SECTION EXL
EXTERIOR LIGHTING SYSTEM

CONTENTS

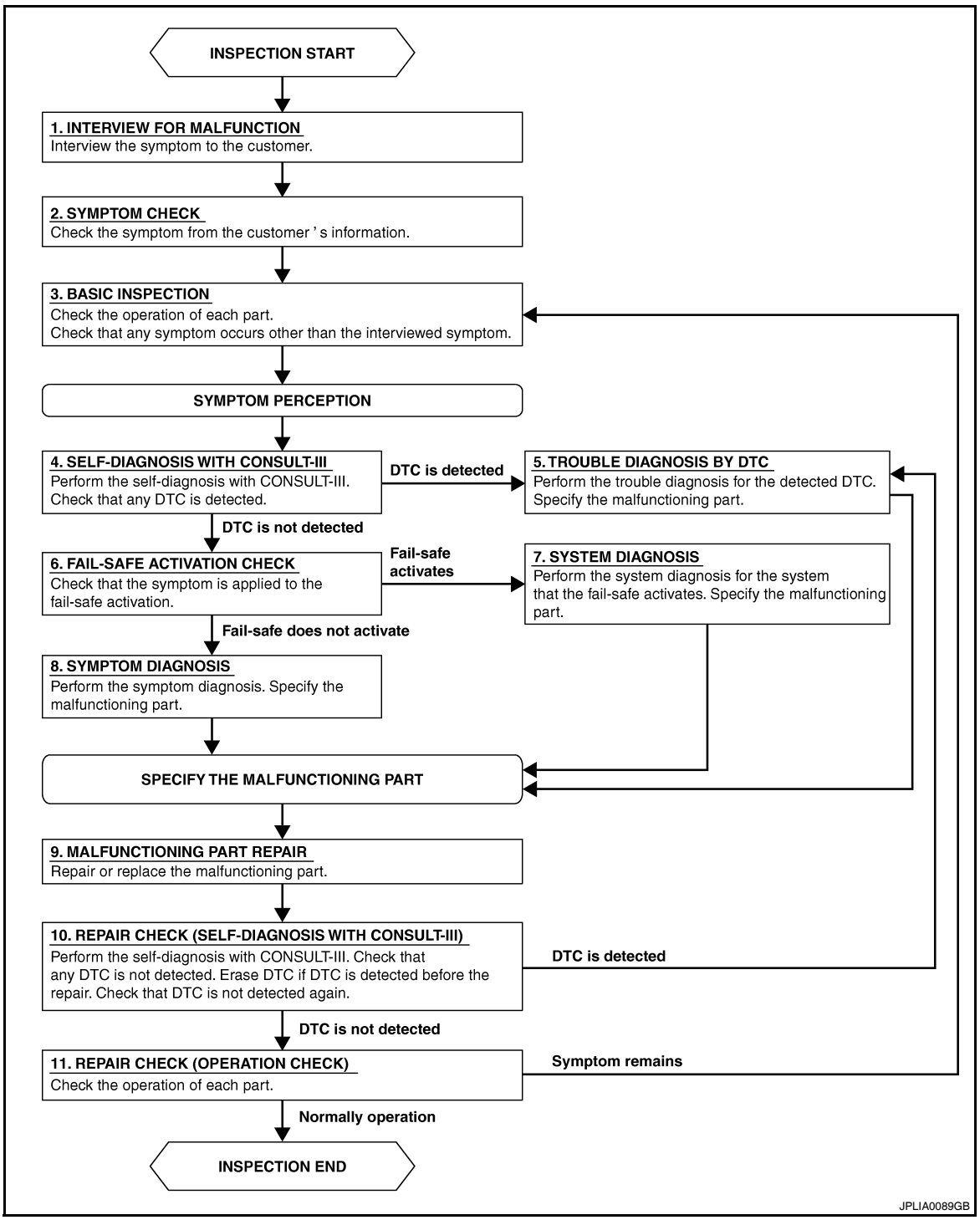
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000003787440

OVERALL SEQUENCE



DETAILED FLOW

1.INTERVIEW FOR MALFUNCTION

Find out what the customer's concerns are.

>> GO TO 2.

2.SYMPTOM CHECK

Verify the symptom from the customer's information.

>> GO TO 3.

3.BASIC INSPECTION

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

>> GO TO 4.

4.SELF-DIAGNOSIS WITH CONSULT-III

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

Is any DTC detected?

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

5.TROUBLE DIAGNOSIS BY DTC

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

>> GO TO 9.

6.FAIL-SAFE ACTIVATION CHECK

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

Does the fail-safe activate?

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

7.SYSTEM DIAGNOSIS

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

>> GO TO 9.

8.SYMPTOM DIAGNOSIS

Perform the symptom diagnosis. Specify the malfunctioning part.

>> GO TO 9.

9.MALFUNCTION PART REPAIR

Repair or replace the malfunctioning part.

>> GO TO 10.

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

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

Is any DTC detected?

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

11. REPAIR CHECK (OPERATION CHECK)

Check the operation of each part.

Does it operate normally?

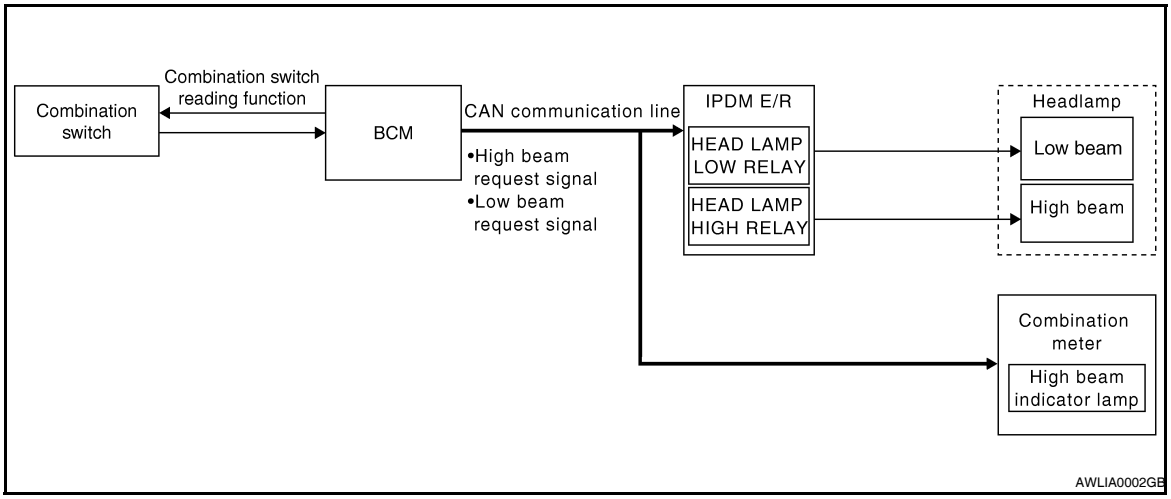
YES >> Inspection End.
NO >> GO TO 3.

FUNCTION DIAGNOSIS

HEADLAMP

System Diagram

INFOID:0000000003787441



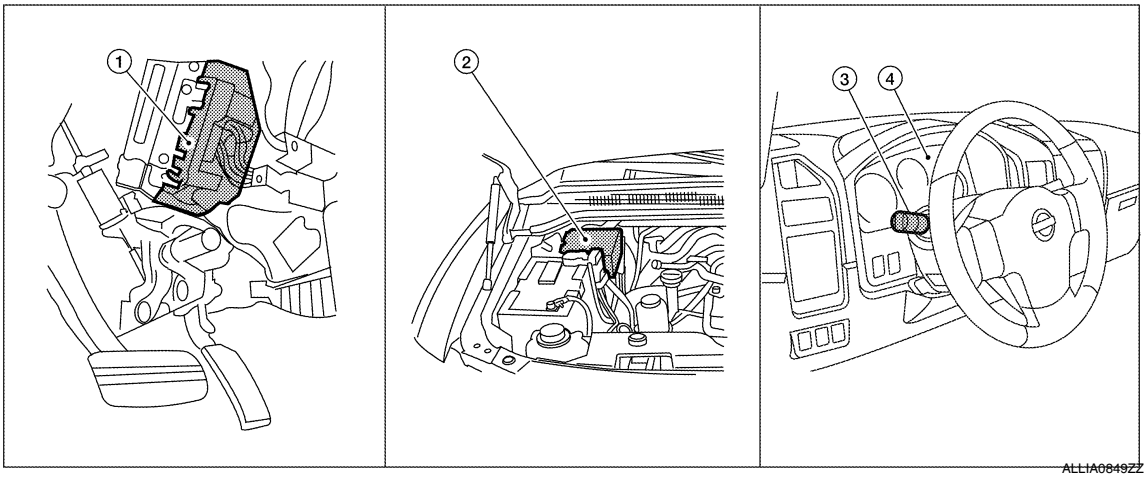
System Description

INFOID:0000000003787442

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

Component Parts Location

INFOID:0000000003787443



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

Component Description

INFOID:0000000003787444

LOW BEAM OPERATION

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

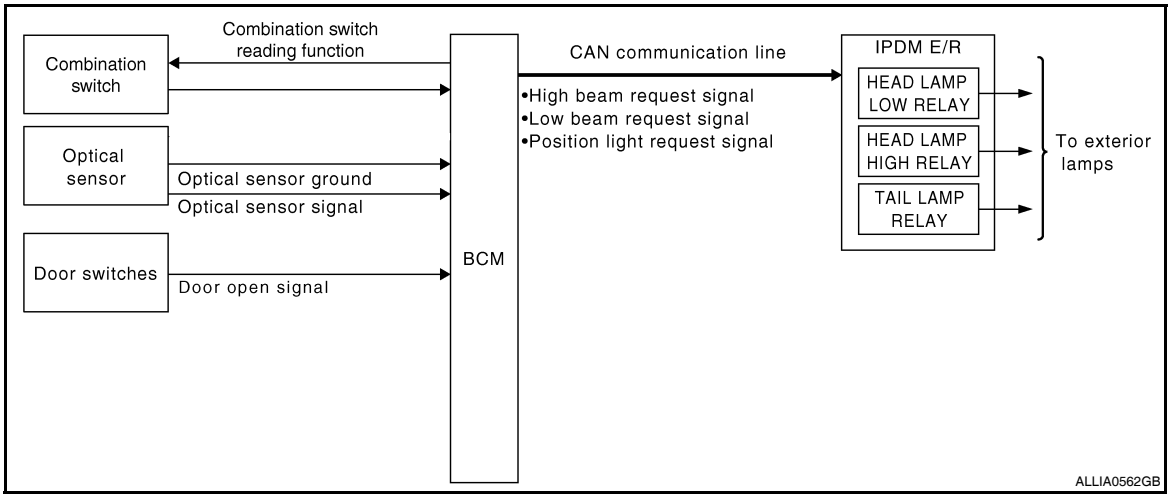
HIGH BEAM OPERATION/FLASH-TO-PASS OPERATION

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

AUTO LIGHT SYSTEM

System Diagram

INFOID:0000000003787445



System Description

INFOID:0000000003787446

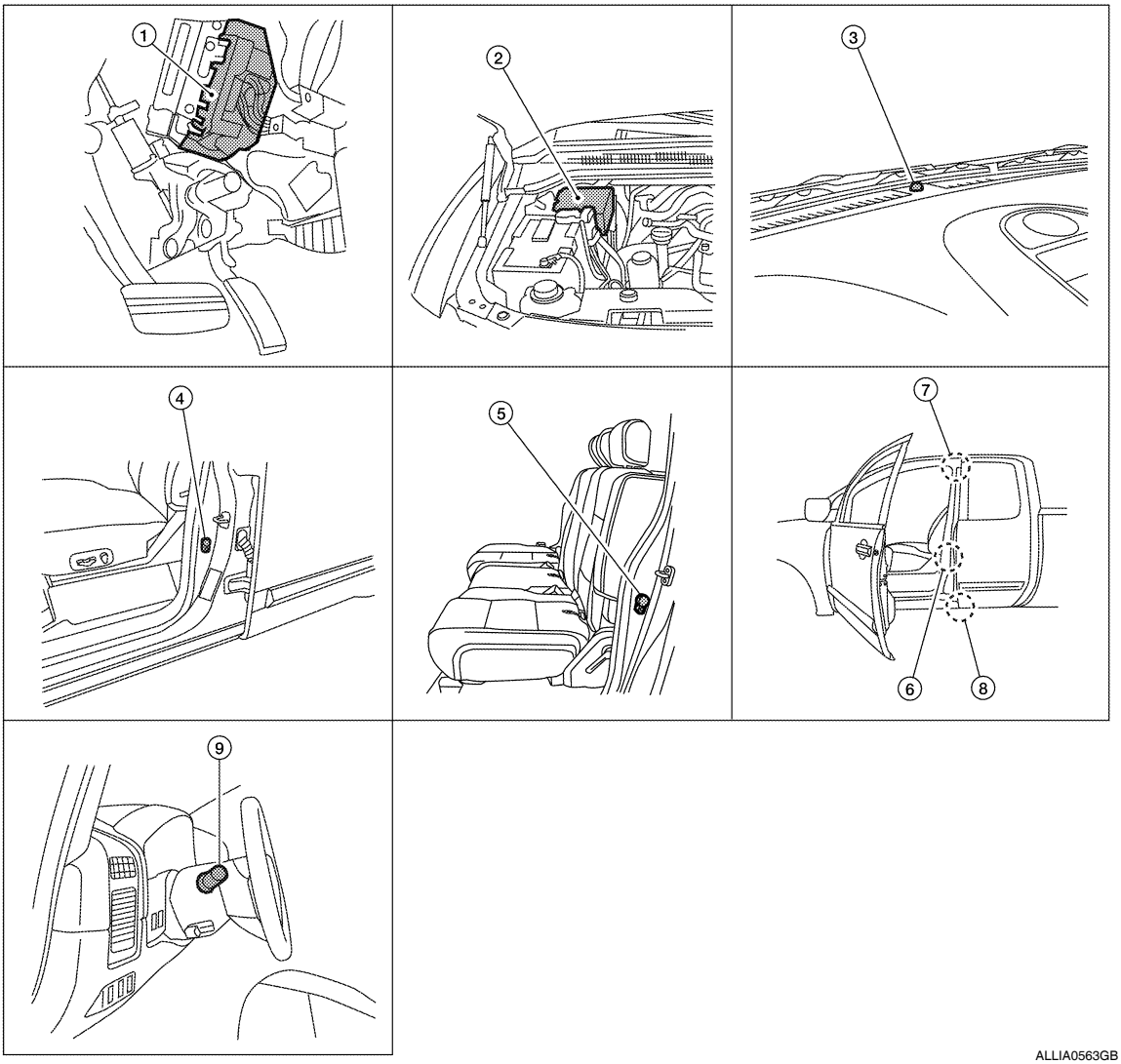
- BCM (Body Control Module) controls auto light operation according to signals from the optical sensor, lighting switch and ignition switch.
- IPDM E/R (Intelligent Power Distribution Module Engine Room) operates parking, license plate, tail and headlamps according to CAN communication signals from BCM.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

OUTLINE

The auto light control system has an optical sensor that detects outside brightness.
When the lighting switch is in AUTO position, it automatically turns ON/OFF the parking, license plate, tail and headlamps in accordance with the ambient light. Sensitivity can be adjusted in four steps. For the details of the setting, Refer to EXL-23, "HEADLAMP : CONSULT-III Function (BCM - HEAD LAMP)".

Component Parts Location

INFOID:0000000003787447



ALLIA0563GB

1. BCM M18, M19, M20 (view with instrument panel removed)
2. IPDM E/R E122, E123, E124
3. Optical sensor M302
4. Front door switch (crew cab)
   LH B8
   RH B108
5. Rear door switch (crew cab)
   LH B18
   RH B116
6. Front door switch (king cab)
   LH B8
   RH B108
7. Rear door switch upper (king cab)
   LH B73
   RH B156
8. Rear door switch upper (king cab)
   LH B74
   RH B157
9. Combination switch M28

Component Description

INFOID:0000000003787448

AUTO LIGHT OPERATION

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

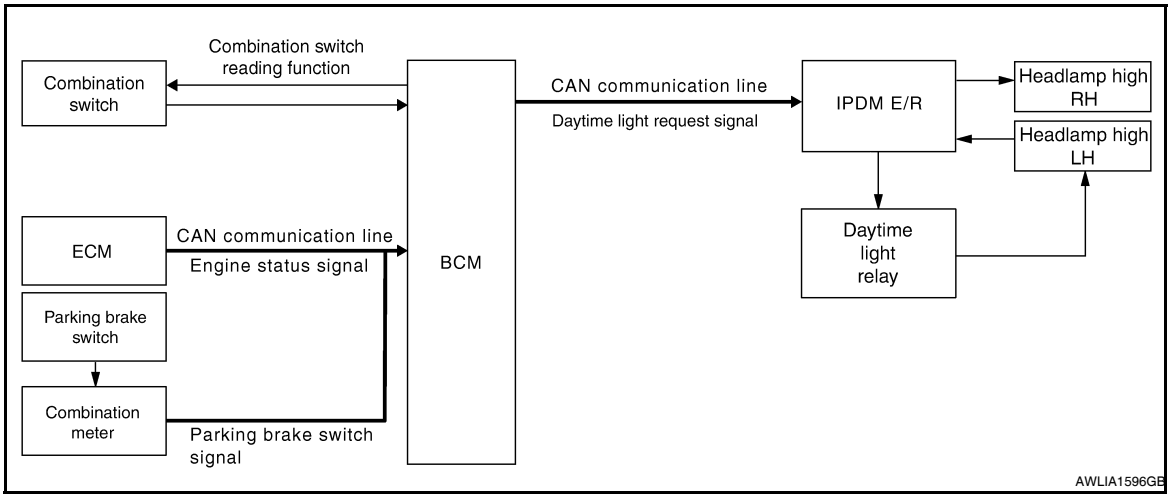
NOTE:

Timing for when lamps turn ON/OFF can be changed by the function setting of CONSULT-III. Refer to EXL-23, "HEADLAMP : CONSULT-III Function (BCM - HEAD LAMP)".

DAYTIME RUNNING LIGHT SYSTEM

System Diagram

INFOID:0000000003787449



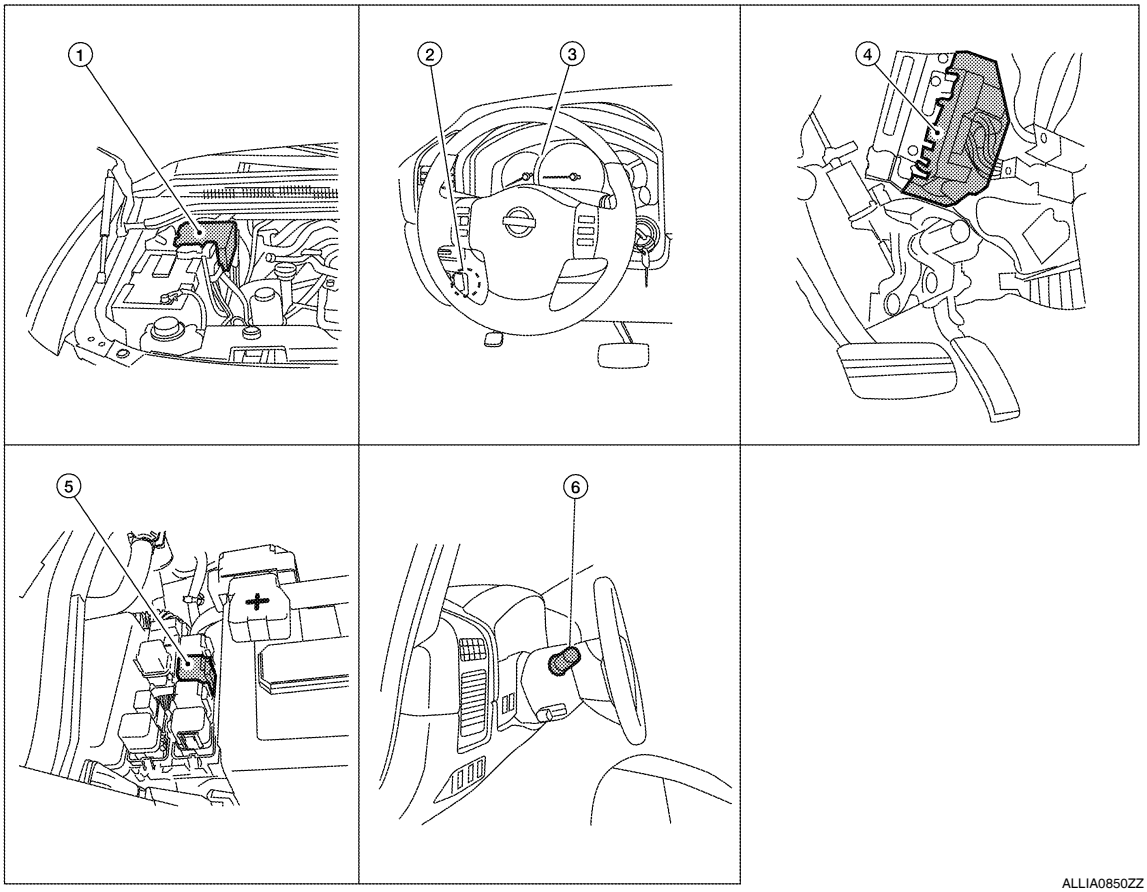
System Description

INFOID:0000000003787450

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

Component Parts Location

INFOID:0000000003787451



1. IPDM E/R E119, E122, E123, E124
2. Parking brake switch M11
3. Combination meter M24
4. BCM M18, M20 (view with instrument panel removed)
5. Daytime running light relay E103
6. Combination switch M28

Component Description

INFOID:0000000003787452

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

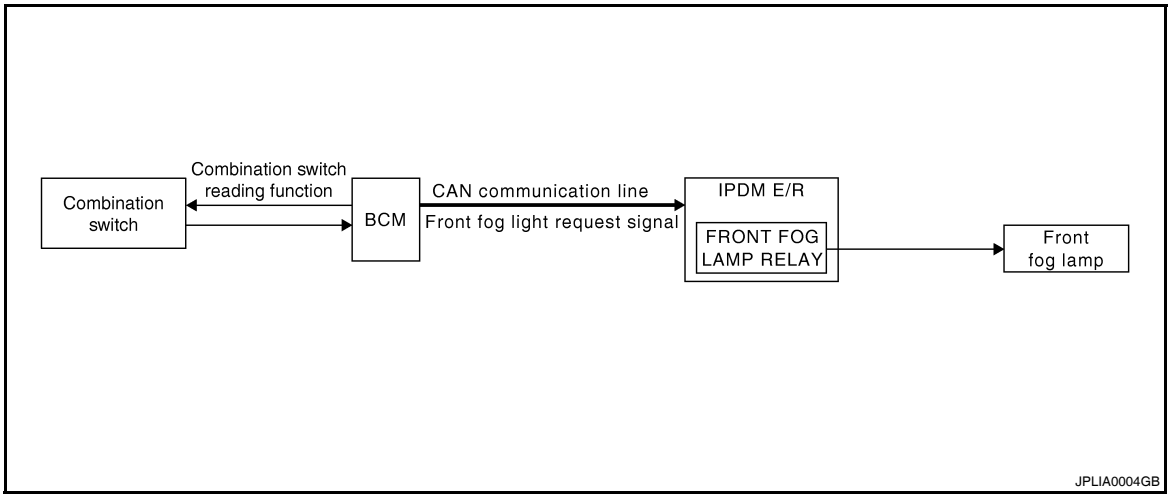
OPERATION

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

FRONT FOG LAMP

System Diagram

INFOID:0000000003787453



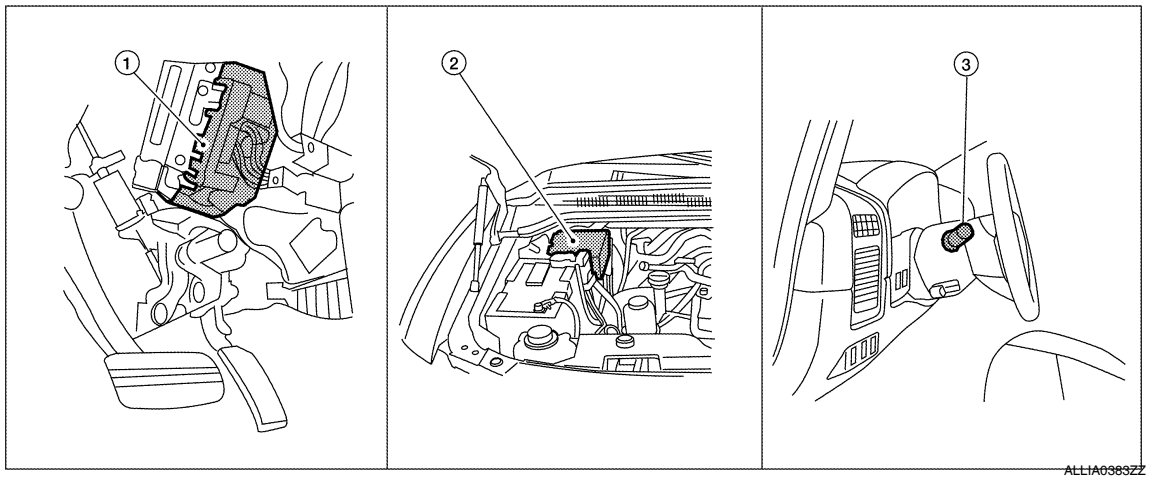
System Description

INFOID:0000000003787454

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

Component Parts Location

INFOID:0000000003787455



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

Component Description

INFOID:0000000003787456

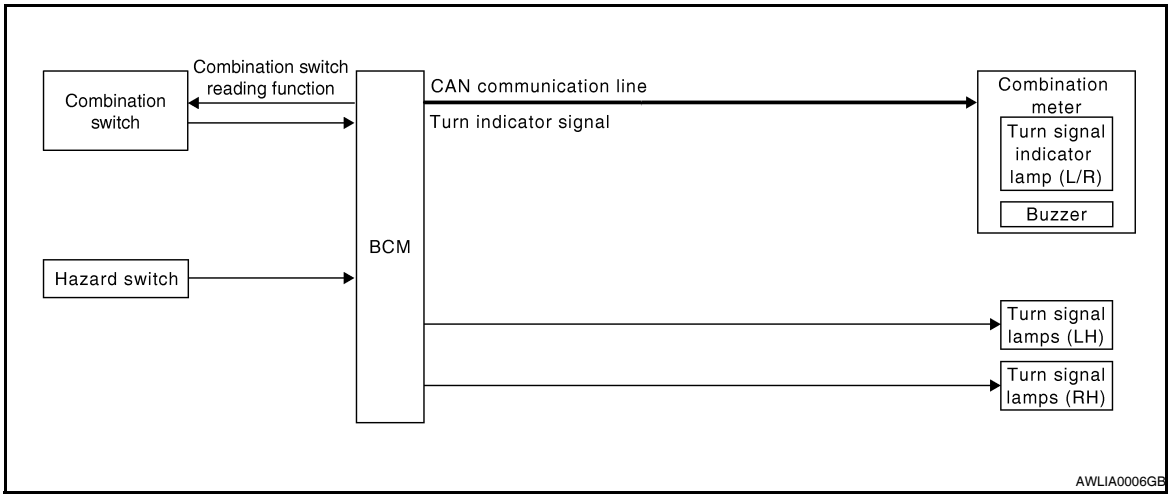
FRONT FOG LAMP OPERATION

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

TURN SIGNAL AND HAZARD WARNING LAMPS

System Diagram

INFOID:0000000003787457



System Description

INFOID:0000000003787458

TURN SIGNAL OPERATION

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

HAZARD LAMP OPERATION

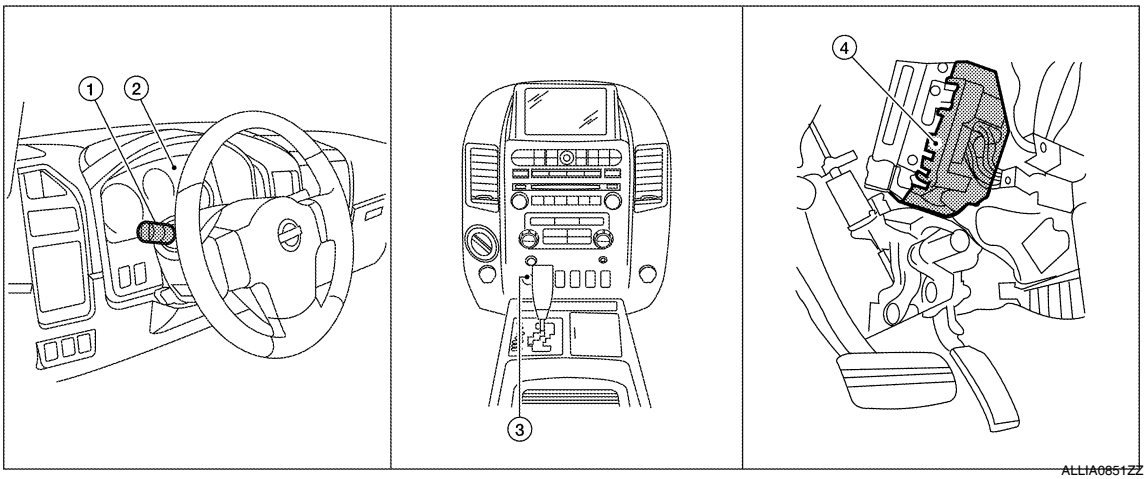
When the hazard switch is in ON position, the BCM detects the hazard switch signal ON. The BCM outputs the flasher signal (right and left). The BCM sends a hazard indicator signal ON request via the CAN communication lines to the combination meter. The combination meter then activates the hazard indicator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

REMOTE KEYLESS ENTRY OPERATION

The remote keyless entry receiver transmits a hazard request signal to the BCM, then BCM controls hazard lamps.
Refer to DLK-14, "REMOTE KEYLESS ENTRY : System Description".

Component Parts Location

INFOID:0000000003787459



1. Combination switch M28
2. Combination meter M24, M25
3. Hazard switch
   M55 (3 control dial system w/o auto A/C)
   M47 (2 control dial system or auto A/C)
4. BCM M18, M20 (view with instrument panel removed)

Component Description

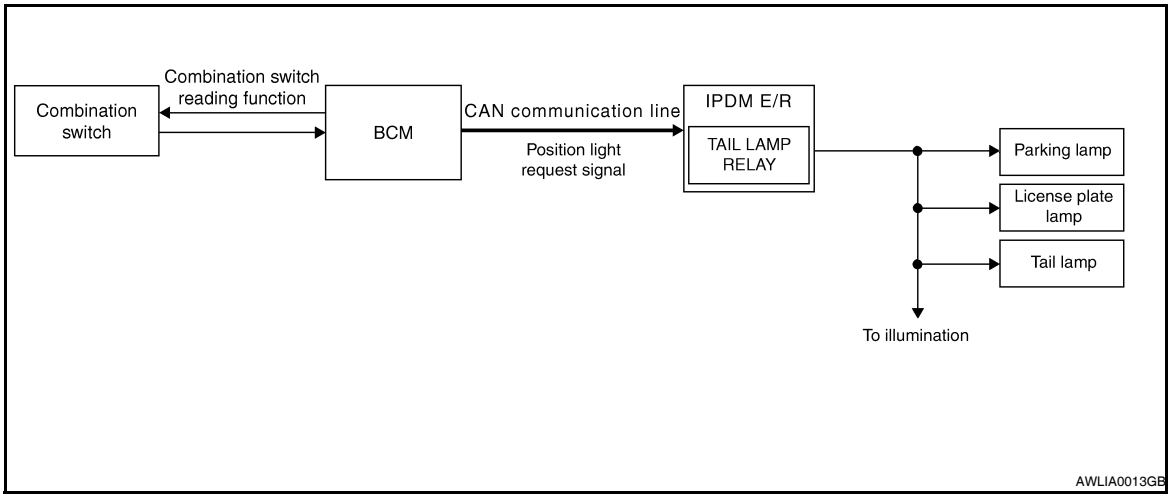
INFOID:0000000003787460

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

PARKING, LICENSE PLATE AND TAIL LAMPS

System Diagram

INFOID:0000000003787461



System Description

INFOID:0000000003787462

PARKING, LICENCE PLATE AND TAIL LAMPS OPERATION

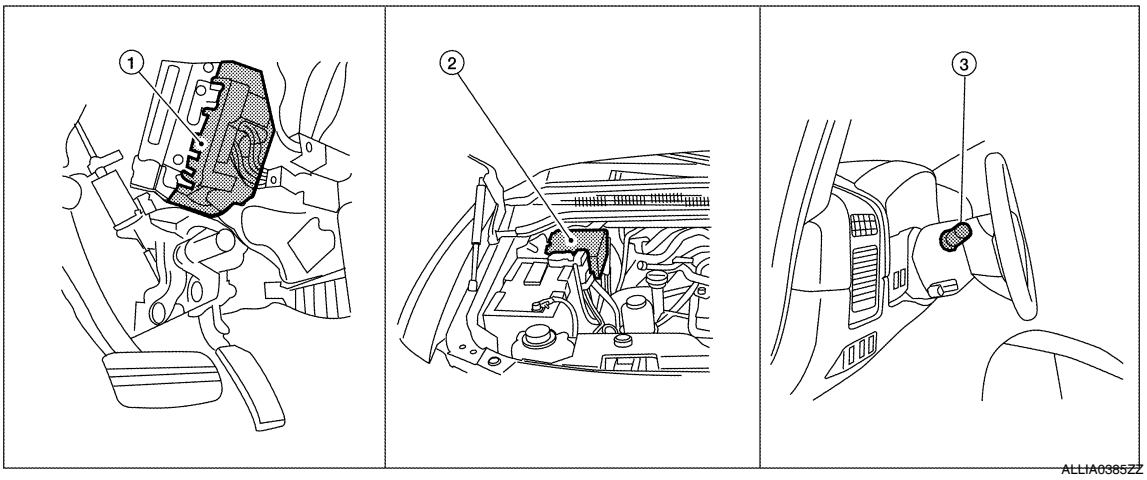
When the lighting switch is in 1ST position, BCM detects the LIGHTING SWITCH 1ST POSITION ON. The BCM sends a parking light ON request via the CAN communication lines to the IPDM E/R. The IPDM E/R then activates the tail lamp relay which sends power to the parking and instrument illumination circuits.

EXTERIOR LAMP BATTERY SAVER CONTROL

With the lighting switch (combination switch) in the 2nd position and the ignition switch is turned from ON or ACC to OFF, the battery saver feature is activated.
Under this condition, the headlamps remain illuminated for 5 minutes unless the lighting switch position is changed. If the lighting switch position is changed, then the headlamps are turned off.
This setting can be changed by CONSULT-III. Refer to BCS-24, "BATTERY SAVER : CONSULT-III Function (BCM - BATTERY SAVER)".

Component Parts Location

INFOID:0000000003787463



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

Component Description

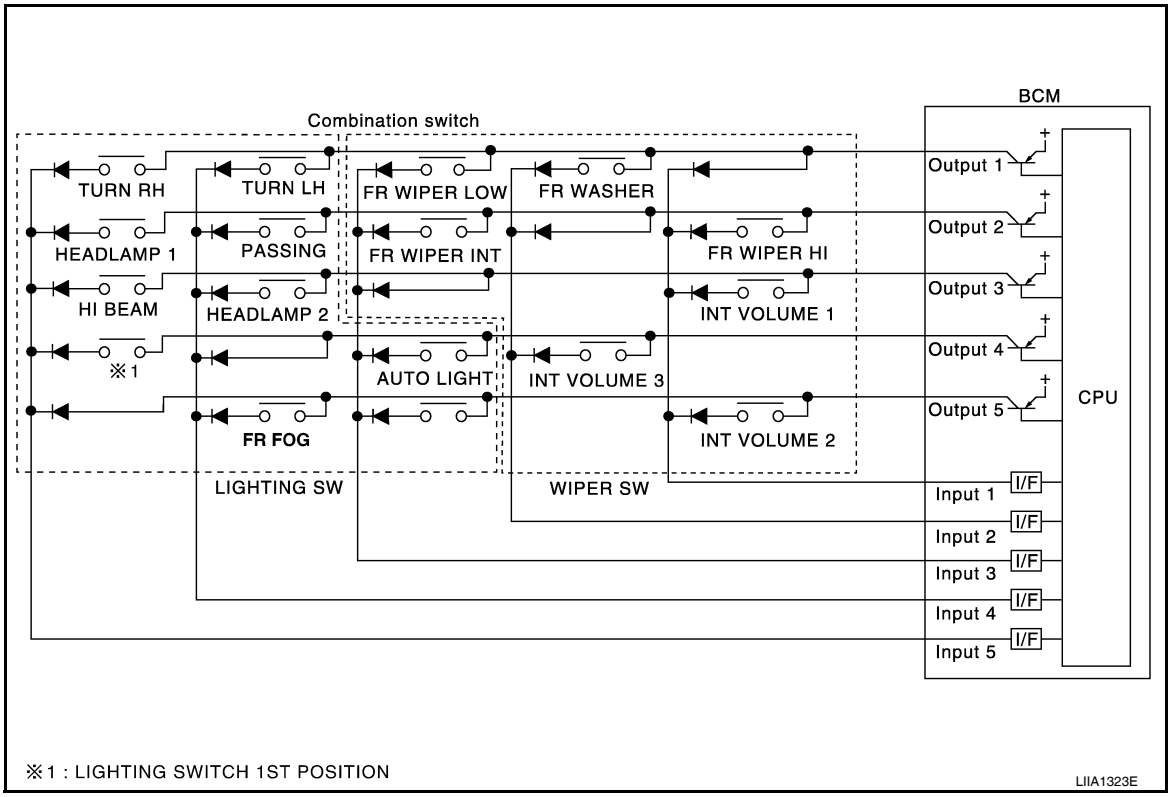
INFOID:0000000003787464

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

COMBINATION SWITCH READING SYSTEM

System Diagram

INFOID:0000000004223711



System Description

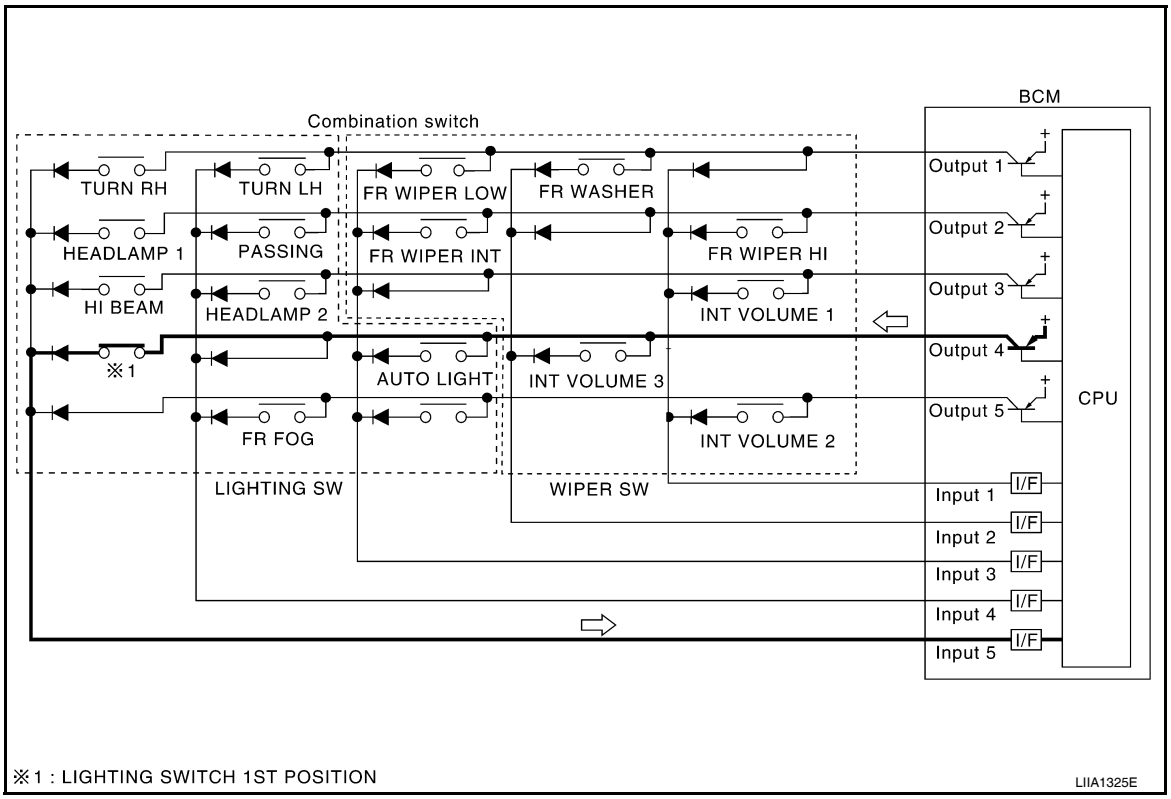
INFOID:0000000004223712

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 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	—	—	HEADLAMP 2	HI BEAM
INPUT 4	—	INT VOLUME 3	AUTO LIGHT	—	TAIL LAMP
INPUT 5	INT VOLUME 2	—	—	FR FOG	—

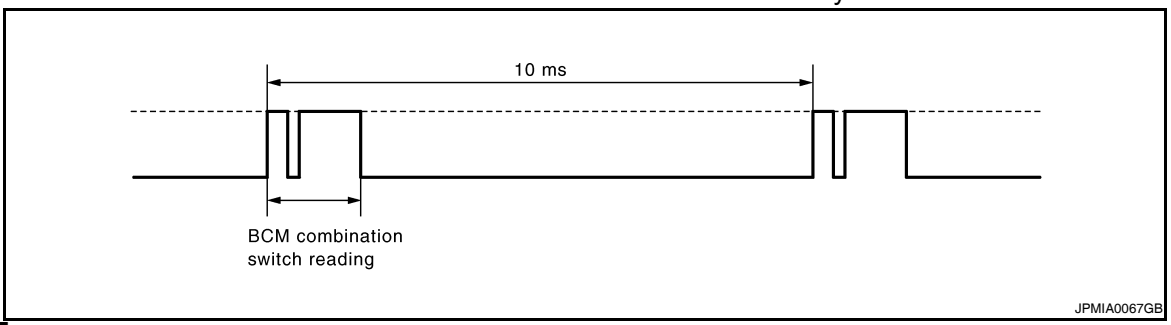
NOTE:

Headlamp has a dual system switch.

COMBINATION SWITCH READING FUNCTION

Description

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

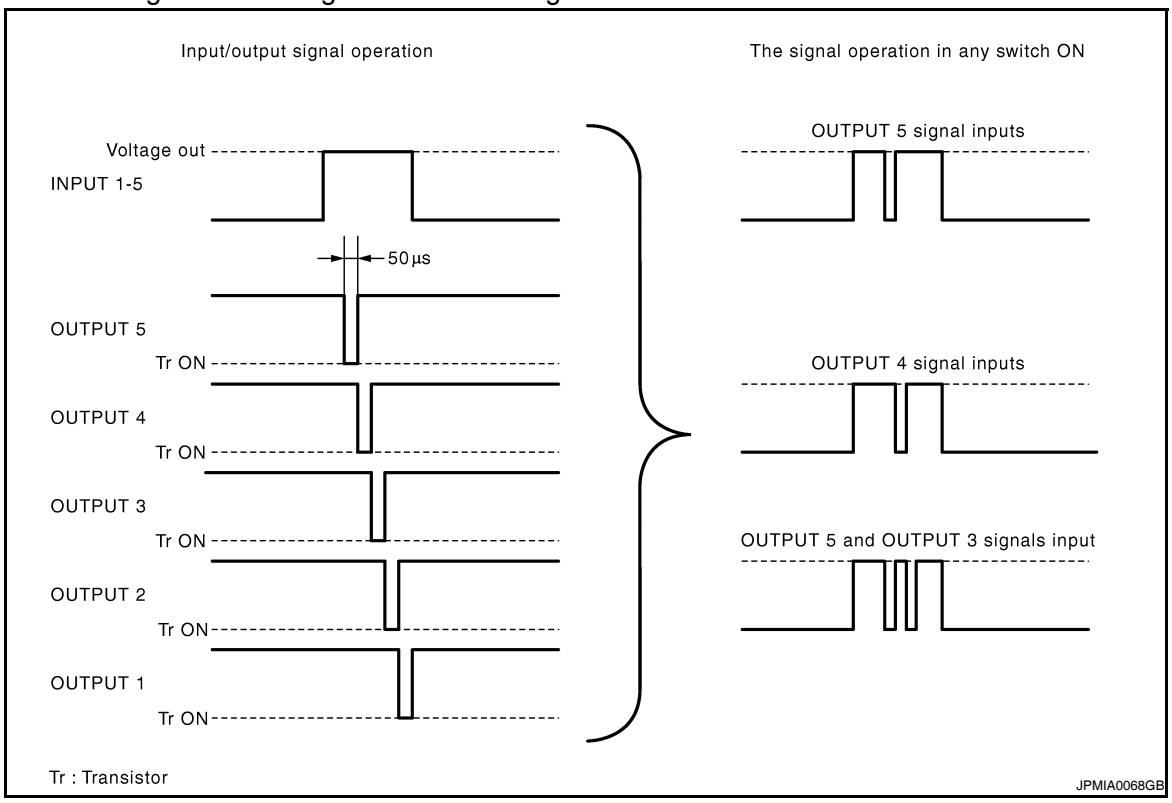


NOTE:

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

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

- 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.

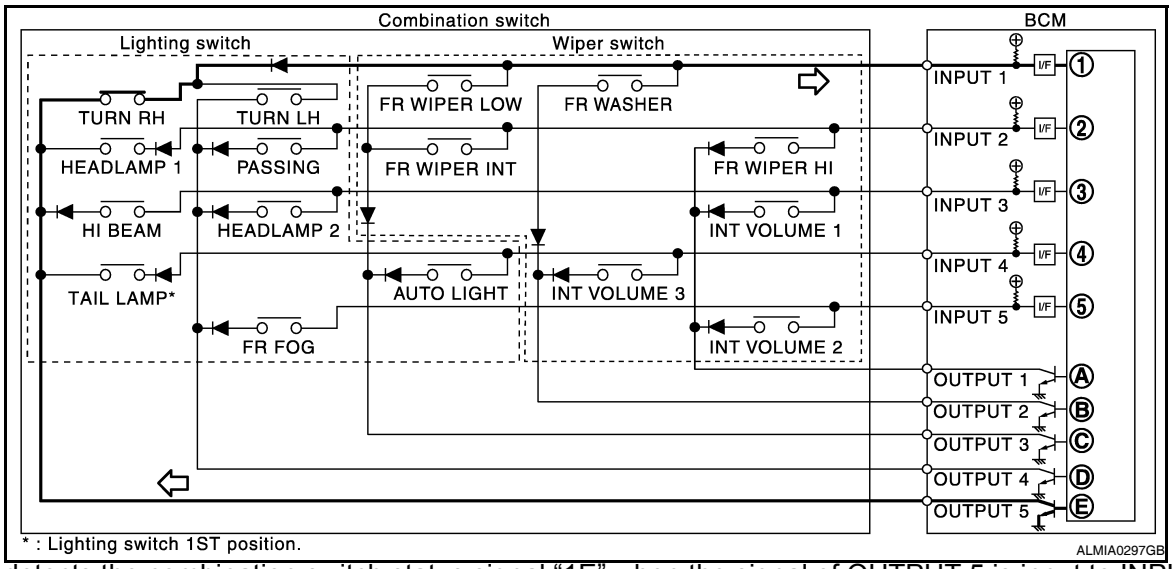


Operation Example

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

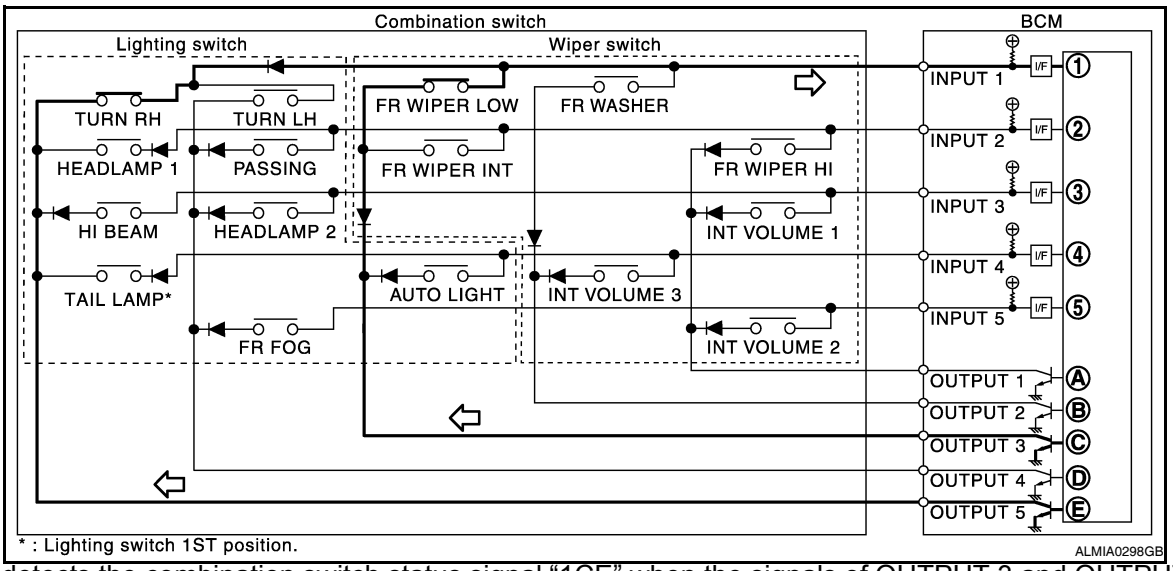
- The circuit between INPUT 1 and OUTPUT 5 is formed when the TURN RH switch is turned ON.



- 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

- 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.

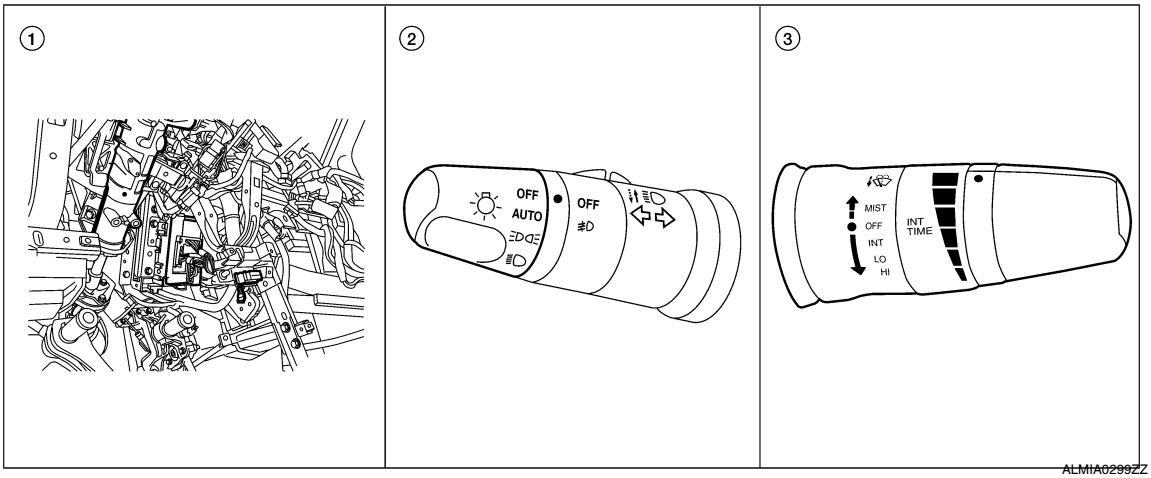
WIPER INTERMITTENT DIAL POSITION SETTING (FRONT WIPER INTERMITTENT OPERATION)

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		OFF	OFF	ON
6	↓ Long	OFF	ON	ON
7		OFF	ON	OFF

Component Parts Location

INFOID:0000000004223713



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

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

INFOID:0000000004223733

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 RESULTS	Displays the diagnosis results judged by BCM. Refer to EXL-114, "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	• 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	×	×	×
RAP (retained accessory power)	RETAINED PWR	×	×	×
Signal buffer system	SIGNAL BUFFER		×	×
TPMS (tire pressure monitoring system)	AIR PRESSURE MONITOR	×	×	×
Vehicle security system	PANIC ALARM			×

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

INFOID:0000000004223721

WORK SUPPORT

Work Item	Setting item	Setting	
BATTERY SAVER SET	ON*	With the exterior lamp battery saver function	
	OFF	Without the exterior lamp battery saver function	
CUSTOM A/LIGHT SETTING	MODE1*	Normal	
	MODE2	More sensitive setting than normal setting (Turns ON earlier than normal operation.)	
	MODE3	More sensitive setting than MODE 2 (Turns ON earlier than MODE 2.)	
	MODE4	Less sensitive setting than normal setting (Turns ON later than normal operation.)	
ILL DELAY SET	MODE1*	45 sec.	Sets delay timer function timer operation time (All doors closed)
	MODE2	Without the function	
	MODE3	30 sec.	
	MODE4	60 sec.	
	MODE5	90 sec.	
	MODE6	120 sec.	
	MODE7	150 sec.	
	MODE8	180 sec.	

*: Initial setting

DATA MONITOR

Monitor Item [Unit]	Description
IGN ON SW [ON/OFF]	Ignition switch (ON) status judged from IGN signal (ignition power supply)
HI BEAM SW [ON/OFF]	Each switch status that BCM judges from the combination switch reading function
H/L SW POS [ON/OFF]	
LIGHT SW 1ST [ON/OFF]	
PASSING SW [ON/OFF]	
AUTO LIGHT SW [ON/OFF]	
FR FOG SW [ON/OFF]	
DOOR SW-DR [ON/OFF]	The switch status input from front door switch LH
AUT LIGHT SYS [ON/OFF]	Auto light system status that BCM judges from the vehicle condition

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.
DAYTIME RUNNING LIGHT	ON	Transmits the day time running light request signal to IPDM E/R with CAN communication to turn the each lamps ON.
	OFF	Stops the day time running light request signal transmission.

FLASHER

FLASHER : CONSULT-III Function (BCM - FLASHER)

INFOID:0000000004223723

DATA MONITOR

Monitor Item [Unit]	Description
IGN ON SW [ON/OFF]	Ignition switch (ON) status judged from IGN signal (ignition power supply)
HAZARD SW [ON/OFF]	The switch status input from the hazard switch
TURN SIGNAL R [ON/OFF]	Each switch condition that BCM judges from the combination switch reading function
TURN SIGNAL L [ON/OFF]	
BRAKE SW [ON/OFF]	The switch status input from the brake switch

ACTIVE TEST

Test Item	Operation	Description
FLASHER	RH	Outputs the voltage to turn the right side turn signal lamps ON.
	LH	Outputs the voltage to turn the left side turn signal lamps ON.
	OFF	Stops the voltage to turn the turn signal lamps OFF.

COMB SW

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

INFOID:0000000004223725

DATA MONITOR

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

Monitor Item [Unit]	Description
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

DIAGNOSIS SYSTEM (IPDM E/R)

Diagnosis Description

INFOID:0000000004223742

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/coolant pressure high warning indicator
- Oil pressure gauge
- Rear window defogger
- Front wipers
- Tail, license and parking lamps
- Front fog lamps
- 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.

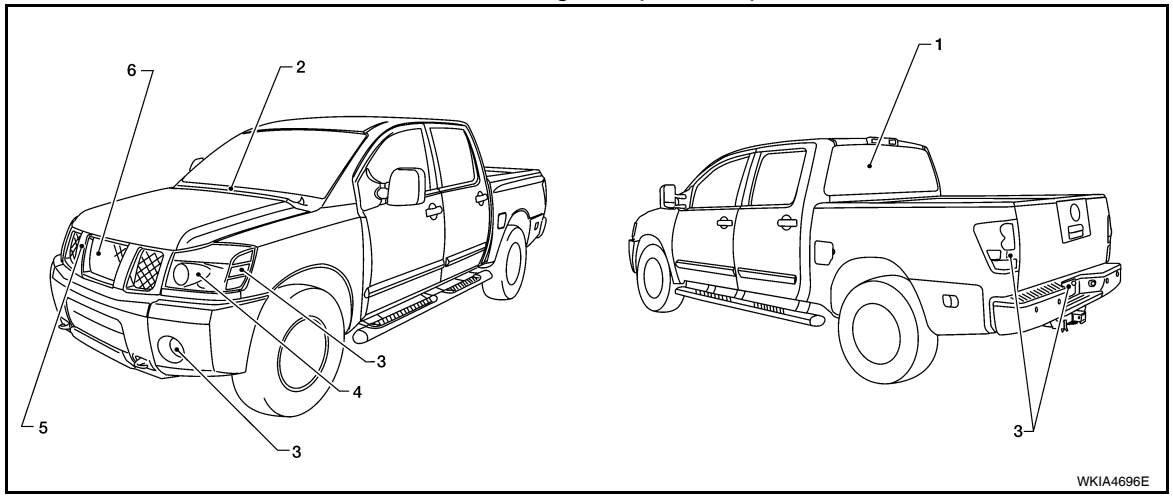
NOTE:
When auto active test mode has to be cancelled halfway through test, turn ignition switch OFF.

CAUTION:

- **If auto active test mode cannot be actuated, check door switch system. Refer to DLK-26, "KING CAB : Description" (King Cab) or DLK-27, "CREW CAB : Description" (Crew Cab).**
- **Do not start the engine.**

Inspection in Auto Active Test Mode

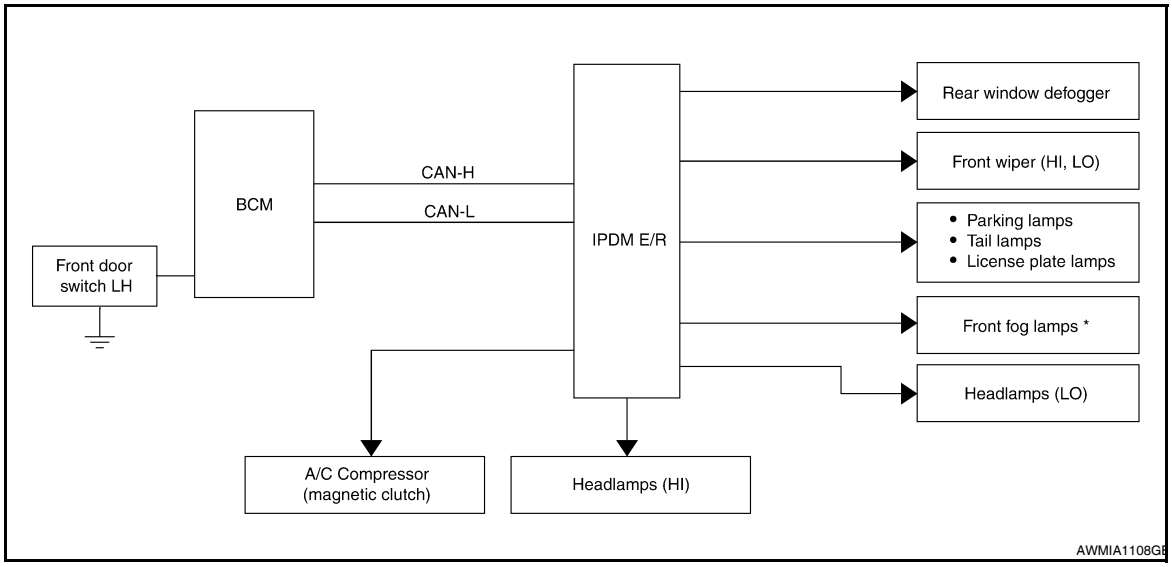
When auto active test mode is actuated, the following 6 steps are repeated 3 times.



Operation sequence	Inspection Location	Operation
1	Rear window defogger (Crew Cab only)	10 seconds
2	Front wipers	LO for 5 seconds → HI for 5 seconds

Operation sequence	Inspection Location	Operation
3	Tail, license, parking lamps and front fog lamps (if equipped)	10 seconds
4	Headlamps	LO for 10 seconds → HI on-off for 5 seconds
5	A/C compressor (magnetic clutch)	ON ⇔ OFF 5 times

Concept of auto active test



*: If equipped

- 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/coolant temperature high warning indicator does not operate	Perform auto active test. Does the oil pressure low/ coolant temperature high 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	CAN communication signal between BCM and IPDM E/R

Symptom	Inspection contents		Possible cause
Any of the following components do not operate • Front wipers • Tail lamps • License plate lamps • Parking lamps • Front fog lamps • Headlamps (HI, LO)	Perform auto active test. Does the applicable system operate?	YES	BCM signal input system
		NO	• 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	• BCM signal input circuit • CAN communication signal between BCM and ECM • CAN communication signal between ECM and IPDM E/R
		NO	• Magnetic clutch malfunction • Harness or connector between IPDM E/R and magnetic clutch • IPDM E/R (integrated relay malfunction)

CONSULT - III Function (IPDM E/R)

INFOID:0000000004223743

APPLICATION ITEM

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

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

SELF DIAGNOSTIC

Refer to EXL-127, "DTC Index".

DATA MONITOR

Monitor item

Monitor Item [Unit]	MAIN SIGNALS	Description
A/C COMP REQ [OFF/ON]	×	Displays the status of the A/C request signal.
TAIL&CLR REQ [OFF/ON]	×	Displays the status of the position light request signal received from BCM via CAN communication.
HL LO REQ [OFF/ON]	×	Displays the status of the low beam request signal received from BCM via CAN communication.
HL HI REQ [OFF/ON]	×	Displays the status of the high beam request signal received from BCM via CAN communication.
FR FOG REQ* [OFF/ON]	×	Displays the status of the front fog lamp request signal received from BCM via CAN communication.
HL WASHER REQ [OFF/ON]		**NOTE:** This item is displayed, but cannot be monitored.
FR WIP REQ [STOP/1LOW/LOW/HI]	×	Displays the status of the front wiper request signal received from BCM via CAN communication.

Monitor Item [Unit]	MAIN SIGNALS	Description
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.
OIL P SW [OPEN/CLOSE]		Displays the status of the oil pressure switch judged by IPDM E/R.
DTRL REQ [OFF]		**NOTE:** This item is displayed, but cannot be monitored.
HOOD SW [OPEN/CLOSE]		**NOTE:** This item is displayed, but cannot be monitored.
THFT HRN REQ [OFF/ON]		Displays the status of the theft warning horn request signal received from BCM via CAN communication.
HORN CHIRP [OFF/ON]		Displays the status of the horn reminder signal received from BCM via CAN communication.

*: If equipped

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.
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 high LH/RH relays at 1 second intervals.
	FOG	Operates the front fog lamp relay*
HORN	ON	Operates horn relay for 20 ms.

*: If equipped

COMPONENT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT

BCM (BODY CONTROL MODULE)

BCM (BODY CONTROL MODULE) : Diagnosis Procedure

INFOID:0000000004223734

1. CHECK FUSES AND FUSIBLE LINK

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

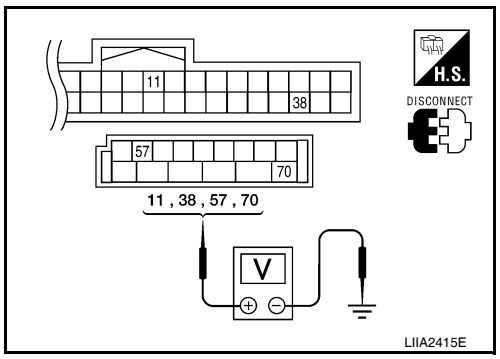
Terminal No.	Signal name	Fuses and fusible link No.
57	Battery power supply	22 (15A)
70		F (50A)
11	Ignition ACC or ON	4 (10A)
38	Ignition ON or START	59 (10A)

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.



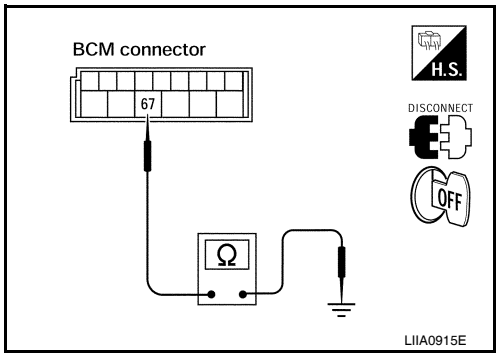
Connector	Terminals (+)	Terminals (-)	Power source	Condition	Voltage (V) (Approx.)
M18	11	Ground	ACC power supply	Ignition switch ACC or ON	Battery voltage
	38	Ground	Ignition power supply	Ignition switch ON or START	Battery voltage
M20	57	Ground	Battery power supply	Ignition switch OFF	Battery voltage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

Is the measurement value normal?

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

3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.



BCM		Ground	Continuity
Connector	Terminal		
M20	67		Yes

Does continuity exist?

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

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

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

INFOID:0000000004223744

1. CHECK FUSES AND FUSIBLE LINK

Check that the following IPDM E/R fuses or fusible link are not blown.

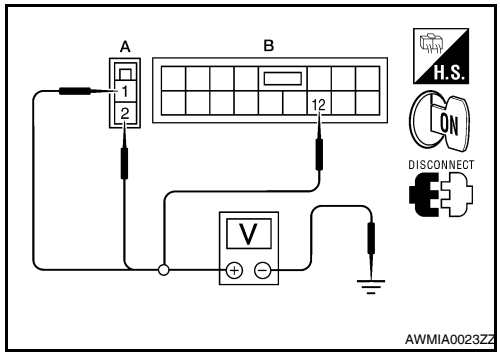
Terminal No.	Signal name	Fuses and fusible link No.
1	Battery	A (140A), D (80A)
2	Battery	C (80A)
12	Ignition switch ON or START	59 (10A)

Is the fuse blown?

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

2. CHECK BATTERY POWER SUPPLY CIRCUIT

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



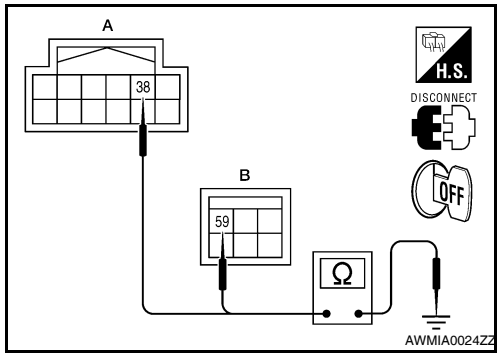
Terminals			Ignition switch position		
(+)		(−)	OFF	ON	START
Connector	Terminal				
E118 (A)	1	Ground	Battery voltage	Battery voltage	Battery voltage
	2		Battery voltage	Battery voltage	Battery voltage
E119 (B)	12		0V	Battery voltage	Battery voltage

Is the measurement value normal?

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

3. CHECK GROUND CIRCUIT

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



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

Does continuity exist?

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

HEADLAMP (HI) CIRCUIT

Description

INFOID:0000000003787478

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

Component Function Check

INFOID:0000000003787479

1.CHECK HEADLAMP (HI) OPERATION

WITHOUT CONTULT-III
1. Start IPDM E/R auto active test. Refer to PCS-11, "Diagnosis Description".
2. Check that the headlamp switches to the high beam.
   NOTE:
   HI/LO is repeated 1 second each when using the IPDM E/R auto active test.

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

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

Does the headlamp switch to high beam?

YES >> Headlamp (HI) circuit is normal.
NO >> Refer to EXL-33, "Diagnosis Procedure - Without Daytime Light System", EXL-34, "Diagnosis Procedure - With Daytime Light System".

Diagnosis Procedure - Without Daytime Light System

INFOID:0000000003787480

1.CHECK HEADLAMP (HI) FUSES

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

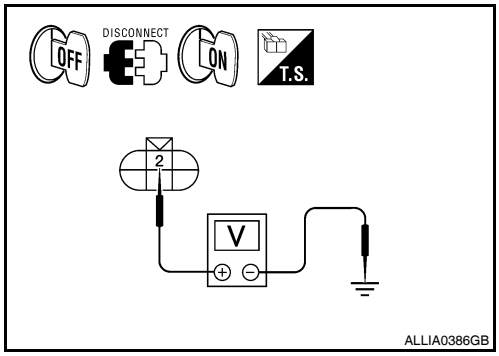
Unit	Location	Fuse No.	Capacity
Headlamp HI (LH)	IPDM E/R	34	10A
Headlamp HI (RH)	IPDM E/R	35	10A

Is the fuse open?

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

2.CHECK HEADLAMP (HI) OUTPUT VOLTAGE

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



(+)			(–)	Voltage
Connector		Terminal		
LH	E11	2	Ground	Battery voltage
RH	E107	2		

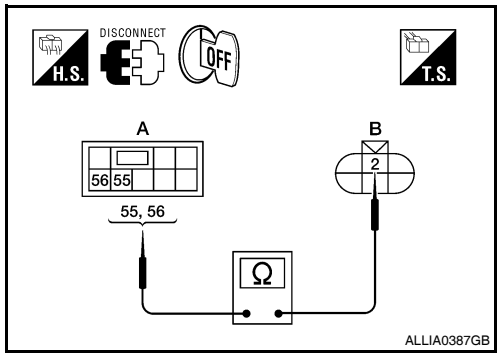
Are the voltage readings as specified?

YES >> GO TO 4.

NO >> GO TO 3.

3.CHECK HEADLAMP (HI) CIRCUIT FOR OPEN

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



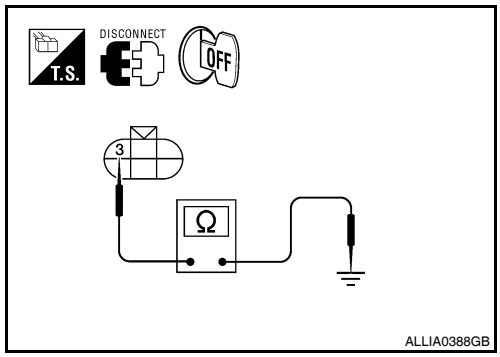
A			B		Continuity
Connector		Terminal	Connector	Terminal	
LH	E123	55	E11	2	Yes
RH		56	E107	2	

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	3	Ground	Yes
RH	E107	3		

Does continuity exist?

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

Diagnosis Procedure - With Daytime Light System

INFOID:0000000004212442

1.CHECK HEADLAMP (HI) FUSES

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

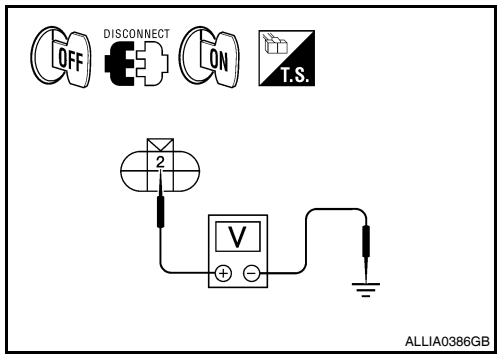
Unit	Location	Fuse No.	Capacity
Headlamp HI (LH)	IPDM E/R	34	10A
Headlamp HI (RH)	IPDM E/R	35	10A

Is the fuse open?

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

2.CHECK HEADLAMP (HI) OUTPUT VOLTAGE

1. Turn the ignition switch OFF.
2. Disconnect the front combination lamp connector E6 or E108.
3. Turn the ignition switch ON.
4. Turn the high beam headlamps ON.
5. With the high beam headlamps ON, check the voltage between the combination lamp connector and ground.



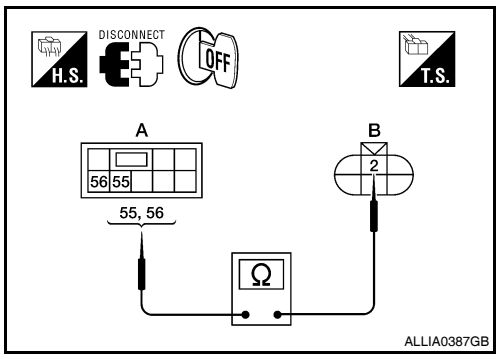
(+)			(−)	Voltage
Connector		Terminal		
LH	E6	2	Ground	Battery voltage
RH	E108	2		

Are the voltage readings as specified?

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

3. CHECK HEADLAMP (HI) CIRCUIT FOR OPEN

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



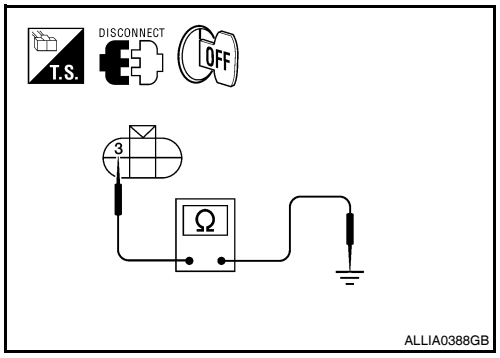
A			B		Continuity
Connector		Terminal	Connector	Terminal	
LH	E123	55	E6	2	Yes
RH		56	E108	2	

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	E6	3	Ground	Yes
RH	E108	3		

Does continuity exist?

YES >> Inspect the headlamp bulb.
NO >> Repair the daytime light relay (if left high beam inop) or harness.

HEADLAMP (LO) CIRCUIT

Description

INFOID:0000000003787481

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

Component Function Check

INFOID:0000000003787482

1.CHECK HEADLAMP (LO) OPERATION

WITHOUT CONSULT-III
1. Start IPDM E/R auto active test. Refer to PCS-11, "Diagnosis Description".
2. Check that the headlamp is turned ON.
   NOTE:
   HI/LO is repeated 1 second each when using the IPDM E/R auto active test.

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

LO : Headlamp ON
OFF : Headlamp OFF

Is the headlamp turned ON?

YES >> Headlamp (LO) is normal.
NO >> Refer to EXL-36, "Diagnosis Procedure - Without Daytime Light System", EXL-37, "Diagnosis Procedure - With Daytime Light System".

Diagnosis Procedure - Without Daytime Light System

INFOID:0000000003787483

1.CHECK HEADLAMP (LO) FUSES

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

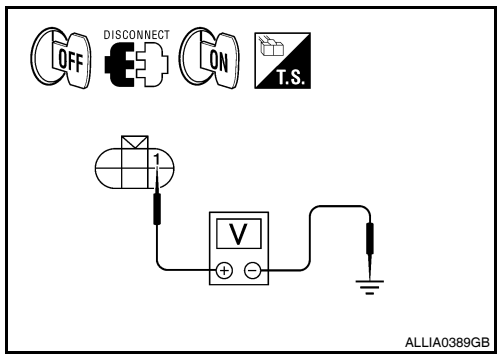
Unit	Location	Fuse No.	Capacity
Headlamp LO (LH)	IPDM E/R	40	15A
Headlamp LO (RH)	IPDM E/R	41	15A

Is the fuse open?

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

2.CHECK HEADLAMP (LO) OUTPUT VOLTAGE

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



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

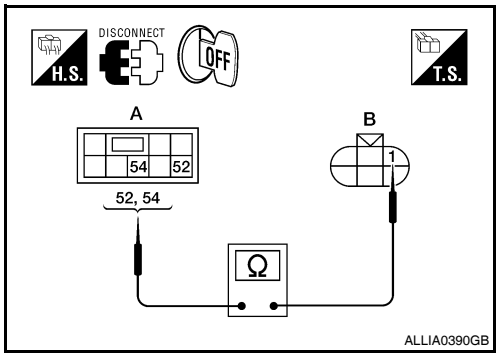
Is voltage reading as specified?

YES >> GO TO 4.

NO >> GO TO 3.

3.CHECK HEADLAMP (LO) CIRCUIT FOR OPEN

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



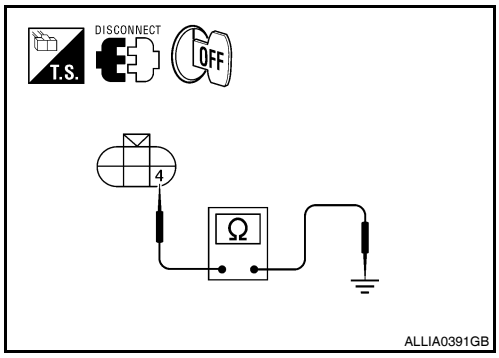
A			B		Continuity
Connector		Terminal	Connector	Terminal	
LH	E123	52	E11	1	Yes
RH		54	E107	1	

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	4	Ground	Yes
RH	E107	4		

Does continuity exist?

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

Diagnosis Procedure - With Daytime Light System

INFOID:0000000004212443

1.CHECK HEADLAMP (LO) FUSES

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

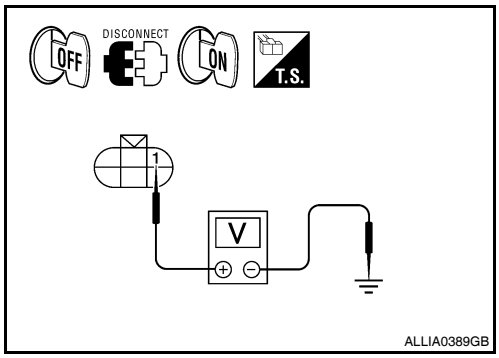
Unit	Location	Fuse No.	Capacity
Headlamp LO (LH)	IPDM E/R	40	15A
Headlamp LO (RH)	IPDM E/R	41	15A

Is the fuse open?

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

2.CHECK HEADLAMP (LO) OUTPUT VOLTAGE

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



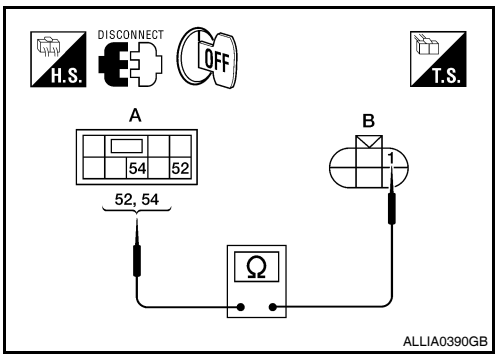
(+)			(–)	Voltage
Connector		Terminal		
LH	E6	1	Ground	Battery voltage
RH	E108	1		

Is voltage reading as specified?

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

3. CHECK HEADLAMP (LO) CIRCUIT FOR OPEN

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



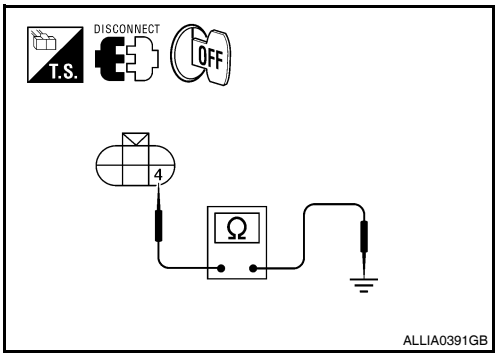
A			B		Continuity
Connector		Terminal	Connector	Terminal	
LH	E123	52	E6	1	Yes
RH		54	E108	1	

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	E6	4	Ground	Yes
RH	E108	4		

Does continuity exist?

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

FRONT FOG LAMP CIRCUIT

Description

INFOID:0000000003787484

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

Component Function Check

INFOID:0000000003787485

1.CHECK FRONT FOG LAMP OPERATION

WITHOUT CONSULT-III
1. Activate IPDM E/R auto active test. Refer to PCS-11, "Diagnosis Description".
2. Check that the front fog lamp is turned ON.

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

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

Is the front fog lamp turned ON?

YES >> Front fog lamp circuit is normal.
NO >> Refer to EXL-39, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003787486

1.CHECK FRONT FOG LAMP FUSE

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

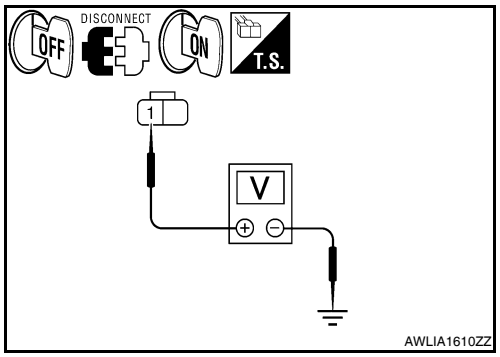
Unit	Location	Fuse No.	Capacity
Front fog lamp	IPDM E/R	56	20A

Is the fuse open?

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

2.CHECK FRONT FOG LAMP OUTPUT VOLTAGE

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



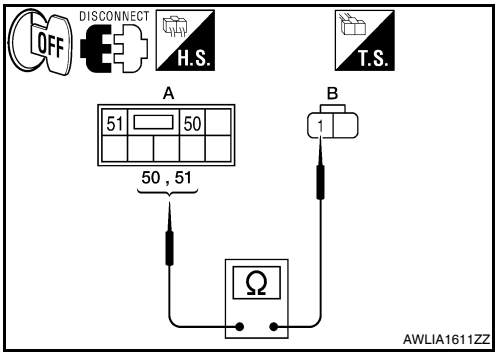
(+)			(–)	Voltage
Connector		Terminal		
LH	E101	1	Ground	Battery voltage
RH	E102	1		

Are the voltage readings as specified?

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

3.CHECK FRONT FOG LAMP OPEN CIRCUIT

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



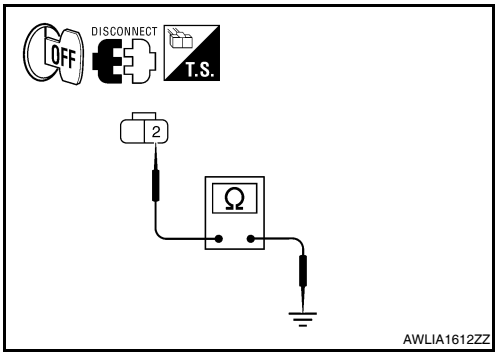
A			B		Continuity
Connector		Terminal	Connector	Terminal	
LH	E123	50	E101	1	Yes
RH		51	E102	1	

Does continuity exist?

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

4. CHECK FRONT FOG LAMP GROUND CIRCUIT

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



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

Does continuity exist?

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

PARKING LAMP CIRCUIT

Description

INFOID:0000000003787487

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

Component Function Check

INFOID:0000000003787488

1.CHECK PARKING LAMP OPERATION

WITHOUT CONSULT-III
1. Activate IPDM E/R auto active test. Refer to PCS-11, "Diagnosis Description".
2. Check that the parking lamp is turned ON.

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

TAIL : Parking lamp ON
OFF : Parking lamp OFF

Is the parking lamp turned ON?

YES >> Parking lamp circuit is normal.
NO >> Refer to EXL-41, "Diagnosis Procedure - Without Daytime Light System", EXL-43, "Diagnosis Procedure - With Daytime Light System".

Diagnosis Procedure - Without Daytime Light System

INFOID:0000000003787489

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	37	10A

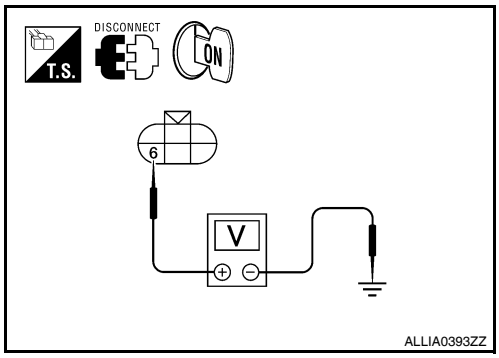
Is the fuse open?

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

2.CHECK TAIL LAMP RELAY OUTPUT (VOLTAGE)

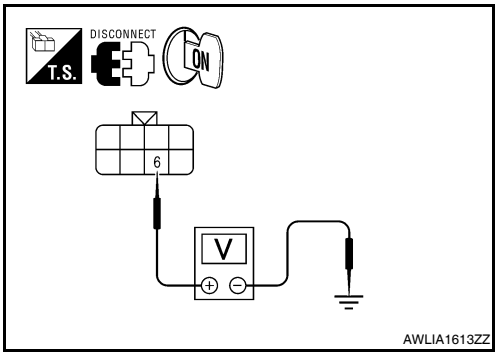
1. Turn the ignition switch OFF.
2. Disconnect the front combination lamp connector, rear combination lamp connector and license plate lamp connector.
3. Turn the ignition switch ON.
4. Turn the parking lamps ON.
5. With the parking lamps ON, check voltage between the front combination lamp connectors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

(+)			(–)	Voltage
Connector		Terminal		
LH	E11	6	Ground	Battery voltage
RH	E107			



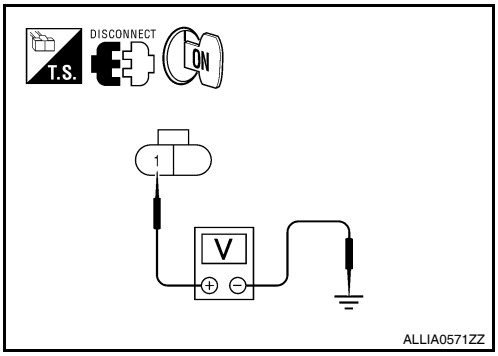
6. With the parking lamps ON, check voltage between the rear combination lamp connectors and ground.

(+)			(–)	Voltage
Connector		Terminal		
LH	C13	6	Ground	Battery voltage
RH	C14			



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

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



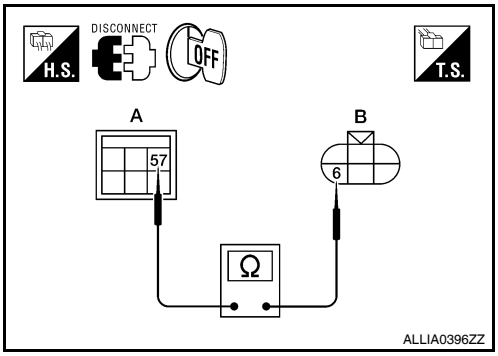
Are voltage readings as specified?

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

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

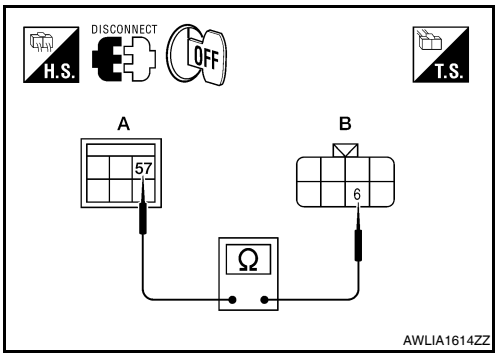
1. Turn the ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between the IPDM E/R harness connector (A) and the front combination lamp harness connector (B).

A			B		Continuity
Connector		Terminal	Connector	Terminal	
LH	E124	57	E11	6	Yes
RH			E107		



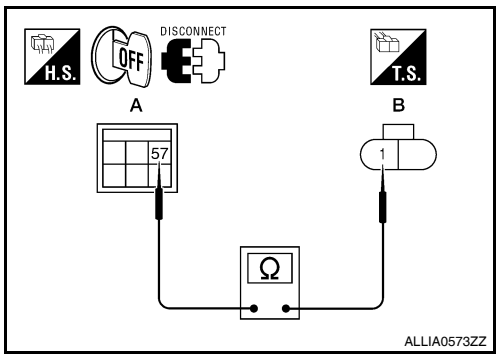
4. Check continuity between the IPDM E/R harness connector (A) and the rear combination lamp harness connector (B).

A			B		Continuity
Connector		Terminal	Connector	Terminal	
LH	E124	57	C13	6	Yes
RH			C14		



5. 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



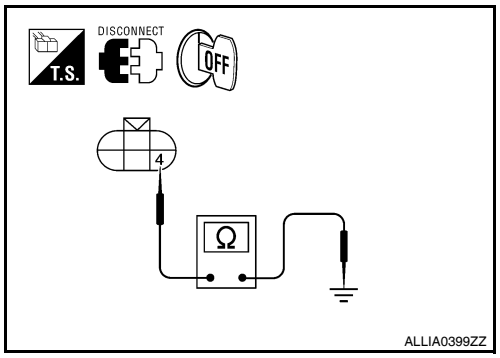
Are continuity test results as specified?

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

4. CHECK PARKING, LICENSE AND TAIL LAMP GROUND CIRCUITS

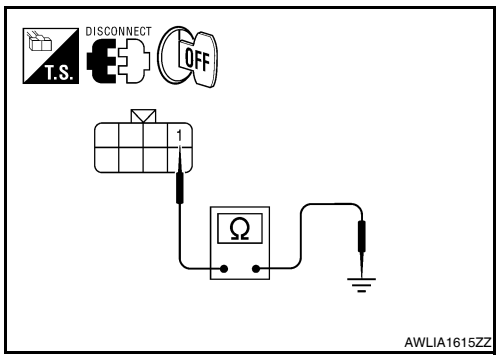
1. Check continuity between the front combination lamp harness connectors E11 and E107 terminal 4 and ground.

Connector		Terminal	—	Continuity
LH	E11	4	Ground	Yes
RH	E107			



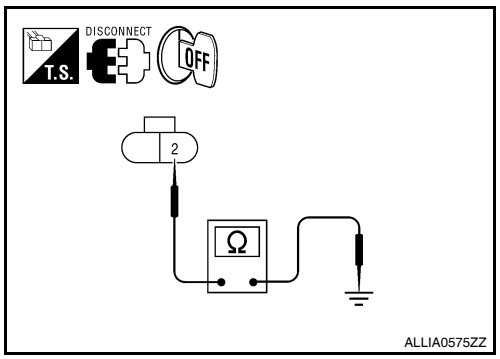
2. Check continuity between the rear combination lamp harness connectors and ground.

Connector		Terminal	—	Continuity
LH	C13	1	Ground	Yes
RH	C14			



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

Connector	Terminal	—	Continuity
C12	2	Ground	Yes



Does continuity exist?

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

Diagnosis Procedure - With Daytime Light System

INFOID:0000000004212444

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	37	10A

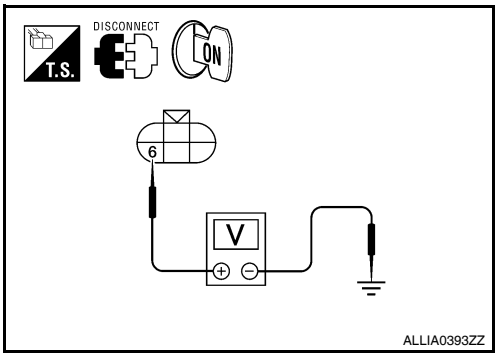
Is the fuse open?

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

2. CHECK TAIL LAMP RELAY OUTPUT (VOLTAGE)

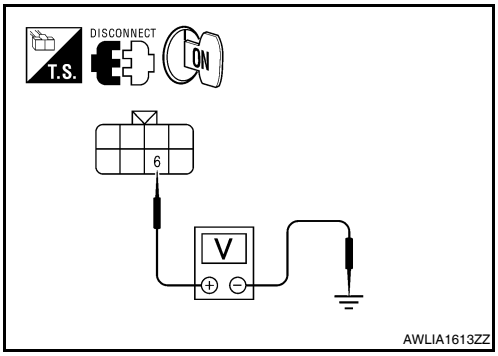
1. Turn the ignition switch OFF.
2. Disconnect the front combination lamp connector, rear combination lamp connector and license plate lamp connector.
3. Turn the ignition switch ON.
4. Turn the parking lamps ON.
5. With the parking lamps ON, check voltage between the front combination lamp connectors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

(+)			(–)	Voltage
Connector		Terminal		
LH	E6	6	Ground	Battery voltage
RH	E108			



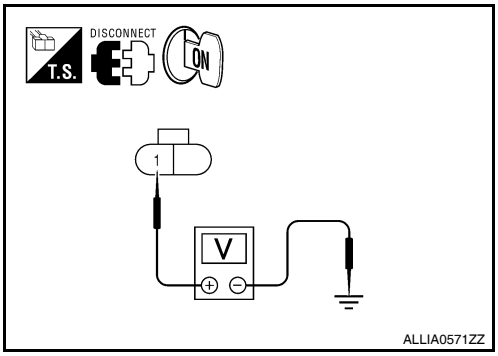
6. With the parking lamps ON, check voltage between the rear combination lamp connectors and ground.

(+)			(–)	Voltage
Connector		Terminal		
LH	C13	6	Ground	Battery voltage
RH	C14			



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

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



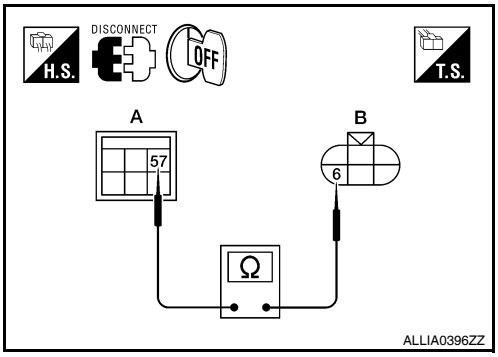
Are voltage readings as specified?

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

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

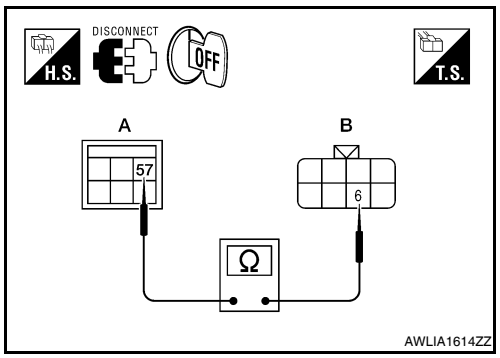
1. Turn the ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between the IPDM E/R harness connector (A) and the front combination lamp harness connector (B).

A			B		Continuity
Connector		Terminal	Connector	Terminal	
LH	E124	57	E6	6	Yes
RH			E108		



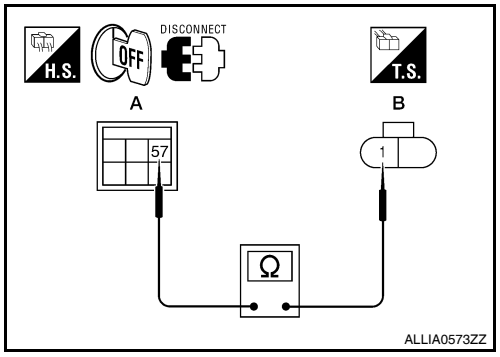
4. Check continuity between the IPDM E/R harness connector (A) and the rear combination lamp harness connector (B).

A			B		Continuity
Connector		Terminal	Connector	Terminal	
LH	E124	57	C13	6	Yes
RH			C14		



5. 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



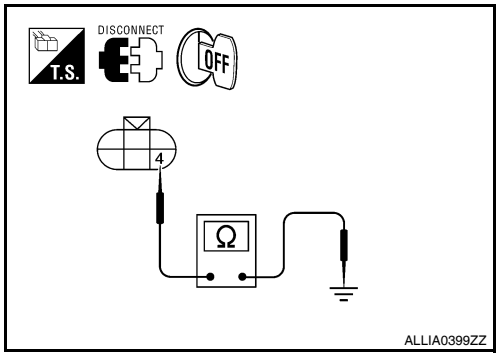
Are continuity test results as specified?

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

4. CHECK PARKING, LICENSE AND TAIL LAMP GROUND CIRCUITS

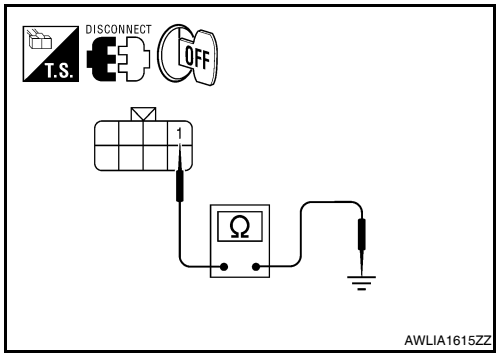
1. Check continuity between the front combination lamp harness connectors E6 and E108 terminal 4 and ground.

Connector		Terminal	—	Continuity
LH	E6	4	Ground	Yes
RH	E108			



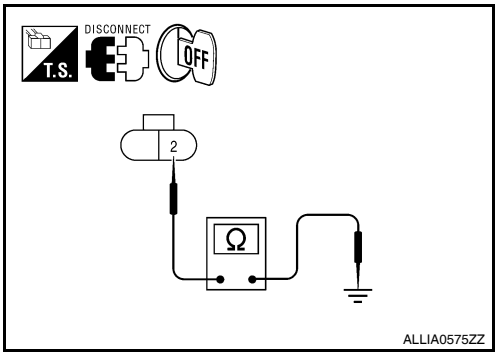
2. Check continuity between the rear combination lamp harness connectors and ground.

Connector		Terminal	—	Continuity
LH	C13	1	Ground	Yes
RH	C14			



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

Connector	Terminal	—	Continuity
C12	2	Ground	Yes



Does continuity exist?

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

TURN SIGNAL LAMP CIRCUIT

Description

INFOID:0000000003787490

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

Component Function Check

INFOID:0000000003787491

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-47, "Diagnosis Procedure - Without Daytime Light System", EXL-49, "Diagnosis Procedure - With Daytime Light System".

Diagnosis Procedure - Without Daytime Light System

INFOID:0000000003787492

1.CHECK TURN SIGNAL LAMP BULB

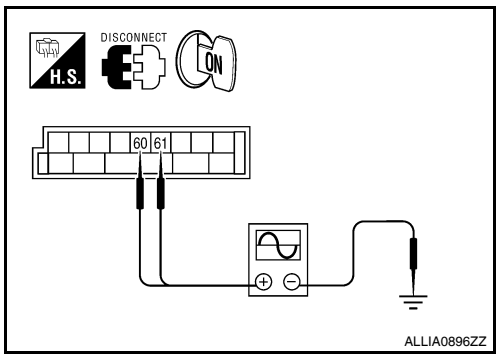
Check the applicable lamp bulb to be sure the proper bulb standard is in use and the bulb is not open.

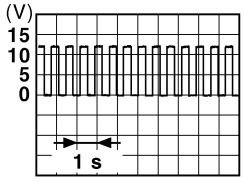
Is the bulb OK?

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 connector or the rear combination lamp connector.
3. Turn the ignition switch ON.
4. With turn signal switch operating, check the voltage between the BCM harness connector M20 and ground.



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

Is voltage reading as specified?

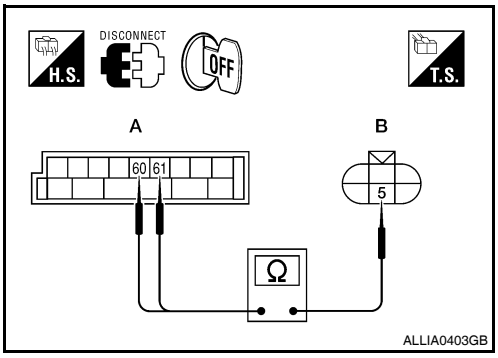
YES >> GO TO 3.

NO >> Replace BCM. Refer to BCS-53, "Removal and Installation".

3. CHECK TURN SIGNAL LAMP CIRCUIT FOR OPEN

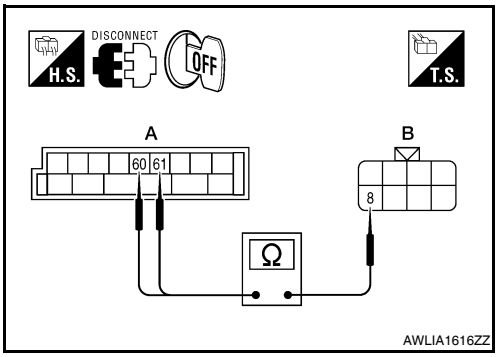
1. Turn the ignition switch OFF.
2. Disconnect BCM connector M20.
3. Check continuity between the BCM harness connector M20 and the front combination lamps.

A			B		Continuity
Connector		Terminal	Connector	Terminal	
Front LH	M20	60	E11	5	Yes
Front RH		61	E107		



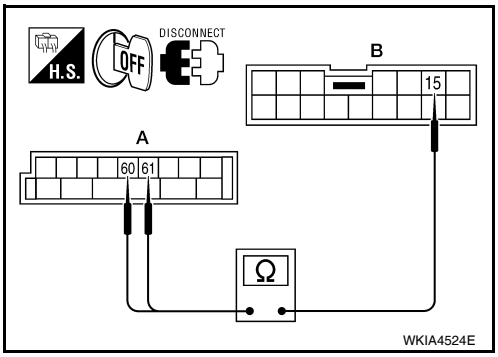
4. Check continuity between the BCM harness connector M20 and the rear combination lamp connectors.

A			B		Continuity
Connector		Terminal	Connector	Terminal	
Rear LH	M20	60	C13	8	Yes
Rear RH		61	C14		



5. Check continuity between the BCM harness connector M20 and the door mirror connectors (if equipped with turn signals in the mirrors).

A			B		Continuity
Connector		Terminal	Connector	Terminal	
Door mirror LH	M20	60	D4	15	Yes
Door mirror RH		61	D107		



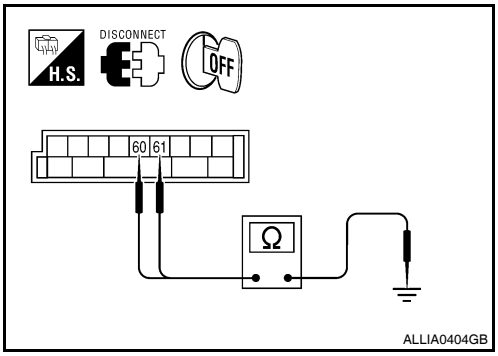
Are continuity test results as specified?

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

4. CHECK TURN SIGNAL LAMP SHORT CIRCUIT

Check continuity between the BCM harness connector M20 and ground.

Connector		Terminal	—	Continuity
LH	M20	60	Ground	No
RH		61		



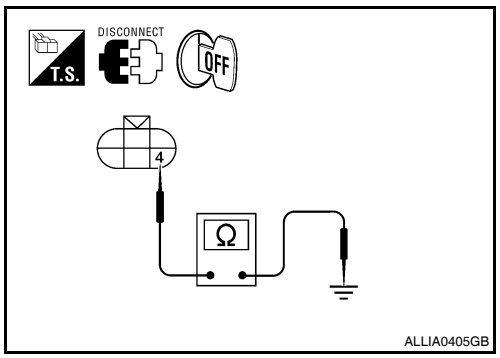
Does continuity exist?

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

5. CHECK TURN SIGNAL LAMP GROUND CIRCUIT

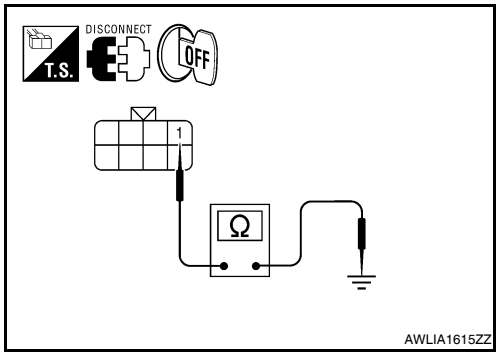
1. Check continuity between the front combination lamp harness connectors and ground.

Connector		Terminal	—	Continuity
Front LH	E11	4	Ground	Yes
Front RH	E107			



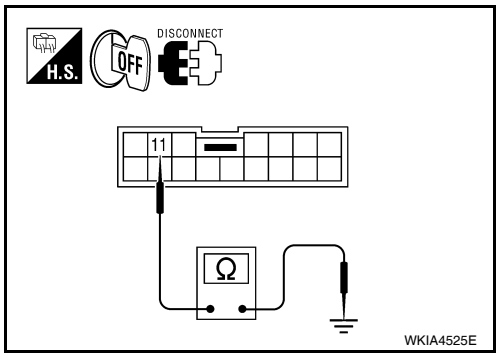
2. Check continuity between the rear combination lamp harnness connectors and ground.

Connector		Terminal	—	Continuity
Rear LH	C13	1	Ground	Yes
Rear RH	C14			



3. Check continuity between the door mirrors and ground (if equipped with turn signals in the mirrors).

Connector		Terminal	—	Continuity
Door mirror RH	D107	11	Ground	Yes
Door mirror LH	D4			



Are continuity test results as specified?

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

Diagnosis Procedure - With Daytime Light System

INFOID:0000000004212445

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.

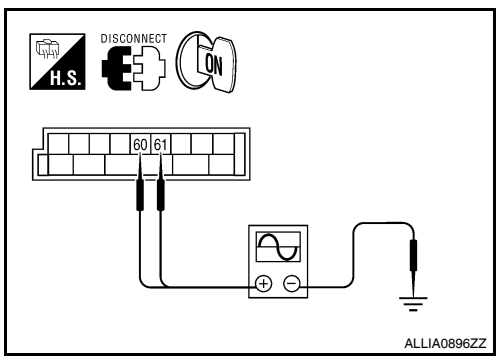
Is the bulb OK?

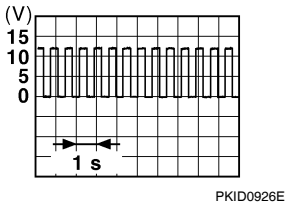
YES >> GO TO 2.
NO >> Replace the bulb.

2.CHECK TURN SIGNAL LAMP OUTPUT VOLTAGE

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

(+)		(−)	Voltage
Connector	Terminal		



M20	LH	60	Ground	
	RH	61		

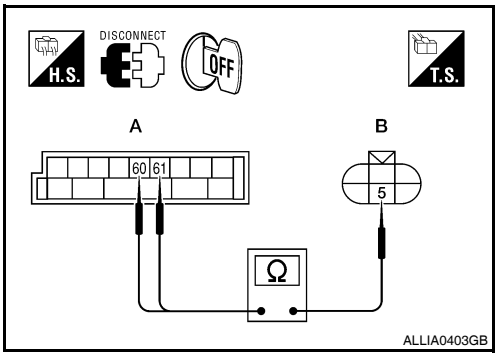
PKID0926E

Is voltage reading as specified?

YES >> GO TO 3.
NO >> Replace BCM. Refer to BCS-53, "Removal and Installation".

3. CHECK TURN SIGNAL LAMP CIRCUIT FOR OPEN

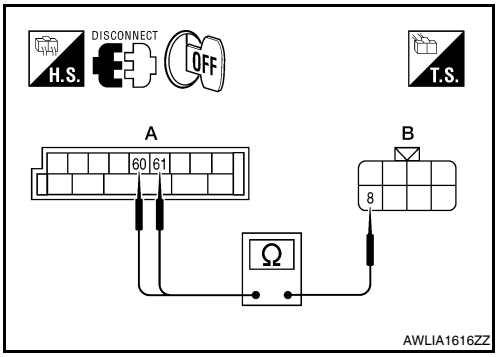
1. Turn the ignition switch OFF.
2. Disconnect BCM connector M20.
3. Check continuity between the BCM harness connector M20 and the front combination lamps.



ALLIA0403GB

A			B		Continuity
Connector		Terminal	Connector	Terminal	
Front LH	M20	60	E6	5	Yes
Front RH		61	E108		

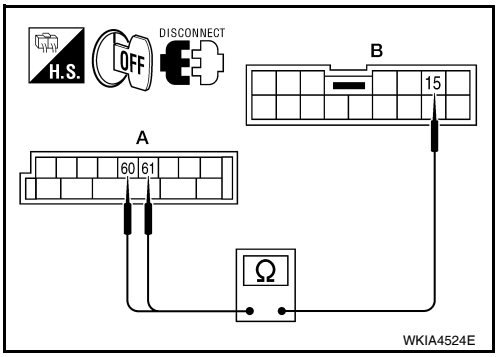
4. Check continuity between the BCM harness connector M20 and the rear combination lamp connectors.



AWLIA1616ZZ

A			B		Continuity
Connector		Terminal	Connector	Terminal	
Rear LH	M20	60	C13	8	Yes
Rear RH		61	C14		

5. Check continuity between the BCM harness connector M20 and the door mirror connectors (if equipped with turn signals in the mirrors).



WKIA4524E

A			B		Continuity
Connector		Terminal	Connector	Terminal	
Door mirror LH	M20	60	D4	15	Yes
Door mirror RH		61	D107		

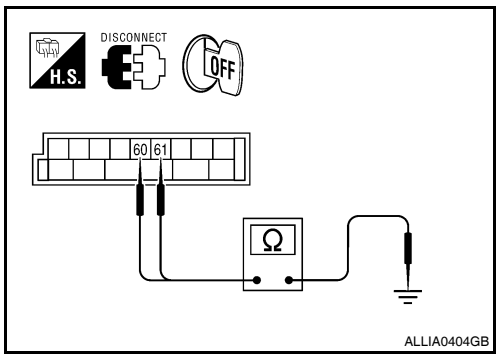
Are continuity test results as specified?

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

4. CHECK TURN SIGNAL LAMP SHORT CIRCUIT

Check continuity between the BCM harness connector M20 and ground.

Connector		Terminal	—	Continuity
LH	M20	60	Ground	No
RH		61		



ALLIA0404GB

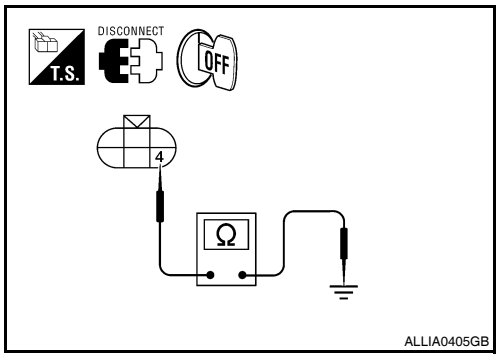
Does continuity exist?

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

5. CHECK TURN SIGNAL LAMP GROUND CIRCUIT

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

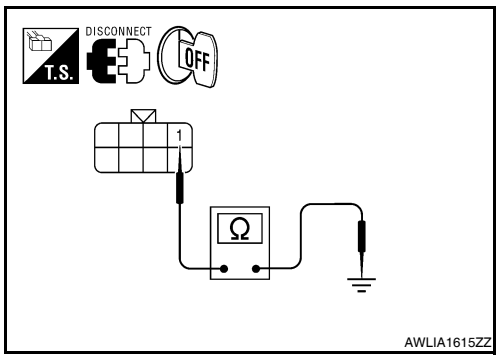
Connector		Terminal	—	Continuity
Front LH	E6	4	Ground	Yes
Front RH	E108			



ALLIA0405GB

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

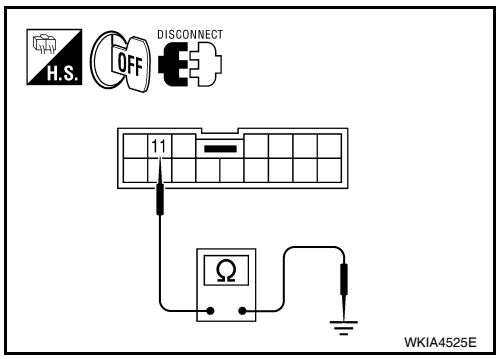
Connector		Terminal	—	Continuity
Rear LH	C13	1	Ground	Yes
Rear RH	C14			



AWLIA1615ZZ

3. Check continuity between the door mirrors and ground (if equipped with turn signals in the mirrors).

Connector		Terminal	—	Continuity
Door mirror RH	D107	11	Ground	Yes
Door mirror LH	D4			



WKIA4525E

Are continuity test results as specified?

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

OPTICAL SENSOR

Description

INFOID:0000000003787493

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

Component Function Check

INFOID:0000000003787494

1.CHECK OPTICAL SENSOR SIGNAL BY CONSULT-III

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

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

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

Is the item status normal?

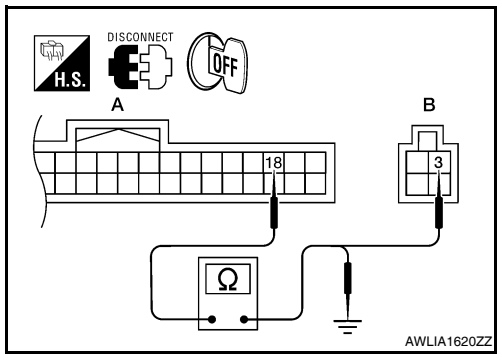
YES >> Optical sensor is normal.
NO >> Refer to EXL-52, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003787495

1.CHECK OPTICAL SENSOR GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect BCM connector M18 and optical sensor connector M302.
3. Check continuity between BCM harness connector M18 (A) terminal 18 and optical sensor harness connector M302 (B) terminal 3.



A		B		
Connector	Terminal	Connector	Terminal	Continuity
M18	18	M302	3	Yes

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

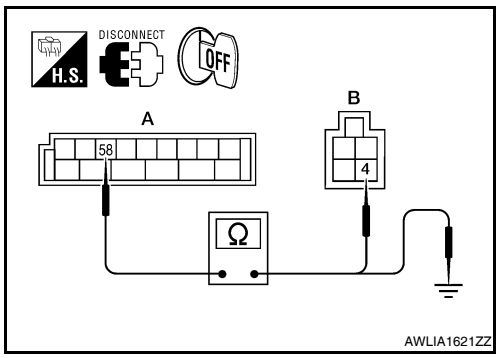
A		—	Continuity
Connector	Terminal		
M18	18	Ground	No

Are continuity test results as specified?

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

2.CHECK OPTICAL SENSOR SIGNAL CIRCUIT

1. Check continuity between BCM harness connector M20 (A) terminal 58 and optical sensor harness connector M302 (B) terminal 4.



A		B		
Connector	Terminal	Connector	Terminal	Continuity
M20	58	M302	4	Yes

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

A		—	Continuity
Connector	Terminal		
M20	58	Ground	No

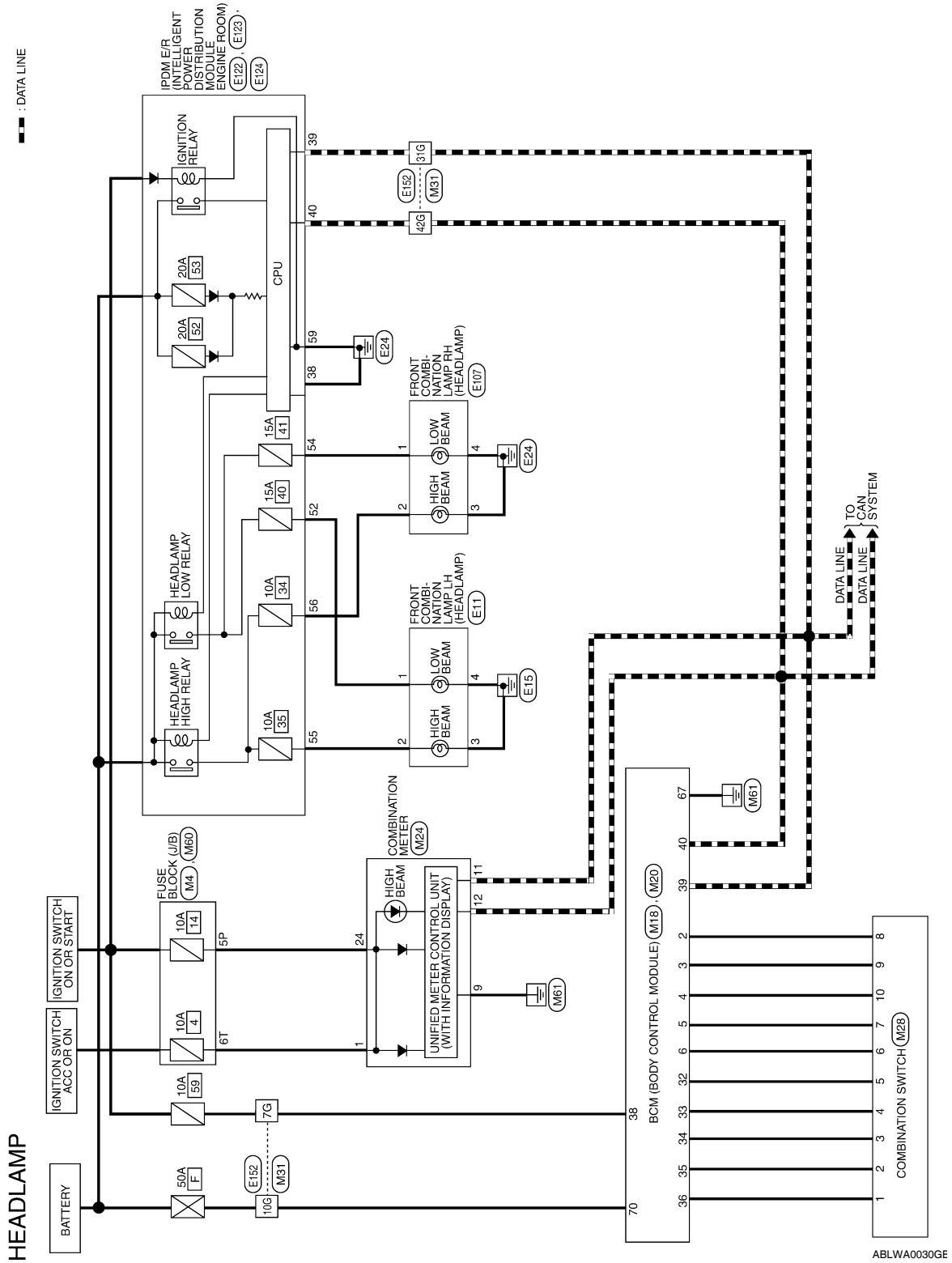
Are the continuity test results as specified?

YES >> Replace the optical sensor. Refer to EXL-139, "Removal and Installation".
NO >> Repair harness or connector.

HEADLAMP

Wiring Diagram

INFOID:0000000003787496



HEADLAMP CONNECTORS

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
5P	O/L	–

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

H.S.

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

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

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

H.S.

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

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

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
1	O	ACCESSORY
9	B	GND (POWER)
11	L	CAN-H
12	P	CAN-L
24	O/L	RUN START

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
1	R/W	INPUT 1
2	O/B	INPUT 2
3	L	INPUT 3
4	R/Y	INPUT 4
5	R/G	INPUT 5
6	V	OUTPUT 1
7	G/B	OUTPUT 2
8	SB	OUTPUT 5
9	G/Y	OUTPUT 4
10	Y	OUTPUT 3

ABLIA0115GB

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

H.S.

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

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

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

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

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

Terminal No.	Color of Wire	Signal Name
7G	W/L	–
10G	W/B	–
31G	L	–
42G	P	–

Connector No.	M60
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

H.S.

2T		1T
6T	5T	4T	3T

Terminal No.	Color of Wire	Signal Name
6T	O	–

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

H.S.

1	2	3
4	5	6

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

Connector No.	E107
Connector Name	FRONT COMBINATION LAMP RH (WITHOUT DAYTIME LIGHT SYSTEM)
Connector Color	BLACK

H.S.

1	2	3
4	5	6

Terminal No.	Color of Wire	Signal Name
1	R/Y	–
2	L/W	–
3	B	–
4	B	–

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

H.S.

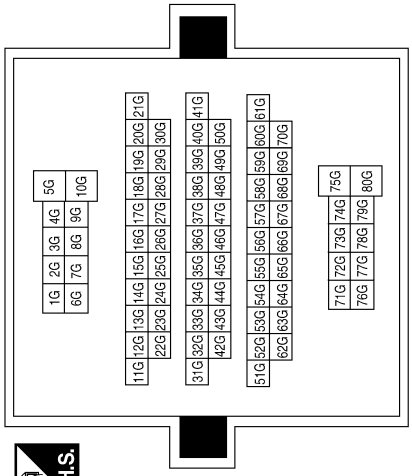
42	41	40	39	38	37
48	47	46	45	44	43

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

ABLIA0116GB

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

H.S.



Terminal No.	Color of Wire	Signal Name
7G	L/W	–
10G	W/B	–
31G	L	–
42G	P	–

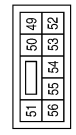
Connector No.	E124
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK

H.S.

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

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

H.S.



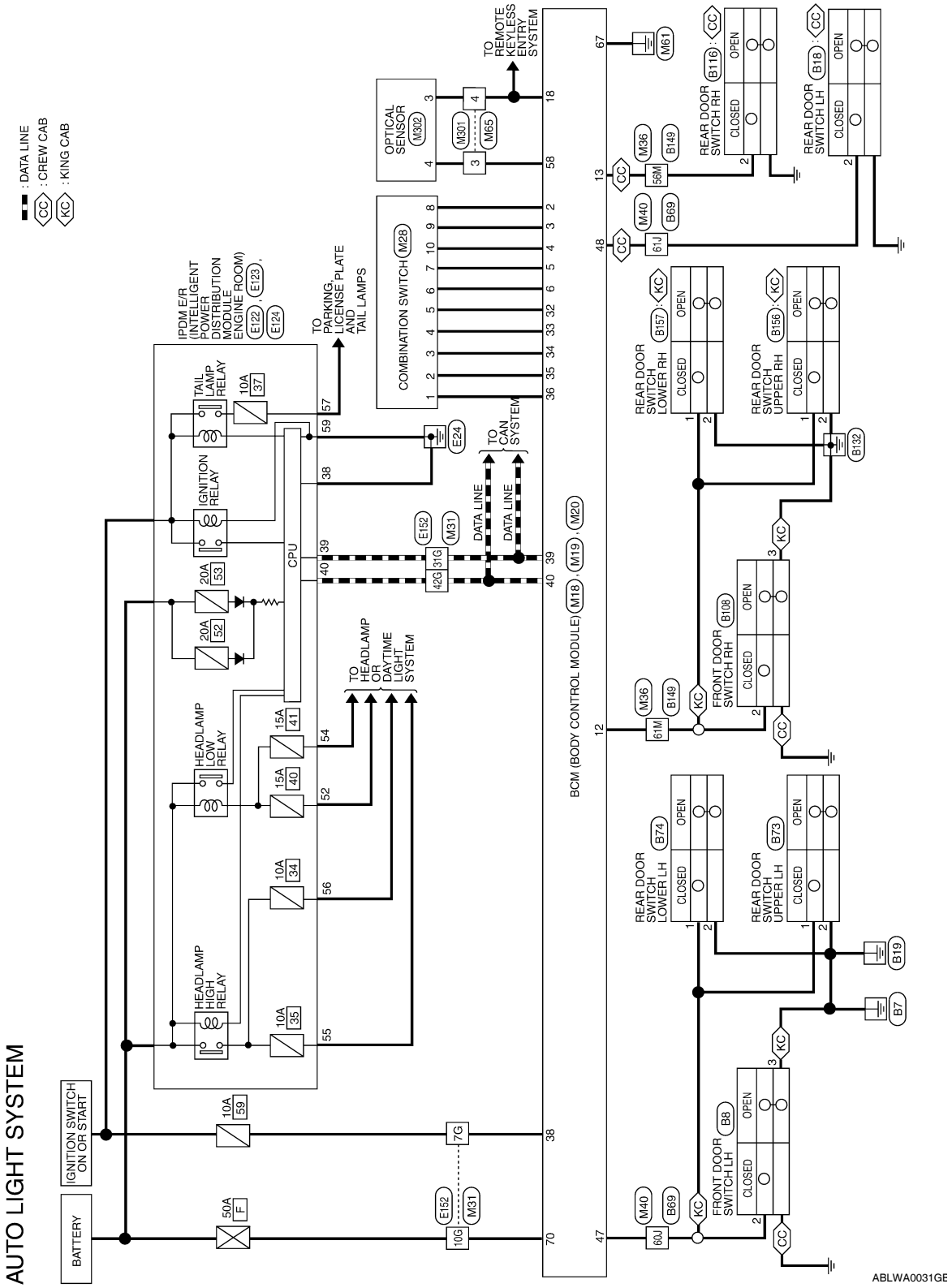
Terminal No.	Color of Wire	Signal Name
52	L	H/LAMP LO LH
54	R/Y	H/LAMP LO RH
55	G	H/LAMP HI LH
56	L/W	H/LAMP HI RH

ABLIA0117GB

AUTO LIGHT SYSTEM

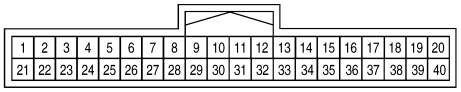
Wiring Diagram

INFOID:0000000003787497



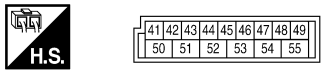
AUTO LIGHT SYSTEM CONNECTORS

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



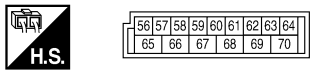
Terminal No.	Color of Wire	Signal Name
2	SB	INPUT 5
3	G/Y	INPUT 4
4	Y	INPUT 3
5	G/B	INPUT 2
6	V	INPUT 1
12	R/L	DOOR SW (AS)
13	GR	DOOR SW (RR)
18	P	KEYLESS AND AUTO LIGHT SENSOR GND
32	R/G	OUTPUT 5
33	R/Y	OUTPUT 4
34	L	OUTPUT 3
35	O/B	OUTPUT 2
36	R/W	OUTPUT 1
38	W/L	IGN SW
39	L	CAN-H
40	P	CAN-L

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



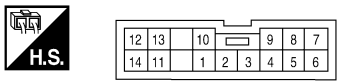
Terminal No.	Color of Wire	Signal Name
47	SB	DOOR SW (DR)
48	R/Y	DOOR SW (RL)

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



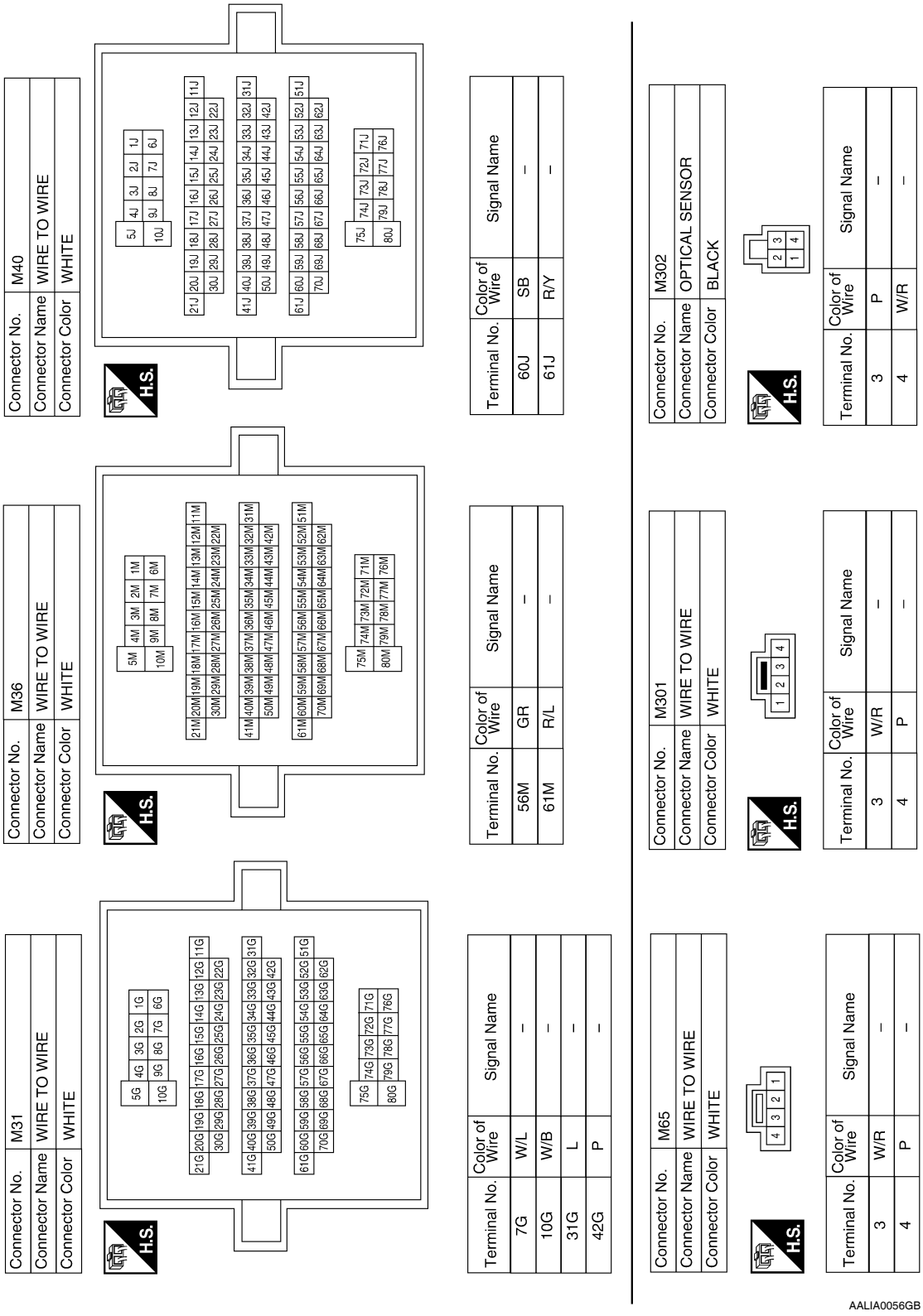
Terminal No.	Color of Wire	Signal Name
58	W/R	AUTO LIGHT SENSOR INPUT 2
67	B	GND (POWER)
70	W/B	BATT (F/L)

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	R/W	INPUT 1
2	O/B	INPUT 2
3	L	INPUT 3
4	R/Y	INPUT 4
5	R/G	INPUT 5
6	V	OUTPUT 1
7	G/B	OUTPUT 2
8	SB	OUTPUT 5
9	G/Y	OUTPUT 4
10	Y	OUTPUT 3

ABLIA0118GB


Connector No. M40
Connector Name WIRE TO WIRE
Connector Color WHITE
H.S.
Terminal No. Color of Wire Signal Name
60J SB –
61J R/Y –
Connector No. M36
Connector Name WIRE TO WIRE
Connector Color WHITE
H.S.
Terminal No. Color of Wire Signal Name
56M GR –
61M R/L –
Connector No. M31
Connector Name WIRE TO WIRE
Connector Color WHITE
H.S.
Terminal No. Color of Wire Signal Name
7G W/L –
10G W/B –
31G L –
42G P –
Connector No. M302
Connector Name OPTICAL SENSOR
Connector Color BLACK
H.S.
Terminal No. Color of Wire Signal Name
3 P –
4 W/R –
Connector No. M301
Connector Name WIRE TO WIRE
Connector Color WHITE
H.S.
Terminal No. Color of Wire Signal Name
3 W/R –
4 P –
Connector No. M65
Connector Name WIRE TO WIRE
Connector Color WHITE
H.S.
Terminal No. Color of Wire Signal Name
3 W/R –
4 P –
AALIA0056GB

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

H.S.

59	58	57
62	61	60

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

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

H.S.

51		50	49
56	55	54	53	52

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

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

H.S.

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

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

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

H.S.

1
2
3

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

Terminal No.	Color of Wire	Signal Name
7G	L/W	–
10G	W/B	–
31G	L	–
42G	P	–

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

H.S.

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

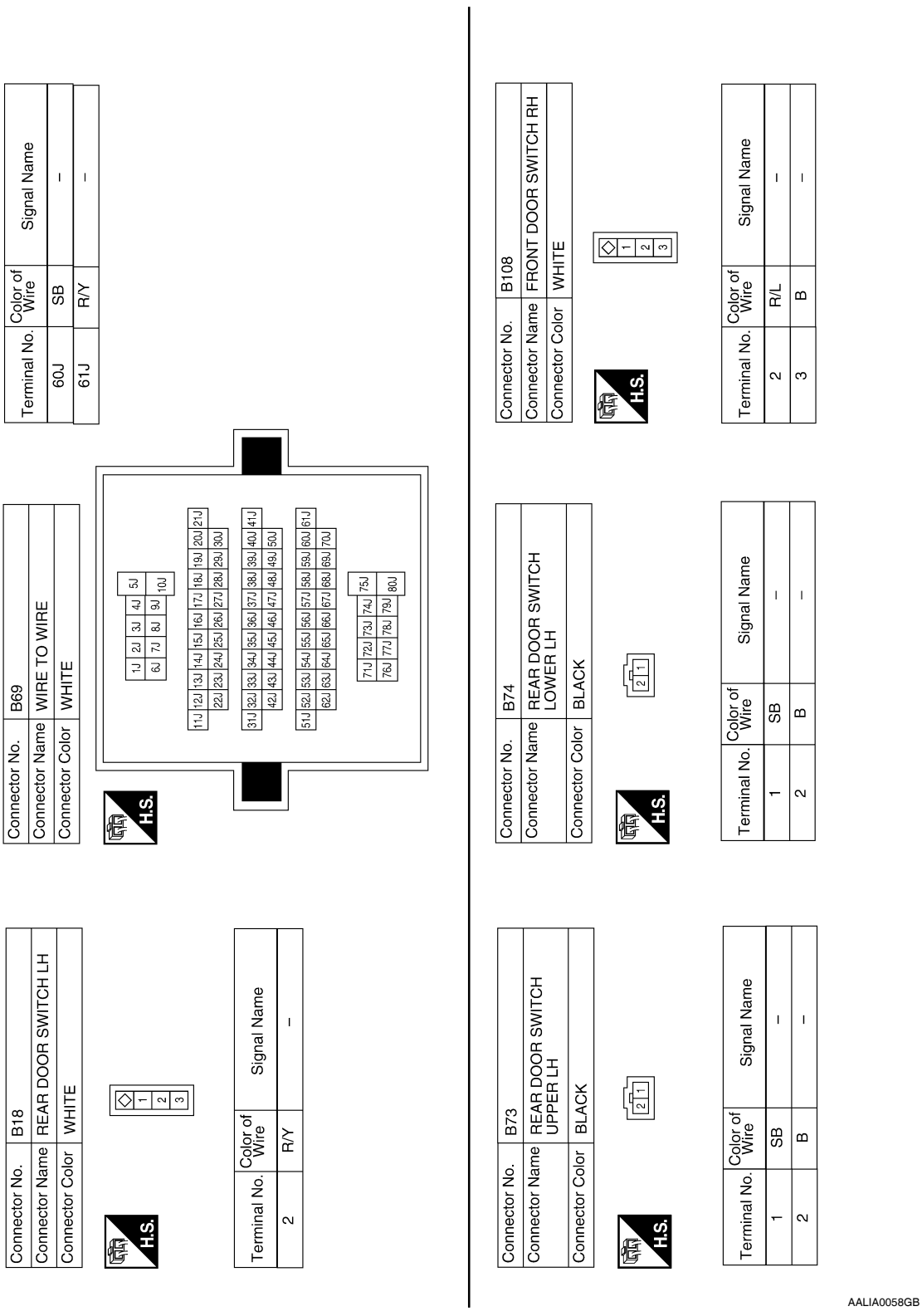
11G	12G	13G	14G	15G	16G	17G	18G	19G	20G	21G
	22G	23G	24G	25G	26G	27G	28G	29G	30G	

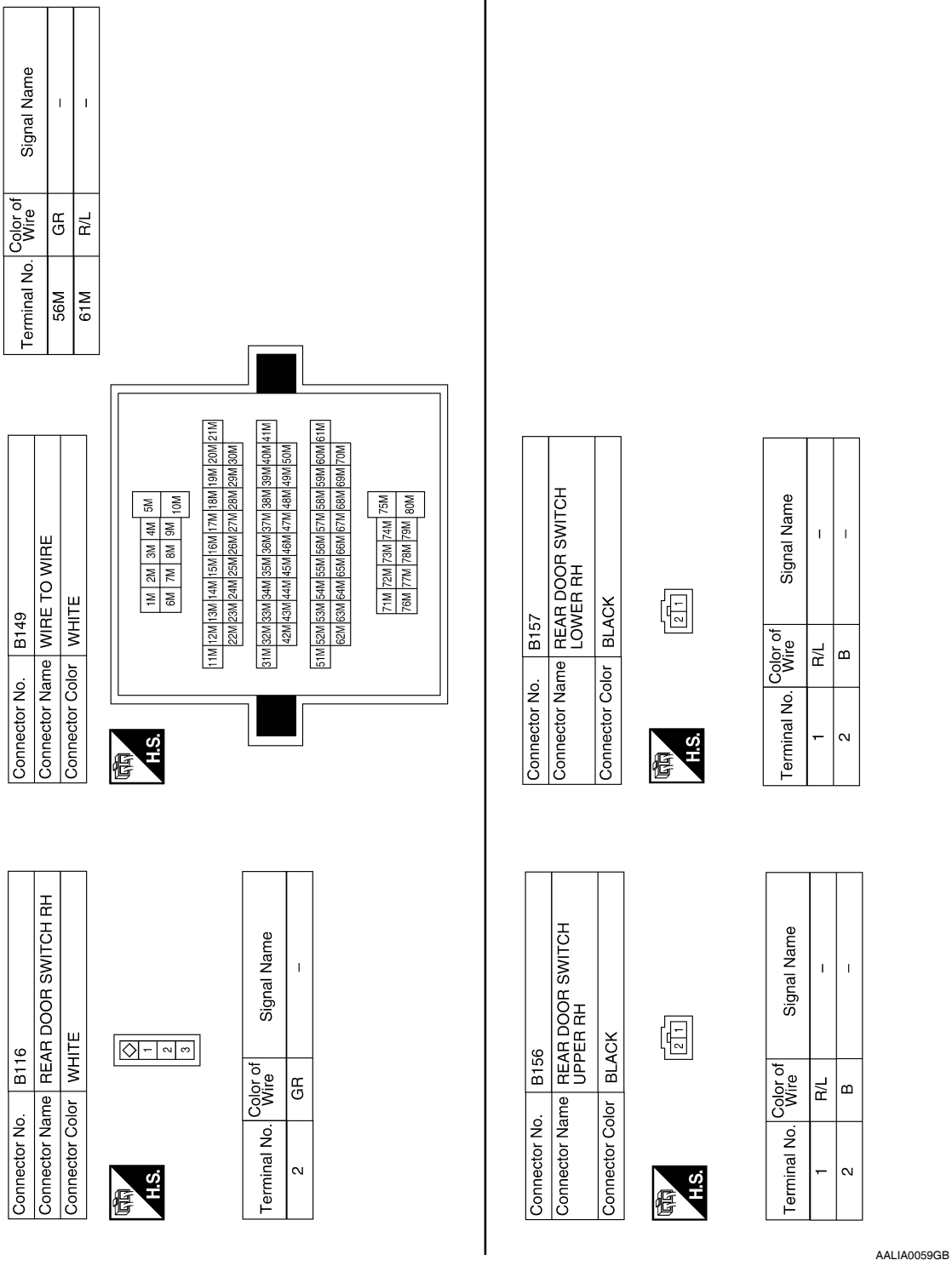
31G	32G	33G	34G	35G	36G	37G	38G	39G	40G	41G
		42G	43G	44G	45G	46G	47G	48G	49G	50G

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

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

AALIA0057GB

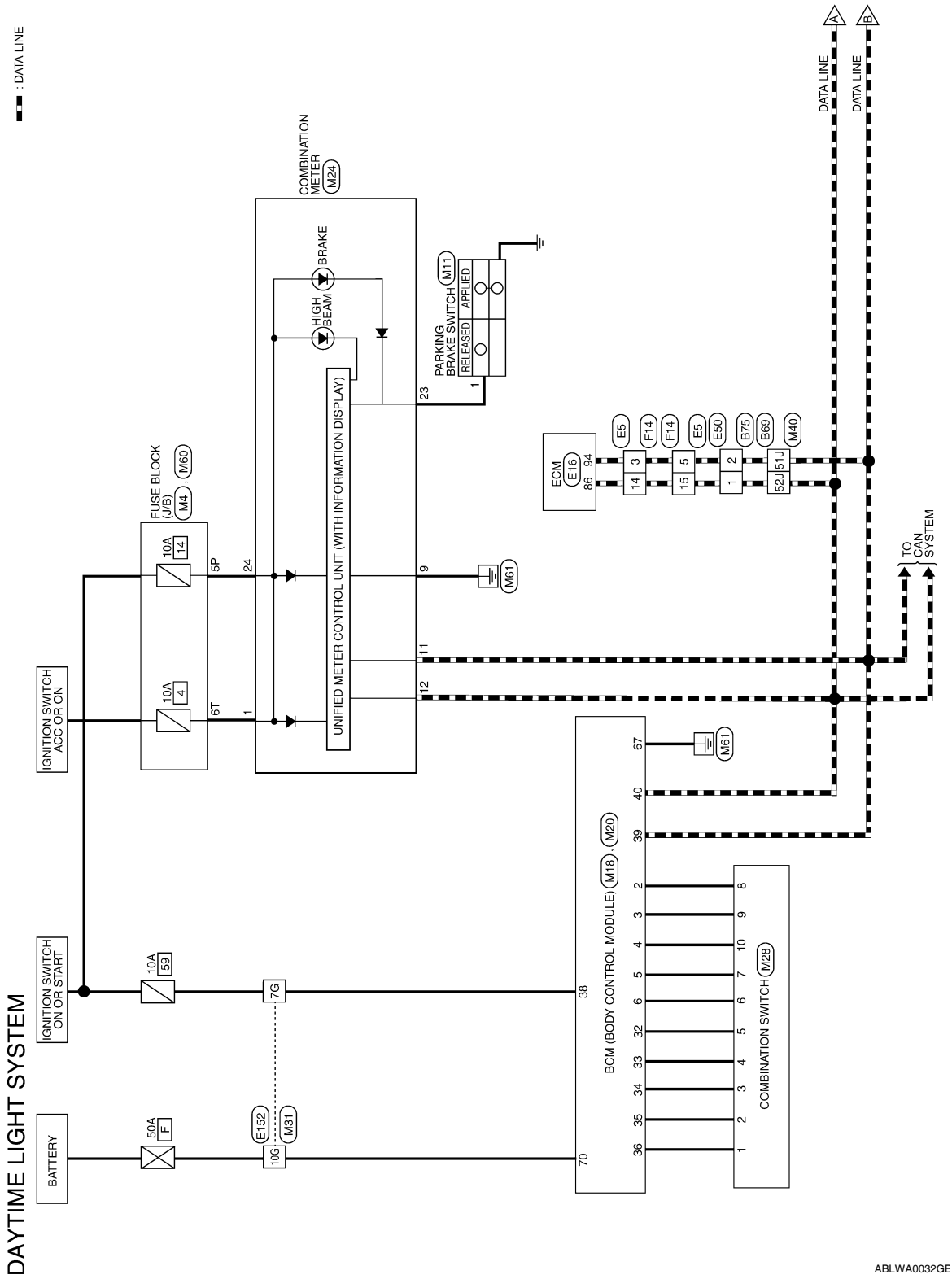

Terminal No. | Color of Wire | Signal Name
60J | SB | –
61J | R/Y | –
Connector No. | B69
Connector Name | WIRE TO WIRE
Connector Color | WHITE
H.S.
1J 2J 3J 4J 5J
6J 7J 8J 9J 10J
11J 12J 13J 14J 15J 16J 17J 18J 19J 20J 21J
22J 23J 24J 25J 26J 27J 28J 29J 30J
31J 32J 33J 34J 35J 36J 37J 38J 39J 40J 41J
42J 43J 44J 45J 46J 47J 48J 49J 50J
51J 52J 53J 54J 55J 56J 57J 58J 59J 60J 61J
62J 63J 64J 65J 66J 67J 68J 69J 70J
71J 72J 73J 74J 75J
76J 77J 78J 79J 80J
Connector No. | B108
Connector Name | FRONT DOOR SWITCH RH
Connector Color | WHITE
H.S.
1 2 3
Terminal No. | Color of Wire | Signal Name
2 | R/L | –
3 | B | –
Connector No. | B18
Connector Name | REAR DOOR SWITCH LH
Connector Color | WHITE
H.S.
1 2 3
Terminal No. | Color of Wire | Signal Name
2 | R/Y | –
Connector No. | B74
Connector Name | REAR DOOR SWITCH LOWER LH
Connector Color | BLACK
H.S.
2 1
Terminal No. | Color of Wire | Signal Name
1 | SB | –
2 | B | –
Connector No. | B73
Connector Name | REAR DOOR SWITCH UPPER LH
Connector Color | BLACK
H.S.
2 1
Terminal No. | Color of Wire | Signal Name
1 | SB | –
2 | B | –
AALIA0058GB

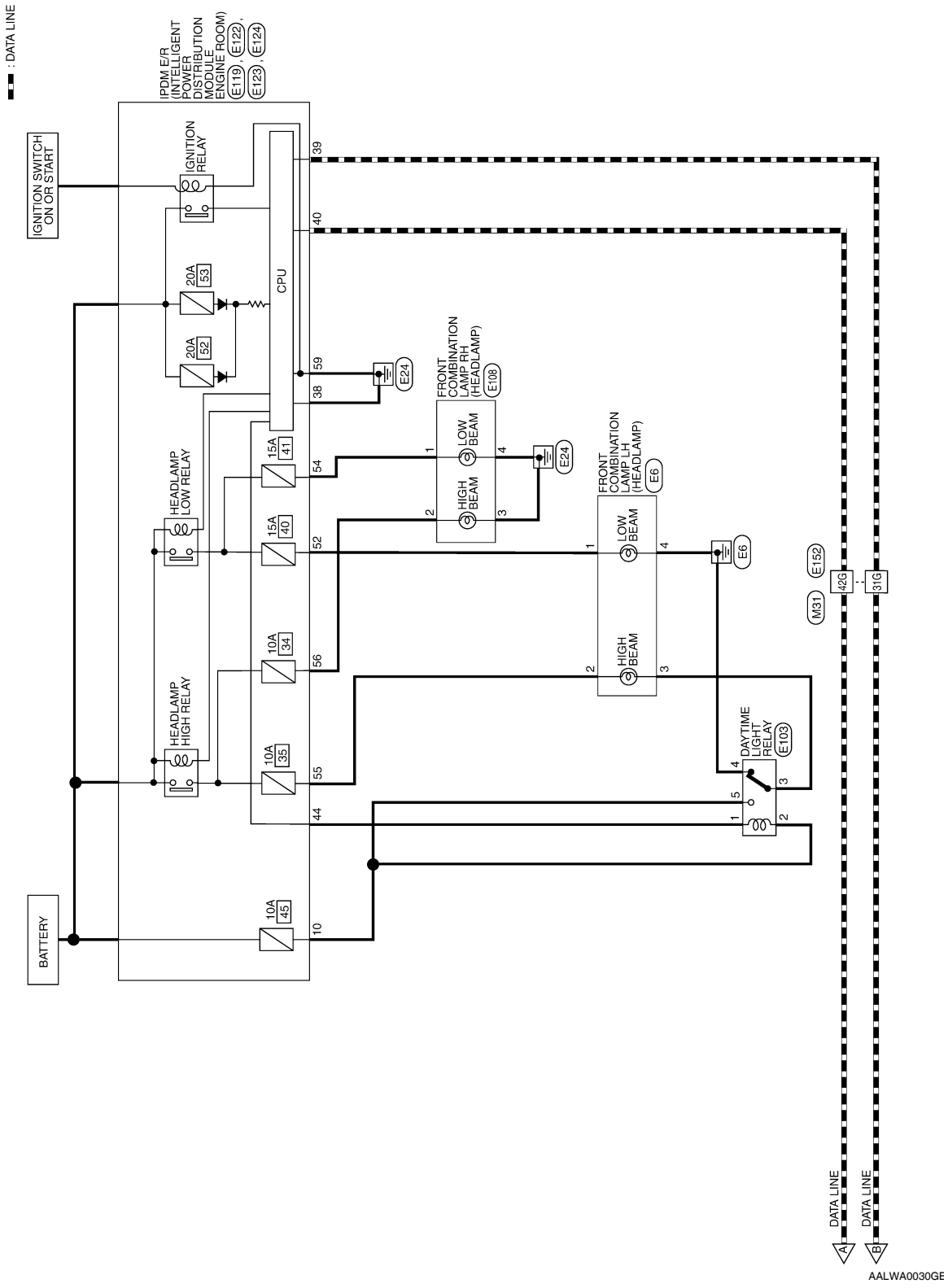

Connector No. B116
Connector Name REAR DOOR SWITCH RH
Connector Color WHITE
H.S.
1 2 3
Terminal No. Color of Wire Signal Name
2 GR –
Connector No. B149
Connector Name WIRE TO WIRE
Connector Color WHITE
H.S.
1M 2M 3M 4M 5M
6M 7M 8M 9M 10M
11M 12M 13M 14M 15M 16M 17M 18M 19M 20M 21M
22M 23M 24M 25M 26M 27M 28M 29M 30M
31M 32M 33M 34M 35M 36M 37M 38M 39M 40M 41M
42M 43M 44M 45M 46M 47M 48M 49M 50M
51M 52M 53M 54M 55M 56M 57M 58M 59M 60M 61M
62M 63M 64M 65M 66M 67M 68M 69M 70M
71M 72M 73M 74M 75M
76M 77M 78M 79M 80M
Terminal No. Color of Wire Signal Name
56M GR –
61M R/L –
Connector No. B156
Connector Name REAR DOOR SWITCH UPPER RH
Connector Color BLACK
H.S.
2 1
Terminal No. Color of Wire Signal Name
1 R/L –
2 B –
Connector No. B157
Connector Name REAR DOOR SWITCH LOWER RH
Connector Color BLACK
H.S.
2 1
Terminal No. Color of Wire Signal Name
1 R/L –
2 B –
AALIA0059GB

DAYTIME LIGHT SYSTEM

Wiring Diagram

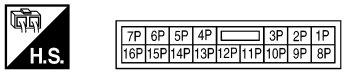
INFOID:0000000003787498




: DATA LINE
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) (E119), (E122), (E123), (E124)
IGNITION SWITCH ON OR START
IGNITION RELAY
CPU
20A 53
20A 52
15A 41
15A 40
10A 34
10A 35
10A 45
HEADLAMP LOW RELAY
HEADLAMP HIGH RELAY
BATTERY
39
40
59
38
54
52
56
55
44
10
E24
FRONT COMBINATION LAMP RH (HEADLAMP) E108
LOW BEAM
HIGH BEAM
FRONT COMBINATION LAMP LH (HEADLAMP) E6
DAYTIME LIGHT RELAY E103
E152
M31
42G
31G
DATA LINE
A
B
AALWA0030GE

DAYTIME LIGHT SYSTEM CONNECTORS

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

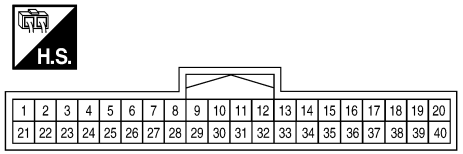


Terminal No.	Color of Wire	Signal Name
5P	O/L	–

Connector No.	M11
Connector Name	PARKING BRAKE SWITCH
Connector Color	BLACK

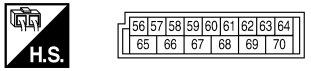
Terminal No.	Color of Wire	Signal Name
1	G	–

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



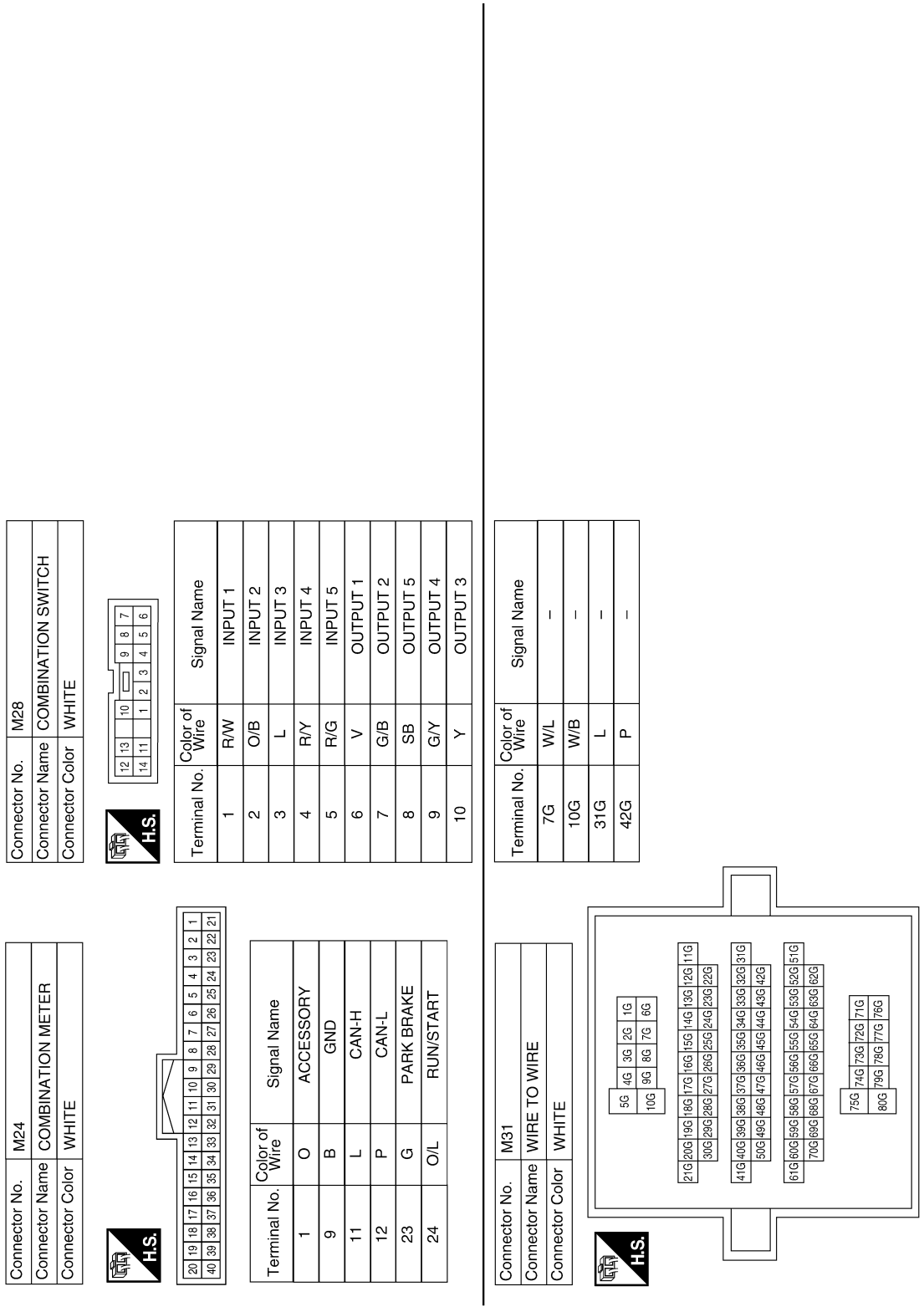
Terminal No.	Color of Wire	Signal Name
2	SB	INPUT 5
3	G/Y	INPUT 4
4	Y	INPUT 3
5	G/B	INPUT 2
6	V	INPUT 1
32	R/G	OUTPUT 5
33	R/Y	OUTPUT 4
34	L	OUTPUT 3
35	O/B	OUTPUT 2
36	R/W	OUTPUT 1
38	W/L	IGN SW
39	L	CAN-H
40	P	CAN-L

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

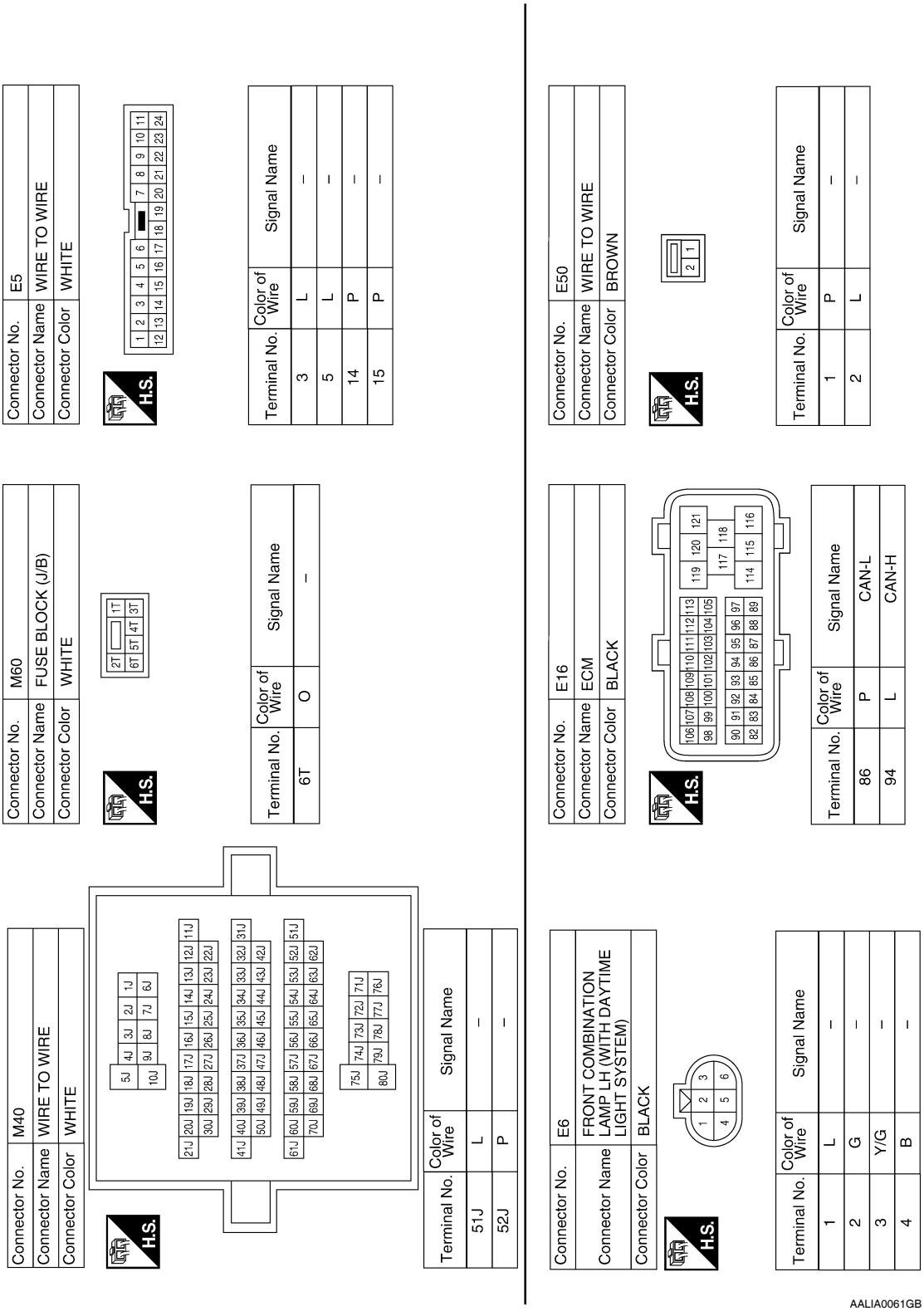


Terminal No.	Color of Wire	Signal Name
67	B	GND (POWER)
70	W/B	BATT (F/L)

ABLIA0119GB



ABLIA0120GB


Connector No. M40
Connector Name WIRE TO WIRE
Connector Color WHITE
H.S.
Terminal No. Color of Wire Signal Name
51J L –
52J P –
Connector No. E6
Connector Name FRONT COMBINATION LAMP LH (WITH DAYTIME LIGHT SYSTEM)
Connector Color BLACK
H.S.
Terminal No. Color of Wire Signal Name
1 L –
2 G –
3 Y/G –
4 B –
Connector No. M60
Connector Name FUSE BLOCK (J/B)
Connector Color WHITE
H.S.
Terminal No. Color of Wire Signal Name
6T O –
Connector No. E5
Connector Name WIRE TO WIRE
Connector Color WHITE
H.S.
Terminal No. Color of Wire Signal Name
3 L –
5 L –
14 P –
15 P –
Connector No. E16
Connector Name ECM
Connector Color BLACK
H.S.
Terminal No. Color of Wire Signal Name
86 P CAN-L
94 L CAN-H
Connector No. E50
Connector Name WIRE TO WIRE
Connector Color BROWN
H.S.
Terminal No. Color of Wire Signal Name
1 P –
2 L –
AALIA0061GB

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

H.S.

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

Connector No.	E108
Connector Name	FRONT COMBINATION LAMP RH (WITH DAYTIME LIGHT SYSTEM)
Connector Color	BLACK

H.S.

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

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

H.S.

Terminal No.	Color of Wire	Signal Name
10	G	DTRL RLY SUPPLY

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

H.S.

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

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

H.S.

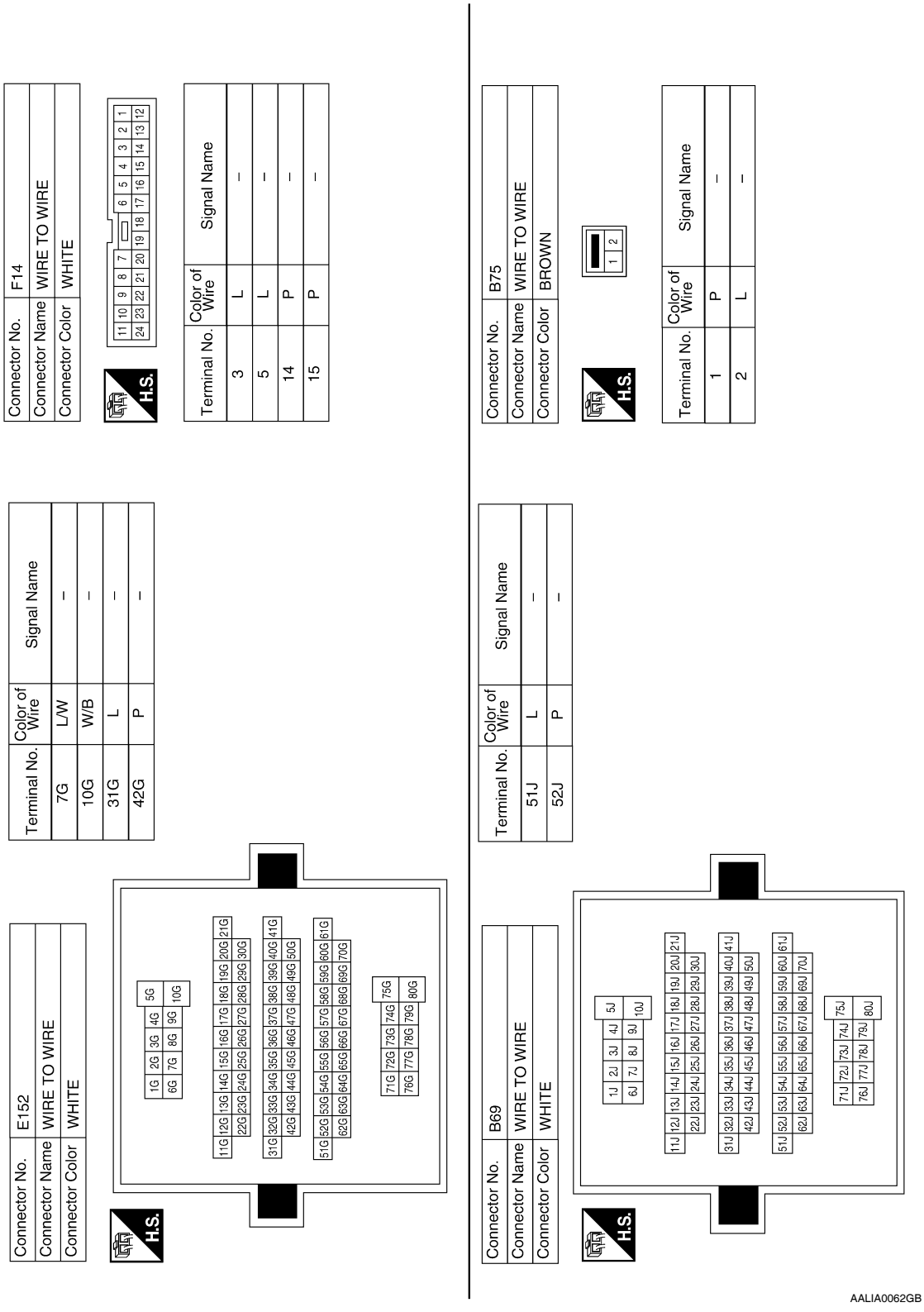
Terminal No.	Color of Wire	Signal Name
52	L	H/LAMP LO LH
54	R/Y	H/LAMP LO RH
55	G	H/LAMP HI LH
56	Y	H/LAMP HI RH

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

H.S.

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

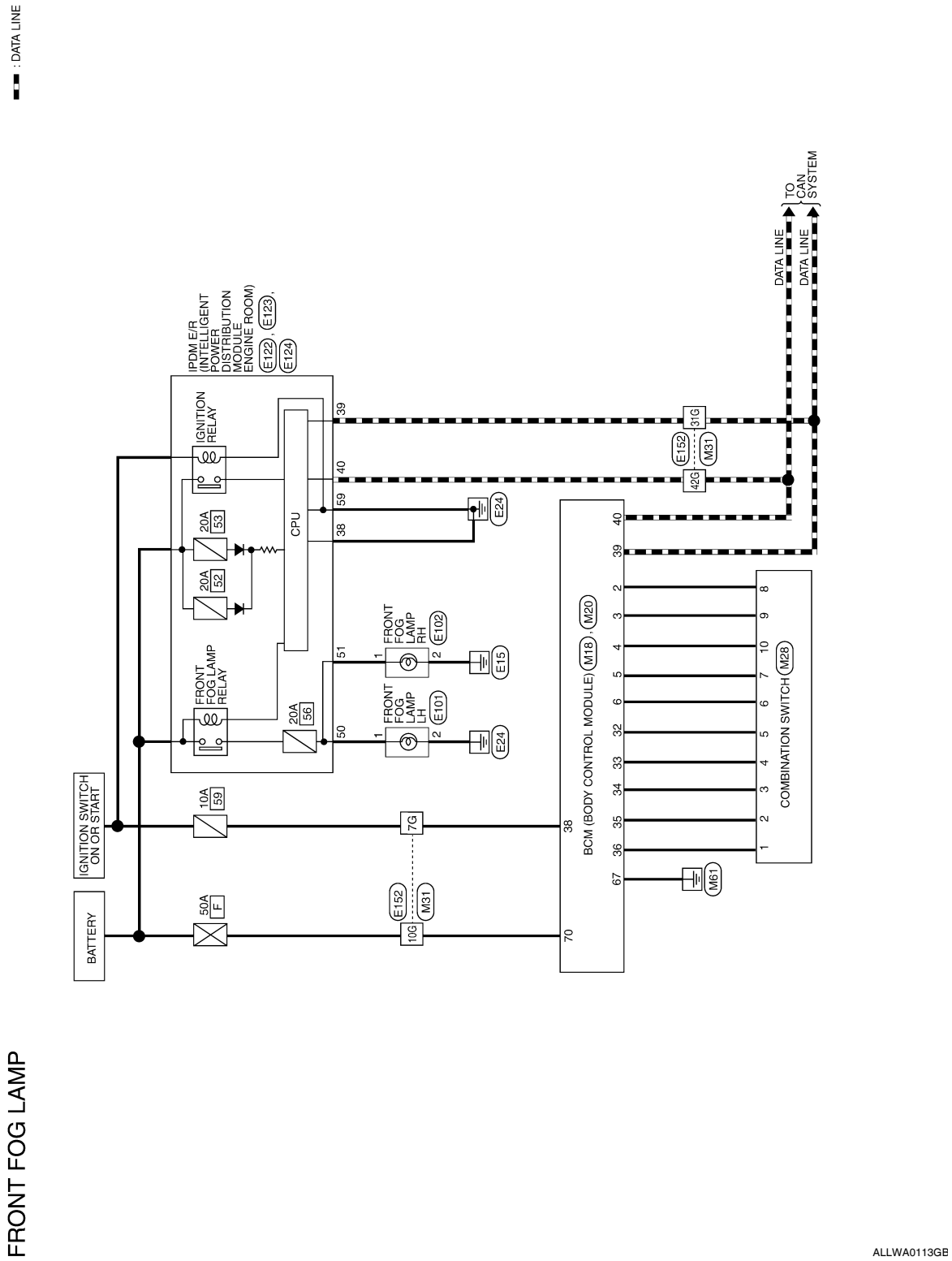
ABLIA0121GB


Connector No. F14
Connector Name WIRE TO WIRE
Connector Color WHITE
H.S.
11 10 9 8 7 6 5 4 3 2 1
24 23 22 21 20 19 18 17 16 15 14 13 12
Terminal No. Color of Wire Signal Name
3 L –
5 L –
14 P –
15 P –
Connector No. B75
Connector Name WIRE TO WIRE
Connector Color BROWN
H.S.
1 2
Terminal No. Color of Wire Signal Name
1 P –
2 L –
Connector No. E152
Connector Name WIRE TO WIRE
Connector Color WHITE
H.S.
1G 2G 3G 4G 5G
6G 7G 8G 9G 10G
11G 12G 13G 14G 15G 16G 17G 18G 19G 20G 21G
22G 23G 24G 25G 26G 27G 28G 29G 30G
31G 32G 33G 34G 35G 36G 37G 38G 39G 40G 41G
42G 43G 44G 45G 46G 47G 48G 49G 50G
51G 52G 53G 54G 55G 56G 57G 58G 59G 60G 61G
62G 63G 64G 65G 66G 67G 68G 69G 70G
71G 72G 73G 74G 75G
76G 77G 78G 79G 80G
Terminal No. Color of Wire Signal Name
7G L/W –
10G W/B –
31G L –
42G P –
Connector No. B69
Connector Name WIRE TO WIRE
Connector Color WHITE
H.S.
1J 2J 3J 4J 5J
6J 7J 8J 9J 10J
11J 12J 13J 14J 15J 16J 17J 18J 19J 20J 21J
22J 23J 24J 25J 26J 27J 28J 29J 30J
31J 32J 33J 34J 35J 36J 37J 38J 39J 40J 41J
42J 43J 44J 45J 46J 47J 48J 49J 50J
51J 52J 53J 54J 55J 56J 57J 58J 59J 60J 61J
62J 63J 64J 65J 66J 67J 68J 69J 70J
71J 72J 73J 74J 75J
76J 77J 78J 79J 80J
Terminal No. Color of Wire Signal Name
51J L –
52J P –
AALIA0062GB

FRONT FOG LAMP SYSTEM

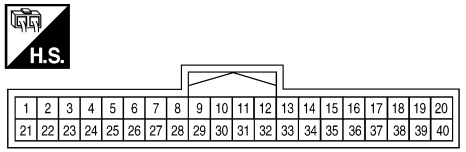
Wiring Diagram

INFOID:0000000003787499



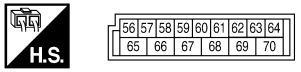
FRONT FOG LAMP CONNECTORS

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



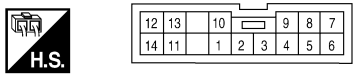
Terminal No.	Color of Wire	Signal Name
2	SB	INPUT 5
3	G/Y	INPUT 4
4	Y	INPUT 3
5	G/B	INPUT 2
6	V	INPUT 1
32	R/G	OUTPUT 5
33	R/Y	OUTPUT 4
34	L	OUTPUT 3
35	O/B	OUTPUT 2
36	R/W	OUTPUT 1
38	W/L	IGN SW
39	L	CAN-H
40	P	CAN-L

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/B	BATT (F/L)

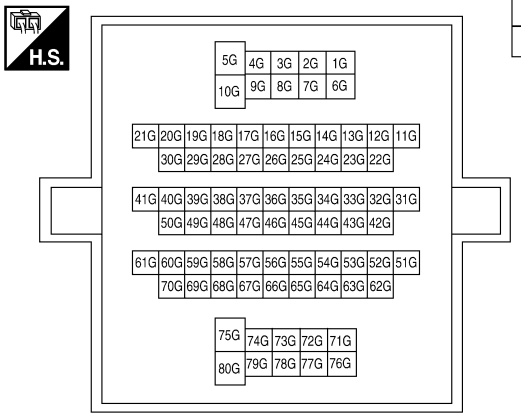
Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	R/W	INPUT 1
2	O/B	INPUT 2
3	L	INPUT 3
4	R/Y	INPUT 4
5	R/G	INPUT 5
6	V	OUTPUT 1
7	G/B	OUTPUT 2
8	SB	OUTPUT 5
9	G/Y	OUTPUT 4
10	Y	OUTPUT 3

AALIA0063GB

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



Terminal No.	Color of Wire	Signal Name
7G	W/L	–
10G	W/B	–
31G	L	–
42G	P	–

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

H.S.

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

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

H.S.

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

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

H.S.

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

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

H.S.

Terminal No.	Color of Wire	Signal Name
50	W/R	FR FOG LAMP LH
51	W/R	FR FOG LAMP RH

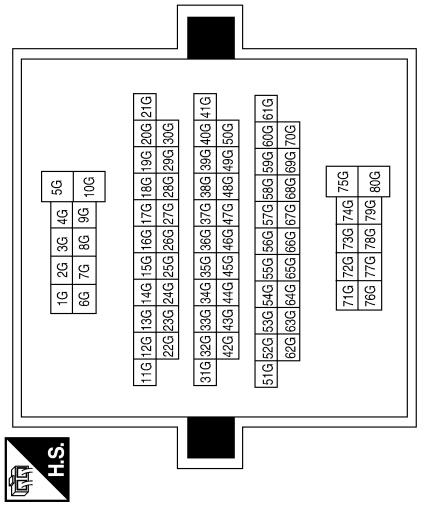
Connector No.	E124
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK

H.S.

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

AALIA0064GB

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



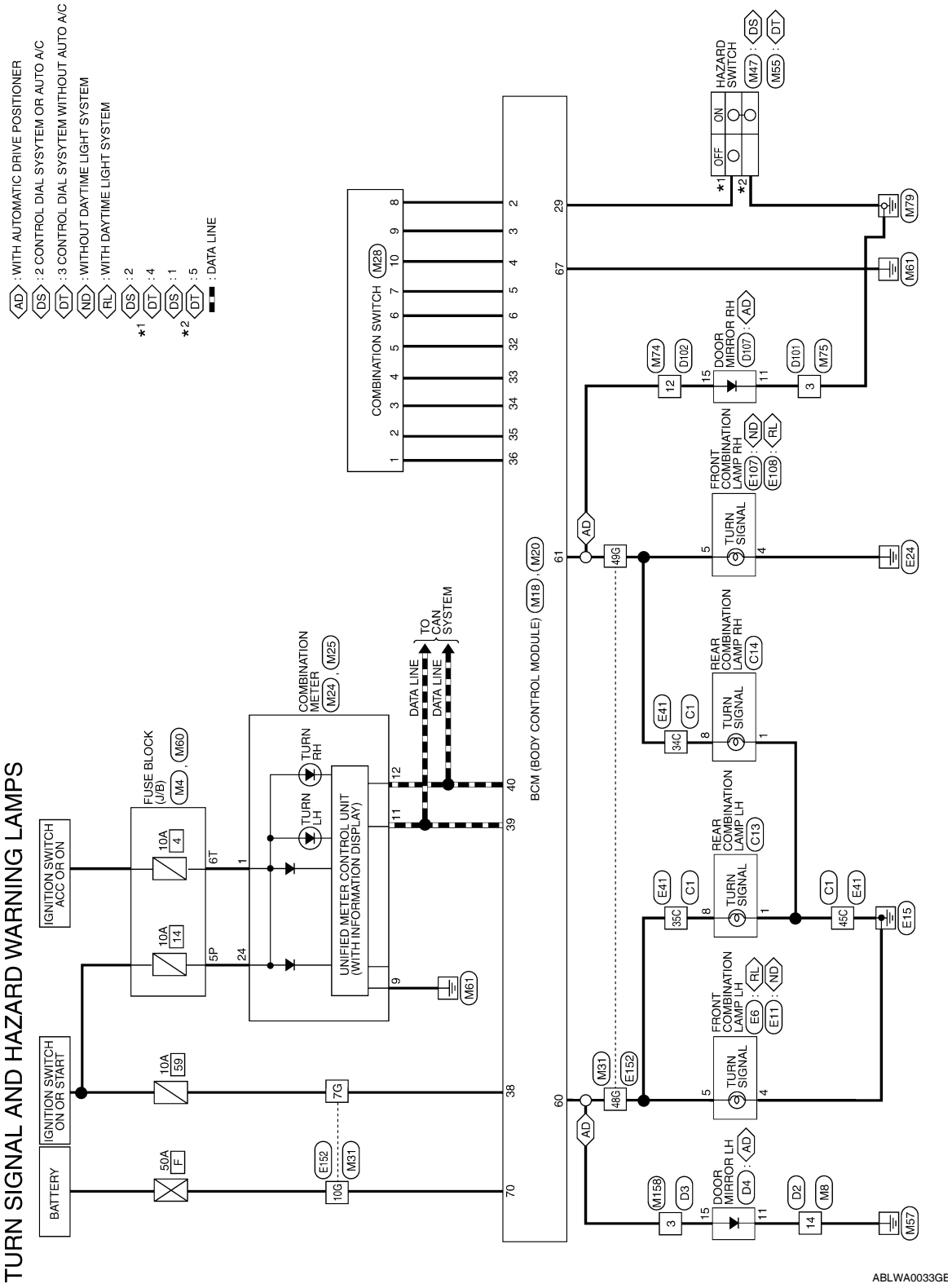
Terminal No.	Color of Wire	Signal Name
7G	L/W	–
10G	W/B	–
31G	L	–
42G	P	–

AALIA0065GB

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

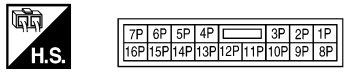
Wiring Diagram

INFOID:0000000003787500



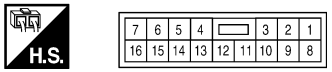
TURN SIGNAL AND HAZARD WARNING LAMPS CONNECTORS

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



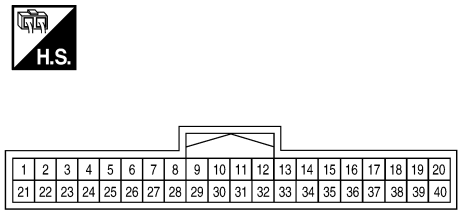
Terminal No.	Color of Wire	Signal Name
5P	O/L	–

Connector No.	M8
Connector Name	WIRE TO WIRE
Connector Color	WHITE



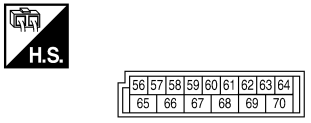
Terminal No.	Color of Wire	Signal Name
14	B	–

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



Terminal No.	Color of Wire	Signal Name
2	SB	INPUT 5
3	G/Y	INPUT 4
4	Y	INPUT 3
5	G/B	INPUT 2
6	V	INPUT 1
29	W/B	HAZARD SW
32	R/G	OUTPUT 5
33	R/Y	OUTPUT 4
34	L	OUTPUT 3
35	O/B	OUTPUT 2
36	R/W	OUTPUT 1
38	W/L	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	G/B	FLASHER OUTPUT (LEFT)
61	G/Y	FLASHER OUTPUT (RIGHT)
67	B	GND (POWER)
70	W/B	BATT (F/L)

ABLIA0122GB

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
1	O	ACCESSORY
9	B	GND (POWER)
11	L	CAN-H
12	P	CAN-L
24	O/L	RUN/START

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
1	R/W	INPUT 1
2	O/B	INPUT 2
3	L	INPUT 3
4	R/Y	INPUT 4
5	R/G	INPUT 5
6	V	OUTPUT 1
7	G/B	OUTPUT 2
8	SB	OUTPUT 5
9	G/Y	OUTPUT 4
10	Y	OUTPUT 3

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

H.S.

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

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

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

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

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

Terminal No.	Color of Wire	Signal Name
7G	W/L	–
10G	W/B	–
48G	G/B	–
49G	G/Y	–

Connector No.	M47
Connector Name	HAZARD SWITCH (WITH 2 CONTROL DIAL SYSTEM OR AUTO A/C)
Connector Color	WHITE

H.S.

3	1	2	4

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

Connector No.	M55
Connector Name	HAZARD SWITCH (WITH 3 CONTROL DIAL SYSTEM WITHOUT AUTO A/C)
Connector Color	WHITE

H.S.

5			4
		7	8

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

Connector No.	M60
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

H.S.

2T		1T
6T	5T	4T	3T

Terminal No.	Color of Wire	Signal Name
6T	O	–

ABLIA0123GB

Connector No.	M74
Connector Name	WIRE TO WIRE
Connector Color	BROWN

H.S.

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

Terminal No.	Color of Wire	Signal Name
12	G/Y	–

Connector No.	M75
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

4	3		2	1
10	9	8	7	6	5

Terminal No.	Color of Wire	Signal Name
3	B	–

Connector No.	M158
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

4	3		2	1
10	9	8	7	6	5

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

Connector No.	E6
Connector Name	FRONT COMBINATION LAMP LH (WITH DAYTIME LIGHT SYSTEM)
Connector Color	BLACK

H.S.

1	2	3
4	5	6

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

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

H.S.

1	2	3
4	5	6

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

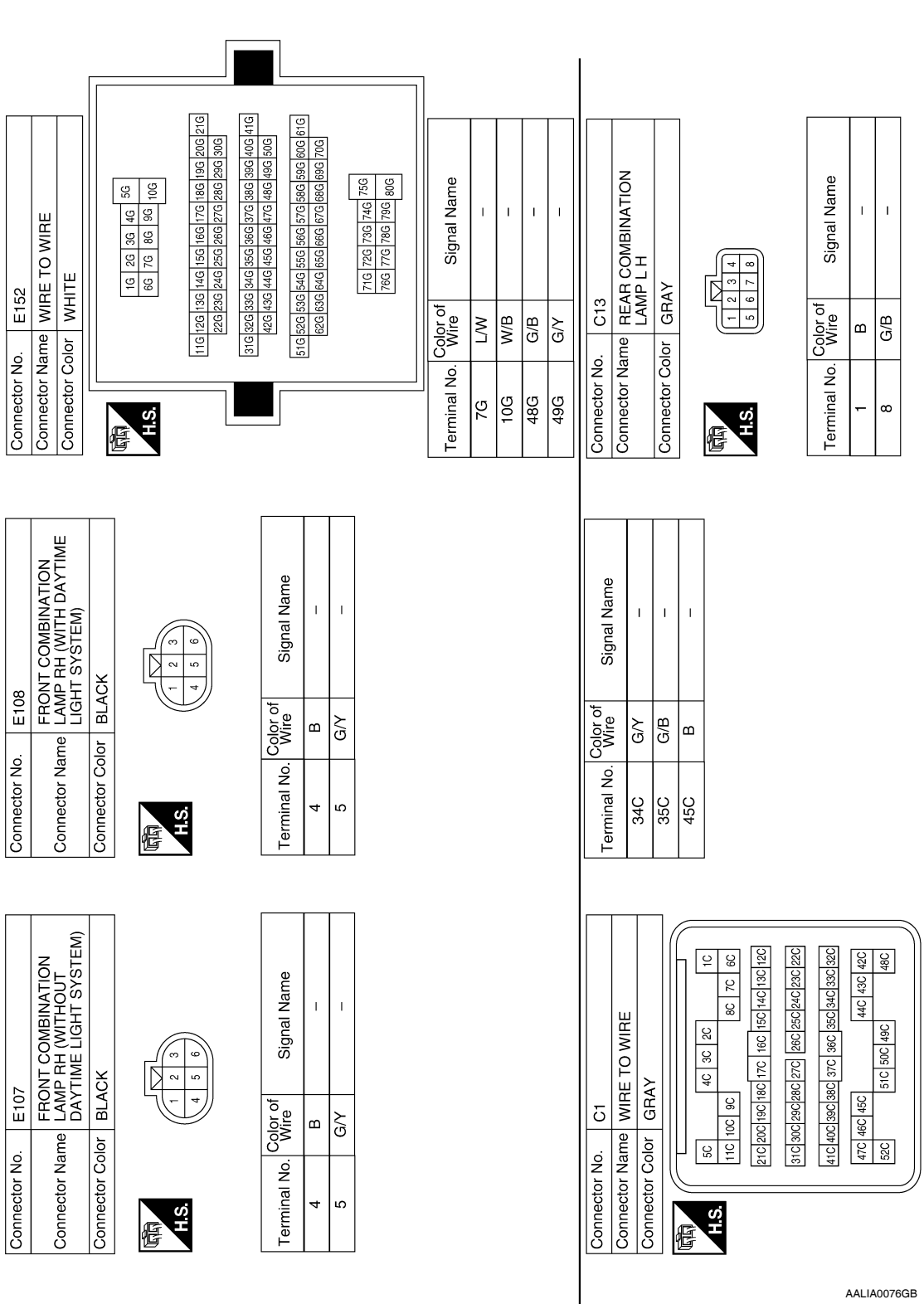
Connector No.	E41
Connector Name	WIRE TO WIRE
Connector Color	GRAY

H.S.

		1C		2C	3C	4C					5C
	6C	7C	8C					9C	10C	11C	
12C	13C	14C	15C	16C	17C	18C	19C	20C	21C		
22C	23C	24C	25C	26C			27C	28C	29C	30C	31C
32C	33C	34C	35C	36C	37C	38C	39C	40C	41C		
		42C	43C	44C				45C	46C	47C	
		48C			49C	50C	51C				52C

Terminal No.	Color of Wire	Signal Name
34C	G/Y	–
35C	G/B	–
45C	B	–

ABLIA0124GB



AALIA0076GB

Connector No.	C14
Connector Name	REAR COMBINATION LAMP RH
Connector Color	GRAY

H.S.

1	2	3	4
5	6	7	8

Terminal No.	Color of Wire	Signal Name
1	B	–
8	G/Y	–

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
14	B	–

Connector No.	D3
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1	2	3	4
5	6	7	8	9	10

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

Connector No.	D4
Connector Name	DOOR MIRROR LH (WITH AUTOMATIC DRIVE POSITIONER)
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
11	B	–
15	G/B	–

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1	2	3	4
5	6	7	8	9	10

Terminal No.	Color of Wire	Signal Name
3	B	–

Connector No.	D102
Connector Name	WIRE TO WIRE
Connector Color	BROWN

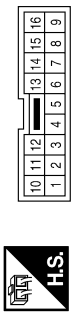
H.S.

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

Terminal No.	Color of Wire	Signal Name
12	G/Y	–

AALIA0077GB

Connector No.	D107
Connector Name	DOOR MIRROR RH (WITH AUTOMATIC DRIVE POSITIONER
Connector Color	WHITE



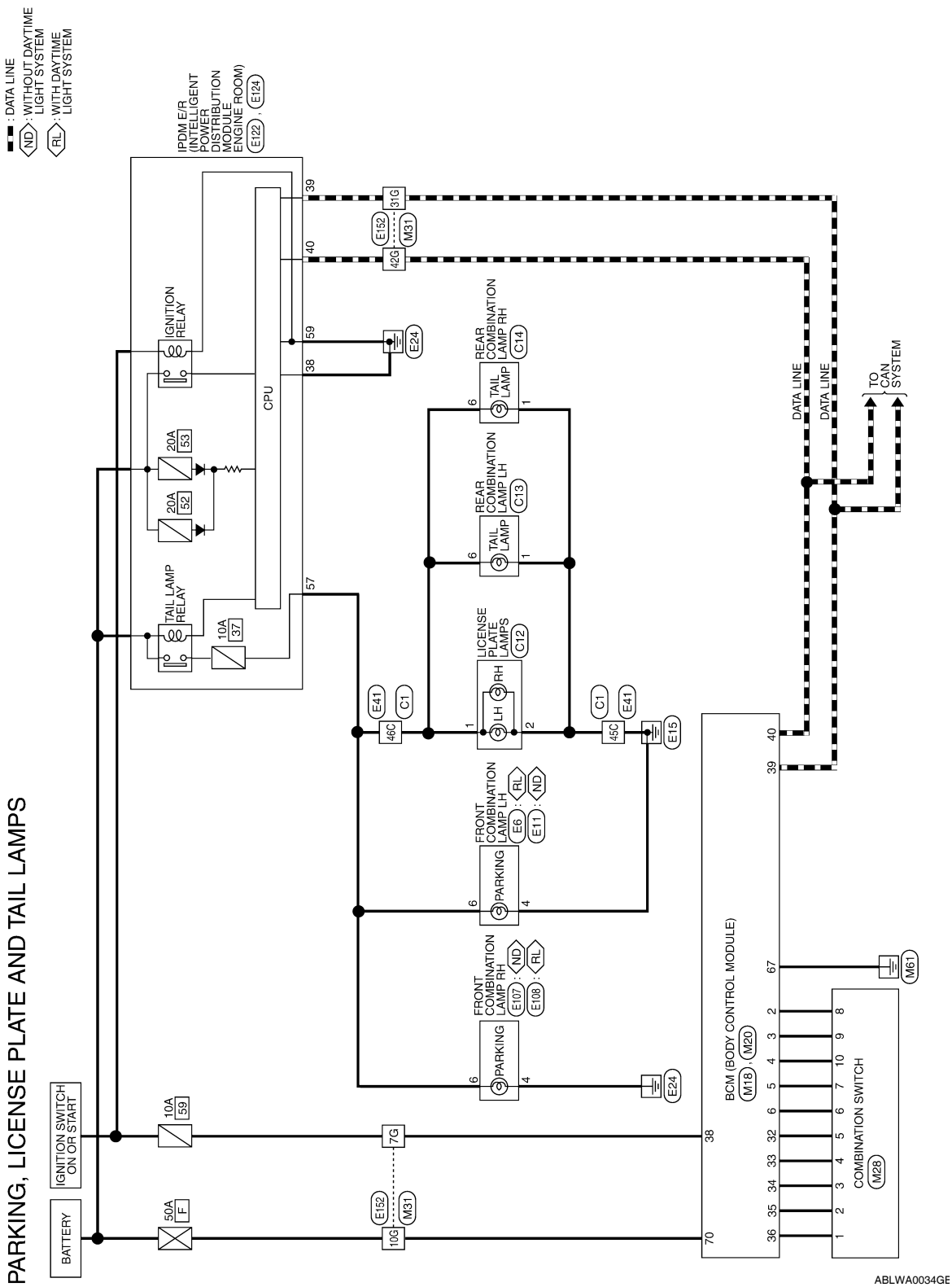
Terminal No.	Color of Wire	Signal Name
11	B	–
15	G/Y	–

AALIA0078GB

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

Wiring Diagram

INFOID:0000000003787501



PARKING, LICENSE PLATE AND TAIL LAMPS CONNECTORS

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

H.S.

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

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

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

H.S.

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

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

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

H.S.

								5G	4G	3G	2G	1G							
									9G	8G	7G	6G							
									10G										
21G	20G	19G	18G	17G	16G	15G	14G	13G	12G	11G									
	30G	29G	28G	27G	26G	25G	24G	23G	22G										
41G	40G	39G	38G	37G	36G	35G	34G	33G	32G	31G									
	50G	49G	48G	47G	46G	45G	44G	43G	42G										
61G	60G	59G	58G	57G	56G	55G	54G	53G	52G	51G									
	70G	69G	68G	67G	66G	65G	64G	63G	62G										
								75G	74G	73G	72G	71G							
									80G	79G	78G	77G	76G						

Terminal No.	Color of Wire	Signal Name
7G	W/L	–
10G	W/B	–
31G	L	–
42G	P	–

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE

H.S.

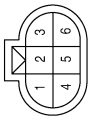
12	13	10	9	8	7
14	11	1	2	3	4	5	6

Terminal No.	Color of Wire	Signal Name
1	R/W	INPUT 1
2	O/B	INPUT 2
3	L	INPUT 3
4	R/Y	INPUT 4
5	R/G	INPUT 5
6	V	OUTPUT 1
7	G/B	OUTPUT 2
8	SB	OUTPUT 5
9	G/Y	OUTPUT 4
10	Y	OUTPUT 3

AALIA0066GB

Connector No.	E6
Connector Name	FRONT COMBINATION LAMP LH (WITH DAYTIME LIGHT SYSTEM)
Connector Color	BLACK

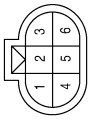
H.S.



Terminal No.	Color of Wire	Signal Name
4	B	–
6	R/L	–

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

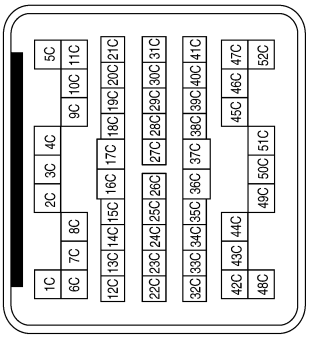
H.S.



Terminal No.	Color of Wire	Signal Name
4	B	–
6	R/L	–

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

H.S.



Terminal No.	Color of Wire	Signal Name
45C	B	–
46C	R/L	–

Connector No.	E107
Connector Name	FRONT COMBINATION LAMP RH (WITHOUT DAYTIME LIGHT SYSTEM)
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
4	B	–
6	R/L	–

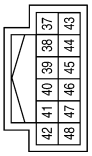
Connector No.	E108
Connector Name	FRONT COMBINATION LAMP RH (WITH DAYTIME LIGHT SYSTEM)
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
4	B	–
6	R/L	–

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

H.S.

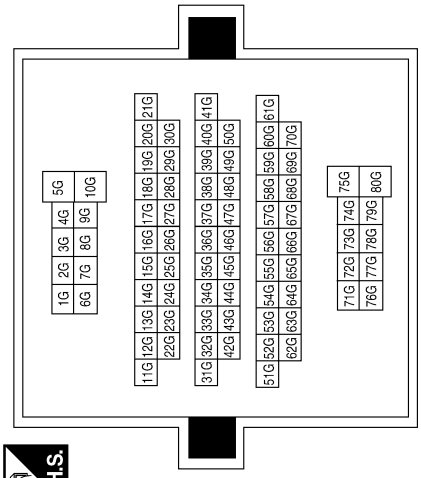


Terminal No.	Color of Wire	Signal Name
38	B	GND (SIGNAL)
39	L	CAN-H
40	P	CAN-L

AALIA0067GB

Terminal No.	Color of Wire	Signal Name
7G	L/W	–
10G	W/B	–
31G	L	–
42G	P	–

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



Connector No.	C13
Connector Name	REAR COMBINATION LAMP LH
Connector Color	GRAY

Terminal No.	Color of Wire	Signal Name
1	B	–
6	R/L	–

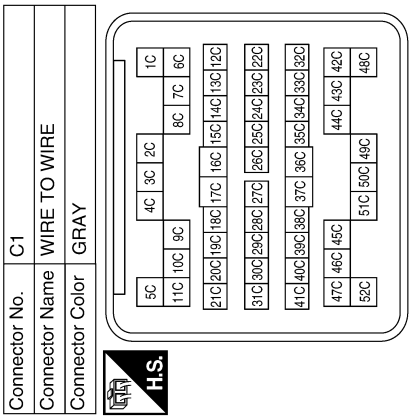
Connector No.	C12
Connector Name	LICENSE PLATE LAMPS
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
1	R/L	–
2	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
57	R/L	TAIL LAMP
59	B	GND (POWER)

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



Terminal No.	Color of Wire	Signal Name
45C	B	–
46C	R/L	–

AALIA0068GB

Connector No.	C14
Connector Name	REAR COMBINATION LAMP RH
Connector Color	GRAY

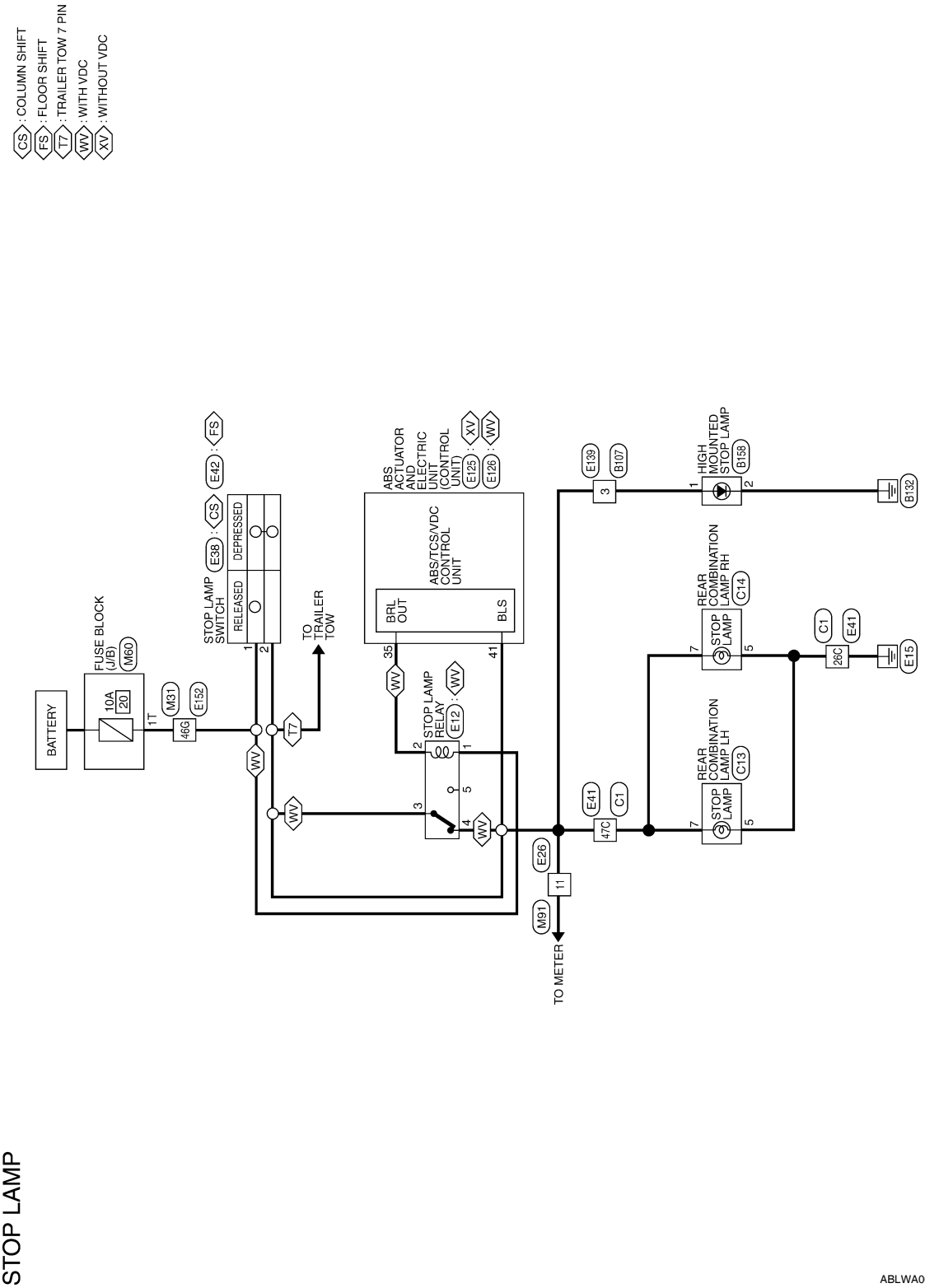
Terminal No.	Color of Wire	Signal Name
1	B	–
6	R/L	–

ABLIA0395GB

STOP LAMP

Wiring Diagram

INFOID:0000000003787502



STOP LAMP

ABLWA0035GE

STOP LAMP CONNECTORS

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

H.S.

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

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

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

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

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

Terminal No.	Color of Wire	Signal Name
46G	R/Y	–

Connector No.	M60
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

H.S.

2T		1T
6T	5T	4T	3T

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

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
11	R/G	–

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

H.S.

	3	
	5	
2	4	1

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

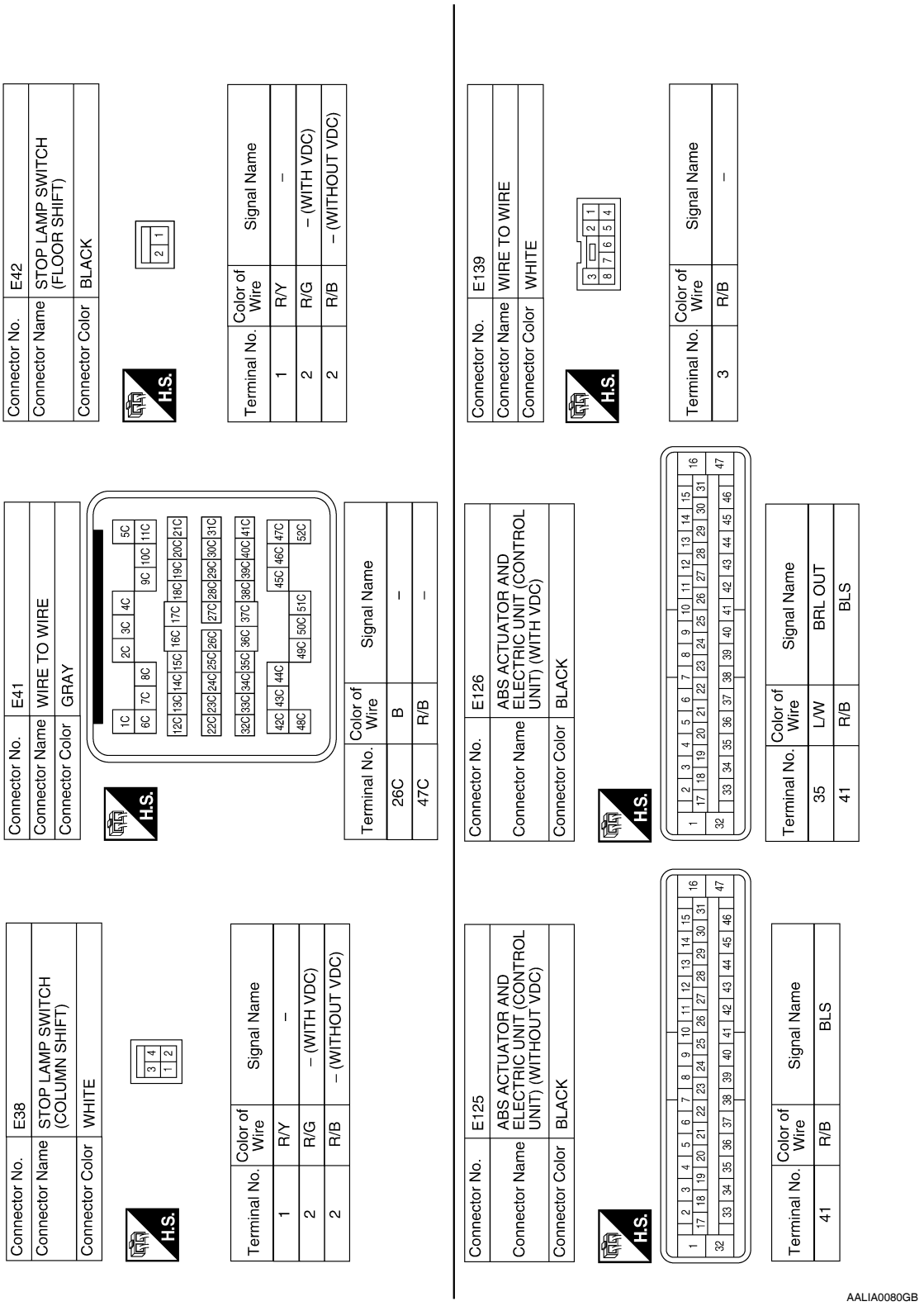
Connector No.	E26
Connector Name	WIRE TO WIRE
Connector Color	WHITE

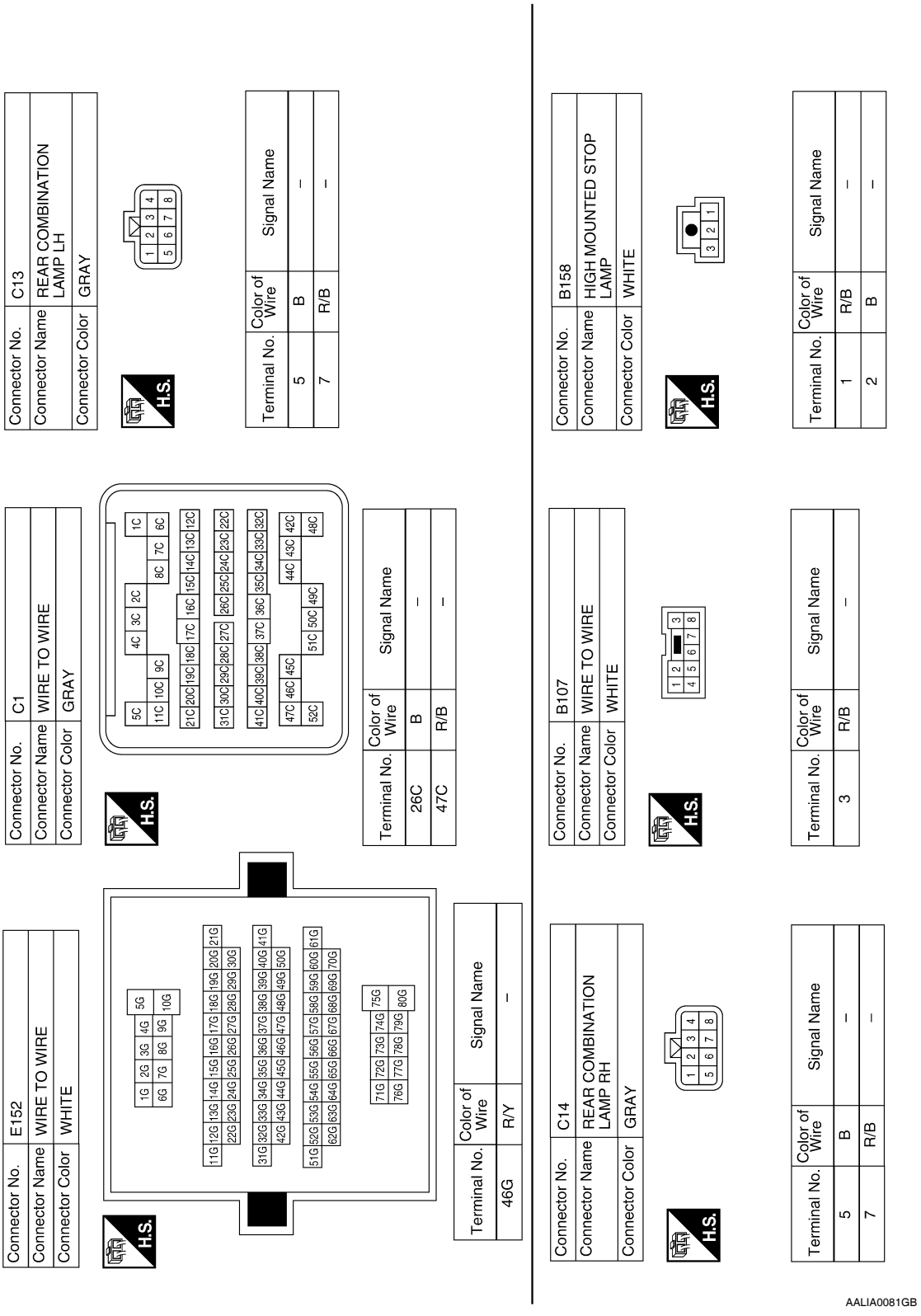
H.S.

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

Terminal No.	Color of Wire	Signal Name
11	R/G	–

AALIA0079GB

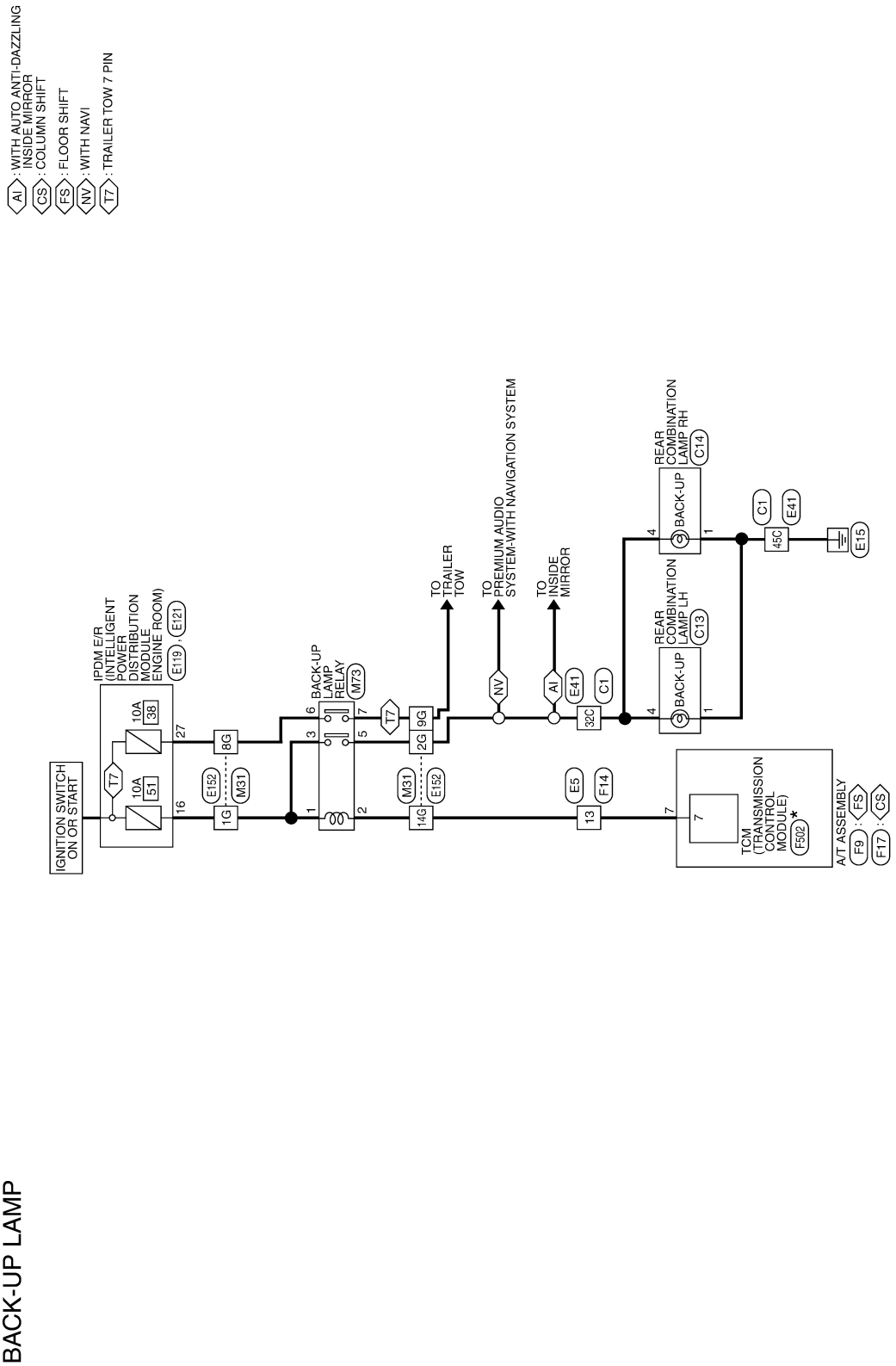

Connector No. E38
Connector Name STOP LAMP SWITCH (COLUMN SHIFT)
Connector Color WHITE
H.S.
3 4
1 2
Terminal No. Color of Wire Signal Name
1 R/Y –
2 R/G – (WITH VDC)
2 R/B – (WITHOUT VDC)
Connector No. E41
Connector Name WIRE TO WIRE
Connector Color GRAY
H.S.
1C 2C 3C 4C 5C
6C 7C 8C 9C 10C 11C
12C 13C 14C 15C 16C 17C 18C 19C 20C 21C
22C 23C 24C 25C 26C 27C 28C 29C 30C 31C
32C 33C 34C 35C 36C 37C 38C 39C 40C 41C
42C 43C 44C 45C 46C 47C
48C 49C 50C 51C 52C
Terminal No. Color of Wire Signal Name
26C B –
47C R/B –
Connector No. E42
Connector Name STOP LAMP SWITCH (FLOOR SHIFT)
Connector Color BLACK
H.S.
2 1
Terminal No. Color of Wire Signal Name
1 R/Y –
2 R/G – (WITH VDC)
2 R/B – (WITHOUT VDC)
Connector No. E125
Connector Name ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) (WITHOUT VDC)
Connector Color BLACK
H.S.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
Terminal No. Color of Wire Signal Name
41 R/B BLS
Connector No. E126
Connector Name ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) (WITH VDC)
Connector Color BLACK
H.S.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
Terminal No. Color of Wire Signal Name
35 L/W BRL OUT
41 R/B BLS
Connector No. E139
Connector Name WIRE TO WIRE
Connector Color WHITE
H.S.
3 2 1
8 7 6 5 4
Terminal No. Color of Wire Signal Name
3 R/B –
AALIA0080GB


Connector No. C13
Connector Name REAR COMBINATION LAMP LH
Connector Color GRAY
H.S.
1 2 3 4
5 6 7 8
Terminal No. Color of Wire Signal Name
5 B –
7 R/B –
Connector No. C1
Connector Name WIRE TO WIRE
Connector Color GRAY
H.S.
5C 4C 3C 2C 1C
11C 10C 9C 8C 7C 6C
21C 20C 19C 18C 17C 16C 15C 14C 13C 12C
31C 30C 29C 28C 27C 26C 25C 24C 23C 22C
41C 40C 39C 38C 37C 36C 35C 34C 33C 32C
47C 46C 45C 44C 43C 42C
52C 51C 50C 49C 48C
Terminal No. Color of Wire Signal Name
26C B –
47C R/B –
Connector No. E152
Connector Name WIRE TO WIRE
Connector Color WHITE
H.S.
1G 2G 3G 4G 5G
6G 7G 8G 9G 10G
11G 12G 13G 14G 15G 16G 17G 18G 19G 20G 21G
22G 23G 24G 25G 26G 27G 28G 29G 30G
31G 32G 33G 34G 35G 36G 37G 38G 39G 40G 41G
42G 43G 44G 45G 46G 47G 48G 49G 50G
51G 52G 53G 54G 55G 56G 57G 58G 59G 60G 61G
62G 63G 64G 65G 66G 67G 68G 69G 70G
71G 72G 73G 74G 75G
76G 77G 78G 79G 80G
Terminal No. Color of Wire Signal Name
46G R/Y –
Connector No. B158
Connector Name HIGH MOUNTED STOP LAMP
Connector Color WHITE
H.S.
3 2 1
Terminal No. Color of Wire Signal Name
1 R/B –
2 B –
Connector No. B107
Connector Name WIRE TO WIRE
Connector Color WHITE
H.S.
1 2 3
4 5 6 7 8
Terminal No. Color of Wire Signal Name
3 R/B –
Connector No. C14
Connector Name REAR COMBINATION LAMP RH
Connector Color GRAY
H.S.
1 2 3 4
5 6 7 8
Terminal No. Color of Wire Signal Name
5 B –
7 R/B –
AALIA0081GB

BACK-UP LAMP

Wiring Diagram

INFOID:0000000003787503

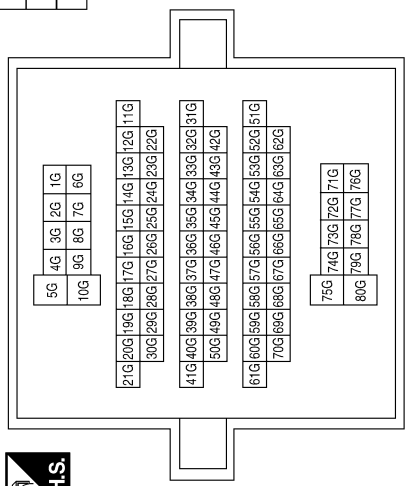


BACK-UP LAMP

BACK-UP LAMP CONNECTORS

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

H.S.



Terminal No.	Color of Wire	Signal Name
1G	G	–
2G	G/W	–
8G	W/B	–
9G	Y/R	–
14G	R	–

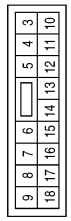
Connector No.	M73
Connector Name	BACK-UP LAMP RELAY
Connector Color	BROWN

H.S.

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

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

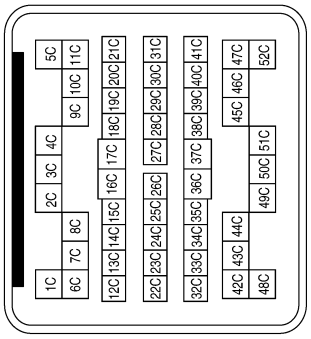
H.S.



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

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

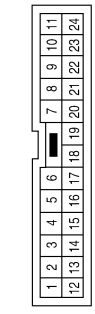
H.S.



Terminal No.	Color of Wire	Signal Name
32C	G/W	–
45C	B	–

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

H.S.



Terminal No.	Color of Wire	Signal Name
13	R	–

AALIA0073GB

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
27	W/B	T TOW REV LAMP

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

H.S.

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

11G	12G	13G	14G	15G	16G	17G	18G	19G	20G	21G									
		22G	23G	24G	25G	26G	27G	28G	29G	30G									
31G	32G	33G	34G	35G	36G	37G	38G	39G	40G	41G									
		42G	43G	44G	45G	46G	47G	48G	49G	50G									
51G	52G	53G	54G	55G	56G	57G	58G	59G	60G	61G									
		62G	63G	64G	65G	66G	67G	68G	69G	70G									
											71G	72G	73G	74G	75G				
											76G	77G	78G	79G	80G				

Terminal No.	Color of Wire	Signal Name
1G	G	–
2G	G/W	–
8G	W/B	–
9G	Y/R	–
14G	R	–

Connector No.	F9
Connector Name	A/T ASSEMBLY (FLOOR SHIFT)
Connector Color	GREEN

H.S.

5	4	3	2	1
10	9	8	7	6

Terminal No.	Color of Wire	Signal Name
7	R	–

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
13	R	–

Connector No.	F17
Connector Name	A/T ASSEMBLY (COLUMN SHIFT)
Connector Color	GREEN

H.S.

5	4	3	2	1
10	9	8	7	6

Terminal No.	Color of Wire	Signal Name
7	R	–

AALIA0074GB

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

H.S.

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

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

H.S.

Terminal No.	Color of Wire	Signal Name
32C	G/W	–
45C	B	–

Connector No.	C13
Connector Name	REAR COMBINATION LAMP LH
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
1	B	–
4	G/W	–

Connector No.	C14
Connector Name	REAR COMBINATION LAMP RH
Connector Color	GRAY

H.S.

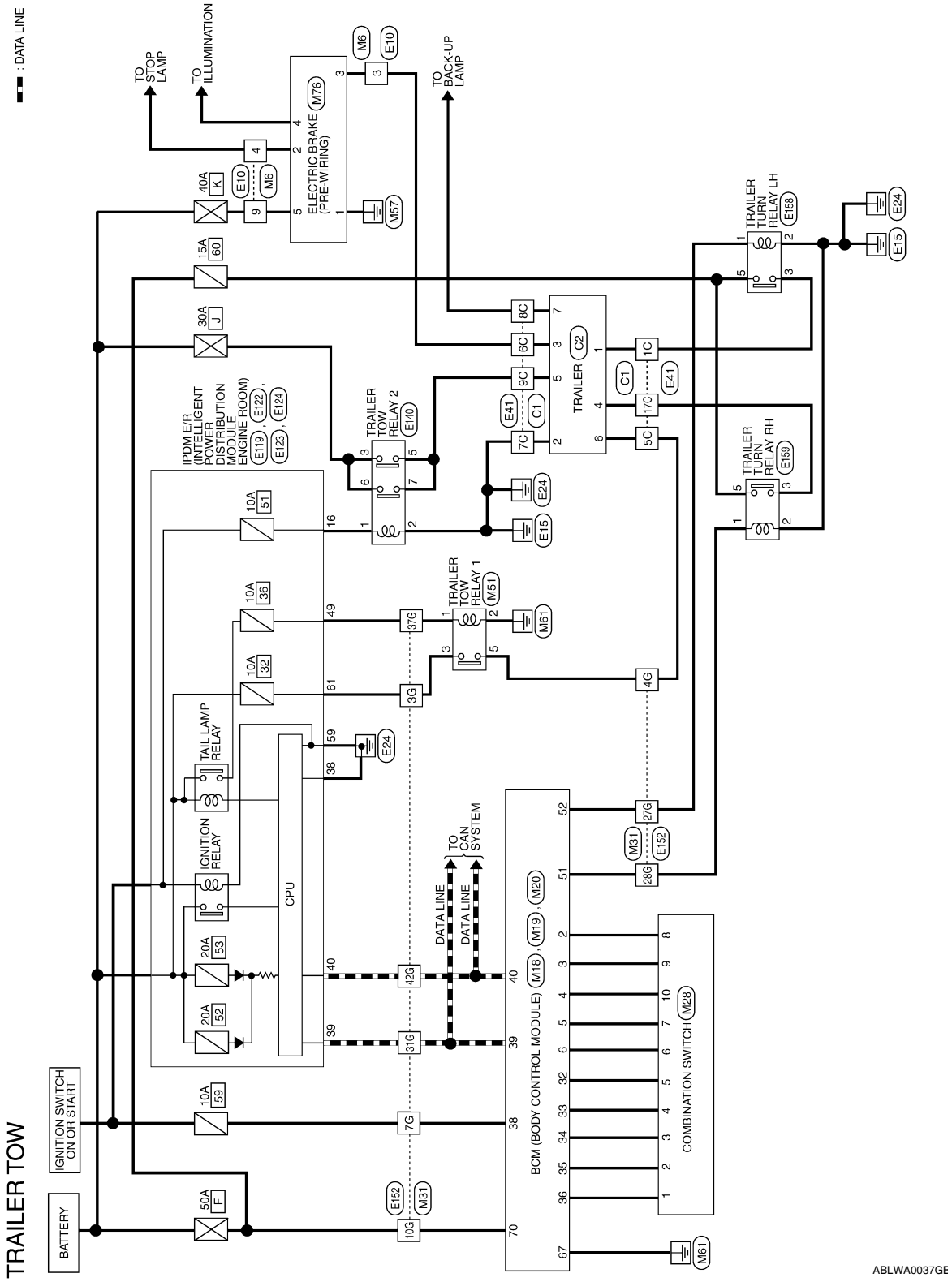
Terminal No.	Color of Wire	Signal Name
1	B	–
4	G/W	–

AALIA0075GB

TRAILER TOW

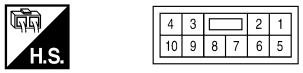
Wiring Diagram

INFOID:0000000003787504



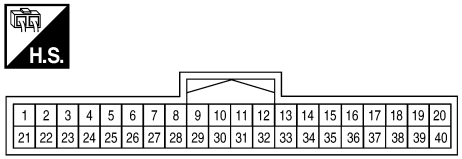
TRAILER TOW CONNECTORS

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



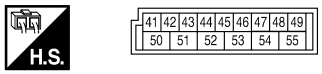
Terminal No.	Color of Wire	Signal Name
3	BR/W	–
4	R/G	–
9	R	–

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



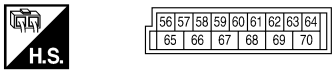
Terminal No.	Color of Wire	Signal Name
2	SB	INPUT 5
3	G/Y	INPUT 4
4	Y	INPUT 3
5	G/B	INPUT 2
6	V	INPUT 1
32	R/G	OUTPUT 5
33	R/Y	OUTPUT 4
34	L	OUTPUT 3
35	O/B	OUTPUT 2
36	R/W	OUTPUT 1
38	W/L	IGN SW
39	L	CAN-H
40	P	CAN-L

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



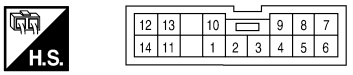
Terminal No.	Color of Wire	Signal Name
51	G/Y	TRAILER FLASHER OUTPUT (RIGHT)
52	G/B	TRAILER FLASHER OUTPUT (LEFT)

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/B	BATT (F/L)

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	R/W	INPUT 1
2	O/B	INPUT 2
3	L	INPUT 3
4	R/Y	INPUT 4
5	R/G	INPUT 5
6	V	OUTPUT 1
7	G/B	OUTPUT 2
8	SB	OUTPUT 5
9	G/Y	OUTPUT 4
10	Y	OUTPUT 3

AALIA0069GB

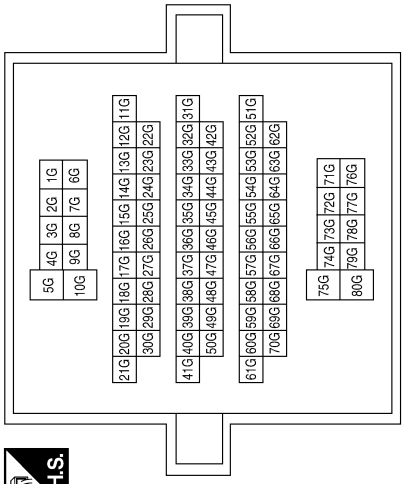
Connector No.	M51
Connector Name	TRAILER TOW RELAY 1
Connector Color	BLUE

H.S.

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

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

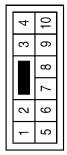
H.S.



Terminal No.	Color of Wire	Signal Name
3G	BR	–
4G	R	–
7G	W/L	–
10G	W/B	–
27G	G/B	–
28G	Y/B	–
31G	L	–
37G	R/L	–
42G	P	–

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

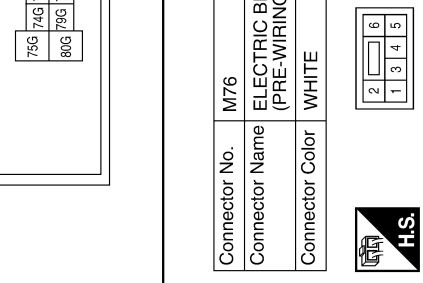
H.S.



Terminal No.	Color of Wire	Signal Name
3	BR/W	–
4	R/G	–
9	R	–

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

H.S.



Terminal No.	Color of Wire	Signal Name
1	B	GND
2	R/G	STOP
3	BR/W	–
4	R/L	ILL (TAIL)
5	R	B+

AALIA0070GB

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

H.S.

1C	2C	3C	4C	5C
6C	7C	8C	9C	10C	11C
12C	13C	14C	15C	16C	17C	18C	19C	20C	21C
22C	23C	24C	25C	26C	27C	28C	29C	30C	31C
32C	33C	34C	35C	36C	37C	38C	39C	40C	41C
42C	43C	44C	45C	46C	47C
48C	49C	50C	51C	52C

Terminal No.	Color of Wire	Signal Name
1C	G/B	–
5C	R	–
6C	BR/W	–
7C	B	–
8C	Y/R	–
9C	W/L	–
17C	Y/B	–

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

H.S.

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

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

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

H.S.

59	58	57
62	61	60

Terminal No.	Color of Wire	Signal Name
59	B	GND (POWER)
61	BR	TRAIL RLY SUPPLY

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

H.S.

51	50	49
56	55	54	53	52

Terminal No.	Color of Wire	Signal Name
49	R/L	ILLUMINATION

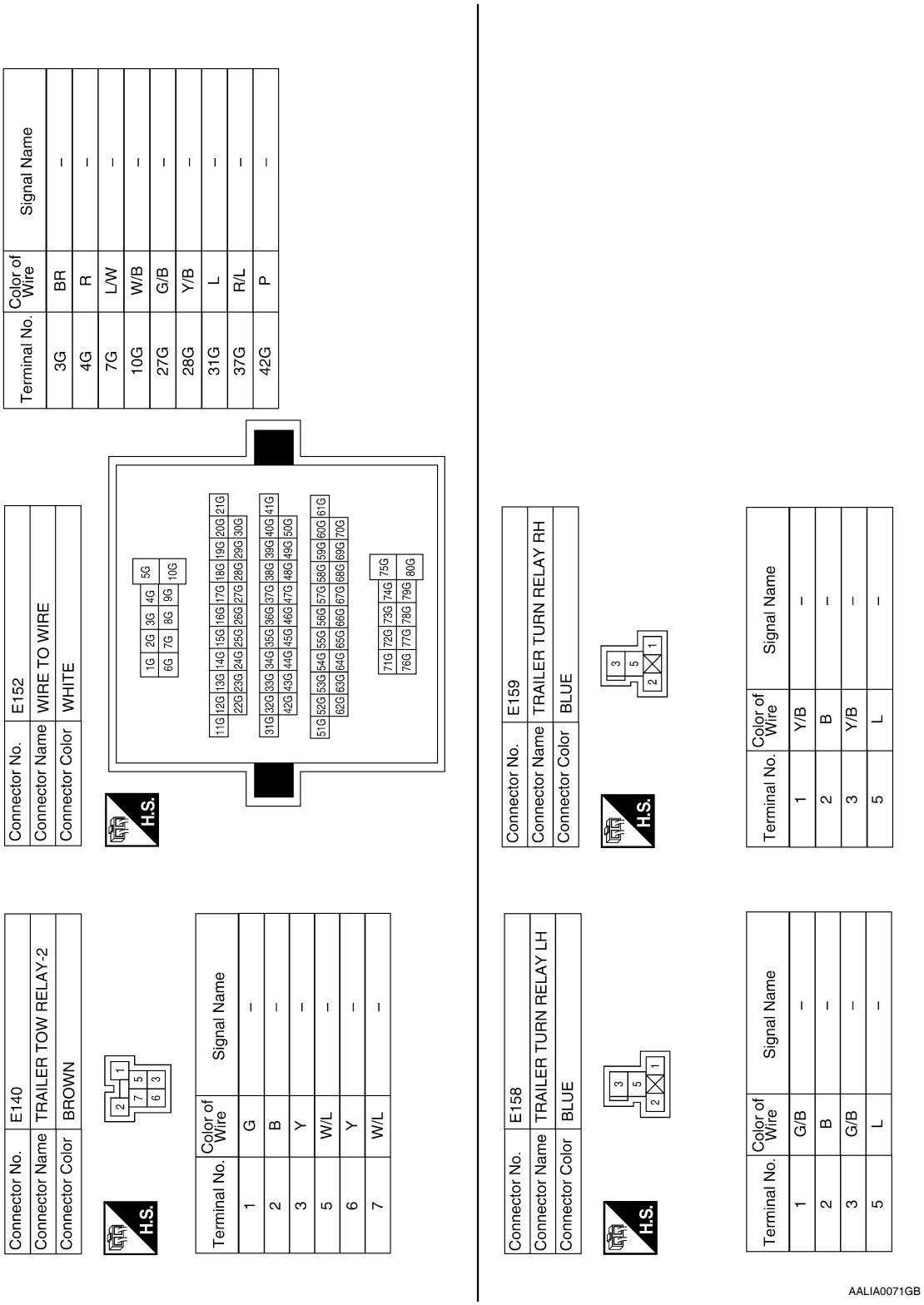
Connector No.	E122
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

H.S.

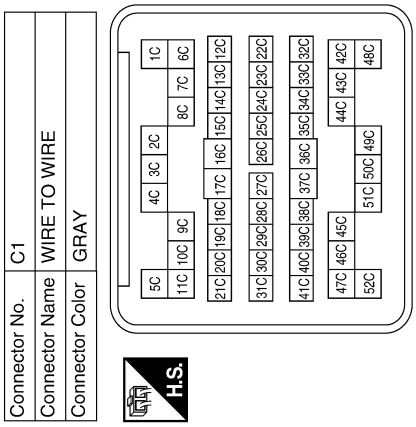
42	41	40	39	38	37
48	47	46	45	44	43

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

ABLIA0125GB


Connector No. E140
Connector Name TRAILER TOW RELAY-2
Connector Color BROWN
H.S.
Terminal No. Color of Wire Signal Name
1 G –
2 B –
3 Y –
5 W/L –
6 Y –
7 W/L –
Connector No. E152
Connector Name WIRE TO WIRE
Connector Color WHITE
H.S.
Terminal No. Color of Wire Signal Name
3G BR –
4G R –
7G L/W –
10G W/B –
27G G/B –
28G Y/B –
31G L –
37G R/L –
42G P –
Connector No. E158
Connector Name TRAILER TURN RELAY LH
Connector Color BLUE
H.S.
Terminal No. Color of Wire Signal Name
1 G/B –
2 B –
3 G/B –
5 L –
Connector No. E159
Connector Name TRAILER TURN RELAY RH
Connector Color BLUE
H.S.
Terminal No. Color of Wire Signal Name
1 Y/B –
2 B –
3 Y/B –
5 L –
AALIA0071GB

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



Terminal No.	Color of Wire	Signal Name
1C	G/B	–
5C	R	–
6C	BR/W	–
7C	B	–
8C	Y/R	–
9C	W/L	–
17C	Y/B	–

Connector No.	C2
Connector Name	TRAILER
Connector Color	BLACK

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

AALIA0072GB

ECU DIAGNOSIS

BCM (BODY CONTROL MODULE)

Reference Value

INFOID:0000000004223735

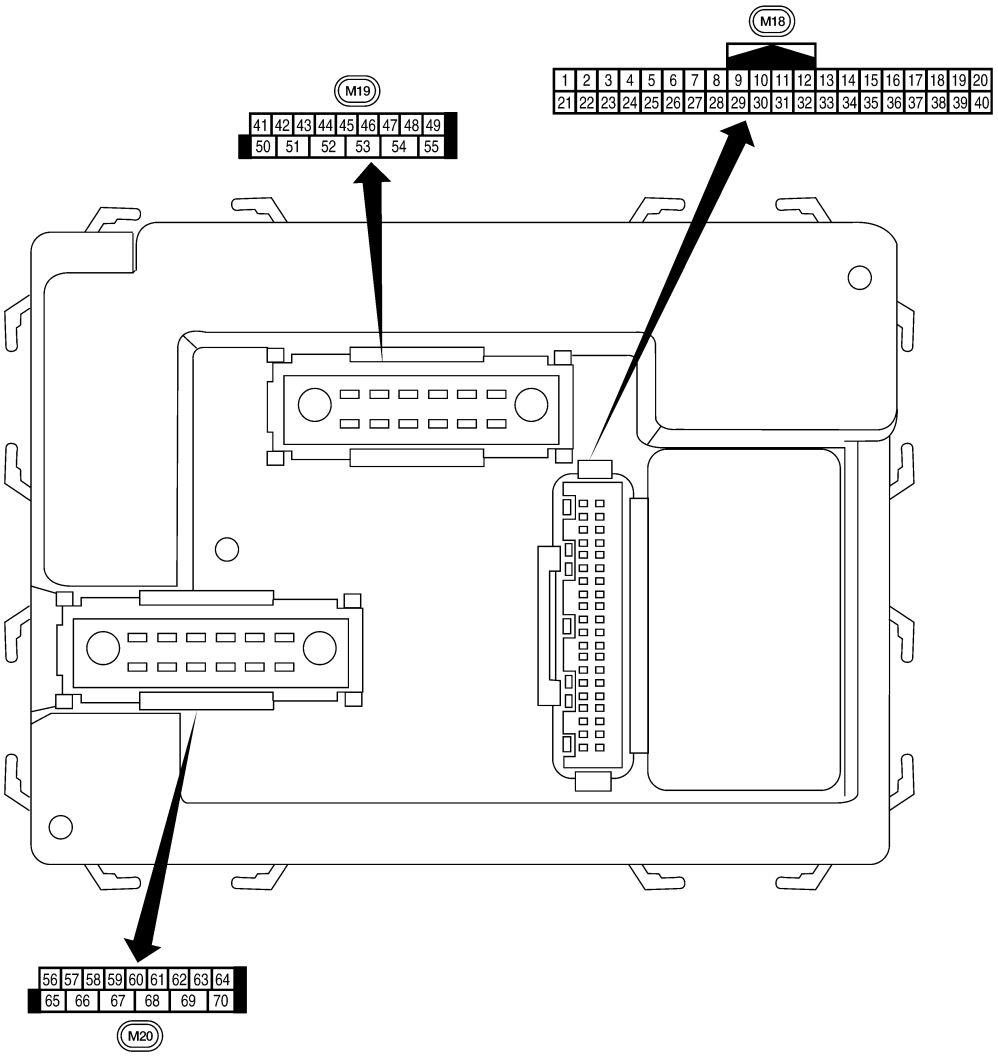
VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
AIR COND SW	A/C switch OFF	OFF
	A/C switch ON	ON
AUT LIGHT SYS	Outside of the room is dark	OFF
	Outside of the room is bright	ON
AUTO LIGHT SW	Lighting switch OFF	OFF
	Lighting switch AUTO	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-AS	Front door RH closed	OFF
	Front door RH opened	ON
DOOR SW-DR	Front door LH closed	OFF
	Front door LH opened	ON
DOOR SW-RL	Rear door LH closed	OFF
	Rear door LH opened	ON
DOOR SW-RR	Rear door RH closed	OFF
	Rear door RH opened	ON
ENGINE RUN	Engine stopped	OFF
	Engine running	ON
FR FOG SW	Front fog lamp switch OFF	OFF
	Front fog lamp switch ON	ON
FR WASHER SW	Front washer switch OFF	OFF
	Front washer switch ON	ON
FR WIPER LOW	Front wiper switch OFF	OFF
	Front wiper switch LO	ON
FR WIPER HI	Front wiper switch OFF	OFF
	Front wiper switch HI	ON
FR WIPER INT	Front wiper switch OFF	OFF
	Front wiper switch INT	ON
FR WIPER STOP	Any position other than front wiper stop position	OFF
	Front wiper stop position	ON
HAZARD SW	When hazard switch is not pressed	OFF
	When hazard switch is pressed	ON
LIGHT SW 1ST	Lighting switch OFF	OFF
	Lighting switch 1st	ON
HEADLAMP SW1	Headlamp switch OFF	OFF
	Headlamp switch 1st	ON

Monitor Item	Condition	Value/Status
HEADLAMP SW2	Headlamp switch OFF	OFF
	Headlamp switch 1st	ON
HI BEAM SW	High beam switch OFF	OFF
	High beam switch HI	ON
H/L WASH SW	**NOTE:** The item is indicated, but not monitored	OFF
IGN ON SW	Ignition switch OFF or ACC	OFF
	Ignition switch ON	ON
IGN SW CAN	Ignition switch OFF or ACC	OFF
	Ignition switch ON	ON
INT VOLUME	Wiper intermittent dial is in a dial position 1 - 7	1 - 7
KEY ON SW	Key is removed from key cylinder	OFF
	Key is inserted to key cylinder	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
OIL PRESS SW	• Ignition switch OFF or ACC • Engine running	OFF
	Ignition switch ON	ON
PASSING SW	Other than lighting switch PASS	OFF
	Lighting switch PASS	ON
REAR DEF SW	Rear window defogger switch OFF	OFF
	Rear window defogger switch ON	ON
RKE LOCK AND UN-LOCK	**NOTE:** The item is indicated, but not monitored	OFF
		ON
TAIL LAMP SW	Lighting switch OFF	OFF
	Lighting switch 1ST	ON
TURN SIGNAL L	Turn signal switch OFF	OFF
	Turn signal switch LH	ON
TURN SIGNAL R	Turn signal switch OFF	OFF
	Turn signal switch RH	ON
VEHICLE SPEED	While driving	Equivalent to speedometer reading

Terminal Layout

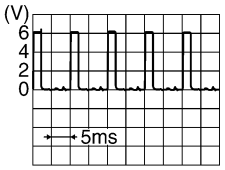
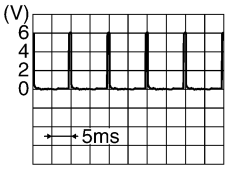
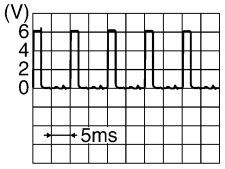
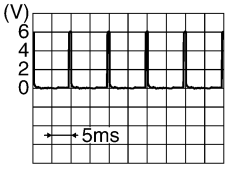
INFOID:0000000004223736

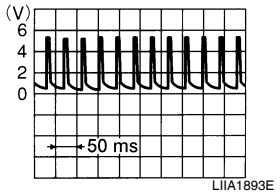
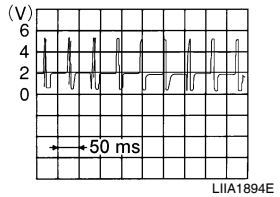
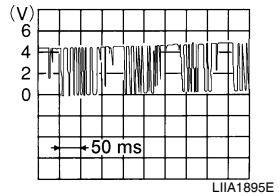
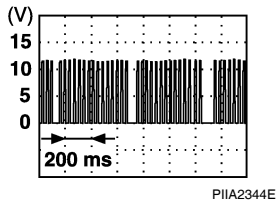


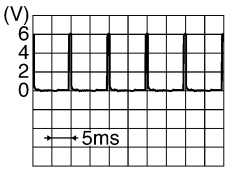
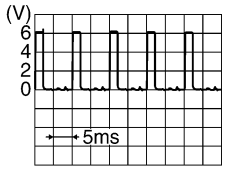
LIIA2443E

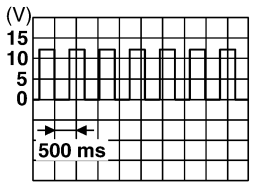
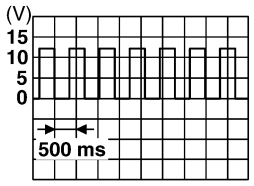
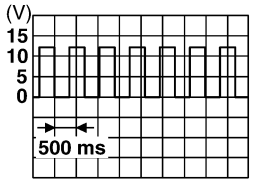
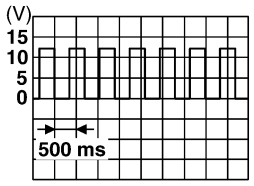
Physical Values

INFOID:0000000004223737

Terminal	Wire color	Signal name	Signal input/ output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
1	BR/W	Ignition keyhole illumination	Output	OFF	Door is locked (SW OFF)	Battery voltage
					Door is unlocked (SW OFF)	0V
2	SB	Combination switch input 5	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
3	G/Y	Combination switch input 4	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
4	Y	Combination switch input 3	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
5	G/B	Combination switch input 2	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
6	V	Combination switch input 1				
9	Y/B	Rear window defogger switch (Crew Cab)	Input	ON	Rear window defogger switch ON	0V
					Rear window defogger switch OFF	5V
11	O	Ignition switch (ACC or ON)	Input	ACC or ON	Ignition switch ACC or ON	Battery voltage
12	R/L	Front door switch RH (All)	Input	OFF	ON (open)	0V
		Rear door switch lower RH (King Cab)				
		Rear door switch upper RH (King Cab)			OFF (closed)	Battery voltage
13	GR	Rear door switch RH (Crew Cab)	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage
15	L/W	Tire pressure warning check connector	Input	OFF	—	5V

Terminal	Wire color	Signal name	Signal input/ output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
18	P	Remote keyless entry receiver and optical sensor (ground)	Output	OFF	—	0V
19	V/W	Remote keyless entry receiver (power supply)	Output	OFF	Ignition switch OFF	 LIIA1893E
20	G/W	Remote keyless entry receiver (signal)	Input	OFF	Stand-by (keyfob buttons released)	 LIIA1894E
					When remote keyless entry receiver receives signal from keyfob (keyfob buttons pressed)	 LIIA1895E
21	G	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.
22	G	BUS	—	—	Ignition switch ON or power window timer operates	 PIIA2344E
23	G/O	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/R	Compressor ON signal	Input	ON	A/C switch OFF	5V
					A/C switch ON	0V
28	L/R	Front blower monitor	Input	ON	Front blower motor OFF	Battery voltage
					Front blower motor ON	0V
29	W/B	Hazard switch	Input	OFF	ON	0V
					OFF	5V
31	P/L	Cargo lamp switch	Input	OFF	Cargo lamp switch ON	0
					Cargo lamp switch OFF	Battery voltage

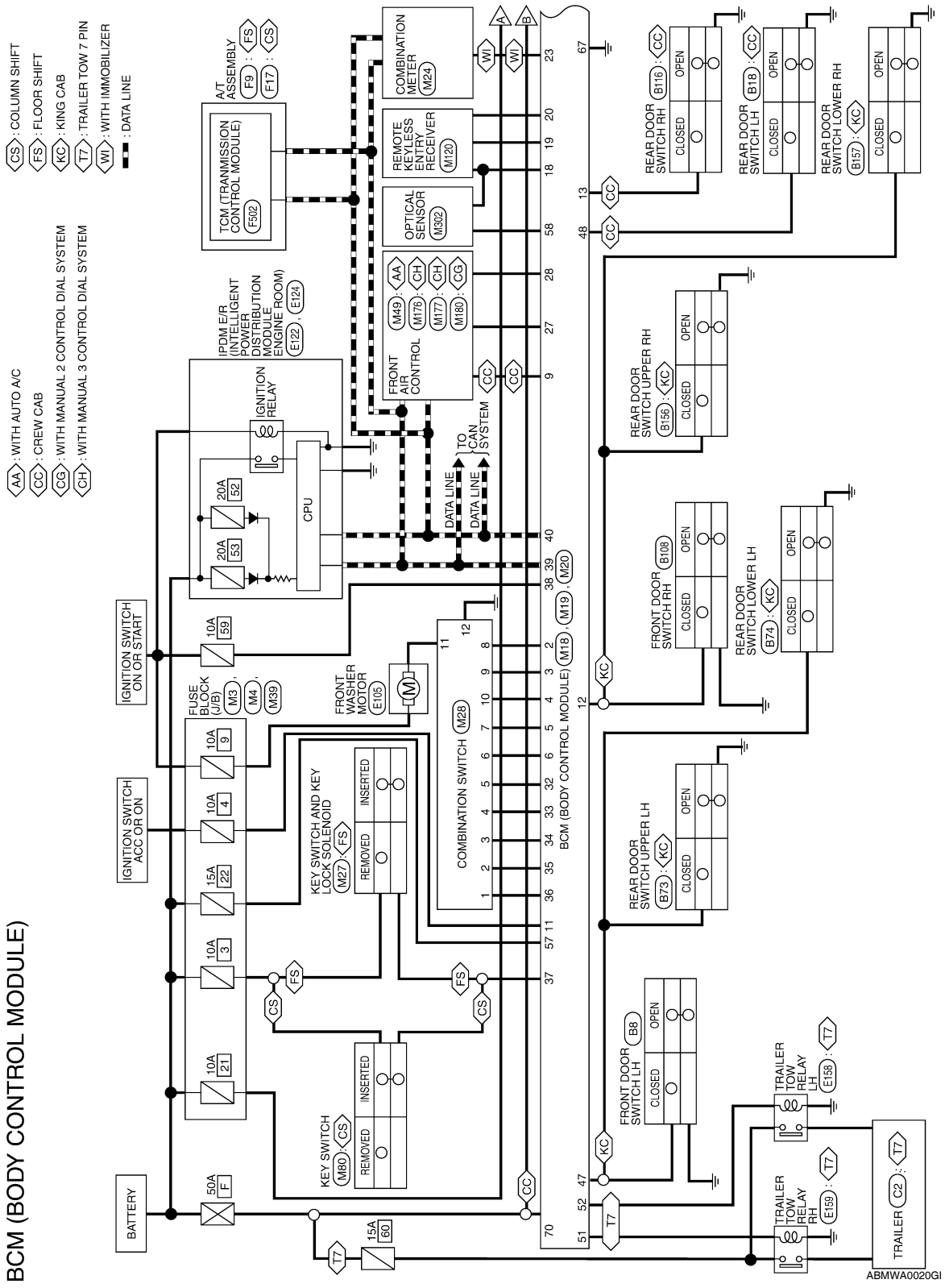
Terminal	Wire color	Signal name	Signal input/ output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
32	R/G	Combination switch output 5	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
33	R/Y	Combination switch output 4	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
34	L	Combination switch output 3	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
35	O/B	Combination switch output 2	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
36	R/W	Combination switch output 1				
37	B/R	Key switch and key lock solenoid	Input	OFF	Key inserted	Battery voltage
					Key inserted	0V
38	W/L	Ignition switch (ON)	Input	ON	—	Battery voltage
39	L	CAN-H	—	—	—	—
40	P	CAN-L	—	—	—	—
47	SB	Front door switch LH (All)	Input	OFF	ON (open)	0V
		Rear door switch lower LH (King Cab)				
		Rear door switch upper LH (King Cab)			OFF (closed)	Battery voltage
48	R/Y	Rear door switch LH (Crew Cab)	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage
50	R/Y	Cargo bed lamp control	Output	OFF	Cargo lamp switch (ON)	0V
					Cargo lamp switch (OFF)	Battery voltage

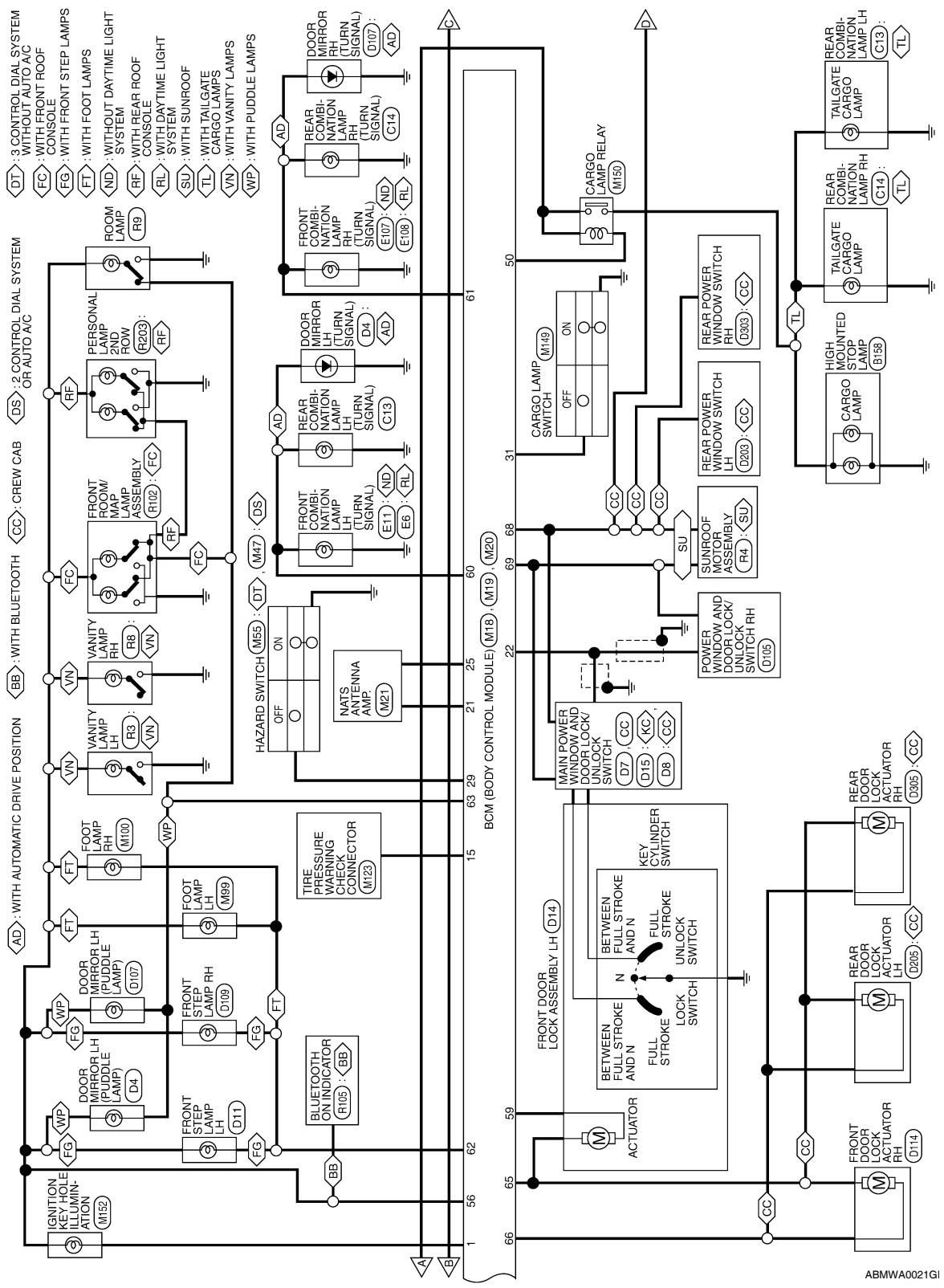
Terminal	Wire color	Signal name	Signal input/ output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
51	G/Y	Trailer turn signal (right)	Output	ON	Turn right ON	 SKIA3009J
52	G/B	Trailer turn signal (left)	Output	ON	Turn left ON	 SKIA3009J
56	R/G	Battery saver output	Output	OFF	30 minutes after ignition switch is turned OFF	0V
				ON	—	Battery voltage
57	Y/R	Battery power supply	Input	OFF	—	Battery voltage
58	W/R	Optical sensor	Input	ON	When optical sensor is illuminated	3.1V or more
					When optical sensor is not illuminated	0.6V or less
59	G	Front door lock assembly LH actuator (unlock)	Output	OFF	OFF (neutral)	0V
					ON (unlock)	Battery voltage
60	G/B	Turn signal (left)	Output	ON	Turn left ON	 SKIA3009J
61	G/Y	Turn signal (right)	Output	ON	Turn right ON	 SKIA3009J
62	R/W	Step lamp LH and RH	Output	OFF	ON (any door open)	0V
					OFF (all doors closed)	Battery voltage
63	L	Interior room/map lamp	Output	OFF	Any door switch: ON (open)	0V
					Any door switch: OFF (closed)	Battery voltage
65	V	All door lock actuators (lock)	Output	OFF	OFF (neutral)	0V
					ON (lock)	Battery voltage
66	G/Y	Front door lock actuator RH and rear door lock actuators LH/RH (unlock)	Output	OFF	OFF (neutral)	0V
					ON (unlock)	Battery voltage

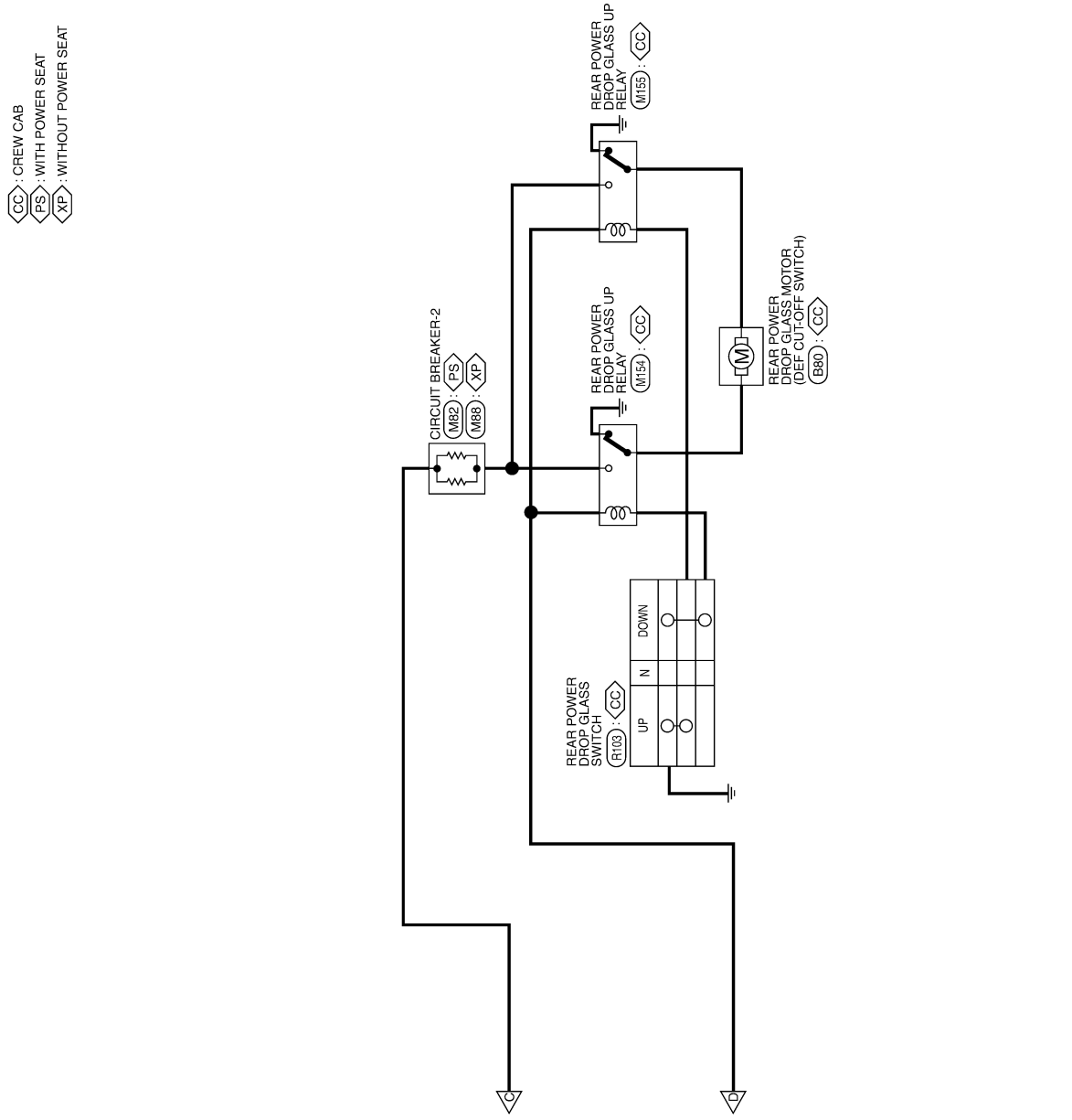
Terminal	Wire color	Signal name	Signal input/ output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
67	B	Ground	Input	ON	—	0V
68	W/L	Power window power supply (RAP)	Output	—	Ignition switch ON	Battery voltage
					Within 45 seconds after ignition 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
69	W/R	Power window power supply	Output	—	—	Battery voltage
70	W/B	Battery power supply	Input	OFF	—	Battery voltage

Wiring Diagram

INFOID:0000000004223738



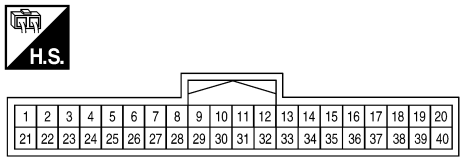

DT : 3 CONTROL DIAL SYSTEM WITHOUT AUTO A/C
FC : WITH FRONT ROOF CONSOLE
FG : WITH FRONT STEP LAMPS
FT : WITH FOOT LAMPS
ND : WITHOUT DAYTIME LIGHT SYSTEM
RF : WITH REAR ROOF CONSOLE
RL : WITH DAYTIME LIGHT SYSTEM
SU : WITH SUNROOF
TL : WITH TAILGATE CARGO LAMPS
VN : WITH VANITY LAMPS
WP : WITH PUDDLE LAMPS
DS : 2 CONTROL DIAL SYSTEM OR AUTO A/C
CC : CREW CAB
BB : WITH BLUETOOTH
AD : WITH AUTOMATIC DRIVE POSITION
BCM (BODY CONTROL MODULE) (M18), (M19), (M20)
ABMWA0021GI



ABMWA0022GI

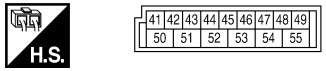
BCM (BODY CONTROL MODULE) CONNECTORS

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



Terminal No.	Color of Wire	Signal Name
1	BR/W	KEY RING OUTPUT
2	SB	INPUT 5
3	G/Y	INPUT 4
4	Y	INPUT 3
5	G/B	INPUT 2
6	V	INPUT 1
7	–	–
8	–	–
9	Y/B	REAR DEFOGGER SW
10	–	–
11	O	ACC SW
12	R/L	DOOR SW (AS)
13	GR	DOOR SW (RR)
14	–	–
15	L/W	TPMS MODE TRIGGER SW
16	–	–
17	–	–
18	P	KEYLESS AND AUTO LIGHT SENSOR GND
19	V/W	KEYLESS TUNER POWER SUPPLY OUTPUT
20	G/W	KEYLESS TUNER SIGNAL
21	G	IMMOBILIZER ANTENNA SIGNAL (CLOCK)
22	G	ANTI-PINCH SERIAL LINK (RX,TX)
23	G/O	SECURITY INDICATOR OUTPUT
24	–	–
25	BR	IMMOBILIZER ANTENNA SIGNAL (RX, TX)
26	–	–
27	W/R	AIRCON SW
28	L/R	BLOWER FAN SW
29	W/B	HAZARD SW
30	–	–
31	P/L	CARGO LAMP SW
32	R/G	OUTPUT 5
33	R/Y	OUTPUT 4
34	L	OUTPUT 3
35	O/B	OUTPUT 2
36	R/W	OUTPUT 1
37	B/R	KEY SW
38	W/L	IGN SW
39	L	CAN-H
40	P	CAN-L

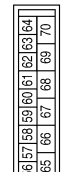
Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
41	–	–
42	–	–
43	–	–
44	–	–
45	–	–
46	–	–
47	SB	DOOR SW (DR)
48	R/Y	DOOR SW (RL)
49	–	–
50	R/Y	CARGO LAMP OUTPUT
51	G/Y	TRAILER FLASHER OUTPUT (RIGHT)
52	G/B	TRAILER FLASHER OUTPUT (LEFT)
53	–	–
54	–	–
55	–	–

ABMIA0027GB

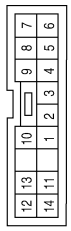
Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



H.S.

Terminal No.	Color of Wire	Signal Name
56	R/G	BATTERY SAVER OUTPUT
57	Y/R	BAT (FUSE)
58	W/R	AUTO LIGHT SENSOR INPUT 2
59	G	DOOR UNLOCK OUTPUT (DR)
60	G/B	FLASHER OUTPUT (LEFT)
61	G/Y	FLASHER OUTPUT (RIGHT)
62	R/W	STEP LAMP OUTPUT
63	L	ROOM LAMP
64	–	–
65	V	DOOR LOCK OUTPUT (ALL)
66	G/Y	DOOR UNLOCK OUTPUT (OTHER)
67	B	GND (POWER)
68	W/L	POWER WINDOW POWER SUPPLY (RAP)
69	W/R	POWER WINDOW POWER SUPPLY (BAT)
70	W/B	BAT (F/L)

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



H.S.

Terminal No.	Color of Wire	Signal Name
1	R/W	INPUT 1
2	O/B	INPUT 2
3	L	INPUT 3
4	R/Y	INPUT 4
5	R/G	INPUT 5
6	V	OUTPUT 1
7	G/B	OUTPUT 2
8	SB	OUTPUT 5
9	G/Y	OUTPUT 4
10	Y	OUTPUT 3
11	V/W	WASHER MOTOR
12	B	GND
13	–	–
14	–	–

ABMIA0028GB

Fail Safe

INFOID:0000000004223739

Fail-safe index

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

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:0000000004223740

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

Priority	DTC
1	• U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN)
2	• B2190: NATS ANTENNA AMP • B2191: DIFFERENCE OF KEY • B2192: ID DISCORD BCM-ECM • B2193: CHAIN OF BCM-ECM
3	• C1729: VHCL SPEED SIG ERR • C1735: IGNITION SIGNAL
4	• C1704: LOW PRESSURE FL • C1705: LOW PRESSURE FR • C1706: LOW PRESSURE RR • C1707: LOW PRESSURE RL • C1708: [NO DATA] FL • C1709: [NO DATA] FR • C1710: [NO DATA] RR • C1711: [NO DATA] RL • C1712: [CHECKSUM ERR] FL • C1713: [CHECKSUM ERR] FR • C1714: [CHECKSUM ERR] RR • C1715: [CHECKSUM ERR] RL • C1716: [PRESSDATA ERR] FL • C1717: [PRESSDATA ERR] FR • C1718: [PRESSDATA ERR] RR • C1719: [PRESSDATA ERR] RL • C1720: [CODE ERR] FL • C1721: [CODE ERR] FR • C1722: [CODE ERR] RR • C1723: [CODE ERR] RL • C1724: [BATT VOLT LOW] FL • C1725: [BATT VOLT LOW] FR • C1726: [BATT VOLT LOW] RR • C1727: [BATT VOLT LOW] RL

DTC Index

INFOID:0000000004223741

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.

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-28
U1010: CONTROL UNIT (CAN)	—	—	BCS-29
B2190: NATS ANTTENA AMP	—	—	SEC-17
B2191: DIFFERENCE OF KEY	—	—	SEC-20
B2192: ID DISCORD BCM-ECM	—	—	SEC-21
B2193: CHAIN OF BCM-ECM	—	—	SEC-23
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)

Reference Value

INFOID:0000000004223745

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 or AUTO (Light is illuminated)	Front fog lamp switch OFF	OFF
		• Front fog lamp switch ON • Daytime light activated (Canada only)	ON
HL WASHER REQ	**NOTE:** This item is displayed, but cannot be monitored.		OFF
FR WIP REQ	Ignition switch ON	Front wiper switch OFF	STOP
		Front wiper switch INT	1LOW
		Front wiper switch LO	LOW
		Front wiper switch HI	HI
WIP AUTO STOP	Ignition switch ON	Front wiper stop position	STOP P
		Any position other than front wiper stop position	ACT P
WIP PROT	Ignition switch ON	Front wiper operates normally	OFF
		Front wiper stops at fail-safe operation	BLOCK
ST RLY REQ	Ignition switch OFF or ACC		OFF
	Ignition switch START		ON
IGN RLY	Ignition switch OFF or ACC		OFF
	Ignition switch ON		ON
RR DEF REQ*	Rear defogger switch OFF		OFF
	Rear defogger switch ON		ON
OIL P SW	Ignition switch OFF, ACC or engine running		OPEN
	Ignition switch ON		CLOSE
DTRL REQ	**NOTE:** This item is displayed, but cannot be monitored.		OFF
HOOD SW	**NOTE:** This item is displayed, but cannot be monitored.		OFF

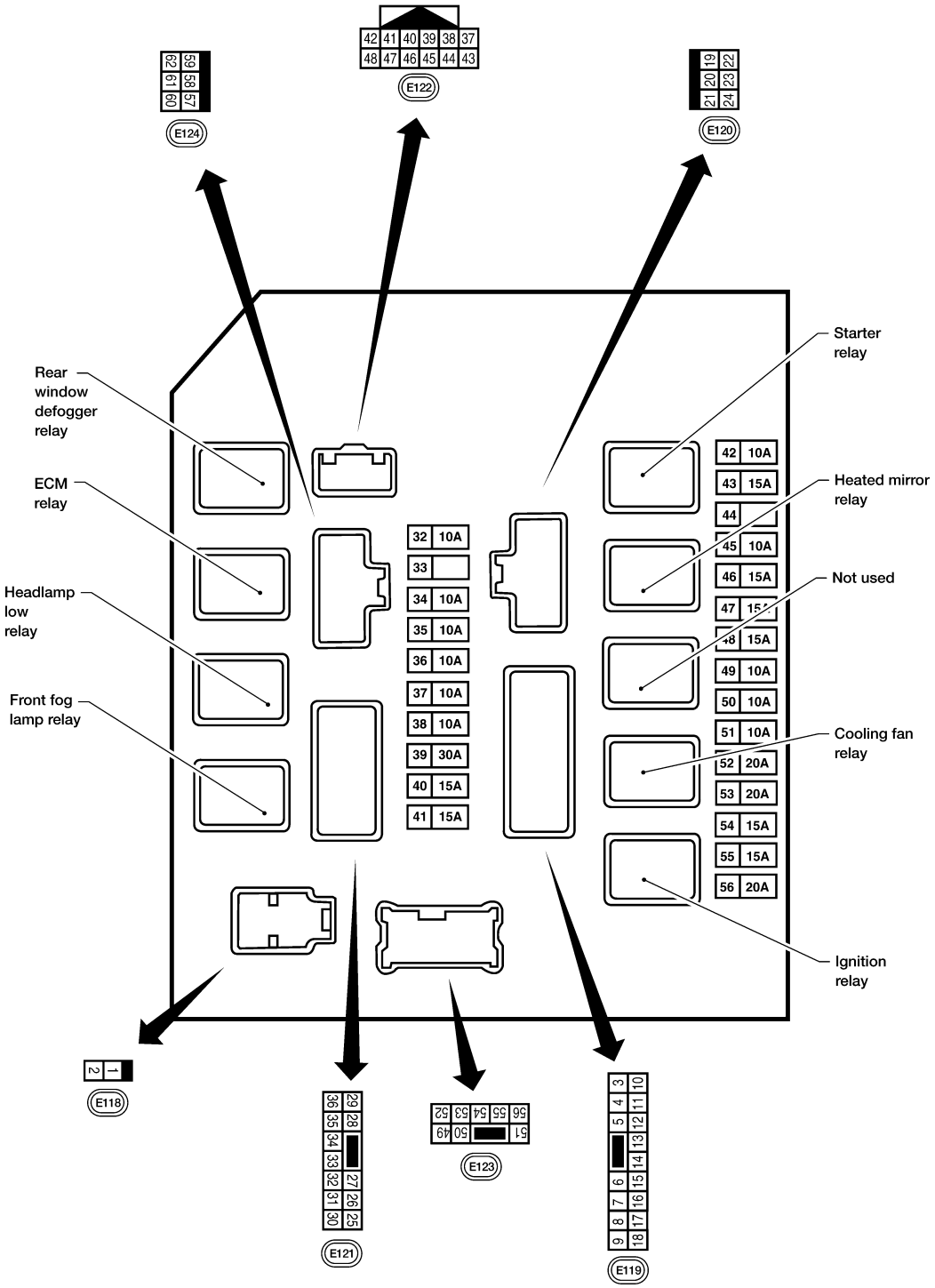
Monitor Item	Condition	Value/Status
THFT HRN REQ	Not operated	OFF
	• Panic alarm is activated • Horn is activated with VEHICLE SECURITY (THEFT WARNING) SYSTEM	ON
HORN CHIRP	Not operated	OFF
	Door locking with keyfob (horn chirp mode)	ON

*: If equipped

Terminal Layout

INFOID:0000000004223746

TERMINAL LAYOUT



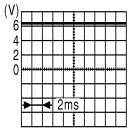
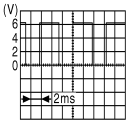
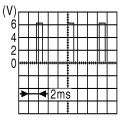
WKIA5852E

Physical Values

INFOID:0000000004223747

PHYSICAL VALUES

Terminal	Wire color	Signal name	Signal input/ output	Measuring condition			Reference value (Approx.)
				Ignition switch	Operation or condition		
1	B/Y	Battery power supply	Input	OFF	—		Battery voltage
2	R	Battery power supply	Input	OFF	—		Battery voltage
3	BR	ECM relay	Output	—	Ignition switch ON or START		Battery voltage
					Ignition switch OFF or ACC		0V
4	W/L	ECM relay	Output	—	Ignition switch ON or START		Battery voltage
					Ignition switch OFF or ACC		0V
6	L	Throttle control motor relay	Output	—	Ignition switch ON or START		Battery voltage
					Ignition switch OFF or ACC		0V
7	W/B	ECM relay control	Input	—	Ignition switch ON or START		0V
					Ignition switch OFF or ACC		Battery voltage
8	R/B	Fuse 54	Output	—	Ignition switch ON or START		Battery voltage
					Ignition switch OFF or ACC		0V
10	G	Fuse 45 (Canada ony)	Output	ON	Daytime light system active		0V
					Daytime light system inactive		Battery voltage
11	Y/B	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	L/W	Ignition switch supplied power	Input	—	OFF or ACC		0V
					ON or START		Battery voltage
13	B/Y	Fuel pump relay	Output	—	Ignition switch ON or START		Battery voltage
					Ignition switch OFF or ACC		0V
14	Y/R	Fuse 49	Output	—	Ignition switch ON or START		Battery voltage
					Ignition switch OFF or ACC		0V
15	LG/B (with VDC) GR (with ABS) G/R (with ABLS)	Fuse 50	Output	—	Ignition switch ON or START		Battery voltage
					Ignition switch OFF or ACC		0V
16	G	Fuse 51	Output	—	Ignition switch ON or START		Battery voltage
					Ignition switch OFF or ACC		0V
17	W	Fuse 55	Output	—	Ignition switch ON or START		Battery voltage
					Ignition switch OFF or ACC		0V
19	W/R	Starter motor	Output	START	—		Battery voltage
21	BR	Ignition switch supplied power	Input	—	OFF or ACC		0V
					START		Battery voltage
22	G	Battery power supply	Output	OFF	—		Battery voltage
23	GR/W	Door mirror defogger output signal (if equipped)	Output	—	When rear defogger switch is ON		Battery voltage
					When raker defogger switch is OFF		0V
27	W/B	Fuse 38 (With trailer tow)	Output	—	Ignition switch ON or START		Battery voltage
					Ignition switch OFF or ACC		0V
30	W	Fuse 53	Output	—	Ignition switch ON or START		Battery voltage
					Ignition switch OFF or ACC		0V
32	L	Wiper low speed signal	Output	ON or START	Wiper switch	OFF	Battery voltage
						LO or INT	0V

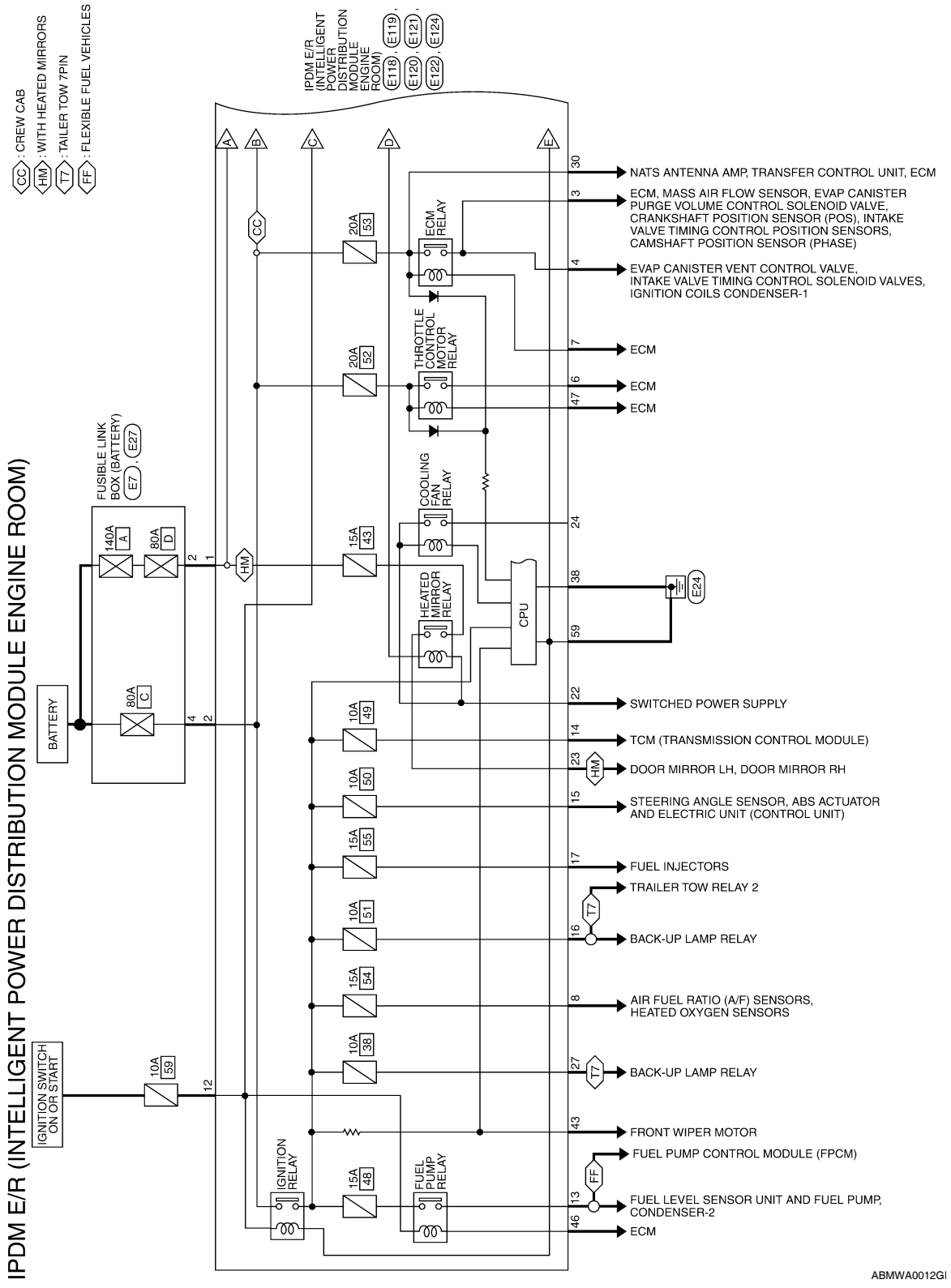
Terminal	Wire color	Signal name	Signal input/ output	Measuring condition			Reference value (Approx.)
				Igni-tion switch	Operation or condition		
35	L/B	Wiper high speed signal	Output	ON or START	Wiper switch	OFF, LO, INT	Battery voltage
						HI	0V
37	Y	Power generation command signal	Output	—	Ignition switch ON		 JPMIA0001GB 6.3 V
					40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE"		 JPMIA0002GB 3.8 V
					40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE"		 JPMIA0003GB 1.4 V
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
43	L/Y	Wiper auto stop signal	Input	ON or START	Wiper switch	OFF, LO, INT	Battery voltage
44	BR	Daytime light relay control (Canada ony)	Input	ON	Daytime light system active		0V
					Daytime light system inactive		Battery voltage
45	G/W	Horn relay control	Input	ON	When door locks are operated using keyfob (OFF → ON)*		Battery voltage → 0V
46	GR	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	B/R	Starter relay (inhibit switch)	Input	ON or START	Selector lever in "P" or "N"		0V
					Selector lever any other position		Battery voltage

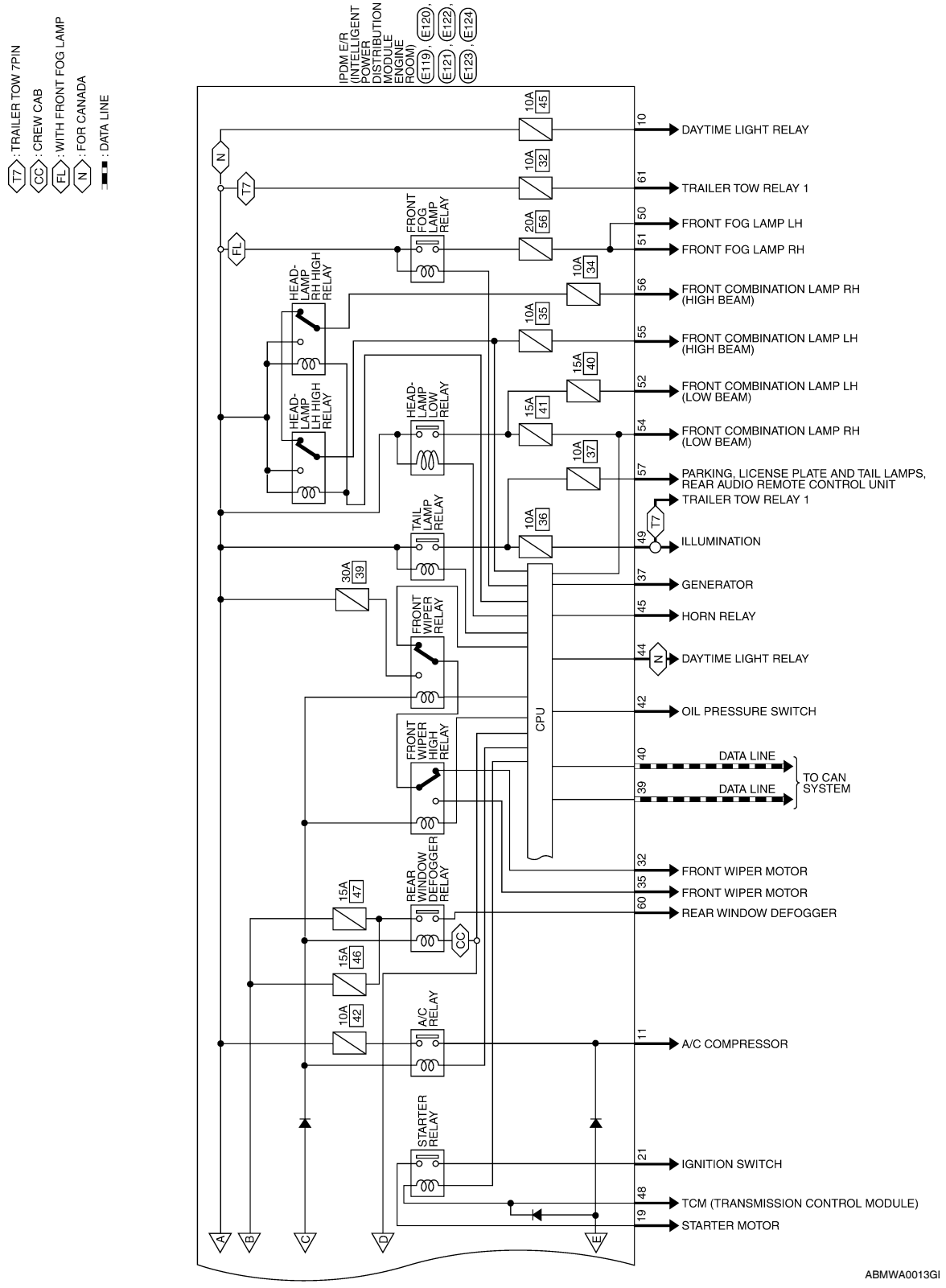
Terminal	Wire color	Signal name	Signal input/ output	Measuring condition			Reference value (Approx.)
				Ignition switch	Operation or condition		
49	R/L	Trailer tow relay (With trailer tow) Illumination (Without trailer tow)	Output	ON	Lighting switch must be in the 1st position	OFF	0V
						ON	Battery voltage
50	W/R	Front fog lamp (LH) (if equipped)	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	W/R	Front fog lamp (RH) (if equipped)	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	L	LH low beam headlamp	Output	—	Lighting switch in 2nd position		Battery voltage
54	R/Y	RH low beam headlamp	Output	—	Lighting switch in 2nd position		Battery voltage
55	G	LH high beam headlamp	Output	—	Lighting switch in 2nd position and placed in HIGH or PASS position		Battery voltage
56	Y (With DTRL) L/W (Without DTRL)	RH high beam headlamp	Output	—	Lighting switch in 2nd position and placed in HIGH or PASS position		Battery voltage
57	R/L	Parking, license, tail lamp and rear audio remote control unit	Output	ON	Lighting switch 1st position	OFF	0V
						ON	Battery voltage
59	B	Ground	Input	—	—		0V
60	B/W	Rear window defogger relay (if equipped)	Output	ON or START	Rear defogger switch ON		Battery voltage
					Rear defogger switch OFF		0V
61	BR	Fuse 32 (With trailer tow)	Output	OFF	—		Battery voltage

*: When horn reminder is ON

Wiring Diagram

INFOID:0000000004223748




T7 : TRAILER TOW 7PIN
CC : CREW CAB
FL : WITH FRONT FOG LAMP
N : FOR CANADA
: DATA LINE
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E119, E120, E121, E122, E123, E124
10A 45
10A 32
20A 56
10A 34
10A 35
15A 40
15A 41
10A 37
10A 36
30A 39
15A 47
15A 46
10A 42
FRONT FOG LAMP RELAY
HEAD-LAMP RH HIGH RELAY
HEAD-LAMP LH HIGH RELAY
HEAD-LAMP LOW RELAY
TAIL LAMP RELAY
FRONT WIPER RELAY
FRONT WIPER HIGH RELAY
REAR WINDOW DEFOGGER RELAY
A/C RELAY
STARTER RELAY
CPU
10 DAYTIME LIGHT RELAY
61 TRAILER TOW RELAY 1
50 FRONT FOG LAMP LH
51 FRONT FOG LAMP RH
56 FRONT COMBINATION LAMP RH (HIGH BEAM)
55 FRONT COMBINATION LAMP LH (HIGH BEAM)
52 FRONT COMBINATION LAMP LH (LOW BEAM)
54 FRONT COMBINATION LAMP RH (LOW BEAM)
57 PARKING, LICENSE PLATE AND TAIL LAMPS, REAR AUDIO REMOTE CONTROL UNIT
TRAILER TOW RELAY 1
49 ILLUMINATION
37 GENERATOR
45 HORN RELAY
44 DAYTIME LIGHT RELAY
42 OIL PRESSURE SWITCH
40 DATA LINE
39 DATA LINE
TO CAN SYSTEM
32 FRONT WIPER MOTOR
35 FRONT WIPER MOTOR
60 REAR WINDOW DEFOGGER
11 A/C COMPRESSOR
21 IGNITION SWITCH
48 TCM (TRANSMISSION CONTROL MODULE)
19 STARTER MOTOR
A
B
C
D
E
ABMWA0013GI

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

Connector No.	E7
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	BLACK

Terminal No.	Color of Wire	Signal Name
4	R	–

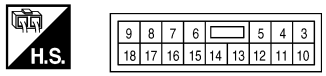
Connector No.	E27
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	BROWN

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

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	B/Y	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

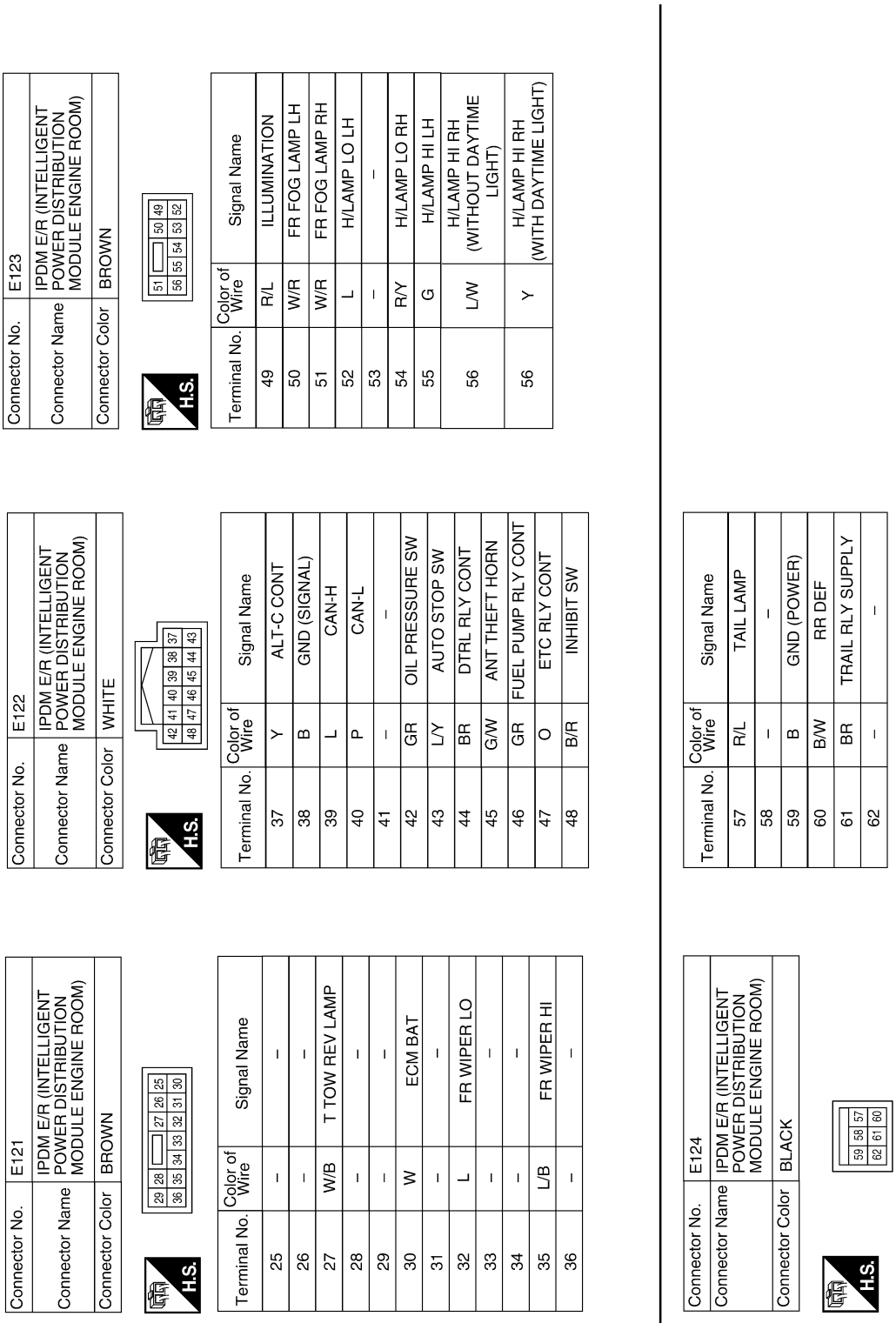


Terminal No.	Color of Wire	Signal Name
3	BR	IGN COIL
4	W/L	ECM
5	–	–
6	L	ETC
7	W/B	ECM RLY CONT
8	R/B	02_SENSOR
9	–	–
10	G	DTRL RLY SUPPLY
11	Y/B	A/C COMPRESSOR
12	L/W	IGN SW (IG)
13	B/Y	FUEL PUMP
14	Y/R	A/T CU IGN SUPPLY
15	LG/B	ABS IGN SUPPLY (WITH VDC)
15	GR	ABS IGN SUPPLY (WITH ABS)
15	G/R	ABS IGN SUPPLY (WITH ABLS)
16	G	REVERSE LAMP
17	W	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/R	STARTER MTR
20	–	–
21	BR	IGN SW(ST)
22	G	F/L MOTOR FAN
23	GR/W	HEATED MIRROR
24	–	–

ABMIA0021GB



ABMIA0022GB

Fail Safe

INFOID:0000000004223749

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

Control part	Fail-safe in operation
Cooling fan	• 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	• 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 high LH/RH relays OFF
• Parking lamps • License plate lamps • Tail lamps	• 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	• 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 (if equipped)	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.

DTC Index

INFOID:0000000004223750

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-15

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.

SYMPTOM DIAGNOSIS

EXTERIOR LIGHTING SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000003787517

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

Symptom		Possible cause	Inspection item
Headlamp does not switch to the high beam.	One side	• Fuse • Harness between IPDM E/R and the front combination lamp • Front combination lamp (High beam relay) • IPDM E/R	Headlamp (HI) circuit Refer to EXL-33.
	Both sides	**Symptom diagnosis** "BOTH SIDE HEADLAMPS DO NOT SWITCH TO HIGH BEAM" Refer to EXL-131.	
High beam indicator lamp is not turned ON. (Headlamp switches to the high beam.)		• Combination meter • BCM	• Combination meter. Data monitor "HI-BEAM IND". • BCM (HEAD LAMP) Active test "HEADLAMP".
Headlamp does not switch to the low beam.	One side	Front combination lamp (Low beam relay)	—
	Both sides	• Combination switch • Harness between the combination switch and BCM • BCM	Combination switch Refer to BCS-34.
		High beam request signal • BCM • IPDM E/R	IPDM E/R Data monitor "HL HI REQ".
		IPDM E/R	—
Headlamp does not turn ON.	One side	• Fuse • Bulb • Harness between IPDM E/R and the front combination lamp • Front combination lamp • IPDM E/R	Headlamp (LO) circuit. Refer to EXL-36.
	Both sides	**Symptom diagnosis** "BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON" Refer to EXL-132, "Description".	
Headlamp does not turn OFF.	When the ignition switch is turned ON	• BCM • Combination switch	Combination switch. Refer to BCS-34.
	The ignition switch is turned OFF (After activating the battery saver).	IPDM E/R	—
Headlamp is not turned ON/OFF with the lighting switch AUTO.		• Combination switch • Harness between the combination switch and BCM • BCM	Combination switch. Refer to BCS-34.
		• Optical sensor • Harness between the optical sensor and BCM • BCM	Optical sensor. Refer to EXL-52.

Symptom		Possible cause	Inspection item
Daytime light system does not activate.		• Either high beam bulb • Parking brake switch • Combination switch • BCM • IPDM E/R • Daytime light relay • Harness between IPDM E/R and daytime light relay.	Daytime light system description. Refer to EXL-11, "System Description".
Front fog lamp is not turned ON.	One side	• Front fog lamp bulb • Harness between IPDM E/R and the front combination lamp • Front combination lamp • IPDM E/R	Front fog lamp circuit. Refer to EXL-39.
	Both side	**Symptom diagnosis** "BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON" Refer to EXL-134.	
Parking lamp is not turned ON.	One side	• Fuse • Parking lamp bulb • Harness between IPDM E/R and the front/rear combination lamp • Front/rear combination lamp • IPDM E/R	Parking lamp circuit. Refer to EXL-41.
	Both sides	**Symptom diagnosis** "PARKING, LICENSE PLATE AND TAIL LAMPS ARE NOT TURNED ON" Refer to EXL-133.	
Turn signal lamp does not blink.	Indicator lamp is normal. (The applicable side performs the high flasher activation).	• Harness between BCM and each turn signal lamp • Turn signal lamp bulb • Door mirror (if equipped with turn signals in the door mirrors)	Turn signal lamp circuit. Refer to EXL-47.
Turn signal indicator lamp does not blink.	One side	Combination meter	—
	Both sides (Always)	• Turn signal indicator lamp signal • Combination meter • BCM	• Combination meter. Data monitor "TURN IND". • BCM (FLASHER) Active test "FLASHER".
	Both sides (Does blink when activating the hazard warning lamp with the ignition switch OFF)	• The combination meter power supply and the ground circuit • Combination meter	Combination meter. Power supply and the ground circuit Refer to MWI-33.

NORMAL OPERATING CONDITION

Description

INFOID:0000000003787518

AUTO LIGHT SYSTEM

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

BOTH SIDE HEADLAMPS DO NOT SWITCH TO HIGH BEAM

Description

INFOID:0000000003787519

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

Diagnosis Procedure

INFOID:0000000003787520

1.COMBINATION SWITCH INSPECTION

Check the combination switch. Refer to BCS-34, "Diagnosis Procedure".

Is the combination switch normal?

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

2.CHECK HEADLAMP (HI) REQUEST SIGNAL INPUT

CONSULT-III DATA MONITOR

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

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

Is the item status normal?

YES >> GO TO 3.
NO >> Replace BCM. Refer to BCS-53, "Removal and Installation" .

3.HEADLAMP (HI) CIRCUIT INSPECTION

Check the headlamp (HI) circuit. Refer to EXL-33, "Description".

Is the headlamp (HI) circuit normal?

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

BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON

Description

INFOID:0000000003787521

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

Diagnosis Procedure

INFOID:0000000003787522

1.CHECK COMBINATION SWITCH

Check the combination switch. Refer to BCS-34, "Diagnosis Procedure".

Is the combination switch normal?

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

2.CHECK HEADLAMP (LO) REQUEST SIGNAL INPUT

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

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

Is the item status normal?

YES >> GO TO 3.
NO >> Replace BCM. Refer to BCS-53, "Removal and Installation" .

3.HEADLAMP (LO) CIRCUIT INSPECTION

Check the headlamp (LO) circuit. Refer to EXL-36, "Description".

Is the headlamp (LO) circuit normal?

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

PARKING, LICENSE PLATE AND TAIL LAMPS ARE NOT TURNED ON

Description

INFOID:0000000003787523

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

Diagnosis Procedure

INFOID:0000000003787524

1.COMBINATION SWITCH INSPECTION

Check the combination switch. Refer to BCS-34, "Diagnosis Procedure".

Is the combination switch normal?

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

2.CHECK TAIL LAMP RELAY REQUEST SIGNAL INPUT

CONSULT-III DATA MONITOR

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

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

Is the item status normal?

YES >> GO TO 3.
NO >> Replace BCM. Refer to BCS-53, "Removal and Installation".

3.PARK LAMP CIRCUIT INSPECTION

Check the parking lamp circuit. Refer to EXL-41, "Description".

Is the tail lamp circuit normal?

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

BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

Description

INFOID:0000000003787525

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

Diagnosis Procedure

INFOID:0000000003787526

1.COMBINATION SWITCH INSPECTION

Check the combination switch. Refer to BCS-34, "Diagnosis Procedure".

Is the combination switch normal?

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

2.CHECK FRONT FOG LAMP REQUEST SIGNAL INPUT

CONSULT-III DATA MONITOR

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

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

Is the item status normal?

YES >> GO TO 3.
NO >> Replace BCM. Refer to BCS-53, "Removal and Installation".

3.FRONT FOG LAMP CIRCUIT INSPECTION

Check the front fog lamp circuit. Refer to EXL-39, "Description".

Is the front fog lamp circuit normal?

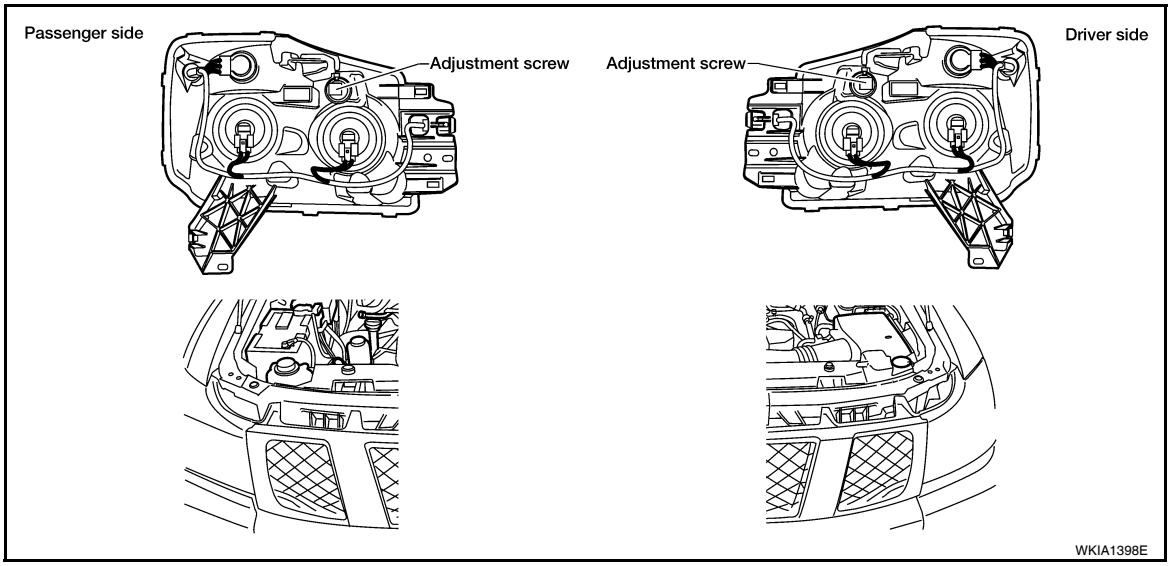
YES >> Replace IPDM E/R. Refer to PCS-30, "Removal and Installation of IPDM E/R".
NO >> Repair or replace the malfunctioning part.

ON-VEHICLE REPAIR

HEADLAMP

Aiming Adjustment

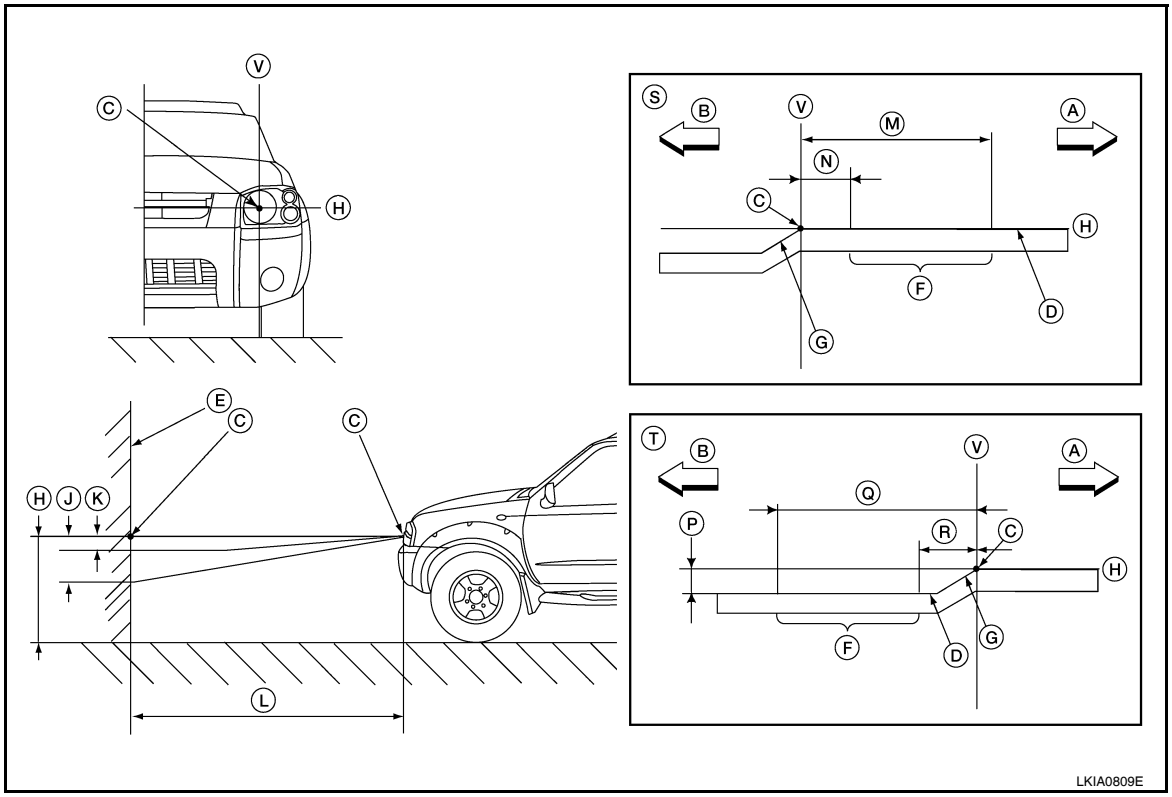
INFOID:0000000003787527



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

HEADLAMP AIMING

NOTE:
- Before performing aiming adjustment, check the following:
- Confirm headlamp aiming switch is set to "0" (zero) position (if equipped).
- 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.



A.	Right	B.	Left	C.	Center of headlamp bulb (H-V point)
D.	Cutoff line	E.	Screen	F.	Aim evaluation segment
G.	Step	H.	Horizontal center line of headlamp	J.	103 mm (4.06 in.)
K.	37 mm (1.46 in.)	L.	7.62 m (25 ft.)	M.	399 mm (15.71 in.)
N.	133 mm (5.24 in.)	P.	53.2 mm (2.09 in.)	Q.	466 mm (18.35 in.)
R.	200 mm (7.87 in.)	S.	RH headlamp aiming screen	T.	LH headlamp aiming screen
V.	Vertical center				

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

LOW BEAM AND HIGH BEAM

1. Turn headlamp low beam on.
2. Use adjusting screw to perform aiming adjustment.

Bulb Replacement

INFOID:0000000003787528

CAUTION:
- **Turn headlamp switch OFF before disconnecting headlamp harness connector.**
- **Do not touch bulb by hand right after being turned off. Burning may result.**
- **Do not touch the glass of bulb directly by hand. Keep grease and other oily substances away from it.**
- **Do not leave bulb out of front combination lamp assembly for a long time because dust, moisture, smoke, etc. may affect the performance of the lamp. When replacing headlamp bulb, be sure to replace it with a new one.**

HEADLAMP (OUTER SIDE), FOR LOW BEAM

Removal

1. Position fender protector aside.
2. Turn headlamp switch OFF.
3. Disconnect headlamp electrical connector.
4. Turn the bulb socket counterclockwise and remove bulb .

Installation
Installation is in the reverse order of removal.

HEADLAMP (INNER SIDE), FOR HIGH BEAM

Removal
1. Turn headlamp switch OFF.
2. Disconnect headlamp electrical connector.
3. Turn the bulb socket counterclockwise and remove bulb.

Installation
Installation is in the reverse order of removal.

TURN SIGNAL/PARKING LAMP (FRONT)

NOTE:
Reach through wheel opening for access.

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

Installation
Installation is in the reverse order of removal.

SIDE MARKER LAMP (FRONT)

Removal
NOTE:
Reach through wheel opening for access.
1. Turn the side marker lamp (front) bulb socket counterclockwise and remove side marker lamp (front) bulb socket.
2. Pull to remove side marker lamp (front) from the side marker lamp (front) bulb socket.

Installation
Installation is in the reverse order of removal.

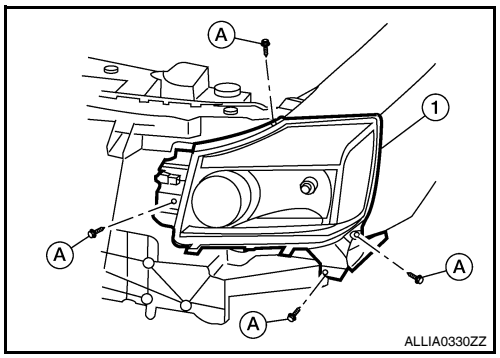
Removal and Installation

INFOID:0000000003787529

COMBINATION LAMP ASSEMBLY (FRONT)

CAUTION:
- **Turn headlamp switch OFF before disconnecting headlamp harness connector.**
- **Do not touch bulb by hand right after being turned off. Burning may result.**
- **Do not touch the glass of bulb directly by hand. Keep grease and other oily substances away from it.**
- **Do not leave bulb out of combination lamp assembly (front) for a long time because dust, moisture, smoke, etc. may affect the performance of the lamp. When replacing bulb, be sure to replace it with a new one.**

Removal
1. Remove the front bumper. Refer to EXT-13, "Removal and Installation".
2. Remove the bolts (A), disconnect the electrical connectors, and remove the front combination lamp assembly (front) (1).

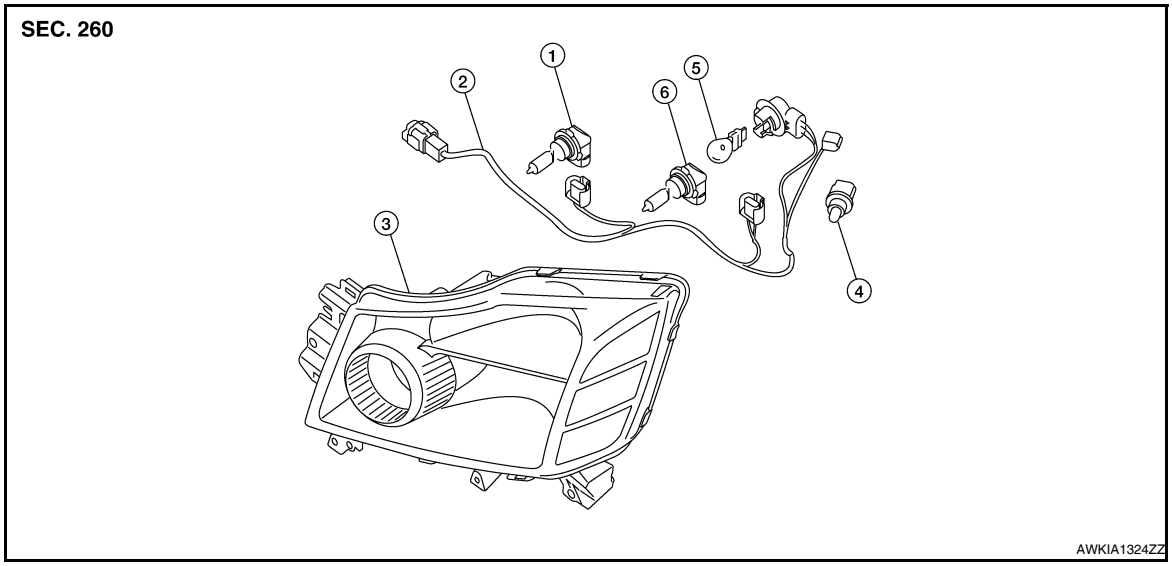


Installation
Installation is in the reverse order of removal.

Disassembly and Assembly

INFOID:0000000003787530

FRONT COMBINATION LAMP ASSEMBLY



1. Headlamp bulb (high)
2. Wiring harness assembly (inner)
3. Headlamp assembly
4. Side marker lamp (front) bulb
5. Turn signal/parking lamp (front) bulb
6. Headlamp bulb (low beam)

Disassembly

1. Turn high beam bulb counterclockwise to unlock and remove high beam bulb.
2. Turn low beam bulb counterclockwise to unlock and remove low beam bulb.
3. Turn turn signal/parking lamp (front) bulb socket counterclockwise to unlock and remove turn signal/parking lamp (front) bulb.
4. Turn side marker lamp (front) bulb socket counterclockwise to unlock and remove side marker lamp (front) bulb.

Assembly

Assembly is in the reverse order of disassembly.

AUTO LIGHT SYSTEM

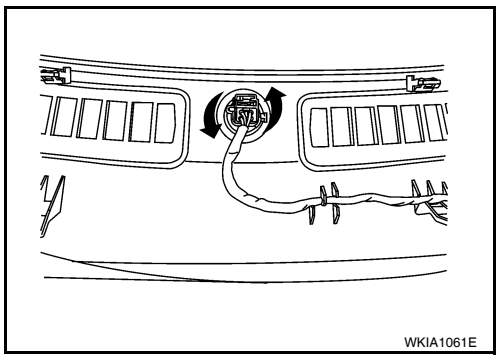
Removal and Installation

INFOID:0000000003787531

OPTICAL SENSOR

Removal

1. Remove defroster grille. Refer to VTL-24, "Component".
2. Disconnect the optical sensor connector.
3. Turn the optical sensor counterclockwise to remove it from defroster grille.



Installation

Installation is in the reverse order of removal.

FRONT FOG LAMP

Aiming Adjustment

INFOID:0000000003787532

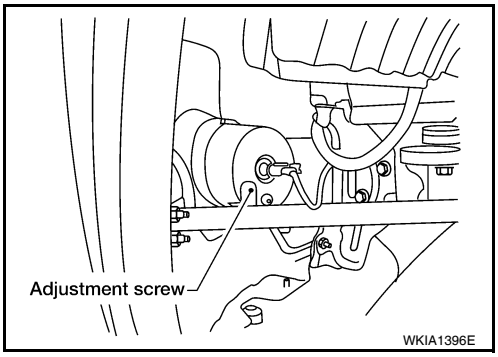
The fog lamp is a semi-sealed beam type which uses a replaceable halogen bulb. Before performing aiming adjustment, make sure of the following.

- Keep all tires inflated to correct pressure.
- Place vehicle on level ground.
- See that vehicle is unloaded (except for full levels of coolant, engine oil and fuel, and spare tire, jack, and tools). Have the driver or equivalent weight placed in driver seat.

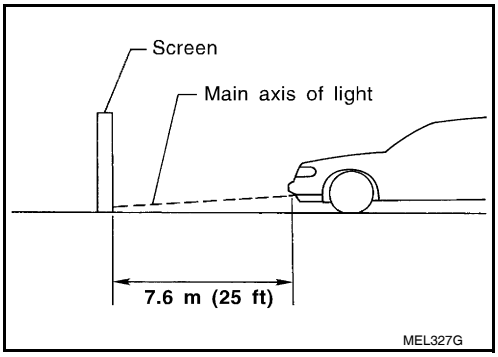
Adjust aiming in the vertical direction by turning the adjustment screw.

NOTE:

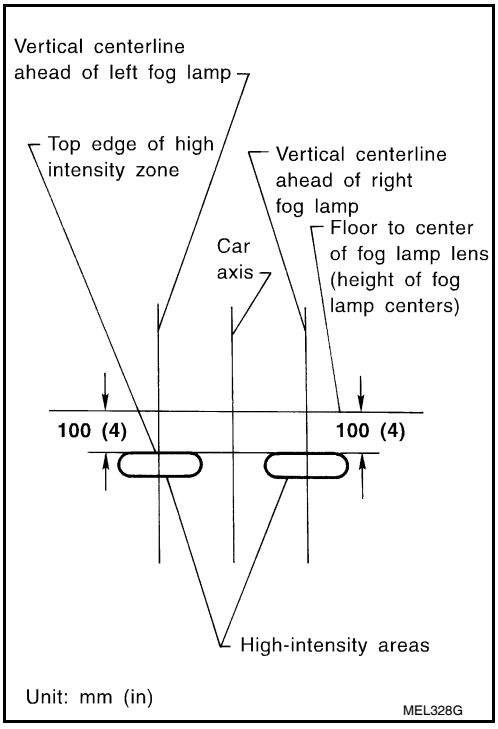
Access adjustment screw from underneath front bumper. Use a T-3 (3 mm) Torx® bit or a 3 mm allen wrench to adjust. Turn screw clockwise to raise pattern and counterclockwise to lower pattern.



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



3. Adjust front fog lamps using adjusting 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.



Bulb Replacement

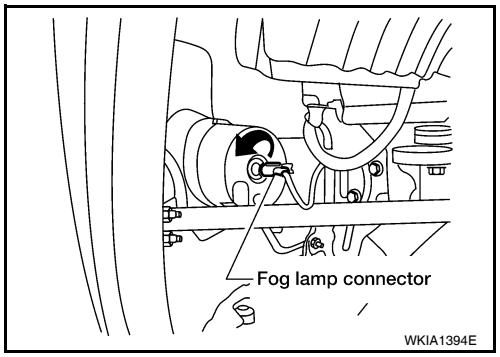
INFOID:0000000003787533

Removal

1. Disconnect electrical connector.
2. 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.**



Installation

Installation is in the reverse order of removal.

Removal and Installation

INFOID:0000000003787534

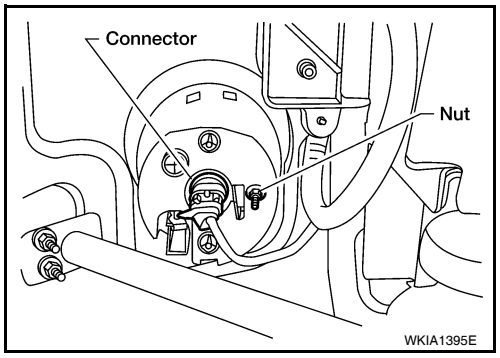
The fog lamp is a semi-sealed beam type which uses a replaceable halogen bulb.

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. Position the fender protector aside.
2. Disconnect electrical connector.
3. Remove nut and pull fog lamp out of front fascia.



Installation

Installation is in the reverse order of removal.

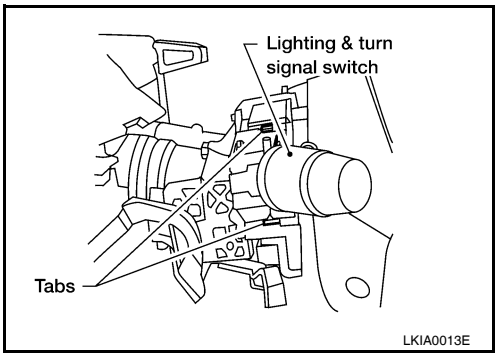
LIGHTING & TURN SIGNAL SWITCH

Removal and Installation

INFOID:0000000003787535

REMOVAL

1. Remove steering column cover. Refer to IP-10, "Exploded View".
2. While pressing tabs, pull lighting and turn signal switch toward driver door and disconnect from the base.



INSTALLATION

Installation is in the reverse order of removal.

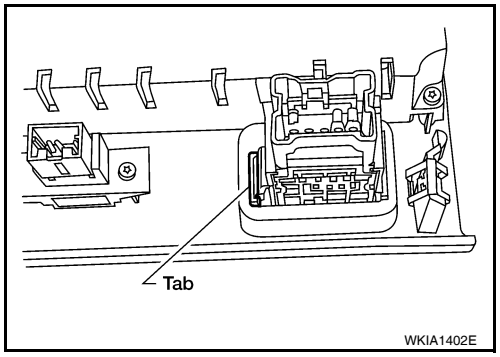
HAZARD SWITCH

Removal and Installation

INFOID:0000000003787536

Removal

1. Remove cluster lid C. Refer to IP-14, "Removal and Installation".
2. While pressing the tab, push out the hazard switch.



Installation

Installation is in the reverse order of removal.

STOP LAMP

Bulb Replacement

INFOID:0000000003787537

HIGH-MOUNTED STOP LAMP

Removal

1. Remove the high-mounted stop lamp. Refer to EXL-144, "Removal and Installation".
2. Turn bulb socket counter clockwise to remove it from lamp housing.
3. Pull bulb from socket.

Installation
Installation is in the reverse order of removal.

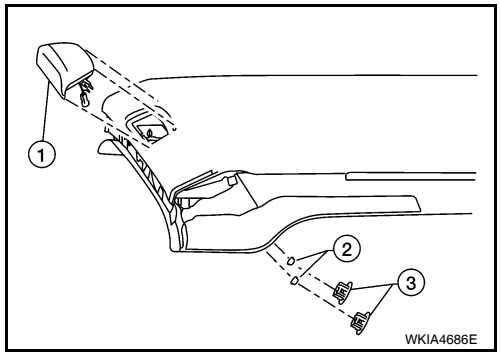
Removal and Installation

INFOID:0000000003787538

HIGH-MOUNTED STOP LAMP

Removal

1. Remove high-mounted stop lamp access covers(3).
2. Disconnect high-mounted stop lamp electrical connector.
3. Remove high-mounted stop lamp nuts(2).
4. Remove high-mounted stop lamp(1).



Installation
Installation is in the reverse order of removal.

STOP LAMP

Refer to EXL-144, "Bulb Replacement".

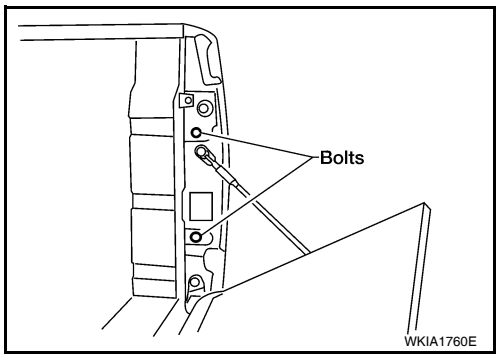
REAR COMBINATION LAMP

Bulb Replacement

INFOID:0000000003787539

REMOVAL

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



INSTALLATION

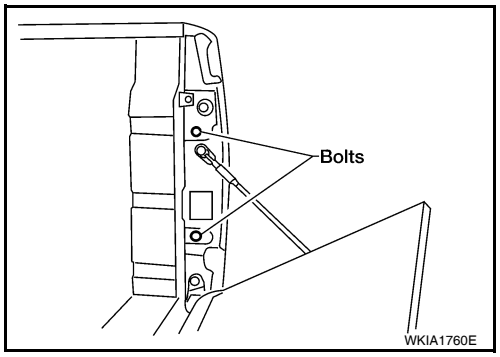
Installation is in the reverse order of removal.

Removal and Installation

INFOID:0000000003787540

Removal

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



Installation

Installation is in the reverse order of removal.

SERVICE DATA AND SPECIFICATIONS (SDS)

Headlamp

INFOID:0000000003787541

Item	Wattage (W)*
Low	51/55
High	60/65

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

Exterior Lamp

INFOID:0000000003787542

Item		Wattage (W)*
Front combination lamp	Turn signal/parking lamp (front)	27/8
	Side marker (front)	3.8
Rear combination lamp	Stop/tail lamp	27/7
	Turn signal lamp	27
	Back-up lamp	16
Cargo lamp (tailgate)		16
Fog lamp		37.5
License plate lamp		5
High-mounted stop lamp / Cargo lamp		12.8
Side turn signal		LED
Puddle lamp		8

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