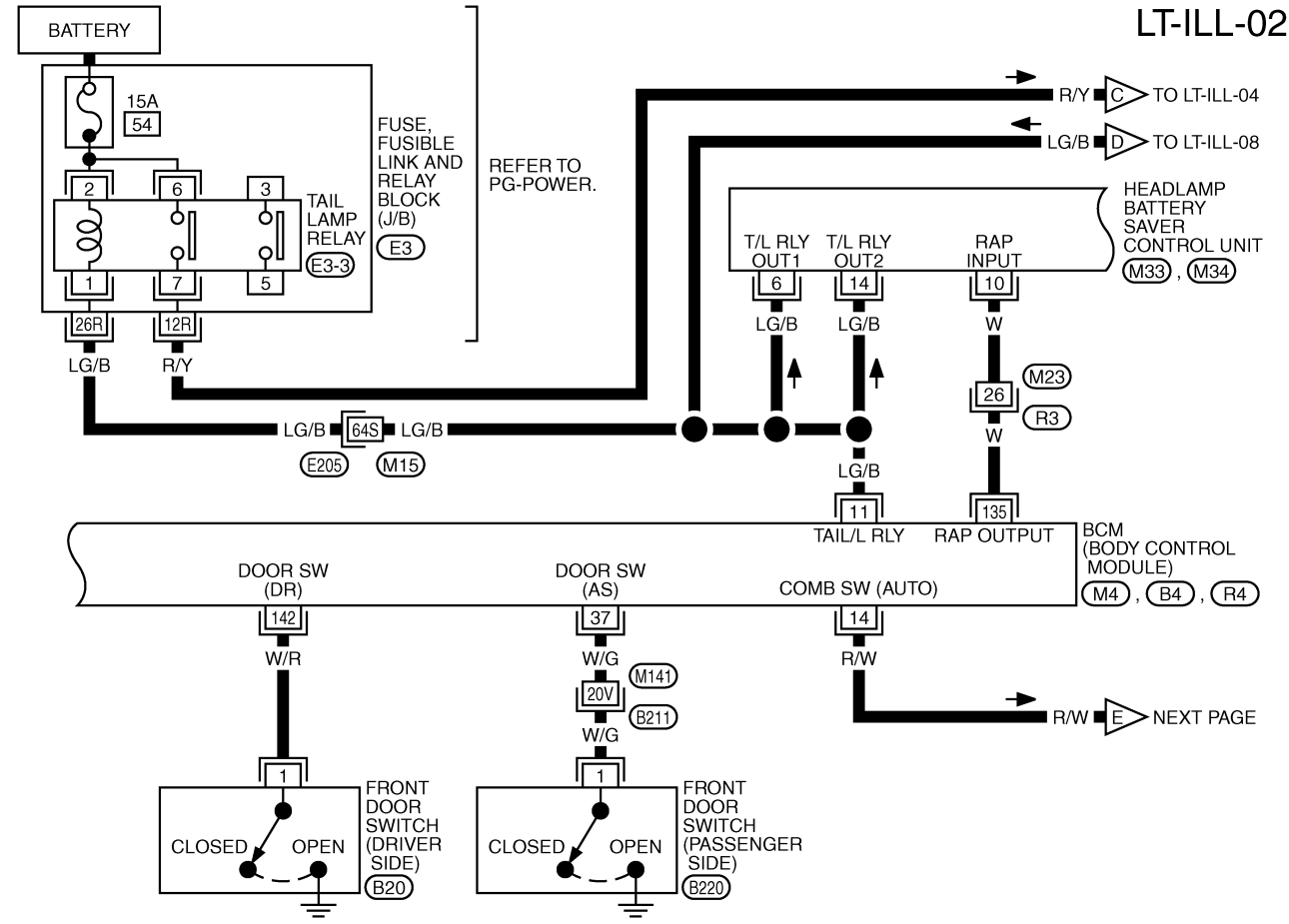
Wiring Diagram — ILL —

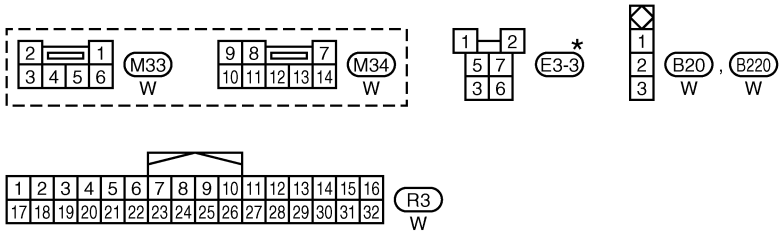
NKS001AQ



TKWM1503E

LT-ILL-02





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

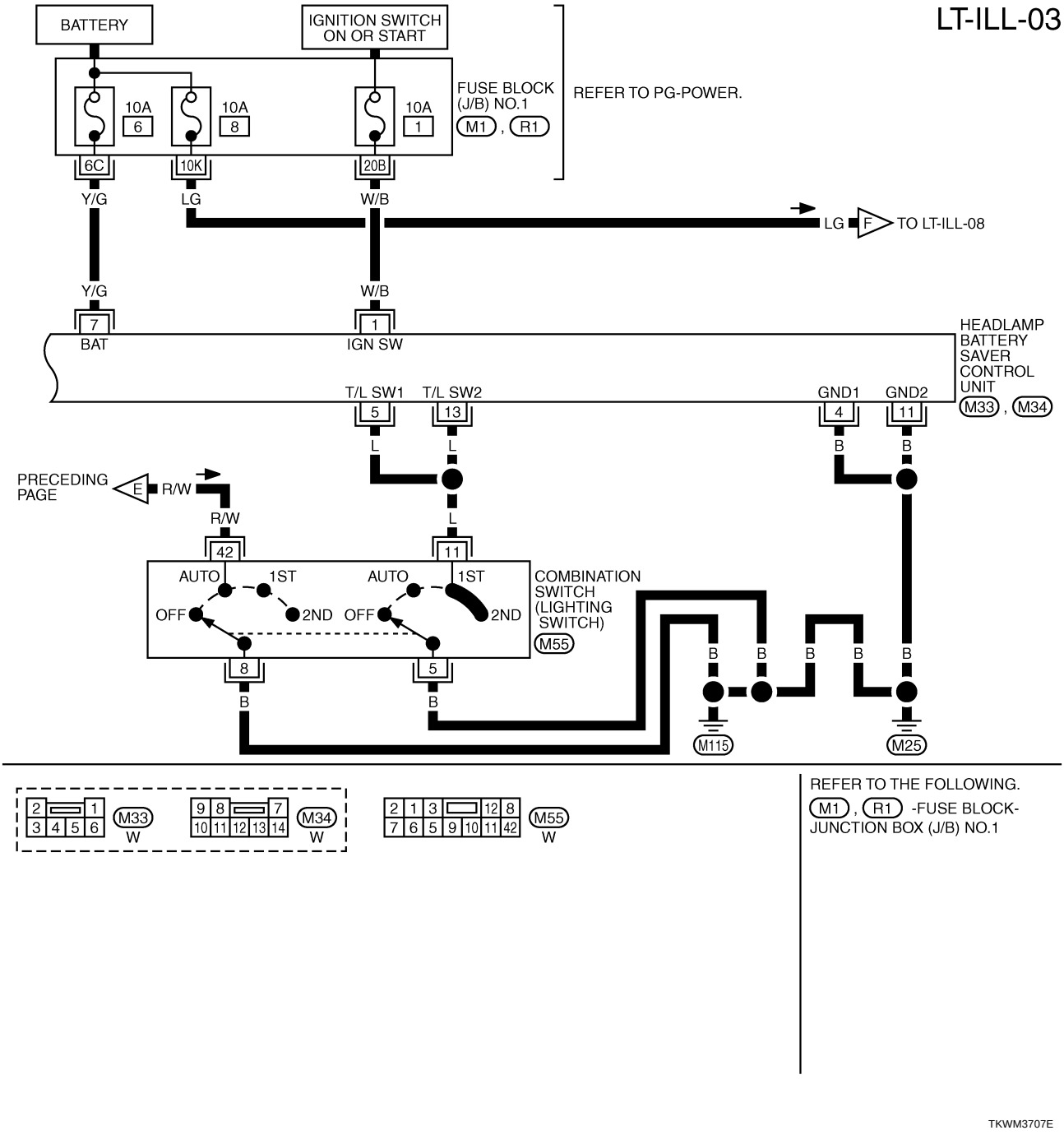
REFER TO THE FOLLOWING.

E205 , B211 -SUPER MULTIPLE JUNCTION (SMJ)

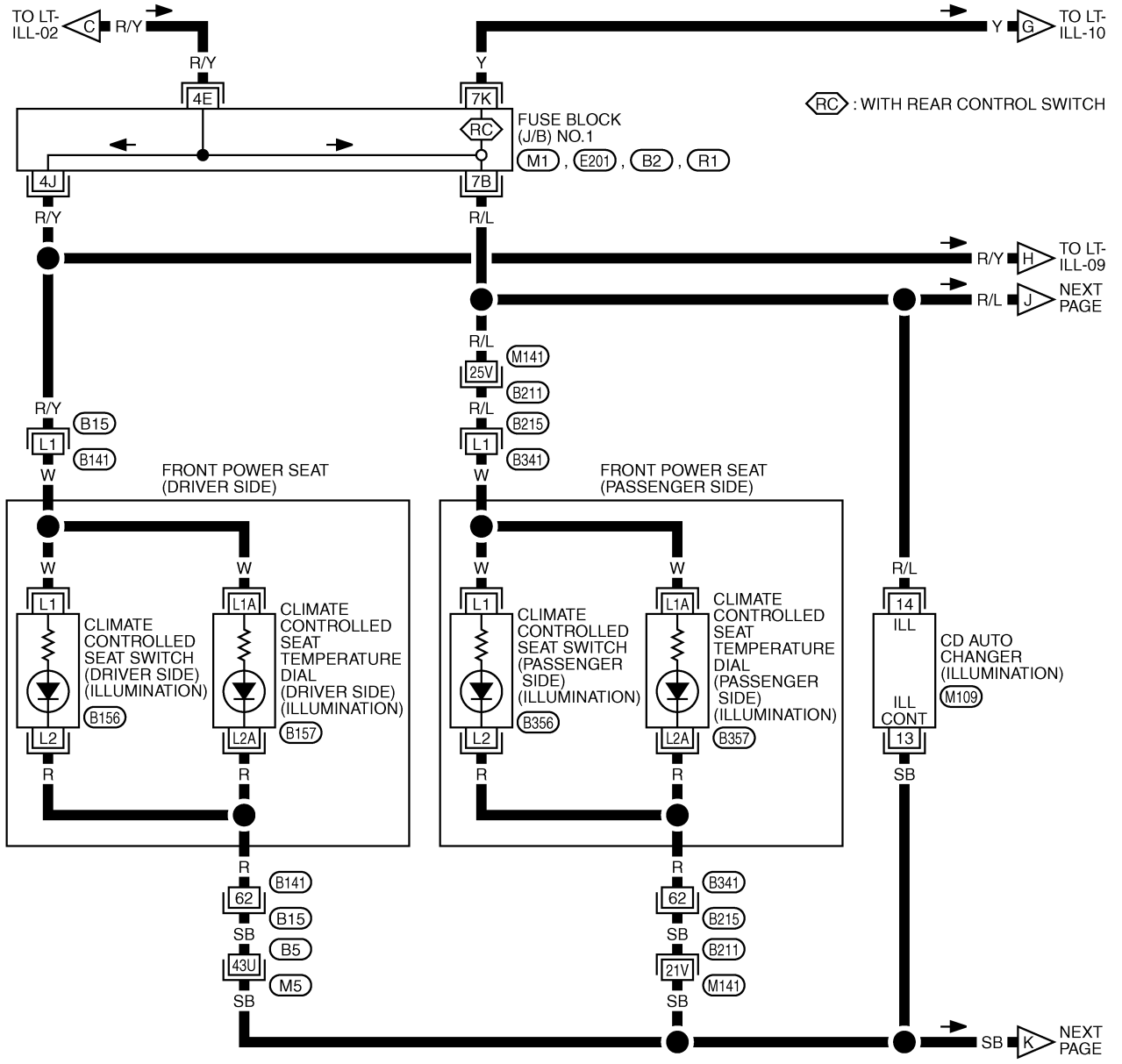
E3 -FUSE, FUSIBLE LINK AND RELAY BLOCK (J/B)

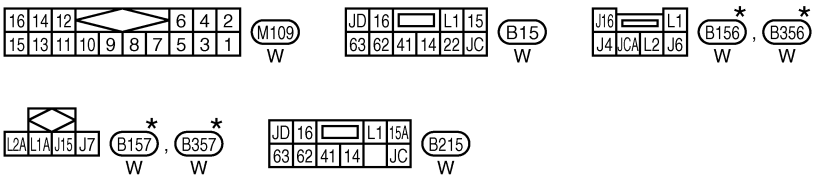
M4 , B4 , R4 -ELECTRICAL UNITS

TKWM3706E


LT-ILL-03
BATTERY
IGNITION SWITCH ON OR START
FUSE BLOCK (J/B) NO.1
M1 , R1
REFER TO PG-POWER.
10A 6
10A 8
10A 1
6C
10K
20B
Y/G
LG
W/B
LG F TO LT-ILL-08
Y/G
W/B
7
BAT
1
IGN SW
HEADLAMP BATTERY SAVER CONTROL UNIT
M33 , M34
T/L SW1
T/L SW2
GND1
GND2
5
13
4
11
L
L
B
B
PRECEDING PAGE
E R/W
R/W
L
42
11
AUTO
1ST
OFF
2ND
COMBINATION SWITCH (LIGHTING SWITCH)
M55
8
5
B
B
M115
M25
M33
W
M34
W
M55
W
REFER TO THE FOLLOWING.
M1 , R1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1
TKWM3707E

LT-ILL-04



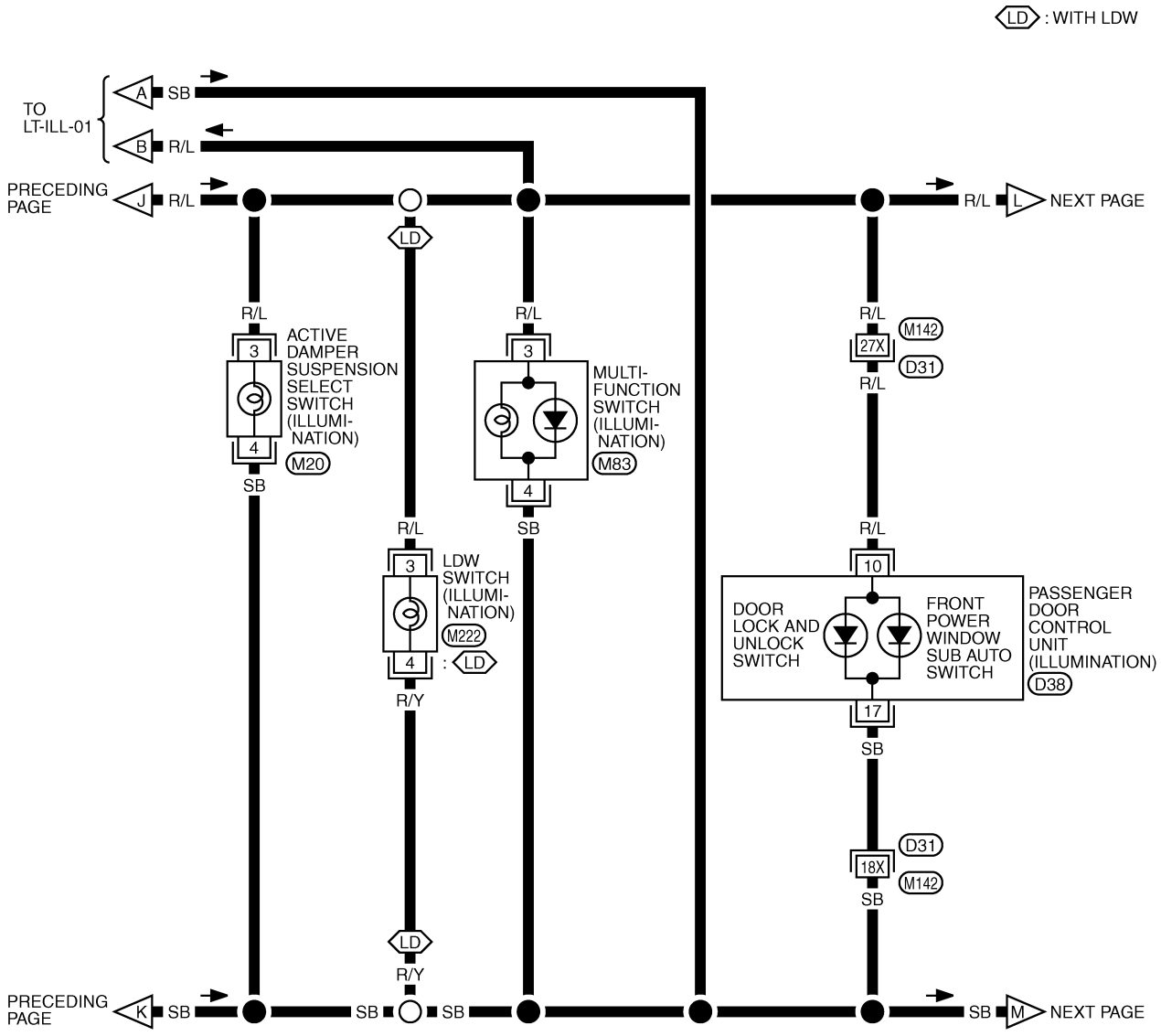


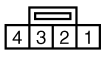
REFER TO THE FOLLOWING.
M5 , B211 -SUPER MULTIPLE JUNCTION (SMJ)
M1 , E201 , B2 , R1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

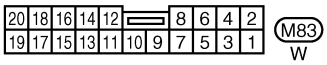
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

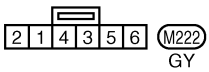
TKWM3708E

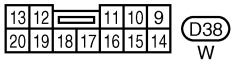
LT-ILL-05







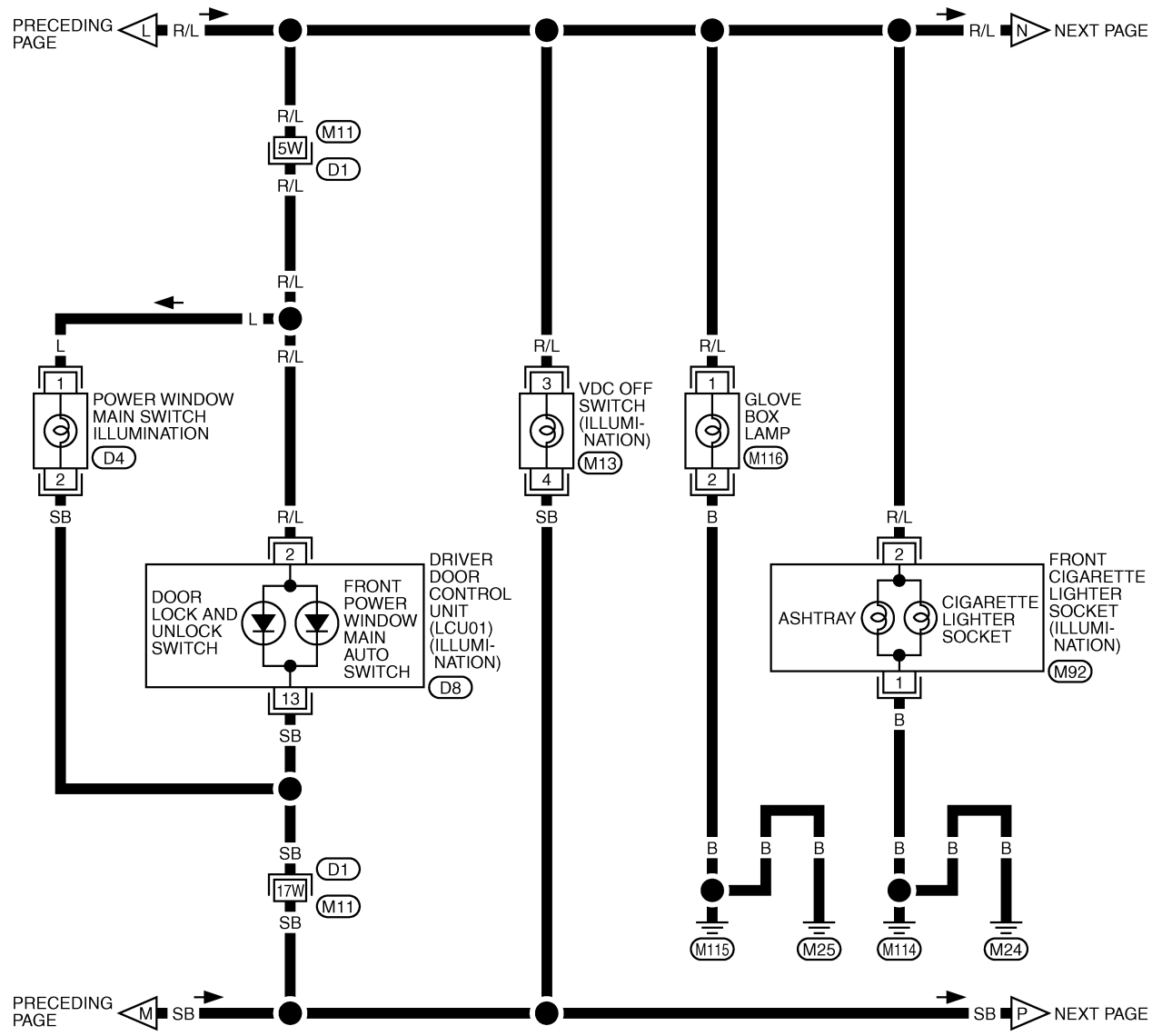


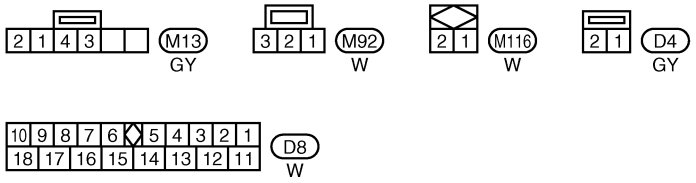


REFER TO THE FOLLOWING.
D31 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3709E

LT-ILL-06

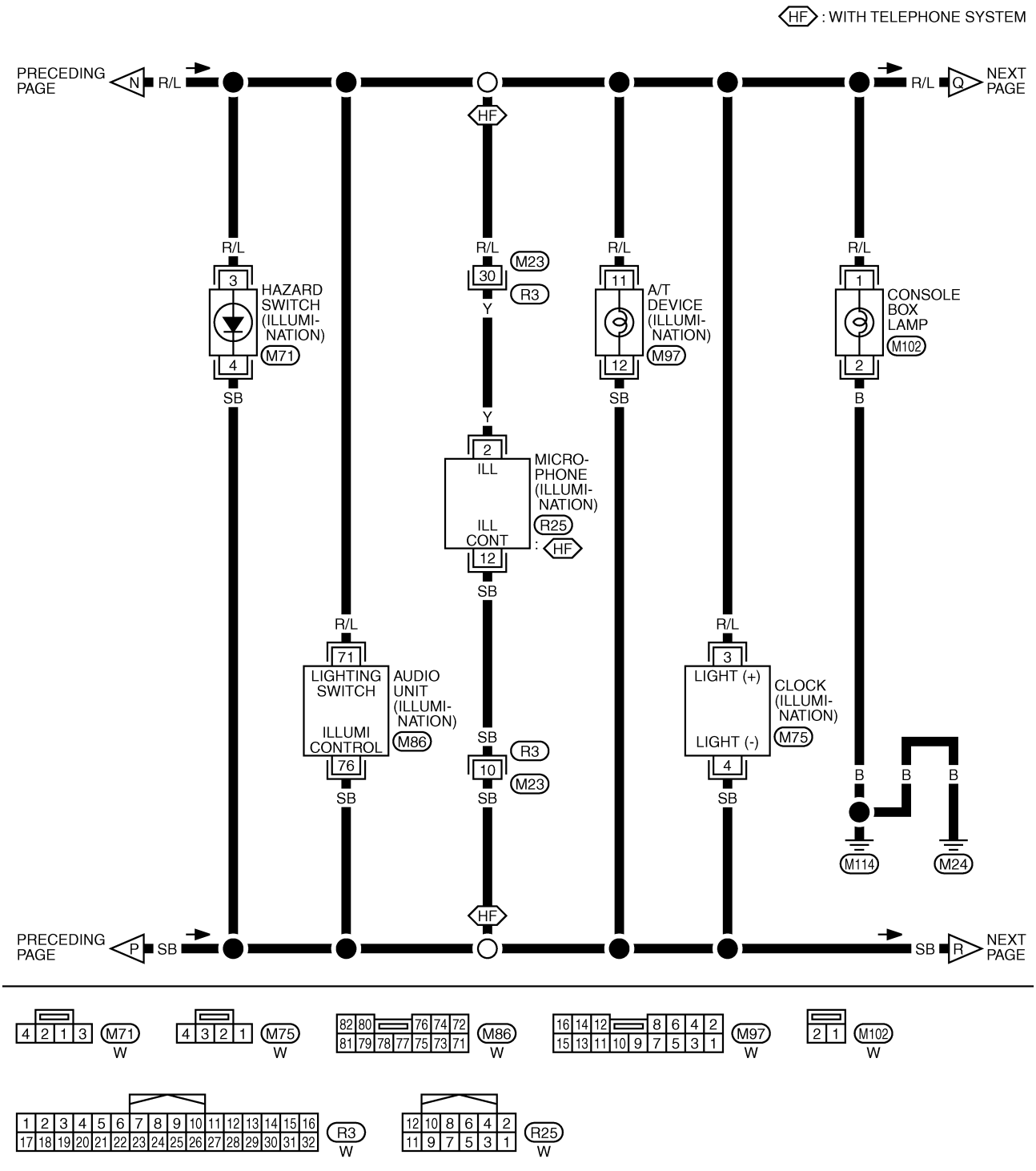




REFER TO THE FOLLOWING.
D1 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM1508E

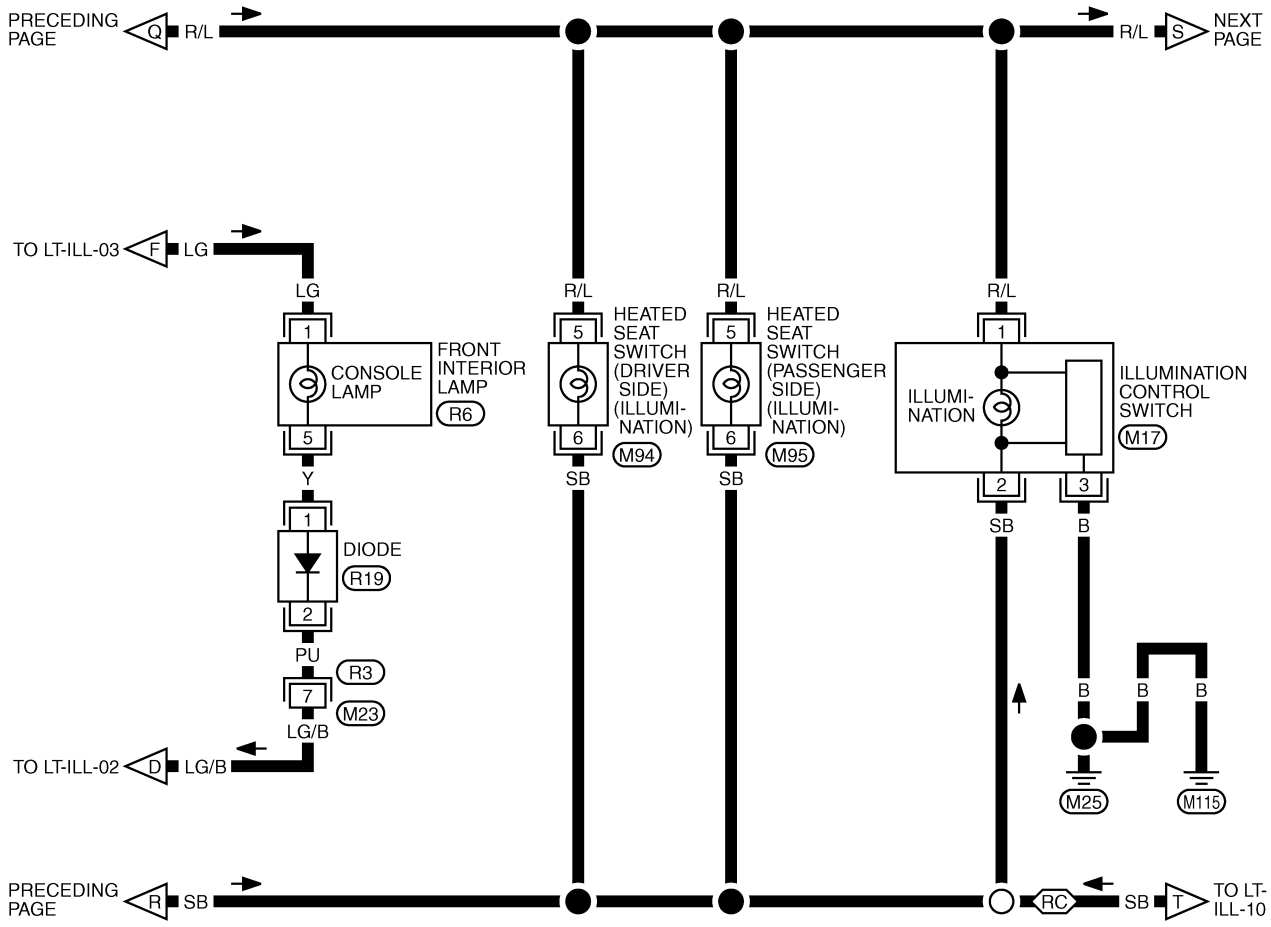
LT-ILL-07

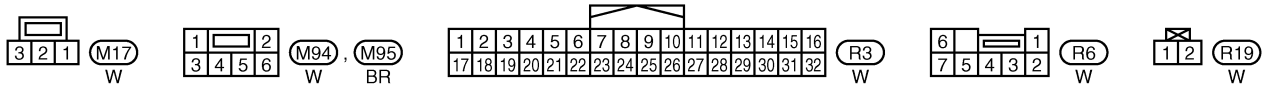


TKWM3710E

LT-ILL-08

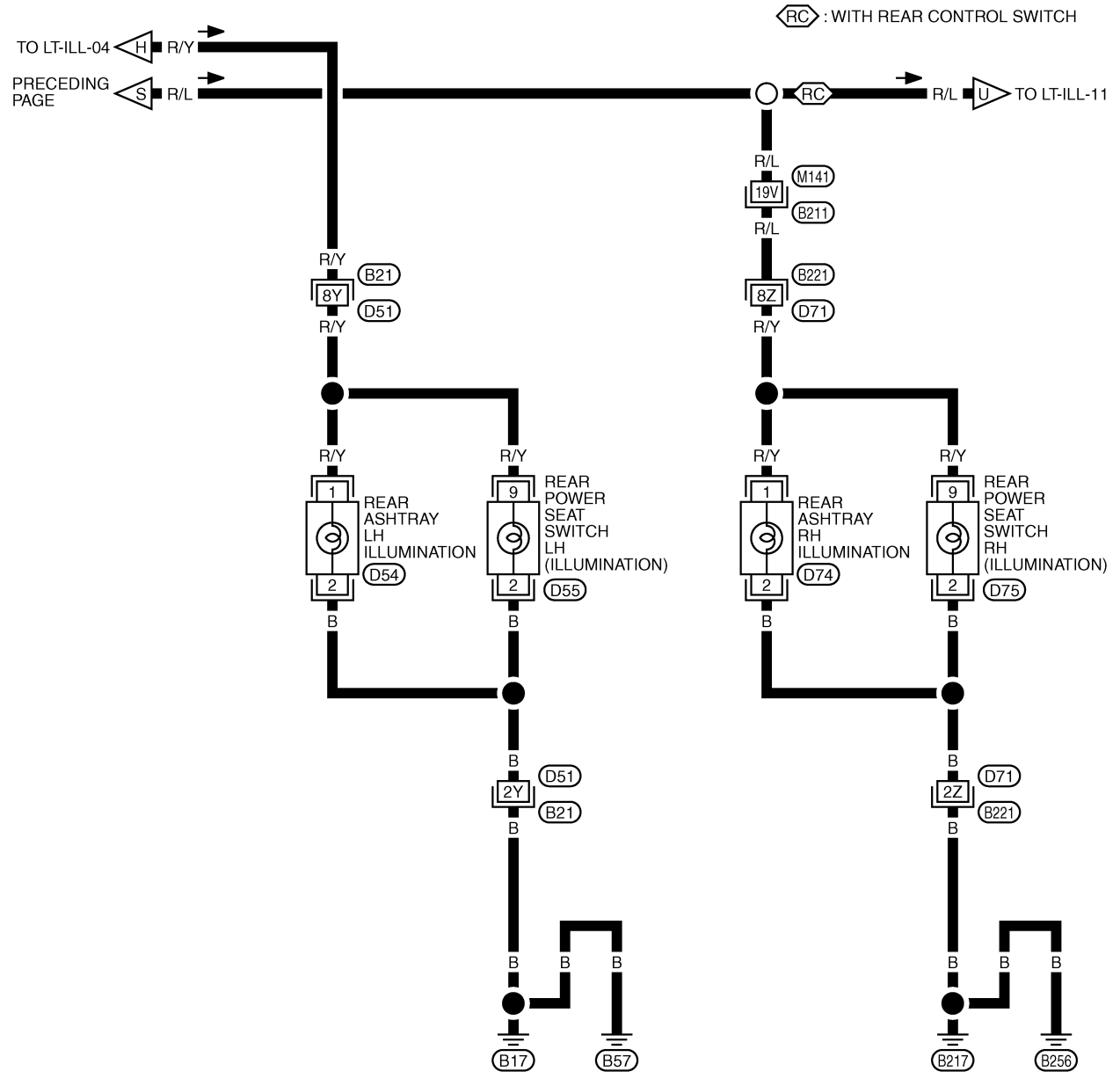
RC : WITH REAR CONTROL SWITCH

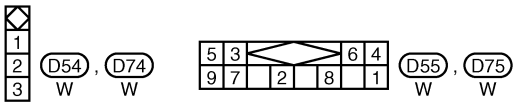




TKWM3711E

LT-ILL-09

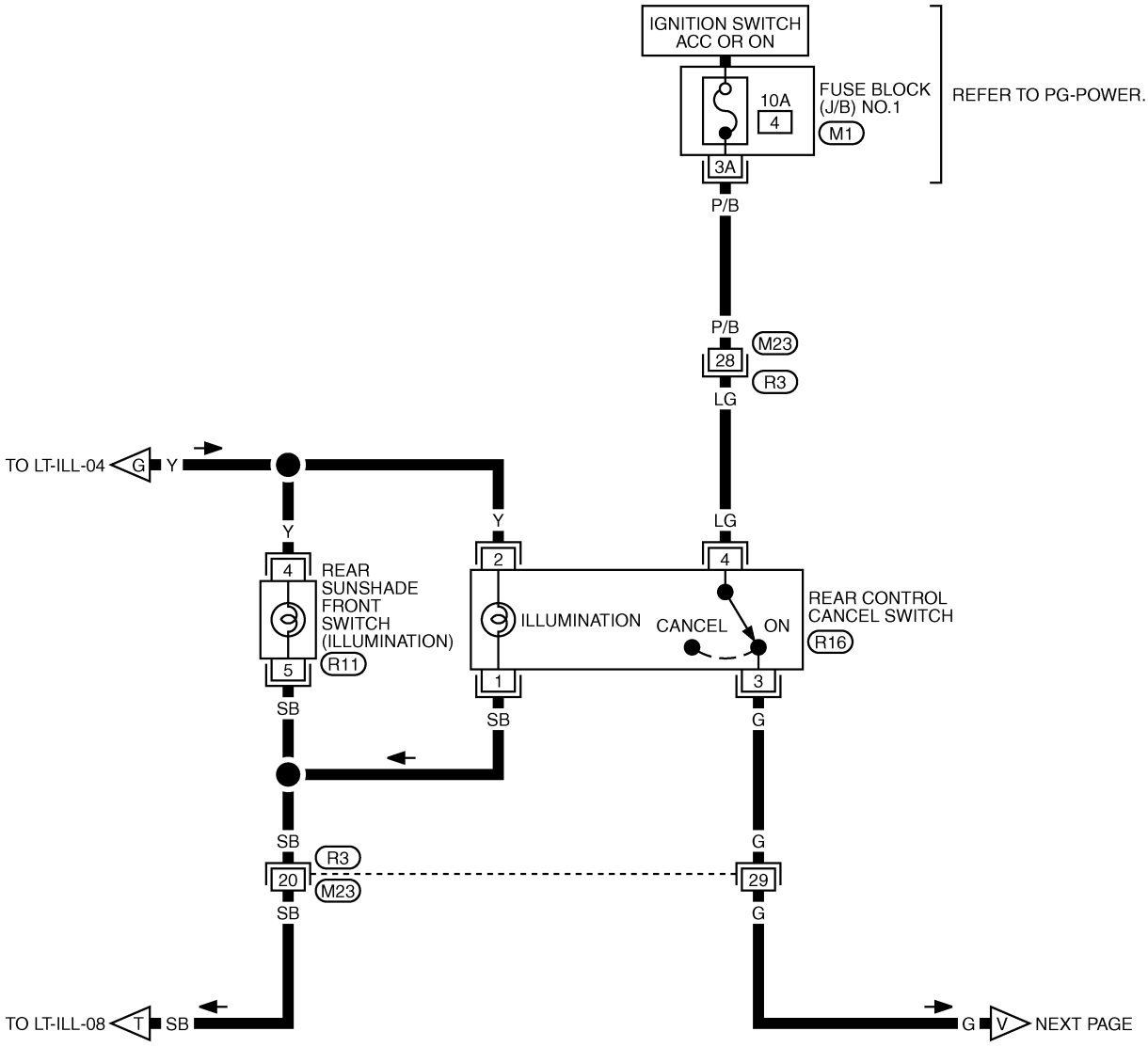


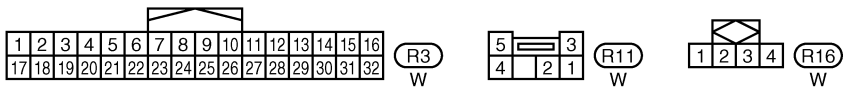


REFER TO THE FOLLOWING.
B21 , B211 , B221 -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3712E

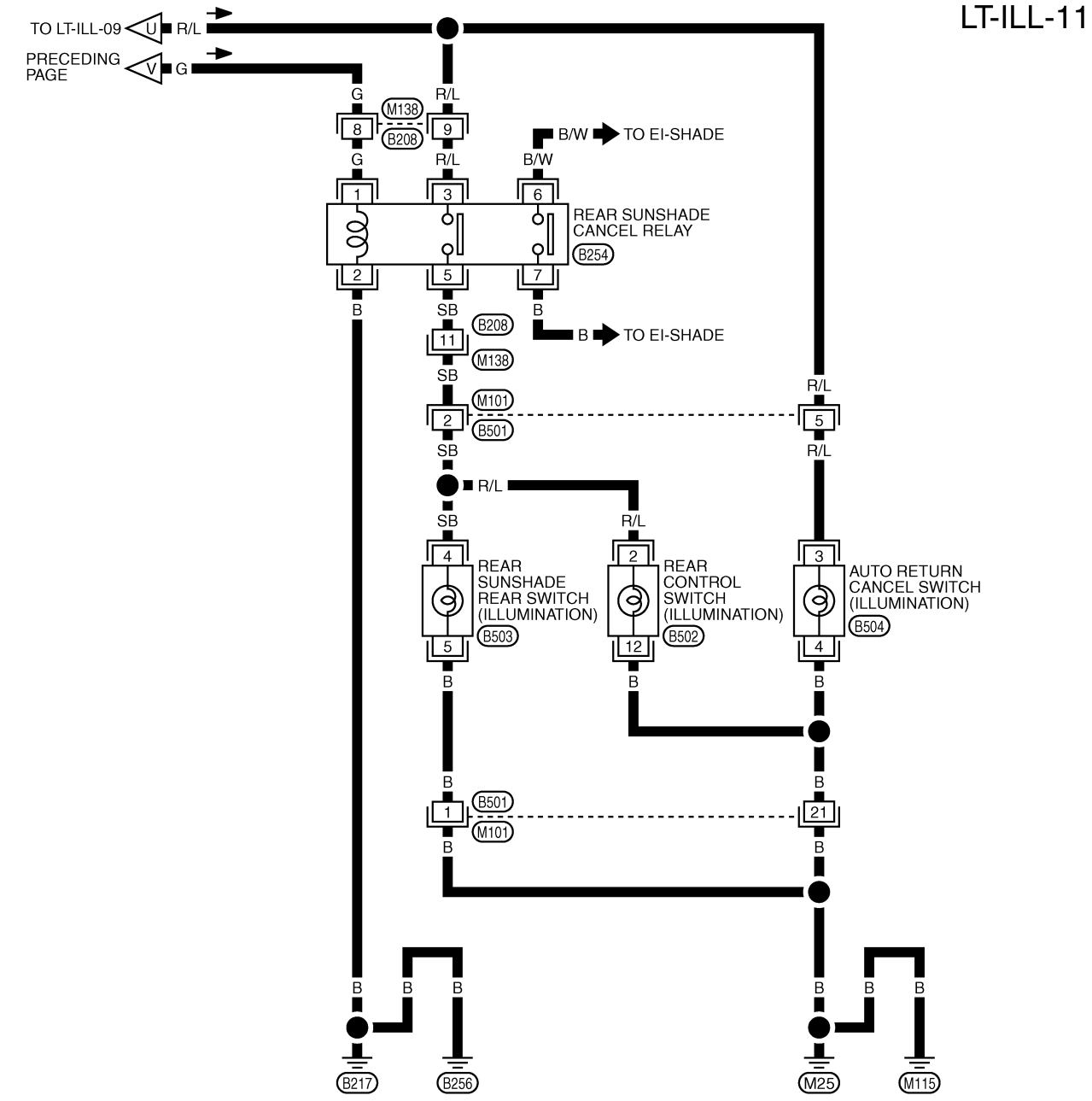
LT-ILL-10

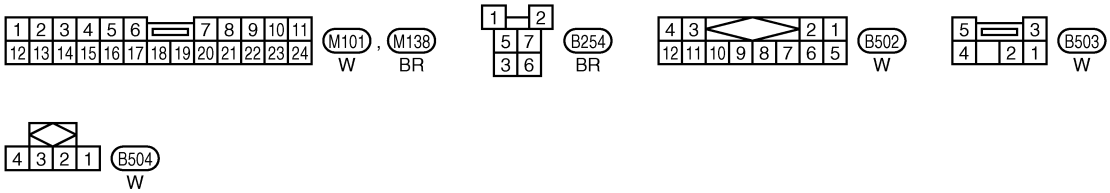




REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

TKWM3713E


LT-ILL-11
TO LT-ILL-09
U
R/L
PRECEDING PAGE
V
G
M138
B208
B/W
TO EI-SHADE
REAR SUNSHADE CANCEL RELAY
B254
TO EI-SHADE
M101
B501
REAR SUNSHADE REAR SWITCH (ILLUMINATION)
B503
REAR CONTROL SWITCH (ILLUMINATION)
B502
AUTO RETURN CANCEL SWITCH (ILLUMINATION)
B504
B217
B256
M25
M115


M101
W
M138
BR
B254
BR
B502
W
B503
W
B504
W

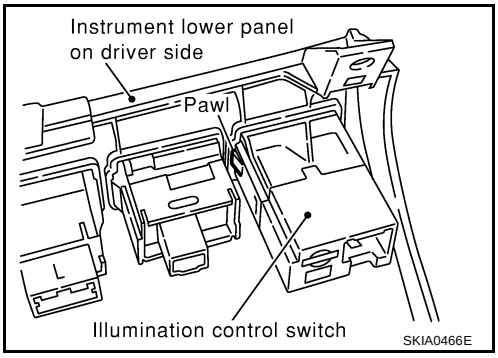
TKWM3714E

Removal and Installation

NKS001AR

ILLUMINATION CONTROL SWITCH

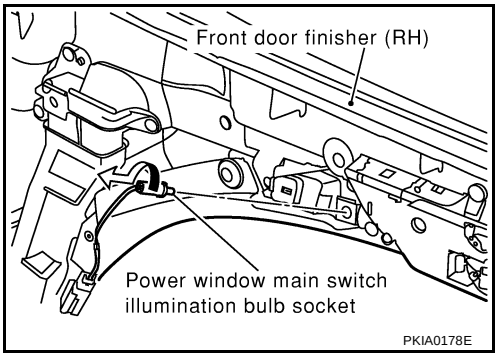
1. Remove lower instrument panel (driver side). Refer to IP-10, "Removal and Installation" .
2. Press illumination control switch fixing tabs and remove unit from lower instrument panel (driver side).



POWER WINDOW MAIN SWITCH ILLUMINATION

1. Remove the front door finisher (RH). Refer to EI-36, "FRONT DOOR FINISHER" in “EXTERIOR & INTERIOR (EI)” section.
2. Turn the bulb socket counterclockwise and unlock it.

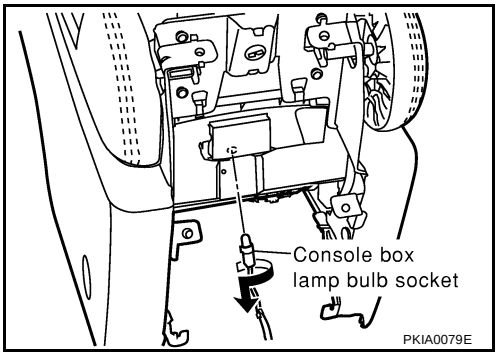
Power window main switch illumination : 12V-1.4W



CONSOLE BOX LAMP

1. Remove center console box assembly. Refer to IP-10, "Removal and Installation" .
2. Remove console box finisher. Refer to IP-17, "Disassembly and Assembly" .
3. Turn bulb socket and unlock it.

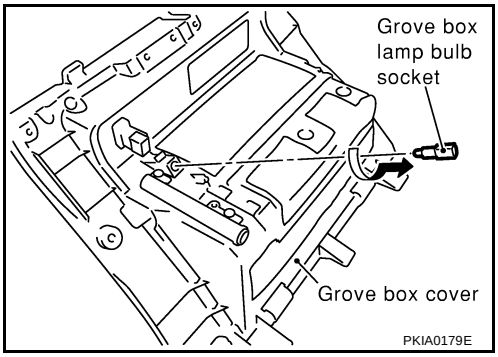
Console box lamp : 12V-2W



GLOVE BOX LAMP

1. Remove glove box cover. Refer to IP-10, "Removal and Installation" .
2. Turn bulb socket counterclockwise and unlock it.

Glove box lamp : 12V-1.4W

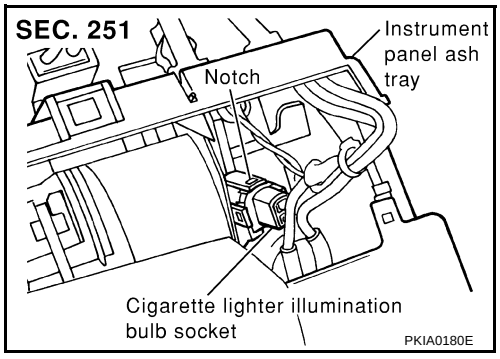


FRONT CIGARETTE LIGHTER ILLUMINATION

Cigarette Lighter Socket Illumination

1. Remove instrument panel ashtray. Refer to IP-10, "Removal and Installation" .
2. Unfold 3 notches and remove bulb socket.

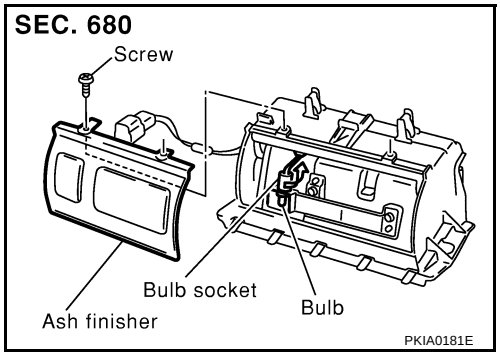
Cigarette lighter illumination : 12V-1.4W



Ashtray Illumination

1. Remove instrument panel ashtray. Refer to IP-10, "Removal and Installation" .
2. Remove ashtray finisher mounting screws and remove ashtray finisher.
3. Turn bulb socket counterclockwise and unlock it.

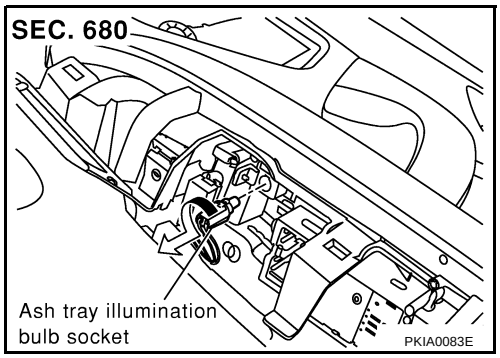
Ashtray illumination : 12V-1.4W



REAR ASHTRAY ILLUMINATION

1. Remove rear door armrest finisher. Refer to EI-37, "REAR DOOR FINISHER" .
2. Turn bulb socket counterclockwise and unlock it.
3. Disconnect ashtray illumination connector.

Ashtray illumination : 12V-1.4W



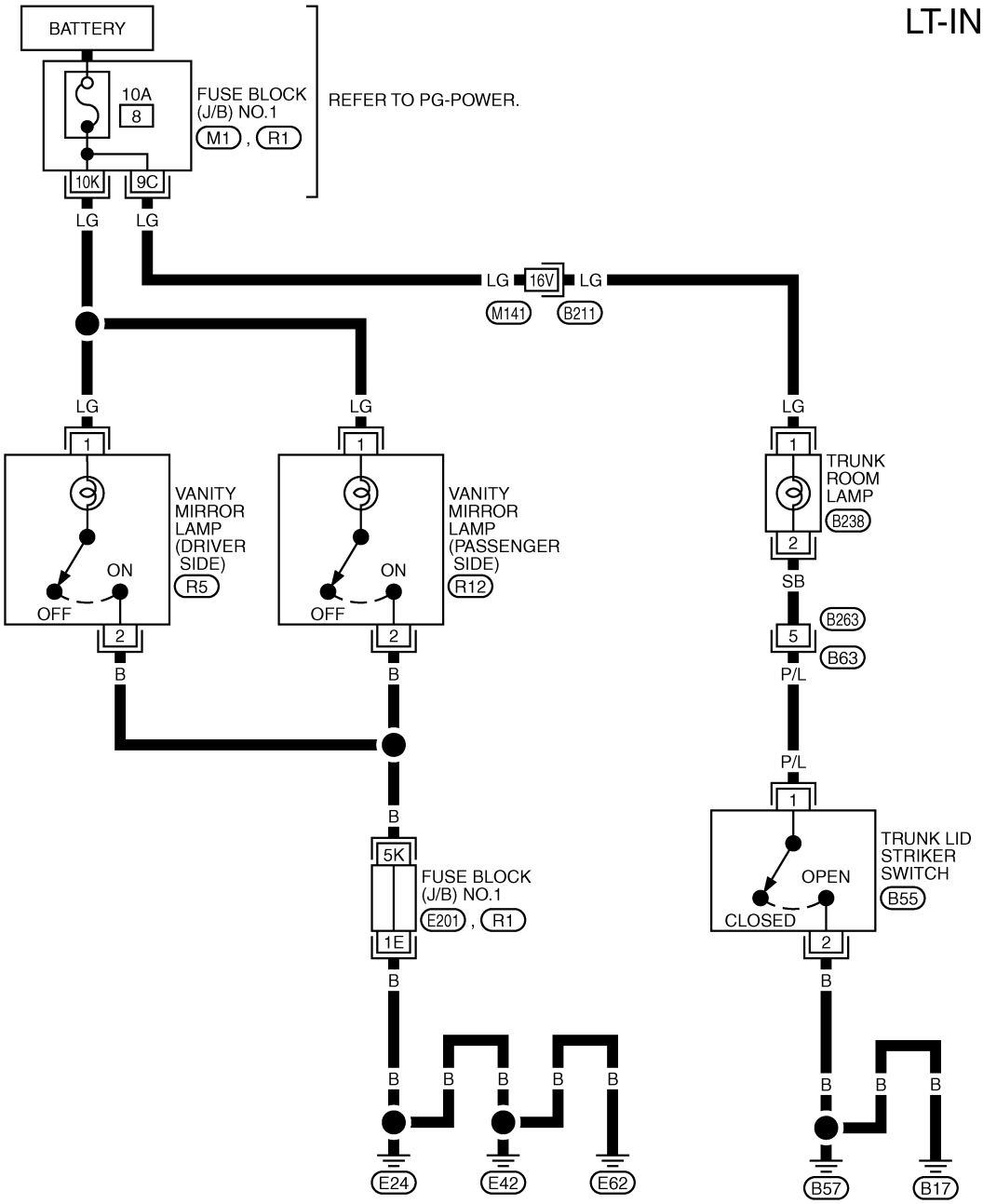
VANITY MIRROR AND TRUNK ROOM LAMPS

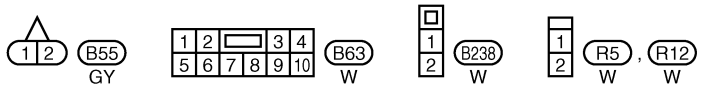
PFP:26470

Wiring Diagram — INT/L —

NKS001AS

LT-INT/L-01





REFER TO THE FOLLOWING.

B211 -SUPER MULTIPLE JUNCTION (SMJ)

M1 , E201 , R1 -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

TKWM3217E

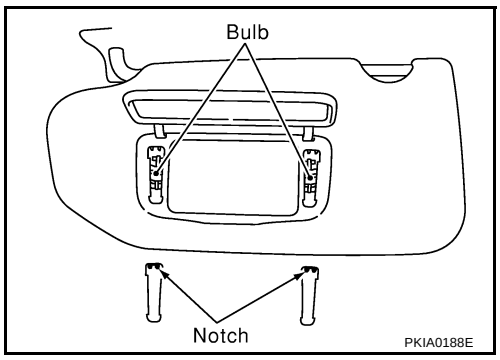
Bulb Replacement

NKS001AT

VANITY MIRROR LAMP

1. Insert a thin blade in notch and remove lens.
2. Remove bulb.

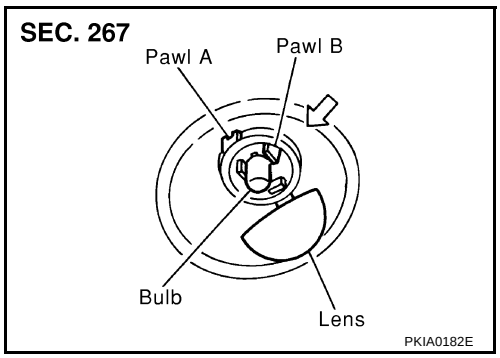
Vanity mirror lamp : 12V-1.4W



TRUNK ROOM LAMP

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

Trunk room lamp : 12V-3.4W



BULB SPECIFICATIONS

PFP:26297

Headlamp

NKS001AU

Item	Wattage (W)
Low	35 (D2S)
High	60 (HB3)

Exterior Lamp

NKS001AV

Item		Wattage (W)
Front fog lamp		51 (HB4)
Front combination lamp	Turn signal lamp	21 (amber)
	Parking lamp (Clearance lamp)	5
	Side marker lamp	5
Rear combination lamp	Stop/Tail lamp	LED
	Turn signal lamp	21 (amber)
	Back-up lamp	18
	Side marker lamp	LED
Tail lamp		LED
Door mirror lamp		8
License plate lamp		5
High-mounted stop lamp		18

Interior Lamp/Illumination

NKS001AW

Item	Wattage (W)
Map lamp (Front personal light)	8
Console lamp (Console light)	2
Personal lamp (Rear personal light)	8
Step lamp	2.7
Vanity mirror lamp	1.4
Trunk room lamp	3.4
Ignition key hole illumination	1.4
Power window switch illumination	1.4
Glove box lamp	1.4
Cigarette lighter socket illumination	1.4
Ashtray illumination	1.4
Rear ashtray illumination	1.4