SECTION LAN

LAN SYSTEM

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PRECAUTIONS

PFP:00001

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

AKS000LU

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 Trouble Diagnosis

AKS000BF

CAN SYSTEM

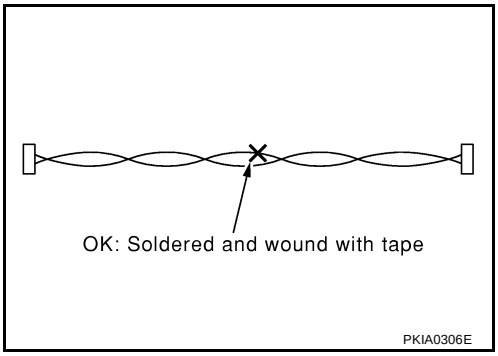
- Do not apply voltage of 7.0V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0V or less.
- Be sure to turn ignition switch off and disconnect negative battery terminal before checking the circuit.

Precautions For Harness Repair

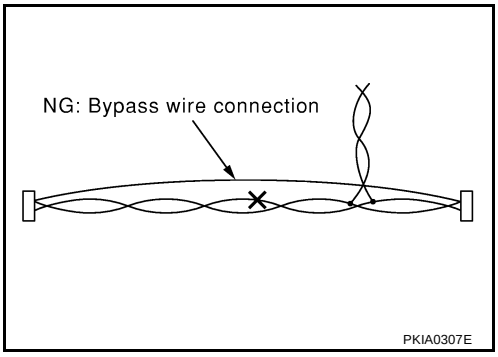
AKS000BG

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

AKS000D9

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

AKS000DA

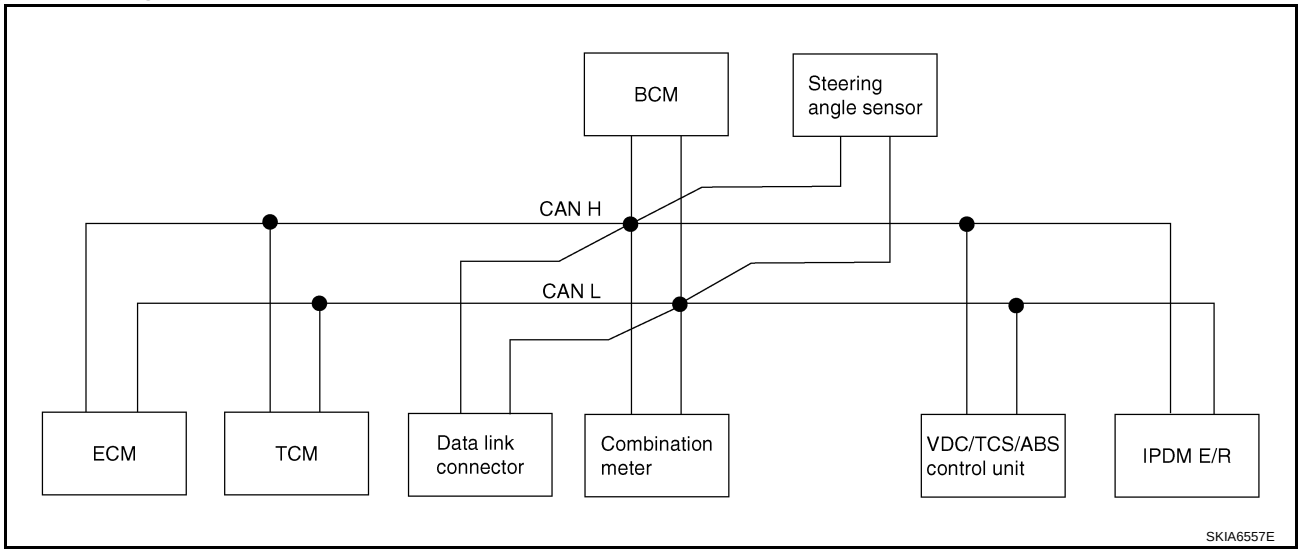
Go to CAN system, when selecting your CAN system type from the following table.

Body type	Sedan		
Axle	2WD		
Engine	VQ35DE		
Transmission	A/T		M/T
Brake control	VDC		
CAN system type	1	3	2
CAN system trouble diagnosis	LAN-8 (Up to serial 329287*)	LAN-55 (From serial 329288*)	LAN-33

*: For further information, refer to GI-47, "IDENTIFICATION NUMBER" .

TYPE 1/TYPE 3

System Diagram



Input/Output Signal Chart

T: Transmit R: Receive

Signals	ECM	TCM	Combination meter	BCM	Steering angle sensor	VDC/TCS/ABS control unit	IPDM E/R
Engine torque signal	T	R					
Engine speed signal	T	R	R			R	
Engine coolant temperature signal	T	R	R				
Accelerator pedal position signal	T	R				R	
Closed throttle position signal	T	R					
Wide open throttle position signal	T	R					
Battery voltage signal	T	R					

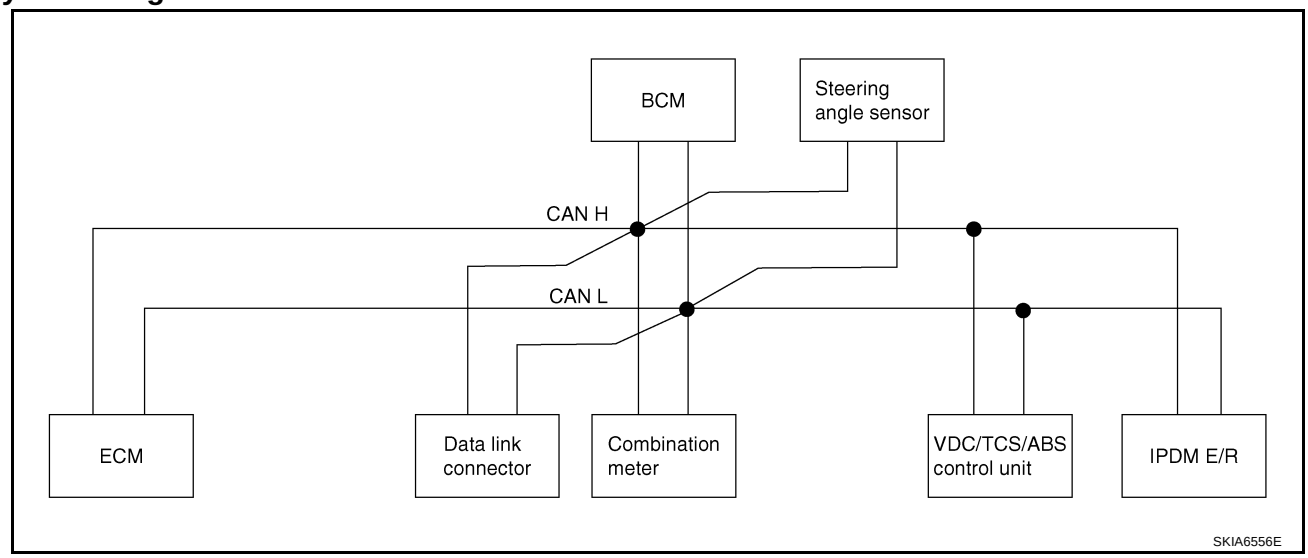
Signals	ECM	TCM	Combination meter	BCM	Steering angle sensor	VDC/TCS/ ABS control unit	IPDM E/R
Stop lamp switch signal		R	T				
Fuel consumption monitor signal	T		R				
A/T self-diagnosis signal	R	T					
A/T CHECK indicator lamp signal		T	R				
A/T position indicator signal		T	R			R	
ABS operation signal		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 motor operation 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
Front fog lights 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			R
Wake up request 2 signal			R	T			R
Door switch signal (without navigation system)			R	T			R
Door switch signal (with navigation system)			T	R			
Turn indicator signal			R	T			
Seat belt buckle switch signal			T	R			
Oil pressure switch signal			R				T
Buzzer output signal			R	T			
ASCD SET lamp signal	T		R				
ASCD CRUISE lamp signal	T		R				
ASCD OD cancel request signal	T	R					
ASCD operation signal	T	R					
Output shaft 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				

Signals	ECM	TCM	Combination meter	BCM	Steering angle sensor	VDC/TCS/ ABS control unit	IPDM E/R
Not manual mode signal		R	T				
Manual mode shift up signal		R	T				
Manual mode shift down signal		R	T				
Manual mode indicator signal		T	R				
Hood switch signal				R			T
Theft warning horn request signal				T			R
Horn chirp signal				T			R
Steering angle sensor signal					T	R	
Malfunction indicator lamp signal (Type 3 only: From serial 329288*)	T		R				
Fuel level sensor signal (Type 3 only: From serial 329288*)	R		T				
Turbine revolution signal (Type 3 only: From serial 329288*)	R	T					

*: For further information, refer to GI-47, "IDENTIFICATION NUMBER" .

TYPE 2

System Diagram



Input/Output Signal Chart

T: Transmit R: Receive

Signals	ECM	Combination meter	BCM	Steering angle sensor	VDC/TCS/ ABS 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 motor operation signal	T					R

Signals	ECM	Combination meter	BCM	Steering angle sensor	VDC/TCS/ ABS control unit	IPDM E/R
Position lights request signal		R	T			R
Low beam request signal			T			R
Low beam status signal	R		R			T
High beam request signal		R	T			R
High beam status signal	R		R			T
Front fog lights 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			
Wake up request 2 signal		R	T			
Door switch signal (without navigation system)		R	T			R
Door switch signal (with navigation system)		T	R			
Turn indicator signal		R	T			
Seat belt buckle switch signal		T	R			
Oil pressure switch signal		R				T
Buzzer output signal		R	T			
Malfunction indicator lamp signal	T	R				
ASCD SET lamp signal	T	R				
ASCD CRUISE lamp signal	T	R				
Fuel level sensor 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		R			T
Hood switch signal			R			T
Theft warning horn request signal			T			R
Horn chirp signal			T			R
Steering angle sensor signal				T	R	

CAN SYSTEM (TYPE 1)

PFP:23710

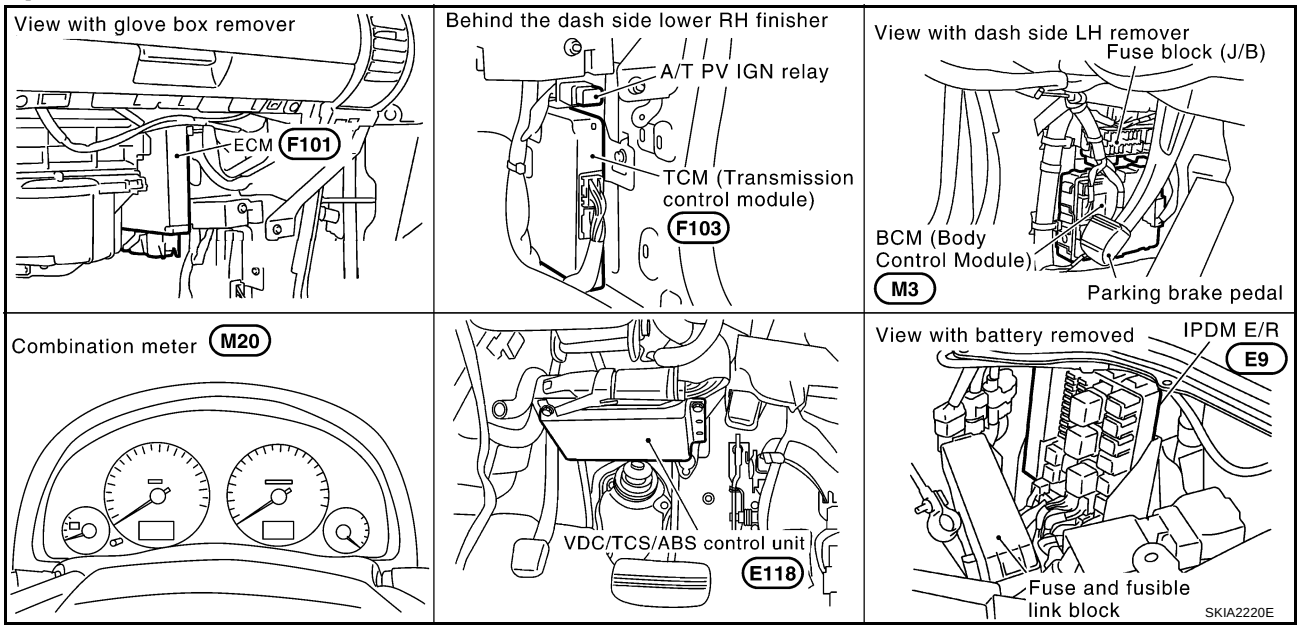
System Description

AKS009BH

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.

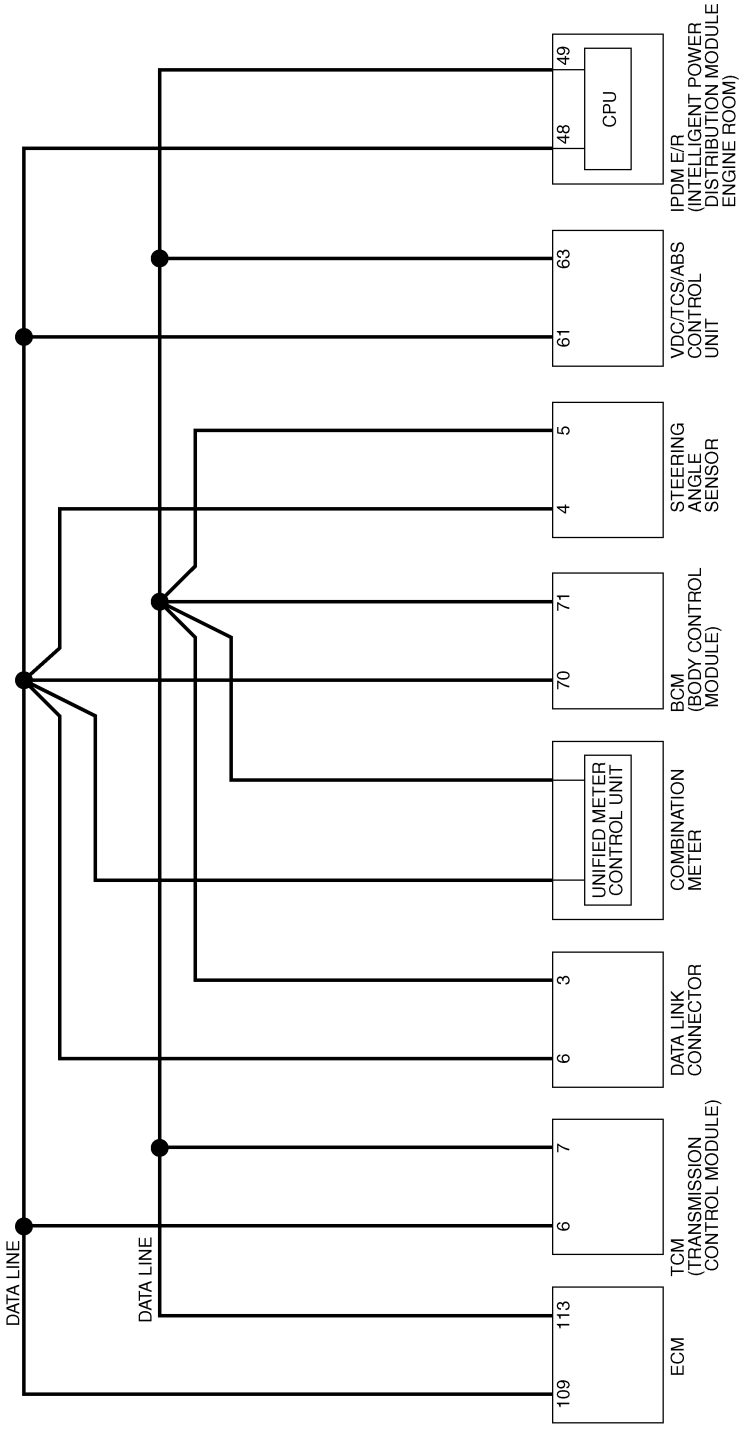
Component Parts and Harness Connector Location

AKS009BI



Schematic

AKS009BJ



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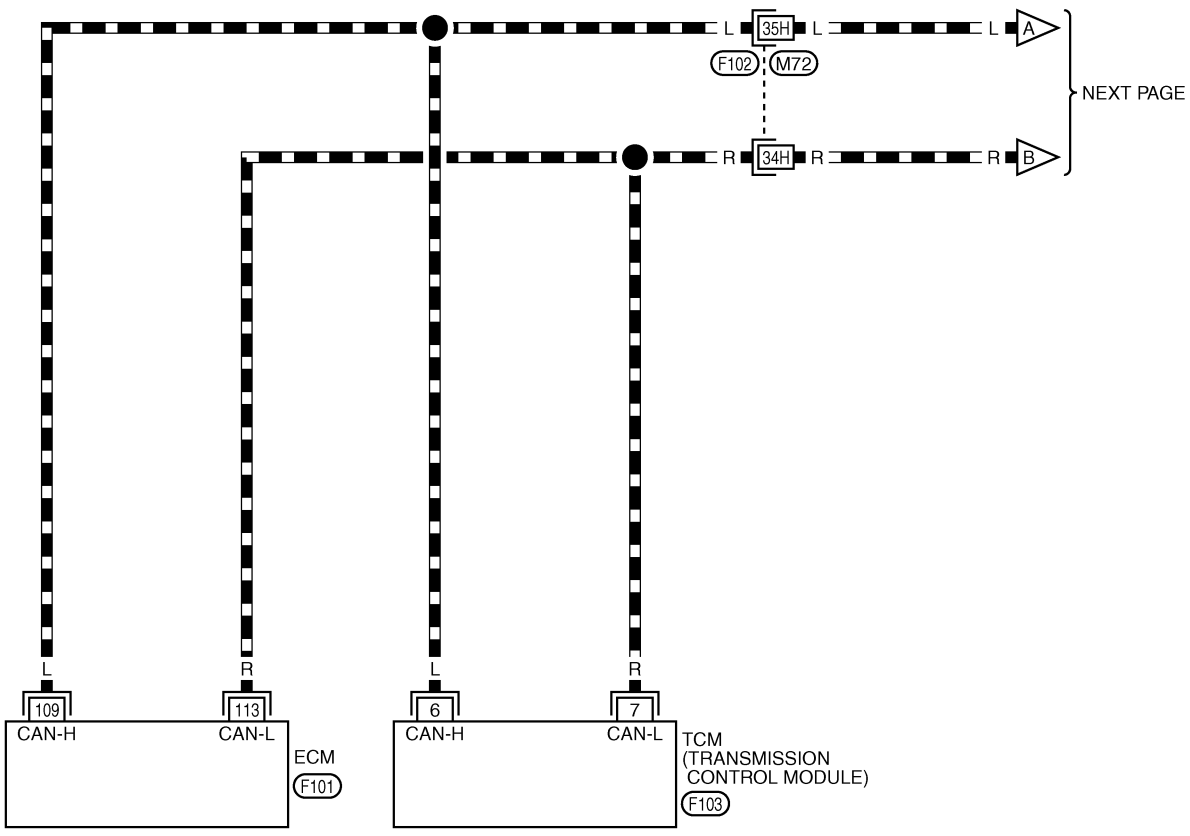
Wiring Diagram - CAN -

AKS009BK

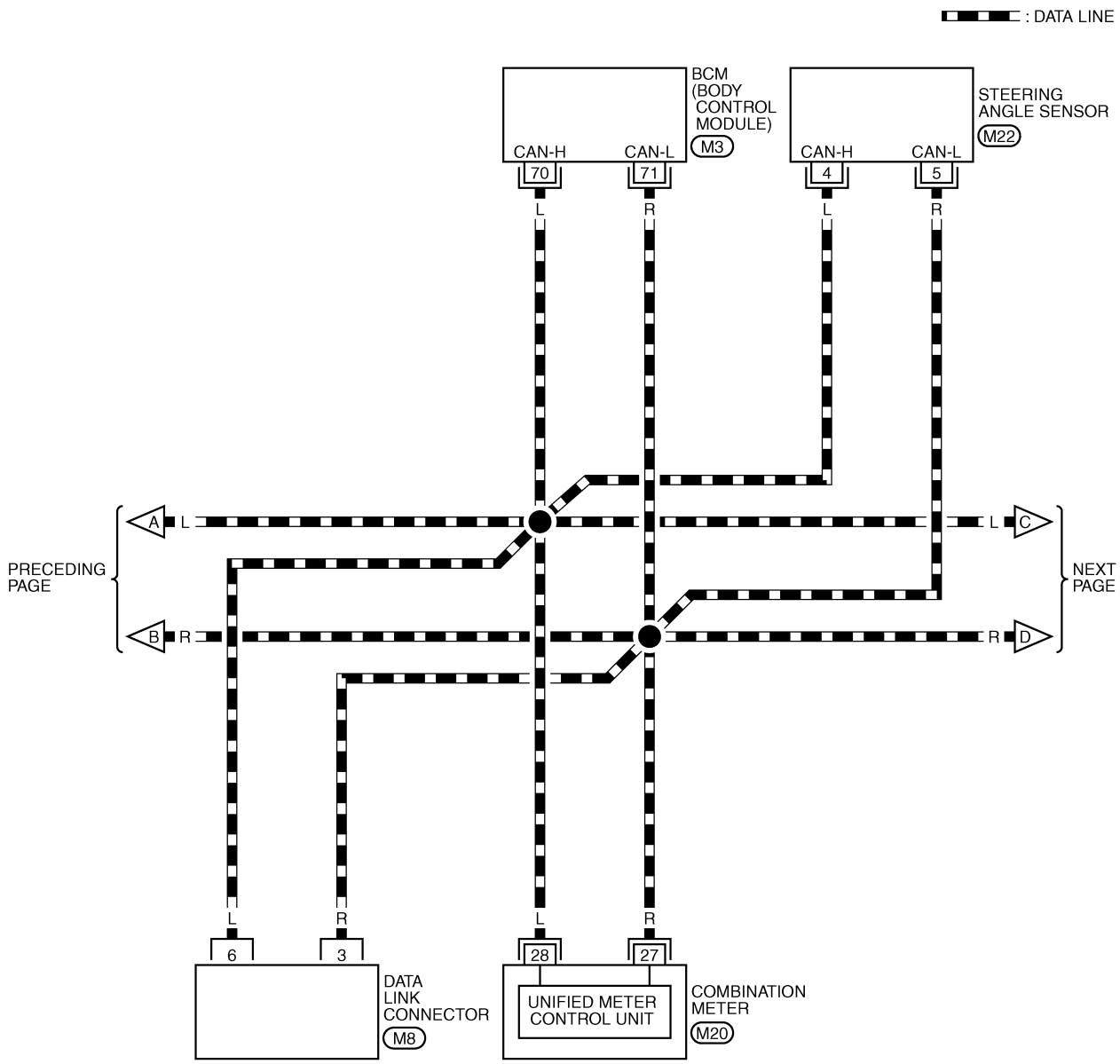
LAN-CAN-01

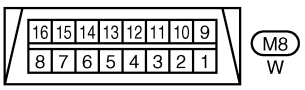


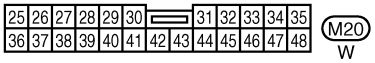
REFER TO THE FOLLOWING.
F102 -SUPER MULTIPLE JUNCTION (SMJ)
F101 , F103 -ELECTRICAL UNITS

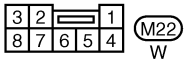
TKWT0954E

LAN-CAN-02







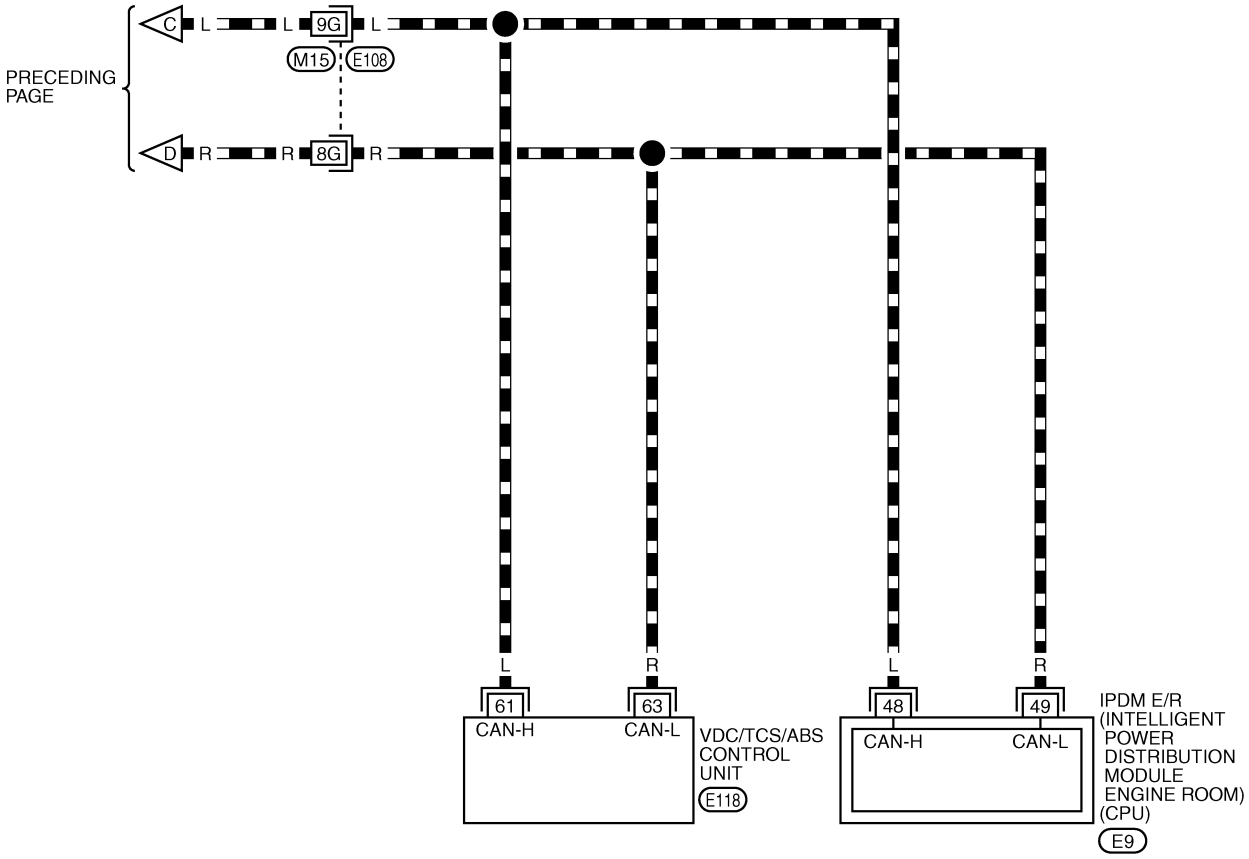


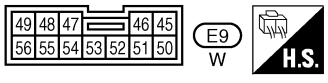
REFER TO THE FOLLOWING.
M3 -ELECTRICAL UNITS

TKWT0955E

LAN-CAN-03

: DATA LINE





REFER TO THE FOLLOWING.

E108 -SUPER MULTIPLE JUNCTION (SMJ)

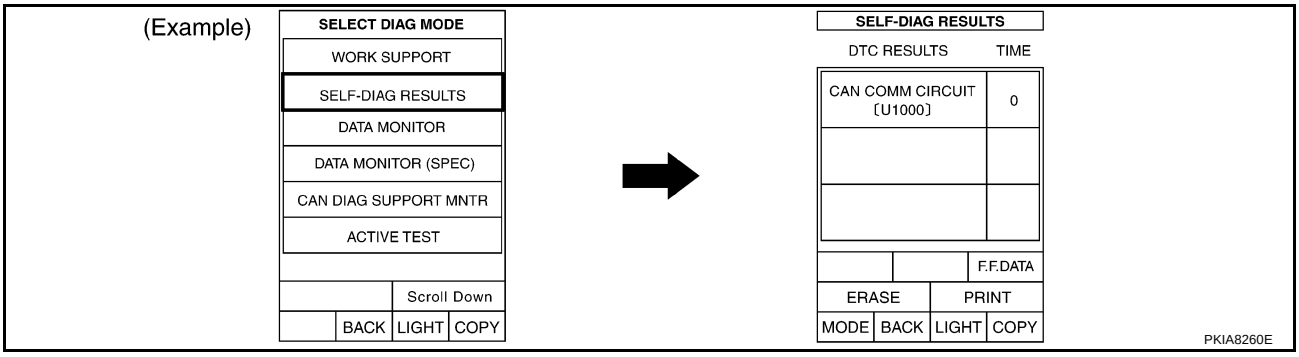
E118 -ELECTRICAL UNITS

TKWT0956E

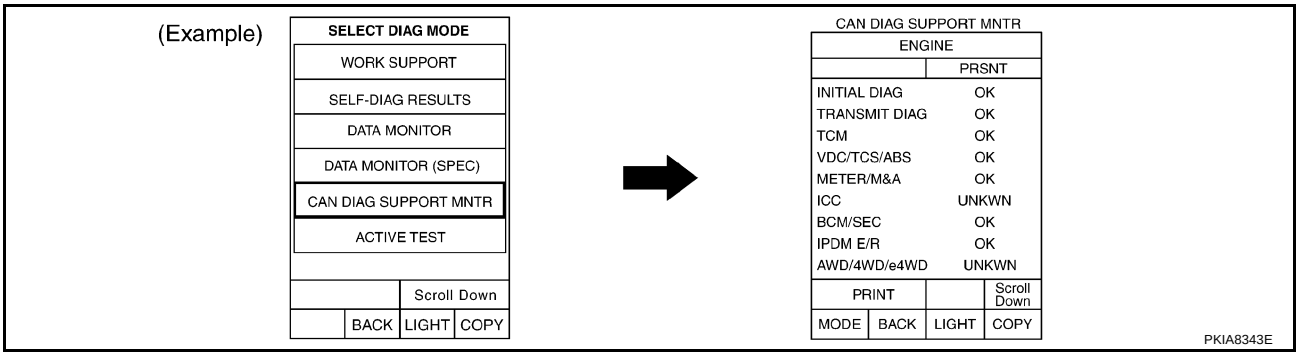
Work Flow

AKS00C40

1. Print all the data of “SELF-DIAG RESULTS” for “ENGINE”, “A/T”, “BCM” and “ABS” displayed on CONSULT-II.



2. Print all the data of “CAN DIAG SUPPORT MNTR” for “ENGINE”, “A/T”, “BCM” and “ABS” displayed on CONSULT-II.



3. Attach the printed sheet of “SELF-DIAG RESULTS” and “CAN DIAG SUPPORT MNTR” onto the check sheet. Refer to LAN-14, "CHECK SHEET" .
4. Based on the “CAN DIAG SUPPORT MNTR” results, put marks “v” onto the items with “NG”, or “UNKWN” in the check sheet table. Refer to LAN-14, "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.
5. According to the check sheet results (example), start inspection. Refer to LAN-15, "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	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
BCM	NG	UNKWN	UNKWN	—	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

Symptoms :

Attach copy of ENGINE SELF-DIAG RESULTS	Attach copy of A/T SELF-DIAG RESULTS	Attach copy of BCM SELF-DIAG RESULTS	Attach copy of ABS SELF-DIAG RESULTS
Attach copy of ENGINE CAN DIAG SUPPORT MNTR	Attach copy of A/T CAN DIAG SUPPORT MNTR	Attach copy of BCM CAN DIAG SUPPORT MNTR	Attach copy of ABS CAN DIAG SUPPORT MNTR

PKIB0278E

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-24, "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	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN ✓	UNKWN ✓	—	UNKWN ✓	UNKWN ✓
A/T	NG	UNKWN	UNKWN	—	UNKWN ✓	—	—	UNKWN ✓	—
BCM	NG	UNKWN	UNKWN ✓	—	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN ✓	UNKWN ✓	UNKWN	—	UNKWN	—	—

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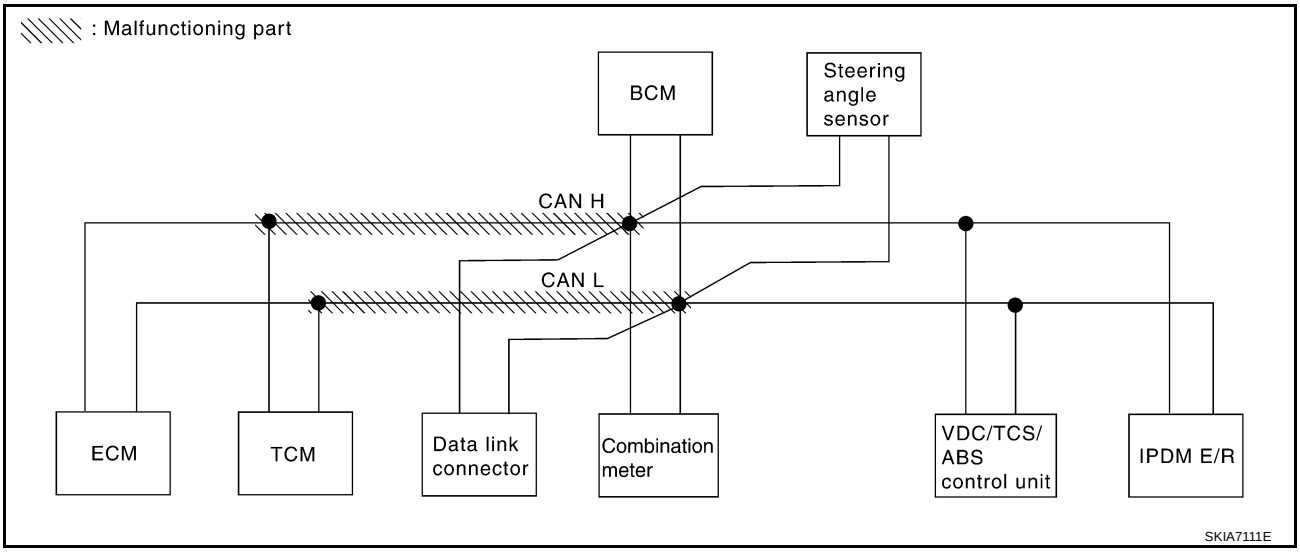

Case 2

Check harness between data link connector and VDC/TCS/ABS control unit. Refer to LAN-25, "Circuit Check Between Data Link Connector and VDC/TCS/ABS Control Unit" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	TCM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN ✓	UNKWN ✓
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN ✓	—
BCM	NG	UNKWN	UNKWN	—	UNKWN	—	—	—	UNKWN ✓
ABS	NG	UNKWN	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	UNKWN ✓	—	—

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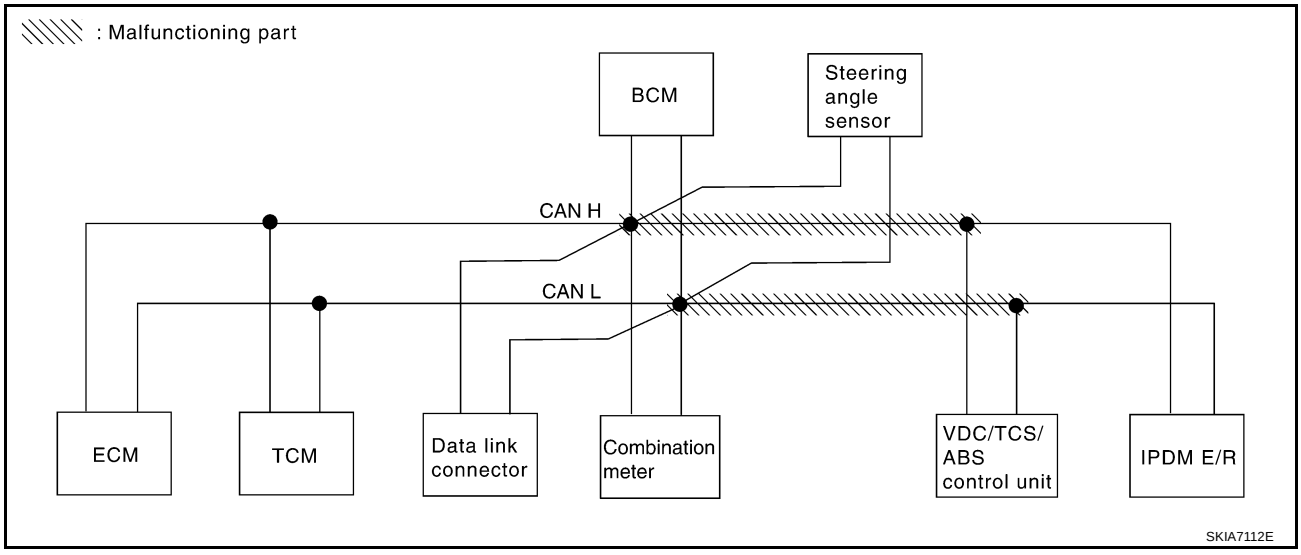

Case 3

Check ECM circuit. Refer to LAN-26, "ECM Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	TCM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
BCM	NG	UNKWN	UNKWN	—	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

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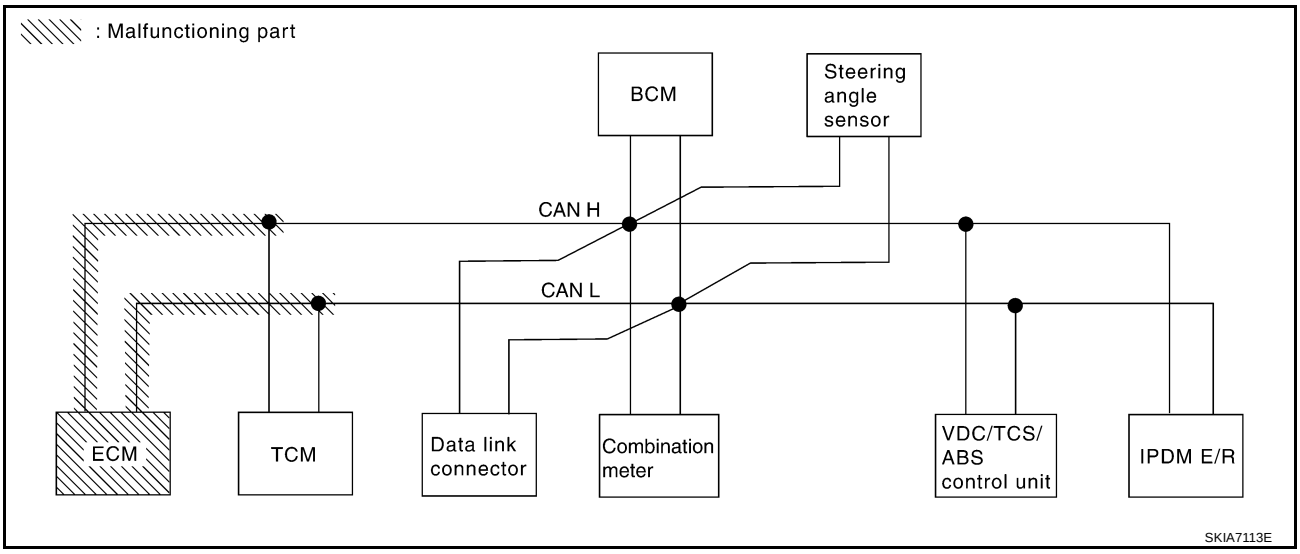

Case 4

Check TCM circuit. Refer to LAN-26, "TCM Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	TCM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
BCM	NG	UNKWN	UNKWN	—	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

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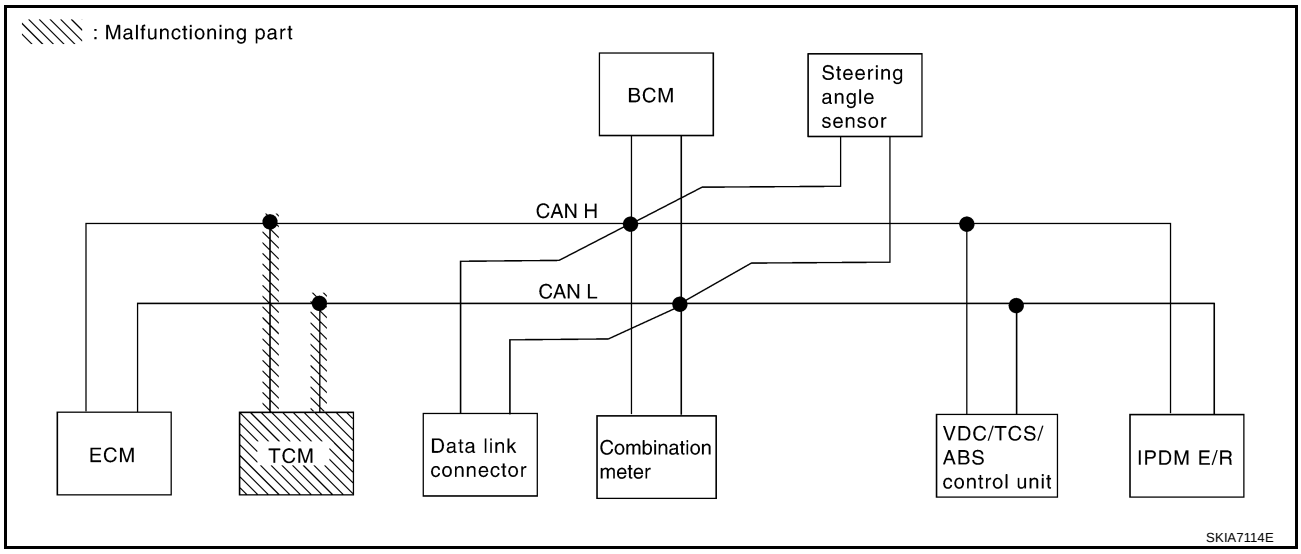
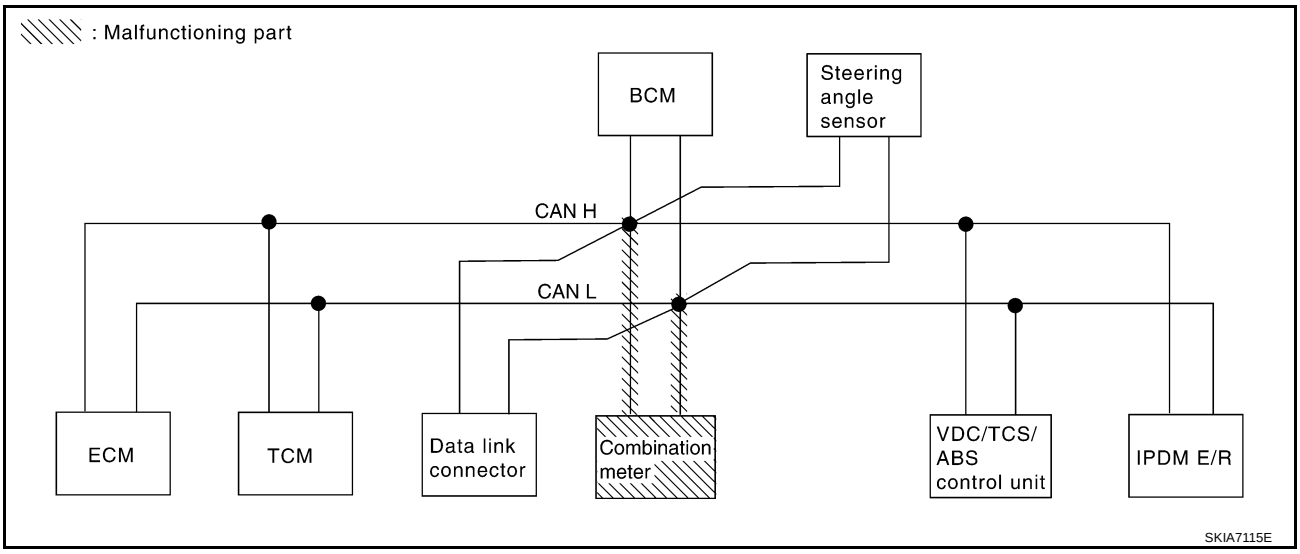


Case 5

Check combination meter circuit. Refer to LAN-27, "Combination Meter Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	TCM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
BCM	NG	UNKWN	UNKWN	—	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

PKIB0284E

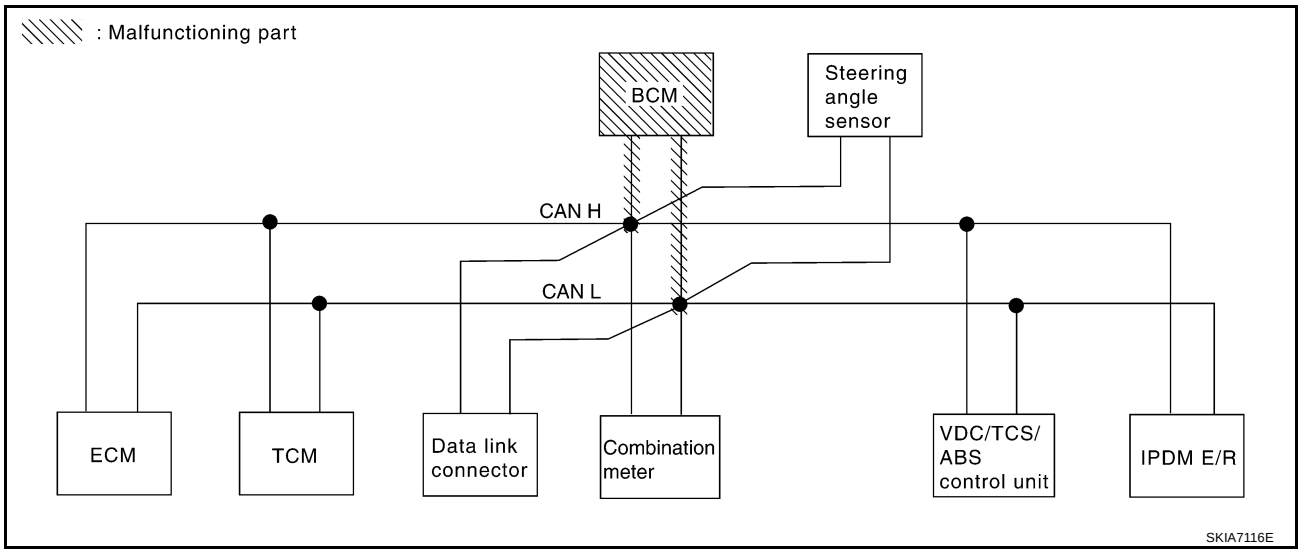


Case 6

Check BCM circuit. Refer to LAN-27, "BCM Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	TCM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN ✓	—	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
BCM	NG	UNKWN ✓	UNKWN ✓	—	UNKWN ✓	—	—	—	UNKWN ✓
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

PKIB0285E

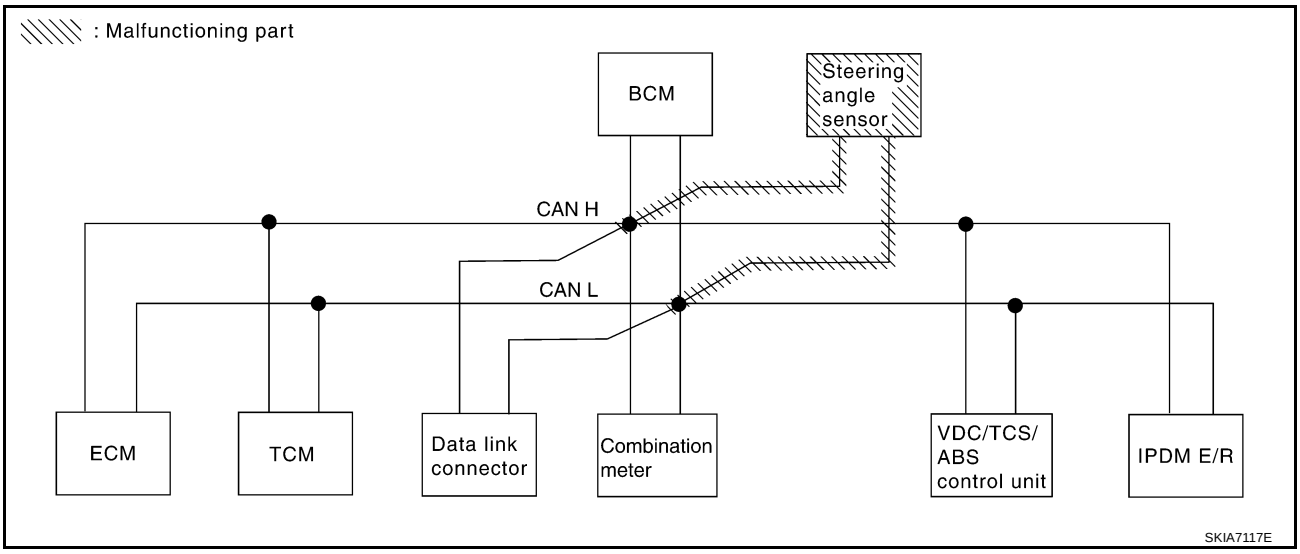


Case 7

Check steering angle sensor circuit. Refer to LAN-28, "Steering Angle Sensor Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	TCM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
BCM	NG	UNKWN	UNKWN	—	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

PKIB0286E

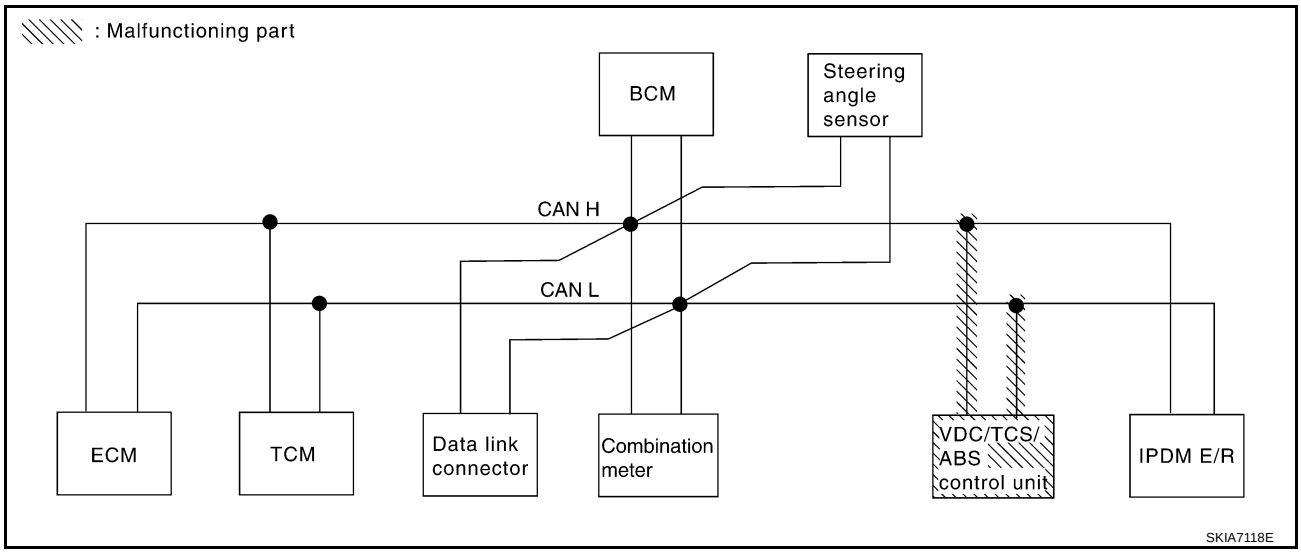


Case 8

Check VDC/TCS/ABS control unit circuit. Refer to LAN-28, "VDC/TCS/ABS Control Unit Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	TCM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN ✓	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN ✓	—
BCM	NG	UNKWN	UNKWN	—	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	UNKWN ✓	—	—

PKIB0287E



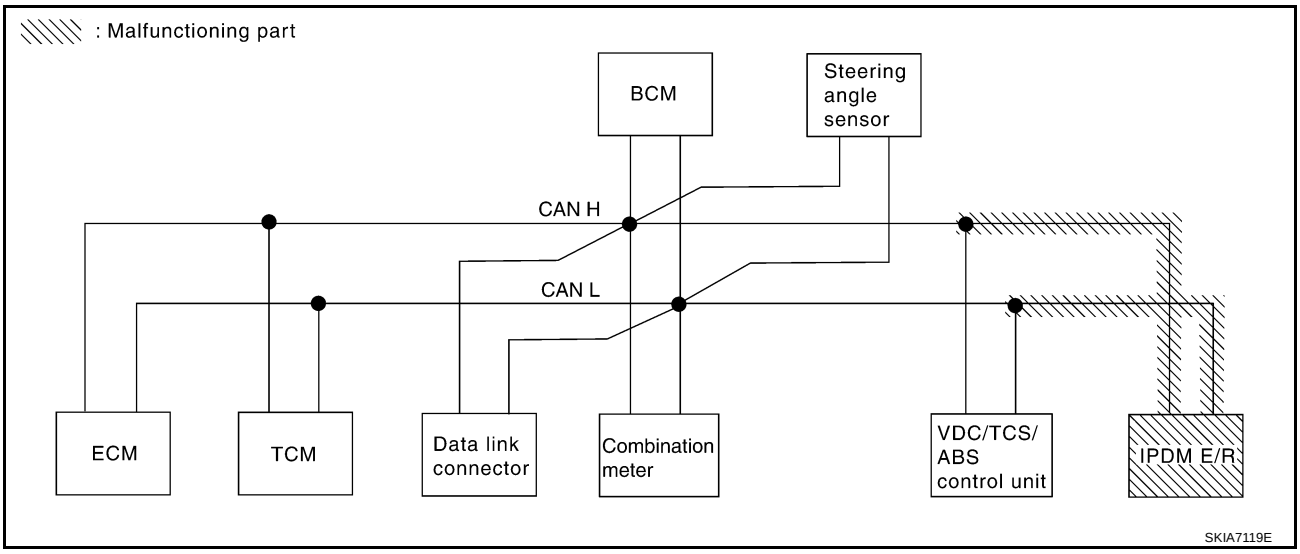
SKIA7118E

Case 9

Check IPDM E/R circuit. Refer to LAN-29, "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	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN ✓
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
BCM	NG	UNKWN	UNKWN	—	UNKWN	—	—	—	UNKWN ✓
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

PKIB0288E



Case 10

Check CAN communication circuit. Refer to LAN-30, "CAN Communication Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	TCM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	–	UNKWN	UNKWN	UNKWN	–	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	–	UNKWN	–	–	UNKWN	–
BCM	NG	UNKWN	UNKWN	–	UNKWN	–	–	–	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	–	UNKWN	–	–

PKIB0289E

Case 11

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-32, "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	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	–	UNKWN	UNKWN	UNKWN	–	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	–	UNKWN	–	–	UNKWN	–
BCM	NG	UNKWN	UNKWN	–	UNKWN	–	–	–	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	–	UNKWN	–	–

PKIB0291E

Case 12

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-32, "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	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	–	UNKWN	UNKWN	UNKWN	–	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	–	UNKWN	–	–	UNKWN	–
BCM	NG	UNKWN	UNKWN	–	UNKWN	–	–	–	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	–	UNKWN	–	–

PKIB0290E

Circuit Check Between TCM and Data Link Connector

AKS009BM

1. CHECK CONNECTOR

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

- Harness connector F102
- Harness connector M72

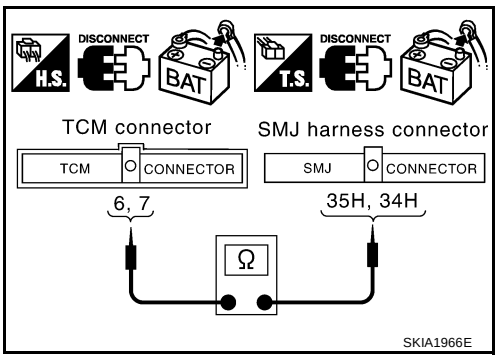
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector and harness connector F102.
2. Check continuity between TCM harness connector F103 terminals 6 (L), 7 (R) and harness connector F102 terminals 35H (L), 34H (R).

6 (L) - 35H (L) : Continuity should exist.
7 (R) - 34H (R) : Continuity should exist.



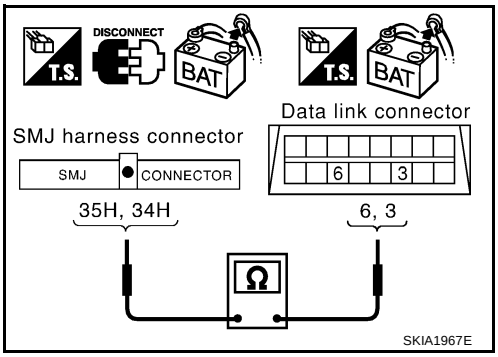
OK or NG

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

3. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between harness connector M72 terminals 35H (L), 34H (R) and data link connector M8 terminals 6 (L), 3 (R).

35H (L) - 6 (L) : Continuity should exist.
34H (R) - 3 (R) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-13, "Work Flow" .
NG >> Repair harness.

Circuit Check Between Data Link Connector and VDC/TCS/ABS Control Unit

AKS009BN

1. CHECK CONNECTOR

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

- Harness connector M15
- Harness connector E108

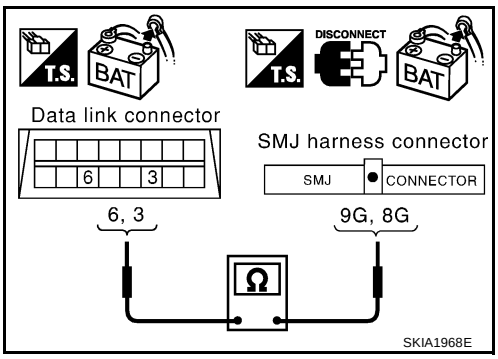
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M15.
2. Check continuity between data link connector M8 terminals 6 (L), 3 (R) and harness connector M15 terminals 9G (L), 8G (R).

6 (L) - 9G (L) : Continuity should exist.
3 (R) - 8G (R) : Continuity should exist.



OK or NG

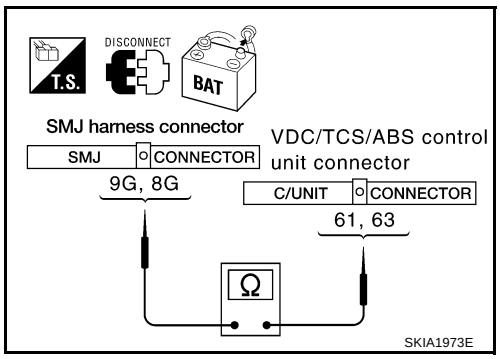
OK >> GO TO 3.
NG >> Repair harness.

3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect VDC/TCS/ABS control unit connector.
2. Check continuity between harness connector E108 terminals 9G (L), 8G (R) and VDC/TCS/ABS control unit harness connector E118 terminals 61 (L), 63 (R).

9G (L) - 61 (L) : Continuity should exist.

8G (R) - 63 (R) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-13, "Work Flow" .

NG >> Repair harness.

ECM Circuit Check

AKS009BO

1. CHECK CONNECTOR

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

OK or NG

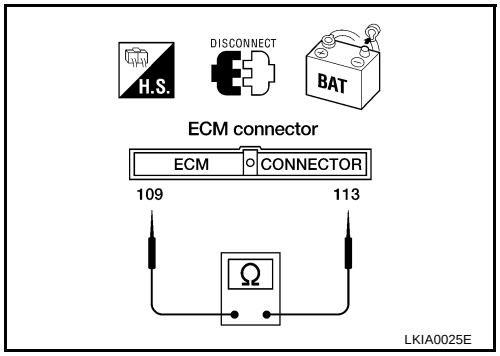
OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F101 terminals 109 (L) and 113 (R).

109 (L) - 113 (R) : Approx. 108 - 132Ω



OK or NG

OK >> Replace ECM.

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

TCM Circuit Check

AKS009BP

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

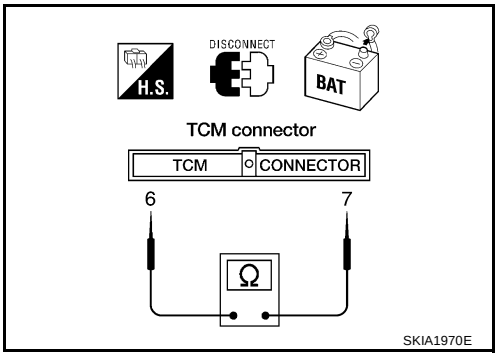
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F103 terminals 6 (L) and 7 (R).

6 (L) - 7 (R) : Approx. 54 - 66Ω

OK or NG

OK >> Replace TCM.
NG >> Repair harness between harness connector F102 and TCM.



Combination Meter Circuit Check

AKS009BQ

1. CHECK CONNECTOR

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

OK or NG

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

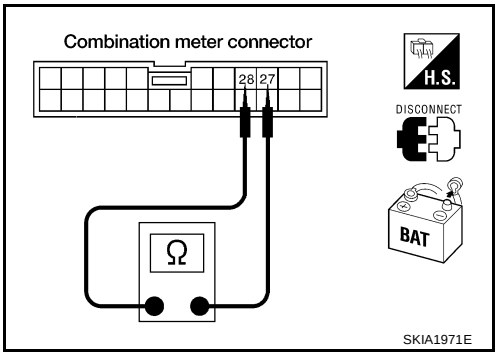
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M20 terminals 28 (L) and 27 (R).

28 (L) - 27 (R) : Approx. 54 - 66Ω

OK or NG

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



BCM Circuit Check

AKS009BR

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).

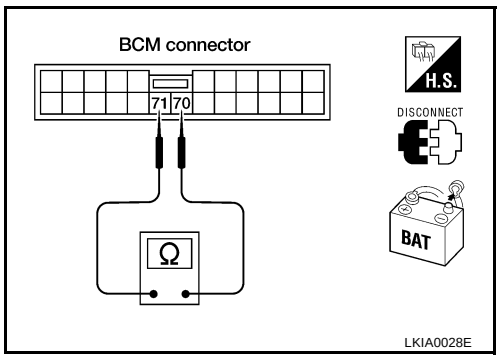
OK or NG

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 M3 terminals 70 (L) and 71 (R).

70 (L) - 71 (R) : Approx. 54 - 66Ω



OK or NG

OK >> Replace BCM. Refer to BCS-23, "Removal and Installation of BCM" .

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

Steering Angle Sensor Circuit Check

AKS009BS

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

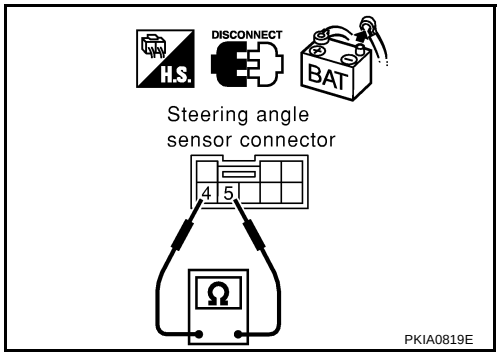
OK >> GO TO 2.

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 (R).

4 (L) - 5 (R) : Approx. 54 - 66Ω



OK or NG

OK >> Replace steering angle sensor.

NG >> Repair harness between data link connector and steering angle sensor.

VDC/TCS/ABS Control Unit Circuit Check

AKS009BT

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.

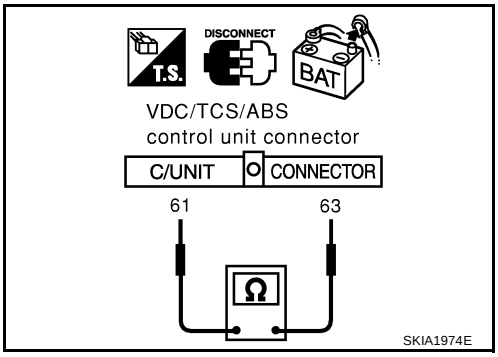
2. CHECK HARNESS FOR OPEN CIRCUIT

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 (R).

61 (L) - 63 (R) : Approx. 54 - 66Ω

OK or NG

OK >> Replace VDC/TCS/ABS control unit.
NG >> Repair harness between harness connector E108 and VDC/TCS/ABS control unit.



IPDM E/R Circuit Check

AKS009BU

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.

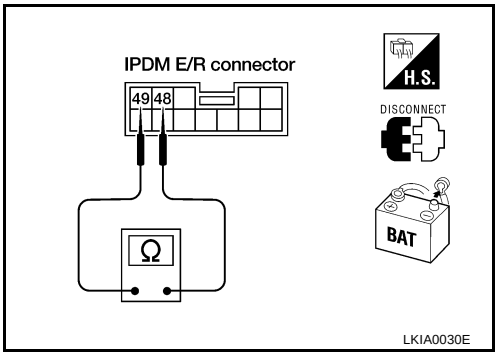
2. CHECK HARNESS FOR OPEN CIRCUIT

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

48 (L) - 49 (R) : Approx. 108 - 132Ω

OK or NG

OK >> Replace IPDM E/R.
NG >> Repair harness between harness connector E108 and IPDM E/R.



CAN Communication Circuit Check

AKS009BV

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side, control unit side, meter side, sensor side and harness side).

- ECM
- TCM
- Combination meter
- BCM
- Steering angle sensor
- VDC/TCS/ABS control unit
- IPDM E/R
- Between ECM and IPDM E/R

OK or NG

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

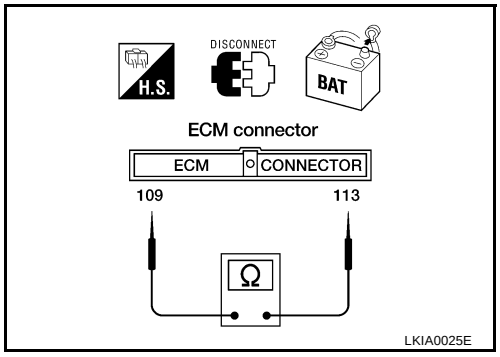
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.

- ECM connector
- TCM connector
- Harness connector F102

2. Check continuity between ECM harness connector F101 terminals 109 (L) and 113 (R).

109 (L) - 113 (R) : Continuity should not exist.



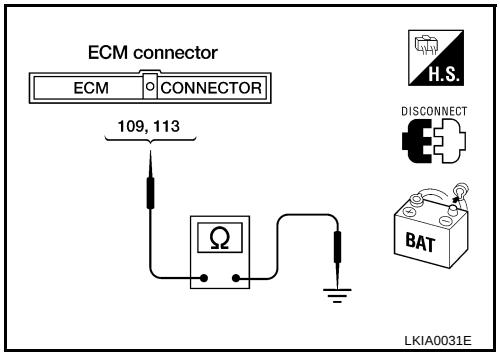
OK or NG

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

3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F101 terminals 109 (L), 113 (R) and ground.

109 (L) - Ground : Continuity should not exist.
113 (R) - Ground : Continuity should not exist.



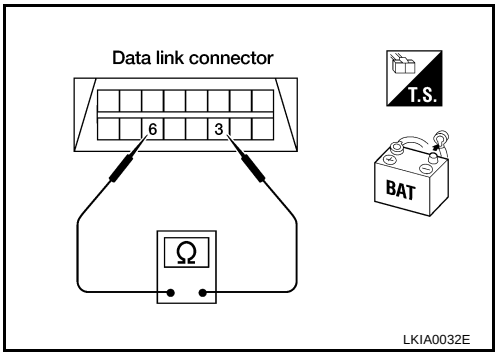
OK or NG

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

4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
- Combination meter connector
- BCM connector
- Steering angle sensor connector
- Harness connector M15
2. Check continuity between data link connector M8 terminals 6 (L) and 3 (R).

6 (L) - 3 (R) : Continuity should not exist.



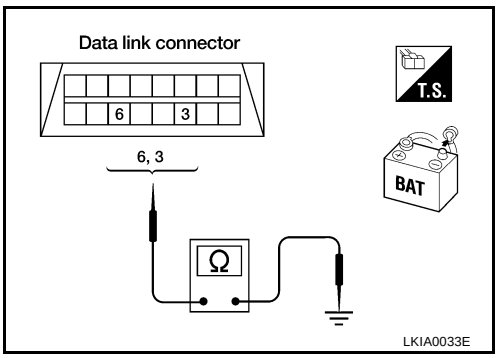
OK or NG

OK >> GO TO 5.
NG >>
- Repair harness between harness connector M72 and harness connector M15.
- Repair harness between harness connector M72 and combination meter.
- Repair harness between harness connector M72 and data link connector.
- Repair harness between harness connector M72 and BCM.
- Repair harness between harness connector M72 and steering angle sensor.

5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M8 terminals 6 (L), 3 (R) and ground.

6 (L) - Ground : Continuity should not exist.
3 (R) - Ground : Continuity should not exist.



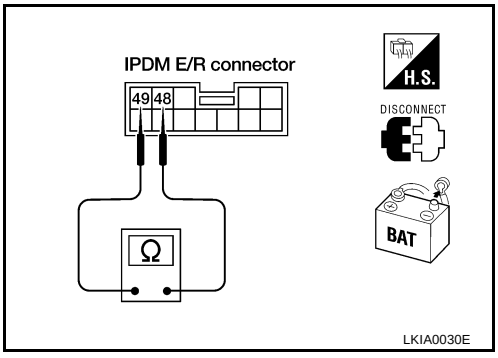
OK or NG

OK >> GO TO 6.
NG >>
- Repair harness between harness connector M72 and harness connector M15.
- Repair harness between harness connector M72 and combination meter.
- Repair harness between harness connector M72 and data link connector.
- Repair harness between harness connector M72 and BCM.
- Repair harness between harness connector M72 and steering angle sensor.

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 (R).

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



OK or NG

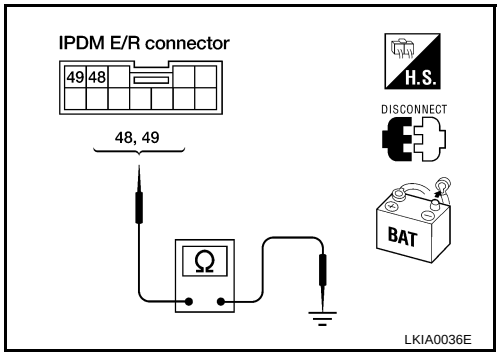
OK >> GO TO 7.
NG >>
- Repair harness between harness connector E108 and VDC/TCS/ABS control unit.
- Repair harness between harness connector E108 and IPDM E/R.

7. CHECK HARNESS FOR SHORT CIRCUIT

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

48 (L) - Ground : Continuity should not exist.

49 (R) - Ground : Continuity should not exist.



OK or NG

OK >> GO TO 8.

NG >>
- Repair harness between harness connector E108 and VDC/TCS/ABS control unit.
- Repair harness between harness connector E108 and IPDM E/R.

8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to LAN-32, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION" .

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-13, "Work Flow" .

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

IPDM E/R Ignition Relay Circuit Check

AKS009BW

Replace IPDM E/R if there is no malfunction after checking the following.

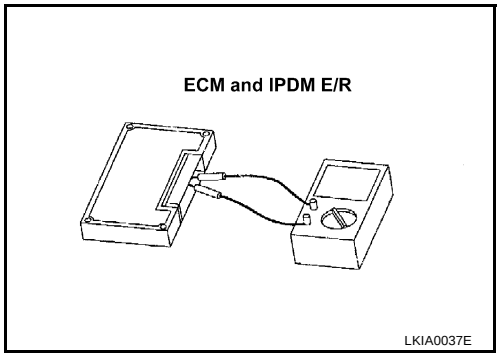
- IPDM E/R power circuit. Refer to PG-26, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition power supply circuit. Refer to PG-10, "IGNITION POWER SUPPLY - IGNITION SW. IN “ON” AND/OR “START”" .

Component Inspection

AKS009BX

ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 109 and 113.
- Check resistance between IPDM E/R terminals 48 and 49.



Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	109 - 113	108 - 132
IPDM E/R	48 - 49	

CAN SYSTEM (TYPE 2)

PFP:23710

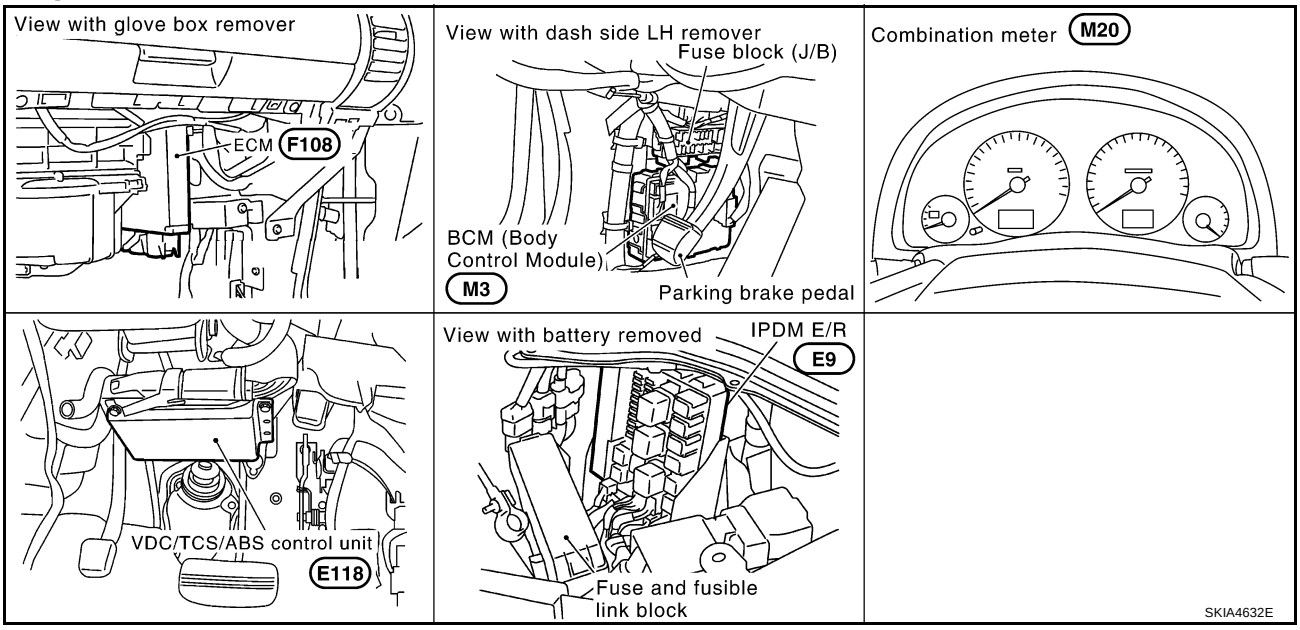
System Description

AKS007V0

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.

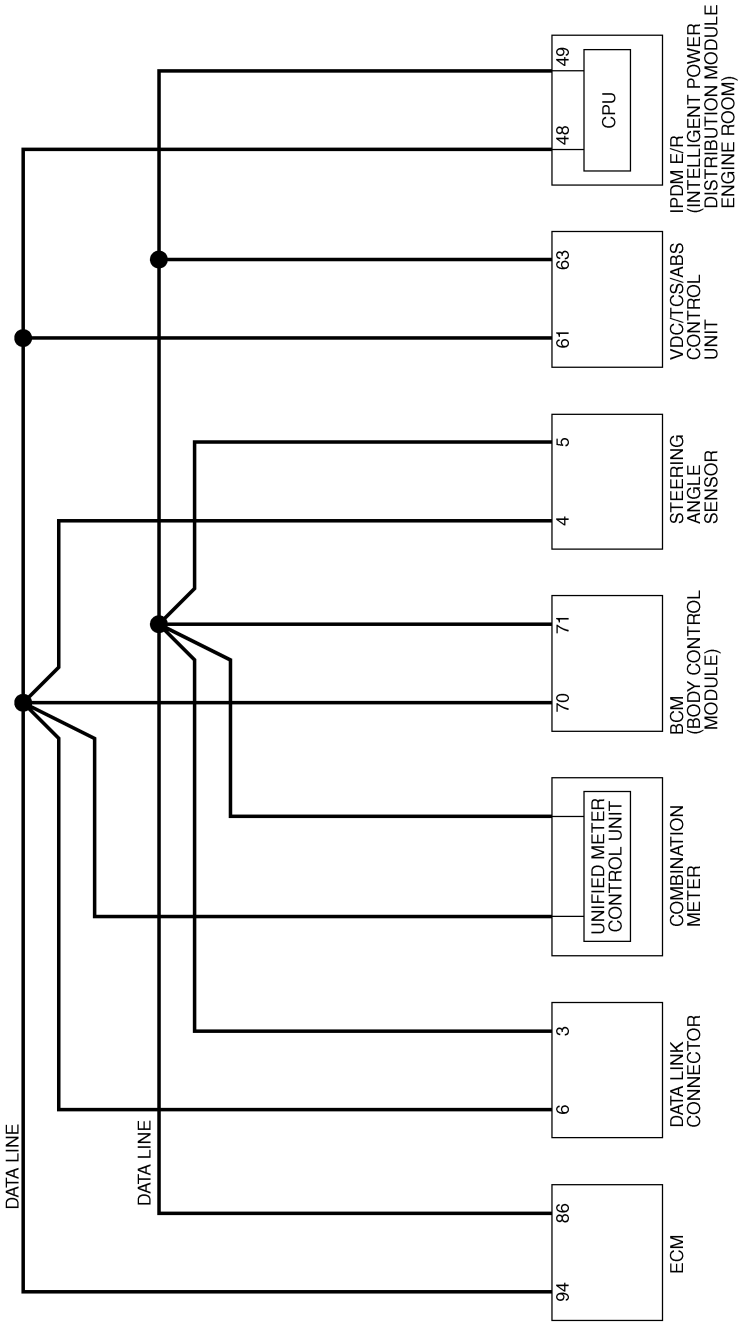
Component Parts and Harness Connector Location

AKS007V1



Schematic

AKS007V2

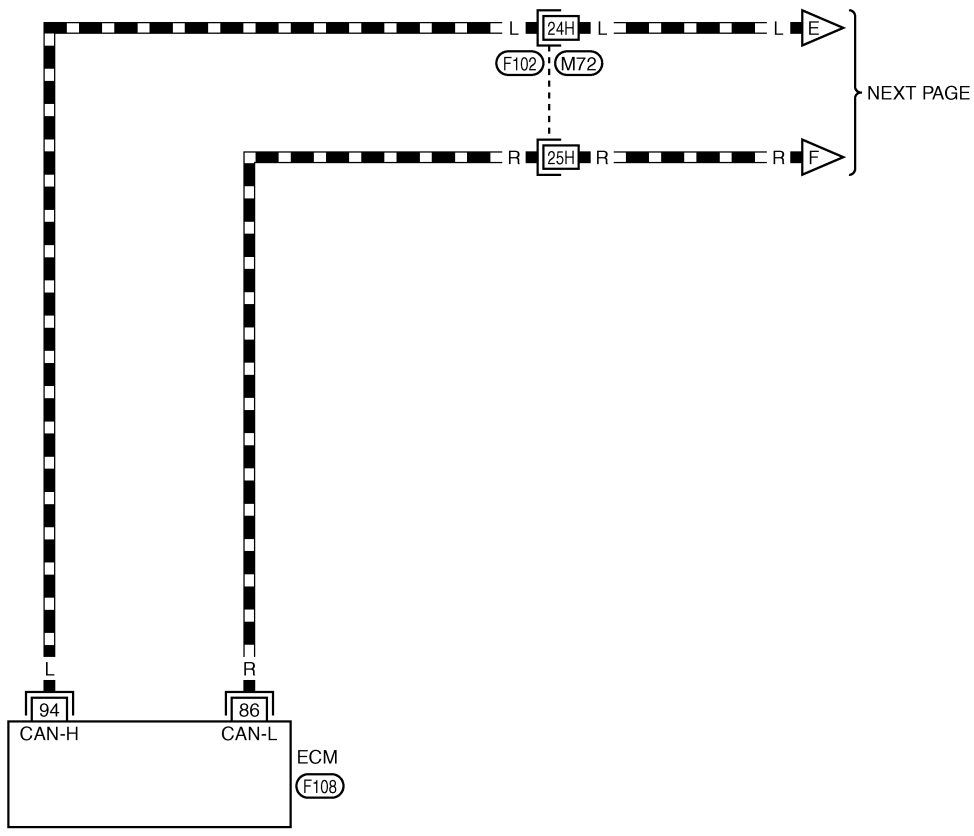


TKWT0957E

Wiring Diagram - CAN -

AKS007V3

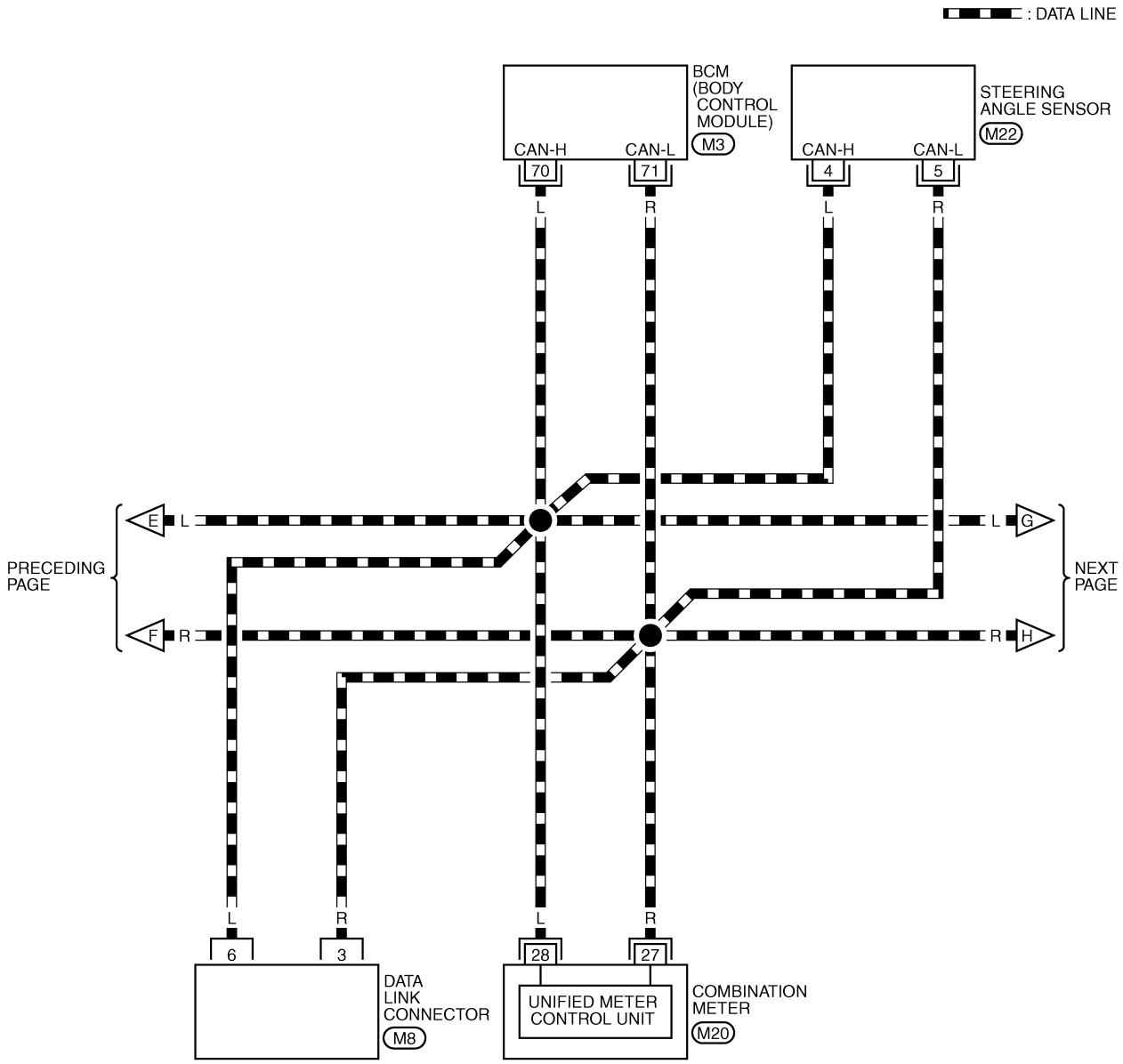
LAN-CAN-04



REFER TO THE FOLLOWING.
F102 -SUPER MULTIPLE JUNCTION (SMJ)
F108 -ELECTRICAL UNITS

TKWT0958E

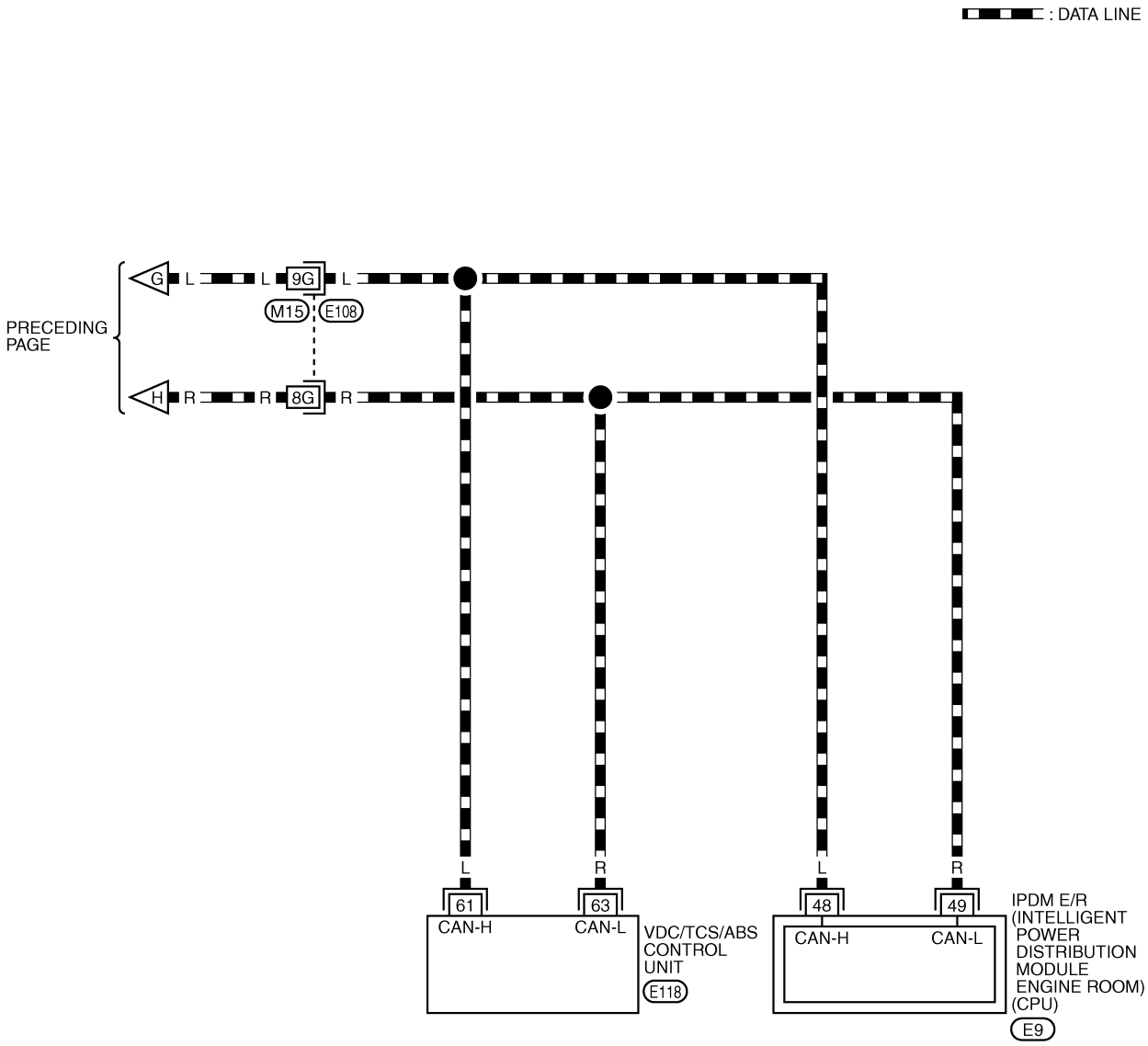
LAN-CAN-05

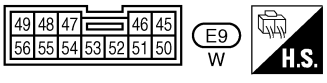


REFER TO THE FOLLOWING.
M3 -ELECTRICAL UNITS

TKWT0959E

LAN-CAN-06





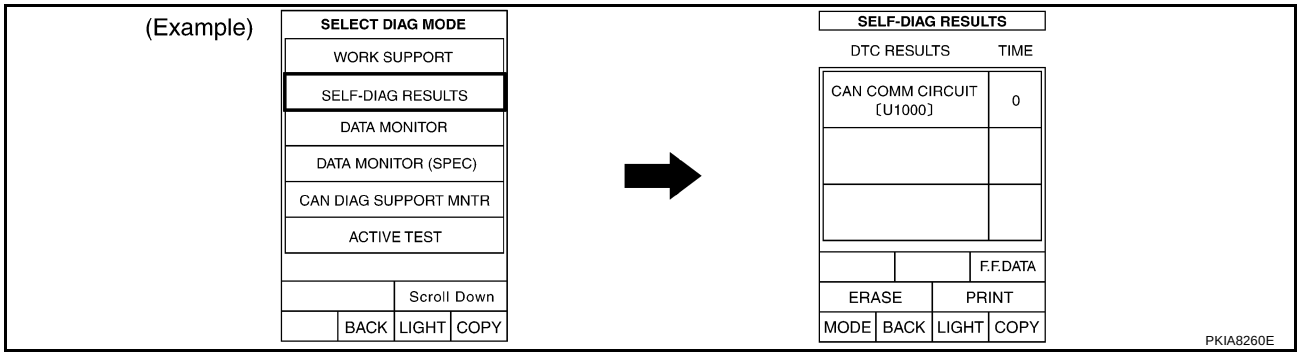
REFER TO THE FOLLOWING.
E108 -SUPER MULTIPLE JUNCTION (SMJ)
E118 -ELECTRICAL UNITS

TKWT0960E

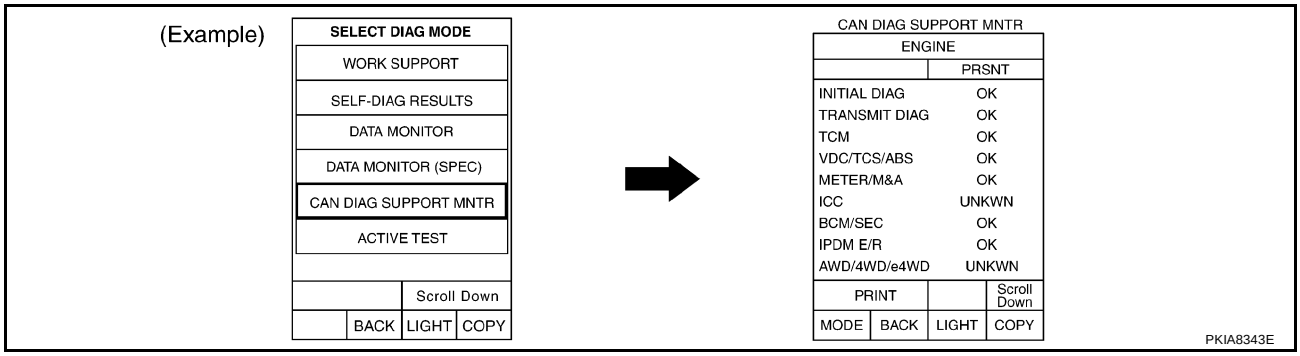
Work Flow

AKS00C41

1. Print all the data of “SELF-DIAG RESULTS” for “ENGINE”, “BCM” and “ABS” displayed on CONSULT-II.



2. Print all the data of “CAN DIAG SUPPORT MNTR” for “ENGINE”, “BCM” and “ABS” displayed on CONSULT-II.



3. Attach the printed sheet of “SELF-DIAG RESULTS” and “CAN DIAG SUPPORT MNTR” onto the check sheet. Refer to LAN-39, "CHECK SHEET" .
4. Based on the “CAN DIAG SUPPORT MNTR” results, put marks “v” onto the items with “NG” or “UNKWN” in the check sheet table. Refer to LAN-39, "CHECK SHEET" .

   NOTE:
   - If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)” as “CAN DIAG SUPPORT MNTR” for the diagnosed control unit, replace the control unit.
   - The “CAN DIAG SUPPORT MNTR” items, which are not in check sheet table, are not related to diagnostic procedure on service manual.
     So it is not necessary to check the status of the “CAN DIAG SUPPORT MNTR” items not in check sheet table.
5. According to the check sheet results (example), start inspection. Refer to LAN-40, "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	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	UNKWN	UNKWN
BCM	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

Symptoms :

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
BCM
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
ENGINE
CAN DIAG SUPPORT
MNTR

Attach copy of
BCM
CAN DIAG SUPPORT
MNTR

Attach copy of
ABS
CAN DIAG SUPPORT
MNTR

PKIB0279E

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

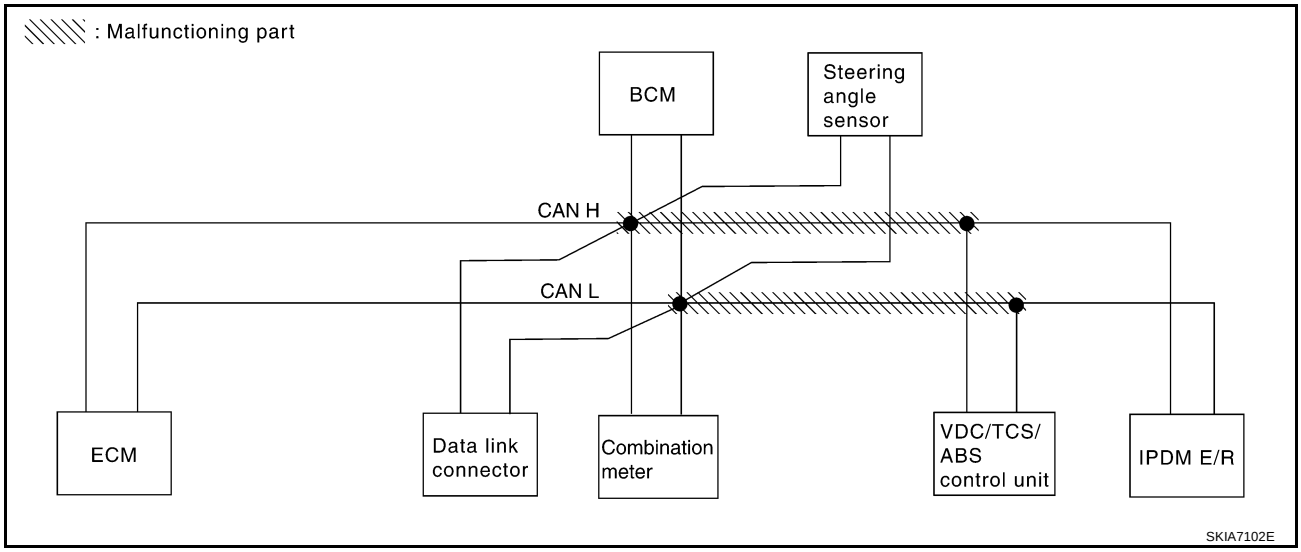
If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)” as “CAN DIAG SUPPORT MNTR” for the diagnosed control unit, replace the control unit.

Case 1

Check harness between data link connector and VDC/TCS/ABS control unit. Refer to LAN-47, "Circuit Check Between Data Link Connector 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	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	–	UNKWN	UNKWN	–	UNKWN ✓	UNKWN ✓
BCM	NG	UNKWN	UNKWN	UNKWN	–	–	–	UNKWN ✓
ABS	NG	UNKWN	UNKWN ✓	UNKWN ✓	–	UNKWN ✓	–	–

PKIB0292E

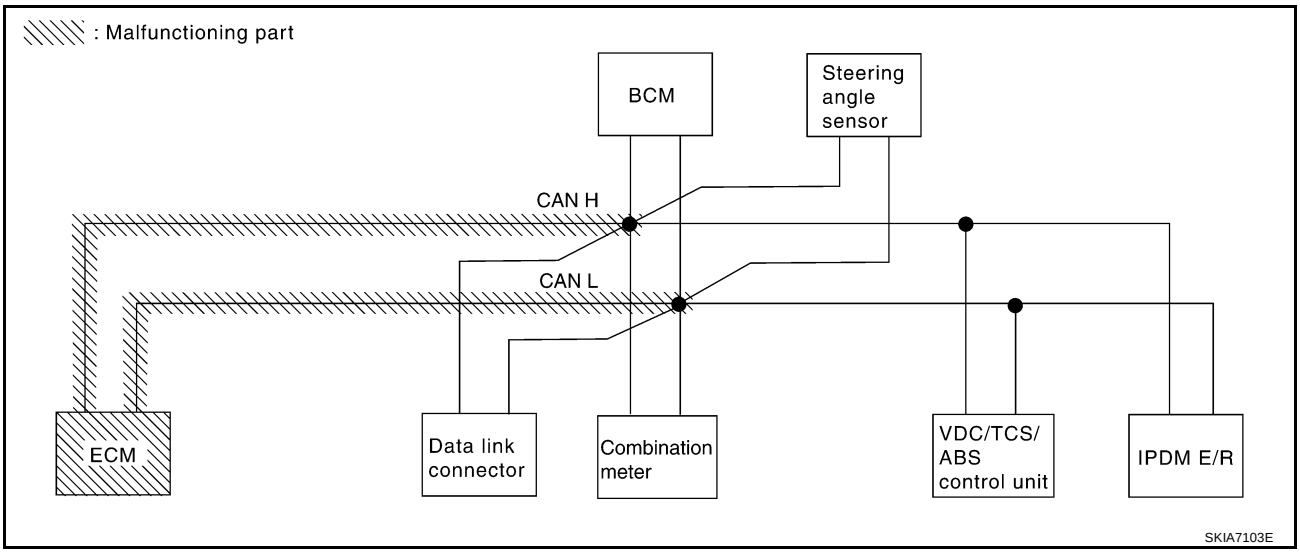


Case 2

Check ECM circuit. Refer to LAN-48, "ECM Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR							
	Initial diagnosis	Transmit diagnosis	Receive diagnosis					
			ECM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	UNKWN	UNKWN
BCM	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

PKIB0293E

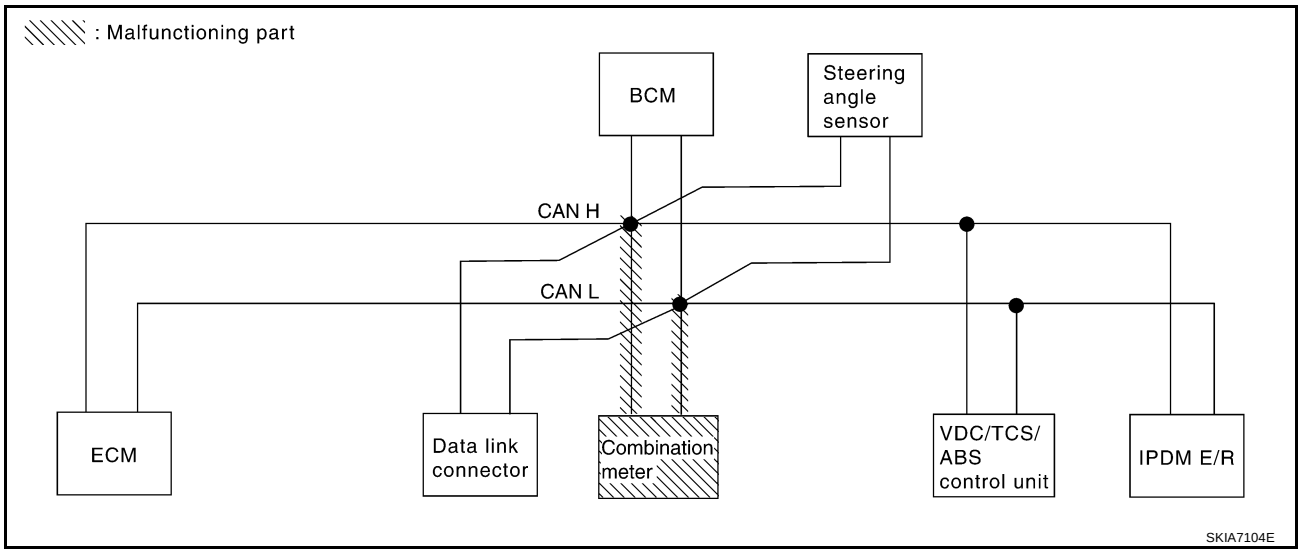


Case 3

Check combination meter circuit. Refer to LAN-49, "Combination Meter Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR							
	Initial diagnosis	Transmit diagnosis	Receive diagnosis					
			ECM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN ✓	UNKWN	—	UNKWN	UNKWN
BCM	NG	UNKWN	UNKWN	UNKWN ✓	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN ✓	—	UNKWN	—	—

PKIB0294E

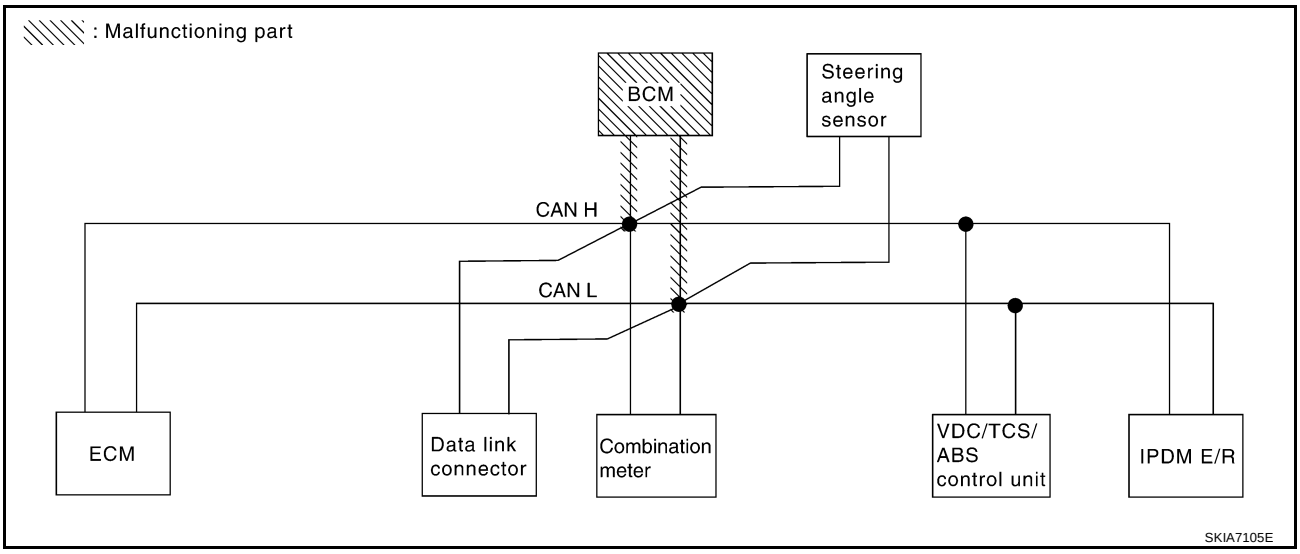


Case 4

Check BCM circuit. Refer to LAN-49, "BCM Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR							
	Initial diagnosis	Transmit diagnosis	Receive diagnosis					
			ECM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	UNKWN	UNKWN
BCM	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

PKIB0295E

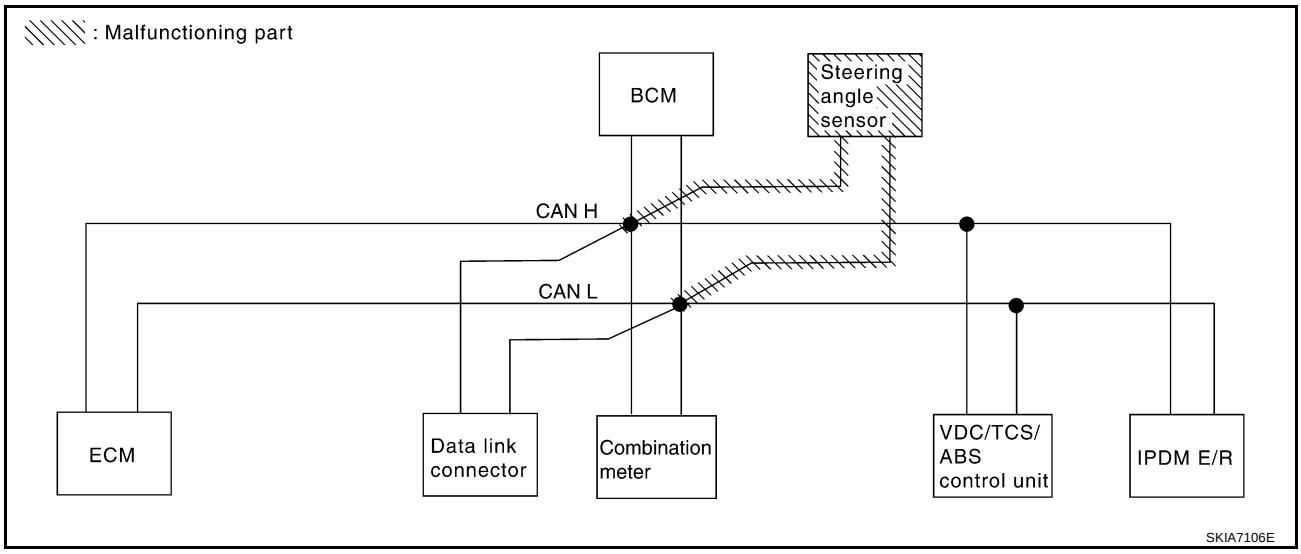


Case 5

Check steering angle sensor circuit. Refer to LAN-50, "Steering Angle Sensor Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR							
	Initial diagnosis	Transmit diagnosis	Receive diagnosis					
			ECM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	UNKWN	UNKWN
BCM	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

PKIB0296E



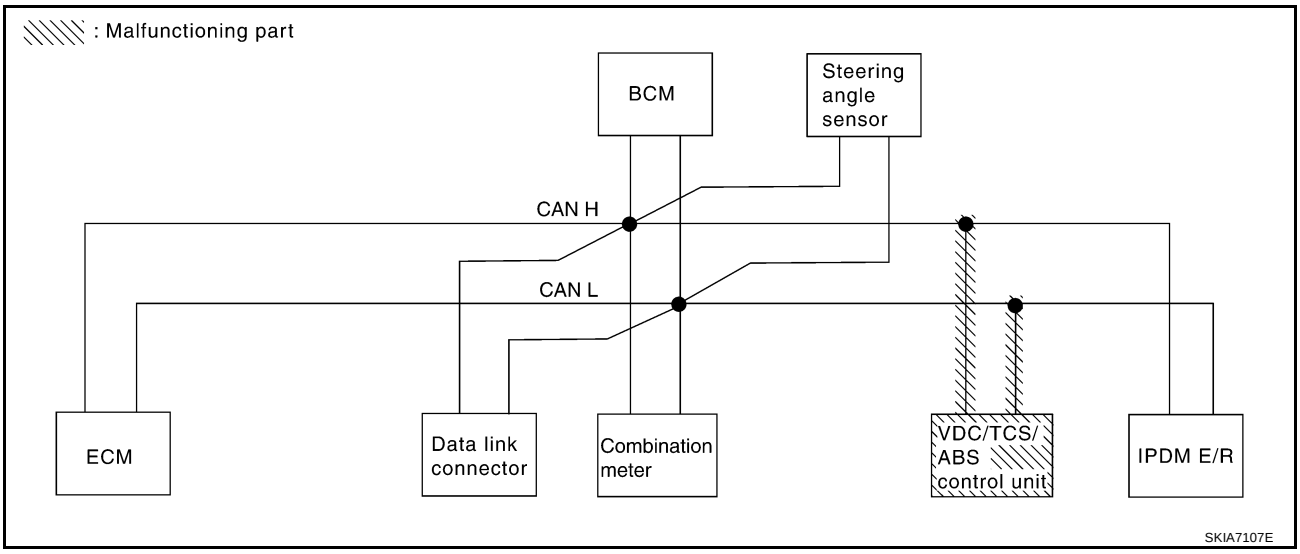
SKIA7106E

Case 6

Check VDC/TCS/ABS control unit circuit. Refer to LAN-50, "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	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	UNKWN ✓	UNKWN
BCM	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	UNKWN ✓	—	—

PKIB0297E

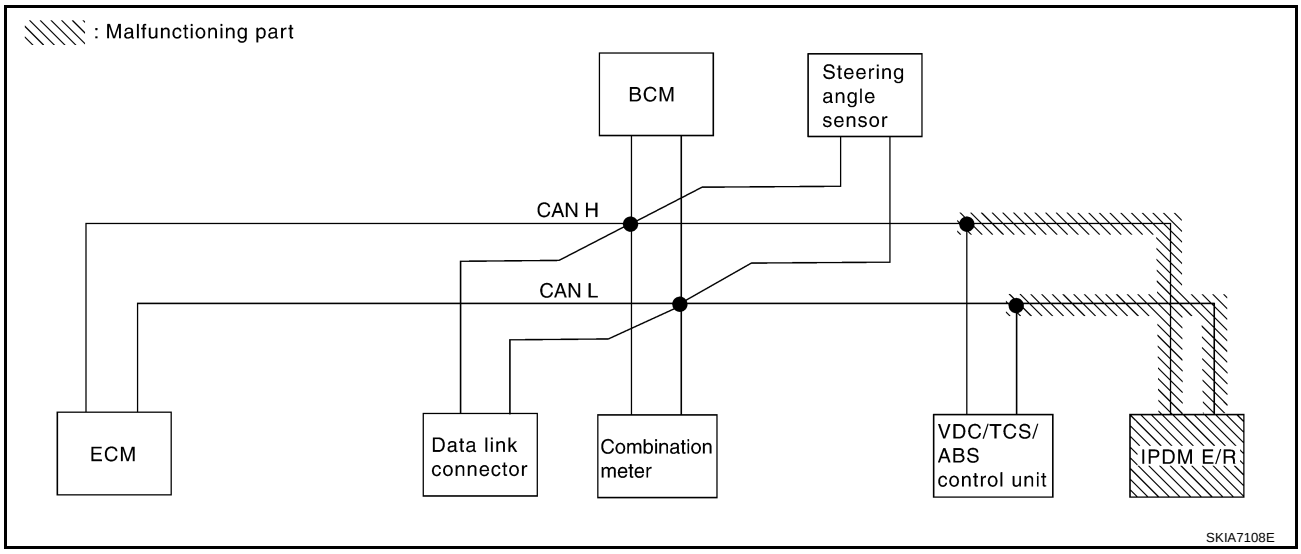


Case 7

Check IPDM E/R circuit. Refer to LAN-51, "IPDM E/R Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR							
	Initial diagnosis	Transmit diagnosis	Receive diagnosis					
			ECM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	UNKWN	UNKWN ✓
BCM	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN ✓
ABS	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

PKIB0298E



SKIA7108E

Case 8

Check CAN communication circuit. Refer to LAN-52, "CAN Communication Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR							
	Initial diagnosis	Transmit diagnosis	Receive diagnosis					
			ECM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	–	UNKWN	UNKWN	–	UNKWN	UNKWN
BCM	NG	UNKWN	UNKWN	UNKWN	–	–	–	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	–	UNKWN	–	–

PKIB0299E

Case 9

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-54, "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	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	–	UNKWN	UNKWN	–	UNKWN	UNKWN
BCM	NG	UNKWN	UNKWN	UNKWN	–	–	–	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	–	UNKWN	–	–

PKIB0301E

Case 10

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-54, "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	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	–	UNKWN	UNKWN	–	UNKWN	UNKWN
BCM	NG	UNKWN	UNKWN	UNKWN	–	–	–	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	–	UNKWN	–	–

PKIB0300E

Circuit Check Between Data Link Connector and VDC/TCS/ABS Control Unit

AKS007V5

1. CHECK CONNECTOR

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

- Harness connector M15
- Harness connector E108

OK or NG

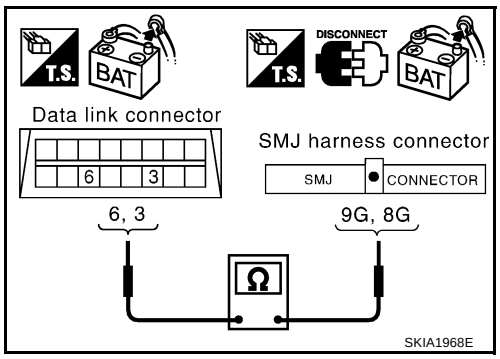
OK >> GO TO 2.
NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M15.
2. Check continuity between data link connector M8 terminals 6 (L), 3 (R) and harness connector M15 terminals 9G (L), 8G (R).

6 (L) - 9G (L) : Continuity should exist.

3 (R) - 8G (R) : Continuity should exist.



OK or NG

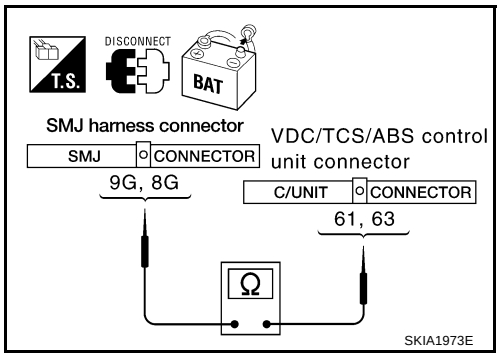
OK >> GO TO 3.
NG >> Repair harness.

3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect VDC/TCS/ABS control unit connector.
2. Check continuity between harness connector E108 terminals 9G (L), 8G (R) and VDC/TCS/ABS control unit harness connector E118 terminals 61 (L), 63 (R).

9G (L) - 61 (L) : Continuity should exist.

8G (R) - 63 (R) : Continuity should exist.



OK or NG

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

ECM Circuit Check

AKS007V6

1. CHECK CONNECTOR

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

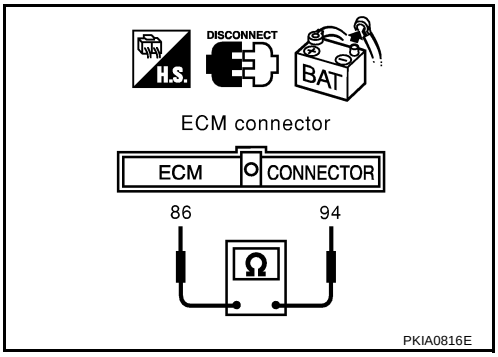
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F108 terminals 94 (L) and 86 (R).

94 (L) - 86 (R) : Approx. 108 - 132Ω

OK or NG

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



Combination Meter Circuit Check

AKS007V7

1. CHECK CONNECTOR

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

OK or NG

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

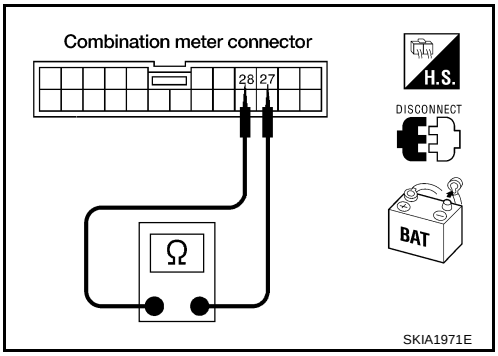
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M20 terminals 28 (L) and 27 (R).

28 (L) - 27 (R) : Approx. 54 - 66Ω

OK or NG

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



BCM Circuit Check

AKS007V8

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).

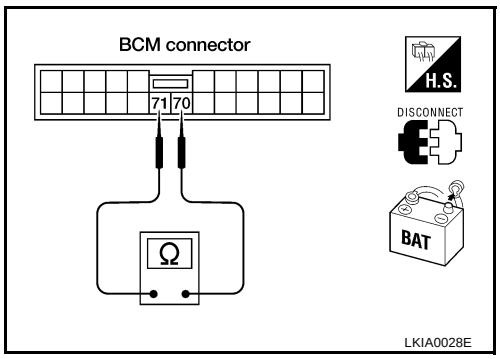
OK or NG

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 M3 terminals 70 (L) and 71 (R).

70 (L) - 71 (R) : Approx. 54 - 66Ω



OK or NG

OK >> Replace BCM. Refer to BCS-23, "Removal and Installation of BCM" .

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

Steering Angle Sensor Circuit Check

AKS007V9

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

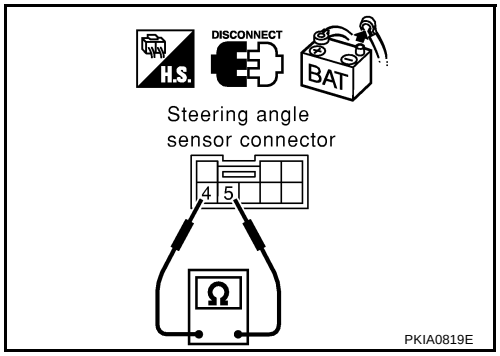
OK >> GO TO 2.

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 (R).

4 (L) - 5 (R) : Approx. 54 - 66Ω



OK or NG

OK >> Replace steering angle sensor.

NG >> Repair harness between data link connector and steering angle sensor.

VDC/TCS/ABS Control Unit Circuit Check

AKS007VA

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.

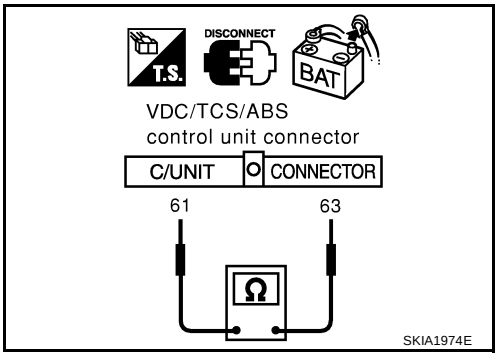
2. CHECK HARNESS FOR OPEN CIRCUIT

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 (R).

61 (L) - 63 (R) : Approx. 54 - 66Ω

OK or NG

OK >> Replace VDC/TCS/ABS control unit.
NG >> Repair harness between harness connector E108 and VDC/TCS/ABS control unit.



IPDM E/R Circuit Check

AKS007VB

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.

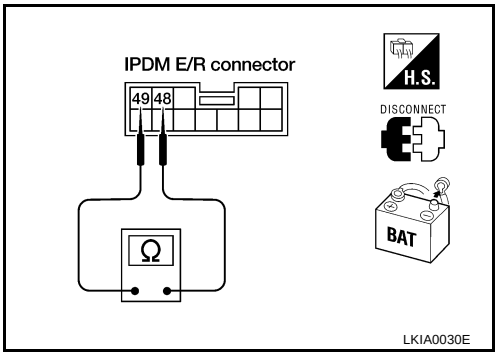
2. CHECK HARNESS FOR OPEN CIRCUIT

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

48 (L) - 49 (R) : Approx. 108 - 132Ω

OK or NG

OK >> Replace IPDM E/R.
NG >> Repair harness between harness connector E108 and IPDM E/R.



CAN Communication Circuit Check

AKS007VC

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side, control unit side, meter side, sensor side and harness side).

- ECM
- Combination meter
- BCM
- Steering angle sensor
- VDC/TCS/ABS control unit
- IPDM E/R
- Between ECM and IPDM E/R

OK or NG

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

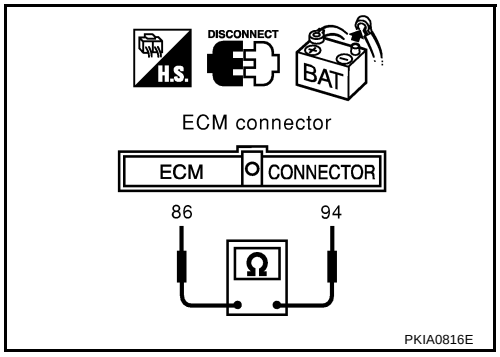
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.

– ECM connector
– Harness connector F102

2. Check continuity between ECM harness connector F108 terminals 94 (L) and 86 (R).

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



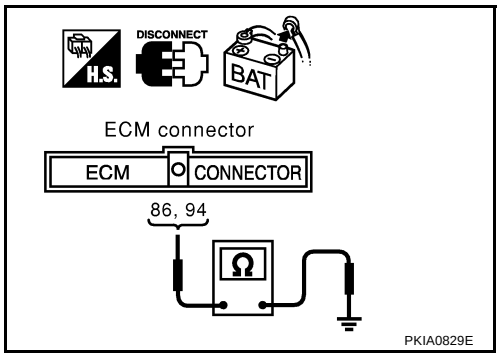
OK or NG

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

3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F108 terminals 94 (L), 86 (R) and ground.

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



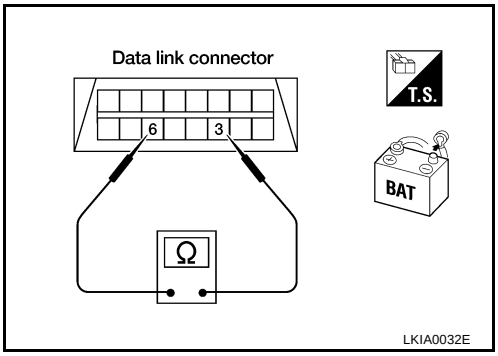
OK or NG

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

4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
- Combination meter connector
- BCM connector
- Steering angle sensor connector
- Harness connector M15
2. Check continuity between data link connector M8 terminals 6 (L) and 3 (R).

6 (L) - 3 (R) : Continuity should not exist.



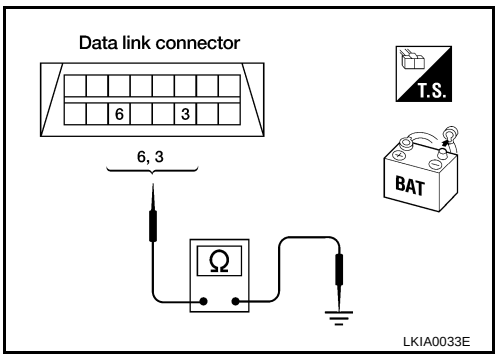
OK or NG

OK >> GO TO 5.
NG >>
- Repair harness between harness connector M72 and harness connector M15.
- Repair harness between harness connector M72 and combination meter.
- Repair harness between harness connector M72 and data link connector.
- Repair harness between harness connector M72 and BCM.
- Repair harness between harness connector M72 and steering angle sensor.

5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M8 terminals 6 (L), 3 (R) and ground.

6 (L) - Ground : Continuity should not exist.
3 (R) - Ground : Continuity should not exist.



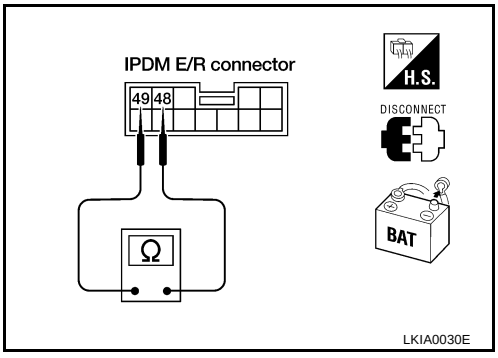
OK or NG

OK >> GO TO 6.
NG >>
- Repair harness between harness connector M72 and harness connector M15.
- Repair harness between harness connector M72 and combination meter.
- Repair harness between harness connector M72 and data link connector.
- Repair harness between harness connector M72 and BCM.
- Repair harness between harness connector M72 and steering angle sensor.

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 (R).

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



OK or NG

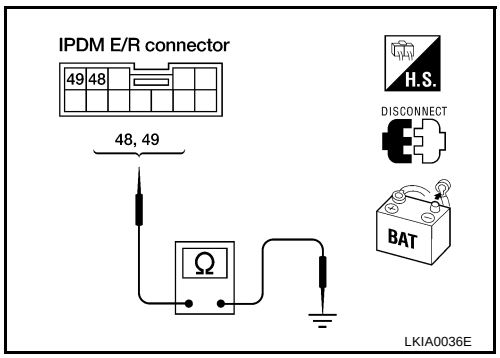
OK >> GO TO 7.
NG >>
- Repair harness between harness connector E108 and VDC/TCS/ABS control unit.
- Repair harness between harness connector E108 and IPDM E/R.

7. CHECK HARNESS FOR SHORT CIRCUIT

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

48 (L) - Ground : Continuity should not exist.

49 (R) -Ground : Continuity should not exist.



OK or NG

OK >> GO TO 8.

NG >>
- Repair harness between harness connector E108 and VDC/TCS/ABS control unit.
- Repair harness between harness connector E108 and IPDM E/R.

8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to LAN-54, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION"

OK or NG

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

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

IPDM E/R Ignition Relay Circuit Check

AKS007VD

Replace IPDM E/R if there is no malfunction after checking the following.

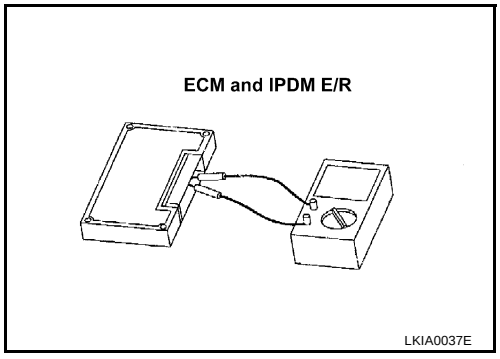
- IPDM E/R power circuit. Refer to PG-26, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition power supply circuit. Refer to PG-10, "IGNITION POWER SUPPLY - IGNITION SW. IN “ON” AND/OR “START”" .

Component Inspection

AKS007VE

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

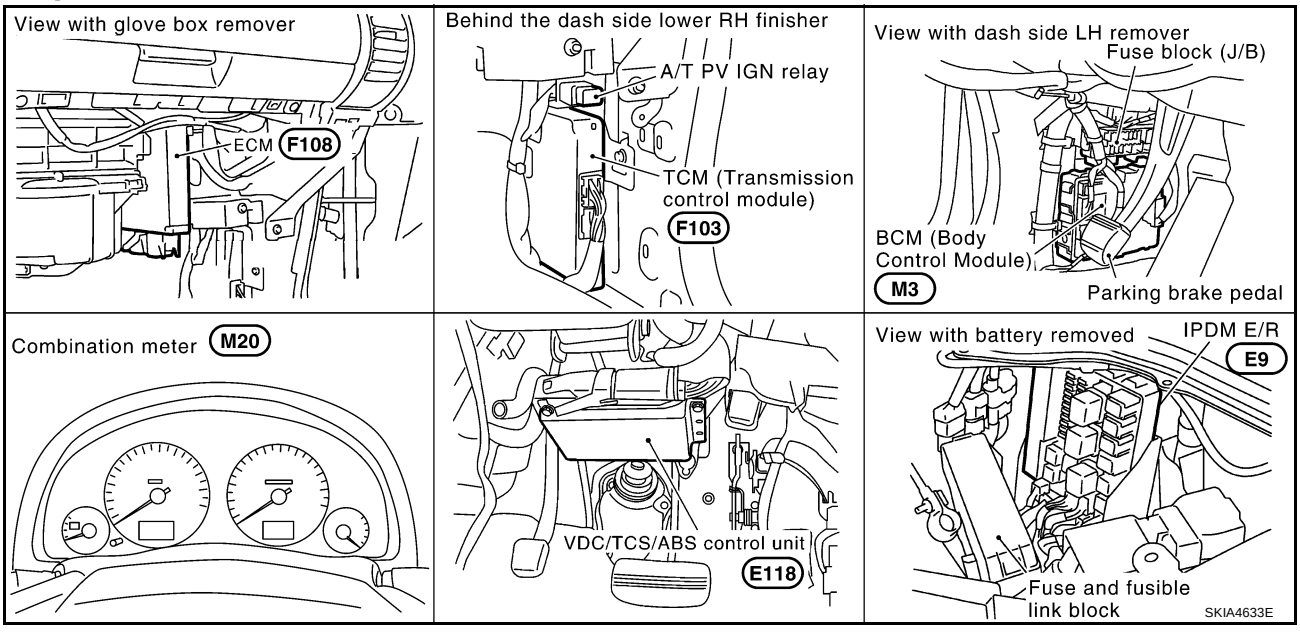
System Description

AKS009BY

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.

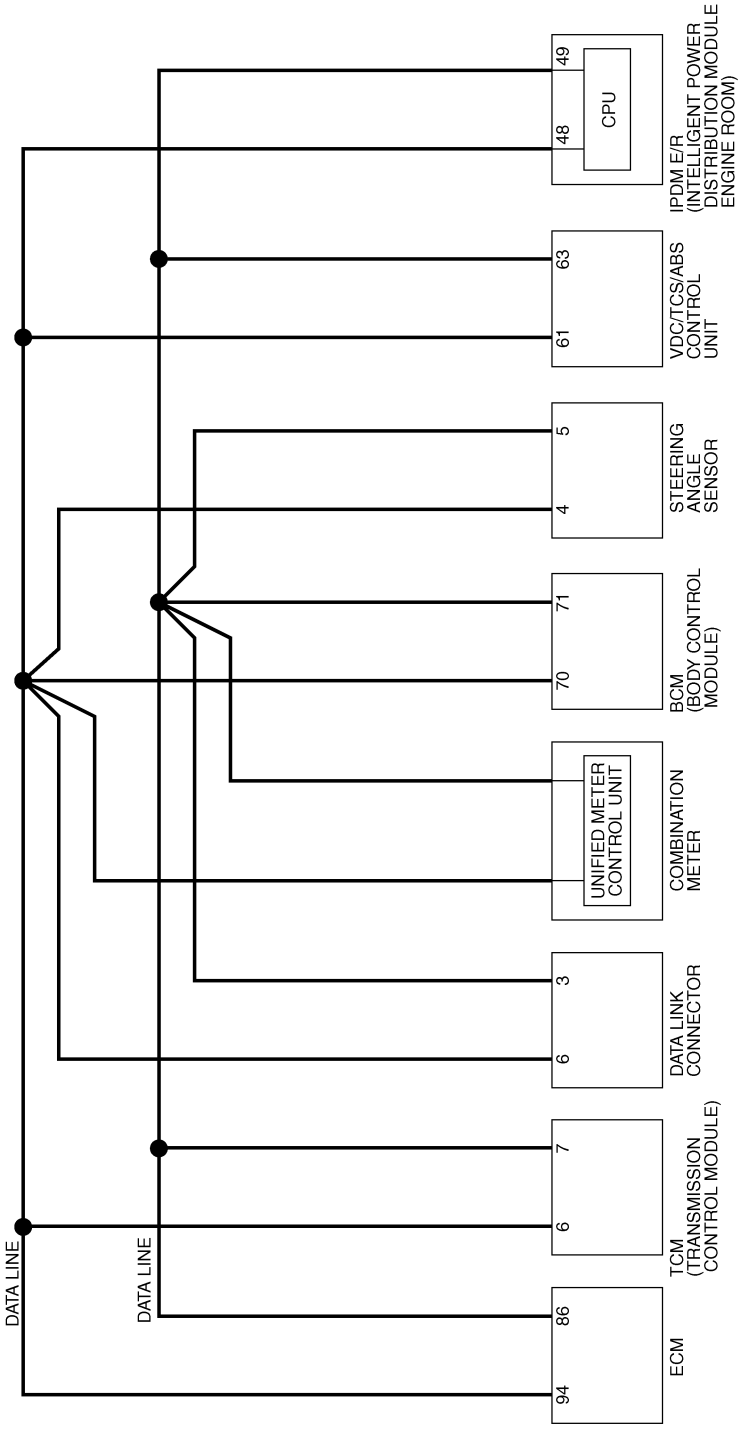
Component Parts and Harness Connector Location

AKS009BZ



Schematic

AKS009C0

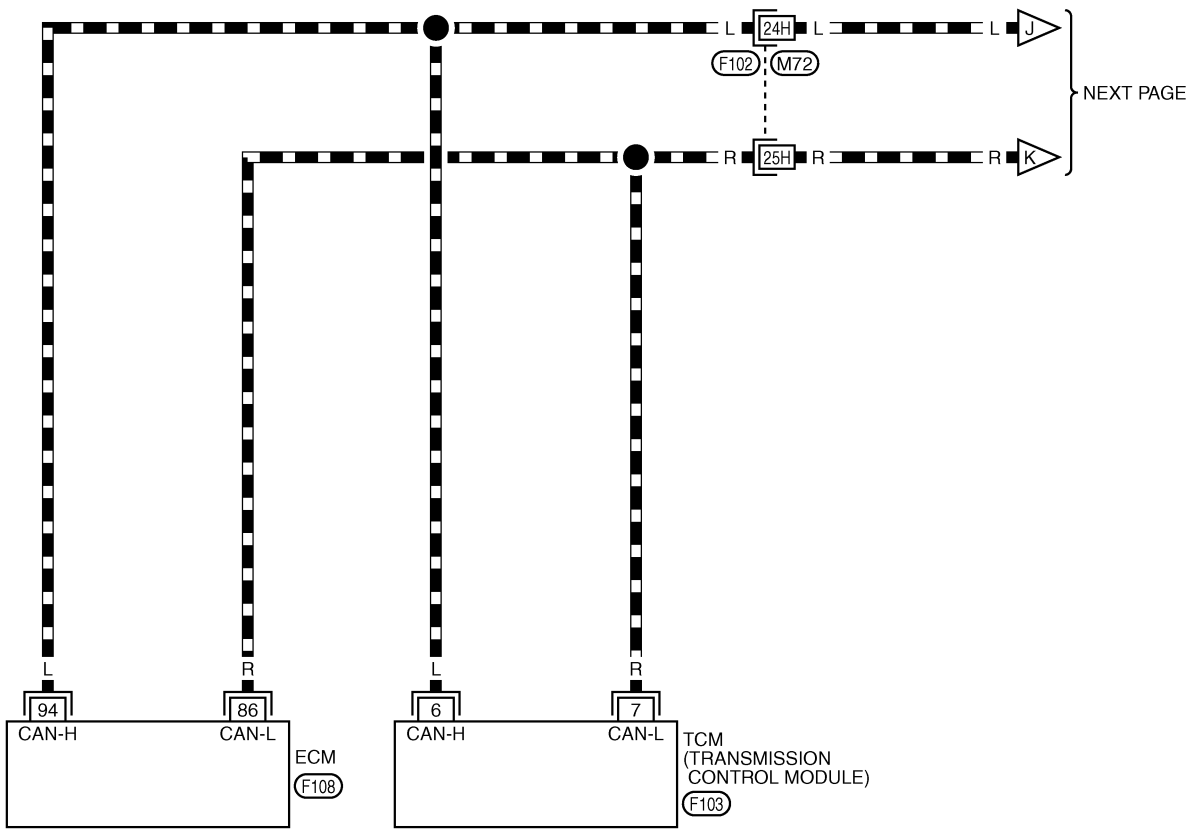


TKWT1022E

Wiring Diagram - CAN -

AKS009C1

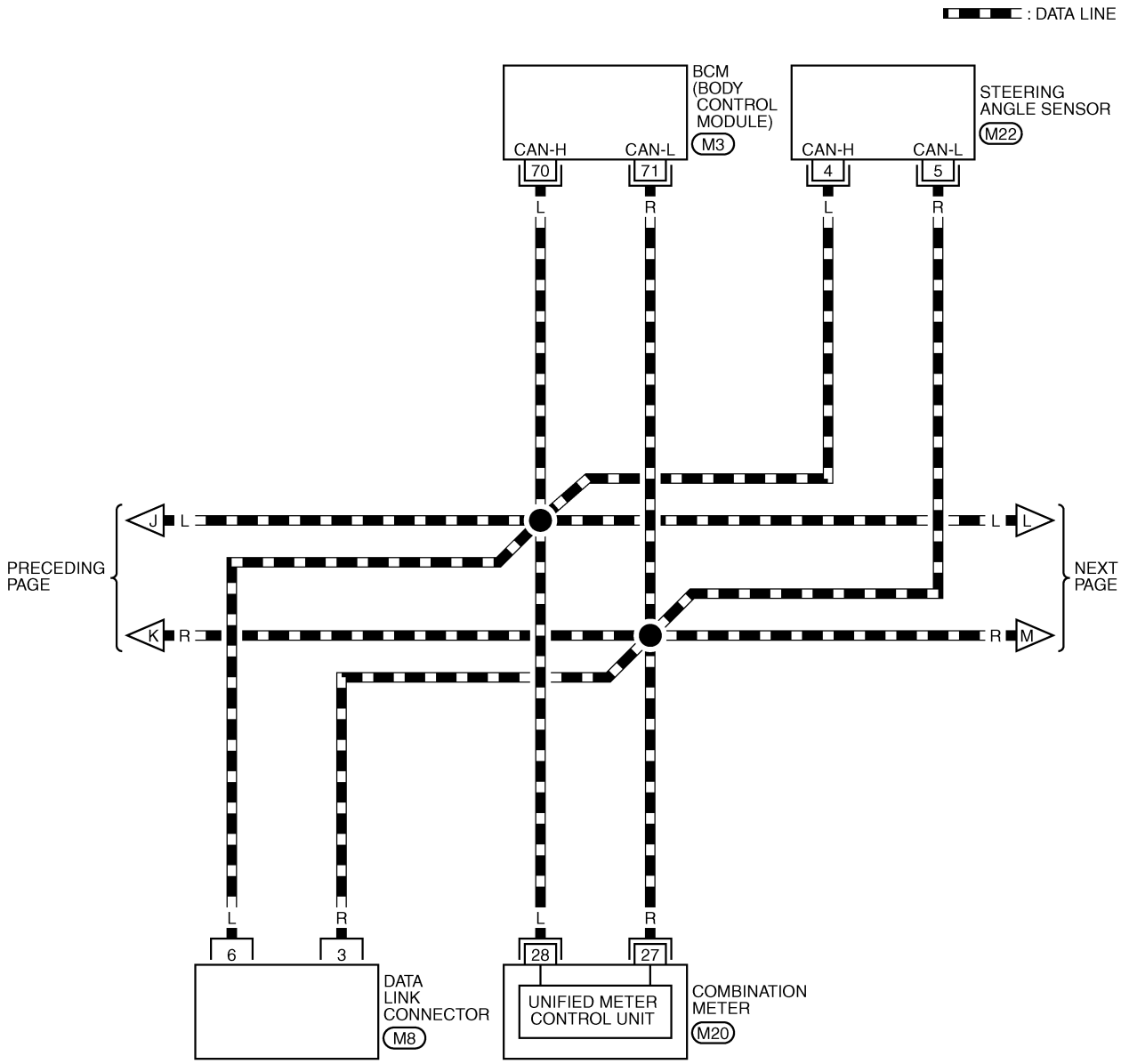
LAN-CAN-07

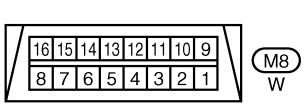


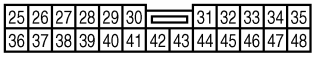
REFER TO THE FOLLOWING.
F102 -SUPER MULTIPLE JUNCTION (SMJ)
F103 , F108 -ELECTRICAL UNITS

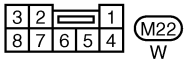
TKWT1023E

LAN-CAN-08





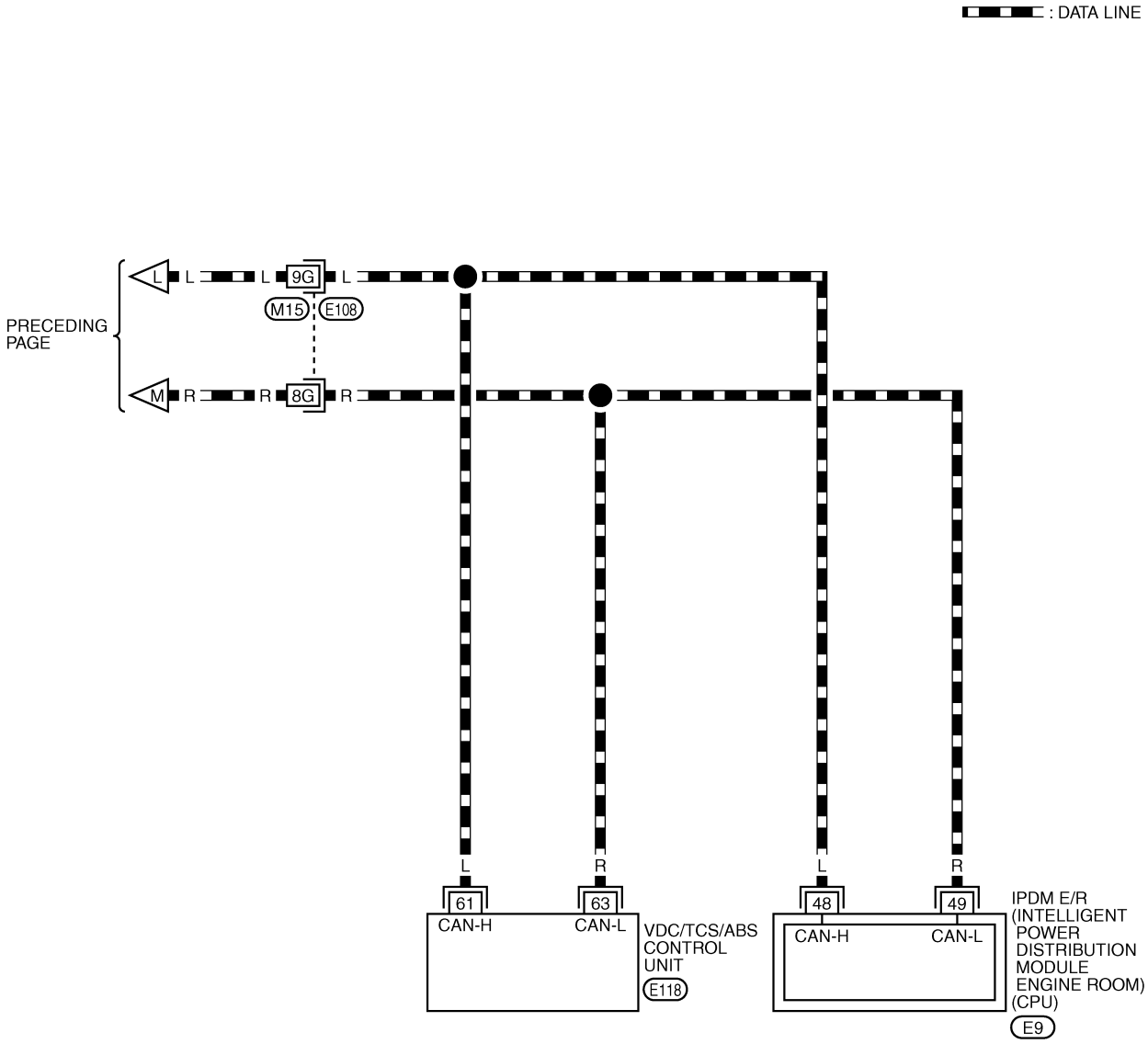


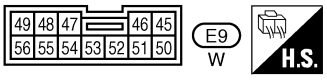


REFER TO THE FOLLOWING.
M3 -ELECTRICAL UNITS

TKWT1024E

LAN-CAN-09





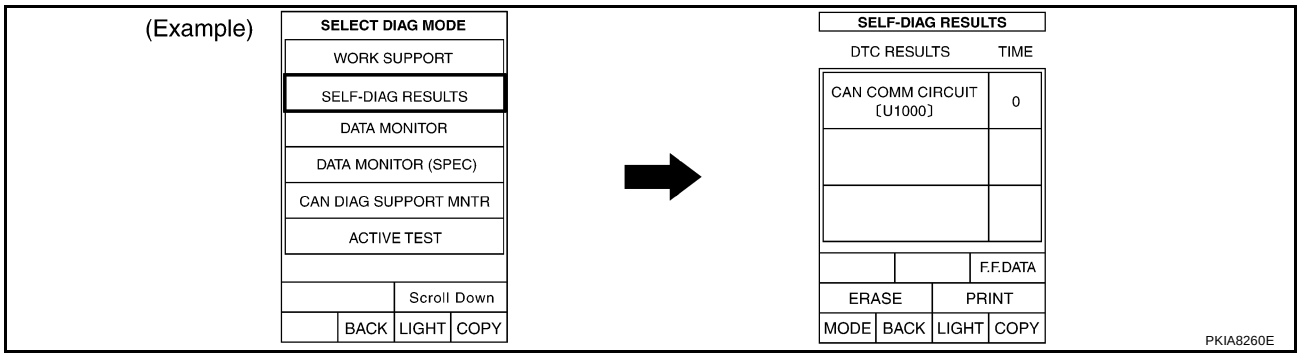
REFER TO THE FOLLOWING.
E108 -SUPER MULTIPLE JUNCTION (SMJ)
E118 -ELECTRICAL UNITS

TKWT1025E

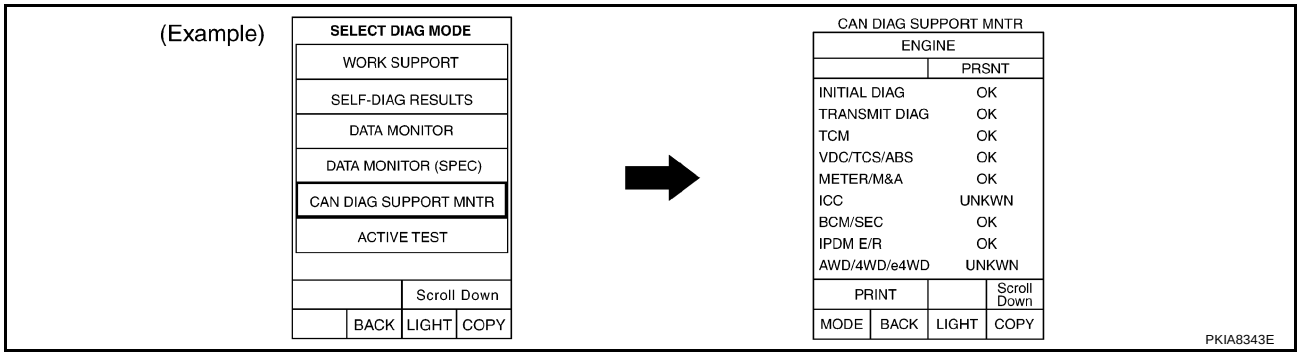
Work Flow

AKS00C42

1. Print all the data of “SELF-DIAG RESULTS” for “ENGINE”, “A/T”, “BCM” and “ABS” displayed on CONSULT-II.



2. Print all the data of “CAN DIAG SUPPORT MNTR” for “ENGINE”, “A/T”, “BCM” and “ABS” displayed on CONSULT-II.



3. Attach the printed sheet of “SELF-DIAG RESULTS” and “CAN DIAG SUPPORT MNTR” onto the check sheet. Refer to LAN-61, "CHECK SHEET" .
4. Based on the “CAN DIAG SUPPORT MNTR” results, put marks “v” onto the items with “NG” or “UNKWN” in the check sheet table. Refer to LAN-61, "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.
5. According to the check sheet results (example), start inspection. Refer to LAN-62, "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	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
BCM	NG	UNKWN	UNKWN	—	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

Symptoms :

Attach copy of ENGINE SELF-DIAG RESULTS	Attach copy of A/T SELF-DIAG RESULTS	Attach copy of BCM SELF-DIAG RESULTS	Attach copy of ABS SELF-DIAG RESULTS
Attach copy of ENGINE CAN DIAG SUPPORT MNTR	Attach copy of A/T CAN DIAG SUPPORT MNTR	Attach copy of BCM CAN DIAG SUPPORT MNTR	Attach copy of ABS CAN DIAG SUPPORT MNTR

PKIB0278E

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

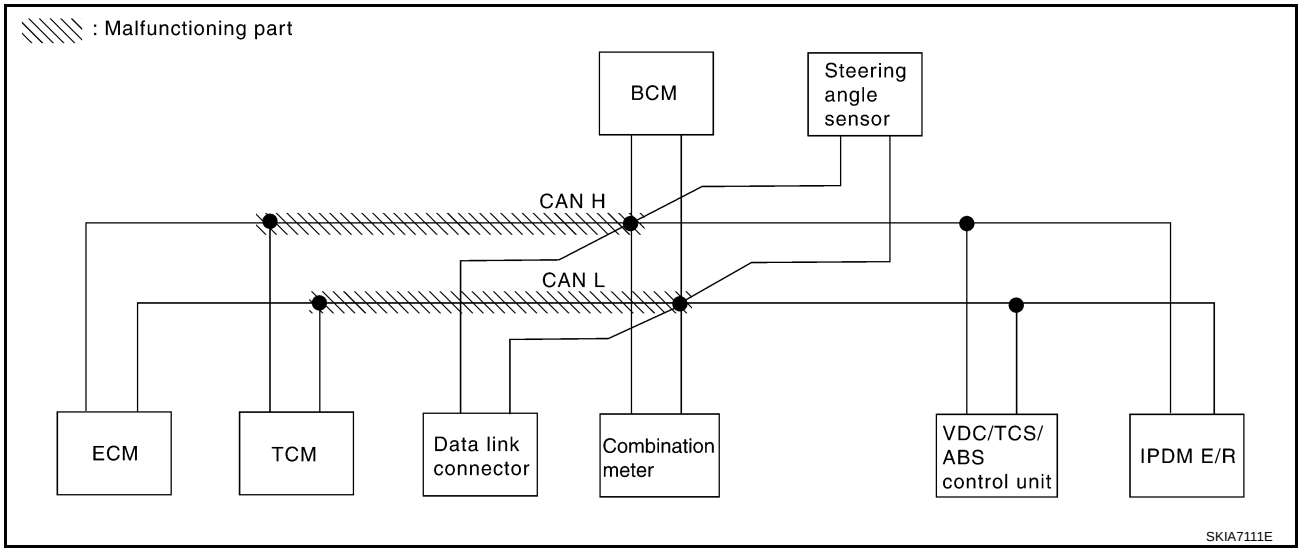
If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)” as “CAN DIAG SUPPORT MNTR” for the diagnosed control unit, replace the control unit.

Case 1

Check harness between TCM and data link connector. Refer to LAN-71, "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	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN ✓	UNKWN ✓	—	UNKWN ✓	UNKWN ✓
A/T	NG	UNKWN	UNKWN	—	UNKWN ✓	—	—	UNKWN ✓	—
BCM	NG	UNKWN	UNKWN ✓	—	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN ✓	UNKWN ✓	UNKWN	—	UNKWN	—	—

PKIB0280E

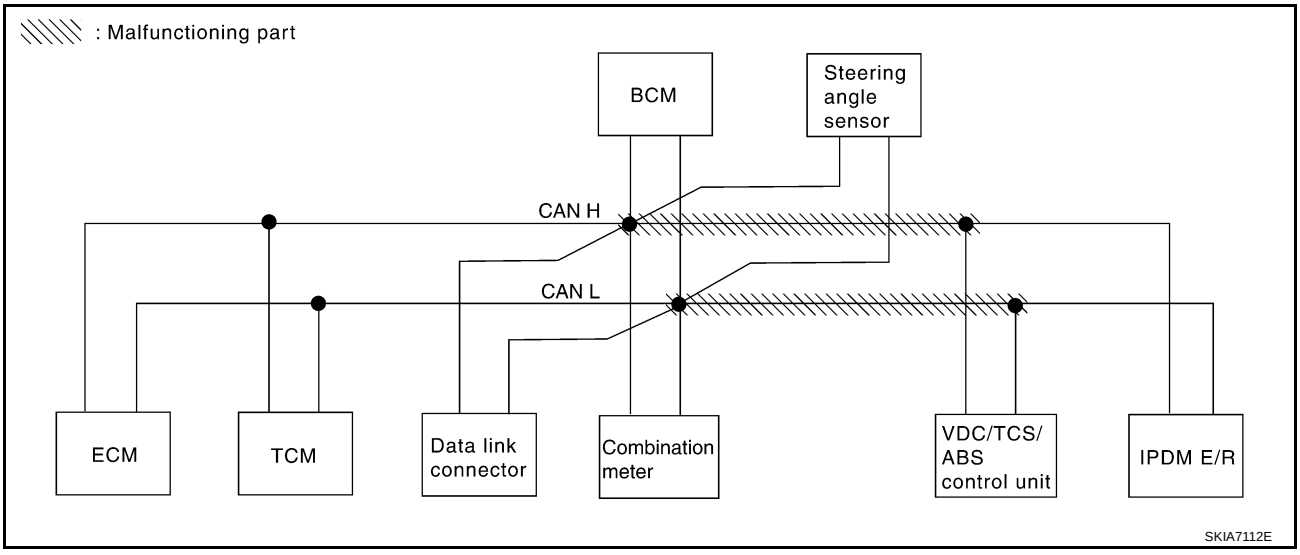


Case 2

Check harness between data link connector and VDC/TCS/ABS control unit. Refer to LAN-72, "Circuit Check Between Data Link Connector and VDC/TCS/ABS Control Unit" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	TCM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN ✓	UNKWN ✓
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN ✓	—
BCM	NG	UNKWN	UNKWN	—	UNKWN	—	—	—	UNKWN ✓
ABS	NG	UNKWN	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	UNKWN ✓	—	—

PKIB0281E

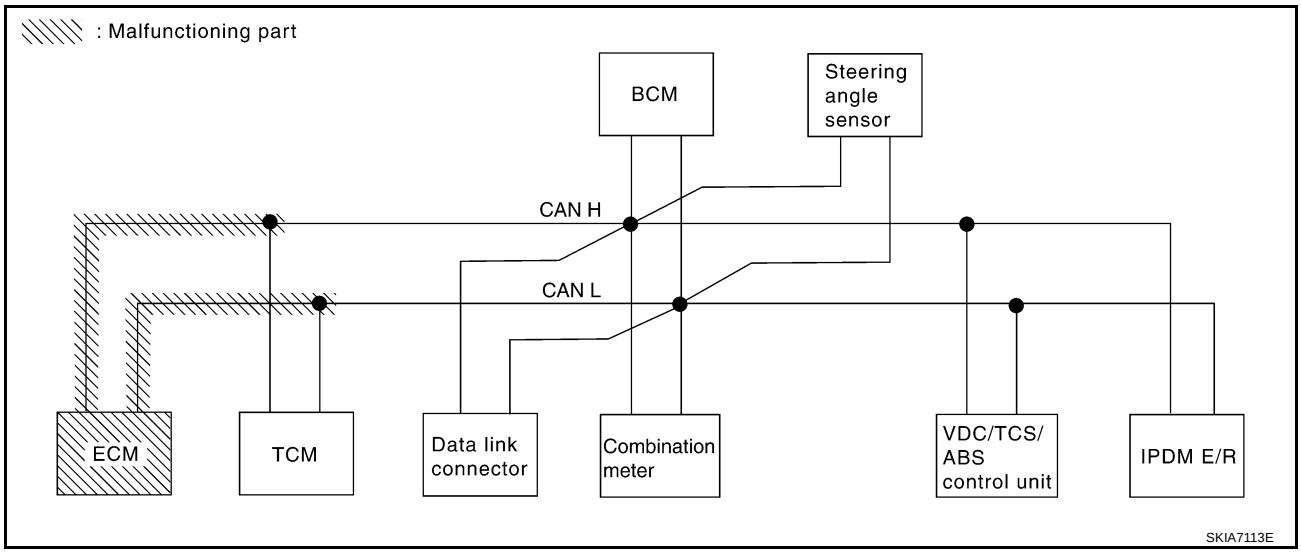


Case 3

Check ECM circuit. Refer to LAN-73, "ECM Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	TCM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN ✓	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	UNKWN ✓	UNKWN ✓
A/T	NG	UNKWN	UNKWN ✓	—	UNKWN	—	—	UNKWN	—
BCM	NG	UNKWN	UNKWN ✓	—	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN ✓	UNKWN	UNKWN	—	UNKWN	—	—

PKIB0282E

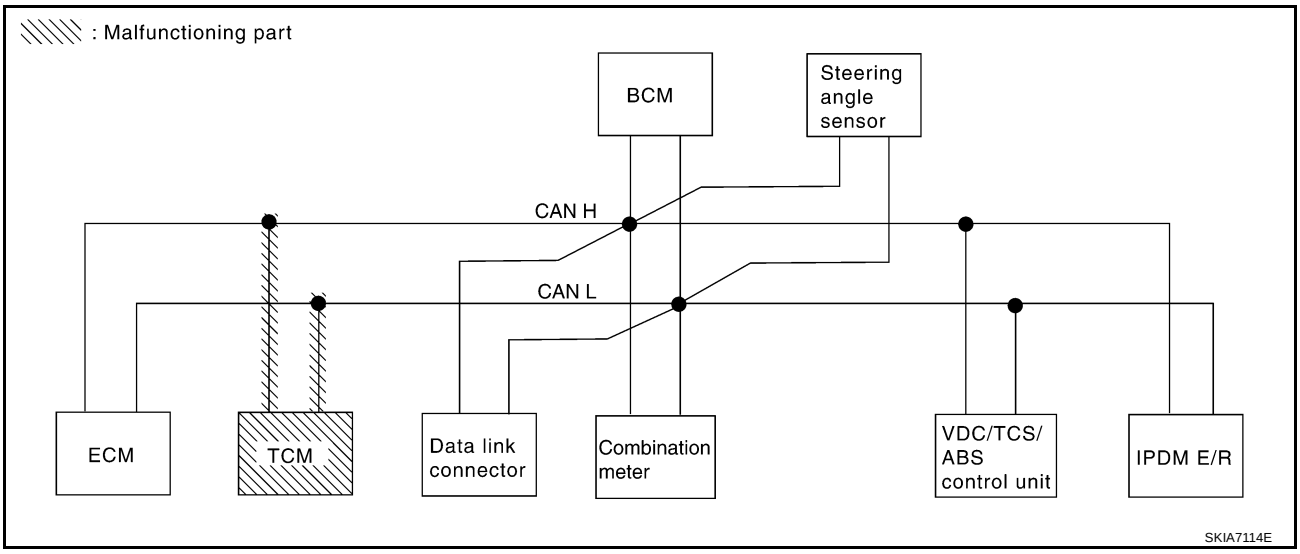


Case 4

Check TCM circuit. Refer to LAN-73, "TCM Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	TCM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
BCM	NG	UNKWN	UNKWN	—	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

PKIB0283E

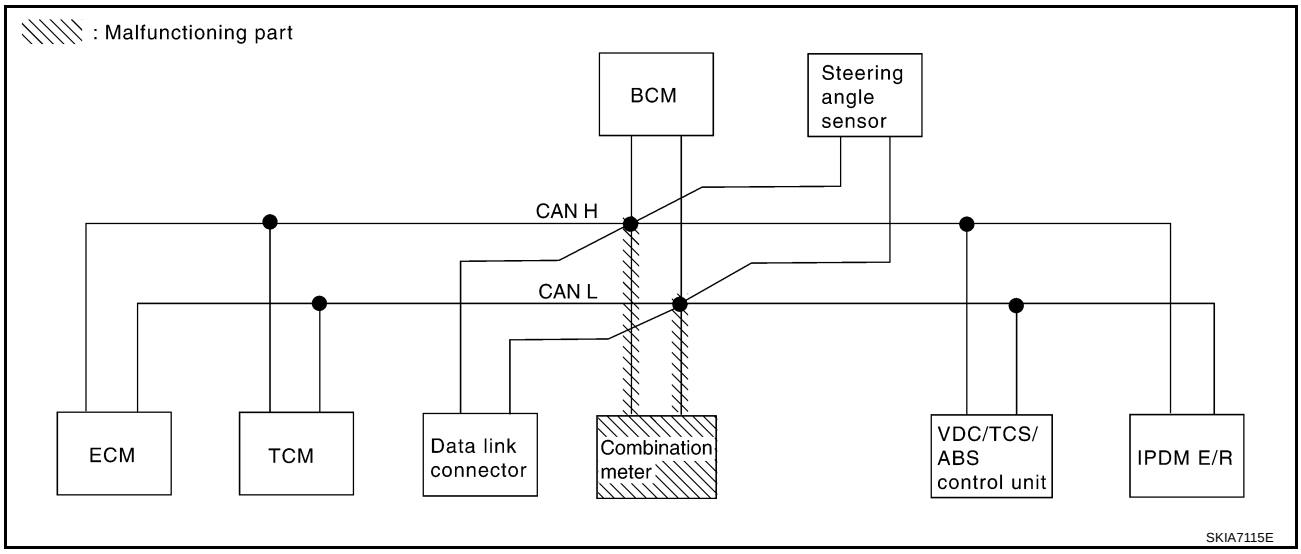


Case 5

Check combination meter circuit. Refer to LAN-74, "Combination Meter Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	TCM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
BCM	NG	UNKWN	UNKWN	—	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

PKIB0284E

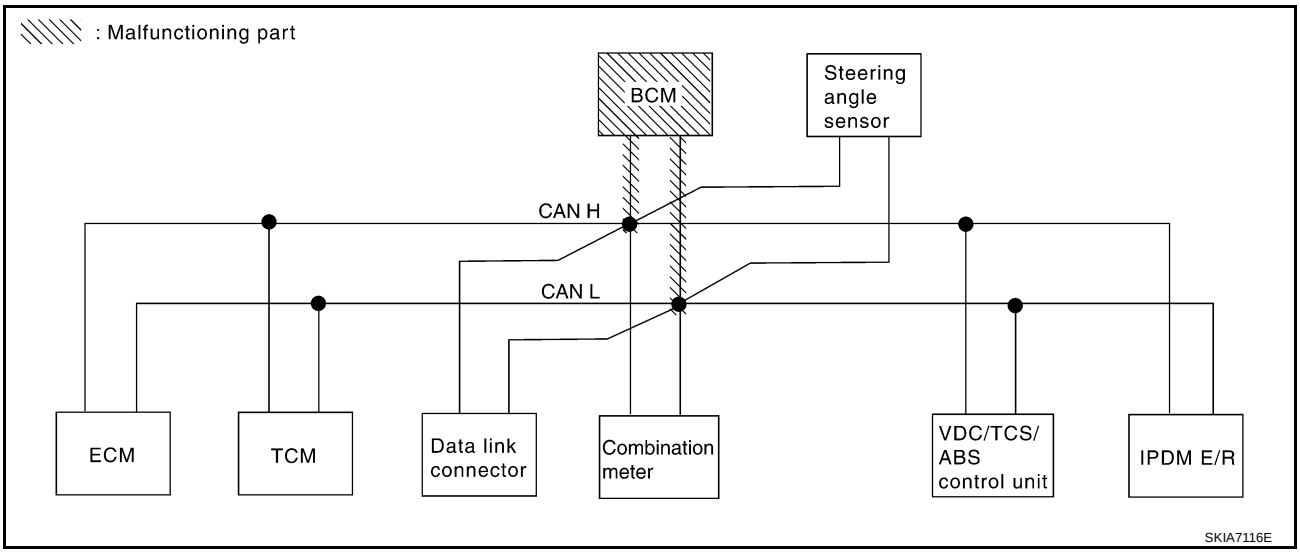


Case 6

Check BCM circuit. Refer to LAN-74, "BCM Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	TCM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
BCM	NG	UNKWN	UNKWN	—	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

PKIB0285E

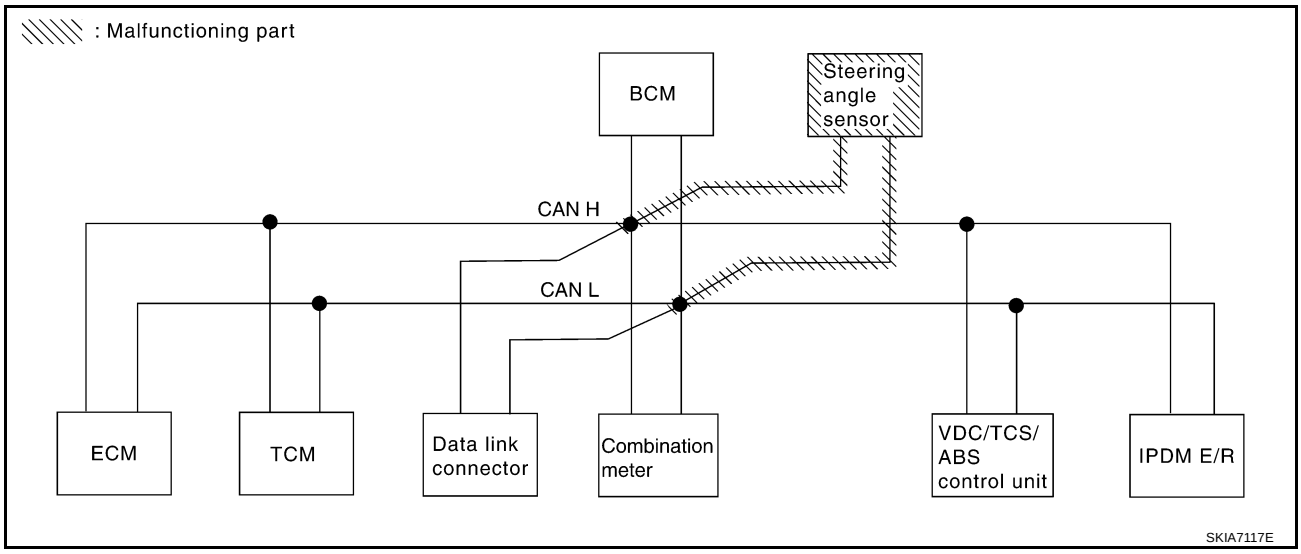


Case 7

Check steering angle sensor circuit. Refer to LAN-75, "Steering Angle Sensor Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	TCM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
BCM	NG	UNKWN	UNKWN	—	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

PKIB0286E

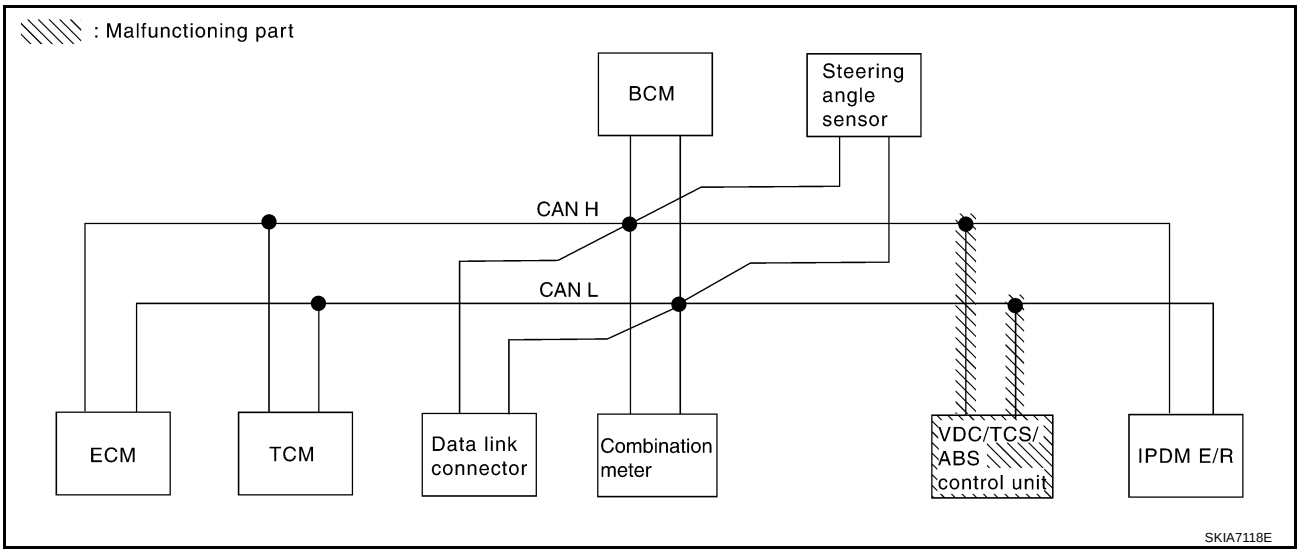


Case 8

Check VDC/TCS/ABS control unit circuit. Refer to LAN-75, "VDC/TCS/ABS Control Unit Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	TCM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
BCM	NG	UNKWN	UNKWN	—	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

PKIB0287E

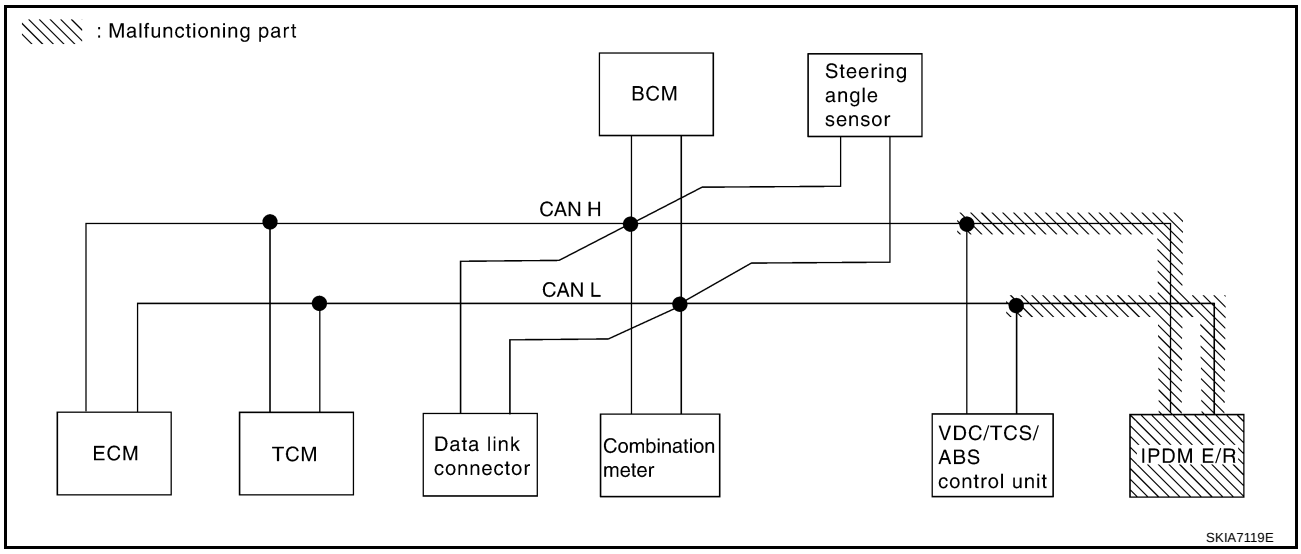


Case 9

Check IPDM E/R circuit. Refer to LAN-76, "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	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN ✓
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
BCM	NG	UNKWN	UNKWN	—	UNKWN	—	—	—	UNKWN ✓
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

PKIB0288E



Case 10

Check CAN communication circuit. Refer to LAN-77, "CAN Communication Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR								
	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	TCM	METER /M&A	BCM/SEC	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
BCM	NG	UNKWN	UNKWN	—	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

PKIB0289E

Case 11

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-79, "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	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
BCM	NG	UNKWN	UNKWN	—	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

PKIB0291E

Case 12

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-79, "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	STRG	VDC/TCS /ABS	IPDM E/R
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
BCM	NG	UNKWN	UNKWN	—	UNKWN	—	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—

PKIB0290E

Circuit Check Between TCM and Data Link Connector

AKS009C3

1. CHECK CONNECTOR

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

- Harness connector F102
- Harness connector M72

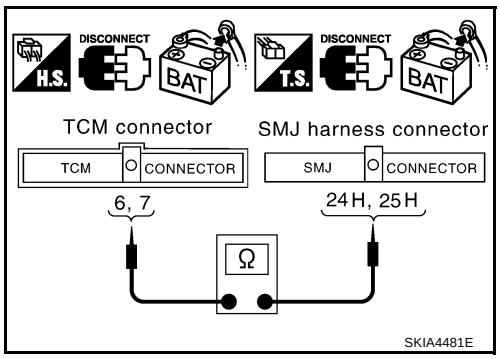
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector and harness connector F102.
2. Check continuity between TCM harness connector F103 terminals 6 (L), 7 (R) and harness connector F102 terminals 24H (L), 25H (R).

6 (L) - 24H (L) : Continuity should exist.
7 (R) - 25H (R) : Continuity should exist.



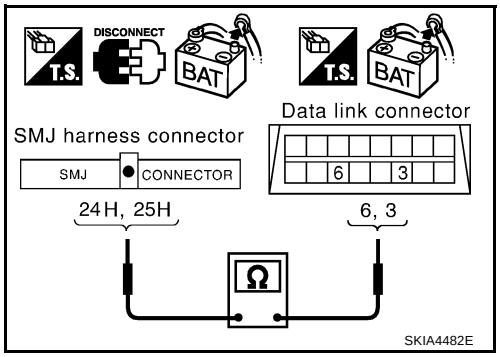
OK or NG

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

3. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between harness connector M72 terminals 24H (L), 25H (R) and data link connector M8 terminals 6 (L), 3 (R).

24H (L) - 6 (L) : Continuity should exist.
25H (R) - 3 (R) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-60, "Work Flow" .
NG >> Repair harness.

Circuit Check Between Data Link Connector and VDC/TCS/ABS Control Unit

AKS009C4

1. CHECK CONNECTOR

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

- Harness connector M15
- Harness connector E108

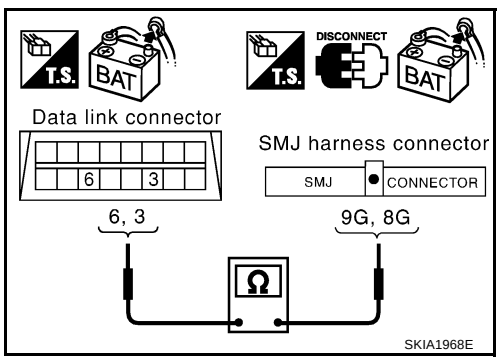
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M15.
2. Check continuity between data link connector M8 terminals 6 (L), 3 (R) and harness connector M15 terminals 9G (L), 8G (R).

6 (L) - 9G (L) : Continuity should exist.
3 (R) - 8G (R) : Continuity should exist.



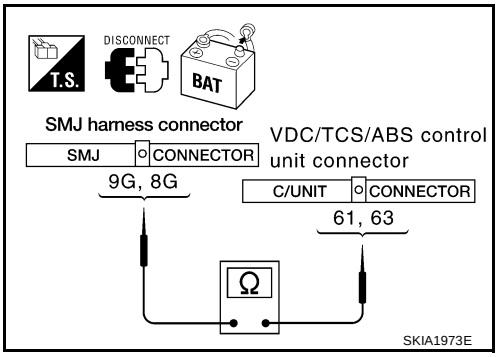
OK or NG

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 9G (L), 8G (R) and VDC/TCS/ABS control unit harness connector E118 terminals 61 (L), 63 (R).

9G (L) - 61 (L) : Continuity should exist.
8G (R) - 63 (R) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-60, "Work Flow" .
NG >> Repair harness.

ECM Circuit Check

AKS009C5

1. CHECK CONNECTOR

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

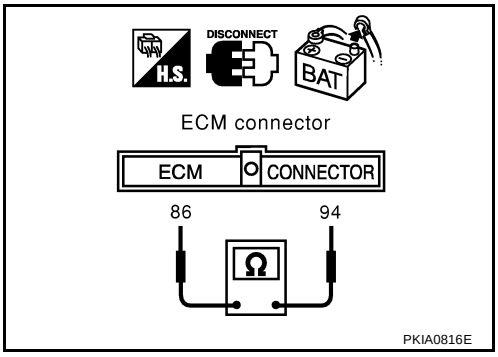
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F108 terminals 94 (L) and 86 (R).

94 (L) - 86 (R) : Approx. 108 - 132Ω



OK or NG

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

TCM Circuit Check

AKS009C6

1. CHECK CONNECTOR

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

OK or NG

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

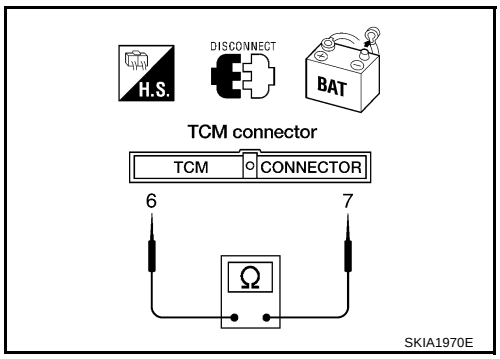
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F103 terminals 6 (L) and 7 (R).

6 (L) - 7 (R) : Approx. 54 - 66Ω

OK or NG

OK >> Replace TCM.
NG >> Repair harness between harness connector F102 and TCM.



Combination Meter Circuit Check

AKS009C7

1. CHECK CONNECTOR

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

OK or NG

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

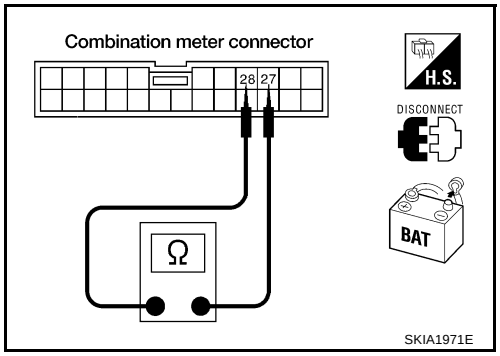
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M20 terminals 28 (L) and 27 (R).

28 (L) - 27 (R) : Approx. 54 - 66Ω

OK or NG

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



BCM Circuit Check

AKS009C8

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.

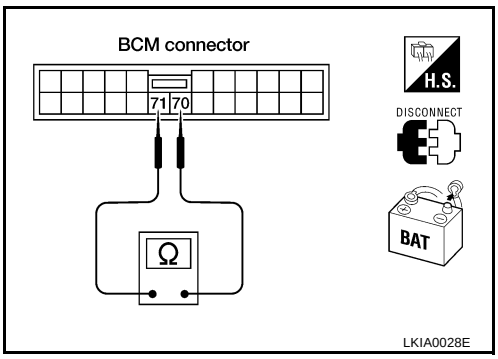
2. CHECK HARNESS FOR OPEN CIRCUIT

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

70 (L) - 71 (R) : Approx. 54 - 66Ω

OK or NG

OK >> Replace BCM. Refer to BCS-23, "Removal and Installation of BCM" .
NG >> Repair harness between data link connector and BCM.



Steering Angle Sensor Circuit Check

AKS009C9

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.

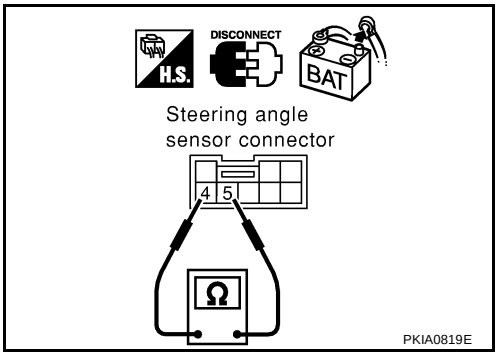
2. CHECK HARNESS FOR OPEN CIRCUIT

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

4 (L) - 5 (R) : Approx. 54 - 66Ω

OK or NG

OK >> Replace steering angle sensor.
NG >> Repair harness between data link connector and steering angle sensor.



VDC/TCS/ABS Control Unit Circuit Check

AKS009CA

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).

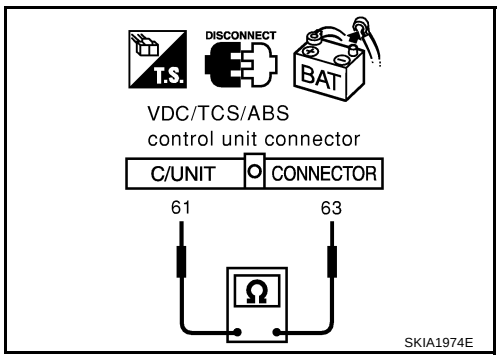
OK or NG

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 (R).

61 (L) - 63 (R) : Approx. 54 - 66Ω



OK or NG

OK >> Replace VDC/TCS/ABS control unit.
NG >> Repair harness between harness connector E108 and VDC/TCS/ABS control unit.

IPDM E/R Circuit Check

AKS009CB

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).

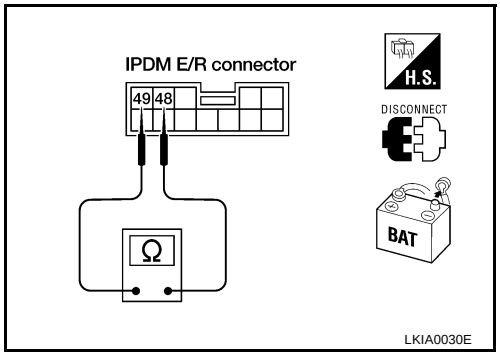
OK or NG

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 (R).

48 (L) - 49 (R) : Approx. 108 - 132Ω



OK or NG

OK >> Replace IPDM E/R.
NG >> Repair harness between harness connector E108 and IPDM E/R.

CAN Communication Circuit Check

AKS009CC

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side, control unit side, meter side, sensor side and harness side).

- ECM
- TCM
- Combination meter
- BCM
- Steering angle sensor
- VDC/TCS/ABS control unit
- IPDM E/R
- Between ECM and IPDM E/R

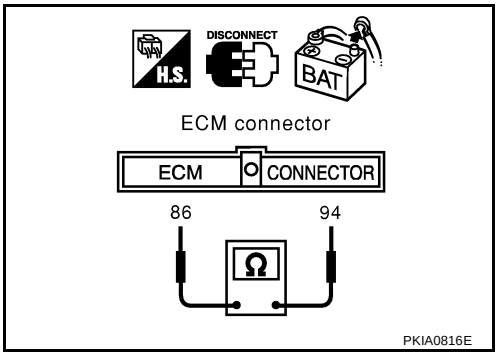
OK or NG

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

2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
   - ECM connector
   - TCM connector
   - Harness connector F102
2. Check continuity between ECM harness connector F108 terminals 94 (L) and 86 (R).

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



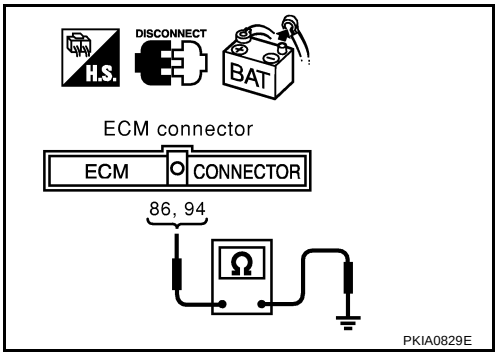
OK or NG

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

3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F108 terminals 94 (L), 86 (R) and ground.

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



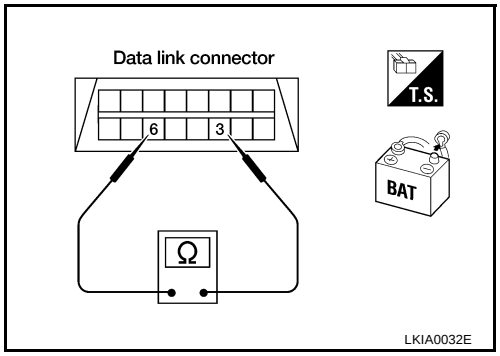
OK or NG

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

4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
- Combination meter connector
- BCM connector
- Steering angle sensor connector
- Harness connector M15
2. Check continuity between data link connector M8 terminals 6 (L) and 3 (R).

6 (L) - 3 (R) : Continuity should not exist.



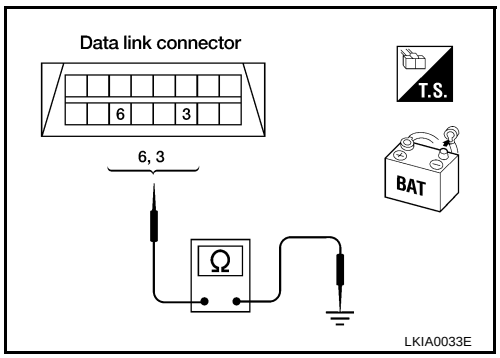
OK or NG

OK >> GO TO 5.
NG >>
- Repair harness between harness connector M72 and harness connector M15.
- Repair harness between harness connector M72 and combination meter.
- Repair harness between harness connector M72 and data link connector.
- Repair harness between harness connector M72 and BCM.
- Repair harness between harness connector M72 and steering angle sensor.

5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M8 terminals 6 (L), 3 (R) and ground.

6 (L) - Ground : Continuity should not exist.
3 (R) - Ground : Continuity should not exist.



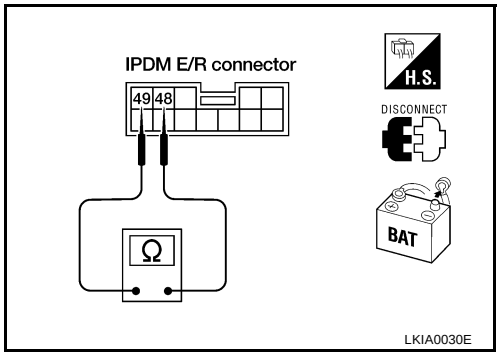
OK or NG

OK >> GO TO 6.
NG >>
- Repair harness between harness connector M72 and harness connector M15.
- Repair harness between harness connector M72 and combination meter.
- Repair harness between harness connector M72 and data link connector.
- Repair harness between harness connector M72 and BCM.
- Repair harness between harness connector M72 and steering angle sensor.

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 (R).

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



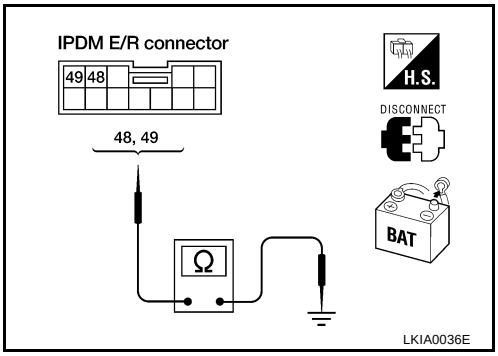
OK or NG

OK >> GO TO 7.
NG >>
- Repair harness between harness connector E108 and VDC/TCS/ABS control unit.
- Repair harness between harness connector E108 and IPDM E/R.

7. CHECK HARNESS FOR SHORT CIRCUIT

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

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



OK or NG

OK >> GO TO 8.
NG >>
- Repair harness between harness connector E108 and VDC/TCS/ABS control unit.
- Repair harness between harness connector E108 and IPDM E/R.

8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to LAN-79, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION"

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-60, "Work Flow" .
NG >> Replace ECM and/or IPDM E/R.

IPDM E/R Ignition Relay Circuit Check

AKS009CD

Replace IPDM E/R if there is no malfunction after checking the following.

- IPDM E/R power circuit. Refer to PG-26, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition power supply circuit. Refer to PG-10, "IGNITION POWER SUPPLY - IGNITION SW. IN “ON” AND/OR “START”" .

Component Inspection

AKS009CE

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