

SECTION **LAN**
LAN SYSTEM

A
B
C
D
E
F
G
H
I
J
L
M

CONTENTS

CAN	
PRECAUTIONS	2
Precautions for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2
Precautions For Trouble Diagnosis	2
CAN SYSTEM	2
Precautions For Harness Repair	2
CAN SYSTEM	2
CAN COMMUNICATION	3
System Description	3
CAN Communication Unit	3
TYPE 1	3
TYPE 2	5
TYPE 3	5
CAN SYSTEM (TYPE 1)	6
System Description	6
Component Parts and Harness Connector Location... ..	6
Wiring Diagram — CAN —	7
Work Flow	8
CHECK SHEET	9
CHECK SHEET RESULTS (EXAMPLE)	10
INSPECTION	10
ECM Circuit Check	11
TCM Circuit Check	11
Combination Meter Circuit Check	12
CAN Communication Circuit Check	12
Component Inspection	14
ECM/COMBINATION METER INTERNAL CIRCUIT INSPECTION	14
CAN SYSTEM (TYPE 2)	15
System Description	15
Component Parts and Harness Connector Location.. ..	15
Wiring Diagram — CAN —	16
Work Flow	17
CHECK SHEET	17
CHECK SHEET RESULTS (EXAMPLE)	17
INSPECTION	18
CAN Communication Circuit Check	18
Component Inspection	20
ECM/COMBINATION METER INTERNAL CIRCUIT INSPECTION	20
CAN SYSTEM (TYPE 3)	21
System Description	21
Component Parts and Harness Connector Location.. ..	21
Wiring Diagram — CAN —	22
Work Flow	23
CHECK SHEET	24
CHECK SHEET RESULTS (EXAMPLE)	25
INSPECTION	25
CAN Communication Circuit Check	25
Component Inspection	26
ECM/TCM INTERNAL CIRCUIT INSPECTION... ..	26

LAN

PRECAUTIONS

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

EKS003A9

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
CAN SYSTEM**

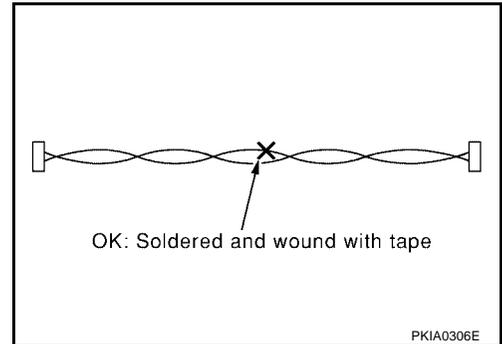
EKS003AA

- Do not apply voltage of 7.0V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0V or less.

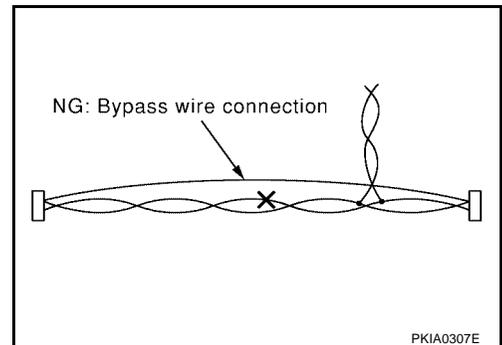
**Precautions For Harness Repair
CAN SYSTEM**

EKS003AB

- 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

EKS003K5

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

EKS003K6

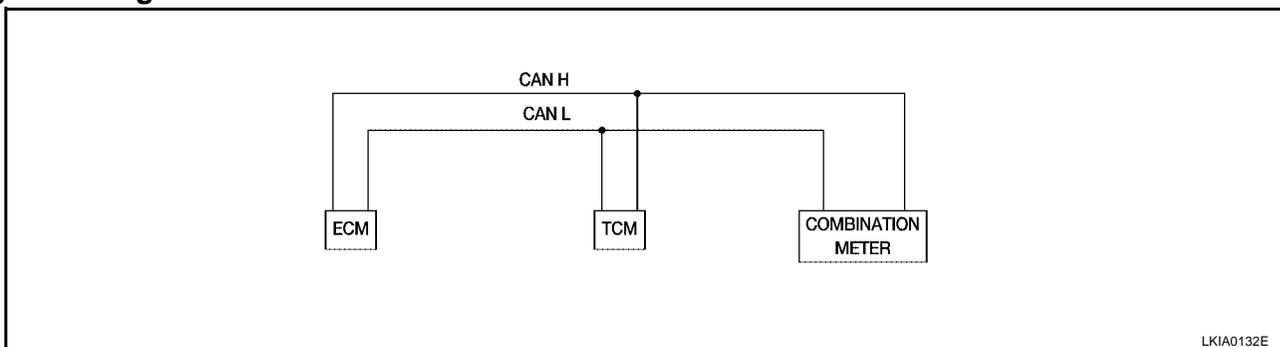
Go to CAN system, when selecting your car model from the following table.

Body type	Sedan		
Axle	2WD		
Engine	QG18DE		QR25DE
Transmission	A/T	M/T	A/T
CAN communication unit			
ECM	×	×	×
TCM	×		×
Combination meter	×	×	
CAN communication type	LAN-3, "TYPE 1"	LAN-5, "TYPE 2"	LAN-5, "TYPE 3"
CAN system trouble diagnosis	LAN-6, "CAN SYSTEM (TYPE 1)"	LAN-15, "CAN SYSTEM (TYPE 2)"	LAN-21, "CAN SYSTEM (TYPE 3)"

×: Applicable

TYPE 1

System diagram



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	TCM	Combination Meter
Accelerator pedal position signal	T	R	
Output shaft revolution signal	R	T	
A/T self-diagnosis signal	R	T	
Closed throttle position signal	T	R	
Wide open throttle position signal	T	R	
Stop lamp switch signal		R	T
Overdrive control switch signal		R	T
O/D OFF indicator signal		T	R
Engine speed signal	T		R
Engine coolant temperature signal	T		R

A
B
C
D
E
F
G
H
I
J
L
M

LAN

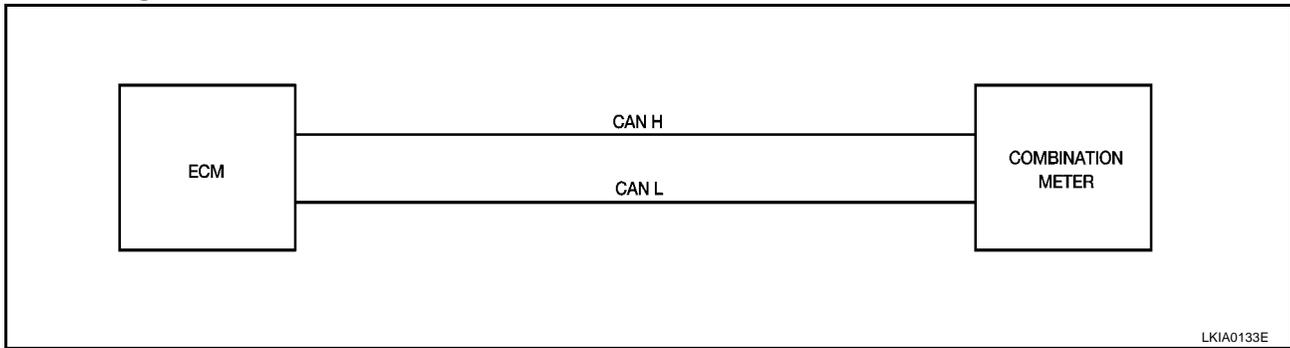
CAN COMMUNICATION

[CAN]

Signals	ECM	TCM	Combination Meter
Vehicle speed signal	R		T
Fuel level sensor signal	R		T
Malfunction indicator lamp signal	T		R
ASCD SET lamp signal	T		R
ASCD CRUISE lamp signal	T		R

TYPE 2

System diagram



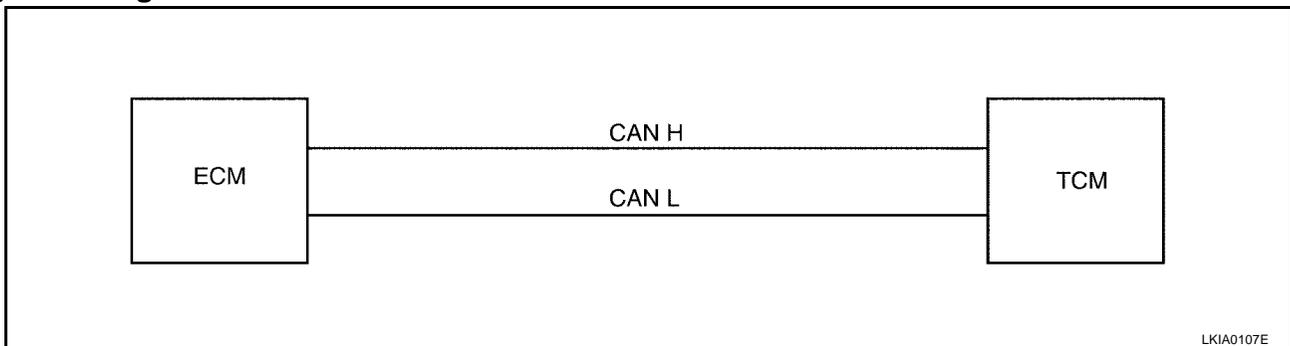
Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination Meter
Engine speed signal	T	R
Engine coolant temperature signal	T	R
Vehicle speed signal	R	T
Fuel level sensor signal	R	T
Malfunction indicator lamp signal	T	R
ASCD SET lamp signal	T	R
ASCD CRUISE lamp signal	T	R

TYPE 3

System diagram



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	TCM
Accelerator pedal position signal	T	R
Output shaft revolution signal	R	T
A/T self-diagnosis signal	R	T
Wide open throttle position signal	T	R
Overdrive cancel signal	T	R

CAN SYSTEM (TYPE 1)

PF:23710

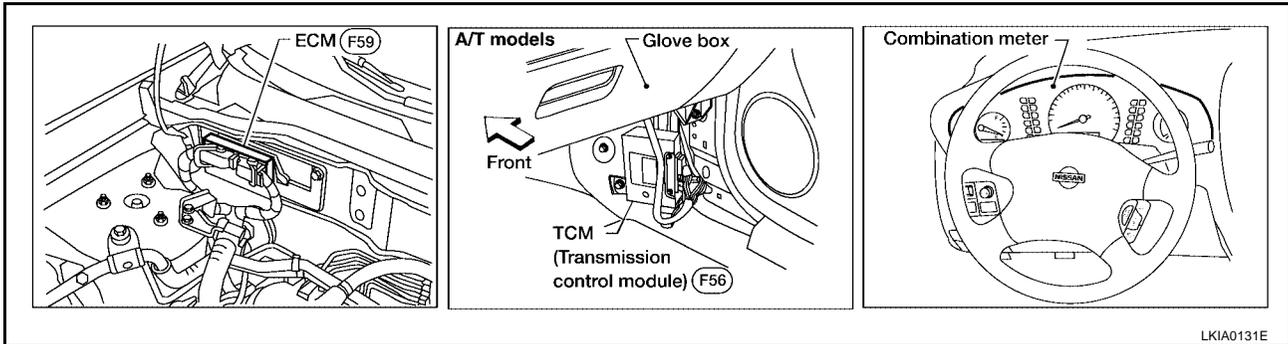
System Description

EKS003K7

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

EKS003K8



CAN SYSTEM (TYPE 1)

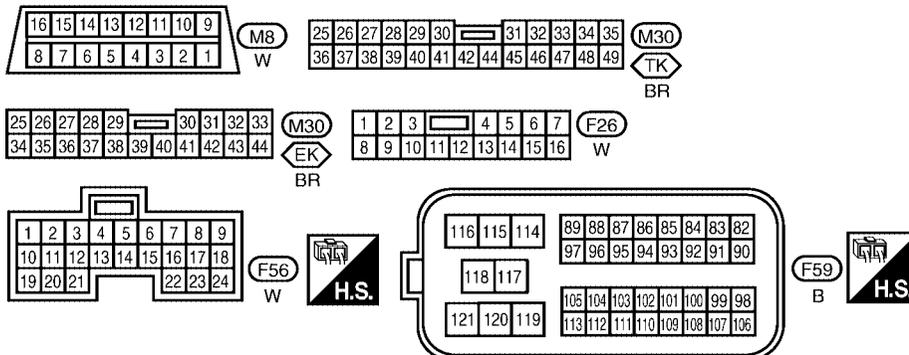
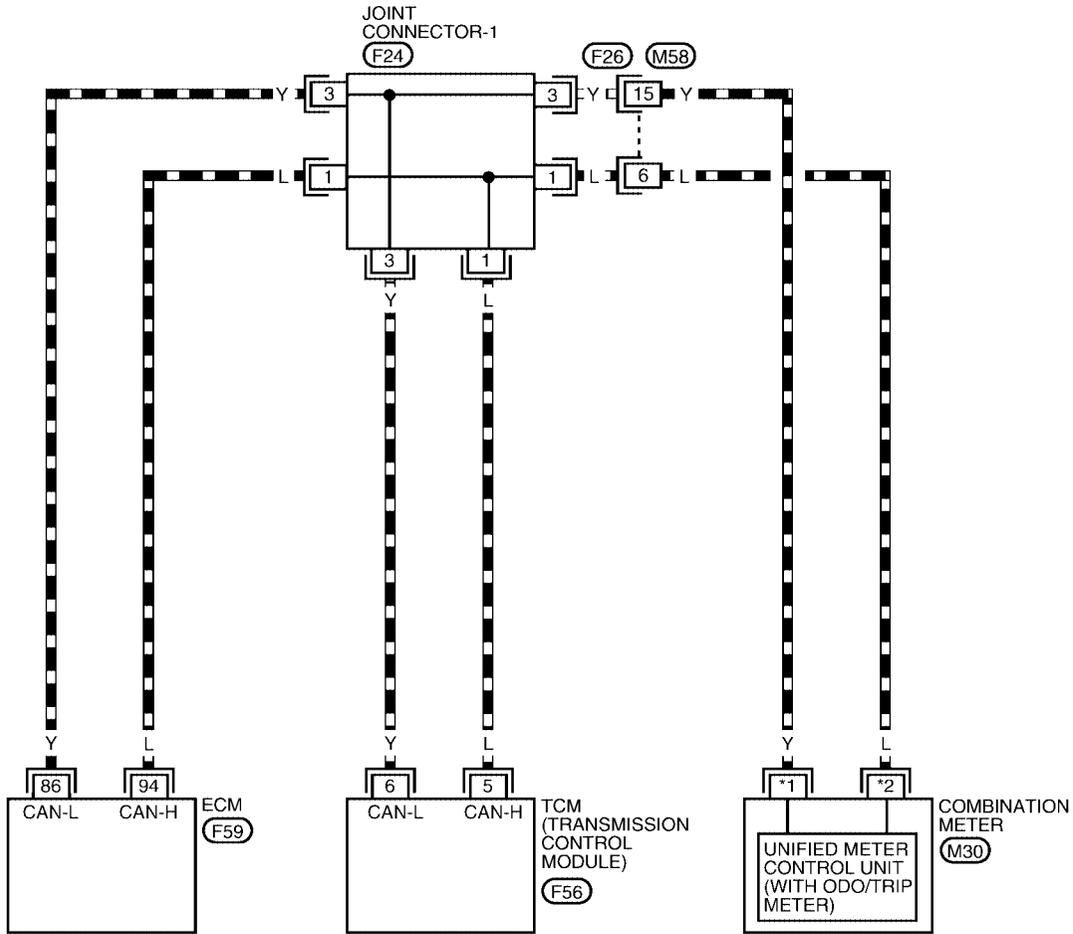
[CAN]

Wiring Diagram — CAN —

EKS003K9

LAN-CAN-01

- : DATA LINE
- ⬡EK⬡ : WITHOUT TACHOMETER
- ⬡TK⬡ : WITH TACHOMETER
- *1 ⬡EK⬡ : 35
- ⬡TK⬡ : 39
- *2 ⬡EK⬡ : 34
- ⬡TK⬡ : 38



REFER TO THE FOLLOWING.
 (F24) - JOINT CONNECTOR

A
B
C
D
E
F
G
H
I
J
LAN
L
M

Work Flow

1. Print all the data of “SELF-DIAG RESULTS” and “DATA MONITOR” for “ENGINE” and “A/T” displayed on CONSULT-II. Refer to [EC-117](#) (ULEV) or [EC-689](#) (SULEV) for “ENGINE” and refer to [AT-38](#) for “A/T”.
2. Attach the printed sheet of “SELF-DIAG RESULTS” and “DATA MONITOR” onto the check sheet. Refer to [LAN-9, "CHECK SHEET"](#) .
3. Based on the data monitor results, put check marks onto the items with “UNKWN” or “NG” in the check sheet table. Refer to [LAN-9, "CHECK SHEET"](#) .

NOTE:

If “NG” is displayed on “CAN COMM” for the diagnosed control unit, replace the control unit.

4. According to the check sheet results (example), start inspection. Refer to [LAN-10, "CHECK SHEET RESULTS \(EXAMPLE\)"](#) .

CAN SYSTEM (TYPE 1)

[CAN]

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1		CAN CIRC 2	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2		CAN CIRC 4

Symptoms:

Attach copy of ENGINE SELF-DIAG RESULTS

Attach copy of A/T SELF-DIAG RESULTS

Attach copy of ENGINE DATA MONITOR

Attach copy of A/T DATA MONITOR

WKIA0255E

A
B
C
D
E
F
G
H
I
J
LAN
L
M

CAN SYSTEM (TYPE 1)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM					
ENGINE	CAN <input checked="" type="checkbox"/> COMM	CAN CIRC 1		CAN <input checked="" type="checkbox"/> CIRC 2	CAN <input checked="" type="checkbox"/> CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2		CAN CIRC 4
ENGINE	CAN COMM	CAN CIRC 1		CAN <input checked="" type="checkbox"/> CIRC 2	CAN <input checked="" type="checkbox"/> CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2		CAN CIRC 4
Case 2: Replace TCM					
ENGINE	CAN COMM	CAN CIRC 1		CAN <input checked="" type="checkbox"/> CIRC 2	CAN CIRC 4
A/T	CAN <input checked="" type="checkbox"/> COMM	CAN CIRC 1	CAN CIRC 2		CAN CIRC 4
ENGINE	CAN COMM	CAN CIRC 1		CAN CIRC 2	CAN CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN <input checked="" type="checkbox"/> CIRC 2		CAN <input checked="" type="checkbox"/> CIRC 4
Case 3					
ENGINE	CAN COMM	CAN <input checked="" type="checkbox"/> CIRC 1		CAN <input checked="" type="checkbox"/> CIRC 2	CAN <input checked="" type="checkbox"/> CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN <input checked="" type="checkbox"/> CIRC 2		CAN CIRC 4
Case 4					
ENGINE	CAN COMM	CAN CIRC 1		CAN <input checked="" type="checkbox"/> CIRC 2	CAN CIRC 4
A/T	CAN COMM	CAN <input checked="" type="checkbox"/> CIRC 1	CAN <input checked="" type="checkbox"/> CIRC 2		CAN <input checked="" type="checkbox"/> CIRC 4
Case 5					
ENGINE	CAN COMM	CAN CIRC 1		CAN CIRC 2	CAN <input checked="" type="checkbox"/> CIRC 4
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2		CAN <input checked="" type="checkbox"/> CIRC 4
Case 6					
ENGINE	CAN COMM	CAN <input checked="" type="checkbox"/> CIRC 1		CAN <input checked="" type="checkbox"/> CIRC 2	CAN <input checked="" type="checkbox"/> CIRC 4
A/T	CAN COMM	CAN <input checked="" type="checkbox"/> CIRC 1	CAN <input checked="" type="checkbox"/> CIRC 2		CAN <input checked="" type="checkbox"/> CIRC 4

WKIA0256E

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed to trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace TCM.

Case 3: Check ECM Circuit. Refer to [LAN-11, "ECM Circuit Check"](#)

Case 4: Check TCM Circuit. Refer to [LAN-11, "TCM Circuit Check"](#)

Case 5: Check combination meter Circuit. Refer to [LAN-12, "Combination Meter Circuit Check"](#)

Case 6: Check CAN communication Circuit. Refer to [LAN-12, "CAN Communication Circuit Check"](#)

ECM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

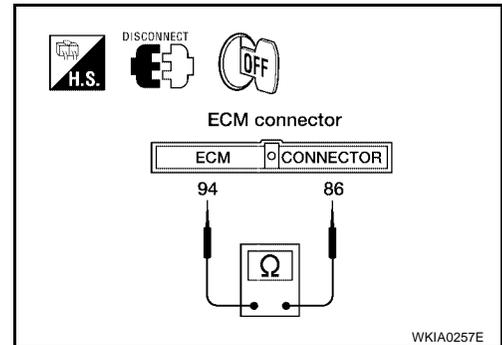
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F59 terminals 94 (L) and 86 (Y).

94 (L) – 86 (Y) : Approx. 108 – 132Ω

OK or NG

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

**TCM Circuit Check****1. CHECK CONNECTOR**

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

OK or NG

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

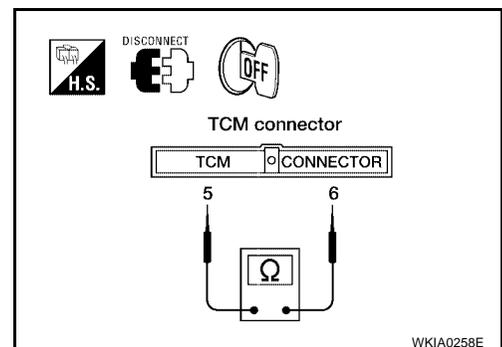
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F56 terminals 5 (L) and 6 (Y).

5 (L) – 6 (Y) : Approx. 54 – 66Ω

OK or NG

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



Combination Meter Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Check terminals and connector of combination meter for damage, bend and loose connection (meter-side and harness-side).

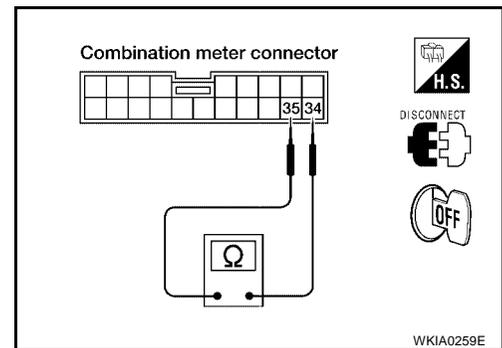
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

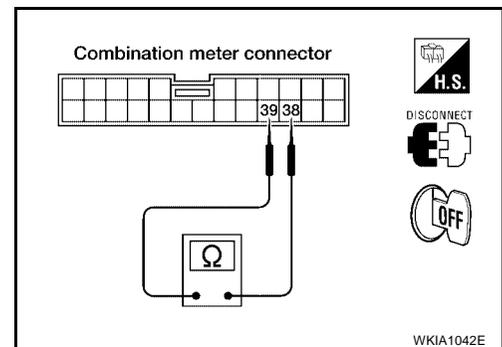
1. Disconnect combination meter connector.
2. Check the following.
 - Without tachometer:
Resistance between combination meter harness connector M30 terminals 34 (L) and 35 (Y).

34 (L) – 35 (Y)
(Without tachometer) : Approx. 108 – 132Ω



- With tachometer:
Resistance between combination meter harness connector M30 terminals 38 (L) and 39 (Y).

38 (L) – 39 (Y)
(With tachometer) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between combination meter and TCM.

CAN Communication Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Check following terminals and connector for damage, bend and loose connection (meter-side, control module-side and harness-side).
 - Combination meter
 - TCM
 - ECM
 - Between combination meter and ECM

OK or NG

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

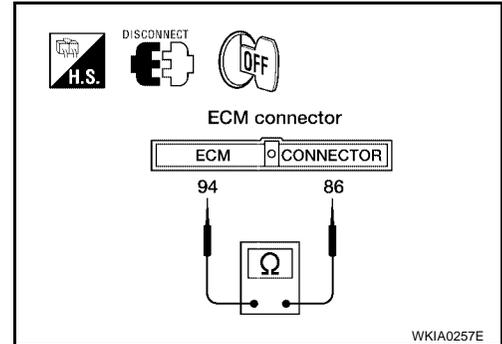
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector, TCM connector and harness connector F26.
2. Check continuity between ECM harness connector F59 terminals 94 (L) and 86 (Y).

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

OK or NG

- OK >> GO TO 3.
 NG >> ● Repair harness between ECM and harness connector F26.
 ● Repair harness between ECM and TCM.



3. CHECK HARNESS FOR SHORT CIRCUIT

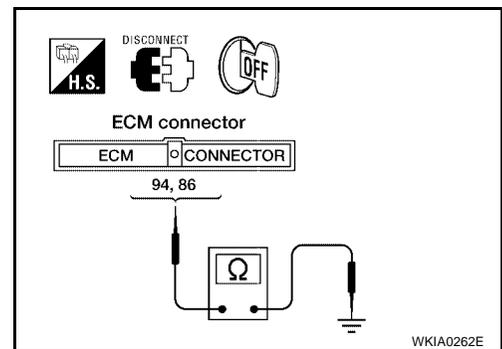
Check continuity between ECM harness connector F59 terminals 94 (L), 86 (Y) and ground.

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

86 (Y) – ground : Continuity should not exist.

OK or NG

- OK >> GO TO 4.
 NG >> ● Repair harness between ECM and harness connector F26.
 ● Repair harness between ECM and TCM.



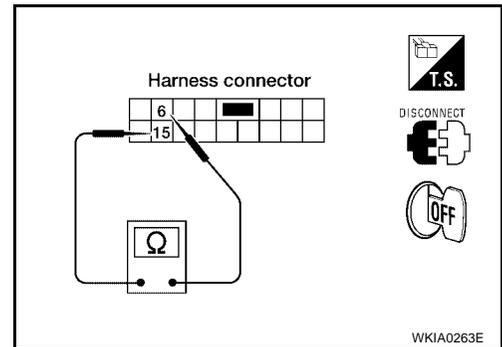
4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect combination meter connector.
2. Check continuity between harness connector M58 terminals 6 (L) and 15 (Y).

6 (L) – 15 (Y) : Continuity should not exist.

OK or NG

- OK >> GO TO 5.
 NG >> Repair harness between harness connector M58 and combination meter.



5. CHECK HARNESS FOR SHORT CIRCUIT

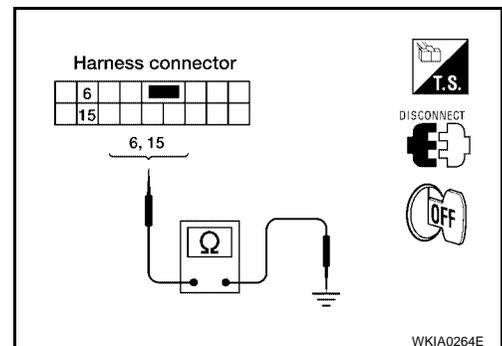
Check continuity between harness connector M58 terminals 6 (L), 15 (Y) and ground.

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

15 (Y) – ground : Continuity should not exist.

OK or NG

- OK >> GO TO 6.
 NG >> Repair harness between harness connector M58 and combination meter.



A
B
C
D
E
F
G
H
I
J
L
M

LAN

6. ECM/COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-14, "ECM/COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#) .

OK or NG

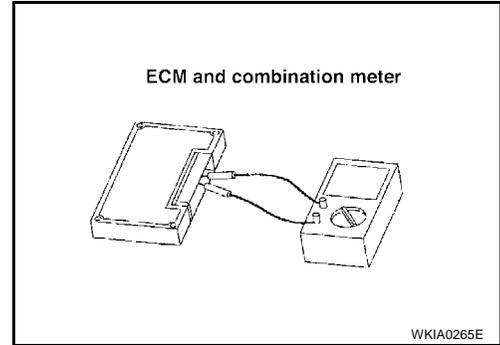
- OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE" and "A/T" displayed on CONSULT-II. Refer to [EC-117](#) (ULEV) or [EC-689](#) (SULEV) for "ENGINE" and refer to [AT-38](#) for "A/T".
- NG >> Replace ECM and/or combination meter.

Component Inspection

EKS003KF

ECM/COMBINATION METER INTERNAL CIRCUIT INSPECTION

- Remove ECM and combination meter from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between combination meter terminals 34 and 35 (Without tachometer).
- Check resistance between combination meter terminals 38 and 39 (With tachometer).



Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	94 – 86	108 - 136
Combination meter (Without tachometer)	34 – 35	
Combination meter (With tachometer)	38 – 39	

CAN SYSTEM (TYPE 2)

PFP:23710

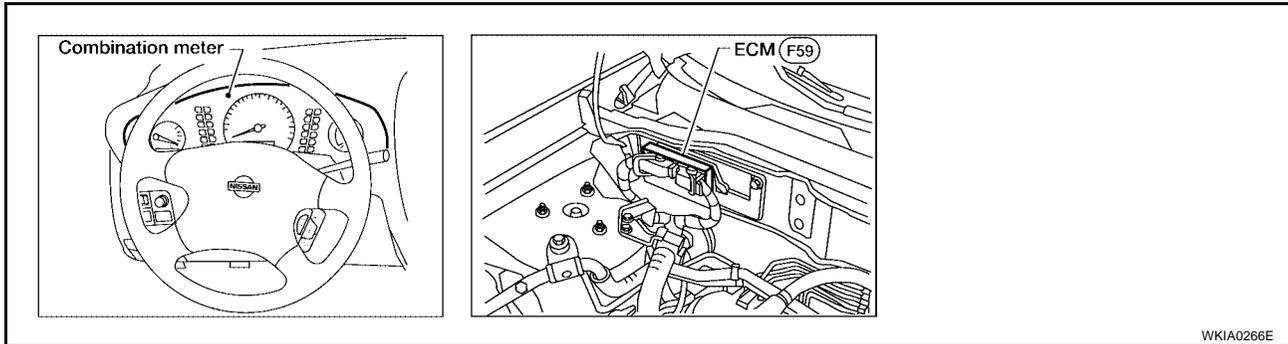
System Description

EKS003KG

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

EKS003KH



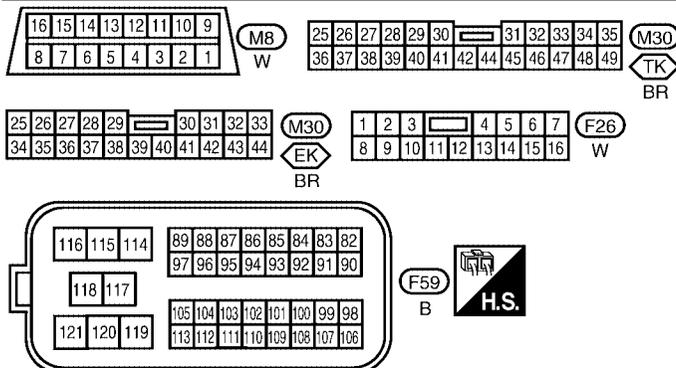
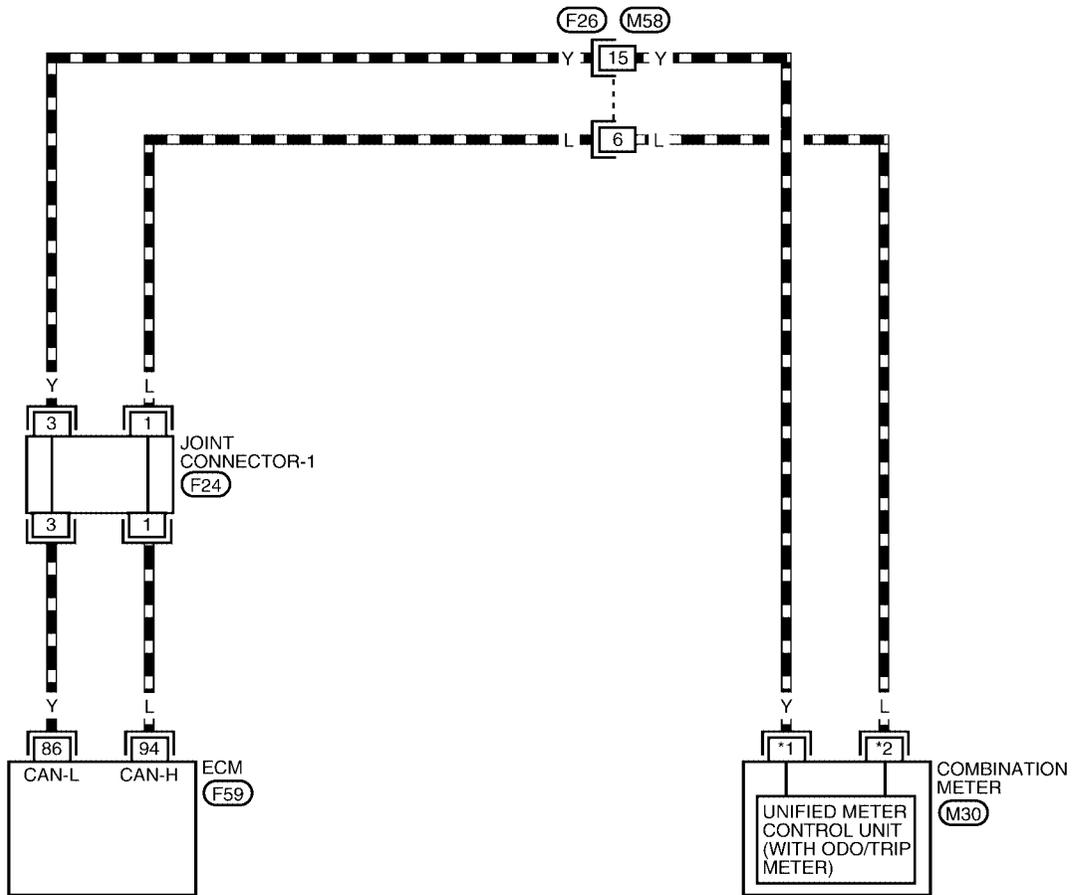
A
B
C
D
E
F
G
H
I
J
L
M

LAN

Wiring Diagram — CAN —

LAN-CAN-02

- : DATA LINE
- ⬡EK⬡ : WITHOUT TACHOMETER
- ⬡TK⬡ : WITH TACHOMETER
- *1 ⬡EK⬡ : 35
- ⬡TK⬡ : 39
- *2 ⬡EK⬡ : 34
- ⬡TK⬡ : 38



REFER TO THE FOLLOWING.
 ⬡F24⬡ - JOINT CONNECTOR

Work Flow

1. Print the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE" displayed on CONSULT-II. Refer to [EC-117](#) (ULEV) or [EC-689](#) (SULEV) for "ENGINE".
2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-17, "CHECK SHEET"](#).
3. Based on the data monitor results, put check marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-17, "CHECK SHEET"](#).

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

4. According to the check sheet results (example), start inspection. Refer to [LAN-17, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1		CAN CIRC 4
--------	----------	------------	--	------------

Symptoms:

Attach copy of ENGINE SELF-DIAG RESULTS

Attach copy of ENGINE DATA MONITOR

WKIA0267E

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM

ENGINE	CAN <input checked="" type="checkbox"/> COMM	CAN CIRC 1		CAN CIRC 4
ENGINE	CAN COMM	CAN <input checked="" type="checkbox"/> CIRC 1		CAN CIRC 4

Case 2

ENGINE	CAN COMM	CAN <input checked="" type="checkbox"/> CIRC 1		CAN <input checked="" type="checkbox"/> CIRC 4
--------	----------	--	--	--

WKIA0268E

A
B
C
D
E
F
G
H
I
J
L
M

NOTE:

If “NG” is displayed on “CAN COMM” for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed to trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Check CAN communication Circuit. Refer to [LAN-18, "CAN Communication Circuit Check"](#) .

CAN Communication Circuit Check

EKS003KK

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Check following terminals and connector for damage, bend and loose connection (meter-side, control module-side and harness-side).

- Combination meter
- ECM
- Between combination meter and ECM

OK or NG

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

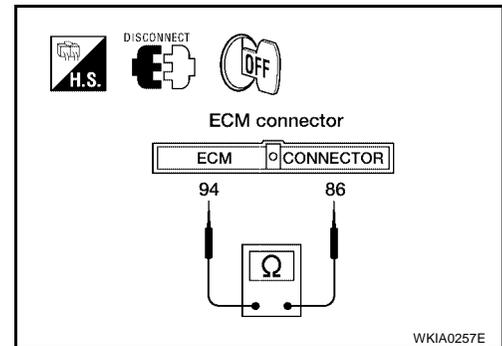
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector F26.
2. Check continuity between ECM harness connector F59 terminals 94 (L) and 86 (Y).

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

OK or NG

- OK >> GO TO 3.
- NG >> Repair harness between ECM and harness connector F26.



3. CHECK HARNESS FOR SHORT CIRCUIT

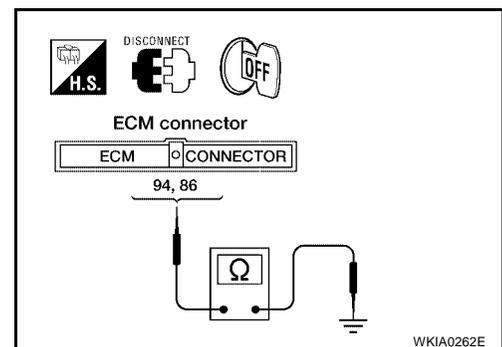
Check continuity between ECM harness connector F59 terminals 94 (L), 86 (Y) and ground.

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

86 (Y) – ground : Continuity should not exist.

OK or NG

- OK >> GO TO 4.
- NG >> Repair harness between ECM and harness connector F26.



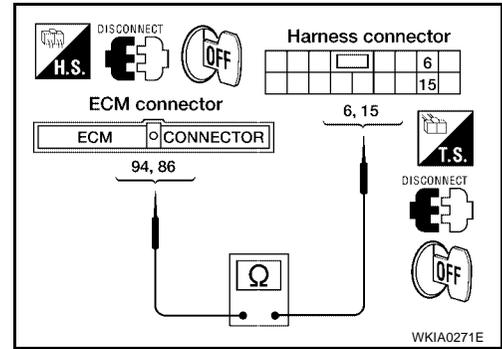
4. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between ECM harness connector F59 terminals 94 (L), 86 (Y) and harness connector F26 terminals 6 (L), 15 (Y).

- 94 (L) – 6 (L) : Continuity should exist.**
- 86 (Y) – 15 (Y) : Continuity should exist.**

OK or NG

- OK >> GO TO 5.
- NG >> Repair harness.



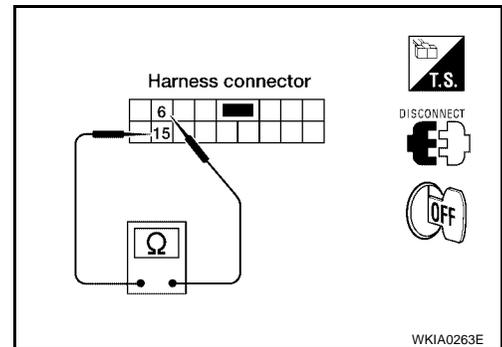
5. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect combination meter connector.
2. Check continuity between harness connector M58 terminals 6 (L) and 15 (Y).

6 (L) – 15 (Y) : Continuity should not exist.

OK or NG

- OK >> GO TO 6.
- NG >> Repair harness between harness connector M58 and combination meter.



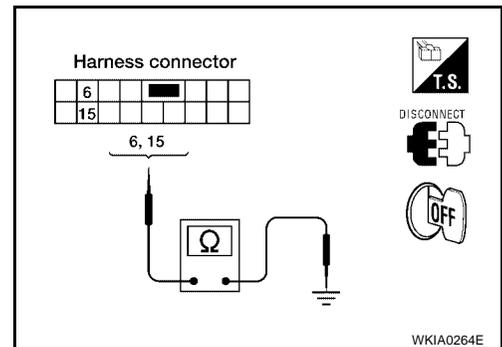
6. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector M58 terminals 6 (L), 15 (Y) and ground.

- 6 (L) – ground : Continuity should not exist.**
- 15 (Y) – ground : Continuity should not exist.**

OK or NG

- OK >> GO TO 7.
- NG >> Repair harness between harness connector M58 and combination meter.



A
B
C
D
E
F
G
H
I
J
L
M

LAN

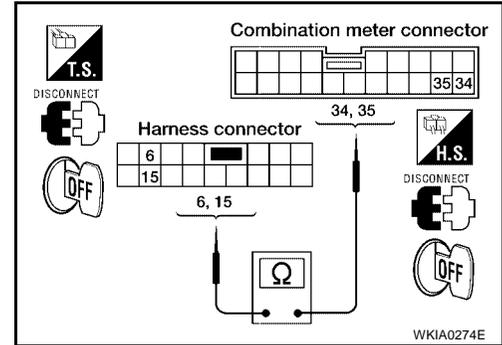
7. CHECK HARNESS FOR OPEN CIRCUIT

1. Check the following.

- Without tachometer:
Continuity between harness connector M58 terminals 6 (L), 15 (Y) and combination meter harness connector M30 terminals 34 (L), 35 (Y).

6 (L) – 34 (L) (Without tachometer) : Continuity should exist.

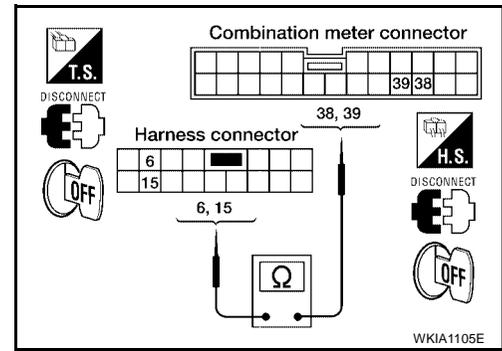
15 (Y) – 35 (Y) (Without tachometer) : Continuity should exist.



- With tachometer:
Continuity between harness connector M58 terminals 6 (L), 15 (Y) and combination meter harness connector M30 terminals 38 (L), 39 (Y).

6 (L) – 38 (L) (With tachometer) : Continuity should exist.

15 (Y) – 39 (Y) (With tachometer) : Continuity should exist.



OK or NG

OK >> GO TO 8.

NG >> Repair harness.

8. ECM/COMBINATION METER INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-20, "ECM/COMBINATION METER INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE" displayed on CONSULT-II. Refer to [EC-117](#) (ULEV) or [EC-689](#) (SULEV) for "ENGINE".

NG >> Replace ECM and/or combination meter.

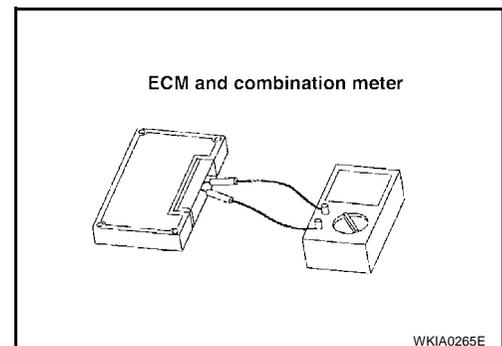
Component Inspection

ECM/COMBINATION METER INTERNAL CIRCUIT INSPECTION

EKS003KL

- Remove ECM and combination meter from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between combination meter terminals 34 and 35 (Without tachometer).
- Check resistance between combination meter terminals 38 and 39 (With tachometer).

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	94 – 86	108 - 136
Combination meter (Without tachometer)	34 – 35	
Combination meter (With tachometer)	38 – 39	



WKIA0265E

CAN SYSTEM (TYPE 3)

PFP:23710

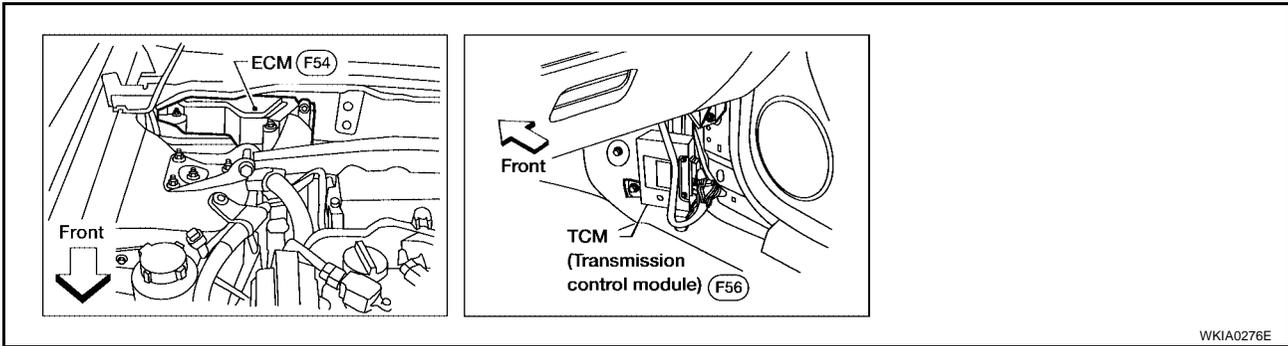
System Description

EKS003KM

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

EKS003KN



A
B
C
D
E
F
G
H
I
J

LAN

L
M

CAN SYSTEM (TYPE 3)

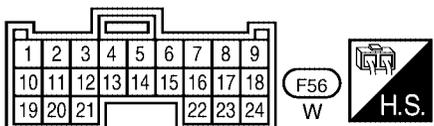
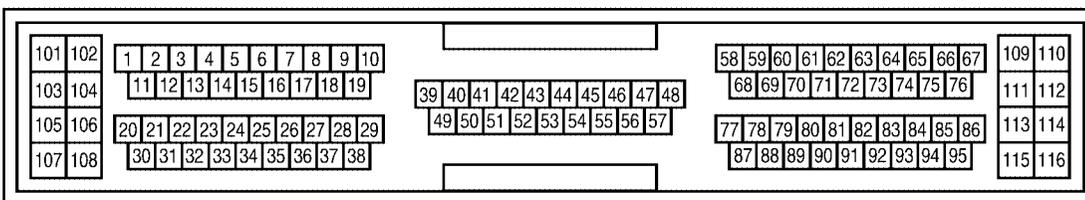
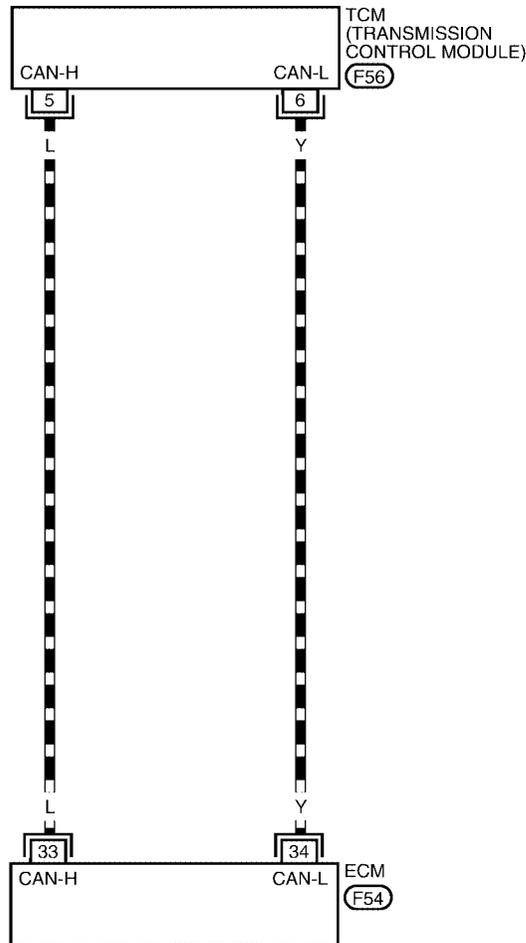
[CAN]

Wiring Diagram — CAN —

EKS003KO

LAN-CAN-03

— — : DATA LINE



WKWA0151E

Work Flow

1. Print all the data of "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE" and "A/T" displayed on CONSULT-II. Refer to [EC-1304](#) for "ENGINE" and refer to [AT-432](#) for "A/T".
2. Attach the printed sheet of "SELF-DIAG RESULTS" and "DATA MONITOR" onto the check sheet. Refer to [LAN-24, "CHECK SHEET"](#).
3. Based on the data monitor results, put check marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to [LAN-24, "CHECK SHEET"](#).

NOTE:

If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.

4. According to the check sheet results (example), start inspection. Refer to [LAN-25, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

A
B
C
D
E
F
G
H
I
J
L
M

LAN

CAN SYSTEM (TYPE 3)

[CAN]

CHECK SHEET

Check sheet table

ENGINE	CAN COMM	CAN CIRC 1	-	CAN CIRC 2
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	-

Symptoms:

Attach copy of ENGINE SELF-DIAG RESULTS

Attach copy of A/T SELF-DIAG RESULTS

Attach copy of ENGINE DATA MONITOR

Attach copy of A/T DATA MONITOR

LKIA0004E

CHECK SHEET RESULTS (EXAMPLE)

Case 1: Replace ECM				
ENGINE	CAN COMM ✓	CAN CIRC 1	-	CAN CIRC 2
A/T	CAN COMM	CAN CIRC 1	CAN CIRC 2	-
Case 2: Replace TCM				
ENGINE	CAN COMM	CAN CIRC 1	-	CAN CIRC 2 ✓
A/T	CAN COMM ✓	CAN CIRC 1	CAN CIRC 2	-
Case 3				
ENGINE	CAN COMM	CAN CIRC 1 ✓	-	CAN CIRC 2 ✓
A/T	CAN COMM	CAN CIRC 1 ✓	CAN CIRC 2 ✓	-

LKIA0005E

NOTE:

If “NG” is displayed on “CAN COMM” for the diagnosed control unit, replace the control unit.

INSPECTION

Proceed to trouble diagnosis according to the check sheet results (example).

Case 1: Replace ECM.

Case 2: Replace TCM.

Case 3: Check CAN communication Circuit. Refer to [LAN-25, "CAN Communication Circuit Check"](#) .

CAN Communication Circuit Check

EKS003KQ

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Check following terminals and connector for damage, bend and loose connection (control module-side and harness-side).
 - TCM
 - ECM

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR SHORT CIRCUIT

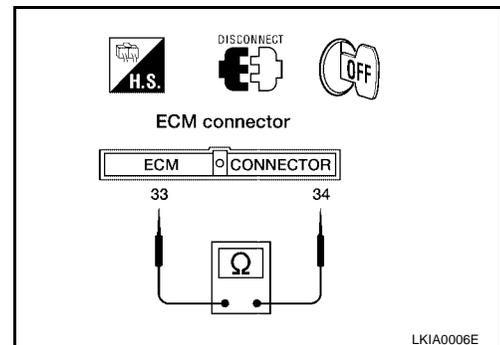
1. Disconnect ECM connector and TCM connector.
2. Check continuity between ECM harness connector F54 terminals 33 (L) and 34 (Y).

33 (L) – 34 (Y) : Continuity should not exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness between ECM and TCM.



3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F54 terminals 33 (L), 34 (Y) and ground.

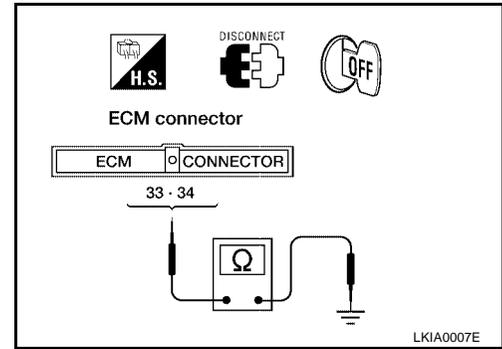
33 (L) – ground : Continuity should not exist.

34 (Y) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and TCM.



4. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between ECM harness connector F54 terminals 33 (L), 34 (Y) and TCM harness connector F56 terminals 5 (L), 6 (Y).

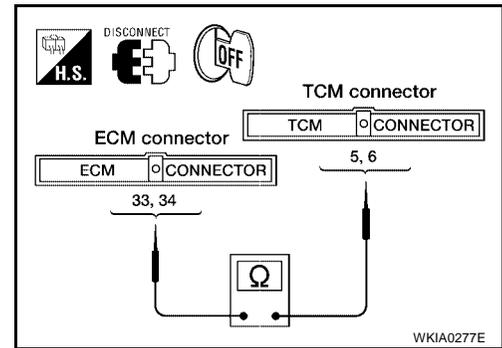
33 (L) – 5 (L) : Continuity should exist.

34 (Y) – 6 (Y) : Continuity should exist.

OK or NG

OK >> GO TO 5.

NG >> Repair harness.



5. ECM/TCM INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-26, "ECM/TCM INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

OK >> Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE" and "A/T". Refer to [EC-1304](#) for "ENGINE" and refer to [AT-432](#) for "A/T".

NG >> Replace ECM and/or TCM.

Component Inspection ECM/TCM INTERNAL CIRCUIT INSPECTION

EKS003KR

- Remove ECM and TCM from vehicle.
- Check resistance between ECM terminals 33 and 34.
- Check resistance between TCM terminals 5 and 6.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	33 – 34	108 - 136
TCM	5 – 6	

