

SECTION **SEC**

SECURITY CONTROL SYSTEM

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[WITH INTELLIGENT KEY SYSTEM]

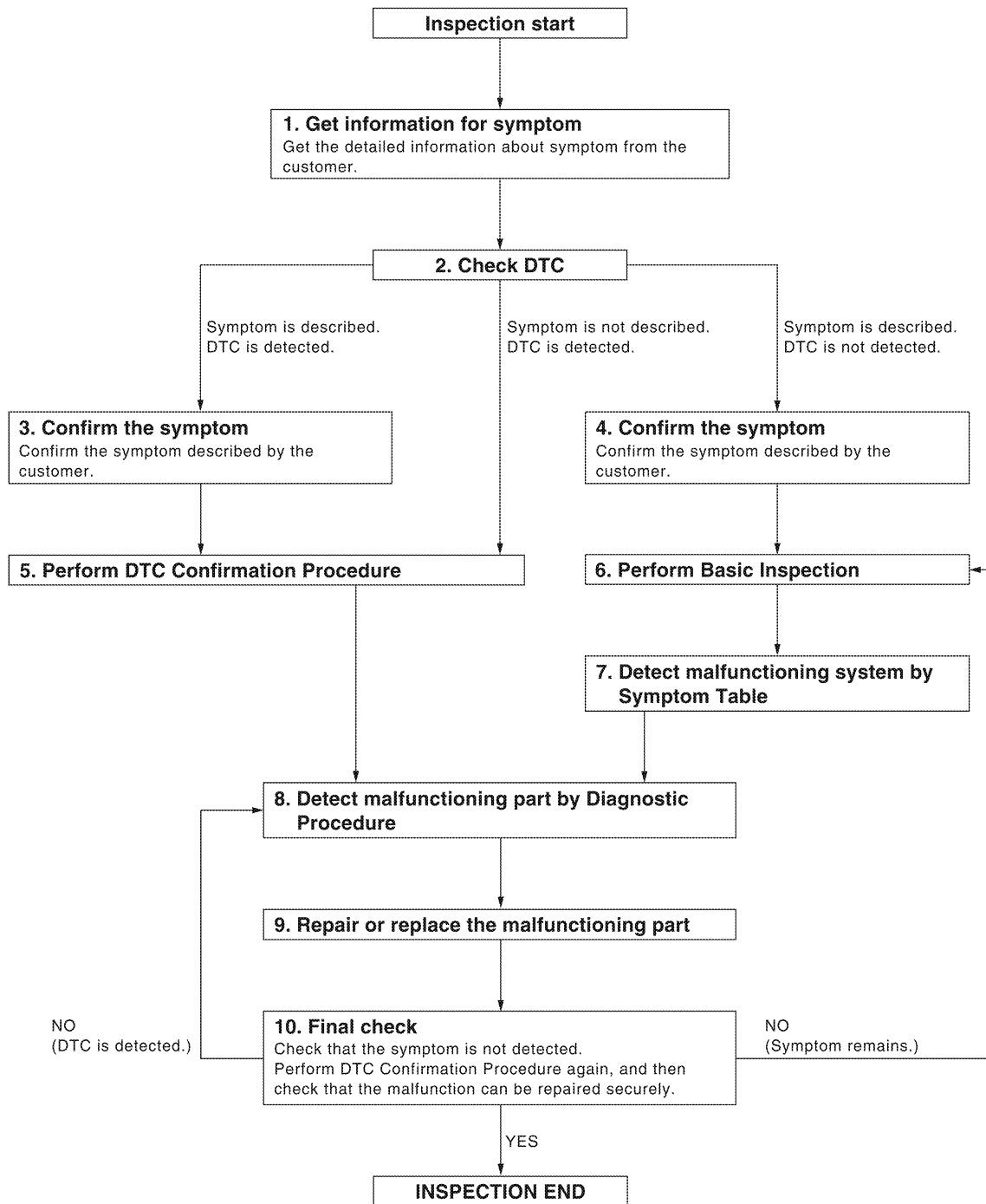
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000009823068

OVERALL SEQUENCE



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DETAILED FLOW

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[WITH INTELLIGENT KEY SYSTEM]

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 DTC for Intelligent Key unit and BCM.
2. Perform the following procedure if DTC is displayed.
 - Erase DTC.
 - Study the relationship between the cause detected by DTC and the symptom described by the customer.
3. Check related service bulletins for information.

Is any symptom described and any DTC detected?

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

3.CONFIRM THE SYMPTOM

Confirm the symptom described by the customer.
Connect CONSULT to the vehicle in "DATA MONITOR" mode and check real-time diagnosis results.
Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

4.CONFIRM THE SYMPTOM

Confirm the symptom described by the customer.
Connect CONSULT to the vehicle in "DATA MONITOR" mode and check real-time diagnosis results.
Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6.

5.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC Confirmation Procedure for the displayed DTC, and then check that DTC is detected again.
If two or more DTCs are detected, refer to [DLK-156, "DTC Inspection Priority Chart"](#) (Intelligent Key unit), [BCS-44, "DTC Inspection Priority Chart"](#) (BCM) and determine trouble diagnosis order.

Is DTC detected?

- YES >> GO TO 8.
- NO >> Refer to [GI-42, "Intermittent Incident"](#).

6.PERFORM BASIC INSPECTION

Perform Basic Inspection. Refer to [SEC-8, "Basic Inspection"](#).

>> GO TO 7.

7.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM TABLE

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

>> GO TO 8.

8.DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

NOTE:

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

>> GO TO 9.

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[WITH INTELLIGENT KEY SYSTEM]

9. REPAIR OR REPLACE THE MALFUNCTIONING PART

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

>> GO TO 10.

10. FINAL CHECK

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

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

Does the symptom reappear?

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

YES (Symptom remains)>>GO TO 6.

NO >> Inspection End.

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PRE-INSPECTION FOR DIAGNOSTIC

[WITH INTELLIGENT KEY SYSTEM]

< BASIC INSPECTION >

PRE-INSPECTION FOR DIAGNOSTIC

Basic Inspection

INFOID:000000009823069

The engine start function, door lock function, power distribution system and NATS-IVIS/NMS in the Intelligent Key system are closely related to each other regarding control. Narrow down the functional area in question by performing basic inspection to identify which function is malfunctioning. The vehicle security function can operate only when the door lock and power distribution system are operating normally. Therefore, it is easy to identify any factor unique to the vehicle security system by performing the vehicle security operation check after basic inspection.

1. CHECK DOOR LOCK OPERATION

1. Check the door lock for normal operation with the Intelligent Key controller and door request switch.
2. Successful door lock operation with the Intelligent Key and request SW indicates that the remote keyless entry receiver and inside key antenna required for engine start are functioning normally.
3. Identify the malfunctioning point by referring to the DLK section if the door cannot be unlocked.

Can the door be locked with the Intelligent Key and door request switch?

- YES >> GO TO 2.
NO >> Refer to [DLK-203. "Symptom Table"](#).

2. CHECK ENGINE STARTING

Checks that the engine starts when operating the Intelligent Key.

Does the engine start?

- YES >> GO TO 3.
NO >> Refer to [SEC-116. "Symptom Table"](#).

3. CHECK STEERING LOCKING

1. Does the steering lock when operating door switch after switching the power supply from ON position (or ACC position) to LOCK position?
2. If door switch is malfunctioning, BCM cannot lock the steering. If BCM does not detect DTC, steering lock solenoid is normal.

Does steering lock?

- YES >> GO TO 4.
NO >> Refer to [DLK-101. "Diagnosis Procedure"](#).

4. CHECK IGNITION KNOB SWITCH OPERATION

Press ignition knob switch to check switch operation.

Does the combination meter display any message?

- YES >> GO TO 5.
NO >> Refer to [SEC-55. "Diagnosis Procedure"](#).

5. CHECK VEHICLE SECURITY SYSTEM

1. Check the vehicle security system for normal operation.
2. The vehicle security function can operate only when the door lock and power distribution functions are operating normally. Therefore, it is easy to identify any factor unique to the vehicle security by performing the vehicle security operation check after this basic inspection.

>> Go to [SEC-8. "Vehicle Security Operation Check"](#).

Vehicle Security Operation Check

INFOID:000000009823070

1. INSPECTION START

Turn ignition switch "OFF".

NOTE:

Before starting operation check, open front windows.

>> GO TO 2

PRE-INSPECTION FOR DIAGNOSTIC

[WITH INTELLIGENT KEY SYSTEM]

< BASIC INSPECTION >

2. CHECK SECURITY INDICATOR LAMP

1. Lock doors using Intelligent Key or mechanical key.
2. Check that security indicator lamp illuminates for 30 seconds.

Security indicator lamp should illuminate.

YES >> GO TO 3

NO >> Perform diagnosis and repair. Refer to [SEC-58, "Diagnosis Procedure"](#).

3. CHECK ALARM FUNCTION

1. After 30 seconds, security indicator lamp will start to blink.
2. Open any door before unlocking with Intelligent Key or mechanical key, or open back door or glass hatch without the presence of Intelligent 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-116, "Symptom Table"](#).
- Alarm (horn and headlamps) does not operate. Refer to [SEC-116, "Symptom Table"](#).

4. CHECK ALARM CANCEL OPERATION

Unlock any door using Intelligent Key or mechanical key.

Alarm (horn and headlamps) should stop.

YES >> Inspection End.

NO >> Check door lock function. Refer to [SEC-117, "Symptom Table"](#).

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INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[WITH INTELLIGENT KEY SYSTEM]

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement

INFOID:000000009823071

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

ECM RE-COMMUNICATING FUNCTION

ECM RE-COMMUNICATING FUNCTION : Description

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

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

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

NOTE:

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

ECM RE-COMMUNICATING FUNCTION : Special Repair Requirement

INFOID:000000009823073

1. PERFORM ECM RE-COMMUNICATING FUNCTION

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

Can engine be started?

YES >> Procedure is completed.

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

INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

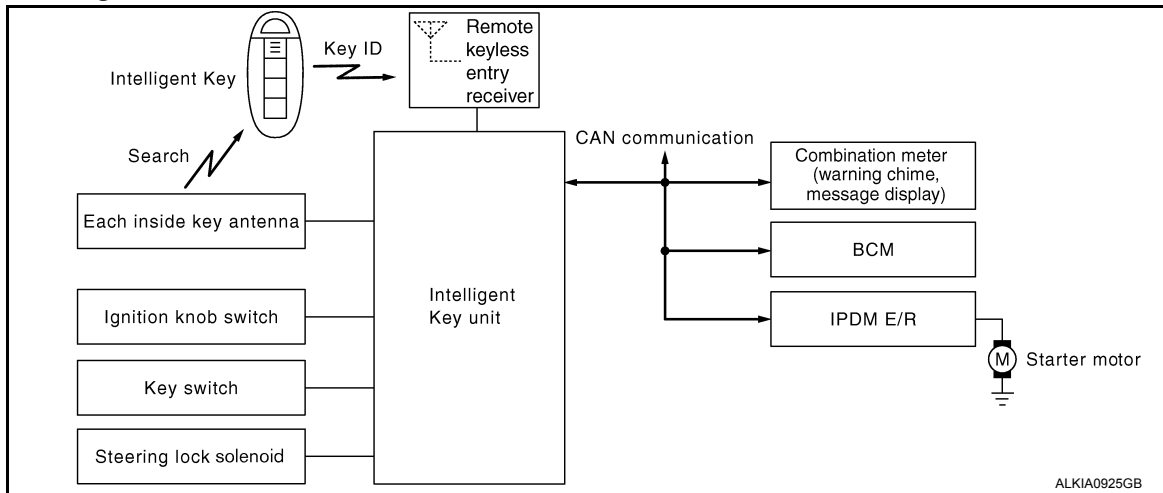
< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

SYSTEM DESCRIPTION

INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

System Diagram



System Description

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INPUT/OUTPUT SIGNAL CHART

Intelligent Key Unit

| Switch/Input signal | Input signal to Intelligent Key unit | Intelligent Key unit function | Actuator/Output signal |
|--|---|-------------------------------|--|
| Key switch | Mechanical key (insert/remove) | Engine start function | <ul style="list-style-type: none"> KEY warning lamp/buzzer Steering lock unit Starter relay request (to IPDM E/R) Inside key antenna (Front and rear center console, overhead console, luggage area) Key interlock solenoid |
| Ignition knob switch | Ignition knob (push/release) | | |
| Steering lock unit | Steering lock (lock/unlock) | | |
| Inside key antenna (Front and rear center console, overhead console, luggage area) | Intelligent Key (inside antenna detection area or not.) | | |

IPDM E/R

| Switch/Input signal | Input signal to IPDM E/R | IPDM E/R function | Actuator/Output signal |
|---------------------------|--------------------------|-----------------------|--|
| Transmission range switch | P, N range | Engine start function | <ul style="list-style-type: none"> Starter relay Starter motor |

BCM

| Switch/Input signal | Input signal to BCM | BCM function | Actuator/Output signal |
|---------------------|-----------------------|-----------------------|--|
| Key switch | Brake (press/release) | Engine start function | <ul style="list-style-type: none"> Inside key antenna (Front and rear center console, overhead console, luggage area) |

SYSTEM DESCRIPTION

- The engine start function of Intelligent Key system is a system that makes it possible to start and stop the engine without using the key. It verifies the electronic ID using two-way communications when pressing the ignition knob switch while carrying the Intelligent Key, which operates based on the results of electronic ID verification for Intelligent Key using two-way communications between the Intelligent Key and the vehicle.

NOTE:

The driver should carry the Intelligent Key at all times.

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INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

- Intelligent Key has 2 IDs (for Intelligent Key and for NATS). It can perform the door lock/unlock operation and the engine start operation when the registered Intelligent Key is carried.
- When the Intelligent Key battery is discharged, it can be used as emergency back-up by inserting the mechanical key set in the Intelligent Key to the ignition key cylinder. At that time, perform the NATS ID verification. If it is used when the Intelligent Key is carried, perform the Intelligent Key ID verification.
- If the ID is successfully verified, and when the ignition knob switch is pressed, steering lock will be released and initiating the engine will be possible.
- The door lock/unlock operation can be performed when the Intelligent Key battery is discharged, by operating the driver door key cylinder using the mechanical key set in the Intelligent Key.
- Up to 4 Intelligent Keys can be registered (including the standard Intelligent Key) on request from the owner.

NOTE:

- Refer to [BCS-16, "COMMON ITEM : CONSULT Function \(BCM - COMMON ITEM\)"](#) for any functions other than engine start function of Intelligent Key system.

PRECAUTIONS FOR INTELLIGENT KEY SYSTEM

- **For vehicles equipped with the Intelligent Key system, the transponder [the chip for NATS ID verification] is integrated into the Intelligent Key. Therefore, the Intelligent Key alone is capable of providing security clearance for the engine to start. Also, when the mechanical key alone is inserted into the key cylinder, performs the NATS ID verification to allow the engine to start. For vehicles without Intelligent Key system, the transponder is integrated into the mechanical key which must be inserted into the key cylinder to perform the NATS ID verification to allow the engine to start.**

OPERATION WHEN INTELLIGENT KEY IS CARRIED

1. When the ignition knob switch is ON, the Intelligent Key unit transmits the request signal to the Intelligent Key.
2. The Intelligent Key receives the request signal and transmits the Intelligent Key ID signal to the Intelligent Key unit.
3. The Intelligent Key unit receives the Intelligent Key ID signal and verifies it with the registered ID.
4. Intelligent Key unit transmits the steering lock/unlock signal to steering lock unit if the verification results are OK. For detail of key warning lamp operation, refer to [DLK-117, "Diagnosis Procedure"](#).
5. Release of the steering lock.
6. BCM transmits the starter request signal via CAN communication to IPDM E/R and turns the starter relay in IPDM E/R ON if BCM judges that the engine start condition is satisfied.
7. IPDM E/R turns the starter control relay ON when receiving the starter request signal.
8. When shift position is in P or N position, battery power is supplied through the starter relay and operate the starter motor and to start the cranking.

CAUTION:

If a malfunction is detected in the Intelligent Key system, the "NO KEY" warning message will be displayed in the combination meter. At that time, the engine cannot be started.

OPERATION RANGE

Engine can be started when Intelligent Key is inside the vehicle. However, sometimes engine might not start when Intelligent Key is on instrument panel or in glove box.

OPERATION WHEN MECHANICAL KEY IS USED

When the Intelligent Key battery is discharged, performs the NATS ID verification between the integrated transponder and BCM by inserting the mechanical key into the key cylinder, and then the engine can be started. For details relating to starting the engine using mechanical key, refer to [SEC-15, "System Description"](#).

STEERING LOCK OPERATION

Steering is locked by steering lock unit when ignition switch is in the LOCK position (the ignition knob is released) and key switch is OFF (key is removed from ignition key cylinder).

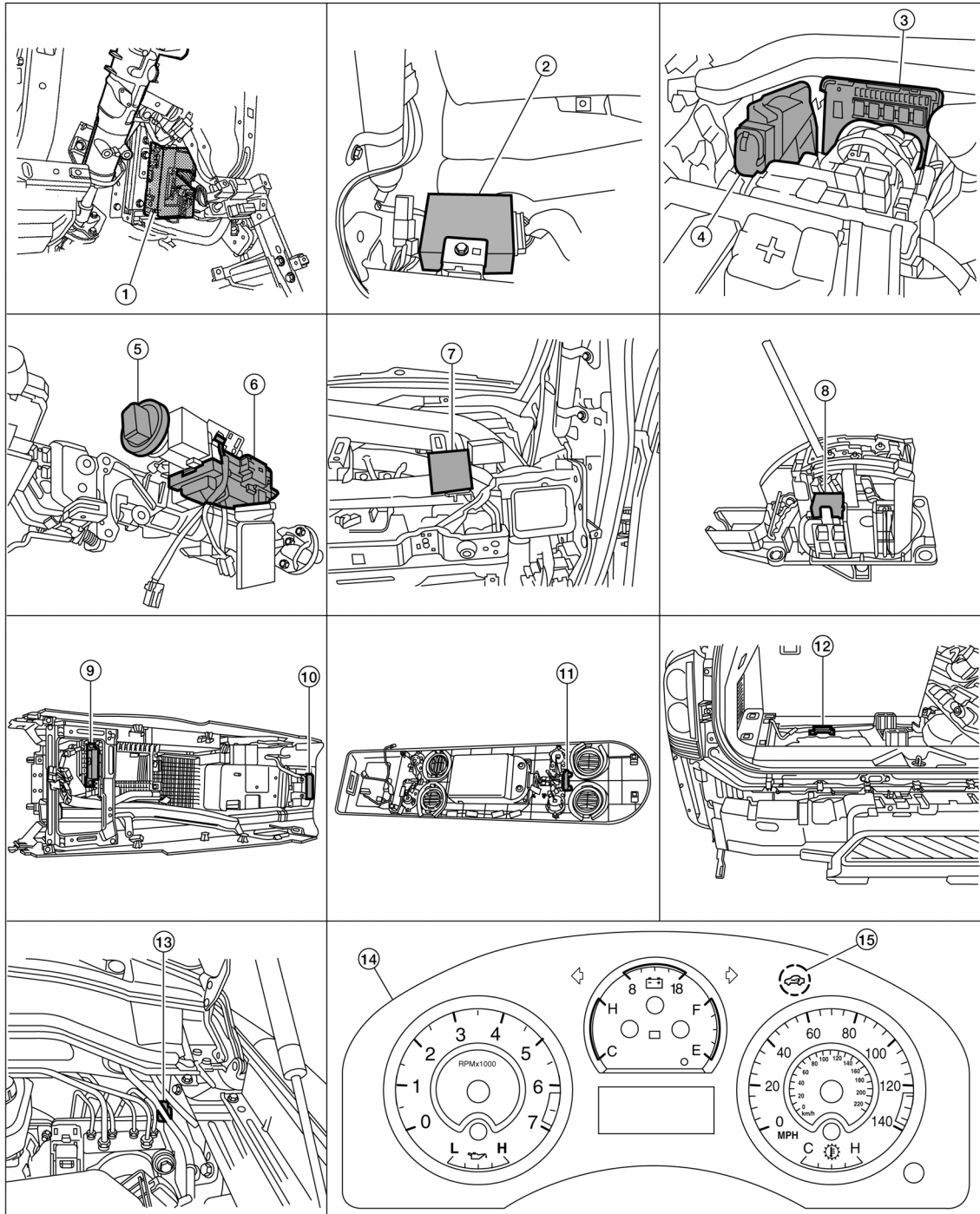
INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Component Parts Location

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- | | | |
|---|---|--|
| 1. BCM M18, M20 (view with instrument panel LH removed) | 2. Intelligent Key unit M70 (view with instrument panel LH removed) | 3. IPDM E/R E119, E120, E122, E124 |
| 4. ECM E16 | 5. Key switch and ignition knob switch M12 (view with steering column removed) | 6. Steering lock solenoid M15 |
| 7. Remote keyless entry receiver M25 (view with instrument panel RH removed) | 8. A/T shift selector (park position switch) M203 (view with center console removed) | 9. Center console area antenna (front) M210 (view with center console removed) |

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INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

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| 10. Center console area antenna (rear) M209 (view with center console removed) | 11. Overhead console area antenna R210 (view with overhead console removed) | 12. Luggage area antenna B76 (view with rear carpet removed) |
| 13. Intelligent Key warning buzzer E25 | 14. Combination meter M24 | 15. Vehicle security indicator lamp |

Component Description

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| Item | Function |
|---|---|
| Intelligent Key unit | Receives lock/unlock signal from remote keyless entry receiver, and then transmits to BCM. |
| BCM | Verifies the received signal from Intelligent Key, then informs ECM whether to allow engine start. |
| Remote keyless entry receiver | Receives lock/unlock signal from the Intelligent Key, and then transmits to Intelligent Key unit. |
| Intelligent Key | Transmits button operation to remote keyless entry receiver. |
| Steering lock solenoid | Locks the steering wheel when the ignition key is off and the Intelligent Key is outside the vehicle. |
| Inside key antenna | Detects if Intelligent Key is inside the vehicle. |
| Intelligent Key warning buzzer | Warns the user of the lock/unlock condition and inappropriate operations with the buzzer sound. |
| A/T shift selector (park position switch) | Detects whether the shift lever is in park. |

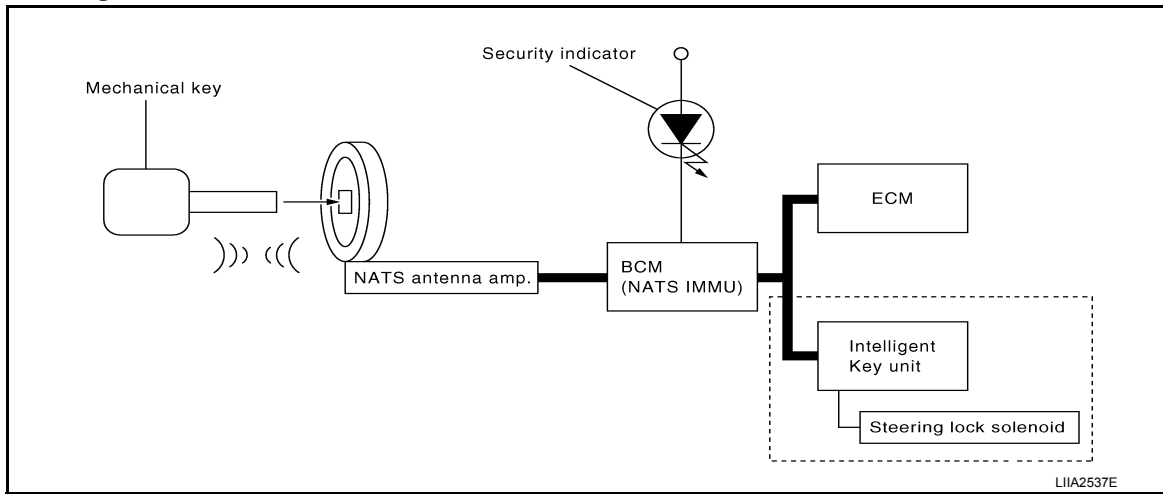
NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS)

System Diagram



System Description

INFOID:000000009823079

INPUT/OUTPUT SIGNAL CHART

Intelligent Key Unit

| Switch/Input signal | Input signal to BCM | BCM function | Actuator/Output signal |
|------------------------|--------------------------------|--------------|--------------------------|
| Ignition knob switch | Ignition knob (push/release) | NATS | • Steering lock solenoid |
| Key switch | Mechanical key (Insert/remove) | | |
| Steering lock solenoid | Steering (lock/unlock) | | |
| ECM | Engine status signal | | |

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-19, "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 4 keys.
- During trouble diagnosis or when the following parts have been replaced, and if mechanical key is added, registration* is required.

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

- ECM
- BCM

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NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS)

[WITH INTELLIGENT KEY SYSTEM]

< SYSTEM DESCRIPTION >

- Mechanical key
- Intelligent Key unit
- Remote keyless entry receiver
- Steering lock solenoid
- NATS trouble diagnosis, system initialization and additional registration of other mechanical key IDs must be carried out using CONSULT.
When NATS initialization has been completed, the ID of the inserted mechanical key or mechanical key IDs can be carried out.
- Possible symptom of NATS malfunction is “Engine cannot start”. Identify the possible causes according to “Work Flow”, Refer to [SEC-5. "Work Flow"](#).
- If ECM other than Genuine NISSAN is installed, the engine cannot be started. For ECM replacement procedure, refer to [SEC-10. "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 Intelligent Key is necessary for this procedure. Before starting the registration operation collect all registered Intelligent 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 Intelligent Key ID registration is the procedure that registers the ID to Intelligent Key unit.
- When performing the Intelligent 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 mechanical key.

SECURITY INDICATOR

- Always flashes with ignition knob released (ignition knob switch: LOCK) condition on ignition knob LOCK position.
- Always flashes with ignition knob released (ignition knob switch: LOCK) condition on mechanical key removed 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.

- **Intelligent Key unit**
- **BCM**
- **ECM**
- **Mechanical key**
- **Steering lock solenoid**
- **NATS antenna amp.**

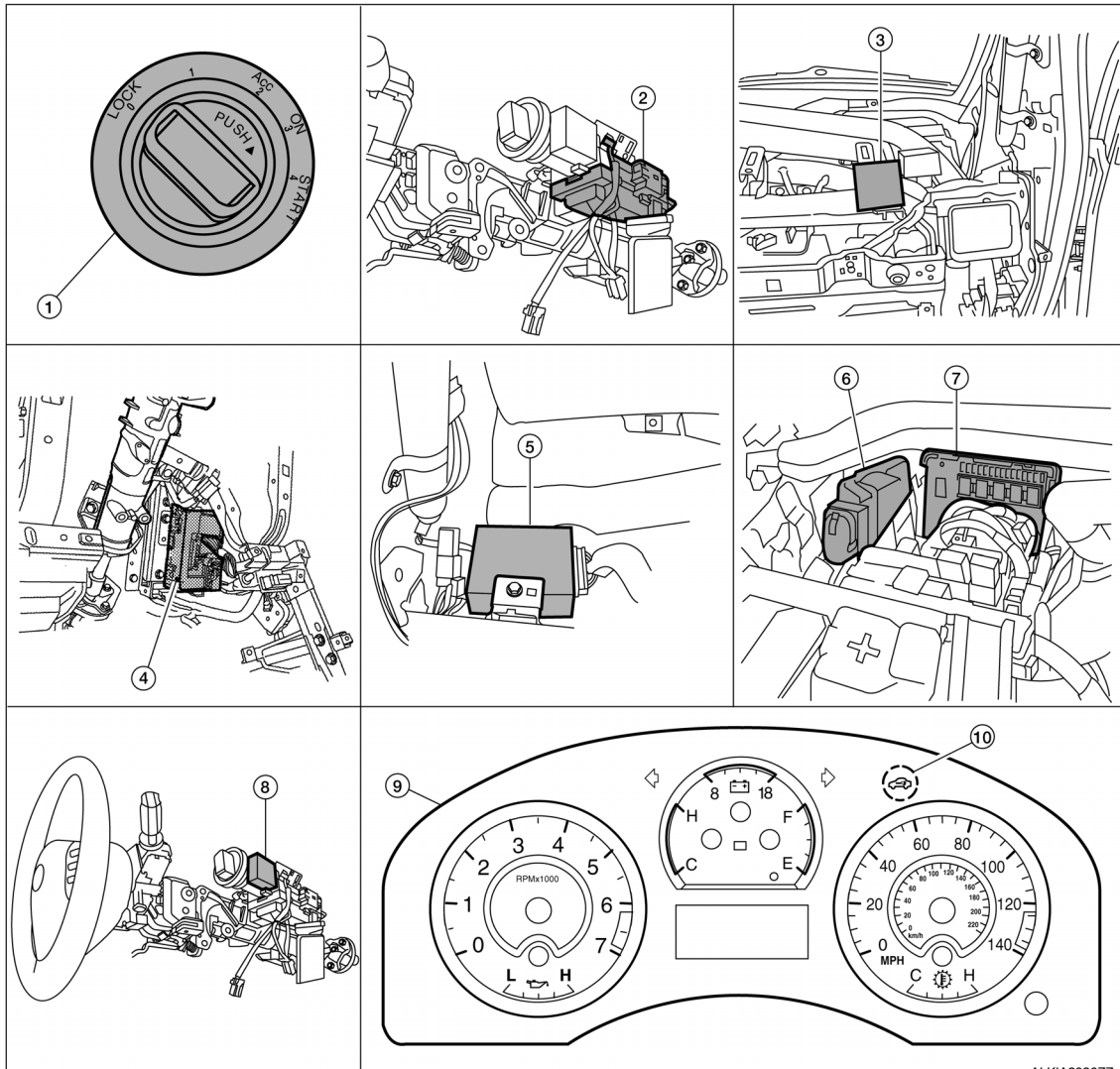
NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Component Parts Location

INFOID:000000009823080



- | | | |
|---|--|---|
| 1. Key switch and ignition knob switch M12 | 2. Steering lock solenoid M15 (view with steering column removed) | 3. Remote keyless entry receiver M25 (view with instrument panel RH removed) |
| 4. BCM M18, M20 (view with instrument panel LH removed) | 5. Intelligent Key unit M70 (view with instrument panel LH removed) | 6. ECM E16 |
| 7. IPDM E/R E119, E120, E121, E122, E124 (view with cover removed) | 8. NATS antenna amp. M21 | 9. Combination meter M24 |
| 10. Security indicator lamp | | |

Component Description

INFOID:000000009823081

| Item | Function |
|-------------------------------|---|
| Intelligent Key unit | Receives lock/unlock signal from remote keyless entry receiver, and then transmits to BCM. |
| BCM | Controls the door lock function and room lamp function. |
| Remote keyless entry receiver | Receives lock/unlock signal from the Intelligent Key, and then transmits to Intelligent Key unit. |
| Intelligent Key | Transmits button operation to remote keyless entry receiver. |
| Steering lock solenoid | Locks the steering wheel when the ignition key is off and the Intelligent Key is outside the vehicle. |

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SEC

NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

| Item | Function |
|--------------------------------|---|
| Inside key antenna | Detects if Intelligent Key is inside the vehicle. |
| Intelligent Key warning buzzer | Warns the user of the lock/unlock condition and inappropriate operations with the buzzer sound. |
| Ignition knob switch | Monitors the status of the ignition knob switch. |
| NATS antenna amp. | Detects the mechanical key presence in the ignition key cylinder. |
| Security indicator | Indicates the status of the security system. |
| IPDM E/R | Monitors the ignition switch and the park switch signal from the TCM. |

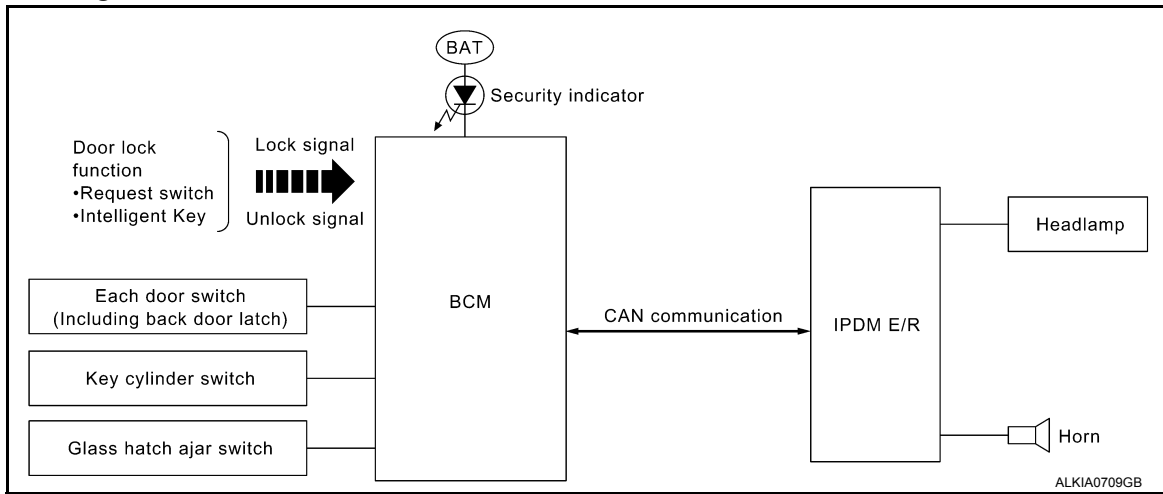
VEHICLE SECURITY SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

< SYSTEM DESCRIPTION >

VEHICLE SECURITY SYSTEM

System Diagram



System Description

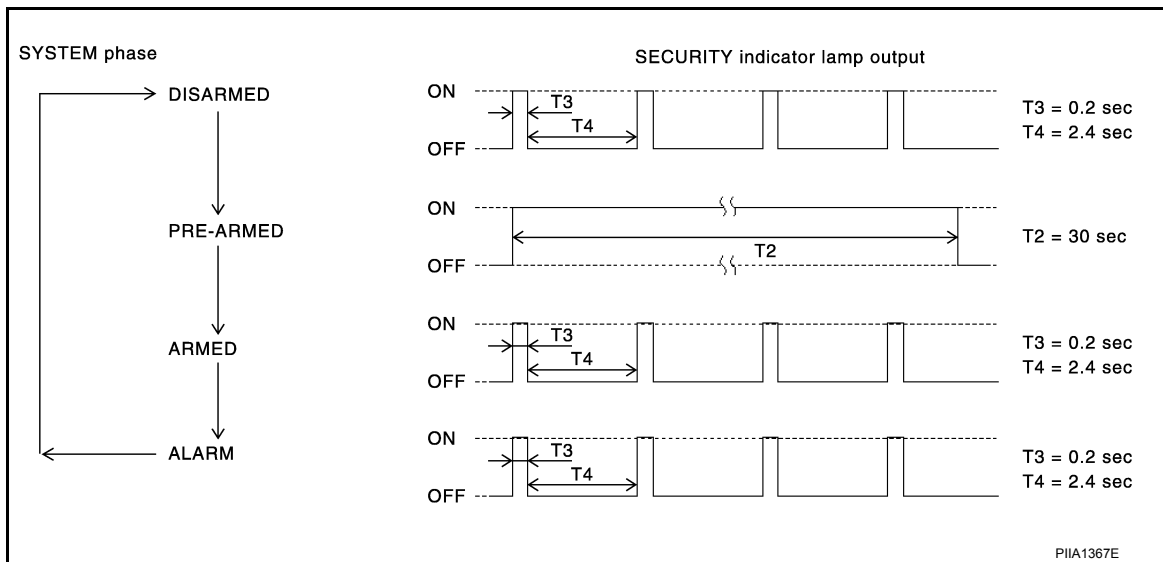
INFOID:000000009823083

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 Intelligent Key, door request switch 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 45 seconds.

- Any door is opened.

VEHICLE SECURITY SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

< SYSTEM DESCRIPTION >

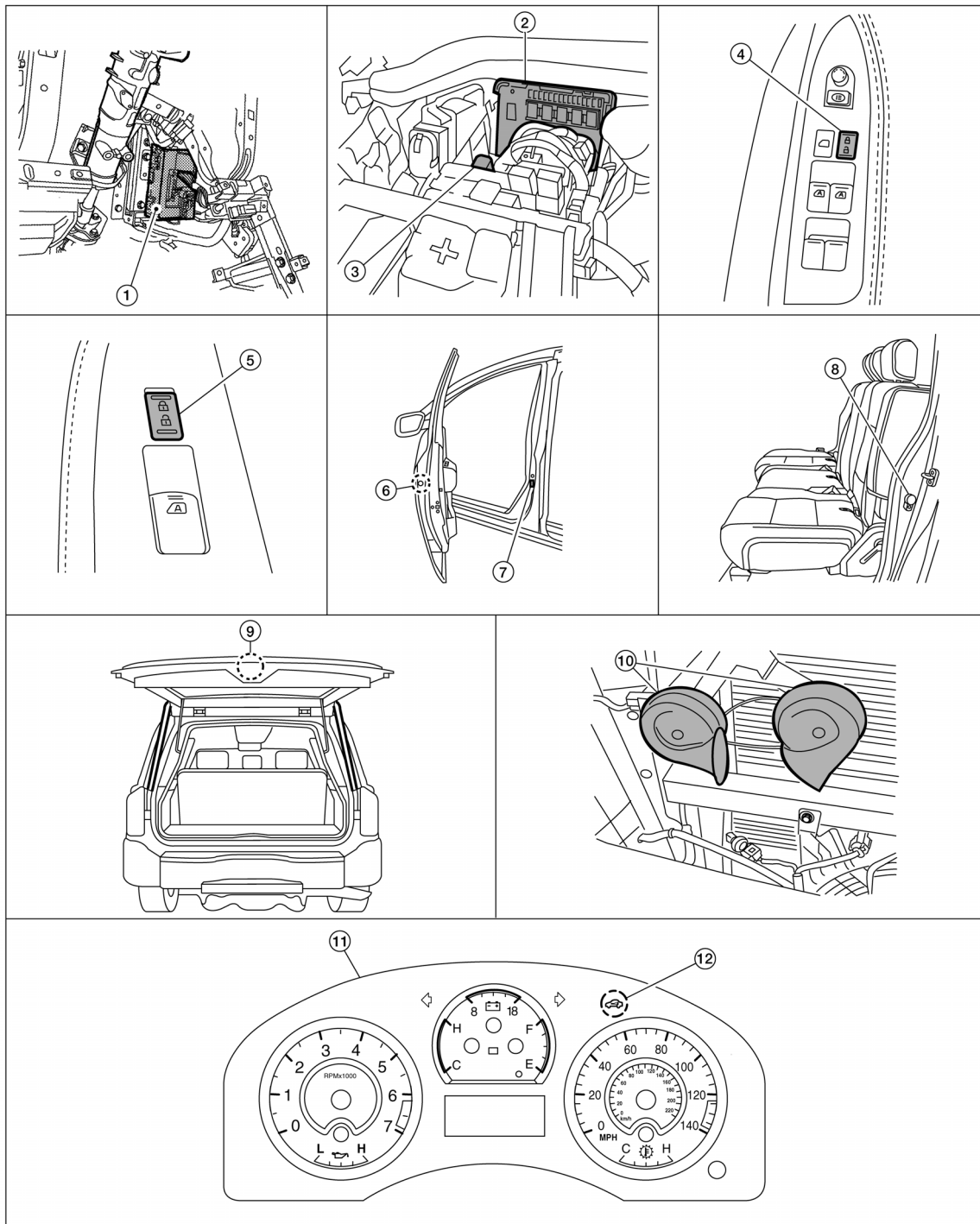
Condition of Deactivating The System

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

- Unlock the doors with Intelligent Key or door request switch.
- Use the mechanical key to unlock the driver door using the door key cylinder.

Component Parts Location

INFOID:000000009823084



ALKIA2327ZZ

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
5. Power window and door lock/unlock switch RH D105
6. Front door lock assembly LH (key cylinder switch) D14

VEHICLE SECURITY SYSTEM

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

- | | | |
|---|---------------------------------------|--|
| 7. Front door switch LH B8 RH B108 | 8. Rear door switch LH B18 RH B116 | 9. Back door latch (door ajar switch) D503 Glass hatch ajar switch D707 |
| 10. Horn E3 (view with front grille removed) | 11. Combination meter M24 | 12. Security indicator lamp |

A

Component Description

INFOID:000000009823085

B

| Item | Function |
|--------------------|--|
| BCM | Controls the door lock function and room lamp function. |
| 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 headlamp operation. |
| Horn | Sounds when the vehicle security system is triggered. |

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DIAGNOSIS SYSTEM (BCM)

[WITH INTELLIGENT KEY SYSTEM]

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM)

COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:000000009823086

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

| Direct Diagnostic Mode | Description |
|------------------------|--|
| ECU Identification | The BCM part number is displayed. |
| Self Diagnostic Result | The BCM self diagnostic results are displayed. |
| Data Monitor | The BCM input/output data is displayed in real time. |
| Active Test | The BCM activates outputs to test components. |
| Work support | The settings for BCM functions can be changed. |
| Configuration | <ul style="list-style-type: none"> The vehicle specification can be read and saved. The vehicle specification can be written when replacing BCM. |
| CAN Diag Support Mntr | The result of transmit/receive diagnosis of CAN communication is displayed. |

SYSTEM APPLICATION

BCM can perform the following functions.

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

DIAGNOSIS SYSTEM (BCM)

[WITH INTELLIGENT KEY SYSTEM]

< SYSTEM DESCRIPTION >

IMMU

IMMU : CONSULT Function (BCM - IMMU)

INFOID:000000009823087

DATA MONITOR

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

ACTIVE TEST

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

THEFT ALM

THEFT ALM : CONSULT Function (BCM - THEFT ALM)

INFOID:000000009823088

DATA MONITOR

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

* : with Intelligent Key

** : without Intelligent Key

ACTIVE TEST

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

WORK SUPPORT

| Support Item | Setting | Description |
|--------------------|---------|---------------------|
| SECURITY ALARM SET | Off | Security alarm OFF. |
| | On* | Security alarm ON. |

DIAGNOSIS SYSTEM (BCM)

[WITH INTELLIGENT KEY SYSTEM]

< SYSTEM DESCRIPTION >

| Support Item | Setting | Description |
|---------------|---------|--|
| THEFT ALM TRG | Off/On | The switch which triggered vehicle security alarm is recorded [On]. This mode is able to confirm and erase the record of vehicle security alarm. The trigger data can be erased by touching [CLEAR]. |
| | CLEAR | |

*: Initial setting

DIAGNOSIS SYSTEM (INTELLIGENT KEY UNIT)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

DIAGNOSIS SYSTEM (INTELLIGENT KEY UNIT)

CONSULT Function (INTELLIGENT KEY)

INFOID:000000009823089

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with Intelligent Key unit.

| Diagnosis mode | Function Description |
|------------------------|---|
| ECU Identification | The Intelligent Key unit part number is displayed. |
| Self Diagnostic Result | Displays the diagnosis results judged by Intelligent Key unit. |
| Data Monitor | The Intelligent Key unit input/output signals are displayed. |
| Active Test | The signals used to activate each device are forcibly supplied from Intelligent Key unit. |
| Work support | Changes the setting for each system function. |
| Can Diag Support Mntr | Monitors the reception status of CAN communication viewed from Intelligent Key unit. |

SELF-DIAG RESULT

Refer to [DLK-157. "DTC Index"](#).

DATA MONITOR

| Monitor Item | Condition |
|-----------------|--|
| PUSH SW | Indicates [ON (pushed)/OFF (released)] condition of ignition knob switch. |
| KEY SW | Indicates [ON (inserted)/OFF (removed)] condition of key switch. |
| DR REQ SW | Indicates [ON (pressed)/OFF (released)] condition of door request switch (driver side). |
| AS REQ SW | Indicates [ON (pressed)/OFF (released)] condition of door request switch (passenger side). |
| IGN SW | Indicates [ON (ON or START position)/OFF (other than ON and START position)] condition of ignition switch ON position. |
| ACC SW | Indicates [ON/OFF] condition of ignition switch ACC position. |
| STOP LAMP SW | Indicates [ON/OFF] condition of stop lamp switch. |
| P RANGE SW | Indicates [ON/OFF] position of shift lever park position switch. |
| DOOR LOCK SIG | Indicates [ON/OFF] condition of LOCK signal from Intelligent Key. |
| DOOR UNLOCK SIG | Indicates [ON/OFF] condition of UNLOCK signal from Intelligent Key. |
| KEYLESS PANIC | Indicates [ON (pressed)/OFF (released)] condition of Intelligent Key panic button. |
| KEYLS PBD SIG | Indicates [ON (pressed)/OFF (released)] condition of Intelligent Key back door button. |
| DOOR SW DR | Indicates [OPEN/CLOSE] condition of front door switch (driver side) from BCM via CAN communication. |
| DOOR SW AS | Indicates [OPEN/CLOSE] condition of front door switch (passenger side) from BCM via CAN communication. |
| DOOR SW RR | Indicates [OPEN/CLOSE] condition of rear door switch (RH) from BCM via CAN communication. |
| DOOR SW RL | Indicates [OPEN/CLOSE] condition of rear door switch (LH) from BCM via CAN communication. |
| DOOR BK SW | Indicates [OPEN/CLOSE] condition of back door switch from BCM via CAN communication. |
| VEHICLE SPEED | Displays the vehicle speed signal received from combination meter by numerical value [km/h]. |

ACTIVE TEST

DIAGNOSIS SYSTEM (INTELLIGENT KEY UNIT)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

| Test item | Description |
|------------------|---|
| DOOR LOCK/UNLOCK | <p>This test is able to check door lock/unlock operation.</p> <ul style="list-style-type: none"> • ALL UNLK: All door lock actuators are unlocked. • DR UNLK: Door lock actuator (driver side) is unlocked. • AS UNLK: Door lock actuator (passenger side) is unlocked. • BK UNLK: This item is indicated, but inactive. • LOCK: All door lock actuator is locked. |
| ANTENNA | <p>This test is able to check Intelligent Key antenna operation. When the following condition are met, hazard warning lamps flash.</p> <ul style="list-style-type: none"> • ROOM ANT1: Center console area antenna (rear) and luggage area antenna detect Intelligent Key, when "ROOM ANT1" is selected. • ROOM ANT2: Center console area antenna (front) and overhead console area antenna detect Intelligent Key, when "ROOM ANT2" is selected. • LUG Ant: This selection is not used. • DR ANT: Outside key antenna (driver side) detects Intelligent Key, when "DR ANT" is selected. • AS ANT: Outside key antenna (passenger side) detects Intelligent Key, when "AS ANT" is selected. • BK DR ANT: Outside key antenna (rear bumper) detects Intelligent Key, when "BK DR ANT" is selected. |
| OUTSIDE BUZZER | <p>This test is able to check Intelligent Key warning buzzer operation.</p> <ul style="list-style-type: none"> • On • Off |
| INSIDE BUZZER | <p>This test is able to check warning chime in combination meter operation.</p> <ul style="list-style-type: none"> • Take Out: Take away warning chime sounds. • Knob: Ignition knob switch warning chime sounds. • Key: Key warning chime sounds. • Off |

WORK SUPPORT

| Support item | Description | Selection item | Condition |
|-------------------------------|---|----------------|-----------|
| CONFIRM KEY FOB ID | It can check whether Intelligent Key ID code is registered or not. | — | — |
| TAKE OUT FROM WINDOW WARN | Take away warning chime (from window) mode can be changed. | ON | Active |
| | | OFF | Inactive |
| LOW BATT OF KEY FOB WARN | Intelligent Key low battery warning mode can be changed. | ON | Active |
| | | OFF | Inactive |
| ANSWER BACK FUNCTION | Buzzer reminder operation can be changed. | ON | Active |
| | | OFF | Inactive |
| SELECTIVE UNLOCK FUNCTION | Anti-hijack mode can be changed. | ON | Active |
| | | OFF | Inactive |
| ANTI KEY LOCK IN FUNCTION | Key reminder function mode can be changed to operation with this mode. | ON | Active |
| | | OFF | Inactive |
| HORN WITH KEYLESS LOCK | Horn reminder function mode by Intelligent Key button can be selected with this mode. | ON | Active |
| | | OFF | Inactive |
| HAZARD ANSWER BACK | Hazard reminder operation mode can be changed. | LOCK/UNLOCK | Active |
| | | LOCK ONLY | |
| | | UNLOCK ONLY | |
| | | OFF | Inactive |
| ANSWER BACK WITH I-KEY LOCK | Buzzer reminder operation (lock operation) mode by each door request switch can be changed. | HORN CHIRP | Active |
| | | BUZZER | |
| | | OFF | Inactive |
| ANSWER BACK WITH I-KEY UNLOCK | Buzzer reminder operation (unlock operation) mode by each door request switch can be changed. | ON | Active |
| | | OFF | Inactive |

DIAGNOSIS SYSTEM (INTELLIGENT KEY UNIT)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

| Support item | Description | Selection item | Condition | |
|-----------------------|---|----------------|-----------|---|
| AUTO RELOCK TIMER | Auto door lock operation mode can be changed. | 1 min | Active | A |
| | | 5 min | | B |
| | | OFF | Inactive | |
| PANIC ALARM DELAY | Panic alarm button pressing time on Intelligent Key button can be selected from the following with this mode. | 0.5 sec | Active | |
| | | 1.5 sec | | C |
| | | OFF | Inactive | |
| P/W DOWN DELAY | Unlock button pressing time on Intelligent Key button can be selected from the following with this mode. | 3 sec | Active | |
| | | 5 sec | | D |
| | | OFF | Inactive | |
| ENGINE START BY I-KEY | Engine start function (by Intelligent Key) mode can be changed. | ON | Active | |
| | | OFF | Inactive | E |
| LOCK/UNLOCK BY I-KEY | Door lock function by door request switch can be changed. | ON | Active | |
| | | OFF | Inactive | F |

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U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:000000009823090

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-46, "CAN Communication Signal Chart"](#).

DTC Logic

INFOID:000000009823091

DTC DETECTION LOGIC

| DTC | CONSULT display description | DTC Detection Condition | Possible cause |
|-------|-----------------------------|---|--|
| U1000 | CAN COMM CIRCUIT | When Intelligent Key unit 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. <ul style="list-style-type: none">• Transmission• Receiving (BCM)• Receiving (ECM)• Receiving (METER/M&A) |

Diagnosis Procedure

INFOID:000000009823092

1. PERFORM SELF DIAGNOSTIC

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

Is "CAN COMM CIRCUIT" displayed?

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

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

U1010 CONTROL UNIT (CAN)

Description

INFOID:000000009823093

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-46, "CAN Communication Signal Chart"](#).

DTC Logic

INFOID:000000009823094

DTC DETECTION LOGIC

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

Diagnosis Procedure

INFOID:000000009823095

1. REPLACE INTELLIGENT KEY UNIT

When DTC [U1010] is detected, replace Intelligent Key unit.

>> Replace Intelligent Key unit. Refer to [SEC-122, "Removal and Installation"](#).

Special Repair Requirement

INFOID:000000009823096

1. REQUIRED WORK WHEN REPLACING INTELLIGENT KEY UNIT

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

>> Inspection End.

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B2013 STRG COMM 1

Description

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Intelligent Key unit performs the ID verification with the steering lock solenoid and releases the steering lock if both Intelligent Key unit and steering lock solenoid ID are same. Intelligent Key unit starts the communication with the steering lock solenoid when Intelligent Key is carried into the vehicle and the ignition knob switch is pressed.

DTC Logic

INFOID:000000009823098

DTC DETECTION LOGIC

| DTC No. | Trouble diagnosis name | DTC detecting condition | Possible cause |
|---------|------------------------|---|------------------------|
| B2013 | STRG COMM 1 | The ID verification results between Intelligent Key unit and steering control unit are NG. The registration is necessary. | Steering lock solenoid |

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Press the ignition knob switch.
2. Check "Self diagnostic result" with CONSULT.

Is DTC detected?

- YES >> Refer to [SEC-30. "Diagnosis Procedure"](#).
- NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823099

Regarding Wiring Diagram information, refer to [SEC-84. "Wiring Diagram"](#).

1. PERFORM INITIALIZATION

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

Can the system be initialized and can steering lock be released with re-registered mechanical key?

- YES >> Steering lock solenoid was unregistered.
- NO >> GO TO 2

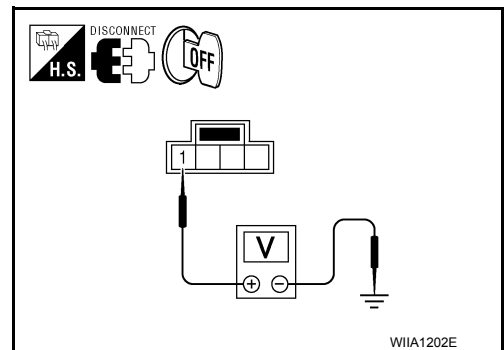
2. CHECK STEERING LOCK SOLENOID POWER SUPPLY-1

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

| Terminals | | Voltage (V) (Approx.) |
|----------------------------------|----------|--------------------------|
| (+) | (-) | |
| Steering lock solenoid connector | Terminal | |
| M15 | 1 | Battery voltage |

Is the inspection result normal?

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



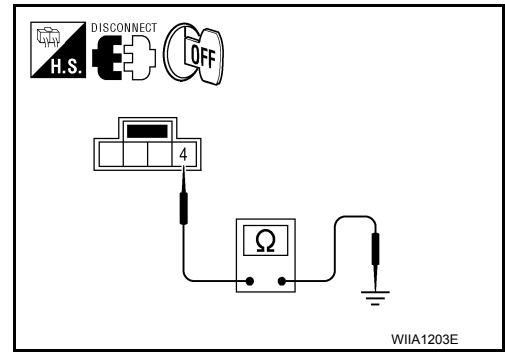
3. CHECK STEERING LOCK SOLENOID GROUND CIRCUIT

Check continuity between steering lock solenoid harness connector and ground.

| Terminals | | (-) | Continuity |
|--------------------------------------|---|--------|------------|
| (+) Steering lock solenoid connector | | | |
| Terminal | | | |
| M15 | 4 | Ground | Yes |

Is the inspection result normal?

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

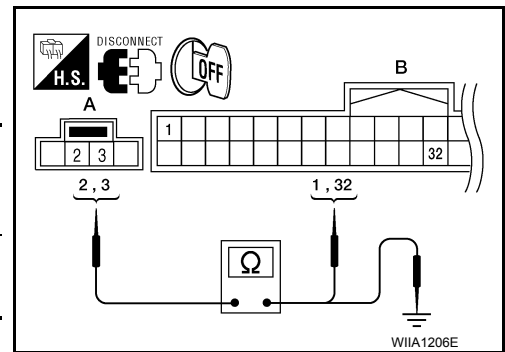


4. CHECK STEERING LOCK SOLENOID COMMUNICATION CIRCUITS

- Disconnect Intelligent Key unit connector.
- Check continuity between steering lock solenoid connector (A) M15 terminals 2, 3 and Intelligent Key unit connector (B) M70 terminals 1, 32.

| Terminals | | | | Continuity |
|----------------------------------|----------|--------------------------------|----------|------------|
| Steering lock solenoid connector | Terminal | Intelligent Key unit connector | Terminal | |
| M15 | 2 | M70 | 1 | Yes |
| | 3 | | 32 | |

- Check continuity between steering lock solenoid connector (A) M15 terminals 2, 3 and ground.



| Terminals | | Terminals | Continuity |
|----------------------------------|---|-----------|------------|
| Steering lock solenoid connector | | | |
| M15 | 2 | Ground | No |
| | 3 | | |

Is the inspection result normal?

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

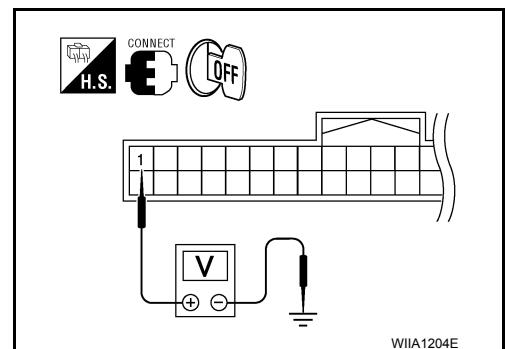
5. CHECK INTELLIGENT KEY UNIT POWER SUPPLY-2

- Connect Intelligent Key unit connector.
- Check voltage between Intelligent Key unit harness connector and ground.

| Terminals | | | Voltage (V) (Approx.) |
|------------------------------------|---|--------|-----------------------|
| (+) Intelligent Key unit connector | | (-) | |
| Terminal | | | |
| M70 | 1 | Ground | 5 |

Is the inspection result normal?

- YES >> GO TO 6
- NO >> Replace Intelligent Key unit. Refer to [SEC-122](#), "[Removal and Installation](#)".



6. CHECK STEERING LOCK SOLENOID COMMUNICATION CIRCUIT

- Connect steering lock solenoid connector.

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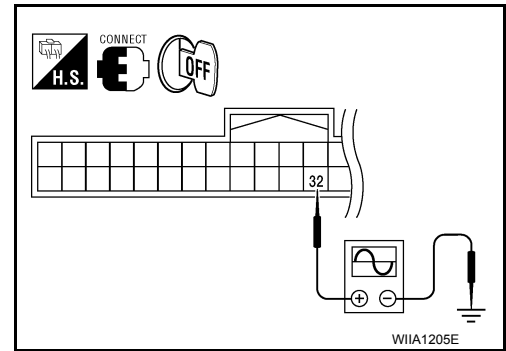
SEC

B2013 STRG COMM 1

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

- Using an oscilloscope, check voltage between Intelligent Key unit connector and ground.



| Terminals | | (-) | Condition | Voltage (V) (Approx.) |
|-----------------------------------|----------|--------|--------------------------------|--------------------------|
| (+) | Terminal | | | |
| Intelligent Key unit connector | | | | |
| M70 | 32 | Ground | Steering lock | |
| | | | Ignition knob is pushed | SIA1911J |
| | | | LOCK status | 5 |
| | | | LOCK ⇔ UNLOCK | JMKIA0433ZZ |
| | | | For 15 seconds after UNLOCK | 5 |
| | | | 15 seconds later UN- LOCK | 0 |

Is the inspection result normal?

YES >> Replace Steering lock solenoid.

NO >> Replace Intelligent Key unit. Refer to [SEC-122, "Removal and Installation"](#).

B2190 NATS ANTENNA AMP.

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2190 NATS ANTENNA AMP.

Description

INFOID:000000009823100

Performs ID verification through BCM and NATS antenna amplifier 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:000000009823101

DTC DETECTION LOGIC

| DTC No. | Trouble diagnosis name | DTC detecting condition | Possible cause |
|---------|------------------------|---|---|
| B2190 | NATS ANTENNA AMP | <ul style="list-style-type: none">Inactive communication between NATS antenna amp. and BCM.Mechanical key is malfunctioning. | <ul style="list-style-type: none">Harness or connectors (The NATS antenna amp. circuit is open or shorted)Mechanical keyNATS antenna amp.BCM |

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Insert mechanical key into the key cylinder.
2. Press the ignition knob switch.
3. Check "Self diagnostic result" with CONSULT.

Is DTC detected?

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

Diagnosis Procedure

INFOID:000000009823102

Regarding Wiring Diagram information, refer to [SEC-107, "Wiring Diagram - With Intelligent Key System"](#).

1.CHECK NATS ANTENNA AMP. INSTALLATION

Check NATS antenna amp. installation. Refer to [SEC-17, "Component Parts Location"](#).

Is the inspection result normal?

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

2.CHECK NVIS (NATS) IGNITION KEY ID CHIP

Start engine with another registered NATS ignition key.

Does the engine start?

- YES >>
 - Ignition key ID chip is malfunctioning.
 - Replace the ignition key.
 - Perform initialization with CONSULT.For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.

NO >> GO TO 3

3.CHECK POWER SUPPLY FOR NATS ANTENNA AMP.

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

B2190 NATS ANTENNA AMP.

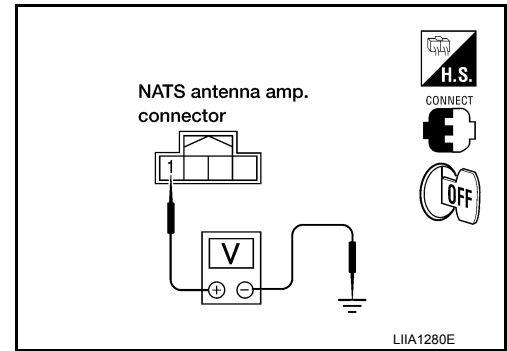
< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

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.

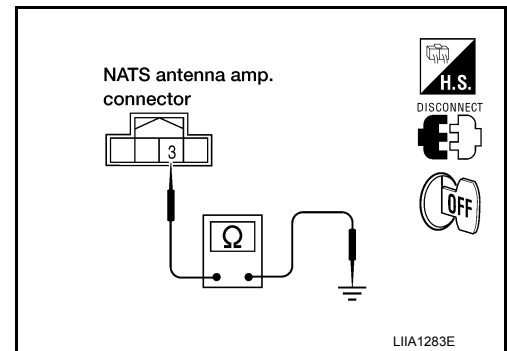
3 - Ground : **Continuity should exist.**

Is the inspection result normal?

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

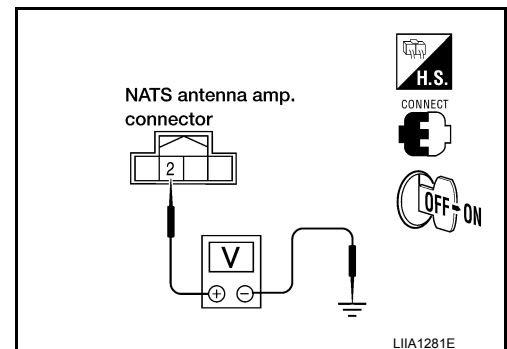
NOTE:

If harness is OK, replace BCM, refer to [BCS-54, "Removal and Installation"](#). Perform initialization with CONSULT. For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.



5. CHECK NATS ANTENNA AMP. SIGNAL LINE- 1

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



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

Is the inspection result normal?

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

NOTE:

B2190 NATS ANTENNA AMP.

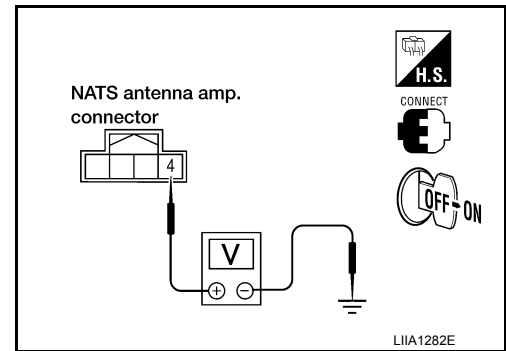
[WITH INTELLIGENT KEY SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

If harness is OK, replace BCM, refer to [BCS-54. "Removal and Installation"](#). Perform initialization with CONSULT. For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.

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-54. "Removal and Installation"](#). Perform initialization with CONSULT. For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.

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B2191 DIFFERENCE OF KEY

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2191 DIFFERENCE OF KEY

Description

INFOID:000000009823103

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:000000009823104

DTC DETECTION LOGIC

| DTC No. | Trouble diagnosis name | DTC detecting condition | Possible cause |
|---------|------------------------|---|----------------|
| B2191 | 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. Press the ignition knob switch.
3. Check "Self diagnostic result" with CONSULT.

Is DTC detected?

- YES >> Refer to [SEC-36. "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823105

1. PERFORM INITIALIZATION

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

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

- YES >> Mechanical key was unregistered.
NO >> BCM is malfunctioning.
 - Replace BCM. Refer to [BCS-54. "Removal and Installation"](#).
 - Perform initialization again

B2192 ID DISCORD, IMMUECM

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2192 ID DISCORD, IMMUECM

Description

INFOID:000000009823106

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:000000009823107

DTC DETECTION LOGIC

NOTE:

- If DTC B2192 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [SEC-28, "DTC Logic"](#).
- If DTC B2192 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [SEC-29, "DTC Logic"](#).

| DTC No. | Trouble diagnosis name | DTC detecting condition | Possible cause |
|---------|------------------------|--|---|
| B2192 | ID DISCORD BCM-ECM | The ID verification results between BCM and ECM are NG. The registration is necessary. | <ul style="list-style-type: none">• BCM• ECM |

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

- YES >> Refer to [SEC-37, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823108

1. PERFORM INITIALIZATION

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

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

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

2. REPLACE BCM

1. Replace BCM. Refer to [BCS-54, "Removal and Installation"](#).
2. Perform initialization with CONSULT. Re-register all mechanical keys. For initialization and registration of mechanical key. Refer to CONSULT Immobilizer mode and follow the on-screen instructions.

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

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

3. REPLACE ECM

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

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

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

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B2192 ID DISCORD, IMMU-ECM

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

4.CHECK INTERMITTENT INCIDENT

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

>> Inspection End

B2193 CHAIN OF ECM-IMMU

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2193 CHAIN OF ECM-IMMU

Description

INFOID:000000009823109

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:000000009823110

DTC DETECTION LOGIC

NOTE:

- If DTC B2193 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [SEC-28, "DTC Logic"](#).
- If DTC B2193 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [SEC-29, "DTC Logic"](#).

| DTC No. | Trouble diagnosis name | DTC detecting condition | Possible cause |
|---------|------------------------|--|---|
| B2193 | CHAIN OF BCM-ECM | Inactive communication between ECM and BCM | <ul style="list-style-type: none">• 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.

Is DTC detected?

- YES >> Refer to [SEC-39, "Diagnosis Procedure"](#).
NO >> Inspection End

Diagnosis Procedure

INFOID:000000009823111

1. REPLACE BCM

1. Replace BCM. Refer to [BCS-54, "Removal and Installation"](#).
2. Perform initialization with CONSULT.
For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.

Does the engine start?

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

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B2194 ID DISCORD IMMU-I-KEY

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2194 ID DISCORD IMMU-I-KEY

Description

INFOID:000000009823112

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

DTC Logic

INFOID:000000009823113

DTC DETECTION LOGIC

| DTC No. | Trouble diagnosis name | DTC detecting condition | Possible cause |
|---------|------------------------|---|--|
| B2194 | DISCORD BCM-I-KEY | The ID verification results between BCM and Intelligent Key unit are NG. The registration is necessary. | <ul style="list-style-type: none">• BCM• Intelligent Key unit |

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

- YES >> Refer to [SEC-40, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823114

1. PERFORM INITIALIZATION

1. Perform initialization with CONSULT. Re-register all mechanical keys.
For initialization and registration of mechanical key. Refer to CONSULT Immobilizer mode and follow the on-screen instructions.
2. Check "Self diagnostic result" with CONSULT.

Is DTC detected?

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

2. REPLACE BCM

1. Turn ignition switch OFF.
2. Replace BCM. Refer to [BCS-54, "Removal and Installation"](#).
3. Perform initialization with CONSULT. Re-register all mechanical keys.
For initialization and registration of mechanical key. Refer to CONSULT Immobilizer mode and follow the on-screen instructions.

Can the system be initialized and can the engine be started?

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

3. CHECK INTERMITTENT INCIDENT

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

>> Inspection End.

B2552 INTELLIGENT KEY

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2552 INTELLIGENT KEY

Description

INFOID:000000009823115

Intelligent Key unit performs engine start operation and steering lock control by crosschecking ID with the Intelligent Key.

DTC Logic

INFOID:000000009823116

DTC DETECTION LOGIC

| DTC No. | Trouble diagnosis name | DTC detecting condition | Possible cause |
|---------|------------------------|--|----------------------|
| B2552 | INTELLIGENT KEY UNIT | Malfunction is detected inside Intelligent Key unit. | Intelligent Key unit |

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

- YES >> Refer to [SEC-41, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823117

1. REPLACE INTELLIGENT KEY UNIT

1. Replace Intelligent Key unit. Refer to [SEC-122, "Removal and Installation"](#).
2. Perform initialization with CONSULT. Re-register all mechanical keys. Refer to CONSULT Immobilizer mode and follow the on-screen instructions.
3. Start the engine.

Does the engine start?

- YES >> Inspection End.
NO >> Perform "DTC confirmation procedure". Refer to [SEC-41, "DTC Logic"](#).

Special Repair Requirement

INFOID:000000009823118

1. REQUIRED WORK WHEN REPLACING INTELLIGENT KEY UNIT

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

>> Inspection End.

B2590 ID DISCORD BCM-I-KEY

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2590 ID DISCORD BCM-I-KEY

Description

INFOID:000000009823119

Intelligent Key unit performs the ID verification with BCM that allows the engine to start. BCM starts the engine if the ID is OK and prevents the engine from starting if the ID is not registered.

DTC Logic

INFOID:000000009823120

DTC DETECTION LOGIC

NOTE:

- If DTC B2590 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [SEC-28, "DTC Logic"](#).
- If DTC B2590 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [SEC-29, "DTC Logic"](#).

| DTC No. | Trouble diagnosis name | DTC detecting condition | Possible cause |
|---------|------------------------|---|--|
| B2590 | ID DISCORD BCM-I-KEY | The ID verification results between BCM and Intelligent Key unit are NG. The registration is necessary. | <ul style="list-style-type: none">• BCM• Intelligent Key unit |

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

- YES >> Refer to [SEC-42, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823121

1. PERFORM INITIALIZATION

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

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

- YES >> ID was unregistered.
NO >> BCM is malfunctioning.
 - Replace BCM. Refer to [BCS-54, "Removal and Installation"](#).
 - Perform initialization again

P1610 LOCK MODE

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

P1610 LOCK MODE

Description

INFOID:000000009823122

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:000000009823123

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. <ul style="list-style-type: none">• Unregistered mechanical key• BCM or ECM's malfunctioning. | — |

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

- YES >> Refer to [SEC-43. "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823124

1.CHECK ENGINE START FUNCTION

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

Does the engine start?

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

2.CHECK INTERMITTENT INCIDENT

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

>> Inspection End.

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P1611 ID DISCORD, IMMUECM

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

P1611 ID DISCORD, IMMUECM

Description

INFOID:000000009823125

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:000000009823126

DTC DETECTION LOGIC

NOTE:

- If DTC P1611 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [SEC-28, "DTC Logic"](#).
- If DTC P1611 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [SEC-29, "DTC Logic"](#).

| DTC No. | Trouble diagnosis name | DTC detecting condition | Possible cause |
|---------|------------------------|--|---|
| P1611 | ID DISCORD BCM-ECM | The ID verification results between BCM and ECM are NG. The registration is necessary. | <ul style="list-style-type: none">• BCM• ECM |

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

- YES >> Refer to [SEC-44, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823127

1.PERFORM INITIALIZATION

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

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

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

2.PEPLACE BCM

1. Replace BCM. Refer to [BCS-54, "Removal and Installation"](#).
2. Perform initialization with CONSULT. Re-register all mechanical keys.
For initialization and registration of mechanical key. Refer to CONSULT Immobilizer mode and follow the on-screen instructions.

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

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

3.PEPLACE ECM

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

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

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

P1611 ID DISCORD, IMMU-ECM

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

4.CHECK INTERMITENT INCIDENT

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

>> Inspection End.

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P1612 CHAIN OF ECM-IMMU

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

P1612 CHAIN OF ECM-IMMU

Description

INFOID:000000009823128

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:000000009823129

DTC DETECTION LOGIC

NOTE:

- If DTC P1612 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [SEC-28, "DTC Logic"](#).
- If DTC P1612 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [SEC-29, "DTC Logic"](#).

| DTC No. | Trouble diagnosis name | DTC detecting condition | Possible cause |
|---------|------------------------|--|---|
| P1612 | CHAIN OF ECM-IMMU | Inactive communication between ECM and BCM | <ul style="list-style-type: none">• 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.

Is DTC detected?

- YES >> Refer to [SEC-46, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823130

1. REPLACE BCM

1. Replace BCM. Refer to [BCS-54, "Removal and Installation"](#).
2. Perform initialization with CONSULT.
For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.

Does the engine start?

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

P1614 CHAIN OF IMMU-KEY

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

P1614 CHAIN OF IMMU-KEY

Description

INFOID:000000009823131

Performs ID verification through BCM and NATS antenna amplifier 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:000000009823132

DTC DETECTION LOGIC

| DTC No. | Trouble diagnosis name | DTC detecting condition | Possible cause |
|---------|------------------------|---|---|
| P1614 | CHAIN OF IMMU-KEY | <ul style="list-style-type: none">Inactive communication between NATS antenna amp. and BCM.Mechanical key is malfunctioning. | <ul style="list-style-type: none">Harness or connectors (The NATS antenna amp. circuit is open or shorted)Mechanical keyNATS antenna amp.BCM |

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Insert mechanical key into the key cylinder.
2. Press the ignition knob switch.
3. Check "Self diagnostic result" with CONSULT.

Is DTC detected?

- YES >> Refer to [SEC-47, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823133

Regarding Wiring Diagram information, refer to [SEC-107, "Wiring Diagram - With Intelligent Key System"](#).

1.CHECK NATS ANTENNA AMP. INSTALLATION

Check NATS antenna amp. installation. Refer to [SEC-17, "Component Parts Location"](#).

Is the inspection result normal?

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

2.CHECK NVIS (NATS) IGNITION KEY ID CHIP

Start engine with another registered NATS ignition key.

Does the engine start?

- YES >>
 - Ignition key ID chip is malfunctioning.
 - Replace the ignition key.
 - Perform initialization with CONSULT.For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.
- NO >> GO TO 3

3.CHECK POWER SUPPLY FOR NATS ANTENNA AMP.

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

P1614 CHAIN OF IMMU-KEY

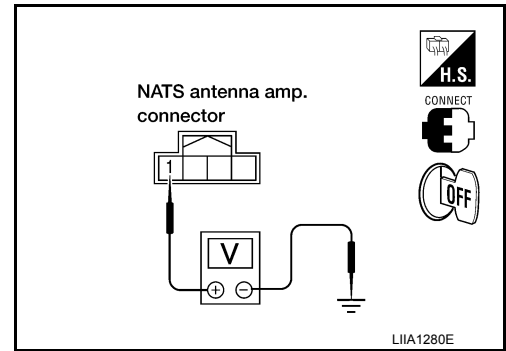
< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

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.

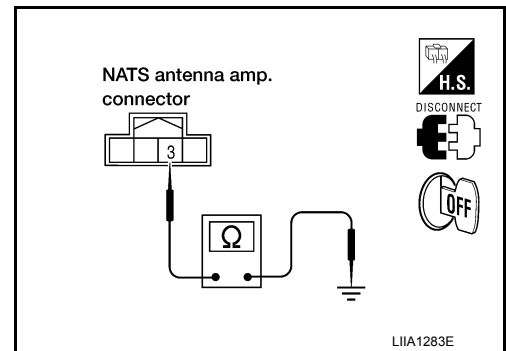
3 - Ground : **Continuity should exist.**

Is the inspection result normal?

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

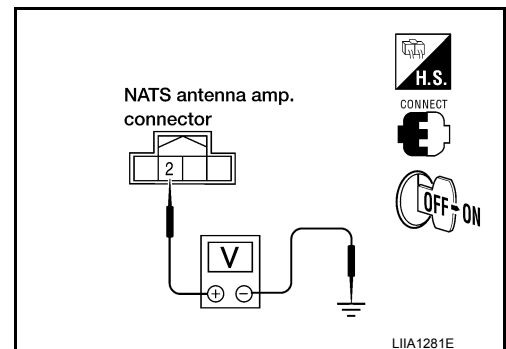
NOTE:

If harness is OK, replace BCM, refer to [BCS-54, "Removal and Installation"](#). Perform initialization with CONSULT. For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.



5. CHECK NATS ANTENNA AMP. SIGNAL LINE- 1

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



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

Is the inspection result normal?

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

NOTE:

P1614 CHAIN OF IMMU-KEY

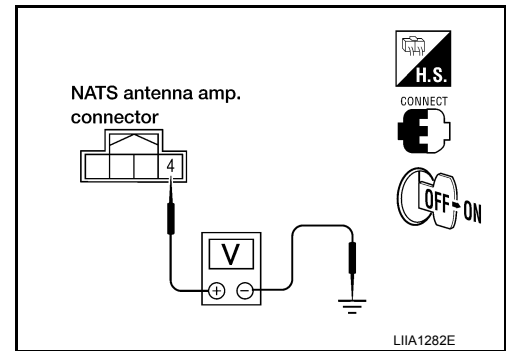
[WITH INTELLIGENT KEY SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

If harness is OK, replace BCM, refer to [BCS-54. "Removal and Installation"](#). Perform initialization with CONSULT. For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.

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-54. "Removal and Installation"](#). Perform initialization with CONSULT. For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.

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P1615 DIFFERENCE OF KEY

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

P1615 DIFFERENCE OF KEY

Description

INFOID:000000009823134

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:000000009823135

DTC DETECTION LOGIC

| DTC No. | Trouble diagnosis name | DTC detecting condition | Possible cause |
|---------|------------------------|---|----------------|
| 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. Press the ignition knob switch.
3. Check "Self diagnostic result" with CONSULT.

Is DTC detected?

- YES >> Refer to [SEC-50. "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823136

1. PERFORM INITIALIZATION

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

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

- YES >> Mechanical key was unregistered.
NO >> BCM is malfunctioning.
 - Replace BCM. Refer to [BCS-54. "Removal and Installation"](#).
 - Perform initialization again

POWER SUPPLY AND GROUND CIRCUIT

[WITH INTELLIGENT KEY SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

POWER SUPPLY AND GROUND CIRCUIT INTELLIGENT KEY UNIT

INTELLIGENT KEY UNIT : Diagnosis Procedure

INFOID:000000009823137

Regarding Wiring Diagram information, refer to [DLK-173. "Wiring Diagram"](#).

1. CHECK POWER SUPPLY CIRCUIT

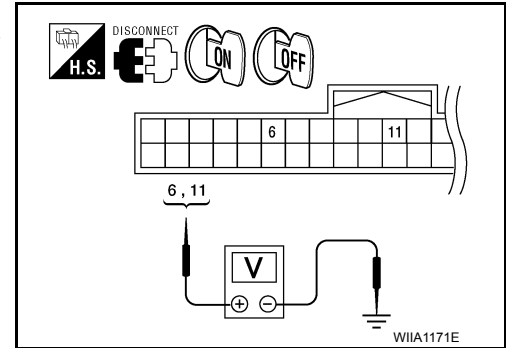
1. Turn ignition switch OFF.
2. Disconnect Intelligent Key unit connector.
3. Check voltage between Intelligent Key unit harness connector M70 terminals 6, 11 and ground.

| Connector | Terminals | | Ignition switch position | |
|-----------|-----------|--------|--------------------------|-----------------|
| | (+) | (-) | OFF | ON |
| M70 | 6 | Ground | 0V | Battery voltage |
| | 11 | | Battery voltage | Battery voltage |

Is the inspection result normal?

YES >> GO TO 2

NO >> Repair or replace Intelligent Key power supply circuit.



2. CHECK GROUND CIRCUIT

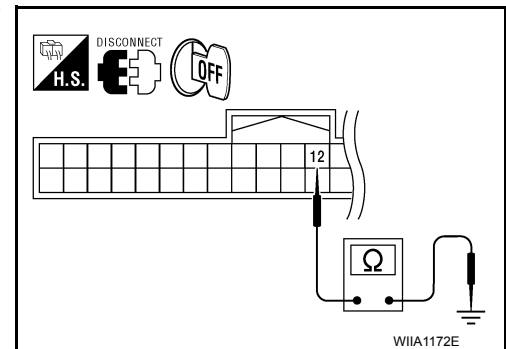
Check continuity between Intelligent Key unit harness connector M70 terminal 12 and ground.

12 - Ground : Continuity should exist.

Is the inspection result normal?

YES >> Power supply and ground circuits are OK.

NO >> Repair or replace the Intelligent Key unit ground circuit.



BCM

BCM : Diagnosis Procedure

INFOID:000000009823138

Regarding Wiring Diagram information, refer to [BCS-46. "Wiring Diagram"](#).

1. CHECK FUSES AND FUSIBLE LINK

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

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

Is the fuse blown?

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

POWER SUPPLY AND GROUND CIRCUIT

[WITH INTELLIGENT KEY SYSTEM]

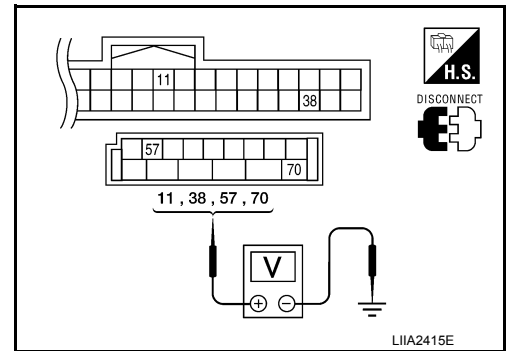
< DTC/CIRCUIT DIAGNOSIS >

NO >> GO TO 2

2. CHECK POWER SUPPLY CIRCUIT

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

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



Is the measurement value normal?

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

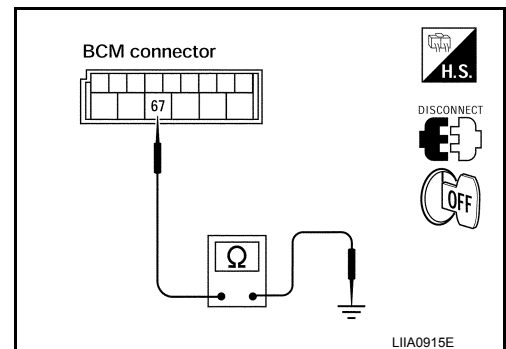
3. CHECK GROUND CIRCUIT

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

[WITH INTELLIGENT KEY SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

KEY CYLINDER SWITCH

Description

INFOID:000000009823139

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.

Component Function Check

INFOID:000000009823140

1. CHECK DOOR KEY CYLINDER SWITCH INPUT SIGNAL

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

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

Is the inspection result normal?

- YES >> Key cylinder switch is OK.
- NO >> Refer to [SEC-53. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009823141

Regarding Wiring Diagram information, refer to [SEC-96. "Wiring Diagram"](#).

1. CHECK DOOR KEY CYLINDER SWITCH

 With CONSULT

Check front door lock assembly LH (key cylinder switch) ("KEY CYL LK-SW") and ("KEY CYL UN-SW) in DATA MONITOR mode with CONSULT.

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

KEY CYL LK-SW : ON

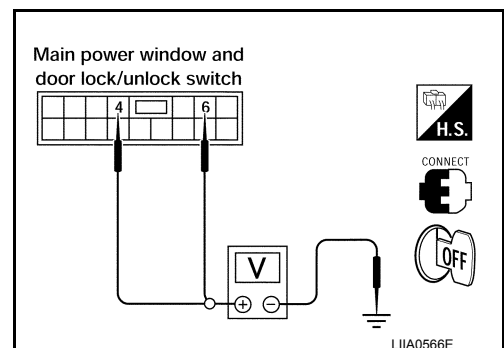
- When key inserted in left front key cylinder is turned to UNLOCK:

KEY CYL UN-SW : ON

 Without CONSULT

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

| Connector | Terminals | | Condition of left front key cylinder | Voltage (V) (Approx.) |
|-----------|-----------|--------|--------------------------------------|--------------------------|
| | (+) | (-) | | |
| D7 | 4 | Ground | Neutral/Unlock | 5 |
| | | | Lock | 0 |
| | 6 | | Neutral/Lock | 5 |
| | | | Unlock | 0 |



Is the inspection result normal?

- YES >> Key cylinder switch signal is OK.

KEY CYLINDER SWITCH

[WITH INTELLIGENT KEY SYSTEM]

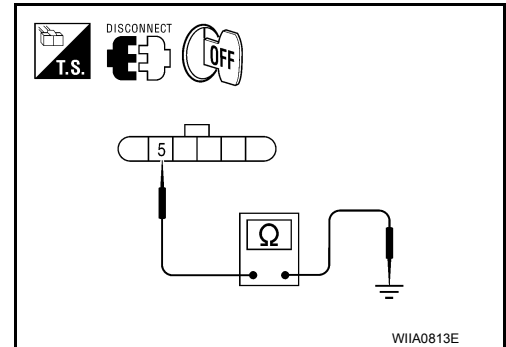
< DTC/CIRCUIT DIAGNOSIS >

NO >> GO TO 2

2. CHECK DOOR KEY CYLINDER SWITCH 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 D14 terminal 5 and body ground.

| Connector | Terminals | Continuity |
|-----------|------------|------------|
| D14 | 5 – Ground | Yes |



Is the inspection result normal?

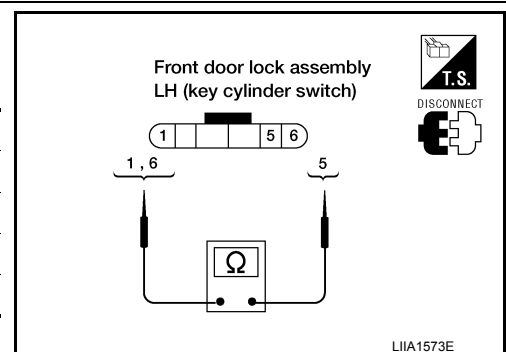
YES >> GO TO 3

NO >> Repair or replace harness.

3. CHECK DOOR KEY CYLINDER SWITCH

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?

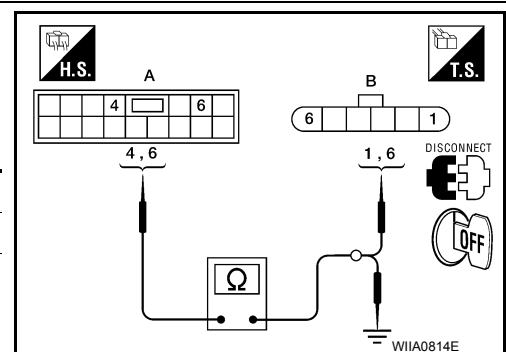
YES >> GO TO 4

NO >> Replace front door lock assembly LH (key cylinder switch). Refer to [DLK-235, "Removal and Installation"](#).

4. CHECK DOOR KEY CYLINDER HARNESS

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. Refer to [PWC-94, "Removal and Installation"](#).

NO >> Repair or replace harness.

IGNITION KNOB SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

IGNITION KNOB SWITCH

Diagnosis Procedure

INFOID:00000009823142

Regarding Wiring Diagram information, refer to [SEC-84, "Wiring Diagram"](#).

1. CHECK IGNITION KNOB SWITCH

With CONSULT

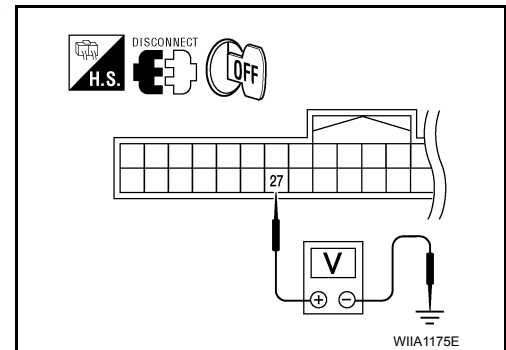
Display "PUSH SW" on DATA MONITOR screen, and check if ON/OFF display is linked to ignition switch operation.

| Monitor item | Condition |
|--------------|----------------------------------|
| PUSH SW | Ignition switch is pushed: ON |
| | Ignition switch is released: OFF |

Without CONSULT

- Turn ignition switch OFF.
- Disconnect Intelligent Key unit connector.
- Check voltage between Intelligent Key unit harness connector M70 terminal 27 and ground.

| Connector | Terminals | | Condition | Voltage (V) (Approx.) |
|-----------|-----------|--------|-----------------------------|--------------------------|
| | (+) | (-) | | |
| M70 | 27 | Ground | Ignition switch is pushed | Battery voltage |
| | | | Ignition switch is released | 0 |



Is the inspection result normal?

- YES >> Ignition knob switch is OK.
- NO >> GO TO 2

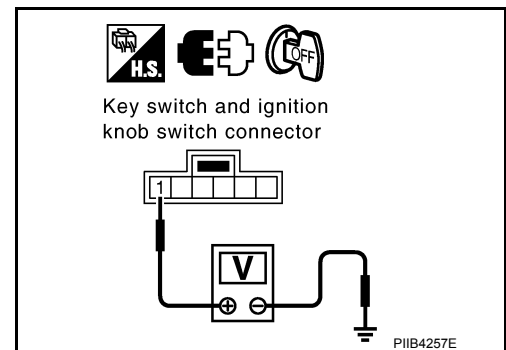
2. CHECK IGNITION KNOB SWITCH POWER SUPPLY CIRCUIT

- Turn ignition switch OFF.
- Disconnect key switch and ignition knob switch connector.
- Check voltage between key switch and ignition knob switch harness connector M12 terminal 1 and ground.

1 - Ground : **Battery voltage**

Is the inspection result normal?

- YES >> GO TO 3
- NO >> Repair or replace key switch and ignition knob switch power supply circuit.



3. CHECK IGNITION KNOB SWITCH OPERATION

Check continuity between key switch and ignition knob switch terminals 1 and 2.

IGNITION KNOB SWITCH

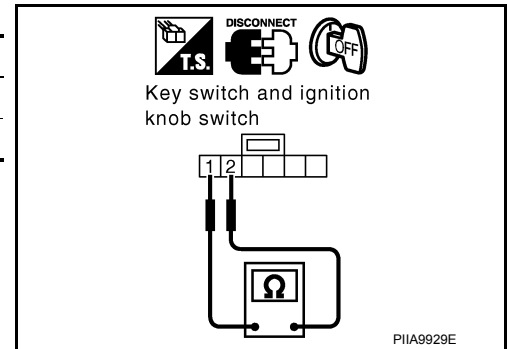
< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

| Component | Terminals | | Condition | Continuity |
|----------------------|-----------|---|-----------------------------|------------|
| Ignition knob switch | 1 | 2 | Ignition switch is pushed | Yes |
| | | | Ignition switch is released | No |

Is the inspection result normal?

- YES >> GO TO 4
 NO >> Replace key switch and ignition knob switch.



4. CHECK IGNITION KNOB SWITCH CIRCUIT

- Check continuity between Intelligent Key unit harness connector M70 (A) terminal 27 and key switch and ignition knob switch harness connector M12 (B) terminal 2.

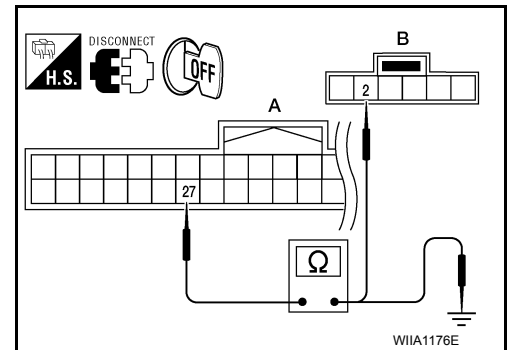
27 - 2 : Continuity should exist.

- Check continuity between Intelligent Key unit harness connector M70 (A) terminal 27 and ground.

27 - Ground : Continuity should not exist.

Is the inspection result normal?

- YES >> Check the condition of harness and harness connector.
 NO >> Repair or replace harness between Intelligent Key unit and key switch and ignition knob switch.



HORN FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

HORN FUNCTION

Symptom Table

INFOID:000000009823143

HAZARD AND HORN REMINDER FUNCTION MALFUNCTION

NOTE:

- Before performing the diagnosis in the following table, check “Work flow”. Refer to [DLK-8, "Work Flow"](#).
- If the following symptoms are detected, check systems shown in the “Diagnosis/service procedure” column in this order.

Conditions of Vehicle (Operating Conditions)

- “ANSWER BACK FUNCTION” is ON when setting on CONSULT.
- Ignition switch is in OFF position.
- All doors are closed.

| Symptom | Diagnosis/service procedure | Reference page |
|--|--|-------------------------|
| Hazard reminder does not operate by request switch. (Horn reminder operate.) | 1. Check “HAZARD ANSWER BACK” setting in “WORK SUPPORT”. | DLK-58 |
| | 2. Check hazard function. | DLK-114 |
| | 3. Check Intermittent Incident. | GI-42 |
| Hazard reminder does not operate by Intelligent Key. (Horn reminder operate.) | 1. Check “HAZARD ANSWER BACK” setting in “WORK SUPPORT”. | DLK-58 |
| | 2. Check hazard function. | DLK-114 |
| | 3. Check Intelligent Key battery inspection. | DLK-108 |
| Horn reminder does not operate by request switch. (Hazard reminder operate.) | 1. Check “ANSWER BACK WITH I-KEY LOCK” or “ANSWER BACK WITH I-KEY UNLOCK” setting in “WORK SUPPORT”. | DLK-58 |
| | 2. Check Intelligent Key warning buzzer. | DLK-97 |
| | 3. Check Intermittent Incident. | GI-42 |
| Horn reminder does not operate by Intelligent Key. (Hazard reminder operate.) | 1. Check “HORN WITH KEYLESS LOCK” setting in “WORK SUPPORT”. | DLK-58 |
| | 2. Check horn function. | DLK-110 |
| | 3. Check Intermittent Incident. | GI-42 |

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VEHICLE SECURITY INDICATOR

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

VEHICLE SECURITY INDICATOR

Description

INFOID:000000009823144

- 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:000000009823145

1. CHECK FUNCTION

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

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

Is the inspection result normal?

- YES >> Inspection End.
NO >> Refer to [SEC-58, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009823146

Regarding Wiring Diagram information, refer to [SEC-84, "Wiring Diagram"](#).

1. SECURITY INDICATOR LAMP ACTIVE TEST

Ⓢ With CONSULT

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

ⓧ Without CONSULT

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

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

Is the inspection result normal?

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

2. SECURITY INDICATOR LAMP CHECK

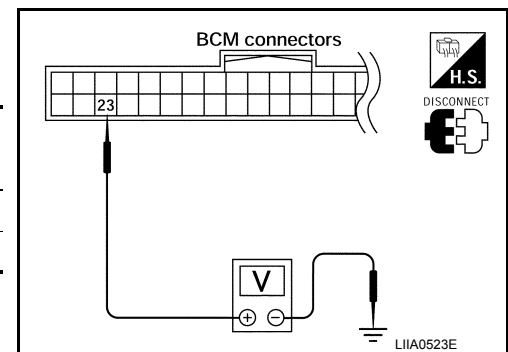
Check security indicator lamp condition.

Is the inspection result normal?

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

3. CHECK HARNESS CONTINUITY

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



VEHICLE SECURITY INDICATOR

[WITH INTELLIGENT KEY SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

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

23 - 28 : Continuity should exist.

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

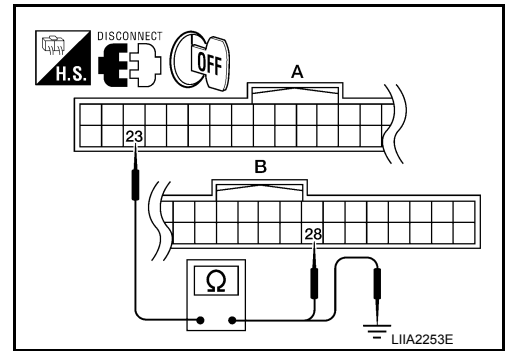
23 - Ground : Continuity should not exist.

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.



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INTELLIGENT KEY UNIT

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

ECU DIAGNOSIS INFORMATION

INTELLIGENT KEY UNIT

Reference Value

INFOID:000000009823147

VALUES ON THE DIAGNOSIS TOOL

| Monitor Item | Condition | Value/Status |
|-----------------|---|-----------------------------------|
| PUSH SW | When ignition knob switch (push switch) is released | OFF |
| | When ignition knob switch (push switch) is pushed | ON |
| KEY SW | When ignition key is removed from ignition cylinder | OFF |
| | When ignition key is inserted into ignition cylinder | ON |
| DR REQ SW | When left door request switch is not pressed (driver side) | OFF |
| | When left door request switch is pressed (driver side) | ON |
| AS REQ SW | When right door request switch is not pressed (passenger side) | OFF |
| | When right door request switch is pressed (passenger side) | ON |
| IGN SW | Ignition switch OFF or ACC | OFF |
| | Ignition switch ON | ON |
| ACC SW | Ignition switch OFF | OFF |
| | Ignition switch ACC or ON | ON |
| STOP LAMP SW | When the brake pedal is not depressed | OFF |
| | When the brake pedal is depressed | ON |
| P RANGE SW | When selector lever is in any position other than P or N | OFF |
| | When selector lever is in P or N position | ON |
| DOOR LOCK SIG | Other than power door lock switch LOCK | OFF |
| | Power door lock switch LOCK | ON |
| DOOR UNLOCK SIG | Other than power door lock switch UNLOCK | OFF |
| | Power door lock switch UNLOCK | ON |
| KEYLESS-PANIC | When PANIC button of Intelligent Key is not pressed | OFF |
| | When PANIC button of Intelligent Key is pressed | ON |
| KEYLS PBD SIG | When liftgate button of Intelligent Key is not pressed and held | OFF |
| | When liftgate button of Intelligent Key is pressed and held | ON |
| DOOR SW-DR | Driver door closed | CLOSE |
| | Driver door opened | OPEN |
| DOOR SW-AS | Passenger door closed | CLOSE |
| | Passenger door opened | OPEN |
| DOOR SW-RR | Rear door RH closed | CLOSE |
| | Rear door RH opened | OPEN |
| DOOR SW-RL | Rear door LH closed | CLOSE |
| | Rear door LH opened | OPEN |
| DOOR BK SW | Back door opener switch OFF | CLOSE |
| | While the back door opener switch is turned ON | OPEN |
| VEHICLE SPEED | While driving | Equivalent to speedometer reading |

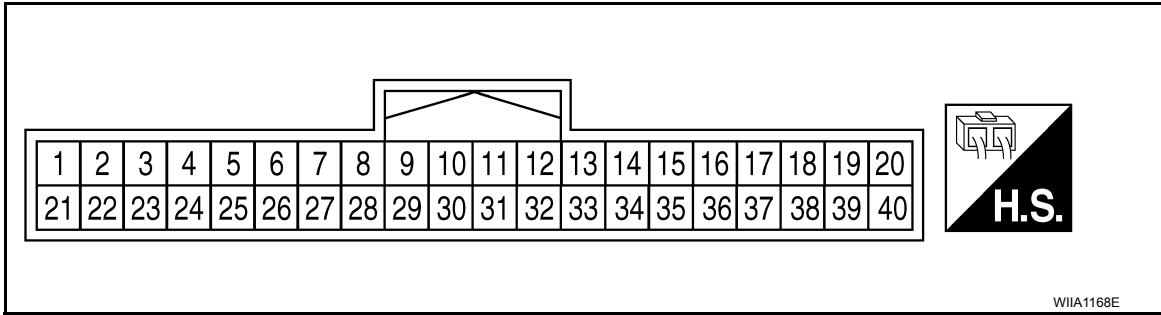
INTELLIGENT KEY UNIT

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

Terminal Layout - Intelligent Key Unit

INFOID:000000009823148



Physical Values - Intelligent Key Unit

INFOID:000000009823149

| Terminal | Wire Color | Item | Condition | | Voltage (V) Approx. | |
|----------|------------|---|--------------------------|--|-------------------------|----------------------|
| | | | Ignition Switch Position | Operation or Conditions | | |
| 1 | L/Y | Steering lock solenoid power supply | LOCK | — | 5 | |
| 2 | L | CAN-H | — | — | — | |
| 3 | P | CAN-L | — | — | — | |
| 4 | GR | Intelligent Key warning buzzer (front of vehicle) | LOCK | Operate door request switch. | Buzzer OFF Buzzer ON | Battery voltage 0 |
| | | | | Press front door request switch LH. | Other than above | 0 Battery voltage |
| 5 | B/W | Front door request switch LH | — | Press front door request switch LH. | 0 | |
| | | | | Other than above | Battery voltage | |
| 6 | G/R | Ignition switch (ON) | ON | — | Battery voltage | |
| 7 | B/R | Key switch | LOCK | Insert mechanical key into ignition key cylinder. | Battery voltage | |
| | | | | Remove mechanical key from ignition key cylinder. | 0 | |
| 8 | G | Remote keyless entry receiver ground | — | — | 0 | |
| 9 | GR | Remote keyless entry receiver signal | — | When remote keyless entry receiver receives signal from key-fob. | | |
| | | | | Stand-by | | |
| 11 | Y | Power source (Fuse) | — | — | Battery voltage | |
| 12 | B | Ground | — | — | 0 | |

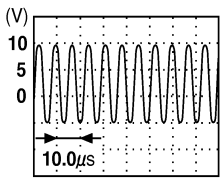
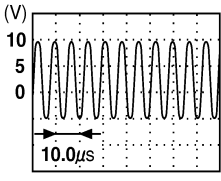
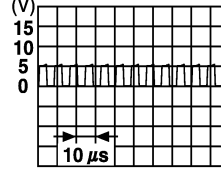
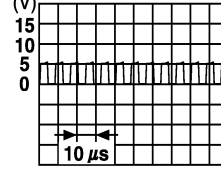
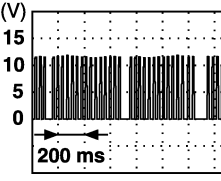
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INTELLIGENT KEY UNIT

< ECU DIAGNOSIS INFORMATION >

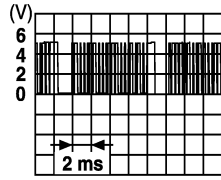
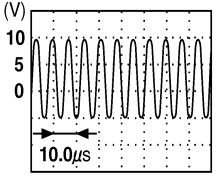
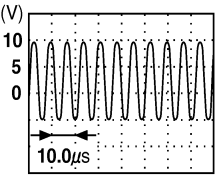
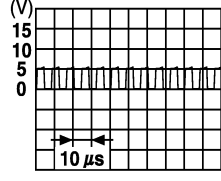
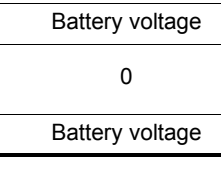


[WITH INTELLIGENT KEY SYSTEM]

| Terminal | Wire Color | Item | Condition | | Voltage (V) Approx. |
|----------|------------|--|--------------------------|--|--|
| | | | Ignition Switch Position | Operation or Conditions | |
| 13 | B/W | Center console area antenna (front) (+) signal | LOCK | Any door open → all doors closed |  PIIB7441E |
| 14 | W/G | Center console area antenna (front) (-) signal | | | |
| 15 | G | Center console area antenna (rear) (+) signal | LOCK | Any door open → all doors closed |  PIIB7441E |
| 16 | L | Center console area antenna (rear) (-) signal | | | |
| 17 | W/L | Rear bumper antenna (+) signal | LOCK | Lift back door handle (close switch). |  SIIA1910J |
| 18 | W/R | Rear bumper antenna (-) signal | | | |
| 19 | P | Front outside antenna LH (+) signal | LOCK | Press front door request switch LH. |  SIIA1910J |
| 20 | V | Front outside antenna LH (-) signal | | | |
| 21 | B/W | Remote keyless entry receiver RSSI signal | — | — |  PIIA2344E |
| 23 | L/W | Power back door output | — | Power liftgate switch ON. | 0 |
| | | | | Power liftgate switch OFF. | Battery voltage |
| 25 | P/L | Front door request switch RH | — | Press front door request switch RH. | 0 |
| | | | | Other than above | Battery voltage |
| 26 | R/G | Stop lamp switch | — | Brake pedal depressed | Battery voltage |
| | | | | Brake pedal released | 0 |
| 27 | R/B | Ignition knob switch | — | Press ignition switch. | Battery voltage |
| | | | | Return ignition switch to LOCK position. | 0 |
| 28 | R | Unlock sensor (driver side) | — | Door (driver side) is locked. | 5 |
| | | | | Door (driver side) is unlocked. | 0 |

INTELLIGENT KEY UNIT

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

| Terminal | Wire Color | Item | Condition | | Voltage (V) Approx. |
|----------|------------|---|--------------------------|---|---|
| | | | Ignition Switch Position | Operation or Conditions | |
| 29 | LG/R | Back door open switch input | — | Back door handle switch ON. | 0 |
| | | | | Back door handle switch OFF. | Battery voltage |
| 30 | G/B | Remote keyless entry receiver power supply | — | — | 5 |
| 32 | L/O | Steering lock solenoid communication signal | LOCK | When Intelligent Key is inside vehicle, press ignition knob switch. |  <p style="text-align: right; font-size: small;">SIIA1911J</p> |
| | | | | Other than above | 5 |
| 33 | W | Overhead console area antenna (+) signal | LOCK | Press ignition knob switch: ON (Ignition knob switch) |  <p style="text-align: right; font-size: small;">PIIB7441E</p> |
| 34 | BR | Overhead console area antenna (-) signal | | |  <p style="text-align: right; font-size: small;">PIIB7441E</p> |
| 35 | O | Luggage area antenna (+) signal | LOCK | Back door open → all doors closed |  <p style="text-align: right; font-size: small;">PIIB7441E</p> |
| 36 | R | Luggage area antenna (-) signal | | |  <p style="text-align: right; font-size: small;">SIIA1910J</p> |
| 37 | LG | Front outside antenna (+) signal RH | LOCK | Press front door request switch RH. |  <p style="text-align: right; font-size: small;">SIIA1910J</p> |
| 38 | B/Y | Front outside antenna (-) signal RH | | |  <p style="text-align: right; font-size: small;">SIIA1910J</p> |
| 39 | L/R | P range switch | — | Selector lever is in "P" position. | 0 |
| | | | | Other than above | Battery voltage |
| 40 | V | AS select unlock output | — | UNLOCK with rear door locks disabled. | 0 |
| | | | | Other than above | Battery voltage |

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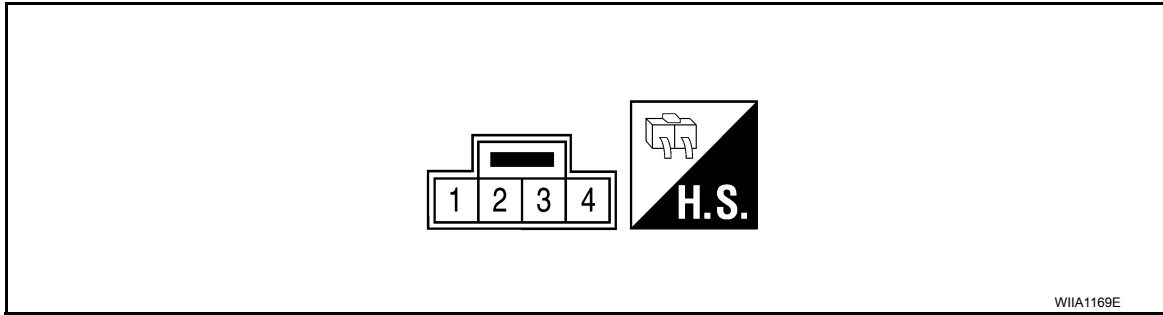
INTELLIGENT KEY UNIT

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

Terminal Layout - Steering Lock Solenoid

INFOID:000000009823150



Physical Values - Steering Lock Solenoid

INFOID:000000009823151

| Terminal | Wire Color | Signal Designation | Condition | | Voltage (V) Approx. |
|----------|------------|---|--------------------------|---|------------------------|
| | | | Ignition Switch Position | Operation or Conditions | |
| 1 | Y | Power source (fuse) | LOCK | — | Battery voltage |
| 2 | L/Y | Steering lock solenoid power supply | LOCK | — | 5 |
| 3 | L/O | Steering lock solenoid communication signal | LOCK | When Intelligent Key is inside vehicle, press ignition knob switch. | |
| | | | | Other than the above | 5 |
| 4 | B | Steering lock solenoid ground | — | — | 0 |

Fail Safe

INFOID:000000009823152

Fail-safe operation

The Intelligent Key system operation will be interrupted if the Intelligent Key unit loses power or communication with the BCM.

DTC Inspection Priority Chart

INFOID:000000009823153

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

| Priority | DTC |
|----------|--|
| 1 | <ul style="list-style-type: none"> U1000: CAN COMM CIRCUIT U1010: CONTROL UNIT (CAN) |

INTELLIGENT KEY UNIT

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

| Priority | DTC |
|----------|---|
| 2 | <ul style="list-style-type: none"> • B2190: NATS ANTENNA AMP • B2191: DIFFERENCE OF KEY • B2192: ID DISCORD BCM-ECM • B2193: CHAIN OF BCM-ECM • B2194: ID DISCORD IMMU-I-KEY |
| 3 | <ul style="list-style-type: none"> • B2013: ID DISCORD BCM-S/L • B2552: INTELLIGENT KEY • B2590: ID DISCORD BCM-I-KEY • P1610: LOCK MODE • P1611: ID DISCORD, IMMU-ECM • P1612: CHAIN OF ECM-IMMU • P1614: CHAIN OF IMMU-KEY • P1615: DIFFERENCE OF KEY |

DTC Index

INFOID:000000009823154

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 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 | Freeze Frame Data •Vehicle Speed •Odo/Trip Meter •Vehicle Condition | Intelligent Key warn- ing lamp ON | Reference page |
|--|-----------|--|--------------------------------------|------------------------|
| No DTC is detected. Further testing may be required. | — | — | — | — |
| U1000: CAN COMM | — | — | — | DLK-61 |
| U1010: CONTROL UNIT(CAN) | — | — | — | DLK-62 |
| B2013: ID DISCORD BCM-S/L | × | × | — | SEC-30 |
| B2190: NATS ANTENNA AMP | × | — | — | SEC-33 |
| B2191: DIFFERENCE OF KEY | × | — | — | SEC-36 |
| B2192: ID DISCORD BCM-ECM | × | — | — | SEC-37 |
| B2193: CHAIN OF BCM-ECM | × | — | — | SEC-39 |
| B2194: ID DISCORD IMMU-I-KEY | × | — | — | SEC-40 |
| B2552: INTELLIGENT KEY | — | × | × | SEC-41 |
| B2590: IID DISCORD BCM-I-KEY | — | × | × | SEC-42 |
| P1610: LOCK MODE | — | × | × | SEC-43 |
| P1611: ID DISCORD, IMMU-ECM | — | × | × | SEC-44 |
| P1612: CHAIN OF ECM-IMMU | — | — | × | SEC-46 |
| P1614: CHAIN OF IMMU-KEY | × | × | × | SEC-47 |
| P1615: DIFFERENCE OF KEY | — | × | × | SEC-50 |

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

BCM (BODY CONTROL MODULE)

Reference Value

INFOID:00000009823155

NOTE:

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

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

VALUES ON THE DIAGNOSIS TOOL

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

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

| Monitor Item | Condition | Value/Status | |
|---------------------------|--|--------------|---|
| DOOR SW-RR | Rear door RH closed | Off | A |
| | Rear door RH opened | On | |
| FAN ON SIG | Blower motor fan switch OFF | Off | B |
| | Blower motor fan switch ON | On | |
| FR FOG SW | Front fog lamp switch OFF | Off | C |
| | Front fog lamp switch ON | On | |
| FR WASHER SW | Front washer switch OFF | Off | D |
| | Front washer switch ON | On | |
| FR WIPER LOW | Front wiper switch OFF | Off | E |
| | Front wiper switch LO | On | |
| FR WIPER HI | Front wiper switch OFF | Off | F |
| | Front wiper switch HI | On | |
| FR WIPER INT | Front wiper switch OFF | Off | G |
| | Front wiper switch INT | On | |
| FR WIPER STOP | Any position other than front wiper stop position | Off | H |
| | Front wiper stop position | On | |
| HAZARD SW | When hazard switch is not pressed | Off | I |
| | When hazard switch is pressed | On | |
| HEAD LAMP SW1 | Headlamp switch OFF | Off | J |
| | Headlamp switch 1st | On | |
| HEAD LAMP SW2 | Headlamp switch OFF | Off | K |
| | Headlamp switch 1st | On | |
| HI BEAM SW | High beam switch OFF | Off | L |
| | High beam switch HI | On | |
| ID REGST FL1 | ID registration of front left tire incomplete | YET | M |
| | ID registration of front left tire complete | DONE | |
| ID REGST FR1 | ID registration of front right tire incomplete | YET | N |
| | ID registration of front right tire complete | DONE | |
| ID REGST RL1 | ID registration of rear left tire incomplete | YET | O |
| | ID registration of rear left tire complete | DONE | |
| ID REGST RR1 | ID registration of rear right tire incomplete | YET | P |
| | ID registration of rear right tire complete | DONE | |
| IGN ON SW | Ignition switch OFF or ACC | Off | Q |
| | Ignition switch ON | On | |
| IGN SW CAN | Ignition switch OFF or ACC | Off | R |
| | Ignition switch ON | On | |
| INT VOLUME | Wiper intermittent dial is in a dial position 1 - 7 | 1 - 7 | |
| I-KEY LOCK ¹ | LOCK button of Intelligent Key is not pressed | Off | S |
| | LOCK button of Intelligent Key is pressed | On | |
| I-KEY PANIC ¹ | PANIC button of Intelligent Key is not pressed | Off | T |
| | PANIC button of Intelligent Key is pressed | On | |
| I-KEY PW DWN ¹ | UNLOCK button of Intelligent Key is not pressed | Off | U |
| | UNLOCK button of Intelligent Key is pressed for greater than 3 seconds and driver's window operating in DOWN direction | On | |

SEC

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

| Monitor Item | Condition | Value/Status |
|-----------------------------|--|-----------------------------------|
| I-KEY UNLOCK ¹ | UNLOCK button of Intelligent Key is not pressed | Off |
| | UNLOCK button of Intelligent Key is pressed | On |
| KEY CYL LK-SW | Door key cylinder LOCK position | Off |
| | Door key cylinder other than LOCK position | On |
| KEY CYL UN-SW | Door key cylinder UNLOCK position | Off |
| | Door key cylinder other than UNLOCK position | On |
| KEY ON SW | Mechanical key is removed from key cylinder | Off |
| | Mechanical key is inserted to key cylinder | On |
| KEYLESS LOCK ² | LOCK button of key fob is not pressed | Off |
| | LOCK button of key fob is pressed | On |
| KEYLESS PANIC ² | PANIC button of key fob is not pressed | Off |
| | PANIC button of key fob is pressed | On |
| KEYLESS UNLOCK ² | UNLOCK button of key fob is not pressed | Off |
| | UNLOCK button of key fob is pressed | On |
| LIGHT SW 1ST | Lighting switch OFF | Off |
| | Lighting switch 1st | On |
| OIL PRESS SW | <ul style="list-style-type: none"> • Ignition switch OFF or ACC • Engine running | Off |
| | Ignition switch ON | On |
| OPTICAL SENSOR | Bright outside of the vehicle | Close to 5V |
| | Dark outside of the vehicle | Close to 0V |
| PASSING SW | Other than lighting switch PASS | Off |
| | Lighting switch PASS | On |
| PUSH SW ¹ | Return to ignition switch to LOCK position | Off |
| | Press ignition switch | On |
| REAR DEF SW | Rear window defogger switch OFF | Off |
| | Rear window defogger switch ON | On |
| RR WASHER SW | Rear washer switch OFF | Off |
| | Rear washer switch ON | On |
| RR WIPER INT | Rear wiper switch OFF | Off |
| | Rear wiper switch INT | On |
| RR WIPER ON | Rear wiper switch OFF | Off |
| | Rear wiper switch ON | On |
| RR WIPER STOP | Rear wiper stop position | Off |
| | Other than rear wiper stop position | On |
| RR WIPER STP2 | Rear wiper stop position | Off |
| | Other than rear wiper stop position | On |
| TURN SIGNAL L | Turn signal switch OFF | Off |
| | Turn signal switch LH | On |
| TURN SIGNAL R | Turn signal switch OFF | Off |
| | Turn signal switch RH | On |
| VEHICLE SPEED | While driving | Equivalent to speedometer reading |
| WARNING LAMP | Low tire pressure warning lamp in combination meter OFF | Off |
| | Low tire pressure warning lamp in combination meter ON | On |

1: With Intelligent Key

BCM (BODY CONTROL MODULE)

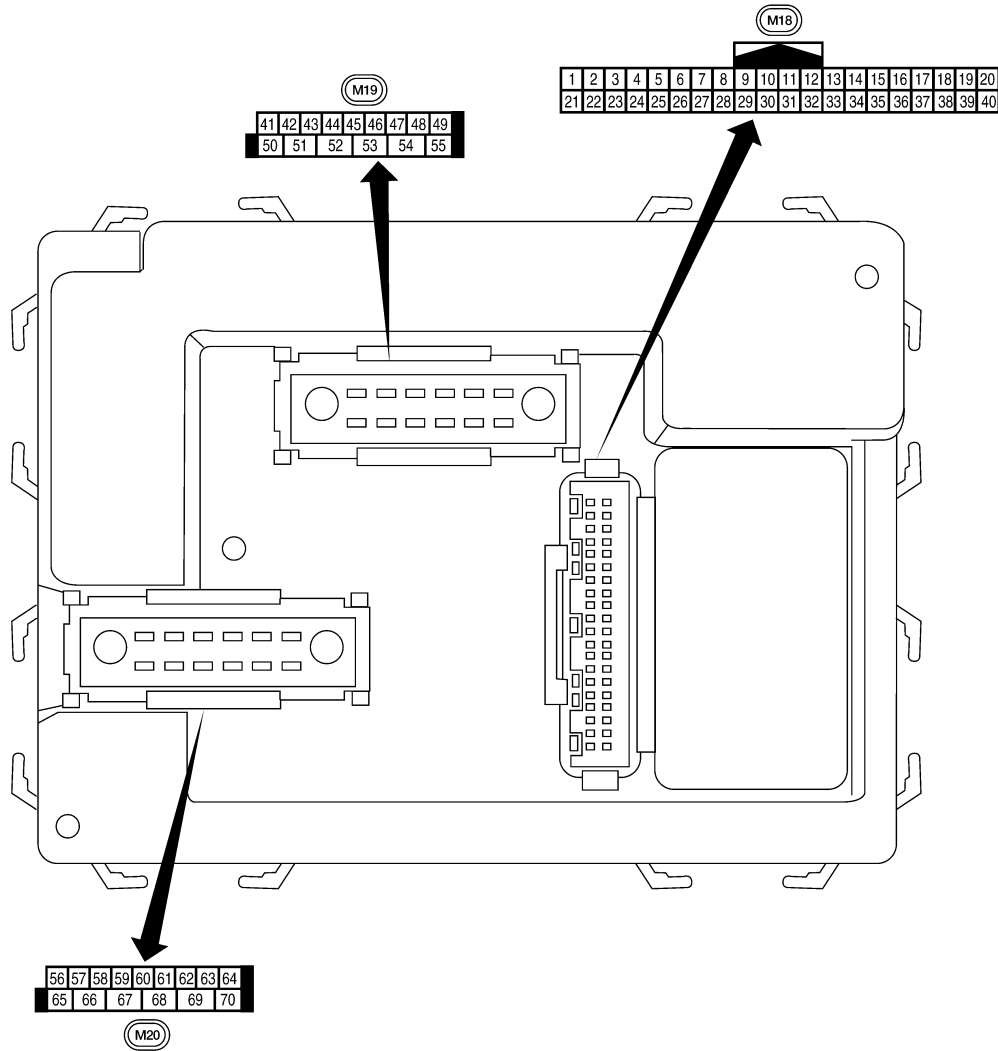
< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

2: With remote keyless entry system

Terminal Layout

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Physical Values


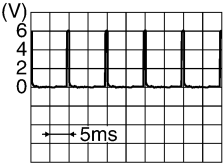

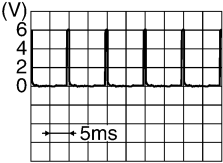
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INFOID:000000009823157

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

| 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 ON) | 0V |
| 2 | SB | Combination switch input 5 | Input | ON | Lighting, turn, wiper OFF Wiper dial position 4 |  <p style="text-align: right; font-size: small;">SKIA5291E</p> |
| 3 | G/Y | Combination switch input 4 | Input | ON | Lighting, turn, wiper OFF Wiper dial position 4 |  <p style="text-align: right; font-size: small;">SKIA5292E</p> |
| 4 | Y | Combination switch input 3 | Input | ON | Lighting, turn, wiper OFF Wiper dial position 4 |  <p style="text-align: right; font-size: small;">SKIA5291E</p> |
| 5 | G/B | Combination switch input 2 | Input | ON | Lighting, turn, wiper OFF Wiper dial position 4 |  <p style="text-align: right; font-size: small;">SKIA5292E</p> |
| 6 | V | Combination switch input 1 | | | | |
| 9 | R/G | Stop lamp switch | Input | OFF | Brake pedal depressed | Battery voltage |
| | | | | | Brake pedal released | 0V |
| 10 | G | Hazard lamp flash | Input | OFF | ON (opening or closing) | 0V |
| | | | | | OFF (other than above) | Battery voltage |
| 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 | Input | OFF | ON (open) | 0V |
| | | | | | OFF (closed) | Battery voltage |
| 13 | GR | Rear door switch RH | Input | OFF | ON (open) | 0V |
| | | | | | OFF (closed) | Battery voltage |
| 15 | L/W | Tire pressure warning check connector | Input | OFF | — | 5V |
| 18 | P | Remote keyless entry receiver and optical sensor (ground) | Output | OFF | — | 0V |

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

| Terminal | Wire color | Signal name | Signal input/output | Measuring condition | | Reference value or waveform (Approx.) |
|----------|------------|--|---------------------|---------------------|---|--|
| | | | | Ignition switch | Operation or condition | |
| 19 | V/W | Remote keyless entry receiver (power supply) | Output | OFF | Ignition switch OFF | <p style="text-align: right; font-size: small;">LIIA1893E</p> |
| 20 | G/W | Remote keyless entry receiver (signal) | Input | OFF | Stand-by (keyfob buttons released) | <p style="text-align: right; font-size: small;">LIIA1894E</p> |
| | | | | | When remote keyless entry receiver receives signal from keyfob (keyfob buttons pressed) | <p style="text-align: right; font-size: small;">LIIA1895E</p> |
| 21 | 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 | W/V | BUS | — | — | Ignition switch ON or power window timer operates | <p style="text-align: right; font-size: small;">PIIA2344E</p> |
| 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. |
| 26 | Y/L | Rear wiper auto stop switch 2 | Input | ON | Rise up position (rear wiper arm on stopper) | 0V |
| | | | | | A Position (full clockwise stop position) | 0V |
| | | | | | Forward sweep (counterclockwise direction) | Fluctuating |
| | | | | | B Position (full counterclockwise stop position) | Battery voltage |
| | | | | | Reverse sweep (clockwise direction) | Fluctuating |
| 27 | W/R | Compressor ON signal | Input | ON | A/C switch OFF | 5V |
| | | | | | A/C switch ON | 0V |

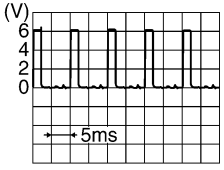
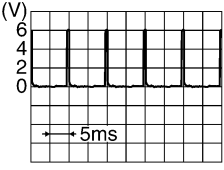
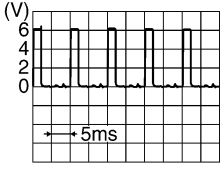
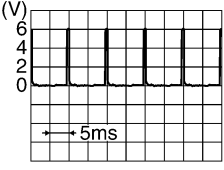
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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

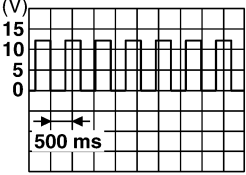
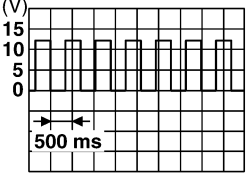
[WITH INTELLIGENT KEY SYSTEM]

| Terminal | Wire color | Signal name | Signal input/output | Measuring condition | | Reference value or waveform (Approx.) |
|-----------------|------------|-------------------------------------|---------------------|---------------------|--|---|
| | | | | Ignition switch | Operation or condition | |
| 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 |
| 32 | R/G | Combination switch output 5 | Output | ON | Lighting, turn, wiper OFF Wiper dial position 4 |  <p style="text-align: right; font-size: small;">SKIA5291E</p> |
| 33 | R/Y | Combination switch output 4 | Output | ON | Lighting, turn, wiper OFF Wiper dial position 4 |  <p style="text-align: right; font-size: small;">SKIA5292E</p> |
| 34 | L | Combination switch output 3 | Output | ON | Lighting, turn, wiper OFF Wiper dial position 4 |  <p style="text-align: right; font-size: small;">SKIA5291E</p> |
| 35 | O/B | Combination switch output 2 | Output | ON | Lighting, turn, wiper OFF Wiper dial position 4 |  <p style="text-align: right; font-size: small;">SKIA5292E</p> |
| 36 | R/W | Combination switch output 1 | | | | |
| 37 ¹ | B/R | Key switch and ignition knob switch | Input | OFF | Intelligent Key inserted | Battery voltage |
| | | | | | Intelligent Key removed | 0V |
| 37 ² | B/R | Key switch and key lock solenoid | Input | OFF | Key inserted | Battery voltage |
| | | | | | Key removed | 0V |
| 38 | W/L | Ignition switch (ON) | Input | ON | — | Battery voltage |
| 39 | L | CAN-H | — | — | — | — |
| 40 | P | CAN-L | — | — | — | — |
| 41 | GR/R | Rear window defogger switch | Input | ON | Rear window defogger switch ON | 0V |
| | | | | | Rear window defogger switch OFF | 5V |
| 42 | GR | Glass hatch ajar switch | Input | ON | Glass hatch open | 0 |
| | | | | | Glass hatch closed | Battery |

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

| Terminal | Wire color | Signal name | Signal input/output | Measuring condition | | Reference value or waveform (Approx.) |
|----------|------------|---|---------------------|---------------------|--|---|
| | | | | Ignition switch | Operation or condition | |
| 43 | R/B | Back door switch (without power back door) or back door latch (door ajar switch) (with power back door) | Input | OFF | ON (open) | 0V |
| | | | | | OFF (closed) | Battery voltage |
| 44 | O | Rear wiper auto stop switch 1 | Input | ON | Rise up position (rear wiper arm on stopper) | 0V |
| | | | | | A Position (full clockwise stop position) | Battery voltage |
| | | | | | Forward sweep (counterclockwise direction) | Fluctuating |
| | | | | | B Position (full counterclockwise stop position) | 0V |
| | | | | | Reverse sweep (clockwise direction) | Fluctuating |
| 47 | SB | Front door switch LH | Input | OFF | ON (open) | 0V |
| | | | | | OFF (closed) | Battery voltage |
| 48 | R/Y | Rear door switch LH | Input | OFF | ON (open) | 0V |
| | | | | | OFF (closed) | Battery voltage |
| 49 | R | Cargo lamp | Output | OFF | Any door open (ON) | 0V |
| | | | | | All doors closed (OFF) | Battery voltage |
| 51 | Y/B | Trailer turn signal (right) | Output | ON | Turn right ON |  <p style="text-align: right; font-size: small;">SKIA3009J</p> |
| 52 | G/B | Trailer turn signal (left) | Output | ON | Turn left ON |  <p style="text-align: right; font-size: small;">SKIA3009J</p> |
| 54 | Y | Rear wiper output circuit 2 | Input | ON | Rise up position (rear wiper arm on stopper) | 0V |
| | | | | | A Position (full clockwise stop position) | 0V |
| | | | | | Forward sweep (counterclockwise direction) | 0V |
| | | | | | B Position (full counterclockwise stop position) | Battery voltage |
| | | | | | Reverse sweep (clockwise direction) | Battery voltage |
| 55 | SB | Rear wiper output circuit 1 | Output | ON | OFF | 0 |
| | | | | | ON | Battery voltage |

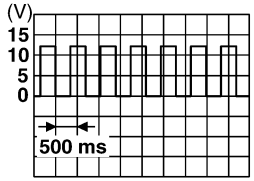
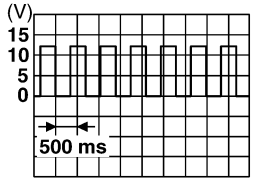
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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

| Terminal | Wire color | Signal name | Signal input/output | Measuring condition | | Reference value or waveform (Approx.) |
|----------|------------|--|---------------------|---------------------|---|--|
| | | | | Ignition switch | Operation or condition | |
| 56 | R/G | Battery saver output | Output | OFF | 10 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 |  <p style="text-align: right; font-size: small;">SKIA3009J</p> |
| 61 | G/Y | Turn signal (right) | Output | ON | Turn right ON |  <p style="text-align: right; font-size: small;">SKIA3009J</p> |
| 62 | R/W | Step lamp LH and RH | Output | OFF | ON (any door open) | 0V |
| | | | | | OFF (all doors closed) | Battery voltage |
| 63 | L | Interior room/map lamp | Output | OFF | Any door switch | ON (open) 0V OFF (closed) Battery voltage |
| | | | | | | |
| 65 | V | All door lock actuators (lock) | Output | OFF | OFF (neutral) | 0V |
| | | | | | ON (lock) | Battery voltage |
| 66 | G/Y | Front door lock actuator RH, rear door lock actuators LH/RH and back door lock actuator (unlock) | Output | OFF | OFF (neutral) | 0V |
| | | | | | ON (unlock) | Battery voltage |
| 67 | B | Ground | Input | ON | — | 0V |
| 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 |

1: With Intelligent Key system

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

2: With remote keyless entry system

Fail Safe

INFOID:000000009823158

Fail-safe index

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

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

DTC Inspection Priority Chart

INFOID:000000009823159

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

| Priority | DTC |
|----------|---|
| 1 | <ul style="list-style-type: none">U1000: CAN COMM CIRCUIT |
| 2 | <ul style="list-style-type: none">B2190: NATS ANTENNA AMPB2191: DIFFERENCE OF KEYB2192: ID DISCORD BCM-ECMB2193: CHAIN OF BCM-ECMB2013: STRG COMM 1B2552: INTELLIGENT KEYB2590: NATS MALFUNCTION |
| 3 | <ul style="list-style-type: none">C1729: VHCL SPEED SIG ERRC1735: IGNITION SIGNAL |
| 4 | <ul style="list-style-type: none">C1708: [NO DATA] FLC1709: [NO DATA] FRC1710: [NO DATA] RRC1711: [NO DATA] RLC1712: [CHECKSUM ERR] FLC1713: [CHECKSUM ERR] FRC1714: [CHECKSUM ERR] RRC1715: [CHECKSUM ERR] RLC1716: [PRESSDATA ERR] FLC1717: [PRESSDATA ERR] FRC1718: [PRESSDATA ERR] RRC1719: [PRESSDATA ERR] RLC1720: [CODE ERR] FLC1721: [CODE ERR] FRC1722: [CODE ERR] RRC1723: [CODE ERR] RLC1724: [BATT VOLT LOW] FLC1725: [BATT VOLT LOW] FRC1726: [BATT VOLT LOW] RRC1727: [BATT VOLT LOW] RL |

SEC

DTC Index

INFOID:000000009823160

NOTE:

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

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

| CONSULT display | Fail-safe | Intelligent Key warning lamp ON | Tire pressure monitor warning lamp ON | Reference page |
|--|-----------|------------------------------------|---|---|
| No DTC is detected. further testing may be required. | — | — | — | — |
| U1000: CAN COMM CIRCUIT | — | — | — | BCS-29 |
| B2013: STRG COMM 1 | — | — | — | SEC-30 |
| B2190: NATS ANTENNA AMP | — | — | — | SEC-33 (with I- Key), SEC-140 (without I-Key) |
| B2191: DIFFERENCE OF KEY | — | — | — | SEC-36 (with I- Key), SEC-143 (without I-Key) |
| B2192: ID DISCORD BCM-ECM | — | — | — | SEC-37 (with I- Key), SEC-144 (without I-Key) |
| B2193: CHAIN OF BCM-ECM | — | — | — | SEC-39 (with I- Key), SEC-146 (without I-Key) |
| B2552: INTELLIGENT KEY | — | — | — | SEC-41 |
| B2590: NATS MALFUNCTION | — | — | — | SEC-42 |
| C1708: [NO DATA] FL | — | — | — | WT-13 |
| C1709: [NO DATA] FR | — | — | — | WT-15 |
| C1710: [NO DATA] RR | — | — | — | WT-15 |
| C1711: [NO DATA] RL | — | — | — | WT-15 |
| C1712: [CHECKSUM ERR] FL | — | — | — | WT-15 |
| C1713: [CHECKSUM ERR] FR | — | — | — | WT-15 |
| C1714: [CHECKSUM ERR] RR | — | — | — | WT-15 |
| C1715: [CHECKSUM ERR] RL | — | — | — | WT-15 |
| C1716: [PRESSDATA ERR] FL | — | — | — | WT-17 |
| C1717: [PRESSDATA ERR] FR | — | — | — | WT-15 |
| C1718: [PRESSDATA ERR] RR | — | — | — | WT-15 |
| C1719: [PRESSDATA ERR] RL | — | — | — | WT-15 |
| C1720: [CODE ERR] FL | — | — | — | WT-15 |
| C1721: [CODE ERR] FR | — | — | — | WT-15 |
| C1722: [CODE ERR] RR | — | — | — | WT-15 |
| C1723: [CODE ERR] RL | — | — | — | WT-15 |
| C1724: [BATT VOLT LOW] FL | — | — | — | WT-15 |
| C1725: [BATT VOLT LOW] FR | — | — | — | WT-15 |
| C1726: [BATT VOLT LOW] RR | — | — | — | WT-15 |
| C1727: [BATT VOLT LOW] RL | — | — | — | WT-15 |
| C1729: VHCL SPEED SIG ERR | — | — | — | WT-19 |
| C1735: IGN_CIRCUIT_OPEN | — | — | — | WT-20 |

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

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

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

Reference Value

INFOID:000000009823161

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. | 1, 2, 3, 4 |
| 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 |
| | | <ul style="list-style-type: none"> Front fog lamp switch ON Daytime light activated (Canada only) | On |
| FR WIP REQ | Ignition switch ON | Front wiper switch OFF | Stop |
| | | Front wiper switch INT | 1LOW |
| | | Front wiper switch LO | Low |
| | | Front wiper switch HI | Hi |
| WIP AUTO STOP | Ignition switch ON | Front wiper stop position | STOP P |
| | | Any position other than front wiper stop position | ACT P |
| WIP PROT | Ignition switch ON | Front wiper operates normally | Off |
| | | Front wiper stops at fail-safe operation | BLOCK |
| ST RLY REQ | Ignition switch OFF or ACC | | Off |
| | Ignition switch START | | On |
| IGN RLY | Ignition switch OFF or ACC | | Off |
| | Ignition switch ON | | On |
| RR DEF REQ | Rear defogger switch OFF | | Off |
| | Rear defogger switch ON | | On |
| OIL P SW | Ignition switch OFF, ACC or engine running | | Open |
| | Ignition switch ON | | Close |
| DTRL REQ | Not operated | | Off |
| | Daytime Running Lights ON | | On |
| THFT HRN REQ | Not operated | | Off |
| | <ul style="list-style-type: none"> Panic alarm is activated Horn is activated with VEHICLE SECURITY (THEFT WARNING) SYSTEM | | On |

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

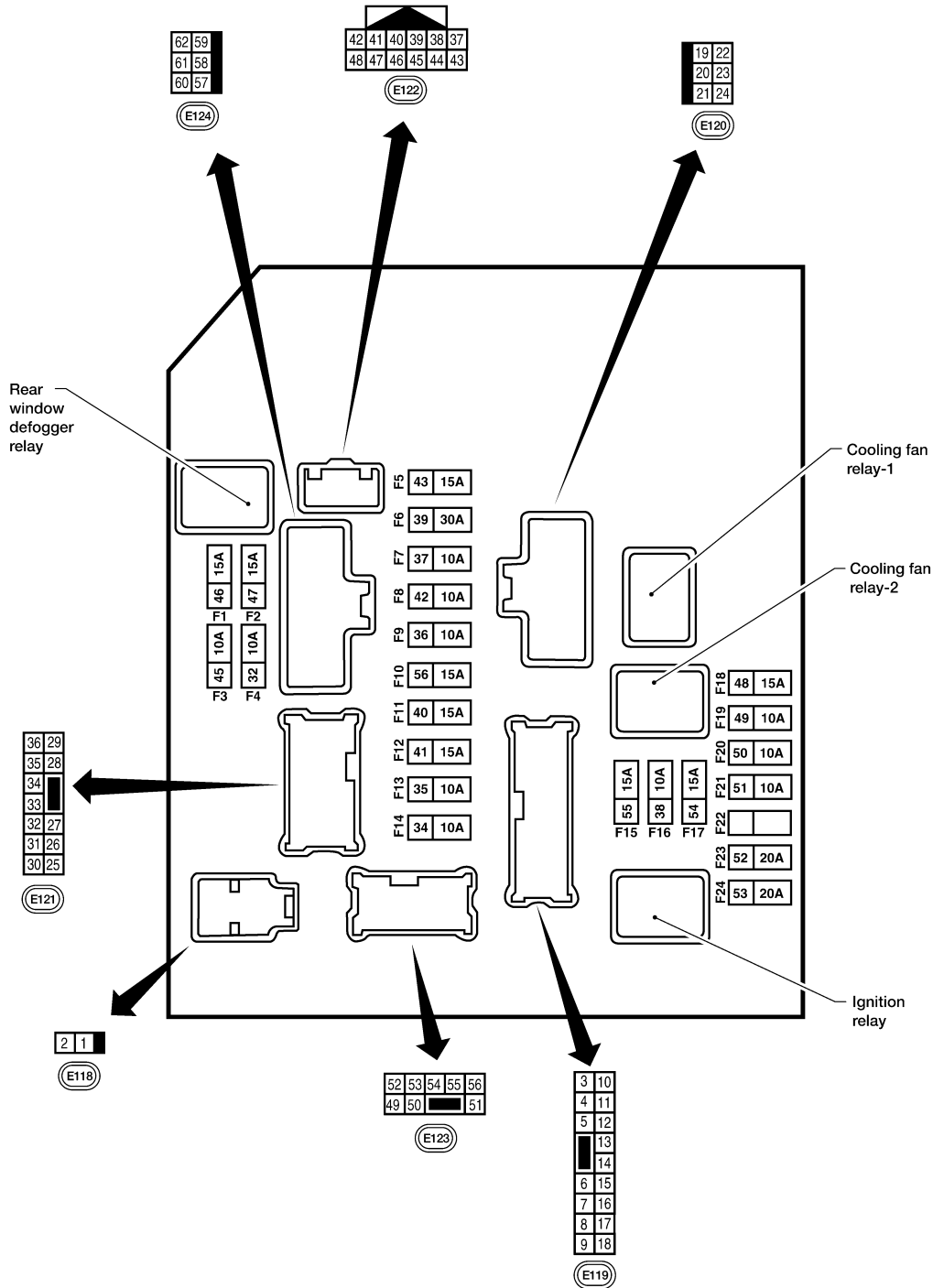
< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

| Monitor Item | Condition | Value/Status |
|--------------|---|--------------|
| HORN CHIRP | Not operated | Off |
| | Door locking with keyfob or Intelligent Key (if equipped) (horn chirp mode) | On |

Terminal Layout

INFOID:000000009823162



NOTE:

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

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

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

Physical Values

INFOID:000000009823163

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 only) | Output | ON | Daytime light system active | 0V |
| | | | | | Daytime light system inactive | Battery voltage |
| 11 | Y/B | A/C compressor | Output | ON or START | A/C switch ON or defrost A/C switch | Battery voltage |
| | | | | | A/C switch OFF or defrost A/C switch | 0V |
| 12 | L/W | Ignition switch supplied power | Input | — | OFF or ACC | 0V |
| | | | | | ON or START | Battery voltage |
| 13 | B/Y | Fuel pump relay | Output | — | Ignition switch ON or START | Battery voltage |
| | | | | | Ignition switch OFF or ACC | 0V |
| 14 | Y/R | Fuse 49 | Output | — | Ignition switch ON or START | Battery voltage |
| | | | | | Ignition switch OFF or ACC | 0V |
| 15 | LG/B | Fuse 50 | Output | — | Ignition switch ON or START | Battery voltage |
| | | | | | Ignition switch OFF or ACC | 0V |
| 16 | G | Fuse 51 | Output | — | Ignition switch ON or START | Battery voltage |
| | | | | | Ignition switch OFF or ACC | 0V |
| 17 | W | Fuse 55 | Output | — | Ignition switch ON or START | Battery voltage |
| | | | | | Ignition switch OFF or ACC | 0V |
| 19 | W/R | Starter motor | Output | START | — | Battery voltage |
| 21 | BR | Ignition switch supplied power | Input | — | OFF or ACC | 0V |
| | | | | | START | Battery voltage |
| 22 | G | Battery power supply | Output | OFF | — | Battery voltage |
| 23 | GR/W | Door mirror defogger output signal | Output | — | When rear defogger switch is ON | Battery voltage |
| | | | | | When rear defogger switch is OFF | 0V |

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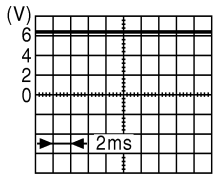
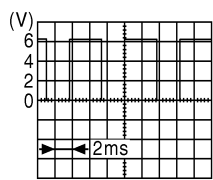
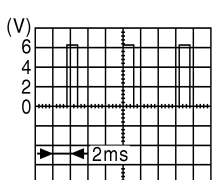
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IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

| Terminal | Wire color | Signal name | Signal input/output | Measuring condition | | Reference value (Approx.) |
|----------|------------|---|---------------------|---------------------|--|---|
| | | | | Ignition switch | Operation or condition | |
| 24 | L | Cooling fan relay | Output | — | Conditions correct for cooling fan operation | Battery voltage |
| | | | | | Conditions not correct for cooling fan operation | 0V |
| 27 | W/B | Fuse 38 | Output | — | Ignition switch ON or START | Battery voltage |
| | | | | | Ignition switch OFF or ACC | 0V |
| 30 | W | Fuse 53 | Output | — | Ignition switch ON or START | Battery voltage |
| | | | | | Ignition switch OFF or ACC | 0V |
| 32 | L | Wiper low speed signal | Output | ON or START | Wiper switch OFF | 0V |
| | | | | | Wiper switch LO or INT | Battery voltage |
| 35 | L/B | Wiper high speed signal | Output | ON or START | Wiper switch OFF, LO, INT | 0V |
| | | | | | Wiper switch HI | Battery voltage |
| 37 | Y | Power generation command signal | Output | — | Ignition switch ON |  <p style="text-align: right; margin-right: 50px;">JPMIA0001GB 6.3 V</p> |
| | | | | | 40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE" |  <p style="text-align: right; margin-right: 50px;">JPMIA0002GB 3.8 V</p> |
| | | | | | 40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE" |  <p style="text-align: right; margin-right: 50px;">JPMIA0003GB 1.4 V</p> |
| 38 | B | Ground | Input | — | — | 0V |
| 39 | L | CAN-H | — | ON | — | — |
| 40 | P | CAN-L | — | ON | — | — |
| 42 | GR | Oil pressure switch | Input | — | Engine running | Battery voltage |
| | | | | | Engine stopped | 0V |
| 43 | L/Y | Wiper auto stop signal | Input | ON or START | Wiper switch OFF, LO, INT | Battery voltage |
| 44 | BR | Daytime light relay control (Canada only) | Input | ON | Daytime light system active | 0V |
| | | | | | Daytime light system inactive | Battery voltage |

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

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

| Terminal | Wire color | Signal name | Signal input/output | Measuring condition | | Reference value (Approx.) | |
|----------|--------------------|--------------------------------------|---------------------|---------------------|--|---------------------------|-----------------|
| | | | | Ignition switch | Operation or condition | | |
| 45 | G/W | Horn relay control | Input | ON | When door locks are operated using keyfob or Intelligent Key (if equipped) (OFF → ON)* | Battery voltage → 0V | |
| 46 | GR | Fuel pump relay control | Input | — | Ignition switch ON or START | 0V | |
| | | | | | Ignition switch OFF or ACC | Battery voltage | |
| 47 | O | Throttle control motor relay control | Input | — | Ignition switch ON or START | 0V | |
| | | | | | Ignition switch OFF or ACC | Battery voltage | |
| 48 | B/R | Starter relay (inhibit switch) | Input | ON or START | Selector lever in "P" or "N" | 0V | |
| | | | | | Selector lever any other position | Battery voltage | |
| 49 | R/L | Trailer tow relay illumination | Output | ON | Lighting switch must be in the 1st position | OFF | 0V |
| | | | | | | ON | Battery voltage |
| 50 | W/R | Front fog lamp (LH) | Output | ON or START | Lighting switch must be in the 2nd position (LOW beam is ON) and the front fog lamp switch | OFF | 0V |
| | | | | | | ON | Battery voltage |
| 51 | W/R | Front fog lamp (RH) | Output | ON or START | Lighting switch must be in the 2nd position (LOW beam is ON) and the front fog lamp switch | OFF | 0V |
| | | | | | | ON | Battery voltage |
| 52 | L | LH low beam head-lamp | Output | — | Lighting switch in 2nd position | Battery voltage | |
| 54 | R/Y | RH low beam head-lamp | Output | — | Lighting switch in 2nd position | Battery voltage | |
| 55 | G | LH high beam head-lamp | Output | — | Lighting switch in 2nd position and placed in HIGH or PASS position | Battery voltage | |
| 56 | Y (With DTRL) | RH high beam head-lamp | Output | — | Lighting switch in 2nd position and placed in HIGH or PASS position | Battery voltage | |
| 56 | L/W (Without DTRL) | RH high beam head-lamp | Output | — | Lighting switch in 2nd position and placed in HIGH or PASS position | Battery voltage | |
| 57 | R/L | Parking, license, and tail lamp | Output | ON | Lighting switch 1st position | OFF | 0V |
| | | | | | | ON | Battery voltage |
| 59 | B | Ground | Input | — | — | 0V | |
| 60 | B | Rear window defogger relay | Output | ON or START | Rear defogger switch ON | Battery voltage | |
| | | | | | Rear defogger switch OFF | 0V | |
| 61 | BR | Fuse 32 | Output | OFF | — | Battery voltage | |

*: When horn reminder is ON

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SEC

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

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

Fail Safe

INFOID:000000009823164

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 | <ul style="list-style-type: none">• Turns ON the cooling fan relay when the ignition switch is turned ON• Turns OFF the cooling fan relay when the ignition switch is turned OFF |

If No CAN Communication Is Available With BCM

| Control part | Fail-safe in operation |
|--|---|
| Headlamp | <ul style="list-style-type: none">• Turns ON the headlamp low relay when the ignition switch is turned ON• Turns OFF the headlamp low relay when the ignition switch is turned OFF• Headlamp high relay OFF |
| <ul style="list-style-type: none">• Parking lamps• License plate lamps• Tail lamps | <ul style="list-style-type: none">• Turns ON the tail lamp relay when the ignition switch is turned ON• Turns OFF the tail lamp relay when the ignition switch is turned OFF |
| Front wiper | <ul style="list-style-type: none">• The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed.• The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode and the front wiper motor is operating. |
| Rear window defogger | Rear window defogger relay OFF |
| A/C compressor | A/C relay OFF |
| Front fog lamps (if equipped) | Front fog lamp relay OFF |

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

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

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

NOTE:

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

FRONT WIPER CONTROL

IPDM E/R detects front wiper stop position by a front wiper auto stop signal.

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

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

NOTE:

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

STARTER MOTOR PROTECTION FUNCTION

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

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

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:000000009823165

| CONSULT display | Fail-safe | TIME ^{NOTE} | | Refer to |
|--|-----------|----------------------|--------|------------------------|
| No DTC is detected. further testing may be required. | — | — | — | — |
| U1000: CAN COMM CIRCUIT | × | CRNT | 1 – 39 | PCS-16 |

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.

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SEC

INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

< WIRING DIAGRAM >

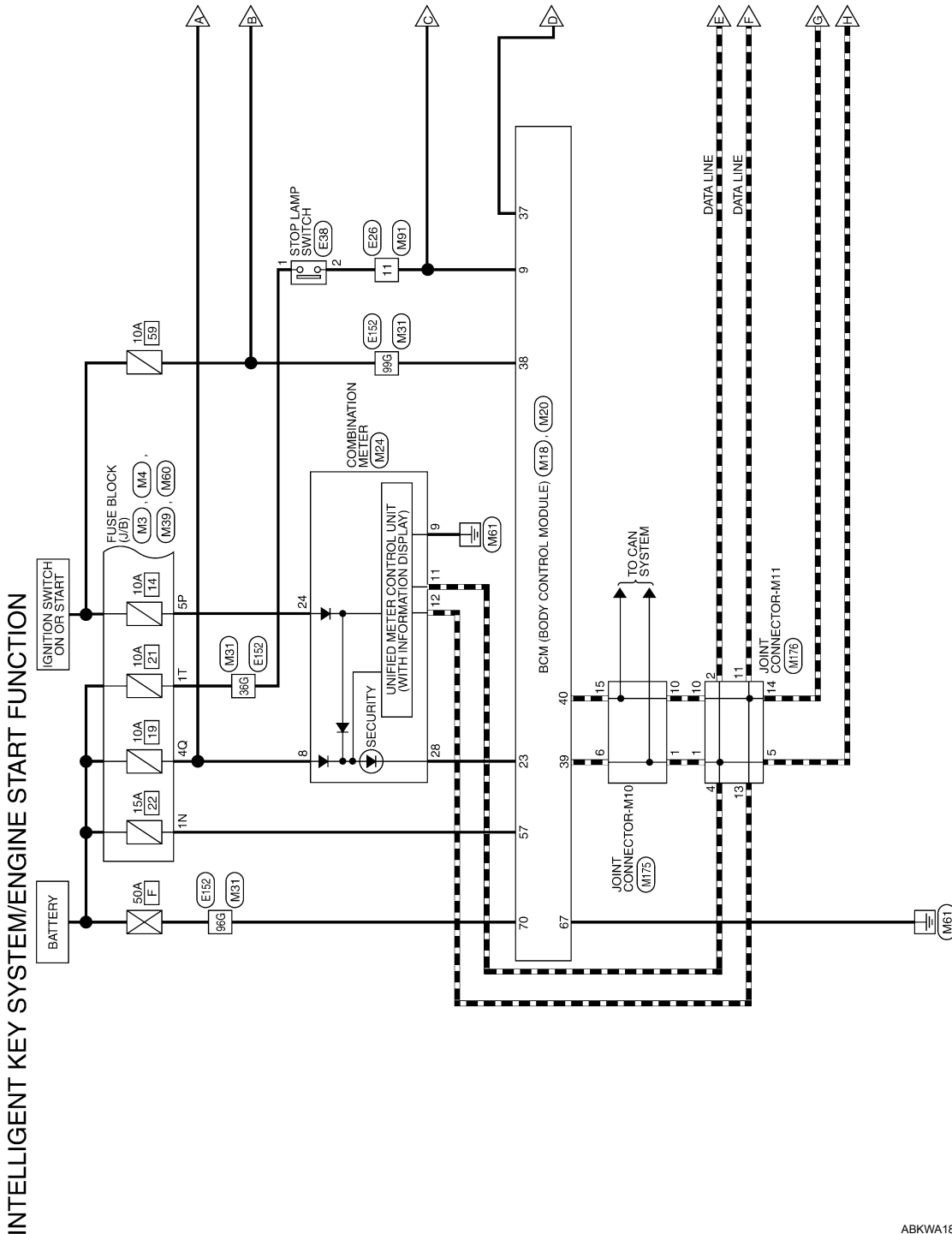
[WITH INTELLIGENT KEY SYSTEM]

WIRING DIAGRAM

INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

Wiring Diagram

INFOID:000000009823166

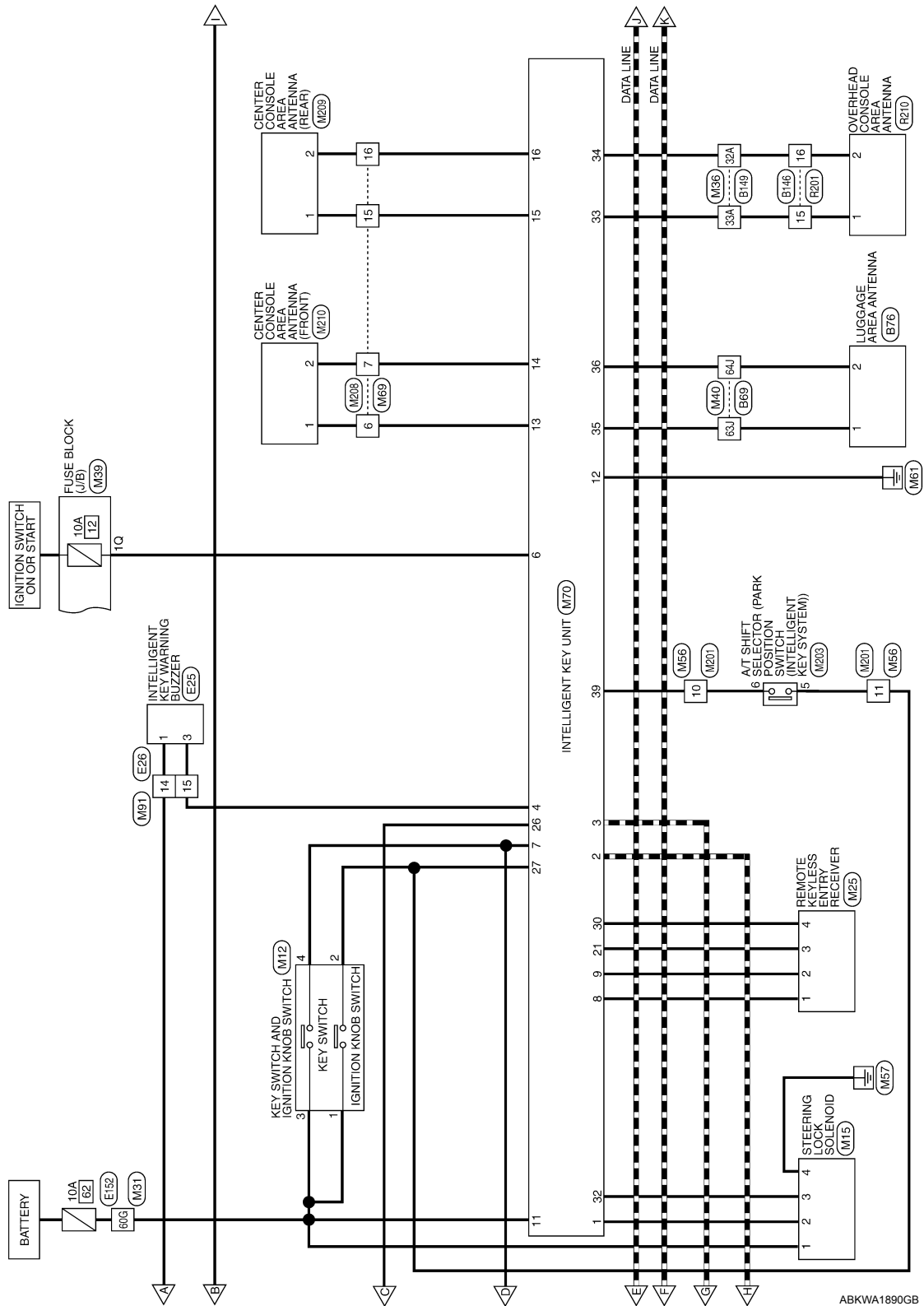


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INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]



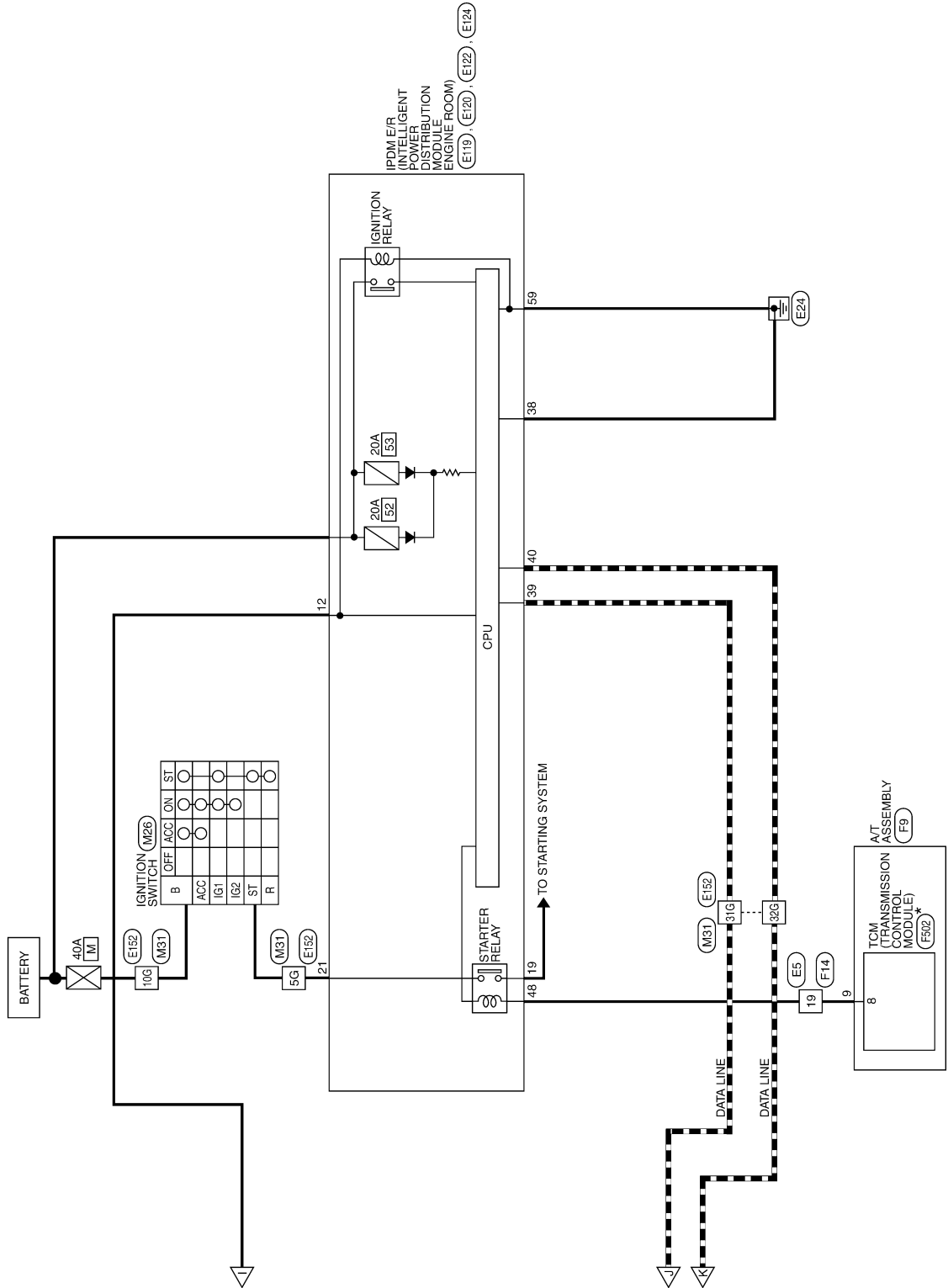
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INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]



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

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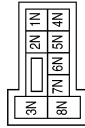
INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION CONNECTORS

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



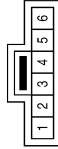
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1N | Y/R | - |

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



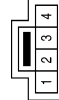
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 5P | O/L | - |

| | |
|-----------------|-------------------------------------|
| Connector No. | M12 |
| Connector Name | KEY SWITCH AND IGNITION KNOB SWITCH |
| Connector Color | GRAY |



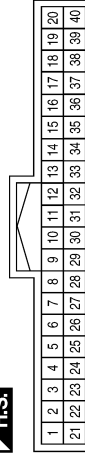
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1 | Y | - |
| 2 | R/B | - |
| 3 | Y | - |
| 4 | B/R | - |

| | |
|-----------------|------------------------|
| Connector No. | M15 |
| Connector Name | STEERING LOCK SOLENOID |
| Connector Color | WHITE |



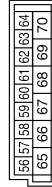
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1 | Y | - |
| 2 | L/Y | - |
| 3 | L/O | - |
| 4 | B | - |

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|---------------------------|
| 9 | R/G | BRAKE SW |
| 23 | G/O | SECURITY INDICATOR OUTPUT |
| 37 | B/R | KEY SW |
| 38 | W/L | IGN SW |
| 39 | L | CAN-H |
| 40 | P | CAN-L |

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



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

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INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

< WIRING DIAGRAM >

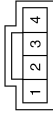
[WITH INTELLIGENT KEY SYSTEM]

| | |
|-----------------|-----------------|
| Connector No. | M26 |
| Connector Name | IGNITION SWITCH |
| Connector Color | WHITE |



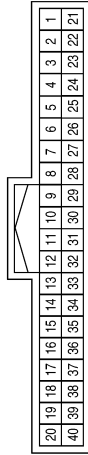
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| B | G | - |
| ST | BR | - |

| | |
|-----------------|-------------------------------|
| Connector No. | M25 |
| Connector Name | REMOTE KEYLESS ENTRY RECEIVER |
| Connector Color | BLACK |



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

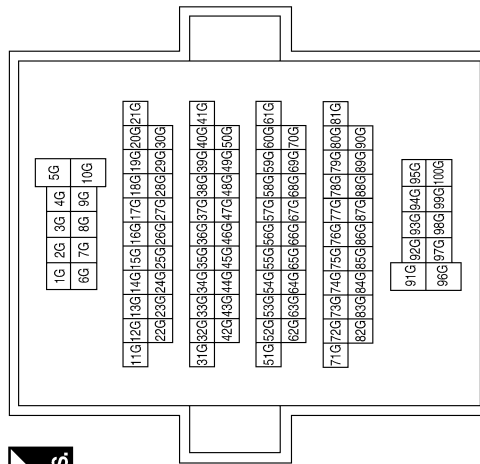
| | |
|-----------------|-------------------|
| Connector No. | M24 |
| Connector Name | COMBINATION METER |
| Connector Color | WHITE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 8 | Y/R | BATTERY |
| 9 | B | GND |
| 11 | L | CAN-H |
| 12 | P | CAN-L |
| 24 | O/L | RUN/START |
| 28 | G/O | SECURITY |

| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 5G | BR | - |
| 10G | G | - |
| 31G | L | - |
| 32G | P | - |
| 36G | R/Y | - |
| 60G | Y | - |
| 96G | W/B | - |
| 99G | W/L | - |

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



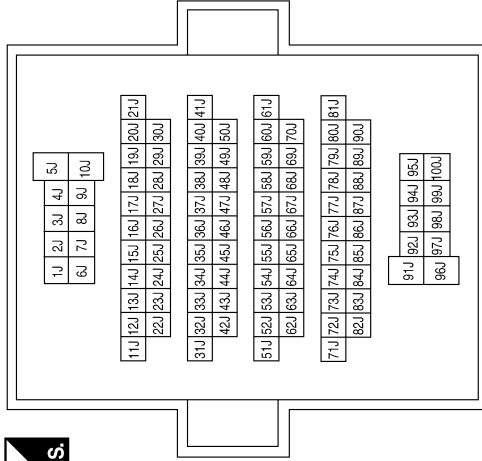
ABKIA4018GB

INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

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



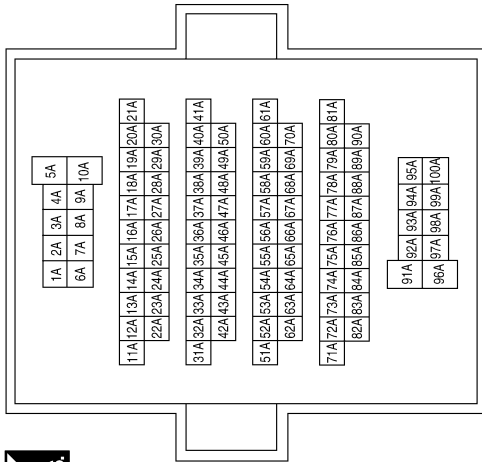
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 63J | O | - |
| 64J | R | - |

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1Q | G/R | - |
| 4Q | Y/R | - |

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 32A | BR | - |
| 33A | W | - |

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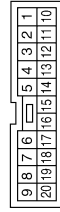
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INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

< WIRING DIAGRAM >

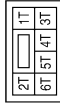
[WITH INTELLIGENT KEY SYSTEM]

| | |
|-----------------|--------------|
| Connector No. | M69 |
| Connector Name | WIRE TO WIRE |
| Connector Color | BROWN |



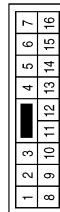
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 6 | B/W | - |
| 7 | W/G | - |
| 15 | G | - |
| 16 | L | - |

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



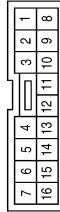
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1T | R/Y | - |

| | |
|-----------------|--------------|
| Connector No. | M56 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 10 | L/R | - |
| 11 | R/B | - |

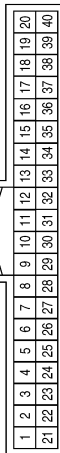
| | |
|-----------------|--------------|
| Connector No. | M91 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 11 | R/G | - |
| 14 | Y/R | - |
| 15 | GR | - |

| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|--------------------|
| 9 | GR | RF TUNER SIG |
| 11 | Y | BAT |
| 12 | B | GND |
| 13 | B/W | ROOM ANT3 (+) |
| 14 | W/G | ROOM ANT3 (-) |
| 15 | G | ROOM ANT1 (+) |
| 16 | L | ROOM ANT1 (-) |
| 21 | B/W | RF TUNER RSSI |
| 26 | R/G | BRAKE SW |
| 27 | R/B | PUSH SW INPUT |
| 30 | G/B | RF TUNER 5V OUTPUT |
| 32 | L/O | STRG C/U SIG |
| 33 | W | ROOM ANT4 (+) |
| 34 | BR | ROOM ANT4 (-) |
| 35 | O | ROOM ANT2 (+) |
| 36 | R | ROOM ANT2 (-) |
| 39 | L/R | P RANGE SW INPUT |

| | |
|-----------------|----------------------|
| Connector No. | M70 |
| Connector Name | INTELLIGENT KEY UNIT |
| Connector Color | WHITE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-----------------------|
| 1 | L/Y | STRG C/U 5V OUTPUT |
| 2 | L | CAN-H |
| 3 | P | CAN-L |
| 4 | GR | OUTSIDE BUZZER OUTPUT |
| 6 | G/R | IGN SW INPUT |
| 7 | B/R | KEY SW INPUT |
| 8 | G | RF TUNER GND |

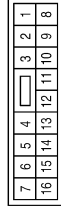
ABKIA4020GB

INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

< WIRING DIAGRAM >

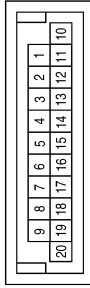
[WITH INTELLIGENT KEY SYSTEM]

| | |
|-----------------|--------------|
| Connector No. | M201 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



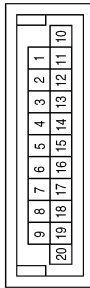
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 10 | L/R | - |
| 11 | R/B | - |

| | |
|-----------------|---------------------|
| Connector No. | M176 |
| Connector Name | JOINT CONNECTOR-M11 |
| Connector Color | BLUE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1 | L | - |
| 2 | L | - |
| 4 | L | - |
| 5 | L | - |
| 10 | P | - |
| 11 | P | - |
| 13 | P | - |
| 14 | P | - |

| | |
|-----------------|---------------------|
| Connector No. | M175 |
| Connector Name | JOINT CONNECTOR-M10 |
| Connector Color | BLUE |



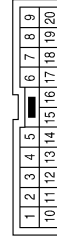
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1 | L | - |
| 6 | L | - |
| 10 | P | - |
| 15 | P | - |

| | |
|-----------------|------------------------------------|
| Connector No. | M209 |
| Connector Name | CENTER CONSOLE AREA ANTENNA (REAR) |
| Connector Color | WHITE |



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

| | |
|-----------------|--------------|
| Connector No. | M208 |
| Connector Name | WIRE TO WIRE |
| Connector Color | BROWN |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 6 | B/W | - |
| 7 | W/G | - |
| 15 | G | - |
| 16 | L | - |

| | |
|-----------------|--|
| Connector No. | M203 |
| Connector Name | A/T SHIFT SELECTOR (WITH INTELLIGENT KEY SYSTEM) |
| Connector Color | WHITE |



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

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INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

< WIRING DIAGRAM >

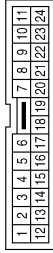
[WITH INTELLIGENT KEY SYSTEM]

| | |
|-----------------|--------------------------------|
| Connector No. | E25 |
| Connector Name | INTELLIGENT KEY WARNING BUZZER |
| Connector Color | BROWN |



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

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 19 | B/R | - |

| | |
|-----------------|-------------------------------------|
| Connector No. | M210 |
| Connector Name | CENTER CONSOLE AREA ANTENNA (FRONT) |
| Connector Color | GRAY |



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

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 12 | L/W | IGN SW (IG) |

| | |
|-----------------|------------------|
| Connector No. | E38 |
| Connector Name | STOP LAMP SWITCH |
| Connector Color | BLACK |



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

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 11 | R/G | - |
| 14 | Y/R | - |
| 15 | GR | - |

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INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

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



| | | |
|----|----|----|
| 59 | 58 | 57 |
| 62 | 61 | 60 |

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

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



| | | | | | |
|----|----|----|----|----|----|
| 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 |
| 48 | B/R | RANGE SW |

| | |
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| Connector No. | E120 |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Color | WHITE |



| | | |
|----|----|----|
| 21 | 20 | 19 |
| 24 | 23 | 22 |

| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 19 | W/R | STARTER MTR |
| 21 | BR | IGN SW (ST) |

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

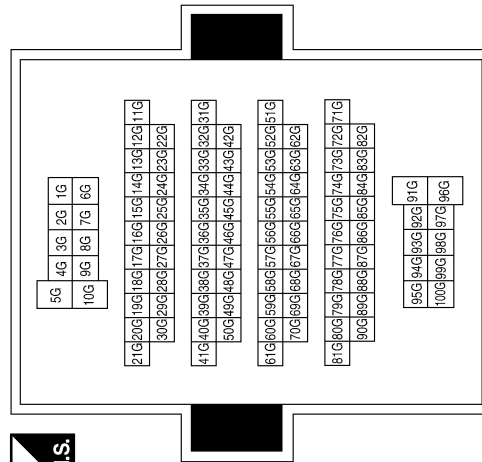


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| 5 | 4 | 3 | 2 | 1 |
| 10 | 9 | 8 | 7 | 6 |

| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 9 | B/R | - |

| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 5G | BR | - |
| 10G | G | - |
| 31G | L | - |
| 32G | P | - |
| 36G | R/Y | - |
| 60G | Y | - |
| 96G | W/B | - |
| 99G | L/W | - |

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



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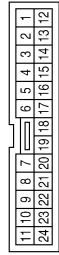
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INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

< WIRING DIAGRAM >

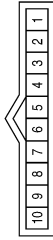
[WITH INTELLIGENT KEY SYSTEM]

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



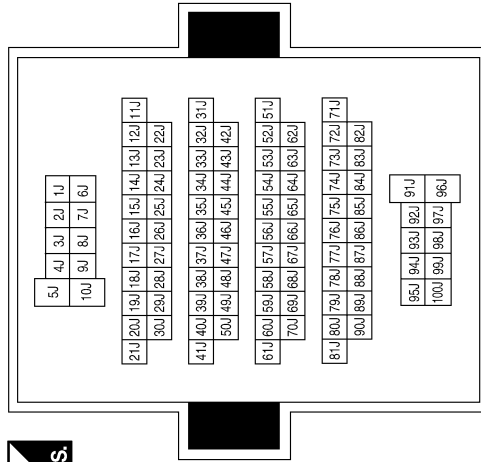
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 19 | B/R | — |

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 8 | G | START-RLY |

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 63J | O | — |
| 64J | R | — |

| | |
|-----------------|----------------------|
| Connector No. | B76 |
| Connector Name | LUGGAGE AREA ANTENNA |
| Connector Color | GRAY |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1 | O | — |
| 2 | R | — |

ABKIA4024GB

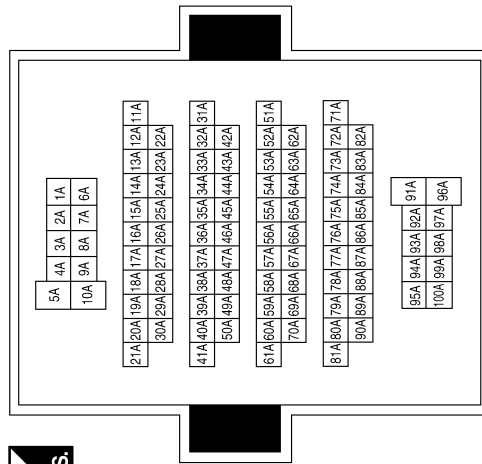
INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 32A | BR | - |
| 33A | W | - |

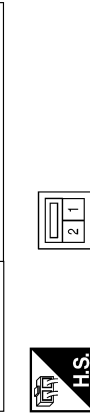
| Connector No. | B149 |
|-----------------|--------------|
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 15 | W | - |
| 16 | BR | - |

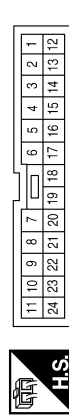
| Connector No. | B146 |
|-----------------|--------------|
| Connector Name | WIRE TO WIRE |
| Connector Color | BROWN |

| Connector No. | R210 |
|-----------------|-------------------------------|
| Connector Name | OVERHEAD CONSOLE AREA ANTENNA |
| Connector Color | WHITE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1 | W | - |
| 2 | BR | - |

| Connector No. | R201 |
|-----------------|--------------|
| Connector Name | WIRE TO WIRE |
| Connector Color | BROWN |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 15 | W | - |
| 16 | BR | - |

ABKIA4025GB

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VEHICLE SECURITY SYSTEM

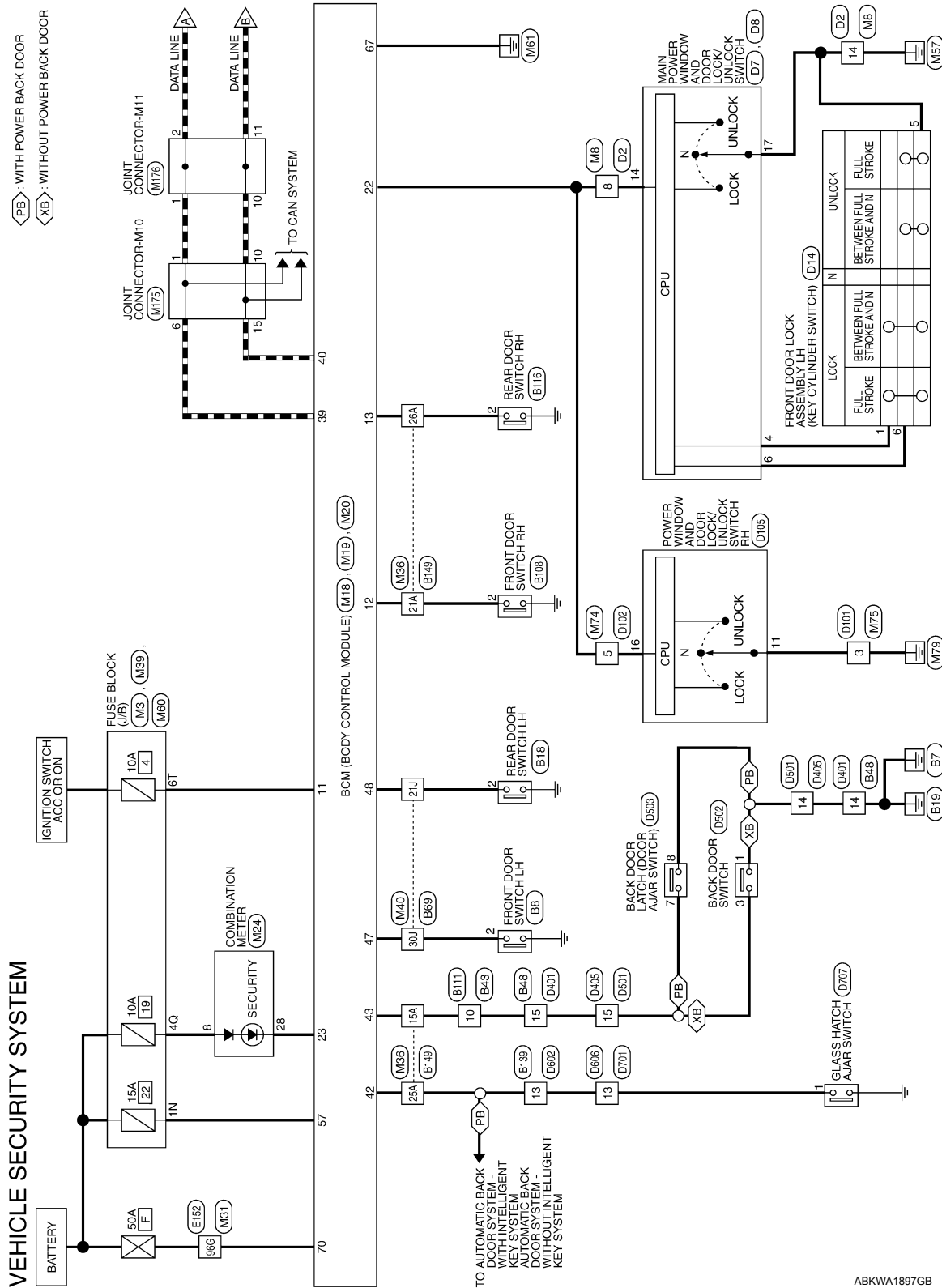
[WITH INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

VEHICLE SECURITY SYSTEM

Wiring Diagram

INFOID:000000009823167

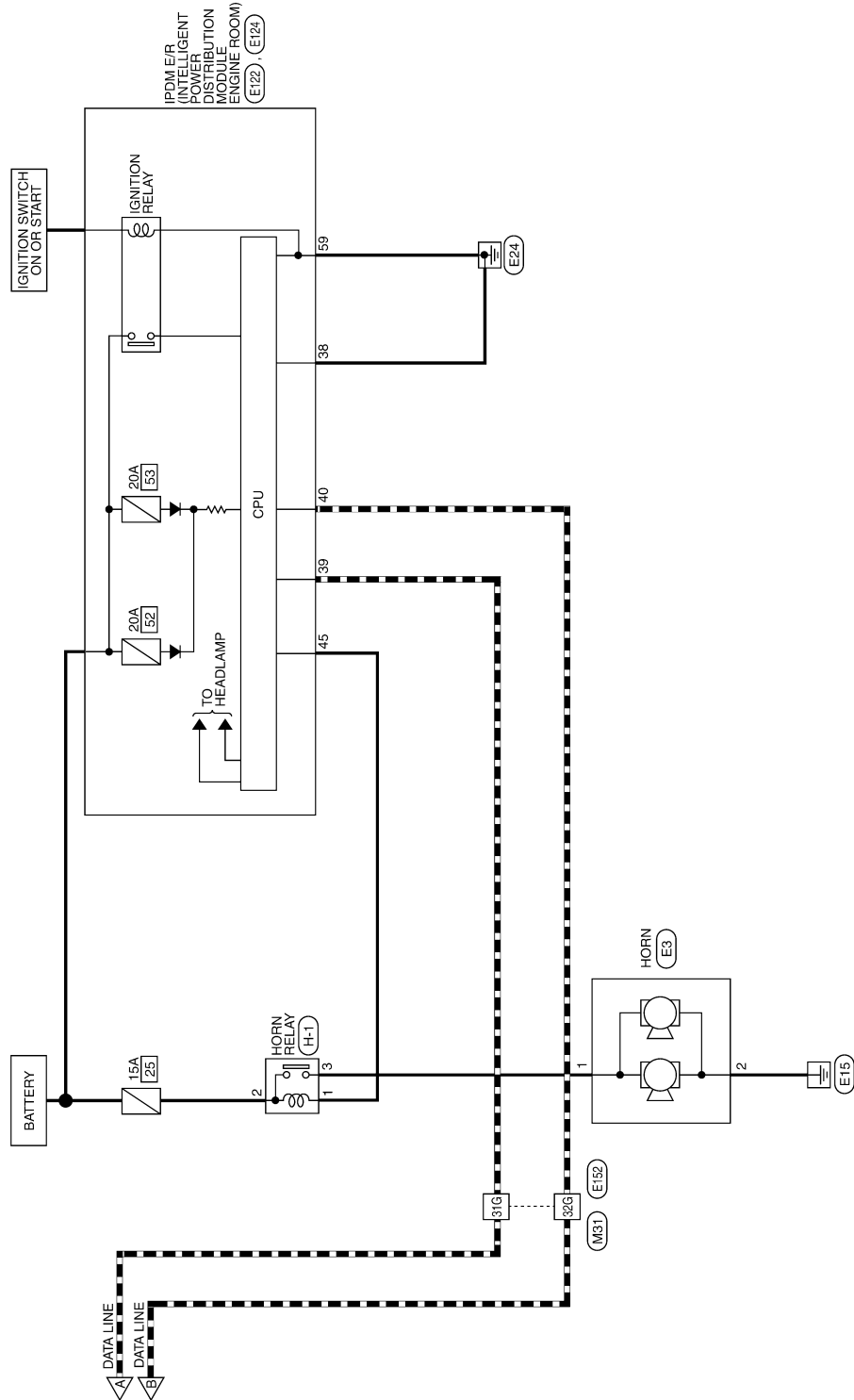


ABKWA1897GB

VEHICLE SECURITY SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >



ABKWA1898GB

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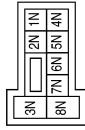
VEHICLE SECURITY SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

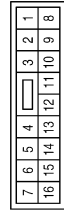
VEHICLE SECURITY SYSTEM CONNECTORS

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



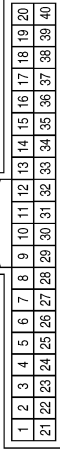
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1N | Y/R | - |

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



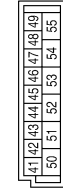
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 8 | W/W | - |
| 14 | B | - |

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



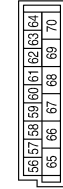
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|---------------------------------|
| 11 | O | ACC SW |
| 12 | R/L | DOOR SW (AS) |
| 13 | GR | DOOR SW (RR) |
| 22 | W/W | ANTI-PINCH SERIAL LINK (RX, TX) |
| 23 | G/O | SECURITY INDICATOR OUTPUT |
| 39 | L | CAN-H |
| 40 | P | CAN-L |

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



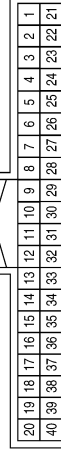
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|----------------|
| 42 | GR | GLASS HATCH SW |
| 43 | R/B | BACK DOOR SW |
| 47 | SB | DOOR SW (DR) |
| 48 | R/Y | DOOR SW (RL) |

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



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

| | |
|-----------------|-------------------|
| Connector No. | M24 |
| Connector Name | COMBINATION METER |
| Connector Color | WHITE |



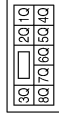
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 8 | Y/R | BATTERY |
| 28 | G/O | SECURITY |

VEHICLE SECURITY SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

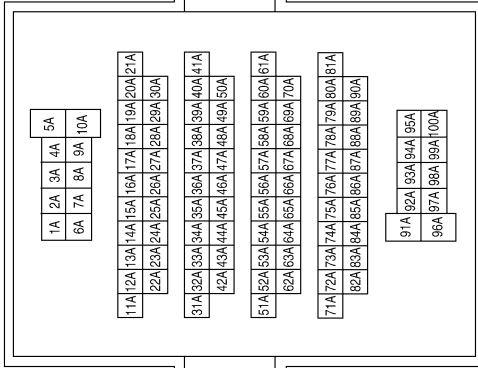
< WIRING DIAGRAM >

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



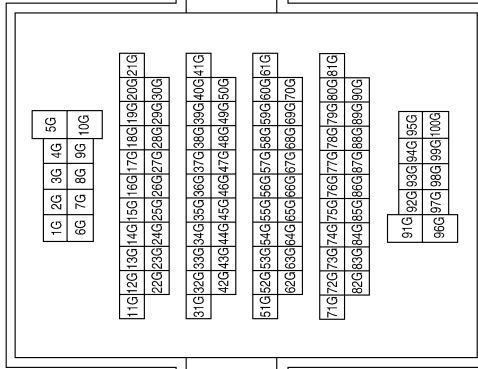
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 4Q | Y/R | - |

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 15A | R/B | - |
| 21A | R/L | - |
| 25A | GR | - |
| 26A | GR | - |

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



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

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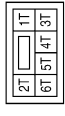
ABKIA4036GB

VEHICLE SECURITY SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

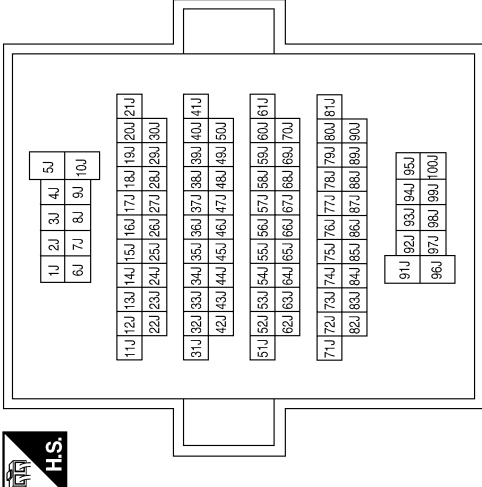
| | |
|-----------------|------------------|
| Connector No. | M60 |
| Connector Name | FUSE BLOCK (J/B) |
| Connector Color | WHITE |



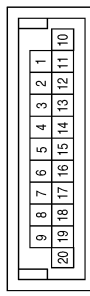
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 6T | O | - |

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

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

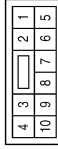


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|-----------------|---------------------|
| Connector No. | M175 |
| Connector Name | JOINT CONNECTOR-M10 |
| Connector Color | BLUE |



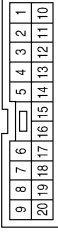
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1 | L | - |
| 6 | L | - |
| 10 | P | - |
| 15 | P | - |

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 3 | B | - |

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 5 | W/V | - |

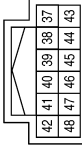
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VEHICLE SECURITY SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

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



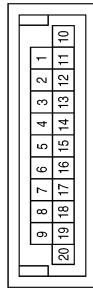
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|----------------|
| 38 | B | GND (SIGNAL) |
| 39 | L | CAN-H |
| 40 | P | CAN-L |
| 45 | G/W | ANT THEFT HORN |

| | |
|-----------------|-------|
| Connector No. | E3 |
| Connector Name | HORN |
| Connector Color | BLACK |



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

| | |
|-----------------|---------------------|
| Connector No. | M176 |
| Connector Name | JOINT CONNECTOR-M11 |
| Connector Color | BLUE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1 | L | - |
| 2 | L | - |
| 10 | P | - |
| 11 | P | - |

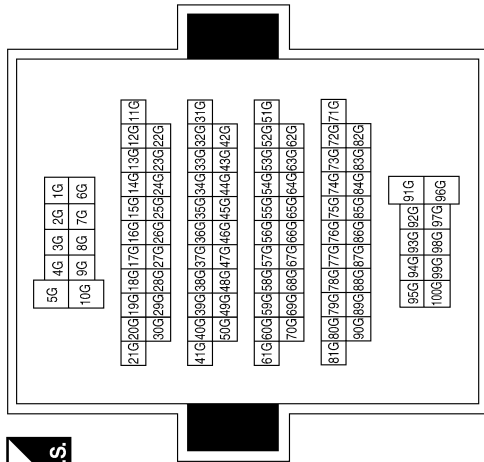
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| Connector No. | E152 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



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



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



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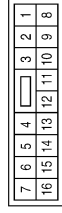
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VEHICLE SECURITY SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

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| Connector No. | B43 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



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|--------------|----|---------------|-----|-------------|---|
| Terminal No. | 10 | Color of Wire | R/W | Signal Name | - |
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| Connector No. | B18 |
| Connector Name | REAR DOOR SWITCH LH |
| Connector Color | WHITE |



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| Terminal No. | 2 | Color of Wire | R/Y | Signal Name | - |
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| Connector No. | B8 |
| Connector Name | FRONT DOOR SWITCH LH |
| Connector Color | WHITE |



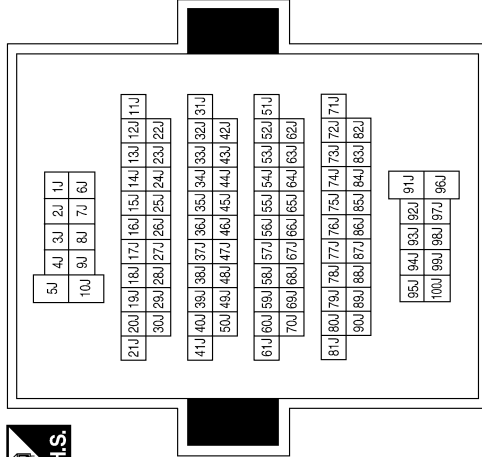
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| Terminal No. | 2 | Color of Wire | SB | Signal Name | - |
|--------------|---|---------------|----|-------------|---|

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



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

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



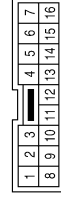
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| Terminal No. | 21J | Color of Wire | R/Y | Signal Name | - |
| Terminal No. | 30J | Color of Wire | SB | Signal Name | - |

VEHICLE SECURITY SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

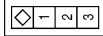
< WIRING DIAGRAM >

| | |
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| Connector No. | B139 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



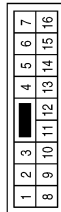
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| Terminal No. | 13 | Color of Wire | GR | Signal Name | - |
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| Connector No. | B116 |
| Connector Name | REAR DOOR SWITCH RH |
| Connector Color | WHITE |



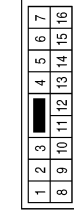
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| Terminal No. | 2 | Color of Wire | GR | Signal Name | - |
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| Connector No. | B111 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



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| Terminal No. | 10 | Color of Wire | R/W | Signal Name | - |
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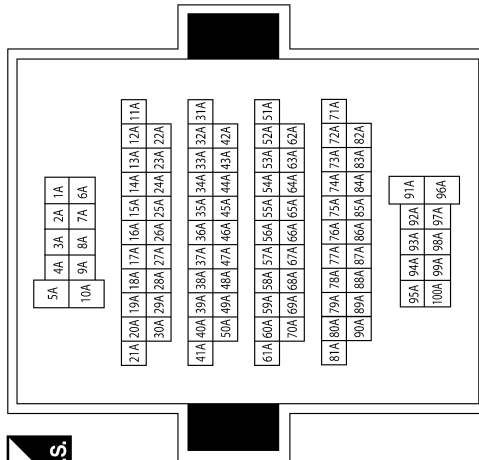
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| Connector No. | D2 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



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| Terminal No. | 8 | Color of Wire | LG/W | Signal Name | - |
| | 14 | | B | | - |

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|--------------|-----|---------------|-----|-------------|---|
| Terminal No. | 15A | Color of Wire | R/W | Signal Name | - |
| | 21A | | R/L | | - |
| | 25A | | GR | | - |
| | 26A | | GR | | - |

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



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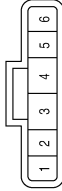
SEC

VEHICLE SECURITY SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

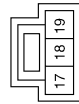
< WIRING DIAGRAM >

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



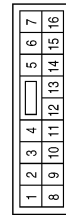
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1 | L | - |
| 5 | B | - |
| 6 | R | - |

| | |
|-----------------|---|
| Connector No. | D8 |
| Connector Name | MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH |
| Connector Color | WHITE |



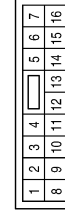
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 17 | B | GND |

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| Connector No. | D7 |
| Connector Name | MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH |
| Connector Color | WHITE |



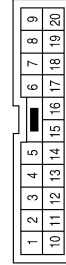
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|------------------------|
| 4 | L | LOCK |
| 6 | R | UNLOCK |
| 14 | LG/W | ANTI PINCH SERIAL LINK |

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



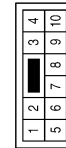
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|------------------------|
| 11 | B | GND |
| 16 | LG/W | ANTI PINCH SERIAL LINK |

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 5 | LG/W | - |

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 3 | B | - |

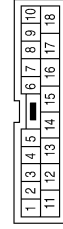
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VEHICLE SECURITY SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

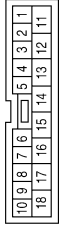
< WIRING DIAGRAM >

| | |
|-----------------|--------------|
| Connector No. | D501 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



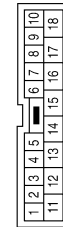
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 14 | B | - |
| 15 | R/W | - |

| | |
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| Connector No. | D405 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



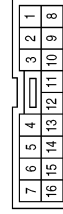
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 14 | B | - |
| 15 | R/W | - |

| | |
|-----------------|--------------|
| Connector No. | D401 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



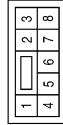
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 14 | B | - |
| 15 | R/W | - |

| | |
|-----------------|--------------|
| Connector No. | D602 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



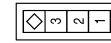
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 13 | GR | - |

| | |
|-----------------|-----------------|
| Connector No. | D503 |
| Connector Name | BACK DOOR LATCH |
| Connector Color | WHITE |



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

| | |
|-----------------|------------------|
| Connector No. | D502 |
| Connector Name | BACK DOOR SWITCH |
| Connector Color | WHITE |



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

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VEHICLE SECURITY SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

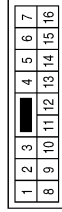
< WIRING DIAGRAM >

| | |
|-----------------|--------------------------|
| Connector No. | D707 |
| Connector Name | GLASS HATCH A-JAR SWITCH |
| Connector Color | BLACK |



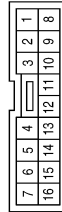
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| Terminal No. | 1 | Color of Wire | GR | Signal Name | - |
|--------------|---|---------------|----|-------------|---|

| | |
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| Connector No. | D701 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



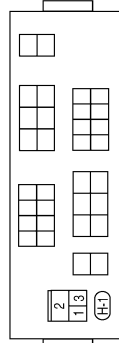
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| Terminal No. | 13 | Color of Wire | GR | Signal Name | - |
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|-----------------|--------------|
| Connector No. | D606 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



| | | | | | |
|--------------|----|---------------|----|-------------|---|
| Terminal No. | 13 | Color of Wire | GR | Signal Name | - |
|--------------|----|---------------|----|-------------|---|

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



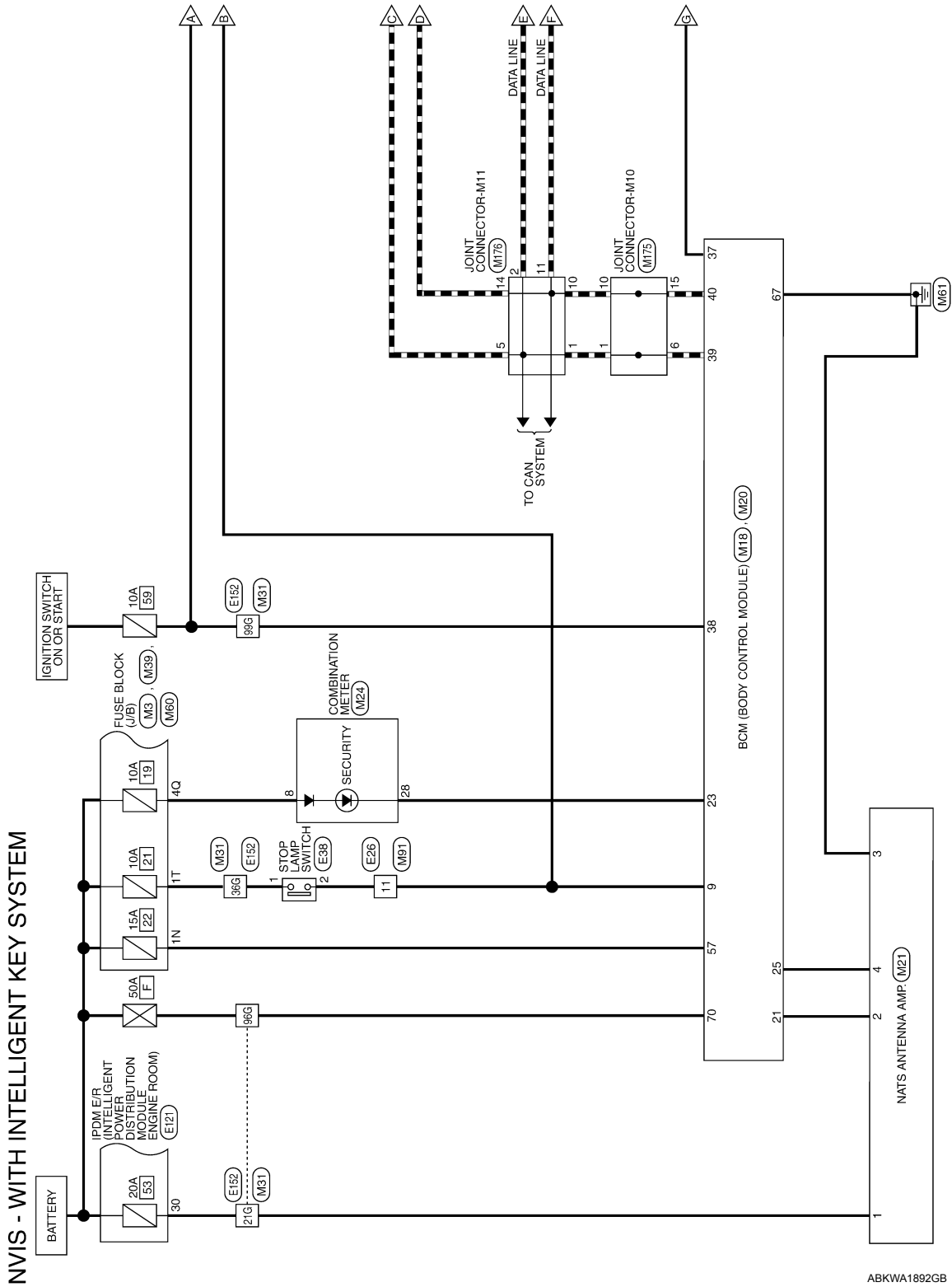
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| Terminal No. | Color of Wire | Signal Name |
| 1 | R/W | - |
| 2 | G/B | - |
| 3 | G | - |

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NVIS

Wiring Diagram - With Intelligent Key System

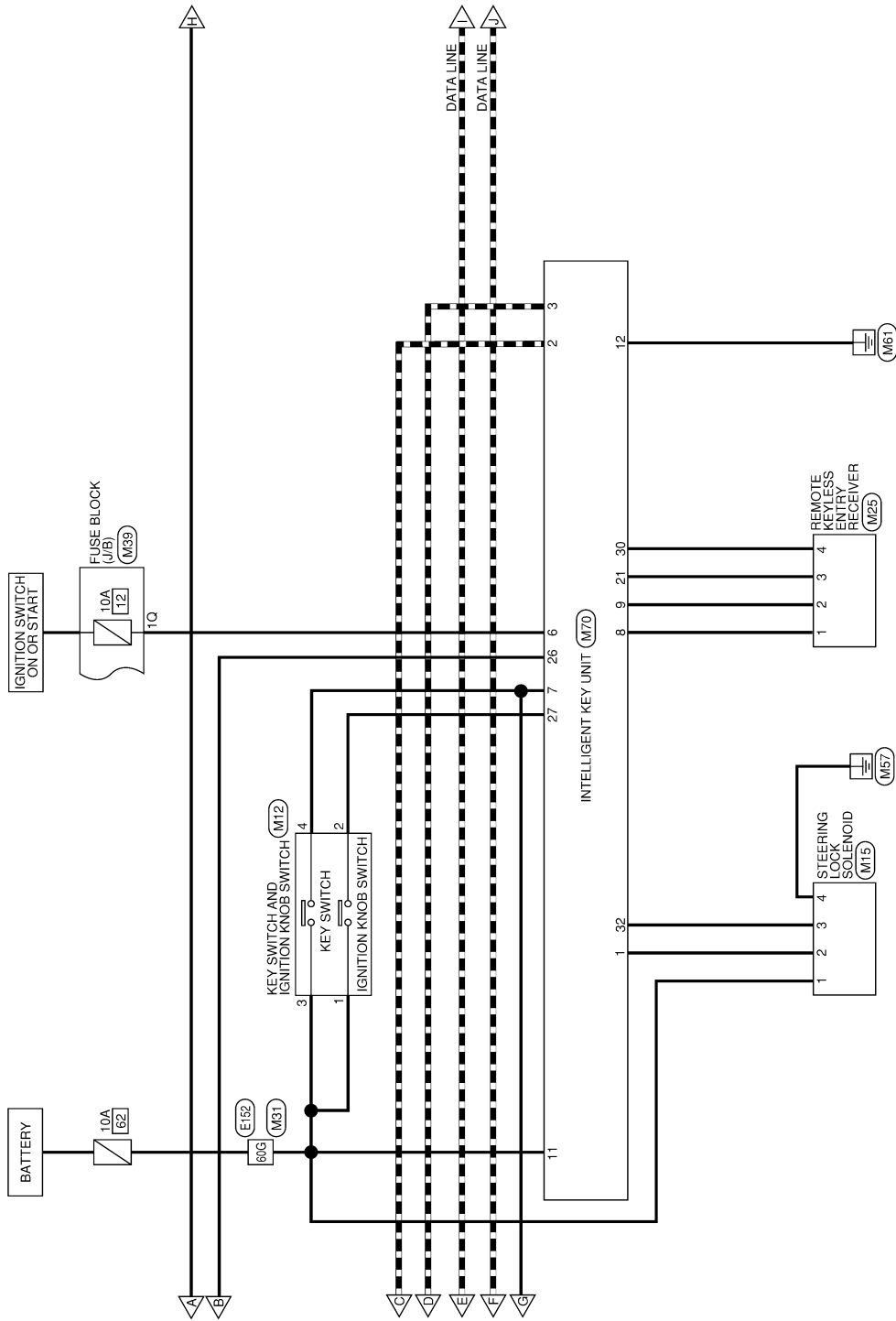
INFOID:000000009823168



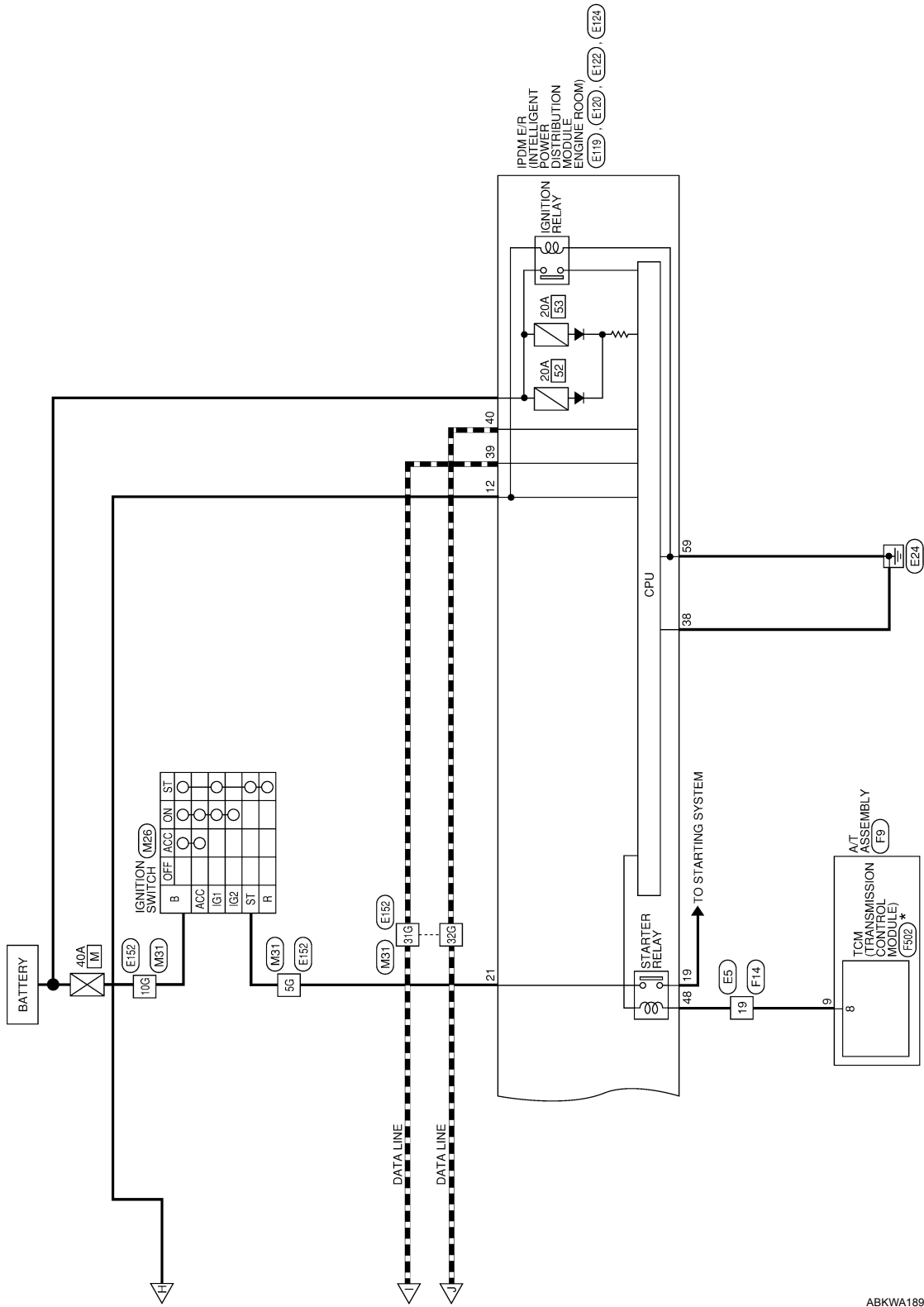
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*: THIS CONNECTOR IS NOT SHOWN IN "HARNES LAYOUT" OF PG SECTION.

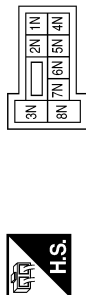
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NVIS CONNECTORS - WITH INTELLIGENT KEY SYSTEM

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



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

| | |
|-----------------|-------------------------------------|
| Connector No. | M12 |
| Connector Name | KEY SWITCH AND IGNITION KNOB SWITCH |
| Connector Color | GRAY |



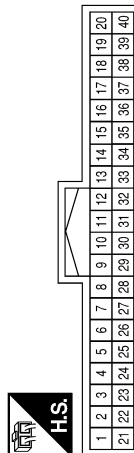
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1 | Y | - |
| 2 | R/B | - |
| 3 | Y | - |
| 4 | B/R | - |

| | |
|-----------------|------------------------|
| Connector No. | M15 |
| Connector Name | STEERING LOCK SOLENOID |
| Connector Color | WHITE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1 | Y | - |
| 2 | L/Y | - |
| 3 | L/O | - |
| 4 | B | - |

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------------------------------|
| 9 | R/G | BRAKE SW |
| 21 | G | IMMOBILIZER ANTENNA SIGNAL (CLOCK) |
| 23 | G/O | SECURITY INDICATOR OUTPUT |
| 25 | BR | IMMOBILIZER ANTENNA SIGNAL (RX, TX) |

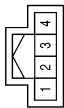
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 37 | B/R | KEY SW |
| 38 | W/L | IGN SW |
| 39 | L | CAN-H |
| 40 | P | CAN-L |

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



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

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



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

| | |
|-----------------|-------------------|
| Connector No. | M24 |
| Connector Name | COMBINATION METER |
| Connector Color | WHITE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 8 | Y/R | BATTERY |
| 28 | G/O | SECURITY |

| | |
|-----------------|-------------------------------|
| Connector No. | M25 |
| Connector Name | REMOTE KEYLESS ENTRY RECEIVER |
| Connector Color | BLACK |



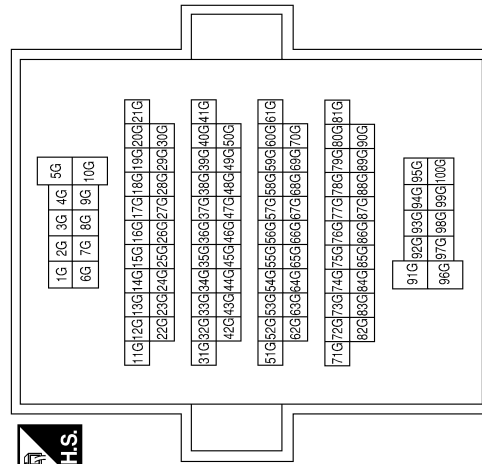
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1 | G | - |
| 2 | GR | - |
| 3 | B/W | - |
| 4 | G/B | - |

| | |
|-----------------|-----------------|
| Connector No. | M26 |
| Connector Name | IGNITION SWITCH |
| Connector Color | WHITE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| B | G | - |
| ST | BR | - |

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

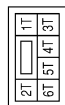


| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 5G | BR | - |
| 10G | G | - |
| 21G | W | - |
| 31G | L | - |
| 32G | P | - |
| 36G | R/Y | - |
| 60G | Y | - |
| 96G | W/B | - |
| 99G | W/L | - |

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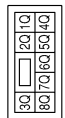
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| Connector No. | M60 |
| Connector Name | FUSE BLOCK (J/B) |
| Connector Color | WHITE |



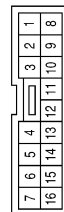
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1T | R/Y | - |

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



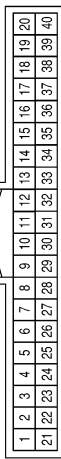
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1Q | G/R | - |
| 4Q | Y/R | - |

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-----------------|
| 3 | P | CAN-L |
| 6 | G/R | IGN SW INPUT |
| 7 | B/R | KEY SW INPUT |
| 8 | G | RF TUNER GND |
| 9 | GR | RF TUNER SIG |
| 11 | Y | BAT |
| 12 | B | GND |
| 21 | B/W | RF TUNER RSSI |
| 26 | R/G | BRAKE SW |
| 27 | R/B | PUSH SW INPUT |
| 30 | G/B | RF TUNER 5V OUT |
| 32 | L/O | STRG C/U SIG |

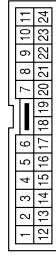
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| Connector No. | M70 |
| Connector Name | INTELLIGENT KEY UNIT |
| Connector Color | WHITE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|--------------------|
| 1 | L/Y | STRG C/U 5V OUTPUT |
| 2 | L | CAN-H |

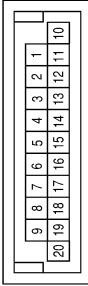
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| Connector No. | E5 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



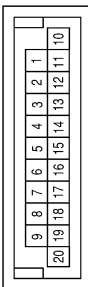
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 19 | B/R | - |

| | |
|-----------------|---------------------|
| Connector No. | M176 |
| Connector Name | JOINT CONNECTOR-M11 |
| Connector Color | BLUE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1 | L | - |
| 2 | L | - |
| 5 | L | - |
| 10 | P | - |
| 11 | P | - |
| 14 | P | - |

| | |
|-----------------|---------------------|
| Connector No. | M175 |
| Connector Name | JOINT CONNECTOR-M10 |
| Connector Color | BLUE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1 | L | - |
| 6 | L | - |
| 10 | P | - |
| 15 | P | - |

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 12 | L/W | IGN SW (IG) |

| | |
|-----------------|------------------|
| Connector No. | E38 |
| Connector Name | STOP LAMP SWITCH |
| Connector Color | BLACK |



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

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



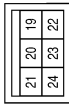
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 11 | R/G | - |

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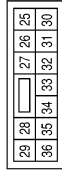
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| Connector No. | E120 |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Color | WHITE |



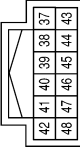
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 19 | W/R | STARTER MTR |
| 21 | BR | IGN SW (ST) |

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



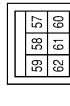
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 30 | W | ECM BAT |

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



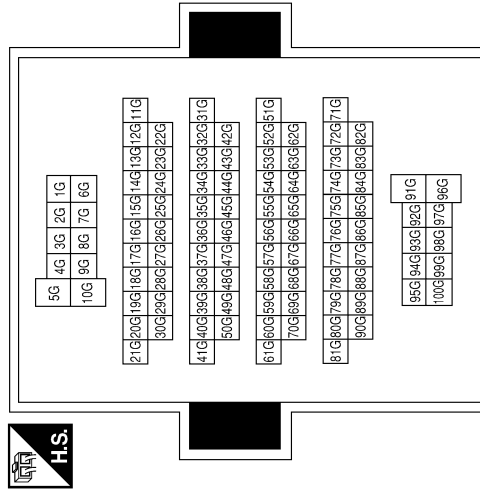
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|--------------|
| 38 | B | GND (SIGNAL) |
| 39 | L | CAN-H |
| 40 | P | CAN-L |
| 48 | B/R | RANGE SW |

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





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

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




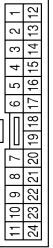
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 5G | BR | - |
| 10G | G | - |
| 21G | W | - |
| 31G | L | - |
| 32G | P | - |
| 36G | R/Y | - |
| 60G | Y | - |
| 96G | W/B | - |
| 99G | L/W | - |

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


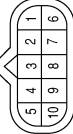
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| Terminal No. | 8 | Color of Wire | G | Signal Name | START-RLY |
|--------------|---|---------------|---|-------------|-----------|

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

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|--------------|----|---------------|-----|-------------|---|
| Terminal No. | 19 | Color of Wire | B/R | Signal Name | - |
|--------------|----|---------------|-----|-------------|---|

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

| | | | | | |
|--------------|---|---------------|-----|-------------|---|
| Terminal No. | 9 | Color of Wire | B/R | Signal Name | - |
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INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION SYMPTOMS

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

SYMPTOM DIAGNOSIS

INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION SYMPTOMS

Symptom Table

INFOID:000000009823169

NOTE:

- Before performing the diagnosis in the following table, check "[SEC-5. "Work Flow"](#)".
- Check that vehicle is under the condition shown in "Conditions of vehicle" before starting diagnosis, and check each symptom.
- Engine cranking is enabled when the shift lever is in the "Park" position, and in the "Neutral" position only if the brake pedal is depressed.
- If the following symptoms are detected, check systems shown in the "Diagnosis/service procedure" column in this order.

CONDITIONS OF VEHICLE (OPERATING CONDITIONS)

- Engine start function is ON when setting on CONSULT.
- Mechanical key is not inserted in key cylinder.
- One or more of Intelligent Keys with registered Intelligent Key ID is in the vehicle.

| Symptom | Diagnosis/service procedure | Reference page |
|--|--|-------------------------|
| Ignition switch does not turn on with Intelligent Key. [LCD displays "KEY DETECTED"] | 1. Check steering lock solenoid. | SEC-30 |
| | 2. Replace Intelligent Key unit. | SEC-122 |
| Ignition switch does not turn on with Intelligent Key. [LCD does not display "KEY DETECTED"] | 1. Check Intelligent Key unit power supply and ground circuit. | DLK-71 |
| | 2. Check ignition knob switch. | DLK-118 |
| | 3. Check key switch (BCM input). | DLK-117 |
| | 4. Check key switch (Intelligent Key unit input). | DLK-115 |
| | 5. Replace Intelligent Key unit. | SEC-122 |
| Ignition switch does not turn on with Intelligent Key. [LCD displays " NO KEY DETECTED"] | 1a. Check center console area antenna (rear). | DLK-63 |
| | 1b. Check luggage area antenna. | DLK-69 |
| | 1c. Check center console area antenna (front). | DLK-65 |
| | 1d. Check overhead console area antenna. | DLK-67 |
| | 2. Replace Intelligent Key unit. | SEC-122 |
| Ignition switch does not turn on with mechanical key | 1. Check key switch (BCM input). | DLK-117 |
| | 2. Check key switch (Intelligent Key unit input). | DLK-115 |
| Engine cannot be cranked with transmission in "Park" or in "Neutral" position with brake pedal depressed | 1. Check transmission signal. | TM-48 |
| | 2. Check stop lamp switch. | SEC-84 |

VEHICLE SECURITY SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

VEHICLE SECURITY SYSTEM SYMPTOMS

Symptom Table

INFOID:000000009823170

| Procedure | | Diagnostic procedure | Refer to page |
|-----------|--|--|--|
| Symptom | | | |
| 1 | Vehicle security system cannot be set by | Door switch | Check door switch (LF, RF, LR, RR, back) DLK-74 |
| | | Glass ajar switch | Check glass ajar switch DLK-126 |
| | | Intelligent Key | Check Intelligent Key system DLK-8 |
| | | Key cylinder switch | Check key cylinder switch DLK-82 |
| | | — | Check Intermittent Incident GI-42 |
| | Security indicator does not turn ON. | Check vehicle security indicator SEC-58 Check Intermittent Incident GI-42 | |
| 2 | * Vehicle security system does not sound alarm when | Any door is opened. | Check door switch (LF, RF, LR, RR, back) DLK-74 |
| | | Glass ajar switch | Check glass ajar switch DLK-126 |
| | | — | Check Intermittent Incident GI-42 |
| 3 | Vehicle security alarm does not activate. | Horn alarm | Check horn switch — Check Intermittent Incident GI-42 |
| | | — | — Check Intermittent Incident GI-42 |
| 4 | Vehicle security system cannot be canceled by | Intelligent Key | Check Intelligent Key system DLK-8 |
| | | Key cylinder switch | Check key cylinder switch DLK-82 |
| | | — | Check Intermittent Incident GI-42 |

*: Check the system is in the armed phase.

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SEC

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS SYMPTOMS

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS SYMPTOMS

Symptom Table

INFOID:000000009823171

NOTE:

- Before performing the diagnosis in the following table, check "[SEC-5. "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)

- Mechanical key is not inserted into key cylinder.
- Ignition knob switch is not depressed.

| Symptom | Diagnosis/service procedure | Reference page |
|---|-------------------------------------|------------------------|
| Security indicator does not turn ON or flash. | 1. Check vehicle security indicator | SEC-58 |
| | 2. Check Intermittent Incident | GI-42 |

< PRECAUTION >

PRECAUTION

PRECAUTIONS

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

INFOID:000000009823172

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

WARNING:

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

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

WARNING:

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

Precaution Necessary for Steering Wheel Rotation After Battery Disconnect

INFOID:000000009823173

NOTE:

- This Procedure is applied only to models with Intelligent Key system and NATS (NISSAN ANTI-THEFT SYSTEM).
- Remove and install all control units after disconnecting both battery cables with the ignition knob in the "LOCK" position.
- Always use CONSULT to perform self-diagnosis as a part of each function inspection after finishing work. If DTC is detected, perform trouble diagnosis according to self-diagnostic results.

For models equipped with the Intelligent Key system and NATS, an electrically controlled steering lock mechanism is adopted on the key cylinder.

For this reason, if the battery is disconnected or if the battery is discharged, the steering wheel will lock and steering wheel rotation will become impossible.

If steering wheel rotation is required when battery power is interrupted, follow the procedure below before starting the repair operation.

OPERATION PROCEDURE

1. Connect both battery cables.
 - NOTE:**
Supply power using jumper cables if battery is discharged.
2. Use the Intelligent Key or mechanical key to turn the ignition switch to the "ACC" position. At this time, the steering lock will be released.
3. Disconnect both battery cables. The steering lock will remain released and the steering wheel can be rotated.
4. Perform the necessary repair operation.

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PRECAUTIONS

< PRECAUTION >

[WITH INTELLIGENT KEY SYSTEM]

5. When the repair work is completed, return the ignition switch to the "LOCK" position before connecting the battery cables. (At this time, the steering lock mechanism will engage.)
6. Perform a self-diagnosis check of all control units using CONSULT.

NATS ANTENNA AMP.

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

REMOVAL AND INSTALLATION

NATS ANTENNA AMP.

Removal and Installation

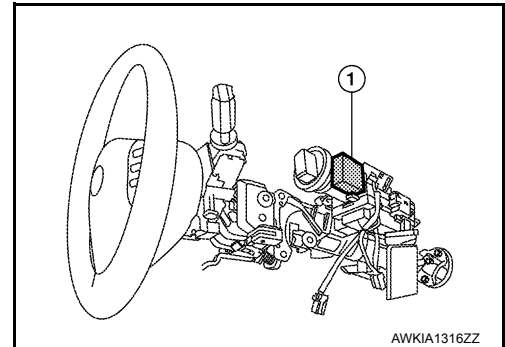
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NOTE:

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

REMOVAL

1. Disconnect the battery negative terminal. Refer to [PG-5. "How to Handle Battery"](#).
2. Remove cluster lid A. Refer to [JP-14. "Removal and Installation"](#).
3. Remove the NATS antenna amp bolt.
4. Disconnect the harness connector from the NATS antenna amp. (1) and remove.



INSTALLATION

Installation is in the reverse order of removal.

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INTELLIGENT KEY UNIT

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

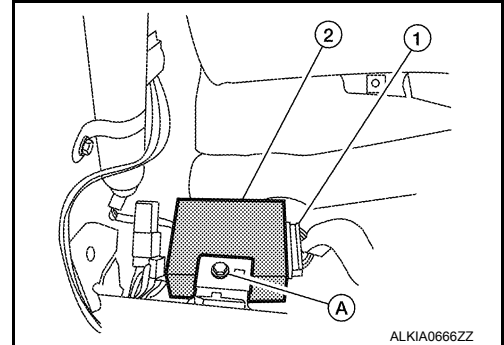
INTELLIGENT KEY UNIT

Removal and Installation

INFOID:000000009823175

REMOVAL

1. Remove cluster lid A. Refer to [IP-14, "Removal and Installation"](#).
2. Disconnect the harness connector (1) from the intelligent Key unit (2).
3. Remove the Intelligent Key unit bolt (A) and the Intelligent Key unit (2).



INSTALLATION

Installation is in the reverse order of removal.

REMOTE KEYLESS ENTRY RECEIVER

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

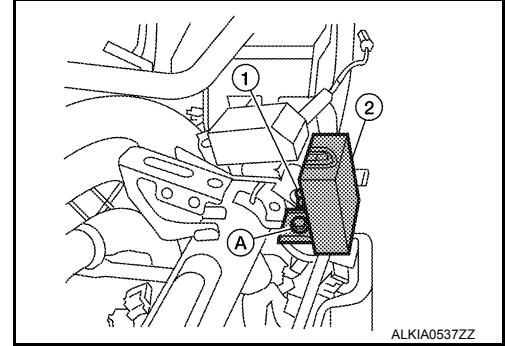
REMOTE KEYLESS ENTRY RECEIVER

Removal and Installation

INFOID:000000009823176

REMOVAL

1. Remove the instrument lower panel RH. Refer to [IP-12. "Removal and Installation"](#).
2. Disconnect the harness connector (1) from the RKE receiver (2).
3. Remove the RKE receiver bolt (A) and the RKE receiver (2).



INSTALLATION

Installation is in the reverse order of removal.

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

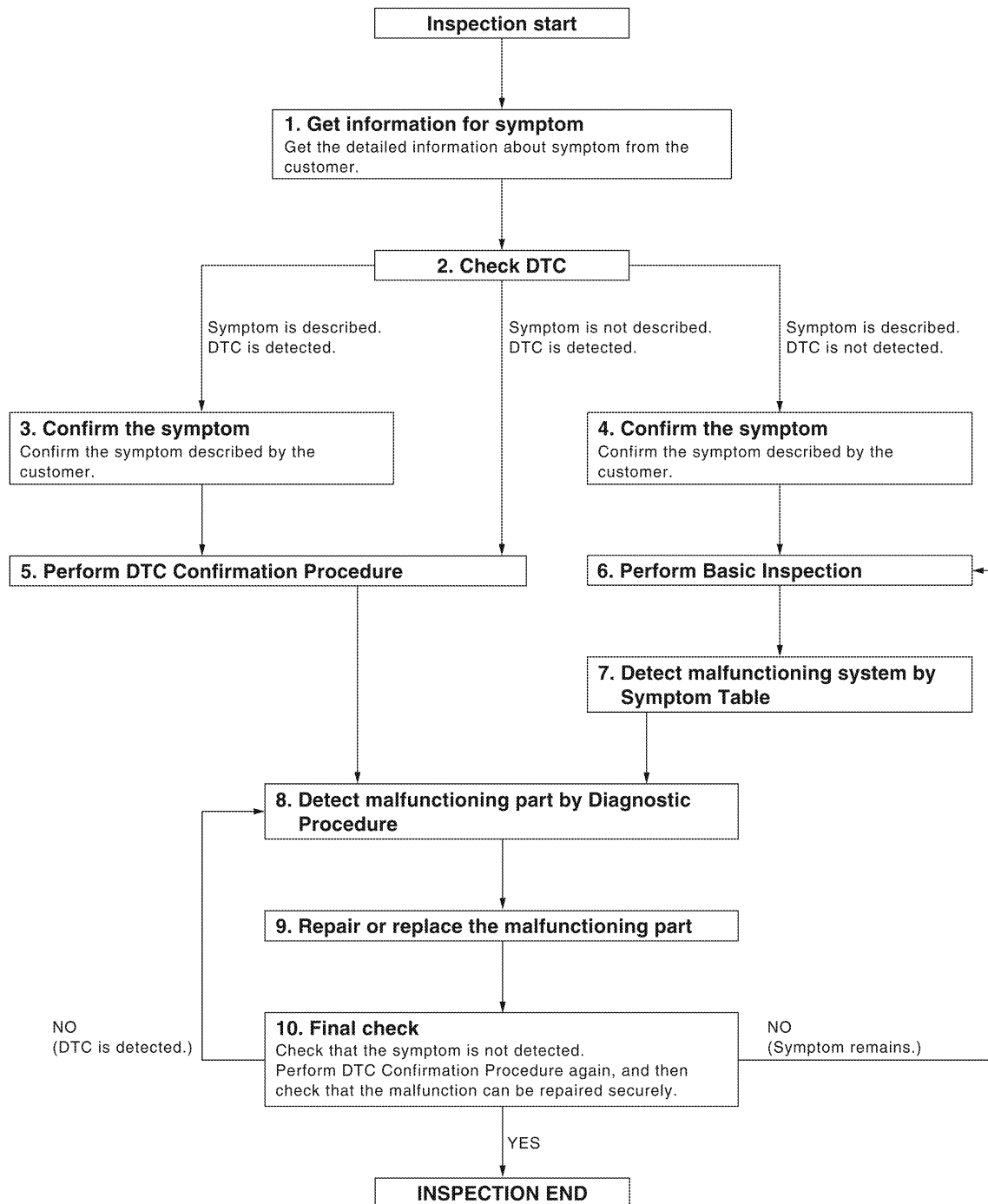
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000009823177

OVERALL SEQUENCE



ALKIA0538GB

DETAILED FLOW

Revision: August 2013

SEC-124

2014 Armada NAM

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

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 DTC for Intelligent Key unit and BCM.
2. Perform the following procedure if DTC is displayed.
 - Erase DTC.
 - Study the relationship between the cause detected by DTC and the symptom described by the customer.
3. Check related service bulletins for information.

Is any symptom described and any DTC detected?

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

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

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

3.CONFIRM THE SYMPTOM

Confirm the symptom described by the customer.

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

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

>> GO TO 5

4.CONFIRM THE SYMPTOM

Confirm the symptom described by the customer.

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

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

>> GO TO 6

5.PERFORM DTC CONFIRMATION PROCEDURE

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

If two or more DTCs are detected, refer to [BCS-44, "DTC Inspection Priority Chart"](#) (BCM) and determine trouble diagnosis order.

Is DTC detected?

YES >> GO TO 8

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

6.PERFORM BASIC INSPECTION

Perform Basic Inspection. Refer to [SEC-127, "Basic Inspection"](#).

>> GO TO 7

7.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM TABLE

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

>> GO TO 8

8.DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

NOTE:

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

>> GO TO 9

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

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.

PRE-INSPECTION FOR DIAGNOSTIC

[WITHOUT INTELLIGENT KEY SYSTEM]

< BASIC INSPECTION >

PRE-INSPECTION FOR DIAGNOSTIC

Basic Inspection

INFOID:000000009823178

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 mechanical key.
2. Check that security indicator lamp illuminates for 30 seconds.

Does the security indicator lamp illuminate?

YES >> GO TO 3.

NO >> Perform diagnosis and repair. Refer to [SEC-160, "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 mechanical key, or open back door or glass hatch without keyfob.

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-197, "Symptom Table"](#).
- Alarm (horn and headlamps) does not operate. Refer to [SEC-197, "Symptom Table"](#).

4.CHECK ALARM CANCEL OPERATION

Unlock any door using keyfob or mechanical key.

Does the alarm (horn and headlamps) stop.

YES >> Inspection End.

NO >> Check door lock function. Refer to [DLK-250, "DOOR LOCK AND UNLOCK SWITCH : System Description"](#).

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INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement

INFOID:000000009823179

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

ECM RE-COMMUNICATING FUNCTION

ECM RE-COMMUNICATING FUNCTION : Description

INFOID:000000009823180

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

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

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

NOTE:

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

ECM RE-COMMUNICATING FUNCTION : Special Repair Requirement

INFOID:000000009823181

1. PERFORM ECM RE-COMMUNICATING FUNCTION

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

Can engine be started?

YES >> Procedure is completed.

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

NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS)

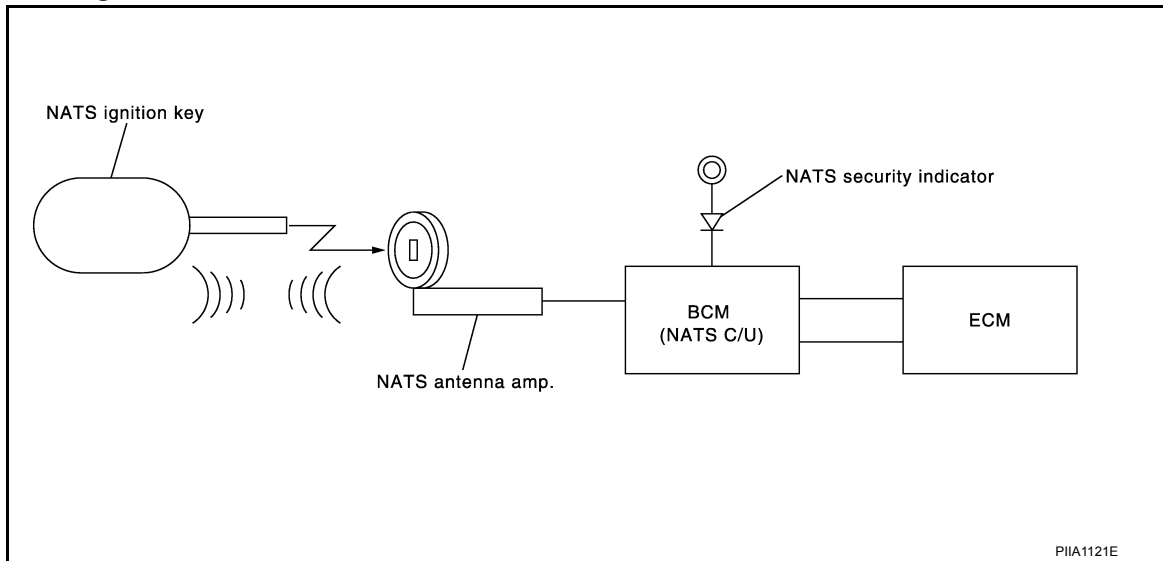
< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

SYSTEM DESCRIPTION

NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS)

System Diagram



System Description

INFOID:000000009823183

INPUT/OUTPUT SIGNAL CHART

BCM

| Switch/Input signal | Input signal to BCM | BCM function | Actuator/Output signal |
|---------------------|----------------------|--------------|--|
| NATS antenna amp. | Key ID | NATS | <ul style="list-style-type: none"> • 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-132, "System Description"](#).
- If system detects malfunction, security indicator illuminates when ignition switch is turned to ON position.
- If the owner requires, ignition key ID or mechanical key ID can be registered for up to 5 keys.
- During trouble diagnosis or when the following parts have been replaced, and if ignition key is added, registration* is required.

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

- ECM
- BCM
- Ignition key
- Remote keyless entry receiver
- NATS trouble diagnosis, system initialization and additional registration of other mechanical key IDs must be carried out using CONSULT.

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

NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS)

[WITHOUT INTELLIGENT KEY SYSTEM]

< SYSTEM DESCRIPTION >

- Possible symptom of NATS malfunction is “Engine cannot start”. Identify the possible causes according to “Work Flow”, Refer to [SEC-124, "Work Flow"](#).
- If ECM other than Genuine NISSAN is installed, the engine cannot be started. For ECM replacement procedure, refer to [SEC-128, "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

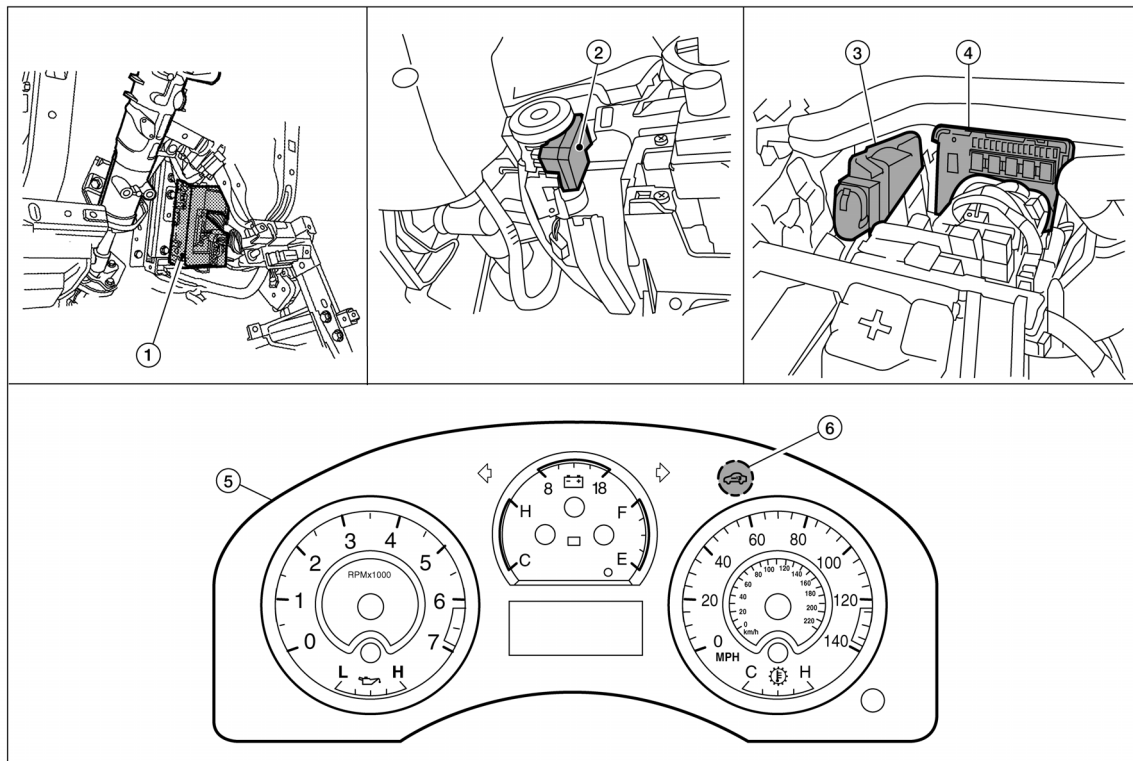
CAUTION:

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:000000009823184



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NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS)

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

- | | | | |
|---|--------------------------|----------------------------|---|
| 1. BCM M18, M20 (view with instrument panel LH removed) | 2. NATS antenna amp. M21 | 3. ECM E16 | A |
| 4. IPDM E/R E119, E120, E121, E122, E124 (view with cover removed) | 5. Combination meter M24 | 6. Security indicator lamp | B |

Component Description

INFOID:000000009823185

| Item | Function | C |
|-------------------------------|--|---|
| BCM | Verifies the received signal from the ignition key ID, then informs ECM whether to allow engine start. | D |
| Remote keyless entry receiver | Receives lock/unlock signal from the keyfob, and then transmits to the BCM. | E |
| NATS antenna amp. | Detects the ignition key presence in the ignition key cylinder. | F |
| Security indicator | Indicates the status of the security system. | G |
| IPDM E/R | Powers-up the horn and the headlamps in case of a security breach. | H |

SEC

VEHICLE SECURITY SYSTEM

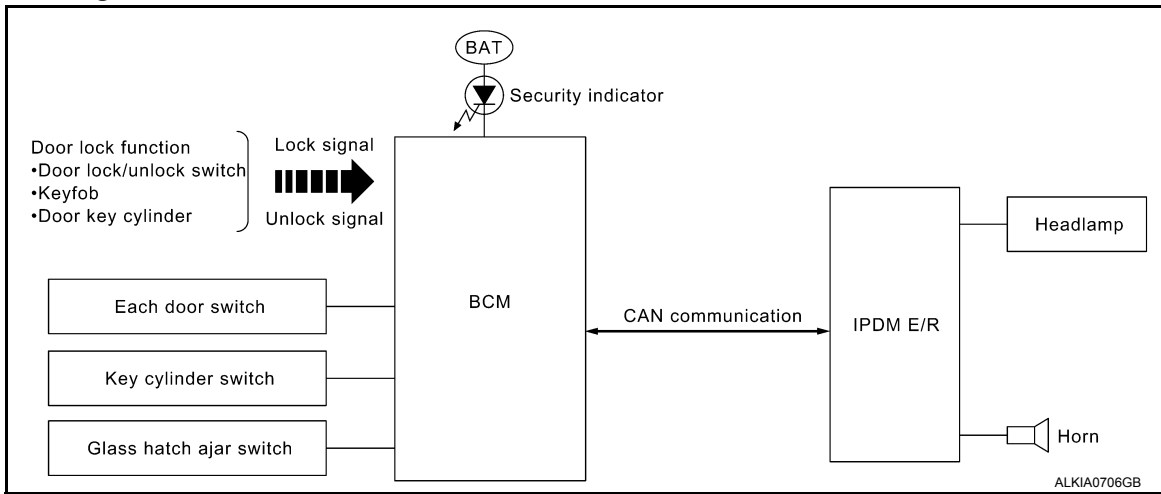
[WITHOUT INTELLIGENT KEY SYSTEM]

< SYSTEM DESCRIPTION >

VEHICLE SECURITY SYSTEM

System Diagram

INFOID:000000009823186



System Description

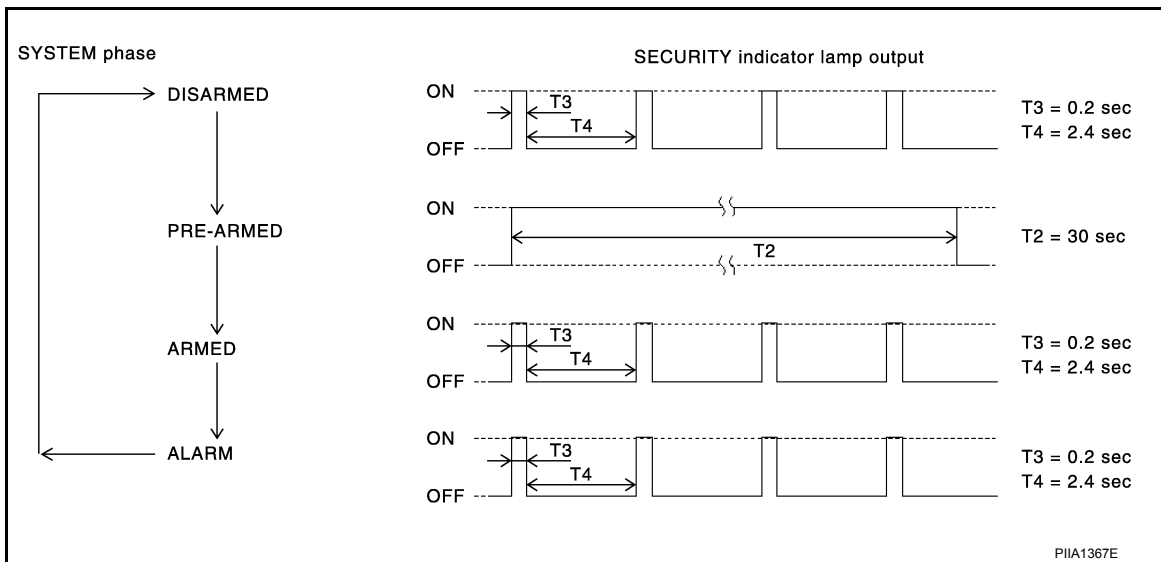
INFOID:000000009823187

DESCRIPTION

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

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

OPERATION FLOW



Disarmed Phase

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

Pre-Armed Phase And Armed Phase

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

Condition of Activating The System

When the following condition is performed in armed phase, the system sounds the horns and flashes the headlamps for about 45 seconds.

- Any door is opened.

VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< SYSTEM DESCRIPTION >

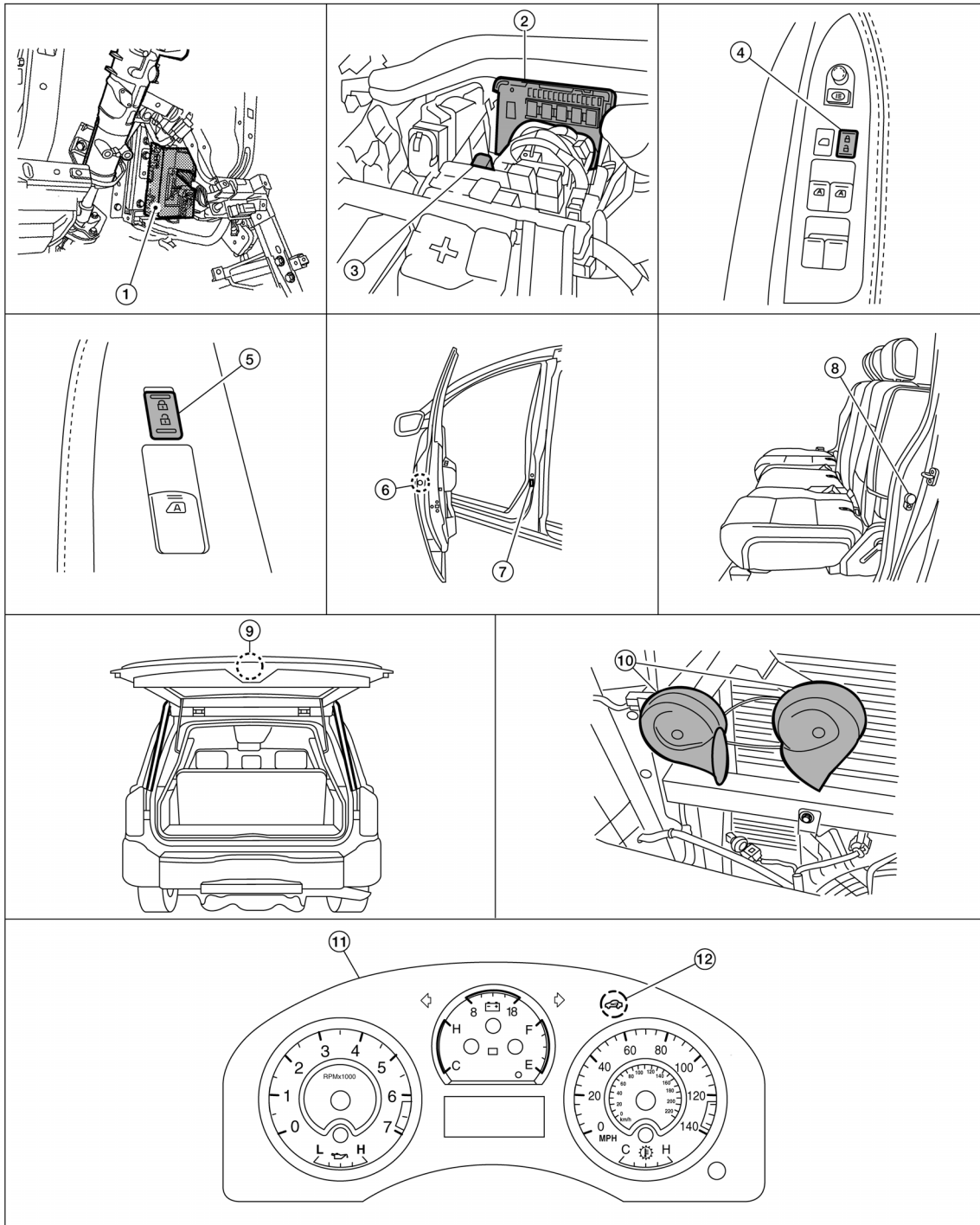
Condition of Deactivating The System

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

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

Component Parts Location

INFOID:000000009823188



- | | | |
|---|---|--|
| 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 | 5. Power window and door lock/unlock switch RH D105 | 6. Front door lock assembly LH (key cylinder switch) D14 |

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VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< SYSTEM DESCRIPTION >

- | | | |
|---|---------------------------------------|--|
| 7. Front door switch LH B8 RH B108 | 8. Rear door switch LH B18 RH B116 | 9. Back door switch (without power back door) D502 Back door latch (door ajar switch) (with power back door) D503 Glass hatch ajar switch D707 |
| 10. Horn E3 (view with front grille removed) | 11. Combination meter M24 | 12. Security indicator lamp |

Component Description

INFOID:000000009823189

| 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)

[WITHOUT INTELLIGENT KEY SYSTEM]

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM)

COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:000000009823190

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

| Direct Diagnostic Mode | Description |
|------------------------|--|
| ECU Identification | The BCM part number is displayed. |
| Self Diagnostic Result | The BCM self diagnostic results are displayed. |
| Data Monitor | The BCM input/output data is displayed in real time. |
| Active Test | The BCM activates outputs to test components. |
| Work support | The settings for BCM functions can be changed. |
| Configuration | <ul style="list-style-type: none"> • The vehicle specification can be read and saved. • The vehicle specification can be written when replacing BCM. |
| CAN Diag Support Mntr | The result of transmit/receive diagnosis of CAN communication is displayed. |

SYSTEM APPLICATION

BCM can perform the following functions.

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

SEC

DIAGNOSIS SYSTEM (BCM)

[WITHOUT INTELLIGENT KEY SYSTEM]

< SYSTEM DESCRIPTION >

IMMU

IMMU : CONSULT Function (BCM - IMMU)

INFOID:000000009823191

DATA MONITOR

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

ACTIVE TEST

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

THEFT ALM

THEFT ALM : CONSULT Function (BCM - THEFT ALM)

INFOID:000000009823192

DATA MONITOR

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

* : with Intelligent Key

** : without Intelligent Key

ACTIVE TEST

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

WORK SUPPORT

| Support Item | Setting | Description |
|--------------------|---------|---------------------|
| SECURITY ALARM SET | Off | Security alarm OFF. |
| | On* | Security alarm ON. |

DIAGNOSIS SYSTEM (BCM)

[WITHOUT INTELLIGENT KEY SYSTEM]

< SYSTEM DESCRIPTION >

| Support Item | Setting | Description |
|---------------|---------|--|
| THEFT ALM TRG | Off/On | The switch which triggered vehicle security alarm is recorded [On]. This mode is able to confirm and erase the record of vehicle security alarm. The trigger data can be erased by touching [CLEAR]. |
| | CLEAR | |

*: Initial setting

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SEC

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:000000009823193

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-46, "CAN Communication Signal Chart"](#).

DTC Logic

INFOID:000000009823194

DTC DETECTION LOGIC

| DTC | CONSULT display description | DTC Detection Condition | Possible cause |
|-------|-----------------------------|--|---|
| U1000 | CAN COMM CIRCUIT | When BCM cannot communicate CAN communication signal continuously for 2 seconds or more. | In CAN communication system, any item (or items) of the following listed below is malfunctioning. <ul style="list-style-type: none">• Receiving (TCM)• Receiving (IPDM E/R)• Receiving (ECM)• Receiving (METER/M&A)• Receiving (MULTI AV) |

Diagnosis Procedure

INFOID:000000009823195

1. PERFORM SELF DIAGNOSTIC

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

Is "CAN COMM CIRCUIT" displayed?

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

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

U1010 CONTROL UNIT (CAN)

Description

INFOID:000000009823196

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-46, "CAN Communication Signal Chart"](#).

DTC Logic

INFOID:000000009823197

DTC DETECTION LOGIC

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

Diagnosis Procedure

INFOID:000000009823198

1. REPLACE BCM

When DTC [U1010] is detected, replace BCM.

>> Replace BCM. Refer to [BCS-54, "Removal and Installation"](#).

Special Repair Requirement

INFOID:000000009823199

1. REQUIRED WORK WHEN REPLACING BCM

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

>> Inspection End.

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B2190 NATS ANTENNA AMP.

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

B2190 NATS ANTENNA AMP.

Description

INFOID:000000009823200

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:000000009823201

DTC DETECTION LOGIC

| DTC No. | Trouble diagnosis name | DTC detecting condition | Possible cause |
|---------|------------------------|---|---|
| B2190 | NATS ANTENNA AMP | <ul style="list-style-type: none">Inactive communication between NATS antenna amp. and BCM.Ignition key is malfunctioning. | <ul style="list-style-type: none">Harness or connectors (The NATS antenna amp. circuit is open or shorted)Ignition keyNATS 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.

Is DTC detected?

- YES >> Refer to [SEC-140, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823202

Regarding Wiring Diagram information, refer to [SEC-191, "Wiring Diagram - Without Intelligent Key System"](#).

1.CHECK NATS ANTENNA AMP. INSTALLATION

Check NATS antenna amp. installation. Refer to [SEC-200, "Removal and Installation"](#).

Is the inspection result normal?

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

2.CHECK NVIS (NATS) IGNITION KEY ID CHIP

Start engine with another registered NATS ignition key.

Does the engine start?

- YES >>
 - Ignition key ID chip is malfunctioning.
 - Replace the ignition key.
 - Perform initialization with CONSULT.For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.
- NO >> GO TO 3

3.CHECK POWER SUPPLY FOR NATS ANTENNA AMP.

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

B2190 NATS ANTENNA AMP.

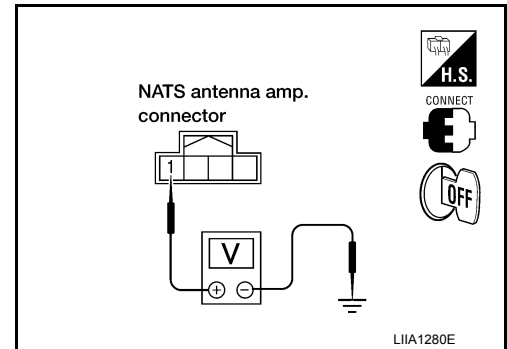
[WITHOUT INTELLIGENT KEY SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

1 - Ground : **Battery voltage**

Is the inspection result normal?

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



4. CHECK NATS ANTENNA AMP. GROUND LINE CIRCUIT

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

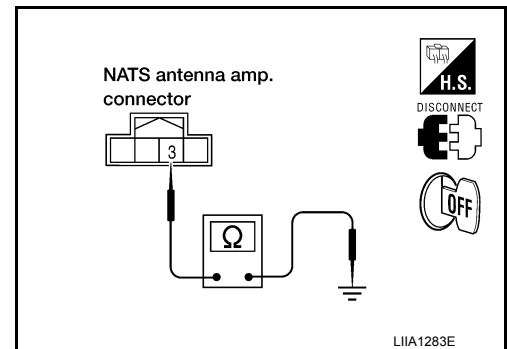
3 - Ground : **Continuity should exist.**

Is the inspection result normal?

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

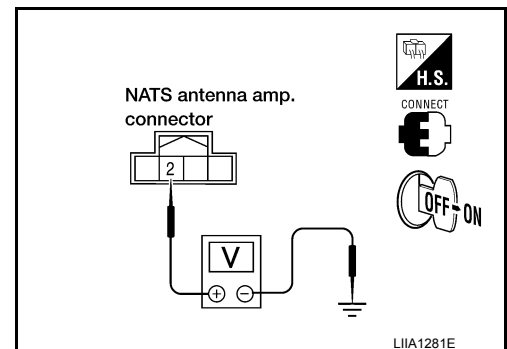
NOTE:

If harness is OK, replace BCM, refer to [BCS-54, "Removal and Installation"](#). Perform initialization with CONSULT. For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.



5. CHECK NATS ANTENNA AMP. SIGNAL LINE- 1

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



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

Is the inspection result normal?

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

NOTE:

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B2190 NATS ANTENNA AMP.

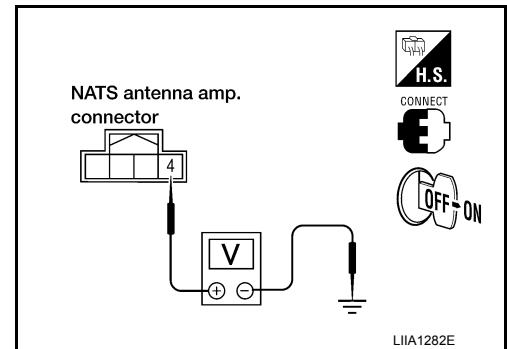
< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

If harness is OK, replace BCM, refer to [BCS-54. "Removal and Installation"](#). Perform initialization with CONSULT. For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.

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-54. "Removal and Installation"](#). Perform initialization with CONSULT. For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.

B2191 DIFFERENCE OF KEY

[WITHOUT INTELLIGENT KEY SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

B2191 DIFFERENCE OF KEY

Description

INFOID:000000009823203

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:000000009823204

DTC DETECTION LOGIC

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

- YES >> Refer to [SEC-143, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823205

1.PERFORM INITIALIZATION

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

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

- YES >> Mechanical key was unregistered.
NO >> BCM is malfunctioning.
 - Replace BCM. Refer to [BCS-54, "Removal and Installation"](#).
 - Perform initialization again

SEC

B2192 ID DISCORD, IMMU-ECM

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

B2192 ID DISCORD, IMMU-ECM

Description

INFOID:000000009823206

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:000000009823207

DTC DETECTION LOGIC

NOTE:

- If DTC B2192 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [SEC-138, "DTC Logic"](#).
- If DTC B2192 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [SEC-139, "DTC Logic"](#).

| DTC No. | Trouble diagnosis name | DTC detecting condition | Possible cause |
|---------|------------------------|--|---|
| B2192 | ID DISCORD IMMU-ECM | The ID verification results between BCM and ECM are NG. The registration is necessary. | <ul style="list-style-type: none">• BCM• ECM |

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

- YES >> Refer to [SEC-144, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823208

1.PERFORM INITIALIZATION

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

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

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

2.PEPLACE BCM

1. Replace BCM. Refer to [BCS-54, "Removal and Installation"](#).
2. Perform initialization with CONSULT. Re-register all mechanical keys.
For initialization and registration of mechanical key. Refer to CONSULT Immobilizer mode and follow the on-screen instructions.

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

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

3.PEPLACE ECM

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

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

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

B2192 ID DISCORD, IMMU-ECM

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

4.CHECK INTERMITENT INCIDENT

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

>> Inpection End.

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B2193 CHAIN OF ECM-IMMU

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

B2193 CHAIN OF ECM-IMMU

Description

INFOID:000000009823209

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:000000009823210

DTC DETECTION LOGIC

NOTE:

- If DTC B2193 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [SEC-138, "DTC Logic"](#).
- If DTC B2193 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [SEC-139, "DTC Logic"](#).

| DTC No. | Trouble diagnosis name | DTC detecting condition | Possible cause |
|---------|------------------------|--|---|
| B2193 | CHAIN OF ECM-IMMU | Inactive communication between ECM and BCM | <ul style="list-style-type: none">• 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.

Is DTC detected?

- YES >> Refer to [SEC-146, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823211

1. REPLACE BCM

1. Replace BCM. Refer to [BCS-54, "Removal and Installation"](#).
2. Perform initialization with CONSULT.
For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.

Does the engine start?

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

P1610 LOCK MODE

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

P1610 LOCK MODE

Description

INFOID:000000009823212

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:000000009823213

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. <ul style="list-style-type: none">• Unregistered mechanical key• BCM or ECM's malfunctioning. | — |

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

- YES >> Refer to [SEC-147. "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823214

1.CHECK ENGINE START FUNCTION

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

Does the engine start?

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

2.CHECK INTERMITTENT INCIDENT

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

>> Inspection End.

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P1611 ID DISCORD, IMMU-ECM

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

P1611 ID DISCORD, IMMU-ECM

Description

INFOID:000000009823215

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:000000009823216

DTC DETECTION LOGIC

NOTE:

- If DTC P1611 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [SEC-138, "DTC Logic"](#).
- If DTC P1611 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [SEC-139, "DTC Logic"](#).

| DTC No. | Trouble diagnosis name | DTC detecting condition | Possible cause |
|---------|------------------------|--|---|
| P1611 | ID DISCORD IMMU-ECM | The ID verification results between BCM and ECM are NG. The registration is necessary. | <ul style="list-style-type: none">• BCM• ECM |

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

- YES >> Refer to [SEC-148, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823217

1.PERFORM INITIALIZATION

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

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

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

2.PEPLACE BCM

1. Replace BCM. Refer to [BCS-54, "Removal and Installation"](#).
2. Perform initialization with CONSULT. Re-register all mechanical keys.
For initialization and registration of mechanical key. Refer to CONSULT Immobilizer mode and follow the on-screen instructions.

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

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

3.PEPLACE ECM

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

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

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

P1611 ID DISCORD, IMMUECM

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

4. CHECK INTERMITTENT INCIDENT

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

>> Inspection End.

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P1612 CHAIN OF ECM-IMMU

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

P1612 CHAIN OF ECM-IMMU

Description

INFOID:000000009823218

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:000000009823219

DTC DETECTION LOGIC

NOTE:

- If DTC P1612 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [SEC-138, "DTC Logic"](#).
- If DTC P1612 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [SEC-139, "DTC Logic"](#).

| DTC No. | Trouble diagnosis name | DTC detecting condition | Possible cause |
|---------|------------------------|--|---|
| P1612 | CHAIN OF ECM-IMMU | Inactive communication between ECM and BCM | <ul style="list-style-type: none">• 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.

Is DTC detected?

- YES >> Refer to [SEC-150, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823220

1. REPLACE BCM

1. Replace BCM. Refer to [BCS-54, "Removal and Installation"](#).
2. Perform initialization with CONSULT.
For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.

Does the engine start?

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

P1614 CHAIN OF IMMU-KEY

[WITHOUT INTELLIGENT KEY SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

P1614 CHAIN OF IMMU-KEY

Description

INFOID:000000009823221

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:000000009823222

DTC DETECTION LOGIC

| DTC No. | Trouble diagnosis name | DTC detecting condition | Possible cause |
|---------|------------------------|---|---|
| P1614 | CHAIN OF IMMU-KEY | <ul style="list-style-type: none">Inactive communication between NATS antenna amp. and BCM.Ignition key is malfunctioning. | <ul style="list-style-type: none">Harness or connectors (The NATS antenna amp. circuit is open or shorted)Ignition keyNATS 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.

Is DTC detected?

- YES >> Refer to [SEC-151, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823223

Regarding Wiring Diagram information, refer to [SEC-191, "Wiring Diagram - Without Intelligent Key System"](#).

1. CHECK NATS ANTENNA AMP. INSTALLATION

Check NATS antenna amp. installation. Refer to [SEC-200, "Removal and Installation"](#).

Is the inspection result normal?

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

2. CHECK NVIS (NATS) IGNITION KEY ID CHIP

Start engine with another registered NATS ignition key.

Does the engine start?

- YES >>
 - Ignition key ID chip is malfunctioning.
 - Replace the ignition key.
 - Perform initialization with CONSULT.For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.
- NO >> GO TO 3

3. CHECK POWER SUPPLY FOR NATS ANTENNA AMP.

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

P1614 CHAIN OF IMMU-KEY

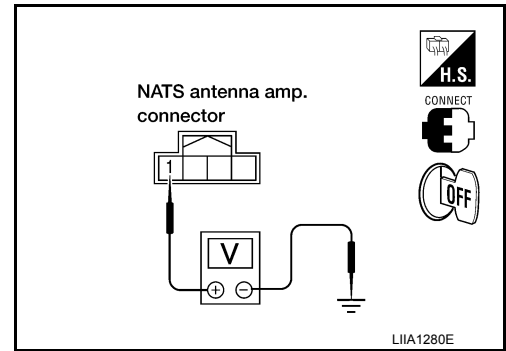
[WITHOUT INTELLIGENT KEY SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

1 - Ground : **Battery voltage**

Is the inspection result normal?

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



4. CHECK NATS ANTENNA AMP. GROUND LINE CIRCUIT

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

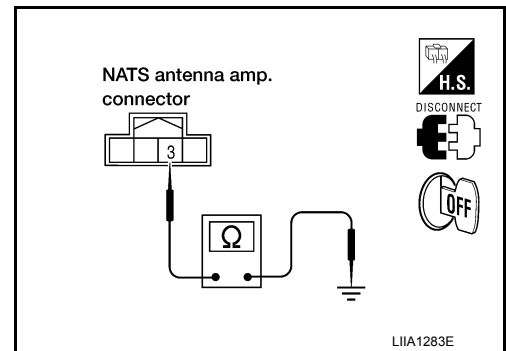
3 - Ground : **Continuity should exist.**

Is the inspection result normal?

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

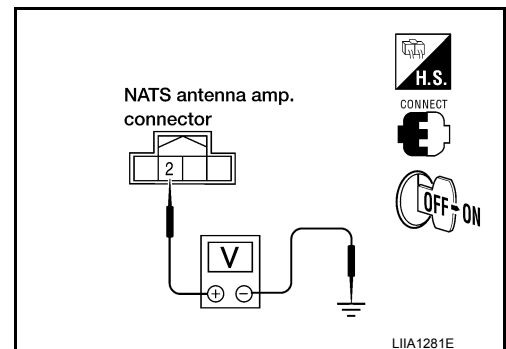
NOTE:

If harness is OK, replace BCM, refer to [BCS-54, "Removal and Installation"](#). Perform initialization with CONSULT. For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.



5. CHECK NATS ANTENNA AMP. SIGNAL LINE- 1

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



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

Is the inspection result normal?

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

NOTE:

P1614 CHAIN OF IMMU-KEY

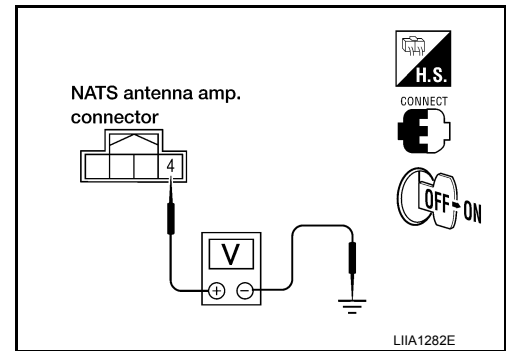
[WITHOUT INTELLIGENT KEY SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

If harness is OK, replace BCM, refer to [BCS-54. "Removal and Installation"](#). Perform initialization with CONSULT. For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.

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-54. "Removal and Installation"](#). Perform initialization with CONSULT. For initialization, refer to CONSULT Immobilizer mode and follow the on-screen instructions.

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P1615 DIFFERENCE OF KEY

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

P1615 DIFFERENCE OF KEY

Description

INFOID:000000009823224

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:000000009823225

DTC DETECTION LOGIC

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

- YES >> Refer to [SEC-154, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009823226

1.PERFORM INITIALIZATION

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

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

- YES >> Mechanical key was unregistered.
NO >> BCM is malfunctioning.
 - Replace BCM. Refer to [BCS-54, "Removal and Installation"](#).
 - Perform initialization again

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

POWER SUPPLY AND GROUND CIRCUIT

BCM

BCM : Diagnosis Procedure

INFOID:000000009823227

Regarding Wiring Diagram information, refer to [BCS-46. "Wiring Diagram"](#).

1. CHECK FUSES AND FUSIBLE LINK

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

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

Is the fuse blown?

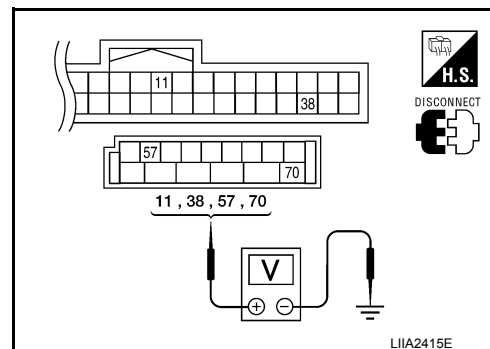
YES >> Replace the blown fuse or fusible link after repairing the affected circuit.

NO >> GO TO 2

2. CHECK POWER SUPPLY CIRCUIT

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

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



Is the measurement value normal?

YES >> GO TO 3

NO >> Repair or replace harness.

3. CHECK GROUND CIRCUIT

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

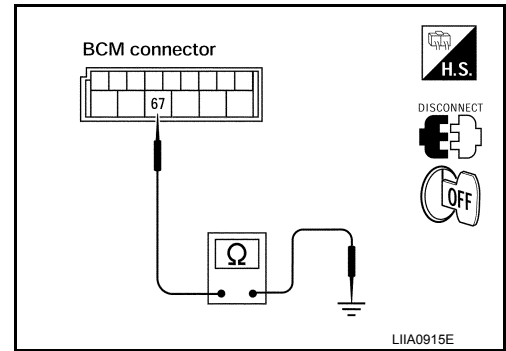
[WITHOUT INTELLIGENT KEY SYSTEM]

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

[WITHOUT INTELLIGENT KEY SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

KEY CYLINDER SWITCH

Description

INFOID:000000009823228

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.

Component Function Check

INFOID:000000009823229

1. CHECK DOOR KEY CYLINDER SWITCH INPUT SIGNAL

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

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

Is the inspection result normal?

YES >> Key cylinder switch is OK.

NO >> Refer to [SEC-157, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009823230

Regarding Wiring Diagram information, refer to [SEC-180, "Wiring Diagram"](#).

1. CHECK DOOR KEY CYLINDER SWITCH

With CONSULT

Check front door lock assembly LH (key cylinder switch) ("KEY CYL LK-SW") and ("KEY CYL UN-SW) in DATA MONITOR mode with CONSULT.

• When key inserted in left front key cylinder is turned to LOCK:

KEY CYL LK-SW : ON

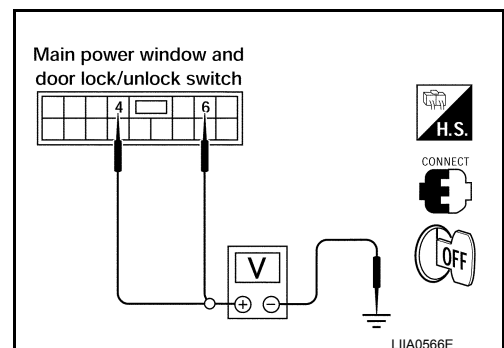
• When key inserted in left front key cylinder is turned to UNLOCK:

KEY CYL UN-SW : ON

Without CONSULT

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

| Connector | Terminals | | Condition of left front key cylinder | Voltage (V) (Approx.) |
|-----------|-----------|--------|--------------------------------------|--------------------------|
| | (+) | (-) | | |
| D7 | 4 | Ground | Neutral/Unlock | 5 |
| | | | Lock | 0 |
| | 6 | | Neutral/Lock | 5 |
| | | | Unlock | 0 |



Is the inspection result normal?

YES >> Key cylinder switch signal is OK.

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KEY CYLINDER SWITCH

[WITHOUT INTELLIGENT KEY SYSTEM]

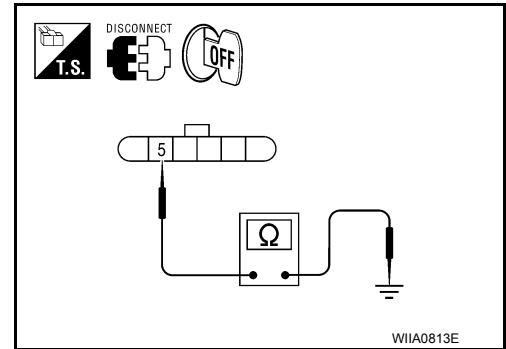
< DTC/CIRCUIT DIAGNOSIS >

NO >> GO TO 2

2. CHECK DOOR KEY CYLINDER SWITCH 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 D14 terminal 5 and body ground.

| Connector | Terminals | Continuity |
|-----------|------------|------------|
| D14 | 5 – Ground | Yes |



Is the inspection result normal?

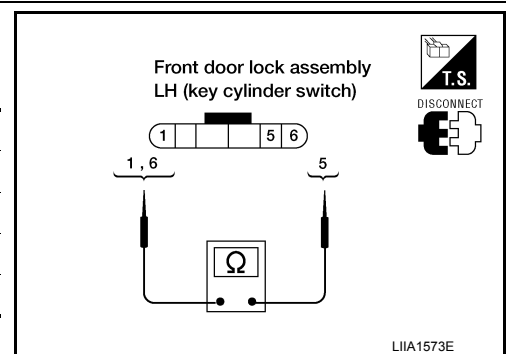
YES >> GO TO 3

NO >> Repair or replace harness.

3. CHECK DOOR KEY CYLINDER SWITCH

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?

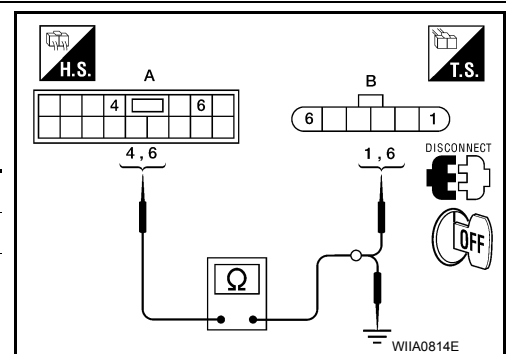
YES >> GO TO 4

NO >> Replace front door lock assembly LH (key cylinder switch). Refer to [DLK-393, "Removal and Installation"](#).

4. CHECK DOOR KEY CYLINDER HARNESS

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. Refer to [PWC-94, "Removal and Installation"](#).

NO >> Repair or replace harness.

HORN FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

HORN FUNCTION

Symptom Table

INFOID:000000009823231

HAZARD AND HORN REMINDER FUNCTION MALFUNCTION

NOTE:

- Before performing the diagnosis in the following table, check “Work flow”. Refer to [DLK-8, "Work Flow"](#).
- If the following symptoms are detected, check systems shown in the “Diagnosis/service procedure” column in this order.

Conditions of Vehicle (Operating Conditions)

- “ANSWER BACK FUNCTION” is ON when setting on CONSULT.
- Ignition switch is in OFF position.
- All doors are closed.

| Symptom | Diagnosis/service procedure | Reference page |
|---|--|-------------------------|
| Hazard reminder does not operate by keyfob. (Horn reminder operate.) | 1. Check “HAZARD LAMP SET” setting in “WORK SUPPORT”. | BCS-28 |
| | 2. Check hazard function. | DLK-114 |
| | 3. Check keyfob battery. | DLK-291 |
| Horn reminder does not operate by keyfob. (Hazard reminder operate.) | 1. Check “HORN WITH KEYLESS LOCK” setting in “WORK SUPPORT”. | BCS-28 |
| | 2. Check horn function. | DLK-110 |
| | 3. Check Intermittent Incident. | GI-42 |

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VEHICLE SECURITY INDICATOR

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

VEHICLE SECURITY INDICATOR

Description

INFOID:000000009823232

- 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:000000009823233

1. CHECK FUNCTION

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

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

Is the inspection result normal?

- YES >> Inspection End.
 NO >> Refer to [SEC-160, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009823234

Regarding Wiring Diagram information, refer to [SEC-180, "Wiring Diagram"](#).

1. SECURITY INDICATOR LAMP ACTIVE TEST

Ⓜ With CONSULT

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

⊗ Without CONSULT

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

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

Is the inspection result normal?

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

2. SECURITY INDICATOR LAMP CHECK

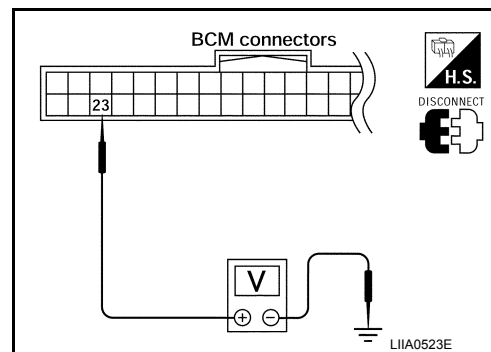
Check security indicator lamp condition.

Is the inspection result normal?

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

3. CHECK HARNESS CONTINUITY

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



VEHICLE SECURITY INDICATOR

[WITHOUT INTELLIGENT KEY SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

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

23 - 28 : Continuity should exist.

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

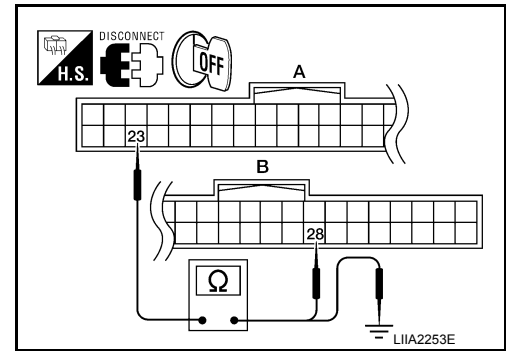
23 - Ground : Continuity should not exist.

Is the inspection result normal?

YES >> Check the following:

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

NO >> Repair or replace harness.



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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

ECU DIAGNOSIS INFORMATION

BCM (BODY CONTROL MODULE)

Reference Value

INFOID:000000009823235

NOTE:

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

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

VALUES ON THE DIAGNOSIS TOOL

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

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

| Monitor Item | Condition | Value/Status | |
|---------------------------|--|--------------|-----|
| DOOR SW-RR | Rear door RH closed | Off | A |
| | Rear door RH opened | On | |
| FAN ON SIG | Blower motor fan switch OFF | Off | B |
| | Blower motor fan switch ON | On | |
| FR FOG SW | Front fog lamp switch OFF | Off | C |
| | Front fog lamp switch ON | On | |
| FR WASHER SW | Front washer switch OFF | Off | |
| | Front washer switch ON | On | D |
| FR WIPER LOW | Front wiper switch OFF | Off | |
| | Front wiper switch LO | On | |
| FR WIPER HI | Front wiper switch OFF | Off | E |
| | Front wiper switch HI | On | |
| FR WIPER INT | Front wiper switch OFF | Off | F |
| | Front wiper switch INT | On | |
| FR WIPER STOP | Any position other than front wiper stop position | Off | |
| | Front wiper stop position | On | G |
| HAZARD SW | When hazard switch is not pressed | Off | |
| | When hazard switch is pressed | On | |
| HEAD LAMP SW1 | Headlamp switch OFF | Off | H |
| | Headlamp switch 1st | On | |
| HEAD LAMP SW2 | Headlamp switch OFF | Off | I |
| | Headlamp switch 1st | On | |
| HI BEAM SW | High beam switch OFF | Off | J |
| | High beam switch HI | On | |
| ID REGST FL1 | ID registration of front left tire incomplete | YET | |
| | ID registration of front left tire complete | DONE | SEC |
| ID REGST FR1 | ID registration of front right tire incomplete | YET | |
| | ID registration of front right tire complete | DONE | |
| ID REGST RL1 | ID registration of rear left tire incomplete | YET | L |
| | ID registration of rear left tire complete | DONE | |
| ID REGST RR1 | ID registration of rear right tire incomplete | YET | M |
| | ID registration of rear right tire complete | DONE | |
| IGN ON SW | Ignition switch OFF or ACC | Off | |
| | Ignition switch ON | On | N |
| 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 | O |
| I-KEY LOCK ¹ | LOCK button of Intelligent Key is not pressed | Off | |
| | LOCK button of Intelligent Key is pressed | On | P |
| I-KEY PANIC ¹ | PANIC button of Intelligent Key is not pressed | Off | |
| | PANIC button of Intelligent Key is pressed | On | |
| I-KEY PW DWN ¹ | UNLOCK button of Intelligent Key is not pressed | Off | |
| | UNLOCK button of Intelligent Key is pressed for greater than 3 seconds and driver's window operating in DOWN direction | On | |

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

| Monitor Item | Condition | Value/Status |
|-----------------------------|--|-----------------------------------|
| I-KEY UNLOCK ¹ | UNLOCK button of Intelligent Key is not pressed | Off |
| | UNLOCK button of Intelligent Key is pressed | On |
| KEY CYL LK-SW | Door key cylinder LOCK position | Off |
| | Door key cylinder other than LOCK position | On |
| KEY CYL UN-SW | Door key cylinder UNLOCK position | Off |
| | Door key cylinder other than UNLOCK position | On |
| KEY ON SW | Mechanical key is removed from key cylinder | Off |
| | Mechanical key is inserted to key cylinder | On |
| KEYLESS LOCK ² | LOCK button of key fob is not pressed | Off |
| | LOCK button of key fob is pressed | On |
| KEYLESS PANIC ² | PANIC button of key fob is not pressed | Off |
| | PANIC button of key fob is pressed | On |
| KEYLESS UNLOCK ² | UNLOCK button of key fob is not pressed | Off |
| | UNLOCK button of key fob is pressed | On |
| LIGHT SW 1ST | Lighting switch OFF | Off |
| | Lighting switch 1st | On |
| OIL PRESS SW | <ul style="list-style-type: none"> • Ignition switch OFF or ACC • Engine running | Off |
| | Ignition switch ON | On |
| OPTICAL SENSOR | Bright outside of the vehicle | Close to 5V |
| | Dark outside of the vehicle | Close to 0V |
| PASSING SW | Other than lighting switch PASS | Off |
| | Lighting switch PASS | On |
| PUSH SW ¹ | Return to ignition switch to LOCK position | Off |
| | Press ignition switch | On |
| REAR DEF SW | Rear window defogger switch OFF | Off |
| | Rear window defogger switch ON | On |
| RR WASHER SW | Rear washer switch OFF | Off |
| | Rear washer switch ON | On |
| RR WIPER INT | Rear wiper switch OFF | Off |
| | Rear wiper switch INT | On |
| RR WIPER ON | Rear wiper switch OFF | Off |
| | Rear wiper switch ON | On |
| RR WIPER STOP | Rear wiper stop position | Off |
| | Other than rear wiper stop position | On |
| RR WIPER STP2 | Rear wiper stop position | Off |
| | Other than rear wiper stop position | On |
| TURN SIGNAL L | Turn signal switch OFF | Off |
| | Turn signal switch LH | On |
| TURN SIGNAL R | Turn signal switch OFF | Off |
| | Turn signal switch RH | On |
| VEHICLE SPEED | While driving | Equivalent to speedometer reading |
| WARNING LAMP | Low tire pressure warning lamp in combination meter OFF | Off |
| | Low tire pressure warning lamp in combination meter ON | On |

1: With Intelligent Key

BCM (BODY CONTROL MODULE)

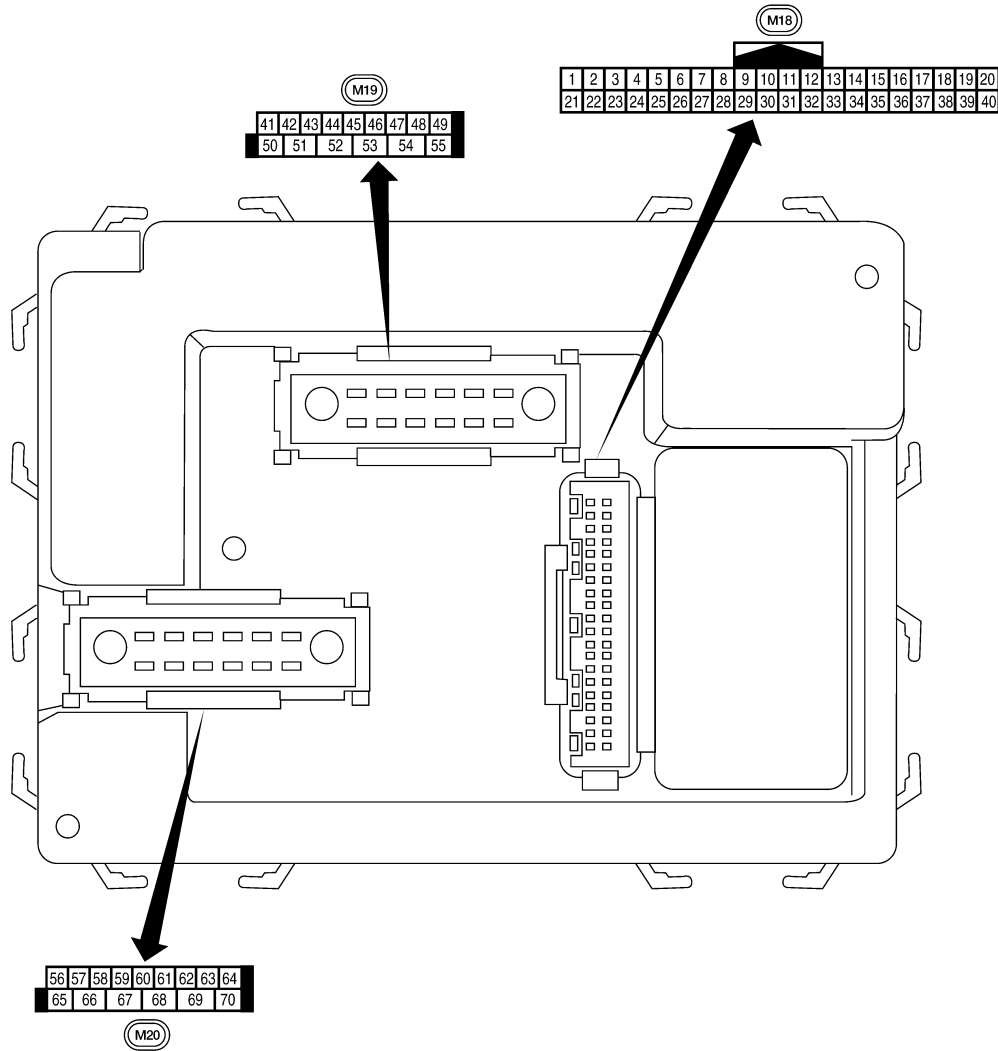
< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

2: With remote keyless entry system

Terminal Layout

INFOID:000000009823236



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SEC

Physical Values


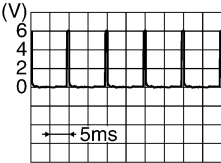

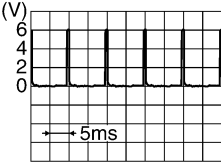
LIIA2443E

INFOID:000000009823237

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

| 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 ON) | 0V |
| 2 | SB | Combination switch input 5 | Input | ON | Lighting, turn, wiper OFF Wiper dial position 4 |  <p style="text-align: right; font-size: small;">SKIA5291E</p> |
| 3 | G/Y | Combination switch input 4 | Input | ON | Lighting, turn, wiper OFF Wiper dial position 4 |  <p style="text-align: right; font-size: small;">SKIA5292E</p> |
| 4 | Y | Combination switch input 3 | Input | ON | Lighting, turn, wiper OFF Wiper dial position 4 |  <p style="text-align: right; font-size: small;">SKIA5291E</p> |
| 5 | G/B | Combination switch input 2 | Input | ON | Lighting, turn, wiper OFF Wiper dial position 4 |  <p style="text-align: right; font-size: small;">SKIA5292E</p> |
| 6 | V | Combination switch input 1 | | | | |
| 9 | R/G | Stop lamp switch | Input | OFF | Brake pedal depressed | Battery voltage |
| | | | | | Brake pedal released | 0V |
| 10 | G | Hazard lamp flash | Input | OFF | ON (opening or closing) | 0V |
| | | | | | OFF (other than above) | Battery voltage |
| 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 | Input | OFF | ON (open) | 0V |
| | | | | | OFF (closed) | Battery voltage |
| 13 | GR | Rear door switch RH | Input | OFF | ON (open) | 0V |
| | | | | | OFF (closed) | Battery voltage |
| 15 | L/W | Tire pressure warning check connector | Input | OFF | — | 5V |
| 18 | P | Remote keyless entry receiver and optical sensor (ground) | Output | OFF | — | 0V |

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

| Terminal | Wire color | Signal name | Signal input/output | Measuring condition | | Reference value or waveform (Approx.) |
|----------|------------|--|---------------------|---------------------|---|--|
| | | | | Ignition switch | Operation or condition | |
| 19 | V/W | Remote keyless entry receiver (power supply) | Output | OFF | Ignition switch OFF | <p style="text-align: right; font-size: small;">LIIA1893E</p> |
| 20 | G/W | Remote keyless entry receiver (signal) | Input | OFF | Stand-by (keyfob buttons released) | <p style="text-align: right; font-size: small;">LIIA1894E</p> |
| | | | | | When remote keyless entry receiver receives signal from keyfob (keyfob buttons pressed) | <p style="text-align: right; font-size: small;">LIIA1895E</p> |
| 21 | 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 | W/V | BUS | — | — | Ignition switch ON or power window timer operates | <p style="text-align: right; font-size: small;">PIIA2344E</p> |
| 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. |
| 26 | Y/L | Rear wiper auto stop switch 2 | Input | ON | Rise up position (rear wiper arm on stopper) | 0V |
| | | | | | A Position (full clockwise stop position) | 0V |
| | | | | | Forward sweep (counterclockwise direction) | Fluctuating |
| | | | | | B Position (full counterclockwise stop position) | Battery voltage |
| | | | | | Reverse sweep (clockwise direction) | Fluctuating |
| 27 | W/R | Compressor ON signal | Input | ON | A/C switch OFF | 5V |
| | | | | | A/C switch ON | 0V |

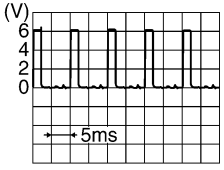
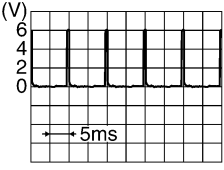
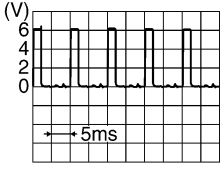
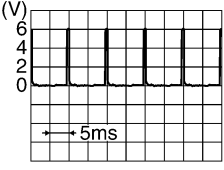
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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

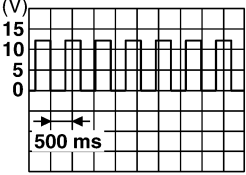
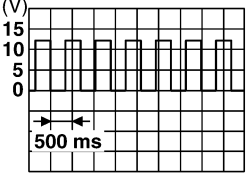
[WITHOUT INTELLIGENT KEY SYSTEM]

| Terminal | Wire color | Signal name | Signal input/output | Measuring condition | | Reference value or waveform (Approx.) |
|-----------------|------------|-------------------------------------|---------------------|---------------------|--|---|
| | | | | Ignition switch | Operation or condition | |
| 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 |
| 32 | R/G | Combination switch output 5 | Output | ON | Lighting, turn, wiper OFF Wiper dial position 4 |  <p style="text-align: right; font-size: small;">SKIA5291E</p> |
| 33 | R/Y | Combination switch output 4 | Output | ON | Lighting, turn, wiper OFF Wiper dial position 4 |  <p style="text-align: right; font-size: small;">SKIA5292E</p> |
| 34 | L | Combination switch output 3 | Output | ON | Lighting, turn, wiper OFF Wiper dial position 4 |  <p style="text-align: right; font-size: small;">SKIA5291E</p> |
| 35 | O/B | Combination switch output 2 | Output | ON | Lighting, turn, wiper OFF Wiper dial position 4 |  <p style="text-align: right; font-size: small;">SKIA5292E</p> |
| 36 | R/W | Combination switch output 1 | | | | |
| 37 ¹ | B/R | Key switch and ignition knob switch | Input | OFF | Intelligent Key inserted | Battery voltage |
| | | | | | Intelligent Key removed | 0V |
| 37 ² | B/R | Key switch and key lock solenoid | Input | OFF | Key inserted | Battery voltage |
| | | | | | Key removed | 0V |
| 38 | W/L | Ignition switch (ON) | Input | ON | — | Battery voltage |
| 39 | L | CAN-H | — | — | — | — |
| 40 | P | CAN-L | — | — | — | — |
| 41 | GR/R | Rear window defogger switch | Input | ON | Rear window defogger switch ON | 0V |
| | | | | | Rear window defogger switch OFF | 5V |
| 42 | GR | Glass hatch ajar switch | Input | ON | Glass hatch open | 0 |
| | | | | | Glass hatch closed | Battery |

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

| Terminal | Wire color | Signal name | Signal input/output | Measuring condition | | Reference value or waveform (Approx.) |
|----------|------------|---|---------------------|---------------------|--|---|
| | | | | Ignition switch | Operation or condition | |
| 43 | R/B | Back door switch (without power back door) or back door latch (door ajar switch) (with power back door) | Input | OFF | ON (open) | 0V |
| | | | | | OFF (closed) | Battery voltage |
| 44 | O | Rear wiper auto stop switch 1 | Input | ON | Rise up position (rear wiper arm on stopper) | 0V |
| | | | | | A Position (full clockwise stop position) | Battery voltage |
| | | | | | Forward sweep (counterclockwise direction) | Fluctuating |
| | | | | | B Position (full counterclockwise stop position) | 0V |
| | | | | | Reverse sweep (clockwise direction) | Fluctuating |
| 47 | SB | Front door switch LH | Input | OFF | ON (open) | 0V |
| | | | | | OFF (closed) | Battery voltage |
| 48 | R/Y | Rear door switch LH | Input | OFF | ON (open) | 0V |
| | | | | | OFF (closed) | Battery voltage |
| 49 | R | Cargo lamp | Output | OFF | Any door open (ON) | 0V |
| | | | | | All doors closed (OFF) | Battery voltage |
| 51 | Y/B | Trailer turn signal (right) | Output | ON | Turn right ON |  <p style="text-align: right; font-size: small;">SKIA3009J</p> |
| 52 | G/B | Trailer turn signal (left) | Output | ON | Turn left ON |  <p style="text-align: right; font-size: small;">SKIA3009J</p> |
| 54 | Y | Rear wiper output circuit 2 | Input | ON | Rise up position (rear wiper arm on stopper) | 0V |
| | | | | | A Position (full clockwise stop position) | 0V |
| | | | | | Forward sweep (counterclockwise direction) | 0V |
| | | | | | B Position (full counterclockwise stop position) | Battery voltage |
| | | | | | Reverse sweep (clockwise direction) | Battery voltage |
| 55 | SB | Rear wiper output circuit 1 | Output | ON | OFF | 0 |
| | | | | | ON | Battery voltage |

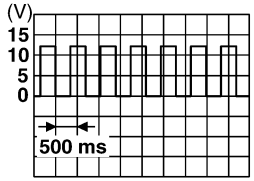
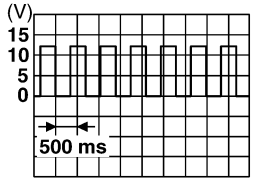
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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

| Terminal | Wire color | Signal name | Signal input/output | Measuring condition | | Reference value or waveform (Approx.) |
|----------|------------|--|---------------------|---------------------|---|--|
| | | | | Ignition switch | Operation or condition | |
| 56 | R/G | Battery saver output | Output | OFF | 10 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 |  <p style="text-align: right; font-size: small;">SKIA3009J</p> |
| 61 | G/Y | Turn signal (right) | Output | ON | Turn right ON |  <p style="text-align: right; font-size: small;">SKIA3009J</p> |
| 62 | R/W | Step lamp LH and RH | Output | OFF | ON (any door open) | 0V |
| | | | | | OFF (all doors closed) | Battery voltage |
| 63 | L | Interior room/map lamp | Output | OFF | Any door switch | ON (open) 0V OFF (closed) Battery voltage |
| | | | | | | |
| 65 | V | All door lock actuators (lock) | Output | OFF | OFF (neutral) | 0V |
| | | | | | ON (lock) | Battery voltage |
| 66 | G/Y | Front door lock actuator RH, rear door lock actuators LH/RH and back door lock actuator (unlock) | Output | OFF | OFF (neutral) | 0V |
| | | | | | ON (unlock) | Battery voltage |
| 67 | B | Ground | Input | ON | — | 0V |
| 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 |

1: With Intelligent Key system

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

2: With remote keyless entry system

Fail Safe

INFOID:000000009823238

Fail-safe index

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

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

DTC Inspection Priority Chart

INFOID:000000009823239

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

| Priority | DTC |
|----------|---|
| 1 | <ul style="list-style-type: none">U1000: CAN COMM CIRCUIT |
| 2 | <ul style="list-style-type: none">B2190: NATS ANTENNA AMPB2191: DIFFERENCE OF KEYB2192: ID DISCORD BCM-ECMB2193: CHAIN OF BCM-ECMB2013: STRG COMM 1B2552: INTELLIGENT KEYB2590: NATS MALFUNCTION |
| 3 | <ul style="list-style-type: none">C1729: VHCL SPEED SIG ERRC1735: IGNITION SIGNAL |
| 4 | <ul style="list-style-type: none">C1708: [NO DATA] FLC1709: [NO DATA] FRC1710: [NO DATA] RRC1711: [NO DATA] RLC1712: [CHECKSUM ERR] FLC1713: [CHECKSUM ERR] FRC1714: [CHECKSUM ERR] RRC1715: [CHECKSUM ERR] RLC1716: [PRESSDATA ERR] FLC1717: [PRESSDATA ERR] FRC1718: [PRESSDATA ERR] RRC1719: [PRESSDATA ERR] RLC1720: [CODE ERR] FLC1721: [CODE ERR] FRC1722: [CODE ERR] RRC1723: [CODE ERR] RLC1724: [BATT VOLT LOW] FLC1725: [BATT VOLT LOW] FRC1726: [BATT VOLT LOW] RRC1727: [BATT VOLT LOW] RL |

SEC

DTC Index

INFOID:000000009823240

NOTE:

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

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

| CONSULT display | Fail-safe | Intelligent Key warning lamp ON | Tire pressure monitor warning lamp ON | Reference page |
|--|-----------|------------------------------------|---|---|
| No DTC is detected. further testing may be required. | — | — | — | — |
| U1000: CAN COMM CIRCUIT | — | — | — | BCS-29 |
| B2013: STRG COMM 1 | — | — | — | SEC-30 |
| B2190: NATS ANTENNA AMP | — | — | — | SEC-33 (with I- Key), SEC-140 (without I-Key) |
| B2191: DIFFERENCE OF KEY | — | — | — | SEC-36 (with I- Key), SEC-143 (without I-Key) |
| B2192: ID DISCORD BCM-ECM | — | — | — | SEC-37 (with I- Key), SEC-144 (without I-Key) |
| B2193: CHAIN OF BCM-ECM | — | — | — | SEC-39 (with I- Key), SEC-146 (without I-Key) |
| B2552: INTELLIGENT KEY | — | — | — | SEC-41 |
| B2590: NATS MALFUNCTION | — | — | — | SEC-42 |
| C1708: [NO DATA] FL | — | — | — | WT-13 |
| C1709: [NO DATA] FR | — | — | — | WT-15 |
| C1710: [NO DATA] RR | — | — | — | WT-15 |
| C1711: [NO DATA] RL | — | — | — | WT-15 |
| C1712: [CHECKSUM ERR] FL | — | — | — | WT-15 |
| C1713: [CHECKSUM ERR] FR | — | — | — | WT-15 |
| C1714: [CHECKSUM ERR] RR | — | — | — | WT-15 |
| C1715: [CHECKSUM ERR] RL | — | — | — | WT-15 |
| C1716: [PRESSDATA ERR] FL | — | — | — | WT-17 |
| C1717: [PRESSDATA ERR] FR | — | — | — | WT-15 |
| C1718: [PRESSDATA ERR] RR | — | — | — | WT-15 |
| C1719: [PRESSDATA ERR] RL | — | — | — | WT-15 |
| C1720: [CODE ERR] FL | — | — | — | WT-15 |
| C1721: [CODE ERR] FR | — | — | — | WT-15 |
| C1722: [CODE ERR] RR | — | — | — | WT-15 |
| C1723: [CODE ERR] RL | — | — | — | WT-15 |
| C1724: [BATT VOLT LOW] FL | — | — | — | WT-15 |
| C1725: [BATT VOLT LOW] FR | — | — | — | WT-15 |
| C1726: [BATT VOLT LOW] RR | — | — | — | WT-15 |
| C1727: [BATT VOLT LOW] RL | — | — | — | WT-15 |
| C1729: VHCL SPEED SIG ERR | — | — | — | WT-19 |
| C1735: IGN_CIRCUIT_OPEN | — | — | — | WT-20 |

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

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

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

Reference Value

INFOID:000000009823241

VALUES ON THE DIAGNOSIS TOOL

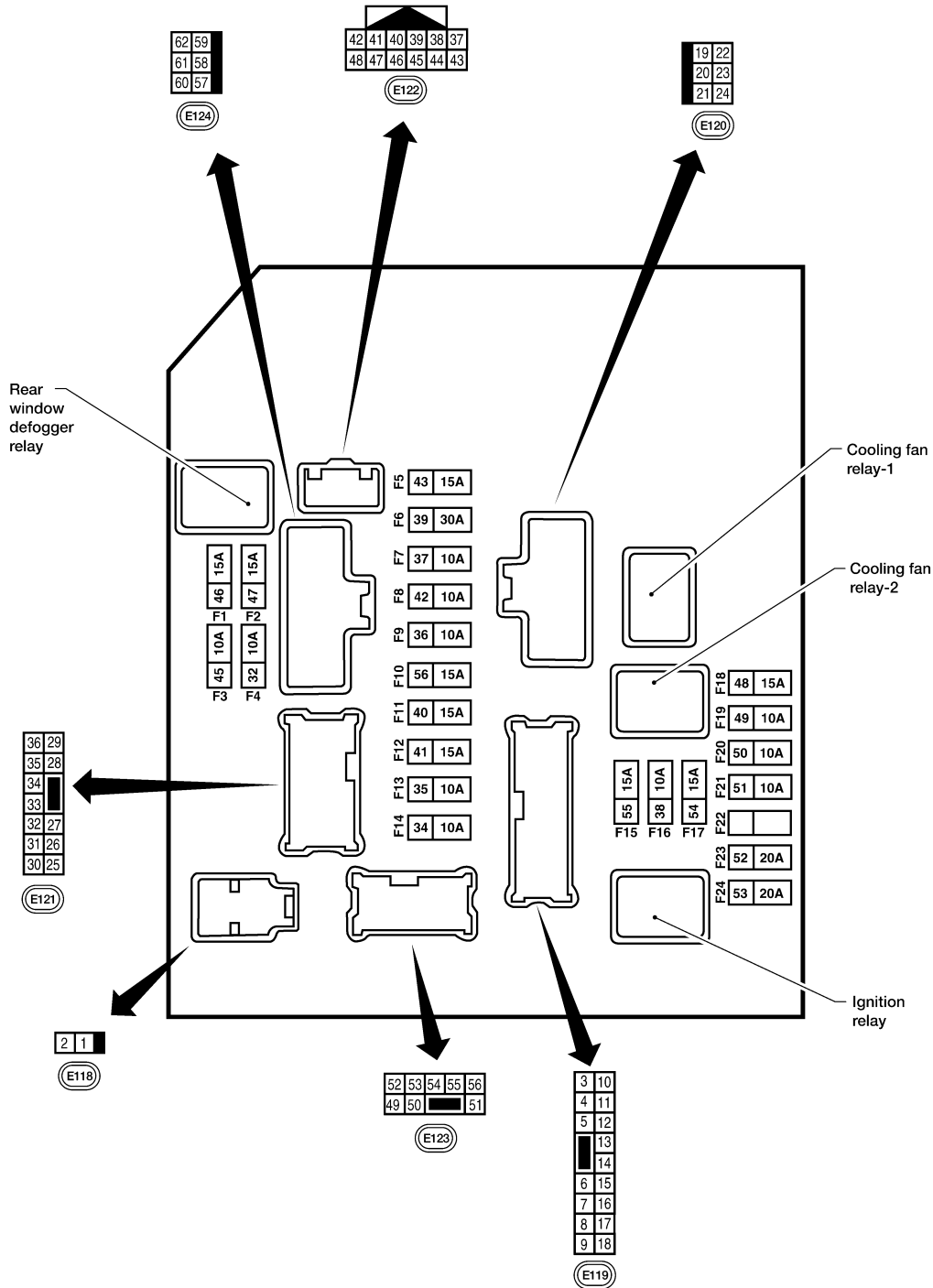
| Monitor Item | Condition | | Value/Status |
|---------------|--|---|--------------|
| MOTOR FAN REQ | Engine idle speed | Changes depending on engine coolant temperature, air conditioner operation status, vehicle speed, etc. | 1, 2, 3, 4 |
| A/C COMP REQ | A/C switch OFF | | Off |
| | A/C switch ON | | 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 |
| | | <ul style="list-style-type: none"> Front fog lamp switch ON Daytime light activated (Canada only) | On |
| FR WIP REQ | Ignition switch ON | Front wiper switch OFF | Stop |
| | | Front wiper switch INT | 1LOW |
| | | Front wiper switch LO | Low |
| | | Front wiper switch HI | Hi |
| WIP AUTO STOP | Ignition switch ON | Front wiper stop position | STOP P |
| | | Any position other than front wiper stop position | ACT P |
| WIP PROT | Ignition switch ON | Front wiper operates normally | Off |
| | | Front wiper stops at fail-safe operation | BLOCK |
| ST RLY REQ | Ignition switch OFF or ACC | | Off |
| | Ignition switch START | | On |
| IGN RLY | Ignition switch OFF or ACC | | Off |
| | Ignition switch ON | | On |
| RR DEF REQ | Rear defogger switch OFF | | Off |
| | Rear defogger switch ON | | On |
| OIL P SW | Ignition switch OFF, ACC or engine running | | Open |
| | Ignition switch ON | | Close |
| DTRL REQ | Not operated | | Off |
| | Daytime Running Lights ON | | On |
| THFT HRN REQ | Not operated | | Off |
| | <ul style="list-style-type: none"> Panic alarm is activated Horn is activated with VEHICLE SECURITY (THEFT WARNING) SYSTEM | | On |

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) < ECU DIAGNOSIS INFORMATION > [WITHOUT INTELLIGENT KEY SYSTEM]

| Monitor Item | Condition | Value/Status |
|--------------|---|--------------|
| HORN CHIRP | Not operated | Off |
| | Door locking with keyfob or Intelligent Key (if equipped) (horn chirp mode) | On |

Terminal Layout

INFOID:000000009823242



NOTE:

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

AAMIA0386GB

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

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Physical Values

INFOID:00000009823243

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 only) | Output | ON | Daytime light system active | 0V |
| | | | | | Daytime light system inactive | Battery voltage |
| 11 | Y/B | A/C compressor | Output | ON or START | A/C switch ON or defrost A/C switch | Battery voltage |
| | | | | | A/C switch OFF or defrost A/C switch | 0V |
| 12 | L/W | Ignition switch supplied power | Input | — | OFF or ACC | 0V |
| | | | | | ON or START | Battery voltage |
| 13 | B/Y | Fuel pump relay | Output | — | Ignition switch ON or START | Battery voltage |
| | | | | | Ignition switch OFF or ACC | 0V |
| 14 | Y/R | Fuse 49 | Output | — | Ignition switch ON or START | Battery voltage |
| | | | | | Ignition switch OFF or ACC | 0V |
| 15 | LG/B | Fuse 50 | Output | — | Ignition switch ON or START | Battery voltage |
| | | | | | Ignition switch OFF or ACC | 0V |
| 16 | G | Fuse 51 | Output | — | Ignition switch ON or START | Battery voltage |
| | | | | | Ignition switch OFF or ACC | 0V |
| 17 | W | Fuse 55 | Output | — | Ignition switch ON or START | Battery voltage |
| | | | | | Ignition switch OFF or ACC | 0V |
| 19 | W/R | Starter motor | Output | START | — | Battery voltage |
| 21 | BR | Ignition switch supplied power | Input | — | OFF or ACC | 0V |
| | | | | | START | Battery voltage |
| 22 | G | Battery power supply | Output | OFF | — | Battery voltage |
| 23 | GR/W | Door mirror defogger output signal | Output | — | When rear defogger switch is ON | Battery voltage |
| | | | | | When rear defogger switch is OFF | 0V |

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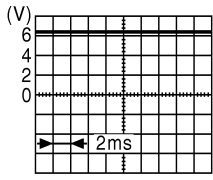
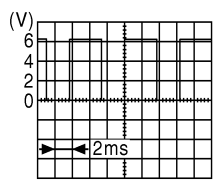
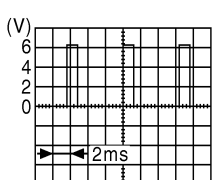
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IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

| Terminal | Wire color | Signal name | Signal input/output | Measuring condition | | Reference value (Approx.) |
|----------|------------|---|---------------------|---------------------|--|--|
| | | | | Ignition switch | Operation or condition | |
| 24 | L | Cooling fan relay | Output | — | Conditions correct for cooling fan operation | Battery voltage |
| | | | | | Conditions not correct for cooling fan operation | 0V |
| 27 | W/B | Fuse 38 | Output | — | Ignition switch ON or START | Battery voltage |
| | | | | | Ignition switch OFF or ACC | 0V |
| 30 | W | Fuse 53 | Output | — | Ignition switch ON or START | Battery voltage |
| | | | | | Ignition switch OFF or ACC | 0V |
| 32 | L | Wiper low speed signal | Output | ON or START | Wiper switch OFF | 0V |
| | | | | | LO or INT | Battery voltage |
| 35 | L/B | Wiper high speed signal | Output | ON or START | Wiper switch OFF, LO, INT | 0V |
| | | | | | HI | Battery voltage |
| 37 | Y | Power generation command signal | Output | — | Ignition switch ON |  <p style="text-align: right; font-size: small;">JPMIA0001GB</p> <p style="text-align: center;">6.3 V</p> |
| | | | | | 40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE" |  <p style="text-align: right; font-size: small;">JPMIA0002GB</p> <p style="text-align: center;">3.8 V</p> |
| | | | | | 40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE" |  <p style="text-align: right; font-size: small;">JPMIA0003GB</p> <p style="text-align: center;">1.4 V</p> |
| 38 | B | Ground | Input | — | — | 0V |
| 39 | L | CAN-H | — | ON | — | — |
| 40 | P | CAN-L | — | ON | — | — |
| 42 | GR | Oil pressure switch | Input | — | Engine running | Battery voltage |
| | | | | | Engine stopped | 0V |
| 43 | L/Y | Wiper auto stop signal | Input | ON or START | Wiper switch OFF, LO, INT | Battery voltage |
| 44 | BR | Daytime light relay control (Canada only) | Input | ON | Daytime light system active | 0V |
| | | | | | Daytime light system inactive | Battery voltage |

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

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

| Terminal | Wire color | Signal name | Signal input/output | Measuring condition | | Reference value (Approx.) | |
|----------|--------------------|--------------------------------------|---------------------|---------------------|--|---------------------------|-----------------|
| | | | | Ignition switch | Operation or condition | | |
| 45 | G/W | Horn relay control | Input | ON | When door locks are operated using keyfob or Intelligent Key (if equipped) (OFF → ON)* | Battery voltage → 0V | |
| 46 | GR | Fuel pump relay control | Input | — | Ignition switch ON or START | 0V | |
| | | | | | Ignition switch OFF or ACC | Battery voltage | |
| 47 | O | Throttle control motor relay control | Input | — | Ignition switch ON or START | 0V | |
| | | | | | Ignition switch OFF or ACC | Battery voltage | |
| 48 | B/R | Starter relay (inhibit switch) | Input | ON or START | Selector lever in "P" or "N" | 0V | |
| | | | | | Selector lever any other position | Battery voltage | |
| 49 | R/L | Trailer tow relay illumination | Output | ON | Lighting switch must be in the 1st position | OFF | 0V |
| | | | | | | ON | Battery voltage |
| 50 | W/R | Front fog lamp (LH) | Output | ON or START | Lighting switch must be in the 2nd position (LOW beam is ON) and the front fog lamp switch | OFF | 0V |
| | | | | | | ON | Battery voltage |
| 51 | W/R | Front fog lamp (RH) | Output | ON or START | Lighting switch must be in the 2nd position (LOW beam is ON) and the front fog lamp switch | OFF | 0V |
| | | | | | | ON | Battery voltage |
| 52 | L | LH low beam head-lamp | Output | — | Lighting switch in 2nd position | Battery voltage | |
| 54 | R/Y | RH low beam head-lamp | Output | — | Lighting switch in 2nd position | Battery voltage | |
| 55 | G | LH high beam head-lamp | Output | — | Lighting switch in 2nd position and placed in HIGH or PASS position | Battery voltage | |
| 56 | Y (With DTRL) | RH high beam head-lamp | Output | — | Lighting switch in 2nd position and placed in HIGH or PASS position | Battery voltage | |
| 56 | L/W (Without DTRL) | RH high beam head-lamp | Output | — | Lighting switch in 2nd position and placed in HIGH or PASS position | Battery voltage | |
| 57 | R/L | Parking, license, and tail lamp | Output | ON | Lighting switch 1st position | OFF | 0V |
| | | | | | | ON | Battery voltage |
| 59 | B | Ground | Input | — | — | 0V | |
| 60 | B | Rear window defogger relay | Output | ON or START | Rear defogger switch ON | Battery voltage | |
| | | | | | Rear defogger switch OFF | 0V | |
| 61 | BR | Fuse 32 | Output | OFF | — | Battery voltage | |

*: When horn reminder is ON

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

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Fail Safe

INFOID:000000009823244

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 | <ul style="list-style-type: none">• Turns ON the cooling fan relay when the ignition switch is turned ON• Turns OFF the cooling fan relay when the ignition switch is turned OFF |

If No CAN Communication Is Available With BCM

| Control part | Fail-safe in operation |
|--|---|
| Headlamp | <ul style="list-style-type: none">• Turns ON the headlamp low relay when the ignition switch is turned ON• Turns OFF the headlamp low relay when the ignition switch is turned OFF• Headlamp high relay OFF |
| <ul style="list-style-type: none">• Parking lamps• License plate lamps• Tail lamps | <ul style="list-style-type: none">• Turns ON the tail lamp relay when the ignition switch is turned ON• Turns OFF the tail lamp relay when the ignition switch is turned OFF |
| Front wiper | <ul style="list-style-type: none">• The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed.• The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode and the front wiper motor is operating. |
| Rear window defogger | Rear window defogger relay OFF |
| A/C compressor | A/C relay OFF |
| Front fog lamps (if equipped) | Front fog lamp relay OFF |

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

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

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

NOTE:

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

FRONT WIPER CONTROL

IPDM E/R detects front wiper stop position by a front wiper auto stop signal.

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

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

NOTE:

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

STARTER MOTOR PROTECTION FUNCTION

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

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

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:000000009823245

| CONSULT display | Fail-safe | TIME ^{NOTE} | | Refer to |
|--|-----------|----------------------|--------|------------------------|
| No DTC is detected. further testing may be required. | — | — | — | — |
| U1000: CAN COMM CIRCUIT | × | CRNT | 1 – 39 | PCS-16 |

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.

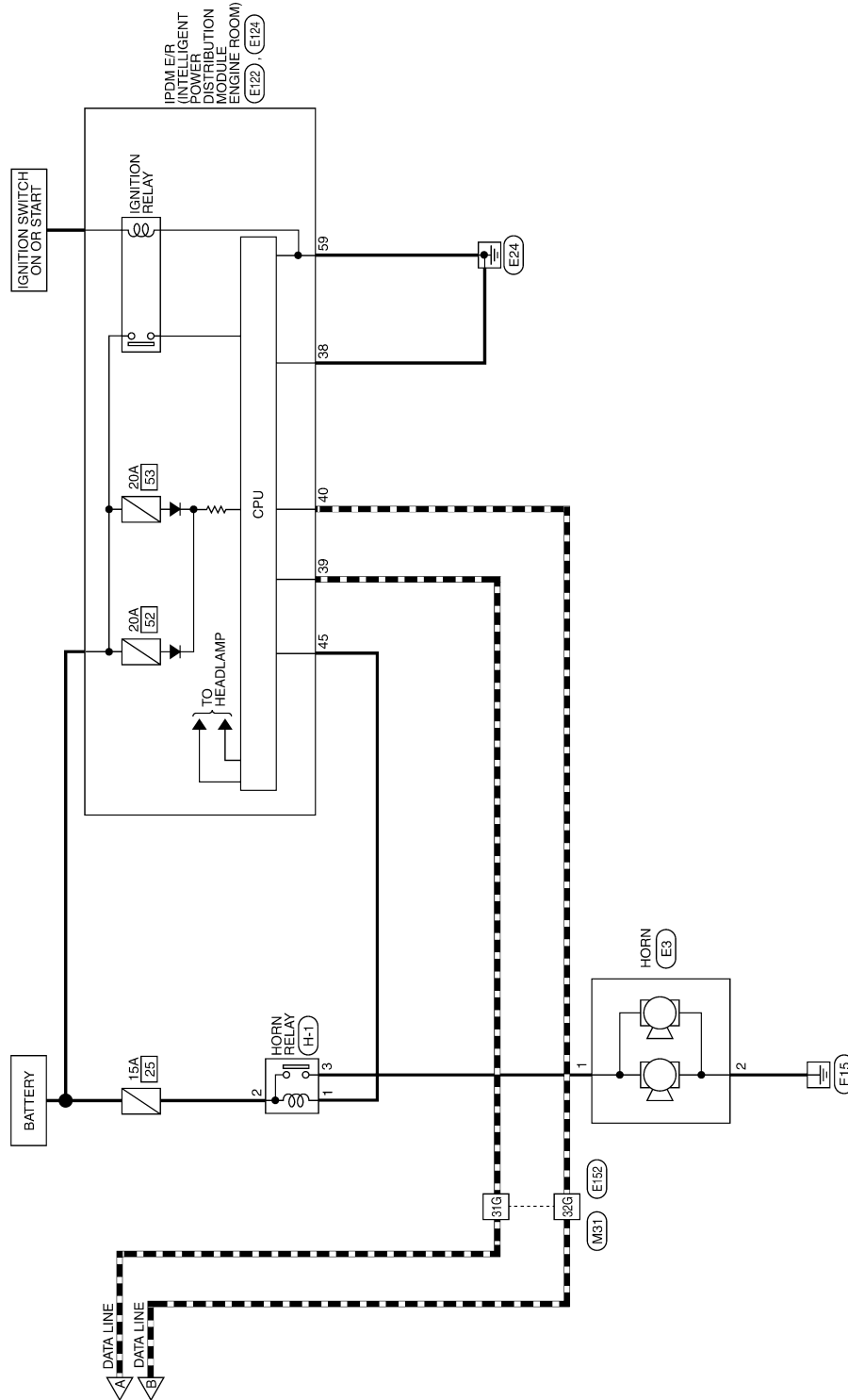
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VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >



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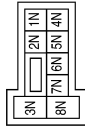
VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

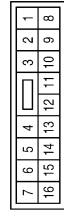
VEHICLE SECURITY SYSTEM CONNECTORS

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



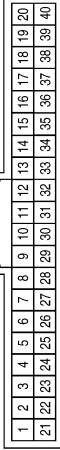
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1N | Y/R | - |

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



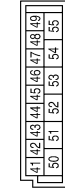
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 8 | W/W | - |
| 14 | B | - |

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



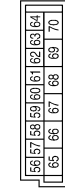
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|---------------------------------|
| 11 | O | ACC SW |
| 12 | R/L | DOOR SW (AS) |
| 13 | GR | DOOR SW (RR) |
| 22 | W/W | ANTI-PINCH SERIAL LINK (RX, TX) |
| 23 | G/O | SECURITY INDICATOR OUTPUT |
| 39 | L | CAN-H |
| 40 | P | CAN-L |

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



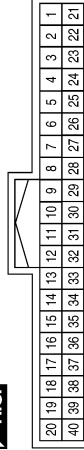
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|----------------|
| 42 | GR | GLASS HATCH SW |
| 43 | R/B | BACK DOOR SW |
| 47 | SB | DOOR SW (DR) |
| 48 | R/Y | DOOR SW (RL) |

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



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

| | |
|-----------------|-------------------|
| Connector No. | M24 |
| Connector Name | COMBINATION METER |
| Connector Color | WHITE |



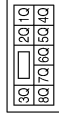
| Terminal No. | Color of Wire | Signal Name |
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| 8 | Y/R | BATTERY |
| 28 | G/O | SECURITY |

VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

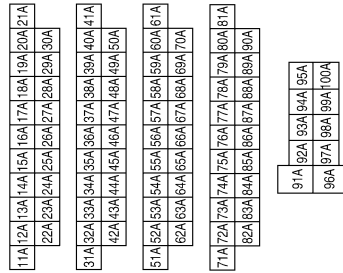
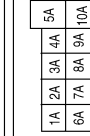
< WIRING DIAGRAM >

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



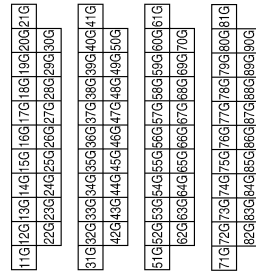
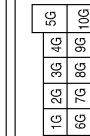
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 4Q | Y/R | - |

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 15A | R/B | - |
| 21A | R/L | - |
| 25A | GR | - |
| 26A | GR | - |

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



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

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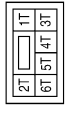
ABKIA4036GB

VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

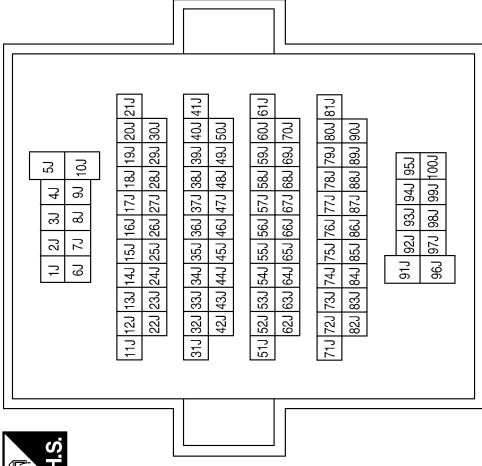
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| Connector No. | M60 |
| Connector Name | FUSE BLOCK (J/B) |
| Connector Color | WHITE |



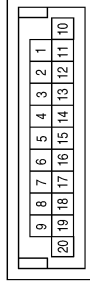
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 6T | O | - |

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

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

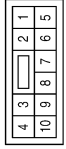


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| Connector No. | M175 |
| Connector Name | JOINT CONNECTOR-M10 |
| Connector Color | BLUE |



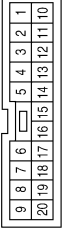
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1 | L | - |
| 6 | L | - |
| 10 | P | - |
| 15 | P | - |

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 3 | B | - |

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 5 | W/V | - |

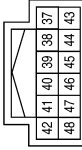
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VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

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



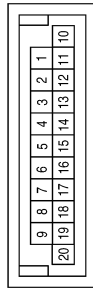
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|----------------|
| 38 | B | GND (SIGNAL) |
| 39 | L | CAN-H |
| 40 | P | CAN-L |
| 45 | G/W | ANT THEFT HORN |

| | |
|-----------------|-------|
| Connector No. | E3 |
| Connector Name | HORN |
| Connector Color | BLACK |



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

| | |
|-----------------|---------------------|
| Connector No. | M176 |
| Connector Name | JOINT CONNECTOR-M11 |
| Connector Color | BLUE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1 | L | - |
| 2 | L | - |
| 10 | P | - |
| 11 | P | - |

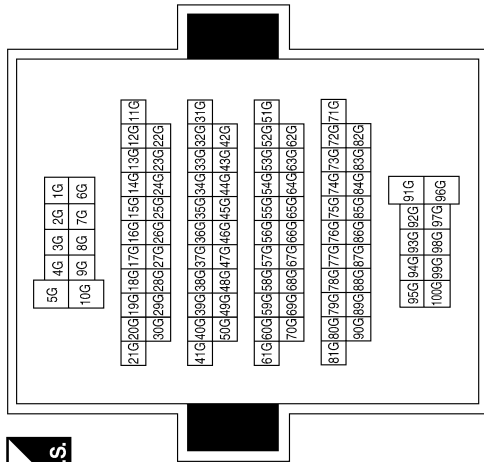
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| Connector No. | E152 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



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



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



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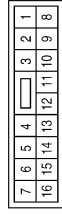
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VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

| | |
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| Connector No. | B43 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



| | | | | | |
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| Terminal No. | 10 | Color of Wire | R/W | Signal Name | - |
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| | |
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| Connector No. | B18 |
| Connector Name | REAR DOOR SWITCH LH |
| Connector Color | WHITE |



| | | | | | |
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| Terminal No. | 2 | Color of Wire | R/Y | Signal Name | - |
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| Connector No. | B8 |
| Connector Name | FRONT DOOR SWITCH LH |
| Connector Color | WHITE |



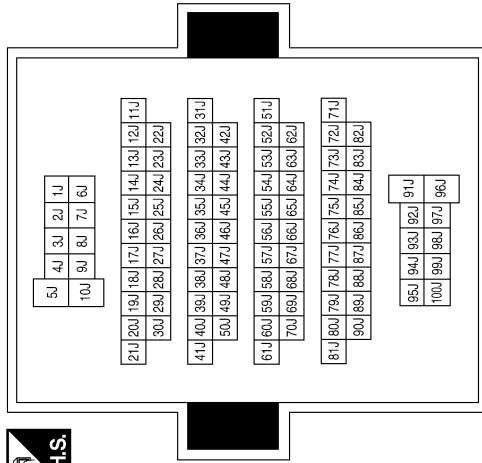
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| Terminal No. | 2 | Color of Wire | SB | Signal Name | - |
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| | |
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| Connector No. | B108 |
| Connector Name | FRONT DOOR SWITCH RH |
| Connector Color | WHITE |



| | | | | | |
|--------------|---|---------------|-----|-------------|---|
| Terminal No. | 2 | Color of Wire | R/L | Signal Name | - |
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| Connector No. | B69 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



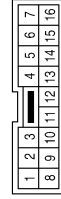
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| Terminal No. | 21J | Color of Wire | R/Y | Signal Name | - |
| 30J | SB | SB | - | - | |

VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

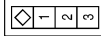
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| Connector No. | B139 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



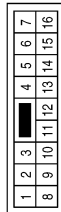
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| Terminal No. | 13 | Color of Wire | GR | Signal Name | - |
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| | |
|-----------------|---------------------|
| Connector No. | B116 |
| Connector Name | REAR DOOR SWITCH RH |
| Connector Color | WHITE |



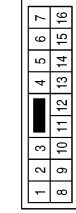
| | | | | | |
|--------------|---|---------------|----|-------------|---|
| Terminal No. | 2 | Color of Wire | GR | Signal Name | - |
|--------------|---|---------------|----|-------------|---|

| | |
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| Connector No. | B111 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



| | | | | | |
|--------------|----|---------------|-----|-------------|---|
| Terminal No. | 10 | Color of Wire | R/W | Signal Name | - |
|--------------|----|---------------|-----|-------------|---|

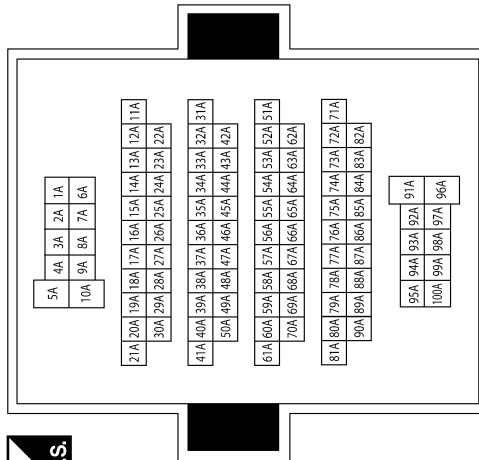
| | |
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| Connector No. | D2 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



| | | | | | |
|--------------|----|---------------|------|-------------|---|
| Terminal No. | 8 | Color of Wire | LG/W | Signal Name | - |
| | 14 | | B | | - |

| | | | | | |
|--------------|-----|---------------|-----|-------------|---|
| Terminal No. | 15A | Color of Wire | R/W | Signal Name | - |
| | 21A | | R/L | | - |
| | 25A | | GR | | - |
| | 26A | | GR | | - |

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



ABKIA4040GB

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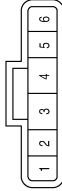
SEC

VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

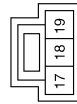
< WIRING DIAGRAM >

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



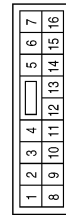
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1 | L | - |
| 5 | B | - |
| 6 | R | - |

| | |
|-----------------|---|
| Connector No. | D8 |
| Connector Name | MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH |
| Connector Color | WHITE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 17 | B | GND |

| | |
|-----------------|---|
| Connector No. | D7 |
| Connector Name | MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH |
| Connector Color | WHITE |



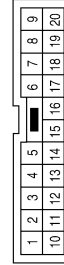
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|------------------------|
| 4 | L | LOCK |
| 6 | R | UNLOCK |
| 14 | LG/W | ANTI PINCH SERIAL LINK |

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



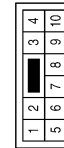
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|------------------------|
| 11 | B | GND |
| 16 | LG/W | ANTI PINCH SERIAL LINK |

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 5 | LG/W | - |

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 3 | B | - |

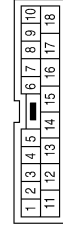
ABKIA4041GB

VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

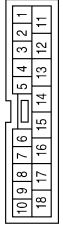
< WIRING DIAGRAM >

| | |
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| Connector No. | D501 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



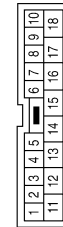
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 14 | B | - |
| 15 | R/W | - |

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| Connector No. | D405 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



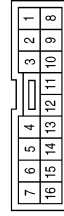
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 14 | B | - |
| 15 | R/W | - |

| | |
|-----------------|--------------|
| Connector No. | D401 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



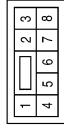
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 14 | B | - |
| 15 | R/W | - |

| | |
|-----------------|--------------|
| Connector No. | D602 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 13 | GR | - |

| | |
|-----------------|-----------------|
| Connector No. | D503 |
| Connector Name | BACK DOOR LATCH |
| Connector Color | WHITE |



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

| | |
|-----------------|------------------|
| Connector No. | D502 |
| Connector Name | BACK DOOR SWITCH |
| Connector Color | WHITE |



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

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VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

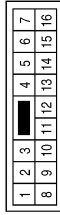
< WIRING DIAGRAM >

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| Connector No. | D707 |
| Connector Name | GLASS HATCH A-JAR SWITCH |
| Connector Color | BLACK |



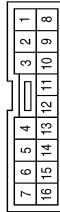
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|--------------|---|---------------|----|-------------|---|
| Terminal No. | 1 | Color of Wire | GR | Signal Name | - |
|--------------|---|---------------|----|-------------|---|

| | |
|-----------------|--------------|
| Connector No. | D701 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



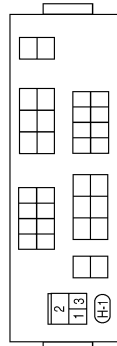
| | | | | | |
|--------------|----|---------------|----|-------------|---|
| Terminal No. | 13 | Color of Wire | GR | Signal Name | - |
|--------------|----|---------------|----|-------------|---|

| | |
|-----------------|--------------|
| Connector No. | D606 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



| | | | | | |
|--------------|----|---------------|----|-------------|---|
| Terminal No. | 13 | Color of Wire | GR | Signal Name | - |
|--------------|----|---------------|----|-------------|---|

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



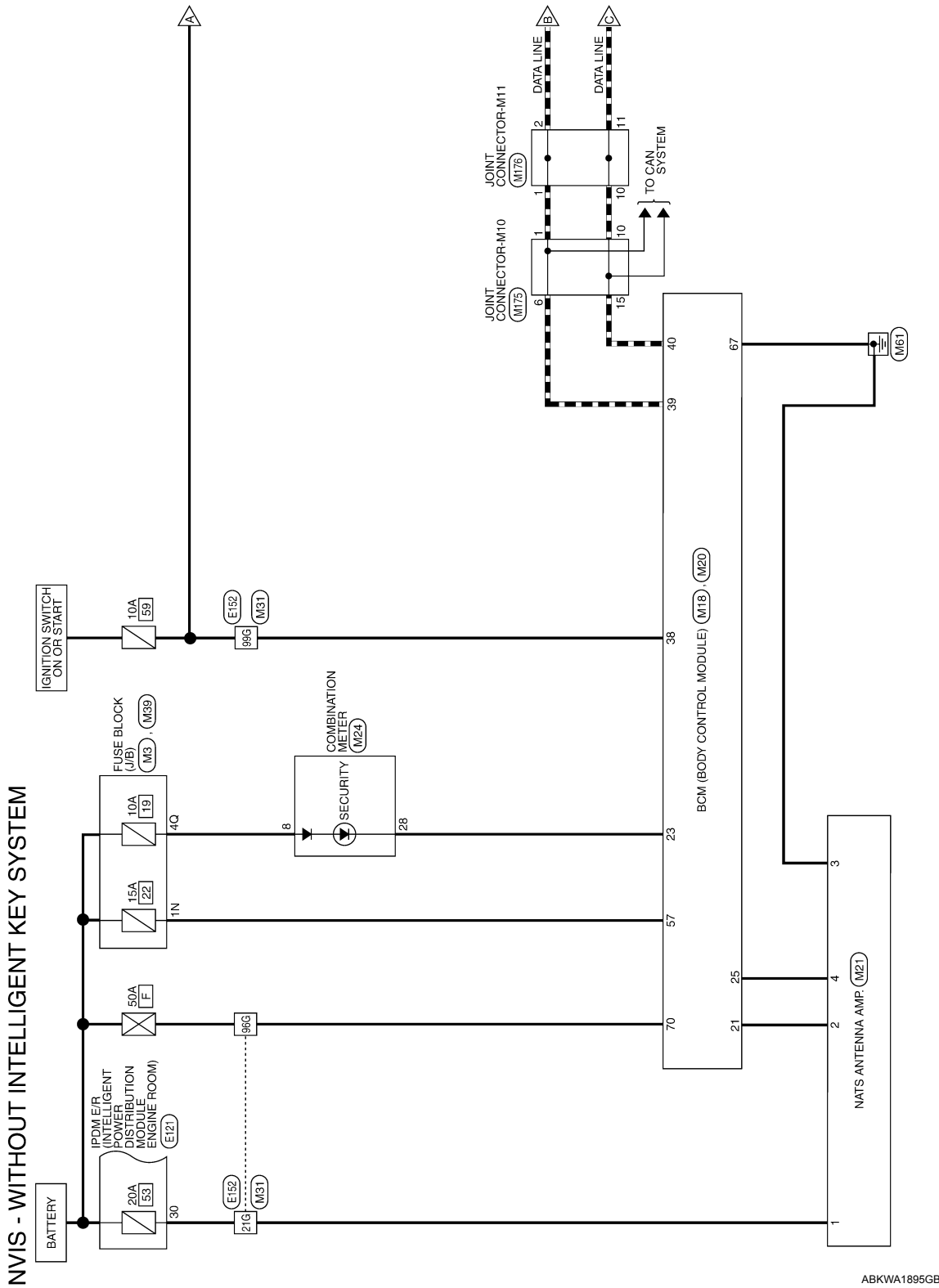
| | | |
|--------------|---------------|-------------|
| Terminal No. | Color of Wire | Signal Name |
| 1 | R/W | - |
| 2 | G/B | - |
| 3 | G | - |

ABKIA4043GB

NVIS

Wiring Diagram - Without Intelligent Key System

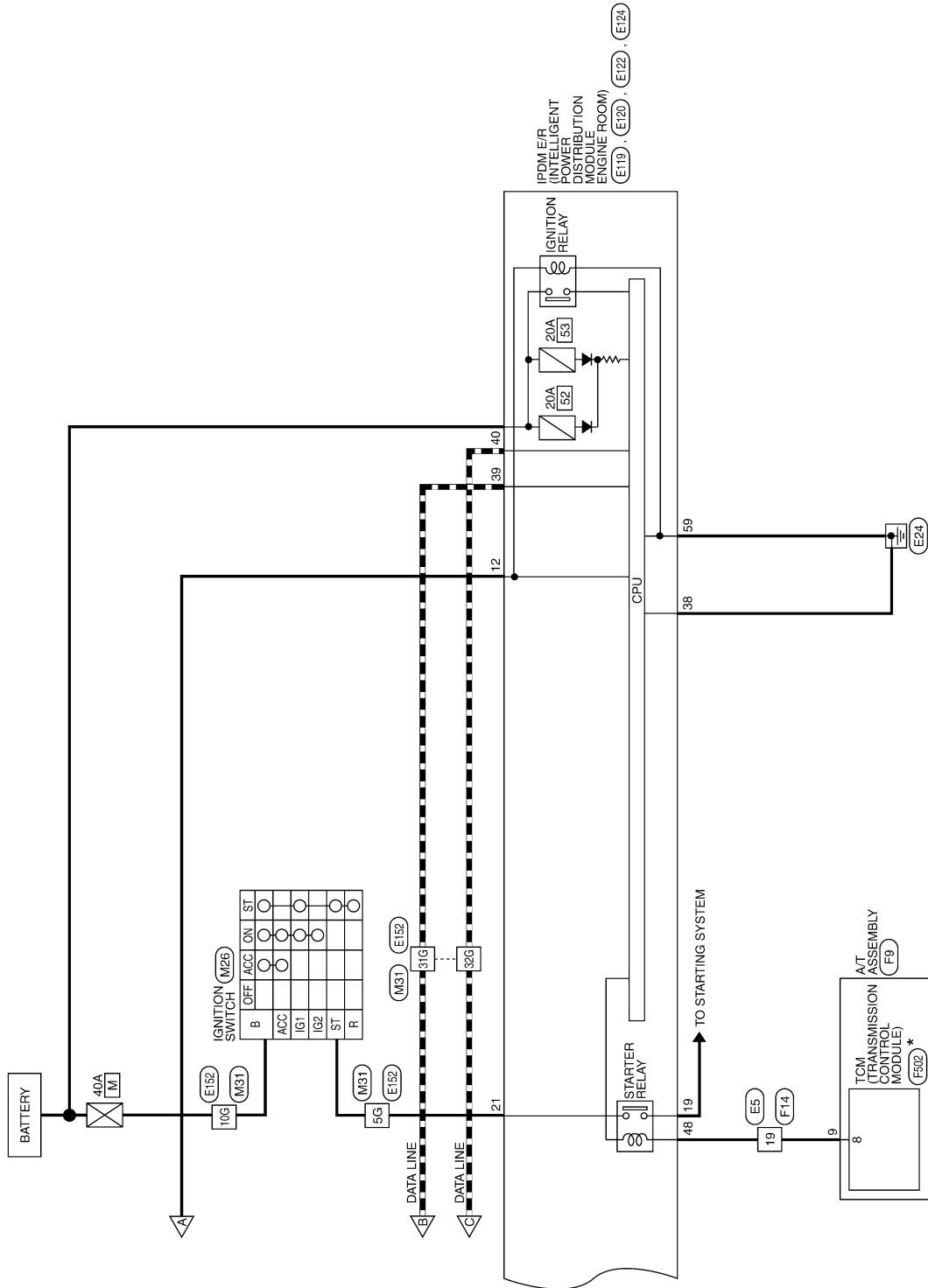
INFOID:000000009823247



ABKWA1895GB

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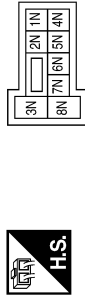


*: THIS CONNECTOR IS NOT SHOWN IN "HARNES LAYOUT" OF PG SECTION.

ABKWA1896GB

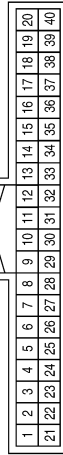
NVIS CONNECTORS - WITHOUT INTELLIGENT KEY SYSTEM

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



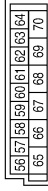
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1N | Y/R | - |

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



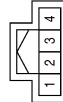
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------------------------------|
| 21 | G | IMMOBILIZER ANTENNA SIGNAL (CLOCK) |
| 23 | G/O | SECURITY INDICATOR OUTPUT |
| 25 | BR | IMMOBILIZER ANTENNA SIGNAL (RX, TX) |
| 38 | W/L | IGN SW |
| 39 | L | CAN-H |
| 40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

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



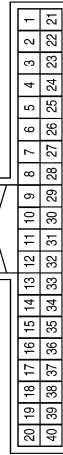
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 57 | Y/R | BAT (FUSE) |
| 67 | B | GND (POWER) |
| 70 | W/B | BAT (F/L) |

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



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

| | |
|-----------------|-------------------|
| Connector No. | M24 |
| Connector Name | COMBINATION METER |
| Connector Color | WHITE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 8 | Y/R | BATTERY |
| 28 | G/O | SECURITY |

| | |
|-----------------|-----------------|
| Connector No. | M26 |
| Connector Name | IGNITION SWITCH |
| Connector Color | WHITE |



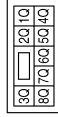
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| B | G | - |
| ST | BR | - |

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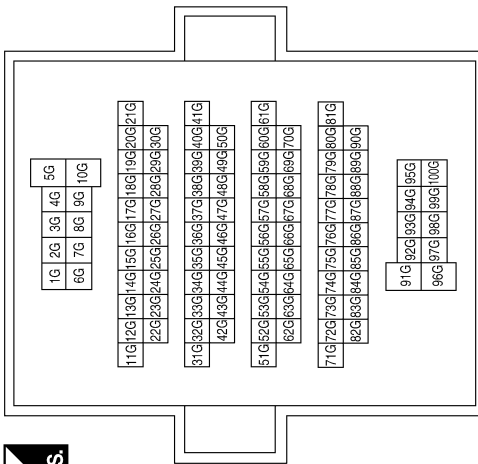
| | |
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| Connector No. | M39 |
| Connector Name | FUSE BLOCK (J/B) |
| Connector Color | WHITE |



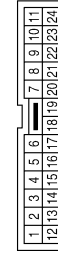
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| Terminal No. | Color of Wire | Signal Name |
| 4Q | Y/R | - |

| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 5G | BR | - |
| 10G | G | - |
| 21G | W | - |
| 31G | L | - |
| 32G | P | - |
| 96G | W/B | - |
| 99G | W/L | - |

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

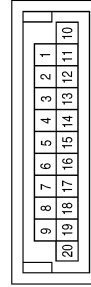


| | |
|-----------------|--------------|
| Connector No. | E5 |
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |



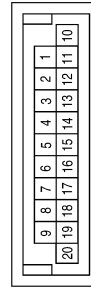
| | | |
|--------------|---------------|-------------|
| Terminal No. | Color of Wire | Signal Name |
| 19 | B/R | - |

| | |
|-----------------|---------------------|
| Connector No. | M176 |
| Connector Name | JOINT CONNECTOR-M11 |
| Connector Color | BLUE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1 | L | - |
| 2 | L | - |
| 10 | P | - |
| 11 | P | - |

| | |
|-----------------|---------------------|
| Connector No. | M175 |
| Connector Name | JOINT CONNECTOR-M10 |
| Connector Color | BLUE |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1 | L | - |
| 6 | L | - |
| 10 | P | - |
| 15 | P | - |

ABKIA4032GB

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

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



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

| | |
|-----------------|--|
| Connector No. | E120 |
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Color | WHITE |

| | | |
|----|----|----|
| 21 | 20 | 19 |
| 24 | 23 | 22 |



| | | | | | |
|--------------|----|---------------|-----|-------------|-------------|
| Terminal No. | 19 | Color of Wire | W/R | Signal Name | STARTER MTR |
| | 21 | Color of Wire | BR | Signal Name | IGN SW (ST) |

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

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



| | | | | | |
|--------------|----|---------------|-----|-------------|-------------|
| Terminal No. | 12 | Color of Wire | L/W | Signal Name | IGN SW (IG) |
|--------------|----|---------------|-----|-------------|-------------|

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

| | | |
|----|----|----|
| 59 | 58 | 57 |
| 62 | 61 | 60 |



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

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

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



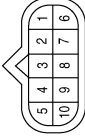
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| Terminal No. | 38 | Color of Wire | B | Signal Name | GND (SIGNAL) |
| | 39 | Color of Wire | L | Signal Name | CAN-H |
| | 40 | Color of Wire | P | Signal Name | CAN-L |
| | 48 | Color of Wire | B/R | Signal Name | RANGE SW |

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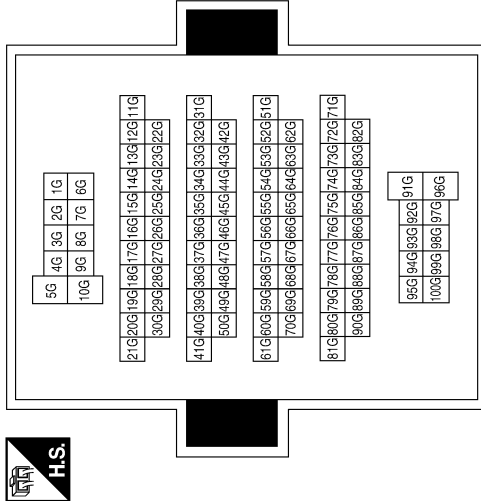
| | |
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| Connector No. | F9 |
| Connector Name | A/T ASSEMBLY |
| Connector Color | GREEN |



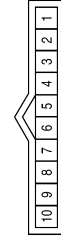
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 9 | B/R | — |

| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 5G | BR | — |
| 10G | G | — |
| 21G | W | — |
| 31G | L | — |
| 32G | P | — |
| 96G | W/B | — |
| 99G | L/W | — |

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

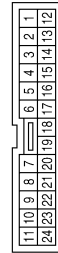


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|-----------------|-----------------------------------|
| Connector No. | F502 |
| Connector Name | TCM (TRANSMISSION CONTROL MODULE) |
| Connector Color | GRAY |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 8 | G | START-RLY |

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



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 19 | B/R | — |

ABKIA4034GB

VEHICLE SECURITY SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

SYMPTOM DIAGNOSIS

VEHICLE SECURITY SYSTEM SYMPTOMS

Symptom Table

INFOID:000000009823248

| Procedure | | Diagnostic procedure | Refer to page |
|-----------|--|--|---|
| Symptom | | | |
| 1 | Vehicle security system cannot be set by | Door switch | Check door switch (LF, RF, LR, RR, back) DLK-271 |
| | | Glass ajar switch | Check glass ajar switch DLK-308 |
| | | Key cylinder switch | Check key cylinder switch DLK-279 |
| | | — | Check Intermittent Incident GI-42 |
| | Security indicator does not turn ON. | | Check vehicle security indicator SEC-160 |
| | | Check Intermittent Incident GI-42 | |
| 2 | * Vehicle security system does not sound alarm when | Any door is opened. | Check door switch (LF, RF, LR, RR, back) DLK-271 |
| | | Glass ajar switch | Check glass ajar switch DLK-308 |
| | | — | Check Intermittent Incident GI-42 |
| 3 | Vehicle security alarm does not activate. | Horn alarm | Check horn switch — |
| | | | Check Intermittent Incident GI-42 |
| 4 | Vehicle security system cannot be canceled by | Key cylinder switch | Check key cylinder switch DLK-297 |
| | | | Check Intermittent Incident GI-42 |

*: Check the system is in the armed phase.

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NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS SYMPTOMS

< SYMPTOM DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS SYMPTOMS

Symptom Table

INFOID:000000009823249

NOTE:

- Before performing the diagnosis in the following table, check "[SEC-124, "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)

- Mechanical key is not inserted into key cylinder.
- Ignition knob switch is not depressed.

| Symptom | Diagnosis/service procedure | Reference page |
|---|-------------------------------------|-------------------------|
| Security indicator does not turn ON or flash. | 1. Check vehicle security indicator | SEC-160 |
| | 2. Check Intermittent Incident | GI-42 |

PRECAUTIONS

< PRECAUTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

PRECAUTION

PRECAUTIONS

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

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

WARNING:

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

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

WARNING:

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

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SEC

NATS ANTENNA AMP.

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

REMOVAL AND INSTALLATION

NATS ANTENNA AMP.

Removal and Installation

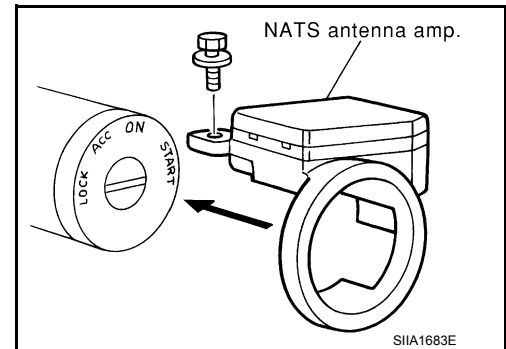
INFOID:000000009823251

NOTE:

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

REMOVAL

1. Disconnect the battery negative terminal. Refer to [PG-5. "How to Handle Battery"](#)
2. Remove cluster lid A. Refer to [IP-14. "Removal and Installation"](#).
3. Remove the NATS antenna amp bolt.
4. Disconnect the harness connector from the NATS antenna amp. (1) and remove.



INSTALLATION

Installation is in the reverse order of removal.

REMOTE KEYLESS ENTRY RECEIVER

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

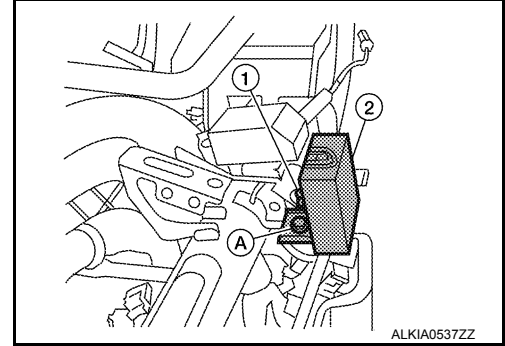
REMOTE KEYLESS ENTRY RECEIVER

Removal and Installation

INFOID:000000009823252

REMOVAL

1. Remove the instrument lower panel RH. Refer to [IP-12. "Removal and Installation"](#).
2. Disconnect the harness connector (1) from the RKE receiver (2).
3. Remove the RKE receiver bolt (A) and the RKE receiver (2).



INSTALLATION

Installation is in the reverse order of removal.

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