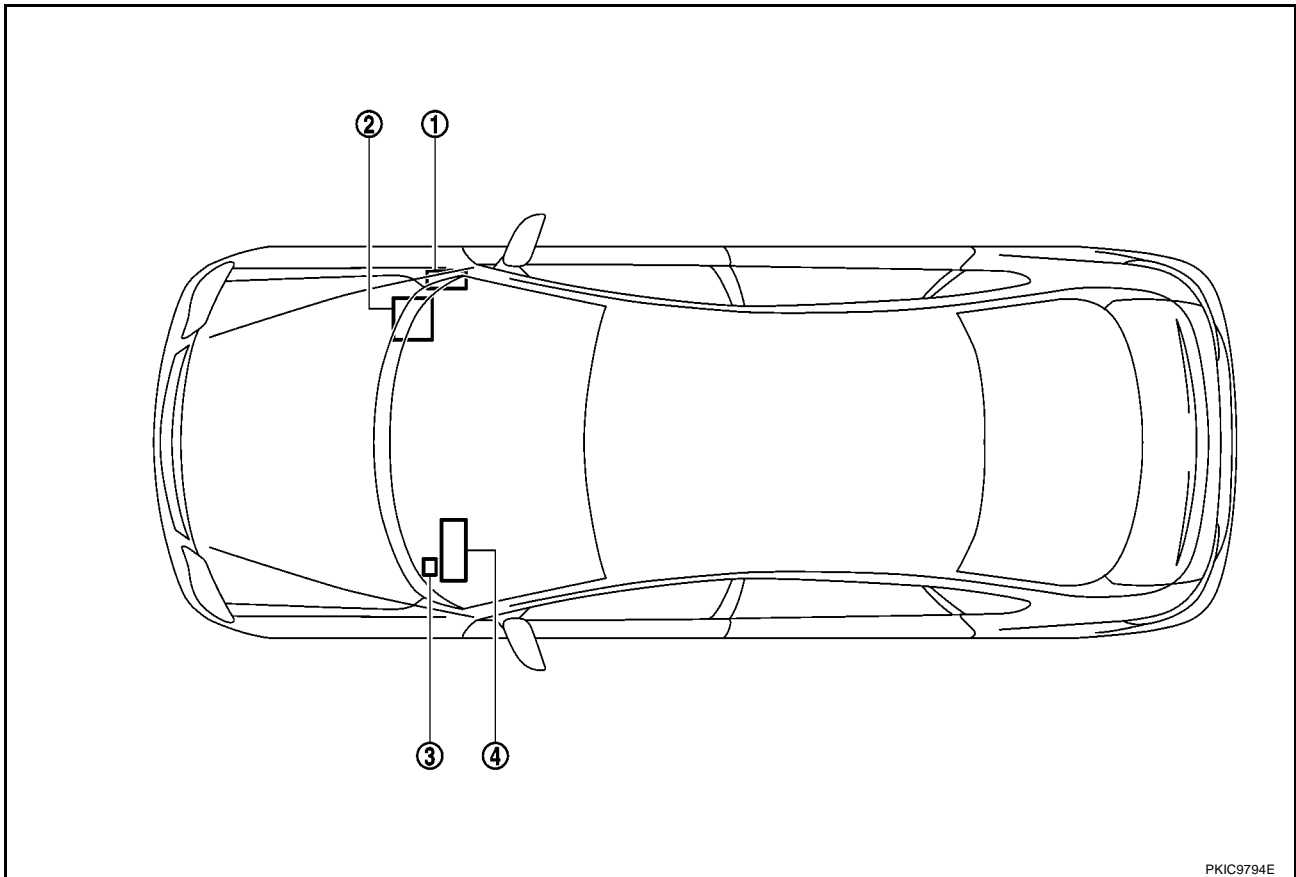


Component Parts Location

BKS002AT



PKIC9794E

1. TCM S105

2. ECM S1

3. Data link connector M9

4. Combination meter M30

Harness Layout

BKS002AU

Refer to "HARNESS DIAGRAM" (WH-169).

Malfunction Area Chart

BRANCH LINE

BKS002AV

Trouble Area	Reference
ECM branch line circuit	LAN-53. "ECM Branch Line Circuit"
Data link connector branch line circuit	LAN-54. "Data Link Connector Branch Line Circuit"
TCM branch line circuit	LAN-54. "TCM Branch Line Circuit"
Combination meter branch line circuit	LAN-55. "Combination Meter Branch Line Circuit"

SHORT CIRCUIT

Trouble Area	Reference
CAN communication circuit	LAN-56. "CAN Communication Circuit"

ECM Branch Line Circuit

BKS002AW

INSPECTION PROCEDURE

1. CHECK CONNECTOR

- Turn the ignition switch OFF.
- Disconnect the battery cable from the negative terminal.
- Check the terminals and connectors of ECM for damage, bend, and loose connection (unit side and connector side).

OK or NG

- OK >> GO TO 2.
 NG >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

- Disconnect the connector of ECM.
- Check the resistance between the ECM harness connector terminals.

QG15DE

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
S1	7	6	Approx. 108 – 132

QG16DE

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
S1	94	86	Approx. 108 – 132

OK or NG

- OK >> GO TO 3.
 NG >> Repair the ECM branch line.

3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of ECM. Refer to "POWER AND GROUND SYSTEM" (QG15: EC-53), "POWER SUPPLY CIRCUIT FOR ECM" (QG16: EC-75).

OK or NG

- OK >> ● Reproduced error: Replace ECM. Refer to "ECCS Control Unit" (QG15: EC-110), "Engine Control Component Parts Location" (QG16: EC-48).
 ● Non-reproduced error: Error was detected in ECM branch line.
- NG >> Repair the power supply and the ground circuit.

Data Link Connector Branch Line Circuit

BKS002AX

INSPECTION PROCEDURE

1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend, and loose connection (connector side and harness side).
 - data link connector
 - Harness connector M78
 - Harness connector S101

OK or NG

OK >> GO TO 2.

NG >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M9	6	14	Approx. 54 – 66

OK or NG

OK >> ● Reproduced error: Check the following items again.

- Decision of CAN system type.
- Not received CONSULT-II data (SELECT SYSTEM, SELF-DIAG RESULTS, CAN DIAG SUPPORT MNTR).
- Procedure for detecting root cause.
- Non-reproduced error: Error was detected in the data link connector branch line circuit.

NG >> Repair the data link connector branch line.

TCM Branch Line Circuit

BKS002AZ

INSPECTION PROCEDURE

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
S105	5	6	Approx. 54 – 66

OK or NG

OK >> GO TO 3.

NG >> Repair the TCM branch line.

3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of TCM. Refer to “Wiring Diagram” (AT-19).

OK or NG

- OK >> ● Reproduced error: Replace TCM. Refer to “Components Location” (AT-17).
 - Non-reproduced error: Error was detected in TCM branch line.
- NG >> Repair the power supply and the ground circuit.

Combination Meter Branch Line Circuit

BKS002AY

INSPECTION PROCEDURE

1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend, and loose connection (unit side and connector side).
 - Combination meter connector
 - Harness connector M78
 - Harness connector S101

OK or NG

- OK >> GO TO 2.
- NG >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	37	39	Approx. 108 – 132

OK or NG

- OK >> GO TO 3.
- NG >> Repair the combination meter branch line.

3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of combination meter. Refer to “Wiring Diagram” (EL-67).

OK or NG

- OK >> ● Reproduced error: Replace combination meter. Refer to “Removal-Installation of Combination Meter” (EL-65).
 - Non-reproduced error: Error was detected in combination meter branch line.
- NG >> Repair the power supply and the ground circuit.

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CAN Communication Circuit

INSPECTION PROCEDURE

1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend, and loose connection.

OK or NG

- OK >> GO TO 2.
 NG >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M9	6	14	No

OK or NG

- OK >> GO TO 3.
 NG >> Check the harness and repair the root cause.

3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6	Ground	No
	14		No

OK or NG

- OK >> GO TO 4.
 NG >> Check the harness and repair the root cause.

4. CHECK ECM AND COMBINATION METER TERMINATION CIRCUIT

1. Remove ECM and combination meter.
2. Check the resistance between ECM terminals.

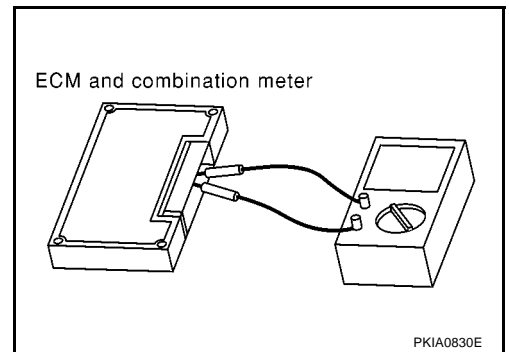
ECM			Resistance (Ω)
Terminal No.			
QG15DE	7	6	Approx. 108 - 132
QG16DE	94	86	

3. Check the resistance between combination meter terminals.

Combination meter		Resistance (Ω)
Terminal No.		
37	39	Approx. 108 - 132

OK or NG

- OK >> GO TO 5.
 NG >> Replace ECM or combination meter.



5. CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results of interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when non-reproduced error is detected.

6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

NOTE:

ECM and combination meter have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results of interview with customer)” are reproduced.

NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace unit whose connector was disconnected.

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