SECTION SEC
SECURITY CONTROL SYSTEM

CONTENTS

WITH INTELLIGENT KEY SYSTEM

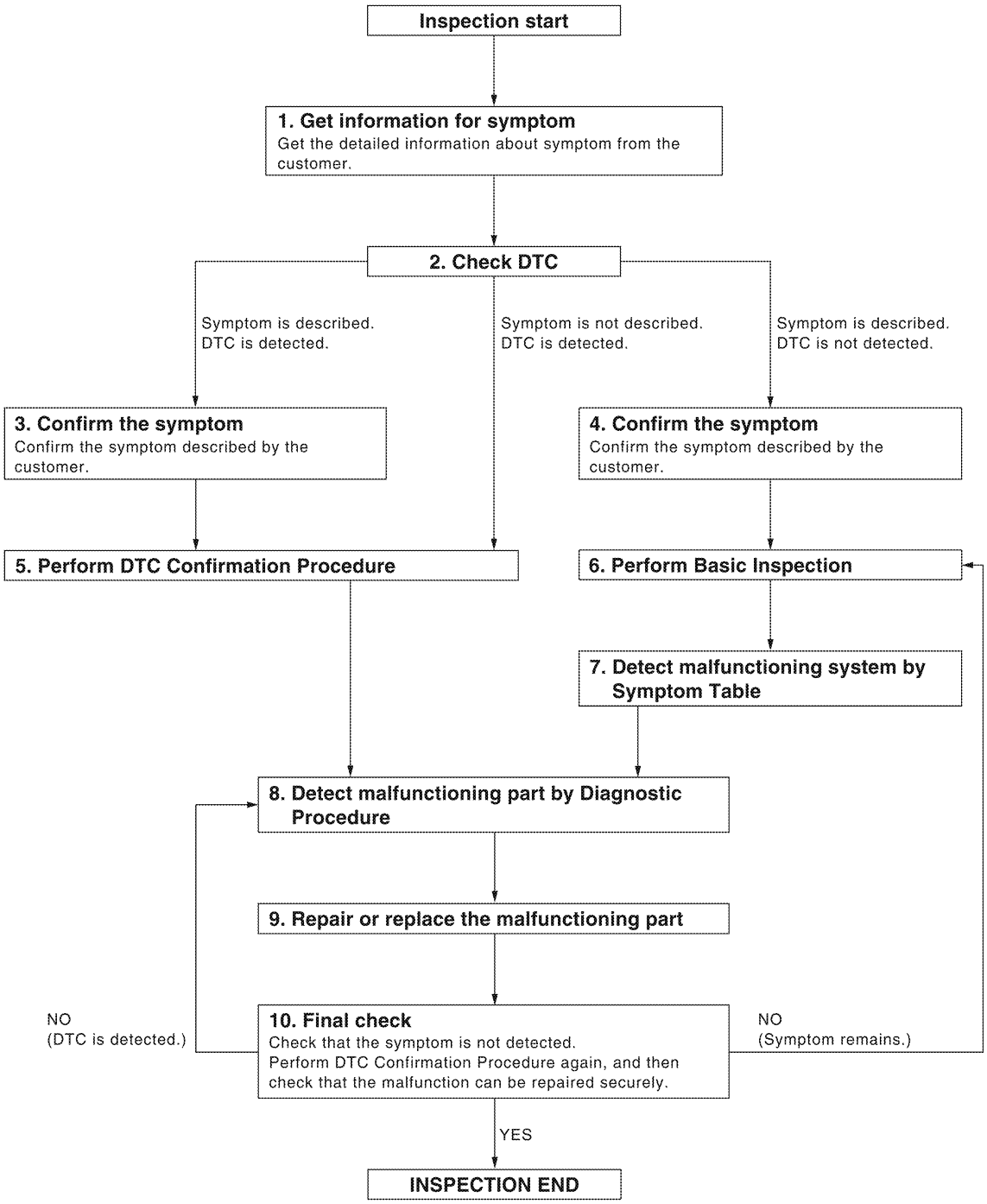
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000001539096

OVERALL SEQUENCE



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DETAILED FLOW

1.GET INFORMATION FOR SYMPTOM

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

>> GO TO 2

2.CHECK DTC

1. Check 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-III to the vehicle in “DATA MONITOR” mode and check real-time diagnosis results.
Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5

4.CONFIRM THE SYMPTOM

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

>> GO TO 6

5.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC Confirmation Procedure for the displayed DTC, and then check that DTC is detected again.
If two or more DTCs are detected, refer to SEC-97, "DTC Inspection Priority Chart" (Intelligent Key unit), SEC-79, "DTC Inspection Priority Chart" (BCM) and determine trouble diagnosis order.

Is DTC detected?

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

6.PERFORM BASIC INSPECTION

Perform Basic Inspection. Refer to SEC-6, "Basic Inspection".

>> GO TO 7

7.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM TABLE

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

>> GO TO 8

8.DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.
NOTE:
The Diagnostic Procedure is described based on open circuit inspection. A short circuit inspection is also required for the circuit check in the Diagnostic Procedure.

>> GO TO 9

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

Basic Inspection

INFOID:0000000004807932

The engine start function, door lock function, power distribution system and NATS-IVIS/NVIS 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

Check the door lock for normal operation with the Intelligent Key controller and door request switch.
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.
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-200, "Symptom Table".

2.CHECK ENGINE STARTING

Check that the engine starts when operating with the Intelligent Key.

Does the engine start?

YES >> GO TO 3.
NO >> Refer to SEC-111, "Symptom Table".

3.CHECK STEERING LOCK

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

Does steering lock?

YES >> GO TO 4.
NO >> Refer to DLK-67, "Component Function Check".

4.CHECK IGNITION KNOB SWITCH OPERATION

Press ignition knob to check switch operation.

Does the combination meter display any message?

YES >> GO TO 5.
NO >> Refer to SEC-44, "Ignition Knob Switch Check".

5.CHECK VEHICLE SECURITY SYSTEM

Check the vehicle security system for normal operation.
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-6, "Vehicle Security Operation Check".

Vehicle Security Operation Check

INFOID:0000000004807933

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 Intelligent Key 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-49, "Component Function Check".

3.CHECK ALARM FUNCTION

1. After 30 seconds, security indicator lamp will start to blink.
2. Open any door or hood 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-112, "Symptom Table".
- Alarm (horn and headlamps) does not operate. Refer to SEC-112, "Symptom Table".

4.CHECK ALARM CANCEL OPERATION

Unlock any door using Intelligent Key or mechanical key.

Does alarm (horn and headlamps) stop?

YES >> Inspection End.
NO >> Check door lock function. Refer to DLK-17, "INTELLIGENT KEY : System Description".

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement

INFOID:0000000001539097

Refer to the CONSULT-III Operation Manual.

ECM RE-COMMUNICATING FUNCTION

ECM RE-COMMUNICATING FUNCTION : Description

INFOID:0000000001539098

Performing following procedure can automatically perform re-communication of ECM and BCM, but only when the ECM has been replaced with a new one (*1).
*1: New one means an ECM which has never been energized on-board.
(In this step, initialization procedure by CONSULT-III is not necessary)
NOTE:
- **When registering new Key IDs or replacing the ECM that is not brand new, refer to CONSULT-III Operation Manual.**
- **If multiple keys are attached to the key holder, separate them before work.**
- **Distinguish keys with unregistered key ID from those with registered ID.**

ECM RE-COMMUNICATING FUNCTION : Special Repair Requirement

INFOID:0000000001539099

1.PERFORM ECM RE-COMMUNICATING FUNCTION

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

Can engine be started?

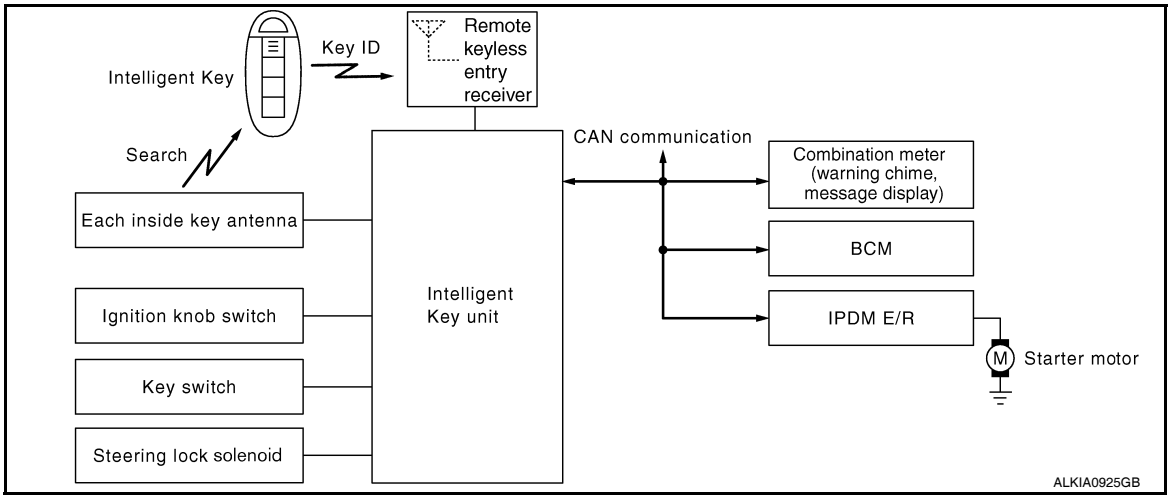
YES >> Procedure is completed.
NO >> Initialize control unit. Refer to CONSULT-III Operation Manual.

FUNCTION DIAGNOSIS

INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

System Diagram

INFOID:0000000001539100



System Description

INFOID:0000000001539101

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	• KEY warning lamp/buzzer • Steering lock solenoid • Starter relay request (to IPDM E/R) • Inside key antenna (Front and rear center console, overhead console, luggage compartment) • Key interlock solenoid
Ignition knob switch	Ignition knob (push/release)		
Steering lock solenoid	Steering lock (lock/unlock)		
Inside key antenna (Front and rear center console, overhead console, luggage compartment)	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	• 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	• Inside key antenna (Front and rear center console, overhead console, luggage compartment)

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.

- 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 DLK-17, "INTELLIGENT KEY : System Description" 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 solenoid if the verification results are OK. For detail of key warning message operation, refer to DLK-34, "System Description".
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 “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

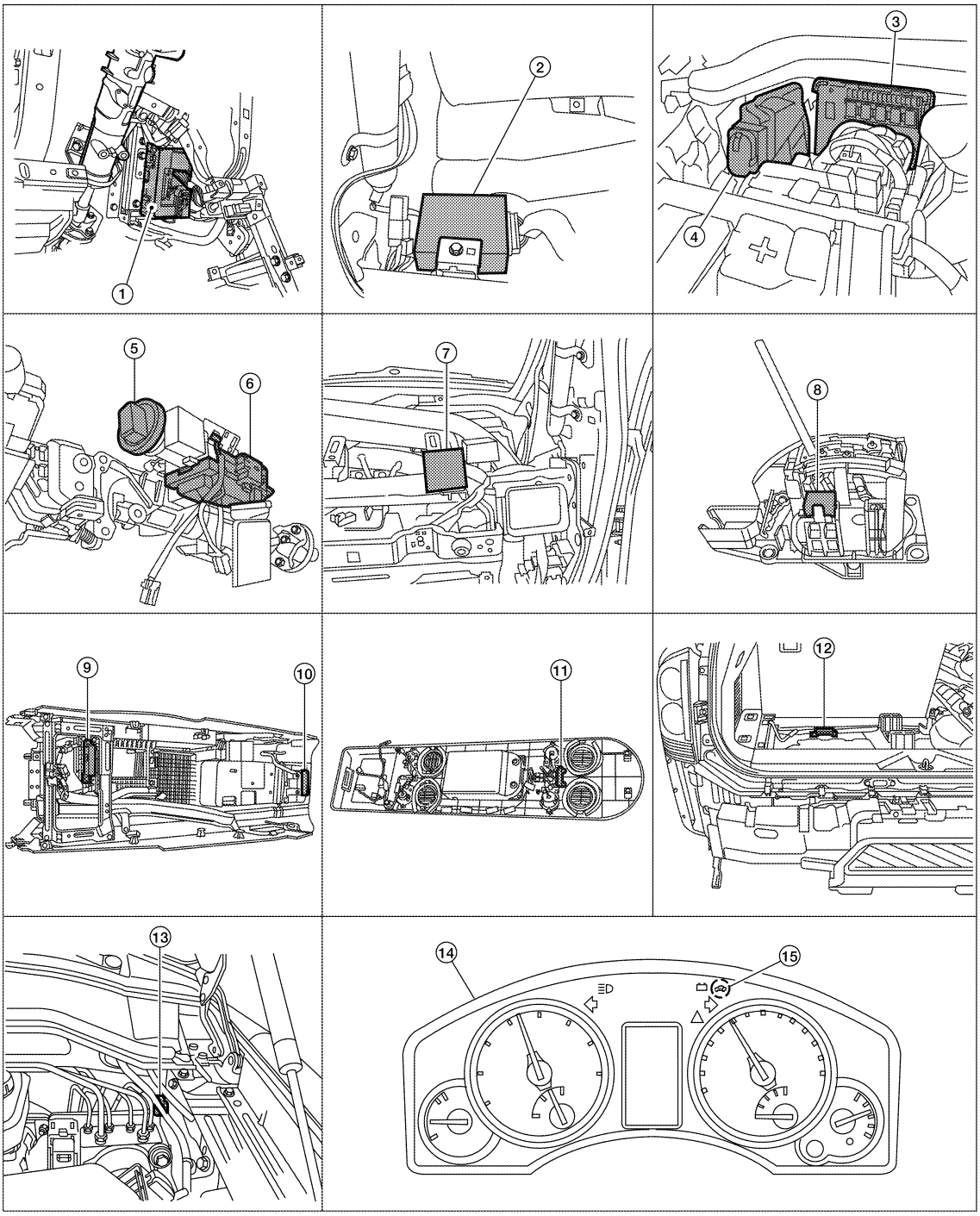
When the Intelligent Key battery is discharged, performs the NATS ID verification between the integrated transponder and BCM by inserting the mechanical key into the key cylinder, and then the engine can be started. For details relating to starting the engine using mechanical key, refer to SEC-13, "System Description".

STEERING LOCK OPERATION

Steering is locked by steering lock solenoid 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).

Component Parts Location

INFOID:0000000001539102



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1. BCM M18, M19, 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 (detention switch key) M203 (view with center console removed)
9. Inside key antenna 3 (front of center console) M210 (view with center console removed)

10. Inside key antenna 1 (rear of center console) M209
11. Inside key antenna 4 (overhead console area) R210 (view with overhead console removed)
12. Inside key antenna 2 (luggage compartment) B76 (view with rear carpet removed)
13. Intelligent Key warning buzzer E25
14. Combination meter M23, M24
15. Vehicle security indicator lamp

Component Description

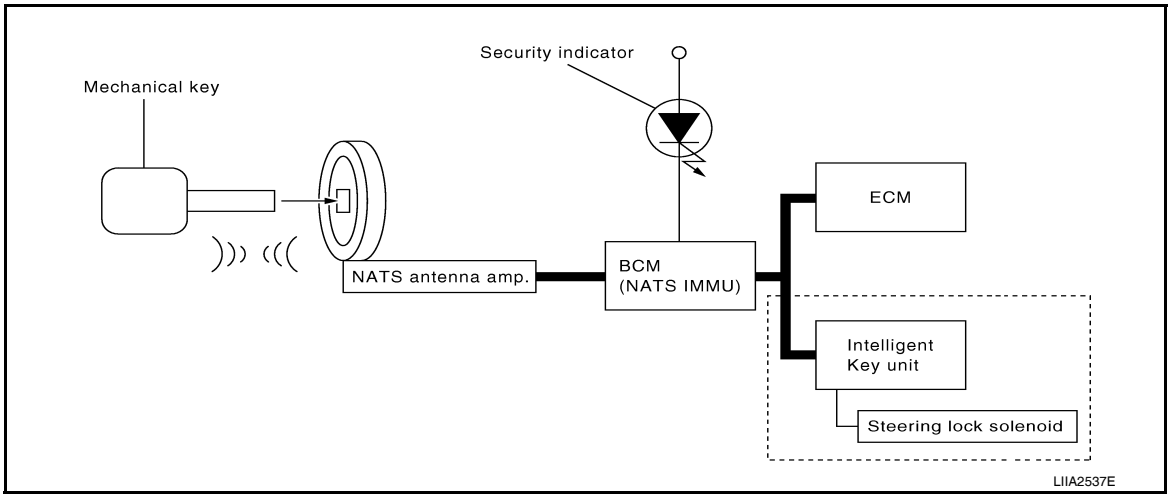
INFOID:0000000001539103

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 (detention key switch)	Detects whether the shift lever is in park.

NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS)

System Diagram

INFOID:0000000001539104



System Description

INFOID:0000000001539105

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-17, "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

- 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-III.
When NATS initialization has been completed, the ID of the inserted mechanical key or mechanical key IDs can be carried out.
• Possible symptom of NATS malfunction is “Engine cannot start”. Identify the possible causes according to “Work Flow”, Refer to SEC-3, "Work Flow".
• If ECM other than Genuine NISSAN is installed, the engine cannot be started. For ECM replacement procedure, refer to SEC-8, "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.**

Component Parts Location

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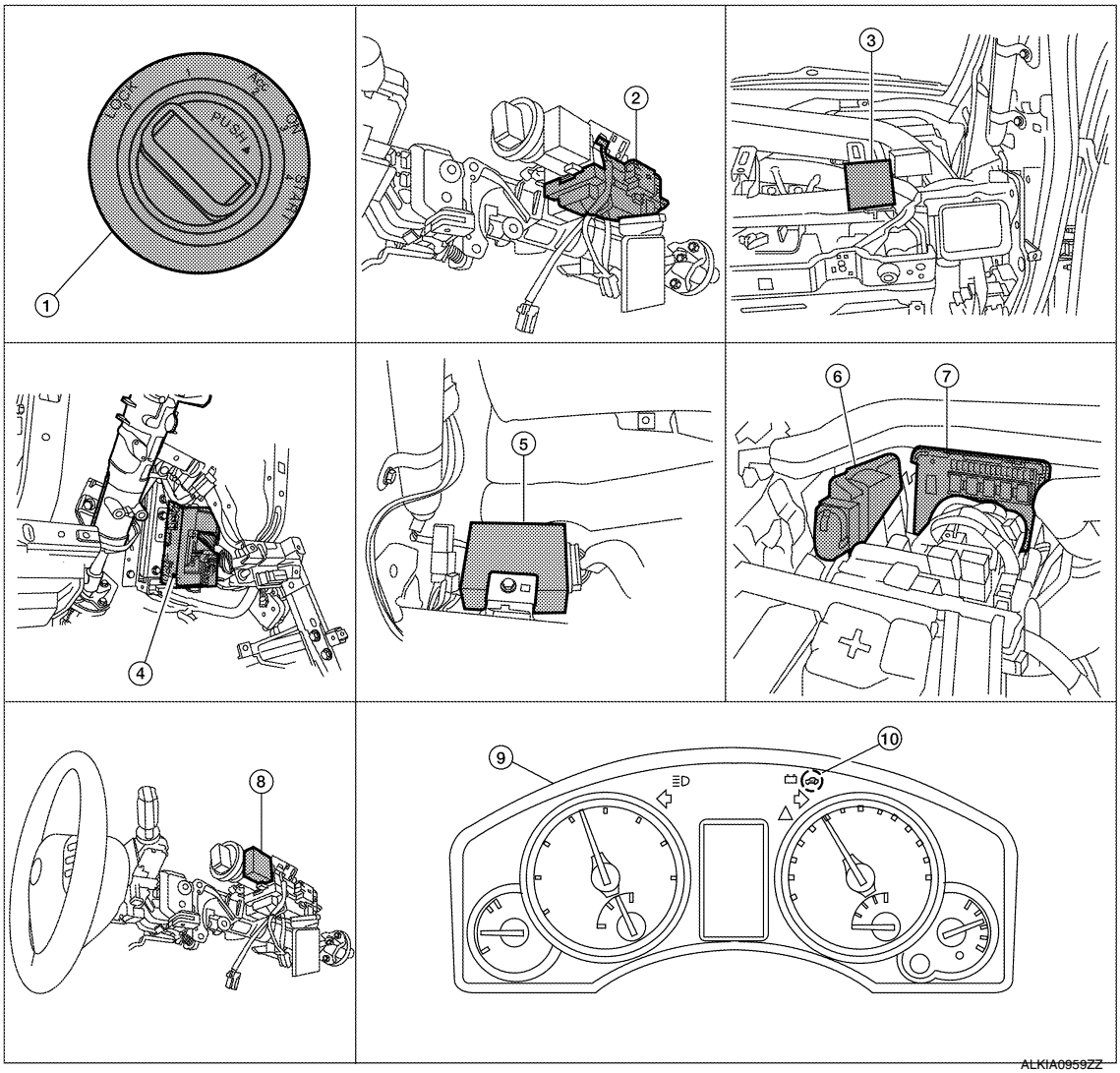


1. Key switch and ignition knob switch M12
2. Steering lock solenoid M15 (view with steering column removed)
3. Remote keyless entry receiver M25 (view with instrument panel RH removed)
4. BCM M18, M19, M20 (view with instrument panel LH removed)
5. Intelligent Key unit M70 (view with instrument panel LH removed)
6. ECM E16
7. IPDM E/R E122, E124 (view with cover removed)
8. NATS antenna amp. M21
9. Combination meter M23, M24
10. Security indicator lamp

Component Description

INFOID:0000000001539107

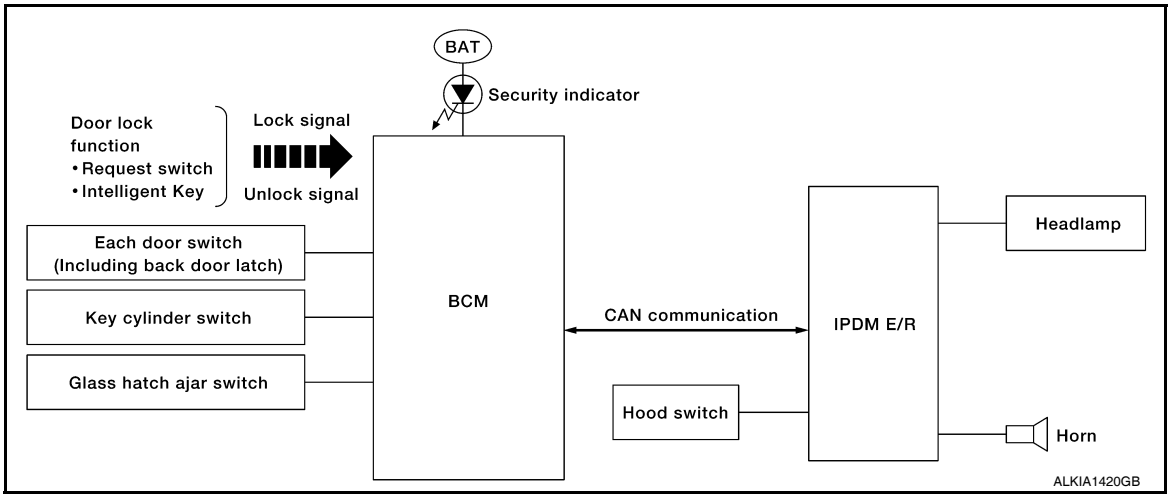
Item	Function
Intelligent Key unit	Receives lock/unlock signal from remote keyless entry receiver, and then transmits to BCM.
BCM	Controls the door lock function and room lamp function.
Remote keyless entry receiver	Receives lock/unlock signal from the Intelligent Key, and then transmits to Intelligent 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.

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

System Diagram

INFOID:0000000001539108



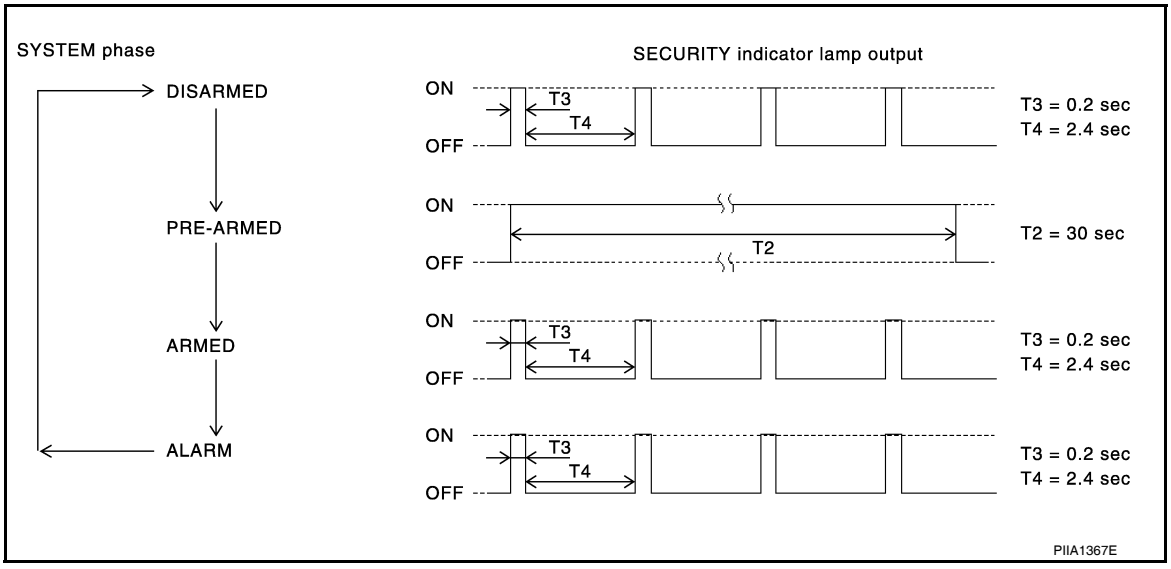
System Description

INFOID:0000000001539109

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 30 seconds.

- Any door is opened.

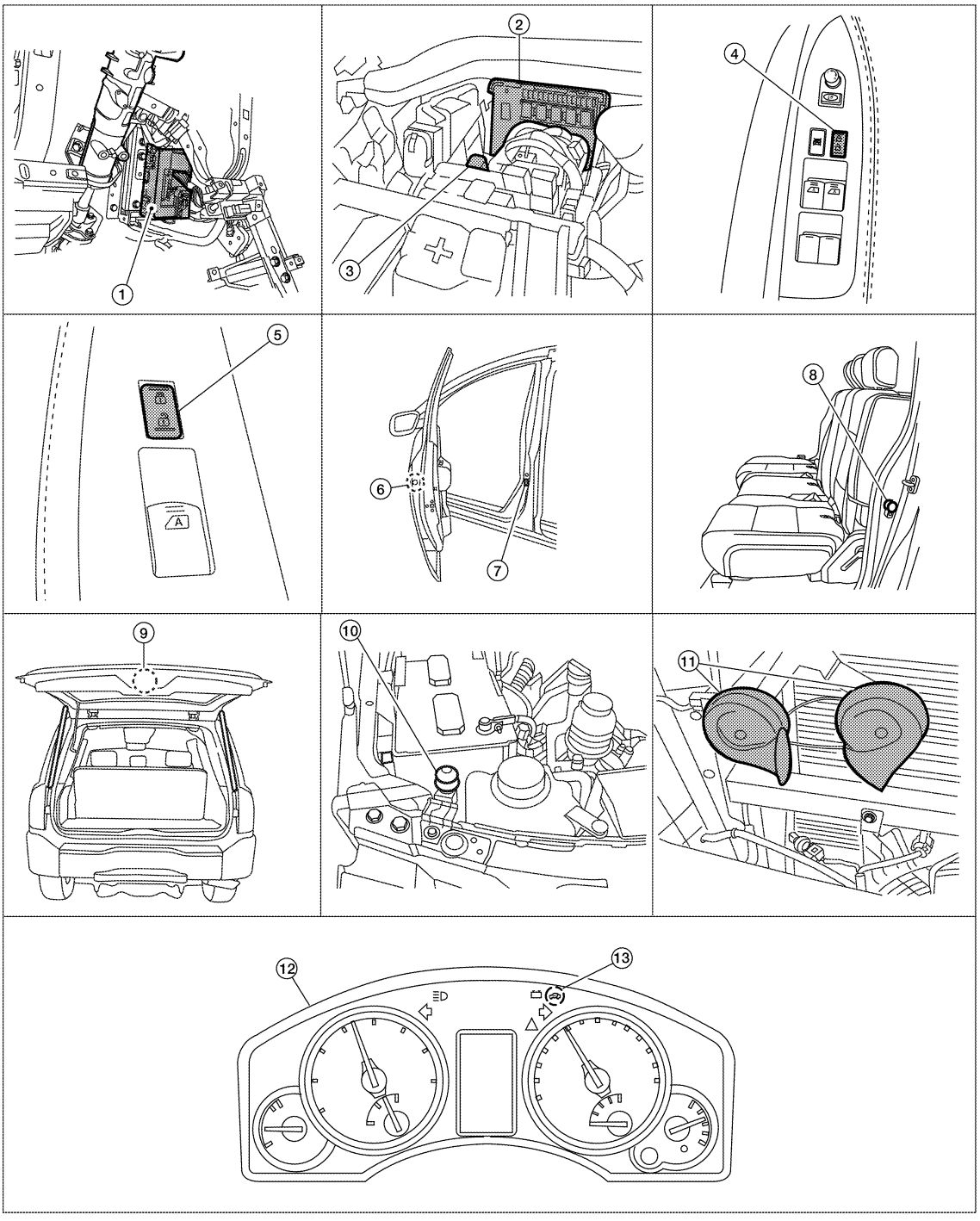
Condition of Deactivating The System

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

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

Component Parts Location

INFOID:0000000001539110



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1. BCM M18, M19, M20 (view with instrument panel LH removed)
2. IPDM E/R E122, E124 (view with cover removed)
3. Horn relay H-1
4. Main power window and door lock/unlock switch D7, D8
5. Power window and door lock/unlock switch RH D105
6. Front door lock assembly LH (key cylinder switch) D14

7. Front door switch LH B8 RH B108
8. Rear door switch LH B18 RH B116
9. Back door latch (door ajar switch) D503 Glass hatch ajar switch D707
10. Hood switch E8
11. Horn E3 (view with hood open)
12. Combination meter M24
13. Security indicator lamp

Component Description

INFOID:0000000001539111

Item	Function
BCM	Controls the door lock function and room lamp function.
Door switch	Provides the BCM with the status of each monitored door.
Hood switch	Provides the IPDM E/R with the status of the hood.
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.

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

INFOID:0000000004807910

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

Diagnosis mode	Function Description
WORK SUPPORT	Changes the setting for each system function.
SELF-DIAG RESULTS	Displays the diagnosis results judged by BCM. Refer to BCS-50, "DTC Index".
CAN DIAG SUPPORT MNTR	Monitors the reception status of CAN communication viewed from BCM.
DATA MONITOR	The BCM input/output signals are displayed.
ACTIVE TEST	The signals used to activate each device are forcibly supplied from BCM.
ECU IDENTIFICATION	The BCM part number is displayed.
CONFIGURATION	• Enables to read and save the vehicle specification. • Enables to write the vehicle specification when replacing BCM.

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

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

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

INFOID:0000000004807911

DATA MONITOR

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

ACTIVE TEST

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

THEFT ALM

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

INFOID:0000000004807912

WORK SUPPORT

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

DIAGNOSIS SYSTEM (INTELLIGENT KEY UNIT)

CONSULT-III Function (INTELLIGENT KEY)

INFOID:0000000001539115

APPLICATION ITEM

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

Diagnosis mode	Function Description
WORK SUPPORT	Changes the setting for each system function.
SELF-DIAG RESULTS	Displays the diagnosis results judged by Intelligent Key unit.
CAN DIAG SUPPORT MNTR	Monitors the reception status of CAN communication viewed from 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.
ECU IDENTIFICATION	The Intelligent Key unit part number is displayed.

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
KEYLESS FUNCTION	Door lock function with Intelligent Key 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
HAZARD ANSWER BACK	Hazard reminder operation mode can be changed.	Refer to DLK-49.	
ANSWER BACK WITH I-KEY LOCK	Buzzer reminder operation (lock operation) mode by each door request switch can be changed.	BUZZER	Active
		OFF	Inactive
ANSWER BACK WITH I-KEY UNLOCK	Buzzer reminder operation (unlock operation) mode by each door request switch can be changed.	BUZZER	Active
		OFF	Inactive
AUTO RELOCK TIMER	Auto door lock operation mode can be changed.	OFF	Inactive
		1 min	Active
ENGINE START BY I-KEY	Engine start function (by Intelligent Key) mode can be changed.	ON	Active
		OFF	Inactive
LOCK/UNLOCK BY I-KEY	Door lock function by door request switch can be changed.	ON	Active
		OFF	Inactive

SELF-DIAG RESULT

Refer to SEC-79, "DTC Index".

DATA MONITOR

Monitor Item	Condition
PUSH SW	Indicates [ON (pressed)/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).
BD/TR REQ SW	Indicates [ON (pressed)/OFF (released)] condition of door request switch (back door).
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.
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.
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

Test item	Description
DOOR LOCK/UNLOCK	This test is able to check door lock/unlock operation. • 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	This test is able to check Intelligent Key antenna operation. When the following condition are met, hazard warning lamps flash. • ROOM ANT1: Inside key antenna (console) detects Intelligent Key, when “ROOM ANT1” is selected. • ROOM ANT2: Inside key antenna (instrument center/rear seat) detects Intelligent Key, when “ROOM ANT2”is selected. • DRIVER ANT: Outside key antenna (driver side) detects Intelligent Key, when “DRIVER ANT” is selected. • ASSIST ANT: Outside key antenna (passenger side) detects Intelligent Key, when “ASSIST ANT” is selected. • BK DOOR ANT: Outside key antenna (rear bumper) detects Intelligent Key, when “BK DOOR ANT” is selected.
OUTSIDE BUZZER	This test is able to check Intelligent Key warning buzzer operation. • ON • OFF
INSIDE BUZZER	This test is able to check warning chime in combination meter operation. • TAKE OUT: Take away warning chime sounds. • KNOB: Ignition knob switch warning chime sounds. • KEY: Key warning chime sounds. • OFF

COMPONENT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000001539116

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-44, "CAN Communication Signal Chart".

DTC Logic

INFOID:0000000001539117

DTC DETECTION LOGIC

DTC	CONSULT-III 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. • Transmission • Receiving (BCM) • Receiving (ECM) • Receiving (METER/M&A)

Diagnosis Procedure

INFOID:0000000001539118

1.PERFORM SELF DIAGNOSTIC

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

Is “CAN COMM CIRCUIT” displayed?

YES >> Refer to LAN-5, "CAN Communication Control Circuit".
NO >> Refer to GI-38, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

Description

INFOID:0000000001539119

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-44, "CAN Communication Signal Chart".

DTC Logic

INFOID:0000000001539120

DTC DETECTION LOGIC

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

Diagnosis Procedure

INFOID:0000000001539121

1.REPLACE INTELLIGENT KEY UNIT

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

>> Replace Intelligent Key unit.

Special Repair Requirement

INFOID:0000000001539122

1.REQUIRED WORK WHEN REPLACING INTELLIGENT KEY UNIT

Initialize control unit. Refer to CONSULT-III Operation Manual.

>> Work end.

B2013 ID DISCORD I-KEY-STRG

Description

INFOID:0000000001539123

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:0000000001539124

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-III.

Is DTC detected?

YES >> Refer to SEC-26, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000001539125

1.PERFORM INITIALIZATION

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

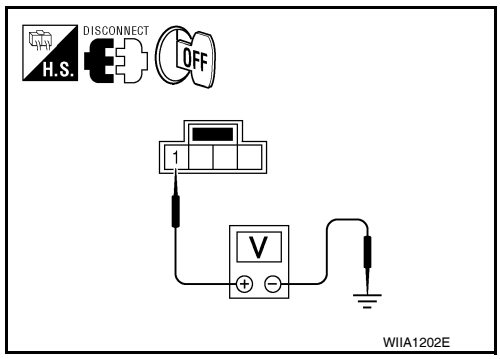
Can the system be initialized and can steering lock be released with re-registered mechanical key?

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	Ground	Battery voltage



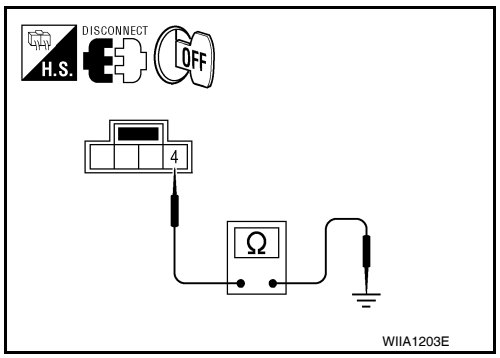
Is the inspection result normal?

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



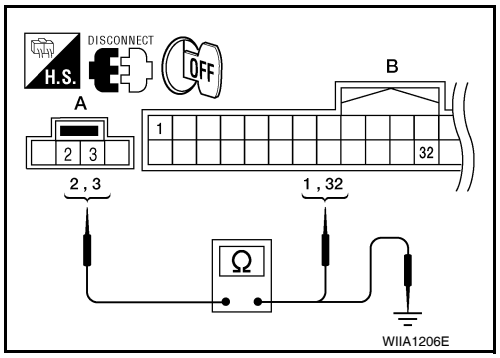
Is the inspection result normal?

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

4. CHECK STEERING LOCK SOLENOID COMMUNICATION CIRCUITS

1. Disconnect Intelligent Key unit connector.
2. 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	



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

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

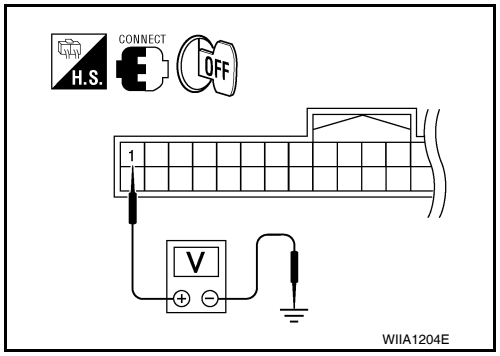
Is the inspection result normal?

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

5. CHECK INTELLIGENT KEY UNIT POWER SUPPLY-2

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

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



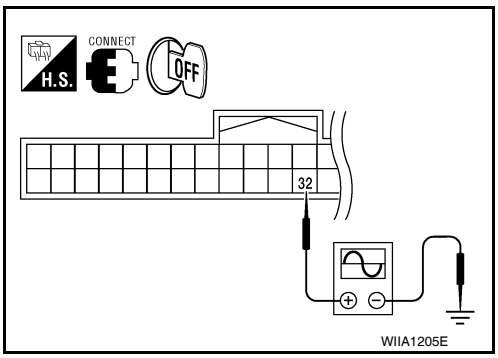
Is the inspection result normal?

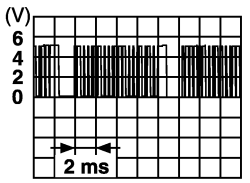
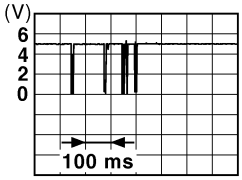
YES >> GO TO 6
NO >> Replace Intelligent Key unit. Refer to SEC-116, "Removal and Installation".

6. CHECK STEERING LOCK SOLENOID COMMUNICATION CIRCUIT

1. Connect steering lock solenoid connector.

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



Terminals			Condition		Voltage (V) (Approx.)
(+)		(–)			
Intelligent Key unit connector	Terminal				
M70	32	Ground	Steering lock	Ignition knob is pushed	 SIIA1911J
				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-116, "Removal and Installation".

B2190, P1614 NATS ANTENNA AMP.

Description

INFOID:0000000001539126

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:0000000001539127

DTC DETECTION LOGIC

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

Is DTC detected?

YES >> Refer to SEC-29, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000001539128

1.CHECK NATS ANTENNA AMP. INSTALLATION

Check NATS antenna amp. installation. Refer to SEC-116, "Removal and Installation".

Is the inspection result normal?

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

2.CHECK NVIS (NATS) IGNITION KEY ID CHIP

Start engine with another registered NATS ignition key.

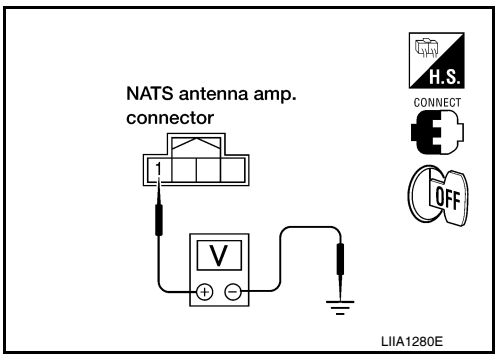
Does the engine start?

YES >> • Ignition key ID chip is malfunctioning.
• Replace the ignition key.
• Perform initialization with CONSULT-III.
For initialization, refer to “CONSULT-III Operation Manual”.
NO >> GO TO 3

3.CHECK POWER SUPPLY FOR NATS ANTENNA AMP.

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

1 - Ground : Battery voltage



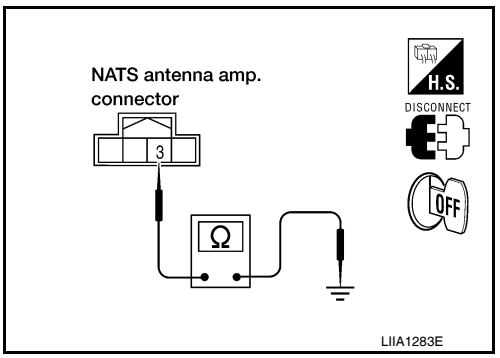
Is the inspection result normal?

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

4. CHECK NATS ANTENNA AMP. GROUND LINE CIRCUIT

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

3 - Ground : Continuity should exist.

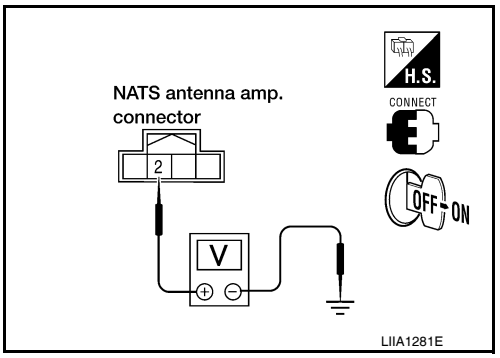


Is the inspection result normal?

YES >> GO TO 5
NO >> • Repair or replace harness.
NOTE:
If harness is OK, replace BCM, refer to BCS-55, "Removal and Installation". Perform initialization with CONSULT-III. For initialization, refer to “CONSULT-III Operation Manual”.

5. CHECK NATS ANTENNA AMP. SIGNAL LINE- 1

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



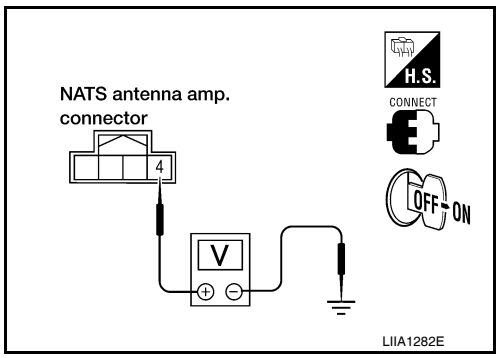
Terminals		Position of ignition key cylinder	Voltage (V) (Approx.)
(+)	(-)		
2	Ground	Before inserting ignition key	Battery voltage
		After inserting ignition key	Pointer of tester should move for approx. 30 seconds, then return to battery voltage
		Just after turning ignition switch ON	Pointer of tester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

Is the inspection result normal?

YES >> GO TO 6
NO >> • Repair or replace harness.
NOTE:
If harness is OK, replace BCM, refer to BCS-55, "Removal and Installation". Perform initialization with CONSULT-III. For initialization, refer to “CONSULT-III Operation Manual”.

6. CHECK NATS ANTENNA AMP. SIGNAL LINE- 2

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



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

Is the inspection result normal?

YES >> NATS antenna amp. is malfunctioning.

NO >> • Repair or replace harness.

NOTE:

If harness is OK, replace BCM, refer to BCS-55, "Removal and Installation". Perform initialization with CONSULT-III. For initialization, refer to “CONSULT-III Operation Manual”.

B2191, P1615 DIFFERENCE OF KEY

Description

INFOID:0000000001539129

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:0000000001539130

DTC DETECTION LOGIC

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

YES >> Refer toSEC-32, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000001539131

1.PERFORM INITIALIZATION

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

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

YES >> Mechanical key was unregistered.
NO >> BCM is malfunctioning.
- Replace BCM. Refer to BCS-55, "Removal and Installation".
- Perform initialization again

B2192, P1611 ID DISCORD, IMMU-ECM

Description

INFOID:0000000001539132

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:0000000001539133

DTC DETECTION LOGIC

NOTE:

- If DTC B2192 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to SEC-24, "DTC Logic".
- If DTC B2192 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to SEC-25, "DTC Logic".

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

YES >> Refer to SEC-33, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000001539134

1.PERFORM INITIALIZATION

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

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

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

2.PEPLACE BCM

1. Replace BCM. Refer to BCS-55, "Removal and Installation".
2. Perform initialization with CONSULT-III. Re-register all mechanical keys.
   For initialization and registration of mechanical key. Refer to “CONSULT-III Operation Manual”.

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

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

3.PEPLACE ECM

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

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

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

4.CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

>> Inspection End.

B2193, P1612 CHAIN OF ECM-IMMU

Description

INFOID:0000000001539135

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:0000000001539136

DTC DETECTION LOGIC

NOTE:

- If DTC B2193 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to SEC-24, "DTC Logic".
- If DTC B2193 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to SEC-25, "DTC Logic".

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

YES >> Refer to SEC-35, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000001539137

1.REPLACE BCM

1. Replace BCM. Refer to BCS-55, "Removal and Installation".
2. Perform initialization with CONSULT-III.
   For initialization, refer to “CONSULT-III Operation Manual”.

Does the engine start?

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

B2194 ID DISCORD IMMU-I-KEY

Description

INFOID:0000000001539138

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:0000000001539139

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.	• BCM • Intelligent Key unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

YES >> Refer to SEC-36, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000001539140

1.PERFORM INITIALIZATION

1. Perform initialization with CONSULT-III. Re-register all mechanical keys.
   For initialization and registration of mechanical key. Refer to “CONSULT-III Operation Manual”.
2. Check “Self diagnostic result” with CONSULT-III.

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-55, "Removal and Installation".
3. Perform initialization with CONSULT-III. Re-register all mechanical keys.
   For initialization and registration of mechanical key. Refer to “CONSULT-III Operation Manual”.

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

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

3.CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

>> Inspection End.

B2552 INTELLIGENT KEY

Description

INFOID:0000000001539141

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

DTC Logic

INFOID:0000000001539142

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-III.

Is DTC detected?

YES >> Refer to SEC-37, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000001539143

1.REPLACE INTELLIGENT KEY UNIT

1. Replace Intelligent Key unit.
2. Perform initialization with CONSULT-III. Re-register all mechanical keys. Refer to “CONSULT-III Operation Manual”.
3. Start the engine.

Does the engine start?

YES >> Inspection End.
NO >> Perform “DTC confirmation procedure”. Refer to SEC-37, "DTC Logic".

Special Repair Requirement

INFOID:0000000001539144

1.REQUIRED WORK WHEN REPLACING INTELLIGENT KEY UNIT

Initialize control unit. Refer to CONSULT-III Operation Manual.

>> Work end.

B2590 ID DISCORD BCM-I-KEY

Description

INFOID:0000000001539145

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:0000000001539146

DTC DETECTION LOGIC

NOTE:

- If DTC B2590 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to SEC-24, "DTC Logic".
- If DTC B2590 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to SEC-25, "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.	• BCM • Intelligent Key unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

YES >> Refer to SEC-38, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000001539147

1.PERFORM INITIALIZATION

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

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

YES >> ID was unregistered.
NO >> BCM is malfunctioning.
- Replace BCM. Refer to BCS-55, "Removal and Installation".
- Perform initialization again

P1610 LOCK MODE

Description

INFOID:0000000001539148

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:0000000001539149

DTC DETECTION LOGIC

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

YES >> Refer to SEC-39, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000001539150

1.CHECK ENGINE START FUNCTION

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

Does the engine start?

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

2.CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

>> Inspection End.

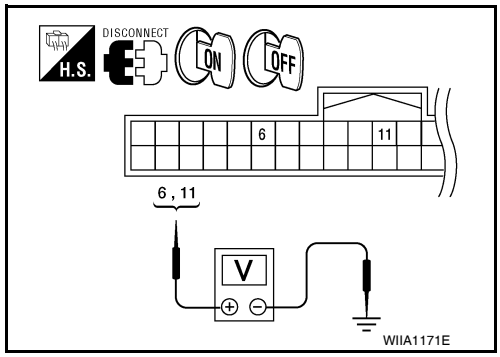
POWER SUPPLY AND GROUND CIRCUIT
INTELLIGENT KEY UNIT

INTELLIGENT KEY UNIT : Diagnosis Procedure

INFOID:0000000004807914

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

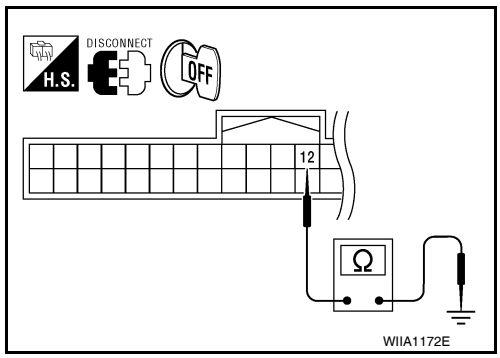
Is the inspection result normal?

YES >> GO TO 2
NO >> Repair or replace Intelligent Key unit 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:0000000004807913

1. CHECK FUSES AND FUSIBLE LINK

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

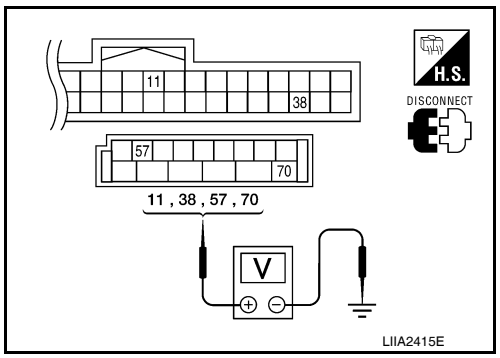
Terminal No.	Signal name	Fuses and fusible link No.
57	Battery power supply	22 (15A)
70		F (50A)
11	Ignition ACC or ON	4 (10A)
38	Ignition ON or START	59 (10A)

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.



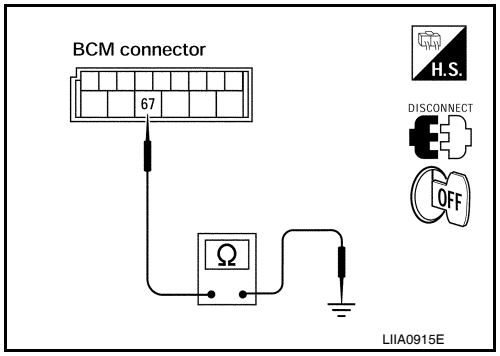
Connector	Terminals		Power source	Condition	Voltage (V) (Approx.)
	(+)	(-)			
M18	11	Ground	ACC power supply	Ignition switch ACC or ON	Battery voltage
	38	Ground	Ignition power supply	Ignition switch ON or START	Battery voltage
M20	57	Ground	Battery power supply	Ignition switch OFF	Battery voltage
	70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

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

Description

INFOID:0000000001539153

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:0000000001539154

1.CHECK DOOR KEY CYLINDER SWITCH INPUT SIGNAL

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

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

Is the inspection result normal?

YES >> Key cylinder switch is OK.
NO >> Refer to SEC-42, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000001539155

1.CHECK DOOR KEY CYLINDER SWITCH LH

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

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

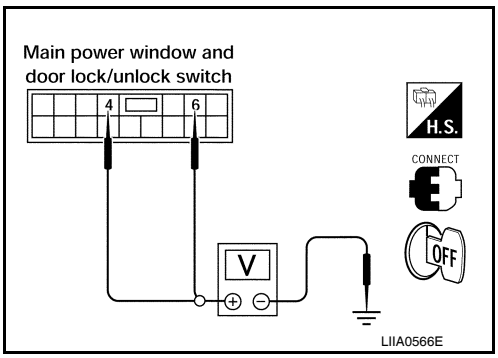
KEY CYL LK-SW : ON

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

KEY CYL UN-SW : ON

Without CONSULT-III
Check voltage between main power window and door lock/unlock switch connector D7 terminals 4, 6 and ground.

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



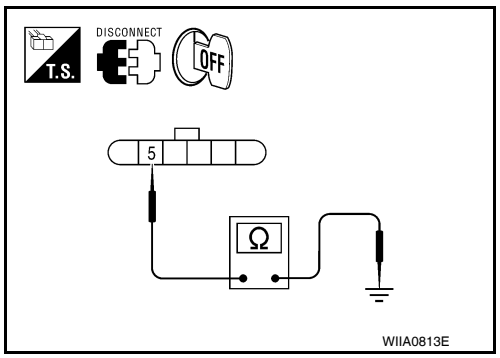
Is the inspection result normal?

YES >> Key cylinder switch signal is OK.
NO >> GO TO 2

2.CHECK DOOR KEY CYLINDER SWITCH LH GROUND HARNESS

1. Turn ignition switch OFF.
2. Disconnect front door lock assembly LH (key cylinder switch).

3. Check continuity between front door lock assembly LH (key cylinder switch) connector (A) D14 terminal 5 and body ground.



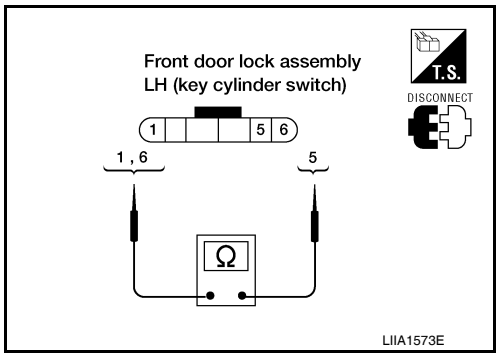
Connector	Terminals	Continuity
D14	5 – Ground	Yes

Is the inspection result normal?

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

3.CHECK DOOR KEY CYLINDER SWITCH LH

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



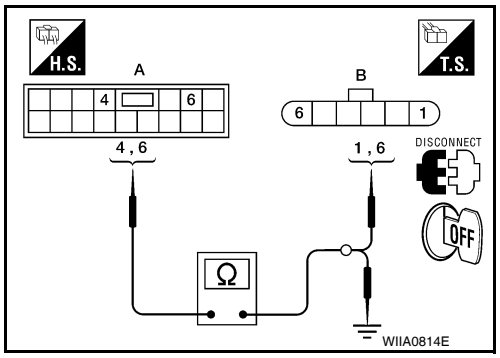
Terminals	Condition	Continuity
1 – 5	Key is turned to UNLOCK or neutral.	No
	Key is turned to LOCK.	Yes
5 – 6	Key is turned to LOCK or neutral.	No
	Key is turned to UNLOCK.	Yes

Is the inspection result normal?

YES >> GO TO 4
NO >> Replace front door lock assembly LH (key cylinder switch). Refer to DLK-232, "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.
NO >> Repair or replace harness.

IGNITION KNOB SWITCH

Ignition Knob Switch Check

INFOID:0000000001539156

1.CHECK IGNITION KNOB SWITCH

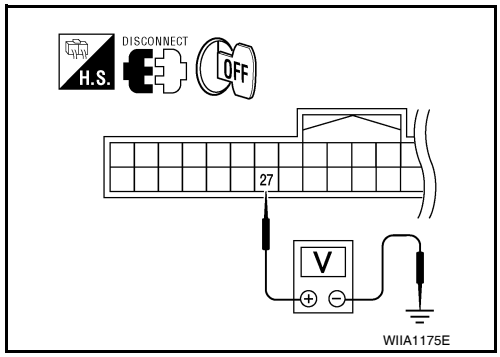
With CONSULT-III

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-III

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



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

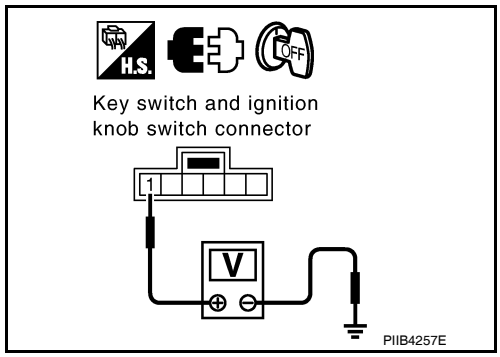
Is the inspection result normal?

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

2.CHECK IGNITION KNOB SWITCH POWER SUPPLY CIRCUIT

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

1 - Ground : Battery voltage



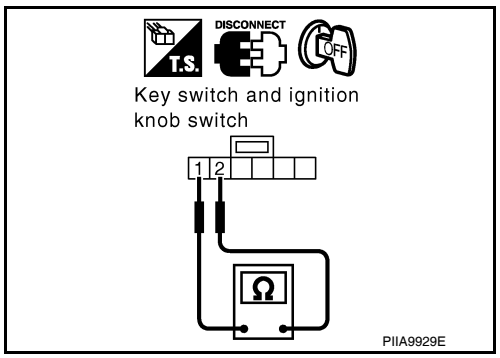
Is the inspection result normal?

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.

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.

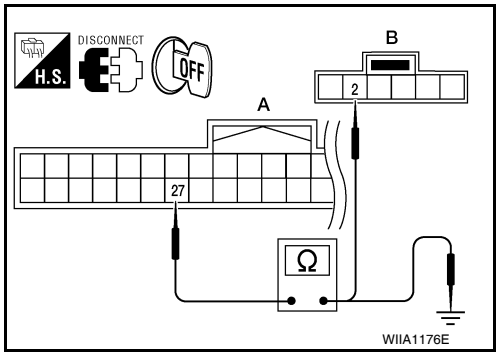
4. CHECK IGNITION KNOB SWITCH CIRCUIT

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

27 - 2 : Continuity should exist.

2. Check continuity between Intelligent Key unit harness connector M70 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.

HOOD SWITCH

Diagnosis Procedure

INFOID:0000000001602186

1.CHECK HOOD SWITCH

Check hood switch and hood fitting condition.

Is the inspection result normal?

YES >> GO TO 2
NO >> Adjust installation of hood switch.

2.CHECK HOOD SWITCH INPUT SIGNAL

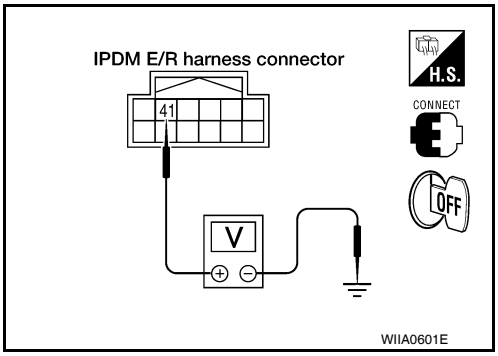
With CONSULT-III

Check "HOOD SW" in "BCM" DATA MONITOR mode with CONSULT-III. Refer to SEC-21, "THEFT ALM : CONSULT-III Function (BCM - THEFT ALM)".

When hood is open : HOOD SW ON
When hood is closed : HOOD SW OFF

Without CONSULT-III

Check voltage between IPDM E/R harness connector E122 terminal 41 and ground.



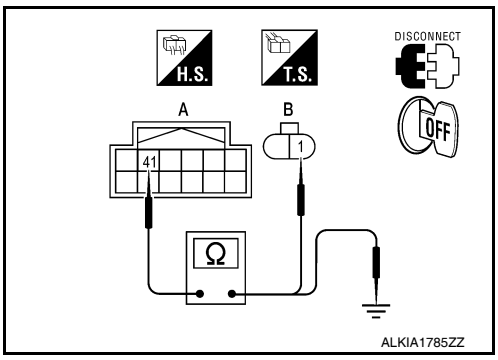
Connector	Terminal		Condition of hood	Voltage (V) (Approx.)
	(+)	(-)		
E122	41	Ground	Open	0
			Closed	Battery voltage

Is the inspection result normal?

YES >> Hood switch is OK.
NO >> GO TO 3

3.CHECK HOOD SWITCH SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector E122 and hood switch connector.
3. Check continuity between IPDM E/R connector (A) E122 terminal 41 and hood switch connector (B) E8 terminal 1.



Terminals				Continuity
IPDM E/R Connector	Terminal	Hood switch connector	Terminal	
E122	41	E8	1	Yes

4. Check continuity between IPDM E/R connector (A) E122 terminal 41 and ground.

IPDM E/R Connector	Terminals		Continuity
E122	41	Ground	No

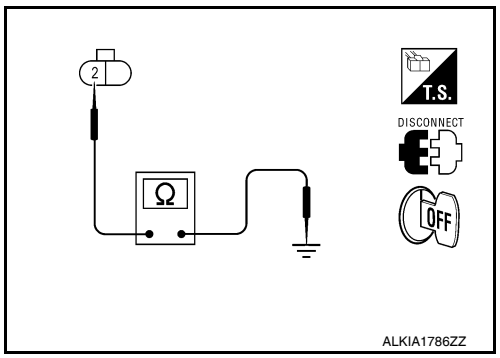
Is the inspection result normal?

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

4.CHECK HOOD SWITCH GROUND CIRCUIT

Check continuity between hood switch connector E8 terminal 2 and ground.

Connector	Terminals		Continuity
E8	2	Ground	Yes



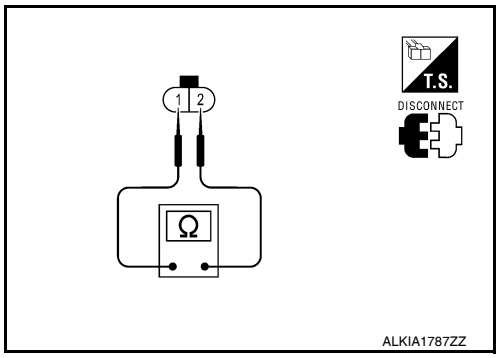
Is the inspection result normal?

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

5. CHECK HOOD SWITCH

Check continuity between hood switch terminals 1 and 2.

Terminals	Condition	Continuity
1- 2	Pressed	No
	Released	Yes



Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation of IPDM E/R".
NO >> Replace hood switch.

HORN FUNCTION

Symptom Table

INFOID:0000000001539157

HAZARD AND HORN REMINDER FUNCTION MALFUNCTION

NOTE:

- Before performing the diagnosis in the following table, check “Work flow”. Refer to SEC-3, "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-III.
- 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-49
	2. Check hazard function.	DLK-108
	3. Check Intermittent Incident.	GI-38
Hazard reminder does not operate by Intelligent Key. (Horn reminder operate.)	1. Check “HAZARD ANSWER BACK” setting in “WORK SUPPORT”.	DLK-49
	2. Check hazard function.	DLK-108
	3. Check Intelligent Key battery inspection.	DLK-102
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-49
	2. Check Intelligent Key warning buzzer.	DLK-91
	3. Check Intermittent Incident.	GI-38
Horn reminder does not operate by Intelligent Key. (Hazard reminder operate.)	1. Check “HORN WITH KEYLESS LOCK” setting in “WORK SUPPORT”.	DLK-49
	2. Check horn function.	SEC-48
	3. Check Intermittent Incident.	GI-38

VEHICLE SECURITY INDICATOR

Description

INFOID:0000000001539158

- 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:0000000001539159

1.CHECK FUNCTION

1. Perform “THEFT IND” in the “Active Test” mode with CONSULT-III.
2. Check vehicle security indicator operation.

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

Is the inspection result normal?

YES >> Inspection End.
NO >> Refer to SEC-49, "Diagnosis Procedure".

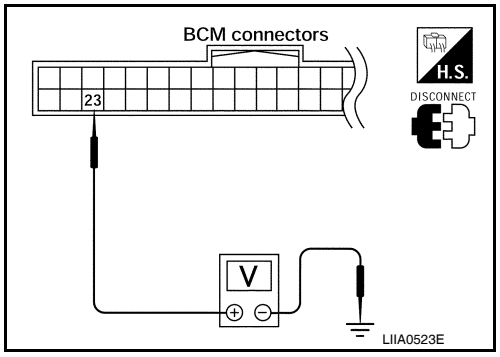
Diagnosis Procedure

INFOID:0000000001539160

1.SECURITY INDICATOR LAMP ACTIVE TEST

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

Without CONSULT-III
1. Disconnect BCM.
2. Check voltage between BCM harness connector M18 terminal 23 and ground.



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

Is the inspection result normal?

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

2.SECURITY INDICATOR LAMP CHECK

Check security indicator lamp condition by performing the self-diagnosis test. Refer to MWI-24, "Diagnosis Description".

Is the inspection result normal?

YES >> GO TO 3
NO >> Replace combination meter. Refer to MWI-76, "Removal and Installation".

3.CHECK HARNESS CONTINUITY

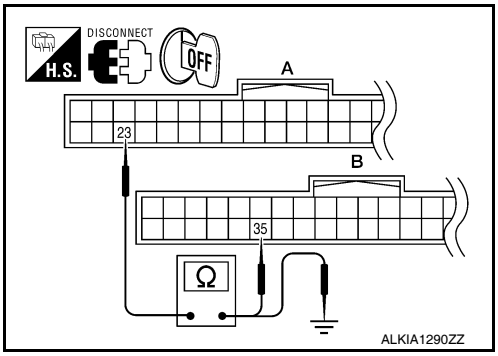
1. Turn ignition switch OFF.
2. Disconnect BCM and combination meter connector.

3. Check continuity between BCM connector (A) M18 terminal 23 and combination meter harness connector (B) M24 terminal 35.

23 - 35 : 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 >> Replace the BCM. Refer to BCS-55, "Removal and Installation".

NO >> Repair or replace harness.

ECU DIAGNOSIS

BCM (BODY CONTROL MODULE)

Reference Value

INFOID:0000000004807916

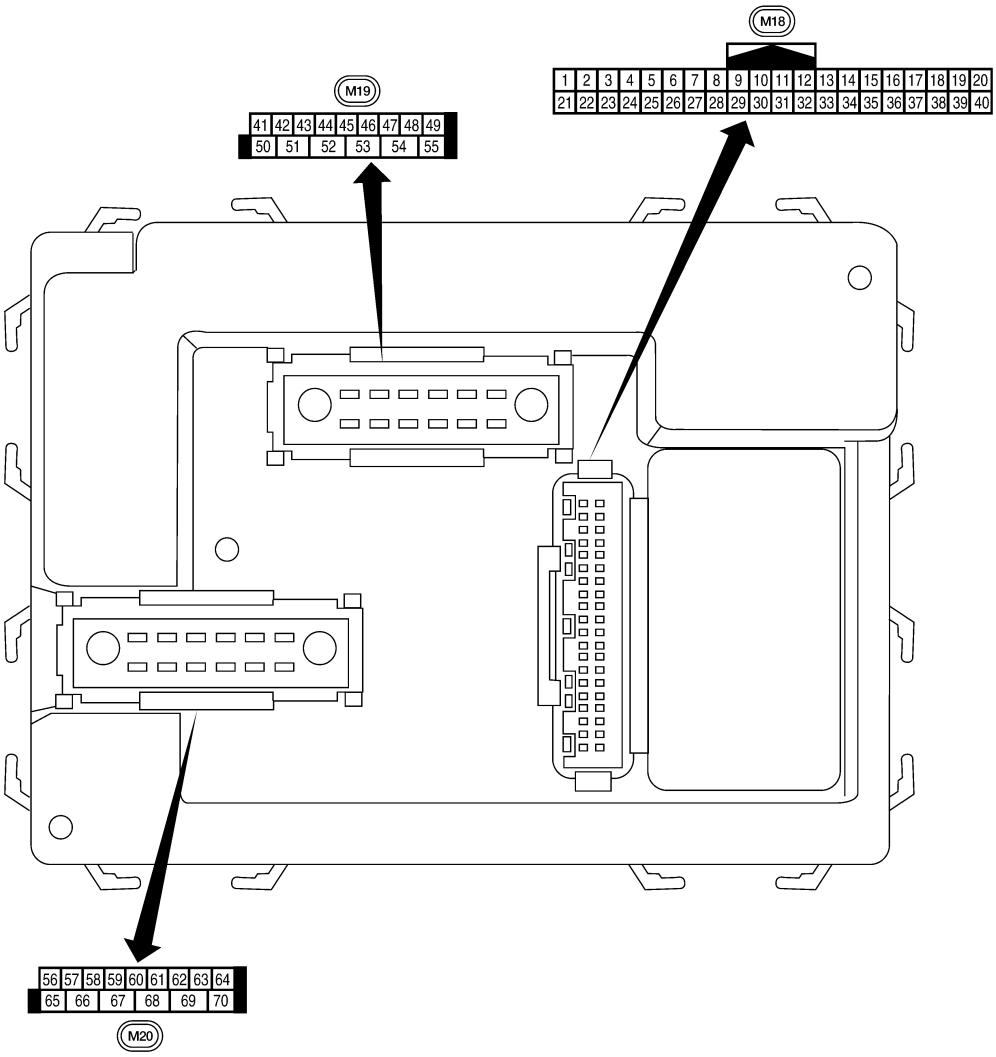
VALUES ON THE DIAGNOSIS TOOL

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

Monitor Item	Condition	Value/Status
HEADLAMP SW1	Headlamp switch OFF	OFF
	Headlamp switch 1st	ON
HEADLAMP SW2	Headlamp switch OFF	OFF
	Headlamp switch 1st	ON
HI BEAM SW	High beam switch OFF	OFF
	High beam switch HI	ON
IGN ON SW	Ignition switch OFF or ACC	OFF
	Ignition switch ON	ON
IGN SW CAN	Ignition switch OFF or ACC	OFF
	Ignition switch ON	ON
INT VOLUME	Wiper intermittent dial is in a dial position 1 - 7	1 - 7
I-KEY LOCK	LOCK button of Intelligent Key is not pressed	OFF
	LOCK button of Intelligent Key is pressed	ON
I-KEY UNLOCK	UNLOCK button of Intelligent Key is not pressed	OFF
	UNLOCK button of Intelligent Key is pressed	ON
KEY ON SW	Mechanical key is removed from key cylinder	OFF
	Mechanical key is inserted to key cylinder	ON
OIL PRESS SW	• Ignition switch OFF or ACC • Engine running	OFF
	Ignition switch ON	ON
PASSING SW	Other than lighting switch PASS	OFF
	Lighting switch PASS	ON
REAR DEF SW	Rear window defogger switch OFF	OFF
	Rear window defogger switch ON	ON
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
TAIL LAMP SW	Lighting switch OFF	OFF
	Lighting switch 1ST	ON
TRNK OPNR SW	When back door opener switch is not pressed	OFF
	When back door opener switch is pressed	ON
TURN SIGNAL L	Turn signal switch OFF	OFF
	Turn signal switch LH	ON
TURN SIGNAL R	Turn signal switch OFF	OFF
	Turn signal switch RH	ON
VEHICLE SPEED	While driving	Equivalent to speedometer reading

Terminal Layout

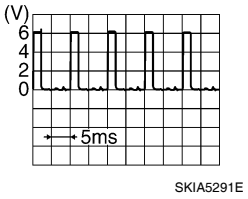
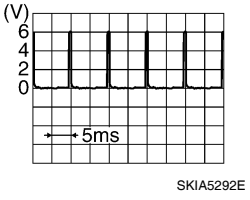
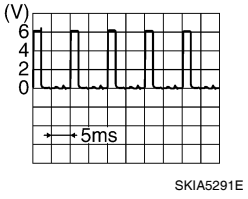
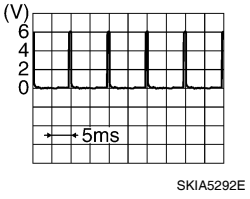
INFOID:0000000004807917

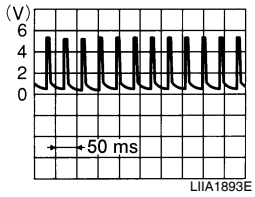
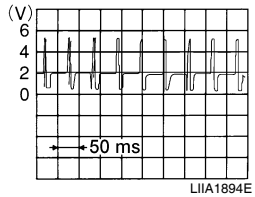
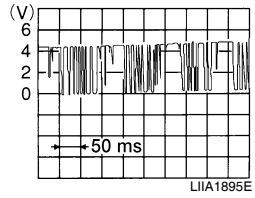
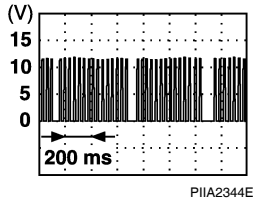


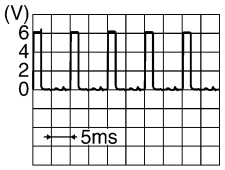
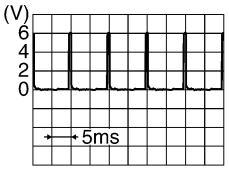
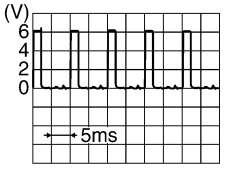
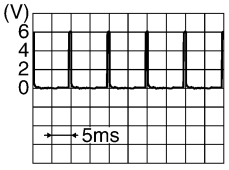
LIIA2443E

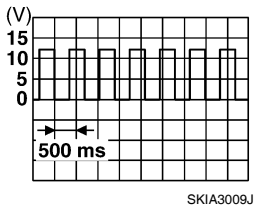
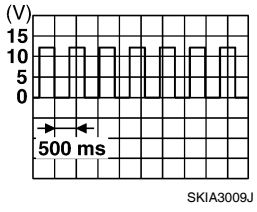
Physical Values

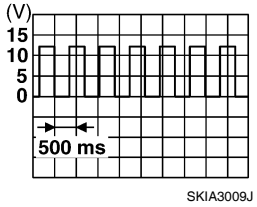
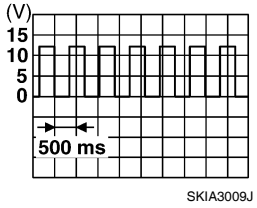
INFOID:0000000004807918

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	 SKIA5291E
3	G/Y	Combination switch input 4	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
4	Y	Combination switch input 3	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
5	G/B	Combination switch input 2	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
6	V	Combination switch input 1				
9	GR/R	Rear window defogger switch	Input	ON	Rear window defogger switch ON	0V
					Rear window defogger switch OFF	5V
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

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	 LIIA1893E
20	G/W	Remote keyless entry receiver (signal)	Input	OFF	Stand-by (keyfob buttons released)	 LIIA1894E
					When remote keyless entry receiver receives signal from keyfob (keyfob buttons pressed)	 LIIA1895E
21	G	NATS antenna amp.	Input	OFF → ON	Ignition switch (OFF → ON)	Just after turning ignition switch ON: Pointer of tester should move for approx. 1 second, then return to battery voltage.
22	W/V	BUS	—	—	Ignition switch ON or power window timer operates	 PIIA2344E
23	G/O	Security indicator lamp	Output	OFF	Goes OFF → illuminates (Every 2.4 seconds)	Battery voltage → 0V
25	BR	NATS antenna amp.	Input	OFF → ON	Ignition switch (OFF → ON)	Just after turning ignition switch ON: Pointer of tester should move for approx. 1 second, then return to battery voltage.
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

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
30	Y/BR	Glass hatch switch	Input	OFF	Glass hatch switch released	Battery voltage
					Glass hatch switch pressed	0
32	R/G	Combination switch output 5	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
33	R/Y	Combination switch output 4	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
34	L	Combination switch output 3	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
35	O/B	Combination switch output 2	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
36	R/W	Combination switch output 1				
37	B/R	Key switch and ignition knob switch	Input	OFF	Intelligent Key inserted	Battery voltage
					Intelligent Key inserted	0V
38	W/L	Ignition switch (ON)	Input	ON	—	Battery voltage
39	L	CAN-H	—	—	—	—
40	P	CAN-L	—	—	—	—
42	GR	Glass hatch ajar switch	Input	ON	Glass hatch open	0
					Glass hatch closed	Battery
43	R/B	Back door latch (door ajar switch)	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage

Terminal	Wire color	Signal name	Signal input/ output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
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	G/Y	Trailer turn signal (right)	Output	ON	Turn right ON	 SKIA3009J
52	G/B	Trailer turn signal (left)	Output	ON	Turn left ON	 SKIA3009J
53	L/W	Glass hatch lock actuator	Output	OFF	Glass hatch switch released	0
					Glass hatch switch pressed	Battery
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
56	R/G	Battery saver output	Output	OFF	30 minutes after ignition switch is turned OFF	0V
				ON	—	Battery voltage
57	Y/R	Battery power supply	Input	OFF	—	Battery voltage

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

Wiring Diagram - VEHICLE SECURITY SYSTEM

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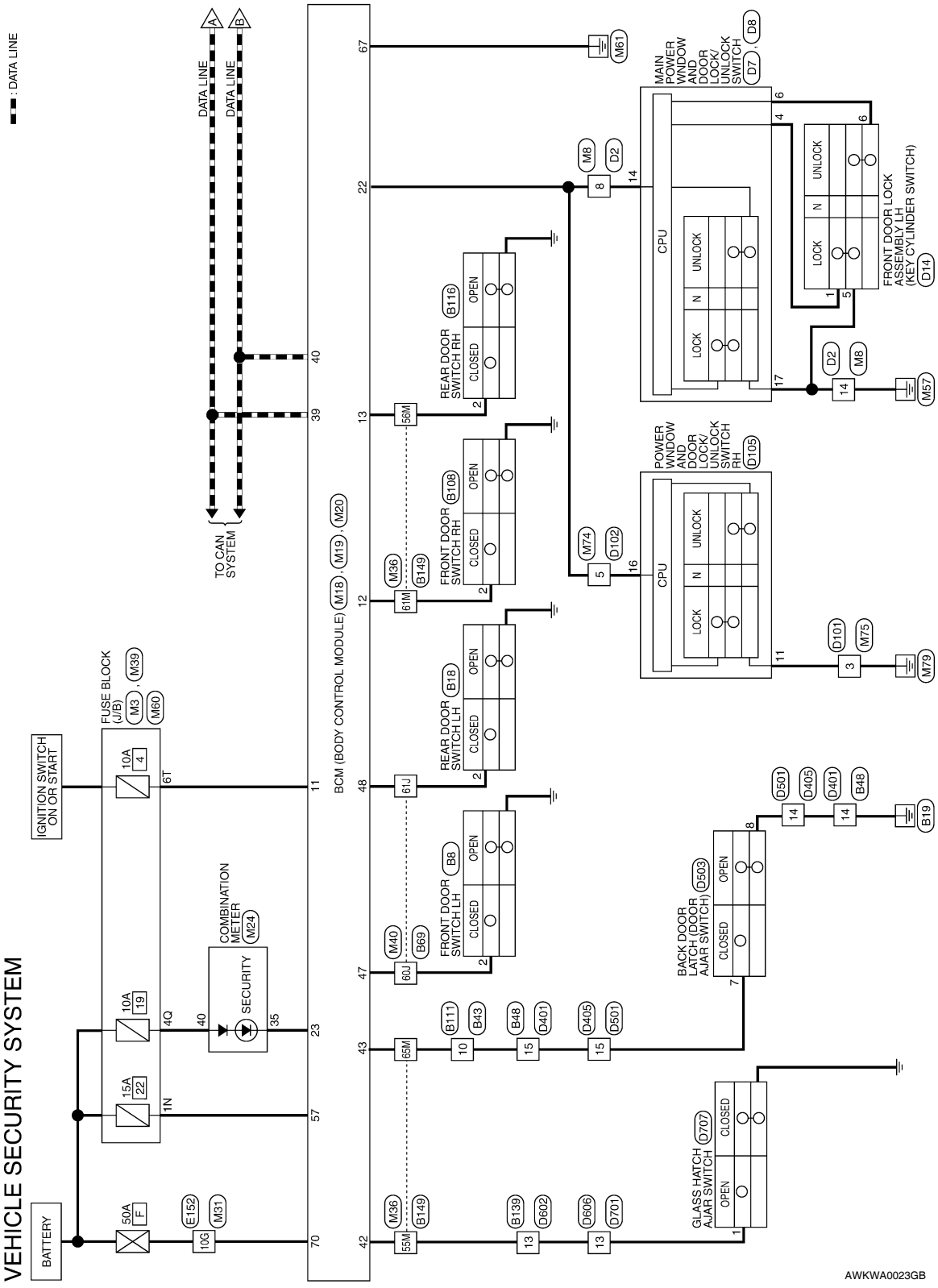
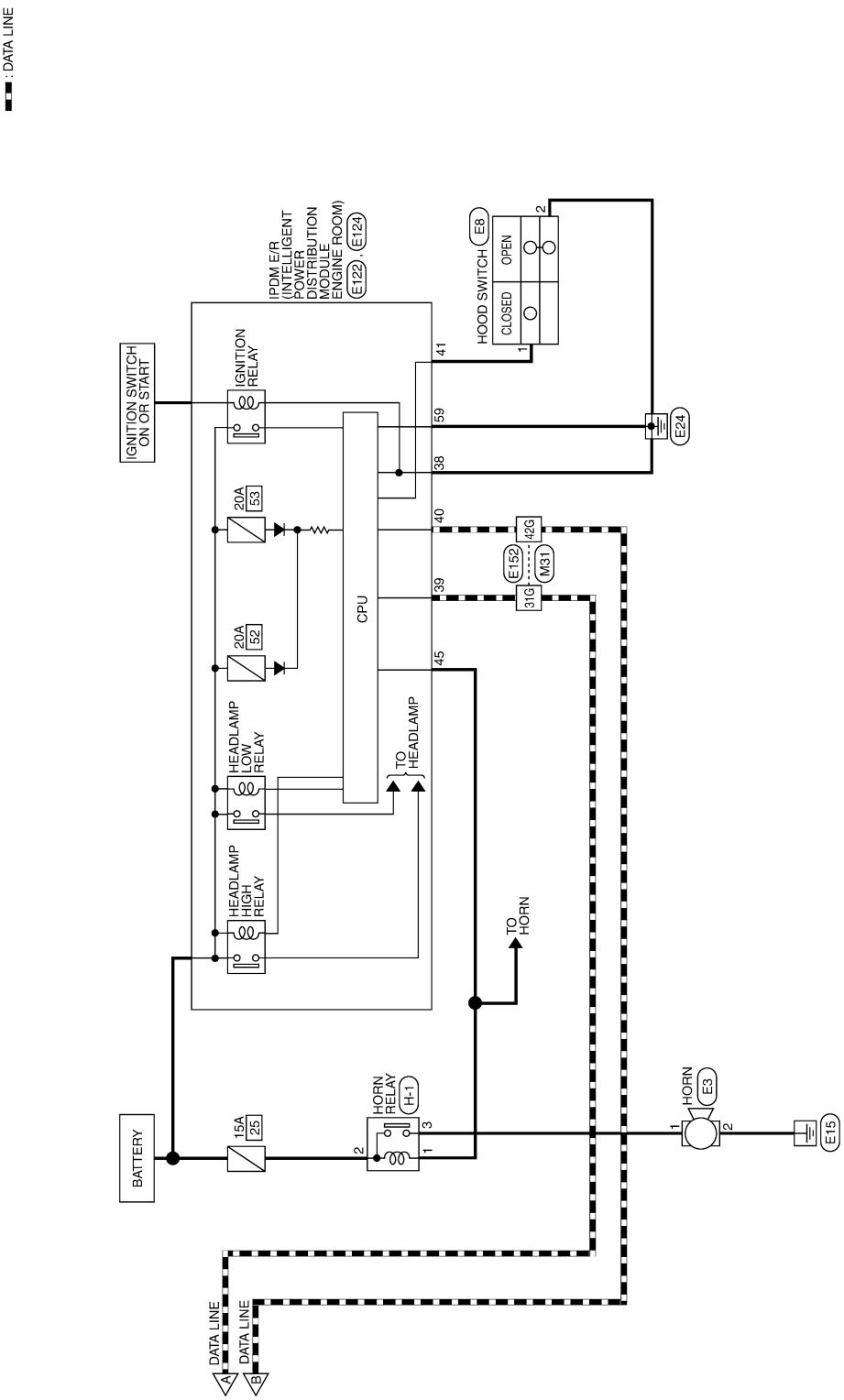


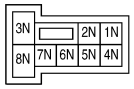


AAKWA0118GB

VEHICLE SECURITY SYSTEM CONNECTORS

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

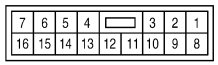
H.S.



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

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

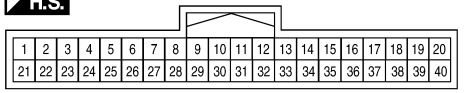
H.S.



Terminal No.	Color of Wire	Signal Name
8	W/V	–
14	B	–

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

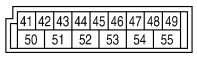
H.S.



Terminal No.	Color of Wire	Signal Name
11	O	ACC SW
12	R/L	DR_SW_AS
13	GR	DOOR_SW_RR
22	W/V	BUS
23	G/O	SECURITY INDICATOR
39	L	CAN-H
40	P	CAN-L

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

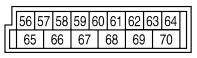
H.S.



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

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

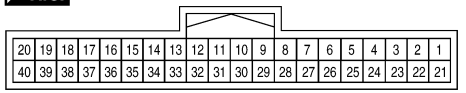
H.S.



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

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
35	G/O	–
40	Y/R	–

AWKIA0145GB

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

H.S.

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

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

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

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

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

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

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

H.S.

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

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

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

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

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

Terminal No.	Color of Wire	Signal Name
55M	GR	–
56M	GR	–
61M	R/L	–
65M	R/B	–

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

H.S.

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

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

ALKIA0566GB

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

H.S.

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

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

H.S.

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

Connector No.	E3
Connector Name	HORN
Connector Color	BLACK

H.S.

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

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

H.S.

Terminal No.	Color of Wire	Signal Name
3	B	–

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

H.S.

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

ALKIA0567GB

Connector No.	E8
Connector Name	HOOD SWITCH
Connector Color	WHITE

H.S.

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

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

H.S.

Terminal No.	Color of Wire	Signal Name
38	B	SIGNAL_GND
39	L	CAN_H
40	P	CAN_L
41	Y/B	HOOD_SW
45	G/W	ANT_THEFT_HORN

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

H.S.

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

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

H.S.

Terminal No.	Color of Wire	Signal Name
2	SB	–

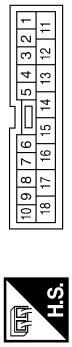
Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

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

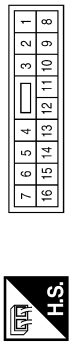
AAKIA0183GB

Connector No.	B48
Connector Name	WIRE TO WIRE
Connector Color	WHITE



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

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

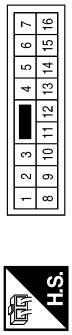


Terminal No.	Color of Wire	Signal Name
10	R/W	–

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

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

Connector No.	B111
Connector Name	WIRE TO WIRE
Connector Color	WHITE

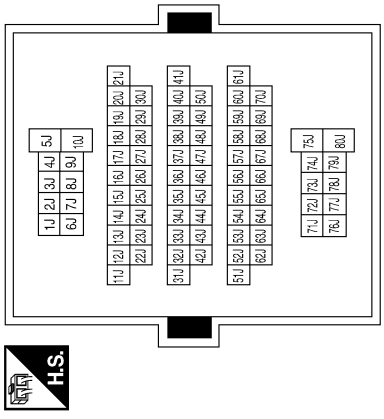


Terminal No.	Color of Wire	Signal Name
10	R/W	–

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

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

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



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

AAKIA0184GB

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

H.S.

Terminal No.	Color of Wire	Signal Name
2	GR	–

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

H.S.

Terminal No.	Color of Wire	Signal Name
13	GR	–

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

H.S.

Terminal No.	Color of Wire	Signal Name
55M	GR	–
56M	GR	–
61M	R/L	–
65M	R/B	–

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

H.S.

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

AAKIA0185GB

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

H.S.

1	2	3	4	5	6

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

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
11	B	GND
16	LG/W	COM

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

H.S.

17	18	19

Terminal No.	Color of Wire	Signal Name
17	B	GND

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

H.S.

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

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

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
4	L	LOCK
6	R	UNLOCK
14	LG/W	ANTI_PNCH_SERIAL_LINK

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

H.S.

1	2		3	4
5	6	7	8	9	10

Terminal No.	Color of Wire	Signal Name
3	B	–

AAKIA0186GB

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

H.S.

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

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

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

H.S.

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

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

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

H.S.

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

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

Connector No.	D606
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
13	GR	–

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
13	GR	–

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

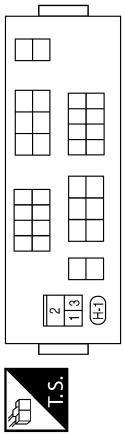
H.S.

1		2	3
4	5	6	7	8

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

AAKIA0187GB

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

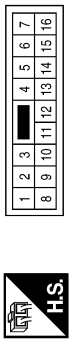


Terminal No.	Color of Wire	Signal Name
1	R/W	–
2	G/B	–
3	G	–

Connector No.	D707
Connector Name	GLASS HATCH AJAR SWITCH
Connector Color	BLACK

Terminal No.	Color of Wire	Signal Name
1	GR	–

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



Terminal No.	Color of Wire	Signal Name
13	GR	–

ABKIA2565GB

Wiring Diagram - IVIS

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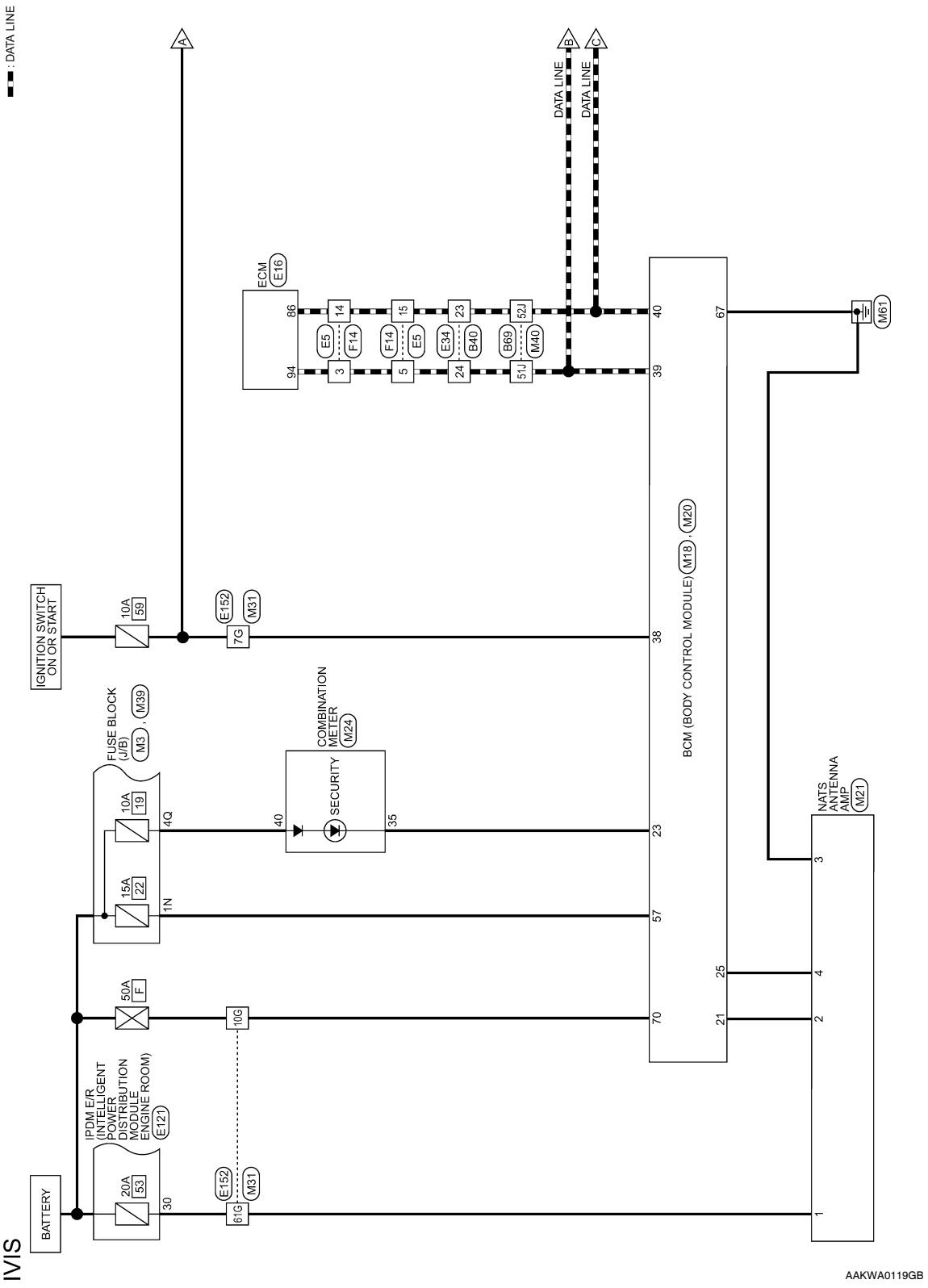
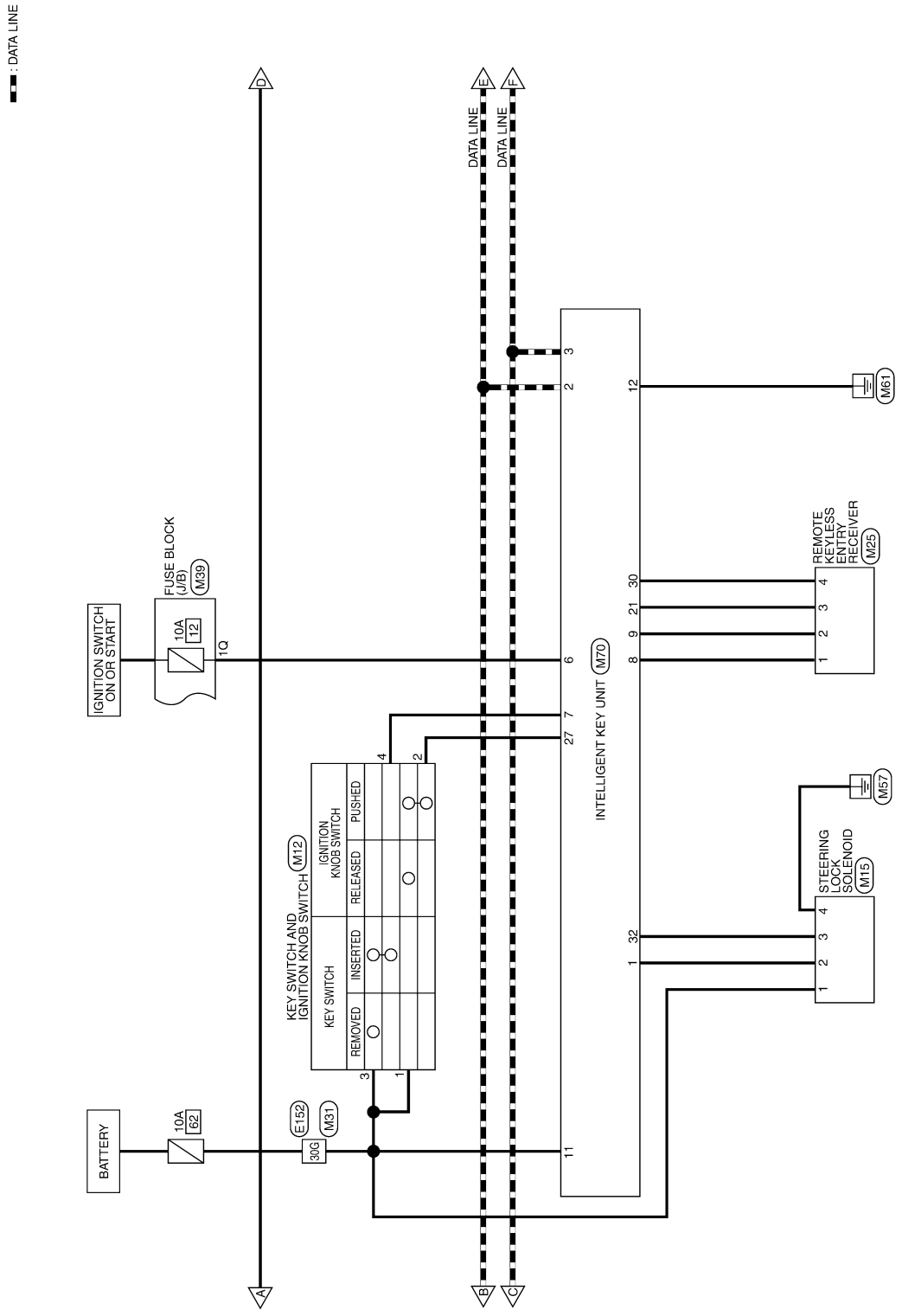
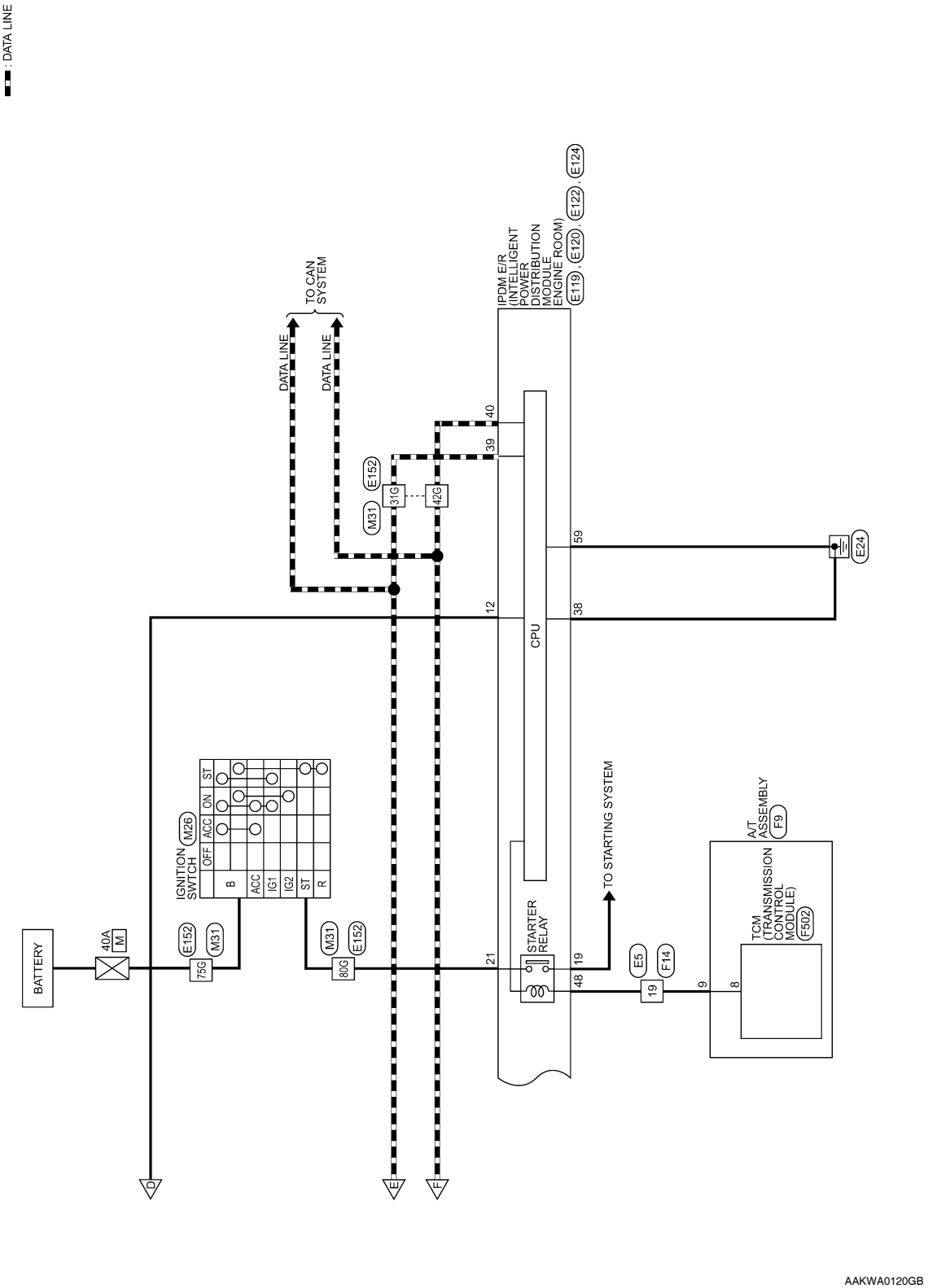



: DATA LINE
DATA LINE
DATA LINE
FUSE BLOCK (J/B) M39
10A 12
1Q
IGNITION SWITCH ON OR START
BATTERY
10A 62
E152
M31
30G
KEY SWITCH AND IGNITION KNOB SWITCH M12
IGNITION KNOB SWITCH
KEY SWITCH
REMOVED
INSERTED
RELEASED
PUSHED
INTELLIGENT KEY UNIT M70
REMOTE KEYLESS ENTRY RECEIVER M25
STEERING LOCK SOLENOID M15
M61
M57
ALKWA0056GB



AAKWA0120GB

IVIS CONNECTORS

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

H.S.

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

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

H.S.

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

Connector No.	M15
Connector Name	STEERING LOCK UNIT
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	G/Y	B+
2	L/Y	5V_PWR
3	L/O	SIG
4	B	GND

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

H.S.

Terminal No.	Color of Wire	Signal Name
21	G	IMMOBILIZER SCL
23	G/O	SECURITY IND_OUTPUT
25	BR	IMMOBILIZER SCI (RX,TX)
38	W/L	IGN
39	L	CAN-H
40	P	CAN-L

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

H.S.

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

AAKIA0189GB

Connector No.	M25
Connector Name	REMOTE KEYLESS ENTRY RECIEVER
Connector Color	BLACK

H.S.

Terminal No.	Color of wire	Signal Name
1	G	GND
2	GR	SIG
3	B/W	RSSI
4	G/B	5V

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE

H.S.

Terminal No.	Color of wire	Signal Name
35	G/O	–
40	Y/R	–

Terminal No.	Color of wire	Signal Name
7G	W/L	–
10G	W/B	–
30G	Y	–
31G	L	–
42G	P	–
61G	W	–
75G	G	–
80G	BR	–

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

H.S.

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

H.S.

Terminal No.	Color of wire	Signal Name
1	W	VB (12V)
2	G	CLOCK
3	B	GND
4	BR	RX, TX

Connector No.	M26
Connector Name	IGNITION SWITCH
Connector Color	WHITE

H.S.

Terminal No.	Color of wire	Signal Name
B	G	–
ST	BR	–

AWKIA0149GB

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

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

H.S.

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

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

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

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

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

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
3	L	–
5	L	–
14	P	–
15	P	–
19	B/R	–

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
27	R/B	PUSH_SW_INPUT
30	G/B	RF_TUNER_5V_OUT
32	L/O	STRG_LOCK_SIG

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

H.S.

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

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

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
1	L/Y	STRG_6V_POWER
2	L	CAN-H

ALKIA0556GB

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK

H.S.

106	107	108	109	110	111	112	113		119	120	121
98	99	100	101	102	103	104	105	117			118
90	91	92	93	94	95	96	97		114	115	116
82	83	84	85	86	87	88	89				

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

Connector No.	E34
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
23	P	–
24	L	–

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

H.S.

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

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

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

H.S.

21	20	19
24	23	22

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

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
30	W	HEAD_L_LEVELIZER

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

H.S.

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

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

ABKIA2569GB

Terminal No.	Color of Wire	Signal Name
7G	L/W	–
10G	W/B	–
30G	Y	–
31G	L	–
42G	P	–
61G	W	–
75G	G	–
80G	BR	–

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

H.S.

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

H.S.

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

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

H.S.

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

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

H.S.

Terminal No.	Color of Wire	Signal Name
3	L	–
5	L	–
14	P	–
15	P	–
19	B/R	–

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

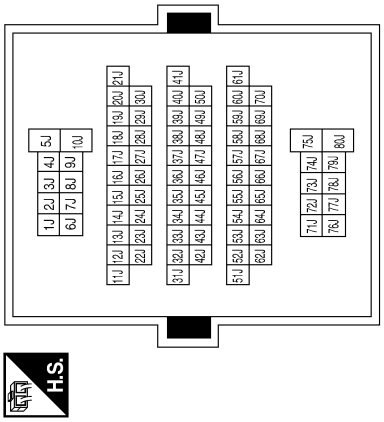
H.S.

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

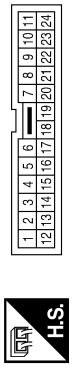
AAKIA0203GB

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

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



Connector No.	B40
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
23	P	–
24	L	–

ALKIA0559GB

Fail Safe

INFOID:0000000004807931

Fail-safe index

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

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

DTC Inspection Priority Chart

INFOID:0000000004807920

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

Priority	DTC
1	• U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN)
2	• B2190: NATS ANTENNA AMP • B2191: DIFFERENCE OF KEY • B2192: ID DISCORD BCM-ECM • B2193: CHAIN OF BCM-ECM • B2013: STRG COMM 1 • B2552: INTELLIGENT KEY • B2590: NATS MALFUNCTION
3	• C1729: VHCL SPEED SIG ERR • C1735: IGNITION SIGNAL
4	• C1704: LOW PRESSURE FL • C1705: LOW PRESSURE FR • C1706: LOW PRESSURE RR • C1707: LOW PRESSURE RL • C1708: [NO DATA] FL • C1709: [NO DATA] FR • C1710: [NO DATA] RR • C1711: [NO DATA] RL • C1712: [CHECKSUM ERR] FL • C1713: [CHECKSUM ERR] FR • C1714: [CHECKSUM ERR] RR • C1715: [CHECKSUM ERR] RL • C1716: [PRESSDATA ERR] FL • C1717: [PRESSDATA ERR] FR • C1718: [PRESSDATA ERR] RR • C1719: [PRESSDATA ERR] RL • C1720: [CODE ERR] FL • C1721: [CODE ERR] FR • C1722: [CODE ERR] RR • C1723: [CODE ERR] RL • C1724: [BATT VOLT LOW] FL • C1725: [BATT VOLT LOW] FR • C1726: [BATT VOLT LOW] RR • C1727: [BATT VOLT LOW] RL

DTC Index

INFOID:0000000004807921

NOTE:

Details of time display

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

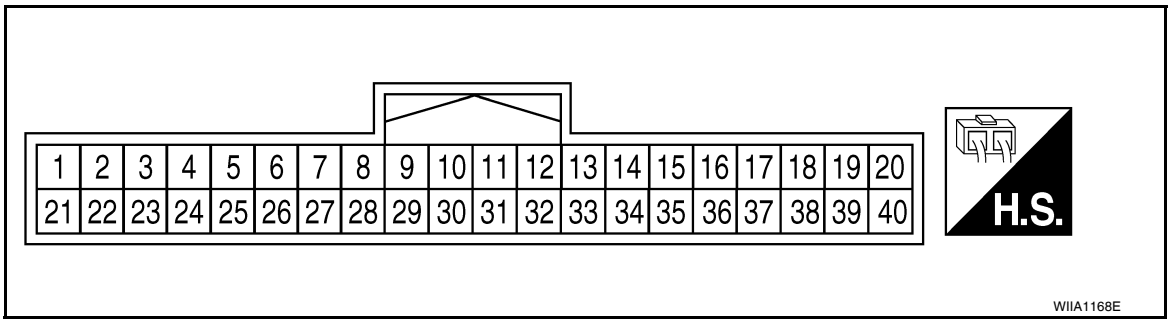
CONSULT display	Fail-safe	Intelligent Key warning lamp ON	Tire pressure monitor warning lamp ON	Reference page
No DTC is detected. further testing may be required.	—	—	—	—
U1000: CAN COMM CIRCUIT	—	—	—	BCS-30
U1010: CONTROL UNIT (CAN)	—	—	—	BCS-31
B2190: NATS ANTENNA AMP	—	—	—	SEC-29
B2191: DIFFERENCE OF KEY	—	—	—	SEC-32
B2192: ID DISCORD BCM-ECM	—	—	—	SEC-33
B2193: CHAIN OF BCM-ECM	—	—	—	SEC-35
B2552: INTELLIGENT KEY	—	—	—	SEC-37
B2590: NATS MALFUNCTION	—	—	—	SEC-38
C1704: LOW PRESSURE FL	—	—	—	WT-31
C1705: LOW PRESSURE FR	—	—	—	WT-31
C1706: LOW PRESSURE RR	—	—	—	WT-31
C1707: LOW PRESSURE RL	—	—	—	WT-31
C1708: [NO DATA] FL	—	—	—	WT-14
C1709: [NO DATA] FR	—	—	—	WT-14
C1710: [NO DATA] RR	—	—	—	WT-14
C1711: [NO DATA] RL	—	—	—	WT-14
C1712: [CHECKSUM ERR] FL	—	—	—	WT-16
C1713: [CHECKSUM ERR] FR	—	—	—	WT-16
C1714: [CHECKSUM ERR] RR	—	—	—	WT-16
C1715: [CHECKSUM ERR] RL	—	—	—	WT-16
C1716: [PRESSDATA ERR] FL	—	—	—	WT-18
C1717: [PRESSDATA ERR] FR	—	—	—	WT-18
C1718: [PRESSDATA ERR] RR	—	—	—	WT-18
C1719: [PRESSDATA ERR] RL	—	—	—	WT-18
C1720: [CODE ERR] FL	—	—	—	WT-16
C1721: [CODE ERR] FR	—	—	—	WT-16
C1722: [CODE ERR] RR	—	—	—	WT-16
C1723: [CODE ERR] RL	—	—	—	WT-16
C1724: [BATT VOLT LOW] FL	—	—	—	WT-16
C1725: [BATT VOLT LOW] FR	—	—	—	WT-16
C1726: [BATT VOLT LOW] RR	—	—	—	WT-16
C1727: [BATT VOLT LOW] RL	—	—	—	WT-16
C1729: VHCL SPEED SIG ERR	—	—	—	WT-19
C1735: IGNITION SIGNAL	—	—	—	WT-20

INTELLIGENT KEY UNIT

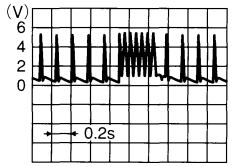
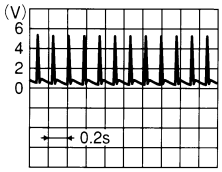
Reference Value - Intelligent Key Unit

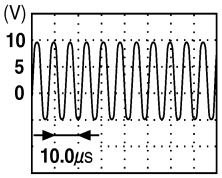
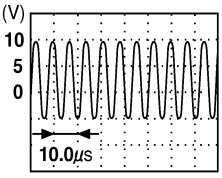
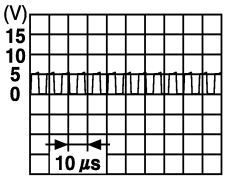
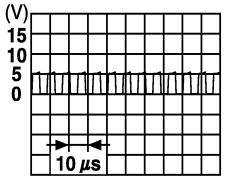
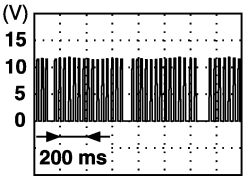
INFOID:0000000004807928

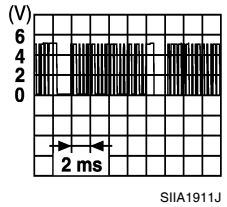
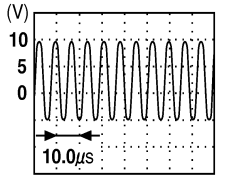
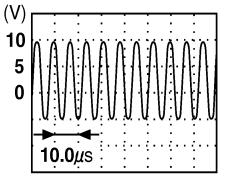
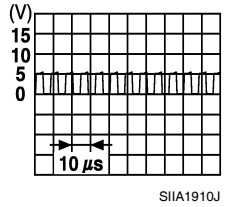
TERMINAL LAYOUT



PHYSICAL VALUES

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	Battery voltage
					Buzzer ON	0
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 keyfob.		
				Stand-by		
11	Y	Power source (Fuse)	—	—		Battery voltage
12	B	Ground	—	—		0

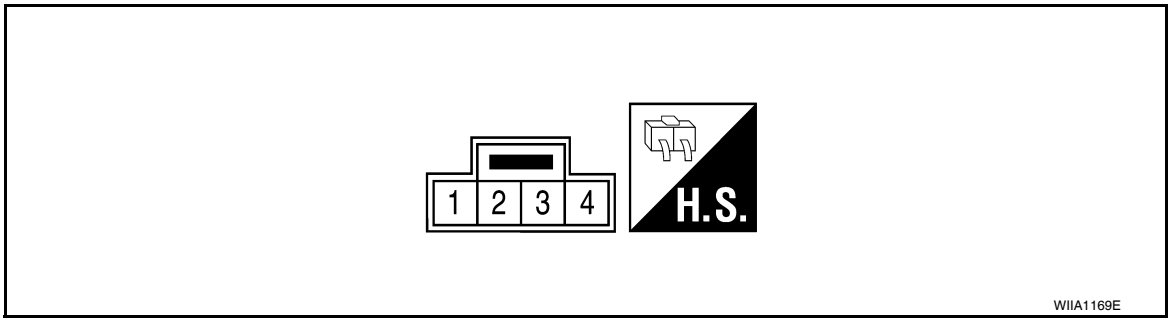
Terminal	Wire Color	Item	Condition		Voltage (V) Approx.
			Ignition Switch Position	Operation or Conditions	
13	B/W	Inside key antenna 3 (front of center console) (+) signal	LOCK	Any door open → all doors closed	 PIIB7441E
14	W/G	Inside key antenna 3 (front of center console) (-) signal			
15	G	Inside key antenna 1 (rear of center console) (+) signal	LOCK	Any door open → all doors closed	 PIIB7441E
16	L	Inside key antenna 1 (rear of center console) (-) signal			
17	P	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
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
29	LG/W	Back door open switch input	—	Back door handle switch ON.	0
				Back door handle switch OFF.	Battery voltage

Terminal	Wire Color	Item	Condition		Voltage (V) Approx.
			Ignition Switch Position	Operation or Conditions	
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.	 SIIA1911J
				Other than above	5
33	W	Rear parcel shelf antenna (+) signal	LOCK	Press ignition knob switch: ON (Ignition knob switch)	 PIIB7441E
34	BR	Rear parcel shelf antenna (-) signal			
35	O	Inside key antenna 2 (luggage compartment) (+) signal	LOCK	Back door open → all doors closed	 PIIB7441E
36	R	Inside key antenna 2 (luggage compartment) (-) signal			
37	LG	Front outside antenna (+) signal RH	LOCK	Press front door request switch RH.	 SIIA1910J
38	B/Y	Front outside antenna (-) signal RH			
39	L/R	P range switch	—	A/T shift 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

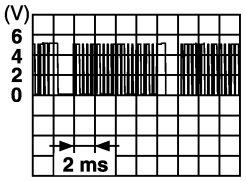
Reference Value - Steering Lock Solenoid

INFOID:0000000004807929

TERMINAL LAYOUT

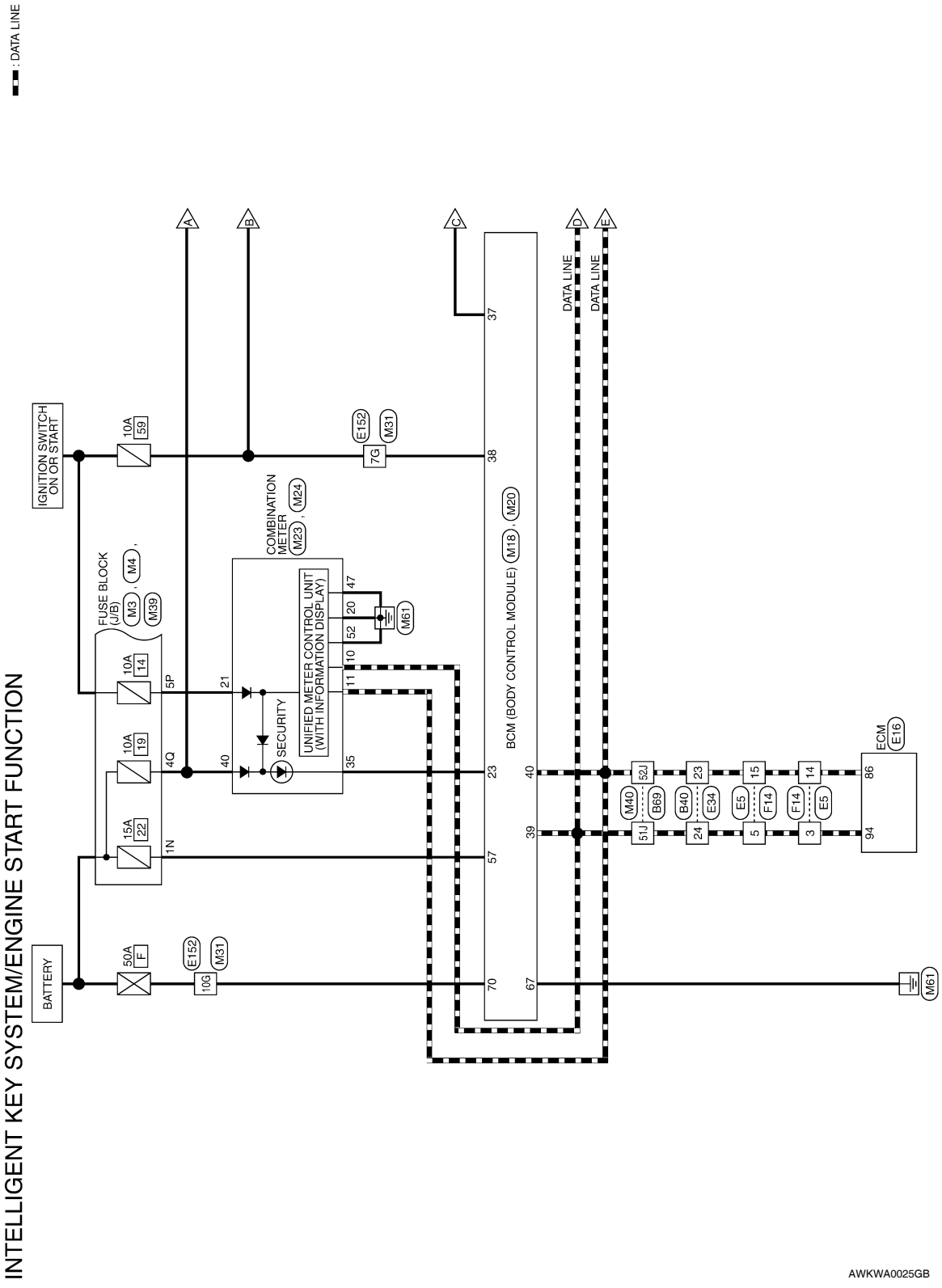


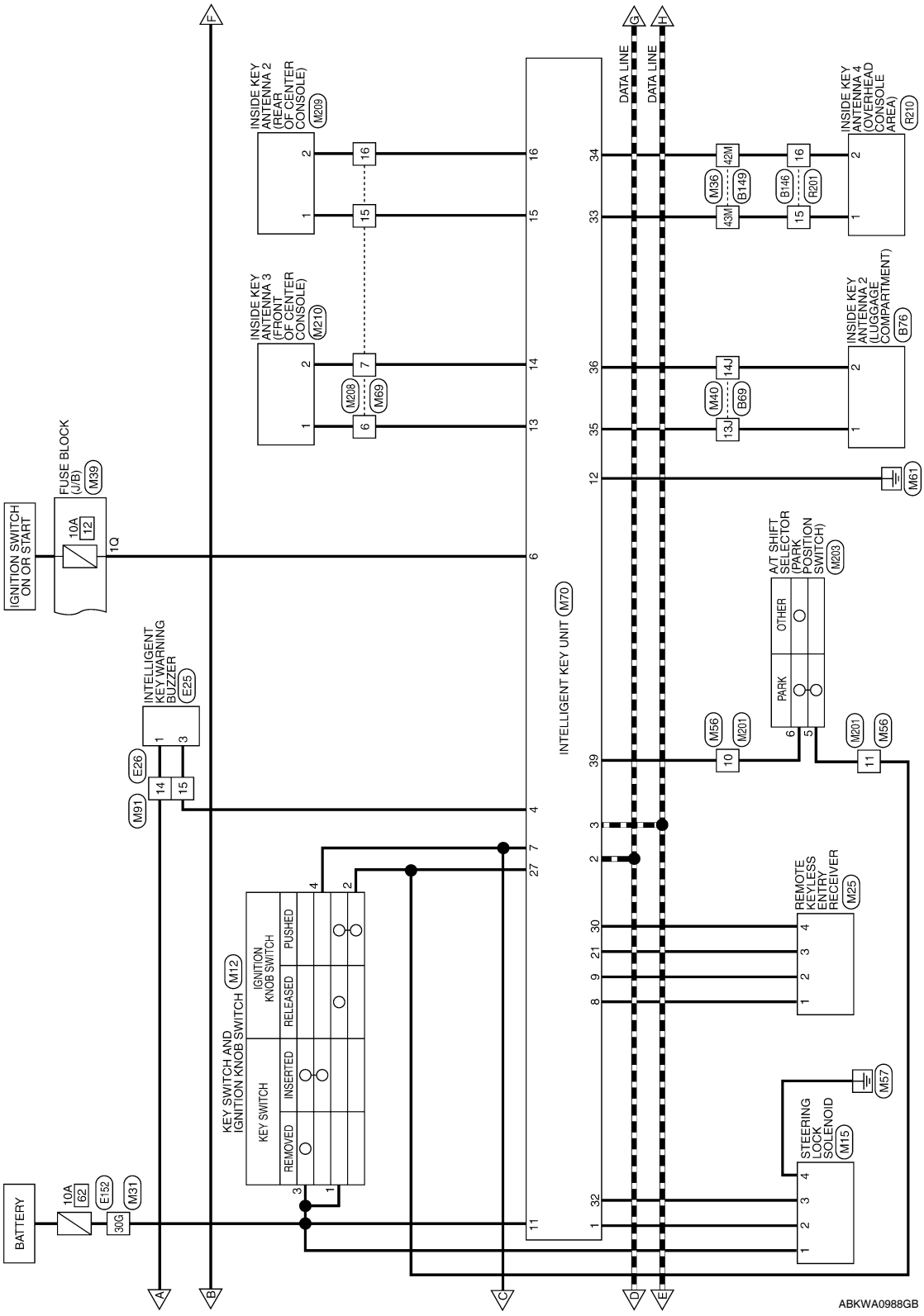
PHYSICAL VALUES

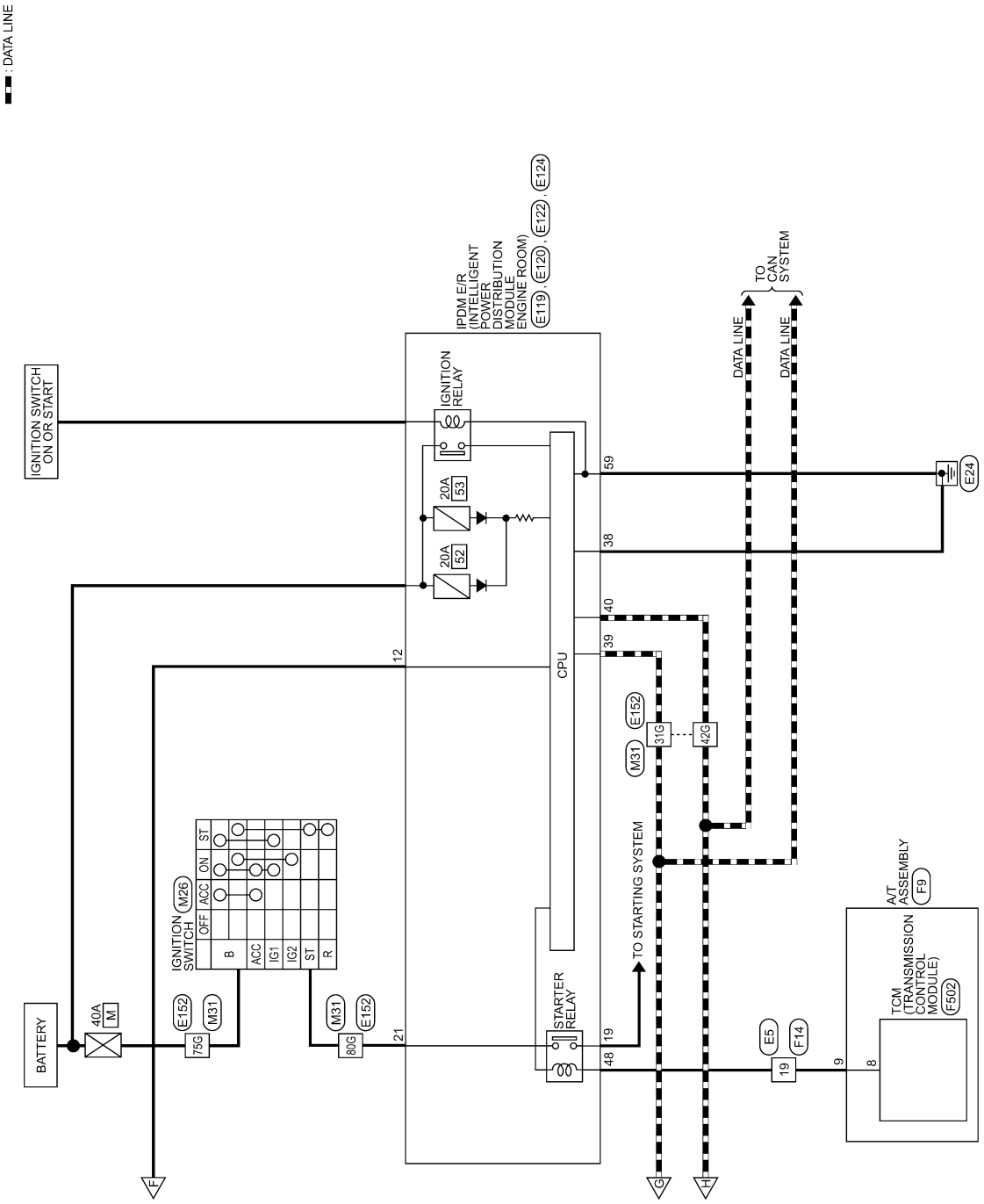
Terminal	Wire Color	Signal Designation	Condition		Voltage (V) Approx.
			Ignition Switch Position	Operation or Conditions	
1	G/Y	Power source (fuse)	LOCK	—	Battery voltage
2	L/Y	Steering lock solenoid power supply	LOCK	—	5
3	L/O	Steering lock solenoid communication signal	LOCK	When Intelligent Key is inside vehicle, press ignition knob switch.	 SIIA1911J
				Other than the above	5
4	B	Steering lock solenoid ground	—	—	0

Wiring Diagram - INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION -

INFOID:0000000001539168

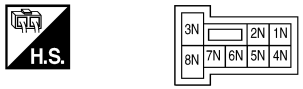



: DATA LINE
INSIDE KEY ANTENNA 2 (REAR OF CENTER CONSOLE) M209
INSIDE KEY ANTENNA 3 (FRONT OF CENTER CONSOLE) M210
INSIDE KEY ANTENNA 4 (OVERHEAD CONSOLE AREA) R210
INSIDE KEY ANTENNA 2 (LUGGAGE COMPARTMENT) B76
DATA LINE
DATA LINE
FUSE BLOCK (J/B) M39
IGNITION SWITCH ON OR START
10A 12
1Q
INTELLIGENT KEY WARNING BUZZER E25
E26
M91
INTELLIGENT KEY UNIT M70
A/T SHIFT SELECTOR (PARK POSITION SWITCH) M203
PARK
OTHER
KEY SWITCH AND IGNITION KNOB SWITCH M12
KEY SWITCH
REMOVED
INSERTED
IGNITION KNOB SWITCH
RELEASED
PUSHED
REMOTE KEYLESS ENTRY RECEIVER M25
STEERING LOCK SOLENOID M15
M57
M61
BATTERY
10A 62
E152
M31
30G
ABKWA0988GB


: DATA LINE
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E119, E120, E122, E124
IGNITION RELAY
IGNITION SWITCH ON OR START
20A 53
20A 52
CPU
59
38
40
39
12
21
19
48
TO CAN SYSTEM
DATA LINE
DATA LINE
E24
E152
M31
31G
42G
TO STARTING SYSTEM
STARTER RELAY
IGNITION SWITCH M26
OFF ACC ON ST
B ACC IG1 IG2 ST R
BATTERY
40A M
E152
M31
75G
M31
E152
80G
A/T ASSEMBLY F9
TCM (TRANSMISSION CONTROL MODULE) F502
E5
F14
19
9
8
F
G
H
AAKWA0121GB

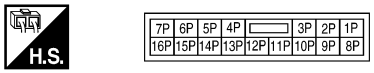
INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION CONNECTORS

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	–

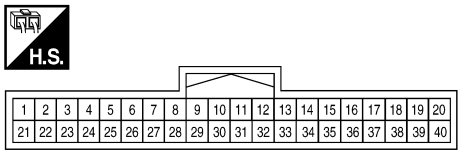
Connector No.	M12
Connector Name	KEY SWITCH AND IGNITION KNOB SWITCH
Connector Color	GRAY

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

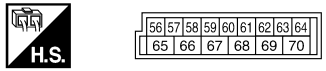
Terminal No.	Color of Wire	Signal Name
1	G/Y	B+
2	L/Y	5V_PWR
3	L/O	SIG
4	B	GND

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



Terminal No.	Color of Wire	Signal Name
23	G/O	SECURITY IND OUTPUT
37	B/R	KEY_SW
38	W/L	IGN
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
67	B	GND (POWER)
70	W/B	BATT (FL)

ALKIA0542GB

Connector No.	M25
Connector Name	REMOTE KEYLESS ENTRY RECIEVER
Connector Color	BLACK

H.S.

1	2	3	4

Terminal No.	Color of Wire	Signal Name
1	G	GND
2	GR	SIG
3	B/W	RSSI
4	G/B	5V

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
10	L	CAN-H
11	P	CAN-L
20	B	–
21	O/L	–
35	G/O	–
40	Y/R	–

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

H.S.

Terminal No.	Color of Wire	Signal Name
7G	W/L	–
10G	W/B	–
30G	Y	–
31G	L	–
42G	P	–
75G	G	–
80G	BR	–

Connector No.	M23
Connector Name	COMBINATION METER
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
47	B	–
52	B	–

Connector No.	M26
Connector Name	IGNITION SWITCH
Connector Color	WHITE

H.S.

B	ST	IG1
R	ACC	IG2

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

AWKIA0150GB

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

H.S.

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

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

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

H.S.

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

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

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
42M	BR	–
43M	W	–

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
13J	O	–
14J	R	–
51J	L	–
52J	P	–

ALKIA0544GB

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

H.S.

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

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

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
1	L/Y	STRG_6V_POWER
2	L	CAN-H
3	P	CAN-L
4	GR	OUTSIDE_BUZZER_OUT
6	G/R	IGN_SW_INPUT
7	B/R	KEY_SW_INPUT
8	G	RF_TUNER_GND

Terminal No.	Color of Wire	Signal Name
9	GR	RF_TUNER_SIG
11	Y	BAT
12	B	GND
13	B/W	RM_ANT_FR_CNSL+
14	W/G	RM_ANT_FR_CNSL-
15	G	RM_ANT_RR_CNSL+
16	L	RM_ANT_RR_CNSL-
21	B/W	RF_TUNER_RSSI
27	R/B	PUSH_SW_INPUT
30	G/B	RF_TUNER_5V_OUT
32	L/O	STRG_LOCK_SIG
33	W	RM_ANT_O/H_CNSL+
34	BR	RM_ANT_O/H_CNSL-
35	O	RM_ANT_LUGGAGE+
36	R	RM_ANT_LUGGAGE-
39	L/R	P_RANGE_SW

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
14	Y/R	–
15	GR	–

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

H.S.

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

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

Connector No.	M203
Connector Name	A/T SHIFT SELECTOR
Connector Color	WHITE

H.S.

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

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

ABKIA2564GB

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

H.S.

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

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

Connector No.	M209
Connector Name	INSIDE KEY ANTENNA 2 (REAR OF CENTER CONSOLE)
Connector Color	WHITE

H.S.

2	1

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

Connector No.	M210
Connector Name	INSIDE KEY ANTENNA 3 (FRONT OF CENTER CONSOLE)
Connector Color	WHITE

H.S.

1	2

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

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
3	L	–
5	L	–
14	P	–
15	P	–
19	B/R	–

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK

H.S.

106	107	108	109	110	111	112	113		119	120	121
98	99	100	101	102	103	104	105		117	118	
90	91	92	93	94	95	96	97		114	115	116
82	83	84	85	86	87	88	89				

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

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

H.S.

1	2	3

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

ALKIA0546GB

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
14	Y/R	–
15	GR	–

Connector No.	E34
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
23	P	–
24	L	–

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

H.S.

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

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

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

H.S.

21	20	19
24	23	22

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

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

H.S.

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

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

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

H.S.

59	58	57
62	61	60

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

ABKIA2568GB

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

H.S.

5	4	3	2	1
10	9	8	7	6

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

Connector No.	B40
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
23	P	–
24	L	–

Terminal No.	Color of Wire	Signal Name
7G	L/W	–
10G	W/B	–
30G	Y	–
31G	L	–
42G	P	–
75G	G	–
80G	BR	–

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

H.S.

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

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

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

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

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

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

H.S.

10	9	8	7	6	5	4	3	2	1

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

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
3	L	–
5	L	–
14	P	–
15	P	–
19	B/R	–

AAKIA0190GB

Connector No.	B76
Connector Name	INSIDE KEY ANTENNA 2 (LUGGAGE COMPARTMENT)
Connector Color	GRAY

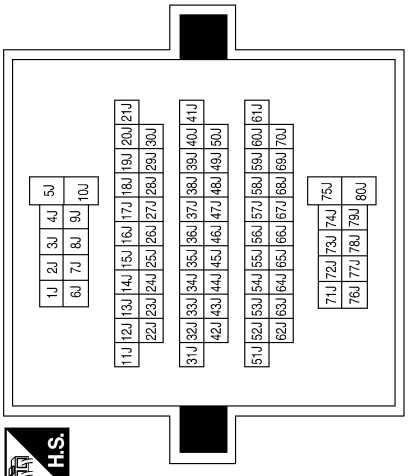
H.S.

Terminal No.	Color of Wire	Signal Name
1	O	–
2	R	–

Terminal No.	Color of Wire	Signal Name
42M	BR	–
43M	W	–

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

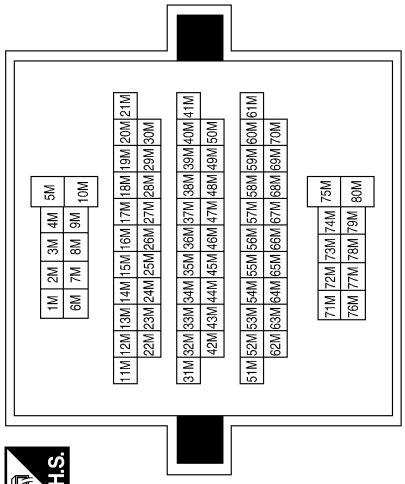
H.S.



Terminal No.	Color of Wire	Signal Name
13J	O	–
14J	R	–
51J	L	–
52J	P	–

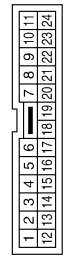
Connector No.	B149
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



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

H.S.



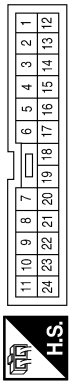
Terminal No.	Color of Wire	Signal Name
15	W	–
16	BR	–

ALKIA0549GB

Connector No.	R210
Connector Name	INSIDE KEY ANTENNA 4 (OVERHEAD CONSOLE AREA)
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	–

ALKIA0550GB

Fail Safe

INFOID:0000000004807930

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:0000000001539170

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

Priority	DTC
1	• U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN) • B2552: INTELIGENT KEY
2	• B2013: STRG COMM 1 • B2590: NATS MALFUNCTION

DTC Index

INFOID:0000000001539171

NOTE:

Details of time display

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

CONSULT display	Detection condition	Fail-safe	Diagnosis
No DTC is detected. further testing may be required.	—	—	—
U1000: CAN COMM CIRCUIT	Intelligent Key unit cannot receive CAN communication signal continuously for 2 seconds or more.	—	Check CAN communication system. Refer to SEC-24
U1010: CONTROL UNIT (CAN)	Intelligent Key unit detects internal CAN communication circuit malfunction.	—	Replace Intelligent Key unit.
B2013: STRG COMM 1	The ID verification result between Intelligent key unit and steering lock solenoid are NG. Or Intelligent Key unit cannot communicate with steering lock solenoid.	×	Perform steering lock solenoid ID registration with CONSULT-III
B2552: INTELLIGENT KEY	Intelligent Key unit internal malfunction.	×	Replace Intelligent Key unit.
B2590: NATS MALFUNCTION	The ID verification result between Intelligent key unit and BCM are NG. Or Intelligent Key unit cannot communicate with BCM.	×	Check NATS Refer to SEC-38

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

Reference Value

INFOID:0000000004807922

VALUES ON THE DIAGNOSIS TOOL

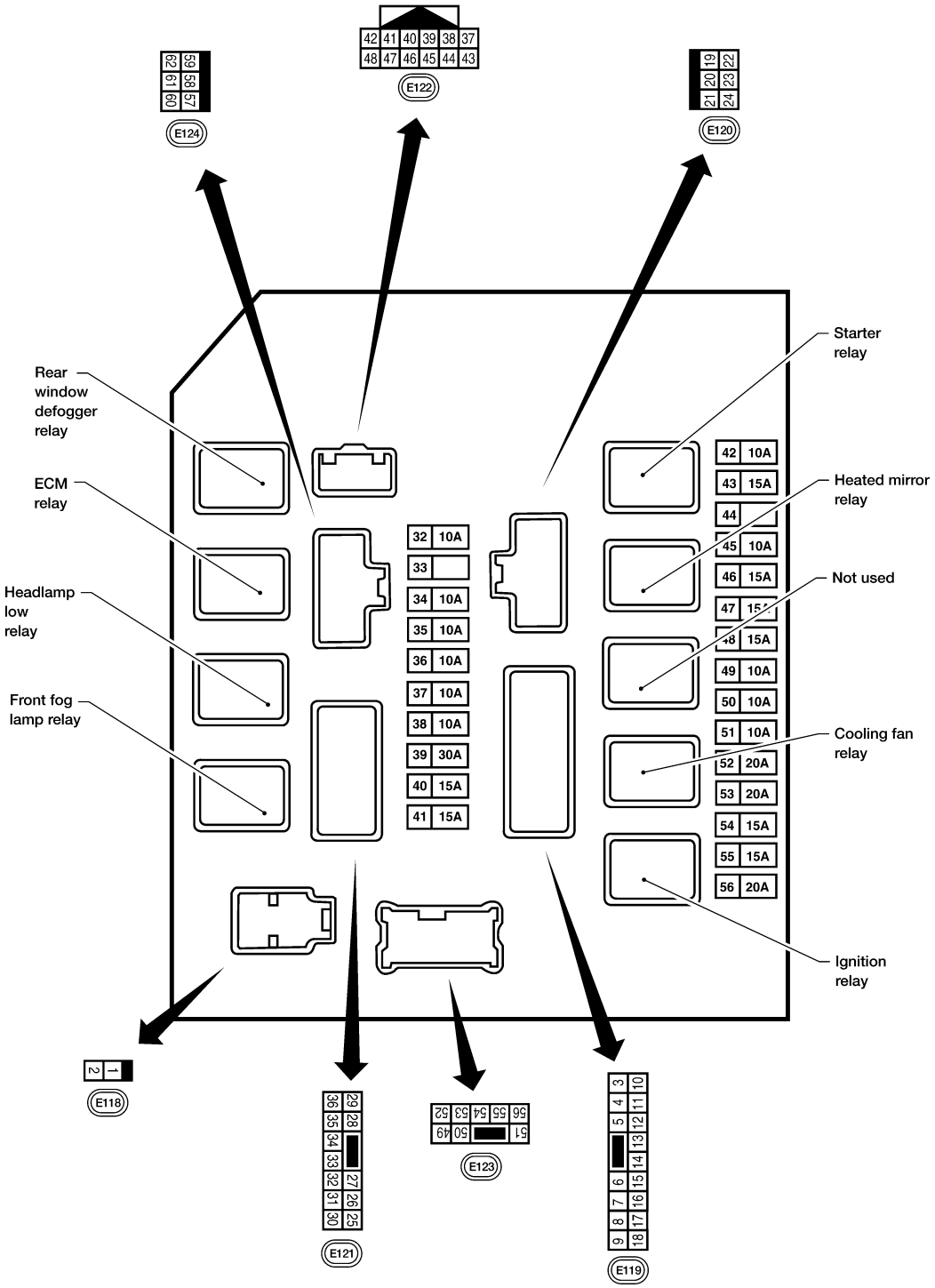
Monitor Item	Condition		Value/Status
MOTOR FAN REQ	Engine idle speed	Changes depending on engine coolant temperature, air conditioner operation status, vehicle speed, etc.	0 - 100 %
A/C COMP REQ	A/C switch OFF		OFF
	A/C switch ON		ON
TAIL&CLR REQ	Lighting switch OFF		OFF
	Lighting switch 1ST, 2ND, HI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

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

Terminal Layout

INFOID:0000000004807923

TERMINAL LAYOUT



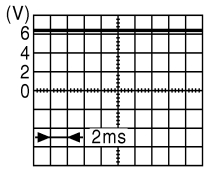
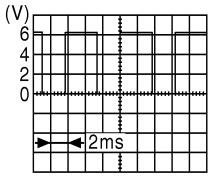
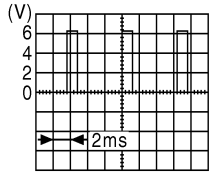
WKIA5852E

Physical Values

INFOID:0000000004807924

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	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 (VDC)	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
15	GR	Fuse 50 (ABS)	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 raker defogger switch is OFF	0V

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
26	P/L	Headlamp aiming motors	Output	—	Lighting switch 2nd position or AUTO, headlamp aiming switch in position	OFF	0V
						ON	Battery voltage
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	Battery voltage
						LO or INT	0V
35	L/B	Wiper high speed signal	Output	ON or START	Wiper switch	OFF, LO, INT	Battery voltage
						HI	0V
37	Y	Power generation command signal	Output	—	Ignition switch ON		 JPMIA0001GB 6.3 V
					40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE"		 JPMIA0002GB 3.8 V
					40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE"		 JPMIA0003GB 1.4 V
38	B	Ground	Input	—	—		0V
39	L	CAN-H	—	ON	—		—
40	P	CAN-L	—	ON	—		—

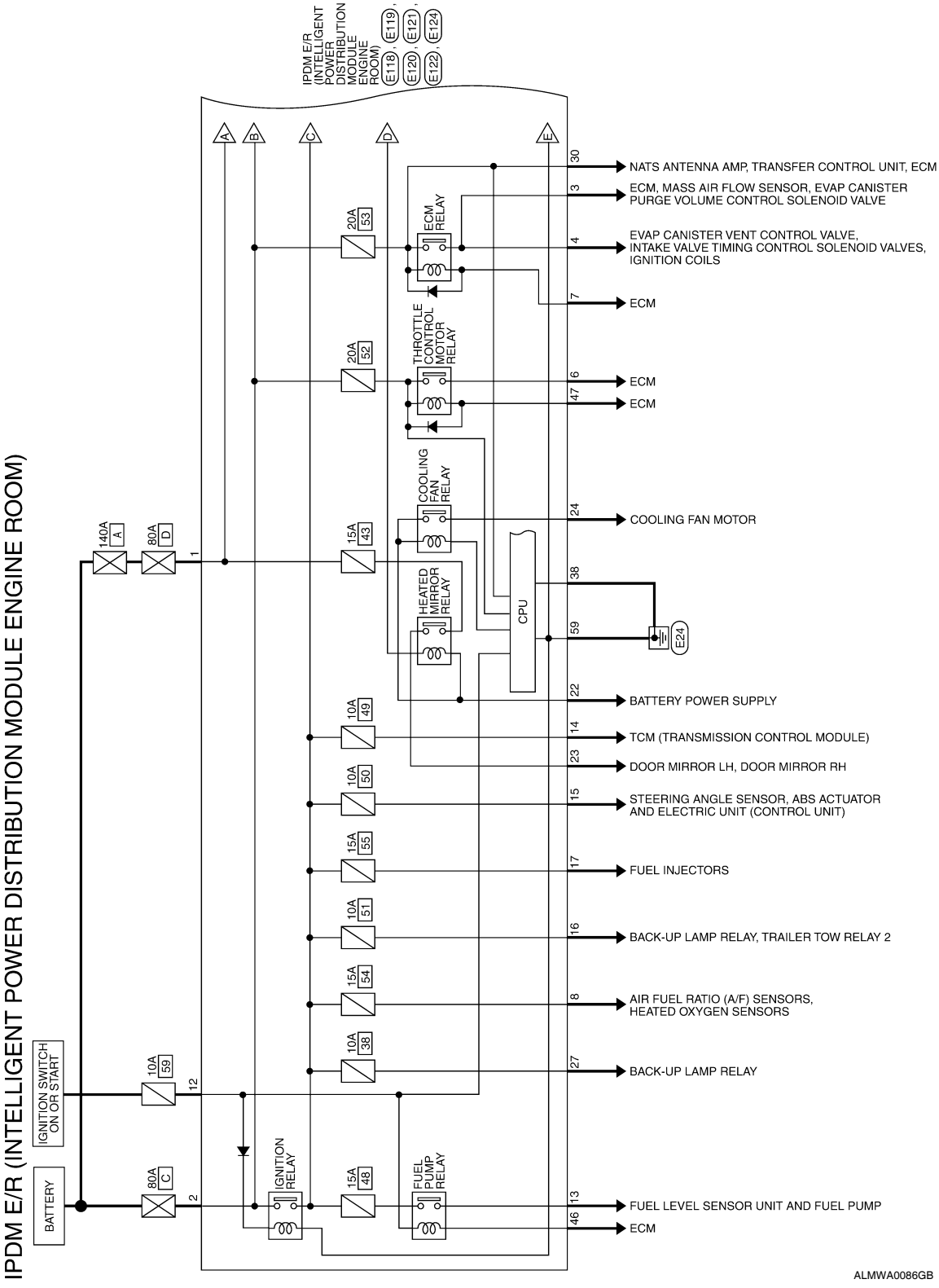
Terminal	Wire color	Signal name	Signal input/ output	Measuring condition			Reference value (Approx.)
				Ignition switch	Operation or condition		
41	Y/B	Hood switch	Input	—	Hood closed	OFF	0V
					Hood open	ON	Battery voltage
42	GR	Oil pressure switch	Input	—	Engine running		Battery voltage
					Engine 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	Input	ON	Daytime light system active		0V
					Daytime light system inactive		Battery voltage
45	G/W	Horn relay control	Input	ON	When door locks are operated using keyfob or Intelligent Key (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 (transmission range switch)	Input	ON or START	A/T shift selector lever in "P" or "N"		0V
					A/T shift selector lever any other position		Battery voltage
49	R/L	Trailer tow relay	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 headlamp	Output	—	Lighting switch in 2nd position		Battery voltage
54	R/Y	RH low beam headlamp	Output	—	Lighting switch in 2nd position		Battery voltage
55	G	LH high beam headlamp	Output	—	Lighting switch in 2nd position and placed in HIGH or PASS position		Battery voltage
56	L/W	RH high beam headlamp	Output	—	Lighting switch in 2nd position and placed in HIGH or PASS position		Battery voltage

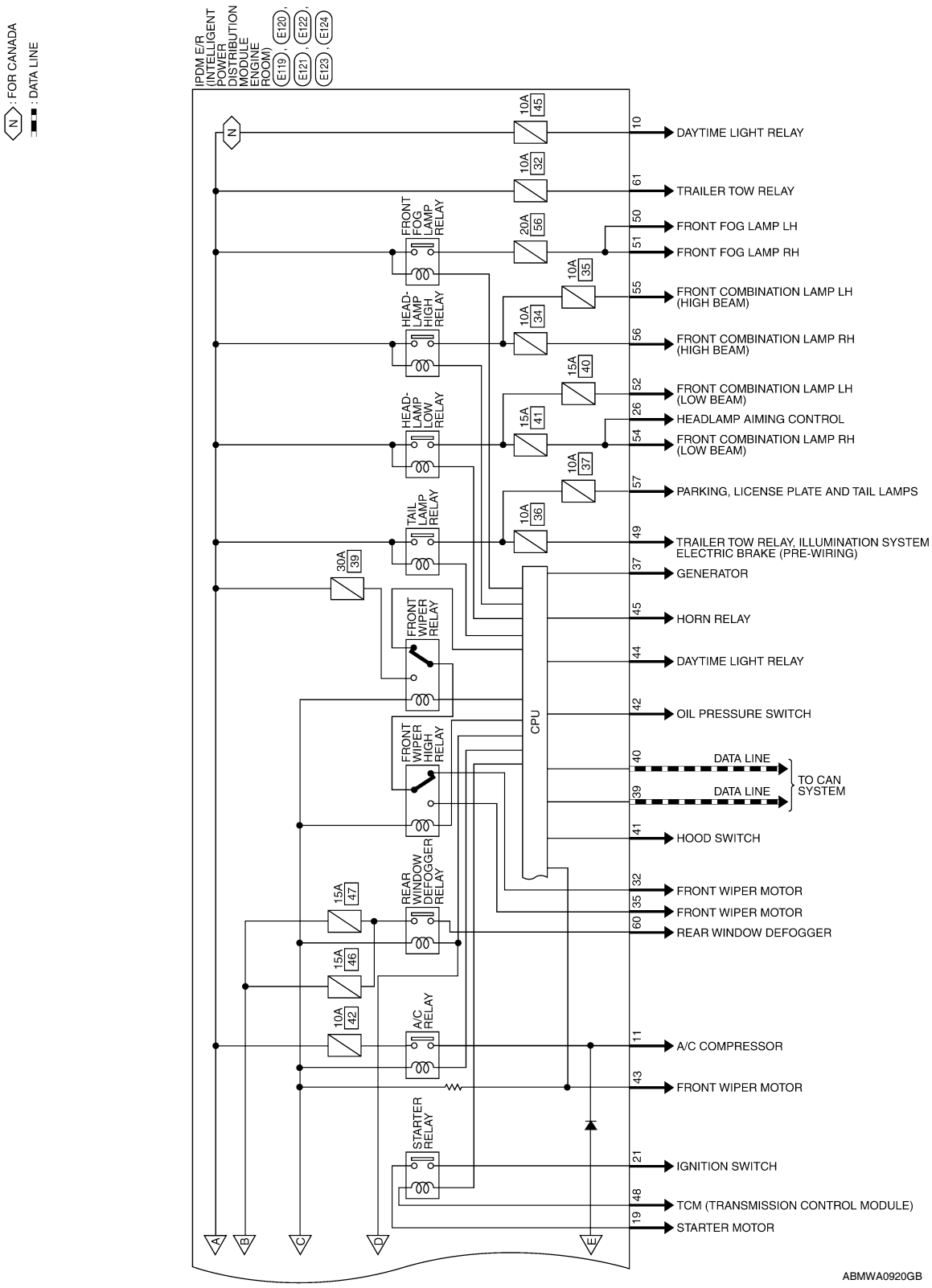
Terminal	Wire color	Signal name	Signal input/ output	Measuring condition			Reference value (Approx.)
				Ignition switch	Operation or condition		
57	R/L	Parking, license, and tail lamp	Output	ON	Lighting switch 1st position	OFF	0V
						ON	Battery voltage
59	B	Ground	Input	—	—		0V
60	B/W	Rear window 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

Wiring Diagram

INFOID:0000000004807925




N : FOR CANADA
: DATA LINE
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E120, E122, E124
E119, E121, E123
10A 45
10A 32
FRONT FOG LAMP RELAY
20A 56
10A 35
HEAD-LAMP HIGH RELAY
10A 34
15A 40
HEAD-LAMP LOW RELAY
15A 41
10A 37
TAIL LAMP RELAY
10A 36
30A 39
FRONT WIPER RELAY
FRONT WIPER HIGH RELAY
REAR WINDOW DEFOGGER RELAY
15A 47
15A 46
10A 42
A/C RELAY
STARTER RELAY
CPU
10 DAYTIME LIGHT RELAY
61 TRAILER TOW RELAY
50 FRONT FOG LAMP LH
51 FRONT FOG LAMP RH
55 FRONT COMBINATION LAMP LH (HIGH BEAM)
56 FRONT COMBINATION LAMP RH (HIGH BEAM)
52 FRONT COMBINATION LAMP LH (LOW BEAM)
26 HEADLAMP AIMING CONTROL
54 FRONT COMBINATION LAMP RH (LOW BEAM)
57 PARKING, LICENSE PLATE AND TAIL LAMPS
49 TRAILER TOW RELAY, ILLUMINATION SYSTEM ELECTRIC BRAKE (PRE-WIRING)
37 GENERATOR
45 HORN RELAY
44 DAYTIME LIGHT RELAY
42 OIL PRESSURE SWITCH
40 DATA LINE
39 DATA LINE
TO CAN SYSTEM
41 HOOD SWITCH
32 FRONT WIPER MOTOR
35 FRONT WIPER MOTOR
60 REAR WINDOW DEFOGGER
11 A/C COMPRESSOR
43 FRONT WIPER MOTOR
21 IGNITION SWITCH
48 TCM (TRANSMISSION CONTROL MODULE)
19 STARTER MOTOR
A
B
C
D
E
ABMWA0920GB

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

Connector No.	E118
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK

H.S.

1
2

Terminal No.	Color of Wire	Signal Name
1	B/Y	FL USM
2	R	FL MAIN

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
3	BR	IGN COIL
4	W/L	ECM
6	L	ETC
7	W/B	ECM RLY CONT
8	R/B	02_SENSOR
10	G	DTRL RLY SUPPLY
11	Y/B	AC COMPRESSOR
12	L/W	IGN SW (IG)
13	B/Y	FUEL PUMP
14	Y/R	A/T CU IGN SUPPLY
15	LG/B	ABS IGN SUPPLY
15	GR	ABS IGN SUPPLY
16	G	REVERSE LAMP
17	W	INJECTOR

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

H.S.

21	20	19
24	23	22

Terminal No.	Color of Wire	Signal Name
19	W/R	STARTER MTR
21	BR	IGN SW(ST)
22	G	F/L MOTOR FAN
23	GR/W	HEATED MIRROR
24	L	MOTOR FAN 2

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
26	P/L	H/LAMP LEVELIZER
27	W/B	TTOW REV LAMP
30	W	ECM BAT
32	L	FR WIPER LO
35	L/B	FR WIPER HI

AAMIA0085GB

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

H.S.

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

Terminal No.	Color of Wire	Signal Name
37	Y	ALT-C CONT
38	B	GND (SIGNAL)
39	L	CAN-H
40	P	CAN-L
41	Y/B	HOOD SW
42	GR	OIL PRESSURE SW
43	L/Y	AUTO STOP SW
44	BR	DTRL RLY CONT
45	G/W	ANTI THEFT HORN
46	GR	FUEL PUMP RLY CONT
47	O	ETC RLY CONT
48	B/R	RANGE SW

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

H.S.

51		50	49
56	55	54	53	52

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

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

H.S.

59	58	57
62	61	60

Terminal No.	Color of Wire	Signal Name
57	R/L	TAIL LAMP
59	B	GND (POWER)
60	B/W	RR DEF
61	BR	TRAIL RLY SUPPLY

ABMIA2251GB

Fail Safe

INFOID:0000000004807926

CAN COMMUNICATION CONTROL

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

If No CAN Communication Is Available With ECM

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

If No CAN Communication Is Available With BCM

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

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

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

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

NOTE:

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

FRONT WIPER CONTROL

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

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

NOTE:

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

STARTER MOTOR PROTECTION FUNCTION

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

DTC Index

INFOID:0000000004807927

CONSULT-III display	Fail-safe	TIME[NOTE]		Refer to
No DTC is detected. further testing may be required.	—	—	—	—
U1000: CAN COMM CIRCUIT	×	CRNT	1 – 39	PCS-17

NOTE:

The details of TIME display are as follows.

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

SYMPTOM DIAGNOSIS

INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION SYMPTOMS

Symptom Table

INFOID:0000000001539175

NOTE:
- Before performing the diagnosis in the following table, check “SEC-3, "Work Flow"”.
- Check that vehicle is under the condition shown in “Conditions of vehicle” before starting diagnosis, and check each symptom.
- 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-III.
- 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.	DLK-95
	2.	Replace Intelligent Key unit.	SEC-116
Ignition switch does not turn on with Intelligent Key. [LCD does not display "PUSH" with arrow toward key cylinder]	1.	Check Intelligent Key unit power supply and ground circuit.	DLK-64
	2.	Check ignition knob switch.	DLK-112
	3.	Check key switch (BCM input).	DLK-111
	4.	Check key switch (Intelligent Key unit input).	DLK-109
	5.	Replace Intelligent Key unit.	SEC-116
Ignition switch does not turn on with Intelligent Key. [LCD displays " NO KEY"]	1a.	Check inside key antenna 1 (rear of center console).	DLK-56
	1b.	Check inside key antenna 2 (luggage compartment).	DLK-58
	1c.	Check inside key antenna 3 (front of center console).	DLK-60
	1d.	Check inside key antenna 4 (overhead console area).	DLK-64
	2.	Replace Intelligent Key unit.	SEC-116
Ignition switch does not turn on with mechanical key	1.	Check key switch (BCM input).	DLK-111
	2.	Check key switch (Intelligent Key unit input).	DLK-109
Engine cannot be cranked with transmission in "Park" or in "Neutral" position with brake pedal depressed.	1.	Check transmission signal.	TM-43
	2.	Check stop lamp switch.	EXL-81

VEHICLE SECURITY SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000001539176

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-67
		Glass ajar switch	Check glass ajar switch	DLK-125
		Hood switch	Check hood switch	SEC-46
		Intelligent Key	Check Intelligent Key system	DLK-102
		Key cylinder switch	Check key cylinder switch	DLK-75
		—	Check Intermittent Incident	GI-38
	Security indicator does not turn ON.		Check vehicle security indicator	SEC-49
			Check Intermittent Incident	GI-38
2	* Vehicle security system does not sound alarm when ….	Any door is opened.	Check door switch (LF, RF, LR, RR, back)	DLK-67
		Glass hatch is opened	Glass ajar switch	DLK-125
		Hood is opened	Check hood switch	SEC-46
		—	Check Intermittent Incident	GI-38
3	Vehicle security alarm does not activate.	Horn alarm	Check horn switch	—
			Check Intermittent Incident	GI-38
4	Vehicle security system cannot be canceled by ….	Intelligent Key	Check Intelligent Key system	DLK-102
		Key cylinder switch	Check key cylinder switch	DLK-75
		—	Check Intermittent Incident	GI-38

*: Check the system is in the armed phase.

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS SYMPTOMS

Symptom Table

INFOID:0000000001539177

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

CONDITIONS OF VEHICLE (OPERATING CONDITIONS)
- 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-49
	2. Check Intermittent Incident	GI-38

PRECAUTION

PRECAUTIONS

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

INFOID:0000000004874836

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:0000000004874838

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-III 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.

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-III.

ON-VEHICLE REPAIR

INTELLIGENT KEY UNIT

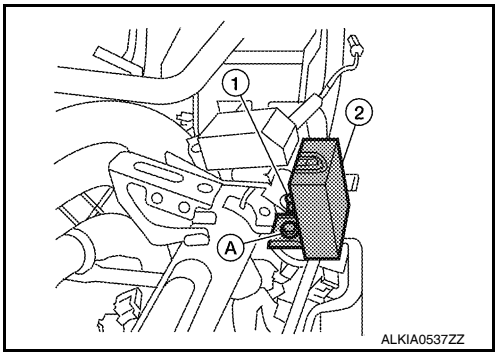
Removal and Installation

INFOID:0000000001539180

Remote Keyless Entry Receiver

Removal

1. Remove the instrument panel. Refer to IP-12, "Removal and Installation".
2. Disconnect the wire harness (1), remove the bolt (A) and the RKE receiver (2).



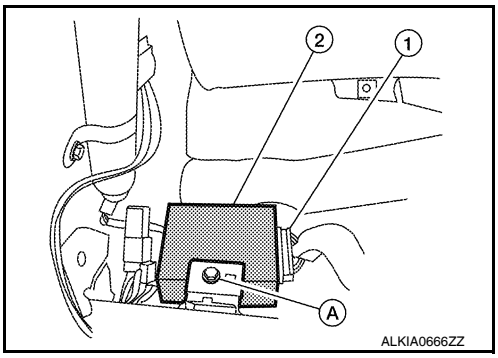
Installation

Installation is in the reverse order of removal.

Intelligent Key Unit

Removal

1. Remove the instrument panel. Refer to IP-12, "Removal and Installation".
2. Disconnect the wire harness (1), remove the bolt (A) and the Intelligent key unit (2).



Installation

Installation is in the reverse order of removal.

NATS ANTENNA AMP

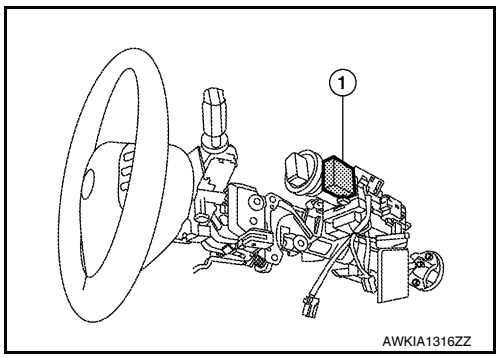
NOTE:

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

Removal

1. Disconnect the battery negative terminal.
2. Remove the steering column covers. Refer to IP-11, "Exploded View".

3. Remove the bolt, disconnect the electrical connector, and remove the NATS antenna amp (1).



Installation

Installation is in the reverse order of removal.