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ECM/IPDM E/R INTERNAL CIRCUIT INSPEC-

PRECAUTIONS PFP:00001

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

KS00651

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SRS and SB section of this Service Man-

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 When Using CONSULT-II

FKS008XS

When connecting CONSULT-II to data link connector, connect them through CONSULT-II CONVERTER.

CAUTION:

If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

CHECK POINTS FOR USING CONSULT-II

- Has CONSULT-II been used without connecting CONSULT-II CONVERTER on this vehicle?
- If YES, GO TO 2.
- If NO, GO TO 5.
- 2. Is there any indication other than indications relating to CAN communication system in the self-diagnosis results?
- If YES, GO TO 3.
- If NO, GO TO 4.
- Based on self-diagnosis results unrelated to CAN communication, carry out the inspection.
- 4. Malfunctions may be detected in self-diagnosis depending on control units carrying out CAN communication. Therefore, erase the self-diagnosis results.
- 5. Diagnose CAN communication system. Refer to LAN-4, "System Description".

Precautions For Trouble Diagnosis CAN SYSTEM

EKS003HN

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

PRECAUTIONS

[CAN]

Precautions For Harness Repair CAN SYSTEM

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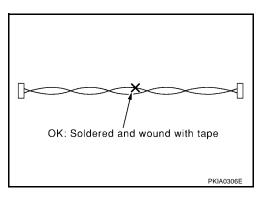
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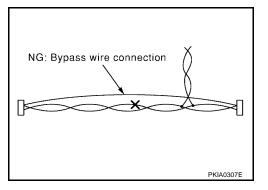
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 Solder the repaired parts, and wrap with tape. [Frays of twisted line must be within 110 mm (4.33 in)]



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.)



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CAN COMMUNICATION

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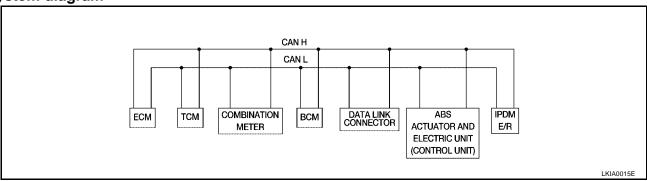
System Description

EKS003HP

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.

FOR TCS MODELS

System diagram



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	ТСМ	COMBINA- TION METER	ВСМ	ABS/TCS control unit	IPDM E/R
Engine speed signal	Т		R		R	
Engine coolant temperature signal	Т		R			
Accelerator pedal position signal	Т					
Fuel consumption monitor signal	Т		R			
A/T warning lamp signal		Т	R			
A/T position indicator signal	R	Т	R	R ^(R range only)	R	
ABS operation signal	R				Т	
TCS operation signal	R	R			Т	
Air conditioner switch signal	R			Т		
Air conditioner compressor signal	R					Т
A/C compressor request signal	Т					R
Cooling fan motor operation signal	R					Т
Cooling fan speed request signal	Т					R
Position lights request			R	Т		R
Position lights status				R		T
Low beam request				Т		R
Low beam status	R			R		Т
High beam request			R	Т		R
High beam status	R			R		Т
Front fog lights request				Т		R
Front fog light status				R		Т
OD cancel switch signal		R	Т			R
Brake switch signal		R	Т			

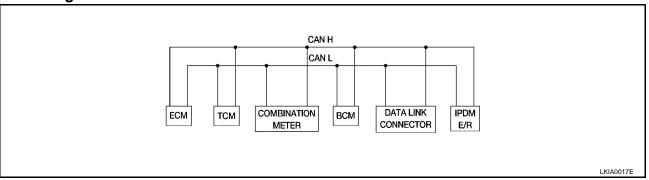
CAN COMMUNICATION

[CAN]

Signals	ECM	TCM	COMBINA- TION METER	всм	ABS/TCS control unit	IPDM E/R
Vehicle speed signal	R		Т			
venicie speed signal	R		Т	R		
Oil pressure switch			R			T
Sleep request1			R	Т		
Sleep request2				Т		R
N range switch signal		R	Т			
P range switch signal		R	Т			
Seat belt buckle switch signal			Т	R		
Door switch signal			R	Т		R
Tail lamp request			R	Т		R
Turn indicator signal			R	Т		
Buzzer output signal			R	Т		
Trunk switch signal			R	Т		
ASCD main switch signal	Т		R			
ASCD cruise signal	Т		R			
Wiper operation				R		Т
Wiper stop position signal				R		Т
Rear window defogger switch signal				Т		R
Rear window defogger control signal	R			R		Т

FOR A/T MODELS

System diagram



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	TCM	COMBINATION METER	ВСМ	IPDM E/R
Engine speed signal	Т		R		
Engine coolant temperature signal	Т		R		
Accelerator pedal position signal	Т				R
Fuel consumption monitor signal	Т		R		
A/T warning lamp signal		Т	R		
A/T position indicator signal	R	Т	R	R ^(R range only)	
Air conditioner switch signal	R			Т	
Air conditioner compressor signal	R				Т
A/C compressor request signal	Т				R

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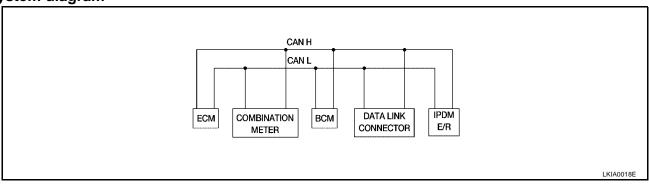
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Signals	ECM	ТСМ	COMBINATION METER	ВСМ	IPDM E/R
Blower fan switch signal	R ^(QR25DE)			Т	
Cooling fan motor operation signal	R			Т	
Cooling fan speed request signal	Т				R
Position lights request			R	Т	R
Position lights status				R	Т
Low beam request				Т	R
Low beam status	R			R	Т
High beam request			R	Т	R
High beam status	R			R	Т
Front fog lights request				Т	R
Front fog light status				R	Т
OD cancel switch signal		R	Т		R
Brake switch signal		R	Т		
	R		Т		
Vehicle speed signal	R		Т	R	
Oil pressure switch			R		Т
Sleep request1			R	Т	
Sleep request2				Т	R
N range switch signal		R	Т		
P range switch signal		R	Т		
Seat belt buckle switch signal			Т	R	
Door switch signal			R	Т	R
Tail lamp request			R	Т	R
Turn indicator signal			R	Т	
Buzzer output signal			R	Т	
Trunk switch signal			R	Т	
ASCD main switch signal	Т		R		
ASCD cruise signal	Т		R		
Wiper operation				R	Т
Wiper stop position signal				R	Т
Rear window defogger switch signal				Т	R
Rear window defogger control signal	R			R	Т

FOR M/T MODELS

System diagram



CAN COMMUNICATION

[CAN]

Signals	ECM	COMBINATION METER	ВСМ	IPDM E/R
Engine speed signal	Т			
Engine coolant temperature signal	Т			
Fuel consumption monitor signal	Т			
Air conditioner switch signal	R		Т	
Air conditioner compressor signal	R			Т
A/C compressor request signal	Т			R
Blower fan switch signal	R ^(QR25DE)		Т	
Cooling fan motor operation signal	R			Т
Cooling fan speed request signal	Т			R
Position lights request		R	Т	R
Position lights status			R	Т
Low beam request			Т	R
Low beam status	R		R	Т
High beam request		R	Т	R
High beam status	R		R	Т
Front fog lights request			Т	R
Front fog light status			R	Т
Vehicle speed signal	R	Т		
Oil pressure switch		R		Т
Sleep request1		R	Т	
Sleep request2			Т	R
Seat belt buckle switch signal		Т	R	
Door switch signal		R	Т	R
Tail lamp request		R	Т	R
Turn indicator signal		R	Т	
Buzzer output signal		R	Т	
Trunk switch signal		R	T	
ASCD main switch signal	Т	R		
ASCD cruise signal	Т	R		
Wiper operation			R	Т
Wiper stop position signal			R	Т
Rear window defogger switch signal			Т	R
Rear window defogger control signal	R		R	Т

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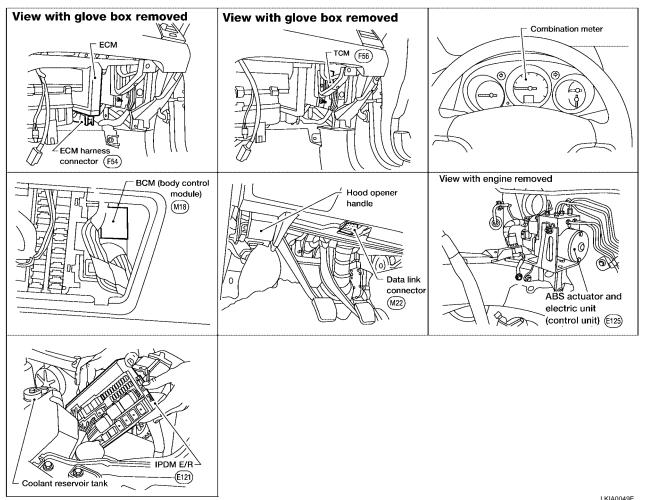
System Description

EKS003HQ

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

EKS003HR



Wiring Diagram — CAN —

EKS003HS

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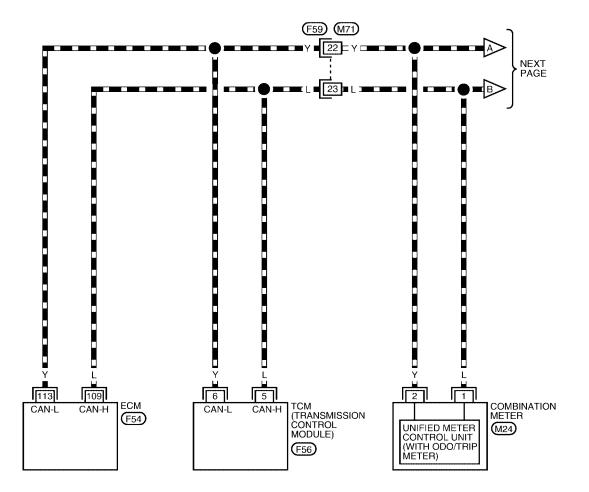
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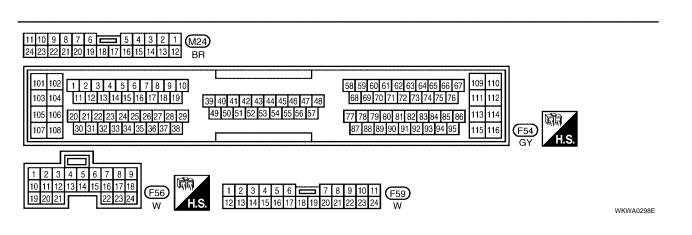
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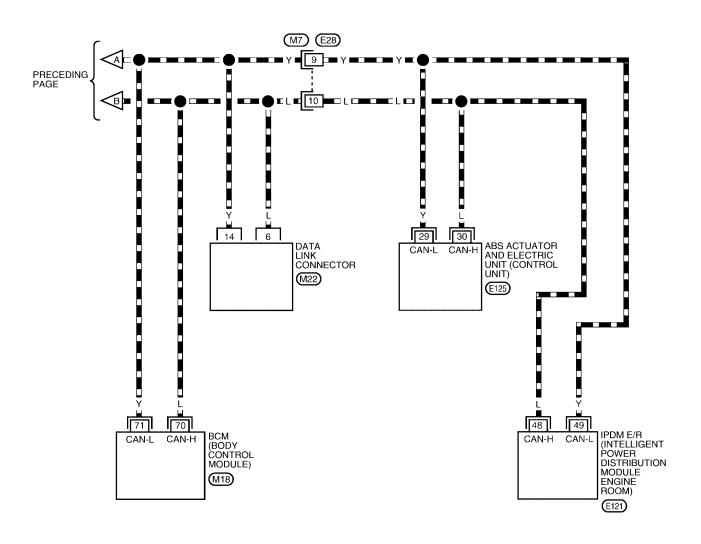
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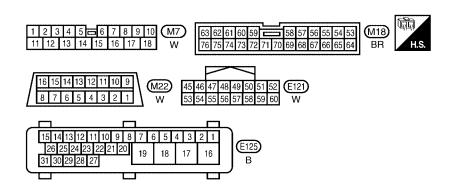




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: DATA LINE





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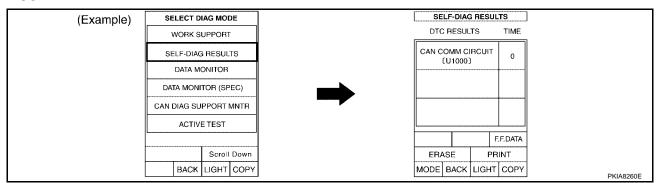
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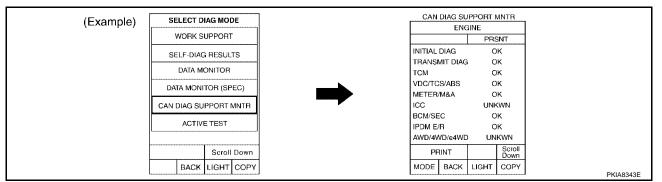
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Work Flow

1. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "A/T", "BCM", and "ABS" displayed on CON-SULT-II.



Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "A/T", "BCM", and "ABS" displayed on 2. CONSULT-II.



- Attach the printed sheet of "SELF-DIAG RESULTS" and "CAN DIAG SUPPORT MNTR" onto the check 3. sheet. Refer to LAN-12, "CHECK SHEET".
- Based on the "CAN DIAG SUPPORT MNTR" results, put check marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to LAN-12, "CHECK SHEET" .

NOTE:

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

According to the check sheet results (example), start inspection. Refer to LAN-13, "CHECK SHEET RESULTS (EXAMPLE)".

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CHECK SHEET

NOTE:

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

				CAN DIAG S	SUPPORT MNTR Receive of	diagnosis		
SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	ЕСМ	тсм	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN U	NKWN	-	UNKWN	-	UNKWN	-
всм	NG	UNKWN U	NKWN	-	UNKWN	-	-	UNKWN
ABS	NG	UNKWN U	NKWN	UNKWN	-	-	-	-
Attach copy of INGINE SELF-DIAG RESULTS	A/I	tach copy of SELF-DIAG RESULTS		BCN	tach copy of M SELF-DIA RESULTS	f G	ABS S	ch copy of SELF-DIAG ESULTS
				At	tach copy of	f	Attac	ch copy of

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CHECK SHEET RESULTS (EXAMPLE)

NOTE:

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

Case 1

Replace ECM.

			,	CAN DIAG	SUPPORT MNTR	.,		
SELECT SYSTEM screen	Initial	Transmit			Receive	diagnosis		
SEECOT OTOTEM SOLOUT	diagnosis	diagnosis	ECM	TCM	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	W	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-
ВСМ	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	-	-	-	-

			1	CAN DIAG	SUPPORT MNTR	diagnosis		
SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	NG	UNKVN	-	UNKAN	UNKAVN	UNRAN N	∩ N KWN	UNK VN
A/T	NG	UNKWN	UNKAN	-	UNKWN	_	UNKWN	-
всм	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	-	-	-	-

Case 2

Replace TCM.

				CAN DIAG S	SUPPORT MNTR			
SELECT SYSTEM screen	Initial	Transmit				diagnosis		
SEEDT STOTEM SOLOM	diagnosis	diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/I
ENGINE	NG	UNKWN	-	UNKAN	UNKWN	UNKWN	UNKWN	UNKWN
A/T	W	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-
ВСМ	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	-	-	-	-

				CAN DIAG	SUPPORT MNTR			
SELECT SYSTEM screen	Initial	Transmit			Receive	diagnosis		
SELECT STSTEM SCREET	diagnosis	diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/F
ENGINE	NG	UNKAN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	UNK VN	-	UNIK A √N	-	пикум	-
ВСМ	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	-	-	-	-

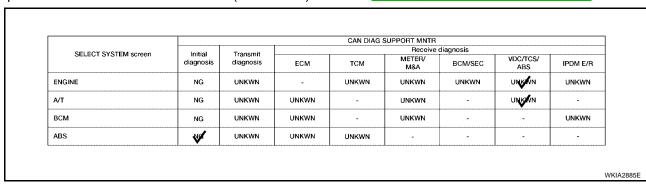
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Case 3
Replace BCM.

				CAN DIAG SUPPORT MNTR Receive diagnosis						
SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R		
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN		
¥T	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-		
зсм	W	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN		
ABS	NG	UNKWN	UNKWN	UNKWN	-	-	-	-		

			1	CAN DIAG	SUPPORT MNTR			
SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-
ВСМ	NG	UNKWN	UNKW N	-	UNK VN	-	-	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	-	-	-	-

Case 4 Replace ABS actuator and electric unit (control unit). Refer to <u>BRC-91, "Removal and Installation"</u>.



			,	CAN DIAG	SUPPORT MNTR			
SELECT SYSTEM screen	Initial	Transmit				diagnosis		
SELECT OTOTEM SCICOTI	diagnosis	diagnosis	ECM	TCM	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-
всм	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
ABS	NG	UNKWN	Π ΝΚΝ Ν	UNK N N	-	-	-	-

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Case 5

Check harness between TCM and combination meter. Refer to <u>LAN-18</u>, "Circuit Check Between TCM and <u>Combination Meter"</u>.

				CAN DIAG	SUPPORT MNTR			
SELECT SYSTEM screen	Initial	Transmit				diagnosis		
	diagnosis	diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	nukwu	UNKAN	nikani	NNKN N
A/T	NG	UNKWN	UNKWN	-	ΠΝΚΑΝ	-	UNKWN	-
ВСМ	NG	UNKWN	υνκγν	-	UNKWN	-	-	UNKWN
ABS	NG	UNKWN	ΠΝΚ ΝΝ	UN KN N	-	-	-	-

Case 6

Check harness between combination meter and BCM. Refer to <u>LAN-19</u>, "Circuit Check Between Combination <u>Meter and BCM"</u>.

			1	CAN DIAG	SUPPORT MNTR	diagnosis		
SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNRAN N	nikani	UNKVN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	UNKN N	-
ВСМ	NG	UNKWN	UNK VN	-	UNKWN	-	-	UNKWN
ABS	NG	UNKWN	Π ΝΚΝ Ν	UNKN N	-	-	-	-

Case 7

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to <u>LAN-20</u>, "Circuit Check Between BCM and ABS Actuator and Electric Unit (Control Unit)".

				CAN DIAG	SUPPORT MNTR			
SELECT SYSTEM screen	Initial	Transmit			Receive	diagnosis		
SELECT STSTEM SCIENT	diagnosis	diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKVN	UNK VN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	UNKVN	=
ВСМ	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNK N N
ABS	NG	UNKWN	ΠΝΚΝΛΝ	UNKANN	-	-	-	-

Case 8

Check ECM circuit. Refer to LAN-22, "ECM Circuit Check".

				CAN DIAG	SUPPORT MNTR			
SELECT SYSTEM screen	Initial	Transmit		,		diagnosis	,	,
	diagnosis	diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/F
ENGINE	NG	UNKVN	-	UNKNIN	UNK WN	ΠΝΚΝΩΝ	NIKW N	UNK VN
A/T	NG	UNKWN	UNKV€N	-	UNKWN	-	UNKWN	-
BCM	NG	UNKWN	UNKV€N	-	UNKWN	-	-	UNKWN
ABS	NG	UNKWN	Π ΝΚ ΙΛΝ	UNKWN	-	-	-	-

Case 9

Check TCM circuit. Refer to LAN-22, "TCM Circuit Check" .

			1	CAN DIAG	SUPPORT MNTR Beceive	diagnosis		
SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
A/T	NG	Π ΝΚ ΝΝ	UNK VN	-	UNIK W N	-	Π ИΚ ΜΝ	-
BCM	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
ABS	NG	UNKWN	UNKWN	nukayu	-	-	-	-

Case 10

Check combination meter circuit. Refer to LAN-23, "Combination Meter Circuit Check".

			,	CAN DIAG	SUPPORT MNTR			
SELECT SYSTEM screen	Initial	Transmit			Receive	diagnosis		
SELECT STOTEM SCIENT	diagnosis	diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/F
ENGINE	NG	UNKWN	-	UNKWN	∩NR NN	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	-	UNIKWN	-	UNKWN	-
всм	NG	UNKWN	UNKWN	-	ΠΝΚ Ν Ν	-	-	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	-	-	_	-

Case 11

Check BCM circuit. Refer to LAN-23, "BCM Circuit Check" .

			Ι	CAN DIAG	SUPPORT MNTR	diagnosis		
SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNISAN	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-
всм	NG	UNK V N	ΠΝΚΝ Ν	-	UNK VN	-	-	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	-	-	-	-

Case 12

Check ABS actuator and electric unit (control unit) circuit. Refer to $\underline{\text{LAN-24}}$, "ABS Actuator and Electric Unit (Control Unit) Circuit Check".

				CAN DIAG	SUPPORT MNTR	diagnosis		
SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	nikwi	UNKWN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	UNKA N	-
ВСМ	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
ABS	NG	UNK VN	UNKWN	UNKWN	-	-	-	-

[CAN]

Case 13

Check IPDM E/R circuit. Refer to LAN-24, "IPDM E/R Circuit Check" .

				CAN DIAG	SUPPORT MNTR			
SELECT SYSTEM screen	Initial	Transmit			Receive	diagnosis		
SELECT STSTEM SCIENT	diagnosis	diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	nwkww
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-
BCM	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNK N N
ABS	NG	UNKWN	UNKWN	UNKWN	-	-	-	-
ABS	NG	UNKWN	UNKWN	UNKWN	-	-	-	-

Case 14

Check CAN communication circuit. Refer to LAN-25, "CAN Communication Circuit Check".

				CAN DIAG	SUPPORT MNTR	diananta		
SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	NG	UNKVN	-	UNKWN	Π ΝΚΝ Ν	nikan	nikwi	UNKAVN
A/T	NG	UNK VN	U NKN N	-	ΠΝΚΑΛΝ	-	Π ΝΚ ΝΝ	-
BCM	NG	UNK VN	υ νκν ν	-	ΠΝΚ Ν Ν	-	-	UNK N N
ABS	NG	υ νκ νν	UNKWN	UNKWN	-	-	-	-

Case 15

Check IPDM E/R ignition relay circuit. Refer to LAN-28, "IPDM E/R Ignition Relay Circuit Check" .

				CAN DIAG	SUPPORT MNTR			
SELECT SYSTEM screen	Initial	Transmit			Receive	diagnosis		
SELECT STSTEM SCIENT	diagnosis	diagnosis	ECM	TCM	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/F
ENGINE	NG	UNKWN	-	υ νκν ν	UNKWN	UNKWN	nikwi	UNKWN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-
ВСМ	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	-	-	-	-

				CAN DIAG S	SUPPORT MNTR			
SELECT SYSTEM screen	Initial	Transmit			Receive	diagnosis		
SELECT SYSTEM SCREEN	diagnosis	Transmit diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	ΠΝΚΝ Ν	-	UNKVN	-	UNKWN	-
ВСМ	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
ABS	NG	UNKWN	UNKWN	UNKWN	-	-	-	-

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Circuit Check Between TCM and Combination Meter

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1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check following terminals and connector for damage, bent or loose connection (control module-side, meter-side and harness-side).
- TCM.
- Combination meter.
- Between TCM and combination meter.

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect TCM connector and harness connector F59.
- 2. Check continuity between TCM harness connector F56 terminals 5 (L), 6 (Y) and harness connector F59 terminals 23 (L), 22 (Y).

5(L) - 23(L)

: Continuity should exist.

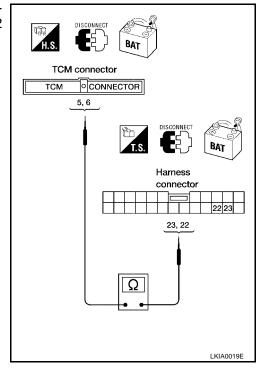
6 (Y) - 22 (Y)

: Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



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3. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect combination meter connector.
- 2. Check continuity between harness connector M71 terminals 23 (L), 22 (Y) and combination meter harness connector M24 terminals 1 (L), 2 (Y).

23 (L) - 1 (L)

: Continuity should exist.

22(Y) - 2(Y)

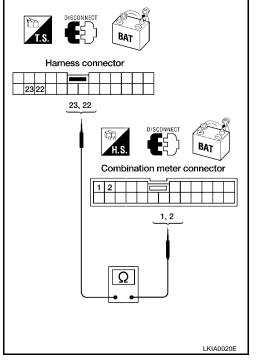
: Continuity should exist.

OK or NG

OK

>> Connect all the connectors and diagnose again. Refer to LAN-11, "Work Flow".

NG >> Repair harness.



Circuit Check Between Combination Meter and BCM

1. CHECK CONNECTOR

1. Turn ignition switch OFF.

2. Disconnect the negative battery terminal.

3. Check following terminals and connector for damage, bent or loose connection (meter-side, control module-side and harness-side).

Combination meter.

BCM.

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector. EKS003HV

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2. CHECK HARNESS FOR OPEN CIRCUIT

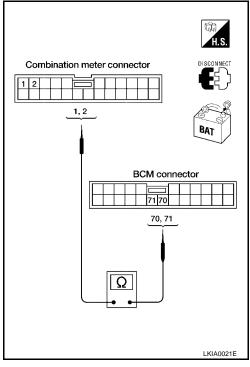
- 1. Disconnect combination meter connector and BCM connector.
- Check continuity between combination meter harness connector M24 terminals 1 (L), 2 (Y) and BCM harness connector M18 terminals 70 (L), 71 (Y).

1 (L) – 70 (L) : Continuity should exist. 2 (Y) – 71 (Y) : Continuity should exist.

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to <u>LAN-11, "Work Flow"</u>.

NG >> Repair harness.



Circuit Check Between BCM and ABS Actuator and Electric Unit (Control Unit)

EKS003HW

1. CHECK CONNECOTR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check following terminals and connector for damage, bent or loose connection (control module-side, control unit-side and harness-side).
- BCM.
- ABS actuator and electric unit (control unit).
- Between BCM and ABS actuator and electric unit (control unit).

OK or NG

OK >> GO TO 2.

2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect BCM connector and harness connector M7.
- 2. Check continuity between BCM harness connector M18 terminals 70 (L), 71 (Y) and harness connector M7 terminals 10 (L), 9 (Y).

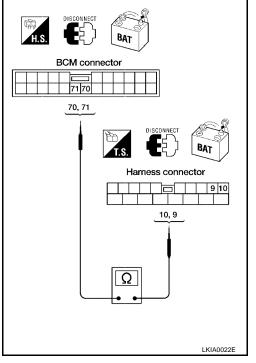
70 (L) - 10 (L) 71 (Y) - 9 (Y) : Continuity should exist.

: Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



3. CHECK HARNESS FOR OPEN CIRCUIT

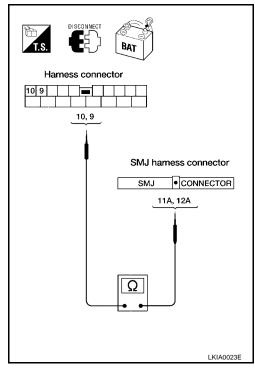
- 1. Disconnect harness connector E27.
- Check continuity between harness connector E28 terminals 10 (L), 9 (Y) and harness connector E27 terminals 11A (L), 12A (Y).

10 (L) - 11A (L) 9 (Y) - 12A (Y) : Continuity should exist. : Continuity should exist.

OK or NG

OK >> GO TO 4.

NG >> Repair harness.



Revision: May 2004 LAN-21 2004 Altima

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4. CHECK HARNESS FOR OPEN CIRCUIT

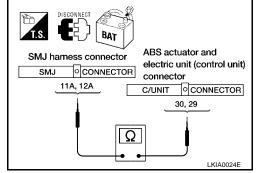
- 1. Disconnect ABS actuator and electric unit (control unit) connector.
- Check continuity between harness connector E130 terminals 11A (L), 12A (Y) and ABS actuator and electric unit (control unit) connector harness connector E125 terminals 30 (L), 29 (Y).

11A (L) – 30 (L) : Continuity should exist. 12A (Y) – 29 (Y) : Continuity should exist.

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to <u>LAN-11, "Work Flow"</u>.

NG >> Repair harness.



EKS003HX

ECM Circuit Check

1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check the terminals and connector of ECM for damage, bent or 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

- Disconnect ECM connector.
- 2. Check resistance between ECM harness connector F54 terminals 109 (L) and 113 (Y).

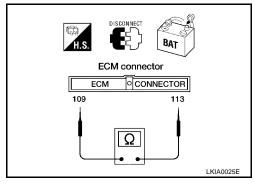
109 (L) – **113 (Y)** : Approx. $108 - 132\Omega$

OK or NG

NG

OK >> Replace ECM.

>> Repair harness between harness connector F59 and ECM.



EKS003HY

TCM Circuit Check

CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

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2. CHECK HARNESS FOR OPEN CIRCUIT

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

$$5(L) - 6(Y)$$

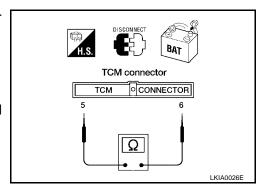
: Approx. $54 - 66\Omega$

OK or NG

OK

>> Replace TCM.

NG >> Repair harness between harness connector F59 and TCM.



Combination Meter Circuit Check

1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check terminals and connector of combination meter for damage, bent or 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 M24 terminals 1 (L) and 2 (Y).

$$1(L) - 2(Y)$$

: Approx. 54 – 66 Ω

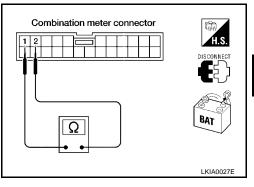
OK or NG

OK

>> Replace combination meter. Refer to <u>DI-17, "Removal and Installation of Combination Meter"</u>.

NG

>> Repair harness between harness connector M71 and combination meter.



EKS00310

BCM Circuit Check

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect BCM connector.
- 2. Check resistance between BCM harness connector M18 terminals 70 (L) and 71 (Y).

: Approx. $54 - 66\Omega$

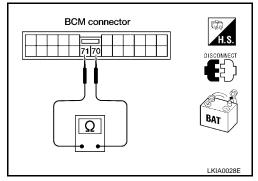
OK or NG

OK

>> Replace BCM.

NG :

>> Repair harness between harness connector M7 and BCM.



ABS Actuator and Electric Unit (Control Unit) Circuit Check

EKS003I1

1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check the terminals and connector of ABS actuator and electric unit (control unit) for damage, bent or 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 E125 terminals 30 (L) and 29 (Y).

$$30(L) - 29(Y)$$

: Approx. $54 - 66\Omega$

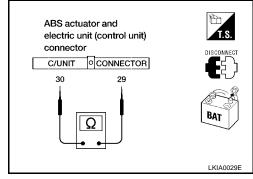
OK or NG

OK

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

NG

>> Repair harness between harness connector E130 and ABS actuator and electric unit (control unit). Refer to BRC-91, "Removal and Installation".



EKS00312

IPDM E/R Circuit Check

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

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2. CHECK HARNESS FOR OPEN CIRCUIT

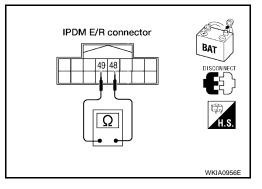
- 1. Disconnect IPDM E/R connector.
- 2. Check resistance between IPDM E/R harness connector E121 terminals 48 (L) and 49 (Y).

: Approx. $108 - 132\Omega$

OK or NG

OK >> Replace IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R'.

NG >> Repair harness between harness connector E130 and IPDM E/R.



CAN Communication Circuit Check

1. CHECK CONNECTOR

1.

- Turn ignition switch OFF. 2. Disconnect the negative battery terminal.
- Check following terminals and connector for damage, bent or loose connection (control module-side, control unit-side, meter-side and harness-side).
- ECM.
- TCM.
- Combination meter.
- BCM.
- ABS actuator and electric unit (control unit).
- IPDM E/R.
- Between ECM and IPDM E/R.

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR SHORT CIRCUIT

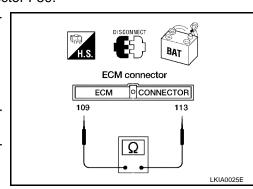
- Disconnect ECM connector, TCM connector and harness connector F59. 1.
- Check continuity between ECM harness connector F54 terminals 109 (L) and 113 (Y).

OK or NG

OK >> GO TO 3.

NG >> • Repair harness between ECM and harness connector F59.

> Repair harness between TCM and harness connector F59.



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3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F54 terminals 109 (L), 113 (Y) and ground.

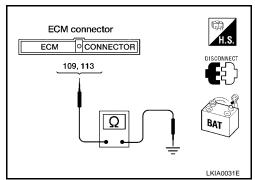
> : Continuity should not exist. 109 (L) - ground 113 (Y) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 4.

NG >> • Repair harness between ECM and harness connector

> Repair harness between TCM and harness connector F59.



4. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect combination meter connector, BCM connector and harness connector M7.
- 2. Check continuity between data link connector M22 terminals 6 (L) and 3 (Y).

$$6(L) - 3(Y)$$

: Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG

- >> Repair harness between harness connector M71 and harness connector M7.
 - Repair harness between harness connector M71 and combination meter.
 - Repair harness between harness connector M71 and data link connector.
 - Repair harness between harness connector M71 and BCM.

5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M22 terminals 6 (L), 3 (Y) and ground.

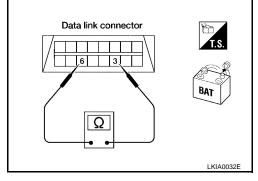
> 6 (L) – ground : Continuity should not exist. : Continuity should not exist. 3 (Y) – ground

OK or NG

NG

OK >> GO TO 6.

- >> Repair harness between harness connector M71 and harness connector M7.
 - Repair harness between harness connector M71 and combination meter.
 - Repair harness between harness connector M71 and data link connector.
 - Repair harness between harness connector M71 and BCM.



Data link connector

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6. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect harness connector E27.
- 2. Check continuity between harness connector E28 terminals 10 (L) and 9 (Y).

10 (L) - 9 (Y)

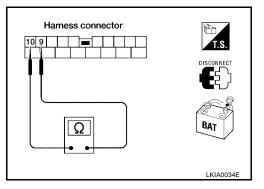
: Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Rep

>> Repair harness between harness connector E28 and harness connector E27.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector E28 terminals 10 (L), 9 (Y) and ground.

10 (L) – ground 9 (Y) – ground : Continuity should not exist.

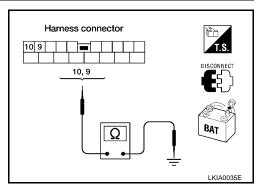
d : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Repair

>> Repair harness between harness connector E28 and harness connector E27.



8. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
- Check continuity between IPDM E/R harness connector E121 terminals 48 (L) and 49 (Y).

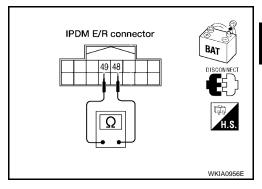
: Continuity should not exist.

OK or NG

OK >> GO TO 9.

NG >> ● Re

- >> Repair harness between harness connector E130 and ABS actuator and electric unit (control unit).
 - Repair harness between harness connector E130 and IPDM E/R.



9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E121 terminals 48 (L), 49 (Y) and ground.

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

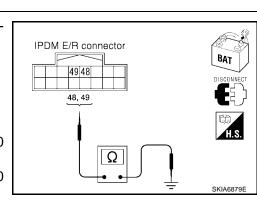
49 (Y) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 10.

NG >> ● Repair

- >> Repair harness between harness connector E130 and ABS actuator and electric unit (control unit).
 - Repair harness between harness connector E130 and IPDM E/R.



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10. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Perform components inspection. Refer to <u>LAN-28</u>, "<u>ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION</u>" OK or NG

OK >> Connect all the connectors and diagnose again. Refer to <u>LAN-11</u>, "Work Flow".

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

IPDM E/R Ignition Relay Circuit Check

EKS003KT

Check the following. If no problem is found, replace the IPDM E/R. Refer to $\underline{PG-27}$, "Removal and Installation of IPDM E/R".

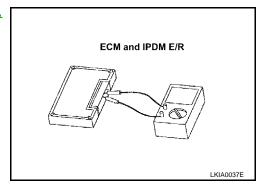
- IPDM E/R Power Circuit. Refer to PG-25, "IPDM E/R Power/Ground Circuit Inspection".
- Ignition Power Supply Circuit. Refer to <u>PG-12</u>, "IGNITION POWER SUPPLY IGNITION SW. IN ON AND/OR START".

Component Inspection ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

EKS00314

- Remove ECM and IPDM E/R from vehicle. Refer to <u>PG-27</u>, "Removal and Installation of IPDM E/R".
- Check resistance between ECM terminals 109 and 113.
- Check resistance between IPDM E/R terminals 48 and 49.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	109 – 113	108 - 132
IPDM E/R	48 – 49	100 - 132



CAN SYSTEM (FOR A/T MODELS)

PFP:23710

System Description

EKS00315

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.

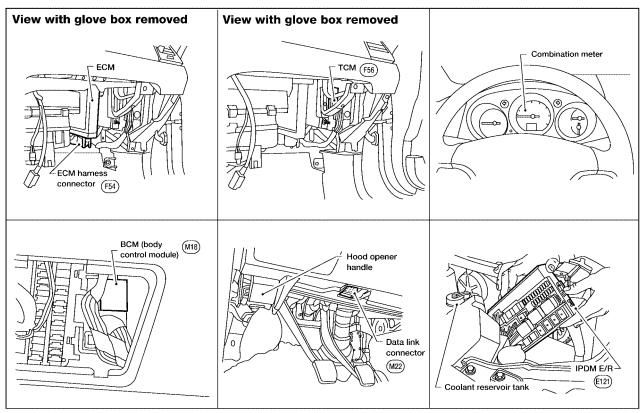
Component Parts and Harness Connector Location

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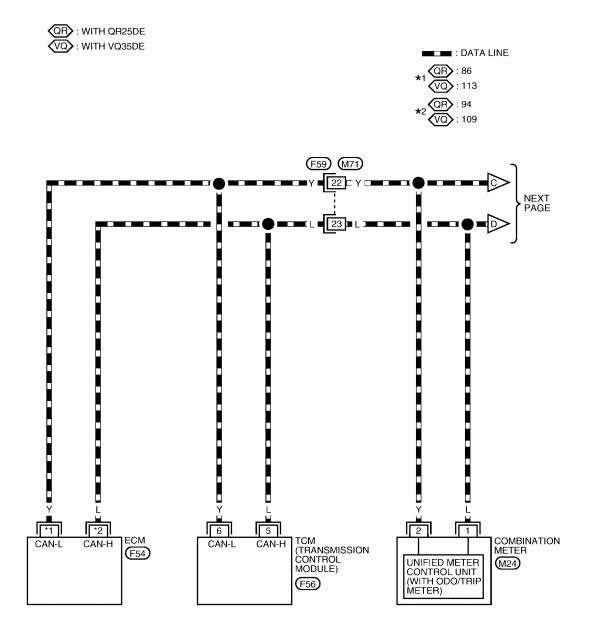
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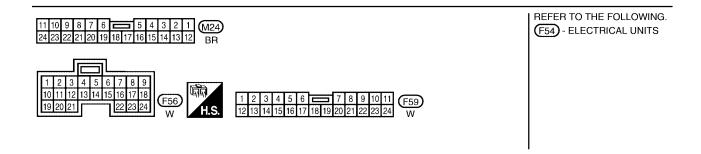
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Wiring Diagram — CAN —

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LAN-CAN-03





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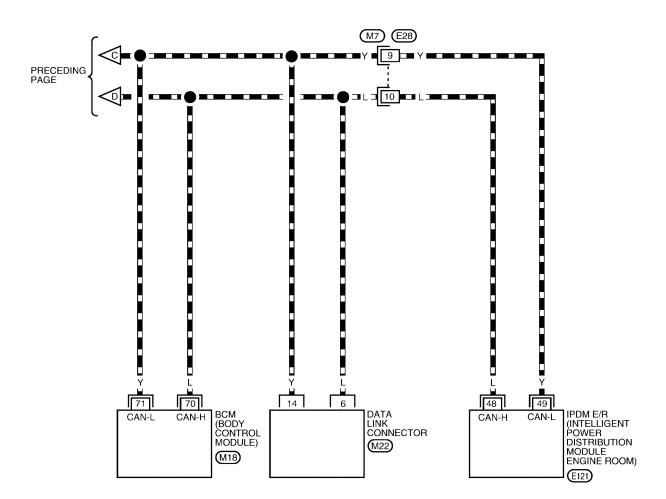
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LAN-CAN-04

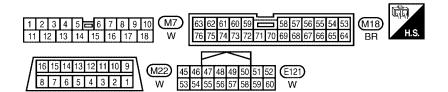
: DATA LINE



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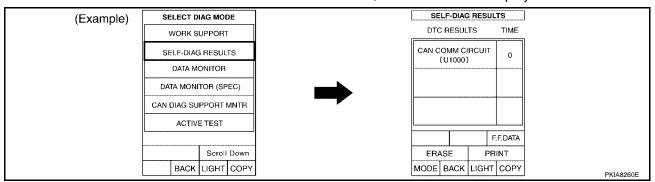
M



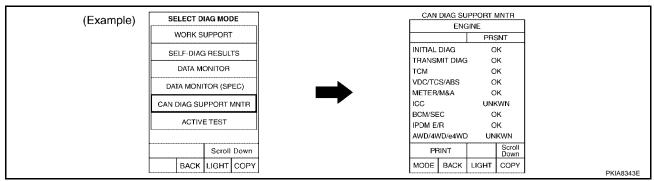
WKWA4947E

Work Flow

1. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "A/T" and "BCM" displayed on CONSULT-II.



2. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "A/T" and "BCM" displayed on CON-SULT-II.



- 3. Attach the printed sheet of "SELF-DIAG RESULTS" and "CAN DIAG SUPPORT MNTR" onto the check sheet. Refer to <u>LAN-33</u>, "CHECK SHEET".
- Based on the "CAN DIAG SUPPORT MNTR" results, put check marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to <u>LAN-33</u>, "CHECK SHEET".

NOTE:

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

 According to the check sheet results (example), start inspection. Refer to <u>LAN-34</u>, "<u>CHECK SHEET</u> <u>RESULTS</u> (EXAMPLE)".

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CHECK SHEET

NOTE:

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

ENGINE NG UNKWN UNKWN - UNKWN UNKWN UNKWN - UNKWN - UNKWN - UNKWN - UNKWN UNKWN UNKWN UNKWN UNKWN				CA	N DIAG SUPPOR		nin	
Attach copy of ENGINE SELF-DIAG NG UNKWN UNKWN - UNKWN - UNKWN - UNKWN - UNKWN Attach copy of ENGINE SELF-DIAG Attach copy of BCM SELF-DIAG	SELECT SYSTEM screen	Initial diagnosis		ECM		METER/ M&A		IPDM E/R
Attach copy of ENGINE SELF-DIAG NG UNKWN UNKWN - UNKWN - UNKWN Attach copy of Attach copy of BCM SELF-DIAG	ENGINE	NG	UNKWN	-	UNKWN		UNKWN	UNKWN
Attach copy of Attach copy of Attach copy of BCM SELF-DIAG Attach Copy of BCM SELF-DIAG	A/T	NG	UNKWN	UNKWN	-	UNKWN	-	-
Attach copy of Attach copy of Attach copy of BCM SELF-DIAG BCM SELF-DIAG	ВСМ	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN
	ENGINE SELF-DIAG		AΛ	SELF-DIA	f G		BCM SE	LF-DIAG

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

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

Case 1

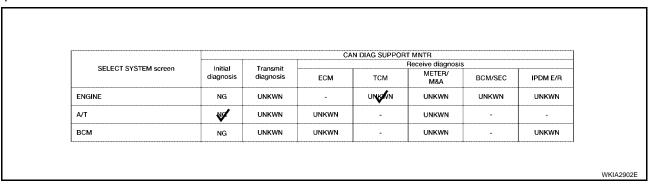
Replace ECM.

				N DIAG SUPPOR			
SELECT SYSTEM screen	Initial	Transmit			Receive diagnosi	S	T
	diagnosis	diagnosis	ECM	ТСМ	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	W	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	-
ВСМ	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN

				N DIAG SUPPOR	T MNTR		
SELECT SYSTEM screen	Initial	Transmit			Receive diagnosi	S	
	diagnosis	diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	nukwu	UNKAVN	UNKVN	UNISO NN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	-
ВСМ	NG	UNKWN	UNKWN	_	UNKWN	-	UNKWN

Case 2

Replace TCM.



Case 3

Replace BCM.

			CA	N DIAG SUPPOR	T MNTR		
SELECT SYSTEM screen	Initial	Transmit			Receive diagnosi	S	
ENGINE	diagnosis	diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	IPDM E/R
NGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
VT	NG	UNKWN	UNKWN	-	UNKWN	-	-
зсм	NS/	UNKWN	UNKWN	_	UNKWN	-	UNKWN

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			CA	N DIAG SUPPOR			
SELECT SYSTEM screen	Initial	Transmit			Receive diagnosi:	5	
SEEEOT STOTEW SCIENT	diagnosis	diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
VT	NG	UNKWN	UNKWN	÷	UNKWN	-	-
всм	NG	UNKWN	UNK N N	-	UNK VN	-	UNKA N

Case 4

Check harness between TCM and combination meter. Refer to <u>LAN-38</u>, "Circuit Check Between TCM and <u>Combination Meter"</u>.

			CA	N DIAG SUPPOR	T MNTR		
SELECT SYSTEM screen	Initial	Transmit			Receive diagnosi	S	
SELECT SYSTEM screen ENGINE	diagnosis	diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	IPDM E/R
	NG	UNKWN	-	UNKWN	UNKVN	UNKW N	UNKAN
A/T	NG	UNKWN	UNKWN	-	UNKVN	-	-
всм	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN

Case 5

Check harness between combination meter and BCM. Refer to <u>LAN-39</u>, "Circuit Check Between Combination <u>Meter and BCM"</u>.

			CA	N DIAG SUPPOR			
SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	Receive diagnosi METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKA N	UNKAN
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	-
ВСМ	NG	UNKWN	UNK W N	-	UNKWN	-	UNKWN

Case 6

Check ECM circuit. Refer to LAN-40, "ECM Circuit Check" .

			CA	AN DIAG SUPPOR	T MNTR		
SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	Receive diagnosi: METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNK VN	-	UNKWN	UNKAVN	Π ΝΚΝ Ν	UNKAVN
A/T	NG	UNKWN	UNKKN	-	UNKWN	-	-
всм	NG	UNKWN	NIKWN	-	UNKWN	-	UNKWN

Revision: May 2004 LAN-35 2004 Altima

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Case 7

Check TCM circuit. Refer to LAN-41, "TCM Circuit Check" .

				N DIAG SUPPOR	T MNTR		
SELECT SYSTEM screen	Initial	Transmit		1	Receive diagnosi	S	
ENGINE	diagnosis	diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
A/T	NG	UNK VN	ΠΝΚΑΝ	-	UNKVN	-	-
всм	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN

Case 8

Check combination meter circuit. Refer to LAN-41, "Combination Meter Circuit Check" .

SELECT SYSTEM screen	CAN DIAG SUPPORT MNTR							
	Initial diagnosis	Transmit diagnosis	Receive diagnosis					
SEEEOT STSTEM SCIEGIT			ECM	тсм	METER/ M&A	BCM/SEC	IPDM E/R	
NGINE	NG	UNKWN	-	UNKWN	UNKAN	UNKWN	UNKWN	
A∕T	NG	UNKWN	UNKWN	-	UNKAN	-	-	
всм	NG	UNKWN	UNKWN	-	UNKWN	_	UNKWN	

Case 9

Check BCM circuit. Refer to LAN-42, "BCM Circuit Check".

	CAN DIAG SUPPORT MNTR							
SELECT SYSTEM screen	Initial	Transmit	Receive diagnosis					
SEEE OF STSTEM SCIOON	diagnosis	diagnosis	ECM	тсм	METER/ M&A		IPDM E/R	
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	_ ▼	UNKWN	
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	-	
всм	NG	UNK N N	UNK VN	-	UNKWN	-	UNKA N	

Case 10

Check IPDM E/R circuit. Refer to LAN-42, "IPDM E/R Circuit Check" .

	CAN DIAG SUPPORT MNTR							
SELECT SYSTEM screen	Initial	Transmit	Receive diagnosis					
SELECT STSTEM SCIEBIL	diagnosis	diagnosis	ECM	тсм	METER/ M&A	BCM/SEC UNKWN -	IPDM E/R	
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKA AN	
4√T	NG	UNKWN	UNKWN	-	UNKWN	-	-	
всм	NG	UNKWN	UNKWN	_	UNKWN	-	UNKWN	

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Case 11

Check CAN communication circuit. Refer to LAN-43, "CAN Communication Circuit Check".

				N DIAG SUPPOR	SUPPORT MNTR Receive diagnosis					
SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	IPDM E/R			
ENGINE	NG	UNKVN	-	UNK V N	UNK N N	UNKA N	UNKANN			
A/T	NG	UNKVN	UNKVN	-	UNISVN	-	-			
всм	NG	UNKVN	UNKWN	-	UNKVN	-	UNKAVN			

Case 12

Check IPDM E/R ignition relay circuit. Refer to LAN-46, "IPDM E/R Ignition Relay Circuit Check" .

		CAN DIAG SUPPORT MNTR						
SELECT SYSTEM screen	Initial	tial Transmit Receive diag				\$		
SEEE OF STOTEM SOLOTO	diagnosis	diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	IPDM E/R	
ENGINE	NG	UNKWN	-	UN K ₩N	UNKWN	UNKWN	UNKWN	
A/T	NG	UNKWN	UNKWN	-	UNKWN	-	-	
ВСМ	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	

Case 13

Check IPDM E/R. Refer to LAN-46, "IPDM E/R Check".

		CAN DIAG SUPPORT MNTR Receive diagnosis					
SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
A/T	NG	UNKWN	υ νκ γν	-	UNR NN	-	-
ВСМ	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN

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Circuit Check Between TCM and Combination Meter

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1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check following terminals and connector for damage, bent or loose connection (control module-side, meter-side and harness-side).
- TCM.
- Combination meter.
- Between TCM and combination meter.

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect TCM connector and harness connector F59.
- 2. Check continuity between TCM harness connector F56 terminals 5 (L), 6 (Y) and harness connector F59 terminals 23 (L), 22 (Y).

5(L) - 23(L)

: Continuity should exist.

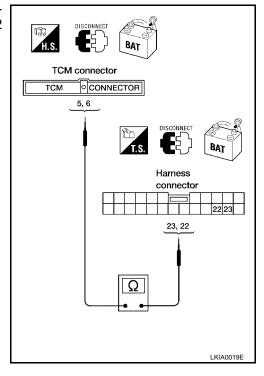
6(Y) - 22(Y)

: Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness.



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3. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect combination meter connector.
- 2. Check continuity between harness connector M71 terminals 23 (L), 22 (Y) and combination meter harness connector M24 terminals 1 (L), 2 (Y).

23 (L) - 1 (L)

: Continuity should exist.

22(Y) - 2(Y)

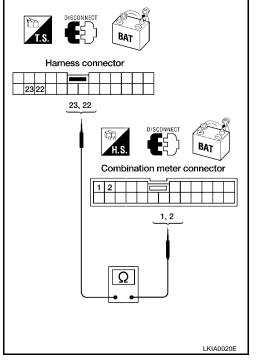
: Continuity should exist.

OK or NG

OK

>> Connect all the connectors and diagnose again. Refer to LAN-32, "Work Flow"

NG >> Repair harness.



Circuit Check Between Combination Meter and BCM

1. CHECK CONNECTOR

1. Turn ignition switch OFF.

2. Disconnect the negative battery terminal.

3. Check following terminals and connector for damage, bent or loose connection (meter-side, control module-side and harness-side).

- Combination meter.
- BCM.

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector. EKS003IA

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2. CHECK HARNESS FOR OPEN CIRCUIT

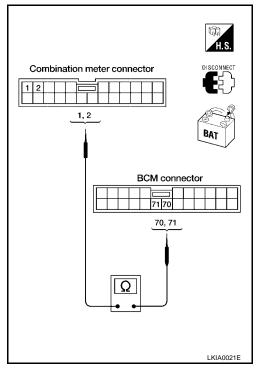
- 1. Disconnect combination meter connector and BCM connector.
- Check continuity between combination meter harness connector M24 terminals 1 (L), 2 (Y) and BCM harness connector M18 terminals 70 (L), 71 (Y).

1 (L) – 70 (L) : Continuity should exist. 2 (Y) – 71 (Y) : Continuity should exist.

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to <u>LAN-32, "Work Flow"</u>.

NG >> Repair harness.



ECM Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.

- Disconnect the negative battery terminal.
- 3. Check the terminals and connector of ECM for damage, bent or 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 the following.
- Resistance between ECM harness connector F54 terminals 94
 (L) and 86 (Y) (QR25DE models).
- Resistance between ECM harness connector F54 terminals 109
 (L) and 113 (Y) (VQ35DE models).

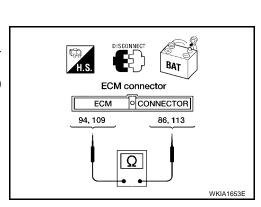
94 (L) – 86 (Y) (QR25DE models) : Approx. 108 – 132Ω

109 (L) – 113 (Y) (VQ35DE models) : Approx. 108 - 132Ω

OK or NG

OK >> Replace ECM.

NG >> Repair harness between harness connector F59 and ECM.



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TCM Circuit Check

1. CHECK CONNECTOR

Turn ignition switch OFF.

- 2. Disconnect the negative battery terminal.
- 3. Check the terminals and connector of TCM for damage, bent or 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

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

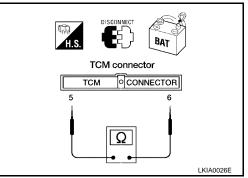
$$5(L) - 6(Y)$$

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

OK or NG

OK >> Replace TCM.

NG >> Repair harness between harness connector F59 and



Combination Meter Circuit Check

1. CHECK CONNECTOR

- Turn ignition switch OFF. 1.
- 2. Disconnect the negative battery terminal.
- 3. Check terminals and connector of combination meter for damage, bent or 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.
- Check resistance between combination meter harness connector M24 terminals 1 (L) and 2 (Y).

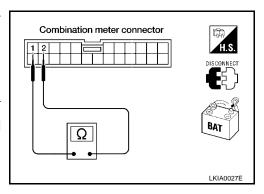
$$1(L) - 2(Y)$$

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

OK or NG

OK >> Replace combination meter. Refer to DI-17, "Removal and Installation of Combination Meter".

NG >> Repair harness between harness connector M71 and combination meter.



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BCM Circuit Check

1. CHECK CONNECTOR

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check the terminals and connector of BCM for damage, bent or 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

- Disconnect BCM connector.
- Check resistance between BCM harness connector M18 terminals 70 (L) and 71 (Y).

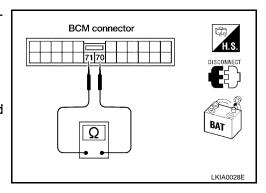
: Approx. $54 - 66\Omega$

OK or NG

OK >> Replace BCM.

NG

>> Repair harness between harness connector M7 and BCM.



IPDM E/R Circuit Check

EKS003IF

1. CHECK CONNECTOR

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

$2.\,$ check harness for open circuit

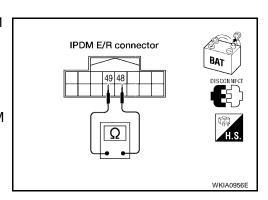
- Disconnect IPDM E/R connector.
- Check resistance between IPDM E/R harness connector E121 terminals 48 (L) and 49 (Y).

: Approx. $108 - 132\Omega$

OK or NG

OK >> Replace IPDM E/R.

NG >> Repair harness between data link connector and IPDM E/R.



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CAN Communication Circuit Check

1. CHECK CONNECTOR

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check following terminals and connector for damage, bent or loose connection (control module-side, meter-side and harness-side).
- ECM.
- TCM.
- Combination meter.
- BCM.
- IPDM E/R.
- Between ECM and IPDM E/R.

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect ECM connector, TCM connector and harness connector F59.
- 2. Check the following.
- Continuity between ECM harness connector F54 terminals 94
 (L) and 86 (Y) (QR25DE models).
- Continuity between ECM harness connector F54 terminals 109
 (L) and 113 (Y) (VQ35DE models).

94 (L) – 86 (Y) (QR25DE models)

: Continuity should not exist.

109 (L) - 113 (Y) (VQ35DE models)

: Continuity should not exist.

OK or NG

NG

OK >> GO TO 3.

>> • Repair harness between ECM and harness connector F59.

Repair harness between TCM and harness connector F59.

ECM CONNECTOR

94, 109

86, 113

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3. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Check the following.
- Continuity between ECM harness connector F54 terminals 94
 (L), 86 (Y) and ground. (QR25DE models)
- Continuity between ECM harness connector F54 terminals 109 (L), 113 (Y) and ground. (VQ35DE models)

94 (L) – ground (QR25DE models)

: Continuity should not exist.

86 (Y) – ground (QR25DE models)

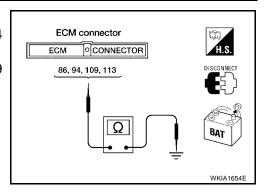
: Continuity should not exist.

109 (L) – ground (VQ35DE models)

: Continuity should not exist.

113 (Y) - ground (VQ35DE models)

: Continuity should not exist.



OK or NG

OK >> GO TO 4.

NG >> ● Repair

- >> Repair harness between ECM and harness connector F59.
 - Repair harness between TCM and harness connector F59.

4. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect combination meter connector, BCM connector and harness connector M7.
- 2. Check continuity between data link connector M22 terminals 6 (L) and 3 (Y).

6(L) - 3(Y)

: Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG

- >> Repair harness between harness connector M71 and harness connector M7.
 - Repair harness between harness connector M71 and combination meter.
 - Repair harness between harness connector M71 and data link connector.
 - Repair harness between harness connector M71 and BCM.

Data link connector I.S. BAT LKIA0032E

5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M22 terminals 6 (L), 3 (Y) and ground.

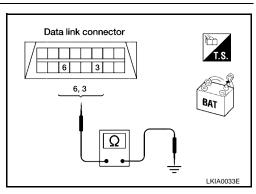
6 (L) – ground : Continuity should not exist. 3 (Y) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> ● Repa

- >> Repair harness between harness connector M71 and harness connector M7.
 - Repair harness between harness connector M71 and combination meter.
 - Repair harness between harness connector M71 and data link connector.
 - Repair harness between harness connector M71 and BCM.



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6. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect harness connector E27.
- 2. Check continuity between harness connector E28 terminals 10 (L) and 9 (Y).

10 (L) - 9 (Y)

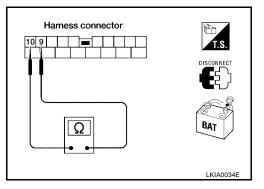
: Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG

>> Repair harness between harness connector E28 and harness connector E27.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector E28 terminals 10 (L), 9 (Y) and ground.

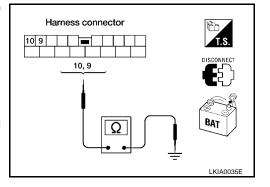
> 10 (L) - ground 9 (Y) - ground

: Continuity should not exist. : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Repair harness between harness connector E28 and harness connector E27.



8. CHECK HARNESS FOR SHORT CIRCUIT

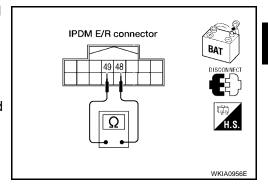
- Disconnect IPDM E/R connector.
- Check continuity between IPDM E/R harness connector E121 terminals 48 (L) and 49 (Y).

: Continuity should not exist.

OK or NG

OK >> GO TO 9.

NG >> Repair harness between harness connector E130 and IPDM E/R.



9. CHECK HARNESS FOR SHORT CIRCUIT

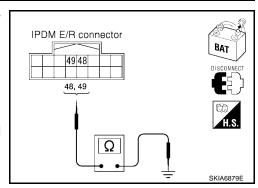
Check continuity between IPDM E/R harness connector E121 terminals 48 (L), 49 (Y) and ground.

> 48 (L) - ground : Continuity should not exist. 49 (Y) - ground : Continuity should not exist.

OK or NG

OK >> GO TO 10.

NG >> Repair harness between harness connector E130 and IPDM E/R.



LAN-45 2004 Altima Revision: May 2004

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10. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Perform components inspection. Refer to $\underline{\sf LAN-46}, \, "{\sf ECM/IPDM} \, {\sf E/R} \, {\sf INTERNAL} \, {\sf CIRCUIT} \, {\sf INSPECTION"}$. OK or NG

OK >> Connect all the connectors and diagnose again. Refer to <u>LAN-32</u>, "Work Flow".

NG >> Replace ECM and/or IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R".

IPDM E/R Ignition Relay Circuit Check

EKS003KU

Check the following. If no problem is found, replace the IPDM E/R. Refer to $\underline{PG-27}$, "Removal and Installation of IPDM E/R".

- IPDM E/R Power Circuit. Refer to PG-25, "IPDM E/R Power/Ground Circuit Inspection".
- Ignition Power Supply Circuit. Refer to <u>PG-12</u>, "IGNITION POWER SUPPLY IGNITION SW. IN ON <u>AND/OR START"</u>.

IPDM E/R Check

1. CHECK IPDM E/R

- 1. Turn ignition switch ON and then OFF.
- 2. Check for illuminated parking lamps and tail lamps.

Parking lamps and tail lamps should not illuminate.

OK or NG

OK >> Replace the TCM.

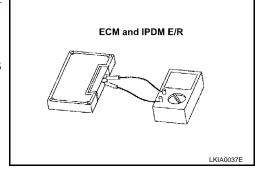
NG >> Replace the IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R".

Component Inspection ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

EKS003IH

- Remove ECM and IPDM E/R from vehicle. Refer to <u>PG-27</u>, "Removal and Installation of IPDM E/R".
- Check resistance between ECM terminals 86 and 94 (QR25DE models).
- Check resistance between ECM terminals 109 and 113 (VQ35DE models).
- Check resistance between IPDM E/R terminals 48 and 49.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM (QR25DE models)	86 – 94	
ECM (VQ35DE models)	109 – 113	108 - 132
IPDM E/R	48 – 49	



[CAN]

CAN SYSTEM (FOR M/T MODELS)

PFP:23710

System Description

EKS003II

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.

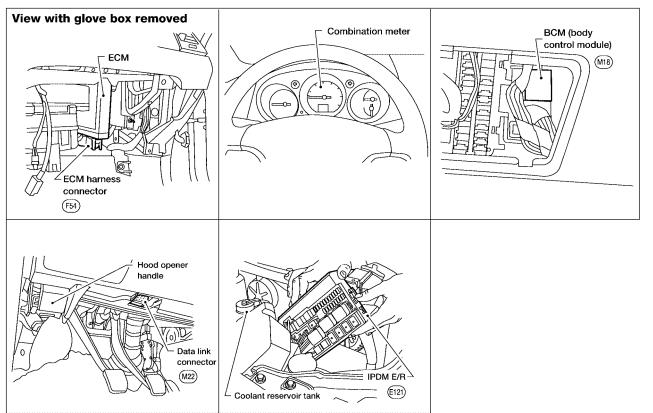
Component Parts and Harness Connector Location

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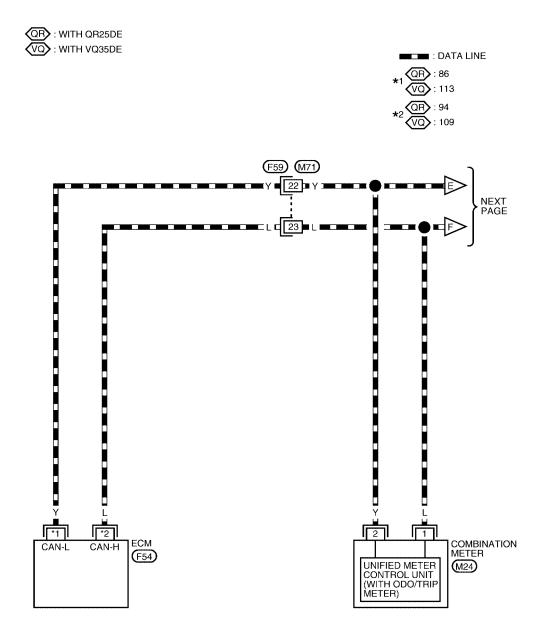
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Wiring Diagram — CAN —

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LAN-CAN-05





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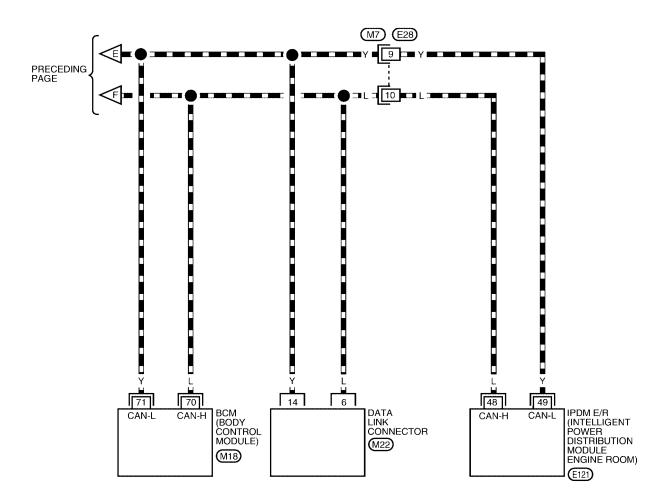
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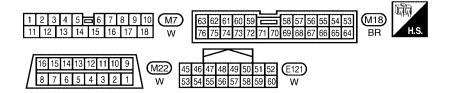
LAN-CAN-06

: DATA LINE



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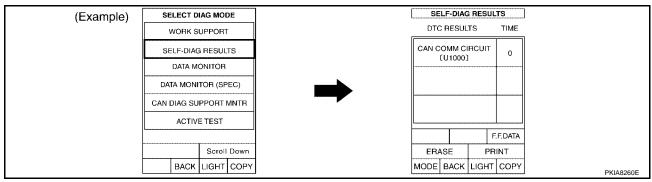
M



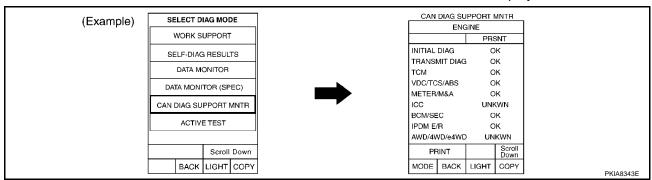
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Work Flow

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



2. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE" and "BCM" 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-51, "CHECK SHEET".
- Based on the "CAN DIAG SUPPORT MNTR" results, put check marks onto the items with "UNKWN" or "NG" in the check sheet table. Refer to <u>LAN-51</u>, "CHECK SHEET".

NOTE:

If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" for the diagnosed control unit, replace the control unit.

5. According to the check sheet results (example), start inspection. Refer to <u>LAN-52</u>, "CHECK SHEET RESULTS (EXAMPLE)".

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CHECK SHEET

NOTE:

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

SELECT SYSTEM screen Initial diagnosis Transmit diagnosis ECM METER/ M&A BCM/SEC IPDM E/R ENGINE NG UNKWN - UNKWN UNKWN UNKWN BCM NG UNKWN UNKWN UNKWN - UNKWN UNKWN				CAN DIAG	SUPPORT MNTR	<u> </u>		
ENGINE NG UNKWN - UNKWN UNKWN UNKWN BCM NG UNKWN UNKWN UNKWN - UNKWN TMS: Attach copy of ENGINE SELF-DIAG Attach copy of BCM SELF-DIAG	SELECT SYSTEM scr		Transmit diagnosis		Receive	diagnosis	IPDM F/R	
MS: Attach copy of ENGINE SELF-DIAG Attach Copy of BCM SELF-DIAG	ENGINE							
Attach copy of ENGINE SELF-DIAG Attach SELF-DIAG Attach SELF-DIAG								
ENGINE SELF-DIAG BCM SELF-DIAG	oms:							
	ENGI	NE SELF-DIAG				BCM SELF-I	DIAG	

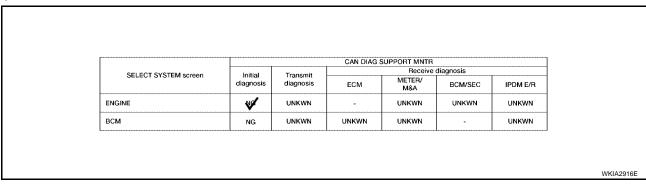
CHECK SHEET RESULTS (EXAMPLE)

NOTE:

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

Case 1

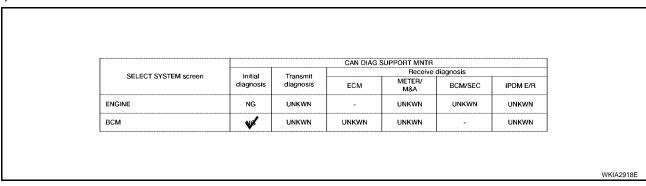
Replace ECM.

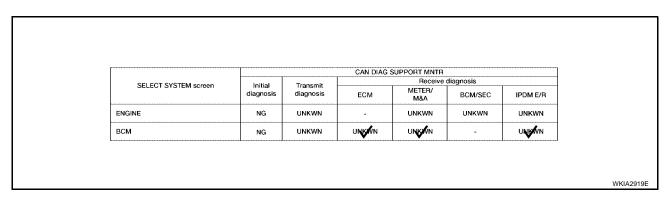


			CAN DIAG	SUPPORT MNTR		
SELECT SYSTEM screen	Initial	Transmit			diagnosis	
	diagnosis	diagnosis	ECM	METER/ M&A	BCM/SEC	IPDM E/
ENGINE	NG	UNKWN	-	UNKWN	ΠΝΚ ΝΝ	UNKWN
всм	NG	UNKWN	UNKWN	UNKWN	-	UNKWN

Case 2

Replace BCM.





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Case 3

Check harness between combination meter and BCM. Refer to <u>LAN-55</u>, "Circuit Check Between Combination <u>Meter and BCM"</u>.

			CAN DIAG	SUPPORT MNTR		
SELECT SYSTEM screen	Initial	Transmit			diagnosis	
SEEEOT STOTEM SCIECT	diagnosis	diagnosis	ECM	METER/ M&A	BCM/SEC	IPDM E/R
ENGINE	NG	UNKWN	-	UNKWN	UNKWN	UNKVN
всм	NG	UNKWN	UNK VN	UNKN/N	-	UNKWN

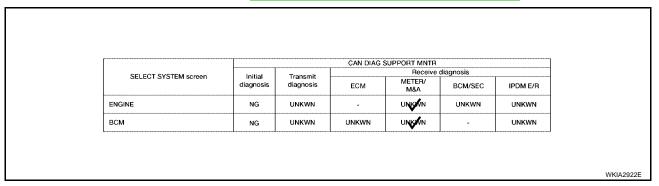
Case 4

Check ECM circuit. Refer to LAN-55, "ECM Circuit Check" .

			CAN DIAG	SUPPORT MNTR		
SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	ECM	Receive METER/ M&A	diagnosis BCM/SEC	IPDM E/R
ENGINE	NG	UNKV [®] N	-	UNKANN	NNKN N	Π ΝΙΚΝ Ν
ВСМ	NG	UNKWN	UNKWN	UNKWN	-	UNKWN

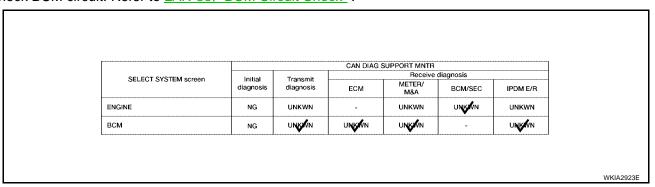
Case 5

Check combination meter circuit. Refer to LAN-56, "Combination Meter Circuit Check" .



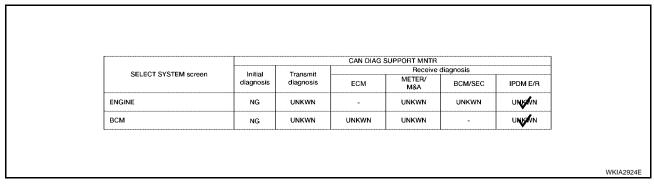
Case 6

Check BCM circuit. Refer to LAN-56, "BCM Circuit Check".



Case 7

Check IPDM E/R circuit. Refer to LAN-57, "IPDM E/R Circuit Check" .



Case 8

Check CAN communication circuit. Refer to LAN-58, "CAN Communication Circuit Check" .

			CAN DIAG	SUPPORT MNTR		
SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	ECM	Receive METER/ M&A	diagnosis BCM/SEC	IPDM E/F
ENGINE	NG	UNKVN	-	UNKAN	nwkwy	nvikavu
ВСМ	NG	UNKVN	UNKWN	UNKWN	-	UNKAVN

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Circuit Check Between Combination Meter and BCM

1. CHECK CONNECTOR

Turn ignition switch OFF.

- 2. Disconnect the negative battery terminal.
- Check following terminals and connector for damage, bent or loose connection (meter-side, control module-side and harness-side).
- Combination meter.
- BCM.

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

$2.\,$ check harness for open circuit

- 1. Disconnect combination meter connector and BCM connector.
- Check continuity between combination meter harness connector M24 terminals 1 (L), 2 (Y) and BCM harness connector M18 terminals 70 (L), 71 (Y).

1 (L) - 70 (L)

: Continuity should exist.

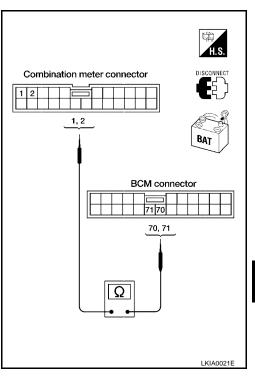
2(Y) - 71(Y)

: Continuity should exist.

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-50, "Work Flow".

NG >> Repair harness.



ECM Circuit Check

1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Check following terminals and connector for damage, bent or loose connection (control module-side and harness-side).
- ECM.
- Harness connector F59.
- Harness connector M71.

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

LAN-55 Revision: May 2004 2004 Altima

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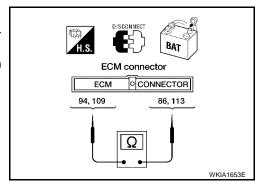
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2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect ECM connector.
- 2. Check the following.
- Resistance between ECM harness connector F54 terminals 94
 (L) and 86 (Y) (QR25DE models).
- Resistance between ECM harness connector F54 terminals 109
 (L) and 113 (Y) (VQ35DE models).

94 (L) – 86 (Y) (QR25DE models) : Approx. 108 – 132Ω (VQ35DE models) : Approx. 108 – 132Ω



OK or NG

OK >> Replace ECM.

NG >> Repair harness between harness connector M7 and ECM.

Combination Meter Circuit Check

1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check terminals and connector of combination meter for damage, bent or 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 M24 terminals 1 (L) and 2 (Y).

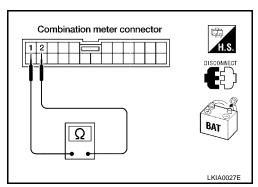
1 (L) – 2 (Y) : Approx.
$$54 - 66\Omega$$

OK or NG

NG

OK >> Replace combination meter. Refer to <u>DI-17</u>, "<u>Removal</u> and <u>Installation of Combination Meter</u>".

>> Repair harness between harness connector M71 and combination meter.



BCM Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.

- 2. Disconnect the negative battery terminal.
- 3. Check the terminals and connector of BCM for damage, bent or loose connection (control module-side and harness-side).

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

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2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect BCM connector.
- 2. Check resistance between BCM harness connector M18 terminals 70 (L) and 71 (Y).

: Approx. 54 – 66 Ω

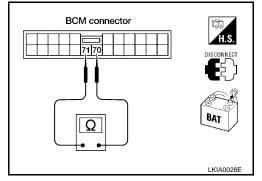
OK or NG

OK

>> Replace BCM.

NG

>> Repair harness between harness connector M7 and BCM.



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IPDM E/R Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.

- 2. Disconnect the negative battery terminal.
- 3. Check following terminals and connector for damage, bend and loose connection (control module-side and harness-side).
- IPDM E/R.
- Harness connector E130.
- Harness connector E27.
- Harness connector E28.
- Harness connector M7.

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

- Disconnect IPDM E/R connector. 1.
- Check resistance between IPDM E/R harness connector E121 terminals 48 (L) and 49 (Y).

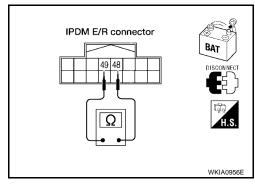
: Approx. $108 - 132\Omega$

OK or NG

OK

NG

- >> Replace IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R".
- >> Repair harness between data link connector and IPDM E/R.



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CAN Communication Circuit Check

1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check following terminals and connector for damage, bent or loose connection (control module-side, meter-side and harness-side).
- ECM.
- Combination meter.
- BCM.
- IPDM E/R.
- Between ECM and IPDM E/R.

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect ECM connector and harness connector F59.
- 2. Check the following.
- Continuity between ECM harness connector F54 terminals 94
 (L) and 86 (Y) (QR25DE models)
- Continuity between ECM harness connector F54 terminals 109
 (L) and 113 (Y) (VQ35DE models).

94 (L) – 86 (Y) (QR25DE models) 109 (L) – 113 (Y)

: Continuity should not exist.

109 (L) – 113 (Y) (VQ35DE models)

: Continuity should not exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness between ECM and harness connector F59.

3. CHECK HARNESS FOR SHORT CIRCUIT

- Check the following.
- Continuity between ECM harness connector F54 terminals 94 (L), 86 (Y) and ground (QR25DE models).
- Continuity between ECM harness connector F54 terminals 109 (L), 113 (Y) and ground (VQ35DE models).

94 (L) – ground (QR25DE models)

: Continuity should not exist.

86 (Y) - ground (QR25DE models)

: Continuity should not exist.

109 (L) – ground (VQ35DE models)

: Continuity should not exist.

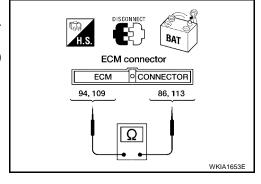
113 (Y) – ground (VQ35DE models)

: Continuity should not exist.

OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector F59.



ECM connector

86, 94, 109, 113

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4. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect combination meter connector, BCM connector and harness connector M7.
- 2. Check continuity between data link connector M22 terminals 6 (L) and 3 (Y).

: Continuity should not exist.

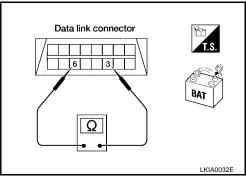
OK or NG

OK

>> GO TO 5.

NG

- >> Repair harness between harness connector M71 and harness connector M7.
 - Repair harness between harness connector M71 and combination meter.
 - Repair harness between harness connector M71 and data link connector.
 - Repair harness between harness connector M71 and BCM.



Data link connector

6 3

6, 3

Ω

5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M22 terminals 6 (L), 3 (Y) and ground.

6 (L) - ground

: Continuity should not exist.

3 (Y) - ground

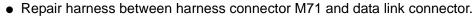
: Continuity should not exist.

OK or NG

OK

>> GO TO 6. NG

- >> Repair harness between harness connector M71 and harness connector M7.
 - Repair harness between harness connector M71 and combination meter.



Repair harness between harness connector M71 and BCM.

6. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect harness connector E27.
- 2. Check continuity between harness connector E28 terminals 10 (L) and 9 (Y).

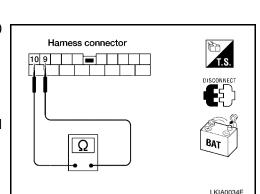
: Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG

>> Repair harness between harness connector E28 and harness connector E27.



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7. check harness for short circuit

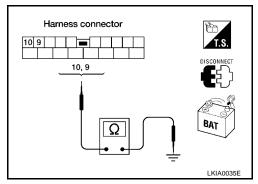
Check continuity between harness connector E28 terminals 10 (L), 9 (Y) and ground.

10 (L) – ground : Continuity should not exist. 9 (Y) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Repair harness between harness connector E28 and harness connector E27.



8. CHECK HARNESS FOR SHORT CIRCUIT

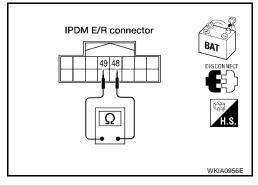
- 1. Disconnect IPDM E/R connector.
- 2. Check continuity between IPDM E/R harness connector E121 terminals 48 (L) and 49 (Y).

48 (L) – 49 (Y) : Continuity should not exist.

OK or NG

OK >> GO TO 9.

NG >> Repair harness between harness connector E130 and IPDM E/R.



9. CHECK HARNESS FOR SHORT CIRCUIT

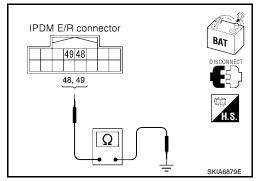
Check continuity between IPDM E/R harness connector E121 terminals 48 (L), 49 (Y) and ground.

48 (L) – ground : Continuity should not exist. 49 (Y) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 10.

NG >> Repair harness between harness connector E130 and IPDM E/R.



10. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Perform components inspection. Refer to <u>LAN-61</u>, "<u>ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION</u>". <u>OK or NG</u>

OK >> Connect all the connectors and diagnose again. Refer to <u>LAN-50, "Work Flow"</u>.

NG >> Replace ECM and/or IPDM E/R. Refer to PG-27, "Removal and Installation of IPDM E/R".

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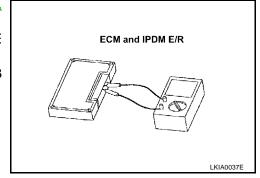
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Component Inspection ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

 Remove ECM and IPDM E/R from vehicle. Refer to <u>PG-27</u>, <u>"Removal and Installation of IPDM E/R"</u>.

- Check resistance between ECM terminals 86 and 94 (QR25DE models).
- Check resistance between ECM terminals 109 and 113 (VQ35DE models).
- Check resistance between IPDM E/R terminals 48 and 49.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM (QR25DE models)	86 – 94	
ECM (VQ35DE models)	109 – 113	108 - 132
IPDM E/R	48 – 49	



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