SECTION LAN

LAN SYSTEM

CONTENTS

CAN

PRECAUTIONS

PFP:00001

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

AKS00BQM

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-5, "CAN Communication Unit" .

Precautions For Trouble Diagnosis

AKS000ZD

CAN SYSTEM

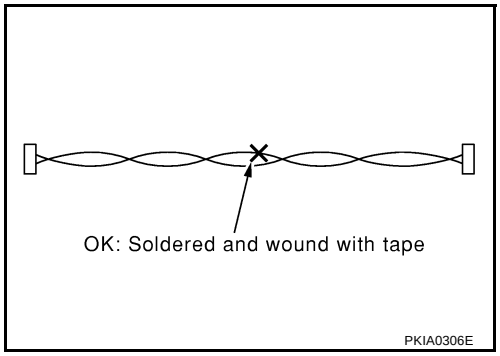
- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch off and disconnect negative battery terminal before checking the circuit.

Precautions For Harness Repair

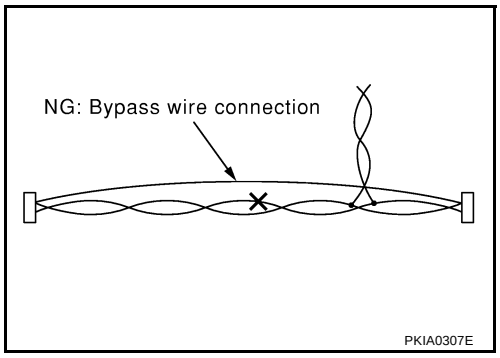
AKS000ZE

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

AKS00AVB

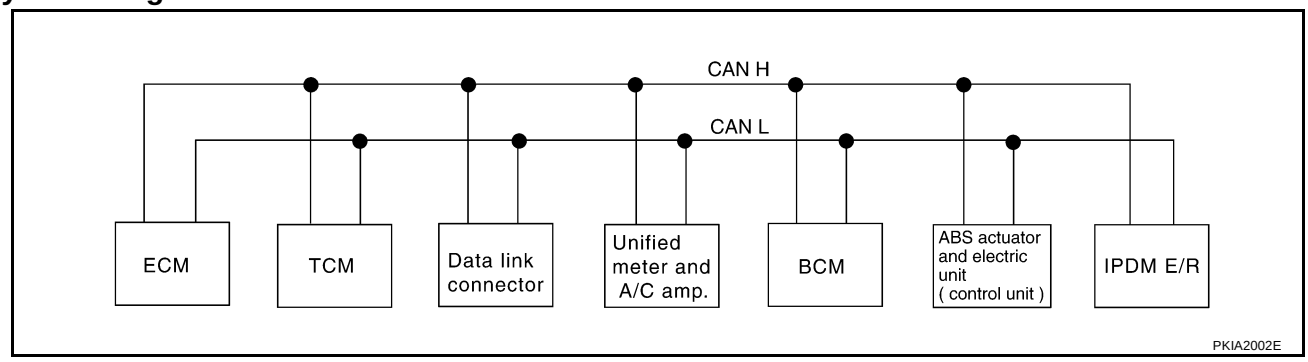
Go to CAN system, when selecting your CAN system type from the following table.

Body type	Roadster		Coupe			
Axle	2WD					
Engine	VQ35DE					
Transmission	A/T	M/T	A/T	M/T		
Brake control	TCS	TCS	TCS	ABS	TCS	VDC
Low tire pressure warning system						×
CAN system type	1	2	1	3	2	4
CAN system trouble diagnosis	LAN-11	LAN-38	LAN-11	LAN-62	LAN-38	LAN-86

×: Applicable

TYPE 1

System Diagram



Input/output Signal Chart

T: Transmit R: Receive

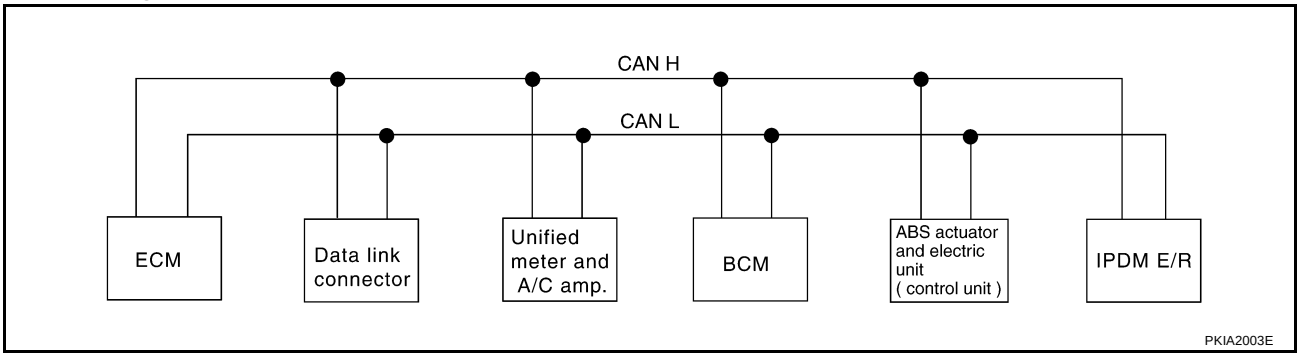
Signals	ECM	TCM	Unified meter and A/C amp.	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R	R		R	
Engine coolant temperature signal	T		R			
Accelerator pedal position signal	T	R			R	
Closed throttle position signal	T	R				
Wide open throttle position signal	T	R				
Battery 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	

Signals	ECM	TCM	Unified meter and A/C amp.	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Manual mode gear position signal		T	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
Day time running light request signal				T		R
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			
Theft warning horn request signal				T		R
Horn chirp signal				T		R

Signals	ECM	TCM	Unified meter and A/C amp.	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Ignition switch 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	

TYPE 2

System Diagram



Input/output Signal Chart

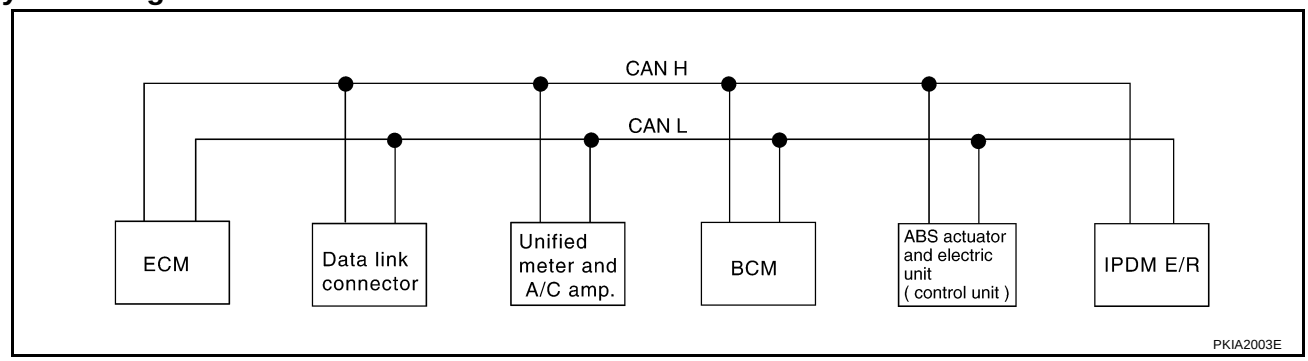
T: Transmit R: Receive

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 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
Day time running light request signal			T		R
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		

Signals	ECM	Unified meter and A/C amp.	BCM	ABS actuator and electric unit (control unit)	IPDM E/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 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
Theft warning horn request signal			T		R
Horn chirp signal			T		R
Ignition switch 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	

TYPE 3

System Diagram



Input/output Signal Chart

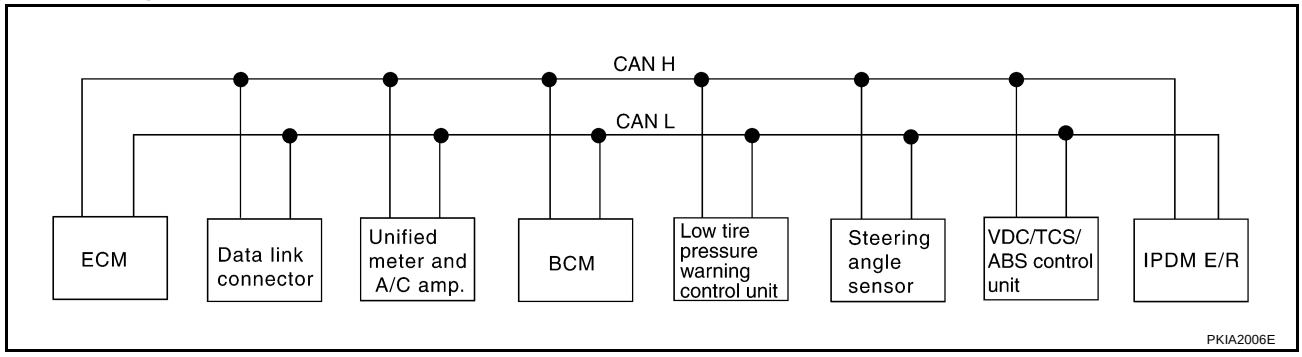
T: Transmit R: Receive

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 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

Signals	ECM	Unified meter and A/C amp.	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
High beam request signal		R	T		R
High beam status signal	R				T
Day time running light request signal			T		R
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		
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
Theft warning horn request signal			T		R
Horn chirp signal			T		R
Ignition switch signal			T		R
Tire pressure signal		R			
ABS warning lamp signal		R		T	
Brake warning lamp signal		R		T	

TYPE 4

System Diagram



Input/output Signal Chart

T: Transmit R: Receive

Signals	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
Engine speed signal	T	R				R	
Engine coolant temperature signal	T	R					

Signals	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
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
Day time running light request signal			T				R
Vehicle speed signal		R				T	
	R	T	R	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 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
Theft warning horn request signal			T				R
Horn chirp signal			T				R
Ignition switch signal			T				R
Steering angle sensor signal					T	R	
Tire pressure signal		R		T			
ABS warning lamp signal		R				T	
VDC OFF indicator lamp signal		R				T	
SLIP indicator lamp signal		R				T	
Brake warning lamp signal		R				T	

CAN SYSTEM (TYPE 1)

PFP:23710

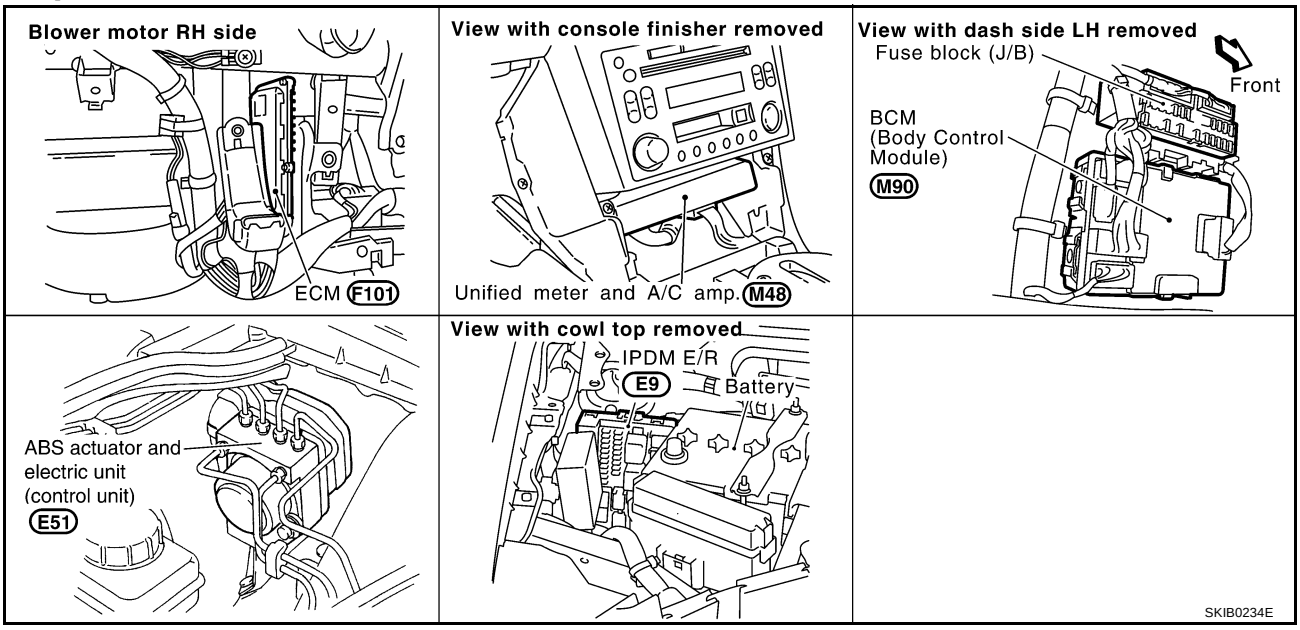
System Description

AKS00A8P

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

AKS00A8Q

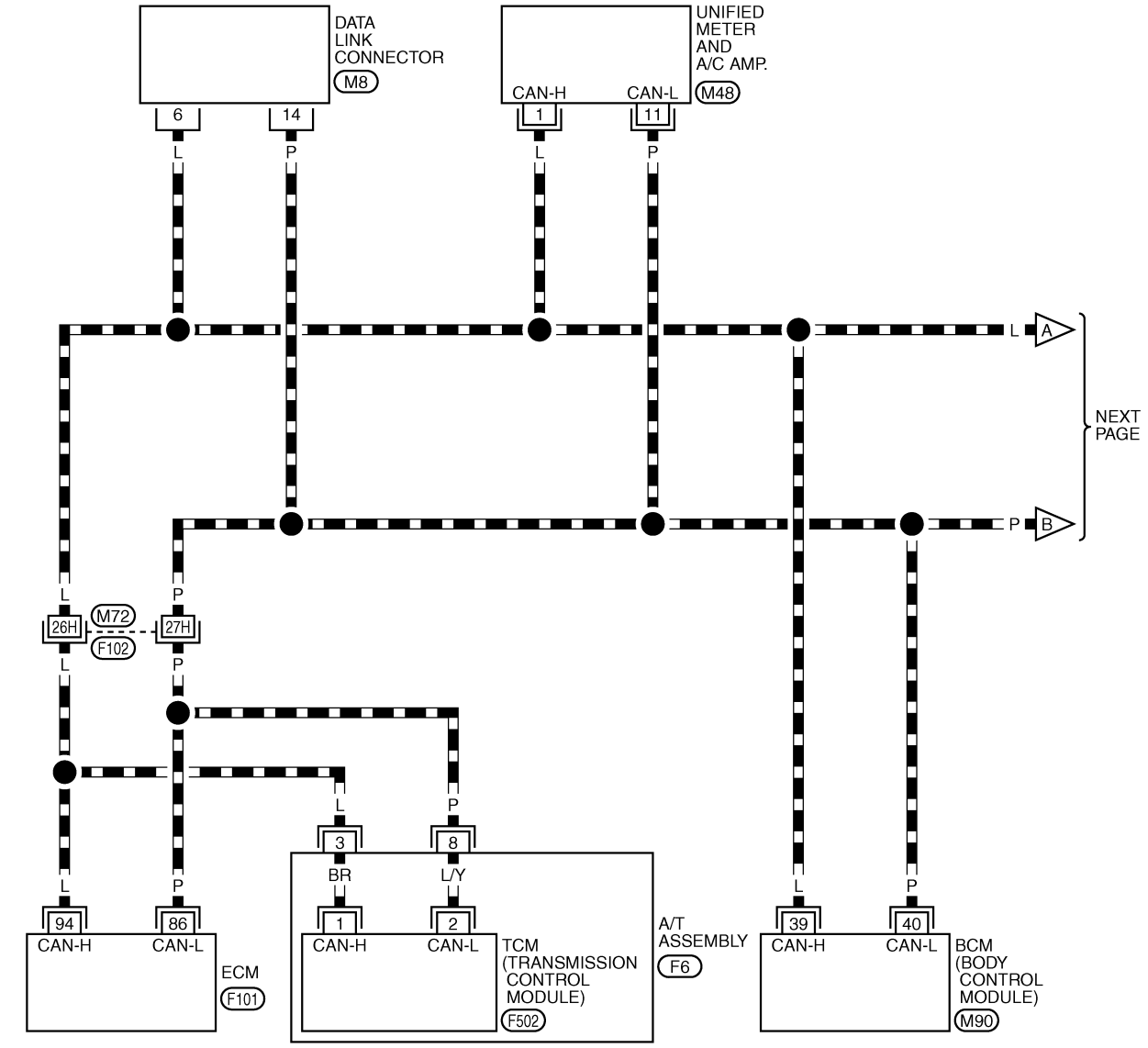


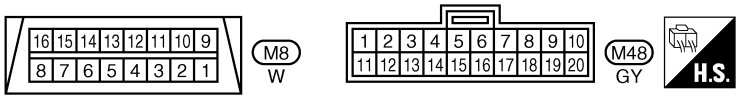
Wiring Diagram — CAN —

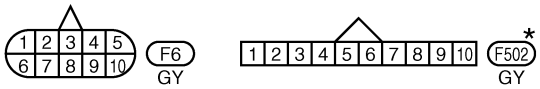
AKS00A8R

LAN-CAN-01

: DATA LINE







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

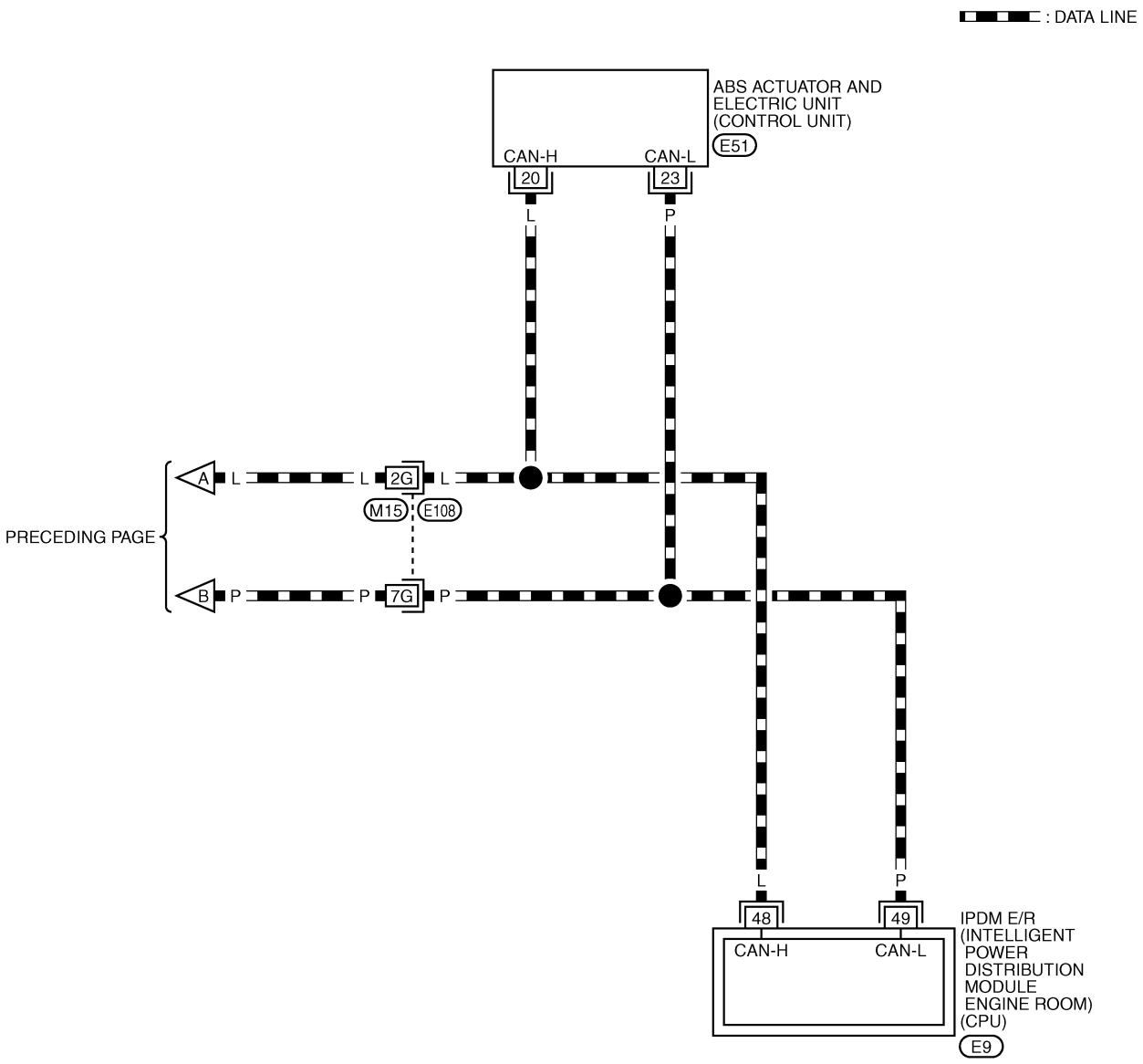
REFER TO THE FOLLOWING.

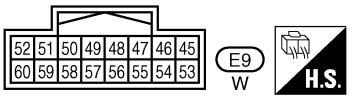
F102 -SUPER MULTIPLE JUNCTION (SMJ)

M90 , F101 -ELECTRICAL UNITS

TKWM1380E

LAN-CAN-02





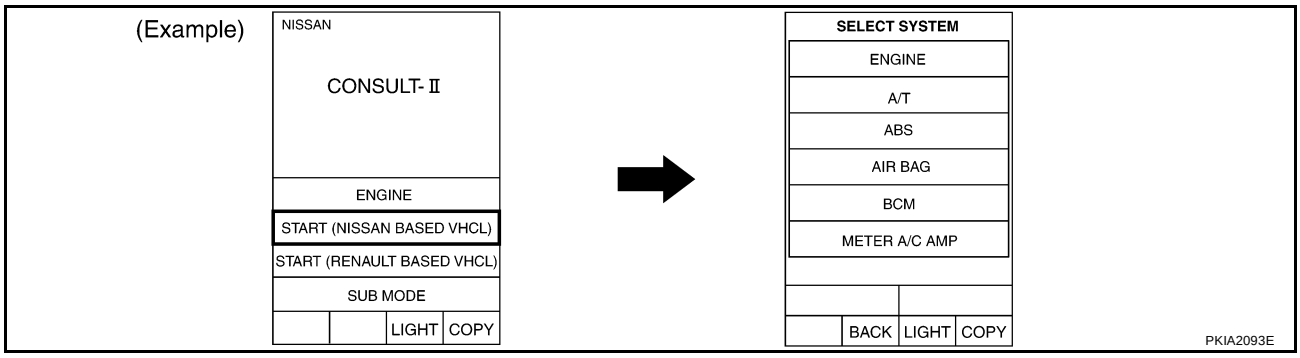
REFER TO THE FOLLOWING.
E108 -SUPER MULTIPLE JUNCTION (SMJ)
E51 -ELECTRICAL UNITS

TKWT1554E

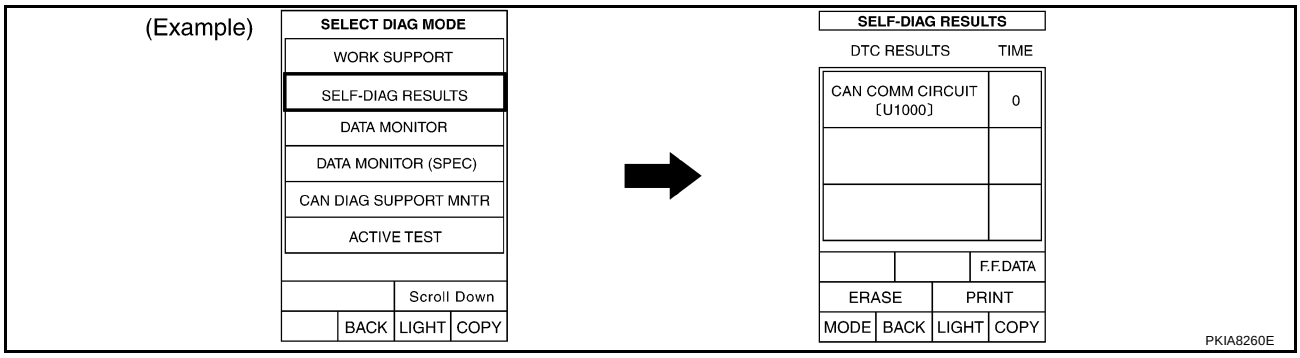
Work Flow

AKS00A8S

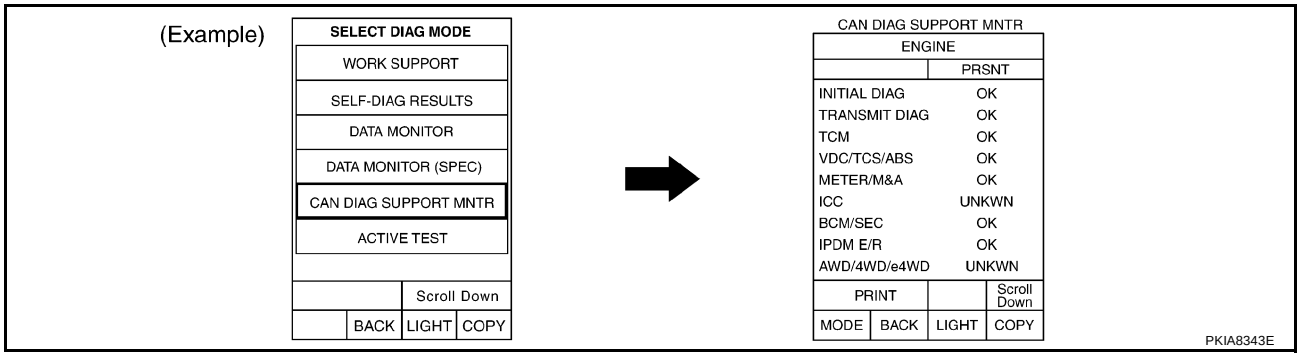
1. When there are no indications of “METER A/C AMP”, “BCM” or “IPDM E/R” on “SELECT SYSTEM” display of CONSULT-II, print the “SELECT SYSTEM”.



2. Print all the data of “SELF-DIAG RESULTS” for “ENGINE”, “A/T”, “METER A/C AMP”, “BCM”, “ABS” and “IPDM E/R” displayed on CONSULT-II.



3. Print all the data of “CAN DIAG SUPPORT MNTR” for “ENGINE”, “A/T”, “METER A/C AMP”, “BCM”, “ABS” and “IPDM E/R” 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-15, "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-15, "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-17, "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

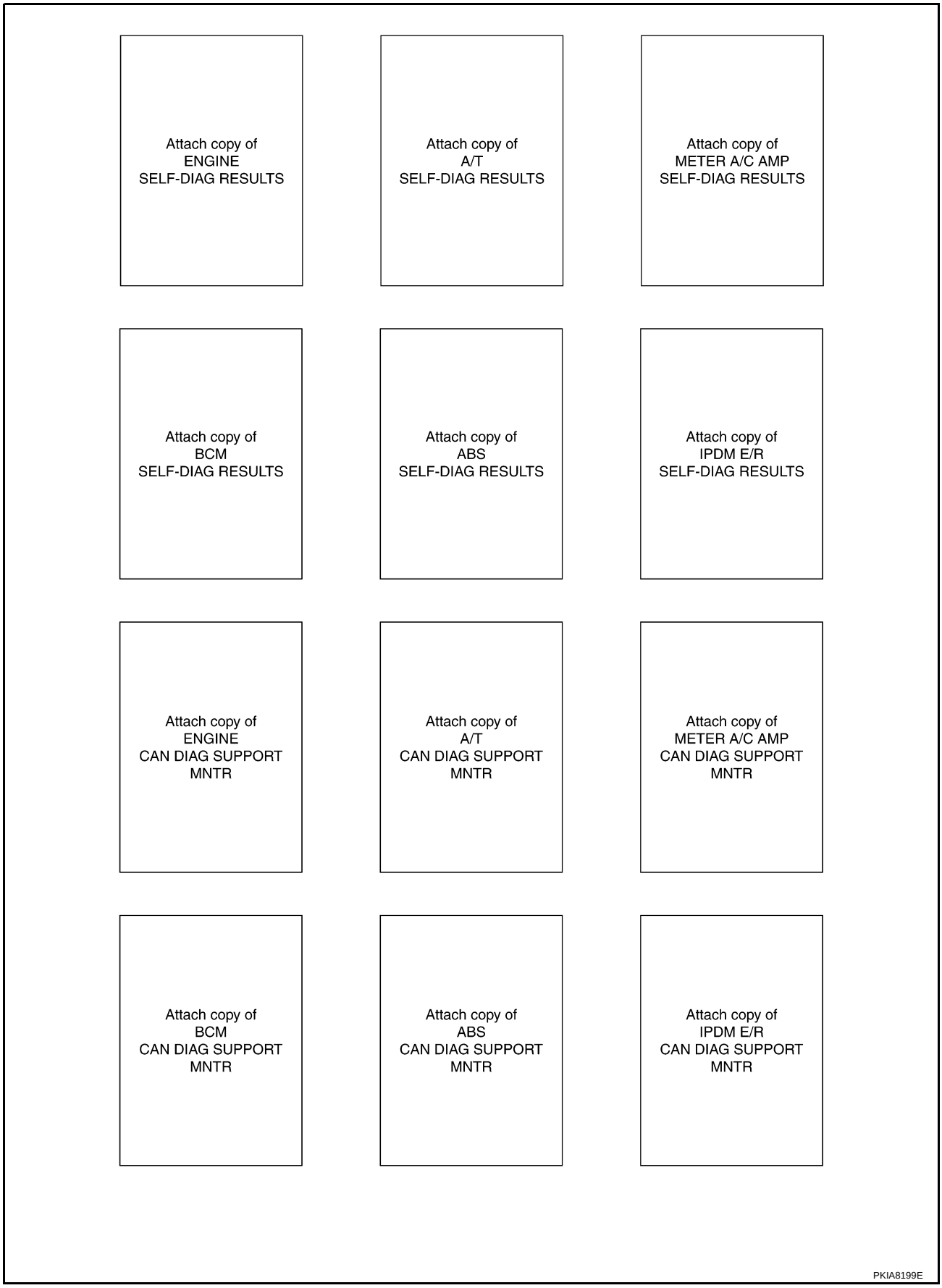
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	TCM	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	–	NG	UNKWN	–	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
A/T	–	NG	UNKWN	UNKWN	–	UNKWN	–	UNKWN	–
METER A/C AMP	No indication	–	UNKWN	UNKWN	UNKWN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

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIA8198E


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
IPDM E/R
SELF-DIAG RESULTS
Attach copy of
ENGINE
CAN DIAG SUPPORT
MNTR
Attach copy of
A/T
CAN DIAG SUPPORT
MNTR
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METER A/C AMP
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MNTR
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BCM
CAN DIAG SUPPORT
MNTR
Attach copy of
ABS
CAN DIAG SUPPORT
MNTR
Attach copy of
IPDM E/R
CAN DIAG SUPPORT
MNTR
PKIA8199E

CHECK SHEET RESULTS (EXAMPLE)

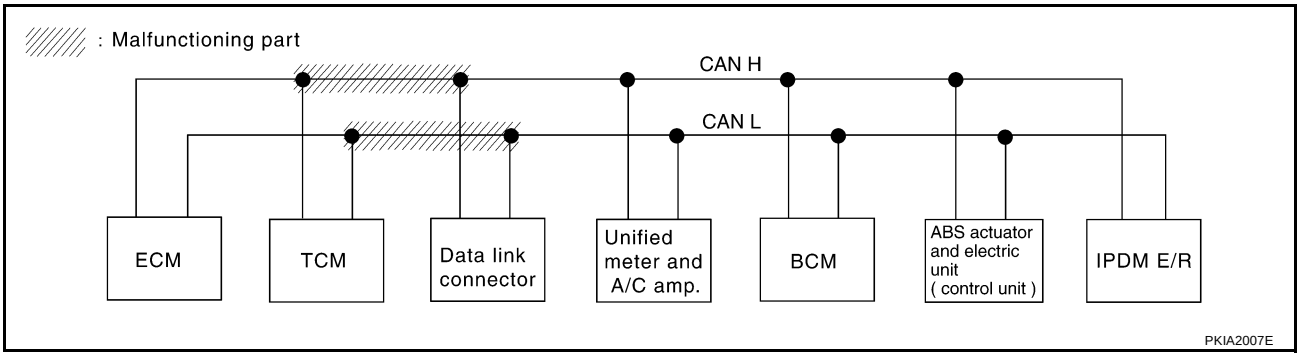
NOTE:
If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)” as “CAN DIAG SUPPORT MNTR” for the diagnosed control unit, replace the control unit.

Case 1

Check harness between TCM and data link connector. Refer to LAN-29, "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	No indication	NG	UNKWN	UNKWN ✓	–	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN ✓	UNKWN ✓	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN ✓	–	–	UNKWN	–	–

PKIA8200E



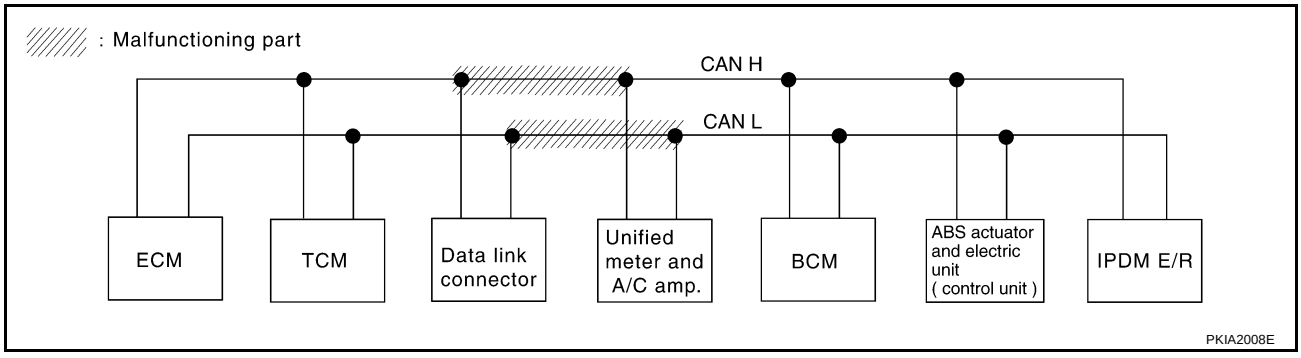
PKIA2007E

Case 2

Check harness between data link connector and unified meter and A/C amp. Refer to LAN-30, "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	No indication ✓	NG	UNKWN	UNKWN	–	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN ✓	UNKWN ✓	–	–	–	–
IPDM E/R	No indication ✓	–	UNKWN	UNKWN	–	–	UNKWN	–	–

PKIA8201E



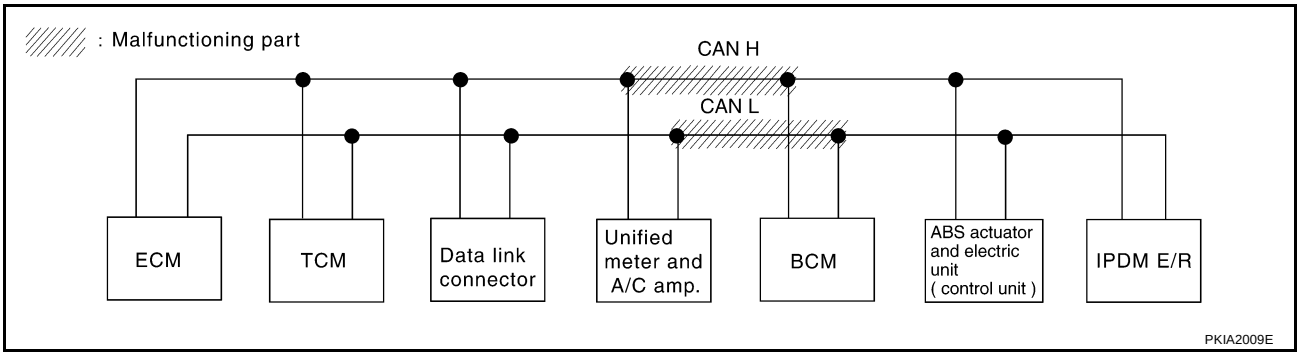
PKIA2008E

Case 3

Check harness between unified meter and A/C amp. and BCM. Refer to LAN-30, "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	No indication	NG	UNKWN	UNKWN	–	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	–	UNKWN	–	–

PKIA8202E



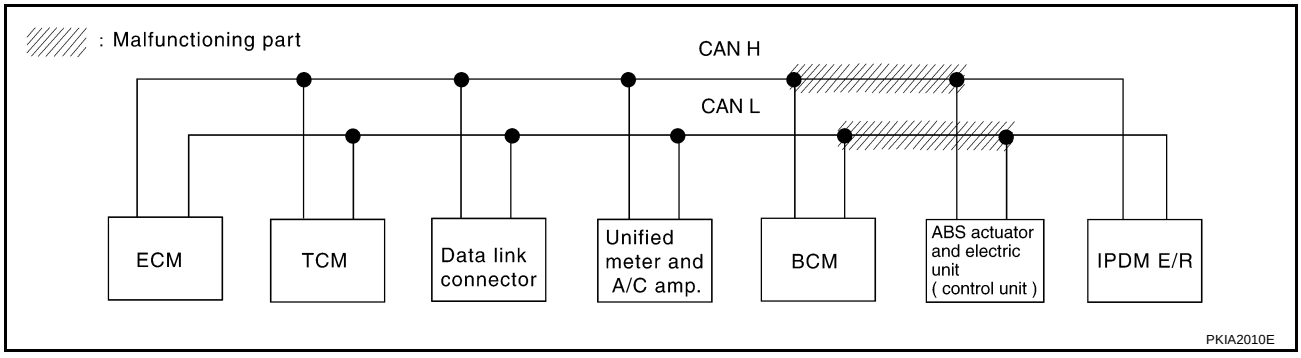
PKIA2009E

Case 4

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to LAN-30, "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	No indication	NG	UNKWN	UNKWN	–	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	–	UNKWN	–	–

PKIA8203E



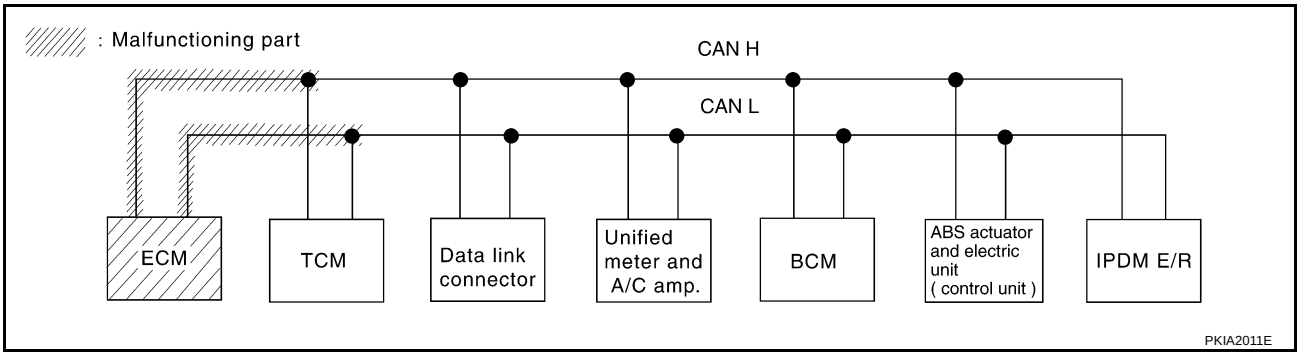
PKIA2010E

Case 5

Check ECM circuit. Refer to LAN-31, "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	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

PKIA8204E



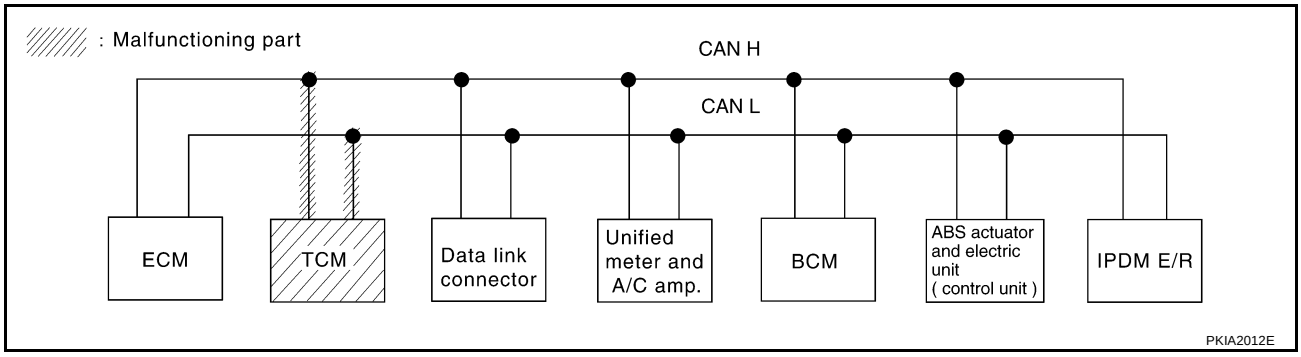
PKIA2011E

Case 6

Check TCM circuit. Refer to LAN-32, "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	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

PKIA8205E



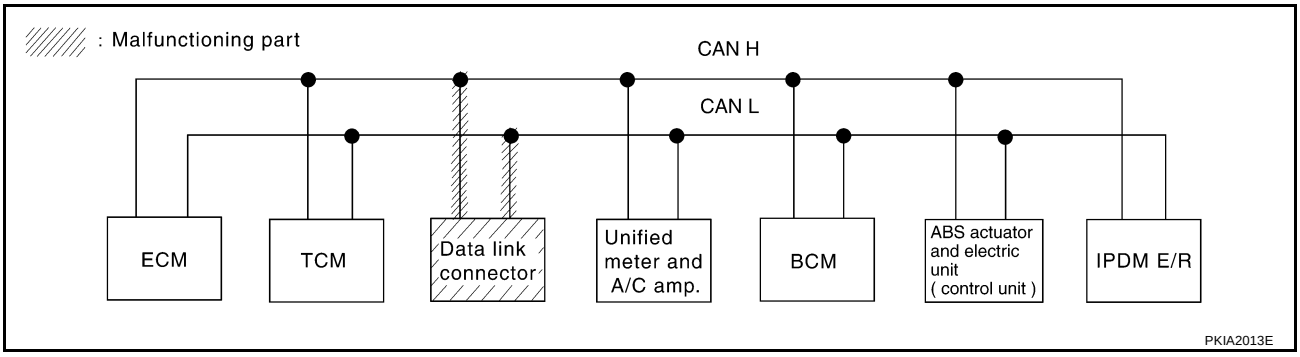
PKIA2012E

Case 7

Check data link connector circuit. Refer to LAN-32, "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	No indication	NG	UNKWN	UNKWN	–	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	–	UNKWN	–	–

PKIA8206E



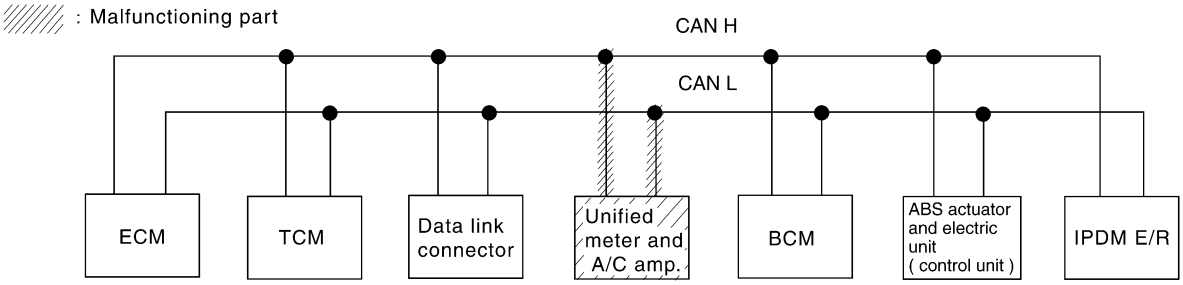
PKIA2013E

Case 8

Check unified meter and A/C amp. circuit. Refer to LAN-33, "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	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

PKIA8207E



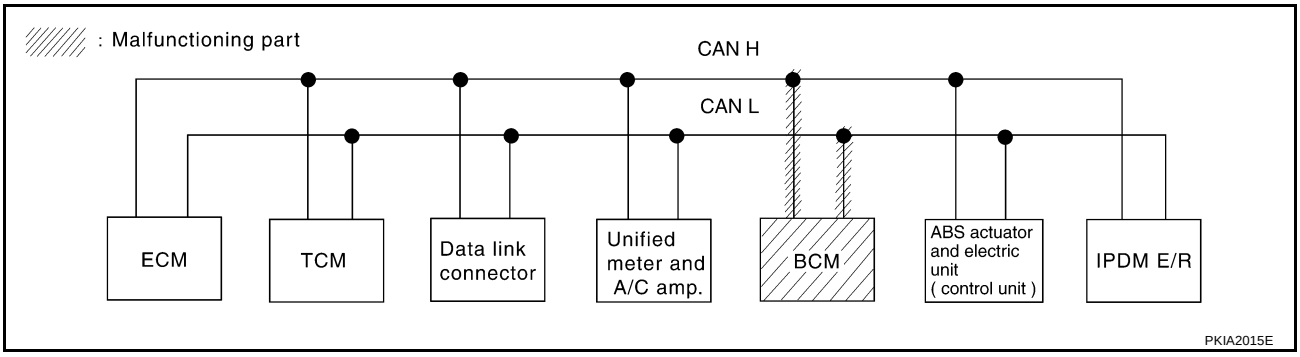
PKIA2014E

Case 9

Check BCM circuit. Refer to LAN-33, "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	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

PKIA8208E



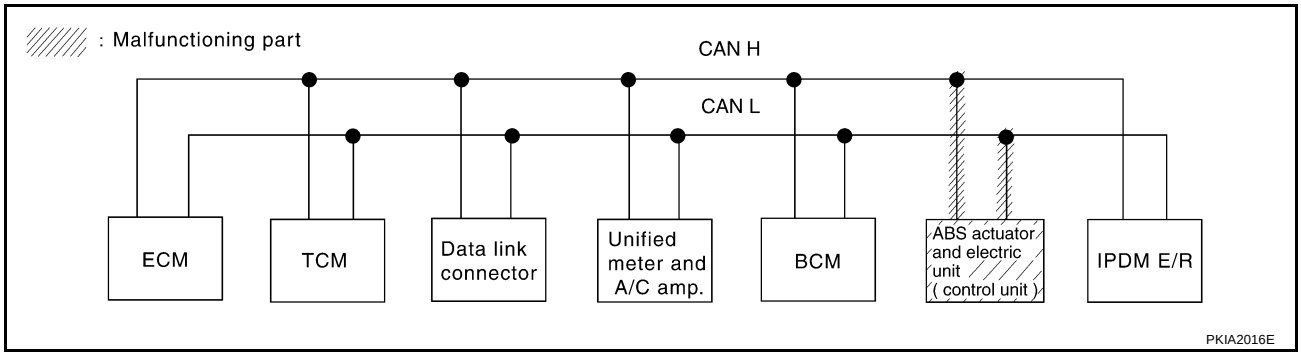
PKIA2015E

Case 10

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-34, "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	No indication	NG	UNKWN	UNKWN	–	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN ✓	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	–	UNKWN	–	–

PKIA8209E



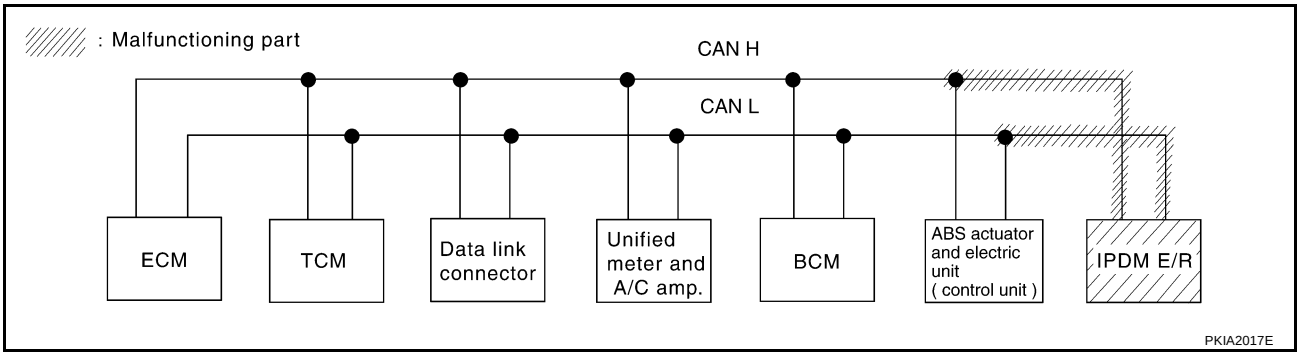
PKIA2016E

Case 11

Check IPDM E/R circuit. Refer to LAN-34, "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	No indication	NG	UNKWN	UNKWN	–	UNKWN	–	–	UNKWN ✓
ABS	–	NG	UNKWN	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication ✓	–	UNKWN	UNKWN	–	–	UNKWN	–	–

PKIA8210E



PKIA2017E

Case 12

Check CAN communication circuit. Refer to LAN-35, "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	No indication ✓	NG	UNKWN	UNKWN	–	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN ✓	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication ✓	–	UNKWN	UNKWN	–	–	UNKWN	–	–

PKIA8211E

Case 13

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-37, "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	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

PKIA8212E

Case 14

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-37, "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	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

PKIA8213E

Circuit Check Between TCM and Data Link Connector

AKS00A8T

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.

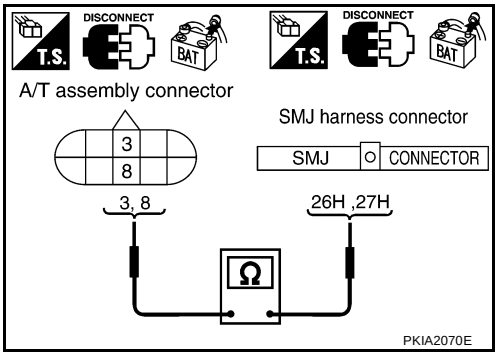
2. CHECK HARNESS FOR OPEN CIRCUIT

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

3 (L) – 26H (L) : Continuity should exist.
8 (P) – 27H (P) : Continuity should exist.

OK or NG

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



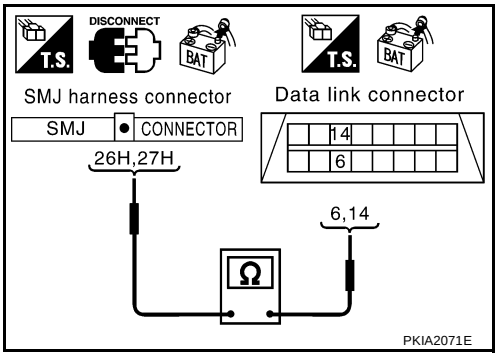
3. CHECK HARNESS FOR OPEN CIRCUIT

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

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

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-14, "Work Flow" .
NG >> Repair harness.



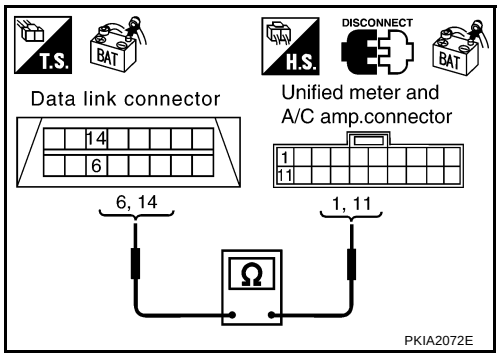
Circuit Check Between Data Link Connector and Unified Meter and A/C Amp.

AKS00A8U

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 (P) and unified meter and A/C amp. harness connector M48 terminals 1 (L), 11 (P).

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



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-14, "Work Flow" .
NG >> Repair harness.

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

AKS00A8V

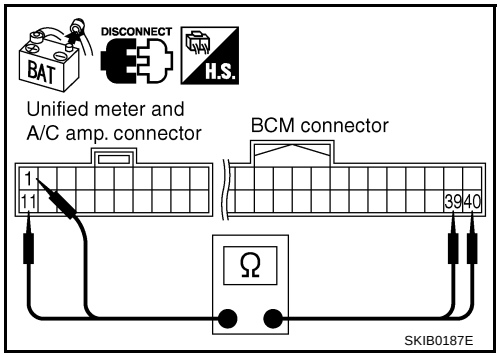
1. CHECK HARNESS FOR OPEN CIRCUIT

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 (P) and BCM harness connector M90 terminals 39 (L), 40 (P).

1 (L) – 39 (L) : Continuity should exist.
11 (P) – 40 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-14, "Work Flow" .
NG >> Repair harness.

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

AKS00A8W

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

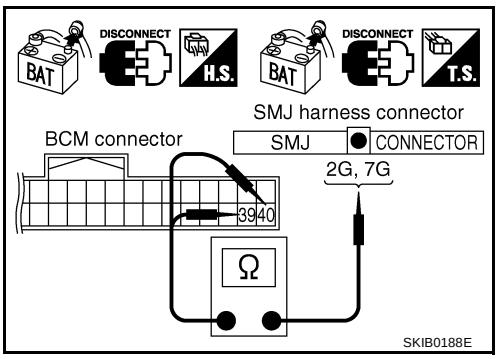
OK or NG

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 M90 terminals 39 (L), 40 (P) and harness connector M15 terminals 2G (L), 7G (P).

39 (L) – 2G (L) : Continuity should exist.
40 (P) – 7G (P) : Continuity should exist.



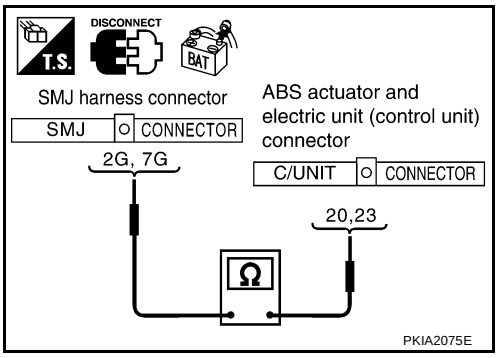
OK or NG

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 (P) and ABS actuator and electric unit (control unit) harness connector E51 terminals 20 (L), 23 (P).

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



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-14, "Work Flow" .
NG >> Repair harness.

ECM Circuit Check

AKS00A8X

1. CHECK CONNECTOR

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

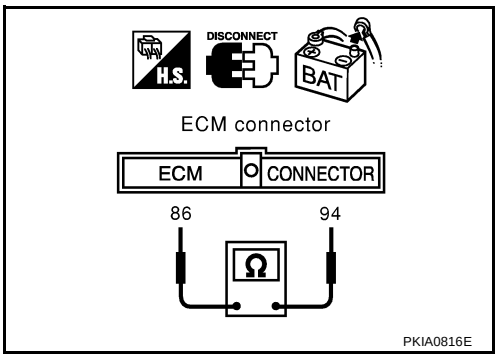
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

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

94 (L) – 86 (P) : Approx. 108 – 132Ω



OK or NG

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

TCM Circuit Check

AKS00A8Y

1. CHECK CONNECTOR

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

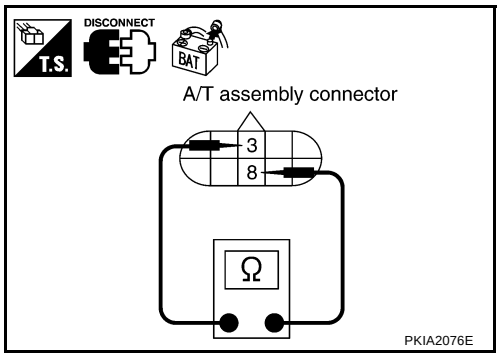
OK or NG

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 (P).

3 (L) – 8 (P) : Approx. 54 – 66Ω



OK or NG

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

Data Link Connector Circuit Check

AKS00A8Z

1. CHECK CONNECTOR

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

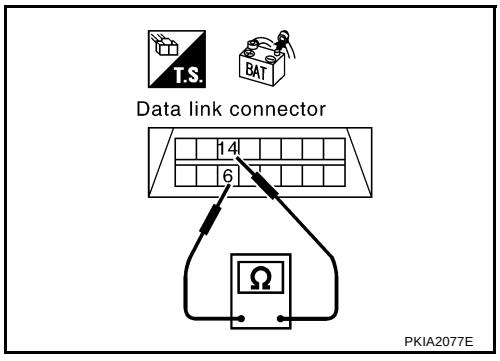
OK or NG

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 (P).

6 (L) – 14 (P) : Approx. 54 – 66Ω



OK or NG

OK >> Diagnose again. Refer to LAN-14, "Work Flow" .
NG >> Repair harness between data link connector and unified meter and A/C amp.

Unified Meter and A/C Amp. Circuit Check

AKS00A90

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).

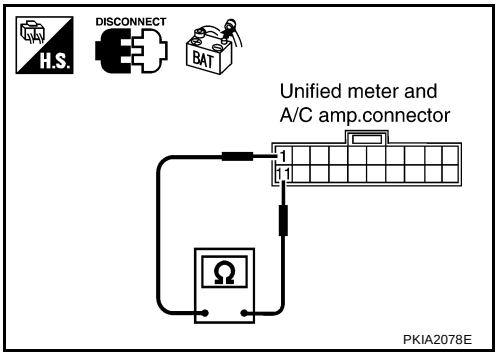
OK or NG

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 (P).

1 (L) – 11 (P) : 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

AKS00A91

1. CHECK CONNECTOR

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

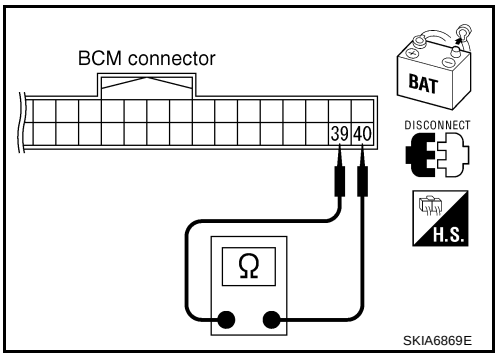
OK or NG

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 M90 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : 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

AKS00A92

1. CHECK CONNECTOR

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

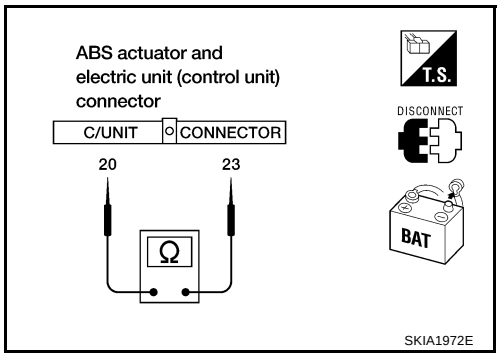
OK or NG

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 (P).

20 (L) – 23 (P) : 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

AKS00A93

1. CHECK CONNECTOR

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

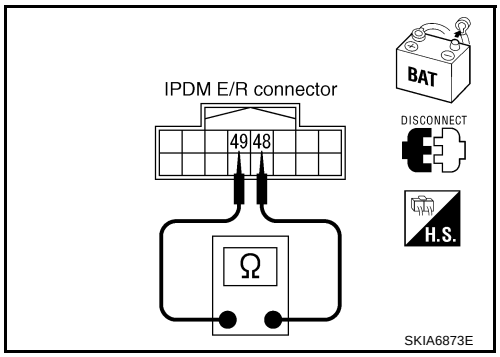
OK or NG

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 (P).

48 (L) – 49 (P) : 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

AKS00A94

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.

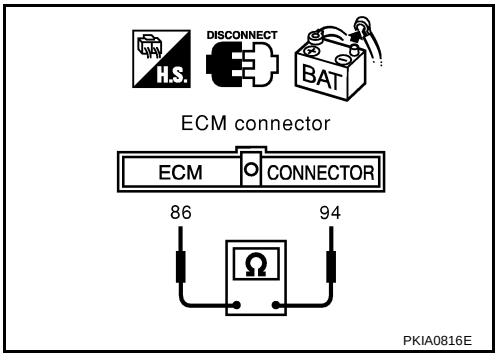
2. CHECK HARNESS FOR SHORT CIRCUIT

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 (P).

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



OK or NG

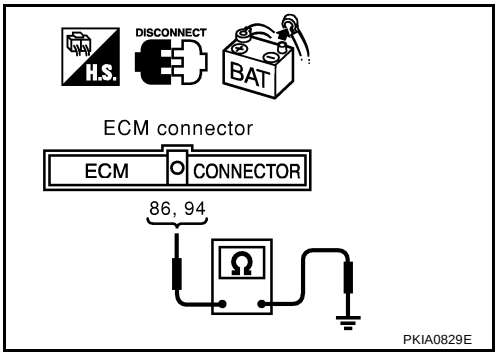
OK >> GO TO 3.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- 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 (P) and ground.

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



OK or NG

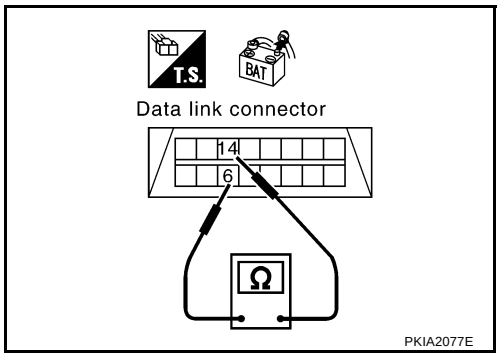
OK >> GO TO 4.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- 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 (P).

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



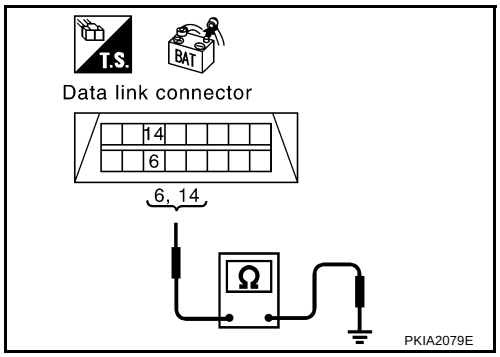
OK or NG

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 (P) and ground.

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



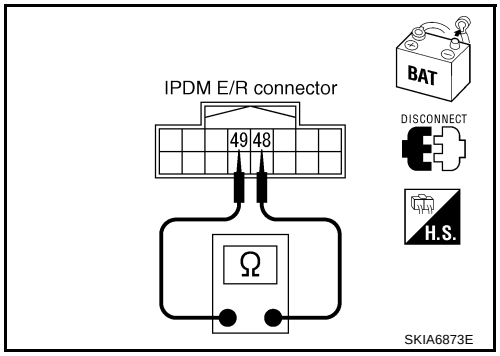
OK or NG

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 (P).

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



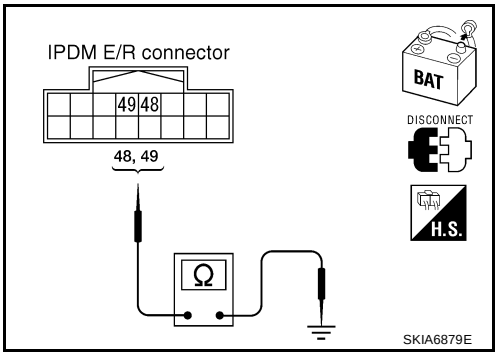
OK or NG

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 (P) and ground.

48 (L) – ground : Continuity should not exist.
49 (P) – 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-37, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION" .

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-14, "Work Flow" .
NG >> Replace ECM and/or IPDM E/R.

IPDM E/R Ignition Relay Circuit Check

AKS00A95

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

- IPDM E/R power supply circuit. Refer to PG-28, "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”" .

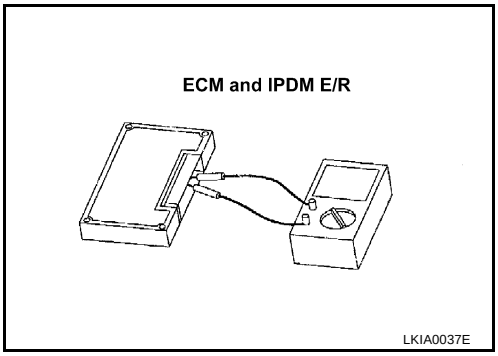
Component Inspection

AKS00A96

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

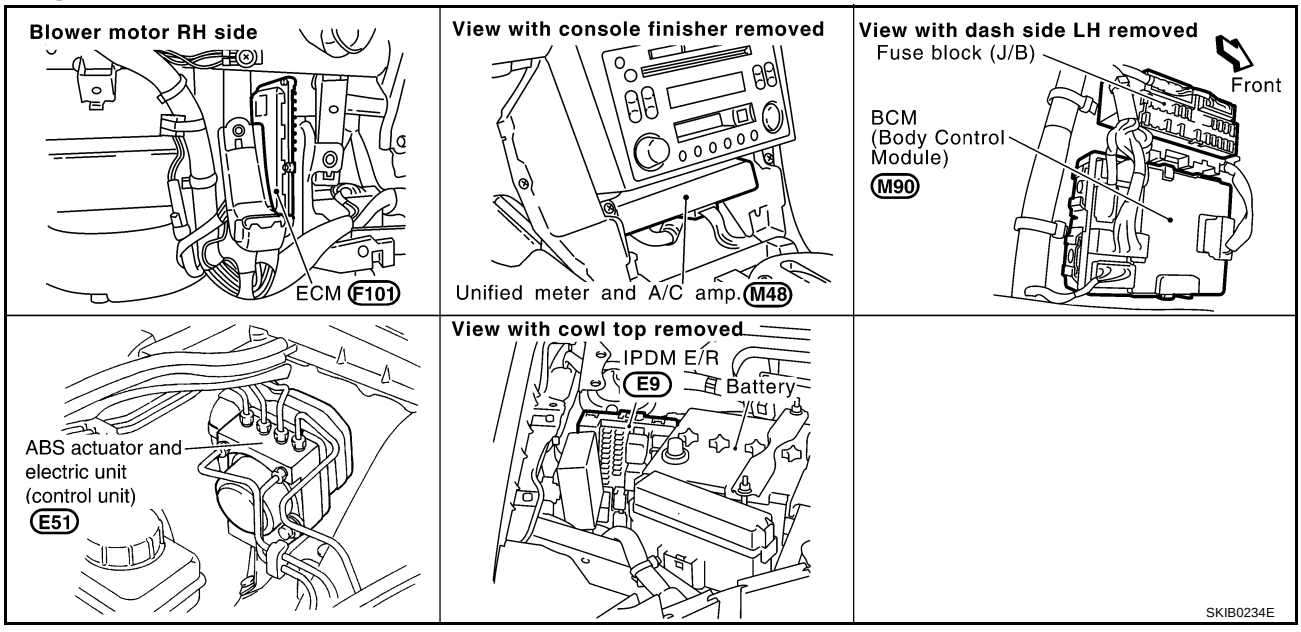
System Description

AKS00A97

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

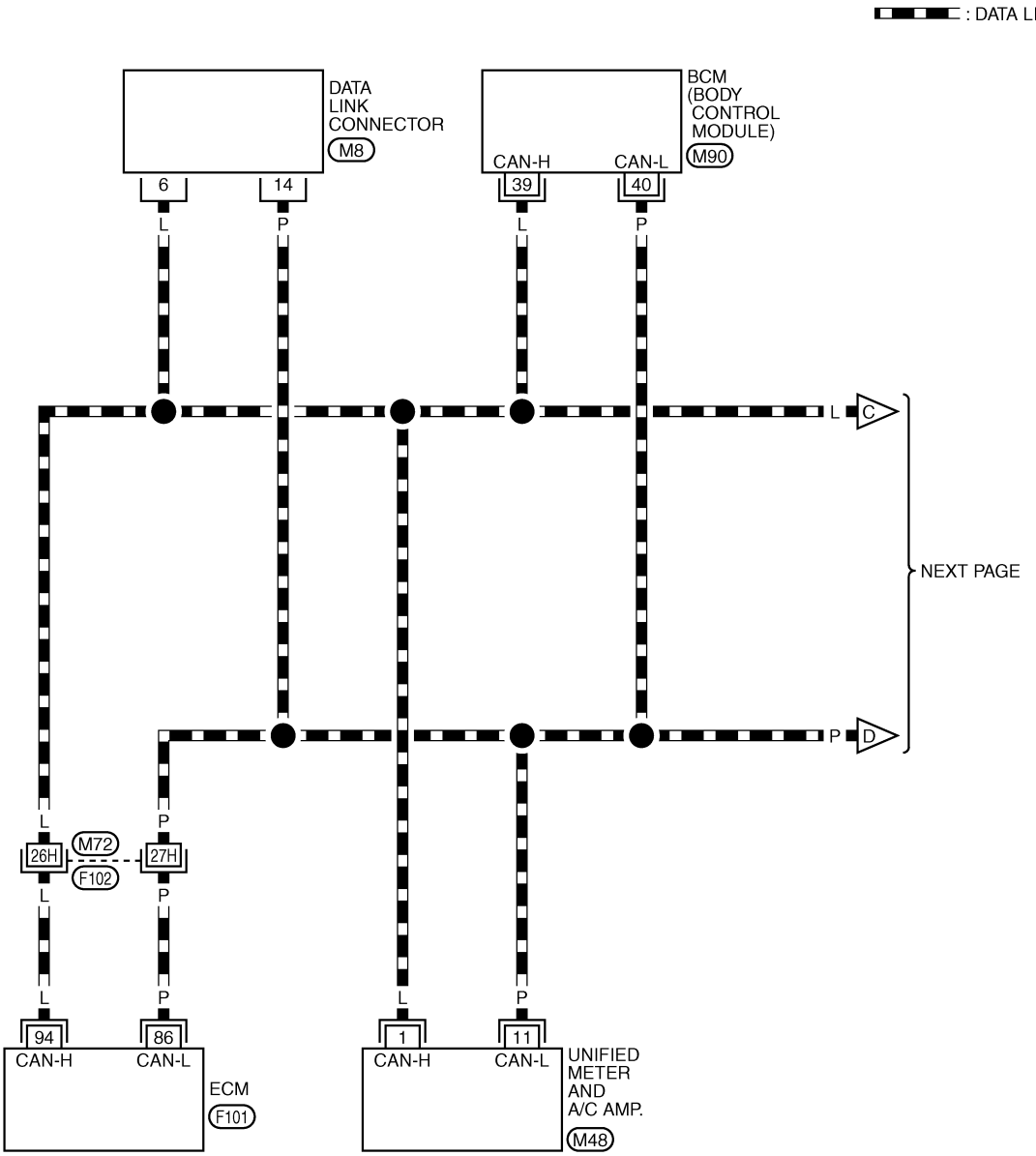
AKS00A98

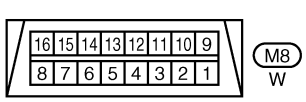


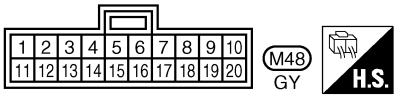
Wiring Diagram — CAN —

AKS00A99

LAN-CAN-03



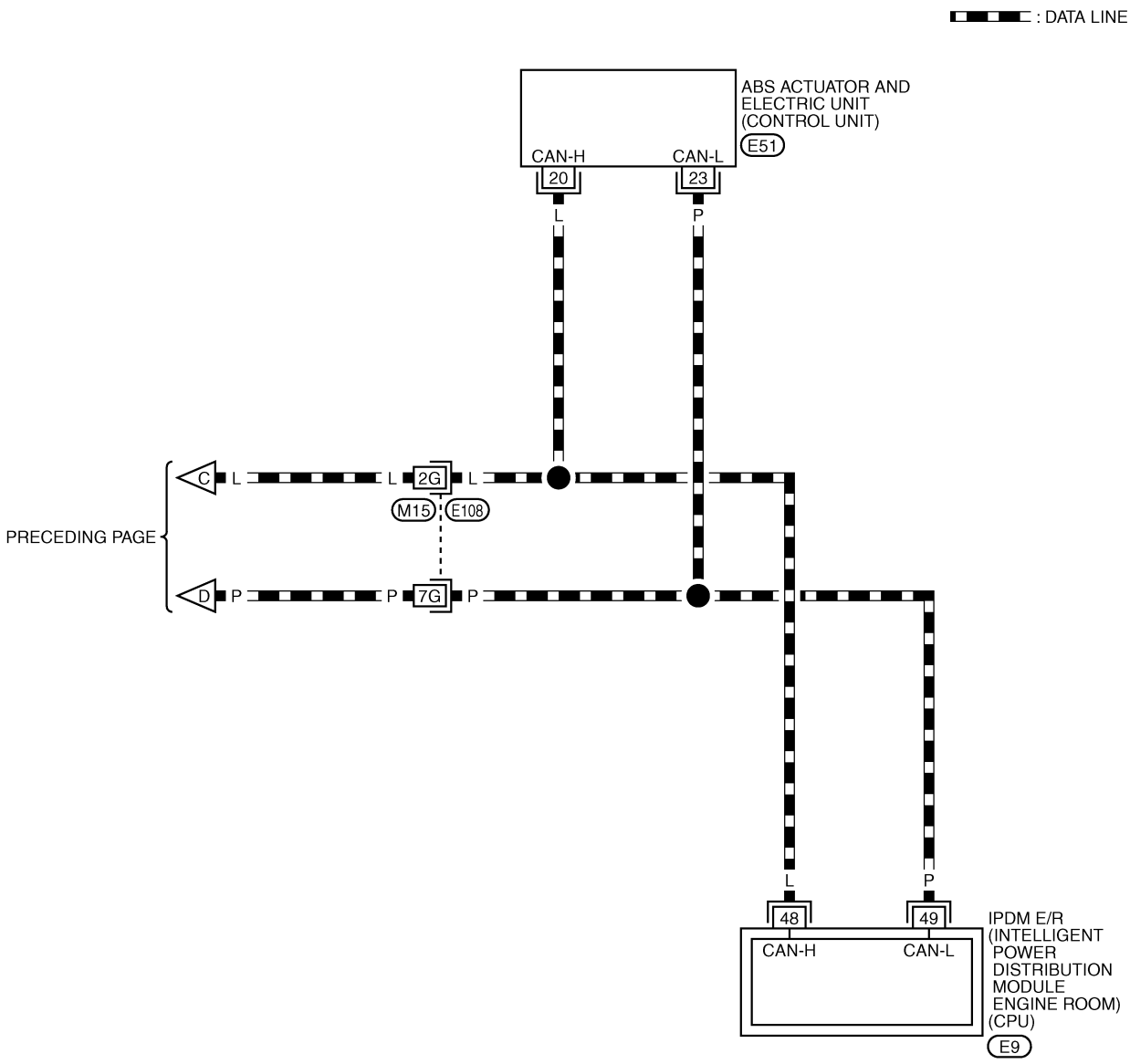


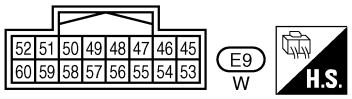


REFER TO THE FOLLOWING.
F102 -SUPER MULTIPLE JUNCTION (SMJ)
M90 , F101 -ELECTRICAL UNITS

TKWT1862E

LAN-CAN-04





REFER TO THE FOLLOWING.

E108 -SUPER MULTIPLE JUNCTION (SMJ)

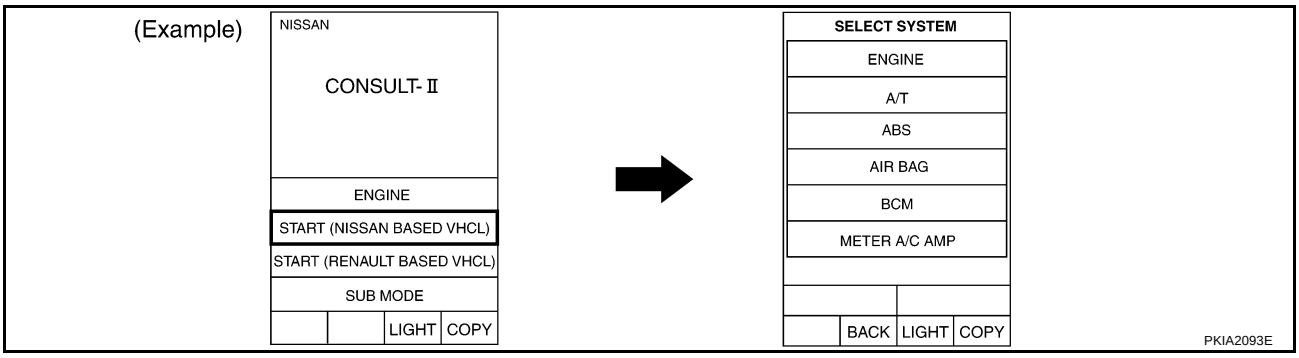
E51 -ELECTRICAL UNITS

TKWT1555E

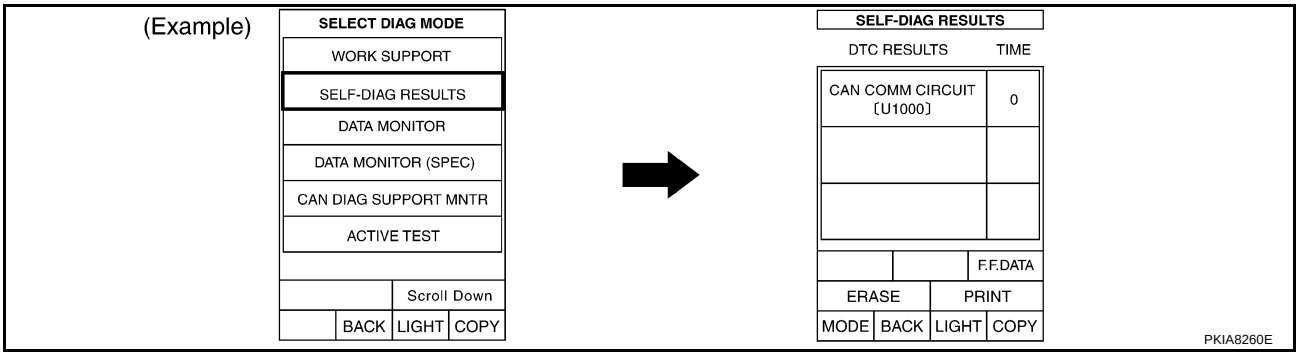
Work Flow

AKS00A9A

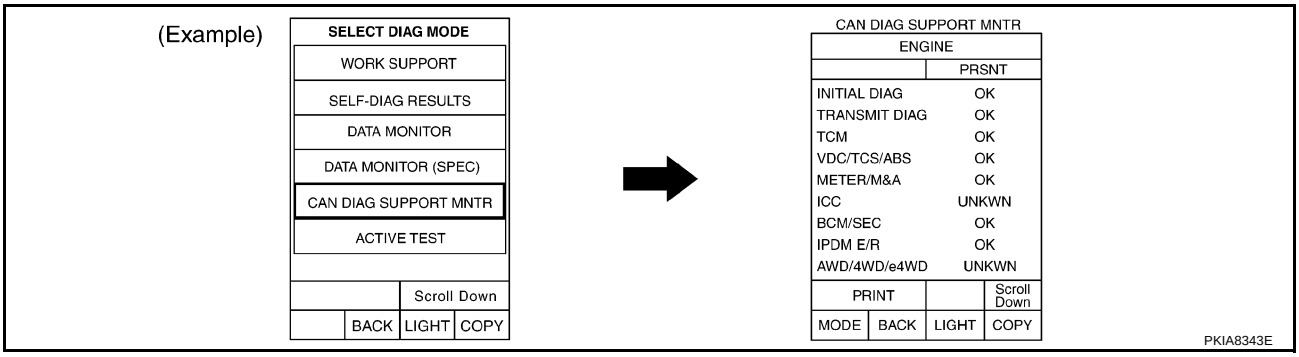
1. When there are no indications of “METER A/C AMP”, “BCM” or “IPDM E/R” on “SELECT SYSTEM” display of CONSULT-II, print the “SELECT SYSTEM”.



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



3. Print all the data of “CAN DIAG SUPPORT MNTR” for “ENGINE”, “METER A/C AMP”, “BCM”, “ABS” and “IPDM E/R” 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-42, "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-42, "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-44, "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

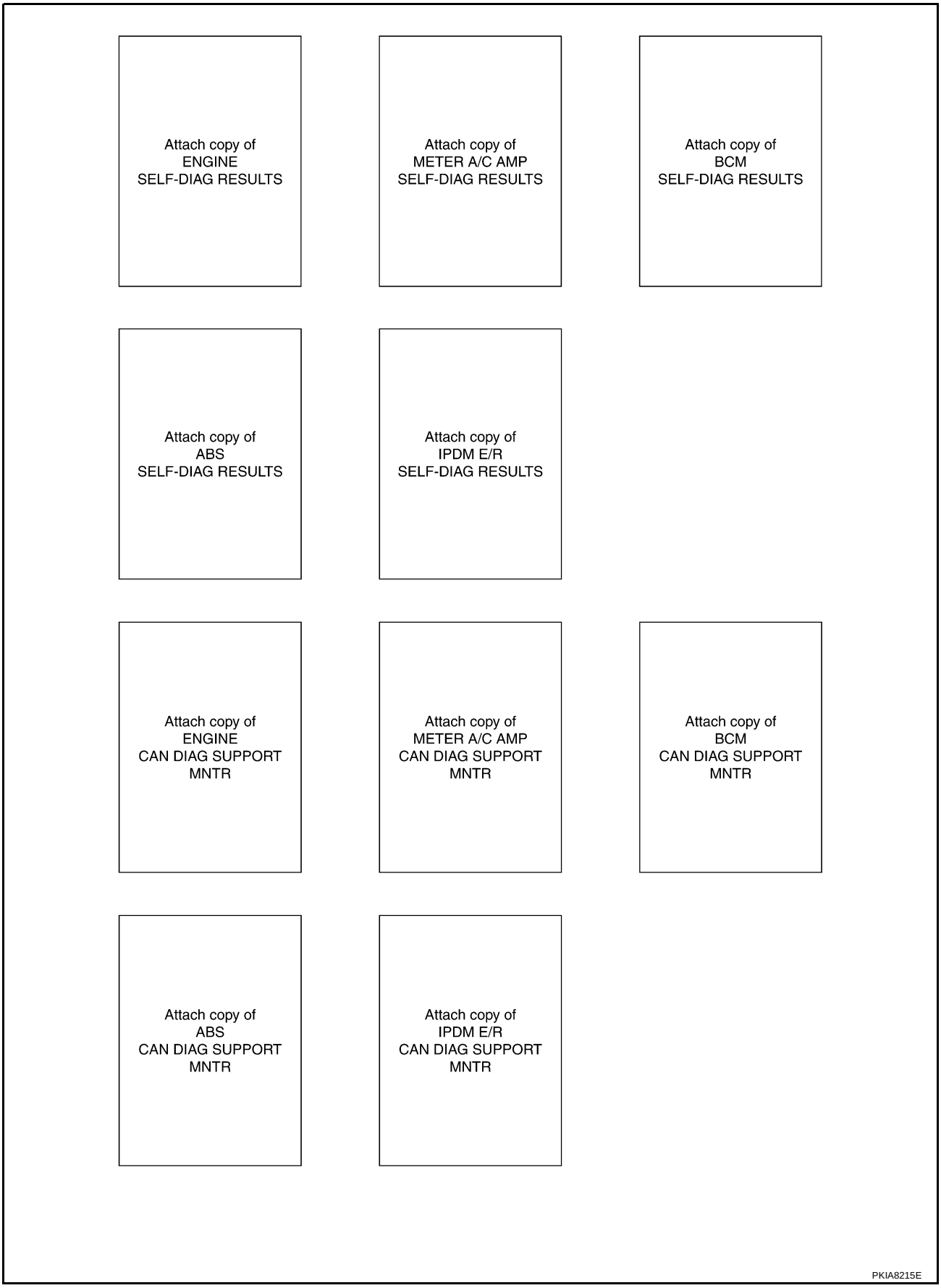
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						
		Initial diagnosis	Transmit diagnosis	Receive diagnosis				
				ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
METER A/C AMP	No indication	—	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	—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

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIA8214E


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
IPDM E/R
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
Attach copy of
IPDM E/R
CAN DIAG SUPPORT
MNTR
PKIA8215E

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

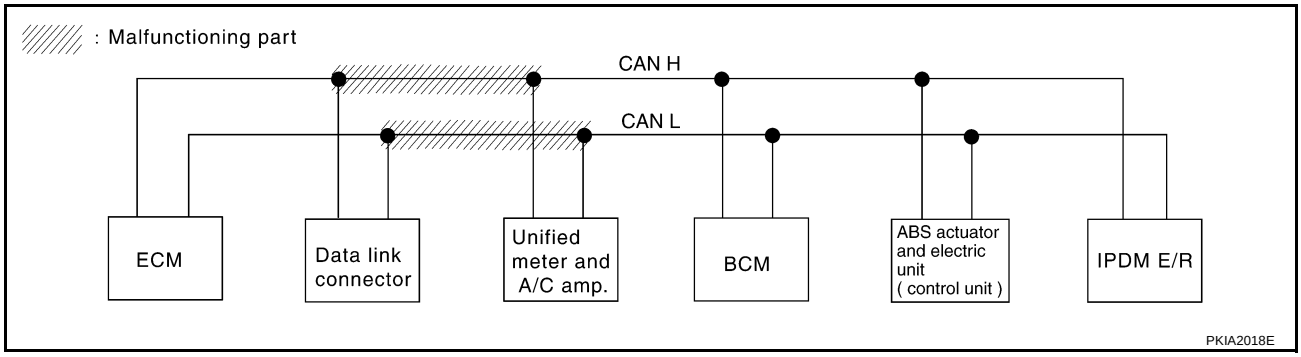
If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)” as “CAN DIAG SUPPORT MNTR” for the diagnosed control unit, replace the control unit.

Case 1

Check harness between data link connector and unified meter and A/C amp. Refer to LAN-54, "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	No indication ✓	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN ✓	–	–	–	–
IPDM E/R	No indication ✓	–	UNKWN	UNKWN	–	UNKWN	–	–

PKIA8216E



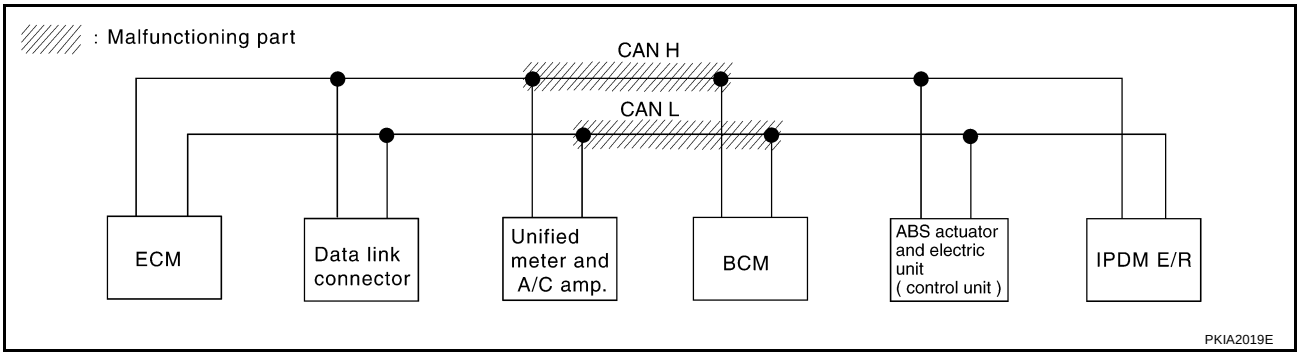
PKIA2018E

Case 2

Check harness between unified meter and A/C amp. and BCM. Refer to LAN-54, "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	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–

PKIA8217E



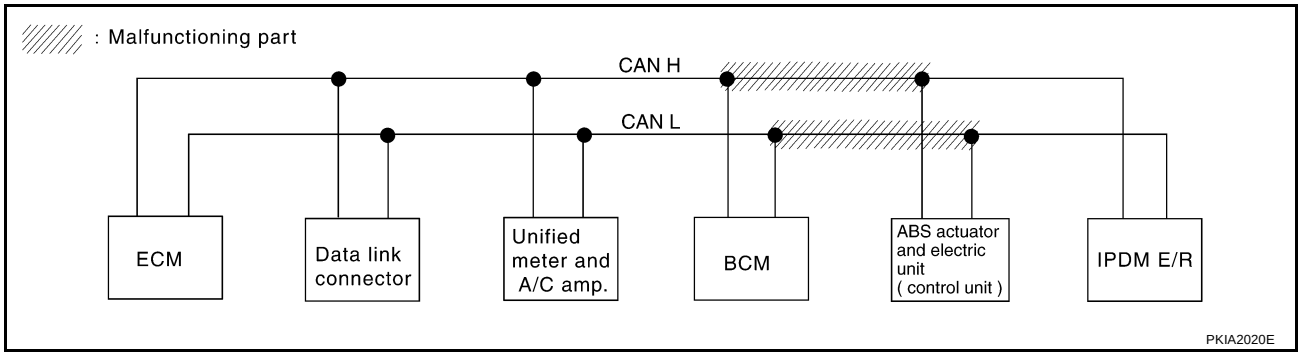
PKIA2019E

Case 3

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to LAN-54, "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	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN ✓
ABS	—	NG	UNKWN	UNKWN ✓	—	—	—	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	UNKWN	—	—

PKIA8218E



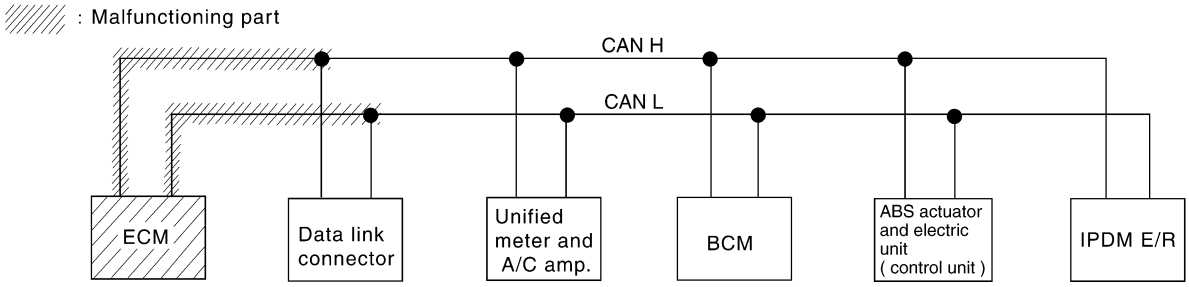
PKIA2020E

Case 4

Check ECM circuit. Refer to LAN-55, "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	No indication	NG	UNKWN	UNKWN ✓	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN ✓	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN ✓	–	UNKWN	–	–

PKIA8219E



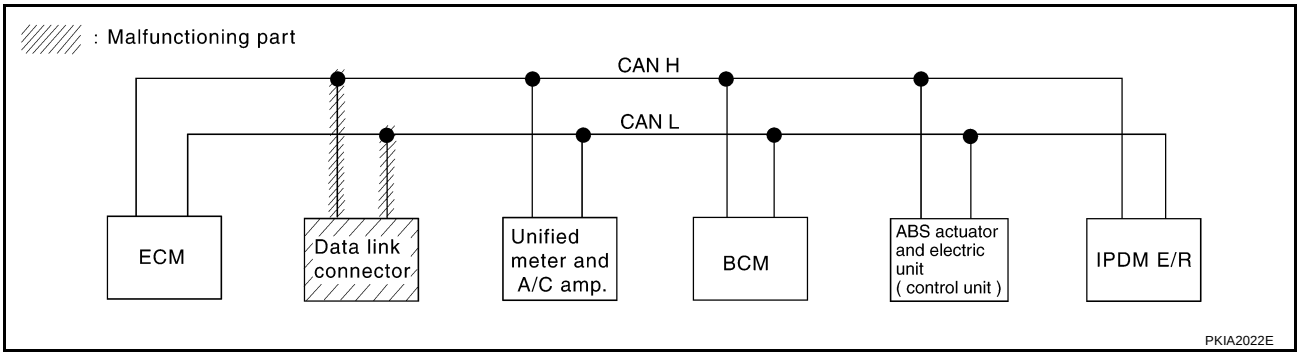
PKIA2021E

Case 5

Check data link connector circuit. Refer to LAN-56, "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	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–

PKIA8220E



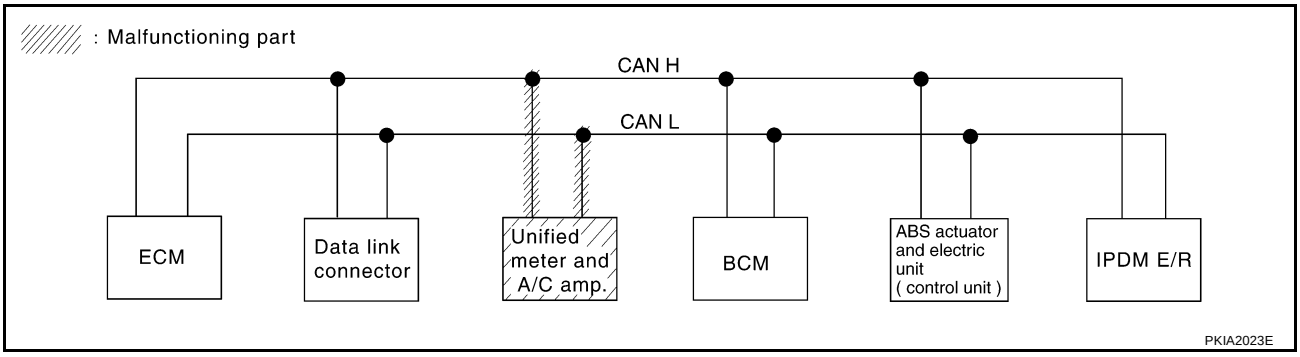
PKIA2022E

Case 6

Check unified meter and A/C amp. circuit. Refer to LAN-56, "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	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–

PKIA8221E



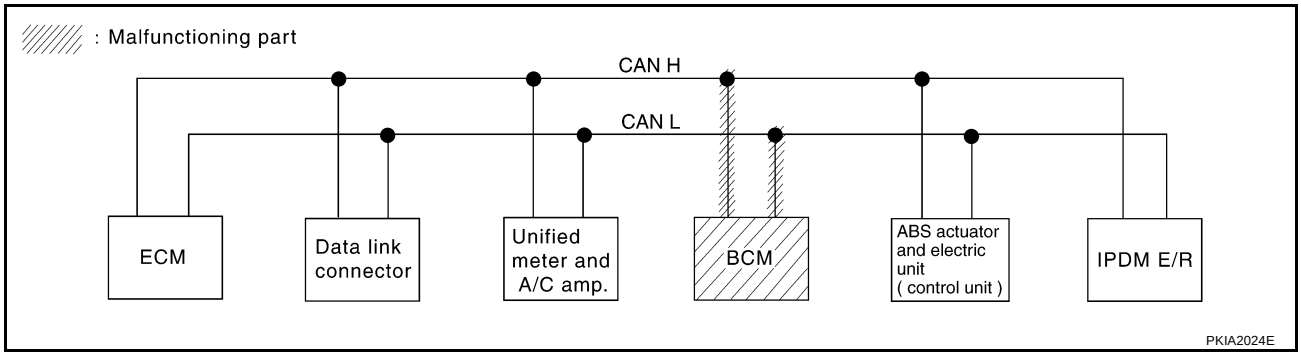
PKIA2023E

Case 7

Check BCM circuit. Refer to LAN-57, "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	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	UNKWN	UNKWN	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—

PKIA8222E



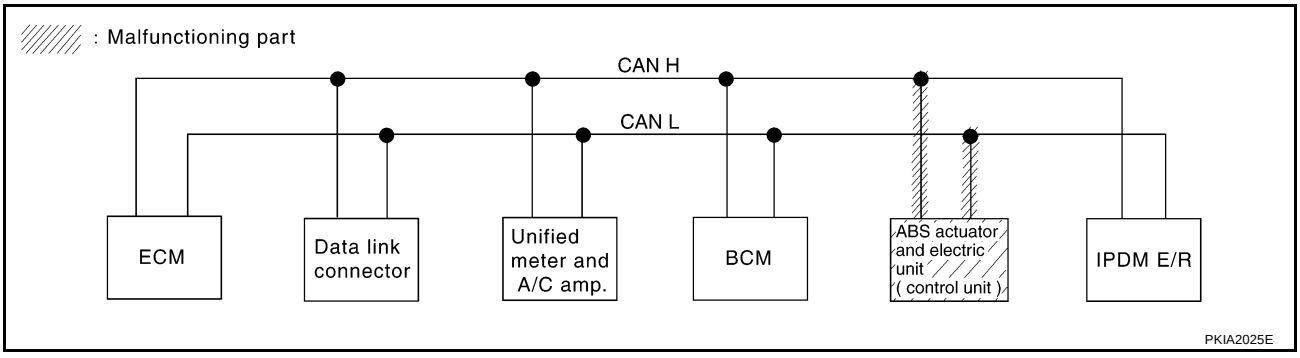
PKIA2024E

Case 8

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-57, "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	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	UNKWN	UNKWN	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—

PKIA8223E



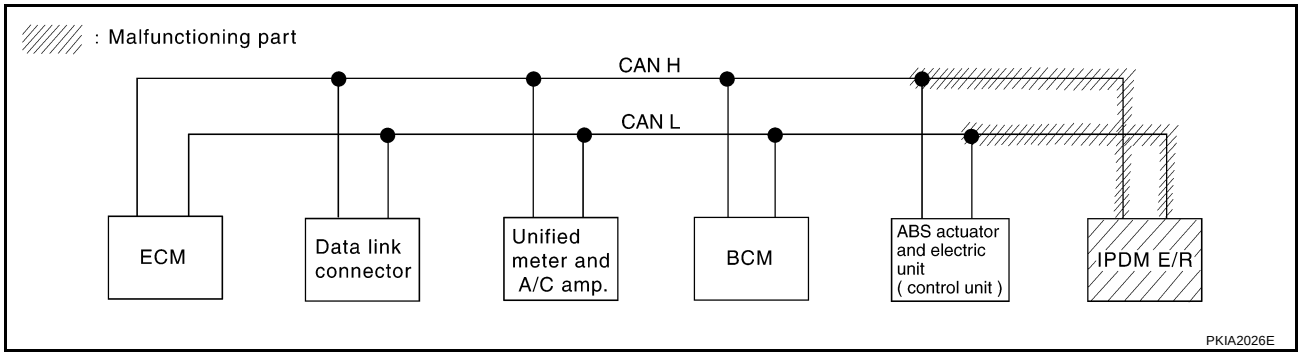
PKIA2025E

Case 9

Check IPDM E/R circuit. Refer to LAN-58, "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	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–

PKIA8224E



PKIA2026E

Case 10

Check CAN communication circuit. Refer to LAN-59, "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	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–

PKIA8225E

Case 11

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-61, "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	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–

PKIA8226E

Case 12

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-61, "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	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–

PKIA8227E

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

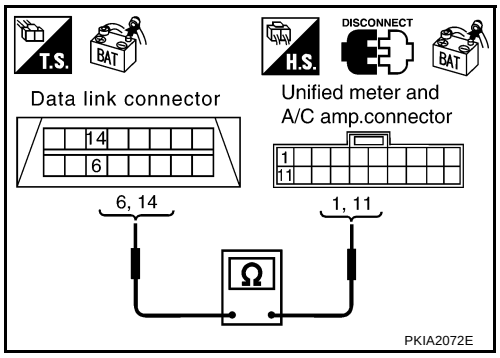
AKS00A9B

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 (P) and unified meter and A/C amp. harness connector M48 terminals 1 (L), 11 (P).

6 (L) – 1 (L) : Continuity should exist.

14 (P) – 11 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-41, "Work Flow" .

NG >> Repair harness.

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

AKS00A9C

1. CHECK HARNESS FOR OPEN CIRCUIT

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

– ECM connector

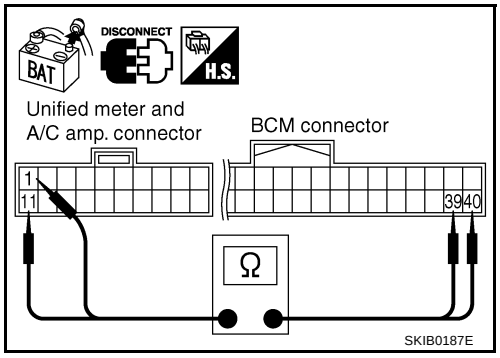
– Unified meter and A/C amp. connector

– BCM connector

4. Check continuity between unified meter and A/C amp. harness connector M48 terminals 1 (L), 11 (P) and BCM harness connector M90 terminals 39 (L), 40 (P).

1 (L) – 39 (L) : Continuity should exist.

11 (P) – 40 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-41, "Work Flow" .

NG >> Repair harness.

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

AKS00A9D

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

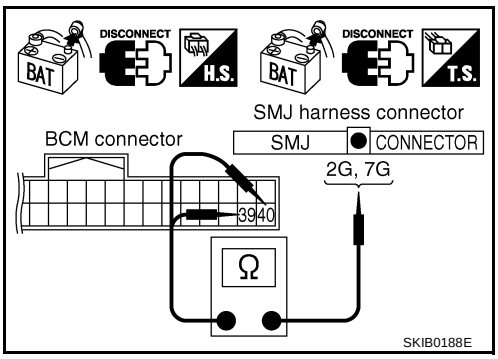
OK >> GO TO 2.

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 M90 terminals 39 (L), 40 (P) and harness connector M15 terminals 2G (L), 7G (P).

39 (L) – 2G (L) : Continuity should exist.
40 (P) – 7G (P) : Continuity should exist.



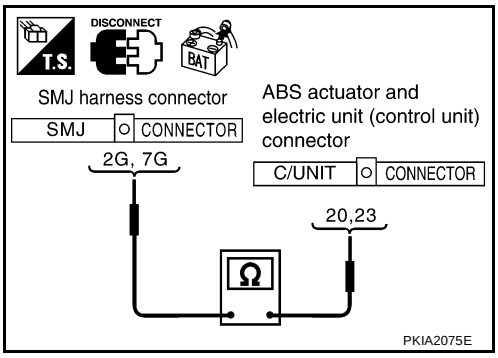
OK or NG

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 (P) and ABS actuator and electric unit (control unit) harness connector E51 terminals 20 (L), 23 (P).

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



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-41, "Work Flow" .
NG >> Repair harness.

ECM Circuit Check

AKS00A9E

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.

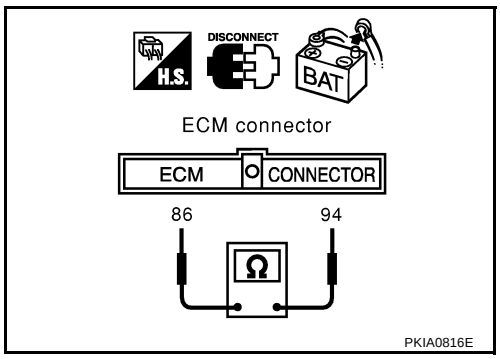
2. CHECK HARNESS FOR OPEN CIRCUIT

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

94 (L) – 86 (P) : Approx. 108 – 132Ω

OK or NG

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



Data Link Connector Circuit Check

AKS00A9F

1. CHECK CONNECTOR

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

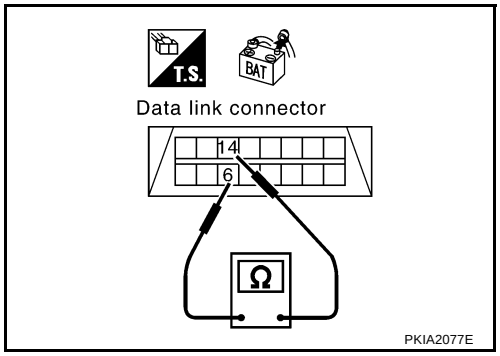
2. CHECK HARNESS FOR OPEN CIRCUIT

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

6 (L) – 14 (P) : Approx. 54 – 66Ω

OK or NG

OK >> Diagnose again. Refer to LAN-41, "Work Flow" .
NG >> Repair harness between data link connector and unified meter and A/C amp.



Unified Meter and A/C Amp. Circuit Check

AKS00A9G

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.

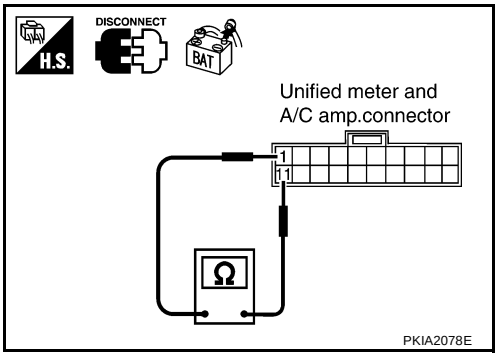
2. CHECK HARNESS FOR OPEN CIRCUIT

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 (P).

1 (L) – 11 (P) : 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

AKS00A9H

1. CHECK CONNECTOR

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

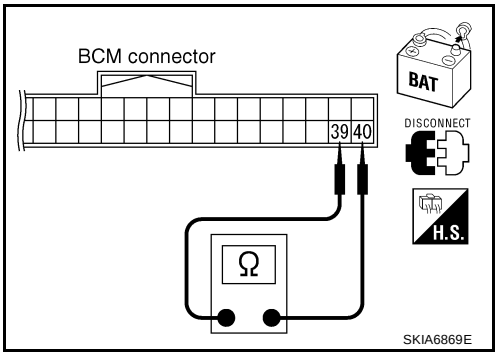
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M90 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : 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

AKS00A9I

1. CHECK CONNECTOR

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

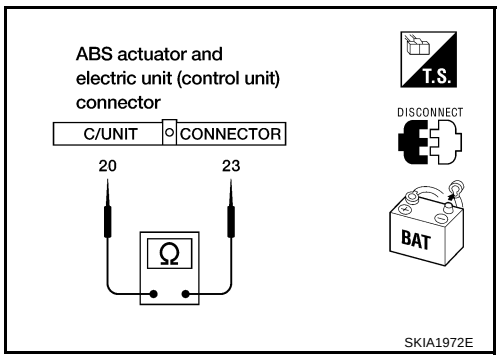
OK or NG

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 (P).

20 (L) – 23 (P) : 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

AKS00A9J

1. CHECK CONNECTOR

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

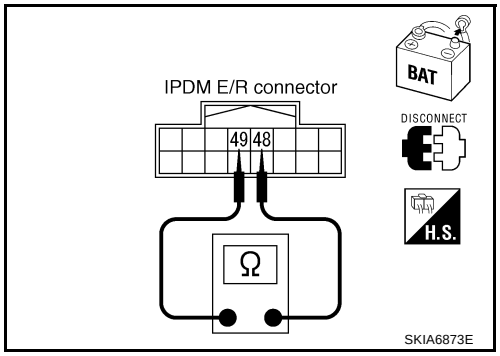
OK or NG

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 (P).

48 (L) – 49 (P) : 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

AKS00A9K

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

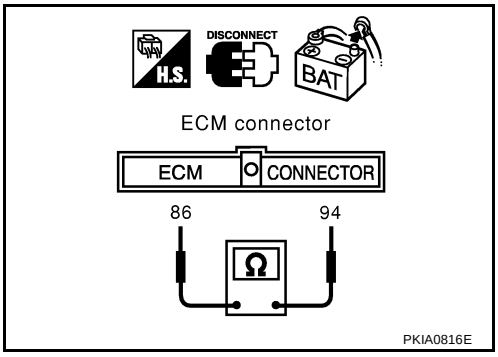
OK or NG

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 (P).

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



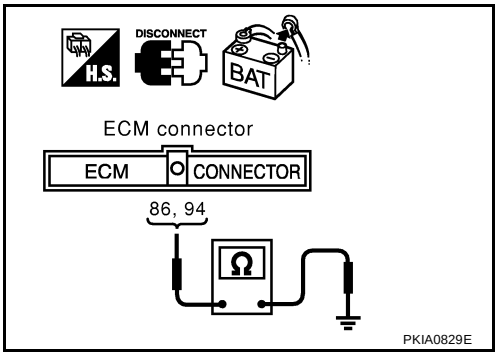
OK or NG

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 (P) and ground.

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



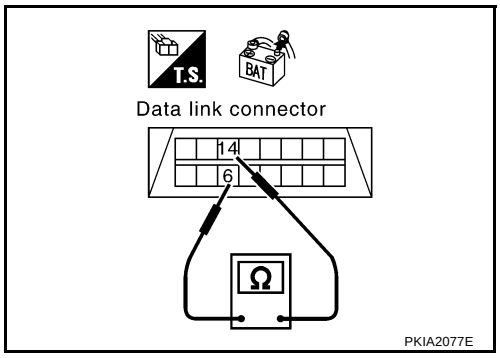
OK or NG

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 (P).

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



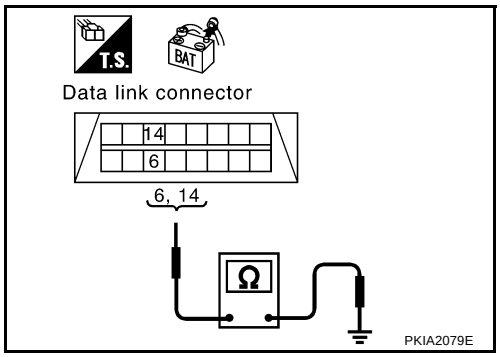
OK or NG

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 (P) and ground.

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



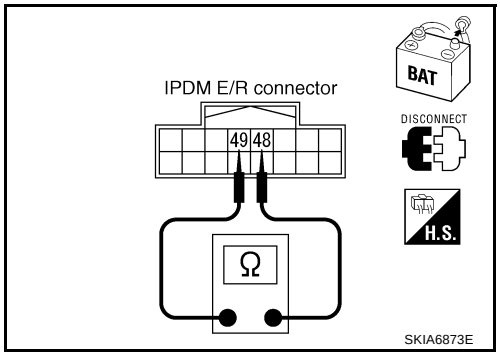
OK or NG

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 (P).

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



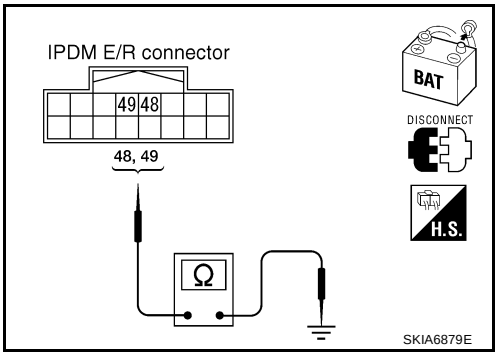
OK or NG

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 (P) and ground.

48 (L) – ground : Continuity should not exist.
49 (P) – 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-61, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION" .

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-41, "Work Flow" .
NG >> Replace ECM and/or IPDM E/R.

IPDM E/R Ignition Relay Circuit Check

AKS00A9L

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

- IPDM E/R power supply circuit. Refer to PG-28, "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”" .

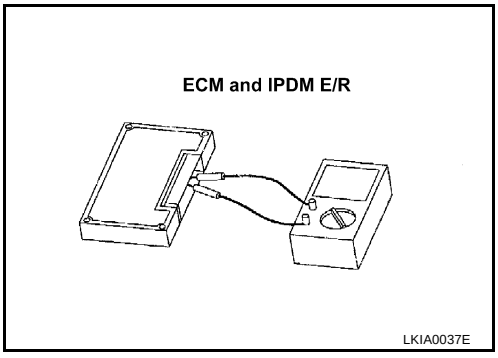
Component Inspection

AKS00A9M

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 3)

PFP:23710

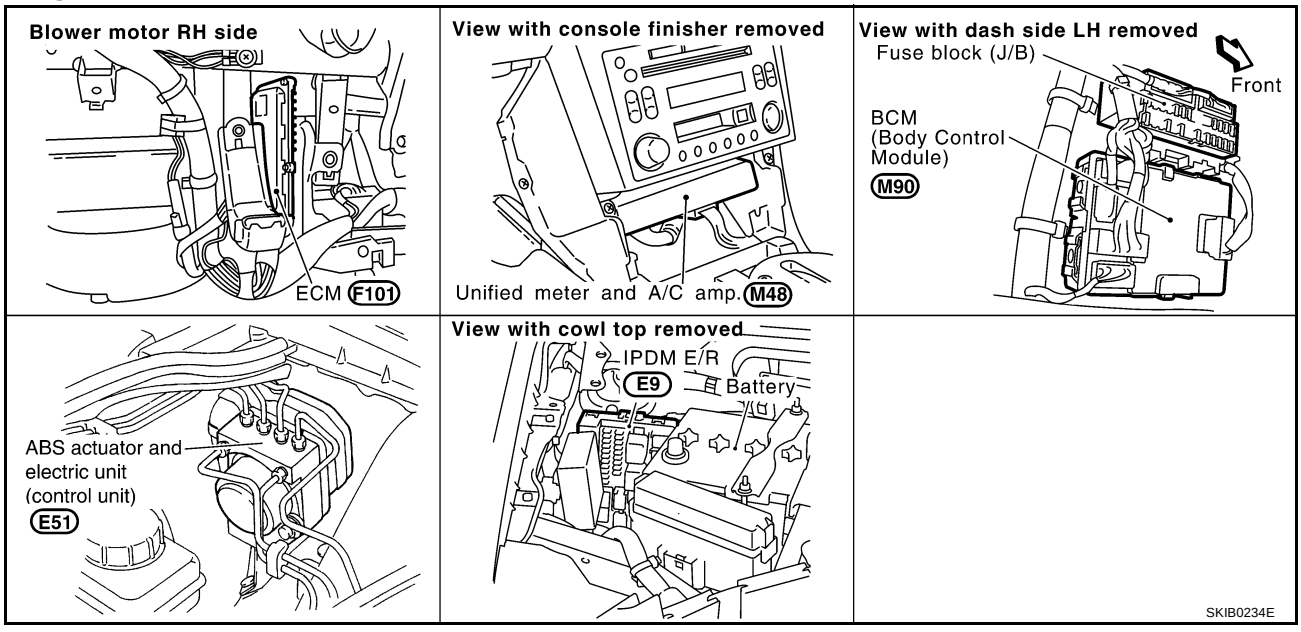
System Description

AKS009DC

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

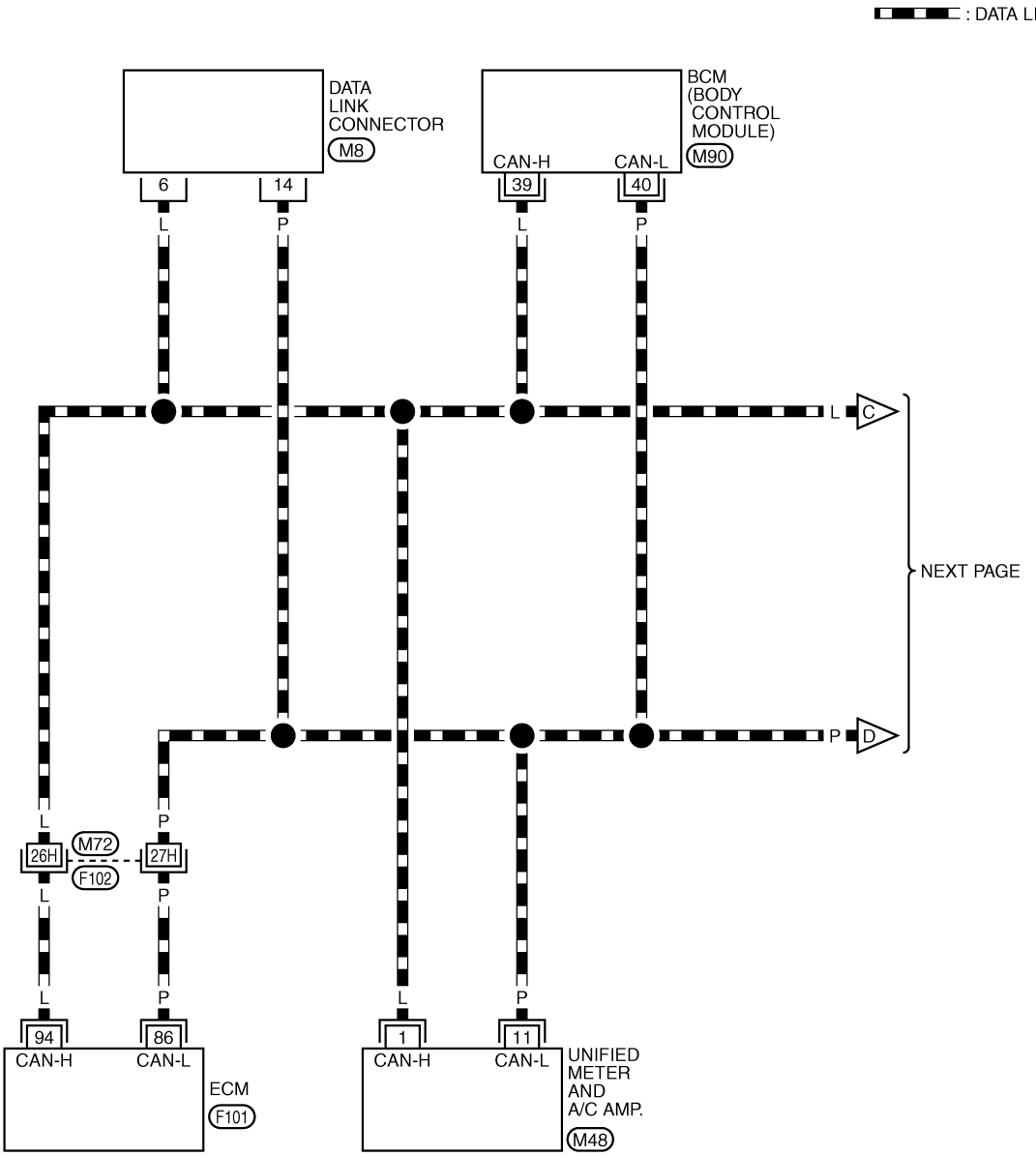
AKS009DD

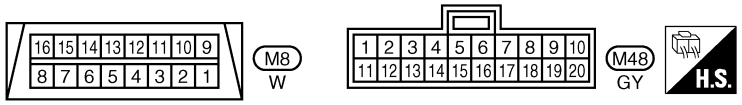


Wiring Diagram — CAN —

AKS009DE

LAN-CAN-03

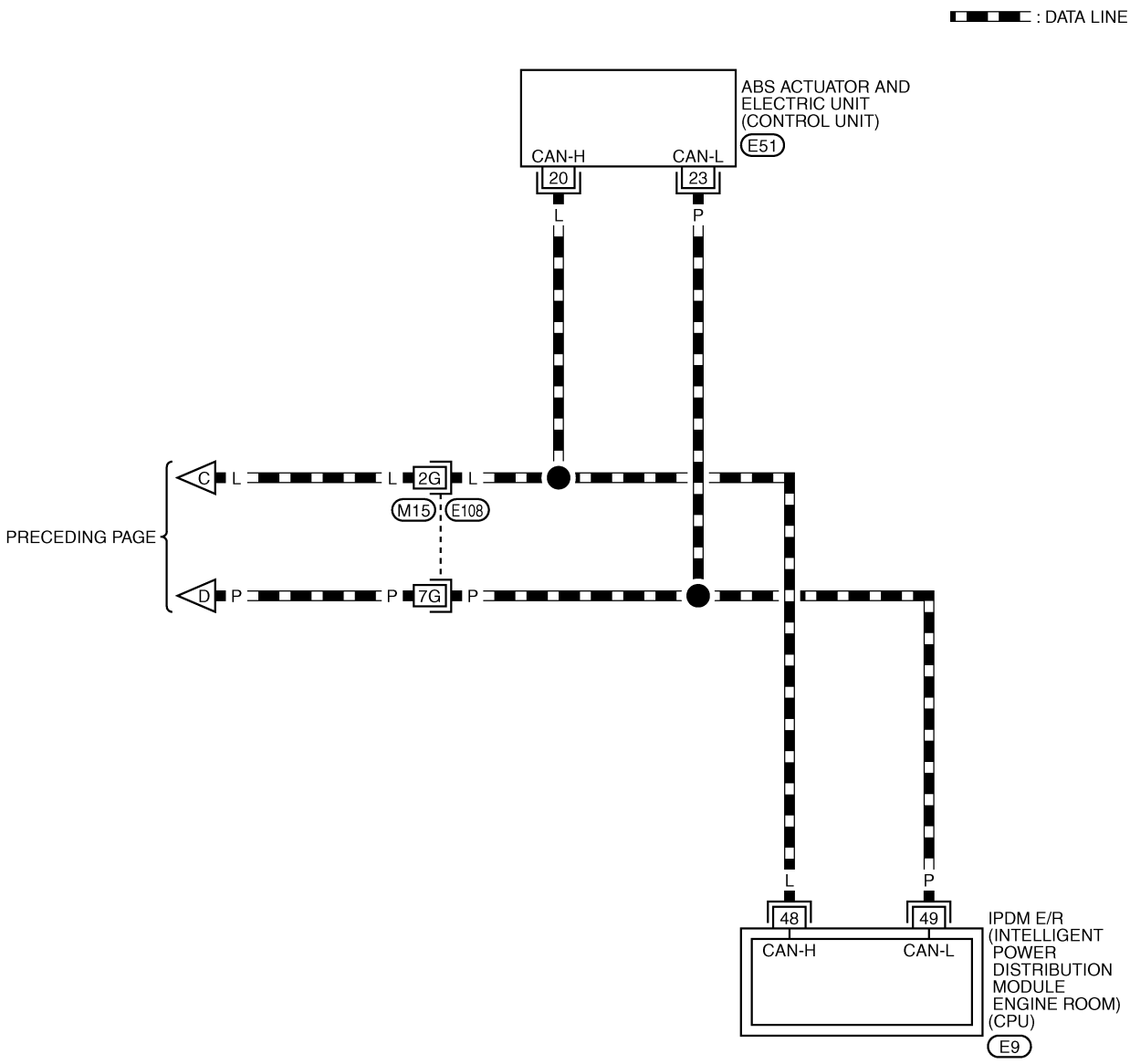


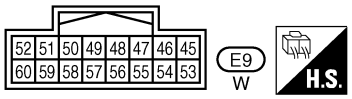


REFER TO THE FOLLOWING.
F102 -SUPER MULTIPLE JUNCTION (SMJ)
M90 , F101 -ELECTRICAL UNITS

TKWT1862E

LAN-CAN-04





REFER TO THE FOLLOWING.

E108 -SUPER MULTIPLE JUNCTION (SMJ)

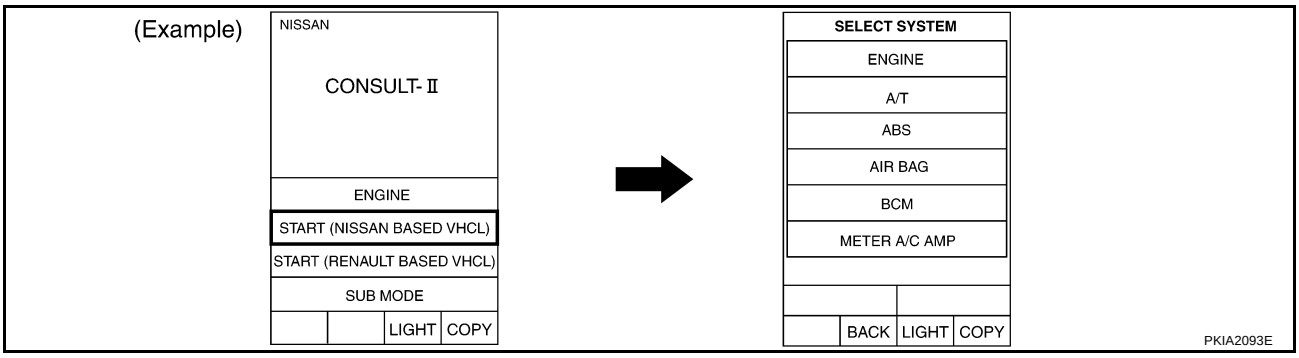
E51 -ELECTRICAL UNITS

TKWT1555E

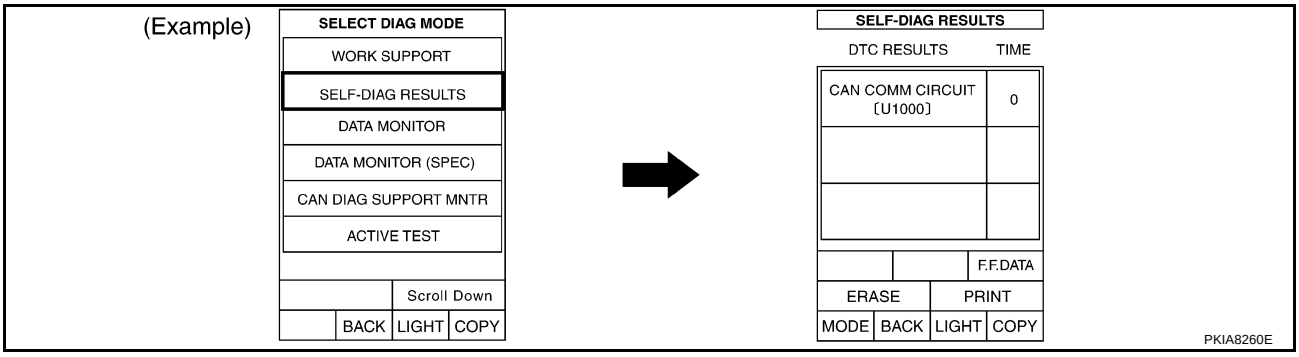
Work Flow

AKS00A9N

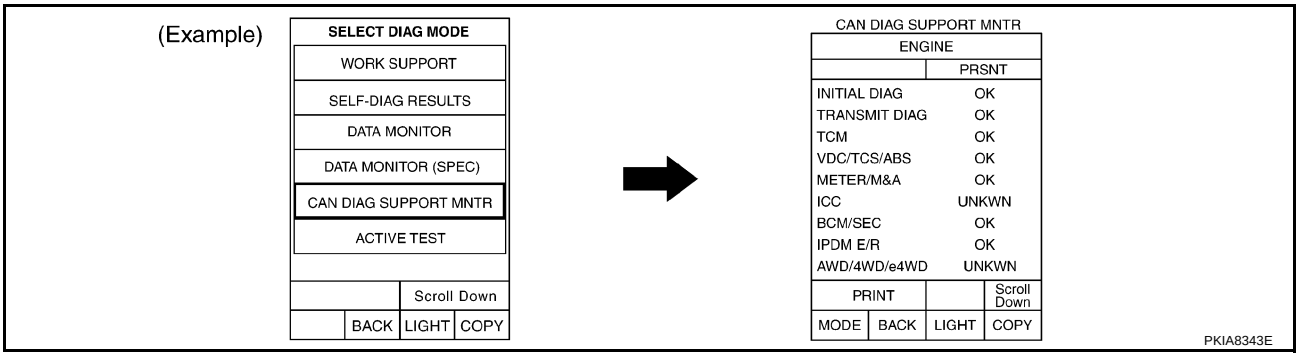
1. When there are no indications of “METER A/C AMP”, “BCM” or “IPDM E/R” on “SELECT SYSTEM” display of CONSULT-II, print the “SELECT SYSTEM”.



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



3. Print all the data of “CAN DIAG SUPPORT MNTR” for “ENGINE”, “METER A/C AMP”, “BCM”, “ABS” and “IPDM E/R” 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-66, "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-66, "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-68, "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

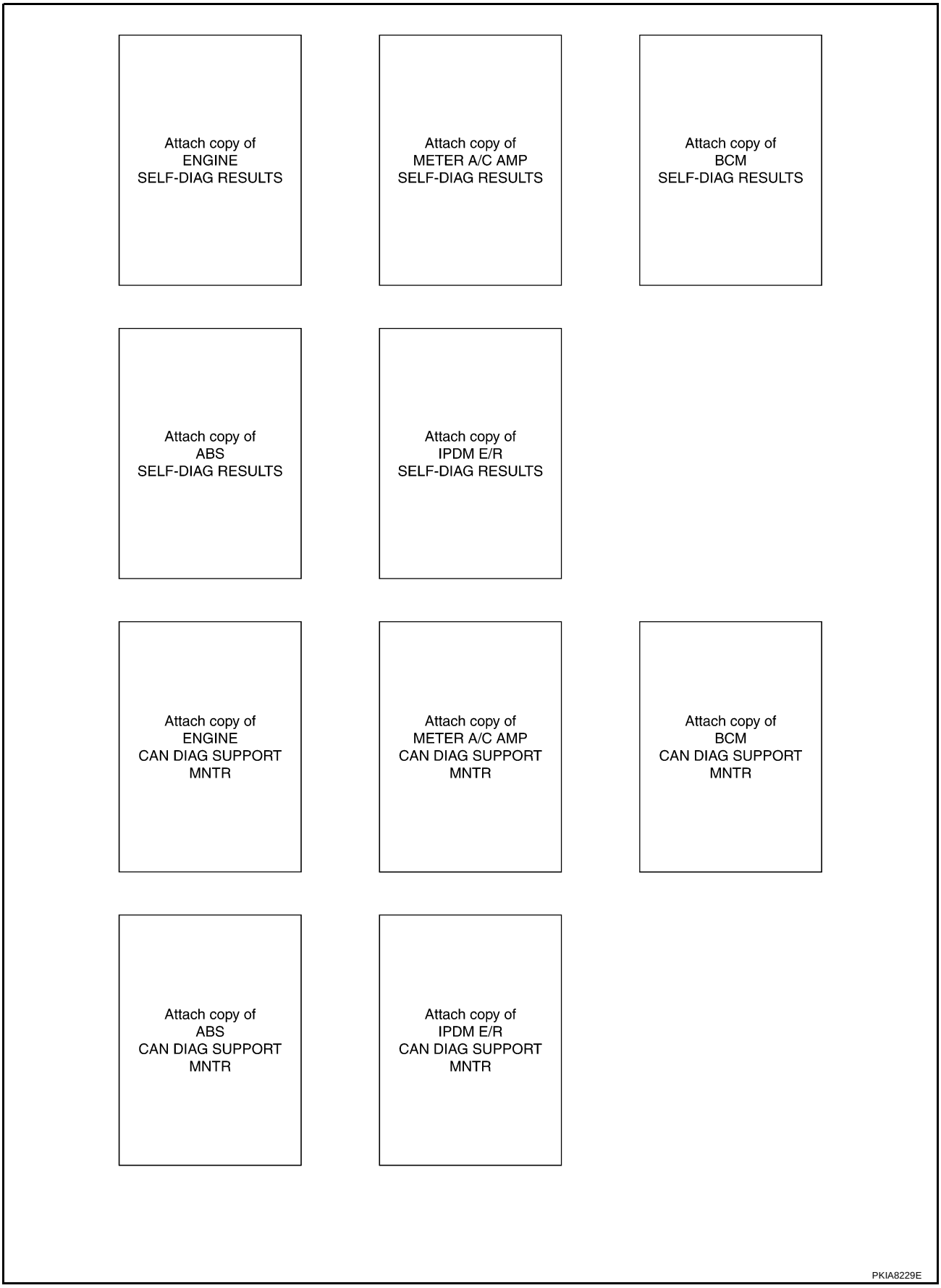
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						
		Initial diagnosis	Transmit diagnosis	Receive diagnosis				
				ECM	METER/M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	—	UNKWN
METER A/C AMP	No indication	—	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN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

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIA8228E


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
IPDM E/R
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
Attach copy of
IPDM E/R
CAN DIAG SUPPORT
MNTR
PKIA8229E

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

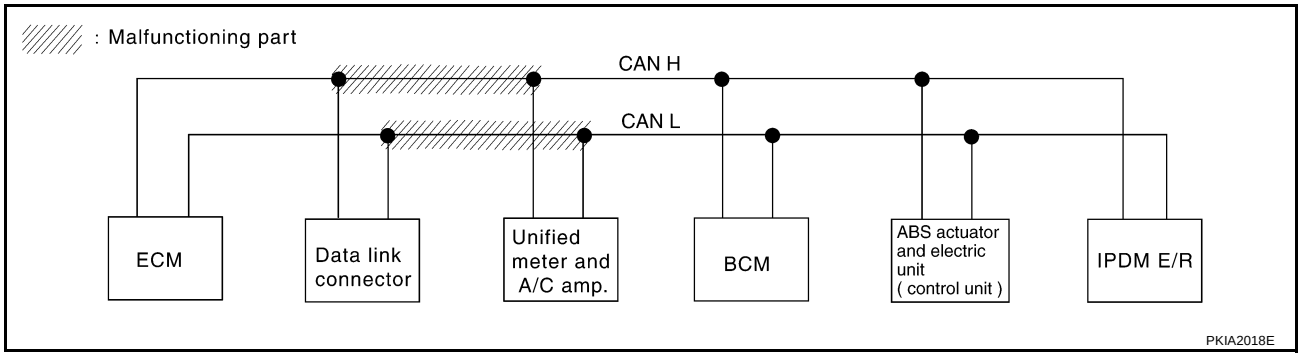
If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)” as “CAN DIAG SUPPORT MNTR” for the diagnosed control unit, replace the control unit.

Case 1

Check harness between data link connector and unified meter and A/C amp. Refer to LAN-78, "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 ✓
METER A/C AMP	No indication ✓	–	UNKWN	UNKWN	–	UNKWN	UNKWN	–
BCM	No indication ✓	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN ✓	–	–	–	–
IPDM E/R	No indication ✓	–	UNKWN	UNKWN	–	UNKWN	–	–

PKIA8230E



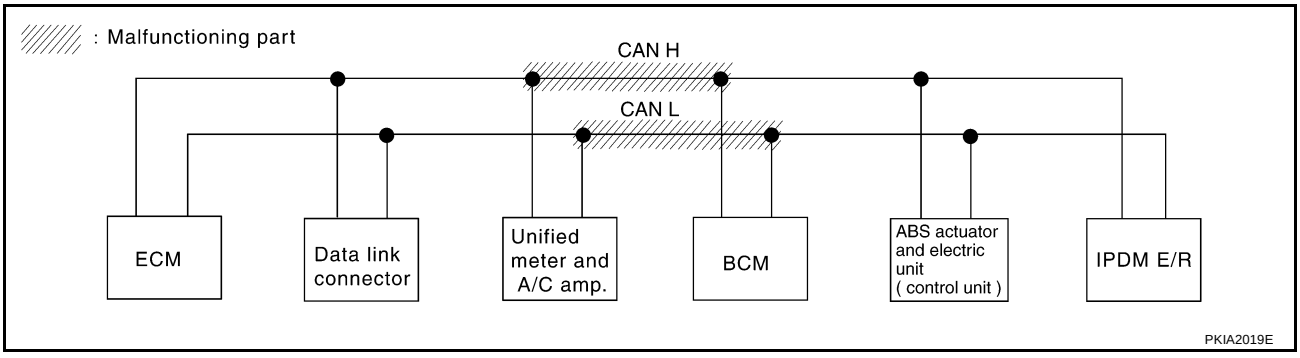
PKIA2018E

Case 2

Check harness between unified meter and A/C amp. and BCM. Refer to LAN-78, "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
METER A/C AMP	No indication	–	UNKWN	UNKWN	–	UNKWN	UNKWN	–
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–

PKIA8231E



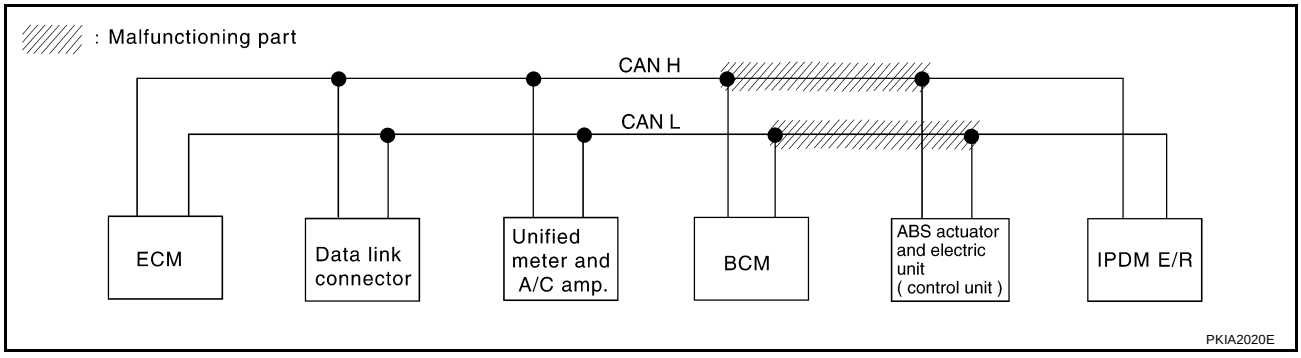
PKIA2019E

Case 3

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to LAN-78, "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
METER A/C AMP	No indication	–	UNKWN	UNKWN	–	UNKWN	UNKWN	–
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–

PKIA8232E



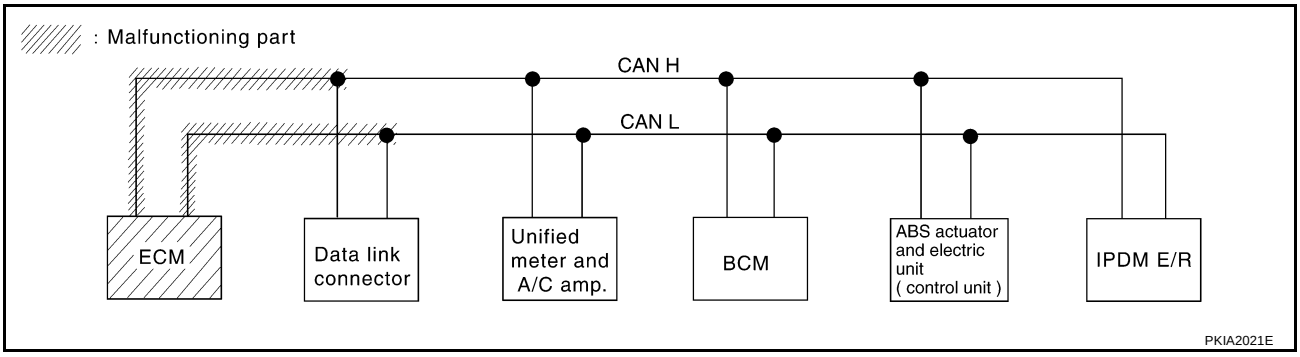
PKIA2020E

Case 4

Check ECM circuit. Refer to LAN-79, "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 ✓
METER A/C AMP	No indication	–	UNKWN	UNKWN ✓	–	UNKWN	UNKWN	–
BCM	No indication	NG	UNKWN	UNKWN ✓	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN ✓	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN ✓	–	UNKWN	–	–

PKIA8233E



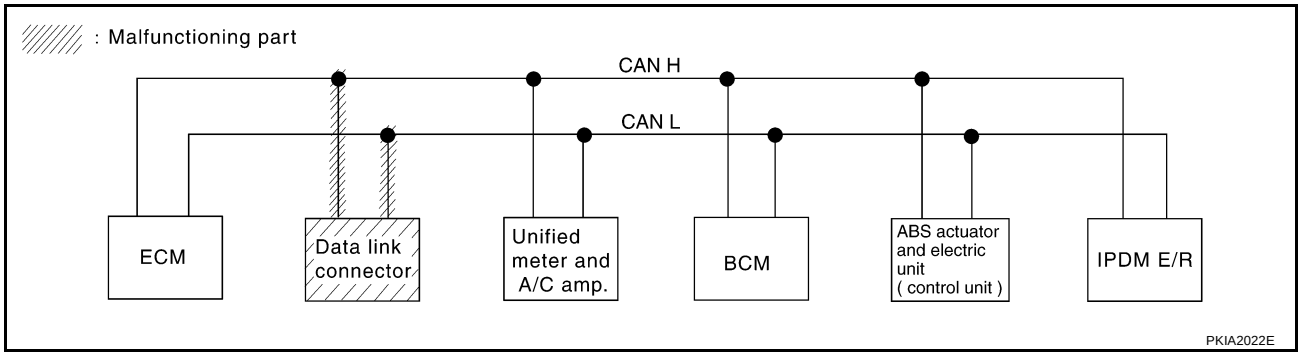
PKIA2021E

Case 5

Check data link connector circuit. Refer to LAN-80, "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
METER A/C AMP	No indication	–	UNKWN	UNKWN	–	UNKWN	UNKWN	–
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–

PKIA8234E



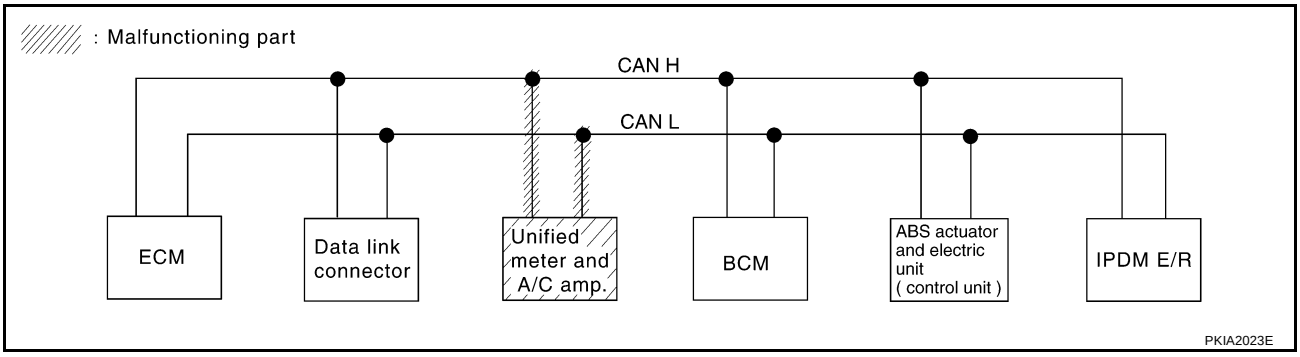
PKIA2022E

Case 6

Check unified meter and A/C amp. circuit. Refer to LAN-80, "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
METER A/C AMP	No indication	–	UNKWN	UNKWN	–	UNKWN	UNKWN	–
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–

PKIA8235E



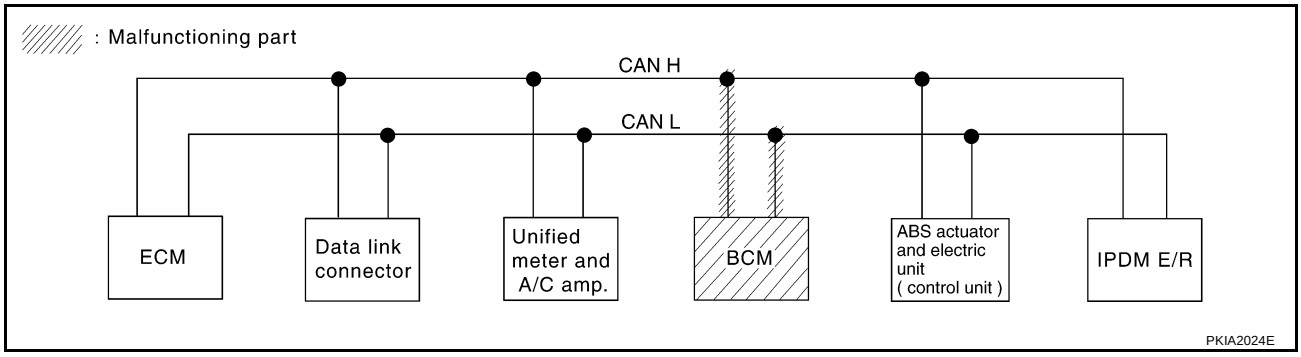
PKIA2023E

Case 7

Check BCM circuit. Refer to LAN-81, "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
METER A/C AMP	No indication	–	UNKWN	UNKWN	–	UNKWN	UNKWN	–
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–

PKIA8236E



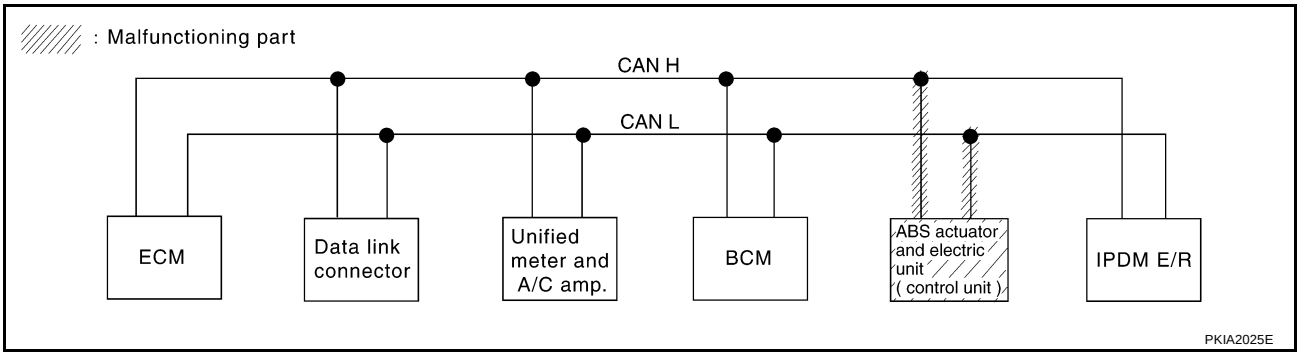
PKIA2024E

Case 8

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-81, "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
METER A/C AMP	No indication	—	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	UNKWN	UNKWN	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—

PKIA8237E



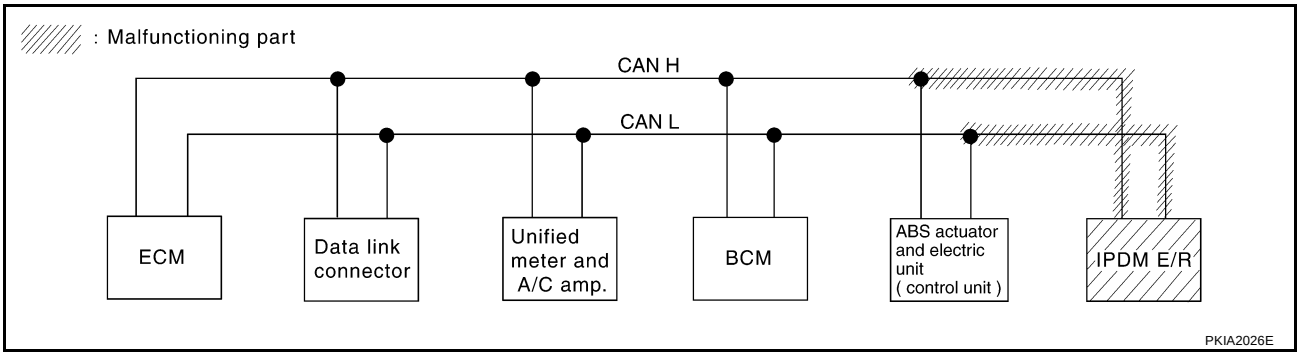
PKIA2025E

Case 9

Check IPDM E/R circuit. Refer to LAN-82, "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 ✓
METER A/C AMP	No indication	–	UNKWN	UNKWN	–	UNKWN	UNKWN	–
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN ✓
ABS	–	NG	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication ✓	–	UNKWN	UNKWN	–	UNKWN	–	–

PKIA8238E



PKIA2026E

Case 10

Check CAN communication circuit. Refer to LAN-83, "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 ✓
METER A/C AMP	No indication ✓	–	UNKWN	UNKWN	–	UNKWN	UNKWN	–
BCM	No indication ✓	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN ✓	UNKWN	–	–	–	–
IPDM E/R	No indication ✓	–	UNKWN	UNKWN	–	UNKWN	–	–

PKIA8239E

Case 11

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-85, "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
METER A/C AMP	No indication	–	UNKWN	UNKWN	–	UNKWN	UNKWN	–
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–

PKIA8240E

Case 12

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-85, "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
METER A/C AMP	No indication	–	UNKWN	UNKWN	–	UNKWN	UNKWN	–
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN
ABS	–	NG	UNKWN	UNKWN	–	–	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–

PKIA8241E

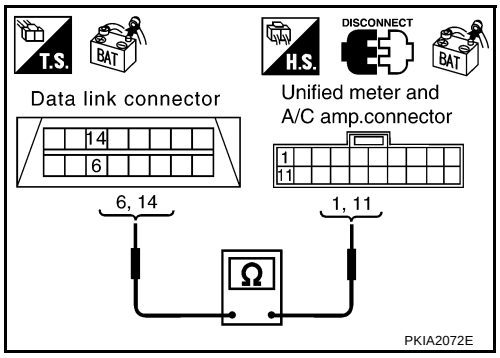
Circuit Check Between Data Link Connector and Unified Meter and A/C Amp.

AKS00A9O

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 (P) and unified meter and A/C amp. harness connector M48 terminals 1 (L), 11 (P).

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



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-65, "Work Flow" .
NG >> Repair harness.

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

AKS00A9P

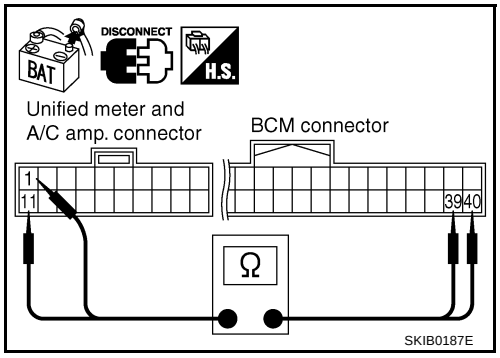
1. CHECK HARNESS FOR OPEN CIRCUIT

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 (P) and BCM harness connector M90 terminals 39 (L), 40 (P).

1 (L) – 39 (L) : Continuity should exist.
11 (P) – 40 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-65, "Work Flow" .
NG >> Repair harness.

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

AKS00A9Q

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

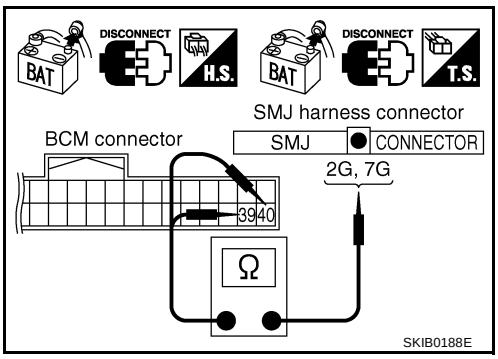
OK or NG

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 M90 terminals 39 (L), 40 (P) and harness connector M15 terminals 2G (L), 7G (P).

39 (L) – 2G (L) : Continuity should exist.
40 (P) – 7G (P) : Continuity should exist.



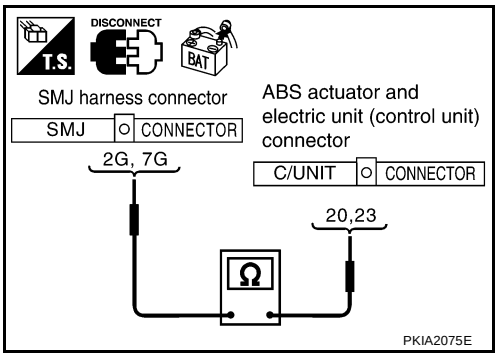
OK or NG

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 (P) and ABS actuator and electric unit (control unit) harness connector E51 terminals 20 (L), 23 (P).

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



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-65, "Work Flow" .
NG >> Repair harness.

ECM Circuit Check

AKS00A9R

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.

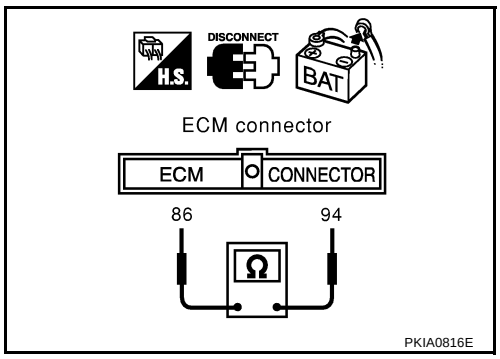
2. CHECK HARNESS FOR OPEN CIRCUIT

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

94 (L) – 86 (P) : Approx. 108 – 132Ω

OK or NG

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



Data Link Connector Circuit Check

AKS00A9S

1. CHECK CONNECTOR

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

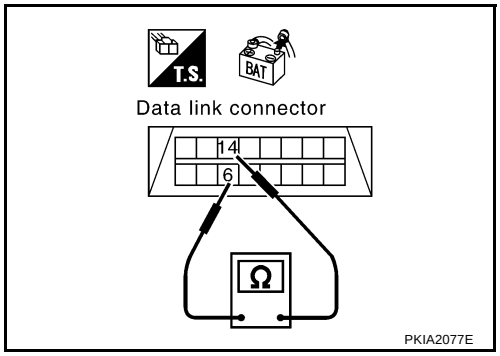
2. CHECK HARNESS FOR OPEN CIRCUIT

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

6 (L) – 14 (P) : Approx. 54 – 66Ω

OK or NG

OK >> Diagnose again. Refer to LAN-65, "Work Flow" .
NG >> Repair harness between data link connector and unified meter and A/C amp.



Unified Meter and A/C Amp. Circuit Check

AKS00A9T

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.

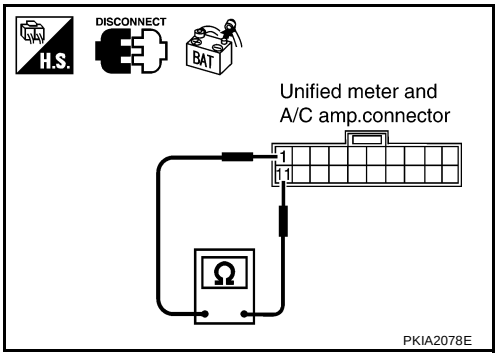
2. CHECK HARNESS FOR OPEN CIRCUIT

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 (P).

1 (L) – 11 (P) : 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

AKS00A9U

1. CHECK CONNECTOR

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

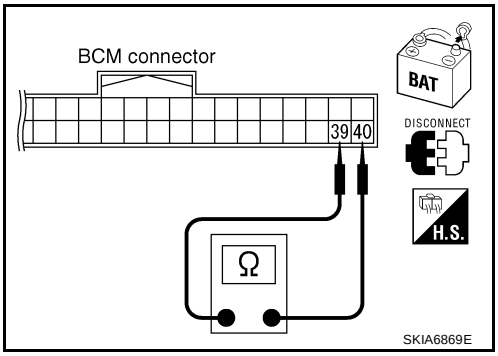
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M90 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : 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

AKS00A9V

1. CHECK CONNECTOR

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

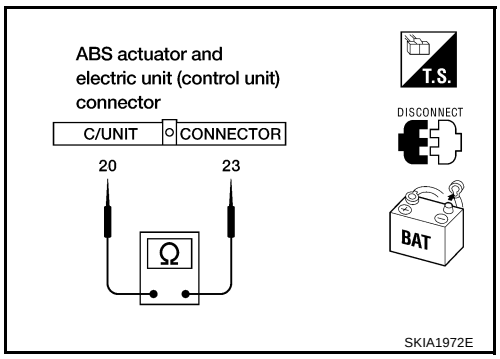
2. CHECK HARNESS FOR OPEN CIRCUIT

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 (P).

20 (L) – 23 (P) : 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

AKS00A9W

1. CHECK CONNECTOR

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

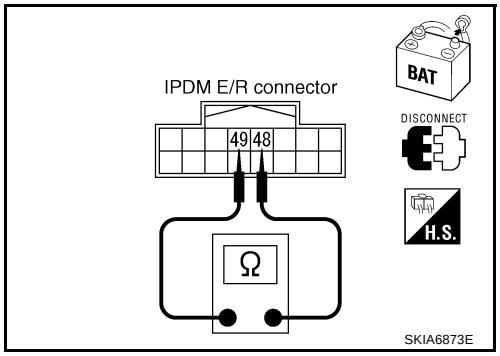
2. CHECK HARNESS FOR OPEN CIRCUIT

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

48 (L) – 49 (P) : 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

AKS00A9X

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.

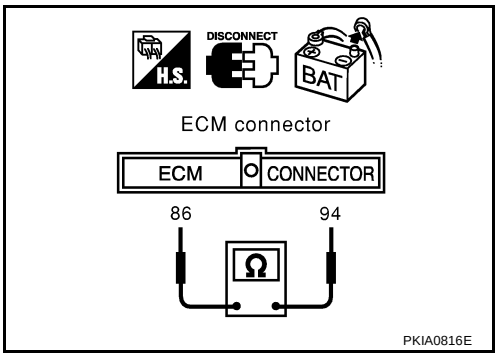
2. CHECK HARNESS FOR SHORT CIRCUIT

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

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

OK or NG

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



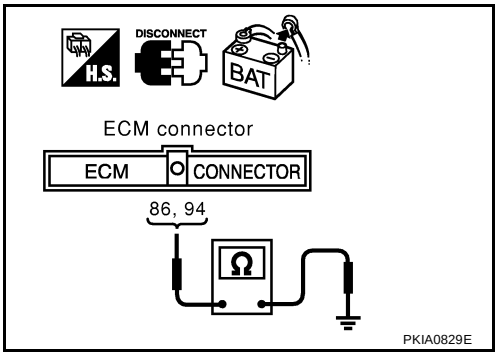
3. CHECK HARNESS FOR SHORT CIRCUIT

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

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

OK or NG

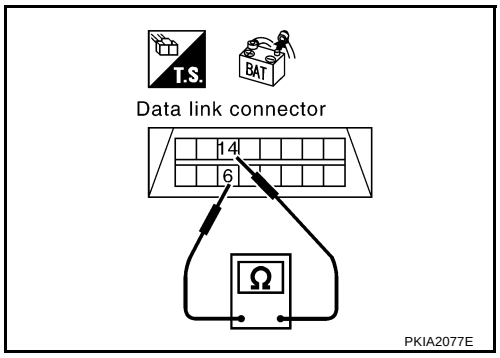
OK >> GO TO 4.
NG >> Repair harness between ECM and harness connector F102.



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 (P).

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



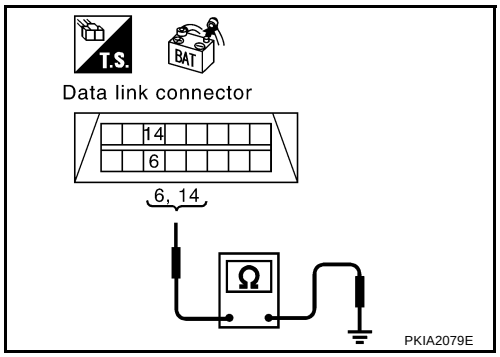
OK or NG

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 (P) and ground.

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



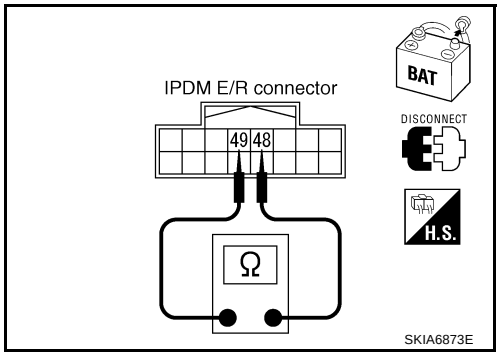
OK or NG

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 (P).

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



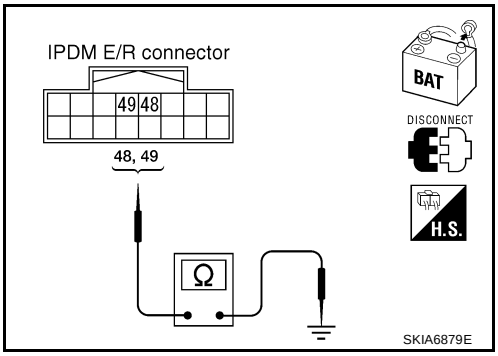
OK or NG

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 (P) and ground.

48 (L) – ground : Continuity should not exist.
49 (P) – 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-85, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION" .

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-65, "Work Flow" .
NG >> Replace ECM and/or IPDM E/R.

IPDM E/R Ignition Relay Circuit Check

AKS00A9Y

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

- IPDM E/R power supply circuit. Refer to PG-28, "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”" .

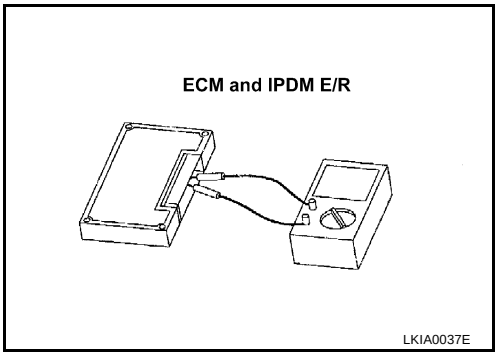
Component Inspection

AKS00A9Z

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 4)

PFP:23710

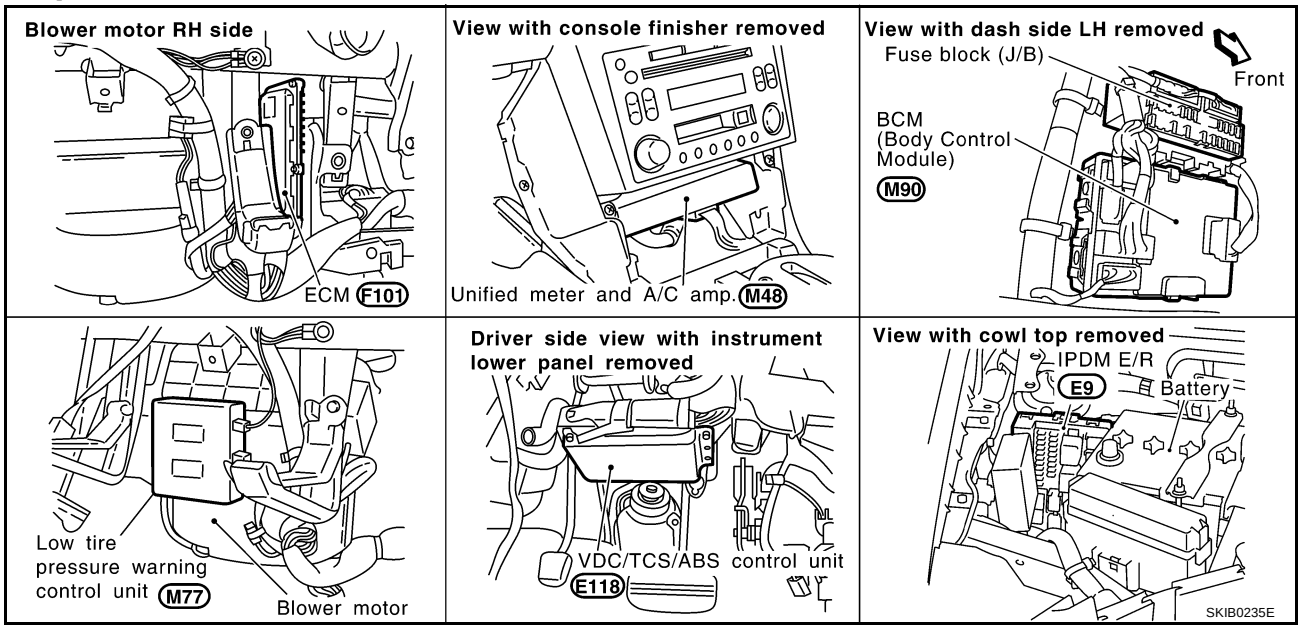
System Description

AKS009DT

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

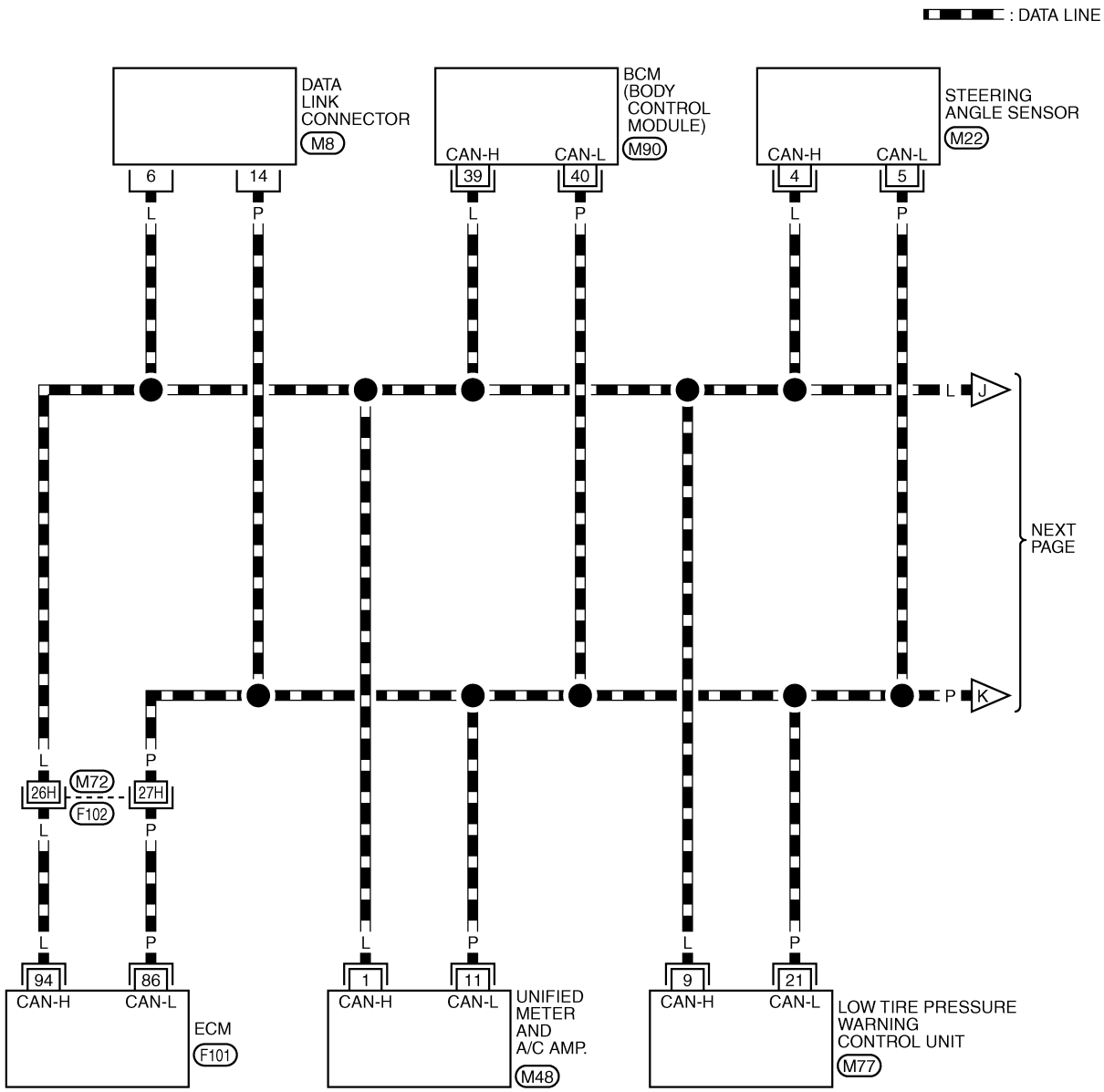
AKS009DU

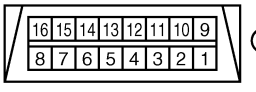


Wiring Diagram — CAN —

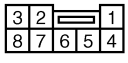
AKS009DV

LAN-CAN-05

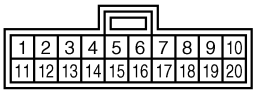




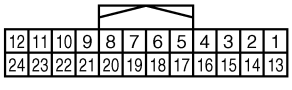
M8
W



M22
W



M48
GY

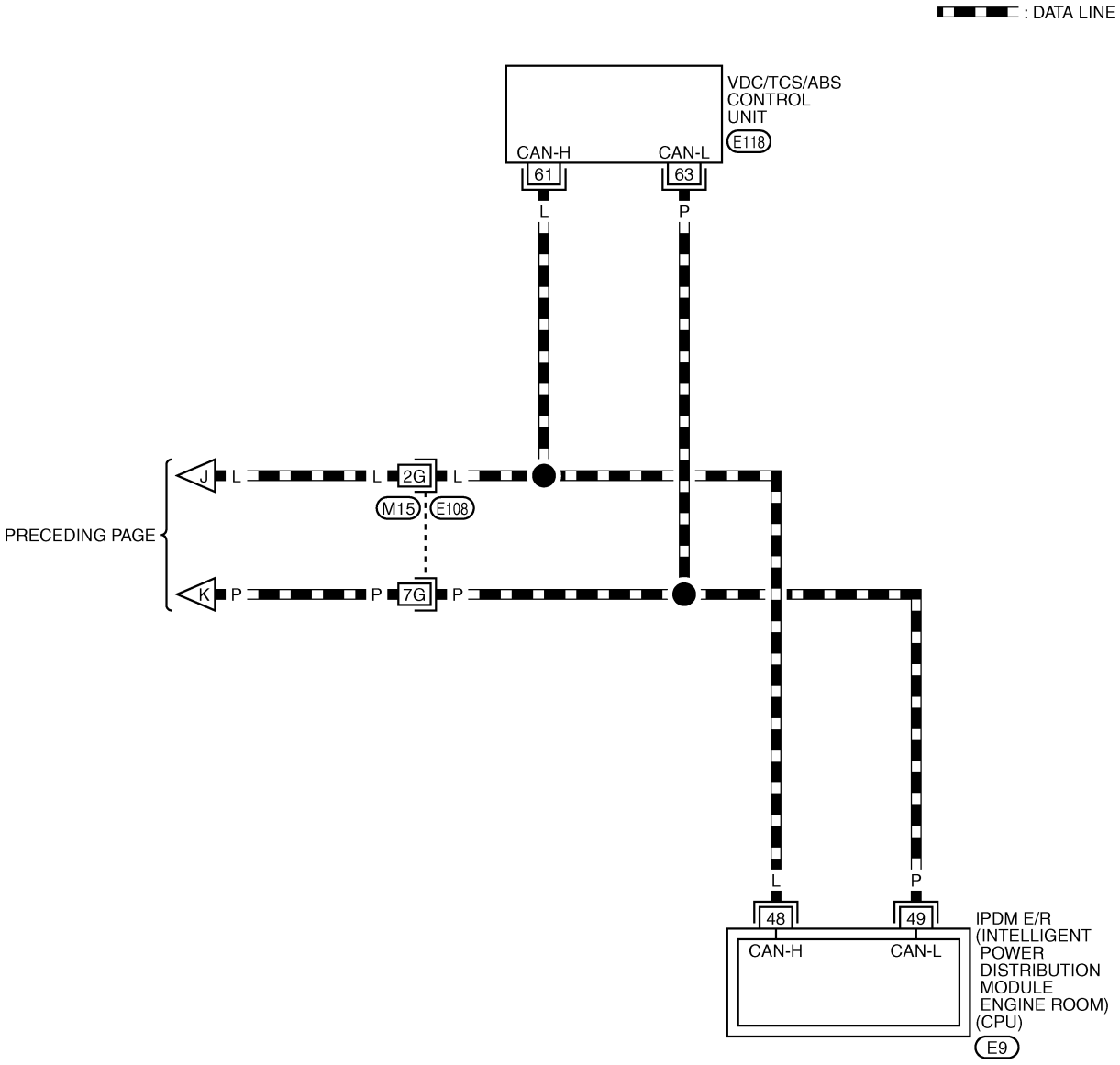


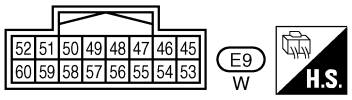
M77
W

REFER TO THE FOLLOWING.
F102 -SUPER MULTIPLE JUNCTION (SMJ)
M90 , F101 -ELECTRICAL UNITS

TKWT1868E

LAN-CAN-06





REFER TO THE FOLLOWING.

E108 -SUPER MULTIPLE JUNCTION (SMJ)

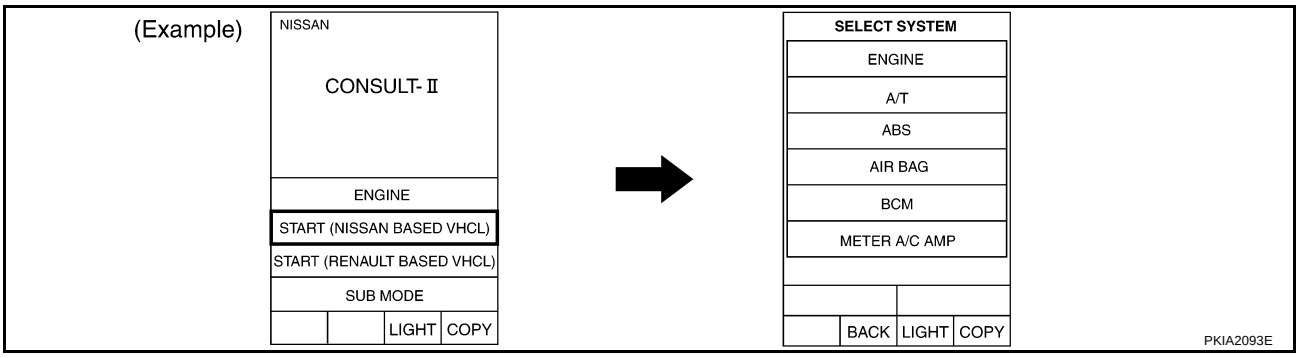
E118 -ELECTRICAL UNITS

TKWT1558E

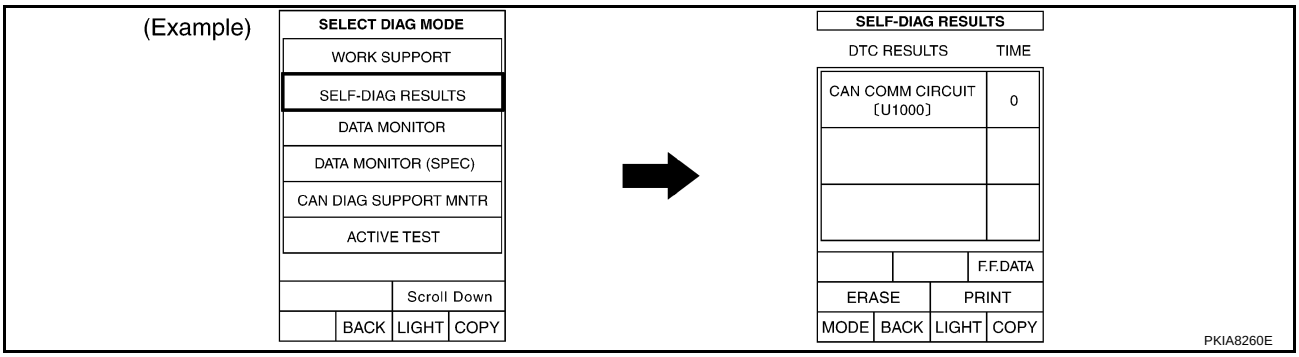
Work Flow

AKS00AA0

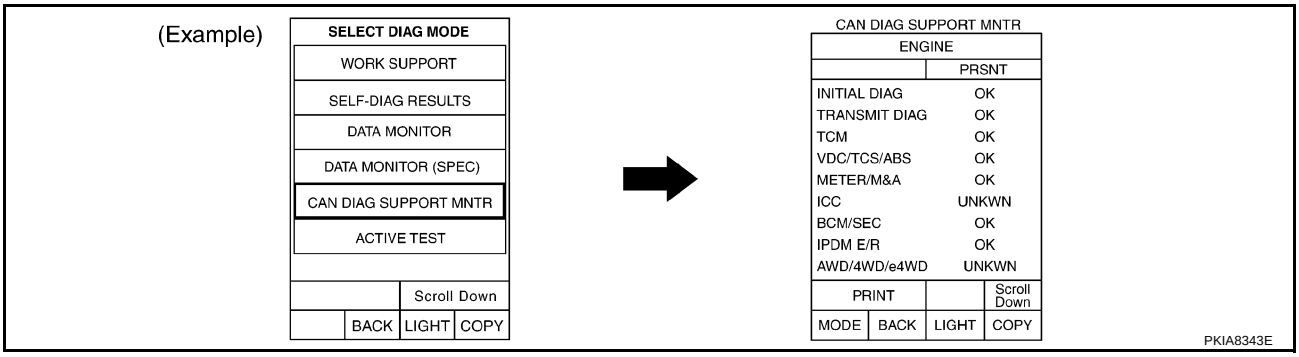
1. When there are no indications of “METER A/C AMP”, “BCM”, “AIR PRESSURE MONITOR” or “IPDM E/R” on “SELECT SYSTEM” display of CONSULT-II, print the “SELECT SYSTEM”.



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



3. Print all the data of “CAN DIAG SUPPORT MNTR” for “ENGINE”, “METER A/C AMP”, “BCM”, “AIR PRESSURE MONITOR”, “ABS” and “IPDM E/R” 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-90, "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-90, "CHECK SHEET" .

   NOTE:
   - If “NG” is displayed on “CANINITIAL 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-92, "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

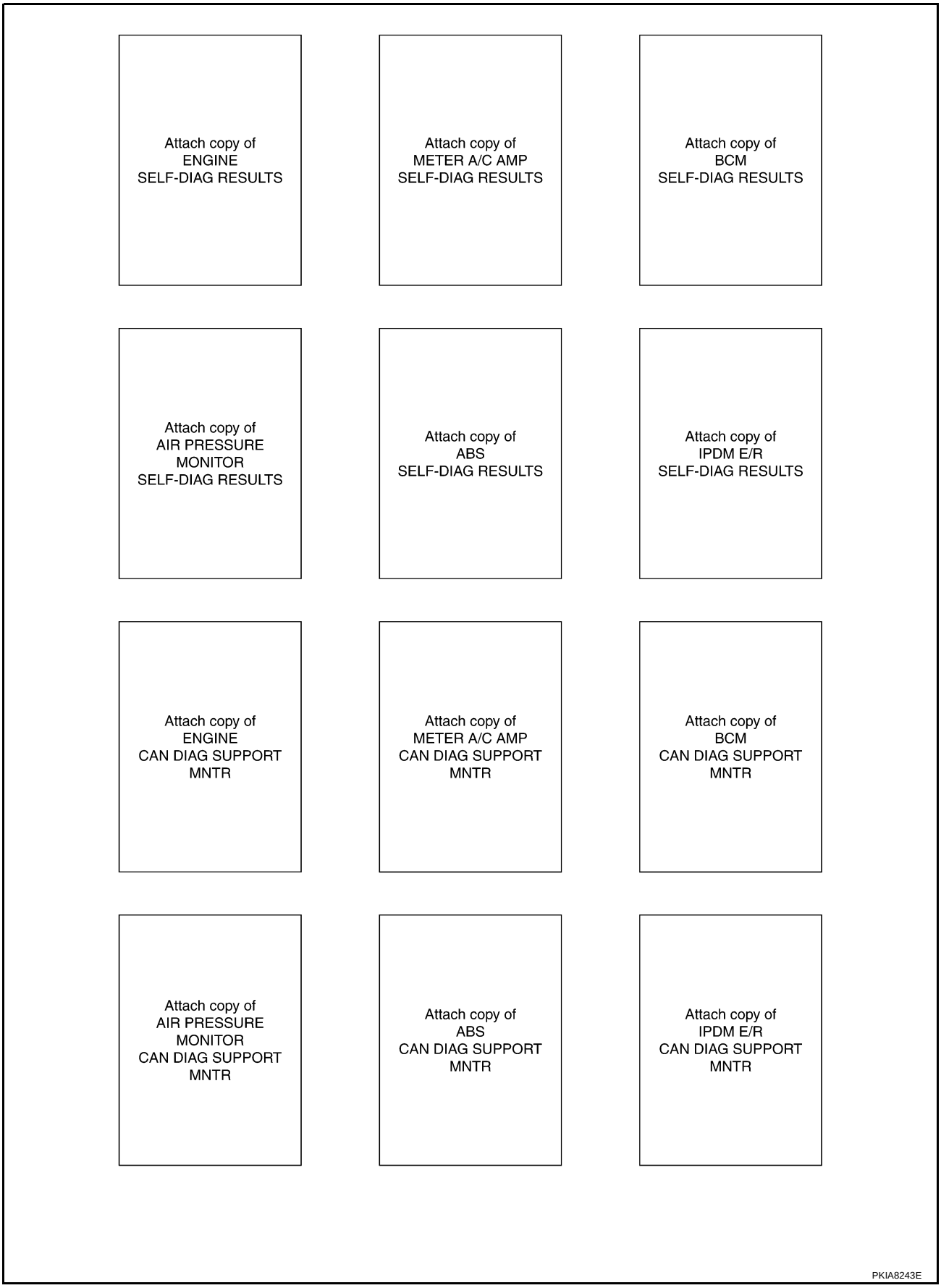
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	BCM/SEC	TIRE-P	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	—	—	UNKWN	UNKWN
METER A/C AMP	No indication	—	UNKWN	UNKWN	—	UNKWN	UNKWN	—	UNKWN	—
BCM	No indication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

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIA8242E


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
AIR PRESSURE
MONITOR
SELF-DIAG RESULTS
Attach copy of
ABS
SELF-DIAG RESULTS
Attach copy of
IPDM E/R
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
AIR PRESSURE
MONITOR
CAN DIAG SUPPORT
MNTR
Attach copy of
ABS
CAN DIAG SUPPORT
MNTR
Attach copy of
IPDM E/R
CAN DIAG SUPPORT
MNTR
PKIA8243E

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

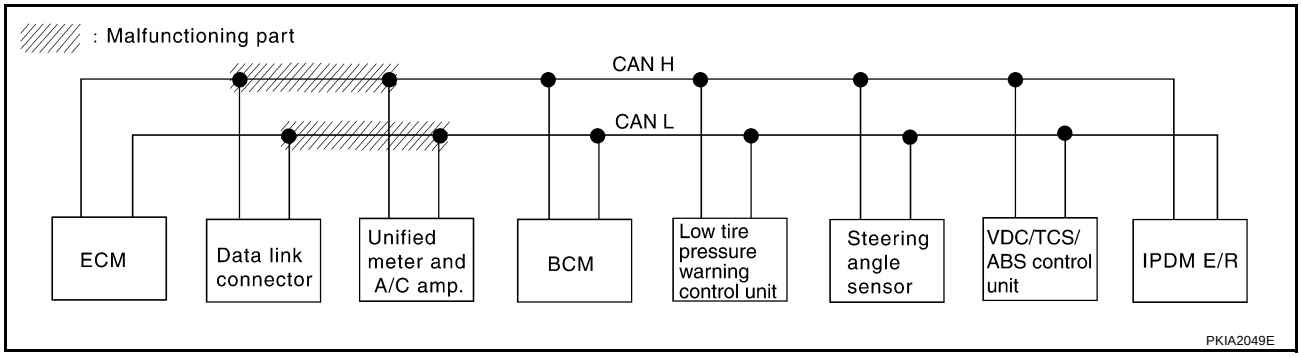
If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)” as “CAN DIAG SUPPORT MNTR” for the diagnosed control unit, replace the control unit.

Case 1

Check harness between data link connector and unified meter and A/C amp. Refer to LAN-106, "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	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	–
BCM	No indication ✓	NG	UNKWN	UNKWN	UNKWN	–	–	–	–	UNKWN
AIR PRESSURE MONITOR	No indication ✓	NG	UNKWN	–	UNKWN	–	–	–	–	–
ABS	–	NG	UNKWN	UNKWN ✓	–	–	–	UNKWN	–	–
IPDM E/R	No indication ✓	–	UNKWN	UNKWN	–	UNKWN	–	–	–	–

PKIA8244E



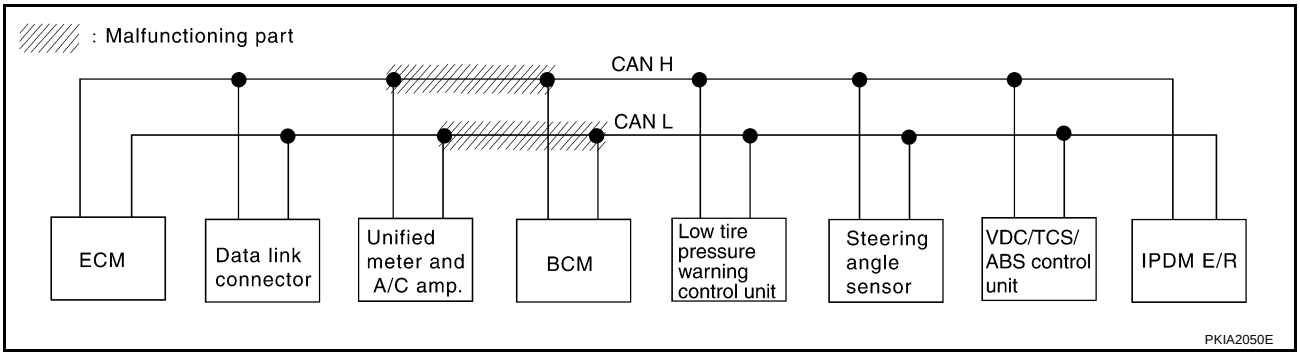
PKIA2049E

Case 2

Check harness between unified meter and A/C amp. and BCM. Refer to LAN-106, "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	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	–
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	–	–	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	–	UNKWN	–	–	–	–	–
ABS	–	NG	UNKWN	UNKWN	–	–	–	UNKWN	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–	–	–

PKIA8245E



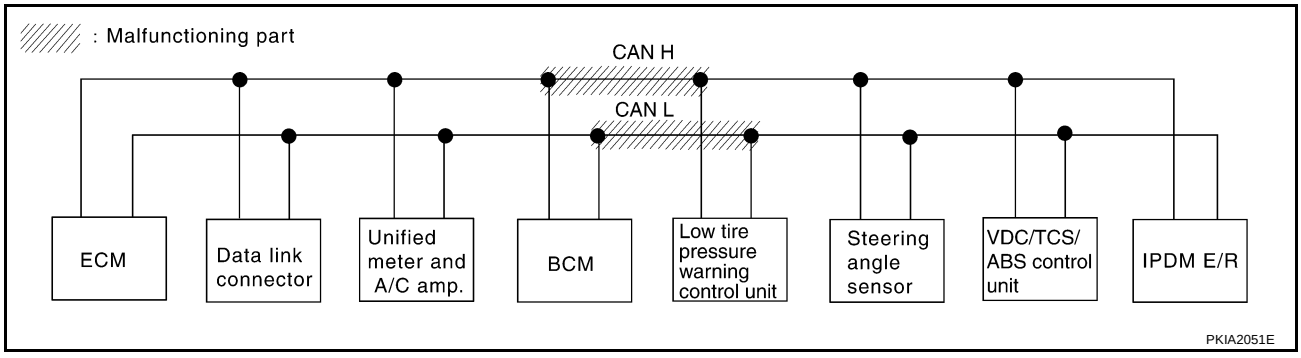
PKIA2050E

Case 3

Check harness between BCM and Low Tire Pressure Warning Control Unit. Refer to LAN-107, "Circuit Check Between BCM and Low Tire Pressure Warning Control Unit" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	–	–	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	–	UNKWN	–	–	–	–	–
ABS	–	NG	UNKWN	UNKWN	–	–	–	UNKWN	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–	–	–

PKIA8246E



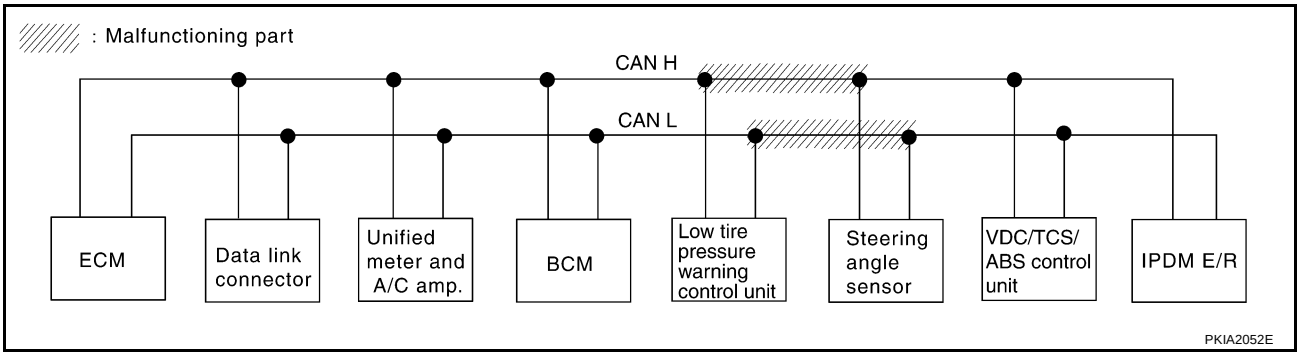
PKIA2051E

Case 4

Check harness between Low Tire Pressure Warning Control Unit and steering angle sensor. Refer to LAN-107, "Circuit Check Between Low Tire Pressure Warning Control Unit and Steering Angle Sensor" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								
		Initial diagnosis	Transmit diagnosis	Receive 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 ✓	–
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	–	–	UNKWN ✓
AIR PRESSURE MONITOR	No indication	NG	UNKWN	–	UNKWN	–	–	–	–	–
ABS	–	NG	UNKWN	UNKWN ✓	–	–	–	UNKWN	–	–
IPDM E/R	No indication ✓	–	UNKWN	UNKWN	–	UNKWN	–	–	–	–

PKIA8247E



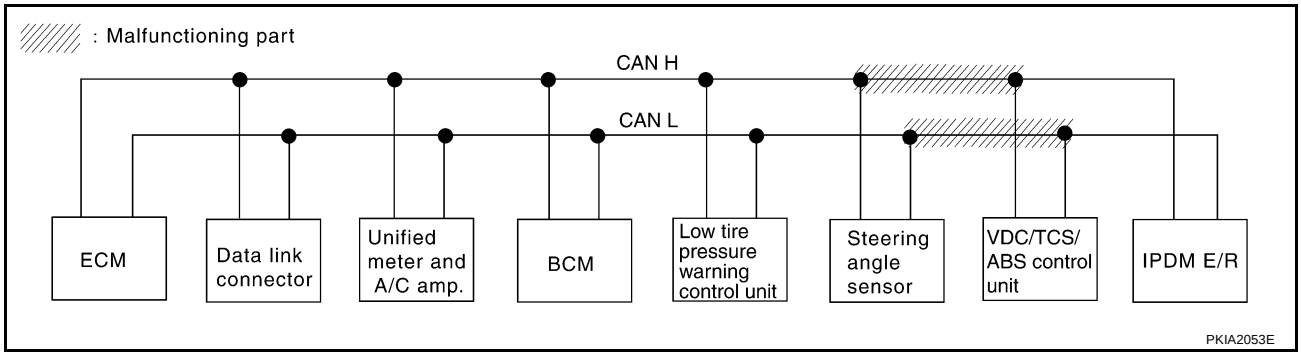
PKIA2052E

Case 5

Check harness between steering angle sensor and VDC/TCS/ABS control unit. Refer to LAN-108, "Circuit Check Between Steering Angle Sensor and VDC/TCS/ABS Control Unit" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	–	–	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	–	UNKWN	–	–	–	–	–
ABS	–	NG	UNKWN	UNKWN	–	–	–	UNKWN	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–	–	–

PKIA8248E



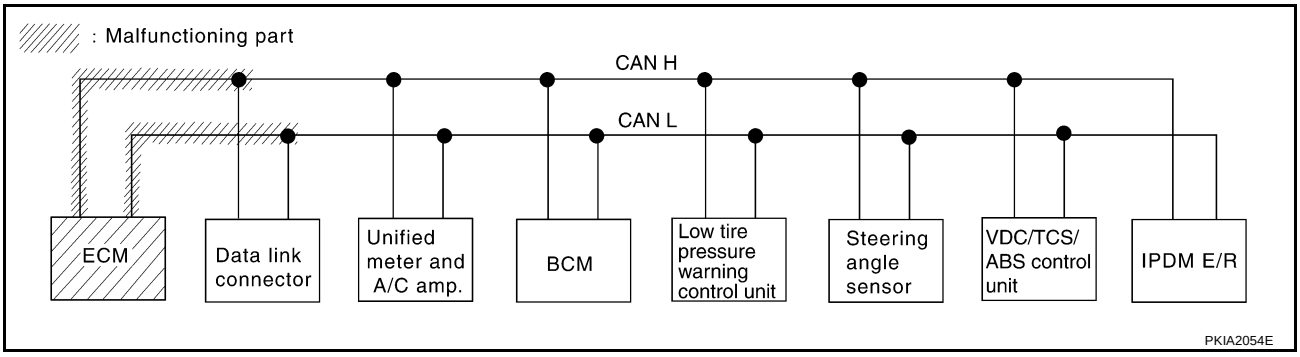
PKIA2053E

Case 6

Check ECM circuit. Refer to LAN-108, "ECM Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	–	–	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	–	UNKWN	–	–	–	–	–
ABS	–	NG	UNKWN	UNKWN	–	–	–	UNKWN	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–	–	–

PKIA8249E



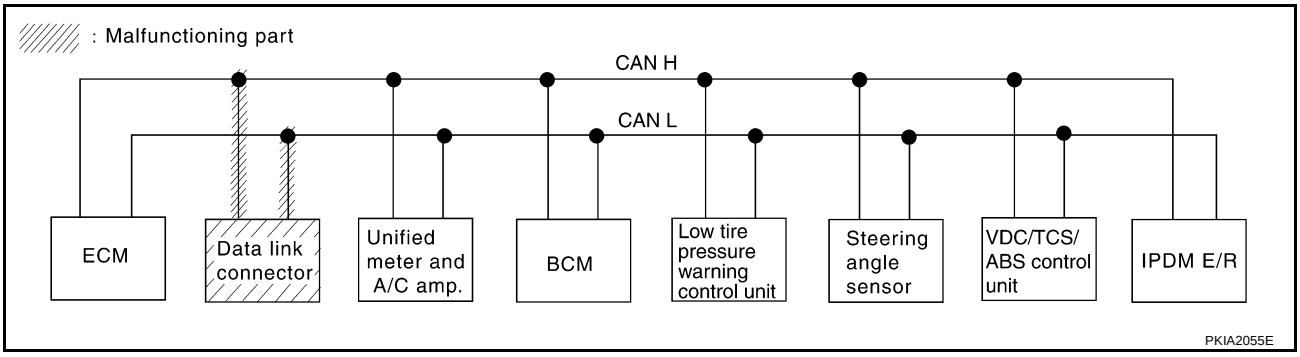
PKIA2054E

Case 7

Check data link connector circuit. Refer to LAN-109, "Data Link Connector Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	–	–	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	–	UNKWN	–	–	–	–	–
ABS	–	NG	UNKWN	UNKWN	–	–	–	UNKWN	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–	–	–

PKIA8250E



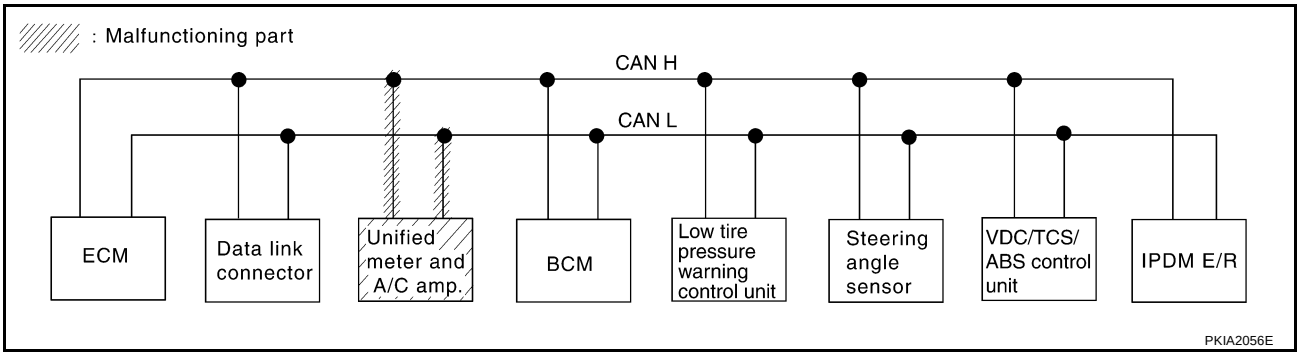
PKIA2055E

Case 8

Check unified meter and A/C amp. circuit. Refer to LAN-109, "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	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	–
BCM	No indication	NG	UNKWN	UNKWN	UNKWN ✓	–	–	–	–	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	–	UNKWN ✓	–	–	–	–	–
ABS	–	NG	UNKWN	UNKWN	–	–	–	UNKWN	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–	–	–

PKIA8251E



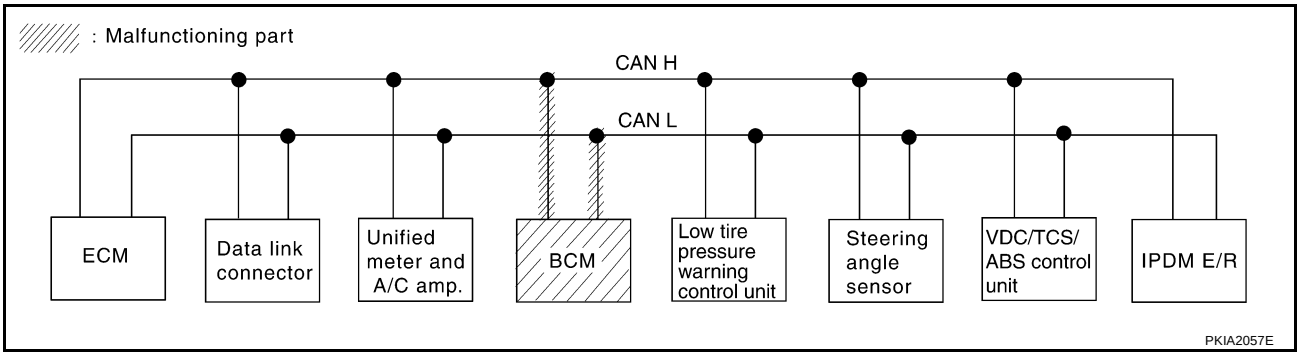
PKIA2056E

Case 9

Check BCM circuit. Refer to LAN-110, "BCM Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	–	–	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	–	UNKWN	–	–	–	–	–
ABS	–	NG	UNKWN	UNKWN	–	–	–	UNKWN	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–	–	–

PKIA8252E



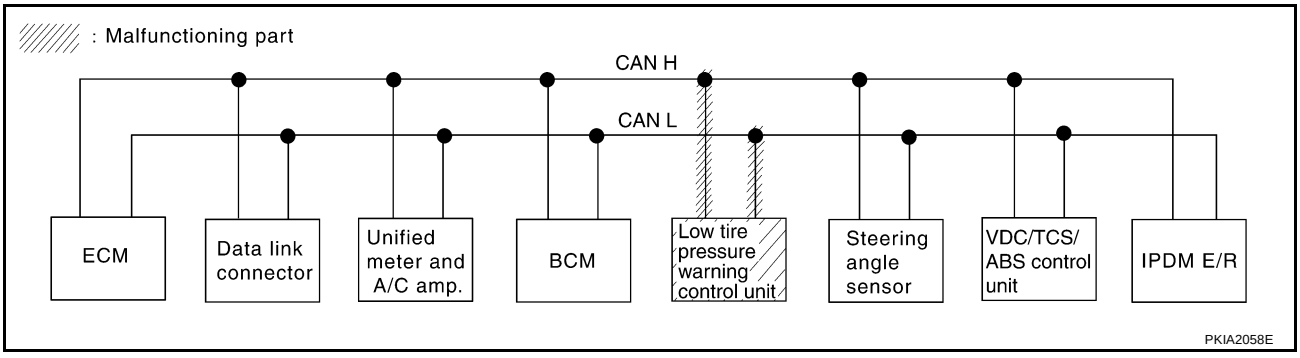
PKIA2057E

Case 10

Check Low Tire Pressure Warning Control Unit circuit. Refer to LAN-110, "Low Tire Pressure Warning Control Unit Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	–	–	UNKWN
AIR PRESSURE MONITOR	No indication ✓	NG	UNKWN	–	UNKWN	–	–	–	–	–
ABS	–	NG	UNKWN	UNKWN	–	–	–	UNKWN	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–	–	–

PKIA8253E



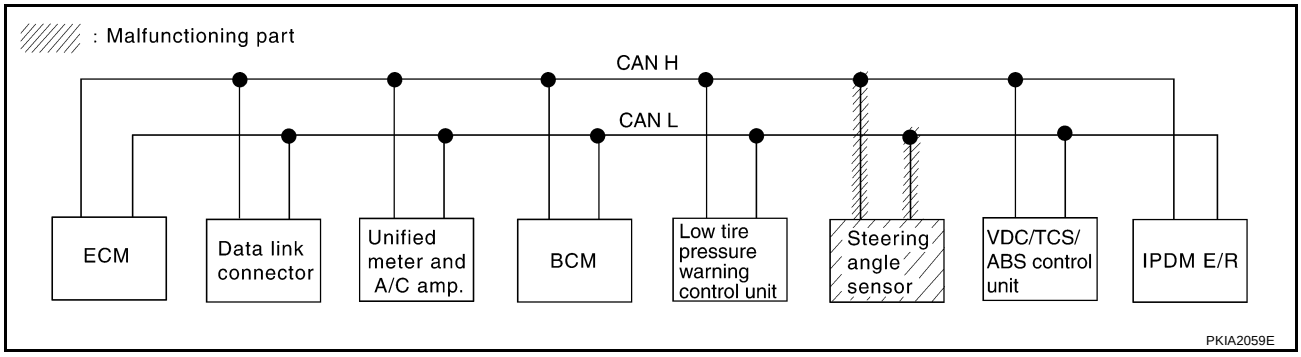
PKIA2058E

Case 11

Check steering angle sensor circuit. Refer to LAN-111, "Steering Angle Sensor Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								
		Initial diagnosis	Transmit diagnosis	Receive 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	—
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	—	UNKWN	—	—	—	—	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—

PKIA8254E



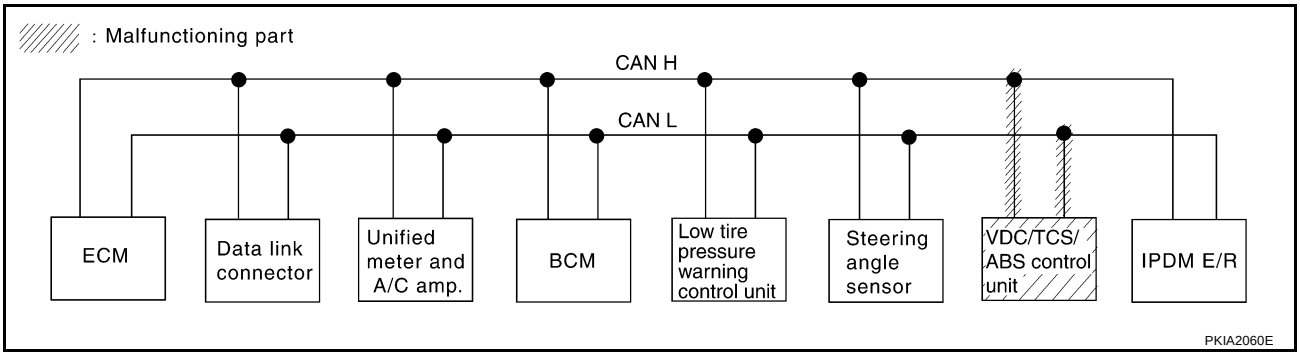
PKIA2059E

Case 12

Check VDC/TCS/ABS control unit circuit. Refer to LAN-111, "VDC/TCS/ABS Control Unit Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								
		Initial diagnosis	Transmit diagnosis	Receive 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	—
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	—	UNKWN	—	—	—	—	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—

PKIA8255E



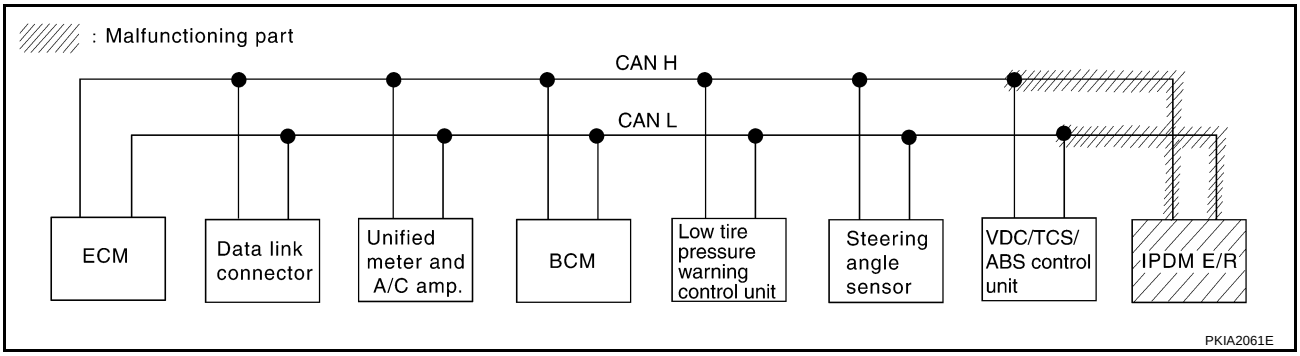
PKIA2060E

Case 13

Check IPDM E/R circuit. Refer to LAN-112, "IPDM E/R Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	–	–	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	–	UNKWN	–	–	–	–	–
ABS	–	NG	UNKWN	UNKWN	–	–	–	UNKWN	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–	–	–

PKIA8256E



PKIA2061E

Case 14

Check CAN communication circuit. Refer to LAN-113, "CAN Communication Circuit Check" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								
		Initial diagnosis	Transmit diagnosis	Receive 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	–
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	–	–	–	–	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	–	UNKWN	–	–	–	–	–
ABS	–	NG	UNKWN	UNKWN	–	–	–	UNKWN	–	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	UNKWN	–	–	–	–

PKIA8257E

Case 15

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-115, "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	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 ✓	—
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	—	UNKWN	—	—	—	—	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—

PKIA8258E

Case 16

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-115, "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	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	—
BCM	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	UNKWN
AIR PRESSURE MONITOR	No indication	NG	UNKWN	—	UNKWN	—	—	—	—	—
ABS	—	NG	UNKWN	UNKWN ✓	—	—	—	UNKWN ✓	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—

PKIA8259E

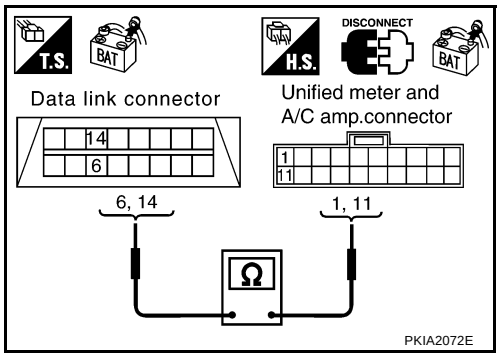
Circuit Check Between Data Link Connector and Unified Meter and A/C Amp.

AKS00AA1

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 (P) and unified meter and A/C amp. harness connector M48 terminals 1 (L), 11 (P).

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



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-89, "Work Flow" .
NG >> Repair harness.

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

AKS00AA2

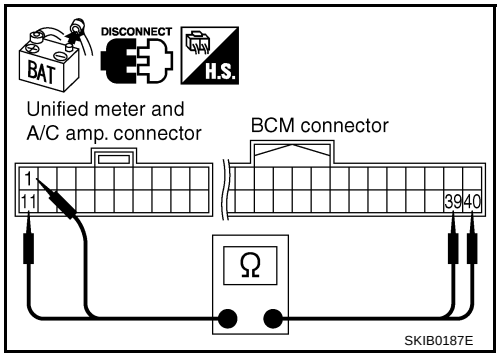
1. CHECK HARNESS FOR OPEN CIRCUIT

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 (P) and BCM harness connector M90 terminals 39 (L), 40 (P).

1 (L) – 39 (L) : Continuity should exist.
11 (P) – 40 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-89, "Work Flow" .
NG >> Repair harness.

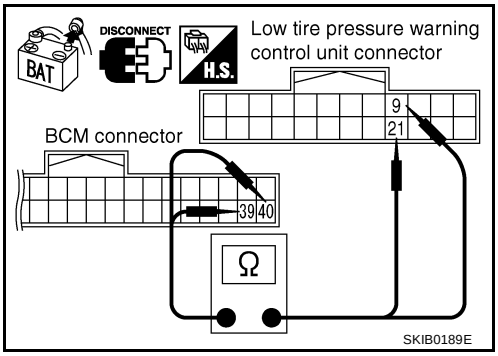
Circuit Check Between BCM and Low Tire Pressure Warning Control Unit

AKS009DZ

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 M90 terminals 39 (L), 40 (P) and low tire pressure warning control unit harness connector M77 terminals 9 (L), 21 (P).

39 (L) – 9 (L) : Continuity should exist.
40 (P) – 21 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-89, "Work Flow" .

NG >> Repair harness.

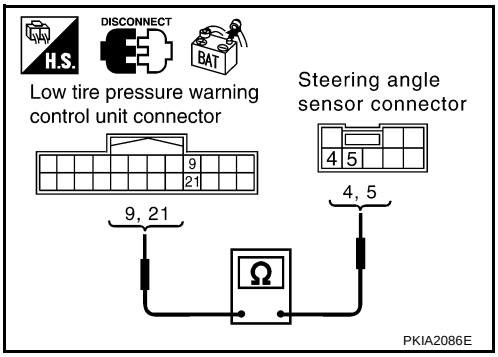
Circuit Check Between Low Tire Pressure Warning Control Unit and Steering Angle Sensor

AKS009E0

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 (P) and steering angle sensor harness connector M22 terminals 4 (L), 5 (P).

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



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-89, "Work Flow" .

NG >> Repair harness.

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

AKS00AA3

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

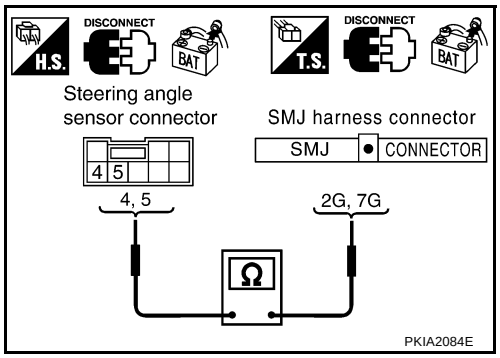
OK or NG

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

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



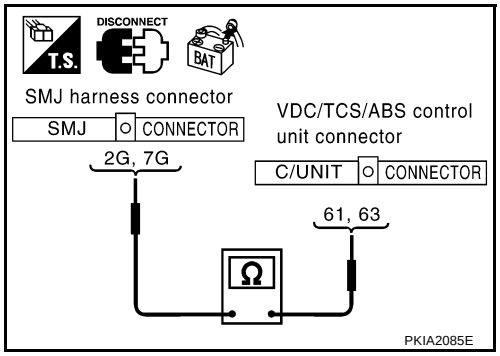
OK or NG

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

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 (P) and VDC/TCS/ABS control unit harness connector E118 terminals 61 (L), 63 (P).

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



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-89, "Work Flow" .
NG >> Repair harness.

ECM Circuit Check

AKS00AA4

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.

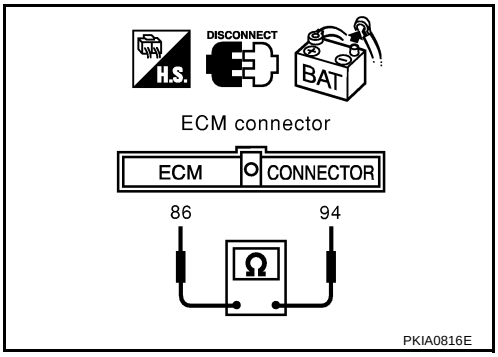
2. CHECK HARNESS FOR OPEN CIRCUIT

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

94 (L) – 86 (P) : Approx. 108 – 132Ω

OK or NG

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



Data Link Connector Circuit Check

AKS00AA5

1. CHECK CONNECTOR

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

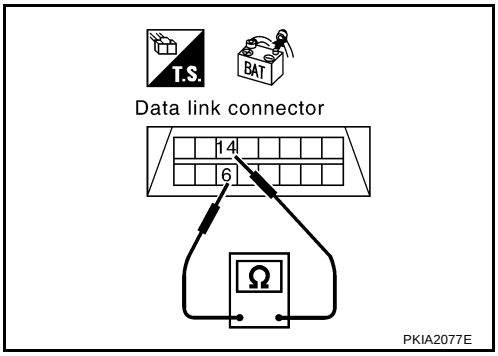
2. CHECK HARNESS FOR OPEN CIRCUIT

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

6 (L) – 14 (P) : Approx. 54 – 66Ω

OK or NG

OK >> Diagnose again. Refer to LAN-89, "Work Flow" .
NG >> Repair harness between data link connector and unified meter and A/C amp.



Unified Meter and A/C Amp. Circuit Check

AKS00AA6

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).

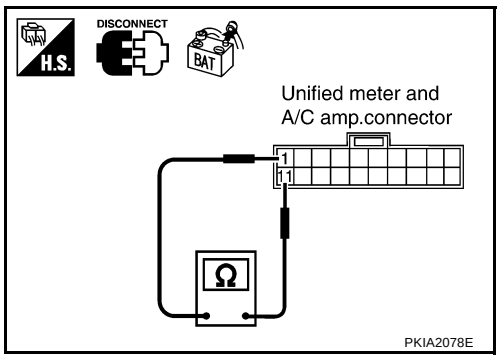
OK or NG

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 (P).

1 (L) – 11 (P) : 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

AKS00AA7

1. CHECK CONNECTOR

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

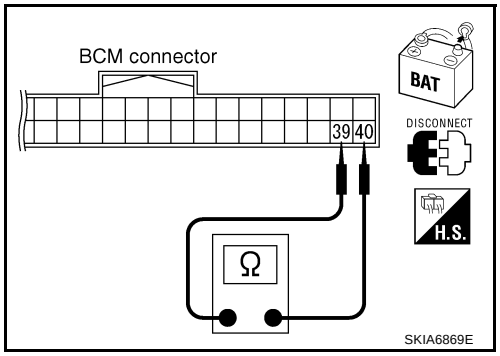
OK or NG

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 M90 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 54 – 66Ω



OK or NG

OK >> Replace BCM.
NG >> Repair harness between BCM and steering angle sensor.

Low Tire Pressure Warning Control Unit Circuit Check

AKS009E6

1. 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.

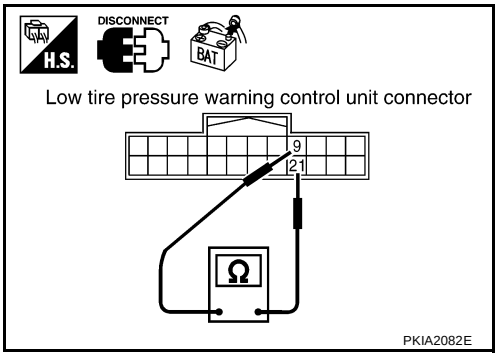
2. CHECK HARNESS FOR OPEN CIRCUIT

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

9 (L) – 21 (P) : Approx. 54 – 66Ω

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.



Steering Angle Sensor Circuit Check

AKS00AA8

1. CHECK CONNECTOR

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

OK or NG

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

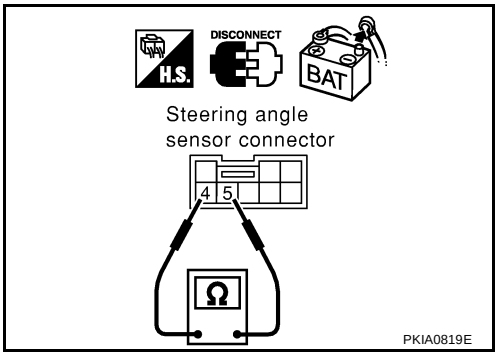
2. CHECK HARNESS FOR OPEN CIRCUIT

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

4 (L) – 5 (P) : Approx. 54 – 66Ω

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

AKS00AA9

1. CHECK CONNECTOR

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

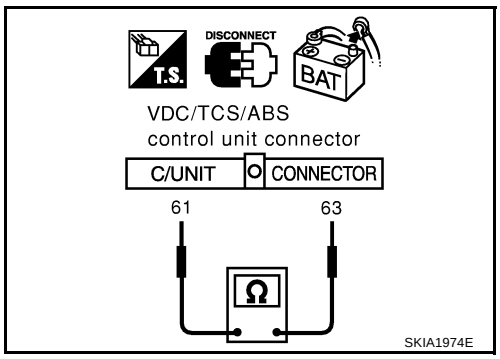
OK or NG

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

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 (P).

61 (L) – 63 (P) : Approx. 54 – 66Ω



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

AKS00AAA

1. CHECK CONNECTOR

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

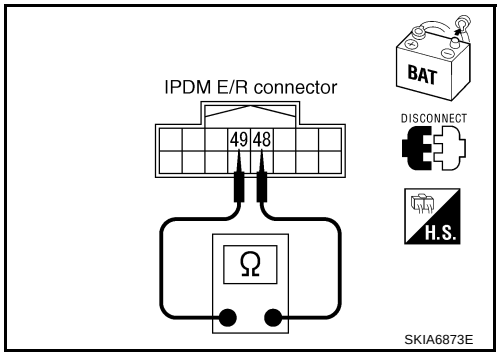
OK or NG

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 (P).

48 (L) – 49 (P) : Approx. 108 – 132Ω



OK or NG

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

CAN Communication Circuit Check

AKS00AAB

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, 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.

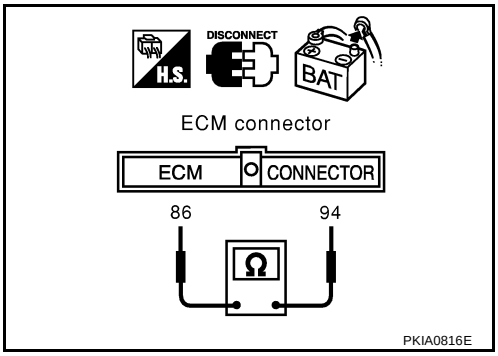
2. CHECK HARNESS FOR SHORT CIRCUIT

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

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

OK or NG

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



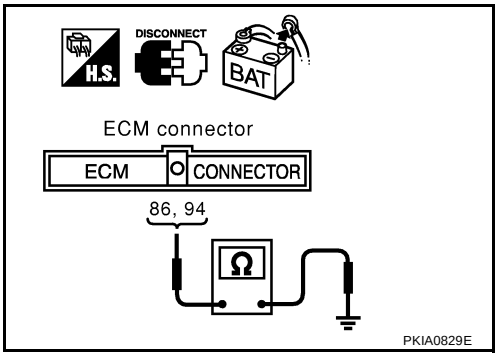
3. CHECK HARNESS FOR SHORT CIRCUIT

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

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

OK or NG

OK >> GO TO 4.
NG >> Repair harness between ECM and harness connector F102.

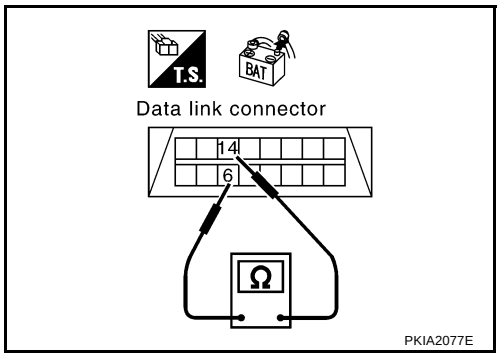


4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
- Unified meter and A/C amp. connector
- BCM connector
- Low tire pressure warning control unit connector
- Steering angle sensor connector
- Harness connector M15

2. Check continuity between data link connector M8 terminals 6 (L) and 14 (P).

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



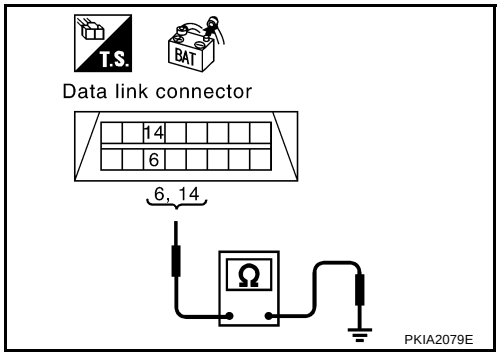
OK or NG

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 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 (P) and ground.

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



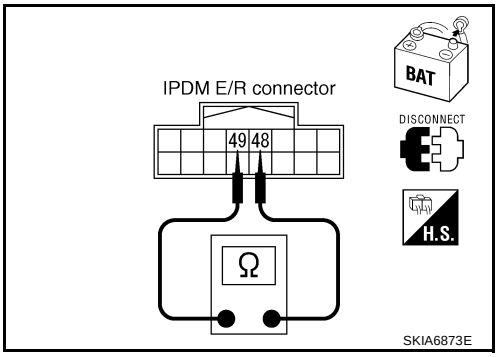
OK or NG

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

6. CHECK HARNESS FOR SHORT CIRCUIT

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

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



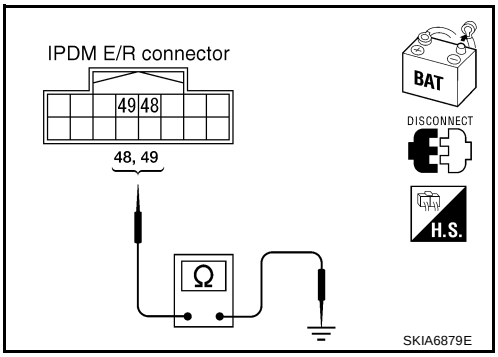
OK or NG

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 (P) and ground.

48 (L) – ground : Continuity should not exist.
49 (P) – 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-115, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION" .

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-89, "Work Flow" .
NG >> Replace ECM and/or IPDM E/R.

IPDM E/R Ignition Relay Circuit Check

AKS00AAC

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

- IPDM E/R power supply circuit. Refer to PG-28, "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

AKS00AAD

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