SECTION PCS POWER CONTROL SYSTEM С

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PRECAUTION PRECAUTIONS

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

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

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

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

WARNING:

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

Precaution for Work

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
- Water soluble dirt:
- Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
- Then rub with a soft, dry cloth.
- Oily dirt:
- Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
- Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
- Then rub with a soft, dry cloth.
- Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

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PREPARATION

PREPARATION

Special Service Tools

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[IPDM E/R]

The actual shape of the tool	may differ from those illustrated here.
------------------------------	---

Tool number (TechMate No.) Tool name		Description
 (J-46534) Trim Tool Set	AWJIA048322	Removing trim components

COMPONENT PARTS

< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION COMPONENT PARTS

Component Parts Location

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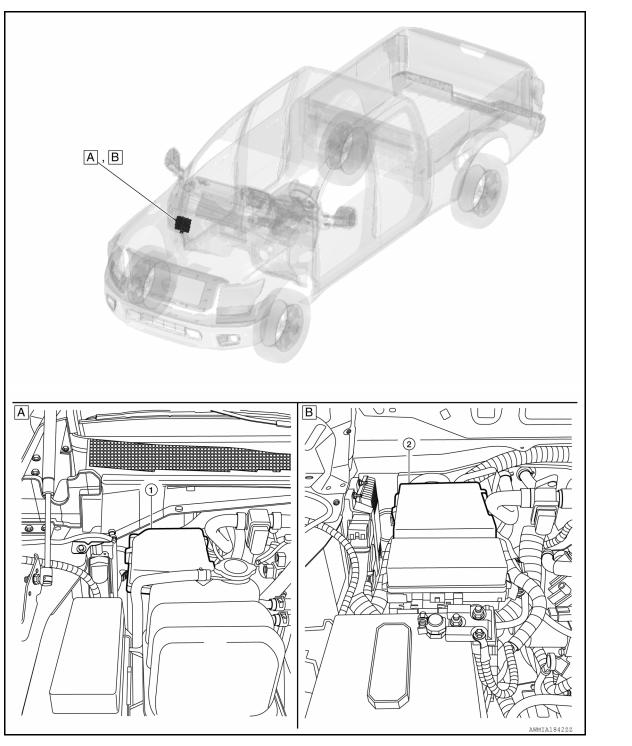
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[IPDM E/R]



- A Engine room right side rear (Cummins 5.0L)
- 1. IPDM E/R

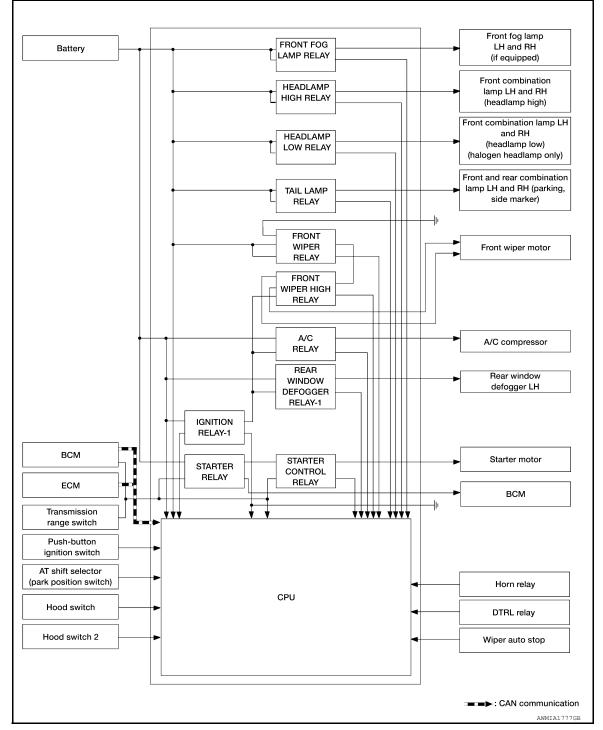
- B Engine room right side rear (VK56VD)
- 2. IPDM E/R

SYSTEM RELAY CONTROL SYSTEM

RELAY CONTROL SYSTEM : System Description

INFOID:000000012546622

SYSTEM DIAGRAM



DESCRIPTION

IPDM E/R controls relays based on input signals from various sensors and from request signals received via CAN communication.

CAUTION:

IPDM E/R integrated relays cannot be removed.

SYSTEM

< SYSTEM DESCRIPTION >

Relay	Signal Type	Transmitting Unit	Control Part	Reference page	ŀ
Front fog lamp relay ¹	Front fog lamp request signal	BCM (CAN)	Front fog lamps	<u>EXL-15</u> EXL-163	E
Headlamp high relay	High beam request signal	BCM (CAN)	Headlamp high	<u>EXL-11</u> EXL-158	
Headlamp low relay ²	Low beam request signal	BCM (CAN)	Headlamp low	<u>EXL-11</u>	(
Tail lamp relay	Position light request signal	BCM (CAN)	 Parking lamps Side marker lamps License plate lamps Tail lamps Trailer tow relay 1 Illumination system 	<u>EXL-13</u> EXL-161	
Front wiper relayFront wiper high relay	Front wiper request signal	BCM (CAN)	Front wiper motor	<u>WW-9</u>	E
A/C relay	A/C request signal	BCM (CAN)ECM (CAN)	A/C compressor	<u>HAC-18</u> HAC-143	F
Rear window defogger relay-1	Rear window defogger request signal	BCM (CAN)	Rear window defogger LH	DEF-7	
Ignition relay-1	Ignition switch ON signal	Ignition switch	Ignition relay	PCS-38	0
Starter relay Starter control relay	- Ignition switch START signal	• TCM • BCM	Starter motor	STR-7	ŀ

¹: If equipped

²: Halogen headlamp only

RELAY CONTROL SYSTEM : Fail Safe

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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 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 relay OFF 	L
Parking lampsLicense plate lampsTail 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 	PCS
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. 	N
Rear window defogger (if equipped)	Rear window defogger relay OFF	0
A/C compressor	A/C relay OFF	
Front fog lamps (if equipped)	Front fog lamp relay OFF	Ρ

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.

SYSTEM

< SYSTEM DESCRIPTION >

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 seconds activation and 20 seconds 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

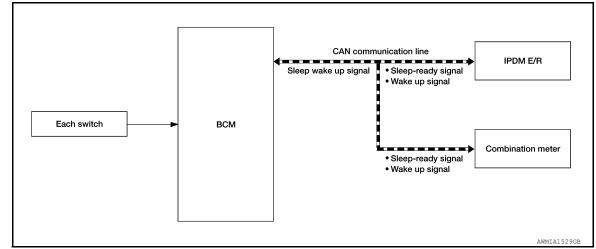
IPDM E/R turns OFF the starter control relay to protect the starter motor when the starter control relay remains active for 90 seconds.

POWER CONSUMPTION CONTROL SYSTEM

POWER CONSUMPTION CONTROL SYSTEM : System Description

INFOID:000000012546627

SYSTEM DIAGRAM



DESCRIPTION

Outline

- IPDM E/R incorporates a power consumption control function that reduces the power consumption according to the vehicle status.
- IPDM E/R changes its status (control mode) with the sleep wake up signal received from BCM via CAN communication.

Normal mode (wake-up)

- CAN communication is normally performed with other control units.
- Individual unit control by IPDM E/R is normally performed.

Low power consumption mode (sleep)

- Low power consumption control is active.
- CAN transmission is stopped.

SYSTEM

< SYSTEM DESCRIPTION >

[IPDM E/R]

Sleep Mode Activation

- IPDM E/R judges that the sleep-ready conditions are fulfilled when the ignition switch is OFF and none of the conditions below are present. Then it transmits a sleep-ready signal (ready) to BCM via CAN communication.
- Front wiper fail-safe operation
- Outputting signals to actuators
- Switches or relays operating
- Auto active test is starting
- Emergency OFF
- Output requests are being received from control units via CAN communication.
- IPDM E/R stops CAN communication and enters the low power consumption mode when it receives a sleep wake up signal (sleep) from BCM and the sleep-ready conditions are fulfilled.

Wake-Up Operation

- IPDM E/R changes from the low power consumption mode to the normal mode when it receives a sleep wake-up signal (wake up) from BCM or any of the following conditions is fulfilled. In addition, it transmits a sleep-ready signal (not-ready) to BCM via CAN communication to report the CAN communication start:
- Ignition switch ON.
- An output request is received from a control unit via CAN communication.

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Diagnosis Description

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:

- · Rear window defogger
- Front wipers (HI, LO)
- Front fog lamps (if equipped)
- Tail, license and parking lamps
- Daytime running lamps (if equipped)
- Headlamps (HI, LO)
- A/C compressor (magnetic clutch)

Operation Procedure

 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 <u>DLK-96,</u> <u>"Component Function Check"</u>.
- 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.

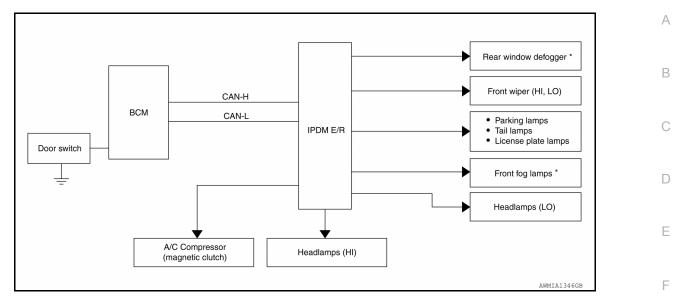
Operation sequence	Inspection Location	Operation
1	Rear window defogger	10 seconds
2	Front wipers	HI for 5 seconds \rightarrow LO for 5 seconds
3	Front fog lamps (if equipped), tail, license and parking lamps and daytime running lamps (if equipped)	10 seconds
4	Headlamps	LO for 10 seconds \rightarrow HI on-off for 5 seconds
5	A/C compressor (magnetic clutch)	$ON \Leftrightarrow OFF 5$ times

Concept of auto active test

Revision: March 2016

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< SYSTEM DESCRIPTION >



*: 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. $_{
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Diagnosis chart in auto active test mode

Symptom	Inspection contents		Possible cause
	Perform auto active test.	YES	BCM signal input circuit
Rear window defogger does not operate	Does the rear window defog- ger (if equipped) operate?	NO	CAN communication signal between BCM and IPDM E/R
		YES	BCM signal input system
 Any of the following components do not operate: Front wipers (HI, LO) Front fog lamps (if equipped) Tail lamps License plate lamps Parking lamps Daytime running lamps (if equipped) Headlamps (HI, LO) 	Perform auto active test. Does the applicable system operate?	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)
	Perform auto active test.	YES	 BCM signal input circuit CAN communication signal be- tween BCM and ECM CAN communication signal be- tween ECM and IPDM E/R
A/C compressor does not operate	Does the A/C compressor op- erate?	NO	 Magnetic clutch malfunction Harness or connector between IPDM E/R and magnetic clutch IPDM E/R (integrated relay malfunc- tion)

CONSULT Function (IPDM E/R)

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with IPDM E/R:

INFOID:000000012546630

[IPDM E/R]

< SYSTEM DESCRIPTION >

[IPDM E/R]

Direct Diagnostic Mode	Description
Self Diagnostic Result	The IPDM E/R self diagnostic results are displayed.
Data Monitor	The IPDM E/R input/output data is displayed in real time.
Active Test	The IPDM E/R activates outputs to test components.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SELF DIAGNOSTIC RESULT Refer to <u>PCS-23, "DTC Index"</u>.

DATA MONITOR

Monitor Item [Unit]	Main Signals	Description
AC COMP REQ [On/Off]	×	Indicates A/C compressor request signal received from ECM on CAN commu- nication line
TAIL&CLR REQ [On/Off]	×	Indicates position light request signal received from BCM on CAN communica- tion line
HL LO REQ [On/Off]	×	Indicates low beam request signal received from BCM on CAN communication line
HL HI REQ [On/Off]	×	Indicates high beam request signal received from BCM on CAN communication line
FR FOG REQ [On/Off]	×	Indicates front fog light request signal received from BCM on CAN communica- tion line
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Indicates front wiper request signal received from BCM on CAN communication line
WIP AUTO STOP [STOP P/ACT P]	×	Indicates condition of front wiper auto stop signal
WIP PROT [Off/BLOCK]	×	Indicates condition of front wiper fail-safe operation
IGN RLY1 -REQ [On/Off]		Indicates ignition switch ON signal received from BCM on CAN communication line.
IGN RLY [On/Off]	×	Indicates condition of ignition relay
PUSH SW [On/Off]		Indicates condition of push-button ignition switch.
INTER/NP SW [On/Off]		Indicates condition of AT shift position.
ST RLY CONT [On/Off]		Indicates starter relay status signal received from BCM on CAN communication line.
IHBT RLY -REQ [On/Off]		Indicates starter control relay signal received from BCM on CAN communication line.
ST/INHI RLY [Off/ ST /INHI]		Indicates condition of starter relay and starter control relay.
DETENT SW [On/Off]		Indicates condition of AT shift selector (park position switch).
DTRL REQ [Off]		Indicates daytime light request signal received from BCM on CAN communica- tion line
HOOD SW [On/Off]		Indicates condition of hood switch.
THFT HRN REQ [On/Off]		Indicates theft warning horn request signal received from BCM on CAN commu- nication line
HORN CHIRP [On/Off]		Indicates horn reminder signal received from BCM on CAN communication line
HOOD SW 2 [On/Off]		Indicates condition of hood switch 2.

ACTIVE TEST

Test item	Description
REAR DEFOGGER	This test is able to check rear defogger operation [On/Off].
FRONT WIPER	This test is able to check wiper motor operation [Hi/Lo/Off].

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[IPDM E/R]

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Test item	Description	
EXTERNAL LAMPS	This test is able to check external lamp operation [Fog/Hi/Lo/TAIL/Off].	A
HORN	This test is able to check horn operation [On].	
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IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) < ECU DIAGNOSIS INFORMATION > [IPDM E/R]

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

Reference Value

INFOID:000000012546635

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Con	Value/Status			
	A/C switch OFF	Off			
A/C COMP REQ	A/C switch ON		On		
	Lighting switch OFF				
TAIL&CLR REQ	Lighting switch 1ST, 2ND, HI or AUT	O (Light is illuminated)	On		
	Lighting switch OFF		Off		
HL LO REQ	Lighting switch 2ND HI or AUTO (Lig	ght is illuminated)	On		
	Lighting switch OFF		Off		
HL HI REQ	Lighting switch HI		On		
		Front fog lamp switch OFF	Off		
FR FOG REQ	Lighting switch 2ND or AUTO (Light is illuminated)	 Front fog lamp switch ON Daytime light activated (Canada only) 	On		
		Front wiper switch OFF	Stop		
	Ignition quitch ON	Front wiper switch INT	1LOW		
FR WIP REQ	Ignition switch ON	Front wiper switch LO	Low		
		Front wiper switch HI	Hi		
		Front wiper stop position	STOP P		
WIP AUTO STOP	Ignition switch ON	Any position other than front wiper stop position	ACT P		
		Front wiper operates normally	Off		
WIP PROT	Ignition switch ON	Front wiper stops at fail-safe opera- tion	BLOCK		
GN RLY1 -REQ	Ignition switch OFF or ACC	1	Off		
GN RLI I -REQ	Ignition switch ON		On		
	Ignition switch OFF or ACC		Off		
GN RLY	Ignition switch ON	On			
	Release the push-button ignition swi	tch	Off		
PUSH SW	Press the push-button ignition switch	۱	On		
INTER/NP SW	Ignition switch ON	AT selector lever in any position other than P or N	Off		
		AT selector lever in P or N position	On		
	Ignition switch ON	,	Off		
ST RLY CONT	At engine cranking		On		
	Ignition switch ON		Off		
HBT RLY -REQ	At engine cranking		On		

< ECU DIAGNOSIS INFORMATION >

Monitor Item		Value/Status			
	Ignition switch ON		Off	- /-	
	At engine cranking		ST →INHI	_	
ST/INHI RLY		tarter control relay cannot be recognized by n, etc. when the starter relay is ON and the	UNKWN	E	
DETENT SW	Ignition switch ON	AT selector lever in any position other than P	Off	0	
		AT selector lever in P position	On	_	
DTRL REQ	Not operated	Off			
DIRLREQ	Daytime Running Lights ON	On			
	Hood closed	Off	_		
HOOD SW	Hood open	On	E		
	Not operated	Off			
THFT HRN REQ	 Panic alarm is activated Horn is activated with VEHI TEM 	On	F		
	Not operated	Off	_		
HORN CHIRP	Door locking with keyfob (horr	On	- (
	Hood closed	Hood closed			
HOOD SW 2	Hood open	On			

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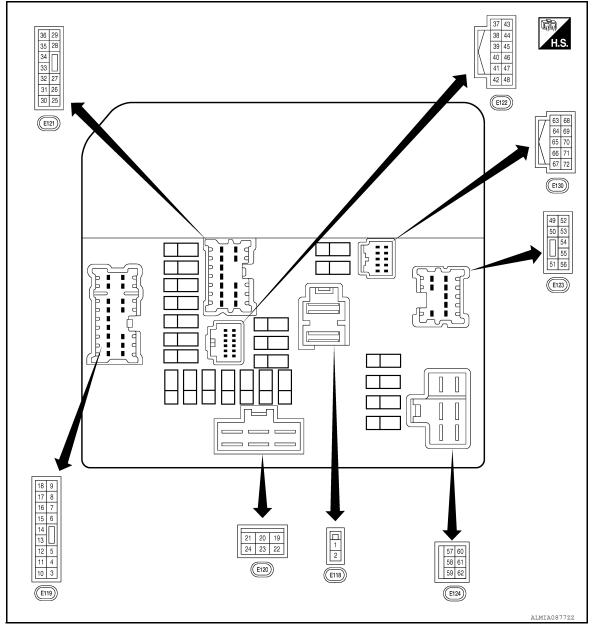
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< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

TERMINAL LAYOUT



PHYSICAL VALUES – WITH CUMMINS 5.0L

Terminal No.		Description				Value
(Wire +	color)	Signal name	Input/ Output		Condition	(Approx.)
1 (B/Y)	Ground	Fusible link IPDM E/R	Input	Ignition switch OFF		Battery voltage
2 (R)	Ground	Fusible link main	Input	Ignition switch OFF		Battery voltage
4 (B/R)	Ground	d Transmission range switch Input Ignition signal	Input	Input Ignition	AT selector lever in any position other than P or N position	0 V
(b/K)			SWITCH ON	AT selector lever in P or N position	Battery voltage	
5 (L/W)	Ground	nd Headlamp HI RH	Output	Ignition switch ON	Lighting switch HILighting switch PASS	Battery voltage
(Ľ/ 🗤)					Lighting switch OFF	0 V

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2016 Titan NAM

< ECU DIAGNOSIS INFORMATION >

[IPDM É/R]

	nal No. color)	Description			Condition	Value
+	-	Signal name	Input/ Output	Condition		(Approx.)
6 (G)	Ground	Headlamp HI LH	Output	Ignition switch ON	Lighting switch HILighting switch PASS	Battery voltage
(0)				Switch ON	Lighting switch OFF	0 V
7	Ground	Headlamp LO LH	Output	Ignition	Lighting switch OFF	0 V
(L)	Cround		Output	switch ON	Lighting switch 2ND	Battery voltage
8	Ground	Headlamp LO RH	Output	Ignition	Lighting switch OFF	0 V
(R/Y)	Cround		Output	switch ON	Lighting switch 2ND	Battery voltage
9	Ground	Front fog lamp LH	Output	Ignition	Fog lamp switch OFF	0 V
(G/W)	Ciouna	Tont log lamp En	Output	switch ON	Fog lamp switch ON	Battery voltage
44				Ignition swi (For a few tion switch	seconds after turning igni-	0 V
11 (P)	Ground	Actuator power relay output	Output	•		Battery voltage
12	Ground	Front fog lamp RH	Output	Ignition	Fog lamp switch OFF	0 V
(W/R)	Giouna		Output	switch ON	Fog lamp switch ON	Battery voltage
13	Ground	Transmission control mod-	Output	Output		0 V
(Y/R)	Cround	ule	Output	Ignition swi	itch ON	Battery voltage
14	Ground	Reverse lamps	Output	Ignition switch OFF Ignition switch ON		0 V
(G)	Cround	Reverse lamps	Output			Battery voltage
15	Ground	ABS actuator and electric	Output –	Ignition switch OFF		0 V
(GR)	Cround	unit (control unit)	Output	Ignition switch ON		Battery voltage
16 (G)	Ground	Actuator power relay control	Output	Ignition swi	itch ON \rightarrow OFF	0 -1.0 V ↓ Battery voltage ↓ 0 V
				Ignition swi	itch ON	0 - 1.0 V
17	Ground	ECM ignition switch	Output	Ignition swi		0 V
(L/W)			Calput	Ignition swi	itch ON	Battery voltage
19 (W/R)	Ground	Starter motor	Output	At engine o	cranking	5 V
20 (L)	Ground	Fusible link ignition switch	Input	Ignition swi	itch OFF	Battery voltage
25 (BR)	Ground	ECM battery	Output	Ignition swi		Battery voltage
27 (D/L)	Ground	Parking lamp RH	Output	Ignition	Lighting switch 1ST	Battery voltage
(R/L)			-	switch ON	Lighting switch OFF	0 V
28	Ground	Tail and license plate lamps	Output	Ignition	Lighting switch OFF	0 V
(R/L)		· · ·	•	switch ON	Lighting switch 1ST	Battery voltage
29	Ground	Front wiper HI	Output	Ignition	Front wiper switch OFF	0 V
(Y)				switch ON	Front wiper switch HI	Battery voltage

< ECU DIAGNOSIS INFORMATION >

[IPDM É/R]

	nal No.	Description				Value
(Wire	color)	Signal name	Input/ Output		Condition	(Approx.)
31				Ignition swi (For a few tion switch	seconds after turning igni-	Battery voltage
(L)	Ground	ECM relay control	Output			0 - 1.5 V
33	Ground	Parking lamp LH	Output	Ignition	Lighting switch 1ST	Battery voltage
(R/L)	Ciouna		Output	switch ON	Lighting switch OFF	0 V
34	Ground	Illumination	Output	Ignition	Lighting switch OFF	0 V
(R/W)	Cround	indimination	Output	switch ON	Lighting switch 1ST	Battery voltage
35	Ground	Front wiper LO	Output	Ignition	Front wiper switch OFF	0 V
(BR)	croana		output	switch ON	Front wiper switch LO	Battery voltage
39				Ignition	Front wiper stop position	0 V
(L/Y)	Ground	Wiper autostop	Input	switch ON	Any position other than front wiper stop position	Battery voltage
40 (P)	—	CAN-low	Input/ Output		_	_
41 (L)	_	CAN-high	Input/ Output		_	_
42	Ground	Daytime running lamps re- lay	Output	Ignition switch ON	Daytime running light sys- tem active	Battery voltage
(BR)	Ground		Output	Ignition switch ON	Daytime running light sys- tem inactive	0 V
44 (W/B)	Ground	Starter control	Input	Ignition switch ON	AT selector lever in any position other than P or N	0 V
(00/13)				SWITCH ON	AT selector lever P or N	Battery voltage
45 (GR)	Ground	Fuel pump relay control	Output		nately 1 second after turning on switch ON unning	0 - 1.0 V
(0.1)					tely 1 second or more after ignition switch ON	Battery voltage
46	Ground	Hood switch	Input	Ignition	Hood closed	0 V
(Y)			input	switch ON	Hood open	Battery voltage
48	Ground	Horn relay	Input	The horn is	deactivated	Battery voltage
(R/W)	Cround	nomitelay	mput	The horn is	activated	0 V
					A/C compressor OFF	0 V
49 (Y/B)	Ground	A/C compressor	Output	Engine running	A/C compressor ON (A/C compressor is oper- ating)	Battery voltage
50 (BR)	Ground	Trailer tow relay	Output	Ignition swi	itch OFF	Battery voltage
52 (B)	Ground	Ground (signal)	_	Ignition swi	itch ON	0 V
57 (W/B)	Ground	Rear window defogger relay	Output	Ignition switch ON	Rear defogger switch ON Rear defogger switch OFF	Battery voltage 0V

< ECU DIAGNOSIS INFORMATION >

[IPDM É/R]

	nal No.	Description				Value	
(Wire +	e color)	Signal name	Input/ Output		Condition	(Approx.)	ŀ
58					tely 1 second or more after ignition switch ON	0 V	E
(BR)	Ground	Lift pump	Output	 Approximately 1 second after turning the ignition switch ON Engine running 		Battery voltage	(
62 (B)	Ground	Ground (Power)	_	Ignition sw	itch ON	0 V	_
					Press the AT selector but- ton (AT selector lever P)	Battery voltage	
64 (R)	Ground	Park position switch	Input	Input Ignition switch ON	 AT selector lever in any position other than P Release the AT selector button (AT selector lever P) 	0 V	[
66				Press the p	oush-button ignition switch	0 V	F
66 (P)	Ground	Push-button ignition switch	Input	Release th switch	e push-button ignition	Battery voltage	_
68	Ground	Ignition signal*	Input	Ignition sw	itch OFF or ACC	Battery voltage	- (
(L)	Giounu	Ignition signal	input	Ignition sw	itch ON	0 V	_
71	Ground	Hood switch 2	Input	Ignition	Hood closed	0 V	
(SB)	B) Ground Hood switch 2 Inpl	input	switch ON	Hood open	Battery voltage		

*: Ignition battery saver logic turns OFF the IPDM E/R and BCM if the ignition is ON for 30 minutes with the engine OFF.

PHYSICAL VALUES - WITH VK56VD

	erminal No. Description					Value	J
(Wire +	color)	Signal name	Input/ Output		Condition	(Approx.)	LZ.
1 (B/Y)	Ground	Fusible link IPDM E/R	Input	Ignition sw	itch OFF	Battery voltage	K
2 (R)	Ground	Fusible link main	Input	Ignition sw	itch OFF	Battery voltage	L
4	Ground	Transmission range switch	Input Ignition		AT selector lever in any position other than P or N position	0 V	PCS
(b/R)	(B/R) signal	signal		switch ON -	AT selector lever in P or N position	Battery voltage	
5 (L/W)	Ground	Headlamp HI RH	Output	Ignition switch ON	Lighting switch HILighting switch PASS	Battery voltage	Ν
(L/VV)				SWIICH ON	Lighting switch OFF	0 V	
6 (G)	Ground	Headlamp HI LH	Output	Ignition switch ON	Lighting switch HILighting switch PASS	Battery voltage	0
(0)				Switch ON -	Lighting switch OFF	0 V	
7	Cround		Outout	Ignition	Lighting switch OFF	0 V	Р
(L)	Ground	Headlamp LO LH	Output	switch ON	Lighting switch 2ND	Battery voltage	
8	Oraciand		Outrut	Ignition	Lighting switch OFF	0 V	
(R/Y)	(R/Y) Ground He	Headlamp LO RH	Output	switch ON	Lighting switch 2ND	Battery voltage	
9	9	Front for Jome 111	Output	Ignition	Fog lamp switch OFF	0 V	
(G/W)	Ground	Front fog lamp LH	Output	switch ON	Fog lamp switch ON	Battery voltage	

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< ECU DIAGNOSIS INFORMATION >

[IPDM É/R]

	nal No.	Description				Value
(Wire +	color)	Signal name	Input/ Output		Condition	(Approx.)
11				Ignition switch OFF (For a few seconds after turning igni- tion switch OFF) utput Ignition switch ON Ignition switch OFF (More than a few seconds after turn- ing ignition switch OFF)		0 V
(O)	Ground	Electronic throttle control	Output			Battery voltage
12 (W/R)	Ground	Front fog lamp RH	Output	Ignition switch ON	Fog lamp switch OFF	0 V
					Fog lamp switch ON	Battery voltage
13 (Y/R)	Ground	Transmission control mod- ule	Output	Ignition sw		
				Ignition sw		Battery voltage
14 (G)	Ground	Reverse lamps	Output	Ignition sw		0 V
(0)				Ignition sw		Battery voltage
15 (GR)	Ground	ABS actuator and electric	Output	Ignition sw		0 V
(GR)		unit (control unit)		Ignition sw	itch ON	Battery voltage
16 (V/R)	Ground	Throttle control motor relay control	elay Output Ignitio		itch ON \rightarrow OFF	0 -1.0 V ↓ Battery voltage ↓ 0 V
				Ignition switch ON		
				-		0 - 1.0 V 0 V
17 (W)	Ground	ECM ignition switch	Output	Ignition switch OFF Ignition switch ON		Battery voltage
19 (W/R)	Ground	Starter motor	Output	At engine cranking		5 V
20 (L)	Ground	Fusible link ignition switch	Input	Ignition switch OFF		Battery voltage
25 (W)	Ground	ECM battery	Output	Ignition sw	tch OFF	Battery voltage
26 (V)	Ground	O2 sensor	Output	Ignition sw	itch OFF	Battery voltage
27	Ground	Parking lamp RH	Output	Ignition	Lighting switch 1ST	Battery voltage
(R/L)	Giouna		Output	switch ON	Lighting switch OFF	0 V
28	Ground	Tail and license plate lamps	Output	Ignition	Lighting switch OFF	0 V
(R/L)	Cround	rail and license plate lamps	Output	switch ON	Lighting switch 1ST	Battery voltage
29 (Y)	Ground	Front wiper HI	Output	Ignition switch ON	Front wiper switch OFF	0 V Battery voltage
				switch ON Front wiper switch HI Ignition switch OFF (For a few seconds after turning igni- tion switch OFF)		Battery voltage
31 (L)	Ground	ECM relay control	ntrol Output		witch ON witch OFF an a few seconds after turn- on switch OFF)	0 - 1.5 V
32 (L)	Ground	ECM power supply	Output	Ignition sw	itch OFF	Battery voltage
33	Cround	Parking Jamp L L	0	Ignition	Lighting switch 1ST	Battery voltage
(R/L)	Ground	Parking lamp LH	Output	switch ON	Lighting switch OFF	0 V

< ECU DIAGNOSIS INFORMATION >

[IPDM É/R]

	nal No.	Description				Value
(Wire +	e color)	Signal name	Input/ Output		Condition	Value (Approx.)
34	Oraciand		Outrut	Ignition	Lighting switch OFF	0 V
(R/W)	Ground	Illumination	Output	switch ON	Lighting switch 1ST	Battery voltage
35	Ground	Front wiper LO	Output	Ignition	Front wiper switch OFF	0 V
(BR)	Ground		Output	switch ON	Front wiper switch LO	Battery voltage
39				Ignition	Front wiper stop position	0 V
(L/Y)	Ground	Wiper autostop	Input	switch ON	Any position other than front wiper stop position	Battery voltage
40 (P)	—	CAN-low	Input/ Output		_	_
41 (L)	—	CAN-high	Input/ Output		_	_
42	Ground	Daytime running lamps re-	Output	Ignition switch ON	Daytime running light sys- tem active	Battery voltage
(BR)	Cround	lay	Culput	Ignition switch ON	Daytime running light sys- tem inactive	0 V
44 (W/B)	Ground	Starter control	Input	Ignition switch ON	AT selector lever in any position other than P or N	0 V
(000)				Switch ON	AT selector lever P or N	Battery voltage
45	Ground	Fuel pump relay control	Output		nately 1 second after turning on switch ON unning	0 - 1.0 V
(GR)			Output		tely 1 second or more after ignition switch ON	Battery voltage
46 (Y)	Ground	Hood switch	Input	Ignition switch ON	Hood closed Hood open	0 V Battery voltage
				Ignition sw	itch ON	(V) 6 2 0 • • • • • • • • • • • • •
47 (Y)	Ground	Power generation com- mand signal	Output		on "Active test," "ALTERNA- /" of "ENGINE"	(V)
					on "Active test," "ALTERNA- /" of "ENGINE"	JPMIA0003GB 1.4 V

< ECU DIAGNOSIS INFORMATION >

[IPDM É/R]

	nal No.	Description								
(Wire	color)	Signal name	Input/ Output		Condition	Value (Approx.)				
48				The horn is	s deactivated	Battery voltage				
(R/W)	Ground	Horn relay	Input	The horn is	activated	0 V				
					A/C compressor OFF	0 V				
49 (GR/R)	Ground	A/C compressor	Output	Engine running	A/C compressor ON (A/C compressor is oper- ating)	Battery voltage				
50 (BR)	Ground	Trailer tow relay	Output	Ignition sw	itch OFF	Battery voltage				
52 (B)	Ground	Ground (signal)	_	Ignition sw	itch ON	0 V				
57	Ground	Poor window defeager relay	Output	Ignition	Rear defogger switch ON	Battery voltage				
(W/B)	Ground	Rear window defogger relay	Output	switch ON	Rear defogger switch OFF	0V				
58					tely 1 second or more after ignition switch ON	0 V				
(B/Y)	Ground	Lift pump	Output		nately 1 second after turning on switch ON unning	Battery voltage				
62 (B)	Ground	Ground (Power)	—	Ignition sw	itch ON	0 V				
					Press the AT selector but- ton (AT selector lever P)	Battery voltage				
64 (R)	Ground	Park position switch	Input	Ignition switch ON • AT selector lever in any position other than P • Release the AT selector button (AT selector le- ver P)		0 V				
				Press the p	oush-button ignition switch	0 V				
66 (P)	Ground	Push-button ignition switch	Input	Release th switch	e push-button ignition	Battery voltage				
68	Cround	lanition oignalt	lagut	Ignition sw	itch OFF or ACC	Battery voltage				
(L)	Ground	Ignition signal*	Input	Ignition sw	itch ON	0 V				
71	Ground	Hood switch 2	Input	Ignition	Hood closed	0 V				
(SB)	Ground		input	switch ON	Hood open	Battery voltage				
				1	OFF	5 V				
				Ignition switch		0 V				
72 (W)	Ground	Cooling fan control	Output	Engine run	ON	(V) 15 0 0 0 0 0 0 0 0 0 0 0 0 0				

*: Ignition battery saver logic turns OFF the IPDM E/R and BCM if the ignition is ON for 30 minutes with the engine OFF.

Fail Safe

INFOID:000000012546638

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.

< ECU DIAGNOSIS INFORMATION >

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 relay OFF
Parking lampsLicense plate lampsTail 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 seconds activation and 20 seconds 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.	F

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:000000012546639

[IPDM E/R]

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CONSULT display	Fail-safe	TIME	NOTE	Refer to
No DTC is detected. Further testing may be required.	—	—	—	_
U1000: CAN COMM CIRCUIT	×	CRNT	1 – 39	PCS-35
U1010: CONTROL UNIT (CAN)	×	CRNT	1 – 39	PCS-37
B2098: IGN RELAY ON	×	CRNT	1 – 39	PCS-38



< ECU DIAGNOSIS INFORMATION >

CONSULT display	Fail-safe	TIME	NOTE	Refer to
B2099: IGN RELAY OFF	—	CRNT	1 – 39	PCS-40
B210B: PNP RELAY ON	—	CRNT	1 – 39	<u>SEC-127</u>
B210C: PNP RELAY OFF	—	CRNT	1 – 39	<u>SEC-128</u>
B210D: STARTER RELAY ON	—	CRNT	1 – 39	<u>SEC-129</u>
B210E: STARTER RELAY OFF	—	CRNT	1 – 39	<u>SEC-131</u>
B210F: INTRLCK PNP SW ON	—	CRNT	1 – 39	<u>SEC-133</u>
B2110: INTRLCK PNP SW OFF	—	CRNT	1 – 39	<u>SEC-136</u>

NOTE:

The details of TIME display are as follows.

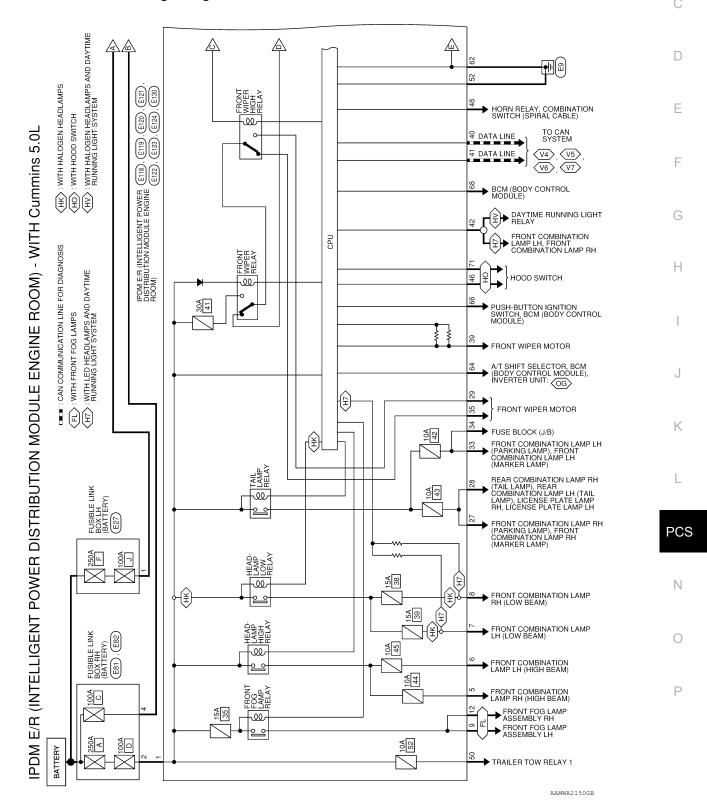
CRNT: The malfunctions that are detected now

• 1 - 39: The number is indicated when it is normal at present and a malfunction was detected in the past. It increases like $0 \rightarrow 1 \rightarrow 2 \cdots 38 \rightarrow 39$ after returning to the normal condition whenever IGN OFF \rightarrow 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.

WIRING DIAGRAM

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) CUMMINS 5.0L

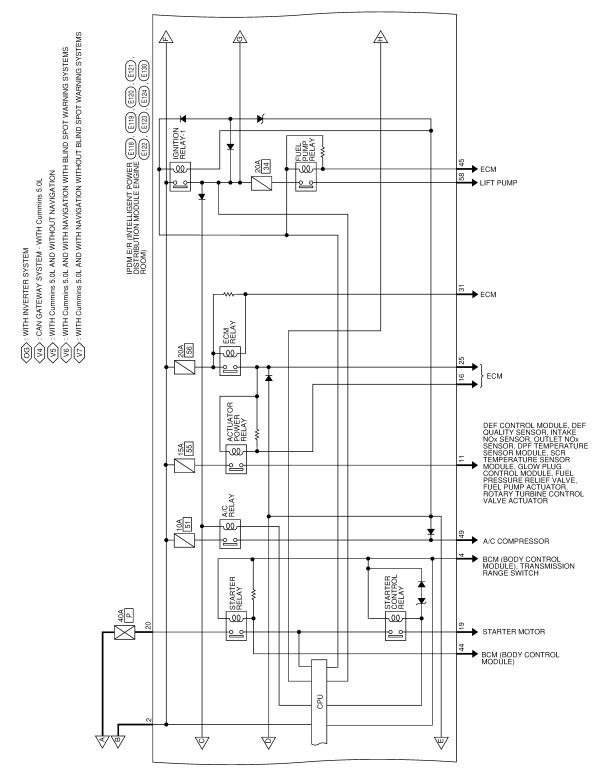
CUMMINS 5.0L : Wiring Diagram



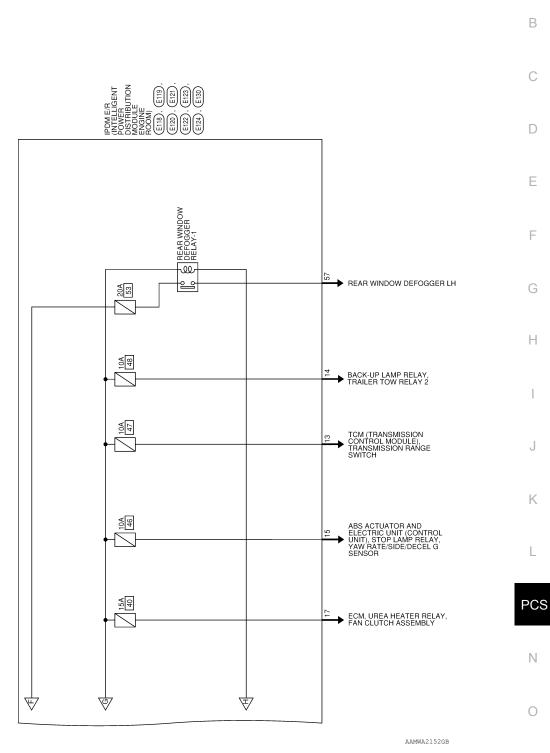
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< WIRING DIAGRAM >

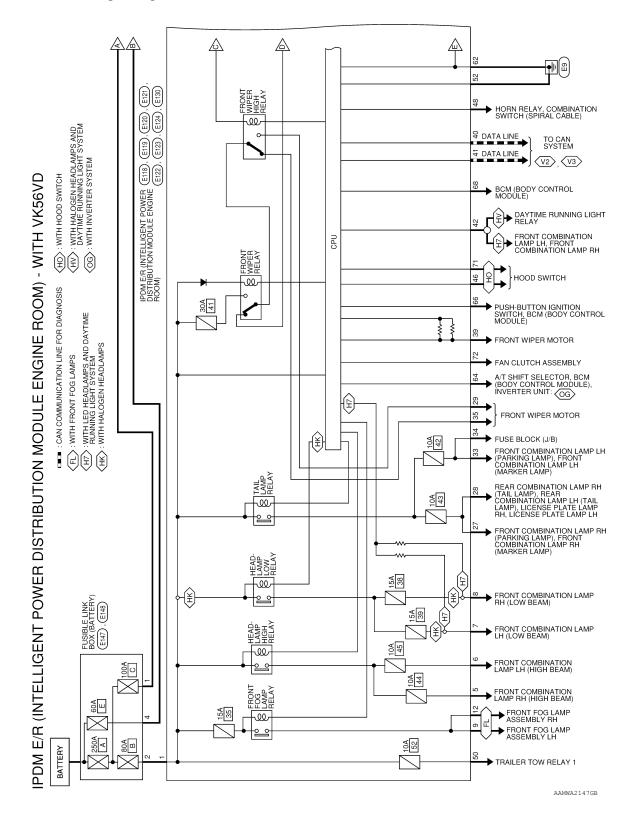
Connector No. EXTERN Connector Name EUSIBLE LINK BOX LH Connector Name EUSIBLE LINK BOX RH Connector Name EUSID RIN RE Connector Name EUSID RIN R	16 V/R ETCALY CONT - (WITH WGEWD) 33 R/L PARKING LH 17 L/W IGN COLI - (WITH WGEWD) 34 R/W TAIL 2 17 W IGN COLI - (WITH WGEWD) 35 BR FR WIPER LO 18 - - - - -	OM Connector No. E120 Connector No. E122 Connector Name IPDM E/R (INTELLIGENT Connector Name IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) MODULE ENGINE ROOM) MODULE ENGINE ROOM)	Connector Type M06FW-LC Connector Type TH12FW-NH Connector Color WHITE Connector Color WHITE	Q.	24 23 22 48 47 46 45 44 43	al Color of Signal Name	37 No. Wire	20 L F/L (GNSW 38 -	21 - - 39 UV WIPER 22 - - - 40 P	23 CANH 24	43 - 43	-	Connector Name IPDM E/R (INTELLIGENT 46 Y	10 Connector Type	<u> </u>	H.S.	122			Terminal Color of Signal Name	ECM VB	25 W	26 V 02 SE	R/L PA	28 HOL IALT	30
E27 E27 E27 E27 ILO2FBR.MC ENTERY ILO2FBR.MC Connector 1 ILO2FBR.MC Connector 1 ILO2FBR.MC Connector 1 ILO2FBR.MC Connector 1 ILO2FBR.MC Signal Name ILO2FBR.MC Connector 1 ILO2FBR.LINK BOX RH I ILO2FBR.MC Connector 1 ILO2FBR.MC Connector 1 ILO2FBR.LINK BOX RH I ILO2FBR.LINK BOX RH					color of Wire	B/Y R							8	18 17 1	Color of Wire		B/R	ہ آ	-	RV	M/5)		_	W/R	5	2 HB
	4 Connector No Connector Na	Connector Type Connector Co	日 H.S.			2	Connector No	Connector Na		Connector Typ	Connector Co	EB)	H.S.			-	4	9	7	œ	م 10	÷	11	12	5 1	15
	LE LINK BOX LH ERY) R-MC		- 2		BATTERY							2				-		-	1			4	8]]		

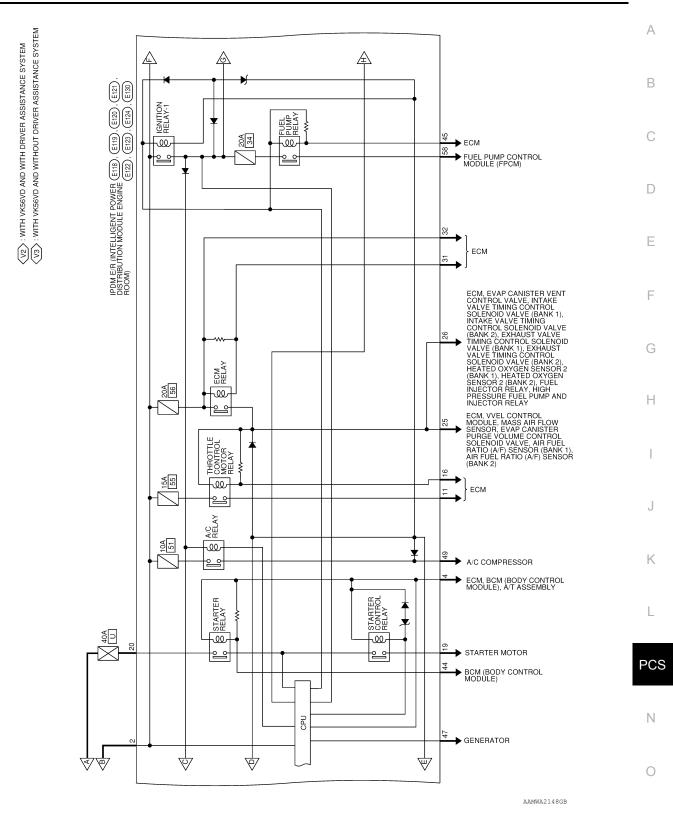
			Æ
OL			C
ISTRIBUTION MODULE ENGINE ROOM) CONNECTORS - WITH Cummins 5.0L			Γ
- WITH C			E
ECTORS			F
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INE ROO			ł
ULE ENG	E130 IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) TH10FB-NH BLACK 72 71 70 69 66	Signal Name - - DETENT SW - - - HOOD SW2 E-CPLG - [WITH WK68VD]	
ION MOD			
STRIBUT	Connector No. Connector Name Connector Type Connector Color	Terminal No. Color of Wire 63 - 63 - 64 - 65 - 66 - 67 - 71 98 71 71 73 98 74 98 77 79	I
OWER DI			
D IPDM E/R (INTELLIGENT POWER DI	E123 IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) NS08FBH-CS BROWN	F Signal Name AC COMP - WITH CUMMINS AC COMP - WITH CUMMINS - SUNTH CUMMINS - C - AC COMP - WITH VGSPD) - TRALER TOW - Sean - POWER DEF - POWER DEF - POWER DEF - E124 - POWER DEF - FUEL PUMP - WITH CUMMINS sol) - POWEN DEF - POWEN DEF - POWEN DEF -	Р
3 (INTELL			l
IPDM E/F	Connector No. Connector Name Connector Type Connector Color	Terminal No. Color A9 Warminal No. Wint No. Wint Signature Signature Signature<	(
<56VD			

< WIRING DIAGRAM >

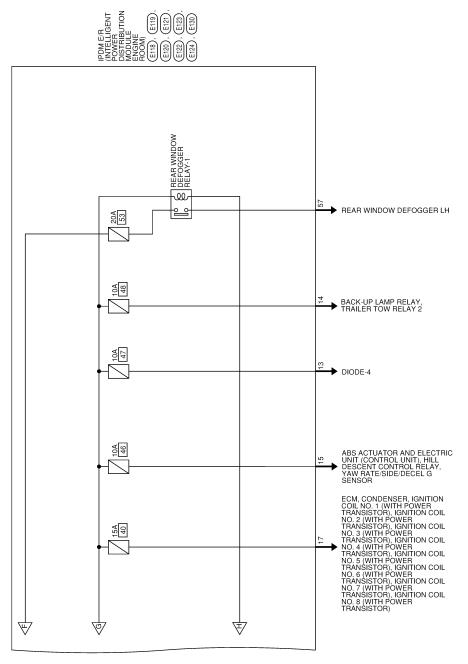
VK56VD : Wiring Diagram

INFOID:000000013828738

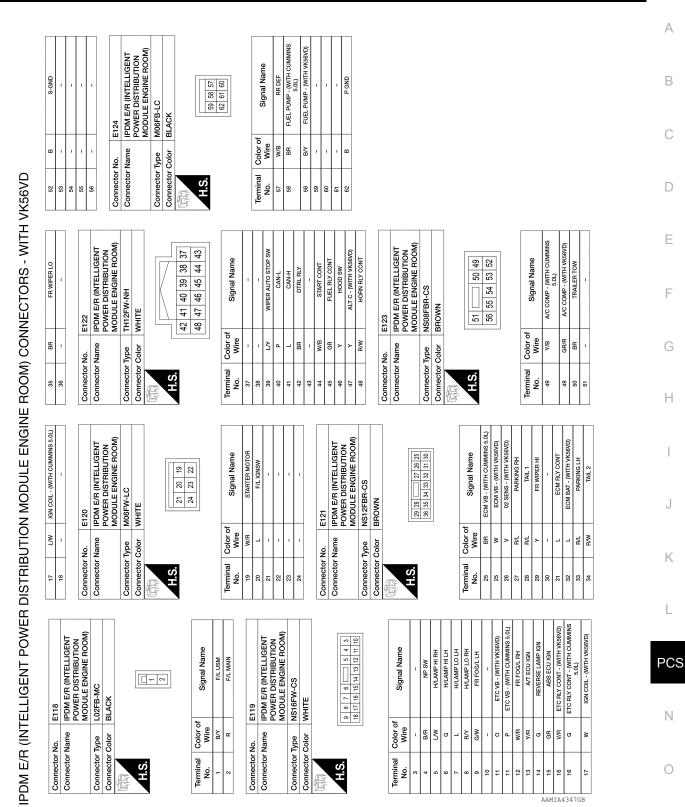




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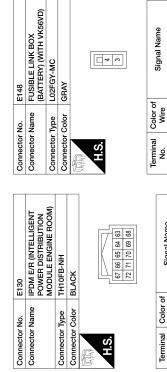
AAMWA2149GB



< WIRING DIAGRAM >

Revision: March 2016

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Signal Name BATTERY BATTERY

63 - - 64 R DETENT SW 65 P - 66 P PUSH STATT SW 67 - - 68 L ION SIGNAL 69 - - 61 L ION SIGNAL 63 - - 64 L ION SIGNAL 67 - - 68 - - 69 - - 61 ION SIGNAL - 70 SB HOOD SW2 72 W E-CPLG - (WITH VIGEND)	Terminal No.	Color of Wire	Signal Name
	63	1	
	64	ж	DETENT SW
G 1 1 1 8	65		
×	99	٩	PUSH START SW
K SB	67	1	1
88 M	68	Г	IGN SIGNAL
- SB	69	1	1
SB W	70	ı	ı
w	74	SB	HOOD SW2
	72	M	E-CPLG - (WITH VK56VD)

E147	FUSIBLE LINK BOX (BATTERY) (WITH VK56VD)	L02FBR-MC	BROWN	
Connector No.	Connector Name	Connector Type	Connector Color	际 H.S.

Signal Nam	BATTERY	BATTERY	
Color of Wire	B/L	ВΛ	
Terminal No.	ŀ	2	

AAMIA4348GB

DTC/CIRCUIT DIAGNOSIS U1000 CAN COMM CIRCUIT

DTC Description

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicles are equipped with many electronic control units and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

DTC DETECTION LOGIC

DTC No	CONSULT screen terms (Trouble diagnosis content)	DTC Detection Condition		F
U1000	CAN COMM CIRCUIT (CAN communication circuit)	Diagnosis condition	When ignition switch is ON.	
		Signal (terminal)	-	
		Threshold	_	G
		Diagnosis delay time	2 seconds or more	

POSSIBLE CAUSE

CAN communication system

FAIL-SAFE

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 operation	
A/C compressor	A/C relay OFF	L

If No CAN Communication Is Available With BCM

Control part	Fail-safe operation	L
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 relay OFF 	PCS
 Parking lamp License plate lamp Illumination Tail lamp Side marker lamp 	 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. 	N
Front wiper motor	 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. Returns wiper automatically to stop position when ignition switch is turned ON if fail-safe control is activated ed while front wiper motor is operated and the wiper is in any position other than the stop position. The status is held at service position if the fail-safe control is activated while the service position function is operating. 	O P
Front fog lamp	Front fog lamp relay OFF	
Horn	Horn relay OFF	
Ignition relay-1	The status just before activation of fail-safe is maintained.	
Starter motor	Starter control relay OFF	

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INFOID:000000013106707 B

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

- Turn ignition switch ON and wait for 2 seconds or more.
- 2. Check "Self Diagnostic Result" mode of "IPDM E/R".
- 3. Check DTC.

Is DTC "U1000" displayed?

- YES >> Refer to PCS-36, "Diagnosis Procedure".
- NO-1 >> To check malfunction symptom before repair: Refer to GI-43, "Intermittent Incident".
- NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:000000013106708

1.PERFORM SELF DIAGNOSIS

CONSULT

- Turn ignition switch ON and wait for 2 seconds or more.
- 2. Check "Self Diagnostic Result" mode of "IPDM E/R".
- 3. Check DTC.

Is DTC "U1000" displayed?

- YES >> Refer to LAN-51, "Trouble Diagnosis Flow Chart".
- NO >> Refer to <u>GI-43, "Intermittent Incident"</u>.

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

U1010 CONTROL UNIT (CAN)

DTC Description

INFOID:000000013106709

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[IPDM E/R]

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)		DTC Detection Condition	С
		Diagnosis condition	When ignition switch is ON.	
U1010	CONTROL UNIT(CAN)	Signal (terminal)	-	
01010	(Control unit)	Threshold	-	D
		Diagnosis delay time	2 seconds or more	
• IPDM E/				E
FAIL-SAF	E			F
	FIRMATION PROCED	URF		
	ORM DTC CONFIRMATIO			0
		NINCOLDONE		G
	gnition switch ON and wai "Self Diagnostic Result" r		re.	Н
YES > NO-1 >	<u>1000" displayed?</u> > Refer to <u>PCS-37, "Diagr</u> > To check malfunction sy > Confirmation after repai	mptom before repair:	Refer to GI-43. "Intermittent Incident".	I
Diagnos	is Procedure		INFOID:000000013106	710 J
1. REPLA	CE IPDM E/R			
Replace IF	PDM E/R. Refer to PCS-4	3, "Removal and Insta	allation of IPDM E/R".	— K
>	Inspection End.			L
				PC

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B2098 IGNITION RELAY ON STUCK

< DTC/CIRCUIT DIAGNOSIS >

B2098 IGNITION RELAY ON STUCK

DTC Description

- IPDM E/R operates the ignition relay when it receives an ignition switch ON signal from BCM via CAN communication.
- Turn the ignition relay OFF by pressing the push-button ignition switch once when the vehicle speed is 4 km/ h (2.5 MPH) or less.
- Turn the ignition relay OFF with the following operation when the vehicle speed is more than 4 km/h (2.5 MPH) or when an abnormal condition occurs in CAN communication from the combination meter (Emergency OFF)
- Press and hold the push-button ignition switch for 2 seconds or more.
- Press the push-button ignition switch 3 times within 1.5 seconds.

NOTE:

The ignition relay does not turn ON for 3 seconds after emergency OFF even if the push-button ignition switch is pressed.

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC Detection Condition	
	B2098 IGN RELAY ON (Ignition relay ON circuit)	Diagnosis condition	When ignition switch is ON.
D 2009		Signal (terminal)	-
B2090		Threshold	-
		Diagnosis delay time	1 second or more

Possible Cause

• IPDM E/R.

• Harness or connectors (ignition relay circuit short).

FAIL-SAFE

Turns ON the tail lamp relay for 10 minutes.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

- Turn ignition switch ON.
- 2. Turn ignition switch OFF and wait 1 second or more.
- 3. Check DTC in "Self Diagnostic Result" mode of "IPDM E/R".

Is DTC detected?

- YES >> Refer to PCS-38, "Diagnosis Procedure".
- NO-1 >> To check malfunction symptom before repair: Refer to GI-43, "Intermittent Incident".
- NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:000000013106712

Regarding Wiring Diagram information, refer to <u>PCS-25, "CUMMINS 5.0L : Wiring Diagram"</u>.

1.SELF DIAGNOSTIC RESULT

1. Check "Self Diagnostic Result" mode of "IPDM E/R".

What is the display history of DTC "B2098"?

"CRNT">> GO TO 2.

"PAST" >> GO TO 5.

2.CHECK IGNITION RELAY CONTROL CIRCUIT VOLTAGE 1

INFOID:000000013106711

B2098 IGNITION RELAY ON STUCK

< DTC/CIRCUIT DIAGNOSIS >

1.

Turn ignition switch ON. Check voltage between IPDM E/R harness connector E130 and ground. 2.

(+)		
IPDM E/R		()	Voltage (Approx.)
Connector	Terminal		(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
E130	68	Ground	0 V
Disconnect IPDM E/R Turn ignition switch ON	AY CONTROL CIRCUIT VOL		
	(+)		Voltage
Connector	M E/R	(-)	(Approx.)
E130	68	Ground	0 V
CHECK IGNITION REL Disconnect IPDM E/R Check continuity betwe		ector E130 and ground.	
IP	PDM E/R		Oantinuitu
Connector	Terminal	Ground	Continuity
E130	68		No
	agnosis procedure for DTC B ice harness or connectors. T INCIDENT	26F2. Refer to <u>PCS-86, "D</u>	TC Description".

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[IPDM E/R]

B2099 IGNITION RELAY OFF STUCK

< DTC/CIRCUIT DIAGNOSIS >

B2099 IGNITION RELAY OFF STUCK

DTC Description

INFOID:000000013106713

[IPDM E/R]

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC Detection Condition	
	B2099 IGN RELAY OFF (Ignition relay OFF circuit)	Diagnosis condition	When ignition switch is ON.
B2000		Signal (terminal)	-
D2099		Threshold	-
		Diagnosis delay time	1 second or more

NOTE:

When IPDM E/R power supply voltage is low (Approx. 7 - 8 V for about 1 second), the "DTC: B2099" may be detected.

POSSIBLE CAUSE

- IPDM E/R
- Fuse
- Battery

FAIL-SAFE

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

- Turn ignition switch ON.
- 2. Select "Self Diagnostic Result" mode of "IPDM E/R".
- 3. Check DTC.

Is DTC detected?

- YES >> Refer to PCS-40, "Diagnosis Procedure".
- NO-1 >> To check malfunction symptom before repair: Refer to GI-43, "Intermittent Incident".
- NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:000000013106714

Regarding Wiring Diagram information, refer to PCS-25, "CUMMINS 5.0L : Wiring Diagram".

1.CHECK FUSE

Check that all of the fuses installed on the downstream of the contact point side circuit of the ignition relay in IPDM E/R are not blown.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after replacing the affected circuit if a fuse is blown.

2. CHECK IGNITION RELAY CONTROL CIRCUIT VOLTAGE

1. Turn ignition switch ON

2. Check voltage between IPDM E/R harness connector E130 and ground.

B2099 IGNITION RELAY OFF STUCK

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R]

(-	+)		
IPDM E/R		(-)	Voltage (Approx.)
Connector	Terminal		(FF - 7
E130	68	Ground	0V
-	E/R. Refer to <u>PCS-43, "Rer</u>	noval and Installation of IPD	<u>DM E/R"</u> .
3. CHECK BATTERY VOLT	TAGE		
Check battery voltage.			
Which is the measurement			
More than 12.4 V>>GO TO		to PG-164, "How to Handle	Battery"
4.CHECK INTERMITTEN		······································	
Refer to GI-43, "Intermittent	Incident".		
>> Inspection End			

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POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:000000013106715

[IPDM E/R]

Regarding Wiring Diagram information, refer to PCS-25, "CUMMINS 5.0L : Wiring Diagram".

1. CHECK FUSIBLE LINKS

Check that the following fusible links are not blown.

Terminal	Signal name	Fusible link No.		
	Signarhame	Cummins 5.0L VK56VD		
1		A (250A), D (100A)	A (250A), B (80A)	
2	Battery power supply	C (100A)	E (60A)	
20		F (250A), J (100A), P (40A)	A (250A), C (100A), U (40A)	

Is the fusible link blown?

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

NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect IPDM E/R connectors E118 and E120.

2. Check voltage between IPDM E/R connectors and ground.

IPDM E/R		Ground	Voltage	
Connector	Terminal	Ground	Voltage (Approx.)	
E118	1			
LIIO	2	(—)	Battery voltage	
E120	20			

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

1. Disconnect IPDM E/R connectors E123 and E124.

2. Check continuity between IPDM E/R connectors and ground.

IPDM E/R		Ground	Continuity	
Connector	Terminal	Ground	Continuity	
E123	52		Yes	
E124	62		165	

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) [IPDM E/R] < UNIT REMOVAL AND INSTALLATION >

UNIT REMOVAL AND INSTALLATION

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

Removal and Installation of IPDM E/R

REMOVAL

CAUTION:

Do not remove the relays from the IPDM. Except for the fuses, the IPDM must be replaced as an assembly.

- 1. Disconnect battery or batteries. Refer to PG-174, "Battery Disconnect".
- 2. Release the clips (A) and remove IPDM E/R upper cover (1).

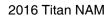
3. Release the clips (A) and pull IPDM E/R (1) up from case.

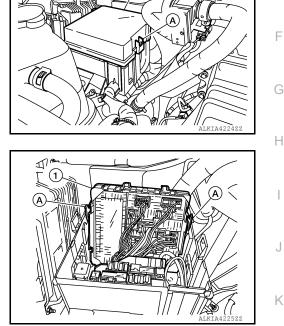
4. Disconnect the harness connectors from the IPDM E/R and remove.

INSTALLATION

Installation is in the reverse order of removal.







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< PRECAUTION >

PRECAUTION PRECAUTIONS

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

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

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

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

WARNING:

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

Precaution for Work

INFOID:000000013019612

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
- Water soluble dirt:
- Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
- Then rub with a soft, dry cloth.
- Oily dirt:
- Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
- Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
- Then rub with a soft, dry cloth.
- Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

PREPARATION

PREPARATION

Special Service Tool

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name		Description	
 (J-46534) Trim Tool Set	A T F	Removing trim components	
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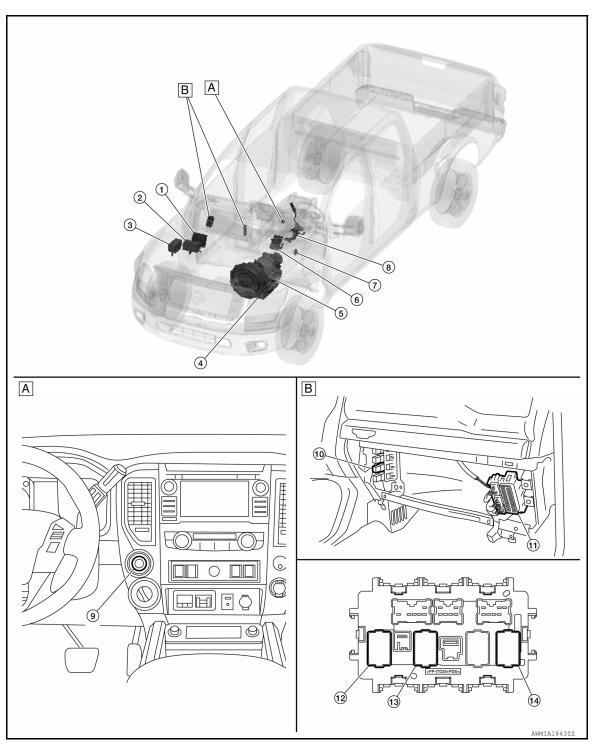
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< SYSTEM DESCRIPTION > SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:000000013019614



A. Front of center stack

B. Instrument lower panel RH

COMPONENT PARTS

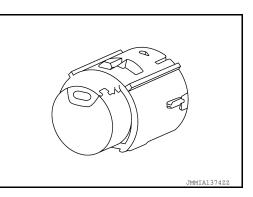
< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

No.	Component	Function
1.	IPDM E/R	 IPDM E/R detects push-button ignition switch (push switch) status, and transmits push-button ignition switch status signal (CAN) to BCM. IPDM E/R receives ignition relay (IPDM E/R) control signal and ignition switch ON signal (CAN) from BCM, and controls ignition relay (built in IPDM E/R) Refer to <u>PCS-5, "Component Parts Location"</u> for detailed installation location.
2.	 Fuse and relay box (VK56VD) Stop lamp relay (without LED rear combination lamps) TCM (transmission control module) relay 	 Stop lamp relay detects that brake pedal is depressed, and transmits the signal to BCM. TCM relay provides ignition power to the A/T assembly.
3.	Fuse and relay box (Cummins 5.0L)Stop lamp relay (without LED rear combination lamps)	Stop lamp relay detects that brake pedal is depressed, and transmits the signal to BCM.
4.	A/T assembly (VK56VD)	The A/T assembly transmits shift P (park) and N (neutral) signals to the BCM. Refer to <u>TM-266. "A/T CONTROL SYSTEM : Transmission Range Switch"</u> .
5.	Transmission range switch (Cummins 5.0L)	The transmission range switch transmits shift P (park) and N (neutral) signals to the BCM. Refer to <u>TM-17</u> , "A/T CONTROL SYSTEM : Transmission Range Switch".
6.	BCM	 BCM controls power distribution system. BCM judges ignition switch position by push-button ignition switch (push switch) and vehicle condition. BCM checks the ignition switch position internally. Refer to <u>BCS-5. "BODY CONTROL SYSTEM : Component Parts Location"</u> for detailed installation location.
7.	Stop lamp switch (with LED rear combination lamps)	Stop lamp switch detects that brake pedal is depressed, and transmits the signal to BCM. Refer to <u>BRC-12</u> , "Stop Lamp Switch".
8.	AT shift selector (park position switch)	AT shift selector detects shift lever status, transmits park position switch signal to BCM.
9.	Push-button ignition switch	Refer to PCS-48, "Push-button Ignition Switch".
10.	Accessory relay-2	 Accessory relay-2 is controlled by BCM. Accessory relay-2 supplies accessory power supply or ignition ON signal to each ECU when ignition is turned ON. BCM compares status of accessory relay-2 control signal, and ignition position judged by BCM.
11.	Fuse block (J/B)	The fuse block (J/B) houses the fuses and relays of the power distribution system.
12.	Ignition relay-2 (in fuse block)	 Ignition relay-2 is controlled by BCM. Ignition relay-2 supplies ignition ON power supply or ignition ON signal to each ECU and system when ignition is turned ON. BCM compares status of ignition relay-2 control signal and ignition position judged by BCM. BCM monitors ignition relay-2 operating status by ignition relay-2 feedback signal.
13.	Front blower motor relay (in fuse block)	 Front blower motor relay is controlled by BCM. Front blower motor supplies ignition ON power supply or ignition ON signal to air conditioning system when ignition is turned ON. BCM compares status of front blower motor relay control signal and ignition position judged by BCM.
14.	Accessory relay-1 (in fuse block)	 Accessory relay-1 is controlled by BCM. Accessory relay-1 supplies accessory power supply or ignition ON signal to each ECU when ignition is turned ON. BCM compares status of accessory relay-1 control signal, and ignition position judged by BCM.

Push-button Ignition Switch

Push-button ignition switch is pressed, and transmits the status signal to BCM and IPDM E/R.



SYSTEM POWER DISTRIBUTION SYSTEM

POWER DISTRIBUTION SYSTEM : System Description

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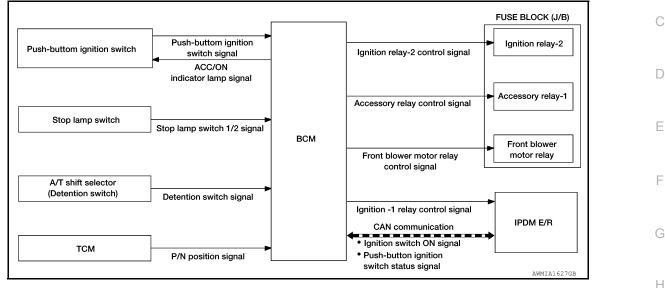
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SYSTEM DIAGRAM



DESCRIPTION

Power Distribution System

-		
•	• The power distribution system is the system that BCM controls with the operation of the push-button ignition	
	switch and performs the power distribution to each power circuit. This system is used instead of the mechan-	
	ical power supply changing mechanism with the operation of the conventional key cylinder.	
•	• The push-button ignition switch can be operated when Intelligent Key is in the following condition:	

- Intelligent Key is in the detection area of the inside key antenna.
- Intelligent Key backside is contacted to push-button ignition switch.
- The push-button ignition switch operation is input to BCM as a signal. BCM changes the power supply position according to the status and operates the following relays to supply power to each power circuit:
- Ignition relay-1
- Ignition relay-2
- Accessory relay-1
- Accessory relay-2
- Front blower motor relay

NOTE:

The engine switch operation changes due to the conditions of brake pedal, selector lever and vehicle speed. PCS • The power supply position can be confirmed with the lighting of the indicators in the push-button ignition

switch.

Ignition Battery Saver System

When all the following conditions are met for a period of time, the battery saver system will cut off the power supply (ignition switch $ON/ACC \rightarrow OFF$) to prevent battery discharge.

- Ignition switch is in the ACC or ON position
- Turn signal lamp is not in operation
- Selector lever is in the P (park) position
- RESET CONDITION OF IGNITION BATTERY SAVER SYSTEM

If any of the following conditions are met, the battery saver system is released.

- Ignition switch is not in the ACC or ON position
- Turn signal lamp is in operation
- · Selector lever is not in the P (park) position

NOTE:

The ignition battery saver system can be temporarily disabled, without using CONSULT, to prevent it from functioning when performing trouble diagnosis. Refer to <u>PCS-76</u>, <u>"Work Procedure"</u>.

Power Supply Position Change Table by Push-Button Ignition Switch Operation

Revision: March 2016

PCS-49

SYSTEM

< SYSTEM DESCRIPTION >

The power supply position changing operation can be performed with the following operations. **NOTE:**

- When an Intelligent Key is within the detection area of inside key antenna and when Intelligent Key backside is contacted to push-button ignition switch, it is equivalent to the operations below.
- When starting the engine, the BCM monitors under the engine start conditions:

- Brake pedal operating condition

Selector lever position

- Vehicle speed

VEHICLE SPEED: LESS THAN 4 KM/H (2.5 MPH)

Power supply position	Engine start/	Push-button ignition switch		
	Selector lever position	Brake pedal operation condition	operation frequency	
$OFF \to ACC$	_	Not depressed	1	
$OFF \to ACC \to ON$	-	Not depressed	2	
$OFF \to ACC \to ON \to OFF$	_	Not depressed	3	
$\begin{array}{l} \text{OFF} \rightarrow \text{START} \\ \text{ACC} \rightarrow \text{START} \\ \text{ON} \rightarrow \text{START} \end{array}$	P or N position	Depressed	1	
Engine is running \rightarrow OFF	_	_	1	

VEHICLE SPEED: 4 KM/H (2.5 MPH) OR MORE

Power supply position	Engine start/	stop condition	Push-button ignition switch
	Selector lever position	Brake pedal operation condition	operation frequency
Engine is running \rightarrow ACC	—	—	Emergency stop operation
Engine stall return operation while driving	N position	Not depressed	1

Emergency stop operation

· Press and hold the push-button ignition switch for 2 seconds or more.

Press the push-button ignition switch 3 times or more within 1.5 seconds.

Fail Safe

INFOID:000000013110023

Display contents of CONSULT	Fail-safe	Cancellation
B2192: ID DISCORD BCM-ECM	Inhibit engine cranking	Erase DTC
B2193: CHAIN OF BCM-ECM	Inhibit engine cranking	Erase DTC
B2195: ANTI-SCANNING	Inhibit engine cranking	Ignition switch $ON \rightarrow OFF$
B2560: START POW SUP CIRC	Inhibit engine cranking	500 ms after the following CAN signal communication status has become consistent:Starter control relay signalStarter relay status signal
B2562: LOW VOLTAGE	Inhibit engine cranking	100 ms after the power supply voltage increases to more than 8.8 V
B2608: STARTER RELAY	Inhibit engine cranking	 500 ms after the following signal communication status becomes consistent: Starter motor relay control signal Starter relay status signal (CAN)
B260A: IGN RELAY	Inhibit engine cranking	 500 ms after the following conditions are fulfilled: IGN relay (IPDM E/R) control signal: OFF (Battery voltage) Ignition ON signal (CAN to IPDM E/R): OFF (Request signal) Ignition ON signal (CAN from IPDM E/R): OFF (Condition signal)
B261E: FUEL MIS CONFIG	Inhibit engine cranking	BCM initialization

< SYSTEM DESCRIPTION > DIAGNOSIS SYSTEM (BCM) COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:000000013110024

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[POWER DISTRIBUTION SYSTEM]

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description	
ECU Identification	The BCM part number is displayed.	
Self Diagnostic Result	The BCM self diagnostic results are displayed.	
Data Monitor	The BCM input/output data is displayed in real time.	
Active Test	The BCM activates outputs to test components.	
Work support	The settings for BCM functions can be changed.	
Configuration	The vehicle specification can be read and saved.The vehicle specification can be written when replacing BCM.	
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.	

SYSTEM APPLICATION

BCM can perform the following functions:

				Direct [Diagnosti	c Mode			- Н
System	Sub System	ECU Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr	- I J
Door lock	DOOR LOCK		×	×	×	×			-
Rear window defogger	REAR DEFOGGER			×	×	×			K
Warning chime	BUZZER			×	×				-
Interior room lamp timer	INT LAMP			×	×	×			
Exterior lamp	HEADLAMP			×	×	×			- L
Wiper and washer	WIPER			×	×	×			
Turn signal and hazard warning lamps	FLASHER			×	×	×			PCS
Air conditioner	AIR CONDITIONER			×					
Intelligent Key system	INTELLIGENT KEY		×	×	×	×			NI
Combination switch	COMB SW			×					N
BCM	BCM	×	×			×	×	×	_
Immobilizer	IMMU		×	×	×				0
Interior room lamp battery saver	BATTERY SAVER			×	×				
Vehicle security system	THEFT ALM			×	×	×			_
RAP system	RETAINED PWR			×					Р
Signal buffer system	SIGNAL BUFFER			×					-

FREEZE FRAME DATA (FFD)

The BCM records the following vehicle condition at the time a particular DTC is detected, and displays it on CONSULT.

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM)

[POWER DISTRIBUTION SYSTEM]

CONSULT screen item	Indication/Unit		Description
Vehicle Speed	km/h	Vehicle speed at the mo	ment a particular DTC is detected
Odo/Trip Meter	km	Total mileage (Odomete	r value) at the moment a particular DTC is detected
	SLEEP>LOCK		While turning BCM status from low power consumption mode to normal mode (Power supply position is "LOCK"*).
	SLEEP>OFF		While turning BCM status from low power consumption mode to normal mode (Power supply position is "OFF".)
	LOCK>ACC		While turning power supply position from "LOCK" *to "ACC"
	ACC>ON		While turning power supply position from "ACC" to "IGN"
	RUN>ACC		While turning power supply position from "RUN" to "ACC" (Vehicle is stopped and selector lever is in P position.)
	CRANK>RUN		While turning power supply position from "CRANKING" to "RUN" (From cranking up the engine to run it)
	RUN>URGENT		While turning power supply position from "RUN" to "ACC" (Emer- gency stop operation)
	ACC>OFF		While turning power supply position from "ACC" to "OFF"
	OFF>LOCK	Power position status at	While turning power supply position from "OFF" to "LOCK"*
Vehicle Condition	OFF>ACC	the moment a particular DTC is detected*	While turning power supply position from "OFF" to "ACC"
	ON>CRANK		While turning power supply position from "IGN" to "CRANKING"
	OFF>SLEEP		While turning BCM status from normal mode (Power supply position is "OFF".) to low power consumption mode
	LOCK>SLEEP		While turning BCM status from normal mode (Power supply posi- tion is "LOCK"*.) to low power consumption mode
	LOCK		Power supply position is "LOCK" (Ignition switch OFF)*
	OFF		Power supply position is "OFF" (Ignition switch OFF)
	ACC		Power supply position is "ACC" (Ignition switch ACC)
	ON		Power supply position is "IGN" (Ignition switch ON with engine stopped)
	ENGINE RUN		Power supply position is "RUN" (Ignition switch ON with engine running)
	CRANKING		Power supply position is "CRANKING" (At engine cranking)
IGN Counter	0 - 39	 The number is 0 wher The number increases whenever ignition is so 	t ignition switch is turned ON after DTC is detected a malfunction is detected now. s like $1 \rightarrow 2 \rightarrow 338 \rightarrow 39$ after returning to the normal condition witched OFF \rightarrow ON. 0 39 until the self-diagnosis results are erased if it is over 39.

NOTE:

*: Power supply position shifts to "LOCK" from "OFF", when ignition switch is in the OFF position, selector lever is in the P position, and any of the following conditions are met:

- Closing door
- Opening door
- Door is locked using door request switch
- Door is locked using Intelligent Key

The power supply position shifts to "ACC" when the push-button ignition switch (push switch) is pushed at "LOCK".

INTELLIGENT KEY

INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY)

INFOID:000000013110025

SELF DIAGNOSTIC RESULT

Refer to <u>BCS-52, "DTC Index"</u>.

DATA MONITOR

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM)

[POWER DISTRIBUTION SYSTEM]

Monitor Item [Unit]	Main	Description
REQ SW -DR [On/Off]	×	Indicates condition of door request switch LH.
REQ SW -AS [On/Off]	×	Indicates condition of door request switch RH.
PUSH SW [On/Off]		Indicates condition of push-button ignition switch.
SHIFTLOCK SOLENOID PWR SUPPLY [On/Off]	×	Indicates condition of power supply to shiftlock solenoid.
BRAKE SW 1 [On/Off]	×	Indicates condition of brake switch.
BRAKE SW 2 [On/Off]		Indicates condition of brake switch.
DETE/CANCL SW [On/Off]	×	Indicates condition of P (park) position.
SFT PN/N SW [On/Off]	×	Indicates condition of P (park) or N (neutral) position.
UNLK SEN -DR [On/Off]	×	Indicates condition of door unlock sensor.
PUSH SW -IPDM [On/Off]		Indicates condition of push-button ignition switch received from IPDM E/R on CAN communication line.
IGN RLY1 -F/B [On/Off]		Indicates condition of ignition relay 1 received from IPDM E/R on CAN commu- nication line.
DETE SW -IPDM [On/Off]		Indicates condition of park position switch received from TCM on CAN commu- nication line.
SFT PN -IPDM [On/Off]		Indicates condition of P (park) or N (neutral) position from TCM on CAN com- munication line.
SFT P -MET [On/Off]		Indicates condition of P (park) position from TCM on CAN communication line.
SFT N -MET [On/Off]		Indicates condition of N (neutral) position from IPDM E/R on CAN communica- tion line.
ENGINE STATE [Stop/Start/Crank/Run]	×	Indicates condition of engine state from ECM on CAN communication line.
VEH SPEED 1 [mph/km/h]	×	Indicates condition of vehicle speed signal received from ABS on CAN commu- nication line.
VEH SPEED 2 [mph/km/h]	×	Indicates condition of vehicle speed signal received from combination meter on CAN communication line.
DOOR STAT -DR [LOCK/READY/UNLK]	×	Indicates condition of driver side door status.
DOOR STAT -AS [LOCK/READY/UNLK]	×	Indicates condition of passenger side door status.
DOOR STAT -RR [LOCK/READY/UNLK]	×	Indicates condition of rear right side door status.
DOOR STAT -RL [LOCK/READY/UNLK]	×	Indicates condition of rear left side door status.
ID OK FLAG [Set/Reset]		Indicates condition of Intelligent Key ID.
PRMT ENG STRT [Set/Reset]		Indicates condition of engine start possibility.
PRMT RKE STRT [Set/Reset]		Indicates condition of engine start possibility from Intelligent Key.
I-KEY OK FLAG [Key ON/Key OFF]	×	Indicates condition of Intelligent Key OK flag.
PRBT ENG STRT [Set/Reset]		Indicates condition of engine start prohibit.
ID AUTHENTICATION CANCEL TIMER [under a stop]		Indicates condition of Intelligent Key ID authentication.
ACC BATTERY SAVER [under a stop]		Indicates condition of battery saver.
CRNK PRBT TMR [On/Off]		Indicates condition of crank prohibit timer.
AUT CRNK TMR [On/Off]		Indicates condition of automatic engine crank timer from Intelligent Key.
CRNK PRBT TME [sec]		Indicates condition of crank prohibit timer.
AUT CRNK TMR [sec]		Indicates condition of automatic engine crank timer from Intelligent Key.
CRANKING TME [sec]		Indicates condition of engine cranking time from Intelligent Key.
ST RLY -REQ		Indicates condition of starter relay.
IGN RLY 1 -REQ		Indicates condition of ignition 1 relay.
IGN RLY 2 -REQ		Indicates condition of ignition 2 relay.
DETE SW PWR [On/Off]		Indicates condition of park position switch voltage.

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DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

Monitor Item [Unit]	Main	Description
ACC RLY -REQ [On/Off]		Indicates condition of accessory relay control request.
RKE OPE COUN1 [0-19]	×	When remote keyless entry receiver receives the signal transmitted while oper- ating on Intelligent Key, the numerical value start changing.
RKE OPE COUN2 [0-19]	×	When remote keyless entry receiver receives the signal transmitted while oper- ating on Intelligent Key, the numerical value start changing.
RKE-LOCK [On/Off]		Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]		Indicates condition of unlock signal from Intelligent Key.
RKE-PANIC [On/Off]		Indicates condition of panic signal from Intelligent Key.
RKE-MODE CHG [On/Off]		Indicates condition of mode change signal from Intelligent Key.

ACTIVE TEST

Test Item	Description
INTELLIGENT KEY LINK (CAN)	This test is able to check Intelligent Key identification number [Off/ID No1/ID No2/ID No3/ID No4/ID No5].
INT LAMP	This test is able to check interior room lamp operation [On/Off].
FLASHER	This test is able to check hazard lamp operation [LH/RH/Off].
HORN	This test is able to check horn operation [On].
BATTERY SAVER	This test is able to check battery saver operation [On/Off].
OUTSIDE BUZZER	This test is able to check Intelligent Key warning buzzer operation [On/Off].
INSIDE BUZZER	This test is able to check combination meter warning chime operation [Take Out/Knob/Key/ Off].
INDICATOR	This test is able to check combination meter warning lamp operation [KEY ON/KEY IND/Off].
IGN CONT2	This test is able to check ignition relay-2 control operation [On/Off].
ENGINE SW ILLUMI	This test is able to check push-button ignition switch START indicator operation [On/Off].
PUSH SWITCH INDICATOR	This test is able to check push-button ignition switch indicator operation [On/Off].
ACC CONT	This test is able to check accessory relay control operation [On/Off].
IGN CONT1	This test is able to check ignition relay-1 control operation [On/Off].
ST CONT LOW	This test is able to check starter control relay operation [On/Off].
IGNITION RELAY	This test is able to check ignition relay operation [On/Off].
TRUNK/LUGGAGE LAMP TEST	This test is able to check cargo lamp illumination operation [On/Off].
KEYFOB PW TEST	This test is able to check power window operation using the Intelligent Key [P/W up/down OFF/Send P/W down ON/Send P/W up ON].
SHIFTLOCK SOLENOID TEST	This test is able to check shift lock solenoid operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
IGN/ACC BATTERY SAVER	On*	Battery saver function ON.
IGNIACC BATTERT SAVER	Off	Battery saver function OFF.
REMOTE ENGINE STARTER	On*	Remote engine start function ON.
REMOTE ENGINE STARTER	Off	Remote engine start function OFF.
	BUZZER*	Buzzer reminder function by door lock/unlock request switch ON.
ANSWERBACK I-KEY LOCK UNLOCK	HORN	Horn chirp reminder function by door lock request switch ON.
ANSWERDACK I-RET LOCK UNLOCK	Off	No reminder function by door lock/unlock request switch.
	INVALID	This mode is not used.

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

Support Item	Se	tting	Description
ANSWERBACK KEYLESS LOCK UN-	On*		Buzzer or horn chirp reminder when doors are locked/unlocked with Intelligent Key.
LOCK	Off		No buzzer or horn chirp reminder when doors are locked/unlocked with Intelligent Key.
ANSWER BACK	On*		Horn chirp reminder when doors are locked with Intelligent Key.
ANSWER BACK	Off		No horn chirp reminder when doors are locked with Intelligent Key.
RETRACTABLE MIRROR SET	On		Retractable mirror set ON.
RETRACTABLE MIRROR SET	Off*		Retractable mirror set OFF.
LOCK/UNLOCK BY I-KEY	On*		Door lock/unlock function from Intelligent Key ON.
	Off		Door lock/unlock function from Intelligent Key OFF.
ENGINE START BY I-KEY	On*		Engine start function from Intelligent Key ON.
ENGINE START BT I-RET	Off		Engine start function from Intelligent Key OFF.
CONFIRM KEY FOB ID	-	_	Intelligent Key ID code can be checked.
		70 msec	
SHORT CRANKING OUTPUT	Start	100 msec	Starter motor operation duration times.
SHORT CRAINING COTFOT		200 msec	
	End		_
INSIDE ANT DIAGNOSIS	-	_	This function allows inside key antenna self-diagnosis.
	MODE7	5 min	
	MODE6	4 min	
	MODE5	3 min	
AUTO LOCK SET	MODE4	2 min	Auto door lock time can be set in this mode.
	MODE3*	1 min	
	MODE2	30 sec	
	MODE1	Off	

*: Initial Setting

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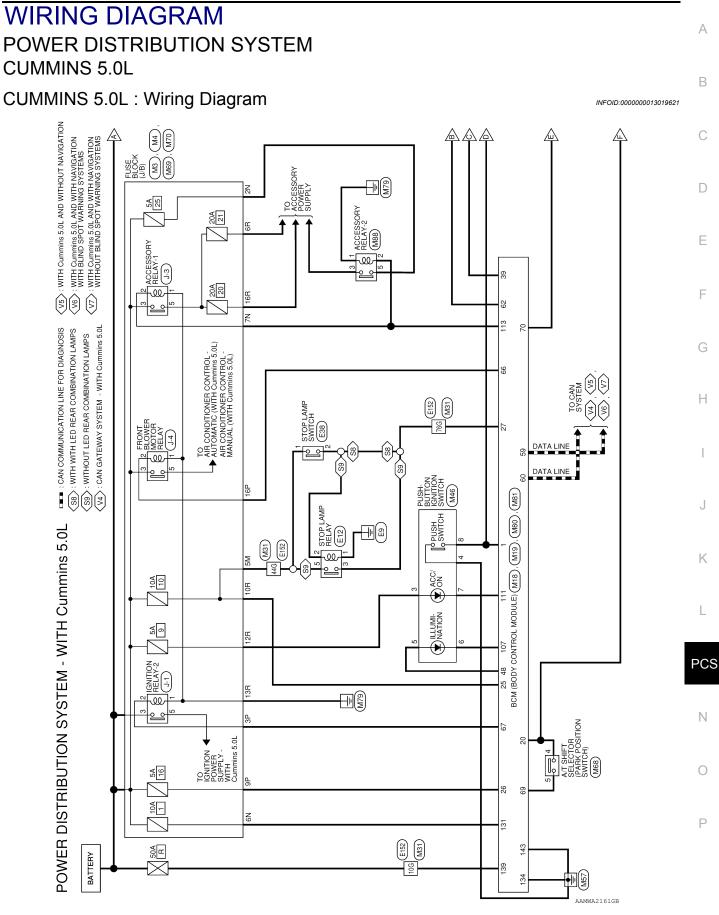
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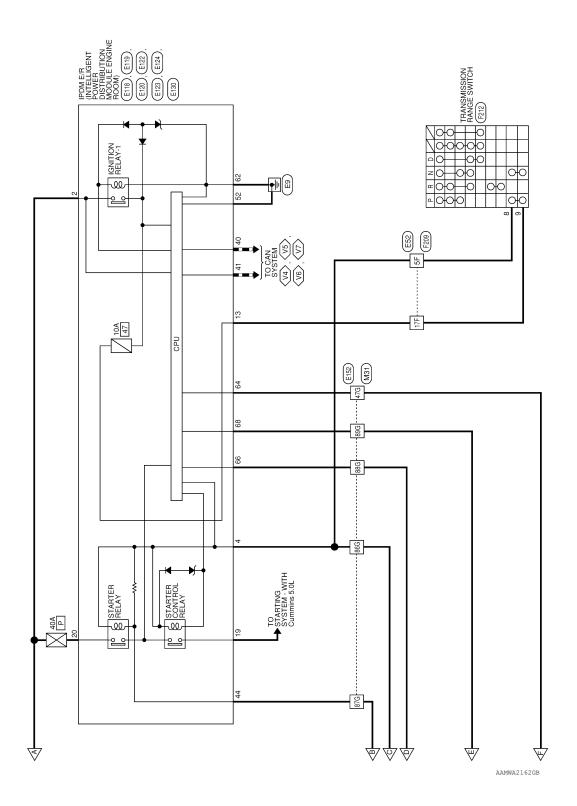
ECU DIAGNOSIS INFORMATION BCM, IPDM E/R

List of ECU Reference

INFOID:000000013019620

ECU	Reference
	BCS-32, "Reference Value"
СМ	BCS-51, "Fail Safe"
	BCS-51, "DTC Inspection Priority Chart"
	BCS-52, "DTC Index"
	PCS-14, "Reference Value"
M E/R	PCS-22. "Fail Safe"
	PCS-23, "DTC Index"





Connector No.	E12	Connector No.		E52	21F	5	TO ENGINE CONTROL NO. 2 HARNESS	52F BR		TO ENGINE CONTROL NO. HARNESS
Connector Name	STOP LAMP RELAY	Connector Name		WIRE TO WIRE	22F	LV N	TO ENGINE CONTROL NO. 2 HARNESS		_	
Connector Type	MS02FL-M2-LC	Connector Type		RK26FGY-RS20-X6	23F	B/L	TO ENGINE CONTROL NO. 2	Connector No.	E118	
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Tominal Calar of			311 30	5	28F	W/R	TO ENGINE CONTROL NO. 2 HARNESS	H.S.		-
	Sign		41F 40	9F 38F 37F 36F 35F 34	29F	27	TO ENGINE CONTROL NO. 2 HARNESS			2
a ≥	GND IGNITION		47F 46F 52F	15 45F 44F 43F 42F 51F 50F 49F 48F	30F	m	TO ENGINE CONTROL NO. 2 HARNESS			
B/G	IGNITION	Ľ			31F	m	TO ENGINE CONTROL NO. 2 HARNESS	lal	Color of	Signal Name
	DALIEN	nal	Color of	Signal Name	32F	Ŵ٨	TO ENGINE CONTROL NO. 2 HARNESS	1 Wire	Wire B/Y	E/L USM
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Connector Name	STOP LAMP SWITCH	:		HARNESS	34F	<u>a</u>	TO ENGINE CONTROL NO 2			
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		4F	W/R	TO ENGINE CONTROL NO. 2 HARNESS	36F	ГЛВ	TO ENGINE CONTROL NO. 2 HARNESS			
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		θF	0	TO ENGINE CONTROL NO. 2	38F	RV	TO ENGINE CONTROL NO. 2 HARNESS			
		7F	GR/Y	TO ENGINE CONTROL NO. 2 HADNESS	39F	RN	TO ENGINE CONTROL NO. 2 HARNESS			
Terminal Color of	f Signal Name	8F	>	TO ENGINE CONTROL NO. 2 HARNESS	40F	B/R	TO ENGINE CONTROL NO. 2 HARNESS			
wire R/Y	BATTERY	ЭF	BB	TO ENGINE CONTROL NO. 2 HARNESS	41F	8	TO ENGINE CONTROL NO. 2 HARNESS			
>	RELAY CONT - (WITHOUT LED REAR COMBINATION LAMPS)	10F	Y/B	TO ENGINE CONTROL NO. 2 HADNESS	42F	۶	TO ENGINE CONTROL NO. 2 HARNESS			
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		20F	BB	TO ENGINE CONTROL NO. 2						

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POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]

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< WIRING DIAGRAM >

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BR TO MAIN HARNESS 610 B V/B TO MAIN HARNESS 620 W d/W TO MAIN HARNESS 630 R				44F	Y/B	TO ENGINE ROOM HARNESS
Y/B TO MAIN HARNESS EXX V QW TO MAIN HARNESS EXX V V		22F 23F 24	22F 23F 24F 25F 26F 26F 27F 28F 29F 30F 31F	45F	5	TO ENGINE ROOM HARNESS
G/W TO MAIN HARNESS 63G R		0 100 100	00F 00F 04F 06F 00F 00F 00F 40F 44F	46F	0	TO ENGINE ROOM HARNESS
		325 335 3	4F 33F 30F 37F 30F 38F 40F 41F	47F	٨٧	TO ENGINE ROOM HARNESS
		42F 43F	44F 46F 46F 47F	48F		TO ENGINE ROOM HARNESS
W/L				49F	BB	TO ENGINE ROOM HARNESS
20		401	48F 30F 31F 32F	50F	SHIELD	TO ENGINE ROOM HARNESS
		$\Big $		51F		TO ENGINE ROOM HARNESS
I O MAIN HAHNESS 67G BG	Terminal	Color of		52F	BB	TO ENGINE ROOM HARNESS
G/Y TO MAIN HARNESS 68G B	No.	Wire	Signal Name			
B/Y TO MAIN HARNESS 69G Y	Ļ	Ϋ́́R	TO ENGINE ROOM HARNESS			
TO MAIN HARNESS 70G L	2F		TO ENGINE ROOM HARNESS			
3G Y/R TO MAIN HARNESS 71G R/W TO MAIN HARNESS		NA VA	TO ENGINE BOOM HABNESS			

< WIRING DIAGRAM >

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	TRANSMISSION RANGE SWITCH HS10FB			MA	-		-	7		
		Connector Name	1		8	'		44	ı	
	ς θ		+		6	ı	I	45	-	1
		Connector Type		NS16FW-CS	10	SB	COMBI SW IN 5	46	ı	
		Connector Color		WHITE	F	G√	COMBI SW IN 4	47	1	1
	X	£			12	>	COMBI SW IN 3	48	æ	HIGH SIDE START SV
					13	G/B	COMBI SW IN 2	49	-	I
		S H	ę		14	^	COMBI SW IN 1	50	1	T
		_	ч0 ч/	5P 4P 3P 2P 1P	15		I	51	-	
	5 4 3 2 1	1	6P 15P	16P 15P 14P 13P 12P 11P 10P 9P 8P	16	1	1	52	M	AUDIO DONGLI
	8				12	٩	GND RF A/L	53	1	
					18	>	SECURITY INDICATOR	54	W/L	PW UART
		F			19	1	1	55	W/B	L&R SENSOR K-L
		a	Color of	Signal Name	20	н	SHIFT P	56	•	1
	Signal Name	-	MILE	,	21	RW	STEP LAMP CONT	57	1	1
		4	x	IGNITION	22	1	-	28	1	1
	HANGE SIGNAL C	dv	>	IGNITION	23	7	AIRCON SW	59	٩	CAN-L
		de l	3	IGNITION RELAY OUT	24	'	1	99	_	CAN-H
		4P	B/W	RR DEF RLY	25	×	BRAKE SW FUSE	61	0	REAR DEFOGGER REL
		21	BW	HR DEF RLY	26		SHORT IN PIN INPUT	62	×	STARTER RELAY (
	RATTERV	- B	5 0	HH DEF HLY OUT	27	R/G	BRAKE SW LAMP	63	-	T
	REVERSE RELAY CONT	a, 6	5 ع		28	1	L	64	Р	BUZZER OUT
		2 6	» -	IGNITION	29	M	BLOWER FAN SW	65	I	I
	IGNITION RFI AV	ъ ę	-	BALLERY	30	٩	DR DOOR LOCK STATUS	99	W	BLOWER FAN RELAY
					31	-	-	67	G	IGN ELEC RELAY O
				1	32	>	REAR DEFOGGER SW	68	L	MR OUTPUT
		471			33	-	-	69	R/B	AT DEVICE OUT
	FUSE BLOCK (J/B)	13P	r >	BALIERY	34	1		70	Ч	IGN USM OUT
Connector Type CS06	CS06FW-M2	141	- 21/2	DATTEDV	35	R/G	REVERSE SW	F	0	DR REQUEST SI
Connector Color WHITE			M A		36	W/B	HAZARD SW	72	J	AS REQUEST SI
1					37	'	1	73	1	1
					38	'	-	74	1	
H C 3N		Connector No.	-	M18	39	B/B	SHIFT N/P	75	LW	COMBI SW OUT
		Connector Name		BCM (BODY CONTROL	40	•	1	76	۹.	COMBI SW OUT
8N	7N 6N 5N 4N			(ODULE)				11	L	COMBI SW OUT
	-	Connector Type		TH40FG-NH	Connector No.		M19	78	0/B	COMBI SW OUT
		Connector Color		GREEN	Connector Name		BCM (BODY CONTROL	62	RW	COMBI SW OUT
Terminal Color of		f					MODULE)	00	•	
	Signal Name				Connector Type		TH40FB-NH			
1N 0	IGN	H.S.			Connector Color		BLACK			
	BATTERY	20 1	19 18 17 16 39 38 37 36	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 37 31 30 29 28 7 36 27 26 27 26 27						
_	IGNITION				ř					
4N V	BATTERY				H.S.					
5N Y	BATTERY					60 59 58 57 56	57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41	42 41		
6N W	BATTERY	al	Color of	Signal Name		80 79 78 77 76	5 75 74 73 72 71 70 69 68 67 66 65 64 60	8 62 61		
_	ACC RELAY OUT	No.	Wire							
N8	IGNITION	-	σ	ENG START SW NO ESCL						
		3 5	· œ	- A/L POWER SUPPLY 5V	Terminal	Color of	Signal Name			
		4	W/R	A/L SIGNAL			TDAILED LICUT CUECK DELAV	_		
		ŝ		1	+	1/1				
		9	1	1	42	RV	CARGO LAMP OUT			

< WIRING DIAGRAM >

	N.S.							Connector No.		N68
Connector Name		28G	G/B	TO ENGINE ROOM HARNESS TO ENGINE DOOM LADNESS	81G		TO ENGINE ROOM HARNESS TO ENGINE POOM LADNESS	Connector Name		A/T SHIFT SELECTOR
Connector Type	TH80FW-CS16-TM4	567		TO ENGINE HOOM HARNESS	570	r .	TO ENGINE ROOM HARNESS	Connector Type	+	TKORFW
Connector Color	\top	316		TO ENGINE ROOM HARNESS	846		TO ENGINE ROOM HARNESS	Connector Color	\top	WHITE
		32G		TO ENGINE ROOM HARNESS	85G		TO ENGINE ROOM HARNESS	4		
서부서		33G	٨L	TO ENGINE ROOM HARNESS	86G	B/B	TO ENGINE ROOM HARNESS	ut the		
L V		34G	GR	TO ENGINE ROOM HARNESS	87G	N	TO ENGINE ROOM HARNESS			+
ž	16 26 26 46 56	35G	G/R	TO ENGINE ROOM HARNESS	88G	σ	TO ENGINE ROOM HARNESS	5		1 2 3
	66 76 86 96 106	36G	ß	TO ENGINE ROOM HARNESS	89G	٩	TO ENGINE ROOM HARNESS			4 5 6 7 8
	and the second sec	37G	RW	TO ENGINE ROOM HARNESS	906	σ	TO ENGINE ROOM HARNESS			
	11G 12G 13G 14G 15G 16G 17G 18G 19G 20G 21G	38G	BB	TO ENGINE ROOM HARNESS	91G	۵.	TO ENGINE ROOM HARNESS			
	22G23G24G25G26G27G28G29G30G	396	æ	TO FNGINE ROOM HARNESS	926	MV	TO FNGINE ROOM HARNESS			
	3163263363463563666576386396406416	406		TO FNGINE ROOM HABNESS	93G	a	TO FNGINE ROOM HARNESS	Terminal	Color of	Signal Name
	426436446456466476486496506	41G	R/G	TO ENGINE ROOM HARNESS	94G		TO ENGINE ROOM HARNESS	No.	Wire	
	510 EVC ESC ESC ESC ESC ESC ESC ESC ESC ESC	42G	0	TO ENGINE ROOM HARNESS	956	G	TO ENGINE ROOM HARNESS	-	m	GND
				TO ENCINE DOOM HADNESS	oo0	5 0		2	8	GND
		02			010	c c		e	ГЛ	SHIFT LOCK SOL OUT
	716726736746756766776786796806816	544	i e	TO FIGURE ROOM PARINESS	5/6	r i		4	æ	SHIFT P
	82G83G84G85G86G87G88G89G90G	45G	IJ	TO ENGINE ROOM HARNESS	98G	W/B	TO ENGINE ROOM HARNESS	5	B/B	AT DEVICE OUT
		46G	ГG	TO ENGINE ROOM HARNESS	996	œ	TO ENGINE ROOM HARNESS		-	TOW MODE SW
	916 926 936 946 956	47G	œ	TO ENGINE ROOM HARNESS	100G	GR/W	TO ENGINE ROOM HARNESS		3 8	
	96G 97G 98G 99G 100G	48G	M	TO ENGINE ROOM HARNESS				\ \	H	SHIFT UP
]	49G		TO ENGINE ROOM HARNESS	Connector No		MAG	8	M/A	SHIFT DOWN
J		50G	æ	TO ENGINE ROOM HARNESS			40			
		51G	œ	TO ENGINE ROOM HARNESS	Connector Name		PUSH-BUTTON IGNITION	Connector No.		M69
Torminal Color of		52G	_	TO ENGINE ROOM HARNESS			SWIICH	Connector Name	+	FLISE RLOCK (.1/R)
	rie Signal Name	53G	>	TO ENGINE ROOM HARNESS	Connector Type		TH08FW-NH	Connector Tune	-	NC1DEW_CC
+	TO ENGINE ROOM HARNESS	54G	>	TO ENGINE ROOM HARNESS	Connector Color		WHITE	Connector Color	+	WHITE
2G B/R		55G	5	TO ENGINE ROOM HARNESS	fe					
		56G	M	TO ENGINE ROOM HARNESS						
4G BR/W	-	57G	٨	TO ENGINE ROOM HARNESS	H.S.					-
	-	58G	Bg	TO ENGINE ROOM HARNESS			4 3	H.S.	4	4M 3M 2M 1M
6G R/W		59G	BG	TO ENGINE ROOM HARNESS			۲ ن			TOM ON ON TH FN EN
		60G	BG	TO ENGINE ROOM HARNESS			0 / 0 0		2	
8G G		61G	0	TO ENGINE ROOM HARNESS						
		62G	×	TO ENGINE ROOM HARNESS	Tominol	Volor of				
		63G	0	TO ENGINE ROOM HARNESS		Wine U	Signal Name	Terminal	Color of	ä
	-	64G	WL	TO ENGINE ROOM HARNESS				No.	Wire	signal Name
-	+	65G	W/B	TO ENGINE ROOM HARNESS		g	BAITERY	MF	g	NOITION
+	-	599	0 B	TO ENGINE BOOM HABNESS	4		GND	WC		
-	+	010	3 0	TO ENCINE DOOM HADNESS	2	œ	HIGH SIDE START SW LED	WC		
-	+				9	>	ILLUMINATION -			
	-	590		I U ENGINE HOUM HARNESS	7	٩	ACC LED	4W		I
16G G	_	696	>	TO ENGINE ROOM HARNESS	8	σ	ENG START SW NO ESCL	5M	RY	BATTERY
17G 0	TO ENGINE ROOM HARNESS	70G	-	TO ENGINE ROOM HARNESS				6M	RW	TAIL LAMP 2
18G G/Y	Y TO ENGINE ROOM HARNESS	71G	R/W	TO ENGINE ROOM HARNESS				7M	1	-
19G Y/V	V TO ENGINE ROOM HARNESS	72G	Ň	TO ENGINE ROOM HARNESS				8M	ı	1
		73G	SHIELD	TO ENGINE ROOM HARNESS				W6	1	1
21G B/V		74G	×	TO ENGINE ROOM HARNESS				10M	W/R	IGNITION
	+	75G		TO ENGINE ROOM HARNESS						
23G V/D	+	76G	R/G	TO ENGINE ROOM HARNESS						
+	-	776	9 BG	TO FNGINE ROOM HARNESS						
24G G/B		786	3 •	TO ENGINE ROOM HARNESS						
+	+			TO FNCINE DOOM HADNESS						
26G B	TO ENGINE ROOM HARNESS	196	'	I U ENGINE HOUM HARNESS						

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Connector No	M70	111
COLLECTOL NO.	INI U	110
Connector Name		711
CONTRECTOR NAME		113
Connector Type	NS16FBR-CS	114
Connector Color	REOWN	115
		2
ł		116
		117
ЗН		118
	7R 6K 5K 4K	119
16R 15	16R 15R 14R 13R 12R 11R 10R 9R 8R	120

ଞ ≥ G/B

≥

Signal Name	TAIL LAMP 2	IGNITION	BATTERY	1	BATTERY	ACCESSORY	BATTERY	I	1	BATTERY	1	BATTERY	ACCESSORY	BATTERY	BATTERY	ACCESSORY	
Color of Wire	Г	G/R	Y/R		M	G/W	ж	1	1	M	1	BG	8	GΛ	Y	G/R	
Terminal No.	1R	2R	3R	4R	5R	68	7R	88	9R	10R	11R	12R	13R	14R	15R	16R	

BCM (BODY CONTROL MODULE)

Connector Name

M81

Connector No.

FEA09FW-FHA6-SA

Connector Color WHITE

Connector Type

Connector No.	M80
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH24FB-NH
Connector Color	BLACK
H.S.	116 [116] 118 [114] 128 [22] [23] [23] [22] [21] [21] [21] [21] [21] [21] [21

SUPER LOCK/DOOR UNLOCK AS BAT BCM FUSE DOOR LOCK AS/RR/RL DOOR UNLOCK AS/RR/RL

BATTERY SAVER OUT

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Signal Name

Color of Wire

Ferminal

°. 129 GND2 DOOR LOCK DR/AS/FL ROOM LAMP CONT

0

131 132 134 135 136

DOOR UNLOCK DR/AS/F

BAT REAR DOOR BAT-POWER F/L

H.S.

Signal Name	FR FLASHER	-	LOW SIDE START SW LED	SHIFT LOCK SOLENOID OUT	1	1
Color of Wire	GN	1	M	L/R		1
Terminal No.	105	106	107	108	109	110
		A	AMI	A43	367	GB

P/W POWER SUPPLY BAT BAT FRONT DOOR GND1

P/W POWER SUPPLY IGN

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138 140 141

137 139

ACC LED	Connector No	MOD
ACC RELAY OUT	Connector Name	ACCESSORY REL
AS DOOR ANT A	Connector Type	MS02FL-M2-LC
AS DOOR ANT B	Connector Color	BLUE
ROOM ANT 2 A	Ĩ	
FL FLASHER	d Hide	
1	ЗН	6
RF NIMOCO	5	2
ı		2 X 1
DR DOOR ANT B		
DR DOOR ANT A		
ROOM ANT 1 A	- H	
ROOM ANT 1 B	No Mino	of Signal Na

Signal Name	GND	ACC RELAY OUT	ACC SW	BATTERY
Color of Wire	8	_	в	M
Terminal No.	F	2	3	5

Signal Name	GND	ACC RELAY OUT	ACC SW	BATTERY
Color of Wire	8	_	ж	M
Terminal No.	-	2	8	5

IMMO START BUTTON ANT B IMMO START BUTTON ANT A ROOM ANT 2 B

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121 13 124 125 126 128

ACCESSORY RELAY-2

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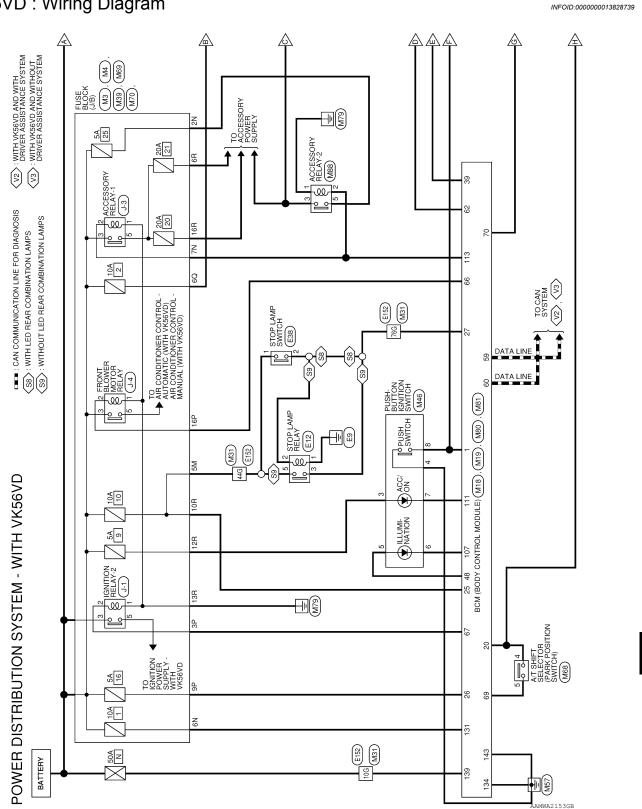
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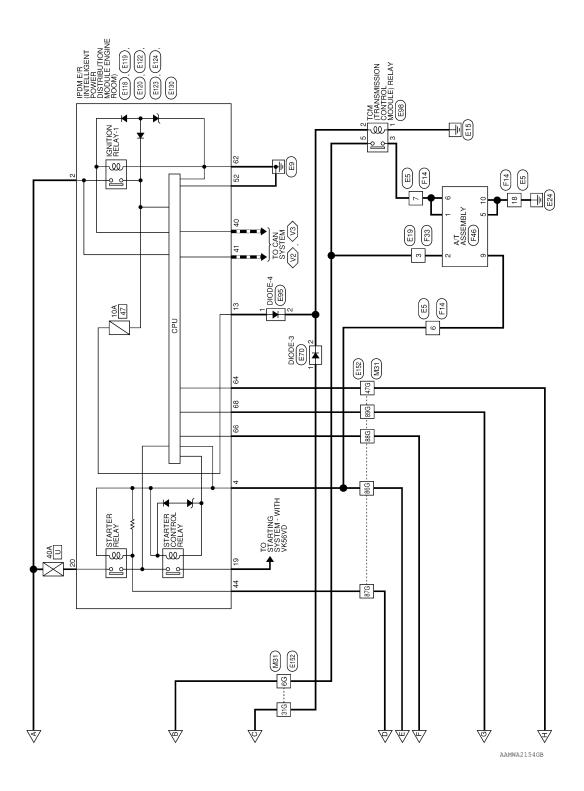
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VK56VD : Wiring Diagram



Revision: March 2016



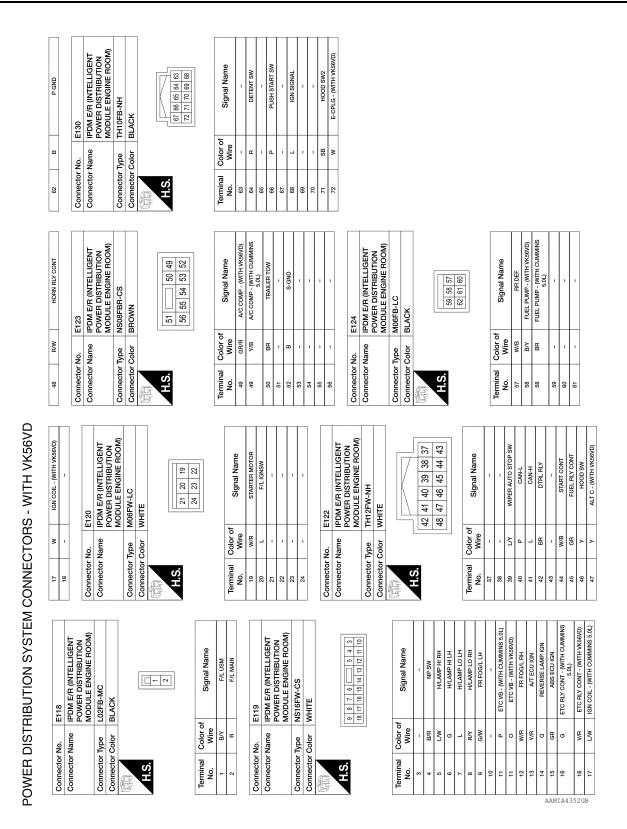
Connector No. E95 Connector Name DIODE-4 Connector Type 24335.C9900 Connector Color WHITE	Terminal Color of Nine Signal Name No. Vine Arr Eculan 2 BR Arr Eculan Connector No. E98 Connector Name MS02FL-M2-LC Connector No. BLUE No. Nine 0. Wine 1 B 3 V/R 3 V/R	
Connector No. E38 Connector Name STOP LAMP SWITCH Connector Type M04FW-LC Connector Color WHITE MAFW-LC 0	Terminal Color of Nine Signal Name 0. Nine Signal Name 1 R/N BATERY 2 W RELA CONTI-MINUOUT LED 2 R/G STOP LUANES) 3 GR STOP LUANES) 4 RELA CONTI-MINOUT LED 3 GR STOP LUANES) 4 RELA CONTI-MINOUT LED 3 GR STOP LUANES) 4 RELA CONTI-MINOUT LED 3 GR STOP 2 4 STOP 2 STOP 2 Connector Name DIODE -3 Connector Type 24335_C9900 Connector Type 24335_C9900 Connector Stope 24335_C9900 Connector Stope 24335_C9900 Connector Stope WHITE No. Write 1 R 2 B 1 R ACC Stignal Name	
ector No. E12 ector Name STOP LAMP RELAY ector Type MS02FL-M2-LC eetor Color BLUE	minal Color of Signal Name lo. Write 2 w color of Signal Name ector No. E19 minal Color of Signal Name lector Name WIRE TO WRE minal Color of Signal Name lector Tope NSO4MW-CS lector Color WHIE in the control HARNESS a p ro Ensine control HARNESS a ro Ensine control HARNESS	
Connector No. E5 Connector Name WIRE TO WIRE Connector Type TH24MV-NH Connector Type TH24MV-NH Connector Color WHITE Connector Color WHITE Minimum Connector Minimum Connector I	Terminal Color of No. Signal Name No. Mine Signal Name 2 BR 10 Eukine Control. Hankess 3 V 10 Enkine Control. Hankess 4 L/0 DE Righte Control. Hankess 7 Yin 10 Enkine Control. Hankess 8 BR 10 Enkine Control. Hankess 11 20 DE Righte Control. Hankess 12 Vin 10 Enkine Control. Hankess 13 Vin 10 Enkine Control. Hankess 14 V 10 Enkine Control. Hankess 15 L 10 Enkine Control. Hankess 16 B 10 Enkine Control. Hankess 17 17 Enkine Control. Hankess Enrice 18 10 Enkine Control. Hankess Enrice 19 B 10 Enkine Control. Hankess 20 GR 10 Enkine Control. Hankess 21 B 10 Enkine Control. Hankess 22 B 10 Enkine Control. Hankess 23 B 10 Enkine Control. Hankess 24 P 10 Enkine Control. Hankess 23 P 10 Enkine Control. Hankess 24 P 10 Enkine Control. Hankess 23 P 10 Enkine Co	

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E152	Connector Name WIRE TO WIRE									21G 20G 19G 18G 17G 16G 15G 14G 13G 12G 11G	0770770470707070707070707007007	41G40G39G38G37G36G35G34G33G32G31G 60G40048C47C46C45C44C43C43C43C	07+07+07+07+07+07+07+07+07+07+07+07+07+0	61/0/0/0 39/0 30/0 2/0 30/0 2/0 30/0 2/0 31/0 70/0/69/0/68/0/67/0/66/0/55/0/64/0/63/0/62/0	81G80677677567567567766776	9068968968686856856856856856856826		956 946 936 936 ⁹¹⁶ 1006 996 986 976 arc				Color of	Wire Signal Name			W/B TO MAIN HARNESS		TO	DVACAVU) TO MAIN HARNESS - MITH	2		R TO MAIN HARNESS				BH I O MAIN HAHNESS V/B TO MAIN HARNESS				G/Y I D MAIN HARNESS Y/V TO MAIN HABNESS				Y/R TO MAIN HARNESS			F
24G	25G	2010	286	29G	30G	316	310	5	32G	33G	34G	35G	36G	37G	386	396	400	426	43G	736	5	44G	45G 46G	47G	48G	49G	50G	51G	53G	54G	55G	57G	58G	59G	600	61G	63G	64G	65G	66G	880	69	70G	71G			
G/B	Ma a	r <u>e</u>	2 B	G/B	BRV	٩	•	c	٩	٨L	ß	G/R	SB	NR 1	¥ 8	Ha I	- 5/8	2 0	•	ď	5	RV	ۍ <u>د</u>	2 @	M	1	на на	x _	M	w	σ 3	^ ≻	BG	g	B	∞ ≥	: «	W/L	W/R	g	3	>		RW			
TO MAIN HARNESS	TO MAIN HARNESS TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS - (WITH	TO MAIN LADNESS - MITU	VK56VD)	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HAHNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS - (WITH	CUMMINS 5.0L) TO MAIN HARNESS - MITH	VK56VD)	TO MAIN HARNESS	TO MAIN HARNESS TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS TO MAIN HAPNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS TO MAIN HAPNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS			
72G	740	75.6	269	77G	78G	79G	80G	81G	82G	83G	84G	996	86G	886	89G	906	91G	92G	93G	94G	596	976	98G	996	100G		Connector No.	Connector Type	Connector Color		d H H H	H.S.				Terminal	No.	-	67 6	0 4	C1	9			ס		
N	SHIELD	≥ α	e B/B	σ	×	'	œ	-	œ		-	8/M	H/H	- L		σ	σ	٨/٧	BR	ۍ و		œ	W/B	HB :	GRW				-				12 11 1			Color of	Wire	гл	HE >	2	×	B/R	Н/А	BR	W//L		
TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS TO MAIN HADNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS	TO MAIN HARNESS		F14 WIDE TO WIDE	TH24FW-NH	WHITE	1			12 11 10 9 8 7 6 5 4 3 2 1 24 73 77 71 70 10 18 17 16 15 14 13				Signal Name	TO ENGINE ROOM HARNESS	TO ENGINE ROOM HARNESS	TO ENGINE ROOM HARNESS	TO ENGINE ROOM HARNESS	TO ENGINE ROOM HARNESS	I U ENGINE HOUM HARNESS	TO ENGINE ROOM HARNESS	I U ENGINE HOUM HAHNESS		
10	; =	13	14	15	16	17	18	19	20	21	22	8	24		Connector No.	Connector Name	Connector Type	Connector Color	F		0'E				Terminal	No.	- 0	4 C	4																		
۲ کا				-			_	_	_	T NR		-	- -					Color WHITE							Color of			-	SB To																		
TO ENGINE ROOM HARNESS	TO ENGINE ROOM HARNESS	TO ENGINE ROOM HARNESS	O ENGINE ROOM HABNES	TO ENGINE ROOM HARNESS	TO ENGINE ROOM HARNESS	TO ENGINE ROOM HARNESS	TO ENGINE ROOM HARNESS	TO ENGINE ROOM HARNESS	TO ENGINE ROOM HARNESS	TO ENGINE ROOM HARNESS	TO ENGINE ROOM HARNESS	TO ENGINE HOOM HAHNESS	IO ENGINE HOOM HAHNESS			WIRE TO WIRE	NS04FW-CS	щ				4 3 2 1			Signal Name		TO ENGINE ROOM HARNESS TO ENGINE BOOM HARNESS	TO ENGINE ROOM HARNESS	TO ENGINE ROOM HARNESS																		



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	mector Name mector Color M.S.	F46	Connector No.		M4	۵	' '		43		
	nector Type nector Color	A/T ASSEMBLY (WITH	Connector		EUSE BLOCK (J/B)	o			4		
	nector Type nector Color	VK56VD)	Connector		VS16FW-CS	10	8	COMBI SW IN 5	46	'	1
	rector Color	RK10FG	Connector (NHITE	F	G√	COMBI SW IN 4	47	,	1
	\$	GREEN	ſ			12	>	COMBI SW IN 3	48	œ	HIGH SIDE START
	Ņ					13	G/B	COMBI SW IN 2	49	1	1
	Ś	•	S H		[14	>	COMBI SW IN 1	50	1	1
				до Ч	5P 4P 3P 2P 1P	15		1	51	ı	1
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1 1						18	>	SECURITY INDICATOR	54	WL	PW UART
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3 Turner suntant 1 0		GND	6P	0	RR DEF RLY OUT	27	5/a	BRAKE SW LAMP	53		
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n statute stat		CAN-L	9	-	RATTERV	29	>	BLOWER FAN SW	65	'	'
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M3 M3<			471	'	1	33	T	I	69	R/B	AT DEVICE OI
HUSE BLOCK (JDB) HUSE BLOCK (JDB) </td <td>ector No.</td> <td>M3</td> <td>13P</td> <td>x :</td> <td>BALTERY</td> <td>34</td> <td>1</td> <td></td> <td>70</td> <td>٩</td> <td>IDO MSU NÐI</td>	ector No.	M3	13P	x :	BALTERY	34	1		70	٩	IDO MSU NÐI
Csolerwinz Csolerwinz Razanosw	ector Name	FUSE BLOCK (J/B)	14P	>	BALLEHY	35	R/G	REVERSE SW	F	0	DR REQUEST
The N BLOWER FAM RELVOUT NIHIE N BLOWER FAM RELVOUT NIHIE N N NIHIE N N NIHIE N N NIHIE N N N N N <td< td=""><td>ector Type</td><td>CS06FW-M2</td><td>15P</td><td>Y/LG</td><td>BATTERY</td><td>36</td><td>W/B</td><td>HAZARD SW</td><td>72</td><td>σ</td><td>AS REQUEST</td></td<>	ector Type	CS06FW-M2	15P	Y/LG	BATTERY	36	W/B	HAZARD SW	72	σ	AS REQUEST
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Nine						e,	,		74		
31 31 <td< td=""><td></td><td></td><td>Connector</td><td></td><td>M18</td><td>8</td><td>a/a</td><td>SHIET N/D</td><td>75</td><td>WV</td><td>COMBLSM OI</td></td<>			Connector		M18	8	a/a	SHIET N/D	75	WV	COMBLSM OI
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L ACC RELAY OUT 1 G ENG STAFT SW NO ESCL W IGNITION 2 -		BATTERY	No.	Wire	Signal Name	_]		
W IGNITION 2 - - 3 R AL POWER SUPPLY SV No. Wire 4 W/R ALL SUMAL 41 V/L 6 - - - 41 V/L		ACC RELAY OUT	-	σ	ENG START SW NO ESCL						
· · Terminal Control 3 R AL POWER SUPPLY SV Terminal Color of 3 R ML AL SURAL No. Wire 4 WIR AL SIGNAL 41 YL 6 - - 41 YL		NOITION									
W/R No. Wite W/R A/L SIGNAL 41 Y/L - - - - - - - -	_		4 67	ď	A/I POWER SLIPPLY 5V	Terminal	Color of				
41 VIL			4	W/B	AVLSIGNAL	No	Wire				
			. u			41	٨L	TRAILER LIGHT CHECK RELAY			
			, ,	I	-						

POWER DISTRIBUTION SYSTEM CONNECTORS - WITH VK56VD

< WIRING DIAGRAM >

Revision: March 2016

2016 Titan NAM

Connector Name WH Connector Type THB Connector Color WH H.S.	5									
		28G	G/B	TO ENGINE ROOM HARNESS	81G	_	TO ENGINE ROOM HARNESS			OtiM
	WIRE TO WIRE	29G	G/B	TO ENGINE ROOM HARNESS	82G	æ	TO ENGINE ROOM HARNESS	Connector Name		PUSH-BULTON IGNITION
	TH80FW-CS16-TM4	30G	BR/Y	TO ENGINE ROOM HARNESS	83G	_	TO ENGINE ROOM HARNESS		1	SWILCH
	WHITE	31G		TO ENGINE ROOM HARNESS	84G	-	TO ENGINE ROOM HARNESS	Connector Type		TH08FW-NH
		32G	æ	TO ENGINE ROOM HARNESS	85G	M	TO ENGINE ROOM HARNESS	Connector Color		WHITE
		33G	٨L	TO ENGINE ROOM HARNESS	86G	B/B	TO ENGINE ROOM HARNESS	f		
		346	ę	TO ENGINE BOOM HABNESS	876	M	TO ENGINE BOOM HABNESS			
		Cuc				: 0	TO ENCINE DOOM HADNESS			
110 110 110 110	16 26 36 46 36	000			000	5 6		0 E		-
21 21 21 21 21 21 21 21 21 21 21 21 21 2	66 / 6 86 96 106	505	98		5969	r	I U ENGINE ROOM HAHNESS			4 3
		37G	RW	TO ENGINE ROOM HARNESS	906	σ	TO ENGINE ROOM HARNESS			2 2 2
	116 126 136 146 156 166 176 186 196 206 216	38G	BR	TO ENGINE ROOM HARNESS	91G	٩.	TO ENGINE ROOM HARNESS			~
-	575/53/540/520/50/2/0/58/2/0/58/2/0/52	39G	BR	TO ENGINE ROOM HARNESS	92G	٨/٧	TO ENGINE ROOM HARNESS			
31632	31G32G33G34G35G36G37G38G39G40G41G	40G	1	TO ENGINE ROOM HARNESS	93G	BR	TO ENGINE ROOM HARNESS	•		
4	12G43G44G45G46G47G48G49G50G	41G	B/G	TO FNGINE ROOM HARNESS	94G		TO FNGINE ROOM HARNESS	lerminal	Color of	Signal Name
		42G	c	TO ENGINE ROOM HARNESS	956	c	TO FNGINE ROOM HARNESS	.ov	WILE	b
					0.00			e	BG	BATTERY
<u>ة</u>		5	5		506	c		4	8	GND
716/72	2G/73G/74G/75G/76G/77G/78G/79G/80G/81G	44G	RY	TO ENGINE ROOM HARNESS	97G	œ	TO ENGINE ROOM HARNESS	5	<u>م</u>	HIGH SIDE START SW I ED
28	82G83G84G85G86G87G88G89G90G	45G	U	TO ENGINE ROOM HARNESS	98G	W/B	TO ENGINE ROOM HARNESS			
		46G	ГG	TO ENGINE ROOM HARNESS	996	œ	TO ENGINE ROOM HARNESS			
	^{91G} 92G 93G 94G 95G	47G	œ	TO ENGINE ROOM HARNESS	100G	GR/W	TO ENGINE ROOM HARNESS	_	-	ACCIED
	96G 97G 98G 99G 100G	48G	~	TO FNGINE ROOM HARNESS				8	σ	ENG START SW NO ESCL
		007	:			ľ				
		584			Connector No.		M39	Connector No.		MED
		50G	BR	TO ENGINE ROOM HARNESS	Connector Name	-	FISE BLOCK (I/B)		-	VID0
		51G	æ	TO ENGINE ROOM HARNESS		,		Connector Name		A/T SHIFT SELECTOR
Terminal Color of		52G	-	TO ENGINE ROOM HARNESS	Connector Type		NS08FW-CS	Connector Type		TKORFW
	Signal Name	53G	8	TO ENGINE ROOM HARNESS	Connector Color		WHITE	Connector Color	1	WUITE
	TO ENGINE ROOM HARNESS	54G	M	TO ENGINE ROOM HARNESS	£					
+	TO ENGINE BOOM HADNESS	55G	g	TO ENGINE ROOM HARNESS				E		
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+	I CENGINE ROOM HAHNESS		: >		0 L		30 20 10	H.S.		7 7 7
	TO ENGINE ROOM HARNESS	5/6	-				RO 70 60 50 40			,
-	TO ENGINE ROOM HARNESS	580	5	I C ENGINE ROOM HARNESS			¥ • • • • • • • •			4 5 6 7 8
6G R/W	TO ENGINE ROOM HARNESS	59G	BG	TO ENGINE ROOM HARNESS		1				
7G Y	TO ENGINE ROOM HARNESS	60G	BG	TO ENGINE ROOM HARNESS						
8G G	TO ENGINE ROOM HARNESS	61G	0	TO ENGINE ROOM HARNESS	Terminal	Color of		ŀ		
	TO ENGINE ROOM HARNESS	62G	M	TO ENGINE ROOM HARNESS	No	Wire	Signal Name	Terminal	Color of	Cianol Namo
	TO FNGINE BOOM HABNESS	63G	0	TO ENGINE ROOM HARNESS	NO.	AllA		No.	Wire	
	TO FNOINE DOOM HADNESS	64G	W/I	TO ENGINE ROOM HARNESS	2	,	-	-	•	GND
+		010		TO ENCINE DOOM LADNESS	20	ογ	IGNITION	•	ď	UND
_	I 0 ENGINE HOOM HAHNESS	500			ğ	ı	1			
13G BR	TO ENGINE ROOM HARNESS	599	BG	TO ENGINE ROOM HARNESS	6		1	'n	5	SHIFT LUCK SUL UUI
14G Y/B	TO ENGINE ROOM HARNESS	67G	0	TO ENGINE ROOM HARNESS	02			4	-	SHIFT P
15G G/W	TO ENGINE ROOM HARNESS	68G	8	TO ENGINE ROOM HARNESS	i G	WVD	DATTEDV	5	R/B	AT DEVICE OUT
16G G	TO ENGINE ROOM HARNESS	969	7	TO ENGINE ROOM HARNESS	B f			9	ГG	TOW MODE SW
	TO FNGINE ROOM HABNESS	70G	-	TO ENGINE ROOM HARNESS	z :	M	IGNITION	2	BR	SHIFT UP
	TO ENCINE DOOM HADNIESS	716	ΜM	TO ENGINE ROOM HARNESS	08		1	œ	٨٧	SHIFT DOWN
-		72G	ΓW	TO ENGINE ROOM HARNESS						
+		736	SHIFLD	TO ENGINE BOOM HABNESS						
+	I U ENGINE ROUM HARNESS									
-	TO ENGINE ROOM HARNESS	/40	M	I U ENGINE HOUM HAHNESS						
22G G/R	TO ENGINE ROOM HARNESS	75G	æ	TO ENGINE ROOM HARNESS						
23G Y/R	TO ENGINE ROOM HARNESS	76G	R/G	TO ENGINE ROOM HARNESS						
24G G/B	TO ENGINE ROOM HARNESS	77G	9 8	TO ENGINE ROOM HARNESS						
-	TO ENGINE ROOM HARNESS	78G	٩	TO ENGINE ROOM HARNESS						
	TO FNOINT DOOM HADNIFES	296	1	TO ENGINE ROOM HARNESS						
н 1	I U ENGINE HOUM HAHNESS	501								

POWER DISTRIBUTION SYSTEM CONNECTORS - WITH VK56VD

Revision: March 2016

2016 Titan NAM

POWER DISTRIBUTION SYSTEM

[POWER DISTRIBUTION SYSTEM]

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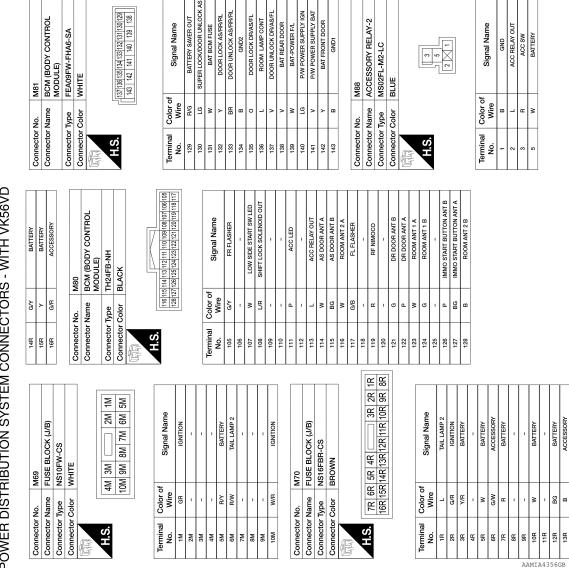
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[POWER DISTRIBUTION SYSTEM]

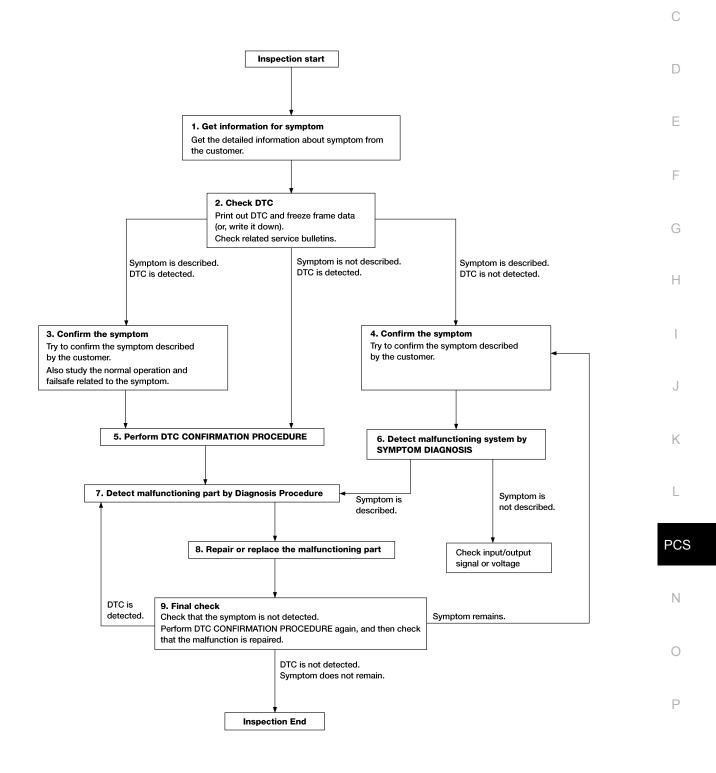
BASIC INSPECTION DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:000000013019622 В

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OVERALL SEQUENCE



< BASIC INSPECTION >

1.GET INFORMATION FOR SYMPTOM

- 1. Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurs).
- 2. Check operation condition of the component or system that is malfunctioning.

>> GO TO 2.

2.CHECK DTC

- 1. Check DTC.
- 2. Perform the following procedure if DTC is detected.
- Record DTC and freeze frame data (Print them out using CONSULT).
- Erase DTC.
- Study the relationship between the cause detected by DTC and the symptom described by the customer.
- 3. Check related service bulletins for information.

Are any symptoms described and any DTC detected?

Symptom is described, DTC is detected>>GO TO 3. Symptom is described, DTC is not detected>>GO TO 4. Symptom is not described, DTC is detected>>GO TO 5.

3.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer. Also study the normal operation and fail-safe related to the symptom. Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

4.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer. Verify relation between the symptom and the condition when the symptom is detected.

NOTE:

Freeze frame data is useful if the DTC is not detected.

>> GO TO 6.

5.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC CONFIRMATION PROCEDURE for the detected DTC, and then check that DTC is detected again. At this time, always connect CONSULT to the vehicle, and check self diagnostic results in real time. If two or more DTCs are detected, refer to <u>BCS-51</u>, "<u>DTC Inspection Priority Chart</u>", and determine trouble diagnosis order.

Is DTC detected?

YES >> GO TO 7.

NO >> Refer to <u>GI-43</u>, "Intermittent Incident".

6. DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

Detect malfunctioning system according to SYMPTOM DIAGNOSIS based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptom.

Is the symptom described?

- YES >> GO TO 7.
- NO >> Monitor input data from related sensors or check voltage of related module terminals using CON-SULT.

7. DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE

Inspect according to Diagnosis Procedure of the system.

Is malfunctioning part detected?

- YES >> GO TO 8.
- NO >> Refer to <u>GI-43</u>, "Intermittent Incident".

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

1.	REPAIR OR REPLACE THE MALFUNCTIONING PART Repair or replace the malfunctioning part.
•	Reconnect parts or connectors disconnected during Diagnosis Procedure again after repair and replace-
	ment. Check DTC. If DTC is detected, erase it.
מ	>> GO TO 9. FINAL CHECK
	TINAL CHECK Then DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the
na	Ifunction is repaired securely.
	nen symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the nptom is not detected.
-	DTC detected and does symptom remain?
	ES-1 >> DTC is detected: GO TO 7. ES-2 >> Symptom remains: GO TO 4.
N	

PROCEDURE FOR TEMPORARILY DISABLING THE IGNITION BATTERY SAV-ER SYSTEM

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

PROCEDURE FOR TEMPORARILY DISABLING THE IGNITION BATTERY SAVER SYSTEM

Description

INFOID:000000013135978

The ignition battery saver system can be temporarily disabled, without using CONSULT, to prevent it from functioning when performing trouble diagnosis. Refer to <u>PCS-76</u>, "Work Procedure".

Work Procedure

INFOID:000000013135979

- 1. Enter the vehicle carrying a registered Intelligent Key.
- 2. Place the ignition switch in the OFF position.
- 3. Without depressing the brake pedal, press and hold the push-button ignition switch continuously for ten seconds.
- 4. Check that the buzzer in the combination meter sounds for 2 seconds.
- 5. Operation is completed.

NOTE:

When the ignition switch is placed in any position other than ON, the ignition battery saver system is activated again.

DTC/CIRCUIT DIAGNOSIS

[POWER DISTRIBUTION SYSTEM]

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U1000 CAN COMM CIRCUIT DTC Description

INFOID:000000013110026

Description

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicles are equipped with many electronic control units and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN H-line, CAN L-line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only. CAN Communication Signal Chart. Refer to <u>LAN-70, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"</u>.

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DIC Detection Condition		F
	CAN COMM CIRCUIT (CAN communication circuit)	Diagnosis condition	When ignition switch is ON.	
U1000		Signal (terminal)	-	G
01000		Threshold	-	
_		Diagnosis delay time	2 seconds or more	Н

POSSIBLE CAUSE

CAN communication system

FAIL-SAFE

Diagnosis Procedure

1. SELF DIAGNOSTIC RESULT

CONSULT

- 1. Turn ignition switch ON and wait for 2 seconds or more.
- 2. Check "Self Diagnostic Result" mode of "BCM".
- 3. Check DTC.

Is DTC "U1000" displayed?

- YES >> Refer to LAN-51, "Trouble Diagnosis Flow Chart".
- NO-1 >> To check malfunction symptom before repair: Refer to GI-43, "Intermittent Incident".
- NO–2 >> Confirmation after repair: Inspection End.

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INFOID-000000013110027

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U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

U1010 CONTROL UNIT (CAN)

DTC Description

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC Detection Condition		
	CONTROL UNIT(CAN) (Control unit)	Diagnosis condition	When ignition switch is ON.	
U1010		Signal (terminal)	_	
01010		Threshold	-	
		Diagnosis delay time	2 seconds or more	

POSSIBLE CAUSE

• BCM

FAIL-SAFE

Diagnosis Procedure

1. REPLACE BCM

When DTC U1010 is detected, replace BCM.

>> Replace BCM. Refer to <u>BCS-79, "Removal and Installation"</u>.

[PÓWER DISTRIBUTION SYSTEM]

INFOID:000000013110028

INFOID:000000013110029

B260A IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

B260A IGNITION RELAY

DTC Description

DTC DET	ECTION LOGIC			
DTC No. CONSULT screen terms (Trouble diagnosis content)		DTC Detection Condition		
		Diagnosis condition	When ignition switch is ON.	
B260A	IGN RELAY	Signal (terminal)	-	
DZOUA		Threshold	-	
		Diagnosis delay time	2 seconds or more	
 Harness BCM IPDM E/ FAIL SAF — 	E			
	IFIRMATION PROCED	-		
	LT		s and wait for at least 2 seconds:	

- 1. Т AT selector lever is in the P (park) or N (neutral) position.
- Release the brake pedal.
- Perform "Self Diagnostic Result" mode of "BCM". 2.

Is DTC B260A detected?

- >> Refer to PCS-79, "Diagnosis Procedure". YES NO >> Inspection End.
- Diagnosis Procedure

Regarding Wiring Diagram information, refer to PCS-57, "CUMMINS 5.0L : Wiring Diagram".

1. SELF DIAGNOSTIC RESULT

CONSULT

Perform "Self Diagnostic Result" mode of "IPDM E/R".

Are any DTCs detected?

YES >> Refer to PCS-23, "DTC Index".

NO >> GO TO 2.

2. CHECK IGNITION RELAY-1 POWER SUPPLY (IPDM E/R)

Check voltage between IPDM E/R connector E130 terminal 68 and ground.

IPDM E/R		Ground	Condition	Voltage	Ρ
Connector	Terminal	Ground	Condition	(Approx.)	
E130	68		Ignition: OFF	0V	
E130	00	—	Ignition: ON	Battery voltage	

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-43, "Removal and Installation of IPDM E/R". А

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INFOID:000000013019628

INFOID:000000013019627

B260A IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

$\overline{\mathbf{3.}}$ CHECK IGNITION RELAY-1 POWER SUPPLY (BCM)

Check voltage between BCM connector M19 terminal 70 and ground.

BCM		Ground	Condition	Voltage
Connector	Terminal	Cround	Condition	(Approx.)
M19	70		Ignition: OFF	0V
10119	70	—	Ignition: ON	Battery voltage

Is the inspection result normal?

YES >> Refer to <u>GI-43</u>, "Intermittent Incident".

NO >> Replace BCM. Refer to <u>BCS-79, "Removal and Installation"</u>.

B261A PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

B261A PUSH-BUTTON IGNITION SWITCH

DTC Description

[POWER DISTRIBUTION SYSTEM]

INFOID:000000013019629

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DTC DET	ECTION LOGIC			В
DTC No.	CONSULT screen terms (Trouble diagnosis content)		DTC Detection Condition	С
		Diagnosis condition	When ignition switch is ON.	
B261A	ENGINE SW	Signal (terminal)	-	
BZOTA	(Push-button ignition switch)	Threshold	-	D
		Diagnosis delay time	1 second or more	
 Harness 	E CAUSE or connectors utton ignition switch circuit R	is open or shorted]		E F
	FIRMATION PROCED			G
I. PERF	ORM DTC CONFIRMATIC	N PROCEDURE		Н
- AT set - Relea 2. Perfor <u>Is DTC B2</u> YES >		k) or N (neutral) posi " mode of "BCM".	ving conditions, and wait for at least 1 second. tion.	J
Diagnos	is Procedure		INFOID:000000013019630	K
			CUMMINS 5.0L : Wiring Diagram".	L
			T SIGNAL (PUSH-BUTTON IGNITION SWITCH)	PC
1. Disco	nnect push-button ignition	switch connector.		

2. Check voltage between push-button ignition switch connector M46 terminal 8 and ground.

Push-button ignition switch Connector Terminal		Ground	Voltage	
		Gibuna	(Approx.)	
M46	8	_	Battery voltage	(

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 4.

2. CHECK IGNITION SWITCH OUTPUT SIGNAL (IPDM E/R)

Check voltage between IPDM E/R connector E130 terminal 66 and ground.

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B261A PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

IPDM	E/R	Ground	Voltage
Connector Terminal		Cround	(Approx.)
E130	66	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace IPDM E/R. Refer to PCS-43. "Removal and Installation of IPDM E/R".

3. CHECK PUSH-BUTTON IGNITION SWITCH CIRCUIT (IPDM E/R)

1. Turn ignition switch OFF.

2. Disconnect IPDM E/R connector E130 and BCM connector M18.

3. Check continuity between IPDM E/R connector E130 terminal 66 and push-button ignition switch connector M46 terminal 8.

IPDM E/R Connector Terminal		Push-button	Continuity	
		Connector	Terminal	Continuity
E130	66	M46	8	Yes

4. Check continuity between IPDM E/R connector E130 terminal 66 and ground.

IPDI	M E/R	Ground	Continuity
Connector Terminal		Ground	Continuity
E130	66	_	No

Is the inspection result normal?

YES >> Refer to <u>GI-43, "Intermittent Incident"</u>.

NO >> Repair or replace harness or connectors.

4. CHECK IGNITION SWITCH OUTPUT SIGNAL (BCM)

Check voltage between BCM connector M18 terminal 1 and ground.

BC	Μ	Ground	Voltage
Connector Terminal		Ground	(Approx.)
M18	1	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace BCM. Refer to <u>BCS-79</u>, "Removal and Installation".

5. CHECK PUSH-BUTTON IGNITION SWITCH CIRCUIT (BCM)

1. Turn ignition switch OFF.

2. Disconnect BCM connector M18 and IPDM E/R connector E130.

 Check continuity between BCM connector M18 terminal 1 and push-button ignition switch connector M46 terminal 8.

B	СМ	Push-button	ignition switch	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M18	1	M46	8	Yes

4. Check continuity between BCM connector M18 terminal 1 and ground.

BC	CM	Ground	Continuity
Connector	Terminal	Ground	Continuity
M18	1	—	No

Is the inspection result normal?

B261A PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

YES	>> Refer to GI-43, "Intermittent Incident".

NO >> Repair or replace harness or connectors.

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< DTC/CIRCUIT DIAGNOSIS >

B26F1 IGNITION RELAY

DTC Description

INFOID:000000013019631

[POWER DISTRIBUTION SYSTEM]

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trou- ble diagnosis content)	DTC Detection Condition	
		Diagnosis condition	When ignition switch is ON.
B26F1	IGN RELAY OFF STUCK FAIL	Signal (terminal)	-
02011	(Ignition relay off)	Threshold	-
		Diagnosis delay time	2 seconds or more

POSSIBLE CAUSE

- Harness or connectors
 (Ignition relay circuit is open)
- BCM
- IPDM E/R

FAIL-SAFE

Inhibit engine cranking.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

- 1. Turn ignition switch ON under the following conditions, and wait for 2 seconds or more:
- AT selector lever is in the P (park) or N (neutral) position.
- Do not depress brake pedal.
- 2. Perform "Self Diagnostic Result" mode of "BCM".

Is DTC B26F1detected?

- YES >> Go to PCS-84. "Diagnosis Procedure".
- NO >> Inspection End.

Diagnosis Procedure

INFOID:000000013019632

Regarding Wiring Diagram information, refer to PCS-57, "CUMMINS 5.0L : Wiring Diagram".

1.SELF DIAGNOSTIC RESULT

CONSULT

- 1. Perform "Self Diagnostic Result" mode of "IPDM E/R".
- 2. Erase DTCs.
- 3. Turn ignition switch OFF.
- 4. Turn ignition switch ON.
- 5. Perform "Self Diagnostic Result" mode of "IPDM E/R".

Are any DTCs detected?

YES >> Refer to <u>PCS-23, "DTC Index"</u>.

NO >> GO TO 2.

2.CHECK IGNITION RELAY-1 CONTROL SIGNAL (IPDM E/R)

Check voltage between BCM connector M19 terminal 70 and ground.

BCM		Ground	Condition	Voltage	
Connector	Terminal	Ciouna	Oblight	(Approx.)	

B26F1 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

HECK IGNITION F	CM. Refer to <u>BCS-79</u> , RELAY-1 CONTROL S h OFF. E/R connector E130 a	SIGNAL CIRCUIT	Ignition: OFF Ignition: ON	0V Battery voltag
e inspection result S >> GO TO 3. >> Replace B HECK IGNITION F Turn ignition switch Disconnect IPDM F	<u>normal?</u> CM. Refer to <u>BCS-79,</u> RELAY-1 CONTROL S h OFF. E/R connector E130 a	SIGNAL CIRCUIT		Battery voltag
 >> GO TO 3. >> Replace B HECK IGNITION F urn ignition switch Disconnect IPDM F 	CM. Refer to <u>BCS-79</u> , RELAY-1 CONTROL S h OFF. E/R connector E130 a	SIGNAL CIRCUIT	allation".	
	otwoon IDDM E/D cor			tor M10 torminal
IPDM				
Connector	Terminal	Connector	Terminal	Continuity
E130	68	M19	70	Yes
eck continuity b	etween IPDM E/R cor	nector E130 termin	al 68 and ground.	
ļ	IPDM E/R		Ground	Continuity
Connector	Terminal		Ciouna	Continuity
E130	68		—	No

< DTC/CIRCUIT DIAGNOSIS >

B26F2 IGNITION RELAY

DTC Description

INFOID:000000013019633

[POWER DISTRIBUTION SYSTEM]

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC Detection Condition		
		Diagnosis condition	When ignition switch is ON.	
B26F2	IGN RELAY ON STUCK FAIL	Signal (terminal)	-	
D201 2	(Ignition relay on)	Threshold	-	
		Diagnosis delay time	2 seconds or more	

POSSIBLE CAUSE

- Harness or connectors (Ignition relay circuit is shorted)
- BCM
- IPDM E/R

FAIL-SAFE

Inhibit engine cranking

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

- 1. Turn ignition switch ON under the following conditions, and wait for 2 seconds or more:
- AT selector lever is in the P (park) or N (neutral) position.
- Do not depress brake pedal.
- 2. Perform "Self Diagnostic Result" mode of "BCM".

Is DTC B26F2 detected?

- YES >> Go to PCS-86. "Diagnosis Procedure".
- NO >> Inspection End.

Diagnosis Procedure

INFOID:000000013019634

Regarding Wiring Diagram information, refer to PCS-57, "CUMMINS 5.0L : Wiring Diagram".

1. SELF DIAGNOSTIC RESULT

CONSULT

- 1. Perform "Self Diagnostic Result" mode of "IPDM E/R".
- 2. Erase DTCs.
- 3. Turn ignition switch OFF.
- 4. Turn ignition switch ON.
- 5. Perform "Self Diagnostic Result" mode of "IPDM E/R".

Are any DTCs detected?

YES >> Refer to <u>PCS-23, "DTC Index"</u>.

2.CHECK IGNITION RELAY-1 CONTROL SIGNAL (IPDM E/R)

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector E130.
- 3. Check voltage between IPDM E/R connector E130 terminal 68 and ground.

B26F2 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

Connector Terminal (Approx.) E130 68 — Ignition: OFF 0V the inspection result normal? (Kapprox.) 0V 0V (ES >> Replace IPDM E/R. Refer to PCS-43, "Removal and Installation of IPDM E/R". 0V NO >> GO TO 3. . . .CHECK IGNITION RELAY-1 CONTROL SIGNAL CIRCUIT Disconnect BCM connector M19. . Check voltage between IPDM E/R connector E130 terminal 68 and ground. Voltage (Approx.) E130 68 — Ignition: OFF 0V E130 68 — Ignition: OFF 0V the inspection result normal? (KS >> Replace BCM. Refer to BCS-79. "Removal and Installation". . .	E130	IPDM E/R		Condition	Voltage
the inspection result normal? ES >> Replace IPDM E/R. Refer to PCS-43. "Removal and Installation of IPDM E/R". IO >> GO TO 3. CHECK IGNITION RELAY-1 CONTROL SIGNAL CIRCUIT Disconnect BCM connector M19. Check voltage between IPDM E/R connector E130 terminal 68 and ground. Voltage (Approx.) E130 68 — Ignition: OFF 0V the inspection result normal? ES >> Replace BCM. Refer to BCS-79. "Removal and Installation".			Cround	Condition	
NO >> GO TO 3. .CHECK IGNITION RELAY-1 CONTROL SIGNAL CIRCUIT Disconnect BCM connector M19. Check voltage between IPDM E/R connector E130 terminal 68 and ground. IPDM E/R Ground Condition Voltage Connector Terminal Condition E130 68 — Ignition: OFF the inspection result normal? Kefer to BCS-79. "Removal and Installation".	the inspection result	68	_	Ignition: OFF	0V
Connector Terminal Ground Condition Condition E130 68 — Ignition: OFF 0V the inspection result normal? YES >> Replace BCM. Refer to BCS-79, "Removal and Installation".	YES >> Replace IP NO >> GO TO 3. CHECK IGNITION F Disconnect BCM c	DM E/R. Refer to PC RELAY-1 CONTROL S	SIGNAL CIRCUIT		<u>2"</u> .
Connector Terminal Ground Condition Condition E130 68 — Ignition: OFF 0V the inspection result normal? YES >> Replace BCM. Refer to BCS-79, "Removal and Installation".	IPDM	E/D			
the inspection result normal? (ES >> Replace BCM. Refer to <u>BCS-79, "Removal and Installation"</u> .			Ground	Condition	
/ES >> Replace BCM. Refer to <u>BCS-79, "Removal and Installation"</u> .	E130	68		Ignition: OFF	0V

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< DTC/CIRCUIT DIAGNOSIS >

B26F6 BCM

DTC Description

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC Detection Condition		
		Diagnosis condition	When ignition switch is ON.	
B26F6	IGN USM CONT FAIL	Signal (terminal)	-	
D2010	(Body control module)	Threshold	-	
		Diagnosis delay time	0.5 seconds or more	

POSSIBLE CAUSE

• BCM

FAIL-SAFE

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC B26F6 is displayed with DTC U1000 or U1010, first perform the trouble diagnosis for the DTC U1000 or U1010.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. U1000: Refer to <u>PCS-77, "DTC Description"</u>. U1010: Refer to <u>PCS-78, "DTC Description"</u>.

NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

- Turn ignition switch ON under the following conditions, and wait for 0.5 seconds or more:
- AT selector lever is in the P (park) or N (neutral) position.

- Do not depress brake pedal.

2. Perform "Self Diagnostic Result" mode of "BCM".

Is DTC B26F6 detected?

- YES >> Go to PCS-88, "Diagnosis Procedure".
- NO >> Inspection End.

Diagnosis Procedure

INFOID:000000013019636

Regarding Wiring Diagram information, refer to PCS-57, "CUMMINS 5.0L : Wiring Diagram".

1. SELF DIAGNOSTIC RESULT

CONSULT

Perform "Self Diagnostic Result" mode of "IPDM E/R".

Are any DTCs detected?

YES >> Refer to <u>PCS-23, "DTC Index"</u>.

NO >> GO TO 2.

2. CHECK IGNITION RELAY-1 POWER SUPPLY (IPDM E/R)

Check voltage between IPDM E/R connector E130 terminal 68 and ground.

INFOID:000000013019635

B26F6 BCM

< DTC/CIRCUIT DIAGNOSIS >

Connector	Terminal	Ground	Condition	Voltage (Approx.)
Connector	тептіпа		Ignition: OFF	0V
E130	68	—	Ignition: ON	Battery voltage
e inspection resul	t normal?		J	, , , , , , , , , , , , , , , , , , , ,
S >> Replace I	PDM E/R. Refer to PC	S-43, "Removal and	Installation of IPDM E	<u>/R"</u> .
) >> GO TO 3.				
CHECK IGNITION	RELAY-1 POWER SU	IPPLY (BCM)		
ck voltage betwee	n BCM connector M19	terminal 70 and gro	bund.	
				1
	CM Terminal	Ground	Condition	Voltage (Approx.)
Connector	Terminal		Ignition: OFF	0V
M19	70	_	Ignition: ON	Battery voltage
e inspection resul	t normal?		Ignition. Or	Duttery voltage
	GI-43. "Intermittent Incid	dent"		
\sim \sim Relef 10 $\underline{\circ}$	RCM Refer to BCS-79	<u>ueni</u> . "Removal and Insta	allation"	
) >> Replace E	3CM. Refer to <u>BCS-79,</u>	"Removal and Insta	<u>allation"</u> .	
	DOM. REIEI 10 $\underline{\text{DUS-19}}$	Removal and insta	<u>anauon</u> .	

PUSH-BUTTON IGNITION SWITCH

Component Function Check

1.CHECK FUNCTION

1. Select "PUSH SW" in "Data Monitor" mode of BCM.

2. Check the push-button ignition switch signal under the following conditions.

Test item	Condition	Status
PUSH SW	Push-button ignition switch is pressed	On
	Push-button ignition switch is not pressed	Off

Is the indication normal?

YES >> Inspection End.

NO >> Go to <u>PCS-90, "Diagnosis Procedure"</u>.

Diagnosis Procedure

INFOID:000000013019638

INFOID:000000013019637

Regarding Wiring Diagram information, refer to PCS-57, "CUMMINS 5.0L : Wiring Diagram".

1. CHECK PUSH-BUTTON IGNITION SWITCH OUTPUT SIGNAL (PUSH-BUTTON IGNITION SWITCH)

- 1. Turn ignition switch OFF.
- 2. Disconnect push-button ignition switch connector M46 and IPDM E/R connector E130.
- 3. Check voltage between push-button ignition switch connector M46 terminal 8 and ground.

Push-button ig	nition switch	Ground	Voltage
Connector	Terminal	Cround	(Approx.)
M46	8	_	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2. CHECK PUSH-BUTTON IGNITION SWITCH CIRCUIT (BCM)

1. Disconnect BCM connector M18.

 Check continuity between BCM connector M18 terminal 1 and push-button ignition switch connector M46 terminal 8.

B	BCM		Push-button ignition switch		
Connector	Terminal	Connector Terminal		Continuity	
M18	1	M46	8	Yes	

3. Check continuity between BCM connector M18 terminal 1 and ground.

BCM		Ground	Continuity	
Connector	Terminal	Ground	Continuity	
M18	1	—	No	

Is the inspection result normal?

YES >> Replace BCM. Refer to <u>BCS-79. "Removal and Installation"</u>.

NO >> Repair or replace harness or connectors.

3. CHECK IGNITION SWITCH OUTPUT SIGNAL (IPDM E/R)

Check voltage between IPDM E/R connector E130 terminal 66 and ground.

Revision: March 2016

PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

IPDM	I E/R				Voltage
Connector	Termir	nal	Ground		(Approx.)
E130	66		—		Battery voltage
 Is the inspection result norm YES >> GO TO 5. NO >> GO TO 4. CHECK PUSH-BUTTON Disconnect BCM conne Check continuity betwe tor M46 terminal 8. 	I IGNITION SW			d push-button i	gnition switch connec-
IPDM E/R			Push-button ignition sv	witch	
Connector	Terminal	Conr	nector	Terminal	Continuity
E130	66	M	46	8	Yes
 Check continuity betwe IPDM 					
Connector	Terminal		Ground		Continuity
E130	66		_		No
Push-button i Connector	gnition switch Termir	nal	Ground		Continuity
M46	4				Yes
Is the inspection result norm YES >> GO TO 6. NO >> Repair or replace 6.CHECK PUSH-BUTTON Refer to PCS-91. "Component Is the inspection result norm YES >> Refer to GI-43. NO >> Replace push-b Component Inspection 1. CHECK PUSH-BUTTON 1. Turn ignition switch OFI 2. Disconnect push-buttor	ce harness or co IGNITION SWI ent Inspection". hal? "Intermittent Inc button ignition sw n IGNITION SWI	TCH <u>cident"</u> . vitch. Refer TCH	to <u>PCS-98, "Rem</u>	oval and Install	<u>ation"</u> . INFOID:00000001301963
3. Check continuity betwe	en push-button	ignition swit		1	
Push-button ignition switch te	rminais		dition		Continuity Yes
4 – 8		-			No
		ואסג מ	ressed		INU

Is the inspection result normal?

< DTC/CIRCUIT DIAGNOSIS >

YES >> Inspection End.

NO >> Replace push-button ignition switch. Refer to <u>PCS-98</u>, "Removal and Installation".

I < DTC/CIRCUIT DIAGNO		ND GROUND CIRCUI	T DISTRIBUTION SYSTEM
POWER SUPPLY		RCUIT	
ВСМ			
BCM : Diagnosis Pro	cedure		INFOID:0000000131100
Regarding Wiring Diagram	information, refer to BCS-	54, "Wiring Diagram".	
1. CHECK FUSE AND FL	ISIBLE LINK		
Check that the following fu	se and fusible link are not b	olown.	
		Fues and f	usible link No.
Signa	Il name	Cummins 5.0L	VK56VD
Fusible link	battery power	R (50A)	N (50A)
	ittery fuse	1 (10A)	1 (10A)
2. CHECK POWER SUPF 1. Disconnect BCM conn 2. Check voltage between	ector M81.	ninals 131, 139 and ground.	
	СМ	Ground	Voltage
Connector	Terminal		(Approx.)
M81	131	— (—)	Battery voltage
B. CHECK GROUND CIR	ice harness or connectors.	nals 134, 143 and ground.	
B	СМ		
Connector	Terminal	- Ground	Continuity
M81	134 143		Yes
Is the inspection result nor	mal?		
YES >> Inspection End NO >> Repair or repla IPDM E/R (INTELLIC	ice harness or connectors.		E ENGINE ROOM)
IPDM E/R (INTELLIG agnosis Procedure	ENT POWER DISTR	RIBUTION MODULE I	ENGINE ROOM) : Di-

Regarding Wiring Diagram information, refer to PCS-25, "CUMMINS 5.0L : Wiring Diagram".

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

1. CHECK FUSIBLE LINKS

Check that the following fusible links are not blown.

Terminal	Signal name	Fusible link No.		
Terrinida		Cummins 5.0L	VK56VD	
1	Battery power supply	A (250A), D (100A)	A (250A), B (80A)	
2		C (100A)	E (60A)	
20		F (250A), J (100A), P (40A)	A (250A), C (100A), U (40A)	

Is the fusible link blown?

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

NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect IPDM E/R connectors E118 and E120.

2. Check voltage between IPDM E/R connectors and ground.

IPDM E/R		Ground	Voltage (Approx.)	
Connector	Terminal	Ground	(Approx.)	
E118	1			
EIIO	2	(—)	Battery voltage	
E120	20			

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

1. Disconnect IPDM E/R connectors E123 and E124.

2. Check continuity between IPDM E/R connectors and ground.

IPDM E/R		Ground	Continuity	
Connector	Terminal	Ground	Continuity	
E123	52		Yes	
E124	62		Tes	

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

PUSH-BUTTON IGNITION SWITCH DOES NOT OPERATE SYMPTOM DIAGNOSIS > SUPPTOM DIAGNOSIS PUSH-BUTTON IGNITION SWITCH DOES NOT OPERATE Description Check that vehicle is under the condition shown in "Conditions of vehicle" before starting diagnosis, and check each symptom. NOTE: The engine start function, door lock function, power distribution system, and NATS-IVIS in the Intelligent Key system are closely related to each other regarding control. The vehicle security function can operate only when the door lock and power distribution system are operating normally. Conditions of Vehicle (Operating Conditions) • "ENGINE START BY I-KEY" in "WORK SUPPORT" is ON when setting on CONSULT.

• One or more of Intelligent Keys with registered Intelligent Key ID is in the vehicle.

Diagnosis Procedure	INFOID:000000013019643	
1.PERFORM WORK SUPPORT		F
CONSULT Perform "INSIDE ANT DIAGNOSIS" in "Work support" mode of "INTELLIGENT KEY". Refer to PCS-52, "INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY)".		G
>> GO TO 2.		Н
2.SELF DIAGNOSTIC RESULT		
CONSULT Perform "Self Diagnostic Result" mode of "BCM".		Ι
Are any DTCs detected?		
YES >> Refer to <u>BCS-52, "DTC Index"</u> . NO >> GO TO 3.		J
3. CHECK PUSH-BUTTON IGNITION SWITCH		
Check push-button ignition switch. Refer to <u>PCS-90, "Component Function Check"</u> .		Κ
Is the operation normal?		
YES >> GO TO 4. NO >> Repair or replace malfunctioning parts.		L
4. CONFIRM THE OPERATION		
Confirm the operation again.		PCS
Is the inspection normal?	-	
YES >> Check intermittent incident. Refer to <u>GI-43, "Intermittent Incident"</u> . NO >> GO TO 1.		Ν

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PUSH-BUTTON IGNITION SWITCH POSITION INDICATOR DOES NOT ILLUMI-NATE

< SYMPTOM DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

PUSH-BUTTON IGNITION SWITCH POSITION INDICATOR DOES NOT IL-LUMINATE

Diagnosis Procedure

INFOID:000000013019644

1. CHECK PUSH-BUTTON IGNITION SWITCH OPERATION

Check push-button ignition switch. Refer to PCS-90, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2. CHECK PUSH-BUTTON IGNITION SWITCH POSITION INDICATOR POWER CIRCUIT

1. Disconnect push-button ignition switch connector.

2. Check voltage between push-button ignition switch connector M46 terminal 3 and ground.

Push-button ignition switch		Ground	Voltage	
Connector	Terminal	Ground	(Approx.)	
M46	3	_	Battery voltage	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

 $\mathbf{3}$. CHECK PUSH-BUTTON IGNITION SWITCH POSITION INDICATOR CONTROL CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect BCM connector M80.

3. Check continuity between BCM connector M80 terminal 111 and push-button ignition switch connector M46 terminal 7.

BCM		Push-button ignition switch		Continuity	
Connector	Terminal	Connector Terminal		Continuity	
M80	111	M46	7	Yes	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

4.REPLACE BCM

Replace BCM. Refer to <u>BCS-79, "Removal and Installation"</u>

Is the inspection result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to <u>GI-43, "Intermittent Incident"</u>.

BCM (BODY CONTROL MODULE) < REMOVAL AND INSTALLATION > [POWER DISTRIBUTION SYSTEM]	
REMOVAL AND INSTALLATION BCM (BODY CONTROL MODULE)	А
Removal and Installation	В
For removal and installation of the BCM (Body Control Module), refer to BCS-79, "Removal and Installation".	D
	С
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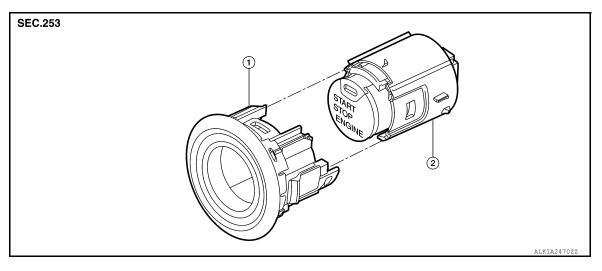
< REMOVAL AND INSTALLATION >

PUSH-BUTTON IGNITION SWITCH

Exploded View

INFOID:000000013019646

[POWER DISTRIBUTION SYSTEM]



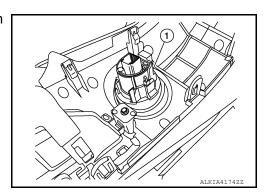
- 1. NATS antenna amp.
- 2. Push-button ignition switch

Removal and Installation

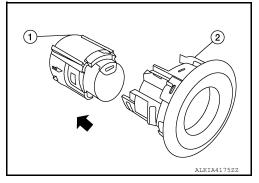
INFOID:000000013019647

REMOVAL

- 1. Remove the center console. Refer to IP-24, "Removal and Installation".
- 2. Remove the cluster lid C side finisher.
- 3. Disconnect the push-button ignition switch electrical connector.
- 4. Release the pawl on each side of the push-button ignition switch (1) and remove from the cluster lid C side finisher.



5. Release the pawl on each side and remove the push-button ignition switch (1) from the NATS antenna amp (2).



INSTALLATION Installation is in the reverse order of removal.