SECTION SEC
SECURITY CONTROL SYSTEM

CONTENTS

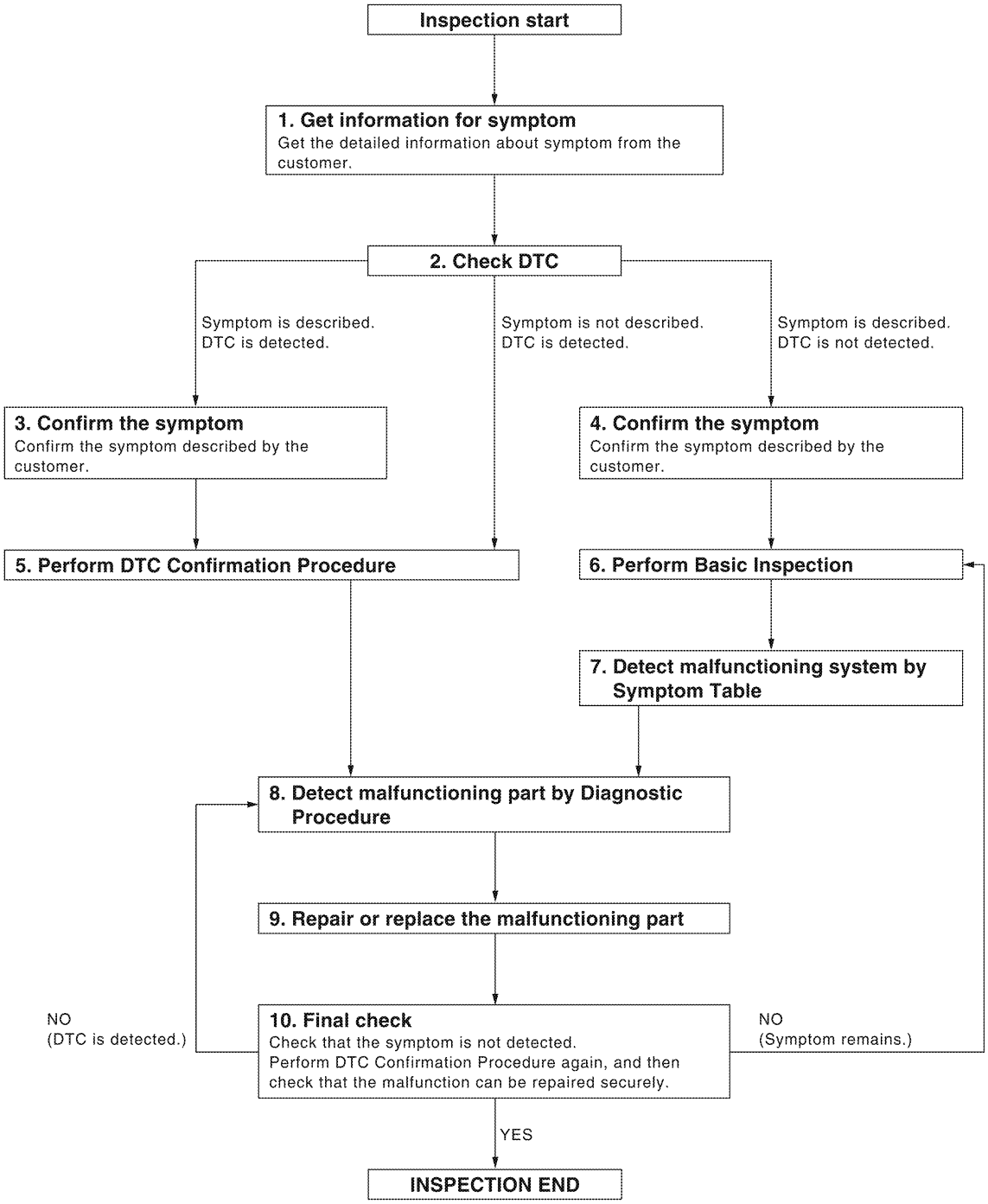
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000003789194

OVERALL SEQUENCE



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DETAILED FLOW

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-III 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-III 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 SEC-56, "DTC Inspection Priority Chart" (BCM) and determine trouble diagnosis order.

Is DTC detected?

YES >> GO TO 8.
NO >> Refer to GI-38, "Intermittent Incident".

6.PERFORM BASIC INSPECTION

Perform Basic Inspection. Refer to SEC-68, "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.

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**

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement

INFOID:0000000003789195

Refer to CONSULT-III Operation Manual.

ECM RE-COMMUNICATING FUNCTION

ECM RE-COMMUNICATING FUNCTION : Description

INFOID:0000000003789196

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-III is not necessary)
NOTE:
- **When registering new Key IDs or replacing the ECM that is not brand new, refer to CONSULT-III Operation Manual.**
- **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:0000000003789197

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?

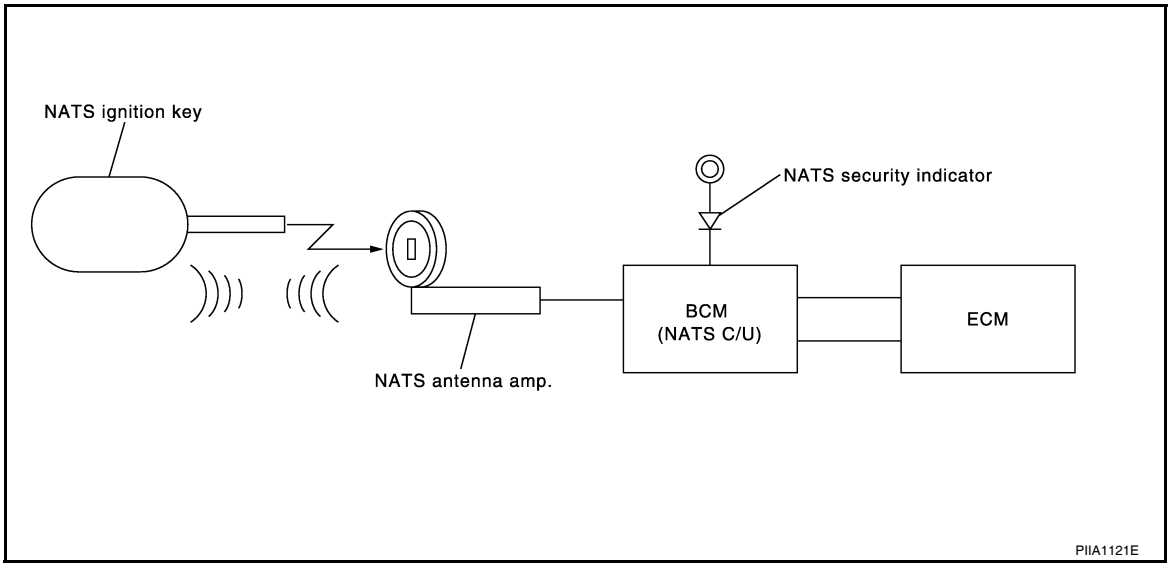
YES >> Procedure is completed.
NO >> Initialize control unit. Refer to CONSULT-III Operation Manual.

FUNCTION DIAGNOSIS

NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS)

System Diagram

INFOID:0000000003789198



System Description

INFOID:0000000003789199

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-10, "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-III.
  When NATS initialization has been completed, the ID of the inserted mechanical key or mechanical key IDs can be carried out.

- 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-6, "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

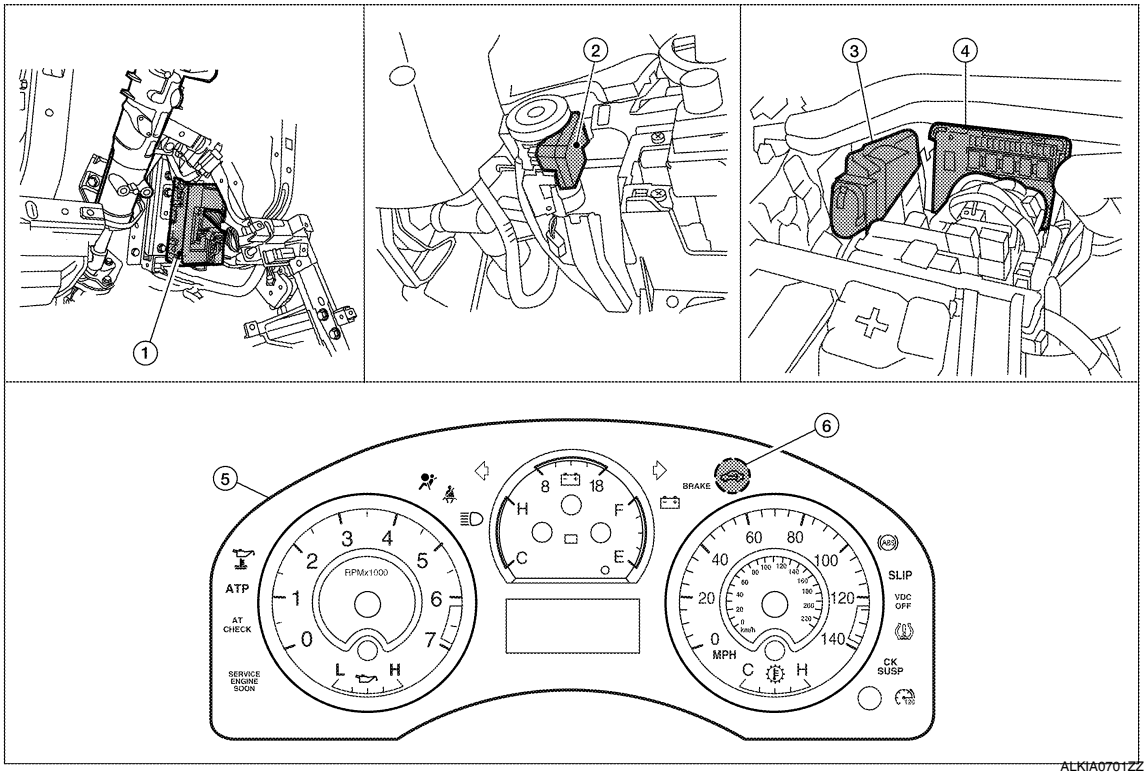
CAUTION:

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

INFOID:0000000003789200



ALKIA0701ZZ

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

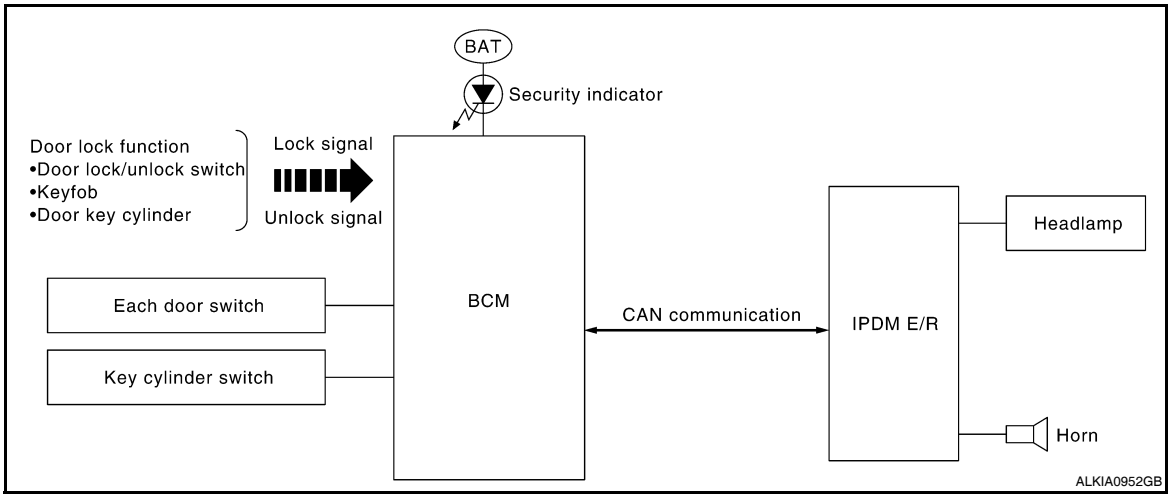
INFOID:0000000003789201

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 device (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 Diagram

INFOID:0000000003789202



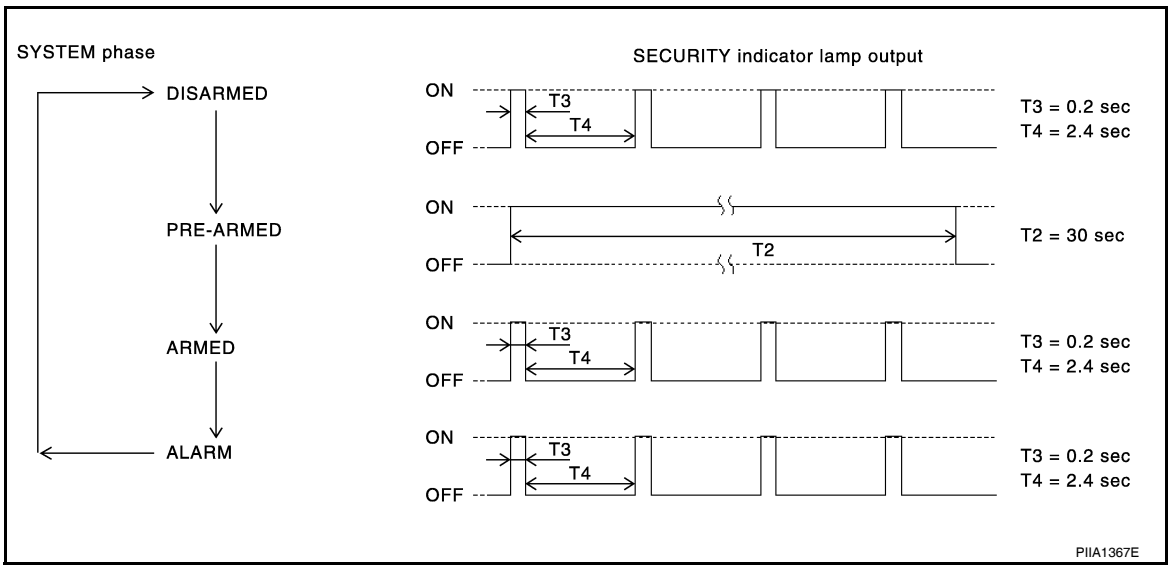
System Description

INFOID:0000000003789203

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, doorlock/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.

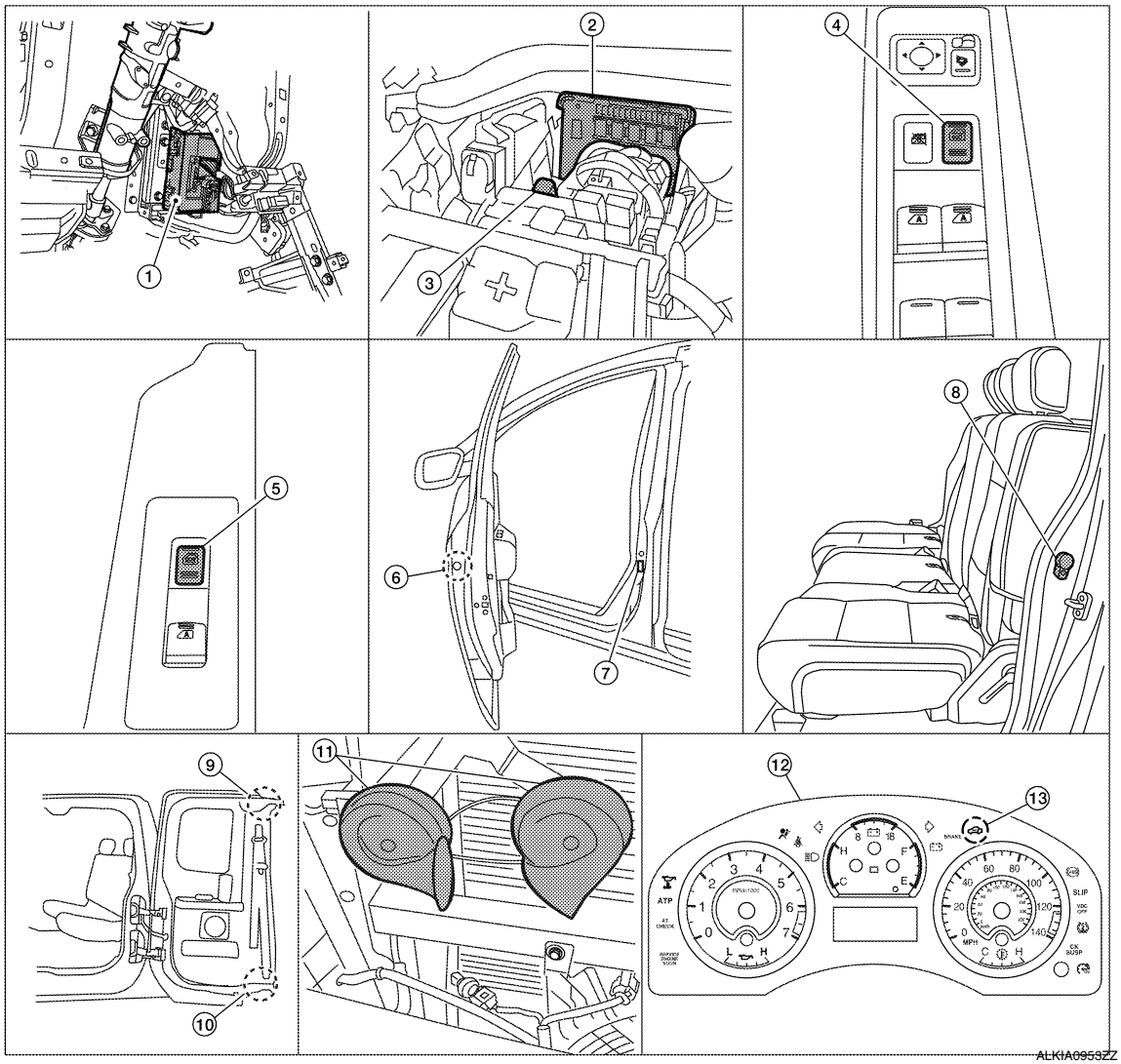
Condition of Deactivating The System

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

INFOID:0000000003789204



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

Component Description

INFOID:0000000003789205

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.

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

INFOID:0000000004212447

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

Diagnosis mode	Function Description
WORK SUPPORT	Changes the setting for each system function.
SELF-DIAG RESULTS	Displays the diagnosis results judged by BCM. Refer to BCS-49, "DTC Index".
CAN DIAG SUPPORT MNTR	Monitors the reception status of CAN communication viewed from BCM.
DATA MONITOR	The BCM input/output signals are displayed.
ACTIVE TEST	The signals used to activate each device are forcibly supplied from BCM.
ECU IDENTIFICATION	The BCM part number is displayed.
CONFIGURATION	• Enables to read and save the vehicle specification. • Enables to write the vehicle specification when replacing BCM.

SYSTEM APPLICATION
BCM can perform the following functions for each system.
NOTE:
It can perform the diagnosis modes except the following for all sub system selection items.

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

IMMU
IMMU : CONSULT-III Function (BCM - IMMU)

INFOID:0000000004212448

DATA MONITOR

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

ACTIVE TEST

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

THEFT ALM

THEFT ALM : CONSULT-III Function (BCM - THEFT ALM)

INFOID:0000000004212449

WORK SUPPORT

Work Item	Description
SECURITY ALARM SET	Vehicle security function mode can be changed in this mode. • ON: Vehicle security function is ON. • OFF: Vehicle security function is OFF.

COMPONENT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000003789209

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:0000000003789210

DTC DETECTION LOGIC

DTC	CONSULT-III 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:0000000003789211

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-38, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

Description

INFOID:0000000003789212

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:0000000003789213

DTC DETECTION LOGIC

DTC	CONSULT-III 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:0000000003789214

1.REPLACE BCM

When DTC [U1010] is detected, replace BCM.

>> Replace BCM. Refer to BCS-53, "Removal and Installation".

Special Repair Requirement

INFOID:0000000003789215

1.REQUIRED WORK WHEN REPLACING BCM

Initialize BCM. Refer to CONSULT-III Operation Manual.

>> Work end.

B2190, P1614 NATS ANTENNA AMP.

Description

INFOID:0000000003789216

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:0000000003789217

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2190 P1614	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

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-III.

Is DTC detected?

YES >> Refer to SEC-17, "Diagnosis Procedure".
NO >> INSPECTION END.

Diagnosis Procedure

INFOID:0000000003789218

1.CHECK NATS ANTENNA AMP. INSTALLATION

Check NATS antenna amp. installation. Refer to SEC-70, "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.

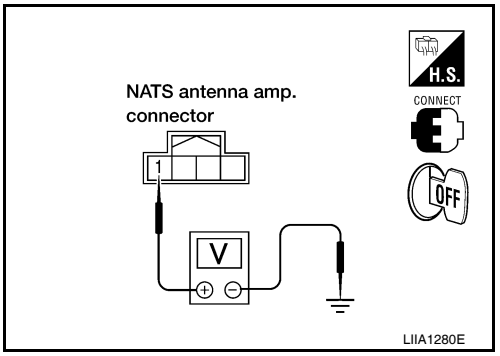
Does the engine start?

YES >> • Ignition key ID chip is malfunctioning.
• Replace the ignition key.
• Perform initialization with CONSULT-III.
For initialization, refer to “CONSULT-III Operation Manual”.
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.

1 - Ground : Battery voltage



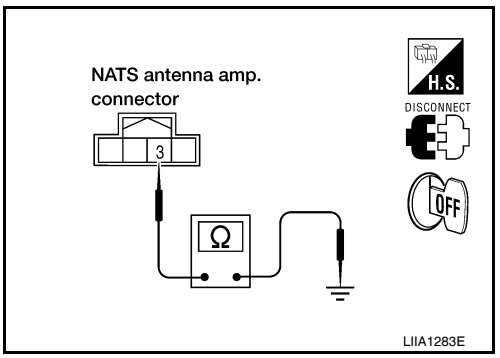
Is the inspection result normal?

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.

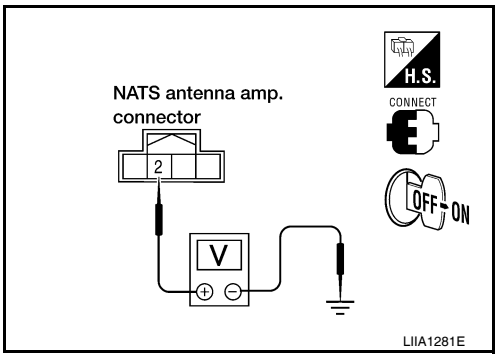


Is the inspection result normal?

YES >> GO TO 5
NO >> • Repair or replace harness.
NOTE:
If harness is OK, replace BCM, perform initialization with CONSULT-III. For initialization, refer to “CONSULT-III Operation Manual”.

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.



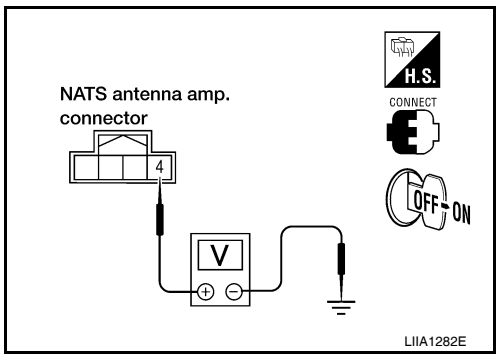
Terminals		Position of ignition key cylinder	Voltage (V) (Approx.)
(+)	(-)		
2	Ground	Before inserting ignition key	Battery voltage
		After inserting ignition key	Pointer of tester should move for approx. 30 seconds, then return to battery voltage
		Just after turning ignition switch ON	Pointer of tester 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-III. For initialization, refer to “CONSULT-III Operation Manual”.

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-53, "Removal and Installation". Perform initialization with CONSULT-III. For initialization, refer to “CONSULT-III Operation Manual”.

B2191, P1615 DIFFERENCE OF KEY

Description

INFOID:0000000003789219

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:0000000003789220

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-III.

Is DTC detected?

YES >> Refer to SEC-20, "Diagnosis Procedure".
NO >> INSPECTION END.

Diagnosis Procedure

INFOID:0000000003789221

1.PERFORM INITIALIZATION

Perform initialization with CONSULT-III. Re-register all mechanical keys.
For initialization and registration of mechanical key. Refer to “CONSULT-III Operation Manual”.

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-53, "Removal and Installation".
- Perform initialization again

B2192, P1611 ID DISCORD, IMMU-ECM

Description

INFOID:0000000003789222

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:0000000003789223

DTC DETECTION LOGIC

NOTE:

- If DTC B2192 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to SEC-15, "DTC Logic".
- If DTC B2192 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to SEC-16, "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-III.

Is DTC detected?

YES >> Refer to SEC-21, "Diagnosis Procedure".
NO >> INSPECTION END.

Diagnosis Procedure

INFOID:0000000003789224

1.PERFORM INITIALIZATION

Perform initialization with CONSULT-III. Re-register all mechanical keys.
For initialization and registration of mechanical key. Refer to “CONSULT-III Operation Manual”.

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.PEPLACE BCM

1. Replace BCM. Refer to BCS-53, "Removal and Installation".
2. Perform initialization with CONSULT-III. Re-register all mechanical keys.
   For initialization and registration of mechanical key. Refer to “CONSULT-III Operation Manual”.

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.PEPLACE ECM

1. Replace ECM. Refer to Removal and Installation.
2. Perform initialization with CONSULT-III. Re-register all mechanical keys.
   For initialization and registration of mechanical key. Refer to “CONSULT-III Operation Manual”.

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

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

4.CHECK INTERMITENT INCIDENT

Refer to GI-38, "Intermittent Incident".

>> INSPECTION END

B2193, P1612 CHAIN OF ECM-IMMU

Description

INFOID:0000000003789225

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:0000000003789226

DTC DETECTION LOGIC

NOTE:

- If DTC B2193 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to SEC-15, "DTC Logic".
- If DTC B2193 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to SEC-16, "DTC Logic".

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check “Self diagnostic result” with CONSULT-III.

Is DTC detected?

YES >> Refer to SEC-23, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000003789227

1.REPLACE BCM

1. Replace BCM. Refer to BCS-53, "Removal and Installation".
2. Perform initialization with CONSULT-III.
   For initialization, refer to “CONSULT-III Operation Manual”.

Does the engine start?

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

P1610 LOCK MODE

Description

INFOID:0000000003789228

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:0000000003789229

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-III.

Is DTC detected?

YES >> Refer to SEC-24, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000003789230

1.CHECK ENGINE START FUNCTION

1. Perform the check for DTC except DTC P1610.
2. Use CONSULT-III 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-38, "Intermittent Incident".

>> INSPECTION END

POWER SUPPLY AND GROUND CIRCUIT
BCM

BCM : Diagnosis Procedure

INFOID:0000000003789231

1. CHECK FUSES AND FUSIBLE LINK

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

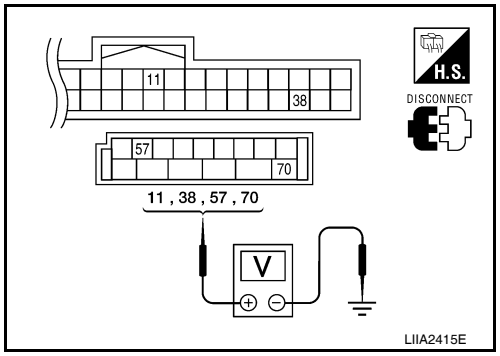
Terminal No.	Signal name	Fuses and fusible link No.
57	Battery power supply	22 (15A)
70		F (50A)
11	Ignition ACC or ON	4 (10A)
38	Ignition ON or START	59 (10A)

Is the fuse blown?

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

2. CHECK POWER SUPPLY CIRCUIT

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



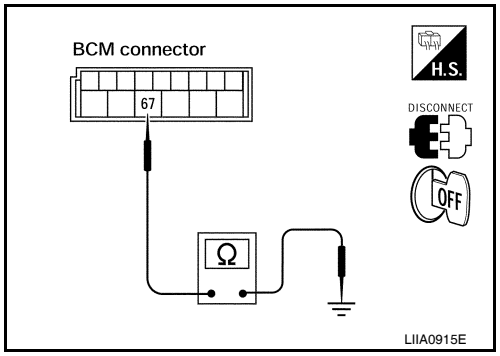
Connector	Terminals (+)	Terminals (-)	Power source	Condition	Voltage (V) (Approx.)
M18	11	Ground	ACC power supply	Ignition switch ACC or ON	Battery voltage
	38	Ground	Ignition power supply	Ignition switch ON or START	Battery voltage
M20	57	Ground	Battery power supply	Ignition switch OFF	Battery voltage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

Is the measurement value normal?

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

3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.



BCM		Ground	Continuity
Connector	Terminal		
M20	67		Yes

Does continuity exist?

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

KEY CYLINDER SWITCH
KING CAB

KING CAB : Description

INFOID:0000000003789232

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:0000000003789233

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-III.

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-26, "KING CAB : Diagnosis Procedure".

KING CAB : Diagnosis Procedure

INFOID:0000000003789234

1.CHECK DOOR KEY CYLINDER SWITCH LH

With CONSULT-III

Check front door lock assembly LH (key cylinder switch) ("KEY CYL LK-SW") and ("KEY CYL UN-SW) in DATA MONITOR mode with CONSULT–III. Refer to DLK-19, "DOOR LOCK : CONSULT-III Function (BCM - DOOR LOCK)".

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

KEY CYL LK-SW : ON

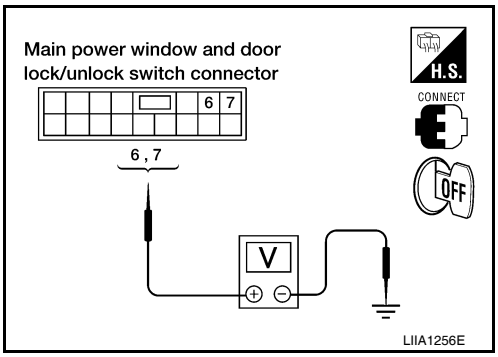
- When key inserted in front key cylinder is turned to UNLOCK:

KEY CYL UN-SW : ON

Without CONSULT-III

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

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



Is the inspection result normal?

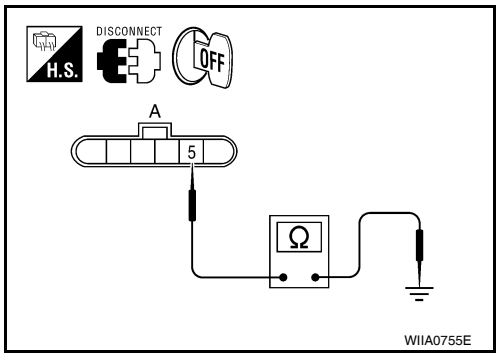
YES >> Front door lock assembly LH (key cylinder switch) signal is OK.

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



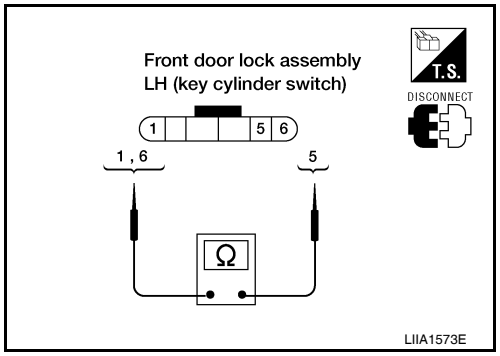
Is the inspection result normal?

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



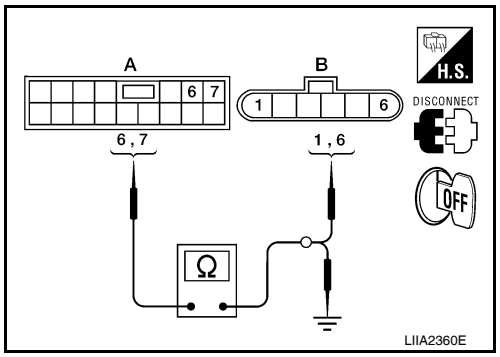
Is the inspection result normal?

YES >> GO TO 4
NO >> Replace front door lock assembly LH (key cylinder switch). Refer to DLK-123, "Removal and Installation".

4. CHECK DOOR KEY CYLINDER HARNESS

1. Disconnect main power window and door lock/unlock switch.
2. 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:0000000003789235

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:0000000003789236

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-III.

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, "CREW CAB : Diagnosis Procedure".

CREW CAB : Diagnosis Procedure

INFOID:0000000003789237

1.CHECK DOOR KEY CYLINDER SWITCH LH

With CONSULT-III

Check front door lock assembly LH (key cylinder switch) ("KEY CYL LK-SW") and ("KEY CYL UN-SW) in DATA MONITOR mode with CONSULT–III. Refer to DLK-19, "DOOR LOCK : CONSULT-III Function (BCM - DOOR LOCK)".

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

KEY CYL LK-SW : ON

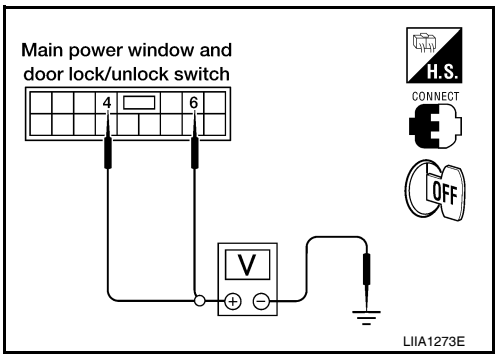
- When key inserted in front key cylinder is turned to UNLOCK:

KEY CYL UN-SW : ON

Without CONSULT-III

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

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



Is the inspection result normal?

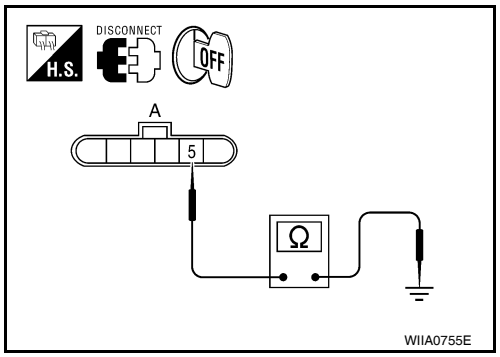
YES >> Front door lock assembly LH (key cylinder switch) signal is OK.
NO >> GO TO 2

2.CHECK DOOR KEY CYLINDER SWITCH LH GROUND HARNESS

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



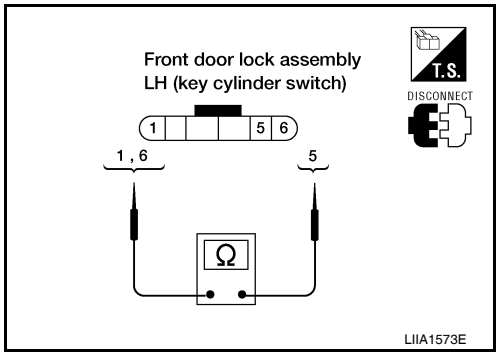
Is the inspection result normal?

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



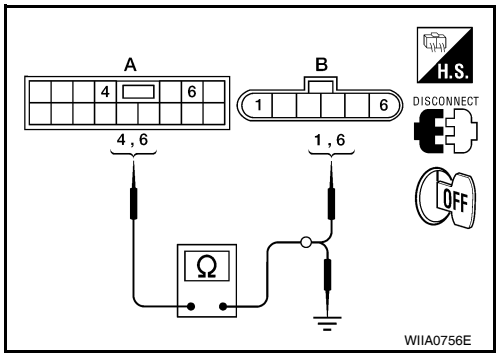
Is the inspection result normal?

YES >> GO TO 4
NO >> Replace front door lock assembly LH (key cylinder switch). Refer to DLK-123, "Removal and Installation".

4. CHECK DOOR KEY CYLINDER HARNESS

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

Description

INFOID:0000000003789238

Perform answer-back for each operation with horn.

Component Function Check

INFOID:0000000003789239

1.CHECK FUNCTION

1. Select "HORN" in “ACTIVE TEST” mode with CONSULT-III.
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-30, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000003789240

1.CHECK HORN FUNCTION

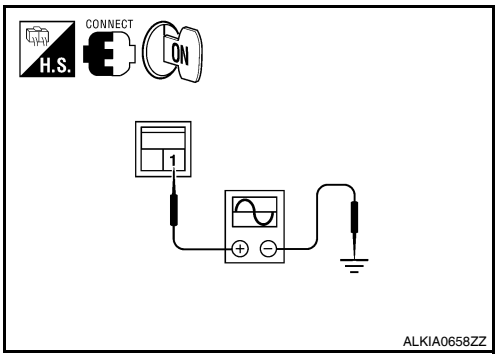
Check horn function with horn switch

Do the horns sound?

YES >> GO TO 2
NO >> Go to HRN-3, "Wiring Diagram".

2.CHECK HORN RELAY POWER SUPPLY

1. Turn ignition switch ON.
2. Perform “ACTIVE TEST”, "HORN" with CONSULT-III.
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

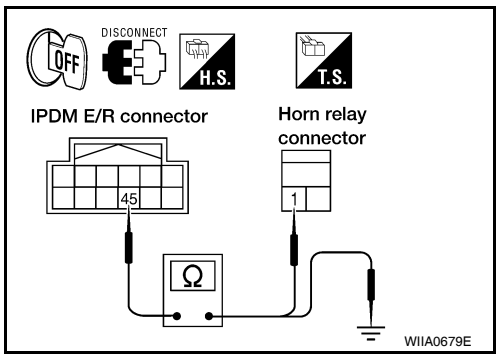
Is the inspection result normal?

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

3.CHECK HORN RELAY CIRCUIT

1. Turn ignition switch OFF.
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-38, "Intermittent Incident".

Is the inspection result normal?

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

VEHICLE SECURITY INDICATOR

Description

INFOID:0000000003789241

- 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:0000000003789242

1.CHECK FUNCTION

1. Perform “THEFT IND” in the “Active Test” mode with CONSULT-III.
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-32, "Diagnosis Procedure".

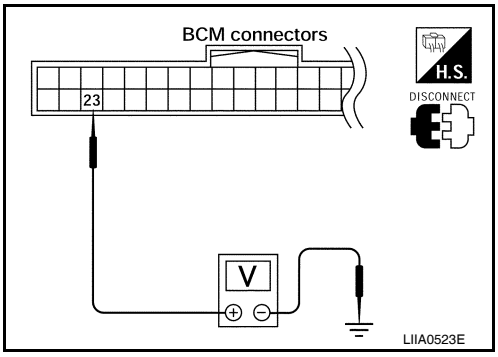
Diagnosis Procedure

INFOID:0000000003789243

1.SECURITY INDICATOR LAMP ACTIVE TEST

With CONSULT-III
Check "THEFT IND” in "ACTIVE TEST" mode with CONSULT-III.

Without CONSULT-III
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

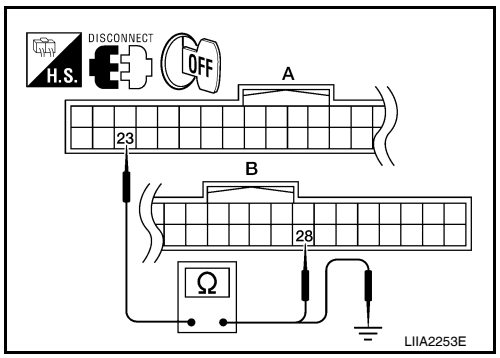
1. Turn ignition switch OFF.
2. Disconnect BCM and security indicator lamp connector.

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.

ECU DIAGNOSIS

BCM (BODY CONTROL MODULE)

Reference Value

INFOID:0000000004212537

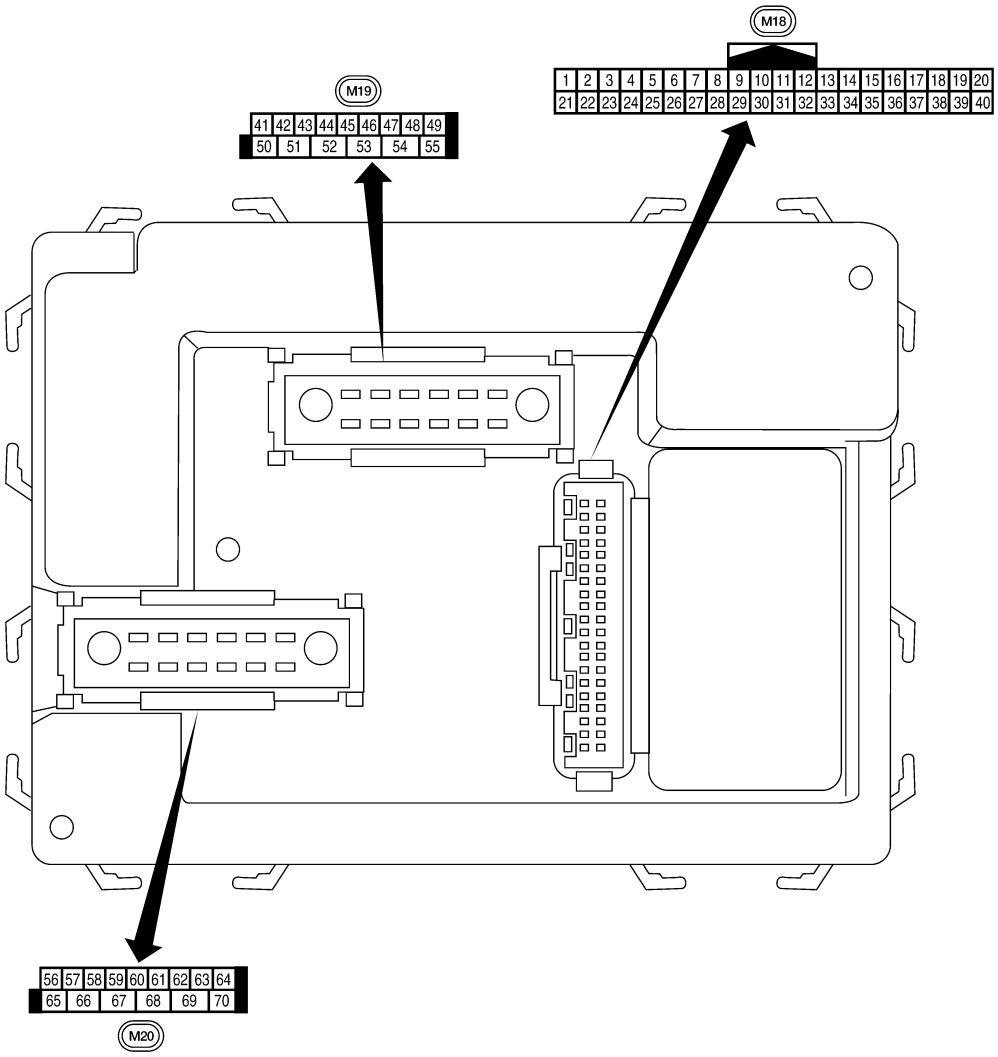
VALUES ON THE DIAGNOSIS TOOL

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

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

Terminal Layout

INFOID:0000000004212538



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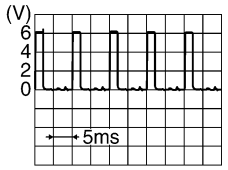
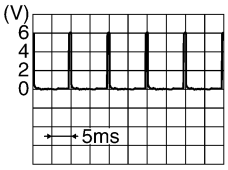
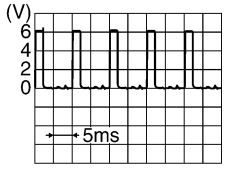
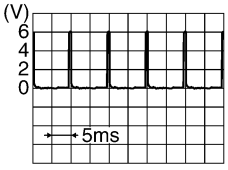
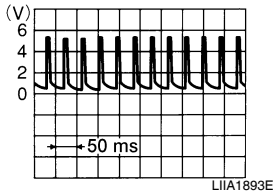
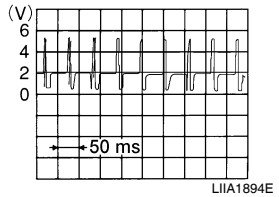
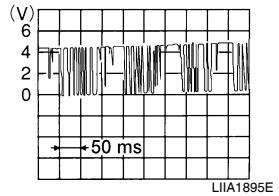
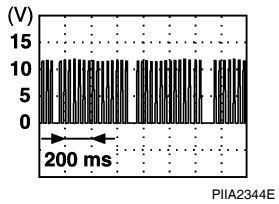
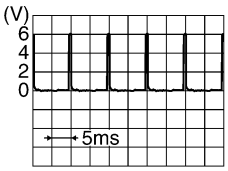
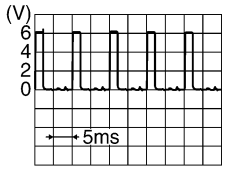
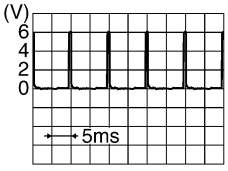
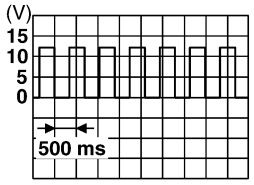
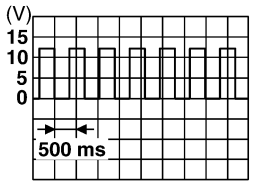
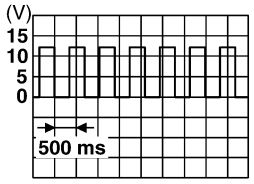
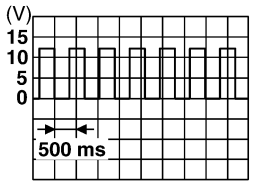
Physical Values

INFOID:0000000004212539

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

Terminal	Wire color	Signal name	Signal input/ output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
18	P	Remote keyless entry receiver and optical sensor (ground)	Output	OFF	—	0V
19	V/W	Remote keyless entry receiver (power supply)	Output	OFF	Ignition switch OFF	 LIIA1893E
20	G/W	Remote keyless entry receiver (signal)	Input	OFF	Stand-by (keyfob buttons released)	 LIIA1894E
					When remote keyless entry receiver receives signal from keyfob (keyfob buttons pressed)	 LIIA1895E
21	G	NATS antenna amp.	Input	OFF → ON	Ignition switch (OFF → ON)	Just after turning ignition switch ON: Pointer of tester should move for approx. 1 second, then return to battery voltage.
22	G	BUS	—	—	Ignition switch ON or power window timer operates	 PIIA2344E
23	G/O	Security indicator lamp	Output	OFF	Goes OFF → illuminates (Every 2.4 seconds)	Battery voltage → 0V
25	BR	NATS antenna amp.	Input	OFF → ON	Ignition switch (OFF → ON)	Just after turning ignition switch ON: Pointer of tester should move for approx. 1 second, then return to battery voltage.
27	W/R	Compressor ON signal	Input	ON	A/C switch OFF	5V
					A/C switch ON	0V
28	L/R	Front blower monitor	Input	ON	Front blower motor OFF	Battery voltage
					Front blower motor ON	0V
29	W/B	Hazard switch	Input	OFF	ON	0V
					OFF	5V
31	P/L	Cargo lamp switch	Input	OFF	Cargo lamp switch ON	0
					Cargo lamp switch OFF	Battery voltage

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

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

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

Wiring Diagram - VEHICLE SECURITY SYSTEM

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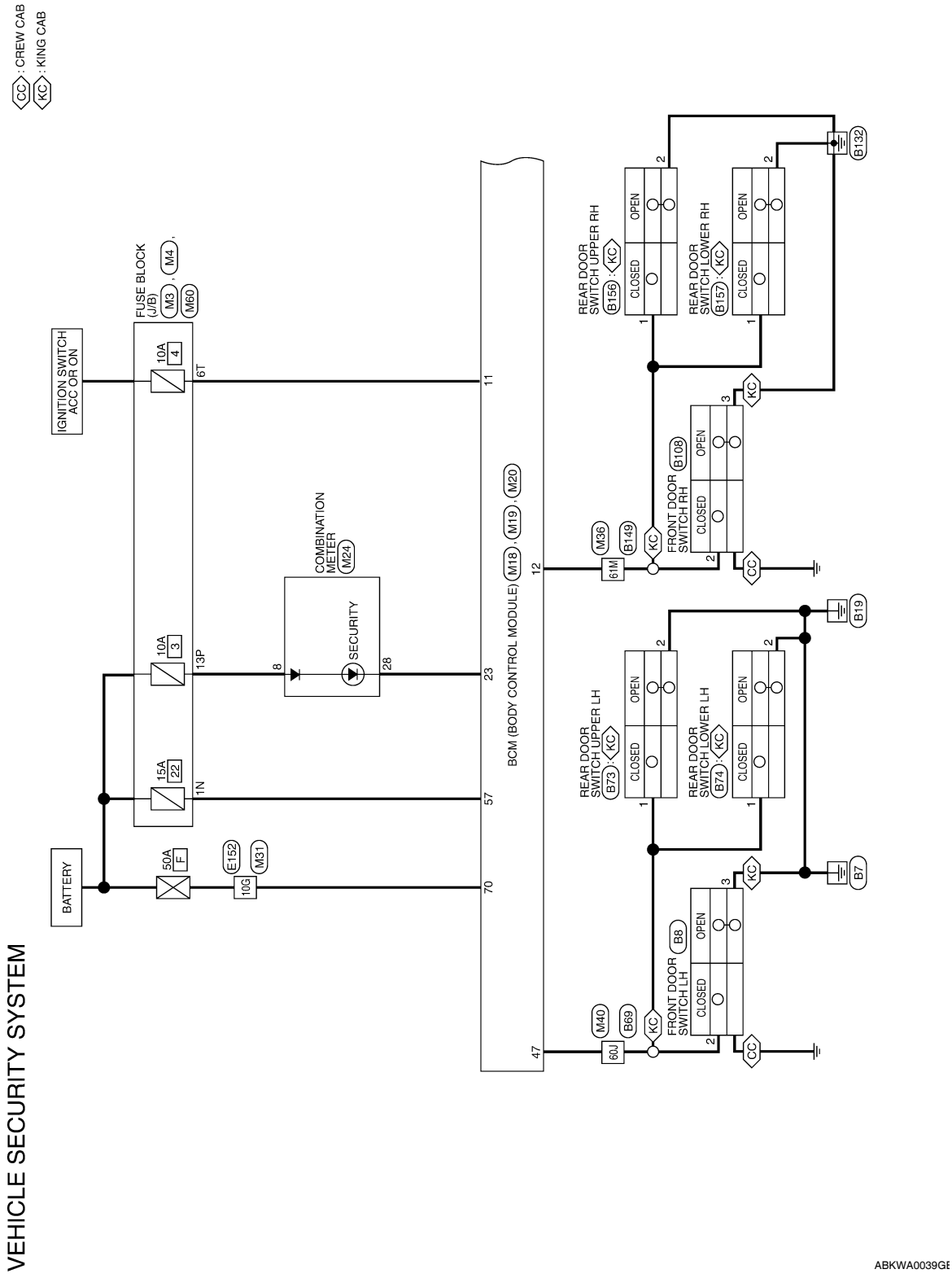
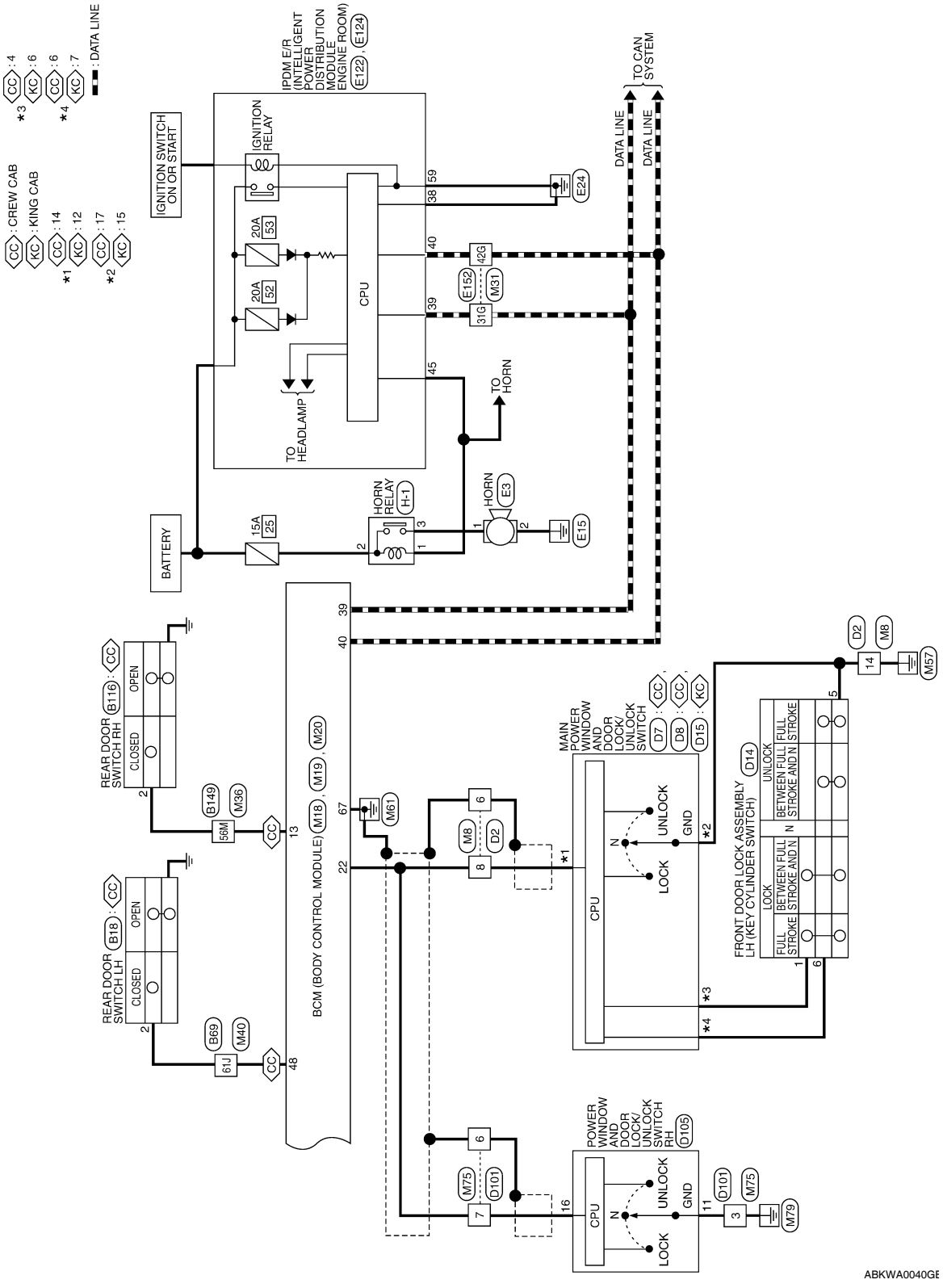
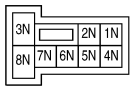



: DATA LINE
: CREW CAB
: KING CAB
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) E122, E124
IGNITION SWITCH ON OR START
IGNITION RELAY
20A 53
20A 52
CPU
TO HEADLAMP
TO HORN
HORN RELAY H-1
HORN E3
BATTERY
15A 25
E24
E15
DATA LINE
TO CAN SYSTEM
42G
E152
M31
31G
REAR DOOR SWITCH RH B116
REAR DOOR SWITCH LH B18
OPEN
CLOSED
B149
M36
56M
B69
M40
61J
BCM (BODY CONTROL MODULE) M18, M19, M20
M61
MAIN POWER WINDOW AND DOOR LOCK/ UNLOCK SWITCH D7, D8, D15
UNLOCK
LOCK
GND
FRONT DOOR LOCK ASSEMBLY LH (KEY CYLINDER SWITCH) D14
BETWEEN FULL STROKE AND N
FULL STROKE
D2
M8
M57
POWER WINDOW AND DOOR LOCK/ UNLOCK SWITCH RH D105
M75
D101
M79
ABKWA0040GE

VEHICLE SECURITY SYSTEM CONNECTORS

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

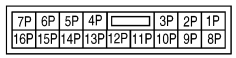
H.S.



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

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

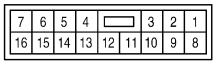
H.S.



Terminal No.	Color of Wire	Signal Name
13P	P	–

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

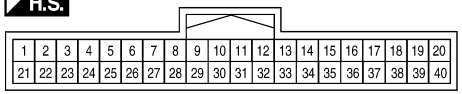
H.S.



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

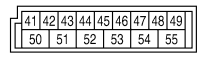
H.S.



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

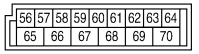
H.S.



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

H.S.



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

ABKIA0105GB

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
8	Y/R	BATTERY (TYPE A*)
8	P	BATTERY (TYPE B*)
28	G/O	SECURITY

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

H.S.

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

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

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
56M	GR	–
61M	R/L	–

*: REFER TO HARNESS LAYOUT OF PG SECTION FOR DEFINITION OF TYPE A AND TYPE B.

ABKIA0106GB

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

H.S.

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

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

Terminal No.	Color of Wire	Signal Name
60J	SB	–
61J	R/Y	–

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

H.S.

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

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

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

H.S.

4	3		2	1
10	9	8	7	6	5

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

Connector No.	E3
Connector Name	HORN
Connector Color	BLACK

H.S.

2	1

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

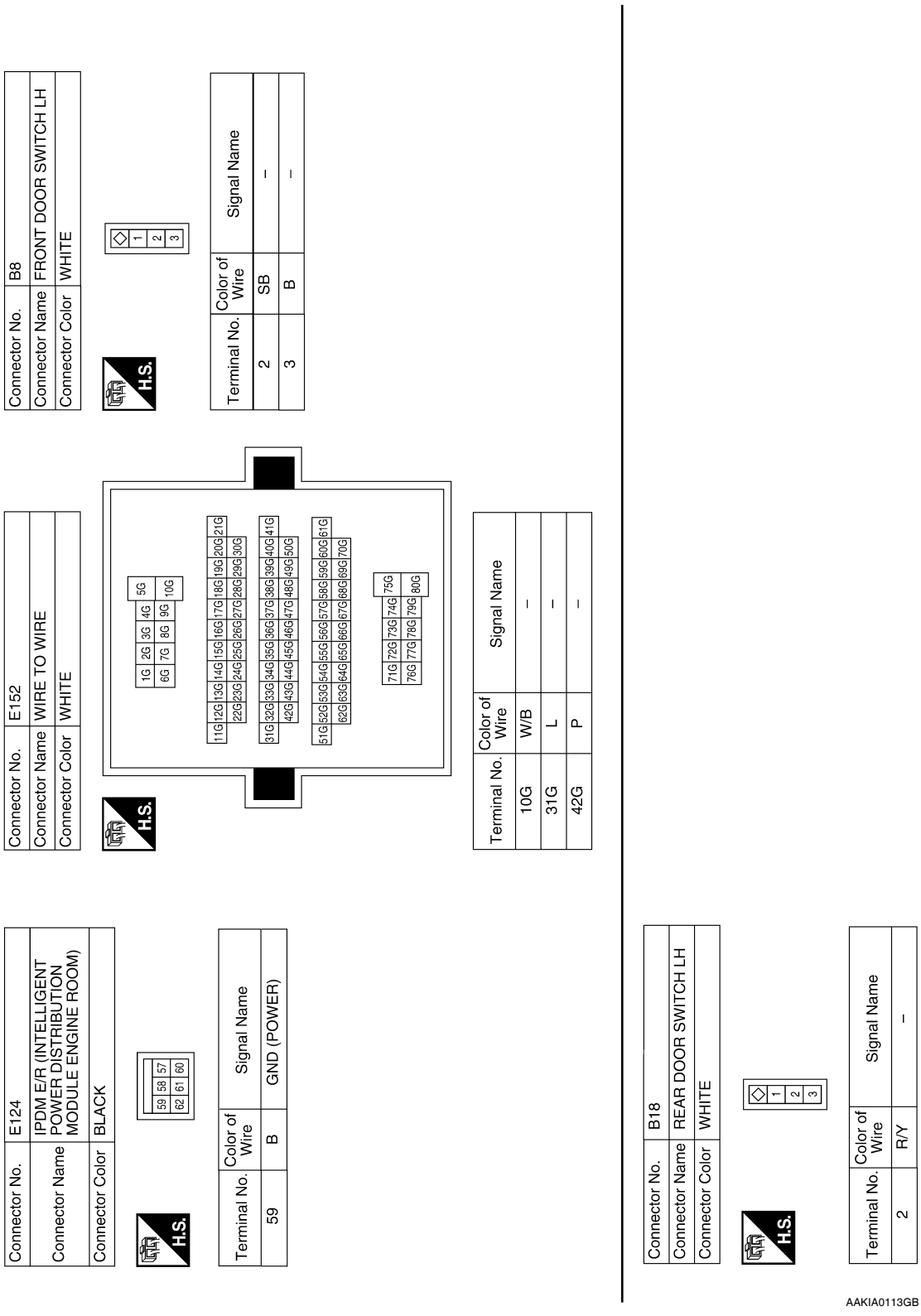
Connector No.	E122
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

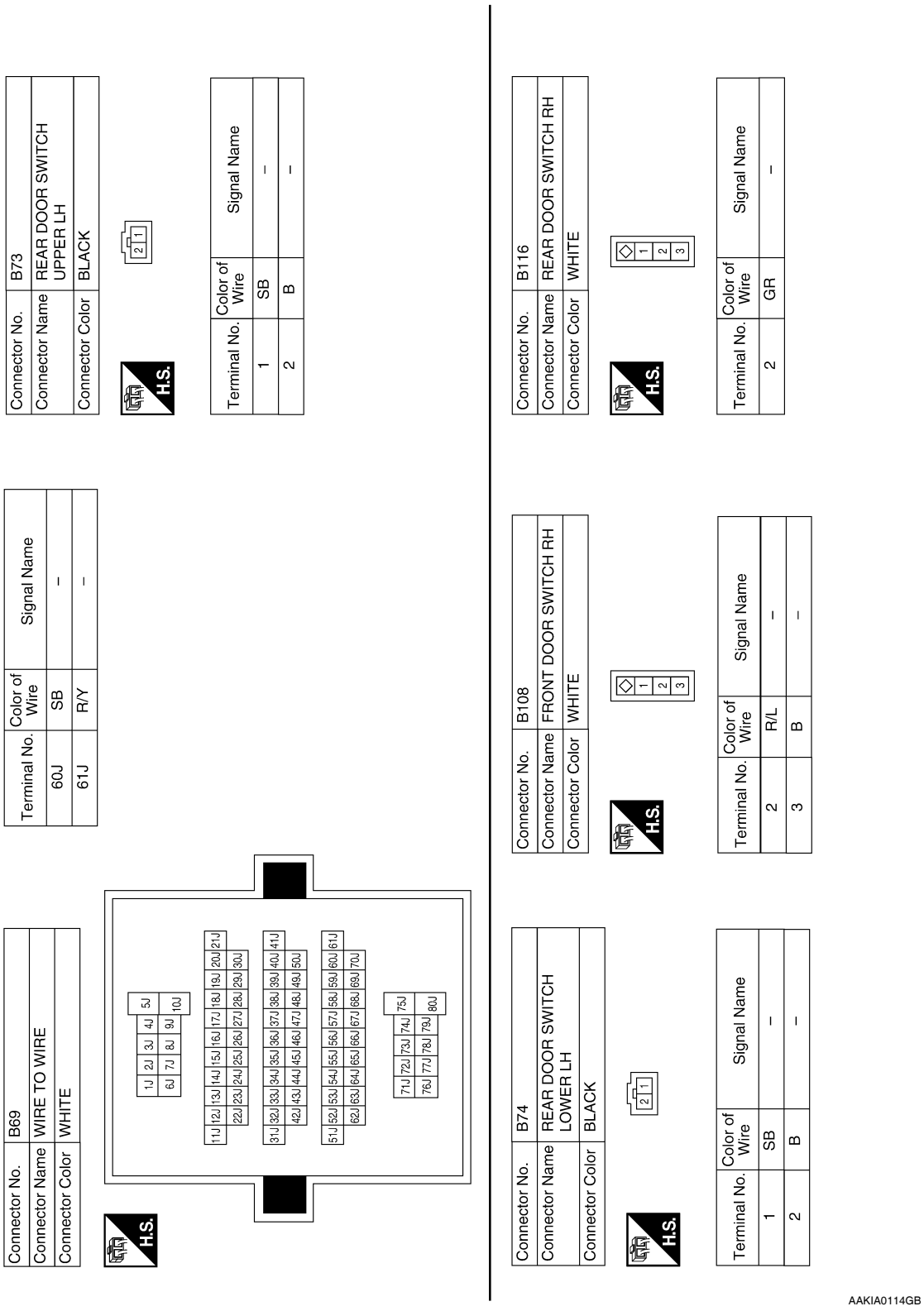
H.S.

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

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

ABKIA0107GB


Connector No. B8
Connector Name FRONT DOOR SWITCH LH
Connector Color WHITE
H.S.
1 2 3
Terminal No. Color of Wire Signal Name
2 SB –
3 B –
Connector No. E152
Connector Name WIRE TO WIRE
Connector Color WHITE
H.S.
1G 2G 3G 4G 5G
6G 7G 8G 9G 10G
11G 12G 13G 14G 15G 16G 17G 18G 19G 20G 21G
22G 23G 24G 25G 26G 27G 28G 29G 30G
31G 32G 33G 34G 35G 36G 37G 38G 39G 40G 41G
42G 43G 44G 45G 46G 47G 48G 49G 50G
51G 52G 53G 54G 55G 56G 57G 58G 59G 60G 61G
62G 63G 64G 65G 66G 67G 68G 69G 70G
71G 72G 73G 74G 75G
76G 77G 78G 79G 80G
Terminal No. Color of Wire Signal Name
10G W/B –
31G L –
42G P –
Connector No. E124
Connector Name IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color BLACK
H.S.
59 58 57
62 61 60
Terminal No. Color of Wire Signal Name
59 B GND (POWER)
Connector No. B18
Connector Name REAR DOOR SWITCH LH
Connector Color WHITE
H.S.
1 2 3
Terminal No. Color of Wire Signal Name
2 R/Y –
AAKIA0113GB


Connector No. B73
Connector Name REAR DOOR SWITCH UPPER LH
Connector Color BLACK
H.S.
Terminal No. | Color of Wire | Signal Name
1 | SB | –
2 | B | –
Connector No. B116
Connector Name REAR DOOR SWITCH RH
Connector Color WHITE
H.S.
Terminal No. | Color of Wire | Signal Name
2 | GR | –
Connector No. B69
Connector Name WIRE TO WIRE
Connector Color WHITE
H.S.
Terminal No. | Color of Wire | Signal Name
60J | SB | –
61J | R/Y | –
Connector No. B108
Connector Name FRONT DOOR SWITCH RH
Connector Color WHITE
H.S.
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
H.S.
Terminal No. | Color of Wire | Signal Name
1 | SB | –
2 | B | –
AAKIA0114GB

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

H.S.

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

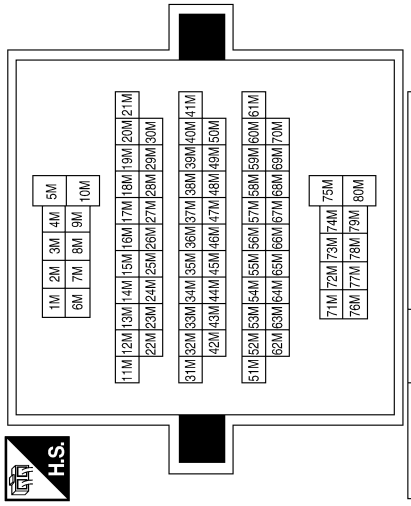
Connector No.	B156
Connector Name	REAR DOOR SWITCH UPPER RH
Connector Color	BLACK

H.S.

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

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

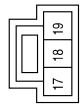
H.S.



Terminal No.	Color of Wire	Signal Name
56M	GR	–
61M	R/L	–

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

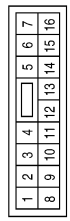
H.S.



Terminal No.	Color of Wire	Signal Name
17	B	GND

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

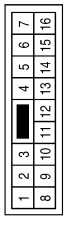
H.S.



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

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

H.S.



Terminal No.	Color of Wire	Signal Name
6	SHIELD	–
8	LG/W	–
14	B	–

ABKIA0164GB

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

H.S.

Terminal No.	Color of Wire	Signal Name
1	L	LOCK
5	B	GND
6	R	UNLOCK

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

H.S.

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

H.S.

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

Connector No.	H-1
Connector Name	FUSE AND FUSIBLE LINK BOX
Connector Color	–

T.S.

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

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

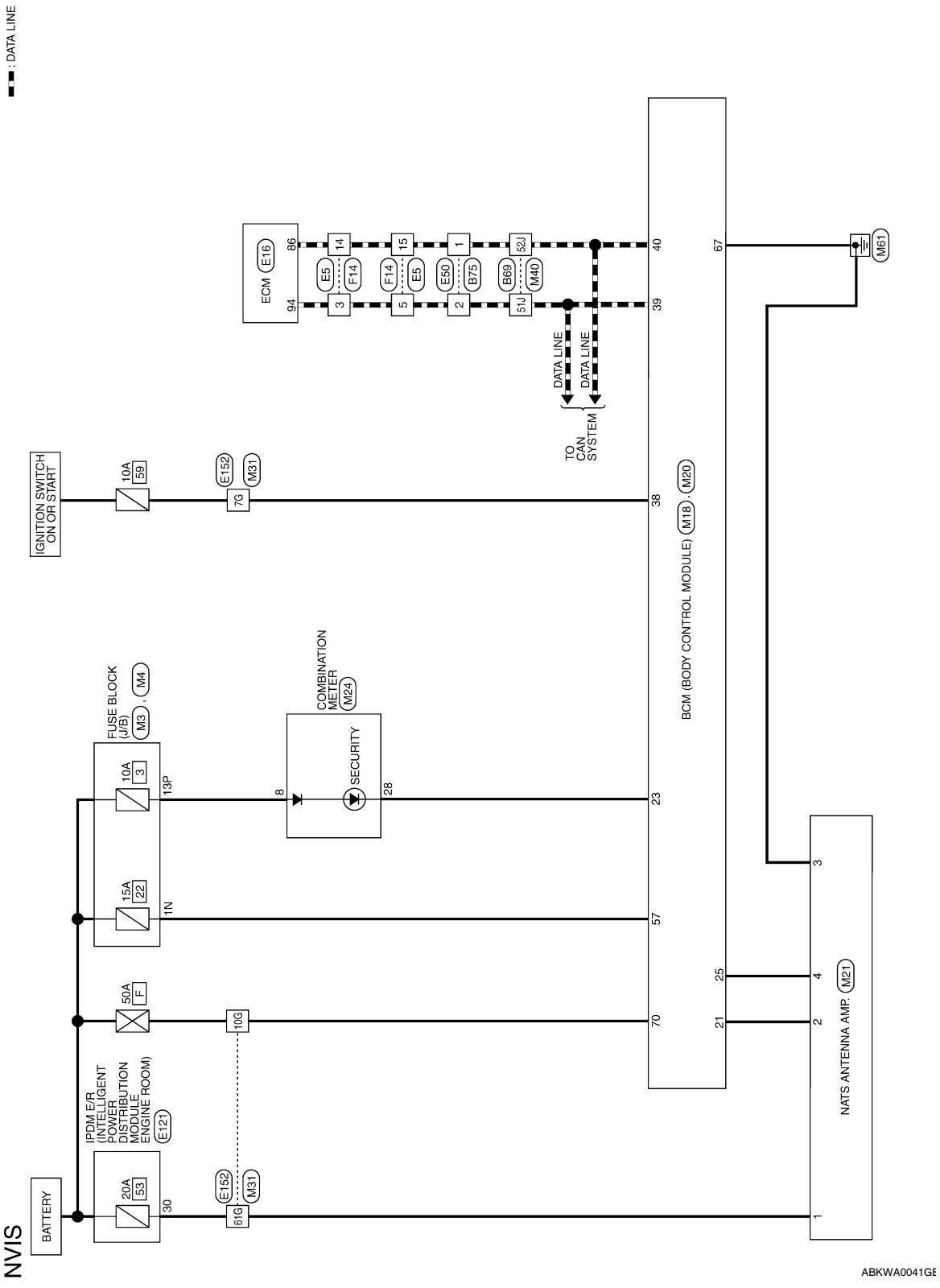
H.S.

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

ABKIA0108GB

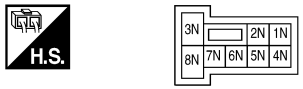
Wiring Diagram - NVIS -

INFOID:0000000003789248



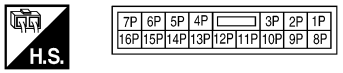
NVIS CONNECTORS

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



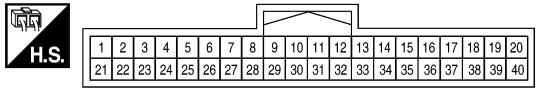
Terminal No.	Color of Wire	Signal Name
1N	Y/R	–

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



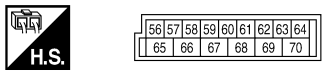
Terminal No.	Color of Wire	Signal Name
13P	P	–

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

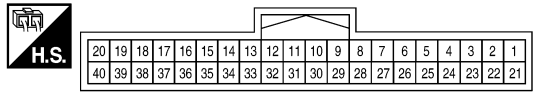


Terminal No.	Color of Wire	Signal Name
57	Y/R	BAT (FUSE)
67	B	GND (POWER)
70	W/B	BATT (F/L)

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

Terminal No.	Color of Wire	Signal Name
1	W	+ 12
2	G	SCL (CLOCK)
3	B	GND
4	BR	SCL (TX,RX)

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE



Terminal No.	Color of Wre	Signal Name
8	Y/R	BATTERY (TYPE A*)
8	P	BATTERY (TYPE B*)
28	G/O	SECURITY

ABKIA0109GB

* : REFER TO HARNESS LAYOUT OF PG SECTION FOR DEFINITION OF TYPE A AND TYPE B.

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

H.S.

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

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

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

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

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

Terminal No.	Color of Wire	Signal Name
7G	W/L	–
10G	W/B	–
61G	W	–

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

H.S.

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

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

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

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

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

Terminal No.	Color of Wire	Signal Name
51J	L	–
52J	P	–

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
3	L	–
5	L	–
14	P	–
15	P	–

ABKIA0110GB

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK

H.S.

108	107	106	105	104	103	102	101	100	99	98	97	96	95	94	93	92	91	90
89	88	87	86	85	84	83	82											

121	120	119	118	117	116	115	114

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

Connector No.	E50
Connector Name	WIRE TO WIRE
Connector Color	BROWN

H.S.

2	1

Terminal No.	Color of Wire	Signal Name
1	P	–
2	L	–

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

H.S.

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

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

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

H.S.

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

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

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

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

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

Terminal No.	Color of Wire	Signal Name
7G	L/W	–
10G	W/B	–
61G	W	–

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
3	L	–
5	L	–
14	P	–
15	P	–

AAKIA0111GB

Connector No.	B75
Connector Name	WIRE TO WIRE
Connector Color	BROWN

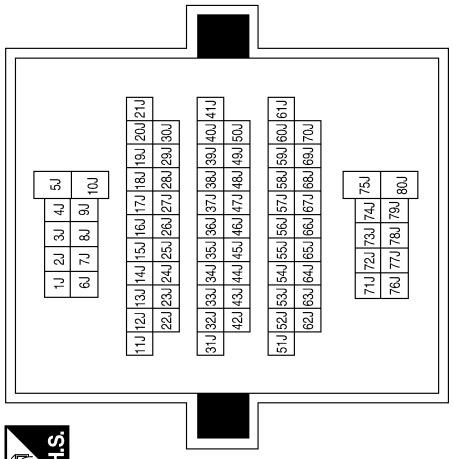
H.S.

Terminal No.	Color of Wire	Signal Name
1	P	–
2	L	–

Terminal No.	Color of Wire	Signal Name
51J	L	–
52J	P	–

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

H.S.



AAKIA0112GB

Fail Safe

INFOID:0000000004212540

Fail-safe index

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

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

DTC Inspection Priority Chart

INFOID:0000000004212541

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

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

DTC Index

INFOID:0000000004212542

NOTE:

Details of time display

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

CONSULT display	Fail-safe	Tire pressure monitor warning lamp ON	Reference page
No DTC is detected. further testing may be required.	—	—	—
U1000: CAN COMM CIRCUIT	—	—	BCS-28
U1010: CONTROL UNIT (CAN)	—	—	BCS-29
B2190: NATS ANTTENA AMP	—	—	SEC-17
B2191: DIFFERENCE OF KEY	—	—	SEC-20
B2192: ID DISCORD BCM-ECM	—	—	SEC-21
B2193: CHAIN OF BCM-ECM	—	—	SEC-23
C1708: [NO DATA] FL	—	—	WT-14
C1709: [NO DATA] FR	—	—	WT-14
C1710: [NO DATA] RR	—	—	WT-14
C1711: [NO DATA] RL	—	—	WT-14
C1712: [CHECKSUM ERR] FL	—	—	WT-16
C1713: [CHECKSUM ERR] FR	—	—	WT-16
C1714: [CHECKSUM ERR] RR	—	—	WT-16
C1715: [CHECKSUM ERR] RL	—	—	WT-16
C1716: [PRESSDATA ERR] FL	—	—	WT-18
C1717: [PRESSDATA ERR] FR	—	—	WT-18
C1718: [PRESSDATA ERR] RR	—	—	WT-18
C1719: [PRESSDATA ERR] RL	—	—	WT-18
C1720: [CODE ERR] FL	—	—	WT-16
C1721: [CODE ERR] FR	—	—	WT-16
C1722: [CODE ERR] RR	—	—	WT-16
C1723: [CODE ERR] RL	—	—	WT-16
C1724: [BATT VOLT LOW] FL	—	—	WT-16
C1725: [BATT VOLT LOW] FR	—	—	WT-16
C1726: [BATT VOLT LOW] RR	—	—	WT-16
C1727: [BATT VOLT LOW] RL	—	—	WT-16
C1729: VHCL SPEED SIG ERR	—	—	WT-19
C1735: IGNITION SIGNAL	—	—	WT-20

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

Reference Value

INFOID:0000000004212543

VALUES ON THE DIAGNOSIS TOOL

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

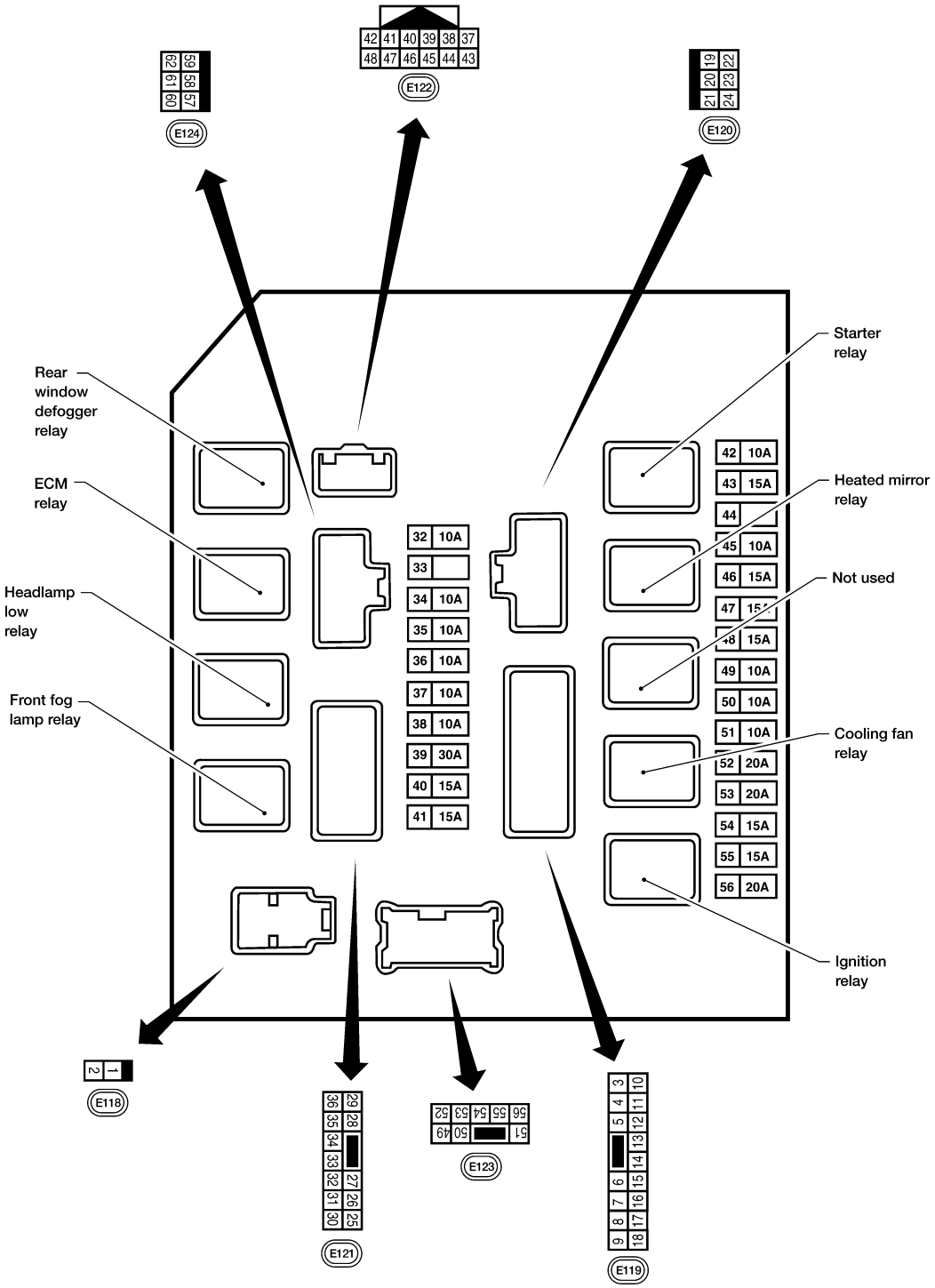
Monitor Item	Condition	Value/Status
THFT HRN REQ	Not operated	OFF
	• Panic alarm is activated • Horn is activated with VEHICLE SECURITY (THEFT WARNING) SYSTEM	ON
HORN CHIRP	Not operated	OFF
	Door locking with keyfob (horn chirp mode)	ON

*: If equipped

Terminal Layout

INFOID:0000000004230749

TERMINAL LAYOUT



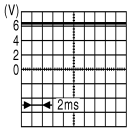
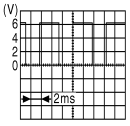
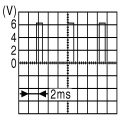
WKIA5852E

Physical Values

INFOID:0000000004230750

PHYSICAL VALUES

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

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

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

*: When horn reminder is ON

Fail Safe

INFOID:0000000004212546

CAN COMMUNICATION CONTROL

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

If No CAN Communication Is Available With ECM

Control part	Fail-safe in operation
Cooling fan	• Turns ON the cooling fan relay when the ignition switch is turned ON • Turns OFF the cooling fan relay when the ignition switch is turned OFF

If No CAN Communication Is Available With BCM

Control part	Fail-safe in operation
Headlamp	• Turns ON the headlamp low relay when the ignition switch is turned ON • Turns OFF the headlamp low relay when the ignition switch is turned OFF • Headlamp high LH/RH relays OFF
• Parking lamps • License plate lamps • Tail lamps	• Turns ON the tail lamp relay when the ignition switch is turned ON • Turns OFF the tail lamp relay when the ignition switch is turned OFF
Front wiper	• The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed. • The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode and the front wiper motor is operating.
Rear window defogger (if equipped)	Rear window defogger relay OFF
A/C compressor	A/C relay OFF
Front fog lamps (if equipped)	Front fog lamp relay OFF

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

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

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

NOTE:

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

FRONT WIPER CONTROL

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

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

NOTE:

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

STARTER MOTOR PROTECTION FUNCTION

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

DTC Index

INFOID:0000000004212547

CONSULT-III display	Fail-safe	TIME[NOTE]		Refer to
No DTC is detected. further testing may be required.	—	—	—	—
U1000: CAN COMM CIRCUIT	×	CRNT	1 – 39	PCS-15

NOTE:

The details of TIME display are as follows.

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

SYMPTOM DIAGNOSIS

VEHICLE SECURITY SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000003789256

Procedure / Symptom			Diagnostic procedure	Refer to page
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-35
			Check key cylinder switch (crew cab)	DLK-37
		—	Check Intermittent Incident	GI-38
	Security indicator does not turn ON.		Check vehicle security indicator	SEC-32
			Check Intermittent Incident	GI-38
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-38
3	Vehicle security alarm does not activate.	Horn alarm	Check horn switch	—
			Check Intermittent Incident	GI-38
4	Vehicle security system cannot be canceled by ····	Key cylinder switch	Check key cylinder switch (king cab)	DLK-35
			Check key cylinder switch (crew cab)	DLK-37
		—	Check Intermittent Incident	GI-38

*: Check the system is in the armed phase.

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS SYMPTOMS

Symptom Table

INFOID:0000000003789257

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-32
	2. Check Intermittent Incident	GI-38

ON-VEHICLE MAINTENANCE

PRE-INSPECTION FOR DIAGNOSTIC

Basic Inspection

INFOID:0000000003789258

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.

Security indicator lamp should illuminate.

OK >> GO TO 3.
NG >> Perform diagnosis and repair. Refer to SEC-32, "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-66, "Symptom Table".
- Alarm (horn and headlamp do not operate. Refer to SEC-66, "Symptom Table".

4.CHECK ALARM CANCEL OPERATION

Unlock driver door using keyfob or ignition key.

Alarm (horn, headlamp and hazard lamp) should stop.

OK >> INSPECTION END.
NG >> Check door lock function. Refer to DLK-12, "DOOR LOCK AND UNLOCK SWITCH : System Description".

PRECAUTION

PRECAUTIONS

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

INFOID:0000000004187517

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.**

ON-VEHICLE REPAIR

VEHICLE SECURITY SYSTEM

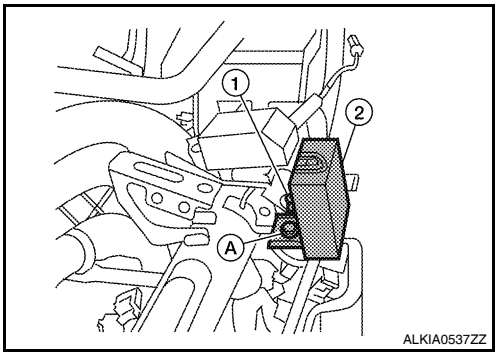
Removal and Installation

INFOID:0000000003789259

REMOTE KEYLESS ENTRY RECEIVER

Removal

1. Remove the instrument panel. Refer to IP-11, "Removal and Installation".
2. Disconnect the wire harness (1), remove the bolt (A), and the RKE receiver (2).



Installation

Installation is in the reverse order of removal.

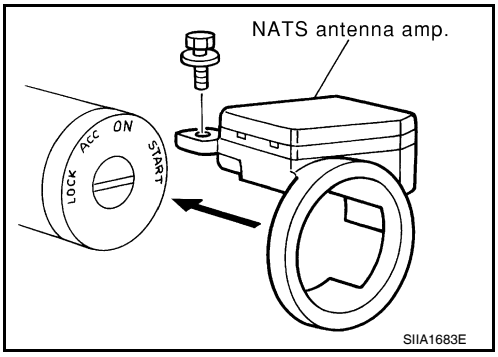
NATS ANTENNA AMP

NOTE:

- If NATS antenna amp. is not installed correctly, NVIS (NATS) system will not operate properly and "SELF-DIAG RESULTS" on CONSULT -III 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.
2. Remove the steering column covers. Refer to IP-10, "Exploded View".
3. Remove the bolt, disconnect the electrical connector, and remove the NATS antenna amp.



Installation

Installation is in the reverse order of removal.