SECTION LAN

LAN SYSTEM

CONTENTS

CAN

PRECAUTIONS

PFP:00001

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

AKS0031A

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 CONVERTER, 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-4, "CAN Communication Unit" .

Precautions For Trouble Diagnosis

AKS000ZD

CAN SYSTEM

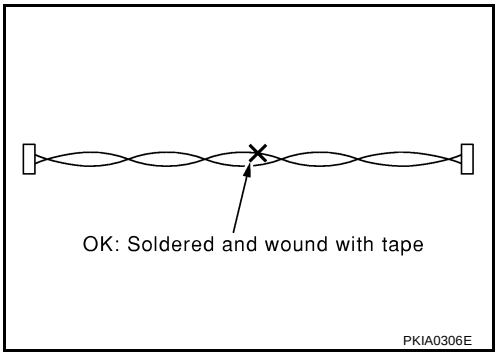
- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch off and disconnect negative battery terminal before checking the circuit.

Precautions For Harness Repair

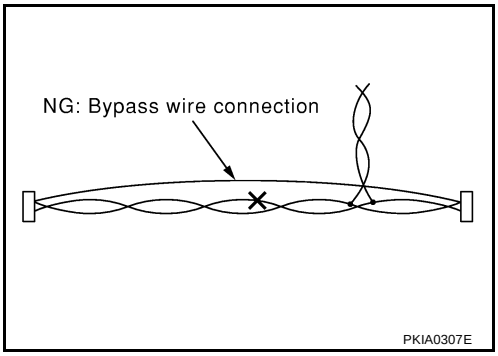
AKS000ZE

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.)



CAN COMMUNICATION

PFP:23710

System Description

AKS000ZF

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

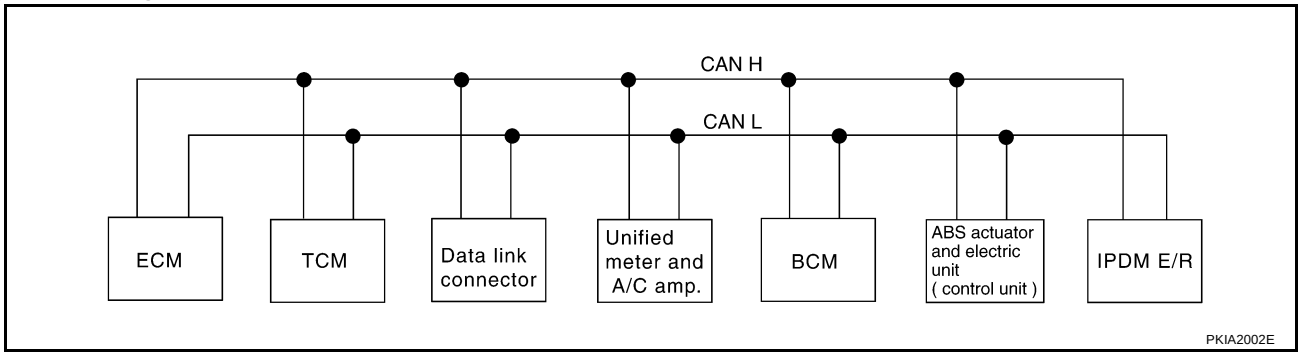
AKS000ZG

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

Body type	Roadster	
Axle	2WD	
Engine	VQ35DE	
Transmission	A/T	M/T
Brake control	TCS	
CAN system type	1	2
CAN system trouble diagnosis	LAN-8, "CAN SYSTEM (TYPE 1)"	LAN-35, "CAN SYSTEM (TYPE 2)"

TYPE 1

System Diagram



Input/ Output Signal Chart

T: Transmit R: Receive

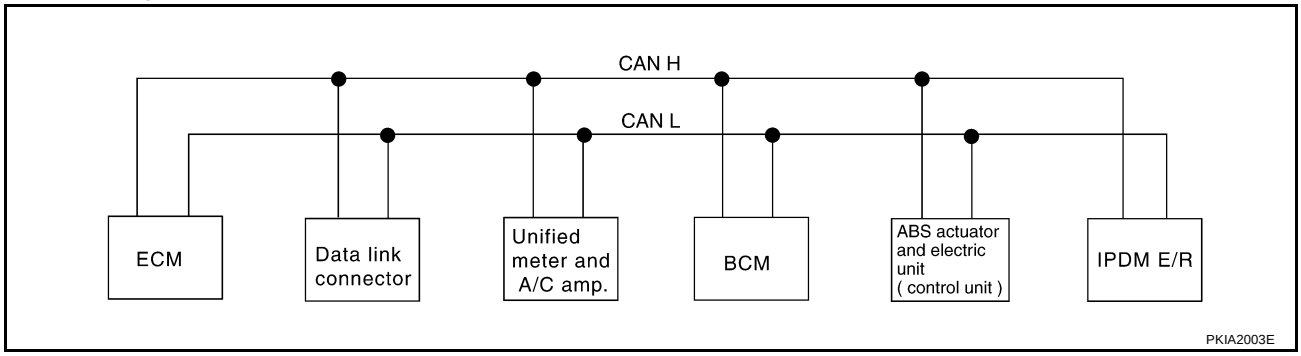
Signals	ECM	TCM	Unified meter and A/C amp.	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R	R		R	
Engine torque signal	T	R			R	
Engine coolant temperature signal	T	R	R			
Accelerator pedal position signal	T	R			R	
Closed throttle position signal	T	R				
Wide open throttle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

Signals	ECM	TCM	Unified meter and A/C amp.	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
ABS operation signal		R			T	
A/T shift schedule change demand signal		R			T	
A/C switch signal	R			T		
A/C compressor request signal	T					R
A/C compressor feedback signal	T		R			
Blower fan motor switch signal	R			T		
Cooling fan speed request signal	T					R
Position lights request signal			R	T		R
Low beam request signal				T		R
Low beam status signal	R					T
High beam request signal			R	T		R
High beam status signal	R					T
Vehicle speed signal			R		T	
	R	R	T	R		
Sleep request 1 signal			R	T		
Sleep request 2 signal				T		R
Wake up request 1 signal			R	T		
Door switch signal			R	T		R
Turn indicator signal			R	T		
Seat belt buckle switch signal			T	R		
Buzzer output signal			R	T		
Fuel level sensor signal	R		T			
Malfunction indicator lamp signal	T		R			
ASCD SET lamp signal	T		R			
ASCD operation signal	T	R				
ASCD CRUISE lamp signal	T		R			
ASCD OD cancel request signal	T	R				
Output shaft revolution signal	R	T				
Turbine revolution signal	R	T				
Front wiper request signal				T		R
Front wiper stop position signal				R		T
Rear window defogger switch signal				T		R
Rear window defogger control signal	R					T
Manual mode signal		R	T			
Not manual mode signal		R	T			
Manual mode shift up signal		R	T			
Manual mode shift down signal		R	T			
Manual mode indicator signal		T	R			
Hood switch signal				R		T
Theft warning horn request signal				T		R
Horn chirp signal				T		R
ABS warning lamp signal			R		T	

Signals	ECM	TCM	Unified meter and A/C amp.	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
TCS OFF indicator lamp signal			R		T	
SLIP indicator lamp signal			R		T	
Brake warning lamp signal			R		T	

TYPE 2

System Diagram



Input/ Output Signal Chart

T: Transmit R: Receive

Signals	ECM	Unified meter and A/C amp.	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	
Engine torque signal	T			R	
Engine coolant temperature signal	T	R			
Accelerator pedal position signal	T			R	
Fuel consumption monitor signal	T	R			
A/C switch signal	R		T		
A/C compressor request signal	T				R
A/C compressor feedback signal	T	R			
Blower fan motor switch signal	R		T		
Cooling fan speed request signal	T				R
Position lights request signal		R	T		R
Low beam request signal			T		R
Low beam status signal	R				T
High beam request signal		R	T		R
High beam status signal	R				T
Vehicle speed signal		R		T	
	R	T	R		
Sleep request 1 signal		R	T		
Sleep request 2 signal			T		R
Wake up request 1 signal		R	T		
Door switch signal		R	T		R
Turn indicator signal		R	T		
Seat belt buckle switch signal		T	R		
Buzzer output signal		R	T		

Signals	ECM	Unified meter and A/C amp.	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Fuel level sensor signal	R	T			
Malfunction indicator lamp signal	T	R			
ASCD SET lamp signal	T	R			
ASCD CRUISE lamp signal	T	R			
Front wiper request signal			T		R
Front wiper stop position signal			R		T
Rear window defogger switch signal			T		R
Rear window defogger control signal	R				T
Hood switch signal			R		T
Theft warning horn request signal			T		R
Horn chirp signal			T		R
ABS warning lamp signal		R		T	
TCS OFF indicator lamp signal		R		T	
SLIP indicator lamp signal		R		T	
Brake warning lamp signal		R		T	

CAN SYSTEM (TYPE 1)

PFP:23710

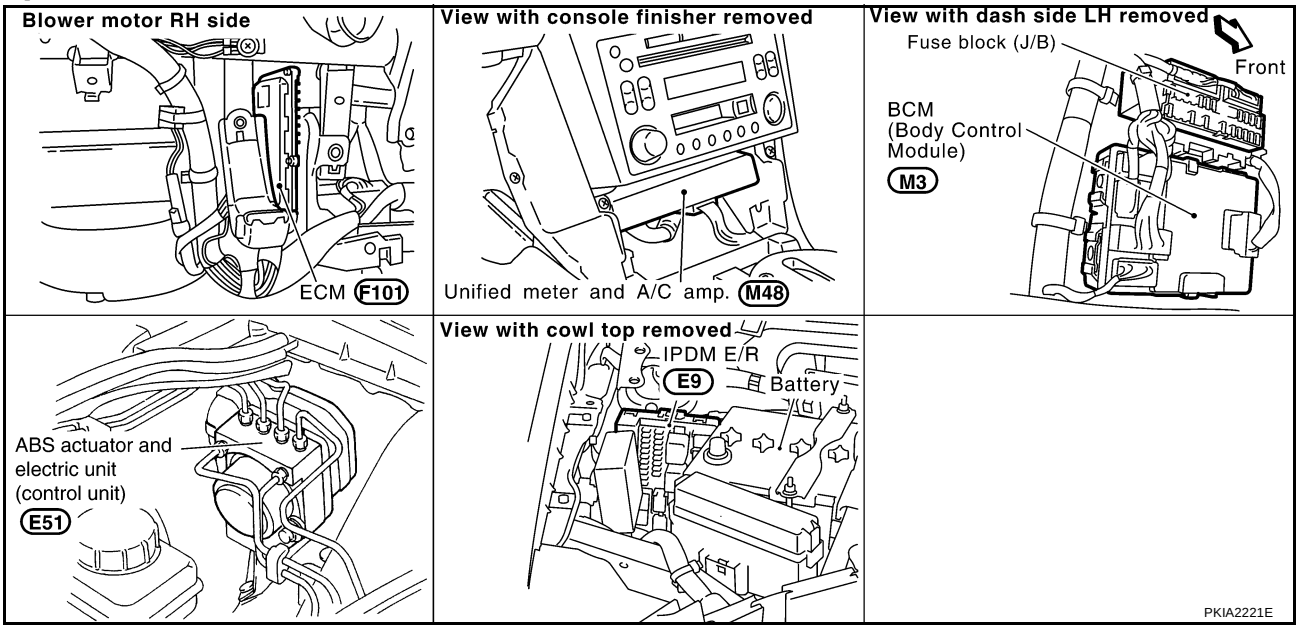
System Description

AKS0035L

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

AKS0035M

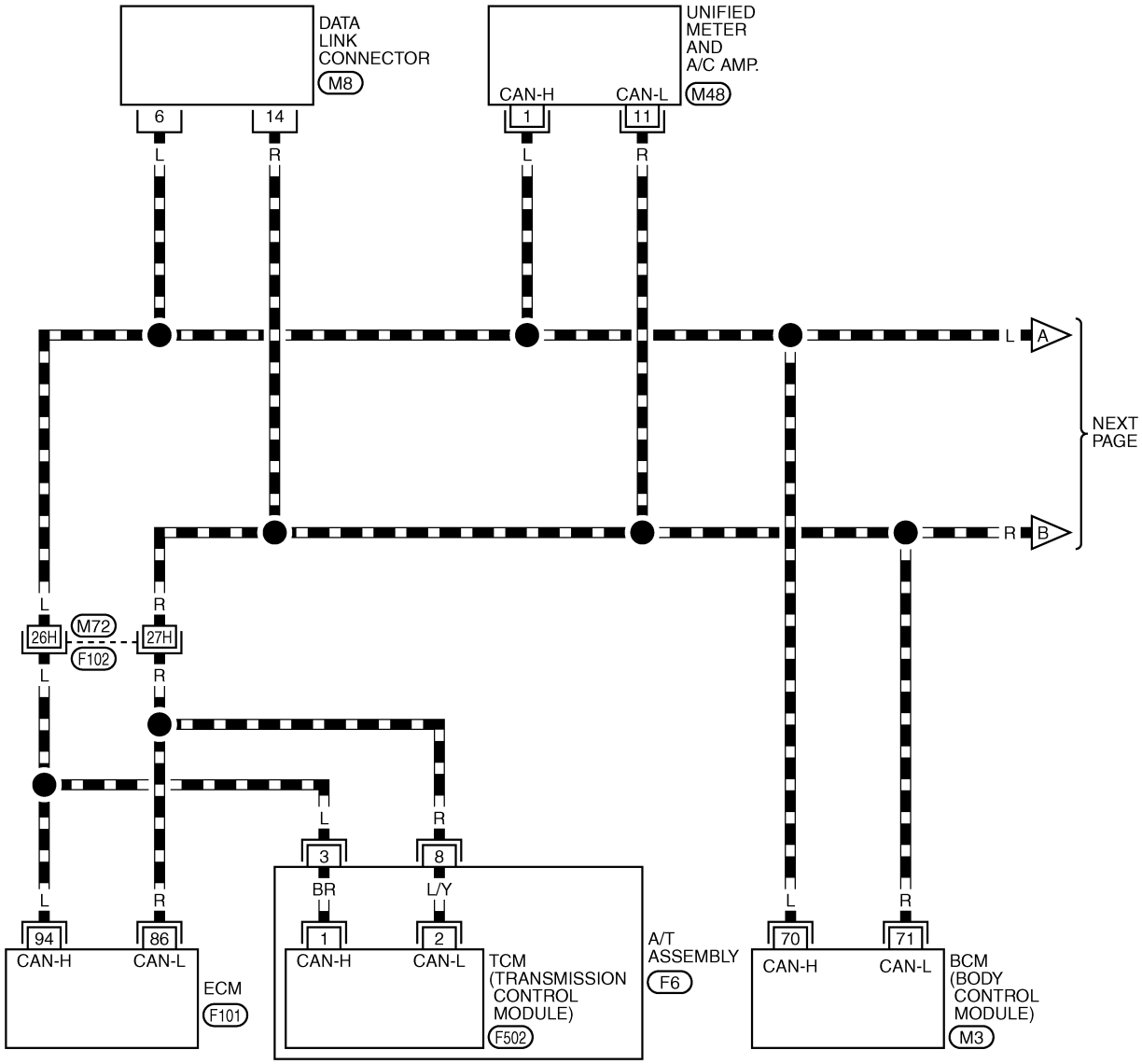


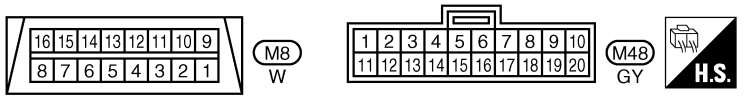
Wiring Diagram — CAN —

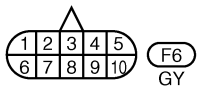
AKS0035N

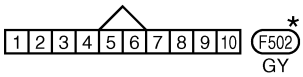
LAN-CAN-01

: DATA LINE







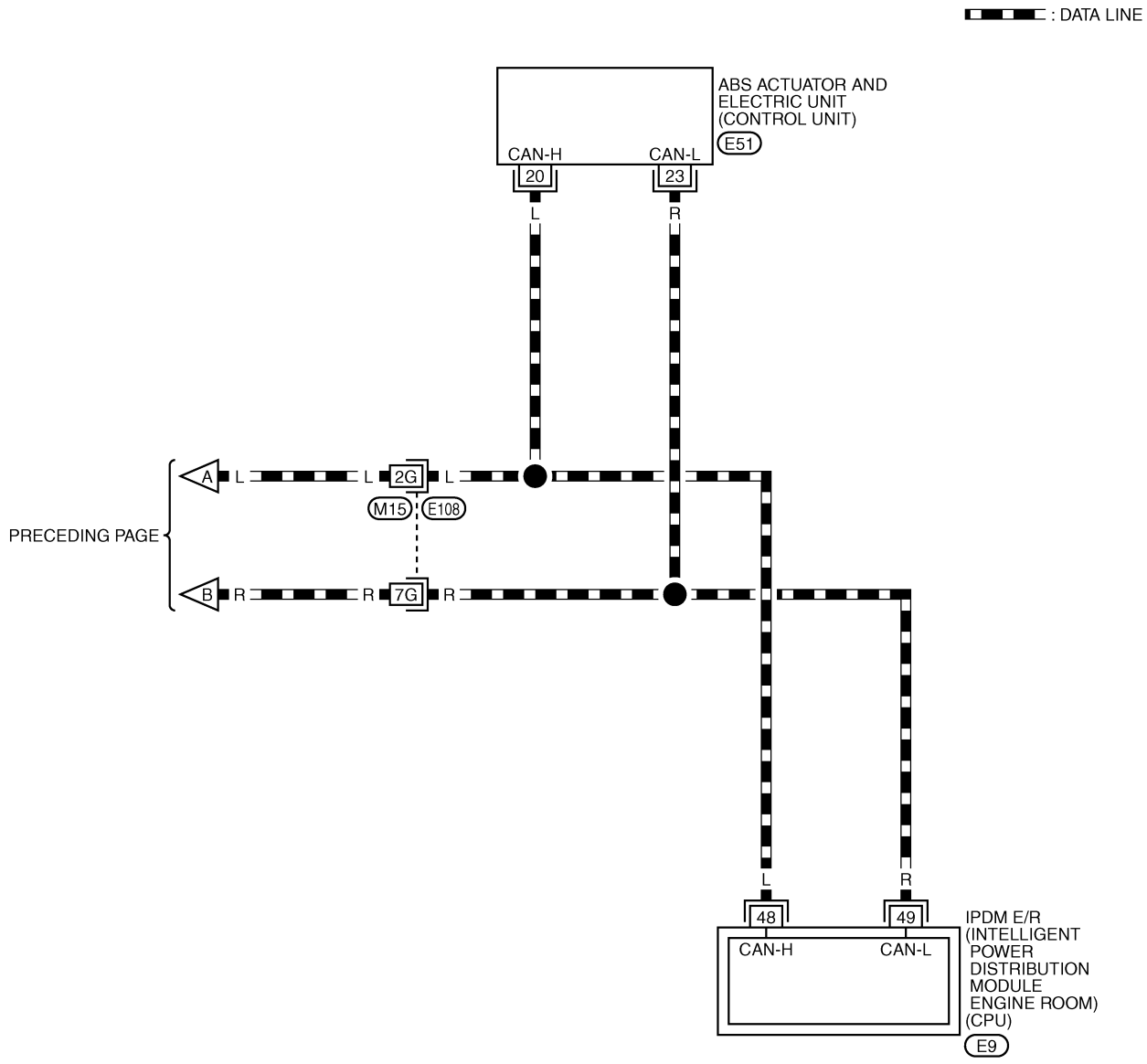


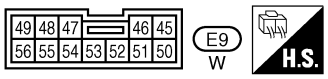
REFER TO THE FOLLOWING.
F102 -SUPER MULTIPLE JUNCTION (SMJ)
M3 , F101 -ELECTRICAL UNITS

★: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWM1389E

LAN-CAN-02





REFER TO THE FOLLOWING.

E108 -SUPER MULTIPLE JUNCTION (SMJ)

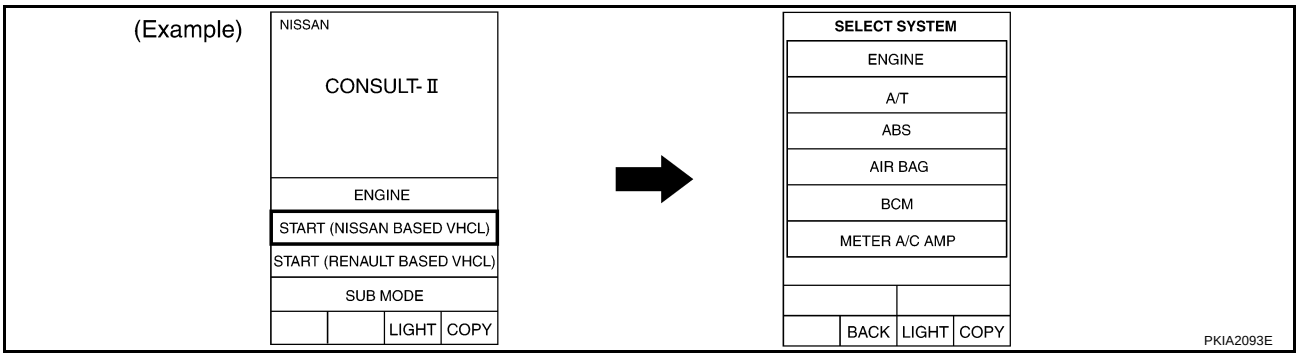
E51 -ELECTRICAL UNITS

TKWT0407E

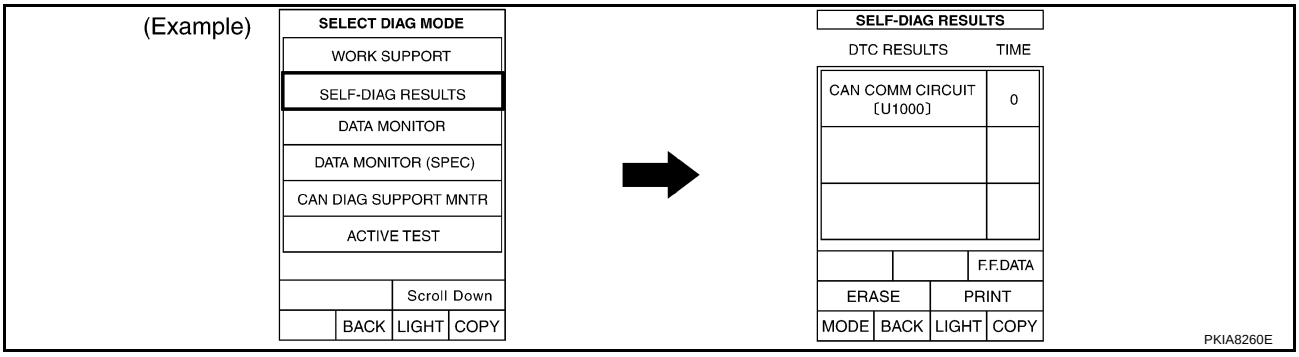
Work Flow

AKS0035O

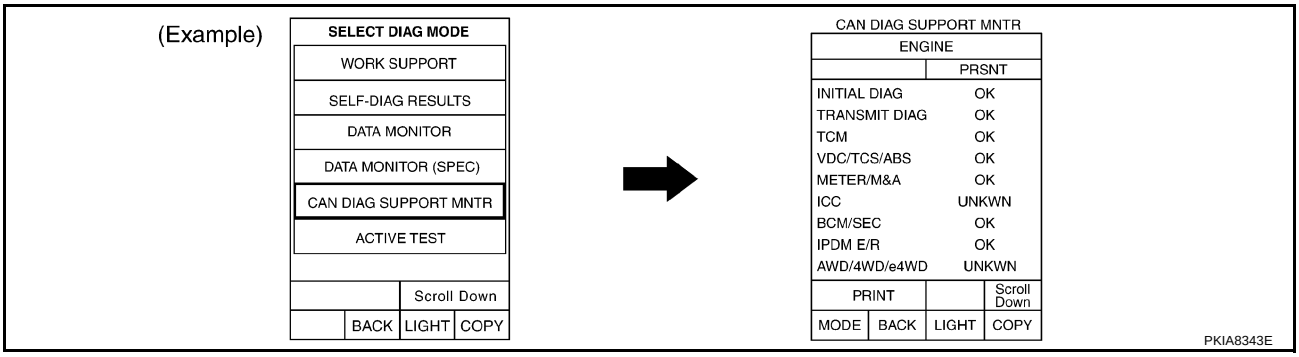
1. When there are no indications of “METER A/C AMP” on “SELECT SYSTEM” display of CONSULT-II, print the “SELECT SYSTEM”.



2. Print all the data of “SELF-DIAG RESULTS” for “ENGINE”, “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.



4. Attach the printed sheet of “SELECT SYSTEM”, “SELF-DIAG RESULTS” and “CAN DIAG SUPPORT MNTR” onto the check sheet. Refer to LAN-12, "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 LAN-12, "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.
6. According to the check sheet results (example), start inspection. Refer to LAN-14, "CHECK SHEET RESULTS (EXAMPLE)" .

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 table

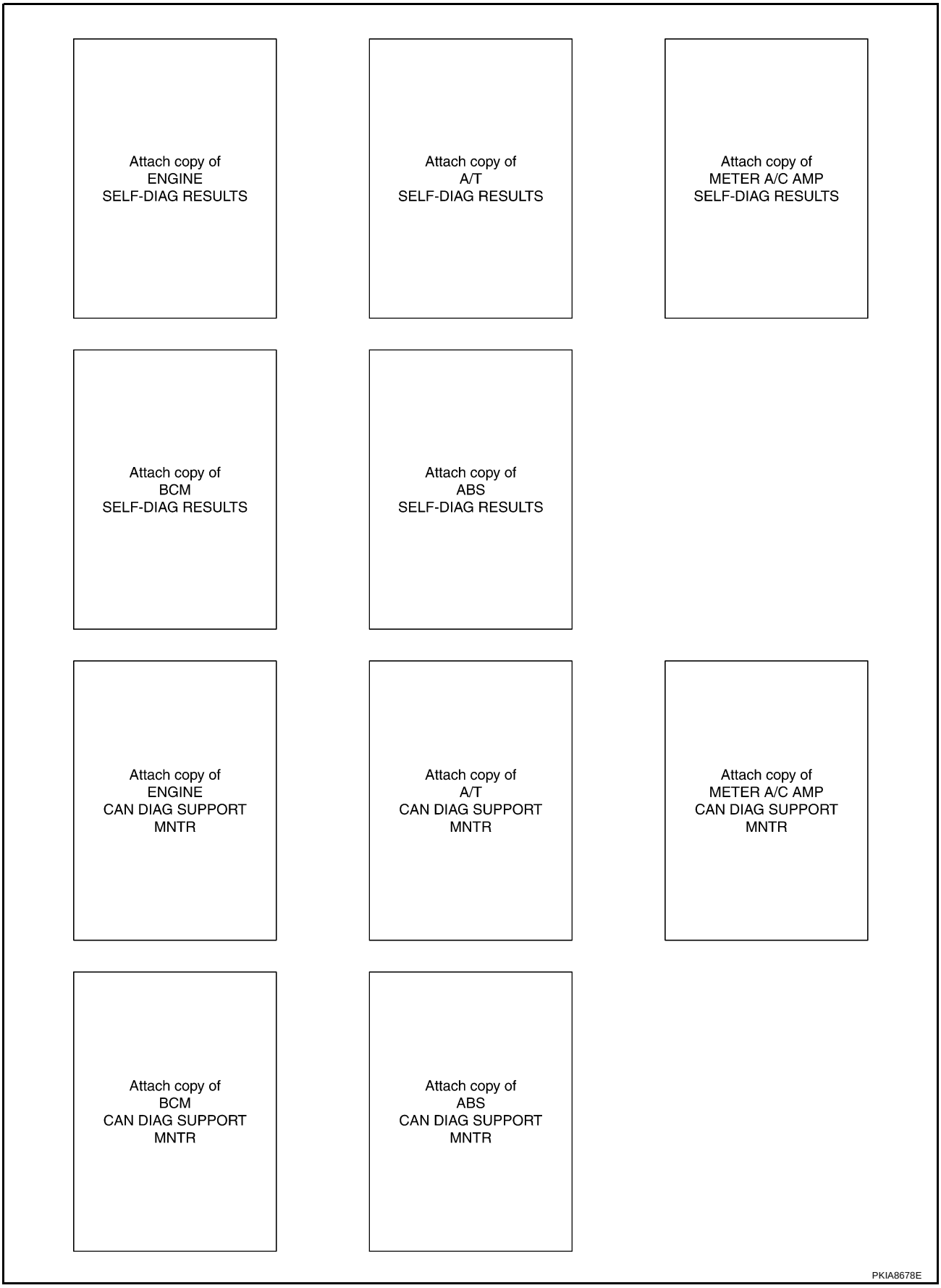
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	TCM	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
A/T	—	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—
METER A/C AMP	No indication	—	UNKWN	UNKWN	UNKWN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

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIA8677E


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
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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
PKIA8678E

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 LAN-25, "Circuit Check Between TCM and Data Link Connector"

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							
		Initial diagnosis	Transmit diagnosis	Receive 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	—
BCM	—	NG	UNKWN	UNKWN ✓	—	UNKWN	—	—	UNKWN
ABS	—	NG	UNKWN	UNKWN ✓	UNKWN ✓	—	—	—	—

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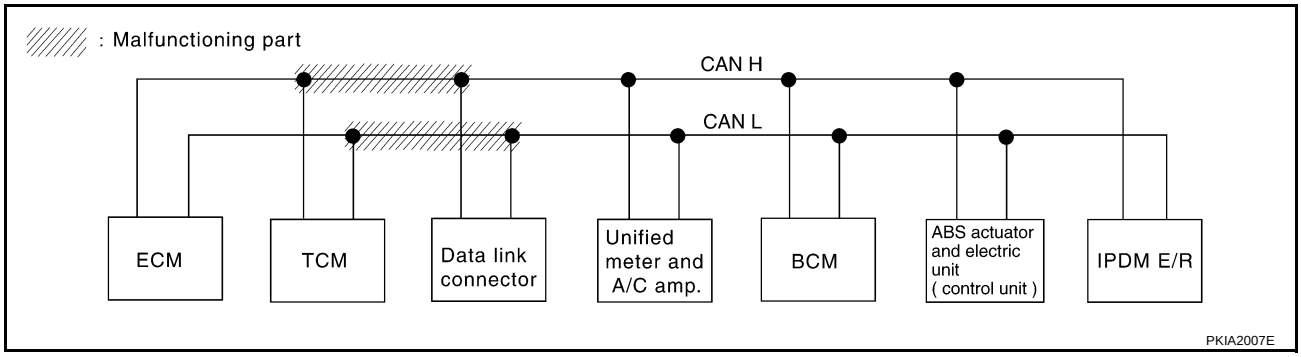


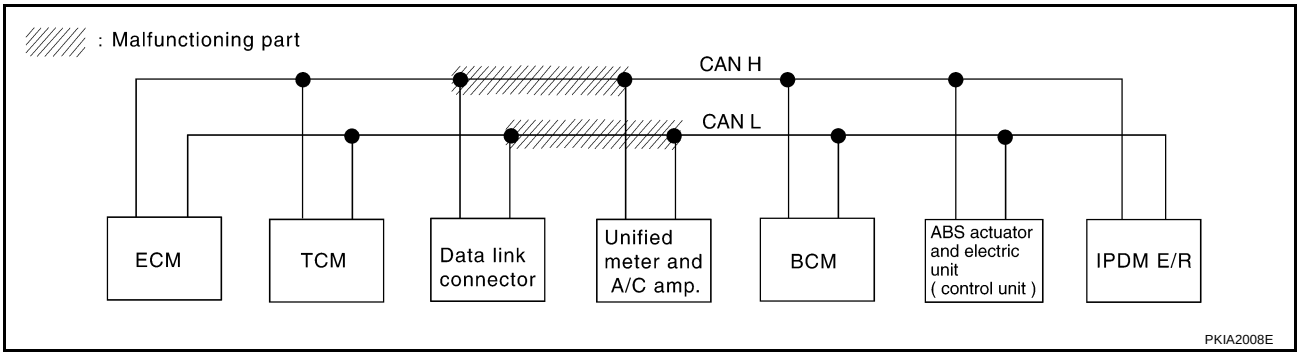
PKIA2007E

Case 2

Check harness between data link connector and unified meter and A/C amp. Refer to LAN-26, "Circuit Check Between Data Link Connector and Unified Meter and A/C Amp." .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	–	NG	UNKWN	UNKWN ✓	–	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN ✓	UNKWN ✓	–	–	–	–

PKIA8680E



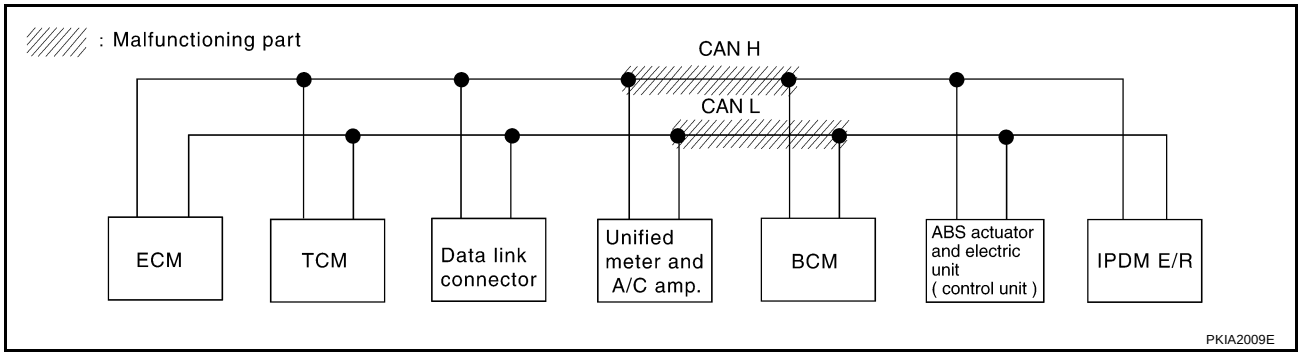
PKIA2008E

Case 3

Check harness between unified meter and A/C amp. and BCM. Refer to LAN-27, "Circuit Check Between Unified Meter and A/C Amp. and BCM" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							
		Initial diagnosis	Transmit diagnosis	Receive 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 ✓	—
BCM	—	NG	UNKWN	UNKWN ✓	—	UNKWN ✓	—	—	UNKWN
ABS	—	NG	UNKWN	UNKWN ✓	UNKWN ✓	—	—	—	—

PKIA8681E



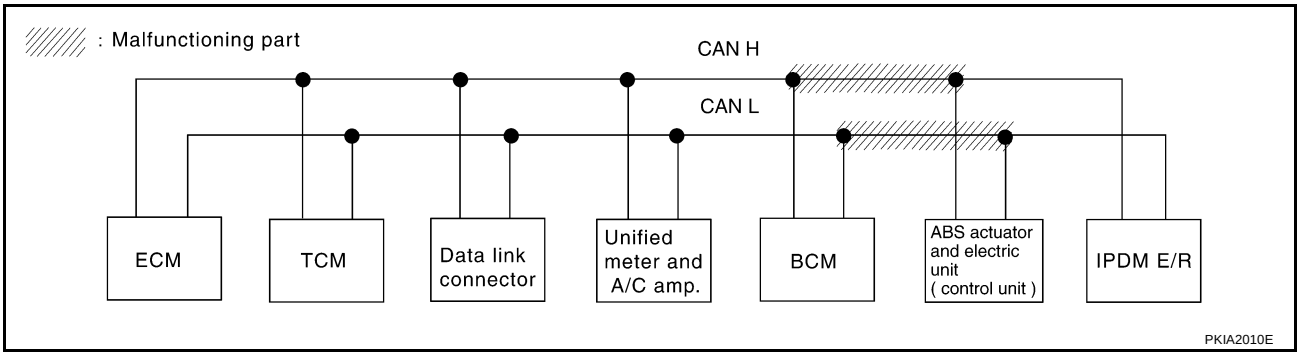
PKIA2009E

Case 4

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to LAN-27, "Circuit Check Between BCM and ABS Actuator and Electric Unit (Control Unit)" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							
		Initial diagnosis	Transmit diagnosis	Receive 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 ✓	–
BCM	–	NG	UNKWN	UNKWN	–	UNKWN	–	–	UNKWN ✓
ABS	–	NG	UNKWN	UNKWN ✓	UNKWN ✓	–	–	–	–

PKIA8682E



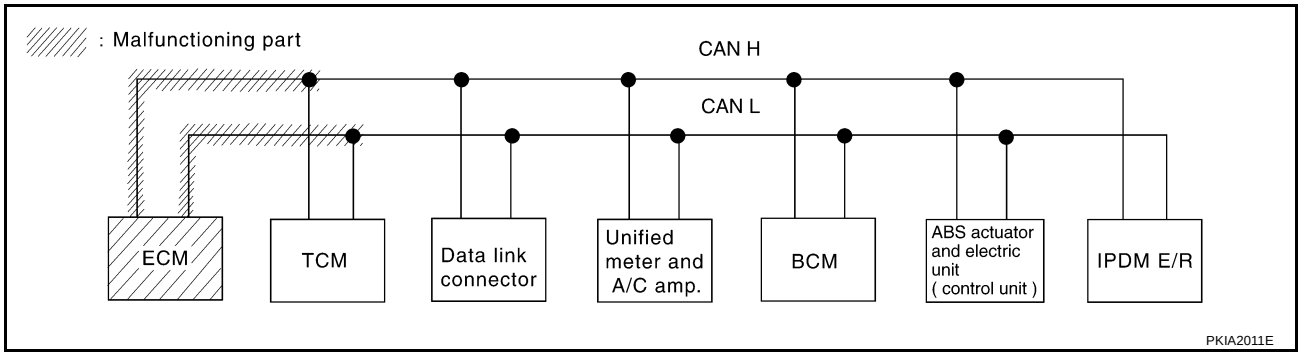
PKIA2010E

Case 5

Check ECM circuit. Refer to LAN-28, "ECM Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							
		Initial diagnosis	Transmit diagnosis	Receive 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	—
BCM	—	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—

PKIA8683E



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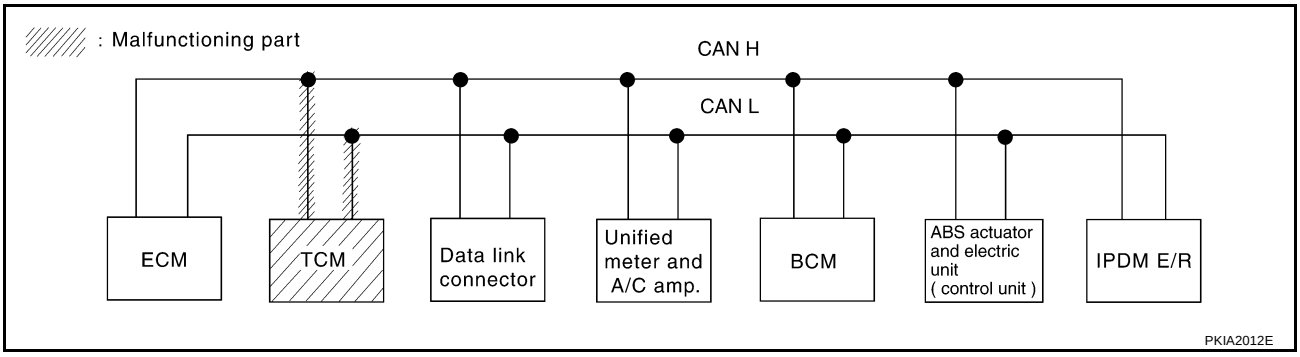
Case 6

Check TCM circuit. Refer to LAN-28, "TCM Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							
		Initial diagnosis	Transmit diagnosis	Receive 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	—
BCM	—	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—

PKIA8684E



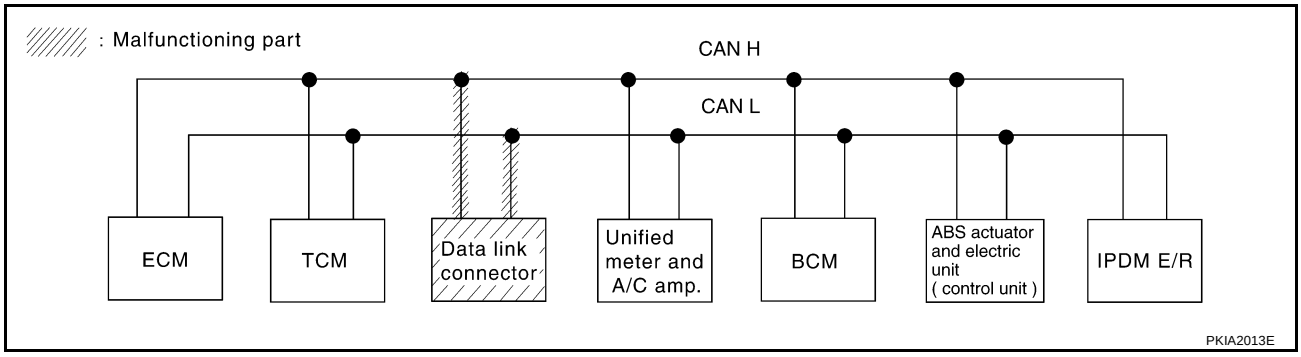
PKIA2012E

Case 7

Check data link connector circuit. Refer to LAN-29, "Data Link Connector Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	–	NG	UNKWN	UNKWN	–	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	UNKWN	–	–	–	–

PKIA8685E



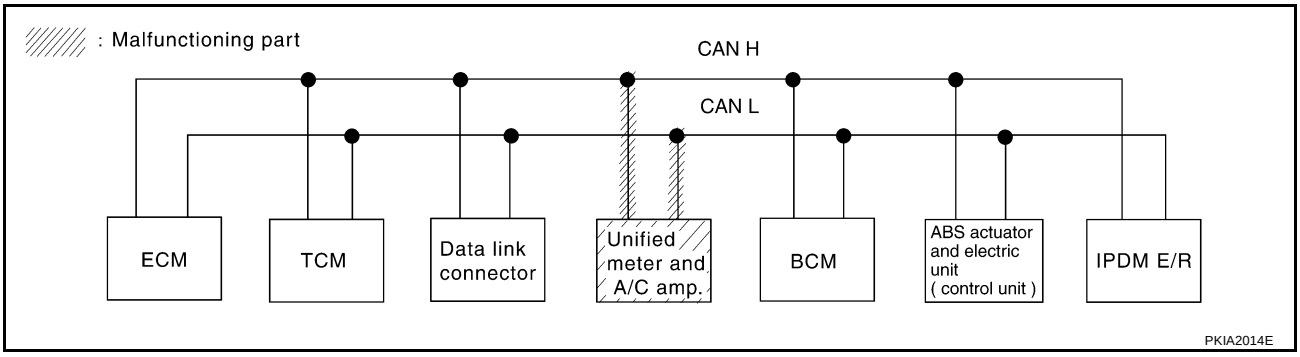
PKIA2013E

Case 8

Check unified meter and A/C amp. circuit. Refer to LAN-29, "Unified Meter and A/C Amp. Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							
		Initial diagnosis	Transmit diagnosis	Receive 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	—
BCM	—	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—

PKIA8686E



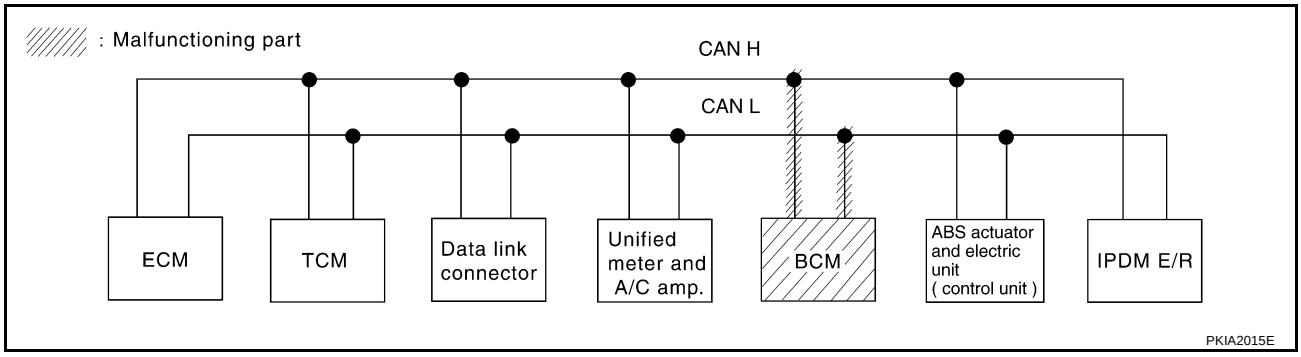
PKIA2014E

Case 9

Check BCM circuit. Refer to LAN-30, "BCM Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	–	NG	UNKWN	UNKWN	–	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	UNKWN	–	–	–	–

PKIA8687E



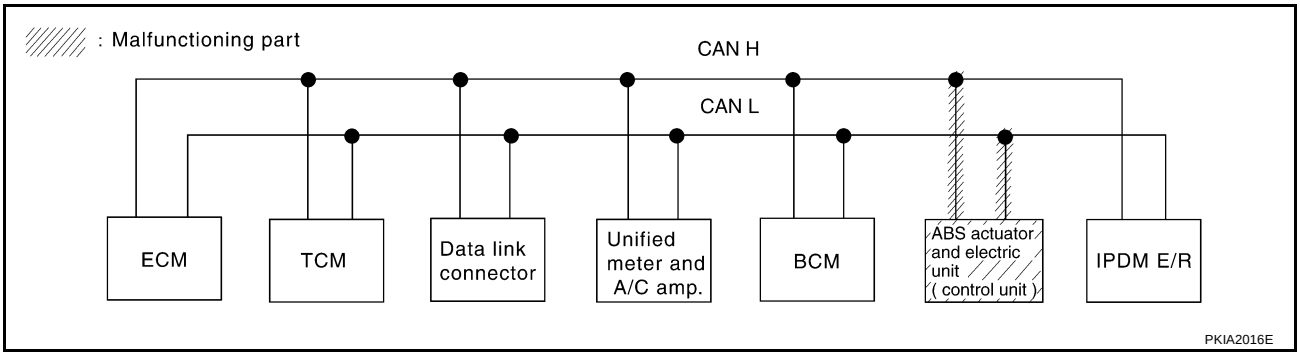
PKIA2015E

Case 10

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-30, "ABS Actuator and Electric Unit (Control Unit) Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							
		Initial diagnosis	Transmit diagnosis	Receive 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 ✓	–
BCM	–	NG	UNKWN	UNKWN	–	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN ✓	UNKWN	UNKWN	–	–	–	–

PKIA8688E



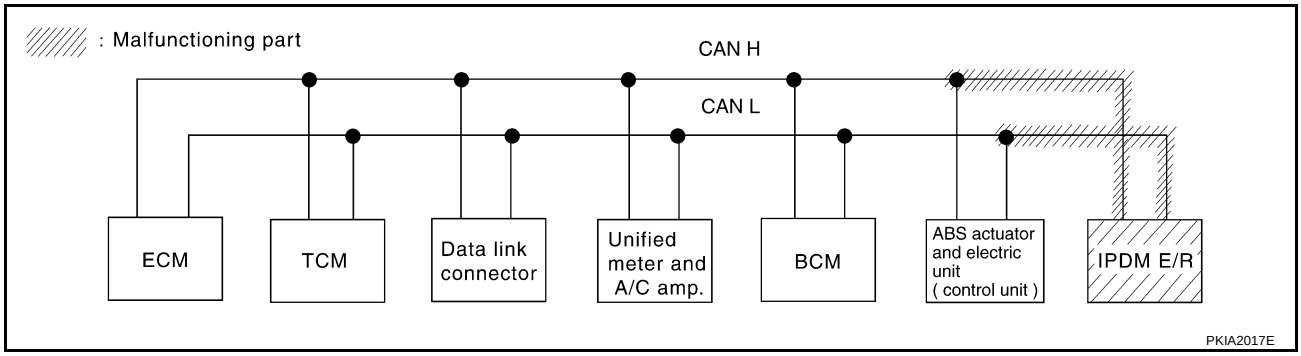
PKIA2016E

Case 11

Check IPDM E/R circuit. Refer to LAN-31, "IPDM E/R Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	–	NG	UNKWN	UNKWN	–	UNKWN	–	–	UNKWN ✓
ABS	–	NG	UNKWN	UNKWN	UNKWN	–	–	–	–

PKIA8689E



PKIA2017E

Case 12

Check CAN communication circuit. Refer to LAN-32, "CAN Communication Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	–	NG	UNKWN ✓	UNKWN ✓	–	UNKWN ✓	–	–	UNKWN ✓
ABS	–	NG	UNKWN ✓	UNKWN ✓	UNKWN ✓	–	–	–	–

PKIA8690E

Case 13

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-34, "IPDM E/R Ignition Relay Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	–	NG	UNKWN	UNKWN	–	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	UNKWN	–	–	–	–

PKIA8692E

Case 14

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-34, "IPDM E/R Ignition Relay Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	–	NG	UNKWN	UNKWN	–	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	UNKWN	–	–	–	–

PKIA8691E

Circuit Check Between TCM and Data Link Connector

AKS0035P

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 F102
- Harness connector M72

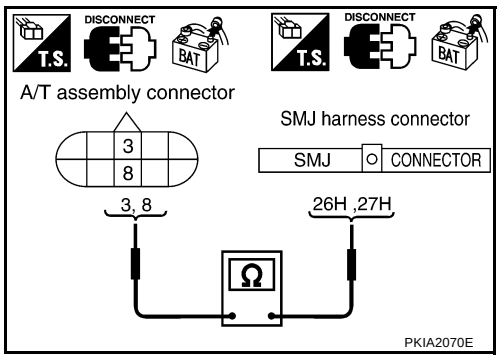
OK or NG

OK >> GO TO 2.
NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect A/T assembly connector and harness connector F102.
2. 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) : Continuity should exist.
8 (R) – 27H (R) : Continuity should exist.



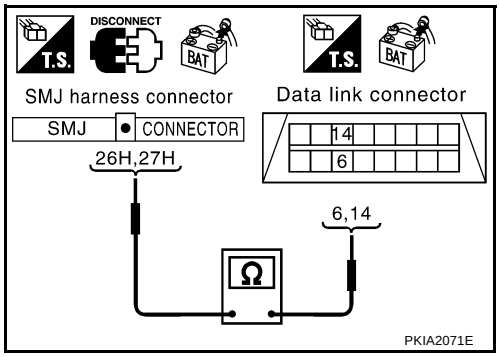
OK or NG

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



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-11, "Work Flow" .
NG >> Repair harness.

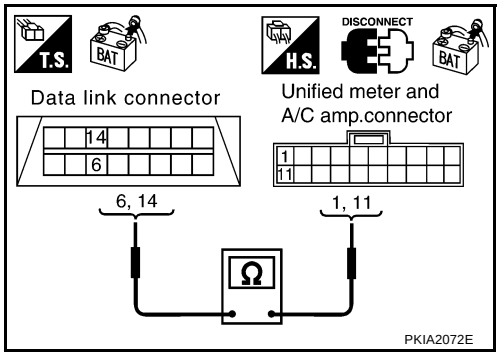
Circuit Check Between Data Link Connector and Unified Meter and A/C Amp.

AKS0035Q

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-11, "Work Flow" .
NG >> Repair harness.

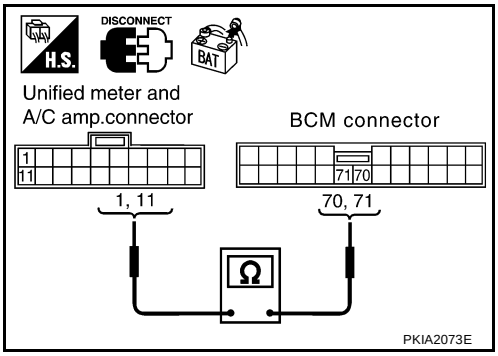
Circuit Check Between Unified Meter and A/C Amp. and BCM

AKS0035R

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-11, "Work Flow" .
NG >> Repair harness.

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

AKS0035S

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

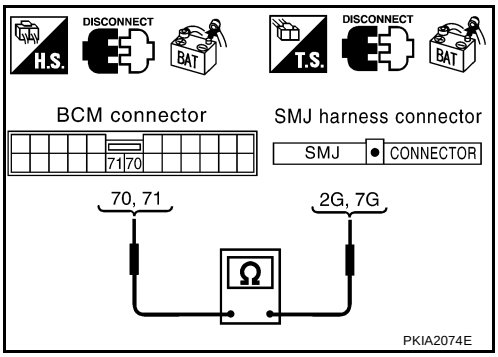
OK or NG

OK >> GO TO 2.
NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector and harness connector M15.
2. 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.



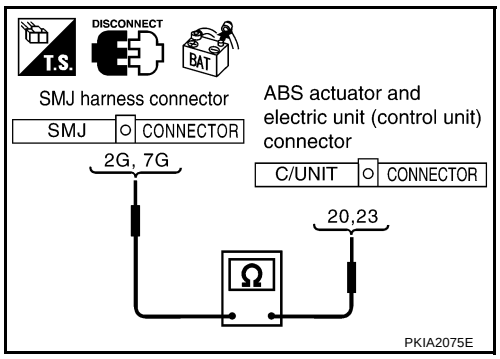
OK or NG

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

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-11, "Work Flow" .
NG >> Repair harness.

ECM Circuit Check

AKS0035T

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

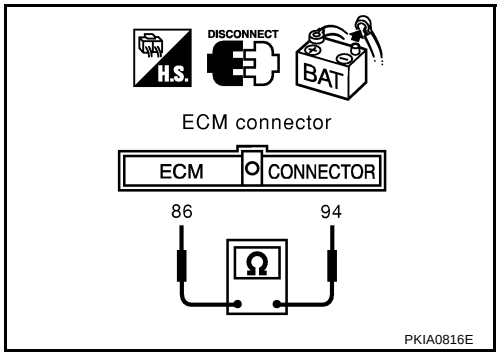
OK or NG

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 – 132Ω



OK or NG

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

TCM Circuit Check

AKS0035U

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. 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.

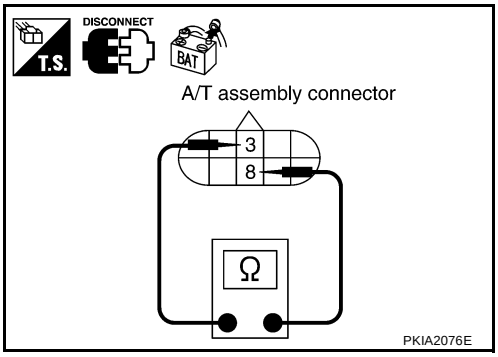
2. CHECK HARNESS FOR OPEN CIRCUIT

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 – 66Ω

OK or NG

OK >> Replace control valve with TCM.
NG >> Repair harness between A/T assembly and harness connector F102.



Data Link Connector Circuit Check

AKS0035V

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.

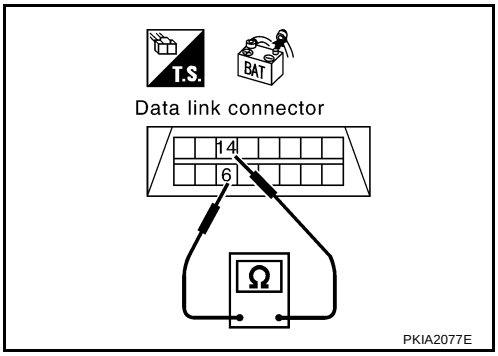
2. CHECK HARNESS FOR OPEN CIRCUIT

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

6 (L) – 14 (R) : Approx. 54 – 66Ω

OK or NG

OK >> Diagnose again. Refer to LAN-11, "Work Flow" .
NG >> Repair harness between data link connector and unified meter and A/C amp.



Unified Meter and A/C Amp. Circuit Check

AKS0035W

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).

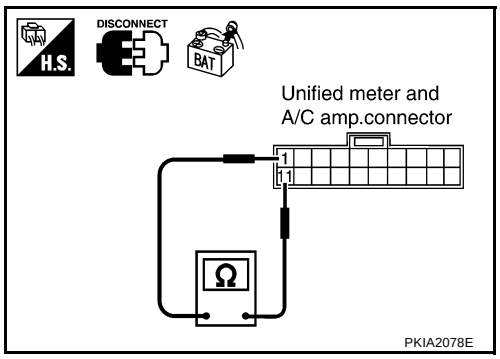
OK or NG

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).

1 (L) – 11 (R) : Approx. 54 – 66Ω



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

AKS0035X

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).

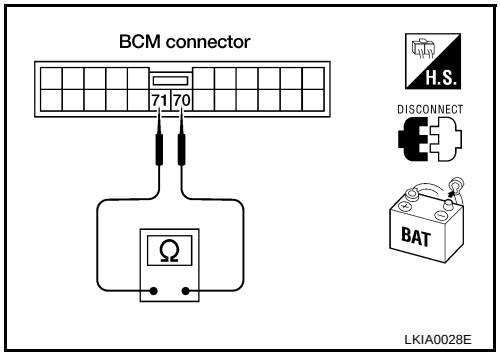
OK or NG

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 – 66Ω



OK or NG

OK >> Replace BCM.
NG >> 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.
2. Disconnect the negative battery terminal.
3. 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.

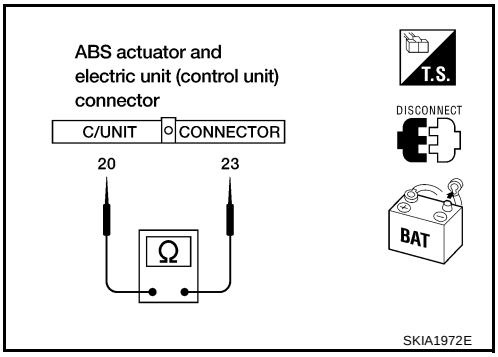
2. CHECK HARNESS FOR OPEN CIRCUIT

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 – 66Ω

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.



IPDM E/R Circuit Check

AKS0035Z

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.

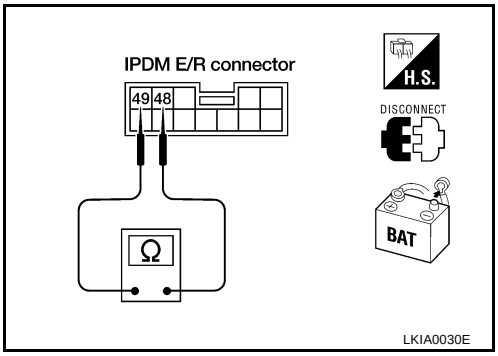
2. CHECK HARNESS FOR OPEN CIRCUIT

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

48 (L) – 49 (R) : Approx. 108 – 132Ω

OK or NG

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



CAN Communication Circuit Check

AKS00360

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.

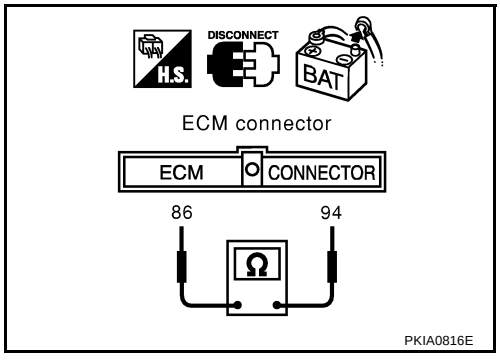
2. CHECK HARNESS FOR SHORT CIRCUIT

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).

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



OK or NG

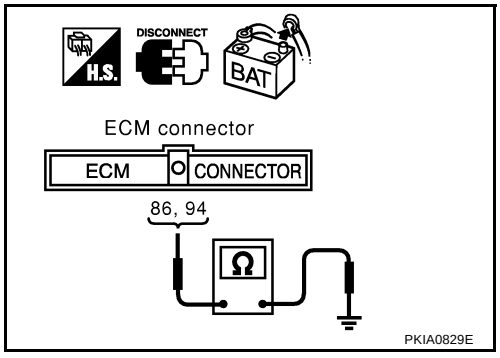
OK >> GO TO 3.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ECM and A/T assembly
- Harness between ECM and harness connector F102

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 the following harnesses. If any harness is damaged, repair the harness.

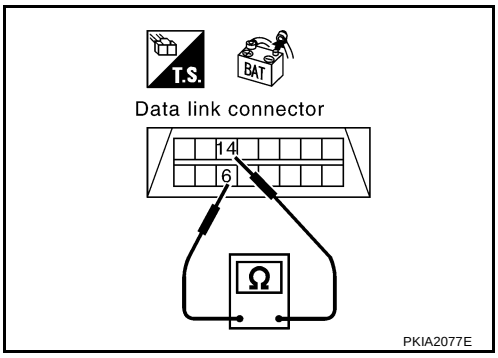
- Harness between ECM and A/T assembly
- Harness between ECM and harness connector F102

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).

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



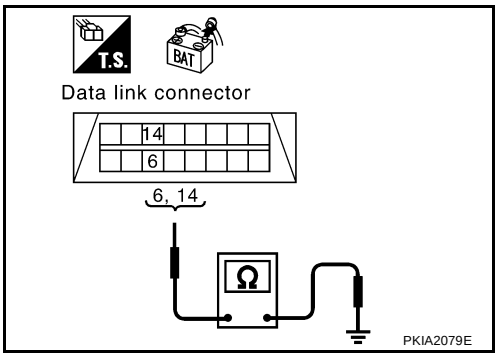
OK or NG

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

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.



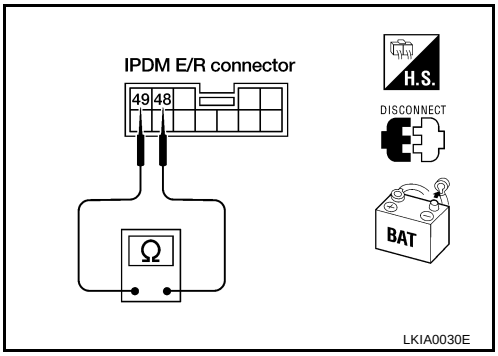
OK or NG

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 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

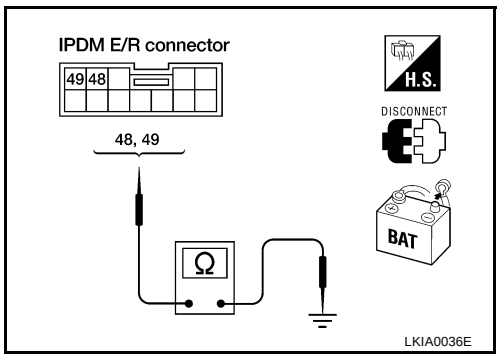
OK >> GO TO 7.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.
- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E108

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

8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to LAN-34, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION" .

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-11, "Work Flow" .

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

IPDM E/R Ignition Relay Circuit Check

AKS00362

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

- IPDM E/R power supply circuit. Refer to PG-24, "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”" .

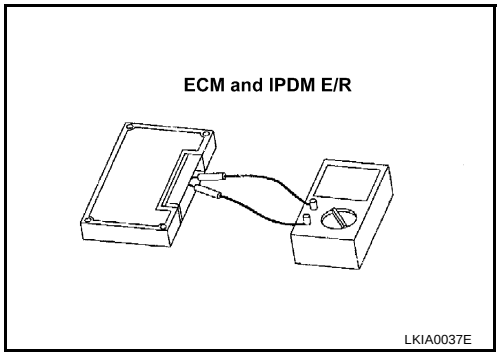
Component Inspection

AKS00363

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	



CAN SYSTEM (TYPE 2)

PFP:23710

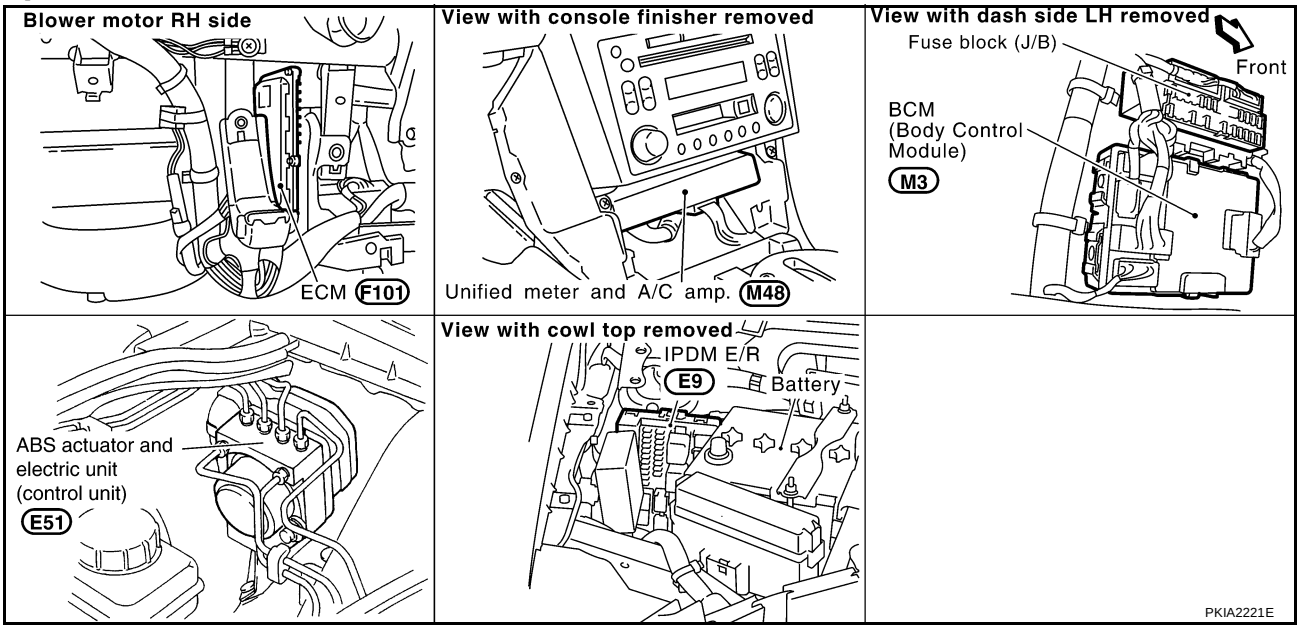
System Description

AKS0092Z

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

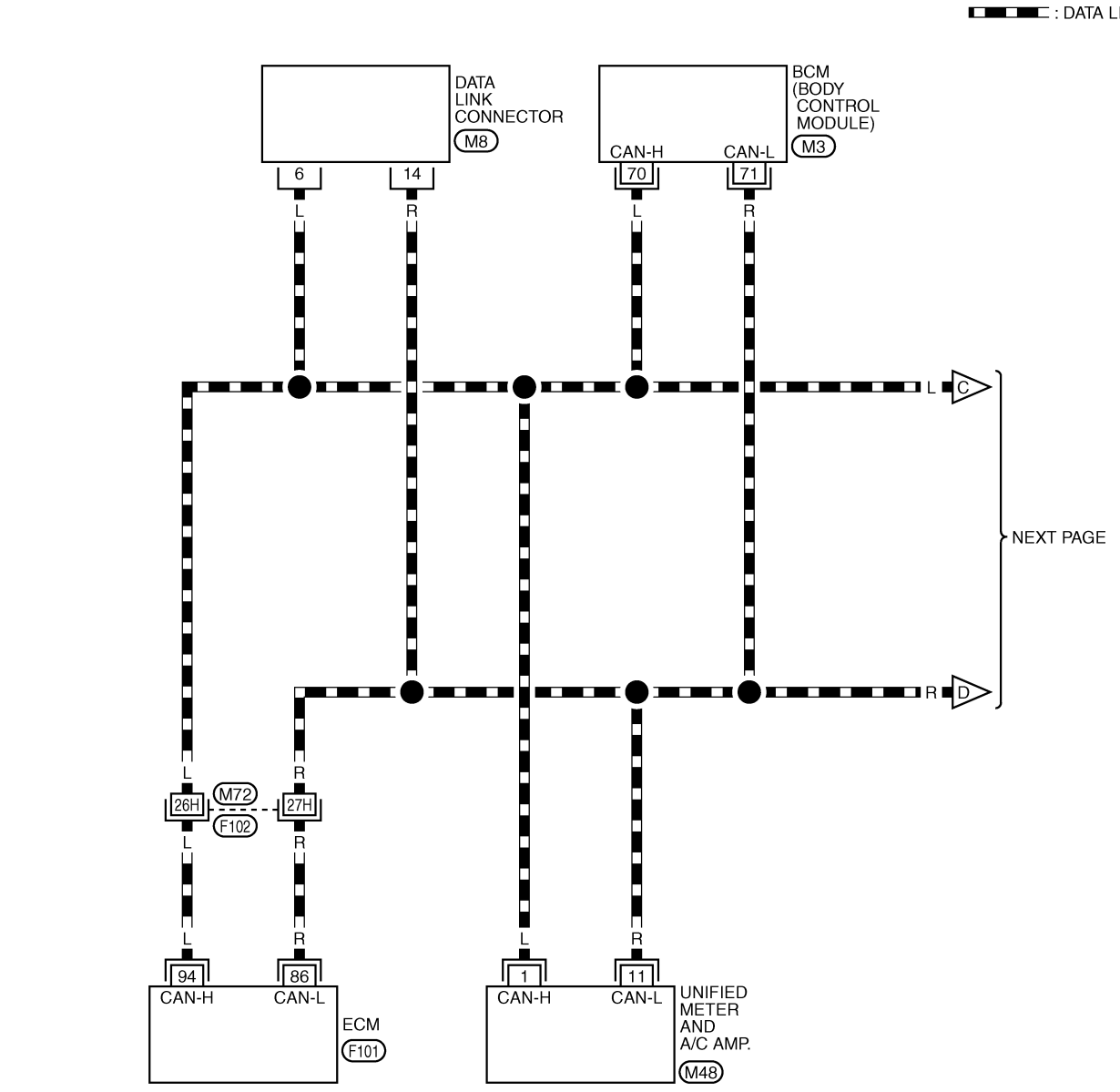
AKS00930

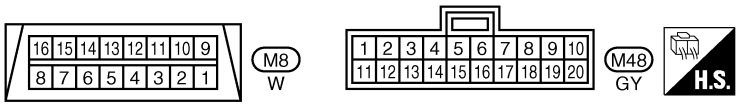


Wiring Diagram — CAN —

AKS00931

LAN-CAN-03

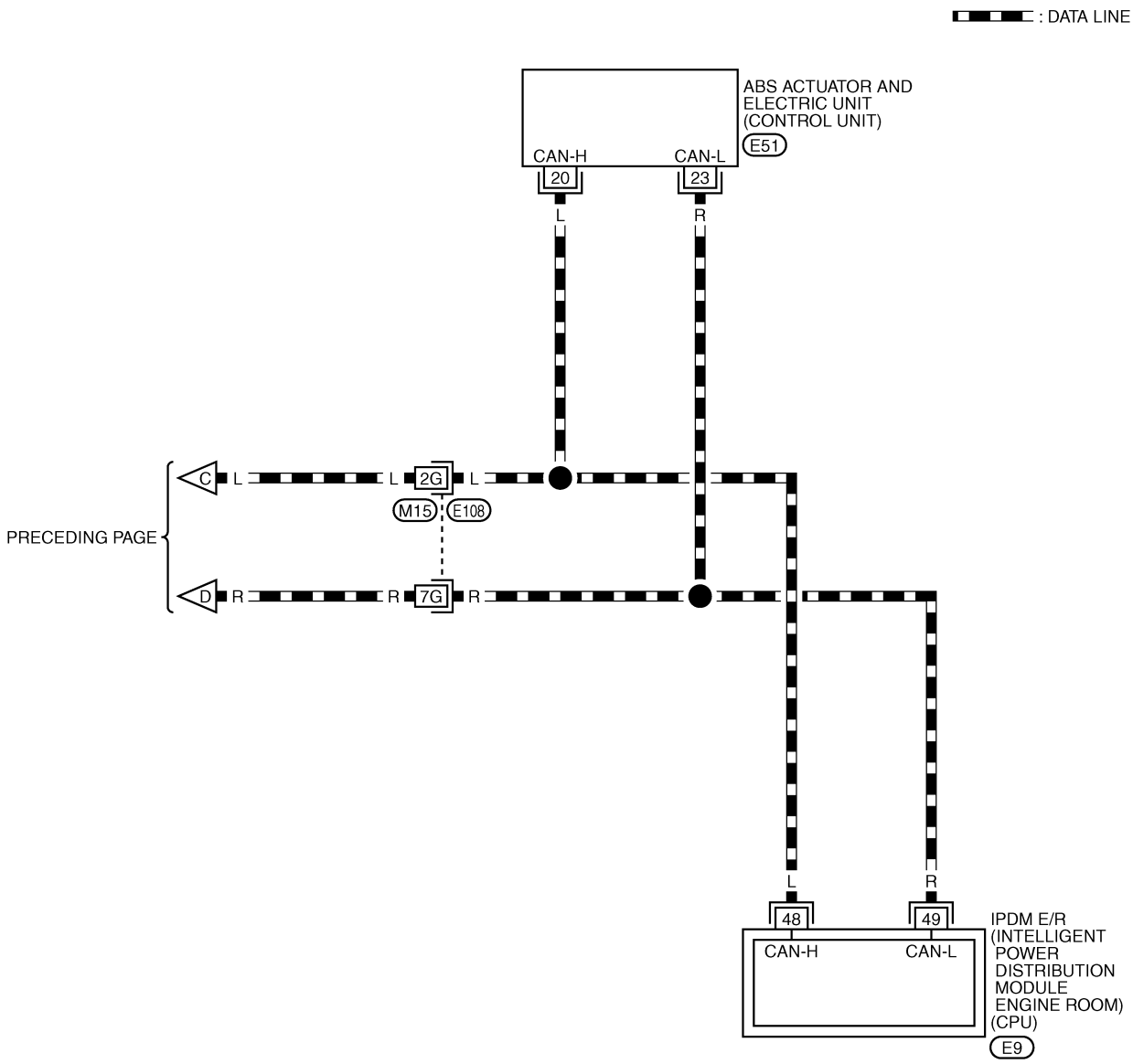


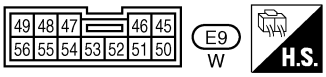


REFER TO THE FOLLOWING.
F102 -SUPER MULTIPLE JUNCTION (SMJ)
M3, F101 -ELECTRICAL UNITS

TKWT0408E

LAN-CAN-04





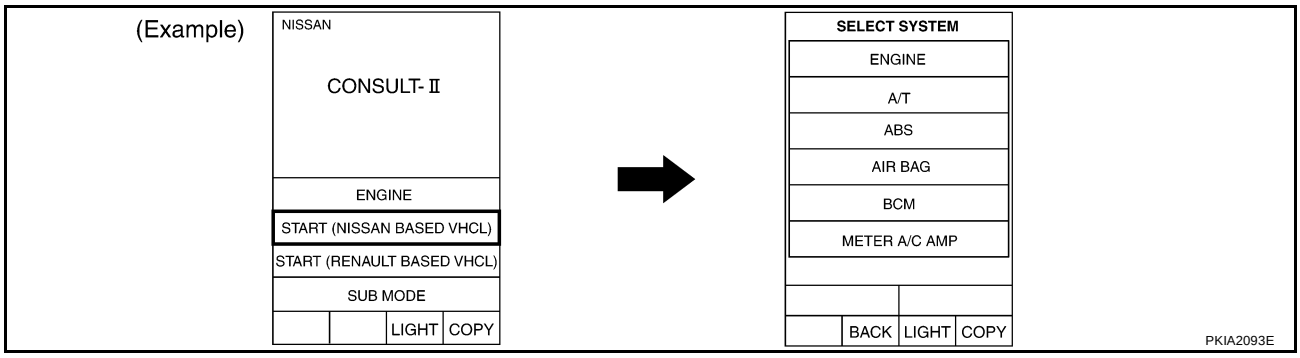
REFER TO THE FOLLOWING.
E108 -SUPER MULTIPLE JUNCTION (SMJ)
E51 -ELECTRICAL UNITS

TKWT0409E

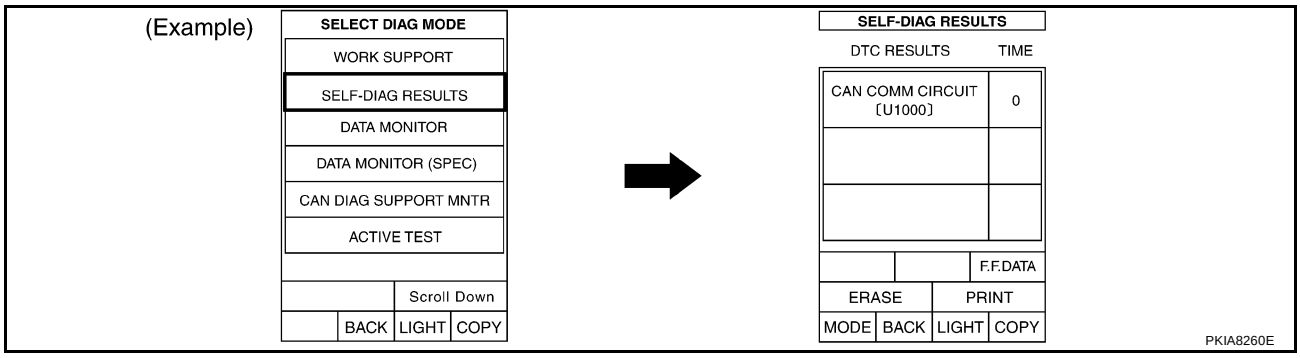
Work Flow

AKS00932

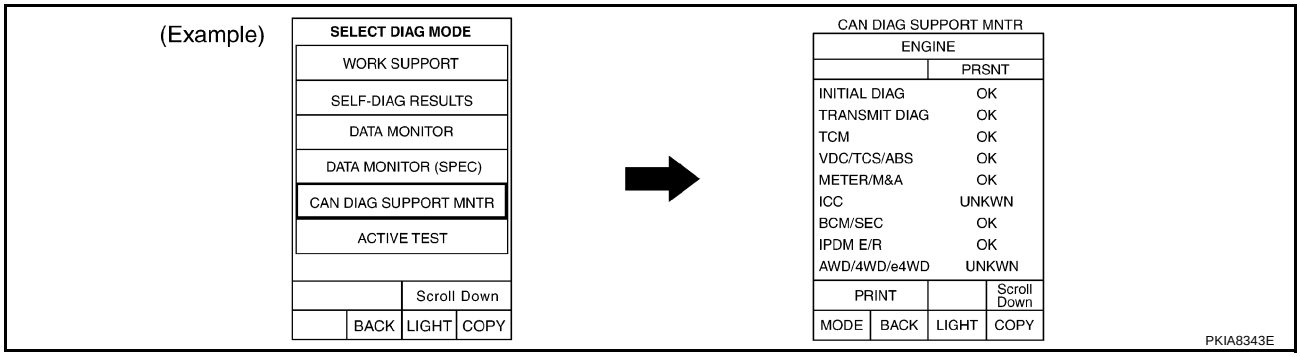
1. When there are no indications of “METER A/C AMP” on “SELECT SYSTEM” display of CONSULT-II, print the “SELECT SYSTEM”.



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-39, "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 LAN-39, "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.
6. According to the check sheet results (example), start inspection. Refer to LAN-41, "CHECK SHEET RESULTS (EXAMPLE)" .

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 table

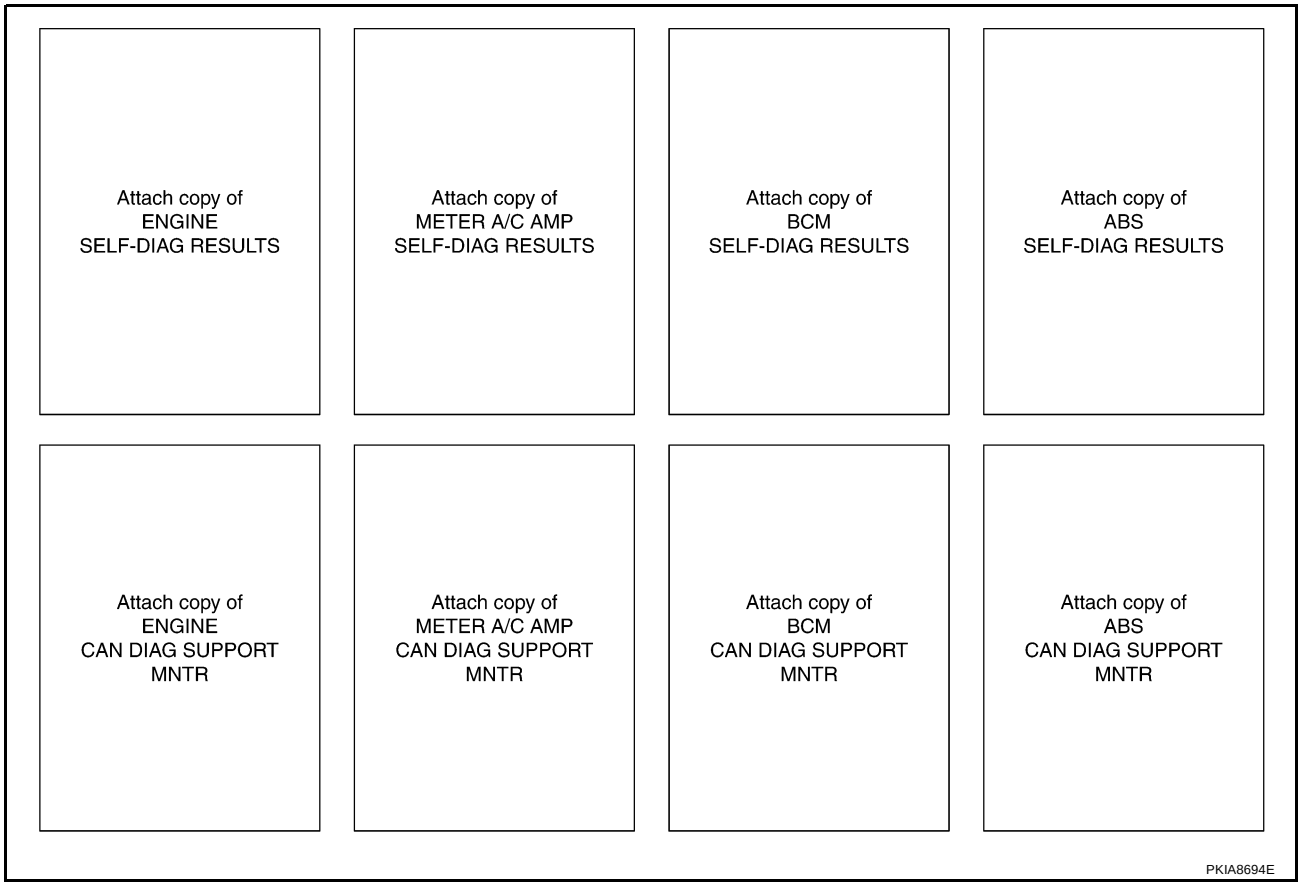
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						
		Initial diagnosis	Transmit diagnosis	Receive diagnosis				
				ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	–	NG	UNKWN	–	UNKWN	UNKWN	UNKWN	UNKWN
METER A/C AMP	No indication	–	UNKWN	UNKWN	–	UNKWN	UNKWN	–
BCM	–	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS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

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIA8693E


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
PKIA8694E

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

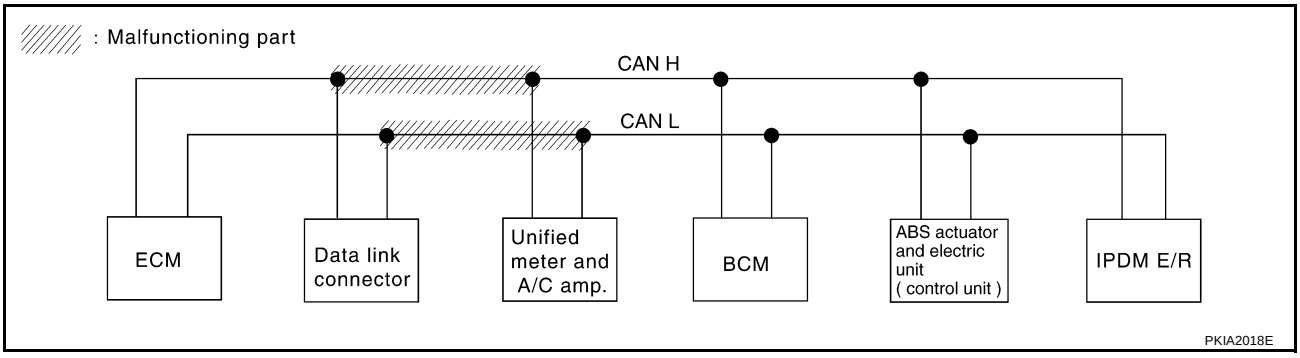
If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)” as “CAN DIAG SUPPORT MNTR” for the diagnosed control unit, replace the control unit.

Case 1

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

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	–	NG	UNKWN	UNKWN ✓	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN ✓	–	–	–	–

PKIA8695E



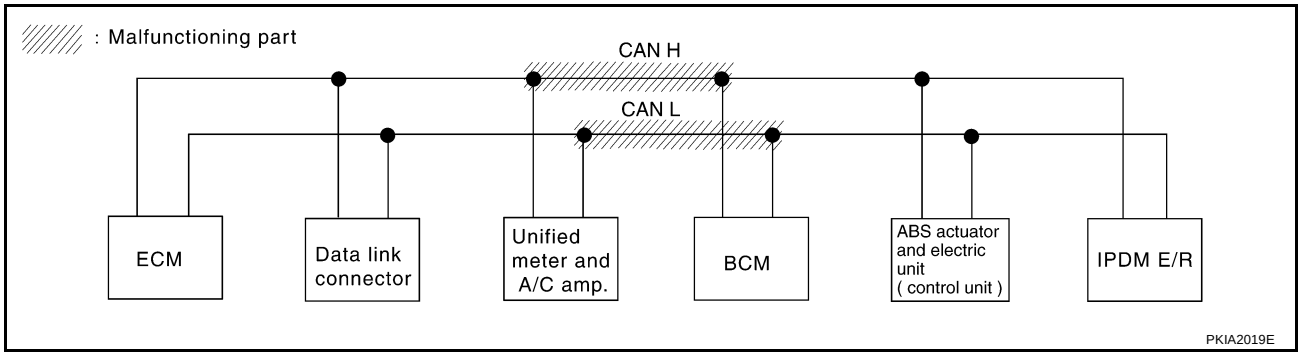
PKIA2018E

Case 2

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

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						
		Initial diagnosis	Transmit diagnosis	Receive 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 ✓	—
BCM	—	NG	UNKWN	UNKWN ✓	UNKWN ✓	—	—	UNKWN
ABS	—	NG	UNKWN	UNKWN ✓	—	—	—	—

PKIA8696E



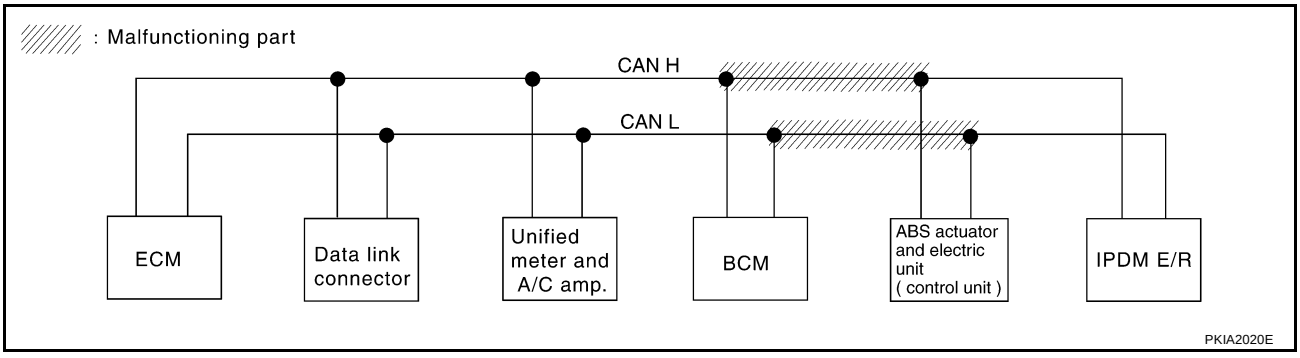
PKIA2019E

Case 3

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to LAN-51, "Circuit Check Between BCM and ABS Actuator and Electric Unit (Control Unit)" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						
		Initial diagnosis	Transmit diagnosis	Receive 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 ✓	–
BCM	–	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN ✓
ABS	–	NG	UNKWN	UNKWN ✓	–	–	–	–

PKIA8697E



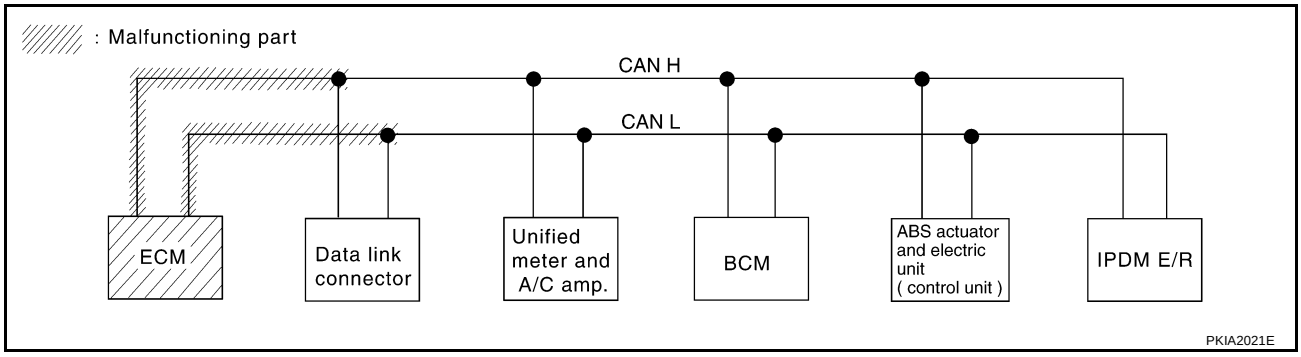
PKIA2020E

Case 4

Check ECM circuit. Refer to LAN-52, "ECM Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	–	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–

PKIA8698E



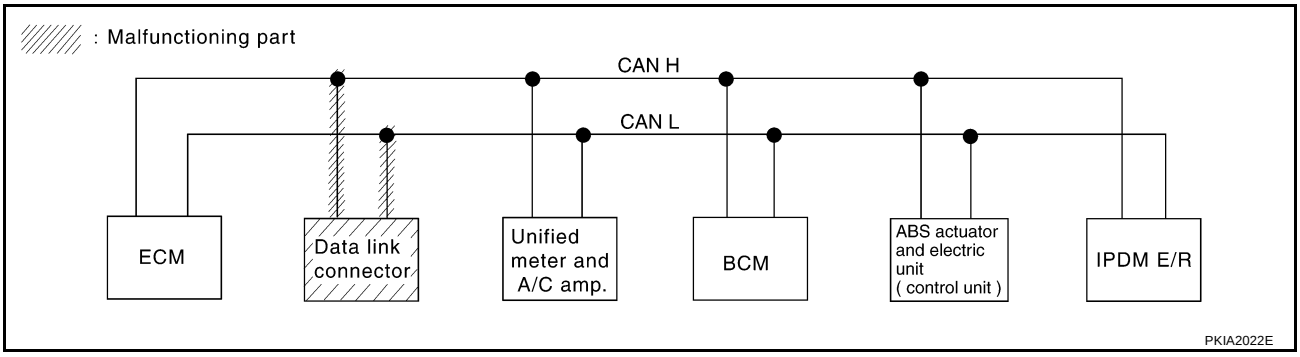
PKIA2021E

Case 5

Check data link connector circuit. Refer to LAN-53, "Data Link Connector Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	–	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–

PKIA8699E



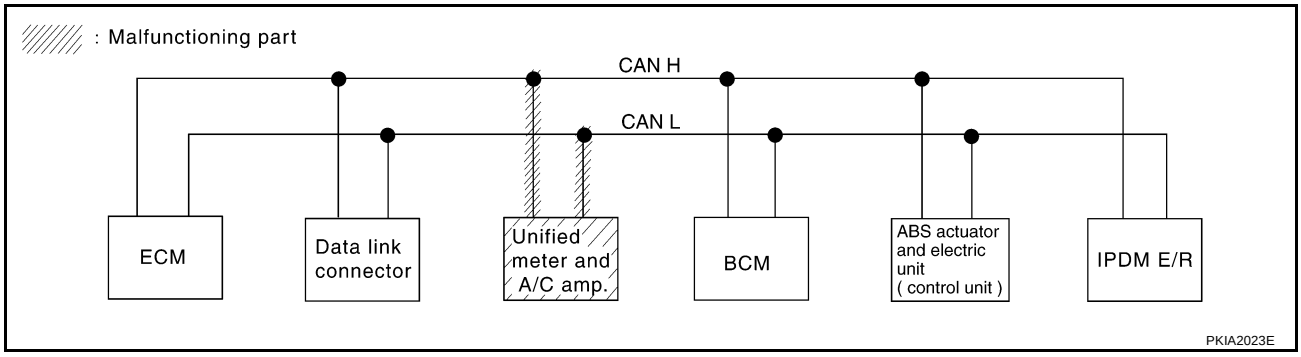
PKIA2022E

Case 6

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

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	–	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–

PKIA8700E



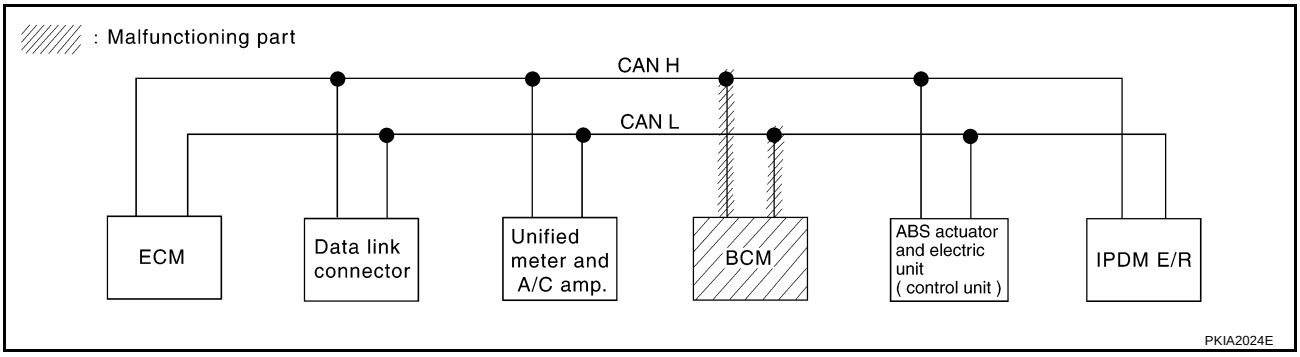
PKIA2023E

Case 7

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

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	–	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–

PKIA8701E



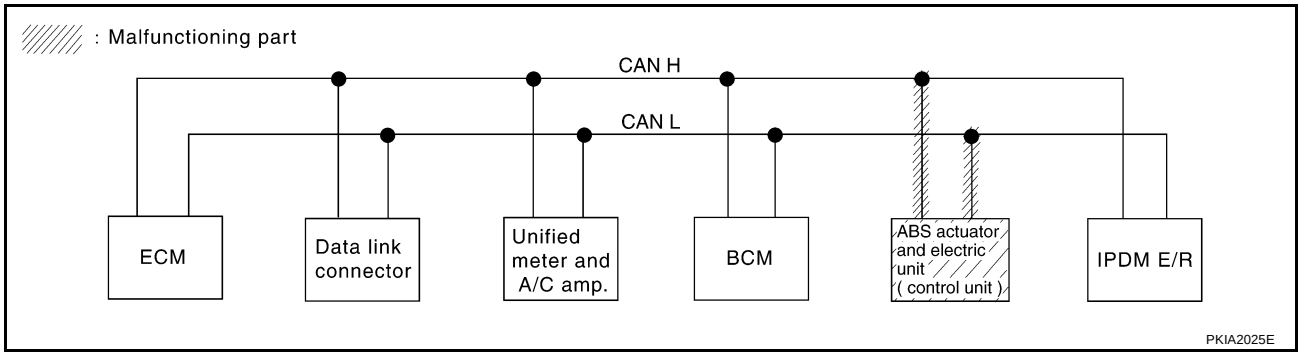
PKIA2024E

Case 8

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

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						
		Initial diagnosis	Transmit diagnosis	Receive 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 ✓	–
BCM	–	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN ✓	UNKWN	–	–	–	–

PKIA8702E



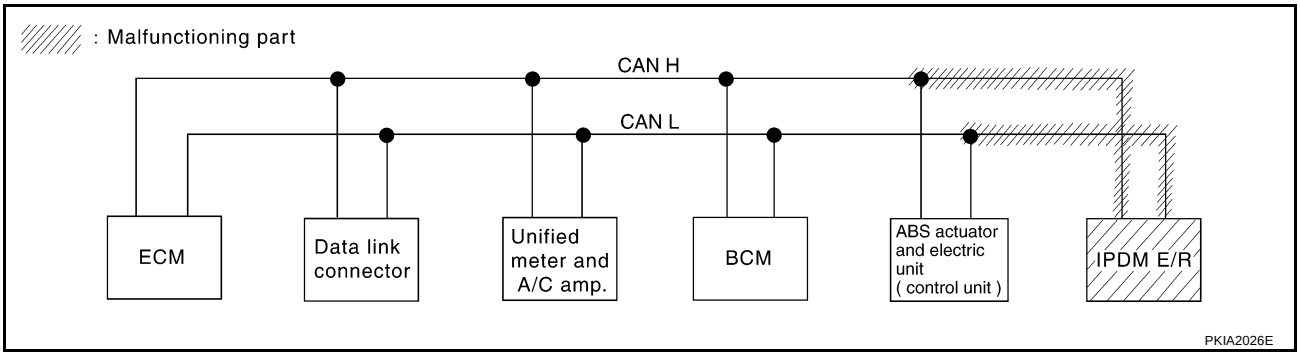
PKIA2025E

Case 9

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

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	–	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN ✓
ABS	–	NG	UNKWN	UNKWN	–	–	–	–

PKIA8703E



PKIA2026E

Case 10

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

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	–	NG	UNKWN ✓	UNKWN ✓	UNKWN ✓	–	–	UNKWN ✓
ABS	–	NG	UNKWN ✓	UNKWN ✓	–	–	–	–

PKIA8704E

Case 11

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-58, "IPDM E/R Ignition Relay Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	–	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–

PKIA8706E

Case 12

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

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	–	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–

PKIA8705E

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

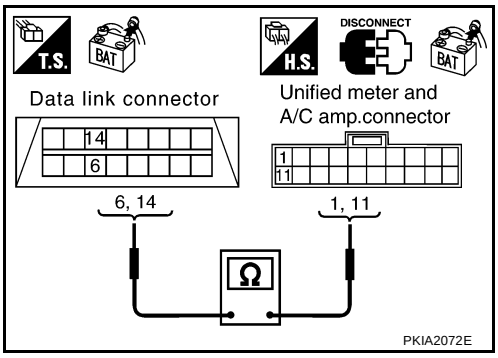
AKS00933

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-38, "Work Flow" .

NG >> Repair harness.

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

AKS00934

1. CHECK HARNESS FOR OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Disconnect the following connectors.

– ECM connector

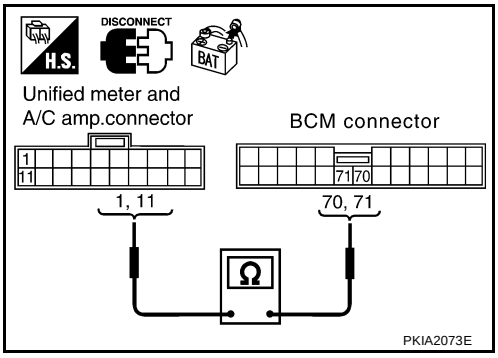
– Unified meter and A/C amp. connector

– 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-38, "Work Flow" .

NG >> Repair harness.

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

AKS00935

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

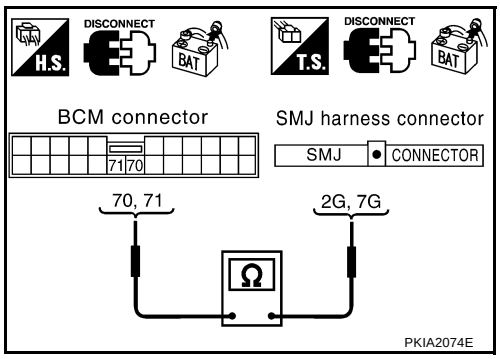
OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector and harness connector M15.
2. 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.



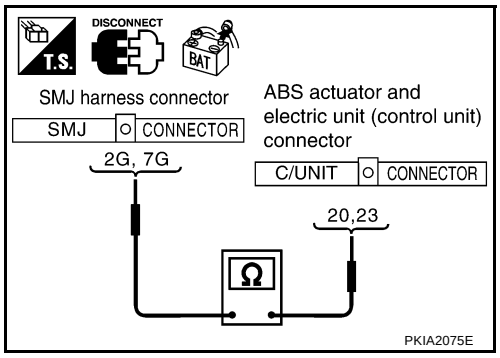
OK or NG

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

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-38, "Work Flow" .
NG >> Repair harness.

ECM Circuit Check

AKS00936

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.

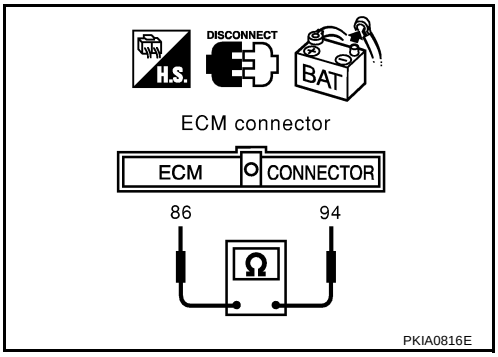
2. CHECK HARNESS FOR OPEN CIRCUIT

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

94 (L) – 86 (R) : Approx. 108 – 132Ω

OK or NG

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



Data Link Connector Circuit Check

AKS00937

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.

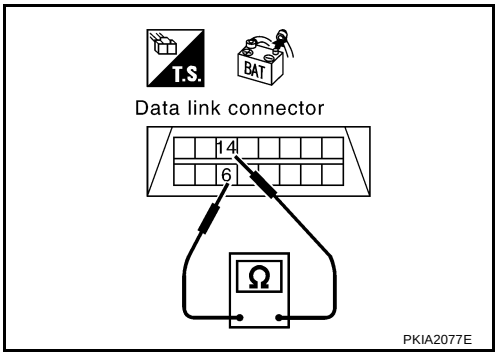
2. CHECK HARNESS FOR OPEN CIRCUIT

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

6 (L) – 14 (R) : Approx. 54 – 66Ω

OK or NG

OK >> Diagnose again. Refer to LAN-38, "Work Flow" .
NG >> Repair harness between data link connector and unified meter and A/C amp.



Unified Meter and A/C Amp. Circuit Check

AKS00938

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).

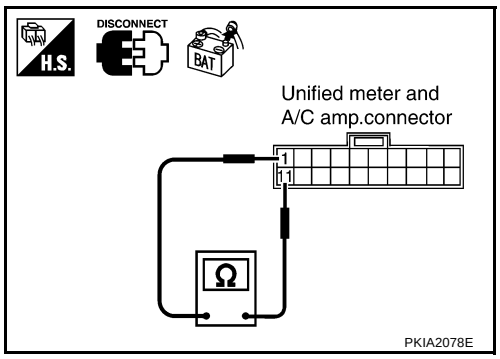
OK or NG

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).

1 (L) – 11 (R) : Approx. 54 – 66Ω



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

AKS00939

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).

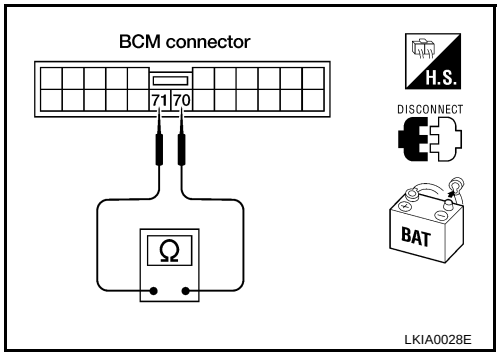
OK or NG

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 – 66Ω



OK or NG

OK >> Replace BCM.
NG >> Repair harness between BCM and harness connector M15.

ABS Actuator and Electric Unit (Control Unit) Circuit Check

AKS0093A

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. 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.

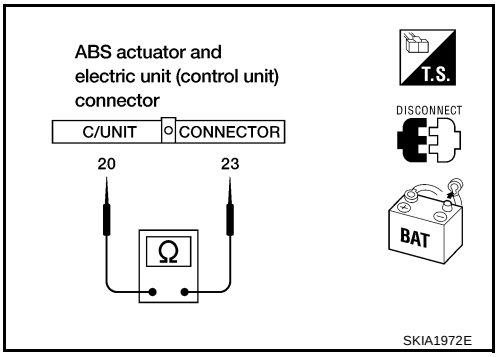
2. CHECK HARNESS FOR OPEN CIRCUIT

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 – 66Ω

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.



IPDM E/R Circuit Check

AKS0093B

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.

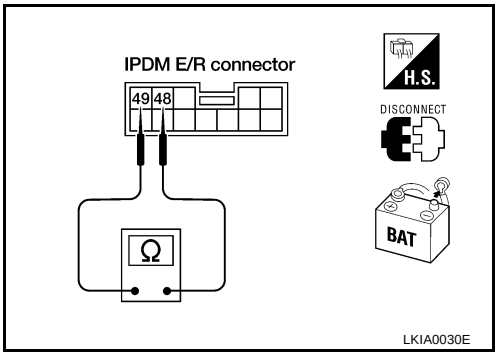
2. CHECK HARNESS FOR OPEN CIRCUIT

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

48 (L) – 49 (R) : Approx. 108 – 132Ω

OK or NG

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



CAN Communication Circuit Check

AKS0093C

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.

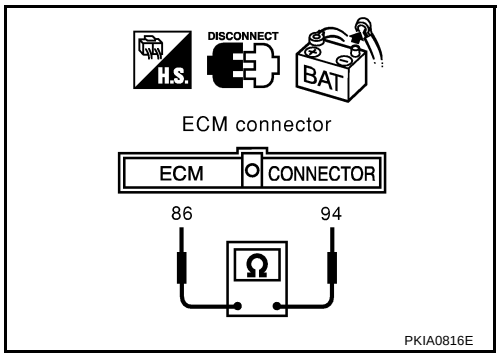
2. CHECK HARNESS FOR SHORT CIRCUIT

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

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

OK or NG

OK >> GO TO 3.
NG >> Repair harness between ECM and harness connector F102.



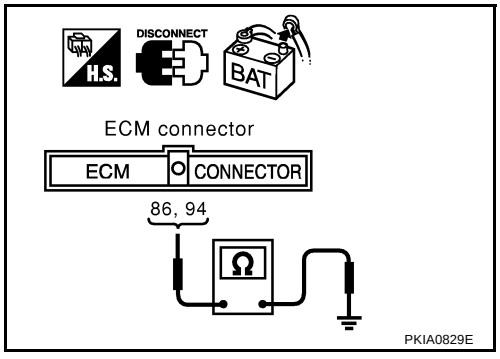
3. CHECK HARNESS FOR SHORT CIRCUIT

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.

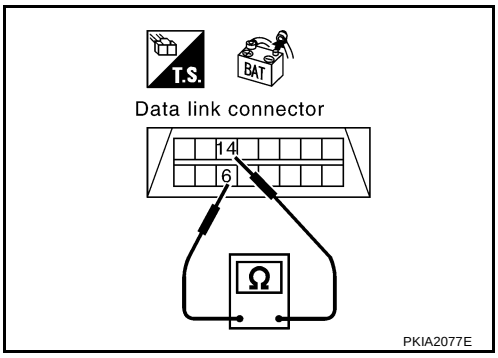


4. CHECK HARNESS FOR SHORT CIRCUIT

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).

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



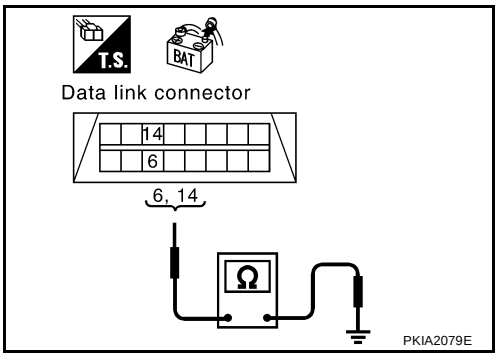
OK or NG

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

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.



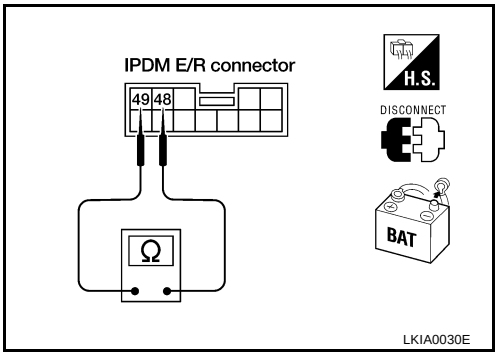
OK or NG

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 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

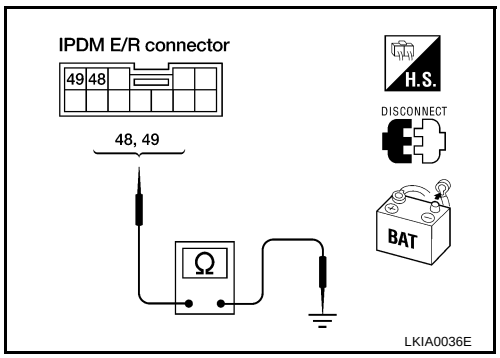
OK >> GO TO 7.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.
- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E108

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

8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to LAN-58, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION" .

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-38, "Work Flow" .

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

IPDM E/R Check

AKS0093D

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

AKS0093E

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

- IPDM E/R power supply circuit. Refer to PG-24, "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”" .

Component Inspection

AKS0093F

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