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CONTENTS

PRECAUTIONS	. 2
Precautions for Supplemental Restraint System	
(SRS) "AIR BAG" and "SEAT BELT PRE-TEN-	
SIONER"	. 2
Precautions for Battery Service	. 2
BCM (BODY CONTROL MODULE)	. 3
System Description	. 3
BCM FUNCTION	. 3
COMBINATION SWITCH READING FUNCTION	. 3
CAN COMMUNICATION CONTROL	. 5
BCM STATUS CONTROL	. 5
SYSTEMS CONTROLLED BY BCM DIRECTLY	. 6
SYSTEMS CONTROLLED BY BCM AND IPDM	
E/R	. 6
MAJOR COMPONENTS AND CONTROL SYS-	
	_

CAN Communication System Description CAN Communication Unit	
TYPE 11	
TYPE 21	2
Schematic1	4
CONSULT-II 1	6
CONSULT-II INSPECTION PROCEDURE 1	6
ITEMS OF EACH PART1	7
CAN Communication Inspection Using CONSULT-	
II (Self-Diagnosis)1	7
Inspection of BCM Power Supply and Ground Cir-	
cuit1	9
Removal and Installation of BCM2	0
REMOVAL2	0
INSTALLATION2	0

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PRECAUTIONS

PRECAUTIONS PFP:00001

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

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

AKS003RG

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.

BCM (BODY CONTROL MODULE)

PFP:284B2

System Description

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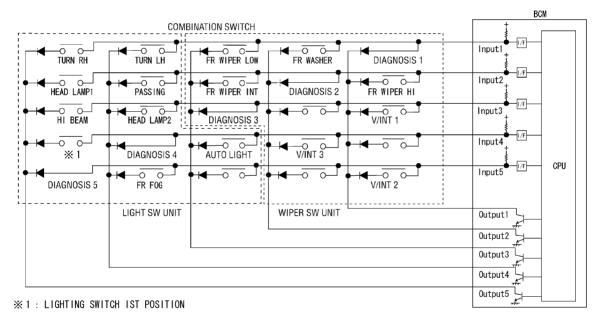
BCM (Body Control Module) controls the operation of various electrical units installed on the vehicle.

BCM FUNCTION

BCM has a combination switch reading function for reading the operation of combination switches (light, wiper washer, turn signal) in addition to the function for controlling the operation of various electrical components. Also, it functions as an interface that receives signals from the display and A/C auto amplifier, and sends signals to ECM using CAN communication.

COMBINATION SWITCH READING FUNCTION

- 1. Description
 - BCM reads combination switch (light, wiper washer, turn signal) status, and controls various electrical components according to the results.
 - BCM reads information of 20 switches and 5 diagnostic results by combining five output terminals (OUTPUT 1 - 5) and five input terminals (INPUT 1 - 5).
- Operation description
 - BCM outputs battery voltage from input terminals (INPUT 1 5) all the time. At the same time output terminals (OUTPUT 1 5) activate transistors in turn, and allow current to flow. At this time, if any (1 or more) of the switches are ON, the input terminals corresponding to these switches detect current flow, and the interface of BCM detects the condition. Then BCM judges switches are ON.



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Revision; 2004 April BCS-3 2003 G35 Coupe

- BCM Operation table of combination switches
 - BCM reads operation status of combination switches by the combination shown in the table.

		MB SW UT 1		B SW UT 2		B SW UT 3	COMB SW INPUT 4		COMB SW INPUT 5	
	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
COMB SW OUTPUT 1	DIAGNOSIS 1 OK	DIAGNOSIS 1 NG	FR Wiper Hi on	FR WIPER HI OFF	V/INT 1 ON	V/INT 1 OFF	_	_	V/INT 2 ON	V/INT 2 OFF
COMB SW OUTPUT 2	FR WASHER ON	FR WASHER OFF	DIAGNOSIS 2 OK	DIAGNOSIS 2 NG	_	_	V/INT 3 ON	V/INT 3 OFF	I	1
COMB SW OUTPUT 3	FR WIPER LOW ON	FR WIPER LOW OFF	FR WIPER INT ON	FR WIPER INT OFF	DIAGNOSIS 3 OK	DIAGNOSIS 3 NG	AUTO LIGHT ON	AUTO LIGHT OFF	ı	_
COMB SW OUTPUT 4	TURN LH ON	TURN LH OFF	PASSING ON	PASSING OFF	HEAD LAMP 2 ON	HEAD LAMP 2 OFF	DIAGNOSIS 4 OK	DIAGNOSIS 4 NG	FR FOG ON	FR FOG OFF
COMB SW OUTPUT 5	TURN RH ON	TURN RH OFF	HEAD LAMP ON	HEAD LAMP OFF	HI BEAM ON	HI BEAM OFF	LIGHTING SWITCH 1ST POSITION ON	LIGHTING SWITCH 1ST POSITION OFF	DIAGNOSIS 5 OK	DIAGNOSIS 5 NG

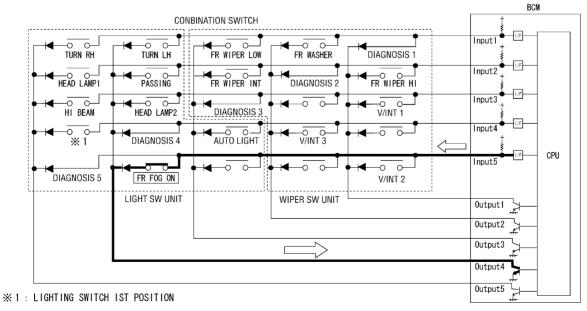
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NOTE:

Dual switches are set for head lamps.

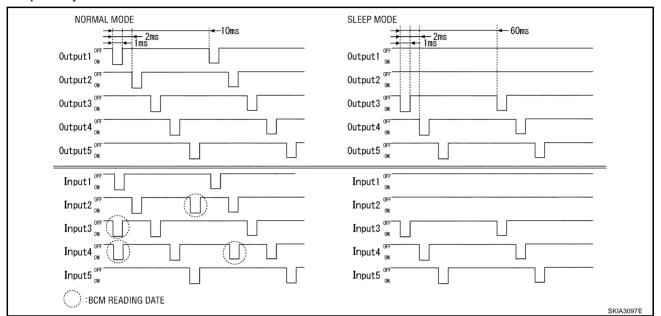
- Example (When fog lamp switch is turned ON)
 - When fog lamp switch is turned ON, contact in combination switch turns ON. At this time if OUTPUT 4
 transistor is activated, BCM detects current flow in INPUT 5.
 - When OUTPUT 4 transistor is ON, BCM detects current flow in INPUT 5, and judges fog lamp switch is ON. Then BCM sends fog lamp ON signal to IPDM E/R using CAN communication.
 - When OUTPUT 4 transistor is activated again, BCM detects current flow in INPUT 5, and confirms fog lamp switch is continuously ON.



NOTE:

Each OUTPUT terminal transistor is activated at 10 ms intervals. Therefore, after a switch is turned ON, the electrical loads are activated with a time delay, but this time delay is so short that it cannot be noticed.

- Operation mode
 - Combination switch reading function has operation modes shown below.
- a. Normal mode
 - When BCM is not in sleep mode, each OUTPUT (1 5) terminal turns ON-OFF at 10 ms intervals.
- b. Sleep mode
 - When BCM is in sleep mode, transistors of OUTPUT 1 and 2 stop the output, and BCM enters low-current-consumption mode. OUTPUTS (3 - 5) turn ON-OFF at 60 ms intervals, and receive lighting switch input only.



CAN COMMUNICATION CONTROL

CAN communication is capable of dealing with a lot of information through the two communication lines (CAN L-line, CAN H-line) connecting control units in the system. Also each control unit functions to transmit and receive data, and reads necessary information only.

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 status
 - This is the status to stop 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 with another control unit stops, it switches to CAN communication inactive status.
- CAN communication inactive status
 - With ignition switch OFF, CAN communication is not active.
 - With ignition switch OFF, control performed only by BCM is active.
 - Two seconds after CAN communication with another control unit stops, it switches to CAN communication inactive status.

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4. Sleep status

- BCM is activated with low-current-consumption mode.
- CAN communication is not active.
- When CAN communication operation is detected, it switches to CAN communication status.
- When control performed only by BCM is required by switch, it shifts to CAN communication inactive mode.
- It changes combination switch reading function.

SYSTEMS CONTROLLED BY BCM DIRECTLY

- Power door lock system. Refer to BL-20, "POWER DOOR LOCK SYSTEM".
- Remote keyless entry system. Refer to. <u>BL-49</u>, "<u>REMOTE KEYLESS ENTRY SYSTEM</u>".
- Power window system. Refer to <u>GW-17</u>, "POWER WINDOW SYSTEM".
- Sunroof system. Refer to <u>RF-10, "SUNROOF"</u> . NOTE
- Power seat. Refer to SE-13, "POWER SEAT" . NOTE
- Room lamp timer. Refer to LT-170, "INTERIOR ROOM LAMP".
- Warning chime. Refer to <u>DI-43</u>, "WARNING CHIME"
- Turn signal and hazard warning lamps Refer to <u>LT-102</u>, "<u>TURN SIGNAL AND HAZARD WARNING LAMPS</u>"

NOTE:

Power supply only. No system control.

SYSTEMS CONTROLLED BY BCM AND IPDM E/R

- Panic alarm. Refer to BL-49, "REMOTE KEYLESS ENTRY SYSTEM"
- Theft warning system. Refer to BL-93, "VEHICLE SECURITY (THEFT WARNING) SYSTEM"
- IVIS (NATS). Refer to BL-122, "IVIS (INFINITI VEHICLE IMMOBILIZER SYSTEM-NATS)"
- Headlamp, tail lamp, fog lamp, auto light system. Battery saver control
- Wiper. Refer to <u>WW-4</u>, "FRONT WIPER AND WASHER SYSTEM"
- Front washer. Refer to WW-4, "FRONT WIPER AND WASHER SYSTEM"
- Rear window defogger. Refer to <u>GW-62</u>, "<u>REAR WINDOW DEFOGGER</u>"

System	Input	Output		
· · · · · · · · · · · · · · · · · · ·		All-door locking actuator		
Remote keyless entry system	keyfob	Trunk lid opener actuator		
		Turn signal lamp (LH, RH)		
Power door lock system	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, sunroof	Ignition power supply	Power supply to power window and sun- roof system		
Power supply (BAT) to power window, sunroof and power seat	Battery power supply	Power supply to power window, sunroof system and power seat		
Panic alarm	Key switch Keyfob	IPDM E/R		
	All-door switch			
Theft warning system	 Hood switch Keyfob Power window main switch (door lock and unlock switch) Trunk room lamp switch Trunk lid opener actuator 	IPDM E/RSecurity indicator lamp		
Auto light system	Optical sensor Combination switch	IPDM E/R		
Battery saver control	Ignition switch Combination switch	IPDM E/R		
Headlamp	Combination switch	IPDM E/R		
āil lamp	Combination switch	IPDM E/R		
og lamp	Combination switch	IPDM E/R		
Гurn signal lamp	Combination switch	Turn signal lamp Combination meter		
Hazard lamp	Hazard switch	Turn signal lamp Combination meter		
Room lamp timer	 Key switch keyfob Power window main switch (door lock and unlock switch) Driver side door switch All-door switch 	Interior room lamp		
Key warning chime	Key switch Driver side door switch	Combination meter (warning buzzer)		
ight warning chime	Combination switchKey switchDriver side door switch	Combination meter (warning buzzer)		
Seat belt warning chime	Combination meter (Seat belt buckle (driver side) switch)	Combination meter (warning buzzer)		
Vehicle-speed-sensing intermittent wiper	Combination switchCombination meter	IPDM E/R		
Rear window defogger	Rear window defogger switch	IPDM E/R		

BCS-7 Revision; 2004 April 2003 G35 Coupe

System	Input	Output
Air conditioner switch signal	Display and A/C auto amplifier	ECM
Blower fan switch signal	Display and A/C auto amplifier	ECM

CAN Communication System Description

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CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data 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

AKS005PM

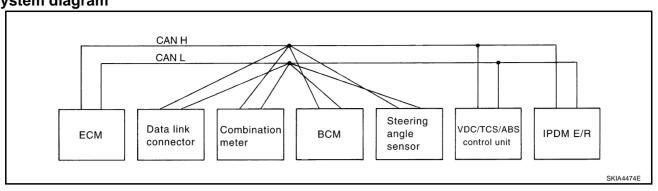
Body type	Co	Coupe				
Axle	2	2WD				
Engine	VQ	35DE				
Transmission	M/T	A/T				
Brake control	V	/DC				
	CAN communication unit					
ECM	×	×				
TCM		×				
Data link connector	×	×				
Combination meter	×	×				
BCM	×	×				
Steering angle sensor	×	×				
VDC/TCS/ABS control unit	×	×				
IPDM E/R	×	×				
CAN communication type	BCS-10, "TYPE 1"	BCS-12, "TYPE 2"				

x: Applicable

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TYPE 1 System diagram



Input/output signal chart

T: Transmit R: Receive

					I: Iransm	it R: Receive
Signals	ECM	Combina- tion meter	ВСМ	Steering angle sensor	VDC/TCS/ ABS con- trol unit	IPDM E/R
Engine speed signal	Т	R			R	
Engine coolant temperature signal	Т	R				
Accelerator pedal position signal	Т				R	
Fuel consumption monitor signal	Т	R				
Air conditioner switch signal	R		Т			
A/C compressor request signal	Т					R
A/C compressor feedback signal	Т	R				
Blower fan motor switch signal	R		Т			
Cooling fan motor operation signal	Т					R
Position lights request signal		R	Т			R
Low beam request signal			Т			R
Low beam status signal	R		R			Т
High beam request signal		R	Т			R
High beam status signal	R		R			Т
Front fog lights request signal			Т			R
Vehicle and signal		R			Т	
Vehicle speed signal	R	Т	R			
Sleep request 1 signal		R	Т			
Sleep request 2 signal			Т			R
Wake up request 1 signal		R	Т			
Wake up request 2 signal		R	Т			
Door switch signal (without navigation system)		R	Т			R
Door switch signal (with navigation system)		Т	R			
Turn indicator signal		R	Т			
Seat belt buckle switch signal		Т	R			
Oil pressure switch signal		R				Т
Buzzer output signal		R	T			
Trunk switch signal		R	T			
Malfunction indicator lamp signal	Т	R				
ASCD SET lamp signal	Т	R				
ASCD CRUISE lamp signal	Т	R				

Signals	ECM	Combina- tion meter	всм	Steering angle sen- sor	VDC/TCS/ ABS con- trol unit	IPDM E/R
Fuel level sensor signal	R	T				
Front wiper request signal			Т			R
Front wiper stop position signal			R			Т
Rear window defogger switch signal			Т			R
Rear window defogger control signal	R		R			Т
Hood switch signal			R			Т
Theft warning horn request signal			Т			R
Horn chirp signal			Т			R
Steering angle sensor signal				Т	R	

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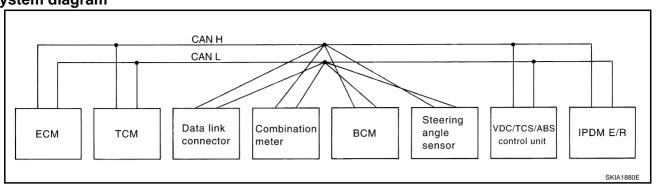
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TYPE 2 System diagram



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	ТСМ	Combina- tion meter	ВСМ	Steering angle sensor	VDC/TCS/ ABS con- trol unit	IPDM E/R
Engine speed signal	T	R	R			R	
Engine coolant temperature signal	Т	R	R				
Accelerator pedal position signal	Т	R				R	
Closed throttle position signal	Т	R					
Wide open throttle position signal	Т	R					
Battery voltage signal	Т	R					
Stop lamp switch		R	Т				
Fuel consumption monitor signal	Т		R				
A/T self-diagnosis signal	R	Т					
A/T CHECK indicator lamp signal		Т	R				
A/T position indicator signal		Т	R			R	
ABS operation signal		R				Т	
A/T shift schedule change demand signal		R				Т	
Air conditioner switch signal	R			Т			
A/C compressor request signal	Т						R
A/C compressor feedback signal	Т		R				
Blower fan motor switch signal	R			Т			
Cooling fan motor operation signal	Т						R
Position lights request signal			R	Т			R
Low beam request signal				Т			R
Low beam status signal	R			R			Т
High beam request signal			R	Т			R
High beam status signal	R			R			Т
Front fog lights request signal				Т			R
Vahiala angod aigs -!			R			Т	
Vehicle speed signal	R	R	Т	R			
Sleep request 1 signal			R	Т			
Sleep request 2 signal				Т			R
Wake up request 1 signal			R	Т			
Wake up request 2 signal			R	Т			

Signals	ECM	TCM	Combina- tion meter	ВСМ	Steering angle sensor	VDC/TCS/ ABS con- trol unit	IPDM E/R
Door switch signal (without navigation system)			R	Т			R
Door switch signal (with navigation system)			Т	R			
Turn indicator signal			R	Т			
Seat belt buckle switch signal			Т	R			
Oil pressure switch signal			R				Т
Buzzer output signal			R	Т			
Trunk switch signal			R	Т			
Malfunction indicator lamp signal	Т		R				
ASCD SET lamp signal	Т		R				
ASCD CRUISE lamp signal	Т		R				
Fuel level sensor signal	R		Т				
Output shaft revolution signal	R	Т					
Turbine revolution signal	R	Т					
Front wiper request signal				Т			R
Front wiper stop position signal				R			Т
Rear window defogger switch signal				Т			R
Rear window defogger control signal	R			R			Т
Manual mode signal		R	Т				
Not manual mode signal		R	Т				
Manual mode shift up signal		R	Т				
Manual mode shift down signal		R	Т				
Manual mode indicator signal		Т	R				
Hood switch signal				R			Т
Theft warning horn request signal				Т			R
Horn chirp signal				Т			R
Steering angle sensor signal					Т	R	

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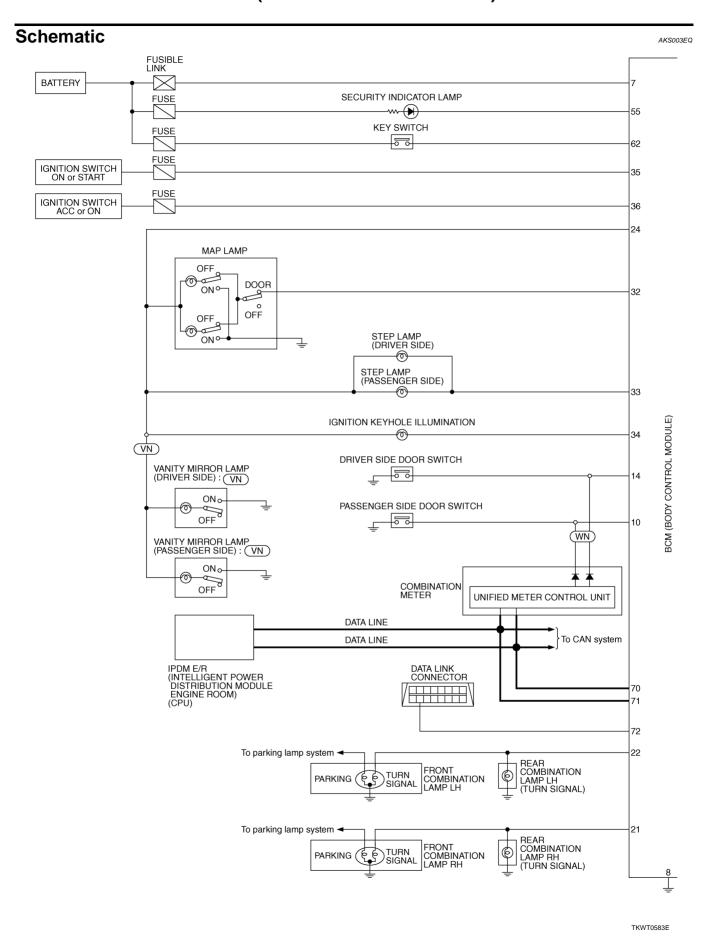
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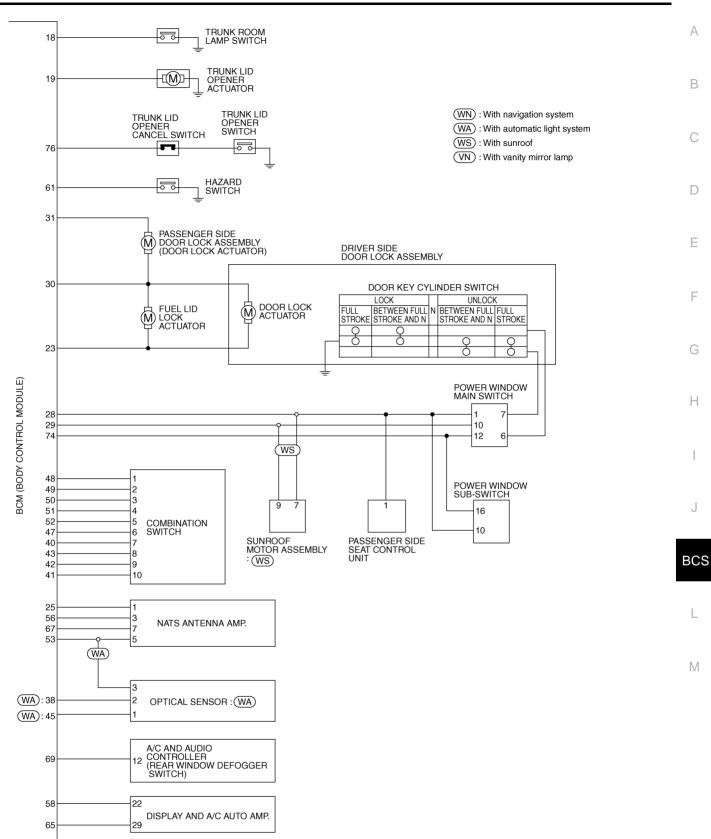
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BCS-15 2003 G35 Coupe Revision; 2004 April

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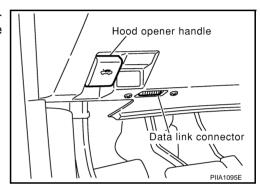
CONSULT-II

CONSULT-II can display each diagnostic item using the following diagnostic test modes: work support, self-diagnostic results, data monitor and active test through data reception and command transmission via the BCM communication line.

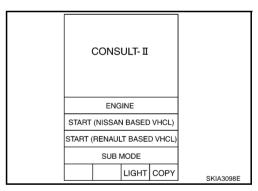
BCM diagnostic test item	Check item, diagnostic test mode	Content
	WORK SUPPORT	Changes setting of each function.
	SELF-DIAGNOSIS RESULTS	BCM performs self-diagnosis of CAN communication and combination switch.
Inspection by part	DATA MONITOR	Displays the input data of BCM in real time.
	CAN DIAG SUPPORT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

CONSULT-II INSPECTION PROCEDURE

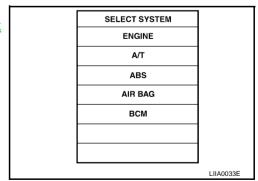
 With the ignition switch OFF, connect CONSULT-II and CON-SULT-II CONVERTER to the data link connector, then turn the ignition switch ON.



2. Touch "START (NISSAN BASED VHCL)".



 Touch "BCM" on "SELECT SYSTEM" screen.
 If "BCM" is not indicated, go to GI-39, "CONSULT-II Data Link Connector (DLC) Circuit".



4. Select item to be diagnosed on "SELECT TEST ITEM" screen.

	_
SELECT TEST ITEM	
COMB SW	
WIPER	
BCM C/U	
FLASHER	
SIGNAL BUFFER	
TRUNK	
	7
	LKIA0099E
	COMB SW WIPER BCM C/U FLASHER SIGNAL BUFFER

ITEMS OF EACH PART

×:Applicable

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						x.Applicable
System and item	CONSULT-II display	Diagnostic test mode (Inspection by part)				
		WORK SUPPORT	SELF-DIAG RESULTS	DATA MONITOR	CAN DIAG SUPPORT MNTR	ACTIVE TEST
Power door lock system	DOOR LOCK	×		×		×
Rear window defogger	REAR DEFOGGER			×		×
Key warning chime	KEY WARN ALM			×		×
Light warning chime	LIGHT WARN ALM			×		×
Seat belt warning chime	SEAT BELT ALM			×		×
Room lamp timer	INT LAMP	×		×		×
Interior lamp battery saver	BATTERY SAVER	×		×		×
Vehicle security system	THEFT ALM	×		×		×
Retained power control	RETAINED PWR	×		×		×
Remote keyless entry system	MULTI REMOTE ENT	×		×		×
Headlamp	HEAD LAMP	×		×		
Combination switch	COMB SW			×		
Wiper	WIPER			×		×
BCM	BCM C/U		×	×	×	
Turn signal lamp Hazard lamp	FLASHER			×		×
IVIS	IMMU			×		×
Air conditioner switch signal Blower fan switch signal	SIGNAL BUFFER			×		•
Trunk lid	TRUNK					×

CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)

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1. SELF-DIAGNOSTIC RESULT CHECK

- 1. Connect to CONSULT-II, and select "BCM" on "SELECT SYSTEM" screen.
- 2. Select "BCM control unit" on "SELECT WORK ITEM" screen, and select "SELF-DIAG RESULTS".
- 3. Check display content in self-diagnostic results.

CONSULT-II display code	Diagnosis item		
	INITIAL DIAG		
	TRANSMIT DIAG		
U1000	ECM		
	IPDM E/R		
	METER M&A		

Revision; 2004 April BCS-17 2003 G35 Coupe

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Contents displayed

No malfunction>>Inspection End
Malfunction in CAN communication system>>After printing the monitor items, go to "CAN System". Refer to
LAN-4, "CAN COMMUNICATION".

Inspection of BCM Power Supply and Ground Circuit

1. FUSE AND FUSIBLE LINK INSPECTION

Check if any of the following BCM fuses and fusible links are blown.

Terminal No.	Signal name	Fuse No., fusible link No.
7	Battery	F
35	Ignition switch ON or START	1
36	Ignition switch ACC or ON	6

Refer to LT wiring diagram LT-H/LAMP-01, LT-14.

OK or NG

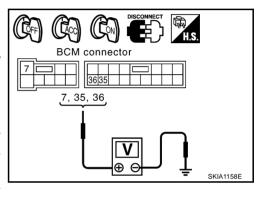
OK >> GO TO 2.

NG >> Replace fuse or fusible link.

2. POWER SUPPLY CIRCUIT INSPECTION

Disconnect BCM connector. To measure voltage, connect following connector terminals to positive probe and body ground to negative one.

Terminals						
(+)			Power source	Ignition	Reference	
Connector	Terminal (wire color)	(–)		switch	voltage (V)	
E105	7(W/R)		Battery power	OFF	Approx. 12	
M1	35 (W/L)	Ground	Ignition power supply	ON	Approx. 12	
	36 (LG)		ACC power supply	ACC	Approx. 12	



Refer to LT wiring diagram LT-H/LAMP-01, <u>LT-14</u>.

OK or NG

OK >> GO TO 3.

NG >> Replace BCM power supply circuit harness.

3. GROUND CIRCUIT INSPECTION

Check continuity between the following connector of BCM and body ground.

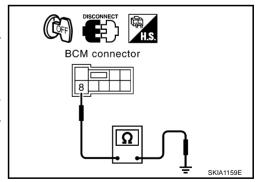
(+)			Continuity
Connector	Terminal (wire color)	(-)	
E105	8 (B)	Ground	YES

Refer to LT wiring diagram LT-H/LAMP-01, <u>LT-14</u>.

OK or NG

OK >> Normal

NG >> Replace BCM ground circuit harness.



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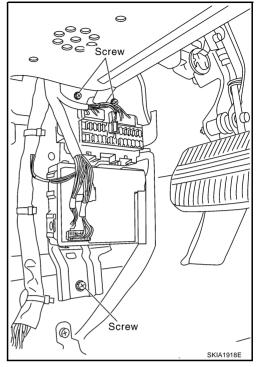
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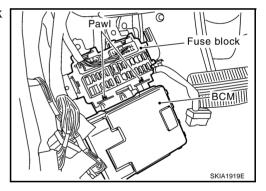
Removal and Installation of BCM REMOVAL

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- 1. Remove the dash side finisher (LH). Refer to EI-32, "BODY SIDE TRIM" in "EI Exterior/Interior."
- Disconnect BCM connector.
- 3. Remove bracket mounting screws (3) 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

Install in the reverse order of removal.

NOTE:

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