

SECTION **EXL**

EXTERIOR LIGHTING SYSTEM

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

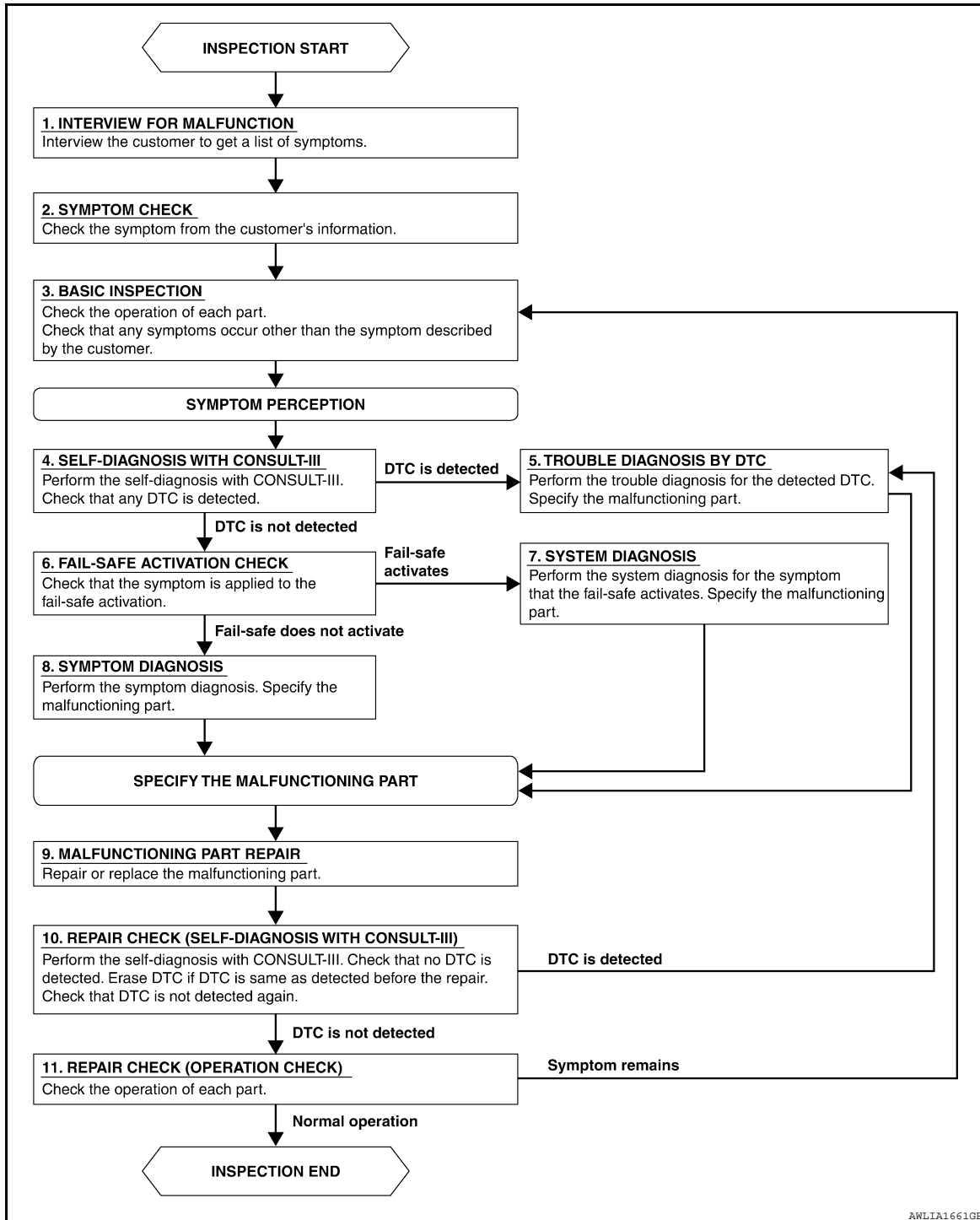
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000005280045

OVERALL SEQUENCE



AWL1A1661GB

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 10

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

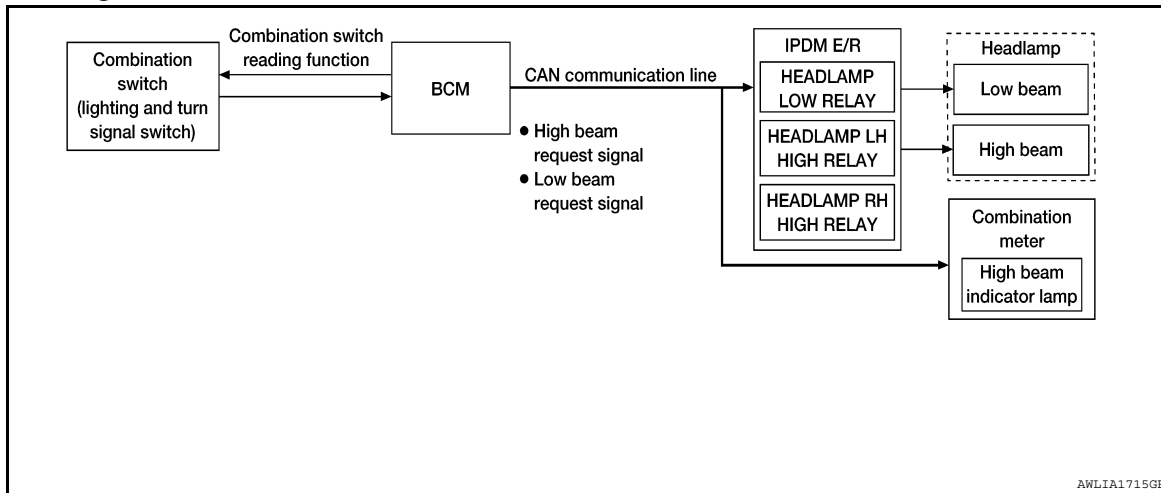
HEADLAMP

< FUNCTION DIAGNOSIS >

FUNCTION DIAGNOSIS

HEADLAMP

System Diagram



System Description

INFOID:000000005280047

Control of the headlamp system operation is dependent upon the position of the combination switch (lighting and turn signal switch). When the combination switch (lighting and turn signal 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 LH high, headlamp RH high and headlamp low relay coils. When energized, these relays direct power to the respective headlamps, which then illuminate.

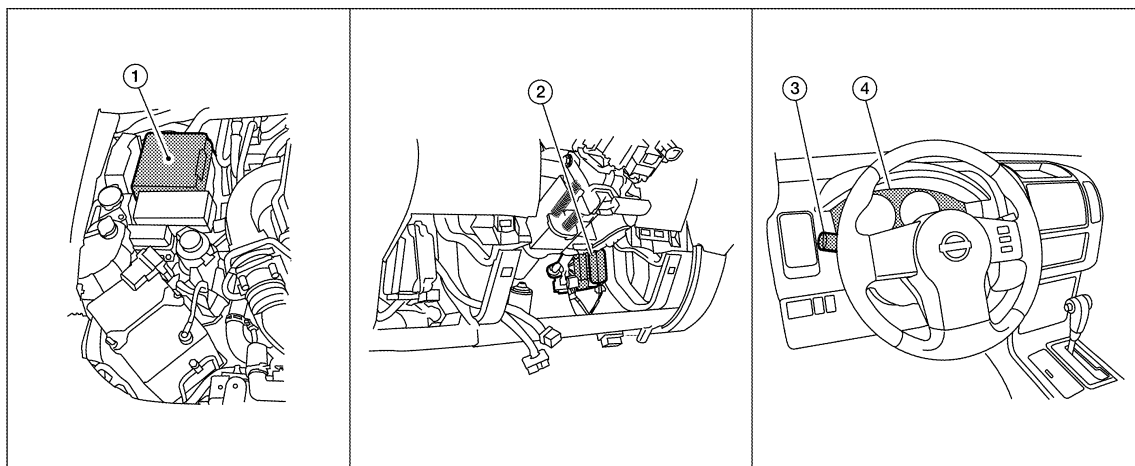
HIGH BEAM OPERATION/FLASH-TO-PASS OPERATION

With the combination switch (lighting and turn signal 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 IPDM E/R controls the headlamp LH high and headlamp RH high relay coils 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. The CPU of the combination meter controls the ON/OFF status of the HIGH BEAM indicator.

Component Parts Location

INFOID:000000005280048



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

INFOID:000000005280049

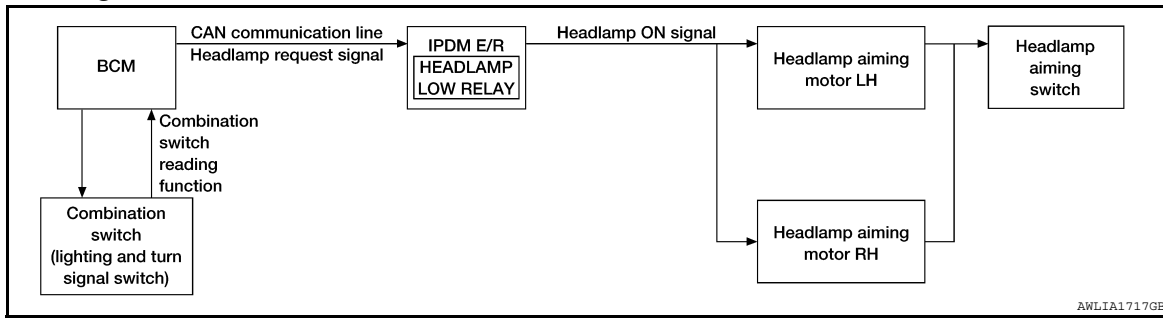
Part name	Description
BCM	<ul style="list-style-type: none">• Receives lighting switch requests via BCM combination switch reading function.• Sends headlamp high/low request signal to the IPDM E/R and combination meter.
IPDM E/R	Activates the headlamp LH high, headlamp RH high and headlamp low relays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

HEADLAMP AIMING SYSTEM (MANUAL)

< FUNCTION DIAGNOSIS >

HEADLAMP AIMING SYSTEM (MANUAL)

System Diagram



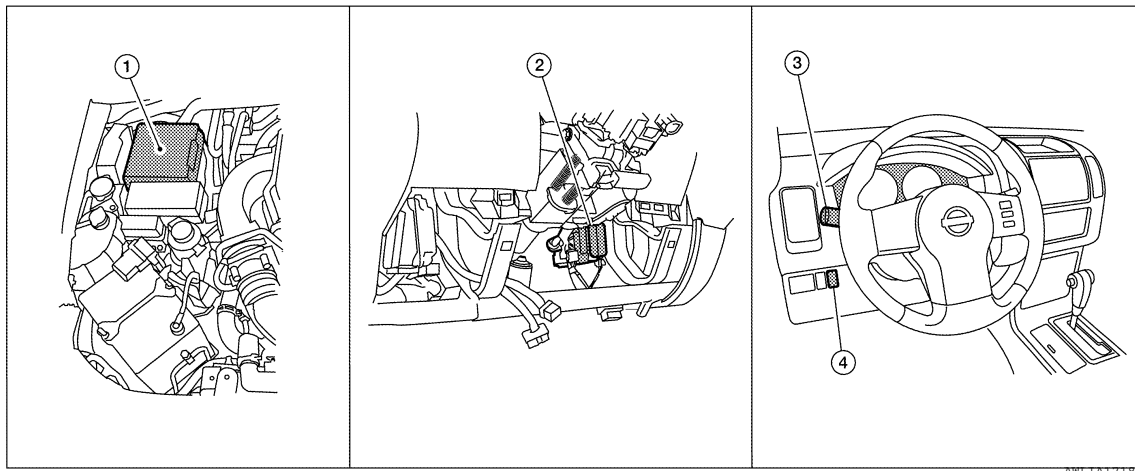
System Description

INFOID:000000005280051

The headlamp aiming system (manual) controls the headlamp light axis height according to input from the headlamp aiming switch. The variable internal resistance of the headlamp aiming switch controls the signal ground of the headlamp aiming motors located on the front combination lamp LH and RH. The headlamp aiming system operates when the combination switch (lighting and turn signal switch) is in the 2nd position.

Component Parts Location

INFOID:000000005280052



1. IPDM E/R E121, E122, E124
2. BCM M18, M20 (view with lower instrument panel LH removed)
3. Combination switch (lighting and turn signal switch) M28
4. Headlamp aiming switch M23

Component Description

INFOID:000000005280053

Part	Description
Headlamp aiming motor	Moves the headlamp up/down based on input from the headlamp aiming switch.
Headlamp aiming switch	Controls variable ground to the headlamp aiming motor signal to move the headlamp aiming motor up/down.

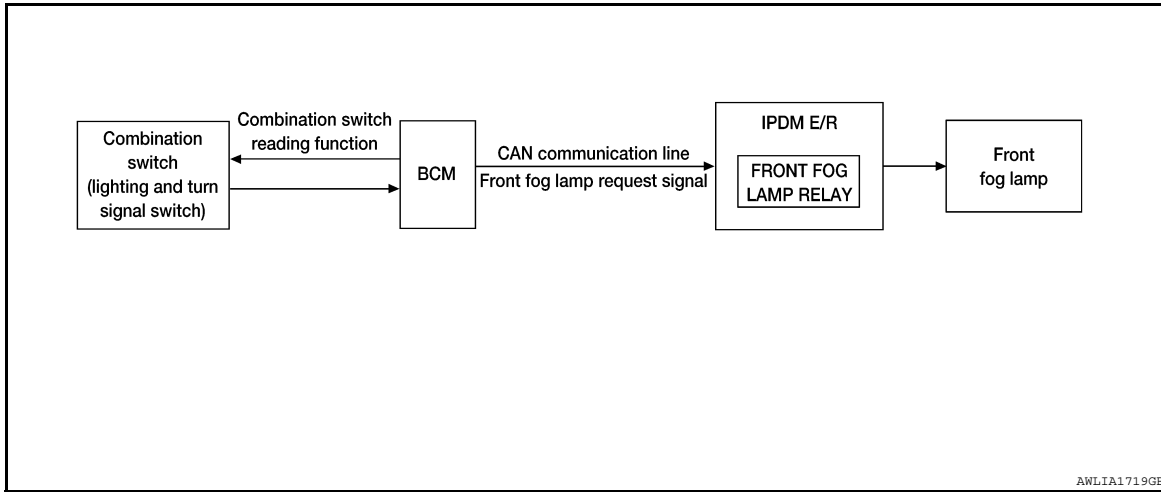
FRONT FOG LAMP

< FUNCTION DIAGNOSIS >

FRONT FOG LAMP

System Diagram

INFOID:000000005280054



AWLTA1719GB

System Description

INFOID:000000005280055

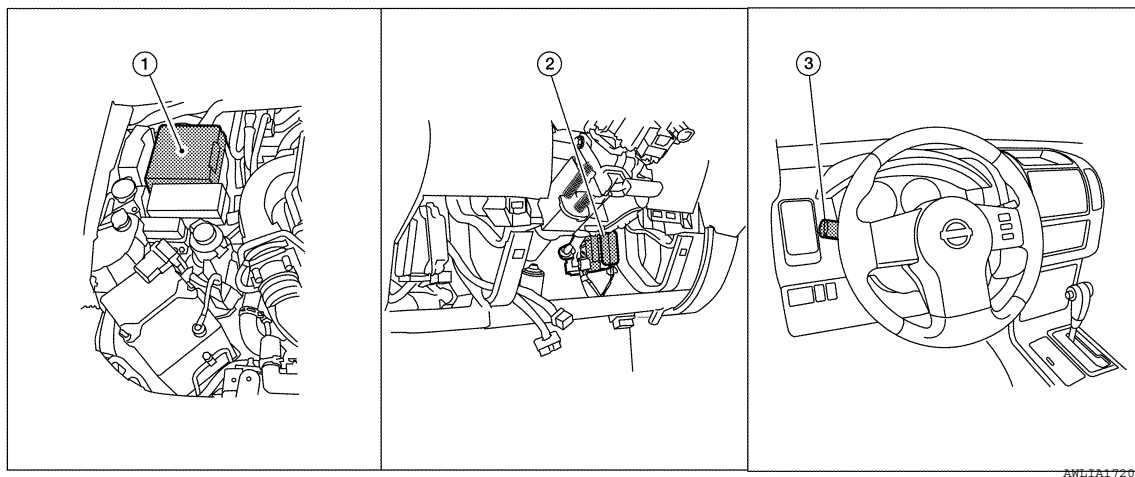
The front fog lamps are activated with the combination switch (lighting and turn signal switch). The combination switch (lighting and turn signal switch) signal to the BCM is monitored with the BCM combination switch reading function. When the front fog lamps are turned ON with the combination switch (lighting and turn signal switch), the BCM sends a front fog lamp request signal via CAN communication lines to the IPDM E/R (intelligent power distribution module engine room). The CPU (central processing unit) of the IPDM E/R controls the front fog lamp relay coil. When energized, the front fog lamp relay directs power to 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 the BCM detects FR FOG ON and the HEAD LAMP1, 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:000000005280056



AWLTA1720GB

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:000000005280057

Part name	Description
BCM	<ul style="list-style-type: none">• Receives lighting switch requests via BCM combination switch reading function.• Sends front fog lamp 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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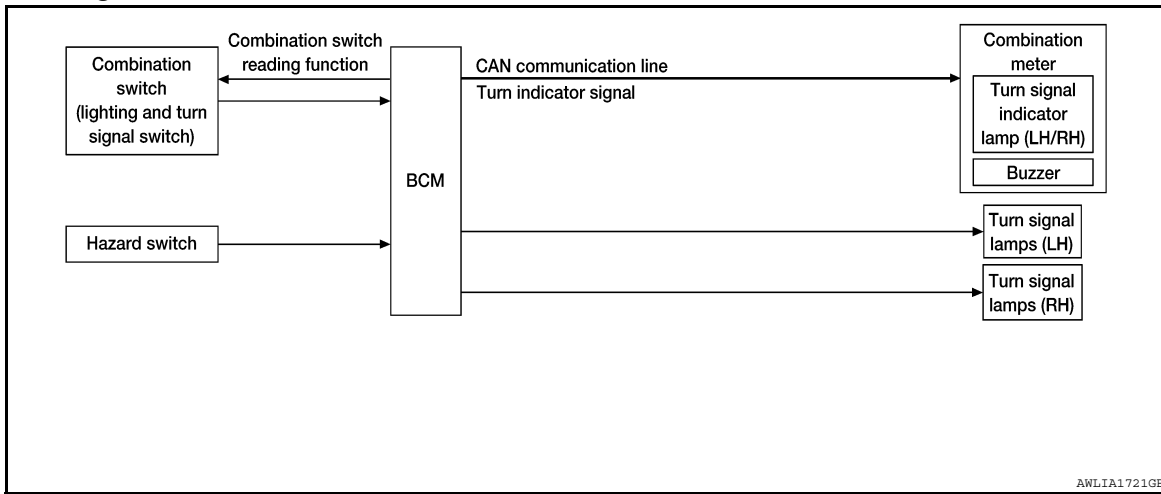
TURN SIGNAL AND HAZARD WARNING LAMPS

< FUNCTION DIAGNOSIS >

TURN SIGNAL AND HAZARD WARNING LAMPS

System Diagram

INFOID:000000005280058



AWLTA1721GB

System Description

INFOID:000000005280059

TURN SIGNAL OPERATION

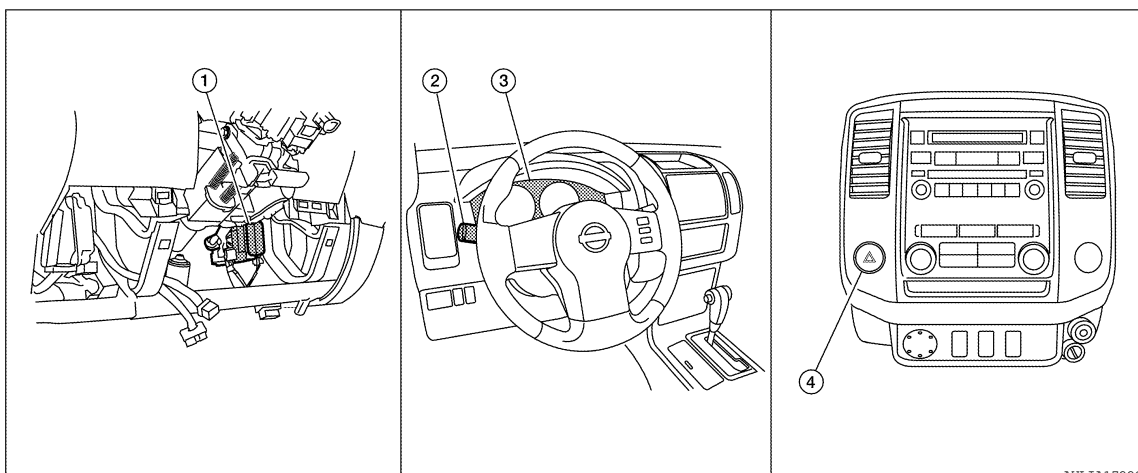
When the combination switch (lighting and turn signal switch) is in LH or RH turn position with the ignition switch in ON position, the BCM receives input requesting the turn RH or turn LH lamps to illuminate. The BCM controls the turn signal power to the respective turn signal lamp. The BCM also sends 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 receives input requesting the hazard lamps illuminate. The BCM controls the turn signal power to both the LH and RH turn signal lamps. The BCM sends a hazard indicator signal ON request via the CAN communication lines to the combination meter. The combination meter then activates both the LH and RH turn signal indicators and audible buzzer.

Component Parts Location

INFOID:000000005280060



AWLTA1722GB

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:000000005280061

Part name	Description
BCM	Controls turn signal and hazard warning lamp operation.
Combination switch (lighting and turn signal switch)	Outputs lighting requests to the BCM.
Hazard switch	Outputs hazard warning lamps requests to the BCM.
Combination meter	Controls turn LH and turn RH indicators as requested by the BCM.

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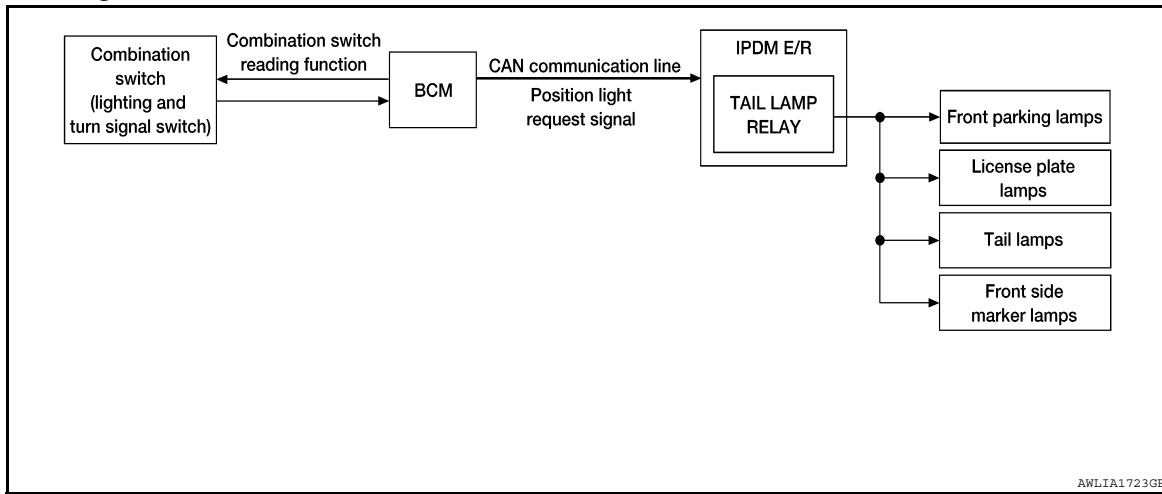
PARKING, LICENSE PLATE AND TAIL LAMPS

< FUNCTION DIAGNOSIS >

PARKING, LICENSE PLATE AND TAIL LAMPS

System Diagram

INFOID:000000005280062



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System Description

INFOID:000000005280063

PARKING, LICENSE PLATE AND TAIL LAMPS OPERATION

When the combination switch (lighting and turn signal switch) is placed in the 1ST position, BCM (body control module) receives input requesting the parking, license plate and tail lamps illuminate. This input is communicated via the CAN communication lines to the IPDM E/R (intelligent power distribution module engine room). The CPU (central processing unit) of the IPDM E/R then activates the tail lamp relay which directs power to the parking, license plate and tail lamps circuits.

EXTERIOR LAMP BATTERY SAVER CONTROL

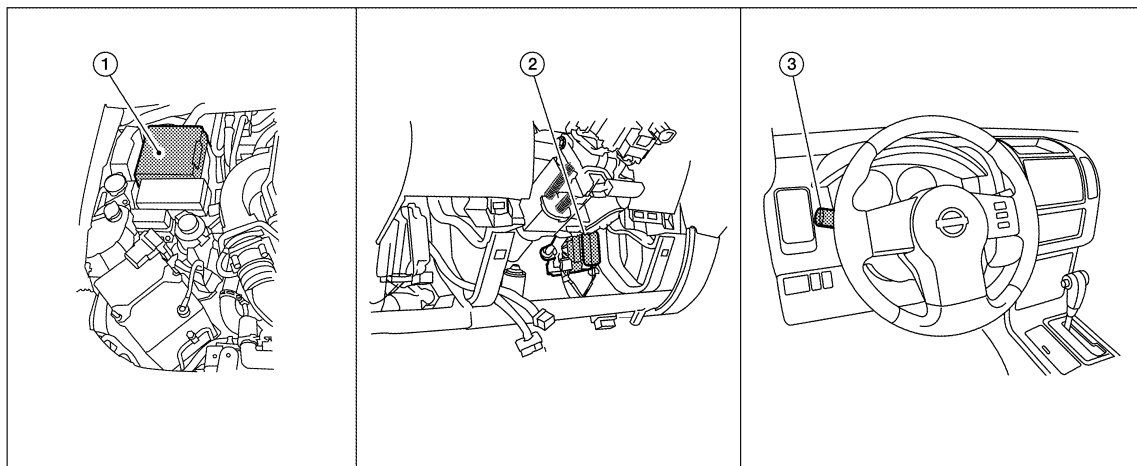
With the combination switch (lighting and turn signal switch) in the 2nd position and the ignition switch is turned from ON or ACC to OFF, the battery saver feature is activated.

Under this condition, the headlamps remain illuminated for 5 minutes unless the combination switch (lighting and turn signal switch) position is changed. If the combination switch (lighting and turn signal switch) position is changed, then the headlamps are turned off.

This setting can be changed by CONSULT-III. Refer to [BCS-14, "BCM : CONSULT-III Function \(BCM - BCM\)"](#).

Component Parts Location

INFOID:000000005280064



AWL1A1724GB

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:000000005280065

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

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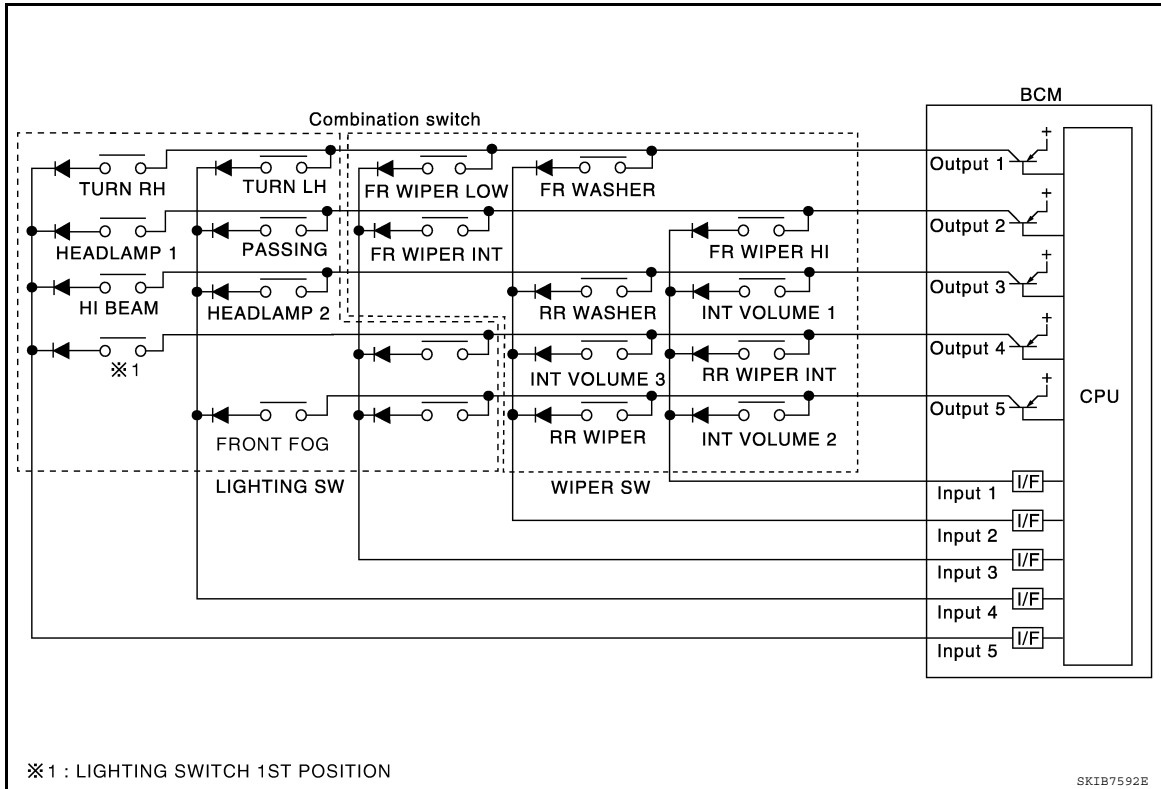
COMBINATION SWITCH READING SYSTEM

< FUNCTION DIAGNOSIS >

COMBINATION SWITCH READING SYSTEM

System Diagram

INFOID:000000005715855



System Description

INFOID:000000005715856

OUTLINE

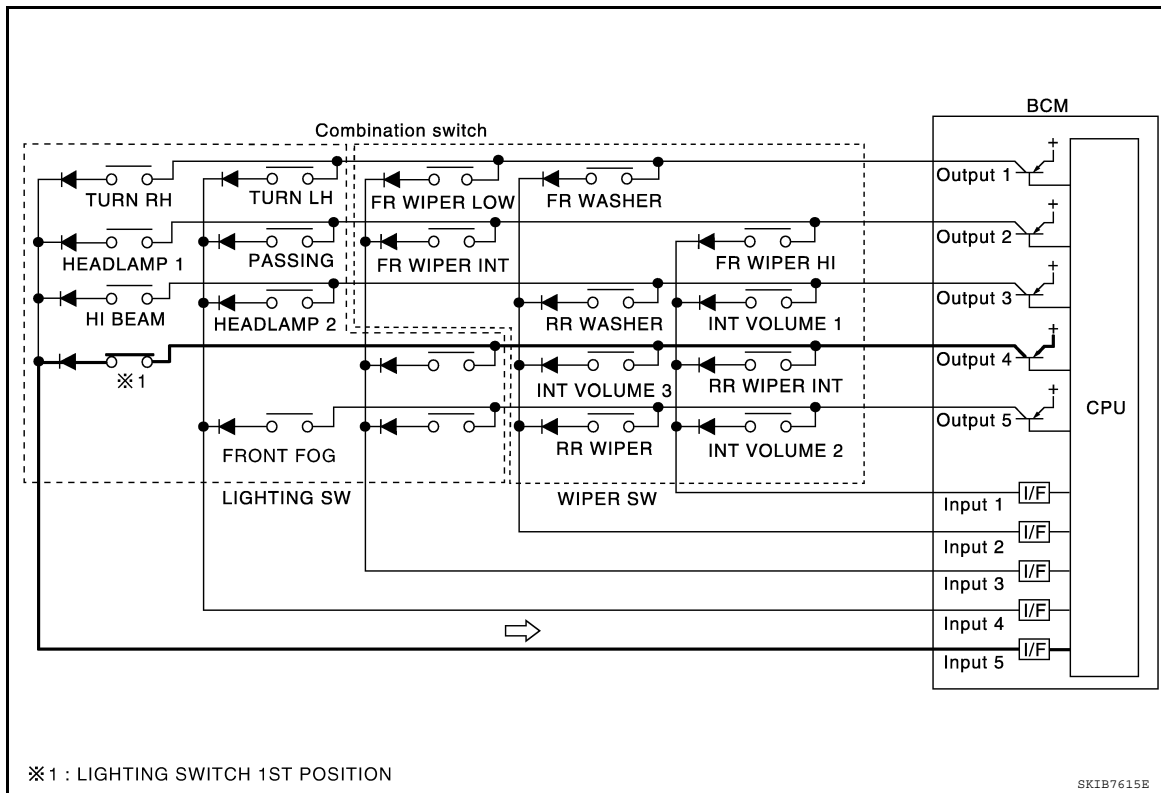
- BCM reads the status of the combination switch (light, turn signal, wiper and washer) and recognizes the status of each switch.
- BCM is a combination of 5 output terminals (OUTPUT 1 - 5) and 5 input terminals (INPUT 1 - 5). It reads a maximum of 20 switch status.

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	—

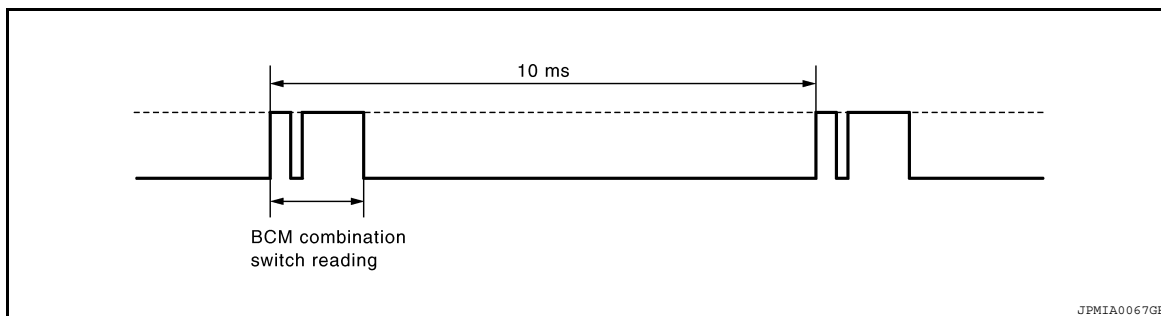
NOTE:

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.

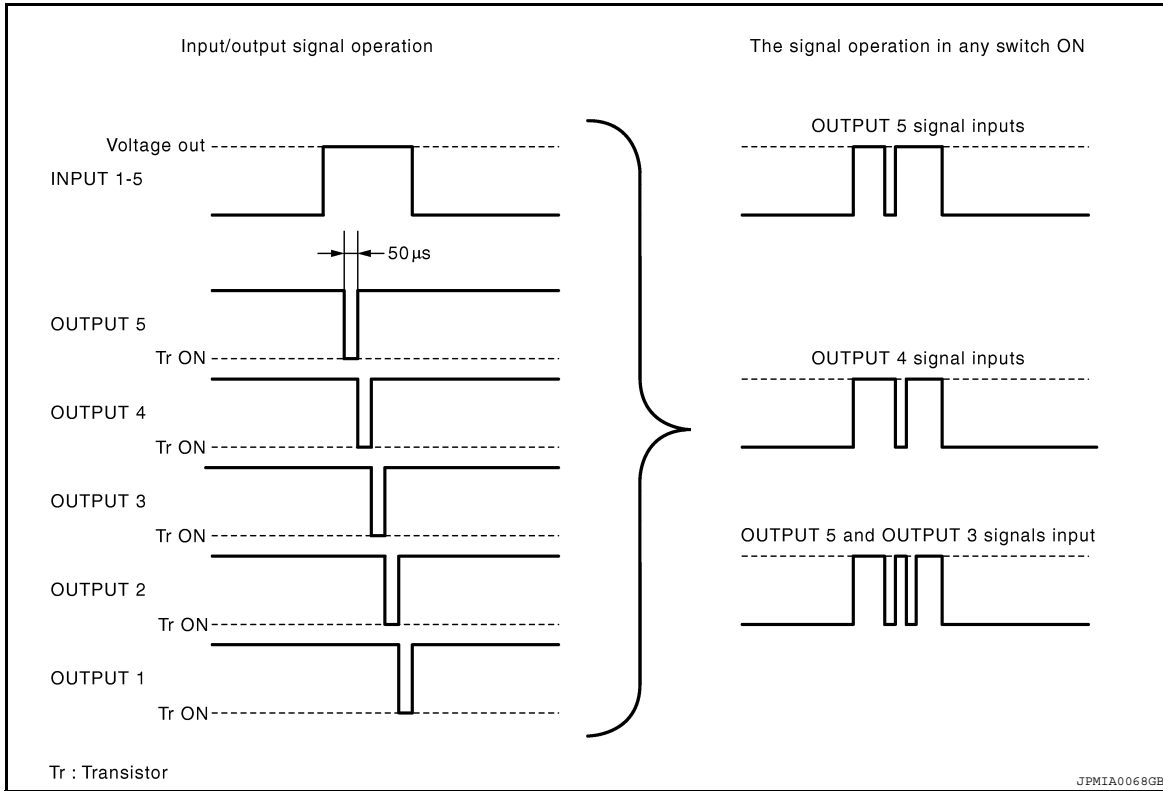
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COMBINATION SWITCH READING SYSTEM

< FUNCTION DIAGNOSIS >

- It operates the transistor on OUTPUT side in the following order: OUTPUT 5 → 4 → 3 → 2 → 1.
- 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.

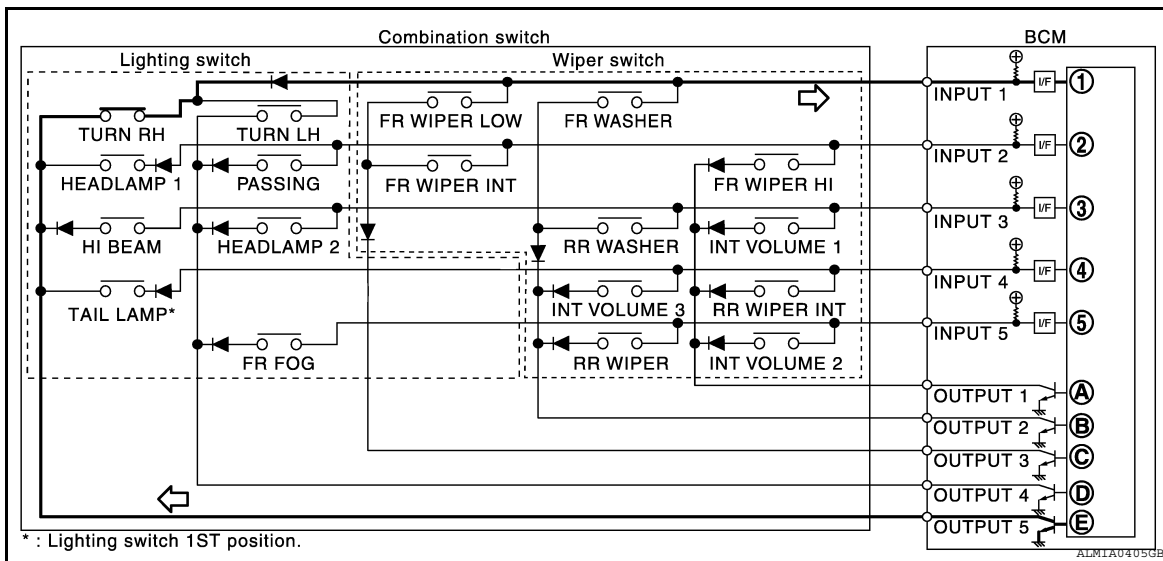


Operation Example

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.



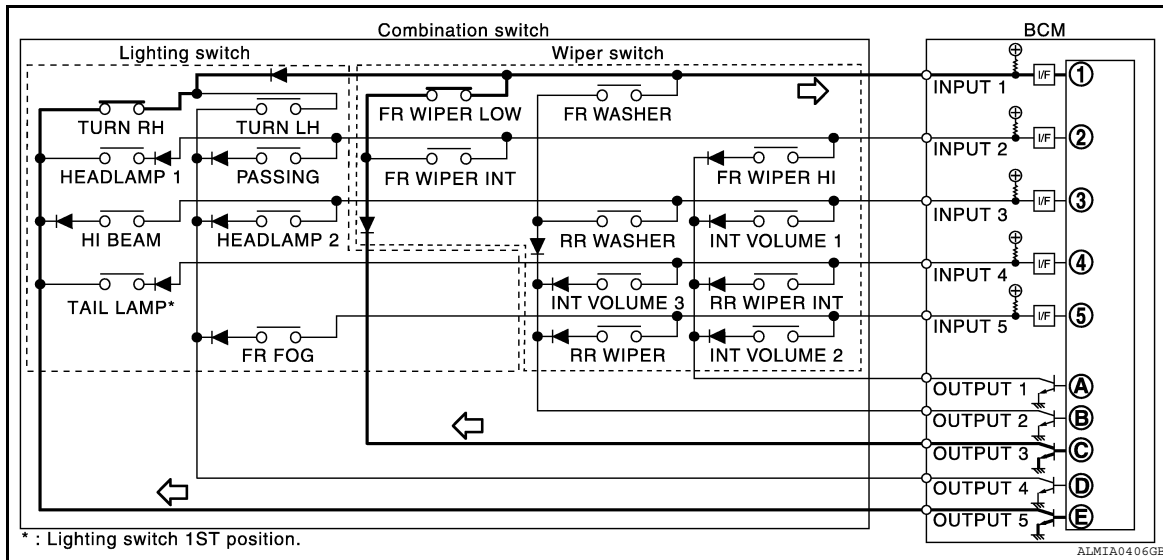
- BCM detects the combination switch status signal "1E" when the signal of OUTPUT 5 is input to INPUT 1.
- BCM judges that the TURN RH switch is ON when the signal "1E" is detected.

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

COMBINATION SWITCH READING SYSTEM

< FUNCTION DIAGNOSIS >

- The circuits between INPUT 1 and OUTPUT 5 and between INPUT 1 and OUTPUT 3 are formed when the TURN RH switch and FR WIPER LOW switch are turned ON.



- BCM detects the combination switch status signal "1CE" when the signals of OUTPUT 3 and OUTPUT 5 are input to INPUT 1.
- BCM judges that the TURN RH switch and FR WIPER LOW switch are ON when the signal "1CE" is detected.

WIPER INTERMITTENT DIAL POSITION SETTING (FRONT WIPER INTERMITTENT OPERATION)

BCM judges the wiper intermittent dial 1 - 7 by the status of INT VOLUME 1, 2 and 3 switches.

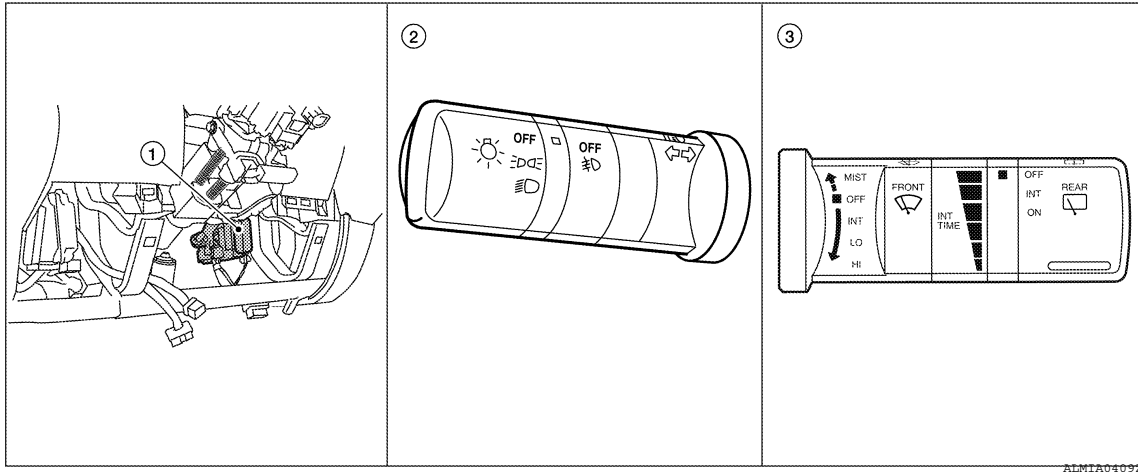
Wiper intermittent dial position	Intermittent operation delay interval	INT VOLUME switch ON/OFF status		
		INT VOLUME 1 switch	INT VOLUME 2 switch	INT VOLUME 3 switch
1	Short ↑	ON	ON	ON
2		ON	ON	OFF
3		ON	OFF	OFF
4		OFF	OFF	OFF
5	↓ Long	OFF	OFF	ON
6		OFF	ON	ON
7		OFF	ON	OFF

COMBINATION SWITCH READING SYSTEM

< FUNCTION DIAGNOSIS >

Component Parts Location

INFOID:000000005715857



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)

COMMON ITEM

COMMON ITEM : CONSULT-III Function (BCM - COMMON ITEM)

INFOID:000000005715858

APPLICATION ITEM

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

Diagnosis mode	Function Description
WORK SUPPORT	Changes the setting for each system function.
SELF DIAG RESULT	Displays the diagnosis results judged by BCM. Refer to BCS-52, "DTC Index" .
CAN DIAG SUPPORT MNTR	Monitors the reception status of CAN communication viewed from BCM.
DATA MONITOR	The BCM input/output signals are displayed.
ACTIVE TEST	The signals used to activate each device are forcibly supplied from BCM.
ECU IDENTIFICATION	The BCM part number is displayed.
CONFIGURATION	<ul style="list-style-type: none"> Enables to read and save the vehicle specification. Enables to write the vehicle specification when replacing BCM.

SYSTEM APPLICATION

BCM can perform the following functions for each system.

NOTE:

It can perform the diagnosis modes except the following for all sub system selection items.

System	Sub system selection item	Diagnosis mode		
		WORK SUPPORT	DATA MONITOR	ACTIVE TEST
BCM	BCM	×		
Door lock	DOOR LOCK	×	×	×
Rear window defogger	REAR DEFOGGER		×	×
Warning chime	BUZZER		×	×
Interior room lamp timer	INT LAMP	×	×	×
Remote keyless entry system	MULTI REMOTE ENT	×	×	×
Exterior lamp	HEAD LAMP	×	×	×
Wiper and washer	WIPER	×	×	×
Turn signal and hazard warning lamps	FLASHER		×	×
Air conditioner	AIR CONDITONER		×	
Combination switch	COMB SW		×	
Immobilizer	IMMU		×	×
Interior room lamp battery saver	BATTERY SAVER	×	×	×
Back door open	TRUNK		×	×
RAP (retained accessory power)	RETAINED PWR	×	×	×
Signal buffer system	SIGNAL BUFFER		×	×
TPMS (tire pressure monitoring system)	AIR PRESSURE MONITOR	×	×	×
Vehicle security system	THEFT ALM	×	×	×
Panic alarm system	PANIC ALARM			×

HEADLAMP

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

INFOID:000000005715859

WORK SUPPORT

DIAGNOSIS SYSTEM (BCM)

< FUNCTION DIAGNOSIS >

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]	
PASSING SW [ON/OFF]	
FR FOG SW [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
TURN SIGNAL R [ON/OFF]	Each switch status that BCM judges from the combination switch reading function
TURN SIGNAL L [ON/OFF]	

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.
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.
CARGO LAMP	ON	Outputs the cargo lamp control signal to turn the cargo lamp ON.
	OFF	Stops the cargo lamp control signal to turn the cargo lamp OFF.

FLASHER

FLASHER : CONSULT-III Function (BCM - FLASHER)

INFOID:000000005715860

DATA MONITOR

DIAGNOSIS SYSTEM (BCM)

< FUNCTION DIAGNOSIS >

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:000000005715861

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
HEAD LAMP SW 1 [OFF/ON]	Displays the status of the HEADLAMP switch in combination switch judged by BCM with the combination switch reading function
HEAD LAMP SW 2 [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
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
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

DIAGNOSIS SYSTEM (BCM)

< FUNCTION DIAGNOSIS >

Monitor Item [Unit]	Description
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

DIAGNOSIS SYSTEM (IPDM E/R)

< FUNCTION DIAGNOSIS >

DIAGNOSIS SYSTEM (IPDM E/R)

Diagnosis Description

INFOID:000000005715862

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:

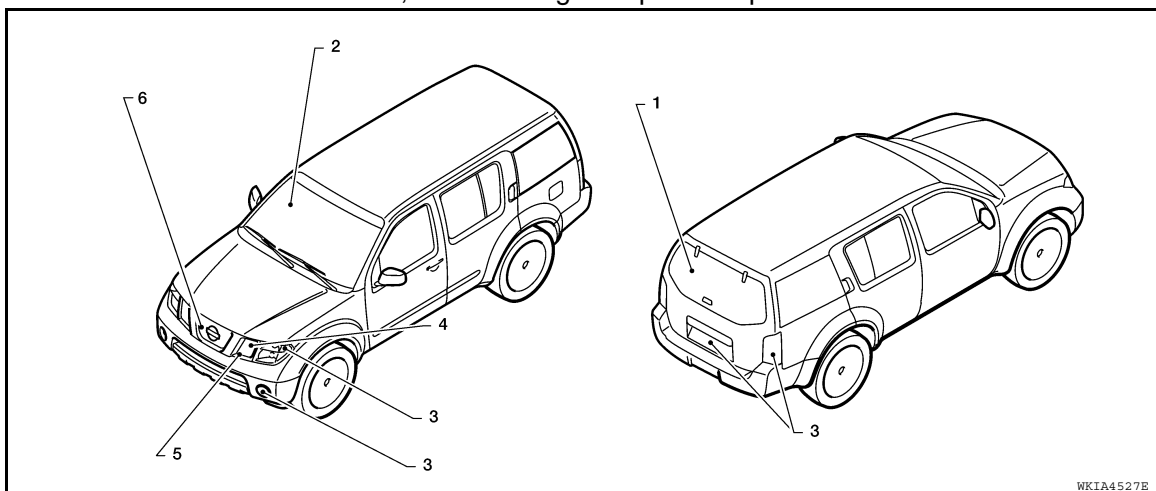
When auto active test mode has to be cancelled halfway through test, turn ignition switch OFF.

CAUTION:

- If auto active test mode cannot be actuated, check door switch system. Refer to [DLK-25, "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

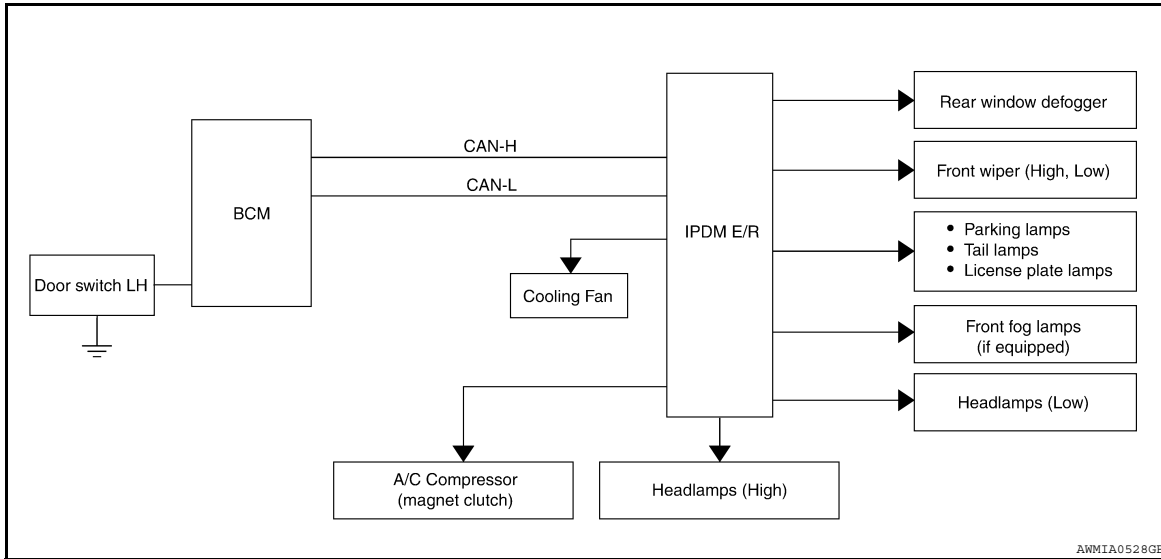
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DIAGNOSIS SYSTEM (IPDM E/R)

< 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 • IPDM E/R signal input circuit • ECM signal input circuit • CAN communication signal between ECM and combination meter
		NO • 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 • 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 • 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:000000005715863

APPLICATION ITEM

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

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

SELF DIAGNOSTIC

Refer to [PCS-30, "DTC Index"](#).

DATA MONITOR

Monitor item

Monitor Item [Unit]	MAIN SIGNALS	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.

DIAGNOSIS SYSTEM (IPDM E/R)

< FUNCTION DIAGNOSIS >

Monitor Item [Unit]	MAIN SIG- NALS	Description
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.
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.
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.
MOTOR FAN	1	OFF
	2	OFF
	3	Operates the cooling fan relay.
	4	Operates the cooling fan relay.
EXTERNAL LAMPS	OFF	OFF
	TAIL	Operates the tail lamp relay.
	LO	Operates the headlamp low relay.
	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
HORN	ON	Operates horn relay for 20 ms.

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:000000005715864

Regarding Wiring Diagram information, refer to [BCS-48. "Wiring Diagram"](#).

1. CHECK FUSES AND FUSIBLE LINK

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

Terminal No.	Power Source	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?

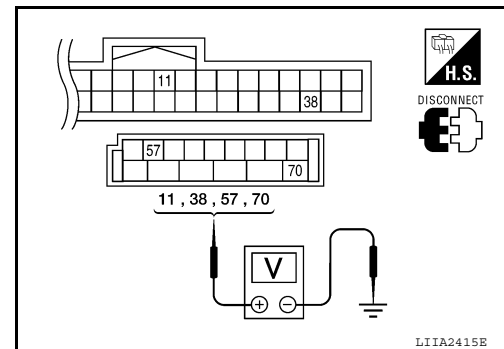
YES >> Replace the blown fuse or fusible link after repairing the affected circuit.

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

POWER SUPPLY AND GROUND CIRCUIT

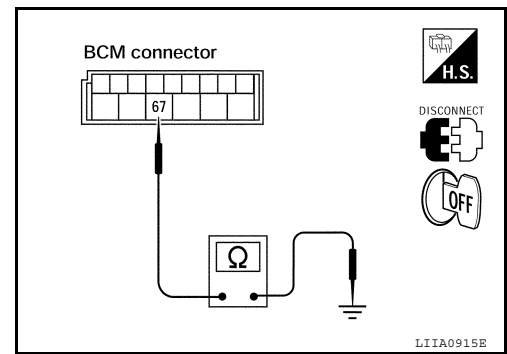
< COMPONENT DIAGNOSIS >

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.



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

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

INFOID:000000005715865

Regarding Wiring Diagram information, refer to [EXL-101. "Wiring Diagram"](#).

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

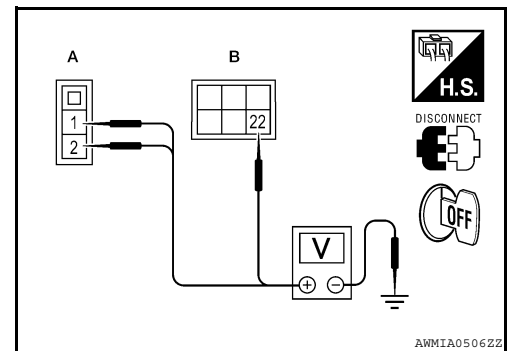
Is the fusible link blown?

- YES >> Replace the blown fusible link after repairing the affected circuit.
 NO >> GO TO 2

2. CHECK BATTERY POWER SUPPLY CIRCUIT

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

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



Is there voltage on all pins?

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

3. CHECK GROUND CIRCUIT

- Turn ignition switch OFF.

POWER SUPPLY AND GROUND CIRCUIT

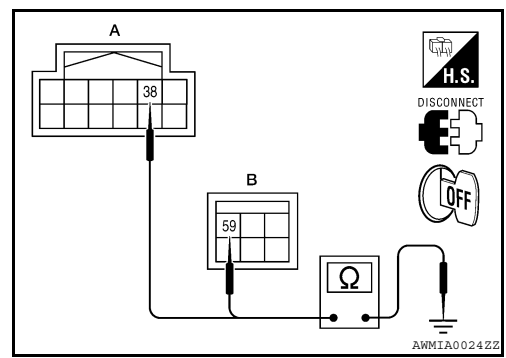
< COMPONENT DIAGNOSIS >

- Check continuity between IPDM E/R harness connectors and ground.

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

Does continuity exist?

- YES >> Inspection End.
 NO >> Repair or replace harness.



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HEADLAMP (HI) CIRCUIT

< COMPONENT DIAGNOSIS >

HEADLAMP (HI) CIRCUIT

Description

INFOID:000000005280078

The IPDM E/R (intelligent power distribution module engine room) controls the headlamp LH high and headlamp RH high relays based on inputs from the BCM (body control module) via the CAN communication lines. When the headlamp LH high and headlamp RH high relays are 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:000000005280079

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 LAMPS" 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-32, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000005280080

Regarding Wiring Diagram information, refer to [EXL-48, "Wiring Diagram"](#).

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	35	10A
Headlamp HI (RH)	IPDM E/R	34	10A

Is the fuse open?

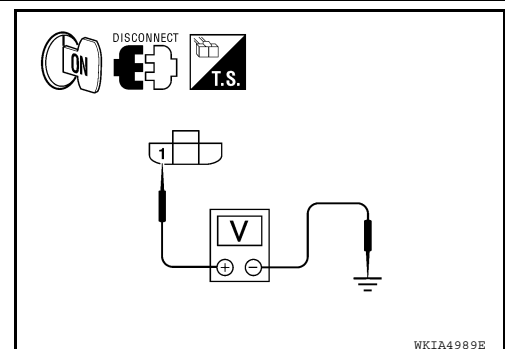
YES >> Repair the harness and replace the fuse.

NO >> GO TO 2

2. CHECK HEADLAMP (HI) OUTPUT VOLTAGE

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

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



HEADLAMP (HI) CIRCUIT

< COMPONENT DIAGNOSIS >

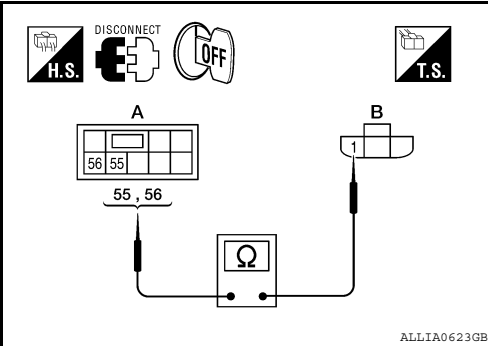
Is battery voltage present?

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

3. CHECK HEADLAMP (HI) CIRCUIT FOR OPEN

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

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



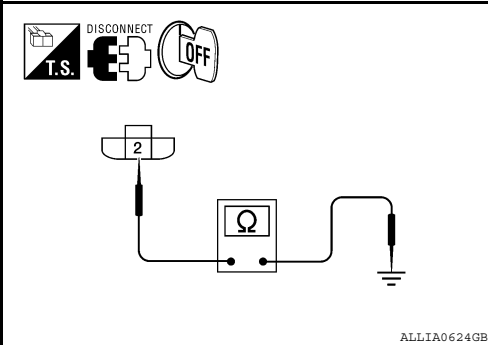
Does continuity exist?

- 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:000000005280081

The IPDM E/R (intelligent power distribution module engine room) controls the headlamp low relay based on inputs from the BCM (body control module) 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:000000005280082

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 LAMPS" 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-34, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000005280083

Regarding Wiring Diagram information, refer to [EXL-48, "Wiring Diagram"](#).

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

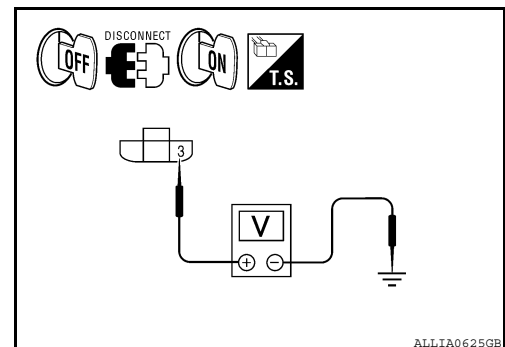
Is the fuse open?

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

2. CHECK HEADLAMP (LO) OUTPUT VOLTAGE

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

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



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HEADLAMP (LO) CIRCUIT

< COMPONENT DIAGNOSIS >

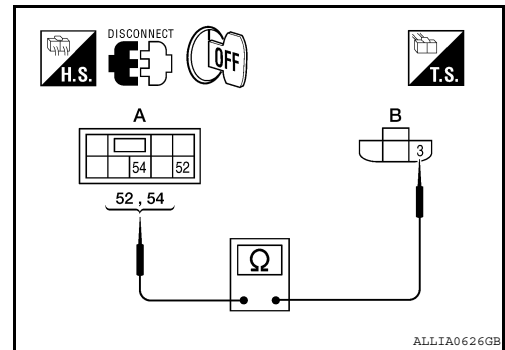
Is battery voltage present?

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

3. CHECK HEADLAMP (LO) CIRCUIT FOR OPEN

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

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



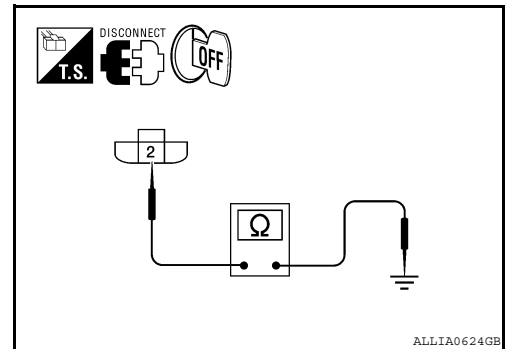
Does continuity exist?

- 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

FRONT FOG LAMP CIRCUIT

< COMPONENT DIAGNOSIS >

FRONT FOG LAMP CIRCUIT

Description

INFOID:000000005280084

The IPDM E/R (intelligent power distribution module engine room) controls the front fog lamp relay based on inputs from the BCM (body control module) via the CAN communication lines. When the front fog lamp relay is energized, power flows through fuse 56, located in the IPDM E/R. Power then flows to the front fog lamps.

Component Function Check

INFOID:000000005280085

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 LAMPS" 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-36, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000005280086

Regarding Wiring Diagram information, refer to [EXL-56, "Wiring Diagram"](#).

1. CHECK FRONT FOG LAMP FUSE

1. Turn the ignition switch OFF.
2. Check that the following fuse is 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

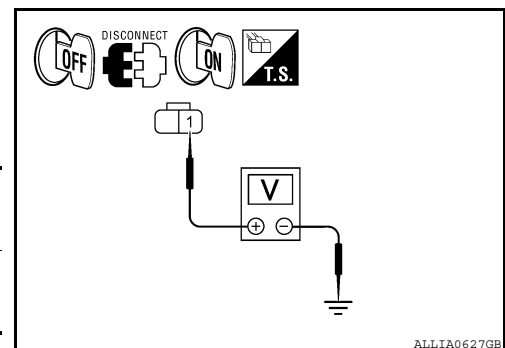
1. Disconnect the front fog lamp connector.
2. Turn the ignition switch ON.
3. Turn the front fog lamps ON.
4. Check the voltage between the fog lamp connector and ground.

(+)		Terminal	(-)	Voltage
Connector				
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.

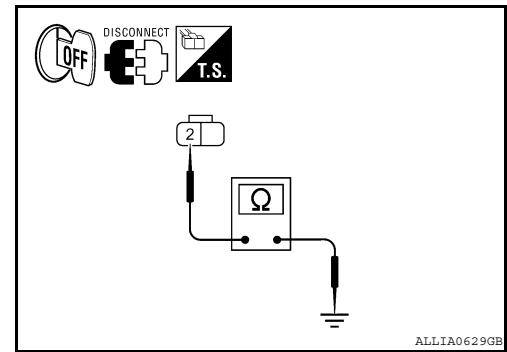
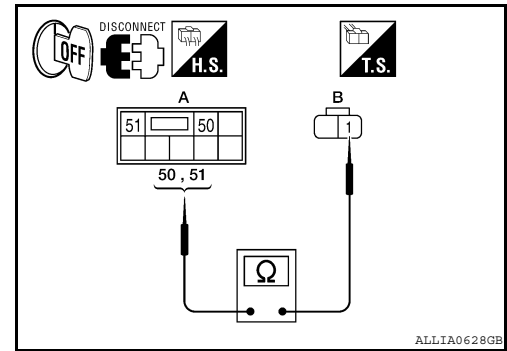
4. CHECK FRONT FOG LAMP GROUND CIRCUIT

1. 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.



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PARKING LAMP CIRCUIT

< COMPONENT DIAGNOSIS >

PARKING LAMP CIRCUIT

Description

INFOID:000000005280087

The IPDM E/R (intelligent power distribution module engine room) controls the tail lamp relay based on inputs from the BCM (body control module) via the CAN communication lines. When the tail lamp relay is energized, power flows through fuse 36 and 37, located in the IPDM E/R. Power then flows to the front and rear combination lamps, front side marker lamps and license plate lamp.

Component Function Check

INFOID:000000005280088

1. CHECK PARKING LAMP OPERATION

⊗ WITHOUT CONSULT-III

1. Activate IPDM E/R auto active test. Refer to [EXL-111, "Diagnosis Procedure"](#).
2. Check that the parking lamps are turned ON.

Ⓟ CONSULT-III

1. Select "EXTERNAL LAMPS" of IPDM E/R active test item.
2. With operating the test items, check that the parking lamps are turned ON.

TAIL : Parking lamps ON

OFF : Parking lamps OFF

Are the parking lamps turned ON?

- YES >> Parking lamp circuit is normal.
NO >> Refer to [EXL-38, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000005280089

Regarding Wiring Diagram information, refer to [EXL-66, "Wiring Diagram"](#).

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)

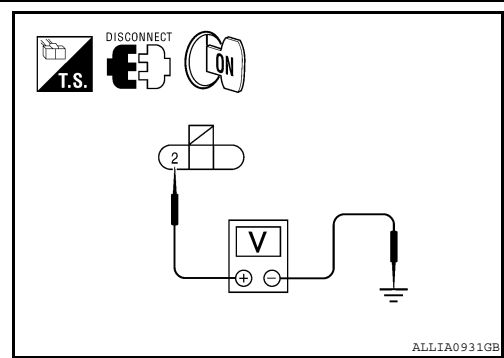
1. Disconnect the front parking lamp connectors, front side marker lamp connectors, rear combination lamp connectors and license plate lamp connectors.
2. Turn the ignition switch ON.
3. Turn the parking lamps ON.

PARKING LAMP CIRCUIT

< COMPONENT DIAGNOSIS >

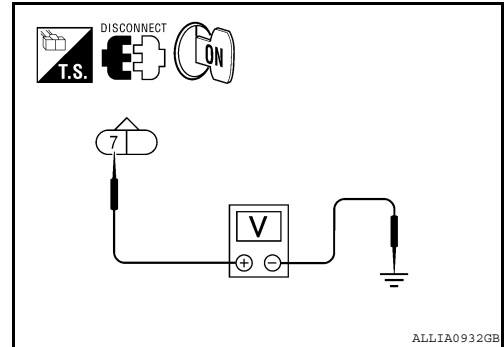
4. With the parking lamps ON, check voltage between the front parking lamp connectors and ground.

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



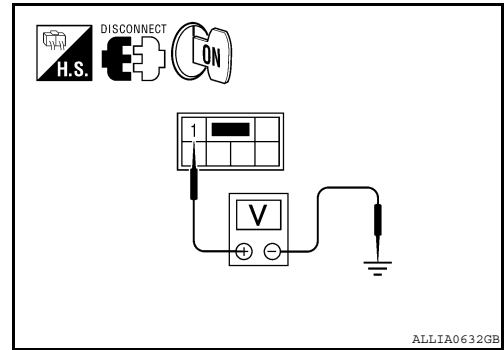
5. With the parking lamps ON, check voltage between the front side marker lamp connectors and ground.

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



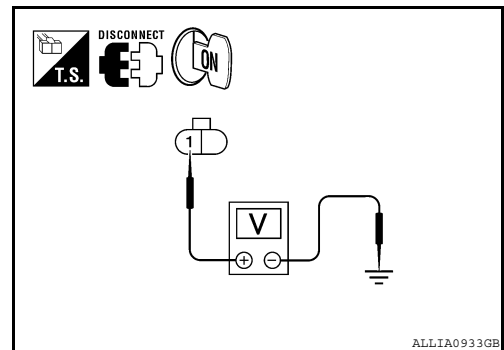
6. With the parking lamps ON, check voltage between the rear combination lamp connectors and ground.

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



7. 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 LAMP CIRCUIT (OPEN)

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

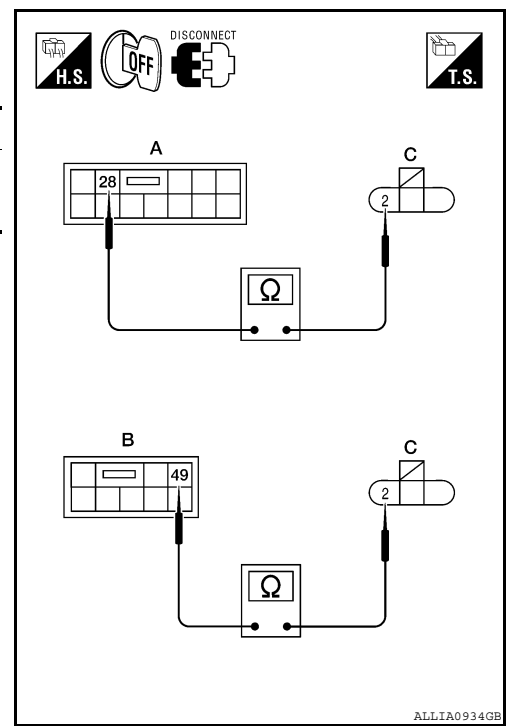
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PARKING LAMP CIRCUIT

< COMPONENT DIAGNOSIS >

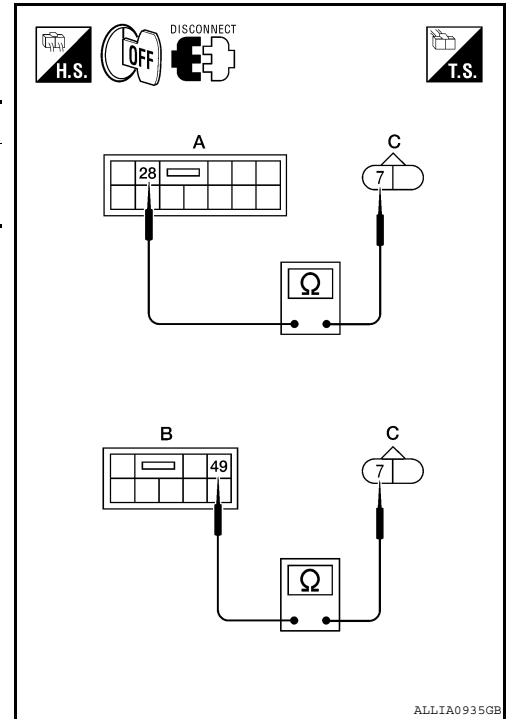
3. Check continuity between the IPDM E/R harness connector (A), (B) and the front parking lamp harness connector (C).

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



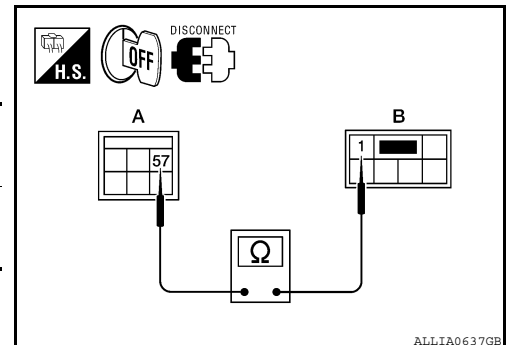
4. Check continuity between the IPDM E/R harness connector (A), (B) and the front side marker lamp harness connector (C).

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

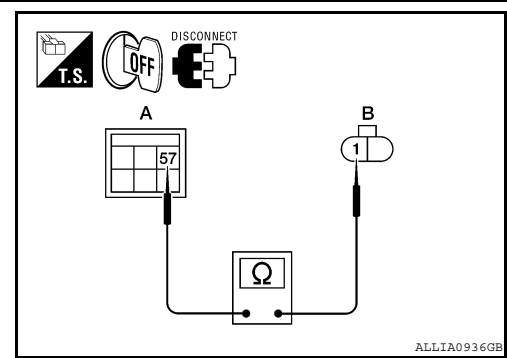
< COMPONENT DIAGNOSIS >

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?

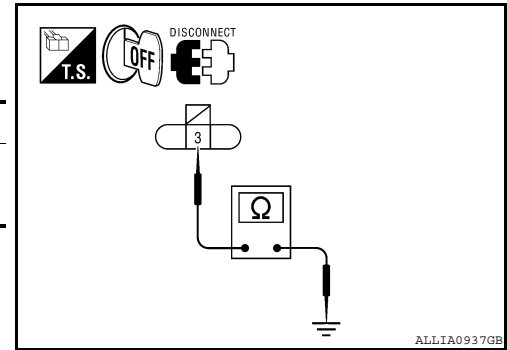
- YES >> GO TO 4
 NO >> Repair the harnesses or connectors.



4. CHECK PARKING LAMP GROUND CIRCUITS

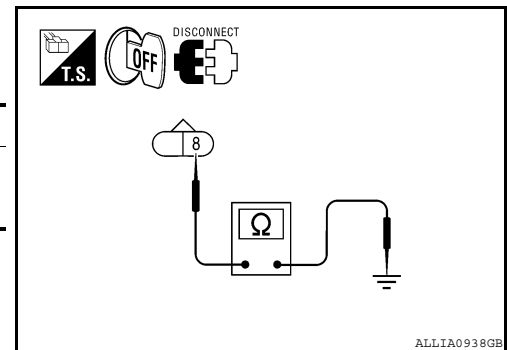
1. Check continuity between the front parking lamp harness connectors and ground.

Connector	Terminal	—	Continuity
LH	E27	3	Ground
RH	E111		



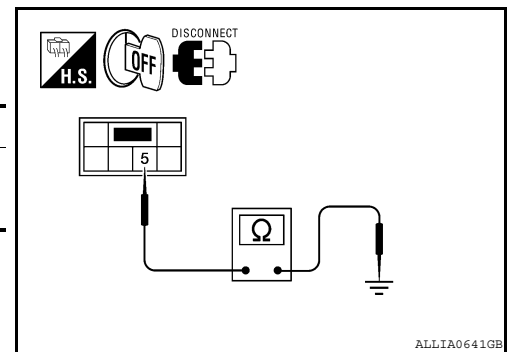
2. Check continuity between the front side marker lamp harness connectors and ground.

Connector	Terminal	—	Continuity
LH	E17	8	Ground
RH	E108		



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

Connector	Terminal	—	Continuity
LH	B35	5	Ground
RH	B105		



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PARKING LAMP CIRCUIT

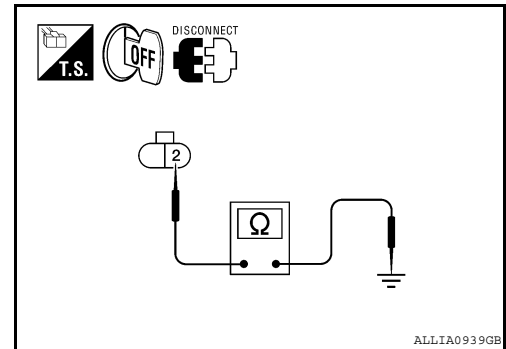
< COMPONENT DIAGNOSIS >

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

Connector	Terminal	—	Continuity
C12	2	Ground	Yes

Are continuity results as specified?

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



TURN SIGNAL LAMP CIRCUIT

< COMPONENT DIAGNOSIS >

TURN SIGNAL LAMP CIRCUIT

Description

INFOID:000000005280090

The BCM (body control module) monitors inputs from the combination switch (lighting and turn signal 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:000000005280091

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-43, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000005280092

Regarding Wiring Diagram information, refer to [EXL-60, "Wiring Diagram"](#).

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.

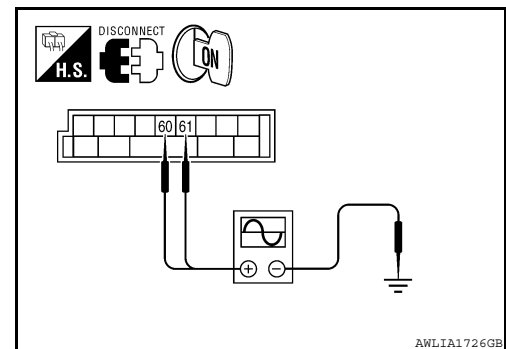
Is the bulb OK?

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

2. CHECK TURN SIGNAL LAMP OUTPUT VOLTAGE

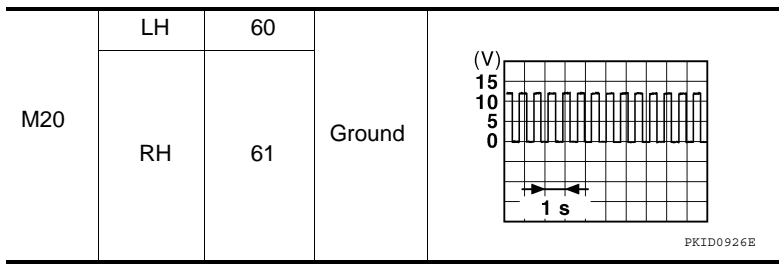
1. Turn the ignition switch OFF.
2. Disconnect the front combination lamp connectors and the rear combination lamp connector.
3. Turn the ignition switch ON.
4. With combination switch (lighting and turn signal switch) operating, check the voltage between the BCM harness connector M20 and ground.

(+)		(-)	Voltage
Connector	Terminal		



TURN SIGNAL LAMP CIRCUIT

< COMPONENT DIAGNOSIS >



Is voltage reading as specified?

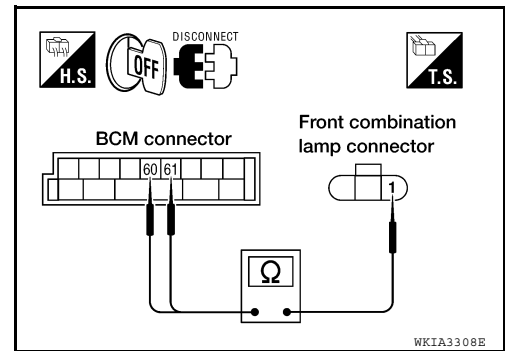
YES >> GO TO 3

NO >> Replace BCM. Refer to [BCS-56. "Removal and Installation"](#).

3. CHECK TURN SIGNAL LAMP CIRCUIT FOR OPEN

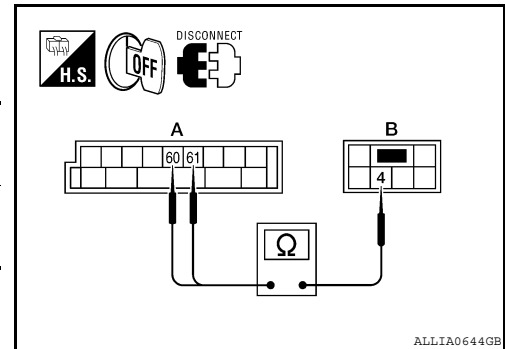
1. Turn the ignition switch OFF.
2. Disconnect BCM connector M20.
3. Check continuity between the BCM harness connector M20 (A) and the front combination lamps (B).

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 (A) and the rear combination lamp connectors (B).

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.

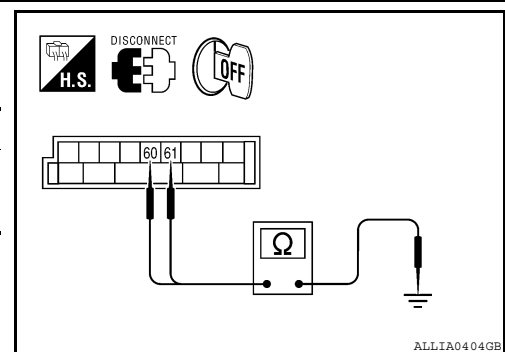
Connector	Terminal	—	Continuity
LH	M20	60	No
RH		61	

Does continuity exist?

YES >> Repair the harnesses or connectors.

NO >> GO TO 5

5. CHECK TURN SIGNAL LAMP GROUND CIRCUIT

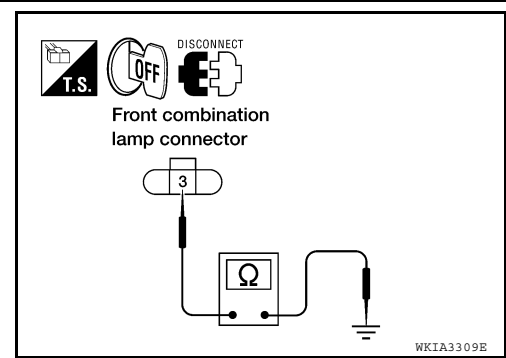


TURN SIGNAL LAMP CIRCUIT

< COMPONENT DIAGNOSIS >

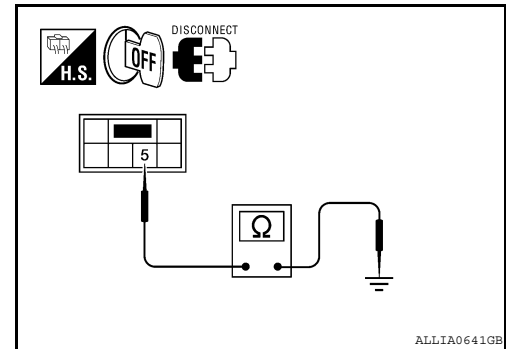
1. Check continuity between the front combination lamp harness connectors and ground.

Connector		Terminal	—	Continuity
Front LH	E27	3	Ground	Yes
Front RH	E111			



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.

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EXL

HEADLAMP AIMING SWITCH

< COMPONENT DIAGNOSIS >

HEADLAMP AIMING SWITCH

Description

INFOID:000000005280093

The manual headlamp aiming system uses a headlamp aiming switch to adjust the axis of the headlamp aiming motor. The headlamp aiming switch has four settings, each with a different resistance value. The headlamp aiming motor adjusts to the proper axis based off the position of the headlamp aiming switch.

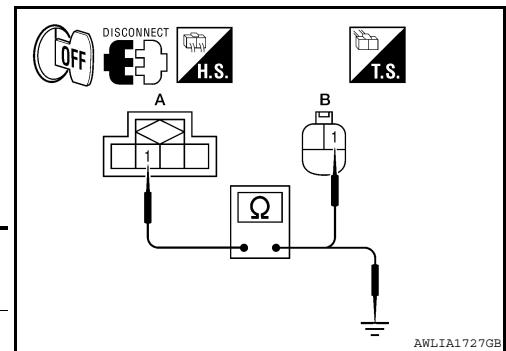
Diagnosis Procedure

INFOID:000000005280094

Regarding Wiring Diagram information, refer to [EXL-52. "Wiring Diagram"](#).

1. CHECK HEADLAMP AIMING SWITCH SIGNAL FOR OPEN OR SHORT CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect headlamp aiming switch connector M23 and headlamp aiming motor connectors.
3. Check continuity between the headlamp aiming switch connector M23 (A) terminal 1 and headlamp aiming motor LH E166 and RH E165 (B) terminal 1.



A		B		Continuity
Connector	Terminal	Connector	Terminal	
M23	1	E166	1	Yes
		E165		

4. Check continuity between the headlamp aiming switch connector M23 (A) terminal 1 and ground.

Connector	Terminal	—	Continuity
M23	1	Ground	No

Are the continuity results as specified?

YES >> GO TO 2

NO >> Repair the harness or connector.

2. CHECK HEADLAMP AIMING SWITCH

1. Check resistance between the headlamp aiming switch terminals 1 and 2 in each switch position.

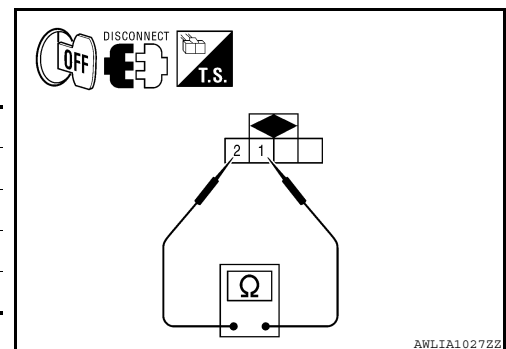
Component	Terminal		Switch Position	Resistance (Ω) (approx.)
Headlamp aiming switch	1	2	0	2050 Ω
			1	681 Ω
			2	523 Ω
			3	226 Ω

Are continuity results as specified?

YES >> GO TO 3

NO >> Replace the headlamp aiming switch.

3. CHECK HEADLAMP AIMING SWITCH GROUND CIRCUIT



HEADLAMP AIMING SWITCH

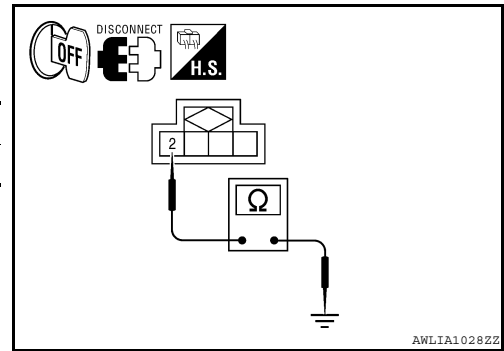
< COMPONENT DIAGNOSIS >

1. Check continuity between headlamp aiming switch connector M23 terminal 2 and ground.

Connector	Terminal	—	Continuity
M23	2	Ground	Yes

Does continuity exist?

- YES >> Inspect headlamp aiming motors.
 NO >> Repair harness or connector.



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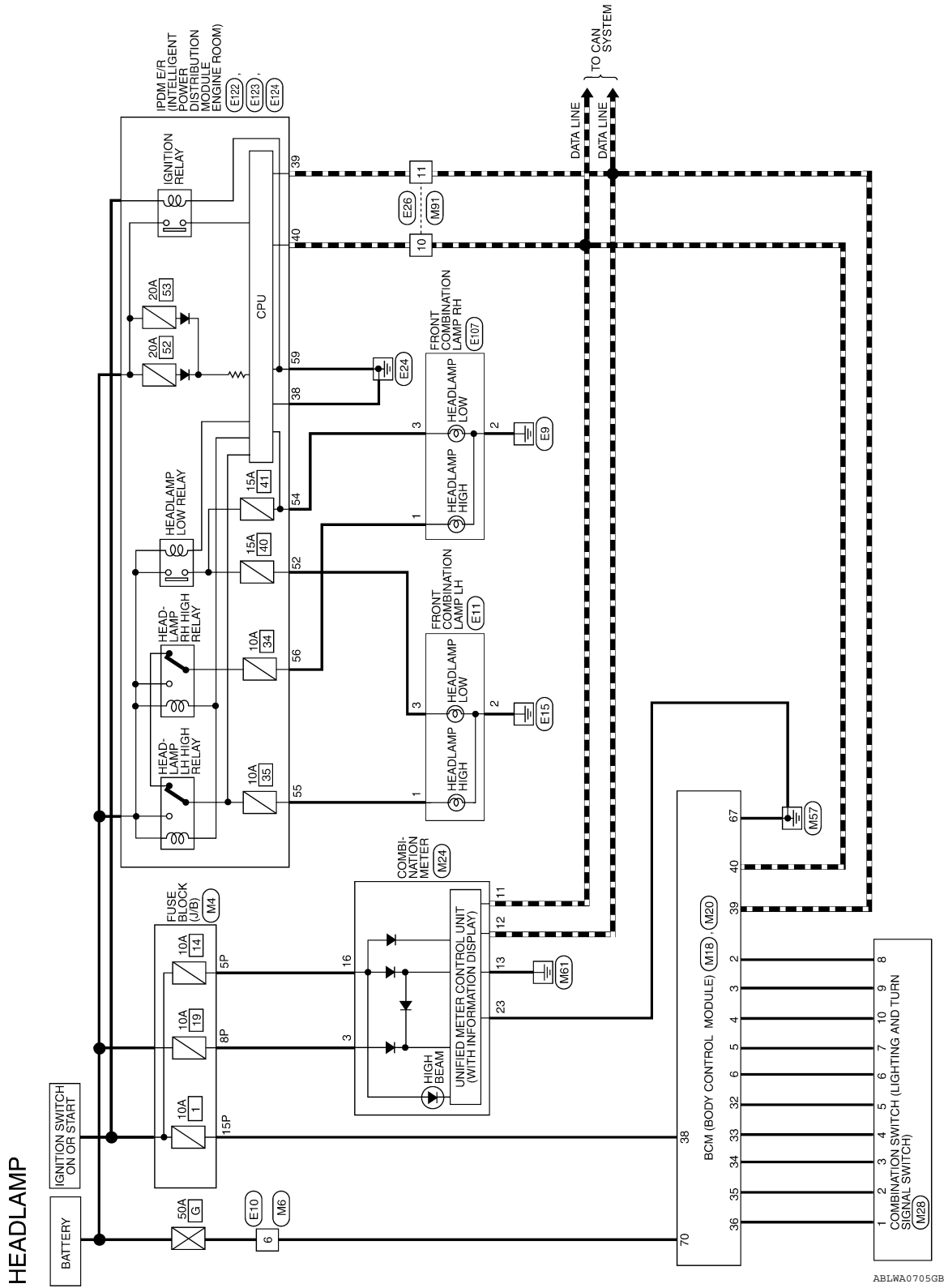
HEADLAMP

< COMPONENT DIAGNOSIS >

HEADLAMP

Wiring Diagram

INFOID:000000005280095



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HEADLAMP

< COMPONENT DIAGNOSIS >

HEADLAMP CONNECTORS

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



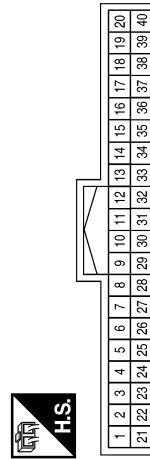
Terminal No.	Color of Wire	Signal Name
5P	W/G	-
8P	R/Y	-
15P	W/R	-

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



Terminal No.	Color of Wire	Signal Name
6	W	-

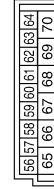
Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



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)

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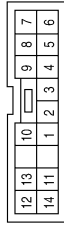
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HEADLAMP

< COMPONENT DIAGNOSIS >

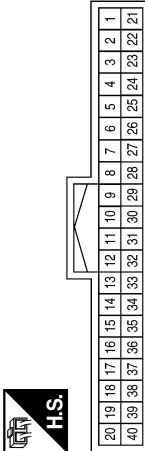
Terminal No.	Color of Wire	Signal Name
9	SB	OUTPUT 4
10	V	OUTPUT 3

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.	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.	E11
Connector Name	FRONT COMBINATION LAMP LH
Connector Color	BLACK



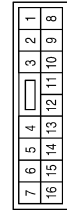
Terminal No.	Color of Wire	Signal Name
1	G	-
2	B	-
3	P	-

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



Terminal No.	Color of Wire	Signal Name
6	W	-

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



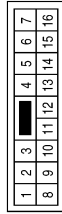
Terminal No.	Color of Wire	Signal Name
10	P	-
11	L	-

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HEADLAMP

< COMPONENT DIAGNOSIS >

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



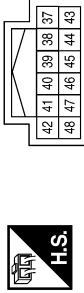
Terminal No.	Color of Wire	Signal Name
10	P	-
11	L	-

Connector No.	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



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



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

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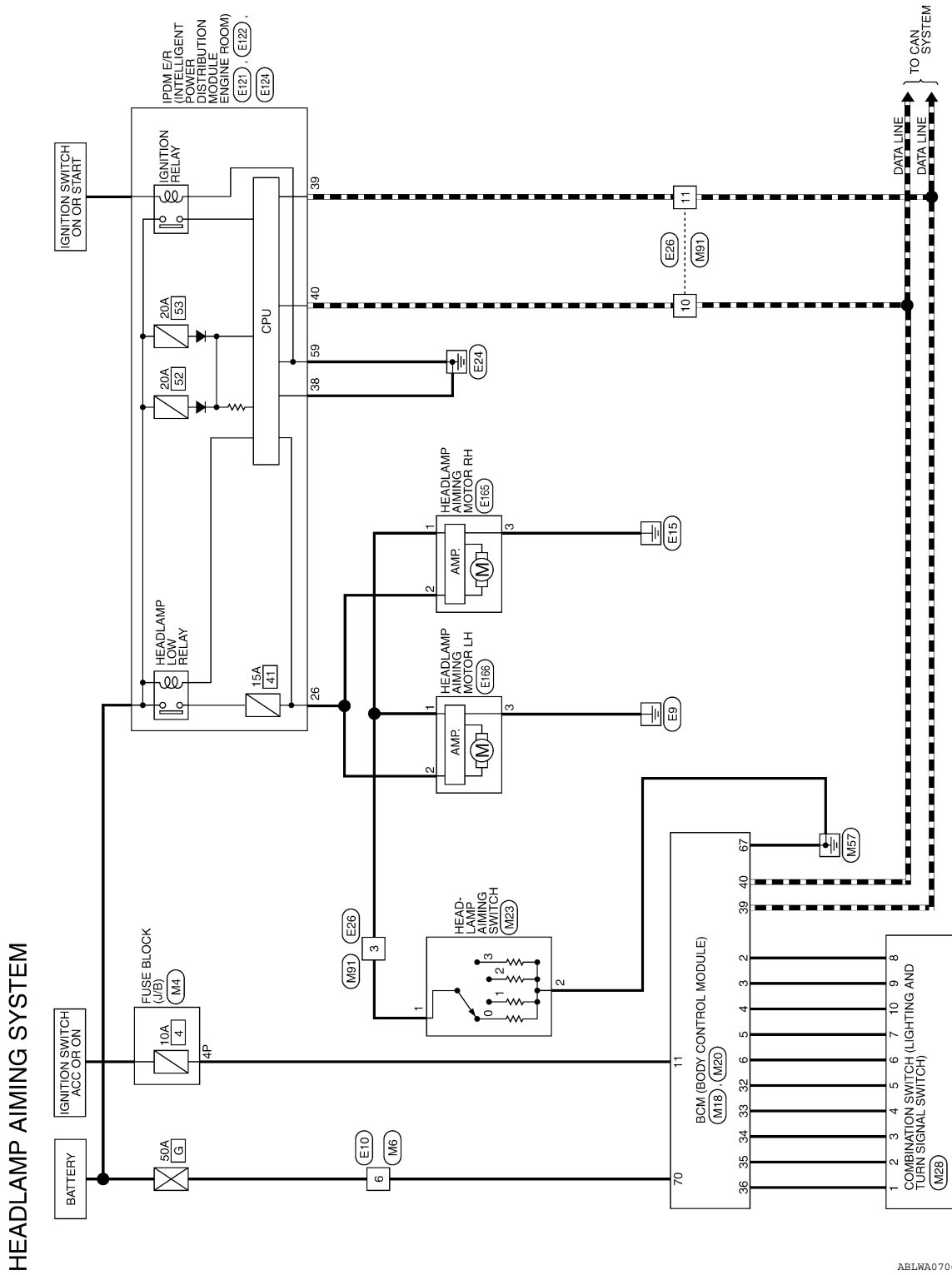
HEADLAMP AIMING SYSTEM (MANUAL)

< COMPONENT DIAGNOSIS >

HEADLAMP AIMING SYSTEM (MANUAL)

Wiring Diagram

INFOID:000000005280096



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HEADLAMP AIMING SYSTEM (MANUAL)

< COMPONENT DIAGNOSIS >

HEADLAMP AIMING SYSTEM CONNECTORS

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



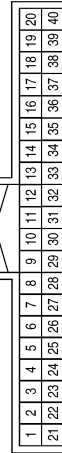
Terminal No.	Color of Wire	Signal Name
4P	G/B	-

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



Terminal No.	Color of Wire	Signal Name
6	W	-

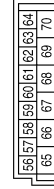
Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



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
11	G/B	ACC SW
32	O	OUTPUT 5
33	GR	OUTPUT 4
34	G	OUTPUT 3
35	BR	OUTPUT 2
36	LG	OUTPUT 1
39	L	CAN-H
40	P	CAN-L

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



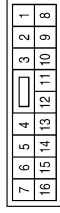
Terminal No.	Color of Wire	Signal Name
67	B	GND (POWER)
70	W	BAT (F/L)

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HEADLAMP AIMING SYSTEM (MANUAL)

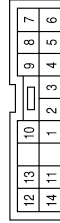
< COMPONENT DIAGNOSIS >

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



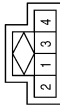
Terminal No.	Color of Wire	Signal Name
3	G	-
10	P	-
11	L	-

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.	M23
Connector Name	HEADLAMP AIMING SWITCH
Connector Color	WHITE



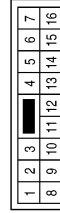
Terminal No.	Color of Wire	Signal Name
1	G	-
2	B	-

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



Terminal No.	Color of Wire	Signal Name
26	O	H/LAMP LEVELIZE

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



Terminal No.	Color of Wire	Signal Name
3	G	-
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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HEADLAMP AIMING SYSTEM (MANUAL)

< COMPONENT DIAGNOSIS >

Connector No.	E165
Connector Name	HEADLAMP AIMING MOTOR RH
Connector Color	GRAY



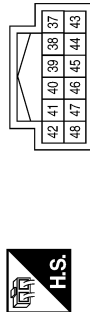
Terminal No.	Color of Wire	Signal Name
1	G	-
2	O	-
3	B	-

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)

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.	E166
Connector Name	HEADLAMP AIMING MOTOR LH
Connector Color	GRAY



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

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FRONT FOG LAMP SYSTEM

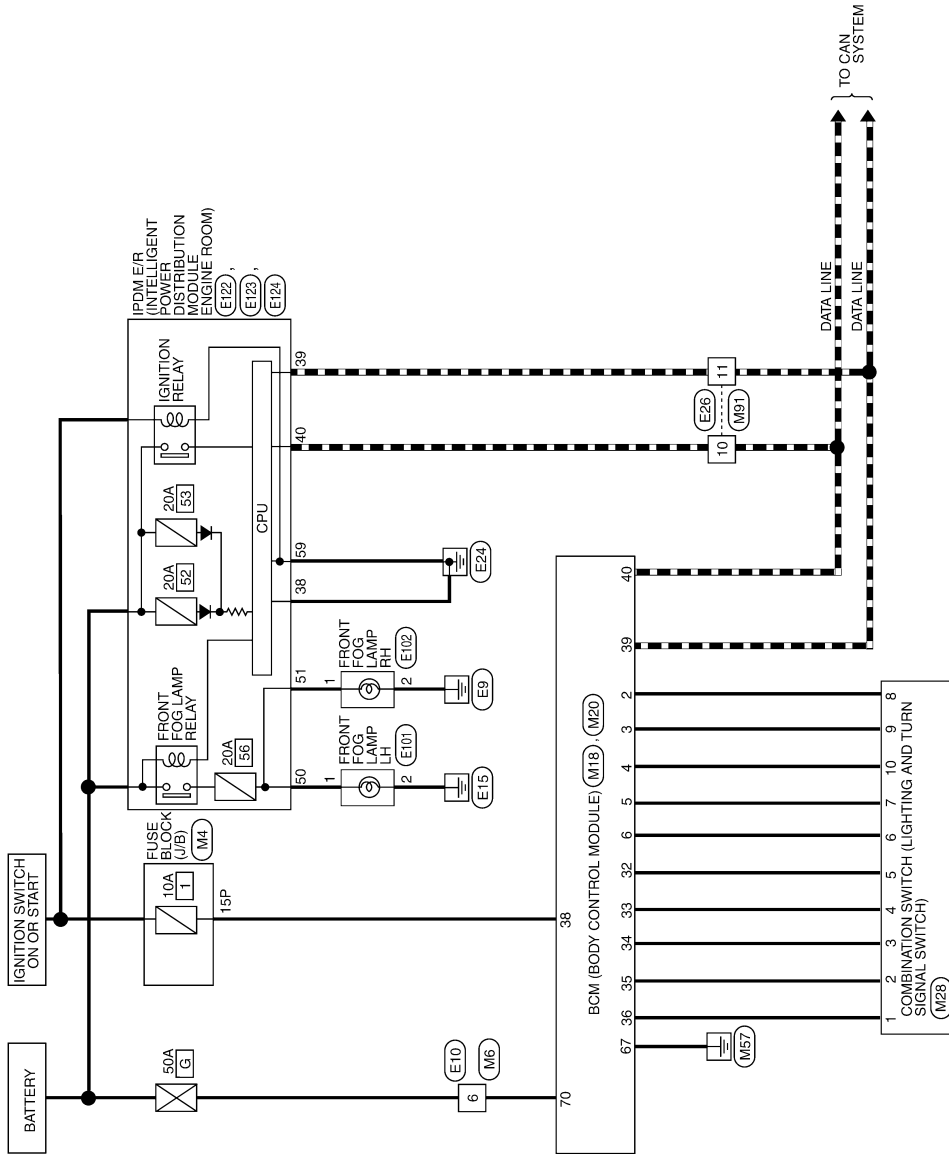
< COMPONENT DIAGNOSIS >

FRONT FOG LAMP SYSTEM

Wiring Diagram

INFOID:000000005280097

FRONT FOG LAMP



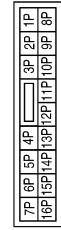
ABLWA0707GB

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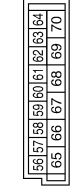
Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



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

Terminal No.	4	Color of Wire	V	Signal Name	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	W		BAT (F/L)	

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FRONT FOG LAMP SYSTEM

< COMPONENT DIAGNOSIS >

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

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



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

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

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



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

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

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.	E10
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2	3
4	5	6



Terminal No.	Color of Wire	Signal Name
6	W	-

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FRONT FOG LAMP SYSTEM

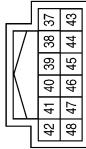
< COMPONENT DIAGNOSIS >

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



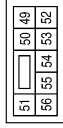
Terminal No.	Color of Wire	Signal Name
1	V	-
2	B	-

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)

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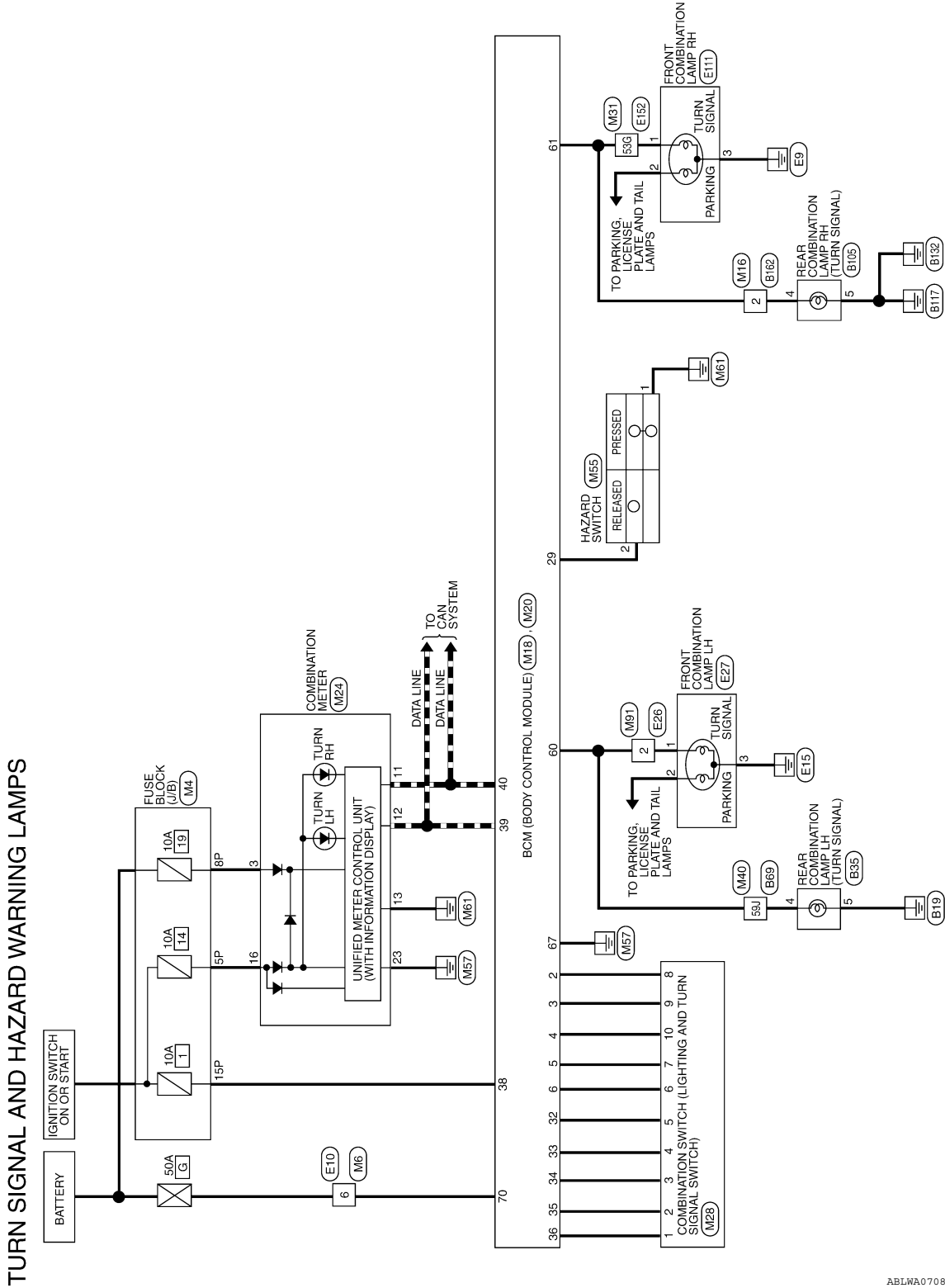
TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< COMPONENT DIAGNOSIS >

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

Wiring Diagram

INFOID:000000005280098



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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



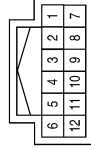
Terminal No.	Color of Wire	Signal Name
5P	W/G	-
8P	R/Y	-
15P	W/R	-

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



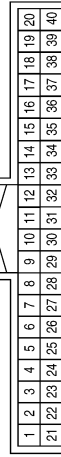
Terminal No.	Color of Wire	Signal Name
6	W	-

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



Terminal No.	Color of Wire	Signal Name
2	G	-

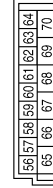
Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



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

Terminal No.	Color of Wire	Signal Name
4	V	INPUT 3
5	L	INPUT 2
6	R	INPUT 1
29	G	HAZARD SW
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
60	LG	FLASHER OUTPUT (LEFT)
61	G	FLASHER OUTPUT (RIGHT)
67	B	GND (POWER)
70	W	BAT (F/L)

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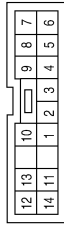
EXL

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< COMPONENT DIAGNOSIS >

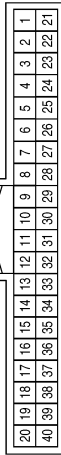
Terminal No.	Color of Wire	Signal Name
9	SB	OUTPUT 4
10	V	OUTPUT 3

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

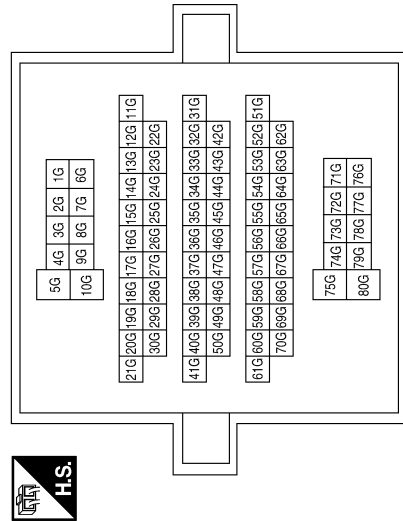
Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE



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

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

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

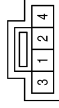


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TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< COMPONENT DIAGNOSIS >

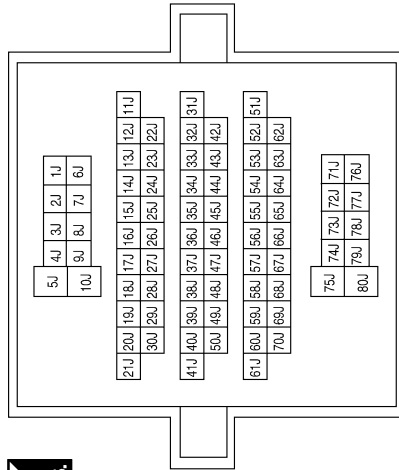
Connector No.	M55
Connector Name	HAZARD SWITCH
Connector Color	WHITE



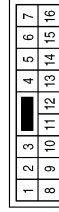
Terminal No.	Color of Wire	Signal Name
1	B	-
2	G	-

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	Color of Wire	WIRE TO WIRE	Signal Name	-
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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.	E111
Connector Name	FRONT COMBINATION LAMP RH
Connector Color	GRAY



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

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



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

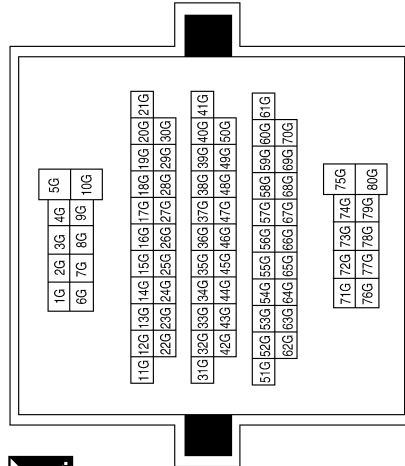
Connector No.	B35
Connector Name	REAR COMBINATION LAMP LH
Connector Color	WHITE



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

Terminal No.	53G	Color of Wire	G	Signal Name	-
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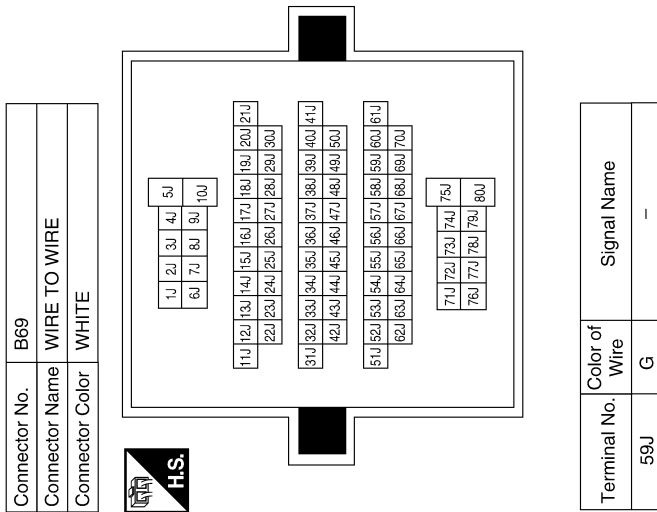
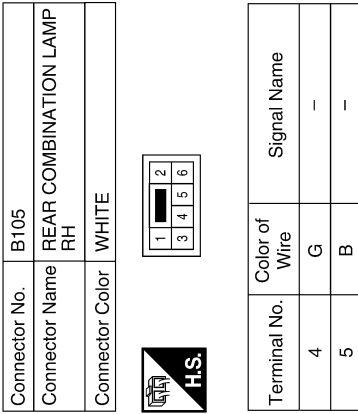
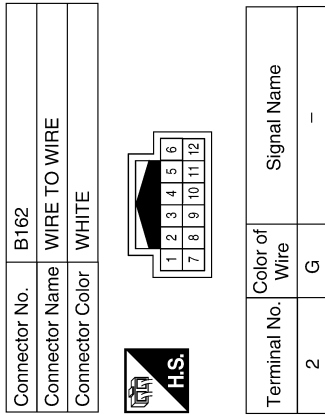
Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



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TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< COMPONENT DIAGNOSIS >



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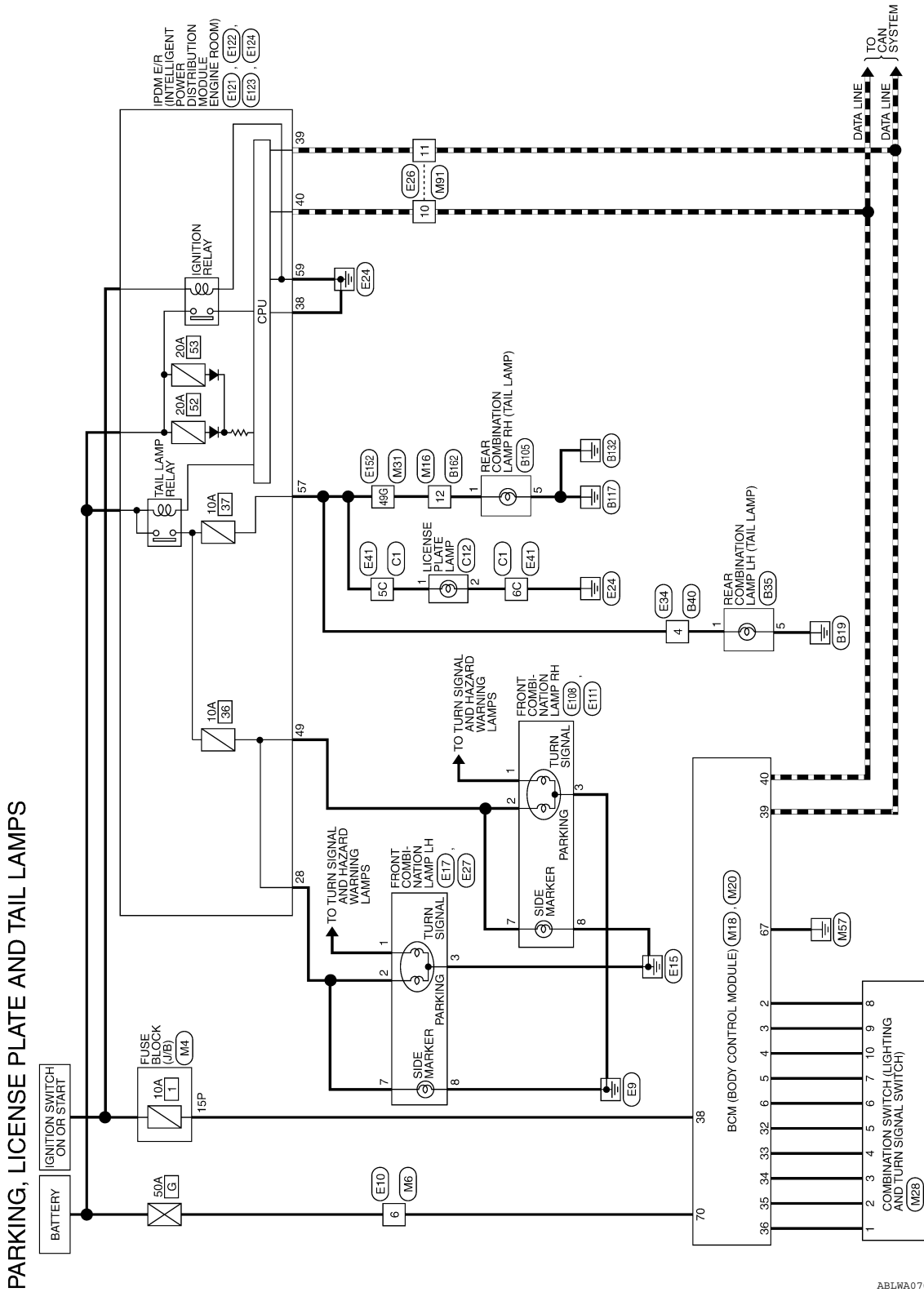
PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< COMPONENT DIAGNOSIS >

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

Wiring Diagram

INFOID:000000005280099



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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



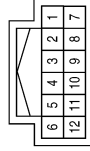
Terminal No.	15P	Color of Wire	W/R	Signal Name	—
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Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Color	WHITE



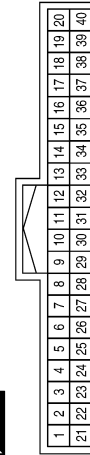
Terminal No.	6	Color of Wire	W	Signal Name	—
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Connector No.	M16
Connector Name	WIRE TO WIRE
Connector Color	WHITE



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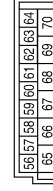
Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



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



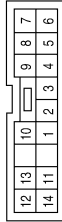
Terminal No.	67	Color of Wire	B	Signal Name	GND (POWER)
Terminal No.	70	Color of Wire	W	Signal Name	BAT (F/L)

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PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< COMPONENT DIAGNOSIS >

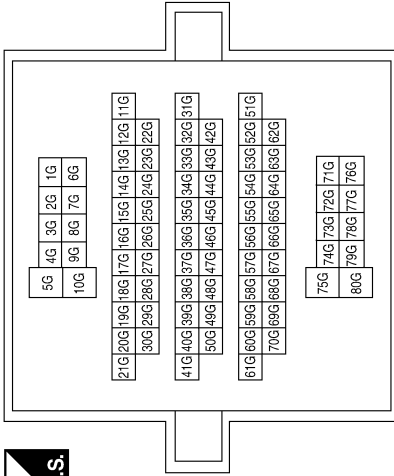
Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



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

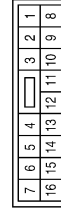
Terminal No.	Color of Wire	Signal Name
7	L	OUTPUT 2
8	P	OUTPUT 5
9	SB	OUTPUT 4
10	V	OUTPUT 3

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



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

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



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

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



Terminal No.	Color of Wire	Signal Name
6	W	-

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

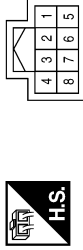


Terminal No.	Color of Wire	Signal Name
7	R	-
8	B	-

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< COMPONENT DIAGNOSIS >

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



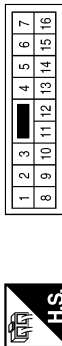
Terminal No.	Color of Wire	Signal Name
4	GR	-

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



Terminal No.	Color of Wire	Signal Name
1	LG	-
2	R	-
3	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.	E111
Connector Name	FRONT COMBINATION LAMP RH
Connector Color	GRAY



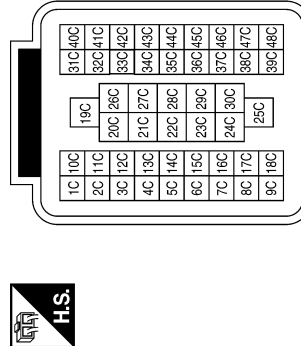
Terminal No.	Color of Wire	Signal Name
1	G	-
2	GR	-
3	B	-

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.	E41
Connector Name	WIRE TO WIRE
Connector Color	BLACK



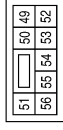
Terminal No.	Color of Wire	Signal Name
5C	V	-
6C	B	-

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PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

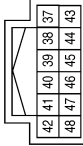
< COMPONENT DIAGNOSIS >

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



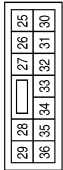
Terminal No.	Color of Wire	Signal Name
49	GR	ILLUMINATION

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



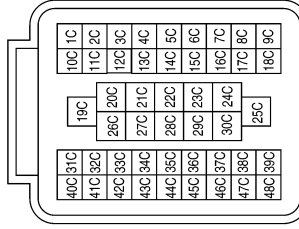
Terminal No.	Color of Wire	Signal Name
38	B	GND (SIGNAL)
39	L	CAN-H
40	P	CAN-L

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



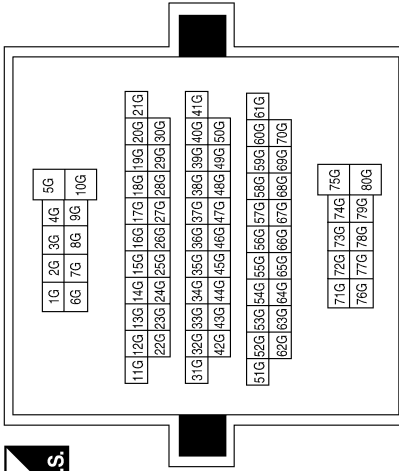
Terminal No.	Color of Wire	Signal Name
28	R	CLEARANCE FRONT LH

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



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



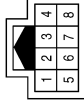
Terminal No.	Color of Wire	Signal Name
57	GR	TAIL LAMP
59	B	GND (POWER)

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PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

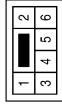
< COMPONENT DIAGNOSIS >

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



Terminal No.	4	Color of Wire	GR	Signal Name	-
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Connector No.	B35
Connector Name	REAR COMBINATION LAMP LH
Connector Color	WHITE



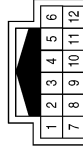
Terminal No.	1	Color of Wire	GR	Signal Name	-
	5		B		-

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



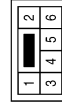
Terminal No.	1	Color of Wire	V	Signal Name	-
	2		B		-

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



Terminal No.	12	Color of Wire	V	Signal Name	-
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Connector No.	B105
Connector Name	REAR COMBINATION LAMP RH
Connector Color	WHITE



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

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STOP LAMP

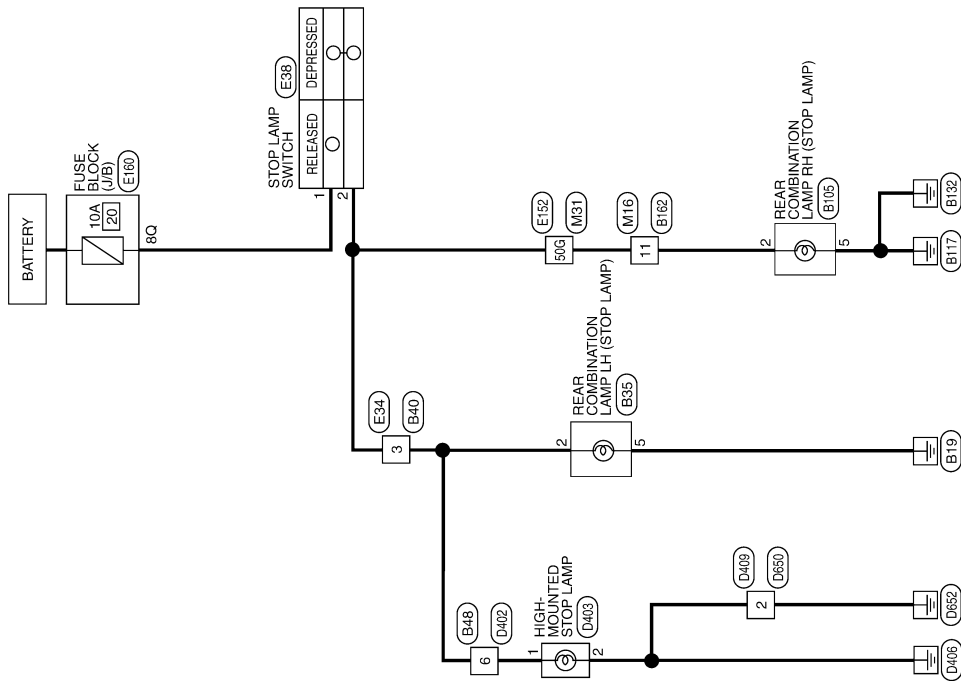
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STOP LAMP

Wiring Diagram

INFOID:000000005280100

STOP LAMP



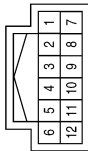
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STOP LAMP

< COMPONENT DIAGNOSIS >

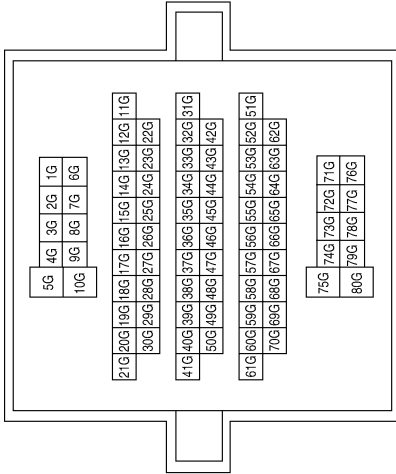
STOP LAMP CONNECTORS

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



Terminal No.	11	L	Color of Wire	Signal Name
				-

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



Terminal No.	3	Y	Color of Wire	Signal Name
				-

Connector No.	E38
Connector Name	STOP LAMP SWITCH (WITH A/T)
Connector Color	WHITE



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

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



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

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

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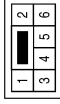
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STOP LAMP

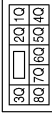
< COMPONENT DIAGNOSIS >

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



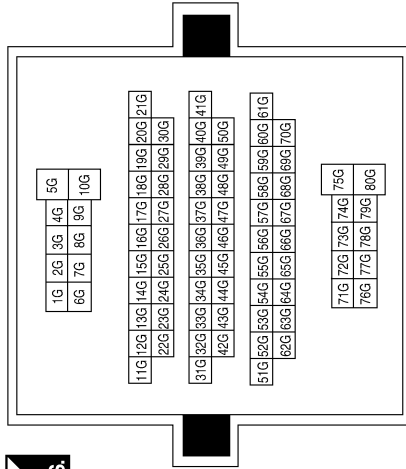
Terminal No.	Color of Wire	Signal Name
2	Y	-
5	B	-

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



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

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



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

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



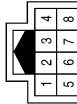
Terminal No.	Color of Wire	Signal Name
2	L	-
5	B	-

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



Terminal No.	Color of Wire	Signal Name
6	R	-

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



Terminal No.	Color of Wire	Signal Name
3	Y	-

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STOP LAMP

< COMPONENT DIAGNOSIS >

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.	D402
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	R	-

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



Terminal No.	Color of Wire	Signal Name
11	L	-

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



Terminal No.	Color of Wire	Signal Name
2	B	-

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



Terminal No.	Color of Wire	Signal Name
2	B	-

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BACK-UP LAMP

< COMPONENT DIAGNOSIS >

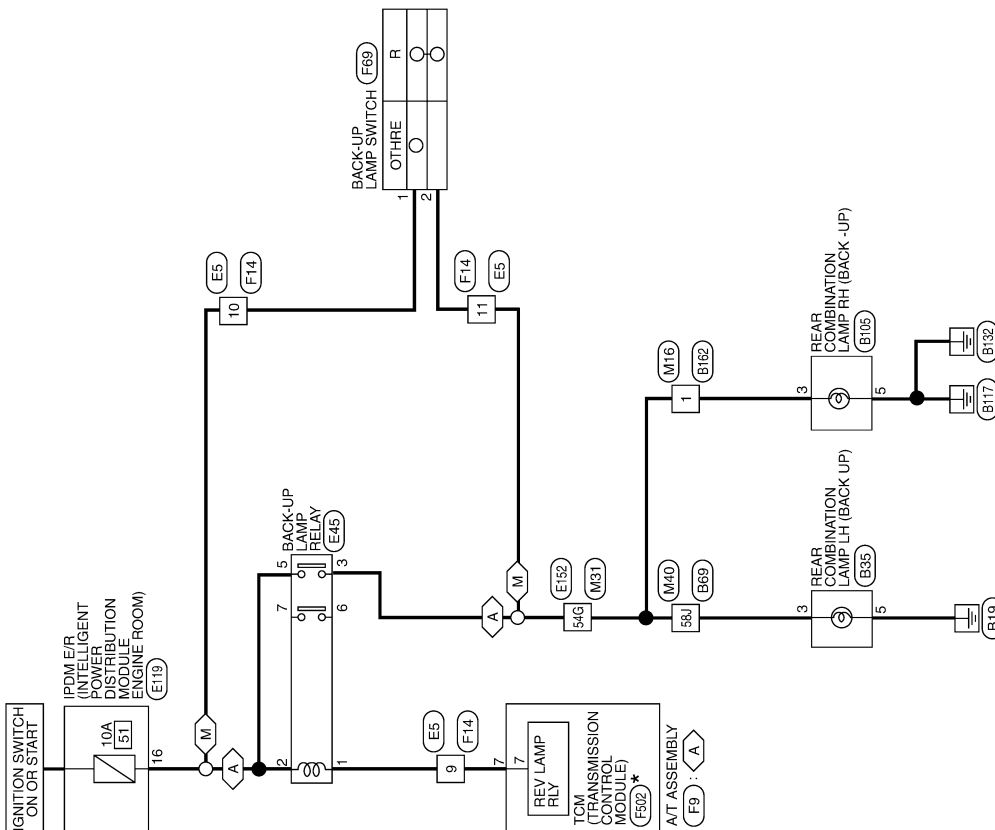
BACK-UP LAMP

Wiring Diagram

INFOID:000000005280101

A : WITH AT
M : WITH M/T

BACK-UP LAMP



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

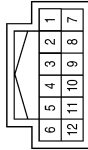
ABLWA0277GB

BACK-UP LAMP

< COMPONENT DIAGNOSIS >

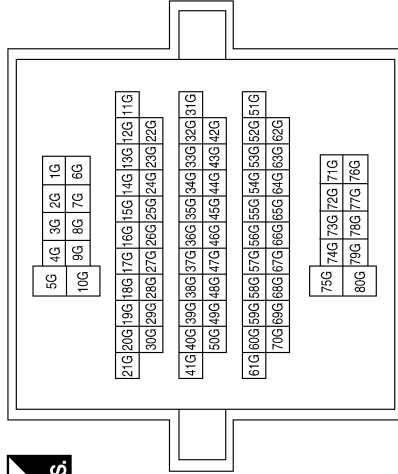
BACK-UP LAMP CONNECTORS

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



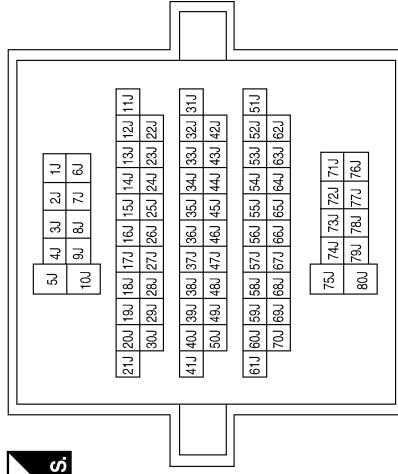
Terminal No.	Color of Wire	Signal Name
1	BR	-

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



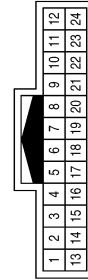
Terminal No.	Color of Wire	Signal Name
54G	SB	-

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



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
Connector Color	BROWN



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

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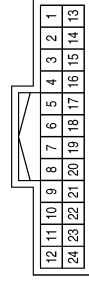
A B C D E F G H I J K L M N O P

EXL

BACK-UP LAMP

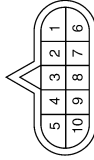
< COMPONENT DIAGNOSIS >

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



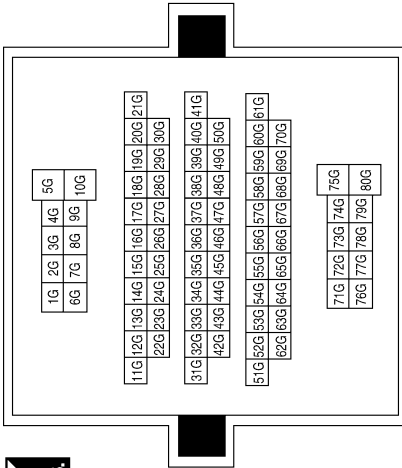
Terminal No.	Color of Wire	Signal Name
9	LG	-
10	W/G	-
11	SB	-

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



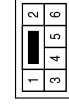
Terminal No.	Color of Wire	Signal Name
7	LG	-

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



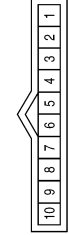
Terminal No.	Color of Wire	Signal Name
54G	SB	-

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.	F502
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Color	GRAY



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

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



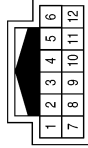
Terminal No.	Color of Wire	Signal Name
1	W/G	-
2	SB	-

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BACK-UP LAMP

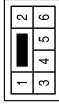
< COMPONENT DIAGNOSIS >

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



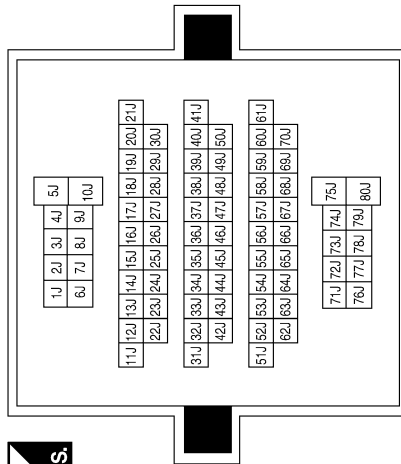
Terminal No.	Color of Wire	Signal Name
1	BR	-

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.	B69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



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

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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

ECU DIAGNOSIS

BCM (BODY CONTROL MODULE)

Reference Value

INFOID:000000005715866

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	
RKE LCK-UNLCK	LOCK/UNLOCK button of key fob is not pressed and held simultaneously	OFF	A
	LOCK/UNLOCK button of key fob is pressed and held simultaneously	ON	B
RKE KEEP UNLK	UNLOCK button of key fob is not pressed	OFF	C
	UNLOCK button of key fob is pressed and held	ON	
HI BEAM SW	Lighting switch OFF	OFF	D
	Lighting switch HI	ON	
HEAD LAMP SW 1	Lighting switch OFF	OFF	E
	Lighting switch 2ND	ON	
HEAD LAMP SW 2	Lighting switch OFF	OFF	F
	Lighting switch 2ND	ON	
PASSING SW	Other than lighting switch PASS	OFF	G
	Lighting switch PASS	ON	
FR FOG SW	Front fog lamp switch OFF	OFF	H
	Front fog lamp switch ON	ON	
TURN SIGNAL R	Turn signal switch OFF	OFF	I
	Turn signal switch RH	ON	
TURN SIGNAL L	Turn signal switch OFF	OFF	J
	Turn signal switch LH	ON	
CARGO LAMP SW	Cargo lamp switch OFF	OFF	K
	Cargo lamp switch ON	ON	
IGN SW CAN	Ignition switch OFF or ACC	OFF	EXL
	Ignition switch ON	ON	
FR WIPER HI	Front wiper switch OFF	OFF	M
	Front wiper switch HI	ON	
FR WIPER LOW	Front wiper switch OFF	OFF	N
	Front wiper switch LO	ON	
FR WIPER INT	Front wiper switch OFF	OFF	O
	Front wiper switch INT	ON	
FR WASHER SW	Front washer switch OFF	OFF	P
	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	
RR WIPER ON	Rear wiper switch OFF	OFF	
	Rear wiper switch ON	ON	
RR WIPER INT	Rear wiper switch OFF	OFF	
	Rear wiper switch INT	ON	
RR WASHER SW	Rear washer switch OFF	OFF	
	Rear washer switch ON	ON	
RR WIPER STOP	Any position other than rear wiper stop position	OFF	
	Rear wiper stop position	ON	

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

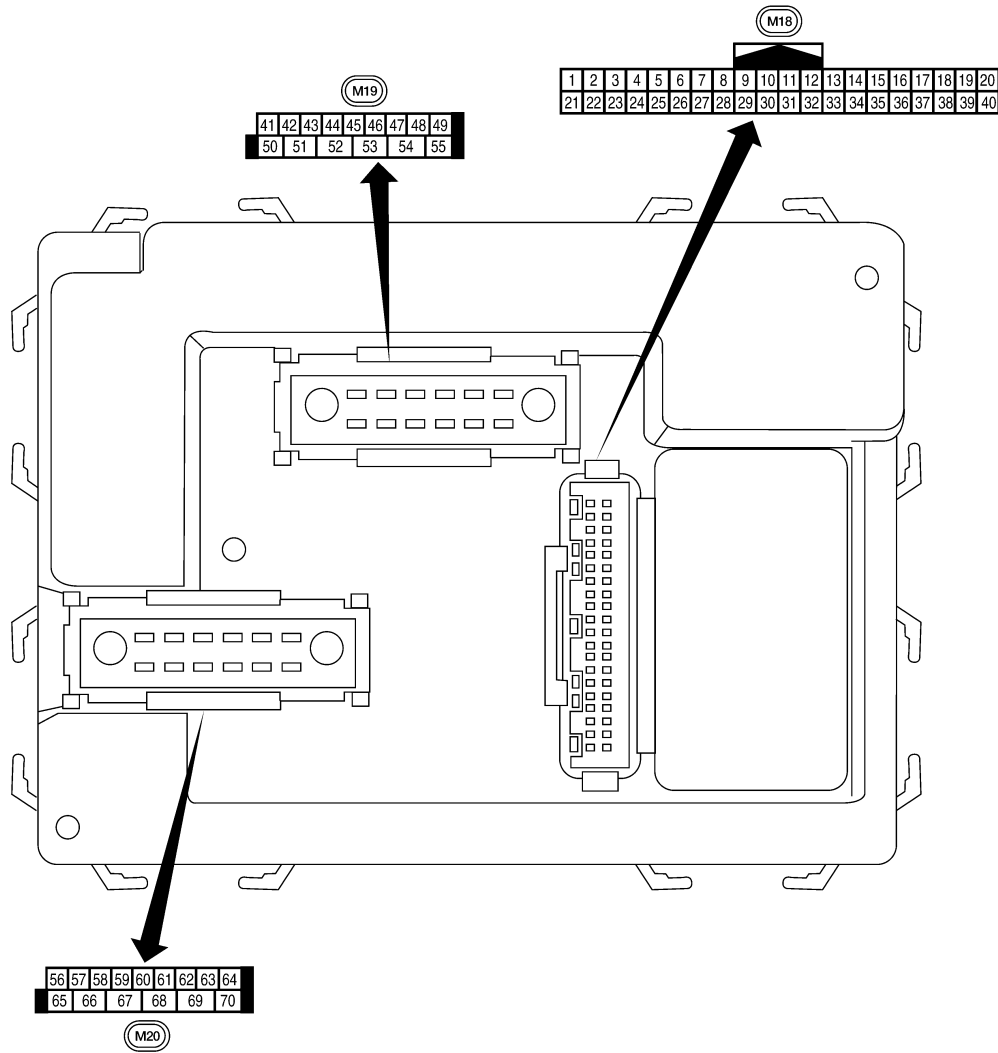
Monitor Item	Condition	Value/Status
HAZARD SW	Hazard switch OFF	OFF
	Hazard switch ON	ON
BRAKE SW	Brake pedal is not depressed	OFF
	Brake pedal is depressed	ON
FAN ON SIG	Blower fan motor switch OFF	OFF
	Blower fan motor switch ON (other than OFF)	ON
AIR COND SW	Compressor ON is not requested from auto 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
OIL PRESS SW	<ul style="list-style-type: none"> • Ignition switch OFF or ACC • Engine running 	OFF
	Ignition switch ON	ON
AIR PRESS FL	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of front LH tire
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
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
	ID of front LH tire transmitter is not registered	YET
ID REGST FR1	ID of front RH tire transmitter is registered	DONE
	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
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
BUZZER	Tire pressure warning alarm is not sounding	OFF
	Tire pressure warning alarm is sounding	ON

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Terminal Layout

INFOID:000000005715867



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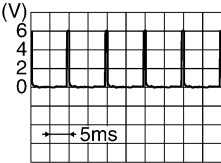

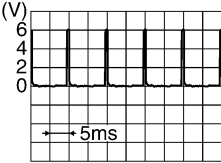
Physical Values

LIIA2443E

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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	
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	 SKIA5291E
3	SB	Combination switch input 4	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
4	V	Combination switch input 3	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
5	L	Combination switch input 2	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
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
12	LG	Front door switch RH	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

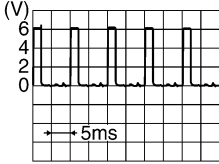

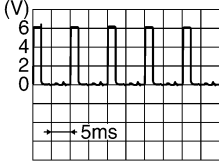

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
13	L	Rear door switch RH	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage
15	W	Tire pressure warning check connector	Input	OFF	—	5V
18	BR	Remote keyless entry receiver and optical sensor (ground)	Output	OFF	—	0V
19	V	Remote keyless entry receiver (power supply)	Output	OFF	Ignition switch OFF	<p style="text-align: right; font-size: small;">LIIA1893E</p>
20	G	Remote keyless entry receiver (signal)	Input	OFF	Stand-by (keyfob buttons released)	<p style="text-align: right; font-size: small;">LIIA1894E</p>
					When remote keyless entry receiver receives signal from keyfob (keyfob buttons pressed)	<p style="text-align: right; font-size: small;">LIIA1895E</p>
21	GR	Immobilizer antenna signal (clock)	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

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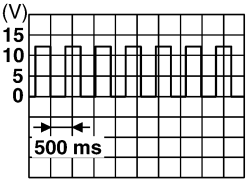
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
32	O	Combination switch output 5	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 <p style="text-align: right; font-size: small;">SKIA5291E</p>
33	GR	Combination switch output 4	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 <p style="text-align: right; font-size: small;">SKIA5292E</p>
34	G	Combination switch output 3	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 <p style="text-align: right; font-size: small;">SKIA5291E</p>
35	BR	Combination switch output 2	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 <p style="text-align: right; font-size: small;">SKIA5292E</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	—	—	—	—
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
45	V	Lock switch	Input	OFF	ON (lock)	0V
					OFF	Battery voltage

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		
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	
55	W	Rear wiper output circuit 1	Output	ON	OFF	0	
					ON	Battery voltage	
56	R/Y	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	 <small>SKIA3009J</small>	
61	G	Turn signal (right)	Output	ON	Turn right ON	 <small>SKIA3009J</small>	
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	

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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

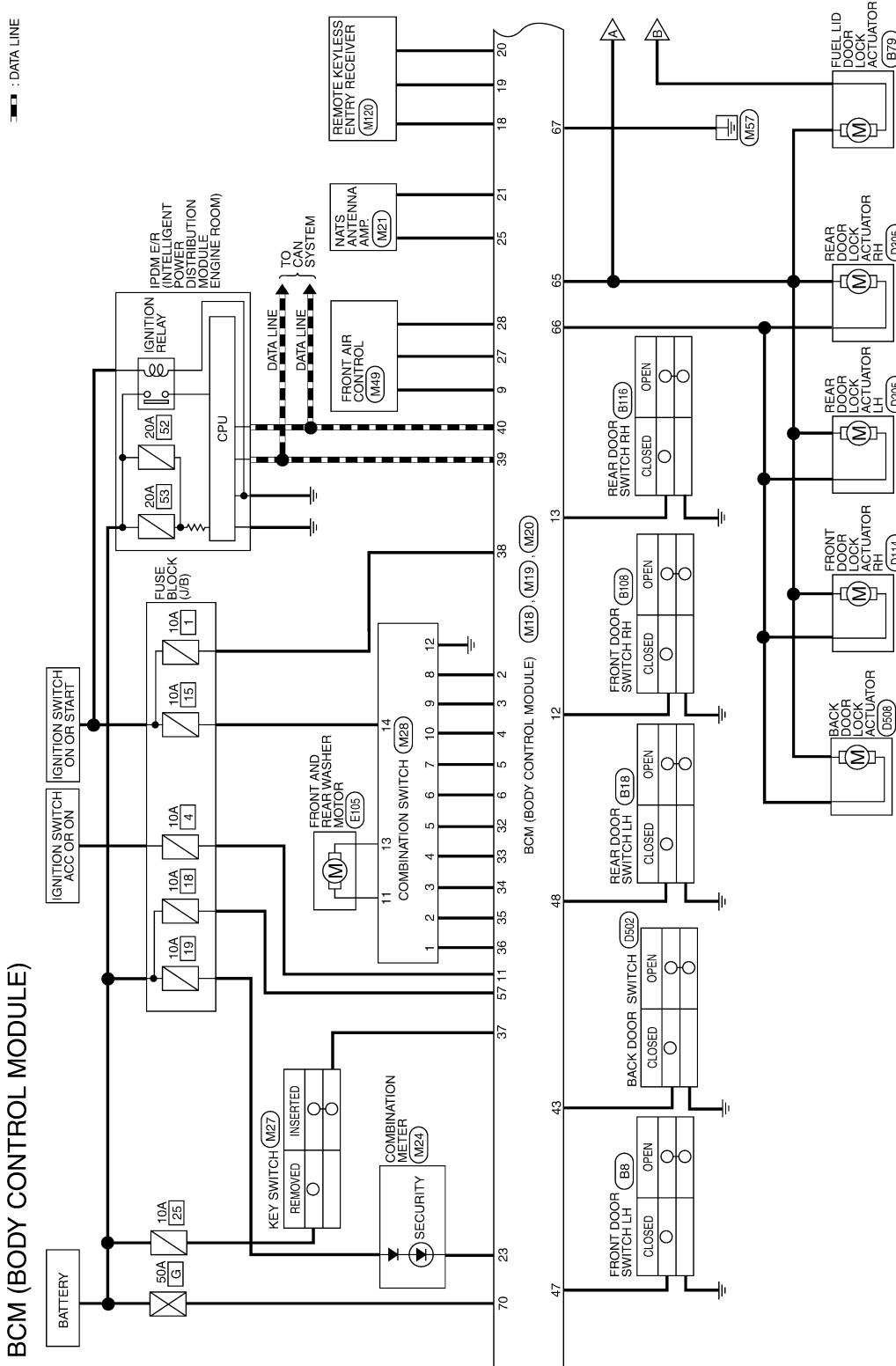
Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
68	O	Power window power supply (RAP)	Output	—	Ignition switch ON	Battery voltage
					Within 45 seconds after ignition switch OFF	Battery voltage
					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

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Wiring Diagram

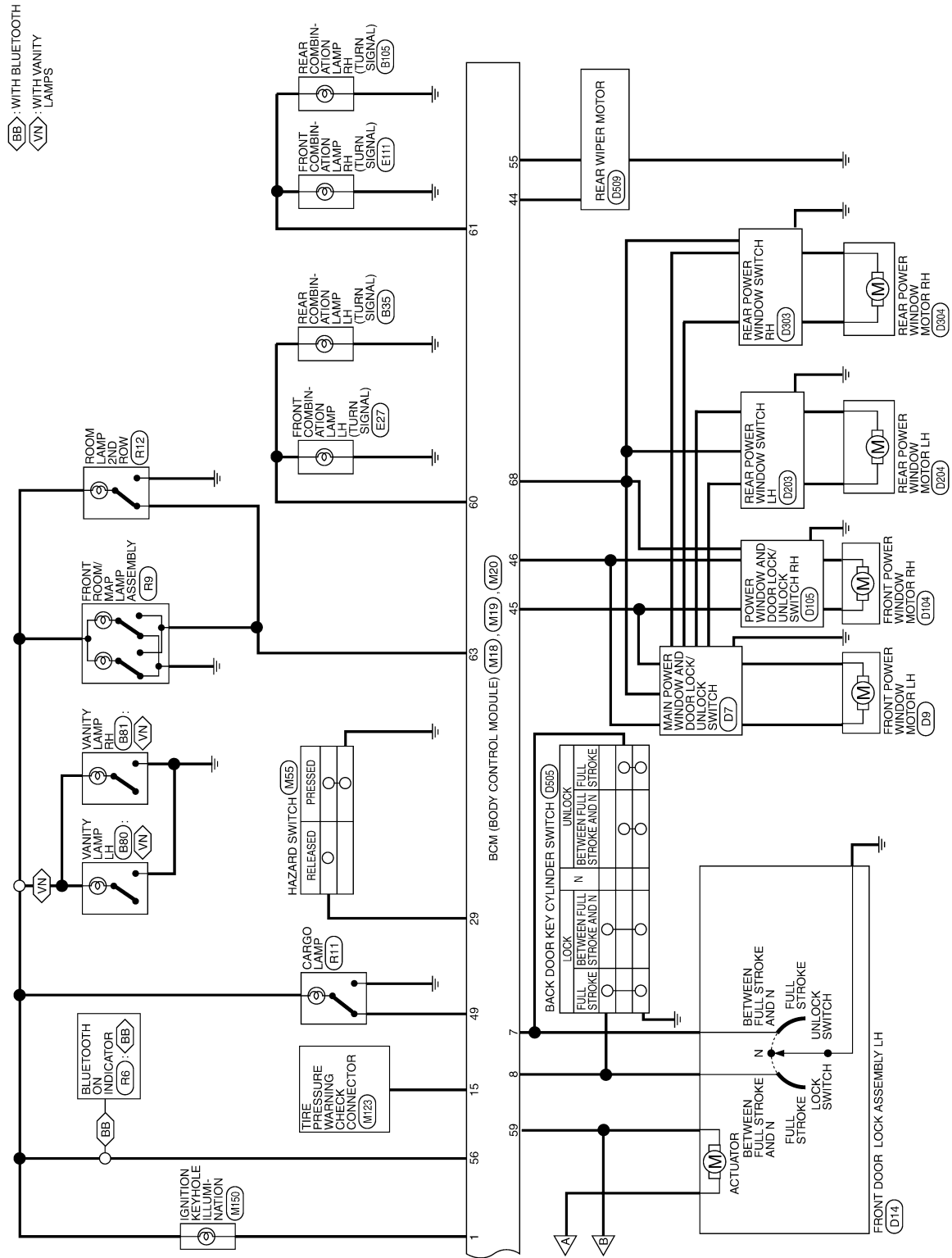
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BCM (BODY CONTROL MODULE)

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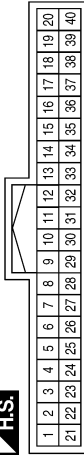
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BCM (BODY CONTROL MODULE)

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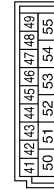
BCM (BODY CONTROL MODULE) CONNECTORS

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 3
4	V	INPUT 4
5	L	INPUT 2
6	R	INPUT 1
7	GR	KEY CYLINDER UNLOCK SW
8	SB	KEY CYLINDER LOCK SW

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



Terminal No.	Color of Wire	Signal Name
41	-	-

Terminal No.	Color of Wire	Signal Name
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	ANTENNA SIGNAL IMMOBILIZER
22	-	-

Terminal No.	Color of Wire	Signal Name
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	-	-
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

Terminal No.	Color of Wire	Signal Name
42	-	-
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

Terminal No.	Color of Wire	Signal Name
50	-	-
51	-	-
52	-	-
53	-	-
54	-	-
55	W	REAR WIPER MOTOR OUTPUT 1

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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Terminal No.	Color of Wire	Signal Name
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.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK

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



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)

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	ING

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE

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



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

INFOID:000000005715871

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
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 • C1735: IGNITION SIGNAL

DTC Index

INFOID:000000005715872

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-29
U1010: CONTROL UNIT (CAN)	—	—	BCS-30
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	—	—	WT-20

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

< ECU DIAGNOSIS >

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

Reference Value

INFOID:000000005715873

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
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
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

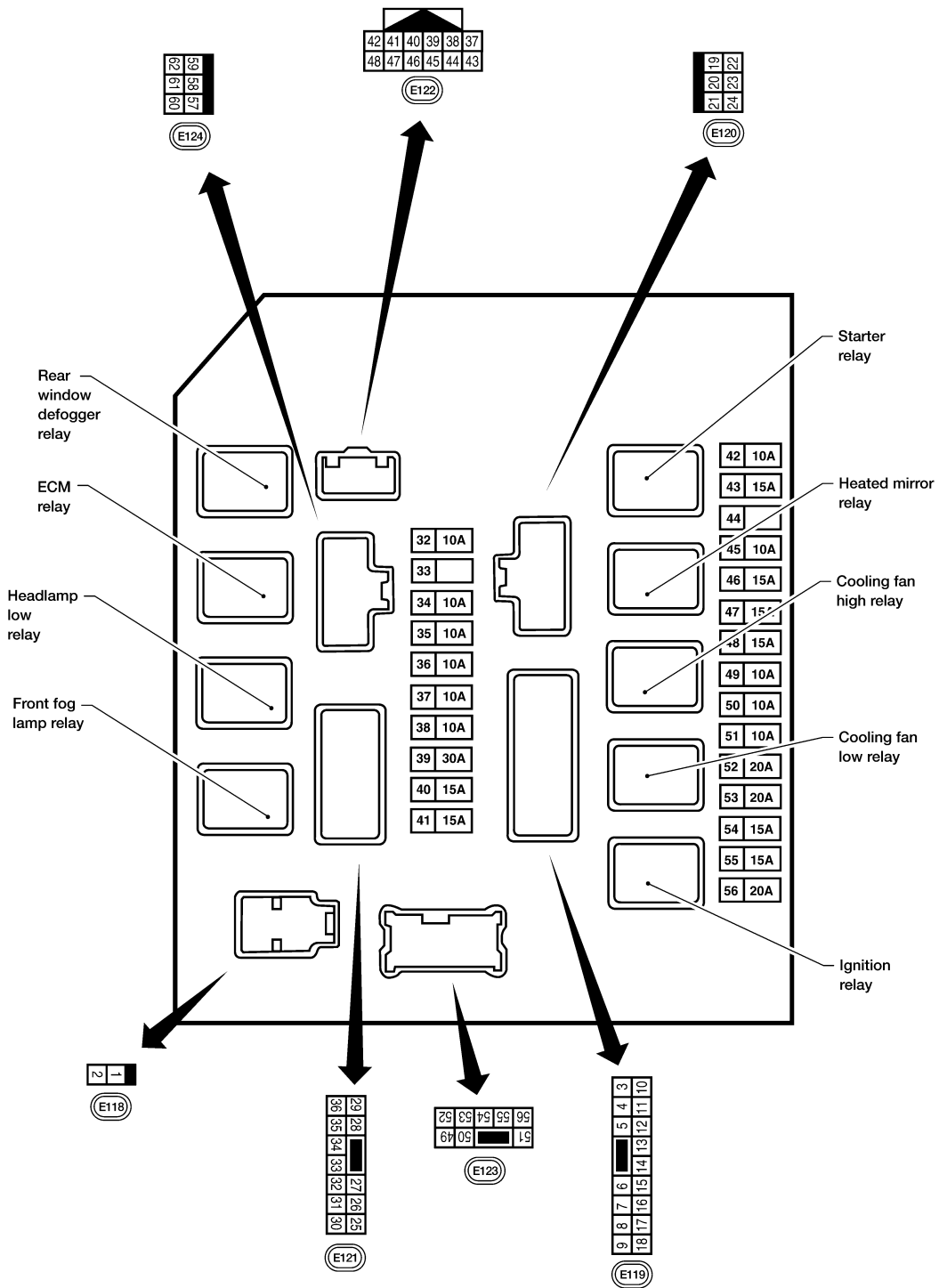
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS >

Terminal Layout

INFOID:000000005715874

TERMINAL LAYOUT —TYPE A

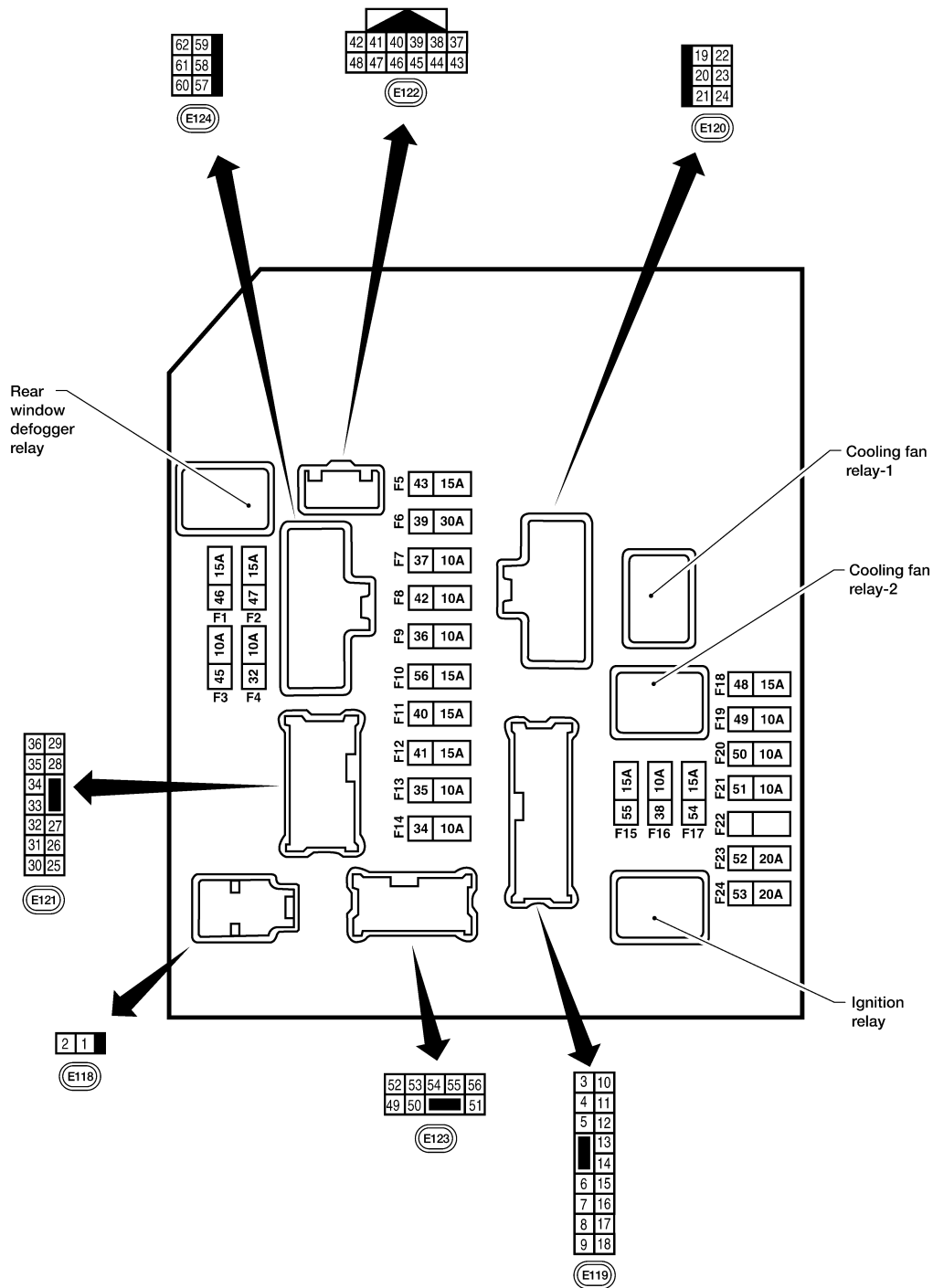


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IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS >

TERMINAL LAYOUT —TYPE B



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Physical Values

PHYSICAL VALUES

AAMIA0386GB

INFOID:000000005715875

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
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
24	P	Cooling fan motor (high)	Output	—	Conditions correct for cooling fan operation	Battery voltage
					Conditions not correct for cooling fan operation	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	
26	O	Headlamp aiming motors	Output	—	Lighting switch 2nd position or AUTO, headlamp aiming switch in position	OFF 0V
					ON Battery voltage	
27	W/G	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
					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
					LO or INT 0V	
35	L	Wiper high speed signal	Output	ON or START	Wiper switch	OFF, LO, INT Battery voltage
					HI 0V	
37	Y	Power generation command signal	Output	—	Ignition switch ON	<p style="text-align: right; margin-right: 50px;">JPMIA0001GB</p> <p style="text-align: center;">6.3 V</p>
					40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE"	<p style="text-align: right; margin-right: 50px;">JPMIA0002GB</p> <p style="text-align: center;">3.8 V</p>
					40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE"	<p style="text-align: right; margin-right: 50px;">JPMIA0003GB</p> <p style="text-align: center;">1.4 V</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	

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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		
43	G	Wiper auto stop signal	Input	ON or START	Wiper switch	OFF, LO, INT	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 lamp	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

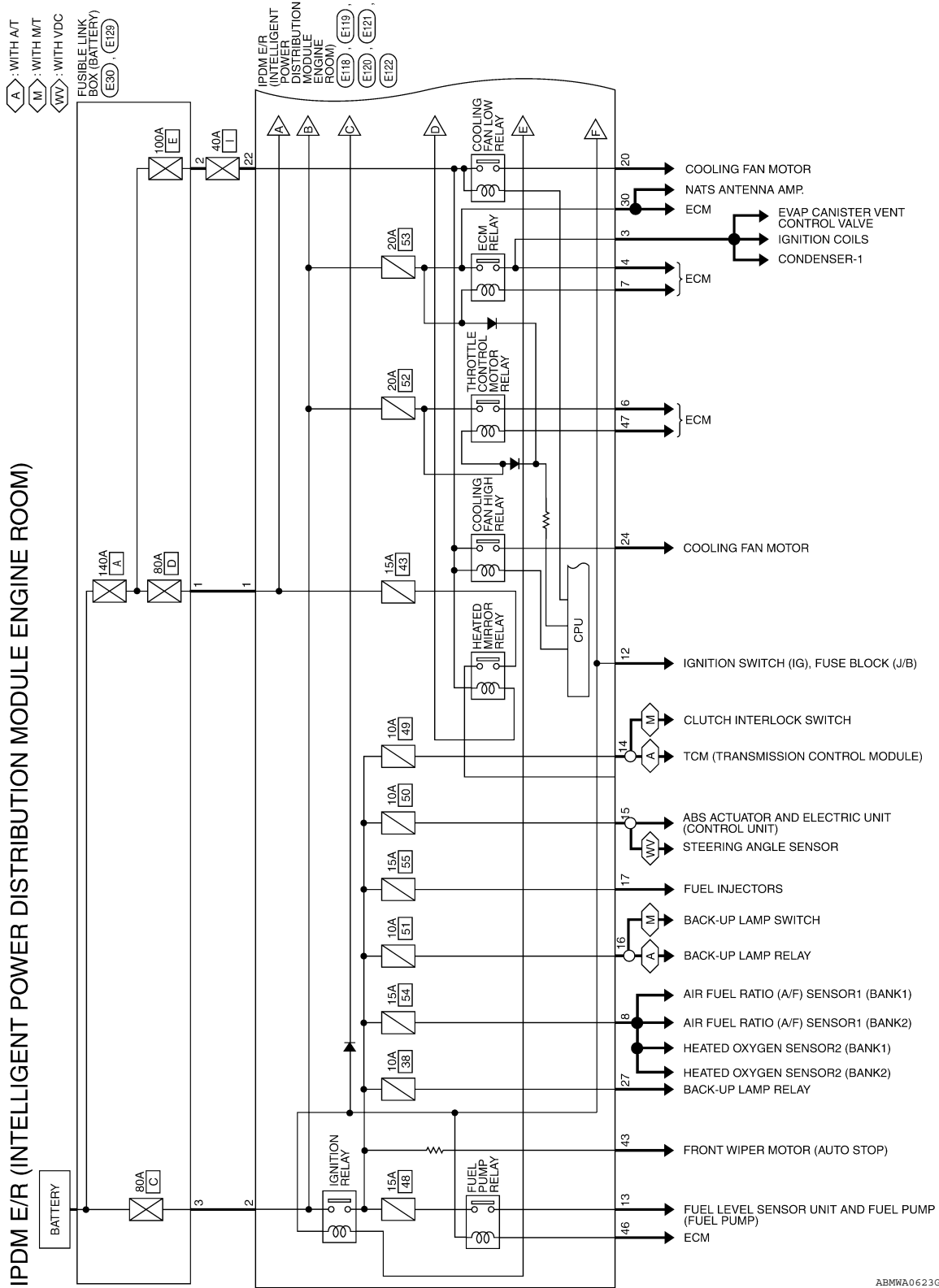
*: When horn reminder is ON

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

< ECU DIAGNOSIS >

Wiring Diagram

INFOID:000000005715876



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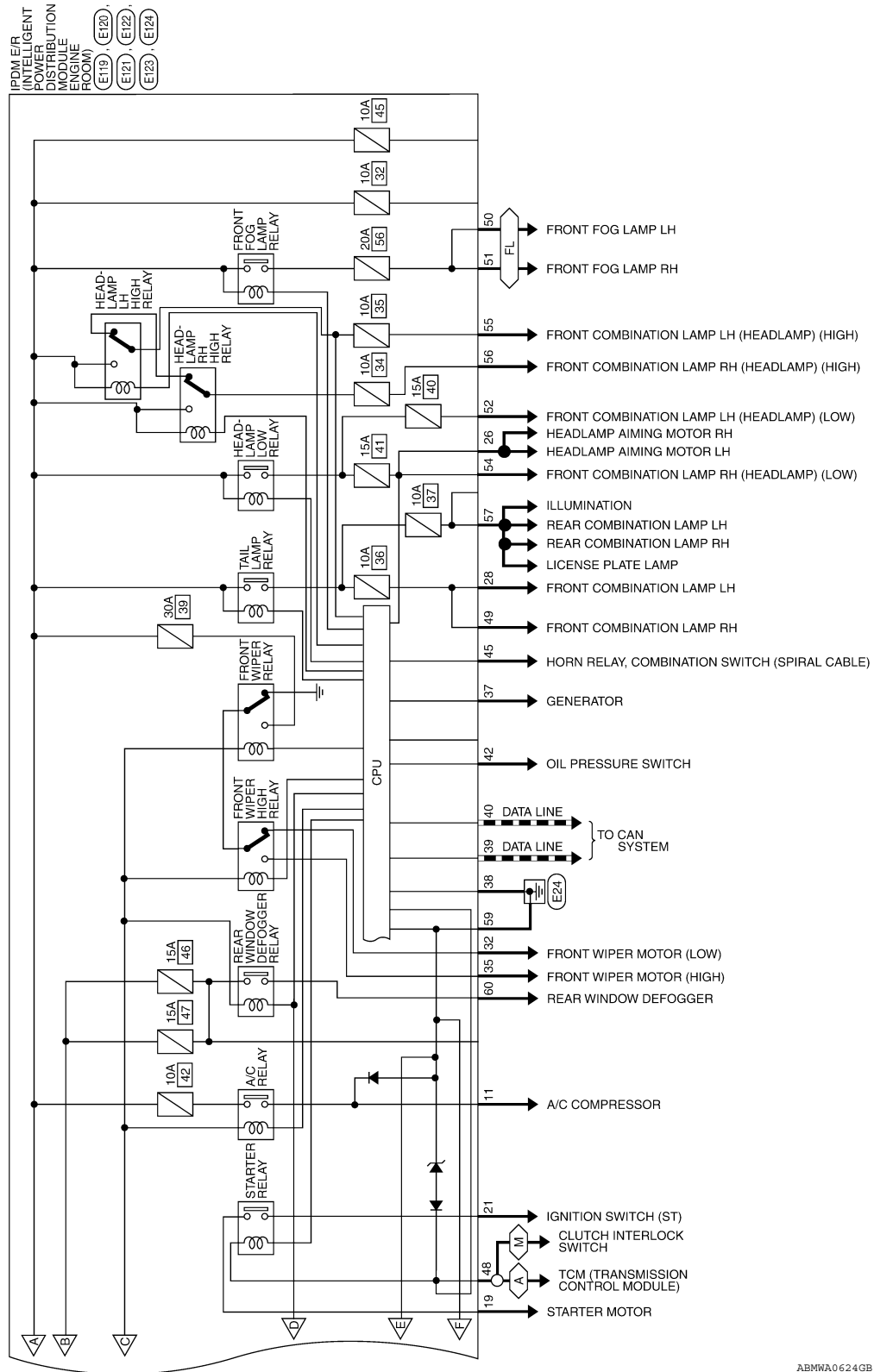
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IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS >

(A) : WITH A/T
 (FL) : WITH FRONT FOG LAMPS
 (M) : WITH M/T



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

< ECU DIAGNOSIS >

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

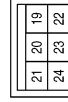
Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



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	-	-
11	Y	A/C COMPRESSOR
12	W/G	IGN SW (IG)
13	R	FUEL PUMP
14	W/G	AT 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	F/L MOTOR FAN
21	GR	IGN SW (ST)
22	G	F/L M/FAN
23	-	-
24	P	MOTOR FAN 2

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

< ECU DIAGNOSIS >


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	51

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



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

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	-	-
45	LG	ANT THEFT HORN
46	V	FUEL PUMP RLY CONT
47	O	ETC RLY CONT
48	R	RANGE SW

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



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

Terminal No.	Color of Wire	Signal Name
25	-	-
26	O	H/LAMP LEVELIZE
27	W/G	TTOW REV LAMP
28	R	CLEARANCE FRONT LH
29	-	-
30	R/B	ECM BAT
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	BLACK



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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	-	-
62	-	-

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



59	58	57
62	61	60

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INFOID:000000005715877

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

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.

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

< ECU DIAGNOSIS >

DTC Index

INFOID:000000005715878

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-17

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.

EXTERIOR LIGHTING SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

EXTERIOR LIGHTING SYSTEM SYMPTOMS

Symptom Table

INFOID:000000005280115

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 • IPDM E/R • Combination lamp ground 	Headlamp (HI) circuit Refer to EXL-32 .	
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS DO NOT SWITCH TO HIGH BEAM" Refer to EXL-109 .		
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	<ul style="list-style-type: none"> • Fuse • Harness between IPDM E/R and the front combination lamp • Front combination lamp • IPDM E/R • Combination lamp ground 	—	
	Both sides	<ul style="list-style-type: none"> • Combination switch (lighting and turn signal switch) • Harness between the combination switch (lighting and turn signal switch) and BCM • BCM • IPDM E/R 	Combination switch (lighting and turn signal switch) Refer to EXL-34 .	
		High beam request signal	<ul style="list-style-type: none"> • BCM • IPDM E/R 	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 • Combination lamp ground 	Headlamp (LO) circuit Refer to EXL-34 .	
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON" Refer to EXL-110 .		
Headlamp does not turn OFF.	When the ignition switch is turned ON	<ul style="list-style-type: none"> • BCM • Combination switch (lighting and turn signal switch) 	Combination switch (lighting and turn signal switch) Refer to EXL-34 .	
	The ignition switch is turned OFF (After activating the battery saver).	IPDM E/R	—	

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EXTERIOR LIGHTING SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

Symptom		Possible cause	Inspection item
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 fog lamp • Front fog lamp • IPDM E/R • Front fog lamp ground 	Front fog lamp circuit Refer to EXL-36 .
	Both side	Symptom diagnosis "BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON" Refer to EXL-112 .	
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 malfunctioning lamp • Front combination lamp, rear combination lamp, front side marker lamp or license plate lamp • IPDM E/R • Parking lamp ground 	Parking lamp circuit Refer to EXL-38 .
	Both sides	Symptom diagnosis "PARKING, LICENSE PLATE AND TAIL LAMPS ARE NOT TURNED ON" Refer to EXL-111 .	
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 • Combination switch (lighting and turn signal switch) • BCM 	Turn signal lamp circuit Refer to EXL-43 .
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"> • Combination meter 	Combination meter Power supply and the ground circuit Refer to EXL-43 .

BOTH SIDE HEADLAMPS DO NOT SWITCH TO HIGH BEAM

< SYMPTOM DIAGNOSIS >

BOTH SIDE HEADLAMPS DO NOT SWITCH TO HIGH BEAM

Description

INFOID:000000005280116

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

Diagnosis Procedure

INFOID:000000005280117

1.COMBINATION SWITCH (LIGHTING AND TURN SIGNAL SWITCH) INSPECTION

Check the combination switch (lighting and turn signal switch). Refer to [BCS-37. "Diagnosis Procedure"](#).

Is the combination switch (lighting and turn signal 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 operation of the combination switch (lighting and turn signal switch) lighting switch, check the monitor status.

Monitor item	Condition		Monitor status
HL HI REQ	combination switch (lighting and turn signal 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-56. "Removal and Installation"](#).

3.HEADLAMP (HI) CIRCUIT INSPECTION

Check the headlamp (HI) circuit. Refer to [EXL-32. "Description"](#).

Is the headlamp (HI) circuit normal?

YES >> Replace IPDM E/R. Refer to [PCS-32. "Removal and Installation of IPDM E/R"](#).

NO >> Repair or replace the malfunctioning part.

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EXL

BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON

Description

INFOID:000000005280118

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

Diagnosis Procedure

INFOID:000000005280119

1. CHECK COMBINATION SWITCH (LIGHTING AND TURN SIGNAL SWITCH)

Check the combination switch (lighting and turn signal switch). Refer to [BCS-37, "Diagnosis Procedure"](#).

Is the combination switch (lighting and turn signal 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 operation of the combination switch (lighting and turn signal switch), check the monitor status.

Monitor item	Condition		Monitor status
HL LO REQ	combination switch (lighting and turn signal switch)	2ND	ON
		OFF	OFF

Is the monitor item status normal?

YES >> GO TO 3

NO >> Replace BCM. Refer to [BCS-56, "Removal and Installation"](#).

3. HEADLAMP (LO) CIRCUIT INSPECTION

Check the headlamp (LO) circuit. Refer to [EXL-34, "Description"](#).

Is the headlamp (LO) circuit normal?

YES >> Replace IPDM E/R. Refer to [PCS-32, "Removal and Installation of IPDM E/R"](#).

NO >> Repair or replace the malfunctioning part.

PARKING, LICENSE PLATE AND TAIL LAMPS ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

PARKING, LICENSE PLATE AND TAIL LAMPS ARE NOT TURNED ON

Description

INFOID:000000005280120

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

Diagnosis Procedure

INFOID:000000005280121

1.COMBINATION SWITCH (LIGHTING AND TURN SIGNAL SWITCH) INSPECTION

Check the combination switch (lighting and turn signal switch). Refer to [BCS-37. "Diagnosis Procedure"](#).

Is the combination switch (lighting and turn signal 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 operation of the combination switch (lighting and turn signal switch), check the monitor status.

Monitor item	Condition		Monitor status
TAIL & CLR REQ	combination switch (lighting and turn signal switch)	1ST	ON
		OFF	OFF

Is the monitor item status normal?

YES >> GO TO 3

NO >> Replace BCM. Refer to [BCS-56. "Removal and Installation"](#).

3.PARK LAMP CIRCUIT INSPECTION

Check the parking lamp circuit. Refer to [EXL-38. "Description"](#).

Is the tail lamp circuit normal?

YES >> Replace IPDM E/R. Refer to [PCS-32. "Removal and Installation of IPDM E/R"](#).

NO >> Repair or replace the malfunctioning part.

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BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

Description

INFOID:000000005280122

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

Diagnosis Procedure

INFOID:000000005280123

1.COMBINATION SWITCH (LIGHTING AND TURN SIGNAL SWITCH) INSPECTION

Check the combination switch (lighting and turn signal switch). Refer to [BCS-37, "Diagnosis Procedure"](#).

Is the combination switch (lighting and turn signal 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 operation of the combination switch (lighting and turn signal switch), check the monitor status.

Monitor item	Condition	Monitor status	
FR FOG REQ	combination switch (lighting and turn signal switch) (Lighting switch 2ND)	ON	ON
		OFF	OFF

Is the monitor item status normal?

YES >> GO TO 3

NO >> Replace BCM. Refer to [BCS-56, "Removal and Installation"](#).

3.FRONT FOG LAMP CIRCUIT INSPECTION

Check the front fog lamp circuit. Refer to [EXL-36, "Description"](#).

Is the front fog lamp circuit normal?

YES >> Replace IPDM E/R. Refer to [PCS-32, "Removal and Installation of IPDM E/R"](#).

NO >> Repair or replace the malfunctioning part.

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000005774630

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

WARNING:

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

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

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EXL

ADJUSTMENT AND INSPECTION

< ON-VEHICLE REPAIR >

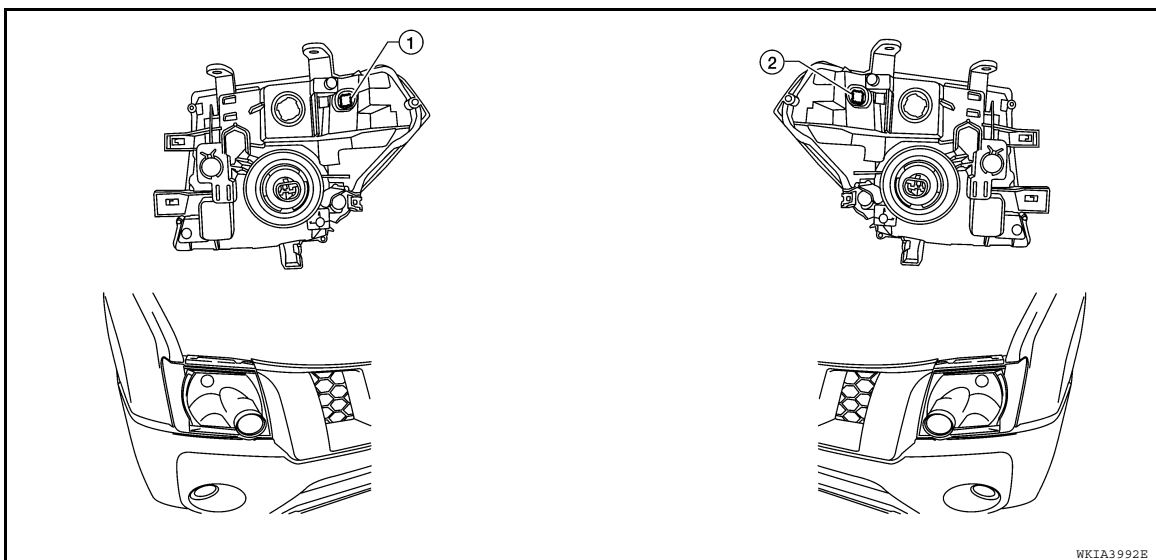
ON-VEHICLE REPAIR

ADJUSTMENT AND INSPECTION

HEADLAMP

HEADLAMP : Aiming Adjustment

INFOID:000000005280124



1. Adjustment screw (passenger side) 2. Adjustment screw (driver side)

For details, refer to the regulations in your area.

NOTE:

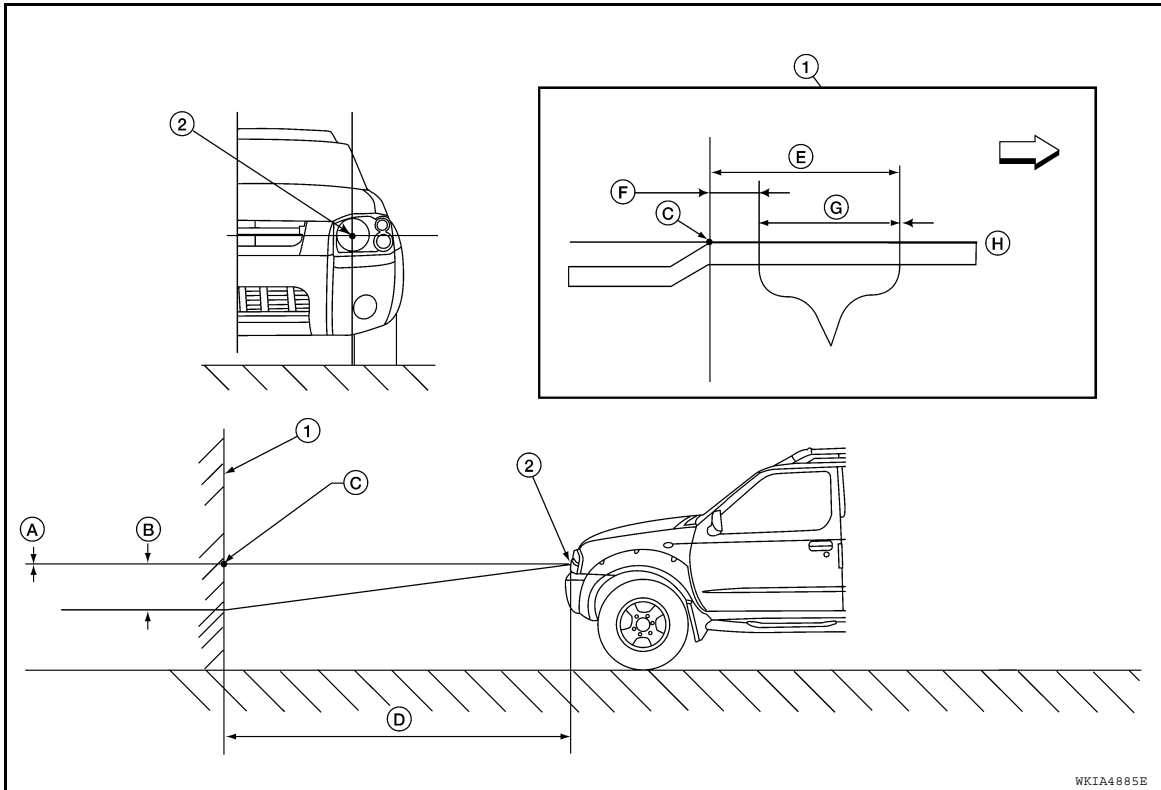
If vehicle front body has been repaired and /or the headlamp assembly has been replaced, check headlamp aiming.

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

LOW BEAM AND HIGH BEAM

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 399 mm (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:000000005280125

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.

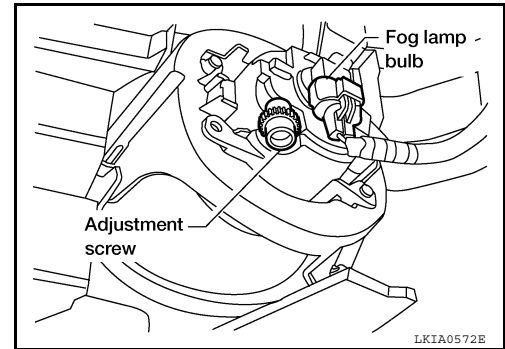
ADJUSTMENT AND INSPECTION

< ON-VEHICLE REPAIR >

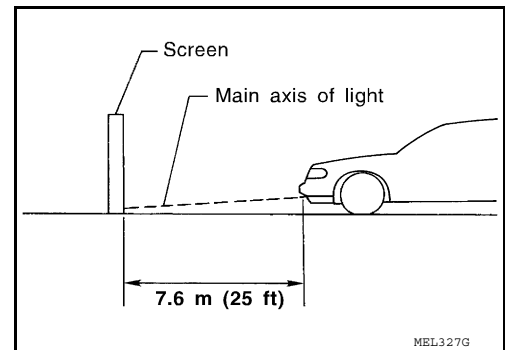
- Place vehicle on level ground.
 - See that vehicle is unloaded (except for full levels of coolant, engine oil and fuel, and spare tire, jack, and tools). Have the driver or equivalent weight placed in driver seat.
- Adjust aiming in the vertical direction by turning the adjustment screw.

NOTE:

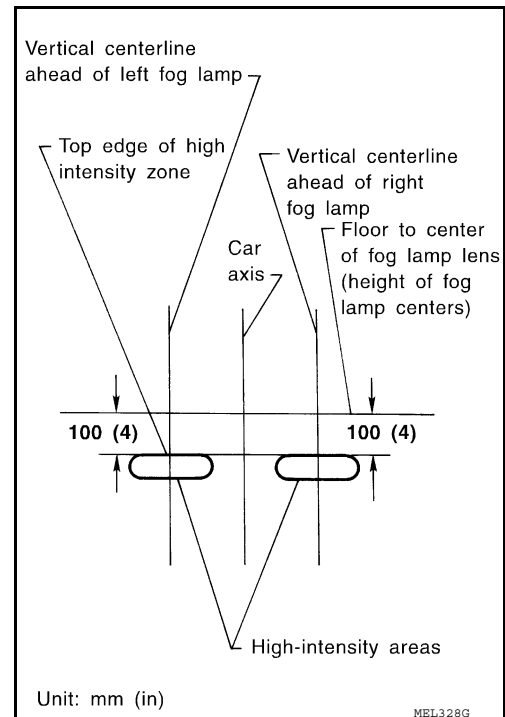
Use a Phillips screwdriver to adjust. Turn screw clockwise to raise pattern and counterclockwise to lower pattern.



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-18. "Removal and Installation"](#).
 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:000000005280126

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:000000005280127

FRONT COMBINATION LAMP

Removal

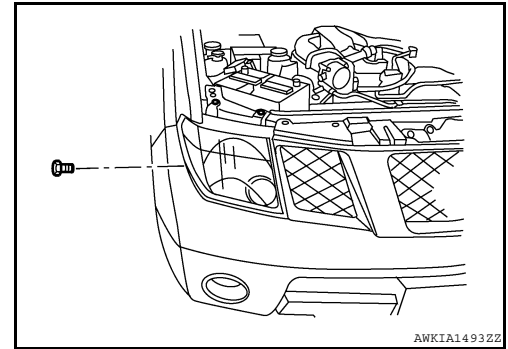
1. Remove front portion of front fender protector. Refer to [EXT-18, "Removal and Installation"](#).
2. Remove the front fascia. Refer to [EXT-13, "Removal and Installation"](#).

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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

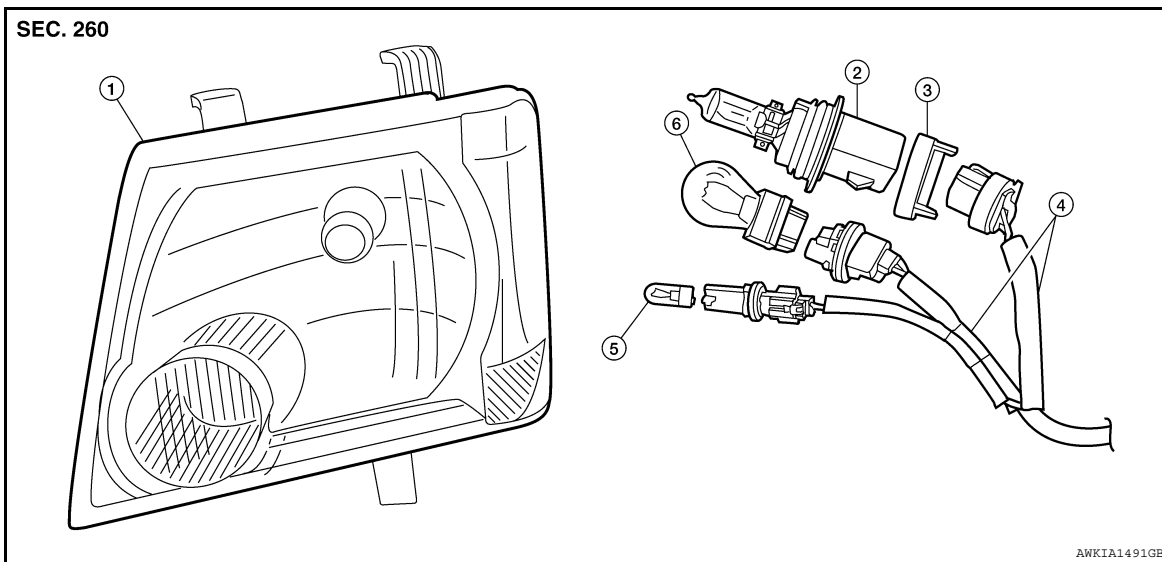
Installation is in the reverse order of removal.

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

Disassembly and Assembly

INFOID:000000005280128

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 |

FRONT FOG LAMP

< REMOVAL AND INSTALLATION >

FRONT FOG LAMP

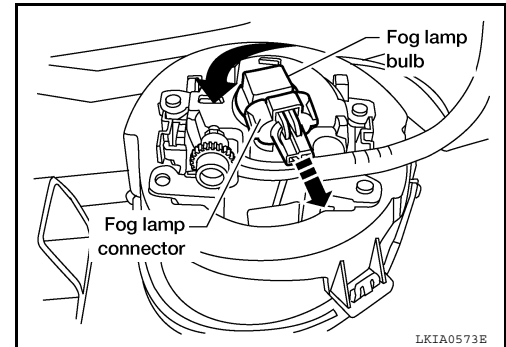
Bulb Replacement

INFOID:000000005280129

1. Remove front portion of fender protector. Refer to [EXT-19, "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:000000005280130

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 the screw, release the spring clip and remove the fog lamp.

Installation

Installation is in the reverse order of removal.

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LIGHTING & TURN SIGNAL SWITCH

< REMOVAL AND INSTALLATION >

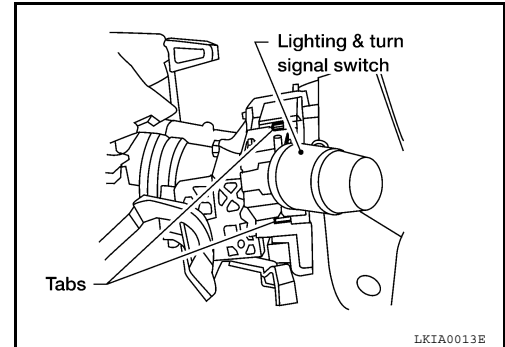
LIGHTING & TURN SIGNAL SWITCH

Removal and Installation

INFOID:000000005280131

REMOVAL

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



INSTALLATION

Installation is in the reverse order of removal.

HAZARD SWITCH

< REMOVAL AND INSTALLATION >

HAZARD SWITCH

Removal and Installation

INFOID:000000005280132

REMOVAL

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

INSTALLATION

Installation is in the reverse order of removal.

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HIGH-MOUNTED STOP LAMP

< REMOVAL AND INSTALLATION >

HIGH-MOUNTED STOP LAMP

High-Mounted Stop Lamp

INFOID:000000005280133

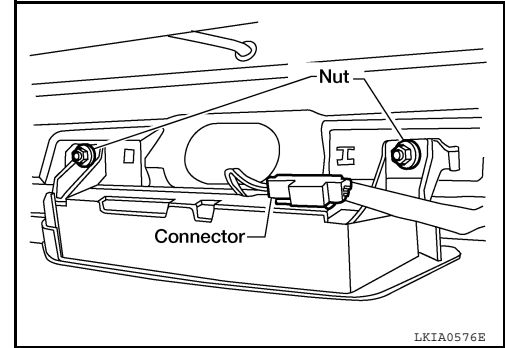
BULB REPLACEMENT

The high-mounted stop lamp bulbs are not serviceable.

REMOVAL AND INSTALLATION

Removal

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



Installation

Installation is in the reverse order of removal.

LICENSE PLATE LAMP

< REMOVAL AND INSTALLATION >

LICENSE PLATE LAMP

Bulb Replacement

INFOID:000000005280134

LICENSE PLATE LAMP

Removal

1. Turn bulb socket counterclockwise and remove bulb socket.
2. Remove license plate lamp bulb.

Installation

Installation is in the reverse order of removal.

Removal and Installation

INFOID:000000005280135

LICENSE PLATE LAMP

Removal

1. Disconnect license plate lamp harness connector.
2. Depress the tabs and remove license plate lamp from the rear bumper.

Installation

Installation is in the reverse order of removal.

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REAR COMBINATION LAMP

< REMOVAL AND INSTALLATION >

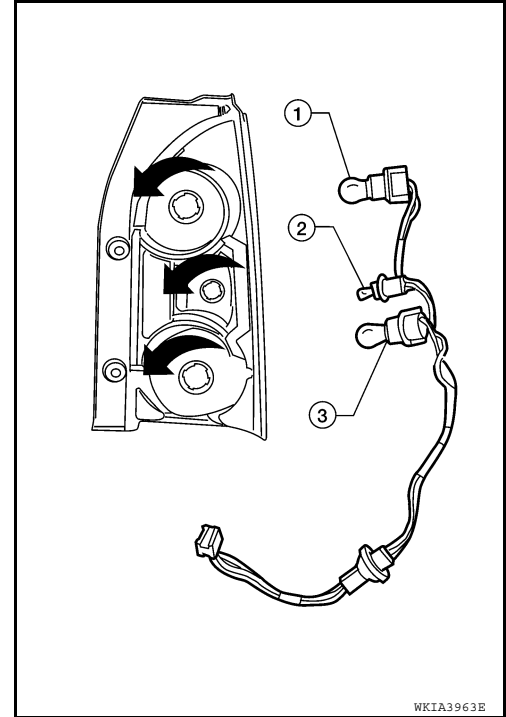
REAR COMBINATION LAMP

Bulb Replacement

INFOID:000000005280136

REMOVAL

1. Remove rear combination lamp. Refer to [EXL-124. "Removal and Installation"](#).
2. Rotate each bulb socket (1, 2, 3) counterclockwise to unlock it.
3. Pull bulb straight out away from socket to release.



INSTALLATION

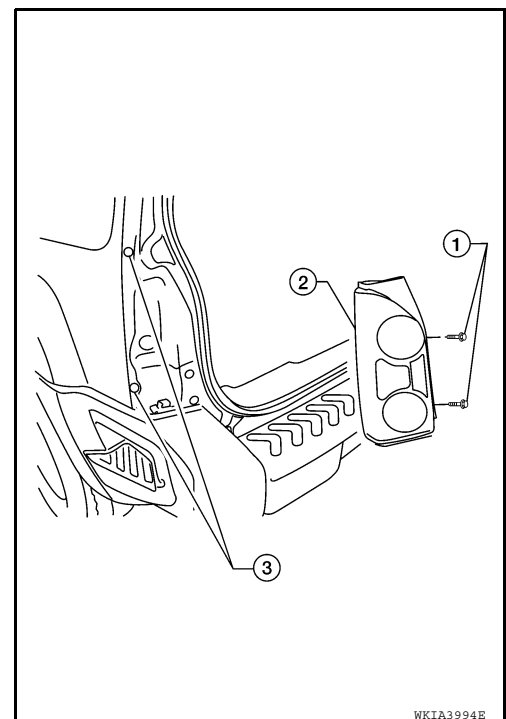
Installation is in the reverse order of removal.

Removal and Installation

INFOID:000000005280137

REMOVAL

1. Remove rear combination lamp bolts (1).
2. Pull the lamp assembly (2) rearward to remove from the vehicle.
 - Release from the rear combination lamp locators (3).
3. Disconnect the connector and remove the rear combination lamp.



REAR COMBINATION LAMP

< REMOVAL AND INSTALLATION >

INSTALLATION

Installation is in the reverse order of removal.

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BULB SPECIFICATIONS

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

BULB SPECIFICATIONS

Headlamp

INFOID:000000005280138

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

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

Exterior Lamp

INFOID:000000005280139

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	*	

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