

SECTION **SEC** SECURITY CONTROL SYSTEM

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

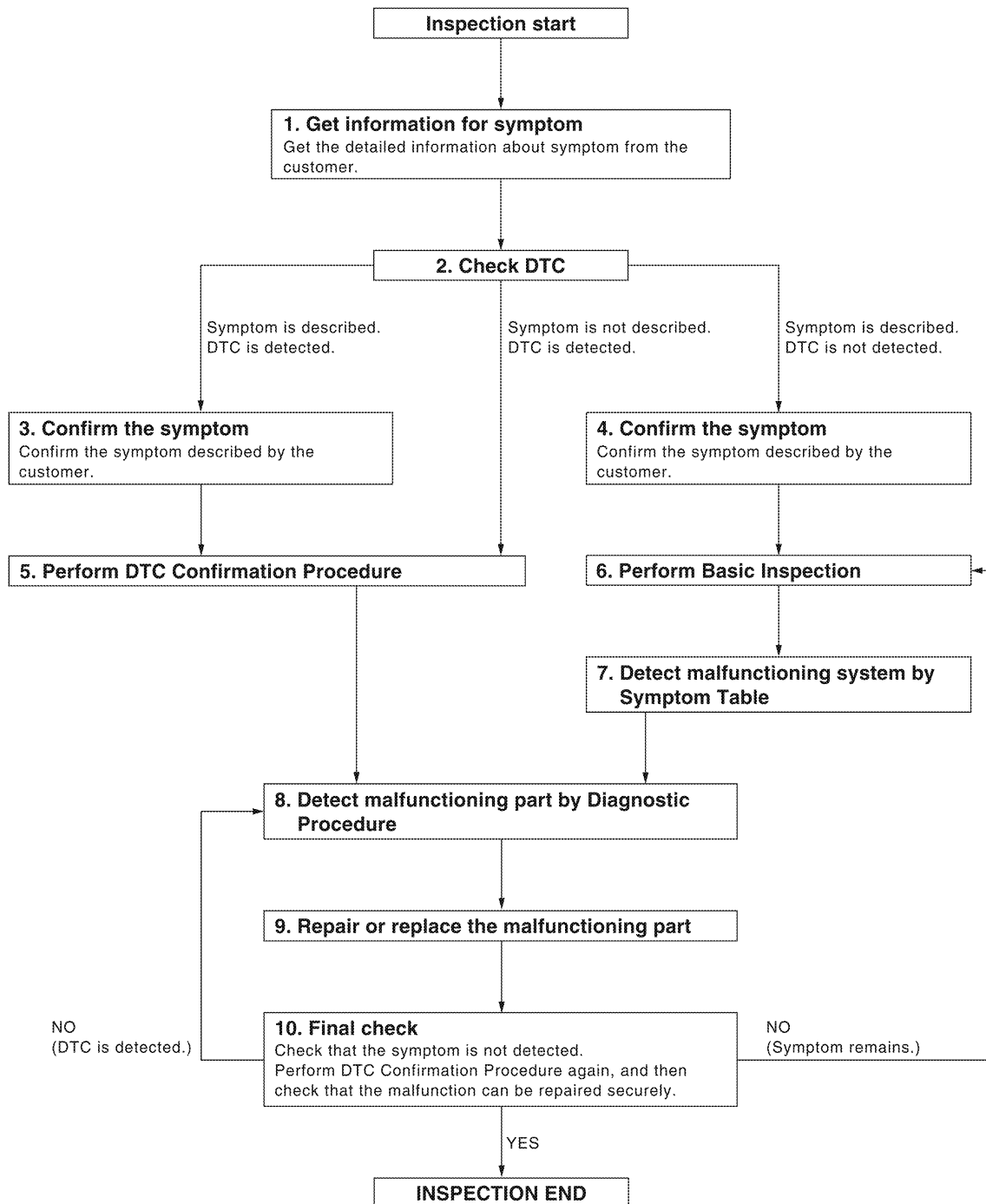
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000009878850

OVERALL SEQUENCE



DETAILED FLOW

Revision: August 2013

SEC-3

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

1.GET INFORMATION FOR SYMPTOM

Get the detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurred).

>> GO TO 2.

2.CHECK DTC

1. Check BCM for DTCs.
2. Perform the following procedure if DTC is displayed.
 - 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.

Is any symptom described and any DTC detected?

Symptom is described, DTC is displayed>>GO TO 3.

Symptom is described, DTC is not displayed>>GO TO 4.

Symptom is not described, DTC is displayed>>GO TO 5.

3.CONFIRM THE SYMPTOM

Confirm the symptom described by the customer.

Connect CONSULT to the vehicle in "DATA MONITOR" mode and check real-time diagnosis results.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

4.CONFIRM THE SYMPTOM

Confirm the symptom described by the customer.

Connect CONSULT to the vehicle in "DATA MONITOR" mode and check real-time diagnosis results.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6.

5.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC Confirmation Procedure for the displayed DTC, and then check that DTC is detected again.

If two or more DTCs are detected, refer to [BCS-41, "DTC Inspection Priority Chart"](#) (BCM) and determine trouble diagnosis order.

Is DTC detected?

YES >> GO TO 8.

NO >> Refer to [GI-42, "Intermittent Incident"](#).

6.PERFORM BASIC INSPECTION

Perform Basic Inspection. Refer to [SEC-6, "Basic Inspection"](#).

>> GO TO 7.

7.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM TABLE

Detect malfunctioning system according to Symptom Table based on the confirmed symptom in step 4.

>> GO TO 8.

8.DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

NOTE:

The Diagnostic Procedure is described based on open circuit inspection. A short circuit inspection is also required for the circuit check in the Diagnostic Procedure.

>> GO TO 9.

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

9. REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.
2. Reconnect parts or connectors disconnected during Diagnostic Procedure again after repair and replacement.
3. Check DTC. If DTC is displayed, erase it.

>> GO TO 10.

10. FINAL CHECK

When DTC was detected in step 9, perform DTC Confirmation Procedure or Component Function Check again, and then check that the malfunctions have been fully repaired.

When symptom was described by the customer, refer to the confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Does the symptom reappear?

YES (DTC is detected)>>GO TO 8.

YES (Symptom remains)>>GO TO 6.

NO >> Inspection End.

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PRE-INSPECTION FOR DIAGNOSTIC

< BASIC INSPECTION >

PRE-INSPECTION FOR DIAGNOSTIC

Basic Inspection

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1.INSPECTION START

Turn ignition switch "OFF".

NOTE:

Before starting operation check, open front windows.

>> GO TO 2.

2.CHECK SECURITY INDICATOR LAMP

1. Lock doors using keyfob or ignition key.
2. Check that security indicator lamp illuminates for 30 seconds.

Does security indicator lamp illuminate?

YES >> GO TO 3.

NO >> Perform diagnosis and repair. Refer to [SEC-35, "Component Function Check"](#).

3.CHECK ALARM FUNCTION

1. After 30 seconds, security indicator lamp will start to blink.
2. Open any door before unlocking with keyfob or ignition key.

Does the alarm function properly?

YES >> GO TO 4.

NO >> Check the following.

- The vehicle security system does not phase in alarm mode. Refer to [SEC-68, "Symptom Table"](#).
- Alarm (horn and headlamp do not operate. Refer to [SEC-68, "Symptom Table"](#).

4.CHECK ALARM CANCEL OPERATION

Unlock driver door using keyfob or ignition key.

Does the alarm (horn, headlamp and hazard lamp) stop?

YES >> Inspection End.

NO >> Check door lock function. Refer to [DLK-11, "DOOR LOCK AND UNLOCK SWITCH : System Description"](#).

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

INSPECTION AND ADJUSTMENT ECM RE-COMMUNICATING FUNCTION

ECM RE-COMMUNICATING FUNCTION : Description

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Performing following procedure can automatically perform re-communication of ECM and BCM, but only when the ECM has been replaced with a new one (*1).

*1: New one means an ECM which has never been energized on-board.

(In this step, initialization procedure by CONSULT is not necessary)

NOTE:

- When replacing an ECM that is not brand new, refer to CONSULT Immobilizer mode and follow the on-screen instructions.
- If multiple keys are attached to the key holder, separate them before work.
- Distinguish keys with unregistered key ID from those with registered ID.

ECM RE-COMMUNICATING FUNCTION : Special Repair Requirement

INFOID:000000009878853

1.PERFORM ECM RE-COMMUNICATING FUNCTION

1. Install ECM.
2. Using a registered key (*2), turn ignition switch to "ON".
*2: To perform this step, use the key that has been used before performing ECM replacement.
3. Maintain ignition switch in "ON" position for at least 5 seconds.
4. Turn ignition switch to "OFF".
5. Start engine.

Can engine be started?

YES >> Procedure is completed.

NO >> Initialize control unit. Refer to CONSULT Immobilizer mode and follow the on-screen instructions.

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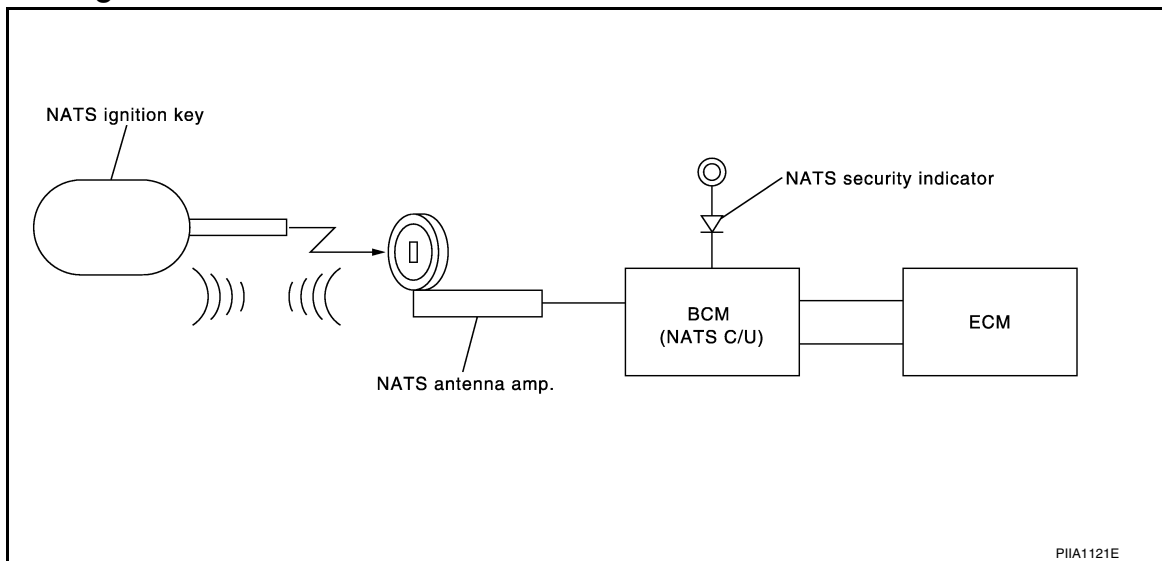
NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS)

< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS)

System Diagram



System Description

INFOID:000000009878855

INPUT/OUTPUT SIGNAL CHART

BCM

Switch/Input signal	Input signal to BCM	BCM function	Actuator/Output signal
NATS antenna amp.	Key ID	NATS	• Security indicator lamp • Starter request
ECM	Engine status signal		

SYSTEM DESCRIPTION

NATS (Nissan Anti-Theft System) has the following immobilizer functions:

- Engine immobilizer shows high anti-theft performance to prevent engine from starting by other than the owner.
- Only a key with key ID registered in BCM and ECM can start engine, and shows high anti-theft performance to prevent key from being copied or stolen.
- Security indicator always flashes with mechanical key removed condition (key switch: OFF) and ignition knob released condition on LOCK position (ignition knob switch: OFF).
- Therefore, NATS warns outsiders that the vehicle is equipped with the anti-theft system. Refer to [SEC-11, "System Description"](#).
- If system detects malfunction, security indicator illuminates when ignition switch is turned to ON position.
- If the owner requires, ignition key ID or mechanical key ID can be registered for up to 5 keys.
- During trouble diagnosis or when the following parts have been replaced, and if ignition key is added, registration* is required.

*1: All keys kept by the owner of the vehicle should be registered with mechanical key.

- ECM
 - BCM
 - Ignition key
 - Remote keyless entry receiver
 - NATS trouble diagnosis, system initialization and additional registration of other mechanical key IDs must be carried out using CONSULT.
- When NATS initialization has been completed, the ID of the inserted mechanical key or mechanical key IDs can be carried out.

NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS)

< SYSTEM DESCRIPTION >

- Possible symptom of NATS malfunction is "Engine cannot start". Identify the possible causes according to "Work Flow", Refer to [SEC-3, "Work Flow"](#).
- If ECM other than Genuine NISSAN is installed, the engine cannot be started. For ECM replacement procedure, refer to [SEC-7, "ECM RE-COMMUNICATING FUNCTION : Description"](#).

PRECAUTIONS FOR KEY REGISTRATION

- The key registration is a procedure that erases the current NATS ID once, and then re-registers a new ID. Therefore the registered key is necessary for this procedure. Before starting the registration operation collect all registered Keys from the customer.
- The NATS ID registration is the procedure that registers the ID stored into the transponder (integrated in mechanical key) to BCM.
The key ID registration is the procedure that registers the ID to the BCM.
- When performing the key system registration only, the engine cannot be started by inserting the key into the key cylinder. When performing the NATS registration only, the engine cannot be started by using the ignition key.

SECURITY INDICATOR

- Always flashes with ignition key in the OFF position.

MAINTENANCE INFORMATION

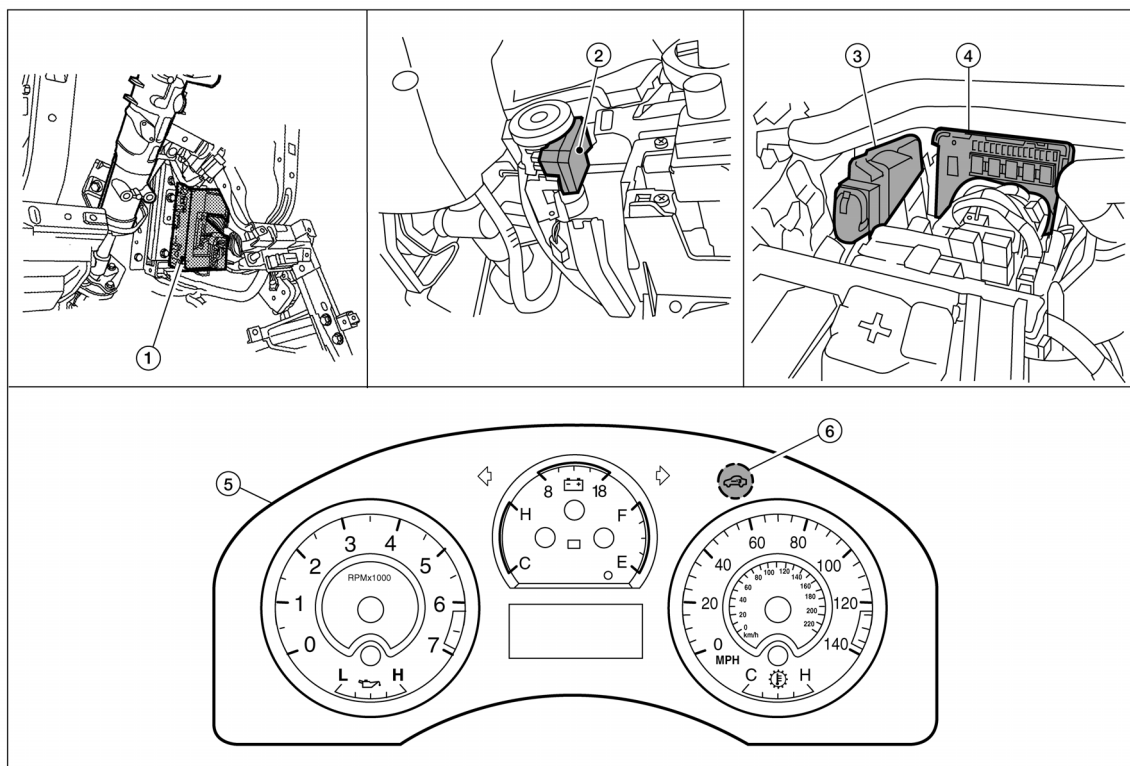
CAUTION:

It is necessary to perform NATS ID registration when replacing any of the following part.
If it's not (or fail to do so), the electrical system may not operate properly.

- BCM
- ECM
- IPDM E/R
- Ignition key
- NATS antenna amp.
- Combination meter

Component Parts Location

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NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS)

< SYSTEM DESCRIPTION >

- | | | |
|---|--------------------------|----------------------------|
| 1. BCM M18, M19, M20
(view with instrument panel LH removed) | 2. NATS antenna amp. M21 | 3. ECM E16 |
| 4. IPDM E/R E119, E120, E122, E124
(view with cover removed) | 5. Combination meter M24 | 6. Security indicator lamp |

Component Description

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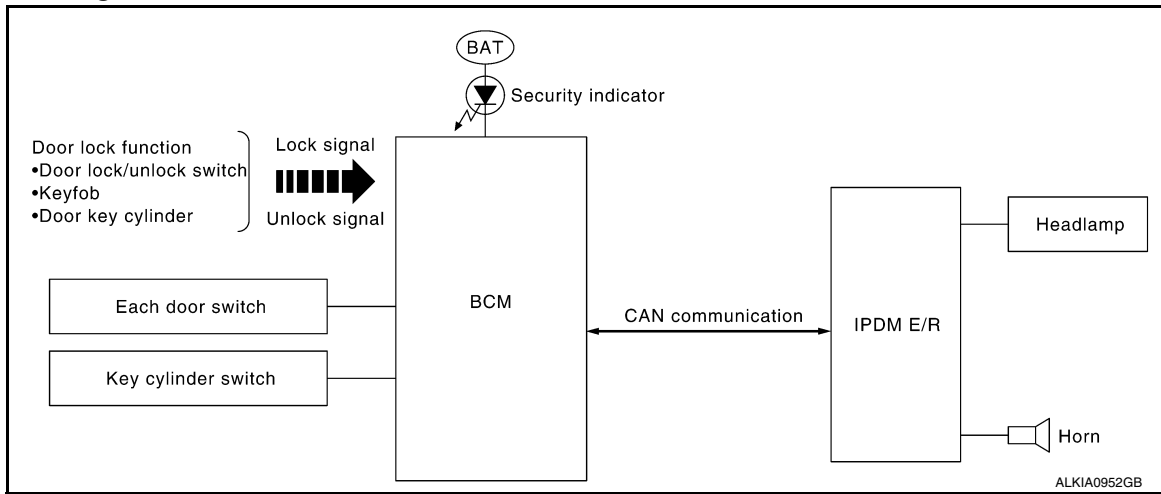
Item	Function
BCM	Verifies the received signal from the ignition key ID, then informs ECM whether to allow engine start.
Remote keyless entry receiver	Receives lock/unlock signal from the keyfob, and then transmits to the BCM.
A/T shift selector (detention key switch)	Detects whether the shift lever is in park.
NATS antenna amp.	Detects the ignition key presence in the ignition key cylinder.
Security indicator	Indicates the status of the security system.
IPDM E/R	Powers-up the horn and the headlamps in case of a security breach.

VEHICLE SECURITY SYSTEM

< SYSTEM DESCRIPTION >

VEHICLE SECURITY SYSTEM

System Diagram



System Description

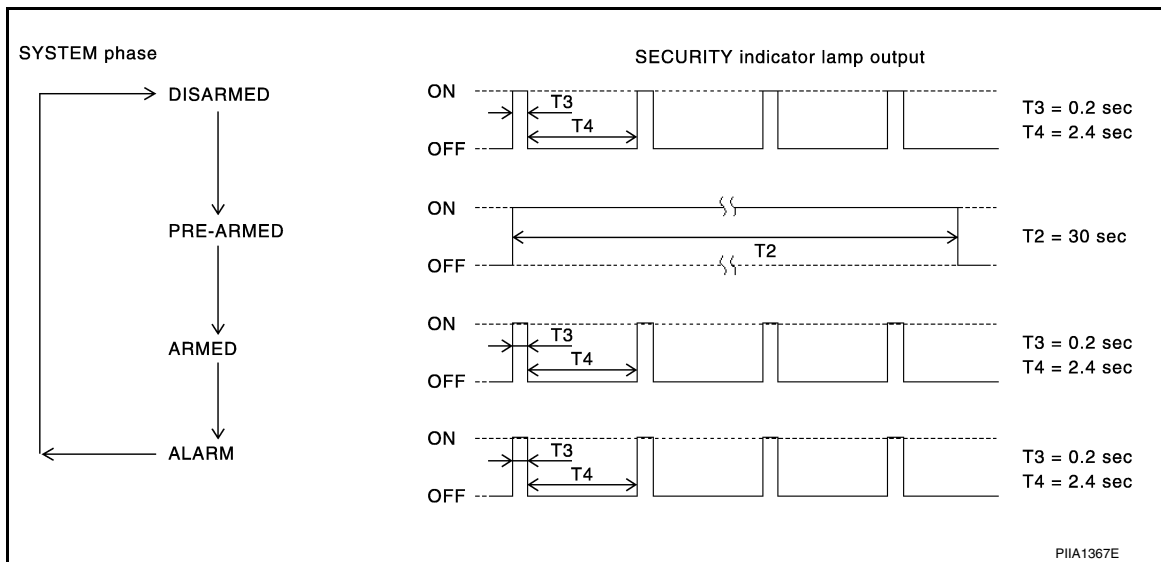
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DESCRIPTION

The security system provides an audible and visual alarm when an unauthorized access to the vehicle is detected while the system is in armed phase.

The security system consist of the BCM managing the audible alarm (horn) and the visual alarm (headlamps).

OPERATION FLOW



Disarmed Phase

When the vehicle is being driven or when doors are open, the theft warning system is set in the disarmed phase on the assumption that the owner is inside or near the vehicle.

Pre-Armed Phase And Armed Phase

The vehicle security system turns into the pre-armed phase when ignition switch is in OFF position, all doors are closed and locked (using keyfob, door lock/unlock switch, driver key cylinder or auto relock function). The system automatically shifts into the armed phase.

Condition of Activating The System

When the following condition is performed in armed phase, the system sounds the horns and flashes the headlamps for about 50 seconds.

- Any door is opened.

VEHICLE SECURITY SYSTEM

< SYSTEM DESCRIPTION >

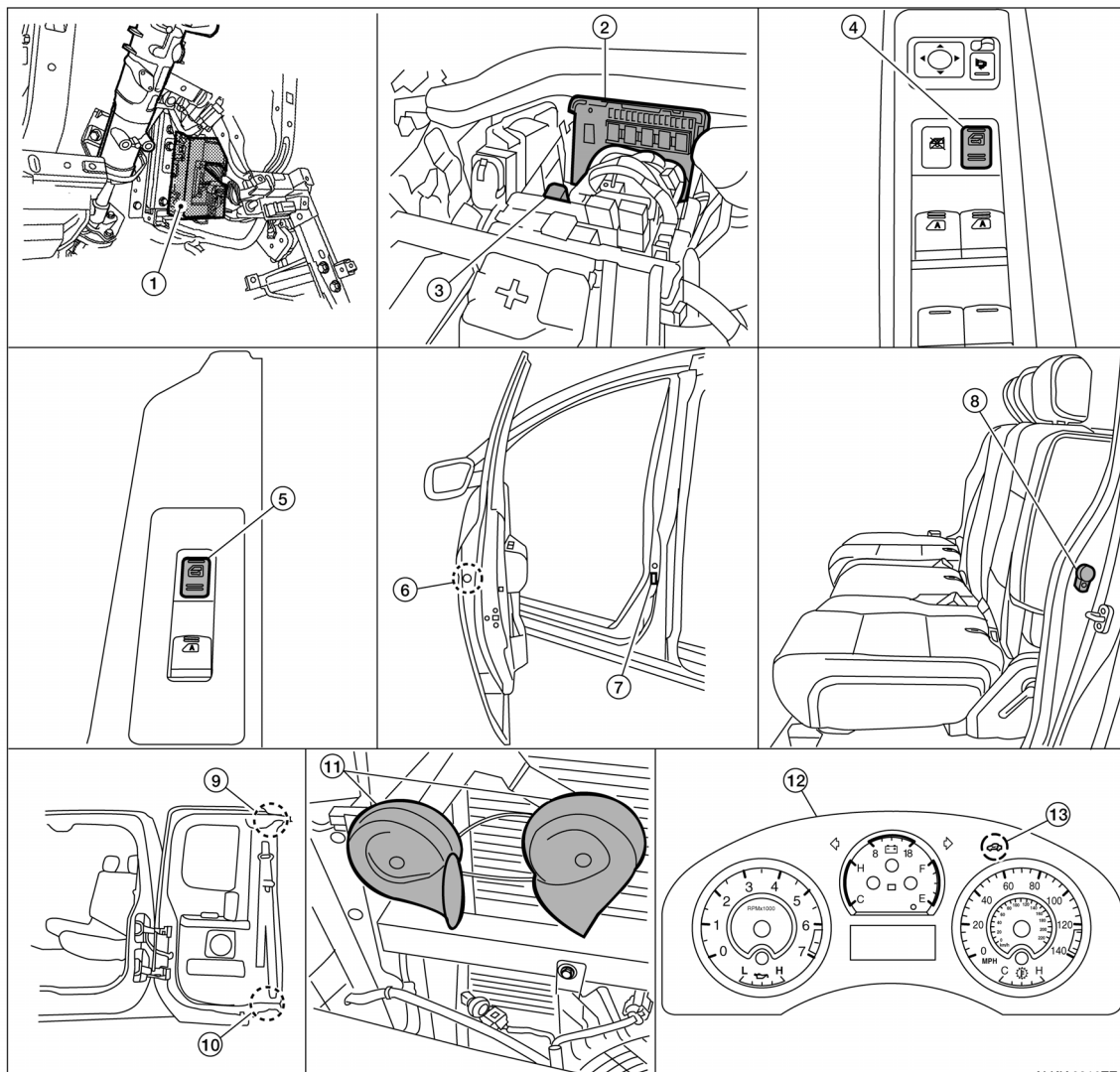
Condition of Deactivating The System

When one of the following operations is performed, the armed phase is canceled.

- Unlock the doors with keyfob.
- Use the mechanical key to unlock the driver door using the door key cylinder.

Component Parts Location

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|---|---|---|
| 1. BCM M18, M19, M20
(view with instrument panel LH removed) | 2. IPDM E/R E122, E124
(view with cover removed) | 3. Horn relay H-1 |
| 4. Main power window and door lock/unlock switch
D7, D8 (crew cab)
D15 (king cab) | 5. Power window and door lock/unlock switch RH D105 | 6. Front door lock assembly LH (key cylinder switch) D14 |
| 7. Front door switch LH B8
RH B108 | 8. Rear door switch (crew cab)
LH B18
RH B116 | 9. Rear door switch upper (king cab)
LH B73
RH B156 |
| 10. Rear door switch lower (king cab)
LH B74
RH B157 | 11. Horn E3
(view with front grille removed) | 12. Combination meter M24 |
| 13. Security indicator lamp | | |

VEHICLE SECURITY SYSTEM

< SYSTEM DESCRIPTION >

Component Description

INFOID:0000000009878861

Item	Function
BCM	Verifies the received signal from ignition key, then informs ECM whether to allow engine start.
Door switch	Provides the BCM with the status of each monitored door.
Security indicator	Indicates the status of the security system.
IPDM E/R	Controls the horn and headlamps operation.
Horn	Sounds when the vehicle security system is triggered.

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DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM)

COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:000000009878862

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.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK			x	x	x		
Rear window defogger	REAR DEFOGGER			x	x			
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Remote keyless entry system	MULTI REMOTE ENT			x	x	x		
Exterior lamp	HEADLAMP			x	x	x		
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x			
Air conditioner	AIR CONDITIONER			x				
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x	x	x			
Interior room lamp battery saver	BATTERY SAVER			x	x	x		
Vehicle security system	THEFT ALM			x	x	x		
RAP system	RETAINED PWR			x	x	x		
Signal buffer system	SIGNAL BUFFER			x	x			
TPMS	AIR PRESSURE MONITOR		x	x	x	x		
Panic alarm system	PANIC ALARM				x			

IMMU

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

IMMU : CONSULT Function (BCM - IMMU)

INFOID:0000000009878863

DATA MONITOR

Monitor Item [Unit]	Description
IGN ON SW [On/Off]	Indicates condition of ignition switch ON position.

ACTIVE TEST

Test Item	Description
THEFT IND	This test is able to check security indicator operation [Off/On].

THEFT ALM

THEFT ALM : CONSULT Function (BCM - THEFT ALM)

INFOID:0000000009878864

DATA MONITOR

Monitor Item [Unit]	Description
IGN ON SW [On/Off]	Indicates condition of ignition switch ON position.
ACC ON SW [On/Off]	Indicates condition of ignition switch ACC position.
KEYLESS LOCK [On/Off]	Indicates condition of lock signal from keyfob.
KEYLESS UNLOCK [On/Off]	Indicates condition of unlock signal from keyfob.
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
KEY CYL LK-SW [On/Off]	Indicates condition of lock signal from door key cylinder switch.
KEY CYL UN-SW [On/Off]	Indicates condition of unlock signal from door key cylinder switch.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.
CDL UNLOCK SW [On/Off]	Indicates condition of unlock signal from door lock and unlock switch.

ACTIVE TEST

Test Item	Description
THEFT IND	This test is able to check security indicator lamp operation [Off/On].
VEHICLE SECURITY HORN	This test is able to check vehicle security horn operation [On].
HEADLAMP(HI)	This test is able to check vehicle security lamp operation [On].

WORK SUPPORT

Support Item	Setting	Description
SECURITY ALARM SET	Off	Security alarm OFF.
	On*	Security alarm ON.
THEFT ALM TRG	Off/On	The switch which triggered vehicle security alarm is recorded.

*: Initial setting

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:000000009878865

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 vehicle is equipped with many electronic control unit, 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 [LAN-4, "System Description"](#).

DTC Logic

INFOID:000000009878866

DTC DETECTION LOGIC

DTC	CONSULT display description	DTC Detection Condition	Possible cause
U1000	CAN COMM CIRCUIT	When BCM cannot communicate CAN communication signal continuously for 2 seconds or more.	In CAN communication system, any item (or items) of the following listed below is malfunctioning. • Receiving (TCM) • Receiving (ECM) • Receiving (METER/M&A)

Diagnosis Procedure

INFOID:000000009878867

1.PERFORM SELF DIAGNOSTIC

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Check "Self Diagnostic Result".

Is "CAN COMM CIRCUIT" displayed?

- YES >> Refer to [LAN-5, "CAN Communication Control Circuit"](#).
NO >> Refer to [GI-42, "Intermittent Incident"](#).

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

U1010 CONTROL UNIT (CAN)

Description

INFOID:0000000009878868

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 vehicle is equipped with many electronic control unit, 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 [LAN-4, "System Description"](#).

DTC Logic

INFOID:0000000009878869

DTC DETECTION LOGIC

DTC	CONSULT display description	DTC Detection Condition	Possible cause
U1010	CONTROL UNIT (CAN)	When detecting error during the initial diagnosis of CAN controller of BCM.	BCM

Diagnosis Procedure

INFOID:0000000009878870

1.REPLACE BCM

When DTC [U1010] is detected, replace BCM.

>> Replace BCM. Refer to [BCS-52, "Removal and Installation"](#).

Special Repair Requirement

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1.REQUIRED WORK WHEN REPLACING BCM

Initialize BCM. Refer to CONSULT Immobilizer mode and follow the on-screen instructions.

>> Inspection End.

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B2190, P1614 NATS ANTENNA AMP.

< DTC/CIRCUIT DIAGNOSIS >

B2190, P1614 NATS ANTENNA AMP.

Description

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Performs ID verification through BCM and NATS antenna amplifier when ignition key is inserted and ignition switch turned ON.

Prohibits the start of engine when an unregistered ID of ignition key is used.

DTC Logic

INFOID:000000009878873

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2190	NATS ANTENNA AMP	- Inactive communication between NATS antenna amp. and BCM. - Ignition key is malfunctioning.	- Harness or connectors (The NATS antenna amp. circuit is open or shorted) - Ignition key - NATS antenna amp. - BCM
P1614			

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Insert ignition key into the key cylinder.
2. Turn ignition switch ON.
3. Check "Self diagnostic result" with CONSULT.

Is DTC detected?

- YES >> Refer to [SEC-18, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009878874

Regarding Wiring Diagram information, refer to [SEC-64, "Wiring Diagram"](#).

1.CHECK NATS ANTENNA AMP. INSTALLATION

Check NATS antenna amp. installation. Refer to [SEC-71, "Removal and Installation"](#).

Is the inspection result normal?

- YES >> GO TO 2
NO >> Reinstall NATS antenna amp. correctly.

2.CHECK NVIS (NATS) IGNITION KEY ID CHIP

Start engine with another registered NATS ignition key.

Does the engine start?

- YES >>
 - Ignition key ID chip is malfunctioning.
 - Replace the ignition key.
 - Perform initialization with CONSULT.

For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.

NO >> GO TO 3

3.CHECK POWER SUPPLY FOR NATS ANTENNA AMP.

1. Turn ignition switch ON.
2. Check voltage between NATS antenna amp. connector M21 terminal 1 and ground.

B2190, P1614 NATS ANTENNA AMP.

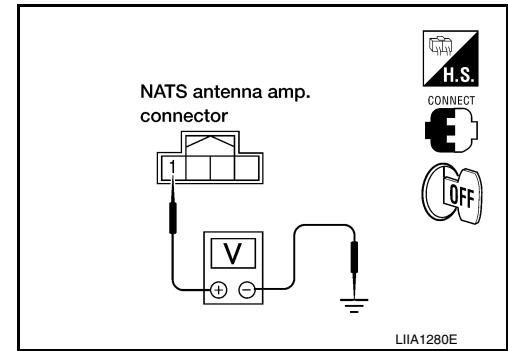
< DTC/CIRCUIT DIAGNOSIS >

1 - Ground

: Battery voltage

Is the inspection result normal?

- YES >> GO TO 4
NO >> Repair or replace fuse or harness.



4.CHECK NATS ANTENNA AMP. GROUND LINE CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect NATS antenna amp. connector.
3. Check continuity between NATS antenna amp. connector M21 terminal 3 and ground.

3 - Ground

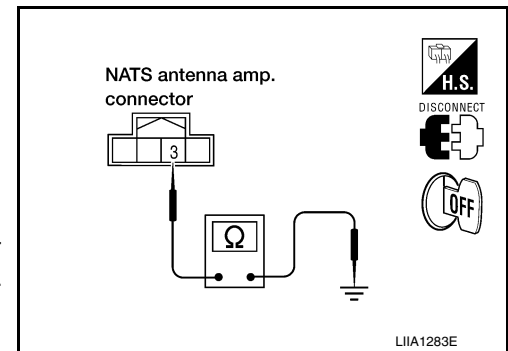
: Continuity should exist.

Is the inspection result normal?

- YES >> GO TO 5
NO >> • Repair or replace harness.

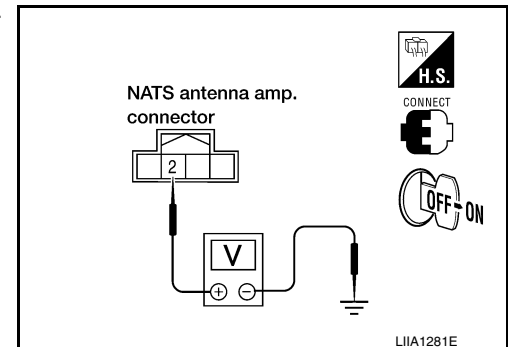
NOTE:

If harness is OK, replace BCM, perform initialization with CONSULT. For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.



5.CHECK NATS ANTENNA AMP. SIGNAL LINE- 1

1. Connect NATS antenna amp. connector.
2. Turn ignition switch ON.
3. Check voltage between NATS antenna amp. connector M21 terminal 2 and ground with analog tester.



Terminals		Position of ignition key cylinder	Voltage (V) (Approx.)
(+)	(-)		
2	Ground	Before inserting ignition key	Battery voltage
		After inserting ignition key	Pointer of tester should move for approx. 30 seconds, then return to battery voltage
		Just after turning ignition switch ON	Pointer of tester should move for approx. 1 second, then return to battery voltage

Is the inspection result normal?

- YES >> GO TO 6
NO >> • Repair or replace harness.

NOTE:

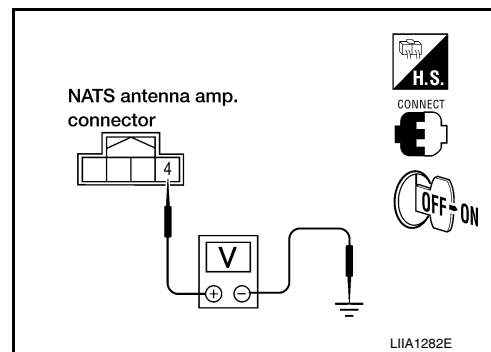
If harness is OK, replace BCM, perform initialization with CONSULT. For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.

B2190, P1614 NATS ANTENNA AMP.

< DTC/CIRCUIT DIAGNOSIS >

6. CHECK NATS ANTENNA AMP. SIGNAL LINE- 2

Check voltage between NATS antenna amp. connector M21 terminal 4 and ground with analog tester.



Terminals		Position of ignition key cylinder	Voltage (V) (Approx.)
(+)	(-)		
4	Ground	Before inserting ignition key	Battery voltage
		After inserting ignition key	Pointer of tester should move for approx. 30 seconds, then return to battery voltage
		Just after turning ignition switch ON	Pointer of tester should move for approx. 1 second, then return to battery voltage

Is the inspection result normal?

- YES >> NATS antenna amp. is malfunctioning.
NO >> • Repair or replace harness.

NOTE:

If harness is OK, replace BCM, refer to [BCS-52, "Removal and Installation"](#). Perform initialization with CONSULT. For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.

B2191, P1615 DIFFERENCE OF KEY

< DTC/CIRCUIT DIAGNOSIS >

B2191, P1615 DIFFERENCE OF KEY

Description

INFOID:000000009878875

Performs ID verification through BCM when ignition knob switch is pressed.
Prohibits the release of steering lock or start of engine when an unregistered ID of mechanical key is used.

DTC Logic

INFOID:000000009878876

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2191 P1615	DIFFERENCE OF KEY	The ID verification results between BCM and mechanical key are NG. The registration is necessary.	Mechanical key

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Insert mechanical key into the key cylinder.
2. Check "Self diagnostic result" with CONSULT.

Is DTC detected?

- YES >> Refer to [SEC-21. "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009878877

1.PERFORM INITIALIZATION

Perform initialization with CONSULT. Re-register all mechanical keys.
For initialization and registration of mechanical key. Refer to CONSULT Immobilizer mode and follow the on-screen instructions.

Can the system be initialized and can the engine be started with re-registered mechanical key?

- YES >> Mechanical key was unregistered.
NO >> BCM is malfunctioning.
 - Replace BCM. Refer to [BCS-52. "Removal and Installation"](#).
 - Perform initialization again

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B2192, P1611 ID DISCORD, IMMU-ECM

< DTC/CIRCUIT DIAGNOSIS >

B2192, P1611 ID DISCORD, IMMU-ECM

Description

INFOID:000000009878878

BCM performs the ID verification with ECM that allows the engine to start. BCM starts the communication with ECM if ignition switch is turned ON and starts the engine if the ID is OK. ECM prevents the engine from starting if the ID is not registered.

DTC Logic

INFOID:000000009878879

DTC DETECTION LOGIC

NOTE:

- If DTC B2192 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [SEC-16, "DTC Logic"](#).
- If DTC B2192 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [SEC-17, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2192 P1611	ID DISCORD BCM-ECM	The ID verification results between BCM and ECM are NG. The registration is necessary.	• BCM • ECM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check "Self diagnostic result" with CONSULT.

Is DTC detected?

- YES >> Refer to [SEC-22, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009878880

1.PERFORM INITIALIZATION

Perform initialization with CONSULT. Re-register all mechanical keys.
For initialization and registration of mechanical key. Refer to CONSULT Immobilizer mode and follow the on-screen instructions.

Can the system be initialized and can the engine be started with re-registered mechanical key?

- YES >> ID was unregistered.
NO >> GO TO 2

2.REPLACE BCM

1. Replace BCM. Refer to [BCS-52, "Removal and Installation"](#).
2. Perform initialization with CONSULT. Re-register all mechanical keys.
For initialization and registration of mechanical key. Refer to CONSULT Immobilizer mode and follow the on-screen instructions.

Can the system be initialized and can the engine be started with re-registered mechanical key?

- YES >> BCM is malfunctioning.
NO >> GO TO 3

3.REPLACE ECM

1. Replace ECM. Refer to Removal and Installation.
2. Perform initialization with CONSULT. Re-register all mechanical keys.
For initialization and registration of mechanical key. Refer to CONSULT Immobilizer mode and follow the on-screen instructions.

Can the system be initialized and can the engine be started with re-registered mechanical key?

- YES >> ECM is malfunctioning.
NO >> GO TO 4

B2192, P1611 ID DISCORD, IMMU-ECM

< DTC/CIRCUIT DIAGNOSIS >

4.CHECK INTERMITTENT INCIDENT

Refer to [GI-42. "Intermittent Incident"](#).

>> Inspection End.

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B2193, P1612 CHAIN OF ECM-IMMU

< DTC/CIRCUIT DIAGNOSIS >

B2193, P1612 CHAIN OF ECM-IMMU

Description

INFOID:000000009878881

BCM performs the ID verification with ECM that allows the engine to start. BCM starts the communication with ECM if ignition switch is turned ON and starts the engine if the ID is OK. ECM prevents the engine from starting if the ID is not registered.

DTC Logic

INFOID:000000009878882

DTC DETECTION LOGIC

NOTE:

- If DTC B2193 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [SEC-16, "DTC Logic"](#).
- If DTC B2193 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [SEC-17, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2193	CHAIN OF BCM-ECM	Inactive communication between ECM and BCM	• Harness or connectors (The CAN communication line is open or short) • BCM • ECM
P1612			

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check "Self diagnostic result" with CONSULT.

Is DTC detected?

- YES >> Refer to [SEC-24, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009878883

1.REPLACE BCM

1. Replace BCM. Refer to [BCS-52, "Removal and Installation"](#).
2. Perform initialization with CONSULT.
For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.

Does the engine start?

- YES >> BCM was malfunctioning.
NO >> ECM is malfunctioning.
 - Replace ECM.
 - Perform ECM re-communicating function.

P1610 LOCK MODE

< DTC/CIRCUIT DIAGNOSIS >

P1610 LOCK MODE

Description

INFOID:0000000009878884

When the starting operation is carried more than five times consecutively under the following conditions, NATS will shift to the mode which prevents the engine from being started.

- Unregistered mechanical key is used.
- BCM or ECM's malfunctioning.

DTC Logic

INFOID:0000000009878885

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P1610	LOCK MODE	When the starting operation is carried out five or more times consecutively under the following conditions. • Unregistered mechanical key • BCM or ECM's malfunctioning.	—

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check "Self diagnostic result" with CONSULT.

Is DTC detected?

- YES >> Refer to [SEC-25, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000009878886

1.CHECK ENGINE START FUNCTION

1. Perform the check for DTC except DTC P1610.
2. Use CONSULT to erase DTC after fixing.
3. Check that engine can start with registered mechanical key.

Does the engine start?

- YES >> Inspection End.
NO >> GO TO 2

2.CHECK INTERMITTENT INCIDENT

Refer to [GI-42, "Intermittent Incident"](#).

>> Inspection End.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

POWER SUPPLY AND GROUND CIRCUIT

BCM

BCM : Diagnosis Procedure

INFOID:000000009878887

Regarding Wiring Diagram information, refer to [BCS-44. "Wiring Diagram"](#).

1. CHECK FUSES AND FUSIBLE LINK

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

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

Is the fuse blown?

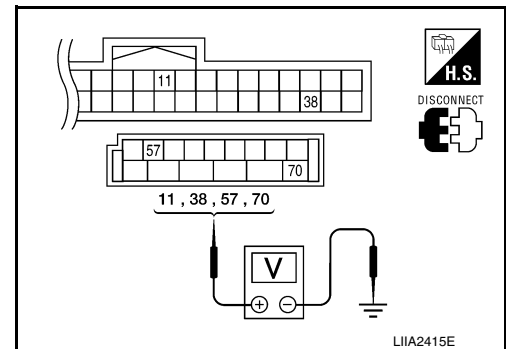
YES >> Replace the blown fuse or fusible link after repairing the affected circuit.

NO >> GO TO 2

2. CHECK POWER SUPPLY CIRCUIT

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

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



Is the measurement value normal?

YES >> GO TO 3

NO >> Repair or replace harness.

3. CHECK GROUND CIRCUIT

POWER SUPPLY AND GROUND CIRCUIT

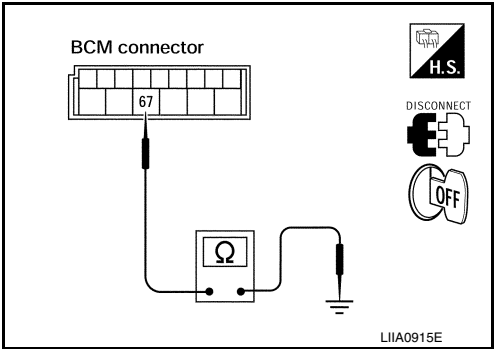
< DTC/CIRCUIT DIAGNOSIS >

Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	67		Yes

Does continuity exist?

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



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KEY CYLINDER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

KEY CYLINDER SWITCH

KING CAB

KING CAB : Description

INFOID:00000000987888

The main power window and door lock/unlock switch detects condition of the door key cylinder switch and transmits to BCM as the LOCK or UNLOCK signal.

KING CAB : Component Function Check

INFOID:00000000987889

1.CHECK DOOR KEY CYLINDER SWITCH INPUT SIGNAL

Check "KEY CYL LK-SW" AND "KEY CYL UN-SW" in DATA MONITOR mode for "POWER DOOR LOCK SYSTEM" with CONSULT.

Monitor item	Condition
KEY CYL LK-SW	Lock : ON
	Neutral / Unlock : OFF
KEY CYL UN-SW	Unlock : ON
	Neutral / Lock : OFF

Is the inspection result normal?

YES >> Key cylinder switch is OK.

NO >> Refer to [SEC-28. "KING CAB : Diagnosis Procedure"](#).

KING CAB : Diagnosis Procedure

INFOID:00000000987890

Regarding Wiring Diagram information, refer to [SEC-54. "Wiring Diagram"](#).

1.CHECK DOOR KEY CYLINDER SWITCH LH

① With CONSULT

Check front door lock assembly LH (key cylinder switch) ("KEY CYL LK-SW") and ("KEY CYL UN-SW") in DATA MONITOR mode with CONSULT. Refer to [BCS-16. "DOOR LOCK : CONSULT Function \(BCM - DOOR LOCK\)"](#).

- When key inserted in front key cylinder is turned to LOCK:

KEY CYL LK-SW : ON

- When key inserted in front key cylinder is turned to UNLOCK:

KEY CYL UN-SW : ON

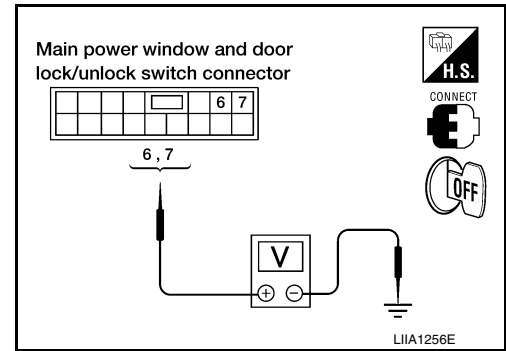
② Without CONSULT

Check voltage between main power window and door lock/unlock switch connector D15 terminals 6, 7 and ground.

KEY CYLINDER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

Connector	Terminals		Condition	Voltage (V) (Approx.)
	(+)	(-)		
D15	6	Ground	Neutral/Unlock	5
			Lock	0
	7		Neutral/Lock	5
			Unlock	0



Is the inspection result normal?

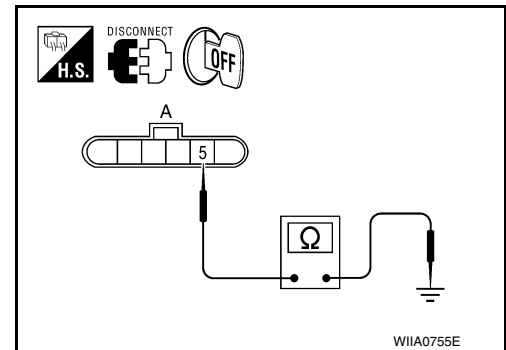
YES >> Front door lock assembly LH (key cylinder switch) signal is OK.

NO >> GO TO 2

2.CHECK DOOR KEY CYLINDER SWITCH LH GROUND HARNESS

1. Turn ignition switch OFF.
2. Disconnect front door lock assembly LH (key cylinder switch).
3. Check continuity between front door lock assembly LH (key cylinder switch) connector (A) D14 terminal 5 and body ground.

Connector	Terminals	Continuity
D14	5 – Ground	Yes



Is the inspection result normal?

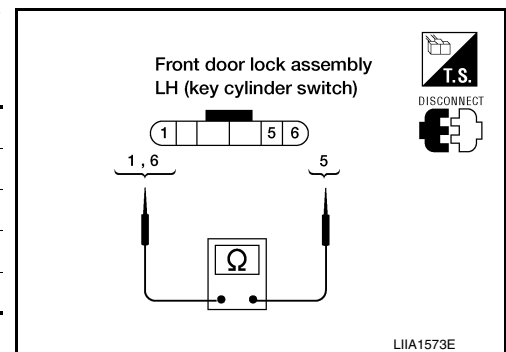
YES >> GO TO 3

NO >> Repair or replace harness.

3.CHECK DOOR KEY CYLINDER SWITCH LH

Check continuity between front door lock assembly LH (key cylinder switch) terminals.

Terminals	Condition	Continuity
1 – 5	Key is turned to UNLOCK or neutral.	No
	Key is turned to LOCK.	Yes
5 – 6	Key is turned to LOCK or neutral.	No
	Key is turned to UNLOCK.	Yes



Is the inspection result normal?

YES >> GO TO 4

NO >> Replace front door lock assembly LH (key cylinder switch). Refer to [DLK-128, "Removal and Installation"](#).

4.CHECK DOOR KEY CYLINDER HARNESS

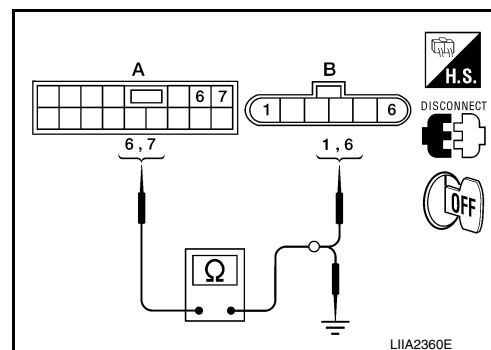
1. Disconnect main power window and door lock/unlock switch.

KEY CYLINDER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

- Check continuity between main power window and door lock/unlock switch connector (A) D15 terminals 6, 7 and front door lock assembly LH (key cylinder switch) connector (B) D14 terminals 1, 6 and body ground.

Connector	Terminals	Connector	Terminals	Continuity
A: Main power window and door lock/unlock switch	6	B: Front door lock assembly LH (key cylinder switch)	1	Yes
	7		6	Yes
	6, 7	Ground		No



Is the inspection result normal?

- YES >> Replace main power window and door lock/unlock switch.
 NO >> Repair or replace harness.

CREW CAB

CREW CAB : Description

INFOID:000000009878891

The main power window and door lock/unlock switch detects condition of the door key cylinder switch and transmits to BCM as the LOCK or UNLOCK signal.

CREW CAB : Component Function Check

INFOID:000000009878892

1.CHECK DOOR KEY CYLINDER SWITCH INPUT SIGNAL

Check "KEY CYL LK-SW" AND "KEY CYL UN-SW" in DATA MONITOR mode for "POWER DOOR LOCK SYSTEM" with CONSULT.

Monitor item	Condition
KEY CYL LK-SW	Lock : ON
	Neutral / Unlock : OFF
KEY CYL UN-SW	Unlock : ON
	Neutral / Lock : OFF

Is the inspection result normal?

- YES >> Key cylinder switch is OK.
 NO >> Refer to [SEC-30, "CREW CAB : Diagnosis Procedure"](#).

CREW CAB : Diagnosis Procedure

INFOID:000000009878893

Regarding Wiring Diagram information, refer to [SEC-54, "Wiring Diagram"](#).

1.CHECK DOOR KEY CYLINDER SWITCH LH

① With CONSULT

Check front door lock assembly LH (key cylinder switch) ("KEY CYL LK-SW") and ("KEY CYL UN-SW") in DATA MONITOR mode with CONSULT. Refer to [BCS-16, "DOOR LOCK : CONSULT Function \(BCM - DOOR LOCK\)"](#).

- When key inserted in front key cylinder is turned to LOCK:

KEY CYL LK-SW : ON

- When key inserted in front key cylinder is turned to UNLOCK:

KEY CYLINDER SWITCH

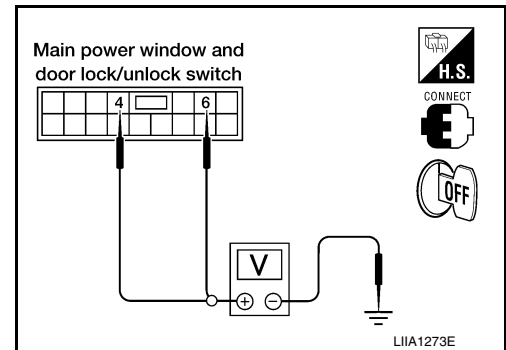
< DTC/CIRCUIT DIAGNOSIS >

KEY CYL UN-SW : ON

⊗ Without CONSULT

Check voltage between main power window and door lock/unlock switch connector D7 terminals 4, 6 and ground.

Connector	Terminals		Condition	Voltage (V) (Approx.)
	(+)	(-)		
D7	4	Ground	Neutral/Unlock	5
			Lock	0
	6		Neutral/Lock	5
			Unlock	0



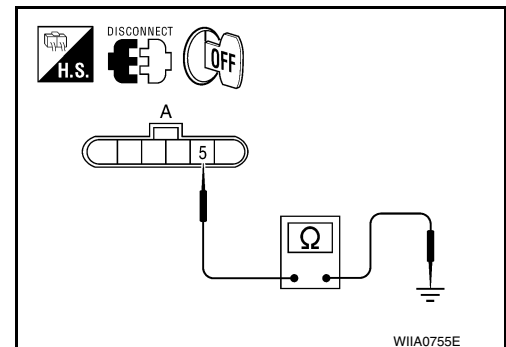
Is the inspection result normal?

- YES >> Front door lock assembly LH (key cylinder switch) signal is OK.
NO >> GO TO 2

2.CHECK DOOR KEY CYLINDER SWITCH LH GROUND HARNESS

- Turn ignition switch OFF.
- Disconnect front door lock assembly LH (key cylinder switch).
- Check continuity between front door lock assembly LH (key cylinder switch) connector (A) D14 terminal 5 and body ground.

Connector	Terminals	Continuity
D14	5 – Ground	Yes



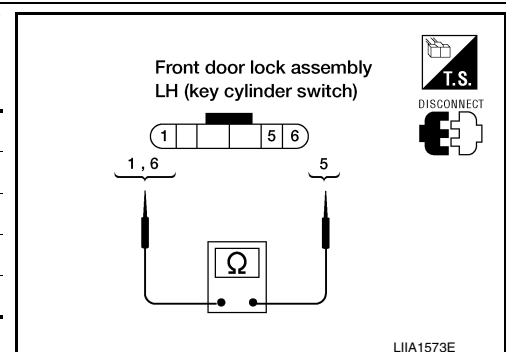
Is the inspection result normal?

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

3.CHECK DOOR KEY CYLINDER SWITCH LH

Check continuity between front door lock assembly LH (key cylinder switch) terminals.

Terminals	Condition	Continuity
1 – 5	Key is turned to UNLOCK or neutral.	No
	Key is turned to LOCK.	Yes
5 – 6	Key is turned to LOCK or neutral.	No
	Key is turned to UNLOCK.	Yes



Is the inspection result normal?

- YES >> GO TO 4
NO >> Replace front door lock assembly LH (key cylinder switch). Refer to [DLK-128. "Removal and Installation"](#).

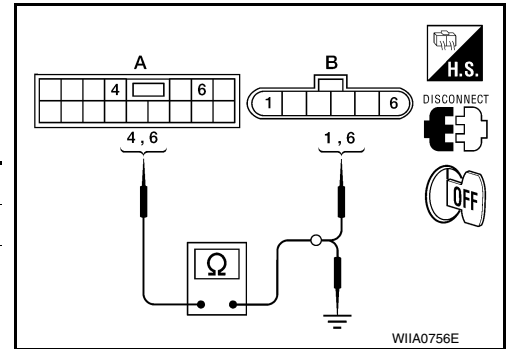
4.CHECK DOOR KEY CYLINDER HARNESS

KEY CYLINDER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

1. Disconnect main power window and door lock/unlock switch.
2. Check continuity between main power window and door lock/unlock switch connector (A) D7 terminals 4, 6 and front door lock assembly LH (key cylinder switch) connector (B) D14 terminals 1, 6 and body ground.

Connector	Terminals	Connector	Terminals	Continuity
A: Main power window and door lock/unlock switch	4	B: Front door lock assembly LH (key cylinder switch)	1	Yes
	6		6	Yes
	4, 6	Ground		No



Is the inspection result normal?

- YES >> Replace main power window and door lock/unlock switch.
 NO >> Repair or replace harness.

HORN FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

HORN FUNCTION

Description

INFOID:000000009878894

Perform answer-back for each operation with horn.

Component Function Check

INFOID:000000009878895

1.CHECK FUNCTION

1. Select "VEHICLE SECURITY HORN" in "ACTIVE TEST" mode with CONSULT.
2. Check the horn (high/low) operation.

Test item		Description	
HORN	ON	Horn relay	ON (for 20 ms)

Is the operation normal?

- YES >> Inspection End.
NO >> Go to [SEC-33. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009878896

Regarding Wiring Diagram information, refer to [SEC-54. "Wiring Diagram"](#).

1.CHECK HORN FUNCTION

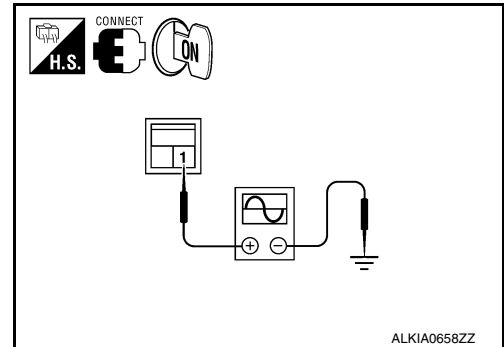
Check horn function with horn switch

Do the horns sound?

- YES >> GO TO 2
NO >> Refer to [HRN-3. "Wiring Diagram"](#).

2.CHECK HORN RELAY POWER SUPPLY

1. Turn ignition switch ON.
2. Perform "ACTIVE TEST", "VEHICLE SECURITY HORN" with CONSULT.
3. Using an oscilloscope or analog voltmeter, check voltage between horn relay harness connector and ground.



Horn relay		Ground	Test item		Voltage (V) (Approx.)
Connector	Terminal				
H-1	1	Ground	HORN	ON	Battery voltage → 0 → Battery voltage
				Other than above	Battery voltage

Is the inspection result normal?

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

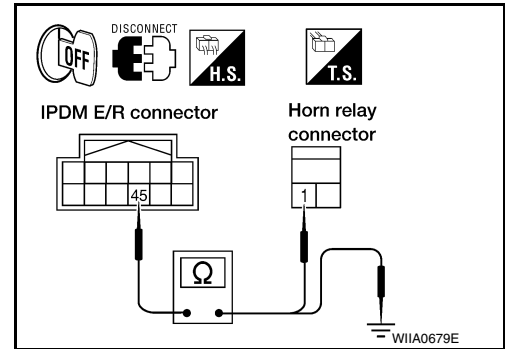
3.CHECK HORN RELAY CIRCUIT

1. Turn ignition switch OFF.

HORN FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

2. Disconnect IPDM E/R and horn relay connector.
3. Check continuity between IPDM E/R harness connector and horn relay harness connector.



IPDM E/R		Horn relay		Continuity
Connector	Terminal	Connector	Terminal	
E122	45	H-1	1	Yes

4. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E122	45	Ground	No

Is the inspection result normal?

YES >> GO TO 4

NO >> Repair or replace harness.

4. CHECK INTERMITTENT INCIDENT

Refer to [GI-42, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-28, "Removal and Installation of IPDM E/R"](#).

NO >> Repair or replace the malfunctioning part.

VEHICLE SECURITY INDICATOR

< DTC/CIRCUIT DIAGNOSIS >

VEHICLE SECURITY INDICATOR

Description

INFOID:000000009878897

- Vehicle security indicator is built in combination meter.
- NATS (Nissan Anti-Theft System) and vehicle security system conditions are indicated by blink or illumination of vehicle security indicator.

Component Function Check

INFOID:000000009878898

1.CHECK FUNCTION

1. Perform "THEFT IND" in the "Active Test" mode with CONSULT.
2. Check vehicle security indicator operation.

Test item		Description	
THEFT IND	ON	Vehicle security indicator	ON
	OFF		OFF

Is the inspection result normal?

- YES >> Inspection End.
NO >> Refer to [SEC-35, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009878899

Regarding Wiring Diagram information, refer to [SEC-54, "Wiring Diagram"](#).

1.SECURITY INDICATOR LAMP ACTIVE TEST

 With CONSULT

Check "THEFT IND" in "ACTIVE TEST" mode with CONSULT.

 Without CONSULT

1. Disconnect BCM.
2. Check voltage between BCM harness connector M18 terminal 23 and ground.

Connector	Terminals		Condition	Voltage (V) (Approx.)
	(+)	(-)		
M18	23	Ground	ON	0
			OFF	Battery voltage

Is the inspection result normal?

- YES >> Security indicator lamp is OK.
NO >> GO TO 2

2.SECURITY INDICATOR LAMP CHECK

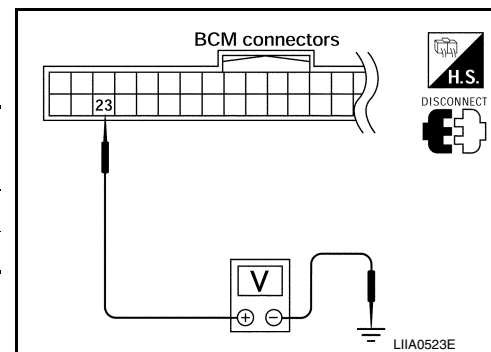
Check security indicator lamp condition.

Is the inspection result normal?

- YES >> GO TO 3
NO >> Replace security indicator lamp.

3.CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect BCM and security indicator lamp connector.



VEHICLE SECURITY INDICATOR

< DTC/CIRCUIT DIAGNOSIS >

3. Check continuity between BCM connector (A) M18 terminal 23 and security indicator lamp harness connector (B) M24 terminal 28.

23 - 28 : Continuity should exist.

4. Check continuity between BCM connector (A) M18 terminal 23 and ground.

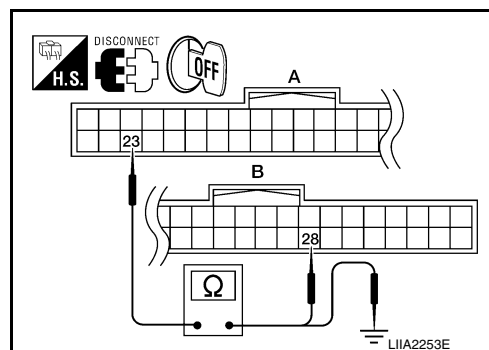
23 - Ground : Continuity should not exist.

Is the inspection result normal?

YES >> Check the following:

- 10A fuse [No. 19, located in fuse block (J/B)]
- Harness for open or short between security indicator lamp and fuse

NO >> Repair or replace harness.



BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

ECU DIAGNOSIS INFORMATION

BCM (BODY CONTROL MODULE)

Reference Value

INFOID:0000000009878900

NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs
- Test remote keyless entry keyfob relative signal strength

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
ACC ON SW	Ignition switch OFF or ON	Off
	Ignition switch ACC	On
AIR COND SW	A/C switch OFF	Off
	A/C switch ON	On
AIR PRESS FL	Front left tire air pressure value	kPa, kg/cm ² , psi
AIR PRESS FR	Front right tire air pressure value	kPa, kg/cm ² , psi
AIR PRESS RL	Rear left tire air pressure value	kPa, kg/cm ² , psi
AIR PRESS RR	Rear right tire air pressure value	kPa, kg/cm ² , psi
AUTO LIGHT SW	Lighting switch OFF	Off
	Lighting switch AUTO	On
BRAKE SW	Brake pedal released	Off
	Brake pedal applied	On
BUCKLE SW	Seat belt buckle unfastened	Off
	Seat belt buckle fastened	On
BUZZER	Buzzer in combination meter OFF	Off
	Buzzer in combination meter ON	On
CARGO LAMP SW	Cargo lamp switch OFF	Off
	Cargo lamp switch ON	On
CDL LOCK SW	Door lock/unlock switch does not operate	Off
	Press door lock/unlock switch to the LOCK side	On
CDL UNLOCK SW	Door lock/unlock switch does not operate	Off
	Press door lock/unlock switch to the UNLOCK side	On
DOOR SW-AS	Front door RH closed	Off
	Front door RH opened	On
DOOR SW-DR	Front door LH closed	Off
	Front door LH opened	On
DOOR SW-RL	Rear door LH closed	Off
	Rear door LH opened	On
DOOR SW-RR	Rear door RH closed	Off
	Rear door RH opened	On

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status
FAN ON SIG	Blower motor fan switch OFF	Off
	Blower motor fan switch ON	On
FR FOG SW	Front fog lamp switch OFF	Off
	Front fog lamp switch ON	On
FR WASHER SW	Front washer switch OFF	Off
	Front washer switch ON	On
FR WIPER LOW	Front wiper switch OFF	Off
	Front wiper switch LO	On
FR WIPER HI	Front wiper switch OFF	Off
	Front wiper switch HI	On
FR WIPER INT	Front wiper switch OFF	Off
	Front wiper switch INT	On
FR WIPER STOP	Any position other than front wiper stop position	Off
	Front wiper stop position	On
HAZARD SW	When hazard switch is not pressed	Off
	When hazard switch is pressed	On
HEAD LAMP SW1	Headlamp switch OFF	Off
	Headlamp switch 1st	On
HEAD LAMP SW2	Headlamp switch OFF	Off
	Headlamp switch 1st	On
HI BEAM SW	High beam switch OFF	Off
	High beam switch HI	On
ID REGST FL1	ID registration of front left tire incomplete	YET
	ID registration of front left tire complete	DONE
ID REGST FR1	ID registration of front right tire incomplete	YET
	ID registration of front right tire complete	DONE
ID REGST RL1	ID registration of rear left tire incomplete	YET
	ID registration of rear left tire complete	DONE
ID REGST RR1	ID registration of rear right tire incomplete	YET
	ID registration of rear right tire complete	DONE
IGN ON SW	Ignition switch OFF or ACC	Off
	Ignition switch ON	On
IGN SW CAN	Ignition switch OFF or ACC	Off
	Ignition switch ON	On
INT VOLUME	Wiper intermittent dial is in a dial position 1 - 7	1 - 7
KEY CYL LK-SW	Door key cylinder LOCK position	Off
	Door key cylinder other than LOCK position	On
KEY CYL UN-SW	Door key cylinder UNLOCK position	Off
	Door key cylinder other than UNLOCK position	On
KEY ON SW	Mechanical key is removed from key cylinder	Off
	Mechanical key is inserted to key cylinder	On
KEYLESS LOCK	LOCK button of key fob is not pressed	Off
	LOCK button of key fob is pressed	On

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status
KEYLESS PANIC	PANIC button of key fob is not pressed	Off
	PANIC button of key fob is pressed	On
KEYLESS UNLOCK	UNLOCK button of key fob is not pressed	Off
	UNLOCK button of key fob is pressed	On
LIGHT SW 1ST	Lighting switch OFF	Off
	Lighting switch 1st	On
OIL PRESS SW	- Ignition switch OFF or ACC - Engine running	Off
	Ignition switch ON	On
OPTICAL SENSOR	Bright outside of the vehicle	Close to 5V
	Dark outside of the vehicle	Close to 0V
PASSING SW	Other than lighting switch PASS	Off
	Lighting switch PASS	On
REAR DEF SW	Rear window defogger switch OFF	Off
	Rear window defogger switch ON	On
TURN SIGNAL L	Turn signal switch OFF	Off
	Turn signal switch LH	On
TURN SIGNAL R	Turn signal switch OFF	Off
	Turn signal switch RH	On
VEHICLE SPEED	While driving	Equivalent to speedometer reading
WARNING LAMP	Low tire pressure warning lamp in combination meter OFF	Off
	Low tire pressure warning lamp in combination meter ON	On

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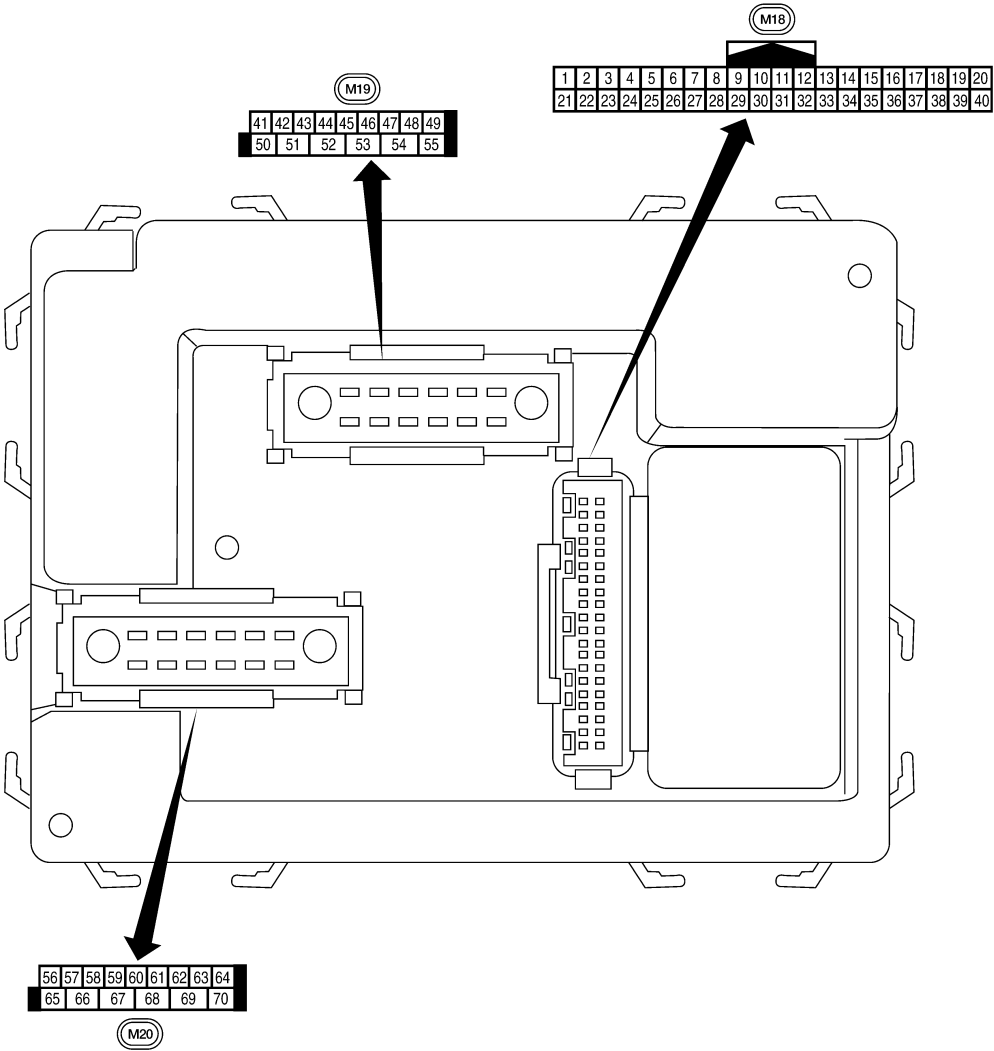
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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal Layout

INFOID:000000009878901



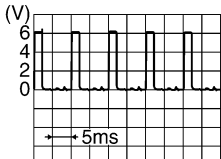
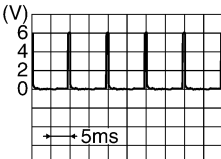
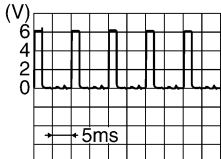
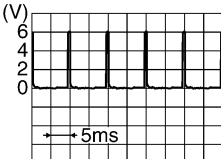
Physical Values

LIIA2443E

INFOID:000000009878902

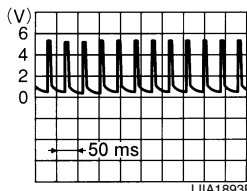
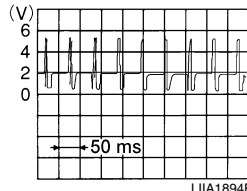
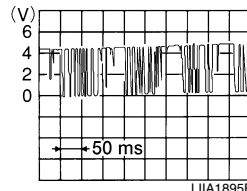
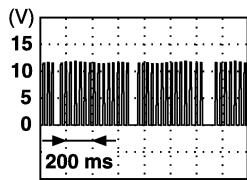
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
1	BR/W	Key ring output	Output	OFF	ON (driver door open)	0V
					OFF (driver door closed)	Battery voltage
2	SB	Combination switch input 5	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
3	G/Y	Combination switch input 4	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
4	Y	Combination switch input 3	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
5	G/B	Combination switch input 2	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
6	V	Combination switch input 1				
9	R/G	Brake switch	Input	ON	Brake pedal depressed	Battery voltage
					Brake pedal released	0V
11	O	Ignition switch (ACC or ON)	Input	ACC or ON	Ignition switch ACC or ON	Battery voltage
12	R/L	Front door switch RH (All)	Input	OFF	ON (open)	0V
		Rear door switch lower RH (King Cab)			OFF (closed)	Battery voltage
		Rear door switch upper RH (King Cab)				
13	GR	Rear door switch RH (Crew Cab)	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage
15	L/W	Tire pressure warning check connector	Input	OFF	—	5V
16	SB	MR output	Output	—	—	—
18	P	Remote keyless entry receiver and optical sensor (ground)	Output	OFF	—	0V

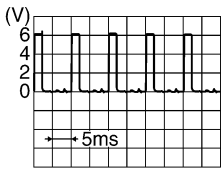
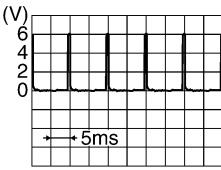
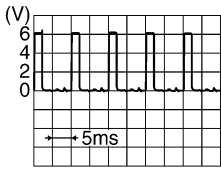
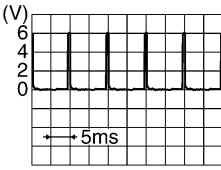
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
19	V/W	Remote keyless entry receiver (power supply)	Output	OFF	Ignition switch OFF	 LIA1893E
20	G/W	Remote keyless entry receiver (signal)	Input	OFF	Stand-by (keyfob buttons released)	 LIA1894E
					When remote keyless entry receiver receives signal from keyfob (keyfob buttons pressed)	 LIA1895E
21	G	NATS antenna amp.	Input	OFF → ON	Ignition switch (OFF → ON)	Just after turning ignition switch ON: Pointer of tester should move for approx. 1 second, then return to battery voltage.
22	G	BUS	—	—	Ignition switch ON or power window timer operates	 PIIA2344E
23	G/O	Security indicator lamp	Output	OFF	Goes OFF → illuminates (Every 2.4 seconds)	Battery voltage → 0V
25	BR	NATS antenna amp.	Input	OFF → ON	Ignition switch (OFF → ON)	Just after turning ignition switch ON: Pointer of tester should move for approx. 1 second, then return to battery voltage.
27	W/R	Compressor ON signal	Input	ON	A/C switch OFF	5V
					A/C switch ON	0V
28	L/R	Front blower monitor	Input	ON	Front blower motor OFF	Battery voltage
					Front blower motor ON	0V
29	W/B	Hazard switch	Input	OFF	ON	0V
					OFF	5V
31	P/L	Cargo lamp switch	Input	OFF	Cargo lamp switch ON	0
					Cargo lamp switch OFF	Battery voltage

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

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

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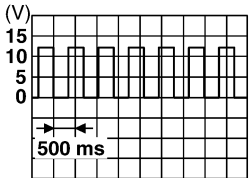
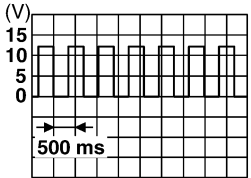
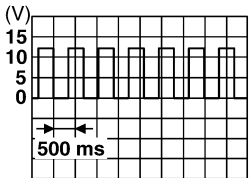
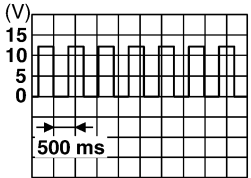
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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
51	Y/B	Trailer turn signal (right)	Output	ON	Turn right ON	 SKIA3009J
52	G/B	Trailer turn signal (left)	Output	ON	Turn left ON	 SKIA3009J
56	R/G	Battery saver output	Output	OFF	15 minutes after ignition switch is turned OFF	0V
				ON	—	Battery voltage
57	Y/R	Battery power supply	Input	OFF	—	Battery voltage
58	W/R	Optical sensor	Input	ON	When optical sensor is illuminated	3.1V or more
					When optical sensor is not illuminated	0.6V or less
59	G	Front door lock assembly LH actuator (unlock)	Output	OFF	OFF (neutral)	0V
					ON (unlock)	Battery voltage
60	G/B	Turn signal (left)	Output	ON	Turn left ON	 SKIA3009J
61	G/Y	Turn signal (right)	Output	ON	Turn right ON	 SKIA3009J
62	R/W	Step lamp LH and RH	Output	OFF	ON (any door open)	0V
					OFF (all doors closed)	Battery voltage
63	L	Interior room/map lamp	Output	OFF	Any door switch	ON (open) 0V OFF (closed) Battery voltage
65	V	All door lock actuators (lock)	Output	OFF	OFF (neutral)	0V
					ON (lock)	Battery voltage
66	G/Y	Front door lock actuator RH and rear door lock actuators LH/RH (unlock)	Output	OFF	OFF (neutral)	0V
					ON (unlock)	Battery voltage

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

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

Fail Safe

INFOID:000000009878903

Fail-safe index

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

Display contents of CONSULT	Fail-safe	Cancellation
U1000: CAN COMM CIRCUIT	Inhibit engine cranking	When the BCM re-establishes communication with the other modules.

DTC Inspection Priority Chart

INFOID:000000009878904

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

Priority	DTC
1	U1000: CAN COMM CIRCUIT
2	- B2190: NATS ANTENNA AMP - B2191: DIFFERENCE OF KEY - B2192: ID DISCORD BCM-ECM - B2193: CHAIN OF BCM-ECM

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Priority	DTC
3	• C1729: VHCL SPEED SIG ERR • C1735: IGNITION SIGNAL
4	• C1704: LOW PRESSURE FL • C1705: LOW PRESSURE FR • C1706: LOW PRESSURE RR • C1707: LOW PRESSURE RL • C1708: [NO DATA] FL • C1709: [NO DATA] FR • C1710: [NO DATA] RR • C1711: [NO DATA] RL • C1712: [CHECKSUM ERR] FL • C1713: [CHECKSUM ERR] FR • C1714: [CHECKSUM ERR] RR • C1715: [CHECKSUM ERR] RL • C1716: [PRESSDATA ERR] FL • C1717: [PRESSDATA ERR] FR • C1718: [PRESSDATA ERR] RR • C1719: [PRESSDATA ERR] RL • C1720: [CODE ERR] FL • C1721: [CODE ERR] FR • C1722: [CODE ERR] RR • C1723: [CODE ERR] RL • C1724: [BATT VOLT LOW] FL • C1725: [BATT VOLT LOW] FR • C1726: [BATT VOLT LOW] RR • C1727: [BATT VOLT LOW] RL

DTC Index

INFOID:000000009878905

NOTE:

Details of time display

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

CONSULT display	Fail-safe	Tire pressure monitor warning lamp ON	Reference page
No DTC is detected. further testing may be required.	—	—	—
U1000: CAN COMM CIRCUIT	—	—	BCS-27
B2190: NATS ANTENA AMP	—	—	SEC-18
B2191: DIFFERENCE OF KEY	—	—	SEC-21
B2192: ID DISCORD BCM-ECM	—	—	SEC-22
B2193: CHAIN OF BCM-ECM	—	—	SEC-24
C1708: [NO DATA] FL	—	—	WT-14
C1709: [NO DATA] FR	—	—	WT-14
C1710: [NO DATA] RR	—	—	WT-14
C1711: [NO DATA] RL	—	—	WT-14
C1712: [CHECKSUM ERR] FL	—	—	WT-16
C1713: [CHECKSUM ERR] FR	—	—	WT-16
C1714: [CHECKSUM ERR] RR	—	—	WT-16
C1715: [CHECKSUM ERR] RL	—	—	WT-16

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

CONSULT display	Fail-safe	Tire pressure monitor warning lamp ON	Reference page
C1716: [PRESSDATA ERR] FL	—	—	WT-18
C1717: [PRESSDATA ERR] FR	—	—	WT-18
C1718: [PRESSDATA ERR] RR	—	—	WT-18
C1719: [PRESSDATA ERR] RL	—	—	WT-18
C1720: [CODE ERR] FL	—	—	WT-16
C1721: [CODE ERR] FR	—	—	WT-16
C1722: [CODE ERR] RR	—	—	WT-16
C1723: [CODE ERR] RL	—	—	WT-16
C1724: [BATT VOLT LOW] FL	—	—	WT-16
C1725: [BATT VOLT LOW] FR	—	—	WT-16
C1726: [BATT VOLT LOW] RR	—	—	WT-16
C1727: [BATT VOLT LOW] RL	—	—	WT-16
C1729: VHCL SPEED SIG ERR	—	—	WT-20
C1735: IGNITION SIGNAL	—	—	WT-21

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

< ECU DIAGNOSIS INFORMATION >

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

Reference Value

INFOID:000000009878906

VALUES ON THE DIAGNOSIS TOOL

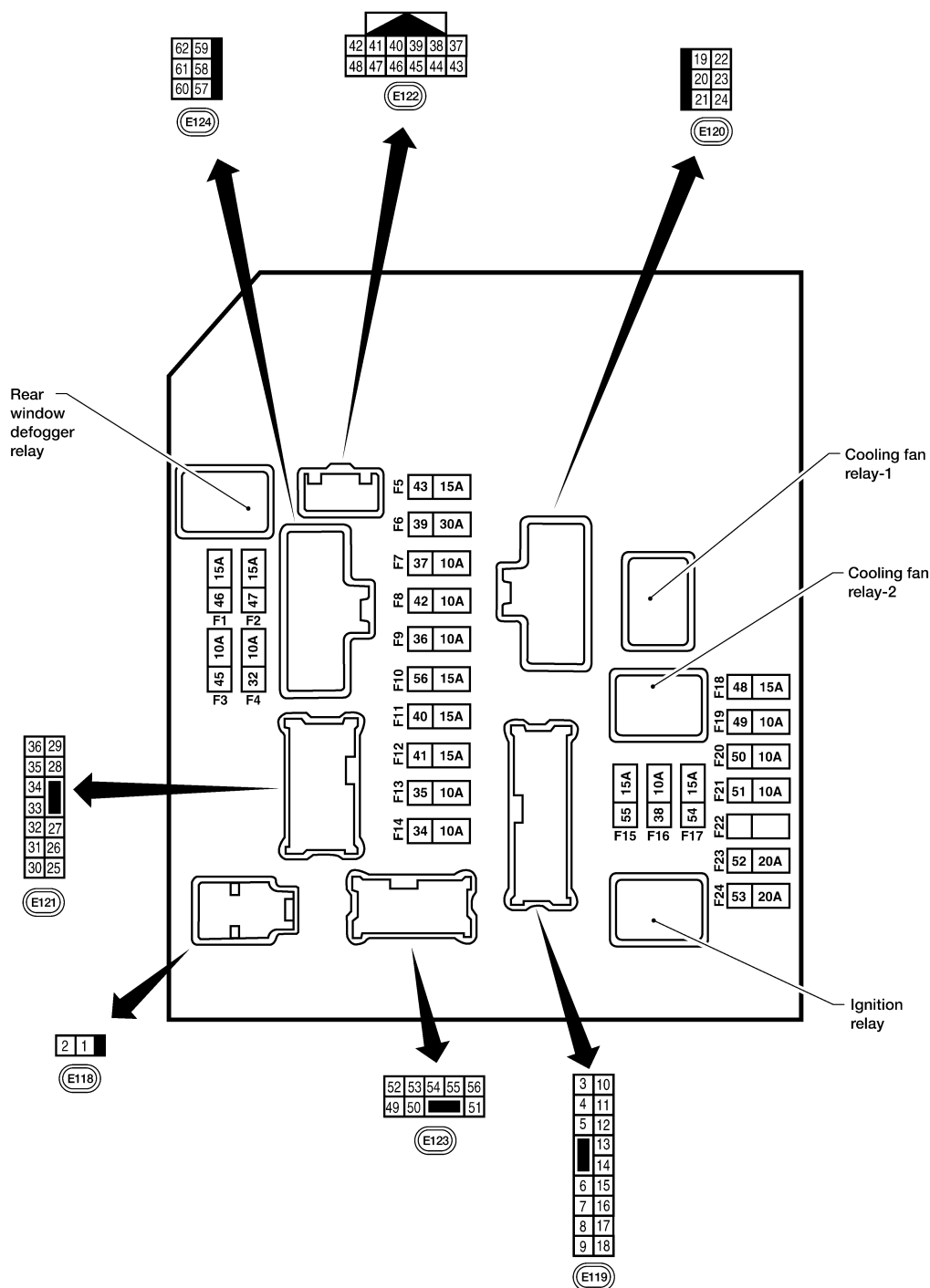
Monitor Item	Condition		Value/Status
A/C COMP REQ	A/C switch OFF		Off
	A/C switch ON		On
TAIL&CLR REQ	Lighting switch OFF		Off
	Lighting switch 1ST, 2ND, HI or AUTO (Light is illuminated)		On
HL LO REQ	Lighting switch OFF		Off
	Lighting switch 2ND HI or AUTO (Light is illuminated)		On
HL HI REQ	Lighting switch OFF		Off
	Lighting switch HI		On
FR FOG REQ	Lighting switch 2ND or AUTO (Light is illuminated)	Front fog lamp switch OFF	Off
		- Front fog lamp switch ON - Daytime light activated (Canada only)	On
FR WIP REQ	Ignition switch ON	Front wiper switch OFF	Stop
		Front wiper switch INT	1LOW
		Front wiper switch LO	Low
		Front wiper switch HI	Hi
WIP AUTO STOP	Ignition switch ON	Front wiper stop position	STOP P
		Any position other than front wiper stop position	ACT P
WIP PROT	Ignition switch ON	Front wiper operates normally	Off
		Front wiper stops at fail-safe operation	BLOCK
ST RLY REQ	Ignition switch OFF or ACC		Off
	Ignition switch START		On
IGN RLY	Ignition switch OFF or ACC		Off
	Ignition switch ON		On
RR DEF REQ	Rear defogger switch OFF		Off
	Rear defogger switch ON		On
OIL P SW	Ignition switch OFF, ACC or engine running		Open
	Ignition switch ON		Close
DTRL REQ	Not operated		Off
	Daytime Running Lights ON		On
THFT HRN REQ	Not operated		Off
	- Panic alarm is activated - Horn is activated with VEHICLE SECURITY (THEFT WARNING) SYSTEM		On
HORN CHIRP	Not operated		Off
	Door locking with keyfob (horn chirp mode)		On

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

< ECU DIAGNOSIS INFORMATION >

Terminal Layout

INFOID:000000009878907



NOTE:

Numbers preceded by an "F" represent the fuse numbers imprinted on the IPDM E/R. The other numbers represent the fuse numbers as they appear in the wiring diagrams.

Physical Values

INFOID:000000009878908

PHYSICAL VALUES

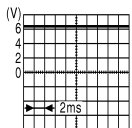
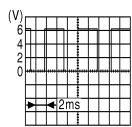
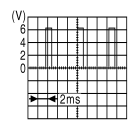
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

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

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

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition			Reference value (Approx.)
				Igni- tion switch	Operation or condition		
35	L/B	Wiper high speed signal	Output	ON or START	Wiper switch	OFF, LO, INT HI	0V Battery voltage
37	Y	Power generation command signal	Output	—	Ignition switch ON		 JPMIA0001GB 6.3 V
					40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE"		 JPMIA0002GB 3.8 V
					40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE"		 JPMIA0003GB 1.4 V
38	B	Ground	Input	—	—		0V
39	L	CAN-H	—	ON	—		—
40	P	CAN-L	—	ON	—		—
42	GR	Oil pressure switch	Input	—	Engine running		Battery voltage
					Engine stopped		0V
43	L/Y	Wiper auto stop signal	Input	ON or START	Wiper switch	OFF, LO, INT	Battery voltage
44	BR	Daytime light relay control (Canada only)	Input	ON	Daytime light system active		0V
					Daytime light system inactive		Battery voltage
45	G/W	Horn relay control	Input	ON	When door locks are operated using keyfob (OFF → ON)*		Battery voltage → 0V
46	GR	Fuel pump relay control	Input	—	Ignition switch ON or START		0V
					Ignition switch OFF or ACC		Battery voltage
47	O	Throttle control motor relay control	Input	—	Ignition switch ON or START		0V
					Ignition switch OFF or ACC		Battery voltage
48	B/R	Starter relay (inhibit switch)	Input	ON or START	Selector lever in "P" or "N"		0V
					Selector lever any other position		Battery voltage
49	R/L	Trailer tow relay Illumination	Output	ON	Lighting switch must be in the 1st position	OFF	0V
						ON	Battery voltage

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

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition			Reference value (Approx.)
				Igni- tion switch	Operation or condition		
50	W/R	Front fog lamp (LH) (if equipped)	Output	ON or START	Lighting switch must be in the 2nd position (LOW beam is ON) and the front fog lamp switch	OFF	0V
						ON	Battery voltage
51	W/R	Front fog lamp (RH) (if equipped)	Output	ON or START	Lighting switch must be in the 2nd position (LOW beam is ON) and the front fog lamp switch	OFF	0V
						ON	Battery voltage
52	L	LH low beam head- lamp	Output	—	Lighting switch in 2nd position		Battery voltage
54	R/Y	RH low beam head- lamp	Output	—	Lighting switch in 2nd position		Battery voltage
55	G	LH high beam head- lamp	Output	—	Lighting switch in 2nd position and placed in HIGH or PASS position		Battery voltage
56	Y (With DTRL) L/W (Without DTRL)	RH high beam head- lamp	Output	—	Lighting switch in 2nd position and placed in HIGH or PASS position		Battery voltage
57	R/L	Parking, license and tail lamp	Output	ON	Lighting switch 1st position	OFF	0V
						ON	Battery voltage
59	B	Ground	Input	—	—		0V
60	B/W	Rear window defog- ger relay (if equipped)	Output	ON or START	Rear defogger switch ON		Battery voltage
					Rear defogger switch OFF		0V
61	BR	Fuse 32	Output	OFF	—		Battery voltage

*: When horn reminder is ON

Fail Safe

INFOID:000000009878909

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
• Parking lamps • License plate lamps • Tail lamps	• Turns ON the tail lamp relay when the ignition switch is turned ON • Turns OFF the tail lamp relay when the ignition switch is turned OFF
Front wiper	• The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed. • The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode and the front wiper motor is operating.
Rear window defogger (if equipped)	Rear window defogger relay OFF

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

< ECU DIAGNOSIS INFORMATION >

Control part	Fail-safe in operation
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.

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

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SEC

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-15

NOTE:

The details of TIME display are as follows.

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

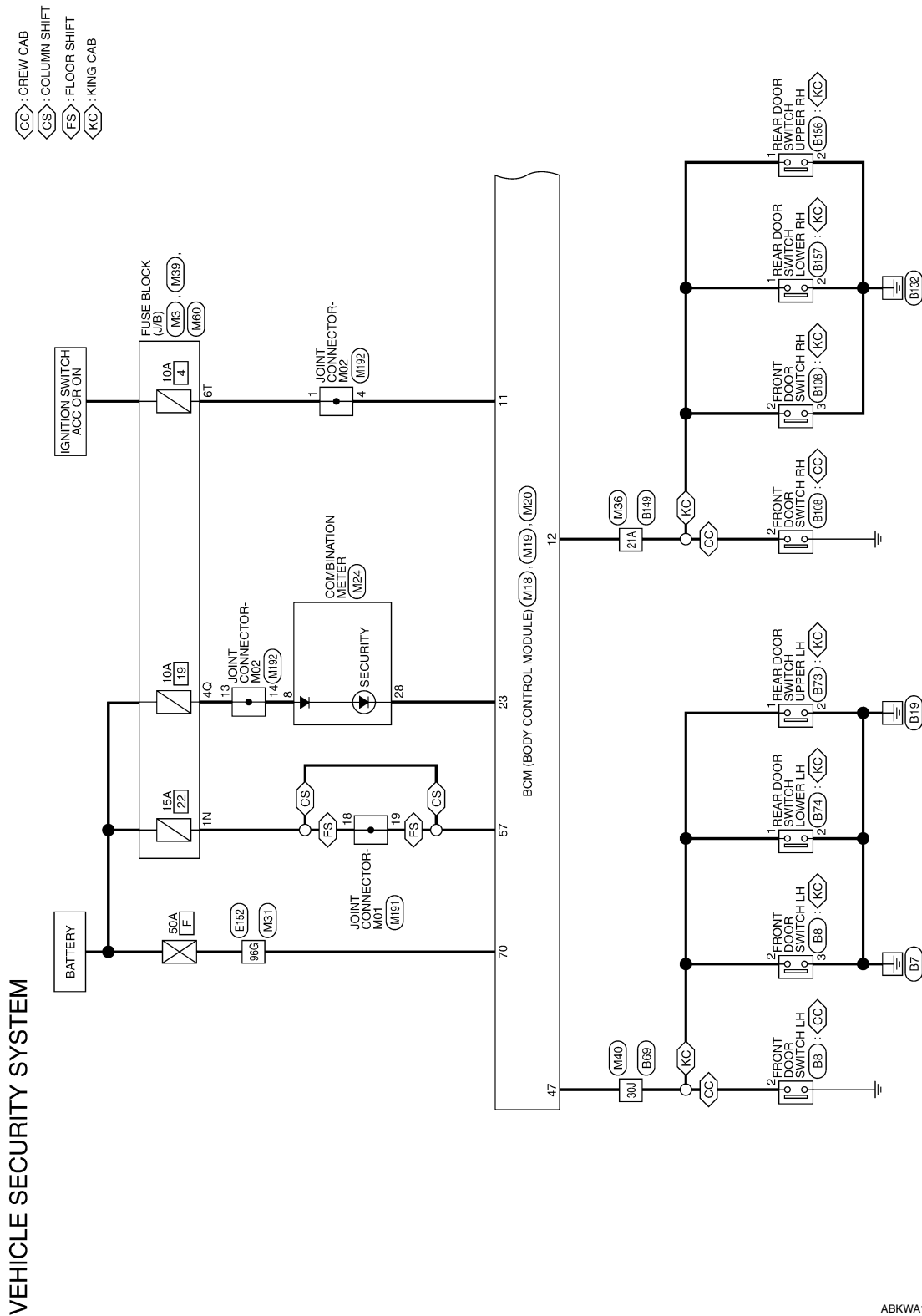
< WIRING DIAGRAM >

WIRING DIAGRAM

VEHICLE SECURITY SYSTEM

Wiring Diagram

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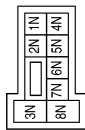


VEHICLE SECURITY SYSTEM

< WIRING DIAGRAM >

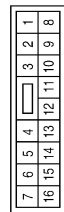
VEHICLE SECURITY SYSTEM CONNECTORS

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



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

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



Terminal No.	Color of Wire	Signal Name
6	SHIELD	-
8	G	-
14	B	-

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



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
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Terminal No.	Color of Wire	Signal Name
11	O	ACC SW
12	R/L	DOOR SW (AS)
13	GR	DOOR SW (RR)
22	G	ANTI-PINCH SERIAL LINK (RX, TX)
23	G/O	SECURITY INDICATOR OUTPUT
39	L	CAN-H
40	P	CAN-L

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



41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
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Terminal No.	Color of Wire	Signal Name
47	SB	DOOR SW (DR)
48	R/Y	DOOR SW (RL)

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



56	57	58	59	60	61	62	63	64	65	66	67	68	69	70
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Terminal No.	Color of Wire	Signal Name
57	Y/R	BAT (FUSE)
67	B	GND (POWER)
70	W/B	BAT (F/L)

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21
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Terminal No.	Color of Wire	Signal Name
8	Y/R	BATTERY
28	G/O	SECURITY

VEHICLE SECURITY SYSTEM

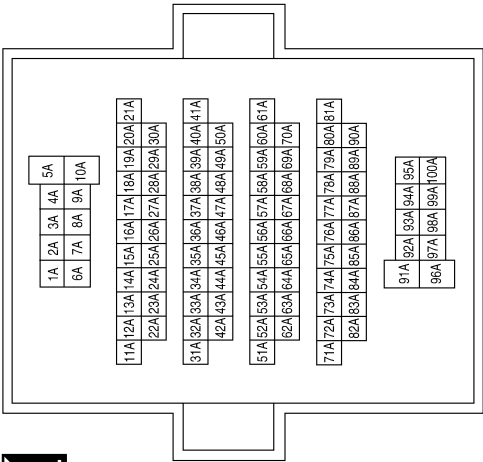
< WIRING DIAGRAM >

Connector No.	M39
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



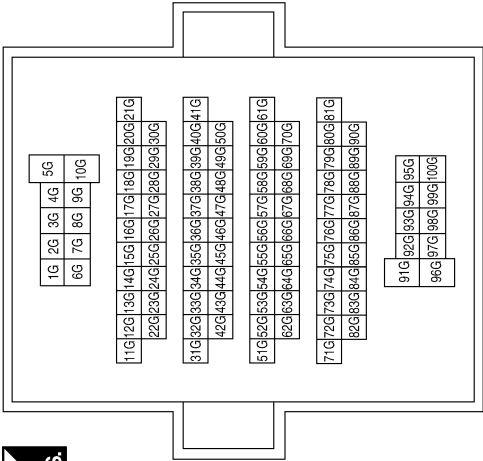
Terminal No.	Color of Wire	Signal Name
4Q	Y/R	-

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



Terminal No.	Color of Wire	Signal Name
21A	R/L	-
26A	GR	-

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



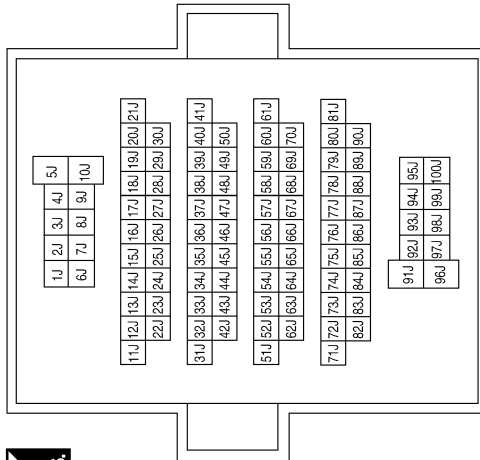
Terminal No.	Color of Wire	Signal Name
31G	L	-
32G	P	-
96G	W/B	-

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VEHICLE SECURITY SYSTEM

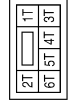
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Connector No.	M40
Connector Name	WIRE TO WIRE
Connector Color	WHITE



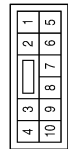
Terminal No.	Color of Wire	Signal Name
21J	R/Y	-
30J	SB	-

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



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

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



Connector No.	M178
Connector Name	JOINT CONNECTOR-M08
Connector Color	WHITE



Connector No.	M179
Connector Name	JOINT CONNECTOR-M07
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	B	-
6	SHIELD	-
7	G	-

Terminal No.	Color of Wire	Signal Name
10	L	-
14	L	-
16	P	-
20	P	-

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

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VEHICLE SECURITY SYSTEM

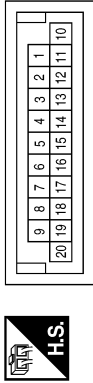
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Connector No.	E3
Connector Name	HORN
Connector Color	BLACK



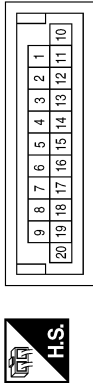
Terminal No.	Color of Wire	Signal Name
1	G	—
2	B	—

Connector No.	M192
Connector Name	JOINT CONNECTOR-M02
Connector Color	GREEN



Terminal No.	Color of Wire	Signal Name
1	O	—
4	O	—
13	Y/R	—
14	Y/R	—

Connector No.	M191
Connector Name	JOINT CONNECTOR-M01
Connector Color	BLUE



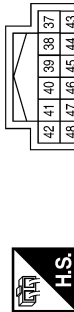
Terminal No.	Color of Wire	Signal Name
18	Y/R	—
19	Y/R	—

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



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

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



Terminal No.	Color of Wire	Signal Name
38	B	GND (SIGNAL)
39	L	CAN-H
40	P	CAN-L
45	G/W	ANT THEFT HORN

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VEHICLE SECURITY SYSTEM

< WIRING DIAGRAM >

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

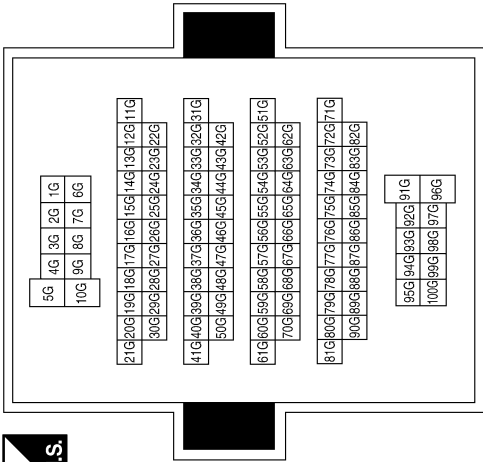
1	2	3
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Terminal No.	Color of Wire	Signal Name
2	SB	-
3	B	-

Terminal No.	Color of Wire	Signal Name
31G	L	-
32G	P	-
96G	W/B	-

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



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

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

VEHICLE SECURITY SYSTEM

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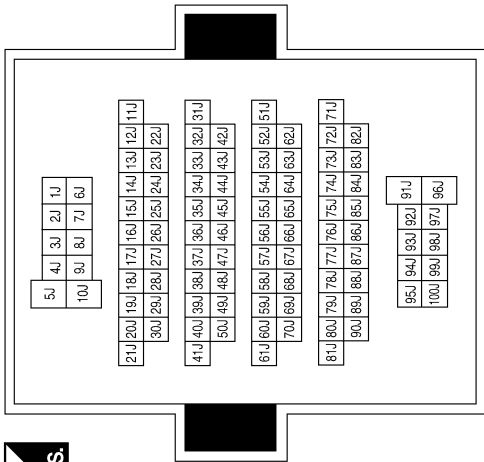
Connector No.	B73
Connector Name	REAR DOOR SWITCH UPPER LH
Connector Color	BLACK



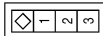
Terminal No.	Color of Wire	Signal Name
1	SB	-
2	B	-

Terminal No.	Color of Wire	Signal Name
21J	R/Y	-
30J	SB	-

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

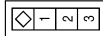


Connector No.	B116
Connector Name	REAR DOOR SWITCH RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
2	GR	-

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



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

Connector No.	B74
Connector Name	REAR DOOR SWITCH LOWER LH
Connector Color	BLACK



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

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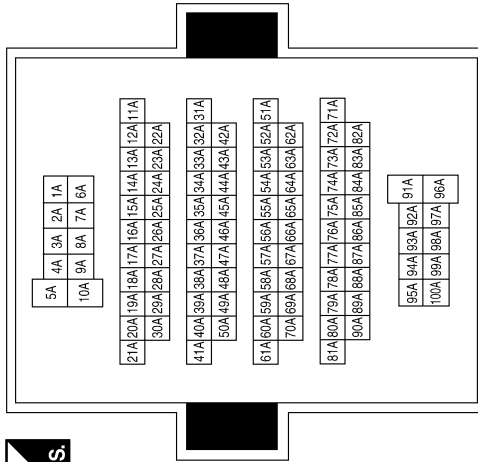
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VEHICLE SECURITY SYSTEM

< WIRING DIAGRAM >

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



Terminal No.	Color of Wire	Signal Name
21A	R/L	—
26A	GR	—

Connector No.	B156
Connector Name	REAR DOOR SWITCH UPPER RH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	R/L	—
2	B	—

Connector No.	B157
Connector Name	REAR DOOR SWITCH LOWER RH
Connector Color	BLACK



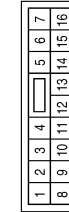
Terminal No.	Color of Wire	Signal Name
1	R/L	—
2	B	—

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



Terminal No.	Color of Wire	Signal Name
6	SHIELD	—
8	LGW	—
14	B	—

Connector No.	D7
Connector Name	MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH (CREW CAB)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
4	L	LOCK
6	R	UNLOCK
14	LGW	ANTI PINCH SERIAL LINK

VEHICLE SECURITY SYSTEM

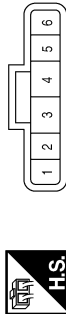
< WIRING DIAGRAM >

Connector No.	D8
Connector Name	MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH (CREW CAB)
Connector Color	WHITE



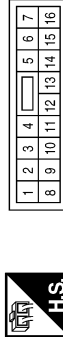
Terminal No.	Color of Wire	Signal Name
17	B	GND

Connector No.	D14
Connector Name	FRONT DOOR LOCK ASSEMBLY LH
Connector Color	BLACK



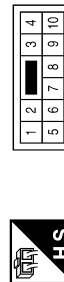
Terminal No.	Color of Wire	Signal Name
1	L	-
5	B	-
6	R	-

Connector No.	D15
Connector Name	MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH (KING CAB)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	L	LOCK
7	R	UNLOCK
12	LG/W	ANTI PINCH SERIAL LINK
15	B	GND

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



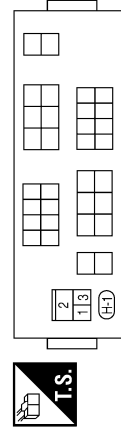
Terminal No.	Color of Wire	Signal Name
3	B	-
6	SHIELD	-
7	LG/W	-

Connector No.	D105
Connector Name	POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
11	B	GND
16	LG/W	ANTI PINCH SERIAL LINK

Connector No.	H-1
Connector Name	FUSE AND FUSIBLE LINK BOX (HORN RELAY)
Connector Color	-



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

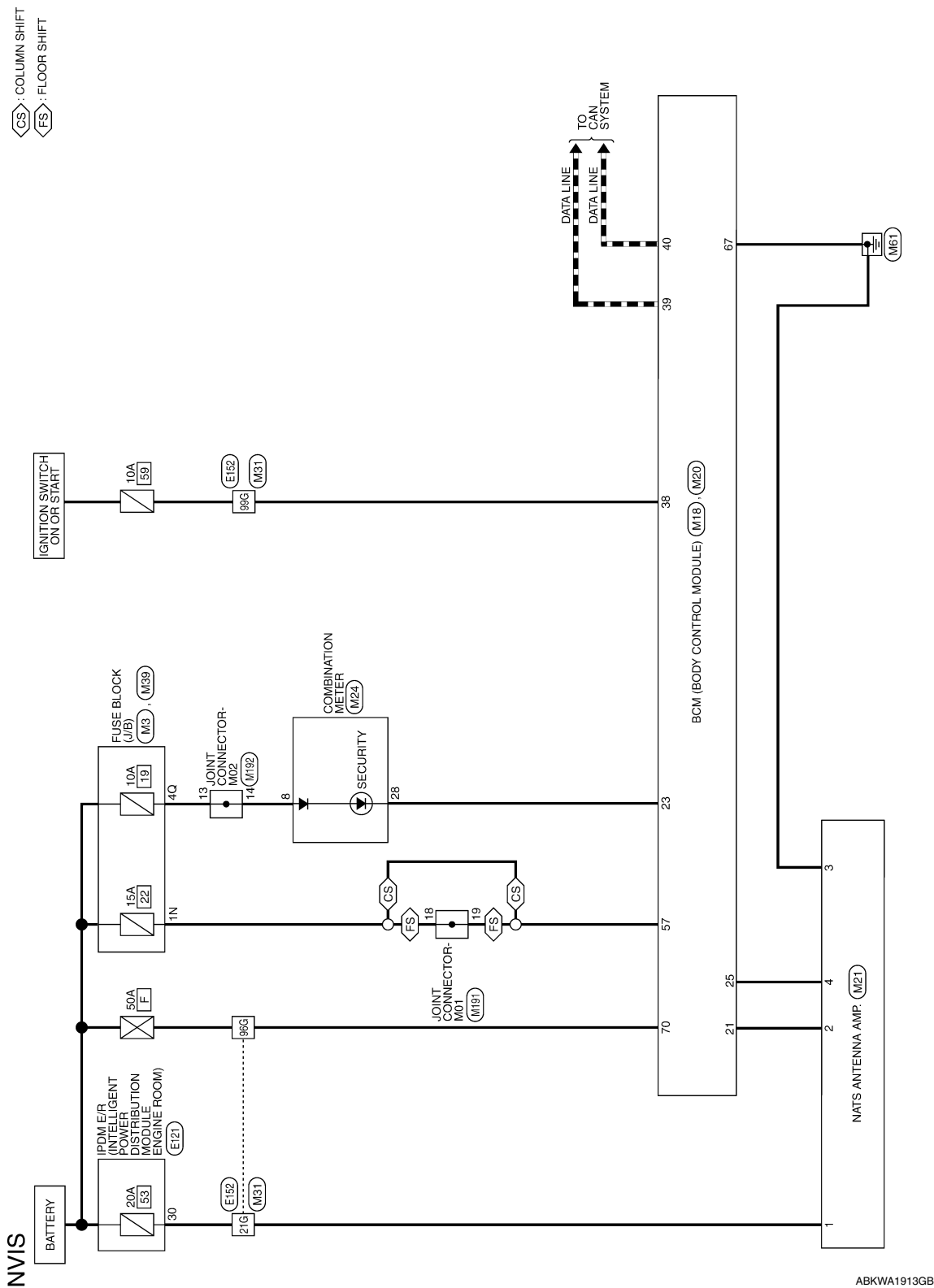
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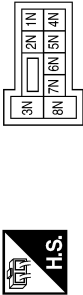
Wiring Diagram

INFOID:0000000009878912



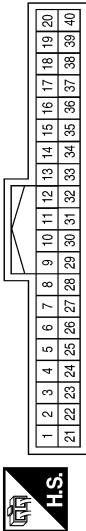
NVIS CONNECTORS

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



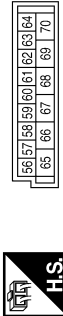
Terminal No.	Color of Wire	Signal Name
1N	Y/R	-

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



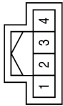
Terminal No.	Color of Wire	Signal Name
21	G	IMMOBILIZER ANTENNA SIGNAL (CLOCK)
23	G/O	SECURITY INDICATOR OUTPUT
25	BR	IMMOBILIZER ANTENNA SIGNAL (RX, TX)
38	W/L	IGN SW
39	L	CAN-H
40	P	CAN-L

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



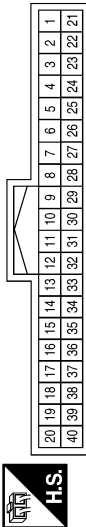
Terminal No.	Color of Wire	Signal Name
57	Y/R	BAT (FUSE)
67	B	GND (POWER)
70	W/B	BAT (F/L)

Connector No.	M21
Connector Name	NATS ANTENNA AMP.
Connector Color	WHITE



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

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
8	YR	BATTERY
28	G/O	SECURITY

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< WIRING DIAGRAM >

Connector No.	M39
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

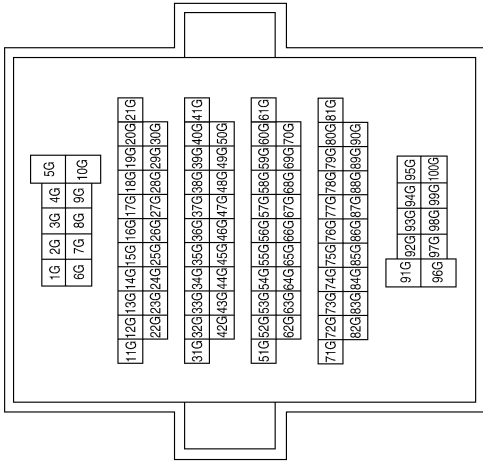


3Q	2Q	1Q
8Q	7Q	6Q
5Q	4Q	

Terminal No.	Color of Wire	Signal Name
4Q	Y/R	—

Terminal No.	Color of Wire	Signal Name
21G	W	—
96G	W/B	—
99G	W/L	—

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



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



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

Terminal No.	Color of Wire	Signal Name
30	W	ECM BAT

Connector No.	M192
Connector Name	JOINT CONNECTOR-M02
Connector Color	GREEN



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

Terminal No.	Color of Wire	Signal Name
13	Y/R	—
14	Y/R	—

Connector No.	M191
Connector Name	JOINT CONNECTOR-M01
Connector Color	BLUE

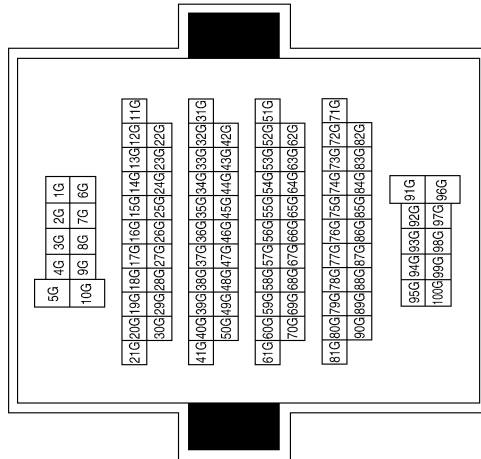


9	8	7	6	5	4	3	2	1
20	19	18	17	16	15	14	13	12
11	10							

Terminal No.	Color of Wire	Signal Name
18	Y/R	—
19	Y/R	—

Terminal No.	Color of Wire	Signal Name
21G	W	—
96G	W/B	—
99G	LW	—

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



ABKIA4082GB

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VEHICLE SECURITY SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

VEHICLE SECURITY SYSTEM SYMPTOMS

Symptom Table

INFOID:000000009878913

Procedure			Diagnostic procedure	Refer to page
Symptom				
1	Vehicle security system cannot be set by	Door switch	Check door switch (king cab)	DLK-26
			Check door switch (crew cab)	DLK-27
		Key cylinder switch	Check key cylinder switch (king cab)	DLK-36
			Check key cylinder switch (crew cab)	DLK-38
		—	Check Intermittent Incident	GI-42
	Security indicator does not turn ON.	Check vehicle security indicator	SEC-35	
Check Intermittent Incident		GI-42		
2	* Vehicle security system does not sound alarm when	Any door is opened.	Check door switch (king cab)	DLK-26
			Check door switch (crew cab)	DLK-27
		—	Check Intermittent Incident	GI-42
3	Vehicle security alarm does not activate.	Horn alarm	Check horn switch	—
			Check Intermittent Incident	GI-42
4	Vehicle security system cannot be canceled by	Key cylinder switch	Check key cylinder switch (king cab)	DLK-36
			Check key cylinder switch (crew cab)	DLK-38
		—	Check Intermittent Incident	GI-42

*: Check the system is in the armed phase.

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS SYMPTOMS

< SYMPTOM DIAGNOSIS >

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS SYMPTOMS

Symptom Table

INFOID:000000009878914

NOTE:

- Before performing the diagnosis in the following table, check “[SEC-3. "Work Flow"](#)”.
- Check that vehicle is under the condition shown in “Conditions of vehicle” before starting diagnosis, and check each symptom.
- If the following symptoms are detected, check systems shown in the “Diagnosis/service procedure” column in this order.

CONDITIONS OF VEHICLE (OPERATING CONDITIONS)

- Ignition switch is not turned ON.
- Ignition key is not inserted into key cylinder.

Symptom	Diagnosis/service procedure	Reference page
Security indicator does not turn ON or flash.	1. Check vehicle security indicator	SEC-35
	2. Check Intermittent Incident	GI-42

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PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

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

INFOID:000000009878915

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

WARNING:

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

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

WARNING:

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

NATS ANTENNA AMP.

< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

NATS ANTENNA AMP.

Removal and Installation

INFOID:000000009878916

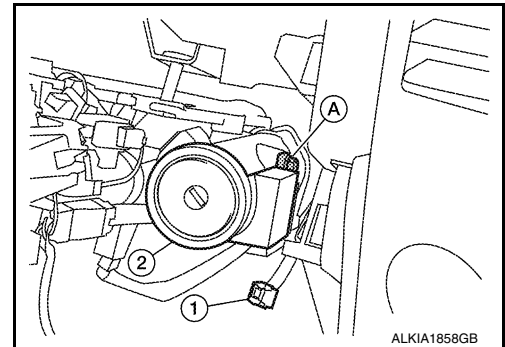
NATS ANTENNA AMP

NOTE:

- If NATS antenna amp. is not installed correctly, NVIS (NATS) system will not operate properly and "SELF-DIAG RESULTS" on CONSULT screen will show "LOCK MODE" or "CHAIN OF IMMU-KEY"
- Initialization is not necessary when only the NATS antenna amp. is replaced with a new one.

Removal

1. Disconnect the battery negative terminal. Refer to [PG-80, "Removal and Installation"](#).
2. Remove cluster lid A. Refer to [IP-13, "Removal and Installation"](#).
3. Remove the NATS antenna amp (2).
 - a. Remove the NATS antenna amp bolt (A).
 - b. Disconnect the harness connector (1) from the NATS antenna amp. and remove.



Installation

Installation is in the reverse order of removal.

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REMOTE KEYLESS ENTRY RECEIVER

< REMOVAL AND INSTALLATION >

REMOTE KEYLESS ENTRY RECEIVER

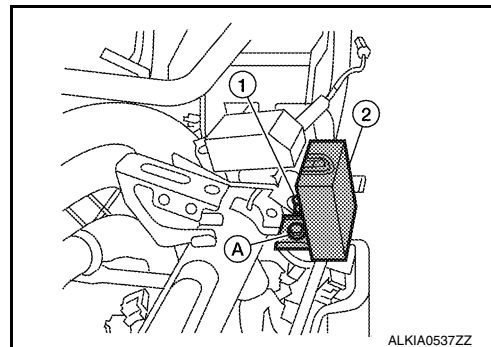
Removal and Installation

INFOID:000000009878917

REMOTE KEYLESS ENTRY RECEIVER

Removal

1. Remove the instrument lower panel RH. Refer to [IP-16, "Removal and Installation"](#).
2. Remove the side ventilator assembly RH. Refer to [IP-10, "Exploded View"](#).
3. Remove the RKE receiver (2).
 - a. Disconnect the harness connector (1) from the RKE receiver.
 - b. Remove the RKE receiver bolt (A).



Installation

Installation is in the reverse order of removal.