

# SECTION **LAN**

## LAN SYSTEM

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## PRECAUTIONS

PFP:00001

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

EKS001U0

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. 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

EKS001U1

## CAN SYSTEM

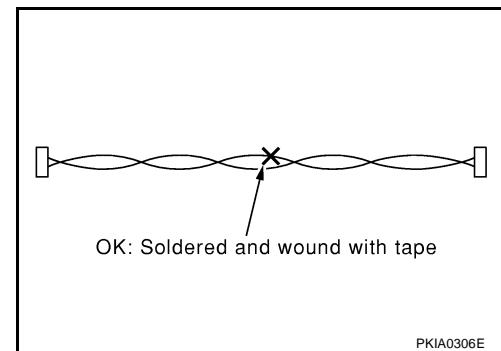
- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch off and disconnect the battery cable from the negative terminal before checking the circuit.

## Precautions For Harness Repair

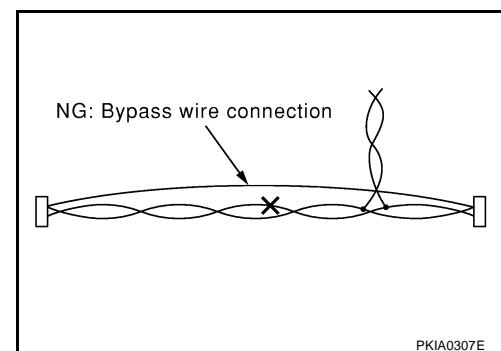
EKS001U2

## 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

EKS001U3

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

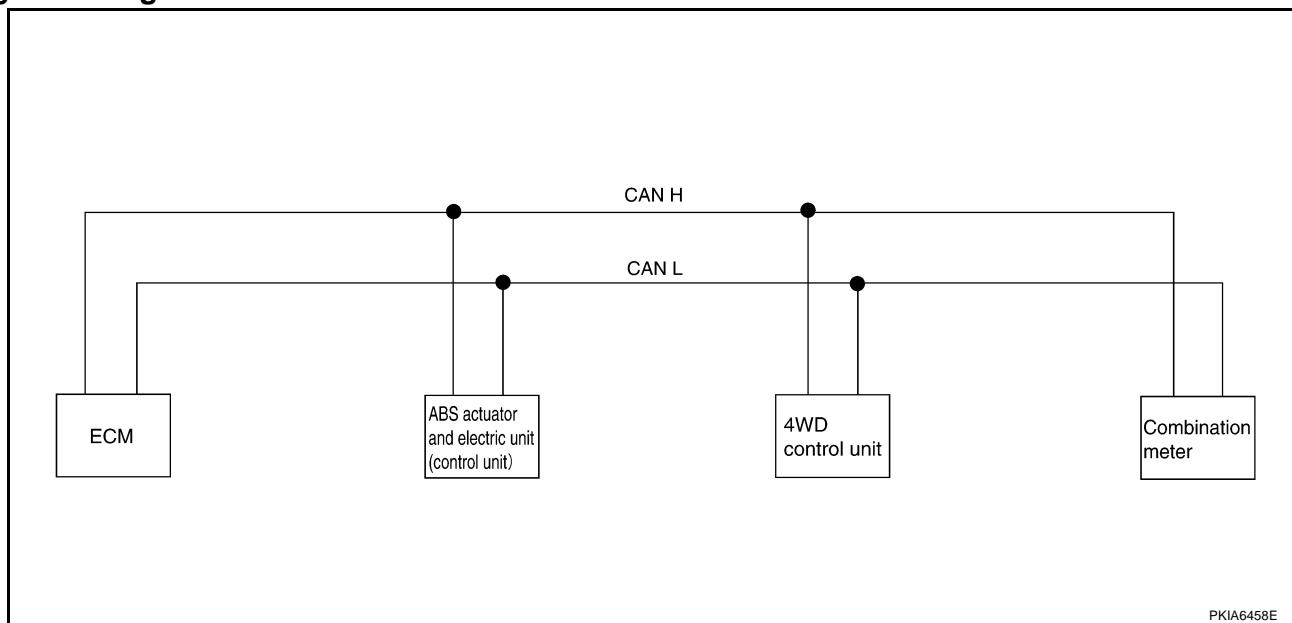
EKS00EGL

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

Body type	Wagon							
Axle	4WD				2WD			
Engine	YD22DDTi	QR20DE/QR25DE	YD22DDTi	QR25DE	QR20DE	YD22DDTi		
Transmission	M/T		A/T	M/T		A/T	M/T	
Brake control	ABS			ESP			ABS	
CAN system type	1	2	3	4	5	6	7	8
CAN system trouble diagnosis	<a href="#">LAN-11</a>	<a href="#">LAN-27</a>	<a href="#">LAN-43</a>	<a href="#">LAN-68</a>	<a href="#">LAN-86</a>	<a href="#">LAN-104</a>	<a href="#">LAN-130</a>	<a href="#">LAN-143</a>
ECM	×	×	×	×	×	×	×	×
TCM			×			×		
ESP/TCS/ABS control unit				×	×	×		×
ABS actuator and electric unit (control unit)	×	×	×				×	×
Steering angle sensor				×	×	×		×
4WD control unit	×	×	×	×	×	×		
Combination meter	×	×	×	×	×	×	×	×

## TYPE 1/TYPE 2

## System diagram



# CAN COMMUNICATION

[CAN]

## Input/output signal chart

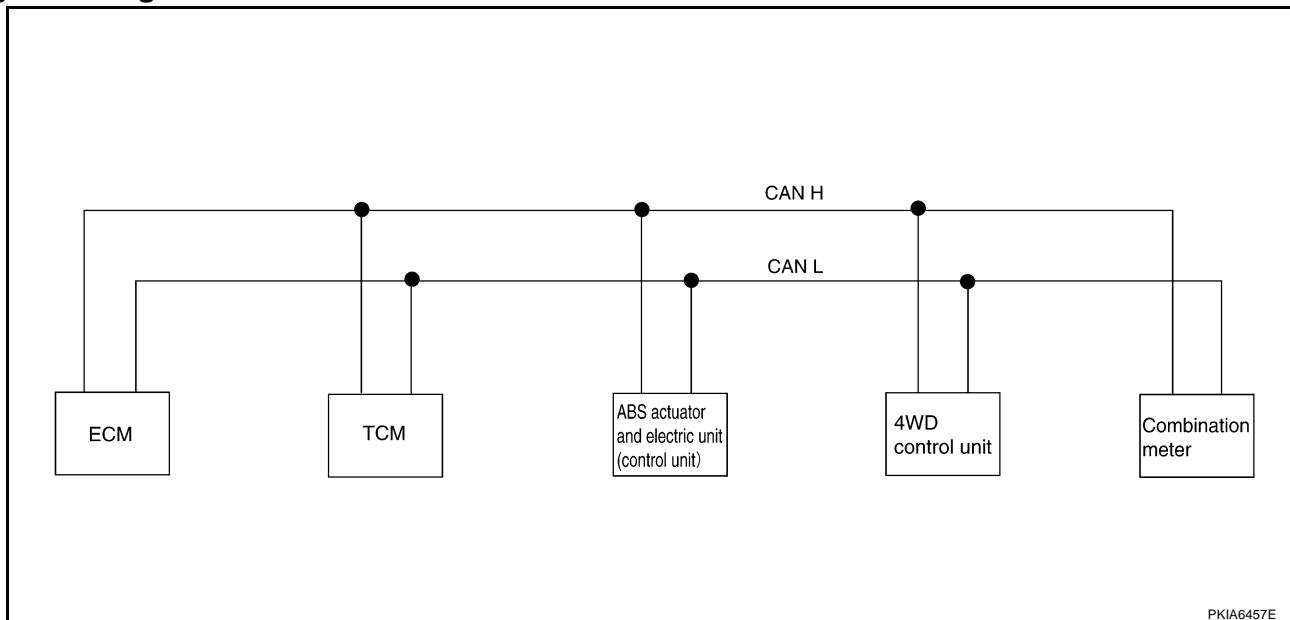
T: Transmit R: Receive

Signals	ECM	ABS actuator and electric unit (control unit)	4WD control unit	Combination meter
4WD mode indicator lamp signal			T	R
4WD warning lamp signal			T	R
A/C compressor feedback signal	T			R
ABS warning lamp signal		T		R
Accelerator pedal position signal	T		R	
Engine coolant temperature signal	T			R
Engine speed signal	T		R	R
MI signal	T			R
Parking brake switch signal			R	T
Stop lamp switch signal		T	R	
Vehicle speed signal		T	R	R
	R			T
ASCD SET lamp signal	T			R
ASCD CRUISE lamp signal	T			R
Stop lamp switch signal	T			R
Glow indicator lamp signal*	T			R
A/C switch signal*	R			T

\*: YD engine models only

## TYPE 3

### System diagram



PKIA6457E

## Input/output signal chart

T: Transmit R: Receive

Signals	ECM	TCM	ABS actuator and electric unit (control unit)	4WD control unit	Combination meter
4WD mode indicator lamp signal				T	R
4WD warning lamp signal				T	R

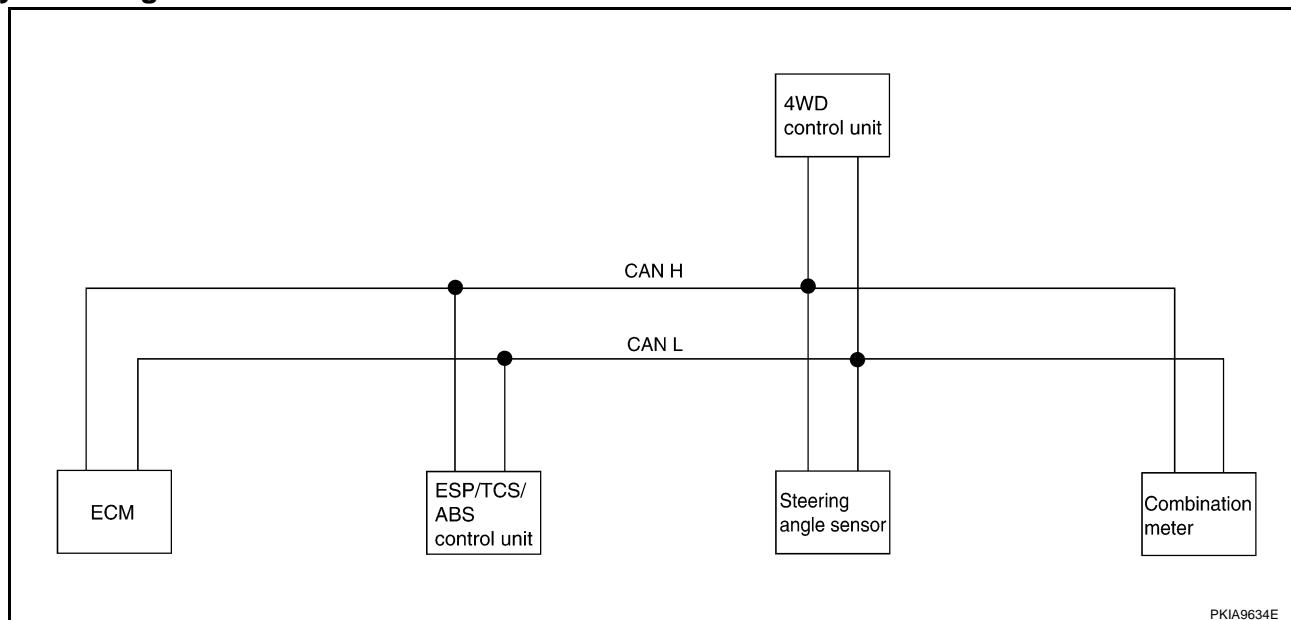
# CAN COMMUNICATION

[CAN]

Signals	ECM	TCM	ABS actuator and electric unit (control unit)	4WD control unit	Combination meter
A/C compressor feedback signal	T				R
A/T position indicator lamp signal		T			R
A/T self-diagnosis signal	R	T			
ABS warning lamp signal			T		R
Accelerator pedal position signal	T			R	
Closed throttle position signal	T	R			
Engine A/T integrated control signal	T	R			
	R	T			
Engine coolant temperature signal	T				R
Engine speed signal	T			R	R
MI signal	T				R
O/D OFF indicator signal		T			R
Output shaft revolution signal	R	T			
Overdrive control switch signal			R		T
P-N range signal			R		T
Parking brake switch signal				R	T
Stop lamp switch signal		R			T
			T	R	
Vehicle speed signal			T	R	R
	R				T
Wide open throttle position signal	T	R			
ASCD SET lamp signal	T				R
ASCD CRUISE lamp signal	T				R

## TYPE 4/TYPE 5

### System diagram



# CAN COMMUNICATION

[CAN]

## Input/output signal chart

T: Transmit R: Receive

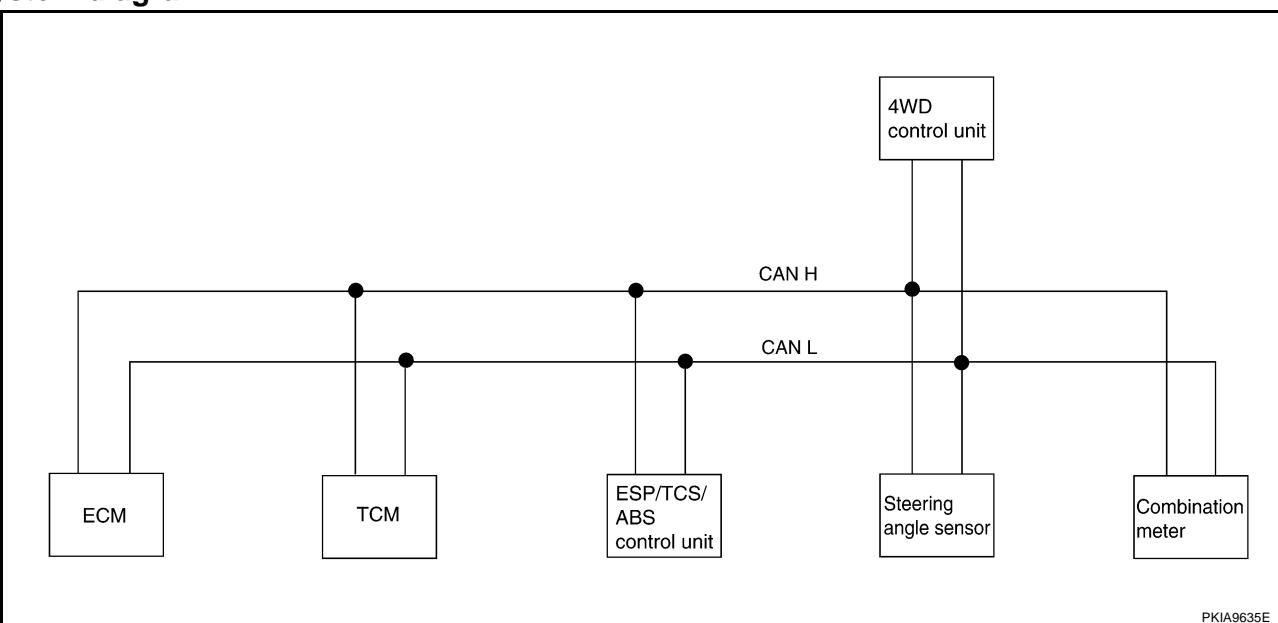
Signals	ECM	ESP/TCS/ABS control unit	Steering angle sensor	4WD control unit	Combination meter
4WD mode indicator lamp signal				T	R
4WD warning lamp signal				T	R
A/C compressor feedback signal* <sup>2</sup>	T				R
A/C switch signal* <sup>1</sup>	R				T
ABS warning lamp signal		T			R
Accelerator pedal position signal	T	R		R	
Brake warning lamp signal		T			R
Engine coolant temperature signal	T				R
Engine speed signal	T	R		R	R
ESP OFF indicator lamp signal		T			R
Glow indicator lamp signal* <sup>1</sup>	T				R
MI signal	T				R
Stop lamp switch signal		T		R	
Vehicle speed signal	R	T		R	R
SLIP indicator lamp signal		T			R
Parking brake switch signal				R	T
Steering angle sensor signal		R	T		
ASCD SET lamp signal	T				R
ASCD CRUISE lamp signal	T				R

\*1: YD engine models only

\*2: QR engine models only

## TYPE 6

### System diagram



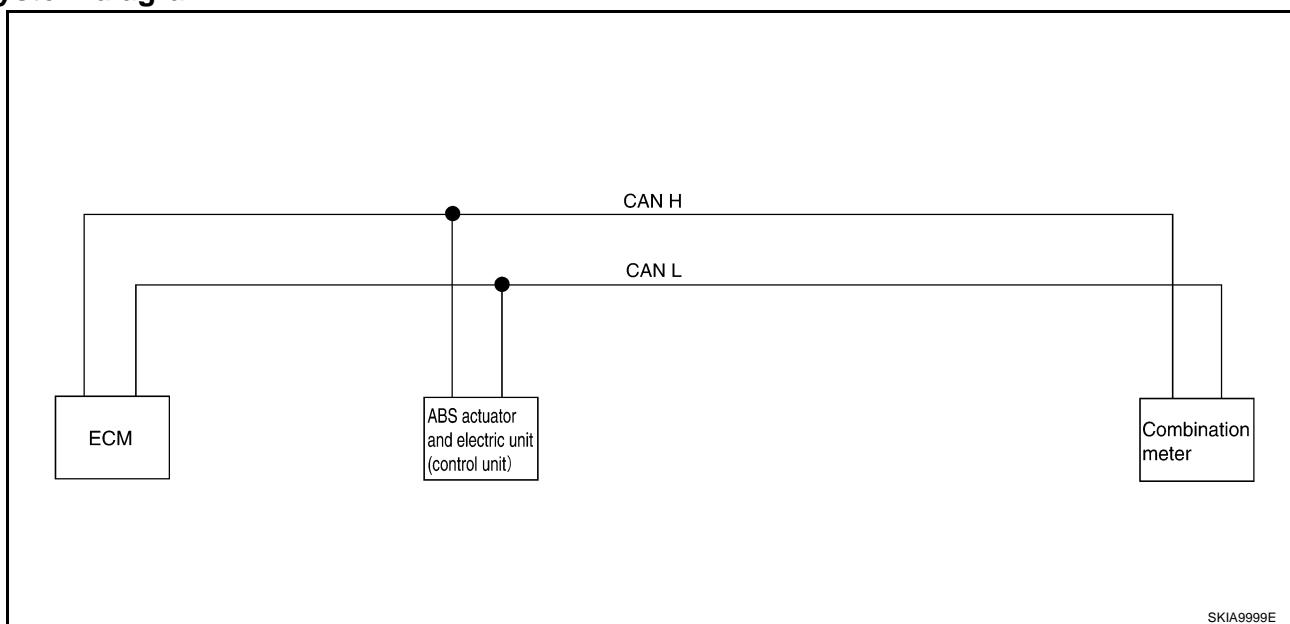
# CAN COMMUNICATION

[CAN]

## Input/output signal chart

T: Transmit R: Receive

Signals	ECM	TCM	ESP/TCS/ ABS control unit	Steering angle sensor	4WD control unit	Combination meter
4WD mode indicator lamp signal					T	R
4WD warning lamp signal					T	R
A/C compressor feedback signal	T					R
A/T position indicator lamp signal		T	R			R
A/T self-diagnosis signal	R	T				
ABS warning lamp signal			T			R
Accelerator pedal position signal	T		R		R	
Brake warning lamp signal			T			R
Closed throttle position signal	T	R				
Engine and A/T integrated	T	R				
	R	T				
Engine coolant temperature signal	T					R
Engine speed signal	T		R		R	R
ESP OFF indicator lamp signal			T			R
MI signal	T					R
O/D OFF indicator signal		T				R
Output shaft revolution signal	R	T				
Overdrive control switch signal		R				T
P-N range signal		R				T
SLIP indicator lamp signal			T			R
Steering angle sensor signal			R	T		
Stop lamp switch signal		R				T
			T		R	
Vehicle speed signal			T		R	R
	R					T
Parking brake switch signal					R	T
Wide open throttle position signal	T	R				
ASCD SET lamp signal	T					R
ASCD CRUISE lamp signal	T					R

**TYPE 7/TYPE 8**  
**System diagram**

**Input/output signal chart**

T: Transmit R: Receive

Signals	ECM	ABS actuator and electric unit (control unit)	Combination meter
A/C compressor feedback signal	T		R
ABS warning lamp signal		T	R
Engine coolant temperature signal	T		R
Engine speed signal	T		R
MI signal	T		R
Vehicle speed signal		T	R
ASCD SET lamp signal	T		R
ASCD CRUISE lamp signal	T		R
Stop lamp switch signal	T		R
Glow indicator lamp signal*	T		R
A/C switch signal*	R		T

\*: YD engine models only

A  
B  
C  
D  
E  
F  
GH  
I  
J

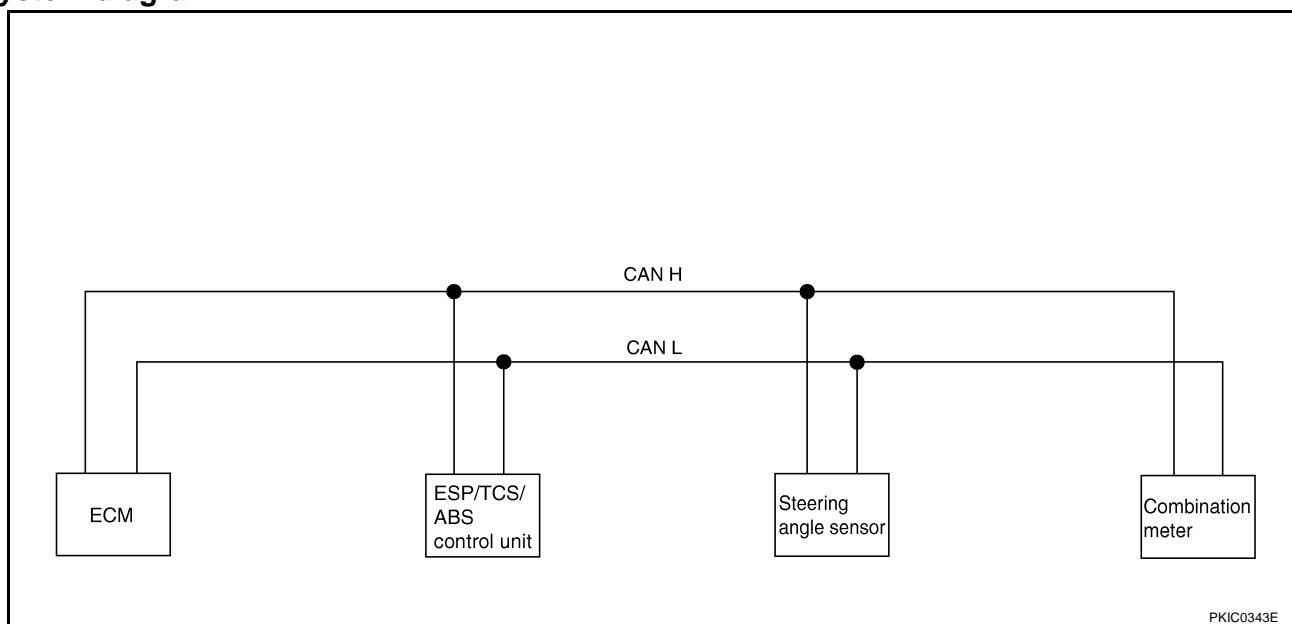
LAN

L

M

## TYPE 9

## System diagram



## Input/output signal chart

T: Transmit R: Receive

Signals	ECM	ESP/TCS/ABS control unit	Steering angle sensor	Combination meter
A/C switch signal	R			T
ABS warning lamp signal		T		R
Accelerator pedal position signal	T	R		
Brake warning lamp signal		T		R
Engine coolant temperature signal	T			R
Engine speed signal	T	R		R
ESP OFF indicator lamp signal		T		R
Glow indicator lamp signal	T			R
MI signal	T			R
Vehicle speed signal		T		R
	R			T
SLIP indicator lamp signal		T		R
Steering angle sensor signal		R	T	
ASCD SET lamp signal	T			R
ASCD CRUISE lamp signal	T			R

### CAN SYSTEM (TYPE 1)

PFP:23710

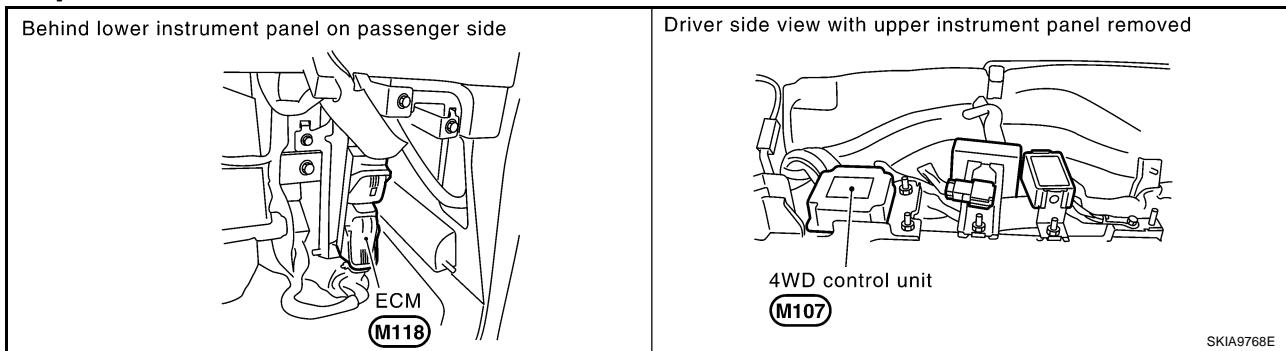
#### System Description

EKS00LTX

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

EKS00LTY

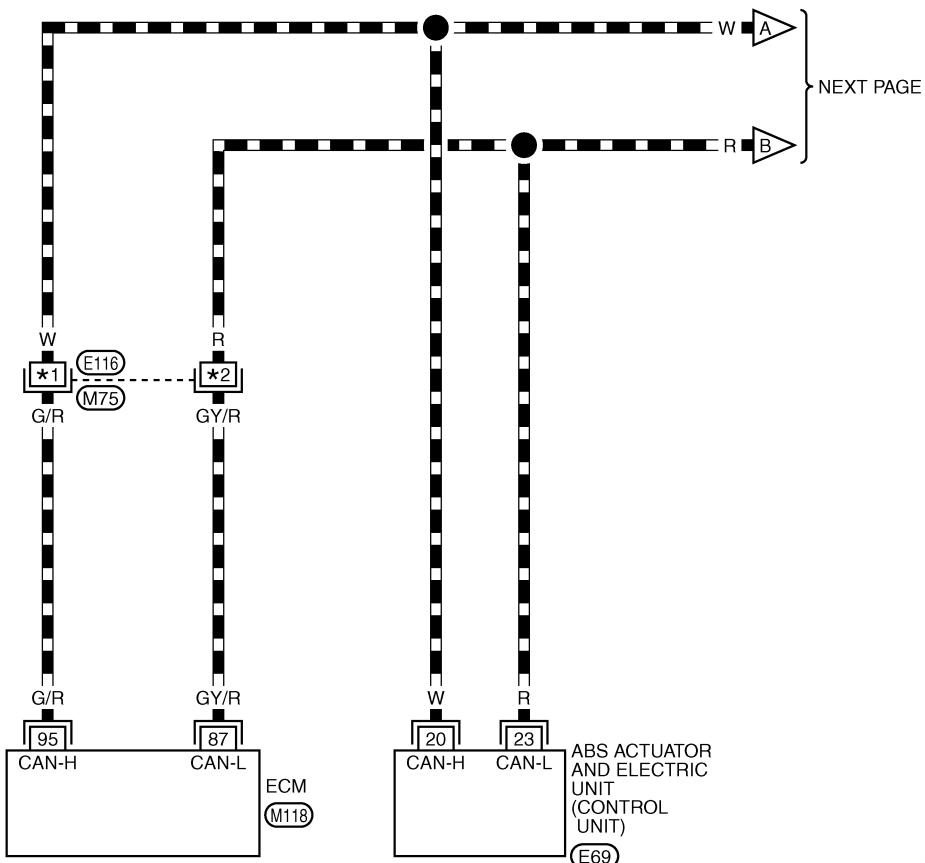


## Wiring Diagram — CAN —

EKS00LTZ

LAN-CAN-01

- : DATA LINE
- ◀ : LHD MODELS
- ▶ : RHD MODELS
- \*1 13 : ◀
- 10 : ▶
- \*2 4 : ◀
- 3 : ▶



1	2	3	4	5	6	7	8	9		
10	11	12	13	14	15	16	17	18	19	20

(M75) : ◀  
BR

1	2	3	4	5	6	7		
8	9	10	11	12	13	14	15	16

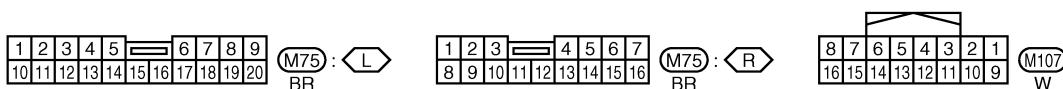
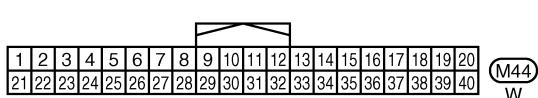
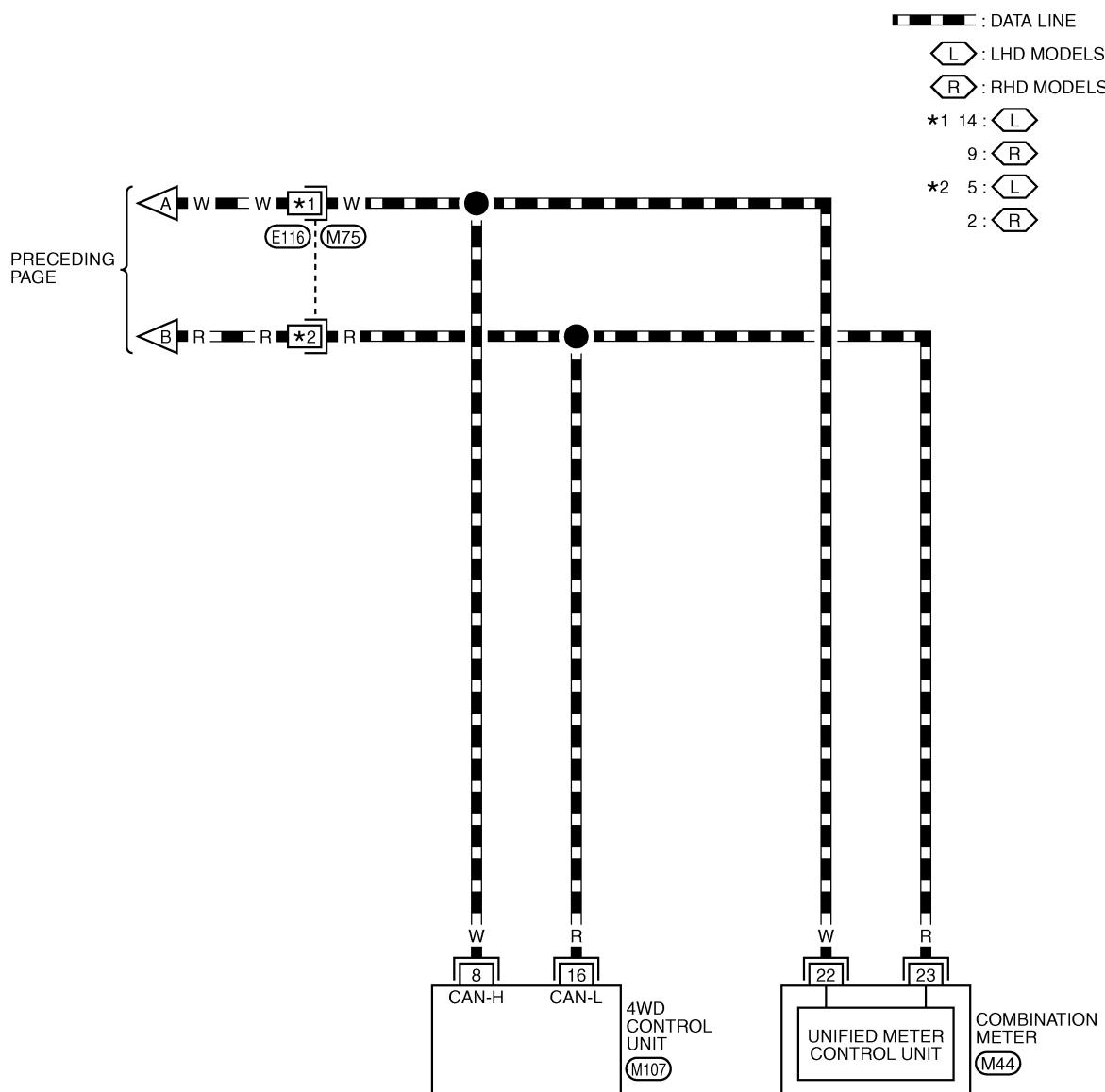
(M75) : ▶  
BR

REFER TO THE FOLLOWING.  
 (M118, (E69) -ELECTRICAL  
 UNITS

# CAN SYSTEM (TYPE 1)

[CAN]

LAN-CAN-02



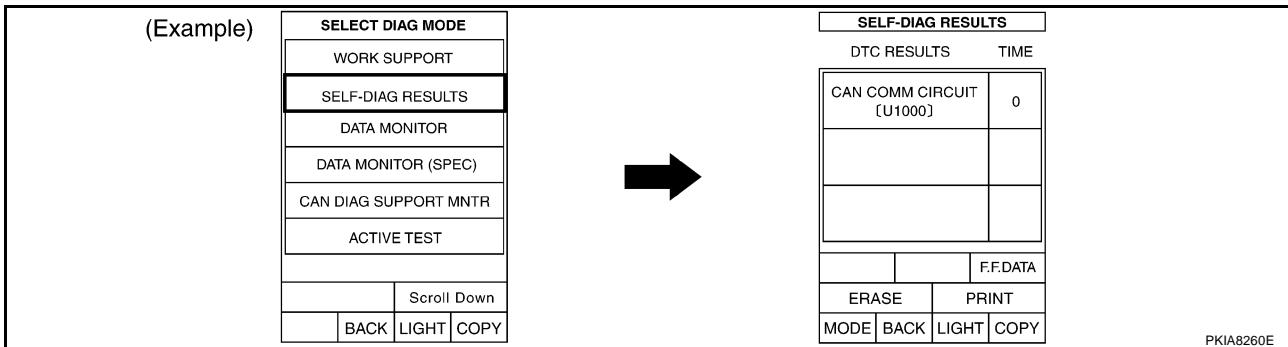
TKWB0107E

LAN-13

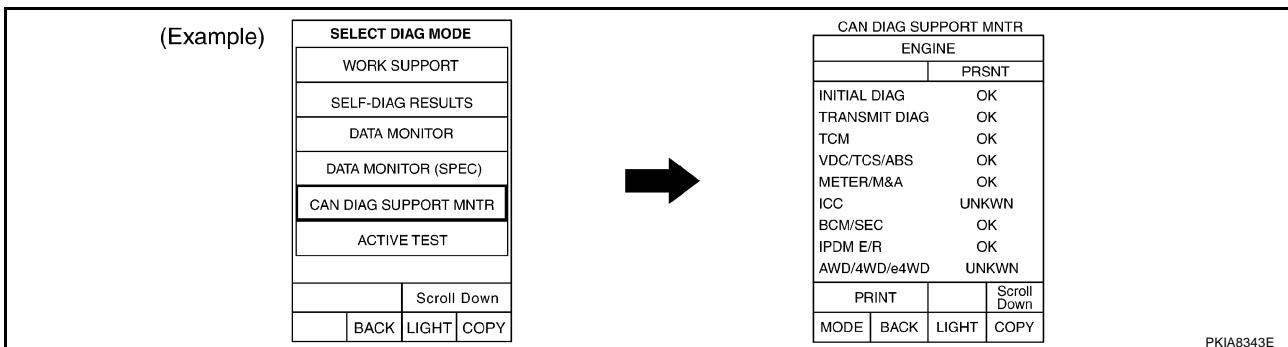
**Work Flow**

EKS001U0

1. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "ABS" and "ALL MODE AWD/4WD" displayed on CONSULT-II.



2. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "ABS" and "ALL MODE AWD/4WD" 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-15, "CHECK SHEET"](#).
4. Based on the results of "CAN DIAG SUPPORT MNTR", put a check marks onto the items with "NG" or "UNKWN" in the check sheet table. Refer to [LAN-15, "CHECK SHEET"](#).

**NOTE:**

- If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", 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-16, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

# CAN SYSTEM (TYPE 1)

[CAN]

## CHECK SHEET

### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

Check sheet table

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	VDC/TCS/ABS	METER/M&A	
ENGINE	NG	UNKWN	—	—	UNKWN	
ABS	NG	UNKWN	UNKWN	—	—	
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—	

Symptoms:

Attach copy of  
ENGINE  
SELF-DIAG RESULTS

Attach copy of  
ABS  
SELF-DIAG RESULTS

Attach copy of  
ALL MODE AWD/4WD  
SELF-DIAG RESULTS

Attach copy of  
ENGINE  
CAN DIAG SUPPORT  
MNTR

Attach copy of  
ABS  
CAN DIAG SUPPORT  
MNTR

Attach copy of  
ALL MODE AWD/4WD  
CAN DIAG SUPPORT  
MNTR

A  
B  
C  
D  
E  
F  
G  
H  
I  
J

LAN  
L  
M

## CHECK SHEET RESULTS (EXAMPLE)

## NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

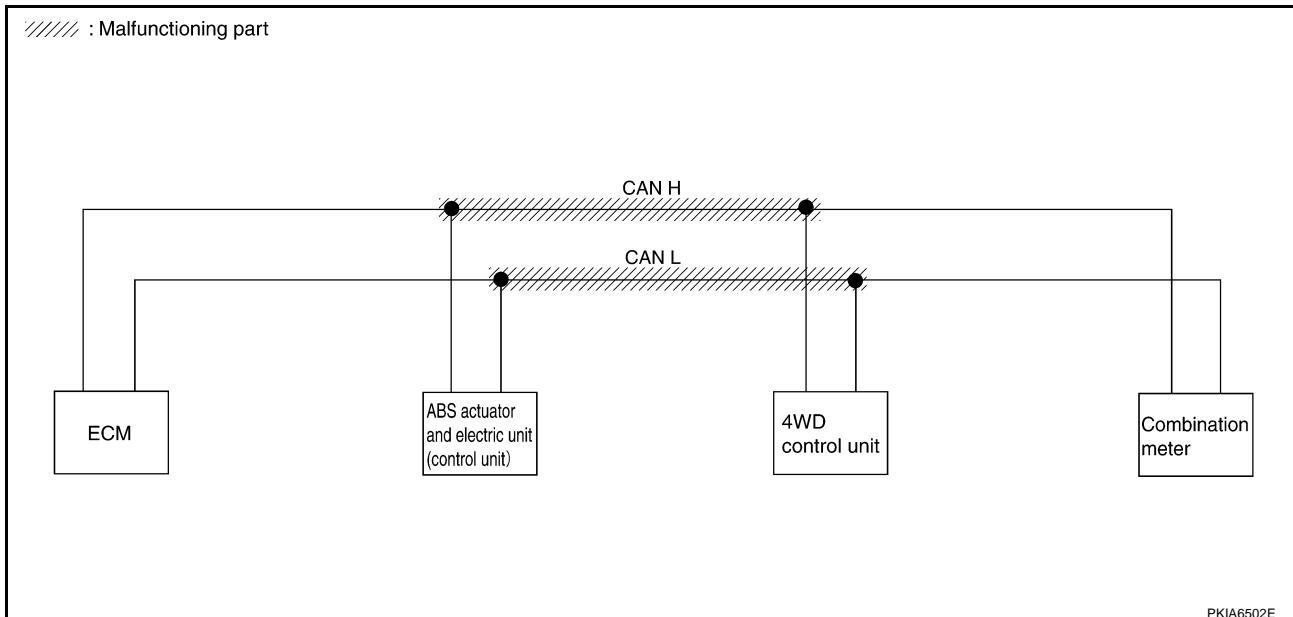
## Case 1

Check harness between ABS actuator and electric unit (control unit) and 4WD control unit. Refer to [LAN-21, "Inspection Between ABS Actuator and Electric Unit \(Control Unit\) and 4WD Control Unit Circuit"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR				
	Initial diagnosis	Transmit diagnosis	Receive diagnosis		
			ECM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—

PKIB9042E

//// : Malfunctioning part



PKIA6502E

# CAN SYSTEM (TYPE 1)

[CAN]

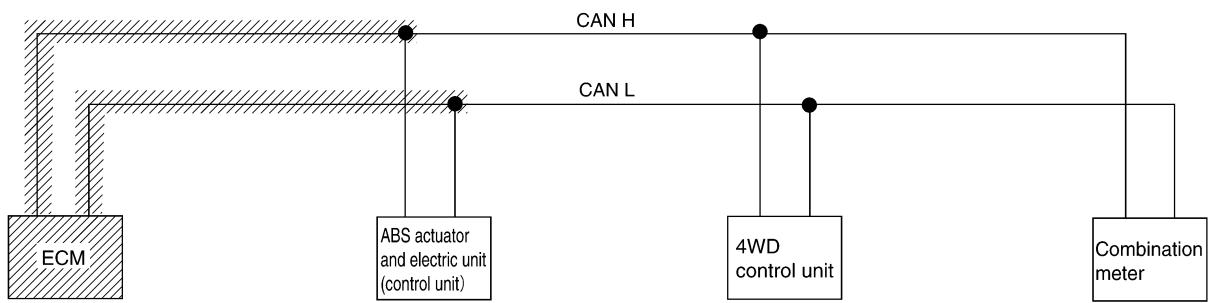
## Case 2

Check ECM circuit. Refer to [LAN-22, "ECM Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR				
	Initial diagnosis	Transmit diagnosis	Receive diagnosis		
			ECM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—

PKIB9043E

////// : Malfunctioning part



PKIA6503E

LAN

# CAN SYSTEM (TYPE 1)

[CAN]

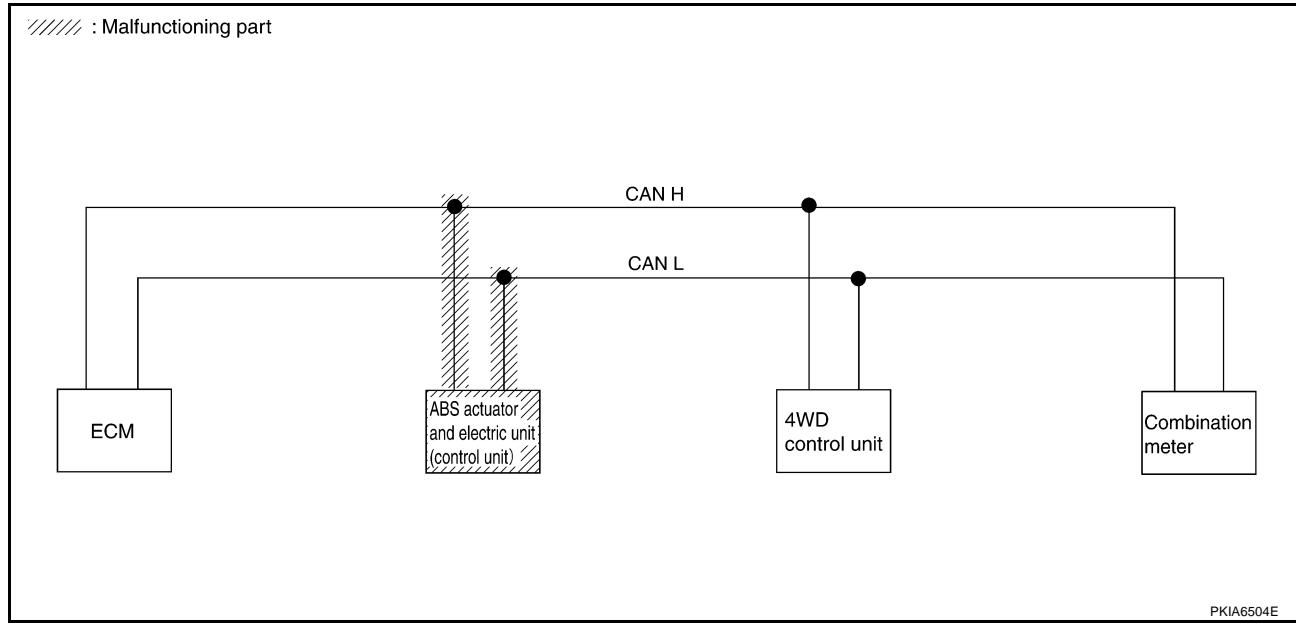
## Case 3

Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-23, "ABS Actuator and Electric Unit \(Control Unit\) Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR				
	Initial diagnosis	Transmit diagnosis	Receive diagnosis		
			ECM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—

PKIB9044E

////// : Malfunctioning part



PKIA6504E

# CAN SYSTEM (TYPE 1)

[CAN]

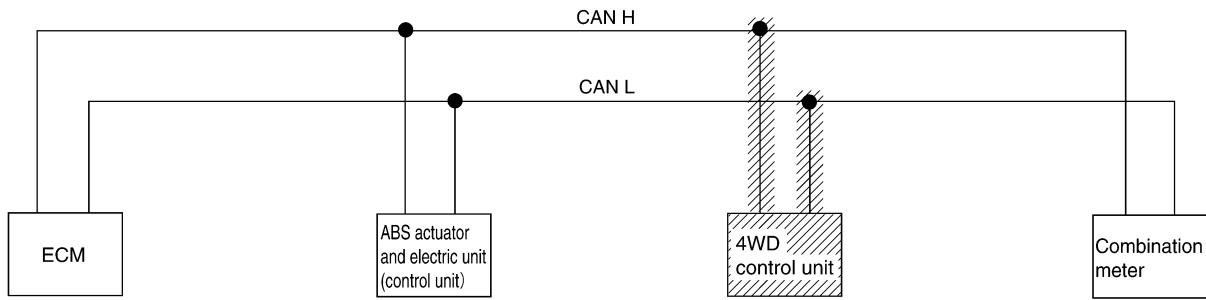
## Case 4

Check 4WD control unit circuit. Refer to [LAN-23, "4WD Control Unit Circuit Inspection"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR				
	Initial diagnosis	Transmit diagnosis	Receive diagnosis		
			ECM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—

PKIB9045E

////// : Malfunctioning part



PKIA6505E

# CAN SYSTEM (TYPE 1)

[CAN]

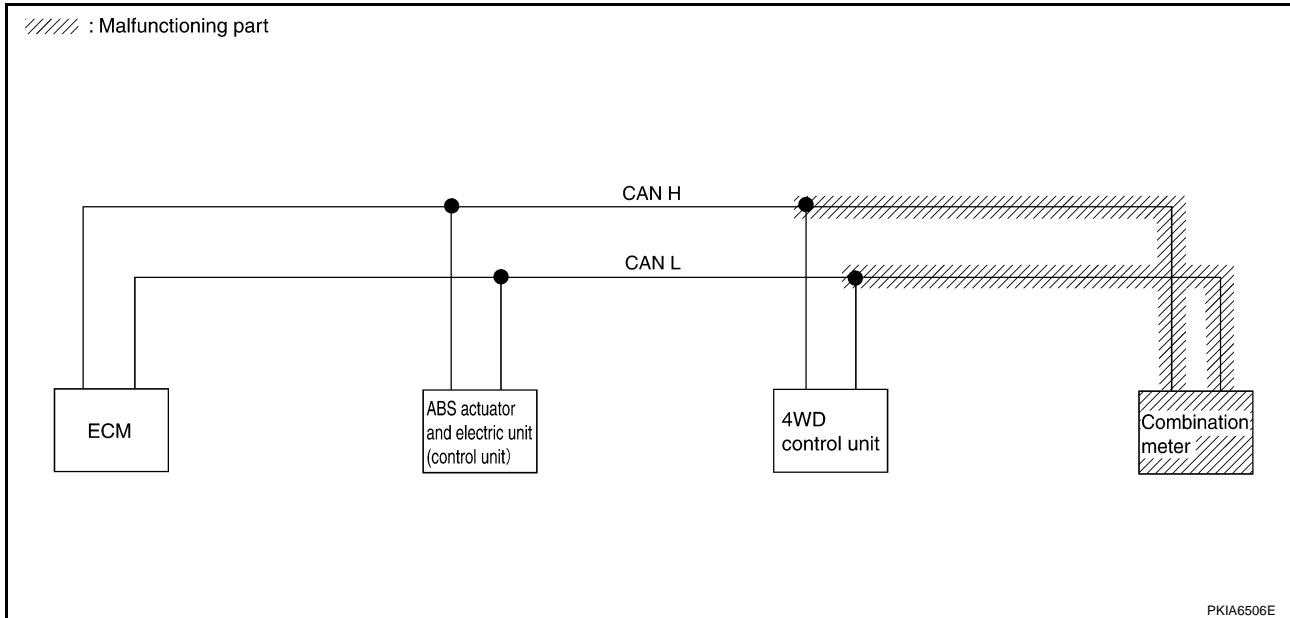
## Case 5

Check combination meter circuit. Refer to [LAN-24, "Combination Meter Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR				
	Initial diagnosis	Transmit diagnosis	Receive diagnosis		
			ECM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—

PKIB9046E

////// : Malfunctioning part



PKIA6506E

## Case 6

Check CAN communication circuit. Refer to [LAN-24, "CAN Communication Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR				
	Initial diagnosis	Transmit diagnosis	Receive diagnosis		
			ECM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—

PKIB9047E

## Inspection Between ABS Actuator and Electric Unit (Control Unit) and 4WD Control Unit Circuit

EKS00LXR

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E116
  - Harness connector M75

#### OK or NG

OK &gt;&gt; GO TO 2.

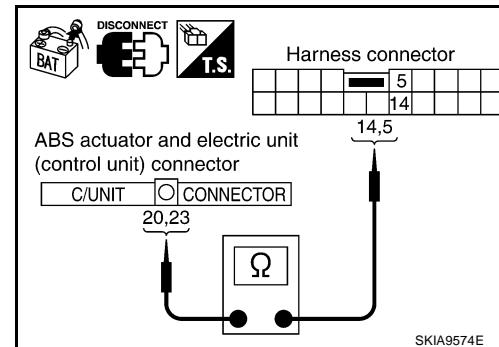
NG &gt;&gt; Repair terminal or connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and harness connector E116.
2. Check the following.
  - LHD models
  - Check continuity between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W), 23 (R) and harness connector E116 terminals 14 (W), 5 (R).

**20 (W) - 14 (W)** : Continuity should exist.

**23 (R) - 5 (R)** : Continuity should exist.



- RHD models
- Check continuity between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W), 23 (R) and harness connector E116 terminals 9 (W), 2 (R).

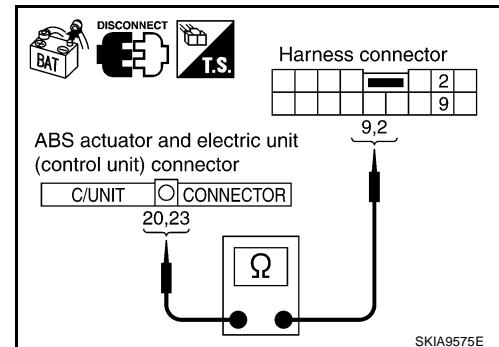
**20 (W) - 9 (W)** : Continuity should exist.

**23 (R) - 2 (R)** : Continuity should exist.

#### OK or NG

OK &gt;&gt; GO TO 3.

NG &gt;&gt; Repair harness.



### 3. CHECK HARNESS FOR OPEN CIRCUIT

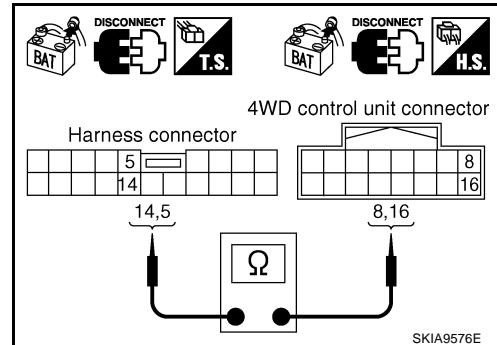
1. Disconnect 4WD control unit connector.
2. Check the following.
  - LHD models
  - Check continuity between harness connector M75 terminals 14 (W), 5 (R) and 4WD control unit harness connector M107 terminals 8 (W), 16 (R).

**14 (W) - 8 (W)**

**: Continuity should exist.**

**5 (R) - 16 (R)**

**: Continuity should exist.**



- RHD models
- Check continuity between harness connector M75 terminals 9 (W), 2 (R) and 4WD control unit harness connector M107 terminals 8 (W), 16 (R).

**9 (W) - 8 (W)**

**: Continuity should exist.**

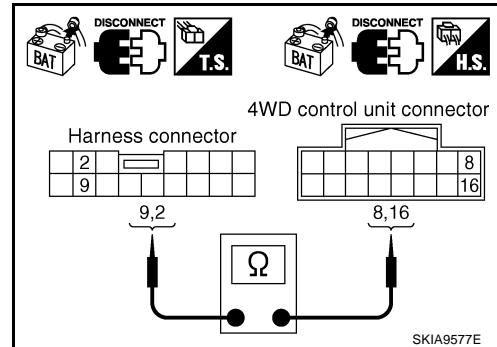
**2 (R) - 16 (R)**

**: Continuity should exist.**

OK or NG

OK      >> Connect all the connectors and diagnose again. Refer to [LAN-14, "Work Flow"](#).

NG      >> Repair harness.



### ECM Circuit Inspection

EKS00LU2

#### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
  - ECM connector
  - Harness connector M75
  - Harness connector E116

OK or NG

OK      >> GO TO 2.

NG      >> Repair terminal or connector.

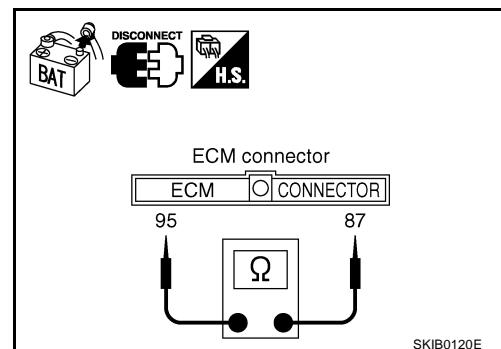
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector M118 terminals 95 (G/R) and 87 (GY/R).

**95 (G/R) - 87 (GY/R)** : Approx. 108 - 132  $\Omega$

OK or NG

OK >> Replace ECM.  
NG >> Repair harness between ECM and ABS actuator and electric unit (control unit).



EKS00LXS

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

### 1. CHECK CONNECTOR

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

OK or NG

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

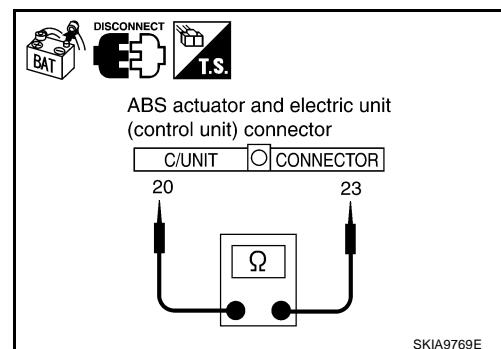
### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W) and 23 (R).

**20 (W) - 23 (R)** : Approx. 54 - 66  $\Omega$

OK or NG

OK >> Replace ABS actuator and electric unit (control unit).  
NG >> Repair harness between ABS actuator and electric unit (control unit) and harness connector E116.



EKS00LU5

## 4WD Control Unit Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check terminals and connector of 4WD 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.

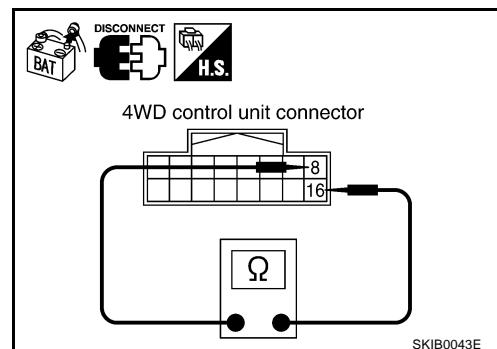
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect 4WD control unit connector.
2. Check resistance between 4WD control unit harness connector M107 terminals 8 (W) and 16 (R).

**8 (W) - 16 (R)** : Approx. 54 - 66  $\Omega$

### OK or NG

OK >> Replace 4WD control unit.  
 NG >> Repair harness between 4WD control unit and combination meter.



EKS00LU6

## Combination Meter Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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.

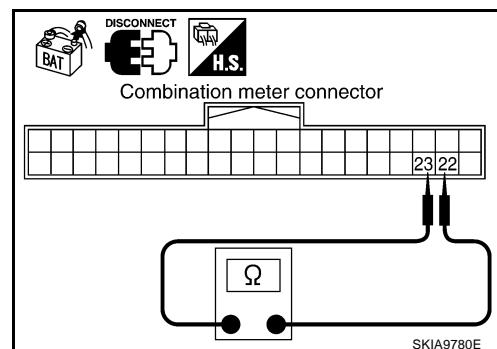
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M44 terminals 22 (W) and 23 (R).

**22 (W) - 23 (R)** : Approx. 108 - 132  $\Omega$

### OK or NG

OK >> Replace combination meter.  
 NG >> Repair harness between combination meter and 4WD control unit.



EKS00LU7

## CAN Communication Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side, control unit side, meter side, connector side and harness side).
  - ECM
  - ABS actuator and electric unit (control unit)
  - 4WD control unit
  - Combination meter
  - Between ECM and combination meter

### OK or NG

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

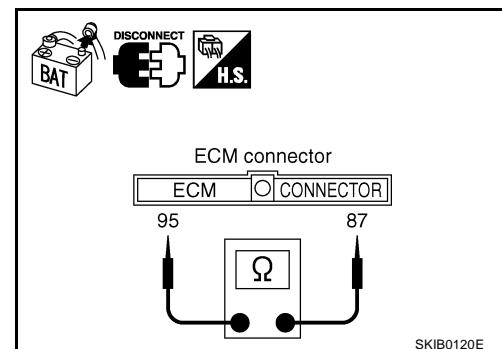
## 2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector M75.
2. Check continuity between ECM harness connector M118 terminals 95 (G/R) and 87 (GY/R).

**95 (G/R) - 87 (GY/R)** : Continuity should not exist.

OK or NG

OK >> GO TO 3.  
NG >> Repair harness between ECM and harness connector M75.



## 3. CHECK HARNESS FOR SHORT CIRCUIT

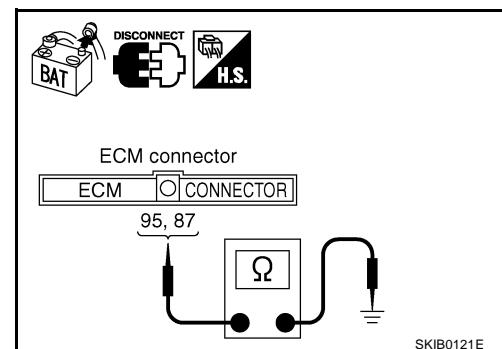
Check continuity between ECM harness connector M118 terminals 95 (G/R), 87 (GY/R) and ground.

**95 (G/R) - Ground** : Continuity should not exist.

**87 (GY/R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 4.  
NG >> Repair harness between ECM and harness connector M75.



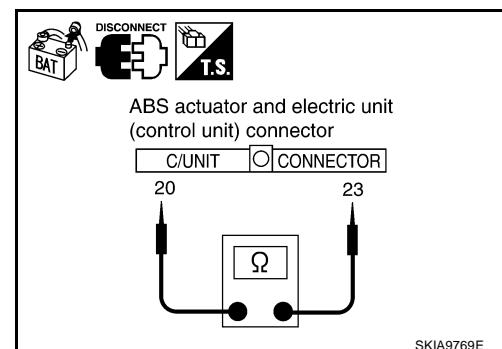
## 4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W) and 23 (R).

**20 (W) - 23 (R)** : Continuity should not exist.

OK or NG

OK >> GO TO 5.  
NG >> Repair harness between ABS actuator and electric unit (control unit) and harness connector E116.



## 5. CHECK HARNESS FOR SHORT CIRCUIT

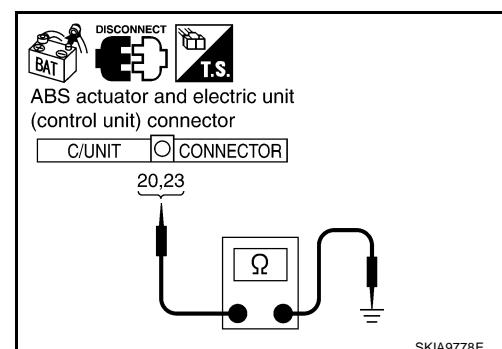
Check continuity between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W), 23 (R) and ground.

**20 (W) - Ground** : Continuity should not exist.

**23 (R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 6.  
NG >> Repair harness between ABS actuator and electric unit (control unit) and harness connector E116.



## 6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect 4WD control unit connector and combination meter connector.
2. Check continuity between combination meter harness connector M44 terminals 22 (W) and 23 (R).

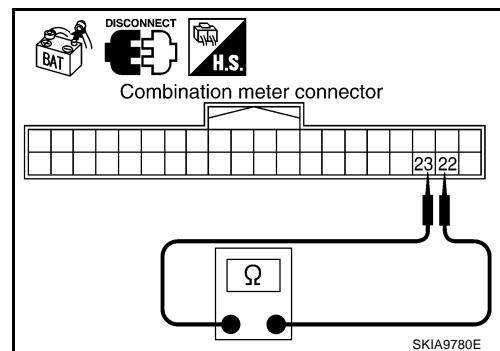
**22 (W) - 23 (R)** : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Check the following harness. If any harness is damaged, repair the harness.

- Harness between combination meter and 4WD control unit
- Harness between combination meter and harness connector M75



## 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between combination meter harness connector M44 terminals 22 (W), 23 (R) and ground.

**22 (W) - Ground** : Continuity should not exist.

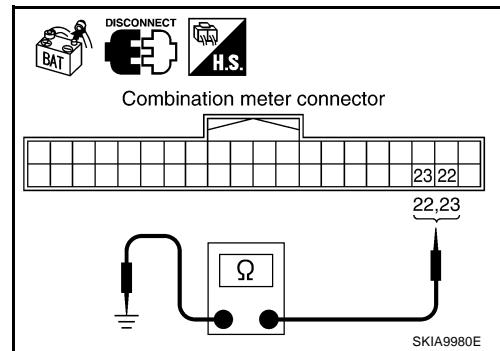
**23 (R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Check the following harness. If any harness is damaged, repair the harness.

- Harness between combination meter and 4WD control unit
- Harness between combination meter and harness connector M75



## 8. CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT

Check components inspection. Refer to [LAN-26, "CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT"](#).

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to [LAN-14, "Work Flow"](#).

NG >> Replace ECM and/or combination meter.

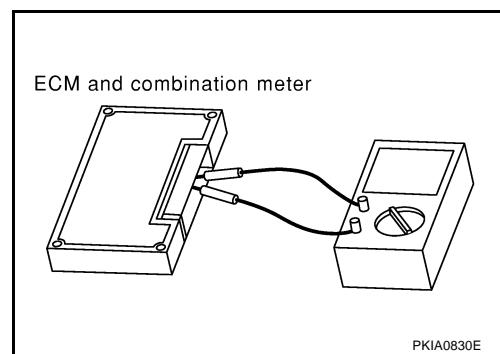
### Component Inspection

#### CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT

EKS00LU8

- Remove ECM and combination meter from vehicle.
- Check resistance between ECM terminals 95 and 87.
- Check resistance between combination meter terminals 22 and 23.

Unit	Terminal	Resistance ( $\Omega$ ) (Approx.)
ECM	95 - 87	108 - 132
Combination meter	22 - 23	



### CAN SYSTEM (TYPE 2)

PFP:23710

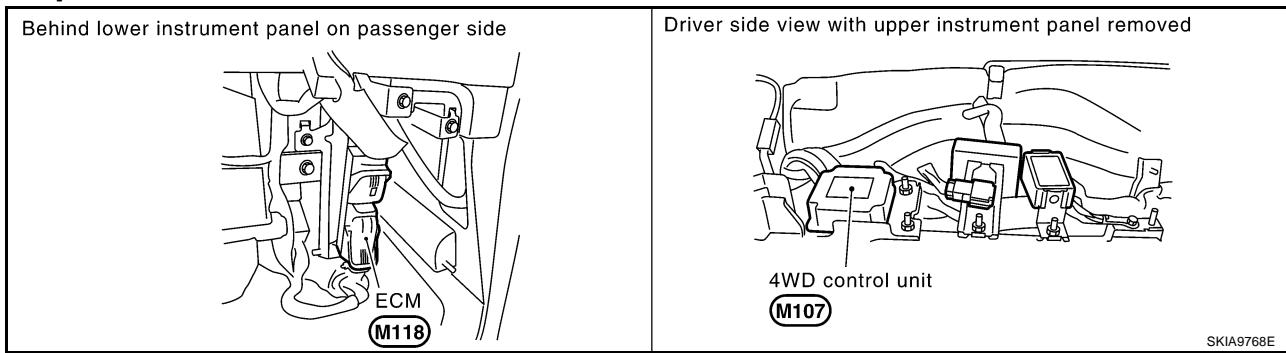
#### System Description

EKS00LU9

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

EKS00LU8



SKIA9768E

A

B

C

D

E

F

G

H

I

J

LAN

L

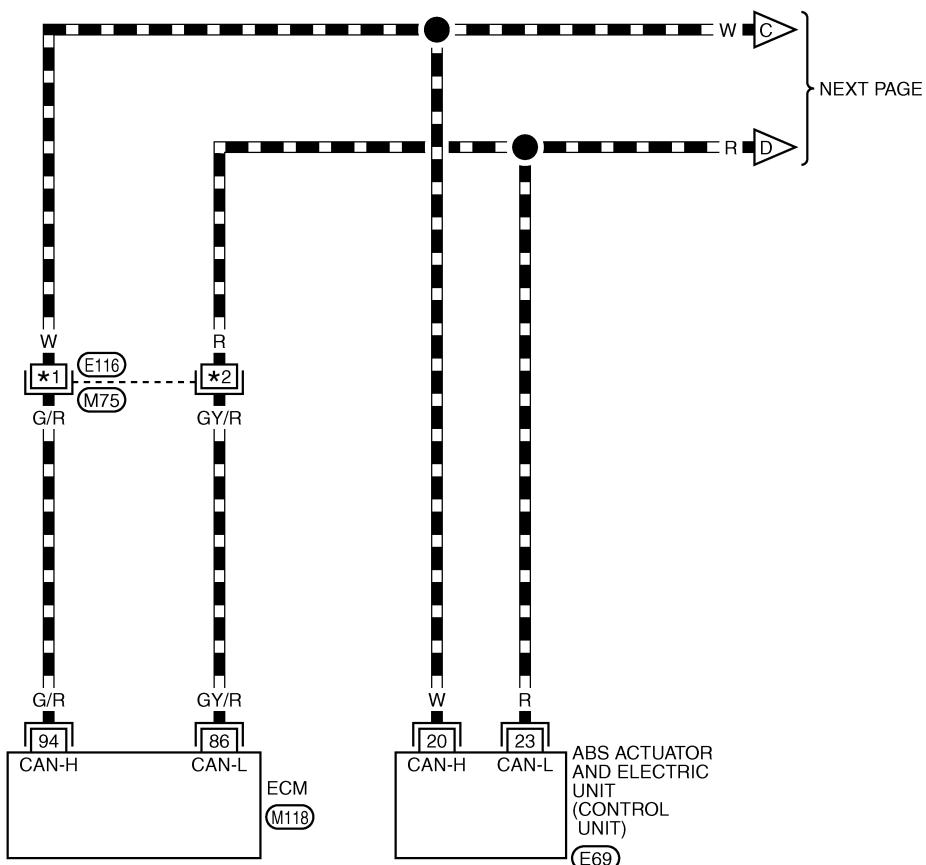
M

## Wiring Diagram — CAN —

EKS001UB

LAN-CAN-03

- : DATA LINE
- ◀ : LHD MODELS
- ▶ : RHD MODELS
- \*1 13 : ◀
- 10 : ▶
- \*2 4 : ◀
- 3 : ▶



1	2	3	4	5		6	7	8	9	
10	11	12	13	14	15	16	17	18	19	20

(M75) : ◀  
BR

1	2	3		4	5	6	7	
8	9	10	11	12	13	14	15	16

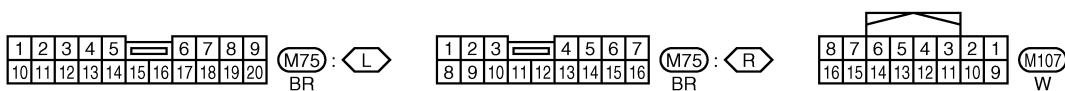
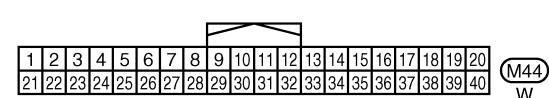
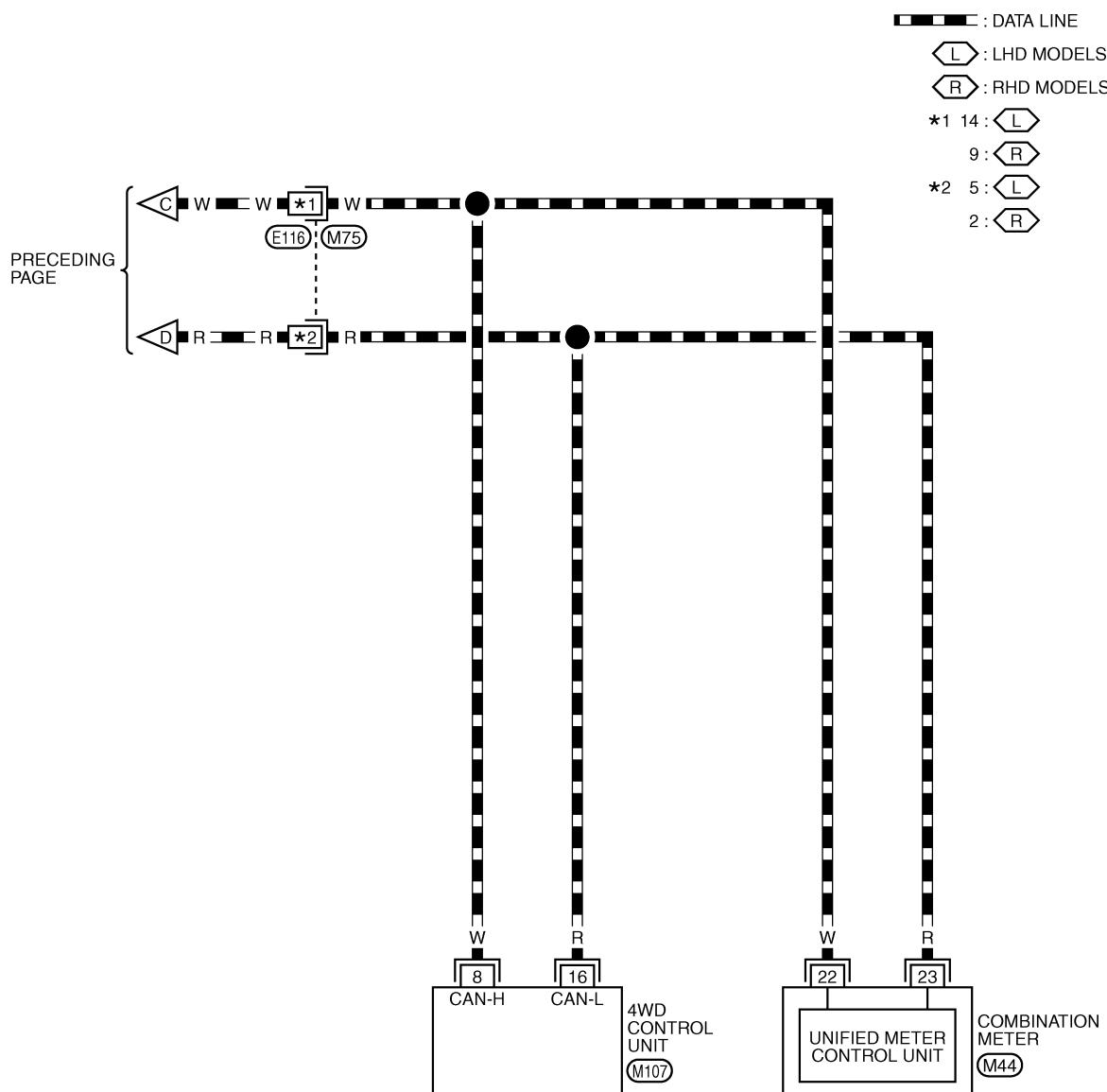
(M75) : ▶  
BR

REFER TO THE FOLLOWING.  
 (M118), (E69) -ELECTRICAL  
 UNITS

# CAN SYSTEM (TYPE 2)

[CAN]

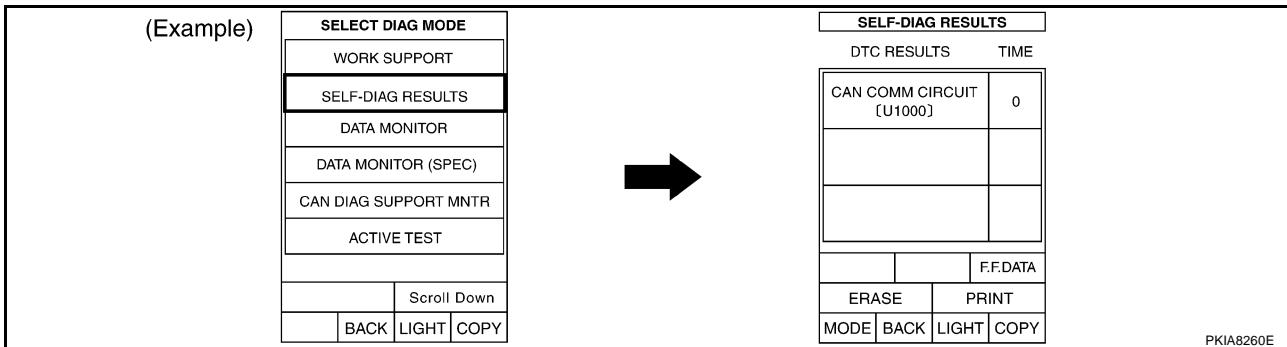
LAN-CAN-04



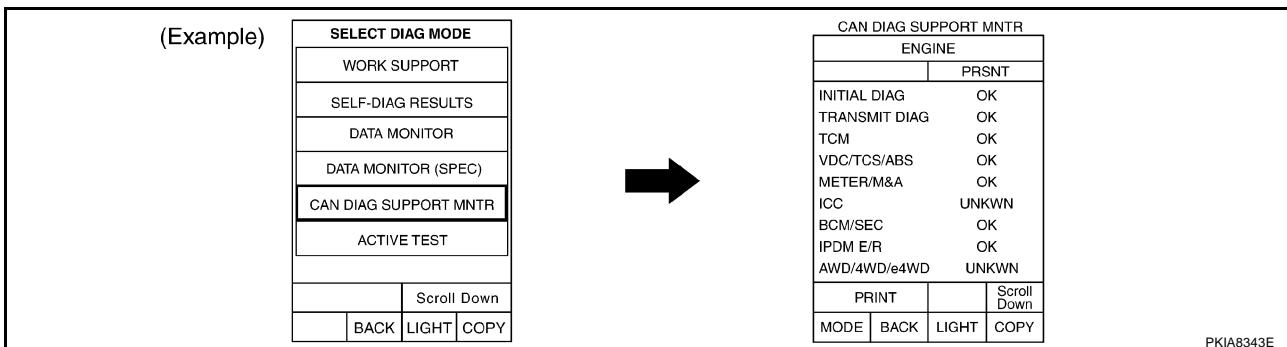
## Work Flow

EKS001UC

- Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "ABS" and "ALL MODE AWD/4WD" displayed on CONSULT-II.



- Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "ABS" and "ALL MODE AWD/4WD" displayed on CONSULT-II.



- Attach the printed sheet of "SELF-DIAG RESULTS" and "CAN DIAG SUPPORT MNTR" onto the check sheet. Refer to [LAN-31, "CHECK SHEET"](#).
- Based on the results of "CAN DIAG SUPPORT MNTR", put a check marks onto the items with "NG" or "UNKWN" in the check sheet table. Refer to [LAN-31, "CHECK SHEET"](#).

**NOTE:**

- If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.
- The "CAN DIAG SUPPORT MNTR" items, which are not in check sheet table, are not related to diagnostic procedure on service manual.  
So it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.

- According to the check sheet results (example), start inspection. Refer to [LAN-32, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

# CAN SYSTEM (TYPE 2)

[CAN]

## CHECK SHEET

### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

Check sheet table

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	VDC/TCS/ABS	METER/M&A	
ENGINE	NG	UNKWN	—	—	UNKWN	
ABS	NG	UNKWN	UNKWN	—	—	
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—	

Symptoms:

Attach copy of  
ENGINE  
SELF-DIAG RESULTS

Attach copy of  
ABS  
SELF-DIAG RESULTS

Attach copy of  
ALL MODE AWD/4WD  
SELF-DIAG RESULTS

Attach copy of  
ENGINE  
CAN DIAG SUPPORT  
MNTR

Attach copy of  
ABS  
CAN DIAG SUPPORT  
MNTR

Attach copy of  
ALL MODE AWD/4WD  
CAN DIAG SUPPORT  
MNTR

A  
B  
C  
D  
E  
F  
G  
H  
I  
J

LAN  
L  
M

## CHECK SHEET RESULTS (EXAMPLE)

## NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

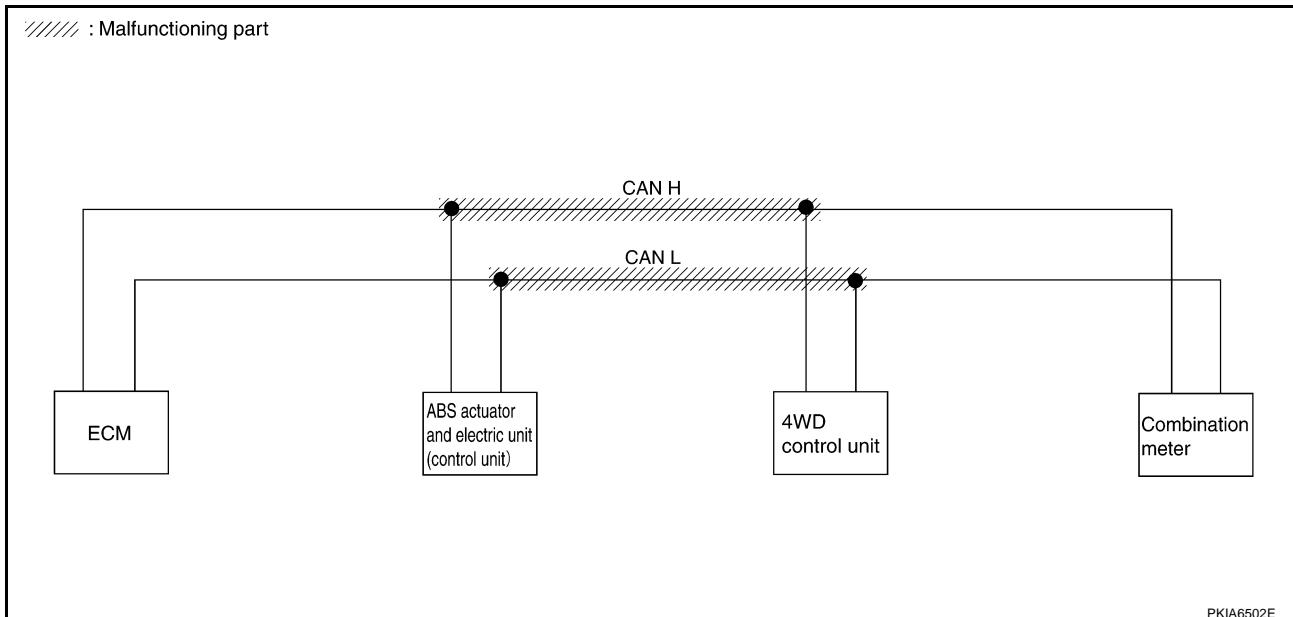
## Case 1

Check harness between ABS actuator and electric unit (control unit) and 4WD control unit. Refer to [LAN-37, "Inspection Between ABS Actuator and Electric Unit \(Control Unit\) and 4WD Control Unit Circuit"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR				
	Initial diagnosis	Transmit diagnosis	Receive diagnosis		
			ECM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—

PKIB9042E

//// : Malfunctioning part



PKIA6502E

## CAN SYSTEM (TYPE 2)

[CAN]

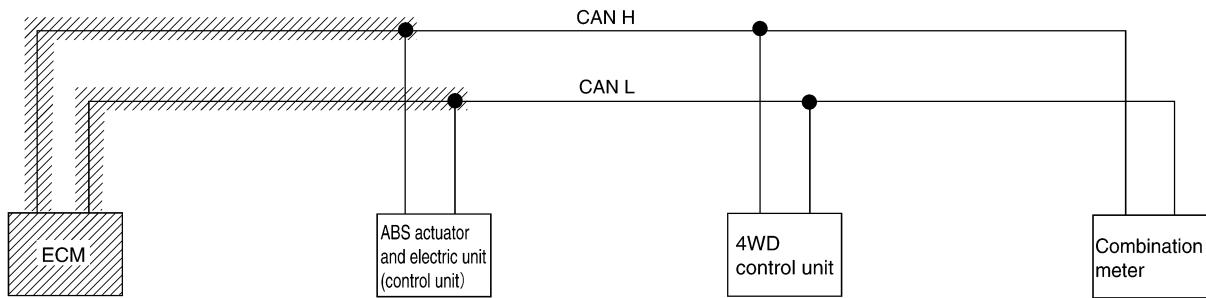
### Case 2

Check ECM circuit. Refer to [LAN-38, "ECM Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR				
	Initial diagnosis	Transmit diagnosis	Receive diagnosis		
			ECM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—

PKIB9043E

////// : Malfunctioning part



PKIA6503E

LAN

## CAN SYSTEM (TYPE 2)

[CAN]

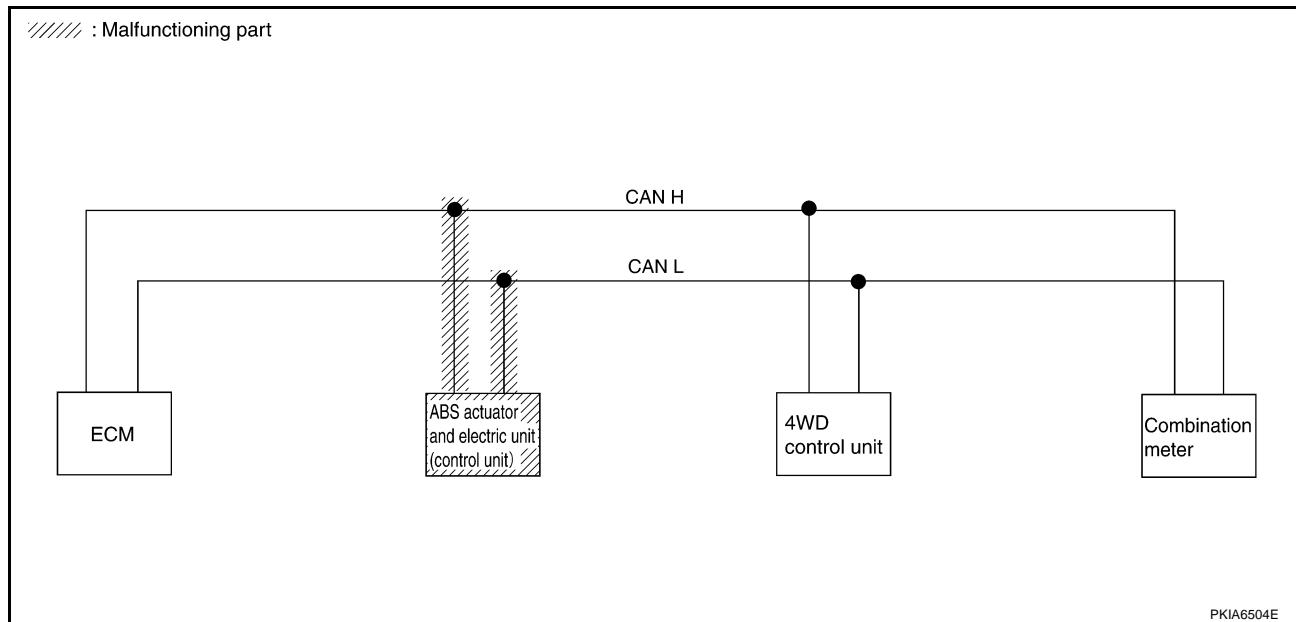
### Case 3

Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-39, "ABS Actuator and Electric Unit \(Control Unit\) Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	VDC/TCS/ABS	METER/M&A	
ENGINE	NG	UNKWN	—	—	UNKWN	
ABS	NG	UNKWN	UNKWN	—	—	
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—	

PKIB9051E

////// : Malfunctioning part



PKIA6504E

# CAN SYSTEM (TYPE 2)

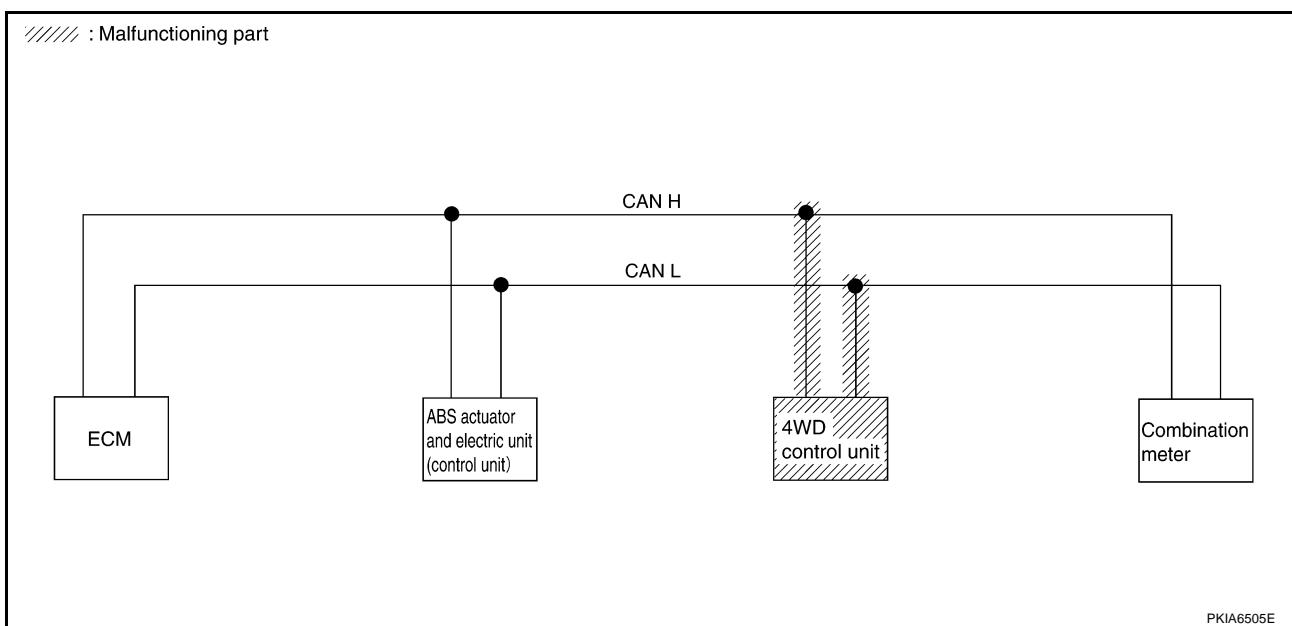
[CAN]

## Case 4

Check 4WD control unit circuit. Refer to [LAN-39, "4WD Control Unit Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR				
	Initial diagnosis	Transmit diagnosis	Receive diagnosis		
			ECM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—

PKIB9052E



## CAN SYSTEM (TYPE 2)

[CAN]

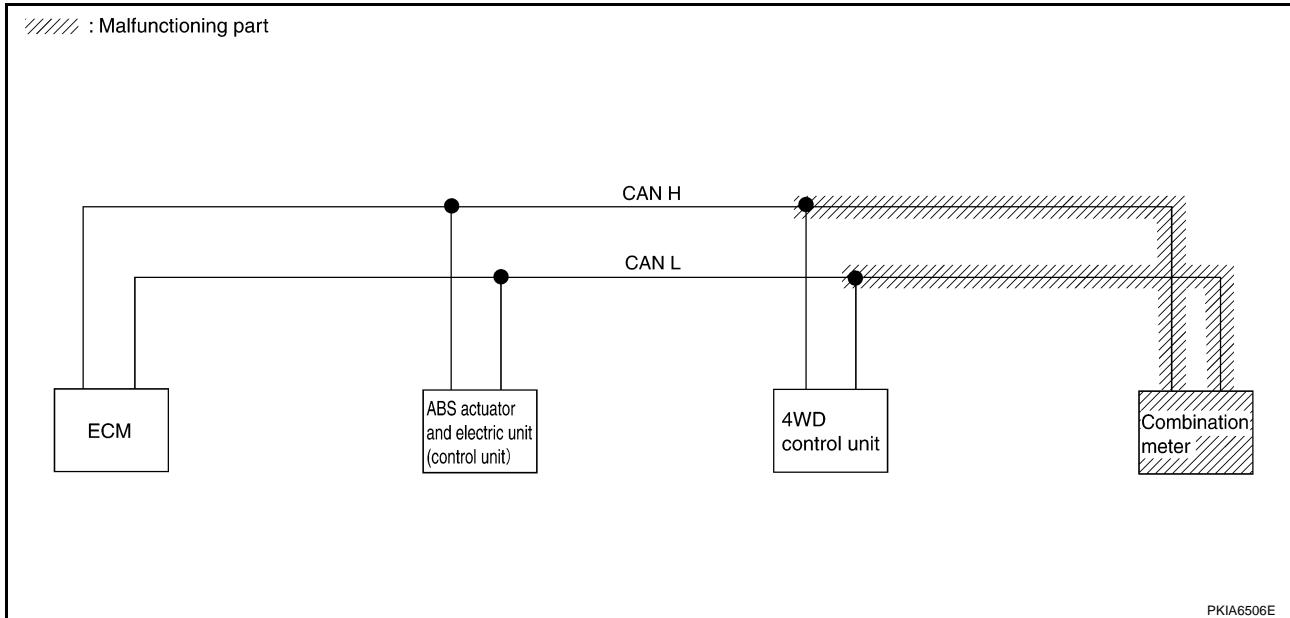
### Case 5

Check combination meter circuit. Refer to [LAN-40, "Combination Meter Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR				
	Initial diagnosis	Transmit diagnosis	Receive diagnosis		
			ECM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—

PKIB9046E

////// : Malfunctioning part



PKIA6506E

### Case 6

Check CAN communication circuit. Refer to [LAN-40, "CAN Communication Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR				
	Initial diagnosis	Transmit diagnosis	Receive diagnosis		
			ECM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—

PKIB9054E

## Inspection Between ABS Actuator and Electric Unit (Control Unit) and 4WD Control Unit Circuit

EKS00LUD

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E116
  - Harness connector M75

#### OK or NG

OK &gt;&gt; GO TO 2.

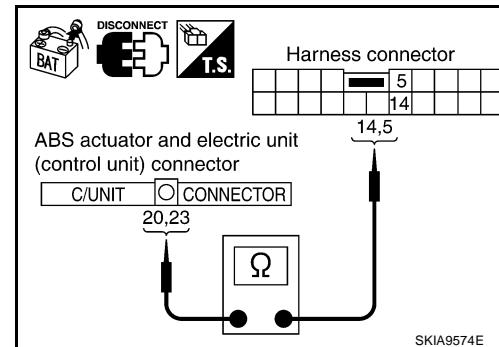
NG &gt;&gt; Repair terminal or connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and harness connector E116.
2. Check the following.
  - LHD models
  - Check continuity between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W), 23 (R) and harness connector E116 terminals 14 (W), 5 (R).

20 (W) - 14 (W) : Continuity should exist.

23 (R) - 5 (R) : Continuity should exist.



- RHD models
- Check continuity between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W), 23 (R) and harness connector E116 terminals 9 (W), 2 (R).

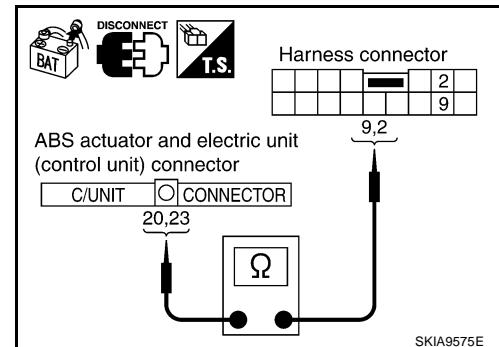
20 (W) - 9 (W) : Continuity should exist.

23 (R) - 2 (R) : Continuity should exist.

#### OK or NG

OK &gt;&gt; GO TO 3.

NG &gt;&gt; Repair harness.



### 3. CHECK HARNESS FOR OPEN CIRCUIT

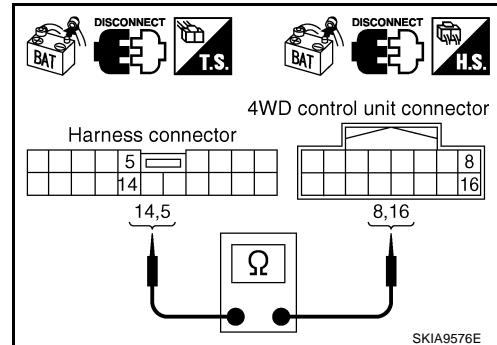
1. Disconnect 4WD control unit connector.
2. Check the following.
  - LHD models
  - Check continuity between harness connector M75 terminals 14 (W), 5 (R) and 4WD control unit harness connector M107 terminals 8 (W), 16 (R).

**14 (W) - 8 (W)**

**: Continuity should exist.**

**5 (R) - 16 (R)**

**: Continuity should exist.**



- RHD models
- Check continuity between harness connector M75 terminals 9 (W), 2 (R) and 4WD control unit harness connector M107 terminals 8 (W), 16 (R).

**9 (W) - 8 (W)**

**: Continuity should exist.**

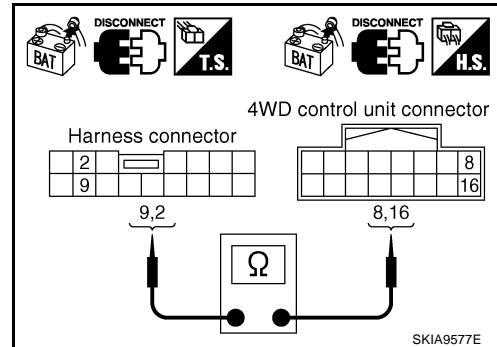
**2 (R) - 16 (R)**

**: Continuity should exist.**

OK or NG

OK      >> Connect all the connectors and diagnose again. Refer to [LAN-30, "Work Flow"](#).

NG      >> Repair harness.



### ECM Circuit Inspection

EKS001UE

#### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
  - ECM connector
  - Harness connector M75
  - Harness connector E116

OK or NG

OK      >> GO TO 2.

NG      >> Repair terminal or connector.

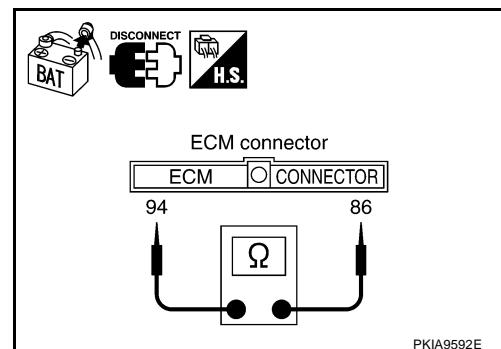
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector M118 terminals 94 (G/R) and 86 (GY/R).

**94 (G/R) - 86 (GY/R)** : Approx. 108 - 132  $\Omega$

OK or NG

OK >> Replace ECM.  
NG >> Repair harness between ECM and ABS actuator and electric unit (control unit).



EKS001UF

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

### 1. CHECK CONNECTOR

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

OK or NG

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

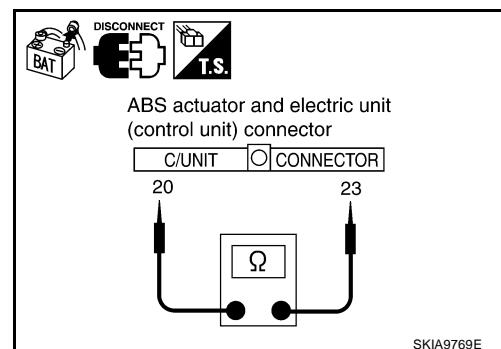
### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W) and 23 (R).

**20 (W) - 23 (R)** : Approx. 54 - 66  $\Omega$

OK or NG

OK >> Replace ABS actuator and electric unit (control unit).  
NG >> Repair harness between ABS actuator and electric unit (control unit) and harness connector E116.



EKS001UG

## 4WD Control Unit Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check terminals and connector of 4WD 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.

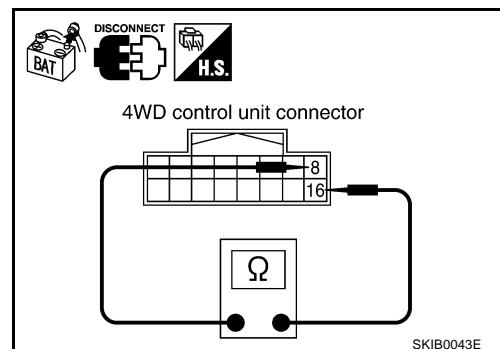
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect 4WD control unit connector.
2. Check resistance between 4WD control unit harness connector M107 terminals 8 (W) and 16 (R).

**8 (W) - 16 (R)** : Approx. 54 - 66  $\Omega$

### OK or NG

OK >> Replace 4WD control unit.  
 NG >> Repair harness between 4WD control unit and combination meter.



EKS00LUH

## Combination Meter Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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.

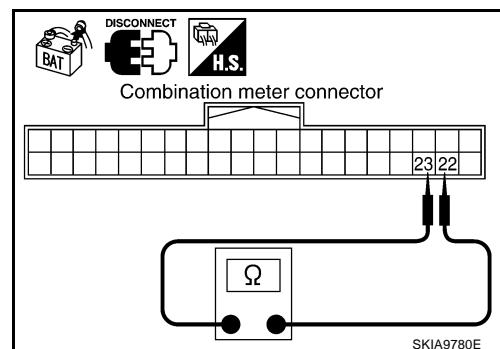
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M44 terminals 22 (W) and 23 (R).

**22 (W) - 23 (R)** : Approx. 108 - 132  $\Omega$

### OK or NG

OK >> Replace combination meter.  
 NG >> Repair harness between combination meter and 4WD control unit.



EKS00LUI

## CAN Communication Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side, control unit side, meter side, connector side and harness side).
  - ECM
  - ABS actuator and electric unit (control unit)
  - 4WD control unit
  - Combination meter
  - Between ECM and combination meter

### OK or NG

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

## 2. CHECK HARNESS FOR SHORT CIRCUIT

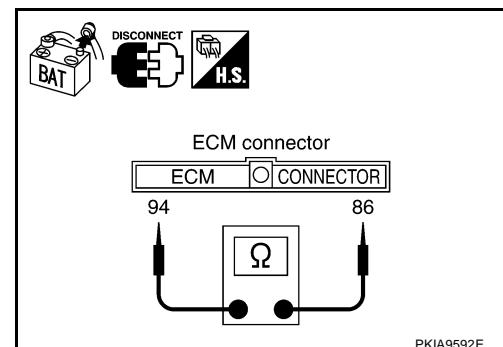
1. Disconnect ECM connector and harness connector M75.
2. Check continuity between ECM harness connector M118 terminals 94 (G/R) and 86 (GY/R).

**94 (G/R) - 86 (GY/R)** : Continuity should not exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness between ECM and harness connector M75.



## 3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector M118 terminals 94 (G/R), 86 (GY/R) and ground.

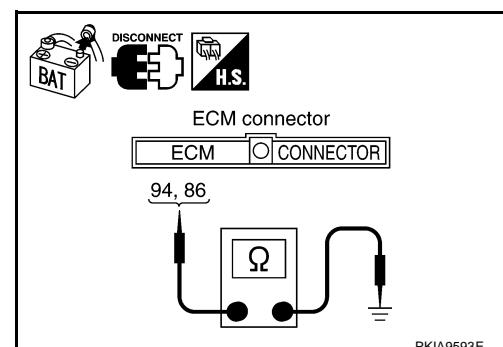
**94 (G/R) - Ground** : Continuity should not exist.

**86 (GY/R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector M75.



## 4. CHECK HARNESS FOR SHORT CIRCUIT

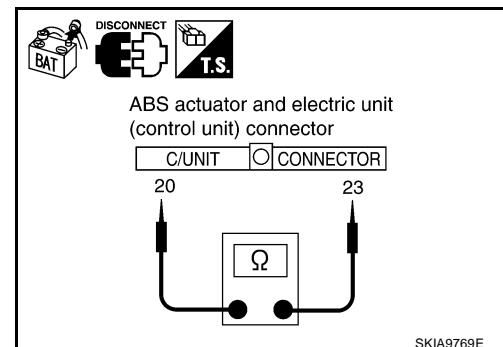
1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W) and 23 (R).

**20 (W) - 23 (R)** : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Repair harness between ABS actuator and electric unit (control unit) and harness connector E116.



## 5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W), 23 (R) and ground.

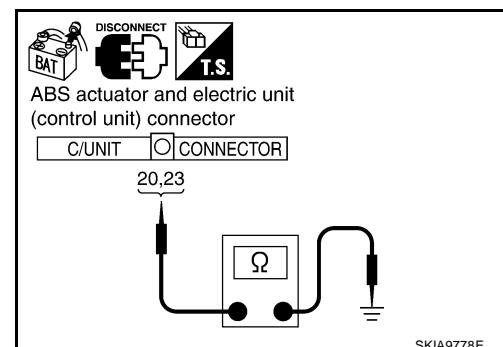
**20 (W) - Ground** : Continuity should not exist.

**23 (R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> Repair harness between ABS actuator and electric unit (control unit) and harness connector E116.



## 6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect 4WD control unit connector and combination meter connector.
2. Check continuity between combination meter harness connector M44 terminals 22 (W) and 23 (R).

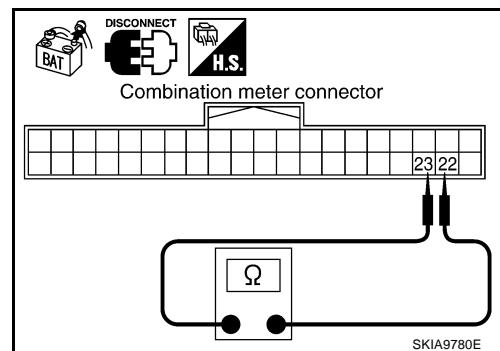
**22 (W) - 23 (R)** : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Check the following harness. If any harness is damaged, repair the harness.

- Harness between combination meter and 4WD control unit
- Harness between combination meter and harness connector M75



## 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between combination meter harness connector M44 terminals 22 (W), 23 (R) and ground.

**22 (W) - Ground** : Continuity should not exist.

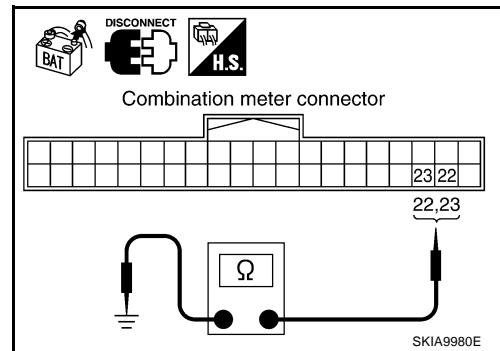
**23 (R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Check the following harness. If any harness is damaged, repair the harness.

- Harness between combination meter and 4WD control unit
- Harness between combination meter and harness connector M75



## 8. CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT

Check components inspection. Refer to [LAN-42, "CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT"](#).

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to [LAN-30, "Work Flow"](#).

NG >> Replace ECM and/or combination meter.

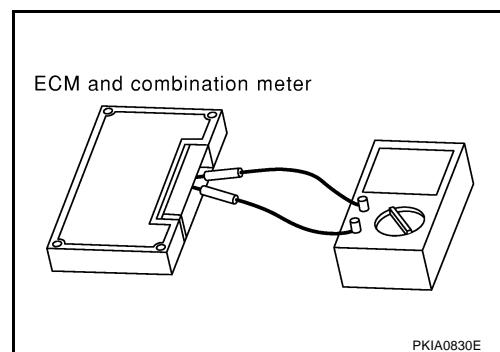
### Component Inspection

#### CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT

EKS00LUJ

- Remove ECM and combination meter from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between combination meter terminals 22 and 23.

Unit	Terminal	Resistance ( $\Omega$ ) (Approx.)
ECM	94 - 86	108 - 132
Combination meter	22 - 23	



### CAN SYSTEM (TYPE 3)

PFP:23710

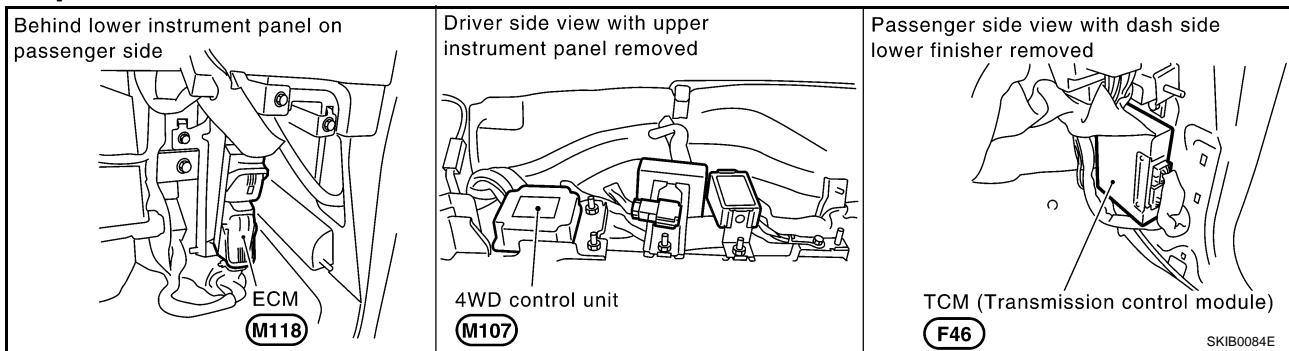
#### System Description

EKS001UK

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

EKS001UL



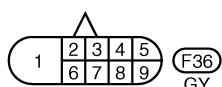
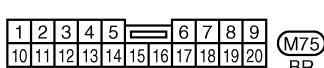
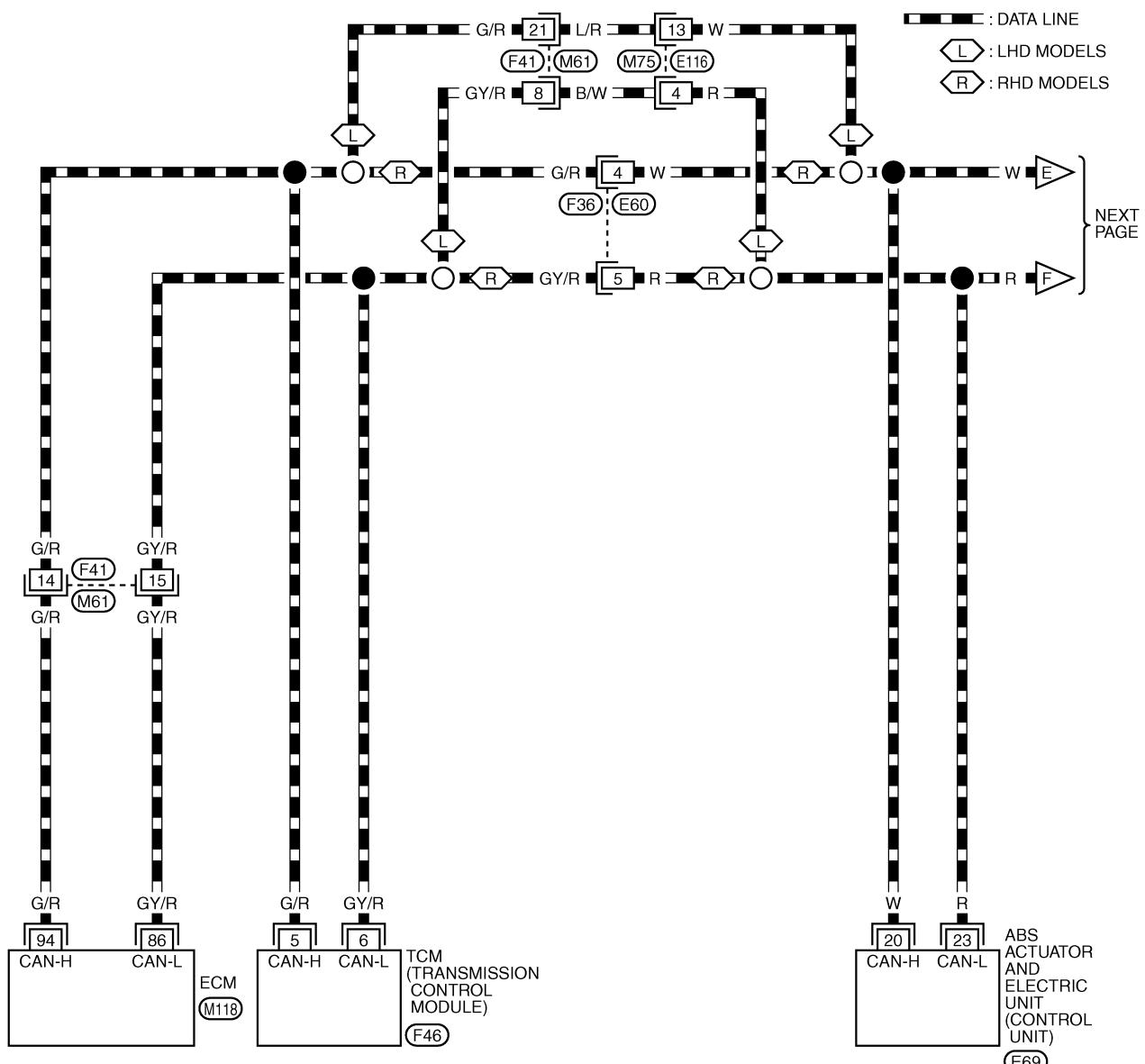
# CAN SYSTEM (TYPE 3)

[CAN]

## Wiring Diagram — CAN —

EKS0010UM

LAN-CAN-05



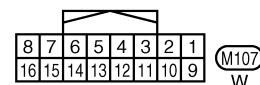
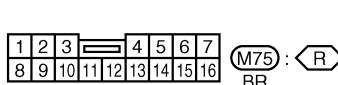
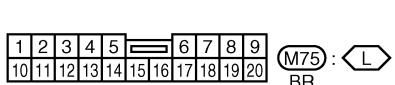
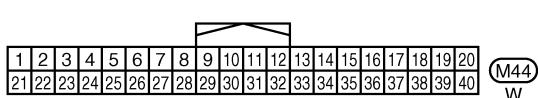
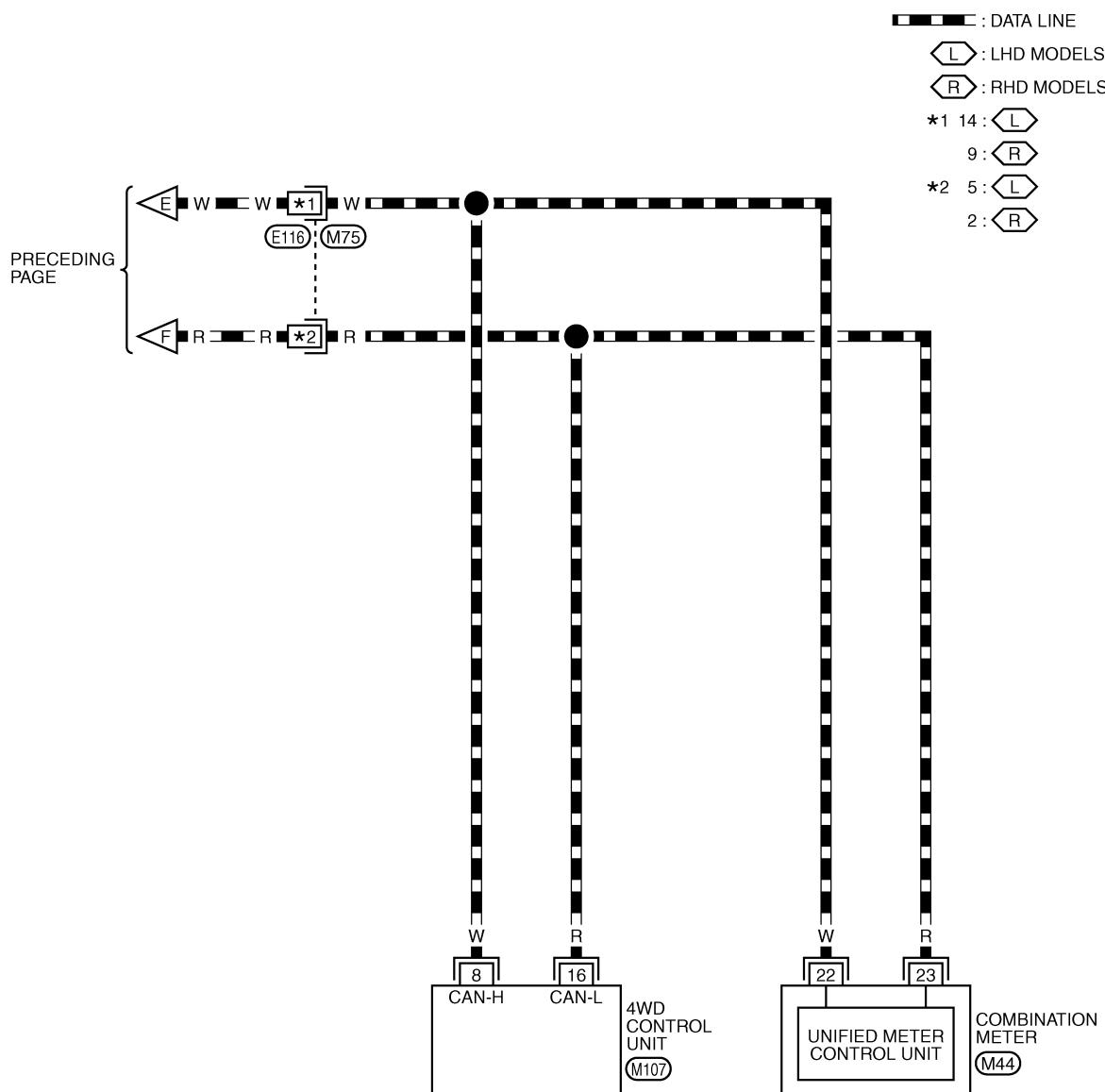
REFER TO THE FOLLOWING.  
 (M118), (E69), (F46)  
 -ELECTRICAL UNITS

TKWB1672E

# CAN SYSTEM (TYPE 3)

[CAN]

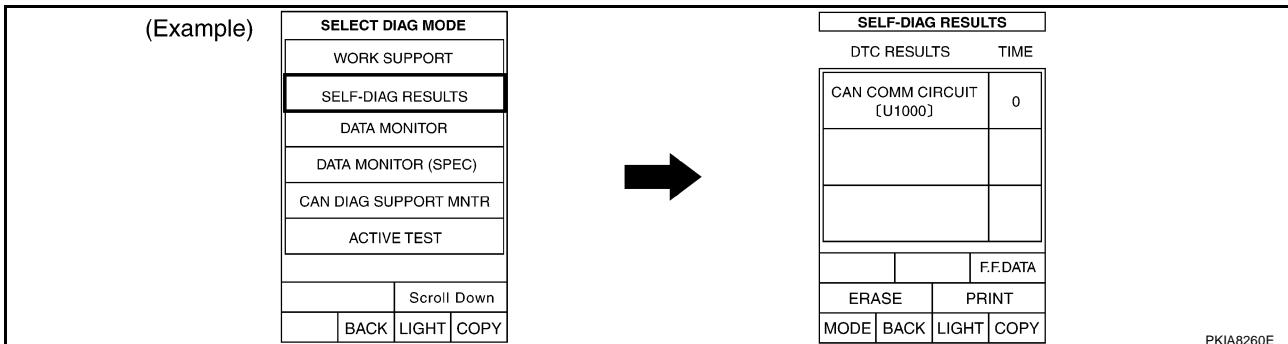
LAN-CAN-06



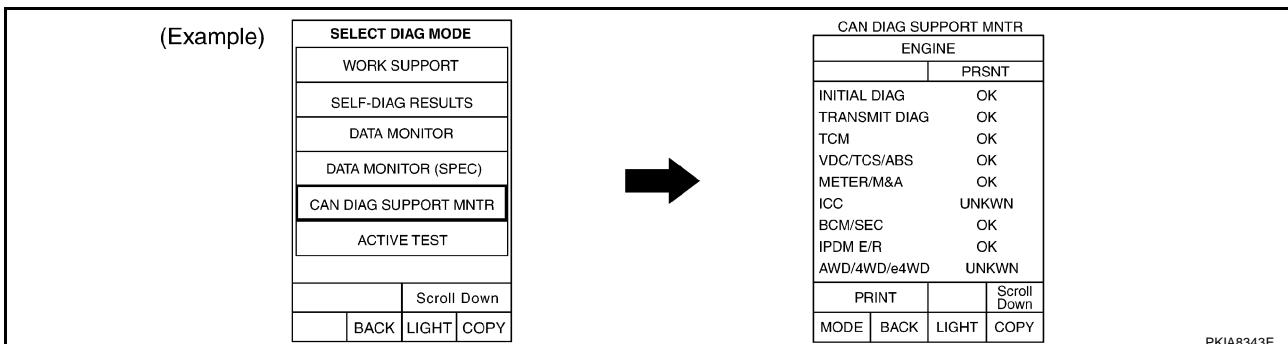
## Work Flow

EKSÖOLUN

1. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "A/T", "ABS" and "ALL MODE AWD/4WD" displayed on CONSULT-II.



2. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "A/T", "ABS" and "ALL MODE AWD/4WD" 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-47, "CHECK SHEET"](#) .
4. Based on the results of "CAN DIAG SUPPORT MNTR", put a check marks onto the items with "NG" or "UNKWN" in the check sheet table. Refer to [LAN-47, "CHECK SHEET"](#) .

**NOTE:**

- If a check mark is put on “NG” on “INITIAL DIAG (Initial diagnosis)”, 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-48, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

# CAN SYSTEM (TYPE 3)

[CAN]

## CHECK SHEET

### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

Check sheet table

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	TCM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	UNKWN
A/T	NG	UNKWN	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	—	UNKWN	—

Symptoms:

Attach copy of  
ENGINE  
SELF-DIAG RESULTS

Attach copy of  
A/T  
SELF-DIAG RESULTS

Attach copy of  
ABS  
SELF-DIAG RESULTS

Attach copy of  
ALL MODE AWD/4WD  
SELF-DIAG RESULTS

Attach copy of  
ENGINE  
CAN DIAG SUPPORT  
MNTR

Attach copy of  
A/T  
CAN DIAG SUPPORT  
MNTR

Attach copy of  
ABS  
CAN DIAG SUPPORT  
MNTR

Attach copy of  
ALL MODE AWD/4WD  
CAN DIAG SUPPORT  
MNTR

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PKIB9055E

## CHECK SHEET RESULTS (EXAMPLE)

## NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

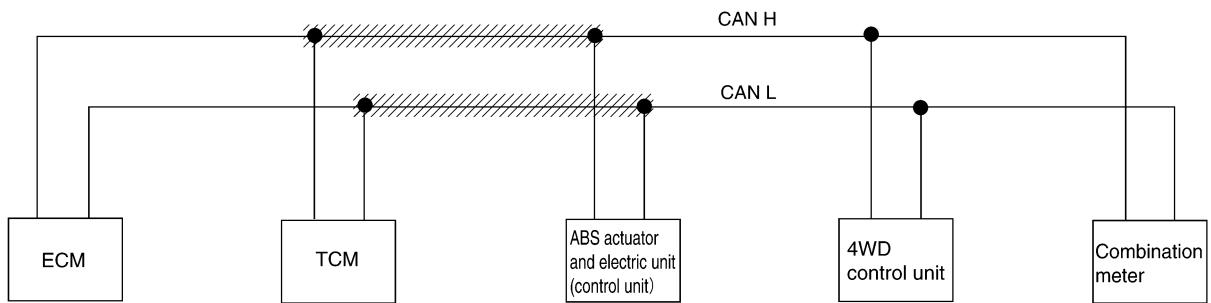
## Case 1

Check harness between TCM and ABS actuator and electric unit (control unit). Refer to [LAN-55, "Inspection Between TCM and ABS Actuator and Electric Unit \(Control Unit\) Circuit"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	TCM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	UNKWN
A/T	NG	UNKWN	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	—	UNKWN	—

PKIB9056E

////// : Malfunctioning part



PKIA6495E

# CAN SYSTEM (TYPE 3)

[CAN]

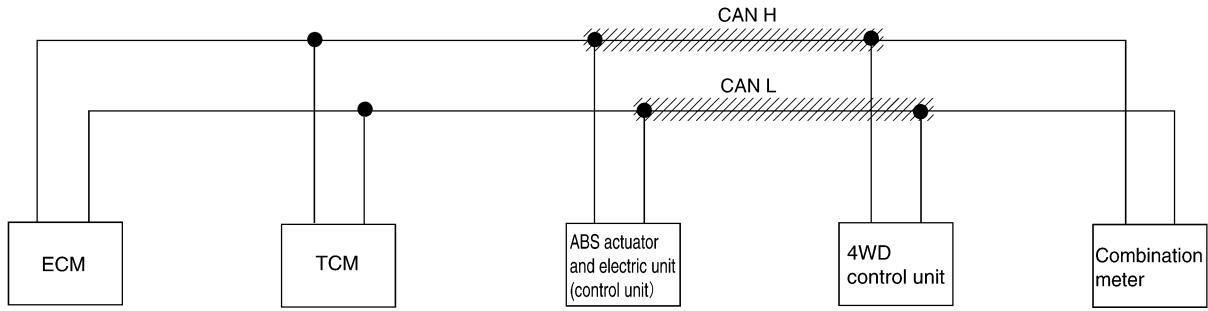
## Case 2

Check harness between ABS actuator and electric unit (control unit) and 4WD control unit. Refer to [LAN-57, "Inspection Between ABS Actuator and Electric Unit \(Control Unit\) and 4WD Control Unit Circuit"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	TCM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	UNKWN
A/T	NG	UNKWN	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	—	UNKWN	—

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////// : Malfunctioning part



PKIA6496E

# CAN SYSTEM (TYPE 3)

[CAN]

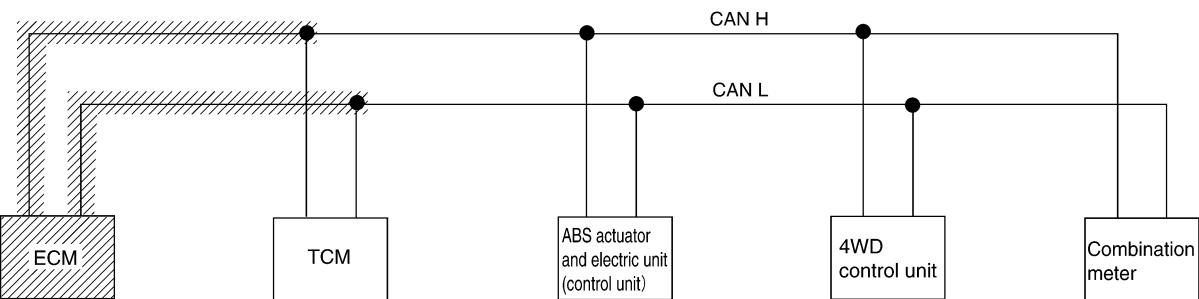
## Case 3

Check ECM circuit. Refer to [LAN-59, "ECM Circuit Inspection"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	TCM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	UNKWN
A/T	NG	UNKWN	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	—	UNKWN	—

PKIB9058E

////// : Malfunctioning part



PKIA6497E

# CAN SYSTEM (TYPE 3)

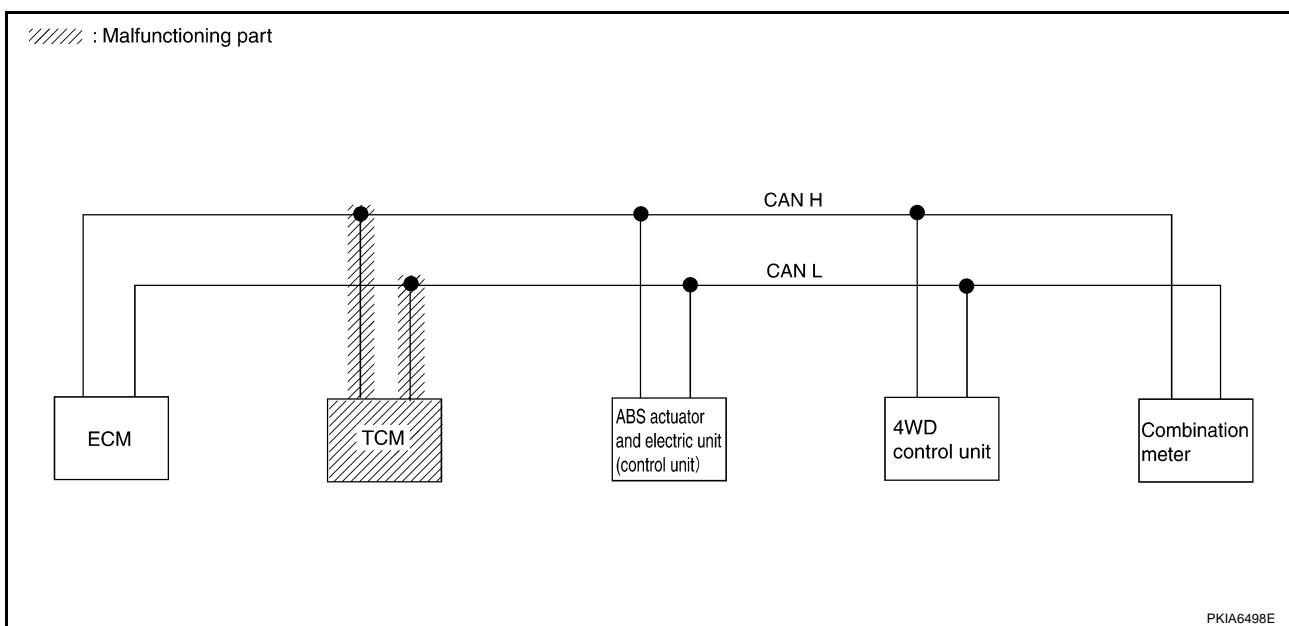
[CAN]

## Case 4

Check TCM circuit. Refer to [LAN-60, "TCM Circuit Inspection"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	TCM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	UNKWN
A/T	NG	UNKWN	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	—	UNKWN	—

PKIB9059E



PKIA6498E

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# CAN SYSTEM (TYPE 3)

[CAN]

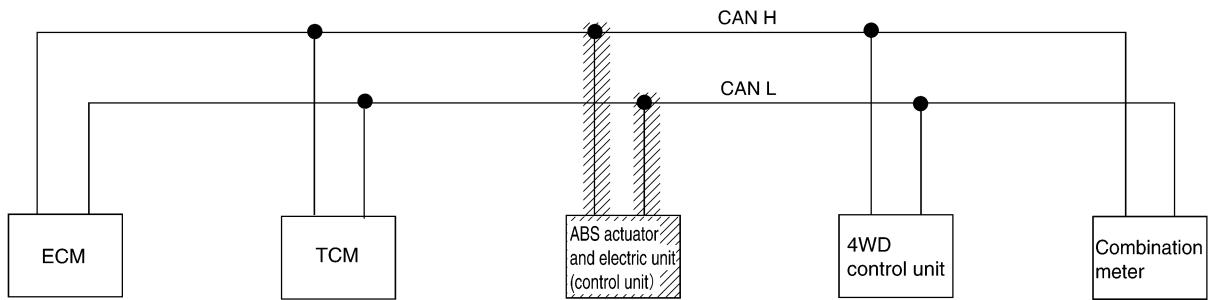
## Case 5

Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-60, "ABS Actuator and Electric Unit \(Control Unit\) Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	TCM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	UNKWN
A/T	NG	UNKWN	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	—	UNKWN	—

PKIB9060E

////// : Malfunctioning part



PKIA6499E

# CAN SYSTEM (TYPE 3)

[CAN]

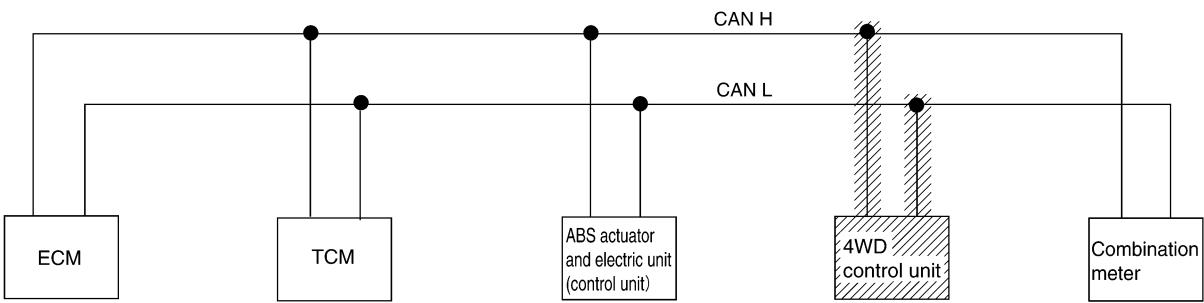
## Case 6

Check 4WD control unit circuit. Refer to [LAN-61, "4WD Control Unit Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	TCM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	UNKWN
A/T	NG	UNKWN	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	—	UNKWN	—

PKIB9061E

////// : Malfunctioning part



PKIA6500E

# CAN SYSTEM (TYPE 3)

[CAN]

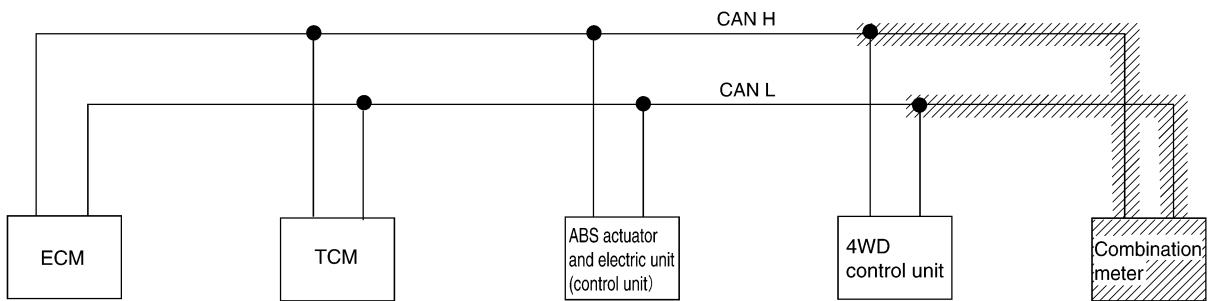
## Case 7

Check combination meter circuit. Refer to [LAN-61, "Combination Meter Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	TCM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	UNKWN
A/T	NG	UNKWN	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	—	UNKWN	—

PKIB9062E

////// : Malfunctioning part



PKIA6501E

## Case 8

Check CAN communication circuit. Refer to [LAN-62, "CAN Communication Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					
	Initial diagnosis	Transmit diagnosis	Receive diagnosis			
			ECM	TCM	VDC/TCS/ABS	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	UNKWN
A/T	NG	UNKWN	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	—	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	—	UNKWN	—

PKIB9063E

### Inspection Between TCM and ABS Actuator and Electric Unit (Control Unit) Circuit

EKS00LU0

#### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - LHD models
    - Harness connector F41
    - Harness connector M61
    - Harness connector M75
    - Harness connector E116
  - RHD models
    - Harness connector F36
    - Harness connector E60

#### OK or NG

OK      >> GO TO 2.

NG      >> Repair terminal or connector.

A

B

C

D

E

F

G

H

I

J

LAN

L

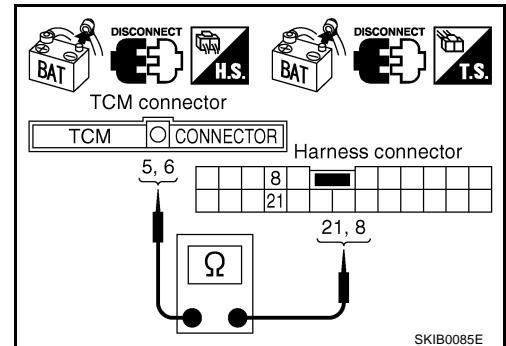
M

## 2. CHECK HARNESS FOR OPEN CIRCUIT

LHD models

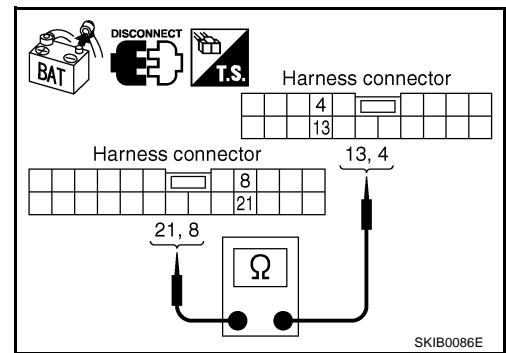
1. Disconnect TCM connector and harness connector F41.
2. Check continuity between TCM harness connector F46 terminals 5 (G/R), 6 (GY/R) and harness connector F41 terminals 21 (G/R), 8 (GY/R).

**5 (G/R) - 21 (G/R)** : Continuity should exist.  
**6 (GY/R) - 8 (GY/R)** : Continuity should exist.



3. Disconnect harness connector M75.
4. Check continuity between harness connector M61 terminals 21 (L/R), 8 (B/W) and harness connector M75 terminals 13 (L/R), 4 (B/W).

**21 (L/R) - 13 (L/R)** : Continuity should exist.  
**8 (B/W) - 4 (B/W)** : Continuity should exist.



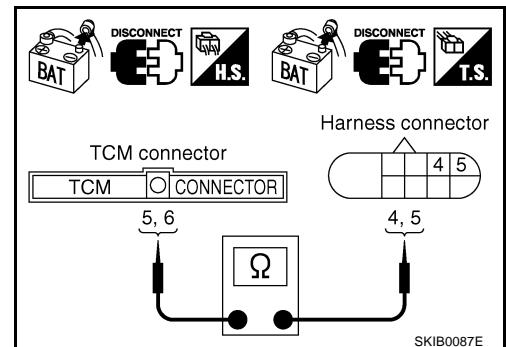
RHD models

1. Disconnect TCM connector and harness connector F36.
2. Check continuity between TCM harness connector F46 terminals 5 (G/R), 6 (GY/R) and harness connector F36 terminals 4 (G/R), 5 (GY/R).

**5 (G/R) - 4 (G/R)** : Continuity should exist.  
**6 (GY/R) - 5 (GY/R)** : Continuity should exist.

OK or NG

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



### 3. CHECK HARNESS FOR OPEN CIRCUIT

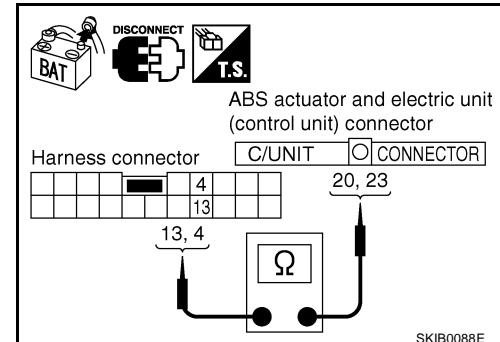
1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check the following.
  - LHD models
  - Check continuity between harness connector E116 terminals 13 (W), 4 (R) and ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W), 23 (R).

**13 (W) - 20 (W)**

**: Continuity should exist.**

**4 (R) - 23 (R)**

**: Continuity should exist.**



- RHD models
- Check continuity between harness connector E60 terminals 4 (W), 5 (R) and ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W), 23 (R).

**4 (W) - 20 (W)**

**: Continuity should exist.**

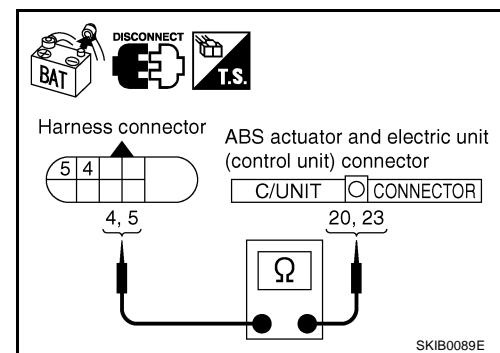
**5 (R) - 23 (R)**

**: Continuity should exist.**

#### OK or NG

OK      >> Connect all the connectors and diagnose again. Refer to [LAN-46, "Work Flow"](#).

NG      >> Repair harness.



## Inspection Between ABS Actuator and Electric Unit (Control Unit) and 4WD Control Unit Circuit

EKS00LUP

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E116
  - Harness connector M75

#### OK or NG

OK      >> GO TO 2.

NG      >> Repair terminal or connector.

LAN

L

M

## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and harness connector E116.

2. Check the following.

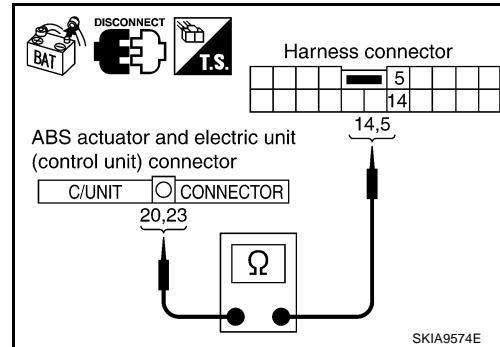
- LHD models
- Check continuity between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W), 23 (R) and harness connector E116 terminals 14 (W), 5 (R).

**20 (W) - 14 (W)**

**: Continuity should exist.**

**23 (R) - 5 (R)**

**: Continuity should exist.**



- RHD models

- Check continuity between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W), 23 (R) and harness connector E116 terminals 9 (W), 2 (R).

**20 (W) - 9 (W)**

**: Continuity should exist.**

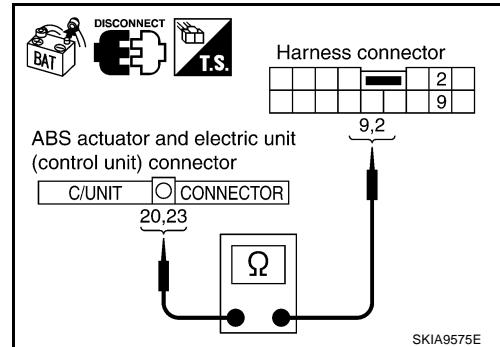
**23 (R) - 2 (R)**

**: Continuity should exist.**

OK or NG

OK      >> GO TO 3.

NG      >> Repair harness.



### 3. CHECK HARNESS FOR OPEN CIRCUIT

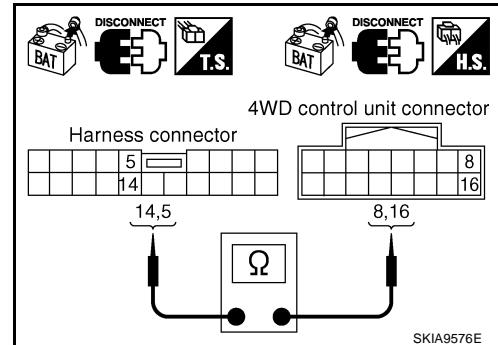
1. Disconnect 4WD control unit connector.
2. Check the following.
  - LHD models
  - Check continuity between harness connector M75 terminals 14 (W), 5 (R) and 4WD control unit harness connector M107 terminals 8 (W), 16 (R).

**14 (W) - 8 (W)**

: Continuity should exist.

**5 (R) - 16 (R)**

: Continuity should exist.



- RHD models
- Check continuity between harness connector M75 terminals 9 (W), 2 (R) and 4WD control unit harness connector M107 terminals 8 (W), 16 (R).

**9 (W) - 8 (W)**

: Continuity should exist.

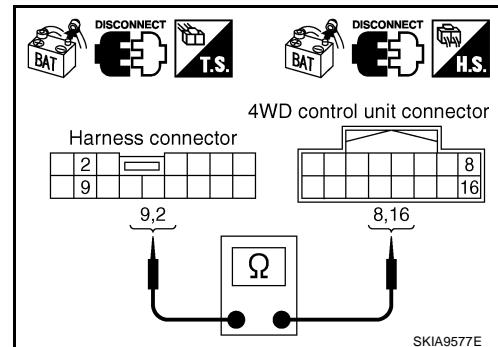
**2 (R) - 16 (R)**

: Continuity should exist.

#### OK or NG

OK      >> Connect all the connectors and diagnose again. Refer to [LAN-46, "Work Flow"](#).

NG      >> Repair harness.



### ECM Circuit Inspection

#### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
  - ECM connector
  - Harness connector M61
  - Harness connector F41

#### OK or NG

OK      >> GO TO 2.

NG      >> Repair terminal or connector.

A

B

C

D

E

F

G

H

I

J

L

M

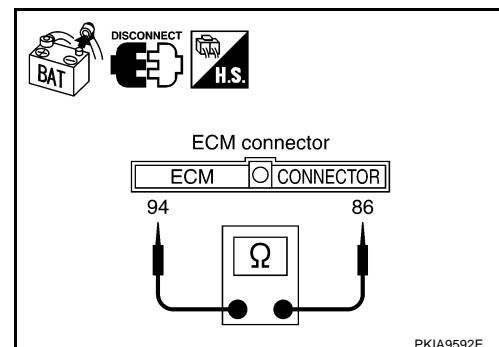
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector M118 terminals 94 (G/R) and 86 (GY/R).

**94 (G/R) - 86 (GY/R)** : Approx. 108 - 132  $\Omega$

OK or NG

OK >> Replace ECM.  
NG >> Repair harness between ECM and TCM.



EKS00LUR

## TCM Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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.

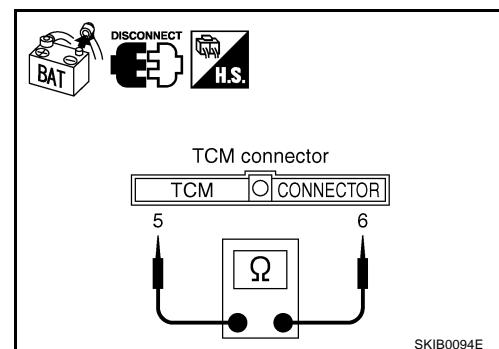
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F46 terminals 5 (G/R) and 6 (GY/R).

**5 (G/R) - 6 (GY/R)** : Approx. 54 - 66  $\Omega$

OK or NG

OK >> Replace TCM.  
NG >> ● LHD models  
- Repair harness between TCM and harness connector F41.  
● RHD models  
- Repair harness between TCM and harness connector F36.



SKIB0094E

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

EKS00LUS

### 1. CHECK CONNECTOR

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

OK or NG

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

## 2. CHECK HARNESS FOR OPEN CIRCUIT

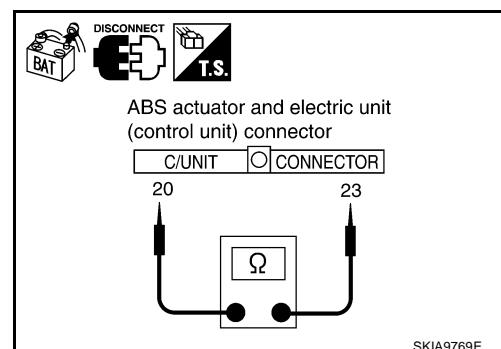
1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W) and 23 (R).

**20 (W) - 23 (R)**

**: Approx. 54 - 66 Ω**

### OK or NG

OK      >> Replace ABS actuator and electric unit (control unit).  
 NG      >> Repair harness between ABS actuator and electric unit (control unit) and harness connector E116.



EKS00LUT

## 4WD Control Unit Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check terminals and connector of 4WD 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

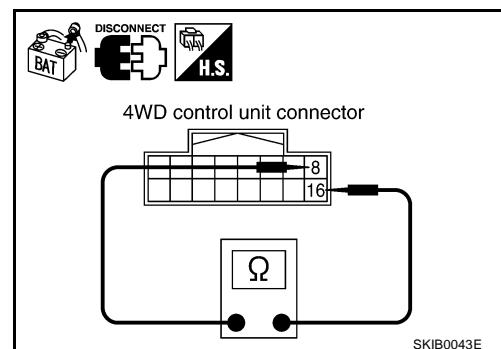
1. Disconnect 4WD control unit connector.
2. Check resistance between 4WD control unit harness connector M107 terminals 8 (W) and 16 (R).

**8 (W) - 16 (R)**

**: Approx. 54 - 66 Ω**

### OK or NG

OK      >> Replace 4WD control unit.  
 NG      >> Repair harness between 4WD control unit and combination meter.



EKS00LUU

## Combination Meter Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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 M44 terminals 22 (W) and 23 (R).

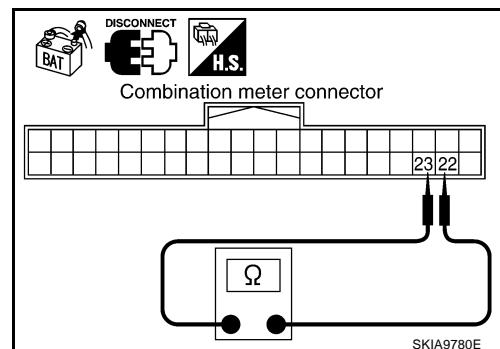
**22 (W) - 23 (R)**

: Approx. 108 - 132  $\Omega$

OK or NG

OK >> Replace combination meter.

NG >> Repair harness between combination meter and 4WD control unit.



EKS00UV

## CAN Communication Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side, control unit side, meter side, connector side and harness side).
  - ECM
  - TCM
  - ABS actuator and electric unit (control unit)
  - 4WD control unit
  - Combination meter
  - Between ECM and combination meter

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR SHORT CIRCUIT

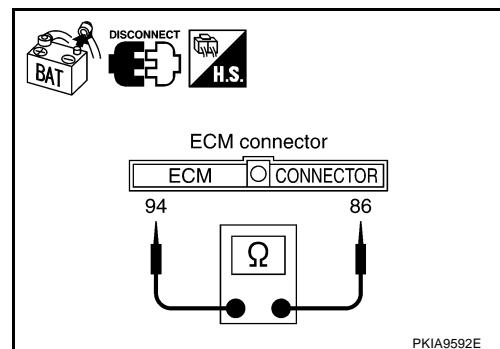
1. Disconnect ECM connector and harness connector M61.
2. Check continuity between ECM harness connector M118 terminals 94 (G/R) and 86 (GY/R).

**94 (G/R) - 86 (GY/R) : Continuity should not exist.**

OK or NG

OK >> GO TO 3.

NG >> Repair harness between ECM and harness connector M61.



### 3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector M118 terminals 94 (G/R), 86 (GY/R) and ground.

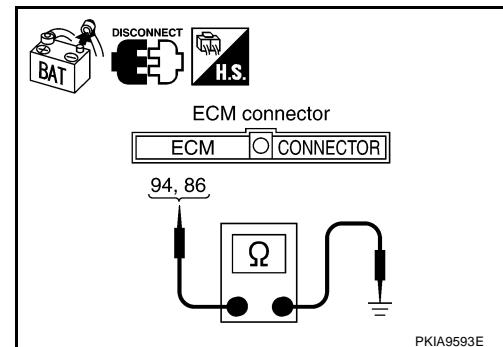
**94 (G/R) - Ground** : Continuity should not exist.

**86 (GY/R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector M61.

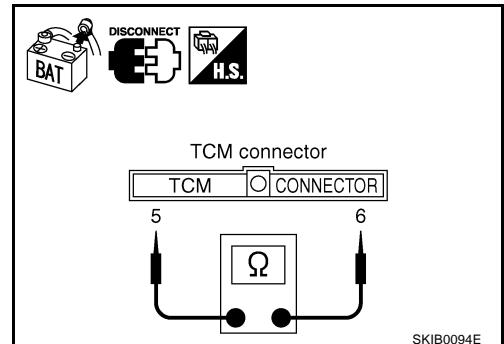


## 4. CHECK HARNESS FOR SHORT CIRCUIT

LHD models

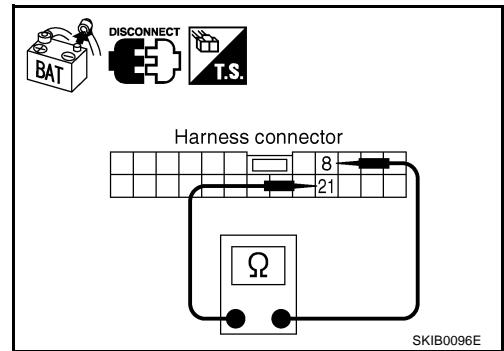
1. Disconnect TCM connector.
2. Check continuity between TCM harness connector F46 terminals 5 (G/R) and 6 (GY/R).

**5 (G/R) - 6 (GY/R)** : Continuity should not exist.



3. Disconnect harness connector M75.
4. Check continuity between harness connector M61 terminals 21 (L/R) and 8 (B/W).

**21 (L/R) - 8 (B/W)** : Continuity should not exist.



RHD models

1. Disconnect TCM connector and harness connector F36.
2. Check continuity between TCM harness connector F46 terminals 5 (G/R) and 6 (GY/R).

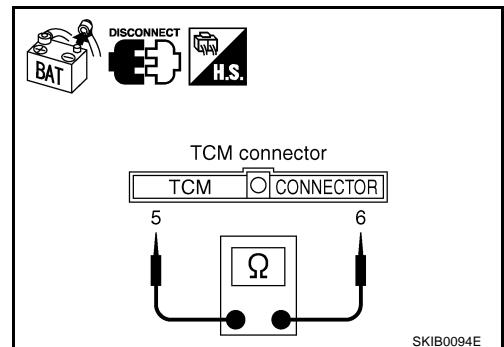
**5 (G/R) - 6 (GY/R)** : Continuity should not exist.

OK or NG

OK >> GO TO 5.  
NG >> ● LHD models

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

- Harness between TCM and harness connector F41
- Harness between harness connector M61 and harness connector M75
- RHD models
- Repair harness between TCM and harness connector F36.



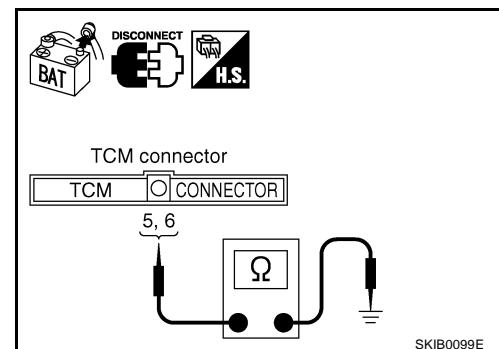
## 5. CHECK HARNESS FOR SHORT CIRCUIT

LHD models

1. Check continuity between TCM harness connector F46 terminals 5 (G/R), 6 (GY/R) and ground.

**5 (G/R) - Ground** : Continuity should not exist.

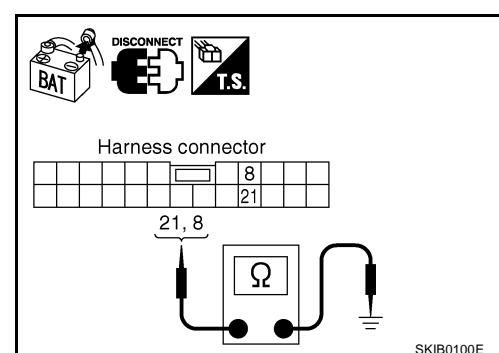
**6 (GY/R) - Ground** : Continuity should not exist.



2. Check continuity between harness connector M61 terminals 21 (L/R), 8 (B/W) and ground.

**21 (L/R) - Ground** : Continuity should not exist.

**8 (B/W) - Ground** : Continuity should not exist.



RHD models

- Check continuity between TCM harness connector F46 terminals 5 (G/R), 6 (GY/R) and ground.

**5 (G/R) - Ground** : Continuity should not exist.

**6 (GY/R) - Ground** : Continuity should not exist.

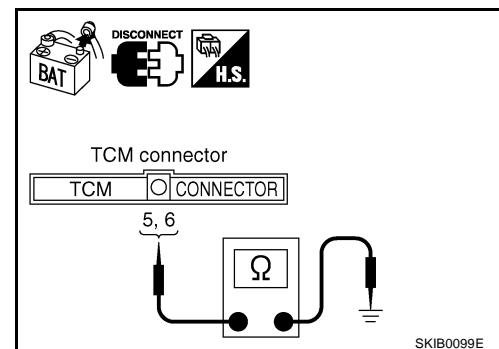
OK or NG

OK >> GO TO 6.

NG >> ● LHD models

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

- Harness between TCM and harness connector F41
- Harness between harness connector M61 and Harness connector M75
- RHD models
- Repair harness between TCM and harness connector F36.

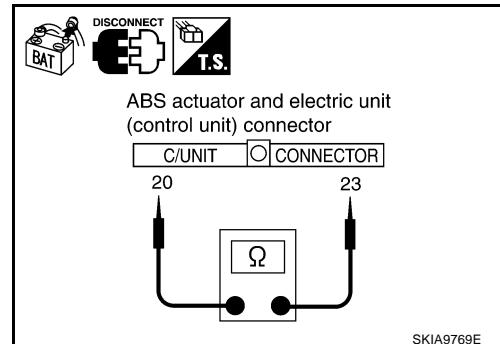


## 6. CHECK HARNESS FOR SHORT CIRCUIT

LHD models

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W) and 23 (R).

**20 (W) - 23 (R)** : Continuity should not exist.



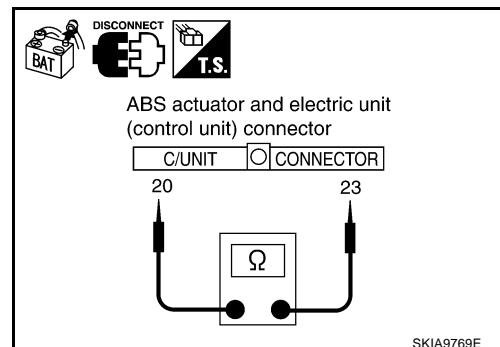
RHD models

1. Disconnect ABS actuator and electric unit (control unit) connector and harness connector E116.
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W) and 23 (R).

**20 (W) - 23 (R)** : Continuity should not exist.

OK or NG

OK >> GO TO 7.  
 NG >> Repair harness between ABS actuator and electric unit (control unit) and harness connector E116.



## 7. CHECK HARNESS FOR SHORT CIRCUIT

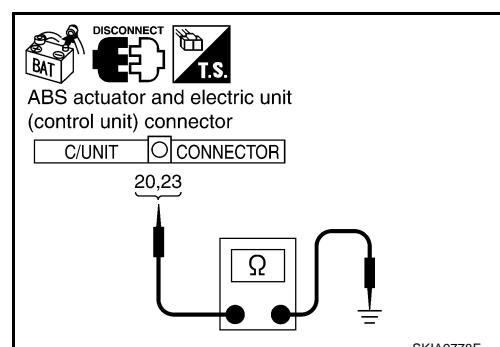
Check continuity between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W), 23 (R) and ground.

**20 (W) - Ground** : Continuity should not exist.

**23 (R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 8.  
 NG >> Repair harness between ABS actuator and electric unit (control unit) and harness connector E116.



## 8. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect 4WD control unit connector and combination meter connector.
2. Check continuity between combination meter harness connector M44 terminals 22 (W) and 23 (R).

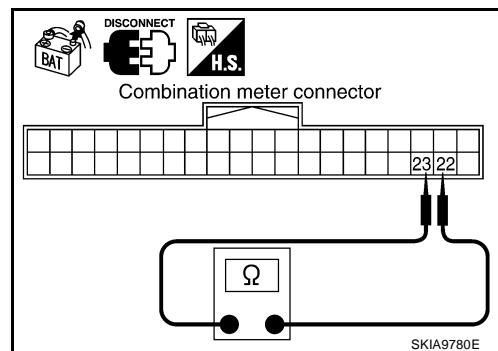
**22 (W) - 23 (R)** : Continuity should not exist.

OK or NG

OK >> GO TO 9.

NG >> Check the following harness. If any harness is damaged, repair the harness.

- Harness between combination meter and 4WD control unit
- Harness between combination meter and harness connector M75



## 9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between combination meter harness connector M44 terminals 22 (W), 23 (R) and ground.

**22 (W) - Ground** : Continuity should not exist.

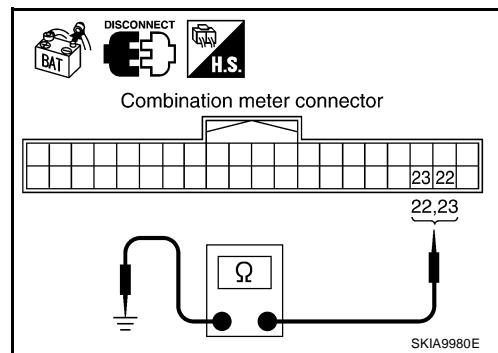
**23 (R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 10.

NG >> Check the following harness. If any harness is damaged, repair the harness.

- Harness between combination meter and 4WD control unit
- Harness between combination meter and harness connector M75



## 10. CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT

Check components inspection. Refer to [LAN-67, "CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT"](#).

LAN

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to [LAN-46, "Work Flow"](#).

NG >> Replace ECM and/or combination meter.

### Component Inspection

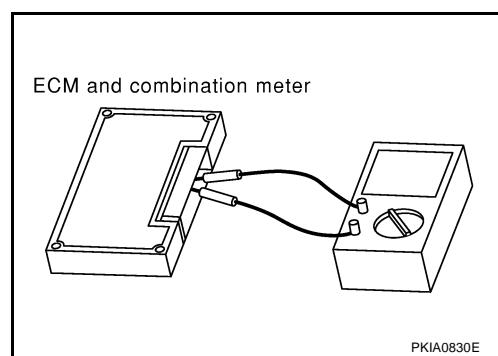
#### CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT

EKS001UW

M

- Remove ECM and combination meter from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between combination meter terminals 22 and 23.

Unit	Terminal	Resistance ( $\Omega$ ) (Approx.)
ECM	94 - 86	108 - 132
Combination meter	22 - 23	



## CAN SYSTEM (TYPE 4)

PFP:23710

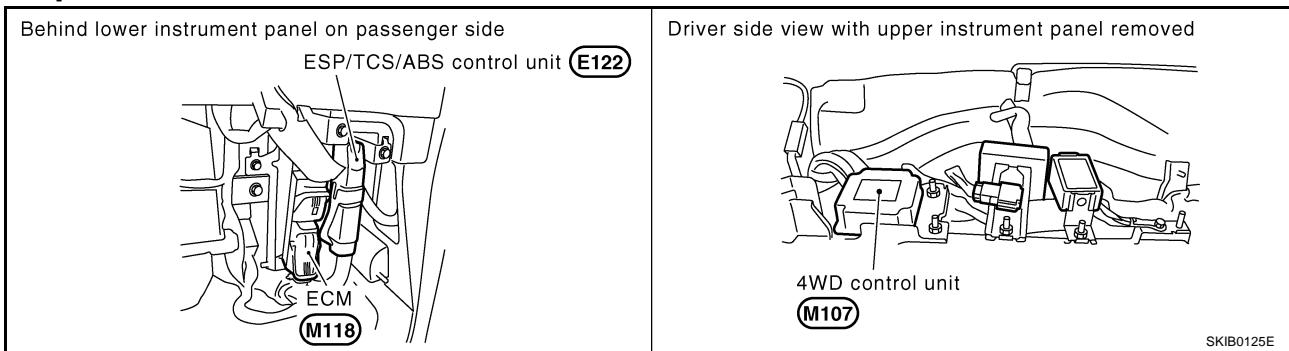
## System Description

EKS001UX

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

EKS001UY

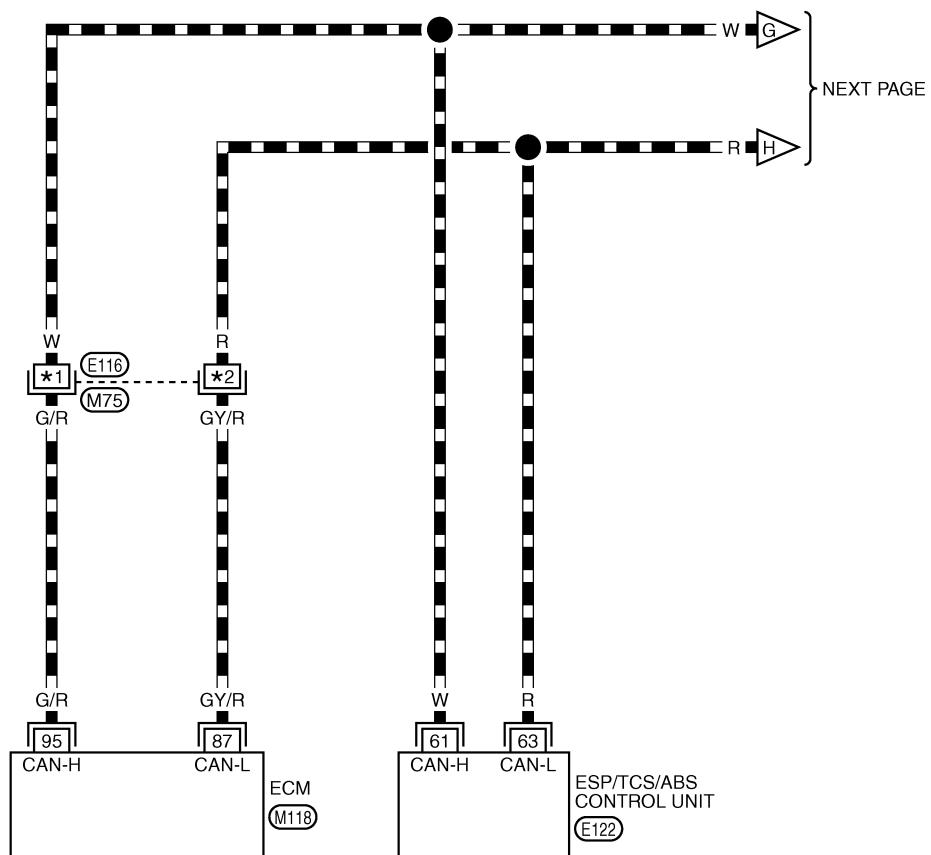


## Wiring Diagram — CAN —

EKS00LUZ

LAN-CAN-07

- : DATA LINE
- ◀ (L) : LHD MODELS
- ▶ (R) : RHD MODELS
- \*1 13 : ◀ (L)
- 10 : ▶ (R)
- \*2 4 : ◀ (L)
- 3 : ▶ (R)



1	2	3	4	5			6	7	8	9
10	11	12	13	14	15	16	17	18	19	20

(M75) : ◀ (L)  
BR

1	2	3			4	5	6	7
8	9	10	11	12	13	14	15	16

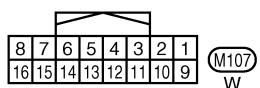
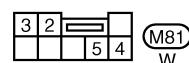
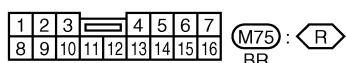
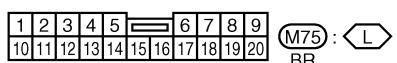
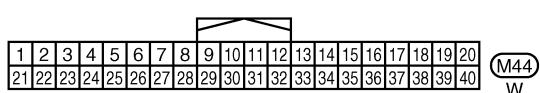
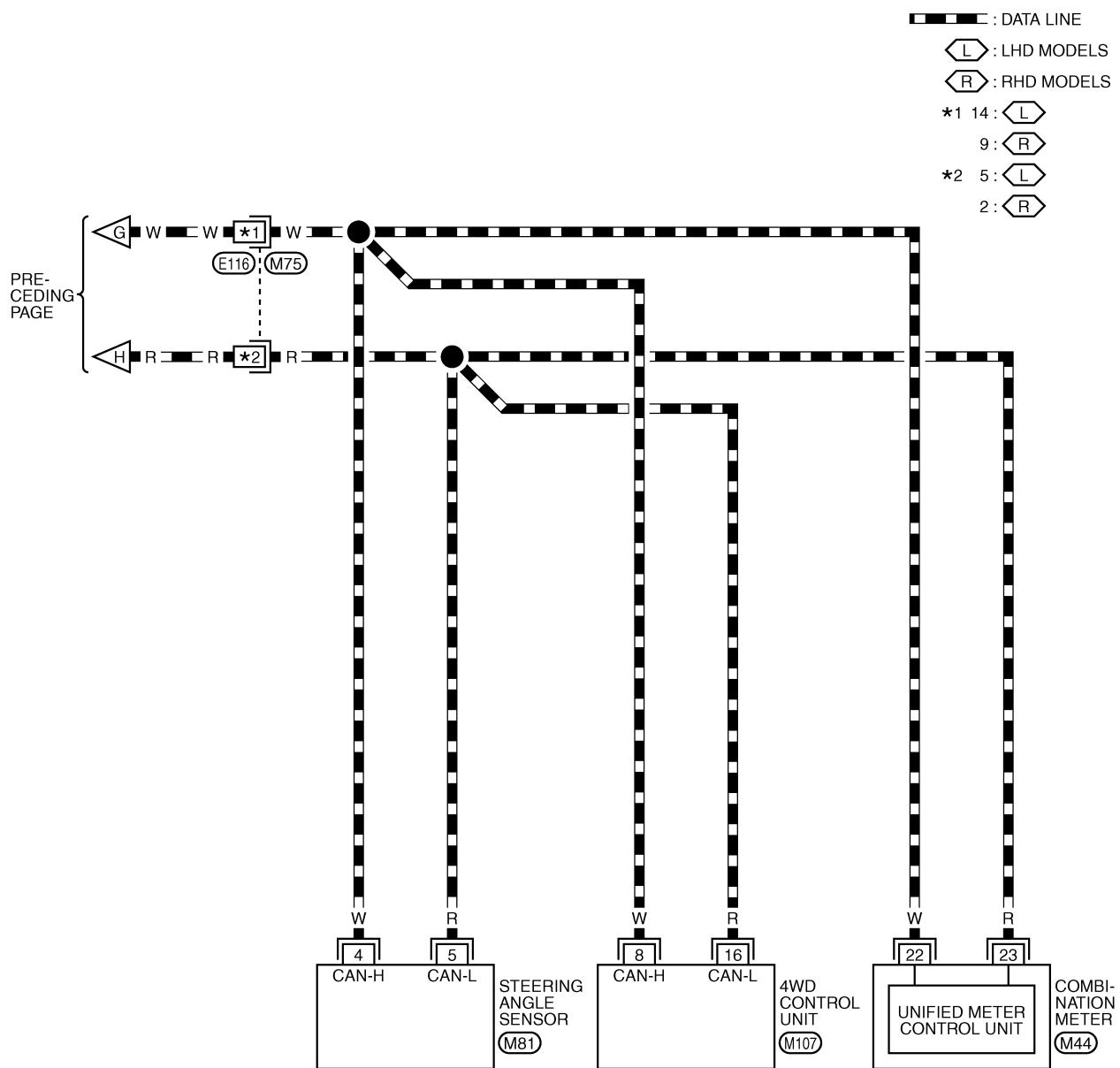
(M75) : ▶ (R)  
BR

REFER TO THE FOLLOWING.  
(M118, E122) -ELECTRICAL  
UNITS

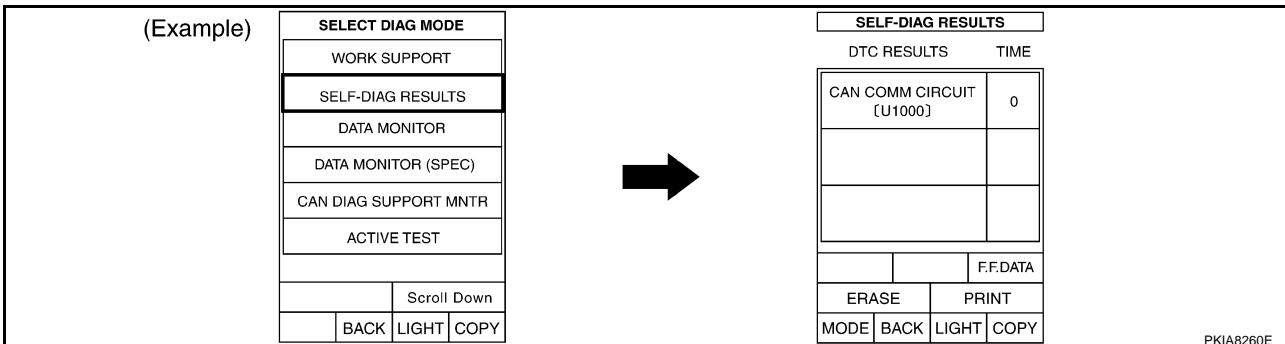
# CAN SYSTEM (TYPE 4)

[CAN]

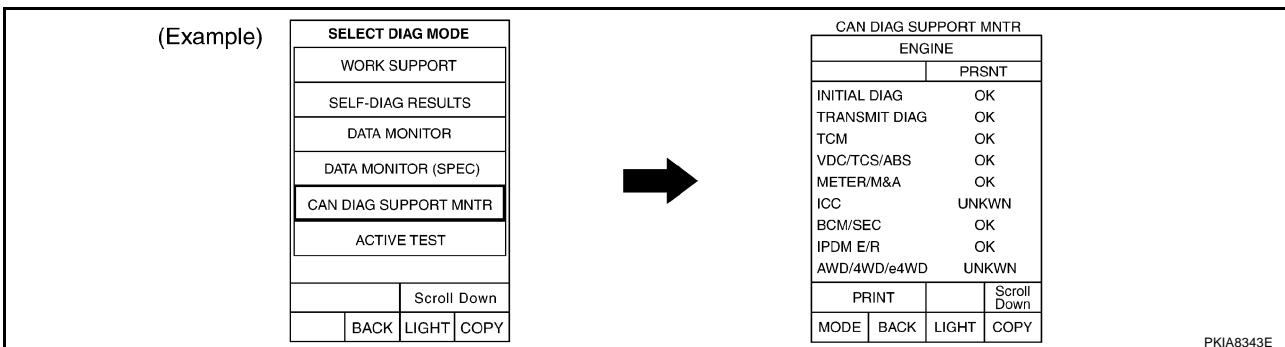
LAN-CAN-08



1. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "ABS" and "ALL MODE AWD/4WD" displayed on CONSULT-II.



2. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "ABS" and "ALL MODE AWD/4WD" 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-72, "CHECK SHEET"](#) .
4. Based on the results of "CAN DIAG SUPPORT MNTR", put a check marks onto the items with "NG" or "UNKWN" in the check sheet table. Refer to [LAN-72, "CHECK SHEET"](#) .

**NOTE:**

- If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", 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-73, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

# CAN SYSTEM (TYPE 4)

[CAN]

## CHECK SHEET

### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

Check sheet table

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—	—	—

Symptoms:

Attach copy of  
ENGINE  
SELF-DIAG RESULTS

Attach copy of  
ABS  
SELF-DIAG RESULTS

Attach copy of  
ALL MODE AWD/4WD  
SELF-DIAG RESULTS

Attach copy of  
ENGINE  
CAN DIAG SUPPORT  
MNTR

Attach copy of  
ABS  
CAN DIAG SUPPORT  
MNTR

Attach copy of  
ALL MODE AWD/4WD  
CAN DIAG SUPPORT  
MNTR

## CHECK SHEET RESULTS (EXAMPLE)

## NOTE:

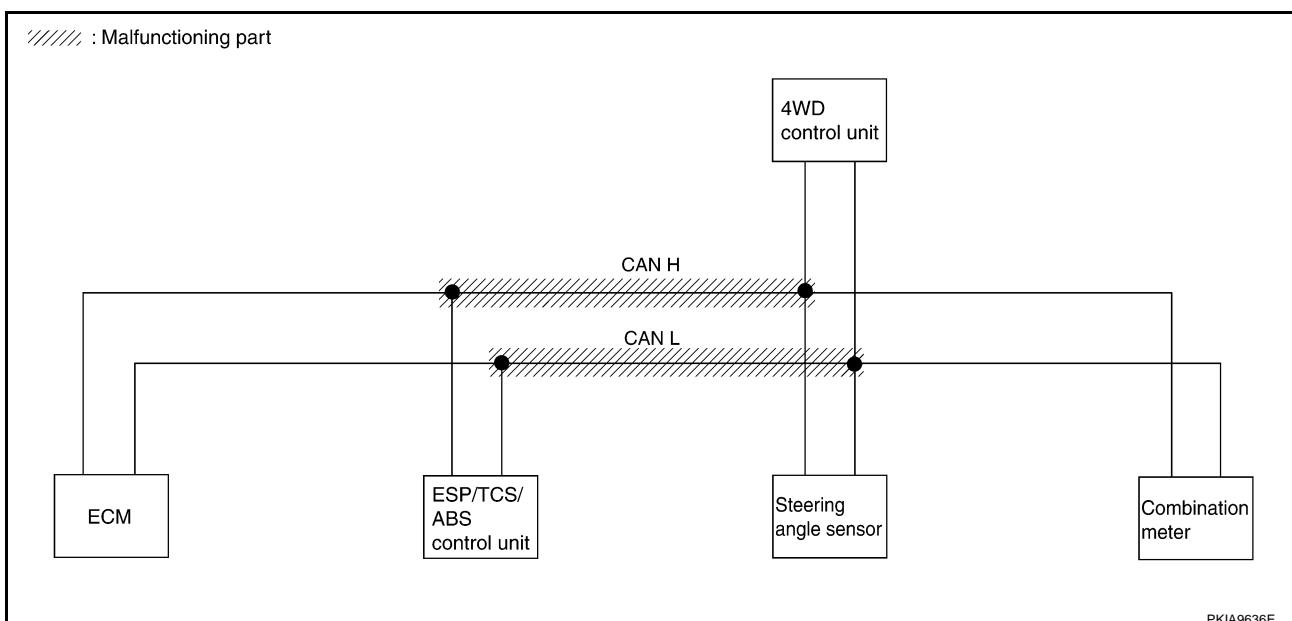
If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

## Case 1

Check harness between ESP/TCS/ABS control unit and 4WD control unit. Refer to [LAN-79, "Inspection Between ESP/TCS/ABS Control Unit and 4WD Control Unit Circuit"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—	—	—

PKIB9065E



# CAN SYSTEM (TYPE 4)

[CAN]

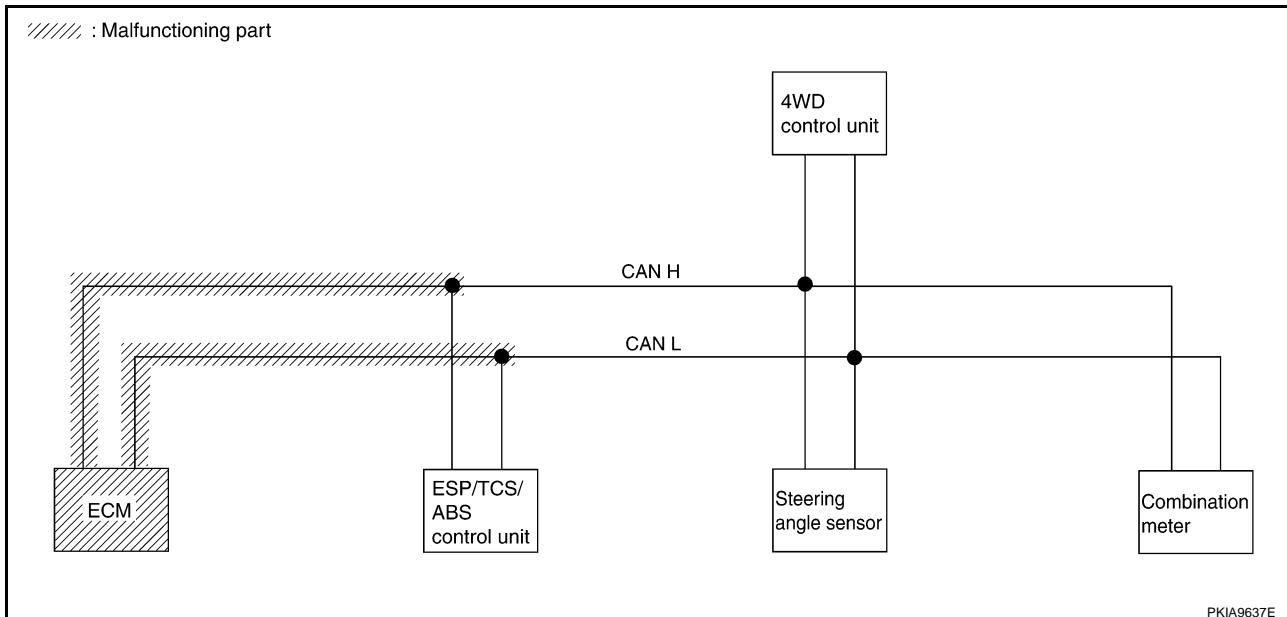
## Case 2

Check ECM circuit. Refer to [LAN-80, "ECM Circuit Inspection"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—	—	—

PKIB9066E

////// : Malfunctioning part



# CAN SYSTEM (TYPE 4)

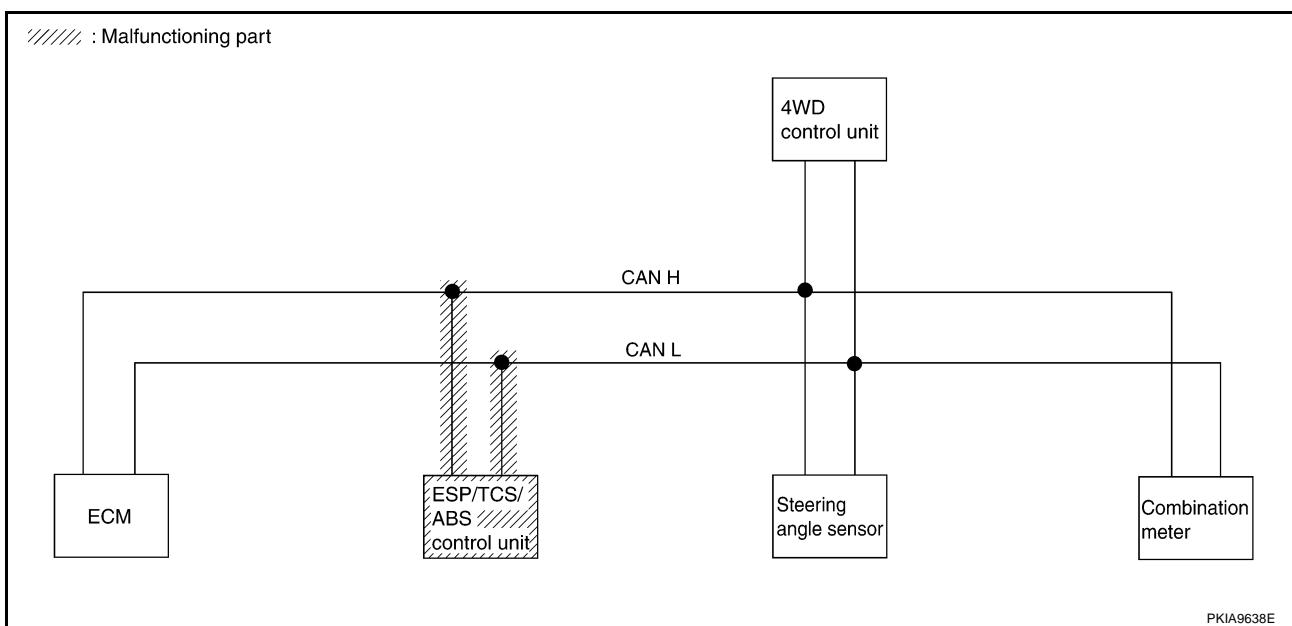
[CAN]

## Case 3

Check ESP/TCS/ABS control unit circuit. Refer to [LAN-81, "ESP/TCS/ABS Control Unit Circuit Inspection"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—	—	—

PKIB9067E



PKIA9638E

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LAN

# CAN SYSTEM (TYPE 4)

[CAN]

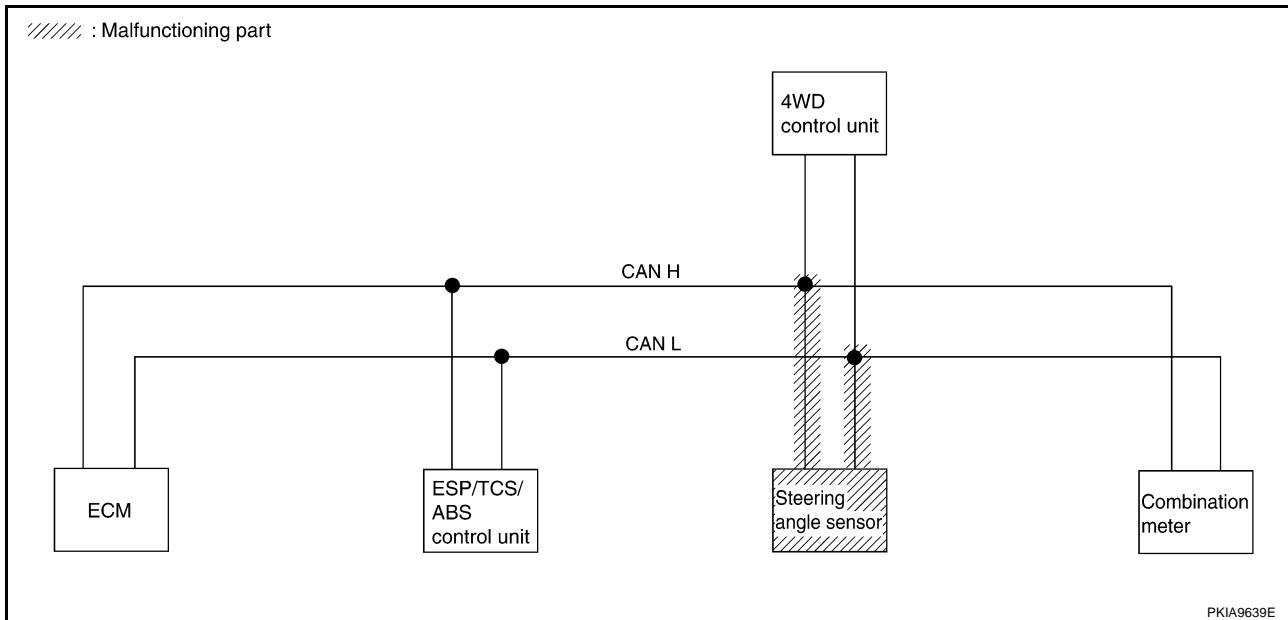
## Case 4

Check steering angle sensor circuit. Refer to [LAN-81, "Steering Angle Sensor Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—	—	—

PKIB9068E

////// : Malfunctioning part



# CAN SYSTEM (TYPE 4)

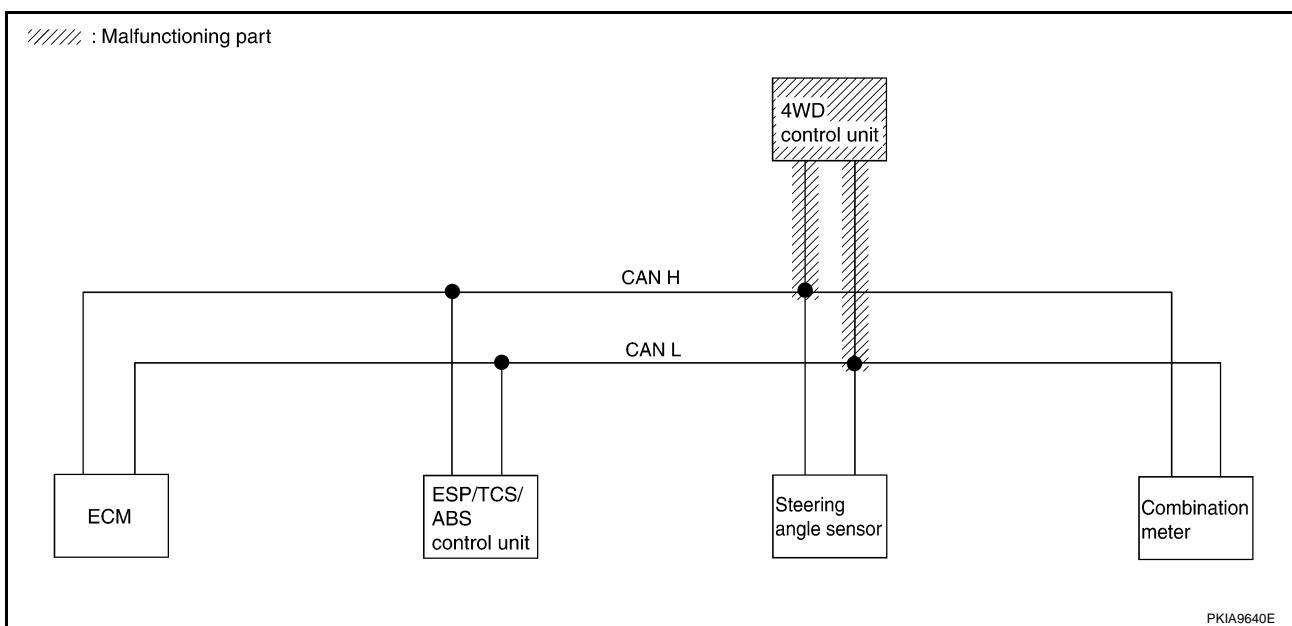
[CAN]

## Case 5

Check 4WD control unit circuit. Refer to [LAN-82, "4WD Control Unit Circuit Inspection"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—	—	—

PKIB9069E



PKIA9640E

LAN

# CAN SYSTEM (TYPE 4)

[CAN]

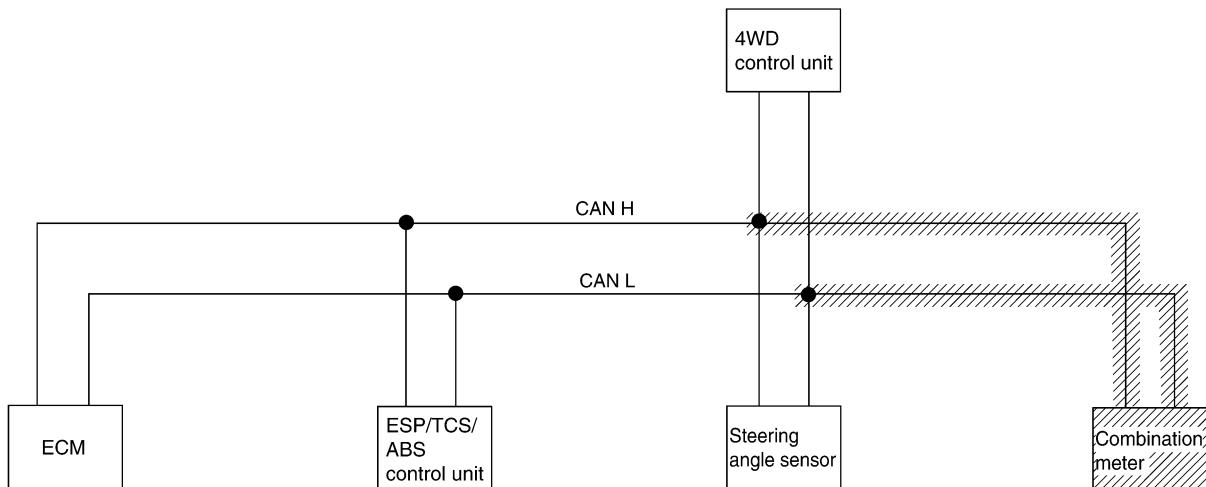
## Case 6

Check combination meter circuit. Refer to [LAN-82, "Combination Meter Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—	—	—

PKIB9070E

////// : Malfunctioning part



PKIA9641E

## Case 7

Check CAN communication circuit. Refer to [LAN-83, "CAN Communication Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—	—	—

PKIB9071E

## Inspection Between ESP/TCS/ABS Control Unit and 4WD Control Unit Circuit

EKS00LV1

## 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E116
  - Harness connector M75

OK or NG

OK &gt;&gt; GO TO 2.

NG &gt;&gt; Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector and harness connector E116.
2. Check the following.

- LHD models

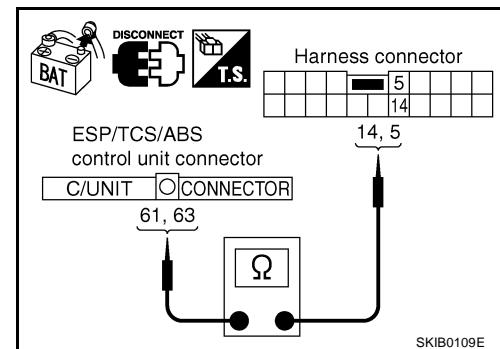
- Check continuity between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W), 63 (R) and harness connector E116 terminals 14 (W), 5 (R).

61 (W) - 14 (W)

: Continuity should exist.

63 (R) - 5 (R)

: Continuity should exist.



- RHD models

- Check continuity between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W), 63 (R) and harness connector E116 terminals 9 (W), 2 (R).

61 (W) - 9 (W)

: Continuity should exist.

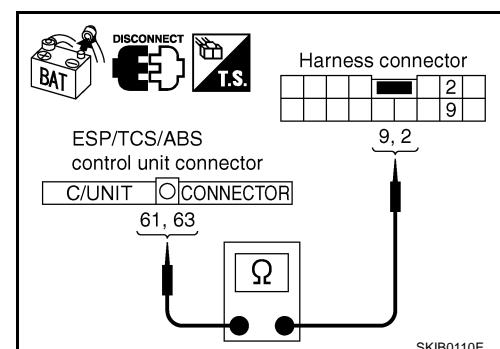
63 (R) - 2 (R)

: Continuity should exist.

OK or NG

OK &gt;&gt; GO TO 3.

NG &gt;&gt; Repair harness.



### 3. CHECK HARNESS FOR OPEN CIRCUIT

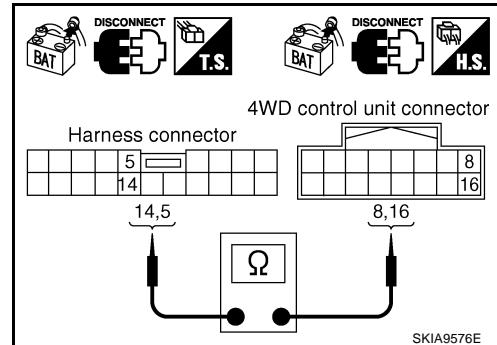
1. Disconnect 4WD control unit connector.
2. Check the following.
  - LHD models
  - Check continuity between harness connector M75 terminals 14 (W), 5 (R) and 4WD control unit harness connector M107 terminals 8 (W), 16 (R).

**14 (W) - 8 (W)**

**: Continuity should exist.**

**5 (R) - 16 (R)**

**: Continuity should exist.**



- RHD models
- Check continuity between harness connector M75 terminals 9 (W), 2 (R) and 4WD control unit harness connector M107 terminals 8 (W), 16 (R).

**9 (W) - 8 (W)**

**: Continuity should exist.**

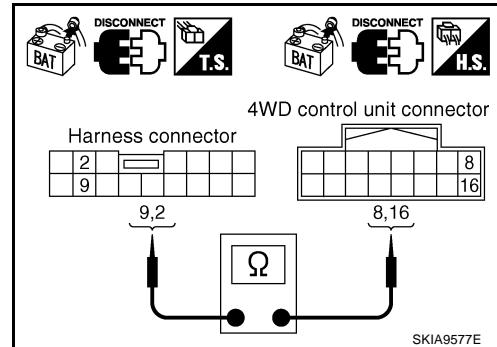
**2 (R) - 16 (R)**

**: Continuity should exist.**

OK or NG

OK      >> Connect all the connectors and diagnose again. Refer to [LAN-71, "Work Flow"](#).

NG      >> Repair harness.



### ECM Circuit Inspection

EKS00LV2

#### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
  - ECM connector
  - Harness connector M75
  - Harness connector E116

OK or NG

OK      >> GO TO 2.

NG      >> Repair terminal or connector.

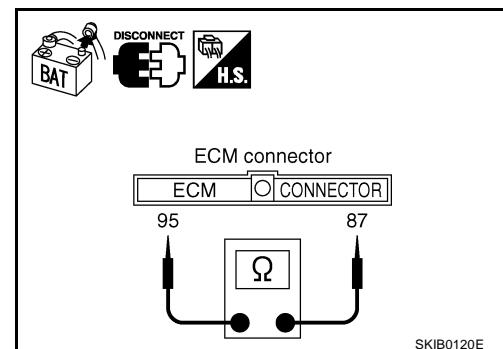
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector M118 terminals 95 (G/R) and 87 (GY/R).

95 (G/R) - 87 (GY/R) : Approx. 108 - 132  $\Omega$

OK or NG

OK >> Replace ECM.  
NG >> Repair harness between ECM and ESP/TCS/ABS control unit.



EKS00LV3

## ESP/TCS/ABS Control Unit Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check terminals and connector of ESP/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.

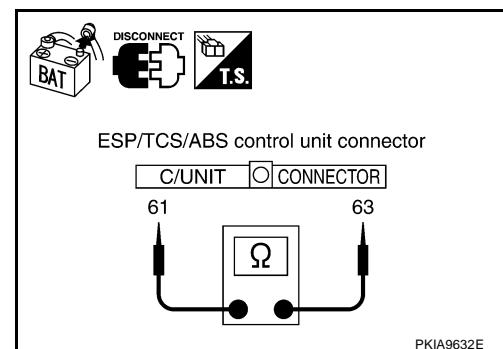
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector.
2. Check resistance between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W) and 63 (R).

61 (W) - 63 (R) : Approx. 54 - 66  $\Omega$

OK or NG

OK >> Replace ESP/TCS/ABS control unit.  
NG >> Repair harness between ESP/TCS/ABS control unit and harness connector E116.



EKS00LV4

## Steering Angle Sensor Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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.

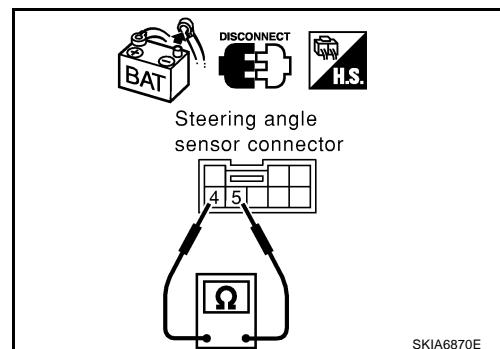
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M81 terminals 4 (W) and 5 (R).

**4 (W) - 5 (R)** : Approx. 54 - 66  $\Omega$

### OK or NG

OK >> Replace steering angle sensor.  
 NG >> Repair harness between steering angle sensor and 4WD control unit.



EKS00LV5

## 4WD Control Unit Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check terminals and connector of 4WD 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.

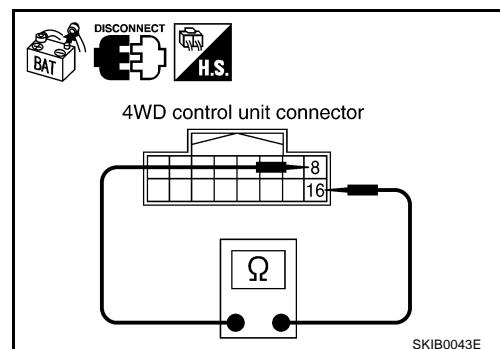
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect 4WD control unit connector.
2. Check resistance between 4WD control unit harness connector M107 terminals 8 (W) and 16 (R).

**8 (W) - 16 (R)** : Approx. 54 - 66  $\Omega$

### OK or NG

OK >> Replace 4WD control unit.  
 NG >> Repair harness between 4WD control unit and steering angle sensor.



EKS00LV6

## Combination Meter Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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 M44 terminals 22 (W) and 23 (R).

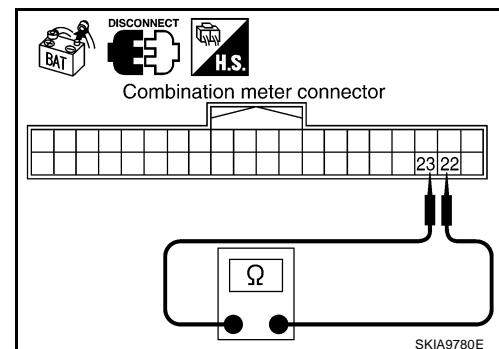
**22 (W) - 23 (R)**

**: Approx. 108 - 132 Ω**

OK or NG

OK      >> Replace combination meter.

NG      >> Repair harness between combination meter and 4WD control unit.



EKS00LV7

## CAN Communication Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side, control unit side, sensor side, meter side, connector side and harness side).
  - ECM
  - ESP/TCS/ABS control unit
  - Steering angle sensor
  - 4WD control unit
  - Combination meter
  - Between ECM and combination meter

OK or NG

OK      >> GO TO 2.

NG      >> Repair terminal or connector.

## 2. CHECK HARNESS FOR SHORT CIRCUIT

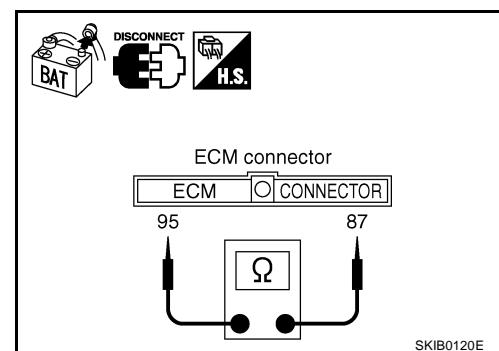
1. Disconnect ECM connector and harness connector M75.
2. Check continuity between ECM harness connector M118 terminals 95 (G/R) and 87 (GY/R).

**95 (G/R) - 87 (GY/R)    : Continuity should not exist.**

OK or NG

OK      >> GO TO 3.

NG      >> Repair harness between ECM and harness connector M75.



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M

### 3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector M118 terminals 95 (G/R), 87 (GY/R) and ground.

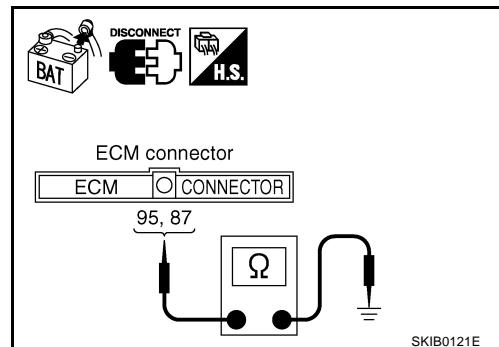
**95 (G/R) - Ground** : Continuity should not exist.

**87 (GY/R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector M75.



### 4. CHECK HARNESS FOR SHORT CIRCUIT

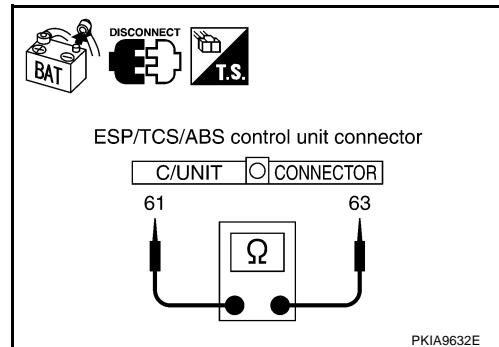
1. Disconnect ESP/TCS/ABS control unit connector.
2. Check continuity between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W) and 63 (R).

**61 (W) - 63 (R)** : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Repair harness between ESP/TCS/ABS control unit and harness connector E116.



### 5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W), 63 (R) and ground.

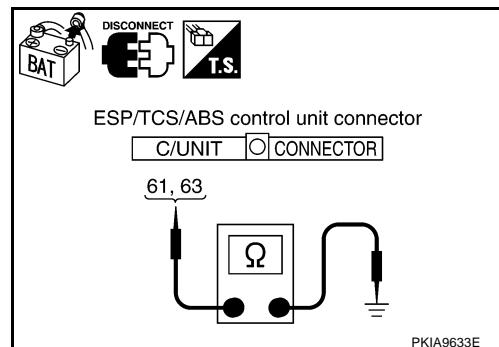
**61 (W) - Ground** : Continuity should not exist.

**63 (R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> Repair harness between ESP/TCS/ABS control unit and harness connector E116.



## 6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
  - Steering angle sensor connector
  - 4WD control unit connector
  - Combination meter connector
2. Check continuity between combination meter harness connector M44 terminals 22 (W) and 23 (R).

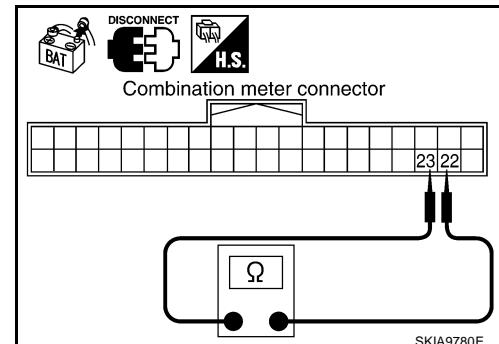
**22 (W) - 23 (R)** : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Check the following harness. If any harness is damaged, repair the harness.

- Harness between combination meter and 4WD control unit
- Harness between combination meter and steering angle sensor
- Harness between combination meter and harness connector M75



## 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between combination meter harness connector M44 terminals 22 (W), 23 (R) and ground.

**22 (W) - Ground** : Continuity should not exist.

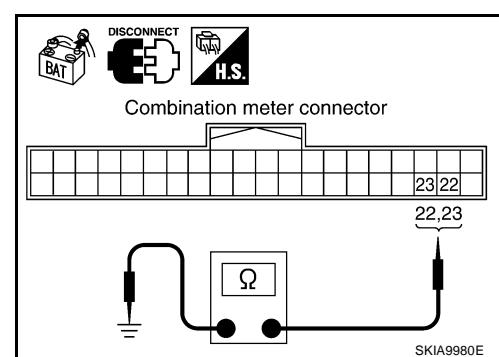
**23 (R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Check the following harness. If any harness is damaged, repair the harness.

- Harness between combination meter and 4WD control unit
- Harness between combination meter and steering angle sensor
- Harness between combination meter and harness connector M75



## 8. CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT

Check components inspection. Refer to [LAN-85, "CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT"](#).

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to [LAN-71, "Work Flow"](#).

NG >> Replace ECM and/or combination meter.

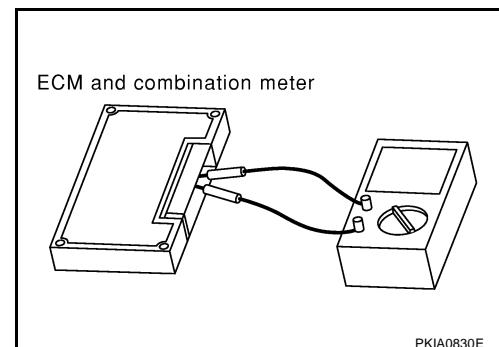
### Component Inspection

#### CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT

EKS00LV8

- Remove ECM and combination meter from vehicle.
- Check resistance between ECM terminals 95 and 87.
- Check resistance between combination meter terminals 22 and 23.

Unit	Terminal	Resistance (Ω) (Approx.)
ECM	95 - 87	108 - 132
Combination meter	22 - 23	



### CAN SYSTEM (TYPE 5)

PFP:23710

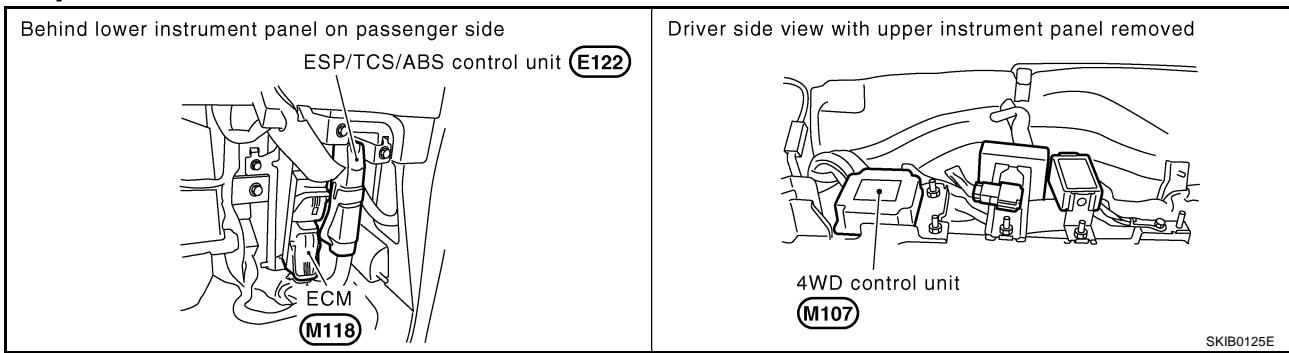
#### System Description

EKS00LV9

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

EKS00LVA



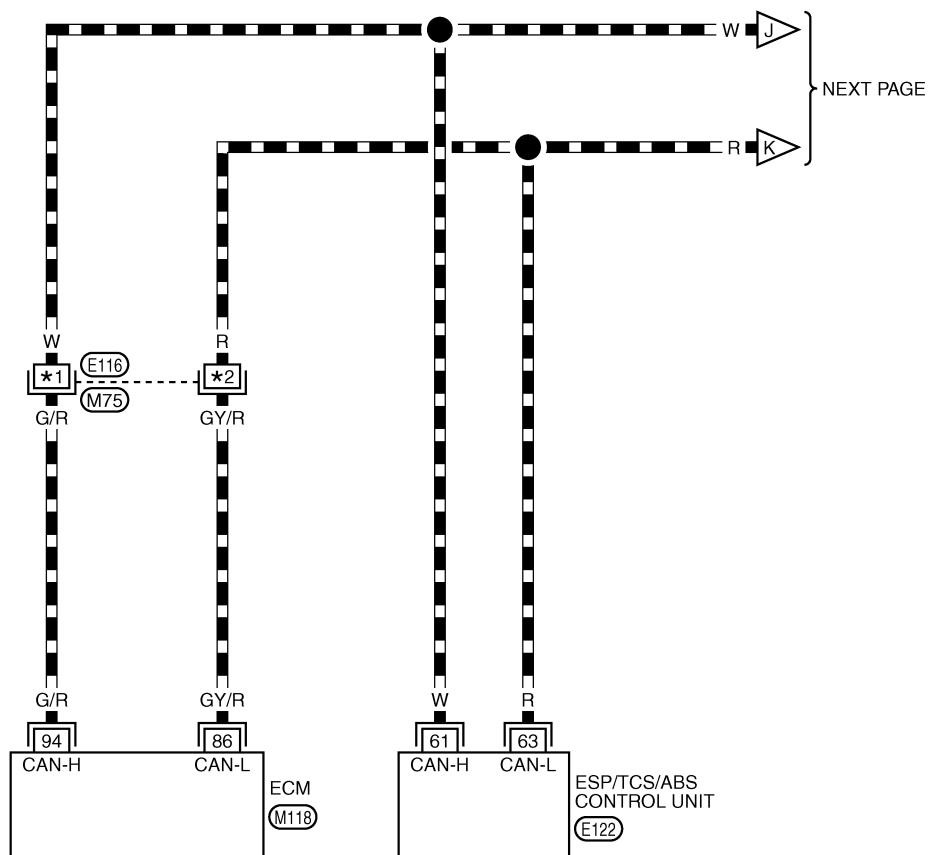
SKIB0125E

## Wiring Diagram — CAN —

EKS001VB

LAN-CAN-09

- : DATA LINE
- ◀ (L) : LHD MODELS
- ◀ (R) : RHD MODELS
- \*1 13 : ◀ (L)
- 10 : ◀ (R)
- \*2 4 : ◀ (L)
- 3 : ◀ (R)



1 2 3 4 5      6 7 8 9  
10 11 12 13 14 15 16 17 18 19 20      (M75) : ◀ (L)  
BR

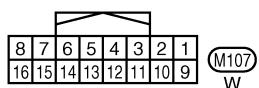
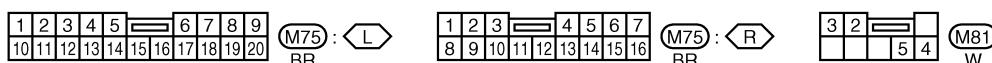
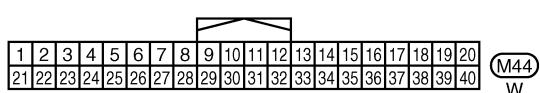
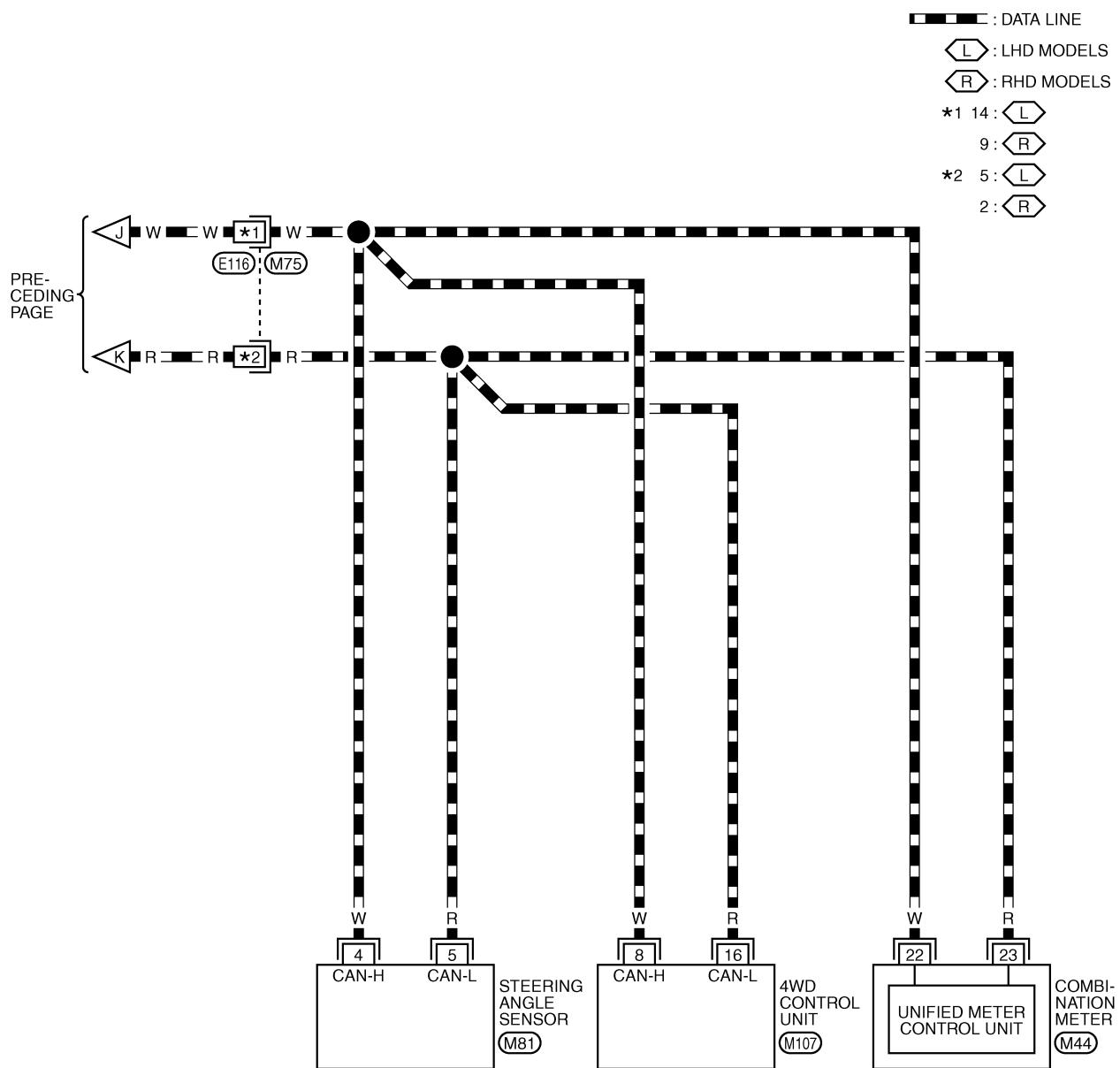
1 2 3      4 5 6 7  
8 9 10 11 12 13 14 15 16      (M75) : ◀ (R)  
BR

REFER TO THE FOLLOWING.  
(M118, E122) -ELECTRICAL  
UNITS

# CAN SYSTEM (TYPE 5)

[CAN]

LAN-CAN-10



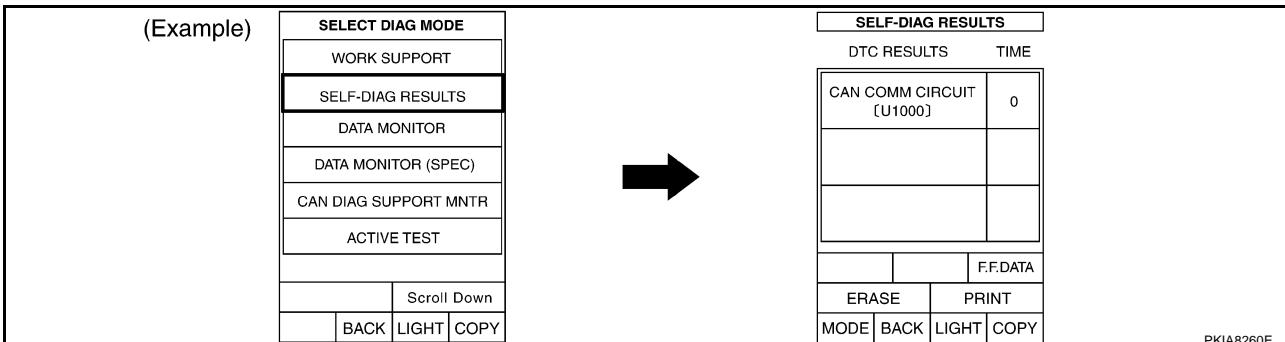
TKWB1675E

LAN-88

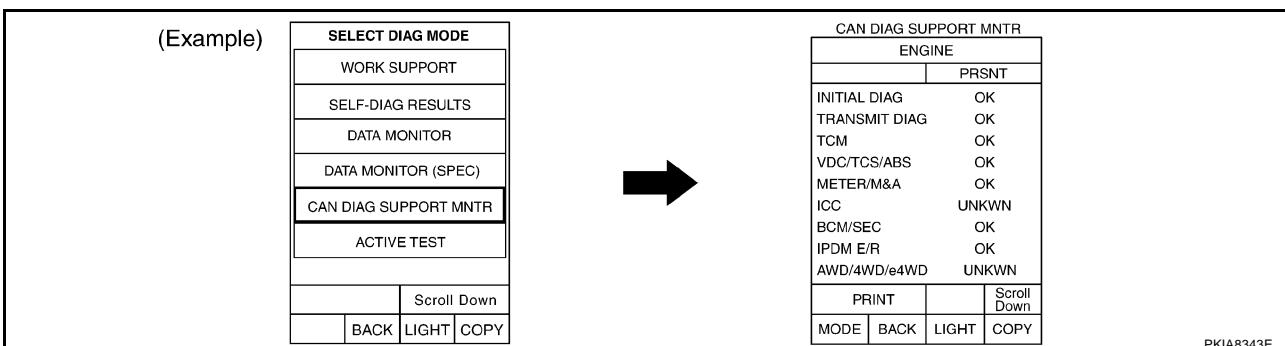
## Work Flow

EKS00LVC

1. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "ABS" and "ALL MODE AWD/4WD" displayed on CONSULT-II.



- Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "ABS" and "ALL MODE AWD/4WD" 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-90, "CHECK SHEET"](#) .
4. Based on the results of "CAN DIAG SUPPORT MNTR", put a check marks onto the items with "NG" or "UNKWN" in the check sheet table. Refer to [LAN-90, "CHECK SHEET"](#) .

**NOTE:**

- If a check mark is put on “NG” on “INITIAL DIAG (Initial diagnosis)”, 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-91, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

18

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4

# CAN SYSTEM (TYPE 5)

[CAN]

## CHECK SHEET

### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

Check sheet table

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—	—	—

Symptoms:

Attach copy of  
ENGINE  
SELF-DIAG RESULTS

Attach copy of  
ABS  
SELF-DIAG RESULTS

Attach copy of  
ALL MODE AWD/4WD  
SELF-DIAG RESULTS

Attach copy of  
ENGINE  
CAN DIAG SUPPORT  
MNTR

Attach copy of  
ABS  
CAN DIAG SUPPORT  
MNTR

Attach copy of  
ALL MODE AWD/4WD  
CAN DIAG SUPPORT  
MNTR

## CHECK SHEET RESULTS (EXAMPLE)

## NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

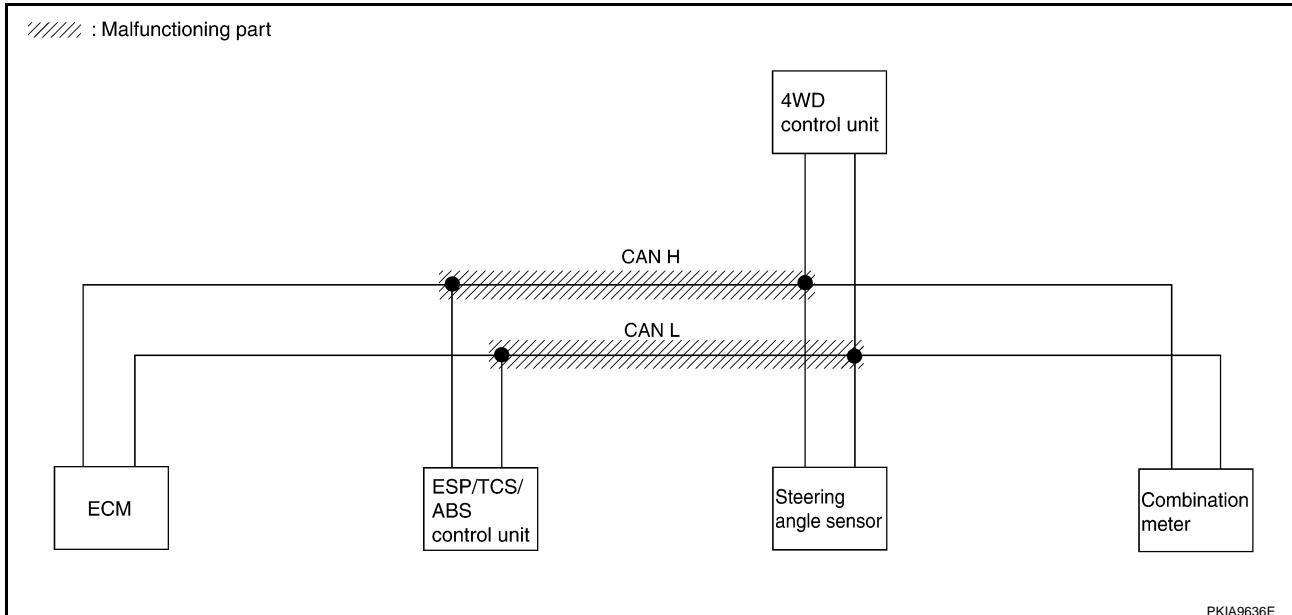
## Case 1

Check harness between ESP/TCS/ABS control unit and 4WD control unit. Refer to [LAN-97, "Inspection Between ESP/TCS/ABS Control Unit and 4WD Control Unit Circuit"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—	—	—

PKIB9065E

////// : Malfunctioning part



# CAN SYSTEM (TYPE 5)

[CAN]

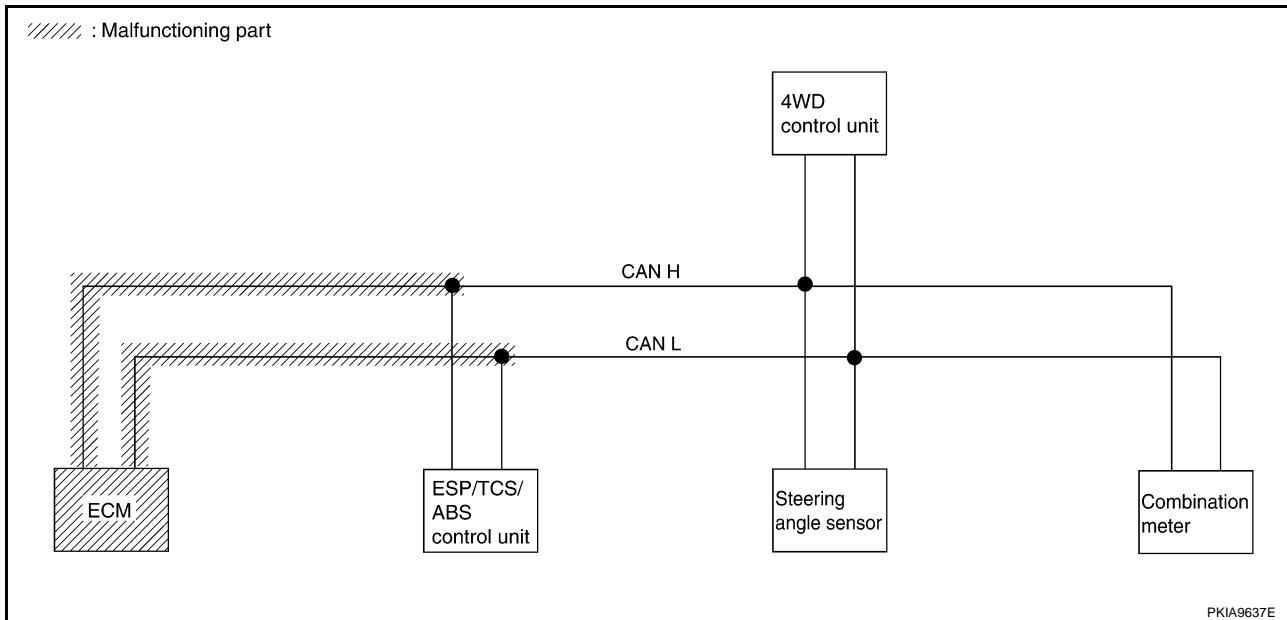
## Case 2

Check ECM circuit. Refer to [LAN-98, "ECM Circuit Inspection"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—	—	—

PKIB9066E

////// : Malfunctioning part



# CAN SYSTEM (TYPE 5)

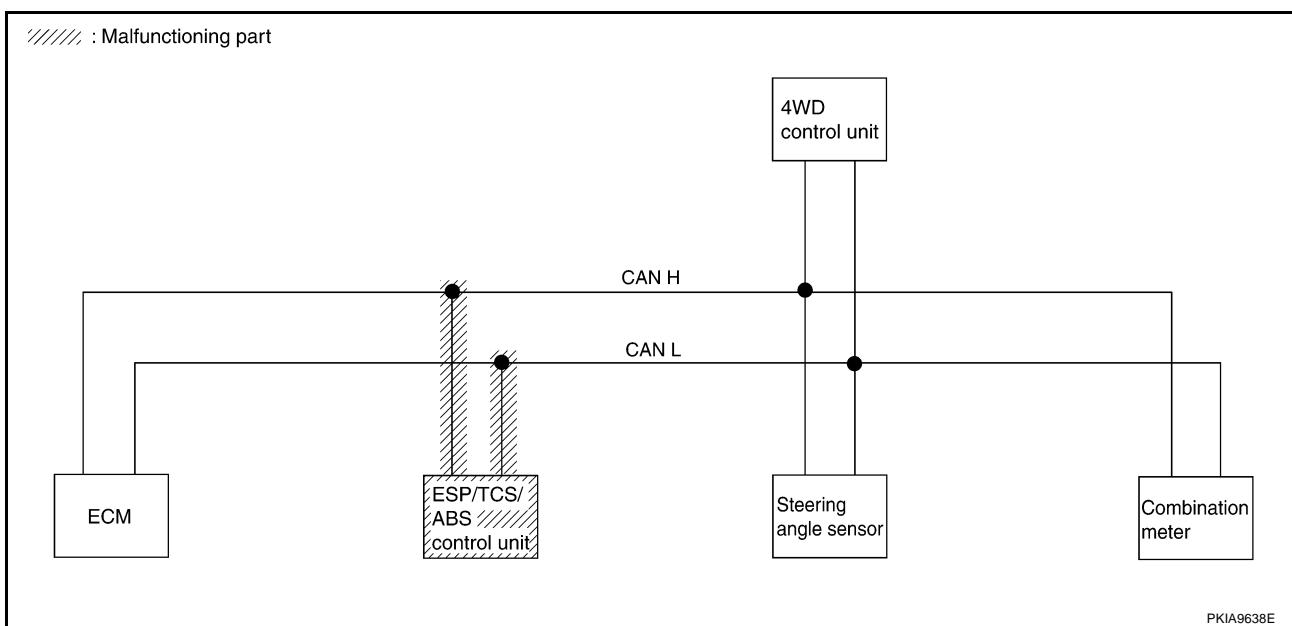
[CAN]

## Case 3

Check ESP/TCS/ABS control unit circuit. Refer to [LAN-99, "ESP/TCS/ABS Control Unit Circuit Inspection"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—	—	—

PKIB9067E



# CAN SYSTEM (TYPE 5)

[CAN]

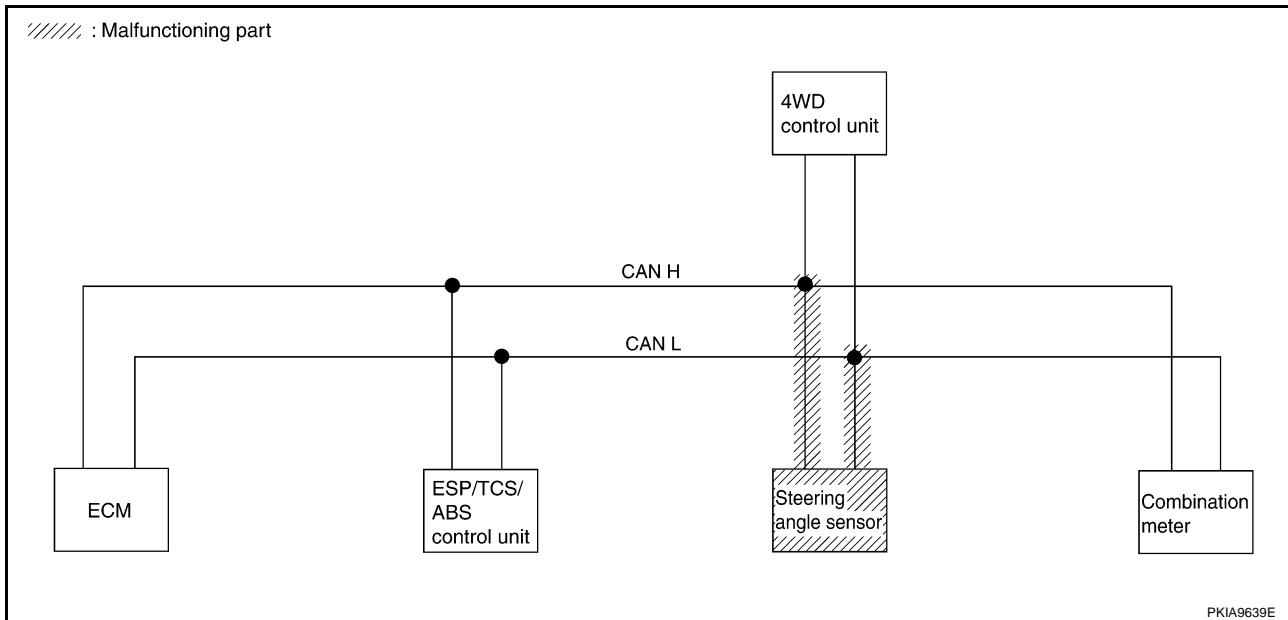
## Case 4

Check steering angle sensor circuit. Refer to [LAN-99, "Steering Angle Sensor Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—	—	—

PKIB9068E

////// : Malfunctioning part



# CAN SYSTEM (TYPE 5)

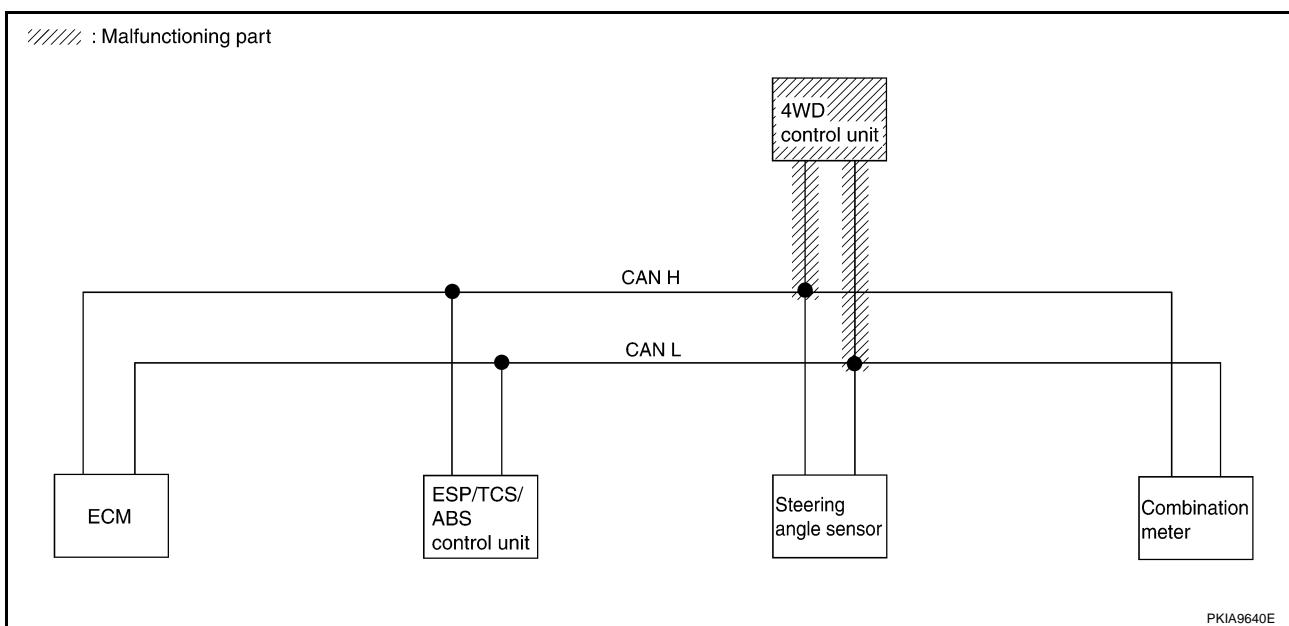
[CAN]

## Case 5

Check 4WD control unit circuit. Refer to [LAN-100, "4WD Control Unit Circuit Inspection"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—	—	—

PKIB9077E



# CAN SYSTEM (TYPE 5)

[CAN]

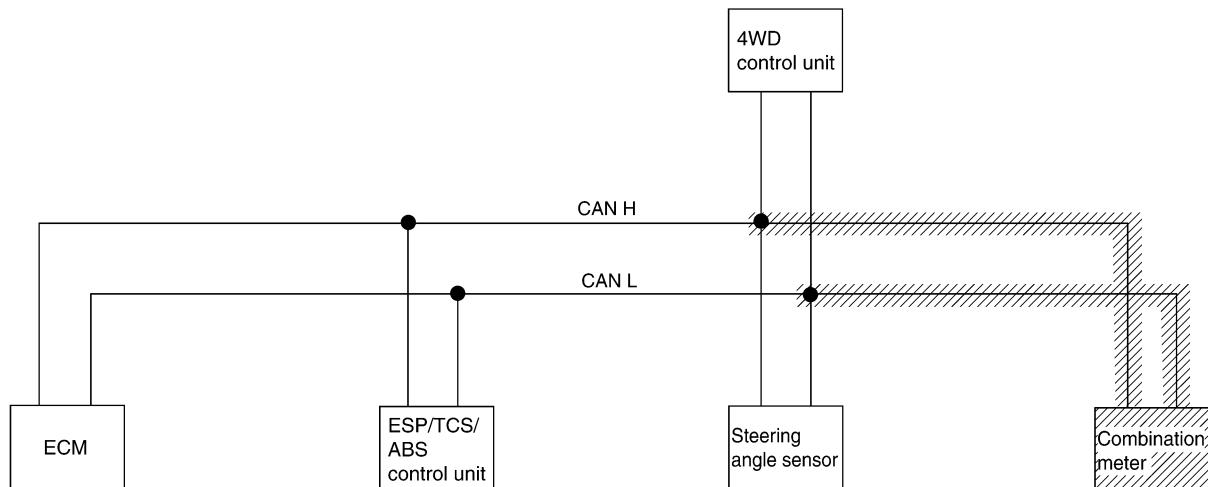
## Case 6

Check combination meter circuit. Refer to [LAN-100, "Combination Meter Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—	—	—

PKIB9070E

////// : Malfunctioning part



PKIA9641E

## Case 7

Check CAN communication circuit. Refer to [LAN-101, "CAN Communication Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR						
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	UNKWN	—	—	—

PKIB9071E

## Inspection Between ESP/TCS/ABS Control Unit and 4WD Control Unit Circuit

EKS00LVD

## 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E116
  - Harness connector M75

## OK or NG

OK &gt;&gt; GO TO 2.

NG &gt;&gt; Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector and harness connector E116.

2. Check the following.

- LHD models

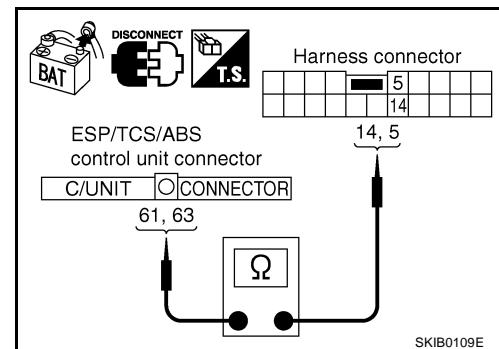
- Check continuity between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W), 63 (R) and harness connector E116 terminals 14 (W), 5 (R).

61 (W) - 14 (W)

: Continuity should exist.

63 (R) - 5 (R)

: Continuity should exist.



- RHD models

- Check continuity between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W), 63 (R) and harness connector E116 terminals 9 (W), 2 (R).

61 (W) - 9 (W)

: Continuity should exist.

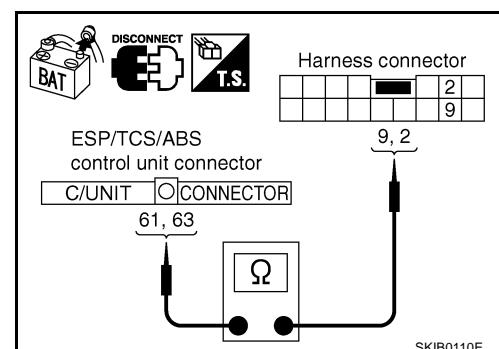
63 (R) - 2 (R)

: Continuity should exist.

## OK or NG

OK &gt;&gt; GO TO 3.

NG &gt;&gt; Repair harness.



### 3. CHECK HARNESS FOR OPEN CIRCUIT

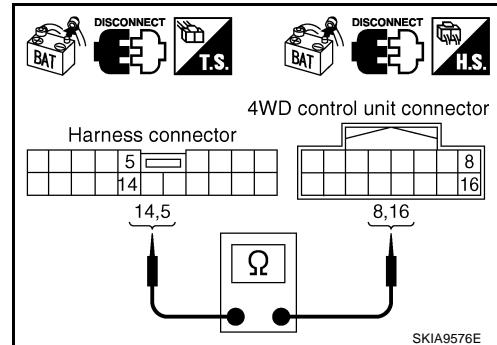
1. Disconnect 4WD control unit connector.
2. Check the following.
  - LHD models
  - Check continuity between harness connector M75 terminals 14 (W), 5 (R) and 4WD control unit harness connector M107 terminals 8 (W), 16 (R).

**14 (W) - 8 (W)**

**: Continuity should exist.**

**5 (R) - 16 (R)**

**: Continuity should exist.**



- RHD models
- Check continuity between harness connector M75 terminals 9 (W), 2 (R) and 4WD control unit harness connector M107 terminals 8 (W), 16 (R).

**9 (W) - 8 (W)**

**: Continuity should exist.**

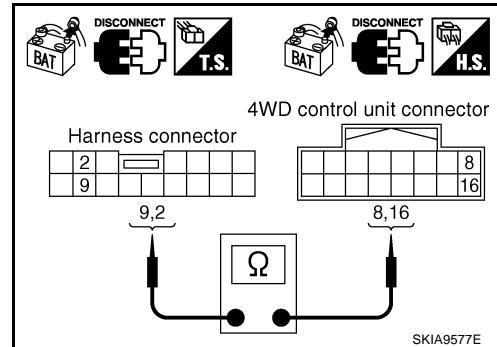
**2 (R) - 16 (R)**

**: Continuity should exist.**

OK or NG

OK      >> Connect all the connectors and diagnose again. Refer to [LAN-89, "Work Flow"](#).

NG      >> Repair harness.



### ECM Circuit Inspection

EKS00LVE

#### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
  - ECM connector
  - Harness connector M75
  - Harness connector E116

OK or NG

OK      >> GO TO 2.

NG      >> Repair terminal or connector.

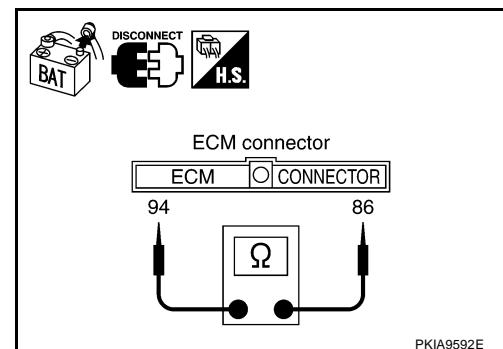
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector M118 terminals 94 (G/R) and 86 (GY/R).

94 (G/R) - 86 (GY/R) : Approx. 108 - 132  $\Omega$

OK or NG

OK >> Replace ECM.  
NG >> Repair harness between ECM and ESP/TCS/ABS control unit.



EKS00LVF

## ESP/TCS/ABS Control Unit Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check terminals and connector of ESP/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.

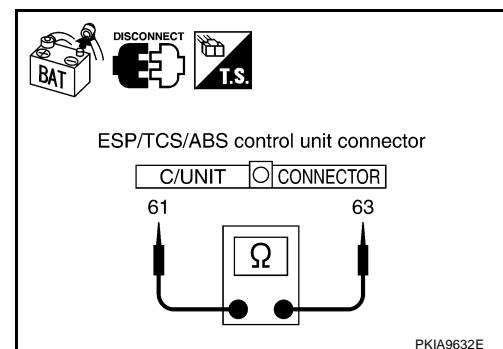
### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector.
2. Check resistance between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W) and 63 (R).

61 (W) - 63 (R) : Approx. 54 - 66  $\Omega$

OK or NG

OK >> Replace ESP/TCS/ABS control unit.  
NG >> Repair harness between ESP/TCS/ABS control unit and harness connector E116.



EKS00LVG

## Steering Angle Sensor Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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.

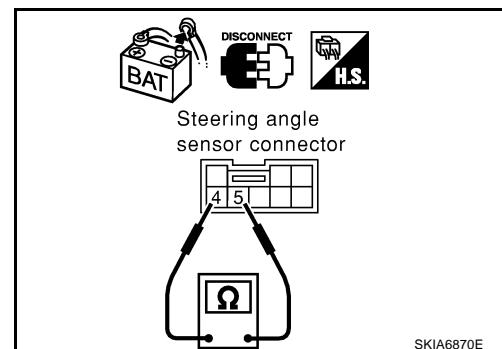
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M81 terminals 4 (W) and 5 (R).

**4 (W) - 5 (R)** : Approx. 54 - 66  $\Omega$

### OK or NG

OK >> Replace steering angle sensor.  
 NG >> Repair harness between steering angle sensor and 4WD control unit.



EKS00LVH

## 4WD Control Unit Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check terminals and connector of 4WD 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.

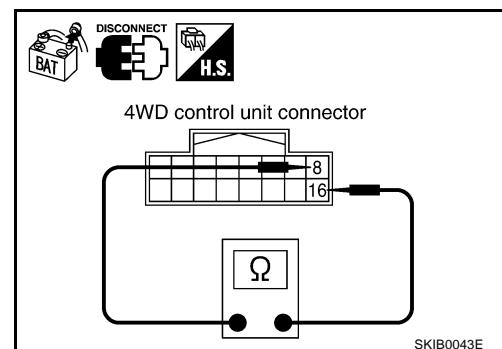
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect 4WD control unit connector.
2. Check resistance between 4WD control unit harness connector M107 terminals 8 (W) and 16 (R).

**8 (W) - 16 (R)** : Approx. 54 - 66  $\Omega$

### OK or NG

OK >> Replace 4WD control unit.  
 NG >> Repair harness between 4WD control unit and steering angle sensor.



EKS00LV

## Combination Meter Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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 M44 terminals 22 (W) and 23 (R).

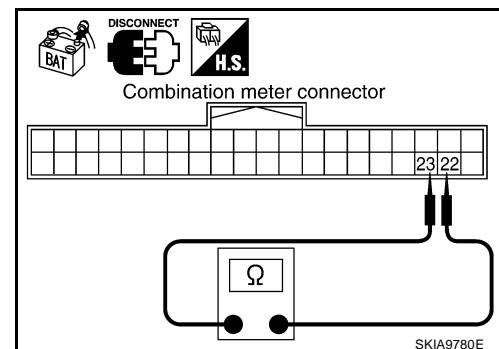
**22 (W) - 23 (R)**

: Approx. 108 - 132  $\Omega$

OK or NG

OK >> Replace combination meter.

NG >> Repair harness between combination meter and 4WD control unit.



EKS00LVJ

## CAN Communication Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side, control unit side, sensor side, meter side, connector side and harness side).
  - ECM
  - ESP/TCS/ABS control unit
  - Steering angle sensor
  - 4WD control unit
  - Combination meter
  - Between ECM and combination meter

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR SHORT CIRCUIT

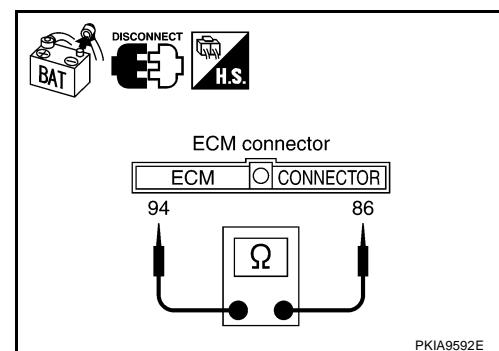
1. Disconnect ECM connector and harness connector M75.
2. Check continuity between ECM harness connector M118 terminals 94 (G/R) and 86 (GY/R).

**94 (G/R) - 86 (GY/R)** : Continuity should not exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness between ECM and harness connector M75.



A

B

C

D

E

F

G

H

I

J

LAN

L

M

### 3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector M118 terminals 94 (G/R), 86 (GY/R) and ground.

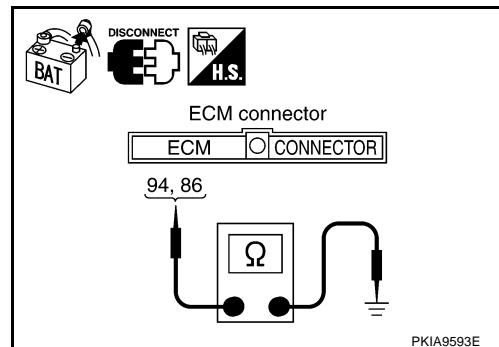
**94 (G/R) - Ground** : Continuity should not exist.

**86 (GY/R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector M75.



### 4. CHECK HARNESS FOR SHORT CIRCUIT

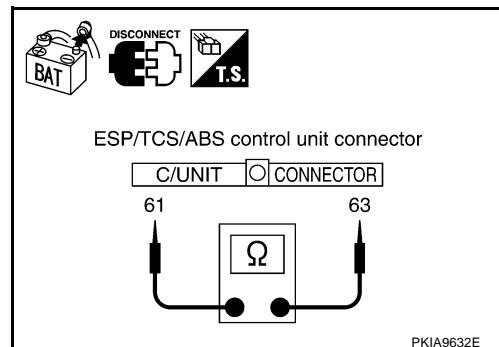
1. Disconnect ESP/TCS/ABS control unit connector.
2. Check continuity between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W) and 63 (R).

**61 (W) - 63 (R)** : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Repair harness between ESP/TCS/ABS control unit and harness connector E116.



### 5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W), 63 (R) and ground.

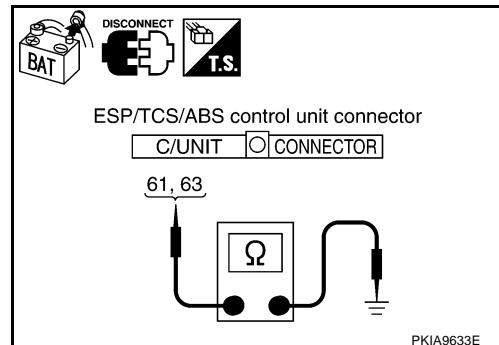
**61 (W) - Ground** : Continuity should not exist.

**63 (R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> Repair harness between ESP/TCS/ABS control unit and harness connector E116.



## 6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
  - Steering angle sensor connector
  - 4WD control unit connector
  - Combination meter connector
2. Check continuity between combination meter harness connector M44 terminals 22 (W) and 23 (R).

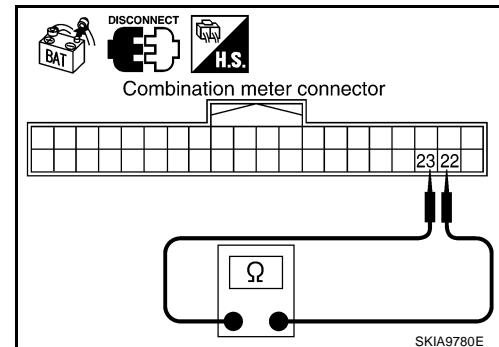
**22 (W) - 23 (R)** : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Check the following harness. If any harness is damaged, repair the harness.

- Harness between combination meter and 4WD control unit
- Harness between combination meter and steering angle sensor
- Harness between combination meter and harness connector M75



## 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between combination meter harness connector M44 terminals 22 (W), 23 (R) and ground.

**22 (W) - Ground** : Continuity should not exist.

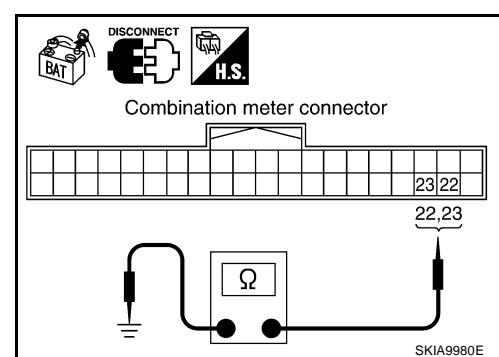
**23 (R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Check the following harness. If any harness is damaged, repair the harness.

- Harness between combination meter and 4WD control unit
- Harness between combination meter and steering angle sensor
- Harness between combination meter and harness connector M75



## 8. CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT

Check components inspection. Refer to [LAN-103, "CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT"](#).

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to [LAN-89, "Work Flow"](#).

NG >> Replace ECM and/or combination meter.

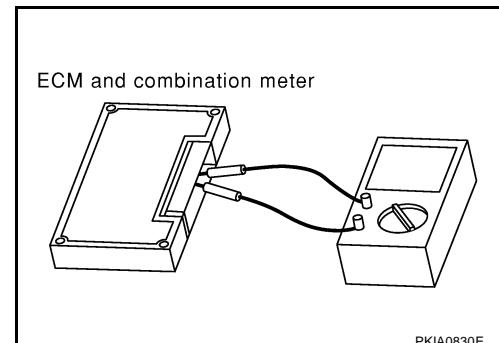
### Component Inspection

#### CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT

EKS00LVK

- Remove ECM and combination meter from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between combination meter terminals 22 and 23.

Unit	Terminal	Resistance ( $\Omega$ ) (Approx.)
ECM	94 - 86	108 - 132
Combination meter	22 - 23	



**CAN SYSTEM (TYPE 6)**

PFP:23710

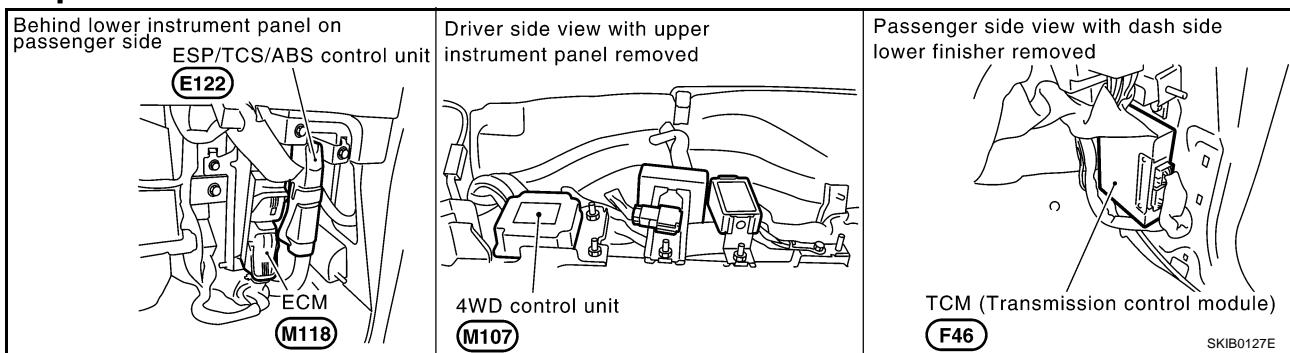
**System Description**

EKS00LVL

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**

EKS00LVM



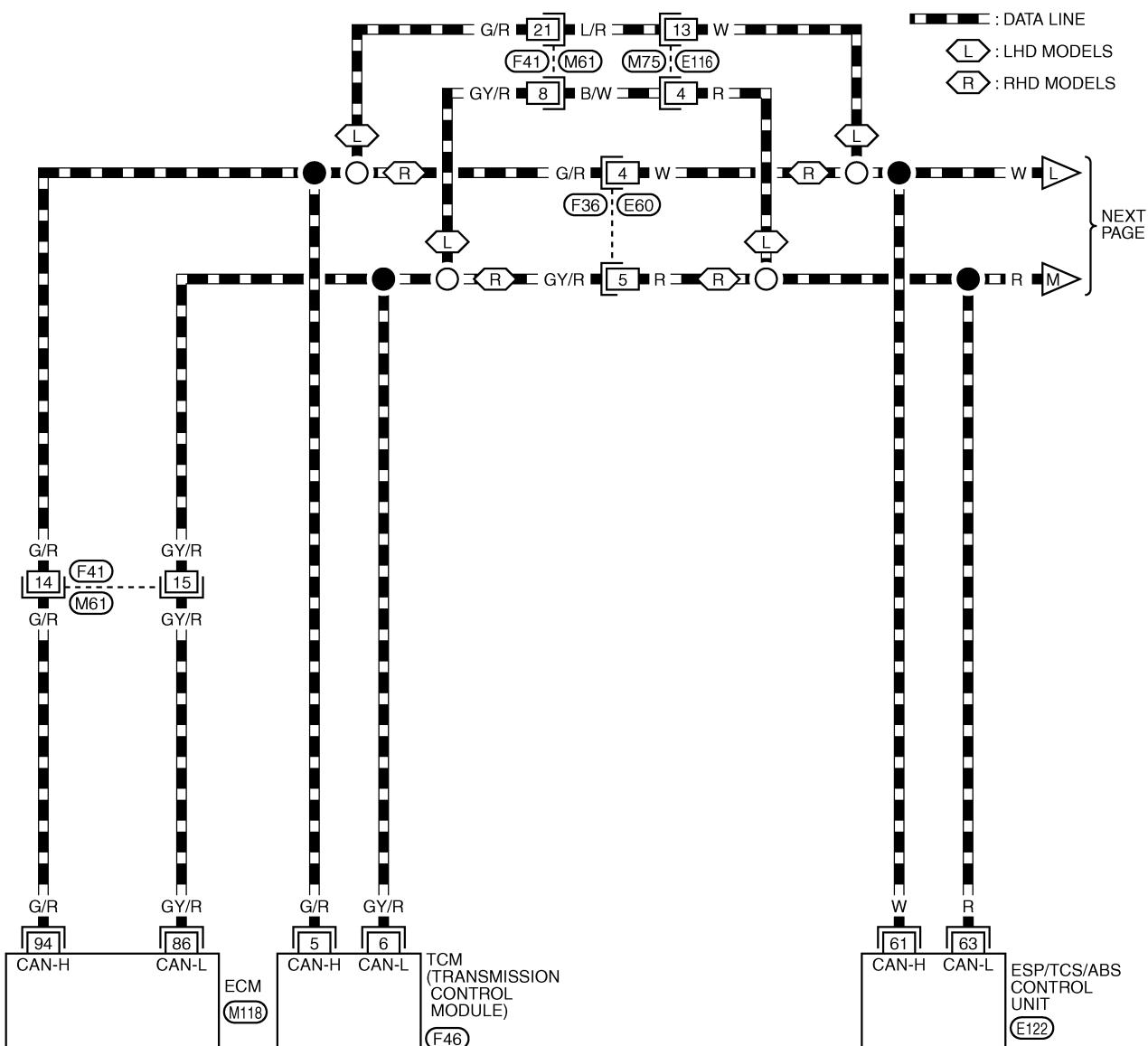
# CAN SYSTEM (TYPE 6)

[CAN]

## Wiring Diagram — CAN —

EKS001VN

LAN-CAN-11



REFER TO THE FOLLOWING.  
 (M118), (E122), (F46)  
 -ELECTRICAL UNITS

TKWB1676E

LAN-105

A  
B  
C  
D  
E  
F  
G  
H  
I  
J

LAN

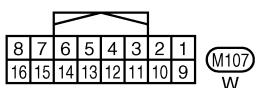
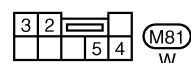
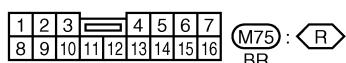
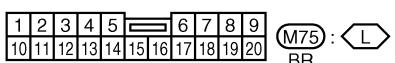
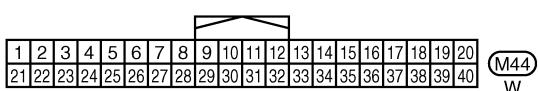
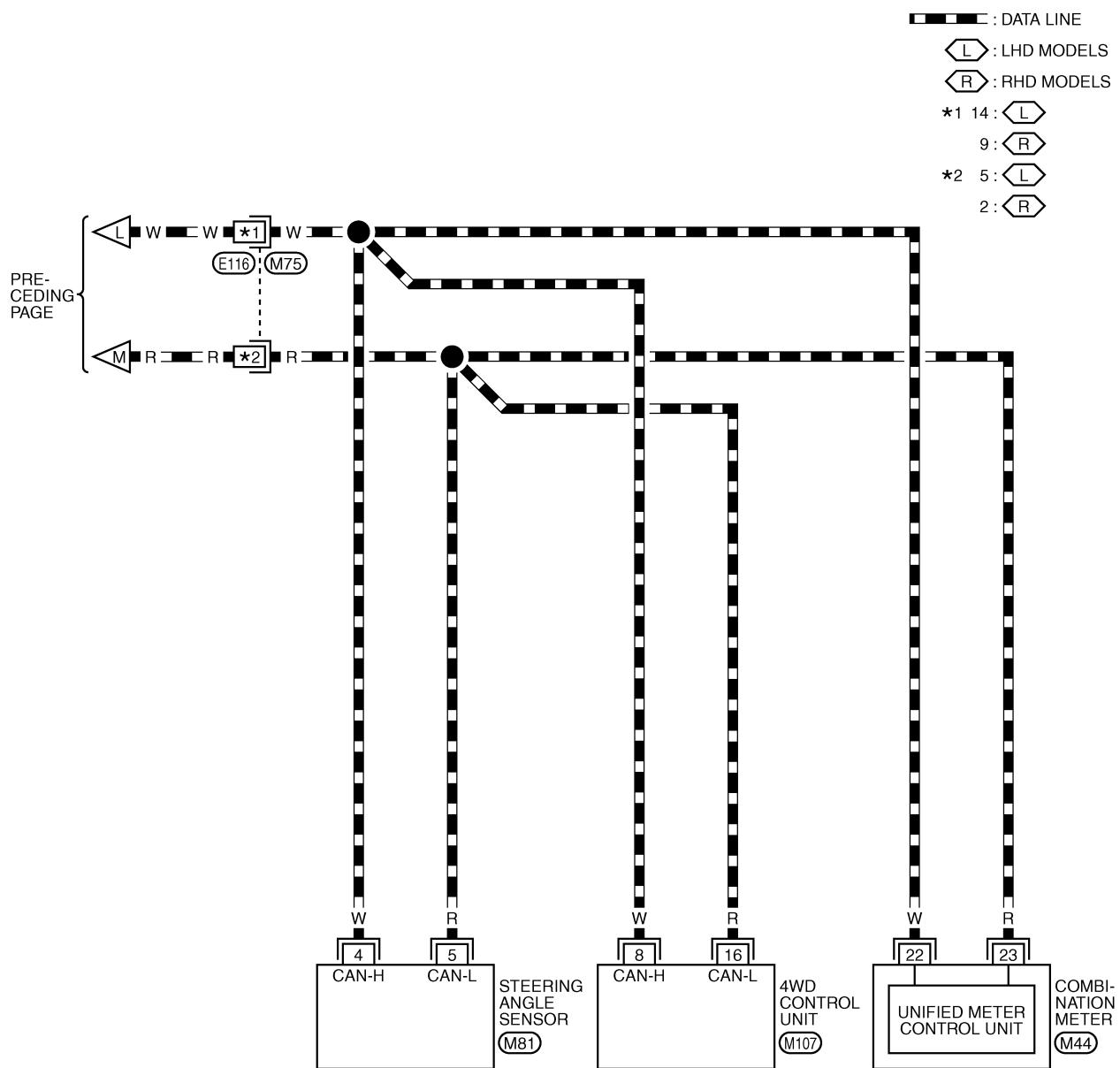
L

M

# CAN SYSTEM (TYPE 6)

[CAN]

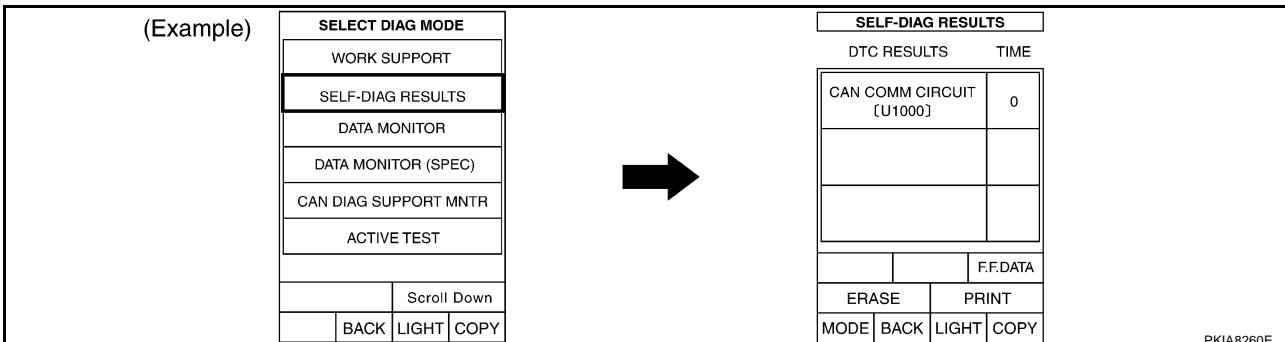
LAN-CAN-12



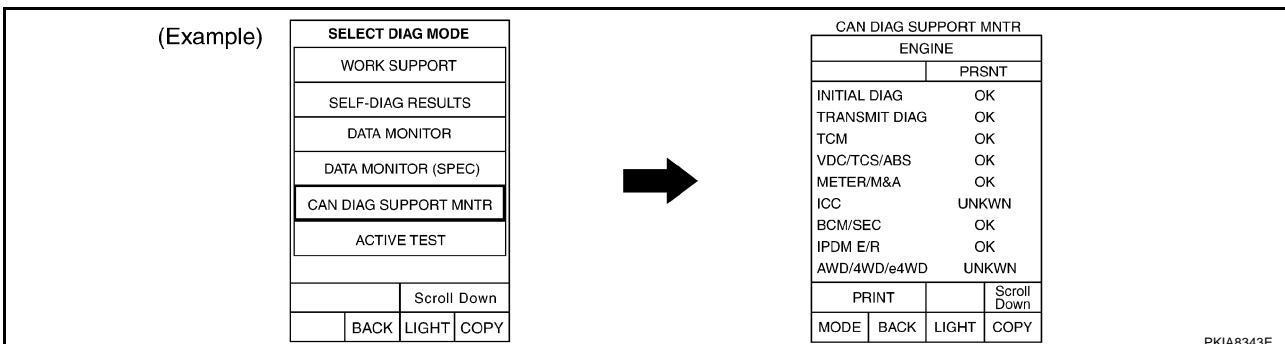
TKWB1677E

LAN-106

1. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "A/T", "ABS" and "ALL MODE AWD/4WD" displayed on CONSULT-II.



2. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "A/T", "ABS" and "ALL MODE AWD/4WD" 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-108, "CHECK SHEET"](#) .
4. Based on the results of "CAN DIAG SUPPORT MNTR", put a check marks onto the items with "NG" or "UNKWN" in the check sheet table. Refer to [LAN-108, "CHECK SHEET"](#) .

**NOTE:**

- If a check mark is put on “NG” on “INITIAL DIAG (Initial diagnosis)”, 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-109, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

# CAN SYSTEM (TYPE 6)

[CAN]

## CHECK SHEET

### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

Check sheet table

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR							
	Initial diagnosis	Transmit diagnosis	Receive diagnosis					
			ECM	TCM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	—	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	—	UNKWN	—	—	—

Symptoms:

Attach copy of  
ENGINE  
SELF-DIAG RESULTS

Attach copy of  
A/T  
SELF-DIAG RESULTS

Attach copy of  
ABS  
SELF-DIAG RESULTS

Attach copy of  
ALL MODE AWD/4WD  
SELF-DIAG RESULTS

Attach copy of  
ENGINE  
CAN DIAG SUPPORT  
MNTR

Attach copy of  
A/T  
CAN DIAG SUPPORT  
MNTR

Attach copy of  
ABS  
CAN DIAG SUPPORT  
MNTR

Attach copy of  
ALL MODE AWD/4WD  
CAN DIAG SUPPORT  
MNTR

## CHECK SHEET RESULTS (EXAMPLE)

## NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

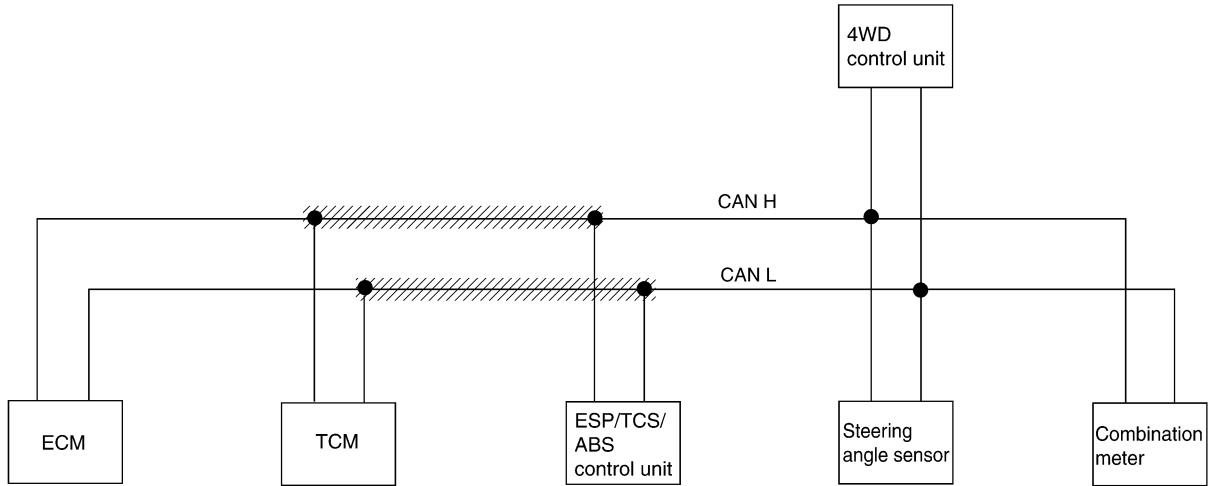
## Case 1

Check harness between TCM and ESP/TCS/ABS control unit. Refer to [LAN-117, "Inspection Between TCM and ESP/TCS/ABS Control Unit Circuit"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR							
	Initial diagnosis	Transmit diagnosis	Receive diagnosis					
			ECM	TCM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	—	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	—	UNKWN	—	—	—

PKIB9081E

////// : Malfunctioning part



PKIA9642E

# CAN SYSTEM (TYPE 6)

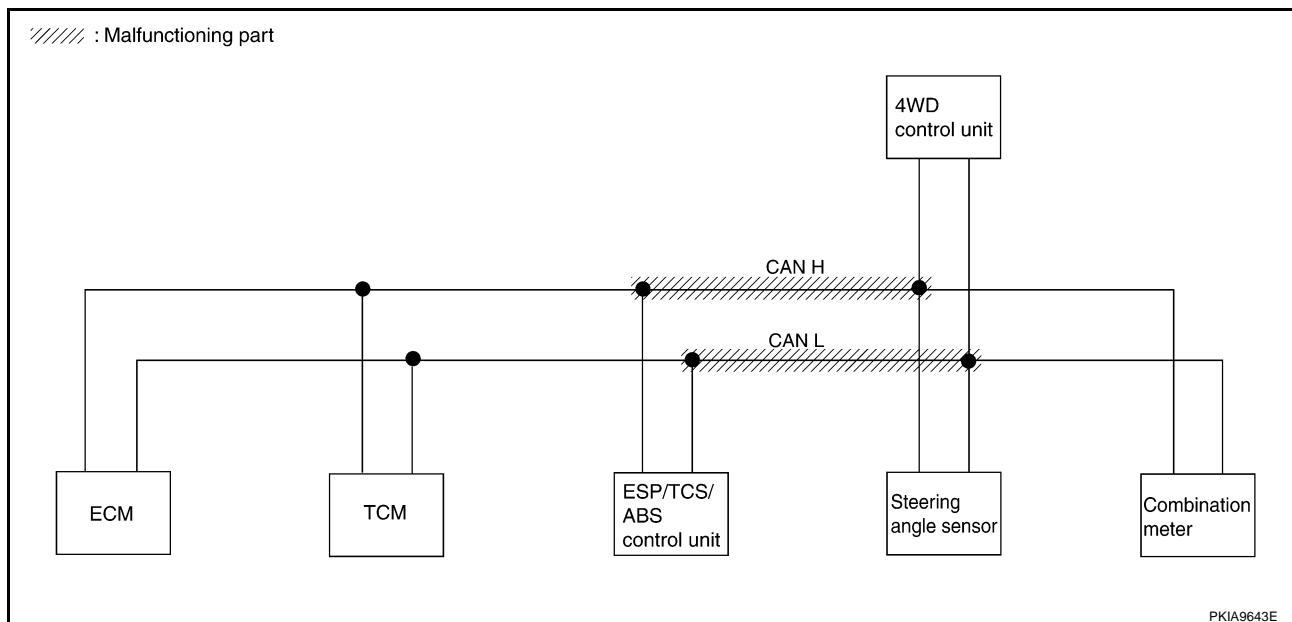
[CAN]

## Case 2

Check harness between ESP/TCS/ABS control unit and 4WD control unit. Refer to [LAN-119, "Inspection Between ESP/TCS/ABS Control Unit and 4WD Control Unit Circuit"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR							
	Initial diagnosis	Transmit diagnosis	Receive diagnosis					
			ECM	TCM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	—	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	—	UNKWN	—	—	—

PKIB9082E



PKIA9643E

# CAN SYSTEM (TYPE 6)

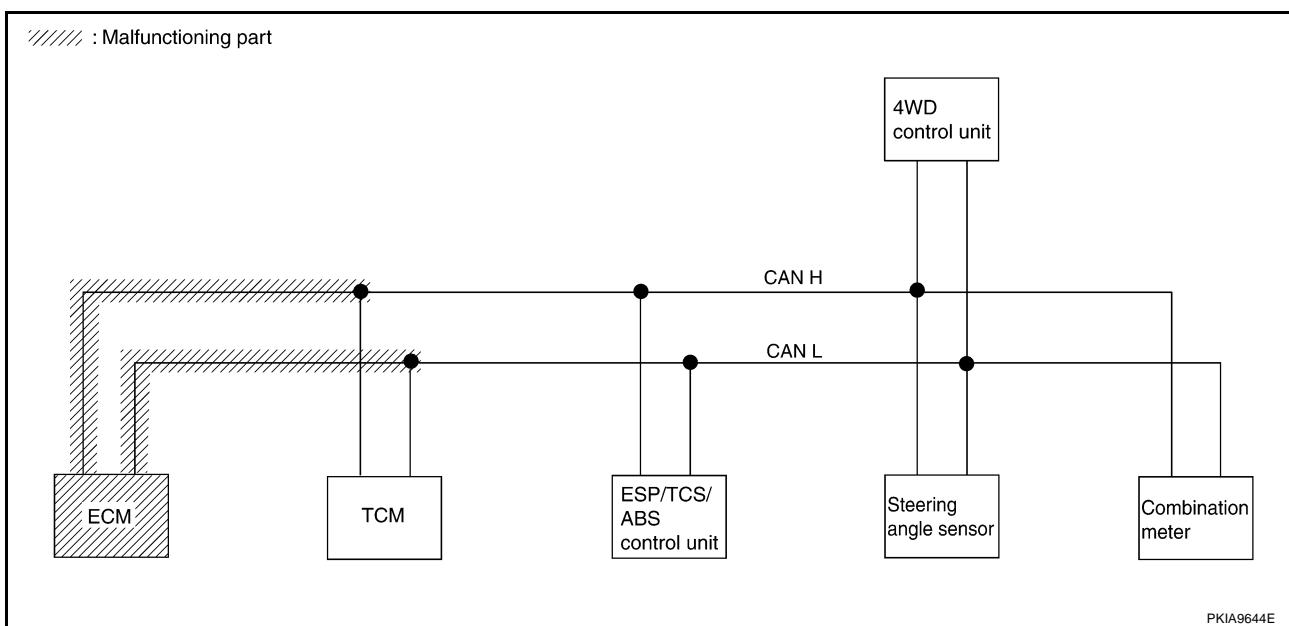
[CAN]

## Case 3

Check ECM circuit. Refer to [LAN-121, "ECM Circuit Inspection"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR							
	Initial diagnosis	Transmit diagnosis	Receive diagnosis					
			ECM	TCM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	—	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	—	UNKWN	—	—	—

PKIB9083E



PKIA9644E

# CAN SYSTEM (TYPE 6)

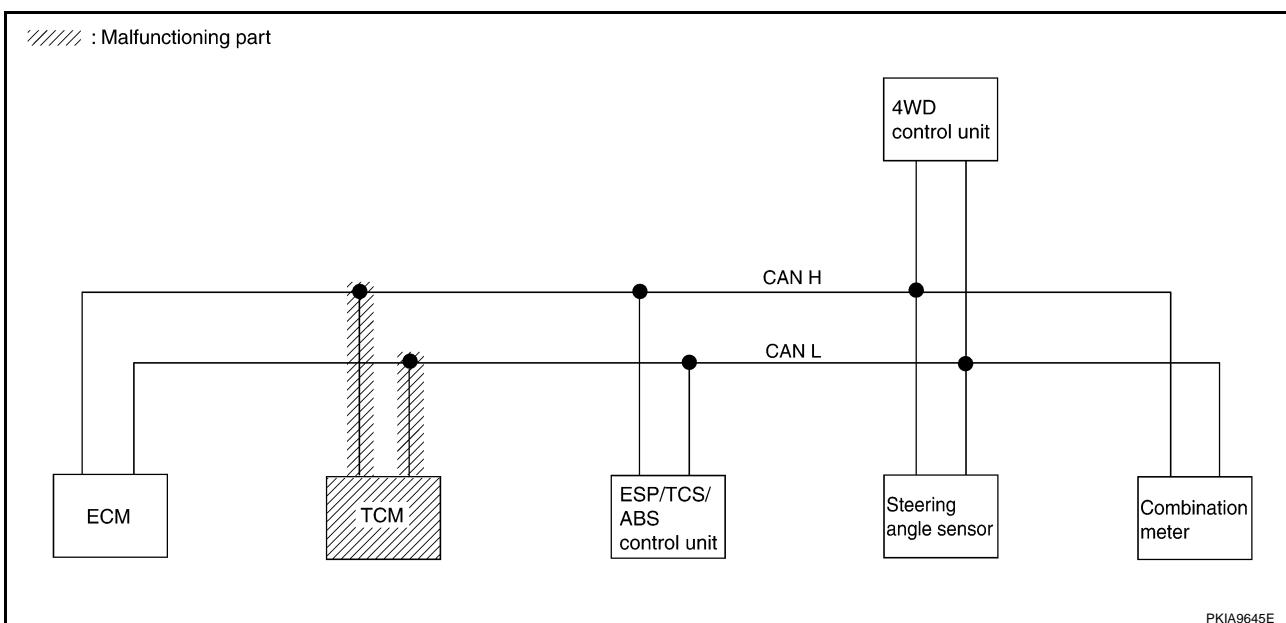
[CAN]

## Case 4

Check TCM circuit. Refer to [LAN-122, "TCM Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR							
	Initial diagnosis	Transmit diagnosis	Receive diagnosis					
			ECM	TCM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	—	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	—	UNKWN	—	—	—

PKIB9084E



# CAN SYSTEM (TYPE 6)

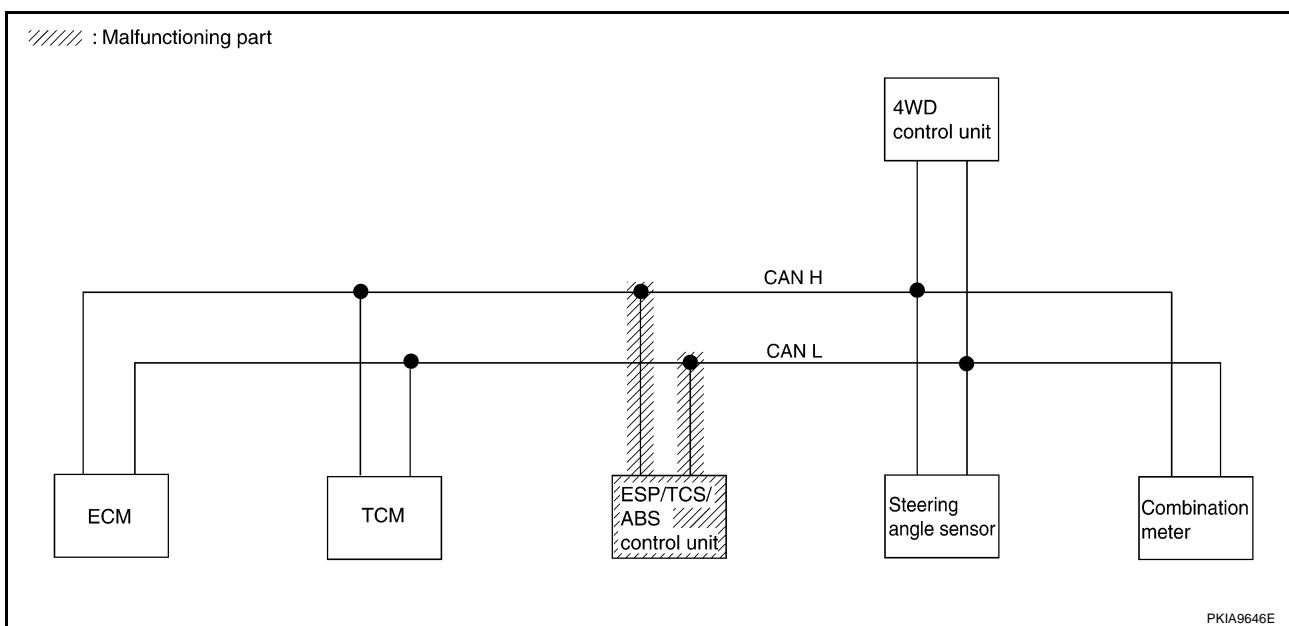
[CAN]

## Case 5

Check ESP/TCS/ABS control unit circuit. Refer to [LAN-122, "ESP/TCS/ABS Control Unit Circuit Inspection"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR							
	Initial diagnosis	Transmit diagnosis	Receive diagnosis					
			ECM	TCM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	—	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	—	UNKWN	—	—	—

PKIB9085E



A  
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LAN

# CAN SYSTEM (TYPE 6)

[CAN]

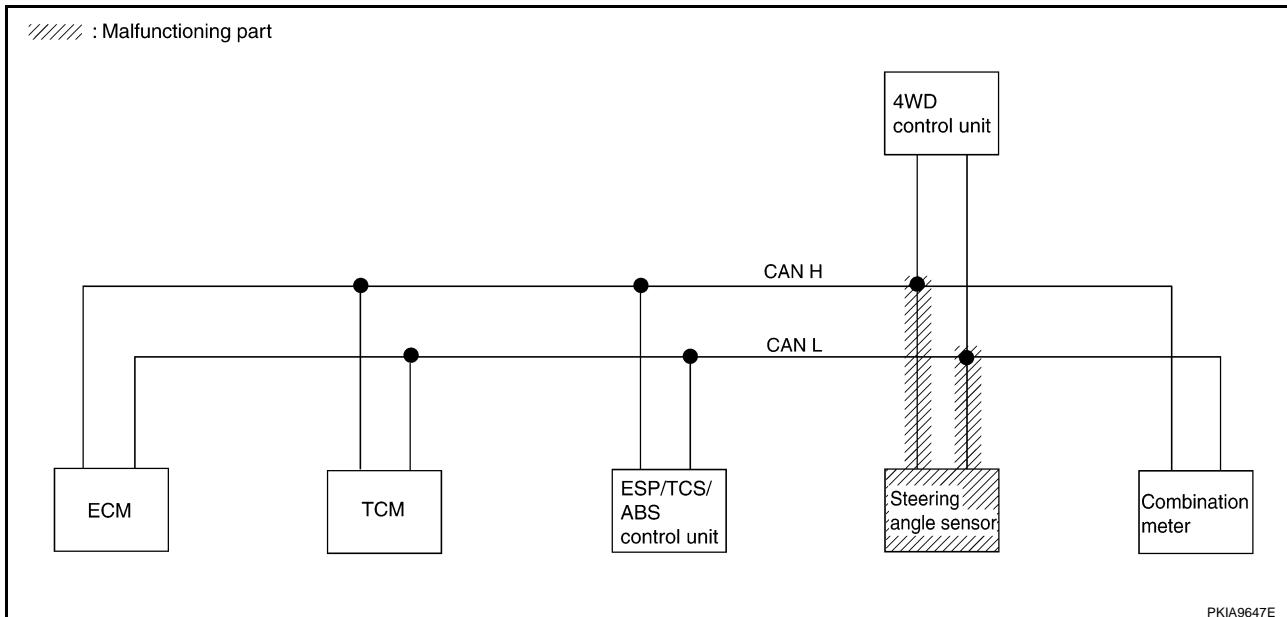
## Case 6

Check steering angle sensor circuit. Refer to [LAN-123, "Steering Angle Sensor Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR							
	Initial diagnosis	Transmit diagnosis	Receive diagnosis					
			ECM	TCM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	—	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	—	UNKWN	—	—	—

PKIB9086E

////// : Malfunctioning part



PKIA9647E

# CAN SYSTEM (TYPE 6)

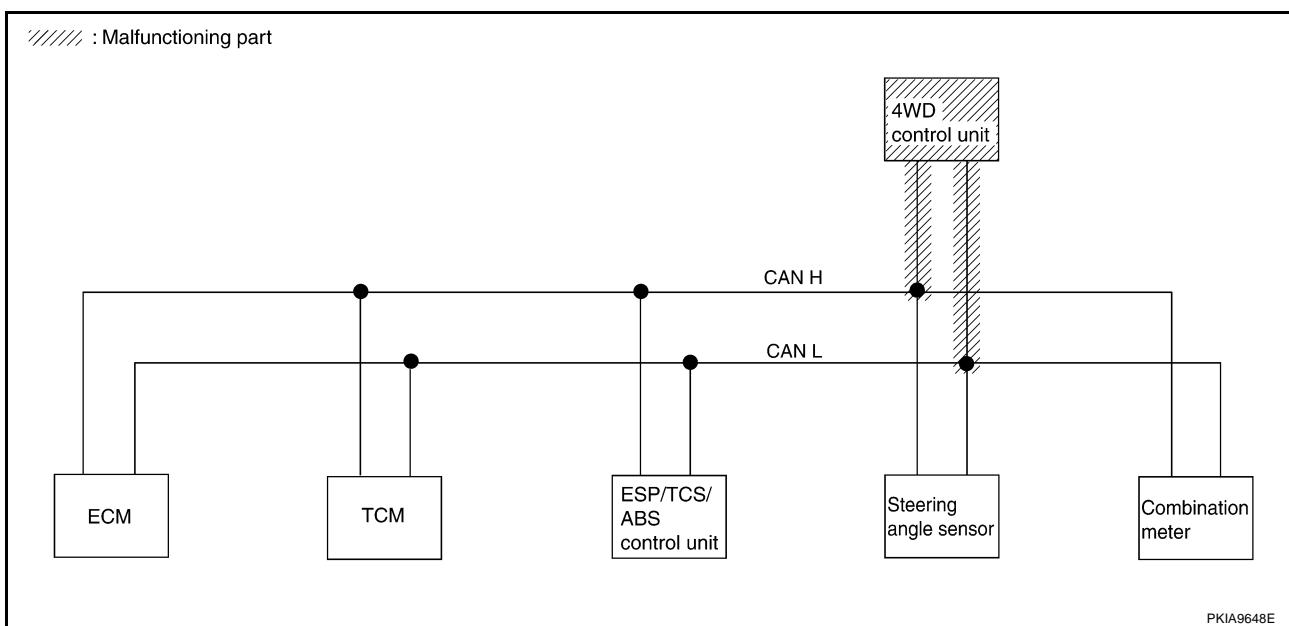
[CAN]

## Case 7

Check 4WD control unit circuit. Refer to [LAN-123, "4WD Control Unit Circuit Inspection"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR							
	Initial diagnosis	Transmit diagnosis	Receive diagnosis					
			ECM	TCM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	—	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	—	UNKWN	—	—	—

PKIB9087E



# CAN SYSTEM (TYPE 6)

[CAN]

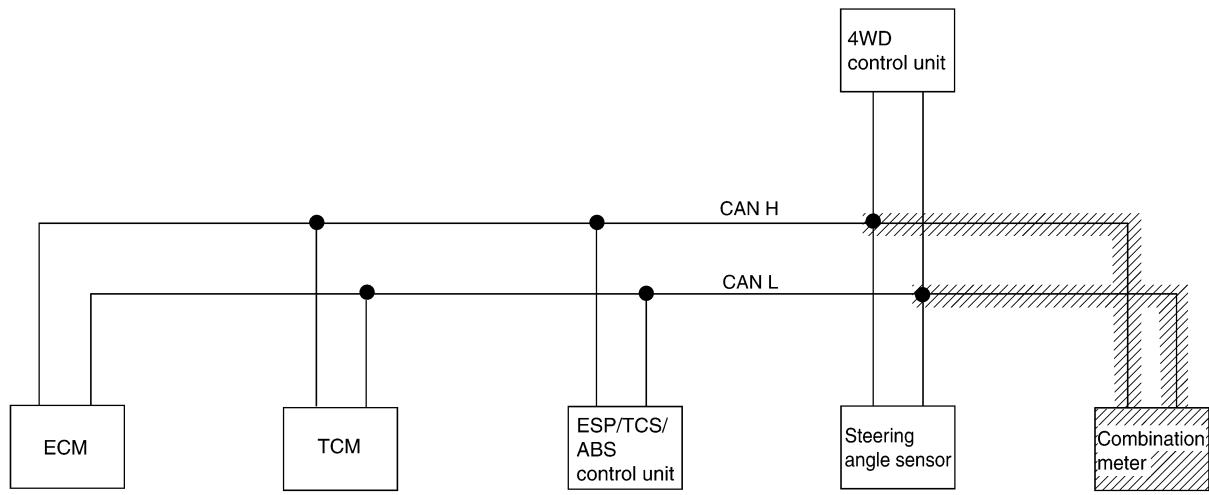
## Case 8

Check combination meter circuit. Refer to [LAN-124, "Combination Meter Circuit Inspection"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR							
	Initial diagnosis	Transmit diagnosis	Receive diagnosis					
			ECM	TCM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	—	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	—	UNKWN	—	—	—

PKIB9088E

////// : Malfunctioning part



PKIA9649E

## Case 9

Check CAN communication circuit. Refer to [LAN-125, "CAN Communication Circuit Inspection"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR							
	Initial diagnosis	Transmit diagnosis	Receive diagnosis					
			ECM	TCM	VDC/TCS /ABS	STRG	AWD/4WD	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN	UNKWN	—	—	UNKWN
A/T	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
ALL MODE AWD/4WD	NG	UNKWN	UNKWN	—	UNKWN	—	—	—

PKIB9089E

### Inspection Between TCM and ESP/TCS/ABS Control Unit Circuit

EKS00LVP

#### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - LHD models
    - Harness connector F41
    - Harness connector M61
    - Harness connector M75
    - Harness connector E116
  - RHD models
    - Harness connector F36
    - Harness connector E60

#### OK or NG

OK      >> GO TO 2.

NG      >> Repair terminal or connector.

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L

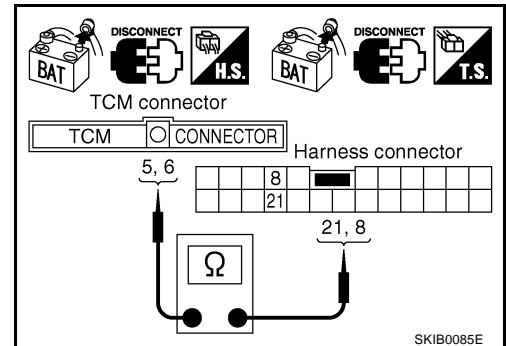
M

## 2. CHECK HARNESS FOR OPEN CIRCUIT

LHD models

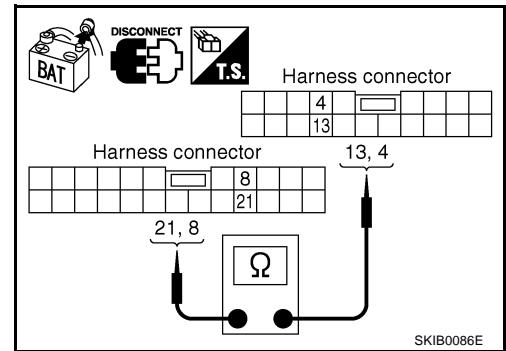
1. Disconnect TCM connector and harness connector F41.
2. Check continuity between TCM harness connector F46 terminals 5 (G/R), 6 (GY/R) and harness connector F41 terminals 21 (G/R), 8 (GY/R).

**5 (G/R) - 21 (G/R)** : Continuity should exist.  
**6 (GY/R) - 8 (GY/R)** : Continuity should exist.



3. Disconnect harness connector M75.
4. Check continuity between harness connector M61 terminals 21 (L/R), 8 (B/W) and harness connector M75 terminals 13 (L/R), 4 (B/W).

**21 (L/R) - 13 (L/R)** : Continuity should exist.  
**8 (B/W) - 4 (B/W)** : Continuity should exist.



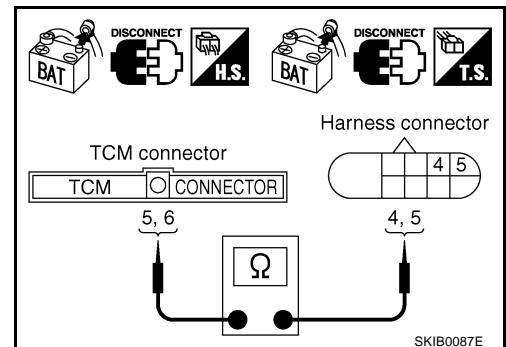
RHD models

1. Disconnect TCM connector and harness connector F36.
2. Check continuity between TCM harness connector F46 terminals 5 (G/R), 6 (GY/R) and harness connector F36 terminals 4 (G/R), 5 (GY/R).

**5 (G/R) - 4 (G/R)** : Continuity should exist.  
**6 (GY/R) - 5 (GY/R)** : Continuity should exist.

OK or NG

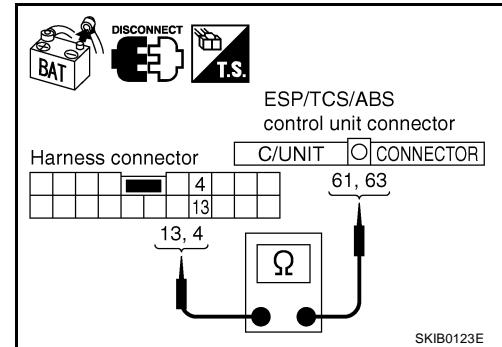
OK >> GO TO 3.  
 NG >> Repair harness.



### 3. CHECK HARNESS FOR OPEN CIRCUIT

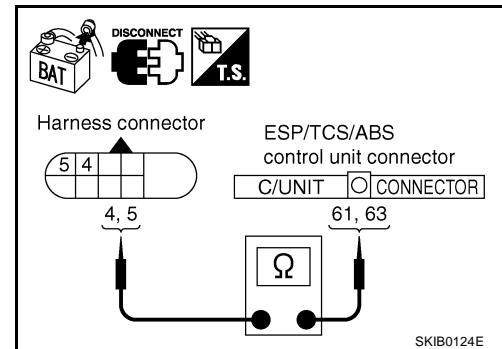
1. Disconnect ESP/TCS/ABS control unit connector.
2. Check the following.
  - LHD models
  - Check continuity between harness connector E116 terminals 13 (W), 4 (R) and ESP/TCS/ABS control unit harness connector E122 terminals 61 (W), 63 (R).

**13 (W) - 61 (W)** : Continuity should exist.  
**4 (R) - 63 (R)** : Continuity should exist.



- RHD models
- Check continuity between harness connector E60 terminals 4 (W), 5 (R) and ESP/TCS/ABS control unit harness connector E122 terminals 61 (W), 63 (R).

**4 (W) - 61 (W)** : Continuity should exist.  
**5 (R) - 63 (R)** : Continuity should exist.



### Inspection Between ESP/TCS/ABS Control Unit and 4WD Control Unit Circuit

EKS00LVQ

#### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E116
  - Harness connector M75

#### OK or NG

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

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LAN

## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector and harness connector E116.

2. Check the following.

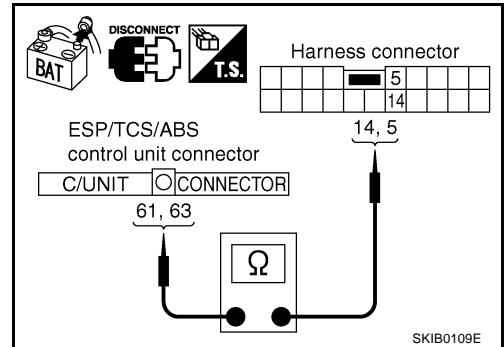
- LHD models
- Check continuity between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W), 63 (R) and harness connector E116 terminals 14 (W), 5 (R).

**61 (W) - 14 (W)**

**: Continuity should exist.**

**63 (R) - 5 (R)**

**: Continuity should exist.**



- RHD models

- Check continuity between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W), 63 (R) and harness connector E116 terminals 9 (W), 2 (R).

**61 (W) - 9 (W)**

**: Continuity should exist.**

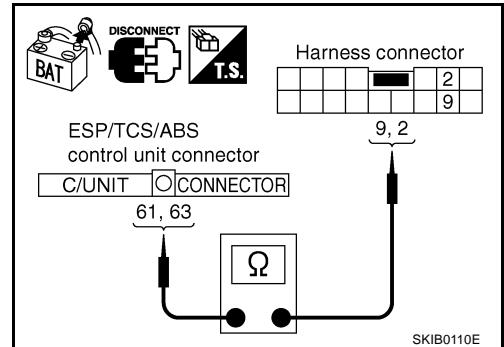
**63 (R) - 2 (R)**

**: Continuity should exist.**

OK or NG

OK      >> GO TO 3.

NG      >> Repair harness.



### 3. CHECK HARNESS FOR OPEN CIRCUIT

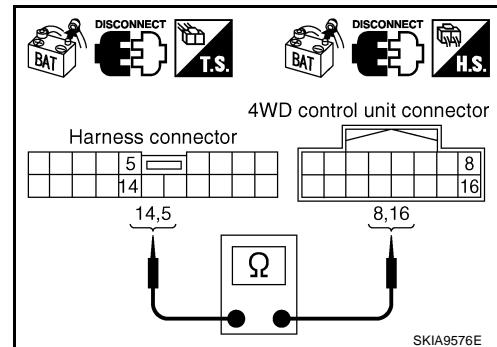
1. Disconnect 4WD control unit connector.
2. Check the following.
  - LHD models
  - Check continuity between harness connector M75 terminals 14 (W), 5 (R) and 4WD control unit harness connector M107 terminals 8 (W), 16 (R).

**14 (W) - 8 (W)**

: Continuity should exist.

**5 (R) - 16 (R)**

: Continuity should exist.



- RHD models
- Check continuity between harness connector M75 terminals 9 (W), 2 (R) and 4WD control unit harness connector M107 terminals 8 (W), 16 (R).

**9 (W) - 8 (W)**

: Continuity should exist.

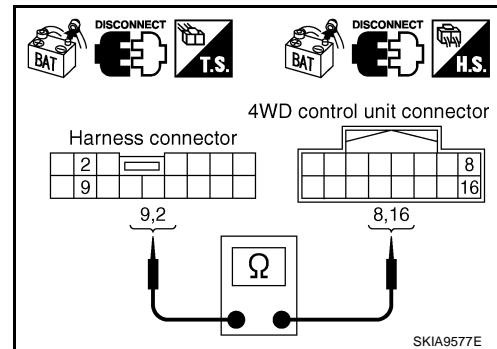
**2 (R) - 16 (R)**

: Continuity should exist.

#### OK or NG

OK      >> Connect all the connectors and diagnose again. Refer to [LAN-107, "Work Flow"](#).

NG      >> Repair harness.



### ECM Circuit Inspection

EKS00LVR

#### 1. CHECK CONNECTOR

LAN

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
  - ECM connector
  - Harness connector M61
  - Harness connector F41

#### OK or NG

OK      >> GO TO 2.

NG      >> Repair terminal or connector.

L

M

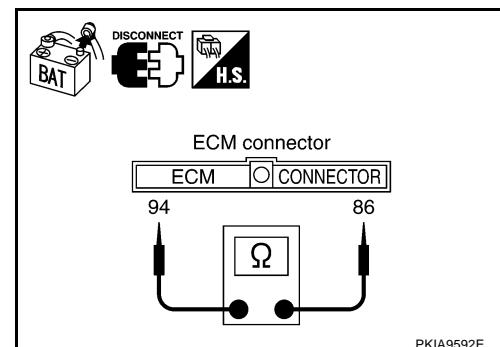
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector M118 terminals 94 (G/R) and 86 (GY/R).

**94 (G/R) - 86 (GY/R)** : Approx. 108 - 132  $\Omega$

OK or NG

OK >> Replace ECM.  
NG >> Repair harness between ECM and TCM.



EKS00LVS

## TCM Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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.

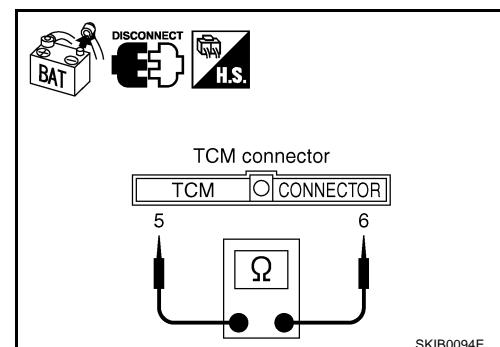
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F46 terminals 5 (G/R) and 6 (GY/R).

**5 (G/R) - 6 (GY/R)** : Approx. 54 - 66  $\Omega$

OK or NG

OK >> Replace TCM.  
NG >> ● LHD models  
- Repair harness between TCM and harness connector F41.  
● RHD models  
- Repair harness between TCM and harness connector F36.



SKIB0094E

## ESP/TCS/ABS Control Unit Circuit Inspection

EKS00LVT

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check terminals and connector of ESP/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.



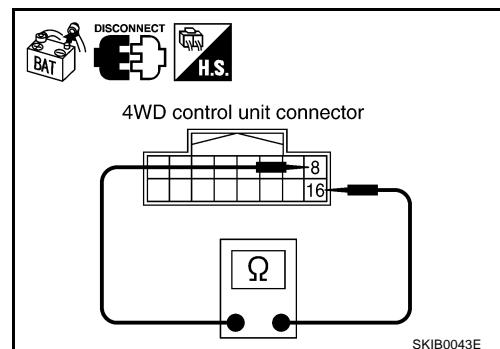
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect 4WD control unit connector.
2. Check resistance between 4WD control unit harness connector M107 terminals 8 (W) and 16 (R).

**8 (W) - 16 (R)** : Approx. 54 - 66  $\Omega$

### OK or NG

OK >> Replace 4WD control unit.  
 NG >> Repair harness between 4WD control unit and steering angle sensor.



EKS00LVW

## Combination Meter Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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.

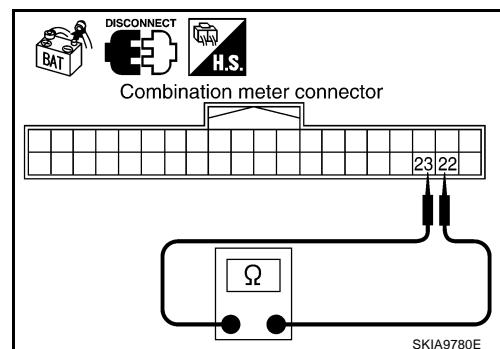
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M44 terminals 22 (W) and 23 (R).

**22 (W) - 23 (R)** : Approx. 108 - 132  $\Omega$

### OK or NG

OK >> Replace combination meter.  
 NG >> Repair harness between combination meter and 4WD control unit.



## CAN Communication Circuit Inspection

EKS00LVX

## 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side, control unit side, sensor side, meter side, connector side and harness side).
  - ECM
  - TCM
  - ESP/TCS/ABS control unit
  - Steering angle sensor
  - 4WD control unit
  - Combination meter
  - Between ECM and combination meter

## OK or NG

OK &gt;&gt; GO TO 2.

NG &gt;&gt; Repair terminal or connector.

## 2. CHECK HARNESS FOR SHORT CIRCUIT

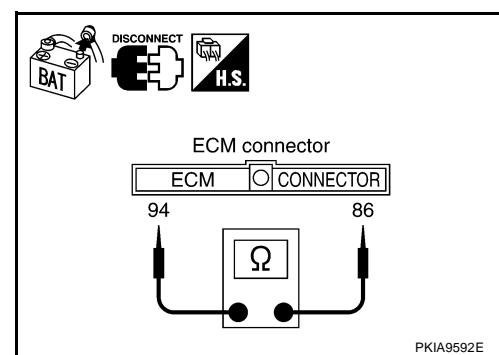
1. Disconnect ECM connector and harness connector M61.
2. Check continuity between ECM harness connector M118 terminals 94 (G/R) and 86 (GY/R).

**94 (G/R) - 86 (GY/R) : Continuity should not exist.**

## OK or NG

OK &gt;&gt; GO TO 3.

NG &gt;&gt; Repair harness between ECM and harness connector M61.



## 3. CHECK HARNESS FOR SHORT CIRCUIT

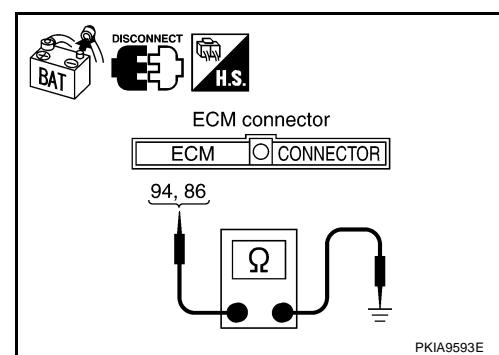
Check continuity between ECM harness connector M118 terminals 94 (G/R), 86 (GY/R) and ground.

**94 (G/R) - Ground : Continuity should not exist.****86 (GY/R) - Ground : Continuity should not exist.**

## OK or NG

OK &gt;&gt; GO TO 4.

NG &gt;&gt; Repair harness between ECM and harness connector M61.

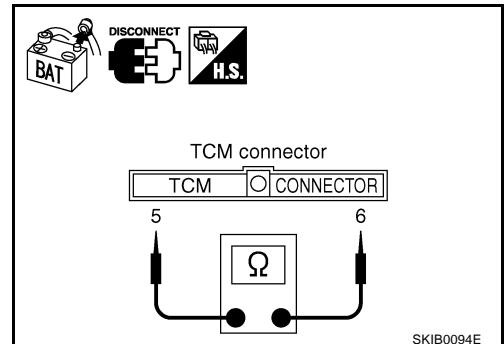


## 4. CHECK HARNESS FOR SHORT CIRCUIT

LHD models

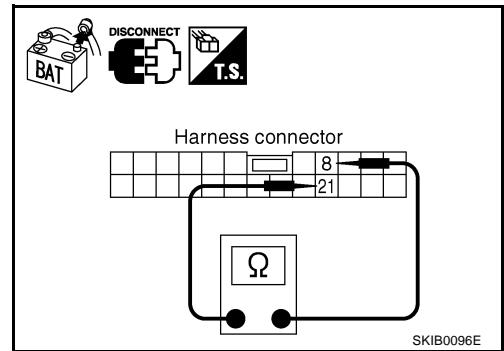
1. Disconnect TCM connector.
2. Check continuity between TCM harness connector F46 terminals 5 (G/R) and 6 (GY/R).

**5 (G/R) - 6 (GY/R)** : Continuity should not exist.



3. Disconnect harness connector M75.
4. Check continuity between harness connector M61 terminals 21 (L/R) and 8 (B/W).

**21 (L/R) - 8 (B/W)** : Continuity should not exist.



RHD models

1. Disconnect TCM connector and harness connector F36.
2. Check continuity between TCM harness connector F46 terminals 5 (G/R) and 6 (GY/R).

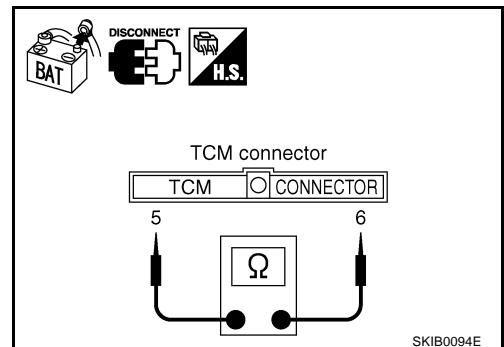
**5 (G/R) - 6 (GY/R)** : Continuity should not exist.

OK or NG

OK >> GO TO 5.  
NG >> ● LHD models

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

- Harness between TCM and harness connector F41
- Harness between harness connector M61 and harness connector M75
- RHD models
- Repair harness between TCM and harness connector F36.



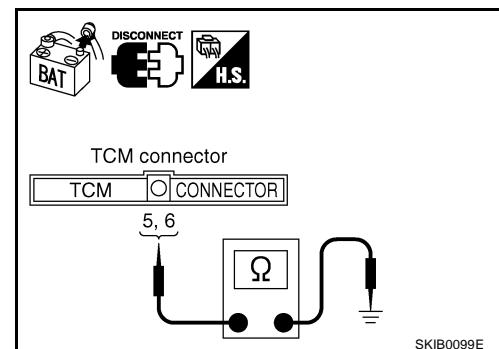
## 5. CHECK HARNESS FOR SHORT CIRCUIT

LHD models

1. Check continuity between TCM harness connector F46 terminals 5 (G/R), 6 (GY/R) and ground.

**5 (G/R) - Ground** : Continuity should not exist.

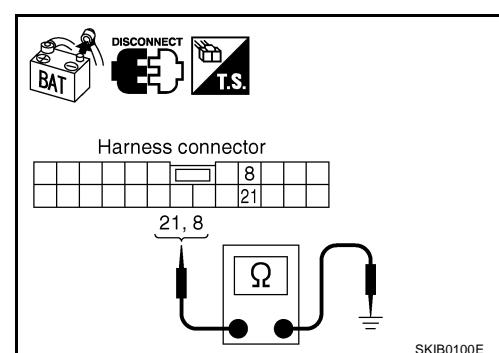
**6 (GY/R) - Ground** : Continuity should not exist.



2. Check continuity between harness connector M61 terminals 21 (L/R), 8 (B/W) and ground.

**21 (L/R) - Ground** : Continuity should not exist.

**8 (B/W) - Ground** : Continuity should not exist.



RHD models

- Check continuity between TCM harness connector F46 terminals 5 (G/R), 6 (GY/R) and ground.

**5 (G/R) - Ground** : Continuity should not exist.

**6 (GY/R) - Ground** : Continuity should not exist.

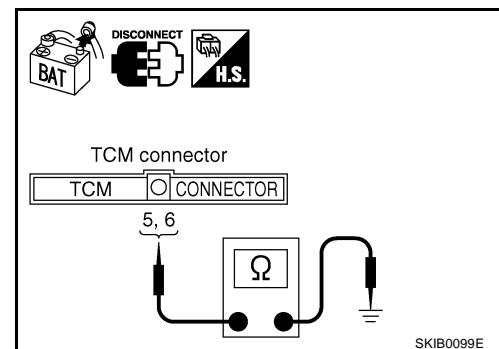
OK or NG

OK >> GO TO 6.

NG >> ● LHD models

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

- Harness between TCM and harness connector F41
- Harness between harness connector M61 and harness connector M75
- RHD models
- Repair harness between TCM and harness connector F36.

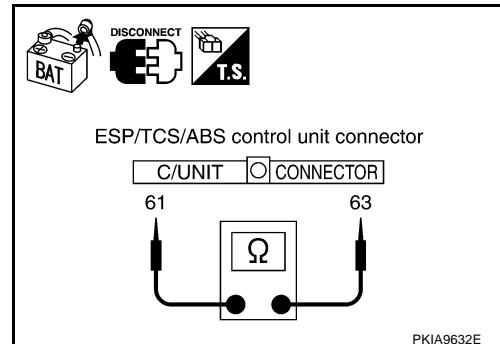


## 6. CHECK HARNESS FOR SHORT CIRCUIT

LHD models

1. Disconnect ESP/TCS/ABS control unit connector.
2. Check continuity between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W) and 63 (R).

**61 (W) - 63 (R)** : Continuity should not exist.



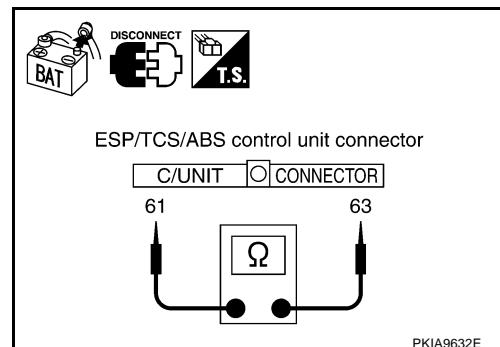
RHD models

1. Disconnect ESP/TCS/ABS control unit connector and harness connector E116.
2. Check continuity between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W) and 63 (R).

**61 (W) - 63 (R)** : Continuity should not exist.

OK or NG

OK >> GO TO 7.  
 NG >> Repair harness between ESP/TCS/ABS control unit and harness connector E116.



## 7. CHECK HARNESS FOR SHORT CIRCUIT

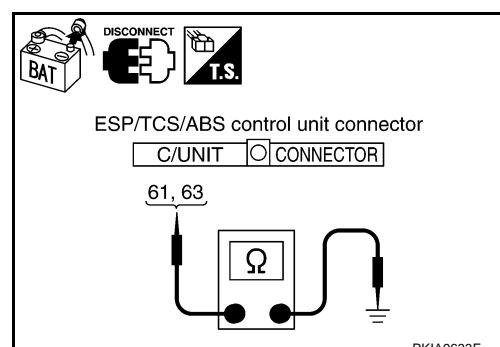
Check continuity between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W), 63 (R) and ground.

**61 (W) - Ground** : Continuity should not exist.

**63 (R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 8.  
 NG >> Repair harness between ESP/TCS/ABS control unit and harness connector E116.



## 8. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
  - Steering angle sensor connector
  - 4WD control unit connector
  - Combination meter connector
2. Check continuity between combination meter harness connector M44 terminals 22 (W) and 23 (R).

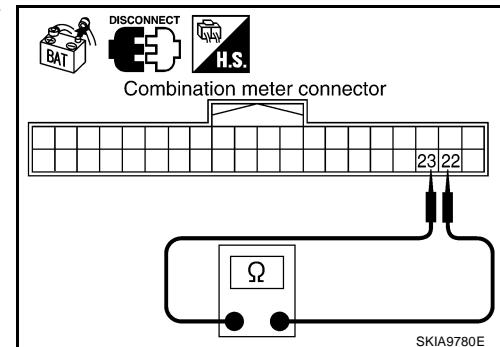
**22 (W) - 23 (R)** : Continuity should not exist.

OK or NG

OK >> GO TO 9.

NG >> Check the following harness. If any harness is damaged, repair the harness.

- Harness between combination meter and 4WD control unit
- Harness between combination meter and steering angle sensor
- Harness between combination meter and harness connector M75



## 9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between combination meter harness connector M44 terminals 22 (W), 23 (R) and ground.

**22 (W) - Ground** : Continuity should not exist.

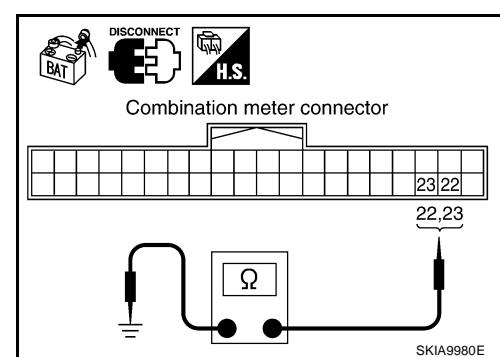
**23 (R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 10.

NG >> Check the following harness. If any harness is damaged, repair the harness.

- Harness between combination meter and 4WD control unit
- Harness between combination meter and steering angle sensor
- Harness between combination meter and harness connector M75



## 10. CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT

Check components inspection. Refer to [LAN-129, "CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT"](#).

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to [LAN-107, "Work Flow"](#).

NG >> Replace ECM and/or combination meter.

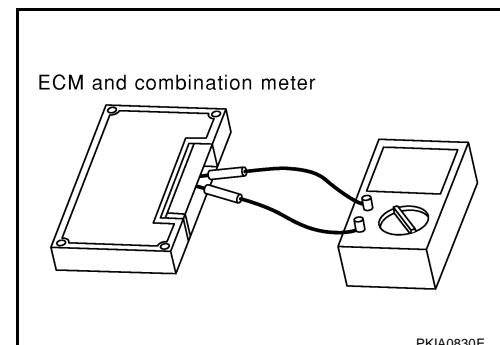
### Component Inspection

#### CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT

EKS00LVY

- Remove ECM and combination meter from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between combination meter terminals 22 and 23.

Unit	Terminal	Resistance ( $\Omega$ ) (Approx.)
ECM	94 - 86	108 - 132
Combination meter	22 - 23	



### CAN SYSTEM (TYPE 7)

PFP:23710

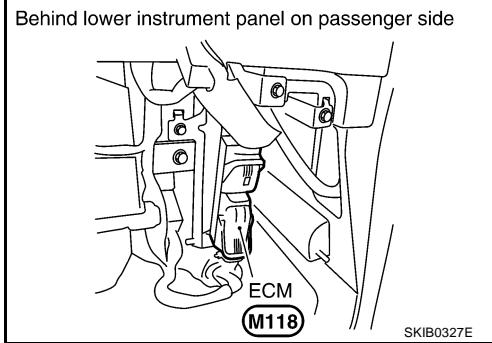
#### System Description

EKS00NKZ

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

EKS00NL0



## Wiring Diagram — CAN —

EKS00NL1

LAN-CAN-13

A

B

C

D

E

F

G

H

I

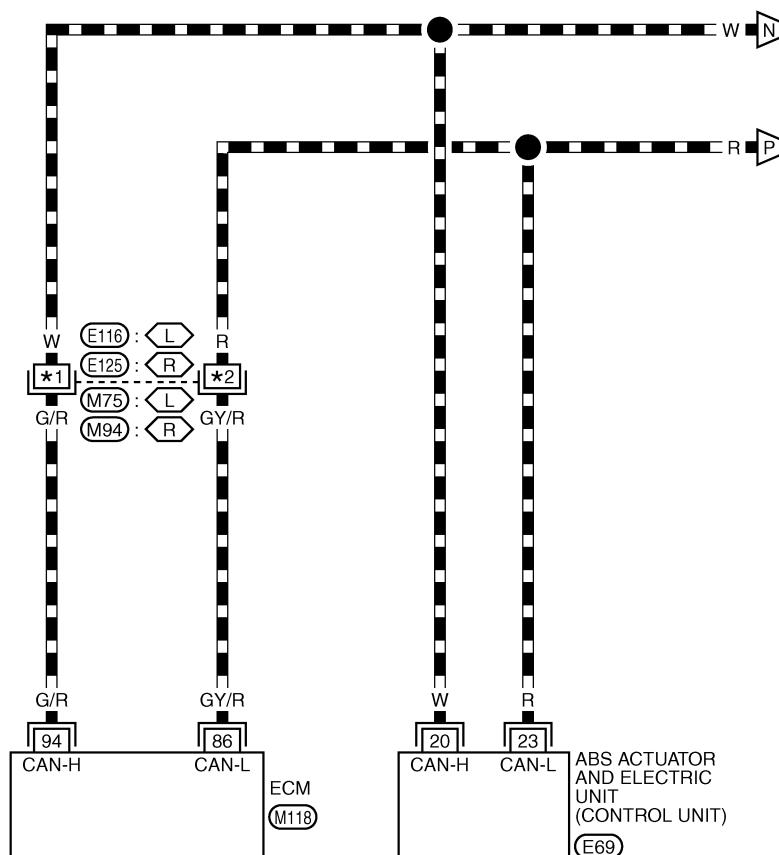
J

LAN

L

M

- : DATA LINE
- ◀ (L) : LHD MODELS
- ◀ (R) : RHD MODELS
- \*1 13 : ◀ (L)
- 4 : ◀ (R)
- \*2 4 : ◀ (L)
- 1 : ◀ (R)

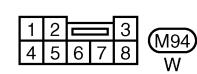
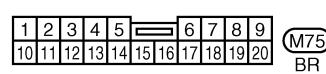
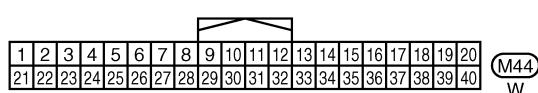
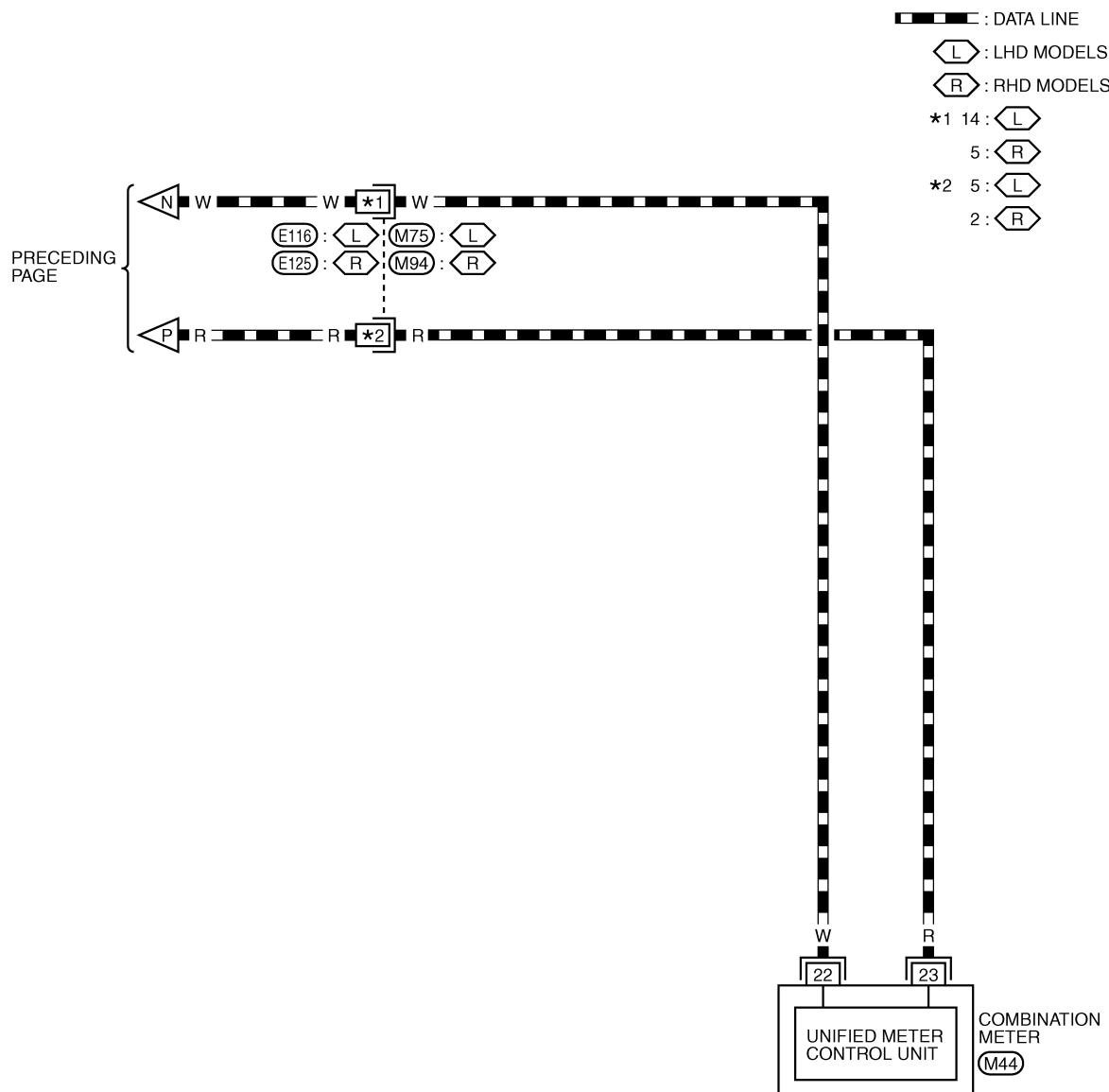


REFER TO THE FOLLOWING.  
 (M118), (E69) -ELECTRICAL  
 UNITS

# CAN SYSTEM (TYPE 7)

[CAN]

LAN-CAN-14



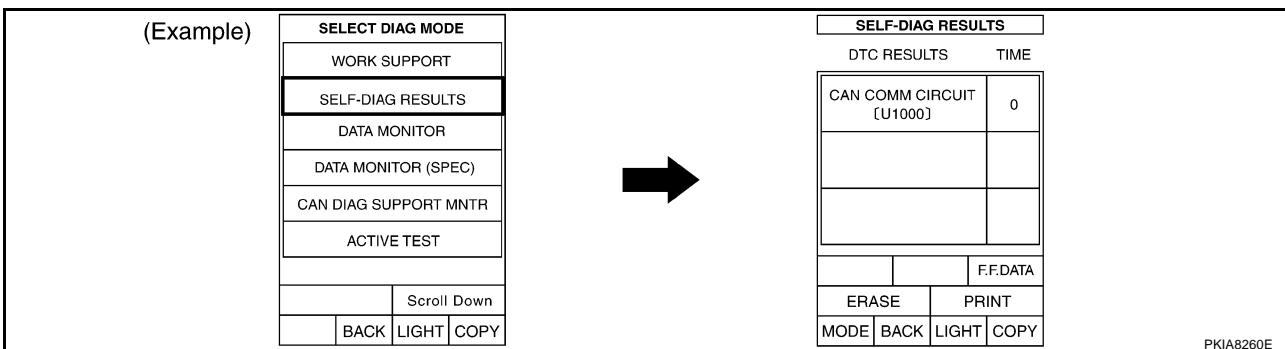
TKWB1885E

LAN-132

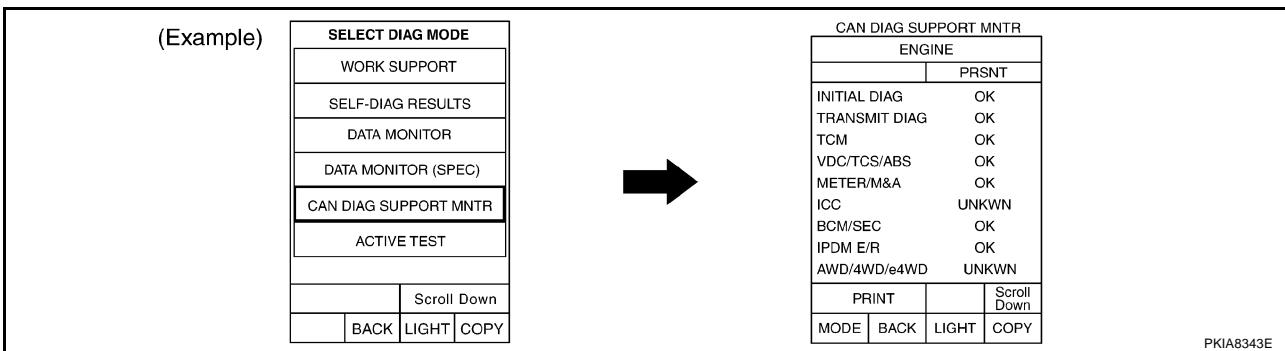
## Work Flow

EKS00NL2

1. Print all the data of "SELF-DIAG RESULTS" for "ENGINE" and "ABS" displayed on CONSULT-II.



2. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE" 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-134, "CHECK SHEET"](#).

4. Based on the results of "CAN DIAG SUPPORT MNTR", put a check marks onto the items with "NG" or "UNKWN" in the check sheet table. Refer to [LAN-134, "CHECK SHEET"](#).

**NOTE:**

- If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", 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-135, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J

LAN  
L

M

### CHECK SHEET

#### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

Check sheet table

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR			
	Initial diagnosis	Transmit diagnosis	Receive diagnosis	
			ECM	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN
ABS	NG	UNKWN	UNKWN	—

Symptoms:

Attach copy of  
ENGINE  
SELF-DIAG RESULTS

Attach copy of  
ABS  
SELF-DIAG RESULTS

Attach copy of  
ENGINE  
CAN DIAG SUPPORT  
MNTR

Attach copy of  
ABS  
CAN DIAG SUPPORT  
MNTR

## CHECK SHEET RESULTS (EXAMPLE)

## NOTE:

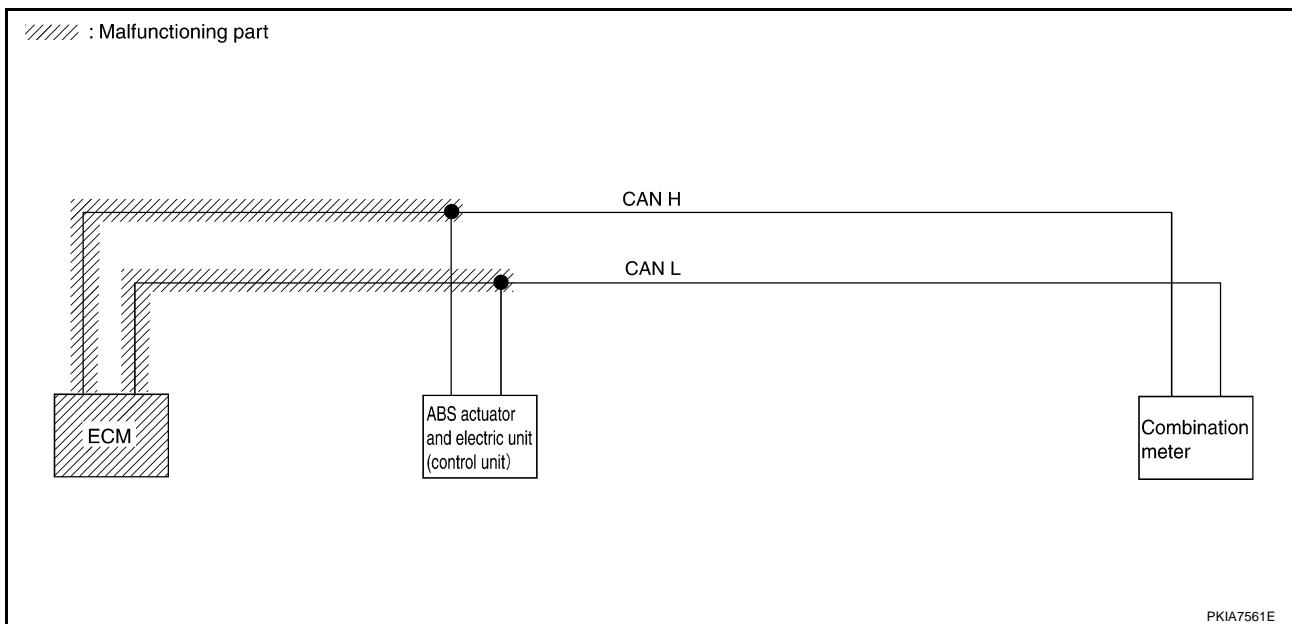
If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

## Case 1

Check ECM circuit. Refer to [LAN-138, "ECM Circuit Inspection"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR			
	Initial diagnosis	Transmit diagnosis	Receive diagnosis	
			ECM	METER/M&A
ENGINE	NG	UNKN	—	UNKN
ABS	NG	UNKN	UNKN	—

PKIC0311E



PKIA7561E

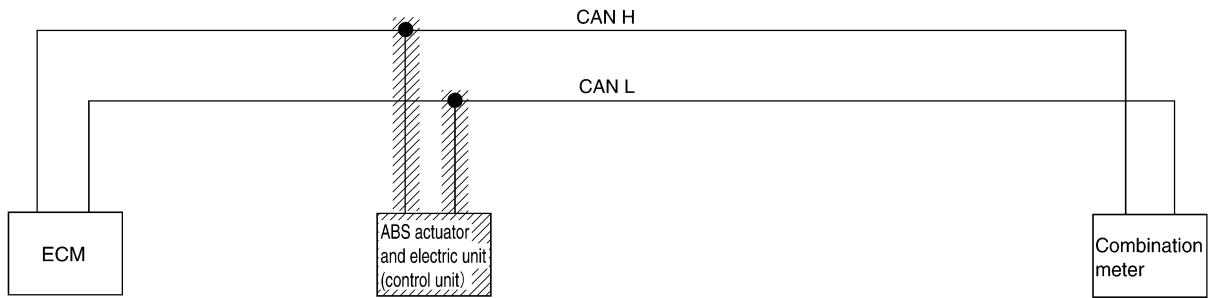
**Case 2**

Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-138, "ABS Actuator and Electric Unit \(Control Unit\) Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR			
	Initial diagnosis	Transmit diagnosis	Receive diagnosis	
			ECM	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN
ABS	NG	UNKWN	UNKWN	—

PKIC0312E

////// : Malfunctioning part



PKIA7562E

# CAN SYSTEM (TYPE 7)

[CAN]

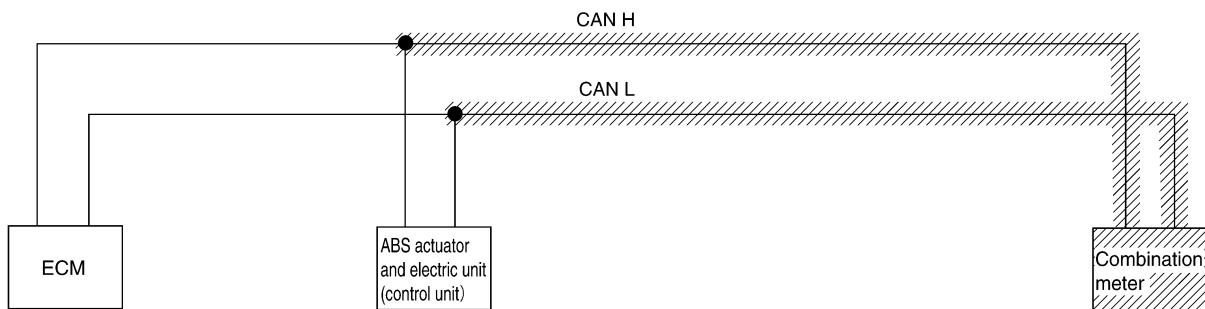
## Case 3

Check combination meter circuit. Refer to [LAN-139, "Combination Meter Circuit Inspection"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR			
	Initial diagnosis	Transmit diagnosis	Receive diagnosis	
			ECM	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN
ABS	NG	UNKWN	UNKWN	—

PKIC0314E

////// : Malfunctioning part



PKIA7563E

## Case 4

Check CAN communication circuit. Refer to [LAN-140, "CAN Communication Circuit Inspection"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR			
	Initial diagnosis	Transmit diagnosis	Receive diagnosis	
			ECM	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN
ABS	NG	UNKWN	UNKWN	—

PKIC0315E

**ECM Circuit Inspection**

EKS00NL3

**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
  - LHD models
  - ECM connector
  - Harness connector M75
  - Harness connector E116
  - RHD models
  - ECM connector
  - Harness connector M94
  - Harness connector E125

OK or NG

OK &gt;&gt; GO TO 2.

NG &gt;&gt; Repair terminal or connector.

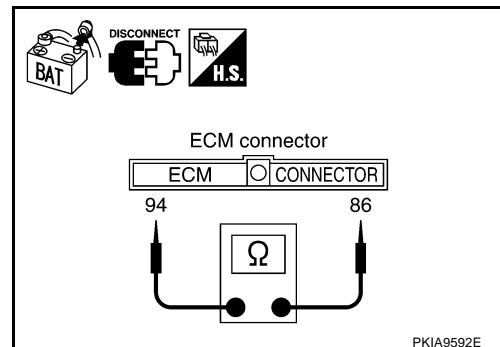
**2. CHECK HARNESS FOR OPEN CIRCUIT**

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector M118 terminals 94 (G/R) and 86 (GY/R).

**94 (G/R) - 86 (GY/R) : Approx. 108 - 132  $\Omega$** OK or NG

OK &gt;&gt; Replace ECM.

NG &gt;&gt; Repair harness between ECM and ABS actuator and electric unit (control unit).

**ABS Actuator and Electric Unit (Control Unit) Circuit Inspection**

EKS00NL4

**1. CHECK CONNECTOR**

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

OK or NG

OK &gt;&gt; GO TO 2.

NG &gt;&gt; Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W) and 23 (R).

**20 (W) - 23 (R)** : Approx. 54 - 66  $\Omega$

OK or NG

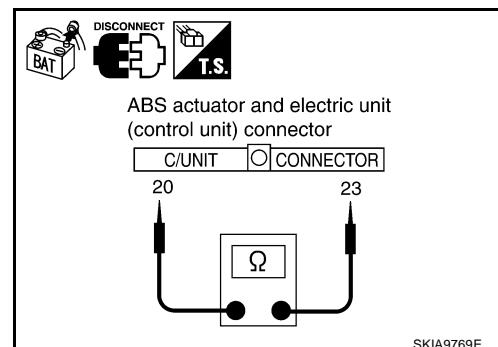
OK >> Replace ABS actuator and electric unit (control unit).

NG >> ● LHD models

- Repair harness between ABS actuator and electric unit (control unit) and harness connector E116.

- RHD models

- Repair harness between ABS actuator and electric unit (control unit) and harness connector E125.



EKS00NL5

## Combination Meter Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (meter side and harness side).
  - LHD models
  - Combination meter connector
  - Harness connector M75
  - Harness connector E116
  - RHD models
  - Combination meter connector
  - Harness connector M94
  - Harness connector E125

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

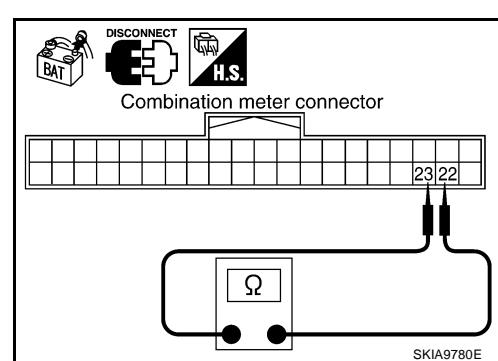
1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M44 terminals 22 (W) and 23 (R).

**22 (W) - 23 (R)** : Approx. 108 - 132  $\Omega$

OK or NG

OK >> Replace combination meter.

NG >> Repair harness between combination meter and ABS actuator and electric unit (control unit).



**CAN Communication Circuit Inspection**

EKS00NL6

**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side, control unit side, meter side, connector side and harness side).
  - ECM
  - ABS actuator and electric unit (control unit)
  - Combination meter
  - Between ECM and combination meter

OK or NG

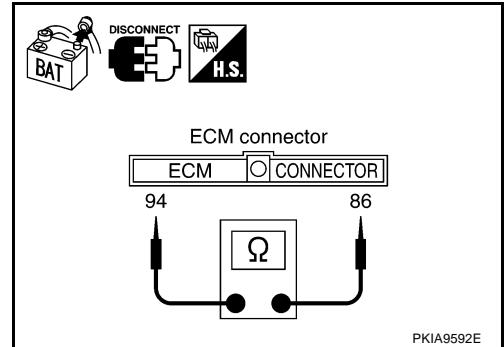
OK &gt;&gt; GO TO 2.

NG &gt;&gt; Repair terminal or connector.

**2. CHECK HARNESS FOR SHORT CIRCUIT**

## LHD models

1. Disconnect ECM connector and harness connector M75.
2. Check continuity between ECM harness connector M118 terminals 94 (G/R) and 86 (GY/R).

**94 (G/R) - 86 (GY/R) : Continuity should not exist.**

## RHD models

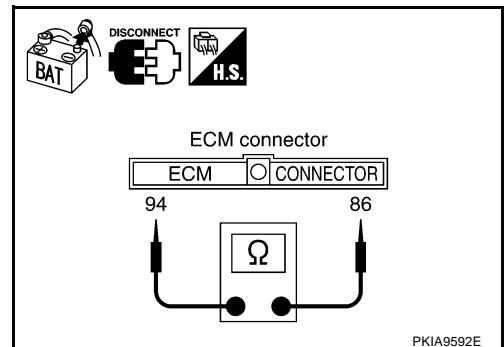
1. Disconnect ECM connector and harness connector M94.
2. Check continuity between ECM harness connector M118 terminals 94 (G/R) and 86 (GY/R).

**94 (G/R) - 86 (GY/R) : Continuity should not exist.**OK or NG

OK &gt;&gt; GO TO 3.

NG &gt;&gt; ● LHD models

- Repair harness between ECM and harness connector M75.
- RHD models
- Repair harness between ECM and harness connector M94.



### 3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector M118 terminals 94 (G/R), 86 (GY/R) and ground.

**94 (G/R) - Ground** : Continuity should not exist.

**86 (GY/R) - Ground** : Continuity should not exist.

#### OK or NG

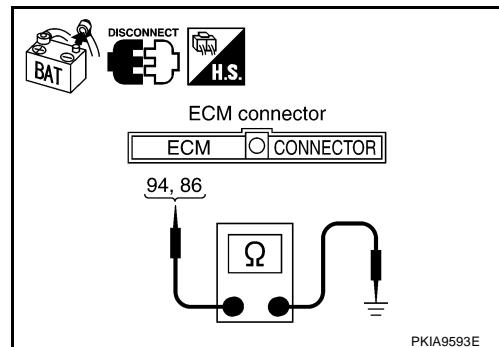
OK >> GO TO 4.

NG >> ● LHD models

- Repair harness between ECM and harness connector M75.

● RHD models

- Repair harness between ECM and harness connector M94.



### 4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W) and 23 (R).

**20 (W) - 23 (R)** : Continuity should not exist.

#### OK or NG

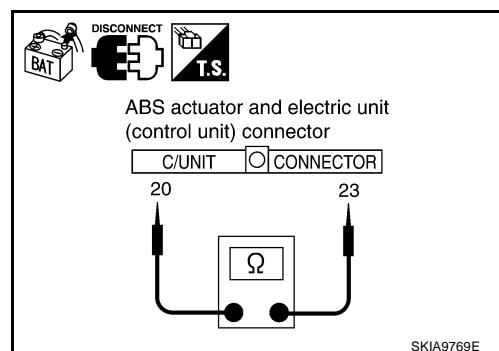
OK >> GO TO 5.

NG >> ● LHD models

- Repair harness between ABS actuator and electric unit (control unit) and harness connector E116.

● RHD models

- Repair harness between ABS actuator and electric unit (control unit) and harness connector E125.



### 5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W), 23 (R) and ground.

**20 (W) - Ground** : Continuity should not exist.

**23 (R) - Ground** : Continuity should not exist.

#### OK or NG

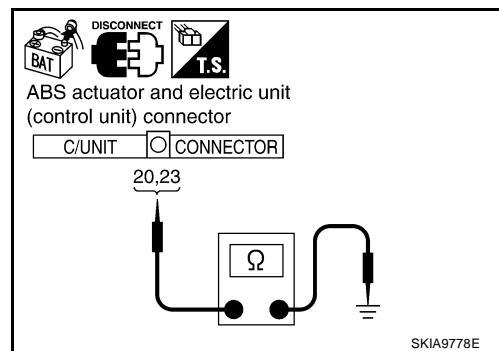
OK >> GO TO 6.

NG >> ● LHD models

- Repair harness between ABS actuator and electric unit (control unit) and harness connector E116.

● RHD models

- Repair harness between ABS actuator and electric unit (control unit) and harness connector E125.



## 6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect combination meter connector.
2. Check continuity between combination meter harness connector M44 terminals 22 (W) and 23 (R).

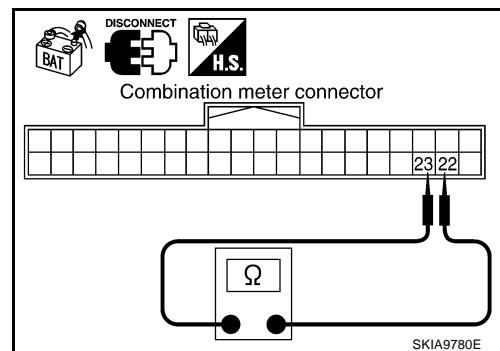
**22 (W) - 23 (R)** : Continuity should not exist.

### OK or NG

OK >> GO TO 7.

NG >> ● LHD models

- Repair harness between combination meter and harness connector M75.
- RHD models
- Repair harness between combination meter and harness connector M94.



## 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between combination meter harness connector M44 terminals 22 (W), 23 (R) and ground.

**22 (W) - Ground** : Continuity should not exist.

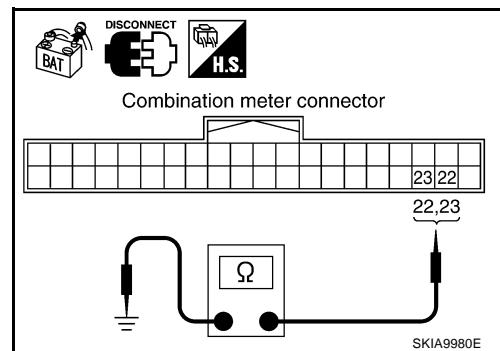
**23 (R) - Ground** : Continuity should not exist.

### OK or NG

OK >> GO TO 8.

NG >> ● LHD models

- Repair harness between combination meter and harness connector M75.
- RHD models
- Repair harness between combination meter and harness connector M94.



## 8. CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT

Check components inspection. Refer to [LAN-142, "CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT"](#).

### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to [LAN-133, "Work Flow"](#).

NG >> Replace ECM and/or combination meter.

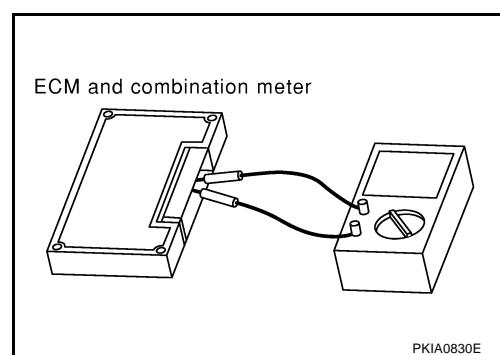
### Component Inspection

#### CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT

EKS00NL7

- Remove ECM and combination meter from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between combination meter terminals 22 and 23.

Unit	Terminal	Resistance ( $\Omega$ ) (Approx.)
ECM	94 - 86	108 - 132
Combination meter	22 - 23	



### CAN SYSTEM (TYPE 8)

PFP:23710

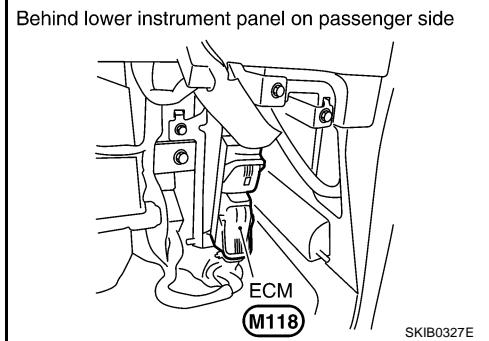
#### System Description

EKS00NHR

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

EKS00NHS



A  
B  
C  
D  
E  
F  
G  
H  
I  
J

LAN

L

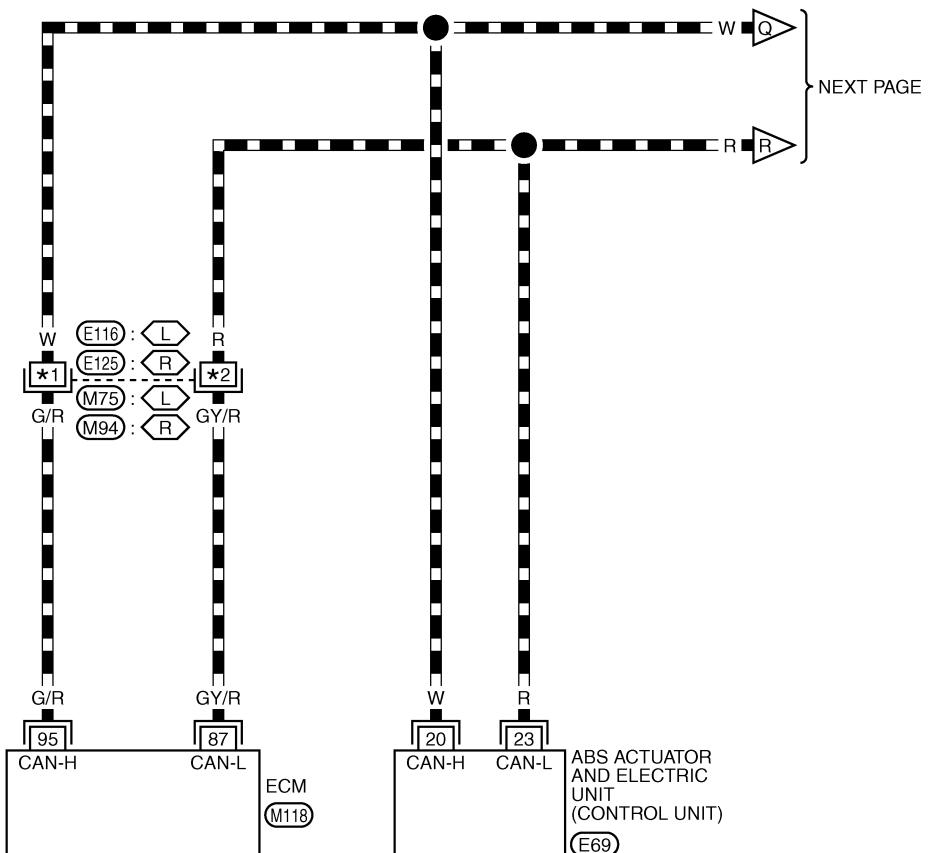
M

## Wiring Diagram — CAN —

EKS00NHT

LAN-CAN-15

- : DATA LINE
- ◀ (L) : LHD MODELS
- ◀ (R) : RHD MODELS
- \*1 13 : ◀ (L)
- 4 : ◀ (R)
- \*2 4 : ◀ (L)
- 1 : ◀ (R)

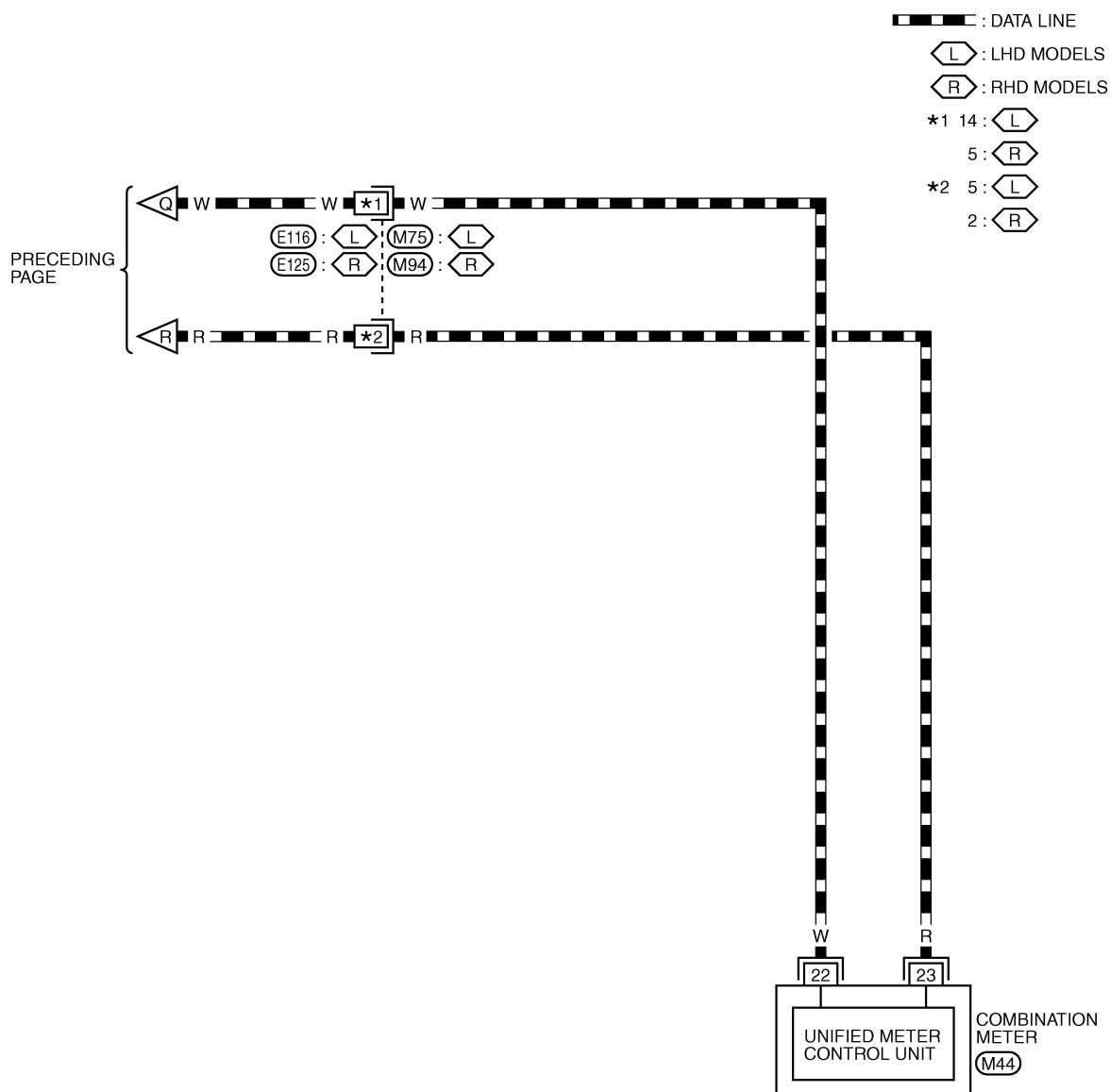


REFER TO THE FOLLOWING.  
 (M118), (E69) -ELECTRICAL  
 UNITS

# CAN SYSTEM (TYPE 8)

[CAN]

LAN-CAN-16



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

(M44) W

1	2	3	4	5	6	7	8	9		
10	11	12	13	14	15	16	17	18	19	20

(M75) BR

1	2	3	4	5	6	7	8
4	5	6	7	8	9	10	11

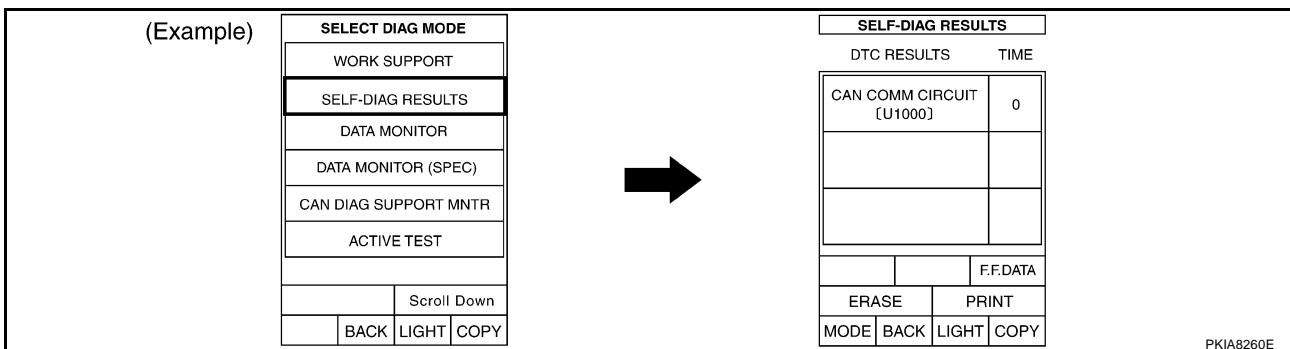
(M94) W

TKWB1887E

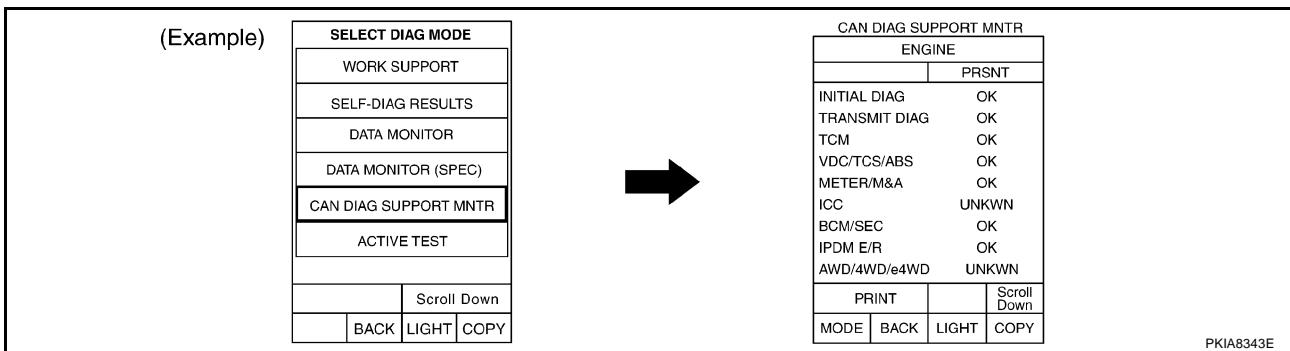
**Work Flow**

EKS00NHU

1. Print all the data of "SELF-DIAG RESULTS" for "ENGINE" and "ABS" displayed on CONSULT-II.



2. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE" 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-147, "CHECK SHEET"](#) .

4. Based on the results of "CAN DIAG SUPPORT MNTR", put a check marks onto the items with "NG" or "UNKWN" in the check sheet table. Refer to [LAN-147, "CHECK SHEET"](#) .

**NOTE:**

- If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", 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-148, "CHECK SHEET RESULTS \(EXAMPLE\)"](#) .

**CHECK SHEET****NOTE:**

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

Check sheet table

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR			
	Initial diagnosis	Transmit diagnosis	Receive diagnosis	
			ECM	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN
ABS	NG	UNKWN	UNKWN	—

Symptoms:

Attach copy of  
ENGINE  
SELF-DIAG RESULTSAttach copy of  
ABS  
SELF-DIAG RESULTSAttach copy of  
ENGINE  
CAN DIAG SUPPORT  
MNTRAttach copy of  
ABS  
CAN DIAG SUPPORT  
MNTRA  
B  
C  
D  
E  
F  
G  
H  
I  
J

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M

# CAN SYSTEM (TYPE 8)

[CAN]

## CHECK SHEET RESULTS (EXAMPLE)

### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

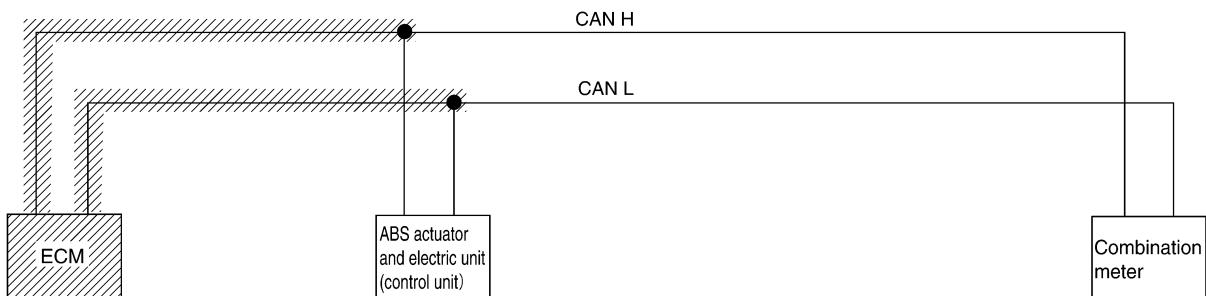
### Case 1

Check ECM circuit. Refer to [LAN-151, "ECM Circuit Inspection"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR			
	Initial diagnosis	Transmit diagnosis	Receive diagnosis	
			ECM	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN
ABS	NG	UNKWN	UNKWN	—

PKIC0311E

/////: Malfunctioning part



PKIA7561E

# CAN SYSTEM (TYPE 8)

[CAN]

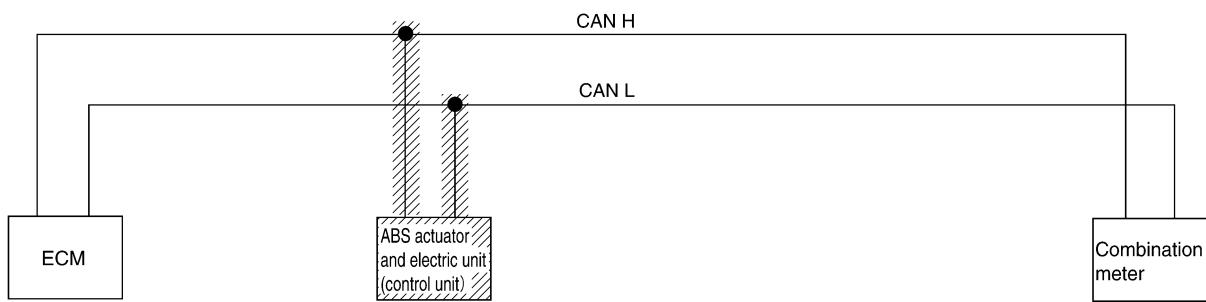
## Case 2

Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-151, "ABS Actuator and Electric Unit \(Control Unit\) Circuit Inspection"](#).

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR			
	Initial diagnosis	Transmit diagnosis	Receive diagnosis	
			ECM	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN
ABS	NG	UNKWN	UNKWN	—

PKIC0345E

////// : Malfunctioning part



PKIA7562E

# CAN SYSTEM (TYPE 8)

[CAN]

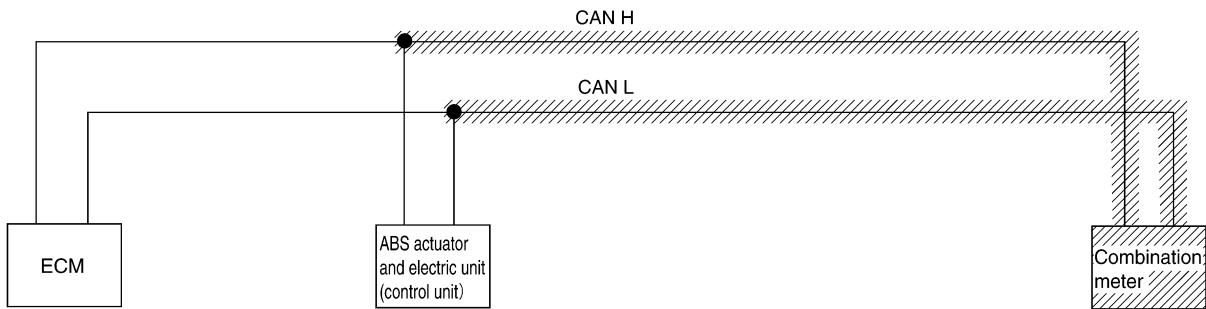
## Case 3

Check combination meter circuit. Refer to [LAN-152, "Combination Meter Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR			
	Initial diagnosis	Transmit diagnosis	Receive diagnosis	
			ECM	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN
ABS	NG	UNKWN	UNKWN	—

PKIC0314E

/////: Malfunctioning part



PKIA7563E

## Case 4

Check CAN communication circuit. Refer to [LAN-153, "CAN Communication Circuit Inspection"](#) .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR			
	Initial diagnosis	Transmit diagnosis	Receive diagnosis	
			ECM	METER/M&A
ENGINE	NG	UNKWN	—	UNKWN
ABS	NG	UNKWN	UNKWN	—

PKIC0344E

**ECM Circuit Inspection**

EKS00NLK

**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
  - LHD models
  - ECM connector
  - Harness connector M75
  - Harness connector E116
  - RHD models
  - ECM connector
  - Harness connector M94
  - Harness connector E125

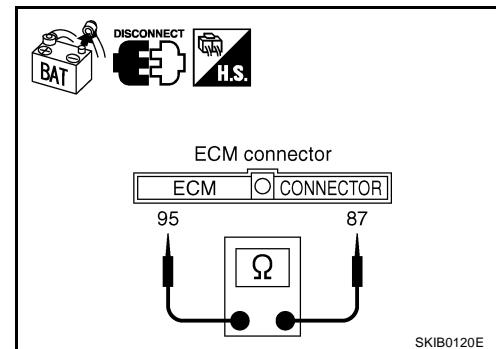
OK or NG

OK &gt;&gt; GO TO 2.

NG &gt;&gt; Repair terminal or connector.

**2. CHECK HARNESS FOR OPEN CIRCUIT**

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector M118 terminals 95 (G/R) and 87 (GY/R).

**95 (G/R) - 87 (GY/R) : Approx. 108 - 132  $\Omega$** OK or NG

OK &gt;&gt; Replace ECM.

NG &gt;&gt; Repair harness between ECM and ABS actuator and electric unit (control unit).

**ABS Actuator and Electric Unit (Control Unit) Circuit Inspection**

EKS00NL

**1. CHECK CONNECTOR**

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

OK or NG

OK &gt;&gt; GO TO 2.

NG &gt;&gt; Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

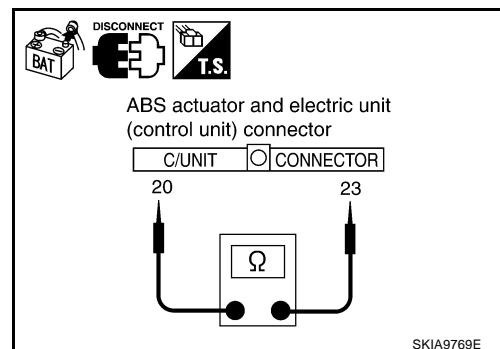
1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W) and 23 (R).

**20 (W) - 23 (R)** : **Approx. 54 - 66 Ω**

### OK or NG

OK >> Replace ABS actuator and electric unit (control unit).  
 NG >> ● LHD models

- Repair harness between ABS actuator and electric unit (control unit) and harness connector E116.
- RHD models
- Repair harness between ABS actuator and electric unit (control unit) and harness connector E125.



## Combination Meter Circuit Inspection

EKS00NL

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (meter side and harness side).
  - LHD models
  - Combination meter connector
  - Harness connector M75
  - Harness connector E116
  - RHD models
  - Combination meter connector
  - Harness connector M94
  - Harness connector E125

### OK or NG

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

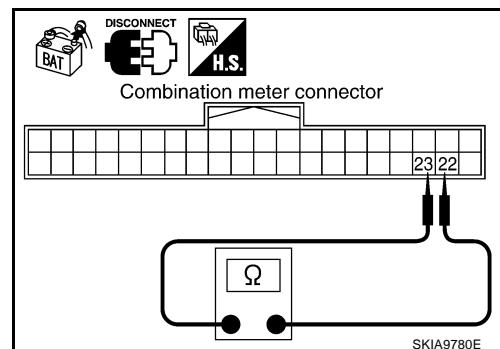
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M44 terminals 22 (W) and 23 (R).

**22 (W) - 23 (R)** : **Approx. 108 - 132 Ω**

### OK or NG

OK >> Replace combination meter.  
 NG >> Repair harness between combination meter and ABS actuator and electric unit (control unit).



## CAN Communication Circuit Inspection

EKSOONLN

## 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side, control unit side, meter side, connector side and harness side).
  - ECM
  - ABS actuator and electric unit (control unit)
  - Combination meter
  - Between ECM and combination meter

## OK or NG

OK &gt;&gt; GO TO 2.

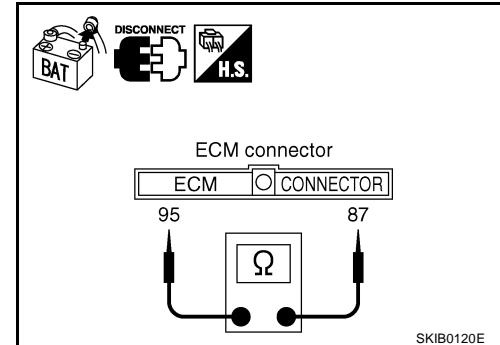
NG &gt;&gt; Repair terminal or connector.

## 2. CHECK HARNESS FOR SHORT CIRCUIT

## LHD models

1. Disconnect ECM connector and harness connector M75.
2. Check continuity between ECM harness connector M118 terminals 95 (G/R) and 87 (GY/R).

95 (G/R) - 87 (GY/R) : Continuity should not exist.



## RHD models

1. Disconnect ECM connector and harness connector M94.
2. Check continuity between ECM harness connector M118 terminals 95 (G/R) and 87 (GY/R).

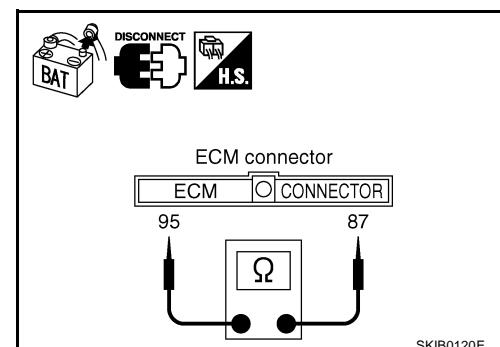
95 (G/R) - 87 (GY/R) : Continuity should not exist.

## OK or NG

OK &gt;&gt; GO TO 3.

NG &gt;&gt; ● LHD models

- Repair harness between ECM and harness connector M75.
- RHD models
- Repair harness between ECM and harness connector M94.



### 3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector M118 terminals 95 (G/R), 87 (GY/R) and ground.

**95 (G/R) - Ground** : Continuity should not exist.

**87 (GY/R) - Ground** : Continuity should not exist.

OK or NG

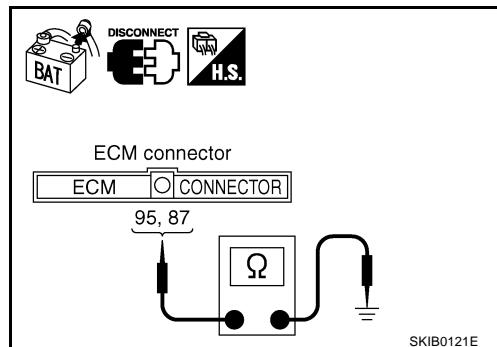
OK >> GO TO 4.

NG >> ● LHD models

- Repair harness between ECM and harness connector M75.

- RHD models

- Repair harness between ECM and harness connector M94.



### 4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W) and 23 (R).

**20 (W) - 23 (R)** : Continuity should not exist.

OK or NG

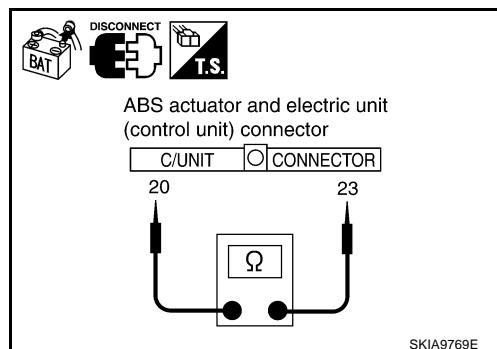
OK >> GO TO 5.

NG >> ● LHD models

- Repair harness between ABS actuator and electric unit (control unit) and harness connector E116.

- RHD models

- Repair harness between ABS actuator and electric unit (control unit) and harness connector E125.



### 5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E69 terminals 20 (W), 23 (R) and ground.

**20 (W) - Ground** : Continuity should not exist.

**23 (R) - Ground** : Continuity should not exist.

OK or NG

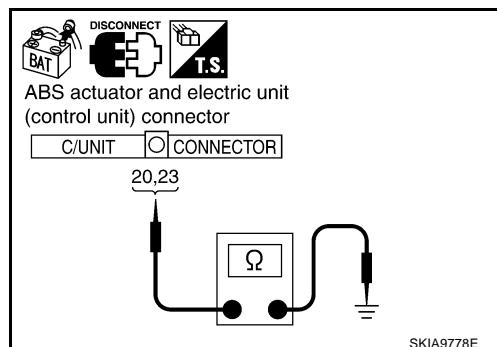
OK >> GO TO 6.

NG >> ● LHD models

- Repair harness between ABS actuator and electric unit (control unit) and harness connector E116.

- RHD models

- Repair harness between ABS actuator and electric unit (control unit) and harness connector E125.



## 6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect combination meter connector.
2. Check continuity between combination meter harness connector M44 terminals 22 (W) and 23 (R).

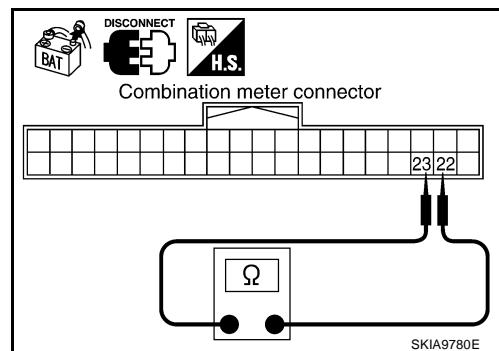
**22 (W) - 23 (R)** : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> ● LHD models

- Repair harness between combination meter and harness connector M75.
- RHD models
- Repair harness between combination meter and harness connector M94.



## 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between combination meter harness connector M44 terminals 22 (W), 23 (R) and ground.

**22 (W) - Ground** : Continuity should not exist.

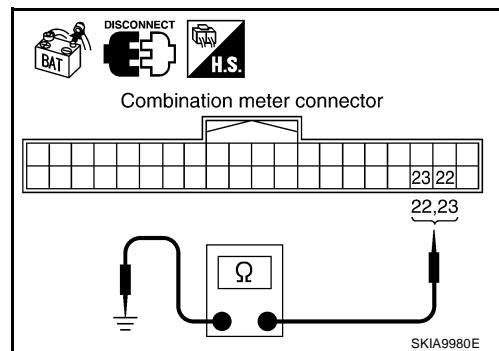
**23 (R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> ● LHD models

- Repair harness between combination meter and harness connector M75.
- RHD models
- Repair harness between combination meter and harness connector M94.



## 8. CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT

Check components inspection. Refer to [LAN-155, "CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT"](#).

LAN

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to [LAN-146, "Work Flow"](#).

NG >> Replace ECM and/or combination meter.

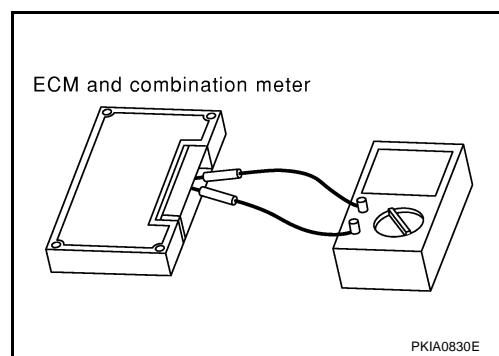
### Component Inspection

#### CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT

EKS000N1

- Remove ECM and combination meter from vehicle.
- Check resistance between ECM terminals 95 and 87.
- Check resistance between combination meter terminals 22 and 23.

Unit	Terminal	Resistance ( $\Omega$ ) (Approx.)
ECM	95 - 87	108 - 132
Combination meter	22 - 23	



### CAN SYSTEM (TYPE 9)

PFP:23710

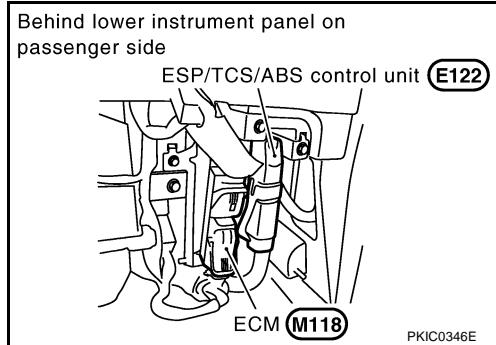
#### System Description

EKS00NL8

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

EKS00NL9

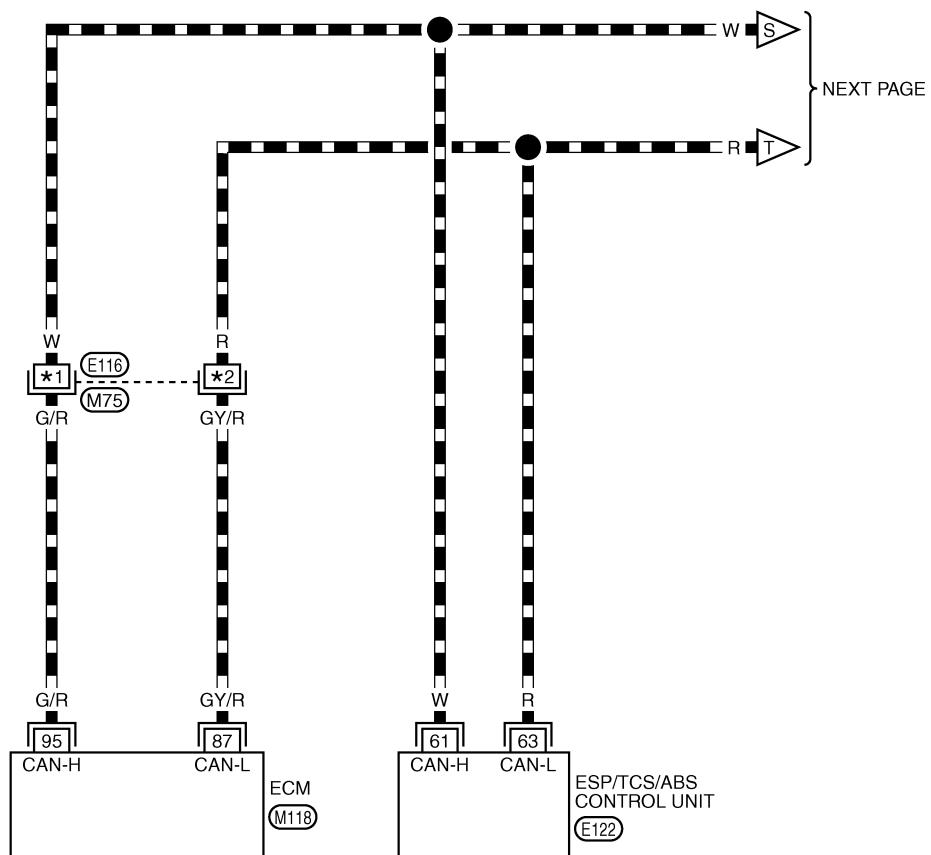


## Wiring Diagram — CAN —

EKS00NLA

LAN-CAN-17

- : DATA LINE
- ◀ (L) : LHD MODELS
- ▶ (R) : RHD MODELS
- \*1 13 : ◀ (L)
- 10 : ▶ (R)
- \*2 4 : ◀ (L)
- 3 : ▶ (R)



1	2	3	4	5			6	7	8	9
10	11	12	13	14	15	16	17	18	19	20

 (M75) : ◀ (L)  
 BR

1	2	3			4	5	6	7
8	9	10	11	12	13	14	15	16

 (M75) : ▶ (R)  
 BR

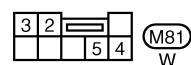
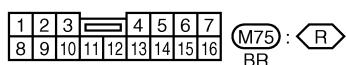
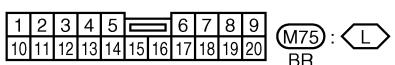
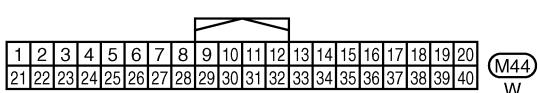
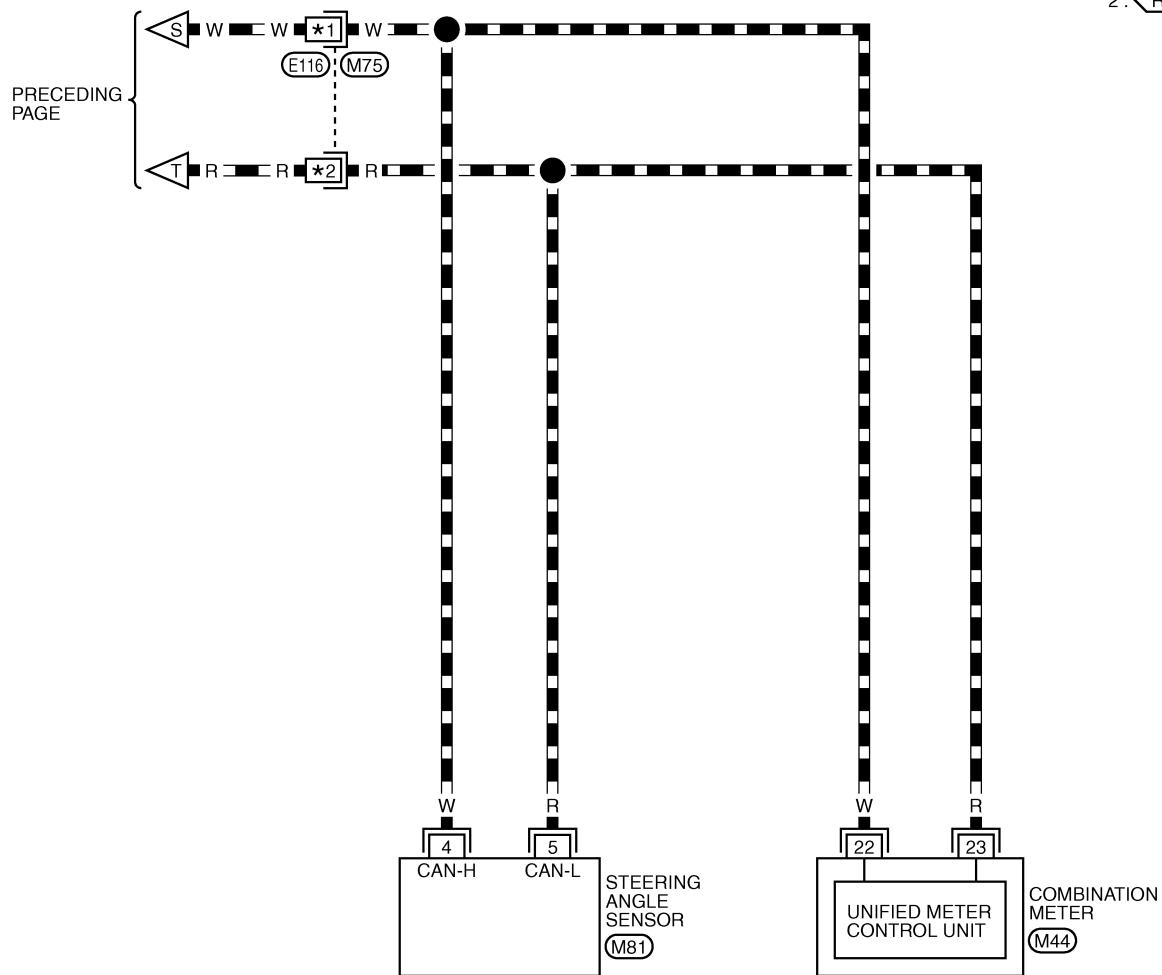
REFER TO THE FOLLOWING.  
 (M118), (E122) -ELECTRICAL  
 UNITS

# CAN SYSTEM (TYPE 9)

[CAN]

LAN-CAN-18

- : DATA LINE
- ◀ L : LHD MODELS
- ◀ R : RHD MODELS
- \*1 14 : ◀ L
- 9 : ◀ R
- \*2 5 : ◀ L
- 2 : ◀ R



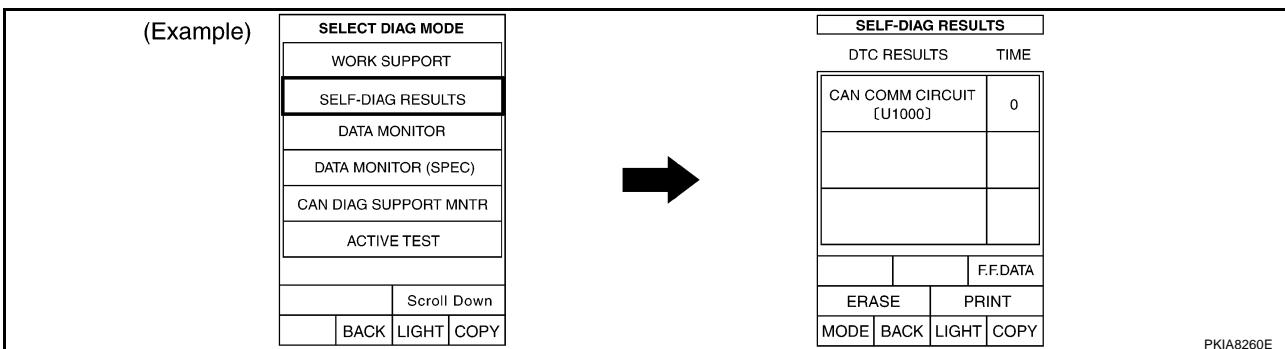
TKWB1889E

LAN-158

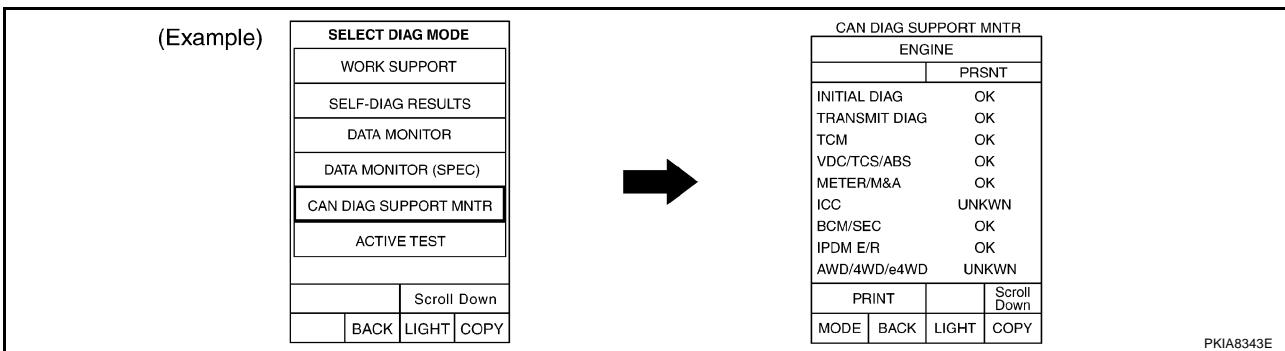
## Work Flow

EK500NLB

1. Print all the data of "SELF-DIAG RESULTS" for "ENGINE" and "ABS" displayed on CONSULT-II.



2. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE" 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-160, "CHECK SHEET"](#).

4. Based on the results of "CAN DIAG SUPPORT MNTR", put a check marks onto the items with "NG" or "UNKWN" in the check sheet table. Refer to [LAN-160, "CHECK SHEET"](#).

**NOTE:**

- If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", 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-161, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

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M

### CHECK SHEET

#### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

Check sheet table

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

Symptoms:

Attach copy of  
ENGINE  
SELF-DIAG RESULTS

Attach copy of  
ABS  
SELF-DIAG RESULTS

Attach copy of  
ENGINE  
CAN DIAG SUPPORT  
MNTR

Attach copy of  
ABS  
CAN DIAG SUPPORT  
MNTR

**CHECK SHEET RESULTS (EXAMPLE)****NOTE:**

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

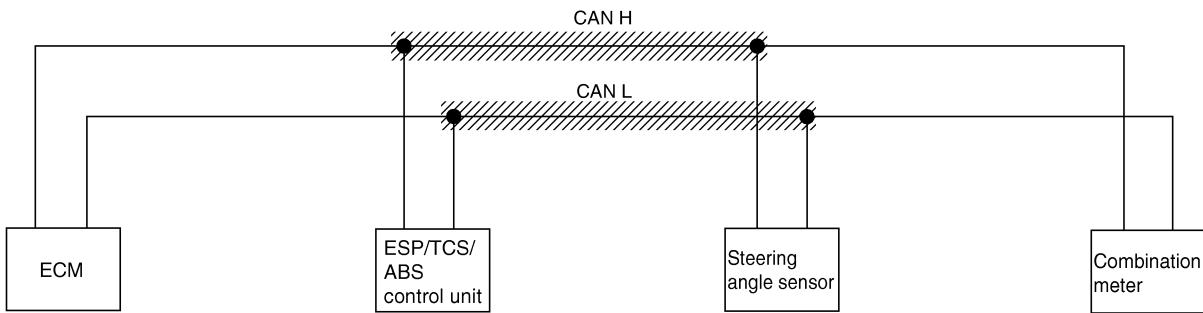
**Case 1**

Check harness between ESP/TCS/ABS control unit and steering angle sensor. Refer to [LAN-166, "Inspection Between ESP/TCS/ABS Control Unit and steering angle sensor Circuit"](#).

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

PKIC0332E

//// : Malfunctioning part



PKIC0333E

# CAN SYSTEM (TYPE 9)

[CAN]

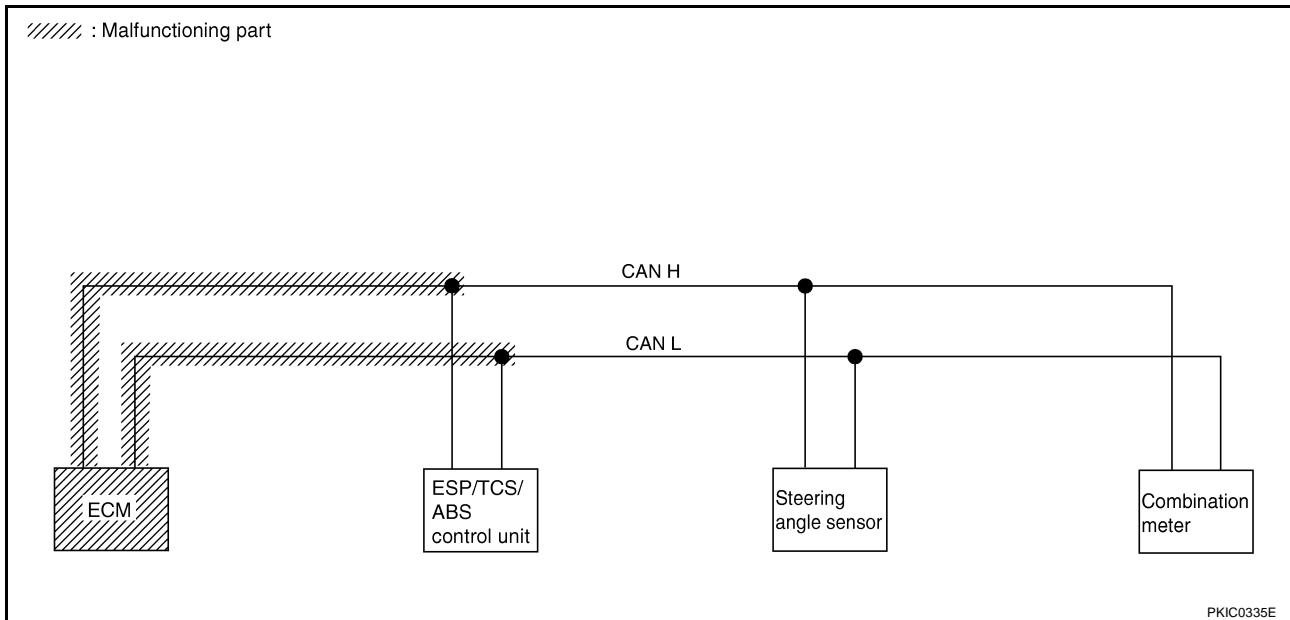
## Case 2

Check ECM circuit. Refer to [LAN-167, "ECM Circuit Inspection"](#) .

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

PKIC0334E

////// : Malfunctioning part



PKIC0335E

# CAN SYSTEM (TYPE 9)

[CAN]

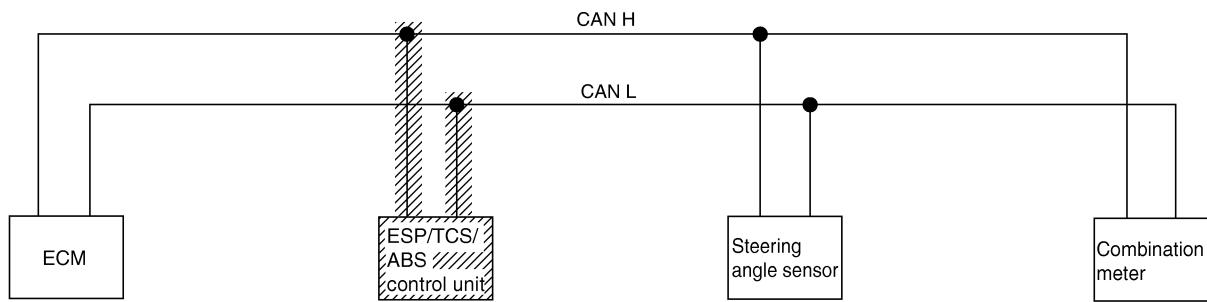
## Case 3

Check ESP/TCS/ABS control unit circuit. Refer to [LAN-168, "ESP/TCS/ABS Control Unit Circuit Inspection"](#).

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

PKIC0336E

////// : Malfunctioning part



PKIC0337E

# CAN SYSTEM (TYPE 9)

[CAN]

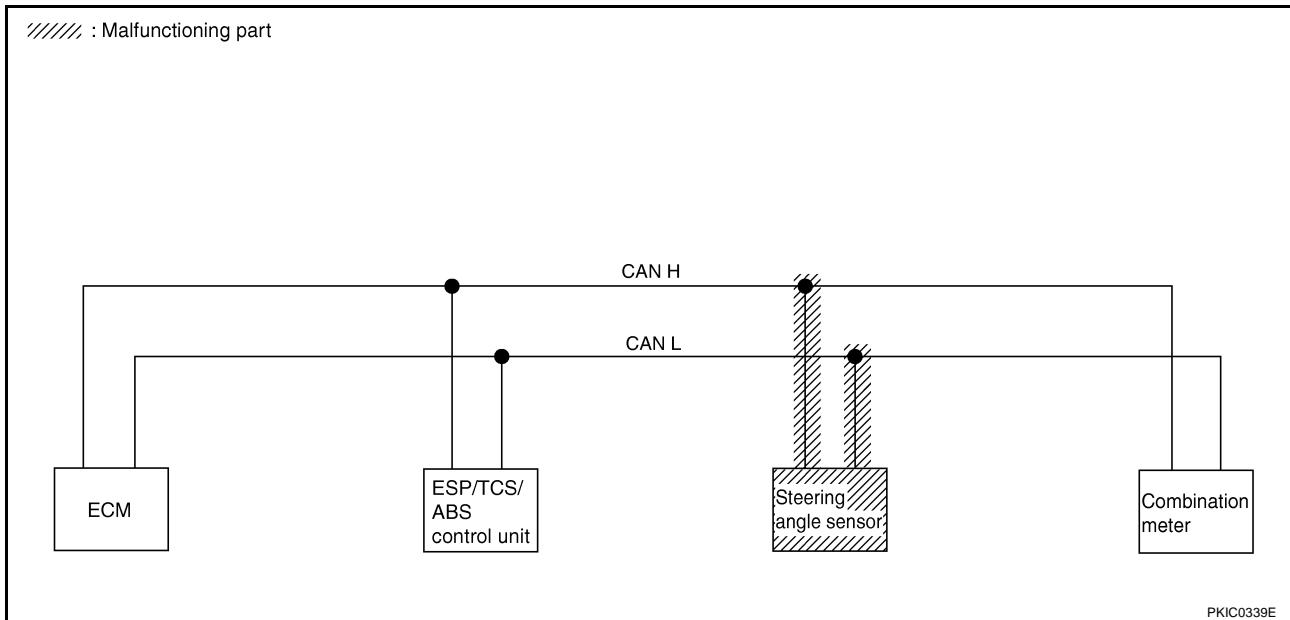
## Case 4

Check steering angle sensor circuit. Refer to [LAN-168, "Steering Angle Sensor Circuit Inspection"](#) .

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

PKIC0338E

////// : Malfunctioning part



# CAN SYSTEM (TYPE 9)

[CAN]

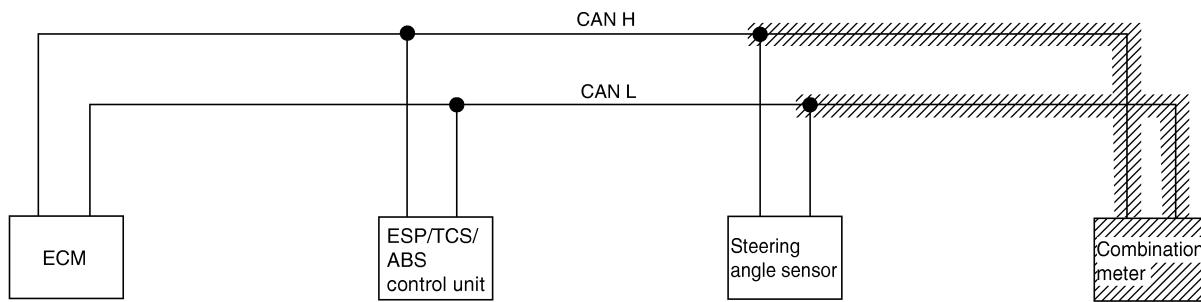
## Case 5

Check combination meter circuit. Refer to [LAN-169, "Combination Meter Circuit Inspection"](#) .

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

PKIC0340E

////// : Malfunctioning part



PKIC0341E

## Case 6

Check CAN communication circuit. Refer to [LAN-169, "CAN Communication Circuit Inspection"](#) .

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

PKIC0342E

## Inspection Between ESP/TCS/ABS Control Unit and steering angle sensor Circuit

EKS00NLC

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E116
  - Harness connector M75

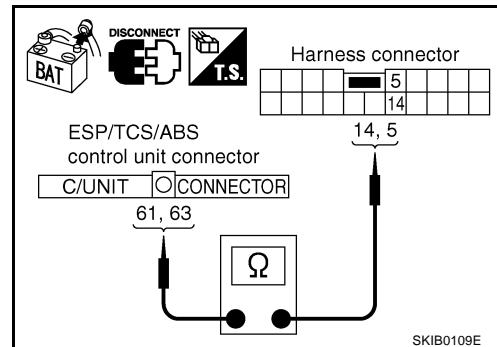
OK or NG

OK &gt;&gt; GO TO 2.

NG &gt;&gt; Repair terminal or connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector and harness connector E116.
2. Check the following.
  - LHD models
  - Check continuity between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W), 63 (R) and harness connector E116 terminals 14 (W), 5 (R).

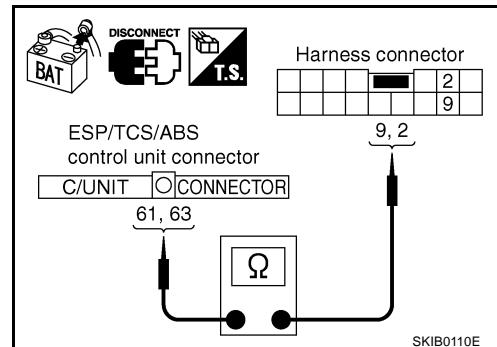
**61 (W) - 14 (W)****: Continuity should exist.****63 (R) - 5 (R)****: Continuity should exist.**

- RHD models
- Check continuity between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W), 63 (R) and harness connector E116 terminals 9 (W), 2 (R).

**61 (W) - 9 (W)****: Continuity should exist.****63 (R) - 2 (R)****: Continuity should exist.**OK or NG

OK &gt;&gt; GO TO 3.

NG &gt;&gt; Repair harness.



### 3. CHECK HARNESS FOR OPEN CIRCUIT

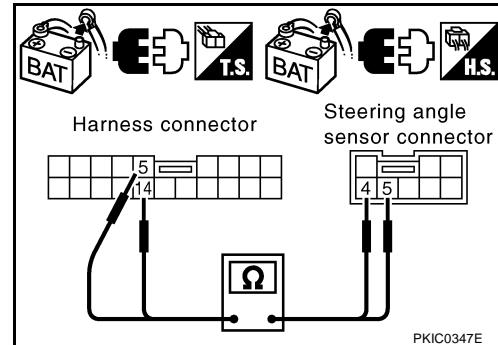
1. Disconnect steering angle sensor connector.
2. Check the following.
  - LHD models
  - Check continuity between harness connector M75 terminals 14 (W), 5 (R) and steering angle sensor harness connector M81 terminals 4 (W), 5 (R).

**14 (W) - 4 (W)**

**: Continuity should exist.**

**5 (R) - 5 (R)**

**: Continuity should exist.**



PKIC0347E

- RHD models
- Check continuity between harness connector M75 terminals 9 (W), 2 (R) and steering angle sensor harness connector M81 terminals 4 (W), 5 (R).

**9 (W) - 4 (W)**

**: Continuity should exist.**

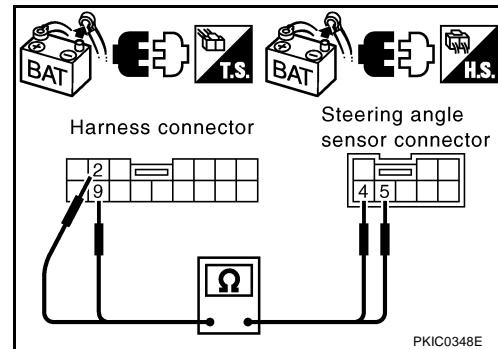
**2 (R) - 5 (R)**

**: Continuity should exist.**

#### OK or NG

OK      >> Connect all the connectors and diagnose again. Refer to [LAN-159, "Work Flow"](#).

NG      >> Repair harness.



PKIC0348E

### ECM Circuit Inspection

EKS00NLD

#### 1. CHECK CONNECTOR

LAN

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
  - ECM connector
  - Harness connector M75
  - Harness connector E116

#### OK or NG

OK      >> GO TO 2.

NG      >> Repair terminal or connector.

L

M

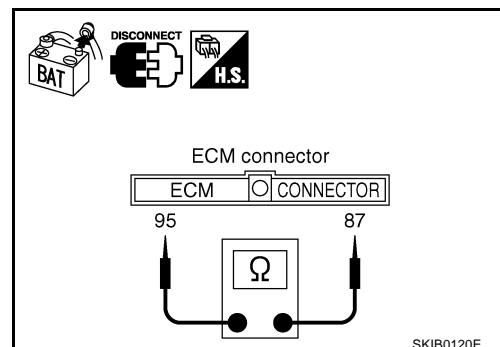
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector M118 terminals 95 (G/R) and 87 (GY/R).

**95 (G/R) - 87 (GY/R)** : Approx. 108 - 132  $\Omega$

### OK or NG

OK >> Replace ECM.  
NG >> Repair harness between ECM and ESP/TCS/ABS control unit.



EKS001LE

## ESP/TCS/ABS Control Unit Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check terminals and connector of ESP/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.

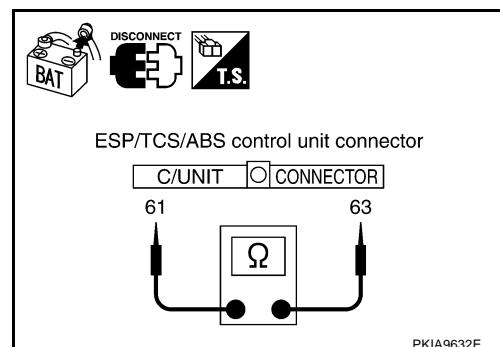
## 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector.
2. Check resistance between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W) and 63 (R).

**61 (W) - 63 (R)** : Approx. 54 - 66  $\Omega$

### OK or NG

OK >> Replace ESP/TCS/ABS control unit.  
NG >> Repair harness between ESP/TCS/ABS control unit and harness connector E116.



PKIA9632E

## Steering Angle Sensor Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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

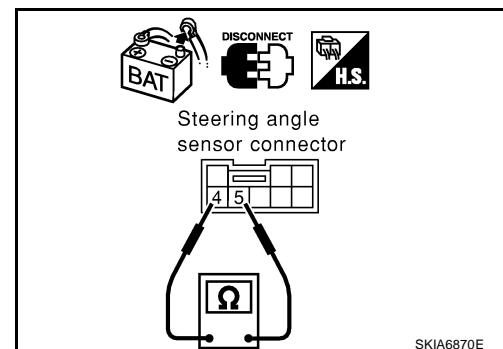
1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M81 terminals 4 (W) and 5 (R).

**4 (W) - 5 (R)**

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

OK or NG

OK      >> Replace steering angle sensor.  
 NG      >> Repair harness between steering angle sensor and harness connector M75.



EKS00NLH

## Combination Meter Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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

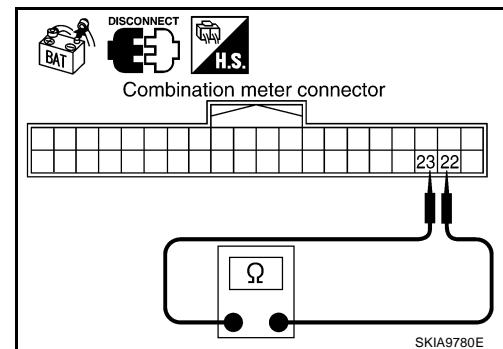
1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M44 terminals 22 (W) and 23 (R).

**22 (W) - 23 (R)**

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

OK or NG

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



EKS00NLI

## CAN Communication Circuit Inspection

### 1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side, control unit side, sensor side, meter side, connector side and harness side).
  - ECM
  - ESP/TCS/ABS control unit
  - Steering angle sensor
  - Combination meter
  - Between ECM and combination meter

OK or NG

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

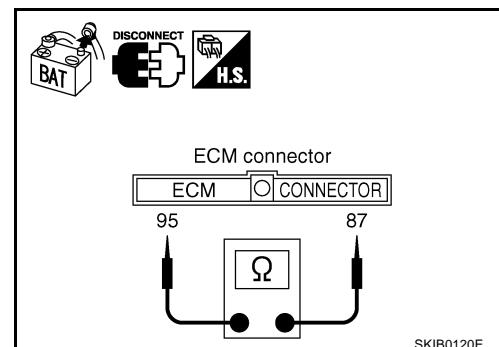
## 2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector M75.
2. Check continuity between ECM harness connector M118 terminals 95 (G/R) and 87 (GY/R).

**95 (G/R) - 87 (GY/R)** : Continuity should not exist.

OK or NG

OK >> GO TO 3.  
NG >> Repair harness between ECM and harness connector M75.



## 3. CHECK HARNESS FOR SHORT CIRCUIT

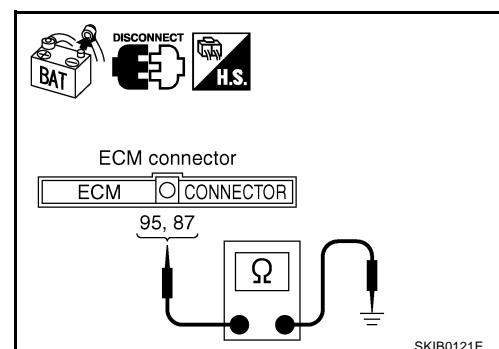
Check continuity between ECM harness connector M118 terminals 95 (G/R), 87 (GY/R) and ground.

**95 (G/R) - Ground** : Continuity should not exist.

**87 (GY/R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 4.  
NG >> Repair harness between ECM and harness connector M75.



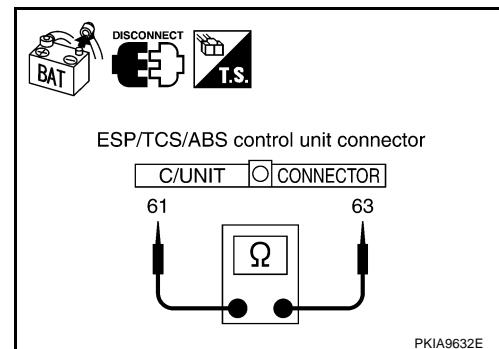
## 4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ESP/TCS/ABS control unit connector.
2. Check continuity between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W) and 63 (R).

**61 (W) - 63 (R)** : Continuity should not exist.

OK or NG

OK >> GO TO 5.  
NG >> Repair harness between ESP/TCS/ABS control unit and harness connector E116.



## 5. CHECK HARNESS FOR SHORT CIRCUIT

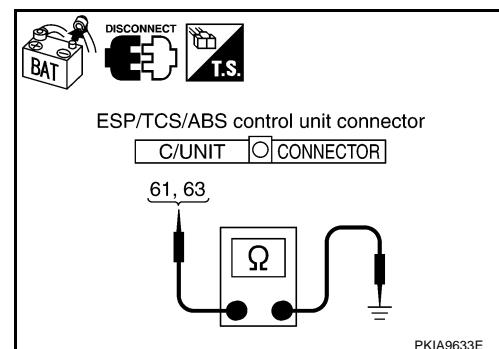
Check continuity between ESP/TCS/ABS control unit harness connector E122 terminals 61 (W), 63 (R) and ground.

**61 (W) - Ground** : Continuity should not exist.

**63 (R) - Ground** : Continuity should not exist.

OK or NG

OK >> GO TO 6.  
NG >> Repair harness between ESP/TCS/ABS control unit and harness connector E116.



## 6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
  - Steering angle sensor connector
  - Combination meter connector
2. Check continuity between combination meter harness connector M44 terminals 22 (W) and 23 (R).

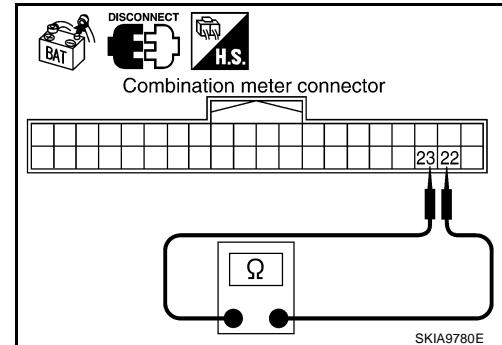
**22 (W) - 23 (R)** : Continuity should not exist.

### OK or NG

OK >> GO TO 7.

NG >> Check the following harness. If any harness is damaged, repair the harness.
 

- Harness between combination meter and steering angle sensor
- Harness between combination meter and harness connector M75



## 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between combination meter harness connector M44 terminals 22 (W), 23 (R) and ground.

**22 (W) - Ground** : Continuity should not exist.

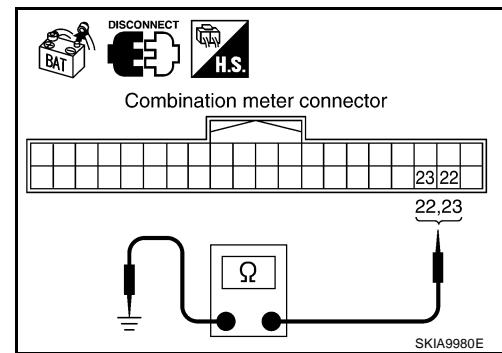
**23 (R) - Ground** : Continuity should not exist.

### OK or NG

OK >> GO TO 8.

NG >> Check the following harness. If any harness is damaged, repair the harness.
 

- Harness between combination meter and steering angle sensor
- Harness between combination meter and harness connector M75



## 8. CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT

Check components inspection. Refer to [LAN-171, "CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT"](#).

### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to [LAN-159, "Work Flow"](#).

NG >> Replace ECM and/or combination meter.

### Component Inspection

#### CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT

EKS00NLJ

- Remove ECM and combination meter from vehicle.
- Check resistance between ECM terminals 95 and 87.
- Check resistance between combination meter terminals 22 and 23.

Unit	Terminal	Resistance ( $\Omega$ ) (Approx.)
ECM	95 - 87	108 - 132
Combination meter	22 - 23	

