

SECTION **BCS**
BODY CONTROL SYSTEM

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

CONTENTS

SERVICE INFORMATION	2	BCM (BODY CONTROL MODULE)	4
DTC INDEX	2	System Description	4
U1000	2	CAN Communication System Description	9
PRECAUTIONS	3	CAN Communication Unit	9
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TEN- SIONER"	3	Schematic	10
Precaution for Battery Service	3	CONSULT-III Function (BCM)	13
		U1000 CAN Communication Circuit	15
		Removal and Installation of BCM	15

BCS

DTC INDEX

< SERVICE INFORMATION >

SERVICE INFORMATION

DTC INDEX

U1000

INFOID:000000004656017

DTC	Items (CONSULT screen terms)	Reference
U1000	CAN COMM CIRCUIT	BCS-15, "U1000 CAN Communication Circuit"

PRECAUTIONS

< SERVICE INFORMATION >

PRECAUTIONS

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

INFOID:000000004656018

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 "SUPPLEMENTAL RESTRAINT SYSTEM" and "SEAT BELTS" 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 "SUPPLEMENTAL RESTRAINT SYSTEM".
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

WARNING:

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

Precaution for Battery Service

INFOID:000000004656019

Before disconnecting the battery, lower both the driver and passenger windows. This will prevent any interference between the window edge and the vehicle when the door is opened/closed. During normal operation, the window slightly raises and lowers automatically to prevent any window to vehicle interference. The automatic window function will not work with the battery disconnected.

A
B
C
D
E
F
G
H
I
J
BCS
L
M
N
O
P

BCM (BODY CONTROL MODULE)

< SERVICE INFORMATION >

BCM (BODY CONTROL MODULE)

System Description

INFOID:000000004656020

BCM (Body Control Module) controls the operation of various electrical units installed in the vehicle.

BCM FUNCTION

BCM has combination switch reading function for reading the operation of combination switches (light, wiper, washer and turn signal) in addition to a function for controlling the operation of various electrical components. Also it has an interface function allowing it to receive signals from the unified meter and A/C amp., and send signals to ECM using CAN communication.

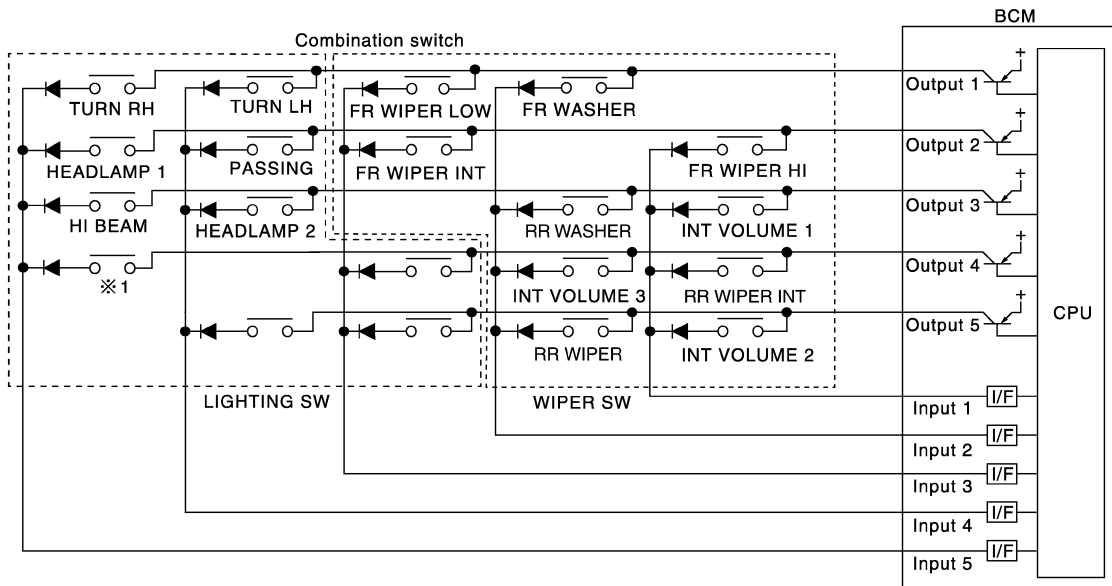
COMBINATION SWITCH READING FUNCTION

Description

- BCM reads combination switch (lighting switch, wiper switch) status, and controls various electrical components, according to the results.
- BCM reads information of a maximum of 20 switches by combining five output terminals (OUTPUT 1 - 5) and five input terminals (INPUT 1 - 5).

Operation Description

- BCM activates transistors of output terminals (OUTPUT 1 - 5) periodically and, allows current to flow in turn.
- If any (1 or more) switches are turned ON, circuit of output terminals (OUTPUT 1 - 5) and input terminals (INPUT 1 - 5) becomes active.
- At this time, transistors of output terminals (OUTPUT 1 - 5) are activated to allow current to flow. When voltage of input terminals (INPUT 1 - 5) corresponding to that switch changes, interface in BCM detects voltage change, and BCM determines that switch is ON.



※ 1 : LIGHTING SWITCH 1ST POSITION

PKIC4861E

Operation Table of BCM and Combination Switches

BCM (BODY CONTROL MODULE)

< SERVICE INFORMATION >

BCM reads operation status of combination switch using combinations shown in table below.

	COMB SW OUTPUT 1		COMB SW OUTPUT 2		COMB SW OUTPUT 3		COMB SW OUTPUT 4		COMB SW OUTPUT 5	
	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
COMB SW INPUT 1	—	—	FR WIPER HI ON	FR WIPER HI OFF	INT VOLUME 1 ON	INT VOLUME 1 OFF	RR WIPER INT ON	RR WIPER INT OFF	INT VOLUME 2 ON	INT VOLUME 2 OFF
COMB SW INPUT 2	FR WASHER ON	FR WASHER OFF	—	—	RR WASHER ON	RR WASHER OFF	INT VOLUME 3 ON	INT VOLUME 3 OFF	RR WIPER ON	RR WIPER OFF
COMB SW INPUT 3	FR WIPER LOW ON	FR WIPER LOW OFF	FR WIPER INT ON	FR WIPER INT OFF	—	—	—	—	—	—
COMB SW INPUT 4	TURN LH ON	TURN LH OFF	PASSING ON	PASSING OFF	HEAD-LAMP 2 ON	HEAD-LAMP 2 OFF	—	—	—	—
COMB SW INPUT 5	TURN RH ON	TURN RH OFF	HEAD-LAMP 1 ON	HEAD-LAMP 1 OFF	HI BEAM ON	HI BEAM OFF	LIGHTING SW (1st) ON	LIGHTING SW (1st) OFF	—	—

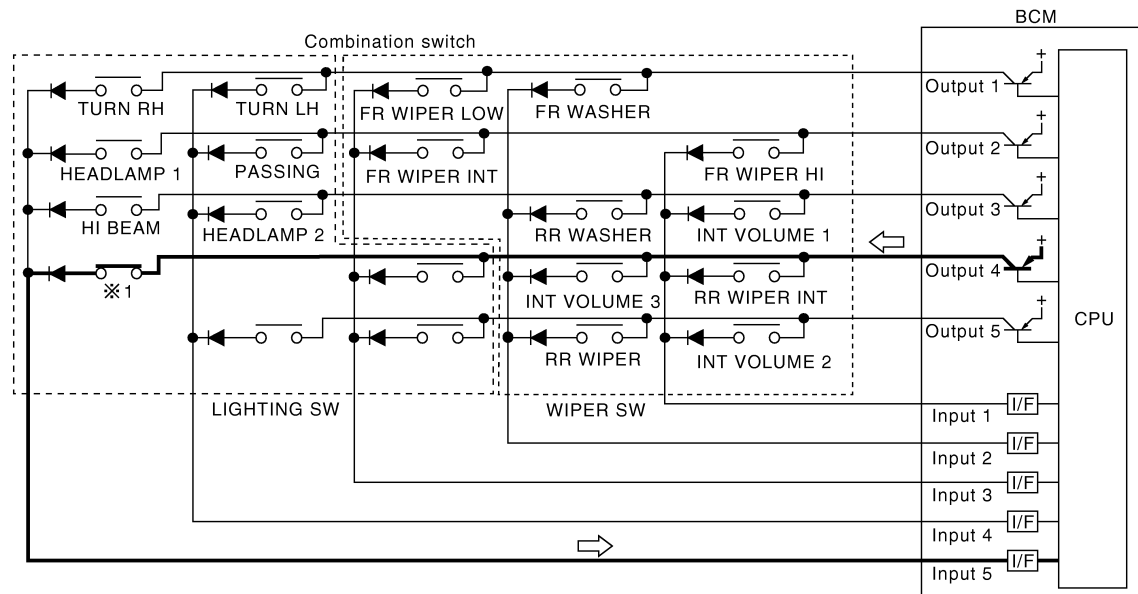
PKIC4963E

NOTE:

Headlamp system has a dual circuit.

Sample Operation (When lighting switch 1ST position is turned ON)

- When lighting switch 1ST position is turned ON, contact in combination switch turns ON. At this time if OUTPUT 4 transistor is activated, BCM detects that voltage changes in INPUT 5.
- When OUTPUT 4 transistor is ON, BCM detects that voltage changes in INPUT 5, and judges that lighting switch 1ST position is ON. Then BCM sends lighting switch (1ST position) ON signal to IPDM E/R using CAN communication.
- When OUTPUT 4 transistor is activated again, BCM detects that voltage changes in INPUT 5, and recognizes that lighting switch 1ST position is continuously ON.



※ 1 : LIGHTING SWITCH 1ST POSITION

SKIB7456E

NOTE:

Each OUTPUT terminal transistor is activated at 10 ms intervals. Therefore after switch is turned ON, electrical loads are activated with time delay. But this time delay is so short that it cannot be detected by human senses.

Operation Mode

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

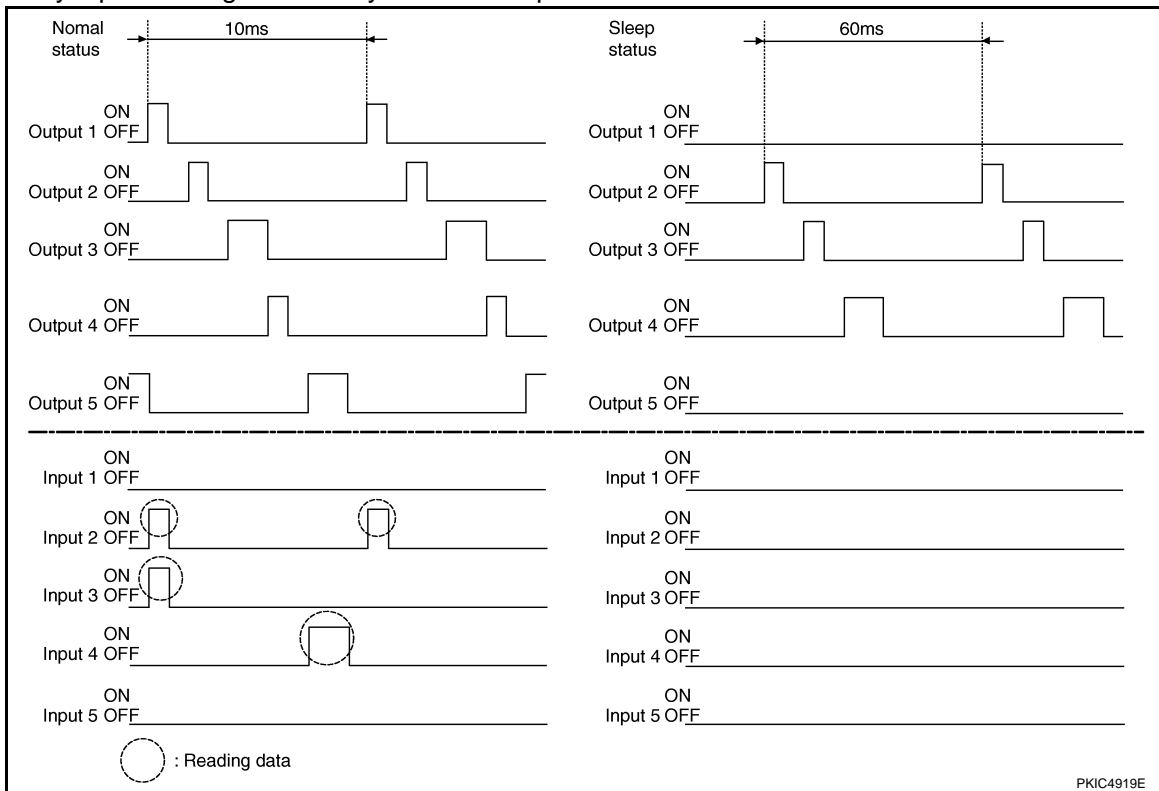
BCS

BCM (BODY CONTROL MODULE)

< SERVICE INFORMATION >

The combination switch reading function has the operation modes shown below.

1. Normal mode
 - When BCM is not in sleep mode, OUTPUT terminals (1 - 5) each turn ON-OFF every 10 ms.
2. Sleep mode
 - When BCM is in sleep mode BCM enters low power mode. OUTPUT (1 - 5) turn ON-OFF every 60 ms, and only input from light switch system is accepted.



CAN COMMUNICATION CONTROL

CAN communication allows a high rate of information transmission through the two communication lines (CAN L line, CAN H line) connecting the various control units in the system. Each control unit transmits/receives data but selectively reads required data only. For details of signals that are transmitted/received by BCM via CAN communication, refer to [LAN-41, "CAN System Specification Chart"](#).

BCM STATUS CONTROL

BCM changes its status depending on the operation status in order to save power consumption.

1. CAN communication status
 - With ignition switch ON, CAN communicates with other control units normally.
 - Control by BCM is being operated properly.
 - When ignition switch is OFF, switching to sleep mode is possible.
 - Even when ignition switch is OFF, if CAN communication with IPDM E/R and combination meter is active, CAN communication status is active.
2. Sleep transient status
 - This status shuts down CAN communication when ignition switch is turned OFF.
 - It transmits sleep request signal to IPDM E/R and combination meter.
 - Two seconds after CAN communication of all control units stops, sleep transient status switches to CAN communication inactive status.
3. CAN communication inactive status
 - With ignition switch OFF, CAN communication is not active.
 - With ignition switch OFF, control performed only by BCM is active.
 - Three seconds after CAN communication of all control units stops, CAN communication inactive status switches to sleep status.
4. Sleep status
 - BCM is activated with low power mode.
 - CAN communication is not active.
 - When CAN communication operation is detected, it switches to CAN communication status.

BCM (BODY CONTROL MODULE)

< SERVICE INFORMATION >

- When a state of the following switches changes, it switches to CAN communication state.
 - Key switch (ACC, ON)
 - Hazard switch
 - Door lock/unlock switch
 - Front door switch (driver side, passenger side)
 - Back door opener switch (coupe models)
 - Trunk lid opener switch (roadster models)
 - Combination switch (passing, lighting switch 1ST position)
 - Key fob (lock/unlock signal)
 - Key cylinder switch
- When control performed only by BCM is required by switch, it shifts to CAN communication inactive mode.
- Status of combination switch reading function is changed.

SYSTEMS CONTROLLED BY BCM DIRECTLY

System	Reference
Power door lock system	BL-20
Remote keyless entry system	BL-52
Power window system ^{NOTE 1}	GW-19
Power seat ^{NOTE 1}	SE-12 or SE-15
Interior room lamp	LT-119
Rear wiper and washer system ^{NOTE 2}	WW-34

NOTE:

1. Power supply only. No system control.
2. Coupe models

SYSTEMS CONTROLLED BY BCM AND IPDM E/R

System	Reference
Panic alarm	BL-52
Theft warning	BL-111
NVIS (NATS)	BL-134
Headlamp (For USA)	LT-5
<ul style="list-style-type: none"> • Headlamp (For Canada) • Daytime light system 	LT-31
<ul style="list-style-type: none"> • Parking, license plate and tail lamps • Battery saver control 	LT-96
Front wiper and washer system	WW-4
Rear window defogger	GW-51

SYSTEMS CONTROLLED BY BCM AND COMBINATION METER

System	Reference
Warning chime	DI-68
Turn signal and hazard warning lamps	LT-61
Low tire pressure warning system	WT-9

MAJOR COMPONENTS AND CONTROL SYSTEM

BCM (BODY CONTROL MODULE)

< SERVICE INFORMATION >

System	Input	Output
Remote control entry system	<ul style="list-style-type: none"> • Remote keyless entry receiver • Key switch • All-door switch 	<ul style="list-style-type: none"> • All-door locking actuator • Turn signal lamp (LH, RH)
Power door lock system	<ul style="list-style-type: none"> • Power window main switch (door lock and unlock switch) • Power window sub switch (passenger side) (door lock and unlock switch) 	All-door locking actuator
Power supply (IGN) to power window	Ignition power supply	Power window system
Power supply (BAT) to power window and power seat	Battery power supply	Power window system and power seat
Panic alarm	<ul style="list-style-type: none"> • Key switch • Remote keyless entry receiver 	IPDM E/R
Theft warning system	<ul style="list-style-type: none"> • All-door switch • Remote keyless entry receiver • Power window main switch (door lock and unlock switch) 	<ul style="list-style-type: none"> • IPDM E/R • Security indicator lamp
Exterior lamp battery saver control	<ul style="list-style-type: none"> • Ignition switch • Combination switch 	IPDM E/R
Headlamp	Combination switch	IPDM E/R
Daytime light system	<ul style="list-style-type: none"> • Engine status signal • Ignition switch • Combination switch • Parking brake signal 	IPDM E/R
Tail lamp	Combination switch	IPDM E/R
Turn signal lamp	<ul style="list-style-type: none"> • Combination switch • Ignition switch 	<ul style="list-style-type: none"> • Turn signal lamp • Combination meter
Hazard lamp	Hazard switch	<ul style="list-style-type: none"> • Turn signal lamp • Combination meter
Room lamp timer	<ul style="list-style-type: none"> • Key switch • Remote keyless entry receiver • Power window main switch (door lock and unlock switch) • All-door switch 	<ul style="list-style-type: none"> • Interior room lamp • Map lamp • Key hole illumination
Interior lamp battery saver control	<ul style="list-style-type: none"> • Ignition switch • Remote keyless entry receiver • All-door switch 	BCM
Key warning chime	<ul style="list-style-type: none"> • Key switch • Front door switch driver side 	Combination meter (warning buzzer)
Light warning chime	<ul style="list-style-type: none"> • Combination switch • Ignition switch • Front door switch driver side 	Combination meter (warning buzzer)
Seat belt warning chime	<ul style="list-style-type: none"> • Combination meter [Seat belt buckle (driver side) switch] • Ignition switch 	Combination meter (warning buzzer)
Front wiper and washer system	<ul style="list-style-type: none"> • Combination switch • Combination meter • Ignition switch 	IPDM E/R
Rear wiper and washer system ^{NOTE}	<ul style="list-style-type: none"> • Combination switch • Ignition switch 	Rear wiper motor
Rear window defogger	<ul style="list-style-type: none"> • Rear window defogger switch • Ignition switch 	IPDM E/R
A/C switch signal	Unified meter and A/C amp.	ECM
Blower fan switch signal	Unified meter and A/C amp.	ECM
Low tire pressure warning system	Remote keyless entry receiver	Combination meter

BCM (BODY CONTROL MODULE)

< SERVICE INFORMATION >

NOTE:

Coupe models

CAN Communication System Description

INFOID:000000004656021

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

CAN Communication Unit

INFOID:000000004656022

Refer to [LAN-41, "CAN System Specification Chart"](#).

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

BCS

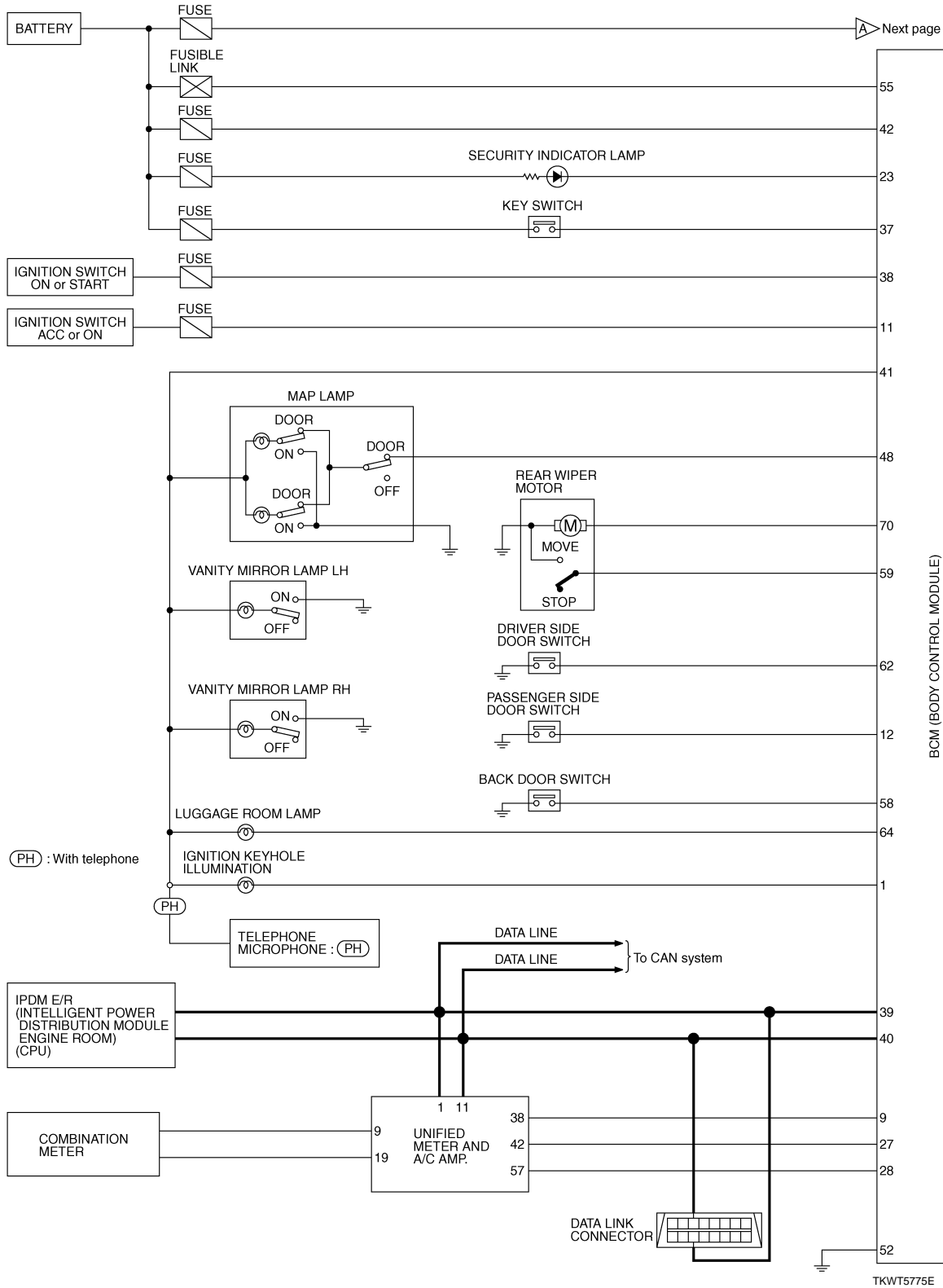
BCM (BODY CONTROL MODULE)

< SERVICE INFORMATION >

Schematic

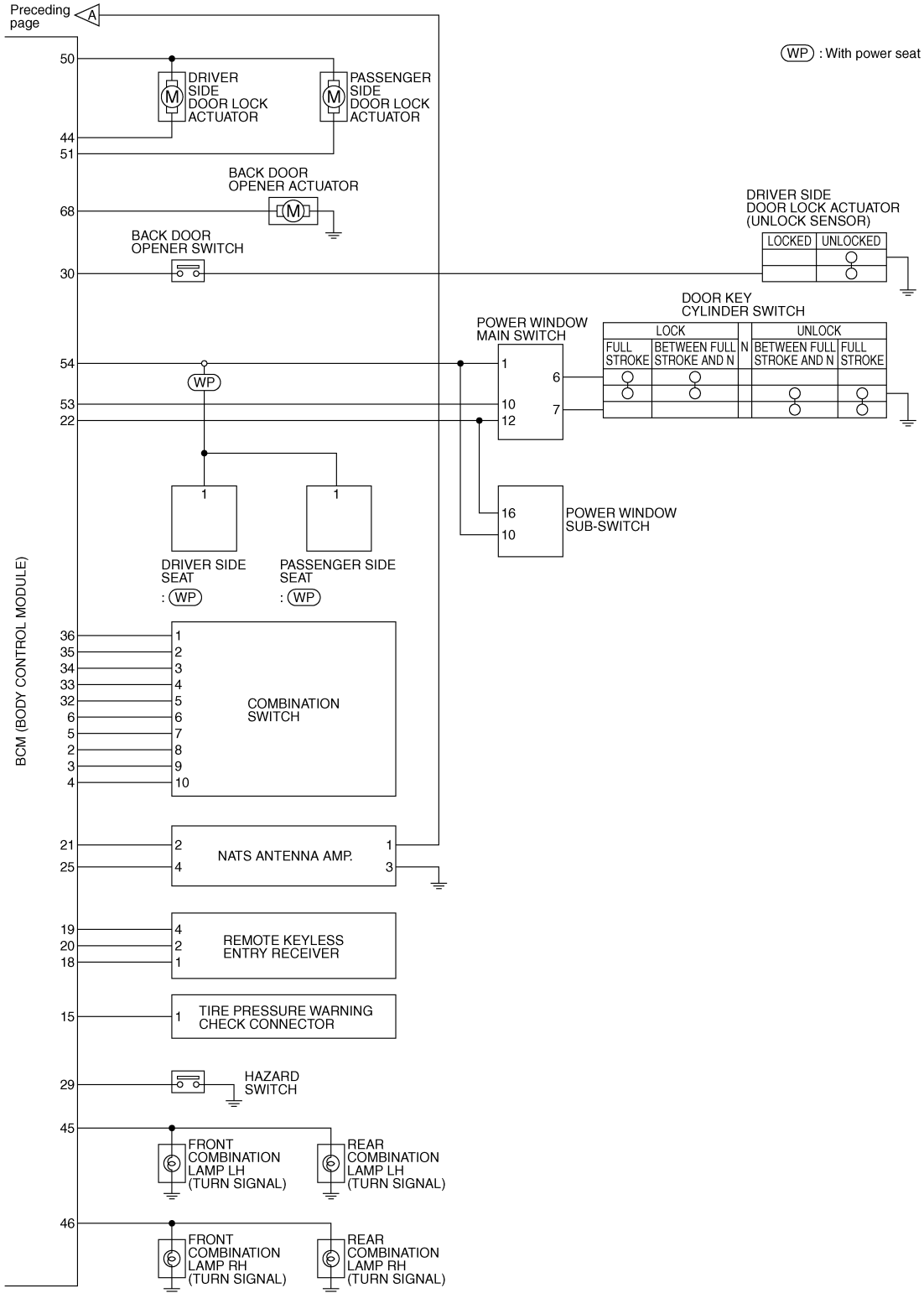
INFOID:000000004656023

COUPE MODELS



BCM (BODY CONTROL MODULE)

< SERVICE INFORMATION >

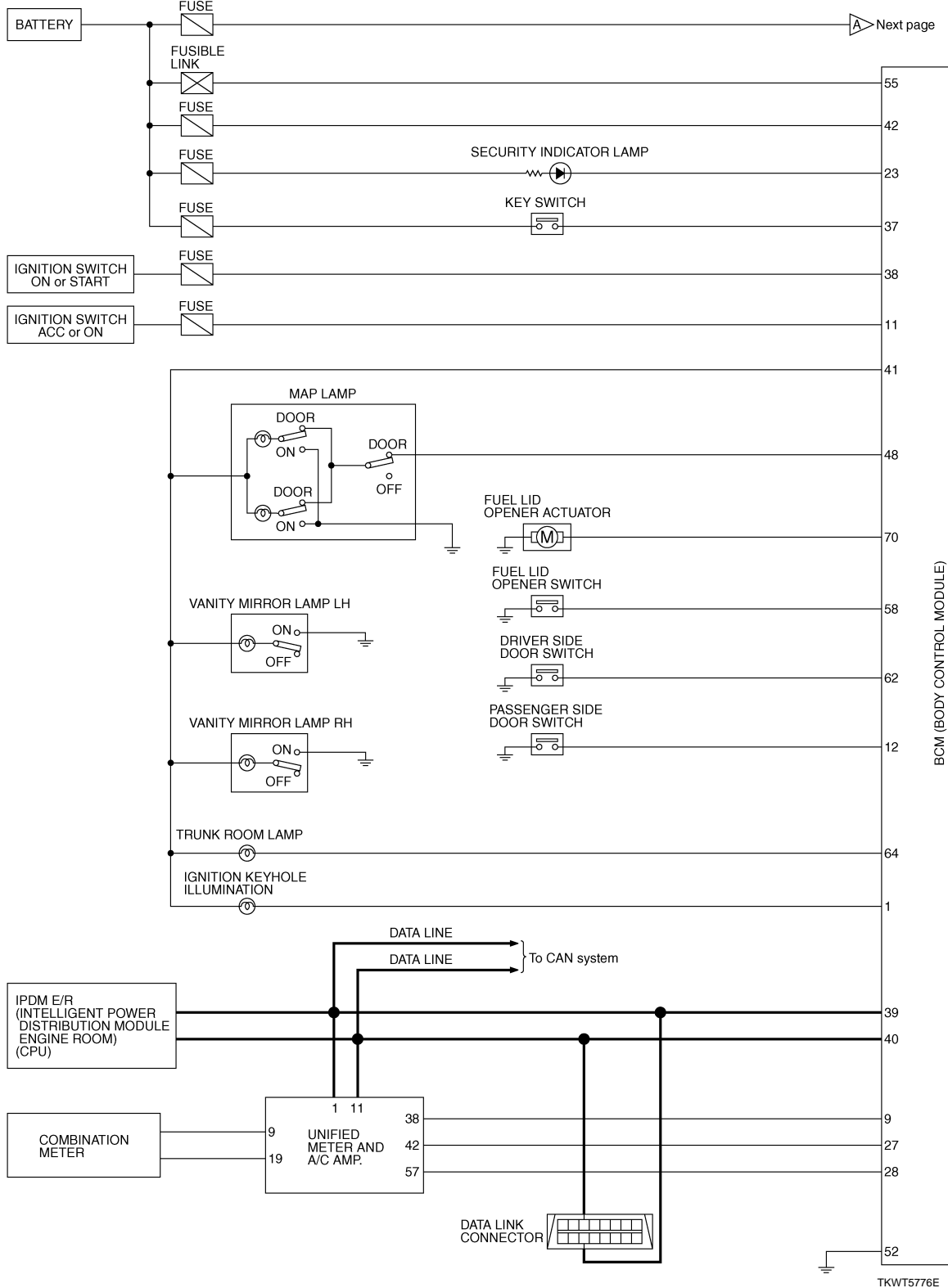


TKWT4014E

BCM (BODY CONTROL MODULE)

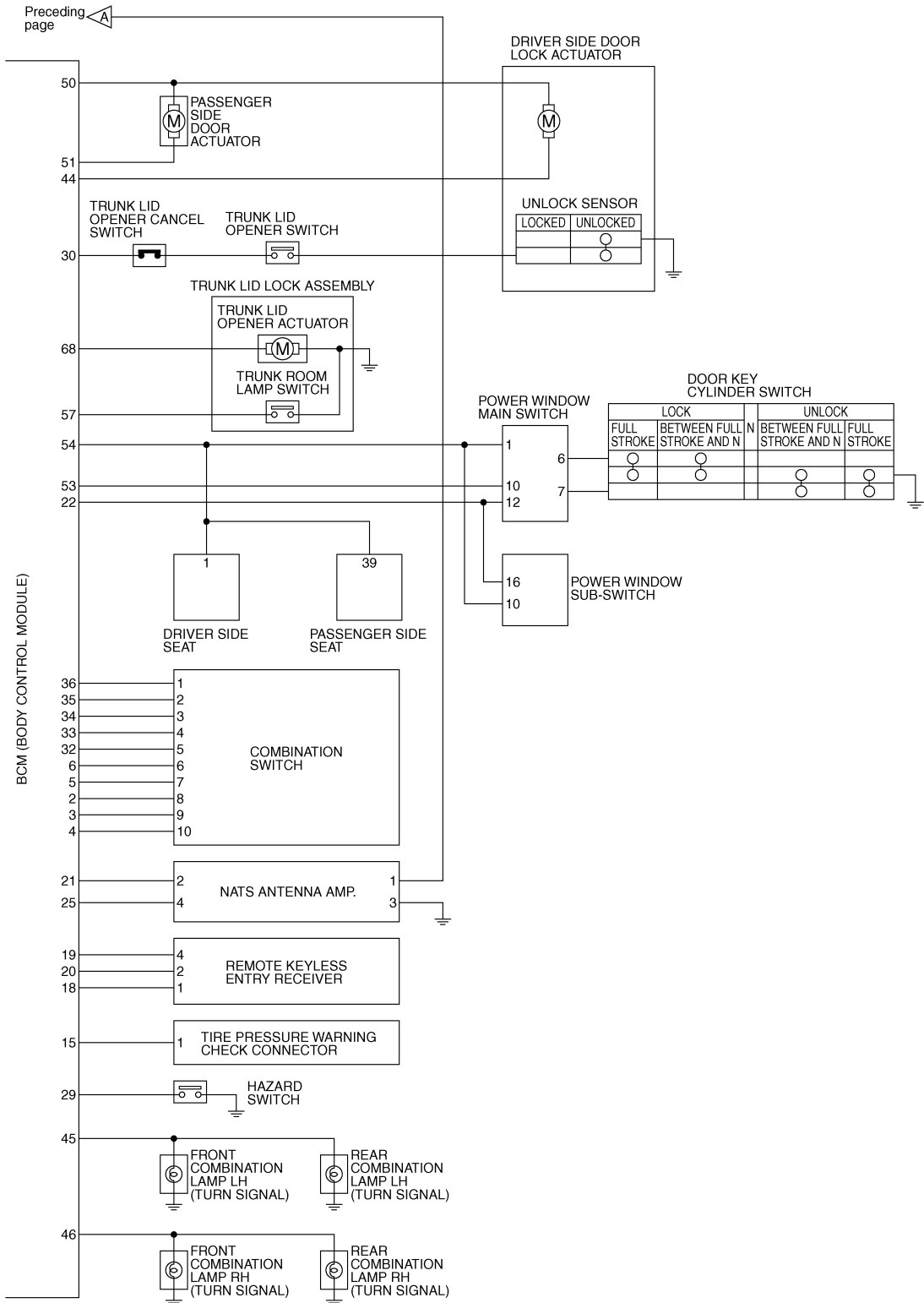
< SERVICE INFORMATION >

ROADSTER MODELS



BCM (BODY CONTROL MODULE)

< SERVICE INFORMATION >



A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

BCS

CONSULT-III Function (BCM)

CONSULT-III can display each diagnostic item using the diagnostic test mode shown following.

TKWT5777E

INFOID:000000004656024

BCM (BODY CONTROL MODULE)

< SERVICE INFORMATION >

BCM diagnostic test item	Check item, diagnostic test mode	Content
Inspection by part	WORK SUPPORT	Changes setting of each function.
	SELF-DIAG RESULTS	BCM performs self-diagnosis of CAN communication.
	DATA MONITOR	Displays the input data of BCM in real time.
	ACTIVE TEST	Gives a drive signal to a load to check the operation.
	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
	ECU PART NUMBER	BCM part number can be read.

ITEMS OF EACH PART

NOTE:

CONSULT-III displays systems equipped in the vehicle.

×: Applicable

System and item	CONSULT-III display	Diagnostic test mode (Inspection by part)						
		WORK SUPPORT	SELF-DIAG RESULTS	DATA MONITOR	CAN DIAG SUPPORT MNTR	ACTIVE TEST	ECU PART NUMBER	CONFIGURATION
BCM	BCM	×	×		×		×	× NOTE
Power door lock system	DOOR LOCK	×		×		×		
Rear window defogger	REAR DEFOGGER			×		×		
Warning chime	BUZZER			×		×		
Room lamp timer	INT LAMP	×		×		×		
Remotecontrol entry system	MULTI REMOTE ENT	×		×		×		
Headlamp	HEAD LAMP	×		×		×		
Wiper	WIPER	×		×		×		
Turn signal lamp Hazard lamp	FLASHER			×		×		
Blower fan switch signal A/C switch signal	AIR CONDITONER			×				
Combination switch	COMB SW			×				
NVIS	IMMU			×		×		
Interior lamp battery saver	BATTERY SAVER	×		×		×		
Trunk lid	TRUNK			×		×		
Vehicle security system	THEFT ALM	×		×		×		
Retained power control	RETAINED PWR	×		×		×		
Oil pressure switch	SIGNAL BUFFER			× NOTE		×		
Low tire pressure warning system	AIR PRESSURE MONITOR	×	×	×		×		
Panic alarm system	PANIC ALARM					×		

NOTE:

This item is displayed, but should not be used.

WORK SUPPORT

Display Item List

Item	Description
RESET SETTING VALUE	Return a value set with WORK SUPPORT of each system to a default value in factory shipment.

BCM (BODY CONTROL MODULE)

< SERVICE INFORMATION >

U1000 CAN Communication Circuit

INFOID:000000004656025

1. PERFORM SELF DIAGNOSTIC

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

Is "CAN COMM CIRCUIT" displayed?

- YES >> Refer to [LAN-13, "Trouble Diagnosis Flow Chart"](#).
- NO >> Refer to [GI-24, "How to Perform Efficient Diagnosis for an Electrical Incident"](#).

Removal and Installation of BCM

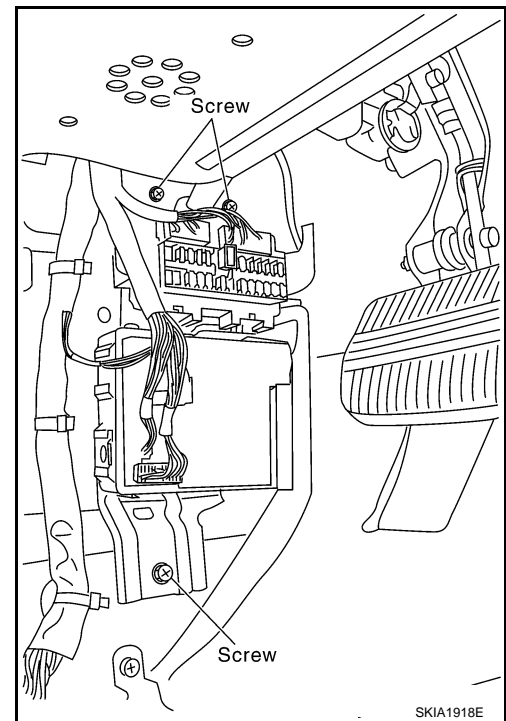
INFOID:000000004656026

CAUTION:

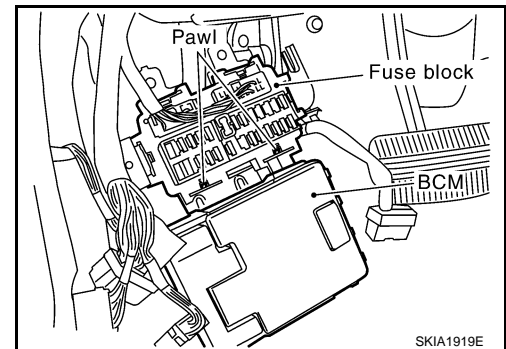
Use the specified bolts described in parts information certainly when installing the BCM, or violates the Canadian law.

REMOVAL

1. Remove the dash side finisher (LH). Refer to [EI-30](#).
2. Disconnect BCM connector.
3. Remove bracket mounting screws to remove BCM and fuse block with bracket.



4. Raise the pawl of fuse block and remove bracket from fuse block to remove BCM.



INSTALLATION

Installation is the reverse order of removal.

NOTE:

When replacing BCM perform initialization of NATS system and registration of all NATS ignition key IDs.

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

BCS