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ABS Actuator and Electric Unit (Control Unit) Circuit

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PRECAUTIONS PFP:00001

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

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

#### **WARNING:**

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

### **Precautions for Battery Service**

AKS003TZ

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.

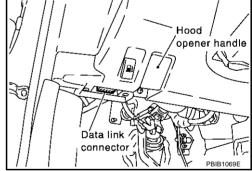
### **Precautions When Using CONSULT-II**

AKS003M4

When connecting CONSULT-II to data link connector, connect them through CONSULT-II CONVERTER.

#### **CAUTION:**

If CONSULT-II is used with no connection of CONSULT-II CON-VERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.



#### **CHECK POINTS FOR USING CONSULT-II**

- 1. Has CONSULT-II been used without connecting CONSULT-II CONVERTER on this vehicle?
- If YES, GO TO 2.
- If NO. GO TO 5.
- 2. Is there any indication other than indications relating to CAN communication system in the self-diagnosis results?
- If YES, GO TO 3.
- If NO. GO TO 4.
- 3. Based on self-diagnosis results unrelated to CAN communication, carry out the inspection.
- 4. Malfunctions may be detected in self-diagnosis depending on control units carrying out CAN communication. Therefore, erase the self-diagnosis results.
- 5. Diagnose CAN communication system. Refer to LAN-6, "CAN Communication Unit".

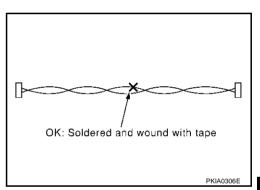
# **Precautions For Trouble Diagnosis CAN SYSTEM**

Do not apply voltage of 7.0V or higher to the measurement terminals.

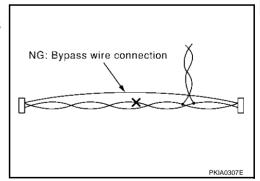
- Use the tester with its open terminal voltage being 7.0V or less.
- Be sure to turn ignition switch off and disconnect negative battery terminal before checking the circuit.

# **Precautions For Harness Repair CAN SYSTEM**

• Solder the repaired parts, and wrap with tape. [Frays of twisted line must be within 110 mm (4.33 in)]



Do not perform bypass wire connections for the repair parts.
 (The spliced wire will become separated and the characteristics of twisted line will be lost.)



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#### **CAN COMMUNICATION**

PFP:23710

### **System Description**

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CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. 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**

AKS000ZG

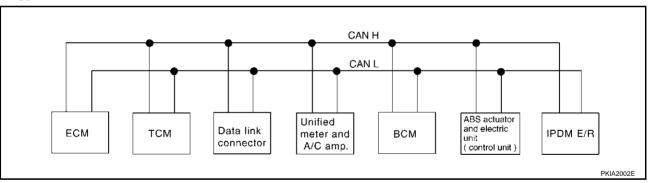
Go to CAN system, when selecting your CAN system type from the following table.

Body type		Coupe							
Axle		2WD							
Engine		VQ35DE							
Transmission	A/T	A/T M/T							
Brake control	TCS	ABS		TCS		VDC			
Low tire pressure warning system			×		×		×		
CAN system type	1	2	3	4	5	6	7		
CAN system trouble diagnosis	LAN-13	LAN-40	LAN-59	LAN-87	LAN-111	LAN-139	LAN-161		

x: Applicable

# TYPE 1 System diagram

Type1



### Input/output signal chart

T: Transmit R: Receive

Signals	ECM	TCM	Unified meter and A/C amp.	всм	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	Т	R	R		R	
Engine torque signal	Т	R			R	
Engine coolant temperature signal	Т	R	R			
Accelerator pedal position signal	Т	R			R	
Closed throttle position signal	Т	R				
Wide open throttle position signal	Т	R				
Battery voltage signal	Т	R				
Stop lamp switch signal		R	Т			
Fuel consumption monitor signal	Т		R			
A/T self-diagnosis signal	R	Т				

### **CAN COMMUNICATION**

[CAN]

						[CAN]	_
Signals	ECM	ТСМ	Unified meter and A/C amp.	всм	ABS actuator and electric unit (control unit)	IPDM E/R	А
A/T CHECK indicator lamp signal		Т	R				В
A/T position indicator signal		Т	R		R		_
Manual mode gear position signal		Т	R				_
ABS operation signal		R			Т		С
A/T shift schedule change demand signal		R			Т		_
A/C switch signal	R			Т			- D
A/C compressor request signal	T					R	_
A/C compressor feedback signal	Т		R				E
Blower fan motor switch signal	R			Т			=
Cooling fan speed request signal	Т					R	=
Position lights request signal			R	Т		R	F
Low beam request signal				Т		R	_
Low beam status signal	R					Т	G
High beam request signal			R	Т		R	_ G
High beam status signal	R					Т	=
			R		Т		Н
Vehicle speed signal	R	R	Т	R			-
Sleep request 1 signal			R	Т			-
Sleep request 2 signal				Т		R	- 1
Wake up request 1 signal			R	T			-
Door switch signal			R	Т		R	J
Turn indicator signal			R	Т			-
Seat belt buckle switch signal			Т	R			-
Buzzer output signal			R	T			LAI
Fuel level sensor signal	R		Т				
Malfunction indicator lamp signal	T		R				- L
ASCD SET lamp signal	T		R				-
ASCD operation signal	T	R					-
ASCD CRUISE lamp signal	T		R				M
ASCD OD cancel request signal	Т	R					_
Output shaft revolution signal	R	Т					-
Turbine revolution signal	R	Т					_
Front wiper request signal				T		R	-
Front wiper stop position signal				R		T	-
Rear window defogger switch signal				Т		R	-
Rear window defogger control signal	R					T	_
Manual mode signal		R	Т				-
Not manual mode signal		R	Т				=
Manual mode shift up signal		R	Т				-
Manual mode shift down signal		R	T				_
Manual mode indicator signal		Т	R				_
Hood switch signal		•		R			_
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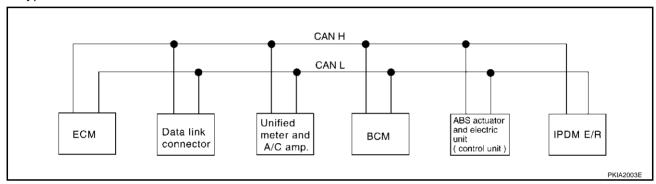
LAN-7 2003 350Z Revision; 2004 April

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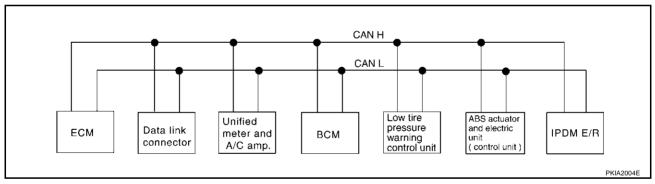
Signals	ECM	TCM	Unified meter and A/C amp.	всм	ABS actuator and electric unit (control unit)	IPDM E/R
Theft warning horn request signal				Т		R
Horn chirp signal				Т		R
ABS warning lamp signal			R		Т	
TCS OFF indicator lamp signal			R		Т	
SLIP indicator lamp signal			R		Т	
Brake warning lamp signal			R		Т	

# TYPE 2/TYPE3 System diagram

#### Type2



#### • Type3



### Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Unified meter and A/C amp.	всм	Low tire pressure warning control unit	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	Т	R			R	
Engine coolant temperature signal	Т	R				
Accelerator pedal position signal	Т				R	
Fuel consumption monitor signal	Т	R				
A/C switch signal	R		Т			
A/C compressor request signal	Т					R
A/C compressor feedback signal	Т	R				
Blower fan motor switch signal	R		T			
Cooling fan speed request signal	Т					R
Position lights request signal			R	Т		R

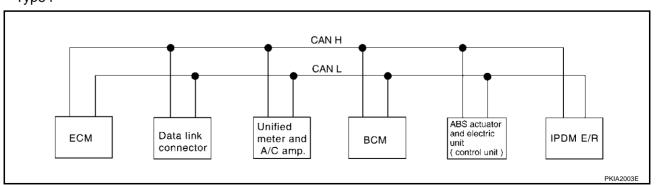
### **CAN COMMUNICATION**

### [CAN]

Signals	ECM	Unified meter and A/C amp.	ВСМ	Low tire pressure warning control unit	ABS actuator and electric unit (control unit)	IPDM E/R
Low beam request signal			T			R
Low beam status signal	R					Т
High beam request signal		R	Т			R
High beam status signal	R					Т
Velide or and signal		R			Т	
Vehicle speed signal	R	Т	R	R		
Sleep request 1 signal		R	Т			
Sleep request 2 signal			Т			R
Wake up request 1 signal		R	Т			
Door switch signal		R	T			R
Turn indicator signal		R	T			
Seat belt buckle switch signal		Т	R			
Buzzer output signal		R	Т			
Fuel level sensor signal	R	Т				
Malfunction indicator lamp signal	Т	R				
ASCD SET lamp signal	Т	R				
ASCD CRUISE lamp signal	Т	R				
Front wiper request signal			T			R
Front wiper stop position signal			R			Т
Rear window defogger switch signal			Т			R
Rear window defogger control signal	R					Т
Hood switch signal			R			Т
Theft warning horn request signal			T			R
Horn chirp signal			Т			R
Tire pressure signal		R		Т		
ABS warning lamp signal		R			Т	
Brake warning lamp signal		R			Т	

# TYPE 4/TYPE5 System diagram

### Type4



Revision; 2004 April **LAN-9** 2003 350Z

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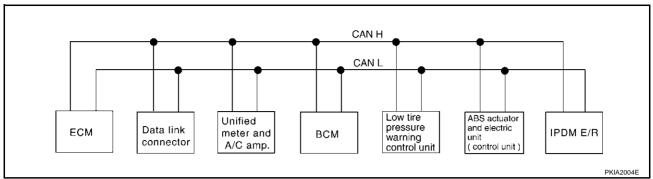
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### Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Unified meter and A/C amp.	всм	Low tire pressure warning control unit	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	Т	R			R	
Engine torque signal	Т				R	
Engine coolant temperature signal	Т	R				
Accelerator pedal position signal	Т				R	
Fuel consumption monitor signal	Ţ	R				
A/C switch signal	R		Т			
A/C compressor request signal	Т					R
A/C compressor feedback signal	Т	R				
Blower fan motor switch signal	R		T			
Cooling fan speed request signal	Т					R
Position lights request signal		R	Т			R
Low beam request signal			Т			R
Low beam status signal	R					T
High beam request signal		R	Т			R
High beam status signal	R					T
Vehicle and signal		R			Т	
Vehicle speed signal	R	Т	R	R		
Sleep request 1 signal		R	Т			
Sleep request 2 signal			Т			R
Wake up request 1 signal		R	Т			
Door switch signal		R	T			R
Turn indicator signal		R	Т			
Seat belt buckle switch signal		Т	R			
Buzzer output signal		R	Т			
Fuel level sensor signal	R	Т				
Malfunction indicator lamp signal	Т	R				
ASCD SET lamp signal	Т	R				
ASCD CRUISE lamp signal	Т	R				
Front wiper request signal			Т			R
Front wiper stop position signal			R			T
Rear window defogger switch signal			Т			R

### **CAN COMMUNICATION**

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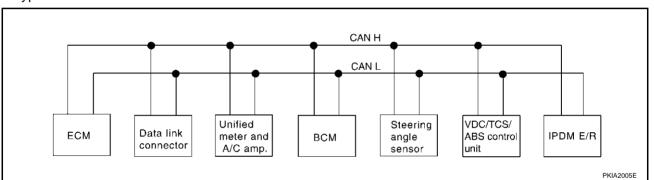
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Signals	ECM	Unified meter and A/C amp.	ВСМ	Low tire pressure warning control unit	ABS actuator and electric unit (control unit)	IPDM E/R
Rear window defogger control signal	R					Т
Hood switch signal			R			Т
Theft warning horn request signal			T			R
Horn chirp signal			T			R
Tire pressure signal		R		Т		
ABS warning lamp signal		R			Т	
TCS OFF indicator lamp signal		R			Т	
SLIP indicator lamp signal		R			Т	
Brake warning lamp signal		R			Т	

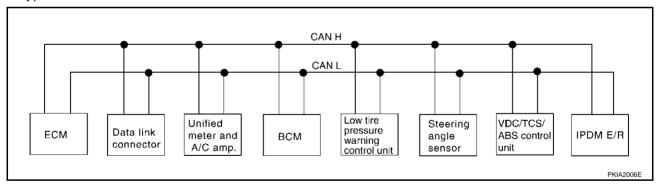
#### **TYPE 6/TYPE7**

### System diagram

Type6



Type7



### Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Unified meter and A/C amp.	ВСМ	Low tire pressure warning control unit	Steering angle sensor	VDC/TCS/ ABS control unit	IPDM E/R
Engine speed signal	Т	R				R	
Engine torque signal	Т					R	
Engine coolant temperature signal	Ţ	R					
Accelerator pedal position signal	Ţ					R	
Fuel consumption monitor signal	T	R					
A/C switch signal	R		T				
A/C compressor request signal	Т						R

Signals	ECM	Unified meter and A/C amp.	ВСМ	Low tire pressure warning control unit	Steering angle sensor	VDC/TCS/ ABS control unit	IPDM E/R
A/C compressor feedback signal	Т	R					
Blower fan motor switch signal	R		Т				
Cooling fan speed request signal	Т						R
Position lights request signal		R	Т				R
Low beam request signal			Т				R
Low beam status signal	R						Т
High beam request signal		R	Т				R
High beam status signal	R						Т
		R				Т	
Vehicle speed signal	R	Т	R	R			
Sleep request 1 signal		R	Т				
Sleep request 2 signal			Т				R
Wake up request 1 signal		R	Т				
Door switch signal		R	Т				R
Turn indicator signal		R	Т				
Seat belt buckle switch signal		Т	R				
Buzzer output signal		R	Т				
Fuel level sensor signal	R	Т					
Malfunction indicator signal	Т	R					
ASCD SET lamp signal	Т	R					
ASCD CRUISE lamp signal	Т	R					
Front wiper request signal			Т				R
Front wiper stop position signal			R				Т
Rear window defogger switch signal			T				R
Rear window defogger control signal	R						Т
Hood switch signal			R				Т
Theft warning horn request signal			Т				R
Horn chirp signal			Т				R
Steering angle sensor signal					Т	R	
Tire pressure signal		R		Т			
ABS warning lamp signal		R				Т	
VDC OFF indicator lamp signal		R				Т	
SLIP indicator lamp signal		R				Т	
Brake warning lamp signal		R				Т	

#### [CAN]

### CAN SYSTEM (TYPE 1)

PFP:23710

### **System Description**

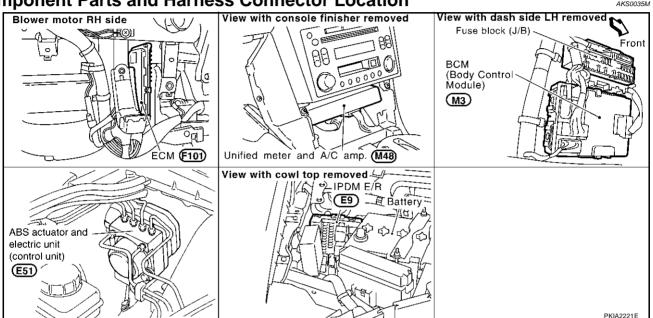
AKS00351

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.

Component Parts and Harness Connector Location



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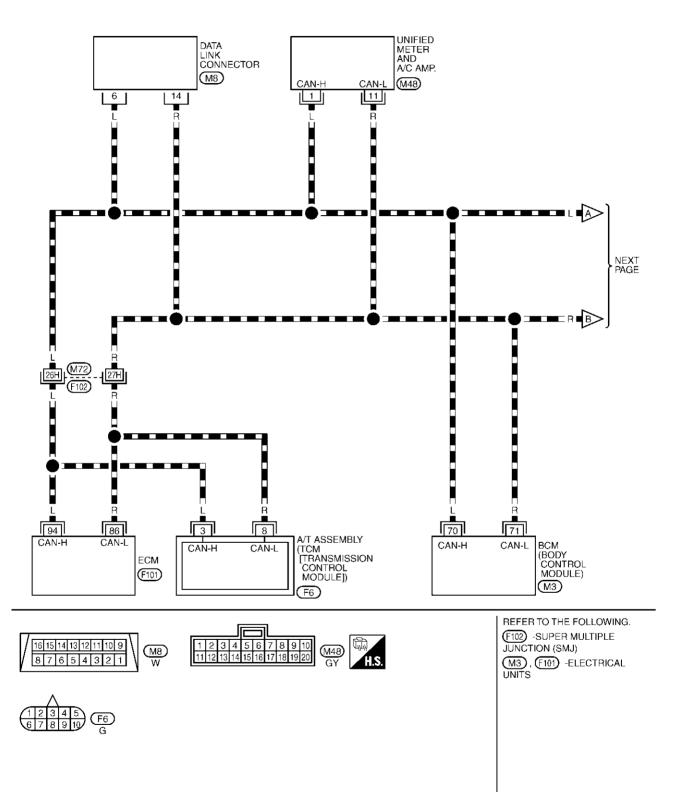
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### Wiring Diagram — CAN —

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### LAN-CAN-01

DATA LINE



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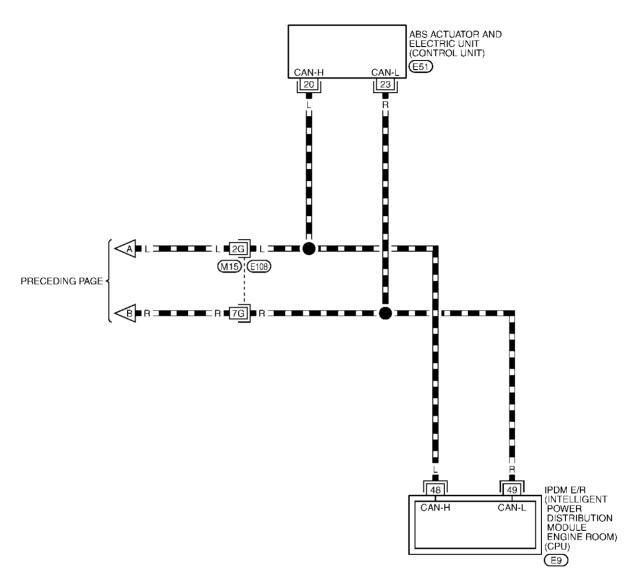
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### LAN-CAN-02

: DATA LINE



REFER TO THE FOLLOWING. (E108) -SUPER MULTIPLE JUNCTION (SMJ)

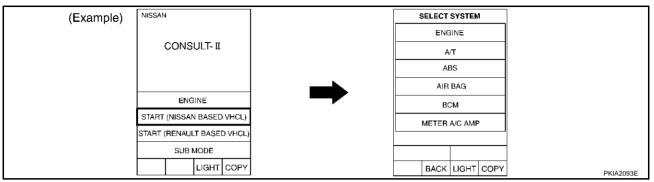
(E51) -ELECTRICAL UNITS

TKWT0407E

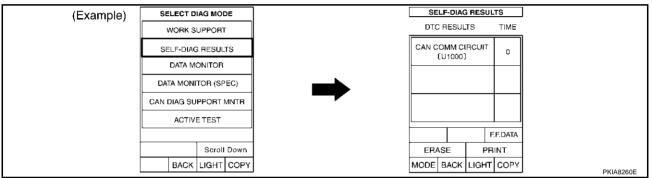
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Work Flow

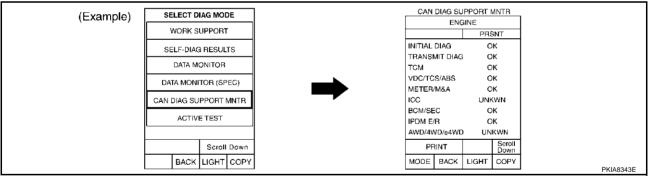
 When there are no indications of "METER A/C AMP" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "A/T", "METER A/C AMP", "BCM", and "ABS" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "A/T", "METER A/C AMP", "BCM", and "ABS" displayed on CONSULT-II.



- Attach the printed sheet of "SELECT SYSTEM", "SELF-DIAG RESULTS" and "CAN DIAG SUPPORT MNTR" onto the check sheet. Refer to LAN-17, "CHECK SHEET".
- 5. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks "v" onto the items with "No indication", "NG", or "UNKWN" in the check sheet table. Refer to <a href="LAN-17">LAN-17</a>, "CHECK SHEET"</a>.

#### NOTE:

- If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- The "CAN DIAG SUPPORT MNTR" items, which are not in check sheet table, are not related to diagnostic procedure on service manual.
   So it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- According to the check sheet results (example), start inspection. Refer to <u>LAN-19</u>, "<u>CHECK SHEET RESULTS (EXAMPLE)</u>".

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### **CHECK SHEET**

#### NOTE:

If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

Check sheet tabl	e								
				C/	N DIAG SU	PPORT MN	TR		
SELECT SYST	EM screen	Initial	Transmit			Receive	diagnosis		
0222010101	2.4. 30. 33.1	diagnosis	diagnosis	ECM	TCM	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	-	UNKWN	_
METER A/C AMP	No indication	_	UNKWN	UNKWN	UNKWN	_	UNKWN	UNKWN	_
всм	_	NG	UNKWN	UNKWN	_	UNKWN	-	_	UNKWN
ABS	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	_

Symptoms :		

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

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Attach copy of ENGINE SELF-DIAG RESULTS	Attach copy of A/T SELF-DIAG RESULTS	Attach copy of METER A/C AMP SELF-DIAG RESULTS
Attach copy of BCM SELF-DIAG RESULTS	Attach copy of ABS SELF-DIAG RESULTS	
Attach copy of ENGINE CAN DIAG SUPPORT MNTR	Attach copy of A/T CAN DIAG SUPPORT MNTR	Attach copy of METER A/C AMP CAN DIAG SUPPORT MNTR
Attach copy of BCM CAN DIAG SUPPORT MNTR	Attach copy of ABS CAN DIAG SUPPORT MNTR	
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### **CHECK SHEET RESULTS (EXAMPLE)**

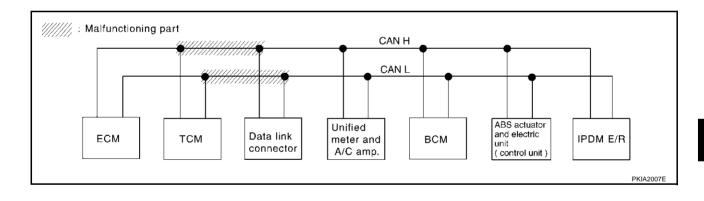
#### NOTE:

If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

#### Case 1

Check harness between TCM and data link connector. Refer to <u>LAN-30</u>, "Circuit Check Between TCM and Data Link Connector"

				U,	AN DIAG SU		diagnosis		
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/F
ENGINE	_	NG	UNKWN	_	UNKWN	UNK/WN	UNR WN	UNKWN	Ω <b>ΝΚ</b> ΛΝΙ
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	_	UNK WN	_
METER A/C AMP	No indication		UNKWN	UNKWN	UNIVAN	_	UNKWN	UNKWN	_
всм	_	NG	UNKWN	UN <b>K</b> WN	_	UNKWN	-	_	UNKWN
ABS	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	_



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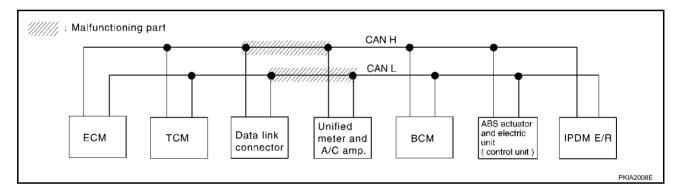
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Case 2
Check harness between data link connector and unified meter and A/C amp. Refer to LAN-31, "Circuit Check Between Data Link Connector and Unified Meter and A/C Amp.".

			T	C/	AN DIAG SU				
SELECT SYST	EM screen	Initial	Transmit			Receive	diagnosis		
		diagnosis	diagnosis	ECM	тсм	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNI WN	UN <b>K</b> ₩N	UNR WN	∩ <b>M</b> MN
A/T	-	NG	UNKWN	UNKWN	_	UNK WN	_	UNRWN	_
METER A/Ç AMP	No indication	_	UNKWN	UNKWN	UNKWN	_	UNKWN	UNKWN	_
всм	_	NG	UNKWN	UN <b>K</b> ₩N	-	UNKWN	_	_	UNKWN
ABS	_	NG	UNKWN	NNK WN	UNIAMN	_	_	_	_



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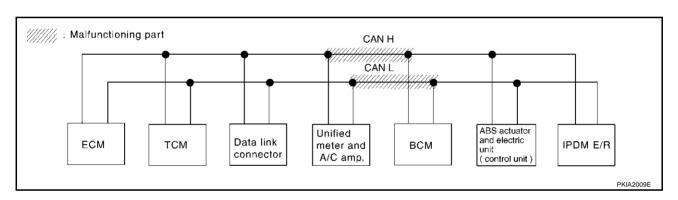
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Case 3

Check harness between unified meter and A/C amp. and BCM. Refer to <u>LAN-32</u>, "Circuit Check Between Unified Meter and A/C Amp. and BCM".

051 507 01/07				CF	N DIAG SU		diagnosis		
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	ТСМ	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNR WN	UNKWN	Ω <b>ΝΚ</b> ⁄ΜΝ
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	_	UNK WN	_
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	_	DMR/WN	UNKWN	_
BCM	_	NG	UNKWN	UNK/WN	-	UNK WN	_	_	UNKWN
ABS	_	NG	UNKWN	UN <b>K</b> ₩N	UNKWN	_	_	_	_



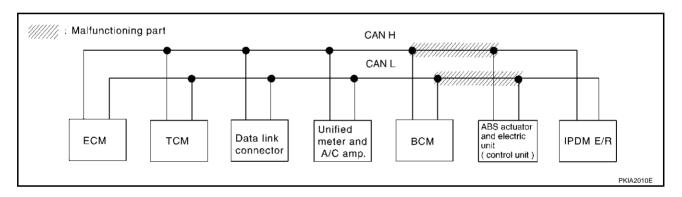
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Case 4

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to <u>LAN-32</u>, "Circuit <u>Check Between BCM and ABS Actuator and Electric Unit (Control Unit)"</u>.

					AN DIAG SU		diagnosis		
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	UNR WN
A/T	-	NG	UNKWN	UNKWN	_	UNKWN	_	UNR WN	_
METER A/C AMP	No indication	_	UNKWN	UNKWN	UNKWN	_	UNKWN	UNIVAN	_
BCM	_	NG	UNKWN	UNKWN	_	UNKWN	-	_	UNK WN
ABS	_	NG	UNKWN	υν <b>κ</b> ⁄νν	<b>UNIX</b> WN	_	_	_	_



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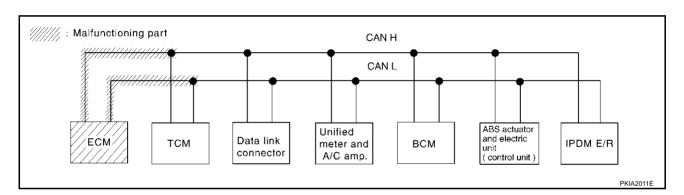
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Case 5
Check ECM circuit. Refer to <u>LAN-33</u>, "ECM Circuit Check".

				C/	N DIAG SU				
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/F
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	NNKWN	UNKWN	NNRWN
A/T	-	NG	UNKWN	UNK WN	_	UNKWN	_	UNKWN	_
METER A/C AMP	No indication	_	UNKWN	UNKWN	UNKWN	_	UNKWN	UNKWN	_
всм	_	NG	UNKWN	UNKWN	-	UNKWN	_	_	UNKWN
ABS	_	NG	UNKWN	n <b>uk</b> (∧ν	UNKWN	_	_	_	_

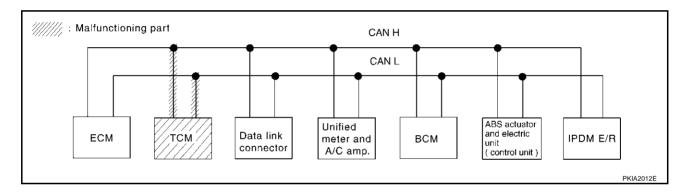


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Case 6
Check TCM circuit. Refer to <u>LAN-33</u>, "TCM Circuit Check" .

				C.F	N DIAG SU		diagnosis		
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	ТСМ	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNIXWN	UNKWN	UNKWN	UNKWN	UNKWN
A/T	_	NG	UNK WN	UNK WN	-	UNKWN	_	UNK WN	_
METER A/C AMP	No indication	_	UNKWN	UNKWN	UNIWN	_	UNKWN	UNKWN	_
BCM	-	NG	UNKWN	UNKWN	-	UNKWN	_	-	UNKWN
ABS	-	NG	UNKWN	UNKWN	UNI <b>S</b> WN	-	_	=	-



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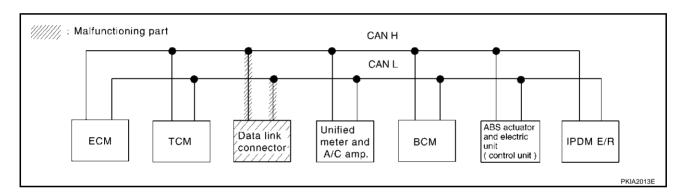
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Case 7
Check data link connector circuit. Refer to <u>LAN-34</u>, "Data Link Connector Circuit Check".

051 507 01/07				C.F	N DIAG SU		diagnosis		
SELECT SYST	EM screen	NG NG	Transmit diagnosis	ECM	тсм	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/P
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_
METER A/C AMP	No indication	-	UNKWN	UNKWN	UNKWN	_	UNKWN	UNKWN	_
всм	_	NG	UNKWN	UNKWN	_	UNKWN	_	-	UNKWN
ABS	-	NG	UNKWN	UNKWN	UNKWN	_	_	_	_

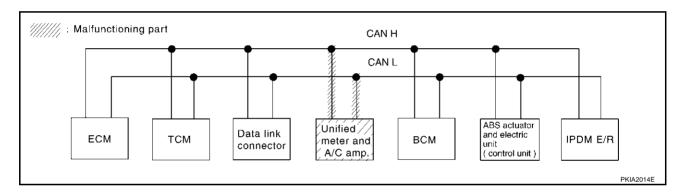


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Case 8
Check unified meter and A/C amp. circuit. Refer to <u>LAN-34, "Unified Meter and A/C Amp. Circuit Check"</u>.

SELECT SYSTEM screen				CAN DIAG SUPPORT MNTR  Receive diagnosis						
		Initial diagnosis	Transmit diagnosis	ECM	тсм	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R	
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	
A/T	_	NG	UNKWN	UNKWN	_	UNK WN	_	UNKWN	_	
METER A/C AMP	No indication	_	UNKWN	UNKWN	UNKWN	_	UNKWN	UNKWN	_	
BCM	_	NG	UNKWN	UNKWN	_	UNKWN	_	_	UNKWN	
ABS	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	_	



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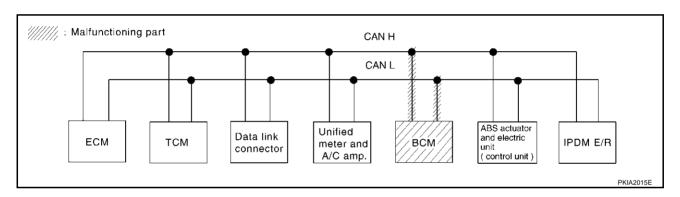
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Case 9
Check BCM circuit. Refer to <u>LAN-35</u>, "BCM Circuit Check" .

SELECT SYSTEM screen				C/	N DIAG SU		diagnosis			
		Initial diagnosis	Transmit diagnosis	ECM	ТСМ	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R	
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_	
METER A/C AMP	No indication	_	UNKWN	UNKWN	UNKWN	_	UNKWN	UNKWN	_	
всм	_	NG	UNKWN	UNKWN	_	UNK WN	_	_	UNKWN	
ABS	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	_	
	_		<u> </u>	•	UNKWN	<b>-</b>	_	_		



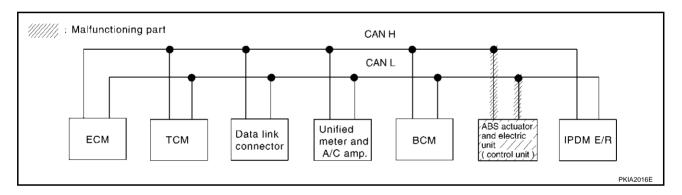
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Case 10

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-35</u>, "ABS Actuator and Electric Unit (Control Unit) Circuit Check".

SELECT SYSTEM screen				CAN DIAG SUPPORT MNTR  Receive diagnosis						
		Initial diagnosis	Transmit diagnosis	ECM	тсм	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R	
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	
A/T	-	NG	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_	
METER A/C AMP	No indication	_	UNKWN	UNKWN	UNKWN	_	UNKWN	UNIONN	_	
BCM	-	NG	UNKWN	UNKWN	-	UNKWN	_	-	UNKWN	
ABS	_	NG	UNRWN	UNKWN	UNKWN	_	_	_	_	



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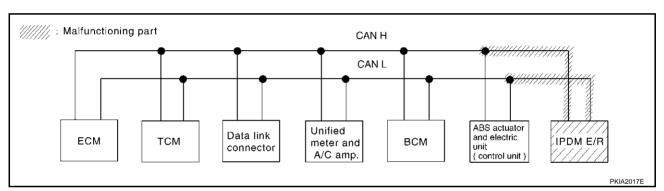
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Case 11
Check IPDM E/R circuit. Refer to LAN-36, "IPDM E/R Circuit Check".

SELECT SYSTEM screen			CAN DIAG SUPPORT MNTR Receive diagnosis								
		Initial diagnosis	Transmit diagnosis	ECM	тсм	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN		
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_		
METER A/C AMP	No indication	_	UNKWN	UNKWN	UNKWN	_	UNKWN	UNKWN	_		
BCM	-	NG	UNKWN	UNKWN	_	UNKWN	_	_	UNI <b>W</b> MN		
ABS	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	_		



Case 12
Check CAN communication circuit. Refer to <u>LAN-37</u>, "CAN Communication Circuit Check".

SELECT SYSTEM screen			CAN DIAG SUPPORT MNTR Receive diagnosis							
		Initial diagnosis	Transmit diagnosis	ECM	тсм	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R	
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNK WN	
A/T	_	NG	UNK WN	UN <b>K</b> ∕WN	_	∩ <b>NR</b> MN	_	UNK WN	_	
METER A/C AMP	No indication	_	UNKWN	UNKWN	UNKWN	_	UNKWN	UNKWN	_	
всм	_	NG	UNKWN	UNKWN	-	UNK WN	_	_	UNK WN	
ABS	_	NG	UN <b>W</b> WN	UN <b>K</b> ∕WN	UNI <b>A</b> WN	_	_	_	_	

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#### Case 13

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to LAN-39, "IPDM E/R Ignition Relay Circuit Check".

				C/	N DIAG SU	PPORT MN	TR				
SELECT SYSTEM screen		lucial a f	Transmit - diagnosis	Receive diagnosis							
		Initial diagnosis		ECM	ТСМ	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	_	UNIANN	UNKWN	UNKWN	UNKWN	UNKWN		
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_		
METER A/C AMP	No indication	_	UNKWN	UNKWN	UNIONN	_	UNKWN	UNKWN	_		
всм	_	NG	UNKWN	UNKWN	-	UNKWN	_	_	UNKWN		
ABS	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	_		

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#### Case 14

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to <u>LAN-39</u>, "IPDM E/R Ignition Relay <u>Circuit Check"</u>.

		CAN DIAG SUPPORT MNTR									
SELECT SYSTEM screen		Initial diagnosis	Transmit - diagnosis	Receive diagnosis							
				ECM	ТСМ	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN		
A/T	_	NG	UNKWN	n <b>nk</b> {wν	_	UNK VN	_	UNKWN	_		
METER A/C AMP	No indication	_	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	_		
всм	_	NG	UNKWN	UNKWN	_	UNKWN	_	_	UNKWN		
ABS	_	NG	UNKWN	UN <b>K</b> WN	UNKWN	_	_	_	_		

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### **Circuit Check Between TCM and Data Link Connector**

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.

- 2. Disconnect the negative battery terminal.
- Check following terminals and connector for damage, bend and loose connection (connector-side and harness-side).
- Harness connector F102
- Harness connector M72

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

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# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect A/T assembly connector and harness connector F102.
- Check continuity between A/T assembly harness connector F6 terminals 3 (L), 8 (R) and harness connector F102 terminals 26H (L), 27H (R).

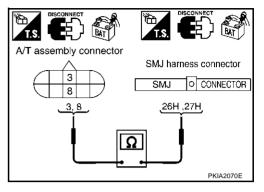
3 (L) - 26H (L) 8 (R) - 27H (R) : Continuity should exist.

: Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



### 3. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between harness connector M72 terminals 26H (L), 27H (R) and data link connector M8 terminals 6 (L), 14 (R).

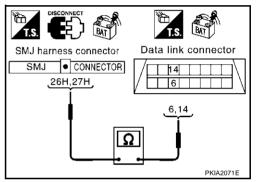
26H (L) – 6 (L) 27H (R) – 14 (R) : Continuity should exist.

: Continuity should exist.

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-16, "Work Flow".

NG >> Repair harness.



### Circuit Check Between Data Link Connector and Unified Meter and A/C Amp.

### 1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.

- 2. Disconnect the negative battery terminal.
- 3. Disconnect ECM connector and unified meter and A/C amp. connector.
- Check continuity between data link connector M8 terminals 6 (L), 14 (R) and unified meter and A/C amp. harness connector M48 terminals 1 (L), 11 (R).

6 (L) – 1 (L)

: Continuity should exist.

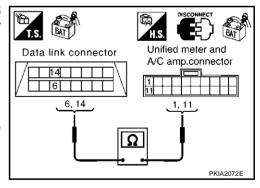
14 (R) – 11 (R)

: Continuity should exist.

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-16, "Work Flow".

NG >> Repair harness.



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### Circuit Check Between Unified Meter and A/C Amp. and BCM

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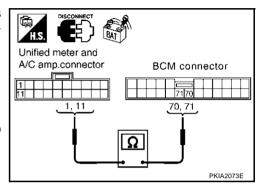
### 1. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect the following connectors.
- ECM connector
- Unified meter and A/C amp. connector
- BCM connector
- Check continuity between unified meter and A/C amp. harness connector M48 terminals 1 (L), 11 (R) and BCM harness connector M3 terminals 70 (L), 71 (R).

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to <u>LAN-16, "Work Flow"</u>.

NG >> Repair harness.



### Circuit Check Between BCM and ABS Actuator and Electric Unit (Control Unit)

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check following terminals and connector for damage, bend and loose connection (connector-side and harness-side).
- Harness connector M15
- Harness connector E108

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

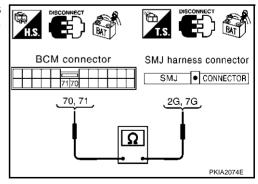
### 2. CHECK HARNESS FOR OPEN CIRCUIT

- Disconnect BCM connector and harness connector M15.
- Check continuity between BCM harness connector M3 terminals 70 (L), 71 (R) and harness connector M15 terminals 2G (L), 7G (R).

70 (L) – 2G (L) : Continuity should exist. 71 (R) – 7G (R) : Continuity should exist.

#### OK or NG

OK >> GO TO 3. NG >> Repair harness.



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## 3. CHECK HARNESS FOR OPEN CIRCUIT

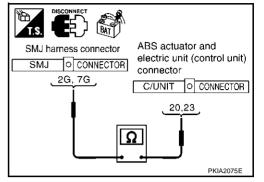
- 1. Disconnect ABS actuator and electric unit (control unit) connector.
- 2. Check continuity between harness connector E108 terminals 2G (L), 7G (R) and ABS actuator and electric unit (control unit) harness connector E51 terminals 20 (L), 23 (R).

2G (L) – 20 (L) : Continuity should exist. 7G (R) – 23 (R) : Continuity should exist.

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-16, "Work Flow".

NG >> Repair harness.



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#### **ECM Circuit Check**

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check following terminals and connector for damage, bend and loose connection (control module-side and harness-side).
- ECM connector
- Harness connector F102
- Harness connector M72

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

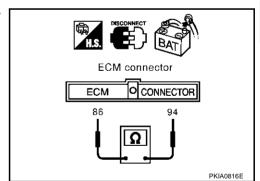
### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect ECM connector.
- Check resistance between ECM harness connector F101 terminals 94 (L) and 86 (R).

OK or NG

OK >> Replace ECM.

NG >> Repair harness between ECM and A/T assembly.



### **TCM Circuit Check**

#### 1. CHECK CONNECTOR

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check the terminals and connector of A/T assembly for damage, bend and loose connection (control module-side and harness-side).

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

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# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect A/T assembly connector.
- 2. Check resistance between A/T assembly harness connector F6 terminals 3 (L) and 8 (R).

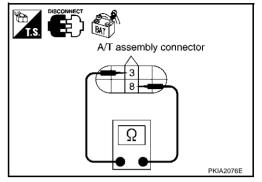
3 (L) 
$$- 8$$
 (R) : Approx.  $54 - 66\Omega$ 

#### OK or NG

NG

OK >> Replace A/T assembly.

>> Repair harness between A/T assembly and harness connector F102.



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### **Data Link Connector Circuit Check**

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check the terminals and connector of data link connector for damage, bend and loose connection (connector-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

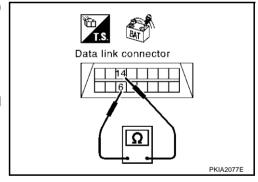
Check resistance between data link connector M8 terminals 6 (L) and 14 (R).

**6 (L)** – **14 (R)** : Approx. 
$$54 - 66\Omega$$

#### OK or NG

OK >> Diagnose again. Refer to LAN-16, "Work Flow".

NG >> Repair harness between data link connector and unified meter and A/C amp.



#### AKS0035W

### Unified Meter and A/C Amp. Circuit Check

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check terminals and connector of unified meter and A/C amp. for damage, bend and loose connection (meter-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

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# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect unified meter and A/C amp. connector.
- Check resistance between unified meter and A/C amp. harness connector M48 terminals 1 (L) and 11 (R).

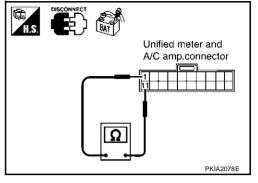
: Approx.  $54 - 66\Omega$ 

#### OK or NG

OK >> Replace unified meter and A/C amp.

NG

>> Repair harness between unified meter and A/C amp. and BCM.



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#### **BCM Circuit Check**

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- Disconnect the negative battery terminal.
- Check the terminals and connector of BCM for damage, bend and loose connection (control module-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect BCM connector.
- Check resistance between BCM harness connector M3 terminals 70 (L) and 71 (R).

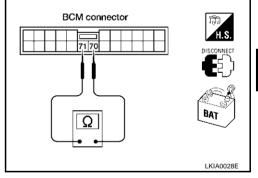
: Approx. 54 – 66 $\Omega$ 

#### OK or NG

OK NG

>> Replace BCM.

>> Repair harness between BCM and harness connector M15.



## ABS Actuator and Electric Unit (Control Unit) Circuit Check

AKS0035Y

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- Disconnect the negative battery terminal.
- Check the terminals and connector of ABS actuator and electric unit (control unit) for damage, bend and loose connection (control unit-side and harness-side).

**LAN-35** 

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

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# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect ABS actuator and electric unit (control unit) connector.
- 2. Check resistance between ABS actuator and electric unit (control unit) harness connector E51 terminals 20 (L) and 23 (R).

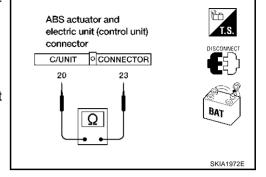
$$20 (L) - 23 (R)$$

: Approx. 54 – 66 $\Omega$ 

#### OK or NG

OK >> Replace ABS actuator and electric unit (control unit).

NG >> Repair harness between ABS actuator and electric unit (control unit) and IPDM E/R.



AKS0035Z

#### IPDM E/R Circuit Check

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check the terminals and connector of IPDM E/R for damage, bend and loose connection (control module-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect IPDM E/R connector.
- 2. Check resistance between IPDM E/R harness connector E9 terminals 48 (L) and 49 (R).

: Approx.  $108 - 132\Omega$ 

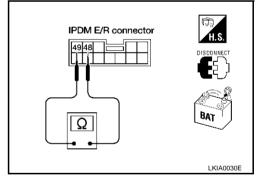
#### OK or NG

NG

OK >>

>> Replace IPDM E/R.

>> Repair harness between IPDM E/R and ABS actuator and electric unit (control unit).



[CAN]

#### **CAN Communication Circuit Check**

## 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check following terminals and connector for damage, bend and loose connection (control module-side, meter-side, control unit-side and harness-side).
- ECM
- A/T assembly
- Unified meter and A/C amp.
- BCM
- ABS actuator and electric unit (control unit)
- IPDM E/R
- Between ECM and IPDM E/R

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect following connectors.
- ECM connector
- A/T assembly connector
- Harness connector F102
- 2. Check continuity between ECM harness connector F101 terminals 94 (L) and 86 (R).

: Continuity should not exist.

#### OK or NG

OK >> GO TO 3.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between ECM and A/T assembly.
  - Harness between ECM and harness connector F102.

# ECM OCONNECTOR 86 94 PKIA0816E

## 3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F101 terminals 94 (L), 86 (R) and ground.

94 (L) – ground : Continuity should not exist.

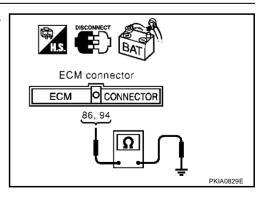
86 (R) – ground : Continuity should not exist.

#### OK or NG

OK >> GO TO 4.

NG >> Check

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between ECM and A/T assembly.
  - Harness between ECM and harness connector F102.



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## 4. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect following connectors.
- Unified meter and A/C amp. connector
- BCM connector
- Harness connector M15
- 2. Check continuity between data link connector M8 terminals 6 (L) and 14 (R).

#### OK or NG

OK >> GO TO 5.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72.
  - Harness between data link connector and unified meter and A/C amp.
  - Harness between data link connector and BCM.
  - Harness between data link connector and harness connector M15.



Check continuity between data link connector M8 terminals 6 (L), 14 (R) and ground.

6 (L) – ground : Continuity should not exist. 14 (R) – ground : Continuity should not exist.

#### OK or NG

OK

>> GO TO 6.

NG >> Check th

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72.
  - Harness between data link connector and unified meter and A/C amp.
  - Harness between data link connector and BCM.
  - Harness between data link connector and harness connector M15.

## 6. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
- 2. Check continuity between IPDM E/R harness connector E9 terminals 48 (L) and 49 (R).

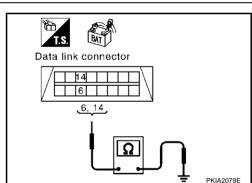
48 (L) – 49 (R) : Continuity should not exist.

#### OK or NG

OK >> GO TO 7.

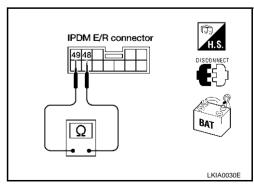
NG >> Check th

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between IPDM E/R and ABS actuator and electric unit (control unit).
  - Harness between IPDM E/R and harness connector E108.



Data link connector

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## 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E9 terminals 48 (L), 49 (R) and ground.

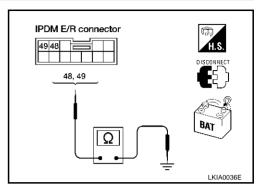
48 (L) – ground : Continuity should not exist. 49 (R) – ground : Continuity should not exist.

#### OK or NG

OK >> GO TO 8.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between IPDM E/R and ABS actuator and electric unit (control unit).
  - Harness between IPDM E/R and harness connector E108.



## 8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to  $\underline{\mathsf{LAN-39}}$ , " $\underline{\mathsf{ECM/IPDM}}$   $\underline{\mathsf{E/R}}$  INTERNAL CIRCUIT INSPECTION" . OK or NG

OK >> Connect all the connectors and diagnose again. Refer to <u>LAN-16</u>, "Work Flow".

NG >> Replace ECM and/or IPDM E/R.

## IPDM E/R Ignition Relay Circuit Check

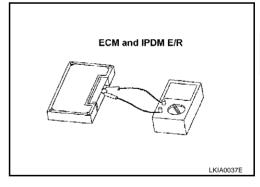
Check the following. If no malfunction is found, replace the IPDM E/R.

- IPDM E/R power supply circuit. Refer to PG-29, "IPDM E/R Power/Ground Circuit Inspection".
- Ignition power supply circuit. Refer to <u>PG-11, "IGNITION POWER SUPPLY IGNITION SW. IN "ON" AND/OR "START""</u>.

# Component Inspection ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between IPDM E/R terminals 48 and 49.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	94 – 86	108 - 132
IPDM E/R	48 – 49	100 - 132



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## **CAN SYSTEM (TYPE 2)**

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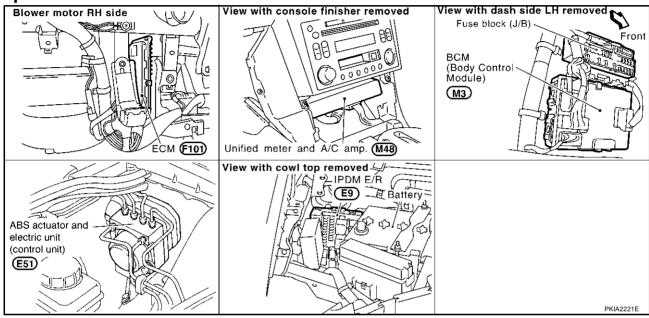
## **System Description**

AKS00326

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.

#### **Component Parts and Harness Connector Location**

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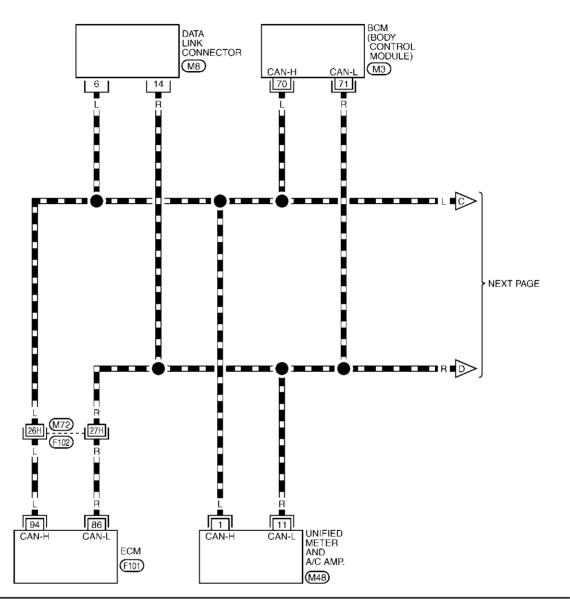
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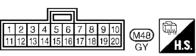
#### LAN-CAN-03

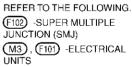
: DATA LINE





Wiring Diagram — CAN —

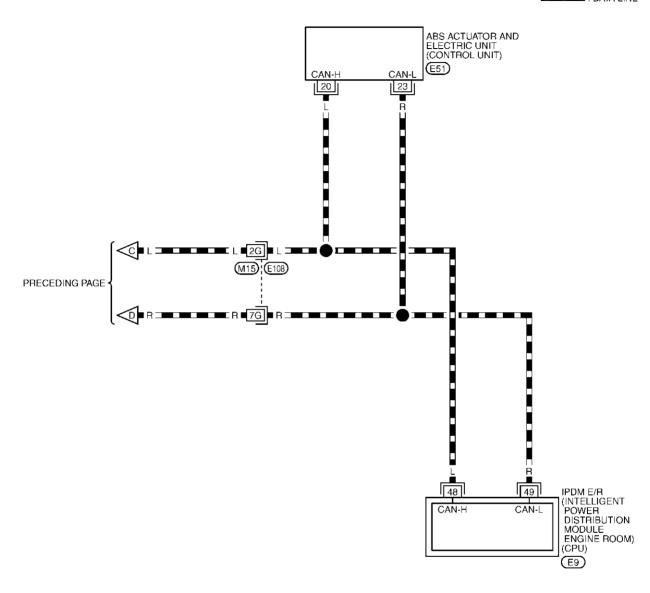




TKWT0408E

## LAN-CAN-04

□□□□□ : DATA LINE





REFER TO THE FOLLOWING.

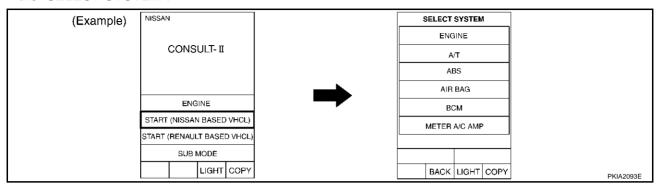
(E108) -SUPER MULTIPLE
JUNCTION (SMJ)

(E51) -ELECTRICAL UNITS

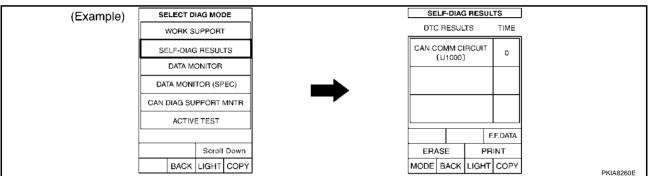
TKWT0409E

**Work Flow** 

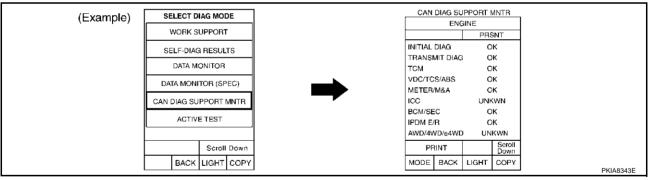
When there are no indications of "METER A/C AMP" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "METER A/C AMP", "BCM", and "ABS" displayed on CONSULT-II.



Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "METER A/C AMP", "BCM", and "ABS" displayed on CONSULT-II.



- Attach the printed sheet of "SELECT SYSTEM", "SELF-DIAG RESULTS" and "CAN DIAG SUPPORT MNTR" onto the check sheet. Refer to LAN-44, "CHECK SHEET".
- Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks "v" onto the items with "No indication", "NG", or "UNKWN" in the check sheet table. Refer to LAN-44. "CHECK SHEET".

#### NOTE:

- If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- The "CAN DIAG SUPPORT MNTR" items, which are not in check sheet table, are not related to diagnostic procedure on service manual. So it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- According to the check sheet results (example), start inspection. Refer to LAN-46, "CHECK SHEET RESULTS (EXAMPLE)".

**LAN-43** Revision; 2004 April 2003 350Z

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## **CHECK SHEET**

#### NOTE:

If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

				CAN D	IAG SUPPORT	MNTR		
SELECT SYST	EM screen	Initial	Transmit			ceive diagnos	sis	
022201 0101	210 3010011	diagnosis	diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	UNKWN
ABS	_	NG	UNKWN	UNKWN	_	_	_	_
Symptoms :								
Symptoms :								

Revision; 2004 April **LAN-44** 2003 350Z

## **CAN SYSTEM (TYPE 2)**

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Attach copy of Attach copy of Attach copy of Attach copy of ENGINÉ METER A/C AMP всм ABS SELF-DIAG RESULTS SELF-DIAG RESULTS SELF-DIAG RESULTS SELF-DIAG RESULTS Attach copy of Attach copy of Attach copy of Attach copy of METER A/C AMP CAN DIAG SUPPORT ENGINÉ всм ABS CAN DIAG SUPPORT CAN DIAG SUPPORT CAN DIAG SUPPORT MNTR MNTR MNTR MNTR PKIA8694E

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#### **CHECK SHEET RESULTS (EXAMPLE)**

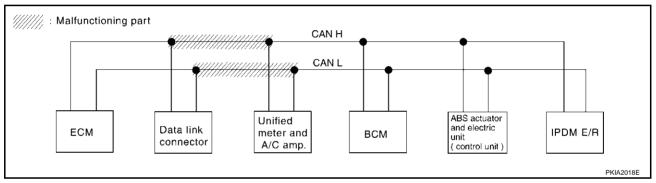
#### NOTE:

If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

#### Case 1

Check harness between data link connector and unified meter and A/C amp. Refer to <u>LAN-51</u>, "Circuit Check <u>Between Data Link Connector and Unified Meter and A/C Amp."</u>

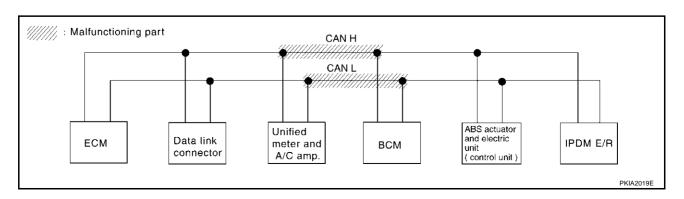
				CAN D	IAG SUPPORT	MNTR	₹				
SELECT SYST	EM screen	Initial	Transmit	Receive diagnosis							
OLLLOT GTGT	LIW SOLCCIT	diagnosis	diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R			
ENGINE	_	NG	UNKWN	_	UNK WN	UNI <b>W</b> MN	-	UN <b>A</b> WN			
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_			
всм	_	NG	UNKWN	UNION	UNKWN	_	_	UNKWN			
ABS	_	NG	UNKWN	UNIMUN	_	_	_	_			



#### Case 2

Check harness between unified meter and A/C amp. and BCM. Refer to  $\underline{\text{LAN-51}}$ , "Circuit Check Between Unified Meter and A/C Amp. and BCM".

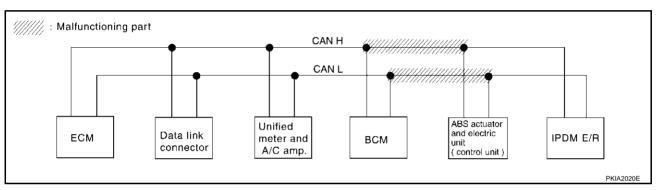
				CAN D	IAG SUPPOR	T MNTR		
SELECT SYST	EM screen	laikial	_ Receive diagnosis				sis	
GEEEOT STOT	LIVI Screen	Initial diagnosis	Transmit diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNIONN	_	UNION
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNIANN	UNIAWN	_
всм	_	NG	UNKWN	UNION	UNKWN	_	-	UNKWN
ABS	_	NG	UNKWN	UNIAWN	_	_	_	_



Case 3

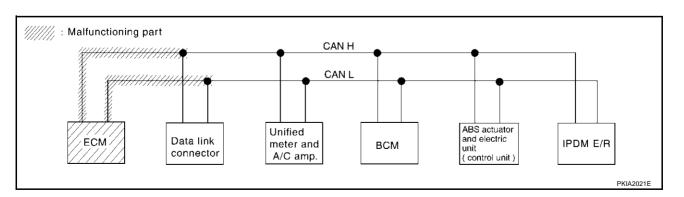
Check harness between BCM and ABS actuator and electric unit (control unit). Refer to <u>LAN-52</u>, "Circuit Check Between BCM and ABS Actuator and Electric Unit (Control Unit)".

				CAN E	DIAG SUPPORT	MNTR		
SELECT SYST	EM scroon	Initial	Transmit		Re	eceive diagnos	sis	
022201 0101	LIW SCICCII	diagnosis	Transmit diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/F
ENGINE	_	NG	UNKWN	=	UNKWN	UNKWN	_	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	UNI WN
ABS	_	NG	UNKWN	UNKWN	_	_	_	_



Case 4
Check ECM circuit. Refer to <u>LAN-52</u>, "<u>ECM Circuit Check</u>" .

				CAN E	DIAG SUPPORT	MNTR		
SELECT SYST	EM screen	Initial	Transmit		Re	eceive diagnos	sis	
OLLLOI OIGI	LIVI SCIECTI	diagnosis	Transmit diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNK WN	UNK WN	_	UNI <b>W</b> N
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_
ВСМ	_	NG	UNKWN	UNI <b>W</b> WN	UNKWN	_	_	UNKWN
ABS	_	NG	UNKWN	UNKWN	_	_	_	_



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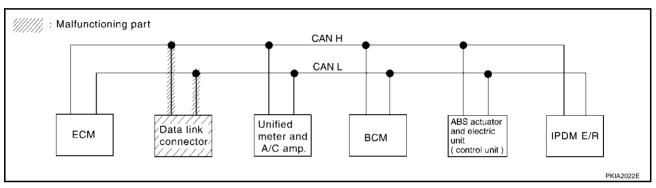
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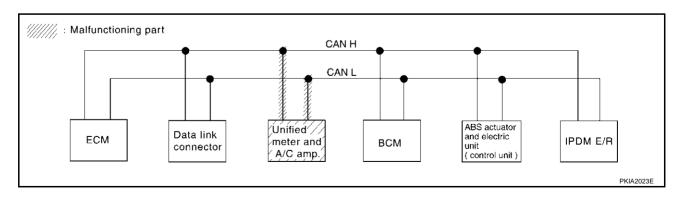
Case 5
Check data link connector circuit. Refer to <u>LAN-53</u>, "<u>Data Link Connector Circuit Check</u>" .

				CAN E	IAG SUPPORT	MNTR		
SELECT SYST	EM scroon	I milki m I	Tuese essit		Re	ceive diagno	sis	
322201 3131	LIVI SCIECII	Initial diagnosis	Transmit diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	=	UNKWN
METER A/C AMP	No indication	-	UNKWN	UNKWN	_	UNKWN	UNKWN	_
ВСМ	_	NG	UNKWN	UNKWN	UNKWN	_	_	UNKWN
ABS	_	NG	UNKWN	UNKWN	_	_	_	_



Case 6
Check unified meter and A/C amp. circuit. Refer to <u>LAN-53</u>, "Unified Meter and A/C Amp. Circuit Check" .

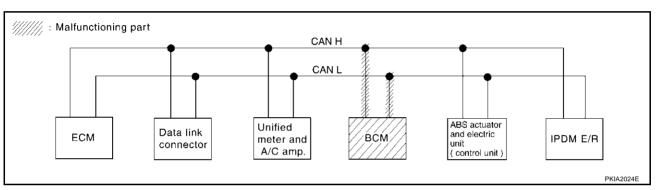
				CAN E	JAG SUPPORT	MNTR		
SELECT SYST	EM screen	laitial	Transmit		Re	eceive diagno:	sis	
GEEEOT GTOT	LIVI SCIECTI	Initial diagnosis	Transmit diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UN <b>K</b> ₩N	UNKWN	-	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UN <b>K</b> ₩N	_	-	UNKWN
ABS	_	NG	UNKWN	UNKWN	_	_	_	_



Case 7

Check BCM circuit. Refer to LAN-54, "BCM Circuit Check" .

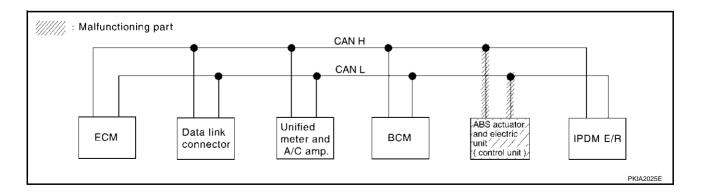
				CAN E	DIAG SUPPORT	MNTR		
SELECT SYST	EM scroon	latit al	Transmit		Re	eceive diagnos	sis	
OLLLO1 3131	LIVI SCIECTI	Initial diagnosis	Transmit diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNI <b>W</b> NN	-	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNRWN	UNKWN	_
ВСМ	_	NG	<b>NAM</b> WN	UNIONN	n <b>uk</b> wu	_	_	UNI WN
ABS	_	NG	UNKWN	UNKWN	_	=	_	_



#### Case 8

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-54</u>, "ABS Actuator and Electric Unit (<u>Control Unit</u>) Circuit Check" .

				CAN E	DIAG SUPPORT	MNTR		
SELECT SYST	EM scroon	I add a I	Tour and it		Re	eceive diagno	sis	
SELECT STOT	LIVI SCIECTI	Initial diagnosis	Transmit diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_
всм	-	NG	UNKWN	UNKWN	UNKWN	-	_	UNKWN
ABS	_	NG	UNKWN	UNKWN	_	_	_	_



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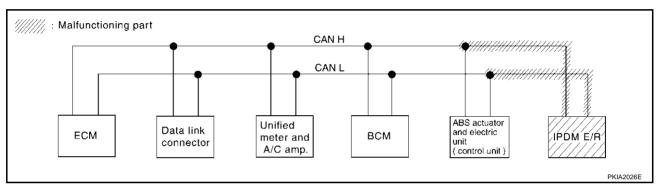
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Case 9

Check IPDM E/R circuit. Refer to LAN-55, "IPDM E/R Circuit Check" .

				CAN D	IAG SUPPORT	MNTR		
SELECT SYST	EM screen	Initial	Transmit		Re	eceive diagnos	sis	
SELECT STOT	LIWI SCIECTI	diagnosis	diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	=	UNKWN	UNKWN	_	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_
BCM	_	NG	UNKWN	UNKWN	UNKWN	_	_	UNWWN
ABS	_	NG	UNKWN	UNKWN	_	_	_	_



#### Case 10

Check CAN communication circuit. Refer to LAN-56, "CAN Communication Circuit Check" .

				CAN D	IAG SUPPORT	MNTR		
SELECT SYST	EM screen	Initial	Transmit		Re	ceive diagnos	sis	
OLLLO1 0101	LIVI GOICEIT	diagnosis	diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	NNRWN	UNI <b>A</b> MN	_	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_
всм	_	NG	∩ <b>NR</b> MN	UNI WN	Ω <b>ΝΚ</b> ΜΝ	=	=	UNIVAN
ABS	_	NG	UNKWN	UNKWN	_	_	_	_

#### Case 11

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to  $\underline{\text{LAN-58}}$ , "IPDM E/R Ignition Relay  $\underline{\text{Circuit Check}}$ ".

				CANE	DIAG SUPPORT	MNTR		
SELECT SYST	EM screen	Initial	Transmit		Re	eceive diagno	sis	
OLLLO1 0101	LIVI SCIECTI	diagnosis	Transmit diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	NKWN UNKWN		UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	-	UNKWN	UNHWN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	UNKWN
ABS	_	NG	UNKWN	UNKWN	_	_	_	_

#### Case 12

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to <u>LAN-58</u>, "IPDM E/R Ignition Relay Circuit Check" .

				CAN E	IAG SUPPORT	MNTR		
SELECT SYST	EM screen	laitial	Transmit		Re	ceive diagnos	sis	
CELEOT OTOT	LIVI SCICCII	Initial diagnosis	Transmit diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_
BCM	_	NG	UNKWN	UNKWN	UNKWN	_	_	UNKWN
ABS	_	NG	UNKWN	UNKWN	_	_	_	_

## Circuit Check Between Data Link Connector and Unified Meter and A/C Amp.

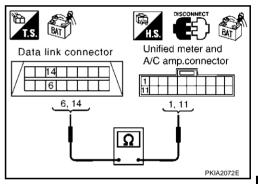
## 1. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ECM connector and unified meter and A/C amp. connector.
- Check continuity between data link connector M8 terminals 6 (L), 14 (R) and unified meter and A/C amp. harness connector M48 terminals 1 (L), 11 (R).

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-43, "Work Flow".

NG >> Repair harness.



## Circuit Check Between Unified Meter and A/C Amp. and BCM

#### 1. CHECK HARNESS FOR OPEN CIRCUIT

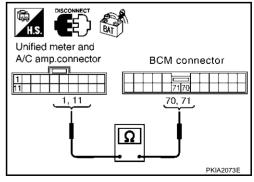
- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect the following connectors.
- ECM connector
- Unified meter and A/C amp. connector
- BCM connector
- Check continuity between unified meter and A/C amp. harness connector M48 terminals 1 (L), 11 (R) and BCM harness connector M3 terminals 70 (L), 71 (R).

1 (L) – 70 (L) : Continuity should exist. 11 (R) – 71 (R) : Continuity should exist.

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-43, "Work Flow".

NG >> Repair harness.



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## Circuit Check Between BCM and ABS Actuator and Electric Unit (Control Unit)

AKS0033G

## 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check following terminals and connector for damage, bend and loose connection (connector-side and harness-side).
- Harness connector M15
- Harness connector E108

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect BCM connector and harness connector M15.
- Check continuity between BCM harness connector M3 terminals 70 (L), 71 (R) and harness connector M15 terminals 2G (L), 7G (R).

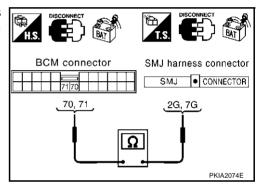
70 (L) – 2G (L) 71 (R) – 7G (R) : Continuity should exist.

: Continuity should exist.

#### OK or NG

OK >> GO TO 3.

NG >> Repair harness.



## 3. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect ABS actuator and electric unit (control unit) connector.
- Check continuity between harness connector E108 terminals 2G (L), 7G (R) and ABS actuator and electric unit (control unit) harness connector E51 terminals 20 (L), 23 (R).

2G (L) - 20 (L)

: Continuity should exist.

7G(R) - 23(R)

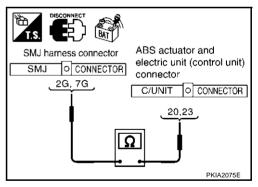
: Continuity should exist.

#### OK or NG

OK

>> Connect all the connectors and diagnose again. Refer to <u>LAN-43</u>, "Work Flow".

NG >> Repair harness.



AKS0032D

#### **ECM Circuit Check**

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- Disconnect the negative battery terminal.
- Check following terminals and connector for damage, bend and loose connection (control module-side and harness-side).
- ECM connector
- Harness connector F102
- Harness connector M72

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

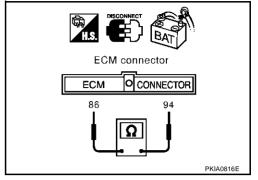
- 1. Disconnect ECM connector.
- Check resistance between ECM harness connector F101 terminals 94 (L) and 86 (R).

94 (L) 
$$-$$
 86 (R) : Approx.  $108 - 132\Omega$ 

#### OK or NG

OK >> Replace ECM.

NG >> Repair harness between ECM and data link connector.



#### **Data Link Connector Circuit Check**

## 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- Disconnect the negative battery terminal.
- Check the terminals and connector of data link connector for damage, bend and loose connection (connector-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

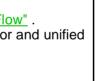
Check resistance between data link connector M8 terminals 6 (L) and 14 (R).

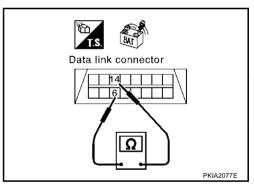
**6 (L)** – **14 (R)** : Approx. 
$$54 - 66\Omega$$

#### OK or NG

OK >> Diagnose again. Refer to LAN-43, "Work Flow".

NG >> Repair harness between data link connector and unified meter and A/C amp.





#### AKS0032F

## Unified Meter and A/C Amp. Circuit Check 1. CHECK CONNECTOR

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check terminals and connector of unified meter and A/C amp, for damage, bend and loose connection (meter-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

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# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

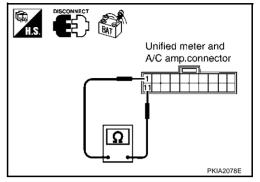
- 1. Disconnect unified meter and A/C amp. connector.
- 2. Check resistance between unified meter and A/C amp. harness connector M48 terminals 1 (L) and 11 (R).

1 (L) – 11 (R) : Approx. 
$$54 - 66\Omega$$

#### OK or NG

OK >> Replace unified meter and A/C amp.

NG >> Repair harness between unified meter and A/C amp. and BCM.



AKS0032G

#### **BCM Circuit Check**

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check the terminals and connector of BCM for damage, bend and loose connection (control module-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect BCM connector.
- 2. Check resistance between BCM harness connector M3 terminals 70 (L) and 71 (R).

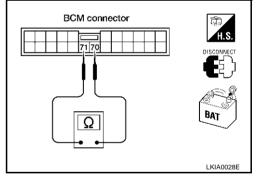
**70 (L) – 71 (R)** : Approx. 
$$54 - 66\Omega$$

#### OK or NG

NG

OK >> Replace BCM.

>> Repair harness between BCM and harness connector M15.



## **ABS Actuator and Electric Unit (Control Unit) Circuit Check**

AKS0032H

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check the terminals and connector of ABS actuator and electric unit (control unit) for damage, bend and loose connection (control unit-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect ABS actuator and electric unit (control unit) connector.
- 2. Check resistance between ABS actuator and electric unit (control unit) harness connector E51 terminals 20 (L) and 23 (R).

$$20 (L) - 23 (R)$$

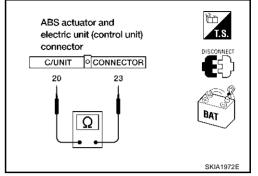
: Approx.  $54 - 66\Omega$ 

#### OK or NG

OK >> Replace ABS actuator and electric unit (control unit).

NG

>> Repair harness between ABS actuator and electric unit (control unit) and IPDM E/R.



AKS00321

#### IPDM E/R Circuit Check

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check the terminals and connector of IPDM E/R for damage, bend and loose connection (control moduleside and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect IPDM E/R connector.
- 2. Check resistance between IPDM E/R harness connector E9 terminals 48 (L) and 49 (R).

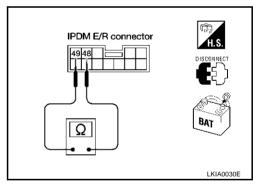
: **Approx.**  $108 - 132\Omega$ 

#### OK or NG

OK >> Replace IPDM E/R.

NG >> Repair I

>> Repair harness between IPDM E/R and ABS actuator and electric unit (control unit).



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#### [CAN]

AKS0032J

#### **CAN Communication Circuit Check**

## 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check following terminals and connector for damage, bend and loose connection (control module-side, meter-side, control unit-side and harness-side).
- ECM
- Unified meter and A/C amp.
- BCM
- ABS actuator and electric unit (control unit)
- IPDM E/R
- Between ECM and IPDM E/R

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

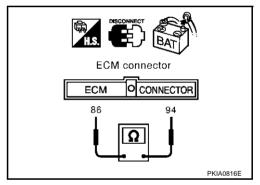
## 2. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect ECM connector and harness connector F102.
- Check continuity between ECM harness connector F101 terminals 94 (L) and 86 (R).

#### OK or NG

OK >> GO TO 3.

NG >> Repair harness between ECM and harness connector F102



## 3. CHECK HARNESS FOR SHORT CIRCUIT

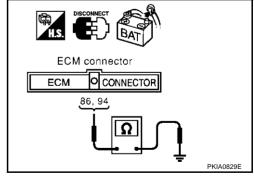
Check continuity between ECM harness connector F101 terminals 94 (L), 86 (R) and ground.

94 (L) – ground : Continuity should not exist. 86 (R) – ground : Continuity should not exist.

#### OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector F102.



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## 4. CHECK HARNESS FOR SHORT CIRCUIT

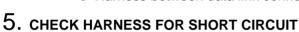
- 1. Disconnect following connectors.
- Unified meter and A/C amp. connector
- BCM connector
- Harness connector M15
- 2. Check continuity between data link connector M8 terminals 6 (L) and 14 (R).

#### OK or NG

OK >> GO TO 5.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72.
  - Harness between data link connector and unified meter and A/C amp.
  - Harness between data link connector and BCM.
  - Harness between data link connector and harness connector M15.



Check continuity between data link connector M8 terminals 6 (L), 14 (R) and ground.

6 (L) – ground : Continuity should not exist. 14 (R) – ground : Continuity should not exist.

#### OK or NG

OK >> GO TO 6.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72.
  - Harness between data link connector and unified meter and A/C amp.
  - Harness between data link connector and BCM.
  - Harness between data link connector and harness connector M15.

## 6. CHECK HARNESS FOR SHORT CIRCUIT

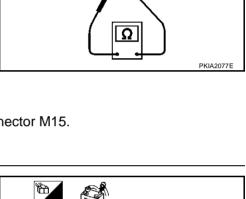
- 1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
- 2. Check continuity between IPDM E/R harness connector E9 terminals 48 (L) and 49 (R).

#### OK or NG

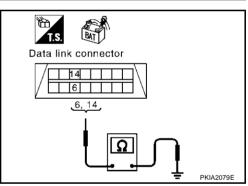
OK >> GO TO 7.

NG >> Check the

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between IPDM E/R and ABS actuator and electric unit (control unit).
  - Harness between IPDM E/R and harness connector E108.



Data link connector



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IPDM E/R connector

4948

DISCONNECT

BAT

LKIA0030E

Revision; 2004 April **LAN-57** 2003 350Z

## 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E9 terminals 48 (L), 49 (R) and ground.

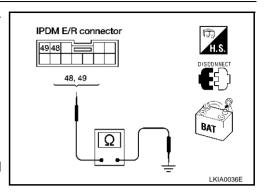
48 (L) – ground : Continuity should not exist. 49 (R) – ground : Continuity should not exist.

#### OK or NG

OK >> GO TO 8.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between IPDM E/R and ABS actuator and electric unit (control unit).
  - Harness between IPDM E/R and harness connector E108.



## 8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to <u>LAN-58</u>, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION" . OK or NG

OK >> Connect all the connectors and diagnose again. Refer to <u>LAN-43</u>, "Work Flow".

NG >> Replace ECM and/or IPDM E/R.

#### IPDM E/R Check

1. CHECK IPDM E/R

AKS0033H

- 1. Turn ignition switch ON and then OFF.
- 2. Check for illuminated parking lamps and tail lamps.

Parking lamps and tail lamps should not illuminate.

#### OK or NG

OK >> Replace ABS actuator and electric unit (control unit).

NG >> Replace IPDM E/R.

## IPDM E/R Ignition Relay Circuit Check

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Check the following. If no malfunction is found, replace the IPDM E/R.

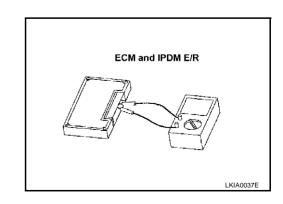
- IPDM E/R power supply circuit. Refer to PG-29, "IPDM E/R Power/Ground Circuit Inspection".
- Ignition power supply circuit. Refer to <u>PG-11, "IGNITION POWER SUPPLY IGNITION SW. IN "ON"</u> AND/OR "START"".

# Component Inspection ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

AKS0032L

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between IPDM E/R terminals 48 and 49.

Unit	Terminal	Resistance value ( $\Omega$ ) (Approx.)
ECM	94 – 86	108 - 132
IPDM E/R	48 – 49	100 - 132



#### [CAN]

## **CAN SYSTEM (TYPE 3)**

PFP:23710

## **System Description**

Blower motor RH side

Low tire pressure warning control unit (M77)

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

View with console finisher removed

Unified meter and A/C amp. (M48)

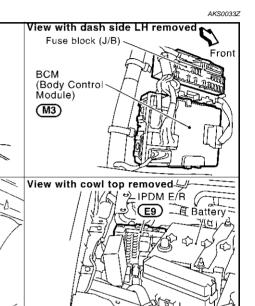
ABS actuator and

electric unit (control unit)

**Component Parts and Harness Connector Location** 

ЕСМ **(F101)** 

Blower motor



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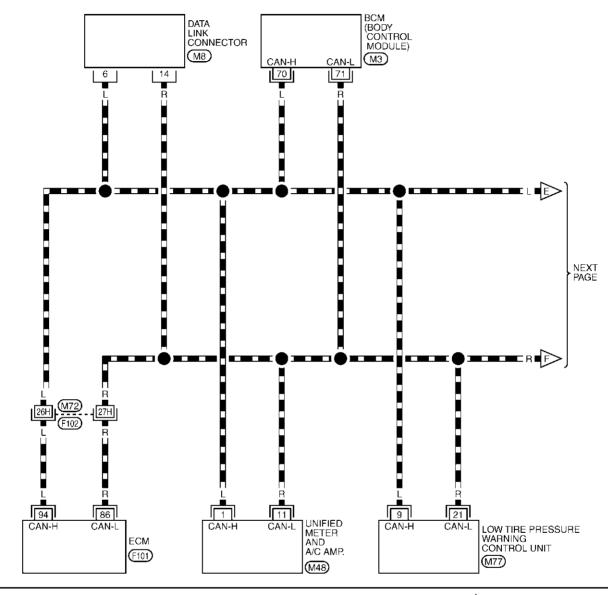
L

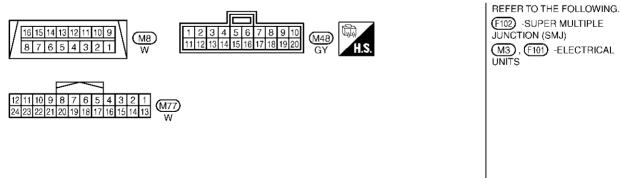
## Wiring Diagram — CAN —

KS00340

#### LAN-CAN-05

: DATA LINE





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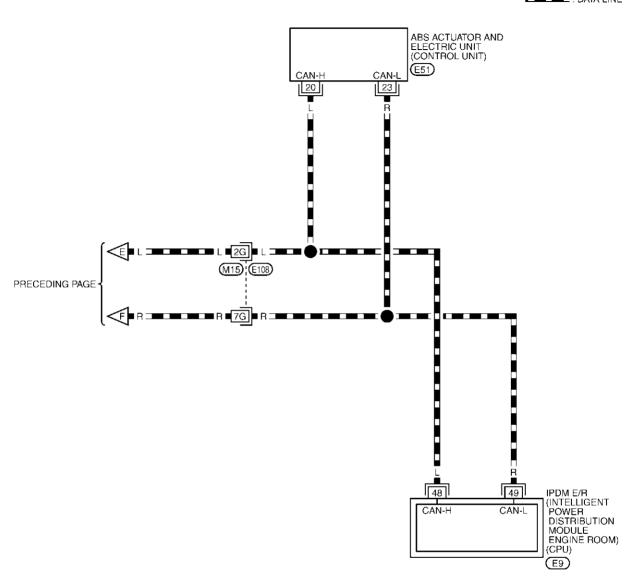
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## LAN-CAN-06

DEC : DATA LINE





REFER TO THE FOLLOWING.

(E108) -SUPER MULTIPLE
JUNCTION (SMJ)

(E51) -ELECTRICAL UNITS

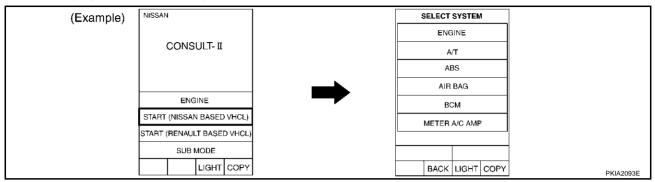
TKWT0411E

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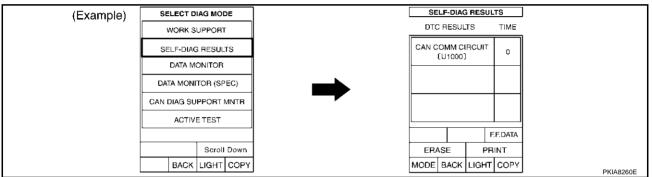
J

Work Flow

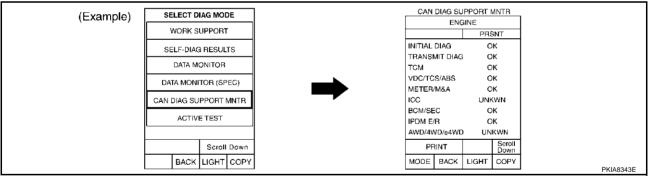
1. When there are no indications of "METER A/C AMP" or "AIR PRESSURE MONITOR" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



2. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "METER A/C AMP", "BCM", "AIR PRESSURE MONITOR" and "ABS" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "METER A/C AMP", "BCM", "AIR PRESSURE MONITOR" and "ABS" displayed on CONSULT-II.



- Attach the printed sheet of "SELECT SYSTEM", "SELF-DIAG RESULTS" and "CAN DIAG SUPPORT MNTR" onto the check sheet. Refer to LAN-63, "CHECK SHEET".
- 5. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks "v" onto the items with "No indication", "NG", or "UNKWN" in the check sheet table. Refer to <a href="LAN-63">LAN-63</a>, "CHECK SHEET"</a>.

#### NOTE:

- If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- The "CAN DIAG SUPPORT MNTR" items, which are not in check sheet table, are not related to diagnostic procedure on service manual.
   So it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- According to the check sheet results (example), start inspection. Refer to <u>LAN-65</u>, "<u>CHECK SHEET RESULTS (EXAMPLE)</u>"

## **CAN SYSTEM (TYPE 3)**

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## **CHECK SHEET**

#### NOTE:

If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

				C/	AN DIAG SU	JPPORT MNT	<sup>-</sup> R		
SELECT SYST	FM screen	Initial	Tuomomit			Receive o	diagnosis		
OCCEOT GTOT	LIVI SCICCII	diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	ı	UNKWN	UNKWN	_	_	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_
ABS	-	NG	UNKWN	UNKWN	_	_	_	_	_

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Attach copy of SELECT SYSTEM Attach copy of SELECT SYSTEM

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Attach copy of Attach copy of Attach copy of ENGINÉ METER A/C AMP всм SELF-DIAG RESULTS SELF-DIAG RESULTS SELF-DIAG RESULTS Attach copy of Attach copy of AIR PRESSURE ABS MONITOR SELF-DIAG RESULTS SELF-DIAG RESULTS Attach copy of Attach copy of Attach copy of ENGINE METER A/C AMP BCM CAN DIAG SUPPORT CAN DIAG SUPPORT CAN DIAG SUPPORT MNTR MNTR MNTR Attach copy of Attach copy of AIR PRESSURE ABS MONITOR CAN DIAG SUPPORT CAN DIAG SUPPORT MNTR MNTR PKIB0318E

## **CHECK SHEET RESULTS (EXAMPLE)**

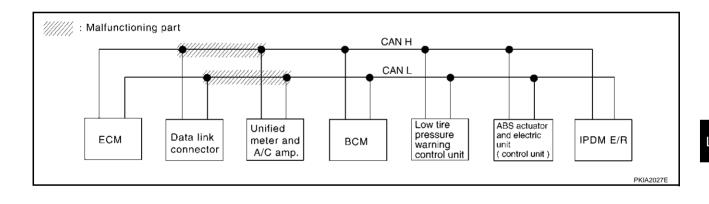
#### NOTE:

If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

#### Case 1

Check harness between data link connector and unified meter and A/C amp. Refer to <u>LAN-77</u>, "Circuit Check <u>Between Data Link Connector and Unified Meter and A/C Amp."</u>

				C/	AN DIAG SL	JPPORT MN1	ΓR		
SELECT SYST	EM screen	I m tat m I	Tue ve e vezit			Receive of	diagnosis		
SEEEOI STOT	LIVI Screen	Initial diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/F
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	_	UNKWN
METER A/C AMP	No indication	-	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_
ABS	_	NG	UNKWN	UNKWN	_	_	-	_	_



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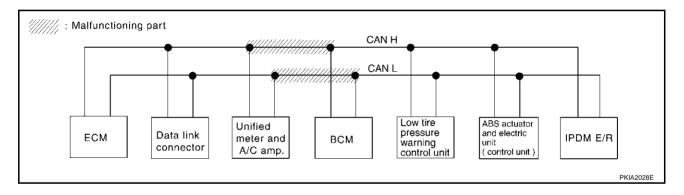
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Case 2
Check harness between unified meter and A/C amp. and BCM. Refer to LAN-77, "Circuit Check Between Unified Meter and A/C Amp. and BCM".

				C/	AN DIAG SU	JPPORT MNT	ΓR		
SELECT SYST	EM screen	Initial	Tuomomit			Receive of	diagnosis		
GELEOT GTOT	LIW SCIECTI	diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/F
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	_	UNK WN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	∩ <b>NR</b> (AN	UNK WN	_
BCM	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_
ABS	_	NG	UNKWN	UNKWN	_	_	_	_	_



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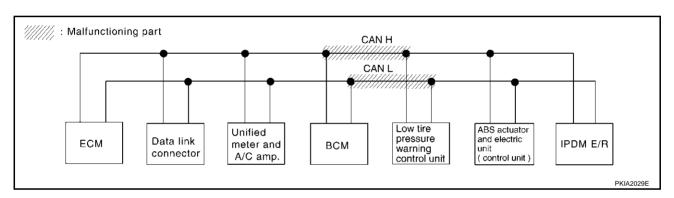
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Case 3

Check harness between BCM and Low Tire Pressure Warning Control Unit. Refer to <u>LAN-78</u>, "Circuit Check <u>Between BCM and Low Tire Pressure Warning Control Unit"</u>.

				C/	AN DIAG SU	PPORT MNT	TR		
SELECT SYST	EM screen	Initial	Transmit			Receive of	diagnosis		
OLLLO1 G1G1	EIW SCICOIT	diagnosis	diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/F
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	_	_	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKVN	UNKWN	_
BCM	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	UNK VN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_
ABS	_	NG	UNKWN	UNK <b>W</b> N	_	_	_	_	_



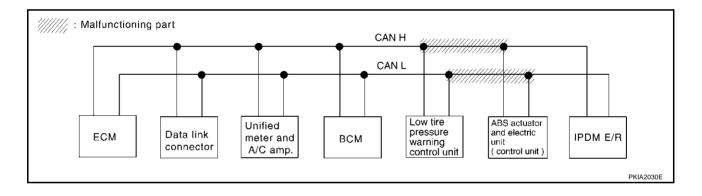
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#### Case 4

Check harness between Low Tire Pressure Warning Control Unit and ABS Actuator and Electric Unit (Control Unit). Refer to LAN-78, "Circuit Check Between Low Tire Pressure Warning Control Unit and ABS Actuator and Electric Unit (Control Unit)".

				C	AN DIAG SL	IPPORT MNT	TR .		
SELECT SYST	EM scroop	1.00.1	T			Receive of	diagnosis		
SELECT STOT	LIVI SCIEETI	Initial diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	_	_	UNK VN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	UNK/WN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	UNKVN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	-	UNKWN	_	_	_	-
ABS	_	NG	UNKWN	UNKVN	_	_	_	_	_



## **CAN SYSTEM (TYPE 3)**

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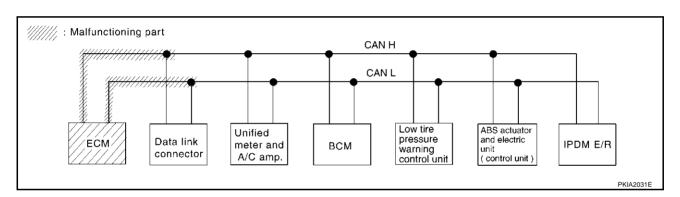
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Case 5
Check ECM circuit. Refer to <u>LAN-79</u>, "ECM Circuit Check" .

				C/	AN DIAG SU	JPPORT MNT	<sup>-</sup> R		
SELECT SYST	FM screen	Initial	Transmit			Receive of	diagnosis		
000001	EIW SCIECTI	diagnosis	diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	-	NG	UN <b>K</b> ₩N	-	UNKWN	UNKWN	-	_	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_
ABS	_	NG	UNKWN	UNKWN	_	_		_	_

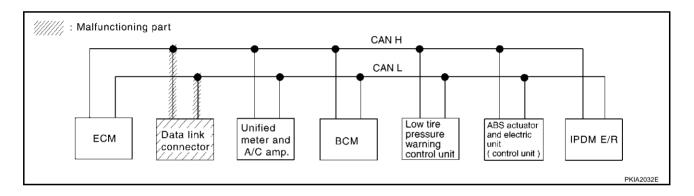


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Case 6
Check data link connector circuit. Refer to <u>LAN-79</u>, "<u>Data Link Connector Circuit Check</u>" .

				C/	AN DIAG SU	IPPORT MN	TR .		
SELECT SYST	EM screen	la SC a l	To a security			Receive of	diagnosis		
322201 3131	LIW SCIECTI	Initial diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	-	_	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKWN	_
ВСМ	_	NG	UNKWN	UNKWN	UNKWN		-	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	=	UNKWN	-	-	_	=
ABS	_	NG	UNKWN	UNKWN	_	_	_	_	_



## **CAN SYSTEM (TYPE 3)**

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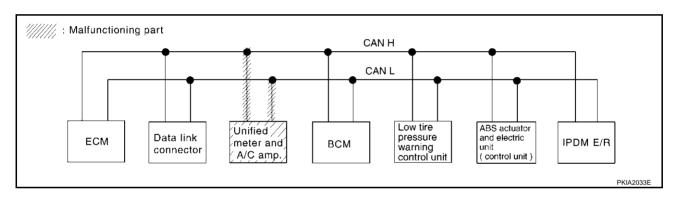
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Case 7

Check unified meter and A/C amp. circuit. Refer to LAN-80, "Unified Meter and A/C Amp. Circuit Check" .

				C/	AN DIAG SU	JPPORT MN1	ΓR		
SELECT SYST	FM screen	Initial	Transmit			Receive of	diagnosis		
OLLLO1 G1G1	LIW SCIECTI	Initial diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKVN	UNKWN	-	-	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKWN	_
BCM	_	NG	UNKWN	UNKWN	UNK WN	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNK/VN	_	_	_	_
ABS	-	NG	UNKWN	UNKWN	_	_	_	_	_

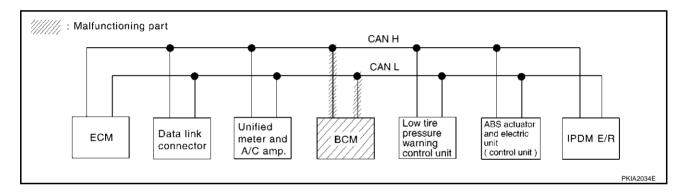


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Case 8
Check BCM circuit. Refer to <u>LAN-80, "BCM Circuit Check"</u>.

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	_	_	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	NNKWN	UNKWN	UNKWN	_
всм	_	NG	UNK <b>∕</b> NN	UNK WN	UNK WN	_	_	_	UNK WN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_
ABS	-	NG	UNKWN	UNKWN	_	_	_	_	_



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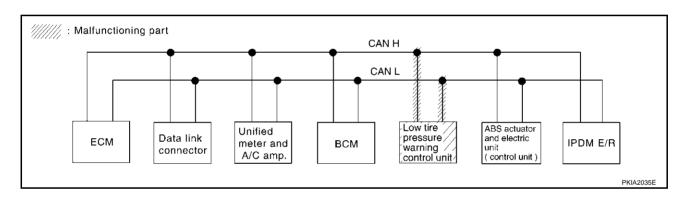
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Case 9

Check Low Tire Pressure Warning Control Unit circuit. Refer to <u>LAN-81</u>, "Low Tire Pressure Warning Control <u>Unit Circuit Check"</u>.

				C.A	AN DIAG SU	JPPORT MNT	ΓR		
SELECT SYST	EM screen	Initial	Tuamamait			Receive of	diagnosis		
OLLLO1 G.G.		Initial diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	_	UNKWN
METER A/C AMP	No indication	-	UNKWN	UNKWN	-	UNKWN	UNKAN	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	- 1	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_
ABS	_	NG	UNKWN	UNKWN	_	_	-	_	_



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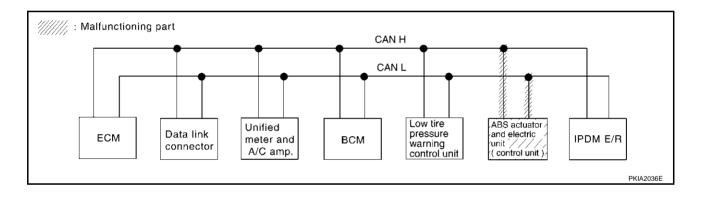
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Case 10

Check ABS actuator and electric unit. Refer to <u>LAN-81</u>, "ABS Actuator and Electric Unit (Control Unit) Circuit <u>Check"</u>.

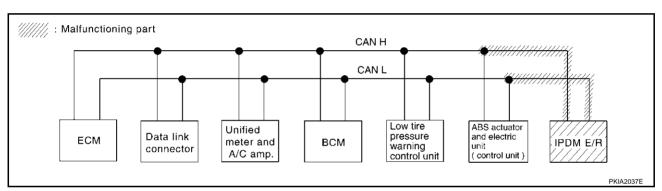
				C/	AN DIAG SU	PPORT MN1	TR .		
SELECT SYST	EM ccreen	11411	T			Receive of	diagnosis		
0000010101	LIVI SCIEGII	Initial diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	UNKWN	_	_	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	-	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_
ABS	_	NG	UNKWN	UNKWN	_	_	_	_	_



Case 11

Check IPDM E/R circuit. Refer to LAN-82, "IPDM E/R Circuit Check" .

				C/	AN DIAG SU	IPPORT MNT			
SELECT SYST	EM screen	Initial	Transmit			Receive of	diagnosis		1
		diagnosis	diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	_	UNK <b>W</b> N
METER A/C AMP	No indication	_	UNKWN	UNKWN	-	UNKWN	UNKWN	UNKWN	_
ВСМ	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	UNK VN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	-	_
ABS	_	NG	UNKWN	UNKWN	_	_	_	_	_



Case 12

Check CAN communication circuit. Refer to LAN-83, "CAN Communication Circuit Check" .

				C/	AN DIAG SU	IPPORT MN			
SELECT SYST	EM screen	Initial	Transmit			Receive	diagnosis		
		diagnosis	diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/F
ENGINE	_	NG	UNK WN	_	UNK WN	UNKWN	_	_	UNK VN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKWN	_
всм	_	NG	UNKWN	UN <b>K</b> ₩N	UNKWN	_	_	_	UNK WN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	-	_	_
ABS	_	NG	UNKWN	UNKWN	_	_	_	_	_

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#### Case 13

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-85, "IPDM E/R Ignition Relay Circuit Check"</u>.

				C.A	AN DIAG SU	PPORT MN1	ΓR		
SELECT SYST	FM screen	Initial	Transmit			Receive	diagnosis		
SELECT STOT	LIVI SCIEGII	Initial diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	_	_	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	NNRWN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_
ABS	_	NG	UNKWN	UNKWN	-	_	_	_	_

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### Case 14

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to LAN-85, "IPDM E/R Ignition Relay Circuit Check" .

				C/	AN DIAG SU	PPORT MN	ΓR		
SELECT SYST	FM screen	Initial	Transmit			Receive	diagnosis		
OLLLOT GTGT	Elwi Sciecti	diagnosis	diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	ı	UNKWN	UNKWN	_	_	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	-	UNKWN	UNKWN	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_
ABS	_	NG	UNKWN	UNKWN	_	_	_	_	_

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### Circuit Check Between Data Link Connector and Unified Meter and A/C Amp.

### 1. CHECK HARNESS FOR OPEN CIRCUIT

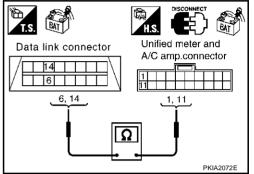
- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ECM connector and unified meter and A/C amp. connector.
- Check continuity between data link connector M8 terminals 6 (L), 14 (R) and unified meter and A/C amp. harness connector M48 terminals 1 (L), 11 (R).

6 (L) – 1 (L) : Continuity should exist. 14 (R) – 11 (R) : Continuity should exist.

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-62, "Work Flow".

NG >> Repair harness.



### Circuit Check Between Unified Meter and A/C Amp. and BCM

### 1. CHECK HARNESS FOR OPEN CIRCUIT

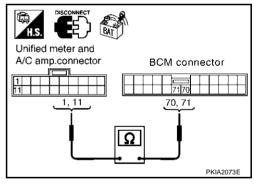
- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect the following connectors.
- ECM connector
- Unified meter and A/C amp. connector
- BCM connector
- 4. Check continuity between unified meter and A/C amp. harness connector M48 terminals 1 (L), 11 (R) and BCM harness connector M3 terminals 70 (L), 71 (R).

1 (L) – 70 (L) : Continuity should exist. 11 (R) – 71 (R) : Continuity should exist.

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-62. "Work Flow".

NG >> Repair harness.



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### Circuit Check Between BCM and Low Tire Pressure Warning Control Unit

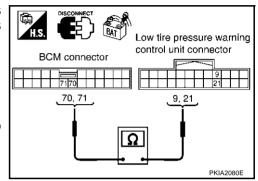
### 1. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect the following connectors.
- ECM connector
- BCM connector
- Low tire pressure warning control unit connector
- 4. Check continuity between BCM harness connector M3 terminals 70 (L), 71 (R) and low tire pressure warning control unit harness connector M77 terminals 9 (L), 21 (R).

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to <u>LAN-62, "Work Flow"</u>.

NG >> Repair harness.



# Circuit Check Between Low Tire Pressure Warning Control Unit and ABS Actuator and Electric Unit (Control Unit)

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check following terminals and connector for damage, bend and loose connection (connector-side and harness-side).
- Harness connector M15
- Harness connector E108

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

- Disconnect low tire pressure warning control unit connector and harness connector M15.
- Check continuity between low tire pressure warning control unit harness connector M77 terminals 9 (L), 21 (R) and harness connector M15 terminals 2G (L), 7G (R).

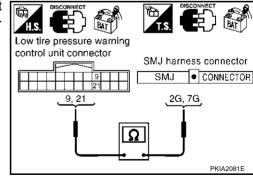
9 (L) – 2G (L) 21 (R) – 7G (R) : Continuity should exist.

: Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



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# 3. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect ABS actuator and electric unit (control unit) connector.
- 2. Check continuity between harness connector E108 terminals 2G (L), 7G (R) and ABS actuator and electric unit (control unit) harness connector E51 terminals 20 (L), 23 (R).

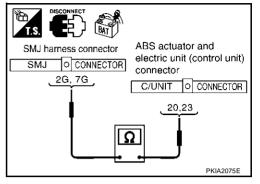
2G (L) – 20 (L) : Continuity should exist.

7G (R) – 23 (R) : Continuity should exist.

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-62, "Work Flow".

NG >> Repair harness.



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### **ECM Circuit Check**

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check following terminals and connector for damage, bend and loose connection (control module-side and harness-side).
- ECM connector
- Harness connector F102
- Harness connector M72

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

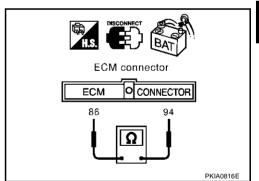
- 1. Disconnect ECM connector.
- 2. Check resistance between ECM harness connector F101 terminals 94 (L) and 86 (R).

94 (L) - 86 (R) : Approx.  $108 - 132\Omega$ 

#### OK or NG

OK >> Replace ECM.

NG >> Repair harness between ECM and data link connector.



### **Data Link Connector Circuit Check**

### 1. CHECK CONNECTOR

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check the terminals and connector of data link connector for damage, bend and loose connection (connector-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

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# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M8 terminals 6 (L) and 14 (R).

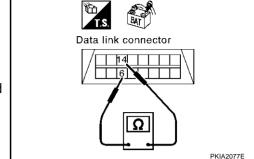
**6 (L)** – **14 (R)** : Approx. **54** – **66**
$$\Omega$$

#### OK or NG

OK

>> Diagnose again. Refer to LAN-62, "Work Flow".

NG >> Repair harness between data link connector and unified meter and A/C amp.



#### AKS00347

### Unified Meter and A/C Amp. Circuit Check

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check terminals and connector of unified meter and A/C amp. for damage, bend and loose connection (meter-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect unified meter and A/C amp. connector.
- 2. Check resistance between unified meter and A/C amp. harness connector M48 terminals 1 (L) and 11 (R).

: Approx.  $54 - 66\Omega$ 

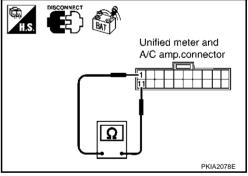
#### OK or NG

OK

>> Replace unified meter and A/C amp.

NG

>> Repair harness between unified meter and A/C amp. and BCM.



#### **BCM Circuit Check**

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.

- 2. Disconnect the negative battery terminal.
- 3. Check the terminals and connector of BCM for damage, bend and loose connection (control module-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

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# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect BCM connector.
- 2 Check resistance between BCM harness connector M3 terminals 70 (L) and 71 (R).

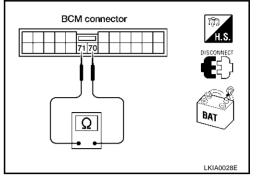
**70 (L)** – **71 (R)** : Approx. 
$$54 - 66\Omega$$

#### OK or NG

OK >> Replace BCM.

NG

>> Repair harness between BCM and low tire pressure warning control unit.



### Low Tire Pressure Warning Control Unit Circuit Check

### CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- Disconnect the negative battery terminal.
- Check terminals and connector of low tire pressure warning control unit for damage, bend and loose connection (control unit-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

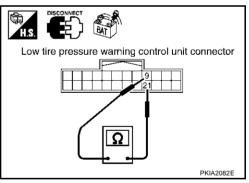
- 1. Disconnect low tire pressure warning control unit connector.
- Check resistance between low tire pressure warning control unit harness connector M77 terminals 9 (L) and 21 (R).

**9 (L) – 21 (R)** : Approx. 
$$54 - 66\Omega$$

#### OK or NG

OK >> Replace low tire pressure warning control unit.

NG >> Repair harness between low tire pressure warning control unit and harness connector M15.



### ABS Actuator and Electric Unit (Control Unit) Circuit Check

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- Disconnect the negative battery terminal.
- Check the terminals and connector of ABS actuator and electric unit (control unit) for damage, bend and loose connection (control unit-side and harness-side).

>> GO TO 2.

>> Repair terminal or connector.

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OK

NG

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- Disconnect ABS actuator and electric unit (control unit) connector.
- Check resistance between ABS actuator and electric unit (control unit) harness connector E51 terminals 20 (L) and 23 (R).

$$20 (L) - 23 (R)$$

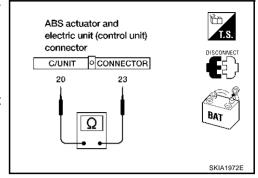
: Approx.  $54 - 66\Omega$ 

#### OK or NG

OK >> Replace ABS actuator and electric unit (control unit).

NG

>> Repair harness between ABS actuator and electric unit (control unit) and IPDM E/R.



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#### **IPDM E/R Circuit Check**

### 1. CHECK CONNECTOR

- Turn ignition switch OFF. 1.
- Disconnect the negative battery terminal.
- Check the terminals and connector of IPDM E/R for damage, bend and loose connection (control moduleside and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect IPDM E/R connector.
- Check resistance between IPDM E/R harness connector E9 terminals 48 (L) and 49 (R).

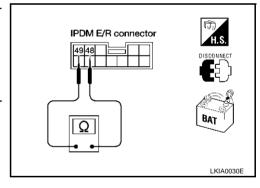
: Approx.  $108 - 132\Omega$ 

#### OK or NG

OK

>> Replace IPDM E/R.

NG >> Repair harness between IPDM E/R and ABS actuator and electric unit (control unit).



[CAN]

### **CAN Communication Circuit Check**

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check following terminals and connector for damage, bend and loose connection (control module-side, 3. meter-side, control unit-side and harness-side).
- **ECM**
- Unified meter and A/C amp.
- **BCM**
- Low tire pressure warning control unit
- ABS actuator and electric unit (control unit)
- Between ECM and IPDM E/R

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

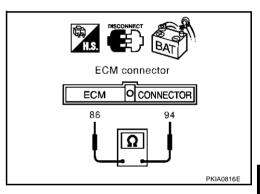
### 2. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect ECM connector and harness connector F102.
- Check continuity between ECM harness connector F101 terminals 94 (L) and 86 (R).

#### OK or NG

OK >> GO TO 3.

NG >> Repair harness between ECM and harness connector F102.



### 3. CHECK HARNESS FOR SHORT CIRCUIT

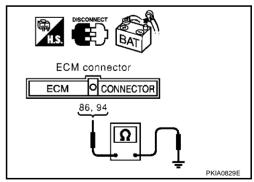
Check continuity between ECM harness connector F101 terminals 94 (L), 86 (R) and ground.

> 94 (L) - ground : Continuity should not exist. 86 (R) - ground : Continuity should not exist.

#### OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector F102.



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### 4. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect following connectors.
- Unified meter and A/C amp. connector
- BCM connector
- Low tire pressure warning control unit connector
- Harness connector M15
- 2. Check continuity between data link connector M8 terminals 6 (L) and 14 (R).

6 (L) – 14 (R) : Continuity should not exist.

#### OK or NG

OK

>> GO TO 5.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72.
  - Harness between data link connector and unified meter and A/C amp.
  - Harness between data link connector and BCM.
  - Harness between data link connector and low tire pressure warning control unit.
  - Harness between data link connector and harness connector M15.

### 5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M8 terminals 6 (L), 14 (R) and ground.

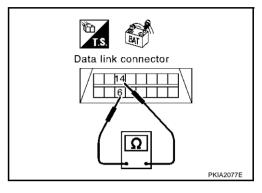
6 (L) – ground : Continuity should not exist. 14 (R) – ground : Continuity should not exist.

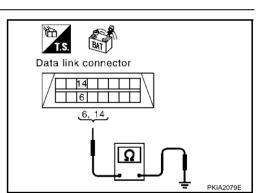
#### OK or NG

OK >> GO TO 6.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72.
  - Harness between data link connector and unified meter and A/C amp.
  - Harness between data link connector and BCM.
  - Harness between data link connector and low tire pressure warning control unit.
  - Harness between data link connector and harness connector M15.





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### 6. CHECK HARNESS FOR SHORT CIRCUIT

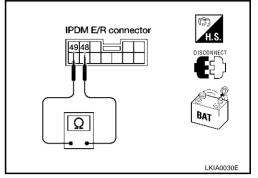
- 1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
- Check continuity between IPDM E/R harness connector E9 terminals 48 (L) and 49 (R).

#### OK or NG

OK >> GO TO 7.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between IPDM E/R and ABS actuator and electric unit (control unit).
  - Harness between IPDM E/R and harness connector E108.



### 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E9 terminals 48 (L), 49 (R) and ground.

> 48 (L) - ground : Continuity should not exist. 49 (R) - ground : Continuity should not exist.

#### OK or NG

OK >> GO TO 8.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between IPDM E/R and ABS actuator and electric unit (control unit).
  - Harness between IPDM E/R and harness connector E108.

# IPDM E/R connector 48, 49 BAT LKIA0036F

### 8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to LAN-86, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION". OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-62, "Work Flow".

NG >> Replace ECM and/or IPDM E/R.

### IPDM E/R Check

### 1. CHECK IPDM E/R

- Turn ignition switch ON and then OFF.
- Check for illuminated parking lamps and tail lamps.

#### Parking lamps and tail lamps should not illuminate.

#### OK or NG

OK >> Replace ABS actuator and electric unit (control unit).

NG >> Replace IPDM E/R.

### IPDM E/R Ignition Relay Circuit Check

Check the following. If no malfunction is found, replace the IPDM E/R.

- IPDM E/R power supply circuit. Refer to PG-29, "IPDM E/R Power/Ground Circuit Inspection".
- Ignition power supply circuit. Refer to PG-11, "IGNITION POWER SUPPLY IGNITION SW. IN "ON" AND/OR "START"".

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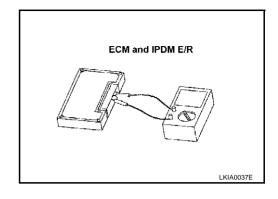
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# Component Inspection ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between IPDM E/R terminals 48 and 49.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	94 – 86	108 - 132
IPDM E/R	48 – 49	100 - 132



#### [CAN]

### **CAN SYSTEM (TYPE 4)**

PFP:23710

### **System Description**

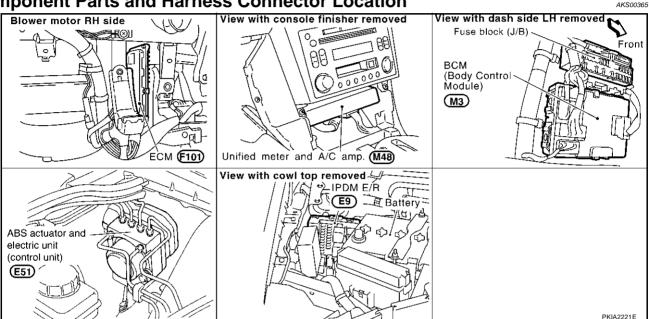
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CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped 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.

Component Parts and Harness Connector Location



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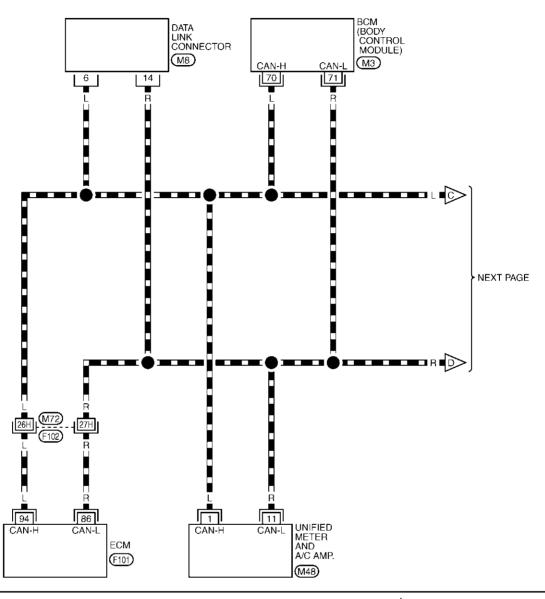
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### Wiring Diagram — CAN —

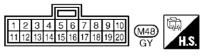
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### LAN-CAN-03

: DATA LINE







REFER TO THE FOLLOWING.

(F102) -SUPER MULTIPLE
JUNCTION (SMJ)

(M3), (F101) -ELECTRICAL
UNITS

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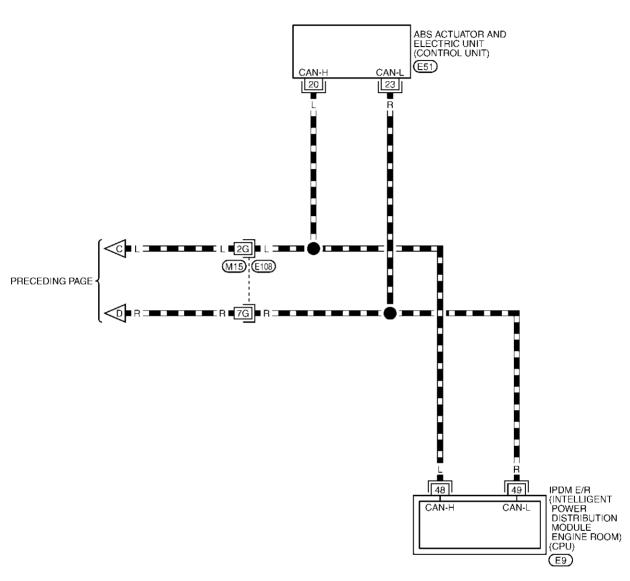
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### LAN-CAN-04

□□□□□□ : DATA LINE





REFER TO THE FOLLOWING. (E108) -SUPER MULTIPLE

JUNCTION (SMJ) (E51) -ELECTRICAL UNITS

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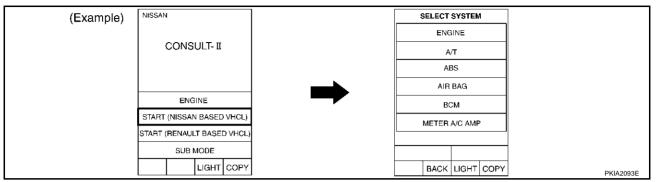
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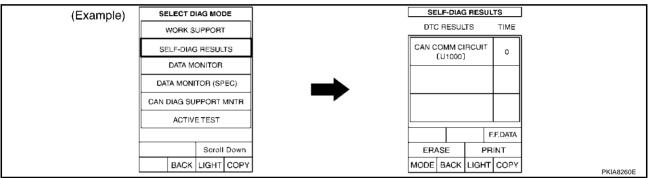
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Work Flow

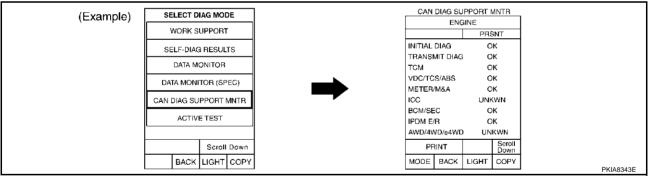
1. When there are no indications of "METER A/C AMP" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



2. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "METER A/C AMP", "BCM", and "ABS" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "METER A/C AMP", "BCM", and "ABS" displayed on CONSULT-II.



- 4. Attach the printed sheet of "SELECT SYSTEM", "SELF-DIAG RESULTS" and "CAN DIAG SUPPORT MNTR" onto the check sheet. Refer to LAN-91, "CHECK SHEET".
- 5. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks "v" onto the items with "No indication", "NG", or "UNKWN" in the check sheet table. Refer to <u>LAN-91</u>, "CHECK SHEET".

#### NOTE:

- If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- The "CAN DIAG SUPPORT MNTR" items, which are not in check sheet table, are not related to diagnostic procedure on service manual.
   So it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- According to the check sheet results (example), start inspection. Refer to <u>LAN-93</u>, "<u>CHECK SHEET RESULTS (EXAMPLE)</u>"

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### **CHECK SHEET**

#### NOTE:

If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

				CAN D	IAG SUPPORT		-i-	
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	-	UNKWN	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	UNKWN
ABS	-	NG	UNKWN	UNKWN	_	_	_	_
Symptoms :								

Attach copy of SELECT SYSTEM Attach copy of SELECT SYSTEM

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Attach copy of ENGINE SELF-DIAG RESULTS	Attach copy of METER A/C AMP SELF-DIAG RESULTS	Attach copy of BCM SELF-DIAG RESULTS	Attach copy of ABS SELF-DIAG RESULTS
Attach copy of ENGINE CAN DIAG SUPPORT MNTR	Attach copy of METER A/C AMP CAN DIAG SUPPORT MNTR	Attach copy of BCM CAN DIAG SUPPORT MNTR	Attach copy of ABS CAN DIAG SUPPORT MNTR

### **CHECK SHEET RESULTS (EXAMPLE)**

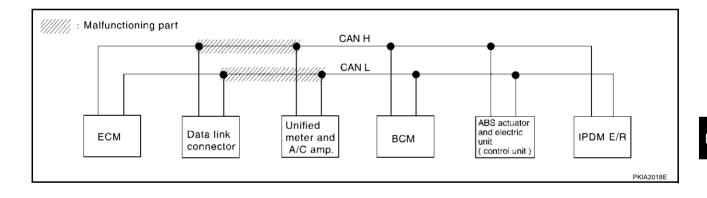
#### NOTE:

If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

### Case 1

Check harness between data link connector and unified meter and A/C amp. Refer to <u>LAN-103</u>, "Circuit Check <u>Between Data Link Connector and Unified Meter and A/C Amp."</u>

SELECT SYST	EM serces	1.222.1		OANE	IAG SUPPORT Re	ceive diagnos	sis	
SELECT STST	Elvi screen	Initial diagnosis	Transmit diagnosis	ЕСМ	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	υ <b>κ/</b> wν	UNK WN	UNK WN	UNKWN
METER A/C AMP	No indication	-	UNKWN	UNKWN	_	UNKWN	UNKWN	_
ВСМ	_	NG	UNKWN	UNKWN	UNKWN	_	-	UNKWN
ABS	_	NG	UNKWN	UNI WN	-	_	_	_



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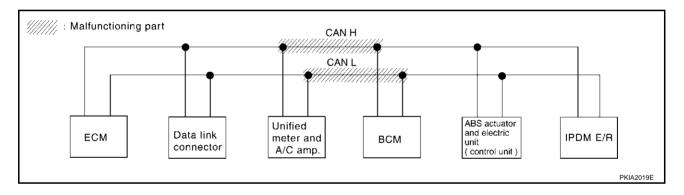
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Case 2
Check harness between unified meter and A/C amp. and BCM. Refer to LAN-103, "Circuit Check Between Unified Meter and A/C Amp. and BCM".

				CANI	DIAG SUPPORT	MNTR eceive diagnos	eie	
SELECT SYST	EM screen		Transmit diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNIKWN	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNIVWN	UNIWN	_
всм	_	NG	UNKWN	UNIVAN	UN <b>K</b> ∕WN	_	_	UNKWN
ABS	_	NG	UNKWN	UNIONN	_	=	_	_



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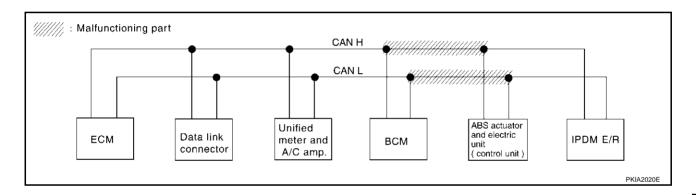
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#### Case 3

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to <u>LAN-103</u>, "Circuit Check Between BCM and ABS Actuator and Electric Unit (Control Unit)".

SELECT SYST	EM screen	Initial	Transmit	CANE	DIAG SUPPORT Re	eceive diagnos	sis	
SELECT STST	LIVI SCIEETI	Initial diagnosis	Transmit diagnosis	ЕСМ	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNK WN	UNIX WN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	NAMAN	_
BCM	_	NG	UNKWN	UNKWN	UNKWN	_	_	UNIV
ABS	_	NG	UNKWN	UNION	_	_	_	_



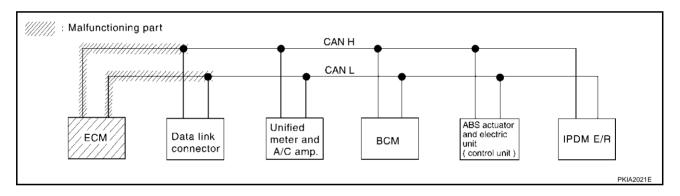
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Case 4
Check ECM circuit. Refer to <u>LAN-104</u>, "ECM Circuit Check" .

				CAN DIAG SUPPORT MNTR  Receive diagnosis					
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R	
ENGINE	_	NG	UNIVAN	_	UNKWN	UNKWN	UNKWN	UNKWN	
METER A/C AMP	No indication	_	UNKWN	UNIAMN	_	UNKWN	UNKWN	_	
ВСМ	_	NG	UNKWN	UNIANN	UNKWN	_	_	UNKWN	
ABS	_	NG	UNKWN	UNIONN	_	_	_	_	



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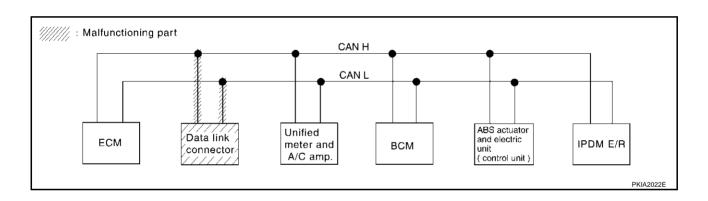
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Case 5

Check data link connector circuit. Refer to <u>LAN-105</u>, "Data Link Connector Circuit Check" .

SELECT SYSTI	EM serees	1.22.1	<b>T</b>	0/1112	CAN DIAG SUPPORT MNTR  Receive diagnosis					
SELECT STOTI	EIVI SCIEEII	Initial diagnosis	Transmit diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN		
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_		
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	UNKWN		
ABS	-	NG	UNKWN	UNKWN	_	_	_	_		

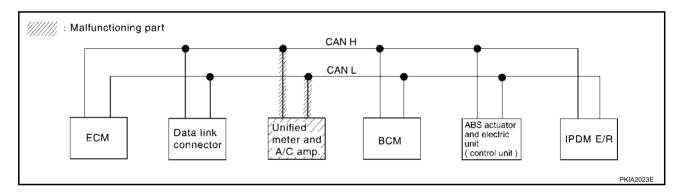


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Case 6
Check unified meter and A/C amp. circuit. Refer to <u>LAN-105</u>, "Unified Meter and A/C Amp. Circuit Check" .

OF LECT OVER				CANL	IAG SUPPORT Re	ceive diagno:	sis	
SELECT SYST	EIVI SCREEN	Initial diagnosis	Transmit diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNK/WN	UNKWN	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_
BCM	-	NG	UNKWN	UNKWN	UNK/WN	_	-	UNKWN
ABS	_	NG	UNKWN	UNKWN	_	_	_	_



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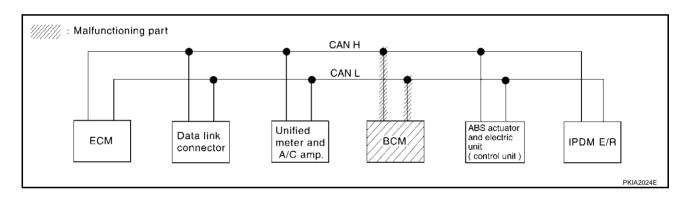
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Case 7

Check BCM circuit. Refer to LAN-106, "BCM Circuit Check" .

			I	CANE	IAG SUPPORT		-:-	
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNIVWN	UNKWN	_
ВСМ	-	NG	UNNWN	UNIV	UN <b>K</b> ∕WN	_	_	UNKWN
ABS	_	NG	UNKWN	UNKWN	-	_	_	_



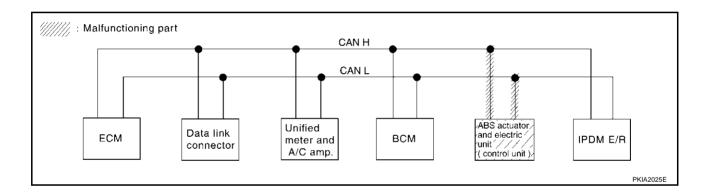
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Case 8

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-106</u>, "ABS Actuator and Electric Unit (Control Unit) Circuit Check" .

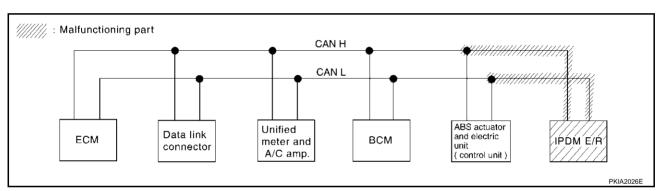
	-			CANE	DIAG SUPPORT	MNTR eceive diagno:	nio	
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN
METER A/C AMP	No indication	-	UNKWN	UNKWN	_	UNKWN	UNKWN	_
ВСМ	-	NG	UNKWN	UNKWN	UNKWN	_	_	UNKWN
ABS	-	NG	UNION	UNKWN	_	_	_	_



Case 9

Check IPDM E/R circuit. Refer to LAN-107, "IPDM E/R Circuit Check" .

			1	CANE	DIAG SUPPORT			
SELECT SYST	SELECT SYSTEM screen		Transmit		He	eceive diagnos	T	
		diagnosis	diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	UNIVAN
ABS	_	NG	UNKWN	UNKWN	_	_	_	_



Case 10

Check CAN communication circuit. Refer to <u>LAN-108</u>, "CAN Communication Circuit Check" .

				CAN D	DIAG SUPPORT MNTR  Receive diagnosis			
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	METER/M&A		VDC/TCS /ABS	IPDM E/F
ENGINE	_	NG	UNKWN	_	UNK/WN	UNKWN	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UN <b>K</b> ∕WN	_	_	UNIVAN
ABS	-	NG	UNION	UNRWN	_	_	_	_

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#### Case 11

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to  $\underline{\text{LAN-110}}$ , "IPDM E/R Ignition Relay  $\underline{\text{Circuit Check"}}$ .

		CAN DIAC CURROPT MINTE								
		CAN DIAG SUPPORT MNTR								
-M screen	Initial	Transmit	Receive diagnosis							
IN SOLCCIT	diagnosis	diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R			
-	NG	UNKWN	_	UNKWN	UNKWN	<b>NNR</b> WN	UNKWN			
No indication	_	UNKWN	UNKWN	_	UNKWN	NNAMN	_			
-	NG	UNKWN	UNKWN	UNKWN	_	_	UNKWN			
_	NG	UNKWN	UNKWN	_	_	_	_			
	EM screen  - No indication	diagnosis  - NG  No indication - NG  NG	diagnosis diagnosis  - NG UNKWN No indication - UNKWN - NG UNKWN	Initial diagnosis	Initial diagnosis	Initial diagnosis	Initial diagnosis			

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### Case 12

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to LAN-110, "IPDM E/R Ignition Relay Circuit Check" .

			CAN DIAG SUPPORT MNTR									
SELECT SYST	EM screen	Initial	Transmit	Receive diagnosis								
0222010101	EIW SOICCII	diagnosis	diagnosis	ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R				
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN				
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_				
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	UNKWN				
ABS	_	NG	UNKWN	NNNNN	_	_	_	_				

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### Circuit Check Between Data Link Connector and Unified Meter and A/C Amp.

### 1. CHECK HARNESS FOR OPEN CIRCUIT

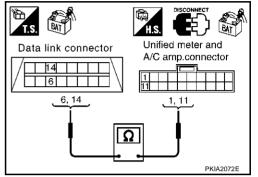
- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ECM connector and unified meter and A/C amp. connector.
- 4. Check continuity between data link connector M8 terminals 6 (L), 14 (R) and unified meter and A/C amp. harness connector M48 terminals 1 (L), 11 (R).

6 (L) – 1 (L) : Continuity should exist. 14 (R) – 11 (R) : Continuity should exist.

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-90, "Work Flow".

NG >> Repair harness.



### Circuit Check Between Unified Meter and A/C Amp. and BCM

### 1. CHECK HARNESS FOR OPEN CIRCUIT

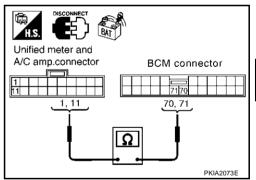
- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect the following connectors.
- ECM connector
- Unified meter and A/C amp. connector
- BCM connector
- 4. Check continuity between unified meter and A/C amp. harness connector M48 terminals 1 (L), 11 (R) and BCM harness connector M3 terminals 70 (L), 71 (R).

1 (L) – 70 (L) : Continuity should exist. 11 (R) – 71 (R) : Continuity should exist.

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-90. "Work Flow".

NG >> Repair harness.



### Circuit Check Between BCM and ABS Actuator and Electric Unit (Control Unit)

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check following terminals and connector for damage, bend and loose connection (connector-side and harness-side).
- Harness connector M15
- Harness connector E108

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

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# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect BCM connector and harness connector M15.
- Check continuity between BCM harness connector M3 terminals 70 (L), 71 (R) and harness connector M15 terminals 2G (L), 7G (R).

70 (L) – 2G (L) : Continuity should exist. 71 (R) – 7G (R) : Continuity should exist.

OK or NG

OK >> GO TO 3. NG >> Repair harness. BCM connector

SMJ harness connector

SMJ • CONNECTOR

70, 71

2G, 7G

# 3. CHECK HARNESS FOR OPEN CIRCUIT

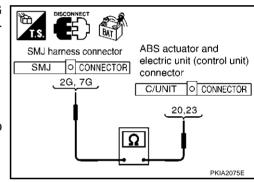
- 1. Disconnect ABS actuator and electric unit (control unit) connector.
- Check continuity between harness connector E108 terminals 2G (L), 7G (R) and ABS actuator and electric unit (control unit) harness connector E51 terminals 20 (L), 23 (R).

2G (L) – 20 (L) : Continuity should exist. 7G (R) – 23 (R) : Continuity should exist.

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to <u>LAN-90, "Work Flow"</u>.

NG >> Repair harness.



AKS0036B

#### **ECM Circuit Check**

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check following terminals and connector for damage, bend and loose connection (control module-side and harness-side).
- ECM connector
- Harness connector F102
- Harness connector M72

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

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# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

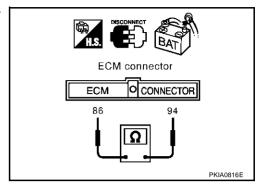
- 1. Disconnect ECM connector.
- Check resistance between ECM harness connector F101 terminals 94 (L) and 86 (R).

94 (L) 
$$-$$
 86 (R) : Approx.  $108 - 132\Omega$ 

#### OK or NG

OK >> Replace ECM.

NG >> Repair harness between ECM and data link connector.



#### **Data Link Connector Circuit Check**

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- Disconnect the negative battery terminal.
- Check the terminals and connector of data link connector for damage, bend and loose connection (connector-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

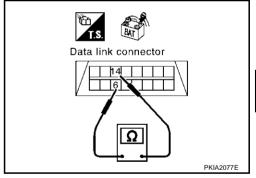
Check resistance between data link connector M8 terminals 6 (L) and 14 (R).

**6 (L)** – **14 (R)** : Approx. 
$$54 - 66\Omega$$

#### OK or NG

OK >> Diagnose again. Refer to LAN-90, "Work Flow".

NG >> Repair harness between data link connector and unified meter and A/C amp.



### Unified Meter and A/C Amp. Circuit Check

### 1. CHECK CONNECTOR

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check terminals and connector of unified meter and A/C amp, for damage, bend and loose connection (meter-side and harness-side).

### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

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# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

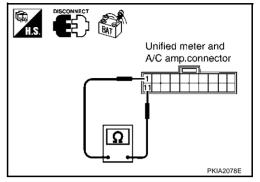
- 1. Disconnect unified meter and A/C amp. connector.
- 2. Check resistance between unified meter and A/C amp. harness connector M48 terminals 1 (L) and 11 (R).

: Approx. 54 – 66 $\Omega$ 

#### OK or NG

OK >> Replace unified meter and A/C amp.

NG >> Repair harness between unified meter and A/C amp. and BCM.



AKS0036E

### **BCM Circuit Check**

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check the terminals and connector of BCM for damage, bend and loose connection (control module-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

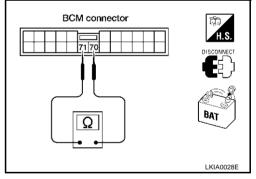
- 1. Disconnect BCM connector.
- Check resistance between BCM harness connector M3 terminals 70 (L) and 71 (R).

: Approx. 54 – 66 $\Omega$ 

#### OK or NG

OK NG >> Replace BCM.

>> Repair harness between BCM and harness connector M15.



### ABS Actuator and Electric Unit (Control Unit) Circuit Check

AKS0036F

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check the terminals and connector of ABS actuator and electric unit (control unit) for damage, bend and loose connection (control unit-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- Disconnect ABS actuator and electric unit (control unit) connector.
- Check resistance between ABS actuator and electric unit (control unit) harness connector E51 terminals 20 (L) and 23 (R).

$$20 (L) - 23 (R)$$

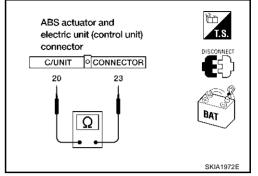
: Approx.  $54 - 66\Omega$ 

#### OK or NG

OK >> Replace ABS actuator and electric unit (control unit).

NG

>> Repair harness between ABS actuator and electric unit (control unit) and IPDM E/R.



AKS0036G

#### **IPDM E/R Circuit Check**

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- Disconnect the negative battery terminal.
- Check the terminals and connector of IPDM E/R for damage, bend and loose connection (control moduleside and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect IPDM E/R connector.
- Check resistance between IPDM E/R harness connector E9 terminals 48 (L) and 49 (R).

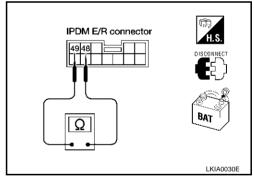
: **Approx.**  $108 - 132\Omega$ 

#### OK or NG

OK >> Replace IPDM E/R.

NG

>> Repair harness between IPDM E/R and ABS actuator and electric unit (control unit).



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#### [CAN]

AKS0036H

### **CAN Communication Circuit Check**

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check following terminals and connector for damage, bend and loose connection (control module-side, meter-side, control unit-side and harness-side).
- ECM
- Unified meter and A/C amp.
- BCM
- ABS actuator and electric unit (control unit)
- IPDM E/R
- Between ECM and IPDM E/R

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

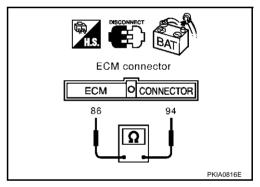
### 2. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect ECM connector and harness connector F102.
- 2. Check continuity between ECM harness connector F101 terminals 94 (L) and 86 (R).

#### OK or NG

OK >> GO TO 3.

NG >> Repair harness between ECM and harness connector F102



### 3. CHECK HARNESS FOR SHORT CIRCUIT

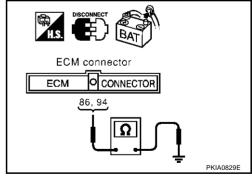
Check continuity between ECM harness connector F101 terminals 94 (L), 86 (R) and ground.

94 (L) – ground : Continuity should not exist. 86 (R) – ground : Continuity should not exist.

#### OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector F102.



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## 4. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect following connectors.
- Unified meter and A/C amp. connector
- BCM connector
- Harness connector M15
- Check continuity between data link connector M8 terminals 6 (L) and 14 (R).

$$6(L) - 14(R)$$

: Continuity should not exist.

#### OK or NG

OK >> GO TO 5.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72.
  - Harness between data link connector and unified meter and A/C amp.
  - Harness between data link connector and BCM.
  - Harness between data link connector and harness connector M15.



Check continuity between data link connector M8 terminals 6 (L), 14 (R) and ground.

> 6 (L) - ground : Continuity should not exist. 14 (R) - ground : Continuity should not exist.

#### OK or NG

OK >> GO TO 6.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72.
  - Harness between data link connector and unified meter and A/C amp.
  - Harness between data link connector and BCM.
  - Harness between data link connector and harness connector M15.

## 6. CHECK HARNESS FOR SHORT CIRCUIT

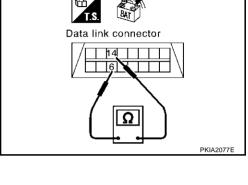
- Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
- Check continuity between IPDM E/R harness connector E9 ter-2. minals 48 (L) and 49 (R).

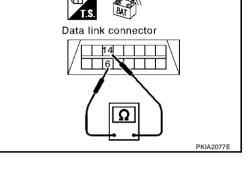
#### OK or NG

OK >> GO TO 7.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between IPDM E/R and ABS actuator and electric unit (control unit).
  - Harness between IPDM E/R and harness connector E108.





Data link connector 14 6 6, 14

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IPDM E/R connector LKIA0030E

#### 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E9 terminals 48 (L), 49 (R) and ground.

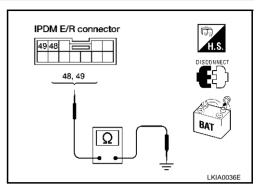
48 (L) – ground : Continuity should not exist. 49 (R) – ground : Continuity should not exist.

#### OK or NG

OK >> GO TO 8.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between IPDM E/R and ABS actuator and electric unit (control unit).
  - Harness between IPDM E/R and harness connector E108.



## 8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to  $\underline{\mathsf{LAN-110}}$ , " $\underline{\mathsf{FCM/IPDM}}$   $\underline{\mathsf{E/R}}$   $\underline{\mathsf{INTERNAL}}$   $\underline{\mathsf{CIRCUIT}}$   $\underline{\mathsf{INSPECTION}}$ ". OK or NG

OK >> Connect all the connectors and diagnose again. Refer to <u>LAN-90, "Work Flow"</u>.

NG >> Replace ECM and/or IPDM E/R.

#### IPDM E/R Check

1. CHECK IPDM E/R

AKS00361

- 1. Turn ignition switch ON and then OFF.
- 2. Check for illuminated parking lamps and tail lamps.

Parking lamps and tail lamps should not illuminate.

#### OK or NG

OK >> Replace ABS actuator and electric unit (control unit).

NG >> Replace IPDM E/R.

## IPDM E/R Ignition Relay Circuit Check

AKS0036J

Check the following. If no malfunction is found, replace the IPDM E/R.

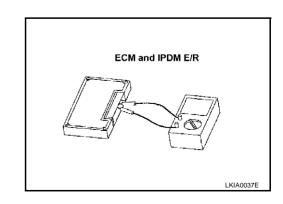
- IPDM E/R power supply circuit. Refer to <u>PG-29</u>, "IPDM E/R Power/Ground Circuit Inspection".
- Ignition power supply circuit. Refer to <u>PG-11, "IGNITION POWER SUPPLY IGNITION SW. IN "ON"</u> AND/OR "START"".

## Component Inspection ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

AKS0036K

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between IPDM E/R terminals 48 and 49.

Unit	Terminal	Resistance value ( $\Omega$ ) (Approx.)
ECM	94 – 86	108 - 132
IPDM E/R	48 – 49	100 - 132



#### [CAN]

#### **CAN SYSTEM (TYPE 5)**

PFP:23710

## **System Description**

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

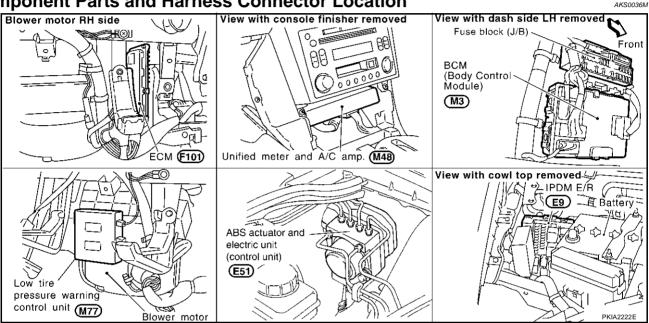
Component Parts and Harness Connector Location



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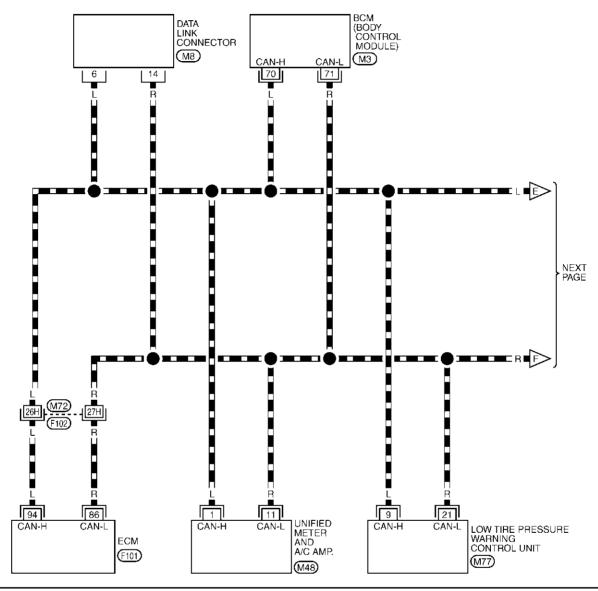
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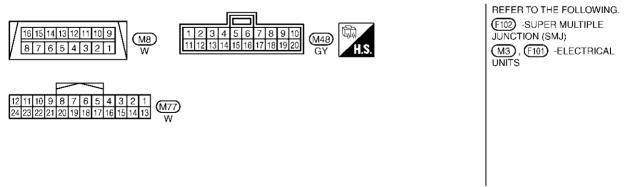
## Wiring Diagram — CAN —

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#### LAN-CAN-05

: DATA LINE





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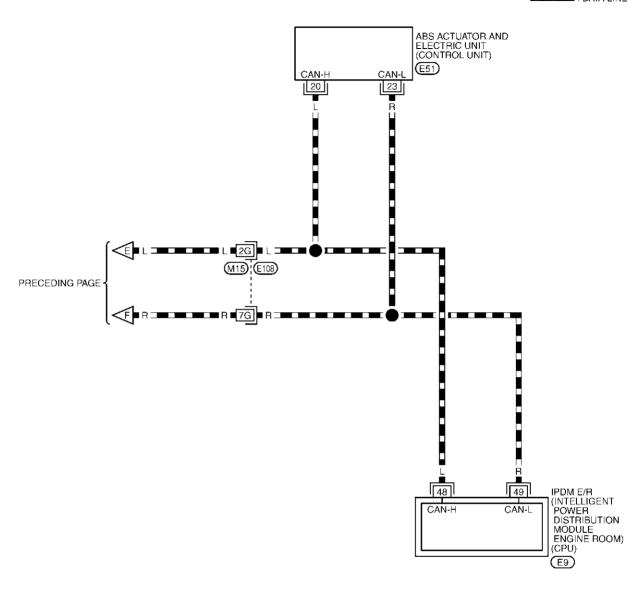
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## LAN-CAN-06

□□□□□□ : DATA LINE





REFER TO THE FOLLOWING.

(E108) -SUPER MULTIPLE
JUNCTION (SMJ)

(E51) -ELECTRICAL UNITS

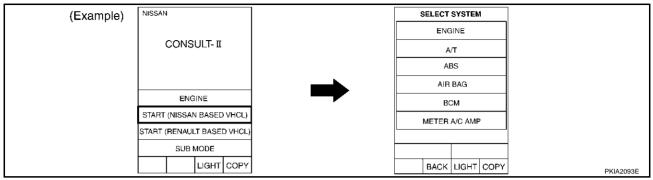
TKWT0411E

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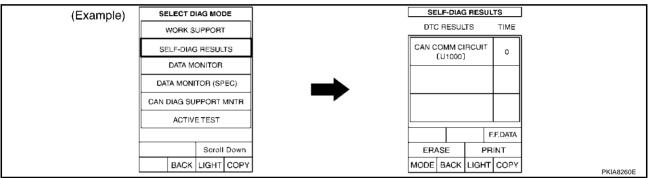
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Work Flow

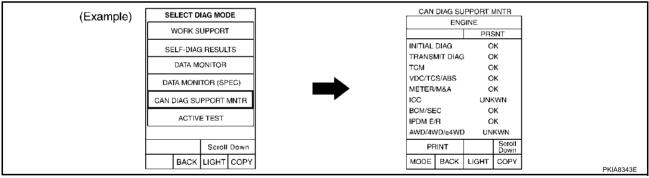
1. When there are no indications of "METER A/C AMP" or "AIR PRESSURE MONITOR" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



2. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "METER A/C AMP", "BCM", "AIR PRESSURE MONITOR" and "ABS" displayed on CONSULT-II.



 Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "METER A/C AMP", "BCM", "AIR PRESSURE MONITOR" and "ABS" displayed on CONSULT-II.



- 4. Attach the printed sheet of "SELECT SYSTEM", "SELF-DIAG RESULTS" and "CAN DIAG SUPPORT MNTR" onto the check sheet. Refer to LAN-115, "CHECK SHEET".
- 5. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks "v" onto the items with "No indication", "NG", or "UNKWN" in the check sheet table. Refer to <u>LAN-115</u>, "CHECK SHEET".

#### NOTE:

- If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- The "CAN DIAG SUPPORT MNTR" items, which are not in check sheet table, are not related to diagnostic procedure on service manual.
   So it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- According to the check sheet results (example), start inspection. Refer to <u>LAN-117</u>, "<u>CHECK SHEET RESULTS (EXAMPLE)</u>"

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## **CHECK SHEET**

#### NOTE:

If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

				C/	AN DIAG SU	PPORT MN1	ΓR		
SELECT SYST	FM screen	Initial	T			Receive di	agnosis		
SELECT STOT	LIVI SCIECTI	Initial diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_
ABS	-	NG	UNKWN	UNKWN	_	_	_	_	_
Symptoms :									

Attach copy of SELECT SYSTEM Attach copy of SELECT SYSTEM

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Attach copy of Attach copy of Attach copy of ENGINÉ METER A/C AMP всм SELF-DIAG RESULTS SELF-DIAG RESULTS SELF-DIAG RESULTS Attach copy of Attach copy of AIR PRESSURE ABS MONITOR SELF-DIAG RESULTS SELF-DIAG RESULTS Attach copy of Attach copy of Attach copy of ENGINE METER A/C AMP BCM CAN DIAG SUPPORT CAN DIAG SUPPORT CAN DIAG SUPPORT MNTR MNTR MNTR Attach copy of Attach copy of AIR PRESSURE ABS MONITOR CAN DIAG SUPPORT CAN DIAG SUPPORT MNTR MNTR

#### **CHECK SHEET RESULTS (EXAMPLE)**

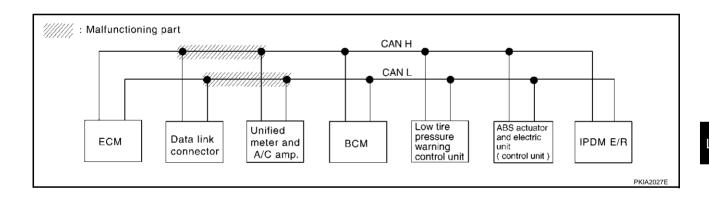
#### NOTE:

If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

#### Case 1

Check harness between data link connector and unified meter and A/C amp. Refer to <u>LAN-129</u>, "Circuit Check <u>Between Data Link Connector and Unified Meter and A/C Amp."</u>

				C/	AN DIAG SU	IPPORT MNT	-R		
SELECT SYST	EM seroon	1 141 - 1	<b>-</b>			Receive di	agnosis		
OLLLO1 OTOT	LIVI SCIESTI	Initial diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/F
ENGINE	_	NG —	UNKWN	_	UNKAN	UNKWN	_	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKWN	_
ВСМ	_	NG	UNKWN	UNK <b>W</b> N	UNKWN	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	-	UNKWN	_	_	_	_
ABS	_	NG	UNKWN	UNKWN	_	_	_	_	_



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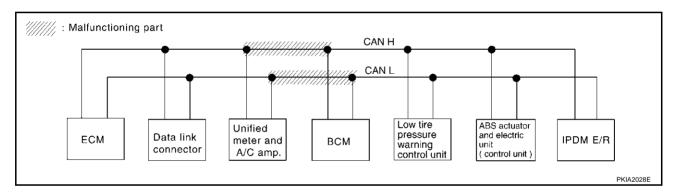
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Case 2
Check harness between unified meter and A/C amp. and BCM. Refer to LAN-129, "Circuit Check Between Unified Meter and A/C Amp. and BCM".

				C/	AN DIAG SU	IPPORT MNT	TR .		
SELECT SYST	FM screen	Initial	T			Receive di	agnosis		
OLLLO1 G1G1	LIW Screen	diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	υ <b>νκ⁄</b> νν	UNK/WN	-
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	-	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_
ABS	_	NG	UNKWN	UNK WN	_	_	_	_	_



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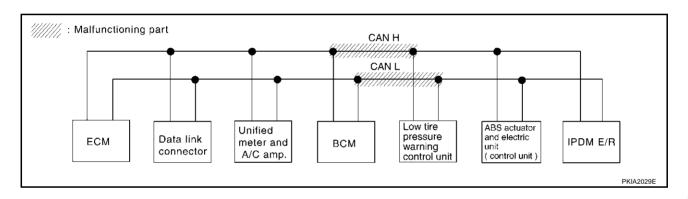
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Case 3

Check harness between BCM and Low Tire Pressure Warning Control Unit. Refer to <u>LAN-130</u>, "Circuit Check <u>Between BCM and Low Tire Pressure Warning Control Unit"</u>.

				C/	AN DIAG SU	PPORT MNT	ΓR		
SELECT SYST	EM screen	La Salia I				Receive dia	agnosis		
OLLLO1 O101	CIVI SCIECTI	Initial diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/F
ENGINE	_	NG —	UNKWN	_	UNKWN	UNKWN	_	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	-	UNKWN	UNK/VN	UNKVN	_
ВСМ	_	NG	UNKWN	UNKWN	UNKWN	_	-	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_
ABS	_	NG	UNKWN	UNK WN	_	_	_	_	_



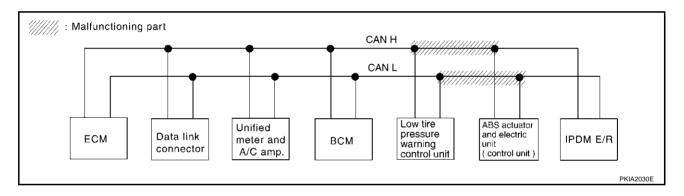
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#### Case 4

Check harness between Low Tire Pressure Warning Control Unit and ABS Actuator and Electric Unit (Control Unit). Refer to <a href="LAN-130">LAN-130</a>, "Circuit Check Between Low Tire Pressure Warning Control Unit and ABS Actuator and Electric Unit (Control Unit)" .

				C/	AN DIAG SU	PPORT MNT	R		
SELECT SYST	EM screen	Initial	T			Receive di	agnosis		
022201 0101	LIW SCICCII	Initial diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	=	NG	UNKWN	=	UNKWN	UNKWN	=	NNKAN	UNK WN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKVN	_
ВСМ	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	NNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_
ABS	_	NG	UNKWN	NNKWN	_	_	_	_	_



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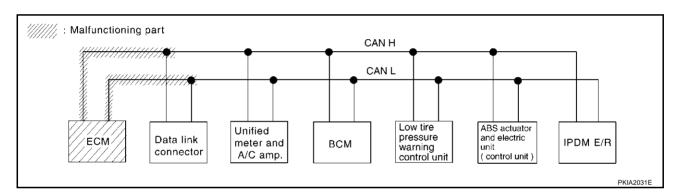
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Case 5
Check ECM circuit. Refer to <u>LAN-131</u>, "ECM Circuit Check" .

				C/	AN DIAG SU	IPPORT MNT	ΓR		
SELECT SYST	FM screen	Initial	T:4			Receive di	agnosis		
OCCEOT GTO	EIW SCIECTI	diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	-	NG	UNK VN	=	Ω <b>ΝΚ</b> ΑΝ	UNK WN	-	UNAMN	υ <b>νκ</b> ⁄νν
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKWN	_
BCM	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	-	_	_
ABS	-	NG	UNKWN	UNK WN	_	_	_	_	_

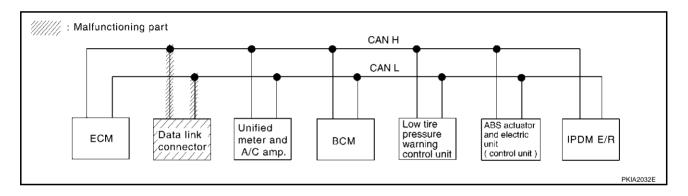


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Case 6
Check data link connector circuit. Refer to <u>LAN-131</u>, "<u>Data Link Connector Circuit Check</u>" .

				C	AN DIAG SU	JPPORT MN	ΓR										
SELECT SYST	FM screen	Initial	T			Receive di	agnosis										
0222010101	LIVI 30/00II	Initial diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R								
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	_	UNKWN	UNKWN								
METER A/C AMP	No indication	_	_	_	-	_	-	-	-	-	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKWN	_
ВСМ	_	NG	UNKWN	UNKWN	UNKWN		_	_	UNKWN								
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_								
ABS	_	NG	UNKWN	UNKWN	_	_	_	_	_								



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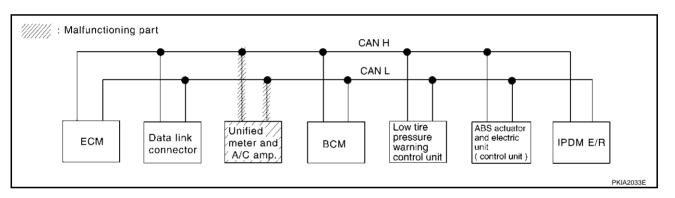
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Case 7

Check unified meter and A/C amp. circuit. Refer to LAN-132, "Unified Meter and A/C Amp. Circuit Check" .

				C/	AN DIAG SU	IPPORT MNT	r		
SELECT SYST	EM screen	Initial	Transmit			Receive di	agnosis		
		diagnosis	diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNK <b>y</b> ∕N	UNKWN	_	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UNKVN	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNK <b>Y</b> VN	_	_	_	-
ABS	_	NG	UNKWN	UNKWN	_	_	_	_	_

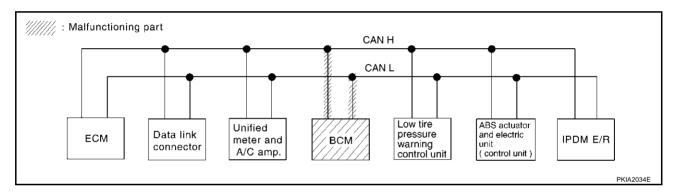


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Case 8
Check BCM circuit. Refer to <u>LAN-132</u>, "BCM Circuit Check" .

			,	C	AN DIAG SU	IPPORT MN	ſR		
SELECT SYST	EM screen	Initial	Transmit			Receive di	agnosis		
0222010101		diagnosis	diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	=	UNKWN	UNI <b>W</b> WN	_	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKWN	_
ВСМ	_	NG	UNKAVN	UNKVN	UNKWN	_	_	_	UNK WN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	-	_	_	_
ABS	-	NG	UNKWN	UNKWN	_	_	_	_	_



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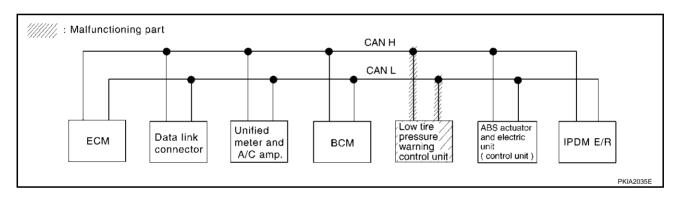
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Case 9

Check Low Tire Pressure Warning Control Unit circuit. Refer to <u>LAN-133</u>, "Low Tire Pressure Warning Control Unit Circuit Check" .

				C/	AN DIAG SU	IPPORT MNT	ΓR		
SELECT SYST	EM screen	Initial	Ti4			Receive di	agnosis		
OCCEOT STOP	LIVI SCIEGII	Initial diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG -	UNKWN	_	UNKWN	UNKWN	_	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNK <b>W</b> N	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_
ABS	_	NG	UNKWN	UNKWN	_	_	_	_	_



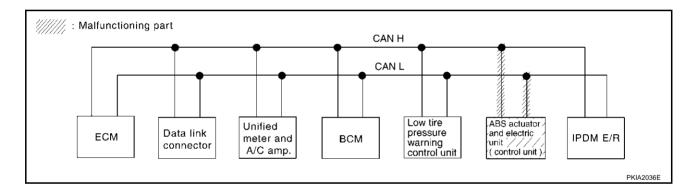
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Case 10

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-133</u>, "ABS Actuator and Electric Unit (Control Unit) Circuit Check" .

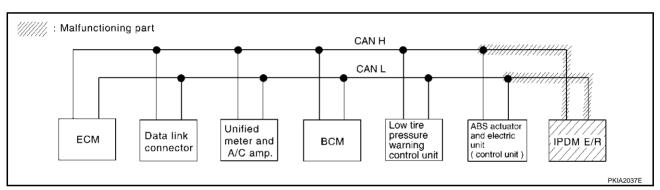
				C/	AN DIAG SU	PPORT MNT	^R		
SELECT SYST	EM screen	1 = 141 = 1				Receive di	agnosis		
SEEEOI STOT	LIVI SCIEGII	Initial diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKWN	_
ВСМ	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_
ABS	_	NG	UNK WN	UNKWN	_	_	_	_	_



Case 11

Check IPDM E/R circuit. Refer to LAN-134, "IPDM E/R Circuit Check" .

				C/	AN DIAG SU	JPPORT MNT	R		
SELECT SYST	FM screen	Initial	Tropomit			Receive di	agnosis		
022201 0101	2147 5516511	Initial diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	=	UNKWN	UNKWN	_	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKWN	_
BCM	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	UNKVN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_
ABS	_	NG	UNKWN	UNKWN	_	_	_	_	_



Case 12

Check CAN communication circuit. Refer to LAN-135, "CAN Communication Circuit Check" .

				C/	AN DIAG SU	IPPORT MN			
SELECT SYST	EM screen	Initial	Transmit			Receive di	agnosis		
022201 0101	2, 33.733.1	diagnosis	diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R
ENGINE	-	NG	UNK WN	=	UNK WN	UNK WN	=	UNKWN	NNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKWN	_
ВСМ	_	NG	Π <b>ΝΚ</b> (ΜΝ	UNK <b>Y</b> VN	UNKVN	_	-	_	пикул
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	-	_	_
ABS	_	NG	UNKWN	UNKWN	_	_	_	_	_

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#### Case 13

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-137</u>, "IPDM E/R Ignition Relay <u>Circuit Check"</u>.

		CAN DIAG SUPPORT MNTR									
SELECT SYSTEM screen		Initial	T	Receive diagnosis							
		Initial diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	_	NNKWN	UNKWN		
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	UNK/WN	-		
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	UNKWN		
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_		
ABS	_	NG	UNKWN	UNKWN	_	_	_	_	_		

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#### Case 14

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to LAN-137, "IPDM E/R Ignition Relay Circuit Check" .

		CAN DIAG SUPPORT MNTR									
SELECT SYSTEM screen		Initial	Tunnamit	Receive diagnosis							
		diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	UNKWN	UNKWN		
METER A/C AMP	No indication	ı	UNKWN	UNKWN	-	UNKWN	UNKWN	UNKWN	_		
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	UNKWN		
AIR PRESSURE MONITOR	No indication	NG	UNKWN	-	UNKWN	_	_	_	_		
ABS	_	NG	UNKWN	UNKWN	-	_	_	_	_		

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## Circuit Check Between Data Link Connector and Unified Meter and A/C Amp.

## 1. CHECK HARNESS FOR OPEN CIRCUIT

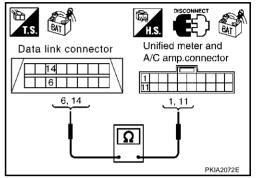
- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ECM connector and unified meter and A/C amp. connector.
- 4. Check continuity between data link connector M8 terminals 6 (L), 14 (R) and unified meter and A/C amp. harness connector M48 terminals 1 (L), 11 (R).

6 (L) – 1 (L) : Continuity should exist. 14 (R) – 11 (R) : Continuity should exist.

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-114, "Work Flow".

NG >> Repair harness.



## Circuit Check Between Unified Meter and A/C Amp. and BCM

#### 1. CHECK HARNESS FOR OPEN CIRCUIT

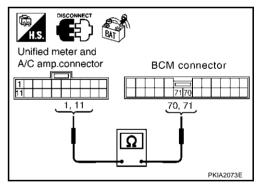
- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect the following connectors.
- ECM connector
- Unified meter and A/C amp. connector
- BCM connector
- 4. Check continuity between unified meter and A/C amp. harness connector M48 terminals 1 (L), 11 (R) and BCM harness connector M3 terminals 70 (L), 71 (R).

1 (L) – 70 (L) : Continuity should exist. 11 (R) – 71 (R) : Continuity should exist.

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-114. "Work Flow".

NG >> Repair harness.



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## Circuit Check Between BCM and Low Tire Pressure Warning Control Unit

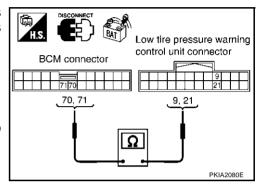
#### 1. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect the following connectors.
- ECM connector
- BCM connector
- Low tire pressure warning control unit connector
- 4. Check continuity between BCM harness connector M3 terminals 70 (L), 71 (R) and low tire pressure warning control unit harness connector M77 terminals 9 (L), 21 (R).

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-114, "Work Flow" .

NG >> Repair harness.



# Circuit Check Between Low Tire Pressure Warning Control Unit and ABS Actuator and Electric Unit (Control Unit)

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check following terminals and connector for damage, bend and loose connection (connector-side and harness-side).
- Harness connector M15
- Harness connector E108

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- Disconnect low tire pressure warning control unit connector and harness connector M15.
- Check continuity between low tire pressure warning control unit harness connector M77 terminals 9 (L), 21 (R) and harness connector M15 terminals 2G (L), 7G (R).

: Continuity should exist.

: Continuity should exist.

#### OK or NG

OK >> GO TO 3. NG >> Repair harness. Low tire pressure warning control unit connector

SMJ harness connector

SMJ • CONNECTOR

9, 21

2G, 7G

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## $\overline{3}$ . CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect ABS actuator and electric unit (control unit) connector.
- 2. Check continuity between harness connector E108 terminals 2G (L), 7G (R) and ABS actuator and electric unit (control unit) harness connector E51 terminals 20 (L), 23 (R).

2G (L) – 20 (L)

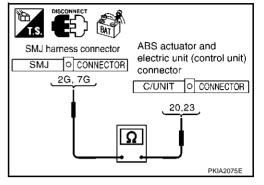
: Continuity should exist.

7G (R) – 23 (R) : Continuity should exist.

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-114, "Work Flow".

NG >> Repair harness.



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#### **ECM Circuit Check**

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check following terminals and connector for damage, bend and loose connection (control module-side and harness-side).
- ECM connector
- Harness connector F102
- Harness connector M72

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

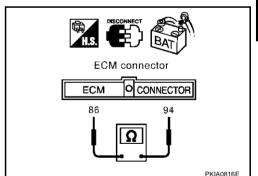
- 1. Disconnect ECM connector.
- Check resistance between ECM harness connector F101 terminals 94 (L) and 86 (R).

: Approx.  $108 - 132\Omega$ 

#### OK or NG

OK >> Replace ECM.

NG >> Repair harness between ECM and data link connector.



#### **Data Link Connector Circuit Check**

#### 1. CHECK CONNECTOR

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check the terminals and connector of data link connector for damage, bend and loose connection (connector-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

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## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M8 terminals 6 (L) and 14 (R).

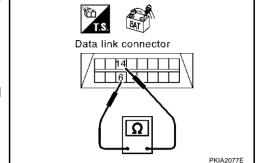
**6 (L)** – **14 (R)** : Approx. 
$$54 - 66\Omega$$

#### OK or NG

OK

>> Diagnose again. Refer to LAN-114, "Work Flow".

NG >> Repair harness between data link connector and unified meter and A/C amp.



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## Unified Meter and A/C Amp. Circuit Check

## 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check terminals and connector of unified meter and A/C amp. for damage, bend and loose connection (meter-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect unified meter and A/C amp. connector.
- 2. Check resistance between unified meter and A/C amp. harness connector M48 terminals 1 (L) and 11 (R).

: Approx. 54 – 66 $\Omega$ 

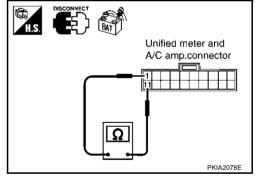
#### OK or NG

OK

>> Replace unified meter and A/C amp.

NG

>> Repair harness between unified meter and A/C amp. and BCM.



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#### **BCM Circuit Check**

## 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check the terminals and connector of BCM for damage, bend and loose connection (control module-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect BCM connector.
- 2 Check resistance between BCM harness connector M3 terminals 70 (L) and 71 (R).

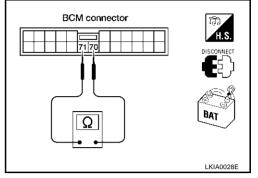
: Approx. 
$$54 - 66\Omega$$

#### OK or NG

OK >> Replace BCM.

NG

>> Repair harness between BCM and low tire pressure warning control unit.



## Low Tire Pressure Warning Control Unit Circuit Check

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- Disconnect the negative battery terminal.
- Check terminals and connector of low tire pressure warning control unit for damage, bend and loose connection (control unit-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect low tire pressure warning control unit connector.
- Check resistance between low tire pressure warning control unit harness connector M77 terminals 9 (L) and 21 (R).

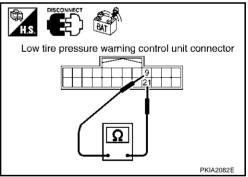
$$9(L) - 21(R)$$

: Approx. 
$$54 - 66\Omega$$

#### OK or NG

OK NG >> Replace low tire pressure warning control unit.

>> Repair harness between low tire pressure warning control unit and harness connector M15.



## ABS Actuator and Electric Unit (Control Unit) Circuit Check

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#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- Disconnect the negative battery terminal.
- Check the terminals and connector of ABS actuator and electric unit (control unit) for damage, bend and loose connection (control unit-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

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## 2. CHECK HARNESS FOR OPEN CIRCUIT

- Disconnect ABS actuator and electric unit (control unit) connector.
- Check resistance between ABS actuator and electric unit (control unit) harness connector E51 terminals 20 (L) and 23 (R).

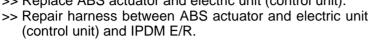
$$20 (L) - 23 (R)$$

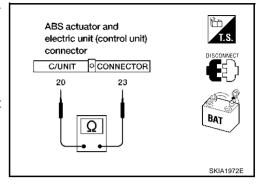
: Approx.  $54 - 66\Omega$ 

#### OK or NG

OK >> Replace ABS actuator and electric unit (control unit).

NG





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#### **IPDM E/R Circuit Check**

#### 1. CHECK CONNECTOR

- Turn ignition switch OFF. 1.
- Disconnect the negative battery terminal.
- Check the terminals and connector of IPDM E/R for damage, bend and loose connection (control moduleside and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect IPDM E/R connector.
- Check resistance between IPDM E/R harness connector E9 terminals 48 (L) and 49 (R).

: **Approx.**  $108 - 132\Omega$ 

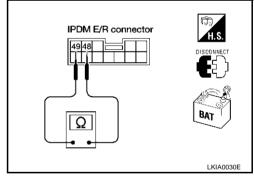
#### OK or NG

OK

NG

>> Replace IPDM E/R.

>> Repair harness between IPDM E/R and ABS actuator and electric unit (control unit).



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#### **CAN Communication Circuit Check**

## 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check following terminals and connector for damage, bend and loose connection (control module-side, 3. meter-side, control unit-side and harness-side).
- **ECM**
- Unified meter and A/C amp.
- **BCM**
- Low tire pressure warning control unit
- ABS actuator and electric unit (control unit)
- Between ECM and IPDM E/R

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

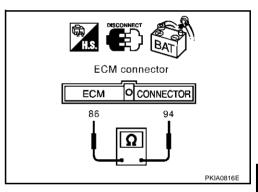
## 2. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect ECM connector and harness connector F102.
- Check continuity between ECM harness connector F101 terminals 94 (L) and 86 (R).

#### OK or NG

OK >> GO TO 3.

NG >> Repair harness between ECM and harness connector F102.



## 3. CHECK HARNESS FOR SHORT CIRCUIT

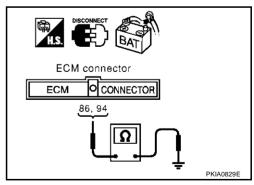
Check continuity between ECM harness connector F101 terminals 94 (L), 86 (R) and ground.

> 94 (L) - ground : Continuity should not exist. 86 (R) - ground : Continuity should not exist.

#### OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector F102.



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## 4. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect following connectors.
- Unified meter and A/C amp. connector
- BCM connector
- Low tire pressure warning control unit connector
- Harness connector M15
- Check continuity between data link connector M8 terminals 6 (L) and 14 (R).

6 (L) – 14 (R) : Continuity should not exist.

#### OK or NG

OK

>> GO TO 5.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72.
  - Harness between data link connector and unified meter and A/C amp.
  - Harness between data link connector and BCM.
  - Harness between data link connector and low tire pressure warning control unit.
  - Harness between data link connector and harness connector M15.

## 5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M8 terminals 6 (L), 14 (R) and ground.

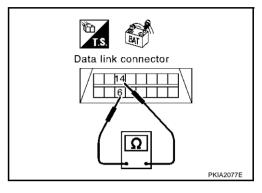
6 (L) – ground : Continuity should not exist. 14 (R) – ground : Continuity should not exist.

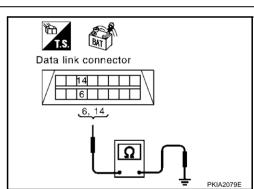
#### OK or NG

OK >> GO TO 6.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72.
  - Harness between data link connector and unified meter and A/C amp.
  - Harness between data link connector and BCM.
  - Harness between data link connector and low tire pressure warning control unit.
  - Harness between data link connector and harness connector M15.





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## 6. CHECK HARNESS FOR SHORT CIRCUIT

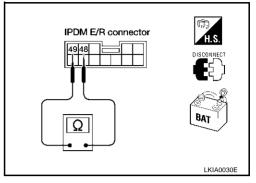
- 1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
- Check continuity between IPDM E/R harness connector E9 terminals 48 (L) and 49 (R).

#### OK or NG

OK >> GO TO 7.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between IPDM E/R and ABS actuator and electric unit (control unit).
  - Harness between IPDM E/R and harness connector E108.



#### 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E9 terminals 48 (L), 49 (R) and ground.

48 (L) – ground : Continuity should not exist. 49 (R) – ground : Continuity should not exist.

#### OK or NG

OK >> GO TO 8.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between IPDM E/R and ABS actuator and electric unit (control unit).
  - Harness between IPDM E/R and harness connector E108.

# IPDM E/R connector 49/48 48, 49 BAT LKIA0036E

## 8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to  $\underline{\mathsf{LAN-138}}$ , " $\underline{\mathsf{FCM/IPDM}}$   $\underline{\mathsf{E/R}}$  INTERNAL CIRCUIT INSPECTION" . OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-114, "Work Flow".

NG >> Replace ECM and/or IPDM E/R.

#### IPDM E/R Check

#### 1. CHECK IPDM E/R

- 1. Turn ignition switch ON and then OFF.
- 2. Check for illuminated parking lamps and tail lamps.

Parking lamps and tail lamps should not illuminate.

#### OK or NG

OK >> Replace ABS actuator and electric unit (control unit).

NG >> Replace IPDM E/R.

## IPDM E/R Ignition Relay Circuit Check

Check the following. If no malfunction is found, replace the IPDM E/R.

- IPDM E/R power supply circuit. Refer to PG-29, "IPDM E/R Power/Ground Circuit Inspection".
- Ignition power supply circuit. Refer to <u>PG-11, "IGNITION POWER SUPPLY IGNITION SW. IN "ON" AND/OR "START""</u>.

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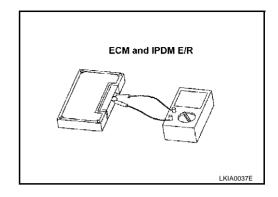
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# Component Inspection ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between IPDM E/R terminals 48 and 49.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	94 – 86	108 - 132
IPDM E/R	48 – 49	100 - 132



#### [CAN]

## **CAN SYSTEM (TYPE 6)**

PFP:23710

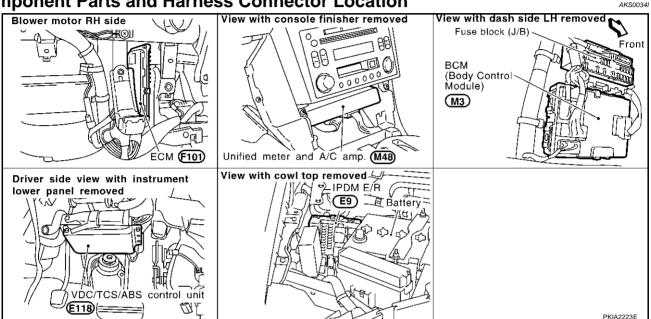
## **System Description**

AKS0034H

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.

Component Parts and Harness Connector Location

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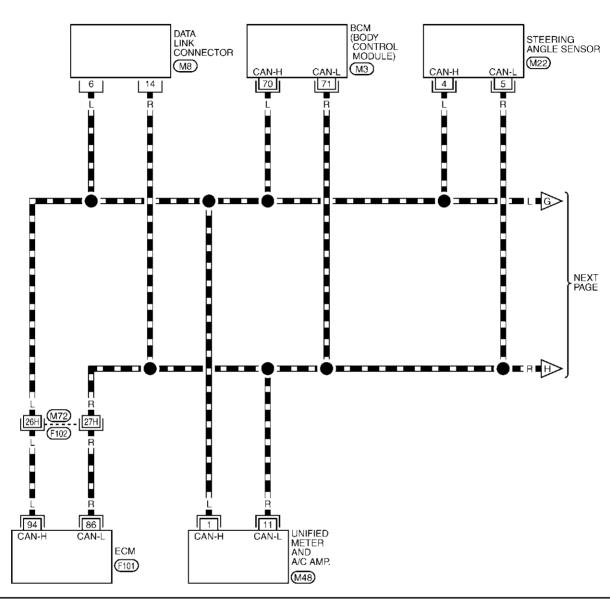
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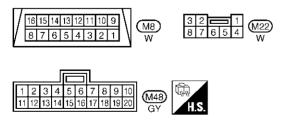
## Wiring Diagram — CAN —

KS0034.1

#### LAN-CAN-07

: DATA LINE





REFER TO THE FOLLOWING.

(F102) -SUPER MULTIPLE
JUNCTION (SMJ)

(M3), (F101) -ELECTRICAL
UNITS

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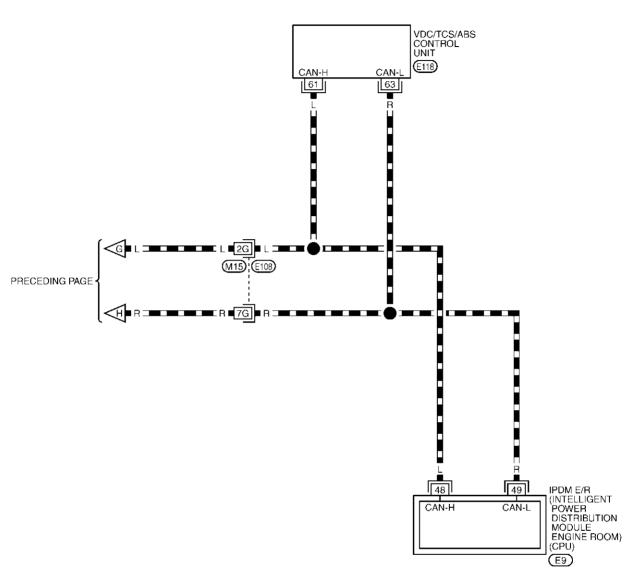
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## LAN-CAN-08

: DATA LINE





REFER TO THE FOLLOWING. (E108) -SUPER MULTIPLE JUNCTION (SMJ)

(E118) -ELECTRICAL UNITS

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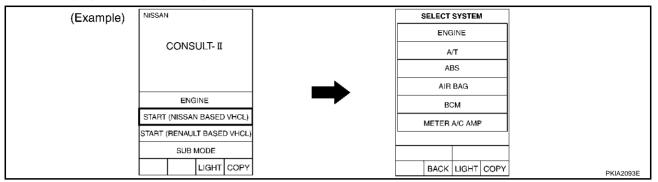
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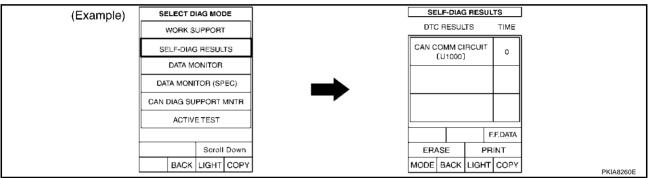
**[CAN]** 

Work Flow

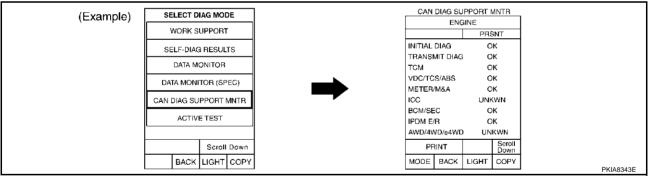
1. When there are no indications of "METER A/C AMP" or "AIR PRESSURE MONITOR" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



2. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "METER A/C AMP", "BCM", "AIR PRESSURE MONITOR" and "ABS" displayed on CONSULT-II.



 Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "METER A/C AMP", "BCM", "AIR PRESSURE MONITOR" and "ABS" displayed on CONSULT-II.



- Attach the printed sheet of "SELECT SYSTEM", "SELF-DIAG RESULTS" and "CAN DIAG SUPPORT MNTR" onto the check sheet. Refer to LAN-143, "CHECK SHEET".
- 5. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks "v" onto the items with "No indication", "NG", or "UNKWN" in the check sheet table. Refer to <a href="LAN-143">LAN-143</a>, "CHECK SHEET"</a>.

#### NOTE:

- If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- The "CAN DIAG SUPPORT MNTR" items, which are not in check sheet table, are not related to diagnostic procedure on service manual.
   So it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- According to the check sheet results (example), start inspection. Refer to <u>LAN-145</u>, "CHECK SHEET <u>RESULTS (EXAMPLE)"</u>

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#### **CHECK SHEET**

#### NOTE:

If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

ENGINE         —         NG         UNKWN         —         UNKWN         —         UNKWN         —         UNKWN         UNKWN         —         —         UNKWN         —         —         —         —         UNKWN         —         —         —         —         UNKWN         —         —         —         —         —         —         UNKWN         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —         —					C/	AN DIAG SU	PPORT MN1	ΓR				
Meter A/C Amp   No indication   NG   UNKWN   UNKWN	SELECT SYSTEM screen			Transmit	Receive diagnosis							
METER A/C AMP         No indication         —         UNKWN         UNKWN         —         UNKWN         —         UNKWN         —         UNKWN         —         UNKWN         —         UNKWN         —					ECM	l .	BCM/SEC	STRG		IPDM E/R		
BCM - NG UNKWN UNKWN UNKWN ABS - NG UNKWN UNKWN UNKWN	ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	UNKWN	UNKWN		
ABS - NG UNKWN UNKWN UNKWN	METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_		
	ВСМ	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	UNKWN		
Symptoms :	ABS	_	NG	UNKWN	UNKWN	_	_	UNKWN	_	_		
Symptoms:												
	Symptoms :											
	Symptoms :											
	Symptoms :											

Attach copy of SELECT SYSTEM Attach copy of SELECT SYSTEM

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Attach copy of METER A/C AMP Attach copy of Attach copy of Attach copy of ENGINE всм ABS SELF-DIAG RESULTS SELF-DIAG RESULTS SELF-DIAG RESULTS SELF-DIAG RESULTS Attach copy of Attach copy of Attach copy of Attach copy of METER A/C AMP ENGINE всм ABS CAN DIAG SUPPORT CAN DIAG SUPPORT CAN DIAG SUPPORT CAN DIAG SUPPORT MNTR MNTR MNTR MNTR PKIB0349E

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#### **CHECK SHEET RESULTS (EXAMPLE)**

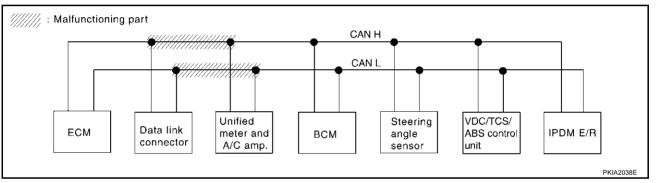
#### NOTE:

If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

#### Case 1

Check harness between data link connector and unified meter and A/C amp. Refer to <u>LAN-151</u>, "Circuit Check <u>Between Data Link Connector and Unified Meter and A/C Amp."</u>

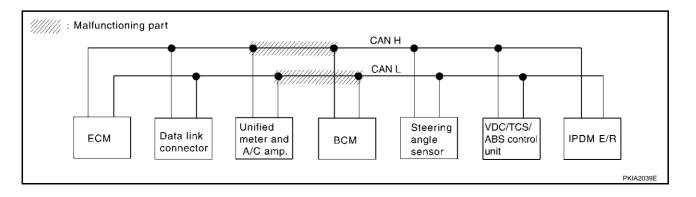
				C/	AN DIAG SU	IPPORT MN	ΓR		
SELECT SYST	FM screen	11411	Transmit			Receive	diagnosis		
OLLLOT STOT	LIVI SCIECTI	Initial diagnosis	diagnosis	ECM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/P
ENGINE	_	NG	UNKWN	_	UNKWN	UNK WN	-	NNAMN	UNK WN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_
BCM	_	NG	UNKWN	Π <b>ИΚ</b> ΛΝ	UNKWN	_	-	_	UNKWN
ABS	_	NG	UNKWN	UNK WN	_	_	UNKWN	_	_



#### Case 2

Check harness between unified meter and A/C amp. and BCM. Refer to <u>LAN-151</u>, "Circuit Check Between <u>Unified Meter and A/C Amp. and BCM"</u>.

				C/	AN DIAG SL	JPPORT MN	ΓR		
SELECT SYST	EM screen	1(4) - 1	Transmit			Receive	diagnosis		
322201 3131	LIVI SCIECTI	Initial diagnosis	diagnosis	ECM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/F
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	UNKWN	UNI <b>S</b> WN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	-	UNKWN	_
всм	-	NG	UNKWN	UNK WN	UNKWN	_	_	-	UNKWN
ABS	_	NG	UNKWN	UNKAVN	_	_	UNKWN	_	_



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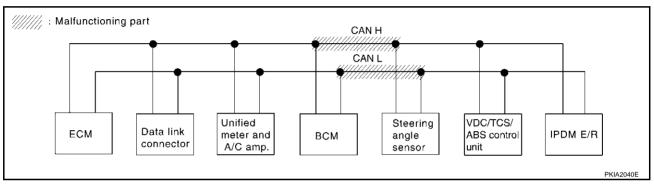
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Case 3

Check harness between BCM and steering angle sensor. Refer to <u>LAN-152, "Circuit Check Between BCM and Steering Angle Sensor"</u> .

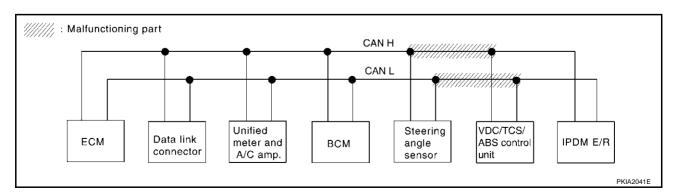
				CA	AN DIAG SU	PPORT MN	ΓR		
SELECT SYST	EM screen	lmitical	Transmit			Receive	diagnosis		
022201 0101	EW SCIECT	diagnosis di				BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	- NG		UNKWN	_	UNKWN	UNKWN	_	UNKWN	UN <b>K</b> ∳VN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_
BCM	всм —		UNKWN	UNKWN	UNKWN	_	_	_	UNKAN
ABS	_	NG	UNKWN	UNKWN	_		UNKWN	_	_



Case 4

Check harness between steering angle sensor and VDC/TCS/ABS control unit. Refer to <u>LAN-152</u>, "Circuit <u>Check Between Steering Angle Sensor and VDC/TCS/ABS Control Unit"</u>.

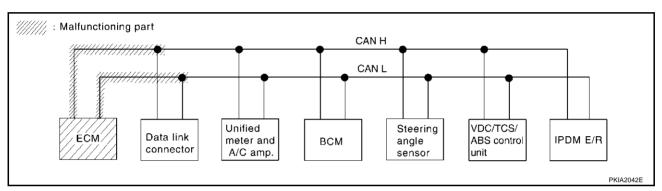
				C/	N DIAG SL	JPPORT MN	ΓR				
SELECT SYST	EM screen	luitial	Transmit	Receive diagnosis							
OLLLOT GTGT	EW Sciecti	Initial diagnosis	s diagnosis	ECM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	UNKWN	UNION		
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_		
BCM	-	NG	UNKWN	UNKWN	UNKWN	_	_	-	∩ <b>M</b> MN		
ABS	_	NG	UNKWN	UNKWN	_	_	UNKWN	_	-		



Case 5

Check ECM circuit. Refer to LAN-153, "ECM Circuit Check" .

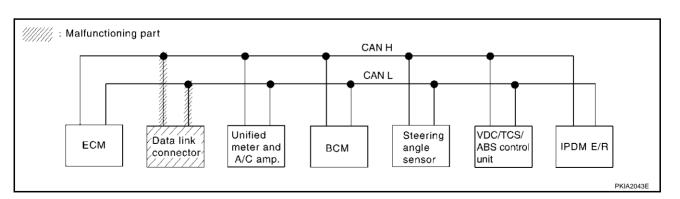
				CA	AN DIAG SU	JPPORT MN1	ΓR		
SELECT SYST	EM screen	lmitical	Transmit			Receive of	diagnosis		
JEELOT STOT	LIVI SCIECTI	Initial diagnosis	diagnosis	ECM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNK WN	_	UNKWN	UN <b>K</b> ∳VN
METER A/C AMP	No indication	_	UNKWN	UNK <b>A</b> AN	_	UNKWN	_	UNKWN	_
BCM	_	NG	UNKWN	UNK <b>A</b> VN	UNKWN	_	_	_	UNKWN
ABS	_	NG	UNKWN	UNKVN	_	_	UNKWN	_	_



#### Case 6

Check data link connector circuit. Refer to <u>LAN-153</u>, "<u>Data Link Connector Circuit Check</u>" .

				C/	AN DIAG SU	IPPORT MN1	ΓR				
SELECT SYST	EM screen	1	Transmit	Receive diagnosis							
OLLLO1 0101	LIW SOICEIT		diagnosis	ECM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/P		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	UNKWN	UNKWN		
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_		
BCM	_	NG	UNKWN	UNKWN	UNKWN	_	_	-	UNKWN		
ABS	_	NG	UNKWN	UNKWN	_	_	UNKWN	_	_		



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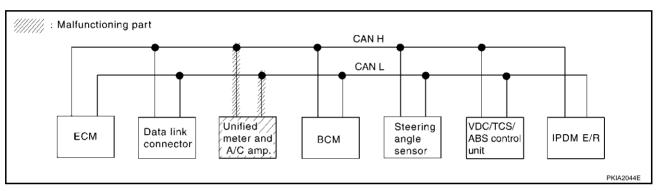
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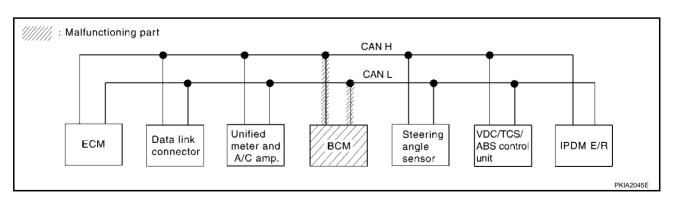
Case 7
Check unified meter and A/C amp. circuit. Refer to LAN-154, "Unified Meter and A/C Amp. Circuit Check".

				C/	AN DIAG SU	PPORT MN1	ΓR		
SELECT SYST	EM screen	I and and	Transmit			Receive of	diagnosis		
OCCEOT GTGT	LIW SCIEGIT	Initial diagnosis NG	diagnosis	ECM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNK <b>W</b> N	UNKWN	_	UNKWN	UNKWN
METER A/C AMP	No inclication	_	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_
всм	-	NG	UNKWN	UNKWN	Ω <b>ΝΚ</b> ⁄ΜΝ	_	_	-	UNKWN
ABS	_	NG	UNKWN	UNKWN	_	_	UNKWN	_	_



Case 8
Check BCM circuit. Refer to <u>LAN-154</u>, "BCM Circuit Check" .

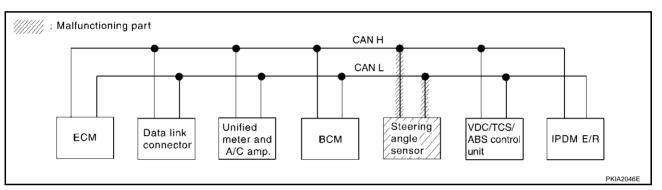
				C/	N DIAG SU	IPPORT MN1	ΓR		
SELECT SYST	EM screen	1(4) - 1	Transmit			Receive of	diagnosis		
SELECT STOT	LIVI SCIEETI	diagnosis	diagnosis	ECM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/F
ENGINE	_	NG	UNKWN	_	UNKWN	UNIONN	_	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_
BCM	_	NG	UNK <b>W</b> N	UNIMN	UNI <b>W</b> N	_	_	_	UNK/WN
ABS	_	NG	UNKWN	UNKWN		_	UNKWN	_	_



Case 9

Check steering angle sensor circuit. Refer to LAN-155, "Steering Angle Sensor Circuit Check" .

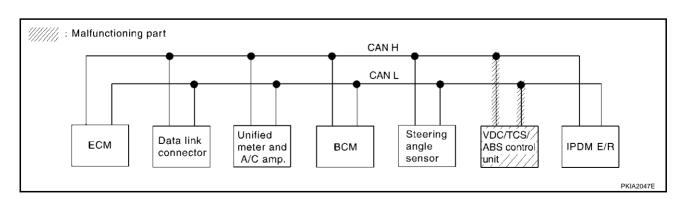
				C/	AN DIAG SU	PPORT MN1	ΓR		
SELECT SYST	EM screen	latital	Transmit			Receive of	diagnosis		
022201 0101	LIVI SCIECTI	Initial diagnosis	diagnosis	ECM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	1	UNKWN	UNKWN	_	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	-	UNKWN
ABS	_	NG	UNKWN	UNKWN	_	_	UNKWN	_	_



#### Case 10

Check VDC/TCS/ABS control unit circuit. Refer to LAN-155, "VDC/TCS/ABS Control Unit Circuit Check" .

				C/	AN DIAG SU	IPPORT MN	ΓR		
SELECT SYST	EM screen	Initia	Transmit			Receive	diagnosis		
022201 0101	EM SOICETT	diagnosis	diagnosis	ECM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	-	UNK VN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	-	_	UNKWN
ABS	_	NG	UNK/WN	UNKWN	_	_	UNKWN	_	_



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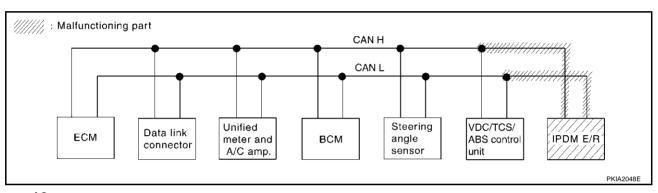
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Case 11
Check IPDM E/R circuit. Refer to <u>LAN-156</u>, "IPDM E/R Circuit Check" .

				CA	AN DIAG SU	PPORT MN	ΓR				
SELECT SYST	EM screen	Initial	Transmit	Receive diagnosis							
022201 0101	EW SCICCII	diagnosis	diagnosis	ECM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	UNKWN	∩ <b>νΚ</b> γνν		
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_		
всм	-	NG	UNKWN	UNKWN	UNKWN	-	_	_	∩ <b>νκ</b> γνν		
ABS	_	NG	UNKWN	UNKWN	_	_	UNKWN	_	_		



Case 12
Check CAN communication circuit. Refer to <u>LAN-157</u>, "CAN Communication Circuit Check" .

				CA	N DIAG SU	IPPORT MN	ΓR		
SELECT SYST	EM screen	I malad mil	Tropomit			Receive (	diagnosis		
OLLEGI GIGI	LIW Screen	n Initial Transmit diagnosis diagnosis	ECM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R	
ENGINE	_	NG	UN <b>K</b> ₩N	_	UNK <b>W</b> N	UNKWN	_	UNKWN	UNKWN
METER A/Ç AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_
всм	_	NG	UNI WN	Π <b>ΝΚ</b> (ΜΝ	ΩΝ <b>Κ</b> ΑΝ	_	_	-	∩ <b>иК</b> •\v
ABS	-	NG	UNKWN	UNKWN	_	_	UNKWN	_	_

# Case 13 Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to LAN-159, "IPDM E/R Ignition Relay Circuit Check".

				C/	AN DIAG SU	JPPORT MN	ΓR		
SELECT SYST	EM screen	lmitical	Transmit			Receive	diagnosis		
322201 3131	LIVI SCIECTI		Transmit diagnosis	ECM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_
BCM	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	UNKWN
ABS	_	NG	UNKWN	UNKWN	_	_	UNKWN	_	_

#### Case 14

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to LAN-159, "IPDM E/R Ignition Relay Circuit Check".

				CA	AN DIAG SU	PPORT MN1	ΓR		
SELECT SYST	EM screen	املاشا	Transmit			Receive of	diagnosis		
022201 0101	LIWI SCIECTI	Initial diagnosis	diagnosis	ECM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_
BCM	_	NG	UNKWN	UNKWN	UNKWN	_	_	-	UNKWN
ABS	_	NG	UNKWN	UNKWN	_	_	UNKWN	_	_

Circuit Check Between Data Link Connector and Unified Meter and A/C Amp.

# 1. CHECK HARNESS FOR OPEN CIRCUIT

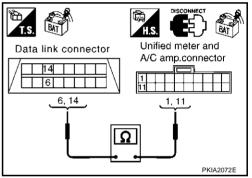
- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ECM connector and unified meter and A/C amp. connector.
- Check continuity between data link connector M8 terminals 6 (L), 14 (R) and unified meter and A/C amp. harness connector M48 terminals 1 (L), 11 (R).

6 (L) – 1 (L) : Continuity should exist. 14 (R) – 11 (R) : Continuity should exist.

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-142, "Work Flow".

NG >> Repair harness.



# Circuit Check Between Unified Meter and A/C Amp. and BCM

### 1. CHECK HARNESS FOR OPEN CIRCUIT

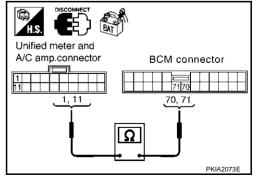
- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect the following connectors.
- ECM connector
- Unified meter and A/C amp. connector
- BCM connector
- Check continuity between unified meter and A/C amp. harness connector M48 terminals 1 (L), 11 (R) and BCM harness connector M3 terminals 70 (L), 71 (R).

1 (L) – 70 (L) : Continuity should exist. 11 (R) – 71 (R) : Continuity should exist.

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-142, "Work Flow".

NG >> Repair harness.



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#### [CAN]

# Circuit Check Between BCM and Steering Angle Sensor

#### 1. CHECK HARNESS FOR OPEN CIRCUIT

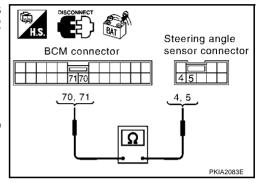
AKS0034N

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect the following connectors.
- ECM connector
- BCM connector
- Steering angle sensor connector
- 4. Check continuity between BCM harness connector M3 terminals 70 (L), 71 (R) and steering angle sensor harness connector M22 terminals 4 (L), 5 (R).

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to <u>LAN-142</u>, "Work Flow".

NG >> Repair harness.



# Circuit Check Between Steering Angle Sensor and VDC/TCS/ABS Control Unit

AKS00340

# 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check following terminals and connector for damage, bend and loose connection (connector-side and harness-side).
- Harness connector M15
- Harness connector E108

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

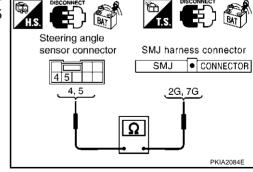
# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect steering angle sensor connector and harness connector M15.
- Check continuity between steering angle sensor harness connector M22 terminals 4 (L), 5 (R) and harness connector M15 terminals 2G (L), 7G (R).

4 (L) – 2G (L) : Continuity should exist. 5 (R) – 7G (R) : Continuity should exist.

#### OK or NG

OK >> GO TO 3. NG >> Repair harness.



#### [CAN]

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# 3. CHECK HARNESS FOR OPEN CIRCUIT

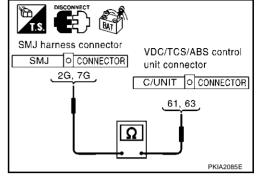
- 1. Disconnect VDC/TCS/ABS control unit connector.
- 2. Check continuity between harness connector E108 terminals 2G (L), 7G (R) and VDC/TCS/ABS control unit harness connector E118 terminals 61 (L), 63 (R).

2G (L) – 61 (L) : Continuity should exist. 7G (R) – 63 (R) : Continuity should exist.

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-142, "Work Flow".

NG >> Repair harness.



AKS0034P

#### **ECM Circuit Check**

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check following terminals and connector for damage, bend and loose connection (control module-side and harness-side).
- ECM connector
- Harness connector F102
- Harness connector M72

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

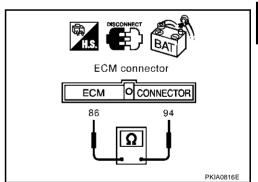
- 1. Disconnect ECM connector.
- 2. Check resistance between ECM harness connector F101 terminals 94 (L) and 86 (R).

94 (L) 
$$-$$
 86 (R) : Approx.  $108 - 132\Omega$ 

#### OK or NG

OK >> Replace ECM.

NG >> Repair harness between ECM and data link connector.



### **Data Link Connector Circuit Check**

### 1. CHECK CONNECTOR

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check the terminals and connector of data link connector for damage, bend and loose connection (connector-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

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AKS0034Q

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M8 terminals 6 (L) and 14 (R).

**6 (L)** – **14 (R)** : Approx. **54** – **66**
$$\Omega$$

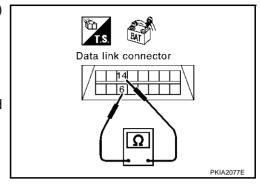
#### OK or NG

OK

>> Diagnose again. Refer to LAN-142, "Work Flow".

NG

>> Repair harness between data link connector and unified meter and A/C amp.



AKS0034R

# Unified Meter and A/C Amp. Circuit Check

# 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check terminals and connector of unified meter and A/C amp. for damage, bend and loose connection (meter-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect unified meter and A/C amp. connector.
- Check resistance between unified meter and A/C amp. harness connector M48 terminals 1 (L) and 11 (R).

: Approx.  $54 - 66\Omega$ 

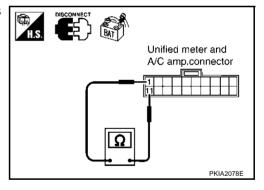
#### OK or NG

OK

>> Replace unified meter and A/C amp.

NG

>> Repair harness between unified meter and A/C amp. and BCM.



#### **BCM Circuit Check**

# 1. CHECK CONNECTOR

1. Turn ignition switch OFF.

- 2. Disconnect the negative battery terminal.
- 3. Check the terminals and connector of BCM for damage, bend and loose connection (control module-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

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# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect BCM connector.
- 2. Check resistance between BCM harness connector M3 terminals 70 (L) and 71 (R).

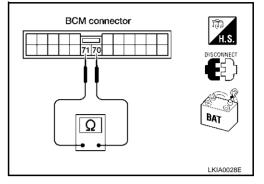
: Approx.  $54 - 66\Omega$ 

#### OK or NG

OK >> Replace BCM.

NG >> Repair harne

>> Repair harness between BCM and steering angle sensor.



AKS0034T

### **Steering Angle Sensor Circuit Check**

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check terminals and connector of steering angle sensor for damage, bend and loose connection (sensorside and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect steering angle sensor connector.
- 2. Check resistance between steering angle sensor harness connector M22 terminals 4 (L) and 5 (R).

$$4(L) - 5(R)$$

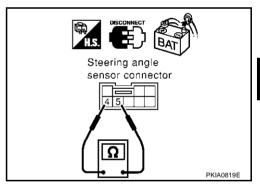
: Approx.  $54 - 66\Omega$ 

#### OK or NG

OK

>> Replace steering angle sensor.

NG >> Repair harness between steering angle sensor and harness connector M15.



AKS0034U

#### **VDC/TCS/ABS Control Unit Circuit Check**

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check the terminals and connector of VDC/TCS/ABS control unit for damage, bend and loose connection (control unit-side and harness-side).

**LAN-155** 

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2003 350Z

# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect VDC/TCS/ABS control unit connector.
- 2. Check resistance between VDC/TCS/ABS control unit harness connector E118 terminals 61 (L) and 63 (R).

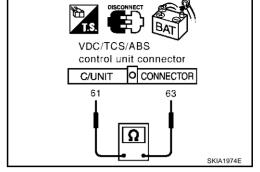
$$61 (L) - 63 (R)$$

: Approx.  $54 - 66\Omega$ 

#### OK or NG

OK >> Replace VDC/TCS/ABS control unit.

NG >> Repair harness between VDC/TCS/ABS control unit and IPDM E/R.



AKS0034V

#### IPDM E/R Circuit Check

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check the terminals and connector of IPDM E/R for damage, bend and loose connection (control module-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect IPDM E/R connector.
- 2. Check resistance between IPDM E/R harness connector E9 terminals 48 (L) and 49 (R).

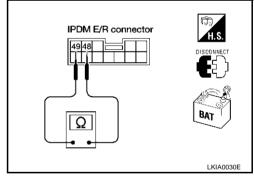
: Approx.  $108 - 132\Omega$ 

#### OK or NG

OK

>> Replace IPDM E/R.

NG >> Repair harness between IPDM E/R and VDC/TCS/ABS control unit.



[CAN]

### **CAN Communication Circuit Check**

# 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check following terminals and connector for damage, bend and loose connection (control module-side, meter-side, sensor-side, control unit-side and harness-side).
- **ECM**
- Unified meter and A/C amp.
- **BCM**
- Steering angle sensor
- VDC/TCS/ABS control unit
- IPDM E/R
- Between ECM and IPDM E/R

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

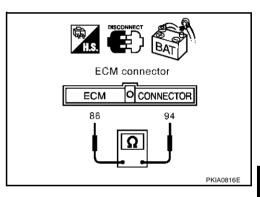
# 2. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect ECM connector and harness connector F102.
- Check continuity between ECM harness connector F101 terminals 94 (L) and 86 (R).

#### OK or NG

OK >> GO TO 3.

NG >> Repair harness between ECM and harness connector F102.



# 3. CHECK HARNESS FOR SHORT CIRCUIT

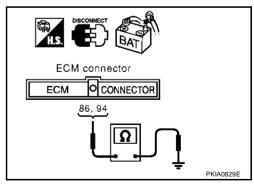
Check continuity between ECM harness connector F101 terminals 94 (L), 86 (R) and ground.

> 94 (L) - ground : Continuity should not exist. 86 (R) - ground : Continuity should not exist.

#### OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector F102.



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# 4. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect following connectors.
- Unified meter and A/C amp. connector
- BCM connector
- Steering angle sensor connector
- Harness connector M15
- 2. Check continuity between data link connector M8 terminals 6 (L) and 14 (R).

6 (L) – 14 (R) : Continuity should not exist.

#### OK or NG

OK

>> GO TO 5.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72.
  - Harness between data link connector and unified meter and A/C amp.
  - Harness between data link connector and BCM.
  - Harness between data link connector and steering angle sensor.
  - Harness between data link connector and harness connector M15.

# 5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M8 terminals 6 (L), 14 (R) and ground.

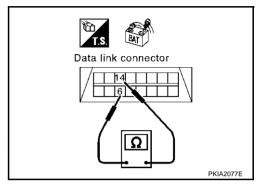
6 (L) – ground : Continuity should not exist. 14 (R) – ground : Continuity should not exist.

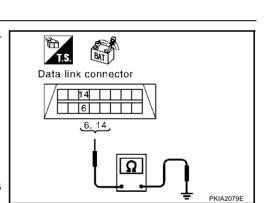
#### OK or NG

OK >> GO TO 6.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72.
  - Harness between data link connector and unified meter and A/C amp.
  - Harness between data link connector and BCM.
  - Harness between data link connector and steering angle sensor.
  - Harness between data link connector and harness connector M15.





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# 6. CHECK HARNESS FOR SHORT CIRCUIT

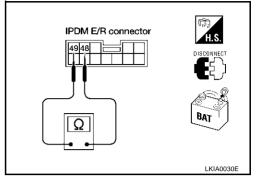
- Disconnect VDC/TCS/ABS control unit connector and IPDM E/R connector. 1.
- 2 Check continuity between IPDM E/R harness connector E9 terminals 48 (L) and 49 (R).

#### OK or NG

OK >> GO TO 7.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between IPDM E/R and VDC/TCS/ABS control unit.
  - Harness between IPDM E/R and harness connector E108.



### 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E9 terminals 48 (L), 49 (R) and ground.

> : Continuity should not exist. 48 (L) - ground 49 (R) - ground : Continuity should not exist.

#### OK or NG

OK >> GO TO 8.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between IPDM E/R and VDC/TCS/ABS control unit.
  - Harness between IPDM E/R and harness connector E108.

# 8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to LAN-160, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION". OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-142, "Work Flow".

>> Replace ECM and/or IPDM E/R. NG

### IPDM E/R Check

### 1. CHECK IPDM E/R

- Turn ignition switch ON and then OFF.
- Check for illuminated parking lamps and tail lamps.

Parking lamps and tail lamps should not illuminate.

#### OK or NG

Revision; 2004 April

OK >> Replace VDC/TCS/ABS control unit.

NG >> Replace IPDM E/R.

# IPDM E/R Ignition Relay Circuit Check

Check the following. If no malfunction is found, replace the IPDM E/R.

- IPDM E/R power supply circuit. Refer to PG-29, "IPDM E/R Power/Ground Circuit Inspection".
- Ignition power supply circuit. Refer to PG-11, "IGNITION POWER SUPPLY IGNITION SW. IN "ON" AND/OR "START"".

IPDM E/R connector

48, 49

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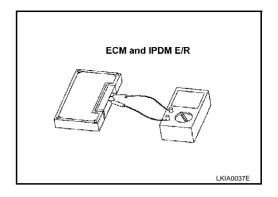
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# Component Inspection ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between IPDM E/R terminals 48 and 49.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	94 – 86	108 - 132
IPDM E/R	48 – 49	100 - 132



#### [CAN]

# **CAN SYSTEM (TYPE 7)**

PFP:23710

# **System Description**

Blower motor RH side

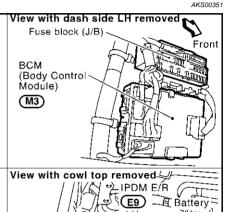
AKS00350

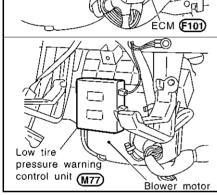
D

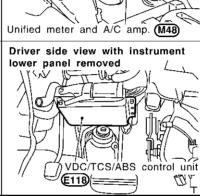
CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information 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.

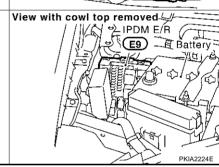
View with console finisher removed

Component Parts and Harness Connector Location









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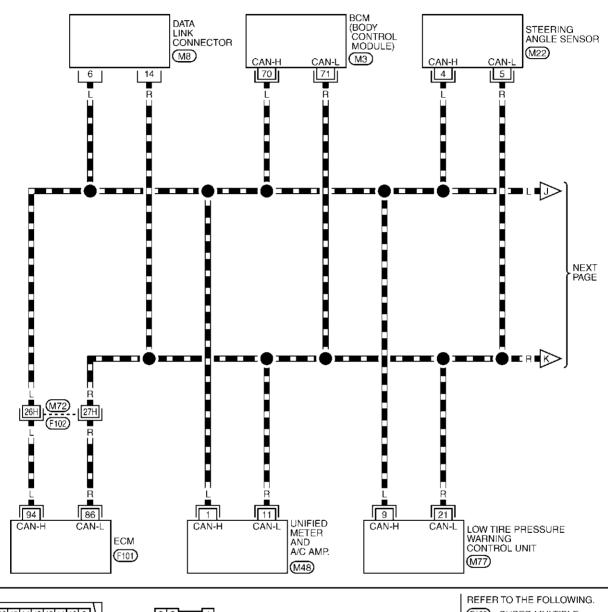
L

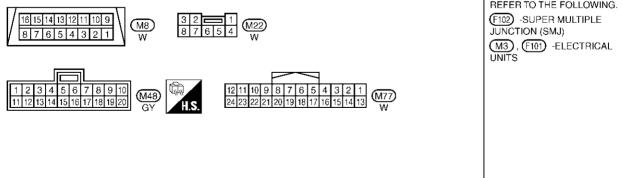
# Wiring Diagram — CAN —

KS00352

#### LAN-CAN-09

: DATA LINE





TKWT0414E

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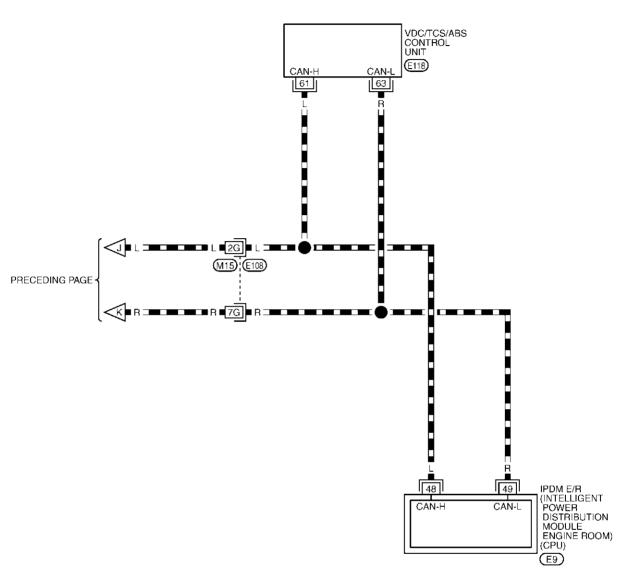
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: DATA LINE





REFER TO THE FOLLOWING. (E108) -SUPER MULTIPLE JUNCTION (SMJ)

(E118) -ELECTRICAL UNITS

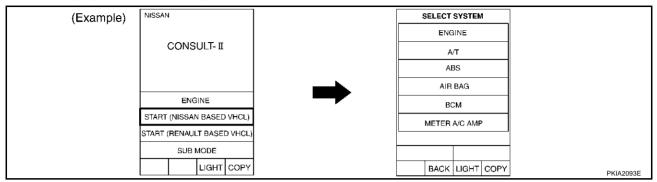
TKWT0415E

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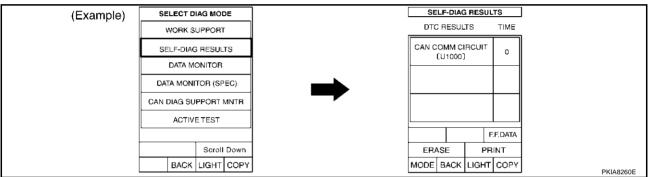
J

Work Flow

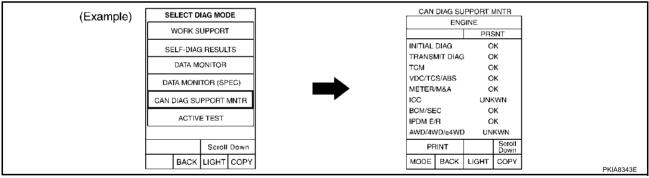
1. When there are no indications of "METER A/C AMP" or "AIR PRESSURE MONITOR" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



2. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "METER A/C AMP", "BCM", "AIR PRESSURE MONITOR" and "ABS" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "METER A/C AMP", "BCM", "AIR PRESSURE MONITOR" and "ABS" displayed on CONSULT-II.



- Attach the printed sheet of "SELECT SYSTEM", "SELF-DIAG RESULTS" and "CAN DIAG SUPPORT MNTR" onto the check sheet. Refer to LAN-165, "CHECK SHEET".
- 5. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks "v" onto the items with "No indication", "NG", or "UNKWN" in the check sheet table. Refer to <a href="LAN-165">LAN-165</a>, "CHECK SHEET".

#### NOTE:

- If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- The "CAN DIAG SUPPORT MNTR" items, which are not in check sheet table, are not related to diagnostic procedure on service manual.
   So it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- According to the check sheet results (example), start inspection. Refer to <u>LAN-167</u>, "CHECK SHEET <u>RESULTS</u> (EXAMPLE)".

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### **CHECK SHEET**

#### NOTE:

If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

					CAN DIA	G SUPPOF	RT MNTR			
SELECT SYST	FM screen	Initial	Transmit			Rec	eive diagn	osis		
022201 0101	Elvi borocii	diagnosis		ECM	METER /M&A	BCM/SEC	TIRE-P	STRG	VDC/TCS /ABS	IPDM E/F
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	_	_	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	-	_	_
ABS	-	NG	UNKWN	UNKWN	_	_	_	UNKWN	_	_
	•		,		•				•	
Symptoms :										

Attach copy of SELECT SYSTEM Attach copy of SELECT SYSTEM

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Attach copy of Attach copy of Attach copy of ENGINÉ METER A/C AMP всм SELF-DIAG RESULTS SELF-DIAG RESULTS SELF-DIAG RESULTS Attach copy of Attach copy of AIR PRESSURE ABS MONITOR SELF-DIAG RESULTS SELF-DIAG RESULTS Attach copy of Attach copy of Attach copy of ENGINE METER A/C AMP BCM CAN DIAG SUPPORT CAN DIAG SUPPORT CAN DIAG SUPPORT MNTR MNTR MNTR Attach copy of Attach copy of AIR PRESSURE ABS MONITOR CAN DIAG SUPPORT CAN DIAG SUPPORT MNTR MNTR PKIB0318E

### **CHECK SHEET RESULTS (EXAMPLE)**

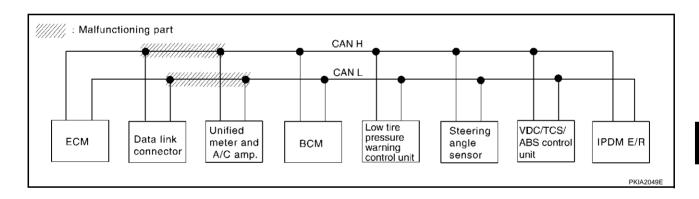
#### NOTE:

If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

#### Case 1

Check harness between data link connector and unified meter and A/C amp. Refer to <u>LAN-181</u>, "Circuit Check Between Data Link Connector and Unified Meter and A/C Amp."

					CAN DIA	G SUPPOR	T MNTR			
SELECT SYST	FM screen	Initial	Transmit			Rec	eive diagno	osis		
GEEEG! G!G!	LIVI SCI CCIT	diagnosis		ECM	METER /M&A	BCM/SEC	TIRE-P	STRG	VDC/TCS /ABS	IPDM E/P
ENGINE	_	NG	UNKWN	_	NNKWN	UNKWN	_	_	UNKVN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_	UNKWN	_
всм		NG	UNKWN	UNK/VN	UNKWN	_	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_	_
ABS	_	NG	UNKWN	UNKWN	_	_	_	UNKWN	_	_



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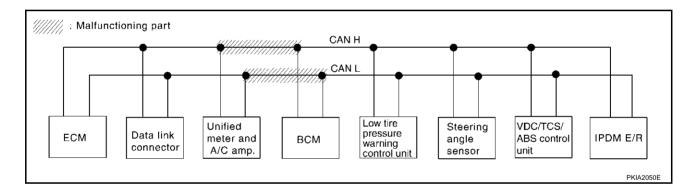
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Case 2

Check harness between unified meter and A/C amp. and BCM. Refer to  $\underline{\text{LAN-181, "Circuit Check Between Unified Meter and A/C Amp. and BCM"}}$ .

					CAN DIA	G SUPPOF	RT MNTR			
SELECT SYST	EM screen	Initial	Transmit			Rec	eive diagn	osis		
GELEOT GTGT	LIW SCIECT	diagnosis		ECM	METER /M&A	BCM/SEC	TIRE-P	STRG	VDC/TCS /ABS	IPDM E/F
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	_	UNKWN	η <b>νκ</b> ⁄νν
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNIAWN	UNK <b>A</b> VN	_	υ <b>νκ⁄</b> νν	_
BCM	-	NG	UNKWN	UNKWN	UNK/WN	_	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_	_
ABS	_	NG	UNKWN	UNK WN	_	_	_	UNKWN	_	_



[CAN]

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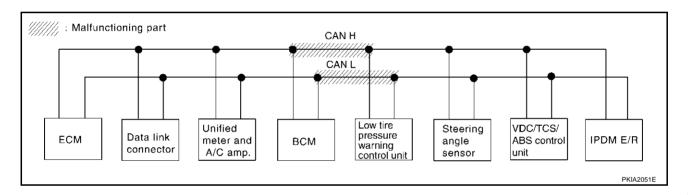
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Case 3

Check harness between BCM and Low Tire Pressure Warning Control Unit. Refer to <u>LAN-182</u>, "Circuit Check <u>Between BCM and Low Tire Pressure Warning Control Unit"</u>.

					CAN DIA	G SUPPOF	RT MNTR			
SELECT SYST	FM screen	Initial	Transmit			Rec	eive diagn	osis		
022201 0101	LIVI GOICEII			ECM	METER /M&A	BCM/SEC	TIRE-P	STRG	VDC/TCS /ABS	IPDM E/I
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	_	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKVN	_	UNIAMN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_	_
ABS	_	NG	UNKWN	UNKWN	_	_	_	UNKWN	_	_



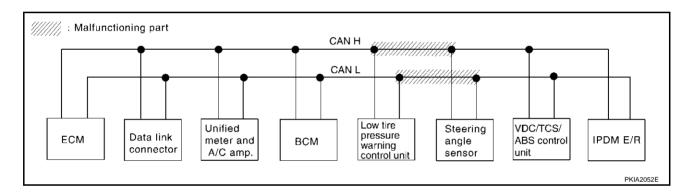
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Case 4

Check harness between Low Tire Pressure Warning Control Unit and steering angle sensor. Refer to <u>LAN-182</u>, "Circuit Check Between Low Tire Pressure Warning Control Unit and Steering Angle Sensor".

					CAN DIA	G SUPPOR	RT MNTR			
SELECT SYST	EM screen	Initial	Transmit			Rec	eive diagn	osis		
CLLLO1 G1G1	LIVI SCIECTI	diagnosis		ECM	METER /M&A	BCM/SEC	TIRE-P	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	_	UNKVN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_	пикули	_
BCM	-	NG	UNKWN	UNKWN	UNKWN	_	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_	_
ABS	_	NG	UNKWN	UNKWN	_	_	_	UNKWN	_	_



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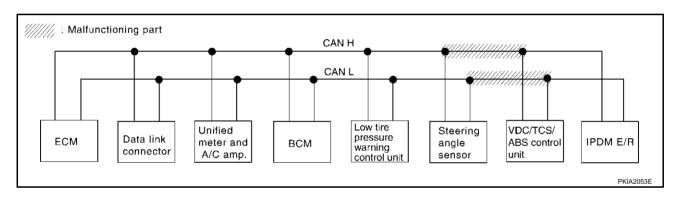
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#### Case 5

Check harness between steering angle sensor and VDC/TCS/ABS control unit. Refer to <u>LAN-183</u>, "Circuit <u>Check Between Steering Angle Sensor and VDC/TCS/ABS Control Unit"</u>.

					CAN DIA	G SUPPOR	RT MNTR			
SELECT SYST	FM screen	Initial	Transmit			Rec	eive diagn	osis		
022201 0101	EIW GOICEIT	diagnosis	diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	STRG	VDC/TCS /ABS	IPDM E/F
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	_	UNKWN	NNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_	UNK VN	_
всм	-	NG	UNKWN	UNKWN	UNKWN	_	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_	_
ABS	_	NG	UNKWN	UNKWN	_	_	_	UNK/VN	_	_

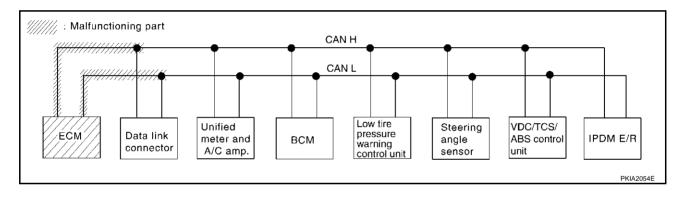


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Case 6
Check ECM circuit. Refer to <u>LAN-183</u>, "ECM Circuit Check" .

					CAN DIA	G SUPPOR	RT MNTR			
SELECT SYST	FM screen	Initial	Transmit			Rec	eive diagn	osis		
022201 0101	LIW SOICCII		diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	STRG	VDC/TCS /ABS	IPDM E/F
ENGINE	-	NG	UNK VN	_	UNK WN	UN <b>₩</b> WN	_	=	UNK/VN	UN <b>K</b> ₩N
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_	UNKWN	_
ВСМ	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	-	-	_
ABS	_	NG	UNKWN	UNKWN	_	_	_	UNKWN	_	-



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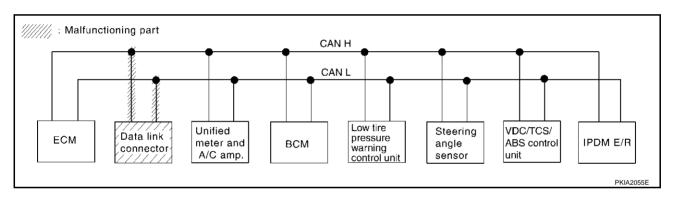
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Case 7

Check data link connector circuit. Refer to LAN-184, "Data Link Connector Circuit Check" .

					CAN DIA	G SUPPOF	RT MNTR			
SELECT SYST	EM screen	Initial	Transmit			Rec	eive diagn	osis		
	55.55		diagnosis	ЕСМ	METER /M&A	BCM/SEC	TIRE-P	STRG	VDC/TCS /ABS	IPDM E/F
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	-	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_	_
ABS	_	NG	UNKWN	UNKWN	_	_	_	UNKWN	_	_

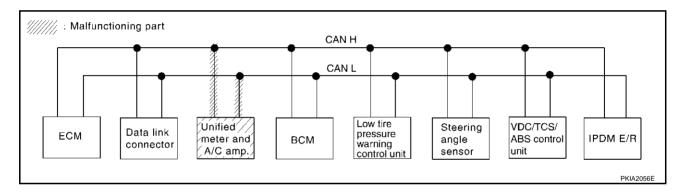


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Case 8
Check unified meter and A/C amp. circuit. Refer to LAN-184, "Unified Meter and A/C Amp. Circuit Check".

					CAN DIA	G SUPPOR	RTMNTR			
SELECT SYST	FM screen	Initial	Transmit			Red	eive diagn	osis		
022201 0101	EIW COICCII	diagnosis		ECM	METER /M&A	BCM/SEC	TIRE-P	STRG	VDC/TCS /ABS	IPDM E/F
ENGINE	_	NG	UNKWN	_	UNK WN	UNKWN	_	=	UNKWN	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_	UNKWN	_
BCM	-	NG	UNKWN	UNKWN	UNK/WN	_	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNK <b>∕</b> WN	_	_	-	_	-
ABS	_	NG	UNKWN	UNKWN	_	_	_	UNKWN	_	_



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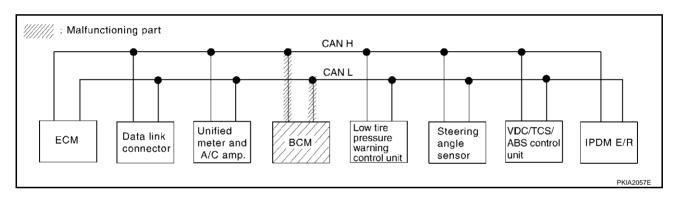
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Case 9
Check BCM circuit. Refer to <u>LAN-185, "BCM Circuit Check"</u>.

					CAN DIA	G SUPPOF	RT MNTR				
SELECT SYST	FM screen	Initial	Tronomit	Receive diagnosis							
022201 0101	LIVI SCICCII	diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	STRG	VDC/TCS /ABS	IPDM E/F	
ENGINE	_	NG	UNKWN	_	UNKWN	UN <b>K</b> ∕WN	_	=	UNKWN	UNKWN	
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_	UNKWN	_	
BCM	_	NG	UN <b>K</b> ∕WN	UNKVN	UNK/WN	_	_	_	_	UNKWN	
AIR PRESSURE MONITOR	No indication	NG	UNKWN	=	UNKWN	_	-	=	_	-	
ABS	_	NG	UNKWN	UNKWN	_	_	_	UNKWN	_	_	



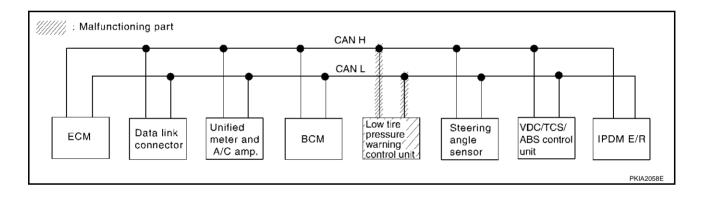
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Case 10

Check Low Tire Pressure Warning Control Unit circuit. Refer to <u>LAN-185, "Low Tire Pressure Warning Control</u> Unit Circuit Check" .

					CAN DIA	G SUPPOR	RT MNTR					
SELECT SYST	FM screen	Initial	Transmit	Receive diagnosis								
022201 0101	LIN COIDON			ECM	METER /M&A	BCM/SEC	TIRE-P	STRG	VDC/TCS /ABS	IPDM E/R		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	_	UNKWN	UNKWN		
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKAN	_	UNKWN	_		
BCM	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	_	UNKWN		
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_	_		
ABS	_	NG	UNKWN	UNKWN	_	_	_	UNKWN	_	_		



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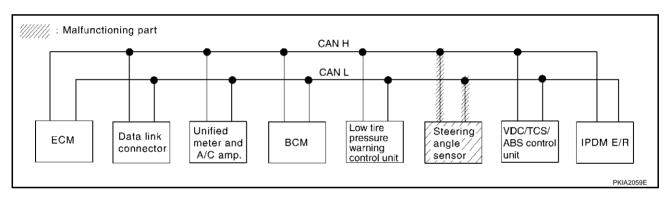
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Case 11

Check steering angle sensor circuit. Refer to LAN-186, "Steering Angle Sensor Circuit Check" .

					CAN DIA	G SUPPOF	RT MNTR					
SELECT SYST	EM screen	Initial	Transmit		Receive diagnosis							
022201 0101	EIW GOICEIT			ECM	METER /M&A	BCM/SEC	TIRE-P	STRG	VDC/TCS /ABS	IPDM E/F		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	_	_	UNKWN	UNKWN		
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_	UNKWN	_		
всм	-	NG	UNKWN	UNKWN	UNKWN	_	_	_	_	UNKWN		
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	-	_	_		
ABS	-	NG	UNKWN	UNKWN	_	_	_	UNKWN	_	_		

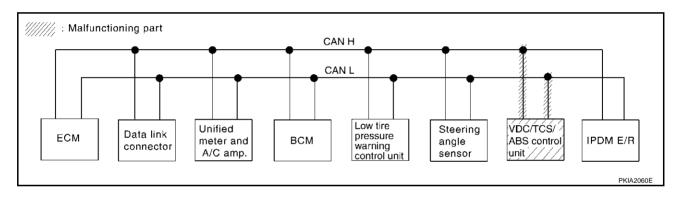


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Case 12
Check VDC/TCS/ABS control unit circuit. Refer to LAN-186, "VDC/TCS/ABS Control Unit Circuit Check".

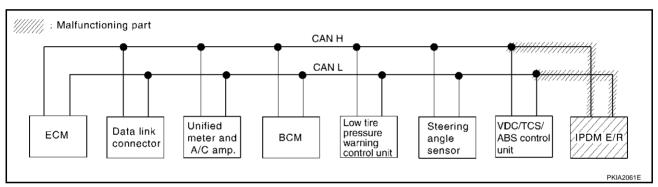
					CAN DIA	G SUPPOF	RT MNTR			
SELECT SYST	FM screen	Initial	Transmit			Rec	eive diagn	osis		
022201 0101	EN GOICEIT	**		ECM	METER /M&A	BCM/SEC	TIRE-P	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	=	NG	UNKWN	_	UNKWN	UNKWN	_	_	UNI <b>W</b> N	UNKWN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_	UNKKVN	_
всм	-	NG	UNKWN	UNKWN	UNKWN	_	_	_	_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	_	_	_
ABS	_	NG	UNKWN	UNKWN	_	_	_	UNKWN	_	_



Case 13

Check IPDM E/R circuit. Refer to LAN-187, "IPDM E/R Circuit Check" .

					CAN DIA	G SUPPOF				
SELECT SYST	EM screen	Initial	Transmit			Rec	eive diagn	osis		
				ECM	METER /M&A	BCM/SEC	TIRE-P	STRG	VDC/TCS /ABS	IPDM E/F
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	_	_	UNKWN	UNK <b>A</b> VN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_	UNKWN	_
BCM	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	_	UN <b>K</b> WN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	-	_	_	_	_
ABS	_	NG	UNKWN	UNKWN	_	_	_	UNKWN	_	_



Case 14

Check CAN communication circuit. Refer to LAN-188, "CAN Communication Circuit Check" .

					CAN DIA	G SUPPOF	RT MNTR			
SELECT SYST	EM screen	Initial	Transmit			Rec	eive diagn	osis		
02220. 0.0.	Ziii doraa		diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	STRG	VDC/TCS /ABS	IPDM E/F
ENGINE	_	NG	Π <b>ΝΚ</b> (ΛΝ	_	UNK WN	UNK <b>∕</b> WN	_	=	UN <b>K</b> ∕VN	UNK/VN
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_	UNKWN	_
всм	_	NG	UNKWN	UN <b>K</b> ₩N	UNK/WN	_	_	_	_	UNK WN
AIR PRESSURE MONITOR	No indication	NG	UNKWN		UNKWN	_	_	_	_	_
ABS	_	NG	UNIOWN	UNKWN	_	_	_	UNKAN	_	_

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#### Case 15

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-190, "IPDM E/R Ignition Relay Circuit Check"</u>.

				CAN DIAG SUPPORT MNTR							
SELECT SYST	EM screen	Initial	Transmit			Rec	eive diagn	osis			
OLLEGI GIGI	LIVI SCIECTI	diagnosis	diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	STRG	VDC/TCS /ABS	IPDM E/R	
ENGINE	_	NG	UNKWN	1	UNKWN	UNKWN	_	_	UNKWN	UNKWN	
METER A/C AMP	No indication	_	UNKWN	UNKWN	_	UNKWN	UNKWN	_	UN <b>K</b> ∕VN	_	
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_	_	_	UNKWN	
AIR PRESSURE MONITOR	No indication	NG	UNKWN	_	UNKWN	_	_	-	_	_	
ABS	_	NG	UNKWN	UNKWN	_	_	_	UNKWN	_	-	

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#### Case 16

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to LAN-190, "IPDM E/R Ignition Relay Circuit Check".

					CAN DIA	G SUPPOF	RT MNTR			
SELECT SYST	FM screen	Initial	Tronomit			Rec	eive diagn			
SEEEOI STOT	LIVI SCIECTI	diagnosis	Transmit diagnosis	ECM	METER /M&A	BCM/SEC	TIRE-P	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	_	NG	UNKWN		UNKWN	UNKWN	_	_	UNKWN	UNKWN
METER A/C AMP	No indication	-	UNKWN	UNKWN	_	UNKWN	UNKWN	_	UNKWN	_
всм	_	NG	UNKWN	UNKWN	UNKWN	_	_		_	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN		UNKWN	_	_		-	1
ABS	_	NG	UNKWN	UNKWN	_	_	_	UNKVN	_	_

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# Circuit Check Between Data Link Connector and Unified Meter and A/C Amp.

# 1. CHECK HARNESS FOR OPEN CIRCUIT

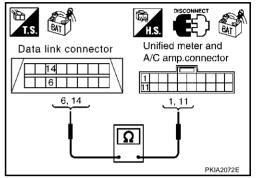
- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ECM connector and unified meter and A/C amp. connector.
- 4. Check continuity between data link connector M8 terminals 6 (L), 14 (R) and unified meter and A/C amp. harness connector M48 terminals 1 (L), 11 (R).

6 (L) – 1 (L) : Continuity should exist. 14 (R) – 11 (R) : Continuity should exist.

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-164, "Work Flow".

NG >> Repair harness.



# Circuit Check Between Unified Meter and A/C Amp. and BCM

### 1. CHECK HARNESS FOR OPEN CIRCUIT

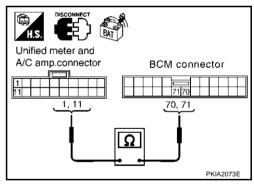
- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect the following connectors.
- ECM connector
- Unified meter and A/C amp. connector
- BCM connector
- 4. Check continuity between unified meter and A/C amp. harness connector M48 terminals 1 (L), 11 (R) and BCM harness connector M3 terminals 70 (L), 71 (R).

1 (L) – 70 (L) : Continuity should exist. 11 (R) – 71 (R) : Continuity should exist.

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-164. "Work Flow".

NG >> Repair harness.



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# Circuit Check Between BCM and Low Tire Pressure Warning Control Unit

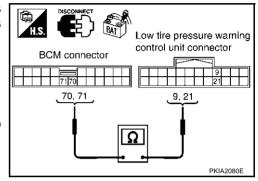
#### 1. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect the following connectors.
- ECM connector
- BCM connector
- Low tire pressure warning control unit connector
- 4. Check continuity between BCM harness connector M3 terminals 70 (L), 71 (R) and low tire pressure warning control unit harness connector M77 terminals 9 (L), 21 (R).

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to <u>LAN-164</u>, "Work Flow".

NG >> Repair harness.



# Circuit Check Between Low Tire Pressure Warning Control Unit and Steering Angle Sensor

# 1. CHECK HARNESS FOR OPEN CIRCUIT

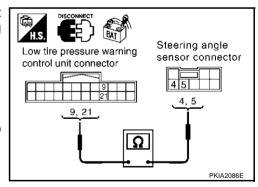
- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect the following connectors.
- ECM connector
- Low tire pressure warning control unit connector
- Steering angle sensor connector
- 4. Check continuity between Low tire pressure warning control unit harness connector M77 terminals 9 (L), 21 (R) and steering angle sensor harness connector M22 terminals 4 (L), 5 (R).

9 (L) – 4 (L) : Continuity should exist. 21 (R) – 5 (R) : Continuity should exist.

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-164, "Work Flow".

NG >> Repair harness.



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# Circuit Check Between Steering Angle Sensor and VDC/TCS/ABS Control Unit

# 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check following terminals and connector for damage, bend and loose connection (connector-side and harness-side).
- Harness connector M15
- Harness connector E108

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- Disconnect steering angle sensor connector and harness connector M15.
- Check continuity between steering angle sensor harness connector M22 terminals 4 (L), 5 (R) and harness connector M15 terminals 2G (L), 7G (R).

4(L) - 2G(L)

: Continuity should exist.

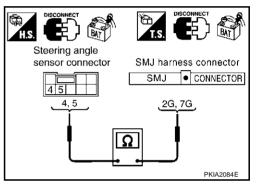
5(R) - 7G(R)

: Continuity should exist.

#### OK or NG

OK >> GO TO 3.

NG >> Repair harness.



# 3. CHECK HARNESS FOR OPEN CIRCUIT

- Disconnect VDC/TCS/ABS control unit connector.
- Check continuity between harness connector E108 terminals 2G (L), 7G (R) and VDC/TCS/ABS control unit harness connector E118 terminals 61 (L), 63 (R).

2G (L) - 61 (L)

: Continuity should exist.

7G(R) - 63(R)

: Continuity should exist.

#### OK or NG

OK

>> Connect all the connectors and diagnose again. Refer to LAN-164, "Work Flow".

NG >> Repair harness.

### SMJ harness connector VDC/TCS/ABS control CONNECTOR SMJ unit connector 2G, 7G C/UNIT O CONNECTOR 61, 63 Ω PKIA2085E

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#### **ECM Circuit Check**

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check following terminals and connector for damage, bend and loose connection (control module-side and harness-side).
- ECM connector
- Harness connector F102
- Harness connector M72

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

**LAN-183** Revision; 2004 April 2003 350Z

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# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

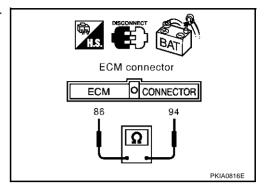
- 1. Disconnect ECM connector.
- 2. Check resistance between ECM harness connector F101 terminals 94 (L) and 86 (R).

94 (L) 
$$-$$
 86 (R) : Approx.  $108 - 132\Omega$ 

#### OK or NG

OK >> Replace ECM.

NG >> Repair harness between ECM and data link connector.



#### **Data Link Connector Circuit Check**

### 1. CHECK CONNECTOR

- Turn ignition switch OFF. 1.
- Disconnect the negative battery terminal.
- Check the terminals and connector of data link connector for damage, bend and loose connection (connector-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

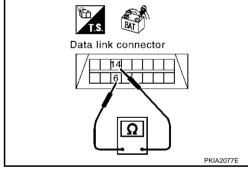
Check resistance between data link connector M8 terminals 6 (L) and 14 (R).

**6 (L)** – **14 (R)** : Approx. 
$$54 - 66\Omega$$

#### OK or NG

OK >> Diagnose again. Refer to LAN-164, "Work Flow".

NG >> Repair harness between data link connector and unified meter and A/C amp.



# Unified Meter and A/C Amp. Circuit Check

# 1. CHECK CONNECTOR

- Turn ignition switch OFF. 1.
- 2. Disconnect the negative battery terminal.
- Check terminals and connector of unified meter and A/C amp, for damage, bend and loose connection (meter-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector. AKS0035B

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# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

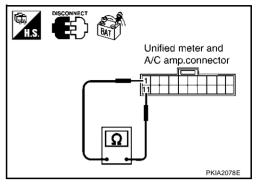
- 1. Disconnect unified meter and A/C amp. connector.
- 2. Check resistance between unified meter and A/C amp. harness connector M48 terminals 1 (L) and 11 (R).

: Approx.  $54 - 66\Omega$ 

#### OK or NG

OK >> Replace unified meter and A/C amp.

NG >> Repair harness between unified meter and A/C amp. and BCM.



**BCM Circuit Check** 

1. CHECK CONNECTOR

1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check the terminals and connector of BCM for damage, bend and loose connection (control module-side and harness-side).

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

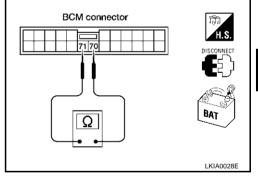
- 1. Disconnect BCM connector.
- 2. Check resistance between BCM harness connector M3 terminals 70 (L) and 71 (R).

: Approx. 54 – 66 $\Omega$ 

#### OK or NG

OK NG >> Replace BCM.

>> Repair harness between BCM and low tire pressure warning control unit.



# **Low Tire Pressure Warning Control Unit Circuit Check**

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### CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check terminals and connector of low tire pressure warning control unit for damage, bend and loose connection (control unit-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

Revision; 2004 April **LAN-185** 2003 350Z

# 2. CHECK HARNESS FOR OPEN CIRCUIT

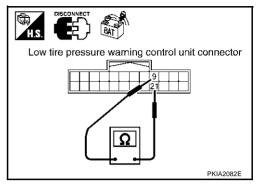
- 1. Disconnect low tire pressure warning control unit connector.
- Check resistance between low tire pressure warning control unit harness connector M77 terminals 9 (L) and 21 (R).

**9 (L) – 21 (R)** : Approx. 
$$54 - 66\Omega$$

#### OK or NG

OK >> Replace low tire pressure warning control unit.

NG >> Repair harness between low tire pressure warning control unit and steering angle sensor.



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### **Steering Angle Sensor Circuit Check**

#### 1. CHECK CONNECTOR

- Turn ignition switch OFF. 1.
- Disconnect the negative battery terminal.
- Check terminals and connector of steering angle sensor for damage, bend and loose connection (sensorside and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

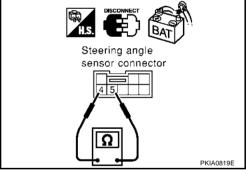
- Disconnect steering angle sensor connector. 1.
- Check resistance between steering angle sensor harness connector M22 terminals 4 (L) and 5 (R).

**4 (L)** – **5 (R)** : Approx. 
$$54 - 66\Omega$$

#### OK or NG

OK >> Replace steering angle sensor.

NG >> Repair harness between steering angle sensor and harness connector M15.



#### VDC/TCS/ABS Control Unit Circuit Check

#### 1. CHECK CONNECTOR

Turn ignition switch OFF. 1.

- 2. Disconnect the negative battery terminal.
- Check the terminals and connector of VDC/TCS/ABS control unit for damage, bend and loose connection (control unit-side and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector. AKS0035F

# 2. CHECK HARNESS FOR OPEN CIRCUIT

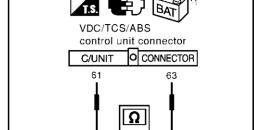
- Disconnect VDC/TCS/ABS control unit connector. 1.
- Check resistance between VDC/TCS/ABS control unit harness connector E118 terminals 61 (L) and 63 (R).

: Approx.  $54 - 66\Omega$ 

#### OK or NG

OK >> Replace VDC/TCS/ABS control unit.

NG >> Repair harness between VDC/TCS/ABS control unit and IPDM E/R.



#### **IPDM E/R Circuit Check**

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### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.

- Disconnect the negative battery terminal.
- Check the terminals and connector of IPDM E/R for damage, bend and loose connection (control moduleside and harness-side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect IPDM E/R connector.
- Check resistance between IPDM E/R harness connector E9 terminals 48 (L) and 49 (R).

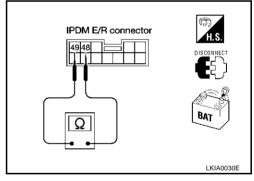
: **Approx.**  $108 - 132\Omega$ 

#### OK or NG

OK

>> Replace IPDM E/R.

NG >> Repair harness between IPDM E/R and VDC/TCS/ABS control unit.



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#### [CAN]

#### **CAN Communication Circuit Check**

### 1. CHECK CONNECTOR

AKS0035H

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check following terminals and connector for damage, bend and loose connection (control module-side, meter-side, sensor-side, control unit-side and harness-side).
- ECM
- Unified meter and A/C amp.
- BCM
- Low tire pressure warning control unit
- Steering angle sensor
- VDC/TCS/ABS control unit
- IPDM E/R
- Between ECM and IPDM E/R

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR SHORT CIRCUIT

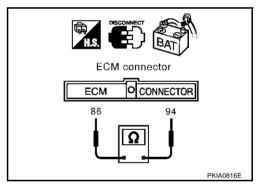
- 1. Disconnect ECM connector and harness connector F102.
- 2. Check continuity between ECM harness connector F101 terminals 94 (L) and 86 (R).

```
94 (L) – 86 (R) : Continuity should not exist.
```

#### OK or NG

OK >> GO TO 3.

NG >> Repair harness between ECM and harness connector F102.



# 3. CHECK HARNESS FOR SHORT CIRCUIT

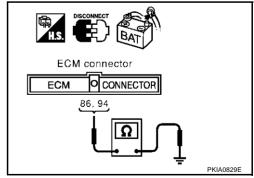
Check continuity between ECM harness connector F101 terminals 94 (L), 86 (R) and ground.

94 (L) – ground : Continuity should not exist. 86 (R) – ground : Continuity should not exist.

#### OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector F102.



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# 4. CHECK HARNESS FOR SHORT CIRCUIT

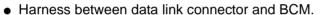
- 1. Disconnect following connectors.
- Unified meter and A/C amp. connector
- BCM connector
- Low tire pressure warning control unit connector
- Steering angle sensor connector
- Harness connector M15
- Check continuity between data link connector M8 terminals 6 (L) and 14 (R).

#### OK or NG

OK >> GO TO 5.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72.
  - Harness between data link connector and unified meter and A/C amp.



- Harness between data link connector and low tire pressure warning control unit.
- Harness between data link connector and steering angle sensor.
- Harness between data link connector and harness connector M15.

# 5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M8 terminals 6 (L), 14 (R) and ground.

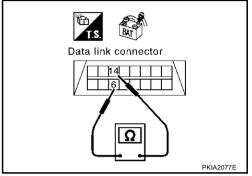
> : Continuity should not exist. 6 (L) – ground 14 (R) - ground : Continuity should not exist.

#### OK or NG

OK >> GO TO 6.

NG

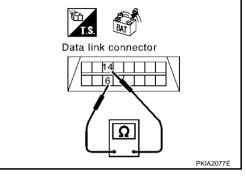
- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72.
  - Harness between data link connector and unified meter and A/C amp.
  - Harness between data link connector and BCM.
  - Harness between data link connector and low tire pressure warning control unit.
  - Harness between data link connector and steering angle sensor.
  - Harness between data link connector and harness connector M15.



Data link connector

14111 6

6, 14



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# 6. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect VDC/TCS/ABS control unit connector and IPDM E/R connector.
- Check continuity between IPDM E/R harness connector E9 terminals 48 (L) and 49 (R).

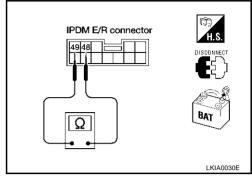
48 (L) – 49 (R) : Continuity should not exist.

#### OK or NG

OK >> GO TO 7.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between IPDM E/R and VDC/TCS/ABS control unit.
  - Harness between IPDM E/R and harness connector E108.



### 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E9 terminals 48 (L), 49 (R) and ground.

48 (L) – ground : Continuity should not exist. 49 (R) – ground : Continuity should not exist.

#### OK or NG

OK >> GO TO 8.

NG

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between IPDM E/R and VDC/TCS/ABS control unit.
  - Harness between IPDM E/R and harness connector E108.

# 8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to <u>LAN-191</u>, <u>"ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION"</u>. OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-164, "Work Flow".

NG >> Replace ECM and/or IPDM E/R.

IPDM E/R Check

### 1. CHECK IPDM E/R

- 1. Turn ignition switch ON and then OFF.
- 2. Check for illuminated parking lamps and tail lamps.

Parking lamps and tail lamps should not illuminate.

#### OK or NG

OK >> Replace VDC/TCS/ABS control unit.

NG >> Replace IPDM E/R.

# IPDM E/R Ignition Relay Circuit Check

Check the following. If no malfunction is found, replace the IPDM E/R.

- IPDM E/R power supply circuit. Refer to PG-29, "IPDM E/R Power/Ground Circuit Inspection".
- Ignition power supply circuit. Refer to <u>PG-11, "IGNITION POWER SUPPLY IGNITION SW. IN "ON" AND/OR "START""</u>.

IPDM E/R connector

49,48

48,49

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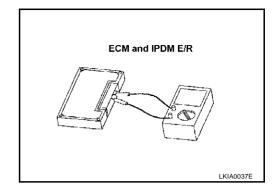
# **CAN SYSTEM (TYPE 7)**

[CAN]

Component Inspection
ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between IPDM E/R terminals 48 and 49.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	94 – 86	108 - 132
IPDM E/R	48 – 49	



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