SECTION LAN

LAN SYSTEM

CONTENTS

CAN

PRECAUTIONS

PFP:00001

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

UKS0024Z

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

UKS00250

CAN SYSTEM

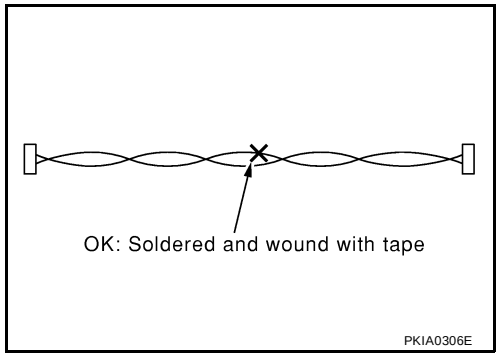
- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch off and disconnect battery cable at negative terminal before checking the circuit.

Precautions For Harness Repair

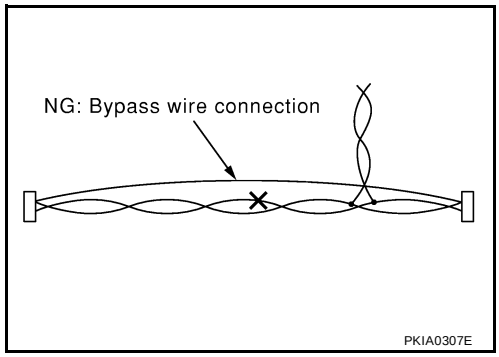
UKS00251

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.)



TROUBLE DIAGNOSES WORK FLOW

PFP:00004

When Displaying CAN Communication System Errors

UKS004TZ

WHEN A MALFUNCTION IS DETECTED BY CAN COMMUNICATION SYSTEM

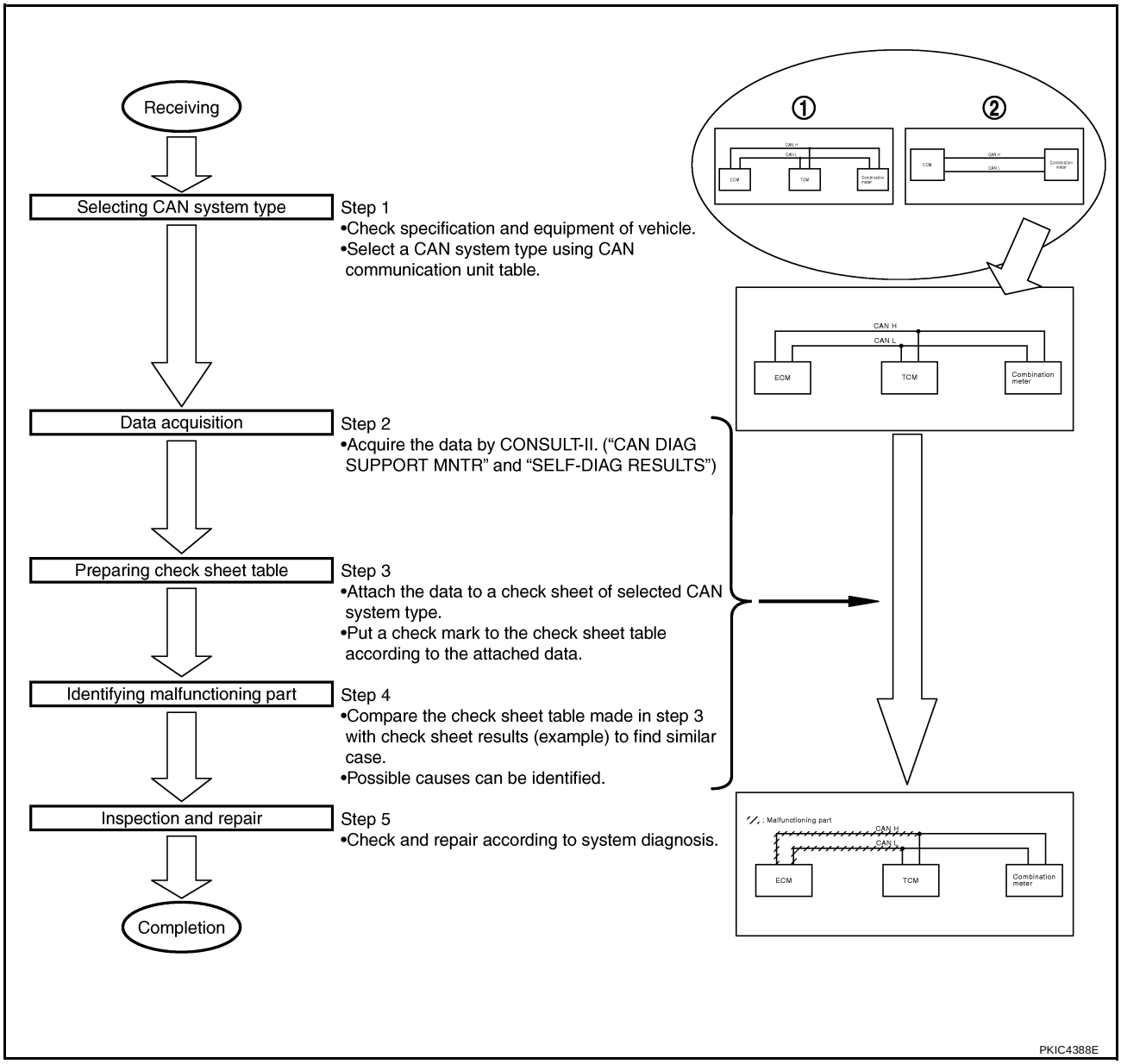
- CAN communication line is open. (CAN H, CAN L, or both)
- CAN communication line is shorted. (Ground, between CAN lines, or other harnesses)
- The areas related to CAN communication of unit is malfunctioning.

WHEN A MALFUNCTION IS DETECTED EXCEPT CAN COMMUNICATION SYSTEM

- Removal and installation of parts: When the units that perform CAN communication or the sensors related to CAN communication are removed and installed, malfunction may be detected (or DTC other than CAN communication may be detected).
- Fuse blown out (removed): CAN communication of the unit may be stopped at such time.
- Low voltage: If the voltage decreases because of battery discharge when IGN is ON, malfunction may be detected by self-diagnosis according to the units.

TROUBLE DIAGNOSIS FLOW CHART

Depending on the control unit which performs CAN communication, “U1010” may be indicated as the result of self-diagnosis. Replace the control unit if “U1010” is indicated.



- Step 1: Refer to LAN-5, "SELECTING CAN SYSTEM TYPE (HOW TO USE SPECIFICATION TABLE)" .
- Step 2: Refer to LAN-6, "ACQUISITION OF DATA BY CONSULT-II" .
- Step 3: Refer to LAN-7, "HOW TO USE CHECK SHEET TABLE" .
- Step 4: Refer to LAN-8, "Example of Filling in Check Sheet When Initial Conditions Are Reproduced" .
- Step 5: Refer to LAN-26, "TROUBLE DIAGNOSIS FOR SYSTEM" .

Diagnosis Procedure

UKS004U0

SELECTING CAN SYSTEM TYPE (HOW TO USE SPECIFICATION TABLE)

Determine CAN system type from the equipment of the vehicle to select applicable check sheet.

(Example) Sedan/2WD/QR25DE/AT

CAN Communication Unit

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

Body type	Sedan	
Axle	2WD	
Engine	QG18DE/QR25DE	
Transmission	A/T	M/T
CAN system type	1	2
CAN system trouble diagnosis	XX-XX	XX-XX

Check basic specification of the vehicle.

Which number is selected when sequentially selecting from the top of the specification table?
The number is “CAN system type” of the applicable vehicle.

In the case of this example:
It corresponds to type 1.

PKIC4389E

ACQUISITION OF DATA BY CONSULT-II

Attach the data acquired by CONSULT-II on the check sheet determined according to CAN system type.

Check sheet table

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					SELF-DIAG RESULTS	
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A		
ENGINE	–	UNKWN	–	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	NG	UNKWN	UNKWN	–	UNKWN	CAN COMM CIRCUIT (U1000)	–

Symptoms :

Copy “SELF-DIAG RESULTS” screen of CONSULT-II.

SELF-DIAG RESULTS

DTC RESULTS	TIME
CAN COMM CIRCUIT [U1001]	
CAN COMM CIRCUIT [U1000]	

F.F.DATA

ERASE | PRINT

MODE | BACK | LIGHT | COPY

Attach copy of ENGINE SELF-DIAG RESULTS

SELF-DIAG RESULTS

DTC RESULTS

CAN COMM CIRCUIT

ERASE | PRINT

MODE | BACK | LIGHT | COPY

Copy “CAN DIAG SUPPORT MNTR” screen of CONSULT-II.

CAN DIAG SUPPORT MNTR

ENGINE		
	PRSNT	PAST
TRANSMIT DIAG	UNKWN	0
VDC/TCS/ABS	-	-
METER/M&A	UNKWN	0
BCM/SEC	-	-
ICC	-	-
HVAC	-	-
TCM	UNKWN	0
EPS	-	-
IPDM E/R	-	-

PRINT | Scroll Down

MODE | BACK | LIGHT | COPY

CAN DIAG SUPPORT MNTR

ENGINE		
	PRSNT	PAST
METER/M&A	UNKWN	0
BCM/SEC	-	-
ICC	-	-
HVAC	-	-
TCM	UNKWN	0
EPS	-	-
IPDM E/R	-	-
e4WD	-	-
AWD/4WD	-	-

PRINT | Scroll Up

MODE | BACK | LIGHT | COPY

Attach copy of ENGINE CAN DIAG SUPPORT MNTR

CAN DIAG SUPPORT MNTR

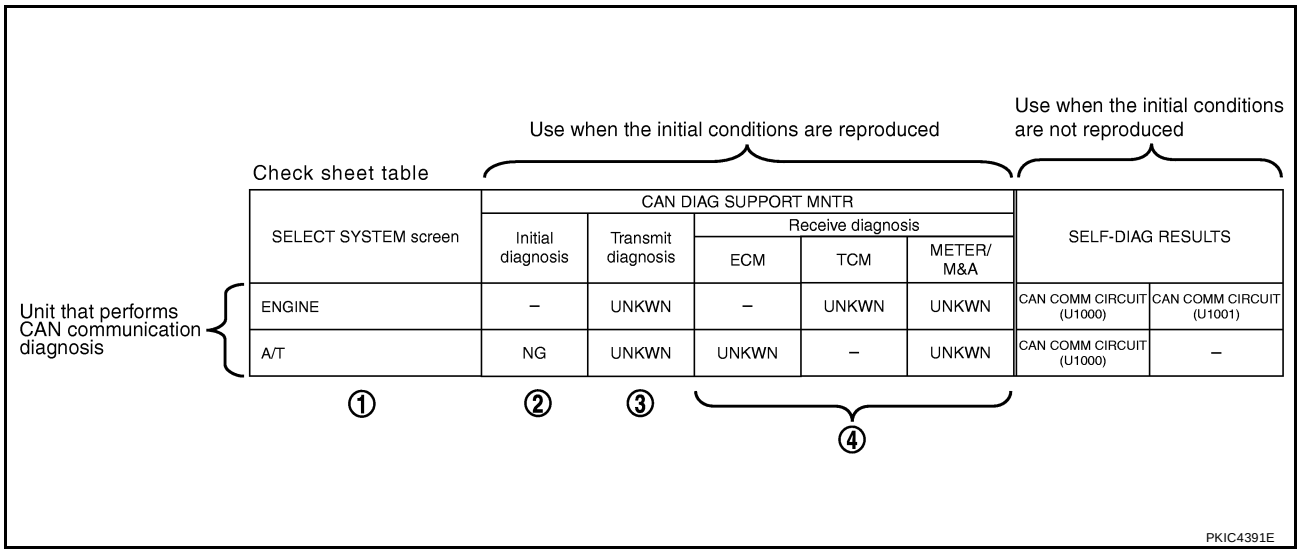
A/T	
	PRSNT
INITIAL DIAG	OK
TRANSMIT DIAG	OK
ECM	UNKWN
VDC/TCS/ABS	UNKWN
METER/M&A	OK
ICC/e4WD	UNKWN

PRINT

MODE | BACK | LIGHT | COPY

PKIC4390E

HOW TO USE CHECK SHEET TABLE

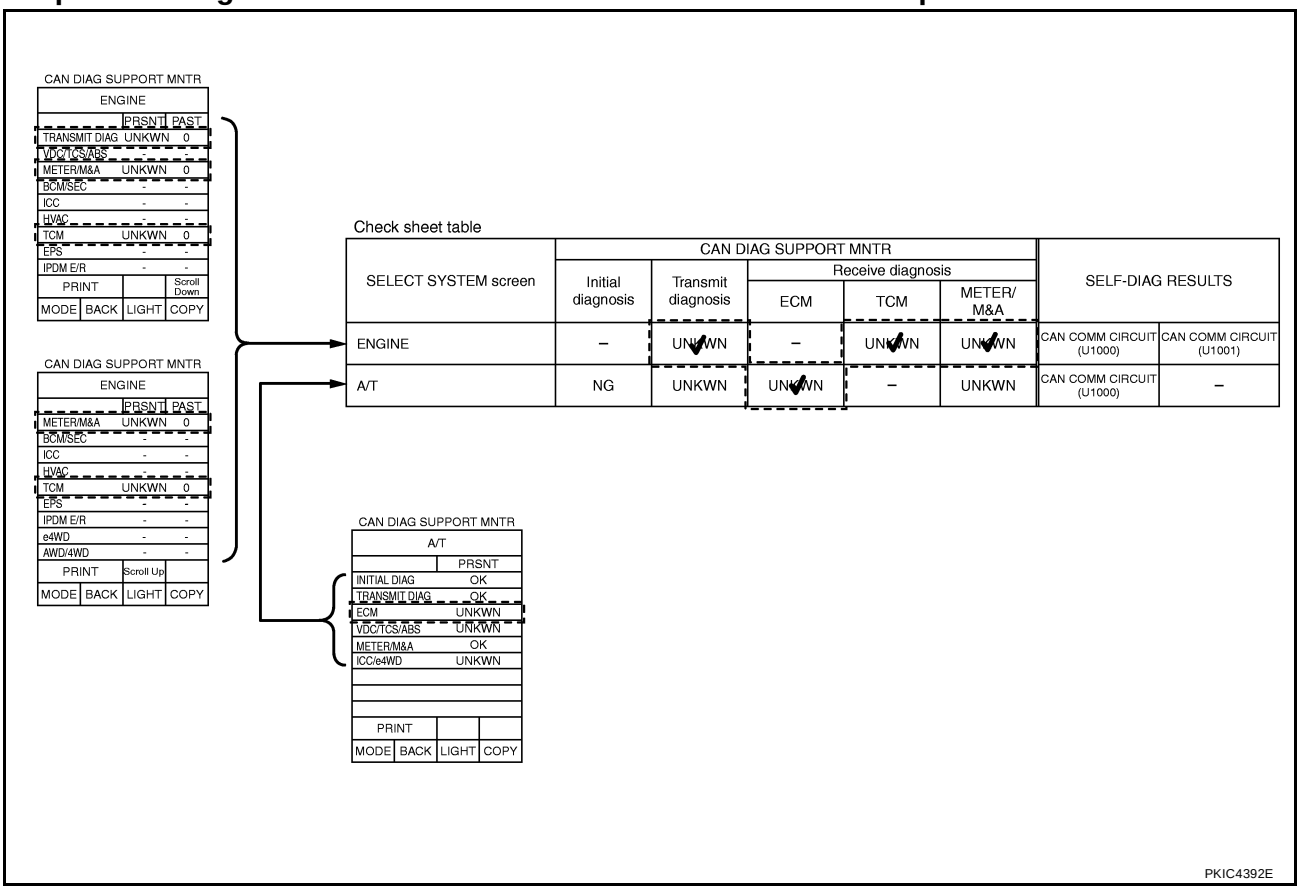


1. Unit names displayed on CONSULT-II
2. “NG”: Display “NG” when malfunction is detected in the initial diagnosis of the diagnosed unit. Replace the unit if “NG” is displayed.
   “–”: Column not used (Initial diagnosis is not performed.)
3. “UNKWN”: Display “UNKWN” when the diagnosed unit does not transmit the data normally. Put a check mark to it if “UNKWN” is displayed on CONSULT-II.
4. “UNKWN”: Display “UNKWN” when the diagnosed unit does not receive the data normally. Put a check mark to it if “UNKWN” is displayed on CONSULT-II.
   “–”: Column not used (It is not necessary for CAN communication trouble diagnosis.)

NOTE:
CAN communication diagnosis checks if CAN communication works normally. (Contents of data are not diagnosed.)

- When the initial conditions are reproduced, refer to LAN-8, "Example of Filling in Check Sheet When Initial Conditions Are Reproduced" .
- When the initial conditions are not reproduced, refer to LAN-10, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced" .

Example of Filling in Check Sheet When Initial Conditions Are Reproduced



1. Confirm the unit name that “UNKWN” is displayed from the copy of “CAN DIAG SUPPORT MNTR” screen of “ENGINE” attached to the check sheet, and then put a check mark to the check sheet table.

   NOTE:
   In “CAN DIAG SUPPORT MNTR” screen, “UNKWN” is displayed on “TRANSMIT DIAG”, “METER/M&A” and “TCM”. Put a check mark to it.

2. Confirm the unit name that “UNKWN” is displayed on the copy of “CAN DIAG SUPPORT MNTR” screen of “A/T” as well as “ENGINE”. And then, put a check mark to the check sheet table.

   NOTE:
   For “A/T”, “UNKWN” is displayed on “ECM”, “VDC/TCS/ABS” and “ICC/e4WD”. But put a check mark to “ECM” because “UNKWN” is listed on the column of reception diagnosis of the check sheet table.

The arranged results of CAN diagnosis support monitor

Check sheet table

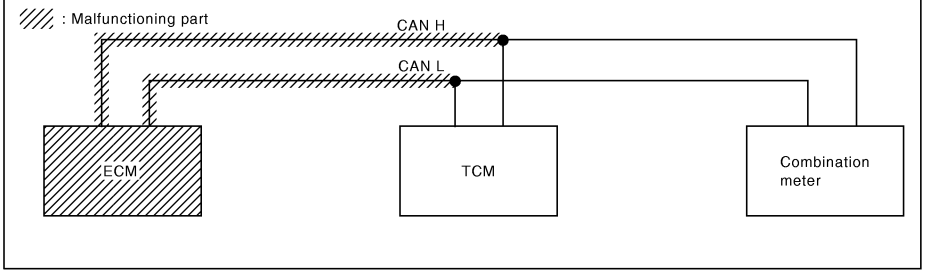
SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					SELF-DIAG RESULTS	
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A		
ENGINE	–	UNKWN	–	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	NG	UNKWN	UNKWN	–	UNKWN	CAN COMM CIRCUIT (U1000)	–

Choose similar indications between the results of CAN diagnosis support monitor and the results of the check sheet. Malfunctioning parts are found.

Case 1
Check ECM circuit.

Check sheet results (example)

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					SELF-DIAG RESULTS	
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A		
ENGINE	–	UNKWN	–	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	NG	UNKWN	UNKWN	–	UNKWN	CAN COMM CIRCUIT (U1000)	–



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NOTE:
There is a case that some of “CAN DIAG SUPPORT MNTR” and “SELF-DIAG RESULTS” are not needed for diagnosis. In the case, “UNKWN” and “CAN COMM CIRCUIT (U1000)” in “Check sheet results (example)” change to “–”. Then, ignore check marks on the check sheet table.

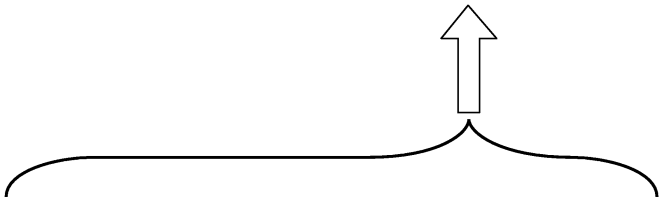
3. Perform system diagnosis for possible causes identified.
4. Perform diagnosis again after inspection and repair. Make sure that repair is completely performed, and then end the procedure.

Start CAN system trouble diagnosis if this procedure can be confirmed. Refer to LAN-17, "CAN Communication Unit" .

Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced

Check sheet table

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					SELF-DIAG RESULTS	
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A		
ENGINE	–	UNKWN	–	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	NG	UNKWN	UNKWN	–	UNKWN	CAN COMM CIRCUIT (U1000) ✓	–



SYSTEM ENGINE

SELF-DIAG RESULTS

DTC RESULTS	TIME
CAN COMM CIRCUIT [U1001]	1
CAN COMM CIRCUIT [U1000]	1

SYSTEM A/T

SELF-DIAG RESULTS

DTC RESULTS
CAN COMM CIRCUIT

PKIC4394E

1. See “SELF-DIAG RESULTS” of all units attached to the check sheet. If “CAN COMM CIRCUIT”, “CAN COMM CIRCUIT [U1000]” or “CAN COMM CIRCUIT [U1001]” is displayed, put a check mark to the applicable column of self-diagnostic results of the check sheet table.

   NOTE:

   - For “ENGINE”, “CAN COMM CIRCUIT [U1000]” and “CAN COMM CIRCUIT [U1001]” are displayed. Put a check mark to it.
   - For “A/T”, “CAN COMM CIRCUIT” is displayed. Put a check mark to it.

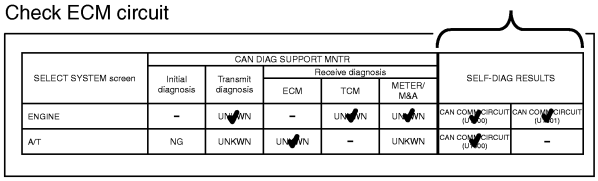
The arranged results of self-diagnosis

Check sheet table

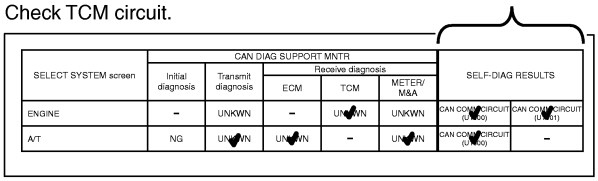
SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					SELF-DIAG RESULTS	
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A		
ENGINE	–	UNKWN	–	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	NG	UNKWN	UNKWN	–	UNKWN	CAN COMM CIRCUIT (U1000) ✓	–

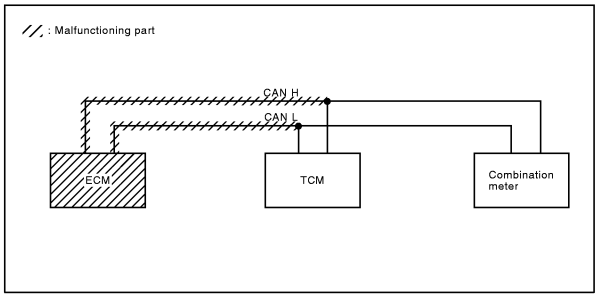
When the arranged results of self-diagnosis and check sheet results (example) are corresponding, possible causes can be selected.

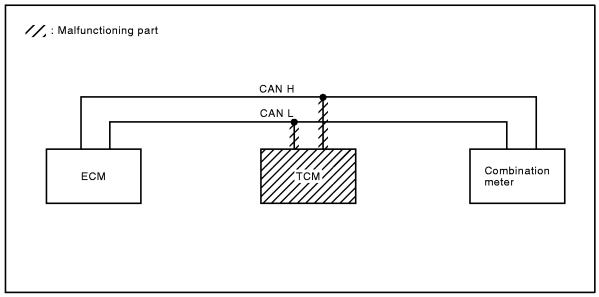
Case 1
Check ECM circuit



Case 2
Check TCM circuit.







PKIC4395E

NOTE:
There is a case that some of “CAN DIAG SUPPORT MNTR” and “SELF-DIAG RESULTS” are not needed for diagnosis. In the case, “UNKWN” and “CAN COMM CIRCUIT (U1000)” in “Check sheet results (example)” change to “–”. Then, ignore check marks on the check sheet table.

2. For the selected possible causes, it is expected that malfunctions have been found in the past.

CAN Diagnostic Support Monitor

UKS004QT

DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN FOR ECM

(Example)

CAN DIAG SUPPORT MNTR

ENGINE		
	PRSNT	PAST
TRANSMIT DIAG	OK	OK
VDC/TCS/ABS	-	-
METER/M&A	OK	OK
BCM/SEC	-	-
ICC	-	-
HVAC	-	-
TCM	OK	OK
EPS	-	-
IPDM E/R	-	-
PRINT		Scroll Down
MODE	BACK	LIGHT	COPY

CAN DIAG SUPPORT MNTR

ENGINE		
	PRSNT	PAST
METER/M&A	OK	OK
BCM/SEC	-	-
ICC	-	-
HVAC	-	-
TCM	OK	OK
EPS	-	-
IPDM E/R	-	-
e4WD	-	-
AWD/4WD	-	-
PRINT	Scroll Up	
MODE	BACK	LIGHT	COPY

PKIC4377E

"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present	Past
ENGINE	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN/–	OK/0/1~39/–
	VDC/TCS/ABS	VDC/TCS/ABS is not diagnosed.	–	
	METER/M&A	Make sure of normal reception from combination meter.	OK/UNKWN/–	
	BCM/SEC	BCM/SEC is not diagnosed.	–	
	ICC	ICC is not diagnosed.	–	
	HVAC	HVAC is not diagnosed.	–	
	TCM	Make sure of normal reception from TCM.	OK/UNKWN/–	
	EPS	EPS is not diagnosed.	–	
	IPDM E/R	IPDM E/R is not diagnosed.	–	
	e4WD	e4WD is not diagnosed.	–	
	AWD/4WD	AWD/4WD is not diagnosed.	–	

Display Results (Present)

- OK: Normal
- UNKWN: The diagnosed unit does not transmit or receive the applicable data normally.
- –: There is no received unit or the unit is not in the condition that reception diagnosis is performed.

Display Results (Past)

- OK: Normal
- 0: There is malfunction now.
- 1 ~ 39: Displays when it is normal at present and finds malfunction in the past. It increases like 0→1→2...38→39 after returning to the normal condition whenever IGN OFF→ON. If it is over 39, it is fixed to 39 until the self-diagnostic results are erased. It returns to 0 when malfunction is detected again in the process.
- –: Undiagnosed

DESCRIPTION OF “CAN DIAG SUPPORT MNTR” SCREEN FOR TCM

(Example)

CAN DIAG SUPPORT MNTR

A/T	
	PRSNT
INITIAL DIAG	OK
TRANSMIT DIAG	OK
ECM	OK
VDC/TCS/ABS	UNKWN
METER/M&A	OK
ICC/e4WD	UNKWN
PRINT	
MODE / BACK / LIGHT / COPY	

PKIC4378E

“SELECT SYSTEM” screen	“CAN DIAG SUPPORT MNTR” screen	Description	Present
A/T	INITIAL DIAG	Make sure that microcomputer in ECU works normally.	OK/NG
	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN
	ECM	Make sure of normal reception from ECM.	OK/UNKWN
	VDC/TCS/ABS	VDC/TCS/ABS is not diagnosed.	UNKWN
	METER/M&A	Make sure of normal reception from combination meter.	OK/UNKWN
	ICC/e4WD	ICC/e4WD is not diagnosed.	UNKWN

Display Results (Present)

- OK: Normal
- NG: Malfunction
- UNKWN: The diagnosed unit does not transmit or receive the applicable data normally.

CAN COMMUNICATION

PFP:23710

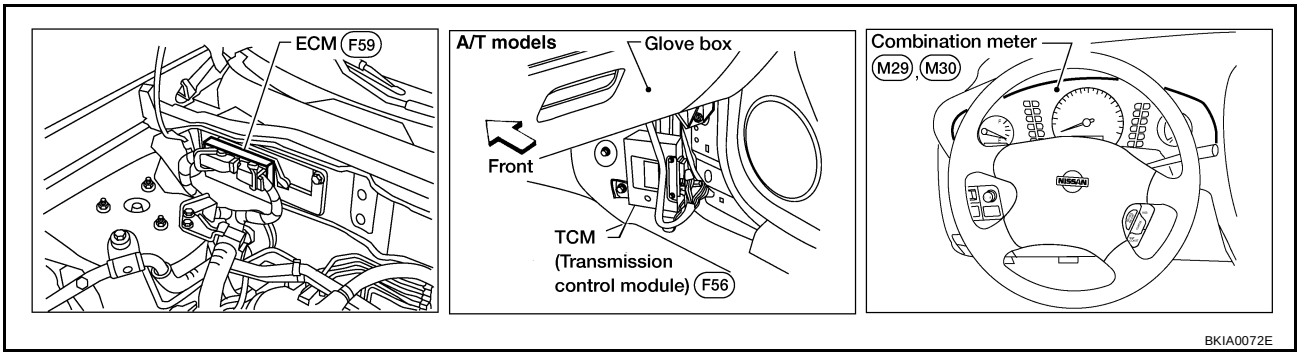
System Description

UKS00253

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

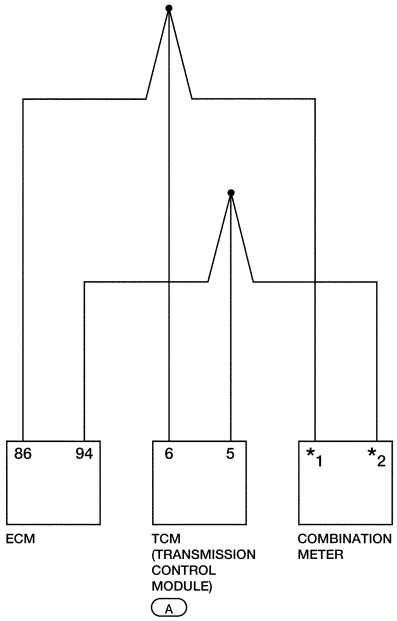
UKS004QU



Schematic

UKS004UF

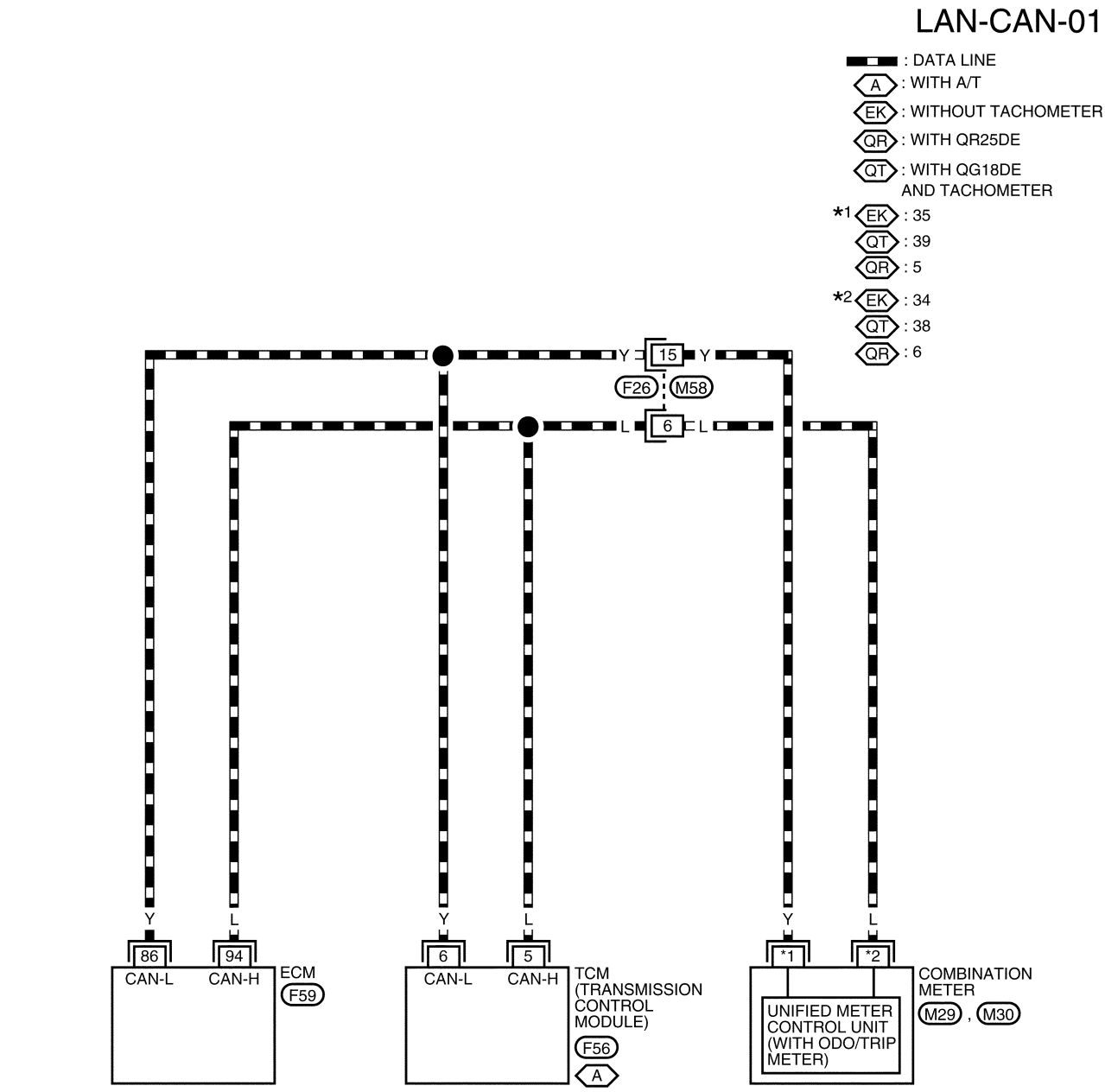
(A) : WITH A/T
(EK) : WITHOUT TACHOMETER
(QR) : WITH QR25DE
(QT) : WITH QG18DE AND TACHOMETER
*1 (EK) : 35
(QR) : 5
(QT) : 39
*2 (EK) : 34
(QR) : 6
(QT) : 38

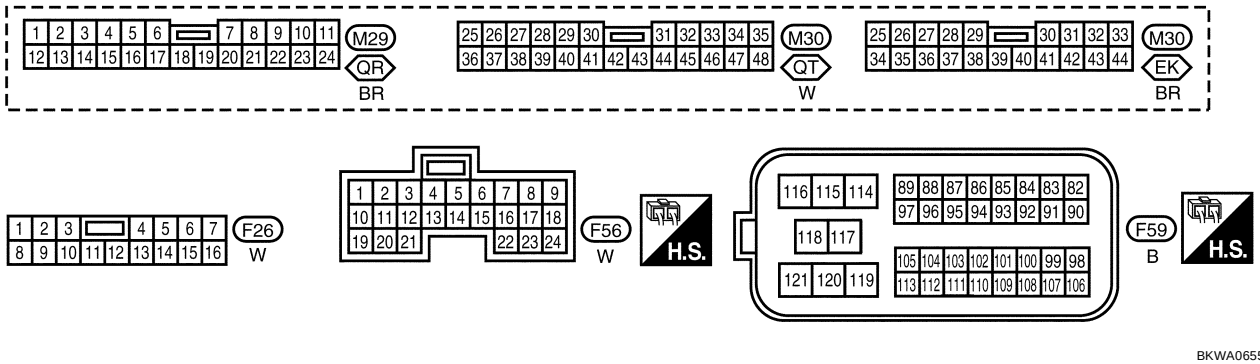


BKWA0654E

Wiring Diagram — CAN —

UKS00257





BKWA0655E

CAN Communication Unit

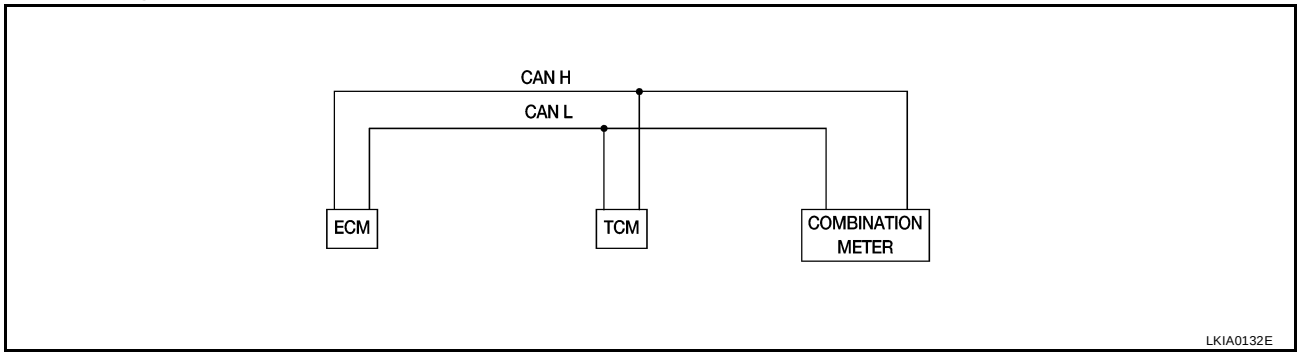
UKS00254

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

Body type	Sedan	
Axle	2WD	
Engine	QG18DE/QR25DE	
Transmission	A/T	M/T
CAN system type	1	2
CAN system trouble diagnosis	LAN-19	LAN-23

TYPE 1

System diagram



Input/output signal chart

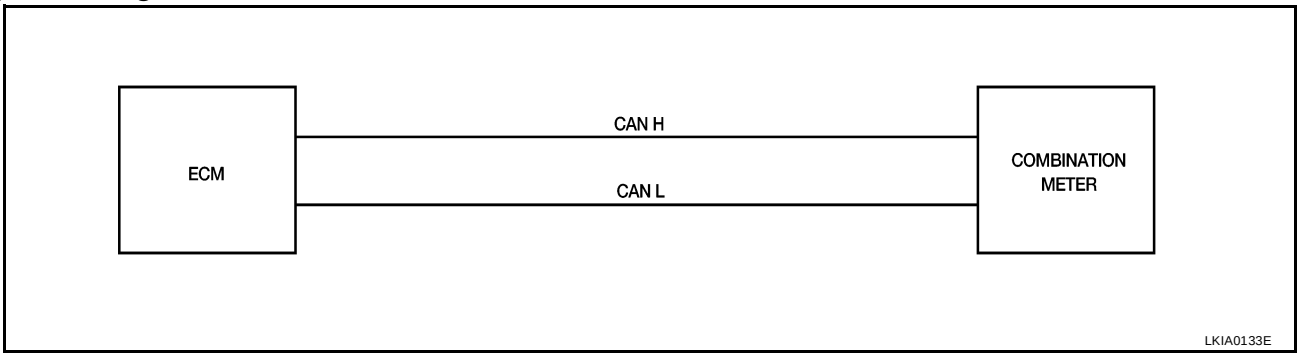
T: Transmit R: Receive

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
Fuel consumption monitor 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
Engine and A/T integrated control signal	T	R	
	R	T	

*: For QR25DE models only

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
Fuel consumption monitor 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

*: For QR25DE models

CAN SYSTEM (TYPE 1)

PFP:23710

Component Parts and Harness Connector Location

UKS004R9

Refer to LAN-14, "Component Parts and Harness Connector Location" .

Schematic

UKS004UG

Refer to LAN-15, "Schematic" .

Wiring Diagram — CAN —

UKS004RA

Refer to LAN-16, "Wiring Diagram — CAN —" .

CHECK SHEET

UKS004RB

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					SELF-DIAG RESULTS	
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A		
ENGINE	–	UNKWN	–	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	NG	UNKWN	UNKWN	–	UNKWN	CAN COMM CIRCUIT (U1000)	–

Symptoms :

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
A/T
SELF-DIAG RESULTS

Attach copy of
ENGINE
CAN DIAG SUPPORT
MNTR

Attach copy of
A/T
CAN DIAG SUPPORT
MNTR

PKIC3847E

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

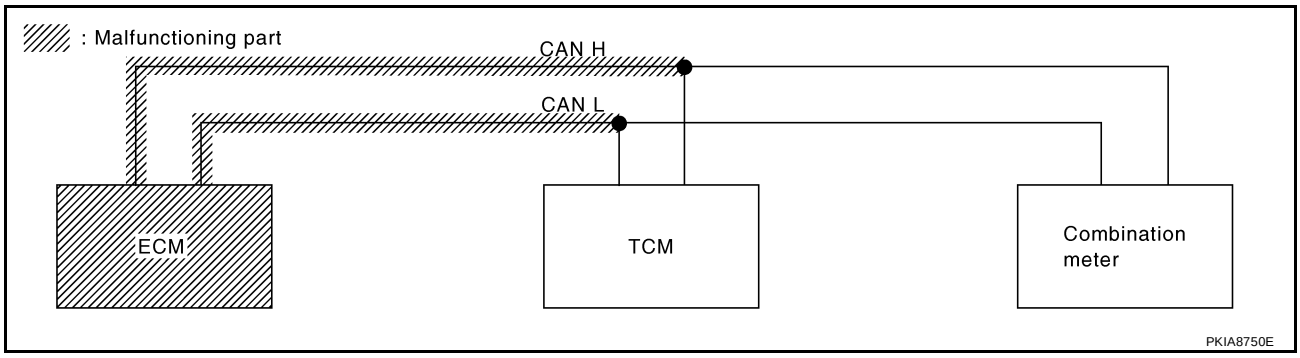
If a check mark is put on “NG” on “INITIAL DIAG (Initial diagnosis)”, replace the control unit.

Case 1

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

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					SELF-DIAG RESULTS	
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A		
ENGINE	–	UNKWN ✓	–	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	NG	UNKWN	UNKWN ✓	–	UNKWN	CAN COMM CIRCUIT (U1000) ✓	–

PKIC4010E



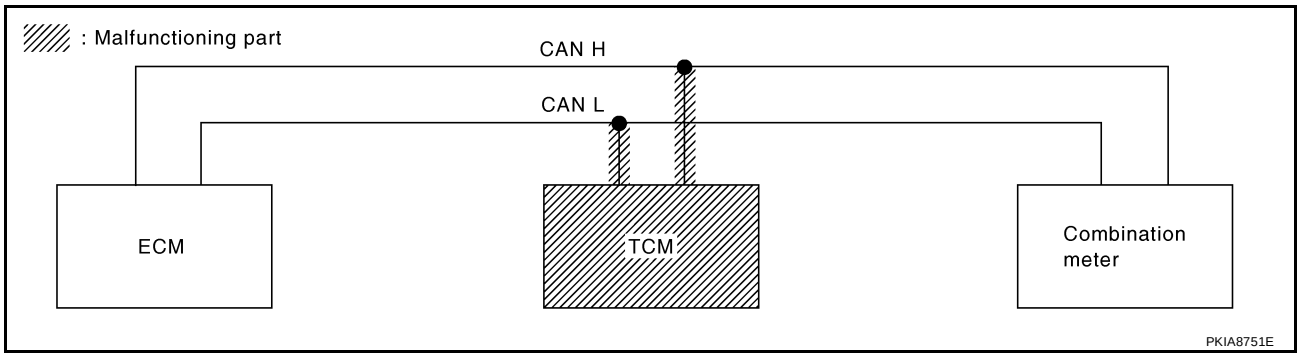
PKIA8750E

Case 2

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

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					SELF-DIAG RESULTS	
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A		
ENGINE	–	UNKWN	–	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	NG	UNKWN ✓	UNKWN ✓	–	UNKWN ✓	CAN COMM CIRCUIT (U1000) ✓	–

PKIC4011E



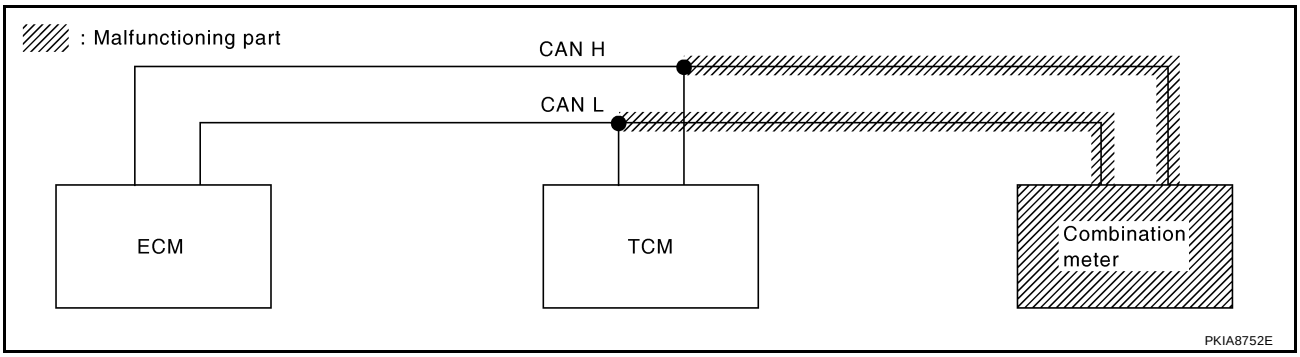
PKIA8751E

Case 3

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

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					SELF-DIAG RESULTS	
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A		
ENGINE	–	UNKWN	–	UNKWN	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	NG	UNKWN	UNKWN	–	UNKWN ✓	CAN COMM CIRCUIT (U1000) ✓	–

PKIC4012E



PKIA8752E

Case 4

Check CAN communication circuit. Refer to LAN-28, "CAN Communication Circuit Inspection" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR					SELF-DIAG RESULTS	
	Initial diagnosis	Transmit diagnosis	Receive diagnosis				
			ECM	TCM	METER/ M&A		
ENGINE	–	UNKWN ✓	–	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	NG	UNKWN ✓	UNKWN ✓	–	UNKWN ✓	CAN COMM CIRCUIT (U1000) ✓	–

PKIC4013E

CAN SYSTEM (TYPE 2)

PFP:23710

Component Parts and Harness Connector Location

UKS004RC

Refer to LAN-14, "Component Parts and Harness Connector Location" .

Schematic

UKS004UH

Refer to LAN-15, "Schematic" .

Wiring Diagram — CAN —

UKS004RD

Refer to LAN-16, "Wiring Diagram — CAN —" .

CHECK SHEET

UKS004RE

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				SELF-DIAG RESULTS
	Initial diagnosis	Transmit diagnosis	Receive diagnosis		
			ECM	METER/ M&A	
ENGINE	–	UNKWN		UNKWN	CAN COMM CIRCUIT (U1001)

Symptoms :

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
ENGINE
CAN DIAG SUPPORT
MNTR

PKIC3848E

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 CAN communication circuit. Refer toLAN-28, "CAN Communication Circuit Inspection" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR				SELF-DIAG RESULTS
	Initial diagnosis	Transmit diagnosis	Receive diagnosis		
			ECM	METER/ M&A	
ENGINE	–	UNKWN ✓	–	UNKWN ✓	CAN COMM CIRCUIT (U1001) ✓

PKIC4014E

TROUBLE DIAGNOSIS FOR SYSTEM

PFP:00000

ECM Circuit Inspection

UKS00259

1. CHECK CONNECTOR

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

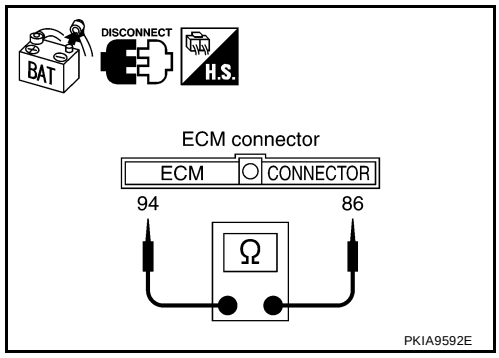
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector terminals.

ECM connector	Terminal		Resistance (Approx.)
F59	94	86	108 – 132 Ω

OK or NG

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



TCM Circuit Inspection

UKS0025A

1. CHECK CONNECTOR

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

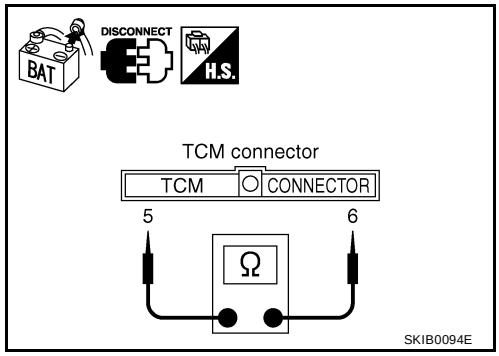
2. CHECK HARNESS FOR OPEN CIRCUIT

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

TCM connector	Terminal		Resistance (Approx.)
F56	5	6	54 – 66 Ω

OK or NG

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



Combination Meter Circuit Inspection

UKS0025B

1. CHECK CONNECTOR

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

- Combination meter connector
- Harness connector F26
- Harness connector M58

OK or NG

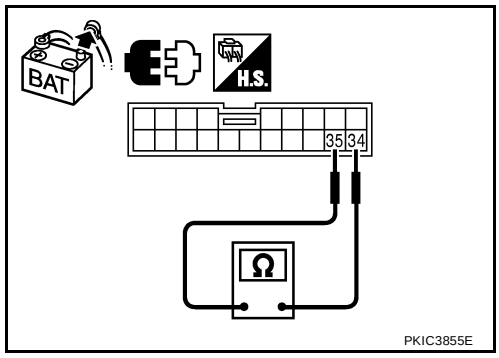
OK >> GO TO 2.
NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

Without tachometer

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

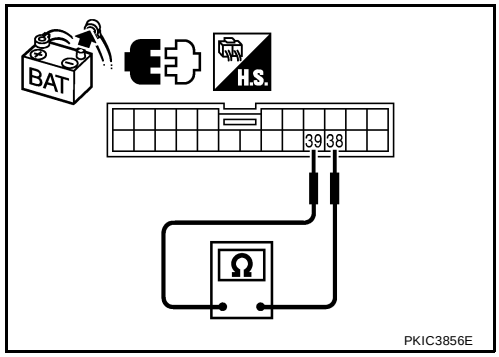
Combination meter connector	Terminal		Resistance (Approx.)
M30	34	35	108 – 132 Ω



With tachometer (QG18DE)

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

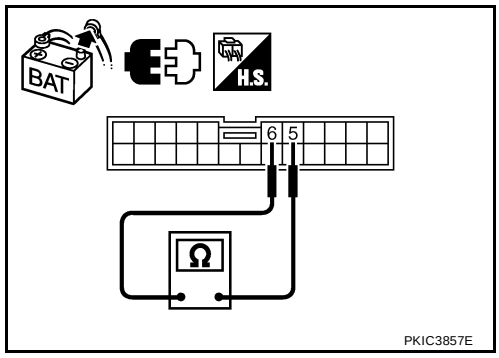
Combination meter connector	Terminal		Resistance (Approx.)
M30	38	39	108 – 132 Ω



With tachometer (QR25DE)

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

Combination meter connector	Terminal		Resistance (Approx.)
M29	6	5	108 – 132 Ω



OK or NG

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

CAN Communication Circuit Inspection

UKS004QW

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector for each unit on the CAN network and check terminals for deformation, disconnection, looseness or damage.

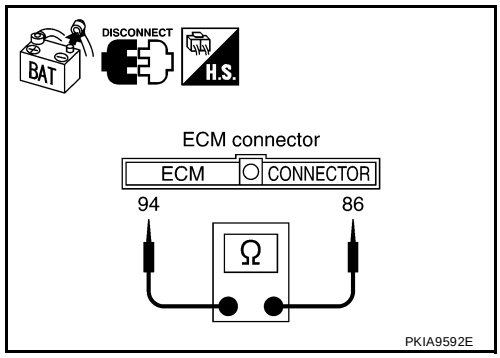
OK or NG

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

2. CHECK HARNESS FOR SHORT CIRCUIT

With all module and control unit connectors disconnected, check continuity between ECM harness connector terminals.

ECM connector	Terminal		Continuity
F59	94	86	No



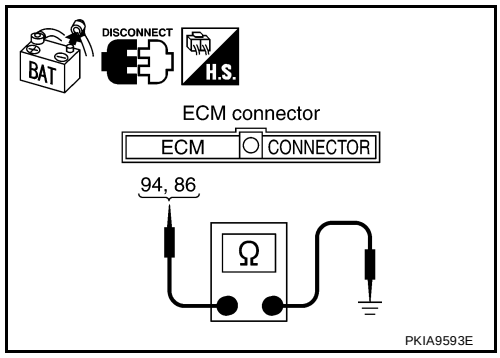
OK or NG

OK >> GO TO 3.
NG >> ● Repair harness.
● Change harness if shielded lines are used for the harness.

3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector terminals and ground.

ECM connector	Terminal	Ground	Continuity
F59	94		No
	86		No



OK or NG

OK >> GO TO 4.
NG >> ● Repair harness.
● Change harness if shielded lines are used for the harness.

4. CHECK ECM AND COMBINATION METER INTERNAL CIRCUIT

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

Terminal		Resistance (Approx.)
94	86	108 – 132 Ω

3. Check resistance between combination meter terminals.

– Without tachometer

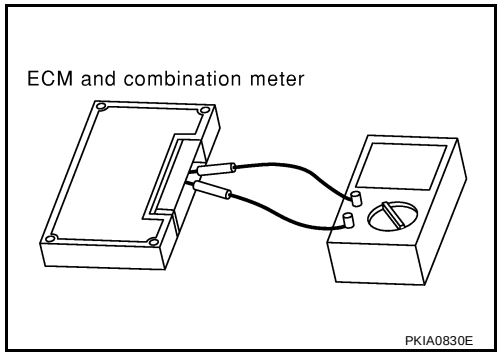
Terminal		Resistance (Approx.)
34	35	108 – 132 Ω

– With tachometer (QG18DE)

Terminal		Resistance (Approx.)
38	39	108 – 132 Ω

– With tachometer (QR25DE)

Terminal		Resistance (Approx.)
6	5	108 – 132 Ω



OK or NG

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

5. CHECK SYMPTOM

1. Fill in described symptoms on the column “Symptom” in the check sheet.
2. Connect all connectors, and then make sure that the symptom is reproduced.

OK or NG

OK >> GO TO 6.
NG >> Refer to LAN-10, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced"
.

6. UNIT REPRODUCIBILITY INSPECTION

Perform the following procedure for each unit on the CAN network, and then perform reproducibility test.

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the unit connector.
4. Connect the battery cable to the negative terminal.
5. Make sure that the symptom filled in the “Symptom” of the check sheet is reproduced. (Do not confuse it with the symptom related to removed unit.)
6. Make sure that the same symptom is reproduced.

Inspection results

Reproduced>>Install removed unit, and then check the other unit.
Not reproduced>>Replace removed unit.