

SECTION **EXL**

EXTERIOR LIGHTING SYSTEM

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

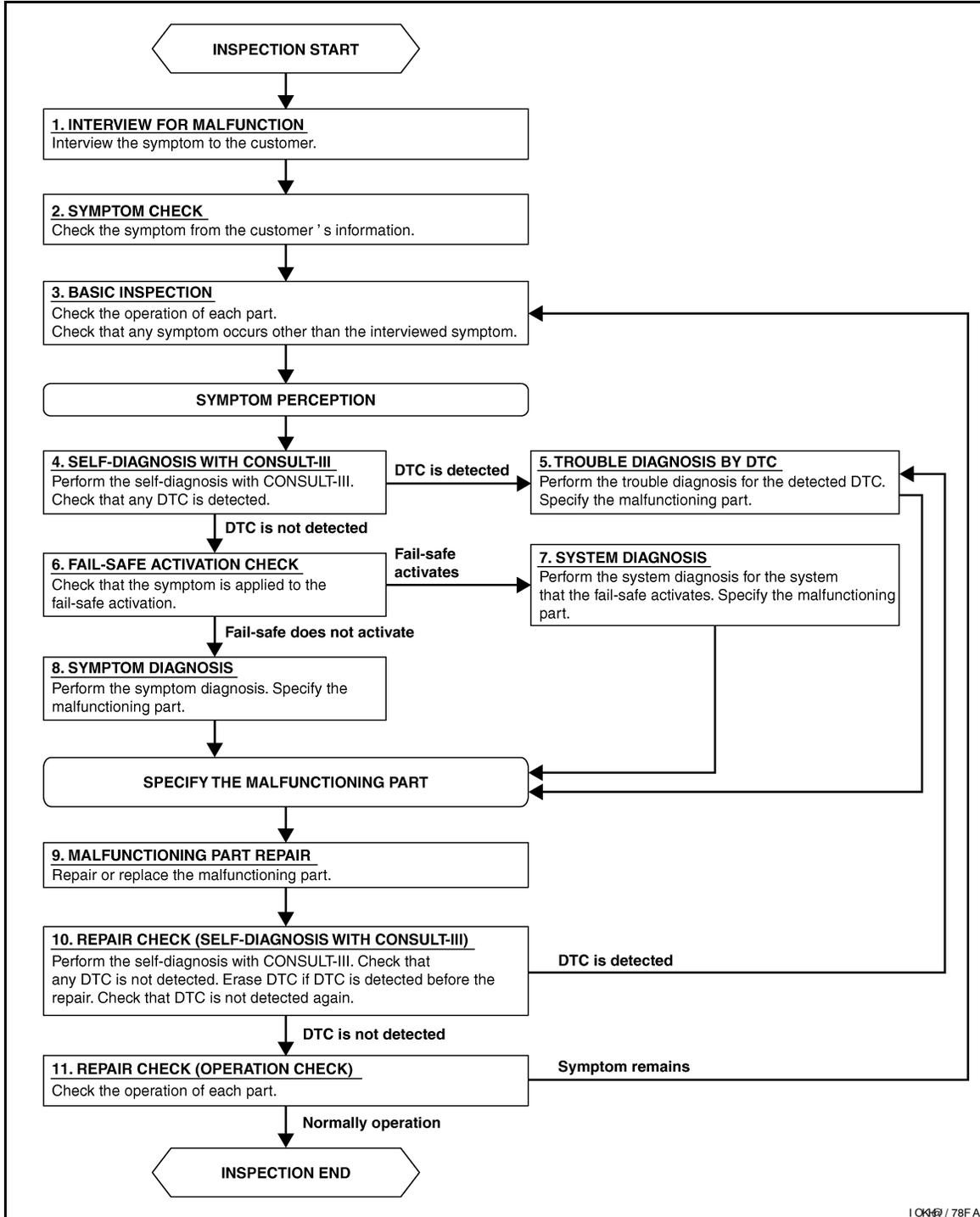
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000004065508

OVERALL SEQUENCE



10K4 / 78F A

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

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. Verified that no DTCs are detected. Erase all DTCs detected prior to the repair. Verify that DTC is not detected again.

Is any DTC detected?

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

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

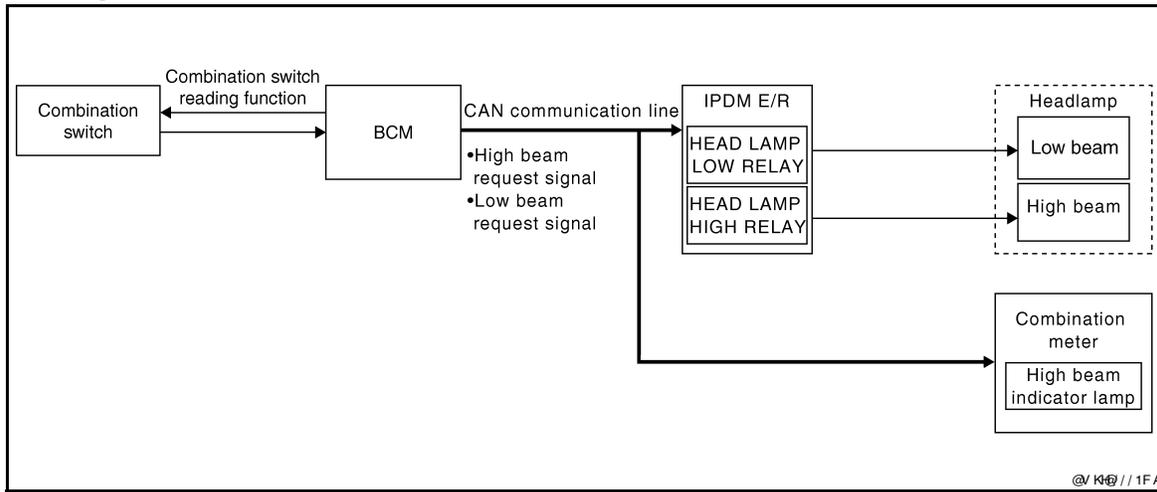
HEADLAMP

< FUNCTION DIAGNOSIS >

FUNCTION DIAGNOSIS

HEADLAMP

System Diagram



System Description

INFOID:000000004065510

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.

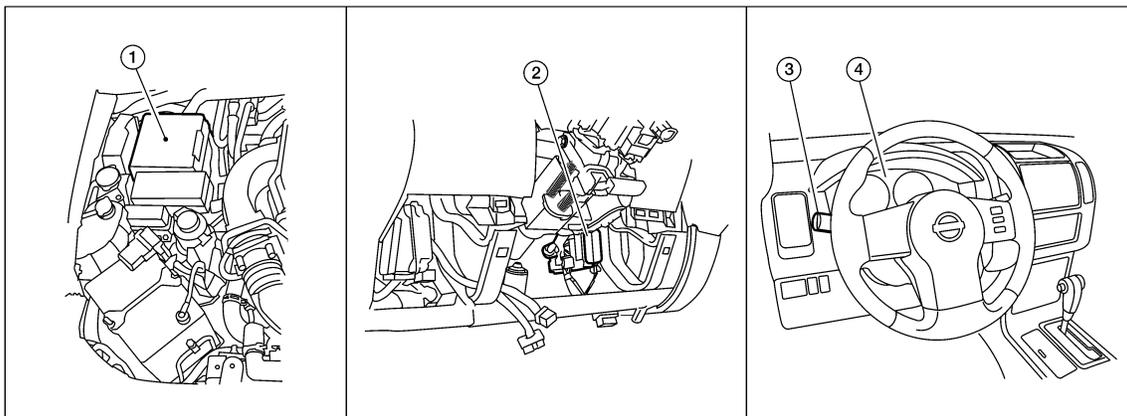
HIGH BEAM OPERATION/FLASH-TO-PASS OPERATION

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.

Component Parts Location

INFOID:000000004065511



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HEADLAMP

< FUNCTION DIAGNOSIS >

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

Component Description

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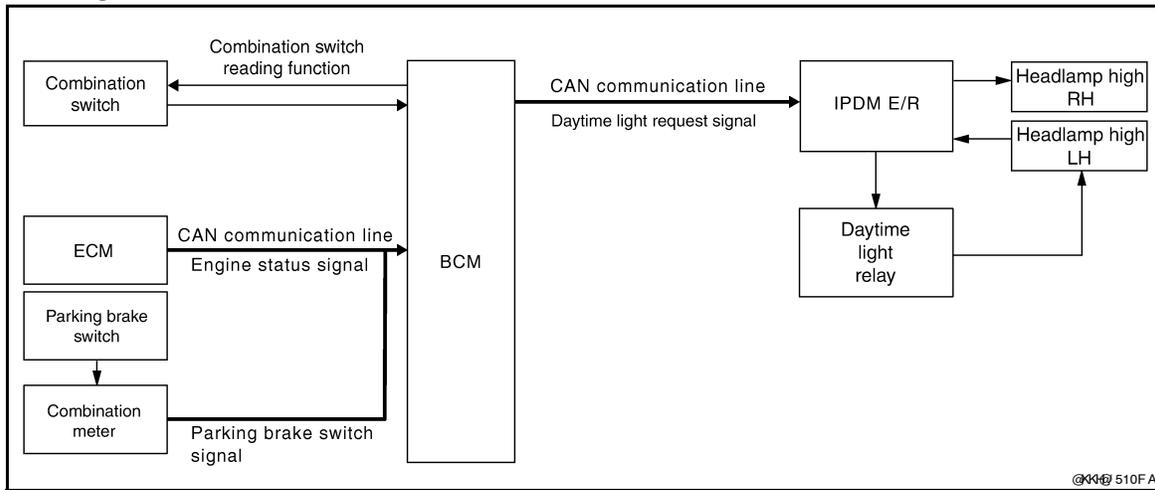
Part name	Description
BCM	<ul style="list-style-type: none">• Receives lighting switch requests via BCM combination switch reading function.• Sends headlamp high/low request signal to the IPDM E/R.
IPDM E/R	Activates the headlamp high and headlamp low relays upon request from the BCM.
Combination switch (lighting and turn signal switch)	Outputs lighting requests to the BCM.

DAYTIME RUNNING LIGHT SYSTEM

< FUNCTION DIAGNOSIS >

DAYTIME RUNNING LIGHT SYSTEM

System Diagram



System Description

INFOID:000000004065514

The headlamp system for Canada vehicles is equipped with a daytime light control 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.

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.

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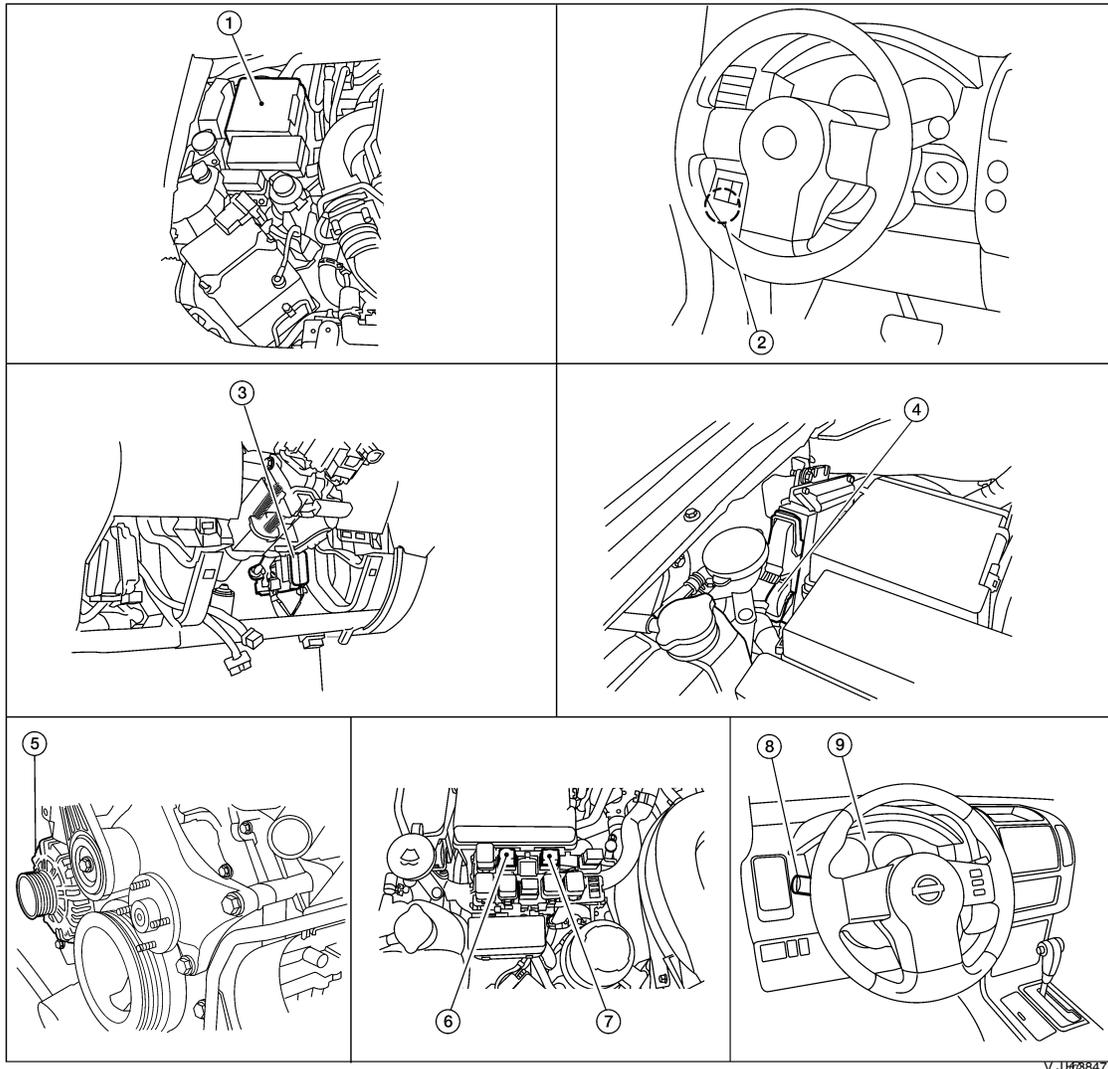
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DAYTIME RUNNING LIGHT SYSTEM

< FUNCTION DIAGNOSIS >

Component Parts Location

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- | | | |
|--|---|---|
| 1. IPDM E/R E119, E122, E123, E124 | 2. Parking brake switch B84 | 3. BCM M18, M20 (view with lower instrument panel LH removed) |
| 4. ECM E16 (view with ECM cover removed) | 5. Generator E205, E209 | 6. Daytime light relay 1 E103 |
| 7. Daytime light relay 2 E104 | 8. Combination switch (lighting and turn signal switch) M28 | 9. Combination meter M24 |

Component Description

INFOID:000000004065516

Part name	Description
BCM	<ul style="list-style-type: none"> Receives combination switch inputs via BCM combination switch reading function. Receives park brake applied input from the park brake switch. Receives engine running status from the ECM via CAN communication.
IPDM E/R	Receives daytime light request from the BCM and activates the daytime light relay.
Combination switch (lighting and turn signal switch)	Outputs lighting requests to the BCM.

DAYTIME RUNNING LIGHT SYSTEM

< FUNCTION DIAGNOSIS >

Park brake switch	Outputs park brake status to the combination meter which forwards that information to the BCM via CAN communication.
ECM	Outputs engine running status to the BCM.

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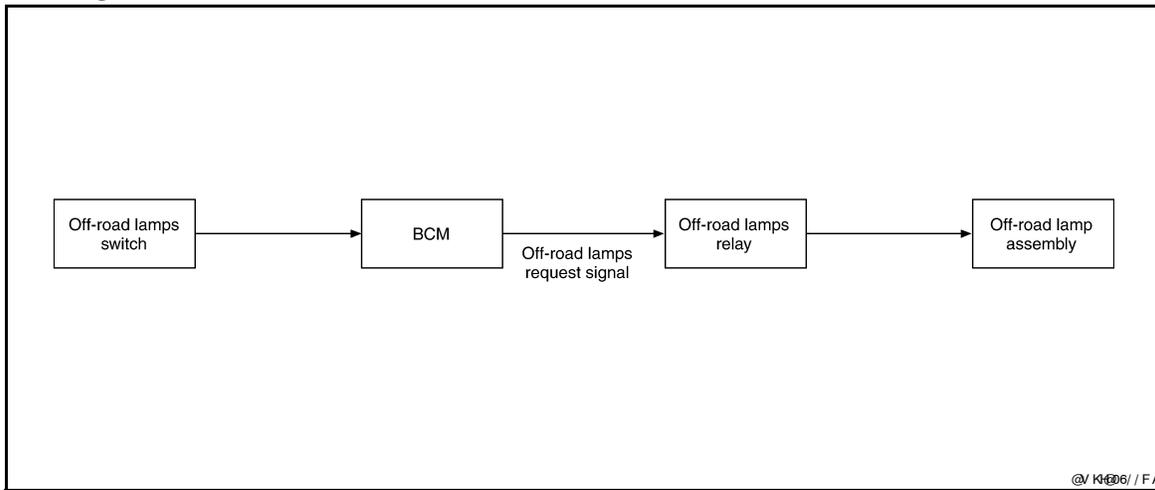
OFF-ROAD LAMPS

< FUNCTION DIAGNOSIS >

OFF-ROAD LAMPS

System Diagram

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System Description

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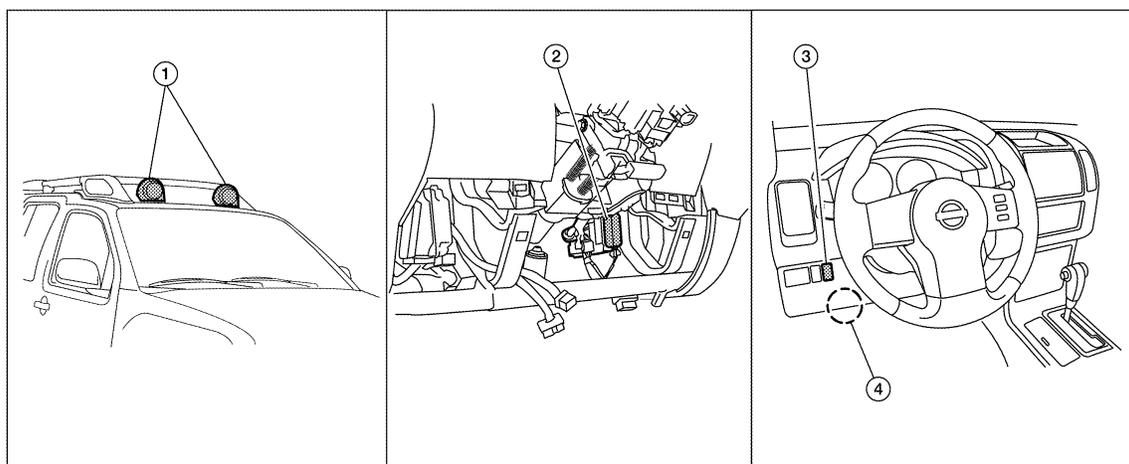
The off-road lamps are activated with the off-road lamps switch. The off-road lamps switch provides a request signal to the BCM. The BCM grounds the off-road lamps relay coil to activate the off-road lamps. The high beam headlamps must be ON and the off-road lamp covers removed in order for the BCM to activate the off-road lamps relay.

OFF ROAD LAMP OPERATION

When the off-road lamps switch is in the ON position, the lighting switch is in the 2nd position with the high beams activated and the off-road lamp covers removed, the BCM grounds the off-road lamp relay coil to activate the off-road lamps. The BCM monitors the off-road lamps switch, the lighting switch position via the combination switch reading function and the off-road lamp covers via the off-road lamp cover sensors. The off-road lamp cover sensor is a magnetic sensor which monitors for the presence of the off-road lamp covers.

Component Parts Location

INFOID:000000004466271



©/ K400588YY

1. Off-road lamp assembly
LH B527, B528
RH B529, B530
2. BCM M18, M19, M20 (view with lower instrument panel LH removed)
3. Off-road lamps switch M80
4. Off-road lamps relay M81

OFF-ROAD LAMPS

< FUNCTION DIAGNOSIS >

Component Description

INFOID:000000004466272

Part name	Description
BCM	<ul style="list-style-type: none">• Receives lighting switch requests via BCM combination switch reading function.• Receives off-road lamps request information from the off-road lamps switch.• Receives off-road lamp cover installation status from the off-road lamp cover sensors.• Grounds the off-road lamps relay to activate the off-road lamps.
Off-road lamps switch	Sends off-road lamps request signal to the BCM.
Combination switch (lighting and turn signal switch)	Monitors lighting switch position.
Off-road lamp cover sensors	Senses whether the off-road lamp covers are installed.

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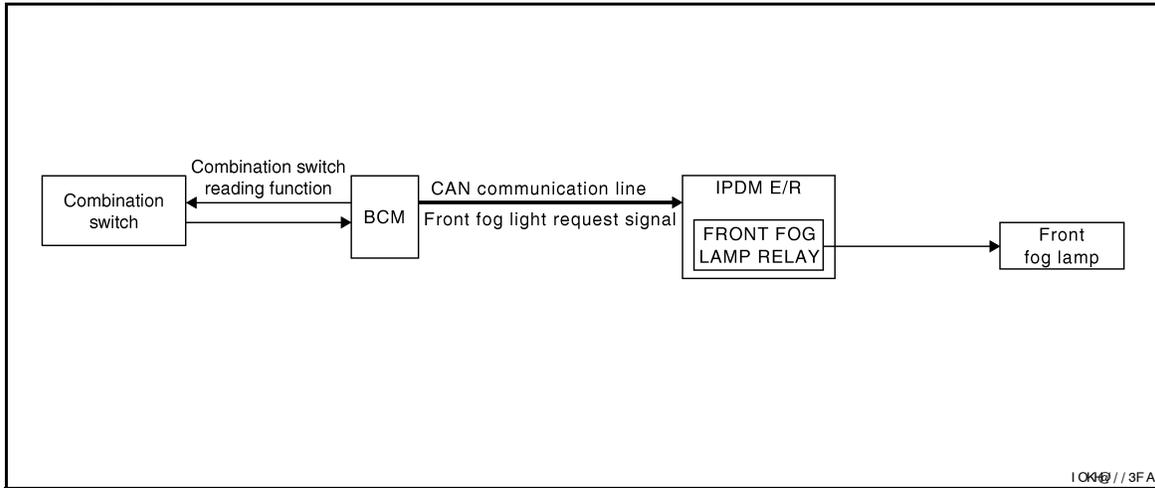
FRONT FOG LAMP

< FUNCTION DIAGNOSIS >

FRONT FOG LAMP

System Diagram

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System Description

INFOID:000000004065518

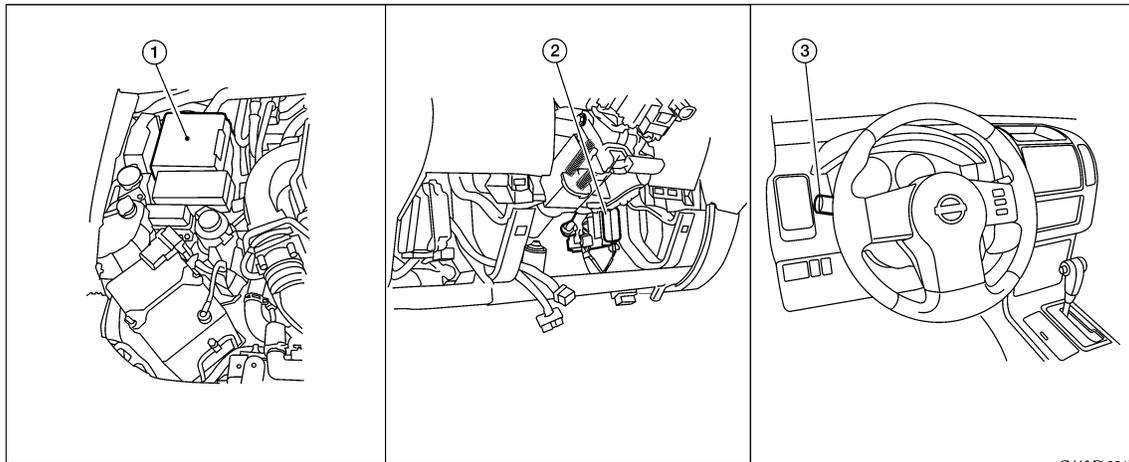
The front fog lamps are activated with the lighting switch (combination switch). The lighting switch signal to the BCM is monitored with the BCM combination switch reading function. When the fog lamps are turned ON with the lighting switch, the BCM sends a front fog lamp request signal via CAN communication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

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 or 2 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.

Component Parts Location

INFOID:000000004065519



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1. IPDM E/R E122, E123, E124

2. BCM M18, M20 (view with lower instrument panel LH removed)

3. Combination switch (lighting and turn signal switch) M28

FRONT FOG LAMP

< FUNCTION DIAGNOSIS >

Component Description

INFOID:000000004065520

Part name	Description
BCM	<ul style="list-style-type: none">• Receives lighting switch requests via BCM combination switch reading function.• Sends headlamp high/low request signal to the IPDM E/R.
IPDM E/R	Activates the front fog lamp relay upon request from the BCM.
Combination switch (lighting and turn signal switch)	Outputs lighting requests to the BCM.

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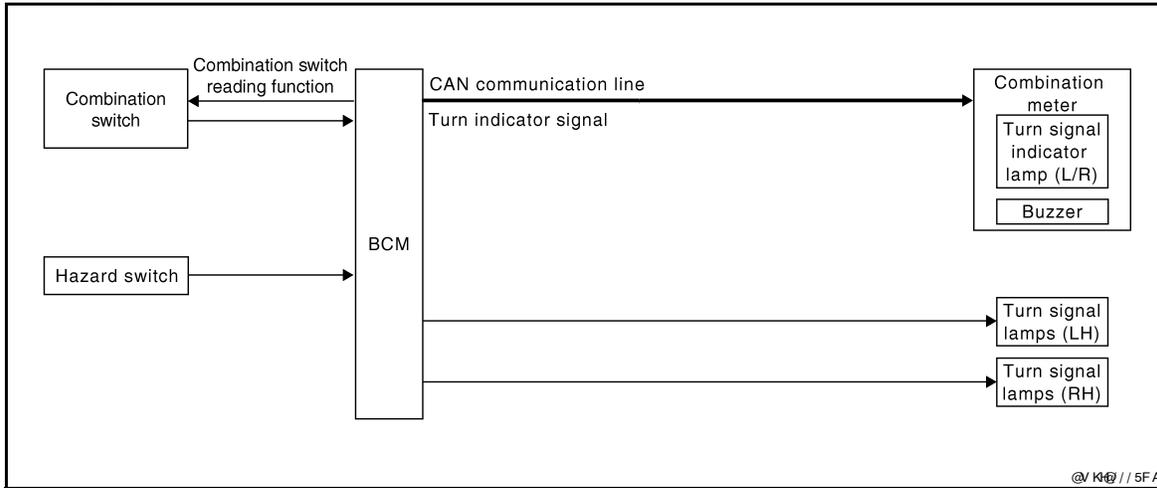
TURN SIGNAL AND HAZARD WARNING LAMPS

< FUNCTION DIAGNOSIS >

TURN SIGNAL AND HAZARD WARNING LAMPS

System Diagram

INFOID:000000004065521



System Description

INFOID:000000004065522

TURN SIGNAL OPERATION

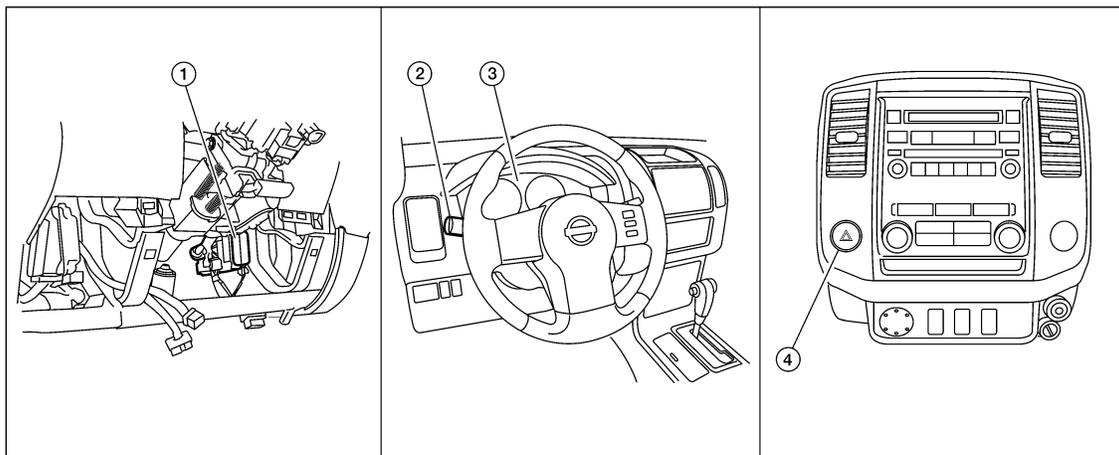
When the turn signal switch is in LH or RH position with the ignition switch in ON position, the BCM detects the TURN RH or TURN LH ON request. The BCM outputs the flasher signal to the respective turn signal lamp. The BCM also sends a turn indicator signal ON request via the CAN communication lines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

Component Parts Location

INFOID:000000004065523



1. BCM M18, M20 (view with lower instrument panel LH removed)
2. Combination switch (lighting and turn signal switch) M28
3. Combination meter M24
4. Hazard switch M55

TURN SIGNAL AND HAZARD WARNING LAMPS

< FUNCTION DIAGNOSIS >

Component Description

INFOID:000000004065524

Part name	Description
BCM	Controls turn signal and hazard flasher operation.
Combination switch (lighting and turn signal 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.

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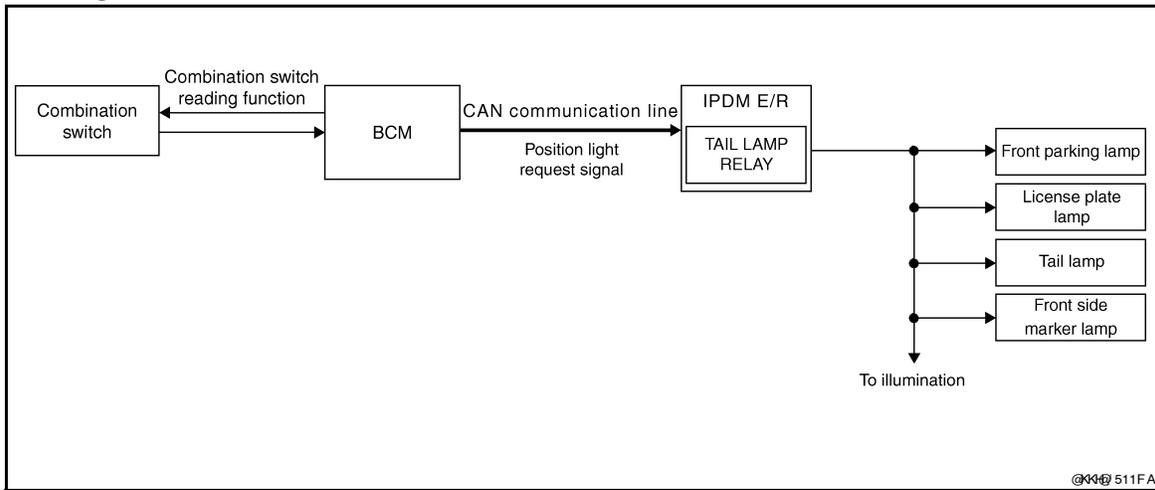
PARKING, LICENSE PLATE AND TAIL LAMPS

< FUNCTION DIAGNOSIS >

PARKING, LICENSE PLATE AND TAIL LAMPS

System Diagram

INFOID:000000004065525



System Description

INFOID:000000004065526

PARKING, LICENSE 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

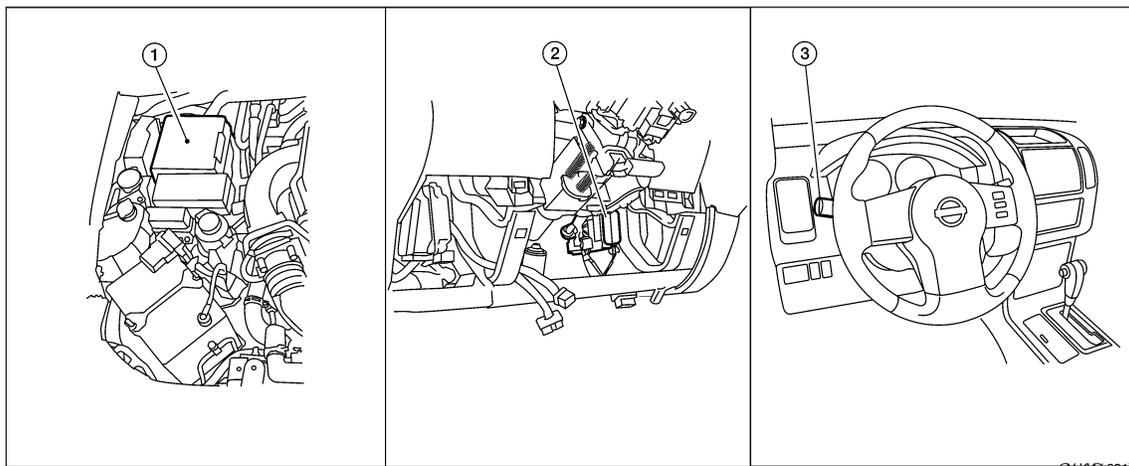
With the lighting switch (combination switch) in the 2nd position and the ignition switch is turned from ON or ACC to OFF, the battery saver feature is activated.

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 [BCS-15, "BCM : CONSULT-III Function \(BCM - BCM\)"](#).

Component Parts Location

INFOID:000000004065527



1. IPDM E/R E121, E122, E123, E124
2. BCM M18, M20 (view with lower instrument panel LH removed)
3. Combination switch (lighting and turn signal switch) M28

PARKING, LICENSE PLATE AND TAIL LAMPS

< FUNCTION DIAGNOSIS >

Component Description

INFOID:000000004065528

Part name	Description
BCM	<ul style="list-style-type: none">• 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 and turn signal switch)	Outputs lighting requests to the BCM.

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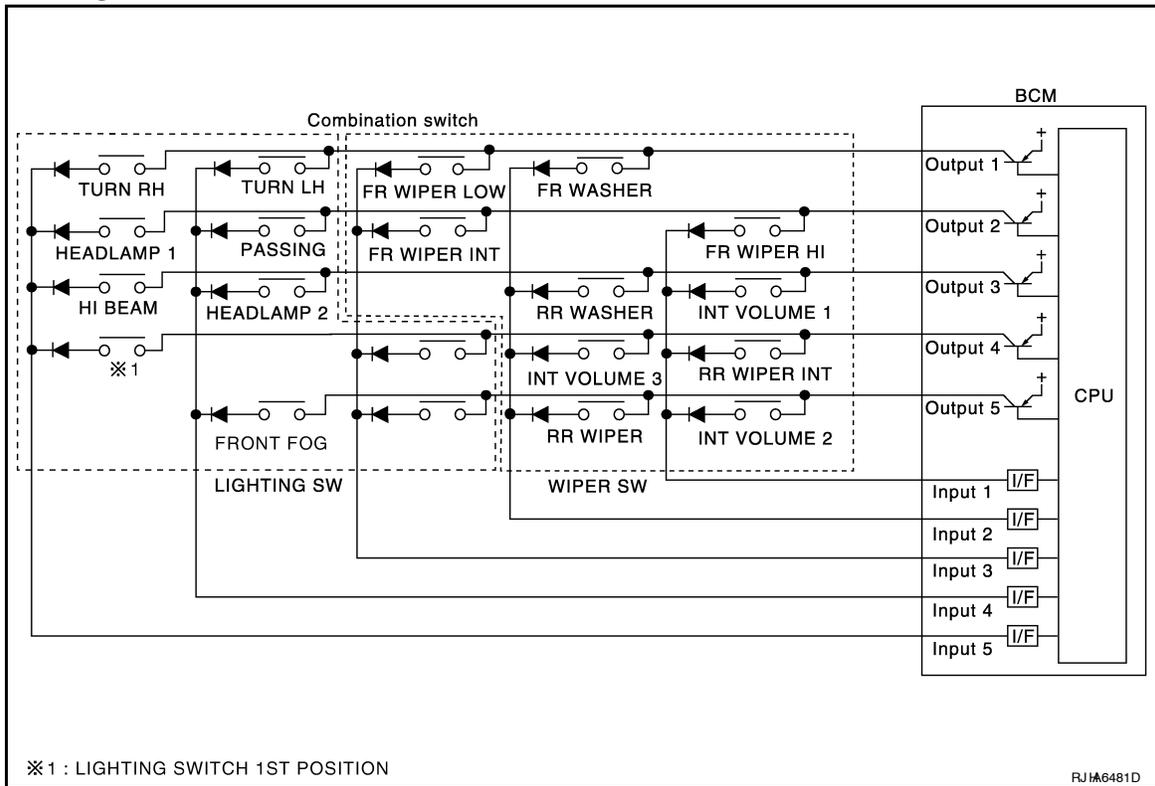
COMBINATION SWITCH READING SYSTEM

< FUNCTION DIAGNOSIS >

COMBINATION SWITCH READING SYSTEM

System Diagram

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System Description

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OUTLINE

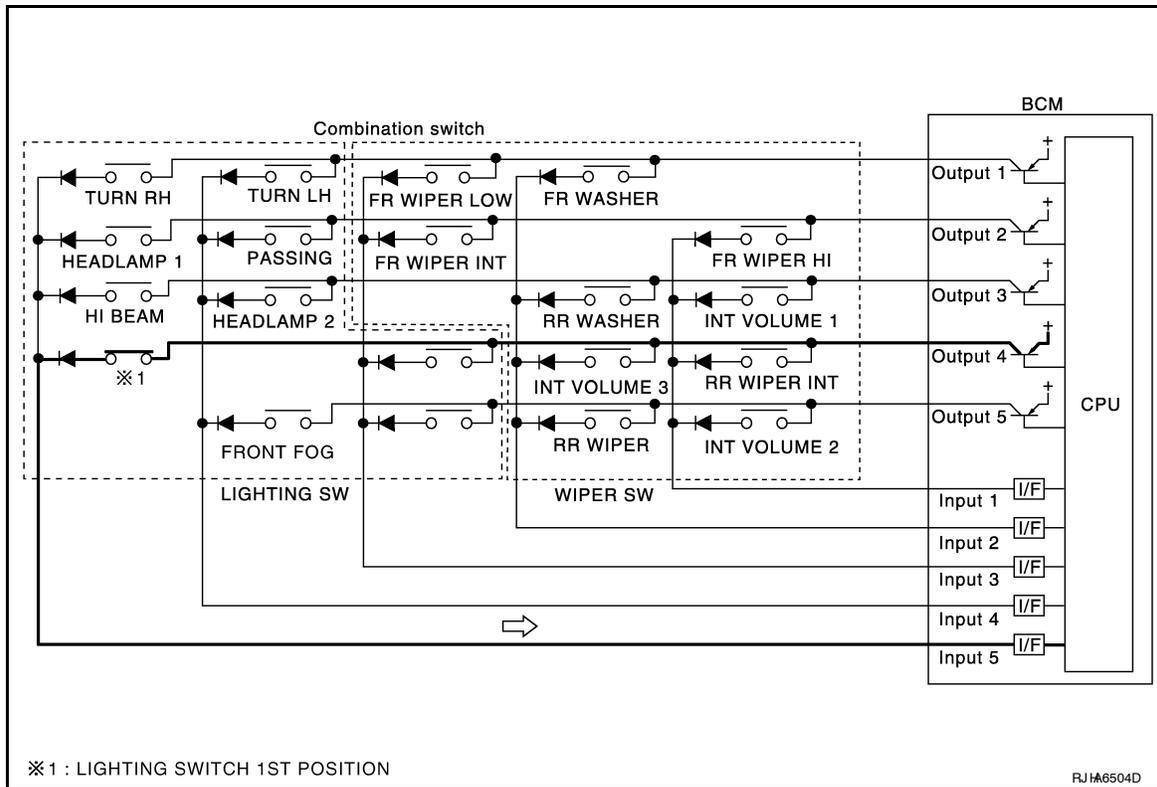
- BCM reads the status of the combination switch (light, turn signal, wiper and washer) and recognizes the status of each switch.
- BCM is a combination of 5 output terminals (OUTPUT 1 - 5) and 5 input terminals (INPUT 1 - 5). It reads a maximum of 20 switch status.

COMBINATION SWITCH MATRIX

COMBINATION SWITCH READING SYSTEM

< FUNCTION DIAGNOSIS >

Combination switch circuit



Combination switch INPUT-OUTPUT system list

System	OUTPUT 1	OUTPUT 2	OUTPUT 3	OUTPUT 4	OUTPUT 5
INPUT 1	—	FR WASHER	FR WIPER LOW	TURN LH	TURN RH
INPUT 2	FR WIPER HI	—	FR WIPER INT	PASSING	HEADLAMP 1
INPUT 3	INT VOLUME 1	RR WASHER	—	HEADLAMP 2	HI BEAM
INPUT 4	RR WIPER INT	INT VOLUME 3	—	—	TAIL LAMP
INPUT 5	INT VOLUME 2	RR WIPER	—	FR FOG	—

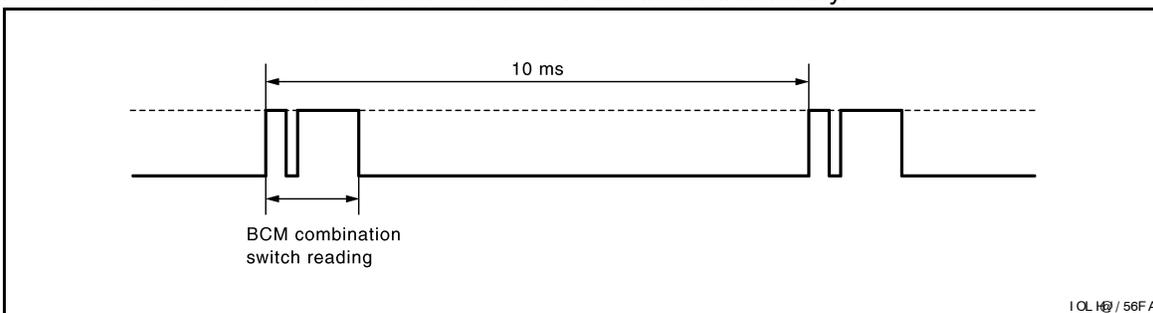
NOTE:

Headlamp has a dual system switch.

COMBINATION SWITCH READING FUNCTION

Description

- BCM reads the status of the combination switch at 10 ms interval normally.



NOTE:

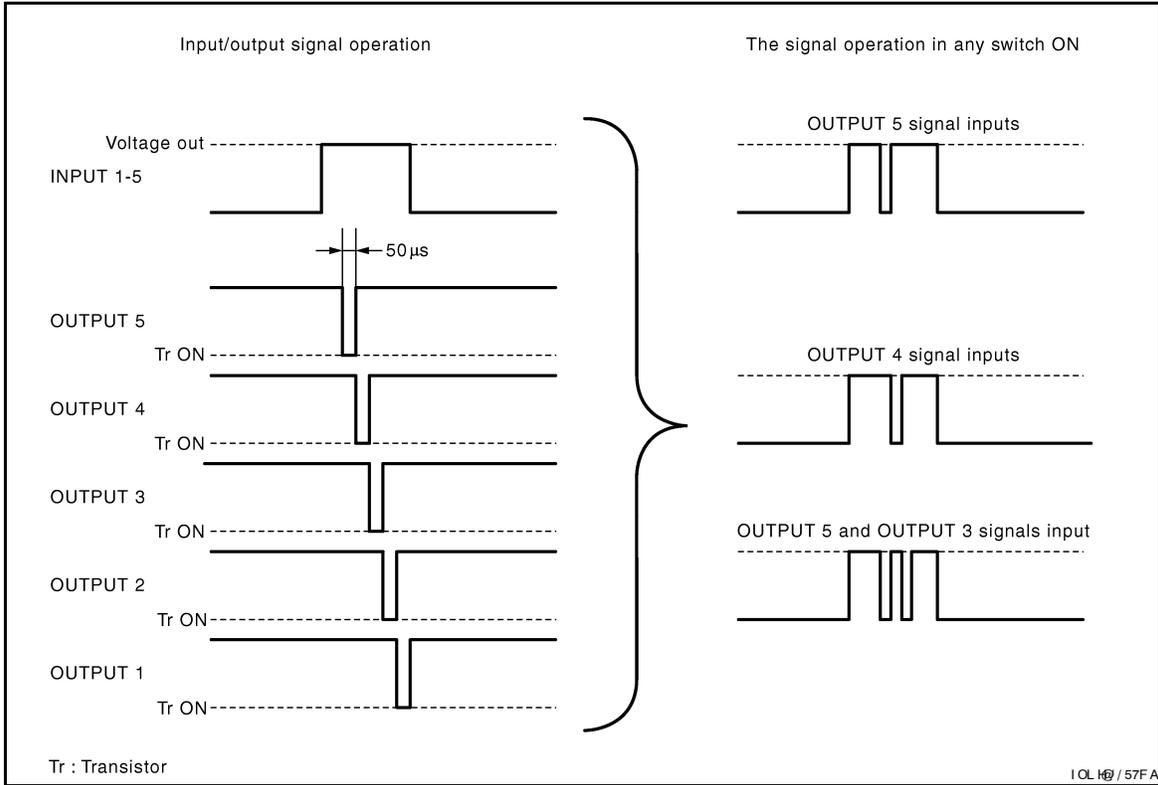
BCM reads the status of the combination switch at 20 ms interval when BCM is controlled at low power consumption control mode.

- BCM operates as follows and judges the status of the combination switch.
- INPUT 1 - 5 outputs the voltage waveforms of 5 systems simultaneously.
- It operates the transistor on OUTPUT side in the following order: OUTPUT 5 → 4 → 3 → 2 → 1.

COMBINATION SWITCH READING SYSTEM

< FUNCTION DIAGNOSIS >

- The voltage waveform of INPUT corresponding to the formed circuit changes according to the operation of the transistor on OUTPUT side if any (1 or more) switches are ON.
- It reads this change of the voltage as the status signal of the combination switch.

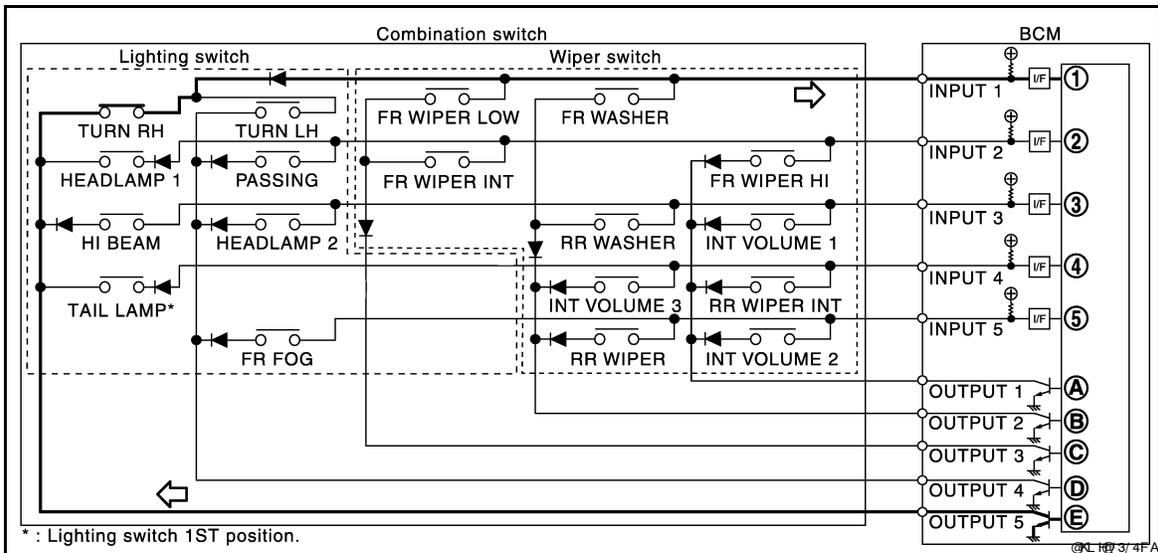


Operation Example

In the following operation example, the combination of the status signals of the combination switch is replaced as follows: INPUT 1 - 5 to "1 - 5" and OUTPUT 1 - 5 to "A - E".

Example 1: When a switch (TURN RH switch) is turned ON

- The circuit between INPUT 1 and OUTPUT 5 is formed when the TURN RH switch is turned ON.



- BCM detects the combination switch status signal "1E" when the signal of OUTPUT 5 is input to INPUT 1.
- BCM judges that the TURN RH switch is ON when the signal "1E" is detected.

Example 2: When some switches (turn RH switch, front wiper LO switch) are turned ON

COMBINATION SWITCH READING SYSTEM

< FUNCTION DIAGNOSIS >

1. BCM M18, M19, M20 (view with lower instrument panel LH removed)
2. Combination switch (lighting and turn signal switch) M28
3. Combination switch (wiper and washer switch) M28

DIAGNOSIS SYSTEM (BCM)

< FUNCTION DIAGNOSIS >

DIAGNOSIS SYSTEM (BCM)

HEADLAMP

HEADLAMP : CONSULT-III Function (BCM - HEAD LAMP)

INFOID:000000004460395

WORK SUPPORT

Work Item	Setting item	Setting
BATTERY SAVER SET	ON*	With the exterior lamp battery saver function
	OFF	Without the exterior lamp battery saver function

*: Initial setting

DATA MONITOR

Monitor Item [Unit]	Description
IGN ON SW [ON/OFF]	Ignition switch (ON) status judged from IGN signal (ignition power supply)
ACC ON SW [ON/OFF]	Ignition switch (ACC) status judged from ACC signal (accessory power supply)
HI BEAM SW [ON/OFF]	Each switch status that BCM judges from the combination switch reading function
HEAD LAMP SW 1 [ON/OFF]	
HEAD LAMP SW 2 [ON/OFF]	
LIGHT SW 1ST [ON/OFF]	
AUTO LIGHT SW*	
PASSING SW [ON/OFF]	
FR FOG SW [ON/OFF]	
RR FOG SW*	
TURN SIGNAL R [ON/OFF]	
TURN SIGNAL L [ON/OFF]	
DOOR SW-DR [ON/OFF]	
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
BACK DOOR SW [ON/OFF]	The switch status input from back door switch
CARGO LAMP SW [ON/OFF]	Cargo lamp status that BCM judges from the vehicle condition
OPTICAL SENSOR*	—

*: The item is indicated, not monitored.

ACTIVE TEST

Test Item	Operation	Description
TAIL LAMP	ON	Transmits the position light request signal to IPDM E/R with 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 with CAN communication to turn the headlamp (HI).
	LO	Transmits the low beam request signal with CAN communication to turn the headlamp (LO).
	OFF	Stops the high & low beam request signal transmission.

DIAGNOSIS SYSTEM (BCM)

< FUNCTION DIAGNOSIS >

Test Item	Operation	Description
FR FOG LAMP	ON	Transmits the front fog lights request signal to IPDM E/R with CAN communication to turn the front fog lamp ON.
	OFF	Stops the front fog lights request signal transmission.
RR FOG LAMP*	ON	—
	OFF	—
CORNERING LAMP*	RH	—
	LH	—
	OFF	—

*: The item is indicated, not tested.

FLASHER

FLASHER : CONSULT-III Function (BCM - FLASHER)

INFOID:000000004460396

DATA MONITOR

Monitor Item [Unit]	Description
IGN ON SW [ON/OFF]	Ignition switch (ON) status judged from IGN signal (ignition power supply)
HAZARD SW [ON/OFF]	The switch status input from the hazard switch
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	Outputs the voltage to turn the right side turn signal lamps ON.
	LH	Outputs the voltage to turn the left side turn signal lamps ON.
	OFF	Stops the voltage to turn the turn signal lamps OFF.

COMB SW

COMB SW : CONSULT-III Function (BCM - COMB SW)

INFOID:000000004460397

DATA MONITOR

Monitor Item [Unit]	Description
TURN SIGNAL R [OFF/ON]	Displays the status of the TURN RH switch in combination switch judged by BCM with the combination switch reading function
TURN SIGNAL L [OFF/ON]	Displays the status of the TURN LH switch in combination switch judged by BCM with the combination switch reading function
HI BEAM SW [OFF/ON]	Displays the status of the HI BEAM switch in combination switch judged by BCM with the combination switch reading function
HEADLAMP SW1 [OFF/ON]	Displays the status of the HEADLAMP switch in combination switch judged by BCM with the combination switch reading function
HEADLAMP SW2 [OFF/ON]	Displays the status of the HEADLAMP switch in combination switch judged by BCM with the combination switch reading function
LIGHT SW 1ST [OFF/ON]	Displays the status of the HEADLAMP switch in combination switch judged by BCM with the combination switch reading function
PASSING SW [OFF/ON]	Displays the status of the PASSING switch in combination switch judged by BCM with the combination switch reading function

DIAGNOSIS SYSTEM (BCM)

< FUNCTION DIAGNOSIS >

Monitor Item [Unit]	Description
FR FOG SW [OFF/ON]	Displays the status of the FR FOG switch in combination switch judged by BCM with the combination switch reading function
RR FOG SW	NOTE: This is displayed even when it is not equipped
FR WIPER HI [OFF/ON]	Displays the status of the FR WIPER HI switch in combination switch judged by BCM with the combination switch reading function
FR WIPER LOW [OFF/ON]	Displays the status of the FR WIPER LOW switch in combination switch judged by BCM with the combination switch reading function
FR WIPER INT [OFF/ON]	Displays the status of the FR WIPER INT switch in combination switch judged by BCM with the combination switch reading function
FR WASHER SW [OFF/ON]	Displays the status of the FR WASHER switch in combination switch judged by BCM with the combination switch reading function
INT VOLUME [1 - 7]	Displays the status of wiper intermittent dial position judged by BCM with the combination switch reading function
RR WIPER ON [OFF/ON]	Displays the status of the RR WIPER switch in combination switch judged by BCM with the combination switch reading function
RR WIPER INT [OFF/ON]	Displays the status of the RR WIPER INT switch in combination switch judged by BCM with the combination switch reading function
RR WASHER SW [OFF/ON]	Displays the status of the RR WASHER switch in combination switch judged by BCM with the combination switch reading function

BATTERY SAVER

BATTERY SAVER : CONSULT-III Function (BCM - BATTERY SAVER)

INFOID:000000004460398

WORK SUPPORT

Work Item	Setting Item	Setting
ROOM LAMP TIMER SET	MODE 1*	15 min.
	MODE 2	30 min.

*: Initial setting

DATA MONITOR

Monitor Item [Unit]	Description
IGN ON SW [ON/OFF]	Ignition switch (ON) status judges from IGN signal (ignition power supply)
KEY ON SW [ON/OFF]	The switch status input from key switch
DOOR SW-DR [ON/OFF]	The switch status input from front door switch (driver side)
DOOR SW-AS [ON/OFF]	The switch status input from front door switch (passenger side)
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
BACK DOOR SW [ON/OFF]	The switch status input from back door switch
KEY CYL LK-SW [ON/OFF]	Lock switch status input from door key cylinder switch
KEY CYL UN-SW [ON/OFF]	Unlock switch status input from door key cylinder switch
CDL LOCK SW [ON/OFF]	Lock switch status input from door lock and unlock switch
CDL UNLOCK SW [ON/OFF]	Unlock switch status input from door lock and unlock switch
KEYLESS LOCK [ON/OFF]	Lock signal status received from remote keyless entry receiver (integrated in the BCM)
KEYLESS UNLOCK [ON/OFF]	Unlock signal status received from remote keyless entry receiver (integrated in the BCM)

DIAGNOSIS SYSTEM (BCM)

< FUNCTION DIAGNOSIS >

ACTIVE TEST

Test Item	Operation	Description
BATTERY SAVER	OFF	Cuts the interior room lamp power supply to turn interior room lamps OFF.
	ON	Outputs the interior room lamp power supply to turn interior room lamps ON.*

*: Each lamp switch is in ON position.

DIAGNOSIS SYSTEM (IPDM E/R)

< FUNCTION DIAGNOSIS >

DIAGNOSIS SYSTEM (IPDM E/R)

Diagnosis Description

INFOID:000000004460399

AUTO ACTIVE TEST

Description

In auto active test mode, the IPDM E/R sends a drive signal to the following systems to check their operation.

- Oil pressure low warning indicator
- Oil pressure gauge
- Rear window defogger
- Front wipers
- Tail, license and parking lamps
- Front fog lamps (if equipped)
- Headlamps (Hi, Lo)
- A/C compressor (magnetic clutch)
- Cooling fan

Operation Procedure

1. Close the hood and front door RH, and lift the wiper arms from the windshield (to prevent windshield damage due to wiper operation).
NOTE:
When auto active test is performed with hood opened, sprinkle water on windshield before hand.
2. Turn ignition switch OFF.
3. Turn the ignition switch ON and, within 20 seconds, press the front door switch LH 10 times. Then turn the ignition switch OFF.
4. Turn the ignition switch ON within 10 seconds. After that the horn sounds once and the auto active test starts.
5. After a series of the following operations is repeated 3 times, auto active test is completed.

NOTE:

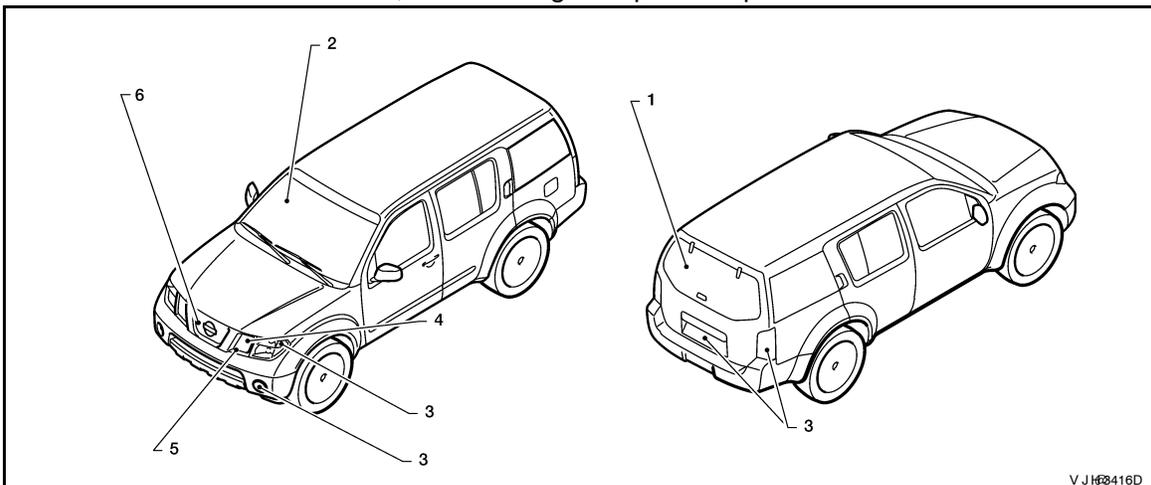
When auto active test mode has to be cancelled halfway through test, turn ignition switch OFF.

CAUTION:

- If auto active test mode cannot be actuated, check door switch system. Refer to [DLK-24, "Description"](#).
- Do not start the engine.

Inspection in Auto Active Test Mode

When auto active test mode is actuated, the following 7 steps are repeated 3 times.



Item Number	Test Item	Operation Time/Frequency
1	Rear window defogger	10 seconds
2	Front wipers	LOW 5 seconds then HIGH 5 seconds
3	License plate, tail, parking and fog lamps (if equipped)	10 seconds

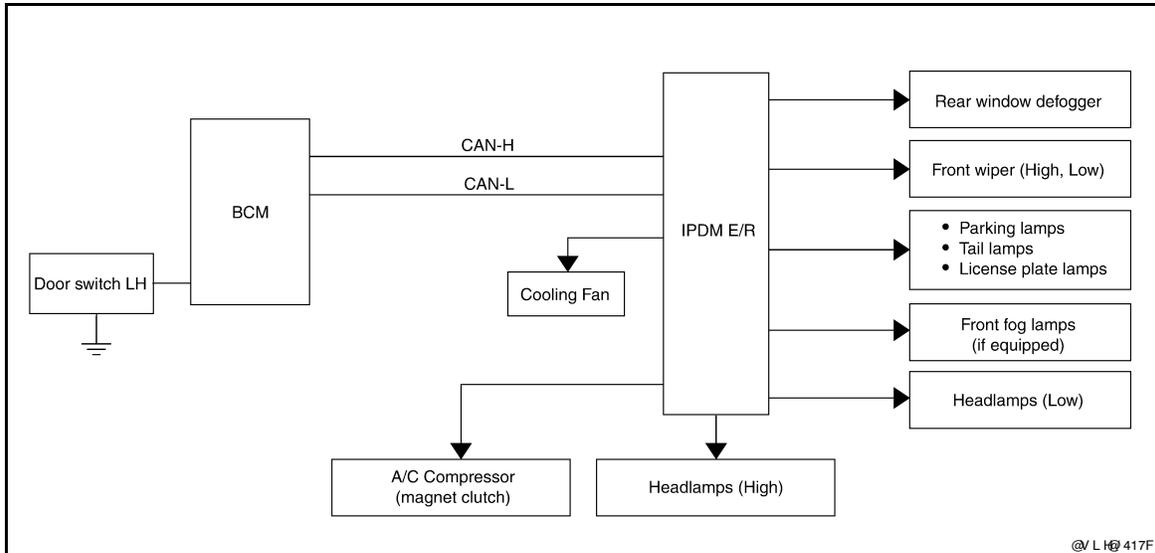
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DIAGNOSIS SYSTEM (IPDM E/R)

< FUNCTION DIAGNOSIS >

Item Number	Test Item	Operation Time/Frequency
4	Headlamps	LOW 10 seconds then HIGH ON-OFF 5 times
5	A/C compressor (magnet clutch)	ON-OFF 5 times
6	Cooling fan	LOW 5 seconds, then HIGH 5 seconds

Concept of auto active test



- IPDM E/R starts the auto active test with the door switch signals transmitted by BCM via CAN communication. Therefore, the CAN communication line between IPDM E/R and BCM is considered normal if the auto active test starts successfully.
- The auto active test facilitates troubleshooting if any systems controlled by IPDM E/R cannot be operated.

Diagnosis chart in auto active test mode

Symptom	Inspection contents	Possible cause	
Oil pressure low warning indicator does not operate	Perform auto active test. Does the oil pressure low warning indicator operate?	YES	<ul style="list-style-type: none"> • IPDM E/R signal input circuit • ECM signal input circuit • CAN communication signal between ECM and combination meter
		NO	<ul style="list-style-type: none"> • CAN communication signal between IPDM E/R, BCM and combination meter
Oil pressure gauge does not operate	Perform auto active test. Does the oil pressure gauge operate?	YES	IPDM E/R signal input circuit
		NO	<ul style="list-style-type: none"> • CAN communication signal between IPDM E/R, BCM and combination meter
Rear window defogger does not operate	Perform auto active test. Does the rear window defogger operate?	YES	BCM signal input circuit
		NO	<ul style="list-style-type: none"> • Harness or connector between A/C and AV switch assembly and AV control unit • CAN communication signal between BCM and IPDM E/R

DIAGNOSIS SYSTEM (IPDM E/R)

< FUNCTION DIAGNOSIS >

Symptom	Inspection contents	Possible cause	
Any of the following components do not operate <ul style="list-style-type: none"> • Front wipers • Tail lamps • License plate lamps • Parking lamps • Front fog lamps (if equipped) • Headlamps (Hi, Lo) 	Perform auto active test. Does the applicable system operate?	YES	BCM signal input system
		NO	<ul style="list-style-type: none"> • Lamp or front wiper motor malfunction • Lamp or front wiper motor ground circuit • Harness or connector between IPDM E/R and applicable system • IPDM E/R (integrated relay malfunction)
A/C compressor does not operate	Perform auto active test. Does the A/C compressor operate?	YES	<ul style="list-style-type: none"> • BCM signal input circuit • CAN communication signal between BCM and ECM • CAN communication signal between ECM and IPDM E/R
		NO	<ul style="list-style-type: none"> • Magnetic clutch malfunction • Harness or connector between IPDM E/R and magnetic clutch • IPDM E/R (integrated relay malfunction)
Cooling fan does not operate	Perform auto active test. Does the cooling fan operate?	YES	<ul style="list-style-type: none"> • ECM signal input circuit • CAN communication signal between ECM and IPDM E/R
		NO	<ul style="list-style-type: none"> • Cooling fan motor malfunction • Harness or connector between IPDM E/R and cooling fan • IPDM E/R (integrated relay malfunction)

CONSULT - III Function (IPDM E/R)

INFOID:000000004460400

APPLICATION ITEM

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

Diagnosis mode	Description
ECU Identification	Allows confirmation of IPDM E/R part number.
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.

SELF DIAGNOSTIC

Refer to [PCS-31, "DTC Index"](#).

DATA MONITOR

Monitor item

DIAGNOSIS SYSTEM (IPDM E/R)

< FUNCTION DIAGNOSIS >

Monitor Item [Unit]	MAIN SIG- NALS	Description
MOTOR FAN REQ [1/2/3/4]	×	Displays the status of the cooling fan speed request signal received from ECM via CAN communication.
A/C COMP REQ [OFF/ON]	×	Displays the status of the A/C request signal received from BCM via CAN communication.
TAIL&CLR REQ [OFF/ON]	×	Displays the status of the position light 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 lamp request signal received from BCM via CAN communication.
HL WASHER REQ [OFF/ON]		NOTE: This item is displayed, but cannot be monitored.
FR WIP REQ [STOP/1LOW/LOW/HI]	×	Displays the status of the front wiper request signal received from BCM via CAN communication.
WIP AUTO STOP [STOP P/ACT P]	×	Displays the status of the front wiper auto stop signal judged by IPDM E/R.
WIP PROT [OFF/Block]	×	Displays the status of the front wiper fail-safe operation judged by IPDM E/R.
ST RLY REQ [OFF/ON]		Displays the status of the starter request signal received from ECM via CAN communication.
IGN RLY [OFF/ON]	×	Displays the status of the ignition relay judged by IPDM E/R.
RR DEF REQ [OFF/ON]	×	Displays the status of the rear defogger request signal received from AV control unit via CAN communication.
OIL P SW [OPEN/CLOSE]		Displays the status of the oil pressure switch judged by IPDM E/R.
DTRL REQ [OFF]		NOTE: This item is displayed, but cannot be monitored.
HOOD SW [OPEN/CLOSE]		NOTE: This item is displayed, but cannot be monitored.
THFT HRN REQ [OFF/ON]		Displays the status of the theft warning horn request signal received from BCM via CAN communication.
HORN CHIRP [OFF/ON]		Displays the status of the horn reminder signal received from BCM via CAN communication.

ACTIVE TEST

Test item

Test item	Operation	Description
REAR DEFOGGER	OFF	OFF
	ON	Operates rear window defogger relay.
FRONT WIPER	OFF	OFF
	LO	Operates the front wiper relay.
	HI	Operates the front wiper relay and front wiper high relay.
HEAD LAMP WASHER	ON	—

DIAGNOSIS SYSTEM (IPDM E/R)

< FUNCTION DIAGNOSIS >

Test item	Operation	Description	
MOTOR FAN	1	OFF	A
	2	OFF	
	3	Operates the cooling fan relay.	B
	4	Operates the cooling fan relay.	
EXTERNAL LAMPS	OFF	OFF	C
	TAIL	Operates the tail lamp relay.	
	LO	Operates the headlamp low relay.	D
	HI	Operates the headlamp low relay and the headlamp (LH/RH) high relays alternately at 1 second intervals.	
	FOG	Operates the front fog lamp relay	E
HORN	ON	Operates horn relay for 20 ms.	

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POWER SUPPLY AND GROUND CIRCUIT

< COMPONENT DIAGNOSIS >

COMPONENT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT

BCM (BODY CONTROL MODULE)

BCM (BODY CONTROL MODULE) : Diagnosis Procedure

INFOID:000000004460401

1. CHECK FUSES AND FUSIBLE LINK

Check that the following fuses and fusible link are not blown.

Terminal No.	Signal name	Fuses and fusible link No.
57	Battery power supply	18 (10A)
70		G (50A)
11	Ignition ACC or ON	4 (10A)
38	Ignition ON or START	1 (10A)

Is the fuse blown?

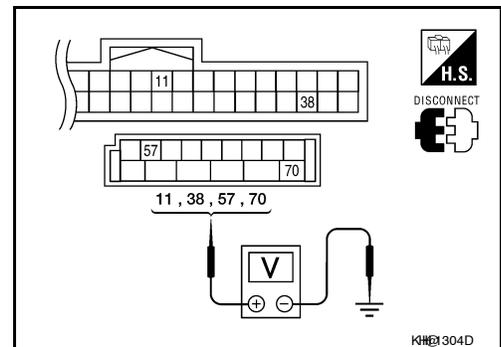
YES >> Replace the blown fuse or fusible link after repairing the affected circuit.

NO >> GO TO 2

2. CHECK POWER SUPPLY CIRCUIT

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

Connector	Terminals		Power source	Condition	Voltage (V) (Approx.)
	(+)	(-)			
M18	11	Ground	ACC power supply	Ignition switch ACC or ON	Battery voltage
	38	Ground	Ignition power supply	Ignition switch ON or START	Battery voltage
M20	57	Ground	Battery power supply	Ignition switch OFF	Battery voltage
	70	Ground	Battery power supply	Ignition switch OFF	Battery voltage



Is the measurement value normal?

YES >> GO TO 3

NO >> Repair or replace harness.

3. CHECK GROUND CIRCUIT

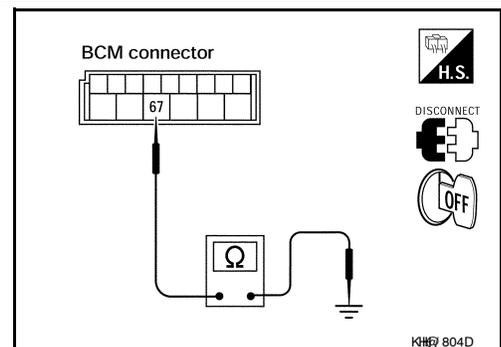
Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	67		Yes

Does continuity exist?

YES >> Inspection End.

NO >> Repair or replace harness.



POWER SUPPLY AND GROUND CIRCUIT

< COMPONENT DIAGNOSIS >

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

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) : Di-agnosis Procedure

INFOID:000000004460402

1. CHECK FUSIBLE LINKS

Check that the following IPDM E/R fusible links are not blown.

Terminal No.	Signal name	Fusible link No.
1	Battery	A, D
2		C
22		I

Is the fusible link blown?

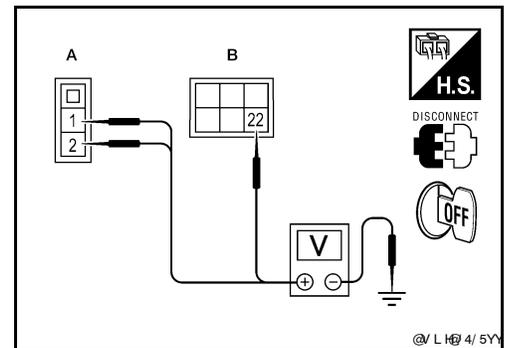
YES >> Replace the blown fusible link after repairing the affected circuit.

NO >> GO TO 2

2. CHECK BATTERY POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R.
3. Check voltage between IPDM E/R harness connectors and ground.

Terminals		Ignition switch position	Voltage (V) (Approx.)
(+)	(-)		
Connector	Terminal	Ground	OFF
E118 (A)	1		
	2		
E120 (B)	22		



Is there voltage on all pins?

YES >> GO TO 3

NO >> Repair or replace harness.

3. CHECK GROUND CIRCUIT

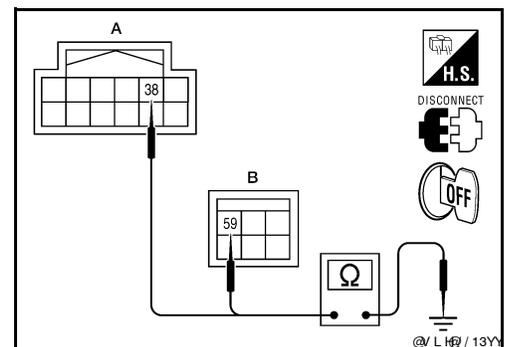
1. Turn ignition switch OFF.
2. Check continuity between IPDM E/R harness connectors and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E122 (A)	38	Ground	Yes
E124 (B)	59		

Does continuity exist?

YES >> Inspection End.

NO >> Repair or replace harness.



HEADLAMP (HI) CIRCUIT

< COMPONENT DIAGNOSIS >

HEADLAMP (HI) CIRCUIT

Description

INFOID:000000004065542

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:000000004065543

1. CHECK HEADLAMP (HI) OPERATION

⊗ WITHOUT CONSULT-III

1. Start IPDM E/R auto active test. Refer to [PCS-13, "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-36, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000004065544

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

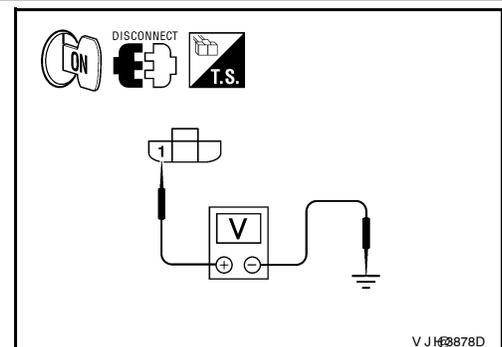
1. Turn the ignition switch OFF.
2. Disconnect the front combination lamp connector E11 or E107.
3. Turn the ignition switch ON.
4. Turn the high beam headlamps ON.
5. With the high beam headlamps ON, check the voltage between the combination lamp connector and ground.

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

Is battery voltage present?

YES >> GO TO 4

NO >> GO TO 3



HEADLAMP (HI) CIRCUIT

< COMPONENT DIAGNOSIS >

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	Yes
RH		56	E107	

Does continuity exist?

YES >> GO TO 4

NO >> Repair the harnesses or connectors.

4. CHECK FRONT COMBINATION LAMP (HI) GROUND CIRCUIT

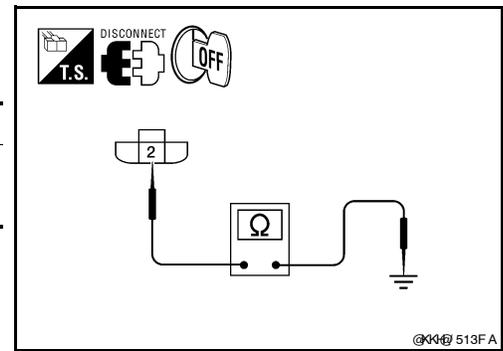
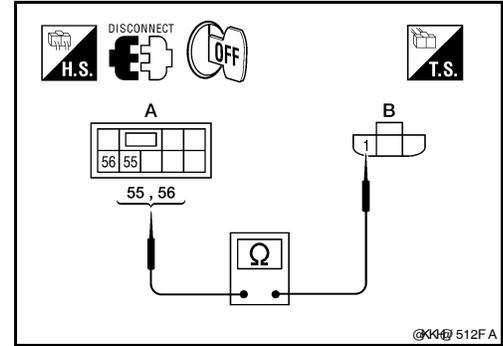
Check continuity between the front combination lamp harness connector terminal and ground.

Connector	Terminal	—	Continuity
LH	E11	Ground	Yes
RH	E107		

Does continuity exist?

YES >> Inspect the headlamp bulb.

NO >> Repair the harness.



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HEADLAMP (LO) CIRCUIT

< COMPONENT DIAGNOSIS >

HEADLAMP (LO) CIRCUIT

Description

INFOID:000000004065545

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:000000004065546

1. CHECK HEADLAMP (LO) OPERATION

⊗ WITHOUT CONSULT-III

1. Start IPDM E/R auto active test. Refer to [PCS-13, "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-38, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000004065547

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

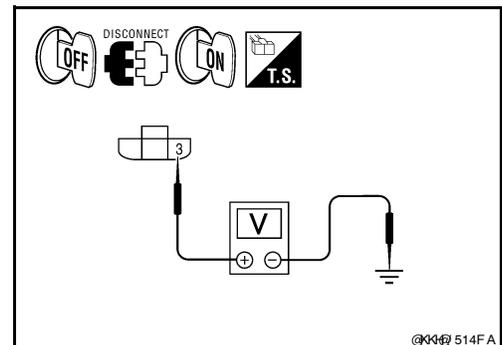
1. Turn the ignition switch OFF.
2. Disconnect the front combination lamp connector.
3. Turn the ignition switch ON.
4. Turn the low beam headlamps ON.
5. With the low beam headlamps ON, check the voltage between the combination lamp connector and ground.

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

Is battery voltage present?

YES >> GO TO 4

NO >> GO TO 3



HEADLAMP (LO) CIRCUIT

< COMPONENT DIAGNOSIS >

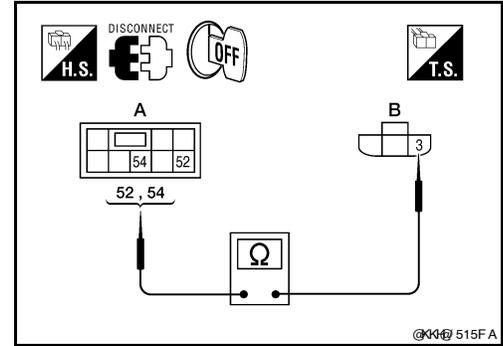
3. CHECK HEADLAMP (LO) CIRCUIT FOR OPEN

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	Yes
RH		54	E107	

Does continuity exist?

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



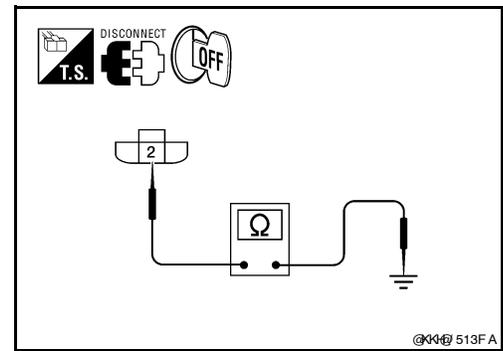
4. CHECK FRONT COMBINATION LAMP (LO) GROUND CIRCUIT

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

Connector	Terminal	—	Continuity
LH	E11	Ground	Yes
RH	E107		

Does continuity exist?

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



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EXL

OFF-ROAD LAMPS SWITCH CIRCUIT

< COMPONENT DIAGNOSIS >

OFF-ROAD LAMPS SWITCH CIRCUIT

Description

INFOID:000000004466814

The off-road lamps switch sends a momentary ground signal to the BCM requesting the off-road lamps be activated. The BCM controls the off-road lamps relay based on inputs from the combination switch, the off-road lamps switch and the off-road lamp cover sensors. If the headlamps are on high beam, the off-road lamp covers are removed and the off-road lamps switch is activated, the BCM grounds the off-road lamp relay. When the off-road lamps relay is energized, power flows from the off-road lamps relay to the off-road lamps assembly.

Component Function Check

INFOID:000000004466815

1. CHECK OFF-ROAD LAMPS SWITCH OPERATION

Check that the indicator lamp on the off-road lamps switch illuminates with the off-road lamps switch ON.

Is the inspection result normal?

- YES >> Off-road lamps switch function is OK.
- NO >> Refer to [EXL-40, "Diagnosis Procedure"](#).

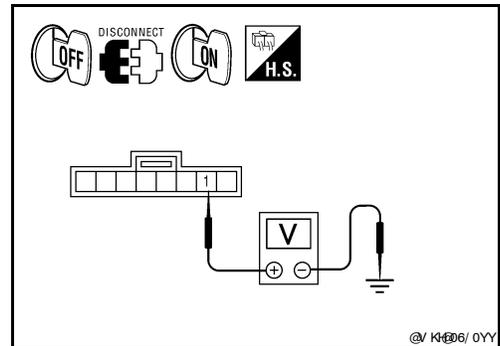
Diagnosis Procedure

INFOID:000000004466816

1. CHECK OFF-ROAD LAMPS SWITCH VOLTAGE

1. Turn the ignition switch OFF.
2. Disconnect the off-road lamps switch connector M80.
3. Turn the ignition switch ON.
4. Check the voltage between the off-road lamps switch connector M80 terminal 1 and ground.

(+)		(-)	Voltage
Connector	Terminal		
M80	1	Ground	5V



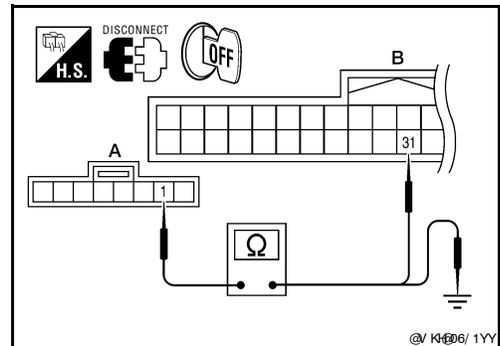
Is the inspection result normal?

- YES >> GO TO 3
- NO >> GO TO 2.

2. CHECK OFF-ROAD LAMPS SWITCH SIGNAL CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect BCM connector M18.
3. Check continuity between the off-road lamps switch harness connector M80 (A) terminal 1 and BCM harness connector M18 (B) terminal 31.

A		B		Continuity
Connector	Terminal	Connector	Terminal	
M80	1	M18	31	Yes



4. Check continuity between the off-road lamps switch harness connector M80 (A) terminal 1 and ground.

A		—	Continuity
Connector	Terminal		
M80	1	Ground	No

Is inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the harness.

OFF-ROAD LAMPS SWITCH CIRCUIT

< COMPONENT DIAGNOSIS >

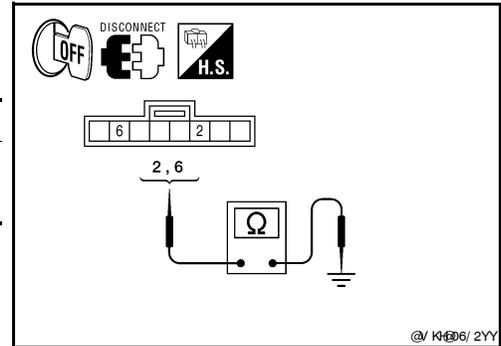
3. CHECK OFF-ROAD LAMPS SWITCH GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Check continuity between the off-road lamps switch harness connector M80 terminals 2, 6 and ground.

Connector	Terminal	—	Continuity
M80	2	Ground	Yes
	6		

Does continuity exist?

- YES >> Inspection End.
NO >> Repair the harness or connector.



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OFF-ROAD LAMP COVER SENSOR CIRCUIT

< COMPONENT DIAGNOSIS >

OFF-ROAD LAMP COVER SENSOR CIRCUIT

Description

INFOID:000000004466804

The off-road lamp cover sensors sense the presence of the off-road lamp covers. If the off-road lamp covers are installed on the vehicle, the BCM will not activate the off-road lamps. The BCM controls the off-road lamps relay based on inputs from the combination switch, the off-road lamps switch and the off-road lamp cover sensors. When the off-road lamps relay is energized, power flows from the off-road lamps relay to the off-road lamps assembly.

Component Function Check

INFOID:000000004479185

1. CHECK OFF-ROAD LAMPS SWITCH OPERATION

Check that the indicator lamp on the off-road lamps switch illuminates with the off-road lamps switch ON.

Is the inspection result normal?

- YES >> Off-road lamps switch function is OK.
 NO >> Refer to [EXL-42, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000004466806

1. CHECK OFF-ROAD LAMPS FUSE

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

Unit	Location	Fuse No.	Capacity
Off road lamp cover sensor	Fuse block (J/B)	12	10A

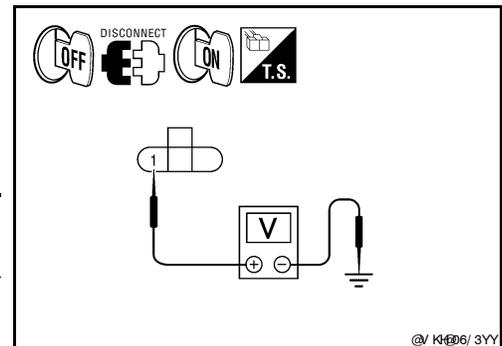
Is the fuse open?

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

2. CHECK OFF-ROAD LAMP COVER SENSOR VOLTAGE

- Turn the ignition switch OFF.
- Disconnect the off-road lamp assembly connectors.
- Turn the ignition switch ON.
- Check the voltage between the off-road lamp assembly connectors and ground.

(+) Connector		Terminal	(-) Ground	Voltage
LH	B527	1	Ground	Battery voltage
RH	B529	1		



@/ K1406/ 3YY

Is battery voltage present?

- YES >> GO TO 3
 NO >> Repair harness or connector.

3. CHECK OFF-ROAD LAMP COVER SENSOR GROUND CIRCUIT

- Turn the ignition switch OFF.

OFF-ROAD LAMP COVER SENSOR CIRCUIT

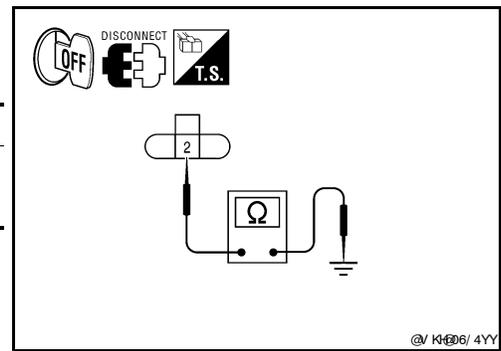
< COMPONENT DIAGNOSIS >

- Check continuity between the off-road lamp assembly harness connectors and ground.

Connector		Terminal	—	Continuity
LH	B527	2	Ground	Yes
RH	B529	2		

Does continuity exist?

- YES >> GO TO 4.
 NO >> Repair the harness.

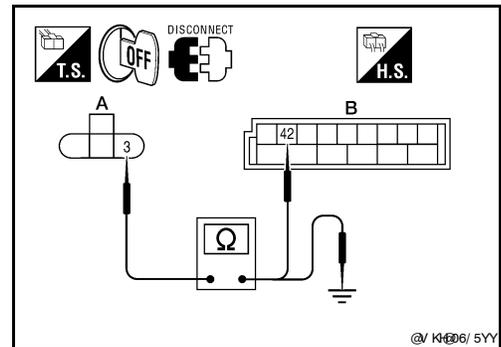


4. CHECK OFF-ROAD LAMP COVER SENSOR SIGNAL CIRCUIT

- Disconnect BCM connector M19.
- Check continuity between the off-road lamp assembly harness connectors (A) and BCM harness connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
LH	B527	M19	42	Yes
RH	B529			

- Check continuity between the off-road lamp assembly harness connector and ground.



A		—	Continuity
Connector	Terminal		
LH	B527	Ground	No
RH	B529		

Is inspection result normal?

- YES >> Replace the off-road lamp cover sensor.
 NO >> Repair the harness.

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OFF-ROAD LAMPS CIRCUIT

< COMPONENT DIAGNOSIS >

OFF-ROAD LAMPS CIRCUIT

Description

INFOID:000000004065548

The BCM controls the off-road lamps relay based on inputs from the combination switch, the off-road lamps switch and the off-road lamp cover sensors. When the off-road lamps relay is energized, power flows from the off-road lamps relay to the off-road lamps assembly.

Component Function Check

INFOID:000000004479189

1. CHECK OFF-ROAD LAMPS SWITCH OPERATION

Check that the indicator lamp on the off-road lamps switch illuminates with the off-road lamps switch ON.

Is the inspection result normal?

- YES >> Off-road lamps switch function is OK.
 NO >> Refer to [EXL-44, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000004065550

1. CHECK OFF-ROAD LAMPS FUSE

1. Turn the ignition switch OFF.
2. Check that the following fuse is not open.

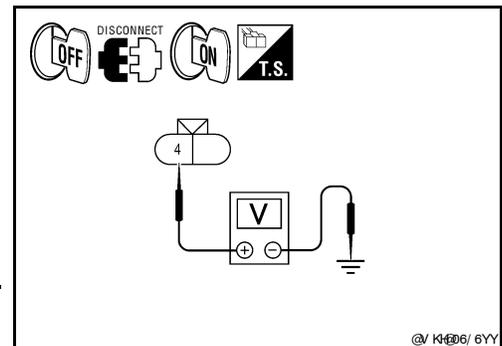
Unit	Location	Fuse No.	Capacity
Off road lamps assembly	Fuse block (J/B)	2	15A

Is the fuse open?

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

2. CHECK OFF-ROAD LAMPS VOLTAGE

1. Turn the ignition switch OFF.
2. Disconnect the off-road lamps assembly connectors.
3. Remove the off-road lamps covers.
4. Turn the ignition switch ON.
5. Turn the high beam headlamps ON.
6. Turn the off-road lamps ON.
7. Check the voltage between the off-road lamp assembly connectors and ground.



(+)		Terminal	(-)	Voltage
Connector				
LH	B528	4	Ground	Battery voltage
RH	B530	4		

Is the inspection result normal?

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

3. CHECK OFF-ROAD LAMPS GROUND CIRCUIT

OFF-ROAD LAMPS CIRCUIT

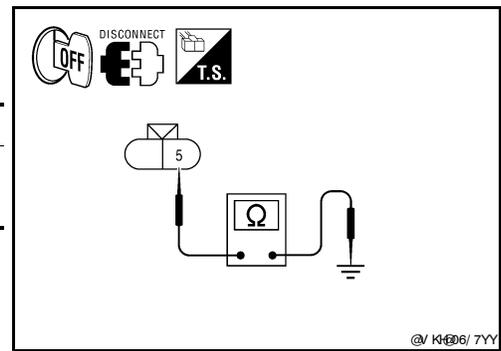
< COMPONENT DIAGNOSIS >

Check continuity between the off-road lamps assembly harness connector terminal and ground.

Connector		Terminal	—	Continuity
LH	B528	5	Ground	Yes
RH	B530	5		

Is the inspection result normal?

- YES >> Inspect the off-road lamp bulb.
- NO >> Repair the harness.



4. CHECK OFF-ROAD LAMPS RELAY

- Turn the ignition switch OFF.
- Disconnect the off-road lamps relay connector.
- Check off-road lamps relay. Refer to [EXL-46, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 5
- NO >> Replace off-road lamps relay.

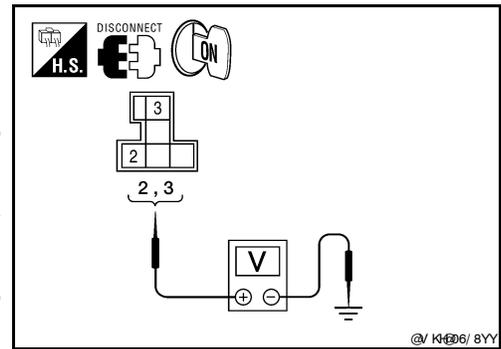
5. CHECK OFF-ROAD LAMPS RELAY POWER SUPPLY

- Turn the ignition switch ON.
- Check the voltage between the off-road lamps relay harness connector and ground.

(+)		(-)	Voltage
Connector	Terminal		
M81	2	Ground	Battery voltage
	3		

Is the inspection result normal?

- YES >> GO TO 6
- NO >> Inspect harness or connector.



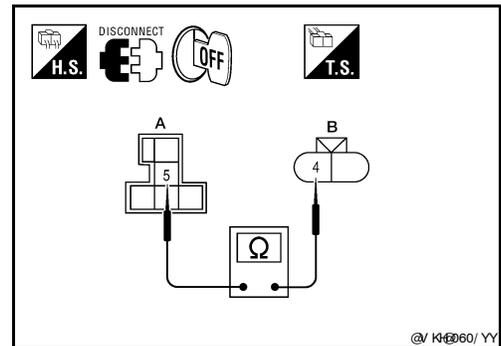
6. CHECK OFF-ROAD LAMPS POWER SUPPLY CIRCUIT

- Turn the ignition switch OFF.
- Check continuity between the off-road lamps relay harness connector (A) and off-road lamp assembly harness connectors (B).

A		B		Continuity	
Connector	Terminal	Connector	Terminal		
M81	5	LH	B528	4	Yes
		RH	B530	4	

Is inspection result normal?

- YES >> GO TO 7
- NO >> Inspect harness or connector.



7. CHECK OFF-ROAD LAMPS RELAY CONTROL CIRCUIT

- Disconnect BCM connector.

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OFF-ROAD LAMPS CIRCUIT

< COMPONENT DIAGNOSIS >

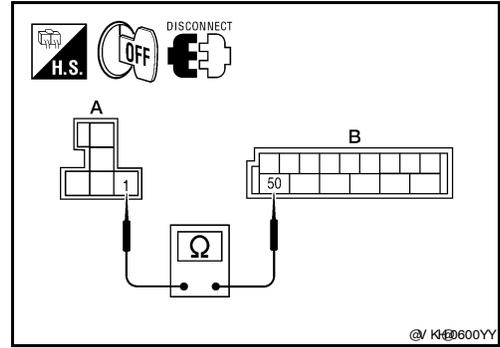
2. Check continuity between the off-road lamps relay harness connector (A) and BCM harness connectors (B).

A		A		Continuity
Connector	Terminal	Connector	Terminal	
M81	1	M19	50	Yes

Is inspection result normal?

YES >> Replace BCM. Refer to [BCS-57. "Removal and Installation"](#).

NO >> Inspect harness or connectors.



@/ K4@600YY

INFOID:000000004485292

Component Inspection

1. CHECK OFF-ROAD LAMPS RELAY

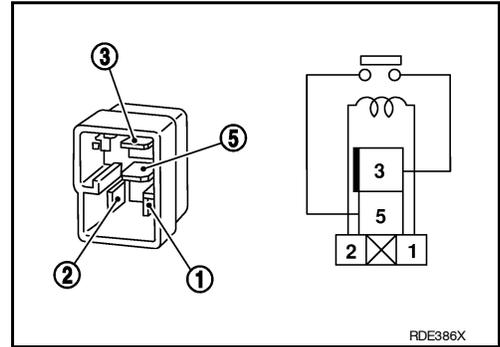
Check off-road lamps relay.

Terminal		Condition	Continuity
Off-road lamps relay			
3	5	12V direct current supply between terminals 1 and 2.	Yes
		No current supply	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace off-road lamps relay.



RDE386X

FRONT FOG LAMP CIRCUIT

< COMPONENT DIAGNOSIS >

FRONT FOG LAMP CIRCUIT

Description

INFOID:000000004485298

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:000000004485299

1.CHECK FRONT FOG LAMP OPERATION

⊗ WITHOUT CONSULT-III

1. Activate IPDM E/R auto active test. Refer to [PCS-13, "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-47, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000004485300

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

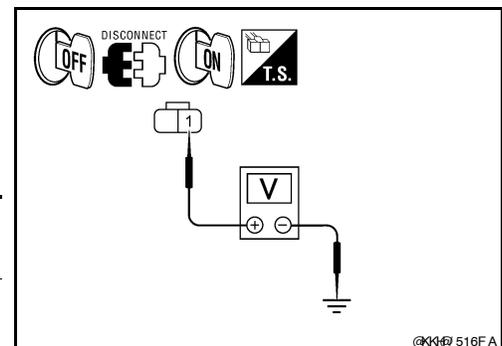
Is the fuse open?

- 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.

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



Is battery voltage present?

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

3.CHECK FRONT FOG LAMP OPEN CIRCUIT

FRONT FOG LAMP CIRCUIT

< COMPONENT DIAGNOSIS >

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	Yes
RH		51	E102	

Does continuity exist?

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

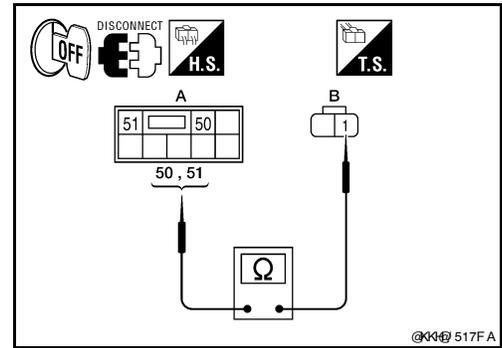
4. CHECK FRONT FOG LAMP GROUND CIRCUIT

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

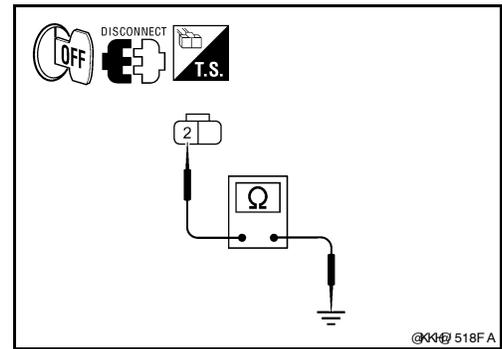
Connector	Terminal	—	Continuity
LH	E101	Ground	Yes
RH	E102		

Does continuity exist?

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



@K47 517FA



@K47 518FA

PARKING LAMP CIRCUIT

< COMPONENT DIAGNOSIS >

PARKING LAMP CIRCUIT

Description

INFOID:000000004065551

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:000000004065552

1. CHECK PARKING LAMP OPERATION

⊗ WITHOUT CONSULT-III

1. Activate IPDM E/R auto active test. Refer to [PCS-13, "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-49, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000004065553

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

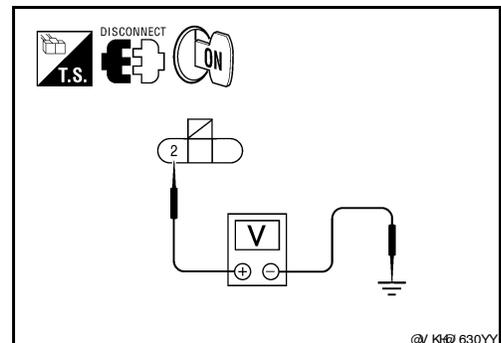
Is the fuse open?

- 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.

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

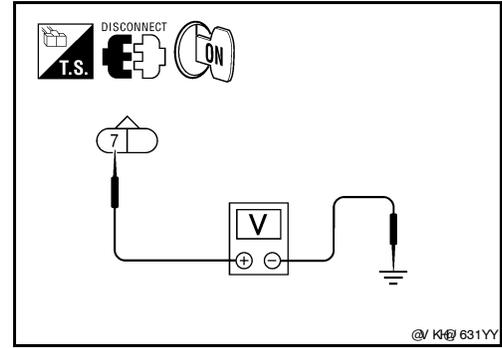


PARKING LAMP CIRCUIT

< COMPONENT DIAGNOSIS >

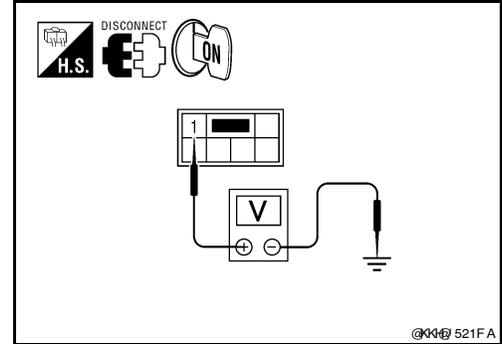
6. With the parking lamps ON, check voltage between the front side marker lamp connectors and ground.

(+)		Terminal	(-)	Voltage
Connector				
LH	E17	7	Ground	Battery voltage
RH	E108			



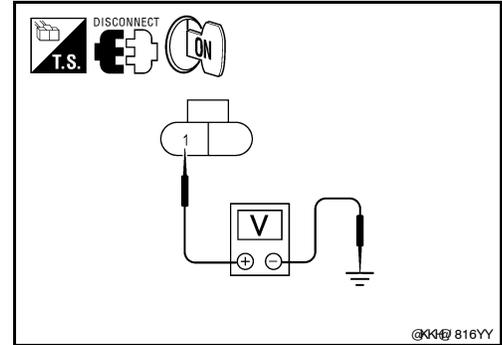
7. With the parking lamps ON, check voltage between the rear combination lamp connectors and ground.

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



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

(+)		Terminal	(-)	Voltage
Connector				
C12		1	Ground	Battery voltage



Are voltage readings as specified?

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

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

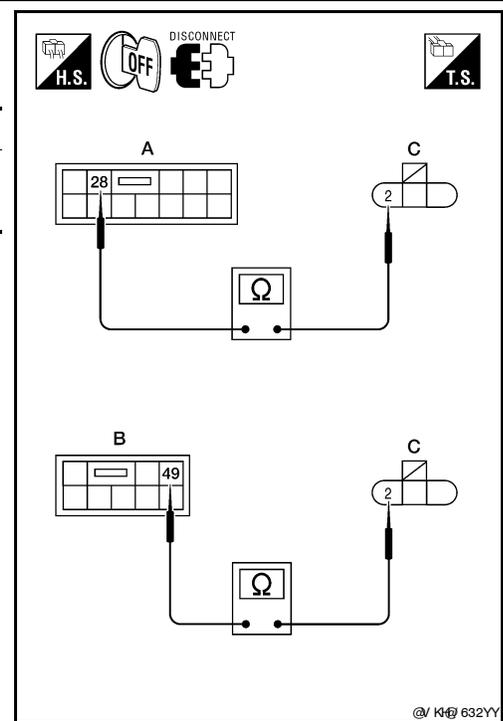
1. Turn the ignition switch OFF.
2. Disconnect IPDM E/R connector.

PARKING LAMP CIRCUIT

< COMPONENT DIAGNOSIS >

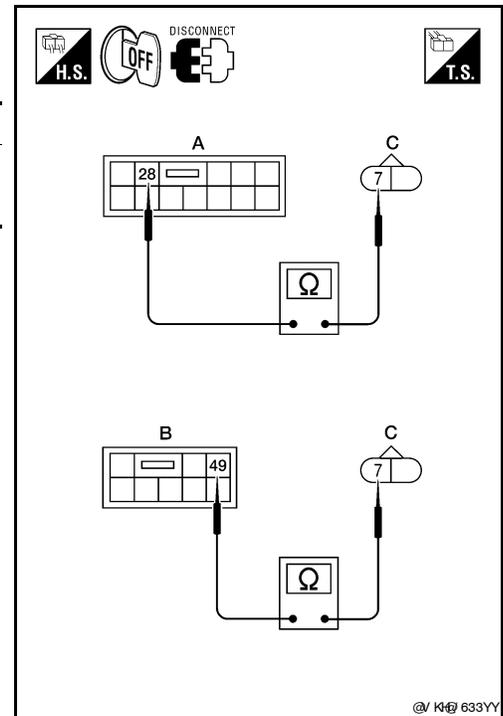
3. Check continuity between the IPDM E/R harness connector (A)(B) and the front parking lamp harness connector (C).

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



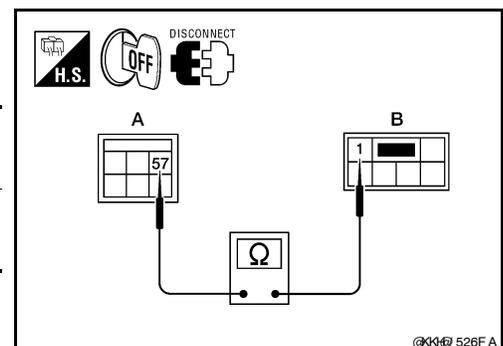
4. Check continuity between the IPDM E/R harness connector (A)(B) and the front side marker lamp harness connector (C).

Connector		Terminal	Connector	Terminal	Continuity
LH	A: E121	28	C: E17	7	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	B35	1	Yes
RH		B105		



PARKING LAMP CIRCUIT

< COMPONENT DIAGNOSIS >

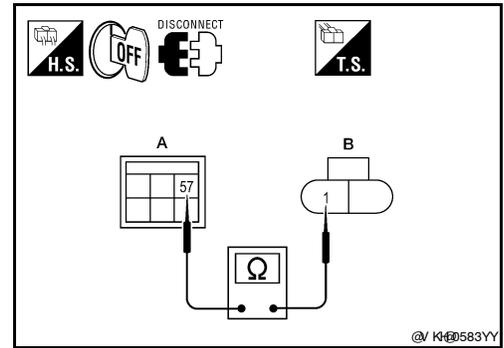
6. Check continuity between the IPDM E/R harness connector (A) and license plate lamp connector (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
E124	57	C12	1	Yes

Are continuity results as specified?

YES >> GO TO 4

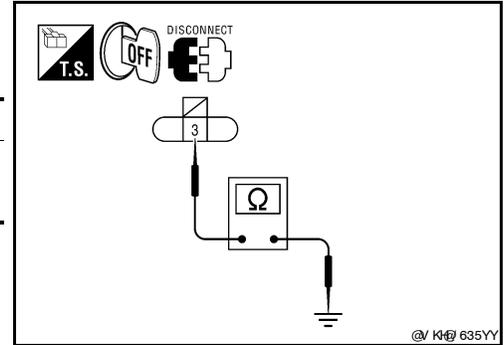
NO >> Repair the harnesses or connectors.



4. CHECK PARKING, LICENSE AND TAIL LAMP GROUND CIRCUITS

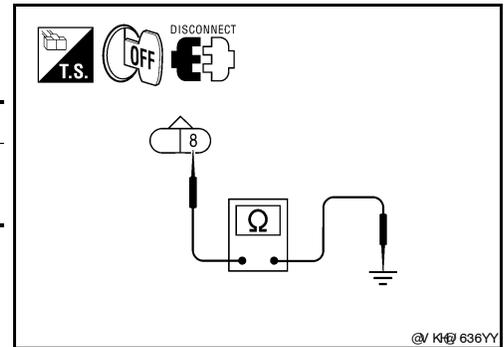
1. Check continuity between the front parking lamp harness connectors and ground.

Connector		Terminal	—	Continuity
LH	E27	3	Ground	Yes
RH	E111			



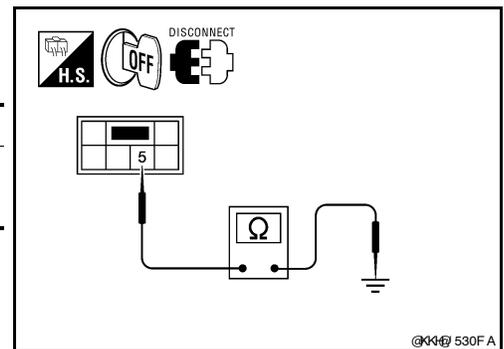
2. Check continuity between the front side marker lamp harness connectors and ground.

Connector		Terminal	—	Continuity
LH	E17	8	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			



PARKING LAMP CIRCUIT

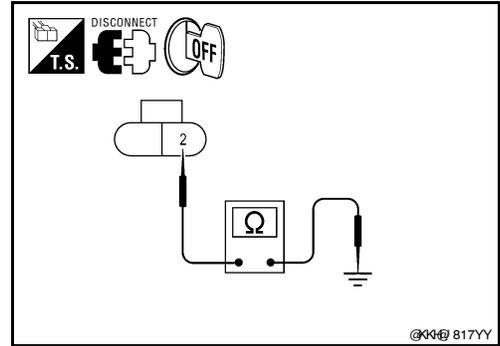
< COMPONENT DIAGNOSIS >

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

Connector	Terminal	—	Continuity
C12	2	Ground	Yes

Are continuity results as specified?

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



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TURN SIGNAL LAMP CIRCUIT

< COMPONENT DIAGNOSIS >

TURN SIGNAL LAMP CIRCUIT

Description

INFOID:000000004065554

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:000000004065555

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-54, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000004065556

1. CHECK TURN SIGNAL LAMP BULB

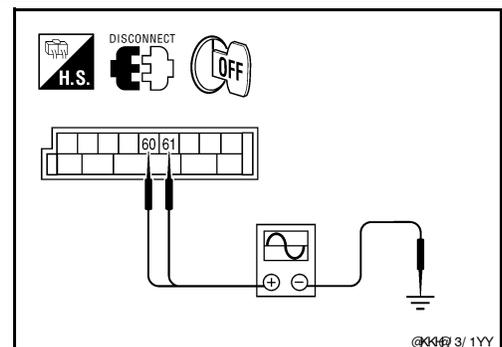
Check the applicable lamp bulb to be sure the proper bulb standard is in use and the bulb is not open.

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	

(V)

Is voltage reading as specified?

- YES >> GO TO 3
NO >> Replace BCM. Refer to [BCS-57, "Removal and Installation"](#).

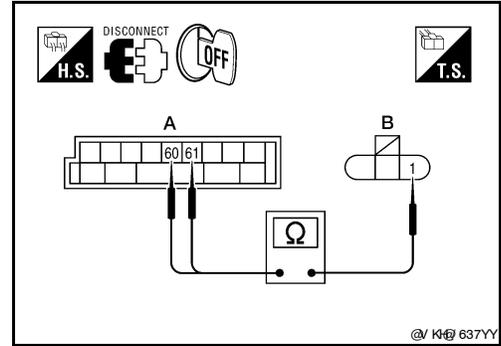
TURN SIGNAL LAMP CIRCUIT

< COMPONENT DIAGNOSIS >

3. CHECK TURN SIGNAL LAMP CIRCUIT FOR OPEN

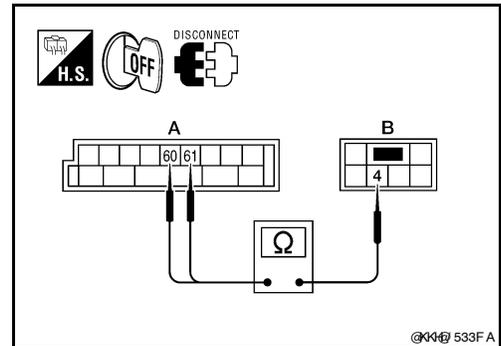
1. Turn the ignition switch OFF.
2. Disconnect BCM connector M20.
3. Check continuity between the BCM harness connector M20 and the front combination lamps.

A		B		Continuity
Connector	Terminal	Connector	Terminal	
Front LH	M20	60	E27	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	Yes
Rear RH		61	B105	



Are continuity results as specified?

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

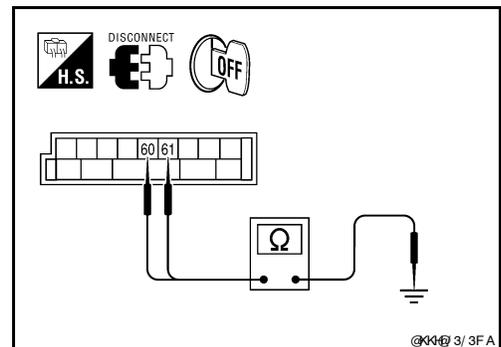
4. CHECK TURN SIGNAL LAMP SHORT CIRCUIT

Check continuity between the BCM harness connector M20 and ground.

Connector	Terminal	—	Continuity
LH	M20	60	No
RH		61	

Does continuity exist?

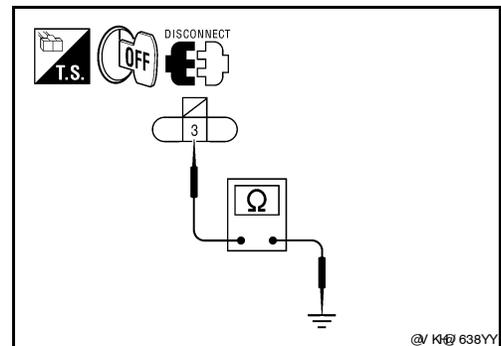
- YES >> Repair the harnesses or connectors.
 NO >> GO TO 5



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	3	Yes
Front RH	E111		



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TURN SIGNAL LAMP CIRCUIT

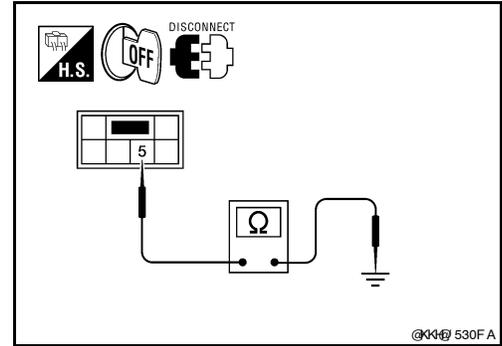
< COMPONENT DIAGNOSIS >

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

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

Are continuity results as specified?

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



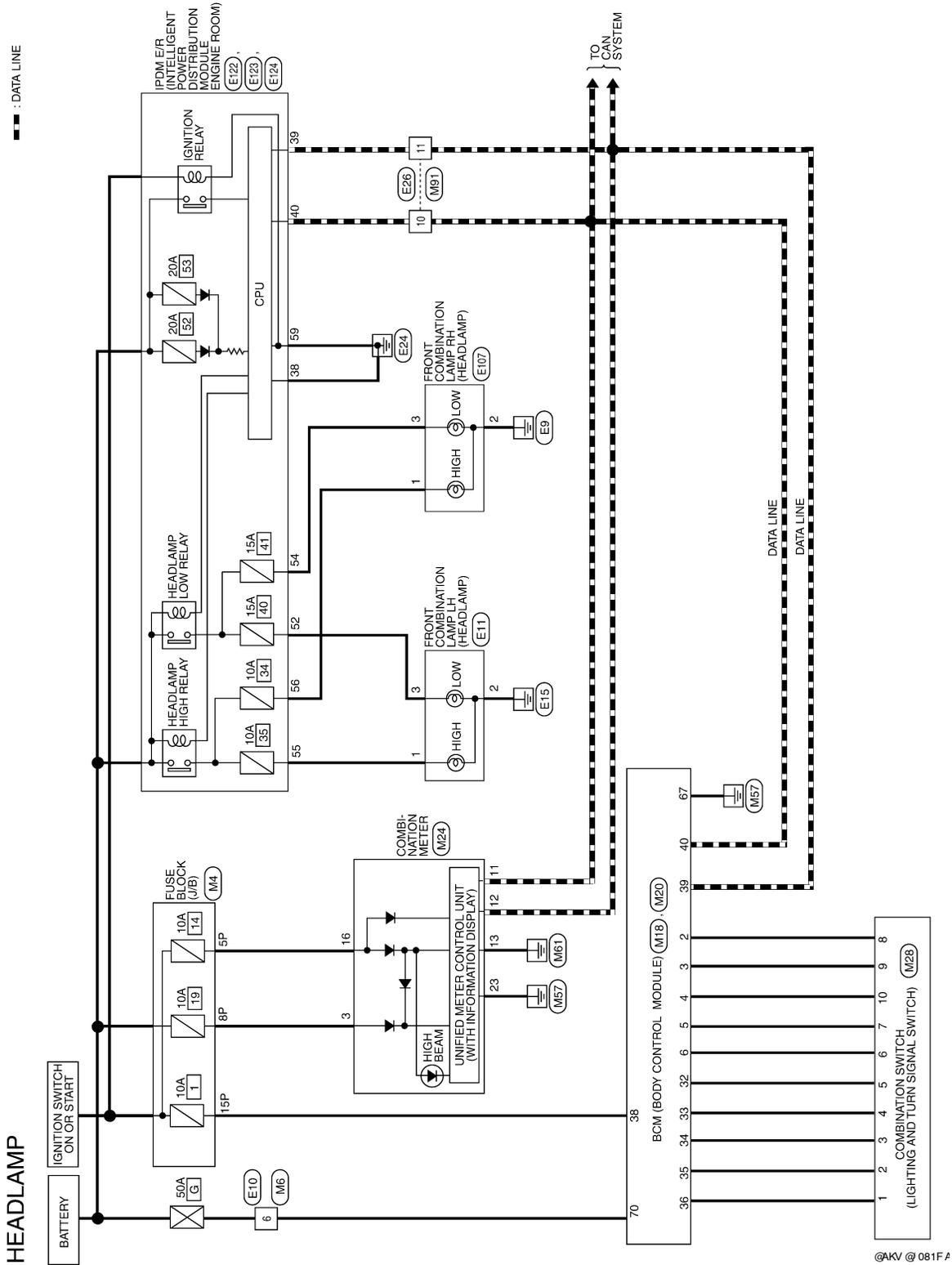
HEADLAMP

< COMPONENT DIAGNOSIS >

HEADLAMP

Wiring Diagram

INFOID:000000004065557



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@AKV @ 081F A

HEADLAMP

< COMPONENT DIAGNOSIS >

HEADLAMP CONNECTORS

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



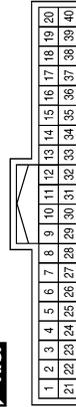
Terminal No.	Color of Wire	Signal Name
5P	W/G	-
8P	R/Y	-
15P	W/R	-

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



Terminal No.	Color of Wire	Signal Name
6	W	-

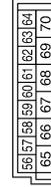
Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
2	P	INPUT 5
3	SB	INPUT 4

Terminal No.	Color of Wire	Signal Name
4	V	INPUT 3
5	L	INPUT 2
6	R	INPUT 1
32	O	OUTPUT 5
33	GR	OUTPUT 4
34	G	OUTPUT 3
35	BR	OUTPUT 2
36	LG	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)

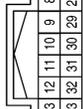
HEADLAMP

< COMPONENT DIAGNOSIS >

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE

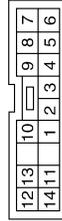


20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21



Terminal No.	Color of Wire	Signal Name
3	R/Y	BATTERY
11	P	CAN-L
12	L	CAN-H
13	GR	GROUND
16	W/G	RUN START
23	B	POWER GND

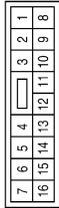
Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



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	OUTPUT 1
7	L	OUTPUT 2
8	P	OUTPUT 5
9	SB	OUTPUT 4
10	V	OUTPUT 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
6	W	-

Connector No.	E11
Connector Name	FRONT COMBINATION LAMP LH (WITHOUT DAYTIME LIGHT SYSTEM)
Connector Color	BLACK



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

@M4 538FA

A B C D E F G H I J K EXL M N O P

HEADLAMP

< COMPONENT DIAGNOSIS >

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

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



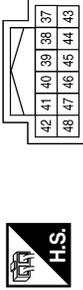
Terminal No.	Color of Wire	Signal Name
10	P	-
11	L	-

Connector No.	E107
Connector Name	FRONT COMBINATION LAMP RH
Connector Color	BLACK



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

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



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

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

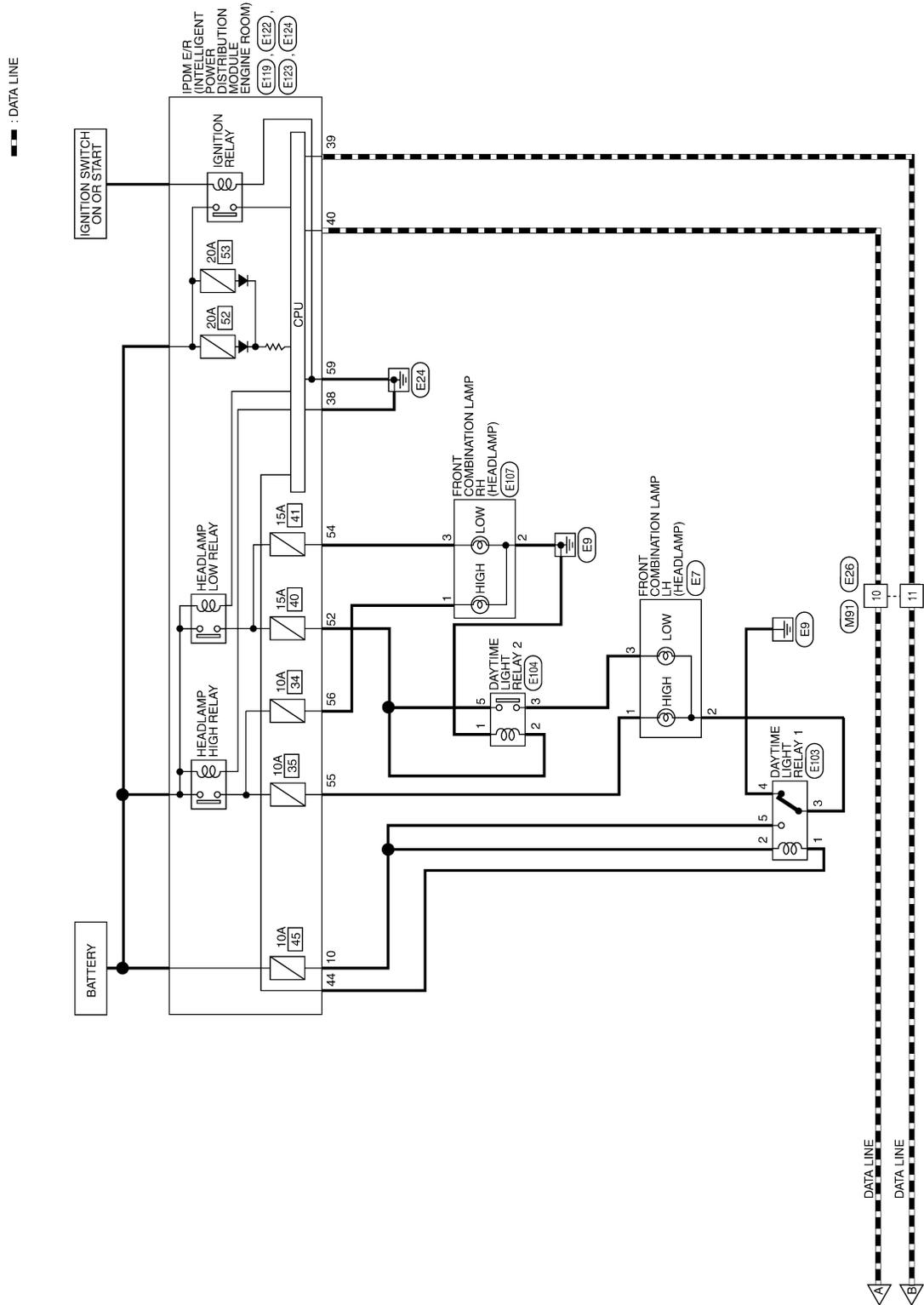
59	58	57
62	61	60



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

DAYTIME LIGHT SYSTEM

< COMPONENT DIAGNOSIS >



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DAYTIME LIGHT SYSTEM

< COMPONENT DIAGNOSIS >

DAYTIME LIGHT SYSTEM CONNECTORS

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



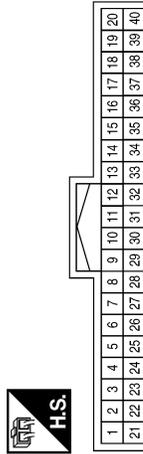
Terminal No.	Color of Wire	Signal Name
5P	W/G	-
8P	R/Y	-
15P	W/R	-

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



Terminal No.	Color of Wire	Signal Name
6	W	-

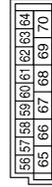
Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
2	P	INPUT 5
3	SB	INPUT 4

Terminal No.	Color of Wire	Signal Name
4	V	INPUT 3
5	L	INPUT 2
6	R	INPUT 1
32	O	OUTPUT 5
33	GR	OUTPUT 4
34	G	OUTPUT 3
35	BR	OUTPUT 2
36	LG	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)

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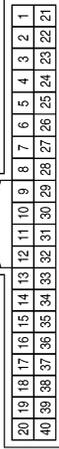
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DAYTIME LIGHT SYSTEM

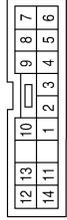
< COMPONENT DIAGNOSIS >

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE



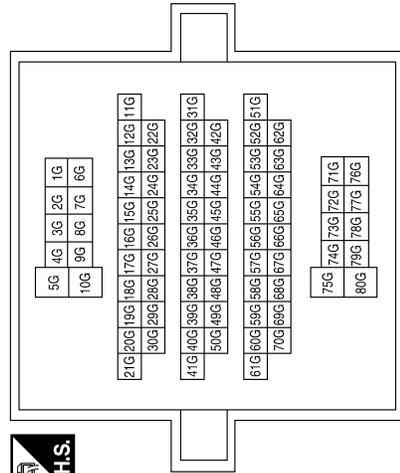
Terminal No.	Color of Wire	Signal Name
2	P	CHARGE (ALT) INPUT
3	R/Y	BATTERY
11	P	CAN-L
12	L	CAN-H
13	GR	GROUND
16	W/G	RUN START
23	B	POWER GND
31	G	PARK BRAKE SW

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
9	SB	OUTPUT 4
10	V	OUTPUT 3

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

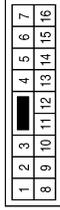


Terminal No.	Color of Wire	Signal Name
51G	P	-
52G	L	-
69G	P	-

DAYTIME LIGHT SYSTEM

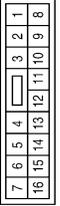
< COMPONENT DIAGNOSIS >

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



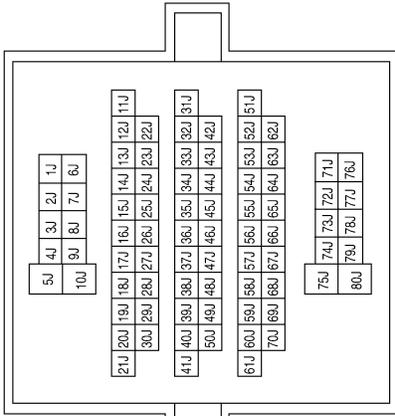
Terminal No.	Color of Wire	Signal Name
2	L	-
3	P	-

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



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

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



Terminal No.	Color of Wire	Signal Name
68J	G	-

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



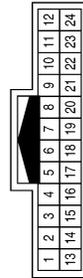
Terminal No.	Color of Wire	Signal Name
6	W	-

Connector No.	E7
Connector Name	FRONT COMBINATION LAMP LH (WITH DAYTIME LIGHT SYSTEM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	G	-
2	B	-
3	SB	-

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



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

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DAYTIME LIGHT SYSTEM

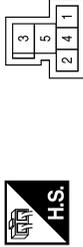
< COMPONENT DIAGNOSIS >

Connector No.	E40
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
8	P	-

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



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



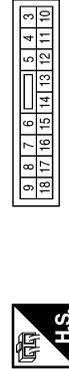
Terminal No.	Color of Wire	Signal Name
1	B	-
2	G	-
3	SB	-
5	P	-

Connector No.	E107
Connector Name	FRONT COMBINATION LAMP RH
Connector Color	BLACK



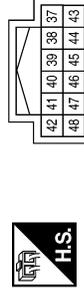
Terminal No.	Color of Wire	Signal Name
1	L	-
2	B	-
3	R	-

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



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

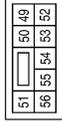


Terminal No.	Color of Wire	Signal Name
38	B	GND (SIGNAL)
39	L	CAN-H
40	P	CAN-L
44	R	DTRL RLY CONT

DAYTIME LIGHT SYSTEM

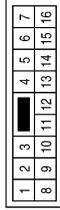
< COMPONENT DIAGNOSIS >

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



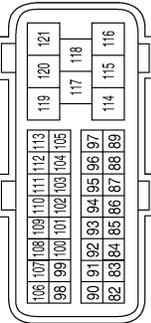
Terminal No.	Color of Wire	Signal Name
52	P	H/LAMP LO LH
54	R	H/LAMP LO RH
55	G	H/LAMP HI LH
56	L	H/LAMP HI RH

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



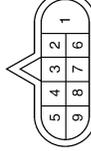
Terminal No.	Color of Wire	Signal Name
10	P	-
11	L	-

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK



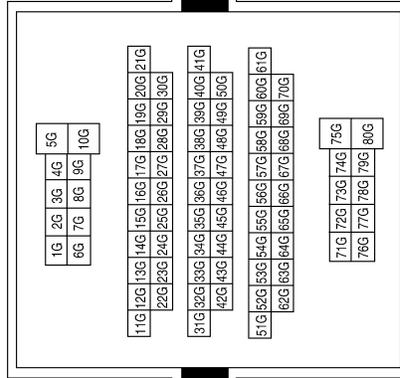
Terminal No.	Color of Wire	Signal Name
86	P	CAN-L
94	L	CAN-H

Connector No.	E201
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
8	P	-

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



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

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



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

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EXL

DAYTIME LIGHT SYSTEM

< COMPONENT DIAGNOSIS >

Connector No.	E205
Connector Name	GENERATOR
Connector Color	BLACK



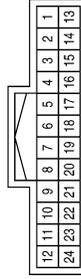
Terminal No.	Color of Wire	Signal Name
2	P	L

Connector No.	E209
Connector Name	GENERATOR
Connector Color	-



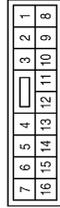
Terminal No.	Color of Wire	Signal Name
5	B	E

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



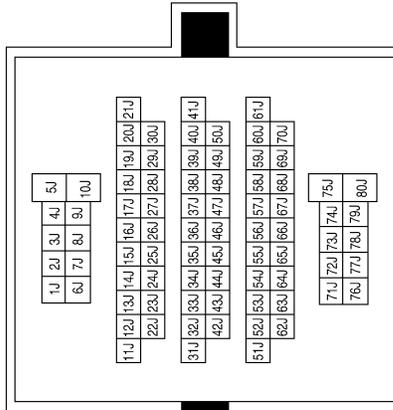
Terminal No.	Color of Wire	Signal Name
2	L	-
3	P	-

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



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

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



Terminal No.	Color of Wire	Signal Name
68J	G	-

Connector No.	B84
Connector Name	PARKING BRAKE SWITCH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	G	-

FRONT FOG LAMP SYSTEM

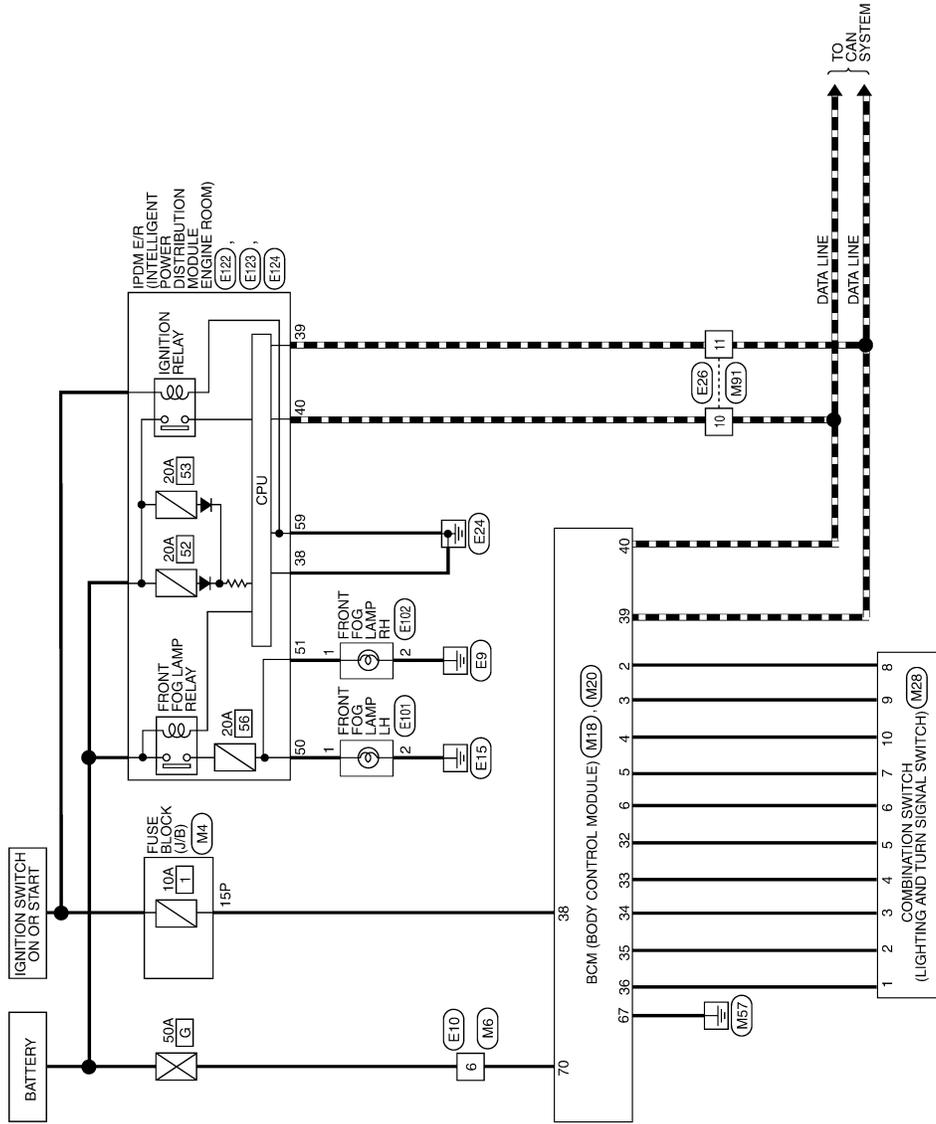
< COMPONENT DIAGNOSIS >

FRONT FOG LAMP SYSTEM

Wiring Diagram

INFOID:000000004065559

■ ■ ■ : DATA LINE



FRONT FOG LAMP

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FRONT FOG LAMP SYSTEM

< COMPONENT DIAGNOSIS >

FRONT FOG LAMP CONNECTORS

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



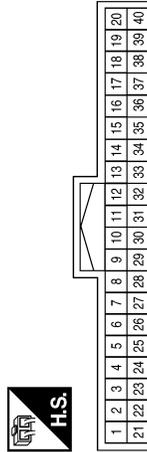
Terminal No.	15P	Color of Wire	W/R	Signal Name	-
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Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	6	Color of Wire	W	Signal Name	-
--------------	---	---------------	---	-------------	---

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



Terminal No.	2	Color of Wire	P	Signal Name	INPUT 5
	3	Color of Wire	SB	Signal Name	INPUT 4

Terminal No.	Color of Wire	Signal Name
4	V	INPUT 3
5	L	INPUT 2
6	R	INPUT 1
32	O	OUTPUT 5
33	GR	OUTPUT 4
34	G	OUTPUT 3
35	BR	OUTPUT 2
36	LG	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

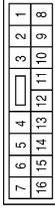


Terminal No.	67	Color of Wire	B	Signal Name	GND (POWER)
	70	Color of Wire	W	Signal Name	BAT (F/L)

FRONT FOG LAMP SYSTEM

< COMPONENT DIAGNOSIS >

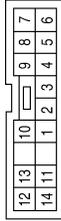
Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE



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

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

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



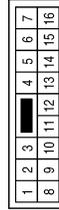
Terminal No.	Color of Wire	Signal Name
1	LG	INPUT 1
2	BR	INPUT 2
3	G	INPUT 3
4	GR	INPUT 4
5	O	INPUT 5
6	R	OUTPUT 1
7	L	OUTPUT 2
8	P	OUTPUT 5

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



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

Connector No.	E26
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
6	W	-

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FRONT FOG LAMP SYSTEM

< COMPONENT DIAGNOSIS >

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



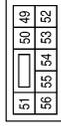
Terminal No.	Color of Wire	Signal Name
1	V	-
2	B	-

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



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



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



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

OFF-ROAD LAMPS

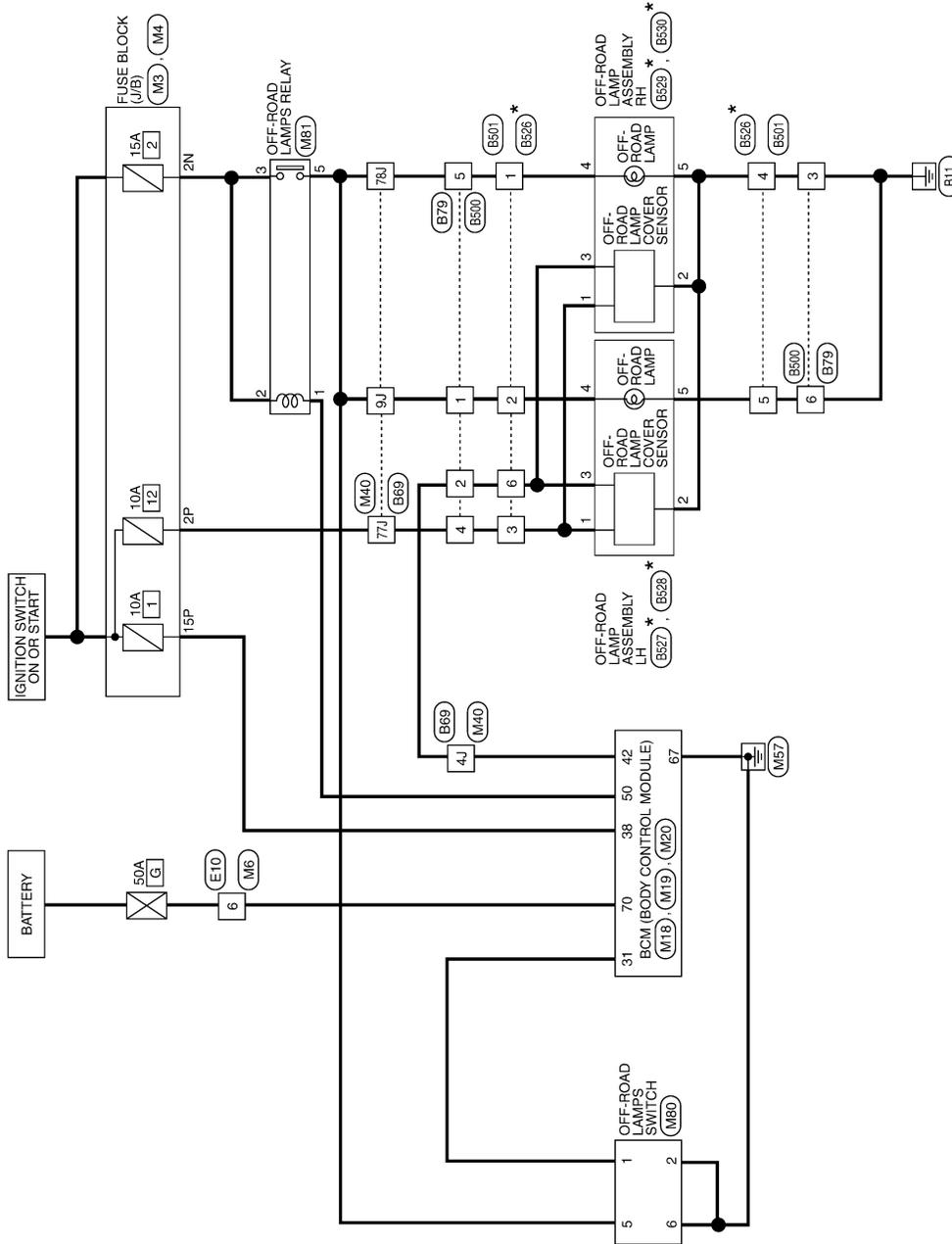
< COMPONENT DIAGNOSIS >

OFF-ROAD LAMPS

Wiring Diagram

INFOID:000000004427413

OFF-ROAD LAMPS



*: THIS CONNECTOR IS NOT SHOWN IN "HARNES LAYOUT" OF PG SECTION.

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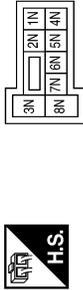
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OFF-ROAD LAMPS

< COMPONENT DIAGNOSIS >

OFF-ROAD LAMPS CONNECTORS

Connector No.	M3
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
2N	W/R	-

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



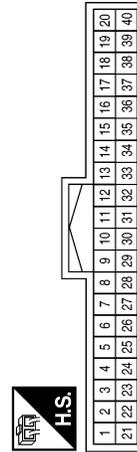
Terminal No.	Color of Wire	Signal Name
2P	W/G	-
15P	W/R	-

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



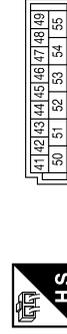
Terminal No.	Color of Wire	Signal Name
6	W	-

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



Terminal No.	Color of Wire	Signal Name
31	R	OFF ROAD LAMP SW
38	W/R	IGN SW

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



Terminal No.	Color of Wire	Signal Name
42	L	PCA OUTPUT
50	W	OFF ROAD LAMP OUTPUT

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

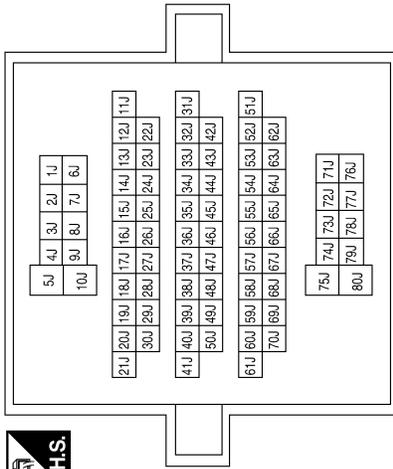


Terminal No.	Color of Wire	Signal Name
67	B	GND (POWER)
70	W	BAT (F/L)

OFF-ROAD LAMPS

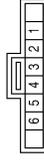
< COMPONENT DIAGNOSIS >

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



Terminal No.	Color of Wire	Signal Name
4J	L	-
9J	W/R	-
77J	W/G	-
78J	W/R	-

Connector No.	M80
Connector Name	OFF-ROAD LAMPS SWITCH
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	R	-
2	B	-
5	W/R	-
6	B	-

Connector No.	M81
Connector Name	OFF-ROAD LAMPS RELAY
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	W	-
2	W/R	-
3	W/R	-
5	W/R	-

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



Terminal No.	Color of Wire	Signal Name
6	W	-

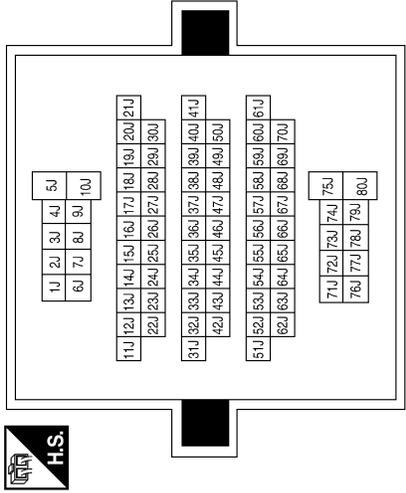
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OFF-ROAD LAMPS

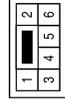
< COMPONENT DIAGNOSIS >

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



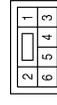
Terminal No.	Color of Wire	Signal Name
4J	L	-
9J	W/R	-
77J	W/G	-
78J	W/R	-

Connector No.	B79
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	W/R	-
2	L	-
3	B	-
4	W/G	-
5	W/R	-
6	B	-

Connector No.	B500
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	W/R	-
2	L	-
3	B	-
4	W/G	-
5	W/R	-
6	B	-

Connector No.	B501
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	W/R	-
2	W/R	-
3	W/G	-
4	B	-
5	B	-
6	L	-

Connector No.	B526
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-

OFF-ROAD LAMPS

< COMPONENT DIAGNOSIS >

Connector No.	B527
Connector Name	OFF-ROAD LAMP ASSEMBLY LH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	-	-
2	-	-
3	-	-

Connector No.	B528
Connector Name	OFF-ROAD LAMP ASSEMBLY LH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
4	-	-
5	-	-

Connector No.	B529
Connector Name	OFF-ROAD LAMP ASSEMBLY RH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	-	-
2	-	-
3	-	-

Connector No.	B530
Connector Name	OFF-ROAD LAMP ASSEMBLY RH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
4	-	-
5	-	-

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TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< COMPONENT DIAGNOSIS >

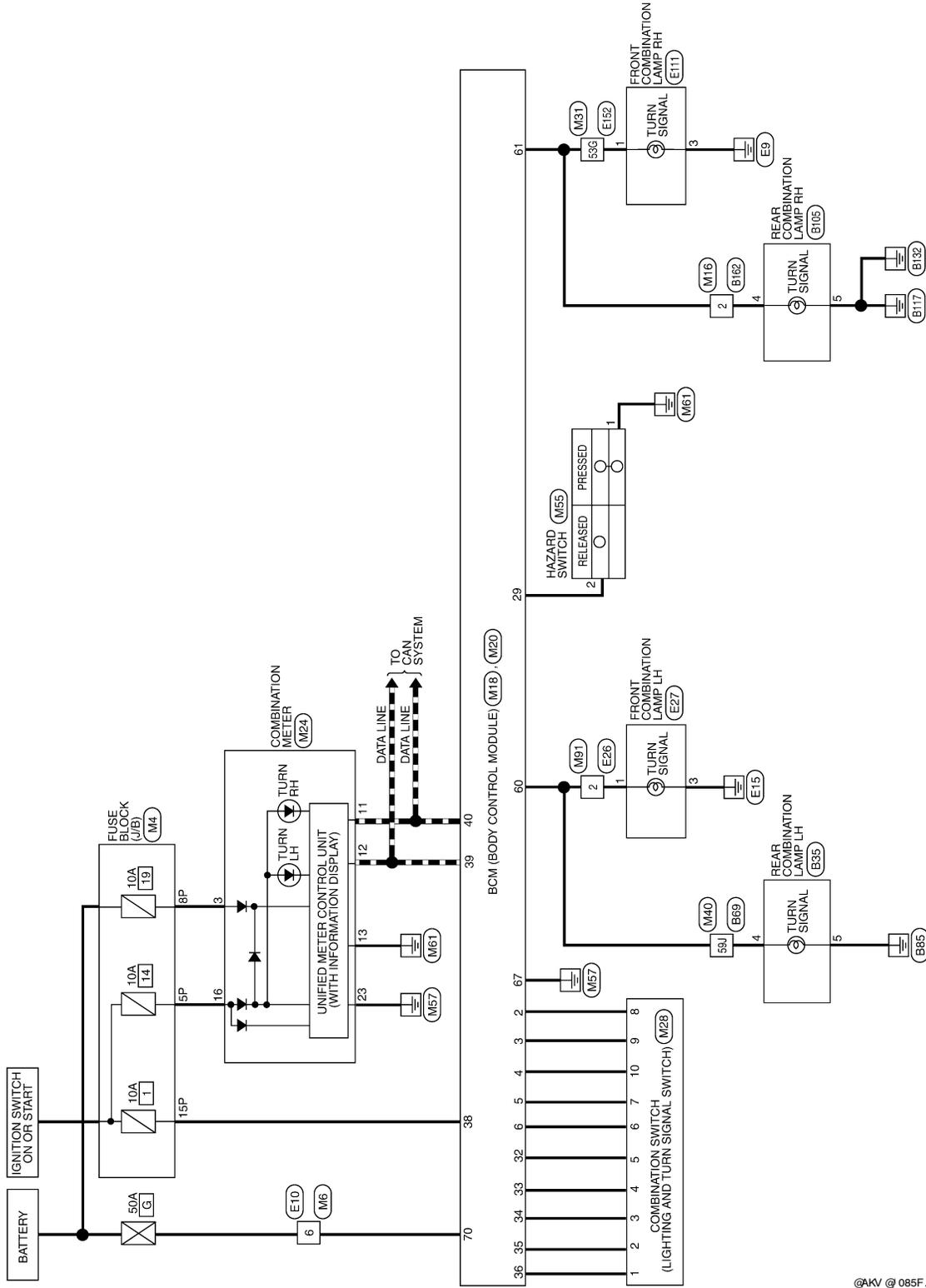
TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

Wiring Diagram

INFOID:000000004065560

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TURN SIGNAL AND HAZARD WARNING LAMPS



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TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< COMPONENT DIAGNOSIS >

TURN SIGNAL AND HAZARD WARNING LAMPS CONNECTORS

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



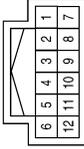
Terminal No.	Color of Wire	Signal Name
5P	W/G	-
8P	R/Y	-
15P	W/R	-

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



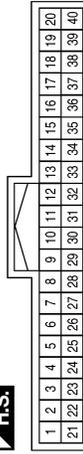
Terminal No.	Color of Wire	Signal Name
6	W	-

Connector No.	M16
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
2	G	-

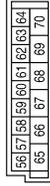
Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
2	P	INPUT 5
3	SB	INPUT 4
4	V	INPUT 3
5	L	INPUT 2
6	R	INPUT 1
29	G	HAZARD SW

Terminal No.	Color of Wire	Signal Name
32	O	OUTPUT 5
33	GR	OUTPUT 4
34	G	OUTPUT 3
35	BR	OUTPUT 2
36	LG	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)

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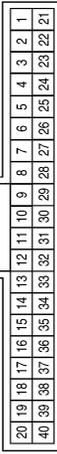
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TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

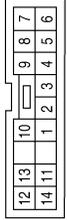
< COMPONENT DIAGNOSIS >

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	R/Y	BATTERY
11	P	CAN-L
12	L	CAN-H
13	GR	GROUND
16	W/G	RUN START
23	B	POWER GND

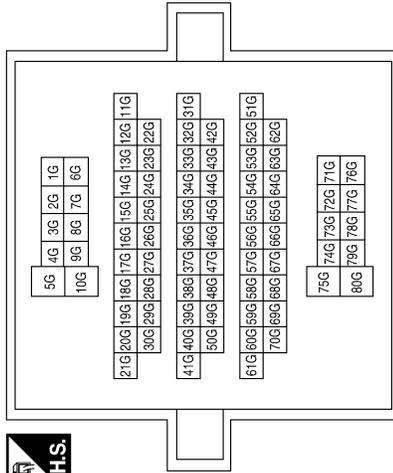
Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



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.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE

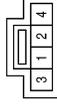


Terminal No.	Color of Wire	Signal Name
53G	G	-

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< COMPONENT DIAGNOSIS >

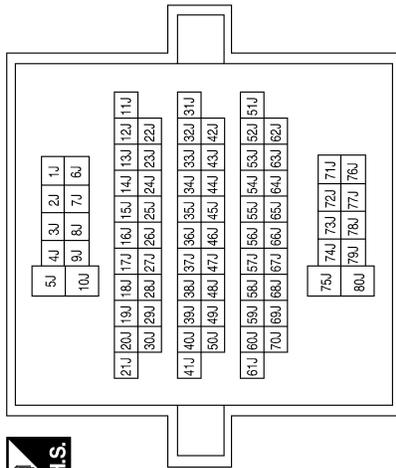
Connector No.	M55
Connector Name	HAZARD SWITCH
Connector Color	WHITE



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

Terminal No.	59J	Color of Wire	G	Signal Name	-
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Connector No.	M40
Connector Name	WIRE TO WIRE
Connector Color	WHITE



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



Terminal No.	2	Color of Wire	LG	Signal Name	-
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Connector No.	E10
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	6	Color of Wire	W	Signal Name	-
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Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	2	Color of Wire	LG	Signal Name	-
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TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< COMPONENT DIAGNOSIS >

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



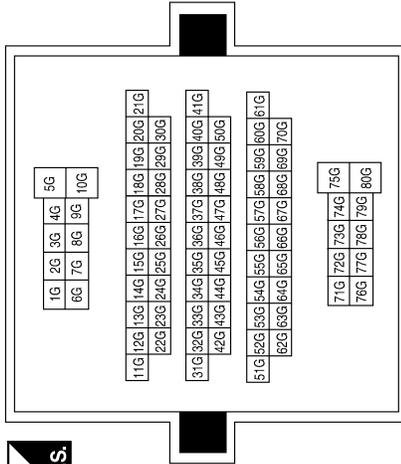
Terminal No.	Color of Wire	Signal Name
1	LG	-
3	B	-

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



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

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



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

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

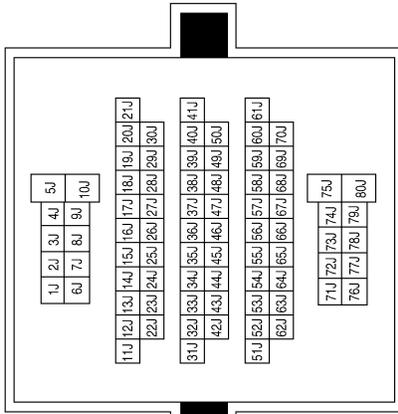


Terminal No.	Color of Wire	Signal Name
4	G	-
5	B	-

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

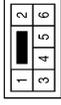
< COMPONENT DIAGNOSIS >

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



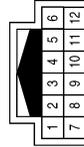
Terminal No.	59J	Color of Wire	G	Signal Name	-
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Connector No.	B105
Connector Name	REAR COMBINATION LAMP RH
Connector Color	WHITE



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

Connector No.	B162
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	2	Color of Wire	G	Signal Name	-
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PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< COMPONENT DIAGNOSIS >

PARKING, LICENSE PLATE AND TAIL LAMPS CONNECTORS

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



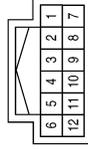
Terminal No.	15P	Color of Wire	W/R	Signal Name	—
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Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Color	WHITE



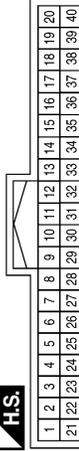
Terminal No.	6	Color of Wire	W	Signal Name	—
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Connector No.	M16
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	12	Color of Wire	V	Signal Name	—
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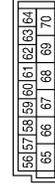
Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



Terminal No.	2	Color of Wire	P	Signal Name	INPUT 5
3	SB	INPUT 4			
4	V	INPUT 3			
5	L	INPUT 2			
6	R	INPUT 1			

Terminal No.	32	Color of Wire	O	Signal Name	OUTPUT 5
33	GR	OUTPUT 4			
34	G	OUTPUT 3			
35	BR	OUTPUT 2			
36	LG	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.	67	Color of Wire	B	Signal Name	GND (POWER)
70	W	BAT (F/L)			

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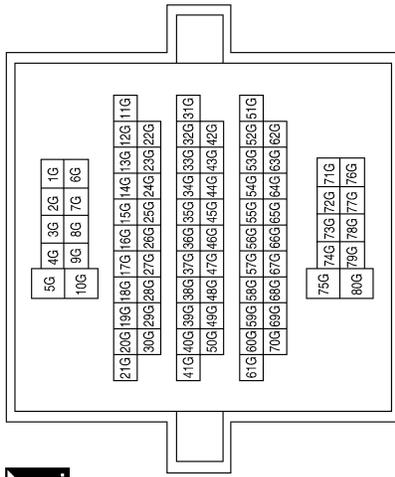
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PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

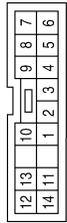
< COMPONENT DIAGNOSIS >

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

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



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
9	SB	OUTPUT 4
10	V	OUTPUT 3

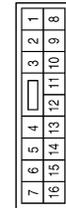
Connector No.	E17
Connector Name	FRONT COMBINATION LAMP LH
Connector Color	GRAY



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



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



Terminal No.	Color of Wire	Signal Name
7	R	-
8	B	-

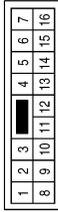
Terminal No.	Color of Wire	Signal Name
6	W	-

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

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< COMPONENT DIAGNOSIS >

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



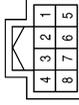
Terminal No.	Color of Wire	Signal Name
10	P	-
11	L	-

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



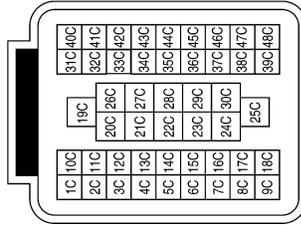
Terminal No.	Color of Wire	Signal Name
2	R	-
3	B	-

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



Terminal No.	Color of Wire	Signal Name
4	GR	-

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



Terminal No.	Color of Wire	Signal Name
5C	V	-
6C	B	-

Connector No.	E108
Connector Name	FRONT COMBINATION LAMP RH
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
7	R	-
8	B	-

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



Terminal No.	Color of Wire	Signal Name
2	GR	-
3	B	-

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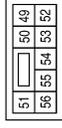
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PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

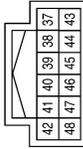
< COMPONENT DIAGNOSIS >

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



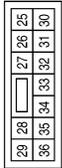
Terminal No.	Color of Wire	Signal Name
49	GR	ILLUMINATION

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



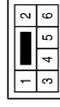
Terminal No.	Color of Wire	Signal Name
38	B	GND (SIGNAL)
39	L	CAN-H
40	P	CAN-L

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



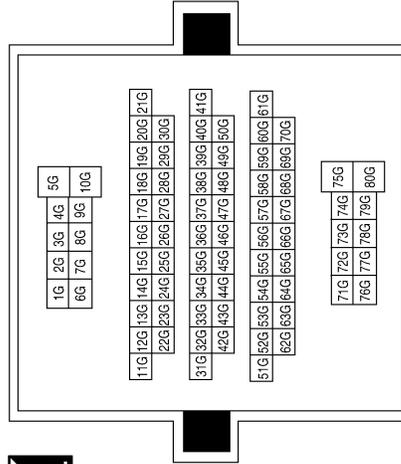
Terminal No.	Color of Wire	Signal Name
28	R	ILLUMINATION

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



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

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



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

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

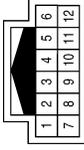


Terminal No.	Color of Wire	Signal Name
57	GR	TAIL LAMP
59	B	GND (POWER)

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

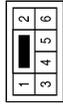
< COMPONENT DIAGNOSIS >

Connector No.	B162
Connector Name	WIRE TO WIRE
Connector Color	WHITE



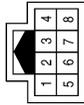
Terminal No.	Color of Wire	Signal Name
12	V	-

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



Terminal No.	Color of Wire	Signal Name
1	V	-
2	L	-
3	BR	-
4	G	-
5	B	-

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



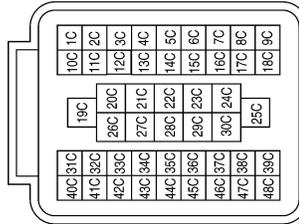
Terminal No.	Color of Wire	Signal Name
4	GR	-

Connector No.	C12
Connector Name	LICENSE PLATE LAMP
Connector Color	WHITE



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

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



Terminal No.	Color of Wire	Signal Name
5C	V	-
6C	B	-

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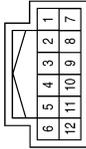
EXL

STOP LAMP

< COMPONENT DIAGNOSIS >

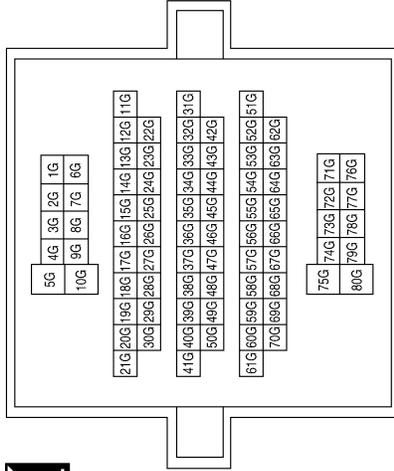
STOP LAMP CONNECTORS

Connector No.	M16
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
11	L	-

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



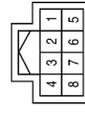
Terminal No.	Color of Wire	Signal Name
50G	L	-

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



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



Terminal No.	Color of Wire	Signal Name
3	Y	-

Connector No.	E38
Connector Name	STOP LAMP SWITCH (WITH M/T)
Connector Color	BLACK



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

Connector No.	E39
Connector Name	STOP LAMP SWITCH (WITH A/T)
Connector Color	WHITE



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

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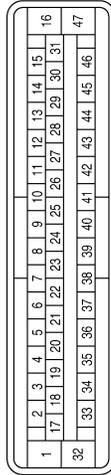
A B C D E F G H I J K M N O P

EXL

STOP LAMP

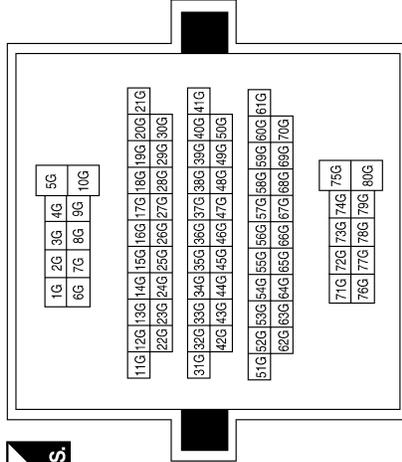
< COMPONENT DIAGNOSIS >

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



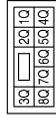
Terminal No.	Color of Wire	Signal Name
35	V	STOP LAMP SW ON
39	SB	STOP LAMP SW

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



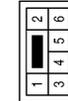
Terminal No.	Color of Wire	Signal Name
50G	L	-

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



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

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



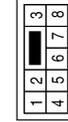
Terminal No.	Color of Wire	Signal Name
2	Y	-
5	B	-

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



Terminal No.	Color of Wire	Signal Name
3	Y	-

Connector No.	B48
Connector Name	WIRE TO WIRE
Connector Color	WHITE

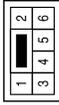


Terminal No.	Color of Wire	Signal Name
6	R	-

STOP LAMP

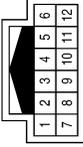
< COMPONENT DIAGNOSIS >

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

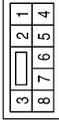
Terminal No.	Color of Wire	Signal Name
2	L	-
5	B	-

Connector No.	B162
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
11	L	-

Connector No.	D402
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
6	R	-

Connector No.	D403
Connector Name	HIGH-MOUNTED STOP LAMP
Connector Color	WHITE




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

Connector No.	D409
Connector Name	WIRE TO WIRE
Connector Color	WHITE




Terminal No.	Color of Wire	Signal Name
2	B	-

Connector No.	D650
Connector Name	WIRE TO WIRE
Connector Color	WHITE




Terminal No.	Color of Wire	Signal Name
2	B	-

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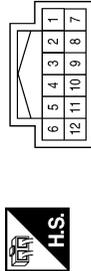
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BACK-UP LAMP

< COMPONENT DIAGNOSIS >

BACK-UP LAMP CONNECTORS

Connector No.	M16
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	BR	-

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



Terminal No.	Color of Wire	Signal Name								
21G	20G	19G	18G	17G	16G	15G	14G	13G	12G	11G
30G	28G	28G	27G	26G	25G	24G	23G	22G		
41G	40G	39G	38G	37G	36G	35G	34G	33G	32G	31G
50G	48G	48G	47G	46G	45G	44G	43G	42G		
61G	60G	59G	58G	57G	56G	55G	54G	53G	52G	51G
70G	68G	68G	67G	66G	65G	64G	63G	62G		
75G	74G	73G	72G	71G						
80G	79G	78G	77G	76G						

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

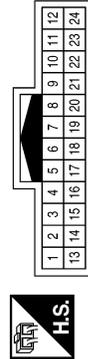
Connector No.	M40
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name								
21J	20J	19J	18J	17J	16J	15J	14J	13J	12J	11J
30J	28J	28J	27J	26J	25J	24J	23J	22J		
41J	40J	39J	38J	37J	36J	35J	34J	33J	32J	31J
50J	48J	48J	47J	46J	45J	44J	43J	42J		
61J	60J	59J	58J	57J	56J	55J	54J	53J	52J	51J
70J	68J	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



Terminal No.	Color of Wire	Signal Name
9	LG	-
10	W/G	-
11	SB	-

Connector No.	E45
Connector Name	BACK-UP LAMP RELAY (WITH A/T)
Connector Color	BROWN



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

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



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

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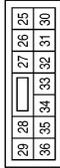
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BACK-UP LAMP

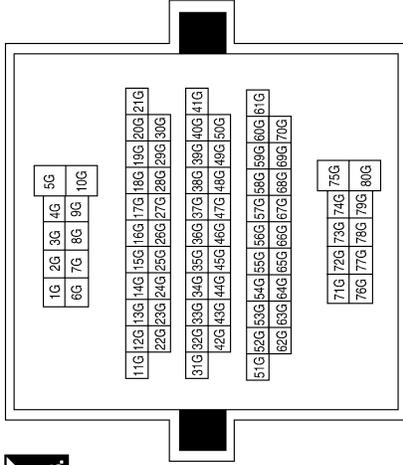
< COMPONENT DIAGNOSIS >

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



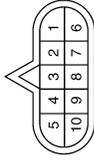
Terminal No.	27	Color of Wire	W	Signal Name	T TOW REV LAMP
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Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



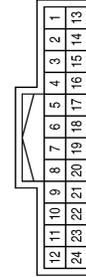
Terminal No.	54G	Color of Wire	SB	Signal Name	-
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Connector No.	F9
Connector Name	A/T ASSEMBLY
Connector Color	GREEN



Terminal No.	7	Color of Wire	LG	Signal Name	-
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Connector No.	F14
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	9	Color of Wire	LG	Signal Name	-
Terminal No.	10	Color of Wire	W/G	Signal Name	-
Terminal No.	11	Color of Wire	SB	Signal Name	-

Connector No.	F69
Connector Name	BACK-UP LAMP SWITCH
Connector Color	WHITE



Terminal No.	1	Color of Wire	W/G	Signal Name	-
Terminal No.	2	Color of Wire	SB	Signal Name	-

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

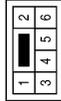


Terminal No.	7	Color of Wire	O	Signal Name	REV LAMP RLY
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BACK-UP LAMP

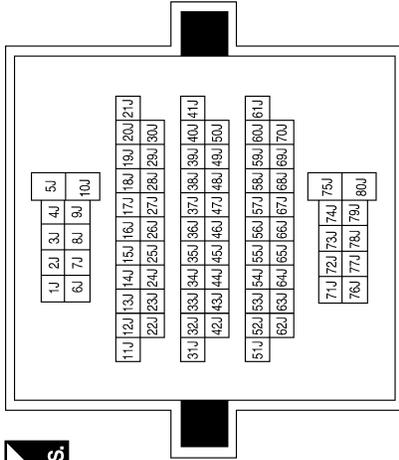
< COMPONENT DIAGNOSIS >

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



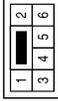
Terminal No.	Color of Wire	Signal Name
3	SB	-
5	B	-

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



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

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



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

Connector No.	B162
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	BR	-

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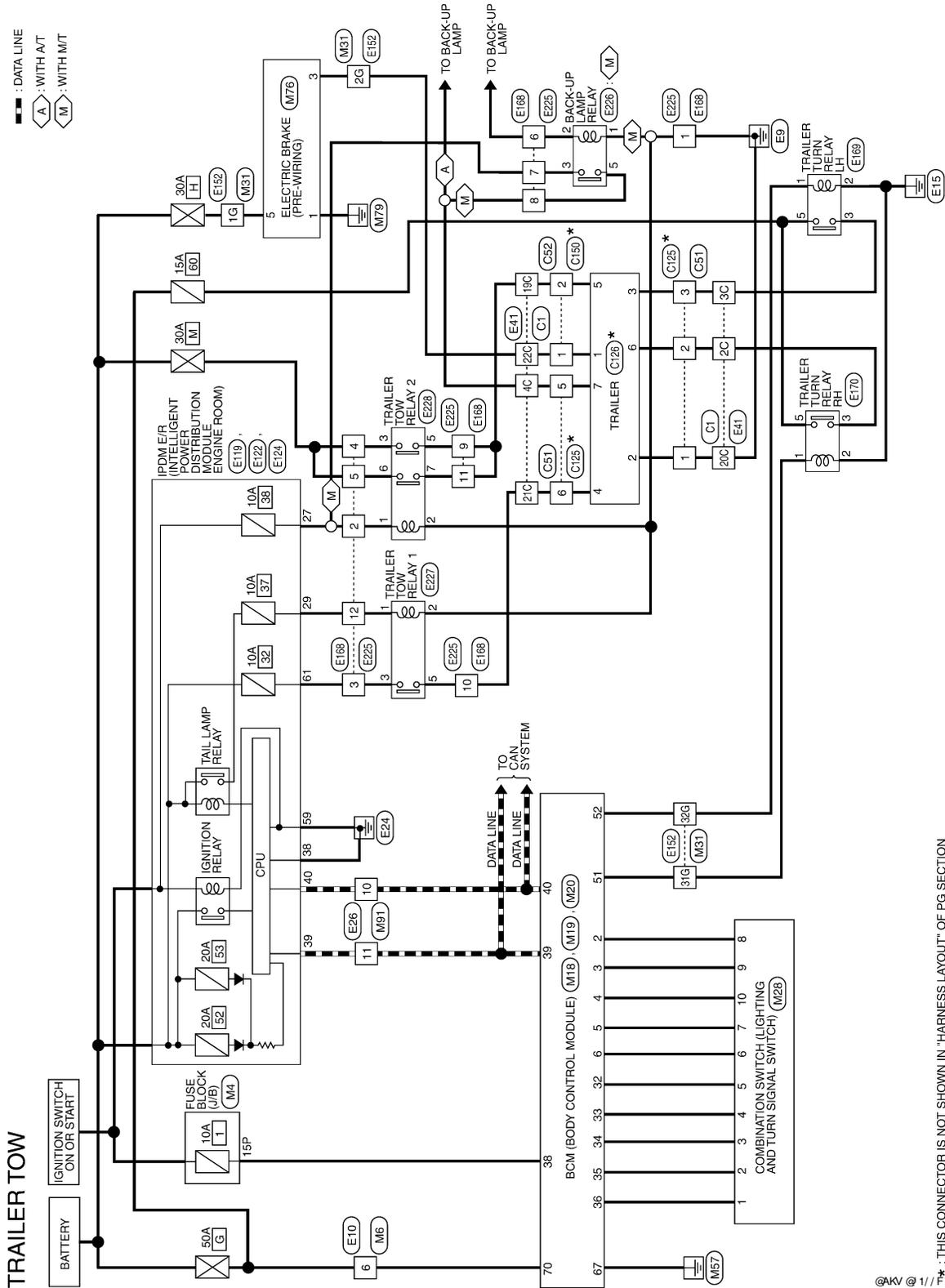
TRAILER TOW

< COMPONENT DIAGNOSIS >

TRAILER TOW

Wiring Diagram

INFOID:000000004065564



* THIS CONNECTOR IS NOT SHOWN IN "HARNES LAYOUT" OF PG SECTION

©AKV @ 1/1/11

TRAILER TOW CONNECTORS

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



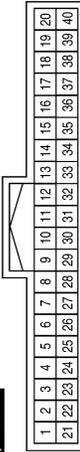
Terminal No.	Color of Wire	Signal Name
15P	W/R	-

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



Terminal No.	Color of Wire	Signal Name
6	W	-

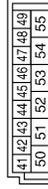
Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
2	P	INPUT 5
3	SB	INPUT 4
4	V	INPUT 3
5	L	INPUT 2
6	R	INPUT 1

Terminal No.	Color of Wire	Signal Name
32	O	OUTPUT 5
33	GR	OUTPUT 4
34	G	OUTPUT 3
35	BR	OUTPUT 2
36	LG	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



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

TRAILER TOW

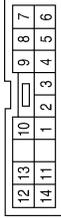
< COMPONENT DIAGNOSIS >

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



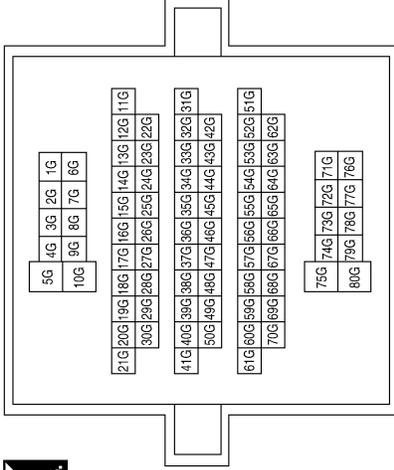
Terminal No.	Color of Wire	Signal Name
67	B	GND (POWER)
70	W	BAT (F/L)

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
9	SB	OUTPUT 4
10	V	OUTPUT 3

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



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

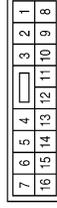
Connector No.	M76
Connector Name	ELECTRIC BRAKE (PRE-WIRING)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	GROUND

Terminal No.	Color of Wire	Signal Name
3	BR	-
5	O	+B

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

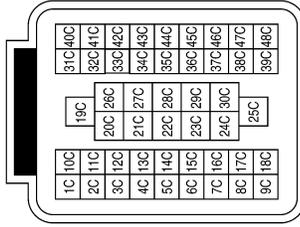


Terminal No.	Color of Wire	Signal Name
10	P	-
11	L	-

TRAILER TOW

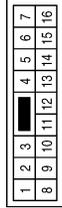
< COMPONENT DIAGNOSIS >

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



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

Connector No.	E26
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



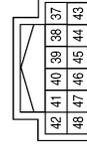
Terminal No.	Color of Wire	Signal Name
6	W	-

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



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



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

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



Terminal No.	Color of Wire	Signal Name
27	W	T TOW REV LAMP
29	G	TRAILER RLY CONT

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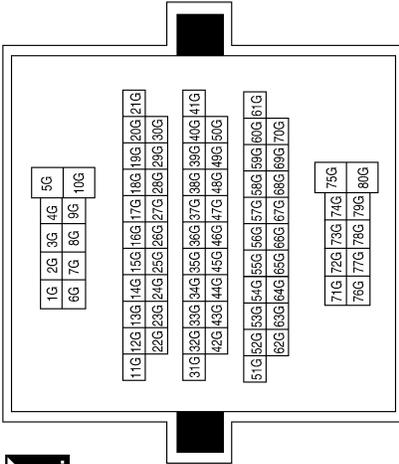
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TRAILER TOW

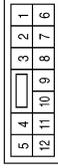
< COMPONENT DIAGNOSIS >

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



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

Connector No.	E168
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
2	W/G	-
3	R/B	-
4	GR	-
5	Y	-
6	P	-
7	W/G	-
8	Y	-
9	V	-
10	R	-
11	V	-
12	G	-

Connector No.	E169
Connector Name	TRAILER TURN RELAY LH
Connector Color	BLUE



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

Connector No.	E170
Connector Name	TRAILER TURN RELAY RH
Connector Color	BLUE

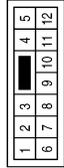


Terminal No.	Color of Wire	Signal Name
1	O	-
2	B	-
3	G	-
5	L	-

TRAILER TOW

< COMPONENT DIAGNOSIS >

Connector No.	E225
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
2	W/G	-
3	R/B	-
4	GR	-
5	W	-
6	BR	-
7	W/G	-
8	SB	-
9	L	-
10	R	-
11	O	-
12	G	-

Connector No.	E226
Connector Name	BACK-UP LAMP RELAY (WITH M/T)
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	B	-
2	BR	-
3	W/G	-
5	SB	-

Connector No.	E227
Connector Name	TRAILER TOW RELAY 1
Connector Color	BLUE



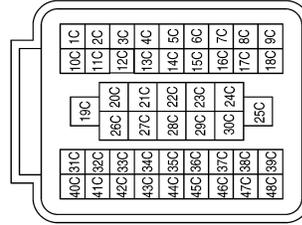
Terminal No.	Color of Wire	Signal Name
1	G	-
2	B	-
3	R/B	-
5	R	-

Connector No.	E228
Connector Name	TRAILER TOW RELAY 2
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1	W/G	-
2	B	-
3	GR	-
5	L	-
6	W	-
7	O	-

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



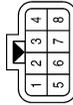
Terminal No.	Color of Wire	Signal Name
2C	G	-
3C	V	-
4C	Y	-
19C	V	-
20C	B	-
21C	R	-
22C	BR	-

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TRAILER TOW

< COMPONENT DIAGNOSIS >

Connector No.	C51
Connector Name	WIRE TO WIRE
Connector Color	GRAY



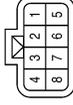
Terminal No.	Color of Wire	Signal Name
1	B	-
2	G	-
3	V	-
5	Y	-
6	R	-

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



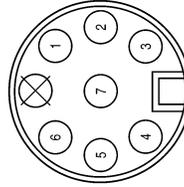
Terminal No.	Color of Wire	Signal Name
1	BR	-
2	V	-

Connector No.	C125
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	W	-
2	G	-
3	V	-
5	B	-
6	BR	-

Connector No.	C126
Connector Name	TRAILER
Connector Color	BLACK



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

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



Terminal No.	Color of Wire	Signal Name
1	R	-
2	L	-

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

ECU DIAGNOSIS

BCM (BODY CONTROL MODULE)

Reference Value

INFOID:000000004460416

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
IGN ON SW	Ignition switch OFF or ACC	OFF
	Ignition switch ON	ON
KEY ON SW	Mechanical key is removed from key cylinder	OFF
	Mechanical key is inserted to key cylinder	ON
CDL LOCK SW	Door lock/unlock switch does not operate	OFF
	Press door lock/unlock switch to the lock side	ON
CDL UNLOCK SW	Door lock/unlock switch does not operate	OFF
	Press door lock/unlock switch to the unlock side	ON
DOOR SW-DR	Driver's door closed	OFF
	Driver's door opened	ON
DOOR SW-AS	Passenger door closed	OFF
	Passenger door opened	ON
DOOR SW-RR	Rear RH door closed	OFF
	Rear RH door opened	ON
DOOR SW-RL	Rear LH door closed	OFF
	Rear LH door opened	ON
BACK DOOR SW	Back door closed	OFF
	Back door opened	ON
KEY CYL LK-SW	Other than driver door key cylinder LOCK position	OFF
	Driver door key cylinder LOCK position	ON
KEY CYL UN-SW	Other than driver door key cylinder UNLOCK position	OFF
	Driver door key cylinder UNLOCK position	ON
KEYLESS LOCK	"LOCK" button of key fob is not pressed	OFF
	"LOCK" button of key fob is pressed	ON
KEYLESS UNLOCK	"UNLOCK" button of key fob is not pressed	OFF
	"UNLOCK" button of key fob is pressed	ON
ACC ON SW	Ignition switch OFF	OFF
	Ignition switch ACC or ON	ON
REAR DEF SW	Rear window defogger switch OFF	OFF
	Rear window defogger switch ON	ON
LIGHT SW 1ST	Lighting switch OFF	OFF
	Lighting switch 1ST	ON
BUCKLE SW	The seat belt (driver side) is unfastened. [Seat belt switch (driver side) OFF]	OFF
	The seat belt (driver side) is fastened. [Seat belt switch (driver side) ON]	ON
KEYLESS PANIC	PANIC button of key fob is not pressed	OFF
	PANIC button of key fob is pressed	ON

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Monitor Item	Condition	Value/Status
KEYLESS TRUNK	NOTE: The item is indicated, but not monitored.	OFF
TRNK OPN MNTR	NOTE: The item is indicated, but not monitored.	OFF
RKE LCK-UNLCK	LOCK/UNLOCK button of key fob is not pressed and held simultaneously	OFF
	LOCK/UNLOCK button of key fob is pressed and held simultaneously	ON
RKE KEEP UNLK	UNLOCK button of key fob is not pressed	OFF
	UNLOCK button of key fob is pressed and held	ON
HI BEAM SW	Lighting switch OFF	OFF
	Lighting switch HI	ON
HEAD LAMP SW 1	Lighting switch OFF	OFF
	Lighting switch 2ND	ON
HEAD LAMP SW 2	Lighting switch OFF	OFF
	Lighting switch 2ND	ON
AUTO LIGHT SW	NOTE: The item is indicated, but not monitored.	OFF
PASSING SW	Other than lighting switch PASS	OFF
	Lighting switch PASS	ON
FR FOG SW	Front fog lamp switch OFF	OFF
	Front fog lamp switch ON	ON
RR FOG SW	NOTE: The item is indicated, but not monitored.	OFF
TURN SIGNAL R	Turn signal switch OFF	OFF
	Turn signal switch RH	ON
TURN SIGNAL L	Turn signal switch OFF	OFF
	Turn signal switch LH	ON
CARGO LAMP SW	Cargo lamp switch OFF	OFF
	Cargo lamp switch ON	ON
OPTICAL SENSOR	NOTE: The item is indicated, but not monitored.	OFF
IGN SW CAN	Ignition switch OFF or ACC	OFF
	Ignition switch ON	ON
FR WIPER HI	Front wiper switch OFF	OFF
	Front wiper switch HI	ON
FR WIPER LOW	Front wiper switch OFF	OFF
	Front wiper switch LO	ON
FR WIPER INT	Front wiper switch OFF	OFF
	Front wiper switch INT	ON
FR WASHER SW	Front washer switch OFF	OFF
	Front washer switch ON	ON
INT VOLUME	Wiper intermittent dial is in a dial position 1 - 7	1 - 7
FR WIPER STOP	Any position other than front wiper stop position	OFF
	Front wiper stop position	ON
VEHICLE SPEED	While driving	Equivalent to speedometer reading

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Monitor Item	Condition	Value/Status	
RR WIPER ON	Rear wiper switch OFF	OFF	A
	Rear wiper switch ON	ON	
RR WIPER INT	Rear wiper switch OFF	OFF	B
	Rear wiper switch INT	ON	
RR WASHER SW	Rear washer switch OFF	OFF	C
	Rear washer switch ON	ON	
RR WIPER STOP	Any position other than rear wiper stop position	OFF	
	Rear wiper stop position	ON	D
H/L WASH SW	NOTE: The item is indicated, but not monitored.	OFF	
HAZARD SW	Hazard switch OFF	OFF	E
	Hazard switch ON	ON	
BRAKE SW	Brake pedal is not depressed	OFF	
	Brake pedal is depressed	ON	F
FAN ON SIG	Blower fan motor switch OFF	OFF	
	Blower fan motor switch ON (other than OFF)	ON	G
AIR COND SW	Compressor ON is not requested from auto amp. (A/C indicator OFF, blower fan motor switch OFF or etc.)	OFF	
	Compressor ON is requested from auto amp. (A/C indicator ON and blower fan motor switch ON).	ON	H
TRNK OPNR SW	NOTE: The item is indicated, but not monitored.	OFF	
TRUNK CYL SW	NOTE: The item is indicated, but not monitored.	OFF	I
HOOD SW	NOTE: The item is indicated, but not monitored.	OFF	J
OIL PRESS SW	• Ignition switch OFF or ACC • Engine running	OFF	
	Ignition switch ON	ON	K
AIR PRESS FL	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of front LH tire	EXL
AIR PRESS FR	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of front RH tire	
AIR PRESS RR	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of rear RH tire	M
AIR PRESS RL	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of rear LH tire	
ID REGST FL1	ID of front LH tire transmitter is registered	DONE	N
	ID of front LH tire transmitter is not registered	YET	
ID REGST FR1	ID of front RH tire transmitter is registered	DONE	O
	ID of front RH tire transmitter is not registered	YET	
ID REGST RR1	ID of rear RH tire transmitter is registered	DONE	
	ID of rear RH tire transmitter is not registered	YET	P
ID REGST RL1	ID of rear LH tire transmitter is registered	DONE	
	ID of rear LH tire transmitter is not registered	YET	
WARNING LAMP	Tire pressure indicator OFF	OFF	
	Tire pressure indicator ON	ON	

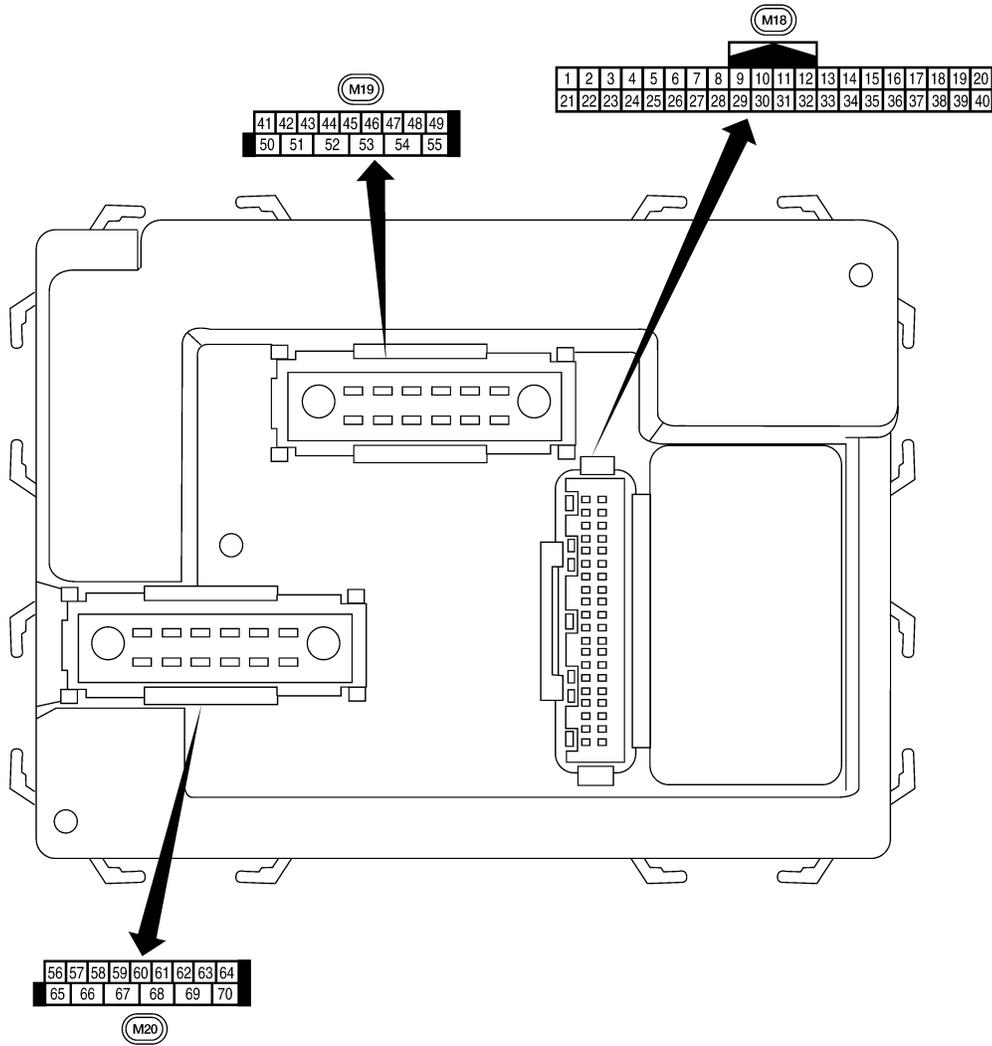
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Monitor Item	Condition	Value/Status
BUZZER	Tire pressure warning alarm is not sounding	OFF
	Tire pressure warning alarm is sounding	ON

Terminal Layout

INFOID:000000004460417



BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Physical Values

INFOID:000000004460418

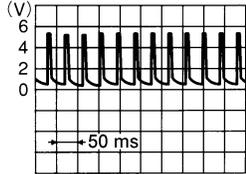
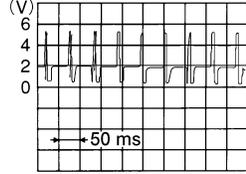
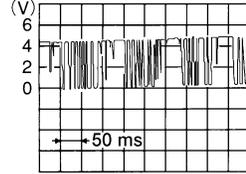
Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
1	BR	Ignition keyhole illumination	Output	OFF	Door is locked (SW OFF)	Battery voltage
					Door is unlocked (SW ON)	0V
2	P	Combination switch input 5	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	<p>RJH180D</p>
3	SB	Combination switch input 4	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	<p>RJH181D</p>
4	V	Combination switch input 3	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	<p>RJH180D</p>
5	L	Combination switch input 2	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	<p>RJH181D</p>
6	R	Combination switch input 1				
7	GR	Front door lock assembly LH (key cylinder switch) and back door key cylinder switch (unlock)	Input	OFF	ON (open, 2nd turn)	Momentary 1.5V
					OFF (closed)	0V
8	SB	Front door lock assembly LH (key cylinder switch) and back door key cylinder switch (lock)	Input	OFF	ON (open)	Momentary 1.5V
					OFF (closed)	0V
9	Y	Rear window defogger switch	Input	ON	Rear window defogger switch ON	0V
					Rear window defogger switch OFF	5V
11	G/B	Ignition switch (ACC or ON)	Input	ACC or ON	Ignition switch ACC or ON	Battery voltage

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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
12	LG	Front door switch RH	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage
13	L	Rear door switch RH	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage
15	W	Tire pressure warning check connector	Input	OFF	—	5V
18	BR	Remote keyless entry receiver and optical sensor (ground)	Output	OFF	—	0V
19	V	Remote keyless entry receiver (power supply)	Output	OFF	Ignition switch OFF	 KHE0782D
20	G	Remote keyless entry receiver (signal)	Input	OFF	Stand-by (keyfob buttons released)	 KHE0783D
					When remote keyless entry receiver receives signal from keyfob (keyfob buttons pressed)	 KHE0784D
21	GR	NATS antenna amp.	Input	OFF → ON	Ignition switch (OFF → ON)	Just after turning ignition switch ON: Pointer of tester should move for approx. 1 second, then return to battery voltage.
23	G	Security indicator lamp	Output	OFF	Goes OFF → illuminates (Every 2.4 seconds)	Battery voltage → 0V
25	BR	NATS antenna amp.	Input	OFF → ON	Ignition switch (OFF → ON)	Just after turning ignition switch ON: Pointer of tester should move for approx. 1 second, then return to battery voltage.
27	W	Compressor ON signal	Input	ON	A/C switch OFF	5V
					A/C switch ON	0V
28	R	Front blower monitor	Input	ON	Front blower motor OFF	Battery voltage
					Front blower motor ON	0V
29	G	Hazard switch	Input	OFF	ON	0V
					OFF	5V
31	R	Off-road lamps switch	Input	ON	ON	0V
					OFF	5V

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
32	O	Combination switch output 5	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	<p style="text-align: right;">RJ180D</p>
33	GR	Combination switch output 4	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	<p style="text-align: right;">RJ181D</p>
34	G	Combination switch output 3	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	<p style="text-align: right;">RJ180D</p>
35	BR	Combination switch output 2	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	<p style="text-align: right;">RJ181D</p>
36	LG	Combination switch output 1				
37	B	Key switch and key lock solenoid	Input	OFF	Key inserted	Battery voltage
					Key inserted	0V
38	W/R	Ignition switch (ON)	Input	ON	—	Battery voltage
39	L	CAN-H	—	—	—	—
40	P	CAN-L	—	—	—	—
42	L	Off-road lamps	Output	ON	Off-road lamps switch	ON: 0V OFF: Battery voltage
43	Y	Back door switch	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage
44	O	Rear wiper auto stop switch	Input	ON	Rise up position (rear wiper arm on stopper)	0V
					A Position (full clockwise stop position)	Battery voltage
					Forward sweep (counterclockwise direction)	Fluctuating
					B Position (full counterclockwise stop position)	0V
					Reverse sweep (clockwise direction)	Fluctuating

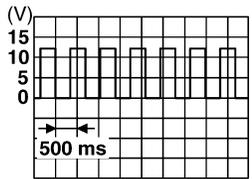
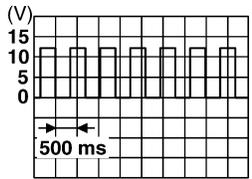
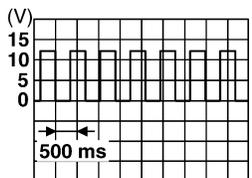
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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)	
				Ignition switch	Operation or condition		
45	V	Lock switch	Input	OFF	ON (lock)	0V	
					OFF	Battery voltage	
46	LG	Unlock switch	Input	OFF	ON (unlock)	0V	
					OFF	Battery voltage	
47	GR	Front door switch LH	Input	OFF	ON (open)	0V	
					OFF (closed)	Battery voltage	
48	P	Rear door switch LH	Input	OFF	ON (open)	0V	
					OFF (closed)	Battery voltage	
49	L	Cargo lamp	Output	OFF	Any door open (ON)	0V	
					All doors closed (OFF)	Battery voltage	
50	W	Off-road lamps relay	Output	ON	Off-road lamps switch	ON	0V
					OFF	Battery voltage	
51	G	Trailer turn signal (right)	Output	ON	Turn right ON	 <p style="text-align: right; font-size: small;">RJ H2 / 81</p>	
52	V	Trailer turn signal (left)	Output	ON	Turn left ON	 <p style="text-align: right; font-size: small;">RJ H2 / 81</p>	
55	W	Rear wiper output circuit 1	Output	ON	OFF	0	
					ON	Battery voltage	
56	V	Battery saver output	Output	OFF	30 minutes after ignition switch is turned OFF	0V	
				ON	—	Battery voltage	
57	R/Y	Battery power supply	Input	OFF	—	Battery voltage	
59	GR	Front door lock assembly LH actuator (unlock)	Output	OFF	OFF (neutral)	0V	
					ON (unlock)	Battery voltage	
60	LG	Turn signal (left)	Output	ON	Turn left ON	 <p style="text-align: right; font-size: small;">RJ H2 / 81</p>	

BCM (BODY CONTROL MODULE)

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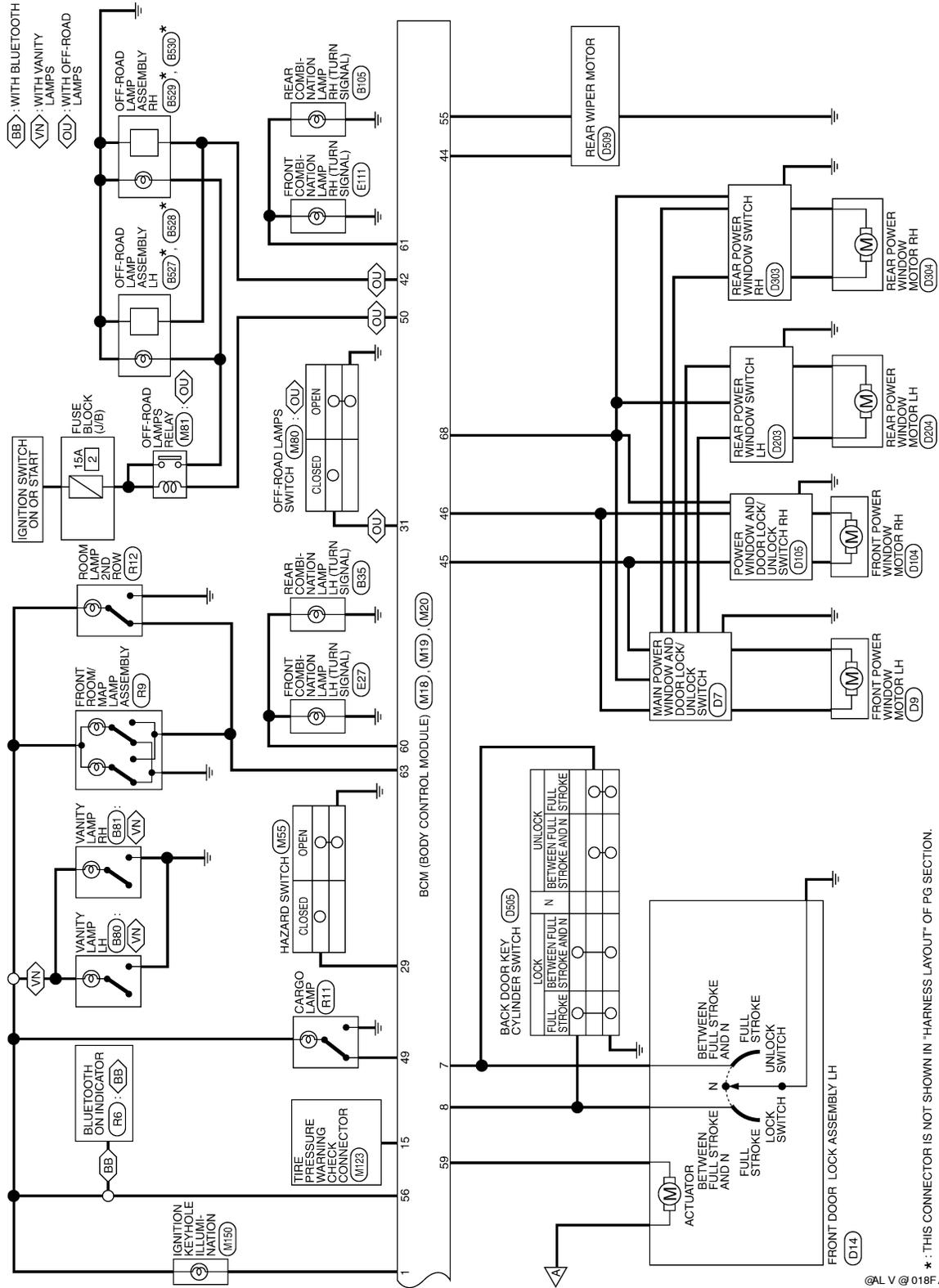
Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)	
				Ignition switch	Operation or condition		
61	G	Turn signal (right)	Output	ON	Turn right ON		
63	BR	Interior room/map lamp	Output	OFF	Any door switch	ON (open) 0V	
						OFF (closed) Battery voltage	
65	V	All door lock actuators (lock)	Output	OFF	OFF (neutral)	0V	
						ON (lock) Battery voltage	
66	L	Front door lock actuator RH, rear door lock actuators LH/RH and back door lock actuator (unlock)	Output	OFF	OFF (neutral)	0V	
						ON (unlock) Battery voltage	
67	B	Ground	Input	ON	—	0V	
68	O	Power window power supply (RAP)	Output	—	Ignition switch ON	Battery voltage	
						Within 45 seconds after ignition switch OFF	Battery voltage
						More than 45 seconds after ignition switch OFF	0V
						When front door LH or RH is open or power window timer operates	0V
70	W	Battery power supply	Input	OFF	—	Battery voltage	

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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >



* : THIS CONNECTOR IS NOT SHOWN IN "HARNES LAYOUT" OF PG SECTION.

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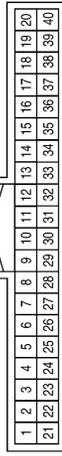
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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

BCM (BODY CONTROL MODULE) CONNECTORS

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



Terminal No.	Color of Wire	Signal Name
1	BR	KEY RING OUTPUT
2	P	INPUT 5
3	SB	INPUT 4
4	V	INPUT 3
5	L	INPUT 2
6	R	INPUT 1

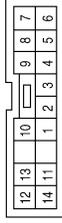
Terminal No.	Color of Wire	Signal Name
7	GR	KEY CYLINDER UNLOCK SW
8	SB	KEY CYLINDER LOCK SW
9	Y	DEFOGGER SW
10	-	-
11	G/B	ACC. SW
12	LG	DOOR SW (AS)
13	L	DOOR SW (RR)
14	-	-
15	W	TPMS MODE TRIGGER SW
16	-	-
17	-	-
18	BR	KEYLESS & AUTO LIGHT SENSOR GND
19	V	KEYLESS TUNER POWER SUPPLY OUTPUT
20	G	KEYLESS TUNER SIGNAL
21	GR	IMMOBILIZER ANTENNA SIGNAL (CLOCK)

Terminal No.	Color of Wire	Signal Name
22	-	-
23	G	SECURITY INDICATOR OUTPUT
24	-	-
25	BR	IMMOBILIZER ANTENNA SIG (RX, TX)
26	-	-
27	W	AIRCON SW
28	R	BLOWER FAN SW
29	G	HAZARD SW
30	-	-
31	R	OFF ROAD LAMP SW
32	O	OUTPUT 5
33	GR	OUTPUT 4
34	G	OUTPUT 3
35	BR	OUTPUT 2
36	LG	OUTPUT 1
37	B	KEY SW
38	W/R	IGN SW
39	L	CAN-H
40	P	CAN-L

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



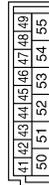
Terminal No.	Color of Wire	Signal Name
1	LG	INPUT 1
2	BR	INPUT 2
3	G	INPUT 3
4	GR	INPUT 4
5	O	INPUT 5
6	R	OUTPUT 1
7	L	OUTPUT 2
8	P	OUTPUT 5
9	SB	OUTPUT 4
10	V	OUTPUT 3
11	O	WASH FR (-) RR (+)
12	B	GND
13	L	WASH FR (+) RR (-)
14	W	IGN

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



Terminal No.	Color of Wire	Signal Name
56	V	BATTERY SAVER OUTPUT
57	R/Y	BAT (FUSE)
58	-	-
59	GR	DOOR UNLOCK OUTPUT (DR)
60	LG	FLASHER OUTPUT (LEFT)
61	G	FLASHER OUTPUT (RIGHT)
62	-	-
63	BR	ROOM LAMP OUTPUT
64	-	-
65	V	DOOR LOCK OUTPUT (ALL)
66	L	DOOR UNLOCK OUTPUT (OTHER)
67	B	GND (POWER)
68	O	POWER WINDOW POWER SUPPLY OUT (LINKED TO RAP)
69	-	-
70	W	BAT (F/L)

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



Terminal No.	Color of Wire	Signal Name
41	-	-
42	L	PCA OUTPUT
43	Y	BACK DOOR SW
44	O	REAR WIPER AUTO STOP SW1
45	V	CDL LOCK SW
46	LG	CDL UNLOCK SW
47	GR	DOOR SW (DR)
48	P	DOOR SW (RL)
49	L	CARGO LAMP OUTPUT
50	W	OFF ROAD LAMP OUTPUT
51	G	TRAILER FLASHER OUTPUT (RIGHT)
52	V	TRAILER FLASHER OUTPUT (LEFT)
53	-	-
54	-	-
55	W	REAR WIPER MOTOR OUTPUT 1

Fail Safe

Fail-safe index

BCM performs fail-safe control when any DTC listed below is detected.

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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Display contents of CONSULT	Fail-safe	Cancellation
U1000: CAN COMM CIRCUIT	Inhibit engine cranking	When the BCM re-establishes communication with the other modules.
U1010: CONTROL UNIT (CAN)	Inhibit engine cranking	When the BCM re-start communicating with the other modules.

DTC Inspection Priority Chart

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If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

Priority	DTC
1	<ul style="list-style-type: none"> • U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN)
2	<ul style="list-style-type: none"> • B2190: NATS ANTENNA AMP • B2191: DIFFERENCE OF KEY • B2192: ID DISCORD BCM-ECM • B2193: CHAIN OF BCM-ECM
3	<ul style="list-style-type: none"> • C1729: VHCL SPEED SIG ERR • C1735: IGNITION SIGNAL
4	<ul style="list-style-type: none"> • C1704: LOW PRESSURE FL • C1705: LOW PRESSURE FR • C1706: LOW PRESSURE RR • C1707: LOW PRESSURE RL • C1708: [NO DATA] FL • C1709: [NO DATA] FR • C1710: [NO DATA] RR • C1711: [NO DATA] RL • C1712: [CHECKSUM ERR] FL • C1713: [CHECKSUM ERR] FR • C1714: [CHECKSUM ERR] RR • C1715: [CHECKSUM ERR] RL • C1716: [PRESSDATA ERR] FL • C1717: [PRESSDATA ERR] FR • C1718: [PRESSDATA ERR] RR • C1719: [PRESSDATA ERR] RL • C1720: [CODE ERR] FL • C1721: [CODE ERR] FR • C1722: [CODE ERR] RR • C1723: [CODE ERR] RL • C1724: [BATT VOLT LOW] FL • C1725: [BATT VOLT LOW] FR • C1726: [BATT VOLT LOW] RR • C1727: [BATT VOLT LOW] RL

DTC Index

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NOTE:

- Details of time display
- CRNT: Displays when there is a malfunction now or after returning to the normal condition until turning ignition switch OFF → ON again.
- 1 - 39: Displayed if any previous malfunction is present when current condition is normal. It increases like 1 → 2 → 3...38 → 39 after returning to the normal condition whenever ignition switch OFF → ON. The counter remains at 39 even if the number of cycles exceeds it. It is counted from 1 again when turning ignition switch OFF → ON after returning to the normal condition if the malfunction is detected again.

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

CONSULT display	Fail-safe	Tire pressure monitor warning lamp ON	Reference page
No DTC is detected. further testing may be required.	—	—	—
U1000: CAN COMM CIRCUIT	—	—	BCS-31
U1010: CONTROL UNIT (CAN)	—	—	BCS-32
B2190: NATS ANTENNA AMP	—	—	SEC-18
B2191: DIFFERENCE OF KEY	—	—	SEC-21
B2192: ID DISCORD BCM-ECM	—	—	SEC-22
B2193: CHAIN OF BCM-ECM	—	—	SEC-24
C1708: [NO DATA] FL	—	—	WT-14
C1709: [NO DATA] FR	—	—	WT-14
C1710: [NO DATA] RR	—	—	WT-14
C1711: [NO DATA] RL	—	—	WT-14
C1712: [CHECKSUM ERR] FL	—	—	WT-16
C1713: [CHECKSUM ERR] FR	—	—	WT-16
C1714: [CHECKSUM ERR] RR	—	—	WT-16
C1715: [CHECKSUM ERR] RL	—	—	WT-16
C1716: [PRESSDATA ERR] FL	—	—	WT-18
C1717: [PRESSDATA ERR] FR	—	—	WT-18
C1718: [PRESSDATA ERR] RR	—	—	WT-18
C1719: [PRESSDATA ERR] RL	—	—	WT-18
C1720: [CODE ERR] FL	—	—	WT-16
C1721: [CODE ERR] FR	—	—	WT-16
C1722: [CODE ERR] RR	—	—	WT-16
C1723: [CODE ERR] RL	—	—	WT-16
C1724: [BATT VOLT LOW] FL	—	—	WT-16
C1725: [BATT VOLT LOW] FR	—	—	WT-16
C1726: [BATT VOLT LOW] RR	—	—	WT-16
C1727: [BATT VOLT LOW] RL	—	—	WT-16
C1729: VHCL SPEED SIG ERR	—	—	WT-19
C1735: IGNITION SIGNAL	—	—	—

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

< ECU DIAGNOSIS >

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

Reference Value

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VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition		Value/Status
MOTOR FAN REQ	Engine idle speed	Changes depending on engine coolant temperature, air conditioner operation status, vehicle speed, etc.	0 - 100 %
A/C COMP REQ	A/C switch OFF		OFF
	A/C switch ON		ON
TAIL&CLR REQ	Lighting switch OFF		OFF
	Lighting switch 1ST, 2ND, HI or AUTO (Light is illuminated)		ON
HL LO REQ	Lighting switch OFF		OFF
	Lighting switch 2ND HI or AUTO (Light is illuminated)		ON
HL HI REQ	Lighting switch OFF		OFF
	Lighting switch HI		ON
FR FOG REQ	Lighting switch 2ND	Front fog lamp switch OFF	OFF
		Front fog lamp switch ON	ON
HL WASHER REQ	NOTE: This item is displayed, but cannot be monitored.		OFF
FR WIP REQ	Ignition switch ON	Front wiper switch OFF	STOP
		Front wiper switch INT	1LOW
		Front wiper switch LO	LOW
		Front wiper switch HI	HI
WIP AUTO STOP	Ignition switch ON	Front wiper stop position	STOP P
		Any position other than front wiper stop position	ACT P
WIP PROT	Ignition switch ON	Front wiper operates normally	OFF
		Front wiper stops at fail-safe operation	BLOCK
ST RLY REQ	Ignition switch OFF or ACC		OFF
	Ignition switch START		ON
IGN RLY	Ignition switch OFF or ACC		OFF
	Ignition switch ON		ON
RR DEF REQ	Rear defogger switch OFF		OFF
	Rear defogger switch ON		ON
OIL P SW	Ignition switch OFF, ACC or engine running		OPEN
	Ignition switch ON		CLOSE
DTRL REQ	NOTE: This item is displayed, but cannot be monitored.		OFF
HOOD SW	NOTE: This item is displayed, but cannot be monitored.		OFF

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

< ECU DIAGNOSIS >

Monitor Item	Condition	Value/Status
THFT HRN REQ	Not operated	OFF
	<ul style="list-style-type: none">• Panic alarm is activated• Horn is activated with VEHICLE SECURITY (THEFT WARNING) SYSTEM	ON
HORN CHIRP	Not operated	OFF
	Door locking with keyfob (horn chirp mode)	ON

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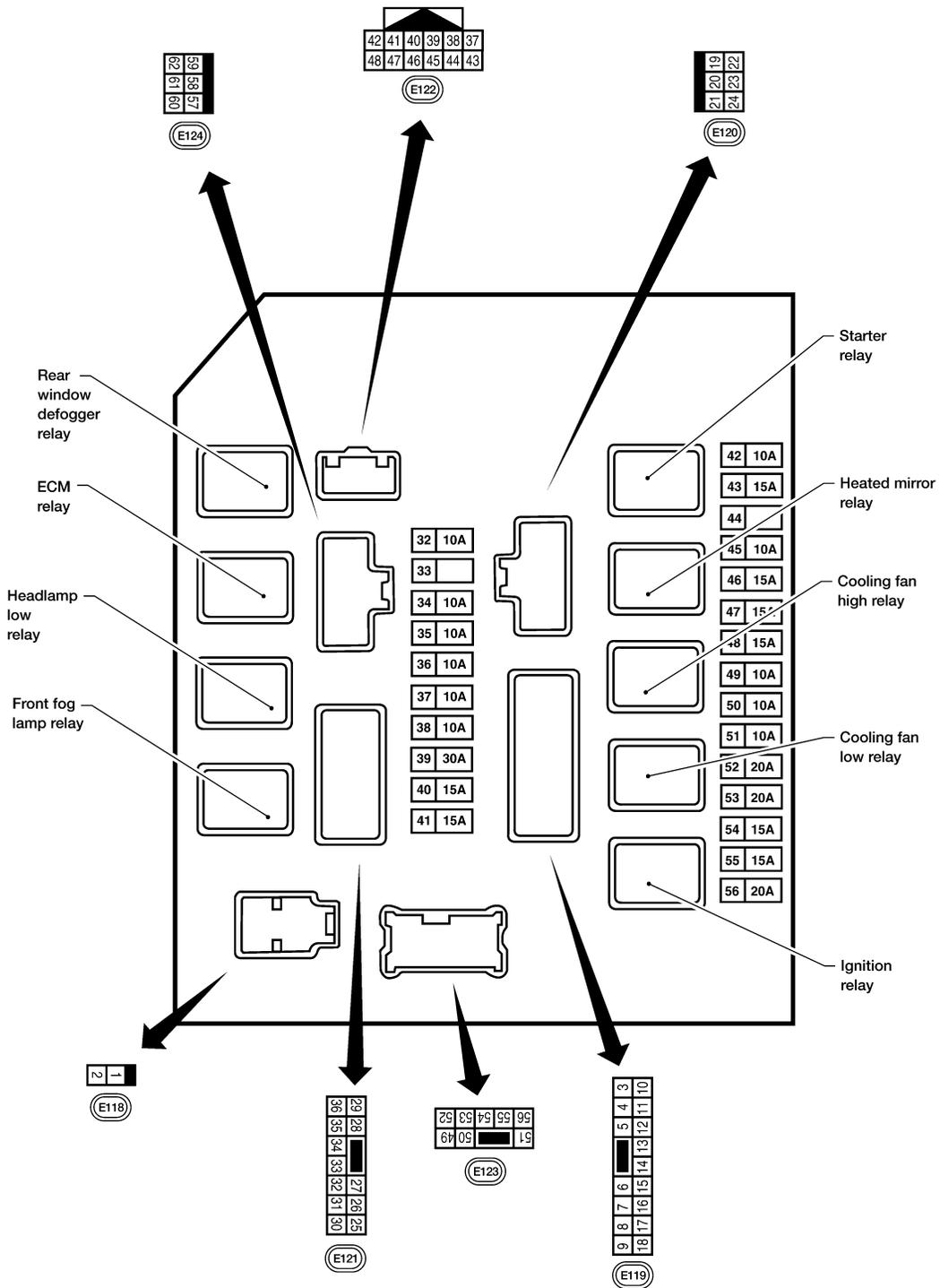
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

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Terminal Layout

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TERMINAL LAYOUT



Physical Values

PHYSICAL VALUES

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

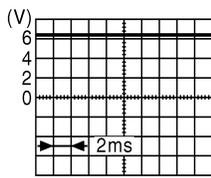
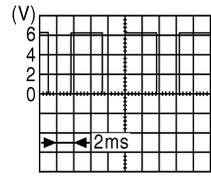
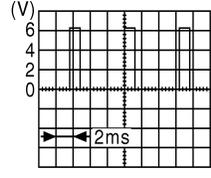
< ECU DIAGNOSIS >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value (Approx.)
				Ignition switch	Operation or condition	
1	W	Battery power supply	Input	OFF	—	Battery voltage
2	R	Battery power supply	Input	OFF	—	Battery voltage
3	G	ECM relay	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
4	P	ECM relay	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
6	V	Throttle control motor relay	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
7	BR	ECM relay control	Input	—	Ignition switch ON or START	0V
					Ignition switch OFF or ACC	Battery voltage
8	W/R	Fuse 54	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
10	R/B	Fuse 45	Output	ON	Daytime light system active	0V
					Daytime light system inactive	Battery voltage
11	Y	A/C compressor	Output	ON or START	A/C switch ON or defrost A/C switch	Battery voltage
					A/C switch OFF or defrost A/C switch	0V
12	W/G	Ignition switch supplied power	Input	—	OFF or ACC	0V
					ON or START	Battery voltage
13	R	Fuel pump relay	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
14	W/G	Fuse 49	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
15	W/R	Fuse 50 (ABS)	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
16	W/G	Fuse 51	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
17	W/G	Fuse 55	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
19	W	Starter motor	Output	START	—	Battery voltage
20	BR	Cooling fan motor (low)	Output	ON or START	—	Battery voltage
21	GR	Ignition switch supplied power	Input	—	OFF or ACC	0V
					START	Battery voltage
22	G	Battery power supply	Output	OFF	—	Battery voltage
23	LG	Door mirror defogger output signal	Output	—	When rear defogger switch is ON	Battery voltage
					When raker defogger switch is OFF	0V

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

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Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value (Approx.)
				Ignition switch	Operation or condition	
24	P	Cooling fan motor (high)	Output	—	Conditions correct for cooling fan operation	Battery voltage
					Conditions not correct for cooling fan operation	0V
27	W	Fuse 38	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
28	R	LH front parking and front side marker lamp	Output	OFF	Lighting switch 1st position OFF	0V
					Lighting switch 1st position ON	Battery voltage
29	G	Trailer tow relay	Output	ON	Lighting switch 1st position OFF	0V
					Lighting switch 1st position ON	Battery voltage
30	R/B	Fuse 53	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
32	GR	Wiper low speed signal	Output	ON or START	Wiper switch OFF	Battery voltage
					Wiper switch LO or INT	0V
35	L	Wiper high speed signal	Output	ON or START	Wiper switch OFF, LO, INT	Battery voltage
					Wiper switch HI	0V
37	Y	Power generation command signal	Output	—	Ignition switch ON	 <p>6.3 V</p> <p>1 ΩL H@ // 0F A</p>
					40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE"	 <p>3.8 V</p> <p>1 ΩL H@ // 1F A</p>
					40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE"	 <p>1.4 V</p> <p>1 ΩL H@ // 2F A</p>
38	B	Ground	Input	—	—	0V
39	L	CAN-H	—	ON	—	—
40	P	CAN-L	—	ON	—	—
42	GR	Oil pressure switch	Input	—	Engine running	Battery voltage
					Engine stopped	0V

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

< ECU DIAGNOSIS >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value (Approx.)
				Ignition switch	Operation or condition	
43	G	Wiper auto stop signal	Input	ON or START	Wiper switch OFF, LO, INT	Battery voltage
44	R	Daytime light relay control (Canada only)	Input	ON	Daytime light system active	0V
					Daytime light system inactive	Battery voltage
45	LG	Horn relay control	Input	ON	When door locks are operated using keyfob (OFF → ON)*	Battery voltage → 0V
46	V	Fuel pump relay control	Input	—	Ignition switch ON or START	0V
					Ignition switch OFF or ACC	Battery voltage
47	O	Throttle control motor relay control	Input	—	Ignition switch ON or START	0V
					Ignition switch OFF or ACC	Battery voltage
48	R	Starter relay (inhibit switch)	Input	ON or START	Selector lever in "P" or "N"	0V
					Selector lever any other position	Battery voltage
49	GR	Front RH parking and front side marker lamp	Output	OFF	Lighting switch 1st position OFF	0V
					ON	Battery voltage
50	W	Front fog lamp (LH)	Output	ON or START	Lighting switch must be in the 2nd position (LOW beam is ON) and the front fog lamp switch OFF	0V
					ON	Battery voltage
51	V	Front fog lamp (RH)	Output	ON or START	Lighting switch must be in the 2nd position (LOW beam is ON) and the front fog lamp switch OFF	0V
					ON	Battery voltage
52	P	LH low beam head-lamp	Output	—	Lighting switch in 2nd position	Battery voltage
54	R	RH low beam head-lamp	Output	—	Lighting switch in 2nd position	Battery voltage
55	G	LH high beam head-lamp	Output	—	Lighting switch in 2nd position and placed in HIGH or PASS position	Battery voltage
56	L	RH high beam head-lamp	Output	—	Lighting switch in 2nd position and placed in HIGH or PASS position	Battery voltage
57	GR	Parking, license and tail lamps and off-road lamp switch	Output	ON	Lighting switch 1st position OFF	0V
					ON	Battery voltage
59	B	Ground	Input	—	—	0V
60	GR	Rear window defogger relay	Output	ON or START	Rear defogger switch ON	Battery voltage
					Rear defogger switch OFF	0V
61	R/B	Fuse 32	Output	OFF	—	Battery voltage

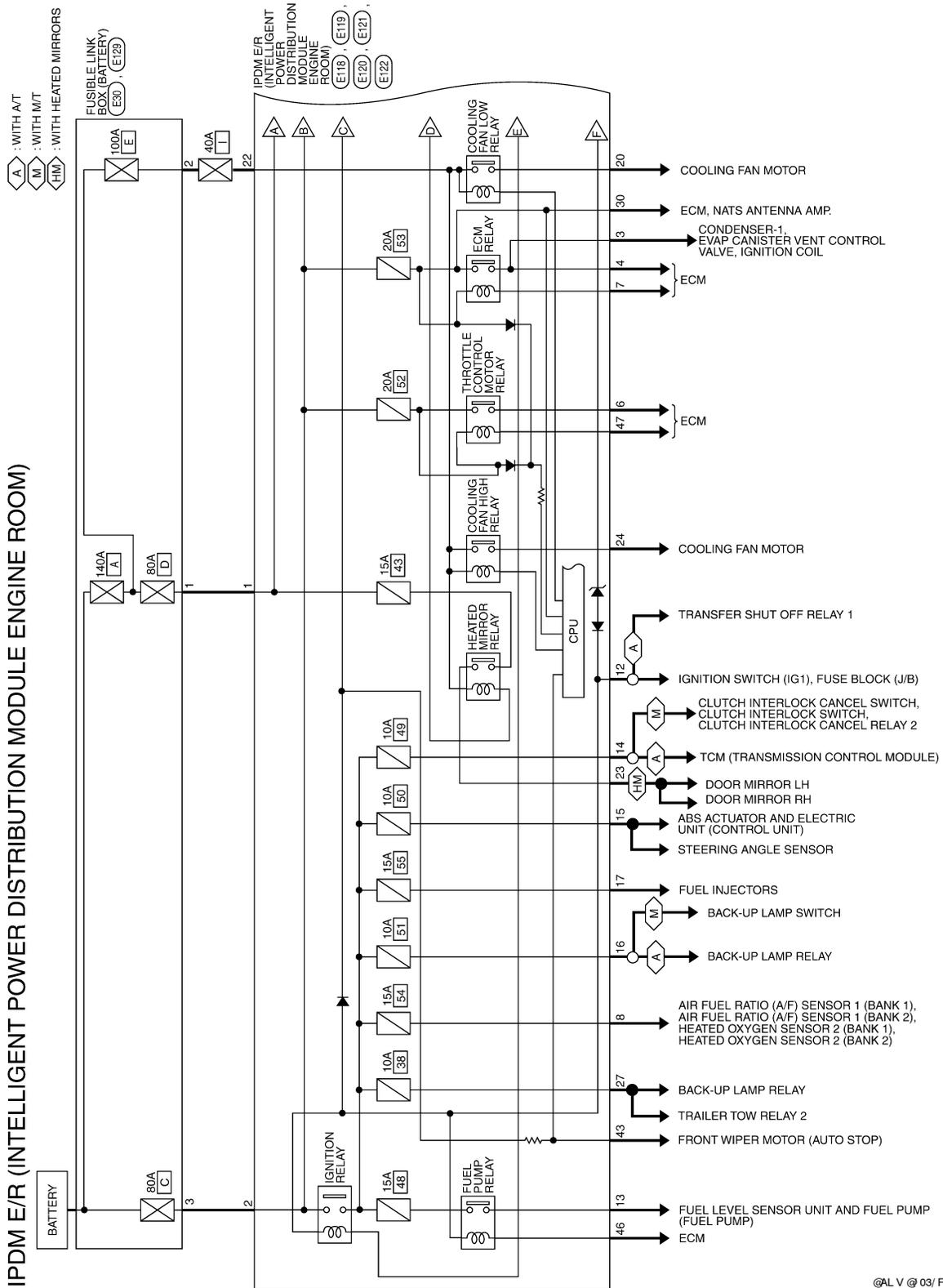
*: When horn reminder is ON

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

< ECU DIAGNOSIS >

Wiring Diagram

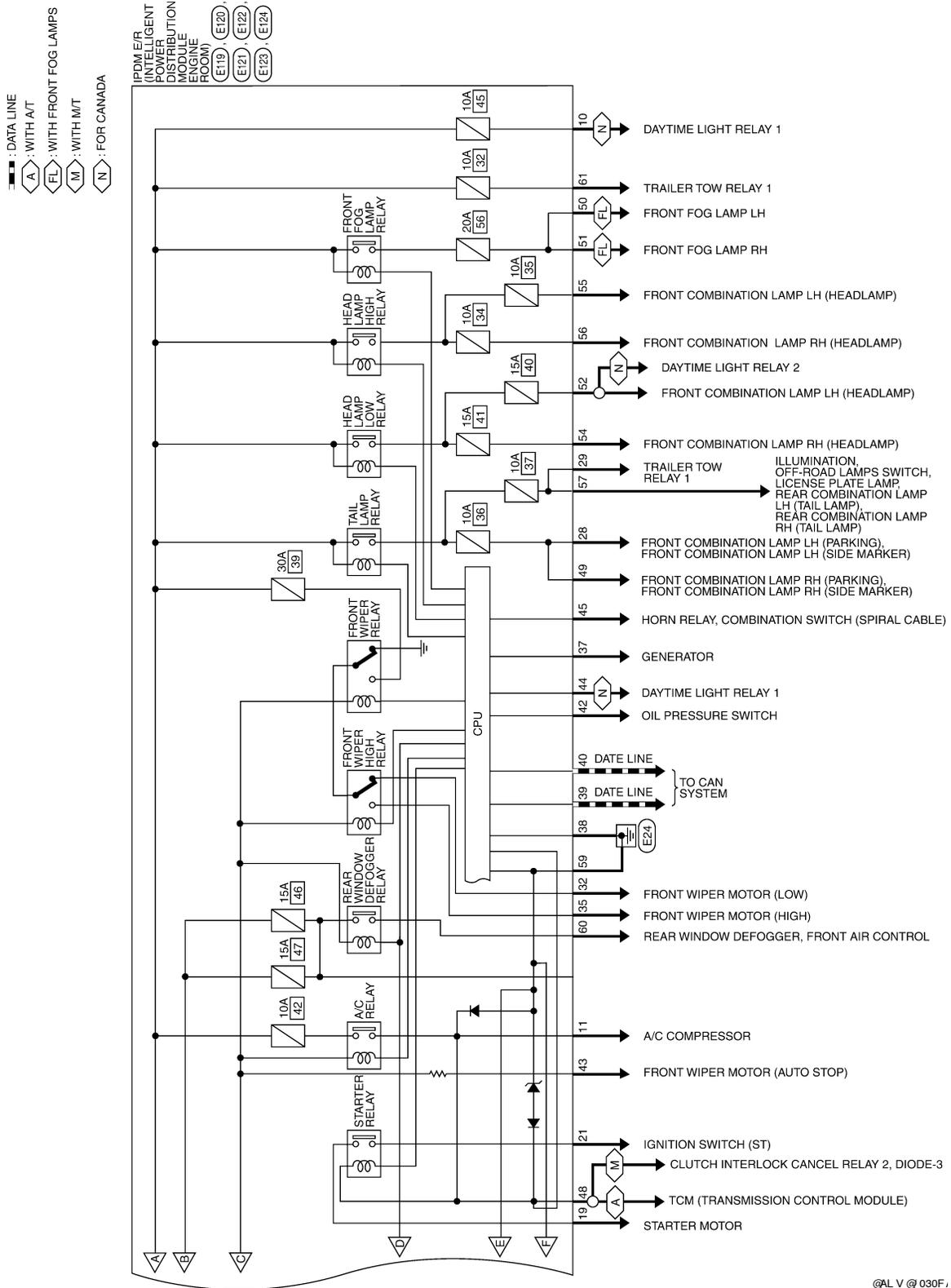
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IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

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

Connector No.	E30
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	—



Terminal No.	Color of Wire	Signal Name
3	R	—

Connector No.	E118
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	W	F/L USM
2	R	F/L MAIN

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



Terminal No.	Color of Wire	Signal Name
3	G	IGN COIL
4	P	ECM
5	—	—
6	V	ETC

Terminal No.	Color of Wire	Signal Name
7	BR	ECM RLY CONT
8	W/R	O2 SENSOR
9	—	—
10	R/B	DTRL RLY SUPPLY
11	Y	A/C COMPRESSOR
12	W/G	IGN SW (IG1)
13	R	FUEL PUMP
14	W/G	A/T ECU IGN SUPPLY
15	W/R	ABS IGN SUPPLY
16	W/G	REVERSE LAMP
17	W/G	INJECTOR
18	—	—

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



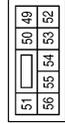
Terminal No.	Color of Wire	Signal Name
19	W	STARTER MTR
20	BR	MOTOR FAN 1
21	GR	IGN SW (ST)
22	G	F/L M/FAN
23	LG	HEATED MIRROR
24	P	MOTOR FAN 2

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

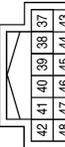
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Connector No.	E123
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



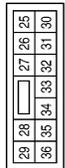
Terminal No.	Color of Wire	Signal Name
49	GR	ILLUMINATION
50	W	FR FOG LAMP LH
51	V	FR FOG LAMP RH
52	P	H/LAMP LO LH
53	-	-
54	R	H/LAMP LO RH
55	G	H/LAMP HI LH
56	L	H/LAMP HI RH

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



Terminal No.	Color of Wire	Signal Name
37	Y	ALT-C CONT
38	B	GND (SIGNAL)
39	L	CAN-H
40	P	CAN-L
41	-	-
42	GR	OIL PRESSURE SW
43	G	AUTO STOP SW
44	R	DTRL RLY CONT
45	LG	ANT THEFT HORN
46	V	FUEL PUMP RLY CONT
47	O	ETC RLY CONT
48	R	INHIBIT SW

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



Terminal No.	Color of Wire	Signal Name
25	-	-
26	-	-
27	W	T TOW REV LAMP
28	R	ILLUMINATION
29	G	TRAILER RLY CONT
30	R/B	ECM BATT
31	-	-
32	GR	FR WIPER LO
33	-	-
34	-	-
35	L	FR WIPER HI
36	-	-

Connector No.	E129
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1	W	-
2	R	-

Terminal No.	Color of Wire	Signal Name
57	GR	TAIL LAMP
58	-	-
59	B	GND (POWER)
60	GR	RR DEF
61	R/B	TRAIL_RLY SUPPLY
62	-	-

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



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Fail Safe

CAN COMMUNICATION CONTROL

When CAN communication with ECM and BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If No CAN Communication Is Available With ECM

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

< ECU DIAGNOSIS >

Control part	Fail-safe in operation
Cooling fan	<ul style="list-style-type: none"> • Turns ON the cooling fan relay when the ignition switch is turned ON • Turns OFF the cooling fan relay when the ignition switch is turned OFF

If No CAN Communication Is Available With BCM

Control part	Fail-safe in operation
Headlamp	<ul style="list-style-type: none"> • Turns ON the headlamp low relay when the ignition switch is turned ON • Turns OFF the headlamp low relay when the ignition switch is turned OFF • Headlamp (LH/RH) high relays OFF
<ul style="list-style-type: none"> • Parking lamps • License plate lamps • Tail lamps 	<ul style="list-style-type: none"> • Turns ON the tail lamp relay when the ignition switch is turned ON • Turns OFF the tail lamp relay when the ignition switch is turned OFF
Front wiper	<ul style="list-style-type: none"> • The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed. • The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode and the front wiper motor is operating.
Rear window defogger	Rear window defogger relay OFF
A/C compressor	A/C relay OFF
Front fog lamps (if equipped)	Front fog lamp relay OFF

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

- IPDM E/R monitors the voltage at the contact circuit and excitation coil circuit of the ignition relay inside it.
- IPDM E/R judges the ignition relay error if the voltage differs between the contact circuit and the excitation coil circuit.
- If the ignition relay cannot turn OFF due to contact seizure, it activates the tail lamp relay for 10 minutes to alert the user to the ignition relay malfunction when the ignition switch is turned OFF.

Ignition switch	Ignition relay	Tail lamp relay
ON	ON	—
OFF	OFF	—

NOTE:

The tail lamp turns OFF when the ignition switch is turned ON.

FRONT WIPER CONTROL

IPDM E/R detects front wiper stop position by a front wiper auto stop signal.

When a front wiper auto stop signal is in the conditions listed below, IPDM E/R stops power supply to wiper after repeating a front wiper 10 second activation and 20 second stop five times.

Ignition switch	Front wiper switch	Auto stop signal
ON	OFF	Front wiper stop position signal cannot be input 10 seconds.
	ON	The signal does not change for 10 seconds.

NOTE:

This operation status can be confirmed on the IPDM E/R “DATA MONITOR” that displays “Block” for the item “WIP PROT” while the wiper is stopped.

STARTER MOTOR PROTECTION FUNCTION

IPDM E/R turns OFF the starter control relay to protect the starter motor when the starter control relay remains active for 90 seconds.

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

< ECU DIAGNOSIS >

DTC Index

INFOID:000000004460431

CONSULT-III display	Fail-safe	TIME ^{NOTE}		Refer to
No DTC is detected. further testing may be required.	—	—	—	—
U1000: CAN COMM CIRCUIT	×	CRNT	1 – 39	PCS-18

NOTE:

The details of TIME display are as follows.

- CRNT: The malfunctions that are detected now
- 1 - 39: The number is indicated when it is normal at present and a malfunction was detected in the past. It increases like 0 → 1 → 2 ... 38 → 39 after returning to the normal condition whenever IGN OFF → ON. It is fixed to 39 until the self-diagnosis results are erased if it is over 39. It returns to 0 when a malfunction is detected again in the process.

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EXTERIOR LIGHTING SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

EXTERIOR LIGHTING SYSTEM SYMPTOMS

Symptom Table

INFOID:000000004065577

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	<ul style="list-style-type: none"> • 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-36 .
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS DO NOT SWITCH TO HIGH BEAM" Refer to EXL-134 .	
High beam indicator lamp is not turned ON. (Headlamp switches to the high beam.)		<ul style="list-style-type: none"> • Combination meter • BCM 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Combination switch • Harness between the combination switch and BCM • BCM 	Combination switch Refer to BCS-7 .
		High beam request signal	IPDM E/R Data monitor "HL HI REQ"
		IPDM E/R	—
Headlamp does not turn ON.	One side	<ul style="list-style-type: none"> • Fuse • Bulb • Harness between IPDM E/R and the front combination lamp • Front combination lamp • IPDM E/R 	Headlamp (LO) circuit Refer to EXL-38 .
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON" Refer to EXL-135 .	
Headlamp does not turn OFF.	When the ignition switch is turned ON	<ul style="list-style-type: none"> • BCM • Combination switch 	Combination switch Refer to BCS-7 .
	The ignition switch is turned OFF (After activating the battery saver).	IPDM E/R	—
Daytime light system does not activate.		<ul style="list-style-type: none"> • 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 .

EXTERIOR LIGHTING SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

Symptom		Possible cause	Inspection item
Off-road lamps are not turned ON.	One side	<ul style="list-style-type: none"> Off-road lamps bulb Harness between Off-road lamps relay and the Off-road lamp assembly 	Off-road lamps circuit Refer to EXL-44 .
	Both side	<ul style="list-style-type: none"> Off-road lamps switch Fuse Off-road lamps relay Off-road lamp cover sensor BCM Harness between fuse block (J/B) and the Off-road lamp assembly 	<ul style="list-style-type: none"> Off-road lamps switch circuit Refer to EXL-40. Off-road lamp cover sensor circuit Refer to EXL-42. Off-road lamps circuit Refer to EXL-44.
Front fog lamp is not turned ON.	One side	<ul style="list-style-type: none"> 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-47 .
	Both side	Symptom diagnosis "BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON" Refer to EXL-137 .	
Parking lamp is not turned ON.	One side	<ul style="list-style-type: none"> 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-49 .
	Both sides	Symptom diagnosis "PARKING, LICENSE PLATE AND TAIL LAMPS ARE NOT TURNED ON" Refer to EXL-136 .	
Turn signal lamp does not blink.	Indicator lamp is normal. (The applicable side performs the high flasher activation).	<ul style="list-style-type: none"> 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-54 .
Turn signal indicator lamp does not blink.	One side	Combination meter	—
	Both sides (Always)	<ul style="list-style-type: none"> Turn signal indicator lamp signal Combination meter BCM 	<ul style="list-style-type: none"> 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)	<ul style="list-style-type: none"> The combination meter power supply and the ground circuit Combination meter 	Combination meter Power supply and the ground circuit Refer to MWI-29 .

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EXL

BOTH SIDE HEADLAMPS DO NOT SWITCH TO HIGH BEAM

< SYMPTOM DIAGNOSIS >

BOTH SIDE HEADLAMPS DO NOT SWITCH TO HIGH BEAM

Description

INFOID:000000004065579

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

Diagnosis Procedure

INFOID:000000004065580

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 monitor item status normal?

- YES >> GO TO 3
- NO >> Replace BCM. Refer to [BCS-57, "Removal and Installation"](#) .

3.HEADLAMP (HI) CIRCUIT INSPECTION

Check the headlamp (HI) circuit. Refer to [EXL-36, "Description"](#).

Is the headlamp (HI) circuit normal?

- YES >> Replace IPDM E/R. Refer to [PCS-34, "Removal and Installation of IPDM E/R"](#) .
- NO >> Repair or replace the malfunctioning part.

BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON

Description

INFOID:000000004065581

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

Diagnosis Procedure

INFOID:000000004065582

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 monitor item status normal?

- YES >> GO TO 3
- NO >> Replace BCM. Refer to [BCS-57, "Removal and Installation"](#).

3. HEADLAMP (LO) CIRCUIT INSPECTION

Check the headlamp (LO) circuit. Refer to [EXL-38, "Description"](#).

Is the headlamp (LO) circuit normal?

- YES >> Replace IPDM E/R. Refer to [PCS-34, "Removal and Installation of IPDM E/R"](#).
- NO >> Repair or replace the malfunctioning part.

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PARKING, LICENSE PLATE AND TAIL LAMPS ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

PARKING, LICENSE PLATE AND TAIL LAMPS ARE NOT TURNED ON

Description

INFOID:000000004065583

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

Diagnosis Procedure

INFOID:000000004065584

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 monitor item status normal?

YES >> GO TO 3

NO >> Replace BCM. Refer to [BCS-57, "Removal and Installation"](#).

3.PARK LAMP CIRCUIT INSPECTION

Check the parking lamp circuit. Refer to [EXL-49, "Description"](#).

Is the tail lamp circuit normal?

YES >> Replace IPDM E/R. Refer to [PCS-34, "Removal and Installation of IPDM E/R"](#).

NO >> Repair or replace the malfunctioning part.

BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

Description

INFOID:000000004065585

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

Diagnosis Procedure

INFOID:000000004065586

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 monitor item status normal?

- YES >> GO TO 3
- NO >> Replace BCM. Refer to [BCS-57, "Removal and Installation"](#).

3.FRONT FOG LAMP CIRCUIT INSPECTION

Check the front fog lamp circuit. Refer to [EXL-44, "Description"](#).

Is the front fog lamp circuit normal?

- YES >> Replace IPDM E/R. Refer to [PCS-34, "Removal and Installation of IPDM E/R"](#).
- NO >> Repair or replace the malfunctioning part.

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EXL

ADJUSTMENT AND INSPECTION

< ON-VEHICLE REPAIR >

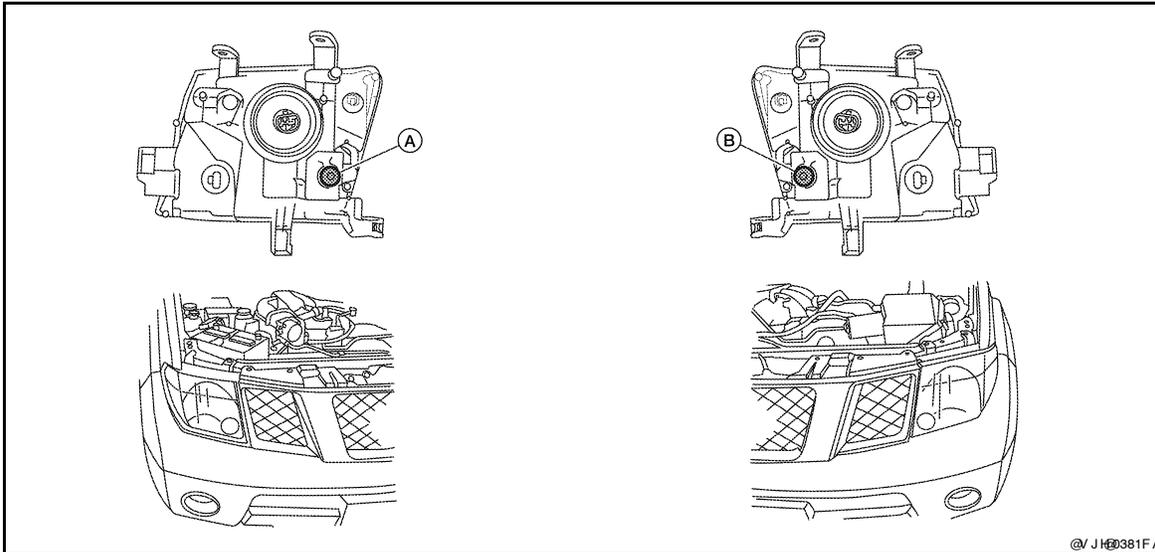
ON-VEHICLE REPAIR

ADJUSTMENT AND INSPECTION

HEADLAMP

HEADLAMP : Aiming Adjustment

INFOID:000000004065587



A. Headlamp RH adjustment screw

B. Headlamp LH adjustment screw

For details, refer to the regulations in your area.

NOTE:

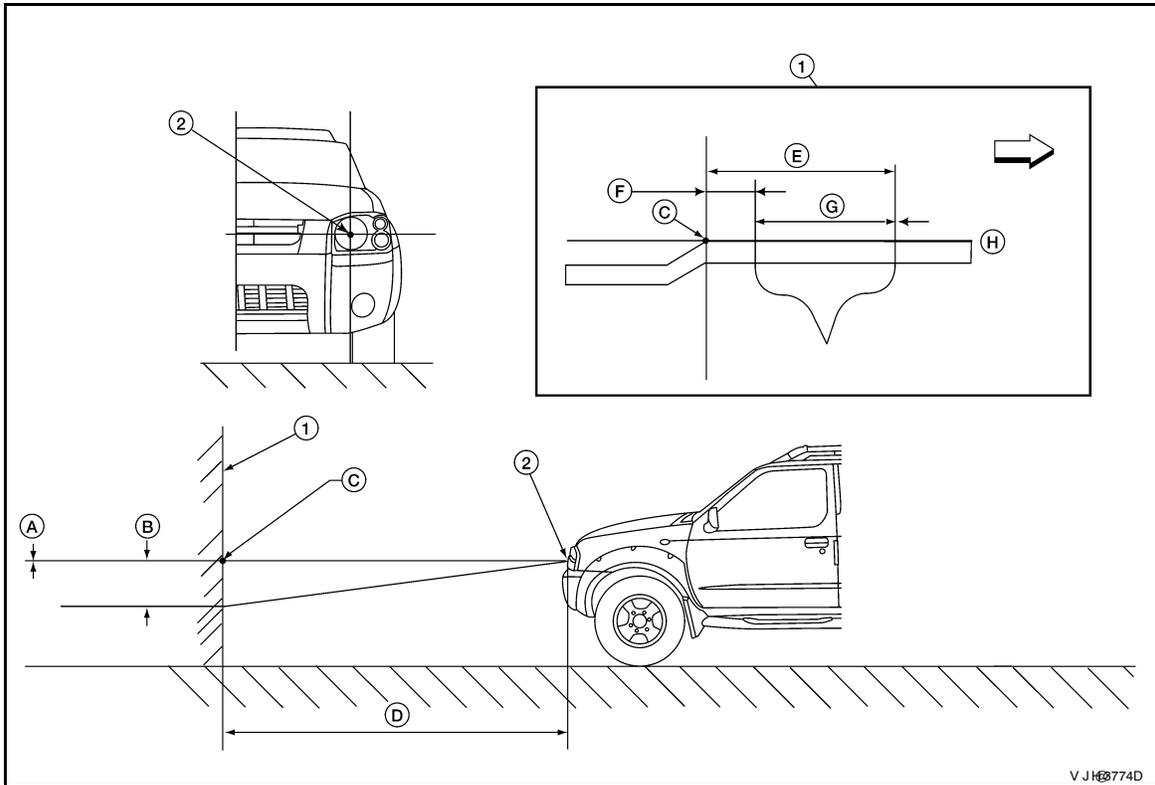
If vehicle front body has been repaired and /or the headlamp assembly has been replaced, check headlamp aiming.

- Before performing aiming adjustment, check the following:
 - 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

ADJUSTMENT AND INSPECTION

< ON-VEHICLE REPAIR >



- | | | | | | |
|---|---|---|--|---|---|
| 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.

- 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)**

- 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:000000004065588

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.

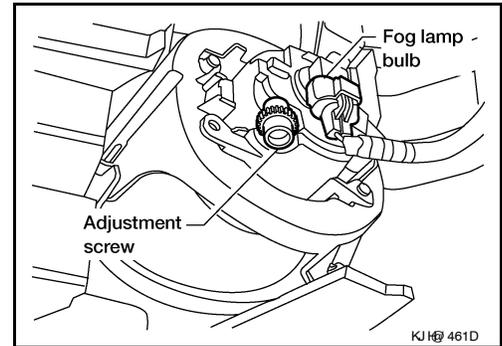
ADJUSTMENT AND INSPECTION

< ON-VEHICLE REPAIR >

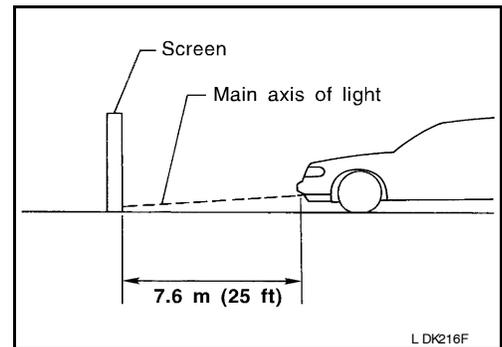
- Place vehicle on level ground.
 - See that vehicle is unloaded (except for full levels of coolant, engine oil and fuel, and spare tire, jack, and tools). Have the driver or equivalent weight placed in driver seat.
- Adjust aiming in the vertical direction by turning the adjustment screw.

NOTE:

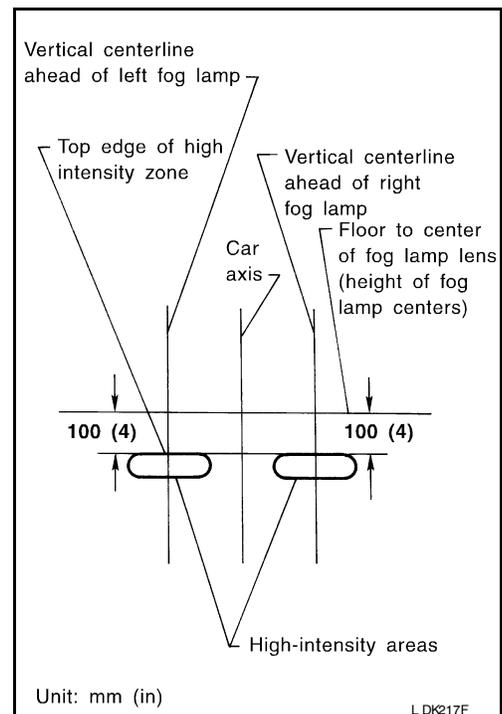
Use a Phillips screwdriver to adjust. Turn screw clockwise to raise pattern and counterclockwise to lower pattern.



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-19. "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.



HEADLAMP

< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

HEADLAMP

Bulb Replacement

INFOID:000000004065589

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:000000004065590

FRONT COMBINATION LAMP

Removal

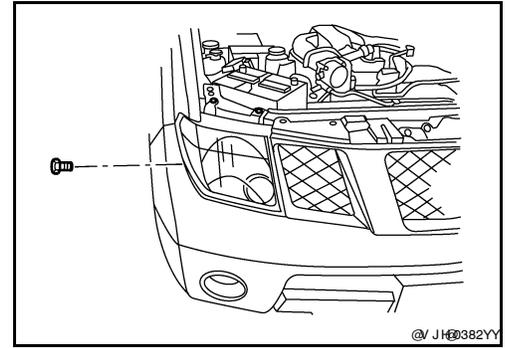
1. Remove front portion of front fender protector. Refer to [EXT-18, "Removal and Installation"](#).
2. Remove the front fascia assembly. Refer to [EXT-13, "Removal and Installation"](#).

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HEADLAMP

< REMOVAL AND INSTALLATION >

3. Remove the front combination lamp bolts.



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

Installation

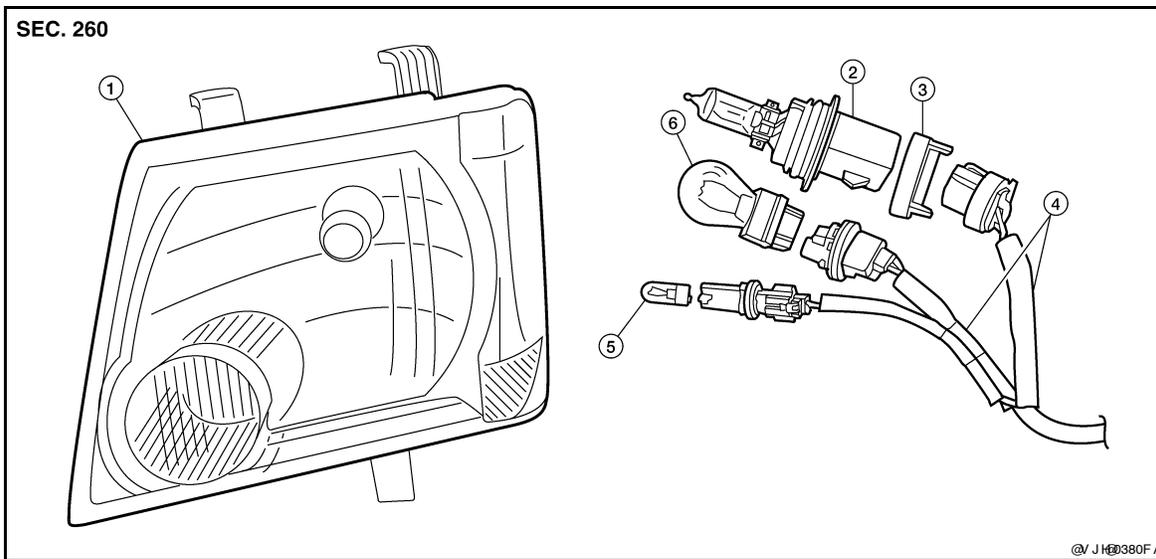
Installation is in the reverse order of removal.

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

Disassembly and Assembly

INFOID:000000004065591

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 >

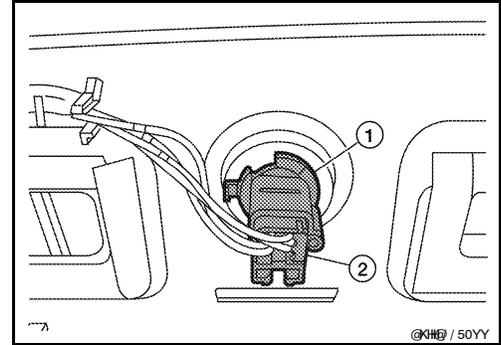
OPTICAL SENSOR

Removal and Installation

INFOID:000000004065592

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.

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FRONT FOG LAMP

< REMOVAL AND INSTALLATION >

FRONT FOG LAMP

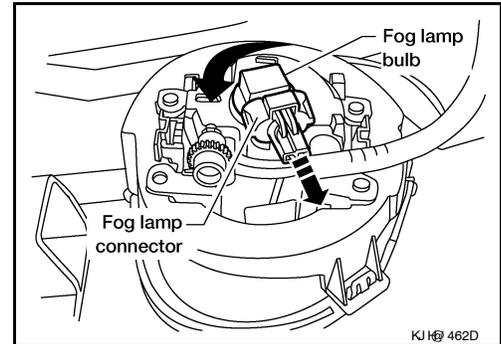
Bulb Replacement

INFOID:000000004065593

1. Remove front portion of fender protector. Refer to [EXT-18. "Removal and Installation"](#)
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:000000004065594

FRONT FOG LAMP

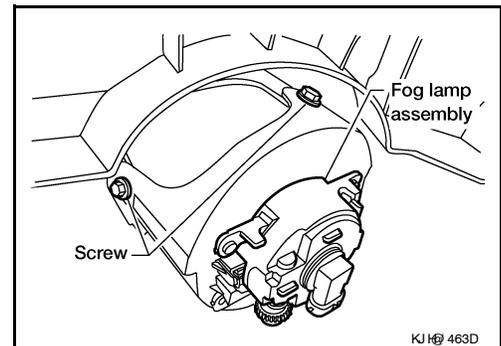
The fog lamp is a semi-sealed beam type which uses a replaceable halogen bulb.

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-18. "Removal and Installation"](#)
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 >

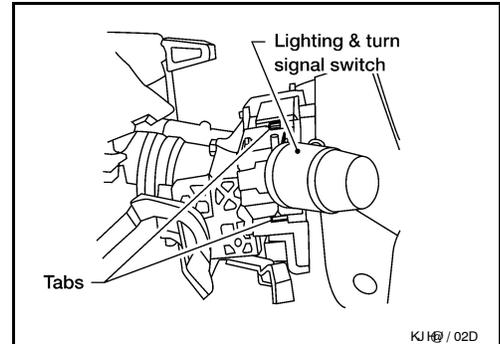
LIGHTING & TURN SIGNAL SWITCH

Removal and Installation

INFOID:000000004065595

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.

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HAZARD SWITCH

< REMOVAL AND INSTALLATION >

HAZARD SWITCH

Removal and Installation

INFOID:000000004065596

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

< REMOVAL AND INSTALLATION >

HIGH-MOUNTED STOP LAMP

High-Mounted Stop Lamp

INFOID:000000004065597

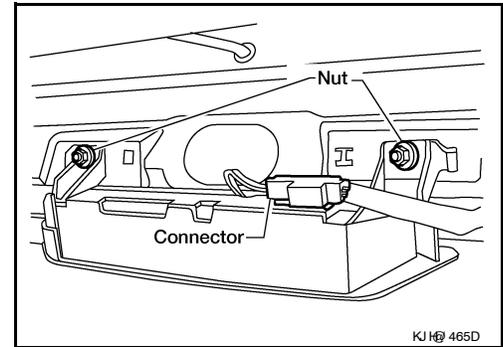
BULB REPLACEMENT

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.

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EXL

LICENSE PLATE LAMP

< REMOVAL AND INSTALLATION >

LICENSE PLATE LAMP

Bulb Replacement

INFOID:000000004065598

LICENSE PLATE LAMP

Removal

1. Remove back door finisher. Refer to [INT-13. "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:000000004065599

LICENSE PLATE LAMP

Removal

1. Remove license lamp finisher.
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

< REMOVAL AND INSTALLATION >

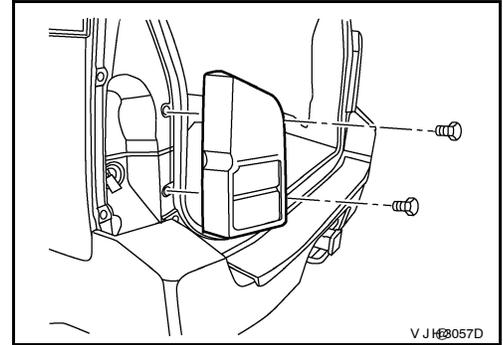
REAR COMBINATION LAMP

Bulb Replacement

INFOID:000000004065600

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:000000004065601

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.

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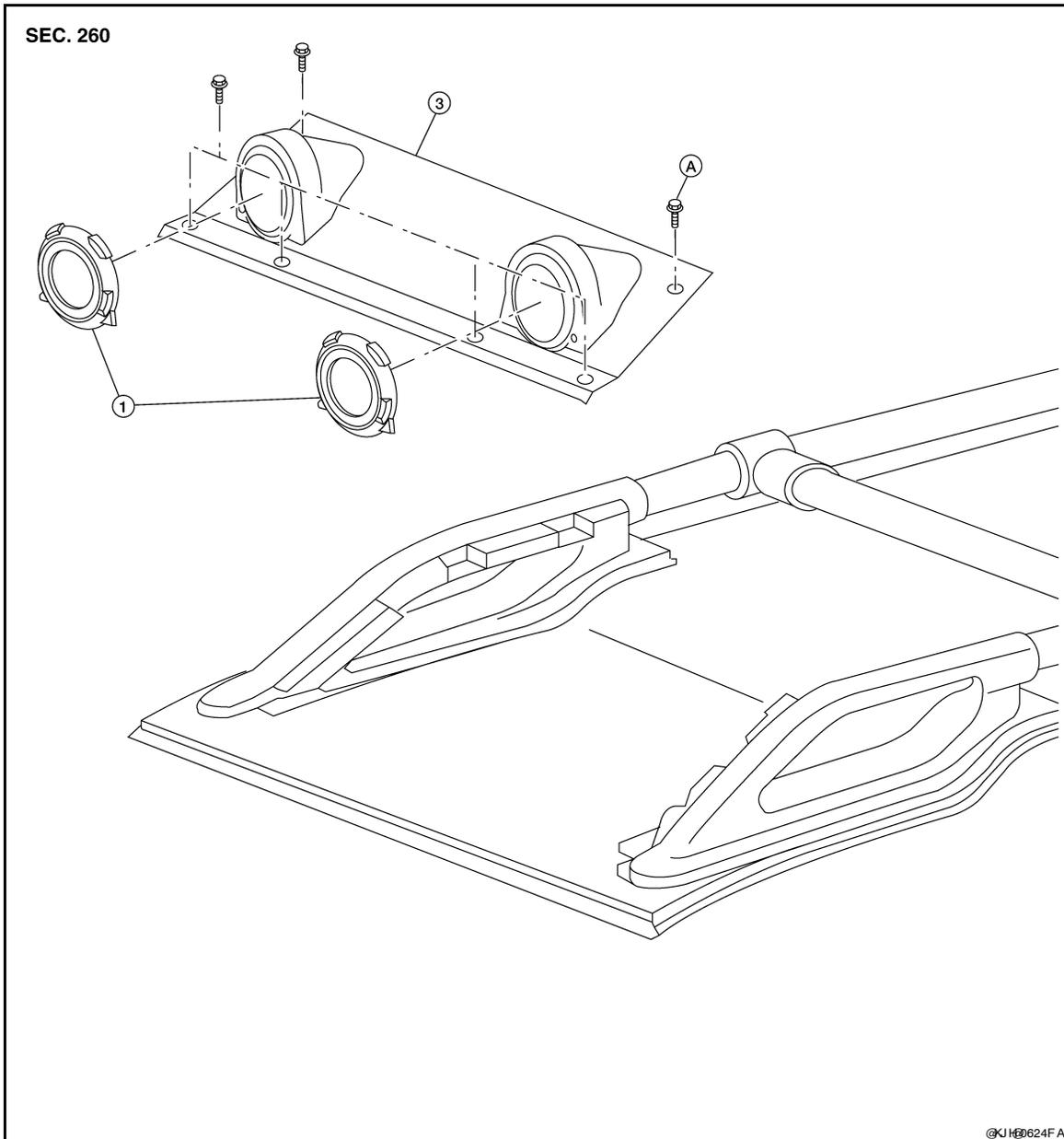
OFF-ROAD LAMPS

< REMOVAL AND INSTALLATION >

OFF-ROAD LAMPS

Removal and Installation

INFOID:000000004476238



1. Lamp Covers

A. Screws

3. Off Road Lamp Assembly

OFF ROAD LAMPS

Removal

1. Remove the screws.
2. Disconnect the electrical connector and remove the off road lamp assembly.

Installation

Installation is in the reverse order of removal.

Disassembly and Assembly

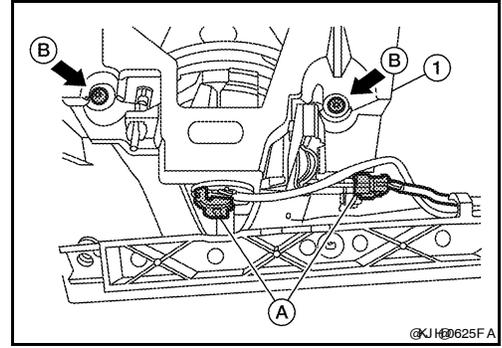
INFOID:000000004476241

Disassembly

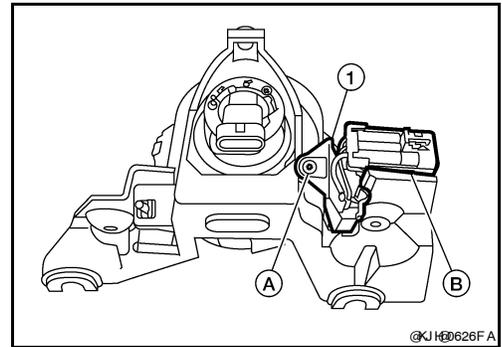
OFF-ROAD LAMPS

< REMOVAL AND INSTALLATION >

1. Remove the off road lamp assembly. Refer to [EXL-150. "Removal and Installation"](#)
2. Disconnect the electrical connectors (A). Remove the screws (B) and remove the lamp assembly (1).



3. Remove the screw (A). Unclip the electrical connector from the lamp assembly (B) and remove the lamp cover sensor (1).



Assembly

Assembly is in the reverse order of disassembly.

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

EXL

BULB SPECIFICATIONS

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

BULB SPECIFICATIONS

Headlamp

INFOID:000000004065602

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

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

Exterior Lamp

INFOID:000000004065603

Item	Wattage (W)*	
Front combination lamp	Turn signal lamp/parking lamp	29/8
	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	*	
Off road lights	*	

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