SECTION LAN

LAN SYSTEM

CONTENTS

CAN

PRECAUTIONS

PFP:00001

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

AKS003EX

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

AKS005IS

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 For Trouble Diagnosis

AKS003EY

CAN SYSTEM

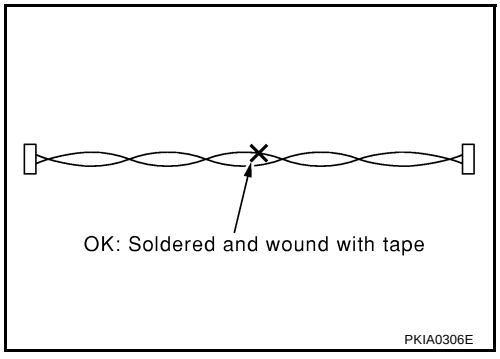
- Do not apply voltage of 7.0V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0V or less.
- Be sure to turn ignition switch off and disconnect negative battery terminal before checking the circuit.

Precautions For Harness Repair

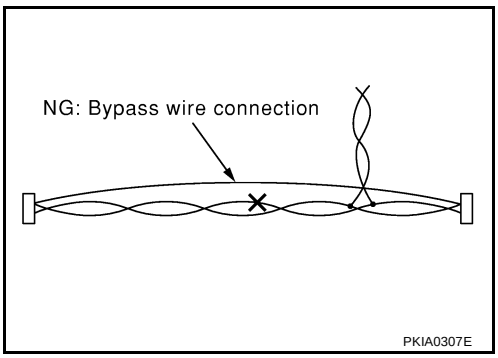
AKS003EZ

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

AKS003F0

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

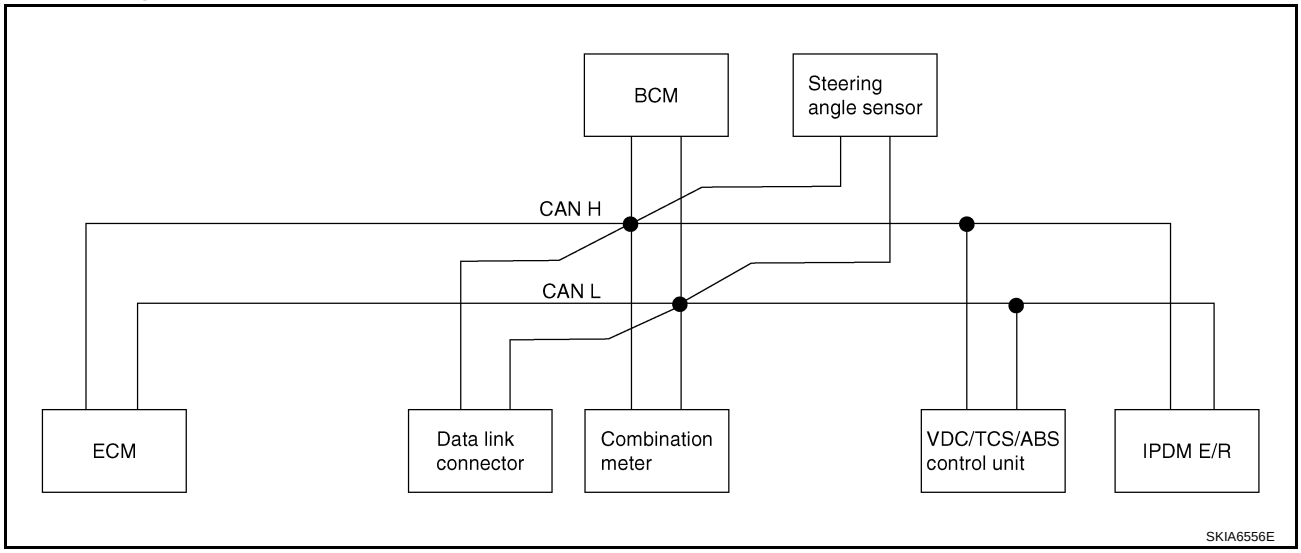
AKS003F1

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

Body type	Coupe	
Axle	2WD	
Engine	VQ35DE	
Transmission	M/T	A/T
Brake control	VDC	
CAN system type	1	2
CAN system trouble diagnosis	LAN-8	LAN-30

TYPE 1

System diagram



Input/output signal chart

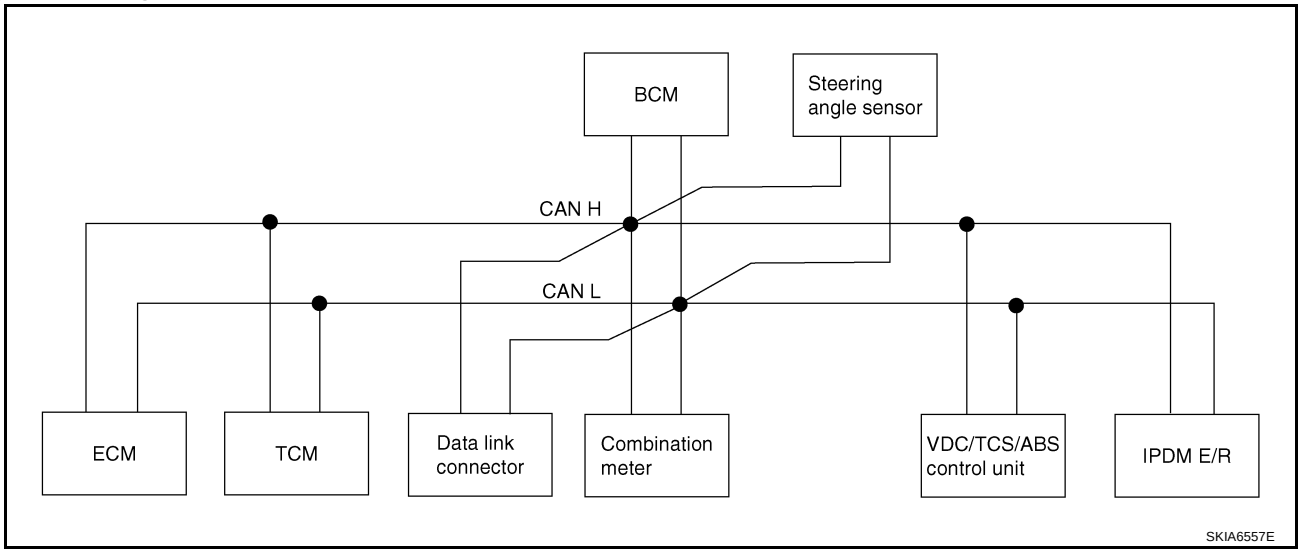
T: Transmit R: Receive

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				
Air conditioner 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			
Trunk switch 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	

TYPE 2

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 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					
Stop lamp switch		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	
Air conditioner 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			R			T
High beam request signal			R	T			R
High beam status signal	R			R			T
Front fog lights request signal				T			R

Signals	ECM	TCM	Combination meter	BCM	Steering angle sensor	VDC/TCS/ABS control unit	IPDM E/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			
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			
Trunk switch 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				
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			R			T
Manual mode signal		R	T				
Not manual mode signal		R	T				
Manual mode shift up signal		R	T				
Manual mode shift down signal		R	T				
Manual mode indicator signal		T	R				
Hood switch signal				R			T
Theft warning horn request signal				T			R
Horn chirp signal				T			R
Steering angle sensor signal					T	R	

CAN SYSTEM (TYPE 1)

PFP:23710

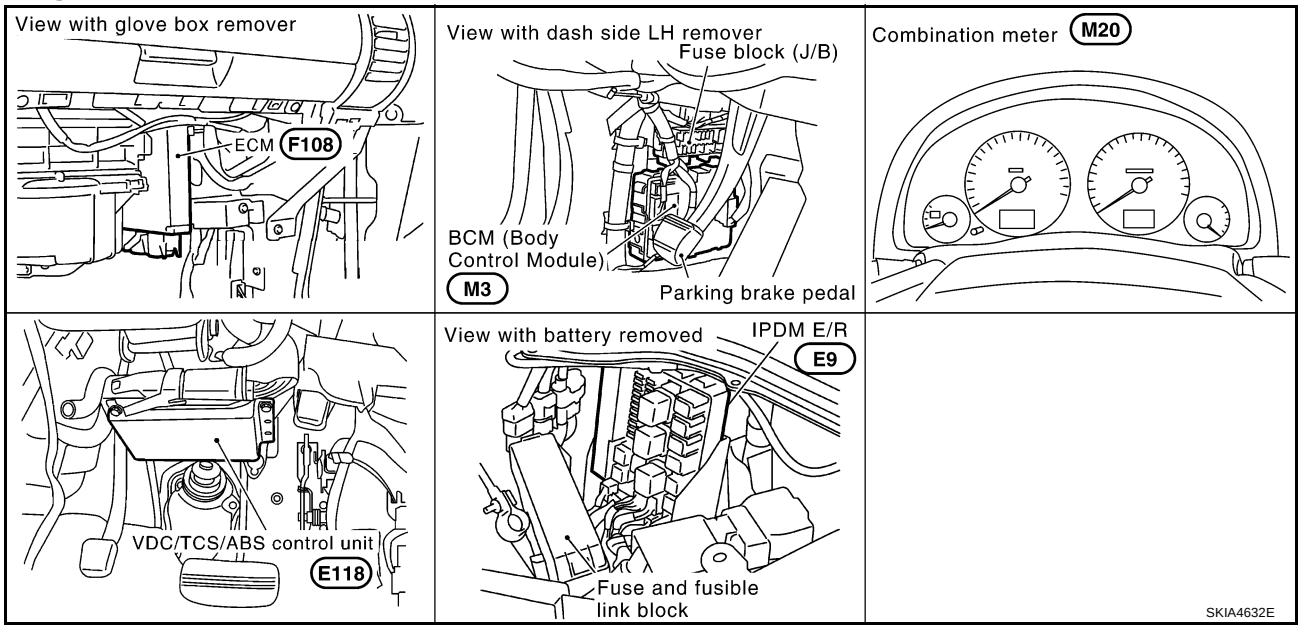
System Description

AKS005NY

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.

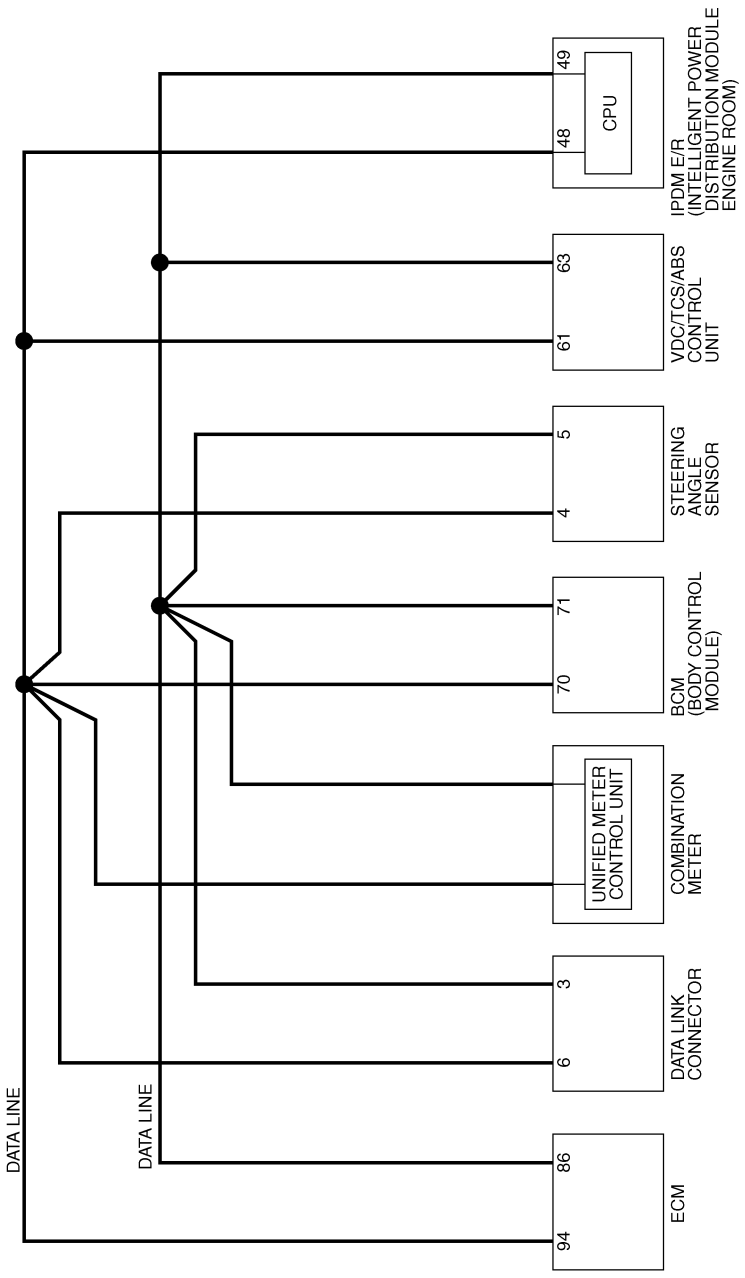
Component Parts and Harness Connector Location

AKS005NZ



Schematic

AKS005O0



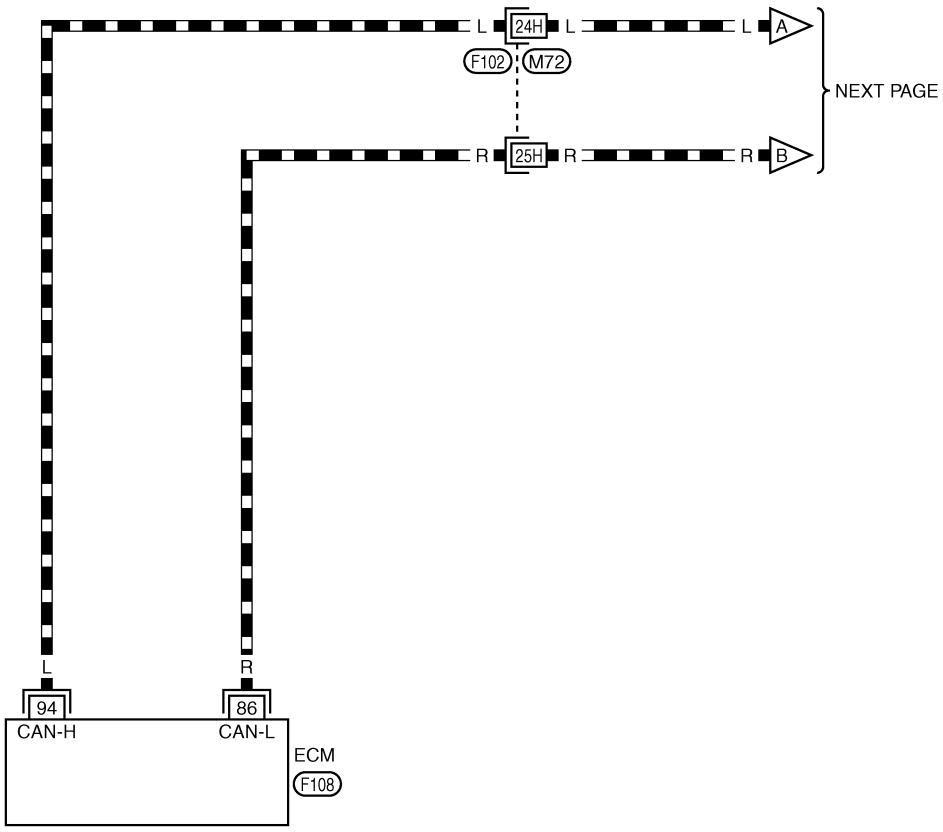
TKWT0572E

Wiring Diagram — CAN —

AKS005O1

LAN-CAN-01

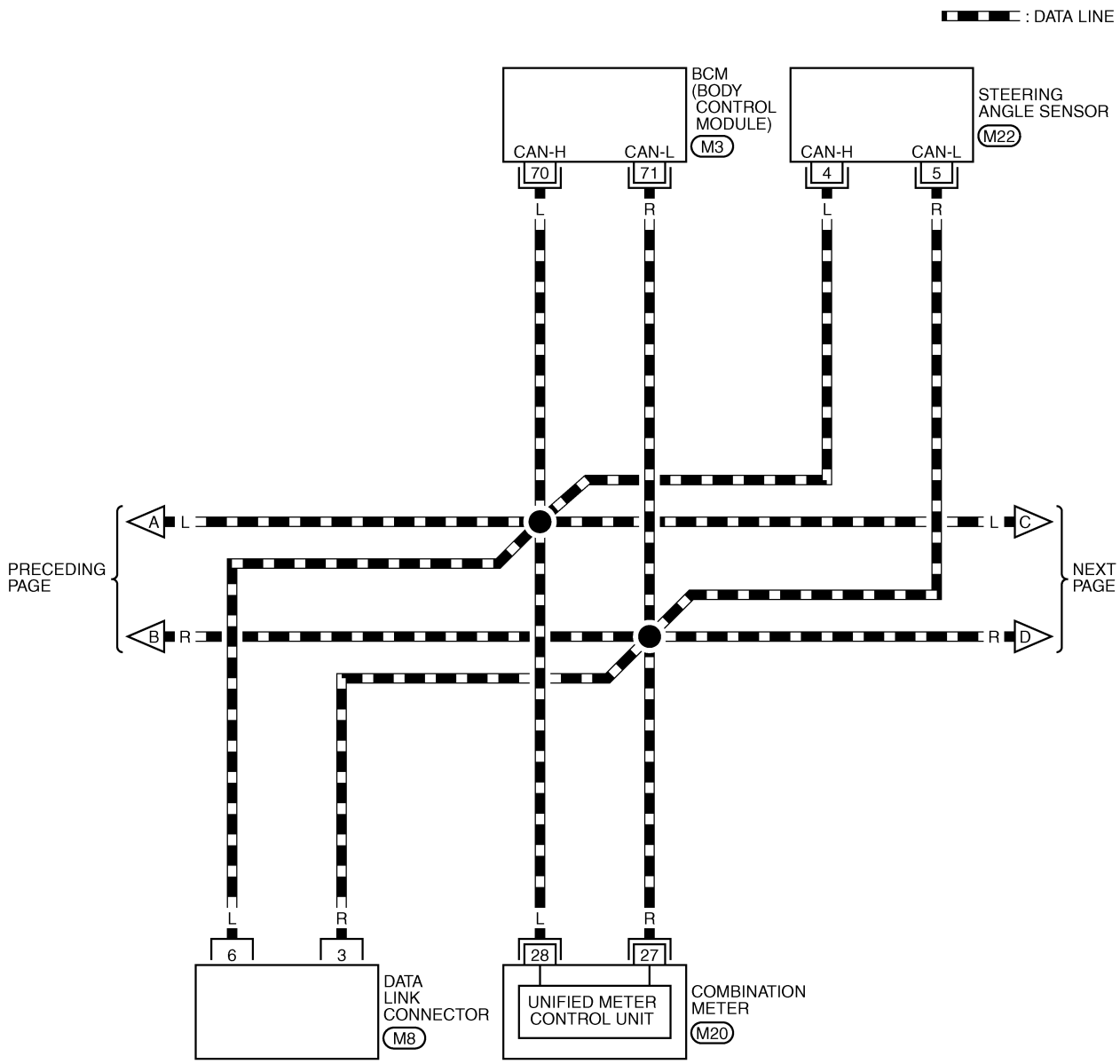
: DATA LINE



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

TKWT0573E

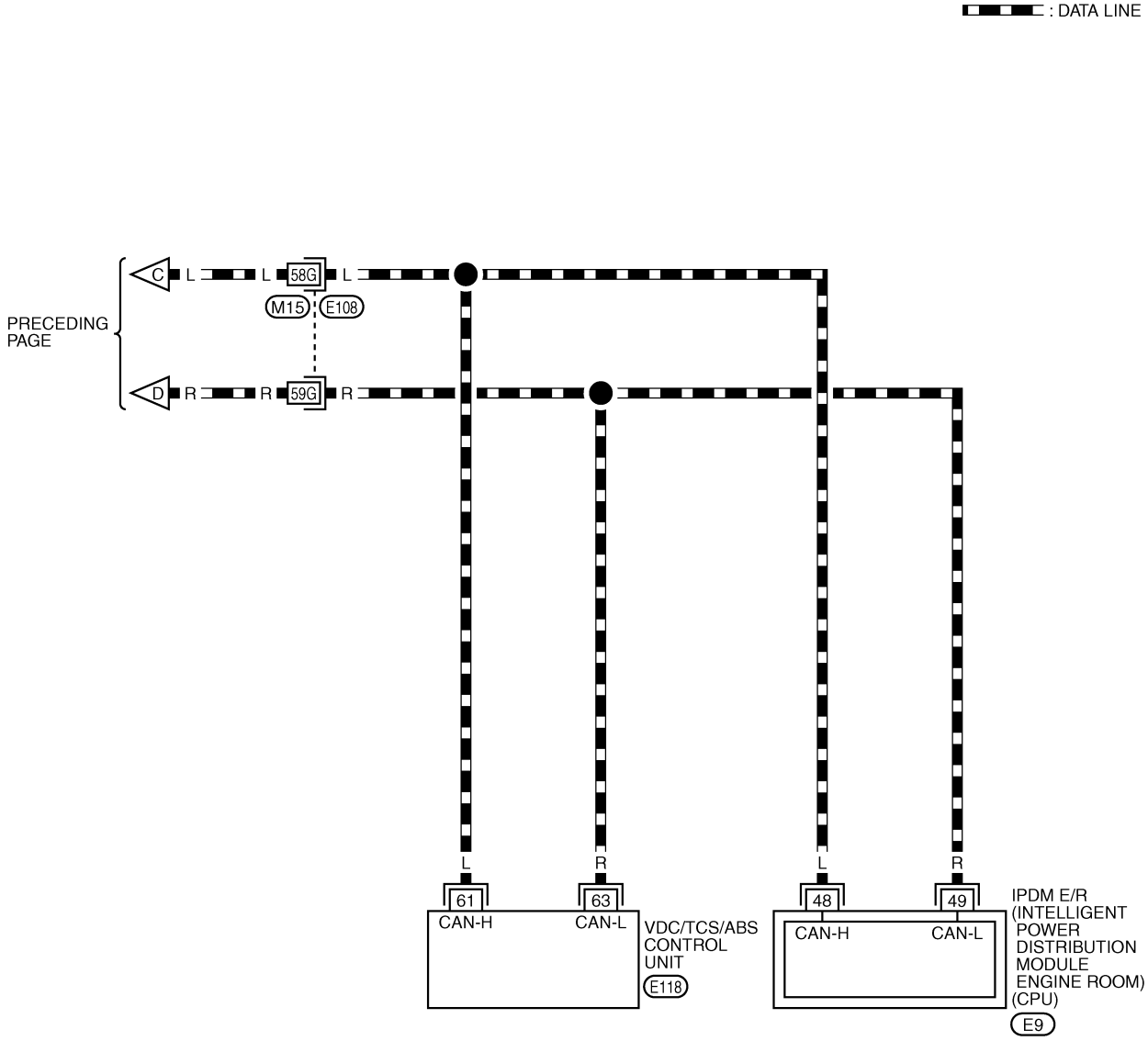
LAN-CAN-02

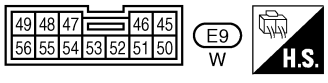


REFER TO THE FOLLOWING.
M3 -ELECTRICAL UNITS

TKWT0574E

LAN-CAN-03





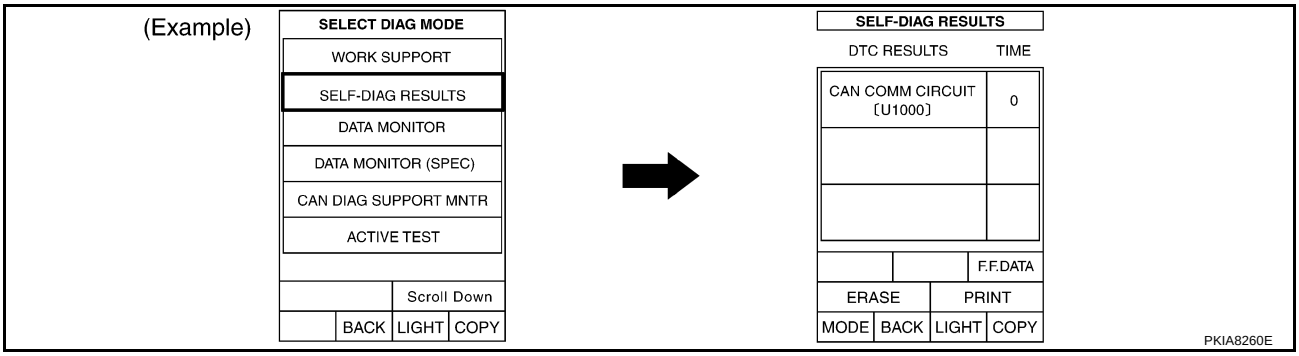
REFER TO THE FOLLOWING.
E108 -SUPER MULTIPLE JUNCTION (SMJ)
E118 -ELECTRICAL UNITS

TKWT0575E

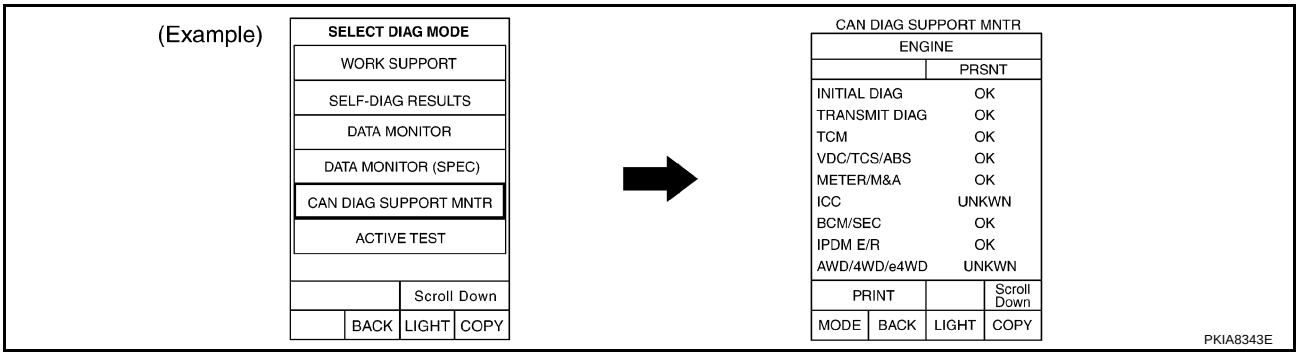
Work Flow

AKS00C53

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 “SELECT SYSTEM”, “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	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

PKIB0384E

CHECK SHEET RESULTS (EXAMPLE)

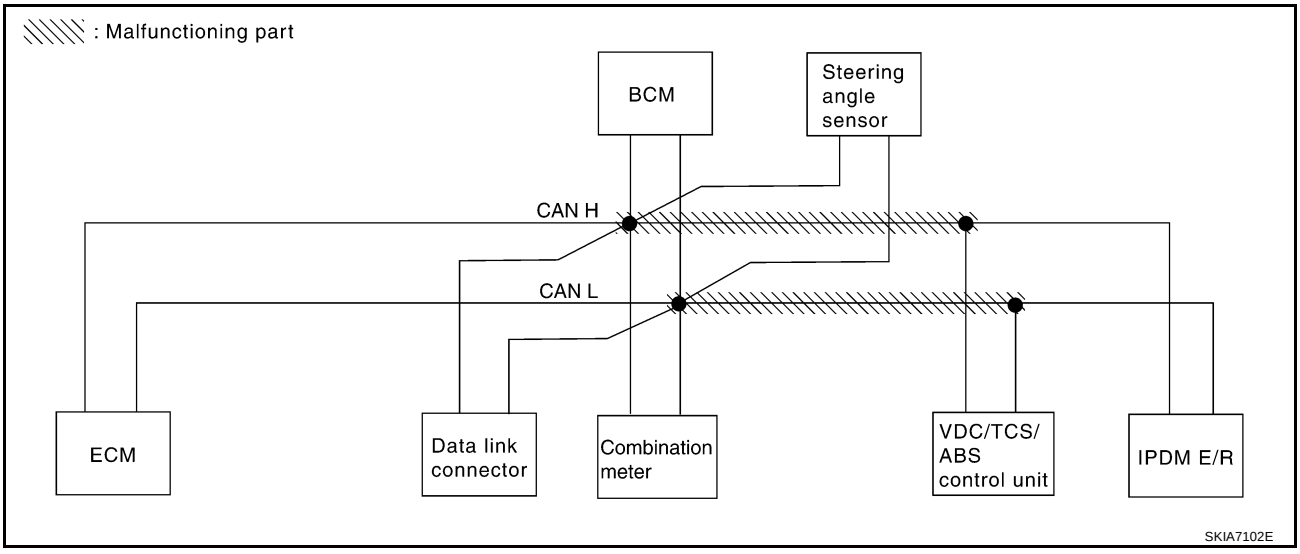
NOTE:
If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)” as “CAN DIAG SUPPORT MNTR” for the diagnosed control unit, replace the control unit.

Case1

Check harness between data link connector and VDC/TCS/ABS control unit. Refer to LAN-23, "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 ✓	—	—

PKIB0385E

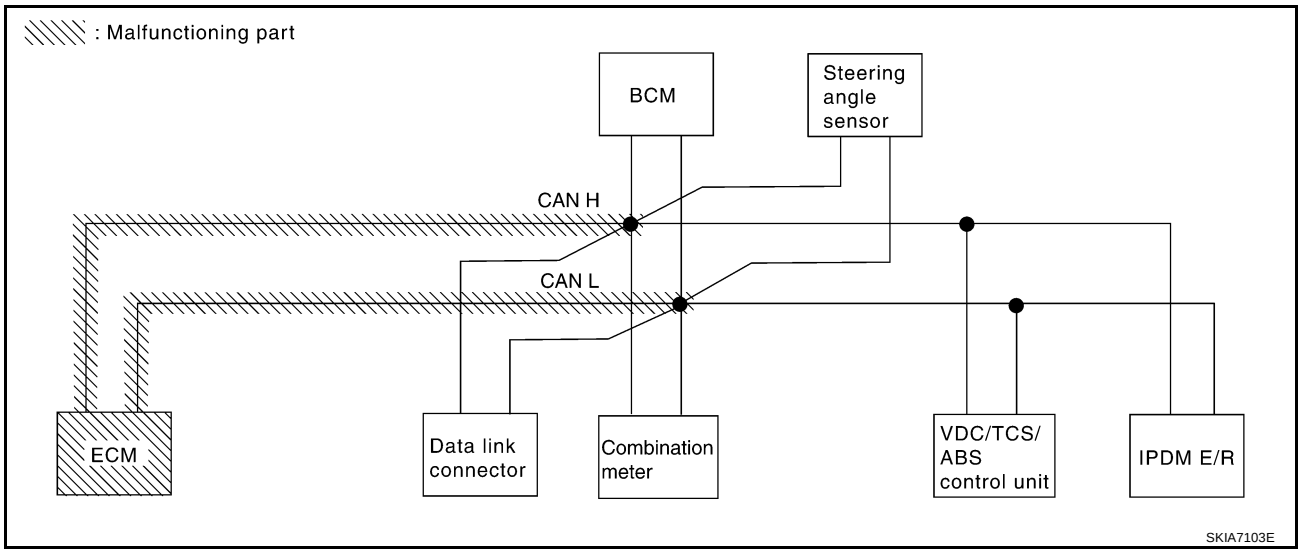


Case2

Check ECM circuit. Refer to LAN-24, "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	–	–

PKIB0386E



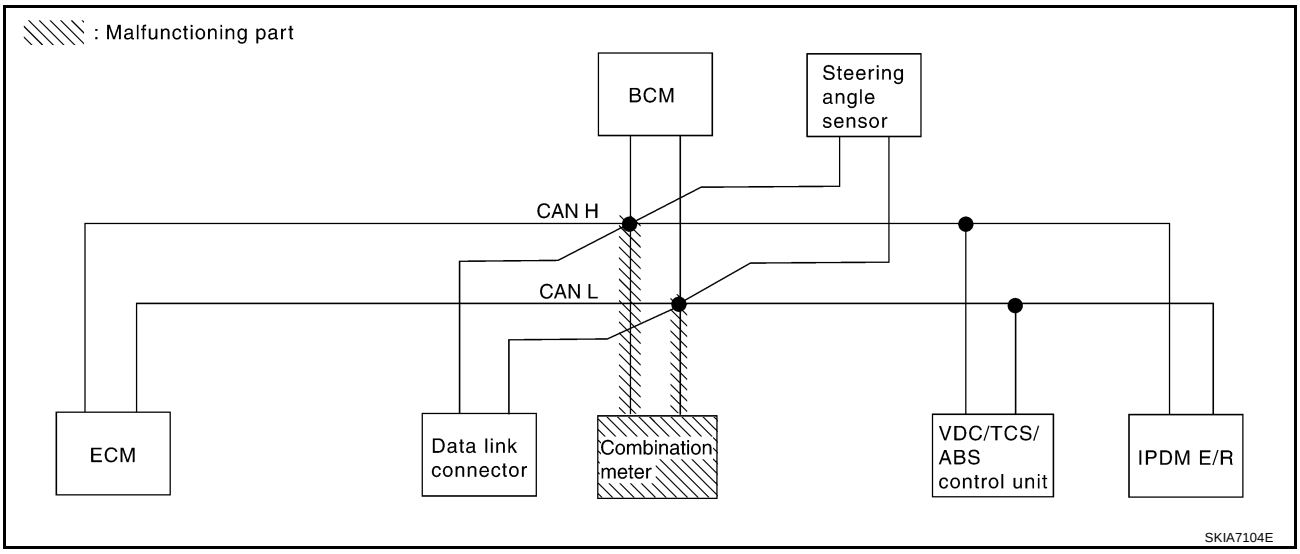
SKIA7103E

Case3

Check combination meter circuit. Refer to LAN-24, "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	—	—

PKIB0387E



Case4

Check BCM circuit. Refer to LAN-25, "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	—	—

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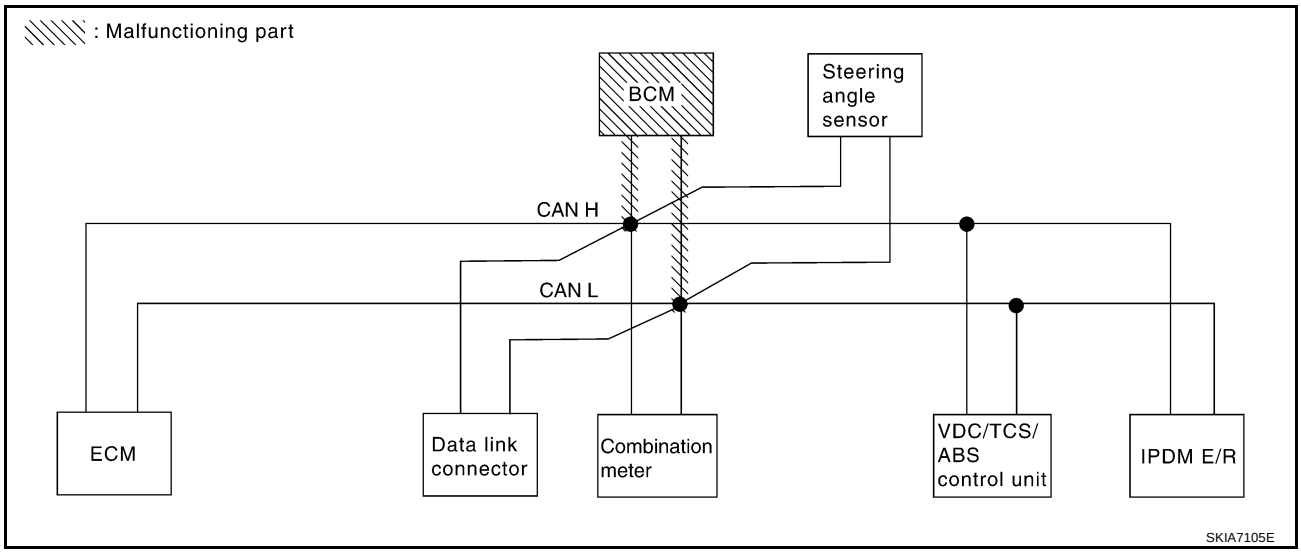
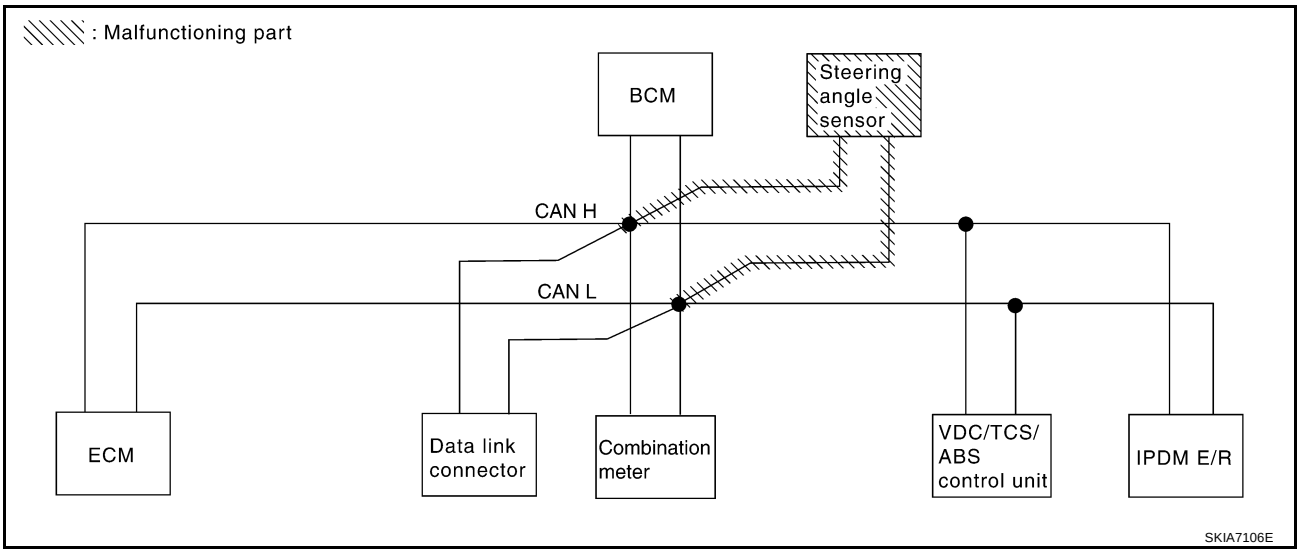


Case5

Check steering angle sensor circuit. Refer to LAN-25, "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	—	—

PKIB0389E



Case6

Check VDC/TCS/ABS control unit circuit. Refer to LAN-26, "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 ✓	—	—

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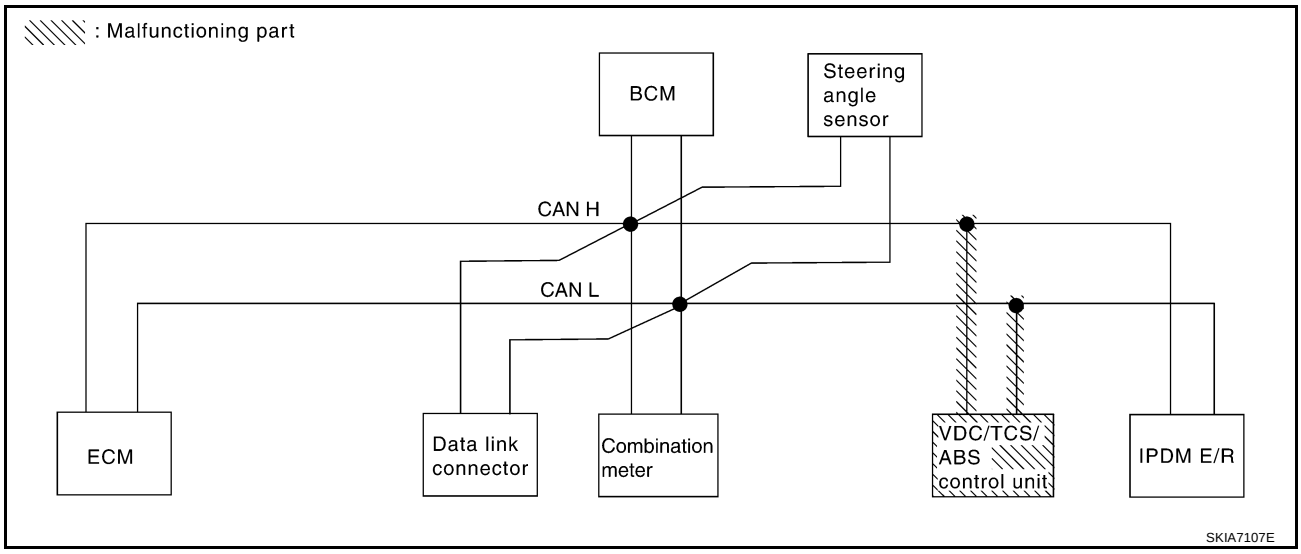
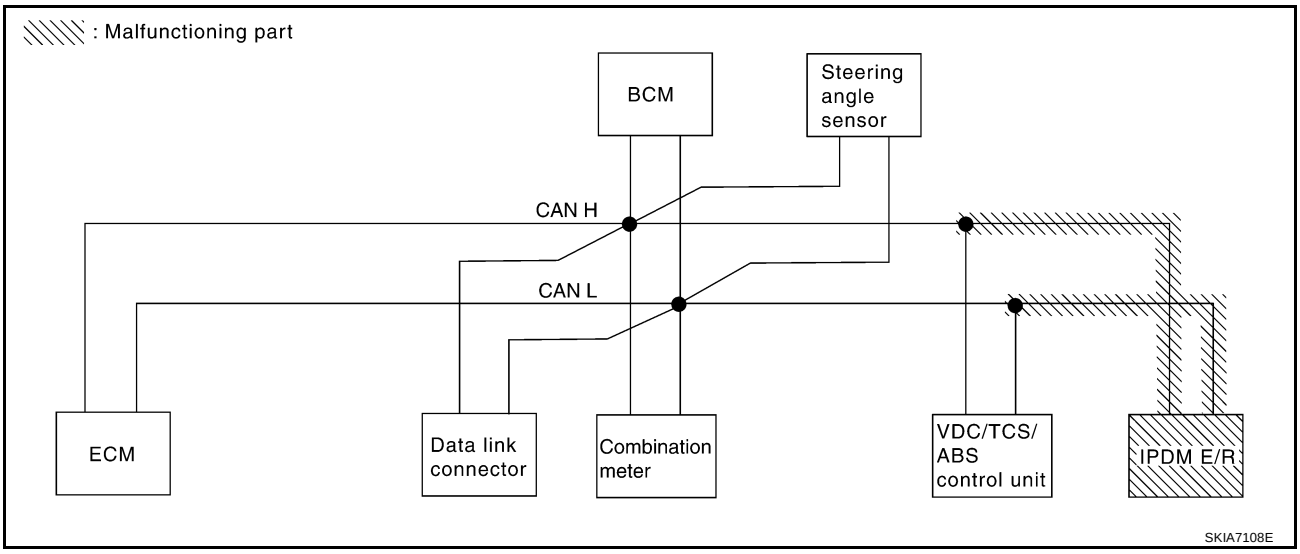


Case7

Check IPDM E/R circuit. Refer to LAN-26, "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	—	—

PKIB0391E



Case8

Check CAN communication circuit. Refer to LAN-27, "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	—	—

PKIB0392E

Case9

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-29, "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	—	—

PKIB0393E

Case10

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-29, "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	—	—

PKIB0394E

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

AKS005O4

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 (meter-side, control module-side, sensor-side, control unit-side and harness-side).

- Combination meter.
- BCM.
- Steering angle sensor.
- VDC/TCS/ABS control unit.
- Between data link connector and VDC/TCS/ABS control unit.

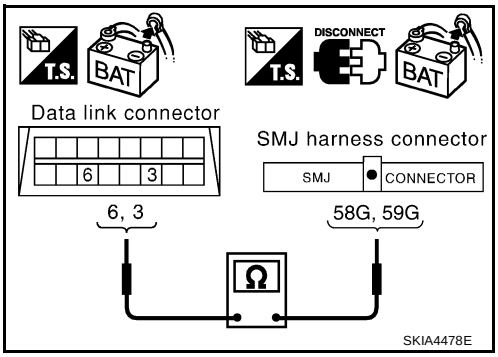
OK or NG

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 58G (L), 59G (R).

6 (L) – 58G (L) : Continuity should exist.
3 (R) – 59G (R) : Continuity should exist.



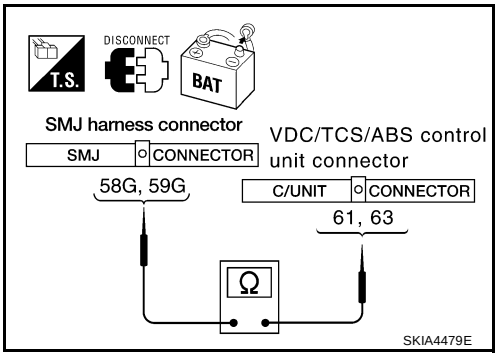
OK or NG

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 58G (L), 59G (R) and VDC/TCS/ABS control unit harness connector E118 terminals 61 (L), 63 (R).

58G (L) – 61 (L) : Continuity should exist.
59G (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

AKS005O5

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

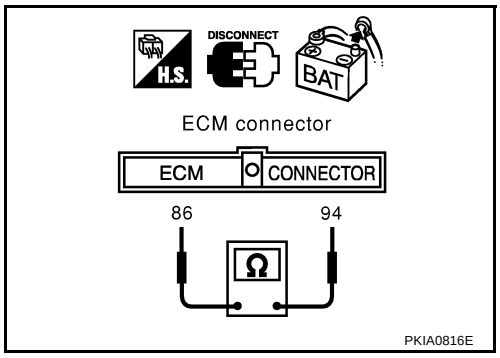
OK or NG

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 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

AKS005O7

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).

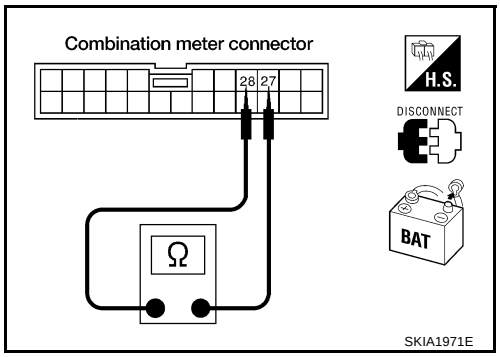
OK or NG

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

AKS005O8

1. CHECK CONNECTOR

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

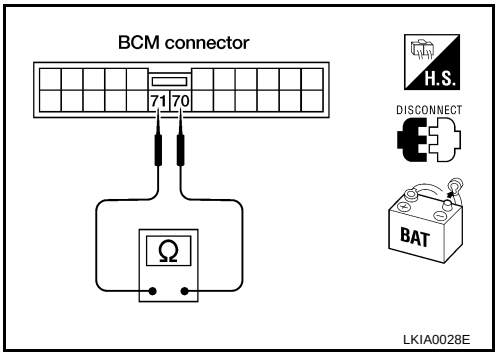
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

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

70 (L) – 71 (R) : Approx. 54 – 66Ω



OK or NG

OK >> Replace BCM. Refer to BCS-20, "Removal and Installation of BCM" .
NG >> Repair harness between data link connector and BCM.

Steering Angle Sensor Circuit Check

AKS005O9

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).

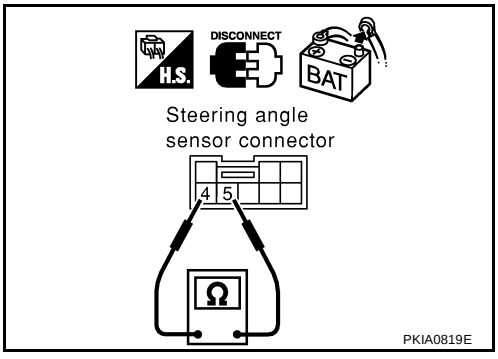
OK or NG

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

AKS005OA

1. CHECK CONNECTOR

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

OK or NG

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

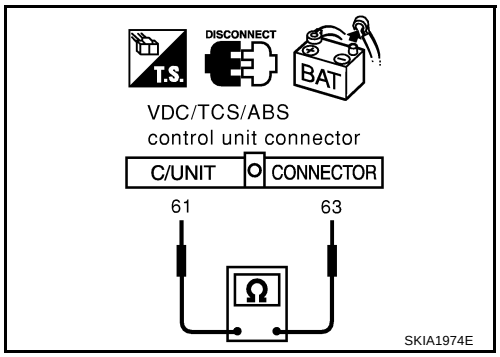
2. CHECK HARNESS FOR OPEN CIRCUIT

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

AKS005OB

1. CHECK CONNECTOR

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

OK or NG

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

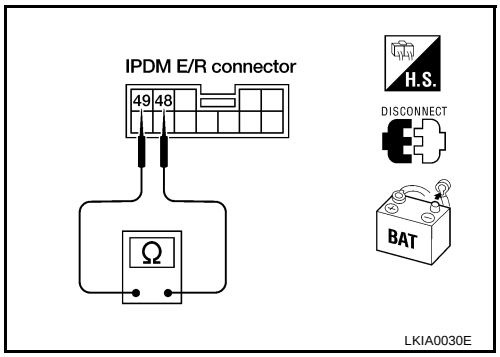
2. CHECK HARNESS FOR OPEN CIRCUIT

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

48 (L) – 49 (R) : Approx. 108 – 132Ω

OK or NG

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



CAN Communication Circuit Check

AKS005OC

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, 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.

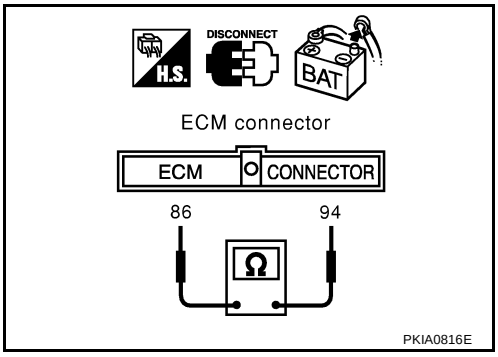
– ECM connector.
– Harness connector F102.

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.



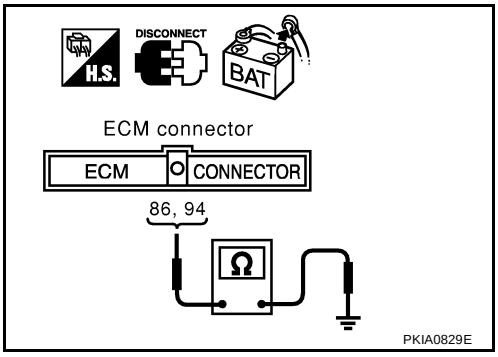
3. CHECK HARNESS FOR SHORT CIRCUIT

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

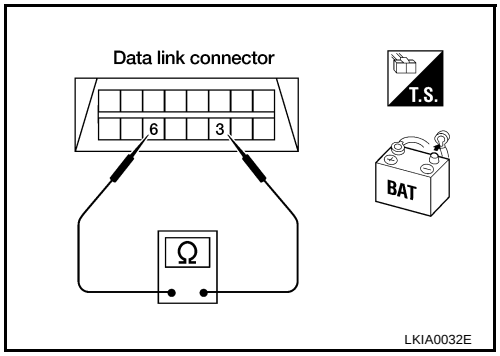
OK >> GO TO 4.
NG >> Repair harness between ECM and harness connector F102.



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.

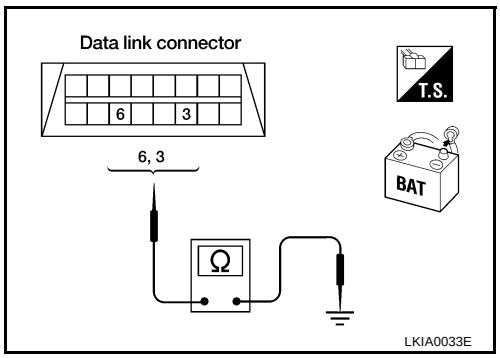
NG >>
- Repair harness between harness connector M72 and harness connector M15.
- Repair harness between harness connector M72 and combination meter.
- Repair harness between harness connector M72 and data link connector.
- Repair harness between harness connector M72 and BCM.
- Repair harness between 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

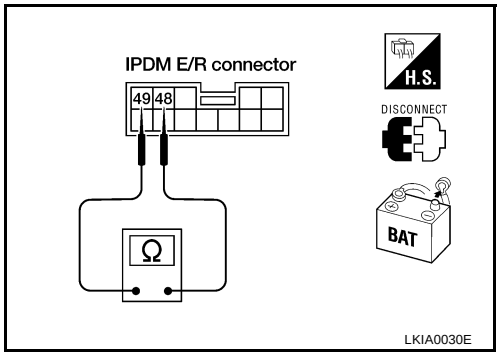
OK >> GO TO 6.

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.

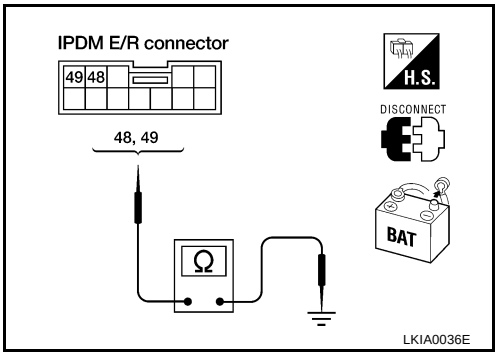
NG >>
- Repair harness between harness connector E108 and VDC/TCS/ABS control unit.
- Repair harness between harness connector E108 and IPDM E/R.

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-29, "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

AKS005OD

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

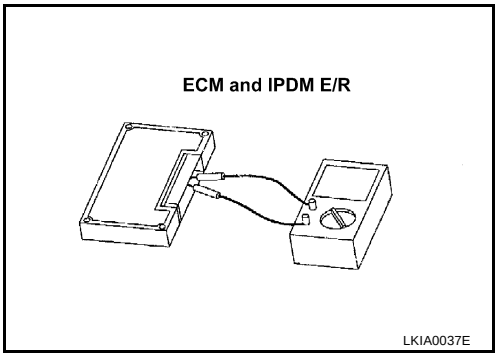
- IPDM E/R power circuit. Refer to PG-27, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition power supply circuit. Refer to PG-11, "IGNITION POWER SUPPLY — IGNITION SW. IN “ON” AND/OR “START”" .

Component Inspection

AKS005OE

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

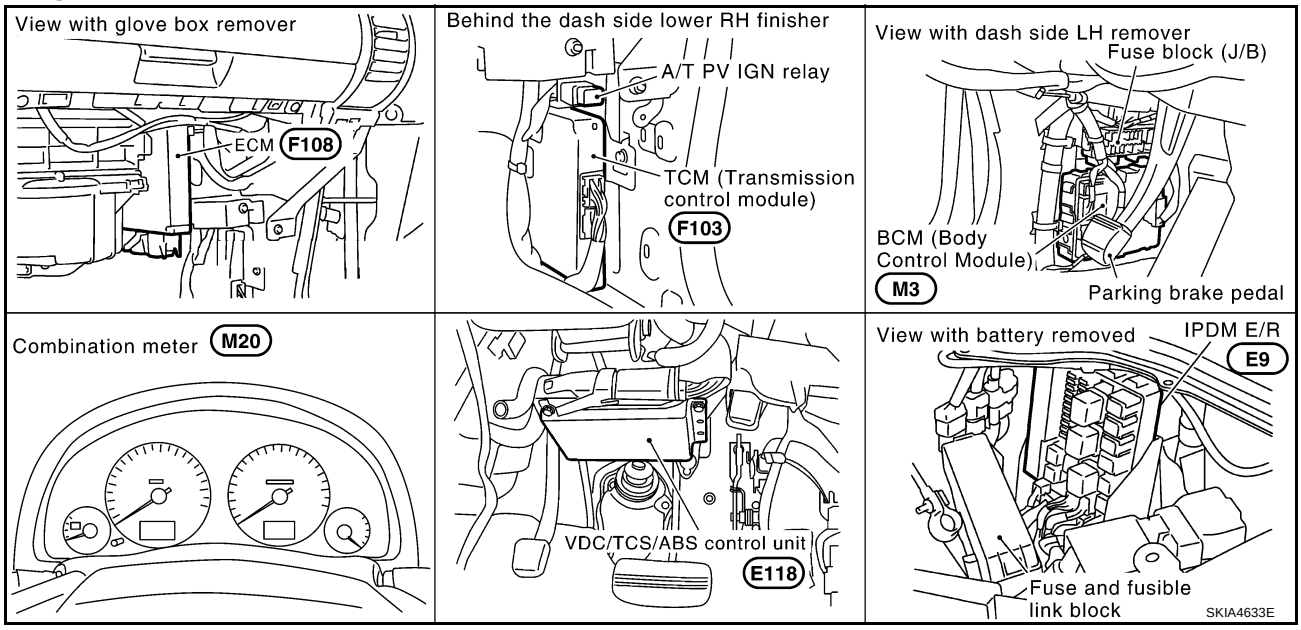
System Description

AKS005OL

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.

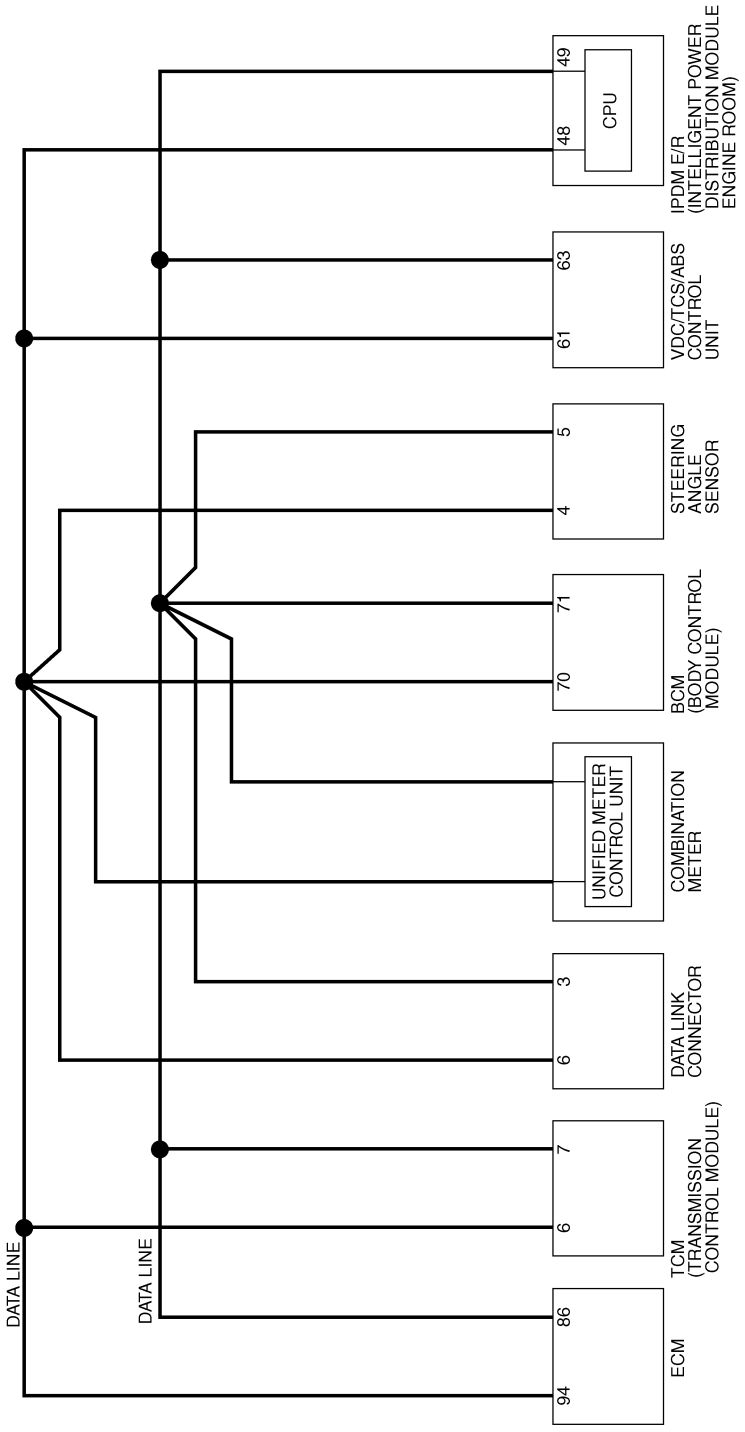
Component Parts and Harness Connector Location

AKS005OM



Schematic

AKS005ON

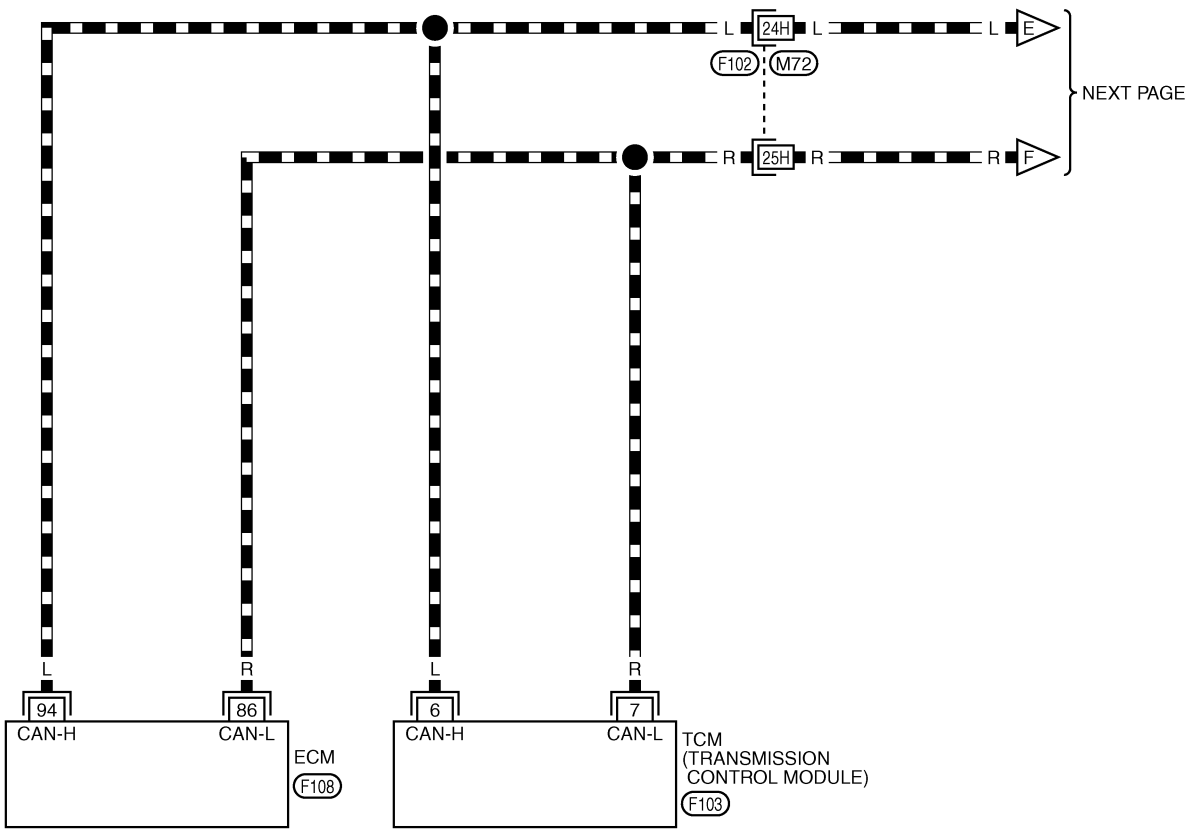


TKWT0576E

Wiring Diagram — CAN —

AKS005OO

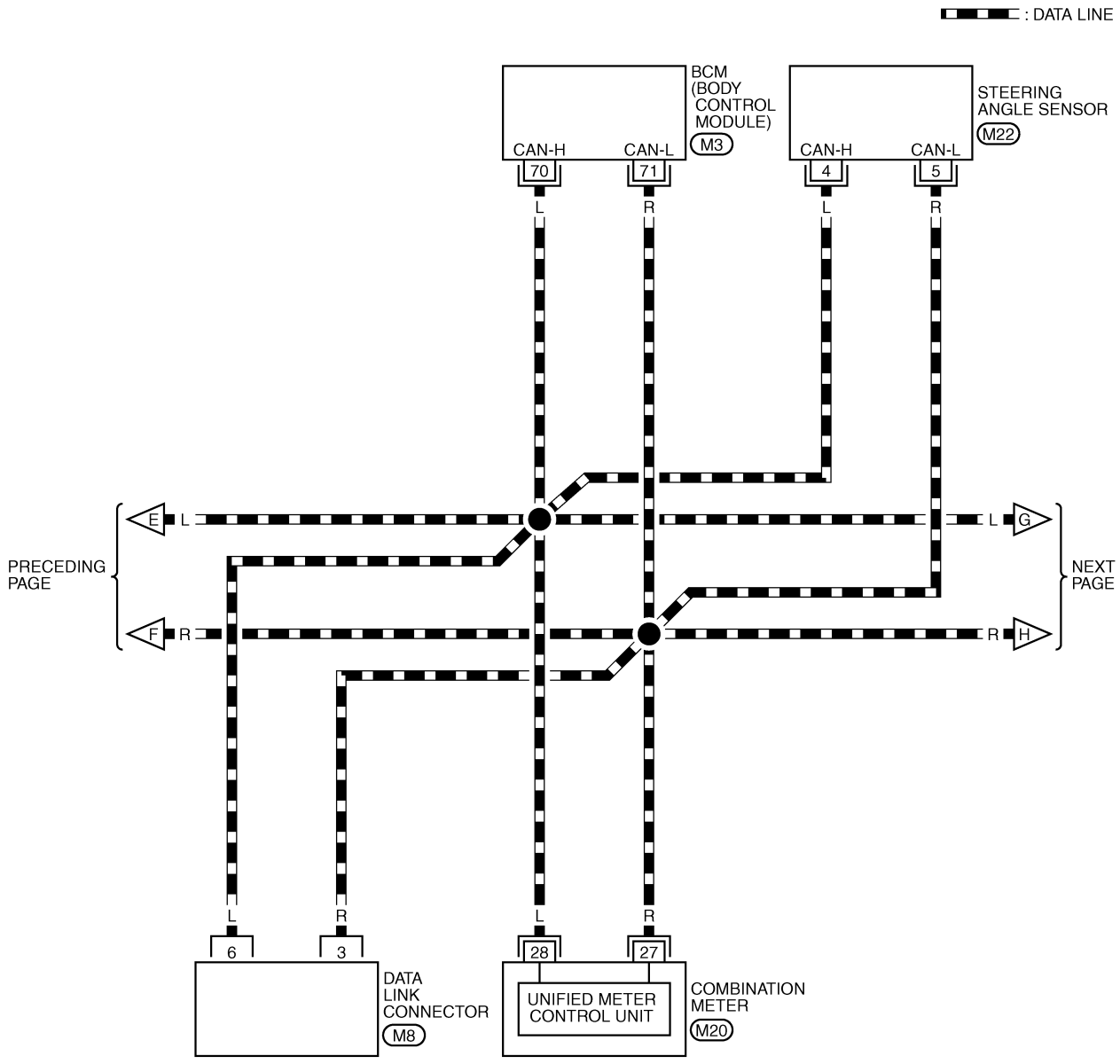
LAN-CAN-04

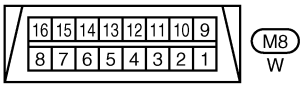


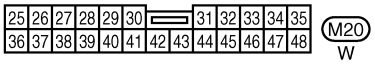
REFER TO THE FOLLOWING.
F102 -SUPER MULTIPLE JUNCTION (SMJ)
F103 , F108 -ELECTRICAL UNITS

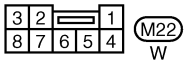
TKWT0577E

LAN-CAN-05







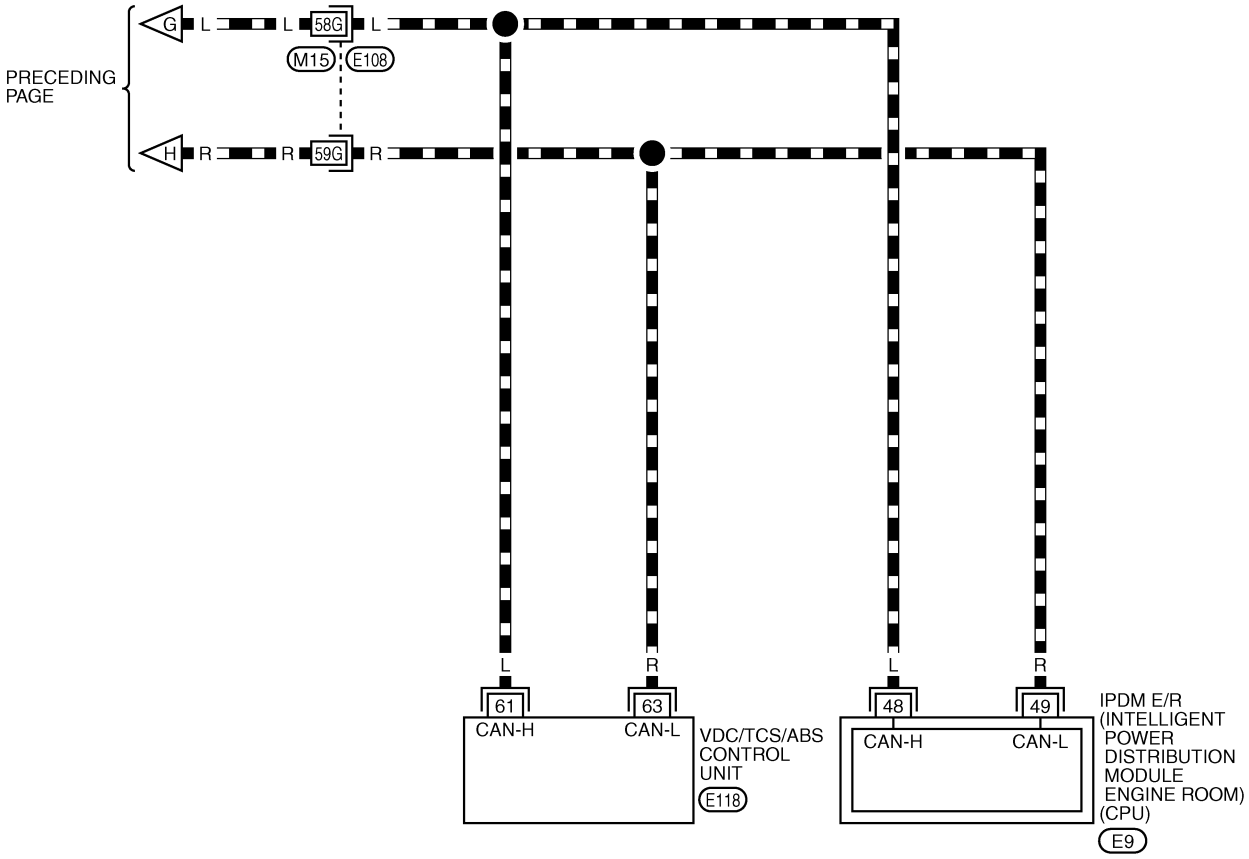


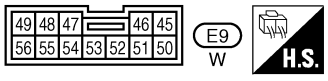
REFER TO THE FOLLOWING.
M3 -ELECTRICAL UNITS

TKWT0783E

LAN-CAN-06

: DATA LINE





REFER TO THE FOLLOWING.

E108 -SUPER MULTIPLE JUNCTION (SMJ)

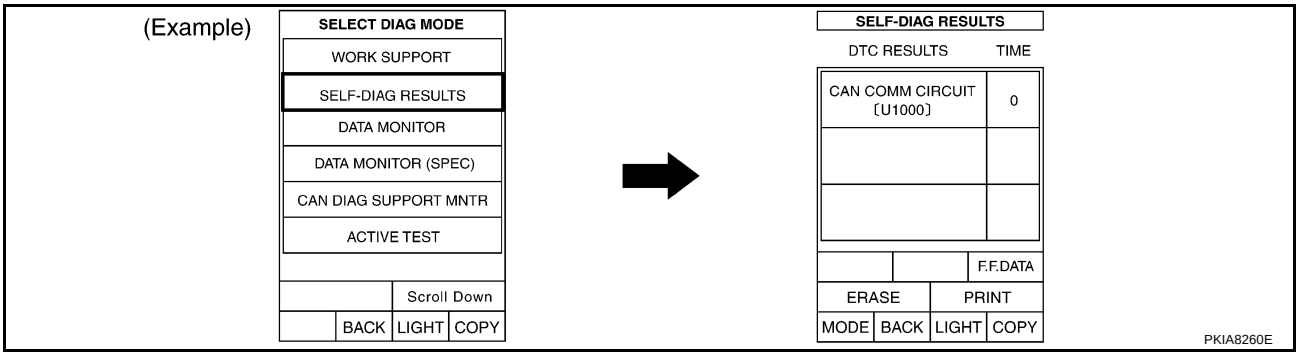
E118 -ELECTRICAL UNITS

TKWT0578E

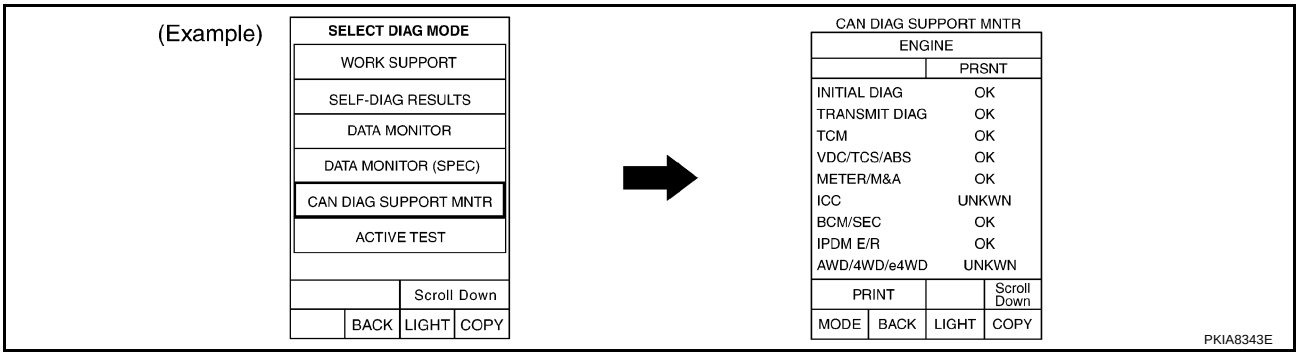
Work Flow

AKS00C54

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 “SELECT SYSTEM”, “SELF-DIAG RESULTS” and “CAN DIAG SUPPORT MNTR” onto the check sheet. Refer to LAN-36, "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-36, "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-37, "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

PKIB0395E

CHECK SHEET RESULTS (EXAMPLE)

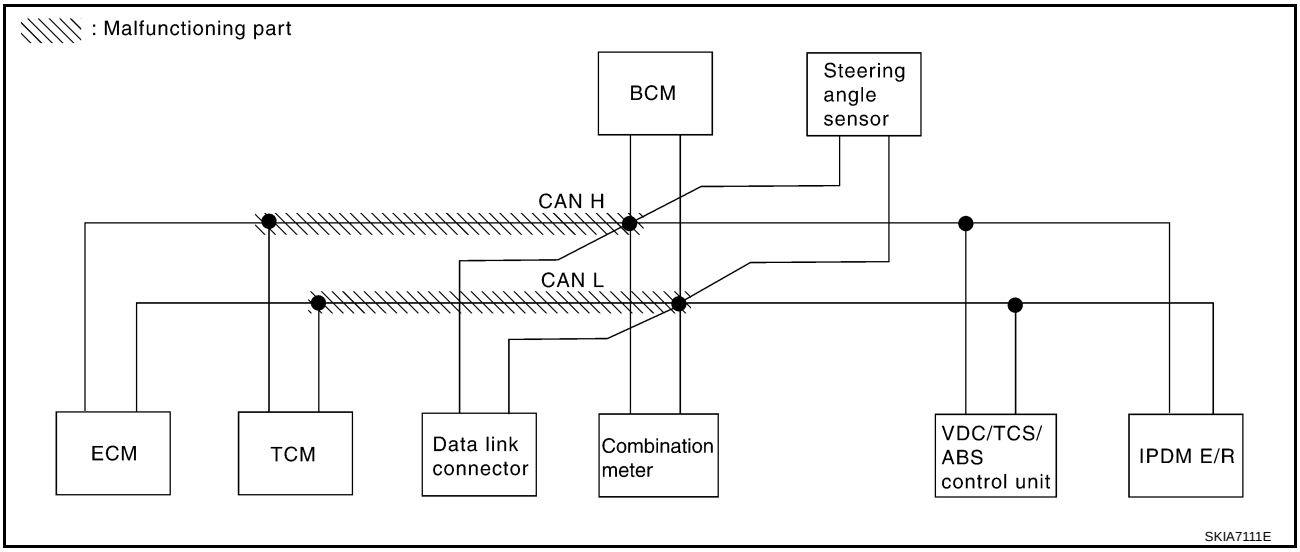
NOTE:
If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)” as “CAN DIAG SUPPORT MNTR” for the diagnosed control unit, replace the control unit.

Case1

Check harness between TCM and data link connector. Refer to LAN-47, "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	–	–

PKIB0396E

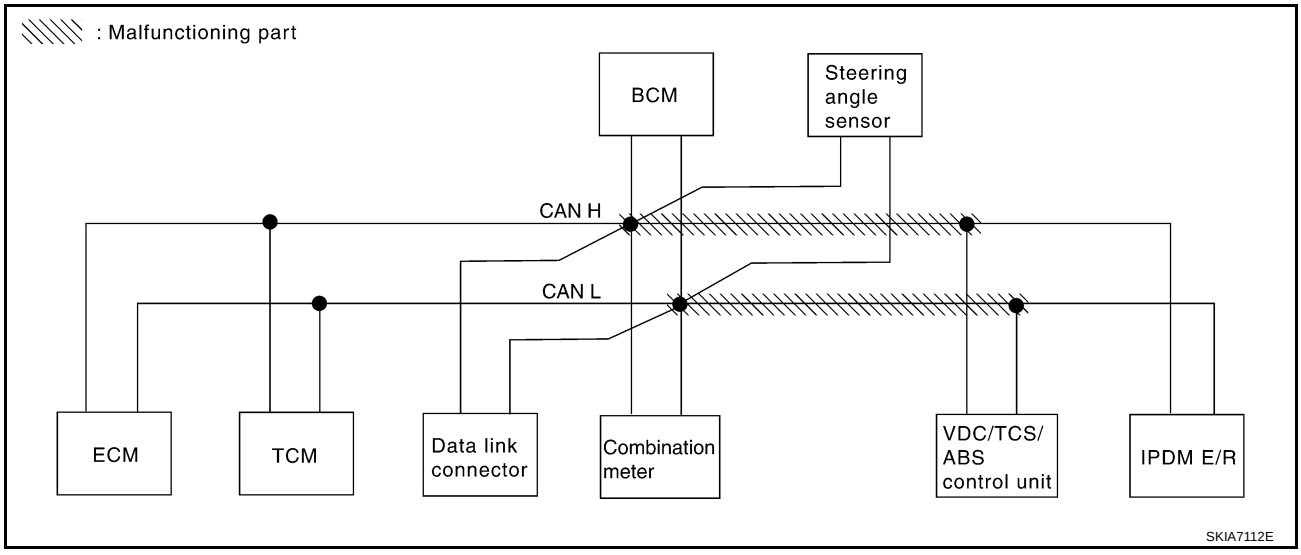


Case2

Check harness between data link connector and VDC/TCS/ABS control unit. Refer to LAN-48, "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 ✓	—	—

PKIB0397E

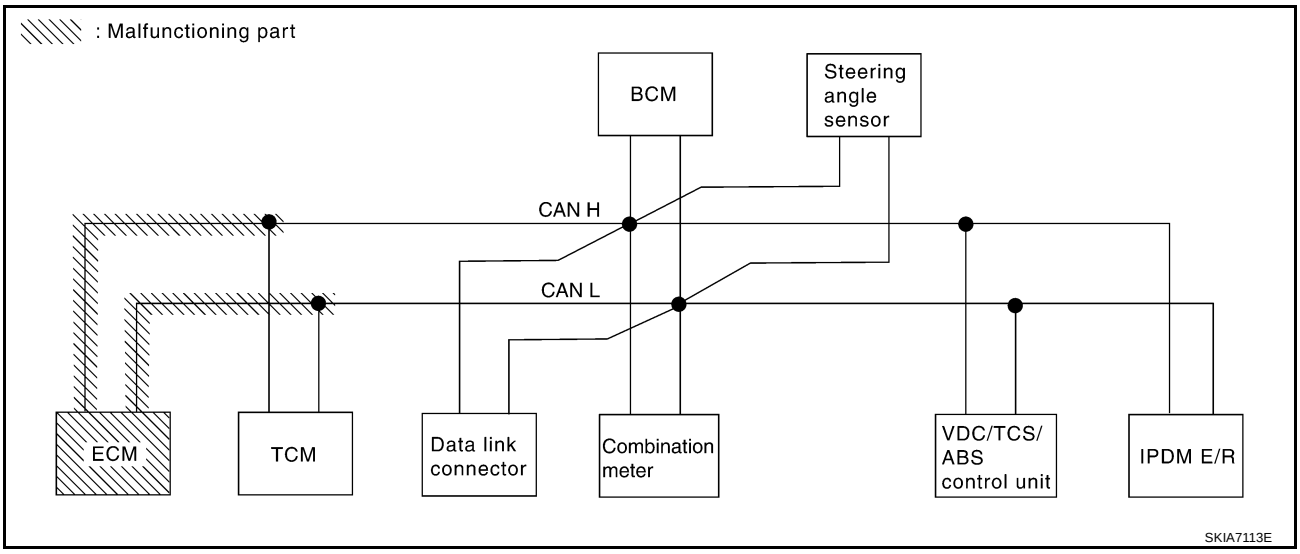


Case3

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

PKIB0398E

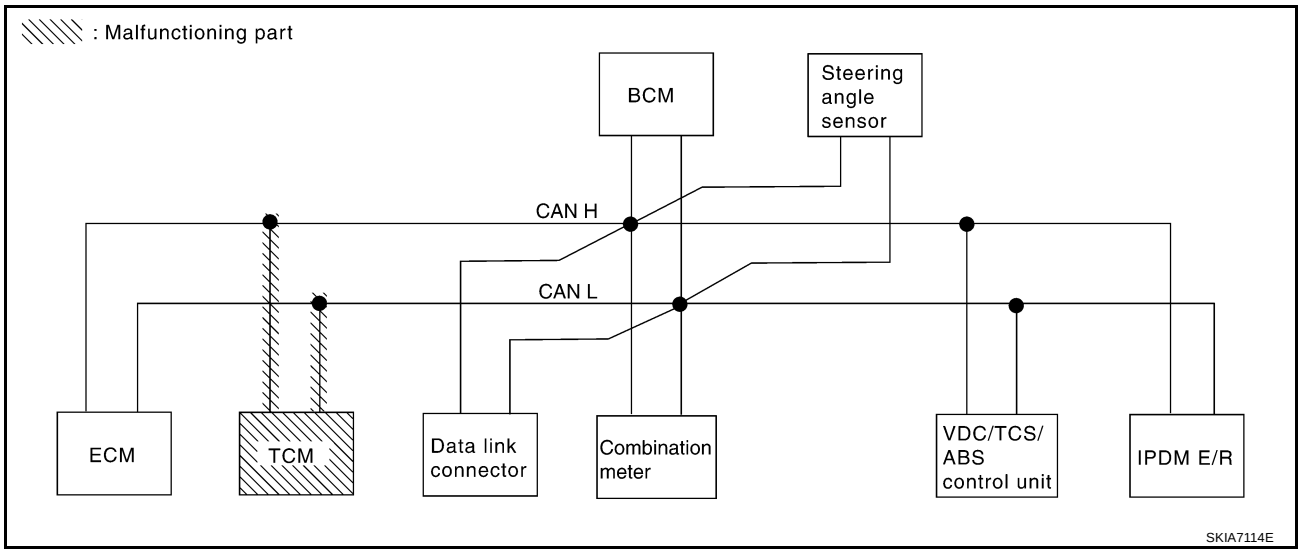


Case4

Check TCM circuit. Refer to LAN-49, "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	–	–

PKIB0399E

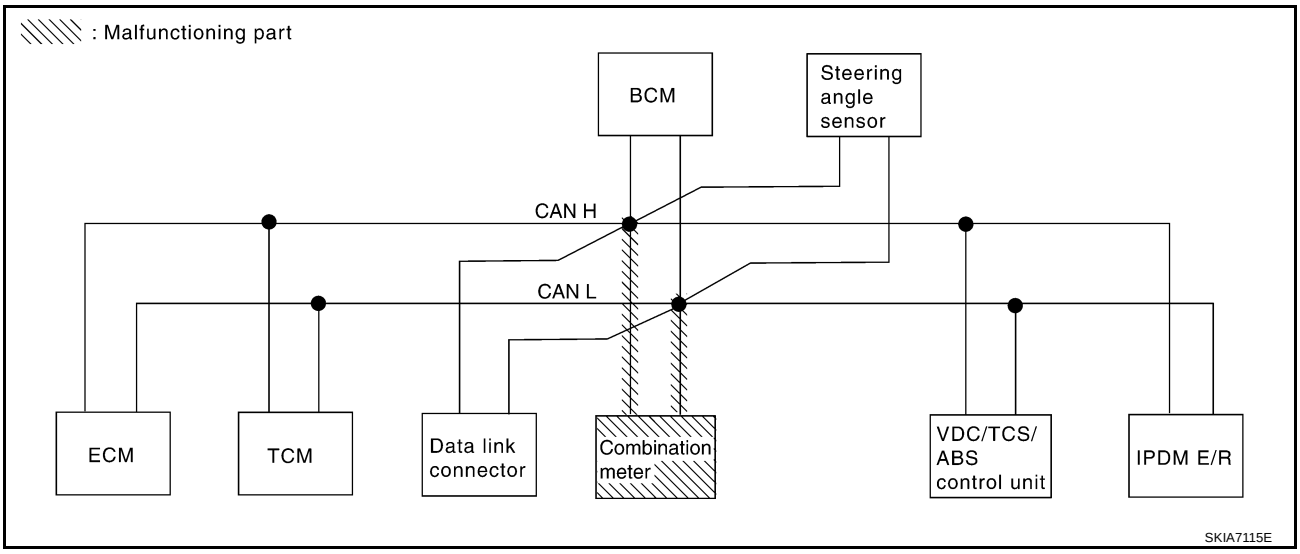


Case5

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	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	—	—

PKIB0400E

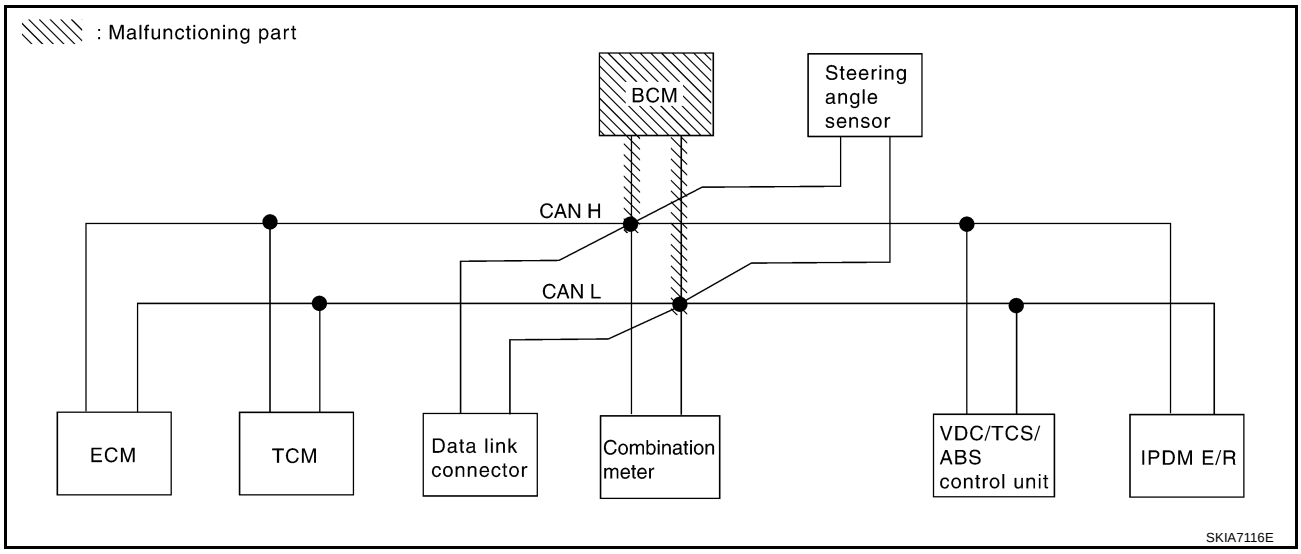


Case6

Check BCM circuit. Refer to LAN-50, "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	—	—

PKIB0401E

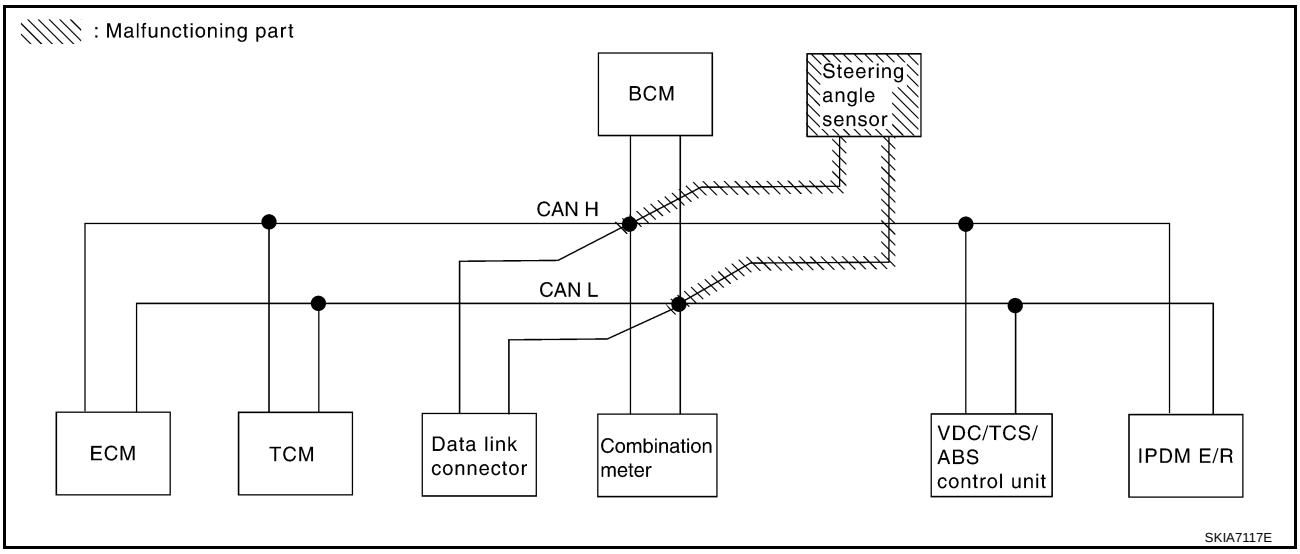


Case7

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	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	—	—

PKIB0402E

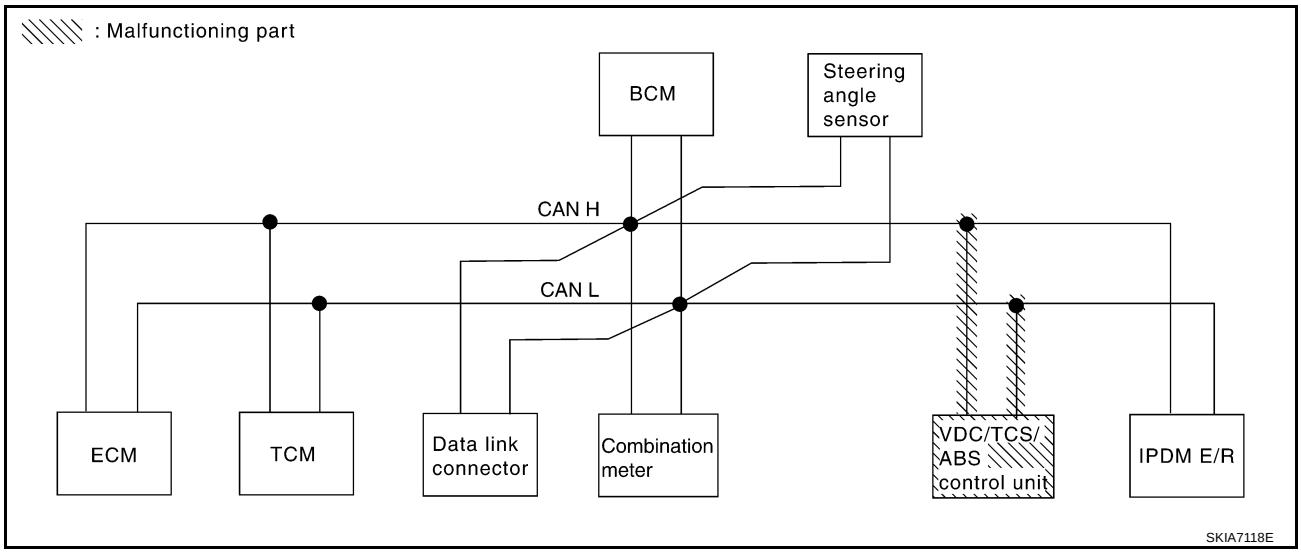


Case8

Check VDC/TCS/ABS control unit circuit. Refer to LAN-51, "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 ✓	–	–

PKIB0403E

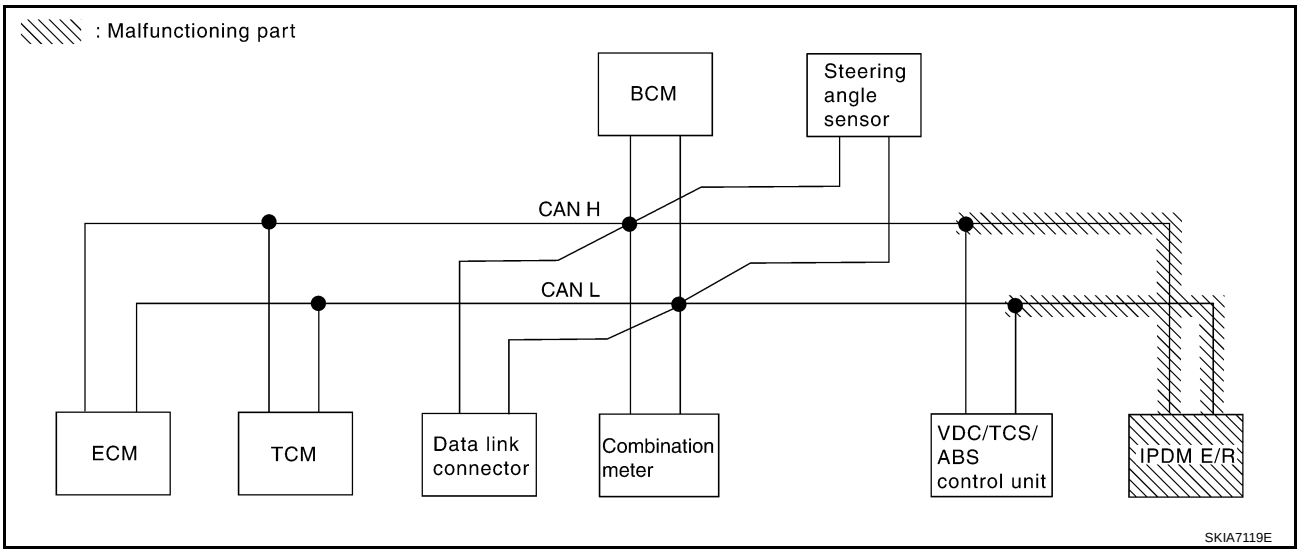


Case9

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	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	—	—

PKIB0404E



Case10

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	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	—	—

PKIB0405E

Case11

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	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	—	—

PKIB0406E

Case12

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	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	—	—

PKIB0407E

Circuit Check Between TCM and Data Link Connector

AKS005OR

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 and harness-side).

- TCM.
- Combination meter.
- BCM.
- Steering angle sensor.
- Between TCM and data link connector.

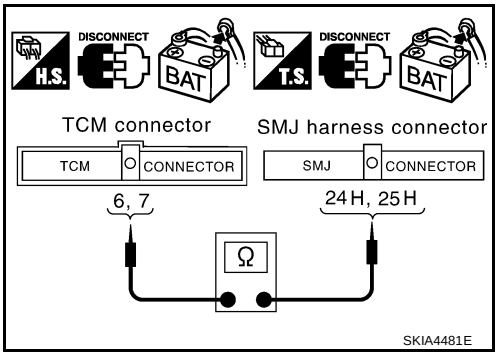
OK or NG

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.



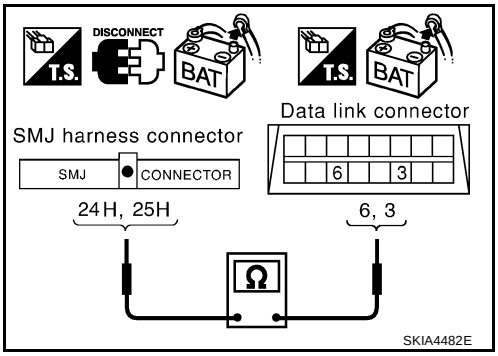
OK or NG

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-35, "Work Flow" .
NG >> Repair harness.

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

AKS005OS

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 (meter-side, control module-side, sensor-side, control unit-side and harness-side).

- Combination meter.
- BCM.
- Steering angle sensor.
- VDC/TCS/ABS control unit.
- Between data link connector and VDC/TCS/ABS control unit.

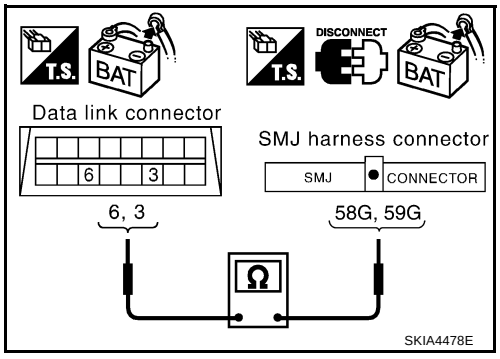
OK or NG

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 58G (L), 59G (R).

6 (L) – 58G (L) : Continuity should exist.
3 (R) – 59G (R) : Continuity should exist.



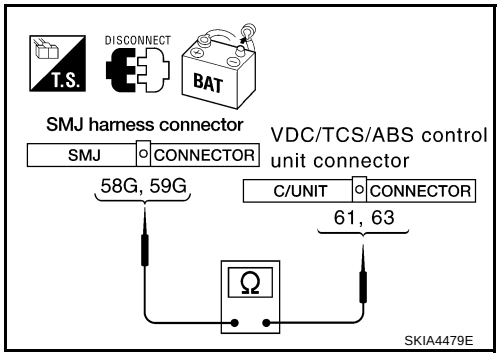
OK or NG

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 58G (L), 59G (R) and VDC/TCS/ABS control unit harness connector E118 terminals 61 (L), 63 (R).

58G (L) – 61 (L) : Continuity should exist.
59G (R) – 63 (R) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-35, "Work Flow" .
NG >> Repair harness.

ECM Circuit Check

AKS005OT

1. CHECK CONNECTOR

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

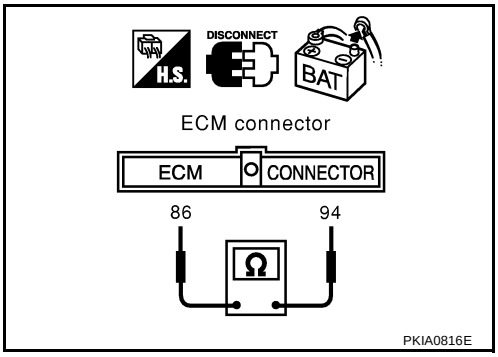
2. CHECK HARNESS FOR OPEN CIRCUIT

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 TCM and ECM.



TCM Circuit Check

AKS005OU

1. CHECK CONNECTOR

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

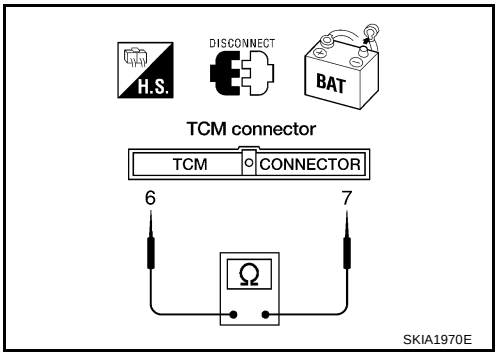
2. CHECK HARNESS FOR OPEN CIRCUIT

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

AKS005OV

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.

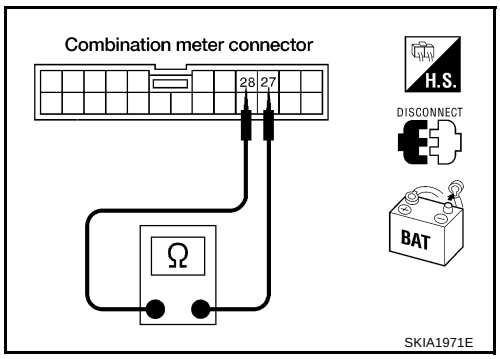
2. CHECK HARNESS FOR OPEN CIRCUIT

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

AKS005OW

1. CHECK CONNECTOR

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

OK or NG

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

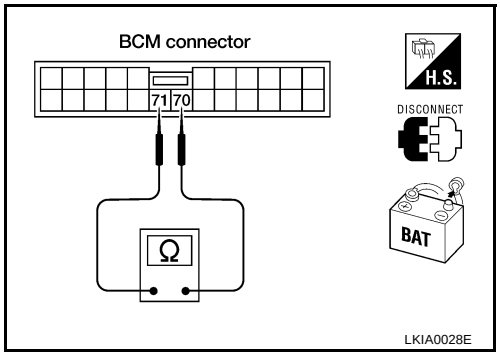
2. CHECK HARNESS FOR OPEN CIRCUIT

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

70 (L) – 71 (R) : Approx. 54 – 66Ω

OK or NG

OK >> Replace BCM. Refer to BCS-20, "Removal and Installation of BCM" .
NG >> Repair harness between data link connector and BCM.



Steering Angle Sensor Circuit Check

AKS005OX

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.

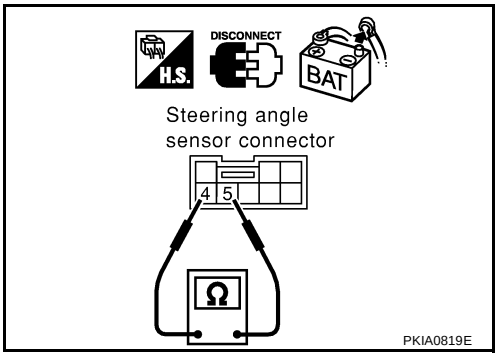
2. CHECK HARNESS FOR OPEN CIRCUIT

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

AKS005OY

1. CHECK CONNECTOR

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

OK or NG

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

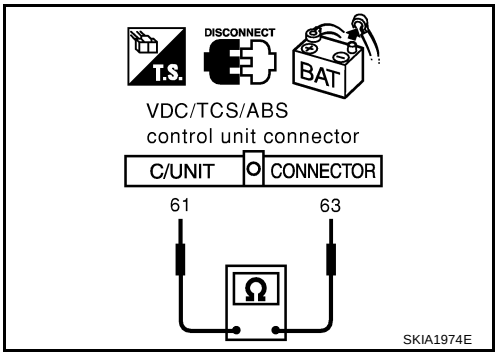
2. CHECK HARNESS FOR OPEN CIRCUIT

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

AKS005OZ

1. CHECK CONNECTOR

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

OK or NG

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

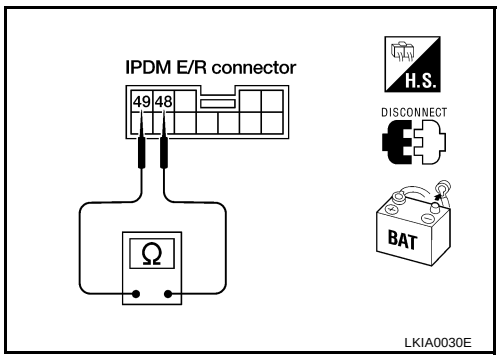
2. CHECK HARNESS FOR OPEN CIRCUIT

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

48 (L) – 49 (R) : Approx. 108 – 132Ω

OK or NG

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



CAN Communication Circuit Check

AKS005P0

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, 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.

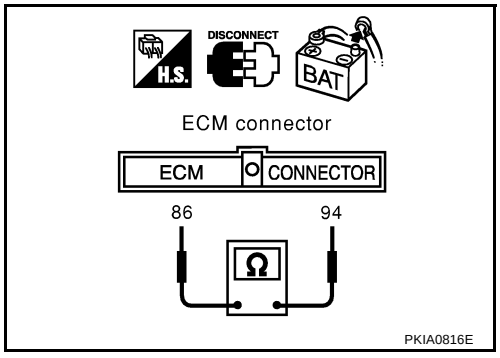
– ECM connector.
– TCM connector.
– Harness connector F102.

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

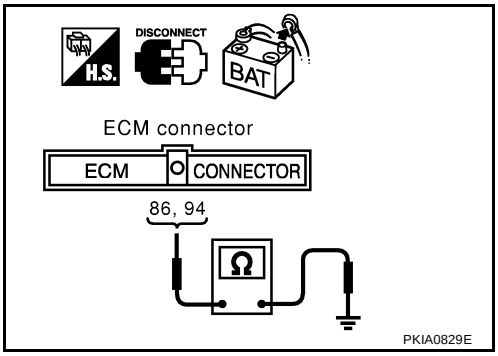
OK >> GO TO 3.
NG >> ● Repair harness between ECM and harness connector F102.
● Repair harness between TCM and harness connector F102.



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.



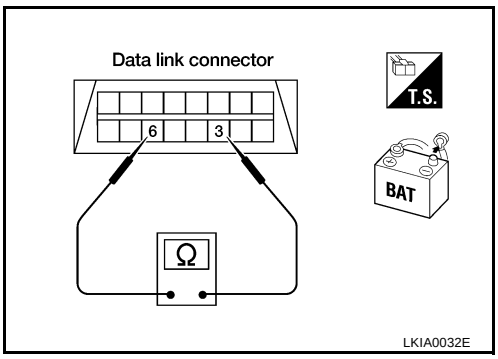
OK or NG

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.



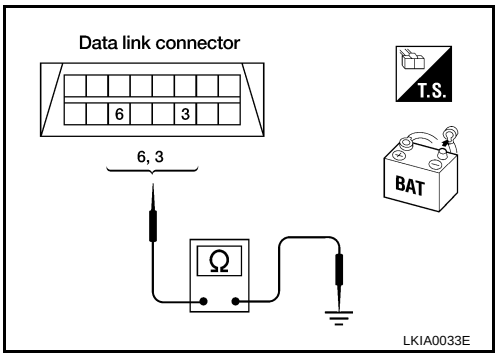
OK or NG

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.



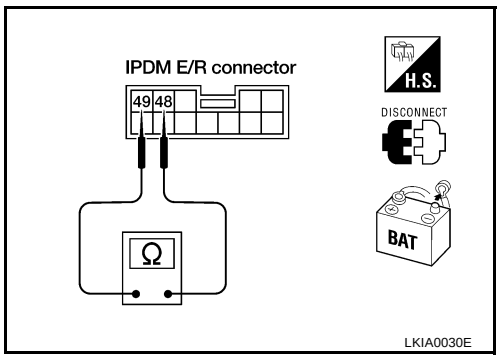
OK or NG

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.

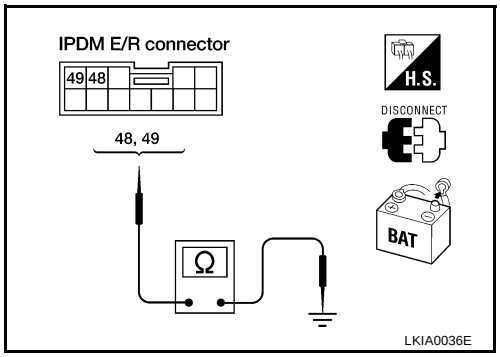
NG >>
- Repair harness between harness connector E108 and VDC/TCS/ABS control unit.
- Repair harness between harness connector E108 and IPDM E/R.

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-54, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION"

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-35, "Work Flow" .

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

IPDM E/R Ignition Relay Circuit Check

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

- IPDM E/R power circuit. refer to PG-27, "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

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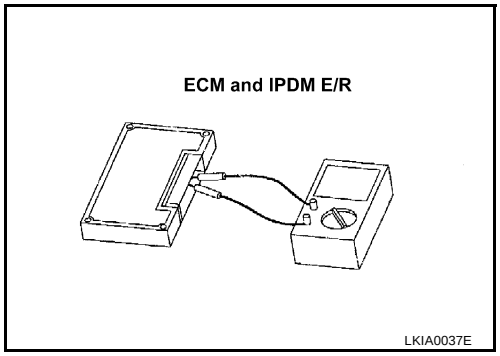
ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- 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	