SECTION EXL
EXTERIOR LIGHTING SYSTEM

CONTENTS

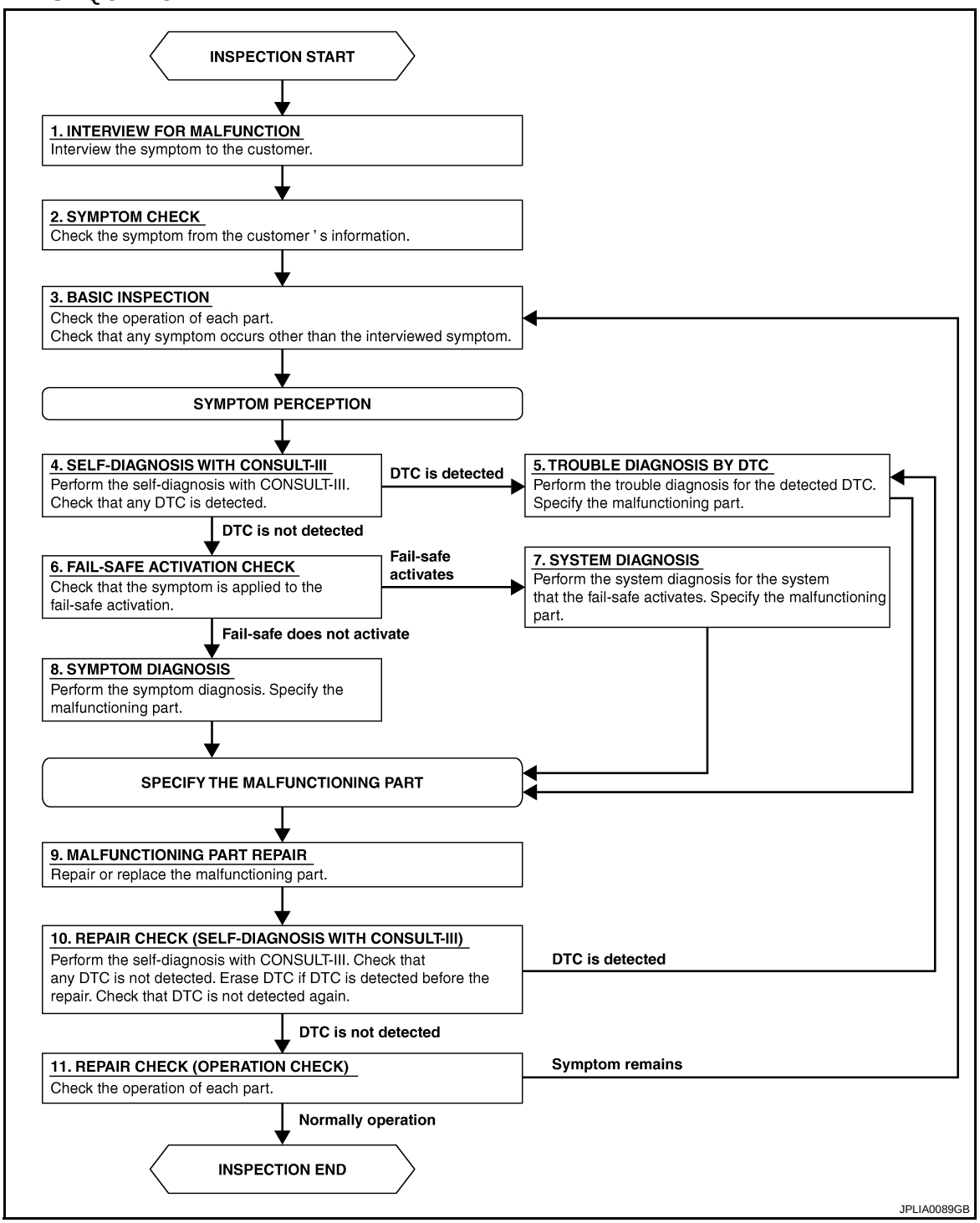
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000001712344

OVERALL SEQUENCE



DETAILED FLOW

1.INTERVIEW FOR MALFUNCTION

Find out what the customer's concerns are.

>> GO TO 2

2.SYMPTOM CHECK

Verify the symptom from the customer's information.

>> GO TO 3

3.BASIC INSPECTION

Check the operation of each part. Check that any concerns occur other than those mentioned in the customer interview.

>> GO TO 4

4.SELF-DIAGNOSIS WITH CONSULT-III

Perform the self diagnosis with CONSULT-III. Check that any DTC is detected.

Is any DTC detected?

YES >> GO TO 5
NO >> GO TO 6

5.TROUBLE DIAGNOSIS BY DTC

Perform the trouble diagnosis for the detected DTC. Specify the malfunctioning part.

>> GO TO 9

6.FAIL-SAFE ACTIVATION CHECK

Determine if the customer's concern is related to fail-safe activation.

Does the fail-safe activate?

YES >> GO TO 7
NO >> GO TO 8

7.SYSTEM DIAGNOSIS

Perform the system diagnosis for the system in which the fail-safe activates. Specify the malfunctioning part.

>> GO TO 9

8.SYMPTOM DIAGNOSIS

Perform the symptom diagnosis. Specify the malfunctioning part.

>> GO TO 9

9.MALFUNCTION PART REPAIR

Repair or replace the malfunctioning part.

>> GO TO 11

10.REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT-III)

Perform the self diagnosis with CONSULT-III. Verfied that no DTCs are detected. Erase all DTCs detected prior to the repair. Verify that DTC is not detected again.

Is any DTC detected?

YES >> GO TO 5
NO >> GO TO 11

11. REPAIR CHECK (OPERATION CHECK)

Check the operation of each part.

Does it operate normally?

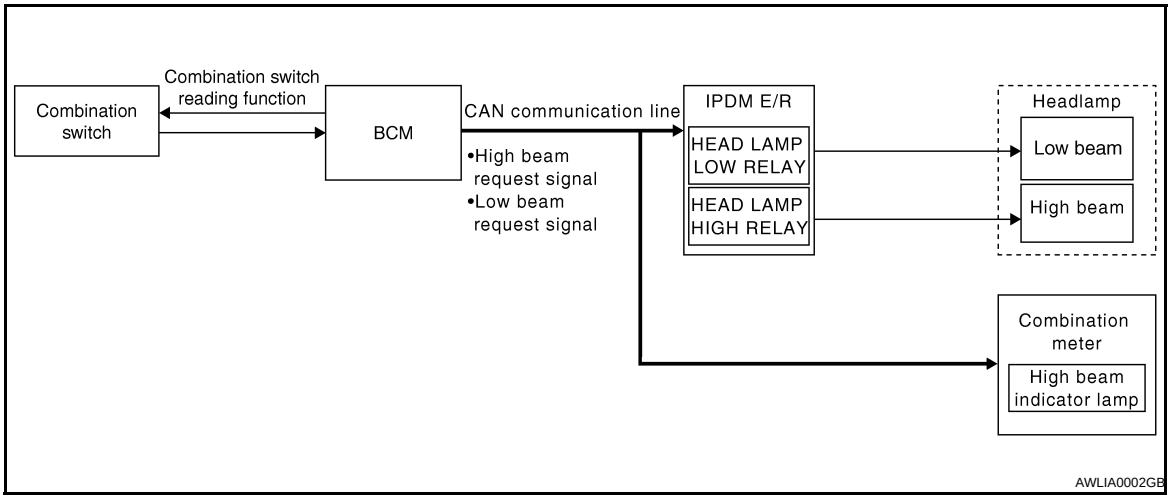
YES >> INSPECTION END
NO >> GO TO 3

FUNCTION DIAGNOSIS

HEADLAMP (HALOGEN TYPE)

System Diagram

INFOID:0000000001712345



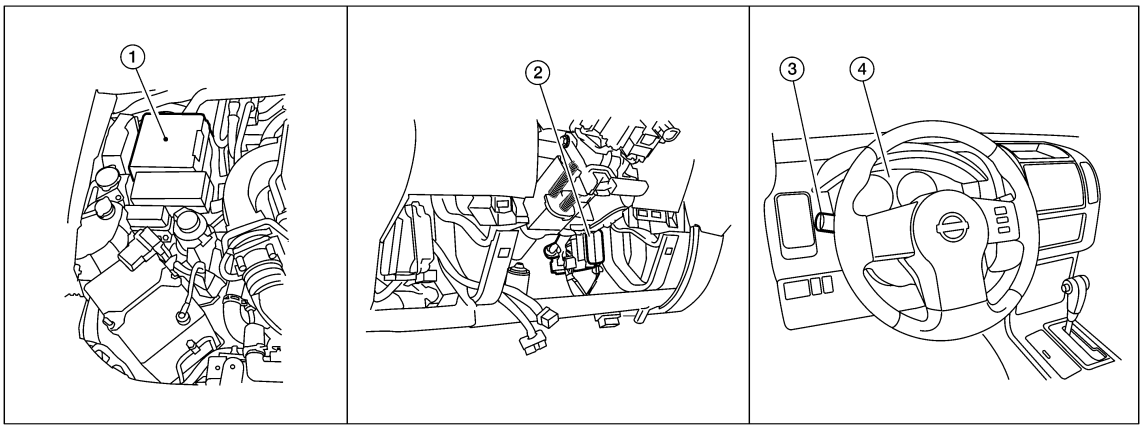
System Description

INFOID:0000000001712346

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

Component Parts Location

INFOID:0000000001712347



1. IPDM E/R E122, E123, E124
2. BCM M18, M20 (view with instrument panel removed)
3. Combination switch M28
4. Combination meter M23, M24

Component Description

INFOID:0000000001712348

LOW BEAM OPERATION

When the lighting switch is in 2ND position, the BCM receives input requesting the headlamps to illuminate. This input is communicated to the IPDM E/R via the CAN communication lines. The CPU of the IPDM E/R controls the headlamp low relay coil which supplies power to the low beam headlamps.

HIGH BEAM OPERATION/FLASH-TO-PASS OPERATION

With the lighting switch in the 2ND position and placed in HIGH position, the BCM receives input requesting the headlamp high beams to illuminate. The flash to pass feature can be used any time and also sends a signal to the BCM. This input is communicated to the IPDM E/R via the CAN communication lines. The CPU of the combination meter controls the ON/OFF status off the HIGH BEAM indicator. The CPU of the IPDM E/R controls the headlamp high relay coil which supplies power to the high beam headlamps.
The combination meter receives a high beam request signal (ON) via the CAN communication lines and turns the high beam indicator lamp ON.

COMBINATION SWITCH READING FUNCTION

Refer to BCS-7, "System Description".

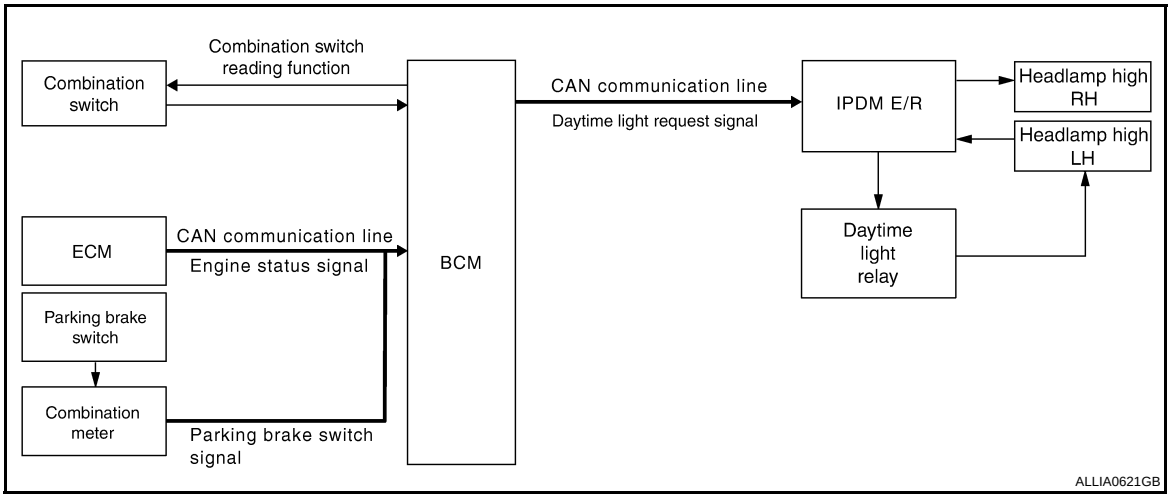
AUTO LIGHT OPERATION

Refer to EXL-11, "System Description".

DAYTIME RUNNING LIGHT SYSTEM

System Diagram

INFOID:0000000001712349



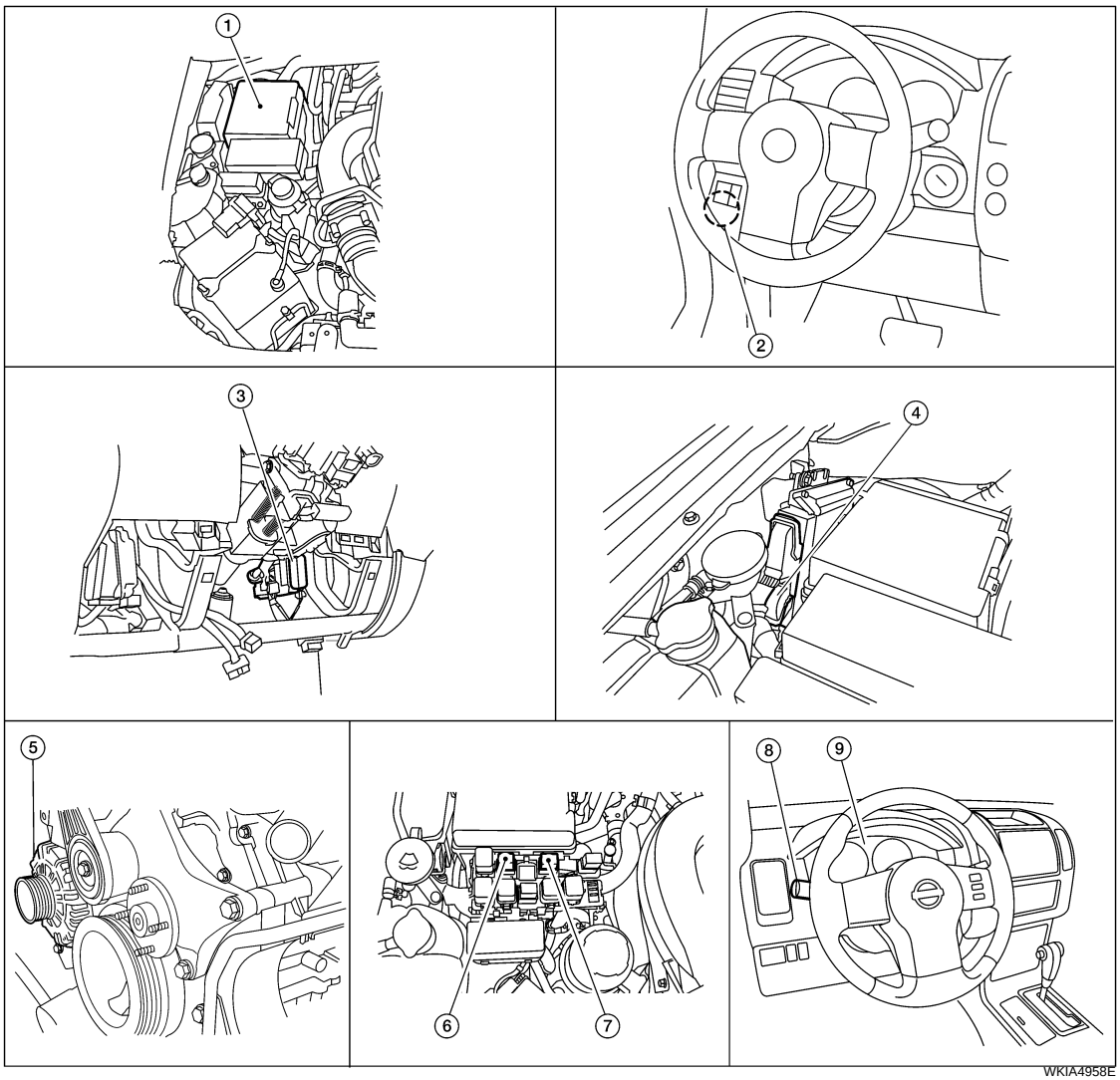
System Description

INFOID:0000000001712350

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 operating. 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.

Component Parts Location

INFOID:0000000001712351



WKIA4958E

1. IPDM E/R E119, E122, E123, E124
2. Parking brake switch E53
3. BCM M18, M20 (view with instrument panel removed)
4. ECM E16 (view with ECM cover removed)
5. Generator E205
6. Daytime light relay 1
7. Daytime light relay 2
8. Combination switch (lighting switch) M28
9. Combination meter M24

Component Description

INFOID:0000000001712352

After starting the engine with the parking brake released and the lighting switch in the OFF or 1ST position, the headlamp high beam automatically turns on at a reduced intensity. With the lighting switch in the 2nd position or with autolamps ON, the headlamps function the same as conventional light systems.

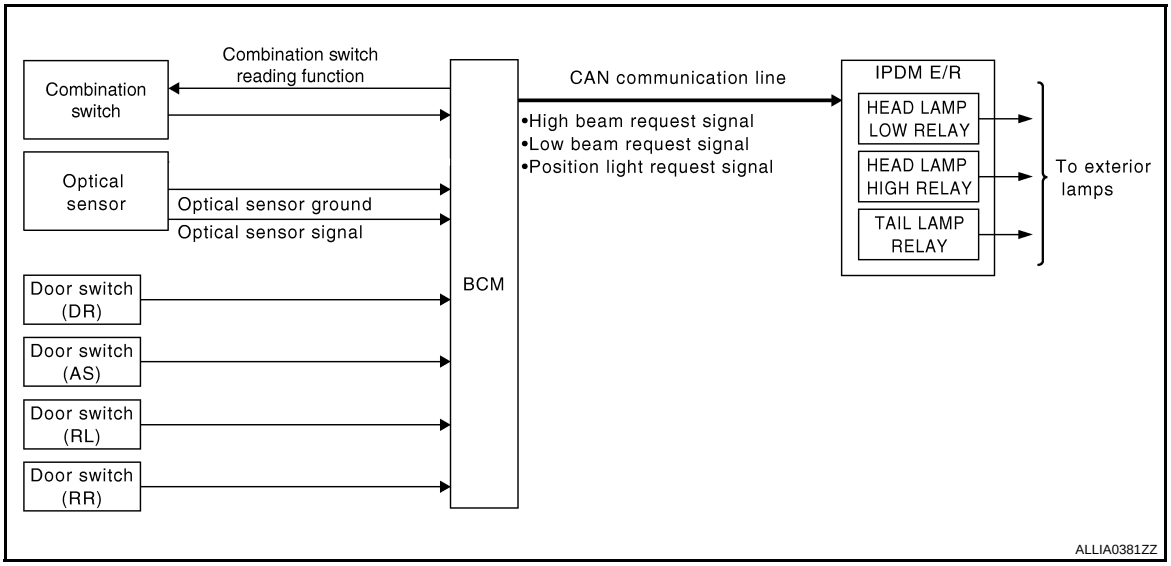
OPERATION

The BCM monitors inputs from the parking brake switch and the combination switch to determine when to activate the daytime light system. The BCM sends a daytime light request to the IPDM E/R via the CAN communication lines. The IPDM E/R grounds the daytime light relay which in turn, provides power to the ground side of the LH high beam lamp. Power flows backward through the LH high beam lamp to the IPDM E/R, through the high beam fuses, through the RH high beam lamp circuit to the RH high beam lamp and on to ground. The high beam lamps are wired in series which causes them to illuminate at a reduced intensity.

AUTO LIGHT SYSTEM

System Diagram

INFOID:0000000001712353



System Description

INFOID:0000000001712354

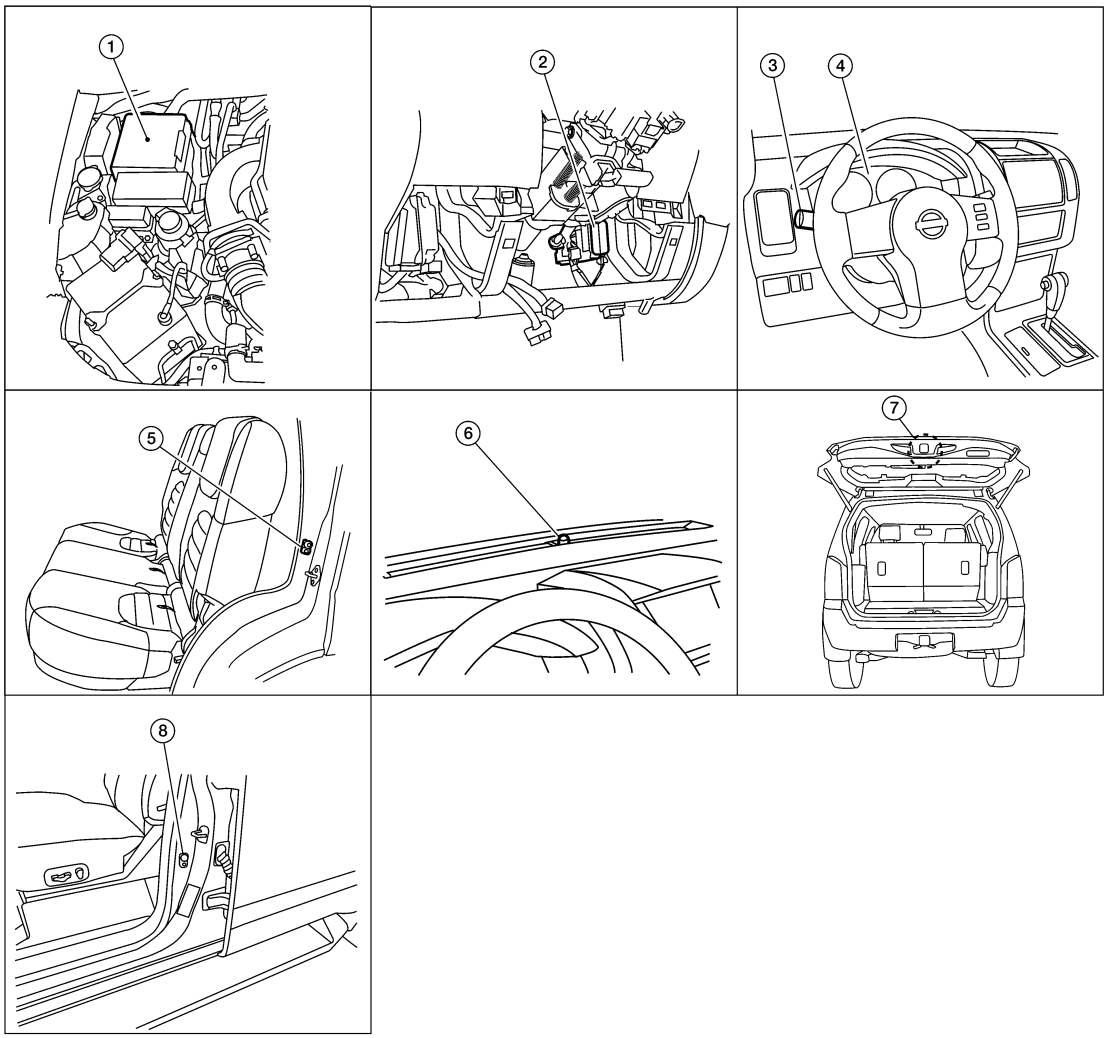
- BCM (Body Control Module) controls auto light operation according to signals from optical sensor, lighting switch and ignition switch.
- IPDM E/R (Intelligent Power Distribution Module Engine Room) operates parking, license plate, tail and headlamps according to CAN communication signals from BCM.
- Optical sensor detects ambient brightness of 800 to 2,500 lux. And optical sensor converts light (lux) to voltage, then sends the optical sensor signal to BCM.

OUTLINE

The auto light control system has an optical sensor that detects outside brightness.
When the lighting switch is in AUTO position, it automatically turns ON/OFF the parking, license plate, tail and headlamps in accordance with the ambient light. Sensitivity can be adjusted in four steps. For the details of the setting, Refer to EXL-21, "EXTERNAL LAMP : CONSULT-III Function".

Component Parts Location

INFOID:0000000001712355



WKIA4959E

1. IPDM E/R E122, E123, E124
2. BCM M18, M19, M20 (view with instrument panel removed)
3. Combination switch M28
4. Combination meter M24
5. Rear door switch
   LH B18
   RH B116
   Front door switch
   LH B8
   RH B108
6. Optical sensor M145
7. Back door cinching latch unit (door ajar switch) D502

Component Description

INFOID:0000000001712356

AUTO LIGHT OPERATION

The auto light system operates the low beam and high beam headlamps, parking lamps, tail lamps and license plate lamps. The BCM monitors the lighting switch (combination switch) position as a part of the BCM combination switch reading function. When the lighting switch is in the AUTO position, the BCM automatically turns the lamps ON/OFF according to ambient light brightness.

NOTE:

Timing for when lamps turn ON/OFF can be changed by the function setting of CONSULT-III. Refer to EXL-21, "EXTERNAL LAMP : CONSULT-III Function".

COMBINATION SWITCH READING FUNCTION

Refer to BCS-7, "System Description".

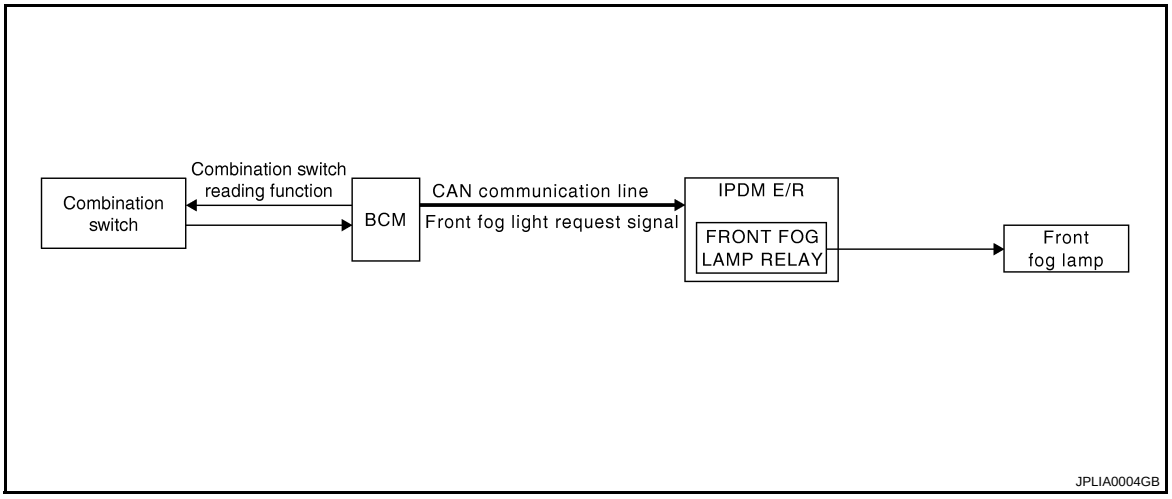
PARKING, LICENSE PLATE AND TAIL LAMPS OPERATION

Refer to EXL-17, "System Description".

FRONT FOG LAMP

System Diagram

INFOID:0000000001712357



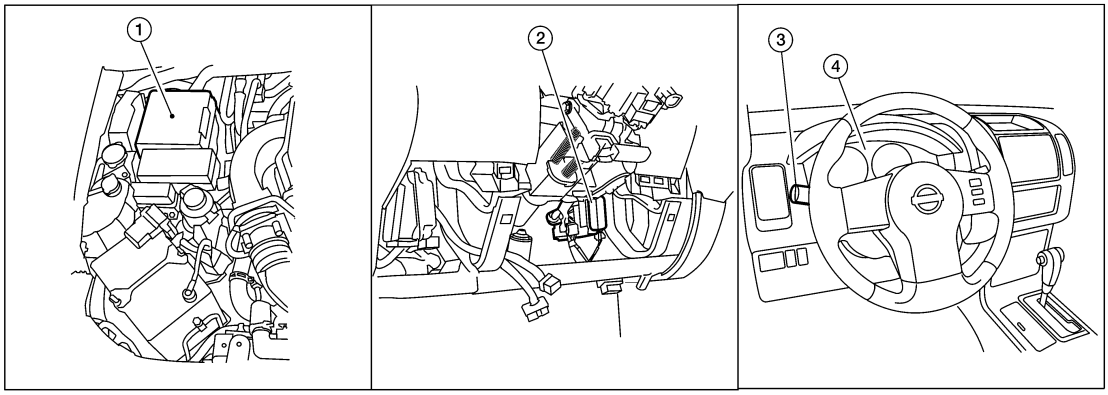
System Description

INFOID:0000000001712358

The front fog lamps are activated with the lighting switch (combination switch). The lighting switch signal to the BCM is monitored with the BCM combination switch reading function. When the fog lamps are turned ON with the lighting switch, the BCM sends a front fog lamp request signal via CAN communication lines to the IPDM E/R. The IPDM E/R grounds the front fog lamp relay coil to activate the front fog lamps.

Component Parts Location

INFOID:0000000001712359



1. IPDM E/R E122, E123, E124
2. BCM M18, M20 (view with instrument panel removed)
3. Combination switch M28
4. Combination meter M24

Component Description

INFOID:0000000001712360

FRONT FOG LAMP OPERATION

When the lighting switch is in front fog lamp ON position and also in 1ST or 2ND position or AUTO position (headlamp is ON), the BCM detects FR FOG ON and the HEAD LAMP1, 2 ON or the AUTO LIGHT ON. The BCM sends a front fog lamp request ON signal via the CAN communication lines to the IPDM E/R. The IPDM E/R then turns ON the front fog lamp relay sending power to the front fog lamps.

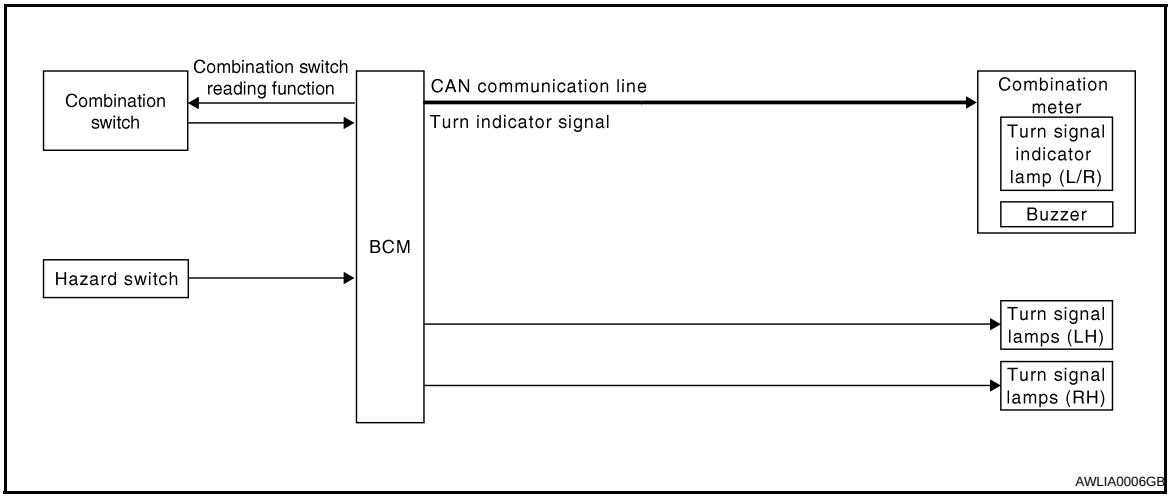
COMBINATION SWITCH READING FUNCTION

Refer to BCS-7, "System Description".

TURN SIGNAL AND HAZARD WARNING LAMPS

System Diagram

INFOID:0000000001712361



System Description

INFOID:0000000001712362

TURN SIGNAL OPERATION

When the turn signal switch is in LH or RH position with the ignition switch in ON position, the BCM detects the TURN RH or TURN LH ON request. The BCM outputs the flasher signal to the respective turn signal lamp. The BCM also sends a turn indicator signal ON request via the CAN communication lines to the combination meter. The combination meter then activates the appropriate turn signal indicator and audible buzzer.

HAZARD LAMP OPERATION

When the hazard switch is in ON position, the BCM detects the hazard switch signal ON. The BCM outputs the flasher signal (right and left). The BCM sends a hazard indicator signal ON request via the CAN communication lines to the combination meter. The combination meter then activates the hazard indicator and audible buzzer.

REMOTE KEYLESS ENTRY OPERATION

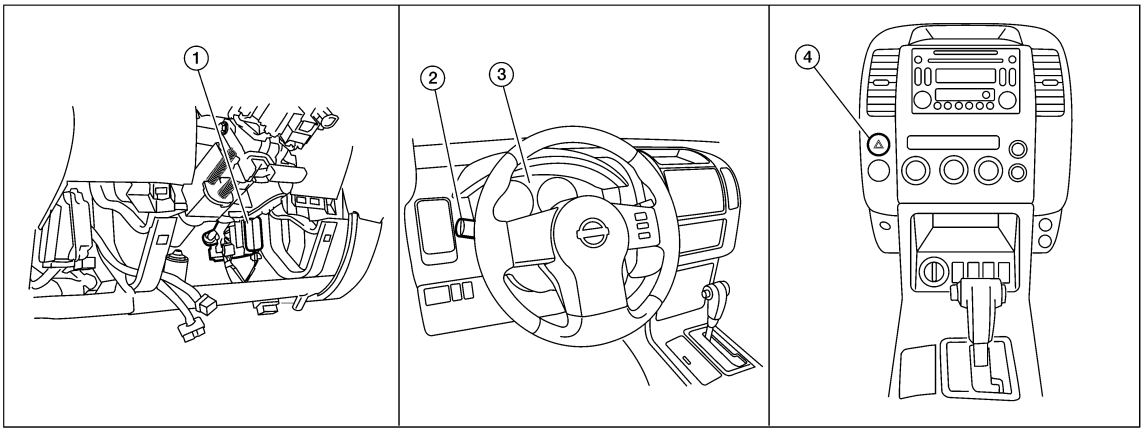
The remote keyless entry receiver transmits a hazard request signal to the BCM, then BCM controls hazard lamps.
Refer to SEC-17, "System Description".

COMBINATION SWITCH READING FUNCTION

Refer to BCS-7, "System Description".

Component Parts Location

INFOID:0000000001712363



WKIA4961E

1. BCM M18, M20 (view with instrument panel removed)
2. Combination switch M28
3. Combination meter M24
4. Hazard switch M55

Component Description

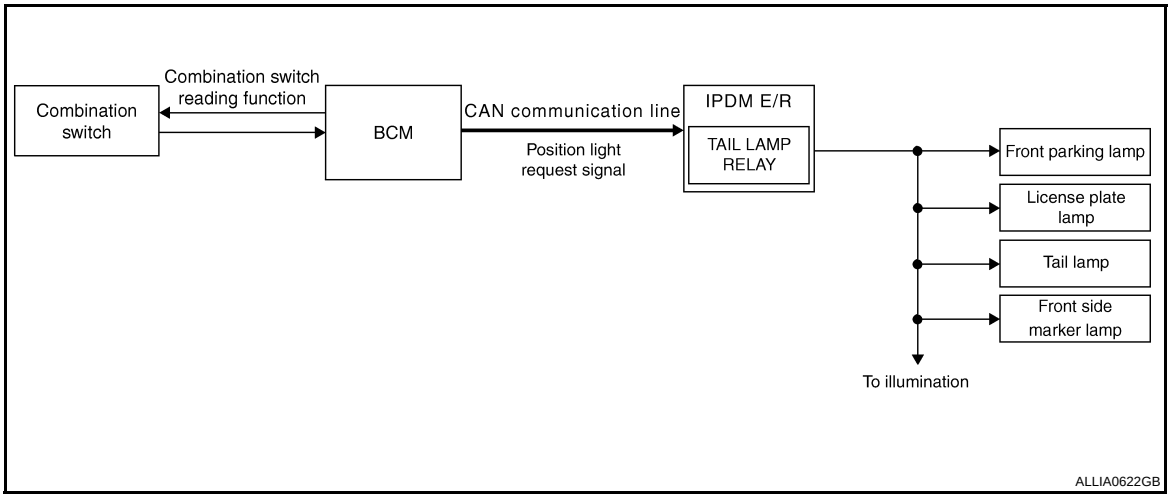
INFOID:0000000001712364

Part name	Description
BCM	Controls turn signal and hazard flasher operation.
Combination switch	Lighting and turn signal switch requests are output to the BCM.
Hazard switch	Hazard flasher request signal is output to the BCM.
Combination meter	Outputs turn and hazard indicator as requested by the BCM.

PARKING, LICENSE PLATE AND TAIL LAMPS

System Diagram

INFOID:0000000001712365



System Description

INFOID:0000000001712366

PARKING, LICENCE PLATE AND TAIL LAMPS OPERATION

When the lighting switch is in 1ST position, BCM detects the LIGHTING SWITCH 1ST POSITION ON. The BCM sends a parking light ON request via the CAN communication lines to the IPDM E/R. The IPDM E/R then activates the tail lamp relay which sends power to the parking and instrument illumination circuits.

EXTERIOR LAMP BATTERY SAVER CONTROL

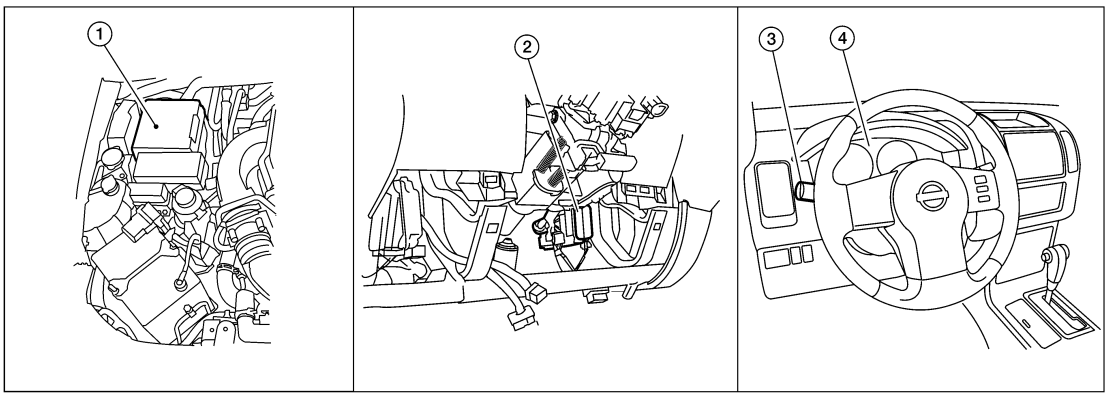
With the lighting switch (combination switch) in the 2nd position and the ignition switch is turned from ON or ACC to OFF, the battery saver feature is activated.
Under this condition, the headlamps remain illuminated for 5 minutes unless the lighting switch position is changed. If the lighting switch position is changed, then the headlamps are turned off.
This setting can be changed by CONSULT-III. Refer to EXL-21, "EXTERNAL LAMP : CONSULT-III Function".

COMBINATION SWITCH READING FUNCTION

Refer to BCS-7, "System Description".

Component Parts Location

INFOID:0000000001712367



1. IPDM E/R E121, E122, E123, E124
2. BCM M18, M20 (view with instrument panel removed)
3. Combination switch M28
4. Combination meter M24

Component Description

INFOID:0000000001712368

Part name	Description
BCM	• Recieves lighting switch requests via BCM combination switch reading function. • Sends parking light request signal to the IPDM E/R.
IPDM E/R	Activates the tail lamp relay upon request of the BCM.
Combination switch (lighting switch)	Outputs lighting requests to the BCM.

COMBINATION SWITCH

System Description

INFOID:0000000001712369

For information regarding the combination switch, refer to BCS-7, "System Description".

DIAGNOSIS SYSTEM (BCM)
COMMON ITEM
COMMON ITEM : Diagnosis Description

INFOID:0000000001712370

BCM CONSULT-III FUNCTION
CONSULT-III performs the following functions via CAN communication with BCM.

Diagnosis mode	Function Description
WORK SUPPORT	Changes the setting for each system function.
SELF-DIAG RESULTS	Displays the diagnosis results judged by BCM.
CAN DIAG SUPPORT MNTR	Monitors the reception status of CAN communication viewed from BCM.
DATA MONITOR	The BCM input/output signals are displayed.
ACTIVE TEST	The signals used to activate each device are forcibly supplied from BCM.
ECU IDENTIFICATION	The BCM part number is displayed.
CONFIGURATION	This function is not used even though it is displayed.

SYSTEM APPLICATION
BCM can perform the following functions for each system.

System	Sub system selection item	Diagnosis mode		
		WORK SUPPORT	DATA MONITOR	ACTIVE TEST
Door lock	DOOR LOCK	×	×	×
Rear window defogger	REAR DEFOGGER		×	×
Warning chime	BUZZER		×	×
Interior room lamp timer	INT LAMP	×	×	×
Exterior lamp	HEAD LAMP	×	×	×
Wiper and washer	WIPER	×	×	×
Turn signal and hazard warning lamps	FLASHER		×	×
Air conditioner	AIR CONDITONER		×	
Intelligent Key system	INTELLIGENT KEY	×	×	×
Combination switch	COMB SW		×	
BCM	BCM	×		
Immobilizer	IMMU		×	×
Interior room lamp battery saver	BATTERY SAVER	×	×	×
Trunk open	TRUNK		×	×
Vehicle security system	THEFT ALM	×	×	×
RAP system	RETAINED PWR	×	×	×
Signal buffer system	SIGNAL BUFFER		×	×
TPMS	AIR PRESSURE MONITOR	×	×	×

COMMON ITEM : CONSULT-III Function

INFOID:0000000001712371

ECU IDENTIFICATION
Displays the BCM part No.

SELF-DIAG RESULT
Refer to BCS-51, "DTC Index".

EXTERNAL LAMP

EXTERNAL LAMP : CONSULT-III Function

INFOID:0000000001712372

WORK SUPPORT

Service item	Setting item	Setting	
BATTERY SAVER SET	ON[1]	With the exterior lamp battery saver function	
	OFF	Without the exterior lamp battery saver function	
ILL DELAY SET[2]	MODE 1[1]	45 sec.	Sets delay timer function timer operation time (All doors closed)
	MODE 2	Without the function	
	MODE 3	30 sec.	
	MODE 4	60 sec.	
	MODE 5	90 sec.	
	MODE 6	120 sec.	
	MODE 7	150 sec.	
	MODE 8	180 sec.	
CUSTOM A/LIGHT SETTING[2]	MODE 1[1]	Normal	
	MODE 2	More sensitive setting than normal setting (Turns ON earlier than normal operation.)	
	MODE 3	More sensitive setting than MODE 2 (Turns ON earlier than MODE 2.)	
	MODE 4	Less sensitive setting than normal setting (Turns ON later than normal operation.)	

1 : Initial setting

2 : With auto light system

DATA MONITOR

Monitor item [Unit]	Description
IGN ON SW [ON/OFF]	The switch status input from ignition switch
ACC ON SW [ON/OFF]	The switch status input from ignition switch
TURN SIGNAL R [ON/OFF]	Each switch status that BCM judges from the combination switch reading function
TURN SIGNAL L [ON/OFF]	
HI BEAM SW [ON/OFF]	
HEAD LAMP SW1 [ON/OFF]	
HEAD LAMP SW2 [ON/OFF]	
LIGHT SW 1ST [ON/OFF]	
AUTO LIGHT SW [ON/OFF]	
PASSING SW [ON/OFF]	
FR FOG SW [ON/OFF]	
CARGO LAMP SW [ON/OFF]	

Monitor item [Unit]	Description
RR FOG SW[1] [ON/OFF]	—
DOOR SW-DR [ON/OFF]	The switch status input from front door switch LH
DOOR SW-AS [ON/OFF]	The switch status input from front door switch RH
DOOR SW-RR [ON/OFF]	The switch status input from rear door switch RH
DOOR SW- RL [ON/OFF]	The switch status input from rear door switch LH
DOOR SW-BK [ON/OFF]	The switch status input from the back door switch
OPTICAL SENSOR [V][2]	The value of exterior brightness voltage input from the optical sensor

1: The item is indicated, not monitored

2: With auto light system

ACTIVE TEST

Test item	Operation	Description
TAIL LAMP	ON	Transmits the position light request signal to IPDM E/R via CAN communication to turn the tail lamp ON.
	OFF	Stops the tail lamp request signal transmission.
HEAD LAMP	HI	Transmits the high beam request signal via CAN communication to turn the headlamp (HI)
	LO	Transmits the low beam request signal via CAN communication to turn the headlamp (LO).
	OFF	Stops the high & low beam request signal transmission.
FR FOG LAMP	ON	Transmits the front fog lamp light request signal to IPDM E/R via CAN communication to turn the front fog lamp ON.
	OFF	Stops the front fog lamp request signal transmission.
CORNERING LAMP[1]	RH	—
	LH	
	OFF	
CARGO LAMP	ON	Tramsmits the cargo lamp request signal to the IPDM E/R via CAN communication to turn on the cargo lamp.
	OFF	Stops the cargo lamp request signal transmission.

1: The item is indicated, not monitored.

FLASHER

FLASHER : CONSULT-III Function (BCM - FLASHER)

INFOID:0000000001712373

DATA MONITOR

Monitor item [Unit]	Description
IGN ON SW [ON/OFF]	The switch status input from the ignition switch
HAZARD SW [ON/OFF]	The switch status input from the hazard warning switch

Monitor item [Unit]	Description
TURN SIGNAL R [ON/OFF]	Each switch condition that BCM judges from the combination switch reading function
TURN SIGNAL L [ON/OFF]	
BRAKE SW [ON/OFF]	The switch status input from the brake switch

ACTIVE TEST

Test item	Operation	Description
FLASHER	RH	Blinks right turn signal lamp.
	LH	Blinks left turn signal lamp.
	OFF	Turns turn signal lamps (right and left) OFF.

DIAGNOSIS SYSTEM (IPDM E/R)

CONSULT - III Function (IPDM E/R)

INFOID:0000000001712374

APPLICATION ITEM

CONSULT-III performs the following functions via CAN communication with IPDM E/R.

Diagnosis mode	Description
Self Diagnostic Result	Displays the diagnosis results judged by IPDM E/R.
Data Monitor	Displays the real-time input/output data from IPDM E/R input/output data.
Active Test	IPDM E/R can provide a drive signal to electronic components to check their operations.
CAN Diag Support Monitor	The results of transmit/receive diagnosis of CAN communication can be read.

DATA MONITOR

Monitor item

Monitor Item [Unit]	MAIN SIGNALS	Description
TAIL & CLR REQ [Off/On]	×	Displays the status of the tail and clearance lamp request signal received from BCM via CAN communication.
HL LO REQ [Off/On]	×	Displays the status of the low beam request signal received from BCM via CAN communication.
HL HI REQ [Off/On]	×	Displays the status of the high beam request signal received from BCM via CAN communication.
FR FOG REQ [Off/On]	×	Displays the status of the front fog light request signal received from BCM via CAN communication.
IGN RLY [Off/On]	×	Displays the status of the ignition relay judged by the IPDM E/R-.
DTRL REQ [Off]	×	Displays the status of the daytime light request signal received from the BCM via CAN communication.

ACTIVE TEST

Test item

Test item	Operation	Description
EXTERNAL LAMPS	Off	OFF
	TAIL	Operates the tail lamp relay.
	Lo	Operates the headlamp low relay.
	Hi	Operates the headlamp low relay and ON/OFF the headlamp high relay at 1 second intervals.
	Fog	Operates the front fog lamp relay.

COMPONENT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT

BCM (BODY CONTROL MODULE)

BCM (BODY CONTROL MODULE) : Diagnosis Procedure

INFOID:0000000001712375

For BCM power supply and ground circuit information, refer to BCS-32, "Diagnosis Procedure".

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) : Diagnosis Procedure

INFOID:0000000001712376

For IPDM E/R power supply and ground circuit information, refer to PCS-16, "Diagnosis Procedure" .

HEADLAMP (HI) CIRCUIT

Description

INFOID:0000000001712377

The IPDM E/R (intelligent power distribution module engine room) controls the headlamp high relay based on inputs from the BCM via the CAN communication lines. When the headlamp high relay is energized, power flows through fuses 34 and 35, located in the IPDM E/R. Power then flows to the front combination lamps to the headlamp high beam.

Component Function Check

INFOID:0000000001712378

1.CHECK HEADLAMP (HI) OPERATION

WITHOUT CONTULT-III
1. Start IPDM E/R auto active test. Refer to PCS-10, "Diagnosis Description".
2. Check that the headlamp switches to the high beam.
   NOTE:
   HI/LO is repeated 1 second each when using the IPDM E/R auto active test.

CONSULT-III
1. Select "EXTERNAL LAMP" of IPDM E/R active test item.
2. With the test item operating, check that the headlamp switches to high beam.

HI : Headlamp switches to the high beam.
OFF : Headlamp OFF

Does the headlamp switch to high beam?

YES >> Headlamp (HI) circuit is normal.
NO >> Refer to EXL-26, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000001712379

1.CHECK HEADLAMP (HI) FUSES

1. Turn the ignition switch OFF.
2. Check that the following fuses are not open.

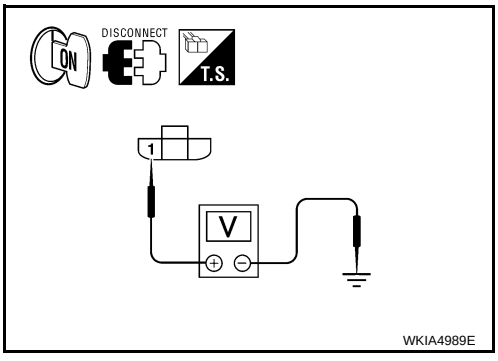
Unit	Location	Fuse No.	Capacity
Headlamp HI (LH)	IPDM E/R	34	10A
Headlamp HI (RH)	IPDM E/R	35	10A

Is the fuse open?

YES >> Repair the harness and replace the fuse.
NO >> GO TO 2

2.CHECK HEADLAMP (HI) OUTPUT VOLTAGE

1. Turn the ignition switch OFF.
2. Disconnect the front combination lamp connector E11 or E107.
3. Turn the ignition switch ON.
4. Turn the high beam headlamps ON.
5. With the high beam headlamps ON, check the voltage between the combination lamp connector and ground.



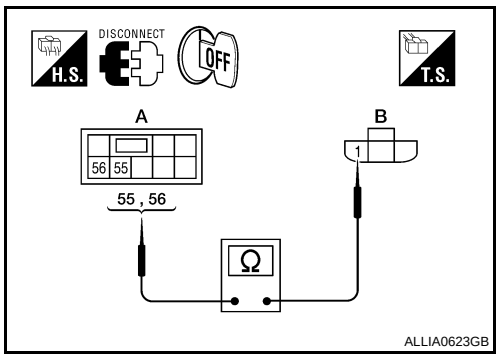
(+)			(–)	Voltage
Connector		Terminal		
LH	E11	1	Ground	Battery voltage
RH	E107	1		

Are the voltage readings as specified?

YES >> GO TO 4
NO >> GO TO 3

3. CHECK HEADLAMP (HI) CIRCUIT FOR OPEN

1. Turn the ignition switch OFF.
2. Disconnect IPDM E/R connector E123.
3. Check continuity between the IPDM E/R harness connector (A) and the front combination lamp harness connector (B).



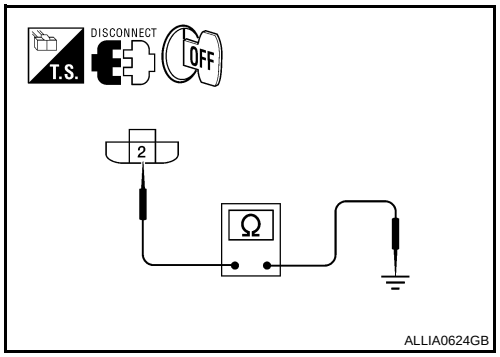
A			B		Continuity
Connector		Terminal	Connector	Terminal	
LH	E123	55	E11	1	Yes
RH		56	E107	1	

Does continuity exist?

YES >> GO TO 4
NO >> Repair the harnesses or connectors.

4. CHECK FRONT COMBINATION LAMP (HI) GROUND CIRCUIT

Check continuity between the front combination lamp harness connector terminal and ground.



Connector		Terminal	—	Continuity
LH	E11	2	Ground	Yes
RH	E107	2		

Does continuity exist?

YES >> Inspect the headlamp bulb.
NO >> Repair the harness.

HEADLAMP (LO) CIRCUIT

Description

INFOID:0000000001712380

The IPDM E/R (intelligent power distribution module engine room) controls the headlamp low relay based on inputs from the BCM via the CAN communication lines. When the headlamp low relay is energized, power flows through fuses 40 and 41, located in the IPDM E/R. Power then flows to the front combination lamps to the headlamp low beam.

Component Function Check

INFOID:0000000001712381

1.CHECK HEADLAMP (LO) OPERATION

WITHOUT CONSULT-III
1. Start IPDM E/R auto active test. Refer to PCS-10, "Diagnosis Description".
2. Check that the headlamp is turned ON.

NOTE:
HI/LO is repeated 1 second each when using the IPDM E/R auto active test.

CONSULT-III
1. Select "EXTERNAL LAMP" of IPDM E/R active test item.
2. With the test items operating, check that the headlamp is turned ON.

LO : Headlamp ON
OFF : Headlamp OFF

Is the headlamp turned ON?

YES >> Headlamp (LO) is normal.
NO >> Refer to EXL-28, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000001712382

1.CHECK HEADLAMP (LO) FUSES

1. Turn the ignition switch OFF.
2. Check that the following fuses are not open.

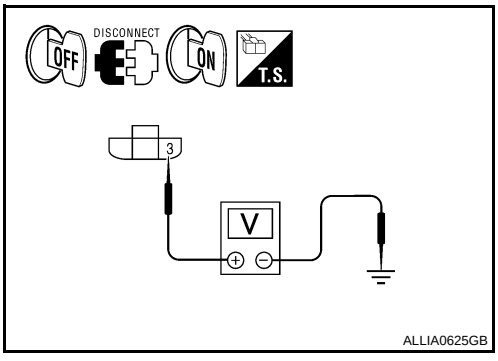
Unit	Location	Fuse No.	Capacity
Headlamp LO (LH)	IPDM E/R	40	15A
Headlamp LO (RH)	IPDM E/R	41	15A

Is the fuse open?

YES >> Repair the harness and replace the fuse.
NO >> GO TO 2

2.CHECK HEADLAMP (LO) OUTPUT VOLTAGE

1. Turn the ignition switch OFF.
2. Disconnect the front combination lamp connector.
3. Turn the ignition switch ON.
4. Turn the low beam headlamps ON.
5. With the low beam headlamps ON, check the voltage between the combination lamp connector and ground.



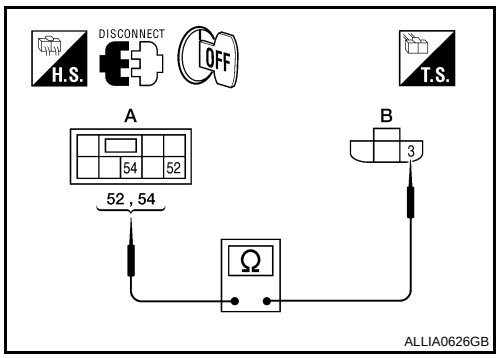
(+)			(–)	Voltage
Connector		Terminal		
LH	E11	3	Ground	Battery voltage
RH	E107	3		

Is voltage reading as specified?

YES >> GO TO 4
NO >> GO TO 3

3. CHECK HEADLAMP (LO) CIRCUIT FOR OPEN

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



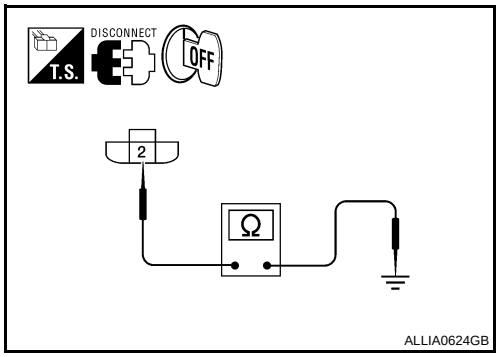
A			B		Continuity
Connector		Terminal	Connector	Terminal	
LH	E123	52	E11	3	Yes
RH		54	E107	3	

Does continuity exist?

YES >> GO TO 4
NO >> Repair the harnesses or connectors.

4. CHECK FRONT COMBINATION LAMP (LO) GROUND CIRCUIT

Check continuity between the front combination lamp harness connector terminal and ground.



Connector		Terminal	—	Continuity
LH	E11	2	Ground	Yes
RH	E107	2		

Does continuity exist?

YES >> Inspect the headlamp bulb.
NO >> Repair the harness.

FRONT FOG LAMP CIRCUIT

Description

INFOID:0000000001712383

The IPDM E/R (intelligent power distribution module engine room) controls the front fog lamp relay based on inputs from the BCM via the CAN communication lines. When the front fog lamp relay is energized, power flows from the front fog lamp relay in the IPDM E/R to the front fog lamps.

Component Function Check

INFOID:0000000001712384

1.CHECK FRONT FOG LAMP OPERATION

WITHOUT CONSULT-III
1. Activate IPDM E/R auto active test. Refer to PCS-10, "Diagnosis Description".
2. Check that the front fog lamp is turned ON.

CONSULT-III
1. Select "EXTERNAL LAMP" of IPDM E/R active test item.
2. With operating the test items, Check that the front fog lamp is turned ON.

FOG : Front fog lamp ON
OFF : Front fog lamp OFF

Is the front fog lamp turned ON?

YES >> Front fog lamp circuit is normal.
NO >> Refer to EXL-30, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000001712385

1.CHECK FRONT FOG LAMP FUSE

1. Turn the ignition switch OFF.
2. Check that the following fuses are not open.

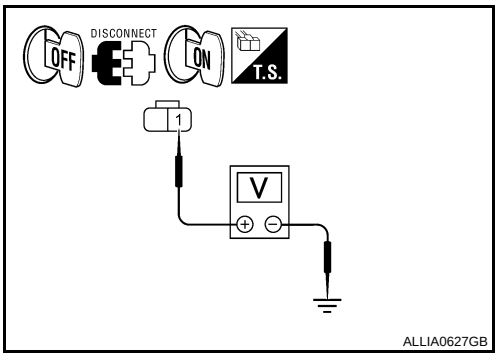
Unit	Location	Fuse No.	Capacity
Front fog lamp	IPDM E/R	56	20A

Is the fuse open?

YES >> Repair the harness and replace the fuse.
NO >> GO TO 2

2.CHECK FRONT FOG LAMP OUTPUT VOLTAGE

1. Turn the ignition switch OFF.
2. Disconnect the front fog lamp connector.
3. Turn the ignition switch ON.
4. Turn the front fog lamps ON.
5. Check the voltage between the fog lamp connector and ground.



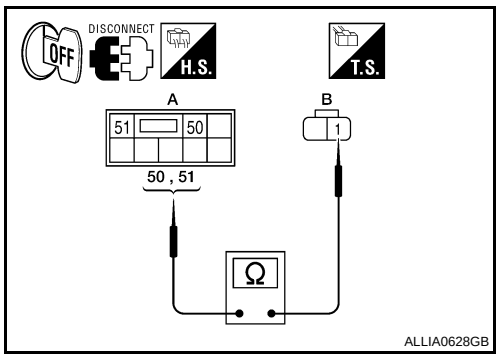
(+)			(–)	Voltage
Connector		Terminal		
LH	E101	1	Ground	Battery voltage
RH	E102	1		

Are the voltage readings as specified?

YES >> GO TO 4
NO >> GO TO 3

3.CHECK FRONT FOG LAMP OPEN CIRCUIT

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



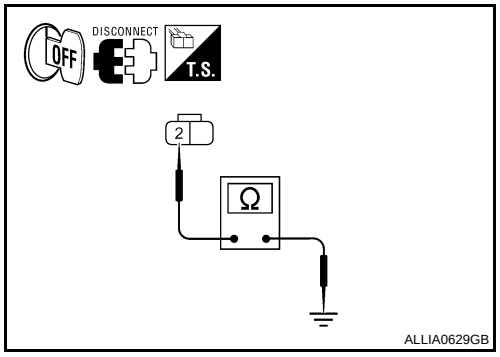
A			B		Continuity
Connector		Terminal	Connector	Terminal	
LH	E123	50	E101	1	Yes
RH		51	E102	1	

Does continuity exist?

YES >> GO TO 4
NO >> Repair the harnesses or connectors.

4. CHECK FRONT FOG LAMP GROUND CIRCUIT

1. Disconnect the front fog lamp connector.
2. Check continuity between the front fog lamp harness connector terminal and ground.



Connector		Terminal	—	Continuity
LH	E101	2	Ground	Yes
RH	E102	2		

Does continuity exist?

YES >> Inspect the fog lamp bulb.
NO >> Repair the harness.

PARKING LAMP CIRCUIT

Description

INFOID:0000000001712386

The IPDM E/R (intelligent power distribution module engine room) controls the tail lamp relay based on inputs from the BCM via the CAN communication lines. When the tail lamp relay is energized, power flows through fuse 37, located in the IPDM E/R. Power then flows to the front and rear combination lamps.

Component Function Check

INFOID:0000000001712387

1.CHECK PARKING LAMP OPERATION

WITHOUT CONSULT-III
1. Activate IPDM E/R auto active test. Refer to PCS-10, "Diagnosis Description".
2. Check that the parking lamp is turned ON.

CONSULT-III
1. Select "EXTERNAL LAMP" of IPDM E/R active test item.
2. With operating the test items, check that the parking lamp is turned ON.

TAIL : Parking lamp ON
OFF : Parking lamp OFF

Is the parking lamp turned ON?

YES >> Parking lamp circuit is normal.
NO >> Refer to EXL-32, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000001712388

1.CHECK PARKING LAMP FUSES

1. Turn the ignition switch OFF.
2. Check that the following fuses are not open.

Unit	Location	Fuse No.	Capacity
Parking lamps	IPDM E/R	36	10A
		37	10A

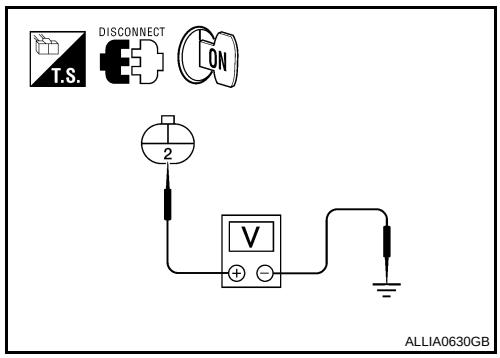
Is the fuse open?

YES >> Repair the harness and replace the fuse.
NO >> GO TO 2

2.CHECK TAIL LAMP RELAY OUTPUT (VOLTAGE)

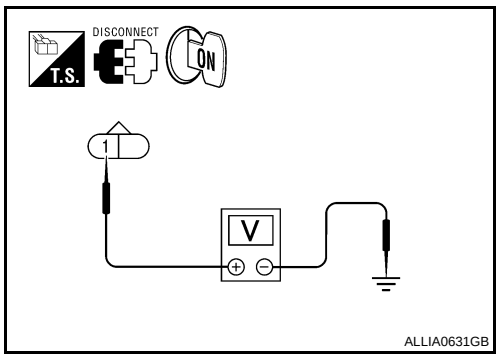
1. Turn the ignition switch OFF.
2. Disconnect the front parking lamp connectors, front side marker lamp connectors, rear combination lamp connectors and license plate lamp connectors.
3. Turn the ignition switch ON.
4. Turn the parking lamps ON.
5. With the parking lamps ON, check voltage between the front parking lamp connectors and ground.

(+)			(–)	Voltage
Connector		Terminal		
LH	E27	2	Ground	Battery voltage
RH	E111			



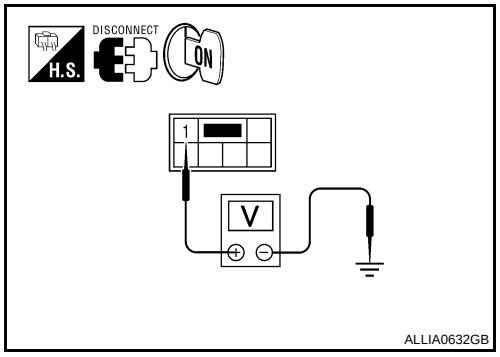
6. With the parking lamps ON, check voltage between the front side marker lamp connectors and ground.

(+)			(–)	Voltage
Connector		Terminal		
LH	E17	1	Ground	Battery voltage
RH	E108			



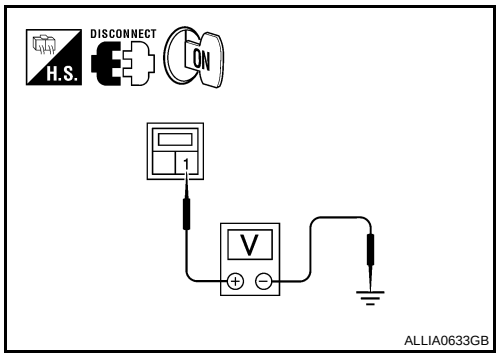
7. With the parking lamps ON, check voltage between the rear combination lamp connectors and ground.

(+)			(–)	Voltage
Connector		Terminal		
LH	B35	1	Ground	Battery voltage
RH	B105			



8. With the parking lamps ON, check voltage between the license plate lamp connector and ground

(+)			(–)	Voltage
Connector		Terminal		
LH	D506	1	Ground	Battery voltage
RH	D507			



Are voltage readings as specified?

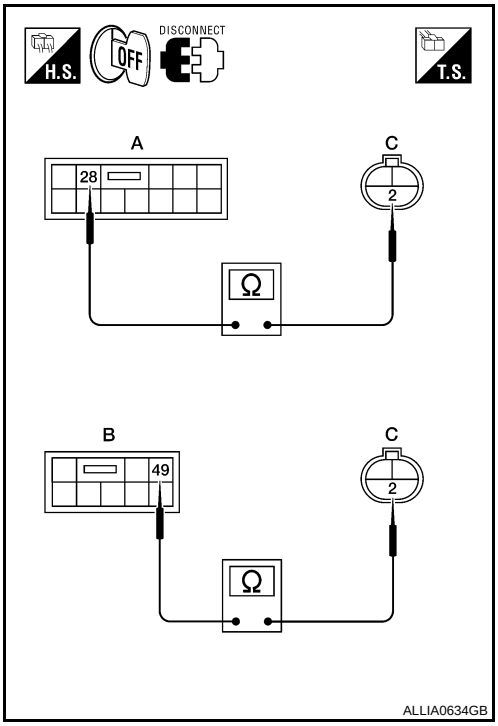
YES >> GO TO 4
NO >> GO TO 3

3. CHECK PARKING, LICENSE PLATE AND TAIL LAMP CIRCUIT (OPEN)

1. Turn the ignition switch OFF.
2. Disconnect IPDM E/R connector.

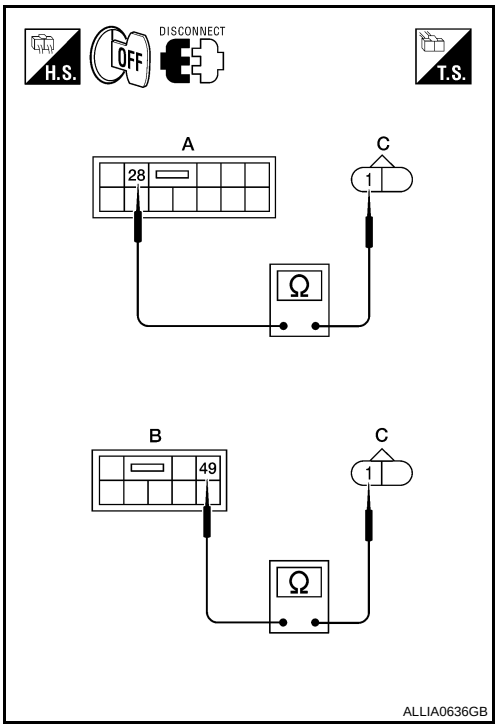
3. Check continuity between the IPDM E/R harness connector (A)(B) and the front parking lamp harness connector (C).

Connector		Terminal	Connector	Terminal	Continuity
LH	A: E121	28	C: E27	2	Yes
RH	B: E123	49	C: E111		



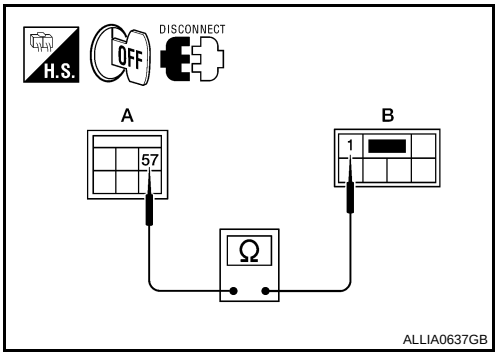
4. Check continuity between the IPDM E/R harness connector (A)(B) and the front side marker lamp harness connector (C).

Connector		Terminal	Connector	Terminal	Continuity
LH	A: E121	28	C: E17	1	Yes
RH	B: E123	49	C: E108		



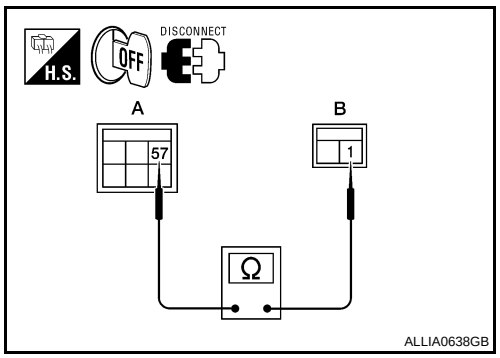
5. Check continuity between the IPDM E/R harness connector (A) and the rear combination lamp harness connector (B).

A			B		Continuity
Connector		Terminal	Connector	Terminal	
LH	E124	57	B35	1	Yes
RH			B105		



6. Check continuity between the IPDM E/R harness connector (A) and license plate lamp connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
E124	57	D506	1	Yes
		D507		



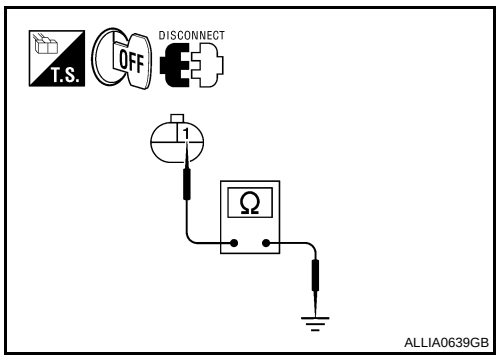
Are continuity test results as specified?

YES >> GO TO 4
NO >> Repair the harnesses or connectors.

4. CHECK PARKING, LICENSE AND TAIL LAMP GROUND CIRCUITS

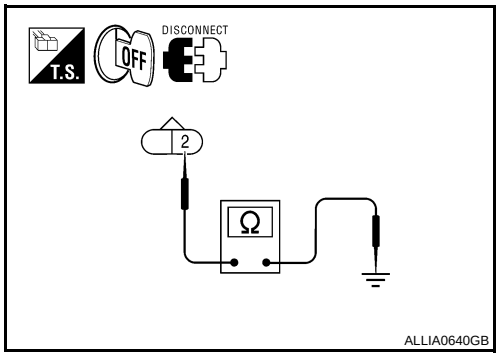
1. Check continuity between the front parking lamp harness connectors and ground.

Connector		Terminal	—	Continuity
LH	E27	1	Ground	Yes
RH	E111			



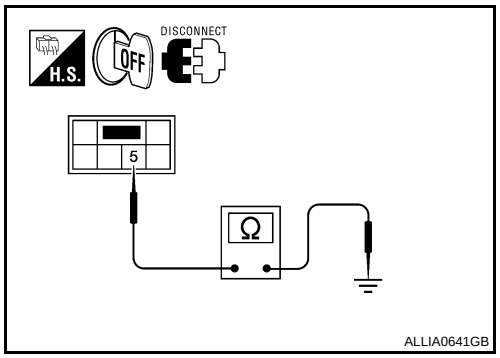
2. Check continuity between the front side marker lamp harness connectors and ground.

Connector		Terminal	—	Continuity
LH	E17	2	Ground	Yes
RH	E108			



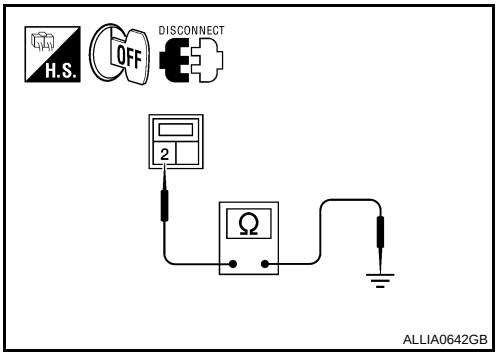
3. Check continuity between the rear combination lamp harness connectors and ground.

Connector		Terminal	—	Continuity
LH	B35	5	Ground	Yes
RH	B105			



4. Check continuity between the license plate lamp harness connectors and ground.

Connector	Terminal	—	Continuity
D506	2	Ground	Yes
D507			



Does continuity exist?

YES >> Inspect the parking lamp bulb.
NO >> Repair the harness.

TURN SIGNAL LAMP CIRCUIT

Description

INFOID:0000000001712389

The BCM monitors inputs from the combination switch to determine when to activate the turn signals. The BCM outputs voltage direction to the left and right turn signals during turn signal operation or both during hazard warning operation. The BCM sends a turn signal indicator request to the combination meter via the CAN communication lines.
The BCM performs the fast flasher operation (fail-safe) if any bulb or harness of the turn signal lamp circuit is open.
NOTE:
Turn signal lamp blinks at normal speed when using the hazard warning lamp.

Component Function Check

INFOID:0000000001712390

1.CHECK TURN SIGNAL LAMP

CONSULT-III
1. Select "FLASHER" of BCM (FLASHER) active test item.
2. With operating the test items, check that the turn signal lamp blinks.

LH	**: Turn signal lamp LH blinking**
RH	**: Turn signal lamp RH blinking**
OFF	**: The turn signal lamp OFF**

Does the turn signal lamp blink?

YES >> Turn signal lamp circuit is normal.
NO >> Refer to EXL-37, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000001712391

1.CHECK TURN SIGNAL LAMP BULB

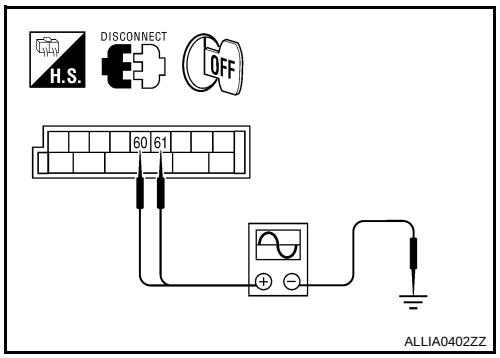
Check the applicable lamp bulb to be sure the proper bulb standard is in use and the bulb is not open.

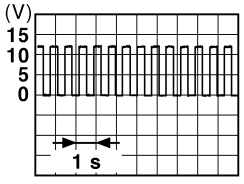
Is the bulb OK?

YES >> GO TO 2
NO >> Replace the bulb.

2.CHECK TURN SIGNAL LAMP OUTPUT VOLTAGE

1. Turn the ignition switch OFF.
2. Disconnect the front combination lamp connectors and the rear combination lamp connector.
3. Turn the ignition switch ON.
4. With turn signal switch operating, check the voltage between the BCM harness connector M20 and ground.



(+)			(–)	Voltage
Connector		Terminal		
M20	LH	60	Ground	
	RH	61		

PKID0926E

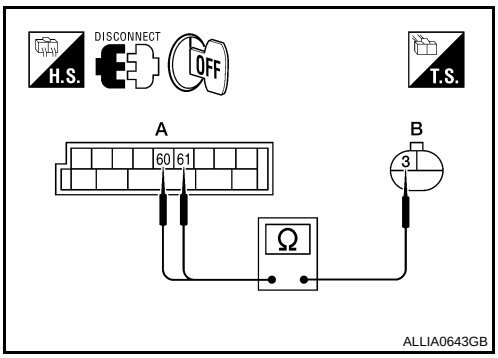
Is voltage reading as specified?

YES >> GO TO 3
NO >> Replace BCM. Refer to BCS-54, "Removal and Installation".

3.CHECK TURN SIGNAL LAMP CIRCUIT FOR OPEN

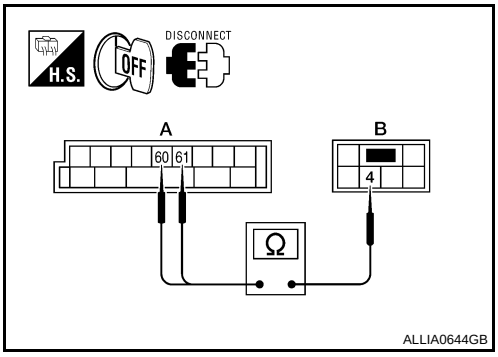
1. Turn the ignition switch OFF.
2. Disconnect BCM connector M20.
3. Check continuity between the BCM harness connector M20 and the front combination lamps.

A			B		Continuity
Connector		Terminal	Connector	Terminal	
Front LH	M20	60	E27	3	Yes
Front RH		61	E111		



4. Check continuity between the BCM harness connector M20 and the rear combination lamp connectors.

A			B		Continuity
Connector		Terminal	Connector	Terminal	
Rear LH	M20	60	B35	4	Yes
Rear RH		61	B105	4	



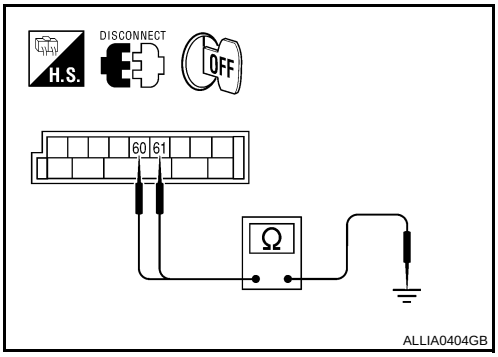
Are continuity test results as specified?

YES >> GO TO 4
NO >> Repair the harnesses or connectors.

4.CHECK TURN SIGNAL LAMP SHORT CIRCUIT

Check continuity between the BCM harness connector M20 and ground.

Connector		Terminal	—	Continuity
LH	M20	60	Ground	No
RH		61		



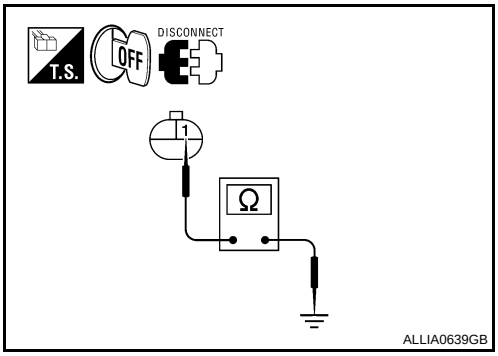
Does continuity exist?

YES >> Repair the harnesses or connectors.
NO >> GO TO 5

5.CHECK TURN SIGNAL LAMP GROUND CIRCUIT

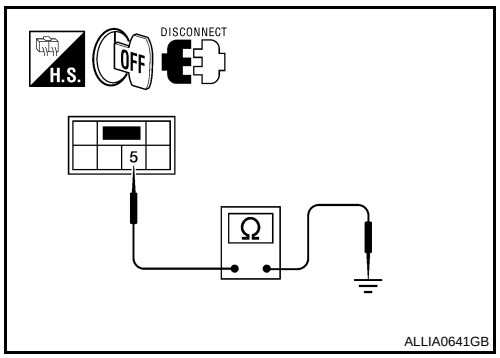
1. Check continuity between the front combination lamp harness connectors and ground.

Connector		Terminal	—	Continuity
Front LH	E27	1	Ground	Yes
Front RH	E111			



2. Check continuity between the rear combination lamp harnness connectors and ground.

Connector		Terminal	—	Continuity
Rear LH	B35	5	Ground	Yes
Rear RH	B105			



Are continuity test results as specified?

YES >> Replace the malfunctioning lamp.
NO >> Repair the harnesses or connectors.

OPTICAL SENSOR

Description

INFOID:0000000001712392

The optical sensor converts the outside brightness (lux) to voltage and transmits the optical sensor signal to the BCM.

Component Function Check

INFOID:0000000001712393

1.CHECK OPTICAL SENSOR SIGNAL BY CONSULT-III

CONSULT-III
1. Turn the ignition switch ON.
2. Select "OPTICAL SENSOR" of BCM (HEAD LAMP) DATA MONITOR item.
3. Turn the lighting switch to AUTO.
4. With the optical sensor illuminating, check the monitor status.

Monitor item	Condition	Voltage
OPTICAL SENSOR	When illuminating	3.1V or more *
	When shutting off light	0.6V or less

*: Illuminates the optical sensor. The value may be less than the standard value if brightness is weak.

Is the item status normal?

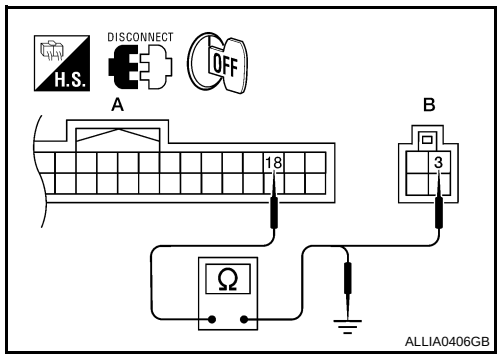
YES >> Optical sensor is normal.
NO >> Refer to EXL-40, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000001712394

1.CHECK OPTICAL SENSOR GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect BCM connector M18 and optical sensor connector M145.
3. Check continuity between BCM harness connector M18 (A) terminal 18 and optical sensor harness connector M145 (B) terminal 3.



A		B		
Connector	Terminal	Connector	Terminal	Continuity
M18	18	M145	3	Yes

4. Check continuity between BCM harness connector M18 (A) terminal 18 and ground.

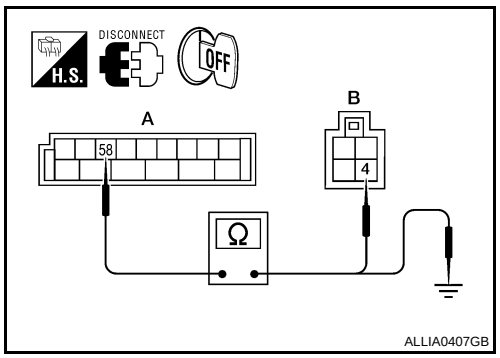
A		—	Continuity
Connector	Terminal		
M18	18	Ground	No

Are continuity test results as specified?

YES >> GO TO 2
NO >> Repair harness or connector.

2.CHECK OPTICAL SENSOR SIGNAL CIRCUIT

1. Check continuity between BCM harness connector M20 (A) terminal 58 and optical sensor harness connector M145 (B) terminal 4.



A		B		
Connector	Terminal	Connector	Terminal	Continuity
M20	58	M145	4	Yes

2. Check continuity between BCM harness connector M20 (A) terminal 58 and ground.

A		—	Continuity
Connector	Terminal		
M20	58	Ground	No

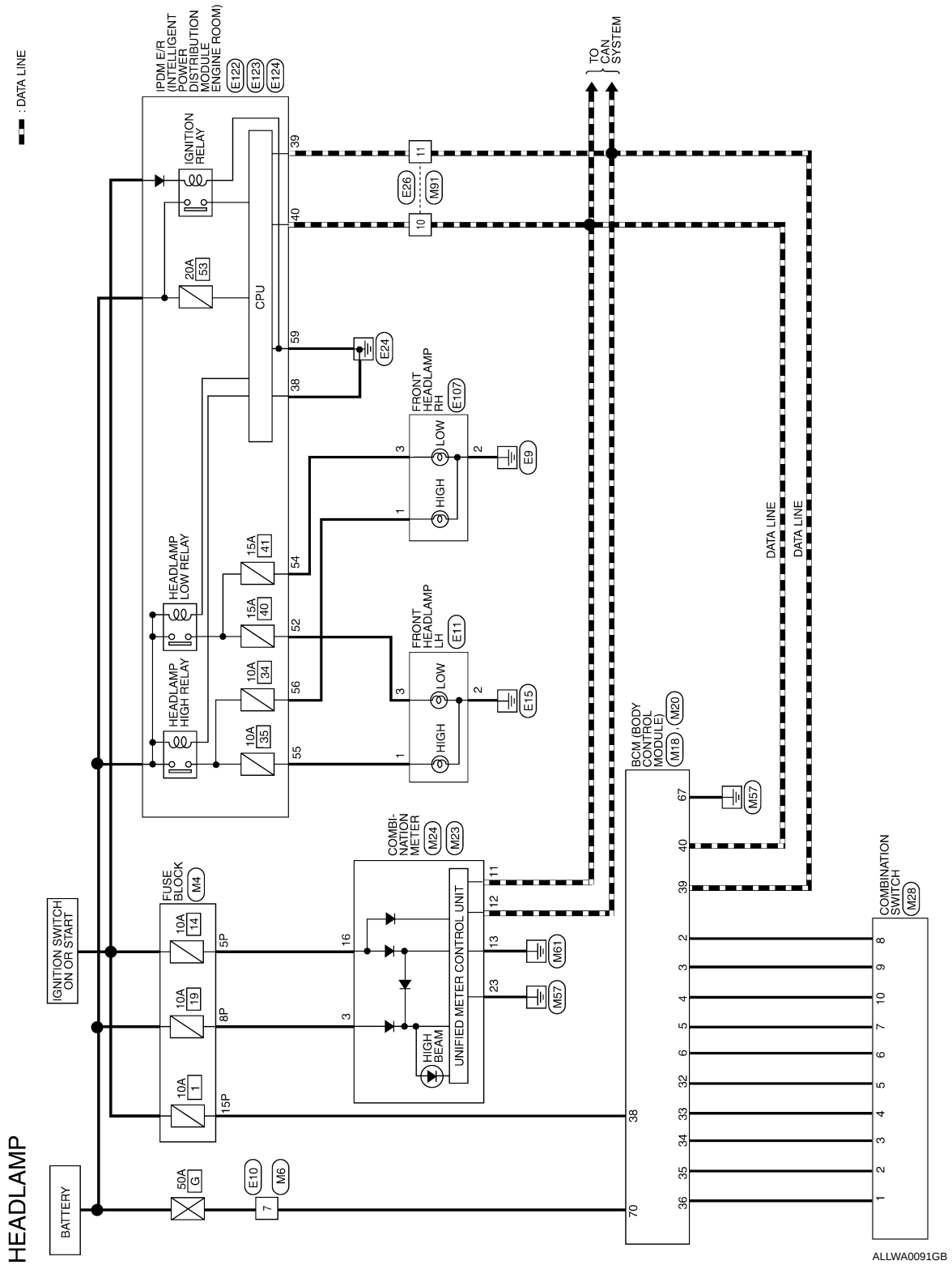
Are the continuity test results as specified?

YES >> Replace the optical sensor. Refer to EXL-114, "Removal and Installation".
NO >> Repair harness or connector.

HEADLAMP

Wiring Diagram

INFOID:0000000001712395



HEAD LAMP CONNECTORS

Connector No.	M4
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

H.S.

7P	6P	5P	4P		3P	2P	1P
16P	15P	14P	13P	12P	11P	10P	9P	8P

Terminal No.	Color of Wire	Signal Name
5P	W/G	–
8P	R/Y	–
15P	W/R	–

Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

4	3	2	1
8	7	6	5

Terminal No.	Color of Wire	Signal Name
7	W	–

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	Color of Wire	Signal Name
2	P	COMBI SW INPUT 5
3	SB	COMBI SW INPUT 4
4	V	COMBI SW INPUT 3
5	L	COMBI SW INPUT 2
6	R	COMBI SW INPUT 1
32	O	COMBI SW OUTPUT 5
33	GR	COMBI SW OUTPUT 4
34	G	COMBI SW OUTPUT 3
35	BR	COMBI SW OUTPUT 2
36	LG	COMBI SW OUTPUT 1
38	W/R	IGN SW
39	L	CAN-H
40	P	CAN-L

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK

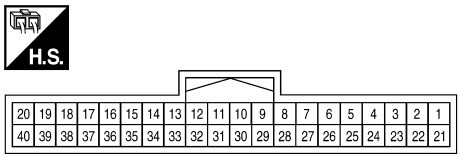
H.S.

56	57	58	59	60	61	62	63	64
65	66	67	68	69	70			

Terminal No.	Color of Wire	Signal Name
67	B	GND (POWER)
70	W	BAT (F/L)

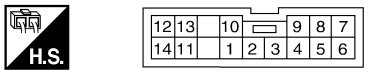
ALLIA0450GB

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	R/Y	–
11	P	–
12	L	–
13	GR	–
16	W/G	–
23	B	–

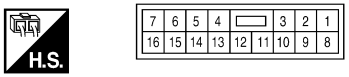
Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LG	INPUT 1
2	BR	INPUT 2
3	G	INPUT 3

Terminal No.	Color of Wire	Signal Name
4	GR	INPUT 4
5	O	INPUT 5
6	R	OUT PUT 1
7	L	OUT PUT 2
8	P	OUT PUT 5
9	SB	OUT PUT 4
10	V	OUT PUT 3

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
10	P	–
11	L	–

Connector No.	E10
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
7	W	–

Connector No.	E11
Connector Name	FRONT HEADLAMP LH (FOR USA)
Connector Color	BLACK

Terminal No.	Color of Wire	Signal Name
1	G	–
2	B	–
3	P	–

ALLIA0451GB

Connector No.	E122
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
38	B	SIGNAL_GND
39	L	CAN-H
40	P	CAN-L

Connector No.	E107
Connector Name	FRONT HEADLAMP RH
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	L	–
2	B	–
3	R	–

Connector No.	E26
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
10	P	–
11	L	–

Connector No.	E124
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
59	B	GND (POWER)

Connector No.	E123
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN

H.S.

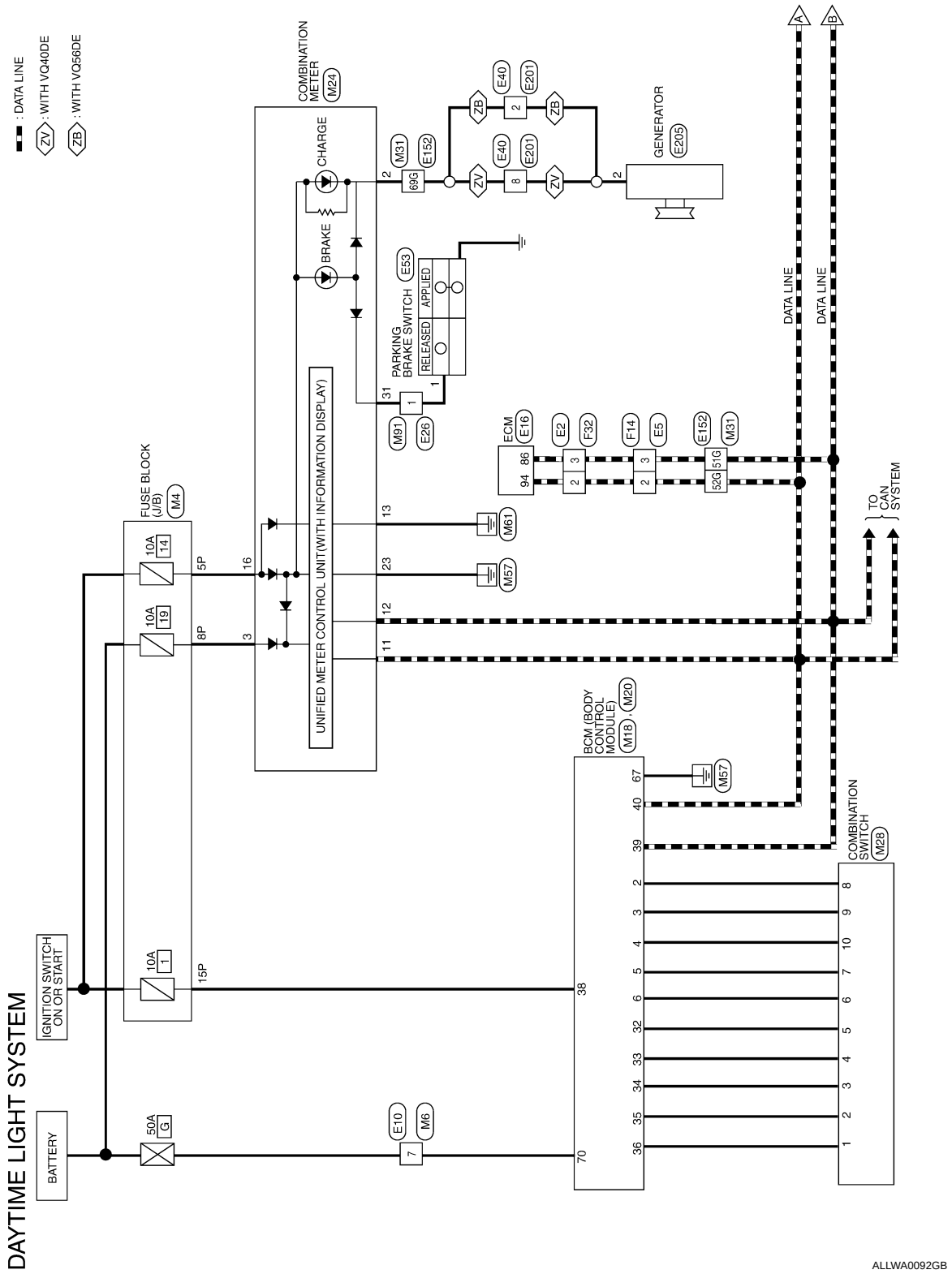
Terminal No.	Color of Wire	Signal Name
52	P	H/LAMP_LO_LH
54	R	H/LAMP_LO_RH
55	G	H/LAMP_HI_LH
56	L	H/LAMP_HI_RH

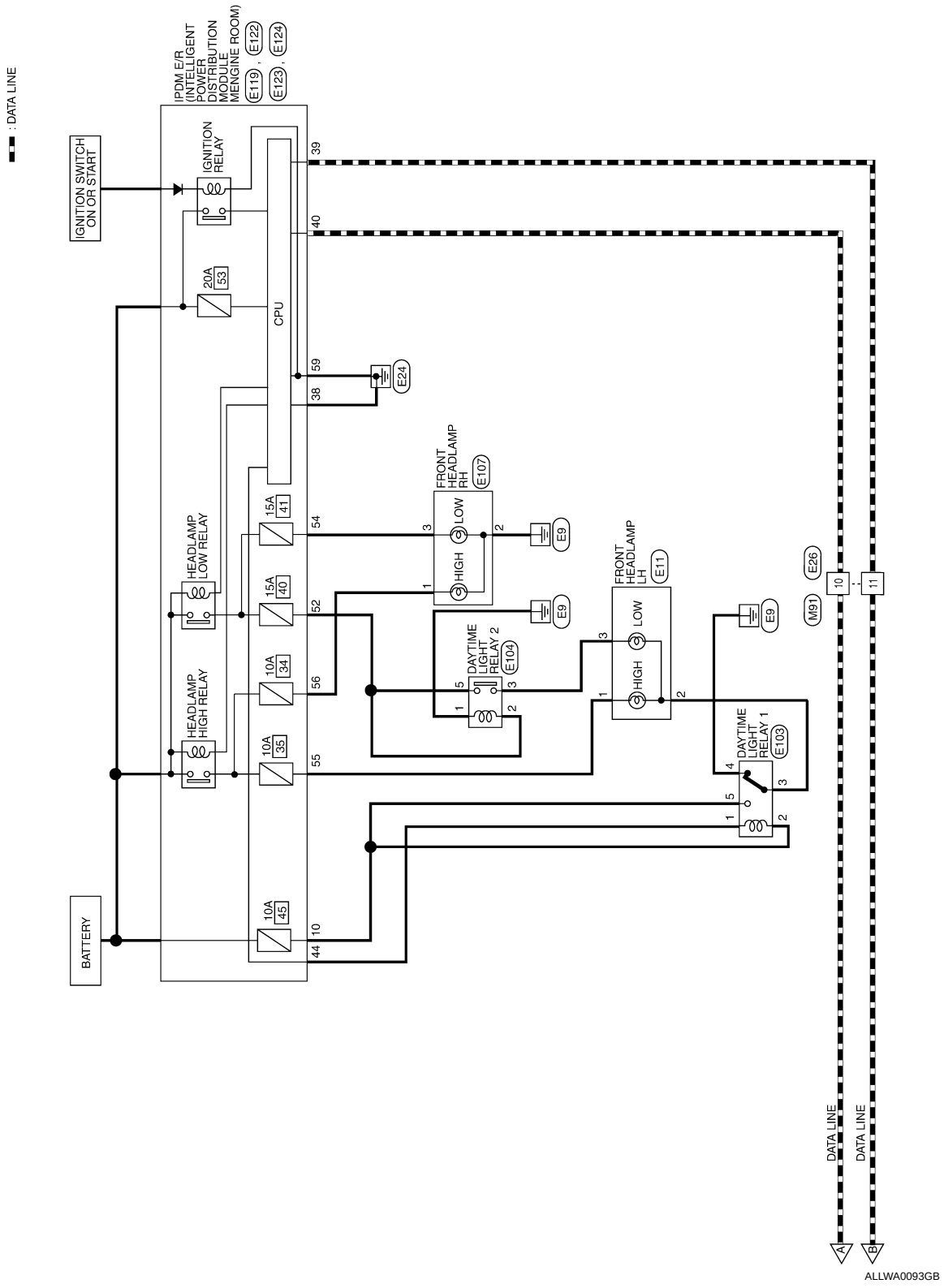
ALLIA0452GB

DAYTIME LIGHT SYSTEM

Wiring Diagram

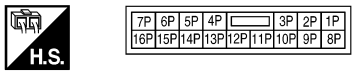
INFOID:0000000001712396




: DATA LINE
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE MENGINE ROOM)
(E119), (E122), (E123), (E124)
IGNITION SWITCH ON OR START
IGNITION RELAY
20A 53
CPU
39
40
59
38
E24
HEADLAMP LOW RELAY
HEADLAMP HIGH RELAY
15A 41
15A 40
10A 34
10A 35
10A 45
54
52
56
55
10
44
BATTERY
FRONT HEADLAMP RH E107
LOW
HIGH
E9
DAYTIME LIGHT RELAY 2 E104
FRONT HEADLAMP LH E11
DAYTIME LIGHT RELAY 1 E103
E26
M91
10
11
DATA LINE
DATA LINE
A
B
ALLWA0093GB

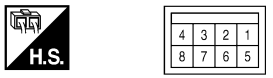
DAYTIME LIGHT SYSTEM CONNECTORS

Connector No.	M4
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



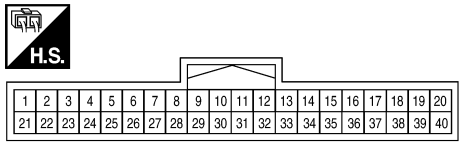
Terminal No.	Color of Wire	Signal Name
5P	W/G	–
8P	R/Y	–
15P	W/R	–

Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7	W	–

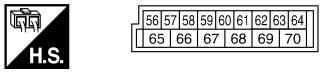
Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
2	P	COMBI SW INPUT 5
3	SB	COMBI SW INPUT 4
4	V	COMBI SW INPUT 3
5	L	COMBI SW INPUT 2

Terminal No.	Color of Wire	Signal Name
6	R	COMBI SW INPUT 1
32	O	COMBI SW OUTPUT 5
33	GR	COMBI SW OUTPUT 4
34	G	COMBI SW OUTPUT 3
35	BR	COMBI SW OUTPUT 2
36	LG	COMBI SW OUTPUT 1
38	W/R	IGN SW
39	L	CAN-H
40	P	CAN-L

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
67	B	GND (POWER)
70	W	BAT (F/L)

ALLIA0453GB

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE

H.S.

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
2	P	–
3	R/Y	–
11	P	–
12	L	–
13	GR	–
16	W/G	–
23	B	
31	G	

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE

H.S.

12	13	10	9	8	7
14	11	1	2	3	4	5	6

Terminal No.	Color of Wire	Signal Name
1	LG	INPUT 1
2	BR	INPUT 2
3	G	INPUT 3
4	GR	INPUT 4
5	O	INPUT 5
6	R	OUTPUT 1
7	L	OUTPUT 2
8	P	OUTPUT 5

Terminal No.	Color of Wire	Signal Name
9	SB	OUTPUT 4
10	V	OUTPUT 3

ALLIA0454GB

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

7	6	5	4		3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
1	G	–
10	P	–
11	L	

Connector No.	E10
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1	2	3	4
5	6	7	8

Terminal No.	Color of Wire	Signal Name
7	W	–

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
51G	P	–
52G	L	–
69G	P	–

Connector No.	E5
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
2	L	–
3	P	–

Connector No.	E2
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1	2	3		4	5	6	7
8	9	10	11	12	13	14	15	16

Terminal No.	Color of Wire	Signal Name
2	L	–
3	P	–

ALLIA0455GB

Connector No.	E11
Connector Name	FRONT HEADLAMP LH (FOR USA)
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	G	–
2	B	–
3	P	–

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
86	P	CAN-L
94	L	CAN-H

Connector No.	E26
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	G	–
10	P	–
11	L	–

Connector No.	E40
Connector Name	WIRE TO WIRE (WITH VQ40DE)
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
8	P	–

Connector No.	E40
Connector Name	WIRE TO WIRE (WITH VK56DE)
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
2	P	–

Connector No.	E53
Connector Name	PARKING BRAKE SWITCH
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	G	–

ALLIA0456GB

Connector No.	E103
Connector Name	DAYTIME LIGHT RELAY 1
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	R	–
2	R/B	–
3	B	–
4	GR	–
5	R/B	–

Connector No.	E104
Connector Name	DAYTIME LIGHT RELAY 2
Connector Color	BLUE

H.S.

Terminal No.	Color of Wire	Signal Name
1	B	–
2	G	–
3	SB	–
5	P	–

Connector No.	E107
Connector Name	FRONT HEADLAMP RH
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	L	–
2	B	–
3	R	–

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
10	R/B	DTRL_RLY_SUPPLY

Connector No.	E122
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
38	B	SIGNAL_GND
39	L	CAN-H
40	P	CAN-L
44	R	DTRL RLY CONT

Connector No.	E123
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN

H.S.

Terminal No.	Color of Wire	Signal Name
52	P	H/LAMP_LO_LH
54	R	H/LAMP_LO_RH
55	G	H/LAMP_HI_LH
56	L	H/LAMP_HI_RH

ALLIA0457GB

Terminal No.	Color of Wire	Signal Name
51G	P	–
52G	L	–
69G	P	–

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Connector No.	E124
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
59	B	GND (POWER)

Connector No.	E205
Connector Name	GENERATOR
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
2	P	L

Connector No.	E201
Connector Name	WIRE TO WIRE (WITH VK56DE)
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
2	P	–

Connector No.	E201
Connector Name	WIRE TO WIRE (WITH VQ40DE)
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
8	P	–

ALLIA0458GB

Connector No.	F32
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

7	6	5	4		3	2	1
16	15	14	13	12	11	10	9	8

Terminal No.	Color of Wire	Signal Name
2	L	–
3	P	–

Connector No.	F14
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

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

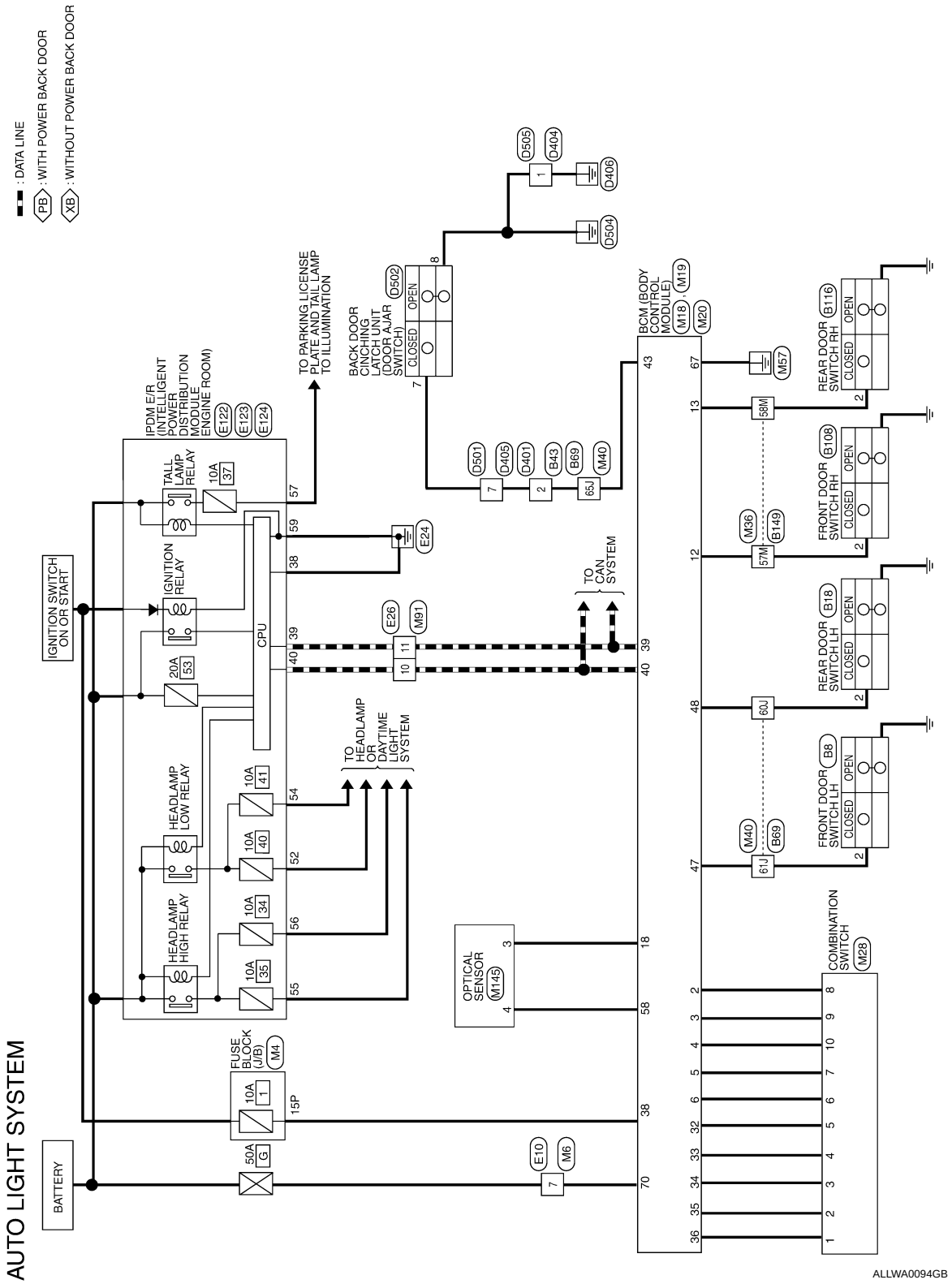
Terminal No.	Color of Wire	Signal Name
2	L	–
3	P	–

ALLIA0459GB

AUTO LIGHT SYSTEM

Wiring Diagram

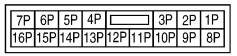
INFOID:0000000001712397



AUTO LIGHT SYSTEM CONNECTORS

Connector No.	M4
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

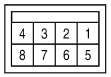
H.S.



Terminal No.	Color of Wire	Signal Name
15P	W/R	–

Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Color	WHITE

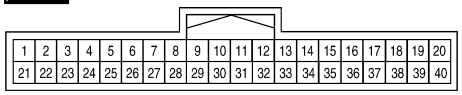
H.S.



Terminal No.	Color of Wire	Signal Name
7	W	–

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE

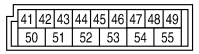
H.S.



Terminal No.	Color of Wire	Signal Name
2	P	COMBI SW INPUT 5
3	SB	COMBI SW INPUT 4
4	V	COMBI SW INPUT 3
5	L	COMBI SW INPUT 2
6	R	COMBI SW INPUT 1
12	LG	DOOR SW (AS)
13	L	DOOR SW (RR)
18	BR	SENSOR GND
32	O	COMBI SW OUTPUT 5
33	GR	COMBI SW OUTPUT 4
34	G	COMBI SW OUTPUT 3
35	BR	COMBI SW OUTPUT 2
36	LG	COMBI SW OUTPUT 1
38	W/R	IGN SW
39	L	CAN-H
40	P	CAN-L

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
43	SB	BACK DOOR SW
47	GR	DOOR SW (DR)
48	P	DOOR SW (RL)

ALLIA0460GB

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK

Terminal No.	Color of Wire	Signal Name
58	W	AUTO LIGHT SENSOR INPUT
67	B	GND (POWER)
70	W	BAT (F/L)

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
1	LG	INPUT 1
2	BR	INPUT 2
3	G	INPUT 3
4	GR	INPUT 4
5	O	INPUT 5
6	R	OUTPUT 1
7	L	OUTPUT 2
8	P	OUTPUT 5

Terminal No.	Color of Wire	Signal Name
9	SB	OUTPUT 4
10	V	OUTPUT 3

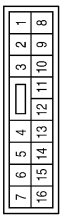
Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
57M	LG	–
58M	L	–

ALLIA0461GB

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE

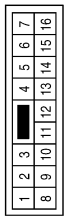
H.S.



Terminal No.	Color of Wire	Signal Name
10	P	–
11	L	–

Connector No.	E26
Connector Name	WIRE TO WIRE
Connector Color	WHITE

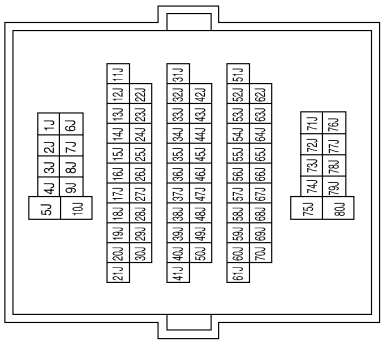
H.S.



Terminal No.	Color of Wire	Signal Name
10	P	–
11	L	–

Connector No.	M40
Connector Name	WIRE TO WIRE
Connector Color	WHITE

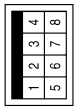
H.S.



Terminal No.	Color of Wire	Signal Name
60J	P	–
61J	GR	–
65J	SB	–

Connector No.	E10
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
7	W	–

Connector No.	M145
Connector Name	OPTICAL SENSOR
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
3	P	–
4	W	–

ALLIA0462GB

Connector No.	E122
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

H.S.

42	41	40	39	38	37
48	47	46	45	44	43

Terminal No.	Color of Wire	Signal Name
38	B	GND (SIGNAL)
39	L	CAN-H
40	P	CAN-L

Connector No.	E123
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN

H.S.

51		50	49
56	55	54	53	52

Terminal No.	Color of Wire	Signal Name
52	P	H/LAMP_LO_LH
54	R	H/LAMP_LO_RH
55	G	H/LAMP_HI_LH
56	L	H/LAMP_HI_RH

Connector No.	E124
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK

H.S.

59	58	57
62	61	60

Terminal No.	Color of Wire	Signal Name
57	GR	TAIL_LAMPS
59	B	GND (POWER)

Connector No.	B8
Connector Name	FRONT DOOR SWITCH LH
Connector Color	WHITE

H.S.

1
2
3

Terminal No.	Color of Wire	Signal Name
2	GR	–

Connector No.	B18
Connector Name	REAR DOOR SWITCH LH
Connector Color	WHITE

H.S.

1
2
3

Terminal No.	Color of Wire	Signal Name
2	P	–

Connector No.	B43
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

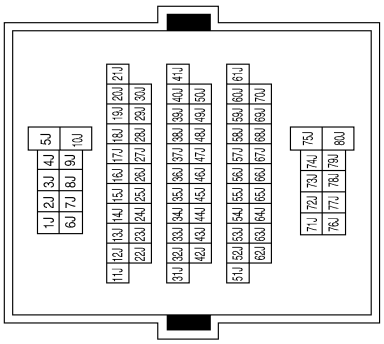
1	2	3	4
5	6	7	8

Terminal No.	Color of Wire	Signal Name
2	G	–

ALLIA0463GB

Connector No.	B69
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
60J	P	–
61J	GR	–
65J	SB	–

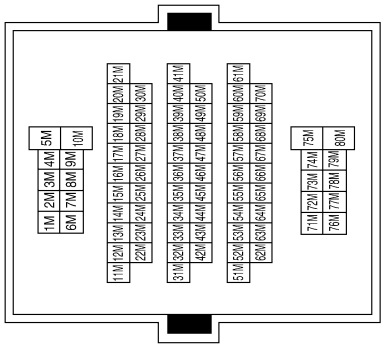
Connector No.	B108
Connector Name	FRONT DOOR SWITCH RH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
2	LG	–

Connector No.	B149
Connector Name	WIRE TO WIRE
Connector Color	WHITE

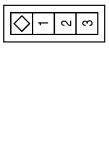
H.S.



Terminal No.	Color of Wire	Signal Name
57M	LG	–
58M	L	–

Connector No.	B116
Connector Name	REAR DOOR SWITCH RH
Connector Color	WHITE

H.S.

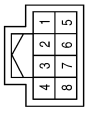


Terminal No.	Color of Wire	Signal Name
2	L	–

ALLIA0464GB

Connector No.	D405
Connector Name	WIRE TO WIRE
Connector Color	WHITE

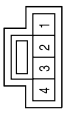
H.S.



Terminal No.	Color of Wire	Signal Name
6	LG	–
7	SB	–

Connector No.	D404
Connector Name	WIRE TO WIRE
Connector Color	WHITE

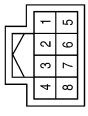
H.S.



Terminal No.	Color of Wire	Signal Name
1	B	–

Connector No.	D401
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
2	G	–

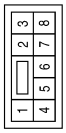
Connector No.	D505
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	B	–

Connector No.	D502
Connector Name	BACK DOOR CINCHING LATCH UNIT
Connector Color	WHITE

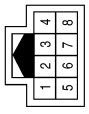
H.S.



Terminal No.	Color of Wire	Signal Name
7	SB	–
8	B	–

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



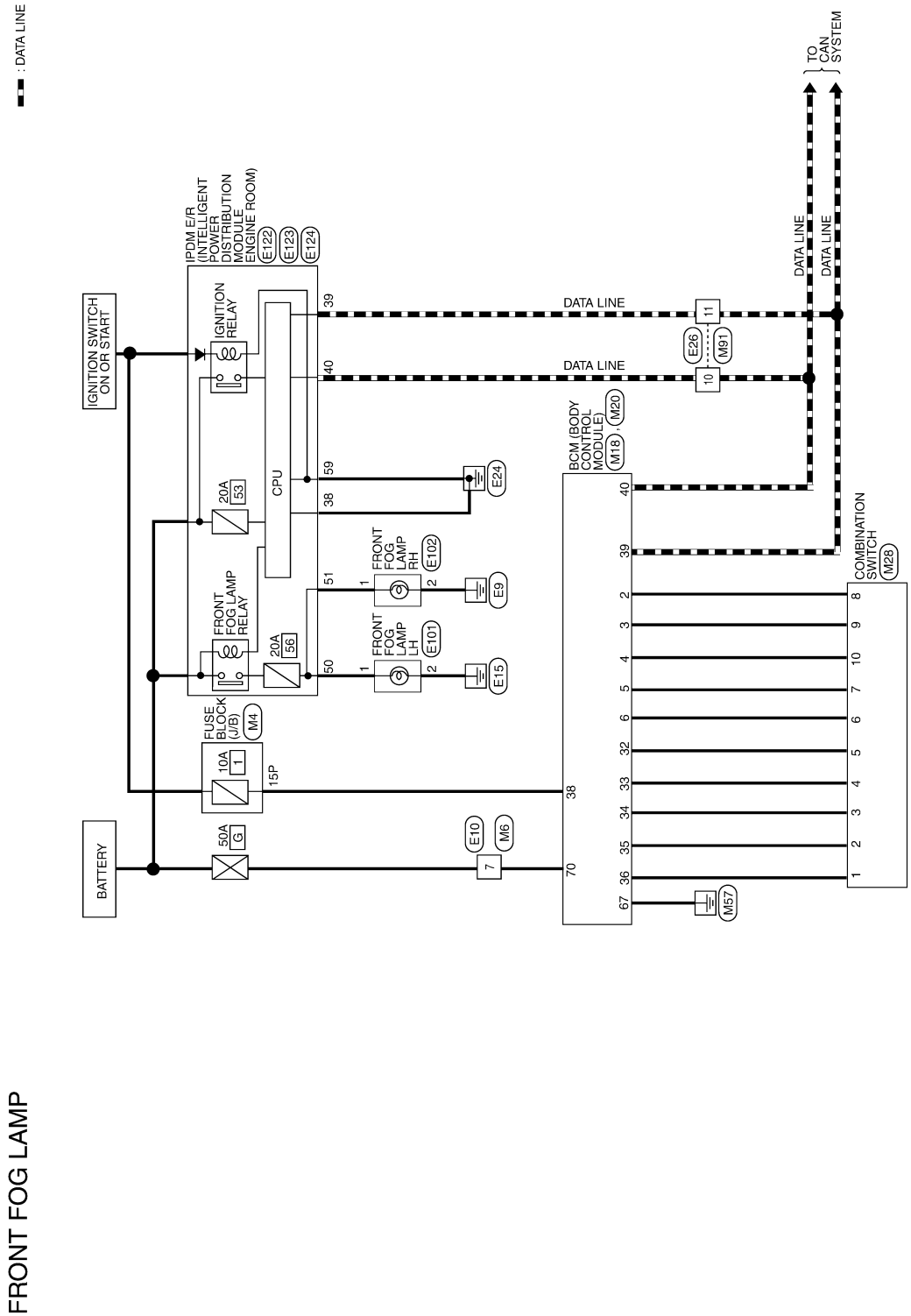
Terminal No.	Color of Wire	Signal Name
7	SB	–

ALLIA0465GB

FRONT FOG LAMP SYSTEM

Wiring Diagram

INFOID:0000000001712398



FRONT FOG LAMP CONNECTORS

Connector No.	M4
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
15P	W/R	–

Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
7	W	–

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
2	P	COMBI SW INPUT 5
3	SB	COMBI SW INPUT 4
4	V	COMBI SW INPUT 3
5	L	COMBI SW INPUT 2
6	R	COMBI SW INPUT 1
32	O	COMBI SW OUTPUT 5
33	GR	COMBI SW OUTPUT 4
34	G	COMBI SW OUTPUT 3
35	BR	COMBI SW OUTPUT 2
36	LG	COMBI SW OUTPUT 1
38	W/R	IGN SW
39	L	CAN-H
40	P	CAN-L

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK

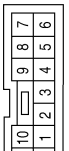
H.S.

Terminal No.	Color of Wire	Signal Name
67	B	GND (POWER)
70	W	BAT (F/L)

ALLIA0466GB

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
1	LG	INPUT 1
2	BR	INPUT 2
3	G	INPUT 3
4	GR	INPUT 4
5	O	INPUT 5
6	R	OUTPUT 1
7	L	OUTPUT 2
8	P	OUTPUT 5

Connector No.	E10
Connector Name	WIRE TO WIRE
Connector Color	WHITE

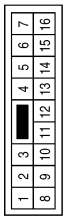
H.S.

Terminal No.	Color of Wire	Signal Name
7	W	–

Terminal No.	Color of Wire	Signal Name
9	SB	OUTPUT 4
10	V	OUTPUT 3

Connector No.	E26
Connector Name	WIRE TO WIRE
Connector Color	WHITE

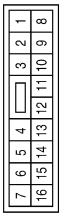
H.S.



Terminal No.	Color of Wire	Signal Name
10	P	–
11	L	–

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
10	P	–
11	L	–

Connector No.	E101
Connector Name	FRONT FOG LAMP LH
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	W	–
2	B	–

ALLIA0467GB

Connector No.	E102
Connector Name	FRONT FOG LAMP RH
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	V	–
2	B	–

Connector No.	E122
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
38	B	GND (SIGNAL)
39	L	CAN-H
40	P	CAN-L

Connector No.	E123
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN

H.S.

Terminal No.	Color of Wire	Signal Name
50	W	FR_FOG_LAMP_LH
51	V	FR_FOG_LAMP_RH

Connector No.	E124
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK

H.S.

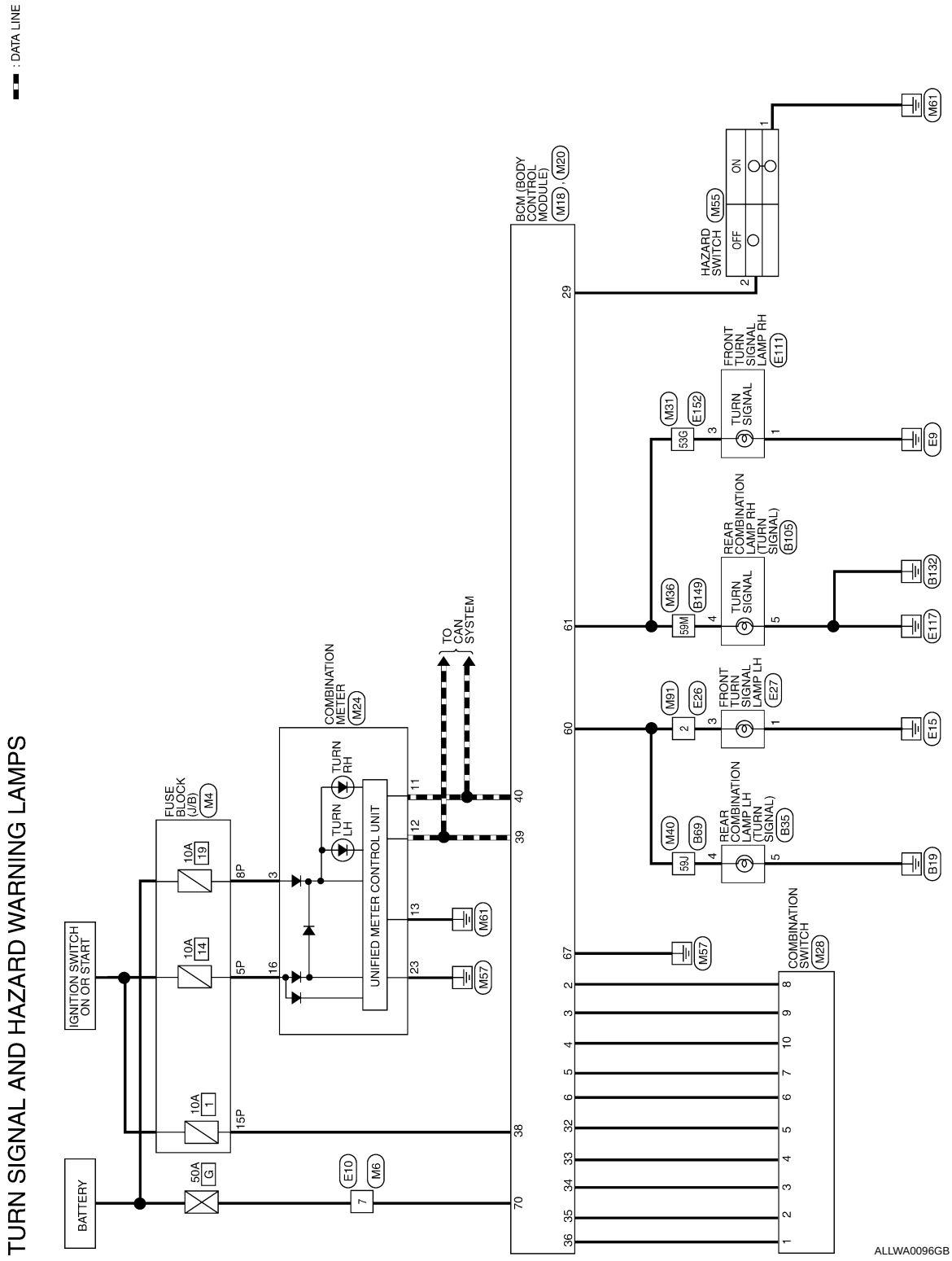
Terminal No.	Color of Wire	Signal Name
59	B	GND (POWER)

ALLIA0468GB

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

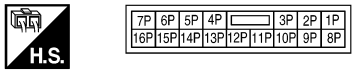
Wiring Diagram

INFOID:0000000001712399



TURN SIGNAL AND HAZARD WARNING LAMPS CONNECTORS

Connector No.	M4
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

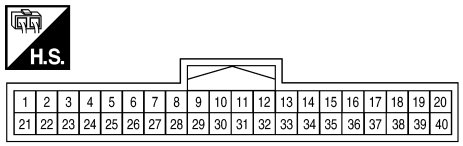


Terminal No.	Color of Wire	Signal Name
5P	W/G	–
8P	R/Y	–
15P	W/R	–

Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
7	W	–

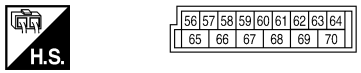
Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
2	P	COMBI SW INPUT 5
3	SB	COMBI SW INPUT 4
4	V	COMBI SW INPUT 3
5	L	COMBI SW INPUT 2

Terminal No.	Color of Wire	Signal Name
6	R	COMBI SW INPUT 1
29	G	HAZARD SW
32	O	COMBI SW OUTPUT 5
33	GR	COMBI SW OUTPUT 4
34	G	COMBI SW OUTPUT 3
35	BR	COMBI SW OUTPUT 2
36	LG	COMBI SW OUTPUT 1
38	W/R	IGN SW
39	L	CAN-H
40	P	CAN-L

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
60	LG	FLASHER OUTPUT (LEFT)
61	G	FLASHER OUTPUT (RIGHT)
67	B	GND (POWER)
70	W	BAT (F/L)

ALLIA0469GB

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE

H.S.

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	R/Y	–
11	P	–
12	L	–
13	GR	–
16	W/G	–
23	B	

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE

H.S.

12	13	10		9	8	7
14	11	1	2	3	4	5	6

Terminal No.	Color of Wire	Signal Name
1	LG	INPUT 1
2	BR	INPUT 2
3	G	INPUT 3
4	GR	INPUT 4
5	O	INPUT 5
6	R	OUTPUT 1
7	L	OUTPUT 2
8	P	OUTPUT 5

Terminal No.	Color of Wire	Signal Name
9	SB	OUTPUT 4
10	V	OUTPUT 3

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

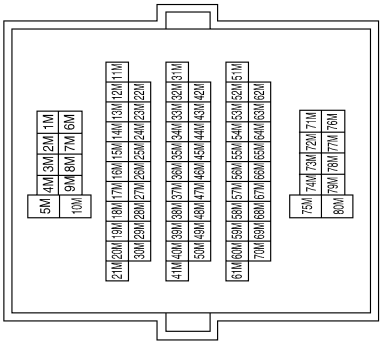
Terminal No.	Color of Wire	Signal Name
53G	G	–

ALLIA0470GB

Terminal No.	Color of Wire	Signal Name
59M	G	–

Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Color	WHITE

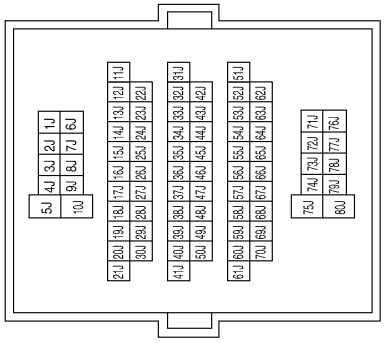
H.S.



Terminal No.	Color of Wire	Signal Name
59J	G	–

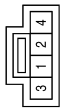
Connector No.	M40
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



Connector No.	M55
Connector Name	HAZARD SWITCH
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
1	B	–
2	G	–

ALLIA0471GB

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

7	6	5	4		3	2	1
16	15	14	13	12	11	10	9	8

Terminal No.	Color of Wire	Signal Name
2	LG	–

Connector No.	E10
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1	2	3	4
5	6	7	8

Terminal No.	Color of Wire	Signal Name
7	W	–

Connector No.	E26
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1	2	3		4	5	6	7
8	9	10	11	12	13	14	15	16

Terminal No.	Color of Wire	Signal Name
2	LG	–

Connector No.	E27
Connector Name	FRONT COMBINATION LAMP LH
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
1	B	–
3	LG	–

Connector No.	E111
Connector Name	FRONT COMBINATION LAMP RH
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
1	B	–
3	G	–

ALLIA0472GB

Connector No.	B35
Connector Name	REAR COMBINATION LAMP LH
Connector Color	WHITE

H.S.

1	2
3	4
5	6

Terminal No.	Color of Wire	Signal Name
4	G	–
5	B	–

Connector No.	B105
Connector Name	REAR COMBINATION LAMP RH
Connector Color	WHITE

H.S.

1	2
3	4
5	6

Terminal No.	Color of Wire	Signal Name
4	G	–
5	B	–

Terminal No.	Color of Wire	Signal Name
53G	G	–

Terminal No.	Color of Wire	Signal Name
59J	G	–

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1G	2G	3G	4G	5G
6G	7G	8G	9G	10G

11G	12G	13G	14G	15G	16G	17G	18G	19G	20G	21G
22G	23G	24G	25G	26G	27G	28G	29G	30G		

31G	32G	33G	34G	35G	36G	37G	38G	39G	40G	41G
42G	43G	44G	45G	46G	47G	48G	49G	50G		

51G	52G	53G	54G	55G	56G	57G	58G	59G	60G	61G
62G	63G	64G	65G	66G	67G	68G	69G	70G		

71G	72G	73G	74G	75G
76G	77G	78G	79G	80G

Connector No.	B69
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1J	2J	3J	4J	5J
6J	7J	8J	9J	10J

11J	12J	13J	14J	15J	16J	17J	18J	19J	20J	21J
22J	23J	24J	25J	26J	27J	28J	29J	30J		

31J	32J	33J	34J	35J	36J	37J	38J	39J	40J	41J
42J	43J	44J	45J	46J	47J	48J	49J	50J		

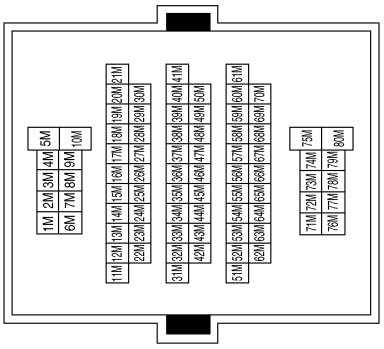
51J	52J	53J	54J	55J	56J	57J	58J	59J	60J	61J
62J	63J	64J	65J	66J	67J	68J	69J	70J		

71J	72J	73J	74J	75J
76J	77J	78J	79J	80J

ALLIA0473GB

Terminal No.	Color of Wire	Signal Name
59M	G	–

Connector No.	B149
Connector Name	WIRE TO WIRE
Connector Color	WHITE



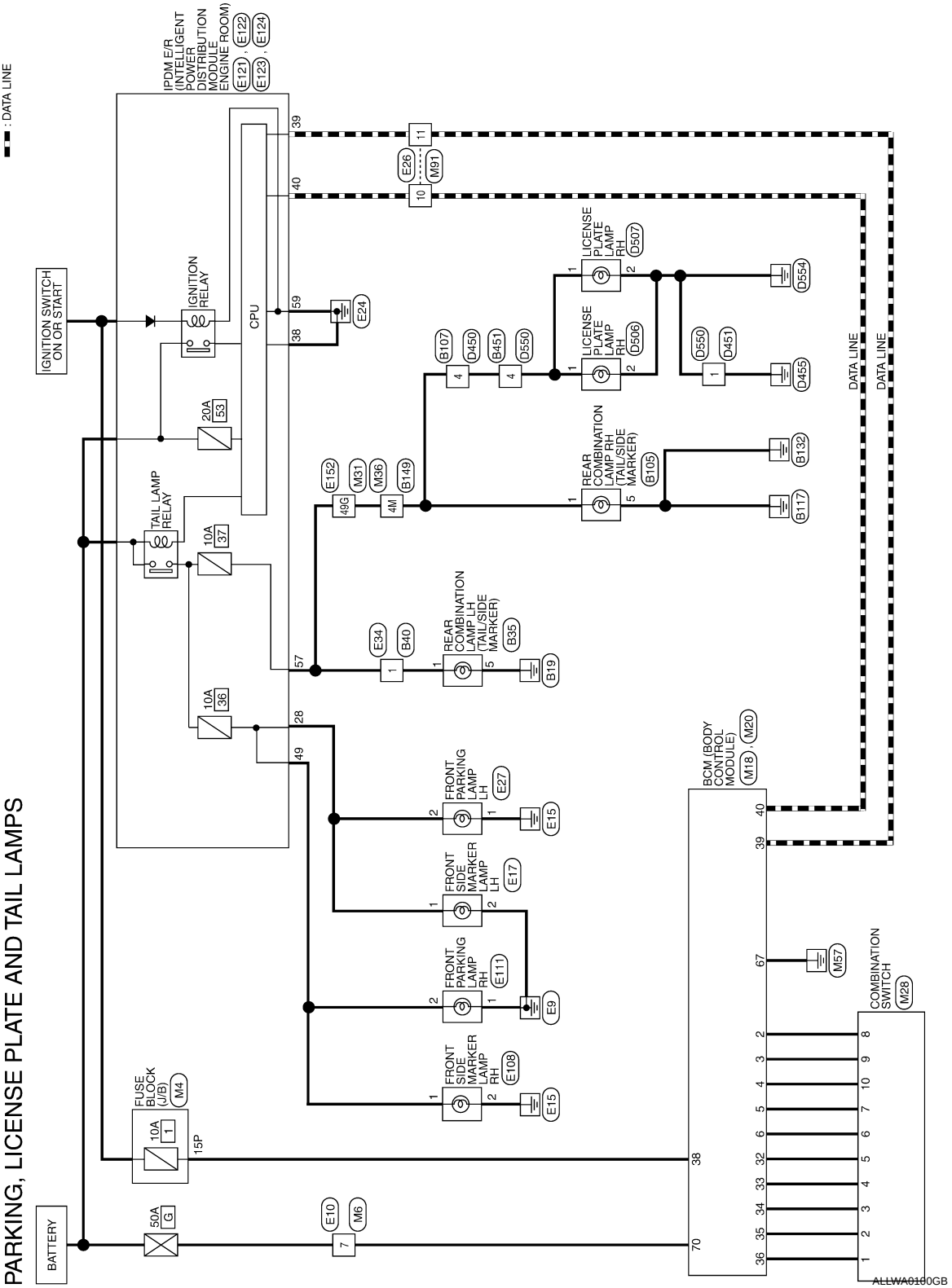
H.S.

ALLIA0474GB

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

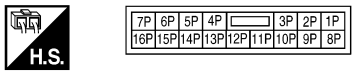
Wiring Diagram

INFOID:0000000001712400



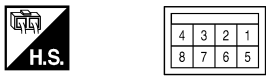
PARKING,LICENSE PLATE AND TAIL LAMPS CONNECTORS

Connector No.	M4
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



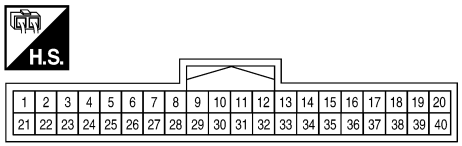
Terminal No.	Color of Wire	Signal Name
15P	W/R	–

Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Color	WHITE



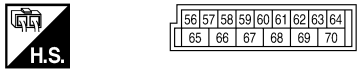
Terminal No.	Color of Wire	Signal Name
7	W	–

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
2	P	COMBI SW INPUT 5
3	SB	COMBI SW INPUT 4
4	V	COMBI SW INPUT 3
5	L	COMBI SW INPUT 2
6	R	COMBI SW INPUT 1
32	O	COMBI SW OUTPUT 5
33	GR	COMBI SW OUTPUT 4
34	G	COMBI SW OUTPUT 3
35	BR	COMBI SW OUTPUT 2
36	LG	COMBI SW OUTPUT 1
38	W/R	IGN SW
39	L	CAN-H
40	P	CAN-L

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
67	B	GND (POWER)
70	W	BAT (F/L)

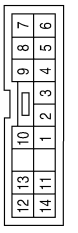
ALLIA0486GB

Terminal No.	Color of Wire	Signal Name
9	SB	OUTPUT 4
10	V	OUTPUT 3

Terminal No.	Color of Wire	Signal Name
49G	V	–

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE

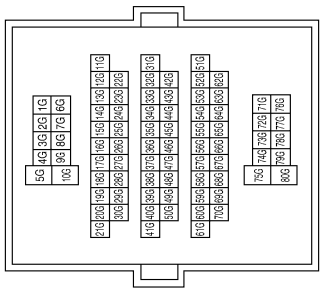
H.S.



Terminal No.	Color of Wire	Signal Name
1	LG	INPUT 1
2	BR	INPUT 2
3	G	INPUT 3
4	GR	INPUT 4
5	O	INPUT 5
6	R	OUTPUT 1
7	L	OUTPUT 2
8	P	OUTPUT 5

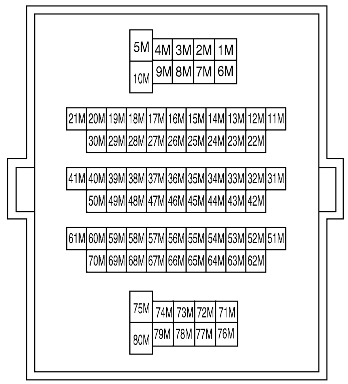
Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



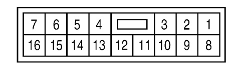
ALLIA0487GB

Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Color	WHITE



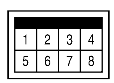
Terminal No.	Color of Wire	Signal Name
4M	V	–

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE



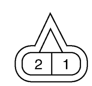
Terminal No.	Color of Wire	Signal Name
10	P	–
11	L	–

Connector No.	E10
Connector Name	WIRE TO WIRE
Connector Color	WHITE



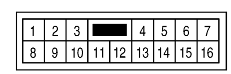
Terminal No.	Color of Wire	Signal Name
7	W	–

Connector No.	E17
Connector Name	FRONT SIDE MARKER LAMP LH
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	R	–
2	B	–

Connector No.	E26
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
10	P	–
11	L	–

ALLIA0488GB

Connector No.	E27
Connector Name	FRONT COMBINATION LAMP LH
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
1	B	–
2	R	–

Connector No.	E34
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	GR	–

Connector No.	E108
Connector Name	FRONT SIDE MARKER LAMP RH
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
1	R	–
2	B	–

Connector No.	E111
Connector Name	FRONT COMBINATION LAMP RH
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
1	B	–
2	GR	–

Connector No.	E121
Connector Name	IPDM E/R(INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN

H.S.

Terminal No.	Color of Wire	Signal Name
28	R	CLEARANCE_ FRONT_LH

Connector No.	E122
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
38	B	GND (SIGNAL)
39	L	CAN-H
40	P	CAN-L

ALLIA0489GB

Connector No.	E123
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN

H.S.

Terminal No.	Color of Wire	Signal Name
49	GR	CLEARANCE_FRONT_RH

Connector No.	E124
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
57	GR	TAIL_LAMPS
59	B	GND (POWER)

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
49G	V	–

Connector No.	B35
Connector Name	REAR COMBINATION LAMP LH
Connector Color	WHITE

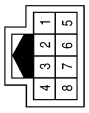
H.S.

Terminal No.	Color of Wire	Signal Name
1	GR	–
5	B	–

ALLIA0490GB

Connector No.	B107
Connector Name	WIRE TO WIRE
Connector Color	WHITE

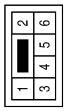
H.S.



Terminal No.	Color of Wire	Signal Name
4	L	–

Connector No.	B105
Connector Name	REAR COMBINATION LAMP RH
Connector Color	WHITE

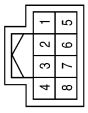
H.S.



Terminal No.	Color of Wire	Signal Name
1	V	–
5	B	–

Connector No.	B40
Connector Name	WIRE TO WIRE
Connector Color	WHITE

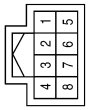
H.S.



Terminal No.	Color of Wire	Signal Name
1	GR	–

Connector No.	D450
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

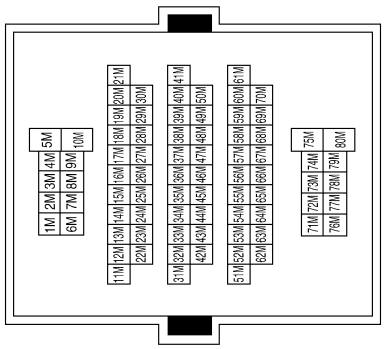


Terminal No.	Color of Wire	Signal Name
4	L	–

Terminal No.	Color of Wire	Signal Name
4M	V	–

Connector No.	B149
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



ALLIA0491GB

Connector No.	D451
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	B	–
4	L	–

Connector No.	D506
Connector Name	LICENSE PLATE LAMP LH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	L	–
2	B	–

Connector No.	D507
Connector Name	LICENSE PLATE LAMP RH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	L	–
2	B	–

Connector No.	D550
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

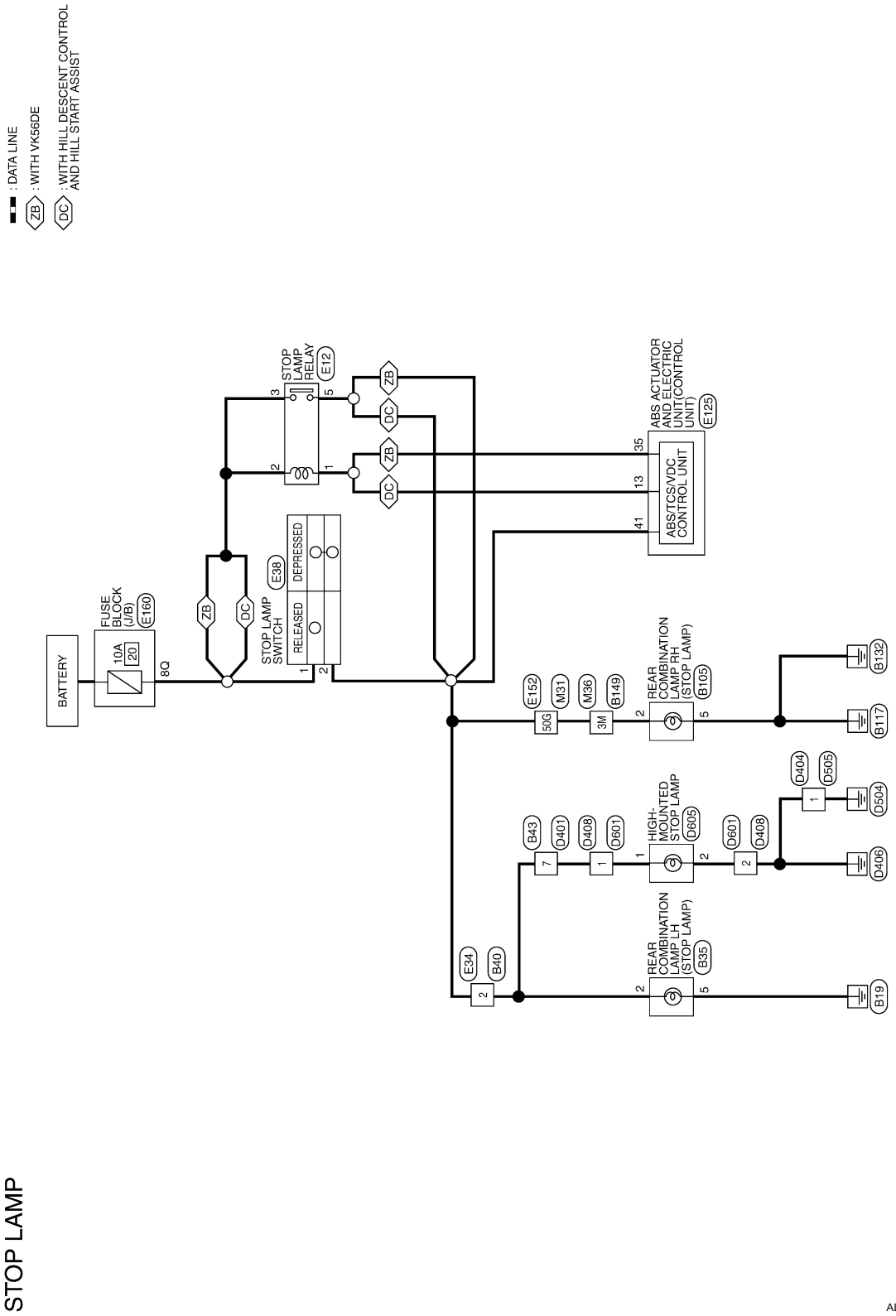
Terminal No.	Color of Wire	Signal Name
1	B	–
4	L	–

ALLIA0492GB

STOP LAMP

Wiring Diagram

INFOID:0000000001712401

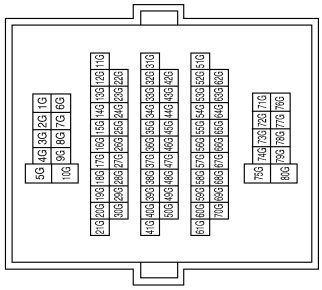


ALLWA0098GB

STOP LAMP CONNECTORS

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE

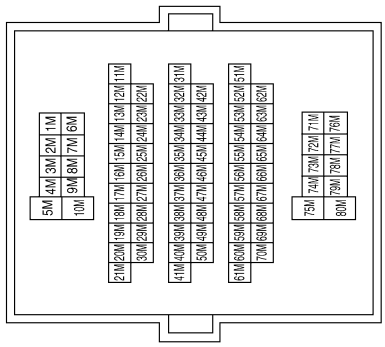
H.S.



Terminal No.	Color of Wire	Signal Name
50G	L	–

Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
3M	L	–

ALLIA0477GB

Connector No.	E12
Connector Name	STOP LAMP RELAY
Connector Color	BLUE

H.S.

Terminal No.	Color of Wire	Signal Name
1	V	–
2	R/B	–
3	R/B	–
5	G	–

Connector No.	E34
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
2	Y	–

Connector No.	E38
Connector Name	STOP LAMP SWITCH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	R/B	–
2	Y	–

Connector No.	E125
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
13	V	STOP_LAMP_SW_ON
35	V	BRK_OUT (OFF)
41	SB	STOP_LAMP_SW

ALLIA0478GB

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
50G	Y	–

Connector No.	E160
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
8Q	R/B	–

Connector No.	B35
Connector Name	REAR COMBINATION LAMP LH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
2	Y	–
5	B	–

Connector No.	B40
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
2	Y	–

Connector No.	B43
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
7	R	–

ALLIA0479GB

Connector No.	B105
Connector Name	REAR COMBINATION LAMP RH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
2	L	–
5	B	–

Connector No.	B149
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
3M	L	–

Connector No.	D401
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
7	R	–

Connector No.	D404
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	B	–

Connector No.	D408
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	R	–
2	B	–

ALLIA0480GB

Connector No.	D505
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	B	–

Connector No.	D601
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	R	–
2	B	–

Connector No.	D605
Connector Name	HIGH-MOUNTED STOP LAMP
Connector Color	WHITE

H.S.

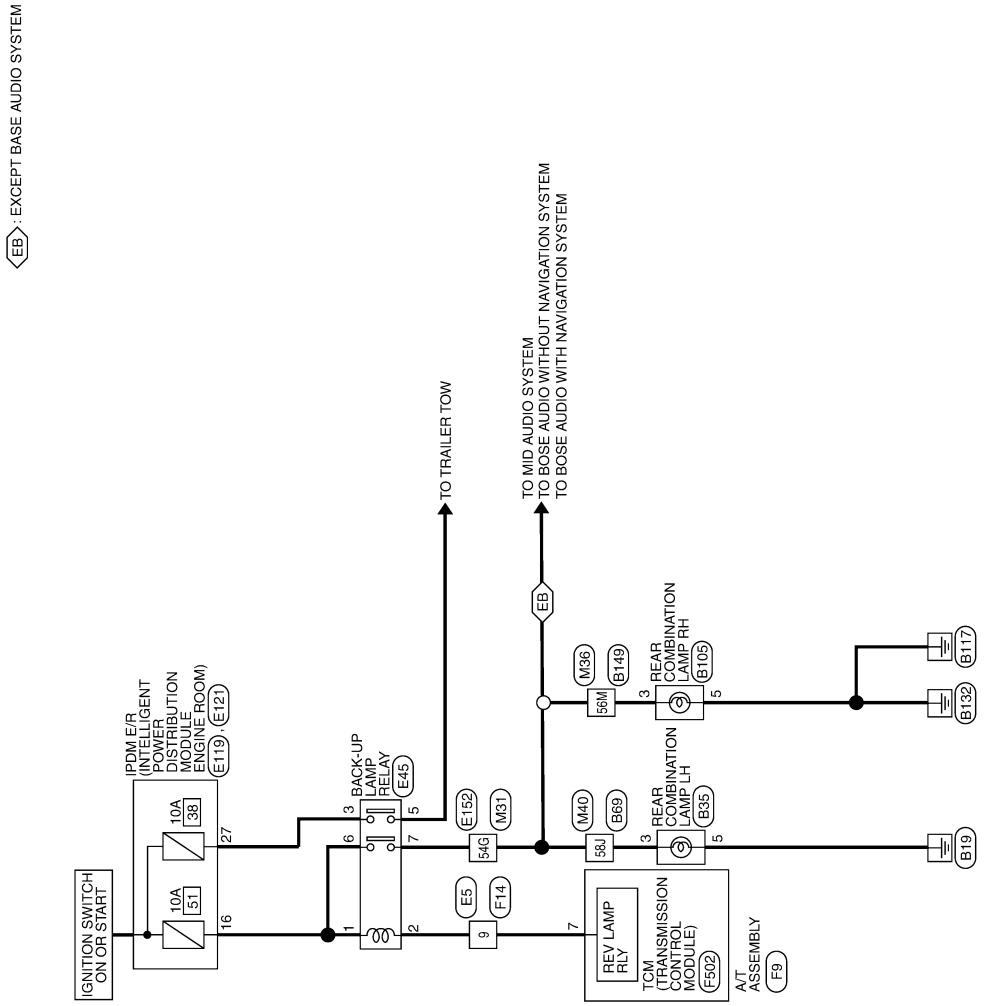
Terminal No.	Color of Wire	Signal Name
1	R	–
2	B	–

ALLIA0481GB

BACK-UP LAMP

Wiring Diagram

INFOID:0000000001712402



ALLWA0099GB

BACK-UP LAMP

BACK-UP LAMP CONNECTORS

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
54G	SB	–

Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
56M	BR	–

ALLIA0482GB

Connector No.	M40
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

5J	4J	3J	2J	1J
	9J	8J	7J	6J
	10J			

21J	20J	19J	18J	17J	16J	15J	14J	13J	12J	11J
		30J	29J	28J	27J	26J	25J	24J	23J	22J

41J	40J	39J	38J	37J	36J	35J	34J	33J	32J	31J
		50J	49J	48J	47J	46J	45J	44J	43J	42J

61J	60J	59J	58J	57J	56J	55J	54J	53J	52J	51J
		70J	69J	68J	67J	66J	65J	64J	63J	62J

	75J	74J	73J	72J	71J
		80J	79J	78J	77J	76J

Terminal No.	Color of Wire	Signal Name
58J	SB	–

Connector No.	E5
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
9	LG	–

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

H.S.

9	8	7	6		5	4	3
18	17	16	15	14	13	12	11	10

Terminal No.	Color of Wire	Signal Name
16	W/G	REVERS_LAMP

Connector No.	E121
Connector Name	IPDM E/R(INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN

H.S.

29	28		27	26	25
36	35	34	33	32	31	30

Terminal No.	Color of Wire	Signal Name
27	W	T_TOW_REV_LAMP

Connector No.	E45
Connector Name	BACK-UP LAMP RELAY
Connector Color	BROWN

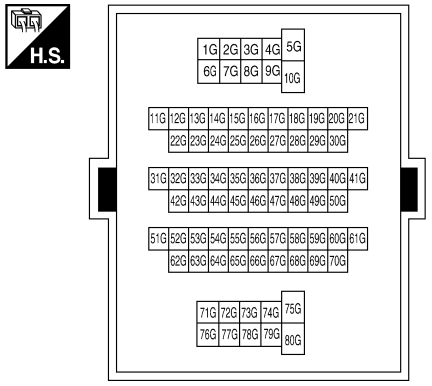
H.S.

2		1
7		5
6		3

Terminal No.	Color of Wire	Signal Name
1	W/G	–
2	LG	–
3	W	–
5	Y	–
6	W/G	–
7	SB	–

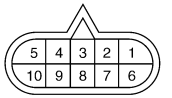
ALLIA0483GB

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



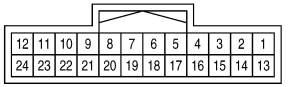
Terminal No.	Color of Wire	Signal Name
54G	SB	–

Connector No.	F9
Connector Name	A/T ASSEMBLY
Connector Color	GREEN



Terminal No.	Color of Wire	Signal Name
7	LG	–

Connector No.	F14
Connector Name	WIRE TO WIRE
Connector Color	WHITE

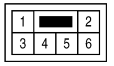


Terminal No.	Color of Wire	Signal Name
9	LG	–

Connector No.	F502
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Color	GRAY

Terminal No.	Color of Wire	Signal Name
7	O	REV LAMP RLY

Connector No.	B35
Connector Name	REAR COMBINATION LAMP LH
Connector Color	WHITE

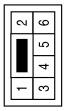


Terminal No.	Color of Wire	Signal Name
3	SB	–
5	B	–

ALLIA0484GB

Connector No.	B105
Connector Name	REAR COMBINATION LAMP RH
Connector Color	WHITE

H.S.

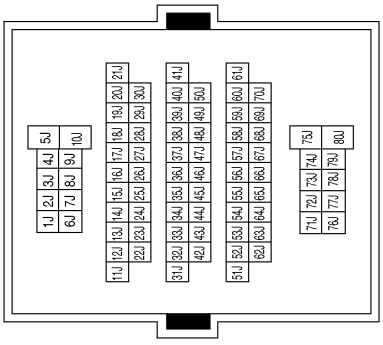


Terminal No.	Color of Wire	Signal Name
3	BR	–
5	B	–

Terminal No.	Color of Wire	Signal Name
58J	SB	–

Connector No.	B69
Connector Name	WIRE TO WIRE
Connector Color	WHITE

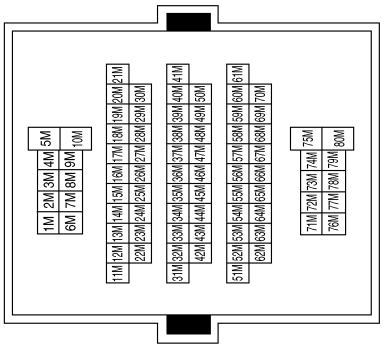
H.S.



Terminal No.	Color of Wire	Signal Name
56M	BR	–

Connector No.	B149
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

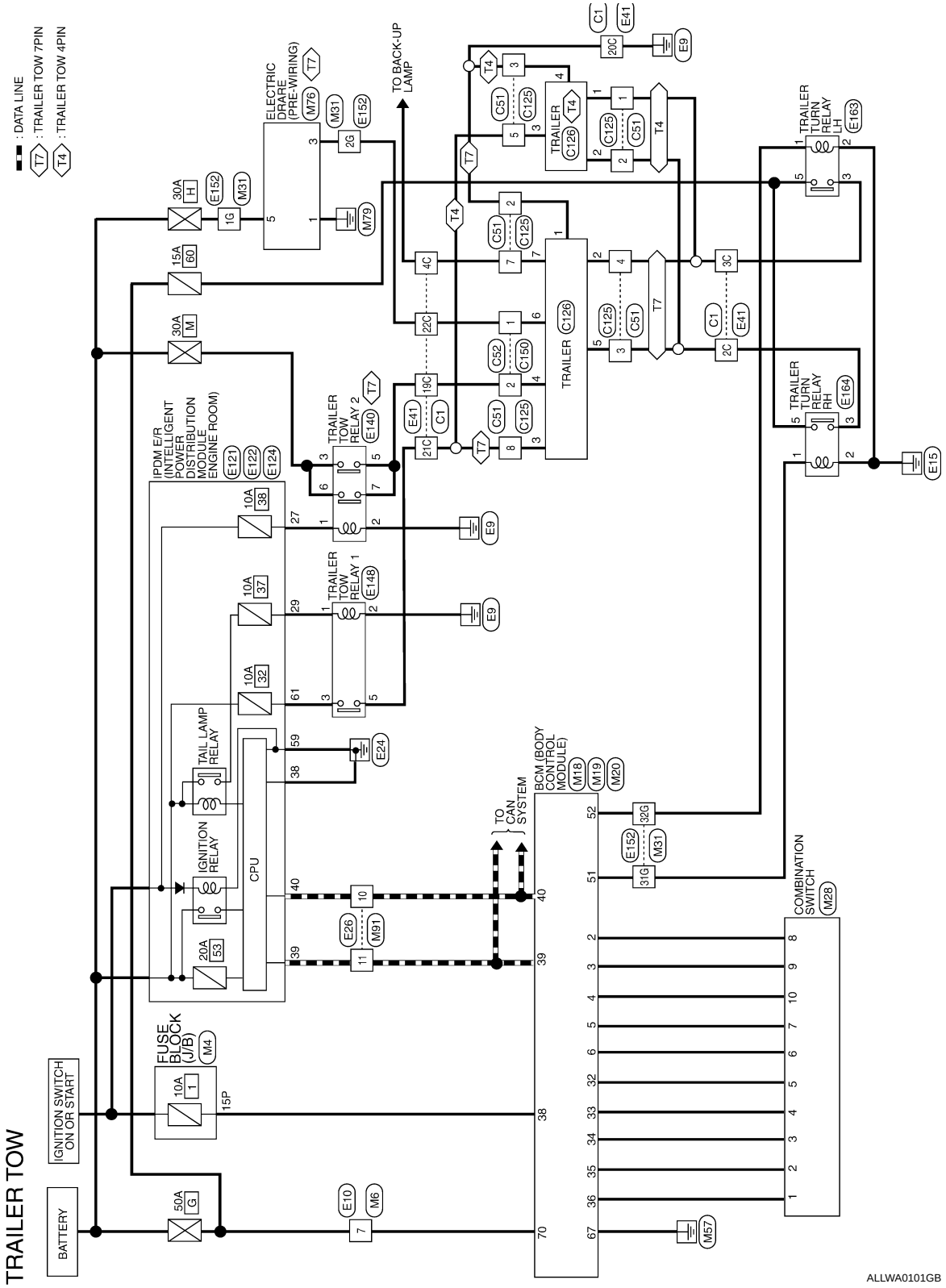


ALLIA0485GB

TRAILER TOW

Wiring Diagram

INFOID:0000000001712403



TRAILER TOW CONNECTORS

Connector No.	M4
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

H.S.

7P	6P	5P	4P		3P	2P	1P
16P	15P	14P	13P	12P	11P	10P	9P	8P

Terminal No.	Color of Wire	Signal Name
15P	W/R	–

Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

4	3	2	1
8	7	6	5

Terminal No.	Color of Wire	Signal Name
7	W	–

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	Color of Wire	Signal Name
2	P	COMBI SW INPUT 5
3	SB	COMBI SW INPUT 4
4	V	COMBI SW INPUT 3
5	L	COMBI SW INPUT 2
6	R	COMBI SW INPUT 1
32	O	COMBI SW OUTPUT 5
33	GR	COMBI SW OUTPUT 4
34	G	COMBI SW OUTPUT 3
35	BR	COMBI SW OUTPUT 2
36	LG	COMBI SW OUTPUT 1
38	W/R	IGN SW
39	L	CAN-H
40	P	CAN-L

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE

H.S.

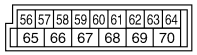
41	42	43	44	45	46	47	48	49
50	51	52	53	54	55			

Terminal No.	Color of Wire	Signal Name
51	G	TRAILER RIGHT FLASHER
52	V	TRAILER LEFT FLASHER

ALLIA0493GB

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK

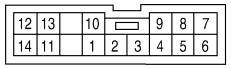
H.S.



Terminal No.	Color of Wire	Signal Name
67	B	GND
70	W	BAT (F/L)

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE

H.S.

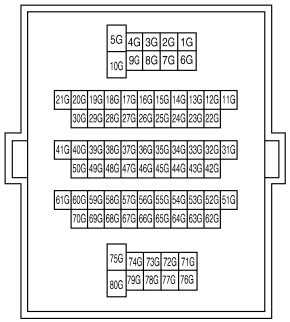


Terminal No.	Color of Wire	Signal Name
1	LG	INPUT 1
2	BR	INPUT 2
3	G	INPUT 3
4	GR	INPUT 4
5	O	INPUT 5
6	R	OUTPUT 1
7	L	OUTPUT 2
8	P	OUTPUT 5

Terminal No.	Color of Wire	Signal Name
9	SB	OUTPUT 4
10	V	OUTPUT 3

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE

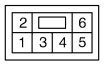
H.S.



Terminal No.	Color of Wire	Signal Name
1G	O	–
2G	BR	–
31G	G	–
32G	V	–

Connector No.	M76
Connector Name	ELECTRIC BRAKE (PRE-WIRING)
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
1	B	–
3	BR	–
5	O	–

ALLIA0494GB

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

7	6	5	4		3	2	1
16	15	14	13	12	11	10	9	8

Terminal No.	Color of Wire	Signal Name
10	P	–
11	L	–

Connector No.	E10
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1	2	3	4
5	6	7	8

Terminal No.	Color of Wire	Signal Name
7	W	–

Connector No.	E26
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1	2	3		4	5	6	7
8	9	10	11	12	13	14	15	16

Terminal No.	Color of Wire	Signal Name
10	P	–
11	L	–

Connector No.	E41
Connector Name	WIRE TO WIRE
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
2C	G	–
3C	V	–
4C	Y	–
19C	V	–
20C	B	–
21C	R	–
22C	BR	–

Connector No.	E121
Connector Name	IPDM E/R(INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN

H.S.

29	28		27	26	25
36	35	34	33	32	31	30

Terminal No.	Color of Wire	Signal Name
27	W	T_TOW_REV_LAMP
29	G	TRAILER_RLY_CONT

ALLIA0495GB

Connector No.	E140
Connector Name	TRAILER TOW RELAY 2
Connector Color	BROWN

H.S.

Terminal No.	Color of Wire	Signal Name
1	W/G	–
2	B	–
3	GR	–
5	V	–
6	Y	–
7	V	–

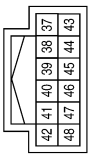
Connector No.	E124
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
59	B	GND (POWER)
61	R/B	TRAILER_RLY_SUPPLY

Connector No.	E122
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

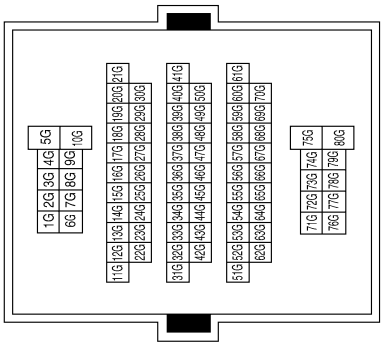
H.S.



Terminal No.	Color of Wire	Signal Name
38	B	GND (SIGNAL)
39	L	CAN-H
40	P	CAN-L

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
1G	O	–
2G	BR	–
31G	O	–
32G	LG	–

Connector No.	E148
Connector Name	TRAILER TOW RELAY 1
Connector Color	BLUE

H.S.

Terminal No.	Color of Wire	Signal Name
1	G	–
2	B	–
3	R/B	–
5	R	–

ALLIA0496GB

Connector No.	E163
Connector Name	TRAILER TURN RELAY LH
Connector Color	BLUE

H.S.

Terminal No.	Color of Wire	Signal Name
1	LG	–
2	B	–
3	V	–
5	L	–

Connector No.	E164
Connector Name	TRAILER TURN RELAY RH
Connector Color	BLUE

H.S.

Terminal No.	Color of Wire	Signal Name
1	O	–
2	B	–
3	G	–
5	L	–

Connector No.	C1
Connector Name	WIRE TO WIRE
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
2C	G	–
3C	V	–
4C	Y	–
19C	V	–
20C	B	–
21C	R	–
22C	BR	–

Connector No.	C51
Connector Name	WIRE TO WIRE (TRAILER TOW 7PIN)
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
2	B	–
3	G	–
4	V	–
7	Y	–
8	R	–

ALLIA0497GB

Connector No.	C51
Connector Name	WIRE TO WIRE (TRAILER TOW 4PIN)
Connector Color	GRAY

Terminal No.	Color of Wire	Signal Name
1	V	–
2	G	–
3	B	–
5	R	–

Connector No.	C52
Connector Name	WIRE TO WIRE
Connector Color	BLACK

Terminal No.	Color of Wire	Signal Name
1	BR	–
2	V	–

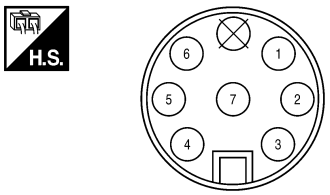
Connector No.	C125
Connector Name	WIRE TO WIRE (TRAILER TOW 7PIN)
Connector Color	GRAY

Terminal No.	Color of Wire	Signal Name
2	W	–
3	G	–
4	V	–
7	Y	–
8	BR	

Connector No.	C125
Connector Name	WIRE TO WIRE (TRAILER TOW 4PIN)
Connector Color	GRAY

Terminal No.	Color of Wire	Signal Name
1	Y	–
2	G	–
3	W	–
5	BR	–

Connector No.	C126
Connector Name	WIRE TO WIRE (TRAILER TOW 7PIN)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	W	–
2	V	–
3	BR	–
4	L	–
5	G	–
6	R	–
7	B	–

ALLIA0498GB

Connector No.	C126
Connector Name	TRAILER (TRAILER TOW 4PIN)
Connector Color	BLACK

Terminal No.	Color of Wire	Signal Name
1	Y	–
2	G	–
3	BR	–
4	W	–

Connector No.	C150
Connector Name	WIRE TO WIRE
Connector Color	BLACK

Terminal No.	Color of Wire	Signal Name
1	BR	–
2	V	–

ALLIA0499GB

ECU DIAGNOSIS

BCM (BODY CONTROL MODULE)

Description

INFOID:0000000001712404

REFERENCE VALUES FOR BCM
For BCM reference values, refer to BCS-38, "Reference Value".

TERMINAL LAYOUT FOR BCM
For the terminal layout for the BCM, refer to BCS-41, "Terminal Layout".

PHYSICAL VALUES FOR BCM
For physical values for the BCM, refer to BCS-41, "Physical Values".

WIRING DIAGRAM - BCM
For the BCM wiring diagram, refer to BCS-47, "Wiring Diagram".

DTC INSPECTION PRIORITY CHART - BCM
For the BCM DTC inspection priority chart, refer to BCS-50, "DTC Inspection Priority Chart".

DTC INDEX - BCM
For the BCM DTC index, refer to BCS-51, "DTC Index".

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

Description

INFOID:0000000001712405

REFERENCE VALUES FOR IPDM E/R

For IPDM E/R reference values, refer to PCS-17, "Reference Value".

TERMINAL LAYOUT FOR IPDM E/R

For the terminal layout for the IPDM E/R, refer to PCS-19, "Terminal Layout".

PHYSICAL VALUES FOR IPDM E/R

For physical values for the IPDM E/R, refer to PCS-19, "Physical Values".

WIRING DIAGRAM - IPDM E/R

For the IPDM E/R wiring diagram, refer to PCS-23, "Wiring Diagram".

FAIL SAFE - IPDM E/R

For IPDM E/R fail safe information, refer to PCS-26, "Fail Safe".

DTC INDEX - IPDM E/R

For the IPDM E/R DTC index, refer to PCS-28, "DTC Index".

SYMPTOM DIAGNOSIS

EXTERIOR LIGHTING SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000001712406

CAUTION:
Perform the self-diagnosis with CONSULT-III before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.

Symptom		Possible cause	Inspection item
Headlamp does not switch to the high beam.	One side	• Fuse • Harness between IPDM E/R and the front combination lamp • Front combination lamp (High beam relay) • IPDM E/R	Headlamp (HI) circuit Refer to EXL-26.
	Both sides	**Symptom diagnosis** "BOTH SIDE HEADLAMPS DO NOT SWITCH TO HIGH BEAM" Refer to EXL-105.	
High beam indicator lamp is not turned ON. (Headlamp switches to the high beam.)		• Combination meter • BCM	• Combination meter. Data monitor "HI-BEAM IND" • BCM (HEAD LAMP) Active test "HEADLAMP"
Headlamp does not switch to the low beam.	One side	Front combination lamp (Low beam relay)	—
	Both sides	• Combination switch • Harness between the combination switch and BCM • BCM	Combination switch Refer to BCS-7.
		High beam request signal • BCM • IPDM E/R	IPDM E/R Data monitor "HL HI REQ"
		IPDM E/R	—
Headlamp does not turn ON.	One side	• Fuse • Bulb • Harness between IPDM E/R and the front combination lamp • Front combination lamp • IPDM E/R	Headlamp (LO) circuit Refer to EXL-28.
	Both sides	**Symptom diagnosis** "BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON" Refer to EXL-106, "Description".	
Headlamp does not turn OFF.	When the ignition switch is turned ON	• BCM • Combination switch	Combination switch Refer to BCS-7.
	The ignition switch is turned OFF (After activating the battery saver).	IPDM E/R	—
Headlamp is not turned ON/OFF with the lighting switch AUTO.		• Combination switch • Harness between the combination switch and BCM • BCM	Combination switch Refer to BCS-7.
		• Optical sensor • Harness between the optical sensor and BCM • BCM	Optical sensor Refer to EXL-40.

Symptom		Possible cause	Inspection item
Daytime light system does not activate.		• Either high beam bulb • Parking brake switch • Combination switch • BCM • IPDM E/R • Daytime light relay • Harness between IPDM E/R and daytime light relay.	Daytime light system description. Refer to EXL-9, "System Description".
Front fog lamp is not turned ON.	One side	• Front fog lamp bulb • Harness between IPDM E/R and the front combination lamp • Front combination lamp • IPDM E/R	Front fog lamp circuit Refer to EXL-30.
	Both side	**Symptom diagnosis** "BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON" Refer to EXL-108.	
Parking lamp is not turned ON.	One side	• Fuse • Parking lamp bulb • Harness between IPDM E/R and the front/rear combination lamp • Front/rear combination lamp • IPDM E/R	Parking lamp circuit Refer to EXL-32.
	Both sides	**Symptom diagnosis** "PARKING, LICENSE PLATE AND TAIL LAMPS ARE NOT TURNED ON" Refer to EXL-107.	
Turn signal lamp does not blink.	Indicator lamp is normal. (The applicable side performs the high flasher activation).	• Harness between BCM and each turn signal lamp • Turn signal lamp bulb • Door mirror (if equipped with turn signals in the door mirrors)	Turn signal lamp circuit Refer to EXL-37.
Turn signal indicator lamp does not blink.	One side	Combination meter	—
	Both sides (Always)	• Turn signal indicator lamp signal • Combination meter • BCM	• Combination meter. Data monitor "TURN IND" • BCM (FLASHER) Active test "FLASHER"
	Both sides (Does blink when activating the hazard warning lamp with the ignition switch OFF)	• The combination meter power supply and the ground circuit • Combination meter	Combination meter Power supply and the ground circuit Refer to MWI-29.

NORMAL OPERATING CONDITION

Description

INFOID:0000000001712407

AUTO LIGHT SYSTEM

The auto light system may not turn the headlamp ON/OFF immediately after passing a dark area or a bright area (short tunnel, sky bridge, shadowed area etc.). This is normal.

BOTH SIDE HEADLAMPS DO NOT SWITCH TO HIGH BEAM

Description

INFOID:0000000001712408

The headlamps (both sides) do not switch to high beam when the lighting switch is in the HI or PASS setting.

Diagnosis Procedure

INFOID:0000000001712409

1.COMBINATION SWITCH INSPECTION

Check the combination switch. Refer to BCS-7, "System Description".

Is the combination switch normal?

YES >> GO TO 2
NO >> Repair or replace the malfunctioning part.

2.CHECK HEADLAMP (HI) REQUEST SIGNAL INPUT

CONSULT-III DATA MONITOR
1. Select "HL HI REQ" of IPDM E/R DATA MONITOR item.
2. With operating the lighting switch, check the monitor status.

Monitor item	Condition		Monitor status
HL HI REQ	Lighting switch (2ND)	HI or PASS	ON
		Except for HI or PASS	OFF

Is the item status normal?

YES >> GO TO 3
NO >> Replace BCM. Refer to BCS-54, "Removal and Installation" .

3.HEADLAMP (HI) CIRCUIT INSPECTION

Check the headlamp (HI) circuit. Refer to EXL-26, "Description".

Is the headlamp (HI) circuit normal?

YES >> Replace IPDM E/R. Refer to PCS-30, "Removal and Installation of IPDM E/R" .
NO >> Repair or replace the malfunctioning part.

BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON

Description

INFOID:0000000001712410

The headlamps (both sides) do not turn ON in any lighting switch setting.

Diagnosis Procedure

INFOID:0000000001712411

1.CHECK COMBINATION SWITCH

Check the combination switch. Refer to BCS-7, "System Description".

Is the combination switch normal?

YES >> GO TO 2
NO >> Repair or replace the malfunctioning part.

2.CHECK HEADLAMP (LO) REQUEST SIGNAL INPUT

CONSULT-III DATA MONITOR
1. Select "HL LO REQ" of IPDM E/R DATA MONITOR item.
2. With operating the lighting switch, check the monitor status.

Monitor item	Condition		Monitor status
HL LO REQ	Lighting switch	2ND	ON
		OFF	OFF

Is the item status normal?

YES >> GO TO 3
NO >> Replace BCM. Refer to BCS-54, "Removal and Installation" .

3.HEADLAMP (LO) CIRCUIT INSPECTION

Check the headlamp (LO) circuit. Refer to EXL-28, "Description".

Is the headlamp (LO) circuit normal?

YES >> Replace IPDM E/R. Refer to PCS-30, "Removal and Installation of IPDM E/R" .
NO >> Repair or replace the malfunctioning part.

PARKING, LICENSE PLATE AND TAIL LAMPS ARE NOT TURNED ON

Description

INFOID:0000000001712412

The parking, license plate and tail lamps do not turn ON in with any lighting switch setting.

Diagnosis Procedure

INFOID:0000000001712413

1.COMBINATION SWITCH INSPECTION

Check the combination switch. Refer to BCS-7, "System Description".

Is the combination switch normal?

YES >> GO TO 2
NO >> Repair or replace the malfunctioning part.

2.CHECK TAIL LAMP RELAY REQUEST SIGNAL INPUT

CONSULT-III DATA MONITOR
1. Select "TAIL & CLR REQ" of IPDM E/R DATA MONITOR item.
2. With operating the lighting switch, check the monitor status.

Monitor item	Condition		Monitor status
TAIL & CLR REQ	Lighting switch	1ST	ON
		OFF	OFF

Is the item status normal?

YES >> GO TO 3
NO >> Replace BCM. Refer to BCS-54, "Removal and Installation".

3.PARK LAMP CIRCUIT INSPECTION

Check the parking lamp circuit. Refer to EXL-32, "Description".

Is the tail lamp circuit normal?

YES >> Replace IPDM E/R. Refer to PCS-30, "Removal and Installation of IPDM E/R".
NO >> Repair or replace the malfunctioning part.

BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

Description

INFOID:0000000001712414

The front fog lamps do not turn ON in any setting.

Diagnosis Procedure

INFOID:0000000001712415

1.COMBINATION SWITCH INSPECTION

Check the combination switch. Refer to BCS-7, "System Description".

Is the combination switch normal?

YES >> GO TO 2
NO >> Repair or replace the malfunctioning part.

2.CHECK FRONT FOG LAMP REQUEST SIGNAL INPUT

CONSULT-III DATA MONITOR

1. Select "FR FOG REQ" of IPDM E/R DATA MONITOR item.
2. With operating the front fog lamp switch, check the monitor status.

Monitor item	Condition		Monitor status
FR FOG REQ	Front fog lamp switch (Lighting switch 2ND)	ON	ON
		OFF	OFF

Is the item status normal?

YES >> GO TO 3
NO >> Replace BCM. Refer to BCS-54, "Removal and Installation".

3.FRONT FOG LAMP CIRCUIT INSPECTION

Check the front fog lamp circuit. Refer to EXL-30, "Description".

Is the front fog lamp circuit normal?

YES >> Replace IPDM E/R. Refer to PCS-30, "Removal and Installation of IPDM E/R".
NO >> Repair or replace the malfunctioning part.

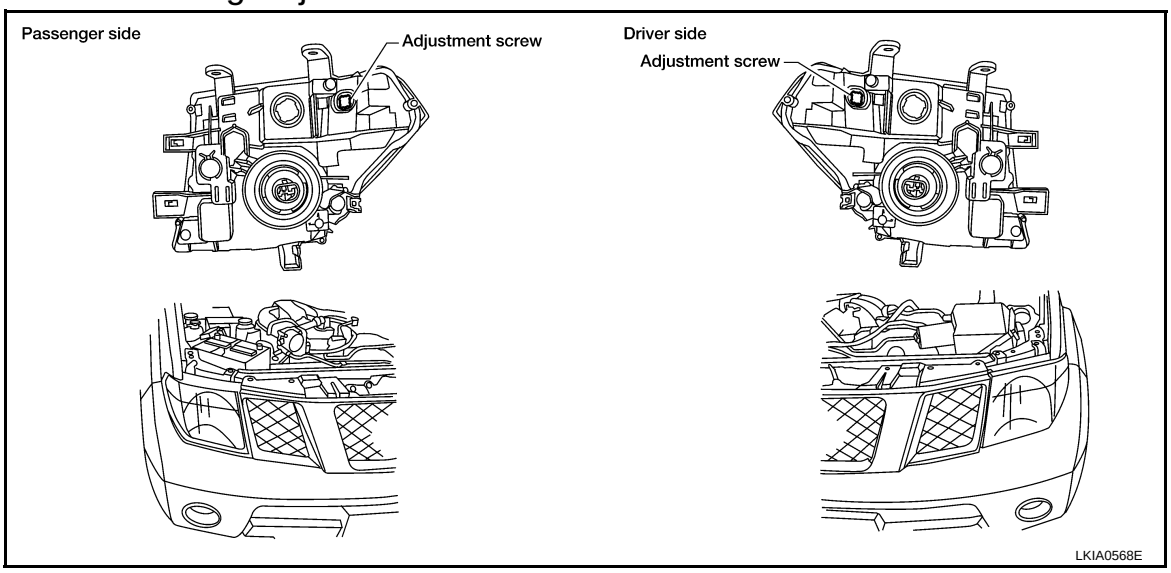
ON-VEHICLE REPAIR

ADJUSTMENT AND INSPECTION

HEADLAMP

HEADLAMP : Aiming Adjustment

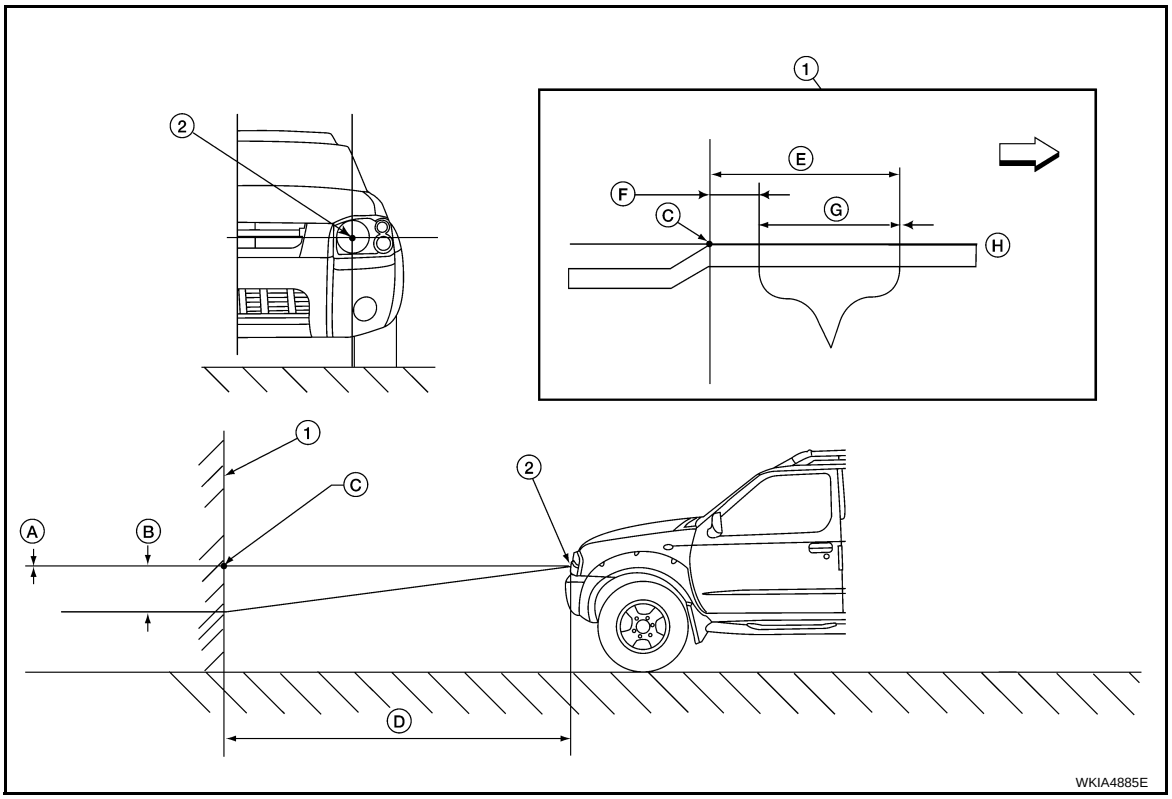
INFOID:0000000001572926



For details, refer to the regulations in your area.
NOTE:
If vehicle front body has been repaired and /or the headlamp assembly has been replaced, check headlamp aiming.

- Before performing aiming adjustment, check the following:
- Confirm headlamp aiming switch is set to "0" (zero) position.
- Ensure all tires are inflated to correct pressure.
- Place vehicle and screen on level surface.
- Ensure there is no load in vehicle other than the driver (or equivalent weight placed in driver's position). Coolant and engine oil filled to correct level, and fuel tank full.
- Confirm spare tire, jack and tools are properly stowed.
- Aim each headlamp individually and ensure other headlamp beam pattern is blocked from screen.
- Use adjusting screw to perform aiming adjustment

LOW BEAM AND HIGH BEAM



1	Adjustment screen	2	Headlamp bulb center (HV point)	A	Minimum acceptable vertical aim dimension (see aiming chart)
B	Maximum acceptable vertical aim dimension (see aiming chart)	C	H-V point	D	Distance of headlamp aiming screen from vehicle 7.62 m (25 ft.)
E	Maximum aim evaluation distance from vertical center on aiming screen 399mm (3° R).	F	Minimum aim evaluation distance from vertical center on aiming screen 133 mm (1°R)	G	Aim evaluation area
H	Horizontal aiming evaluation line.	⇒	Right		

Aiming Chart

A (Minimum acceptable vertical aim dimension)	**-3.3 mm (0.13 in)**	**0.025° up**
B (Maximum acceptable vertical aim dimension)	**36.6 mm (1.44 in)**	**0.275° down**

NOTE:
- By regulation, no means for horizontal aim adjustment is provided from the factory; only vertical aim is adjustable.
- Basic illuminating area for evaluation and/or adjustment should be within range shown on aiming chart.

1. Use adjustment screw to perform aiming adjustment.
   - **Cover the opposite lamp and ensure fog lamps, if equipped, are turned off.**

   CAUTION:
   Do not tighten adjustment screw beyond specified torque or damage may occur.

   Adjustment torque **1.67 N.m (17 kg-cm, 14.8 in-lb)**

2. Adjust beam pattern until cut-off line (top edge of illumination area) is positioned at the specified height off ground. Measure cut-off line within distance J on H-line. See aiming chart.

FRONT FOG LAMP

FRONT FOG LAMP : Aiming Adjustment

INFOID:0000000001572916

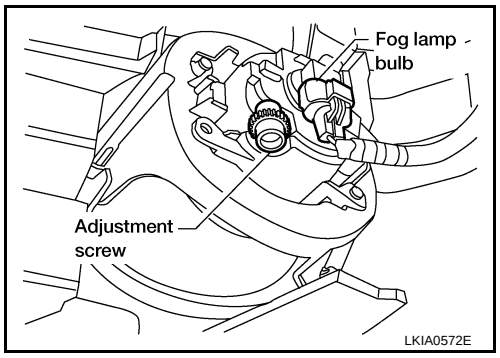
The fog lamp is a semi-sealed beam type which uses a replaceable halogen bulb. Before performing aiming adjustment, make sure of the following.
- Keep all tires inflated to correct pressure.

- 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.

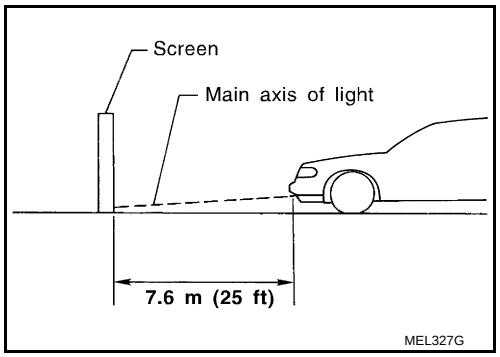
Adjust aiming in the vertical direction by turning the adjustment screw.

NOTE:

Use a Phillips screwdriver to adjust. Turn screw clockwise to raise pattern and counterclockwise to lower pattern.

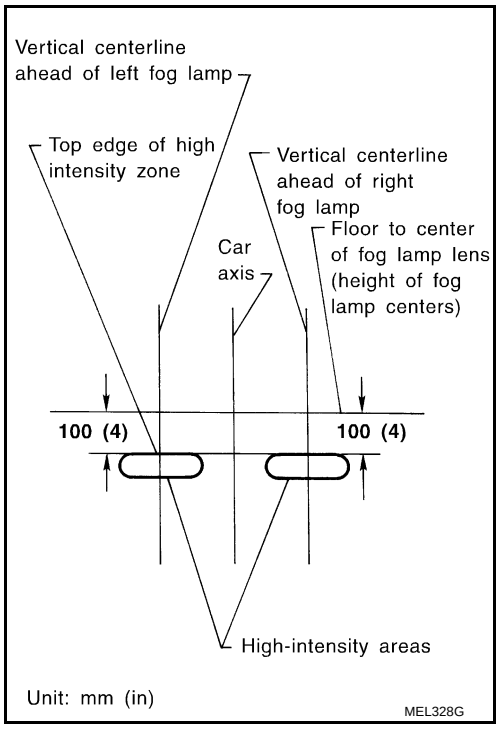


1. Set the distance between the screen and the center of the fog lamp lens as shown.



2. Turn front fog lamps ON.
3. Remove front portion of fender protector(s) for adjustment screw access. Refer to EXT-20, "Removal and Installation of Front Fender Protector"
4. Adjust front fog lamps using adjustment screw so that the top edge of the high intensity zone is 100 mm (4 in) below the height of the fog lamp centers as shown.

- When performing adjustment, if necessary, cover the headlamps and opposite fog lamp.



REMOVAL AND INSTALLATION

HEADLAMP

Bulb Replacement

INFOID:0000000001572922

HEADLAMP BULB

Removal

NOTE:

Reach through engine room for bulb replacement access.

CAUTION:

Grasp only the plastic base when handling the bulb. Never touch the glass envelope.

1. Turn front headlamp switch OFF.
2. Disconnect the electrical connector.
3. Rotate the headlamp bulb retaining ring counterclockwise and remove.
4. Pull the headlamp bulb straight out from the headlamp assembly.

NOTE:

Remove the headlamp bulb from the headlamp assembly just before a replacement bulb is installed. Dust, moisture, foreign materials, etc. entering headlamp body may affect performance.

Installation

Installation is in the reverse order of removal.

FRONT TURN SIGNAL/PARKING LAMP

Removal

NOTE:

Reach through engine room for bulb replacement access.

1. Turn the bulb socket counterclockwise to unlock it.
2. Pull the bulb to remove it from the socket.

Installation

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, be sure to install the bulb socket securely for watertightness.

FRONT SIDE MARKER LAMP

Removal

NOTE:

Reach through engine room for bulb replacement access.

1. Turn the bulb socket counterclockwise to unlock it.
2. Pull the bulb to remove it from the socket.

Installation

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, be sure to install the bulb socket securely for watertightness.

Removal and Installation

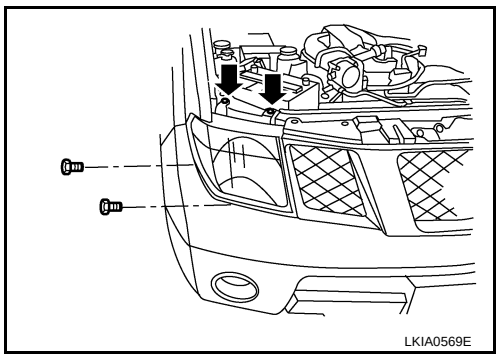
INFOID:0000000001572923

FRONT COMBINATION LAMP

Removal

1. Remove front portion of front fender protector. Refer to EXT-20, "Removal and Installation of Front Fender Protector".
2. Remove the front bumper. Refer to EXT-13, "Removal and Installation".

3. Remove the front combination lamp bolts.



4. Disconnect the front combination lamp connector and remove front combination lamp.

Installation

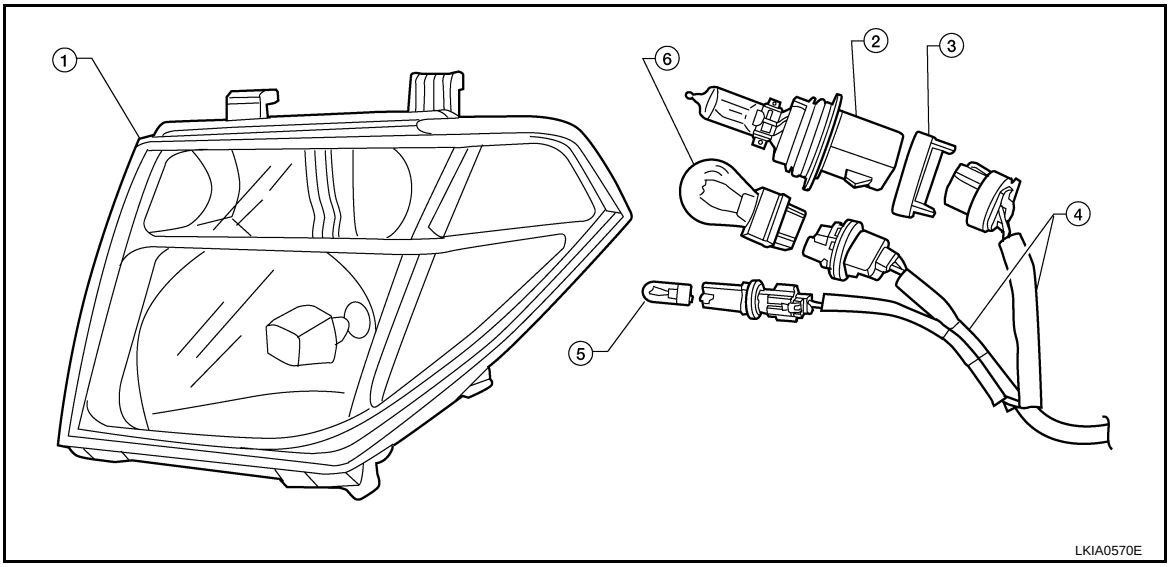
Installation is in the reverse order of removal.

Front combination lamp bolts ·: 6.0 Nm (0.61 kg-m, 53 in-lb)

Disassembly and Assembly

INFOID:0000000001572924

FRONT COMBINATION LAMP



1. Headlamp assembly
2. Headlamp bulb
3. Headlamp bulb retaining ring
4. Wiring harness assembly
5. Front side marker lamp bulb
6. Front turn signal/parking lamp bulb

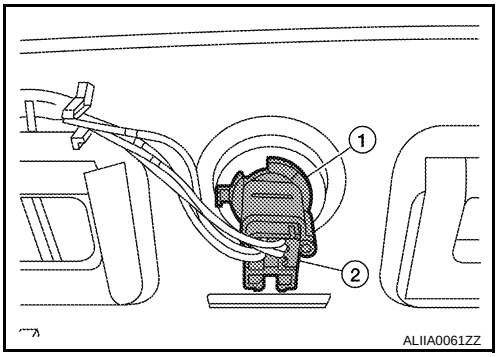
OPTICAL SENSOR

Removal and Installation

INFOID:0000000001730843

REMOVAL

1. Remove the defroster grille from the instrument panel. Refer to IP-10, "Exploded View".
2. Disconnect the optical sensor connector (2).
3. Twist the optical sensor (1) counter clockwise to remove it from the defroster grille.



INSTALLATION

Installation is in the reverse order of removal.

FRONT FOG LAMP

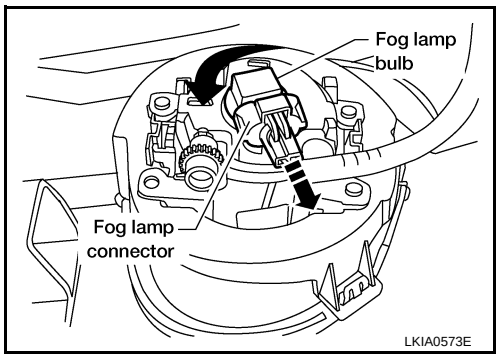
Bulb Replacement

INFOID:0000000001572915

1. Remove front portion of fender protector. Refer to EXT-20, "Removal and Installation of Front Fender Protector"
2. Disconnect fog lamp connector.
3. Turn the bulb counterclockwise to remove it.

CAUTION:

- **Do not touch the glass of bulb directly by hand. Keep grease and other oily substances away from it. Do not touch bulb by hand while it is lit or right after being turned off. Burning may result.**
- **Do not leave bulb out of fog lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of fog lamp. When replacing bulb, be sure to replace it with new one.**



Removal and Installation

INFOID:0000000001572914

FRONT FOG LAMP

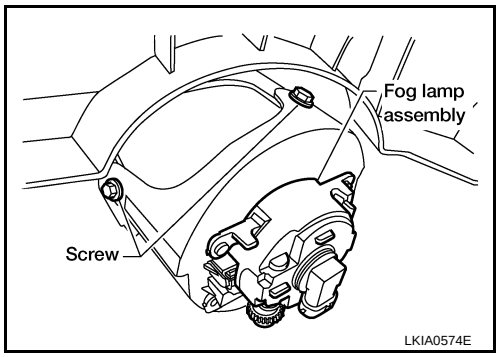
The fog lamp is a semi-sealed beam type which uses a replaceable halogen bulb.

CAUTION:

- **Do not leave fog lamp assembly without bulb for a long period of time. Dust, moisture, smoke, etc. entering the fog lamp body may affect the performance. Remove the bulb from the headlamp assembly just before replacement bulb is installed.**
- **Grasp only the plastic base when handling the bulb. Never touch the glass envelope. Touching the glass could significantly affect the bulb life and/or fog lamp performance.**

Removal

1. Remove front portion of fender protector. Refer to EXT-20, "Removal and Installation of Front Fender Protector"
2. Disconnect fog lamp connector.
3. Remove fog lamp screws and pull fog lamp rearward out of front bumper.



Installation

Installation is in the reverse order of removal.

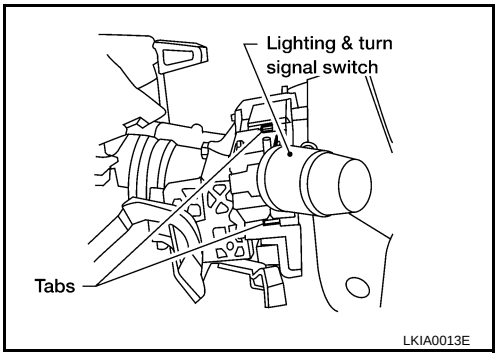
LIGHTING & TURN SIGNAL SWITCH

Removal and Installation

INFOID:0000000001572927

REMOVAL

1. Remove instrument lower cover LH. Refer to IP-10, "Exploded View".
2. Remove steering column cover.
3. Disconnect the lighting and turn signal switch connector.
4. While pressing tabs, pull lighting and turn signal switch toward driver door and release from the steering column.



INSTALLATION

Installation is in the reverse order of removal.

HAZARD SWITCH

Removal and Installation

INFOID:0000000001572912

REMOVAL

1. Remove cluster lid C. Refer to IP-10, "Exploded View".
2. Disconnect the hazard switch connector.
3. Remove the screws and remove the hazard switch.

INSTALLATION

Installation is in the reverse order of removal.

HIGH-MOUNTED STOP LAMP

High-Mounted Stop Lamp

INFOID:0000000001572911

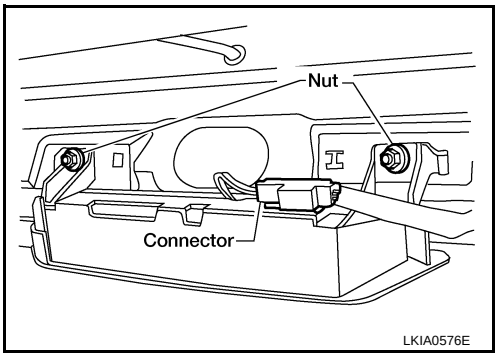
BULB REPLACEMENT

The high-mounted stop lamp bulbs are not serviceable.

REMOVAL AND INSTALLATION

Removal

1. Remove back door window garnish.
2. Disconnect high-mounted stop lamp connector.
3. Remove nuts and remove high-mounted stop lamp.



Installation

Installation is in the reverse order of removal.

LICENSE PLATE LAMP

Bulb Replacement

INFOID:0000000001572909

LICENSE PLATE LAMP

Removal

1. Remove back door finisher. Refer to EXT-19, "Removal and Installation".
2. Turn bulb socket counterclockwise and remove bulb socket.
3. Remove license plate lamp bulb.

Installation

Installation is in the reverse order of removal.

Removal and Installation

INFOID:0000000001572910

LICENSE PLATE LAMP

Removal

1. Remove license lamp finisher. Refer to EXT-19, "Removal and Installation".
2. Disconnect license plate lamp harness connector.
3. Remove license plate lamp screw and remove license plate lamp.

Installation

Installation is in the reverse order of removal.

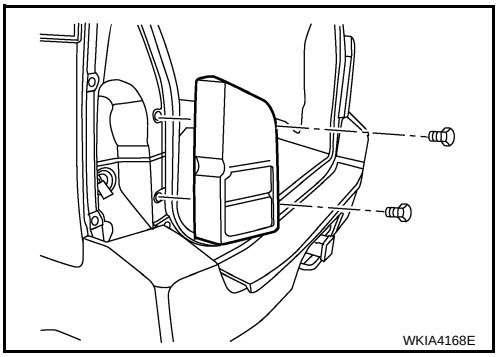
REAR COMBINATION LAMP

Bulb Replacement

INFOID:0000000001572891

REMOVAL

1. Remove rear combination lamp bolts.
2. Pull rear combination lamp to remove from the vehicle.
3. Turn bulb socket counterclockwise and unlock it.
4. Remove bulb.



INSTALLATION

Installation is in the reverse order of removal.

Removal and Installation

INFOID:0000000001572892

REMOVAL

1. Remove rear combination lamp bolts.
2. Pull rear combination lamp to remove from the vehicle.
3. Disconnect rear combination lamp connector.

INSTALLATION

Installation is in the reverse order of removal.

SERVICE DATA AND SPECIFICATIONS (SDS)

BULB SPECIFICATIONS

Headlamp

INFOID:0000000001572888

Item	Wattage (W)*
Low/High	55/65

*: Always check with the Parts Department for the latest parts information.

Exterior Lamp

INFOID:0000000001572889

Item		Wattage (W)*
Front combination lamp	Turn signal lamp/parking lamp	28/8
	Side marker	3.8
Rear combination lamp	Stop/Tail lamp	27/8
	Turn signal lamp	27
	Back-up lamp	18
Front fog lamp		55
License plate lamp		5
High-mounted stop lamp		*

*: Always check with the Parts Department for the latest parts information.