SECTION WIPER, WASHER & HORN

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APPLICATION NOTICE

APPLICATION NOTICE

How to Check Vehicle Type

Check the vehicle identification number (chassis number).

Identification number (chassis number)	Service information
For serial	
 JN1AZ34D300001 – JN1AZ34D330000 	
 JN1AZ34E350001 – JN1AZ34E380000 	Туре 1
 JN1AZ36D400001 – JN1AZ36D430000 	
 JN1AZ36A450001 – JN1AZ36A480000 	
From serial	
• JN1AZ34D330001 -	
• JN1AZ34E380001 -	Туре 2
• JN1AZ36D430001 -	
• JN1AZ36A480001 -	

PFP:00000

PRECAUTION

PRECAUTION

[TYPE 1] PFP:00011

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

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.

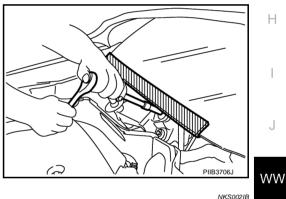
Precautions for Procedures without Cowl Top Cover

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc.

Precautions for Battery Service

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.

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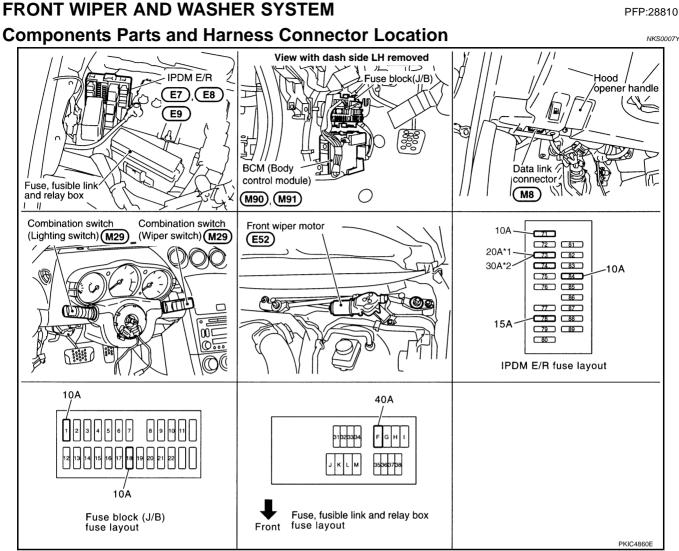
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NKS002KU

[TYPE 1]



^{*1}: For USA ^{*2} : For Canada

System Description

NKS0007Z

- All front wiper relays (HI, LO) are included in IPDM E/R (intelligent power distribution module engine room).
- Wiper switch (combination switch) is composed of a combination of 5 output terminals and 5 input terminals. Terminal combination status is read by BCM (body control module) when switch is turned ON.
- BCM controls front wiper LO, HI, and INT (intermittent) operation.
- IPDM E/R operates wiper motor according to CAN communication signals from BCM.

OUT LINE

Power is supplied at all times

- to ignition relay, located in IPDM E/R, from battery direct,
- through 40 A fusible link [letter F, located in fuse, fusible link and relay box]
- to BCM terminal 55,
- through 10 A fuse [No.18 located in fuse block (J/B)]
- to BCM terminal 42,
- through 20 A fuse [No.73 located in IPDM E/R] (For USA)
- through 30 A fuse [No.73 located in IPDM E/R] (For Canada)
- to front wiper relay, located in IPDM E/R,
- through 15 A fuse [No.78 located in IPDM E/R]
- to CPU (central processing unit) located in IPDM E/R,

WW-6

[TYPE	Ξ1]
through 10 A fuse [No.71 located in IPDM E/R]	
• to CPU located in IPDM E/R.	А
When ignition switch is in ON or START position, power is supplied	
 to ignition relay, located in IPDM E/R, 	
 through 10 A fuse [No.1 located in fuse block (J/B)] 	В
• to BCM terminal 38,	
 through ignition relay, located in IPDM E/R 	С
 to front wiper relay, located in IPDM E/R 	0
 to front wiper high relay, located in IPDM E/R 	
 to CPU located in IPDM E/R, 	D
 through 10 A fuse [No.84 located in IPDM E/R] 	
through IPDM E/R terminal 44	
• to front washer pump terminal 2.	E
Ground is supplied	
to BCM terminal 52	_
 through grounds M30 and M66, 	F
 to IPDM E/R terminals 38 and 60 	
 through grounds E17, E43 and F152, 	G
 to combination switch terminal 12 	
 through grounds M30 and M66. 	
LOW SPEED WIPER OPERATION	Н
When the front wiper switch is in low position, BCM detects low speed wiper ON signal by BCM wiper sw	vitch
reading function.	
BCM sends front wiper request signal (LOW) with CAN communication line	I
• from BCM terminals 39 and 40	
• to IPDM E/R terminals 48 and 49.	, the J
When the IPDM E/R receives front wiper request signal (LOW), it turns ON front wiper relay, located in IPDM E/R, power is supplied	
 to front wiper motor terminal 3 	WW
 through IPDM E/R terminal 21 and front wiper high relay and front wiper relay. 	~ ~ ~ ~
Ground is supplied	
to front wiper motor terminal 4	L
 through grounds E17, E43 and F152. 	
With power and ground is supplied, front wiper motor operates at low speed.	
HIGH SPEED WIPER OPERATION	M
When the front wiper switch is in high position, BCM detects high speed wiper ON signal by BCM wiper sw reading function.	vitch
BCM sends front wiper request signal (HI) with CAN communication line	
 from BCM terminals 39 and 40 	
 to IPDM E/R terminals 48 and 49. 	
When the IPDM E/R receives front wiper request signal (HI), it turns ON front wiper relay, located in IPDI R, power is supplied	M E/
to front wiper motor terminal 2	
 through IPDM E/R terminal 31 and front wiper high relay and front wiper relay. 	
Ground is supplied	
to front wiper motor terminal 4	
 through grounds E17, E43 and F152. 	

With power and ground is supplied, front wiper motor operates at high speed.

WW-7

INTERMITTENT OPERATION

Front wiper intermittent operation delay interval is determined from a combination of 3 switches (intermittent operation dial position 1, 2, and 3) and vehicle speed signal.

After each intermittent operation delay interval, BCM sends front wiper request signal to IPDM E/R.

Wiper Dial Position Setting

	Intermittent operation			
Wiper dial position	interval	Intermittent operation dial position 1	Intermittent operation dial position 2	Intermittent operation dial position 3
1	Short	ON	ON	ON
2		ON	ON	OFF
3	\uparrow	ON	OFF	OFF
4		OFF	OFF	OFF
5		OFF	OFF	ON
6		OFF	ON	ON
7	Long	OFF	ON	OFF

Example: For wiper dial position 1

Using combination switch reading function, BCM detects ON/OFF status of intermittent operation dial positions 1, 2, and 3.

When combination switch status is as listed below, BCM determines that it is wiper dial position 1.

- Intermittent operation dial position 1: ON (Continuity exists between combination switch output 3 and input 1.)
- Intermittent operation dial position 2: ON (Continuity exists between combination switch output 5 and input 1.)
- Intermittent operation dial position 3: ON (Continuity exists between combination switch output 4 and input 2.)

BCM determines front wiper intermittent operation delay interval from wiper dial position 1 and vehicle speed, and sends wiper request signal (INT) to IPDM E/R.

AUTO STOP OPERATION

With wiper switch turned OFF, wiper motor will continue to operate until wiper arms reach windshield base. When the wiper arms are not located at base of windshield with wiper switch OFF, ground is provided

- from IPDM E/R terminal 21
- to front wiper motor terminal 3, in order to continue wiper motor operation at low speed

When the wiper arms reach base of windshield, front wiper motor terminals 1 and 4 are connected, and ground is supplied

- to IPDM E/R terminal 32
- through front wiper motor terminals 1 and 4
- through grounds E17, E43 and F152.

Then the IPDM E/R sends auto stop operation signal to BCM with CAN communication. When the BCM receives auto-stop operation signal, BCM sends wiper stop signal to IPDM E/R with CAN communication line. IPDM E/R stops wiper motor. Wiper motor will then stop wiper arms at the STOP position.

WASHER OPERATION

When the wiper switch is in front wiper washer position, BCM detect front wiper washer signal by BCM wiper switch reading function (Refer to <u>WW-9</u>, <u>"COMBINATION SWITCH READING FUNCTION"</u>). Combination switch ground is supplied

- to front washer pump terminal 1
- through combination switch terminal 11
- to combination switch terminal 12
- through grounds M30 and M66.

With ground is supplied, front washer pump is operated.



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When the BCM detects that front washer pump has operated for 0.4 seconds or longer, BCM operates front wiper motor for low speed. When the BCM detects washer switch is OFF, low speed operation cycles approximately 2 times and stops.

MIST OPERATION

When the wiper switch is turned to the mist position, wiper low speed operation cycles once and then stops. For additional information about wiper operation under this condition, refer to <u>WW-7</u>, <u>"LOW SPEED WIPER</u> <u>OPERATION"</u>.

If switch is held in mist position, low speed operation continues.

FAIL-SAFE FUNCTION

If an abnormality occurs in CAN communications, IPDM E/R holds the condition just before fail-safe status is initiated until ignition switch is turned off. (If wipers were operating in LO just before the initiation of fail-safe status, they continue to operate in LO until ignition switch is turned OFF)

COMBINATION SWITCH READING FUNCTION

Description

- BCM reads combination switch (wiper) status, and controls related systems such as headlamps and wipers, 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 H (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.

			BCM
	Combination switch		+
		FR WASHER	Output 1
HEADLAMP 1			Output 2
	HEADLAMP 2	RR WASHER INT VOLUME 1	Output 3
• • • • • • • • • • • • • • • • • • •			
	♦ ₩ ₩ ₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩		Output 5 2
		WIPER SW	
			Input 2 Input 3
			Input 4
			Input 5

% 1 : LIGHTING SWITCH 1ST POSITION

PKIC4861E

BCM - Operation Table of Combination Switches

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

		B SW PUT 1		B SW PUT 2				B SW PUT 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	_	Ι	_	
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

Sample Operation: (When Wiper Switch Turned to LOW Position)

- When wiper switch is turned to LOW position, front wiper LOW contact in combination switch turns ON. At this time if OUTPUT 1 transistor is activated, BCM detects that voltage changes in INPUT 3.
- When BCM detects that voltage changes in INPUT 3 while OUTPUT 1 transistor is ON, it judges that front wiper switch is in LOW position. Then BCM sends front wiper request signal (LO) to IPDM E/R using CAN communication.
- If BCM detects that voltage changes in INPUT 3 when OUTPUT 1 transistor is activated again, it recognizes that wiper switch is still in LOW position.

		BCM
Comb	ination switch	+
	FR WIPER LOW FR WASHER	Output 1
HEADLAMP 1 PASSING	FR WIPER INT	Output 2
HI BEAM		Output 3
		Output 5
LIGHTING SW	wiper sw	Input 1
		Input 4 I/F Input 5

% 1 : LIGHTING SWITCH 1ST POSITION

PKIC4862E

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

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

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

Nomal <u>10ms</u> status	Sleep 60ms 4	E
ON Output 1 OFF	ON Output 1 OFF	
ON Output 2 OFF	ON Output 2 OFF	
ON Output 3 OF <u>F</u>	ON Output 3 OF <u>F</u>	(
ON Output 4 OF <u>F</u>	ON Output 4 OFF	ŀ
ON Output 5 OFF	ON Output 5 OF <u>F</u>	
ON Input 1 OFF	ON Input 1 OFF	
	ON Input 2 OFF	4
	ON Input 3 OF <u>F</u>	
ON Input 4 OFF	ON Input 4 OF <u>F</u>	W
ON Input 5 OF <u>F</u>	ON Input 5 OF <u>F</u>	1
: Reading data	PKIC4919E	

CAN Communication System Description

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. Many electronic control units are equipped onto a vehicle, 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

Refer to LAN-48, "CAN System Specification Chart" .

NKS00081

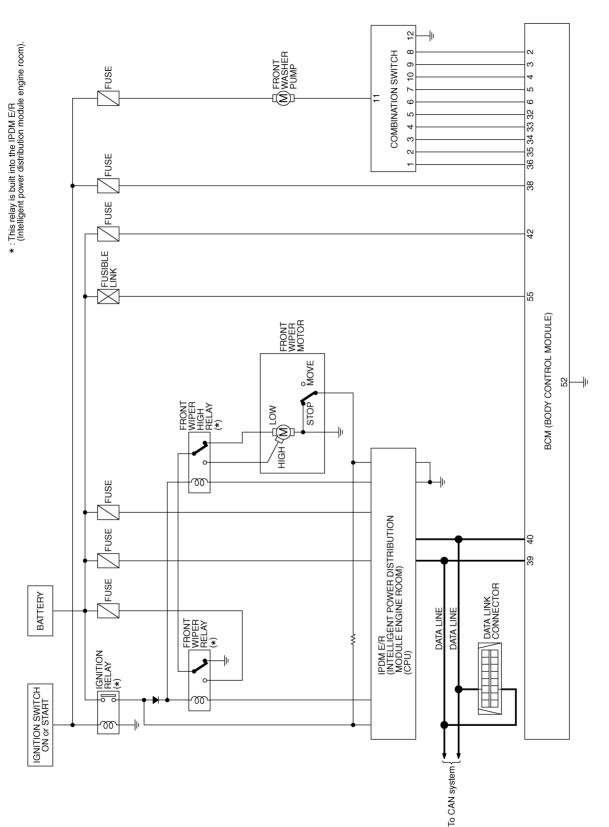
NKS00080

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Schematic

NKS00082



TKWT4003E

[TYPE 1]

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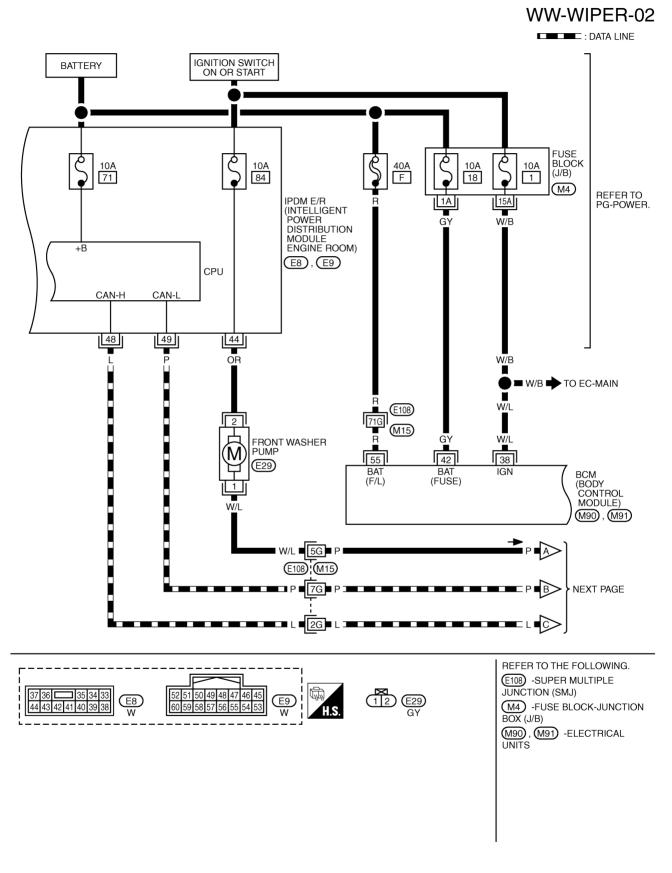
Μ

Wiring Diagram — WIPER — NKS00083 WW-WIPER-01 IGNITION SWITCH ON OR START BATTERY ठे Ò пÒ IGNITION 15A *1 g 73 RELAY 78 IPDM E/R (INTELLIGENT REFER TO PG-POWER. FRONT WIPER HIGH RELAY DISTRIBUTION MODULE FRONT 8 8 WIPER RELAY o C ENGINE ROOM) E7, E8, (E9) F/WIP F/WIP HI RLY RLY +IG +B CPU ≶ WIPER AUTO GND (POWER) GND (SIGNAL) 38 21 31 32 60 L/B LΛ Б В $\boxed{3}$ U: FOR U.S.A. C: FOR CANADA LOW *1 20A : U (MÌ SHIGH FRONT WIPER MOTOR 30A : C STOP MOVE (E52) 4 1 ╧ B ∎B∎ 6 ∎B∎ 1 BI (E12) F3 F103 (F151) В В В В B В E Ē Ē (E17) (E43) (F152) 345 21 GY 37 36 52 51 50 49 48 47 46 45 23 22 21 20 □ 19 18 17 □ 35 34 33 E7 GY E8 W E9 W 32 31 30 29 28 27 26 25 24 44 43 42 41 40 39 38 60 59 58 57 56 55 54 53 1234 F103 W

TKWT4004E

1234 5678

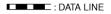
F3 B

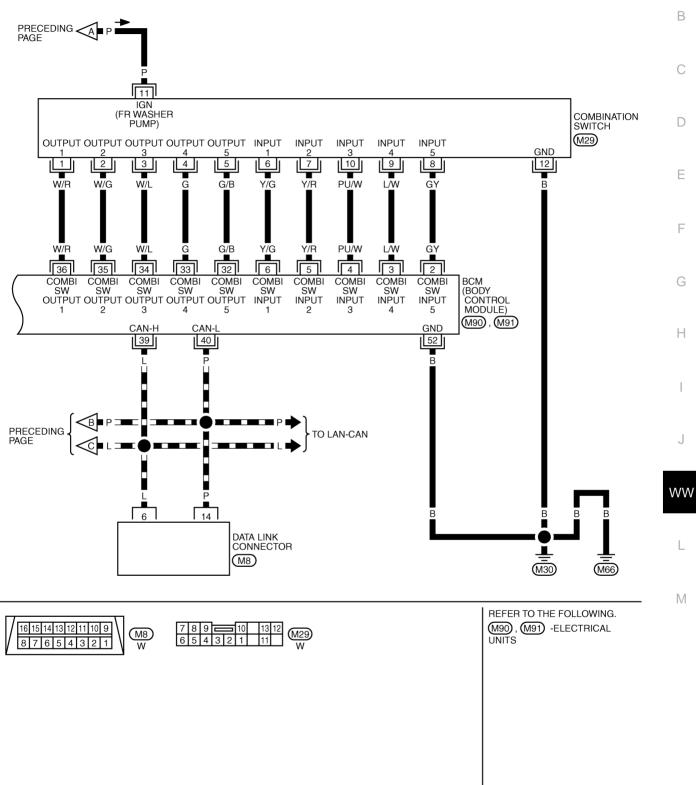


TKWT4005E

[TYPE 1]

WW-WIPER-03 A





TKWT4006E

Terminals and Reference Values for BCM

NKS00084

[TYPE 1]

CAUTION:

- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF not to be fluctuated by overloaded.
- Turn wiper dial position to 4 except when checking waveform or voltage of wiper dial position. Wiper dial position can be confirmed on CONSULT-II. Refer to <u>WW-21</u>, <u>"DATA MONITOR"</u>.

Ter-	Wire			Meas	uring condition		
minal No.	color	Signal name	Ignition switch	Operation or condition		Reference value	
4	PU/W	Combination switch input 3	ON	Lighting, turn, wiper switch (Wiper intermit- tent dial position 4)	OFF Any of the conditions below • Front wiper switch MIST • Front wiper switch INT • Front wiper switch LO	Approx. 0 V	
5	Y/R	Combination switch input 2	ON	Lighting, turn, wiper switch	OFF (Wiper intermittent dial position 4) Any of the conditions below • Front washer switch • Wiper intermittent dial position 1 • Wiper intermittent dial position 5 • Wiper intermittent dial position 6	Approx. 0 V	

[TYPE 1]

Ter-	Wire			Meas	suring condition		٨		
minal No.	color	Signal name	Ignition switch	(Operation or condition	Reference value	A		
					OFF (Wiper intermittent dial position 4)	Approx. 0 V	В		
					Any of the conditions below • Front wiper switch HI • Wiper intermittent dial position 3	(V) 15 10 5 0 +10ms PKIB4959J Approx. 1.0 V	C		
6	Y/G	Combination switch input 1	ON	ON	ON	Lighting, turn, wiper switch	Any of the conditions below • Wiper intermittent dial position 1 • Wiper intermittent dial position 2	(V) 15 10 5 0 +++10ms	E F
						PKIB4952J Approx. 1.7 V	G		
						Any of the conditions below • Wiper intermittent dial position 6 • Wiper intermittent dial position 7	(V) 15 10 5 0 ★ + 10ms	H	
						PKIB4955J Approx. 0.8 V	J		
					OFF (Wiper intermittent dial position 4)	5 0 → → 10ms	WW		
32	G/B	Combination	ON	Lighting, turn,		Approx. 7.2 V	р. Л.		
	S	switch output 5	switch output 5		wiper switch	 Any of the conditions below Wiper intermittent dial position 1 Wiper intermittent dial position 2 Wiper intermittent dial position 6 Wiper intermittent dial position 7 	(V) 15 10 5 0 Fridade (V) 15 10 10 10 10 10 10 10 10 10 10	Μ	

[TYPE 1]

Ter-	Wire			Measuring condition															
minal No.	color	Signal name	Ignition switch	Ol	peration or condition	Reference value													
33	G	Combination	ON	Lighting, turn,	OFF (Wiper intermittent dial position 4)	(V) 15 0 0 0 0 0 0 0 0 0 0 0 0 0													
		switch output 4		wiper switch	Any of the conditions below • Wiper intermittent dial position 1 • Wiper intermittent dial position 5 • Wiper intermittent dial position 6	(V) 15 10 5 0 +10ms PKIB4958J Approx. 1.2 V													
34	W/L	Combination switch output 3	ON	Lighting, turn, wiper switch	OFF (Wiper intermittent dial position 4)	(V) 10 50 4 4 10 50 4 4 10 50 4 5 5 5 5 5 5 5 5 5 5 5 5 5													
					 Any of the conditions below Wiper intermittent dial position 1 Wiper intermittent dial position 2 Wiper intermittent dial position 3 	(V) 15 0 + 10ms PKIB4958J Approx. 1.2 V													
35	W/G	Combination	Combination	Combination	Combination	Combination	Combination	Combination	Combination	Combination	Combination	Combination	Combination			Lighting, turn, wiper switch	wiper switch	OFF	(V) 10 5 0 • • • 10ms • • • • 10ms
55	W/G switch output 2 ON (W	(Wiper intermit- tent dial position 4)	Any of the conditions below • Front wiper switch INT • Front wiper switch HI	(V) 15 10 5 0 + 10ms PKIB4958J Approx. 1.2 V															

[TYPE 1]

Ter-	Wire			Measu	uring condition		٨
minal No.	color	Signal name	Ignition switch	Operation or condition		Reference value	A
20		Combination	Lighting, turn, wiper switch	wiper switch	OFF	(V) 15 0 5 0 ••••••••••••••••••••••••••••••	B
36	36 W/R Combination switch output 1	W/P Combination ON (Winor intermit		Any of the conditions below • Front wiper switch MIST • Front wiper switch LO • Front washer switch	(V) 15 10 5 0 + +10ms PKIB4958J Approx. 1.2 V	E	
38	W/L	Ignition switch (ON)	ON		_	Battery voltage	G
39	L	CAN – H	_		_	—	
40	Р	CAN – L	—			_	Н
42	GY	Battery power supply	OFF	_		Battery voltage	I
52	В	Ground	ON	—		Approx. 0 V	1
55	R	Battery power supply	OFF		_	Battery voltage	J

Terminals and Reference Values for IPDM E/R

Measuring condition WW Terminal Wire Signal name Reference value Ignition No. color Operation or condition switch OFF Approx. 0 V L 21 L Low speed signal ON Wiper switch LOW Battery voltage Approx. 0 V OFF L/B 31 High speed signal ON Wiper switch Μ HI Battery voltage Battery voltage Wiper operating 32 L/Y Wiper auto - stop signal ON Approx. 0 V Wiper stopped в Ground ON Approx. 0 V 38 44 OR Washer pump power supply ON Battery voltage 48 L CAN-H _ _ ____ Р CAN-L 49 В Ground ON Approx. 0 V 60 _

How to Proceed With Trouble Diagnosis

- 1. Confirm the symptoms and customer complaint.
- 2. Understand operation description and function description. Refer to <u>WW-6, "System Description"</u>.
- 3. Perform preliminary check. Refer to WW-20, "Preliminary Check" .
- 4. Check symptom and repair or replace the cause of malfunction.
- 5. Does the front wiper and washer operate normally? If YES, GO TO 6. If NO, GO TO 4.

WW-19

2006 350Z

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6. INSPECTION END

Preliminary Check CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES AND FUSIBLE LINK

Check for blown fuses and fusible link.

Unit	Power source	Fuse and fusible link No.
Front washer pump	Ignition switch ON or START	84
Front wiper motor, front wiper relay, front wiper HI relay	Battery	73
	Potton/	F
BCM	Battery	18
	Ignition switch ON or START	1

Refer to <u>WW-13</u>, "Wiring Diagram — WIPER —" .

OK or NG

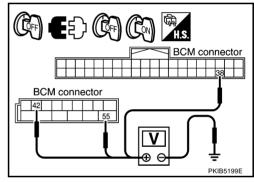
OK >> GO TO 2

NG >> If fuse is blown, be sure to eliminate the cause of malfunction before installing new fuse, Refer to <u>PG-5, "POWER SUPPLY ROUTING CIRCUIT"</u>.

2. CHECK POWER SUPPLY CIRCUIT

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

	Terminal		Ignition switch position		
(+)		(-)	OFF	ON	
Connector	Terminal	(-)	OIT		
M90	38		Approx. 0 V	Battery voltage	
M91	42	Ground	Battery voltage	Battery voltage	
10191	55		Battery voltage	Battery voltage	



OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

3. CHECK GROUND CIRCUIT

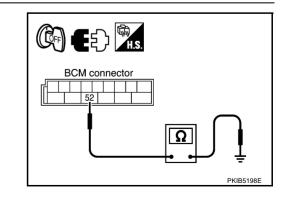
Check continuity between BCM harness connector and ground.

	Continuity			
Connector	Terminal	Ground	Continuity	
M91	52	Giouna	Yes	

OK or NG

OK >> INSPECTION END

NG >> Repair harness or connector.



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[TYPE 1]

CONSULT-II Functions (BCM)

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

BCM diagnosis position	Diagnosis mode	Description	
	WORK SUPPORT	Changes the setting for each function.	В
WIPER	DATA MONITOR	Displays BCM input data in real time.	
	ACTIVE TEST	Device operation can be checked by applying a drive signal to device.	
BCM	SELF-DIAG RESULTS	BCM performs self-diagnosis of CAN communication.	С
BCIM	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.	

CONSULT-II BASIC OPERATION

Refer to GI-36, "CONSULT-II Start Procedure" .

WORK SUPPORT

Operation Procedure

- 1. Touch "WIPER" on "SELECT TEST ITEM" screen.
- 2. Touch "WORK SUPPORT" on "SELECT DIAG MODE" screen.
- 3. Touch "WIPER SPEED SETTING" on "SELECT WORK ITEM" screen.
- 4. Touch "START".
- 5. Touch "CHANGE SETT".
- 6. The setting will be changed and "CUSTOMIZING COMPLETED" will be displayed.
- 7. Touch "END".

Display Item List

Item	Description	CONSULT-II	Factory setting
WIPER SPEED	Vehicle speed sousing type wiper control mode can be changed in this	ON	×
SETTING	mode. Vehicle speed sousing type wiper control mode between two ON/OFF.	OFF	_

DATA MONITOR

Operation Procedure

- 1. Touch "WIPER" on "SELECT TEST ITEM" screen.
- 2. Touch "DATA MONITOR" on "SELECT DIAG MODE" screen.
- 3. Touch either "ALL SIGNALS" or "SELECTION FROM MENU" on "SELECT MONITOR ITEM" screen.

ALL SIGNALS	Monitors all the signals.
SELECTION FROM MENU	Selects items and monitor them.

- 4. When "SELECTION FROM MENU" is selected, touch items to be monitored. When "ALL SIGNALS" is selected, all the items will be monitored.
- 5. Touch "START".
- 6. Touch "RECORD" while monitoring, then the status of the monitored item can be recorded. To stop recording, touch "STOP".

Display Item List

Monitor item Contents		Contents
IGN ON SW	"ON/OFF"	Displays "ignition switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition switch signal.
IGN SW CAN	"ON/OFF"	Displays "ignition switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN com- munication signal.
FR WIPER HI	"ON/OFF"	Displays "FRONT WIPER HI (ON)/Other (OFF)" status as judged from wiper switch signal.
FR WIPER LOW	"ON/OFF"	Displays "FRONT WIPER LOW (ON)/Other (OFF)" status as judged from wiper switch signal.
FR WIPER INT	"ON/OFF"	Displays "FRONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal.
FR WASHER SW	"ON/OFF"	Displays "FRONT WASHER Switch (ON)/Other (OFF)" status as judged from wiper switch sig- nal.

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Monitor item		Contents
INT VOLUME	"1 - 7"	Displays intermittent operation dial position setting (1 - 7) as judged from wiper switch signal.
FR WIPER STOP	"ON/OFF"	Displays "Stopped (ON)/Operating (OFF)" status as judged from auto-stop signal.
VEHICLE SPEED	"km/h"	Displays vehicle speed status as judged from vehicle speed signal.
RR WIPER ON NOTE 1	"ON/OFF"	Displays "Rear Wiper ON (ON)/Other (OFF)" status as judged from wiper switch signal.
RR WIPER INT NOTE 1	"ON/OFF"	Displays "Rear Wiper INT (ON)/Other (OFF)" status as judged from wiper switch signal.
RR WASHER SW NOTE 1	"ON/OFF"	Displays "Rear Washer Switch (ON)/Other (OFF)" status as judged from wiper switch signal.
RR WIPER STOP NOTE 1	"ON/OFF"	Displays "Rear Wiper Stop (ON)/Other (OFF)" status, as judged from wiper switch signal.
RR WIPER STP2 NOTE 2	"OFF"	

NOTE:

1. Coupe models

2. This item is displayed, but cannot be monitored.

ACTIVE TEST

Operation Procedure

- 1. Touch "WIPER" on "SELECT TEST ITEM" screen.
- 2. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 3. Touch item to be tested and check operation of the selected item.
- 4. During the operation check, touching "BACK" deactivates the operation.

Display Item List

Test item	Display on CONSULT-II screen	Description
Front wiper output	FR WIPER	With a certain operation (OFF, HI, LO, INT), front wiper can be operated.
Rear wiper output NOTE	RR WIPER	Rear wiper can be operated by ON-OFF operation.

NOTE:

Coupe models

[TYPE 1]

CONSULT-I	I Functior	ns (IPDM E/R)				NKS00089
CONSULT-II ca	n display ead	ch diagnostic item us	sing the dia	agnostic tes	st mode showr	n following.
Diagn	osis Mode			De	escription	
SELF–DIAG RESULTS Refer to PG-32, "SELF-DIAG RESULTS".						
DATA MONITOR		The input/outpu	t data of IPDI	M E/R is displ	ayed in real time.	
CAN DIAG SUPPO	ORT MNTR	The result of tra	nsmit/receive	e diagnosis of	CAN communica	tion can be read.
ACTIVE TEST		IPDM E/R send	s a drive sign	al to electron	ic components to	check their operation.
	DCEDURE TA MONITOR	" on "SELECT DIAG "MAIN SIGNALS" or	_		1 MENU" on "S	SELECT MONITOR ITEM"
ALL SIGNALS		Monitors all items.				
MAIN SIGNALS		Monitor the predetermin	ned item.			
SELECTION FRC	OM MENU	Selects items and moni	tors them.			
	In "MAIN SIG	nitoring item on "SE SNALS", predetermir				SIGNALS", all items are
5. Touch "REC touch "STO	CORD" while	monitoring to recor	d the statu	us of the ite	em being mor	nitored. To stop recording,
)P".	s, Selection From	Menu			
)P".			Ionitor item se	election	

							L
Wiper protection	WIP PROT	OFF/Block	×	×	×	Control status of IPDM E/R	
Wiper auto stop	WIP AUTO STOP	ACT P/STOP P	×	×	×	Output status of IPDM E/R	
FR wiper request	FR WIP REQ	STOP/LOW/HI	×	×	×	Signal status input from BCM	WW
			SIGNALS	SIGNALS	FROM MENU		

NOTE:

Perform monitoring of IPDM E/R data with ignition switch ON. When ignition switch is at ACC, the display may not be correct.

ACTIVE TEST

Operation Procedure

- 1. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Touch item to be tested, and check operation.
- 3. Touch "START".
- $\label{eq:stopp} \textbf{4.} \quad \textbf{Touch "STOP" while testing to stop the operation.}$

Test item CONSULT-II screen display		Description		
Front wiper (HI, LO) output	FR WIPER	With a certain operation (OFF, HI ON, LO ON), front wiper relay (Lo, Hi) can be operated.		

M

Front Wiper Does Not Operate

CAUTION:

During IPDM E/R fail-safe control, front wipers may not operate. Refer to <u>PG-30, "CAN COMMUNICA-</u><u>TION LINE CONTROL"</u> in "PG IPDM E/R" to make sure that it is not in fail-safe status.

1. ACTIVE TEST

(B)With CONSULT-II

- Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
- 3. Touch "LO" or "HI" screen.

Without CONSULT-II Start up auto active test. Refer to <u>PG-35, "Auto Active Test"</u>.

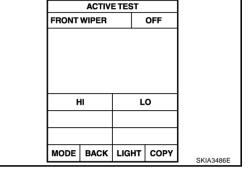
Does front wiper operate normally?

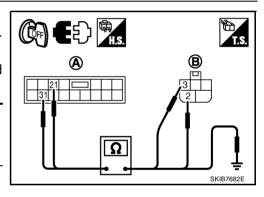
YES >> GO TO 5. NO >> GO TO 2.

2. CHECK FRONT WIPER CIRCUIT

- 1. Turn ignition switch OFF.
- Disconnect IPDM E/R connector and front wiper motor connector.
- Check continuity between IPDM E/R harness connector and front wiper motor harness connector terminal.

_					
	A B				Continuity
	Connector	Terminal	Connector	Terminal	
	E7	21	E52	3	Yes
	E7	31	LJZ	2	165





4. Check continuity between IPDM E/R harness connector terminal and Ground.

	Terminal			
	A		Continuity	
Connector	Terminal	Ground		
E7	21	Ground	No	
	31		INU	

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

[TYPE 1]

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3. CHECK GROUND CIRCUIT

Check continuity between front wiper motor harness connector and ground.

Connector	Terminal	Ground	Continuity
E52	4	Giouna	Yes

OK or NG

OK >> GO TO 4.

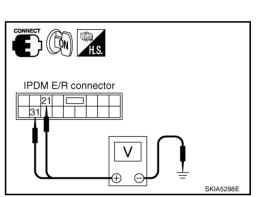
NG >> Repair harness or connector.

4. CHECK IPDM E/R

With CONSULT-II

- 1. Connect IPDM E/R connector and front wiper motor connector.
- 2. Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST"
- on "SELECT DIAG MODE" screen.
- 3. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
- 4. Touch "LO" or "HI" screen.
- 5. Check voltage between IPDM E/R harness connector and ground while front wiper (HI, LO) is operating.

Terminal				
IPDM E/R (+)			Condition	Voltage
Connector	Terminal	(-)		
E7	21	Ground	Stopped	Approx. 0 V
			LO operation	Battery voltage
			Stopped	Approx. 0 V
			HI operation	Battery voltage



Ω

Without CONSULT-II

- 1. Connect IPDM E/R connector and front wiper motor connector.
- 2. Start up auto active test. Refer to PG-35, "Auto Active Test" .
- 3. Check voltage between IPDM E/R harness connector and ground while front wiper (HI, LO) is operating.

Terminal				
IPDM E/R (+)		()	Condition	Voltage
Connector	Terminal	(-)		
	21	Ground	Stopped	Approx. 0 V
E7			LO operation	Battery voltage
L7			Stopped	Approx. 0 V
	51		HI operation	Battery voltage

OK or NG

OK >> Replace front wiper motor.

NG >> Replace IPDM E/R.

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5. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

()With CONSULT-II

- 1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT TEST ITEM" screen.
- 2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "FR WIPER INT", "FR WIPER LOW", and "FR WIPER HI" turn ON-OFF according to wiper switch operation.

Without CONSULT-II

Refer to LT-99, "Combination Switch Inspection" .

OK or NG

- OK >> GO TO 6.
- NG >> Check combination switch (wiper switch). Refer to <u>LT-</u> <u>99, "Combination Switch Inspection"</u>.

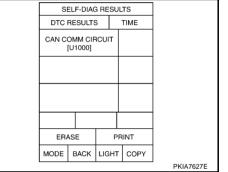
6. CHECK CIRCUIT BETWEEN IPDM E/R AND BCM

Select "BCM" on CONSULT-II, and perform self-diagnosis for "BCM".

Displayed self-diagnosis results

NO DTC>>Replace BCM. Refer to <u>BCS-19</u>, "Removal and Installation of <u>BCM</u>".

CAN COMM CIRCUIT>>Check CAN communication line of BCM. Refer to <u>BCS-18, "CAN Communication Inspection</u> <u>Using CONSULT-II (Self-Diagnosis)"</u>.



Front Wiper Does Not Return to Stop Position

1. CHECK FRONT WIPER STOP SIGNAL

With CONSULT-II
 Select "IPDM E/R" on CONSULT-II. With "DATA MONITOR", make sure that "WIP AUTO STOP" turns "ACT P" - "STOP P" linked with wiper operation.
 Without CONSULT-II
 GO TO 2.
 OK or NG
 OK >> Replace IPDM E/R.

NG >> GO TO 2.

	DATA MO	ONITOF	2		
MONITO	R				
WIP AU	TO STOP)	SI	FOP P	
		REC		RD	
MODE	BACK	LIGHT	Г	COPY	PKIA7614E

DATA MONITOR MONITOR IGN ON SW ON IGN SW CAN FR WIPER HI ON OFF FR WIPER LOW OFF FR WIPER INT FR WASHER SW OFF OFF INT VOLUME FR WIPER STOP ON VEHICLE SPEED 0.0 km/h Page Down BECORD MODE BACK LIGHT | COPE PKIB0110E

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[TYPE 1]

2. CHECK IPDM E/R

- 1. Turn ignition switch OFF.
- 2. Disconnect front wiper motor connector.
- 3. Turn ignition switch ON.
- 4. Check voltage between front wiper harness connector and Ground.

Connector	Terminal	Ground	Voltage
E52	1	Ground	Battery voltage

OK or NG

OK >> GO TO 4. NG >> GO TO 3.

3. CHECK FRONT WIPER AUTO STOP CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- 3. Check continuity between IPDM E/R harness connector and front wiper motor harness connector.

IPD	M E/R	Front w	Continuity	
Connector	Terminal	Connector Terminal		
E7	32	E52	1	Yes

4. Check continuity between IPDM E/R harness connector and Ground.

Connector	Terminal	Ground	Continuity
E7	32	Ground	No

OK or NG

- OK >> Replace IPDM E/R.
- NG >> Repair harness or connector.

4. CHECK IPDM E/R

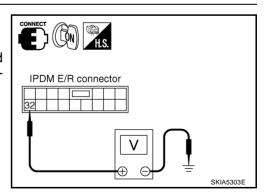
- 1. Connect IPDM E/R connector and front wiper motor connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between IPDM E/R harness connector and ground while front wiper motor is stopped and while it is operating.

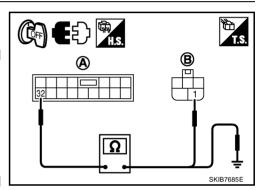
	Terminal				
IPD	M E/R (+)	(-)	Condition	Voltage	
Connector	Terminal	(-)			
F7	32	Ground	Wiper stopped	Approx. 0 V	
	E7 52		Wiper operating	Battery voltage	

OK or NG

OK >> Replace IPDM E/R.

NG >> Replace front wiper motor.





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Only Front Wiper Low Does Not Operate

1. ACTIVE TEST

With CONSULT-II

- Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
- 3. Touch "LO" screen.

Without CONSULT-II

Start up auto active test. Refer to PG-35, "Auto Active Test"

Does front wiper operate normally?

YES >> Refer to <u>LT-99, "Combination Switch Inspection"</u>. NO >> GO TO 2.

2. CHECK FRONT WIPER MOTOR CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector and front wiper motor connector.
- 3. Check continuity between IPDM E/R harness connector and front wiper motor harness.

IPD	M E/R	Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E7	21	E52	3	Yes

4. Check continuity between IPDM E/R harness connector and ground.

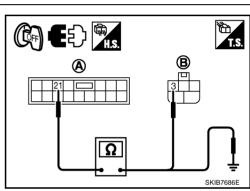
Connector	Terminal	Ground	Continuity
E7	21	Ground	No

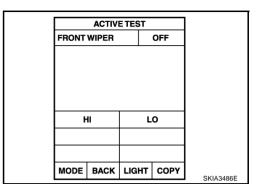
OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.







[TYPE 1]

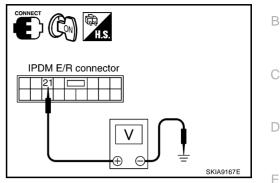
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3. CHECK IPDM E/R

With CONSULT-II

- 1. Connect IPDM E/R connector and front wiper motor connector.
- Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 3. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
- 4. Touch "LO" screen.
- 5. Check voltage between IPDM E/R harness connector and ground while front wiper LO is operating.

Connector	Terminal	Ground	Voltage
E7	21	Giodila	Battery voltage



Without CONSULT-II

- 1. Connect IPDM E/R connector and front wiper motor connector.
- 2. Start up auto active test. Refer to PG-35, "Auto Active Test" .
- 3. Check voltage between IPDM E/R harness connector and ground while front wiper LO is operating.

Ground	Connector Termina	Ground	Voltage
E7 21 Battery voltage		Giouna	Battery voltage

OK or NG

OK >> Replace front wiper motor.

NG >> Replace IPDM E/R.

Only Front Wiper Hi Does Not Operate

1. ACTIVE TEST

(P)With CONSULT-II

- Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
- 3. Touch "HI" screen.

Without CONSULT-II

Start up auto active test. Refer to PG-35, "Auto Active Test"

Does front wiper operate normally?

YES >> Refer to LT-99, "Combination Switch Inspection" .

NO >> GO TO 2.

	ACTIV	E TEST			
FRONT	WIPER		OFF		
					WW
	-11		LO		L
MODE	BACK	LIGHT	COPY	SKIA3486	E

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$\overline{2}$. CHECK FRONT WIPER MOTOR CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector and front wiper motor connector.
- 3. Check continuity between IPDM E/R harness connector and front wiper motor harness connector.

IPD	M E/R	Front w	Continuity	
Connector	Terminal	Connector	Terminal	
E7	31	E52	2	Yes

4. Check continuity between IPDM E/R harness connector and ground.

Connector	Terminal	Ground	Continuity
E7	31	Croand	No

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

3. CHECK IPDM E/R

(B)With CONSULT-II

- 1. Connect IPDM E/R connector and front wiper motor connector.
- 2. Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 3. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
- 4. Touch "HI" screen.
- 5. Check voltage between IPDM E/R harness connector and ground while front wiper HI is operating.

Connector	Terminal	Ground	Voltage
E7	31	Ground	Battery voltage

Without CONSULT-II

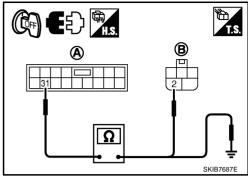
- 1. Connect IPDM E/R connector and front wiper motor connector.
- 2. Start up auto active test. Refer to PG-35, "Auto Active Test" .
- 3. Check voltage between IPDM E/R harness connector and ground while front wiper HI is operating.

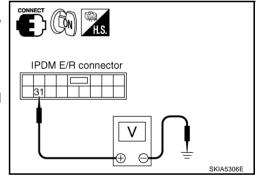
Connector	Terminal	Ground	Voltage
E7	31	Giouna	Battery voltage

OK or NG

OK >> Replace front wiper motor.

NG >> Replace IPDM E/R.





Only Front Wiper Intermittent Does Not Operate

1. CHECK COMBINATION SWITCH

(P)With CONSULT-II

- Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT 1. TEST ITEM" screen.
- Select "DATA MONITOR" on "SELECT DIAG MODE" screen. 2. Make sure that "FR WIPER INT", turn ON-OFF according to wiper switch operation.

Without CONSULT-II

Refer to LT-99, "Combination Switch Inspection".

OK or NG

- OK >> Replace BCM, Refer to BCS-19, "Removal and Installation of BCM" .
- NG >> Check combination switch (wiper switch) Refer to LT-99. "Combination Switch Inspection".

Front Wiper Interval Time Is Not Controlled by Vehicle Speed

1. CHECK FUNCTION OF COMBINATION METER

Confirm that speedometer operates normally.

Does front wiper operate normally?

- YES >> GO TO 2.
- Н NO >> Combination meter vehicle speed system malfunction. Refer to DI-23, "Vehicle Speed Signal Inspection".

2. CHECK CAN COMMUNICATION BETWEEN BCM AND COMBINATION METER

Select "BCM" on CONSULT-II, and perform self-diagnosis for "BCM".	SELF-DIA		LTS TIME]
Displayed self-diagnosis results	CAN COMM CI [U1000]			J
NO DTC>>Replace BCM. Refer to <u>BCS-19, "Removal and Installa-</u> <u>tion of BCM"</u> . CAN COMM CIRCUIT>>Check CAN communication line of BCM. Refer to <u>BCS-18, "CAN Communication Inspection</u>				WV
Using CONSULT-II (Self-Diagnosis)".				
	ERASE	-		
	MODE BACK	LIGHT	COPY	

Front Wiper Intermittent Operation Switch Position Cannot Be Adjusted 1. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

(R) With CONSULT-II

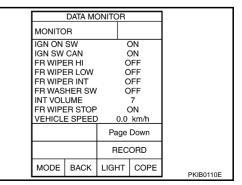
- Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT 1. TEST ITEM" screen.
- 2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "INT VOLUME", changes in order form 1 to 7 according to wiper switch operation.

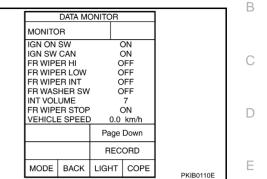
Without CONSULT-II

Refer to LT-99, "Combination Switch Inspection" .

OK or NG

- OK >> Replace BCM. Refer to BCS-19, "Removal and Installation of BCM" .
- NG >> Check combination switch (wiper switch). Refer to LT-99, "Combination Switch Inspection".





PKIA7627E



[TYPE 1]

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NKS0008F

Wiper Does Not Wipe When Front Washer Operates 1. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

With CONSULT-II

- 1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT TEST ITEM" screen.
- 2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "FR WASHER SW" turn ON-OFF according to front wiper switch operation.

Without CONSULT-II

Refer to LT-99, "Combination Switch Inspection" .

OK or NG

- OK >> Replace BCM. Refer to <u>BCS-19</u>, "Removal and Installation of <u>BCM</u>".
- NG >> Check front wiper switch. Refer to <u>LT-99</u>, "Combination <u>Switch Inspection"</u>.

After Front Wiper Operate for 10 Seconds, They Stop for 20 Seconds, and After Repeating the Operations Five Times, They Become Inoperative

CAUTION:

- When auto-stop signal has not varied for 10 seconds or longer while IPDM E/R is operating front wipers, IPDM E/R considers that front wipers are locked, and stops wiper output. That causes this symptom.
- This status can be checked by "DATA MONITOR" of "IPDM E/R" on which "WIPER PROTECTION" item shows "BLOCK".

1. CHECK WIPER MOTOR SIGNAL

With CONSULT-II
Select "IPDM E/R" by CONSULT-II. With "DATA MONITOR", make
sure that "WIP AUTO STOP" turns "ACT P" - "STOP P" linked with
wiper operation.
🕱 Without CONSULT-II
ĞO TO 2.
OK or NG
OK >> Replace IPDM E/R.
NG >> GO TO 2.

	DATA MO	ONITOR		
ΜΟΝΙΤΟ	R			
WIP AU	TO STOP	S	TOP P	
		REC		
MODE	DACK			
MODE	BACK	LIGHT	COPY	PKIA7614E

DATA MONITOR					
MONITOR					
IGN ON SW IGN SW CAN			NC NC		
FR WIPER HI FR WIPER LOW			OFF OFF		
FR WIPER INT FR WASHER SW			OFF OFF		
INT VOLUME FR WIPER STOP VEHICLE SPEED			/ DN		
VEHICLE SPEED 0.0 km/r Page Dowr					
		RECORD			
MODE	BACK	LIGHT	COPE	PKIB0110E	

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2. CHECK WIPER AUTO STOP CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector and front wiper motor connector.
- 3. Check continuity between IPDM E/R harness connector and front wiper motor harness connector.

Terminal				
IPDM E/R		Front w	Continuity	
Connector	Terminal	Connector Terminal		
E7	32	E52	1	Yes

Check continuity between IPDM E/R harness connector and 4. ground.

Connector	Terminal	Ground	Continuity
E7	32	Ground	No

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

3. CHECK FRONT WIPER MOTOR

- 1. Connect IPDM E/R connector and front wiper connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between IPDM E/R harness connector and ground while front wiper motor is stopped and while it is operating.

(-)

Ground

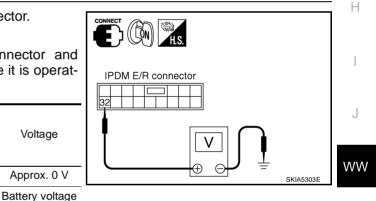
Condition

Wiper stopped

Wiper operating

Voltage

Approx. 0 V



OK or NG

Connector

E7

>> Replace IPDM E/R. OK

IPDM E/R (+)

NG >> Replace front wiper motor.

Terminal

Terminal

32

Front Wiper Does Not Stop

1. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

(P)With CONSULT-II

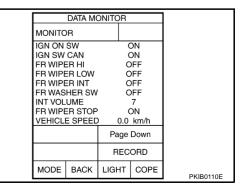
- 1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT TEST ITEM" screen.
- 2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "FR WIPER INT", "FR WIPER LOW", "FR WIPER HI", and "FR WASHER SW" turn ON-OFF according to front wiper switch operation.

Without CONSULT-II

Refer to LT-99, "Combination Switch Inspection".

OK or NG

- OK >> Replace IPDM E/R.
- NG >> Check combination switch (wiper switch). Refer to LT-99, "Combination Switch Inspection" .



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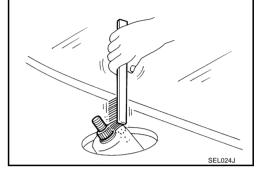
τs

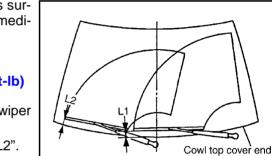
Removal and Installation of Front Wiper Arms, Adjustment of Wiper Arms Stop Location REMOVAL

- 1. Operate front wiper motor, and stop it at the auto stop position.
- 2. Remove washer tube from washer tube joint.
- 3. Remove front wiper arm mounting nuts and front wiper arm from vehicle.

INSTALLATION

- 1. Clean up the pivot area as shown in the figure. This will reduce possibility of front wiper arm looseness.
- Prior to front wiper arms installation, turn front wiper switch ON to operate wiper motor, and then turn front wiper switch OFF (auto stop).





- Lift the blade up and then set it down onto windshield glass surface to set the blade center to clearance "L1" & "L2" immediately.
- 4. Tighten front wiper arm nuts to specified torque.

Front wiper arm nuts O : 23.6 N·m (2.4 kg-m, 18 ft-lb)

- 5. Spray washer fluid. Turn front wiper switch ON to operate wiper motor, and then turn front wiper switch OFF (auto stop).
- 6. Make sure that wiper blades stop within clearance "L1" & "L2".

Clearance "L1" : 56.4 - 71.4 mm (2.22 - 2.81 in) Clearance "L2" : 25.5 - 38.5 mm (1.004 - 1.516 in)

7. Install front wiper arm caps.

Removal and Installation of Front Wiper Drive Assembly REMOVAL

- 1. Remove front wiper arms. Refer to <u>WW-34, "REMOVAL"</u>.
- 2. Remove cowl top cover. Refer to EI-20, "COWL TOP" .
- 3. Disconnect wiper motor connector (1) and remove connector clip (A).
- 4. Remove front wiper drive assembly mounting bolts (B), and remove front wiper drive assembly (2) from the vehicle.

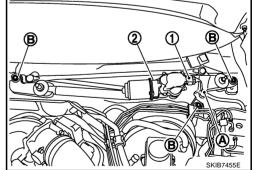
INSTALLATION

1. Install front wiper drive assembly to the vehicle.

Front wiper drive assembly mounting bolts

- Connect wiper motor connector. Turn front wiper switch ON to operate wiper motor, and then turn front wiper switch OFF (auto stop).
- 3. Install connector clips to the wiper frame, and install cowl top cover. Refer to EI-20, "COWL TOP" .
- 4. Install front wiper arms and arm caps. Refer to <u>WW-34</u>, "INSTALLATION" .

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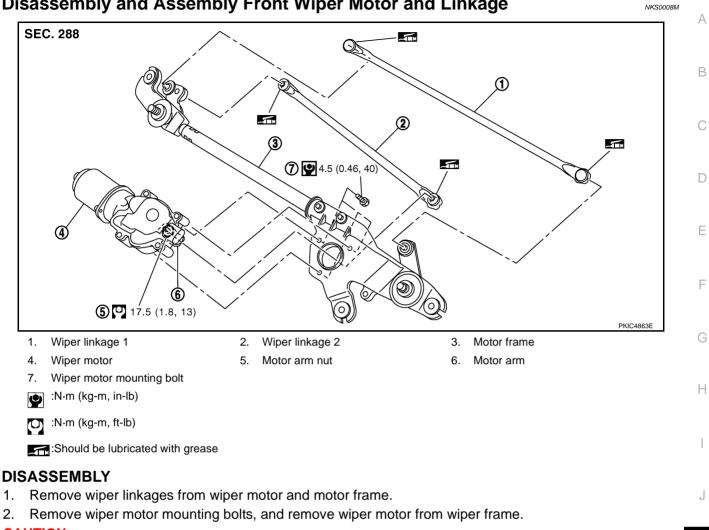


● : 4.5 N·m (0.46 kg-m, 40 in-lb)

WW-34

Disassembly and Assembly Front Wiper Motor and Linkage

[TYPE 1]



CAUTION:

Be careful not to bend wiper linkages nor to damage the resin part of ball joint when removing wiper WW linkages.

ASSEMBLY

- L 1. Connect wiper motor connector. Turn front wiper switch ON to operate wiper motor, and then turn front wiper switch OFF (auto stop).
- 2. Disconnect wiper motor connector.
- 3. Install wiper motor to wiper frame.

Wiper motor mounting bolts

: 4.5 N·m (0.46 kg-m, 40 in-lb) 0

CAUTION:

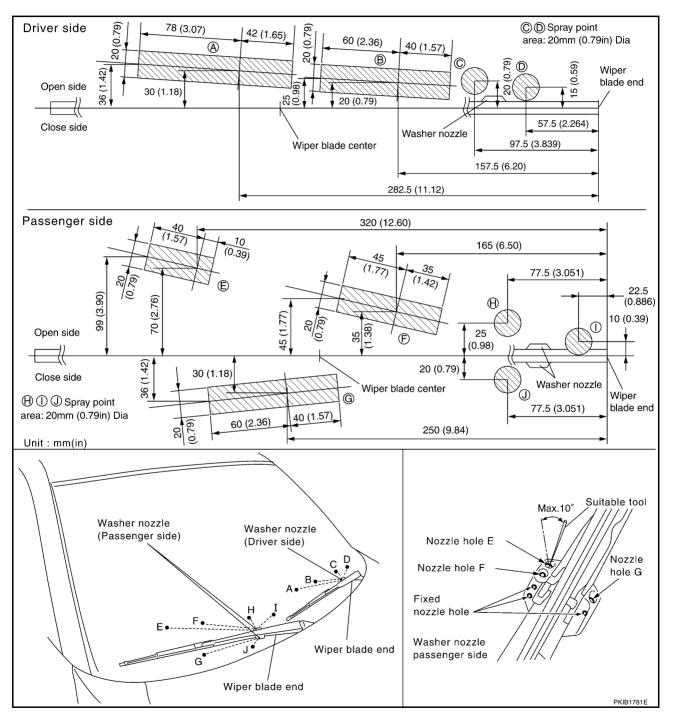
- Never drop the wiper motor nor cause it to interfere with other parts.
- Check joint of motor arm and wiper linkages (at retainer) for grease conditions. Apply grease if necessary.

Μ

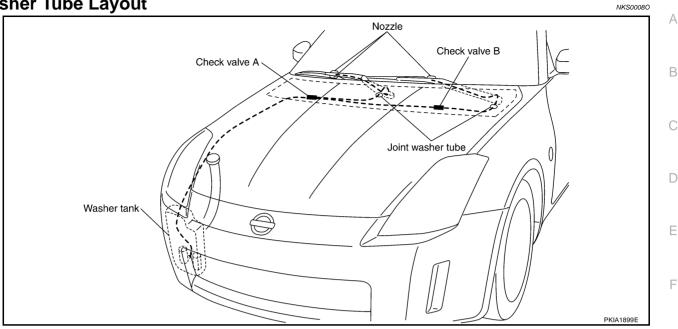
Washer Nozzle Adjustment

- 1. When wiper blade position is in auto stop condition, remove front wiper motor connector to ensure front wiper arms do not move.
- 2. Adjust each nozzle position (A, B, E, F, and G) so that spray positions are in the range of shaded parts. **CAUTION:**

Only washer nozzles (A, B, E, F, and G) can be adjusted. Washer nozzles (C, D, H, I, and J) cannot be adjusted because of fixed nozzles.



Washer Tube Layout



Removal and Installation of Front Washer Nozzle

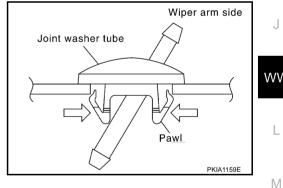
Replace wiper arm assembly. Refer to WW-34, "Removal and Installation of Front Wiper Arms, Adjustment of Wiper Arms Stop Location" .

CAUTION:

Never remove/install washer nozzle from wiper arm assembly.

Removal and Installation of Front Washer Tube Joint REMOVAL

- 1. Remove upwards while pressing pawls on reverse side.
- 2. Remove washer tube.

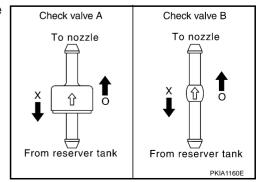


INSTALLATION

Installation is the reverse order of removal.

Inspection for Washer Nozzle CHĖCK VALVE INSPECTION

Blow air in the injection direction, and check that air flows only one way. Make sure that the reverse direction (inhale) is not possible.



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[TYPE 1]

Inspection of Front Wiper and Washer Switch Circuit

Refer to LT-99, "Combination Switch Inspection".

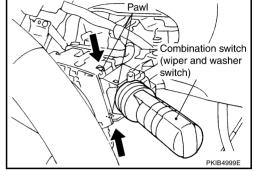
Removal and Installation of Front Wiper and Washer Switch REMOVAL

- 1. Remove steering column lower cover and combination meter. Refer to IP-10. "INSTRUMENT PANEL ASSEMBLY" .
- 2. Disconnect wiper and washer switch connector.
- 3. Pull wiper and washer switch toward the passenger door while pressing pawls in direction shown by the arrow (\bigstar) in the figure, and remove it from the base.

3. Remove fender protector. Refer to EI-21, "FENDER PROTEC-

4. Remove front bumper fascia. Refer to EI-14, "FRONT

Remove washer tube, and remove washer tank from the vehicle.



INSTALLATION

2. Remove under cover.

5. Disconnect washer pump connector.

Remove washer tank mounting bolt and nuts.

<u>TOR"</u>.

6.

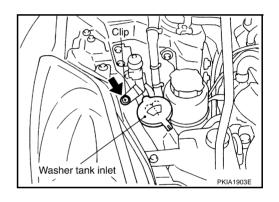
7.

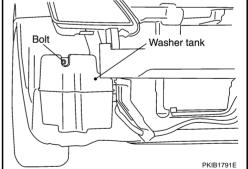
BUMPER".

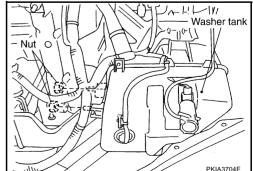
Installation is the reverse order of removal.

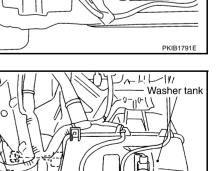
Removal and Installation of Washer Tank REMOVAL

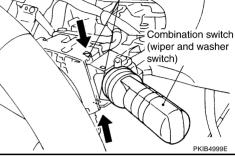
1. Remove clip and pull out washer tank inlet.













NKS0008S

NKS0008T

INSTALLATION

Installation is the reverse order of removal.

CAUTION:

After installation, add water up to the upper level of washer tank inlet, and check for water leaks.

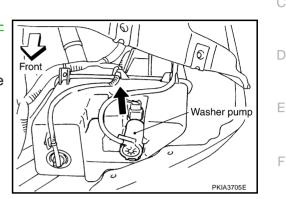
U

Washer tank mounting bolt and nuts

: 5.7 N·m (0.58 kg-m, 50 in-lb)

Removal and Installation of Washer Pump REMOVAL

- 1. Remove fender protector. Refer to <u>EI-21, "FENDER PROTEC-</u> <u>TOR"</u>.
- 2. Disconnect washer pump connector and tube.
- 3. Pull out washer pump in direction shown by the arrow (←) in the figure. Remove washer pump from washer tank.



INSTALLATION

Installation is the reverse order of removal.

CAUTION:

When installing washer pump, there should be no packing twists, etc.

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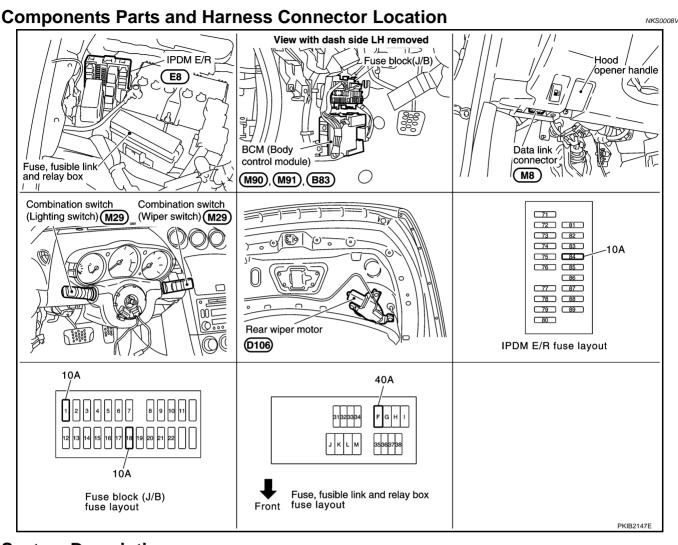
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[TYPE 1]

PFP:28710



System Description

NKS0008W

- Wiper switch (combination switch) is composed of a combination of 5 output terminals and 5 input terminals. Terminal combination status is read by BCM when switch is turned ON.
- BCM (body control module) controls rear wiper ON and INT (intermittent) operation.

OUT LINE

Power is supplied at all times

- through 40 A fusible link (letter F, located in fuse, fusible link and relay box)
- to BCM terminal 55,
- through 10 A fuse [No. 18, located in fuse block (J/B)]

REAR WIPER AND WASHER SYSTEM

• to BCM terminal 42.

When ignition switch is in ON or START position, power is supplied

- through 10 A fuse [No. 1, located in fuse block (J/B)]
- to BCM terminal 38,
- through 10 A fuse (No. 84, located in IPDM E/R)
- through IPDM E/R terminal 44
- to rear washer pump terminal 2.

Ground is supplied

- to BCM terminal 52
- through grounds M30 and M66,

WW-40

[TYPE 1]

to combination switch terminal 12	
 through grounds M30 and M66. 	А
Rear Wiper Operation	
When wiper switch is in rear wiper ON position, BCM detect rear wiper ON signal by BCM wiper switch read- ing function.	В
BCM operate rear wiper motor, power is supplied	
 through BCM terminal 70 	
• to rear wiper motor 4.	С
Ground is supplied	
 to rear wiper motor terminal 1 	D
 through grounds B5, B6, D105 and T14. 	D
With power and ground is supplied, rear wiper operates.	
Intermittent Operation	Е
The rear wiper motor operates wiper arms at low speed approximately every 7 seconds. When wiper switch is in rear wiper INT position, BCM detect rear wiper INT signal by BCM wiper switch read-	
ing function. (Refer to <u>WW-9, "COMBINATION SWITCH READING FUNCTION"</u>) BCM operate rear wiper motor, power is supplied	F
through BCM terminal 70	
• to rear wiper motor 4.	G
Ground is supplied	
to rear wiper motor terminal 1	Н
 through grounds B5, B6, D105 and T14. 	
With power and ground is supplied, rear wiper operates at intermittent.	
Auto Stop Operation	
With rear wiper switch turned OFF, rear wiper motor will continue to operate until wiper arm reaches rear wiper stopper.	
Then wiper motor turns the other way and wiper arm moves once until wiper arm reaches stopper.	J
Washer Operation	
When wiper switch is in rear wiper washer position, BCM detect rear wiper washer signal by BCM wiper switch reading function (Refer to <u>WW-9, "COMBINATION SWITCH READING FUNCTION"</u>), and combination switch (wiper switch) ground is supplied	WW
to rear washer pump terminal 1	
 through combination switch terminal 13 	L
to combination switch terminal 12	
 through grounds M30 and M66. 	
With ground is supplied, rear washer pump is operated. When BCM detects that rear washer pump has operated for 0.4 seconds or longer, BCM operates rear wiper motor low speed.	Μ
When BCM detects washer switch is OFF, low speed operation cycles approximately 3 times and then stops.	
BCM WIPER SWITCH READING FUNCTION	

Refer to <u>WW-9</u>, "COMBINATION SWITCH READING FUNCTION" .

Wiring Diagram — WIP/ R — NKS0008X **WW-WIP/R-01** IGNITION SWITCH ON OR START BATTERY IPDM E/R (INTELLIGENT REFER TO PG-POWER. FUSE POWER DISTRIBUTION Ę Q BLOCK 10A 18 40A 10A 10A (J/B) MODULE F 1 84 ¢ ENGINE ROOM) 6 (M4) 15A 44 1A B (E8) GY W/B OR É REAR WASHER ■ W/B ➡ TO EC-MAIN PUMP W/L (E28) R (E108) 71G R OR 🛛 🛛 2 -C(M)] M15 W/L GΫ (E108) (M15) 55 42 38 BAT (F/L) BAT (FUSE) IGN BCM (BODY CONTROL MODULE) REAR WIPER MOTOR OUTPUT REAR WIPER AUTO STOP (M90), (M91), (B83) 70 59 SB OR (B38) 2 1 (D101) SB OR 2 4 REAR M WIPER MOVE STOP (D106) 1 В ■ B **¤ 1 1** ■ B I B **6 B** B (B39) (D102) (B43) (T1)В В В В E E6 **B**5 (D105) (T14) REFER TO THE FOLLOWING. 1 2 3 4 5 6 B43 W $\frac{|\Box|}{123}$ 37 36 35 34 33 44 43 42 41 40 39 38 嘡 (12)(E108) -SUPER MULTIPLE **E**8 E28 GY (D101) JUNCTION (SMJ) H.S. W (M4) -FUSE BLOCK-JUNCTION BOX (J/B) 1234 D106 W (M90), (M91), (B83) 1 D102 -ELECTRICAL UNITS

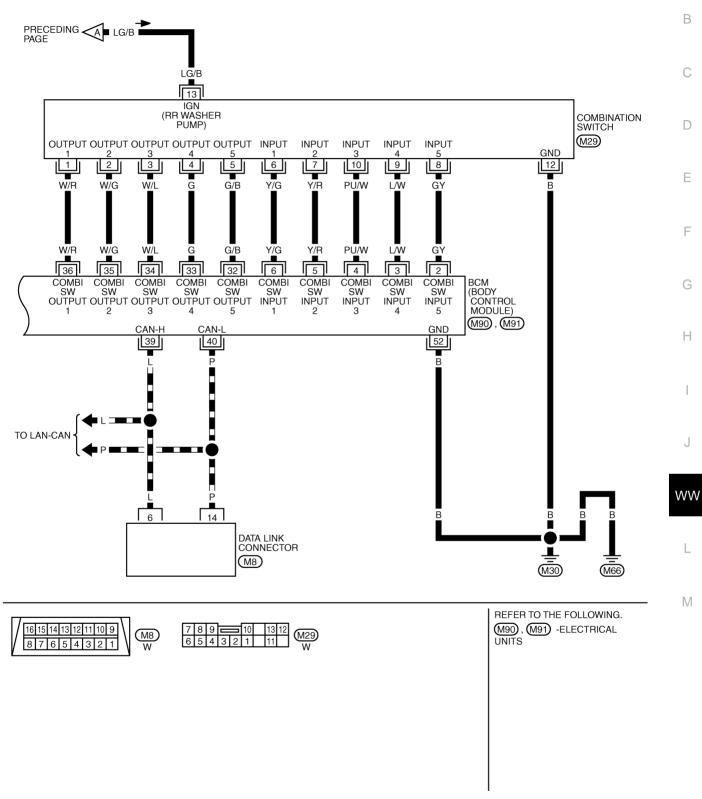
TKWT4007E

[TYPE 1]

[TYPE 1]

WW-WIP/R-02 A





TKWT4008E

Terminals and Reference Values for BCM

NKS0008Y

CAUTION:

- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF not to be fluctuated by overloaded.
- Turn wiper dial position to 4 except when checking waveform or voltage of wiper dial position. Wiper dial position can be confirmed on CONSULT-II. Refer to <u>WW-21, "DATA MONITOR"</u>.

Ter-	Wire			Measur	ing condition		
minal No.	color	Signal name	Ignition switch	Op	eration or condition	Reference value	
					OFF	Approx. 0 V	
5	Y/R	Combination switch input 2	ON	Lighting, turn, wiper switch	Rear washer switch	(V) 15 10 5 0 + 10ms PKIB4959J Approx. 1.0 V	
		Switch input 2	Switch input 2		(Wiper intermit- tent dial position 4)	Rear wiper switch ON	(V) 10 5 0 + 10ms PKIB4955J
					OFF	Approx. 0.8 v Approx. 0 V	
6	Y/G	Combination switch input 1	ON	Lighting, turn, wiper switch (Wiper intermit- tent dial position 4)	Rear wiper switch INT	(V) 15 10 5 0 ++10ms +КІВ4959J Арргох. 1.0 V	
33	G	Combination	ON	Lighting, turn, wiper switch	OFF	(V) 15 0 0 + 10ms PKIB4960J Арргох. 7.2 V	
	5	switch output 4		(Wiper intermit- tent dial position 4)	Rear wiper switch INT	(V) 15 0 • • • 10ms • • • 10ms • • • • • • • • • • • • • • • • • • •	

[TYPE 1]

Ter-	Wire			Measu	ring condition		0
minal No.	color	Signal name	Ignition switch	Ор	eration or condition	Reference value	A
24	W/L	Combination	ON	Lighting, turn, wiper switch	OFF	(V) 15 0 5 0 ••••10ms ••••10ms •••••10ms •••••10ms ••••••••••••••••••••••••••••••••••••	B C D
34	VV/L	switch output 3	ON	(Wiper intermit- tent dial position 4)	Rear washer switch	(V) 15 10 5 0 ↔ +10ms PKIB4958J	E
		Ignition switch				Approx. 1.2 V	G
38	W/L	(ON)	ON		_	Battery voltage	
39	L	CAN – H	—		—	—	Н
40	Р	CAN – L	—		—	_	11
42	GY	Battery power supply	OFF		_	Battery voltage	
52	В	Ground	ON		_	Approx. 0 V	1
55	R	Battery power supply	OFF		_	Battery voltage	J
59	OR	Rear wiper auto	ON	Rear wiper operate	S	Approx. 0 V	0
	UK	stop signal		Rear wiper does no	ot operate	Battery voltage	
70	0.0	Rear wiper		Rear wiper operate	S	Battery voltage	WW
70	SB	motor output signal	ON	Rear wiper does no	ot operate	Approx. 0 V	

How to Proceed With Trouble Diagnosis

- 1. Confirm the symptoms and customer complaint.
- 2. Understand operation description and function description. Refer to $\underline{WW-40}$, "System Description".
- 3. Perform preliminary check. Refer to WW-46, "Preliminary Check" .
- 4. Check symptom and repair or replace the cause of malfunction.
- 5. Does rear wiper and washer operate normally? If YES, GO TO 6. If NO, GO TO 4.
- 6. INSPECTION END

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NKS0008Z

Preliminary Check CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES AND FUSIBLE LINK

Check for blown fuses and fusible link.

Unit	Power source	Fuse and fusible link No.
Rear washer pump	Ignition ON or START	84
	Ignition ON or START	1
BCM	Battery	F
	Dailery	18

Refer to WW-42, "Wiring Diagram - WIP/ R -" .

OK or NG

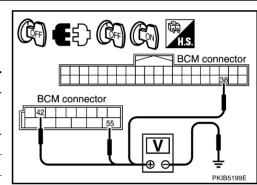
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to <u>PG-</u> <u>5, "POWER SUPPLY ROUTING CIRCUIT"</u>.

2. CHECK POWER SUPPLY CIRCUIT

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

	Terminal	Ignition swi	tch position	
	(+)	(-)	OFF	ON
Connector	Terminal	()	011	<u>on</u>
M90	38		Approx. 0 V	Battery voltage
M91	42	Ground	Battery voltage	Battery voltage
10191	55		Battery voltage	Battery voltage



OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

3. CHECK GROUND CIRCUIT

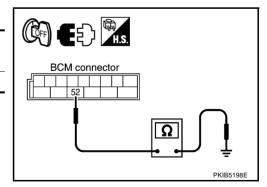
Check continuity between BCM and ground.

	Terminal					
Connector	Terminal	Continuity				
M91	52	Ground	Yes			

OK or NG

OK >> INSPECTION END

NG >> Repair harness or connector.



NKS00090

ITYPE 11

[TYPE 1]

•	,	0	m using the diagnostic test mode shown following.
BCM diagnosis position	-	osis mode	Description
WIPER		MONITOR	Displays BCM input data in real time.
	ACTI	VE TEST	Device operation can be checked by applying a drive signal to device.
CONSULT-II BASIC		ΓΙΟΝ	
Refer to <u>GI-36, "CON</u>	ISULT-II Sta	art Procedur	<u>e"</u> .
DATA MONITOR			
Operation Procedu	ure		
1. Touch "WIPER" of			
			DIAG MODE" screen.
3. Touch either "ALI	L SIGNALS	S" or "SELEC	CTION FROM MENU" on "SELECT MONITOR ITEM" screen.
ALL SIGNALS		Monitors all	the signals.
SELECTION FROM MEN	NU	Selects item	s and monitor them.
			selected, touch items to be monitored. When "ALL SIGNALS" is
selected, all the i	tems will be	e monitored.	
	N ¹ b 11 b b		and the status of the manifestal items are been associated. To star
6. Touch "RECORE		onitoring, th	en the status of the monitored item can be recorded. To stop
 Touch "RECORE recording, touch" 		onitoring, th	en the status of the monitored item can be recorded. To stop
 Touch "RECORE recording, touch" 		onitoring, th	en the status of the monitored item can be recorded. To stop
 Touch "RECORE recording, touch" Display Item List Monitor item 			Contents tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition
6. Touch "RECORE recording, touch" Display Item List Monitor item IGN ON SW	"STOP".	Displays "igni switch signal.	Contents tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN com-
6. Touch "RECORE recording, touch" Display Item List Monitor item IGN ON SW	"STOP". "ON/OFF"	Displays "igni switch signal. Displays "igni munication si	Contents tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN com-
6. Touch "RECORE recording, touch" Display Item List Monitor item IGN ON SW IGN SW CAN	"STOP". "ON/OFF" "ON/OFF"	Displays "igni switch signal. Displays "igni munication si Displays "FRO	Contents ition switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition ition switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN com- gnal.
6. Touch "RECORE recording, touch" Display Item List Monitor item IGN ON SW IGN SW CAN FR WIPER HI FR WIPER LOW	"STOP". "ON/OFF" "ON/OFF" "ON/OFF"	Displays "igni switch signal. Displays "igni munication si Displays "FRO Displays "FRO	Contents tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN com- gnal. ONT WIPER HI (ON)/Other (OFF)" status as judged from wiper switch signal.
6. Touch "RECORE recording, touch" Display Item List Monitor item IGN ON SW IGN SW CAN FR WIPER HI	"STOP". "ON/OFF" "ON/OFF" "ON/OFF"	Displays "igni switch signal. Displays "igni munication si Displays "FRO Displays "FRO Displays "FRO	Contents tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN com- gnal. ONT WIPER HI (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER LOW (ON)/Other (OFF)" status as judged from wiper switch signal.
6. Touch "RECORE recording, touch" Display Item List Monitor item IGN ON SW IGN SW CAN FR WIPER HI FR WIPER HI FR WIPER INT	"STOP". "ON/OFF" "ON/OFF" "ON/OFF" "ON/OFF"	Displays "igni switch signal. Displays "igni munication si Displays "FRO Displays "FRO Displays "FRO Displays "FRO	Contents tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN com- gnal. ONT WIPER HI (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER LOW (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal.
6. Touch "RECORE recording, touch" Display Item List Monitor item IGN ON SW IGN SW CAN FR WIPER HI FR WIPER HI FR WIPER INT FR WASHER SW INT VOLUME	"STOP". "ON/OFF" "ON/OFF" "ON/OFF" "ON/OFF" "ON/OFF"	Displays "igni switch signal. Displays "igni munication si Displays "FRO Displays "FRO Displays "FRO Displays "FRO nal. Displays inter	Contents tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN com- gnal. ONT WIPER HI (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER LOW (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WASHER Switch (ON)/Other (OFF)" status as judged from wiper switch signal.
6. Touch "RECORE recording, touch " Display Item List Monitor item IGN ON SW IGN SW CAN FR WIPER HI FR WIPER HI FR WIPER INT FR WASHER SW INT VOLUME FR WIPER STOP	"STOP". "ON/OFF" "ON/OFF" "ON/OFF" "ON/OFF" "ON/OFF" "1 - 7"	Displays "igni switch signal. Displays "igni munication si Displays "FRO Displays "FRO Displays "FRO Displays "FRO nal. Displays inter Displays "Sto	Contents tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN com- gnal. ONT WIPER HI (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER LOW (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WASHER Switch (ON)/Other (OFF)" status as judged from wiper switch signal.
6. Touch "RECORE recording, touch" Display Item List Monitor item IGN ON SW IGN SW CAN FR WIPER HI FR WIPER LOW FR WIPER INT FR WASHER SW INT VOLUME FR WIPER STOP VEHICLE SPEED	"STOP". "ON/OFF" "ON/OFF" "ON/OFF" "ON/OFF" "ON/OFF" "1 - 7" "ON/OFF"	Displays "igni switch signal. Displays "igni munication si Displays "FRO Displays "FRO Displays "FRO Displays "FRO Displays "FRO nal. Displays inter Displays sto Displays vehi	Contents tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN com- gnal. ONT WIPER HI (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER LOW (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WASHER Switch (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WASHER Switch (ON)/Other (OFF)" status as judged from wiper switch signal. Printent operation dial position setting (1 - 7) as judged from wiper switch signal. DNT (ON)/Operating (OFF)" status as judged from auto-stop signal.
6. Touch "RECORE recording, touch" Display Item List Monitor item IGN ON SW IGN SW CAN FR WIPER HI FR WIPER HI FR WIPER INT FR WASHER SW	"STOP". "ON/OFF" "ON/OFF" "ON/OFF" "ON/OFF" "ON/OFF" "1 - 7" "ON/OFF" "Km/h"	Displays "igni switch signal. Displays "igni munication si Displays "FRO Displays "FRO Displays "FRO Displays "FRO nal. Displays inter Displays stoo Displays vehi Displays "Rea	Contents tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN com- gnal. ONT WIPER HI (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER LOW (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WASHER Switch (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WASHER Switch (ON)/Other (OFF)" status as judged from wiper switch signal. DNT WASHER Switch (ON)/Other (OFF)" status as judged from wiper switch signal. context of the speed status as judged from vehicle speed signal.
6. Touch "RECORE recording, touch" Display Item List Monitor item IGN ON SW IGN SW CAN FR WIPER HI FR WIPER HI FR WIPER INT FR WASHER SW INT VOLUME FR WIPER STOP VEHICLE SPEED RR WIPER ON ^{NOTE 1}	"STOP". "ON/OFF" "ON/OFF" "ON/OFF" "ON/OFF" "ON/OFF" "1 - 7" "ON/OFF" "N/OFF" "Km/h"	Displays "igni switch signal. Displays "igni munication si Displays "FRO Displays "FRO Displays "FRO Displays "FRO nal. Displays "FRO nal.	Contents tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN com- gnal. ONT WIPER HI (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER LOW (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WASHER Switch (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WASHER Switch (ON)/Other (OFF)" status as judged from wiper switch signal. Internet operation dial position setting (1 - 7) as judged from wiper switch signal. Internet operating (OFF)" status as judged from auto-stop signal. Internet operating (OFF)" status as judged from wiper switch signal. Internet operating (OFF)" status as judged from wiper switch signal. Internet operating (OFF)" status as judged from auto-stop signal. Internet operating (OFF)" status as judged from wiper switch signal. Internet operating (OFF)" status as judged from signal.
6. Touch "RECORE recording, touch" Display Item List Monitor item IGN ON SW IGN SW CAN FR WIPER HI FR WIPER HI FR WIPER LOW FR WIPER INT FR WASHER SW INT VOLUME FR WIPER STOP VEHICLE SPEED RR WIPER ON ^{NOTE 1} RR WIPER INT ^{NOTE 1}	"STOP". "ON/OFF" "ON/OFF" "ON/OFF" "ON/OFF" "ON/OFF" "1 - 7" "ON/OFF" "Km/h" "ON/OFF" "ON/OFF"	Displays "igni switch signal. Displays "igni munication si Displays "FRO Displays "FRO Displays "FRO Displays "FRO Displays "FRO nal. Displays "FRO Displays "FRO nal. Displays "Rea Displays "Rea Displays "Rea	Contents tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition tion switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN com- gnal. ONT WIPER HI (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER LOW (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal. ONT WASHER Switch (ON)/Other (OFF)" status as judged from wiper switch signal. In the operation dial position setting (1 - 7) as judged from wiper switch signal. pped (ON)/Operating (OFF)" status as judged from auto-stop signal. cle speed status as judged from vehicle speed signal. ar Wiper ON (ON)/Other (OFF)" status as judged from wiper switch signal. ar Wiper INT (ON)/Other (OFF)" status as judged from wiper switch signal.

NOTE:

1. Coupe models

2. This item is displayed, but cannot be monitored.

ACTIVE TEST

Operation Procedure

- 1. Touch "WIPERS" on "SELECT TEST ITEM" screen.
- 2. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 3. Touch item to be tested and check operation of the selected item.
- 4. During the operation check, touching "BACK" deactivates the operation.

Display Item List

Test item	Display on CONSULT-II screen	Description
Front wiper output	FR WIPER	With a certain operation (OFF, HI, LO, INT), front wiper can be operated.
Rear wiper output ^{NOTE}	RR WIPER	Rear wiper can be operated by any ON-OFF operation

NOTE:

Coupe models

Rear Wiper Does Not Operate

1. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

(B)With CONSULT-II

- 1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT TEST ITEM" screen.
- Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "RR WIPER ON", turn ON-OFF according to front wiper switch operation.

Without CONSULT-II

Refer to LT-99, "Combination Switch Inspection" .

OK or NG

OK >> GO TO 2.

NG >> Check combination switch (wiper switch). Refer to <u>LT-</u> <u>99, "Combination Switch Inspection"</u>.

2. ACTIVE TEST

(P)With CONSULT-II

- 1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT SYSTEM" screen.
- 2. Select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 3. Select "REAR WIPER" on "SELECT TEST ITEM" screen.
- 4. Confirm that rear wiper operates normally.

Without CONSULT-II

ĞO TO 3.

Does rear wiper operate normally?

- YES >> Replace BCM. Refer to <u>BCS-19</u>, "Removal and Installation of <u>BCM</u>".
- NO >> GO TO 3.

	data M	ONI	TOF	1	
MONIT	OR				
FR WA	SHER S	W	0	FF 7	
FR WIF	ER STO) N	
	LE SPEI			km/h FF	
	PER INT		-	FF	
RR WIF	PER STO	ϽP	0	FF	
RR WIF	PER STR	P2	0	FF	
Page	ə Up				
		F	REC	ORD	
MODE	BACK	LIG	нт	COPY	PKIB1785E

	ACTIV	ETEST		
RR WIP			OFF	
0	N			
MODE	BACK	LIGHT	COPY	SKIA3503E

NKS00092

3. снеск всм

With rear wiper switch ON, check voltage between rear wiper motor harness connector and ground.

Connector	Terminal	Ground	Voltage
D106	4	Giouna	Battery voltage
OK or NG			

OK >> GO TO 4. NG >> GO TO 5.

4. CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect rear wiper motor connector.
- 3. Check continuity between rear wiper motor harness connector and ground.

Connector	Terminal	Ground	Continuity
D106	1	Giouna	Yes
		•	

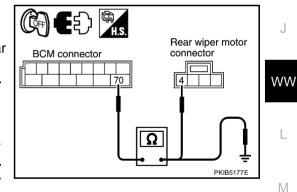
OK or NG

- OK >> Replace rear wiper motor.
- NG >> Repair harness or connector.

5. CHECK REAR WIPER CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect BCM connector and rear wiper motor connector.
- 3. Check continuity between BCM harness connector and rear wiper motor harness connector.

	Terminal						
В	BCM		Rear wiper motor				
Connector	Terminal	Connector	Terminal	-			
B83	70	D106	4	Yes			



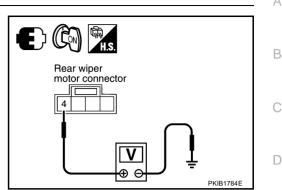
Check continuity between BCM harness connector and ground. 4.

Connector	Terminal	Ground	Continuity
B83	70	Globald	No

OK or NG

OK >> Replace BCM. Refer to BCS-19, "Removal and Installation of BCM" .

NG >> Repair harness or connector.



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Rear wiper motor

connector

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PKIA7055E

Rear Wiper Does Not Return to Stop Position

1. CHECK REAR WIPER MOTOR CIRCUIT

With CONSULT-II

- 1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT TEST ITEM" screen.
- 2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "RR WIPER STOP", turn ON-OFF linked with rear wiper switch operation.

Without CONSULT-II

ĞO TO 2.

OK or NG

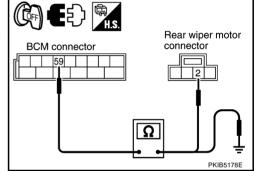
OK >> Replace BCM. Refer to <u>BCS-19</u>, "Removal and Installation of <u>BCM</u>".

NG >> GO TO 2.

2. CHECK REAR WIPER AUTO STOP CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect BCM connector and rear wiper motor connector.
- 3. Check continuity between BCM harness connector and rear wiper motor harness connector.

BCM		Rear w	Continuity	
Connector	Terminal	Connector	Terminal	
B83	59	D106	2	Yes



DATA MONITOR

VEHICLE SPEED 0.0 km/h

MODE BACK LIGHT COPY

OFF

ON

OFF

OFF

OFF

OFF

OFF

RECORD

MONITOR

FR WASHER SW

FR WIPER STOP

RR WIPER ON

RR WIPER INT

RR WASHER SW

RR WIPER STOP

RR WIPER STP2

Page Up

INT VOLUME

4. Check continuity between BCM harness connector and ground.

Connector	Terminal	Terminal Ground	
B83	59	Ground	No

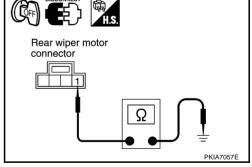
5. Check continuity between rear wiper motor harness connector and ground.

Connector	Terminal	Ground	Continuity	
D106	1	Gibana	Yes	

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.





PKIB1785E

NKS00093

$\overline{3}$. CHECK REAR WIPER MOTOR SIGNAL

- 1. Connect BCM connector and rear wiper motor connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between rear wiper motor harness connector terminal and ground while rear wiper motor is stopped and while it is operating.

	Terminal		Voltage		
Rear wiper motor (+)		()			Condition
Connector	Terminal	(-)			
D106	2	Ground	Wiper stopped	Battery voltage	
0106	2		Wiper operating	Approx. 0 V	

Rear wiper motor connector 2 V PKIA7058E

OK or NG

>> Replace BCM. Refer to BCS-19, "Removal and Installation of BCM" . OK NG >> Replace rear wiper motor.

Only Rear Wiper ON Does Not Operate

Refer to LT-99, "Combination Switch Inspection" .

Only Rear Wiper INT Does Not Operate

Refer to LT-99, "Combination Switch Inspection" .

Wiper Does Not Wipe When Rear Washer Operates

Refer to LT-99, "Combination Switch Inspection" .

Rear Wiper Does Not Stop

1. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

(P)With CONSULT-II

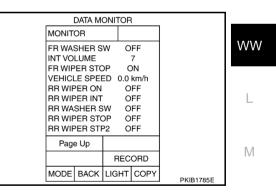
- Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT 1. TEST ITEM" screen.
- Select "DATA MONITOR" on "SELECT DIAG MODE" screen. 2. Make sure that "RR WIPER INT", "RR WIPER ON", and "RR WASHER SW" turn ON-OFF according to wiper switch operation.

Without CONSULT-II

Refer to LT-99, "Combination Switch Inspection" .

OK or NG

- OK >> Replace BCM. Refer to BCS-19, "Removal and Installation of BCM" .
- NG >> Check combination switch (wiper switch). Refer to LT-99, "Combination Switch Inspection".



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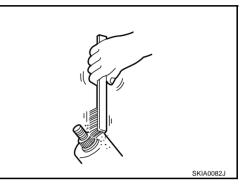
[TYPE 1]

Removal and Installation of Rear Wiper Arm, Adjustment of Wiper Arms Stop Location REMOVAL

- 1. Turn rear wiper switch ON to operate wiper motor, and then turn rear wiper switch OFF (auto stop).
- 2. Remove rear wiper arm cap, and remove rear wiper arm nut.
- 3. Raise rear wiper arm, and remove rear wiper arm from the vehicle.

INSTALLATION

- 1. Clean up the pivot area as shown in the figure. This will reduce possibility of rear wiper arm nut looseness.
- 2. Prior to rear wiper arm installation, turn on rear wiper switch to operate wiper motor and then turn it "OFF" (Auto Stop).



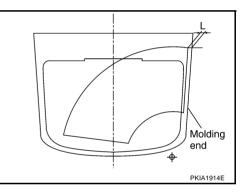
- 3. Lift the blade up and then set it down onto windshield glass surface to set the blade center to clearance "L" immediately.
- 4. Tighten wiper arm nuts to specified torque.

```
Rear wiper arm nut 💽 : 15.2 N·m (1.6 kg-m, 11 ft-lb)
```

- 5. Spray washer fluid. Turn rear wiper switch ON to operate wiper motor, and then turn rear wiper switch OFF (auto stop).
- 6. Make sure that wiper blade stop within clearance "L".

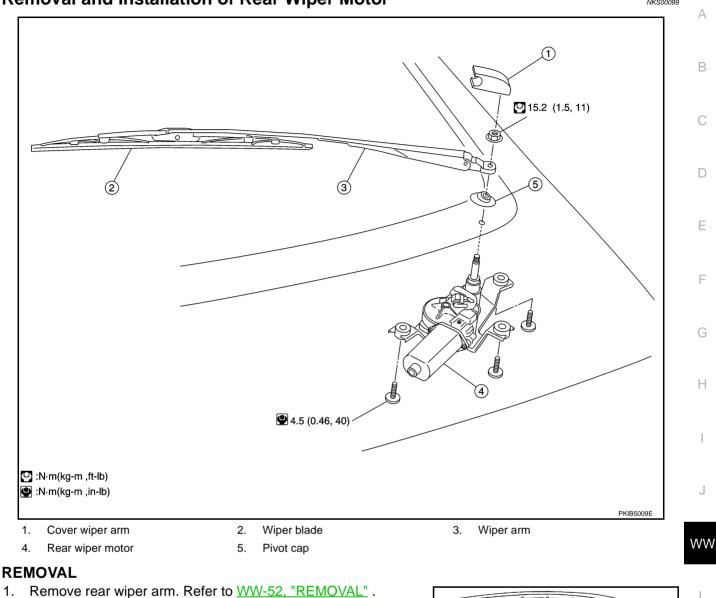
Clearance "L" : 22.5 - 37.5 mm (0.886 - 1.476 in)

7. Install rear wiper arm caps.

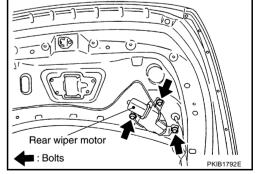


[TYPE 1]

Removal and Installation of Rear Wiper Motor



- 2. Remove pivot cap.
- 3. Remove back door finisher lower. Refer to EI-48, "BACK DOOR FINISHER".
- 4. Disconnect rear wiper motor connector.
- 5. Remove rear wiper motor mounting bolts and remove rear wiper motor from the vehicle.



INSTALLATION

1. Install rear wiper motor to the vehicle.

Rear wiper motor mounting bolts e : 4.5 N·m (0.46 kg-m, 40 in-lb)

- 2. Install pivot cap.
- Connect rear wiper motor connector. Turn rear wiper switch ON to operate wiper motor, and then turn rear 3. wiper switch OFF (auto stop).
- Install back door finisher lower. Refer to EI-48, "BACK DOOR FINISHER" . 4.
- 5. Install rear wiper arm and arm cap. Refer to WW-52, "INSTALLATION" .

WW-53

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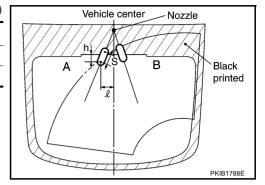
CAUTION:

Never drop the rear wiper motor nor cause it to interfere with other parts.

Washer Nozzle Adjustment

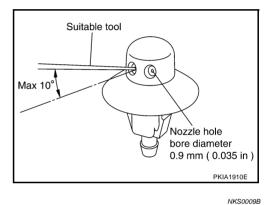
Adjust spray position as shown in the figure.

			•	Unit: mm (in)
Spray position	h (height)	ℓ (width)	S	Spray position range
А	30 (1.18)	73 (2.87)	50 (1.97)	30
В	12 (0.47)	50 (1.97)	50 (1.97)	30

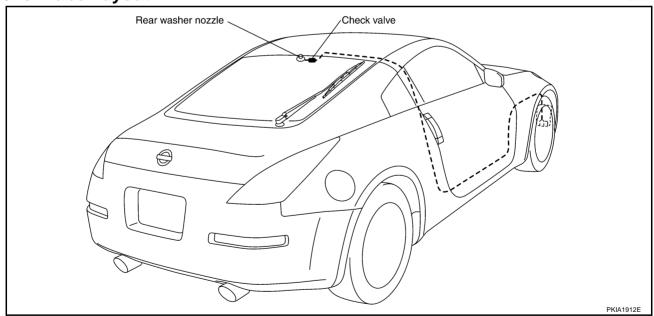


Adjust washer nozzle with suitable tool as shown in the figure. : ±10° (In any direction)

Adjustable range



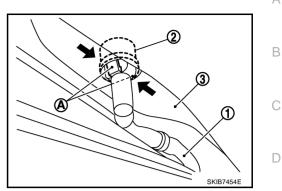
Washer Tube Layout



NKS0009A

Removal and Installation of Rear Washer Nozzle REMOVAL

- 1. Remove washer tube(1).
- 2. While pressing pawl (A) on the reverse side of rear washer nozzle (2), remove rear washer nozzle (2) from back door (3).

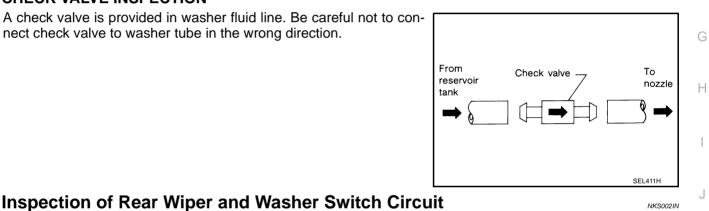


INSTALLATION

Installation is the reverse order of removal. Adjust nozzle spray location. Refer to WW-54, Washer Nozzle Adjustment".

Inspection for Washer Nozzle CHĖCK VALVE INSPECTION

A check valve is provided in washer fluid line. Be careful not to connect check valve to washer tube in the wrong direction.



inspection of iteal wiper and washer ownen oneutr	NKS002IN	
Refer to WW-38, "Removal and Installation of Front Wiper and Washer Switch".		
Removal and Installation of Rear Wiper and Washer Switch	NKS0009D	WW
Refer to WW-38, "Removal and Installation of Front Wiper and Washer Switch".		
Removal and Installation of Washer Tank	NKS0009E	L
Refer to WW-38, "Removal and Installation of Washer Tank".		
Removal and Installation of Washer Pump	NKS0009F	M
Refer to WW-39, "Removal and Installation of Washer Pump".		

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NKS0009C

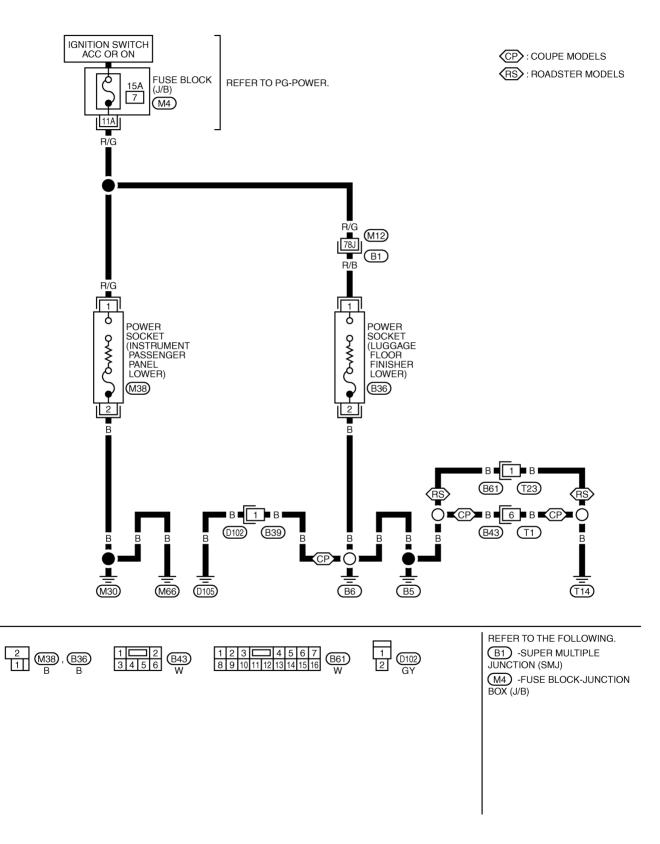
[TYPE 1]

POWER SOCKET Wiring Diagram — P/SCKT —

PFP:253A2

NKS0009G

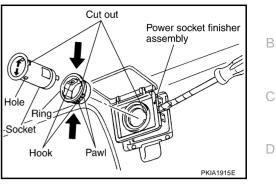
WW-P/SCKT-01



TKWT4009E

Removal and Installation (Luggage Floor Finisher Lower) REMOVAL

- 1. Remove power socket finisher assembly using a clip driver or a suitable tool.
- 2. Disconnect power socket connector.
- 3. Remove inner socket from ring. While pressing hook on ring out from square hole.
- 4. Remove ring from power socket finisher while pressing pawls.

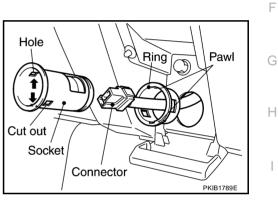


INSTALLATION

Installation is the reverse order of removal.

Removal and Installation (Instrument Passenger Panel Lower) REMOVAL

- 1. Remove socket using a clip driver or a suitable tool that pressing pawls in socket hole.
- 2. Disconnect power socket connector.
- 3. Remove ring from instrument passenger panel lower.



INSTALLATION

Installation is the reverse order of removal.



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[TYPE 1]

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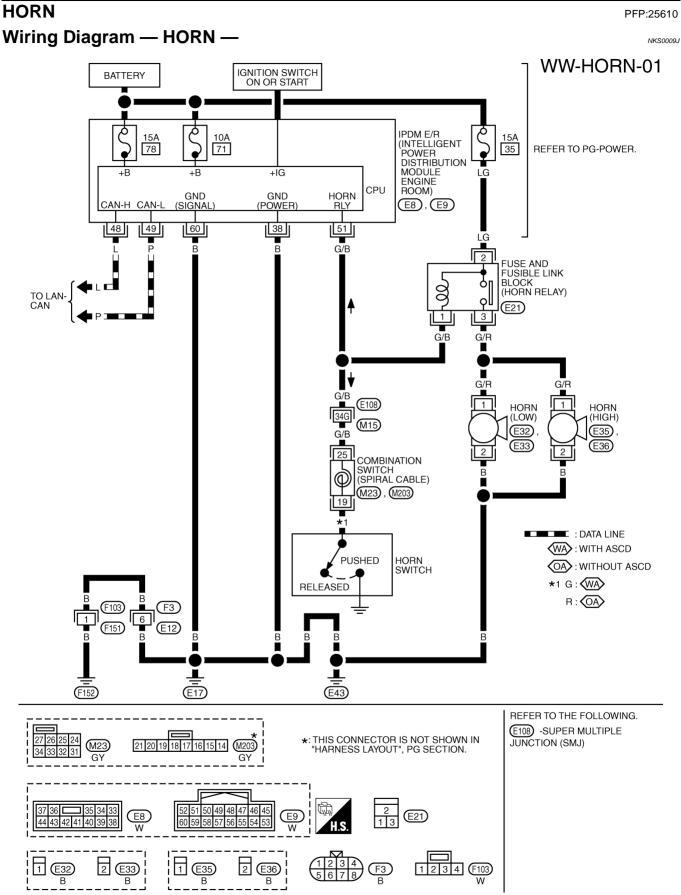
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NKS0009

[TYPE 1]





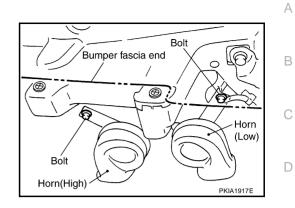
TKWT4010E

[TYPE 1]

NKS0009K

Removal and Installation REMOVAL

- 1. Disconnect all horn connectors.
- 2. Remove horn mounting bolt and remove horn from vehicle.



INSTALLATION

Tighten horn bolt to specified torque.

Horn mounting bolt

● : 5.7 N·m (0.58 kg-m, 50 in-lb)



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Revision: 2006 November

PRECAUTION

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

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:

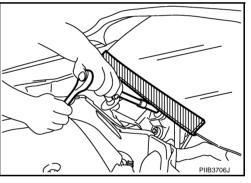
- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation 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 Procedures without Cowl Top Cover

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc.

Precautions for Battery Service

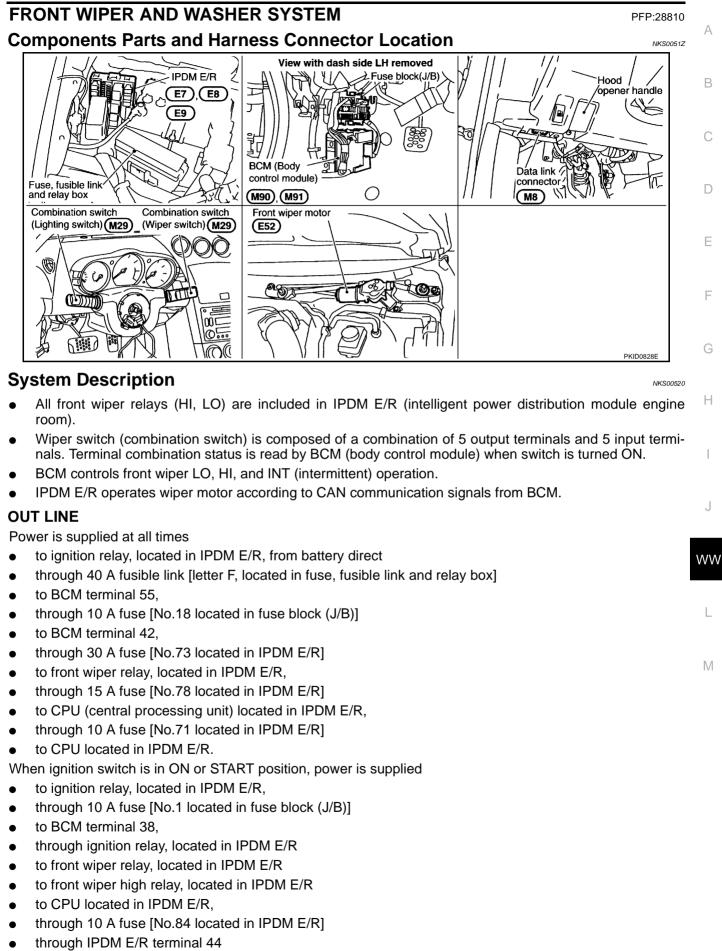
Before disconnecting the battery, lower both the driver and passenger windows. This will prevent any interference between the window edge and the vehicle when the door is opened/closed. During normal operation, the window slightly raises and lowers automatically to prevent any window to vehicle interference.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



NKS00546

NKS00545

[TYPE 2]



Revision: 2006 November

- to front washer pump terminal 2.
- Ground is supplied
- to BCM terminal 52
- through grounds M30 and M66,
- to IPDM E/R terminals 38 and 60
- through grounds E17, E43 and B102 (with VDC system or navigation system),
- through grounds E17, E43 and F152 (without VDC system and navigation system),
- to combination switch terminal 12
- through grounds M30 and M66.

LOW SPEED WIPER OPERATION

When the front wiper switch is in low position, BCM detects low speed wiper ON signal by BCM wiper switch reading function.

BCM sends front wiper request signal (LOW) with CAN communication line

- from BCM terminals 39 and 40
- to IPDM E/R terminals 48 and 49.

When the IPDM E/R receives front wiper request signal (LOW), it turns ON front wiper relay, located in the IPDM E/R, power is supplied

- to front wiper motor terminal 3
- through IPDM E/R terminal 21 and front wiper high relay and front wiper relay.

Ground is supplied

- to front wiper motor terminal 4
- through grounds E17, E43 and B102 (with VDC system or navigation system),
- through grounds E17, E43 and F152 (without VDC system and navigation system).

With power and ground is supplied, front wiper motor operates at low speed.

HIGH SPEED WIPER OPERATION

When the front wiper switch is in high position, BCM detects high speed wiper ON signal by BCM wiper switch reading function.

BCM sends front wiper request signal (HI) with CAN communication line

- from BCM terminals 39 and 40
- to IPDM E/R terminals 48 and 49.

When the IPDM E/R receives front wiper request signal (HI), it turns ON front wiper relay, located in IPDM E/R, power is supplied

• to front wiper motor terminal 2

• through IPDM E/R terminal 31 and front wiper high relay and front wiper relay.

- Ground is supplied
- to front wiper motor terminal 4
- through grounds E17, E43 and B102 (with VDC system or navigation system),
- through grounds E17, E43 and F152 (without VDC system and navigation system).

With power and ground is supplied, front wiper motor operates at high speed.

INTERMITTENT OPERATION

Front wiper intermittent operation delay interval is determined from a combination of 3 switches (intermittent operation dial position 1, 2, and 3) and vehicle speed signal.

After each intermittent operation delay interval, BCM sends front wiper request signal to IPDM E/R.

Wiper Dial Position Setting

	Intermittent exerction	Combination switch				
Wiper dial position	Intermittent operation interval	Intermittent operation dial position 1	Intermittent operation dial position 2	Intermittent operation dial position 3		
1	Short	ON	ON	ON		
2	-	ON	ON	OFF		
3		ON	OFF	OFF		
4		OFF	OFF	OFF		
5	¥	OFF	OFF	ON		
6	-	OFF	ON	ON		
7	Long	OFF	ON	OFF		

Example: For wiper dial position 1

Using combination switch reading function, BCM detects ON/OFF status of intermittent operation dial positions 1, 2, and 3.

When combination switch status is as listed below, BCM determines that it is wiper dial position 1.

- Intermittent operation dial position 1: ON (Continuity exists between combination switch output 3 and input 1.)
- Intermittent operation dial position 2: ON (Continuity exists between combination switch output 5 and input 1.)
- Intermittent operation dial position 3: ON (Continuity exists between combination switch output 4 and input 2.)

BCM determines front wiper intermittent operation delay interval from wiper dial position 1 and vehicle speed, and sends wiper request signal (INT) to IPDM E/R.

AUTO STOP OPERATION

With wiper switch turned OFF, wiper motor will continue to operate until wiper arms reach windshield base. When the wiper arms are not located at base of windshield with wiper switch OFF, ground is provided

- from IPDM E/R terminal 21
- to front wiper motor terminal 3, in order to continue wiper motor operation at low speed

When the wiper arms reach base of windshield, front wiper motor terminals 1 and 4 are connected, and ground is supplied

- to IPDM E/R terminal 32
- through front wiper motor terminals 1 and 4
- through grounds E17, E43 and B102 (with VDC system or navigation system),
- through grounds E17, E43 and F152 (without VDC system and navigation system).

Then the IPDM E/R sends auto stop operation signal to BCM with CAN communication. When the BCM receives auto-stop operation signal, BCM sends wiper stop signal to IPDM E/R with CAN communication line. IPDM E/R stops wiper motor. Wiper motor will then stop wiper arms at the STOP position.

WASHER OPERATION

When the wiper switch is in front wiper washer position, BCM detect front wiper washer signal by BCM wiper switch reading function (Refer to <u>WW-64, "COMBINATION SWITCH READING FUNCTION"</u>). Combination switch ground is supplied

- to front washer pump terminal 1
- through combination switch terminal 11
- to combination switch terminal 12
- through grounds M30 and M66.

With ground is supplied, front washer pump is operated.

When the BCM detects that front washer pump has operated for 0.4 seconds or longer, BCM operates front wiper motor for low speed.

When the BCM detects washer switch is OFF, low speed operation cycles approximately 2 times and stops.

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MIST OPERATION

When the wiper switch is turned to the mist position, wiper low speed operation cycles once and then stops. For additional information about wiper operation under this condition, refer to <u>WW-62</u>, <u>"LOW SPEED WIPER</u> <u>OPERATION"</u>.

If switch is held in mist position, low speed operation continues.

FAIL-SAFE FUNCTION

If an abnormality occurs in CAN communications, IPDM E/R holds the condition just before fail-safe status is initiated until ignition switch is turned off. (If wipers were operating in LO just before the initiation of fail-safe status, they continue to operate in LO until ignition switch is turned OFF)

COMBINATION SWITCH READING FUNCTION

Description

- BCM reads combination switch (wiper) status, and controls related systems such as headlamps and wipers, 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.

Combination switch TURN RH TURN LH FR WIPER LOW FR WASHER HEADLAMP 1 HEADLAMP 1 HEADLAMP 2 HI BEAM HEADLAMP 2 HI BEAM HI BEAM HEADLAMP 2 HI BEAM HEADLAMP 2 HI BEAM HI BEAM HI BEAM HEADLAMP 2 HI BEAM HI BEA							BCM	
TURN RH TURN LH FR WIPER LOW FR WASHER HEADLAMP 1 PASSING FR WIPER INT FR WIPER HI HEADLAMP 1 PASSING FR WIPER INT FR WIPER HI HEADLAMP 1 PASSING FR WIPER INT FR WIPER HI HEADLAMP 2 HEADLAMP 2 FR WASHER INT VOLUME 1 HI BEAM HEADLAMP 2 HEADLAMP 2 Output 3 INT VOLUME 1 HI BEAM HEADLAMP 2 HEADLAMP 2 Output 4 INT VOLUME 1 HI BEAM HEADLAMP 2 HEADLAMP 2 Output 5 CPU WIPER INT VOLUME 3 RR WIPER INT INT VOLUME 2 Output 5 CPU K1 ING SW WIPER SW Input 1 I/F Input 2 Input 4 I/F			Comb	ination switch				
HEADLAMP 1 PASSING FR WIPER INT FR WIPER HI HI BEAM HEADLAMP 2 RR WASHER INT VOLUME 1 HI BEAM HEADLAMP 2 RR WASHER Output 3 HI BEAM HEADLAMP 2 RR WASHER Output 4 INT VOLUME 3 RR WIPER INT Output 5 CPU INT VOLUME 3 RR WIPER INT VOLUME 2 Output 5 CPU Input 1 Input 1 I//F Input 2 Input 4 Input 4	[Output 1	
HI BEAM HEADLAMP 2 HEADLAMP 2 HEA			PASSING					
**1 INT VOLUME 3 RR WIPER INT Output 5 CPU RR WIPER INT VOLUME 2 Output 5 CPU RR WIPER INT VOLUME 2 Input 1 I/F LIGHTING SW WIPER SW Input 2 I/F Input 3 I/F I/F Input 4 I/F			HEADLAMP 2		RR WASHER			
LIGHTING SW WIPER SW Input 1 //F Input 2 //F Input 4 //F			•					СРИ
Input 2 Input 3 Input 4 Input 4 Input 4		•			RR WIPER	INT VOLUME 2		
Input 3 //F Input 4 //F			LIGHTING SW		WIPER SW			
							Input 3	
							Input 4	

% 1 : LIGHTING SWITCH 1ST POSITION

PKIC4861E

[TYPE 2]

BCM - Operation Table of Combination Switches

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

	COMB SW OUTPUT 1		COMB SW OUTPUT 2				COMB SW		COMB SW OUTPUT 5	
	ON	OFF	OUT OUT	OFF	OUTP ON	OUTPUT 3 ON OFF		OFF	ON OFF	
COMB SW INPUT 1	_	_	FR WIPER HI ON	FR WIPER HI OFF	INT VOLUME 1 ON	INT VOLUME 1 OFF	ON 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	_	_

Sample Operation: (When Wiper Switch Turned to LOW Position)

- When wiper switch is turned to LOW position, front wiper LOW contact in combination switch turns ON. At this time if OUTPUT 1 transistor is activated, BCM detects that voltage changes in INPUT 3.
- When BCM detects that voltage changes in INPUT 3 while OUTPUT 1 transistor is ON, it judges that front wiper switch is in LOW position. Then BCM sends front wiper request signal (LO) to IPDM E/R using CAN communication.
- If BCM detects that voltage changes in INPUT 3 when OUTPUT 1 transistor is activated again, it recognizes that wiper switch is still in LOW position.

					-	BCM	
,	Combinatio	on switch		,		+	
			R WASHER		<u> </u>	Output 1	
HEADLAMP 1						Output 2	
HI BEAM	HEADLAMP 2	+ € RI	O R WASHER			Output 3 🔶	
H → → →	∮ •					Output 4	СРИ
	♦I╉──○ ○─┘ ♦I╉ │		──O O──┘ (RR WIPER			Output 5 ┶╧	
	LIGHTING SW	·	WIPER SW	,		Input 1	
						Input 2 Input 3	
						Input 4	

※1: LIGHTING SWITCH 1ST POSITION

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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

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

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

Nomal <u>10ms</u>	Sleep 60ms
Sidius	314103
ON	ON
Output 1 OFF	Output 1 OFF
ON	ON
Output 2 OFF	Output 2 OFF
ON	ON
Output 3 OFF	Output 3 OFF
ON	ON
Output 4 OF <u>F</u>	Output 4 OFF
ON	ON
Output 5 OFF	Output 5 OF <u>F</u>
ON	ON
Input 1 OFF	Input 1 OFF
	ON Input 2 OFF
	ON Input 3 OFF
ON	ON
Input 4 OFF	Input 4 OF <u>F</u>
ON	ON
Input 5 OF <u>F</u>	Input 5 OF <u>F</u>
: Reading data	PKIC4919E

CAN Communication System Description

NKS00521

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. Many electronic control units are equipped onto a vehicle, 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.

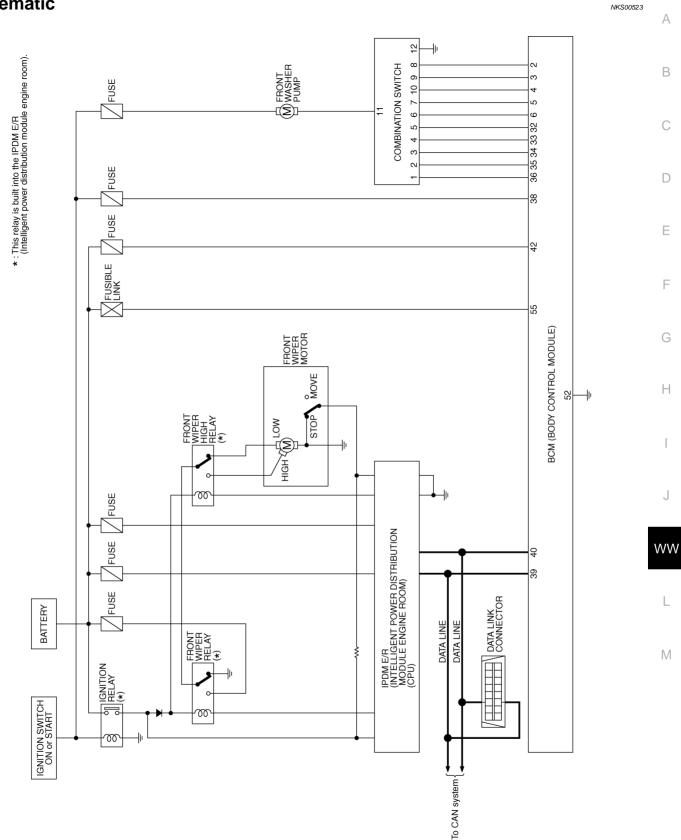
CAN Communication Unit

Refer to LAN-48, "CAN System Specification Chart" .

NKS00522

Schematic

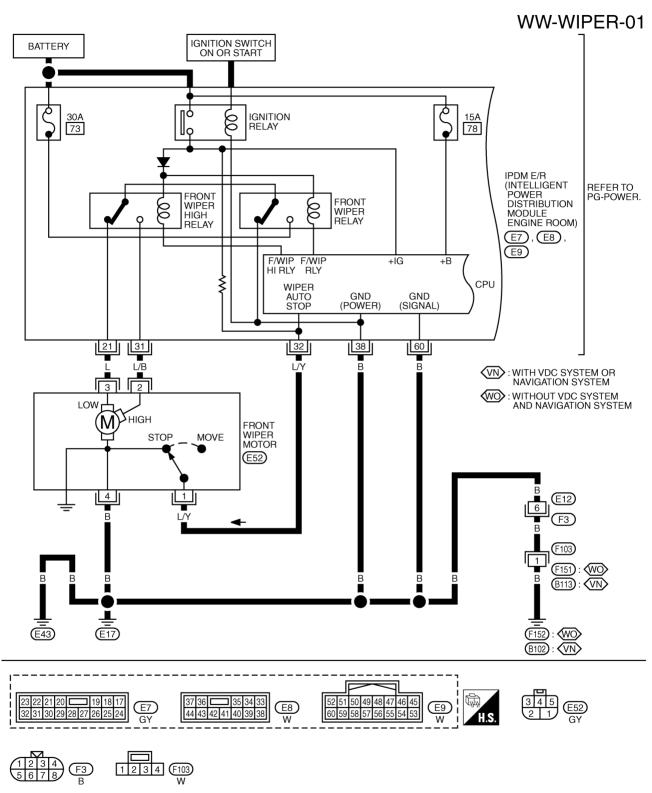
[TYPE 2]



TKWT4003E

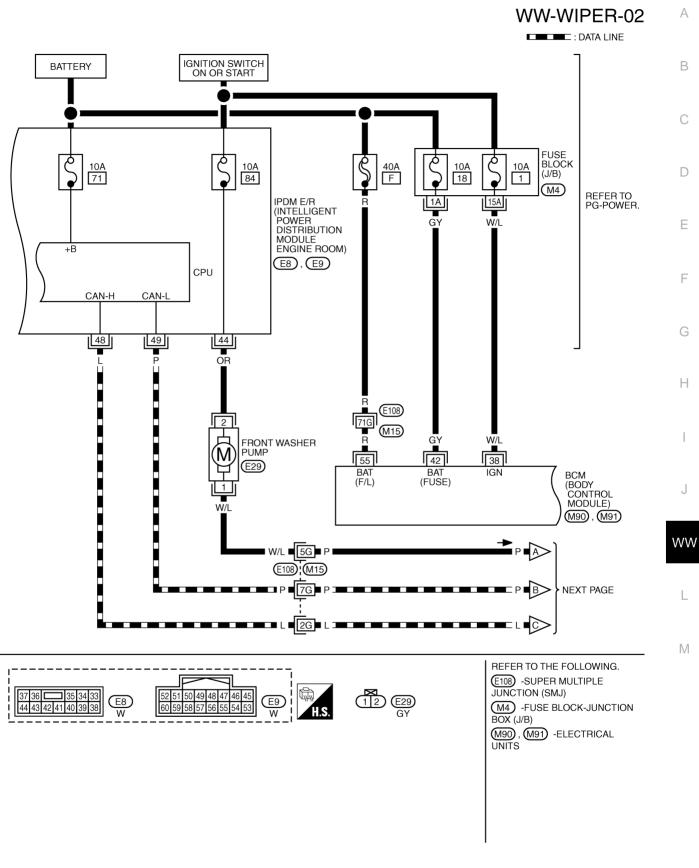
Wiring Diagram — WIPER —

[TYPE 2]



TKWT5616E

[TYPE 2]

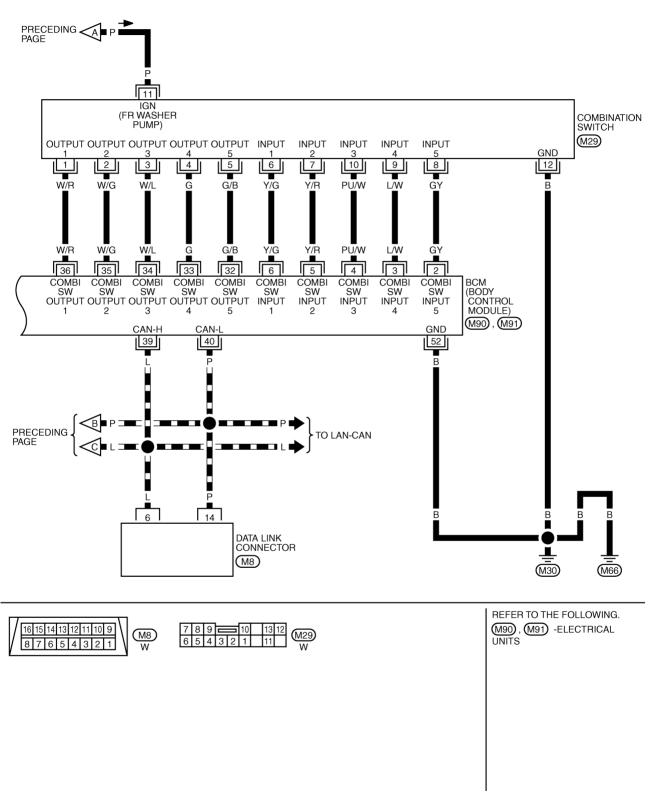


TKWT5617E

[TYPE 2]

WW-WIPER-03

: DATA LINE



TKWT4006E

Terminals and Reference Values for BCM

[TYPE 2]

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CAUTION:

- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF not to be fluctuated by overloaded.
- Turn wiper dial position to 4 except when checking waveform or voltage of wiper dial position.
 Wiper dial position can be confirmed on CONSULT-II. Refer to <u>WW-76, "DATA MONITOR"</u>.

Ter- minal Wire No. Color Signal n			Measuring condition			C	
		Signal name	Ignition switch	Operation or condition		Reference value	
					OFF	Approx. 0 V	D
4	PU/W	Combination switch input 3	ON	Lighting, turn, wiper switch (Wiper intermit- tent dial position 4)	Any of the conditions below • Front wiper switch MIST • Front wiper switch INT • Front wiper switch LO	(V) 15 10 5 0 •••••10ms	E
					• Hold wiper switch LO	 РКІВ4959Ј Арргох. 1.0 V	
5 Y,		Y/R Combination ON switch input 2		ON Lighting, turn, wiper switch	OFF (Wiper intermittent dial position 4)	Approx. 0 V	G
					Any of the conditions below	(V) 15	Н
	Y/R		ON		 Front washer switch Wiper intermittent dial position 1 Wiper intermittent dial position 5 Wiper intermittent dial position 6 	10 5 0 ++10ms PKIB4959J	I
						Approx. 1.0 V	J

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[TYPE 2]

Ter-	Wire	Measuring condition		uring condition			
minal No.	color		Ignition switch	Operation or condition		Reference value	
6	Y/G	Combination switch input 1	ON	Lighting, turn, wiper switch	OFF (Wiper intermittent dial position 4)	Approx. 0 V	
					Any of the conditions below • Front wiper switch HI • Wiper intermittent dial position 3	(V) 15 0 5 0 +10ms PKIB4959J Approx. 1.0 V	
					Any of the conditions below • Wiper intermittent dial position 1 • Wiper intermittent dial position 2	(V) 15 10 5 10 10 10 10 10 10 10 10 10 10	
					Any of the conditions below • Wiper intermittent dial position 6 • Wiper intermittent dial position 7	(V) 15 10 5 0 + 10ms PKIB4955J Approx. 0.8 V	
32	G/B	Combination switch output 5	ON	Lighting, turn, wiper switch	OFF (Wiper intermittent dial position 4)	(V) 15 0 0 0 0 0 0 0 0 0 0 0 0 0	
					 Any of the conditions below Wiper intermittent dial position 1 Wiper intermittent dial position 2 Wiper intermittent dial position 6 Wiper intermittent dial position 7 	(V) 15 0 5 0 ++10ms ++10ms 	

[TYPE 2]

Ter-	Wire			Measu	ring condition		-				
minal No.	color	Signal name	Ignition switch	Ор	peration or condition	Reference value	А				
		Combination		Lighting, turn,	OFF (Wiper intermittent dial position 4)	(V) 15 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	B C D				
33	G	switch output 4	ON	wiper switch	Any of the conditions below • Wiper intermittent dial position 1 • Wiper intermittent dial position 5 • Wiper intermittent dial position 6	(V) 10 5 0 + 10ms PKIB4958J Approx. 1.2 V	E				
34	W/L	Combination	ON	Lighting, turn,	OFF (Wiper intermittent dial position 4)	(V) 10 50 •••• 10ms •••• 10ms ••••• 10ms ••••• 10ms ••••• 10ms ••••• 10ms ••••• 10ms ••••• 10ms •••••• 10ms ••••••• 10ms ••••••• 10ms ••••••• 10ms ••••••••••••••••••••••••••••••••••••	H I				
34	VV/L	switch output 3	Ut 3 ON					wiper switch	Any of the conditions below • Wiper intermittent dial position 1 • Wiper intermittent dial position 2 • Wiper intermittent dial position 3	(V) 15 10 5 0 + 10ms PKIB4958J Approx. 1.2 V	J WW
25	WC	Combination		Lighting, turn, wiper switch	OFF	(V) 15 0 • • 10ms • • 10ms • • • • • • • • • • • • • • • • • • •	M				
35	W/G	switch output 2	switch output 2 ON (Wiper intermit	(Wiper intermit- tent dial position 4)	Any of the conditions below • Front wiper switch INT • Front wiper switch HI	(V) 10 5 0 ••••10ms ••••10ms ••••10ms •••••10ms •••••10ms •••••10ms •••••10ms •••••10ms •••••10ms ••••••	-				

[TYPE 2]

Ter-	Wire			Measu	ring condition		
minal No.	color	Signal name	Ignition switch	Ор	eration or condition	Reference value	
36	W/R	Combination	ON	Lighting, turn, wiper switch	OFF	(V) 15 0 5 0 •••• 10ms •••• 10ms •••• 10ms ••••• 10ms ••••• 10ms ••••• 10ms ••••• 10ms ••••• 10ms •••••• Арргох. 7.2 V	
36	W/K	switch output 1	switch output 1	switch output 1	(Wiper intermit- tent dial position 4)	Any of the conditions below • Front wiper switch MIST • Front wiper switch LO • Front washer switch	(V) 15 10 5 0 +10ms PKIB4958J Approx. 1.2 V
38	W/L	Ignition switch (ON)	ON			Battery voltage	
39	L	CAN – H	—		_	—	
40	Р	CAN – L	—		_	—	
42	GY	Battery power supply	OFF		_	Battery voltage	
52	В	Ground	ON			Approx. 0 V	
55	R	Battery power supply	OFF		_	Battery voltage	

Terminals and Reference Values for IPDM E/R

NKS00526

Terminal Wire				Measuring con	dition	
No.	color	Signal name	Ignition switch	Conception or condition		Reference value
21	L	Low speed signal	ON	Wipor switch	OFF	Approx. 0 V
21	L	Low speed signal	ON	Wiper switch	LOW	Battery voltage
31	L/B	High speed signal	ON Wiper switch	OFF	Approx. 0 V	
31	L/D	righ speed signal		wiper switch	HI	Battery voltage
32	L/Y	Wiper auto - stop signal	ON	Wiper operating		Battery voltage
32	L/ T	wiper auto - stop signal		Wiper	stopped	Approx. 0 V
38	В	Ground	ON —		Approx. 0 V	
44	OR	Washer pump power supply	ON	ON —		Battery voltage
48	L	CAN– H			—	
49	Р	CAN– L	_			_
60	В	Ground	ON	ON —		Approx. 0 V

How to Proceed With Trouble Diagnosis

- 1. Confirm the symptoms and customer complaint.
- 2. Understand operation description and function description. Refer to WW-61, "System Description" .
- 3. Perform preliminary check. Refer to WW-75, "Preliminary Check" .
- 4. Check symptom and repair or replace the cause of malfunction.
- 5. Does the front wiper and washer operate normally? If YES, GO TO 6. If NO, GO TO 4.

WW-74

NKS00527

6. INSPECTION END

Preliminary Check CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES AND FUSIBLE LINK

Check for blown fuses and fusible link.

Unit	Power source	Fuse and fusible link No.	
Front washer pump	Ignition switch ON or START	84	-
Front wiper motor, front wiper relay, front wiper HI relay	Battery	73	-
	Dattan	F	-
BCM	Battery	18	-
	Ignition switch ON or START	1	-

Refer to WW-68, "Wiring Diagram - WIPER -" .

OK or NG

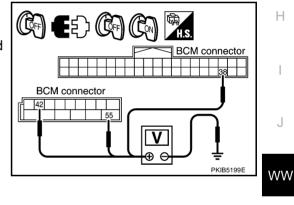
OK >> GO TO 2

NG >> If fuse is blown, be sure to eliminate the cause of malfunction before installing new fuse, Refer to <u>PG-5, "POWER SUPPLY ROUTING CIRCUIT"</u>.

2. CHECK POWER SUPPLY CIRCUIT

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

	Terminals		Ignition switch position	
((+)			
BCM connector	Terminal	(-)	OFF	ON
M90	38		Approx. 0 V	Battery voltage
M01	42	Ground	Battery voltage	Battery voltage
10191	M91 55		Battery voltage	Battery voltage



OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

$3. \ \mathsf{CHECK} \ \mathsf{GROUND} \ \mathsf{CIRCUIT}$

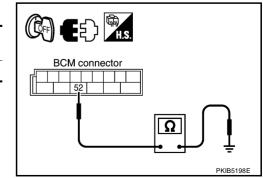
Check continuity between BCM harness connector and ground.

BCM connector	Terminal	Ground	Continuity
M91	52		Yes

OK or NG

OK >> INSPECTION END

NG >> Repair harness or connector.



NKS00528

[TYPE 2]

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CONSULT-II Functions (BCM)

NKS00529

ITYPE 2

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

BCM diagnosis position	Diagnosis mode	Description
	WORK SUPPORT	Changes the setting for each function.
WIPER	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Device operation can be checked by applying a drive signal to device.
BCM	SELF-DIAG RESULTS	BCM performs self-diagnosis of CAN communication.
DCIM	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.

CONSULT-II BASIC OPERATION

Refer to GI-36, "CONSULT-II Start Procedure" .

WORK SUPPORT

Operation Procedure

- 1. Touch "WIPER" on "SELECT TEST ITEM" screen.
- 2. Touch "WORK SUPPORT" on "SELECT DIAG MODE" screen.
- 3. Touch "WIPER SPEED SETTING" on "SELECT WORK ITEM" screen.
- 4. Touch "START".
- 5. Touch "CHANGE SETT".
- 6. The setting will be changed and "CUSTOMIZING COMPLETED" will be displayed.
- 7. Touch "END".

Display Item List

Item	Description	CONSULT-II	Factory setting
WIPER SPEED	Vehicle speed sousing type wiper control mode can be changed in this	ON	×
SETTING	mode. Vehicle speed sousing type wiper control mode between two ON/OFF.	OFF	_

DATA MONITOR

Operation Procedure

- 1. Touch "WIPER" on "SELECT TEST ITEM" screen.
- 2. Touch "DATA MONITOR" on "SELECT DIAG MODE" screen.
- 3. Touch either "ALL SIGNALS" or "SELECTION FROM MENU" on "SELECT MONITOR ITEM" screen.

ALL SIGNALS	Monitors all the signals.
SELECTION FROM MENU	Selects items and monitor them.

- 4. When "SELECTION FROM MENU" is selected, touch items to be monitored. When "ALL SIGNALS" is selected, all the items will be monitored.
- 5. Touch "START".
- 6. Touch "RECORD" while monitoring, then the status of the monitored item can be recorded. To stop recording, touch "STOP".

Display Item List

Monitor ite	em	Contents	
IGN ON SW	"ON/OFF"	Displays "ignition switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition switch signal.	
IGN SW CAN	"ON/OFF"	Displays "ignition switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN com- munication signal.	
FR WIPER HI	"ON/OFF"	Displays "FRONT WIPER HI (ON)/Other (OFF)" status as judged from wiper switch signal.	
FR WIPER LOW	"ON/OFF"	Displays "FRONT WIPER LOW (ON)/Other (OFF)" status as judged from wiper switch signal.	
FR WIPER INT	"ON/OFF"	Displays "FRONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal.	
FR WASHER SW	"ON/OFF"	Displays "FRONT WASHER Switch (ON)/Other (OFF)" status as judged from wiper switch signal.	

[TYPE 2]

Monitor item		Contents	^
INT VOLUME	"1 - 7"	Displays intermittent operation dial position setting (1 - 7) as judged from wiper switch signal.	A
FR WIPER STOP	"ON/OFF"	Displays "Stopped (ON)/Operating (OFF)" status as judged from auto-stop signal.	
VEHICLE SPEED	"km/h"	Displays vehicle speed status as judged from vehicle speed signal.	В
RR WIPER ON NOTE 1	"ON/OFF"	Displays "Rear Wiper ON (ON)/Other (OFF)" status as judged from wiper switch signal.	
RR WIPER INT NOTE 1	"ON/OFF"	Displays "Rear Wiper INT (ON)/Other (OFF)" status as judged from wiper switch signal.	C
RR WASHER SW NOTE 1	"ON/OFF"	Displays "Rear Washer Switch (ON)/Other (OFF)" status as judged from wiper switch signal.	0
RR WIPER STOP NOTE 1	"ON/OFF"	Displays "Rear Wiper Stop (ON)/Other (OFF)" status, as judged from wiper switch signal.	
RR WIPER STP2 NOTE 2	"OFF"	_	D

NOTE:

1. Coupe models

2. This item is displayed, but cannot be monitored.

ACTIVE TEST

Operation Procedure

- 1. Touch "WIPER" on "SELECT TEST ITEM" screen.
- 2. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 3. Touch item to be tested and check operation of the selected item.
- 4. During the operation check, touching "BACK" deactivates the operation.

Display Item List

Test item	Display on CONSULT-II screen	Description
Front wiper output	FR WIPER	With a certain operation (OFF, HI, LO, INT), front wiper can be operated.
Rear wiper output NOTE	RR WIPER	Rear wiper can be operated by ON-OFF operation.

NOTE:

Coupe models

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CONSULT-II Functions (IPDM E/R)

NKS0052A

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

Diagnosis Mode	Description
SELF-DIAG RESULTS	Refer to PG-32, "SELF-DIAG RESULTS".
DATA MONITOR	The input/output data of IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE TEST	IPDM E/R sends a drive signal to electronic components to check their operation.

CONSULT-II BASIC OPERATION

Refer to GI-36, "CONSULT-II Start Procedure" .

DATA MONITOR

Operation Procedure

- 1. Touch "DATA MONITOR" on "SELECT DIAG MODE " screen.
- 2. Touch "ALL SIGNALS", "MAIN SIGNALS" or "SELECTION FROM MENU" on "SELECT MONITOR ITEM" screen.

ALL SIGNALS	Monitors all items.
MAIN SIGNALS	Monitor the predetermined item.
SELECTION FROM MENU	Selects items and monitors them.

3. Touch the required monitoring item on "SELECTION FROM MENU". In "ALL SIGNALS", all items are monitored. In "MAIN SIGNALS", predetermined items are monitored.

- 4. Touch "START".
- 5. Touch "RECORD" while monitoring to record the status of the item being monitored. To stop recording, touch "STOP".

All Signals, Main Signals, Selection From Menu

CONSU	CONSULT-II		Monitor item selection			
Item name	screen display	Display or unit	ALL SIGNALS	MAIN SIGNALS	SELECTION FROM MENU	Description
FR wiper request	FR WIP REQ	STOP/LOW/HI	×	×	×	Signal status input from BCM
Wiper auto stop	WIP AUTO STOP	ACT P/STOP P	×	×	×	Output status of IPDM E/R
Wiper protection	WIP PROT	OFF/Block	×	×	×	Control status of IPDM E/R

NOTE:

Perform monitoring of IPDM E/R data with ignition switch ON. When ignition switch is at ACC, the display may not be correct.

ACTIVE TEST

Operation Procedure

- 1. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Touch item to be tested, and check operation.
- 3. Touch "START".
- 4. Touch "STOP" while testing to stop the operation.

Test item CONSULT-II screen display		Description		
Front wiper (HI, LO) output	FR WIPER	With a certain operation (OFF, HI ON, LO ON), front wiper relay (Lo, Hi) can be operated.		

Front Wiper Does Not Operate

CAUTION:

During IPDM E/R fail-safe control, front wipers may not operate. Refer to <u>PG-30, "CAN COMMUNICA-</u> <u>TION LINE CONTROL"</u> in "PG IPDM E/R" to make sure that it is not in fail-safe status.

1. ACTIVE TEST

(B) With CONSULT-II

- Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
- 3. Touch "LO" or "HI" screen.

Without CONSULT-II Start up auto active test. Refer to <u>PG-35, "Auto Active Test"</u>.

Does front wiper operate normally?

YES >> GO TO 5. NO >> GO TO 2.

2. CHECK FRONT WIPER CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector and front wiper motor connector.
- 3. Check continuity between IPDM E/R harness connector (A) and front wiper motor harness connector (B).

А			Continuity	
Connector	Terminal	Connector	Terminal	Continuity
E7	21	E52	3	Yes
	31	LJZ	2	165

4. Check continuity between IPDM E/R harness connector (A) and Ground.

	A		Continuity
Connector	Terminal	Ground	Continuity
E7	21	Giouna	No
	31		NO

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

3. CHECK GROUND CIRCUIT

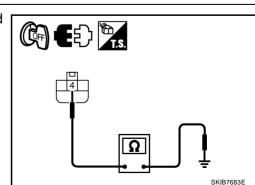
Check continuity between front wiper motor harness connector and ground.

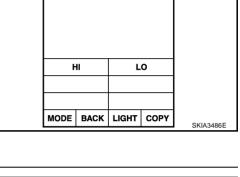
Front wiper motor connector	· Ierminal		Continuity
E52	4		Yes

OK or NG

OK >> GO TO 4.

NG >> Repair harness or connector.

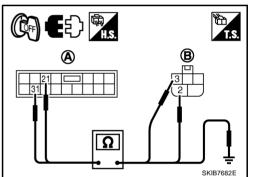




ACTIVE TEST

OFF

FRONT WIPER





[TYPE 2]

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4. CHECK IPDM E/R

(B)With CONSULT-II

- 1. Connect IPDM E/R connector and front wiper motor connector.
- Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 3. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
- 4. Touch "LO" or "HI" screen.
- 5. Check voltage between IPDM E/R harness connector and ground while front wiper (HI, LO) is operating.

Terminals				
(+)			Condition	Voltage
IPDM E/R connector	Terminal	(-)		(Approx.)
	21	- Ground	Stopped	0 V
E7	21		LO operation	Battery voltage
	31		Stopped	0 V
			HI operation	Battery voltage

Without CONSULT-II

- 1. Connect IPDM E/R connector and front wiper motor connector.
- 2. Start up auto active test. Refer to PG-35, "Auto Active Test" .
- 3. Check voltage between IPDM E/R harness connector and ground while front wiper (HI, LO) is operating.

Terminals				
(+)			Condition	Voltage
IPDM E/R connector	Terminal	(-)		(Approx.)
	21		Stopped	0 V
F7			LO operation	Battery voltage
L/	31	Ground	Stopped	0 V
	51		HI operation	Battery voltage

OK or NG

OK >> Replace front wiper motor.

NG >> Replace IPDM E/R.

5. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

(P)With CONSULT-II

- 1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT TEST ITEM" screen.
- 2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "FR WIPER INT", "FR WIPER LOW", and "FR WIPER HI" turn ON-OFF according to wiper switch operation.

Without CONSULT-II

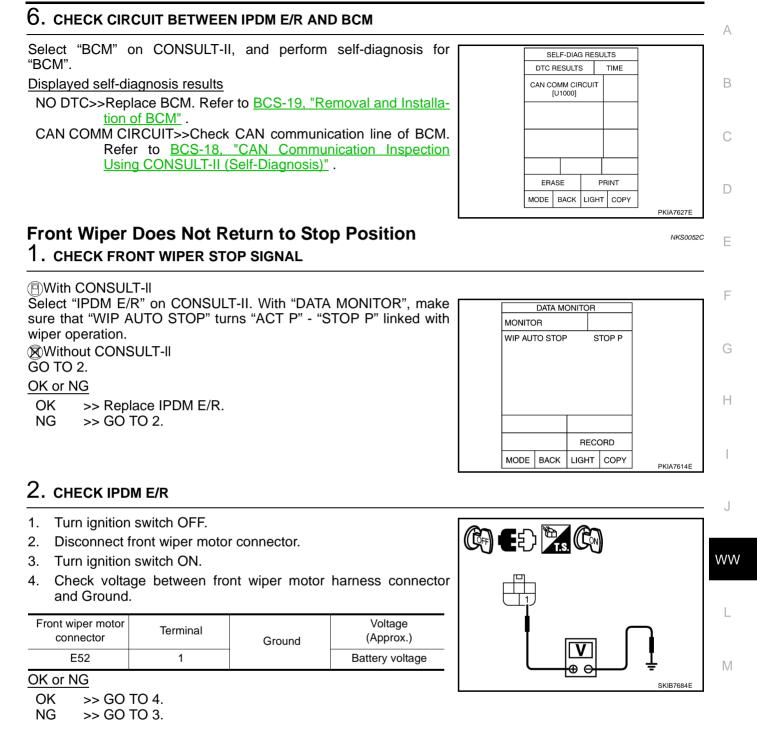
Refer to LT-282, "Combination Switch Inspection".

OK or NG

- OK >> GO TO 6.
- NG >> Check combination switch (wiper switch). Refer to <u>LT-</u> 282, "Combination Switch Inspection".

	DATA MO	ONITOR		
MONITC	R			
INT VOL	CAN ER HI ER LOW ER INT HER SW		ON ON DFF DFF DFF 7 ON w km/h	
VEINOE			Down	
RECORD		ORD		
MODE	BACK	LIGHT	COPE	PKIB0110E

[TYPE 2]



3. CHECK FRONT WIPER AUTO STOP CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- 3. Check continuity between IPDM E/R harness connector and front wiper motor harness connector.

A			Continuity	
Connector	Terminal	Connector Terminal		Continuity
E7	32	E52	1	Yes

4. Check continuity between IPDM E/R harness connector and Ground.

	Ą		Continuity	
Connector	Connector Terminal		Continuity	
E7	32		Yes	

OK or NG

OK >> Replace IPDM E/R.

NG >> Repair harness or connector.

4. CHECK IPDM E/R

- 1. Connect IPDM E/R connector and front wiper motor connector.
- 2. Turn ignition switch ON.

 Check voltage between IPDM E/R harness connector and ground while front wiper motor is stopped and while it is operating.

	T				
	Terminal				
((+)		Condition	Voltage	
IPDM E/R connector	Terminal	(-)		(Approx.)	
E7	32	Ground	Wiper stopped	0 V	
E7 52		Ciouna	Wiper operating	Battery voltage	

OK or NG

- OK >> Replace IPDM E/R.
- NG >> Replace front wiper motor.

Only Front Wiper Low Does Not Operate

1. ACTIVE TEST

With CONSULT-II

- Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
- 3. Touch "LO" screen.

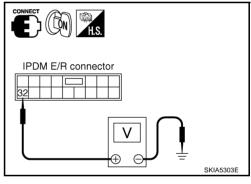
Without CONSULT-II

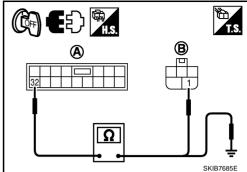
Start up auto active test. Refer to PG-35, "Auto Active Test"

Does front wiper operate normally?

- YES >> Refer to LT-282, "Combination Switch Inspection" .
- NO >> GO TO 2.

	ACTIVE TEST			
FRONT	WIPER		OFF	
			-	
н	I	L	0	
н		L	0	
H		L	0	





NKS0052D

2. CHECK FRONT WIPER MOTOR CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector and front wiper motor connector.
- 3. Check continuity between IPDM E/R harness connector (A) and front wiper motor harness connector (B).

	A	В		Continuity
Connector	Terminal	Connector	Terminal	-
E7	21	E52	3	Yes

Check continuity between IPDM E/R harness connector and 4. ground.

ŀ	A		Continuity
Connector	Terminal	Ground	Continuity
E7	21		No

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

3. CHECK IPDM E/R

(P)With CONSULT-II

- Connect IPDM E/R connector and front wiper motor connector. 1.
- Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" 2. on "SELECT DIAG MODE" screen.
- 3. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
- Touch "LO" screen. 4.
- 5. Check voltage between IPDM E/R harness connector and ground while front wiper LO is operating.

IPDM E/R connector	Terminal	Ground	Voltage (Approx.)
E7	21		Battery voltage

Without CONSULT-II

- Connect IPDM E/R connector and front wiper motor connector. 1.
- 2. Start up auto active test. Refer to PG-35, "Auto Active Test" .
- 3. Check voltage between IPDM E/R harness connector and ground while front wiper LO is operating.

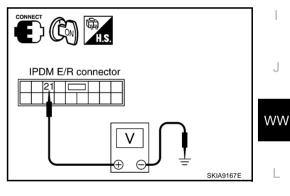
IPDM E/R connector	Terminal	Ground	Voltage (Approx.)
E7	21		Battery voltage

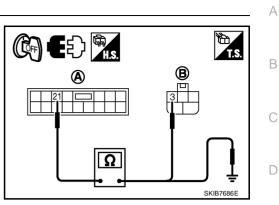
OK or NG

OK >> Replace front wiper motor.

NG >> Replace IPDM E/R.







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Only Front Wiper Hi Does Not Operate

1. ACTIVE TEST

With CONSULT-II

- Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 2. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
- 3. Touch "HI" screen.

Without CONSULT-II Start up auto active test. Refer to <u>PG-35, "Auto Active Test"</u>

Does front wiper operate normally?

YES >> Refer to <u>LT-282, "Combination Switch Inspection"</u>. NO >> GO TO 2.

2. CHECK FRONT WIPER MOTOR CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector and front wiper motor connector.
- 3. Check continuity between IPDM E/R harness connector (A) and front wiper motor harness connector (B).

	A	В		Continuity
Connector	Terminal	Connector Terminal		
E7	31	E52	2	Yes

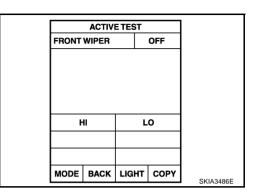
4. Check continuity between IPDM E/R harness connector (A) and ground.

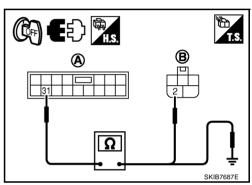
ŀ	A		Continuity	
Connector	Terminal	Ground	Continuity	
E7	31		No	

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.





[TYPE 2]

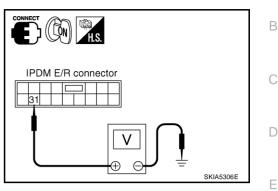
NKS0052E

3. CHECK IPDM E/R

(B)With CONSULT-II

- 1. Connect IPDM E/R connector and front wiper motor connector.
- Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 3. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
- 4. Touch "HI" screen.
- 5. Check voltage between IPDM E/R harness connector and ground while front wiper HI is operating.

IPDM E/R connector	Terminal	Ground	Voltage (Approx.)
E7	31		Battery voltage



[TYPE 2]

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Without CONSULT-II

- 1. Connect IPDM E/R connector and front wiper motor connector.
- 2. Start up auto active test. Refer to PG-35, "Auto Active Test" .
- 3. Check voltage between IPDM E/R harness connector and ground while front wiper HI is operating.

IPDM E/R connector	Terminal	Ground	Voltage (Approx.)
E7	31		Battery voltage

OK or NG

- OK >> Replace front wiper motor.
- NG >> Replace IPDM E/R.

Only Front Wiper Intermittent Does Not Operate

1. CHECK COMBINATION SWITCH

()With CONSULT-II

- 1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT TEST ITEM" screen.
- Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "FR WIPER INT", turn ON-OFF according to wiper switch operation.

Without CONSULT-II

Refer to LT-282, "Combination Switch Inspection" .

OK or NG

- OK >> Replace BCM. Refer to <u>BCS-19</u>, "Removal and Installation of <u>BCM</u>".
- NG >> Check combination switch (wiper switch) Refer to <u>LT-</u> <u>282, "Combination Switch Inspection"</u>.

	DATA MO	ONITOR			
MONITO	R				WW
IGN ON IGN SW			NC NC		
FR WIPE	ER HI	C	DFF		
FR WIPE		-)FF)FF		
FR WAS	HER SW	-	OFF		
INT VOL	UME ER STOP	. (7 DN		
VEHICL	E SPEED	0.0	km/h		
		Page	Down		M
		REC	ORD		
MODE	BACK	LIGHT	COPE	PKIB0110E	

[TYPE 2]

Front Wiper Interval Time Is Not Controlled by Vehicle Speed 1. CHECK FUNCTION OF COMBINATION METER

Confirm that speedometer operates normally.

Does front wiper operate normally?

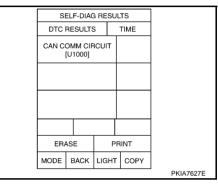
YES >> GO TO 2.

NO >> Combination meter vehicle speed system malfunction. Refer to <u>DI-23, "Vehicle Speed Signal</u> <u>Inspection"</u>.

2. CHECK CAN COMMUNICATION BETWEEN BCM AND COMBINATION METER

Select "BCM" on CONSULT-II, and perform self-diagnosis for "BCM". <u>Displayed self-diagnosis results</u> NO DTC>>Replace BCM. Refer to <u>BCS-19, "Removal and Installation of BCM"</u>.

CAN COMM CIRCUIT>>Check CAN communication line of BCM. Refer to <u>BCS-18, "CAN Communication Inspection</u> <u>Using CONSULT-II (Self-Diagnosis)"</u>.



Front Wiper Intermittent Operation Switch Position Cannot Be Adjusted

1. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

(B)With CONSULT-II

- 1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT TEST ITEM" screen.
- Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "INT VOLUME", changes in order form 1 to 7 according to wiper switch operation.

Without CONSULT-II

Refer to LT-282, "Combination Switch Inspection" .

OK or NG

- OK >> Replace BCM. Refer to <u>BCS-19</u>, "Removal and Installation of <u>BCM</u>".
- NG >> Check combination switch (wiper switch). Refer to <u>LT-</u> <u>282, "Combination Switch Inspection"</u>.

Wiper Does Not Wipe When Front Washer Operates 1. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

(P)With CONSULT-II

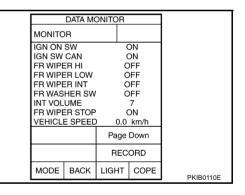
- 1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT TEST ITEM" screen.
- Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "FR WASHER SW" turn ON-OFF according to front wiper switch operation.

Without CONSULT-II

Refer to LT-282, "Combination Switch Inspection".

<u>OK or NG</u>

- OK >> Replace BCM. Refer to <u>BCS-19</u>, "Removal and Installation of BCM".
- NG >> Check front wiper switch. Refer to <u>LT-282, "Combination</u> <u>Switch Inspection"</u>.



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NKS0052H

	DATA MO	ONITOR		
MONITC	R			
IGN ON			NC	
IGN SW	CAN	(ON	
FR WIPE	ER HI	C	OFF	
FR WIPE	ER LOW	C	OFF	
FR WIPE	ER INT	C	DFF	
FR WAS	HER SW	0	OFF	
INT VOL	UME		7	
FR WIPE	R STOP	(ON	
	E SPEEC		km/h	
		Page	Down	
		REC	ORD	
MODE	BACK	LIGHT	COPE	PKIB0110E

After Front Wiper Operate for 10 Seconds, They Stop for 20 Seconds, and After **Repeating the Operations Five Times, They Become Inoperative**

CAUTION:

- When auto-stop signal has not varied for 10 seconds or longer while IPDM E/R is operating front wipers, IPDM E/R considers that front wipers are locked, and stops wiper output. That causes this symptom.
- This status can be checked by "DATA MONITOR" of "IPDM E/R" on which "WIPER PROTECTION" item shows "BLOCK".
- 1. CHECK WIPER MOTOR SIGNAL

(P)With CONSULT-II Select "IPDM E/R" by CONSULT-II. With "DATA MONITOR", make DATA MONITOR sure that "WIP AUTO STOP" turns "ACT P" - "STOP P" linked with MONITOR wiper operation. WIP AUTO STOP STOP P Without CONSULT-II GO TO 2. OK or NG OK >> Replace IPDM E/R. NG >> GO TO 2.

2. CHECK WIPER AUTO STOP CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R connector and front wiper motor connector.
- Check continuity between IPDM E/R harness connector (A) and 3. front wiper motor harness connector (B).

	A		В	
Connector	Terminal	Connector	Terminal	
E7	32	E52	1	Yes

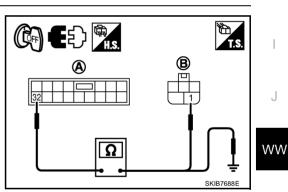
Check continuity between IPDM E/R harness connector (A) and 4. ground.

ŀ	Ą		Continuity	
Connector	Terminal	Ground	Continuity	
E7	32		No	

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.



RECORD

COPY

LIGHT

MODE

BACK

[TYPE 2]

А

В

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3. CHECK FRONT WIPER MOTOR

- 1. Connect IPDM E/R connector and front wiper motor connector.
- 2. Turn ignition switch ON.
- Check voltage between IPDM E/R harness connector and ground while front wiper motor is stopped and while it is operating.

	Terminal				
(+)			Condition	Voltage	
IPDM E/R connector	Terminal	(-)		(Approx.)	
E7	32	Ground	Wiper stopped	0 V	
L/	52	Ground	Wiper operating	Battery voltage	

OK or NG

OK >> Replace IPDM E/R.

NG >> Replace front wiper motor.

Front Wiper Does Not Stop

1. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

With CONSULT-II

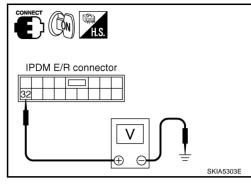
- 1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT TEST ITEM" screen.
- Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "FR WIPER INT", "FR WIPER LOW", "FR WIPER HI", and "FR WASHER SW" turn ON-OFF according to front wiper switch operation.

Without CONSULT-II

Refer to LT-282, "Combination Switch Inspection" .

OK or NG

- OK >> Replace IPDM E/R.
- NG >> Check combination switch (wiper switch). Refer to <u>LT-</u> 282, "Combination Switch Inspection".



		ONITOR		
MONITOR				
IGN ON SW IGN SW CAN FR WIPER HI FR WIPER LOW FR WIPER INT FR WASHER SW			ON OFF OFF OFF	
INT VOLUME		(7 ON	
		0.0	km/h	
		Page	Down	
		REC	ORD	
MODE	BACK	LIGHT	COPE	PKIB0110E
	IGN ON IGN SW FR WIPE FR WIPE FR WIPE FR WAS INT VOL FR WIPE VEHICLI	IGN ON SW IGN SW CAN FR WIPER HI FR WIPER LOW FR WIPER INT FR WASHER SW INT VOLUME FR WIPER STOP VEHICLE SPEED	IGN ON SW (IGN SW CAN (IGN SW CAN (IGN SW CAN (IGN SW) CA	IGN ON SW ON IGN SW CAN ON FR WIPER HI OFF FR WIPER LOW OFF FR WASHER SW OFF FR WASHER SW OFF INT VOLUME 7 FR WIPER STOP ON VEHICLE SPEED 0.0 km/h Page Down RECORD

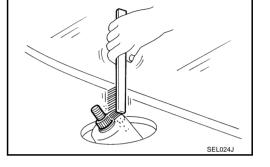
NKS0052K

Removal and Installation of Front Wiper Arms, Adjustment of Wiper Arms Stop Location NK\$00521 REMOVAL

- 1. Turn front wiper switch ON to operate wiper motor, and then turn front wiper switch OFF (auto stop).
- 2. Remove washer tube from washer tube joint.
- 3. Open hood, remove front wiper arm caps, and remove front wiper arm nuts.
- 4. Raise front wiper arms, and remove front wiper arms from vehicle.

INSTALLATION

- 1. Clean up the pivot area as shown in the figure. This will reduce possibility of front wiper arm looseness.
- Prior to front wiper arms installation, turn front wiper switch ON 2. to operate wiper motor, and then turn front wiper switch OFF (auto stop).



3. Lift the blade up and then set it down onto windshield glass surface to set the blade center to clearance "L1" & "L2" immediatelv. 4. Tighten front wiper arm nuts to specified torque.

Front wiper arm nuts (C) : 23.6 N·m (2.4 kg-m, 18 ft-lb)

- 5. Install washer tube from washer tube joint.
- Spray washer fluid. Turn front wiper switch ON to operate wiper 6. motor, and then turn front wiper switch OFF (auto stop).
- Make sure that wiper blades stop within clearance "L1" & "L2". 7.

Clearance "L1" : 63.9 ± 7.5 mm (2.516 ± 0.295 in) Clearance "L2" : 32.0 ± 6.5 mm (1.260 ± 0.256 in)

8. Install front wiper arm caps.

Removal and Installation of Front Wiper Drive Assembly REMOVAL

- 1. Remove front wiper arms. Refer to <u>WW-89</u>, "REMOVAL".
- 2. Remove cowl top cover. Refer to EI-20, "COWL TOP" .
- 3. Disconnect wiper motor connector (1) and remove connector clip (A).
- Remove front wiper drive assembly mounting bolts (B), and 4. remove front wiper drive assembly (2) from the vehicle.

INSTALLATION

1. Install front wiper drive assembly to the vehicle.

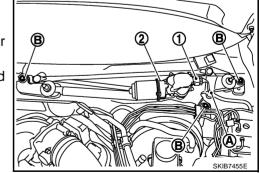
Front wiper drive assembly mounting bolts

Connect wiper motor connector. Turn front wiper switch ON to operate wiper motor, and then turn front 2. wiper switch OFF (auto stop).

WW-89

Install connector clips to the wiper frame, and install cowl top cover. Refer to EI-20, "COWL TOP". 3.

: 4.5 N·m (0.46 kg-m, 40 in-lb)



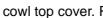
NKS0052M

Cowl top cover end

PKIA9951E

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[TYPE 2]

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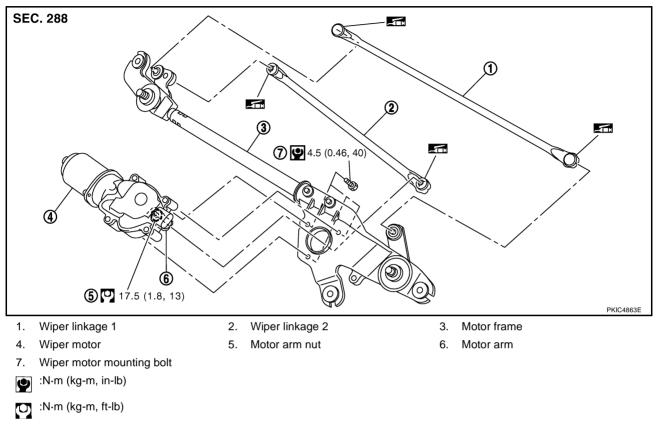
F

Н

4. Install front wiper arms and arm caps. Refer to WW-89, "INSTALLATION" .

Disassembly and Assembly Front Wiper Motor and Linkage

NKS0052N



:Should be lubricated with grease

DISASSEMBLY

- 1. Remove wiper linkages from wiper motor and motor frame.
- 2. Remove wiper motor mounting bolts, and remove wiper motor from wiper frame.

CAUTION:

Be careful not to bend wiper linkages nor to damage the resin part of ball joint when removing wiper linkages.

ASSEMBLY

- 1. Connect wiper motor connector. Turn front wiper switch ON to operate wiper motor, and then turn front wiper switch OFF (auto stop).
- 2. Disconnect wiper motor connector.
- 3. Install wiper motor to wiper frame.

```
Wiper motor mounting bolts
```

: 4.5 N·m (0.46 kg-m, 40 in-lb)

4. Install wiper linkages to wiper frame and wiper motor.

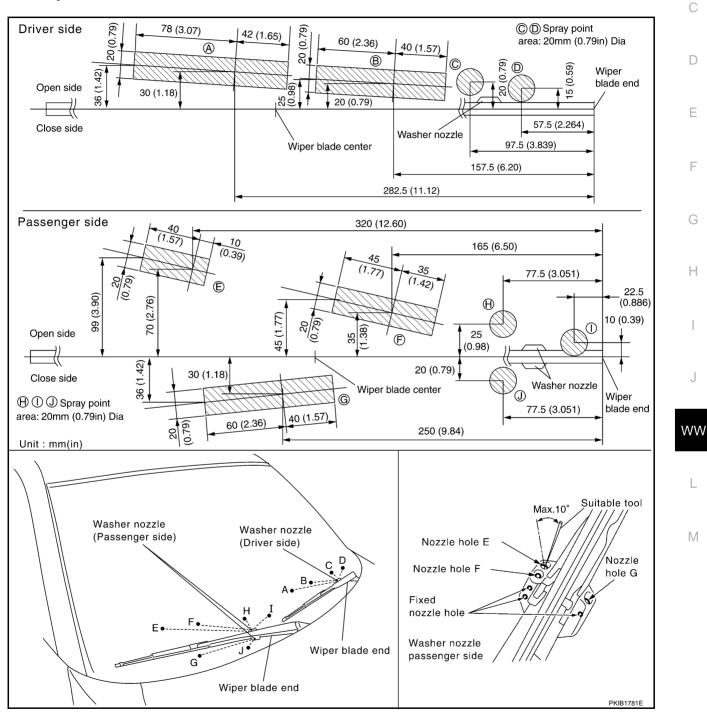
CAUTION:

- Never drop the wiper motor nor cause it to interfere with other parts.
- Check joint of motor arm and wiper linkages (at retainer) for grease conditions. Apply grease if necessary.

Washer Nozzle Adjustment

- 1. When wiper blade position is in auto stop condition, remove front wiper motor connector to ensure front wiper arms do not move.
- 2. Adjust each nozzle position (A, B, E, F, and G) so that spray positions are in the range of shaded parts. **CAUTION:**

Only washer nozzles (A, B, E, F, and G) can be adjusted. Washer nozzles (C, D, H, I, and J) cannot be adjusted because of fixed nozzles.



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Washer Tube Layout

Replace wiper arm assembly. Refer to <u>WW-89</u>, "Removal and Installation of Front Wiper Arms, Adjustment of <u>Wiper Arms Stop Location</u>".

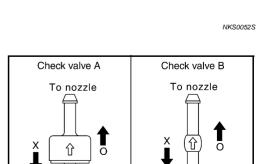
CAUTION:

Never remove/install washer nozzle from wiper arm assembly.

Removal and Installation of Front Washer Nozzle

Removal and Installation of Front Washer Tube Joint REMOVAL

- 1. Remove upwards while pressing pawls on reverse side.
- 2. Remove washer tube.



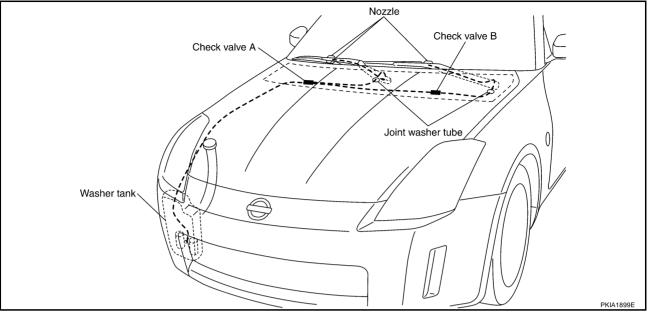
From reserver tank

Joint washer tube

PKIA1159E

NK\$00524

[TYPE 2]



INSTALLATION

Installation is the reverse order of removal.

Inspection for Washer Nozzle CHECK VALVE INSPECTION

Blow air in the injection direction, and check that air flows only one way. Make sure that the reverse direction (inhale) is not possible.

PKIA1160E

From reserver tank



Wiper arm side

Pàw

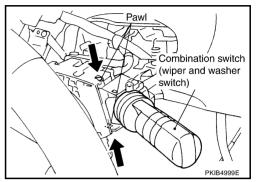
NKS0052.Q

Inspection of Front Wiper and Washer Switch Circuit

Refer to LT-282, "Combination Switch Inspection".

Removal and Installation of Front Wiper and Washer Switch REMOVAL

- 1. Remove steering column lower cover and combination meter. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
- 2. Disconnect wiper and washer switch connector.
- 3. Pull wiper and washer switch toward the passenger door while pressing pawls in direction shown by the arrow (\bigstar) in the figure, and remove it from the base.



INSTALLATION

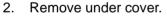
Installation is the reverse order of removal.

Removal and Installation of Washer Tank REMOVAL

1. Remove clip and pull out washer tank inlet.

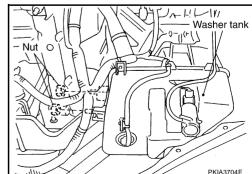


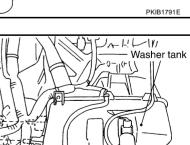
Bolt



- Remove fender protector. Refer to El-21, "FENDER PROTEC-3. <u>TOR"</u>.
- 4. Remove front bumper fascia. Refer to EI-14, "FRONT BUMPER".
- Disconnect washer pump connector. 5.
- Remove washer tank mounting bolt and nuts. 6.
- Remove washer tube, and remove washer tank from the vehicle. 7.

WW-93





Washer tank



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NKS0052U

INSTALLATION

Installation is the reverse order of removal.

CAUTION:

After installation, add water up to the upper level of washer tank inlet, and check for water leaks.

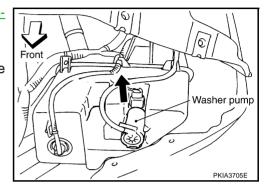
U

Washer tank mounting bolt and nuts

: 5.7 N·m (0.58 kg-m, 50 in-lb)

Removal and Installation of Washer Pump REMOVAL

- 1. Remove fender protector. Refer to <u>EI-21, "FENDER PROTEC-</u> <u>TOR"</u>.
- 2. Disconnect washer pump connector and remove washer tube.
- 3. Pull out washer pump in direction shown by the arrow (+) in the figure. Remove washer pump from washer tank.



INSTALLATION

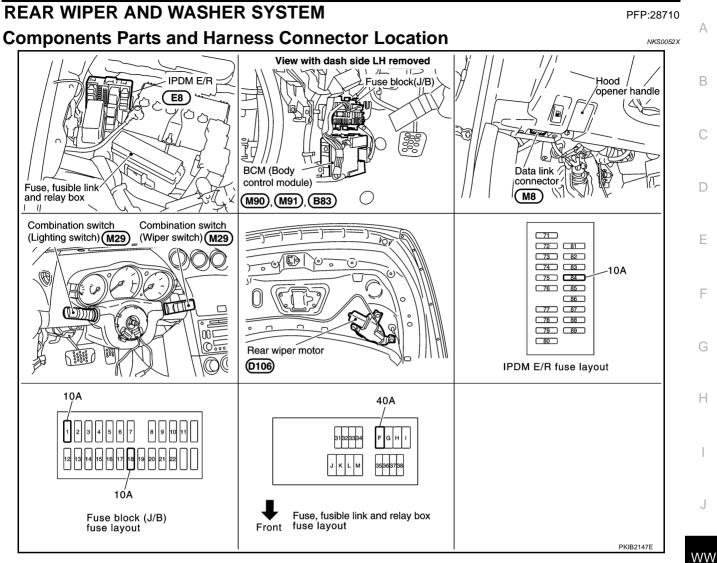
Installation is the reverse order of removal.

CAUTION:

When installing washer pump, there should be no packing twists, etc.

NKS0052W

[TYPE 2]



System Description

- Wiper switch (combination switch) is composed of a combination of 5 output terminals and 5 input terminals. Terminal combination status is read by BCM when switch is turned ON.
- BCM (body control module) controls rear wiper ON and INT (intermittent) operation.

OUT LINE

Power is supplied at all times

- through 40 A fusible link (letter F, located in fuse, fusible link and relay box)
- to BCM terminal 55,
- through 10 A fuse [No. 18, located in fuse block (J/B)]
- to BCM terminal 42.

When ignition switch is in ON or START position, power is supplied

- through 10 A fuse [No. 1, located in fuse block (J/B)]
- to BCM terminal 38,
- through 10 A fuse (No. 84, located in IPDM E/R)
- through IPDM E/R terminal 44
- to rear washer pump terminal 2.

Ground is supplied

- to BCM terminal 52
- through grounds M30 and M66,

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NKS0052)

- to combination switch terminal 12
- through grounds M30 and M66.

Rear Wiper Operation

When wiper switch is in rear wiper ON position, BCM detect rear wiper ON signal by BCM wiper switch reading function.

BCM operate rear wiper motor, power is supplied

- through BCM terminal 70
- to rear wiper motor 4.

Ground is supplied

- to rear wiper motor terminal 1 •
- through grounds B5, B6, D105 and T14.

With power and ground is supplied, rear wiper operates.

Intermittent Operation

The rear wiper motor operates wiper arms at low speed approximately every 7 seconds. When wiper switch is in rear wiper INT position, BCM detect rear wiper INT signal by BCM wiper switch reading function. (Refer to WW-64, "COMBINATION SWITCH READING FUNCTION") BCM operate rear wiper motor, power is supplied

- through BCM terminal 70
- to rear wiper motor 4.

Ground is supplied

- to rear wiper motor terminal 1
- through grounds B5, B6, D105 and T14.

With power and ground is supplied, rear wiper operates at intermittent.

Auto Stop Operation

With rear wiper switch turned OFF, rear wiper motor will continue to operate until wiper arm reaches rear wiper stopper.

Then wiper motor turns the other way and wiper arm moves once until wiper arm reaches stopper.

Washer Operation

When wiper switch is in rear wiper washer position, BCM detect rear wiper washer signal by BCM wiper switch reading function (Refer to WW-64, "COMBINATION SWITCH READING FUNCTION"), and combination switch (wiper switch) ground is supplied

- to rear washer pump terminal 1
- through combination switch terminal 13
- to combination switch terminal 12
- through grounds M30 and M66.

With ground is supplied, rear washer pump is operated.

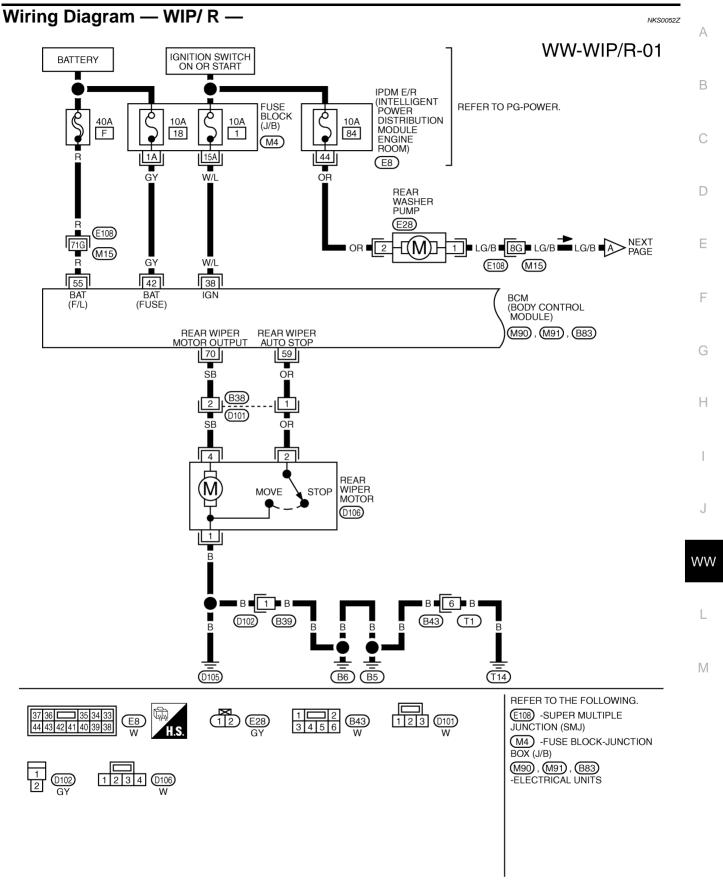
When BCM detects that rear washer pump has operated for 0.4 seconds or longer, BCM operates rear wiper motor low speed.

When BCM detects washer switch is OFF, low speed operation cycles approximately 3 times and then stops.

BCM WIPER SWITCH READING FUNCTION

Refer to WW-64, "COMBINATION SWITCH READING FUNCTION" .

[TYPE 2]

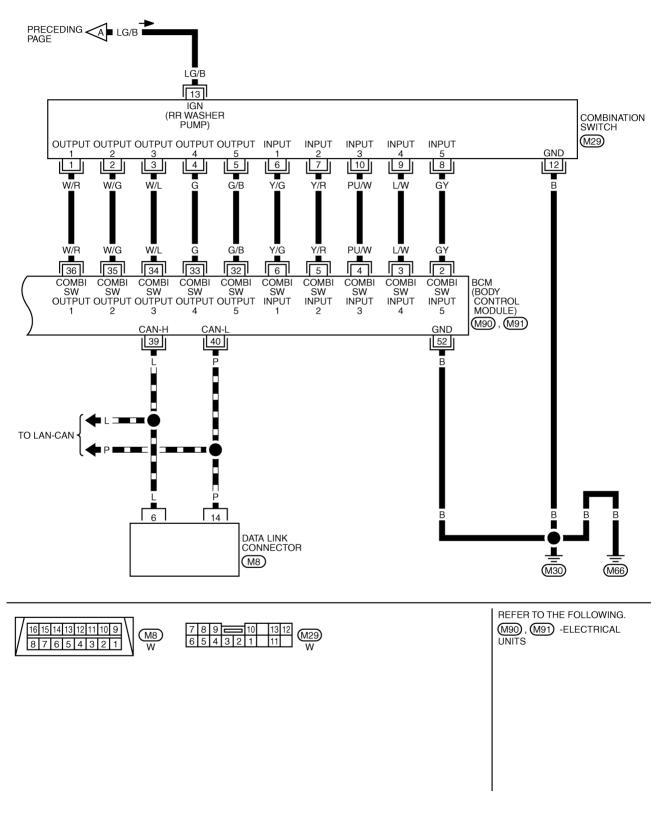


TKWT5618E

[TYPE 2]

WW-WIP/R-02

DATA LINE



TKWT4008E

Terminals and Reference Values for BCM

[TYPE 2]

NKS00530

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CAUTION:

- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF not to be fluctuated by overloaded.
- Turn wiper dial position to 4 except when checking waveform or voltage of wiper dial position.
 Wiper dial position can be confirmed on CONSULT-II. Refer to <u>WW-102, "DATA MONITOR"</u>.

Ter-	Wire			Measu	ing condition		С
minal No.	color	Signal name	Ignition switch	Ор	eration or condition	Reference value	
					OFF	Approx. 0 V	D
				Lighting, turn,	Rear washer switch	(V) 15 0 • • • 10ms • • • 10ms • • • • 10ms • • • • • • • • • • • • • • • • • • •	E
5	Y/R	Combination switch input 2	ON	wiper switch (Wiper intermit-		Approx. 1.0 V	0
				tent dial position 4)	Rear wiper switch ON	(V) 15 0 + 10ms PKIB4955J	G H I
						Approx. 0.8 v	
					OFF	Approx. 0 V	J
6	Y/G	Combination switch input 1	ON	Lighting, turn, wiper switch (Wiper intermit- tent dial position 4)	Rear wiper switch INT	(V) 15 0 • • 10ms PKIB4959J Approx. 1.0 V	
33	G	Combination	ON	Lighting, turn, wiper switch	OFF	(V) 15 10 5 0 • • 10ms PKIB4960J Approx. 7.2 V	M
55	33 G Switch output 4 ON	G switch output 4 ON (Wiper intermit- tent dial position 4)		Rear wiper switch INT	(V) 15 10 5 0 ++10ms PKIB4958J Approx. 1.2 V		

[TYPE 2]

Ter-	Wire			Measuring condition		
minal No.	color	Signal name	Ignition switch	Operation or condition		Reference value
34	W/L Combination	ON	Lighting, turn, wiper switch	OFF	(V) 15 0 5 0 • • • 10ms PKIB4960J Арргох. 7.2 V	
		W/L switch output 3		(Wiper intermit- tent dial position 4)	Rear washer switch	(V) 15 10 5 0 •••••10ms ••••••10ms ••••••••••••••••••••••••••••••••••••
38	W/L	Ignition switch (ON)	ON		_	Battery voltage
39	L	CAN – H			_	_
40	Р	CAN – L	_		_	_
42	GY	Battery power supply	OFF		_	Battery voltage
52	В	Ground	ON		_	Approx. 0 V
55	R	Battery power supply	OFF			Battery voltage
59	OR	Rear wiper auto	ON	Rear wiper operates	3	Approx. 0 V
		stop signal		Rear wiper does not operate		Battery voltage
70	00	Rear wiper		Rear wiper operates	3	Battery voltage
70	SB	motor output signal	ON	Rear wiper does no	t operate	Approx. 0 V

How to Proceed With Trouble Diagnosis

NKS00531

- 1. Confirm the symptoms and customer complaint.
- 2. Understand operation description and function description. Refer to <u>WW-95, "System Description"</u>.
- 3. Perform preliminary check. Refer to <u>WW-101, "Preliminary Check"</u>.
- 4. Check symptom and repair or replace the cause of malfunction.
- 5. Does rear wiper and washer operate normally? If YES, GO TO 6. If NO, GO TO 4.
- 6. INSPECTION END

Preliminary Check CHECK POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES AND FUSIBLE LINK

Check for blown fuses and fusible link.		
Unit	Power source	Fuse and fusible link No.
Rear washer pump	Ignition ON or START	84
	Ignition ON or START	1
BCM	Battery	F
	Dallery	18

Refer to WW-97, "Wiring Diagram - WIP/ R -- ".

OK or NG

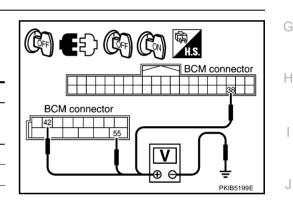
OK >> GO TO 2.

>> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to PG-NG 5, "POWER SUPPLY ROUTING CIRCUIT" .

2. CHECK POWER SUPPLY CIRCUIT

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

-	Ferminals	Ignition switch position		
(+)		(-)	(-) OFF	ON
BCM connector	Terminal	()	011	ÖN
M90	38		Approx. 0 V	Battery voltage
M91	42	Ground	Battery voltage	Battery voltage
10191	55		Battery voltage	Battery voltage



OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

3. CHECK GROUND CIRCUIT

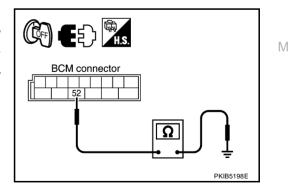
Check continuity between BCM and ground.

BCM connector	Terminal	Ground	Continuity
M91	52	Gibuna	Yes

OK or NG

OK >> INSPECTION END

NG >> Repair harness or connector.



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[TYPE 2]

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[TYPE 2]

CONSULT-II Functions (BCM)

NKS00533

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

BCM diagnosis position	Diagnosis mode	Description	
WIPER	DATA MONITOR	Displays BCM input data in real time.	
	ACTIVE TEST	Device operation can be checked by applying a drive signal to device.	

CONSULT-II BASIC OPERATION

Refer to GI-36, "CONSULT-II Start Procedure" .

DATA MONITOR

Operation Procedure

- 1. Touch "WIPER" on "SELECT TEST ITEM" screen.
- 2. Touch "DATA MONITOR" on "SELECT DIAG MODE" screen.
- 3. Touch either "ALL SIGNALS" or "SELECTION FROM MENU" on "SELECT MONITOR ITEM" screen.

ALL SIGNALS	Monitors all the signals.
SELECTION FROM MENU	Selects items and monitor them.

- 4. When "SELECTION FROM MENU" is selected, touch items to be monitored. When "ALL SIGNALS" is selected, all the items will be monitored.
- 5. Touch "START".
- 6. Touch "RECORD" while monitoring, then the status of the monitored item can be recorded. To stop recording, touch "STOP".

Monitor item		Contents
IGN ON SW	"ON/OFF"	Displays "ignition switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition switch signal.
IGN SW CAN	"ON/OFF"	Displays "ignition switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN com- munication signal.
FR WIPER HI	"ON/OFF"	Displays "FRONT WIPER HI (ON)/Other (OFF)" status as judged from wiper switch signal.
FR WIPER LOW	"ON/OFF"	Displays "FRONT WIPER LOW (ON)/Other (OFF)" status as judged from wiper switch signal.
FR WIPER INT	"ON/OFF"	Displays "FRONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal.
FR WASHER SW	"ON/OFF"	Displays "FRONT WASHER Switch (ON)/Other (OFF)" status as judged from wiper switch signal.
INT VOLUME	"1 - 7"	Displays intermittent operation dial position setting (1 - 7) as judged from wiper switch signal.
FR WIPER STOP	"ON/OFF"	Displays "Stopped (ON)/Operating (OFF)" status as judged from auto-stop signal.
VEHICLE SPEED	"km/h"	Displays vehicle speed status as judged from vehicle speed signal.
RR WIPER ONNOTE 1	"ON/OFF"	Displays "Rear Wiper ON (ON)/Other (OFF)" status as judged from wiper switch signal.
RR WIPER INTNOTE 1	"ON/OFF"	Displays "Rear Wiper INT (ON)/Other (OFF)" status as judged from wiper switch signal.
RR WASHER SWNOTE 1	"ON/OFF"	Displays "Rear Washer Switch (ON)/Other (OFF)" status as judged from wiper switch signal.
RR WIPER STOPNOTE 1	"ON/OFF"	Displays "Rear Wiper Stop (ON)/Other (OFF)" status, as judged from wiper switch signal.
RR WIPER STP2 ^{NOTE 2}	"OFF"	_

Display Item List

NOTE:

1. Coupe models

2. This item is displayed, but cannot be monitored.

ACTIVE TEST

Operation Procedure

- 1. Touch "WIPERS" on "SELECT TEST ITEM" screen.
- 2. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 3. Touch item to be tested and check operation of the selected item.
- 4. During the operation check, touching "BACK" deactivates the operation.

Display Item List

Test item	Display on CONSULT-II screen	Description	
Front wiper output	FR WIPER	With a certain operation (OFF, HI, LO, INT), front wiper can be operated.	r
Rear wiper output ^{NOTE}	RR WIPER	Rear wiper can be operated by any ON-OFF operation	l

NOTE:

Coupe models

Rear Wiper Does Not Operate

1. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

(P)With CONSULT-II

- 1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT TEST ITEM" screen.
- Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "RR WIPER ON", turn ON-OFF according to front wiper switch operation.

Without CONSULT-II

Refer to LT-282, "Combination Switch Inspection".

OK or NG

OK >> GO TO 2.

NG >> Check combination switch (wiper switch). Refer to <u>LT-282, "Combination Switch Inspection"</u>.

2. ACTIVE TEST

(P)With CONSULT-II

- 1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT SYSTEM" screen.
- 2. Select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- 3. Select "REAR WIPER" on "SELECT TEST ITEM" screen.
- 4. Confirm that rear wiper operates normally.

Without CONSULT-II

ĞO TO 3.

Does rear wiper operate normally?

- YES >> Replace BCM. Refer to <u>BCS-19</u>, "Removal and Installation of <u>BCM</u>".
- NO >> GO TO 3.

111111		W 0					
INT VO	LUME		7				
FR WIF	ER STO	DP C	N				
VEHICL	E SPEI	ED 0.0	km/h				Ŀ
RR WIF	PER ON	0	FF				
RR WIF	PER INT	· 0	FF				
RR WA	SHER S	SW O	FF				
RR WIF	PER STO	O PC	FF				
RR WIF	PER STI	P2 0	FF				
Page	e Up						
		REC	ORD				
MODE	BACK	LIGHT	COPY	D	KIB1785E		
 				- FI	(DI/00L	_	

OFF

DATA MONITOR

MONITOR

					WW
	ACTIV	ETEST			
RR WIP	ER		OFF		
					1
					M
0	N				
MODE	BACK	LIGHT	СОРҮ		
MODE	BROK	LIGITI	0011	SKIA3503E	

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With rear wiper switch ON, check voltage between rear wiper motor harness connector and ground.

Rear wiper motor connector D106	Terminal 4	Ground	Voltage (Approx.) Battery voltage			
OK or NG						
OK >> GO TO 4.						
NG >> GO TO 5.						

4. CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect rear wiper motor connector.
- 3. Check continuity between rear wiper motor harness connector and ground.

Rear wiper motor connector	Terminal	Ground	Continuity
D106	1		Yes

OK or NG

- OK >> Replace rear wiper motor.
- NG >> Repair harness or connector.

5. CHECK REAR WIPER CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect BCM connector and rear wiper motor connector.
- 3. Check continuity between BCM harness connector and rear wiper motor harness connector.

BCM		Rear wip	Continuity	
Connector	Terminal	Connector	Terminal	
B83	70	D106	4	Yes

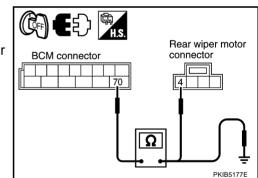
4. Check continuity between BCM harness connector and ground.

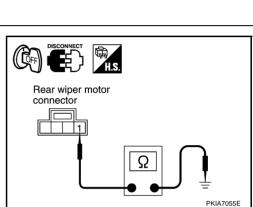
BCM connector	Terminal	Ground	Continuity
B83	70	Ground	No

OK or NG

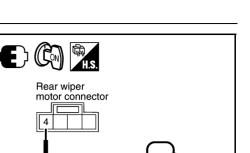
OK >> Replace BCM. Refer to <u>BCS-19</u>, "Removal and Installation of BCM".

NG >> Repair harness or connector.





÷Α



PKIB1784E

Rear Wiper Does Not Return to Stop Position

1. CHECK REAR WIPER MOTOR CIRCUIT

2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "RR WIPER STOP", turn ON-OFF linked with rear wiper switch operation.

Without CONSULT-II GO TO 2.

(P)With CONSULT-II

<u>OK or</u> NG

1.

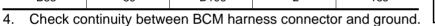
OK >> Replace BCM. Refer to <u>BCS-19</u>, "Removal and Installation of <u>BCM</u>".

NG >> GO TO 2.

2. CHECK REAR WIPER AUTO STOP CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect BCM connector and rear wiper motor connector.
- 3. Check continuity between BCM harness connector and rear wiper motor harness connector.

B	CM	Rear wip	Continuity	
Connector	Terminal	Connector	Terminal	
B83	59	D106	2	Yes



BCM connector	Terminal	Ground	Continuity
B83	59	Ciodila	No

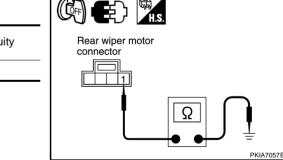
5. Check continuity between rear wiper motor harness connector and ground.

Rear wiper motor connector	Terminal	Ground	Continuity
D106	1		Yes

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

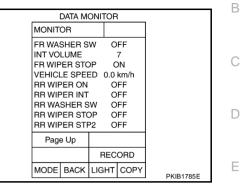


E) 🖻

BCM connector

59

Revision: 2006 November



Rear wiper motor

2

PKIB5178E

connector

Ω

[TYPE 2]

NKS00535

А

Н

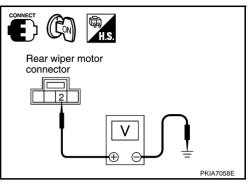
WW

Μ

$\overline{3}$. CHECK REAR WIPER MOTOR SIGNAL

- 1. Connect BCM connector and rear wiper motor connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between rear wiper motor harness connector terminal and ground while rear wiper motor is stopped and while it is operating.

Term	ninals				
(+)			Condition	Voltage (Approx.)	
Rear wiper motor connector	Terminal	(-)			
D106	2	Ground	Wiper stopped	Battery voltage	
D106	2	Ground	Wiper operating	0 V	



OK or NG

- OK >> Replace BCM. Refer to <u>BCS-19, "Removal and Installation of BCM"</u>.
- NG >> Replace rear wiper motor.

Only Rear Wiper ON Does Not Operate

Refer to LT-282, "Combination Switch Inspection" .

Only Rear Wiper INT Does Not Operate

Refer to LT-282, "Combination Switch Inspection" .

Wiper Does Not Wipe When Rear Washer Operates

Refer to LT-282, "Combination Switch Inspection" .

Rear Wiper Does Not Stop

1. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

With CONSULT-II

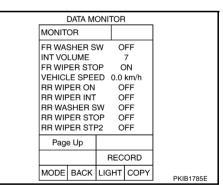
- 1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT TEST ITEM" screen.
- Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "RR WIPER INT", "RR WIPER ON", and "RR WASHER SW" turn ON-OFF according to wiper switch operation.

Without CONSULT-II

Refer to LT-282, "Combination Switch Inspection" .

OK or NG

- OK >> Replace BCM. Refer to <u>BCS-19</u>, "Removal and Installation of <u>BCM</u>".
- NG >> Check combination switch (wiper switch). Refer to LT-282, "Combination Switch Inspection".



NKS00536

NKS00537

NKS00538

NKS00530

[TYPE 2]

А

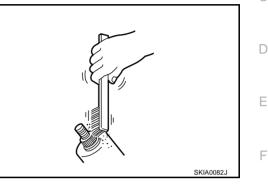
В

Removal and Installation of Rear Wiper Arm, Adjustment of Wiper Arms Stop Location REMOVAL

- 1. Turn rear wiper switch ON to operate wiper motor, and then turn rear wiper switch OFF (auto stop).
- 2. Remove rear wiper arm cap, and remove rear wiper arm nut.
- 3. Raise rear wiper arm, and remove rear wiper arm from the vehicle.

INSTALLATION

- 1. Clean up the pivot area as shown in the figure. This will reduce possibility of rear wiper arm nut looseness.
- 2. Prior to rear wiper arm installation, turn rear wiper switch ON to operate wiper motor, and then turn rear wiper switch OFF (Auto Stop).



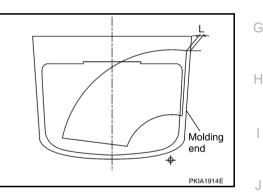
- 3. Lift the blade up and then set it down onto windshield glass surface to set the blade center to clearance "L" immediately.
- 4. Tighten wiper arm nuts to specified torque.

Rear wiper arm nut is : 15.2 N·m (1.6 kg-m, 11 ft-lb)

- 5. Spray washer fluid. Turn rear wiper switch ON to operate wiper motor, and then turn rear wiper switch OFF (auto stop).
- 6. Make sure that wiper blade stop within clearance "L".

Clearance "L" : 30 ± 7.5 mm (1.181 \pm 0.295 in)

7. Install rear wiper arm caps.



WW

L

Μ

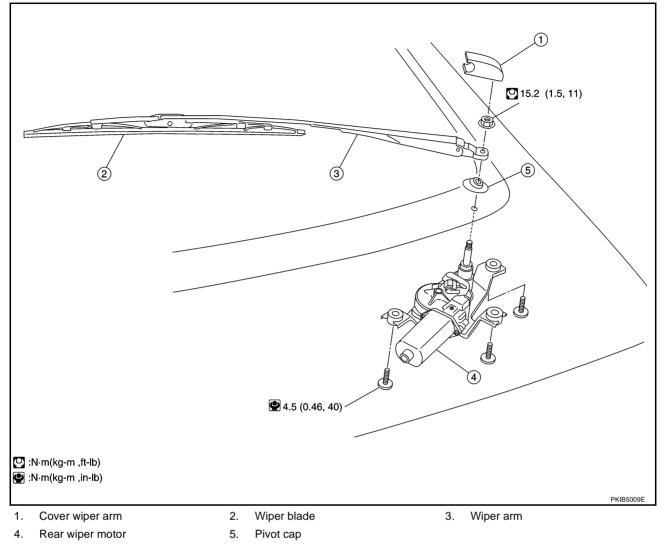
Revision: 2006 November

2006 350Z

Removal and Installation of Rear Wiper Motor

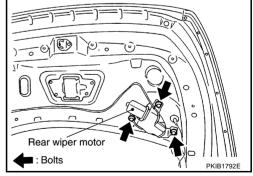
NKS0053B

[TYPE 2]



REMOVAL

- 1. Remove rear wiper arm. Refer to <u>WW-107, "REMOVAL"</u>.
- 2. Remove pivot cap.
- 3. Remove back door finisher lower. Refer to <u>EI-48, "BACK DOOR</u> <u>FINISHER"</u>.
- 4. Disconnect rear wiper motor connector.
- 5. Remove rear wiper motor mounting bolts and remove rear wiper motor from the vehicle.



INSTALLATION

1. Install rear wiper motor to the vehicle.

Rear wiper motor mounting bolts 💿 : 4.5 N·m (0.46 kg-m, 40 in-lb)

- 2. Install pivot cap.
- 3. Connect rear wiper motor connector. Turn rear wiper switch ON to operate wiper motor, and then turn rear wiper switch OFF (auto stop).
- 4. Install back door finisher lower. Refer to EI-48, "BACK DOOR FINISHER".
- 5. Install rear wiper arm and arm cap. Refer to WW-107, "INSTALLATION" .

Revision: 2006 November

WW-108

2006 350Z

Unit: mm (in)

CAUTION:

Never drop the rear wiper motor nor cause it to interfere with other parts.

Washer Nozzle Adjustment

Adjust spray position as shown in the figure.

				()
Spray position	h (height)	ℓ (width)	S	Diameter (spray position range)
А	30 (1.18)	73 (2.87)	50 (1.97)	30
В	12 (0.47)	50 (1.97)	50 (1.97)	30

 Vehicle center
 Nozzle

 A
 B

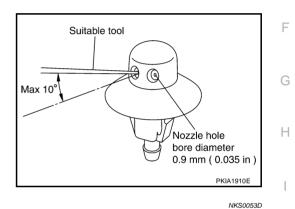
 Black
 printed

 PKIB1788E
 E

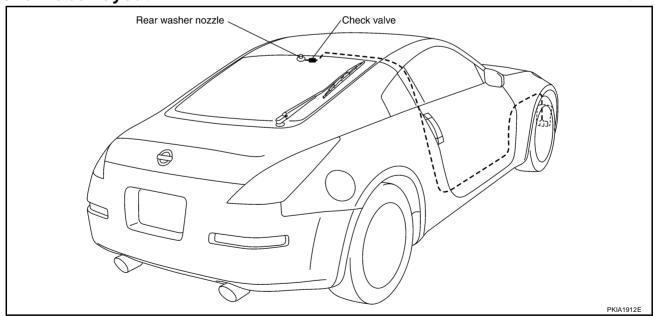
Adjust washer nozzle with suitable tool as shown in the figure.

: ±10° (In any direction)

Adjustable range



Washer Tube Layout



NKS0053C

А

J

WW

L

Μ

Removal and Installation of Rear Washer Nozzle REMOVAL

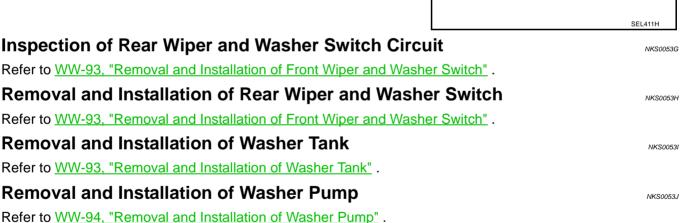
- Remove washer tube(1). 1.
- While pressing pawl (A) on the reverse side of rear washer noz-2. zle (2), remove rear washer nozzle (2) from back door (3).

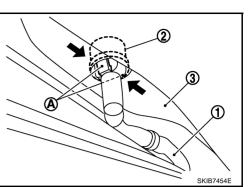
INSTALLATION

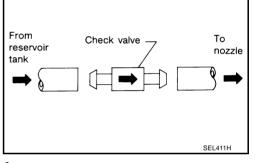
Installation is the reverse order of removal. Adjust nozzle spray location. Refer to WW-109, "Washer Nozzle Adjustment".

Inspection for Washer Nozzle CHECK VALVE INSPECTION

A check valve is provided in washer fluid line. Be careful not to connect check valve to washer tube in the wrong direction.







NKS0053F

ITYPE 21

[TYPE 2]



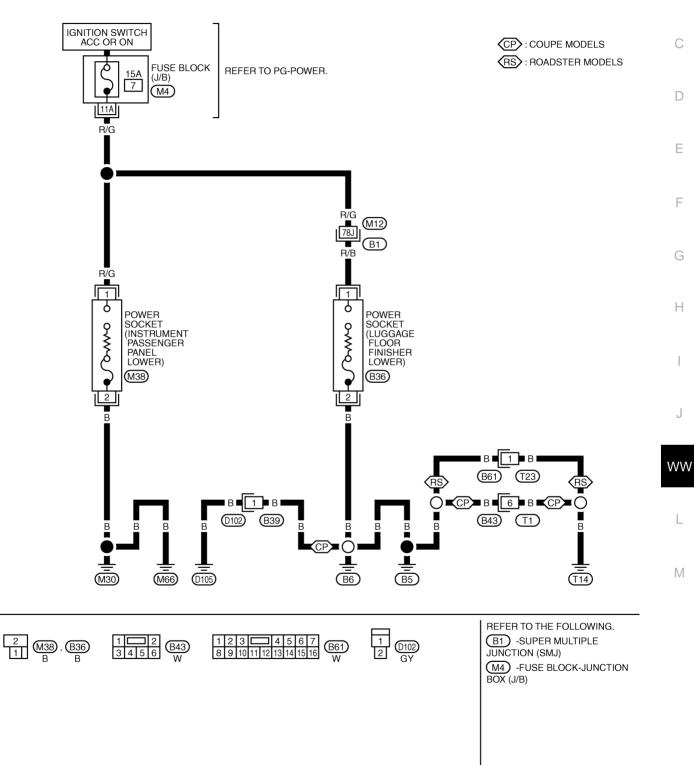
PFP:253A2

NKS0053K

WW-P/SCKT-01



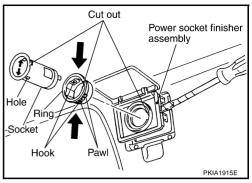
А



TKWT4009E

Removal and Installation (Luggage Floor Finisher Lower) REMOVAL

- 1. Remove power socket finisher assembly using a clip driver or a suitable tool.
- 2. Disconnect power socket connector.
- 3. Remove inner socket from ring. While pressing hook on ring out from square hole.
- 4. Remove ring from power socket finisher while pressing pawls.

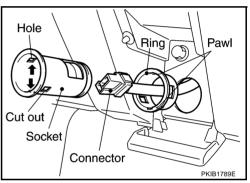


INSTALLATION

Installation is the reverse order of removal.

Removal and Installation (Instrument Passenger Panel Lower) REMOVAL

- 1. Remove socket using a clip driver or a suitable tool that pressing pawls in socket hole.
- 2. Disconnect power socket connector.
- 3. Remove ring from instrument passenger panel lower.



INSTALLATION

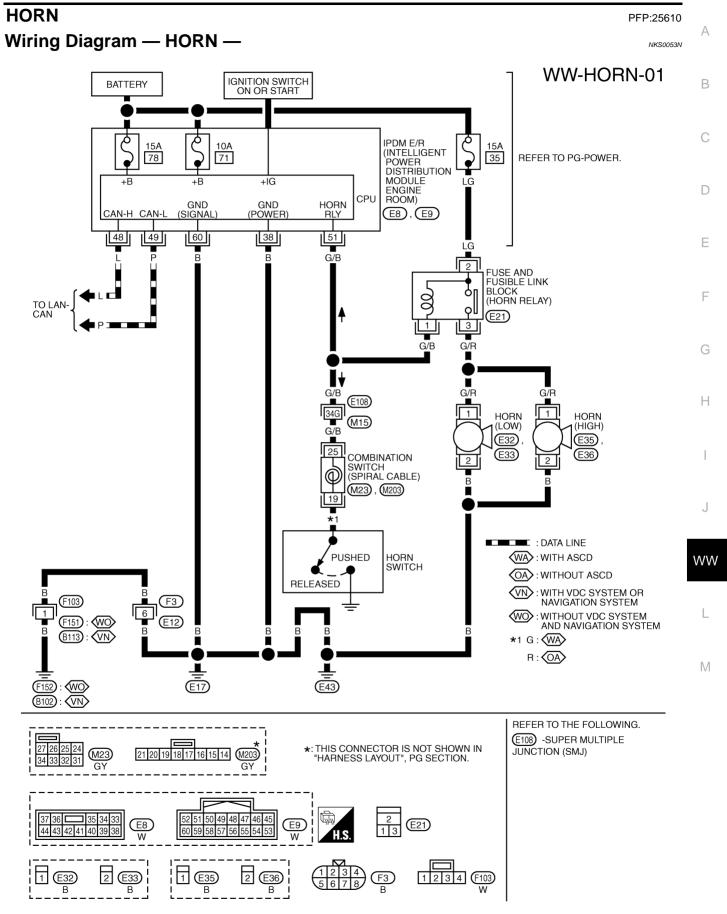
Installation is the reverse order of removal.

[TYPE 2]

NKS0053M

HORN

[TYPE 2]

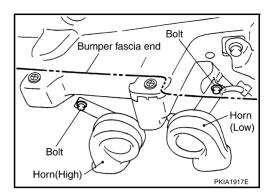


TKWT5619E

NKS00530

Removal and Installation REMOVAL

- 1. Disconnect all horn connectors.
- 2. Remove horn mounting bolt and remove horn from vehicle.



INSTALLATION

Tighten horn bolt to specified torque.

Horn mounting bolt (): 5.7 N·m (0.58 kg-m, 50 in-lb)