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System Description	System Description

[CAN]

PRECAUTIONS PFP:00001

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

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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**

UKS002MT

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

- 1. 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.
- 3. 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-7, "CAN Communication Unit" .

## **Precautions for CAN System**

UKS0025L

- Do not apply voltage of 7.0 V or higher to terminal to be measured.
- Maximum open terminal voltage of tester in use must be less than 7.0 V.
- Before checking harnesses, turn ignition switch OFF and disconnect battery negative cable.
- Area to be repaired must be soldered and wrapped with tape.
   Make sure that fraying of twisted wire is within 110 mm (4.33 in).

OK: Soldered and wound with tape

.

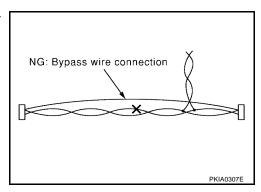
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Do not make a bypass connection to repaired area. (If the circuit is bypassed, characteristics of twisted wire will be lost.)



## **Wiring Diagrams and Trouble Diagnosis**

UKS0025M

When you read wiring diagrams, refer to the following:

- GI-13, "How to Read Wiring Diagrams"
- PG-4, "POWER SUPPLY ROUTING CIRCUIT"

When you perform trouble diagnosis, refer to the following:

- GI-10, "HOW TO FOLLOW TEST GROUPS IN TROUBLE DIAGNOSES"
- GI-25, "How to Perform Efficient Diagnosis for an Electrical Incident"

[CAN]

#### **CAN COMMUNICATION**

#### PFP:23710

#### System Description

UKS0025N

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN H line, CAN L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

#### **CAN Communication Unit**

UKS00250

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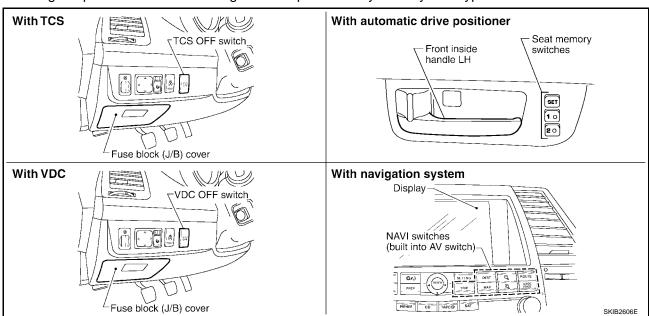
Go to CAN system, when selecting your CAN system type from the following table.

Body type		Sedan														
Axle								21	VD							
Engine								VQ3	35DE							
Transmission		M/T 5A/T														
Brake control		ABS		TCS			ABS			TCS				VDC		
Navigation system			х			х			×	×			х	х		×
Automatic drive positioner		х	х		х	х		х		х		х		х	×	х
CAN system type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
CAN system trouble diagnosis	<u>LA</u> <u>N-</u> <u>23</u>	<u>LA</u> <u>N-</u> <u>43</u>	<u>LA</u> <u>N-</u> <u>66</u>	<u>LA</u> <u>N-</u> <u>89</u>	<u>LA</u> <u>N-</u> 109	<u>LA</u> <u>N-</u> 132	<u>LA</u> <u>N-</u> <u>155</u>	<u>LA</u> <u>N-</u> 180	<u>LA</u> <u>N-</u> 208	<u>LA</u> <u>N-</u> 233	<u>LA</u> <u>N-</u> <u>261</u>	<u>LA</u> <u>N-</u> 286	<u>LA</u> <u>N-</u> <u>314</u>	<u>LA</u> <u>N-</u> 339	<u>LA</u> <u>N-</u> <u>367</u>	<u>LA</u> <u>N-</u> 396

x: Applicable

#### NOTE:

Confirming the presence of the following items helps to identify CAN system type.

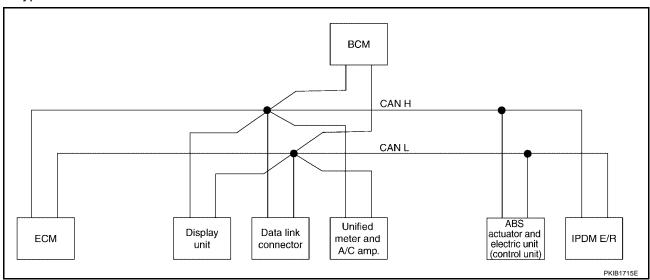


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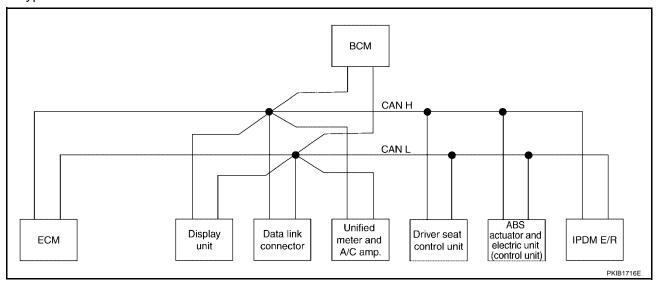
# Input/Output Signal Chart TYPE 1/TYPE 2/TYPE 3

UKS0025P

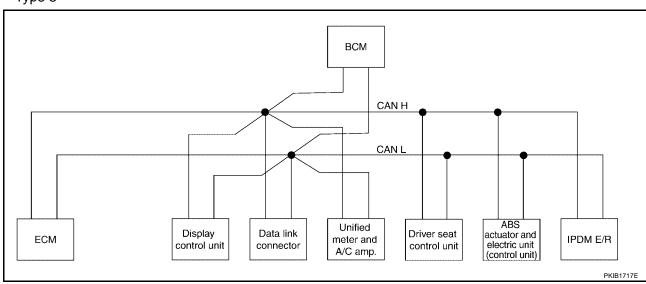
• Type 1



Type 2



• Type 3



[CAN]

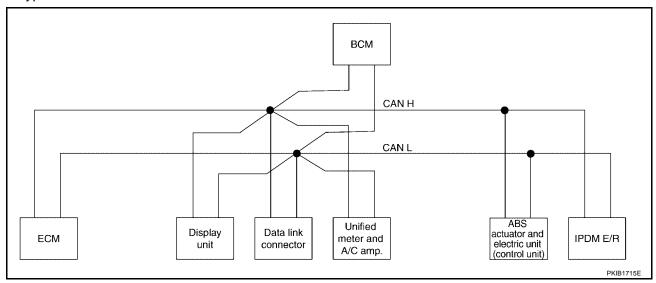
							T: Transmit	R: Receive
Signals	ECM	Display unit	Display control unit	Unified meter and A/C amp.	ВСМ	Driver seat control unit	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	Т		R	R				
Engine status signal	Т				R			
Engine coolant temperature signal	Т			R				
Key switch signal					Т	R		
Ignition switch signal					Т	R		R
Fuel consumption monitor signal	Т	R	R	R T				
A/C switch signal	R				Т			
A/C compressor request signal	Т							R
Blower fan motor switch signal	R				Т			
		Т	Т	R				
A/C control signal		R	R	Т				
Cooling fan speed request signal	Т							R
Cooling fan speed signal	R							Т
Position light request signal				R	Т			R
Low beam request signal					Т			R
Low beam status signal	R							T
High beam request signal				R	Т			R
High beam status signal	R							Т
Front fog light request signal					Т			R
Day time running light request signal				R	Т			
				R			Т	
Vehicle speed signal	R		R	Т	R	R		
Sleep wake up signal				R	Т	R		
Door switch signal		R	R	R	Т	R		R
Trunk switch signal				R	Т			
Turn indicator signal				R	Т			
Cornering lamp request signal					Т			R
Key fob ID signal					Т	R		
Key fob door unlock signal					Т	R		
0.1					R			Т
Oil pressure switch signal				R	Т			
Buzzer output signal				R	Т			
Fuel level sensor signal	R			Т				
ASCD SET indicator signal	Т			R				
ASCD CRUISE indicator signal	Т			R				
Malfunction indicator lamp signal	Т			R				
Front wiper request signal					Т			R
Front wiper stop position signal					R			Т
Rear window defogger switch signal					Т			R

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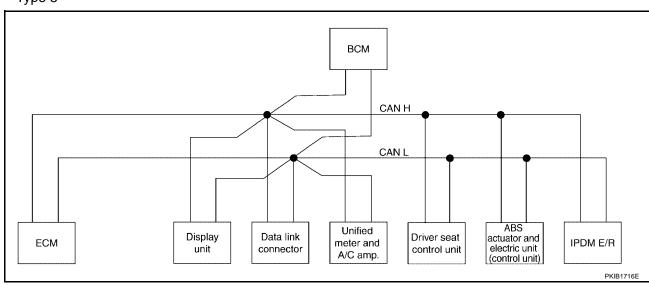
Signals	ECM	Display unit	Display control unit	Unified meter and A/C amp.	всм	Driver seat control unit	ABS actuator and elec- tric unit (control unit)	IPDM E/R
Rear window defogger control signal	R	R	R					Т
Hood switch signal					R			Т
Theft warning horn request signal					Т			R
Horn chirp signal					Т			R
ABS warning lamp signal				R			Т	
Brake warning lamp signal				R			Т	
System setting signal		Т	Т		R	R		
System setting signal		R	R		Т	Т		
Distance to empty signal		R	R	Т				
Seat belt buckle switch signal				Т	R			
Parking brake switch signal				Т	R	R		

#### **TYPE 4/TYPE 5/TYPE 6**

#### Type 4



## • Type 5



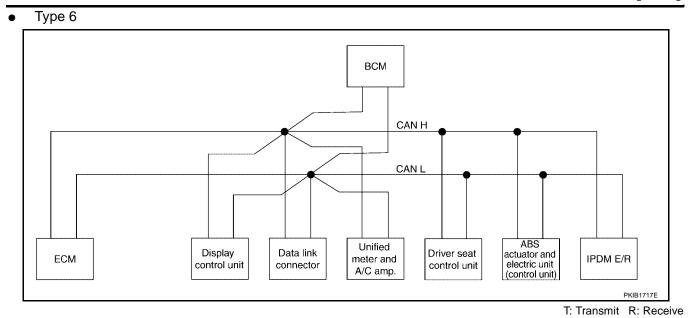
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Signals         ECM         Display unit         Display control unit         Unified meter and AC arm.         Low five meter seat control unit         Driver seat control unit         ABS actuator and elect fucontrol unit)           Engine speed signal         T         I         R         R         R         R         R         I								i. Hansiiii	IV. IVECEIVE
Engine status signal	Signals	ECM		control	meter and A/C	всм	seat con-	actuator and elec- tric unit (control	
Engine coolant temperature signal   T	Engine speed signal	Т		R	R			R	
Key switch signal         TR         R           Ignition switch signal         TR         TR         R           Fuel consumption monitor signal         TR         RR         TR         R           A/C switch signal         RR         RR         TT         TT         R           A/C compressor request signal         TT         TT         TT         R <td< td=""><td>Engine status signal</td><td>Т</td><td></td><td></td><td></td><td>R</td><td></td><td></td><td></td></td<>	Engine status signal	Т				R			
Ignition switch signal	Engine coolant temperature signal	Т			R				
T	Key switch signal					Т	R		
R	Ignition switch signal					Т	R		R
A/C switch signal         R         T         R           A/C compressor request signal         T         R         R           Blower fan motor switch signal         R         T         T         T           A/C control signal         T         T         T         R         R         T           Cooling fan speed request signal         T         R         T         R         R         T         R         R         T         R         R         T         R         R         T         R         R         T         R         R         T         R         R         T         R         R         T         R         R         T         R         R         T         R         R         T         R         R         T         R         R         T         R         R         T         R         R         T         R         R         T         R         R         T         R         R         R         T         R         R         R         T         R         R         T         R         R         T         R         R         T         R         R         T         R         R<	Fuel consumption monitor signal	Т	_	_					
A/C compressor request signal   T	A/C quitab aignal	D	R	R	I	т			
Blower fan motor switch signal   R						ı			
A/C control signal						<b>-</b>			R
R R T	Blower fan motor switch signal	K	_	_		ı			
Cooling fan speed request signal         T         R           Cooling fan speed signal         R         T           Position light request signal         R         T         R           Low beam request signal         T         R         T           Low beam status signal         R         T         R           High beam request signal         R         T         R           High beam status signal         R         T         R           Front fog light request signal         R         T         R           Day time running light request signal         R         T         T           Vehicle speed signal         R         R         T         T           Sleep wake up signal         R         R         T         R         R           Door switch signal         R         R         R         T         R         R	A/C control signal								
Cooling fan speed signal         R         T         T           Position light request signal         R         T         R           Low beam request signal         T         R         T           Low beam status signal         R         T         R           High beam request signal         R         T         R           High beam status signal         R         T         R           Front fog light request signal         T         R         T           Day time running light request signal         R         T         T           Vehicle speed signal         R         R         T         T           Sleep wake up signal         R         R         T         R         R           Door switch signal         R         R         R         T         R         R			R	R	Į.				
Position light request signal         R         T         R           Low beam request signal         R         T         R           Low beam status signal         R         T         R           High beam request signal         R         T         R           High beam status signal         R         T         R           Front fog light request signal         T         R         T           Day time running light request signal         R         T         T           Vehicle speed signal         R         T         R         T           Sleep wake up signal         R         R         T         R         R           Door switch signal         R         R         R         T         R         R									
Low beam request signal         R           Low beam status signal         R           High beam request signal         R           High beam status signal         R           Front fog light request signal         T           Day time running light request signal         R           Vehicle speed signal         R           R         R           Sleep wake up signal         R           R		R							
Low beam status signal         R         T           High beam request signal         R         T         R           High beam status signal         R         T         R           Front fog light request signal         T         R         R           Day time running light request signal         R         T         T           Vehicle speed signal         R         T         R         T           Sleep wake up signal         R         T         R         R           Door switch signal         R         R         R         T         R         R	Position light request signal				R	T			R
High beam request signal R T R High beam status signal R T R Front fog light request signal R R  Day time running light request signal R R T R  Vehicle speed signal R R T R R  Sleep wake up signal R R R R R R R  Door switch signal R R R R R R	Low beam request signal					Т			R
High beam status signal   R     T   T   R	Low beam status signal	R							Т
Front fog light request signal         T         R           Day time running light request signal         R         T           Vehicle speed signal         R         T         T           R         R         T         R         R           Sleep wake up signal         R         R         T         R         R           Door switch signal         R         R         R         T         R         R	High beam request signal				R	Т			R
Day time running light request signal         R         T           Vehicle speed signal         R         R         T           R         R         T         R         R           Sleep wake up signal         R         R         T         R         R           Door switch signal         R         R         R         T         R         R	High beam status signal	R							Т
Vehicle speed signal         R         T           R         R         T         R         R           Sleep wake up signal         R         T         R         R           Door switch signal         R         R         R         T         R         R	Front fog light request signal					Т			R
R         R         R         T         R         R           Sleep wake up signal         R         T         R	Day time running light request signal				R	Т			
R         R         R         T         R         R           Sleep wake up signal         R         R         T         R         R           Door switch signal         R         R         R         T         R         R	Vahiala angod signal				R			Т	
Door switch signal R R R T R R	vernole speed signal	R		R	Т	R	R		
	Sleep wake up signal				R	Т	R		R
Trunk switch signal R T	Door switch signal		R	R	R	Т	R		R
	Trunk switch signal				R	Т			

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Signals	ECM	Display unit	Display control unit	Unified meter and A/C amp.	всм	Driver seat con- trol unit	ABS actuator and elec- tric unit (control unit)	IPDM E/R
Turn indicator signal				R	Т			
Cornering lamp request signal					Т			R
Key fob ID signal					Т	R		
Key fob door unlock signal					Т	R		
Oil pressure switch signal					R			Т
Oii pressure switch signal				R	Т			
Buzzer output signal				R	Т			
Fuel level sensor signal	R			Т				
ASCD SET indicator signal	Т			R				
ASCD CRUISE indicator signal	Т			R				
Malfunction indicator lamp signal	Т			R				
Front wiper request signal					Т			R
Front wiper stop position signal					R			Т
Rear window defogger switch signal					Т			R
Rear window defogger control signal	R	R	R					Т
Hood switch signal					R			Т
Theft warning horn request signal					Т			R
Horn chirp signal					Т			R
ABS warning lamp signal				R			Т	
Brake warning lamp signal				R			Т	
SLIP indicator lamp signal				R			Т	
Accelerator pedal position signal	Т						R	
System setting signal		Т	Т		R	R		
System setting signal		R	R		Т	Т		
Distance to empty signal		R	R	Т				
Seat belt buckle switch signal				Т	R			
Parking brake switch signal				Т	R	R		

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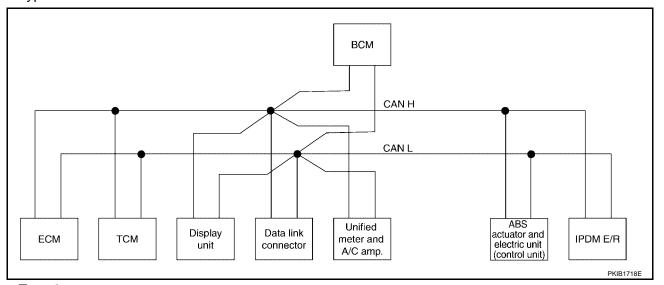
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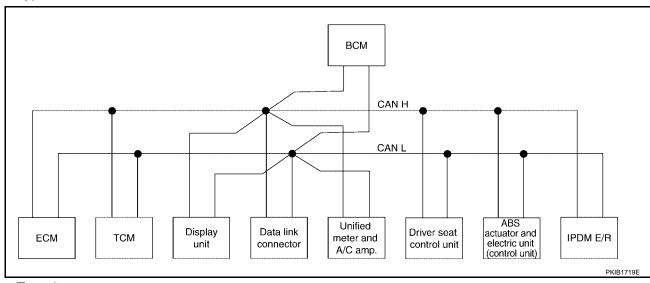
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#### TYPE 7/TYPE 8/TYPE 9/TYPE 10

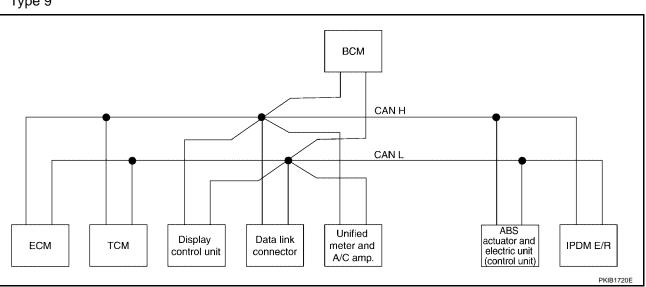
Type 7



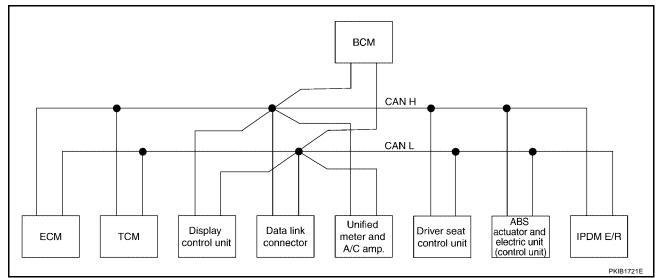
Type 8



Type 9







T: Transmit R: Receive

Signals	ECM	ТСМ	Display unit	Display control unit	Unified meter and A/C amp.	всм	Driver seat control unit	ABS actuator and electric unit (control unit)	IPDM E/ R
Engine speed signal	T	R		R	R				
Engine status signal	Т					R			
Engine coolant temperature signal	Т	R			R				
Key switch signal						Т	R		
Ignition switch signal						Т	R		R
Closed throttle position signal	Т	R							
ABS operation signal		R						Т	
	Т				R				
Fuel consumption monitor signal			R	R	Т				
A/C switch signal	R					Т			
A/C compressor request signal	Т								R
Blower fan motor switch signal	R					Т			
A/O acataclasianal			Т	Т	R				
A/C control signal			R	R	Т				
Cooling fan speed request signal	Т								R
Cooling fan speed signal	R								Т
Position light request signal					R	Т			R
Low beam request signal						Т			R
Low beam status signal	R								Т
High beam request signal					R	Т			R
High beam status signal	R								Т
Front fog light request signal						Т			R
Day time running light request signal					R	Т			
Vahiala ana ad airmal					R			Т	
Vehicle speed signal	R	R		R	Т	R	R		

[CAN]

Signals Sleep wake up signal	ECM	ТСМ	Display unit	Display control unit	Unified meter and A/C amp.	всм	Driver seat control unit	ABS actua- tor and electric unit (control unit)	IPDM E/ R
Door switch signal			R	R	R	Т	R		R
Trunk switch signal			1	- 1	R	Т	1		
Turn indicator signal					R	 			
Cornering lamp request signal					IX.	' 			R
Key fob ID signal						' 	R		
Key fob door unlock signal						T	R		
Oil pressure switch signal						R			Т
					R	Т			
Buzzer output signal					R	Т			
Fuel level sensor signal	R				Т				
ASCD SET indicator signal	T				R				
ASCD CRUISE indicator signal	Т				R				
Malfunction indicator lamp signal	Т				R				
Front wiper request signal						Т			R
Front wiper stop position signal						R			Т
Rear window defogger switch signal						Т			R
Rear window defogger control signal	R		R	R					Т
Hood switch signal						R			Т
Theft warning horn request signal						Т			R
Horn chirp signal						Т			R
ABS warning lamp signal					R			Т	
Brake warning lamp signal					R			Т	
			Т	Т		R	R		
System setting signal			R	R		Т	Т		
Distance to empty signal			R	R	Т				
Seat belt buckle switch signal					Т	R			
Parking brake switch signal					Т	R	R		
ASCD operation signal	Т	R							
ASCD OD cancel request	T	R							
A/T CHECK indicator lamp signal	-	Т			R				
A/T position indicator lamp signal		T			R				
Manual mode indicator signal		T			R				
A/T self-diagnosis signal	R	T			13				
Electric throttle control signal	T	R							
	T	R							
Engine and A/T integrated control signal	R	T							
P range signal		Т					R	R	
R range signal		Т					R		
Stop lamp switch signal		R			Т				

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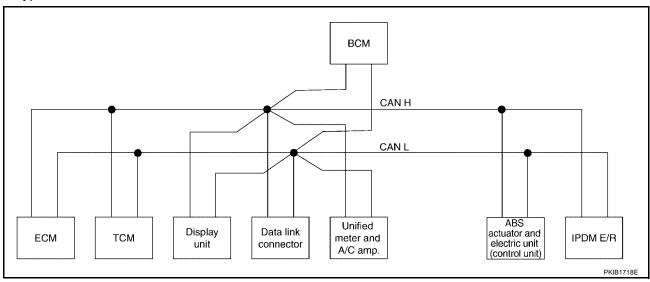
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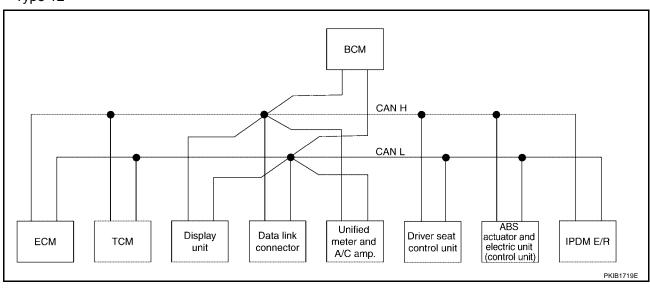
Signals	ECM	TCM	Display unit	Display control unit	Unified meter and A/C amp.	всм	Driver seat control unit	ABS actuator and electric unit (control unit)	IPDM E/ R
Input shaft revolution signal	R	Т							
Output shaft revolution signal	R	Т							

#### **TYPE 11/TYPE 12/TYPE 13/TYPE 14**

#### Type 11



## Type 12



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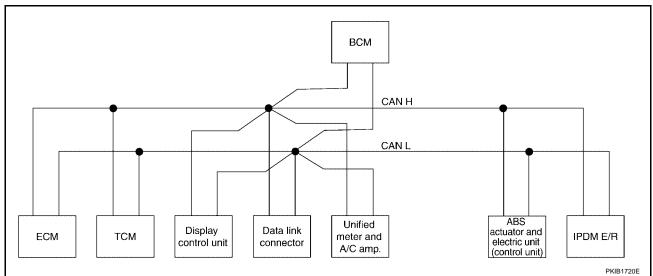
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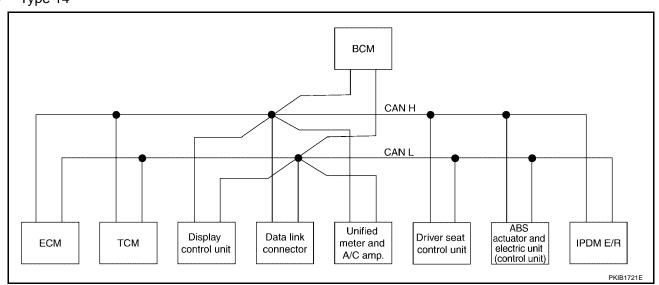
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Type 14



T: Transmit R: Receive

Signals	ECM	TCM	Display unit	Display control unit	Unified meter and A/C amp.	всм	Driver seat control unit	ABS actuator and electric unit (control unit)	IPDM E/ R
Engine speed signal	Т	R		R	R			R	
Engine status signal	Т					R			
Engine coolant temperature signal	Т	R			R				
Key switch signal						Т	R		
Ignition switch signal						Т	R		R
Closed throttle position signal	Т	R							
ABS operation signal		R						Т	
Fuel consumption monitor signal	Т				R				
i dei consumption monitoi signal			R	R	Т				
A/C switch signal	R					Т			
A/C compressor request signal	Т								R

									[CAN]
Signals	ECM	ТСМ	Display unit	Display control unit	Unified meter and A/C amp.	всм	Driver seat control unit	ABS actua- tor and electric unit (control unit)	IPDM E/ R
Blower fan motor switch signal	R					Т			
A/C control signal			T R	T R	R T				
Cooling fan speed request signal	Т								R
Cooling fan speed signal	R								Т
Position light request signal					R	Т			R
Low beam request signal						Т			R
Low beam status signal High beam request signal	R				R	Т			T R
High beam status signal	R				1.	•			T
Front fog light request signal						T			R
Day time running light request signal					R	 			
Day time ramming light request signal					R	•		Т	
Vehicle speed signal	R	R		R	Т	R	R	•	
Sleep wake up signal					R	Т	R		R
Door switch signal			R	R	R	Т	R		R
Trunk switch signal					R	Т			
Turn indicator signal					R	Т			
Cornering lamp request signal						Т			R
Key fob ID signal						Т	R		
Key fob door unlock signal						Т	R		
Oil pressure switch signal					R	R T			Т
Buzzer output signal					R	' 			
Fuel level sensor signal	R				T	'			
ASCD SET indicator signal	T				R				
ASCD CRUISE indicator signal	' Т				R				
Malfunction indicator lamp signal	т Т				R				
Front wiper request signal	•					Т			R
Front wiper stop position signal						 R			T
Rear window defogger switch signal						T			R
Rear window defogger control signal	R		R	R		•			Т
Hood switch signal	• • •			•••		R			T
Theft warning horn request signal						Т			R
Horn chirp signal						T			R
ABS warning lamp signal					R			Т	
Brake warning lamp signal					R			Т	
			Т	T		R	R		
System setting signal			R	R		Т	Т		
Distance to empty signal			R	R	Т				

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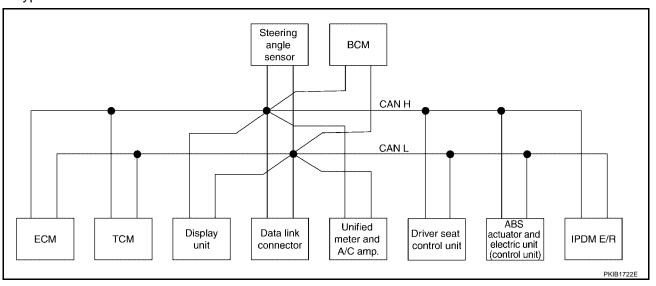
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Signals	ECM	тсм	Display unit	Display control unit	Unified meter and A/C amp.	всм	Driver seat control unit	ABS actua- tor and electric unit (control unit)	IPDM E/ R
Seat belt buckle switch signal					Т	R			
Parking brake switch signal					Т	R	R		
A/T self-diagnosis signal	R	Т							
Electric throttle control signal	Т	R							
Engine and A/T integrated control	Т	R							
signal	R	Т							
Accelerator pedal position signal	Т							R	
P range signal		Т					R	R	
R range signal		Т					R		
Stop lamp switch signal		R			Т				
TCS operation signal	R	R						Т	
Input shaft revolution signal	R	Т							
Output shaft revolution signal	R	Т							
ASCD operation signal	Т	R							
ASCD OD cancel request	Т	R							
SLIP indicator lamp signal					R			Т	
A/T CHECK indicator lamp signal		Т			R				
A/T position indicator lamp signal		Т			R				
A/T shift schedule change demand signal		R						Т	
Manual mode indicator signal		Т			R				

## **TYPE 15/TYPE 16**

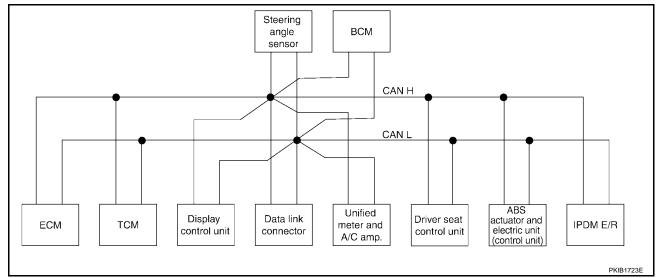
• Type 15



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T: Transmit R: Receive

Signals	ECM	TCM	Dis- play unit	Dis- play con- trol unit	Uni- fied meter and A/ C amp.	Steer- ing angle sensor	всм	Driver seat con- trol unit	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	Т	R		R	R				R	
Engine status signal	Т						R			
Engine coolant temperature signal	Т	R			R					
Key switch signal							T	R		
Ignition switch signal							T	R		R
Closed throttle position signal	Т	R								
ABS operation signal		R							Т	
Fuel consumption monitor signal	Т				R					
			R	R	Т					
A/C switch signal	R						T			
A/C compressor request signal	Т									R
Blower fan motor switch signal	R						Т			
A/C control signal			T	T	R					
	_		R	R	Т					
Cooling fan speed request signal	Т									R
Cooling fan speed signal	R									Т
Position light request signal					R		T			R
Low beam request signal							Т			R
Low beam status signal	R									Т
High beam request signal					R		T			R
High beam status signal	R									Т
Front fog light request signal							Т			R
Day time running light request signal					R		T			

[CAN]

Signals	ECM	ТСМ	Dis- play unit	Dis- play con- trol unit	Uni- fied meter and A/ C amp.	Steer- ing angle sensor	всм	Driver seat con- trol unit	ABS actuator and electric unit (control unit)	IPDM E/R	В
Vehicle speed signal					R				Т		
	R	R		R	T		R	R			D
Sleep wake up signal			- D		R		T	R		R	
Door switch signal			R	R	R		T	R		R	
Trunk switch signal					R		T -				Е
Turn indicator signal					R		T				
Cornering lamp request signal							Т			R	
Key fob ID signal							T	R			F
Key fob door unlock signal							Т	R			
Oil pressure switch signal							R			T	G
on procedure owners eighar					R		Т				
Buzzer output signal					R		Т				
Fuel level sensor signal	R				Т						Н
ASCD SET indicator signal	Т				R						
ASCD CRUISE indicator signal	Т				R						
Malfunction indicator lamp signal	Т				R						
Front wiper request signal							Т			R	
Front wiper stop position signal							R			T	. [
Rear window defogger switch signal							Т			R	0
Rear window defogger control signal	R		R	R						Т	
Hood switch signal							R				LA
Theft warning horn request signal							Т			R	
Horn chirp signal							Т			R	
ABS warning lamp signal					R				Т		L
Brake warning lamp signal					R				Т		
			Т	Т			R	R			N
System setting signal			R	R			T	T			
Distance to empty signal			R	R	Т		'	'			
Seat belt buckle switch signal			- 1	1	T		R				
Parking brake switch signal					T		R	R			
	ח	т			ı		r	K			
A/T self-diagnosis signal	R	T									
Electric throttle control signal	T	R									
Engine and A/T integrated control signal	T R	R T									
Accelerator pedal position signal	Т								R		
P range signal		Т						R	R		
R range signal		Т						R			
Stop lamp switch signal		R			Т						
TCS operation signal	R	R							Т		

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[CAN]

										[ • /]
Signals	ECM	ТСМ	Dis- play unit	Dis- play con- trol unit	Uni- fied meter and A/ C amp.	Steer- ing angle sensor	всм	Driver seat con- trol unit	ABS actuator and electric unit (control unit)	IPDM E/R
VDC operation signal	R	R							Т	
Input shaft revolution signal	R	Т								
Output shaft revolution signal	R	Т								
ASCD operation signal	Т	R								
ASCD OD cancel request	Т	R								
Steering angle sensor signal						Т			R	
VDC OFF indicator lamp signal					R				Т	
SLIP indicator lamp signal					R				Т	
A/T CHECK indicator lamp signal		Т			R					
A/T position indicator lamp signal		T			R					
A/T shift schedule change demand signal		R							Т	
Manual mode indicator signal		Т			R					

PFP:23710

## **System Description**

UKS0025Q

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.

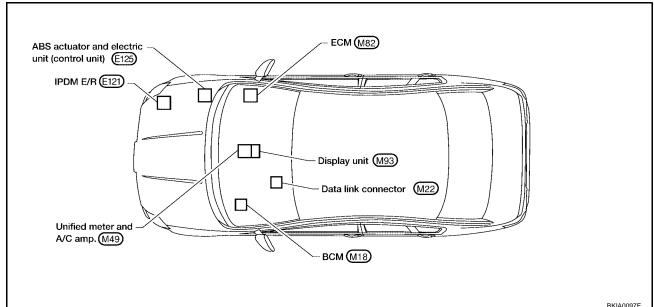
#### **Component Parts and Harness Connector Location**

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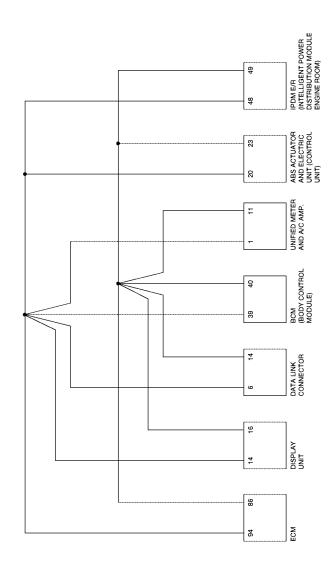


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Schematic UKS0025S



Wiring Diagram - CAN -

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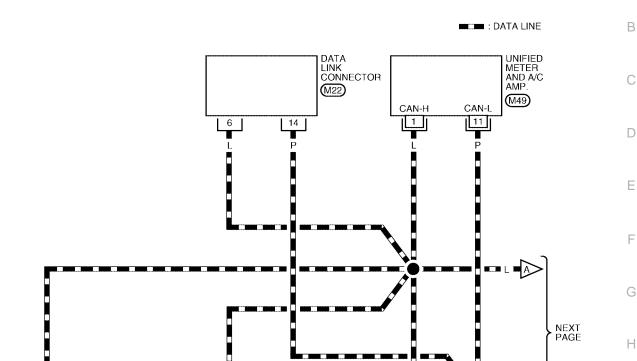
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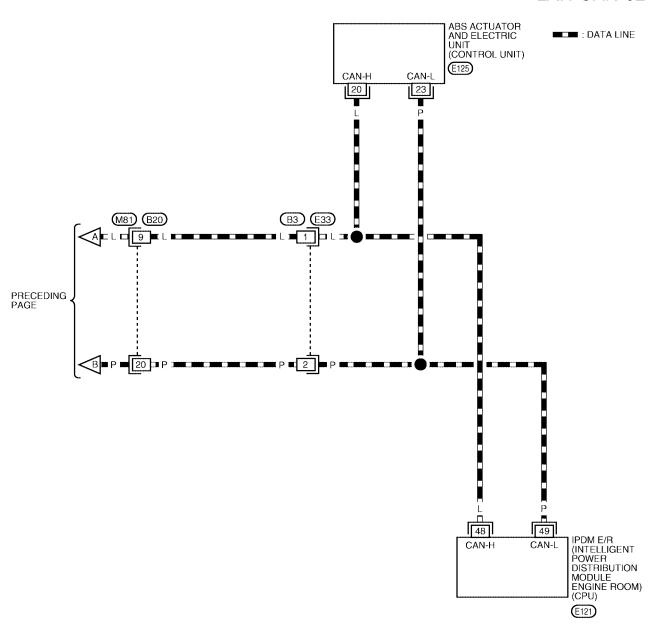
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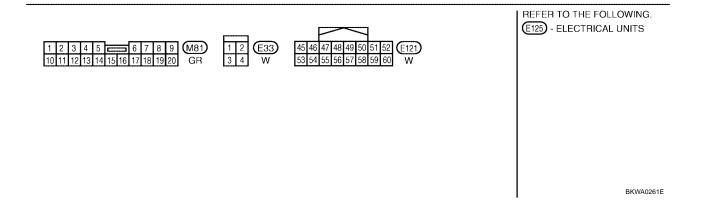
#### LAN-CAN-01



CAN-H CAN-L CAN-L CAN-L CAN-L CAN-L CAN-H CAN-L (BODY CONTROL MODULE)

## LAN-CAN-02

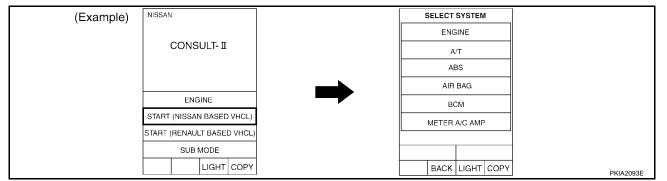




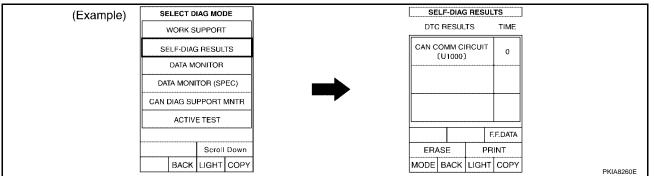
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Work Flow

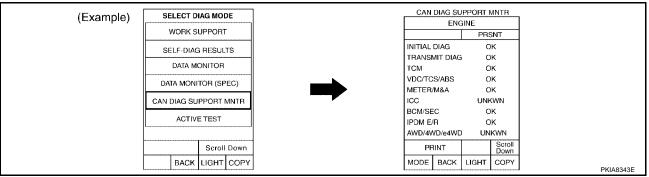
1. When there are no indications of "METER A/C AMP", "BCM" or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



 Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "METER A/C AMP", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "METER A/C AMP", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



 Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks onto the items with "No indication", "NG", or "UNKWN" in the check sheet table.

		1	,		CAN DIAG S	SUPPORT MNTE	}		
SELECT SYS	TEM screen	Initial	Transmit		r	Receive METER/	diagnosis	VDC/TCS/	1
		diagnosis	DISPLAY   M&A   BOMIS	BCM/SEC	ABS	IPDM E/R			
ENGINE		NG	UNKWN			UNKWN	UNKWN		UNKWN
Display unit	-	CAN		CAN 3	-		CAN 2	-	CAN /
METER A/C AMP	No indication	-	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
ABS		NG	UNKWN	UNKWN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-

#### 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]

- The "CAN DIAG SUPPORT MNTR" items which are not in check sheet table are not related to diagnostic procedure on service manual.
  - Therefore, it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- 5. Check CAN communication line of the integrated display system. Refer to <u>AV-90, "AV Communication Line Check"</u>.
- 6. Mark the "NG" or "UNKWN" item of the check sheet table from the result of CAN DIAG SUPPORT MONITOR check sheet.

#### NOTE:

- If "NG" is displayed on "CAN COMM" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- 7. According to the Check Sheet Results, start inspection.

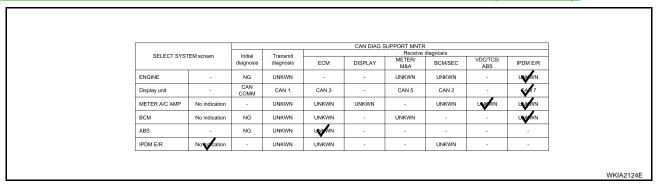
#### **CHECK SHEET RESULTS (EXAMPLE)**

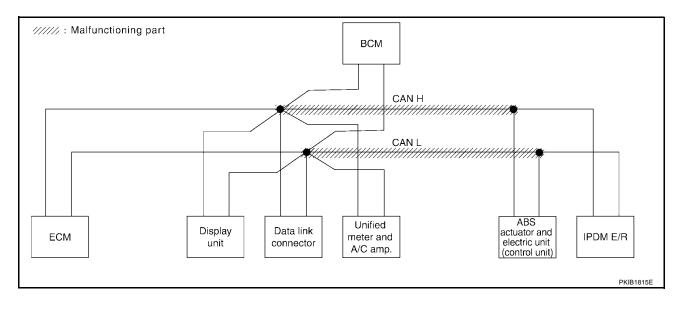
#### NOTE:

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

#### Case 1

Check harness between data link connector and ABS actuator and electric unit (control unit). Refer to <u>LAN-37</u>, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit)".





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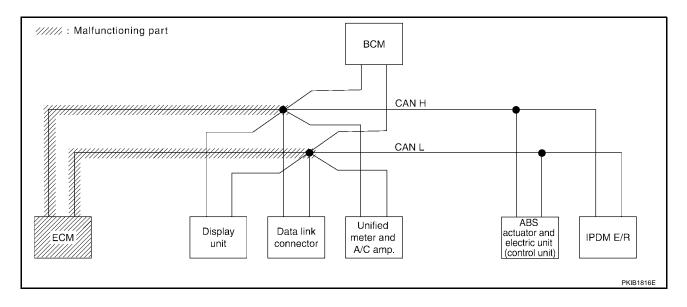
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Case 2
Check ECM circuit. Refer to <u>LAN-38</u>, "ECM Circuit Check".

					CAN DIAG S	SUPPORT MNTF			
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ ABS	IPDM E/F
ENGINE	-	NG	UNIVAN	-	-	UNIVN	UNIVAN	-	UNIVN
Display unit	-	CAN COMM	CAN 1	<b>QA</b> /3	-	CAN 5	CAN 2	-	CAN 7
METER A/C AMP	No indication	-	UNKWN	UNIWN	UNKWN	-	UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNIWN	-	UNKWN	-	-	UNKWN
ABS	-	NG	UNKWN	UNIWN	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNIMN	-	-	UNKWN	-	-



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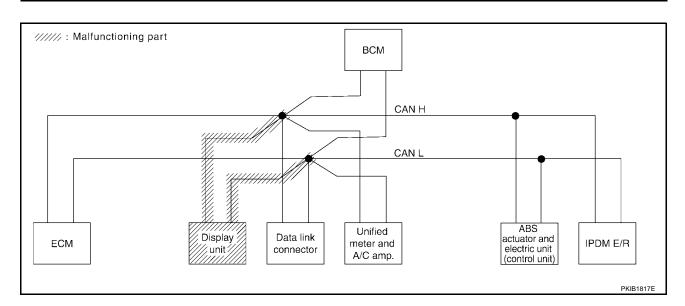
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Case 3
Check display unit circuit. Refer to <u>LAN-38</u>, "<u>Display Unit Circuit Check</u>" .

		L,			CAN DIAG S	SUPPORT MNTR			
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	Receive METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN		UNKWN
Display unit	-	CAN COMM	<b>√</b> 1	₩3	-	<b>W</b> 15	<b>√</b> 12	-	<b>W</b> 17
METER A/C AMP	No indication	-	UNKWN	UNKWN	UNIDAVIN	-	UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
ABS		NG	UNKWN	UNKWN	-	-	-	-	-
IPDM E/R	No indication	- 1	UNKWN	UNKWN	-	-	UNKWN		

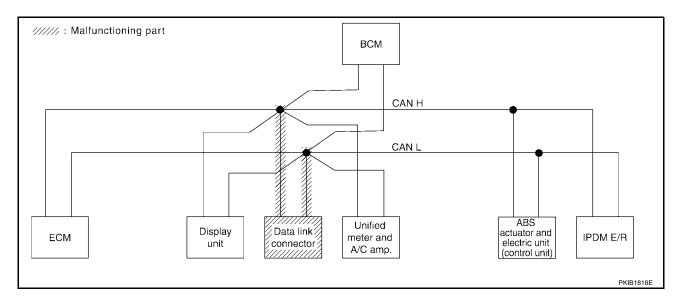


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Case 4
Check data link connector circuit. Refer to <u>LAN-39</u>, "<u>Data Link Connector Circuit Check</u>" .

					CAN DIAG S	SUPPORT MNTR			
SELECT SYS	TEM screen	Initial	Transmit				diagnosis		
		diagnosis	diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/F
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	-	UNKWN
Display unit	-	CAN COMM	CAN 1	CAN 3	-	CAN 5	CAN 2	-	CAN 7
METER A/C AMP	No to cation	-	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	UNKWN
BCM	No to cation	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
ABS	-	NG	UNKWN	UNKWN	-	-	-	-	-
IPDM E/R	No topication	-	UNKWN	UNKWN	-	-	UNKWN	-	-



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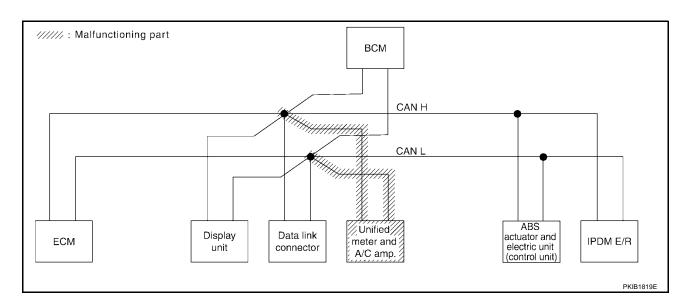
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Case 5

Check unified meter and A/C amp. circuit. Refer to LAN-39, "Unified Meter and A/C Amp. Circuit Check" .

					CAN DIAG S	SUPPORT MNTF			
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/F
ENGINE	-	NG	UNKWN	-	-	UNIVN	UNKWN	-	UNKWN
Display unit	-	CAN COMM	CAN 1	CAN 3	-	<b>4</b> /15	CAN 2	-	CAN 7
METER A/C AMP	No to cation	-	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNIVN	-	-	UNKWN
ABS	-	NG	UNKWN	UNKWN	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-

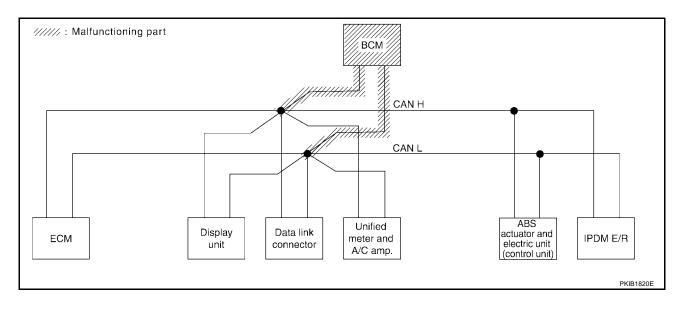


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Case 6
Check BCM circuit. Refer to <u>LAN-40</u>, "BCM Circuit Check" .

SELECT SYSTEM screen			CAN DIAG SUPPORT MNTR Receive diagnosis								
		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R		
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNIFOVN	-	UNKWN		
Display unit	-	CAN	CAN 1	CAN 3	-	CAN 5	<b>V</b> 12	-	CAN 7		
METER A/C AMP	No indication	-	UNKWN	UNKWN	UNKWN	-	UNIFOVN	UNKWN	UNKWN		
всм	No togication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN		
ABS	-	NG	UNKWN	UNKWN	-	-	-	-	-		
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNIMON	-	-		



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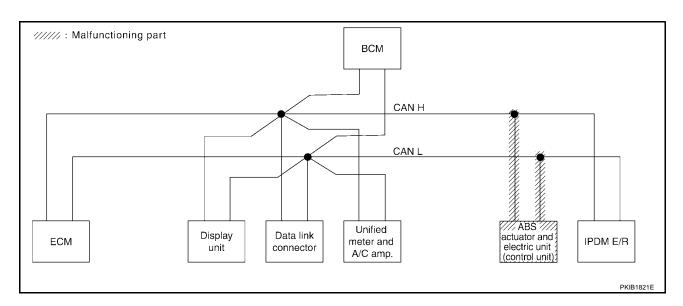
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Case 7

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-40, "ABS Actuator and Electric Unit (Control Unit) Circuit Check"</u> .

			CAN DIAG SUPPORT MNTR									
SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	Receive METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R			
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	-	UNKWN			
Display unit	-	CAN COMM	CAN 1	CAN 3	-	CAN 5	CAN 2	-	CAN 7			
METER A/C AMP	No indication	-	UNKWN	UNKWN	UNKWN	-	UNKWN	UNIVAN	UNKWN			
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN			
ABS	-	NG	UNISWN	UNIVN	-	-	-	-	-			
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-			

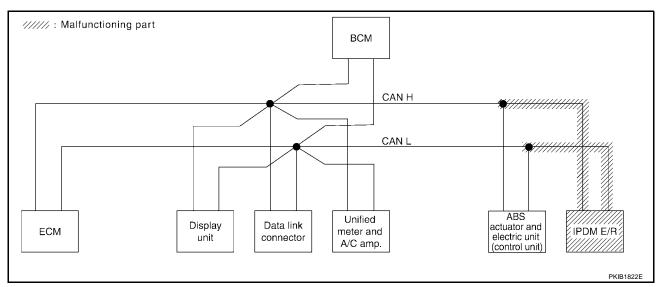


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Case 8
Check IPDM E/R circuit. Refer to <u>LAN-41, "IPDM E/R Circuit Check"</u>.

			CAN DIAG SUPPORT MNTR Receive diagnosis								
SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E		
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	-	UNIV		
Display unit	-	CAN COMM	CAN 1	CAN 3	-	CAN 5	CAN 2	-	<b>₩</b>		
METER A/C AMP	No indication	-	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	UNIV		
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNIVA		
ABS	-	NG	UNKWN	UNKWN	-	-	-	-	-		
IPDM E/R	No or cation	-	UNKWN	UNKWN	-	-	UNKWN	-	-		



Case 9
Check CAN communication circuit. Refer to <u>LAN-41, "CAN Communication Circuit Check"</u>.

		L		1	CAN DIAG	SUPPORT MNTF			
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNIVAN	-	-	UNIVN	UNIWN	-	UNIM
Display unit	-	CAN COMM	<b>W</b> 1	<b>₩</b> 3	-	<b>€</b> 4 5	W 2	-	<b>V</b> 17
METER A/C AMP	Notoccation	-	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	UNKWN
всм	No or cation	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
ABS	-	NG	UNIVAN	UNIVAN	-	-	-	-	-
IPDM E/R	Notoscation	-	UNKWN	UNKWN			UNKWN	-	-

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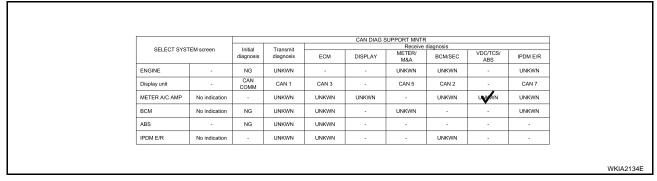
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### Case 10

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-42</u>, "IPDM E/R Ignition Relay <u>Circuit Check"</u>.



### Case 11

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to <u>LAN-42</u>, "IPDM E/R Ignition Relay Circuit Check".

		l			CAN DIAG S	SUPPORT MNTR			
SELECT SYS	TEM coroon	Initial	Transmit			Receive	diagnosis		
SELECT STS	TEM SCIEGIT	diagnosis	diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	-	UNKWN
Display unit	-	CAN COMM	CAN 1	CAN 3	-	CAN 5	CAN 2	-	CAN 7
METER A/C AMP	No indication	-	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
ABS	-	NG	UNKWN	UNIVN	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-

# Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit)

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- Disconnect the negative battery terminal.
- Disconnect ABS actuator and electric unit (control unit) connector E125 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ABS actuator and electric unit (control unit) connector E125 terminals 20 (L), 23 (P).

6 (L) - 20 (L)

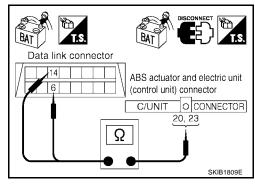
: Continuity should exist.

14 (P) - 23 (P) : Continuity should exist.

### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-27, "Work Flow".

NG >> Repair harness.



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**ECM Circuit Check** 

## 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. check harness for open circuit

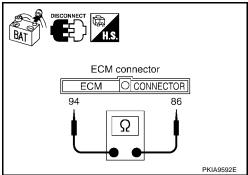
Check resistance between ECM connector M82 terminal 94 (L) and terminal 86 (P).

94 (L) - 86 (P) : Approx. 108 - 132 
$$\Omega$$

### OK or NG

OK >> Replace ECM.

NG >> Repair harness between ECM connector M82 and data link connector M22.



## **Display Unit Circuit Check**

1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect display unit connector M93.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

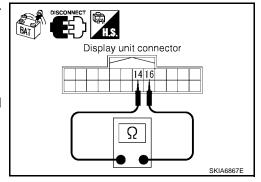
Check resistance between display unit connector M93 terminal 14 (L) and terminal 16 (P).

14 (L) - 16 (P) : Approx. 54 - 66 
$$\Omega$$

### OK or NG

OK >> Replace display unit.

NG >> Repair harness between display unit connector M93 and data link connector M22.



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### **Data Link Connector Circuit Check**

## 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check data link connector M22 terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

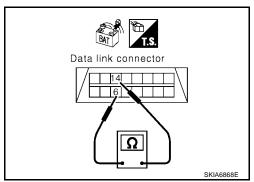
Check resistance between data link connector M22 terminal 6 (L) and terminal 14 (P).

6 (L) - 14 (P) : Approx. 54 - 66 
$$\Omega$$

### OK or NG

OK >> Diagnose again. Refer to LAN-27, "Work Flow".

NG >> Repair harness between data link connector M22 and BCM connector M18.



## Unified Meter and A/C Amp. Circuit Check

## 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect unified meter and A/C amp. connector M49.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

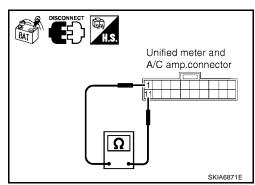
Check resistance between unified meter and A/C amp. connector M49 terminal 1 (L) and terminal 11 (P).

**1 (L) - 11 (P)** : Approx. 54 - 66 
$$\Omega$$

### OK or NG

OK >> Replace unified meter and A/C amp.

NG >> Repair harness between unified meter and A/C amp. connector M49 and data link connector M22.



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**BCM Circuit Check** 

## 1. CONNECTOR INSPECTION

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- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect BCM connector M18.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between BCM connector M18 terminal 39 (L) and terminal 40 (P).

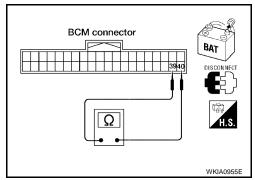
: Approx. 54 - 66  $\Omega$ 

### OK or NG

OK >> Replace BCM.

NG >

>> Repair harness between BCM connector M18 and data link connector M22.



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

UKS00261

## 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ABS actuator and electric unit (control unit) connector E125.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between ABS actuator and electric unit (control unit) connector E125 terminal 20 (L) and terminal 23 (P).

: Approx. 54 - 66  $\Omega$ 

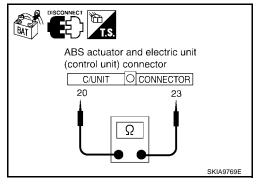
### OK or NG

OK

NG

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

>> Repair harness between ABS actuator and electric unit (control unit) connector E125 and IPDM E/R connector E121.



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**IPDM E/R Circuit Check** 

## 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect IPDM E/R connector E121.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between IPDM E/R connector E121 terminal 48 (L) and terminal 49 (P).

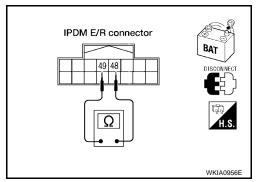
48 (L) - 49 (P) : Approx. 108 - 132 
$$\Omega$$

### OK or NG

NG

OK >> Replace IPDM E/R.

>> Repair harness between IPDM E/R connector E121 and ABS actuator and electric unit (control unit) connector E125.



## **CAN Communication Circuit Check**

## 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect the following module and control unit connectors and check terminals for deformation, disconnection, looseness or damage.
- ECM
- Display unit
- Unified meter and A/C amp.
- BCM (Body control module)
- ABS actuator and electric unit (control unit)
- IPDM E/R (Intelligent power distribution module engine room)

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

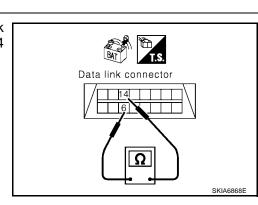
# 2. CHECK HARNESS FOR SHORTED CIRCUITS

With all module and control unit connectors disconnected, check continuity between data link connector M22 terminals 6 (L) and 14 (P).

OK or NG

OK >> GO TO 3.

NG >> Repair the harness.



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# $\overline{3}$ . Check harness for short to ground

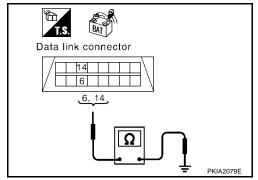
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ground.

6 (L) - Ground : Continuity should not exist. 14 (P) - Ground : Continuity should not exist.

### OK or NG

OK >> Check ECM and IPDM E/R. Refer to <u>LAN-42</u>, "Component Inspection".

NG >> Repair the harness.



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## IPDM E/R Ignition Relay Circuit Check

Check the following. If no malfunction is found, replace the IPDM E/R.

- IPDM E/R power supply 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".

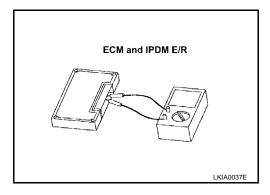
# Component Inspection ECM AND IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.

**94 - 86** : Approx.  $108 - 132 \Omega$ 

Check resistance between IPDM E/R terminals 48 and 49.

48 - 49 : Approx.  $108 - 132 \Omega$ 



PFP:23710

## **System Description**

UKS00266

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.

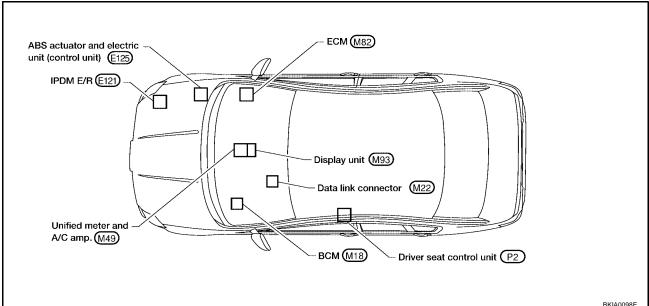
## **Component Parts and Harness Connector Location**

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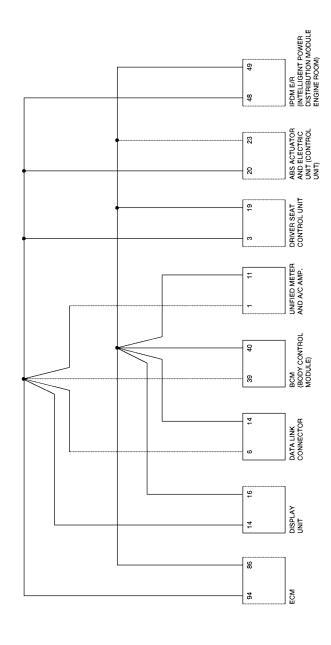
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Schematic UKS0026



Wiring Diagram - CAN -

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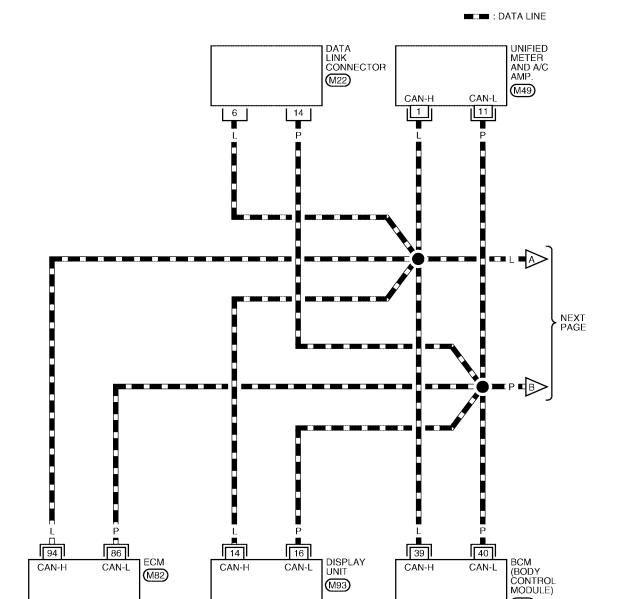
CAN-L

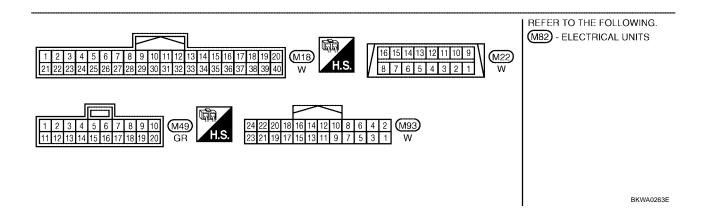
(M18)

CAN-H

(M93)

## LAN-CAN-03

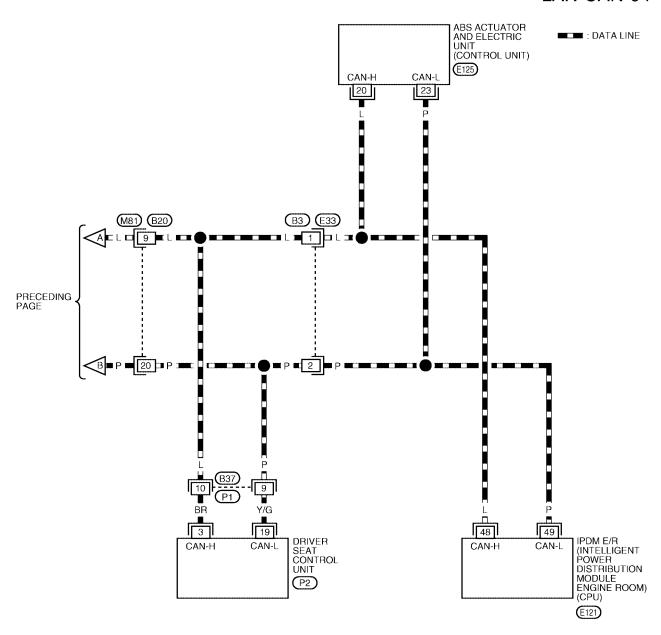


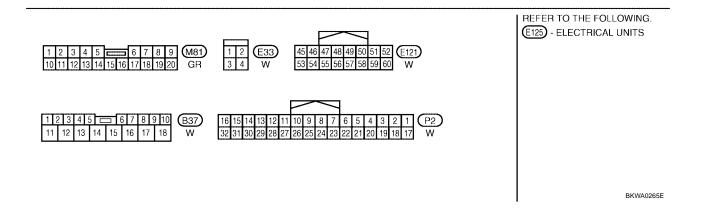


CAN-H

(M82)

## LAN-CAN-04

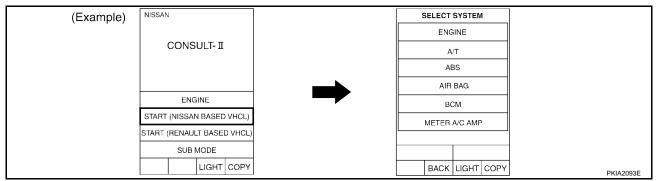




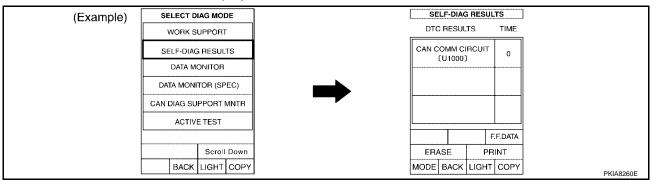
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Work Flow

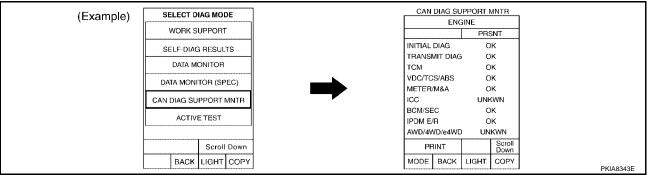
1. When there are no indications of "METER A/C AMP", "BCM", "AUTO DRIVE POS." or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



 Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



4. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks onto the items with "No indication", "NG", or "UNKWN" in the check sheet table.

					CAN DIAG	SUPPORT MNTF	diagnosis		
SELECT SYST		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	-	UNKWN
Display unit	-	CAN	CAN 1	CAN 3	-	CAN 5	CAN 2	-	CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN				1	
IPDM E/R	No indication	-	UNKWN	UNKWN			UNKWN		

### NOTE:

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

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- The "CAN DIAG SUPPORT MNTR" items which are not in check sheet table are not related to diagnostic procedure on service manual.
  - Therefore, it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- 5. Check CAN communication line of the integrated display system. Refer to <u>AV-90, "AV Communication Line Check"</u>.
- 6. Mark the "NG" or "UNKWN" item of the check sheet table from the result of CAN DIAG SUPPORT MONITOR check sheet.

### NOTE:

- If "NG" is displayed on "CAN COMM" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- 7. According to the Check Sheet Results, start inspection.

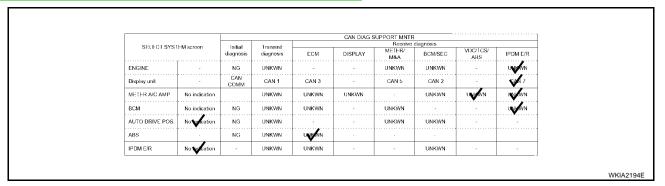
## **CHECK SHEET RESULTS (EXAMPLE)**

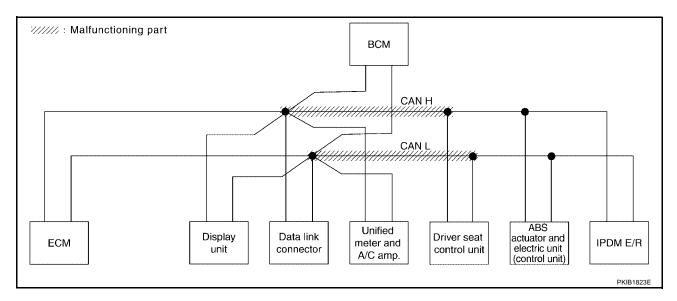
### NOTE:

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

### Case 1

Check harness between data link connector and driver seat control unit. Refer to <u>LAN-59</u>, "Circuit Check <u>Between Data Link Connector and Driver Seat Control Unit"</u>.





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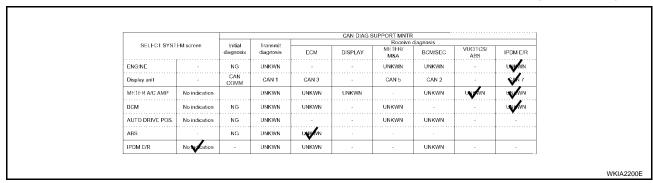
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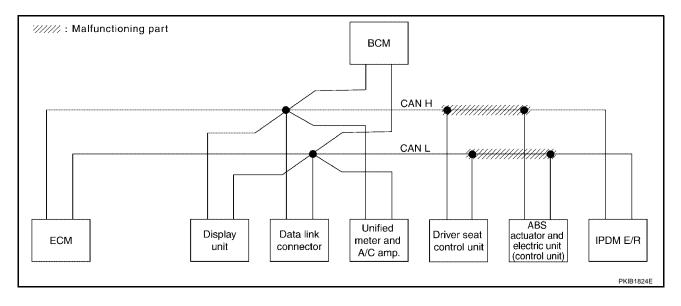
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Case 2

Check harness between driver seat control unit and ABS actuator and electric unit (control unit). Refer to <u>LAN-60</u>, "Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric Unit (Control Unit)".





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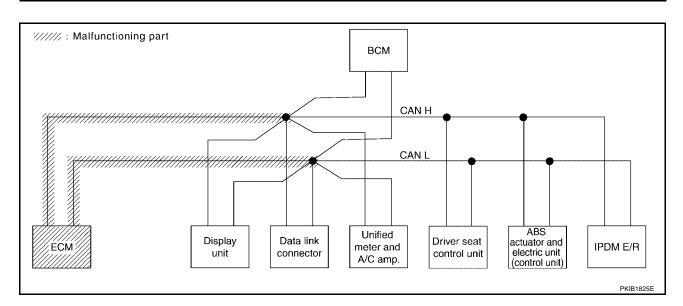
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Case 3
Check ECM circuit. Refer to <u>LAN-60</u>, "ECM Circuit Check" .

					CAN DIAG	SUPPORT MNTE			
SELECTISYST	I HM screen	Initial	Transmit				diagnosis		
		diagnosis	diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/1CS/ ABS	IPDM E/R
ENGINE	-	NG	UNIFOVN	-	-	UNIDAN	UNIXAN	-	UNIFWN
Display unit	-	CAN COMM	CAN 1	<b>€</b> /3	-	CAN 5	CAN 2	-	CAN 7
METER A/C AMP	No indication		UNKWN	UNRAN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNIFWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN		-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNIKAN					
IPDM E/R	No indication	-	UNKWN	UNIVN	-		UNKWN		-

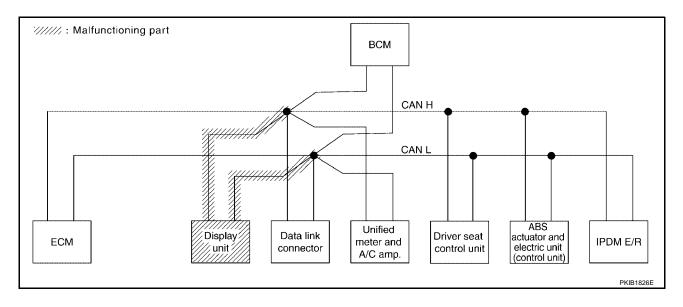


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Case 4
Check display unit circuit. Refer to <u>LAN-61</u>, "<u>Display Unit Circuit Check</u>".

					CAN DIAG 8	SUPPORT MNTF			
SELECTISTS		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/1CS/ AHS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	-	UNKWN
Display unit	-	CAN	<b>V</b> /1	<b>€</b> ⁄√3	-	€A/s	<b>W</b> 2	-	₩/r
METER A/C AMP	No indication		UNKWN	UNKWN	UNIKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN				1	
IPDM E/R	No indication	-	UNKWN	UNKWN	-		UNKWN		-



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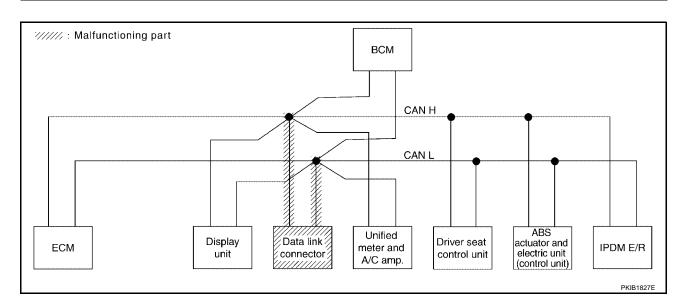
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Case 5

Check data link connector circuit. Refer to LAN-61, "Data Link Connector Circuit Check" .

					CAN DIAG 8	SUPPORT MNTF			
SELECTISTS	I-M screen	Initial	Transmit				diagnosis		
		diagnosis	diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	-	UNKWN
Display unit	-	CAN COMM	CAN 1	CAN 3	-	CAN 5	GAN 2	-	CAN 7
METER A/C AMP	Noting cation		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	Notoncation	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	Noto cation	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN				1	
IPDM E/R	Notinecation	-	UNKWN	UNKWN	-		UNKWN		-

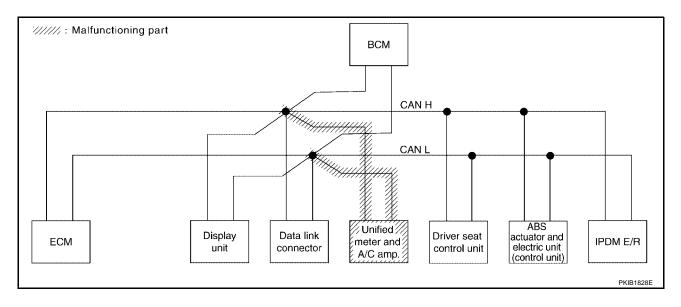


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Case 6
Check unified meter and A/C amp. circuit. Refer to <u>LAN-62</u>, "<u>Unified Meter and A/C Amp. Circuit Check</u>" .

					CAN DIAG	SUPPORT MNTF			
SELECTISTS	I FM screen	Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNIVAN	UNKWN	-	UNKWN
Display unit		CAN	CAN 1	CAN 3	-	<b>4</b> 4/5	CAN 2	-	CAN 7
METER A/C AMP	No no cation		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNIVAN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNIWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN				1	
IPDM E/R	No indication	-	UNKWN	UNKWN	-		UNKWN		



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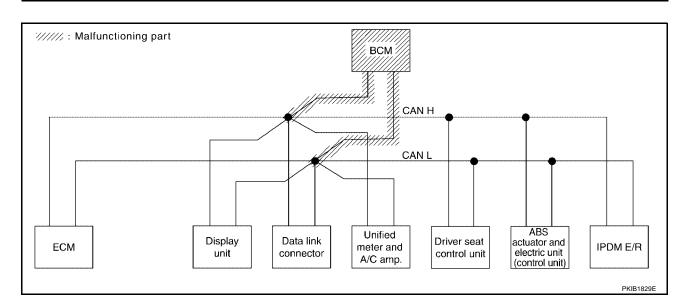
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Case 7
Check BCM circuit. Refer to <u>LAN-62</u>, "BCM Circuit Check".

					CAN DIAG	SUPPORT MNTF			
SELECT SYST	FM screen	Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ AHS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNITAN	-	UNKWN
Display unit	-	CAN	CAN 1	CAN 3	-	CAN 5	<b>V</b> 12	-	CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNIVAN	UNKWN	UNKWN
всм	No No Cation	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNIFWN	-	-
ABS		NG	UNKWN	UNKWN				1	
IPDM E/R	No indication	-	UNKWN	UNKWN	-		UNIVIN		

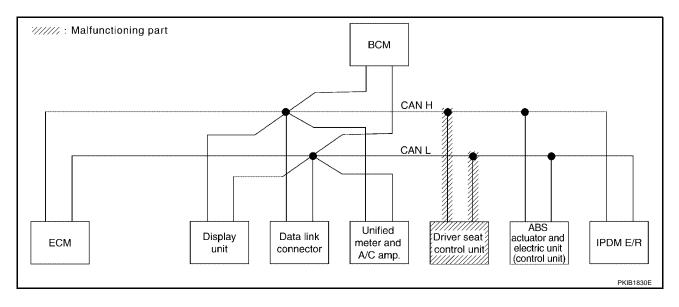


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Case 8
Check driver seat control unit circuit. Refer to <u>LAN-63</u>, "<u>Driver Seat Control Unit Circuit Check"</u>.

					CAN DIAG	SUPPORT MNTF			
SELECTISTS		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	-	UNKWN
Display unit	-	CAN	CAN 1	CAN 3	-	CAN 5	CAN 2	-	CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No tradication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN				1	
IPDM E/R	No indication	-	UNKWN	UNKWN	-		UNKWN		



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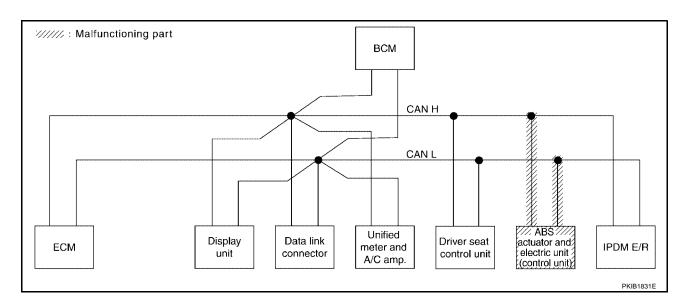
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Case 9

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-63</u>, "ABS Actuator and Electric Unit (Control Unit) Circuit Check".

					CAN DIAG	SUPPORT MNTF			
SELECT SYST	FM screen	Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/1CS/ AHS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	-	UNKWN
Display unit	-	CAN COMM	CAN 1	CAN 3	-	CAN 5	CAN 2	-	CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNKWN	UNIVAN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	DMRAN	UNIVIN				1	
IPDM E/R	No indication	-	UNKWN	UNKWN			UNKWN		-



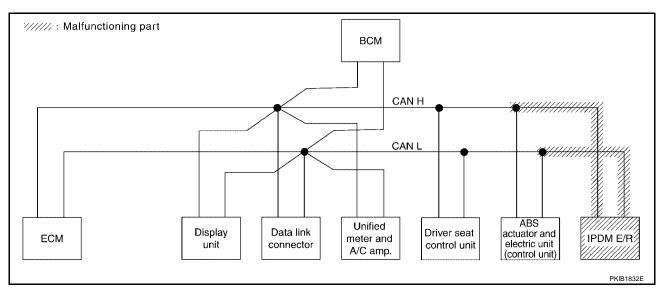
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Case 10

Check IPDM E/R circuit. Refer to LAN-64, "IPDM E/R Circuit Check" .

					CAN DIAG	SUPPORT MNTF			
SELECT SYS		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/1CS/ AHS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	-	UNITAN
Display unit	-	CAN	CAN 1	CAN 3	-	CAN 5	CAN 2	-	₩1
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	LINHWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNIFON
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN				1	
IPDM E/R	No nation	-	UNKWN	UNKWN	-		UNKWN		-



Case 11
Check CAN communication circuit. Refer to <u>LAN-64, "CAN Communication Circuit Check"</u>.

					CAN DIAG	SUPPORT MNTE			
SELECT SYST	EM screen	Initial	Transmit				diagnosis		
		diagnosis	diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/1GS/ ABS	IPDM E/F
ENGINE	-	NG	UNIFWN		-	UNITAN	UNIFWN	-	UNIFWN
Display unit	-	COMM	₩1	₩3	-	₩5	₩2	-	₩7
METER A/C AMP	No top cation		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
BCM	No to cation	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	DORENN	UNIFON				1	
IPDM E/R	No to cation	-	UNKWN	UNKWN			UNKWN		

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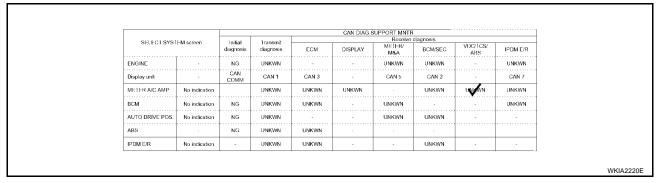
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### Case 12

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to LAN-65, "IPDM E/R Ignition Relay Circuit Check".



### Case 13

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to <u>LAN-65</u>, "IPDM E/R Ignition Relay Circuit Check".

					CAN DIAG 8	SUPPORT MNTF			
SELECT SYST	FM screen	Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	Receive METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN	-	-	UNKWN	UNKWN	-	UNKWN
Display unit	-	CAN	CAN 1	CAN 3	-	CAN 5	CAN 2	-	CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	BNIVN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-		UNKWN		-

## Circuit Check Between Data Link Connector and Driver Seat Control Unit

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## 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK or NG OK >

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between data link connector M22 terminals 6 (L), 14 (P) and driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G).

6 (L) - 3 (BR) : Continuity should exist. 14 (P) - 19 (Y/G) : Continuity should exist.

14 (1 ) 13

>> Connect all connectors and diagnose again. Refer to <u>LAN-47</u>, "Work Flow".

NG >> Repair harness.

Data link connector

Driver seat control unit connector

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# Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric Unit (Control Unit)

## 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2, ABS actuator and electric unit (control unit) connector E125 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

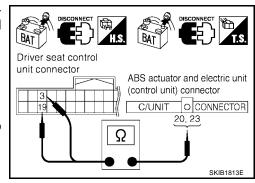
Check continuity between driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G) and ABS actuator and electric unit (control unit) connector E125 terminals 20 (L), 23 (P).

3 (BR) - 20 (L) : Continuity should exist. 19 (Y/G) - 23 (P) : Continuity should exist.

### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-47, "Work Flow".

NG >> Repair harness.



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### **ECM Circuit Check**

## 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between ECM connector M82 terminal 94 (L) and terminal 86 (P).

94 (L) - 86 (P) : Approx.  $108 - 132 \Omega$ 

### OK or NG

NG

OK >> Replace ECM.

>> Repair harness between ECM connector M82 and data link connector M22.

ECM CONNECTOR

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**Display Unit Circuit Check** 

1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect display unit connector M93.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

2. CHECK HARNESS FOR OPEN CIRCUIT

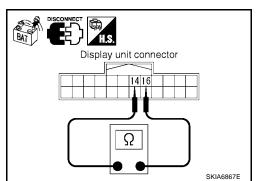
Check resistance between display unit connector M93 terminal 14 (L) and terminal 16 (P).

**14 (L) - 16 (P)** : Approx. **54 - 66** 
$$\Omega$$

OK or NG

OK >> Replace display unit.

NG >> Repair harness between display unit connector M93 and data link connector M22.



**Data Link Connector Circuit Check** 

1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check data link connector M22 terminals for deformation, disconnection, looseness or damage.

OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

2. CHECK HARNESS FOR OPEN CIRCUIT

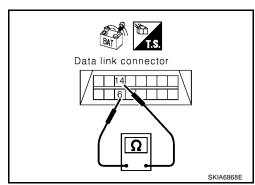
Check resistance between data link connector M22 terminal 6 (L) and terminal 14 (P).

6 (L) - 14 (P) : Approx. 54 - 66 
$$\Omega$$

OK or NG

OK >> Diagnose again. Refer to LAN-47, "Work Flow".

NG >> Repair harness between data link connector M22 and BCM connector M18.



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## Unified Meter and A/C Amp. Circuit Check

## 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect unified meter and A/C amp. connector M49.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. check harness for open circuit

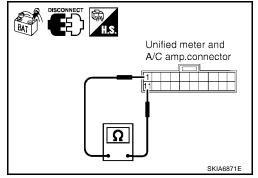
Check resistance between unified meter and A/C amp. connector M49 terminal 1 (L) and terminal 11 (P).

: Approx. 54 - 66  $\Omega$ 

### OK or NG

OK >> Replace unified meter and A/C amp.

NG >> Repair harness between unified meter and A/C amp. connector M49 and data link connector M22.



## **BCM Circuit Check**

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## 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect BCM connector M18.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between BCM connector M18 terminal 39 (L) and terminal 40 (P).

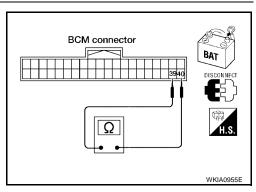
: Approx. 54 - 66  $\Omega$ 

### OK or NG

OK >> Replace BCM.

NG

>> Repair harness between BCM connector M18 and data link connector M22.



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## **Driver Seat Control Unit Circuit Check**

## 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

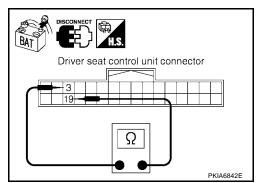
Check resistance between driver seat control unit connector P2 terminal 3 (BR) and terminal 19 (Y/G).

3 (BR) - 19 (Y/G) : Approx. 54 - 66 
$$\Omega$$

### OK or NG

OK >> Replace driver seat control unit.

NG >> Repair harness between driver seat control unit connector P2 and data link connector M22.



## **ABS Actuator and Electric Unit (Control Unit) Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ABS actuator and electric unit (control unit) connector E125.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between ABS actuator and electric unit (control unit) connector E125 terminal 20 (L) and terminal 23 (P).

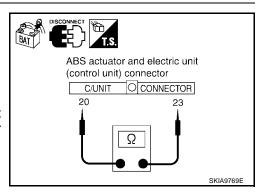
**20** (L) - **23** (P) : Approx. **54** - **66** 
$$\Omega$$

### OK or NG

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

NG >> Repair harness between ABS actuator and electric unit (control unit) connector E125 and IPDM E/R connector

(Control un E121.



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### **IPDM E/R Circuit Check**

## 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect IPDM E/R connector E121.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between IPDM E/R connector E121 terminal 48 (L) and terminal 49 (P).

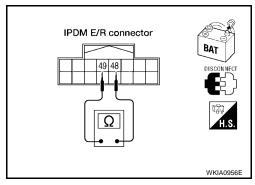
48 (L) - 49 (P) : Approx. 
$$108 - 132 \Omega$$

### OK or NG

NG

OK >> Replace IPDM E/R.

>> Repair harness between IPDM E/R connector E121 and ABS actuator and electric unit (control unit) connector E125.



### **CAN Communication Circuit Check**

## 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect the following module and control unit connectors and check terminals for deformation, disconnection, looseness or damage.
- ECM
- Display unit
- Unified meter and A/C amp.
- BCM (Body control module)
- Driver seat control unit
- ABS actuator and electric unit (control unit)
- IPDM E/R (Intelligent power distribution module engine room)

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

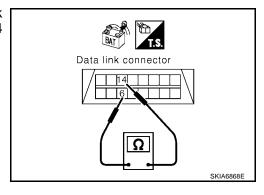
## 2. CHECK HARNESS FOR SHORTED CIRCUITS

With all module and control unit connectors disconnected, check continuity between data link connector M22 terminals 6 (L) and 14 (P).

### OK or NG

OK >> GO TO 3.

NG >> Repair the harness.



# 3. CHECK HARNESS FOR SHORT TO GROUND

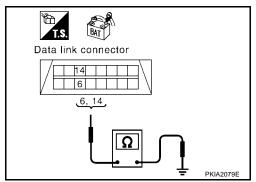
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ground.

6 (L) - Ground : Continuity should not exist. 14 (P) - Ground : Continuity should not exist.

### OK or NG

OK >> Check ECM and IPDM E/R. Refer to <u>LAN-65, "Component Inspection"</u>.

NG >> Repair the harness.



## IPDM E/R Ignition Relay Circuit Check

Check the following. If no malfunction is found, replace the IPDM E/R.

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

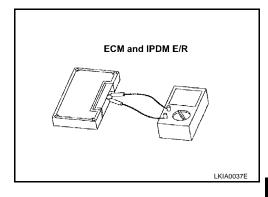
### Component Inspection ECM AND IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.

**94 - 86** : Approx.  $108 - 132 \Omega$ 

Check resistance between IPDM E/R terminals 48 and 49.

**48 - 49** : Approx. 108 - 132  $\Omega$ 



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## **CAN SYSTEM (TYPE 3)**

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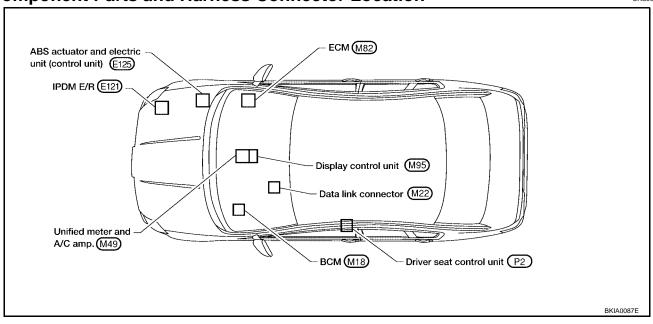
## **System Description**

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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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Schematic UKS0026Q

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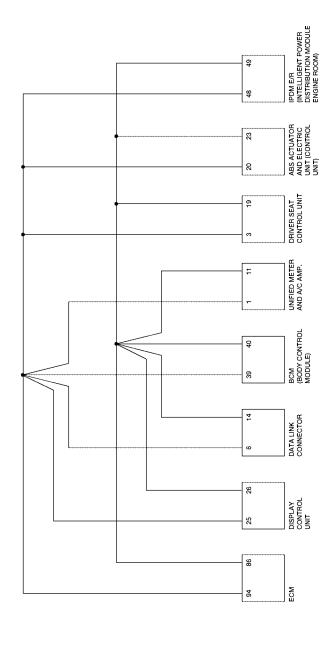
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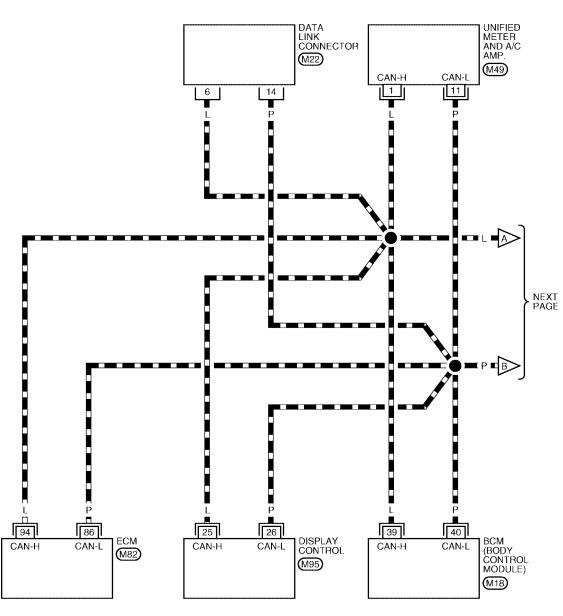
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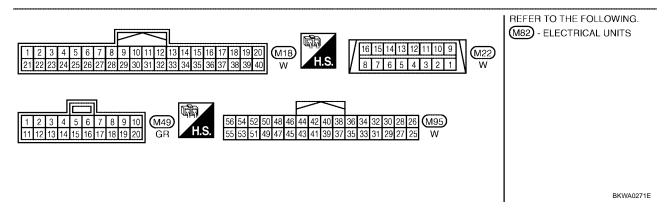
Wiring Diagram - CAN -

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## LAN-CAN-05

: DATA LINE





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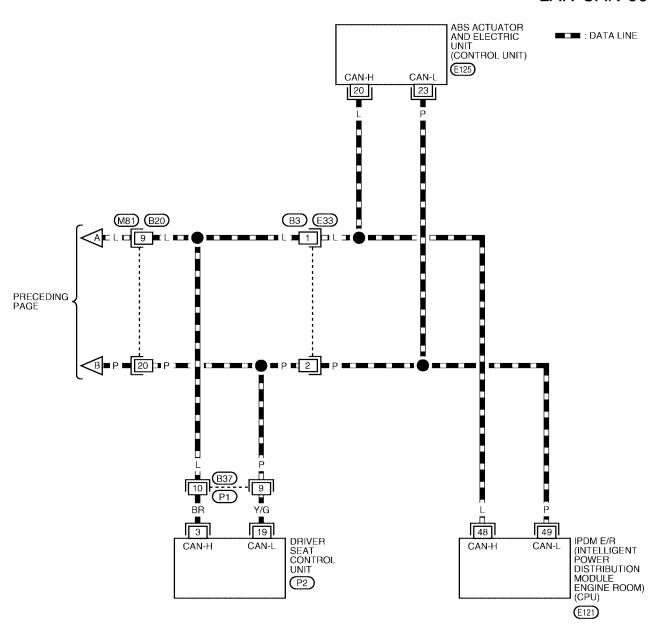
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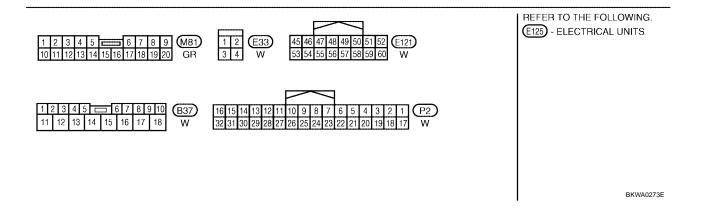
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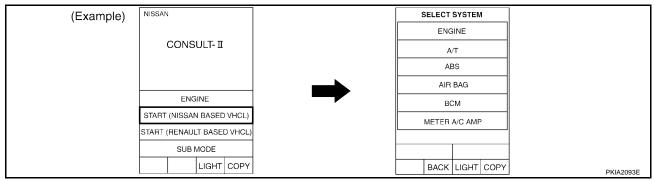
## LAN-CAN-06



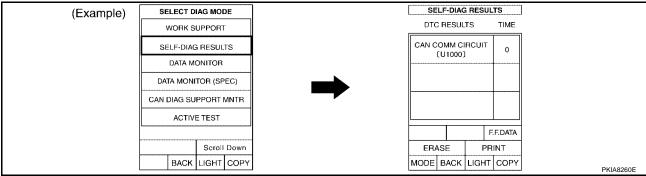


Work Flow

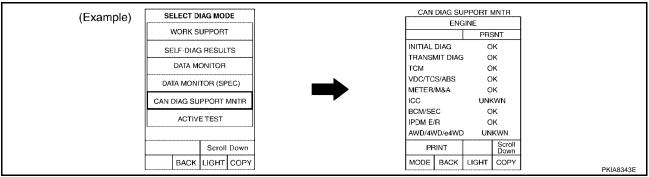
 When there are no indications of "METER A/C AMP", "BCM", "AUTO DRIVE POS." or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



2. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



4. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks onto the items with "No indication", "NG", or "UNKWN" in the check sheet table.

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR Receive diagnosis							
		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/1CS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	-	UNKWN
Display control unit	-	CAN	GAN CIRC 1	CAN CIRC 3	-	CAN CIRC 5	CAN CIRC 2	-	CAN CIRC
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-		UNKWN		

#### 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]

- The "CAN DIAG SUPPORT MNTR" items which are not in check sheet table are not related to diagnostic procedure on service manual.
  - Therefore, it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- 5. Check CAN communication line of the navigation system.
- 6. Mark the "NG" or "UNKWN" item of the check sheet table from the result of CAN DIAG SUPPORT MONITOR check sheet.

### NOTE:

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

7. According to the Check Sheet Results, start inspection.

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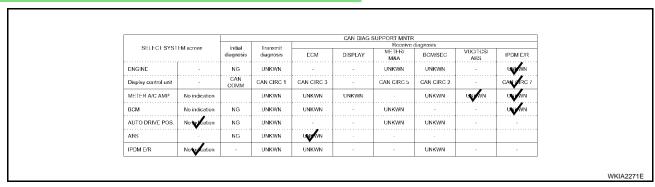
## **CHECK SHEET RESULTS (EXAMPLE)**

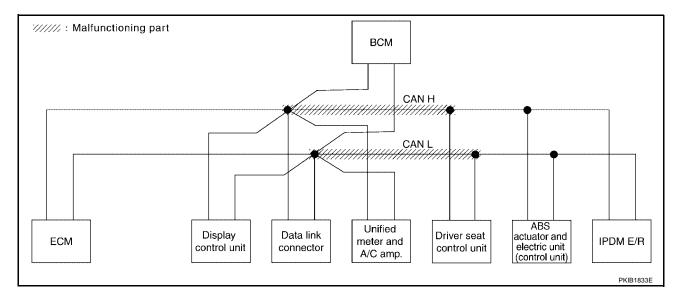
### NOTE:

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

### Case 1

Check harness between data link connector and driver seat control unit. Refer to <u>LAN-82</u>, "Circuit Check <u>Between Data Link Connector and Driver Seat Control Unit"</u>.





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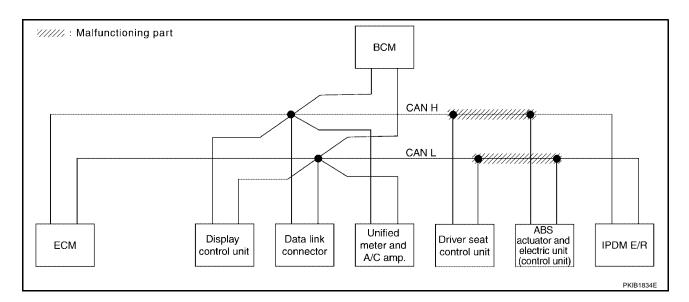
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Case 2

Check harness between driver seat control unit and ABS actuator and electric unit (control unit). Refer to <a href="LAN-83">LAN-83</a>, "Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric Unit (Control Unit)".

					CAN DIAG	SUPPORT MNTR			
SELECTISYS		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/16S/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	-	UNIVAN
Display control unit	-	CAN	CAN CIRC 1	CAN CIRC 3	-	CAN CIRC 5	CAN CIRC 2	-	CAN ARC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNKWN	UNIVN	UNIVIN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNIVAN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNIFON					
IPDM E/R	No topication	-	UNKWN	UNKWN	-		UNKWN		-

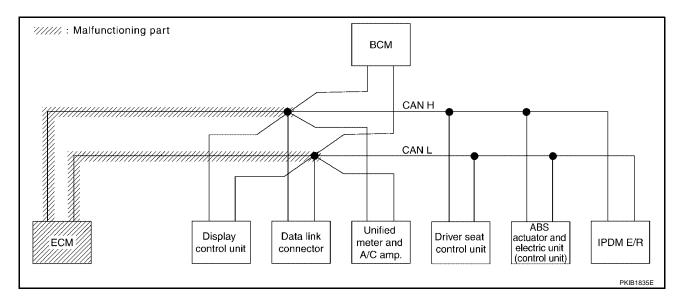


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Case 3
Check ECM circuit. Refer to <u>LAN-83</u>, "ECM Circuit Check".

			1		CAN DIAG	SUPPORT MNTR			
SELECTISTS		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	Receive METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNIVAN	-	-	UNIVAN	UNIKWN	-	UNIVAN
Display control unit	-	CAN COMM	CAN CIRC 1	CAN FIRC 3	-	CAN CIRC 5	CAN CIRC 2	-	CAN CIRC /
METER A/C AMP	No indication		UNKWN	UNIVAN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNIVAN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNIFWN					
IPDM E/R	No indication	-	UNKWN	UNIVERN	-		UNKWN		



### **CAN SYSTEM (TYPE 3)**

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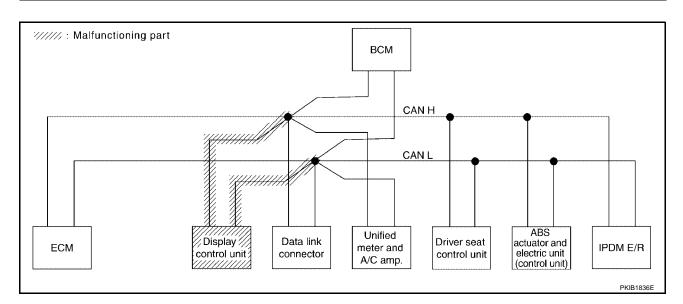
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Case 4
Check display control unit circuit. Refer to <u>LAN-84</u>, "<u>Display Control Unit Circuit Check"</u>.

					CAN DIAG	SUPPORT MNTF			
SELECTISTS	I HM screen	Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	-	UNKWN
Display control unit	-	CAN	CAN O'RC 1	CAN FIRC 3		CAN PRC 5	CAN PRO 2	-	CAN PIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNIFOVN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-		UNKWN	-	

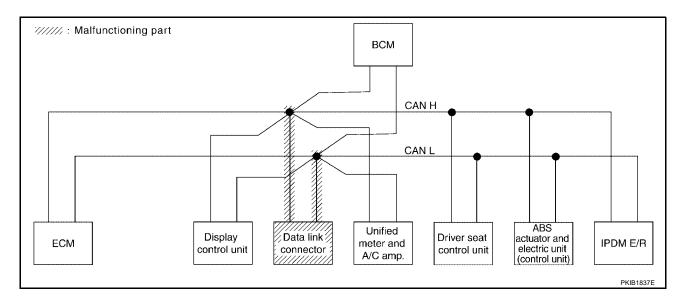


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Case 5
Check data link connector circuit. Refer to <u>LAN-84</u>, "<u>Data Link Connector Circuit Check</u>" .

					CAN DIAG	SUPPORT MNTR			
SELECTISTS	HM screen	Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	Receive METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	-	UNKWN
Display control unit		CAN	CAN CIRC 1	CAN CIRC 3	-	CAN CIRC 5	CAN CIRC 2	-	CAN GIRC /
METER A/C AMP	No to cation		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No valcation	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No to Cation	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN					
IPDM E/R	No top cation	-	UNKWN	UNKWN	-		UNKWN		



### **CAN SYSTEM (TYPE 3)**

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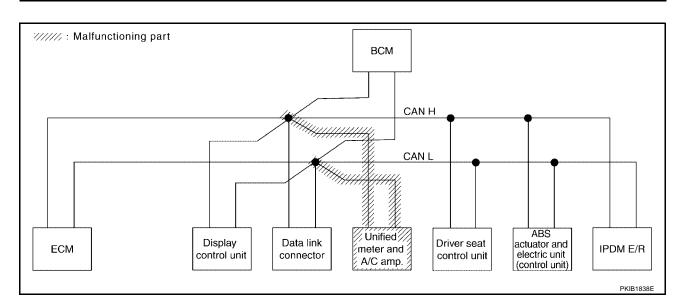
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Case 6

Check unified meter and A/C amp. circuit. Refer to LAN-85, "Unified Meter and A/C Amp. Circuit Check" .

					CAN DIAG	SUPPORT MNTF			
SELECT SYST		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNIVAN	UNKWN	-	UNKWN
Display control unit	-	CAN	CAN CIRC 1	CAN CIRC 3	-	CAN ORC 5	CAN CIRC 2	-	CAN CIRC /
METER A/C AMP	No resication		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNIFON	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNISAN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-		UNKWN		-

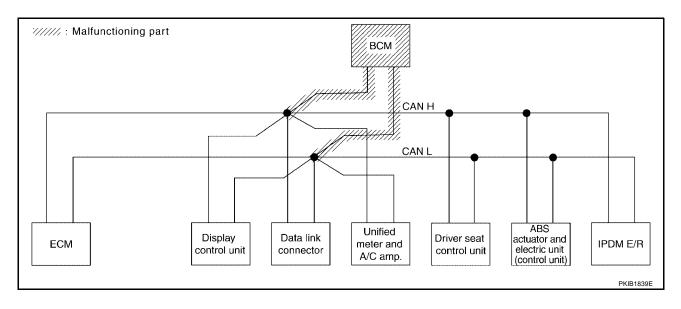


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Case 7
Check BCM circuit. Refer to <u>LAN-85</u>, "BCM Circuit Check".

-					CAN DIAG	SUPPORT MNTR			
SELECT SYST	I FM screen	Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNIVAN	-	UNKWN
Display control unit	-	CAN	CAN CIRC 1	CAN CIRC 3	-	CAN CIRC 5	CAN FIRC 2	-	CAN CIRC /
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNIVAN	UNKWN	UNKWN
всм	No to cation	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNIVIN	-	-
ABS		NG	UNKWN	UNKWN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-		UNIVN		-



### **CAN SYSTEM (TYPE 3)**

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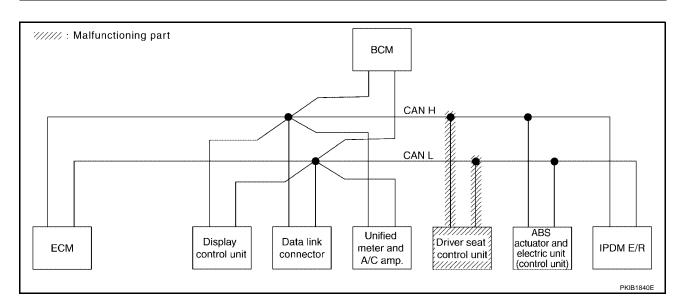
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Case 8
Check driver seat control unit circuit. Refer to <u>LAN-86</u>, "<u>Driver Seat Control Unit Circuit Check"</u>.

					CAN DIAG	SUPPORT MNTF			
SELECTISYS	I FM screen	Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/1CS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	-	UNKWN
Display control unit	-	CAN	CAN CIRC 1	CAN CIRC 3	-	CAN CIRC 5	CAN CIRC 2	-	CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No outcation	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN		

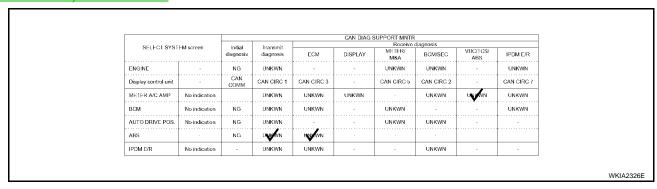


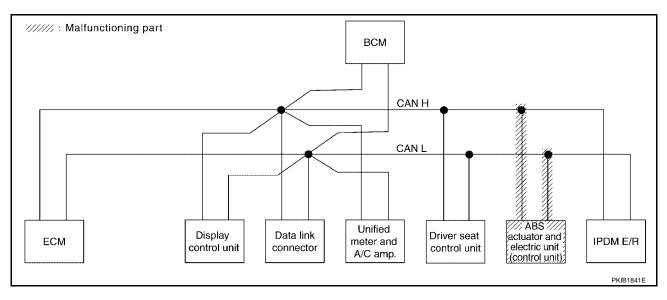
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Case 9

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-86</u>, "ABS Actuator and Electric Unit (Control Unit) Circuit Check".





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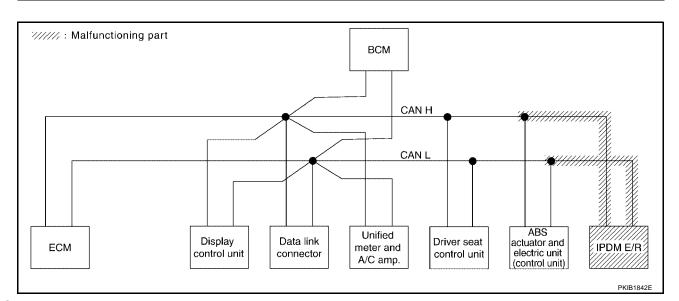
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Case 10

Check IPDM E/R circuit. Refer to LAN-87, "IPDM E/R Circuit Check" .

					CAN DIAG	SUPPORT MNTR			
SELECTISTS		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	-	UNITAN
Display control unit	-	CAN	CAN CIRC 1	CAN CIRC 3	-	CAN CIRC 5	CAN CIRC 2	-	CAN PIRC ?
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNIVAN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNIVEN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN					
IPDM E/R	No tractation	-	UNKWN	UNKWN	-		UNKWN		-



Case 11

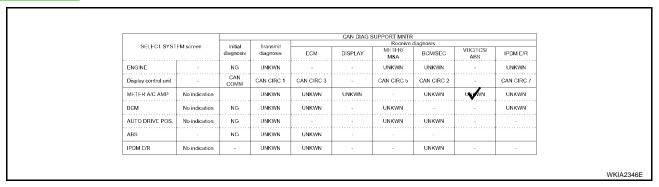
Check CAN communication circuit. Refer to LAN-87, "CAN Communication Circuit Check" .

			1		CAN DIAG	SUPPORT MNTF			
SELECTISTS		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/1GS/ ABS	IPDM E/R
ENGINE	-	NG	UNIFWN	-	-	UNIFON	UNIVAN	-	UNIVAN
Display control unit		COMM	CAN OTEC 1	CAN ORC 3	-	CAN PRC 5	CAN PIRC 2	-	CAN FRO 7
METER A/C AMP	No residention		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No hydication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.		NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	DAIRAN	DNRWN				1	
IPDM E/R	No traction	-	UNKWN	UNKWN			UNKWN		

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#### Case 12

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to LAN-88, "IPDM E/R Ignition Relay Circuit Check".



#### Case 13

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to LAN-88, "IPDM E/R Ignition Relay Circuit Check".

					CAN DIAG	SUPPORT MNTR			
SELECT SYS	I HM screen	Initial	Transmit			METER/	diagnosis	1430/100/	
		diagnosis	diagnosis	ECM	DISPLAY	M8.A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	-	UNKWN
Display control unit	-	CAN COMM	CAN CIRC 1	CAN CIRC 3	-	CAN CIRC 5	CAN CIRC 2	-	CAN GIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNIVAN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-		UNKWN		-

### Circuit Check Between Data Link Connector and Driver Seat Control Unit

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### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

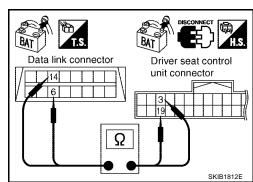
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G).

6 (L) - 3 (BR) : Continuity should exist. 14 (P) - 19 (Y/G) : Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-70, "Work Flow" .

NG >> Repair harness.



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#### Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric **Unit (Control Unit)** LIKS0026L

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect driver seat control unit connector P2, ABS actuator and electric unit (control unit) connector E125 and ECM connector M82.
- Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G) and ABS actuator and electric unit (control unit) connector E125 terminals 20 (L), 23 (P).

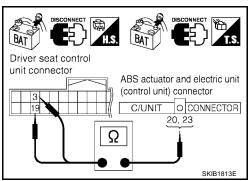
> 3 (BR) - 20 (L) 19 (Y/G) - 23 (P)

: Continuity should exist. : Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-70, "Work Flow".

NG >> Repair harness.



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### **ECM Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF. 1.
- 2. Disconnect the negative battery terminal.
- Disconnect ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between ECM connector M82 terminal 94 (L) and terminal 86 (P).

> 94 (L) - 86 (P) : Approx. 108 - 132  $\Omega$

#### OK or NG

NG

OK >> Replace ECM.

> >> Repair harness between ECM connector M82 and data link connector M22.

ECM connector CONNECTOR **FCM** 86 PKIA0816E

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**Display Control Unit Circuit Check** 

### 1. CONNECTOR INSPECTION

Turn ignition switch OFF.

- 2. Disconnect the negative battery terminal.
- Disconnect display control unit connector M95.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

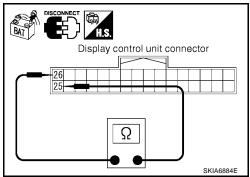
Check resistance between display control unit connector M95 terminal 25 (L) and terminal 26 (P).

**25 (L) - 26 (P)** : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace display control unit.

NG >> Repair harness between display control unit connector M95 and data link connector M22.



### **Data Link Connector Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- Disconnect the negative battery terminal.
- 3. Check data link connector M22 terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M22 terminal 6 (L) and terminal 14 (P).

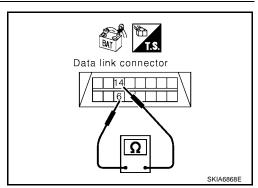
6 (L) - 14 (P) : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

NG

OK >> Diagnose again. Refer to LAN-70, "Work Flow".

>> Repair harness between data link connector M22 and BCM connector M18.



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# Unified Meter and A/C Amp. Circuit Check

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect unified meter and A/C amp. connector M49.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

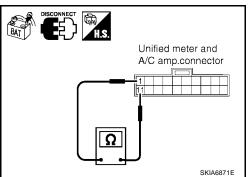
Check resistance between unified meter and A/C amp. connector M49 terminal 1 (L) and terminal 11 (P).

**1 (L) - 11 (P)** : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace unified meter and A/C amp.

NG >> Repair harness between unified meter and A/C amp. connector M49 and data link connector M22.



### **BCM Circuit Check**

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect BCM connector M18.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between BCM connector M18 terminal 39 (L) and terminal 40 (P).

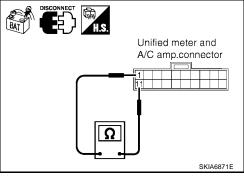
**39 (L) - 40 (P)** : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace BCM.

NG

>> Repair harness between BCM connector M18 and data link connector M22.



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**Driver Seat Control Unit Circuit Check** 

### 1. CONNECTOR INSPECTION

1. Turn ignition switch OFF.

- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between driver seat control unit connector P2 terminal 3 (BR) and terminal 19 (Y/G).

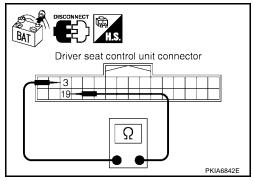
: Approx. 54 - 66  $\Omega$ 

#### OK or NG

OK >> Replace driver seat control unit.

NG

>> Repair harness between driver seat control unit connector P2 and data link connector M22.



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

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### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ABS actuator and electric unit (control unit) connector E125.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between ABS actuator and electric unit (control unit) connector E125 terminal 20 (L) and terminal 23 (P).

: Approx. 54 - 66  $\Omega$ 

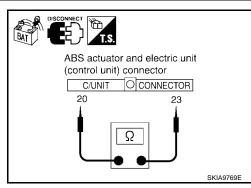
#### OK or NG

OK :

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

NG

>> Repair harness between ABS actuator and electric unit (control unit) connector E125 and IPDM E/R connector E121.



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**IPDM E/R Circuit Check** 

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect IPDM E/R connector E121.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between IPDM E/R connector E121 terminal 48 (L) and terminal 49 (P).

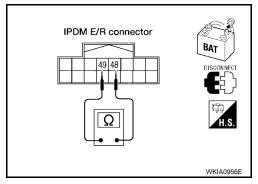
48 (L) - 49 (P) : Approx. 108 - 132 
$$\Omega$$

OK or NG

NG

OK >> Replace IPDM E/R.

> >> Repair harness between IPDM E/R connector E121 and ABS actuator and electric unit (control unit) connector E125.



### **CAN Communication Circuit Check**

1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect the following module and control unit connectors and check terminals for deformation, disconnection, looseness or damage.
- **ECM**
- Display control unit
- Unified meter and A/C amp.
- BCM (Body control module)
- Driver seat control unit
- ABS actuator and electric unit (control unit)
- IPDM E/R (Intelligent power distribution module engine room)

OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

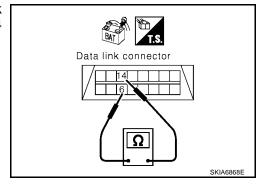
### 2. CHECK HARNESS FOR SHORTED CIRCUITS

With all module and control unit connectors disconnected, check continuity between data link connector M22 terminals 6 (L) and 14 (P).

OK or NG

OK >> GO TO 3.

NG >> Repair the harness.



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# 3. CHECK HARNESS FOR SHORT TO GROUND

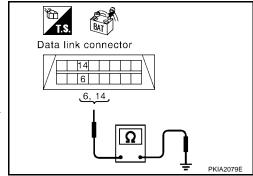
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ground.

6 (L) - Ground : Continuity should not exist. 14 (P) - Ground : Continuity should not exist.

#### OK or NG

OK >> Check ECM and IPDM E/R. Refer to <u>LAN-88</u>, "Component Inspection".

NG >> Repair the harness.



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### IPDM E/R Ignition Relay Circuit Check

Check the following. If no malfunction is found, replace the IPDM E/R.

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

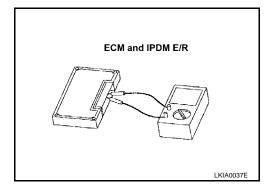
# Component Inspection ECM AND IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.

**94 - 86** : Approx.  $108 - 132 \Omega$ 

• Check resistance between IPDM E/R terminals 48 and 49.

**48 - 49** : Approx. 108 - 132  $\Omega$ 



### **CAN SYSTEM (TYPE 4)**

PFP:23710

### **System Description**

UKS00276

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.

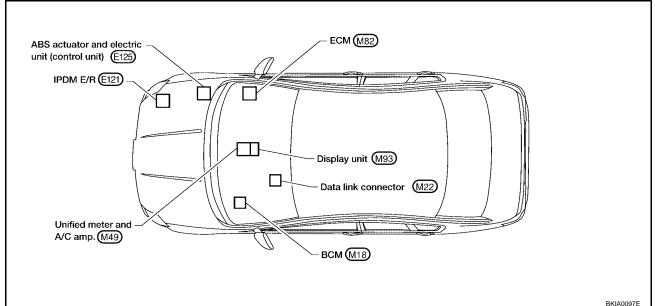
### **Component Parts and Harness Connector Location**

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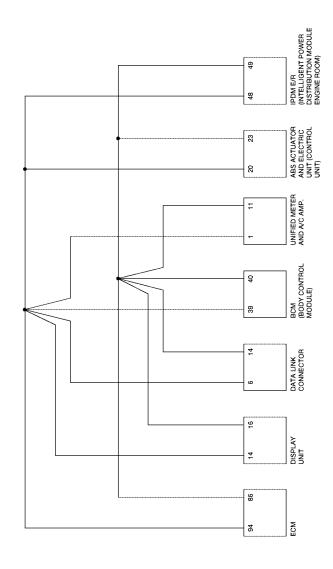


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Revision: July 2005 LAN-89 2005 Maxima

Schematic UKS00278



Wiring Diagram - CAN -

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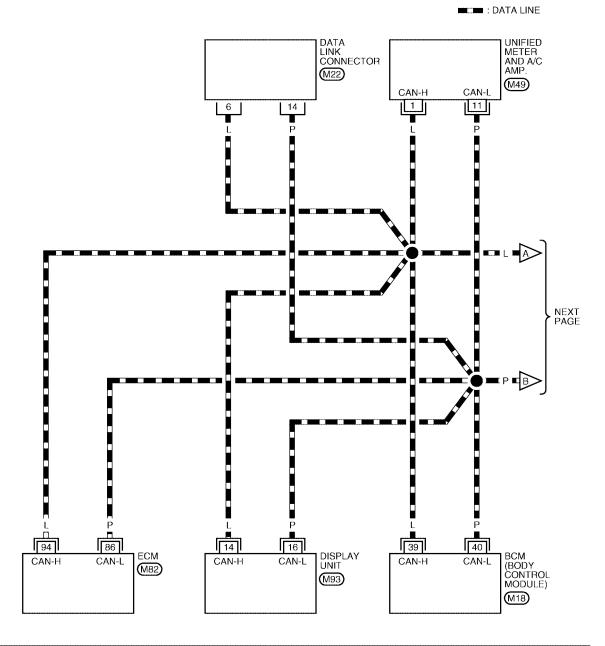
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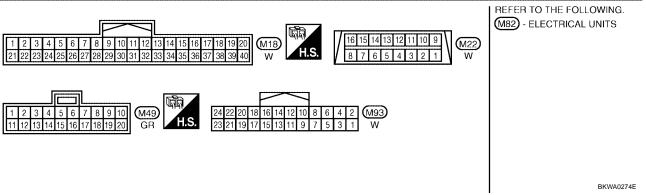
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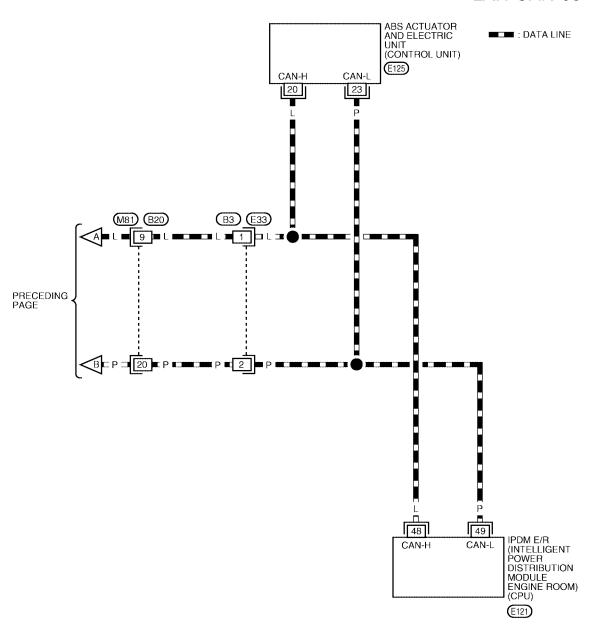
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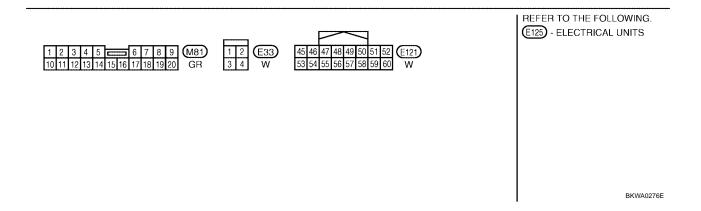
### LAN-CAN-07





### LAN-CAN-08

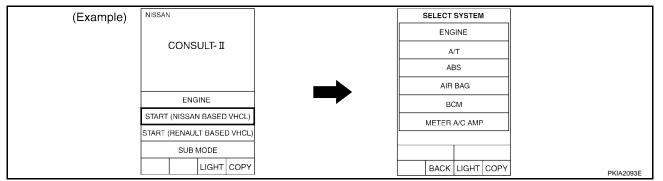




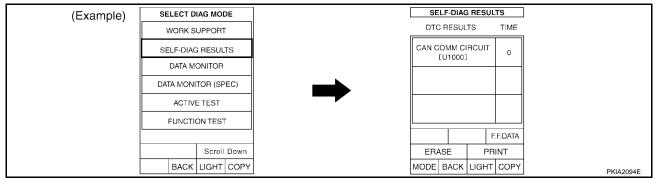
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Work Flow

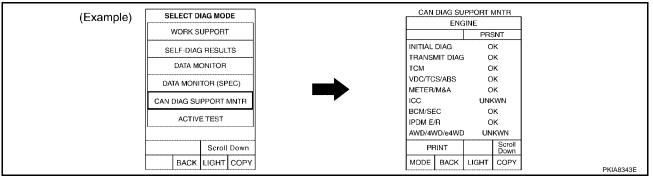
1. When there are no indications of "METER A/C AMP", "BCM" or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



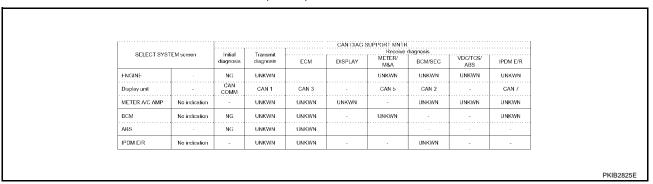
 Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "METER A/C AMP", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "METER A/C AMP", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



4. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks onto the items with "No indication", "NG", or "UNKWN" in the check sheet table.



#### 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 SYSTEM (TYPE 4)**

[CAN]

- The "CAN DIAG SUPPORT MNTR" items which are not in check sheet table are not related to diagnostic procedure on service manual.
  - Therefore, it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- 5. Check CAN communication line of the integrated display system. Refer to <u>AV-90, "AV Communication Line Check"</u>.
- 6. Mark the "NG" or "UNKWN" item of the check sheet table from the result of CAN DIAG SUPPORT MONITOR check sheet.

#### NOTE:

- If "NG" is displayed on "CAN COMM" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- 7. According to the Check Sheet Results, start inspection.

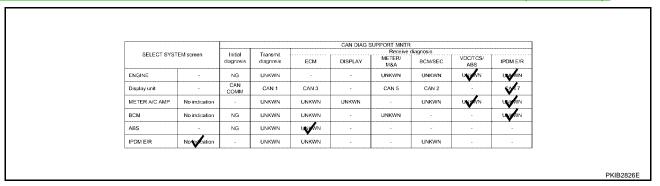
### **CHECK SHEET RESULTS (EXAMPLE)**

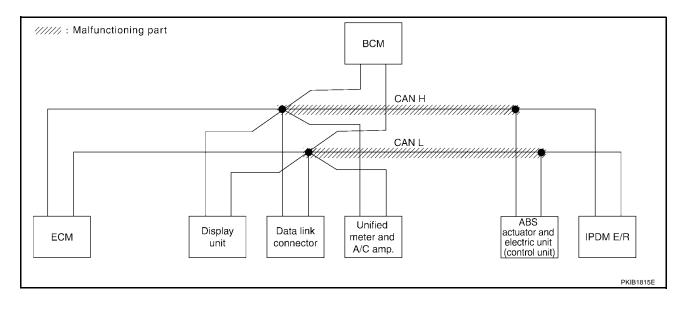
#### NOTE:

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

#### Case 1

Check harness between data link connector and ABS actuator and electric unit (control unit). Refer to <u>LAN-103</u>, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit)".





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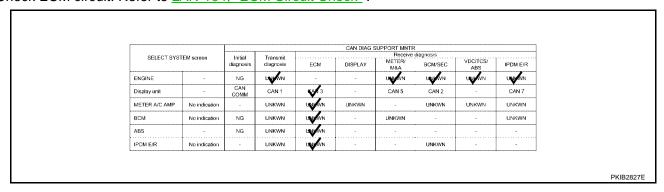
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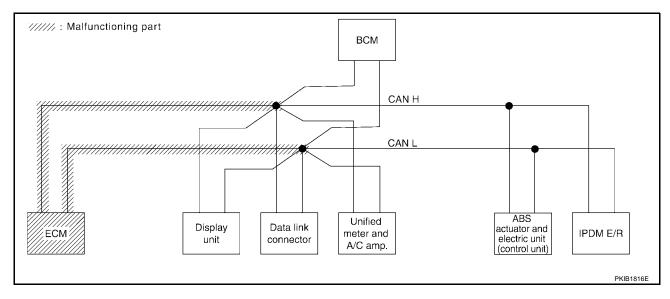
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Case 2
Check ECM circuit. Refer to <u>LAN-104, "ECM Circuit Check"</u>.





### **CAN SYSTEM (TYPE 4)**

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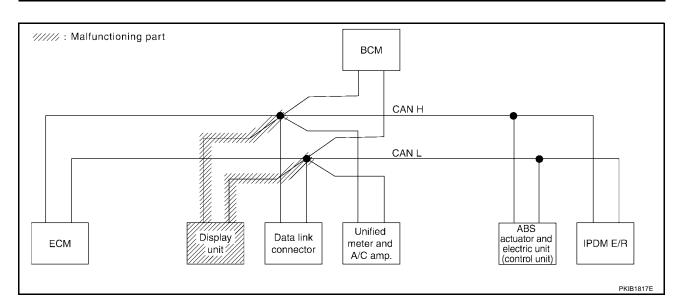
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Case 3
Check display unit circuit. Refer to <u>LAN-104</u>, "<u>Display Unit Circuit Check"</u>.

					CAN DIAG S	SUPPORT MNTE			
SELECT SYS	TEM screen	Initial	Transmit				diagnosis		
OCCCOT 010	- Lift Marcoll	diagnosis	diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	UNKWN	UNKWN
Display unit	-	CAN COMM	<b>W</b> 1	<b>W</b> 3	-	<b>44</b> /5	<b>√</b> 12	-	<b>4</b> /7
METER A/C AMP	No indication	-	UNKWN	UNKWN	UNISWN	-	UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
ABS	-	NG	UNKWN	UNKWN	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNK₩N	-	-	UNKWN		-

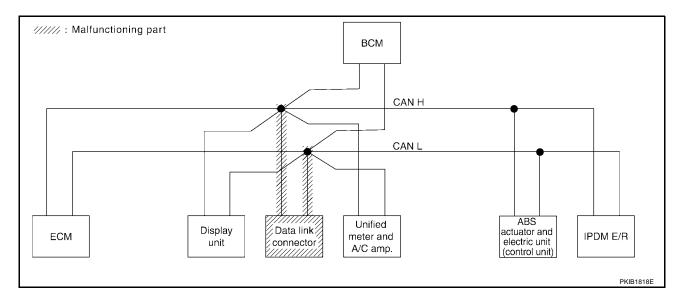


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Case 4
Check data link connector circuit. Refer to <u>LAN-105</u>, "<u>Data Link Connector Circuit Check"</u>.

						SUPPORT MNTR			
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	FCM	DISPLAY	Receive METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPOM F/F
ENGINE	-	NG	UNKWN		-	UNKWN	UNKWN	UNKWN	UNKWN
Display unit	-	CAN COMM	CAN 1	CAN 3	-	CAN 5	CAN 2	-	CAN 7
METER A/C AMP	Notation	-	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	UNKWN
всм	Nonacation	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
ABS	-	NG	UNKWN	UNKWN	-	-	-	-	-
IPDM E/R	Notation	-	UNKWN	UNKWN	-	-	UNKWN	-	-



### **CAN SYSTEM (TYPE 4)**

[CAN]

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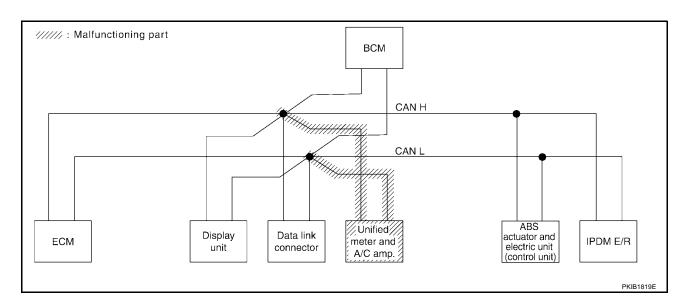
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Case 5

Check unified meter and A/C amp. circuit. Refer to LAN-105, "Unified Meter and A/C Amp. Circuit Check" .

				·	CAN DIAG SUPPORT MNTR Receive diagnosis						
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R		
ENGINE	-	NG	UNKWN	-	-	UNIVAN	UNKWN	UNKWN	UNKWN		
Display unit		CAN COMM	CAN 1	CAN 3		W/5	GAN 2		CAN 7		
METER A/C AMP	No toxication	-	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN		
всм	No indication	NG	UNKWN	UNKWN	,	UNIVAN		-	UNKWN		
ABS	-	NG	UNKWN	UNKWN	-	-	-	-	-		
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-		

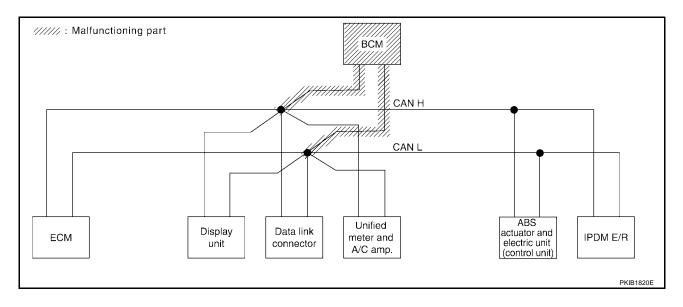


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Case 6
Check BCM circuit. Refer to <u>LAN-106, "BCM Circuit Check"</u>.

				CAN DIAG SUPPORT MNTR Receive diagnosis							
SELECT SYS		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R		
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNIVEN	UNKWN	UNKWN		
Display unit	-	CAN COMM	CAN 1	CAN 3	-	CAN 5	<b>V</b> 12	-	CAN 7		
METER A/C AMP	No indication	-	UNKWN	UNKWN	UNKWN	-	UNIVAN	UNKWN	UNKWN		
ВСМ	No volcation	NG	UNKWN	UNKWN	-	UNKWN		-	UNKWN		
ABS	-	NG	UNKWN	UNKWN	-		-	-			
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNIMAN	-			



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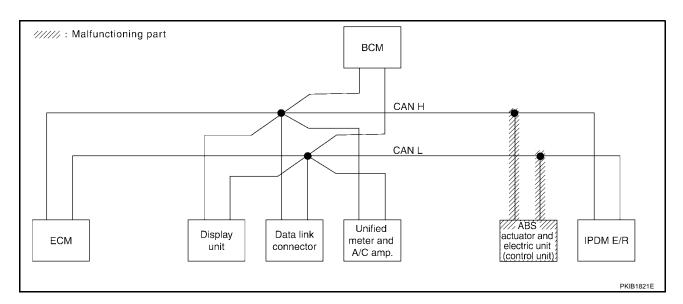
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Case 7

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-106</u>, "ABS Actuator and Electric Unit (Control Unit) Circuit Check".

					CAN DIAG	SUPPORT MNTF			
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ ABS	IPDM E/I
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	UNIVN	UNKWN
Display unit	-	CAN COMM	CAN 1	CAN 3	-	CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication	-	UNKWN	UNKWN	UNKWN	-	UNKWN	UNIVAN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-		UNKWN
ABS	-	NG	UNIFORM	UNIVAN	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-

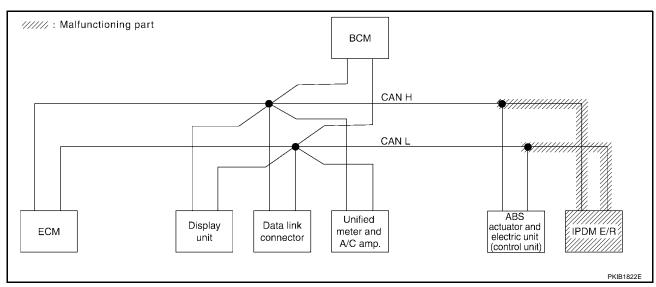


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Case 8
Check IPDM E/R circuit. Refer to <u>LAN-107</u>, "IPDM E/R Circuit Check" .

			r	1	CAN DIAG S	SUPPORT MNT			
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN	-		UNKWN	UNKWN	UNKWN	UNIVN
Display unit	-	CAN COMM	CAN 1	CAN 3		CAN 5	CAN 2	-	<b>₩</b> 17
METER A/C AMP	No indication	-	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNIVAN
всм	No indication	NG	UNKWN	UNKWN		UNKWN	-	-	UNIWN
ABS		NG	UNKWN	UNKWN	*	-		-	-
IPDM E/R	Notoscation	-	UNKWN	UNKWN	+		UNKWN	-	-

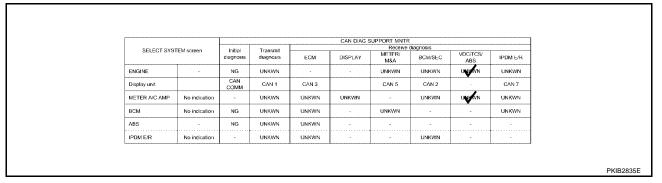


Case 9
Check CAN communication circuit. Refer to <u>LAN-107</u>, "CAN Communication Circuit Check".

					CAN DIAG :	SUPPORT MNTE			
SELECT SYS	TEM screen	Initial	Transmit		r	Receive	diagnosis	VDC/TCS/	· · · · · · · · · · · · · · · · · · ·
		diagnosis	diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	ABS	IPDM E/
ENGINE		NG	UNIVN	-	-	UNIVN	UNIVAN	UNIVEN	UNIVA
Display unit	-	CAN	<b>4</b> /1	<b>€</b> ⁄√13	-	€4/5	W/2		<b>V</b> 17
METER A/C AMP	No natication	-	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	UNKWN
BCM	No ne cation	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
ABS	-	NG	UNIVAN	UNIWN	-	-	-	-	-
IPDM E/R	No so cation	-	UNKWN	UNKWN	-	İ	UNKWN		-

#### Case 10

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-108</u>, "IPDM E/R Ignition Relay <u>Circuit Check"</u>.



#### Case 11

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to LAN-108, "IPDM E/R Ignition Relay Circuit Check".

			CAN DIAG SUPPORT MNTR										
SELECT SYS	TEM screen	Initial	Transmit		1	Receive	diagnosis		· · · · · · · · · · · · · · · · · · ·				
		diagnosis	diagnosis	FCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R				
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	UNKWN	UNKWN				
Display unit	-	CAN COMM	CAN 1	CAN 3	-	CAN 5	CAN 2		CAN 7				
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	UNKWN				
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN				
ABS	-	NG	UNKWN	UNIVAN	-	-	-	-	-				
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-				

# Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit)

#### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- Disconnect the negative battery terminal.
- Disconnect ABS actuator and electric unit (control unit) connector E125 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ABS actuator and electric unit (control unit) connector E125 terminals 20 (L), 23 (P).

6 (L) - 20 (L)

: Continuity should exist.

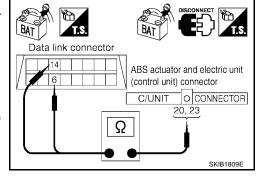
14 (P) - 23 (P)

: Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-93, "Work Flow".

NG >> Repair harness.



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**ECM Circuit Check** 

### 1. CONNECTOR INSPECTION

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- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

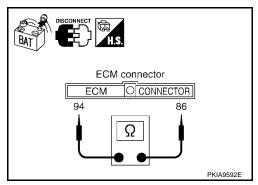
Check resistance between ECM connector M82 terminal 94 (L) and terminal 86 (P).

94 (L) - 86 (P) : Approx. 108 - 132 
$$\Omega$$

#### OK or NG

OK >> Replace ECM.

NG >> Repair harness between ECM connector M82 and data link connector M22.



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### **Display Unit Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect display unit connector M93.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

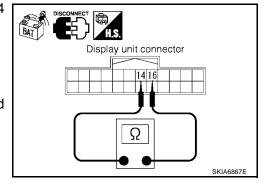
Check resistance between display unit connector M93 terminal 14 (L) and terminal 16 (P).

14 (L) - 16 (P) : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace display unit.

NG >> Repair harness between display unit connector M93 and data link connector M22.



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### **Data Link Connector Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check data link connector M22 terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

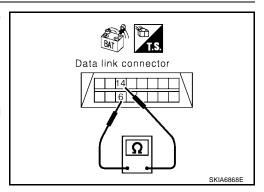
## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M22 terminal 6 (L) and terminal 14 (P).

#### OK or NG

OK >> Diagnose again. Refer to LAN-93, "Work Flow".

NG >> Repair harness between data link connector M22 and BCM connector M18.



### Unified Meter and A/C Amp. Circuit Check

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect unified meter and A/C amp. connector M49.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

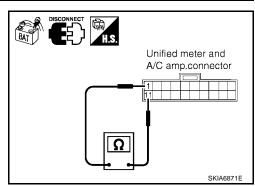
Check resistance between unified meter and A/C amp. connector M49 terminal 1 (L) and terminal 11 (P).

**1 (L) - 11 (P)** : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace unified meter and A/C amp.

NG >> Repair harness between unified meter and A/C amp. connector M49 and data link connector M22.



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**LAN-105** Revision: July 2005 2005 Maxima

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**BCM Circuit Check** 

### 1. CONNECTOR INSPECTION

Turn ignition switch OFF.

- 2. Disconnect the negative battery terminal.
- Disconnect BCM connector M18.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. check harness for open circuit

Check resistance between BCM connector M18 terminal 39 (L) and terminal 40 (P).

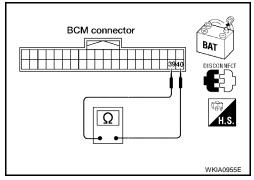
: Approx. 54 - 66  $\Omega$ 

#### OK or NG

OK >> Replace BCM.

NG

>> Repair harness between BCM connector M18 and data link connector M22.



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

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### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect ABS actuator and electric unit (control unit) connector E125.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between ABS actuator and electric unit (control unit) connector E125 terminal 20 (L) and terminal 23 (P).

: Approx. 54 - 66  $\Omega$ 

#### OK or NG

OK

NG

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

>> Repair harness between ABS actuator and electric unit (control unit) connector E125 and IPDM E/R connector E121.

ABS actuator and electric unit (control unit) connector C/UNIT CONNECTOR SKIA9769E

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**IPDM E/R Circuit Check** 

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect IPDM E/R connector E121.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between IPDM E/R connector E121 terminal 48 (L) and terminal 49 (P).

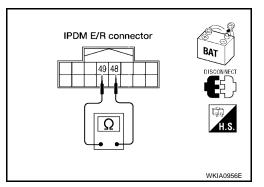
48 (L) - 49 (P) : Approx. 108 - 132 
$$\Omega$$

#### OK or NG

NG

OK >> Replace IPDM E/R.

>> Repair harness between IPDM E/R connector E121 and ABS actuator and electric unit (control unit) connector E125.



### **CAN Communication Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect the following module and control unit connectors and check terminals for deformation, disconnection, looseness or damage.
- ECM
- Display unit
- Unified meter and A/C amp.
- BCM (Body control module)
- ABS actuator and electric unit (control unit)
- IPDM E/R (Intelligent power distribution module engine room)

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

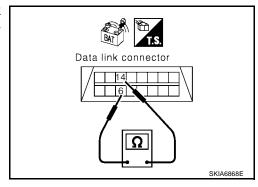
# 2. CHECK HARNESS FOR SHORTED CIRCUITS

With all module and control unit connectors disconnected, check continuity between data link connector M22 terminals 6 (L) and 14 (P).

#### OK or NG

OK >> GO TO 3.

NG >> Repair the harness.



UKS002MN

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# $\overline{3}$ . Check harness for short to ground

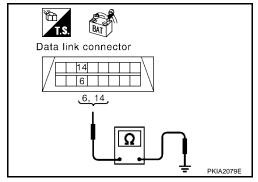
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ground.

6 (L) - Ground : Continuity should not exist. 14 (P) - Ground : Continuity should not exist.

#### OK or NG

OK >> Check ECM and IPDM E/R. Refer to <u>LAN-108</u>, "Component Inspection".

NG >> Repair the harness.



#### UKS002MO

UKS002MP

### IPDM E/R Ignition Relay Circuit Check

Check the following. If no malfunction is found, replace the IPDM E/R.

- IPDM E/R power supply 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".

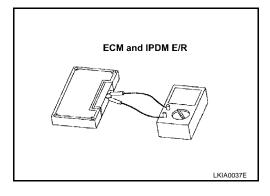
# Component Inspection ECM AND IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.

**94 - 86** : Approx. 108 - 132  $\Omega$ 

Check resistance between IPDM E/R terminals 48 and 49.

48 - 49 : Approx.  $108 - 132 \Omega$ 



### **CAN SYSTEM (TYPE 5)**

#### PFP:23710

### **System Description**

UKS00270

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.

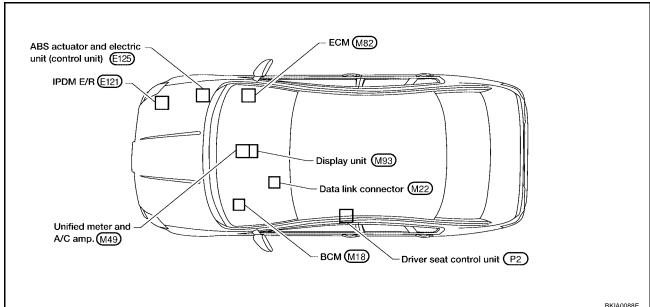
### **Component Parts and Harness Connector Location**

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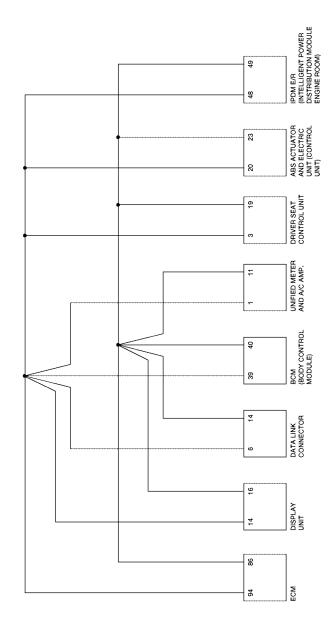
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Schematic UKS0027Q



Wiring Diagram - CAN -

KS0027R

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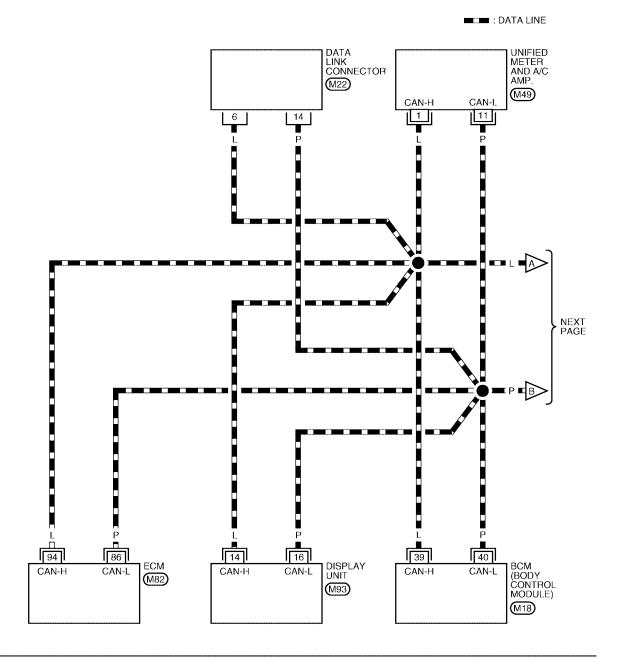
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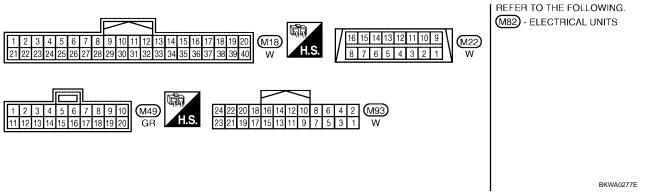
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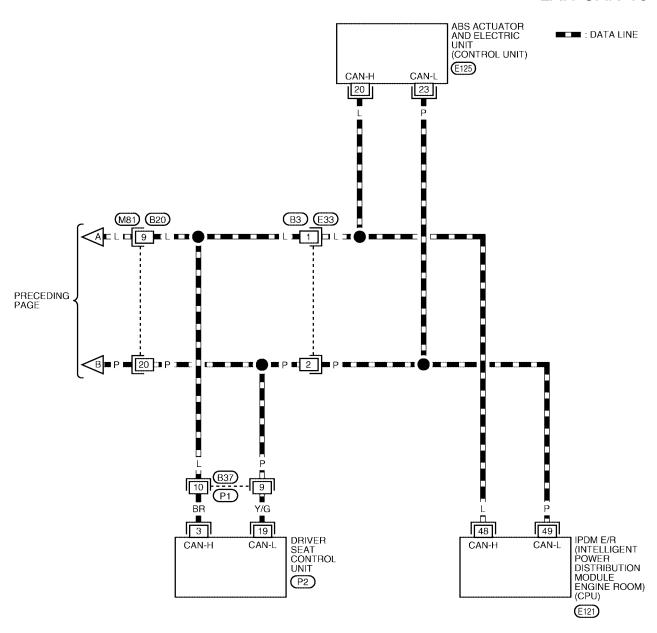
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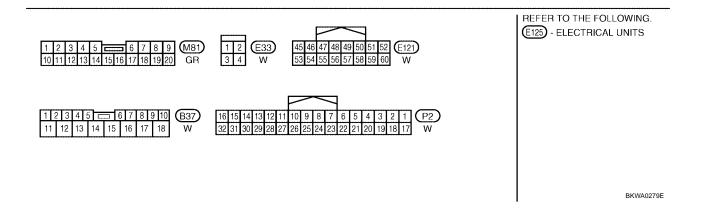
### LAN-CAN-09





### LAN-CAN-10

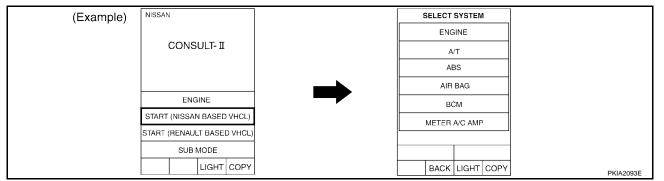




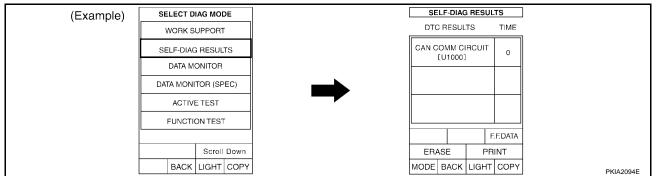
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Work Flow

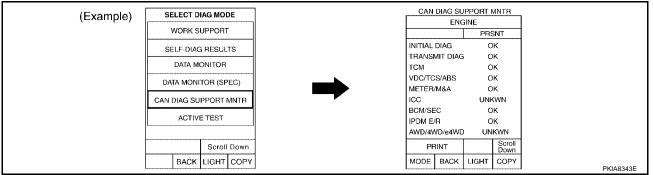
1. When there are no indications of "METER A/C AMP", "BCM", "AUTO DRIVE POS." or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



2. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



4. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks onto the items with "No indication", "NG", or "UNKWN" in the check sheet table.

					CAN DIAG	SUPPORT MNTF	diagnosis		
SELECT SYST		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	UNKWN	UNKWN
Display unit	-	CAN	CAN 1	CAN 3	-	CAN 5	CAN 2	-	CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN				1	
IPDM E/R	No indication	-	UNKWN	UNKWN		-	UNKWN		-

#### NOTE:

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

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- The "CAN DIAG SUPPORT MNTR" items which are not in check sheet table are not related to diagnostic procedure on service manual.
  - Therefore, it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- 5. Check CAN communication line of the integrated display system. Refer to <u>AV-90, "AV Communication Line Check"</u>.
- 6. Mark the "NG" or "UNKWN" item of the check sheet table from the result of CAN DIAG SUPPORT MONITOR check sheet.

#### NOTE:

- If "NG" is displayed on "CAN COMM" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- 7. According to the Check Sheet Results, start inspection.

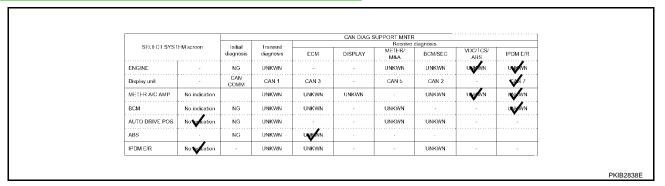
#### **CHECK SHEET RESULTS (EXAMPLE)**

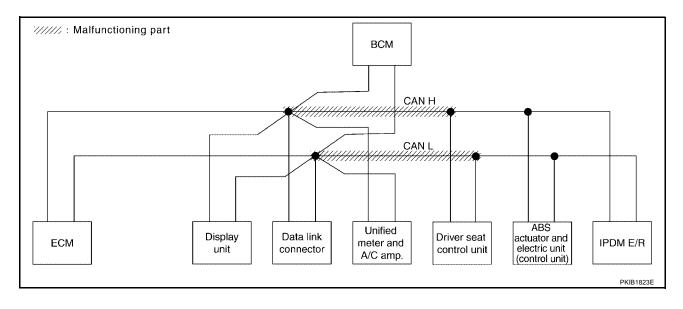
#### NOTE:

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

#### Case 1

Check harness between data link connector and driver seat control unit. Refer to <u>LAN-125</u>, "Circuit Check <u>Between Data Link Connector and Driver Seat Control Unit"</u>.





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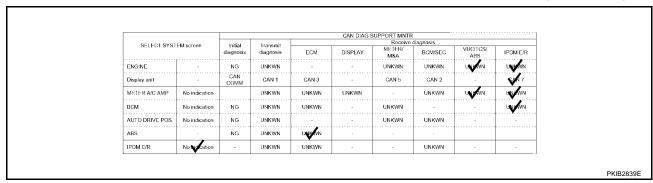
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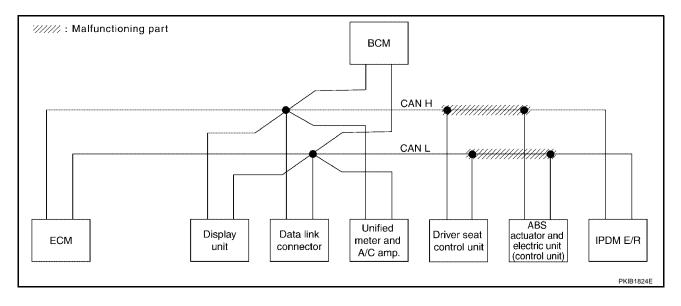
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Case 2

Check harness between driver seat control unit and ABS actuator and electric unit (control unit). Refer to <u>LAN-126</u>, "Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric Unit (Control Unit)".





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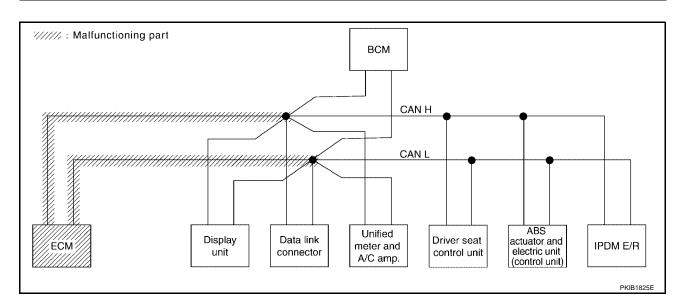
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Case 3
Check ECM circuit. Refer to <u>LAN-126, "ECM Circuit Check"</u>.

					CAN DIAG	SUPPORT MNTE			
SELECTISTS	I HM screen	Initial	Transmit				diagnosis		
		diagnosis	diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/1CS/ ABS	IPDM E/R
ENGINE	-	NG	UNIFOVN	-	-	UNIFOVN	UNIKAN	UNIFWN	UNIFWN
Display unit	-	CAN COMM	CAN 1	₩3	-	CAN 5	CAN 2	-	CAN 7
METER A/C AMP	No indication		UNKWN	<b>TANKA</b> AN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNIVA	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	ONIR VN					
IPDM E/R	No indication	-	UNKWN	UNIFWN	-	-	UNKWN		-

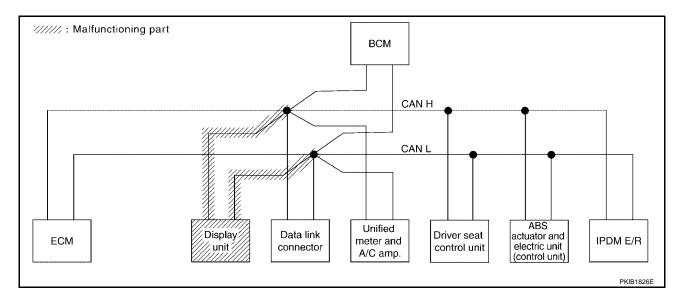


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Case 4
Check display unit circuit. Refer to <u>LAN-127</u>, "<u>Display Unit Circuit Check</u>" .

					CAN DIAG	SUPPORT MNTF			
SELECTISYS		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	UNKWN	UNKWN
Display unit	-	CAN	<b>V</b> /1	<b>€</b> √3		<b>€</b> ⁄/5	W 2	-	₩.
METER A/C AMP	No indication		UNKWN	UNKWN	UNIKAVN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.		NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN				1	
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN		



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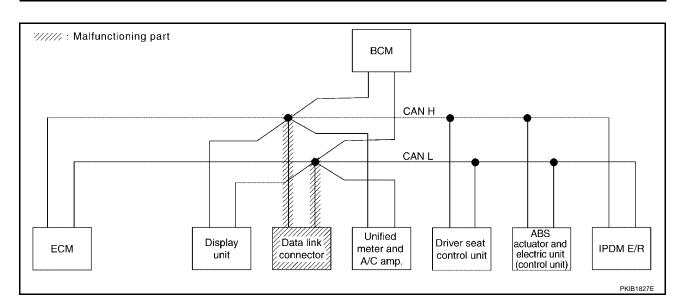
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Case 5
Check data link connector circuit. Refer to <u>LAN-127</u>, "<u>Data Link Connector Circuit Check</u>" .

					CAN DIAG	SUPPORT MNTF			
SELECT SYST		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/1CS/ AHS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	UNKWN	UNKWN
Display unit	-	CAN COMM	CAN 1	CAN 3	-	CAN 5	CAN 2	-	CAN 7
METER A/C AMP	Noting cation		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	Notoncation	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	Notonication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN				1	
IPDM E/R	No in cation	-	UNKWN	UNKWN			UNKWN		

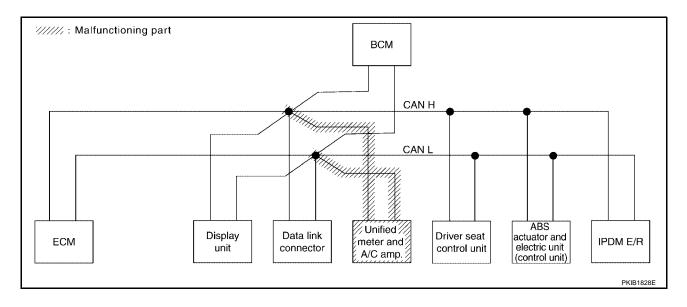


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Case 6
Check unified meter and A/C amp. circuit. Refer to <u>LAN-128</u>, "Unified Meter and A/C Amp. Circuit Check".

					CAN DIAG S	SUPPORT MNTR			
SELECT SYST		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/1CS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNIVAN	UNKWN	UNKWN	UNKWN
Display unit	-	CAN	CAN 1	CAN 3	-	<b>\$</b> 0√5	CAN 2	-	CAN 7
METER A/C AMP	No too cation		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNIVAN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNIVAN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN				1	
IPDM E/R	No indication	-	UNKWN	UNKWN	-		UNKWN		



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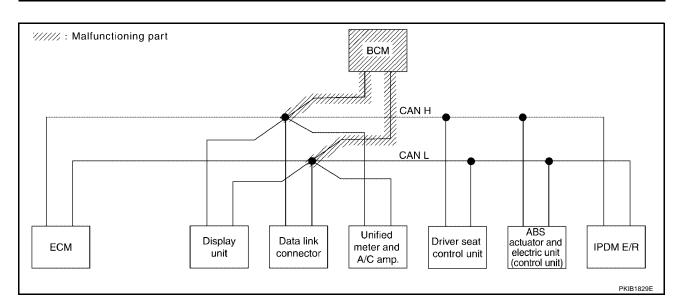
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Case 7
Check BCM circuit. Refer to <u>LAN-128</u>, "BCM Circuit Check" .

					CAN DIAG	SUPPORT MNTF			
SELECTISTS	I HM screen	Initial	Transmit				diagnosis		
		diagnosis	diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/1CS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNIVIN	UNKWN	UNKWN
Display unit	-	CAN COMM	CAN 1	CAN 3	-	CAN 5	<b>V</b> (2	-	CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNIVAN	UNKWN	UNKWN
всм	No Natcation	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNIWN	-	-
ABS		NG	UNKWN	UNKWN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-		UNIWN		

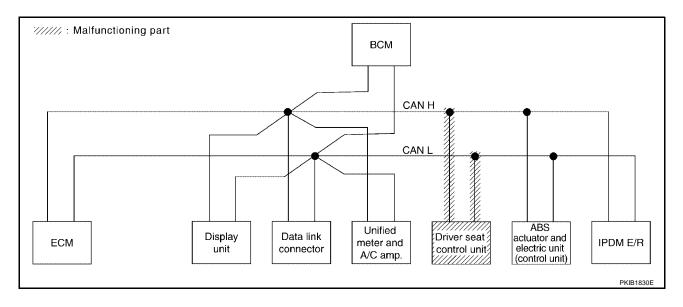


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Case 8
Check driver seat control unit circuit. Refer to <u>LAN-129</u>, "<u>Driver Seat Control Unit Circuit Check</u>".

					CAN DIAG	SUPPORT MNTF			
SELECTISTS		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ AHS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	UNKWN	UNKWN
Display unit	-	CAN	CAN 1	CAN 3	-	CAN 5	CAN 2	-	CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No tracation	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN				1	
IPDM E/R	No indication	-	UNKWN	UNKWN	-		UNKWN		



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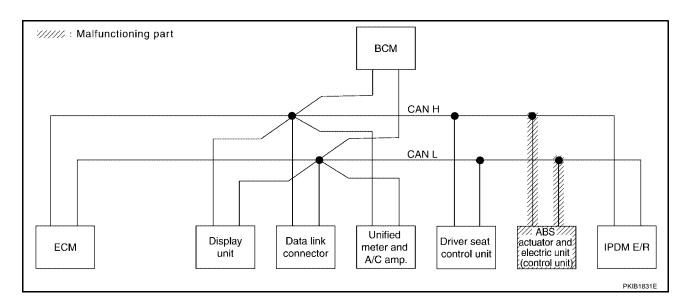
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Case 9

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-129</u>, "ABS Actuator and Electric Unit (Control Unit) Circuit Check".

					CAN DIAG	SUPPORT MNTF			
SELECT SYST		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	Receive METER/ M&A	BCM/SEC	VDC/1CS/ AHS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	UNIVAN	UNKWN
Display unit	-	CAN	CAN 1	CAN 3	-	CAN 5	CAN 2	-	CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNKWN	UNIVAN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	DATE	UNIVIN				1	
IPDM E/R	No indication	-	UNKWN	UNKWN			UNKWN		

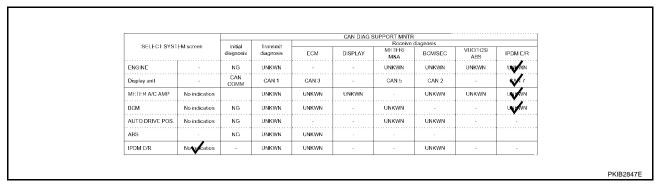


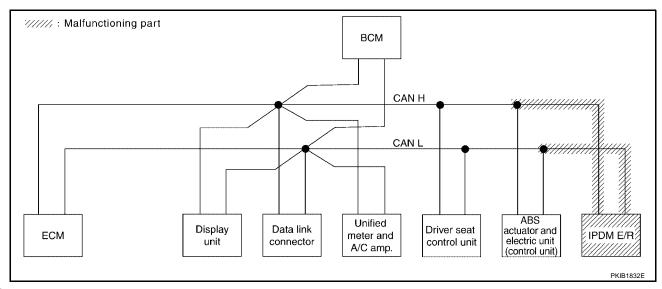
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Case 10

Check IPDM E/R circuit. Refer to LAN-130, "IPDM E/R Circuit Check".





Case 11

Check CAN communication circuit. Refer to LAN-130, "CAN Communication Circuit Check" .

					CAN DIAG	SUPPORT MNTR			
SELECT SYST	I-M scroon	Initial	Transmit				diagnosis		
0	, wastan	diagnosis	diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/1GS/ ABS	IPDM C/F
ENGINE	-	NG	UNIFYVN	-	-	UNIMAN	UNITAN	UNITARN	UNIVAN
Display unit	-	CAN COMM	<b>₩</b> 1	₩3	-	<b>€</b> /5	₩2	-	₩7
METER A/C AMP	Notopication		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No resication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	Notation	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	DMRAN	UNIFON					
IPDM E/R	No topication	-	UNKWN	UNKWN			UNKWN		

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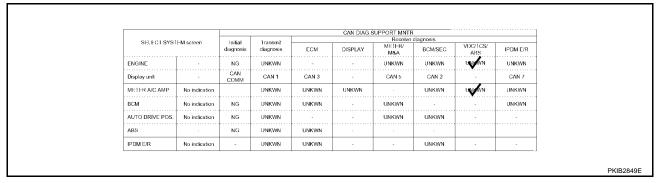
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#### Case 12

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to LAN-131, "IPDM E/R Ignition Relay Circuit Check".



#### Case 13

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to LAN-131, "IPDM E/R Ignition Relay Circuit Check".

					CAN DIAG	SUPPORT MNTF			
SELECTISTS	HM screen	Initial	Transmit				diagnosis		
		diagnosis	diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/1CS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	UNKWN	UNKWN
Display unit	-	CAN COMM	CAN 1	CAN 3	-	GAN 5	CAN 2	-	GAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	HNIVAN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-		UNKWN		

### Circuit Check Between Data Link Connector and Driver Seat Control Unit

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect driver seat control unit connector P2 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

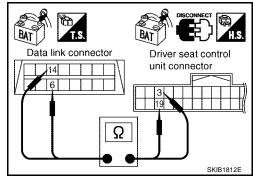
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G).

> 6 (L) - 3 (BR) : Continuity should exist. 14 (P) - 19 (Y/G) : Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-113, "Work Flow".

NG >> Repair harness.



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# Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric Unit (Control Unit)

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2, ABS actuator and electric unit (control unit) connector E125 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

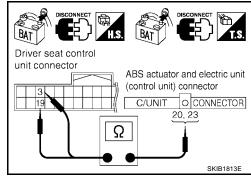
Check continuity between driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G) and ABS actuator and electric unit (control unit) connector E125 terminals 20 (L), 23 (P).

3 (BR) - 20 (L) : Continuity should exist. 19 (Y/G) - 23 (P) : Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-113, "Work Flow".

NG >> Repair harness.



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#### **ECM Circuit Check**

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- Disconnect the negative battery terminal.
- 3. Disconnect ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

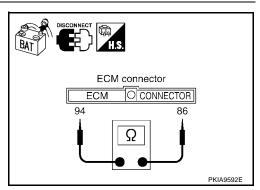
Check resistance between ECM connector M82 terminal 94 (L) and terminal 86 (P).

94 (L) - 86 (P) : Approx. 108 - 132  $\Omega$ 

#### OK or NG

OK >> Replace ECM.
NG >> Repair harness

>> Repair harness between ECM connector M82 and data link connector M22.



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**Display Unit Circuit Check** 

1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect display unit connector M93.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

2. CHECK HARNESS FOR OPEN CIRCUIT

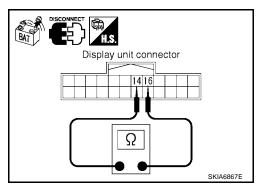
Check resistance between display unit connector M93 terminal 14 (L) and terminal 16 (P).

**14 (L) - 16 (P)** : Approx. **54 - 66** 
$$\Omega$$

OK or NG

OK >> Replace display unit.

NG >> Repair harness between display unit connector M93 and data link connector M22.



**Data Link Connector Circuit Check** 

1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check data link connector M22 terminals for deformation, disconnection, looseness or damage.

OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M22 terminal 6 (L) and terminal 14 (P).

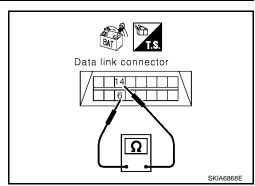
6 (L) - 14 (P) : Approx. 54 - 66 
$$\Omega$$

OK or NG

OK >> Diagnose again. Refer to LAN-113, "Work Flow" .

NG >> Repair harness between data link connector M:

>> Repair harness between data link connector M22 and BCM connector M18.



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## Unified Meter and A/C Amp. Circuit Check

### 1. CONNECTOR INSPECTION

UKS002M4

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect unified meter and A/C amp. connector M49.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between unified meter and A/C amp. connector M49 terminal 1 (L) and terminal 11 (P).

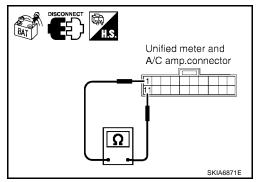
: Approx. 54 - 66  $\Omega$ 

#### OK or NG

OK >> Replace unified meter and A/C amp.

NG

>> Repair harness between unified meter and A/C amp. connector M49 and data link connector M22.



#### **BCM Circuit Check**

UKS002M3

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect BCM connector M18.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between BCM connector M18 terminal 39 (L) and terminal 40 (P).

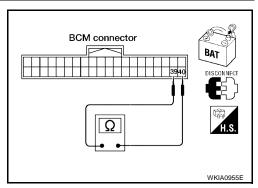
: Approx. 54 - 66  $\Omega$ 

#### OK or NG

OK >> Replace BCM.

NG

>> Repair harness between BCM connector M18 and data link connector M22.



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### **Driver Seat Control Unit Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

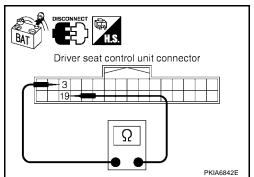
Check resistance between driver seat control unit connector P2 terminal 3 (BR) and terminal 19 (Y/G).

: Approx. 54 - 66  $\Omega$ 

#### OK or NG

OK >> Replace driver seat control unit.

NG >> Repair harness between driver seat control unit connector P2 and data link connector M22.



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

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ABS actuator and electric unit (control unit) connector E125.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between ABS actuator and electric unit (control unit) connector E125 terminal 20 (L) and terminal 23 (P).

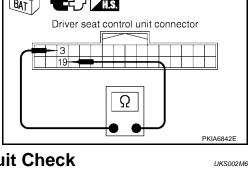
**20 (L) - 23 (P)** : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

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

NG >> Repair harness between ABS actuator and electric unit

(control unit) connector E125 and IPDM E/R connector E121.



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ABS actuator and electric unit (control unit) connector CONNECTOR C/UNIT SKIA9769E

#### **IPDM E/R Circuit Check**

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect IPDM E/R connector E121.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between IPDM E/R connector E121 terminal 48 (L) and terminal 49 (P).

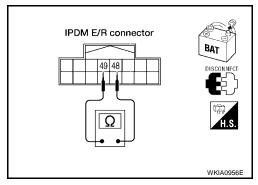
48 (L) - 49 (P) : Approx. 108 - 132 
$$\Omega$$

#### OK or NG

NG

OK >> Replace IPDM E/R.

>> Repair harness between IPDM E/R connector E121 and ABS actuator and electric unit (control unit) connector E125.



### **CAN Communication Circuit Check**

UKS002M8

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect the following module and control unit connectors and check terminals for deformation, disconnection, looseness or damage.
- ECM
- Display unit
- Unified meter and A/C amp.
- BCM (Body control module)
- Driver seat control unit
- ABS actuator and electric unit (control unit)
- IPDM E/R (Intelligent power distribution module engine room)

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

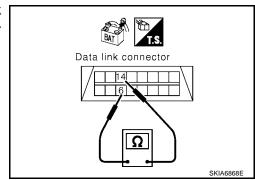
### 2. CHECK HARNESS FOR SHORTED CIRCUITS

With all module and control unit connectors disconnected, check continuity between data link connector M22 terminals 6 (L) and 14 (P).

#### OK or NG

OK >> GO TO 3.

NG >> Repair the harness.



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## 3. CHECK HARNESS FOR SHORT TO GROUND

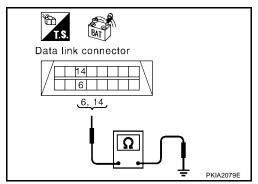
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ground.

> : Continuity should not exist. 6 (L) - Ground 14 (P) - Ground : Continuity should not exist.

#### OK or NG

>> Check ECM and IPDM E/R. Refer to LAN-131, "Compo-OK nent Inspection".

NG >> Repair the harness.



### IPDM E/R Ignition Relay Circuit Check

Check the following. If no malfunction is found, replace the IPDM E/R.

- IPDM E/R power supply circuit. Refer to PG-25, "IPDM E/R Power/Ground Circuit Inspection".
- Ignition power supply circuit. Refer to PG-12, "IGNITION POWER SUPPLY IGNITION SW. IN ON AND/OR START".

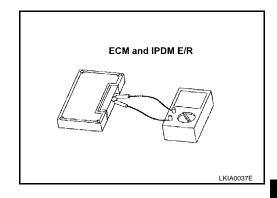
#### Component Inspection ECM AND IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.

94 - 86 : Approx. 108 - 132  $\Omega$ 

Check resistance between IPDM E/R terminals 48 and 49.

48 - 49 : Approx. 108 - 132  $\Omega$ 



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### **CAN SYSTEM (TYPE 6)**

PFP:23710

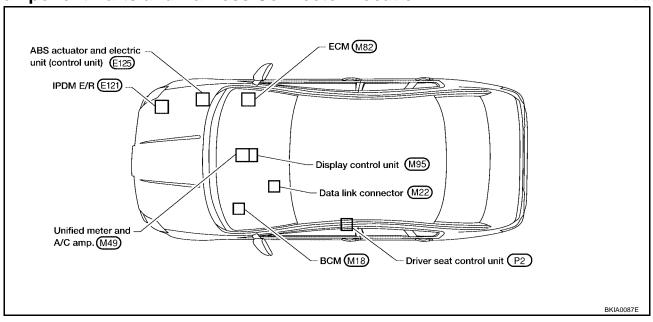
### **System Description**

LIKS0028

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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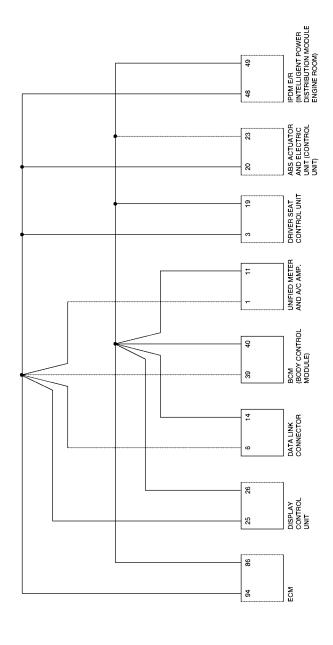
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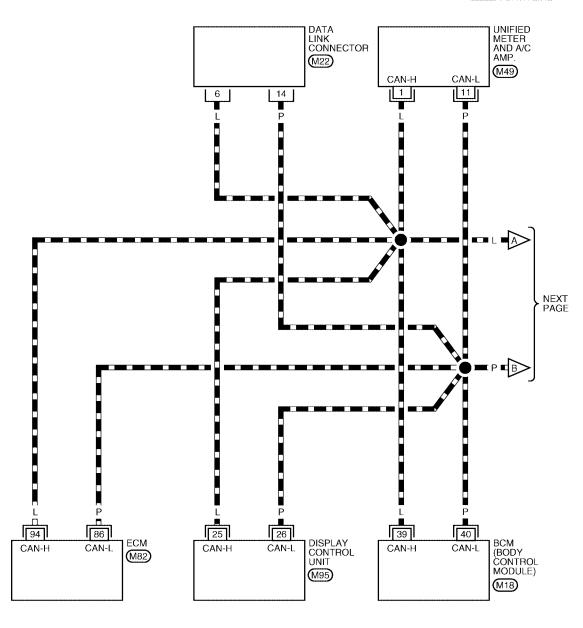
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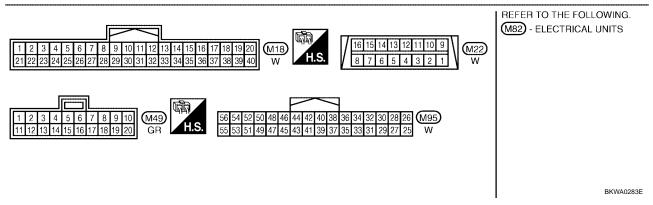
Wiring Diagram - CAN -

JKS0028B

### LAN-CAN-11

: DATA LINE





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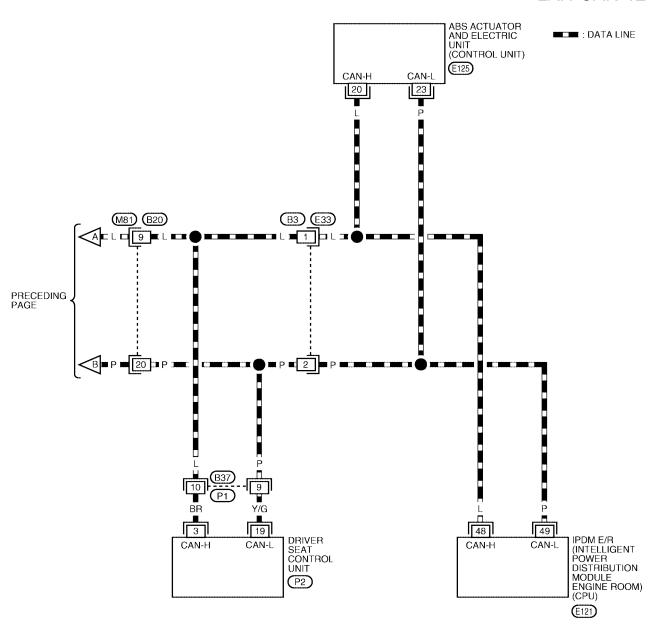
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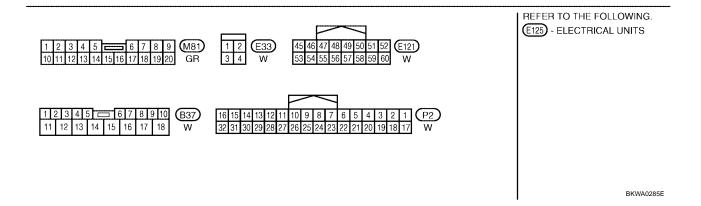
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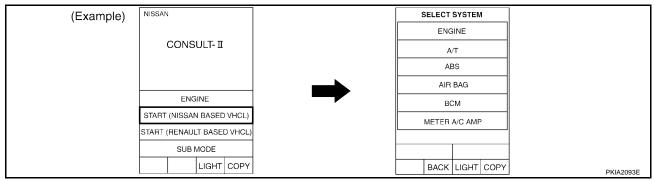
### LAN-CAN-12



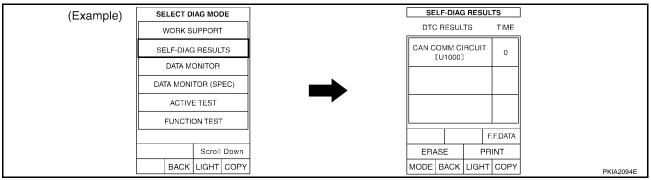


Work Flow

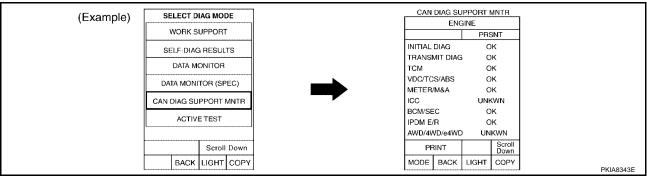
 When there are no indications of "METER A/C AMP", "BCM", "AUTO DRIVE POS." or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



2. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



4. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks onto the items with "No indication", "NG", or "UNKWN" in the check sheet table.

					CAN DIAG	SUPPORT MNTR			
SELECT SYS	I HM screen	Initial diagnosis	1 ransmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	UNKWN	UNKWN
Display control unit	-	CAN	CAN CIRC 1	CAN CIRC 3	-	CAN CIRC 5	CAN CIRC 2	-	CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-		UNKWN		-

#### NOTE:

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

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- The "CAN DIAG SUPPORT MNTR" items which are not in check sheet table are not related to diagnostic procedure on service manual.
  - Therefore, it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- 5. Check CAN communication line of the navigation system.
- 6. Mark the "NG" or "UNKWN" item of the check sheet table from the result of CAN DIAG SUPPORT MONITOR check sheet.

#### NOTE:

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

7. According to the Check Sheet Results, start inspection.

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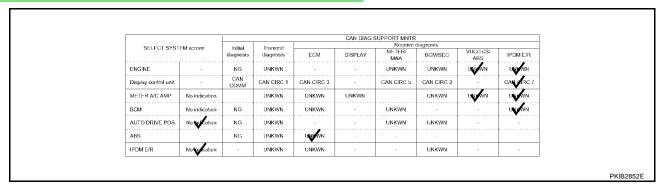
#### **CHECK SHEET RESULTS (EXAMPLE)**

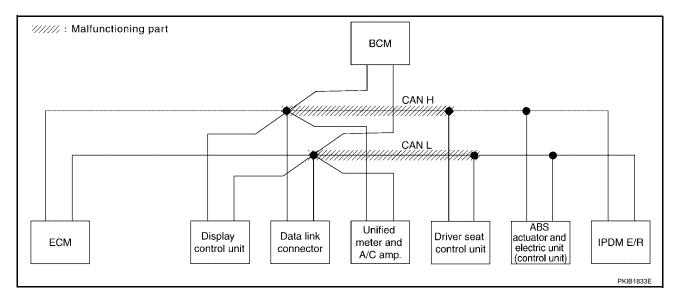
#### NOTE:

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

#### Case 1

Check harness between data link connector and driver seat control unit. Refer to <u>LAN-148</u>, "Circuit Check <u>Between Data Link Connector and Driver Seat Control Unit"</u>.





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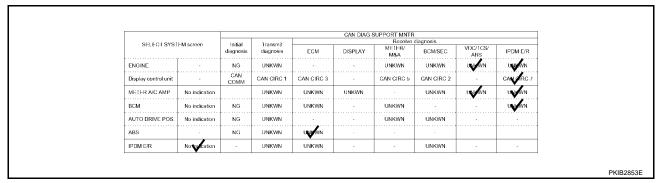
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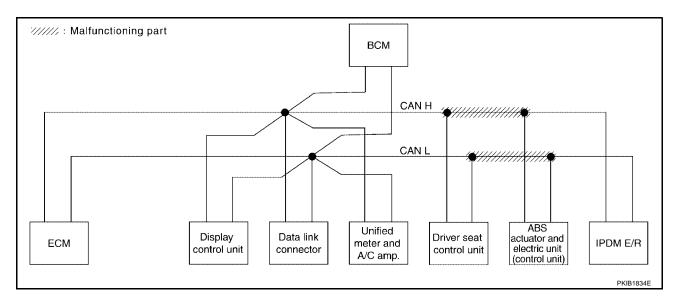
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Case 2

Check harness between driver seat control unit and ABS actuator and electric unit (control unit). Refer to <a href="LAN-149">LAN-149</a>, "Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric Unit (Control Unit)".



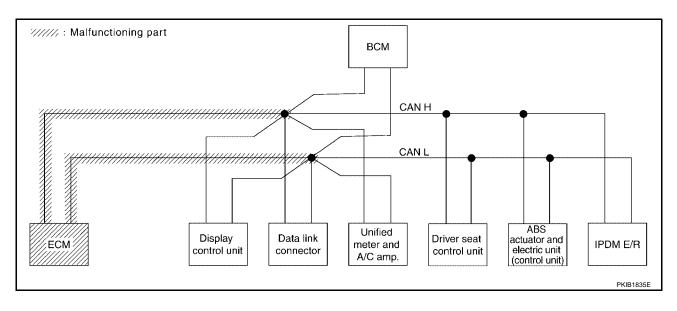


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Case 3
Check ECM circuit. Refer to <u>LAN-149</u>, "ECM Circuit Check" .

-					CAN DIAG	SUPPORT MNTF			
SELECTISTS		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNIVAN	-	-	UNIMON	UNIVAN	UNIVAN	UNIVAN
Display control unit	-	CAN COMM	GAN CIRC 1	CAN FIRC 3	-	CAN CIRC 5	CAN CIRC 2	-	CAN CIRC /
METER A/C AMP	No indication		UNKWN	UNIVAN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNIVAN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNIFWN				1	
IPDM E/R	No indication	-	UNKWN	UNIVAN	-	-	UNKWN	-	-



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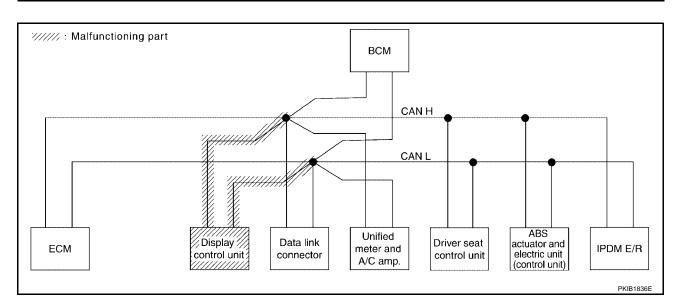
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Case 4
Check display control unit circuit. Refer to <u>LAN-150</u>, "<u>Display Control Unit Circuit Check"</u>.

		CAN DIAG SUPPORT MNTR								
SELECTISTS	i EM screen	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/1CS/ ABS	IPDM E/R	
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	UNKWN	UNKWN	
Display control unit	-	COMM	CAN O'RC 1	CAN TRC 3	-	CAN PRC 5	CAN PIRC 2	-	CAN FIRC 7	
METER A/C AMP	No indication		UNKWN	UNKWN	UNIVON		UNKWN	UNKWN	UNKWN	
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN	
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-	
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication	-	UNKWN	UNKWN	-		UNKWN		-	

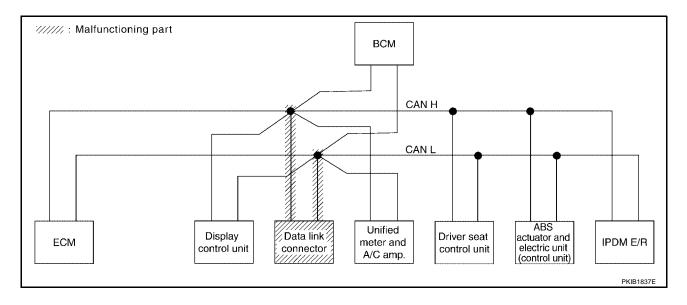


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Case 5
Check data link connector circuit. Refer to <u>LAN-150</u>, "<u>Data Link Connector Circuit Check"</u>.

					CAN DIAG S	SUPPORT MNTR			
SELECT SYST		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	UNKWN	UNKWN
Display control unit	-	CAN	CAN CIRC 1	CAN CIRC 3	-	CAN CIRC 5	CAN CIRC 2	-	CAN CIRC /
METER A/C AMP	No to cation		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No to cation	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No to Cation	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN					
IPDM E/R	No to cation	-	UNKWN	UNKWN			UNKWN		-



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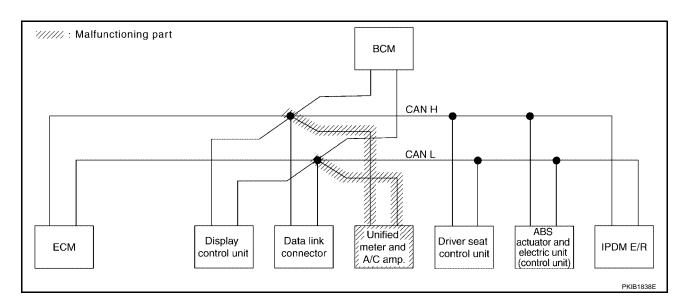
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Case 6

Check unified meter and A/C amp. circuit. Refer to LAN-151, "Unified Meter and A/C Amp. Circuit Check" .

					CAN DIAG	SUPPORT MNTR			
SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNIVEN	UNKWN	UNKWN	UNKWN
Display control unit	-	CAN	CAN CIRC 1	CAN CIRC 3	-	CAN ORC 5	CAN CIRC 2	-	CAN CIRC /
METER A/C AMP	No recation		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNIFON	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNIKAN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-		UNKWN		-

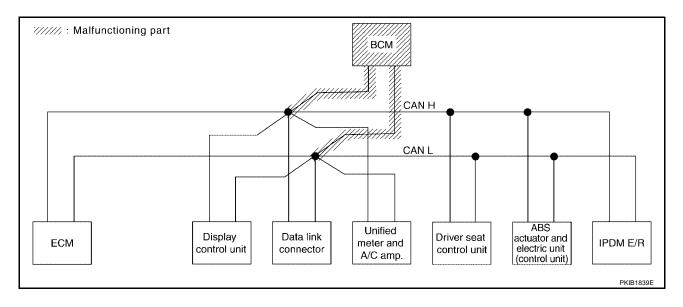


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Case 7
Check BCM circuit. Refer to <u>LAN-151</u>, "BCM Circuit Check".

					CAN DIAG	SUPPORT MNTR	djagnosis		
SELECTISTS		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/16S/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNILAVIN	UNKWN	UNKWN
Display control unit	-	CAN	CAN CIRC 1	CAN CIRC 3	-	CAN CIRC 5	CAN FIRC 2	-	CAN CIRC /
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNIVIN	UNKWN	UNKWN
всм	No to cation	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNIVAN	-	-
ABS		NG	UNKWN	UNKWN					
IPDM E/R	No indication	-	UNKWN	UNKWN			UNIVIN		-



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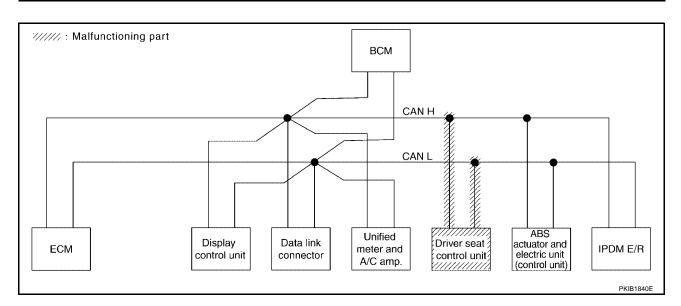
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Case 8
Check driver seat control unit circuit. Refer to <u>LAN-152</u>, "<u>Driver Seat Control Unit Circuit Check"</u>.

-					CAN DIAG	SUPPORT MNTF			
SELECTISTS		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	UNKWN	UNKWN
Display control unit	-	CAN	CAN CIRC 1	CAN CIRC 3	-	CAN CIRC 5	CAN CIRC 2	-	CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No outcation	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN				1	
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-

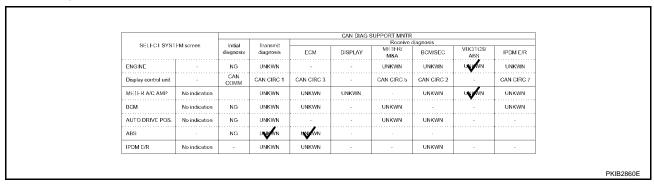


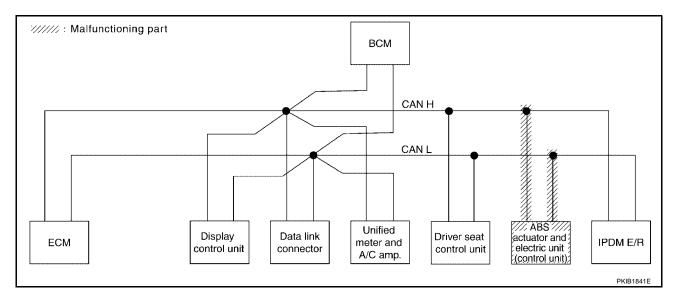
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Case 9

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-152</u>, "ABS Actuator and Electric Unit (Control Unit) Circuit Check" .





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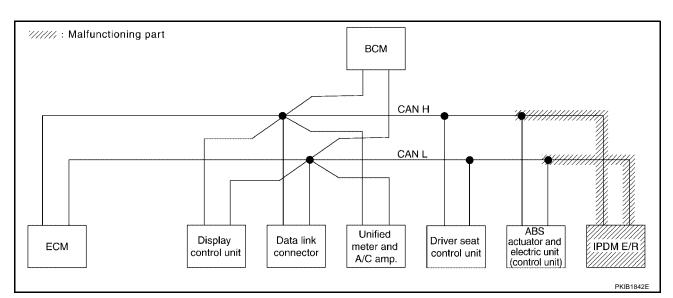
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Case 10

Check IPDM E/R circuit. Refer to LAN-153, "IPDM E/R Circuit Check" .

					CAN DIAG	SUPPORT MNTF			
SELECTISTS		Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	UNKWN	UNIVAN
Display control unit	-	CAN	CAN CIRC 1	CAN CIRC 3	-	CAN CIRC 5	CAN CIRC 2	-	CAN ARC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNIVA
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNIVAN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN				1	
IPDM E/R	No tradication	-	UNKWN	UNKWN	-		UNKWN		-



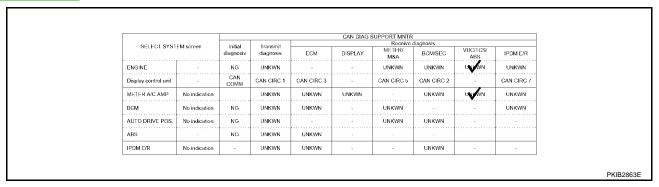
Case 11
Check CAN communication circuit. Refer to <u>LAN-153</u>, "CAN Communication Circuit Check" .

					CAN DIAG	SUPPORT MNTF			
SELECT SYS	I EM screen	Initial	Transmit				diagnosis		
		diagnosis	diagnosis	ECM	DISPLAY	METER/ M&A	BCM/SEC	VDC/1CS/ ABS	IPDM E/R
ENGINE	-	NG	DARMA	-	-	UNITAN	UNIFOVN	UNIVEN	UNIWN
Display control unit	-	CAN	CAN OTTC 1	CAN ORC 3	-	CAN PRC 5	CAN PIRC 2	-	CAN FIRE
METER A/C AMP	No too cation		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No hydration	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No od cation	NG	UNKWN		-	UNKWN	UNKWN	-	-
ABS		NG	UNIKAN	DNRWN					
IPDM E/R	No indication	-	UNKWN	UNKWN			UNKWN		

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#### Case 12

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to LAN-154, "IPDM E/R Ignition Relay Circuit Check".



#### Case 13

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to LAN-154, "IPDM E/R Ignition Relay Circuit Check".

					CAN DIAG	SUPPORT MNTR			
SELECT SYST	I HM screen	Initial diagnosis	Transmit diagnosis	ECM	DISPLAY	METER/ M&A	diagnosis BCM/SEC	VDC/1GS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	UNKWN	UNKWN
Display control unit	-	CAN	CAN CIRC 1	CAN CIRC 3	-	CAN CIRC 5	CAN CIRC 2	-	CAN CIRC
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNIVAN					
IPDM E/R	No indication	-	UNKWN	UNKWN			UNKWN		

# Circuit Check Between Data Link Connector and Driver Seat Control Unit

UKS002L0

# 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

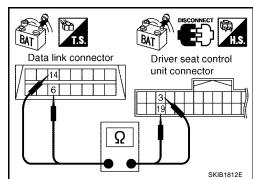
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G).

6 (L) - 3 (BR) : Continuity should exist. 14 (P) - 19 (Y/G) : Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-136, "Work Flow" .

NG >> Repair harness.



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# Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric Unit (Control Unit)

# 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect driver seat control unit connector P2, ABS actuator and electric unit (control unit) connector E125 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G) and ABS actuator and electric unit (control unit) connector E125 terminals 20 (L), 23 (P).

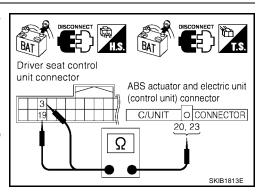
3 (BR) - 20 (L) 19 (Y/G) - 23 (P) : Continuity should exist.

: Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-136, "Work Flow".

NG >> Repair harness.



UKS002LI

#### **ECM Circuit Check**

# 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- Disconnect the negative battery terminal.
- 3. Disconnect ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

## OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

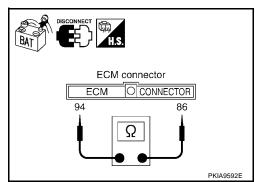
Check resistance between ECM connector M82 terminal 94 (L) and terminal 86 (P).

94 (L) - 86 (P) : Approx.  $108 - 132 \Omega$ 

#### OK or NG

OK >> Replace ECM.

NG >> Repair harness between ECM connector M82 and data link connector M22.



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Revision: July 2005 LAN-149 2005 Maxima

UKS002LK

**Display Control Unit Circuit Check** 

## 1. CONNECTOR INSPECTION

Turn ignition switch OFF.

- 2. Disconnect the negative battery terminal.
- Disconnect display control unit connector M95.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. check harness for open circuit

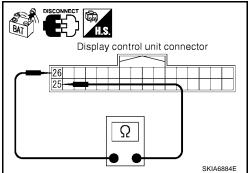
Check resistance between display control unit connector M95 terminal 25 (L) and terminal 26 (P).

**25** (L) - **26** (P) : Approx. **54** - **66** 
$$\Omega$$

OK or NG

OK >> Replace display control unit.

NG >> Repair harness between display control unit connector M95 and data link connector M22.



## **Data Link Connector Circuit Check**

1. CONNECTOR INSPECTION

Turn ignition switch OFF.

- Disconnect the negative battery terminal.
- 3. Check data link connector M22 terminals for deformation, disconnection, looseness or damage.

OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

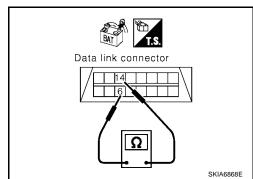
Check resistance between data link connector M22 terminal 6 (L) and terminal 14 (P).

6 (L) - 14 (P) : Approx. 54 - 66 
$$\Omega$$

OK or NG

OK >> Diagnose again. Refer to LAN-136, "Work Flow".

>> Repair harness between data link connector M22 and NG BCM connector M18.



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# Unified Meter and A/C Amp. Circuit Check

## 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect unified meter and A/C amp. connector M49.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

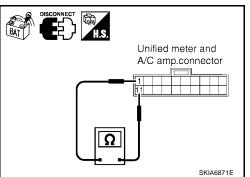
Check resistance between unified meter and A/C amp. connector M49 terminal 1 (L) and terminal 11 (P).

: Approx. 54 - 66  $\Omega$ 

#### OK or NG

OK >> Replace unified meter and A/C amp.

NG >> Repair harness between unified meter and A/C amp. connector M49 and data link connector M22.



### **BCM Circuit Check**

# 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect BCM connector M18.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between BCM connector M18 terminal 39 (L) and terminal 40 (P).

: Approx. 54 - 66  $\Omega$ 

#### OK or NG

OK >> Replace BCM.

NG

>> Repair harness between BCM connector M18 and data link connector M22.

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BCM connector

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**Driver Seat Control Unit Circuit Check** 

## 1. CONNECTOR INSPECTION

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- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between driver seat control unit connector P2 terminal 3 (BR) and terminal 19 (Y/G).

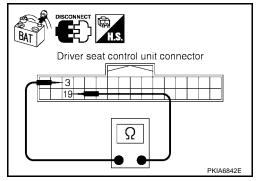
: Approx. 54 - 66  $\Omega$ 

#### OK or NG

OK >> Replace driver seat control unit.

NG

>> Repair harness between driver seat control unit connector P2 and data link connector M22.



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

UKS002LP

# 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ABS actuator and electric unit (control unit) connector E125.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between ABS actuator and electric unit (control unit) connector E125 terminal 20 (L) and terminal 23 (P).

: Approx. 54 - 66  $\Omega$ 

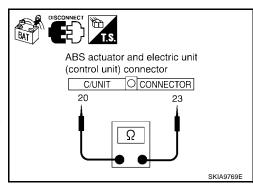
#### OK or NG

OK

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

NG

>> Repair harness between ABS actuator and electric unit (control unit) connector E125 and IPDM E/R connector E121.



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**IPDM E/R Circuit Check** 

# 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect IPDM E/R connector E121.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between IPDM E/R connector E121 terminal 48 (L) and terminal 49 (P).

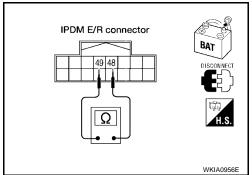
48 (L) - 49 (P) : Approx. 108 - 132 
$$\Omega$$

#### OK or NG

NG

OK >> Replace IPDM E/R.

> >> Repair harness between IPDM E/R connector E121 and ABS actuator and electric unit (control unit) connector E125.



### **CAN Communication Circuit Check**

# 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect the following module and control unit connectors and check terminals for deformation, disconnection, looseness or damage.
- **ECM**
- Display control unit
- Unified meter and A/C amp.
- BCM (Body control module)
- Driver seat control unit
- ABS actuator and electric unit (control unit)
- IPDM E/R (Intelligent power distribution module engine room)

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

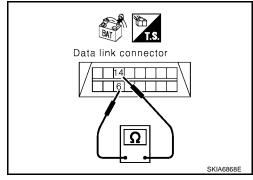
# 2. CHECK HARNESS FOR SHORTED CIRCUITS

With all module and control unit connectors disconnected, check continuity between data link connector M22 terminals 6 (L) and 14 (P).

#### OK or NG

OK >> GO TO 3.

NG >> Repair the harness.



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# $\overline{3}$ . Check harness for short to ground

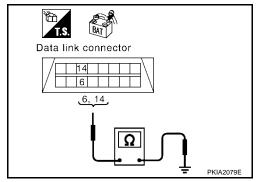
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ground.

6 (L) - Ground : Continuity should not exist. 14 (P) - Ground : Continuity should not exist.

#### OK or NG

OK >> Check ECM and IPDM E/R. Refer to <u>LAN-154</u>, "Component Inspection".

NG >> Repair the harness.



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# IPDM E/R Ignition Relay Circuit Check

Check the following. If no malfunction is found, replace the IPDM E/R.

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

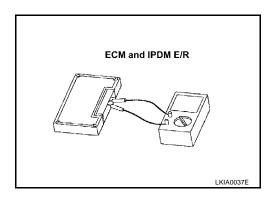
#### Component Inspection ECM AND IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.

**94 - 86** : Approx. 108 - 132  $\Omega$ 

Check resistance between IPDM E/R terminals 48 and 49.

**48 - 49** : Approx. 108 - 132  $\Omega$ 



PFP:23710

# **System Description**

UKS0028S

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.

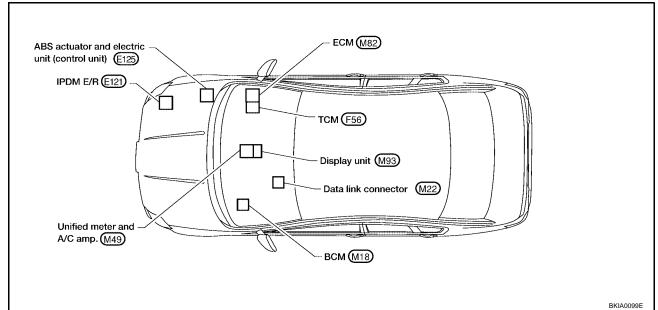
# **Component Parts and Harness Connector Location**

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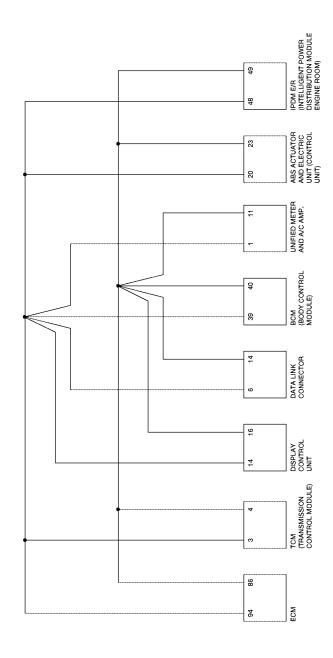
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Schematic UKS0028U



[CAN]

Wiring Diagram - CAN -

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LAN-CAN-13

: DATA LINE

4 94 86 TCM (TRANSMISSION CONTROL MODULE) CAN-H (M82)

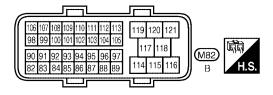
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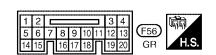
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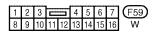
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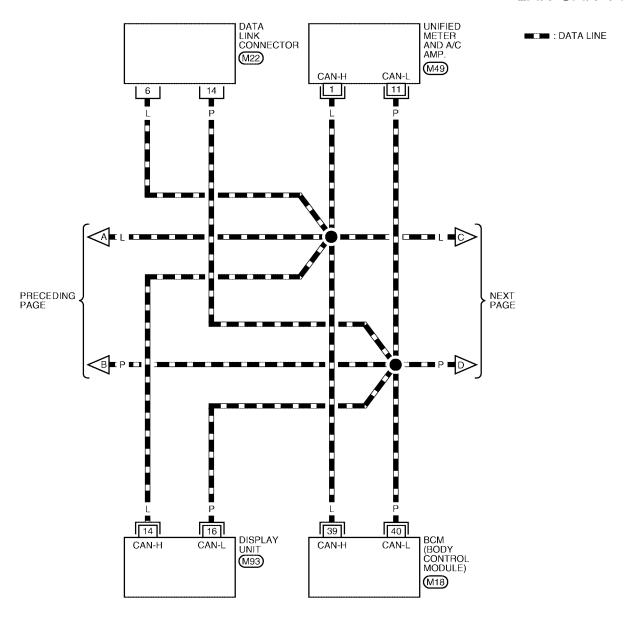


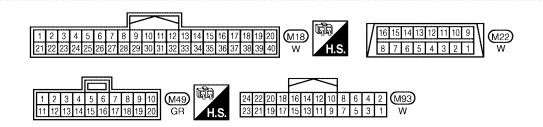
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# LAN-CAN-14





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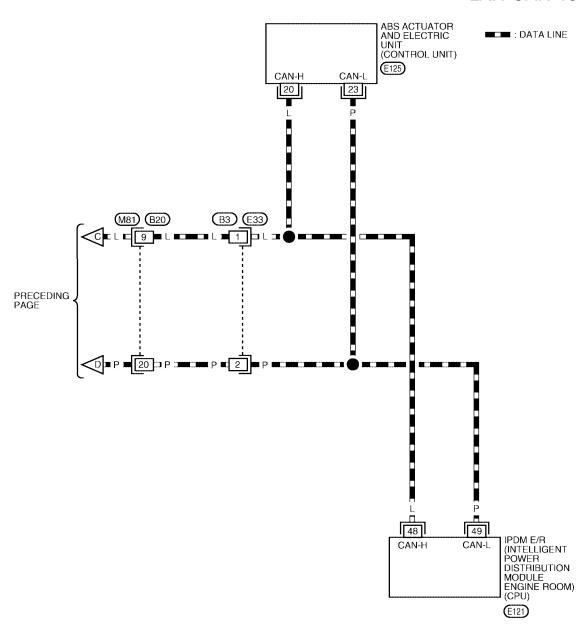
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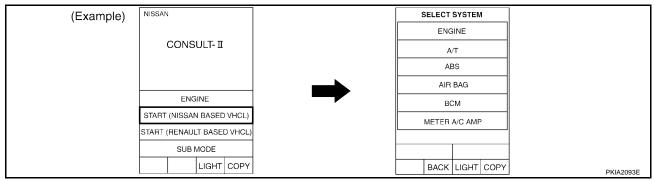
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# LAN-CAN-15

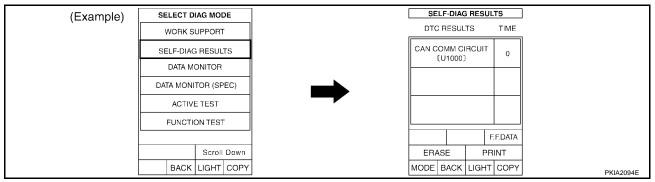


 Work Flow

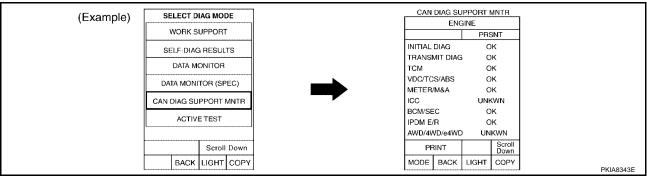
 When there are no indications of "TRANSMISSION", "METER A/C AMP", "BCM" or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



2. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



4. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks onto the items with "No indication", "NG", or "UNKWN" in the check sheet table.

					CAN	N DIAG SUPPOR				
SHLECT SYS	IEM screen	Initial diagnosis	Transmit diagnosis	F-CM	1CM	DISPLAY	Receive diagnosi MF1FR/ M&A	S BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	-
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-

#### NOTE:

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

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- The "CAN DIAG SUPPORT MNTR" items which are not in check sheet table are not related to diagnostic procedure on service manual.
  - Therefore, it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- 5. Check CAN communication line of the integrated display system. Refer to <u>AV-90, "AV Communication Line Check"</u>.
- Mark the "NG" or "UNKWN" item of the check sheet table from the result of CAN DIAG SUPPORT MONI-TOR check sheet.

#### NOTE:

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

7. According to the Check Sheet Results, start inspection.

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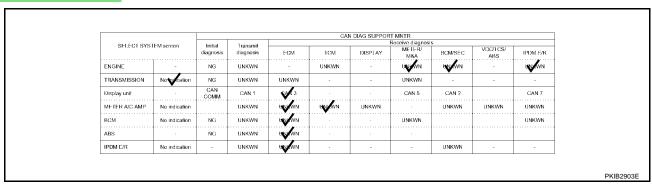
## **CHECK SHEET RESULTS (EXAMPLE)**

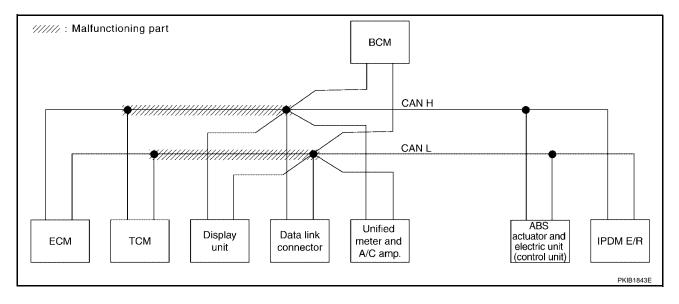
#### NOTE:

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

#### Case 1

Check harness between TCM and data link connector. Refer to <u>LAN-173</u>, "Circuit Check Between TCM and <u>Data Link Connector"</u>.





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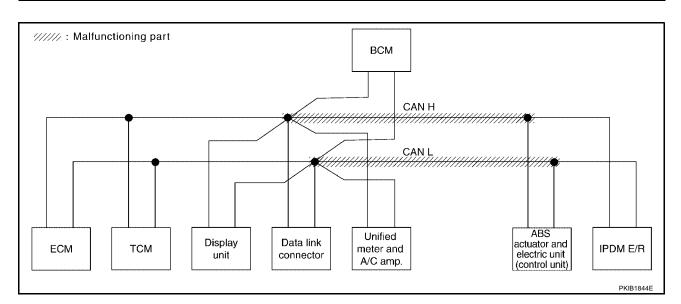
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Case 2

Check harness between data link connector and ABS actuator and electric unit (control unit). Refer to <u>LAN-173</u>, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit)".

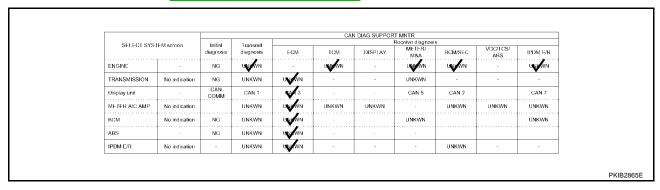
					CVI	N DIAG SUPPOR				
SHLECT SYS		Initial diagnosis	Transmit diagnosis	(-CM	1CM	DISPLAY	Receive diagnosi MF1FR/ M&A	8CM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	LENKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	-
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		<b>19</b> 17
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNIVAN	UNIVAN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN			UNIVAN
ABS		NG	UNKWN	LENUEWN						
IPDM E/R	No vercation	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-

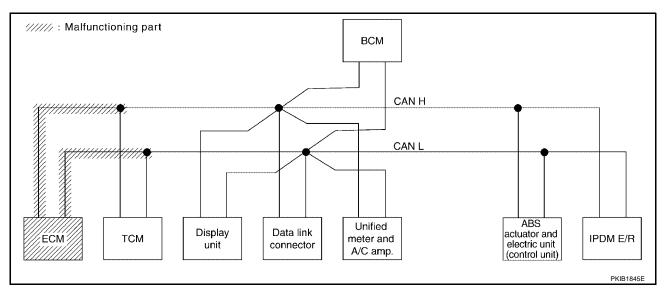


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Case 3
Check ECM circuit. Refer to <u>LAN-174, "ECM Circuit Check"</u>.





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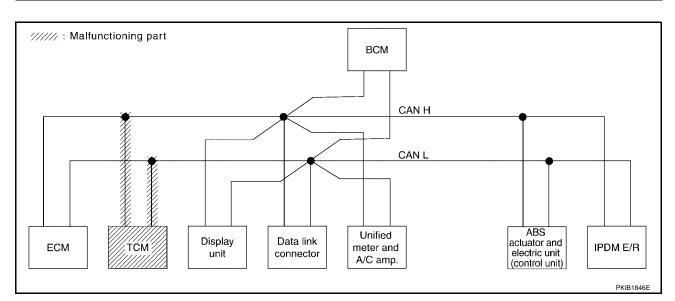
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Case 4
Check TCM circuit. Refer to <u>LAN-174, "TCM Circuit Check"</u>.

					CVI	DIAG SUPPOR				
SELECT SYS	IEM screen	Initial	Transmit				Receive diagnosi	s		
		diagnosis	diagnosis	ECM	1CM	DISPLAY	ME1ER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNIVAN	-	UNKWN	UNKWN	-	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	-
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNIFON	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-

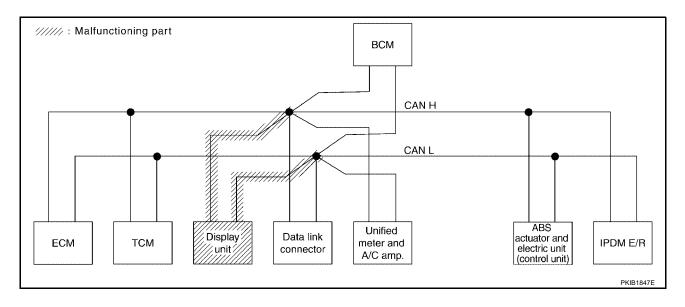


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Case 5
Check display unit circuit. Refer to <u>LAN-175</u>, "<u>Display Unit Circuit Check"</u>.

					CAI	N DIAG SUPPOR				
SELECT SYS		Initial diagnosis	Transmit diagnosis	ECM	1CM	DISPLAY	Receive diagnosi METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	-
Display unit		CAN COMM	<b>√</b> 1	<b>₩</b> 3			CA 5	<b>CA</b> 2		<b>€</b> 47
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNIVERN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-



[CAN]

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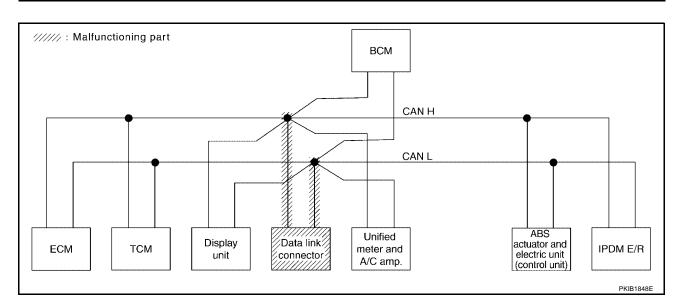
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Case 6

Check data link connector circuit. Refer to LAN-175, "Data Link Connector Circuit Check" .

					CAN	N DIAG SUPPOR				
SELECT SYS	IEM screen	Initial diagnosis	Transmit diagnosis	E-CM	1CM	DISPLAY	Receive diagnosi MF1FR/ M&A	8CM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	-
Display unit	i.	CAN	CAN 1	CAN 3			CAN 5	CAN 2		CAN 7
METER A/C AMP	No edication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
BCM	No too cation	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No ted cation	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-

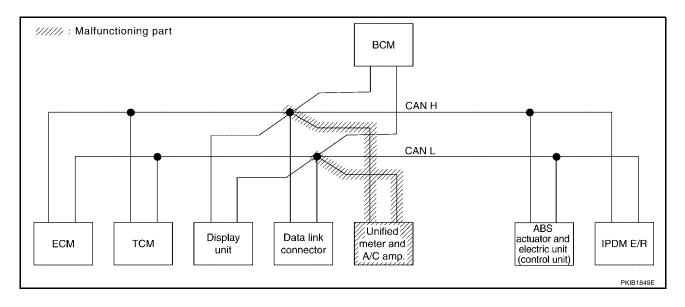


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Case 7
Check unified meter and A/C amp. circuit. Refer to <u>LAN-176</u>, "Unified Meter and A/C Amp. Circuit Check" .

					CAN	I DIAG SUPPOR				
SHLECT SYS		Initial diagnosis	Transmit diagnosis	ECM.	1CM	DISPLAY	Receive diagnosi ME1ER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNIVN	UNKWN	-	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNIVIN	-	-	-
Display unit		CAN COMM	CAN 1	CAN 3			<b>CA</b> 5	CAN 2		CAN 7
METER A/C AMP	No edication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNIVVN			UNKWN
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-



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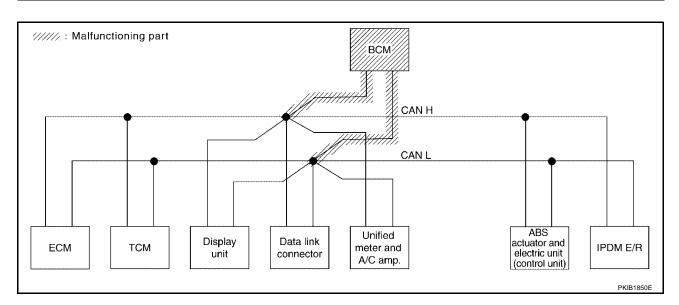
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Case 8
Check BCM circuit. Refer to <u>LAN-176, "BCM Circuit Check"</u>.

					CVI	DIAG SUPPOR				
SHLECT SYS		Initial diagnosis	Transmit diagnosis	(-CM	1CM	DISPLAY	Receive diagnosi MF1FR/ M&A	8CM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNIVAN	-	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	-
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	₩12		GAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNIFOVN	UNKWN	UNKWN
BCM	No edication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNIFWN	-	-



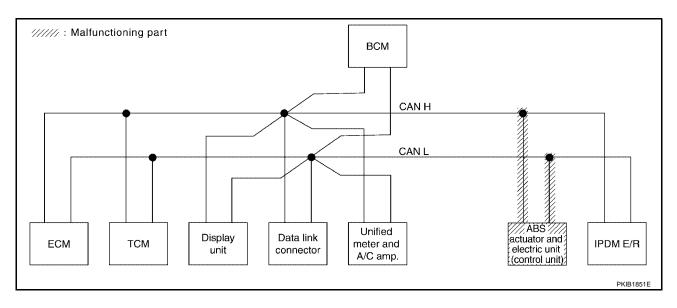
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Case 9

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-177</u>, "ABS Actuator and Electric Unit (Control Unit) Circuit Check".

					CAI	I DIAG SUPPOR				
SHLECT SYS		Initial diagnosis	Transmit diagnosis	FCM	1CM	DISPLAY	Receive diagnosi METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	-
Display unit		CAN COMM	CAN 1	CAN 3		·	CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNIVON	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNKWN	UNIVAN						
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-



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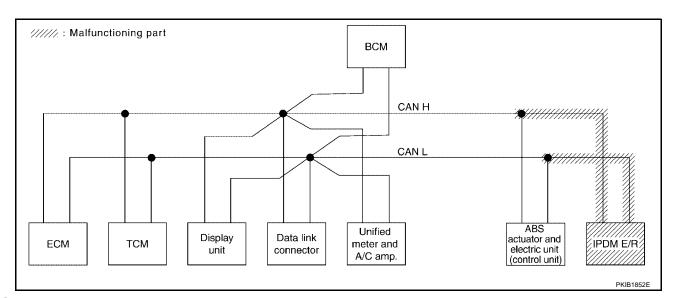
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Case 10

Check IPDM E/R circuit. Refer to LAN-177, "IPDM E/R Circuit Check" .

				CAN DIAG SUPPORT MNTR Receive diagnosis								
SHLECT SYS		Initial diagnosis	Transmit diagnosis	FCM	1CM	DISPLAY	ME1ER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R		
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	UNIFWN		
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	-		
Display unit		CAN COMM	CAN 1	CAN 3		·	CAN 5	CAN 2		<b>₩</b> 7		
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNIVAN		
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNIVEN		
ABS		NG	UNKWN	UNKWN								
IPDM E/R	Normalication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-		



Case 11

Check CAN communication circuit. Refer to LAN-178, "CAN Communication Circuit Check" .

					CAI	N DIAG SUPPOR				
SHLECT SYS		Initial diagnosis	Transmit diagnosis	FCM	1CM	DISPLAY	Receive diagnos ME1ER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNIVAN	-	UNIFWN	-	UNIKAN	UNITWN	-	UNIVVN
TRANSMISSION	Notine cation	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	-
Display unit		CAN COMM	₩1	<b>W</b> 13			OW 5	₩2		<b>W</b> 17
METER A/C AMP	No in leafion		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
BCM	No n cation	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	DAIRWN	UNIVAN						
IPDM E/R	Noting cation	-	UNKWN	UNKWN		-	-	UNKWN	-	-

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#### Case 12

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to  $\underline{\text{LAN-}178}$ , "IPDM E/R Ignition Relay  $\underline{\text{Circuit Check}}$ ".

					CAN	I DIAG SUPPOR				
SHLECT SYS		Initial diagnosis	Transmit diagnosis	(-CM	1CM	DISPLAY	Receive diagnosi METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNIKAN	-	UNKWN	UNKWN	-	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	-
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNRAN	UNKWN		UNKWN	UNIVAN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-

#### Case 13

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to <u>LAN-178</u>, "IPDM E/R Ignition Relay <u>Circuit Check"</u>.

					CVI	DIAG SUPPOR	T MNTR Receive diagnosi			
SHLECT SYS		Initial diagnosis	Transmit diagnosis	ECM	1CM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNIWN	-	-	UNIFWN	-	-	-
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNKWN	UNIEWN						
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-

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## Circuit Check Between TCM and Data Link Connector

## 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect TCM connector F56 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between TCM connector F56 terminals 3 (L), 4 (P) and data link connector M22 terminals 6 (L), 14 (P).

3 (L) - 6 (L)

: Continuity should exist.

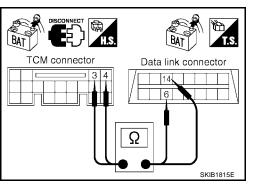
4 (P) - 14 (P)

: Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-160, "Work Flow".

NG >> Repair harness.



# Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit)

# 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ABS actuator and electric unit (control unit) connector E125 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ABS actuator and electric unit (control unit) connector E125 terminals 20 (L), 23 (P).

6 (L) - 20 (L)

: Continuity should exist.

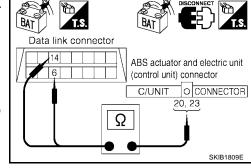
14 (P) - 23 (P)

: Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-160, "Work Flow".

NG >> Repair harness.



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Revision: July 2005 LAN-173 2005 Maxima

**ECM Circuit Check** 

## 1. CONNECTOR INSPECTION

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- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

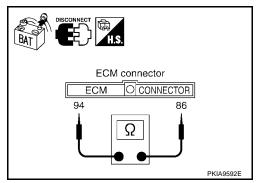
Check resistance between ECM connector M82 terminal 94 (L) and terminal 86 (P).

94 (L) - 86 (P) : Approx. 108 - 132 
$$\Omega$$

#### OK or NG

OK >> Replace ECM.

NG >> Repair harness between ECM connector M82 and TCM connector F56.



## **TCM Circuit Check**

UKS002L3

# 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect TCM connector F56.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

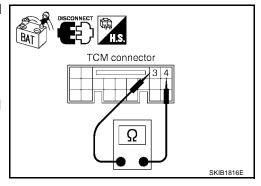
Check resistance between TCM connector F56 terminal 3 (L) and terminal 4 (P).

**3 (L) - 4 (P)** : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace TCM.

NG >> Repair harness between TCM connector F56 and ECM connector M82.



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**Display Unit Circuit Check** 

## 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect display unit connector M93.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

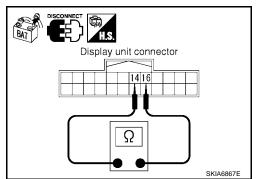
Check resistance between display unit connector M93 terminal 14 (L) and terminal 16 (P).

14 (L) - 16 (P) : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace display unit.

NG >> Repair harness between display unit connector M93 and data link connector M22.



## **Data Link Connector Circuit Check**

## 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check data link connector M22 terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

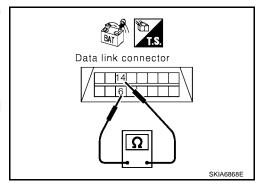
Check resistance between data link connector M22 terminal 6 (L) and terminal 14 (P).

6 (L) - 14 (P) : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Diagnose again. Refer to LAN-160, "Work Flow".

NG >> Repair harness between data link connector M22 and BCM connector M18.



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# Unified Meter and A/C Amp. Circuit Check

# 1. CONNECTOR INSPECTION

UKS002L7

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect unified meter and A/C amp. connector M49.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

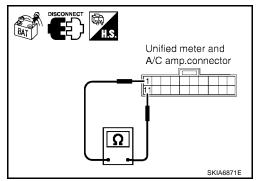
Check resistance between unified meter and A/C amp. connector M49 terminal 1 (L) and terminal 11 (P).

: Approx. 54 - 66  $\Omega$ 

#### OK or NG

OK >> Replace unified meter and A/C amp.

NG >> Repair harness between unified meter and A/C amp. connector M49 and data link connector M22.



## **BCM Circuit Check**

UKS002L6

# 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect BCM connector M18.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between BCM connector M18 terminal 39 (L) and terminal 40 (P).

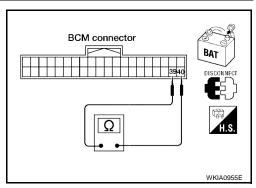
: Approx. 54 - 66  $\Omega$ 

#### OK or NG

OK >> Replace BCM.

NG >> Repair harnes

>> Repair harness between BCM connector M18 and data link connector M22.



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

# 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ABS actuator and electric unit (control unit) connector E125.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

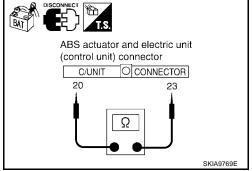
Check resistance between ABS actuator and electric unit (control unit) connector E125 terminal 20 (L) and terminal 23 (P).

: Approx. 54 - 66  $\Omega$ 

#### OK or NG

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

NG >> Repair harness between ABS actuator and electric unit (control unit) connector E125 and IPDM E/R connector



## IPDM E/R Circuit Check

E121.

# 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect IPDM E/R connector E121.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between IPDM E/R connector E121 terminal 48 (L) and terminal 49 (P).

: Approx. 108 - 132  $\Omega$ 

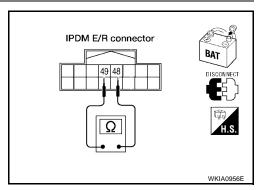
#### OK or NG

OK

>> Replace IPDM E/R.

NG

>> Repair harness between IPDM E/R connector E121 and ABS actuator and electric unit (control unit) connector E125.



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**CAN Communication Circuit Check** 

## 1. CONNECTOR INSPECTION

UKS002LA

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect the following module and control unit connectors and check terminals for deformation, disconnection, looseness or damage.
- ECM
- TCM (Transmission control module)
- Display unit
- Unified meter and A/C amp.
- BCM (Body control module)
- ABS actuator and electric unit (control unit)
- IPDM E/R (Intelligent power distribution module engine room)

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

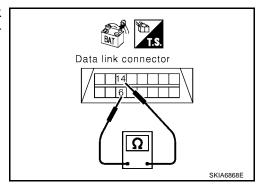
# 2. CHECK HARNESS FOR SHORTED CIRCUITS

With all module and control unit connectors disconnected, check continuity between data link connector M22 terminals 6 (L) and 14 (P).

#### OK or NG

OK >> GO TO 3.

NG >> Repair the harness.



# 3. CHECK HARNESS FOR SHORT TO GROUND

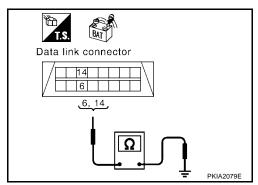
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ground.

6 (L) - Ground : Continuity should not exist. 14 (P) - Ground : Continuity should not exist.

#### OK or NG

OK >> Check ECM and IPDM E/R. Refer to <u>LAN-179</u>, "Component Inspection".

NG >> Repair the harness.



# IPDM E/R Ignition Relay Circuit Check

UKS002LB

Check the following. If no malfunction is found, replace the IPDM E/R.

- IPDM E/R power supply 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".

[CAN]

UKS002LC

Component Inspection ECM AND IPDM E/R INTERNAL CIRCUIT INSPECTION

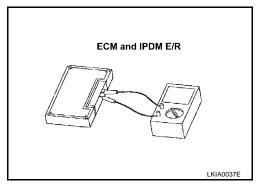
- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.

**94 - 86** : Approx. 108 - 132  $\Omega$ 

Check resistance between IPDM E/R terminals 48 and 49.

48 - 49

: Approx. 108 - 132  $\Omega$ 



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# **CAN SYSTEM (TYPE 8)**

PFP:23710

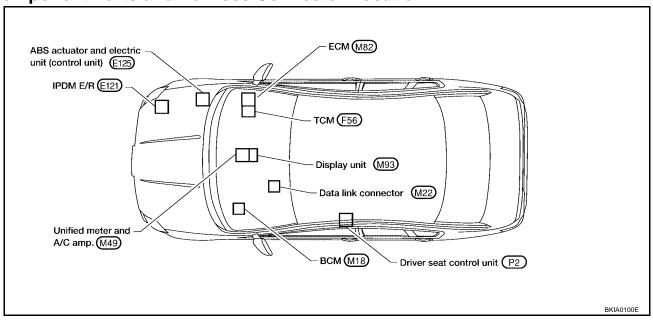
# **System Description**

UKS0029D

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**

UKS0029E



[CAN] **Schematic** UKS0029F Α В С ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) 8 D Е DRIVER SEAT CONTROL UNIT 9 F G Н UNIFIED METER AND A/C AMP. BCM (BODY CONTROL MODULE) 5 38 LAN DATA LINK CONNECTOR - 19  $\mathbb{N}$ TCM (TRANSMISSION CONTROL MODULE) 86 94

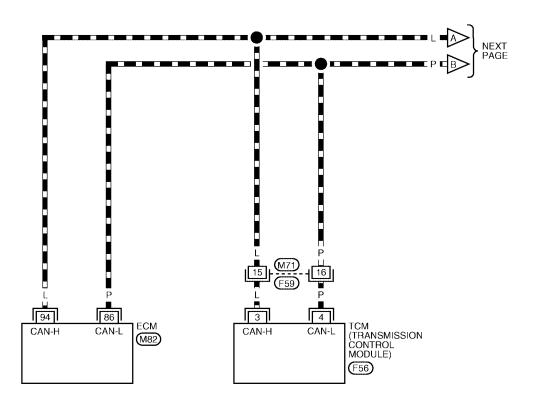
BKWA0290E

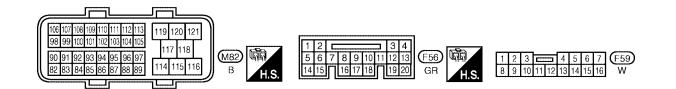
Wiring Diagram - CAN -

IKS0029G

### LAN-CAN-16

: DATA LINE





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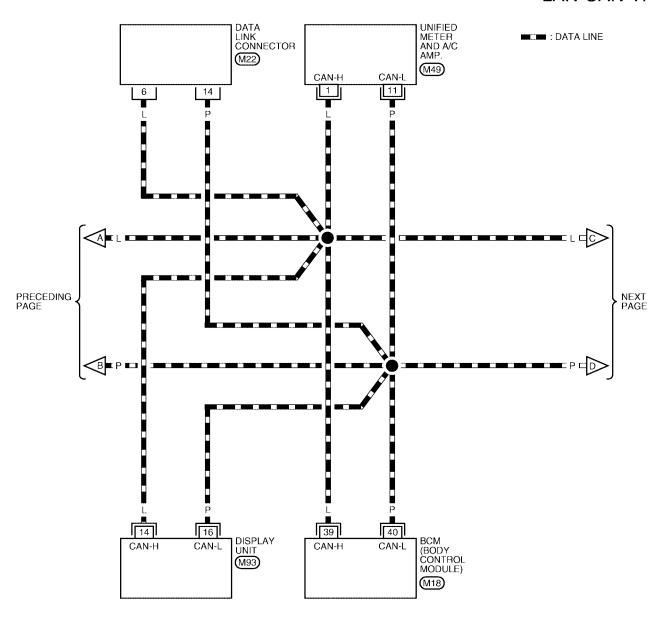
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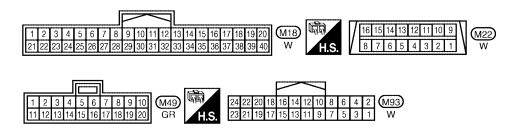
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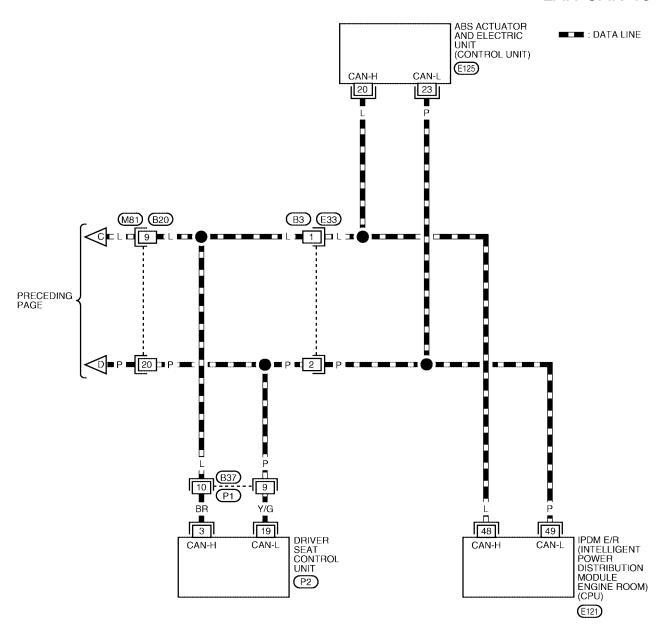
### LAN-CAN-17

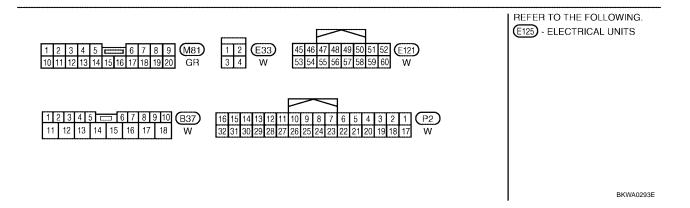




BKWA0292E

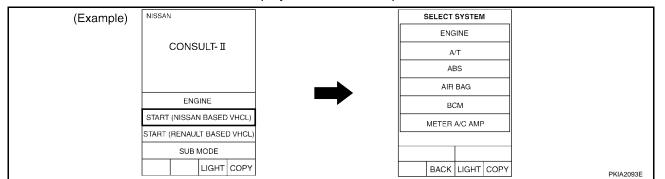
### LAN-CAN-18



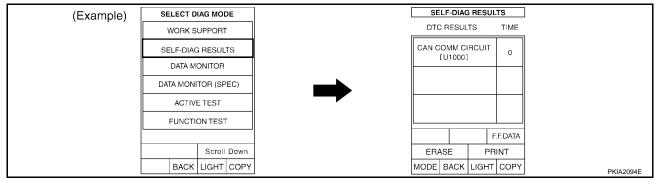


Work Flow

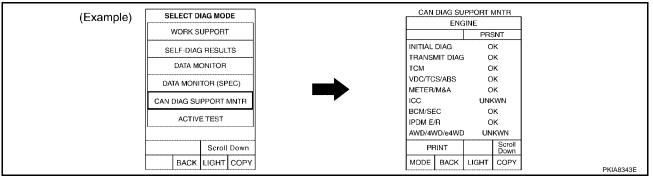
1. When there are no indications of "TRANSMISSION", "METER A/C AMP", "BCM", "AUTO DRIVE POS." or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



2. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



4. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks onto the items with "No indication", "NG", or "UNKWN" in the check sheet table.

					CAI	N DIAG SUPPOR				
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Roceivo diagnosi METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN	UNKWN		UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			
Display unif		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

#### 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]

- The "CAN DIAG SUPPORT MNTR" items which are not in check sheet table are not related to diagnostic procedure on service manual.
  - Therefore, it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- 5. Check CAN communication line of the integrated display system. Refer to <u>AV-90, "AV Communication Line Check"</u>.
- 6. Mark the "NG" or "UNKWN" item of the check sheet table from the result of CAN DIAG SUPPORT MONITOR check sheet.

#### NOTE:

- If "NG" is displayed on "CAN COMM" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- 7. According to the Check Sheet Results, start inspection.

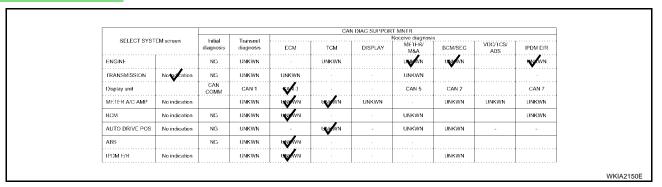
### **CHECK SHEET RESULTS (EXAMPLE)**

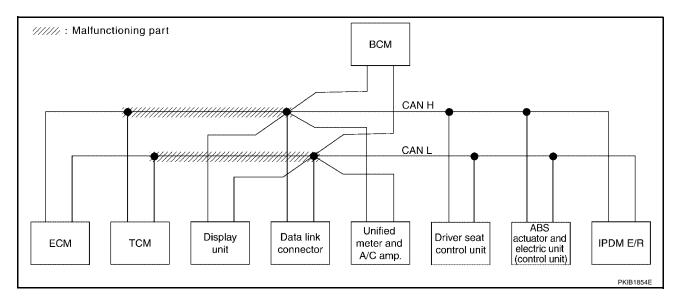
#### NOTE:

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

#### Case 1

Check harness between TCM and data link connector. Refer to <u>LAN-200</u>, "Circuit Check Between TCM and <u>Data Link Connector"</u>.





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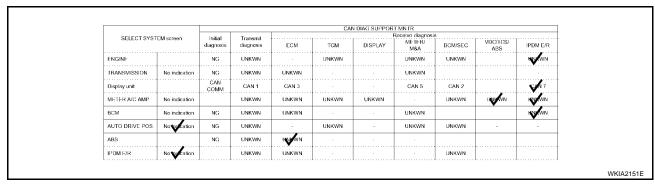
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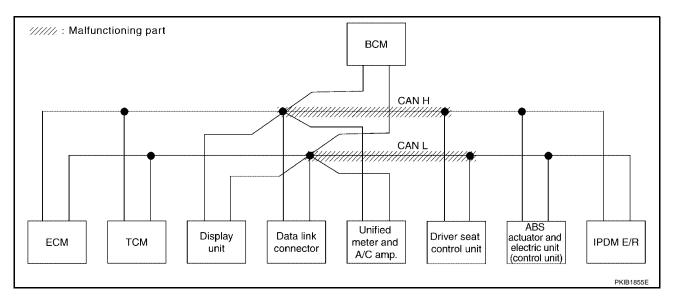
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Case 2

Check harness between data link connector and driver seat control unit. Refer to <u>LAN-200</u>, "Circuit Check <u>Between Data Link Connector and Driver Seat Control Unit"</u>.





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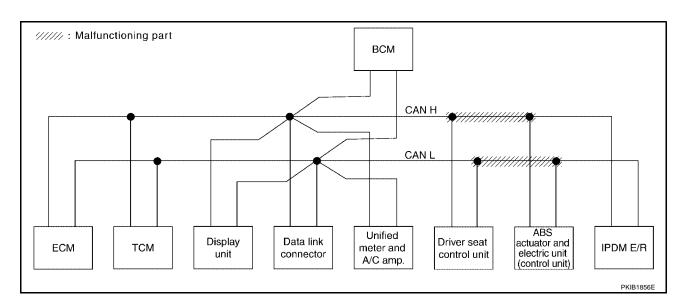
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Case 3

Check harness between driver seat control unit and ABS actuator and electric unit (control unit). Refer to <u>LAN-201</u>, "Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric Unit (Control Unit)".

					CAN	DIAG SUPPOR				
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Receive diagnosi MFTFR/	BCM/SEC	VDC/TCS/	IPDM E/R
	y	alagnosis	alognosio	20101	10111	5101 511	M&A	DOWNCEO	ABS	
ENGINE		NG	UNKWN		UNKWN		UNKWN	UNKWN		HANKAN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		V/17
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	LINIFAN	HOMESON
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			HANKAN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNIVAN						
IPDM E/R	No pocation		UNKWN	UNKWN				UNKWN		

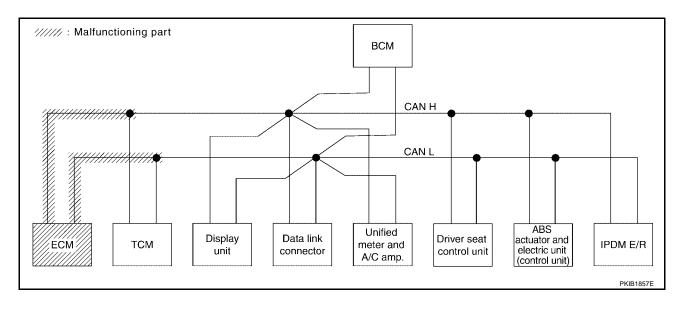


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Case 4
Check ECM circuit. Refer to <u>LAN-201, "ECM Circuit Check"</u>.

					CA	N DIAG SUPPOR				
SELECT SYST		Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Roceivo diagnosi MF1FR/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	THIRAM		DNIEVN		UNIKAVN	UNIVER		HANKWA
FRANSMISSION	No indication	NG	UNKWN	UNIVAN			UNKWN			
Display unif		CAN COMM	CAN 1	₩/3			CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNIWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNIVAN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNIWN						
IPDM E/R	No indication		UNKWN	UNIWN				UNKWN		



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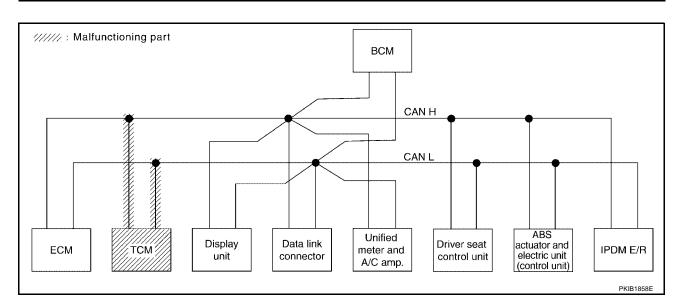
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Case 5
Check TCM circuit. Refer to <u>LAN-202</u>, "TCM Circuit Check" .

					CAN	LDIAG SUPPOR	TMNTR			
SELECT SYST	EM screen	Initial	Transmit		· · · · · · · · · · · · · · · · · · ·		Receive diagnosi	s	· · · · · · · · · · · · · · · · · · ·	·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNIFOVN		UNKWN	UNKWN		UNKWN
TRANSMISSION	No no cation	NG	UNKWN	UNKWN			UNKWN			
Display unif		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNIKAN	UNKWN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	ONRAN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

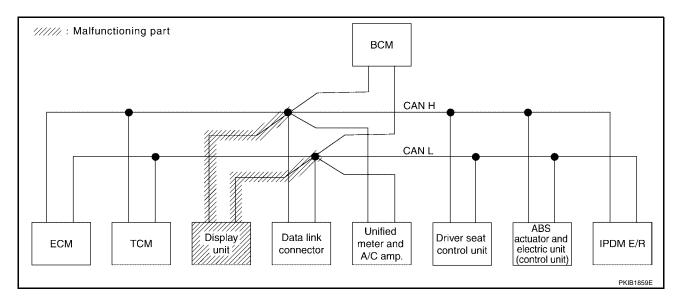


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Case 6
Check display unit circuit. Refer to <u>LAN-202</u>, "<u>Display Unit Circuit Check</u>" .

					CAI	N DIAG SUPPOR				
SELECT SYS		Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Roceivo diagnosi METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN	UNKWN		UNKWN
FRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			-
Display unif		CAN COMM	<b>6</b> 44€1	₩/3			CAN 5	<b>€</b> /2		<b>€</b> /17
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNIVEN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		



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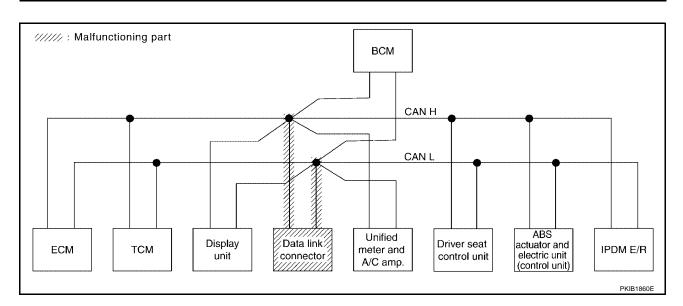
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Case 7
Check data link connector circuit. Refer to <u>LAN-203</u>, "<u>Data Link Connector Circuit Check</u>" .

					CAI	N DIAG SUPPOR				
SELECT SYS	TEM screen	Initial	Transmit		· · · · · · · · · · · · · · · · · · ·		Receivo diagnosi METER/	1	VDC/TCS/	r
		diagnosis	diagnosis	ECM	TCM	DISPLAY	M&A	BCM/SEC	ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN	UNKWN		UNKWN
FRANSMISSION	No no cation	NG	UNKWN	UNKWN			UNKWN	1		-
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		CAN 7
METER A/C AMP	No notcation		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No no cation	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No tradication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No topication		UNKWN	UNKWN				UNKWN		

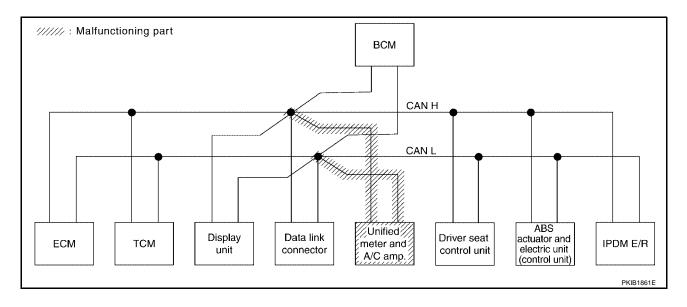


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Case 8
Check unified meter and A/C amp. circuit. Refer to LAN-203, "Unified Meter and A/C Amp. Circuit Check".

					CAI	DIAG SUPPOR	TMNTR			
SELECT SYS	FEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Roceivo diagnosi METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNIVAN	UNKWN		UNKWN
FRANSMISSION	No indication	NG	UNKWN	UNKWN			UNIVVN			
Display unit		CAN COMM	CAN 1	GAN 3			₩5	CAN 2		CAN 7
METER A/C AMP	No too cation		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN			UNIVAN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNIKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		



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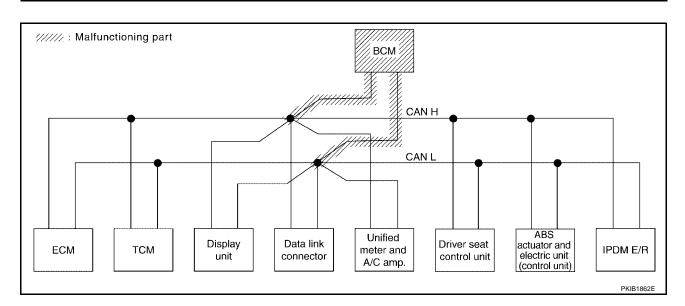
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Case 9
Check BCM circuit. Refer to <u>LAN-204, "BCM Circuit Check"</u>.

					CAN	LDIAG SUPPOR				
SELECT SYST	EM screen	Initial	Transmit		· · · · · · · · · · · · · · · · · · ·		Receive diagnosi	s	· · · · · · · · · · · · · · · · · · ·	·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN	UNIWN		UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	<b>4</b> /2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		DNRAM	UNKWN	UNKWN
ВСМ	No volcation	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNIVAN	-	-
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication		UNKWN	UNKWN				UNIFWN		



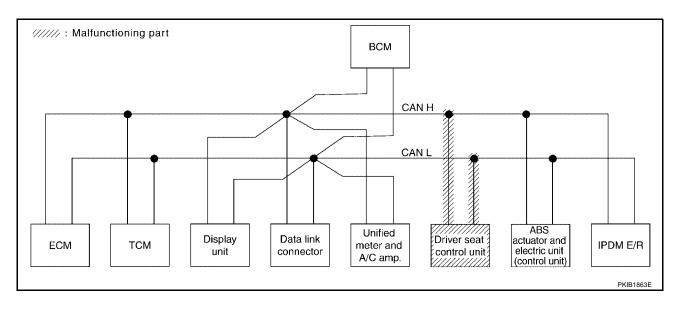
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Case 10

Check driver seat control unit circuit. Refer to LAN-204, "Driver Seat Control Unit Circuit Check" .

					CAF	I DIAG SUPPOR				
SELECT SYS	FEM screen	Initial diagnosis	Transmit diagnosis	ECM	ТСМ	DISPLAY	Roceivo diagnosi METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN	UNKWN		UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			
Display unif		CAN COMM	CAN 1	GAN 3			CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No to Cation	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		



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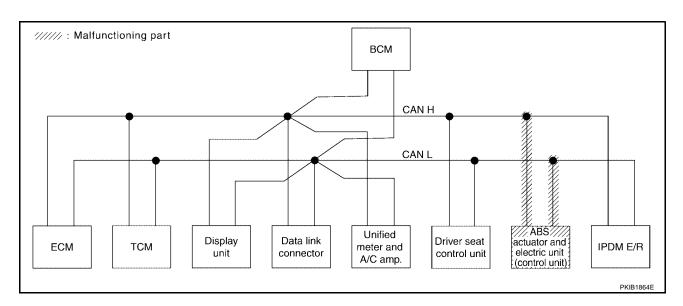
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Case 11

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-205</u>, "ABS Actuator and Electric Unit (Control Unit) Circuit Check".

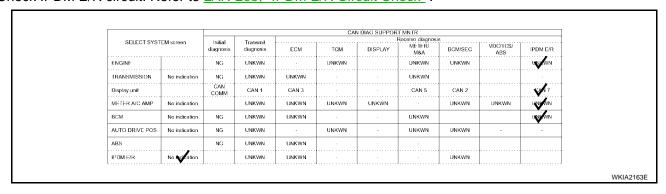
						LDIAG SUPPOR				
SELECT SYS		Initial diagnosis	Transmit diagnosis	ECM	ТСМ	DISPLAY	Roceivo diagnosi METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN	UNKWN		UNKWN
FRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	TIMENA	UNKWN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	CHIR NA	HNRAN						
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

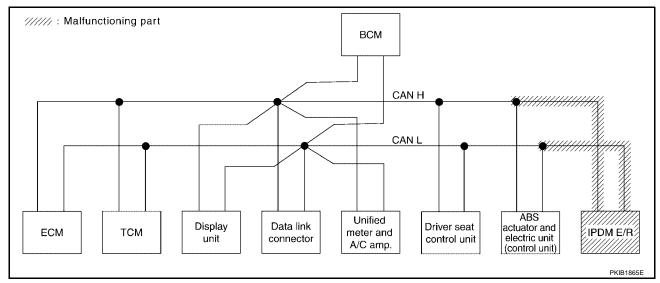


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Case 12
Check IPDM E/R circuit. Refer to <u>LAN-205</u>, "IPDM E/R Circuit Check".





Case 13
Check CAN communication circuit. Refer to <u>LAN-206</u>, "CAN Communication Circuit Check" .

					CAN	I DIAG SUPPOR				
SELECT SYS	FEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	DISPLAY	Roceivo diagnosi METER/	BCM/SEC	VDC/TCS/	IPDM E/R
ENGINE	T	NG	Linginosis	EGWI		DISPLAT	M&A UNI WN	LENDAN	ABS	UNIWN
ENGINE	ļ <b>,</b>	INC	· V						ļ	
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			
Display unit		CAN COMM	<b>₩</b> 1	₩/3			<b>√</b> 15	<b>₩</b> 2		<b>V</b> /17
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	٠.	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	DAIRAN	UNIVAN						
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

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#### Case 14

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-206, "IPDM E/R Ignition Relay Circuit Check"</u> .

					CAN	DIAG SUPPOR				
SELECT SYST	EM screen	Initial	Transmit		,		Receivo diagnosi	s	******	q
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		LINIUWN		UNKWN	UNKWN		UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			-
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNIWN	UNKWN		UNKWN	DNAM	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNIVAN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN						
IPOM E/R	No indication		UNKWN	UNKWN				UNKWN		

#### Case 15

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to LAN-206, "IPDM E/R Ignition Relay Circuit Check".

				CAN DIAG SUPPORT MN FR							
SELECT SYST	EM screen	Initial	Transmit	Roceivo diagnosis							
	d		diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R	
ENGINE		NG	UNKWN		UNKWN		UNKWN	UNKWN		UNKWN	
TRANSMISSION	No indication	NG	UNKWN	UNIVAN			UNIVAN	1		-	
Display unit		CAN COMM	CAN 1	GAN 3			CAN 5	CAN 2		CAN 7	
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN	
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN	
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-	
ABS		NG	UNKWN	UNIVAN							
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN			

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### Circuit Check Between TCM and Data Link Connector

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect TCM connector F56 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between TCM connector F56 terminals 3 (L), 4 (P) and data link connector M22 terminals 6 (L), 14 (P).

3 (L) - 6 (L)

: Continuity should exist.

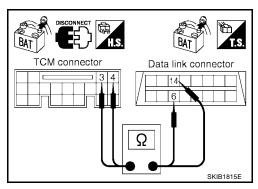
4 (P) - 14 (P)

: Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-185, "Work Flow".

NG >> Repair harness.



### Circuit Check Between Data Link Connector and Driver Seat Control Unit

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### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

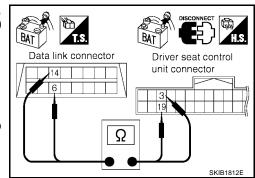
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G).

6 (L) - 3 (BR) : Continuity should exist. 14 (P) - 19 (Y/G) : Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-185, "Work Flow".

NG >> Repair harness.



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#### Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric **Unit (Control Unit)** UKS002KL

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect driver seat control unit connector P2, ABS actuator and electric unit (control unit) connector E125 and ECM connector M82.
- Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G) and ABS actuator and electric unit (control unit) connector E125 terminals 20 (L), 23 (P).

> 3 (BR) - 20 (L) 19 (Y/G) - 23 (P)

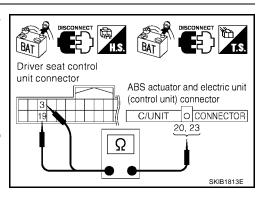
: Continuity should exist.

# : Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-185, "Work Flow".

NG >> Repair harness.



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### **ECM Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF. 1.
- Disconnect the negative battery terminal.
- Disconnect ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between ECM connector M82 terminal 94 (L) and terminal 86 (P).

> 94 (L) - 86 (P) : Approx. 108 - 132  $\Omega$

#### OK or NG

OK >> Replace ECM.

NG >> Repair harness between ECM connector M82 and TCM connector F56.

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**TCM Circuit Check** 

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect TCM connector F56.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. check harness for open circuit

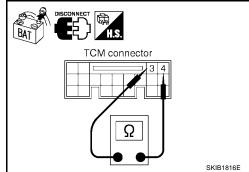
Check resistance between TCM connector F56 terminal 3 (L) and terminal 4 (P).

**3 (L) - 4 (P)** : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

>> Replace TCM. OK

>> Repair harness between TCM connector F56 and ECM NG connector M82.



### **Display Unit Circuit Check**

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### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect display unit connector M93.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between display unit connector M93 terminal 14 (L) and terminal 16 (P).

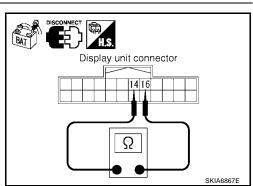
14 (L) - 16 (P) : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace display unit.

NG

>> Repair harness between display unit connector M93 and data link connector M22.



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### **Data Link Connector Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check data link connector M22 terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

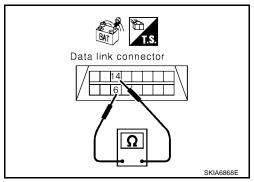
Check resistance between data link connector M22 terminal 6 (L) and terminal 14 (P).

6 (L) - 14 (P) : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Diagnose again. Refer to LAN-185, "Work Flow".

NG >> Repair harness between data link connector M22 and BCM connector M18.



### Unified Meter and A/C Amp. Circuit Check

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect unified meter and A/C amp. connector M49.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

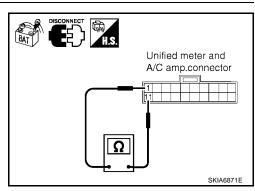
Check resistance between unified meter and A/C amp. connector M49 terminal 1 (L) and terminal 11 (P).

**1 (L) - 11 (P)** : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace unified meter and A/C amp.

NG >> Repair harness between unified meter and A/C amp. connector M49 and data link connector M22.



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**LAN-203** Revision: July 2005 2005 Maxima

**BCM Circuit Check** 

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect BCM connector M18.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. check harness for open circuit

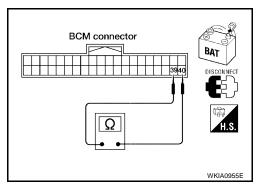
Check resistance between BCM connector M18 terminal 39 (L) and terminal 40 (P).

**39 (L) - 40 (P)** : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace BCM.

NG >> Repair harness between BCM connector M18 and data link connector M22.



#### **Driver Seat Control Unit Circuit Check**

### 1. CONNECTOR INSPECTION

Turn ignition switch OFF.

- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between driver seat control unit connector P2 terminal 3 (BR) and terminal 19 (Y/G).

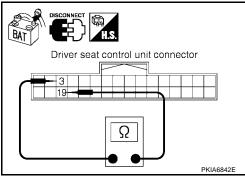
**3 (BR) - 19 (Y/G)** : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace driver seat control unit.

NG >> Repair harness between driver seat control unit connector P2 and data link connector M22.





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

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ABS actuator and electric unit (control unit) connector E125.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between ABS actuator and electric unit (control unit) connector E125 terminal 20 (L) and terminal 23 (P).

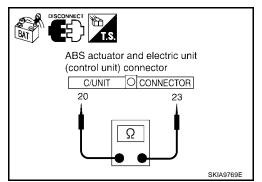
: Approx. 54 - 66  $\Omega$ 

### OK or NG

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

NG

>> Repair harness between ABS actuator and electric unit (control unit) connector E125 and IPDM E/R connector E121.



### IPDM E/R Circuit Check

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect IPDM E/R connector E121.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between IPDM E/R connector E121 terminal 48 (L) and terminal 49 (P).

: Approx. 108 - 132  $\Omega$ 

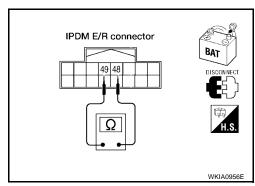
#### OK or NG

OK

>> Replace IPDM E/R.

NG

>> Repair harness between IPDM E/R connector E121 and ABS actuator and electric unit (control unit) connector E125.



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### **CAN Communication Circuit Check**

### 1. CONNECTOR INSPECTION

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- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect the following module and control unit connectors and check terminals for deformation, disconnection, looseness or damage.
- ECM
- TCM (Transmission control module)
- Display unit
- Unified meter and A/C amp.
- BCM (Body control module)
- Driver seat control unit
- ABS actuator and electric unit (control unit)
- IPDM E/R (Intelligent power distribution module engine room)

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

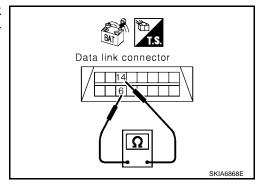
### 2. CHECK HARNESS FOR SHORTED CIRCUITS

With all module and control unit connectors disconnected, check continuity between data link connector M22 terminals 6 (L) and 14 (P).

#### OK or NG

OK >> GO TO 3.

NG >> Repair the harness.



### 3. CHECK HARNESS FOR SHORT TO GROUND

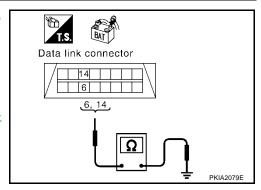
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ground.

6 (L) - Ground : Continuity should not exist. 14 (P) - Ground : Continuity should not exist.

#### OK or NG

OK >> Check ECM and IPDM E/R. Refer to <u>LAN-207</u>, "Component Inspection".

NG >> Repair the harness.



## IPDM E/R Ignition Relay Circuit Check

UKS002KW

Check the following. If no malfunction is found, replace the IPDM E/R.

- IPDM E/R power supply 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".

[CAN]

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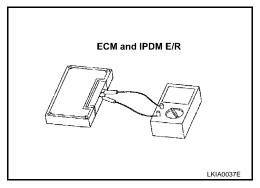
Component Inspection ECM AND IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.

**94 - 86** : Approx. 108 - 132  $\Omega$ 

Check resistance between IPDM E/R terminals 48 and 49.

**48 - 49** : Approx.  $108 - 132 \Omega$ 



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### **CAN SYSTEM (TYPE 9)**

PFP:23710

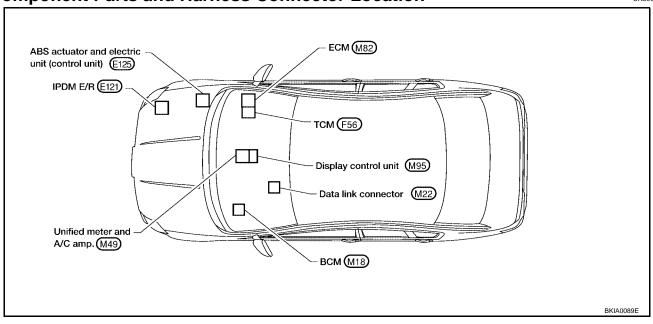
### **System Description**

LIKS00291

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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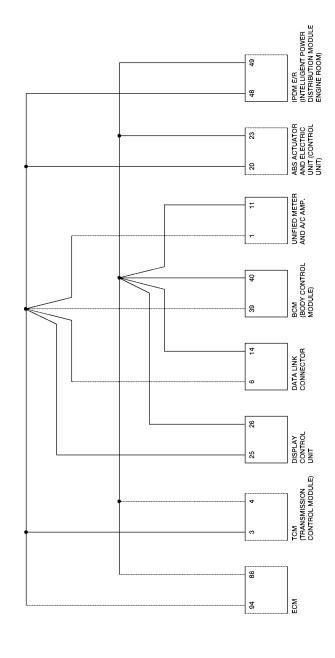
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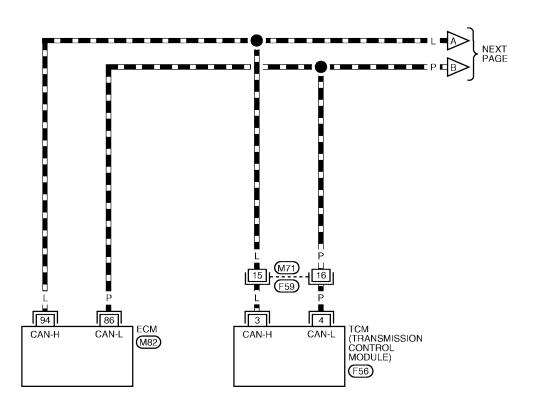
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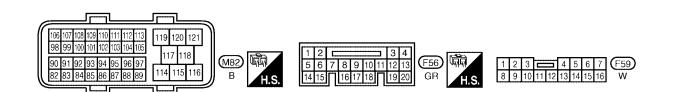
Wiring Diagram - CAN -

IKS002A1

### LAN-CAN-19

: DATA LINE





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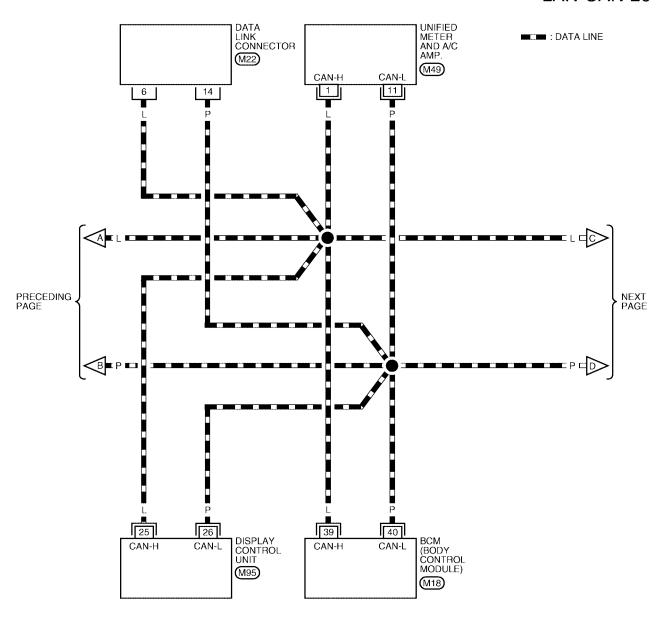
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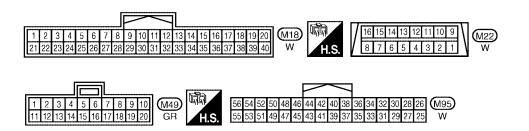
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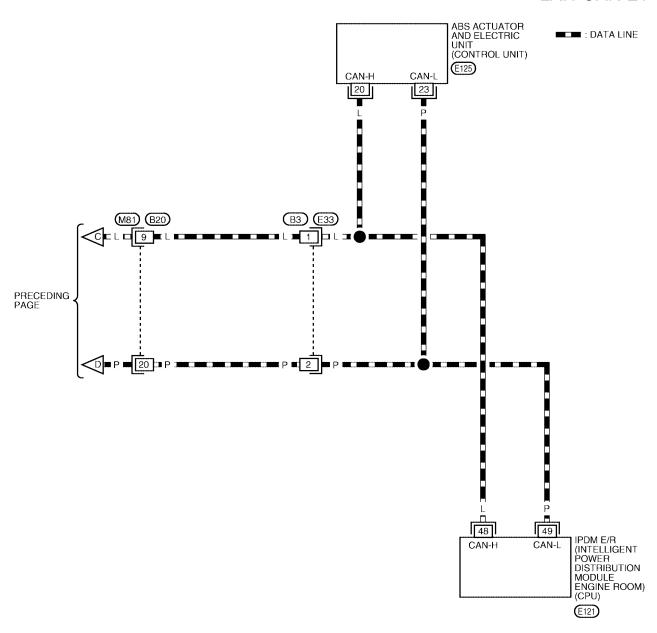
### LAN-CAN-20

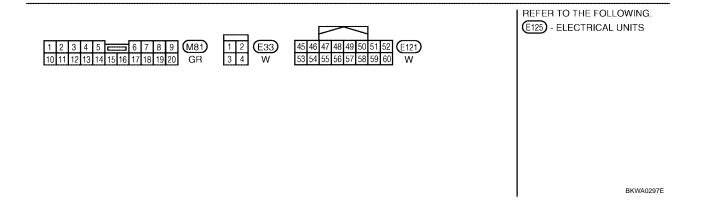




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### LAN-CAN-21

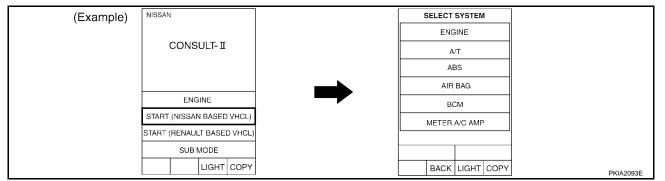




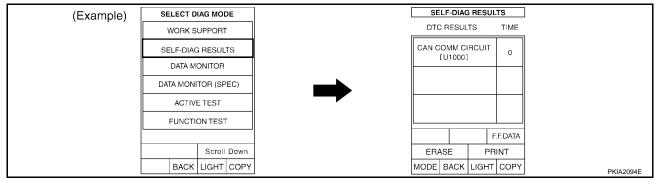
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Work Flow

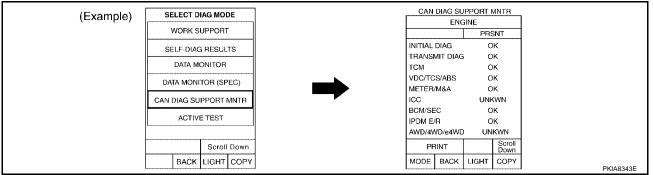
1. When there are no indications of "TRANSMISSION", "METER A/C AMP", "BCM" or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



 Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



4. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks onto the items with "No indication", "NG", or "UNKWN" in the check sheet table.

			CAN DIAG SUPPORT MATE							
SELECT SYST	SELECT SYSTEM screen		Transmit diagnosis	ECM	тсм	DISPLAY	Receive diagnosi METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5			CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

#### 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]

- The "CAN DIAG SUPPORT MNTR" items which are not in check sheet table are not related to diagnostic procedure on service manual.
  - Therefore, it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- 5. Check CAN communication line of the navigation system.
- 6. Mark the "NG" or "UNKWN" item of the check sheet table from the result of CAN DIAG SUPPORT MONITOR check sheet.

#### NOTE:

- If "NG" is displayed on "CAN COMM" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- 7. According to the Check Sheet Results, start inspection.

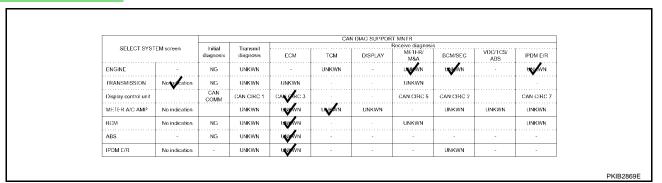
### **CHECK SHEET RESULTS (EXAMPLE)**

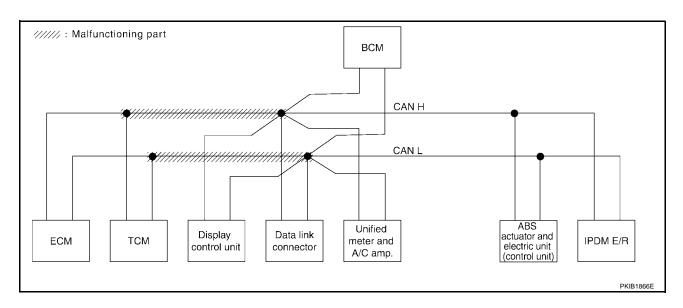
#### NOTE:

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

#### Case 1

Check harness between TCM and data link connector. Refer to <u>LAN-226</u>, "Circuit Check Between TCM and <u>Data Link Connector"</u>.





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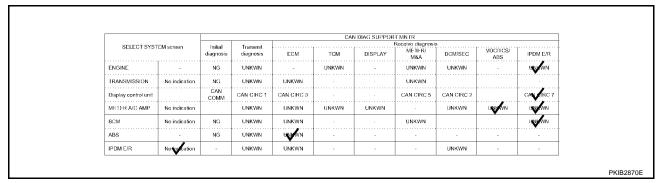
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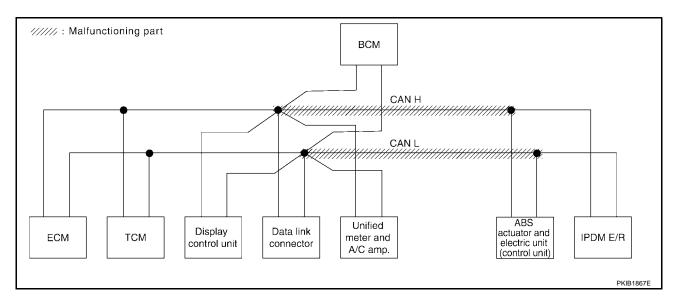
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Case 2

Check harness between data link connector and ABS actuator and electric unit (control unit). Refer to <u>LAN-226</u>, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit)".





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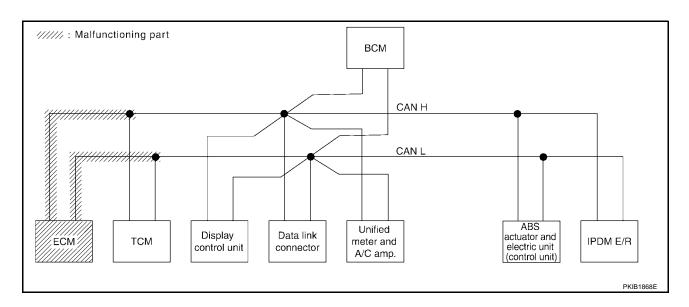
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Case 3
Check ECM circuit. Refer to <u>LAN-227, "ECM Circuit Check"</u>.

						LDIAG SUPPOR				
SELECT SYS	TEM screen	Initial	Transmit		,		Receive diagnosi METER/	s	VDC/TCS/	q
		diagnosis	diagnosis	ECM	TCM	DISPLAY	M&A	BCM/SEC	ABS	IPDM E/R
ENGINE	-	NG	UNIEVVN	-	DOM: NA	-	UNIVAN	UNIVAN	-	UNIVAN
FRANSMISSION	No indication	NG	UNKWN	THEN			UNKWN			
Display control unit		CAN COMM	CAN CIRC 1	CAN GIRC 3			CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNIVAN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	THEFT			UNKWN			UNKWN
ABS		NG	UNKWN	UNRWN						
IPDM E/R	No indication		UNKWN	UNIVAN				UNKWN		

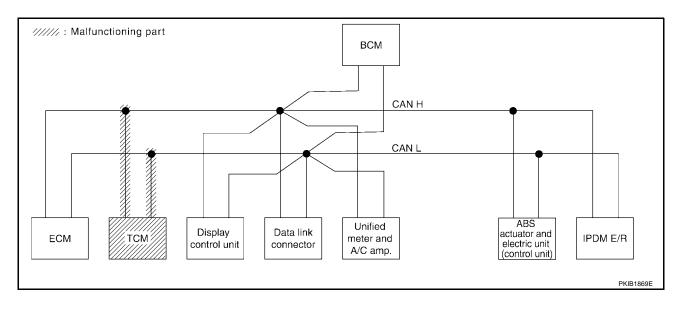


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Case 4
Check TCM circuit. Refer to <u>LAN-227</u>, "TCM Circuit Check" .

					CAI	N DIAG SUPPOR				
SELECT SYS	TEM screen	Initial	Transmit		,	,	Receive diagnosi	S	y	· · · · · · · · · · · · · · · · · · ·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	DOMENN	-	UNKWN	UNKWN	-	UNKWN
TRANSMISSION	No pacation	NG	UNKWN	UNKWN			UNKWN			
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3	· · · · · · · · · · · · · · · · · · ·		CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	<b>TARRAN</b>	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		



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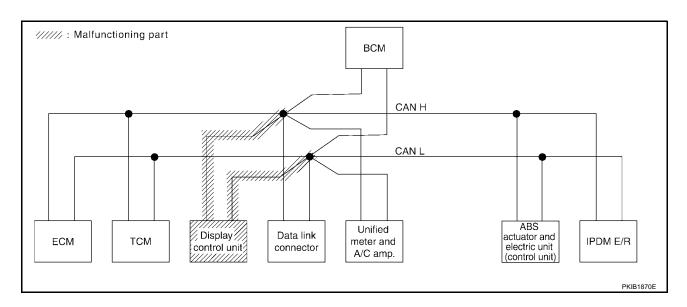
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Case 5
Check display control unit circuit. Refer to <u>LAN-228</u>, "<u>Display Control Unit Circuit Check</u>" .

					CAI	N DIAG SUPPOR				
SELECT SYST		Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			
Display control unit		CAN COMM	CAN FIRC 1	CAN (IRC 3			CAN IRC 5	CAN FIRC 2		CAU RC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNIWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN		i.	UNKWN			UNKWN
ABS	-	NG	UNKWN	UNKWN	-	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN			-	UNKWN	-	-

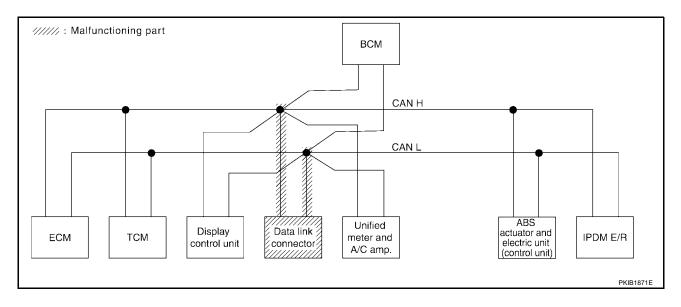


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Case 6
Check data link connector circuit. Refer to <u>LAN-228</u>, "<u>Data Link Connector Circuit Check"</u>.

					CAI	N DIAG SUPPOR				
SELECT SYST	FEM screen	Initial	Transmit		· · · · · · · · · · · · · · · · · · ·		Receive diagnosi: METER/	1	VDC/TCS/	T
		diagnosis	diagnosis	ECM	TCM	DISPLAY	M&A	BCM/SEC	ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	UNKWN
TRANSMISSION	Notopication	NG	UNKWN	UNKWN			UNKWN			
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	Notagication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	Notarication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS	-	NG	UNKWN	UNKWN	-	-	-	-	-	-
IPDM E/R	No to cation	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-



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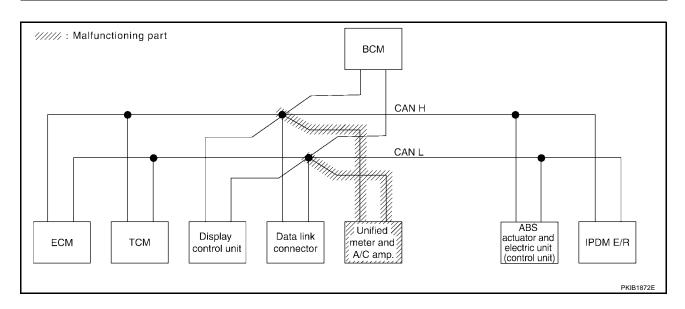
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Case 7

Check unified meter and A/C amp. circuit. Refer to LAN-229, "Unified Meter and A/C Amp. Circuit Check" .

			1		CAF	DIAG SUPPOR				
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Receive diagnosis METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNIFON	UNKWN	-	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNIVAN			
Display control unit		CAN	CAN CIRC 1	CAN CIRC 3			CAN RC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	Notarication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	,		UNIVAN			UNKWN
ABS	-	NG	UNKWN	UNKWN	-	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN				UNKWN	-	-

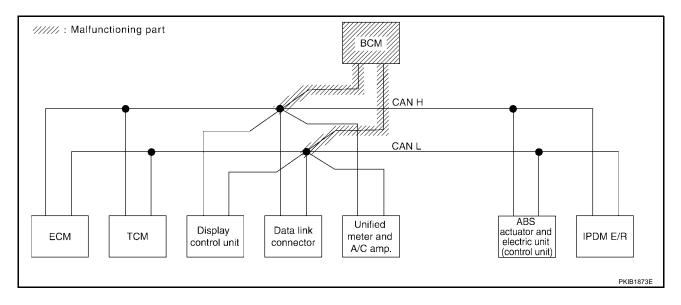


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Case 8
Check BCM circuit. Refer to <u>LAN-229</u>, "BCM Circuit Check" .

					CAI	N DIAG SUPPOF				
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Receive diagnosi: METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNISAN	-	UNKWN
FRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			
Display control unit		CAN COMM	CAN GIRC 1	CAN CIRC 3			CAN CIRC 5	CAN PIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		LINIVAN	UNKWN	UNKWN
ВСМ	Notation	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS	-	NG	UNKWN	UNKWN	-	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNIVN	-	-



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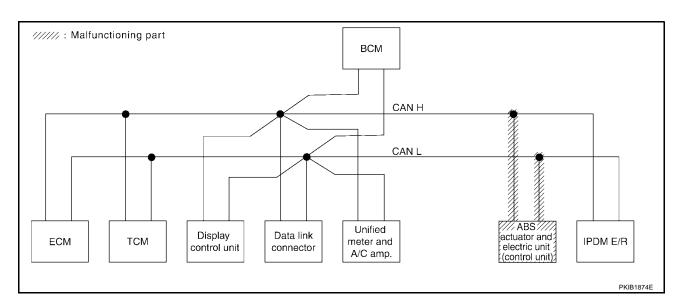
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Case 9

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-230</u>, "ABS Actuator and Electric Unit (Control Unit) Circuit Check".

					CAI	N DIAG SUPPOR				
SELECT SYST	EM screen	Initial	Transmit				Receive diagnosi:	s 	10000000	ų
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BGM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			-
Display control unit		CAN COMM	CAN GIRC 1	CAN CIRC 3			CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNISAN	UNKWN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS	-	NG	UNIEVN	ONRAN	-	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN				UNKWN		-



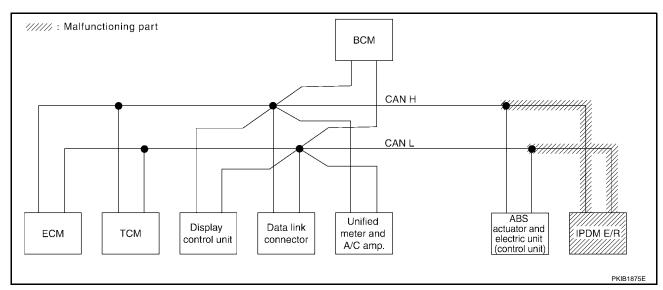
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Case 10

Check IPDM E/R circuit. Refer to LAN-230, "IPDM E/R Circuit Check" .

					CAI	N DIAG SUPPOR				
SELECT SYST	TEM screen	Initial	Transmit				Receive diagnosi:	s 1		ų·····
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	UNIVAN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5	CAN CIRC 2		CAUS RC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	DOMESTO
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNIVAN
ABS	-	NG	UNKWN	UNKWN	-	-	-	-	-	-
IPDM E/R	No top cation	-	UNKWN	UNKWN			-	UNKWN		-



Case 11
Check CAN communication circuit. Refer to <u>LAN-231</u>, "CAN Communication Circuit Check".

					CAF	N DIAG SUPPOR				
SELECT SYST		Initial diagnosis	Transmit diagnosis	ECM	ТСМ	DISPLAY	Roceivo diagnosi: METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNIFWN	-	LINIVIN	-	UNIVIN	UNIVIN	-	UNIVAN
TRANSMISSION	No no cation	NG	UNKWN	UNKWN			UNKWN			
Display control unit		CAN	CAN PRO 1	CAN SIRC 3			CAN ORC 5	CAN FIRC 2		CANSTRO
METER A/C AMP	No too cation		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No no cation	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS	, i	NG	UNIBANN	UNIWN						
IPDM E/R	No tog cation		UNKWN	UNKWN				UNKWN		

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#### Case 12

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to  $\underline{\text{LAN-231}}$ , "IPDM E/R Ignition Relay  $\underline{\text{Circuit Check}}$ ".

					CAI	N DIAG SUPPOR				
SELECT SYST		Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Receive diagnosi: METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	DNIEWN	-	UNKWN	UNKWN	-	UNKWN
FRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			-
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	DANKAN	UNKWN		UNKWN	UNIVAN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

#### Case 13

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to  $\underline{\text{LAN-231}}$ , "IPDM E/R Ignition Relay  $\underline{\text{Circuit Check}}$ ".

					CAI	N DIAG SUPPOR				
SELECT SYST	FEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Receive diagnosi: METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNIT WN			UNIVEN			
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS	-	NG	UNKWN	UNIVAN	-	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN				UNKWN	-	-

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### Circuit Check Between TCM and Data Link Connector

#### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect TCM connector F56 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between TCM connector F56 terminals 3 (L), 4 (P) and data link connector M22 terminals 6 (L), 14 (P).

3 (L) - 6 (L)

: Continuity should exist.

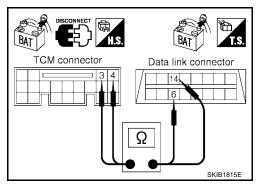
4 (P) - 14 (P)

: Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-213, "Work Flow".

NG >> Repair harness.



# Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit)

## 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ABS actuator and electric unit (control unit) connector E125 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ABS actuator and electric unit (control unit) connector E125 terminals 20 (L), 23 (P).

6 (L) - 20 (L)

: Continuity should exist.

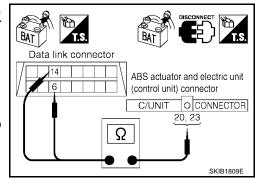
14 (P) - 23 (P)

: Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-213, "Work Flow".

NG >> Repair harness.



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**ECM Circuit Check** 

## 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

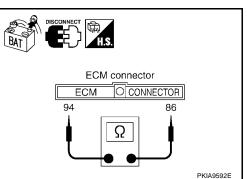
## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between ECM connector M82 terminal 94 (L) and terminal 86 (P).

#### OK or NG

OK >> Replace ECM.

>> Repair harness between ECM connector M82 and TCM NG connector F56.



### **TCM Circuit Check**

## 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect TCM connector F56.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

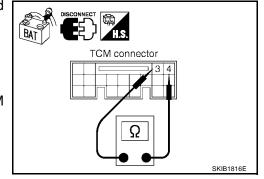
Check resistance between TCM connector F56 terminal 3 (L) and terminal 4 (P).

**3 (L) - 4 (P)** : Approx. 54 - 66 
$$\Omega$$

### OK or NG

OK >> Replace TCM.

NG >> Repair harness between TCM connector F56 and ECM connector M82.



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**Display Control Unit Circuit Check** 

### 1. CONNECTOR INSPECTION

Turn ignition switch OFF.

- 2. Disconnect the negative battery terminal.
- Disconnect display control unit connector M95.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

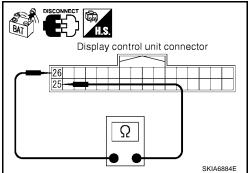
Check resistance between display control unit connector M95 terminal 25 (L) and terminal 26 (P).

**25 (L) - 26 (P)** : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace display control unit.

NG >> Repair harness between display control unit connector M95 and data link connector M22.



### **Data Link Connector Circuit Check**

1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- Disconnect the negative battery terminal.
- 3. Check data link connector M22 terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

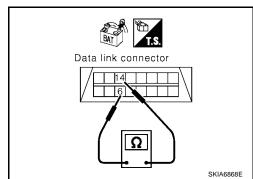
Check resistance between data link connector M22 terminal 6 (L) and terminal 14 (P).

6 (L) - 14 (P) : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Diagnose again. Refer to LAN-213, "Work Flow".

>> Repair harness between data link connector M22 and NG BCM connector M18.



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## Unified Meter and A/C Amp. Circuit Check

## 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect unified meter and A/C amp. connector M49.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

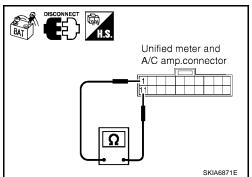
Check resistance between unified meter and A/C amp. connector M49 terminal 1 (L) and terminal 11 (P).

: Approx. 54 - 66  $\Omega$ 

#### OK or NG

OK >> Replace unified meter and A/C amp.

NG >> Repair harness between unified meter and A/C amp. connector M49 and data link connector M22.



### **BCM Circuit Check**

## 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect BCM connector M18.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between BCM connector M18 terminal 39 (L) and terminal 40 (P).

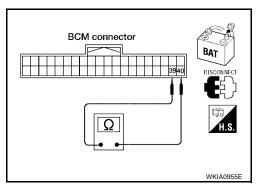
: Approx. 54 - 66  $\Omega$ 

#### OK or NG

OK >> Replace BCM.

NG

>> Repair harness between BCM connector M18 and data link connector M22.



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

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### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ABS actuator and electric unit (control unit) connector E125.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

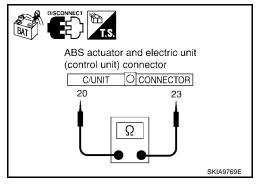
Check resistance between ABS actuator and electric unit (control unit) connector E125 terminal 20 (L) and terminal 23 (P).

: Approx. 54 - 66  $\Omega$ 

#### OK or NG

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

>> Repair harness between ABS actuator and electric unit (control unit) connector E125 and IPDM E/R connector E121.



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#### **IPDM E/R Circuit Check**

## 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect IPDM E/R connector E121.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

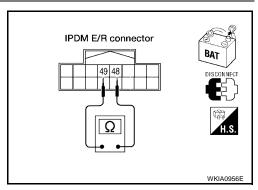
Check resistance between IPDM E/R connector E121 terminal 48 (L) and terminal 49 (P).

: Approx. 108 - 132  $\Omega$ 

#### OK or NG

OK NG >> Replace IPDM E/R.

>> Repair harness between IPDM E/R connector E121 and ABS actuator and electric unit (control unit) connector E125.



[CAN]

### **CAN Communication Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect the following module and control unit connectors and check terminals for deformation, disconnection, looseness or damage.
- **ECM**
- TCM (Transmission control module)
- Display control unit
- Unified meter and A/C amp.
- BCM (Body control module)
- ABS actuator and electric unit (control unit)
- IPDM E/R (Intelligent power distribution module engine room)

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

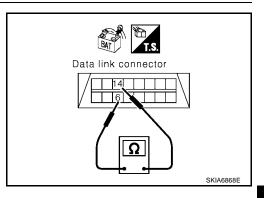
## 2. CHECK HARNESS FOR SHORTED CIRCUITS

With all module and control unit connectors disconnected, check continuity between data link connector M22 terminals 6 (L) and 14 (P).

#### OK or NG

OK >> GO TO 3.

NG >> Repair the harness.



## 3. CHECK HARNESS FOR SHORT TO GROUND

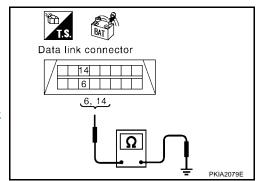
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ground.

> 6 (L) - Ground : Continuity should not exist. 14 (P) - Ground : Continuity should not exist.

#### OK or NG

OK >> Check ECM and IPDM E/R. Refer to LAN-232, "Component Inspection".

NG >> Repair the harness.



## IPDM E/R Ignition Relay Circuit Check

Check the following. If no malfunction is found, replace the IPDM E/R.

- IPDM E/R power supply circuit. Refer to PG-25, "IPDM E/R Power/Ground Circuit Inspection".
- Ignition power supply circuit. Refer to PG-12, "IGNITION POWER SUPPLY IGNITION SW. IN ON AND/OR START".

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Component Inspection ECM AND IPDM E/R INTERNAL CIRCUIT INSPECTION

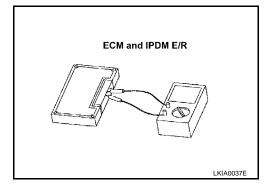
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- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.

**94 - 86** : Approx. 108 - 132  $\Omega$ 

Check resistance between IPDM E/R terminals 48 and 49.

**48 - 49** : Approx. 108 - 132  $\Omega$ 



## **CAN SYSTEM (TYPE 10)**

PFP:23710

## **System Description**

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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.

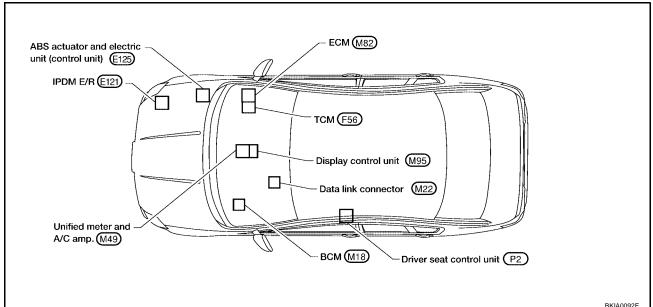
## **Component Parts and Harness Connector Location**

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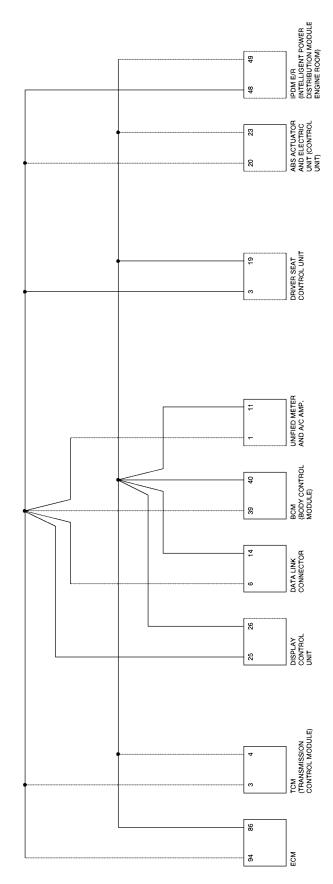
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Schematic UKS002.



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Wiring Diagram - CAN -

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## LAN-CAN-22

: DATA LINE

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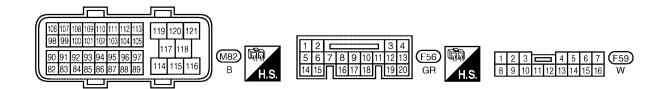
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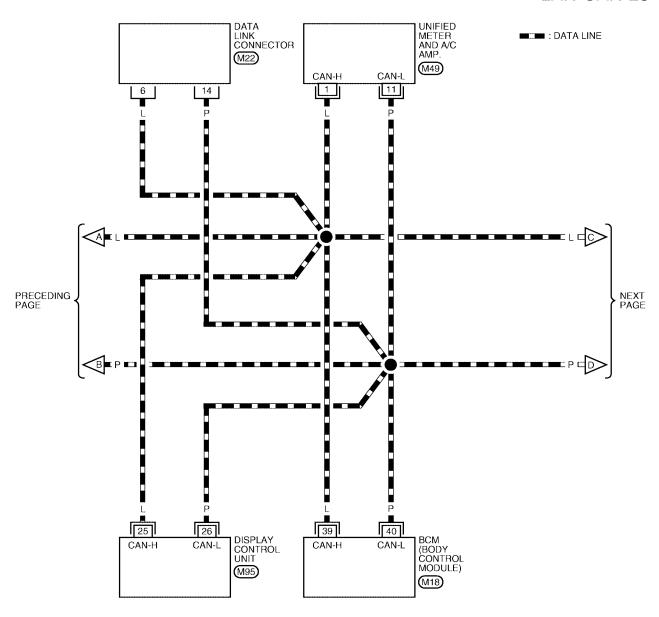
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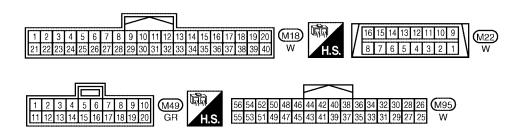
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## LAN-CAN-23





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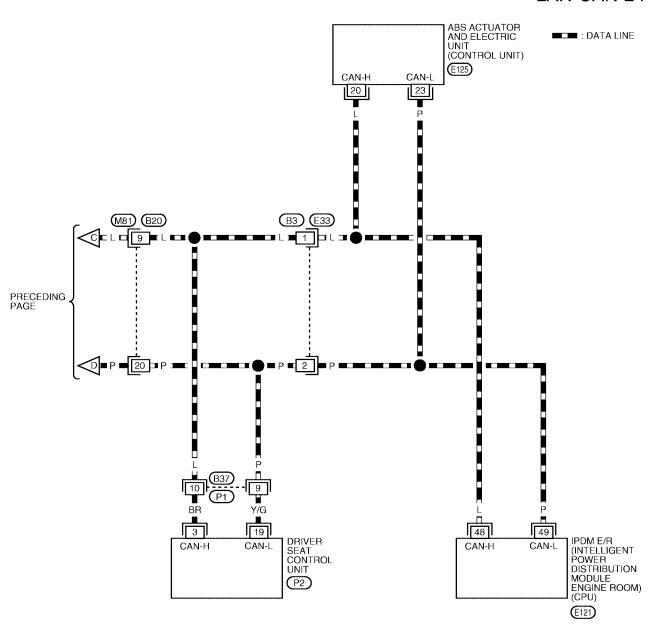
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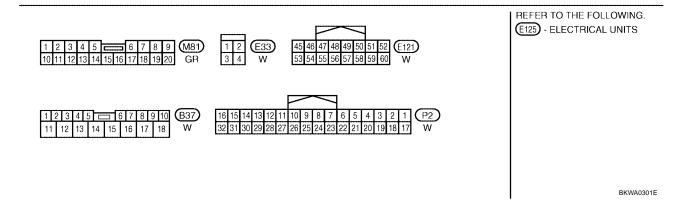
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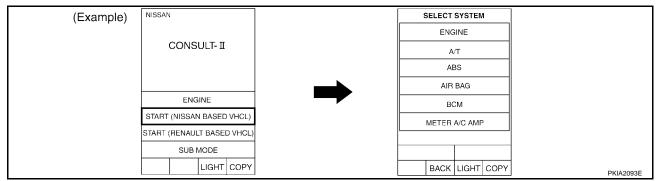
## LAN-CAN-24



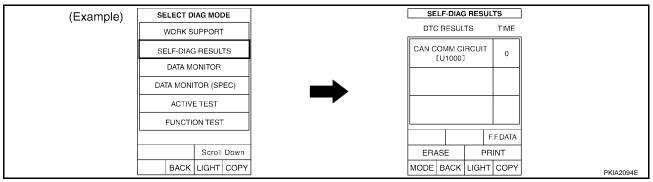


Work Flow

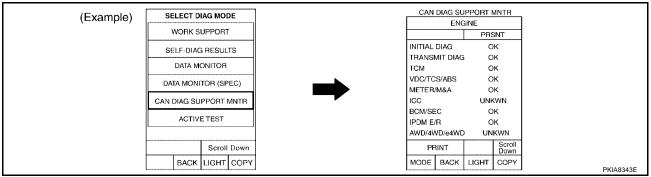
 When there are no indications of "TRANSMISSION", "METER A/C AMP", "BCM", "AUTO DRIVE POS." or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



2. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



4. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks onto the items with "No indication", "NG", or "UNKWN" in the check sheet table.

					CAI	LDIAG SUPPOR				
SELECT SYST	EM screen	Initial	Transmit		,	,	Receive diagnosi:	s	,	·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	UNKWN
FRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

#### NOTE:

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

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- The "CAN DIAG SUPPORT MNTR" items which are not in check sheet table are not related to diagnostic procedure on service manual.
  - Therefore, it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- 5. Check CAN communication line of the navigation system.
- 6. Mark the "NG" or "UNKWN" item of the check sheet table from the result of CAN DIAG SUPPORT MONITOR check sheet.

#### NOTE:

- If "NG" is displayed on "CAN COMM" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- 7. According to the Check Sheet Results, start inspection.

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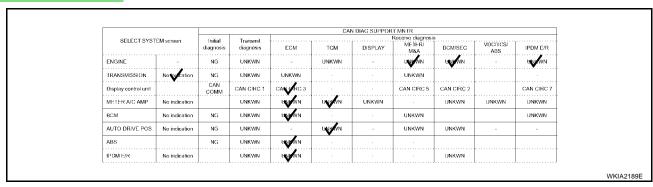
### **CHECK SHEET RESULTS (EXAMPLE)**

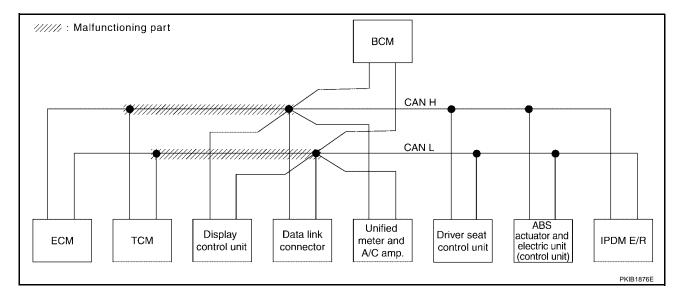
#### NOTE:

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

#### Case 1

Check harness between TCM and data link connector. Refer to <u>LAN-253</u>, "Circuit Check Between TCM and <u>Data Link Connector"</u>.





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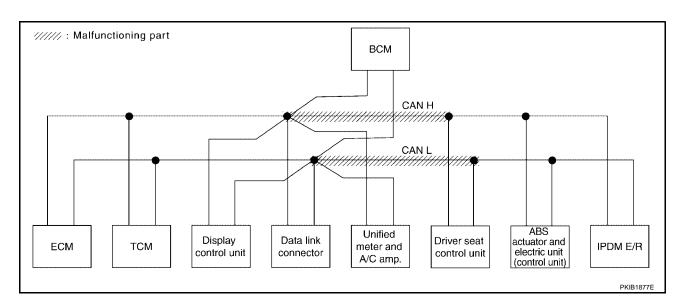
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Case 2

Check harness between data link connector and driver seat control unit. Refer to <u>LAN-253</u>, "Circuit Check <u>Between Data Link Connector and Driver Seat Control Unit"</u>.

					CAI	N DIAG SUPPOR				
SELECT SYST		Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	UNIVERN
FRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5	CAN CIRC 2		CAN LIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	DOMENN	LINIKWN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			LINIEVVN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNIVAN						
IPDM E/R	Notagication		UNKWN	UNKWN				UNKWN		

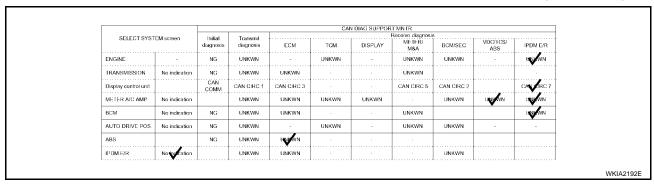


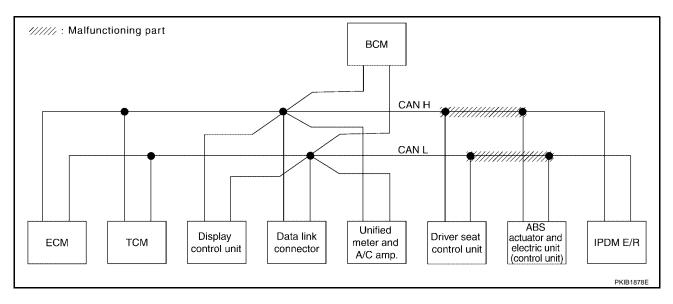
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Case 3

Check harness between driver seat control unit and ABS actuator and electric unit (control unit). Refer to <u>LAN-254</u>, "Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric Unit (Control Unit)".





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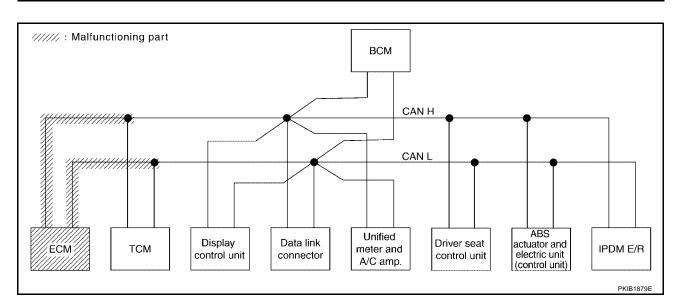
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Case 4
Check ECM circuit. Refer to <u>LAN-254, "ECM Circuit Check"</u>.

					CAN	LDIAG SUPPOR	TMNTR			
SELECT SYST	EM screen	Initial	Transmit			,	Receive diagnosis	S		·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNIEWN	-	DAIRWN	-	UNIVAN	UNIVAN	-	UNIVEN
TRANSMISSION	No indication	NG	UNKWN	THENKAN			UNKWN			
Display control unit		CAN COMM	CAN CIRC 1	CAN GIRC 3			CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNIWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNIFON			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNIVERNA						
IPDM E/R	No indication		UNKWN	UNIVAN				UNKWN		

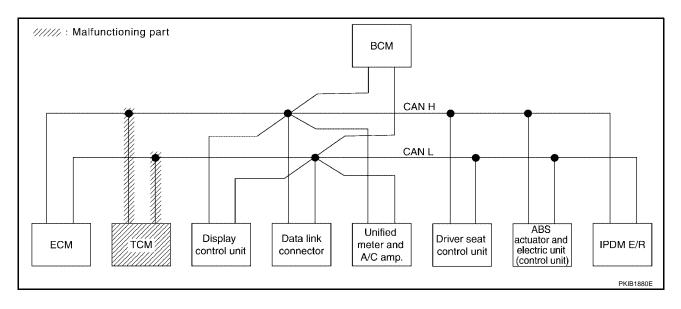


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Case 5
Check TCM circuit. Refer to <u>LAN-255</u>, "TCM Circuit Check" .

			1		CAI	N DIAG SUPPOR				
SELECT SYST	FEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Roceivo diagnosi: METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	DNIFWN	-	UNKWN	UNKWN		UNKWN
TRANSMISSION	No optication	NG	UNKWN	UNKWN			UNKWN			-
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3		·	CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNIKAN	UNKWN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNIKAN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		



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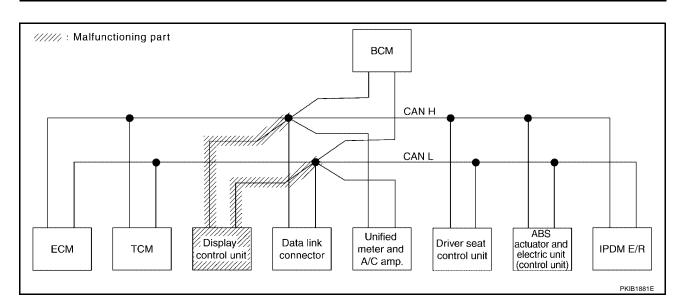
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Case 6
Check display control unit circuit. Refer to <u>LAN-255</u>, "<u>Display Control Unit Circuit Check"</u>.

					CAN	N DIAG SUPPOR				
SELECT SYST	EM screen	Initial	Transmit		,	,	Receive diagnosis	S	,	·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	UNKWN
FRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			
Display control unit		CAN COMM	CAN FIRC 1	CAN GIRC 3			CAN IRC 5	CAN PIRC 2		CAN FIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNIVEN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

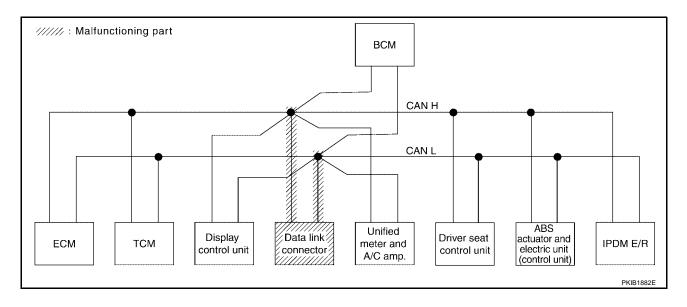


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Case 7
Check data link connector circuit. Refer to <u>LAN-256, "Data Link Connector Circuit Check"</u>.

					CAI	DIAG SUPPOR	T MNTR			
SELECT SYST	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN		UNKWN
TRANSMISSION	Notopication	NG	UNKWN	UNKWN			UNKWN			
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	Notation		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
ВСМ	Notation	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	Notableation	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN						
IPDM E/R	Notation		UNKWN	UNKWN				UNKWN		



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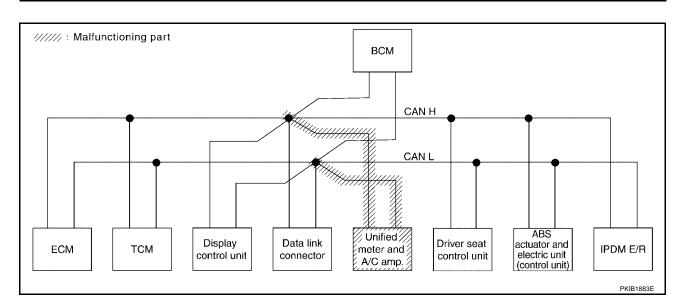
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Case 8

Check unified meter and A/C amp. circuit. Refer to LAN-256, "Unified Meter and A/C Amp. Circuit Check" .

					CAI	N DIAG SUPPOR				
SELECT SYST	FEM screen	Initial	Transmit	,	,		Receive diagnosis	; 		y
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNIFAN	UNKWN	-	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNIVAN			-
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN FIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	Notation		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN			UNIVAN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNIVAN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

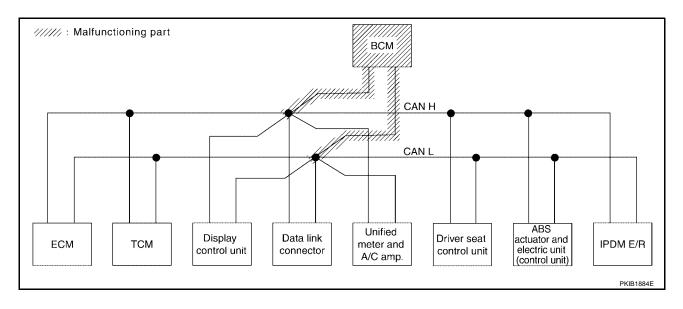


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Case 9 Check BCM circuit. Refer to <u>LAN-257</u>, "BCM Circuit Check" .

			1		CAI	N DIAG SUPPOR				
SELECT SYS	FEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Roceivo diagnosi: METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	TIME AN		UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			-
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3		·	CAN CIRC 5	CAN FIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNIWN	UNKWN	UNKWN
BCM	Notation	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNIVAN	-	-
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No indication		UNKWN	UNKWN				LAUFWN		



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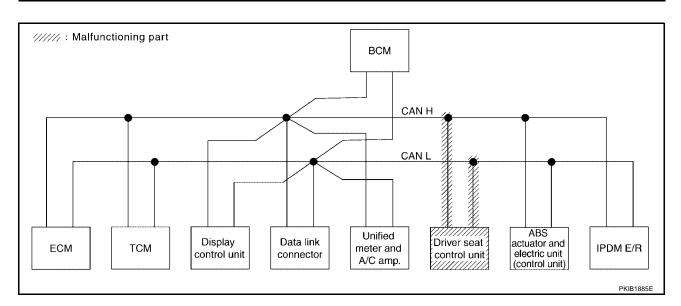
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Case 10

Check driver seat control unit circuit. Refer to LAN-257, "Driver Seat Control Unit Circuit Check" .

					CAI	I DIAG SUPPOR				
SELECT SYST	FFM screen	Initial	Transmit				Receivo diagnosi:	S		
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No nelication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN						
IPOM E/R	No indication		UNKWN	UNKWN				UNKWN		



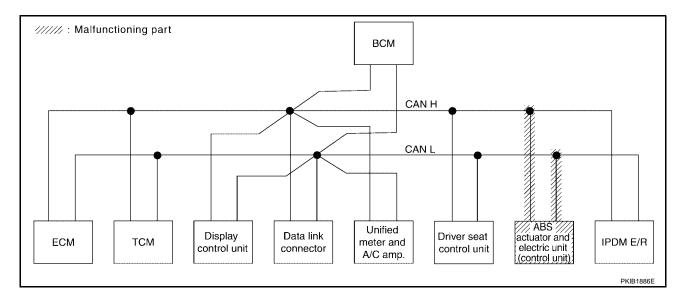
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Case 11

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-258</u>, "ABS Actuator and Electric Unit (Control Unit) Circuit Check".

					CAI	N DIAG SUPPOF				
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	ТСМ	DISPLAY	Receive diagnosi MF1FR/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			-
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	LINISAN	UNKWN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	THIRM	DNRAN						
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		



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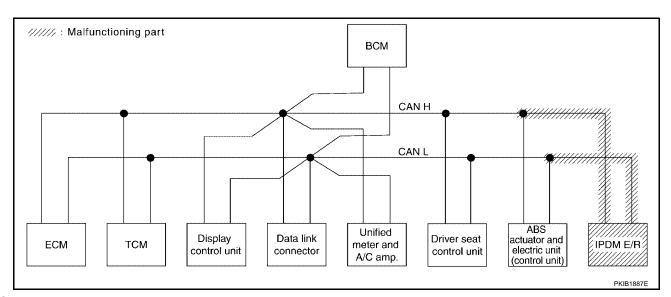
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Case 12

Check IPDM E/R circuit. Refer to LAN-258, "IPDM E/R Circuit Check" .

						N DIAG SUPPOR				
SELECT SYS	TEM screen	Initial	Transmit		,	· · · · · · · · · · · · · · · · · · ·	Receive diagnosi:	s 1		·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	UNIVIN
FRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3		·	CAN CIRC 5	CAN CIRC 2		CAN SIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	LINIEVVN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			LINIVIN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN						
IPDM E/R	No no cation		UNKWN	UNKWN				UNKWN		



Case 13

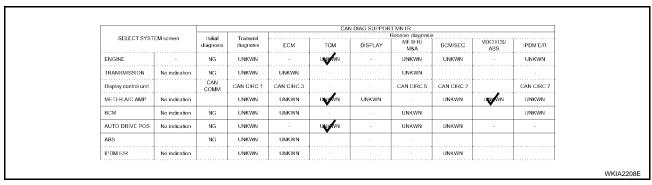
Check CAN communication circuit. Refer to LAN-259, "CAN Communication Circuit Check" .

			1		CAN	DIAG SUPPOR	T MN FR Roceivo diagnosis	,		
SELECT SYST	FEM screen	Initial diagnosis	Transmit diagnosis	ECM	ТСМ	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNIVAN	-	UNIVIN	-	UNIVAN	UNIAWN	-	UNIVAN
TRANSMISSION	No no cation	NG	UNKWN	UNKWN			UNKWN			
Display control unit		CAN COMM	CAN PIRC 1	CAN PIRC 3			CAN FRC 5	CAUTRC 2		CAN FIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
BCM	No no cation	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No too cation	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	DETRAND	UNIVN						
IPDM E/R	No no cation		UNKWN	UNKWN				UNKWN		

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#### Case 14

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-259</u>, "IPDM E/R Ignition Relay <u>Circuit Check"</u>.



#### Case 15

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to LAN-259, "IPDM E/R Ignition Relay Circuit Check".

					CAF	N DIAG SUPPOR	TMNTR			
SELECT SYS	EM screen	Initial diagnosis	Transmit diagnosis	ECM	ТСМ	DISPLAY	Roceivo diagnosi: METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNIVN			UNIVAN			
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNIVAN						
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

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### Circuit Check Between TCM and Data Link Connector

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect TCM connector F56 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between TCM connector F56 terminals 3 (L), 4 (P) and data link connector M22 terminals 6 (L), 14 (P).

3 (L) - 6 (L)

: Continuity should exist.

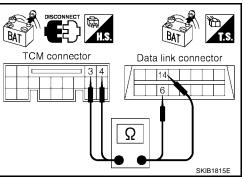
4 (P) - 14 (P)

: Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-238, "Work Flow".

NG >> Repair harness.



### Circuit Check Between Data Link Connector and Driver Seat Control Unit

#### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between data link connector M22 terminals 6 (L), 14 (P) and driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G).

6 (L) - 3 (BR)

: Continuity should exist.

14 (P) - 19 (Y/G)

: Continuity should exist.

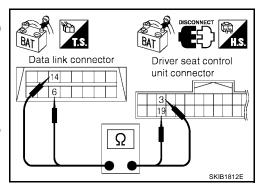
**LAN-253** 

#### OK or NG

Revision: July 2005

OK >> Connect all connectors and diagnose again. Refer to LAN-238, "Work Flow".

NG >> Repair harness.



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# Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric Unit (Control Unit)

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2, ABS actuator and electric unit (control unit) connector E125 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

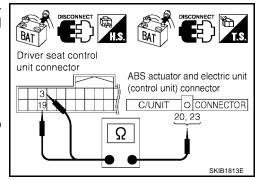
Check continuity between driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G) and ABS actuator and electric unit (control unit) connector E125 terminals 20 (L), 23 (P).

3 (BR) - 20 (L) : Continuity should exist. 19 (Y/G) - 23 (P) : Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-238, "Work Flow".

NG >> Repair harness.



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#### **ECM Circuit Check**

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- Disconnect the negative battery terminal.
- 3. Disconnect ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between ECM connector M82 terminal 94 (L) and terminal 86 (P).

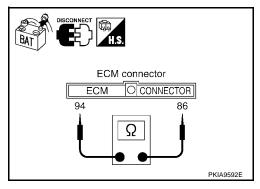
94 (L) - 86 (P) : Approx. 108 - 132  $\Omega$ 

#### OK or NG

NG

OK >> Replace ECM.

>> Repair harness between ECM connector M82 and TCM connector F56.



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**TCM Circuit Check** 

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect TCM connector F56.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

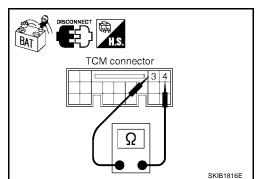
Check resistance between TCM connector F56 terminal 3 (L) and terminal 4 (P).

**3 (L) - 4 (P)** : Approx. **54 - 66** 
$$\Omega$$

#### OK or NG

OK >> Replace TCM.

>> Repair harness between TCM connector F56 and ECM NG connector M82.



# **Display Control Unit Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect display control unit connector M95.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between display control unit connector M95 terminal 25 (L) and terminal 26 (P).

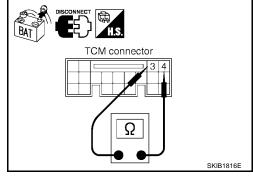
**25 (L) - 26 (P)** : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK

NG >> Repair harness between display control unit connector

>> Replace display control unit. M95 and data link connector M22.



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Display control unit connector SKIA6884E

### **Data Link Connector Circuit Check**

### 1. CONNECTOR INSPECTION

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- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check data link connector M22 terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

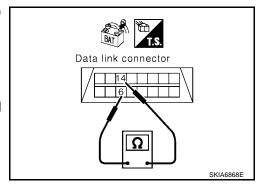
Check resistance between data link connector M22 terminal 6 (L) and terminal 14 (P).

**6 (L) - 14 (P)** : Approx. **54 - 66** 
$$\Omega$$

OK or NG

OK >> Diagnose again. Refer to LAN-238, "Work Flow".

NG >> Repair harness between data link connector M22 and BCM connector M18.



# Unified Meter and A/C Amp. Circuit Check

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### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect unified meter and A/C amp. connector M49.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

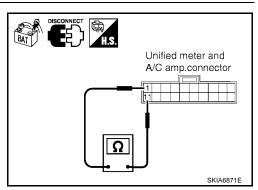
Check resistance between unified meter and A/C amp. connector M49 terminal 1 (L) and terminal 11 (P).

**1 (L) - 11 (P)** : Approx. 54 - 66 
$$\Omega$$

OK or NG

OK >> Replace unified meter and A/C amp.
NG >> Repair harness between unified me

>> Repair harness between unified meter and A/C amp. connector M49 and data link connector M22.



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**BCM Circuit Check** 

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect BCM connector M18.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

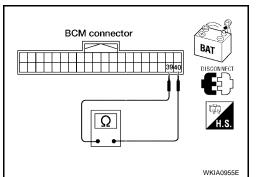
Check resistance between BCM connector M18 terminal 39 (L) and terminal 40 (P).

**39 (L) - 40 (P)** : Approx. **54 - 66** 
$$\Omega$$

#### OK or NG

OK >> Replace BCM.

>> Repair harness between BCM connector M18 and data NG link connector M22.



### **Driver Seat Control Unit Circuit Check**

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

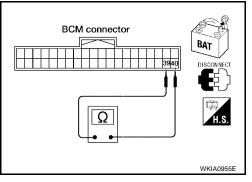
Check resistance between driver seat control unit connector P2 terminal 3 (BR) and terminal 19 (Y/G).

3 (BR) - 19 (Y/G) : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace driver seat control unit.

NG >> Repair harness between driver seat control unit connector P2 and data link connector M22.



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Driver seat control unit connector PKIA6842E

### **ABS Actuator and Electric Unit (Control Unit) Circuit Check**

### 1. CONNECTOR INSPECTION

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- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ABS actuator and electric unit (control unit) connector E125.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

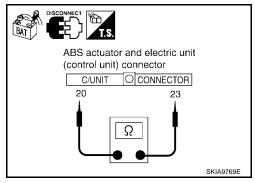
Check resistance between ABS actuator and electric unit (control unit) connector E125 terminal 20 (L) and terminal 23 (P).

: Approx. 54 - 66  $\Omega$ 

#### OK or NG

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

>> Repair harness between ABS actuator and electric unit (control unit) connector E125 and IPDM E/R connector E121.



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#### **IPDM E/R Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect IPDM E/R connector E121.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

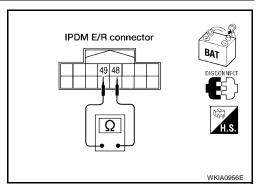
Check resistance between IPDM E/R connector E121 terminal 48 (L) and terminal 49 (P).

: Approx. 108 - 132  $\Omega$ 

#### OK or NG

OK NG >> Replace IPDM E/R.

>> Repair harness between IPDM E/R connector E121 and ABS actuator and electric unit (control unit) connector E125.



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#### **CAN Communication Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect the following module and control unit connectors and check terminals for deformation, disconnection, looseness or damage.
- **ECM**
- TCM (Transmission control module)
- Display control unit
- Unified meter and A/C amp.
- BCM (Body control module)
- Driver seat control unit
- ABS actuator and electric unit (control unit)
- IPDM E/R (Intelligent power distribution module engine room)

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

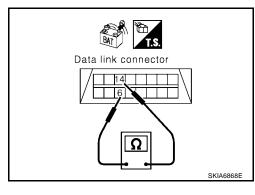
### 2 . CHECK HARNESS FOR SHORTED CIRCUITS

With all module and control unit connectors disconnected, check continuity between data link connector M22 terminals 6 (L) and 14 (P).

#### OK or NG

OK >> GO TO 3.

NG >> Repair the harness.



### 3. CHECK HARNESS FOR SHORT TO GROUND

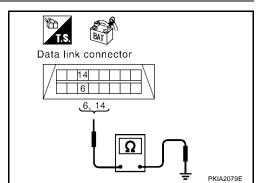
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ground.

> : Continuity should not exist. 6 (L) - Ground 14 (P) - Ground : Continuity should not exist.

#### OK or NG

OK >> Check ECM and IPDM E/R. Refer to LAN-260, "Component Inspection".

NG >> Repair the harness.



### IPDM E/R Ignition Relay Circuit Check

Check the following. If no malfunction is found, replace the IPDM E/R.

- IPDM E/R power supply circuit. Refer to PG-25, "IPDM E/R Power/Ground Circuit Inspection".
- Ignition power supply circuit. Refer to PG-12, "IGNITION POWER SUPPLY IGNITION SW. IN ON AND/OR START" .

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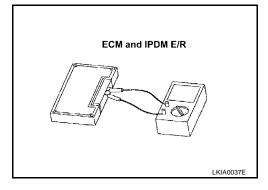
# Component Inspection ECM AND IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.

**94 - 86** : Approx. 108 - 132  $\Omega$ 

Check resistance between IPDM E/R terminals 48 and 49.

**48 - 49** : Approx.  $108 - 132 \Omega$ 



### **CAN SYSTEM (TYPE 11)**

PFP:23710

### **System Description**

UKS002B0

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.

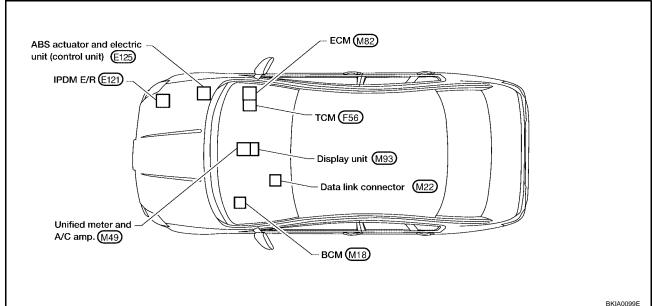
### **Component Parts and Harness Connector Location**

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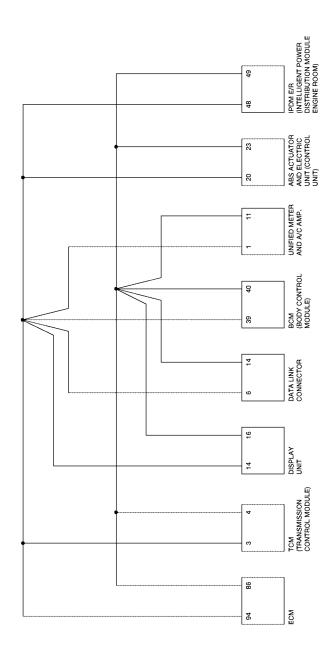
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Schematic UKS002B



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Wiring Diagram - CAN -

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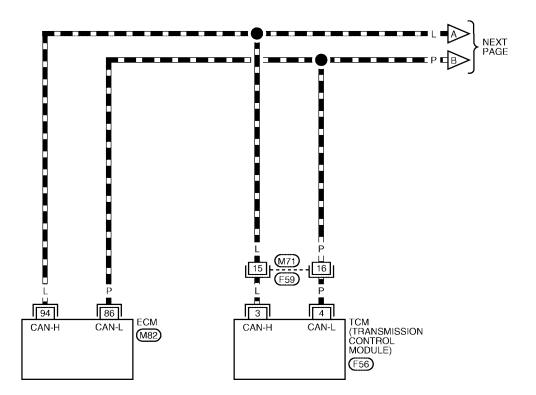
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### LAN-CAN-25

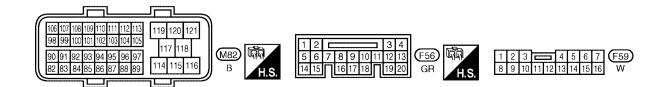
: DATA LINE



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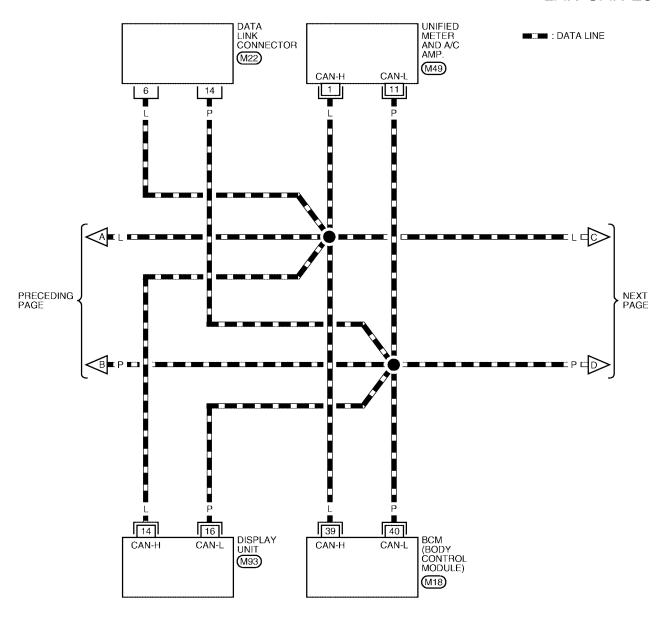
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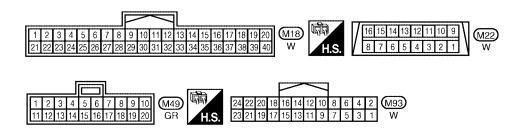
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### LAN-CAN-26





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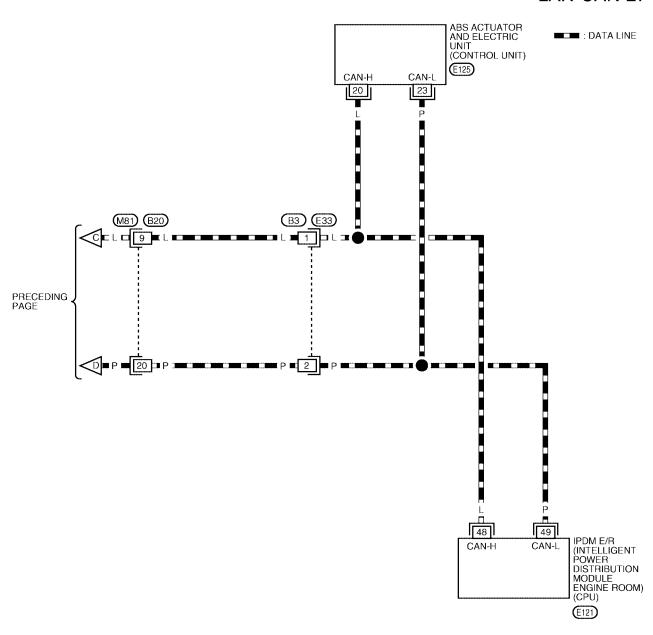
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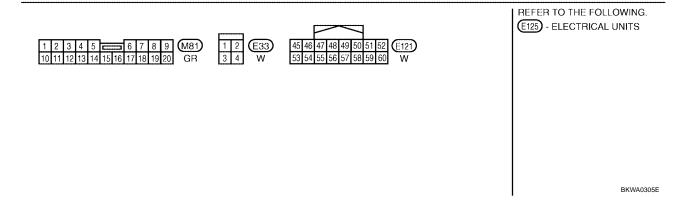
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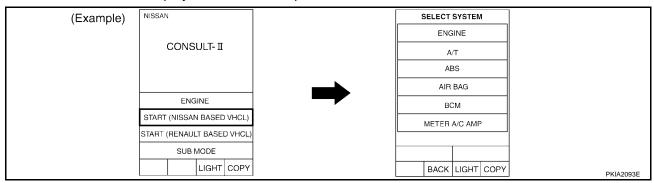
### LAN-CAN-27



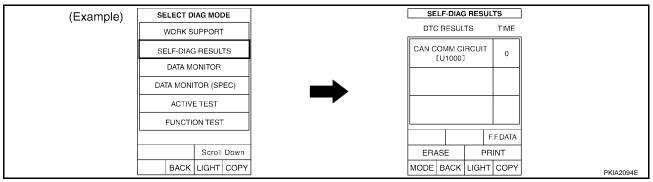


Work Flow

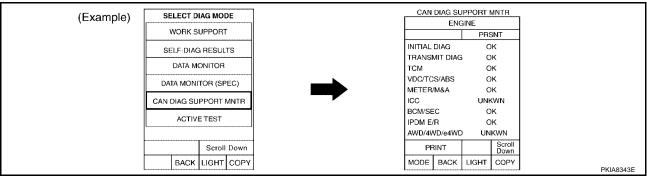
 When there are no indications of "TRANSMISSION", "METER A/C AMP", "BCM" or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



2. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



4. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks onto the items with "No indication", "NG", or "UNKWN" in the check sheet table.

					CAN	I DIAG SUPPOR				
SHLECT SYS	IEM screen	Initial diagnosis	Transmit diagnosis	F-CM	1CM	DISPI AY	Receive diagnosi METER/ M&A	S BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNKWN	UNKWN	UNKWN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-

#### NOTE:

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

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- The "CAN DIAG SUPPORT MNTR" items which are not in check sheet table are not related to diagnostic procedure on service manual.
  - Therefore, it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- 5. Check CAN communication line of the integrated display system. Refer to AV-90, "AV Communication Line Check".
- Mark the "NG" or "UNKWN" item of the check sheet table from the result of CAN DIAG SUPPORT MONI-TOR check sheet.

#### NOTE:

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

7. According to the Check Sheet Results, start inspection.

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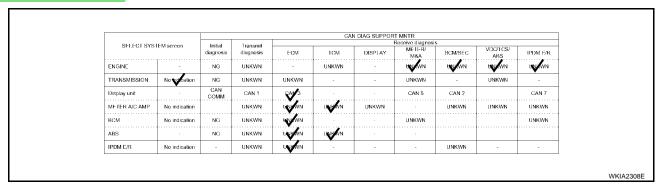
### **CHECK SHEET RESULTS (EXAMPLE)**

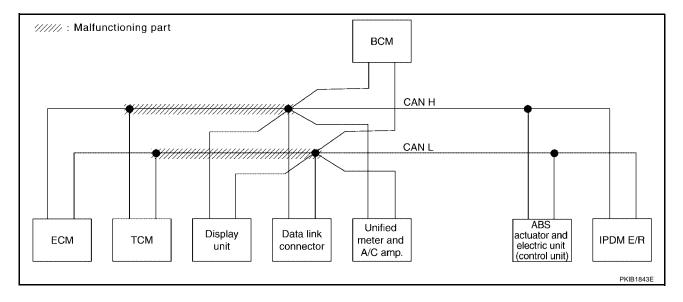
#### NOTE:

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

#### Case 1

Check harness between TCM and data link connector. Refer to <u>LAN-279</u>, "Circuit Check Between TCM and <u>Data Link Connector"</u>.





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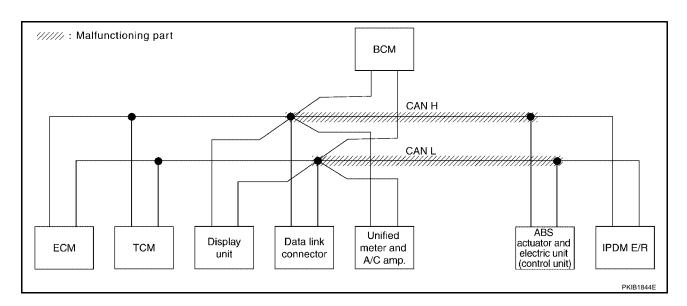
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Case 2

Check harness between data link connector and ABS actuator and electric unit (control unit). Refer to <u>LAN-279</u>, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit)".

		L			CVI	N DIAG SUPPOR				
SELECT SYS	IEM screen	Initial	Transmit				Receive diagnosi ME1ER/	S	VDC/TCS/	
		diagnosis	diagnosis	(-CM	1CM	DISPLAY	METER/ M&A	BCM/SEC	ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNIVAN	UNIVN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNIVAN	-
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2	,	<b>₩</b> 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNIFWN	UNIVAN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNIVAN
ABS		NG	UNKWN	DNIAMN	DANKAN					
IPDM E/R	No tudication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-

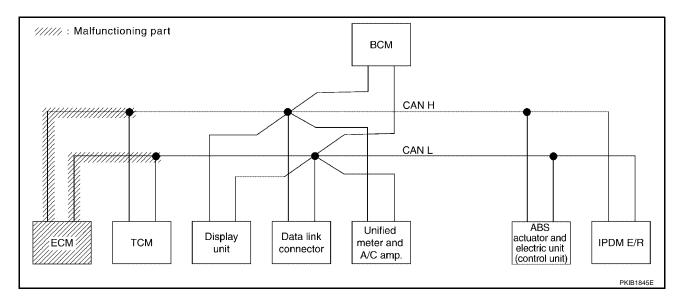


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Case 3
Check ECM circuit. Refer to <u>LAN-280, "ECM Circuit Check"</u>.

					CVI	N DIAG SUPPOR	T MNTR Receive diagnosi			
SHLECT SYS		Initial diagnosis	Transmit diagnosis	FCM	1CM	DISPLAY	ME1ER/ M&A	BCM/S⊕C	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNIKAN	-	UNIKWN	-	UNIVAN	UNIVAN	UNIVAN	UNIVN
TRANSMISSION	No indication	NG	UNKWN	UNIVEN	-	-	UNKWN	-	UNKWN	-
Display unit		CAN COMM	CAN 1	₩/3		·	CAN 5	CAN 2		GAN 7
METER A/C AMP	No indication		UNKWN	UNIVON	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNIVAN			UNKWN			UNKWN
ABS		NG	UNKWN	UNIVAN	UNKWN					
IPDM E/R	No indication	-	UNKWN	UNIVAN	-	-	-	UNKWN	-	-



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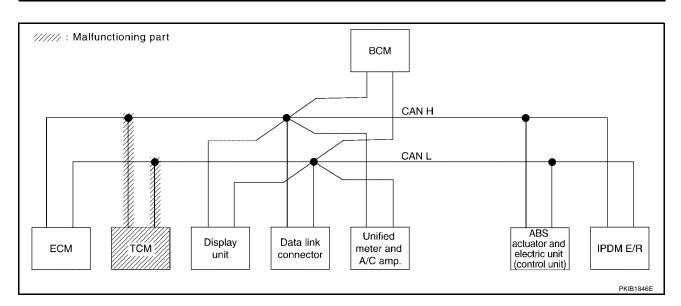
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Case 4
Check TCM circuit. Refer to <u>LAN-280, "TCM Circuit Check"</u>.

					CVI	I DIAG SUPPOR				
SELECT SYS	IEM screen	Initial	Transmit				Receive diagnos	is		
		diagnosis	diagnosis	(-CM	1CM	DISPLAY	ME1ER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNIVERN	-	UNKWN	UNKWN	UNKWN	UNKWN
TRANSMISSION	No tractation	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNIKAN	UNKWN		UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNKWN	UNKWN	UNIKAN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-

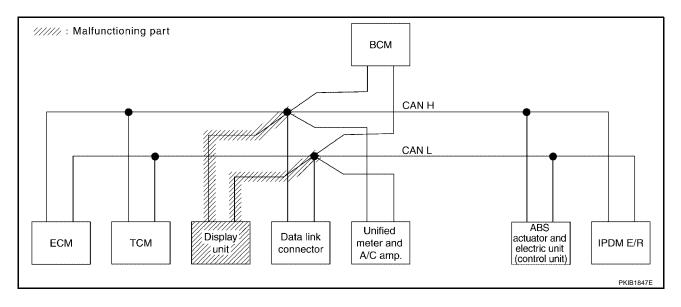


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Case 5
Check display unit circuit. Refer to <u>LAN-281</u>, "<u>Display Unit Circuit Check</u>" .

					CVI	N DIAG SUPPOR	T MNTR Receive diagnosi			
SHLECT SYS		Initial diagnosis	Transmit diagnosis	ECM	1CM	DISPLAY	ME1ER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-
Display unit		CAN COMM	<b>√</b> 1	<b>4</b> /3			<b>GA</b> 5	<b>€</b> /12		<b>₩</b> 17
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNIVAN		UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNKWN	UNKWN	UNKWN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-



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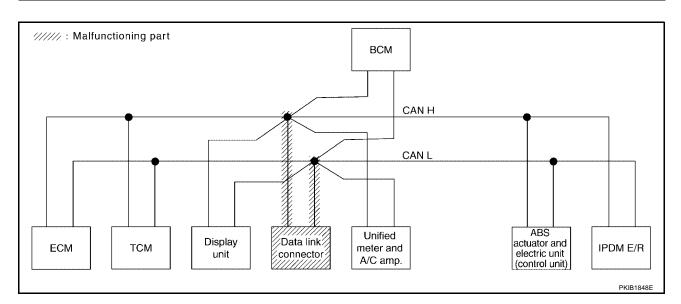
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Case 6

Check data link connector circuit. Refer to LAN-281, "Data Link Connector Circuit Check" .

					CVI	N DIAG SUPPOR				
SELECT SYS	IEM screen	Initial	Transmit				Receive diagnosis	S		
		diagnosis	diagnosis	(-CM	1CM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
TRANSMISSION	Notorication	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		CAN 7
METER A/C AMP	No toxication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	Noticetion	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNKWN	UNKWN	UNKWN					
IPDM E/R	Notoscation	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-

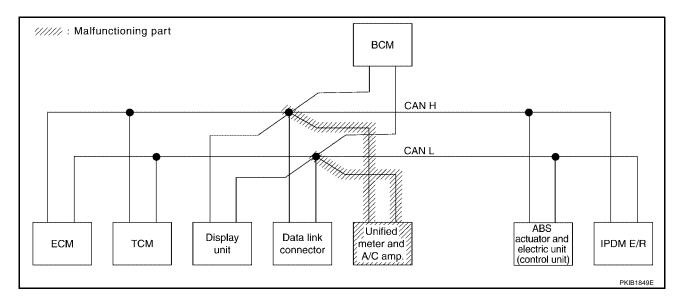


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Case 7
Check unified meter and A/C amp. circuit. Refer to LAN-282, "Unified Meter and A/C Amp. Circuit Check" .

					CAN	DIAG SUPPOR				
SHLECT SYS		Initial diagnosis	Transmit diagnosis	FCM	1CM	DISPLAY	Receive diagnosi: ME1ER/ M&A	s BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNIVAN	UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNIVAN	-	UNKWN	-
Display unit		CAN COMM	CAN 1	CAN 3			QA 5	CAN 2		CAN 7
METER A/C AMP	No too cation		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNIVAN			UNKWN
ABS		NG	UNKWN	UNKWN	UNKWN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-



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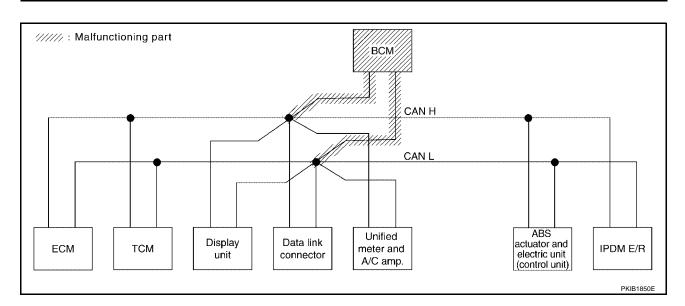
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Case 8
Check BCM circuit. Refer to <u>LAN-282, "BCM Circuit Check"</u>.

					CAN	I DIAG SUPPOR				
SELECT SYS	IEM screen	Initial	Transmit				Receive diagnosi	S	183003000	
		diagnosis	diagnosis	ECM.	1CM	DISPLAY	ME1ER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	BUNNAN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	Q/12		GAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNIVAN	UNKWN	UNKWN
BCM	Notorication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNKWN	UNKWN	UNKWN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNIVAN	-	-



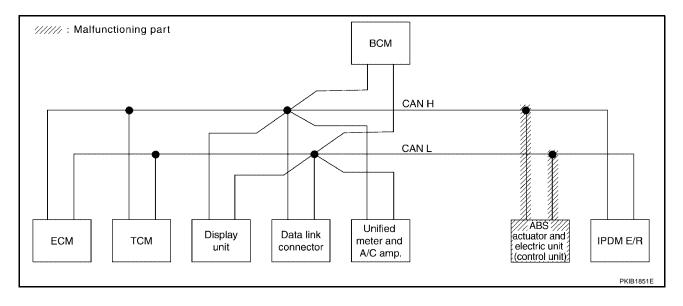
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Case 9

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-283</u>, "ABS Actuator and Electric Unit (Control Unit) Circuit Check".

					CAI	I DIAG SUPPOR				
SHLECT SYS	IEM screen	Initial diagnosis	Transmit diagnosis	ECM.	1CM	DISPLAY	Receive diagnosi ME1ER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNIVAN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNIKWN	-
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		GAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNITAN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNIVAN	UNIVAN	UNIKAN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-



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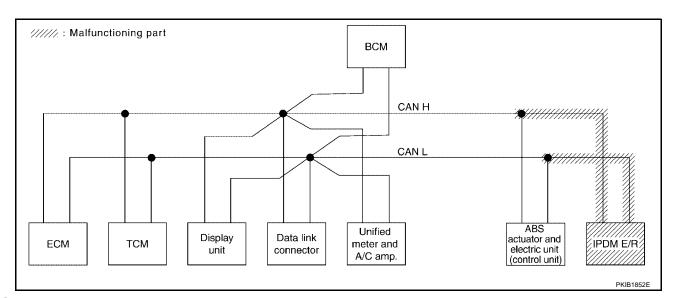
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Case 10

Check IPDM E/R circuit. Refer to LAN-283, "IPDM E/R Circuit Check" .

					CVI	N DIAG SUPPOR	RT MNTR Receive diagnosi			
SHLECT SYS		Initial diagnosis	Transmit diagnosis	ECM	1CM	DISPLAY	ME1ER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	RINKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		<b>\$</b> /17
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNIVAN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNIVAN
ABS		NG	UNKWN	UNKWN	UNKWN					
IPDM E/R	Notice cation	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-



Case 11

Check CAN communication circuit. Refer to LAN-284, "CAN Communication Circuit Check" .

					CVI	N DIAG SUPPOR				
SHLECT SYS		Initial diagnosis	Transmit diagnosis	ECM	1CM	DISPLAY	Receive diagnosi ME1ER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNIVAN	-	UNIDAN	-	UNIVN	UNIWN	UNIVN	PANEMA
TRANSMISSION	No invication	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-
Display unit		CAN COMM	<b>*</b> \$\sqrt{1}	<b>₩</b> /3			W/5	<b>₩</b> 2		<b>S</b> 17
METER A/C AMP	No in Idation		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
BCM	No in Idation	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNIVAN	UNIVVN	DARMAN					
IPDM E/R	Noting leation	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-

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#### Case 12

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-284, "IPDM E/R Ignition Relay Circuit Check"</u>.

					CVI	I DIAG SUPPOR				
SHLECT SYS		Initial diagnosis	Transmit diagnosis	ECM	1CM	DISPLAY	Receive diagnosi ME1ER/ M&A	8CM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNIKAN	-	UNKWN	UNKWN	UNIVAN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	i.	-	UNKWN	-	UNKWN	-
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	DATE AND	UNKWN		UNKWN	UNIFOVN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNKWN	UNKWN	UNKWN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-

#### Case 13

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to <u>LAN-284, "IPDM E/R Ignition Relay Circuit Check"</u> .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR Receive diagnosis								
		Initial diagnosis	Transmit diagnosis	FCM	1CM	DISPLAY	ME1ER/ M&A	BCM/S⊕C	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNIVA	-	-	UNIVAN	-	UNKWN	-
Display unit		CAN COMM	CAN 1	CAN 3	·	·	CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
ABS		NG	UNKWN	UNIVN	UNKWN					
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-

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### **Circuit Check Between TCM and Data Link Connector**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect TCM connector F56 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between TCM connector F56 terminals 3 (L), 4 (P) and data link connector M22 terminals 6 (L), 14 (P).

3 (L) - 6 (L)

: Continuity should exist.

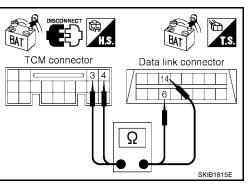
4 (P) - 14 (P)

: Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-266, "Work Flow".

NG >> Repair harness.



# Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit)

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ABS actuator and electric unit (control unit) connector E125 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ABS actuator and electric unit (control unit) connector E125 terminals 20 (L), 23 (P).

6 (L) - 20 (L)

: Continuity should exist.

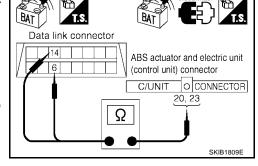
14 (P) - 23 (P)

: Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-266, "Work Flow".

NG >> Repair harness.



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**ECM Circuit Check** 

### 1. CONNECTOR INSPECTION

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- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

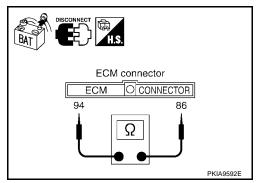
Check resistance between ECM connector M82 terminal 94 (L) and terminal 86 (P).

94 (L) - 86 (P) : Approx. 108 - 132 
$$\Omega$$

#### OK or NG

OK >> Replace ECM.

NG >> Repair harness between ECM connector M82 and TCM connector F56.



### **TCM Circuit Check**

UKS002J9

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect TCM connector F56.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

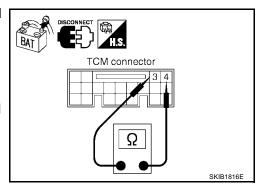
Check resistance between TCM connector F56 terminal 3 (L) and terminal 4 (P).

**3 (L) - 4 (P)** : Approx. 54 - 66 
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#### OK or NG

OK >> Replace TCM.

NG >> Repair harness between TCM connector F56 and ECM connector M82.



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**Display Unit Circuit Check** 

1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect display unit connector M93.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

2. CHECK HARNESS FOR OPEN CIRCUIT

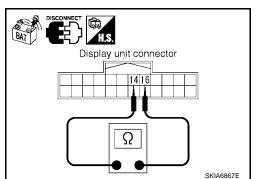
Check resistance between display unit connector M93 terminal 14 (L) and terminal 16 (P).

**14 (L) - 16 (P)** : Approx. **54 - 66** 
$$\Omega$$

OK or NG

OK >> Replace display unit.

NG >> Repair harness between display unit connector M93 and data link connector M22.



**Data Link Connector Circuit Check** 

1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check data link connector M22 terminals for deformation, disconnection, looseness or damage.

OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

2. CHECK HARNESS FOR OPEN CIRCUIT

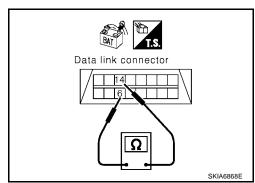
Check resistance between data link connector M22 terminal 6 (L) and terminal 14 (P).

6 (L) - 14 (P) : Approx. 54 - 66 
$$\Omega$$

OK or NG

OK >> Diagnose again. Refer to LAN-266, "Work Flow".

NG >> Repair harness between data link connector M22 and BCM connector M18.



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# Unified Meter and A/C Amp. Circuit Check

### 1. CONNECTOR INSPECTION

UKS002JD

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect unified meter and A/C amp. connector M49.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between unified meter and A/C amp. connector M49 terminal 1 (L) and terminal 11 (P).

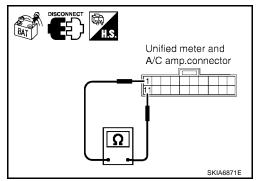
: Approx. 54 - 66  $\Omega$ 

#### OK or NG

OK >> Replace unified meter and A/C amp.

NG >

>> Repair harness between unified meter and A/C amp. connector M49 and data link connector M22.



### **BCM Circuit Check**

UKS002JC

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect BCM connector M18.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between BCM connector M18 terminal 39 (L) and terminal 40 (P).

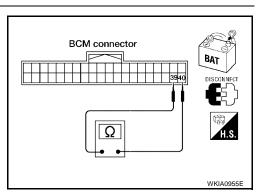
: Approx. 54 - 66  $\Omega$ 

#### OK or NG

OK >> Replace BCM.

NG >> Repair harne

>> Repair harness between BCM connector M18 and data link connector M22.



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# **ABS Actuator and Electric Unit (Control Unit) Circuit Check**

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ABS actuator and electric unit (control unit) connector E125.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between ABS actuator and electric unit (control unit) connector E125 terminal 20 (L) and terminal 23 (P).

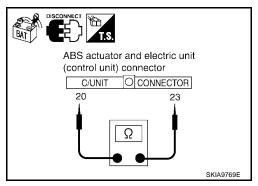
: Approx. 54 - 66  $\Omega$ 

#### OK or NG

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

NG >> Repair harness between ABS actuator and electric unit (control unit) connector E125 and IPDM E/R connector

È121.



UKS002JF

### IPDM E/R Circuit Check

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect IPDM E/R connector E121.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between IPDM E/R connector E121 terminal 48 (L) and terminal 49 (P).

: Approx. 108 - 132  $\Omega$ 

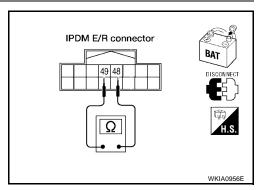
#### OK or NG

OK >

>> Replace IPDM E/R.

NG

>> Repair harness between IPDM E/R connector E121 and ABS actuator and electric unit (control unit) connector E125.



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### **CAN Communication Circuit Check**

### 1. CONNECTOR INSPECTION

UKS002JG

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect the following module and control unit connectors and check terminals for deformation, disconnection, looseness or damage.
- ECM
- TCM (Transmission control module)
- Display unit
- Unified meter and A/C amp.
- BCM (Body control module)
- ABS actuator and electric unit (control unit)
- IPDM E/R (Intelligent power distribution module engine room)

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

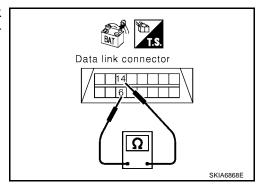
### 2. CHECK HARNESS FOR SHORTED CIRCUITS

With all module and control unit connectors disconnected, check continuity between data link connector M22 terminals 6 (L) and 14 (P).

#### OK or NG

OK >> GO TO 3.

NG >> Repair the harness.



### 3. CHECK HARNESS FOR SHORT TO GROUND

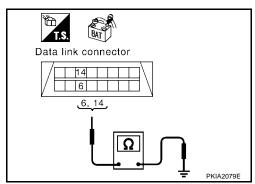
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ground.

6 (L) - Ground : Continuity should not exist. 14 (P) - Ground : Continuity should not exist.

#### OK or NG

OK >> Check ECM and IPDM E/R. Refer to <u>LAN-285, "Component Inspection"</u>.

NG >> Repair the harness.



### IPDM E/R Ignition Relay Circuit Check

UKS002JH

Check the following. If no malfunction is found, replace the IPDM E/R.

- IPDM E/R power supply 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".

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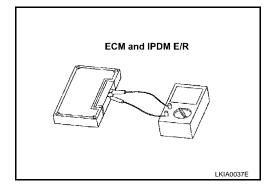
Component Inspection ECM AND IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.

**94 - 86** : Approx. 108 - 132  $\Omega$ 

Check resistance between IPDM E/R terminals 48 and 49.

**48 - 49** : Approx.  $108 - 132 \Omega$ 



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### **CAN SYSTEM (TYPE 12)**

PFP:23710

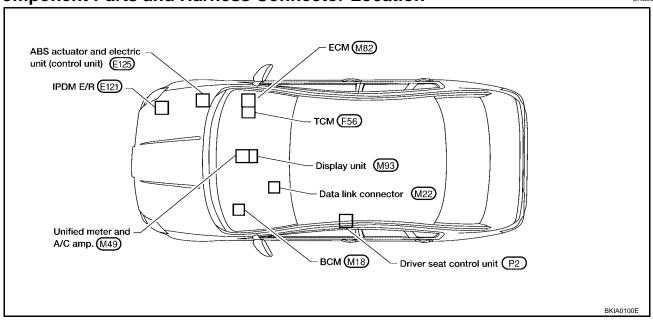
### **System Description**

UKS002BK

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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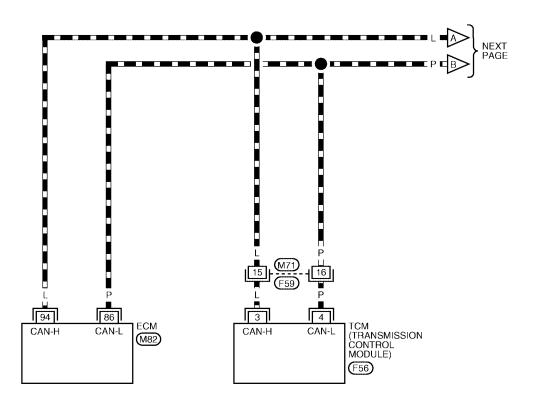
**Schematic** UKS002BM Α В С ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) 8 D Е DRIVER SEAT CONTROL UNIT 9 F G Н UNIFIED METER AND A/C AMP. BCM (BODY CONTROL MODULE) 5 38 LAN DATA LINK CONNECTOR - 19  $\mathbb{N}$ TCM (TRANSMISSION CONTROL MODULE) 86 94

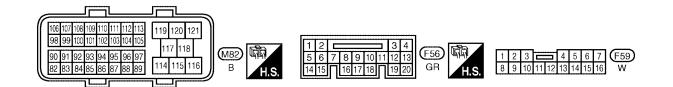
Wiring Diagram - CAN -

IKS002BN

### LAN-CAN-28

: DATA LINE





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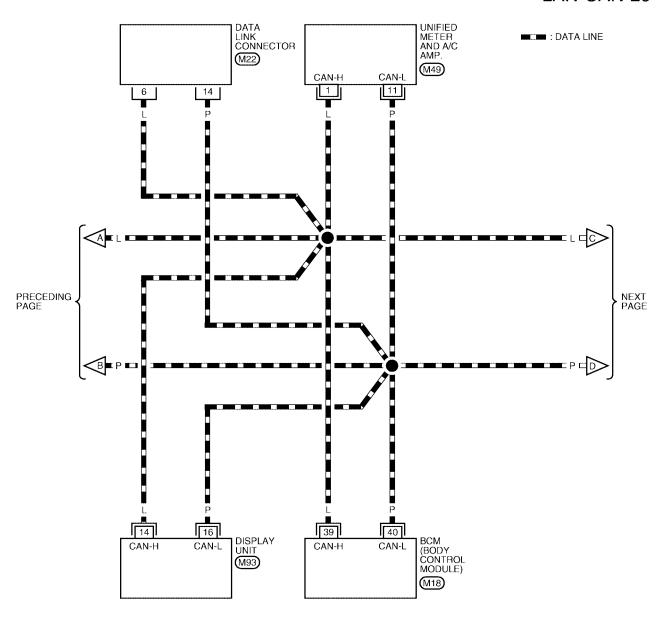
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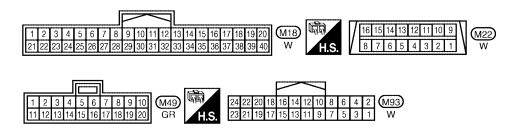
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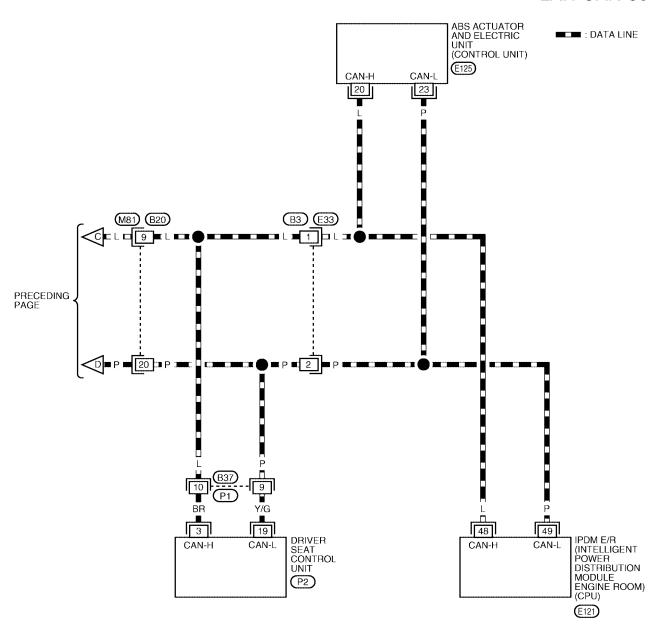
# LAN-CAN-29

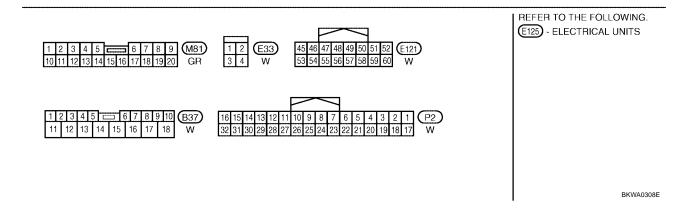




BKWA0307E

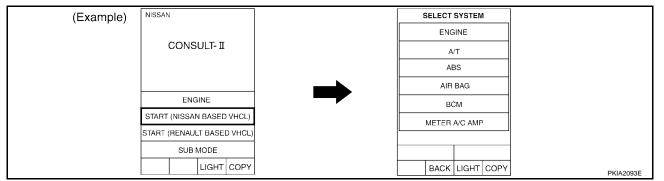
# LAN-CAN-30



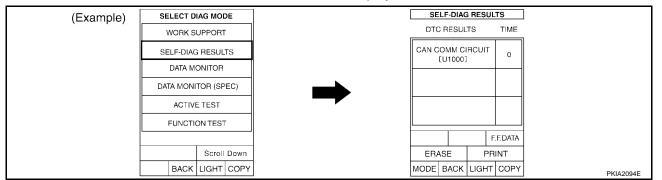


Work Flow

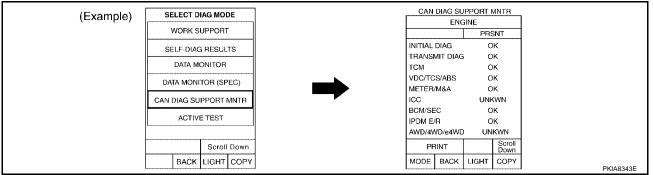
1. When there are no indications of "TRANSMISSION", "METER A/C AMP", "BCM", "AUTO DRIVE POS." or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



2. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



4. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks onto the items with "No indication", "NG", or "UNKWN" in the check sheet table.

					CAI	N DIAG SUPPOR				
SELECT SYS	TEM screen	Initial	Transmit		·	,	Receive diagnosi	s	· · · · · · · · · · · · · · · · · · ·	·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN	UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN		UNKWN	
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN					
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

#### NOTE:

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

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- The "CAN DIAG SUPPORT MNTR" items which are not in check sheet table are not related to diagnostic procedure on service manual.
  - Therefore, it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- 5. Check CAN communication line of the integrated display system. Refer to <u>AV-90, "AV Communication Line Check"</u>.
- 6. Mark the "NG" or "UNKWN" item of the check sheet table from the result of CAN DIAG SUPPORT MONITOR check sheet.

#### NOTE:

- If "NG" is displayed on "CAN COMM" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- 7. According to the Check Sheet Results, start inspection.

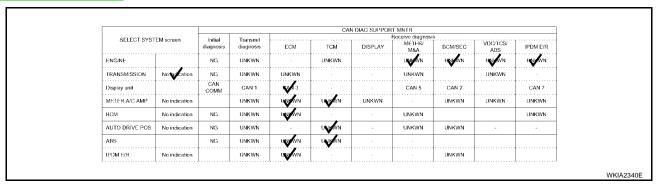
### **CHECK SHEET RESULTS (EXAMPLE)**

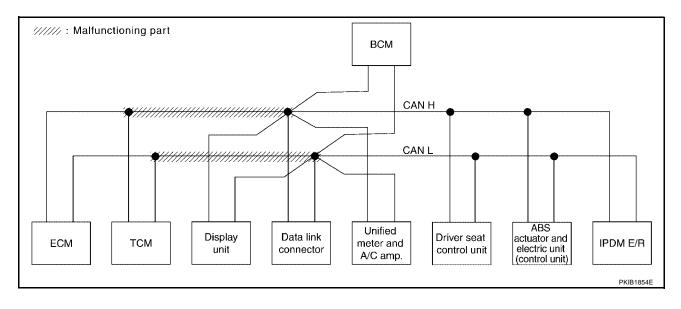
#### NOTE:

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

#### Case 1

Check harness between TCM and data link connector. Refer to <u>LAN-306</u>, "Circuit Check Between TCM and <u>Data Link Connector"</u>.





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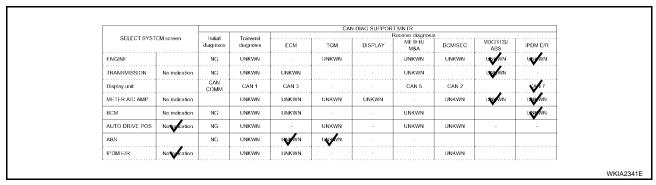
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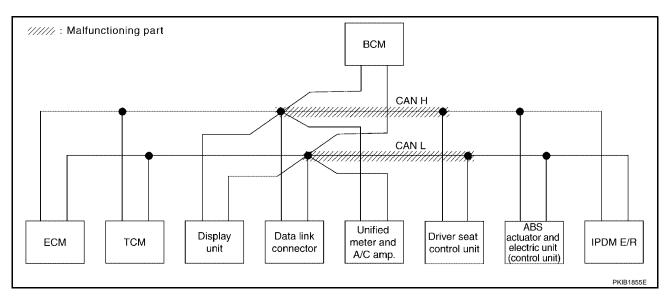
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Case 2

Check harness between data link connector and driver seat control unit. Refer to <u>LAN-306</u>, "Circuit Check <u>Between Data Link Connector and Driver Seat Control Unit"</u>.





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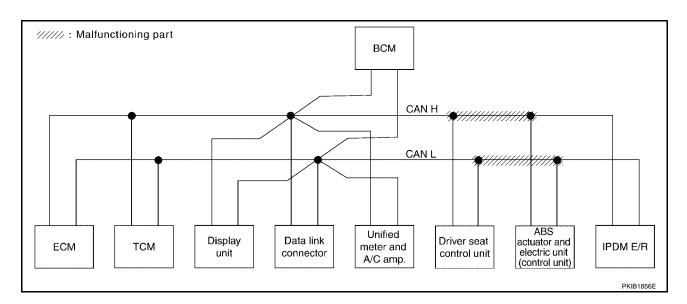
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Case 3

Check harness between driver seat control unit and ABS actuator and electric unit (control unit). Refer to <u>LAN-307</u>, "Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric Unit (Control Unit)".

					CAI	I DIAG SUPPOR				
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Receive diagnosi METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN	UNKWN	UNIVAN	UNIVAN
FRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN		LINUWN	-
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		<b>€</b> 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNIVAN	LINILVVN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			LINEWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	LINEWN	<b>THINKAN</b>					
IPDM E/R	No or cation		UNKWN	UNKWN				UNKWN		

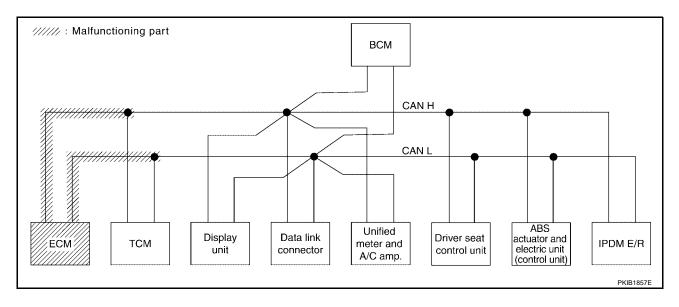


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Case 4
Check ECM circuit. Refer to <u>LAN-307</u>, "ECM Circuit Check" .

					CAI	N DIAG SUPPOR	T MN FR Receive diagnosi			
SELECT SYS		Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	CHIRAN		LINIEWN		LINIVIN	UNIVIN	UNIVAN	UNIVEN
TRANSMISSION	No indication	NG	UNKWN	UNIFAN			UNKWN		UNKWN	-
Display unif		CAN COMM	CAN 1	<b>€</b> 43			CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNIFON	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNIVN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNIVN	UNKWN					
IPDM E/R	No indication		UNKWN	UNIVAN				UNKWN		



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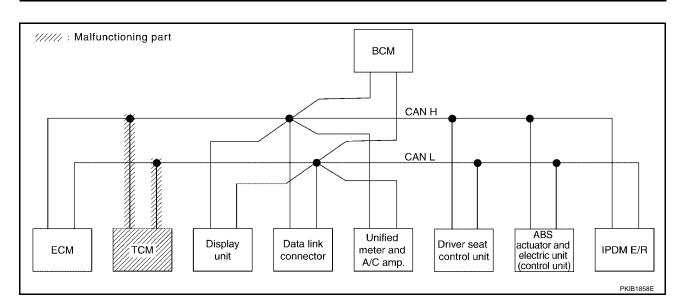
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Case 5
Check TCM circuit. Refer to <u>LAN-308</u>, "TCM Circuit Check" .

					CAN	LDIAG SUPPOR	TMNTR			
SELECT SYST	EM screen	Initial	Transmit		· · · · · · · · · · · · · · · · · · ·		Receive diagnosi	s	*	·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNITAN		UNKWN	UNKWN	UNKWN	UNKWN
TRANSMISSION	No to cation	NG	UNKWN	UNKWN			UNKWN	]	UNKWN	
Display unif		CAN COMM	CAN 1	GAN 3			CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	CHIRANN	UNKWN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNIVAN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	GINEAN					
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

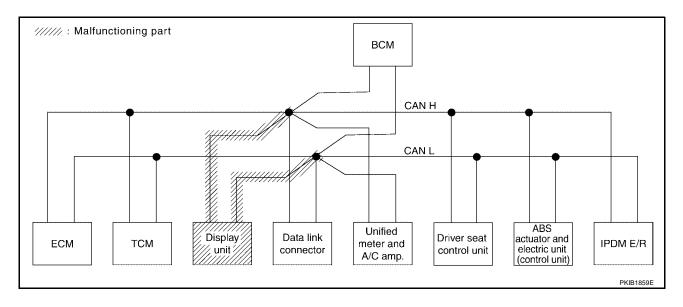


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Case 6
Check display unit circuit. Refer to <u>LAN-308</u>, "<u>Display Unit Circuit Check</u>" .

					CAI	N DIAG SUPPOR				
SELECT SYS		Initial diagnosis	Transmit diagnosis	ECM	ТСМ	DISPLAY	Receive diagnosi METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN	UNKWN	UNKWN	UNKWN
FRANSMISSION .	No indication	NG	UNKWN	UNKWN			UNKWN	1	UNKWN	-
Display unit		CAN COMM	<b>√√</b> 1	₩3		·	<b>64/</b> 5	<b>₩</b> 2		<b>4</b> /17
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNIVVN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN		· .	UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN		100			
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		



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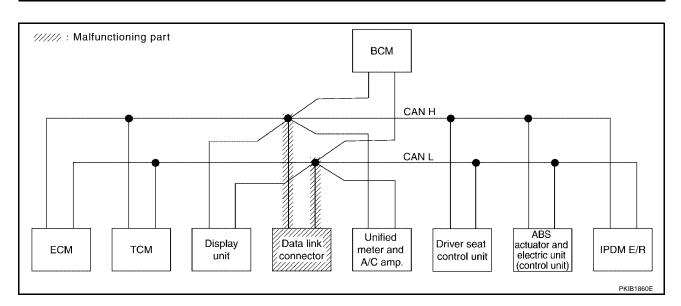
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Case 7
Check data link connector circuit. Refer to <u>LAN-309</u>, "<u>Data Link Connector Circuit Check</u>" .

					CAI	N DIAG SUPPOR				
SELECT SYS	TEM screen	Initial	Transmit		·	,	Receivo diagnosi:	s	*	·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN	UNKWN	UNKWN	UNKWN
TRANSMISSION	No notcation	NG	UNKWN	UNKWN			UNKWN		UNKWN	
Display unit		CAN COMM	CAN 1	GAN 3		·	CAN 5	CAN 2		CAN 7
METER A/C AMP	No no cation		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
ВСМ	No no cation	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN					
IPDM E/R	No trocation		UNKWN	UNKWN				UNKWN		

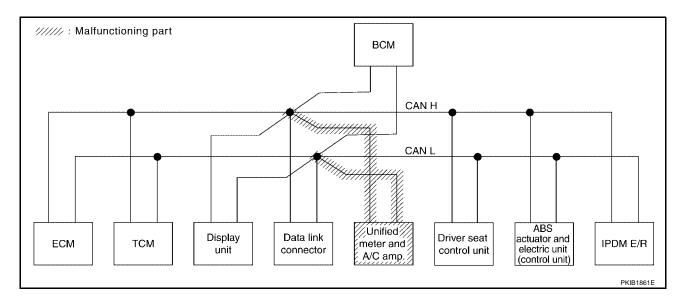


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Case 8
Check unified meter and A/C amp. circuit. Refer to LAN-309, "Unified Meter and A/C Amp. Circuit Check".

					CAI	N DIAG SUPPOR				
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	ТСМ	DISPLAY	Receive diagnosi METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNIVEN	UNKWN	UNKWN	UNKWN
FRANSMISSION	No indication	NG	UNKWN	UNKWN			UNIVVN		UNKWN	
Display unit		CAN COMM	CAN 1	GAN 3			₩15	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN			MANAN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNIVAN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN					
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		



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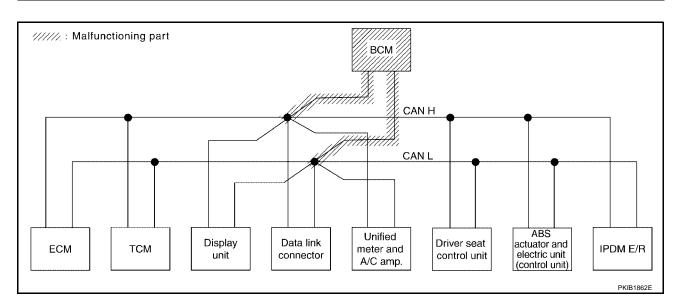
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Case 9
Check BCM circuit. Refer to <u>LAN-310, "BCM Circuit Check"</u>.

					CAI	N DIAG SUPPOR				
SELECT SYST	EM screen	Initial	Transmit		,	,	Receive diagnosi:	s	Y	q
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN	UNIFWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN		UNKWN	-
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	₩2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		DNRWN	UNKWN	UNKWN
ВСМ	No no cation	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	BULWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN					
IPDM E/R	No indication		UNKWN	UNKWN				INVENT		

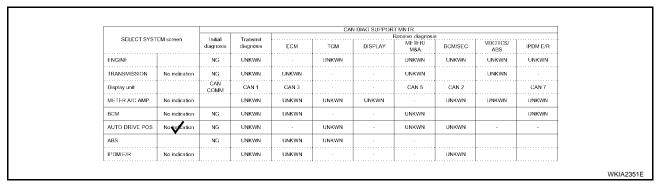


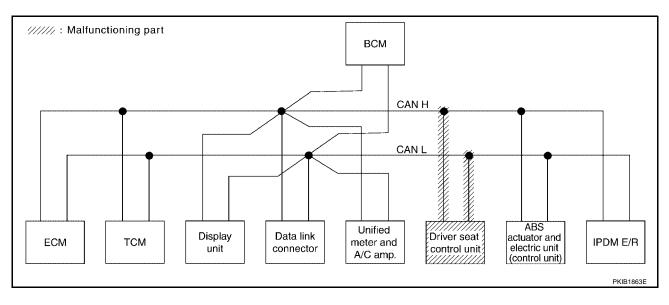
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Case 10

Check driver seat control unit circuit. Refer to LAN-310, "Driver Seat Control Unit Circuit Check" .





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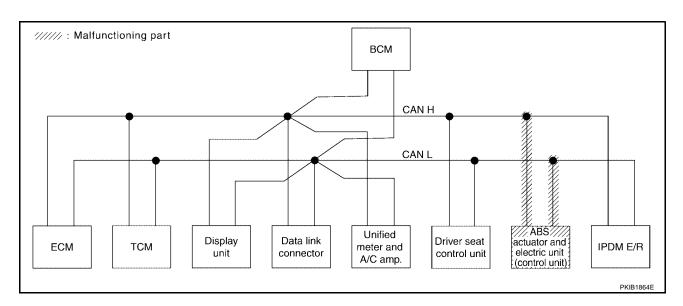
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Case 11

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-311</u>, "ABS Actuator and Electric Unit (Control Unit) Circuit Check".

					CAF	N DIAG SUPPOR				
SELECT SYST		Initial diagnosis	Transmit diagnosis	ECM	ТСМ	DISPLAY	Roceivo diagnosi METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN	UNKWN	UNIVAN	UNKWN
FRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN		LINIEVIN	-
Display unit		CAN COMM	CAN 1	CAN 3			CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	LINIWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	DAIR AN	UNIVAN	CHIMAN					
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

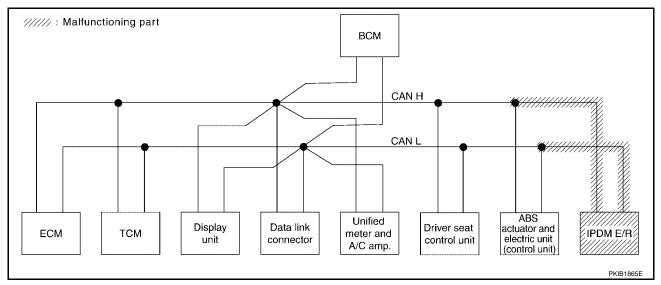


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Case 12
Check IPDM E/R circuit. Refer to LAN-311, "IPDM E/R Circuit Check".

					CAI	N DIAG SUPPOR				
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Receive diagnosi MFTFR/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN	UNKWN	UNKWN	UNIVAN
FRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN		UNKWN	
Display unit		CAN COMM	CAN 1	GAN 3			CAN 5	CAN 2		<b>₩</b> 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	LINIVIN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			LINIEVIN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN					
IPDM E/R	Notopication		UNKWN	UNKWN				UNKWN		



Case 13
Check CAN communication circuit. Refer to <u>LAN-312</u>, "CAN Communication Circuit Check" .

					CAI	N DIAG SUPPOR				
SELECT SYST		Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Roceivo diagnosi MF1FR/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNIVAN		DNIEWN		BUILDIN	UNIVN	UNIWN	UNIVA
TRANSMISSION	Notation	NG	UNKWN	UNKWN			UNKWN		UNKWN	
Display unif		CAN COMM	<b>V</b> 11	<b>44/</b> 3			<b>€</b> 5	<b>€</b> /2		<b>V</b> /7
METER A/C AMP	Notation		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
всм	Notation	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	Notablication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	<b>DARW</b>	UNKVN	ONR NA					
IPDM E/R	No or cation		UNKWN	UNKWN				UNKWN		

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#### Case 14

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to  $\underline{\text{LAN-312}}$ , "IPDM E/R Ignition Relay  $\underline{\text{Circuit Check}}$ ".

					CAN	I DIAG SUPPOR				
SELECT SYST	EM screen	Initial	Transmit		,	,	Receivo diagnosi	s	******	4
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		LINIEWN		UNKWN	UNKWN	UNIVIN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN		UNKWN	
Display unit		CAN COMM	CAN 1	CAN 3	·		CAN 5	CAN 2		CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	CANRAN	UNKWN		UNKWN	TIMENAN	UNKWN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNIVAN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN					
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

#### Case 15

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to <u>LAN-312</u>, "IPDM E/R Ignition Relay <u>Circuit Check"</u>.

				CAN DIAG SUPPORT MN FR							
SELECT SYST	EM screen	Initial	Transmit diagnosis	Roceivo diagnosis							
		diagnosis		ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R	
ENGINE		NG	UNKWN		UNKWN		UNKWN	UNKWN	UNKWN	UNKWN	
TRANSMISSION	No indication	NG	UNKWN	UNIKAN			LINIVAN	1	UNKWN	-	
Display unif		CAN COMM	CAN 1	GAN 3			CAN 5	CAN 2		CAN 7	
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN	
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN	
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-	
ABS		NG	UNKWN	DNRAN	UNKWN						
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN			

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### Circuit Check Between TCM and Data Link Connector

### 1. CONNECTOR INSPECTION

Turn ignition switch OFF.

- 2. Disconnect the negative battery terminal.
- 3. Disconnect TCM connector F56 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between TCM connector F56 terminals 3 (L), 4 (P) and data link connector M22 terminals 6 (L), 14 (P).

3 (L) - 6 (L)

: Continuity should exist.

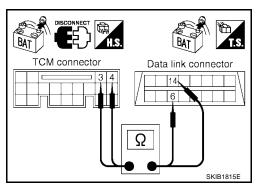
4 (P) - 14 (P)

: Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-291, "Work Flow".

NG >> Repair harness.



### Circuit Check Between Data Link Connector and Driver Seat Control Unit

UKS002IQ

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

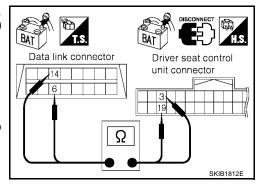
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G).

6 (L) - 3 (BR) : Continuity should exist. 14 (P) - 19 (Y/G) : Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-291, "Work Flow".

NG >> Repair harness.



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# Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric Unit (Control Unit)

# 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect driver seat control unit connector P2, ABS actuator and electric unit (control unit) connector E125 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

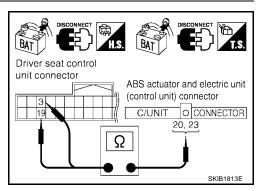
Check continuity between driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G) and ABS actuator and electric unit (control unit) connector E125 terminals 20 (L), 23 (P).

3 (BR) - 20 (L) 19 (Y/G) - 23 (P) : Continuity should exist. : Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-291, "Work Flow".

NG >> Repair harness.



UKS002IS

### **ECM Circuit Check**

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- Disconnect the negative battery terminal.
- 3. Disconnect ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between ECM connector M82 terminal 94 (L) and terminal 86 (P).

94 (L) - 86 (P) : Approx.  $108 - 132 \Omega$ 

#### OK or NG

OK >> Replace ECM.

NG >> Repair harness between ECM connector M82 and TCM connector F56.

ECM connector

ECM O CONNECTOR

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**TCM Circuit Check** 

### 1. CONNECTOR INSPECTION

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- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect TCM connector F56.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

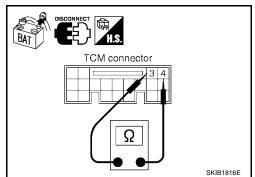
Check resistance between TCM connector F56 terminal 3 (L) and terminal 4 (P).

**3 (L) - 4 (P)** : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace TCM.

NG >> Repair harness between TCM connector F56 and ECM connector M82.



# **Display Unit Circuit Check**

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### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect display unit connector M93.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between display unit connector M93 terminal 14 (L) and terminal 16 (P).

14 (L) - 16 (P) : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace display unit.

NG >> Repair harness between display unit connector M93 and data link connector M22.

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**Data Link Connector Circuit Check** 

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check data link connector M22 terminals for deformation, disconnection, looseness or damage.

OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

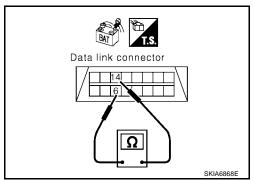
2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M22 terminal 6 (L) and terminal 14 (P).

OK or NG

OK >> Diagnose again. Refer to LAN-291, "Work Flow".

NG >> Repair harness between data link connector M22 and BCM connector M18.



Unified Meter and A/C Amp. Circuit Check

1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect unified meter and A/C amp. connector M49.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

2. CHECK HARNESS FOR OPEN CIRCUIT

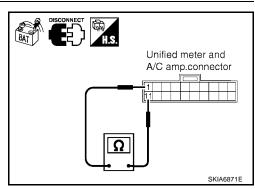
Check resistance between unified meter and A/C amp. connector M49 terminal 1 (L) and terminal 11 (P).

**1 (L) - 11 (P)** : Approx. 54 - 66 
$$\Omega$$

OK or NG

OK >> Replace unified meter and A/C amp. NG

>> Repair harness between unified meter and A/C amp. connector M49 and data link connector M22.



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**BCM Circuit Check** 

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect BCM connector M18.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

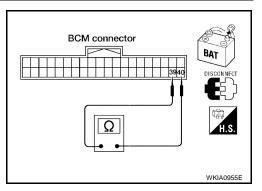
Check resistance between BCM connector M18 terminal 39 (L) and terminal 40 (P).

**39 (L) - 40 (P)** : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace BCM.

NG >> Repair harness between BCM connector M18 and data link connector M22.



UKS002IY

### **Driver Seat Control Unit Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between driver seat control unit connector P2 terminal 3 (BR) and terminal 19 (Y/G).

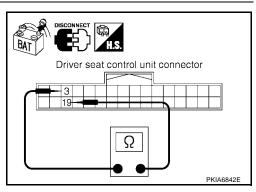
3 (BR) - 19 (Y/G) : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace driver seat control unit.

NG

>> Repair harness between driver seat control unit connector P2 and data link connector M22.



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# **ABS Actuator and Electric Unit (Control Unit) Circuit Check**

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ABS actuator and electric unit (control unit) connector E125.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between ABS actuator and electric unit (control unit) connector E125 terminal 20 (L) and terminal 23 (P).

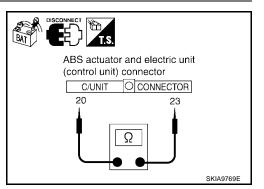
: Approx. 54 - 66  $\Omega$ 

#### OK or NG

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

NG >> Repair harness between ABS actuator and electric unit (control unit) connector E125 and IPDM E/R connector

E121.



UKS002J0

### **IPDM E/R Circuit Check**

# 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect IPDM E/R connector E121.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between IPDM E/R connector E121 terminal 48 (L) and terminal 49 (P).

: Approx. 108 - 132  $\Omega$ 

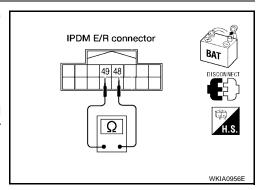
#### OK or NG

OK

>> Replace IPDM E/R.

NG

>> Repair harness between IPDM E/R connector E121 and ABS actuator and electric unit (control unit) connector E125.



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### **CAN Communication Circuit Check**

### 1. CONNECTOR INSPECTION

- CONNECTOR INSPECTION
- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect the following module and control unit connectors and check terminals for deformation, disconnection, looseness or damage.
- ECM
- TCM (Transmission control module)
- Display unit
- Unified meter and A/C amp.
- BCM (Body control module)
- Driver seat control unit
- ABS actuator and electric unit (control unit)
- IPDM E/R (Intelligent power distribution module engine room)

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

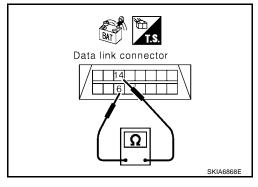
### 2. CHECK HARNESS FOR SHORTED CIRCUITS

With all module and control unit connectors disconnected, check continuity between data link connector M22 terminals 6 (L) and 14 (P).

#### OK or NG

OK >> GO TO 3.

NG >> Repair the harness.



### 3. CHECK HARNESS FOR SHORT TO GROUND

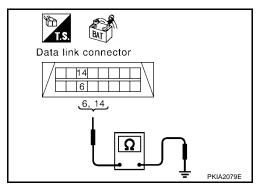
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ground.

6 (L) - Ground : Continuity should not exist. 14 (P) - Ground : Continuity should not exist.

#### OK or NG

OK >> Check ECM and IPDM E/R. Refer to <u>LAN-313</u>, "Component Inspection".

NG >> Repair the harness.



# IPDM E/R Ignition Relay Circuit Check

UKS002J2

Check the following. If no malfunction is found, replace the IPDM E/R.

- IPDM E/R power supply 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".

[CAN]

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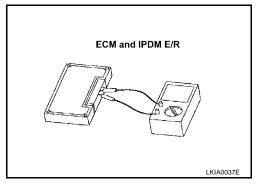
Component Inspection ECM AND IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.

**94 - 86** : Approx. 108 - 132  $\Omega$ 

Check resistance between IPDM E/R terminals 48 and 49.

**48 - 49** : Approx.  $108 - 132 \Omega$ 



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# **CAN SYSTEM (TYPE 13)**

PFP:23710

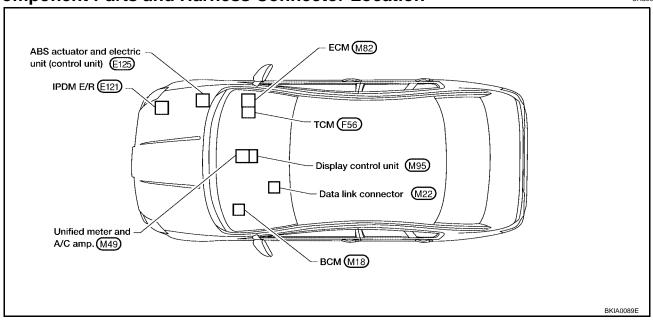
### **System Description**

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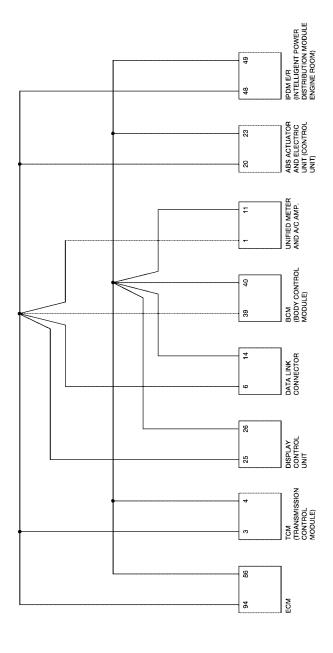
CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information 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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Schematic UKS002C7



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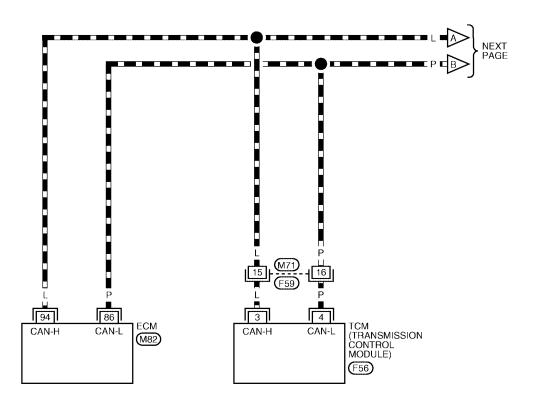
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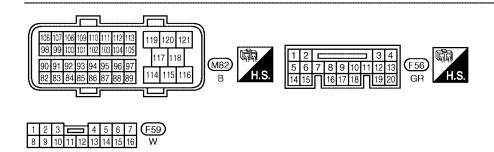
Wiring Diagram - CAN -

IKS002C8

# LAN-CAN-31

: DATA LINE





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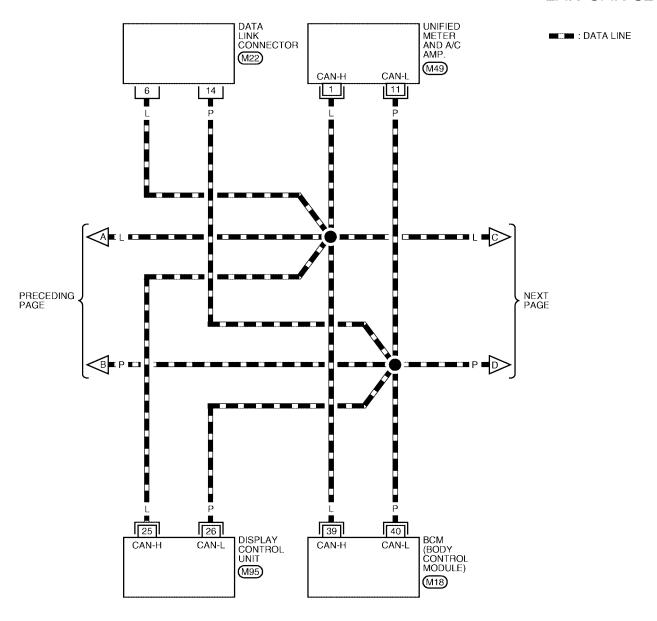
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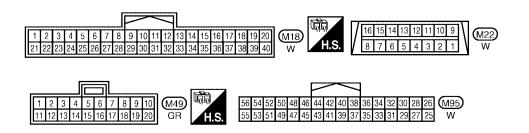
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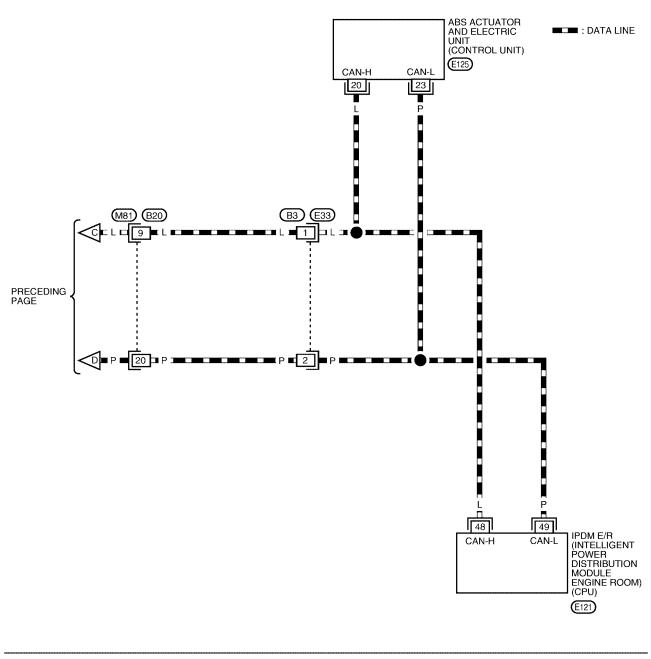
# LAN-CAN-32





BKWA0313E

# LAN-CAN-33





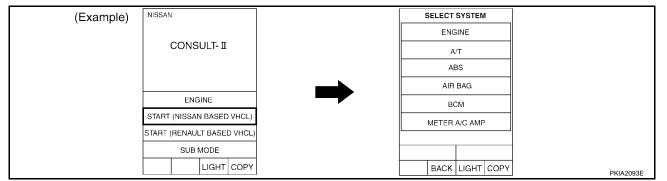
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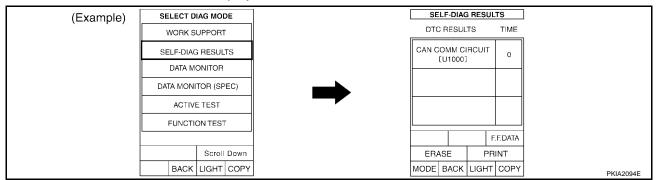
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Work Flow

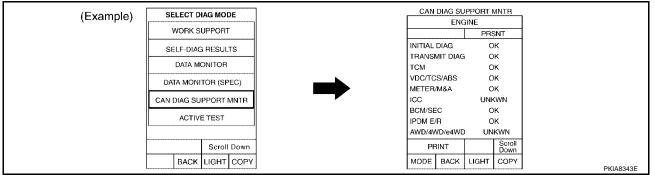
1. When there are no indications of "TRANSMISSION", "METER A/C AMP", "BCM" or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



2. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



4. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks onto the items with "No indication", "NG", or "UNKWN" in the check sheet table.

			<del></del>	CAN DIAG SUPPORT MNTR  Receive diagnosis								
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R		
ENGINE	-	NG	UNKWN		UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN		
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-		
Display control unit	-	CAN COMM	CAN CIRC 1	CAN CIRC 3	-	-	CAN CIRC 5	CAN CIRC 2	-	CAN CIRC 7		
METER A/C AMP	No indication	-	UNKWN	UNKWN	UNKWN	UNKWN	,	UNKWN	UNKWN	UNKWN		
BCM	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	UNKWN		
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	-	-	-	-		
IPDM E/R	No indication	-	UNKWN	UNKWN	,	-	,	UNKWN	-	-		

#### 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]

- The "CAN DIAG SUPPORT MNTR" items which are not in check sheet table are not related to diagnostic procedure on service manual.
  - Therefore, it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- 5. Check CAN communication line of the navigation system.
- 6. Mark the "NG" or "UNKWN" item of the check sheet table from the result of CAN DIAG SUPPORT MONITOR check sheet.

#### NOTE:

- If "NG" is displayed on "CAN COMM" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- 7. According to the Check Sheet Results, start inspection.

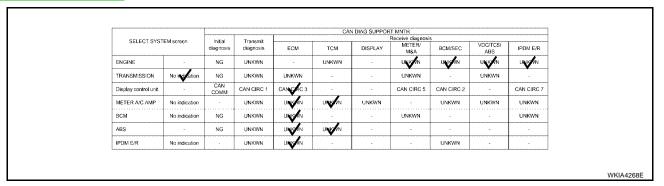
### **CHECK SHEET RESULTS (EXAMPLE)**

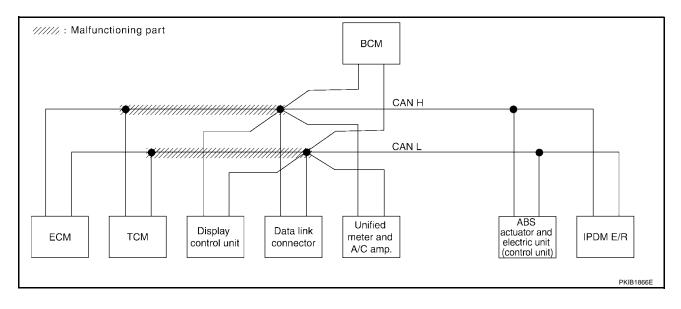
#### NOTE:

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

#### Case 1

Check harness between TCM and data link connector. Refer to <u>LAN-332</u>, "Circuit Check Between TCM and <u>Data Link Connector"</u>.





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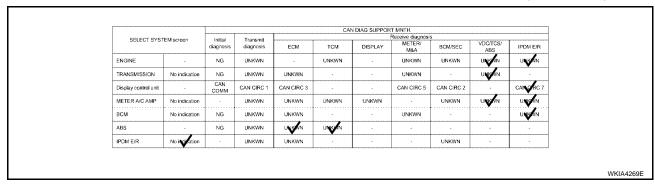
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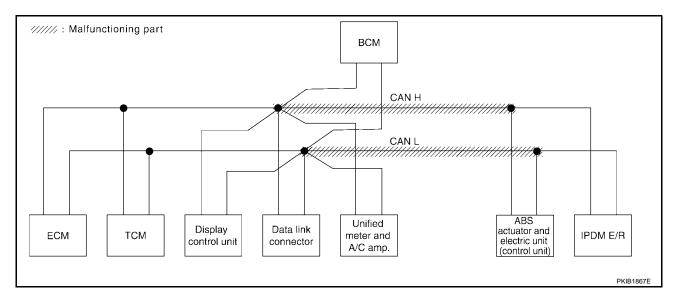
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Case 2

Check harness between data link connector and ABS actuator and electric unit (control unit). Refer to <u>LAN-332</u>, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit)".





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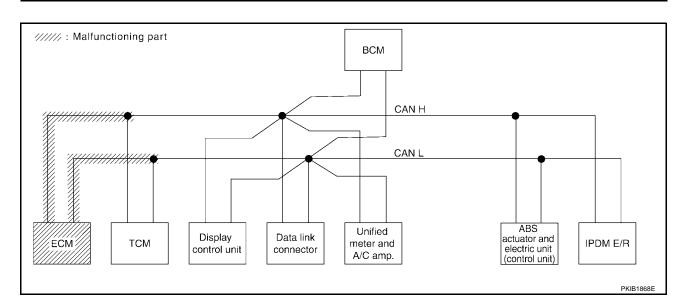
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Case 3
Check ECM circuit. Refer to <u>LAN-333</u>, "<u>ECM Circuit Check"</u> .

	SELECT SYSTEM screen		T	CAN DIAG SUPPORT MNTR Receive diagnosis							
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R	
ENGINE	-	NG	UNKVN		ninka au	-	UNKAN	UNR WN	UNK VN	UNKAVN	
TRANSMISSION	No indication	NG	UNKWN	UNKAN	-	-	UNKWN	-	UNKWN	-	
Display control unit	-	CAN COMM	CAN CIRC 1	CANCRC 3	-	-	CAN CIRC 5	CAN CIRC 2		CAN CIRC 7	
METER A/C AMP	No indication	-	UNKWN	UNKVN	UNKWN	UNKWN	,	UNKWN	UNKWN	UNKWN	
всм	No indication	NG	UNKWN	UNKVN	-	-	UNKWN	-	-	UNKWN	
ABS	-	NG	UNKWN	UNKVIN	UNKWN	-	-	-	-	-	
IPDM E/R	No indication	-	UNKWN	UNKVN	,	-	,	UNKWN	-	-	

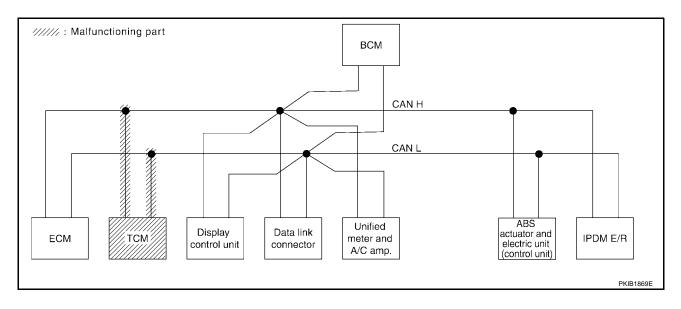


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Case 4
Check TCM circuit. Refer to <u>LAN-333, "TCM Circuit Check"</u>.

				CAN DIAG SUPPORT MNTR Receive diagnosis							
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R	
ENGINE	-	NG	UNKWN	-	UNKON	-	UNKWN	UNKWN	UNKWN	UNKWN	
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-	
Display control unit	-	CAN COMM	CAN CIRC 1	CAN CIRC 3	-	-	CAN CIRC 5	CAN CIRC 2	-	CAN CIRC 7	
METER A/C AMP	No indication	-	UNKWN	UNKWN	UNKON	UNKWN		UNKWN	UNKWN	UNKWN	
BCM	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	UNKWN	
ABS	-	NG	UNKWN	UNKWN	UNKVIN	-	-	-	-	-	
IPDM E/R	No indication	-	UNKWN	UNKWN		-	,	UNKWN	-	-	



# **CAN SYSTEM (TYPE 13)**

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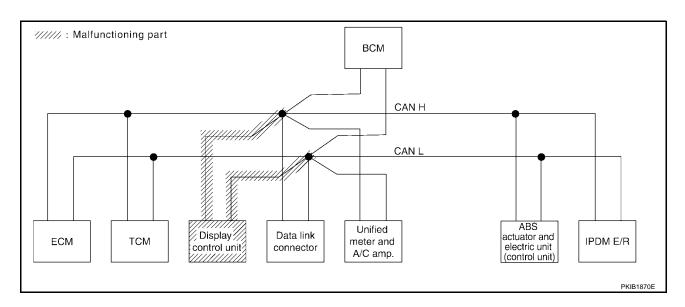
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Case 5
Check display control unit circuit. Refer to <u>LAN-334</u>, "<u>Display Control Unit Circuit Check</u>" .

				I	CA	N DIAG SUPPOR	Receive diagnosi	s		
SELECT SYST	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-
Display control unit	-	CAN COMM	CANCRC 1	CANCRC 3	-	-	CANCRO 5	CANORC 2		CAN ORC 7
METER A/C AMP	No indication	-	UNKWN	UNKWN	UNKWN	UNKVN	,	UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	UNKWN
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN		-	,	UNKWN	-	-

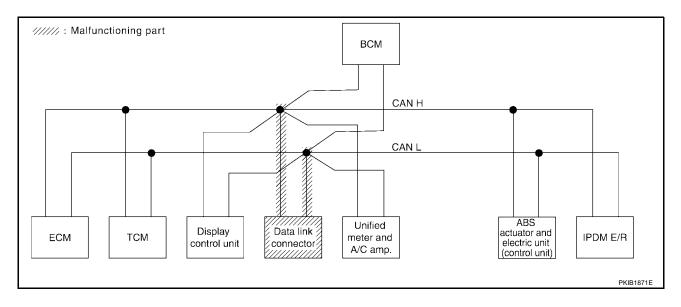


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Case 6
Check data link connector circuit. Refer to <u>LAN-334, "Data Link Connector Circuit Check"</u>.

DELECT OVE		1-101-1	T	I	- CAI	DIAG SUPPOR	Receive diagnosi	S		
SELECT SYS	I E WI SCREEN	Initial diagnosis	Transmit diagnosis	ECM	тсм	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-
Display control unit	-	CAN COMM	CAN CIRC 1	CAN CIRC 3	-	-	CAN CIRC 5	CAN CIRC 2	-	CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN	,	UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	UNKWN
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN	,	-	,	UNKWN	,	-



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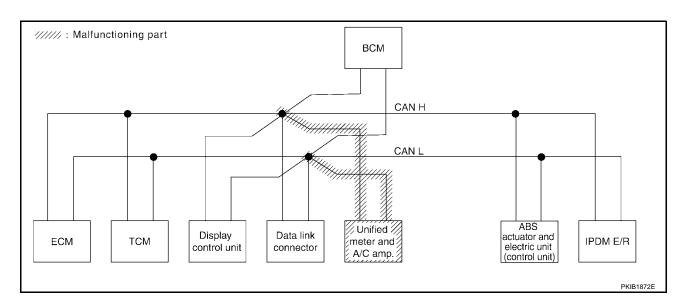
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Case 7

Check unified meter and A/C amp. circuit. Refer to LAN-335, "Unified Meter and A/C Amp. Circuit Check" .

			T		CAI	N DIAG SUPPOR	RT MNTR Receive diagnosi:			
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKOM	UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKVN	-	UNKWN	-
Display control unit	-	CAN COMM	CAN CIRC 1	CAN CIRC 3	-	-	CANCIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication	-	UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN	-	-	UNKVN	-	-	UNKWN
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN		-	,	UNKWN		-

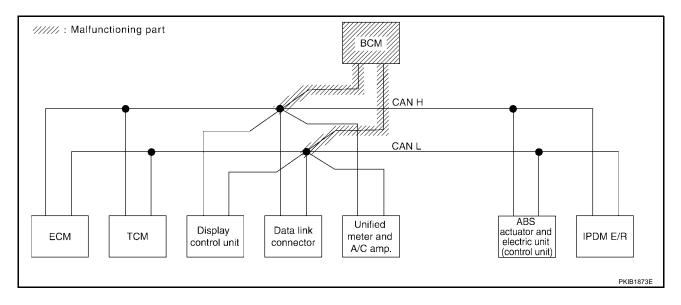


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Case 8 Check BCM circuit. Refer to <u>LAN-335</u>, "BCM Circuit Check" .

					CAI	N DIAG SUPPOR	T MNTR Receive diagnosi			
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKVN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-
Display control unit	-	CAN COMM	CAN CIRC 1	CAN CIRC 3	-	-	CAN CIRC 5	CAN ORC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN	,	UNKVN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	UNKWN
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN		-	,	UNKAN	-	-



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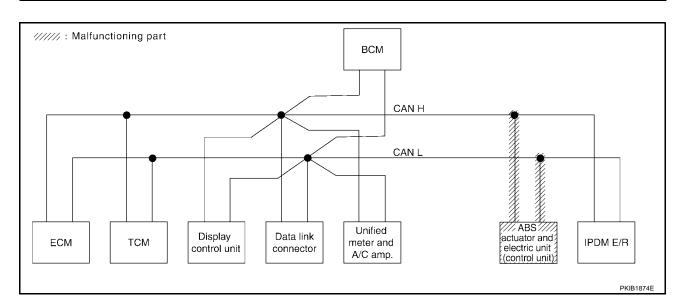
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Case 9

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-336</u>, "ABS Actuator and Electric Unit (Control Unit) Circuit Check".

					CA	N DIAG SUPPOR	Receive diagnosi	s		
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNK VN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNIKAYN	-
Display control unit	-	CAN	CAN CIRC 1	CAN CIRC 3	-	-	CAN CIRC 5	CAN CIRC 2	-	CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNIK VN	UNKWN
всм	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	UNKWN
ABS	-	NG	UNKOVN	UNION	UNKOVN	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN		-	,	UNKWN	-	-

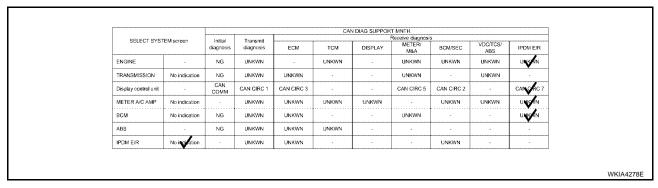


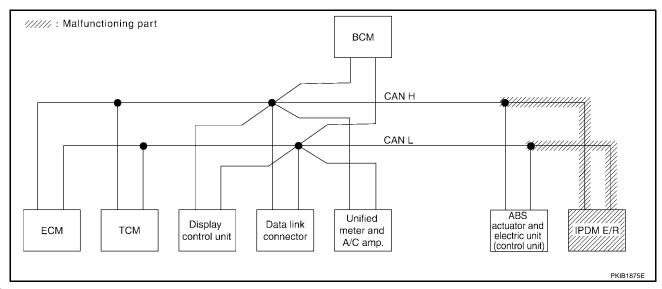
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Case 10

Check IPDM E/R circuit. Refer to LAN-336, "IPDM E/R Circuit Check".





Case 11

Check CAN communication circuit. Refer to LAN-337, "CAN Communication Circuit Check" .

					CA	N DIAG SUPPOF	RT MNTR Receive diagnosi			
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNION	-	UNKOVN	-	UNKOVN	UNK/N	UNKAN	UNK VN
TRANSMISSION	No indication	NG	UNKWN	UNKWN		-	UNKWN	-	UNKWN	-
Display control unit	-	CAN COMM	CANCERC 1	CANCAC 3	-	-	CANCIRC 5	CANCRC 2	-	CANCEC
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	UNKWN
ABS	-	NG	UNISON	UMRS/N	UNIKOVN	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN	,	-	,	UNKWN		-

# **CAN SYSTEM (TYPE 13)**

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### Case 12

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-337</u>, "IPDM E/R Ignition Relay <u>Circuit Check"</u>.

	CELECT OVE	TT 1	Initial	Transmit		- CA	N DIAG SUPPOF	Receive diagnosi	S		
TRANSMISSION         No indication         NG         UNKWN         UNKWN         -         -         UNKWN         -         UNKWN           Display control unit         -         CAN         CAN CIRC 1         CAN CIRC 3         -         -         CAN CIRC 5         CAN CIRC 2         -         CAN CIRC 3           METER A/C AMP         No indication         UNKWN         UNKWN         UNKWN         UNKWN         UNKWN         UNKWN	SELECT SYS	TEM Screen			1	TCM		METER/			IPDM E/R
Display control unit         CAN COMM         CAN CIRC 1         CAN CIRC 3         - CAN CIRC 5         CAN CIRC 2         - CAN CIRC 2           METER AIC AMP         No indication         - UNKWN         UNKWN </td <td>ENGINE</td> <td>-</td> <td>NG</td> <td>UNKWN</td> <td>-</td> <td>UNK VN</td> <td>-</td> <td>UNKWN</td> <td>UNKWN</td> <td>n<b>ik</b> Δu</td> <td>UNKWN</td>	ENGINE	-	NG	UNKWN	-	UNK VN	-	UNKWN	UNKWN	n <b>ik</b> Δu	UNKWN
Display control unit	TRANSMISSION	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-
	Display control unit	-		CAN CIRC 1	CAN CIRC 3	-	-	CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
		No indication		UNKWN	UNKWN			,	UNKWN		UNKWN
BCM No indication NG UNKWN UNKWN UNKWN UNKWN		No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-		UNKWN
ABS - NG UNKWN UNKWN	ABS	-	NG	UNKWN	UNKWN	UNKWN	-	-	-	-	-
IPDM E/R         No indication         -         UNKWN         -         -         -         UNKWN         -         -	IPDM E/R	No indication	-	UNKWN	UNKWN		-	,	UNKWN	-	-

#### Case 13

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to LAN-337, "IPDM E/R Ignition Relay Circuit Check" .

				1	CAI	N DIAG SUPPOR	RECEIVE diagnosi	s		
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKVN	-	-	UNKVN	-	UNKWN	-
Display control unit	-	CAN COMM	CAN CIRC 1	CAN CIRC 3	-	-	CAN CIRC 5	CAN CIRC 2	-	CAN CIRC 7
METER A/C AMP	No indication	-	UNKWN	UNKWN	UNKWN	UNKWN	,	UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	UNKWN
ABS	-	NG	UNKWN	UNKAN	UNKWN	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN	,	-	,	UNKWN	-	-

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### Circuit Check Between TCM and Data Link Connector

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect TCM connector F56 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between TCM connector F56 terminals 3 (L), 4 (P) and data link connector M22 terminals 6 (L), 14 (P).

3 (L) - 6 (L)

: Continuity should exist.

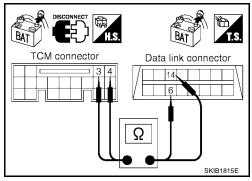
4 (P) - 14 (P)

: Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-319, "Work Flow".

NG >> Repair harness.



# Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit)

# 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect ABS actuator and electric unit (control unit) connector E125 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

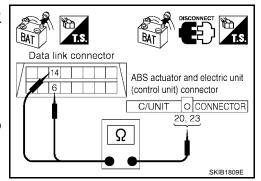
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ABS actuator and electric unit (control unit) connector E125 terminals 20 (L), 23 (P).

6 (L) - 20 (L) : Continuity should exist. 14 (P) - 23 (P) : Continuity should exist.

### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-319, "Work Flow".

NG >> Repair harness.



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**ECM Circuit Check** 

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

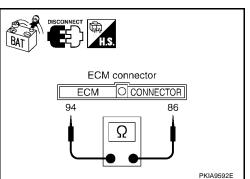
# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between ECM connector M82 terminal 94 (L) and terminal 86 (P).

#### OK or NG

OK >> Replace ECM.

>> Repair harness between ECM connector M82 and TCM NG connector F56.



### **TCM Circuit Check**

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect TCM connector F56.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between TCM connector F56 terminal 3 (L) and terminal 4 (P).

**3 (L) - 4 (P)** : Approx. 54 - 66 
$$\Omega$$

### OK or NG

OK >> Replace TCM.

NG >> Repair harness between TCM connector F56 and ECM connector M82.

TCM connector SKIB1816E

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**Display Control Unit Circuit Check** 

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect display control unit connector M95.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

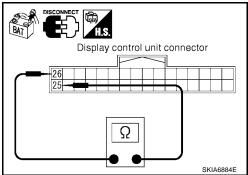
Check resistance between display control unit connector M95 terminal 25 (L) and terminal 26 (P).

**25** (L) - **26** (P) : Approx. **54** - **66** 
$$\Omega$$

#### OK or NG

OK >> Replace display control unit.

NG >> Repair harness between display control unit connector M95 and data link connector M22.



### **Data Link Connector Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- Disconnect the negative battery terminal.
- 3. Check data link connector M22 terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M22 terminal 6 (L) and terminal 14 (P).

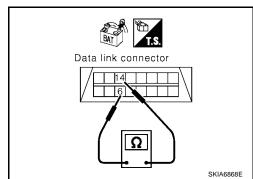
6 (L) - 14 (P) : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

NG

OK >> Diagnose again. Refer to LAN-319, "Work Flow".

>> Repair harness between data link connector M22 and BCM connector M18.



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# Unified Meter and A/C Amp. Circuit Check

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect unified meter and A/C amp. connector M49.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

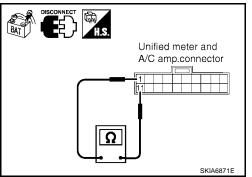
Check resistance between unified meter and A/C amp. connector M49 terminal 1 (L) and terminal 11 (P).

: Approx. 54 - 66  $\Omega$ 

#### OK or NG

OK >> Replace unified meter and A/C amp.

NG >> Repair harness between unified meter and A/C amp. connector M49 and data link connector M22.



### **BCM Circuit Check**

# 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect BCM connector M18.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between BCM connector M18 terminal 39 (L) and terminal 40 (P).

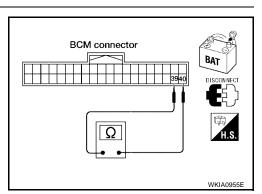
: Approx. 54 - 66  $\Omega$ 

### OK or NG

OK >> Replace BCM.

NG

>> Repair harness between BCM connector M18 and data link connector M22.



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# **ABS Actuator and Electric Unit (Control Unit) Circuit Check**

### 1. CONNECTOR INSPECTION

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- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ABS actuator and electric unit (control unit) connector E125.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

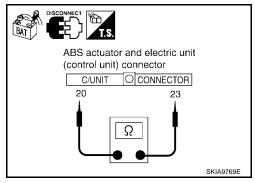
Check resistance between ABS actuator and electric unit (control unit) connector E125 terminal 20 (L) and terminal 23 (P).

: Approx. 54 - 66  $\Omega$ 

#### OK or NG

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

>> Repair harness between ABS actuator and electric unit (control unit) connector E125 and IPDM E/R connector E121.



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### **IPDM E/R Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect IPDM E/R connector E121.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

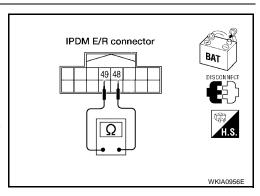
Check resistance between IPDM E/R connector E121 terminal 48 (L) and terminal 49 (P).

: Approx. 108 - 132  $\Omega$ 

#### OK or NG

OK NG >> Replace IPDM E/R.

>> Repair harness between IPDM E/R connector E121 and ABS actuator and electric unit (control unit) connector E125.



### **CAN SYSTEM (TYPE 13)**

[CAN]

### **CAN Communication Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect the following module and control unit connectors and check terminals for deformation, disconnection, looseness or damage.
- **ECM**
- TCM (Transmission control module)
- Display control unit
- Unified meter and A/C amp.
- BCM (Body control module)
- ABS actuator and electric unit (control unit)
- IPDM E/R (Intelligent power distribution module engine room)

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

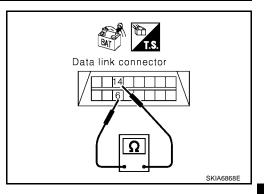
# 2. CHECK HARNESS FOR SHORTED CIRCUITS

With all module and control unit connectors disconnected, check continuity between data link connector M22 terminals 6 (L) and 14 (P).

#### OK or NG

OK >> GO TO 3.

NG >> Repair the harness.



# 3. CHECK HARNESS FOR SHORT TO GROUND

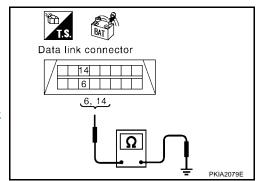
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ground.

> 6 (L) - Ground : Continuity should not exist. 14 (P) - Ground : Continuity should not exist.

#### OK or NG

OK >> Check ECM and IPDM E/R. Refer to LAN-338, "Component Inspection".

NG >> Repair the harness.



# IPDM E/R Ignition Relay Circuit Check

Check the following. If no malfunction is found, replace the IPDM E/R.

- IPDM E/R power supply circuit. Refer to PG-25, "IPDM E/R Power/Ground Circuit Inspection".
- Ignition power supply circuit. Refer to PG-12, "IGNITION POWER SUPPLY IGNITION SW. IN ON AND/OR START".

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# Component Inspection ECM AND IPDM E/R INTERNAL CIRCUIT INSPECTION

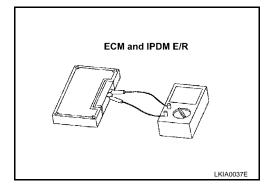
Remove ECM and IPDM E/R from vehicle.

• Check resistance between ECM terminals 94 and 86.

94 - 86 : Approx. 108 - 132 Ω

Check resistance between IPDM E/R terminals 48 and 49.

**48 - 49** : Approx.  $108 - 132 \Omega$ 



# **CAN SYSTEM (TYPE 14)**

PFP:23710

# **System Description**

EKS00FRX

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.

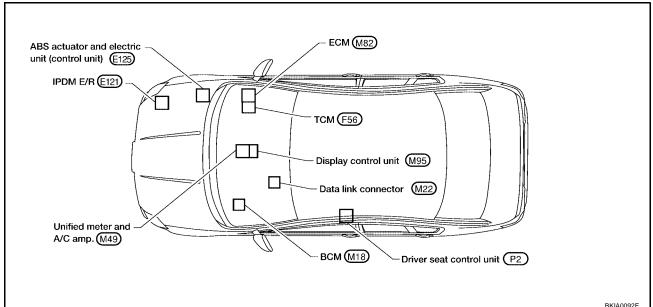
### **Component Parts and Harness Connector Location**

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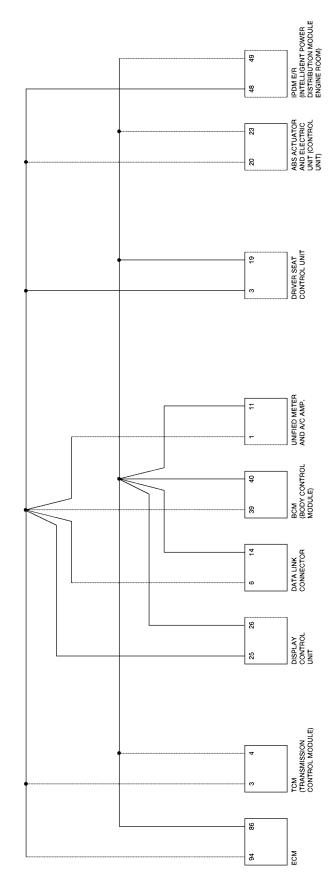
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Schematic



Wiring Diagram - CAN -

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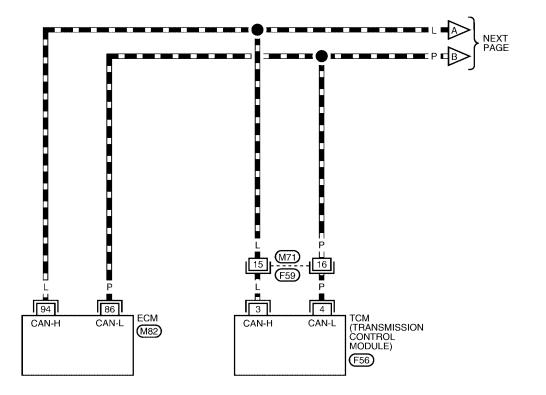
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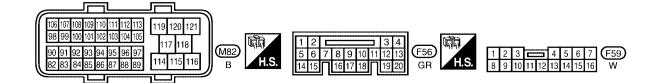
: DATA LINE



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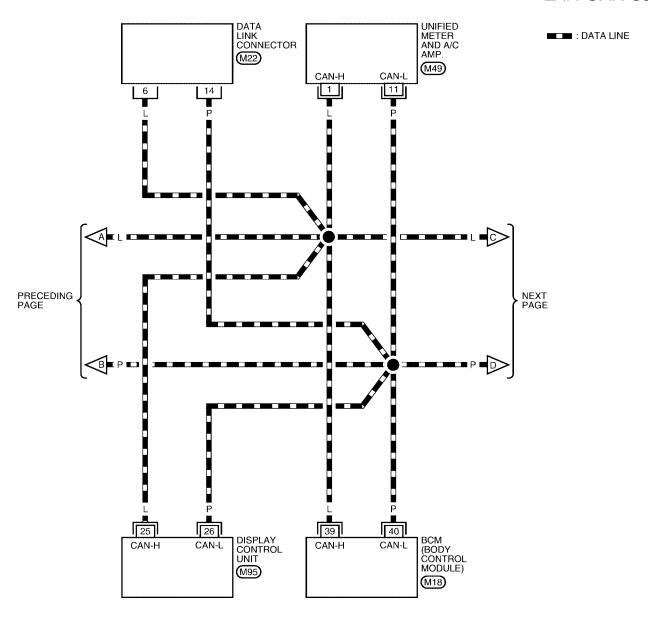
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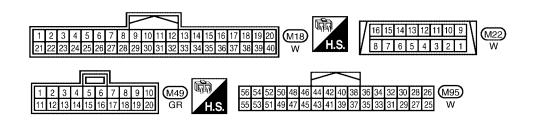
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# LAN-CAN-35





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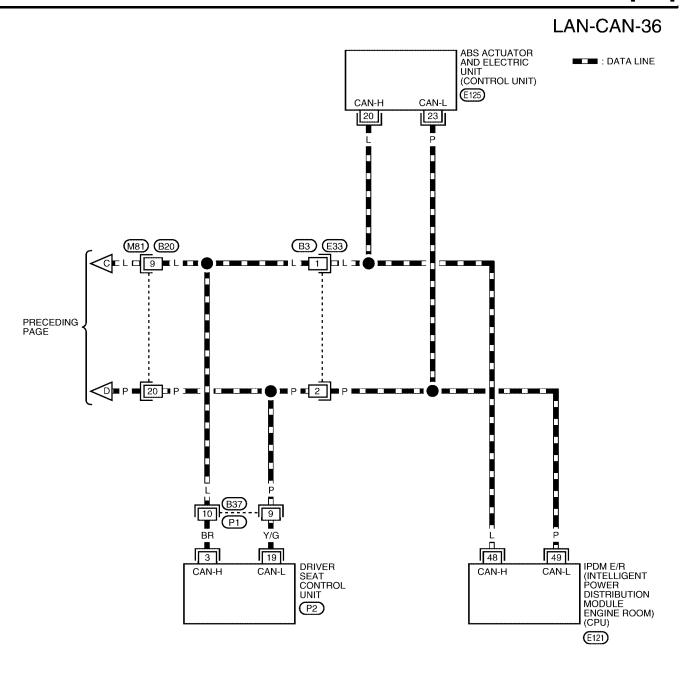
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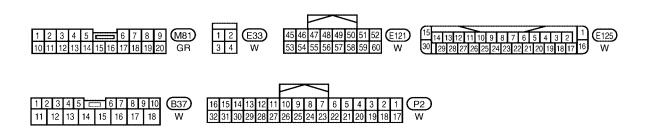
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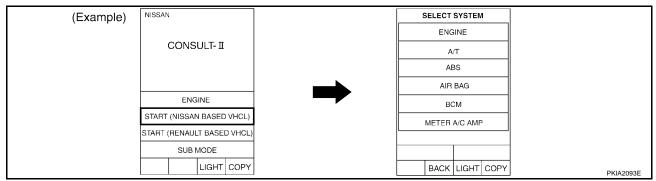




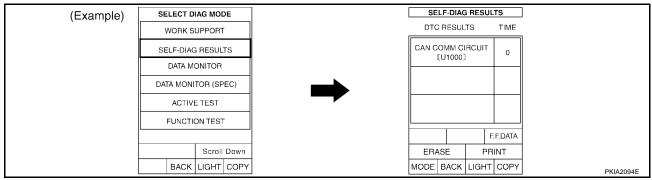
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Work Flow

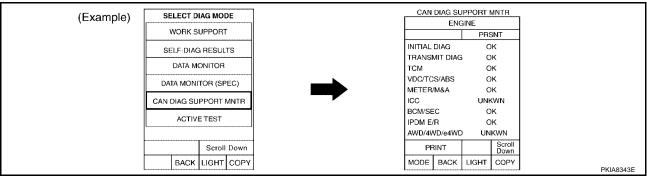
 When there are no indications of "TRANSMISSION", "METER A/C AMP", "BCM", "AUTO DRIVE POS." or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



2. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



4. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks onto the items with "No indication", "NG", or "UNKWN" in the check sheet table.

					CAN	N DIAG SUPPOR				
SELECT SYST	EM screen	Initial	Transmit			,	Receive diagnosi:	S		·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
FRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN		UNKWN	
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN					
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

#### 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 SYSTEM (TYPE 14)**

[CAN]

- The "CAN DIAG SUPPORT MNTR" items which are not in check sheet table are not related to diagnostic procedure on service manual.
  - Therefore, it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- 5. Check CAN communication line of the navigation system.
- 6. Mark the "NG" or "UNKWN" item of the check sheet table from the result of CAN DIAG SUPPORT MONITOR check sheet.

#### NOTE:

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

7. According to the Check Sheet Results, start inspection.

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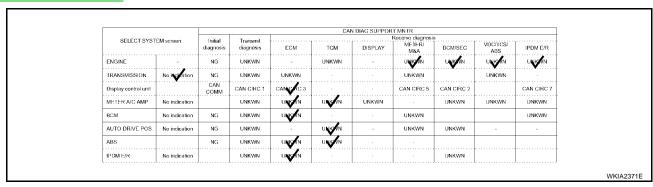
### **CHECK SHEET RESULTS (EXAMPLE)**

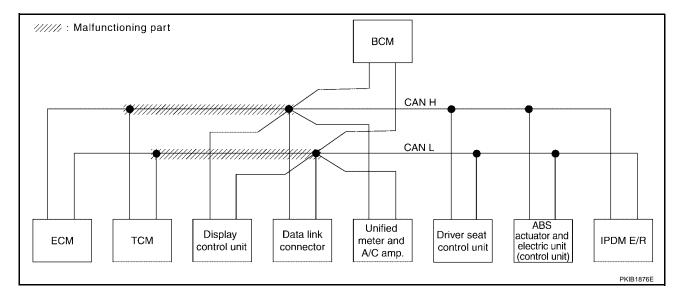
#### NOTE:

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

### Case 1

Check harness between TCM and data link connector. Refer to <u>LAN-359</u>, "Circuit Check Between TCM and <u>Data Link Connector"</u>.





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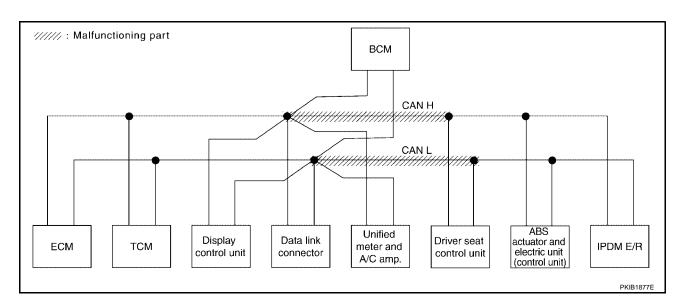
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Case 2

Check harness between data link connector and driver seat control unit. Refer to <u>LAN-359</u>, "Circuit Check <u>Between Data Link Connector and Driver Seat Control Unit"</u>.

					CAI	N DIAG SUPPOR				
SELECT SYST		Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKVN	UNKVN
FRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN		UNKVN	
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5	CAN CIRC 2		CANORC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	DNR AN	UNKVN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			DNKAN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKVN	UNIKAN					
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

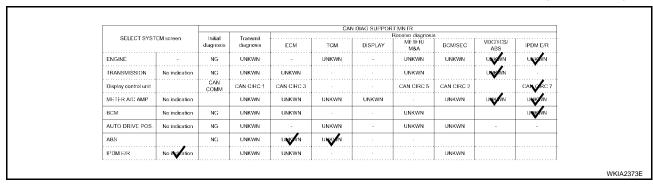


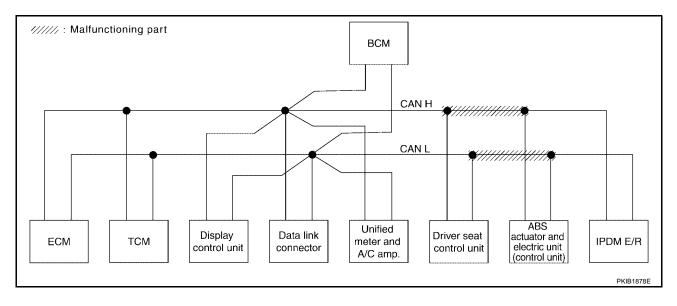
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Case 3

Check harness between driver seat control unit and ABS actuator and electric unit (control unit). Refer to <u>LAN-360</u>, "Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric Unit (Control Unit)".





# **CAN SYSTEM (TYPE 14)**

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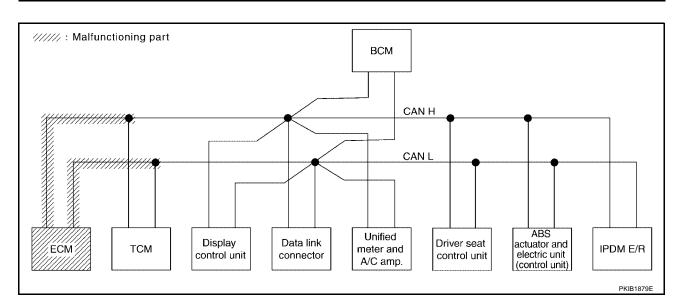
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Case 4
Check ECM circuit. Refer to <u>LAN-360, "ECM Circuit Check"</u>.

					CAN	LDIAG SUPPOR	TMNTR			
SELECT SYST	EM screen	Initial	Transmit				Receive diagnosis	S		·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKVN		DIMENN	-	UNKVN	UNKVN	UNKAN	UNKVN
TRANSMISSION	No indication	NG	UNKWN	UNKVN			UNKWN		UNKWN	
Display control unit		CAN COMM	CAN CIRC 1	CANC RC 3			CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKAN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKVN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN		UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKAN	UNKWN					
IPDM E/R	No indication		UNKWN	UNKAVN				UNKWN		

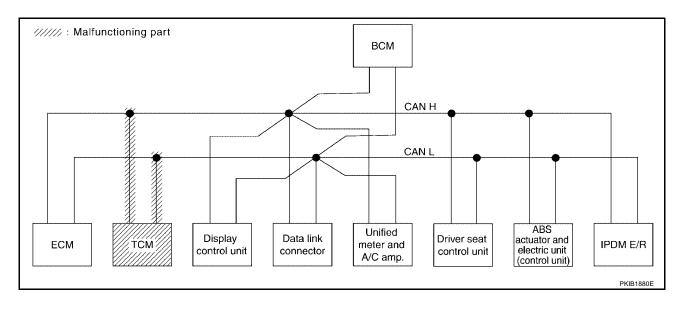


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Case 5
Check TCM circuit. Refer to <u>LAN-361</u>, "TCM Circuit Check" .

			1		CAI	N DIAG SUPPOR				
SELECT SYST	FEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Receive diagnosi METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKVN	-	UNKWN	UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN		UNKWN	-
Display control unit	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKVIN	UNKWN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN	·		UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKOM	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKOEN					
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		



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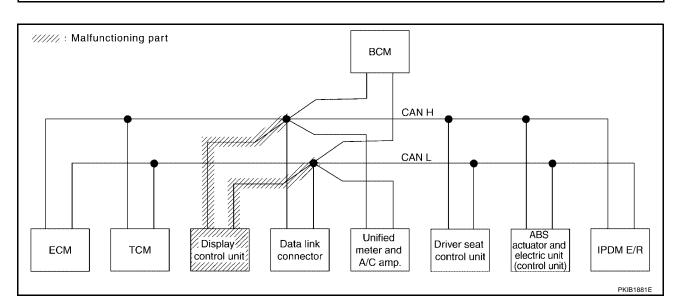
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Case 6
Check display control unit circuit. Refer to <u>LAN-361</u>, "<u>Display Control Unit Circuit Check</u>".

					CAI	N DIAG SUPPOR				
SELECT SYST	TEM screen	Initial	Transmit		,	,	Receive diagnosis	S	,	·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN		UNKWN	-
Display control unit		CAN COMM	CANCIRC 1	CANCIRC 3			CANCAC 5	CANORC 2		CANORC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKVN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN					
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

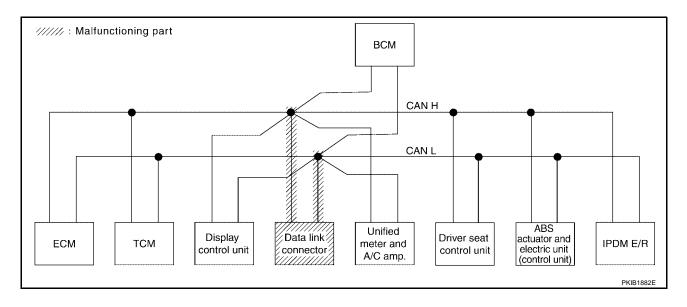


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Case 7
Check data link connector circuit. Refer to <u>LAN-362</u>, "<u>Data Link Connector Circuit Check"</u>.

					CAI	N DIAG SUPPOR				
SELECT SYST	FEM screen	Initial diagnosis	Transmit diagnosis	ECM	ТСМ	DISPLAY	Receive diagnosi METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN		UNKWN	
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN					
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		



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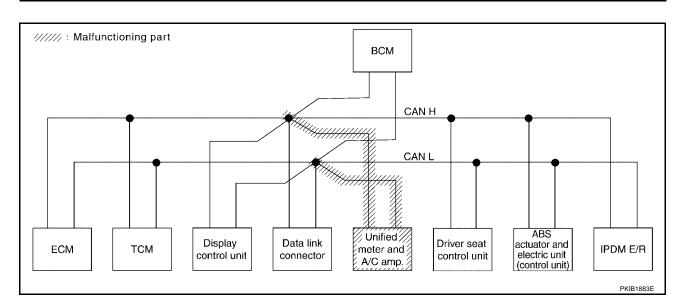
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Case 8

Check unified meter and A/C amp. circuit. Refer to LAN-362, "Unified Meter and A/C Amp. Circuit Check" .

						N DIAG SUPPOR				
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Roceivo diagnosi: METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKVN	UNKWN	UNKWN	UNKWN
[RANSMISSION	No indication	NG	UNKWN	UNKWN			UNKAN		UNKWN	-
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CANCAC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKON			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKOWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN		i i			
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

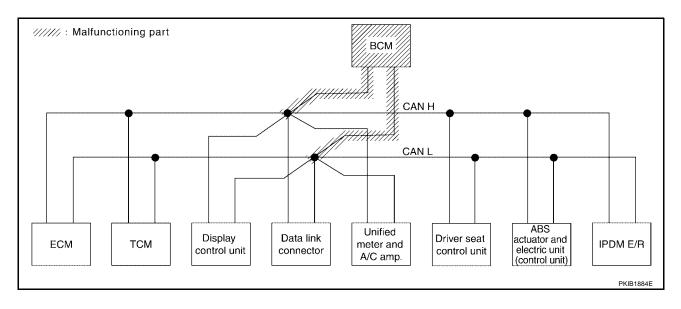


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Case 9 Check BCM circuit. Refer to <u>LAN-363</u>, "BCM Circuit Check" .

					CAN	DIAG SUPPOR				
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Receive diagnosi: METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKAN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN		UNKWN	-
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5	CANORC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKVN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKOVN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN					
IPDM E/R	No indication		UNKWN	UNKWN				UNKVN		



# **CAN SYSTEM (TYPE 14)**

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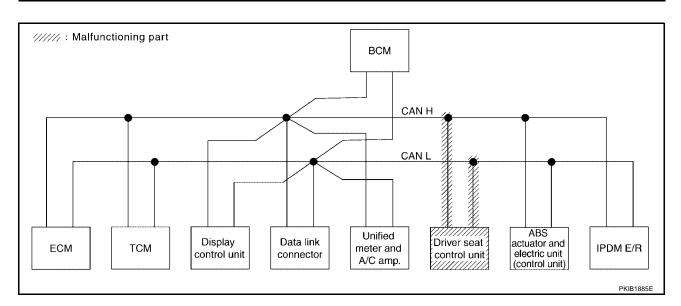
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Case 10

Check driver seat control unit circuit. Refer to LAN-363, "Driver Seat Control Unit Circuit Check" .

					CAI	N DIAG SUPPOR				
SELECT SYST	FFM screen	Initial	Transmit			,	Receivo diagnosi:	S		
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN		UNKWN	
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No inclination	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN					
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		



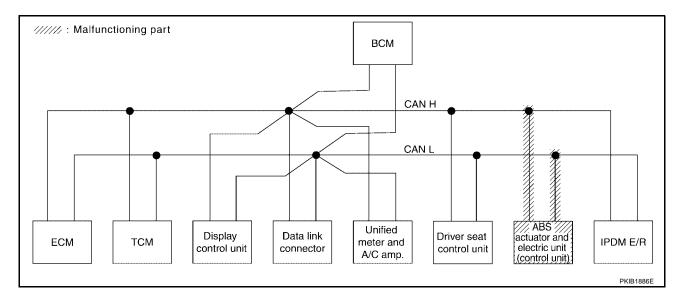
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Case 11

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-364</u>, "ABS Actuator and Electric Unit (Control Unit) Circuit Check".

				,	CAN	LDIAG SUPPOR				
SELECT SYS	FEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Receive diagnosi METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN		UNKVN	-
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	DNKAN	UNKWN
всм	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKON	UNKVN	UNKVN					
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		



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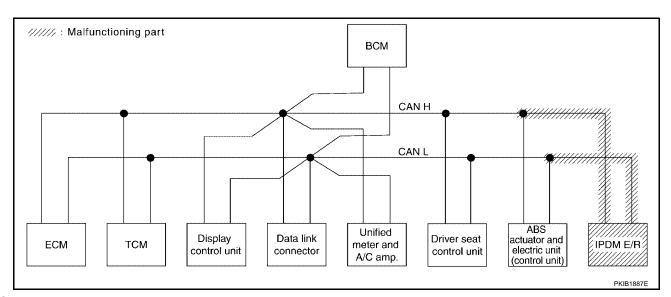
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Case 12

Check IPDM E/R circuit. Refer to LAN-364, "IPDM E/R Circuit Check".

					CAI	N DIAG SUPPOR				
SELECT SYS	TEM screen	Initial	Transmit			,	Receivo diagnosi	s		4
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKOVN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN		UNKWN	-
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5	CAN CIRC 2		CANCRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	DNKAN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			DNK N
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN					
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		



Case 13

Check CAN communication circuit. Refer to LAN-365, "CAN Communication Circuit Check" .

			ı	1	CAN	N DIAG SUPPOR	T MN FR Receive diagnosi:			
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNIKAN	-	DIMRANI	-	UNKVIN	UNKVN	UNKVN	UNKAN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN		UNKWN	
Display control unit		CAN COMM	CANCRO 1	CANCRO 3			CANCIRC 5	CANORC 2		CAN ORC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKVIN	UNKVN	UNKAN					
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

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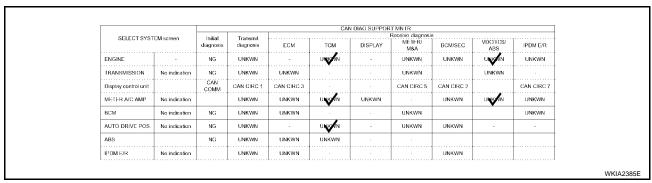
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### Case 14

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-365</u>, "IPDM E/R Ignition Relay <u>Circuit Check"</u>.



#### Case 15

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to LAN-365, "IPDM E/R Ignition Relay Circuit Check".

					CAN	LDIAG SUPPOR				
SELECT SYS	TEM screen	Initial	Transmit			,	Receive diagnosi	S		,
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKVN			UNKAN		UNKWN	-
Display control unit		CAN COMM	CAN CIRC 1	CAN CIRC 3			CAN CIRC 5	CAN CIRC 2		CAN CIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	UNKWN	UNKWN
ВСМ	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	-	-
ABS		NG	UNKWN	UNKVN	UNKWN					
IPDM E/R	No indication		UNKWN	UNKWN				UNKWN		

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### Circuit Check Between TCM and Data Link Connector

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect TCM connector F56 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between TCM connector F56 terminals 3 (L), 4 (P) and data link connector M22 terminals 6 (L), 14 (P).

3 (L) - 6 (L)

: Continuity should exist.

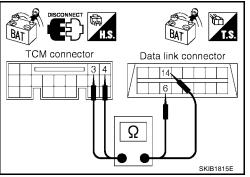
4 (P) - 14 (P)

: Continuity should exist.

### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-344, "Work Flow".

NG >> Repair harness.



### Circuit Check Between Data Link Connector and Driver Seat Control Unit

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between data link connector M22 terminals 6 (L), 14 (P) and driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G).

6 (L) - 3 (BR)

: Continuity should exist.

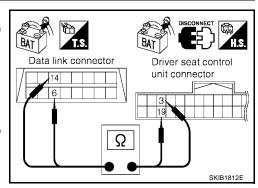
14 (P) - 19 (Y/G)

: Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-344, "Work Flow".

NG >> Repair harness.



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#### Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric Unit (Control Unit) EKS00FS4

# 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect driver seat control unit connector P2, ABS actuator and electric unit (control unit) connector E125 and ECM connector M82.
- Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

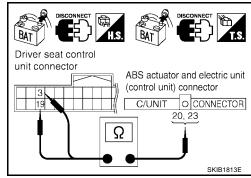
Check continuity between driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G) and ABS actuator and electric unit (control unit) connector E125 terminals 20 (L), 23 (P).

> 3 (BR) - 20 (L) : Continuity should exist. 19 (Y/G) - 23 (P) : Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-344, "Work Flow".

NG >> Repair harness.



EKS00FS5

### **ECM Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF. 1.
- Disconnect the negative battery terminal.
- Disconnect ECM connector M82.
- Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

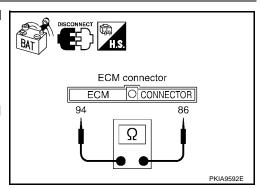
Check resistance between ECM connector M82 terminal 94 (L) and terminal 86 (P).

> 94 (L) - 86 (P) : Approx. 108 - 132  $\Omega$

### OK or NG

OK >> Replace ECM. NG

>> Repair harness between ECM connector M82 and TCM connector F56.



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**TCM Circuit Check** 

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect TCM connector F56.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

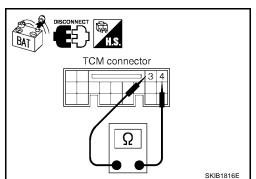
Check resistance between TCM connector F56 terminal 3 (L) and terminal 4 (P).

3 (L) - 4 (P) : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace TCM.

>> Repair harness between TCM connector F56 and ECM NG connector M82.



### **Display Control Unit Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect display control unit connector M95.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between display control unit connector M95 terminal 25 (L) and terminal 26 (P).

**25 (L) - 26 (P)** : Approx. 54 - 66 
$$\Omega$$

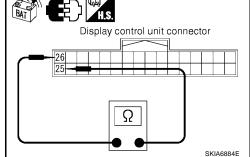
#### OK or NG

Revision: July 2005

OK >> Replace display control unit.

NG >> Repair harness between display control unit connector M95 and data link connector M22.

**LAN-361** 



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### **Data Link Connector Circuit Check**

### 1. CONNECTOR INSPECTION

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- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check data link connector M22 terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

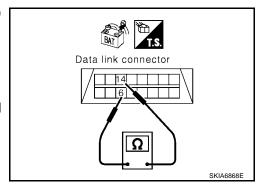
### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M22 terminal 6 (L) and terminal 14 (P).

#### OK or NG

OK >> Diagnose again. Refer to <u>LAN-344, "Work Flow"</u>.

NG >> Repair harness between data link connector M22 and BCM connector M18.



### Unified Meter and A/C Amp. Circuit Check

EKS00FS9

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect unified meter and A/C amp. connector M49.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

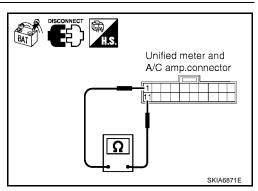
Check resistance between unified meter and A/C amp. connector M49 terminal 1 (L) and terminal 11 (P).

1 (L) - 11 (P) : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace unified meter and A/C amp.
NG >> Repair harness between unified me

>> Repair harness between unified meter and A/C amp. connector M49 and data link connector M22.



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**BCM Circuit Check** 

### 1. CONNECTOR INSPECTION

Turn ignition switch OFF.

- 2. Disconnect the negative battery terminal.
- 3. Disconnect BCM connector M18.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

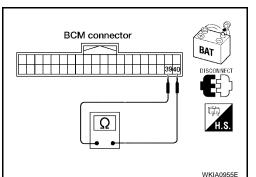
Check resistance between BCM connector M18 terminal 39 (L) and terminal 40 (P).

**39 (L) - 40 (P)** : Approx. **54 - 66** 
$$\Omega$$

#### OK or NG

OK >> Replace BCM.

>> Repair harness between BCM connector M18 and data NG link connector M22.



### **Driver Seat Control Unit Circuit Check**

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between driver seat control unit connector P2 terminal 3 (BR) and terminal 19 (Y/G).

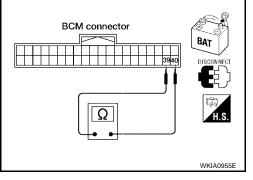
3 (BR) - 19 (Y/G) : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK

NG >> Repair harness between driver seat control unit connec-

>> Replace driver seat control unit. tor P2 and data link connector M22.



Driver seat control unit connector

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### **ABS Actuator and Electric Unit (Control Unit) Circuit Check**

### 1. CONNECTOR INSPECTION

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- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ABS actuator and electric unit (control unit) connector E125.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

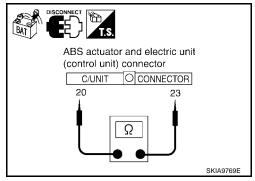
Check resistance between ABS actuator and electric unit (control unit) connector E125 terminal 20 (L) and terminal 23 (P).

: Approx. 54 - 66  $\Omega$ 

#### OK or NG

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

>> Repair harness between ABS actuator and electric unit (control unit) connector E125 and IPDM E/R connector E121.



### **IPDM E/R Circuit Check**

EKS00FSD

#### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect IPDM E/R connector E121.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

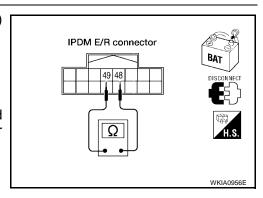
Check resistance between IPDM E/R connector E121 terminal 48 (L) and terminal 49 (P).

: Approx. 108 - 132  $\Omega$ 

#### OK or NG

OK NG >> Replace IPDM E/R.

>> Repair harness between IPDM E/R connector E121 and ABS actuator and electric unit (control unit) connector E125.



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#### **CAN Communication Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect the following module and control unit connectors and check terminals for deformation, disconnection, looseness or damage.
- **ECM**
- TCM (Transmission control module)
- Display control unit
- Unified meter and A/C amp.
- BCM (Body control module)
- Driver seat control unit
- ABS actuator and electric unit (control unit)
- IPDM E/R (Intelligent power distribution module engine room)

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

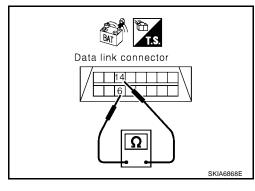
### 2 . CHECK HARNESS FOR SHORTED CIRCUITS

With all module and control unit connectors disconnected, check continuity between data link connector M22 terminals 6 (L) and 14 (P).

#### OK or NG

OK >> GO TO 3.

NG >> Repair the harness.



### 3. CHECK HARNESS FOR SHORT TO GROUND

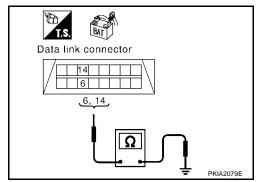
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ground.

> : Continuity should not exist. 6 (L) - Ground 14 (P) - Ground : Continuity should not exist.

#### OK or NG

OK >> Check ECM and IPDM E/R. Refer to LAN-366, "Component Inspection".

NG >> Repair the harness.



### IPDM E/R Ignition Relay Circuit Check

Check the following. If no malfunction is found, replace the IPDM E/R.

- IPDM E/R power supply circuit. Refer to PG-25, "IPDM E/R Power/Ground Circuit Inspection".
- Ignition power supply circuit. Refer to PG-12, "IGNITION POWER SUPPLY IGNITION SW. IN ON AND/OR START" .

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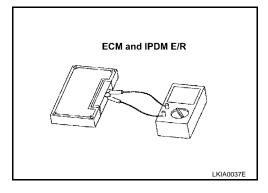
# Component Inspection ECM AND IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.

**94 - 86** : Approx. 108 - 132  $\Omega$ 

Check resistance between IPDM E/R terminals 48 and 49.

**48 - 49** : Approx.  $108 - 132 \Omega$ 



### **CAN SYSTEM (TYPE 15)**

#### PFP:23710

### **System Description**

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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.

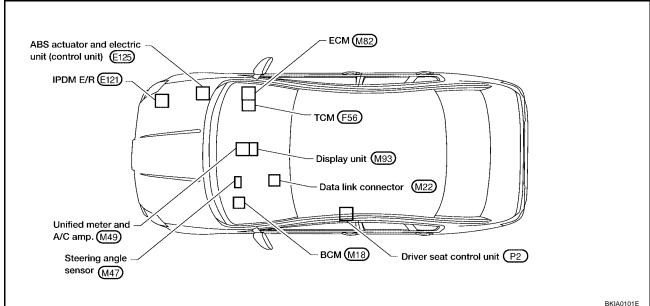
### **Component Parts and Harness Connector Location**

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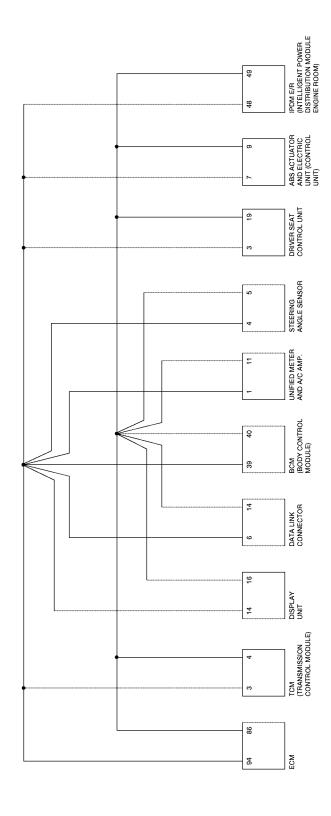
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Schematic



Wiring Diagram - CAN -

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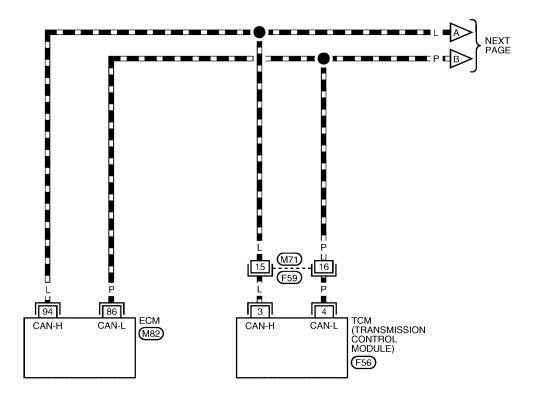
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LAN-CAN-37

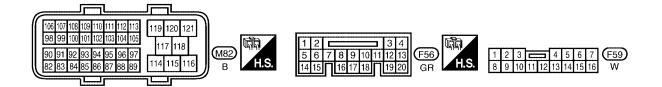
: DATA LINE



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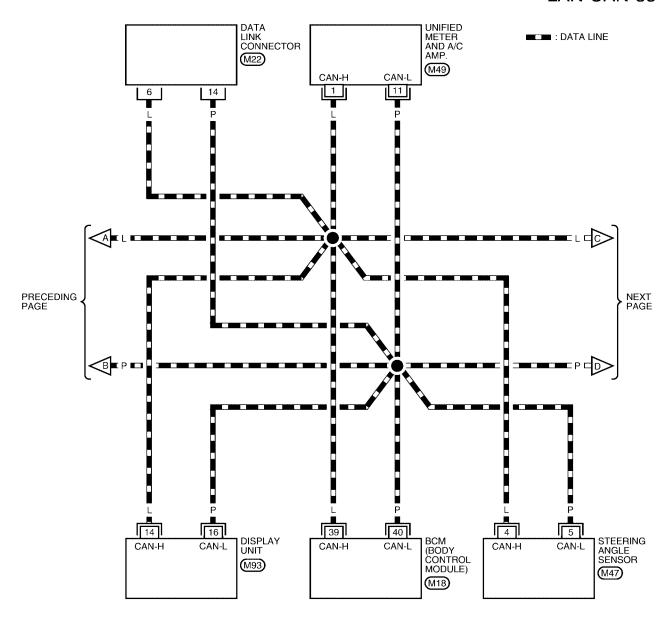
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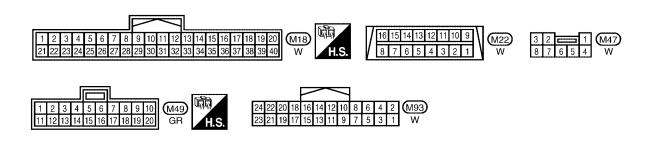
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### LAN-CAN-38





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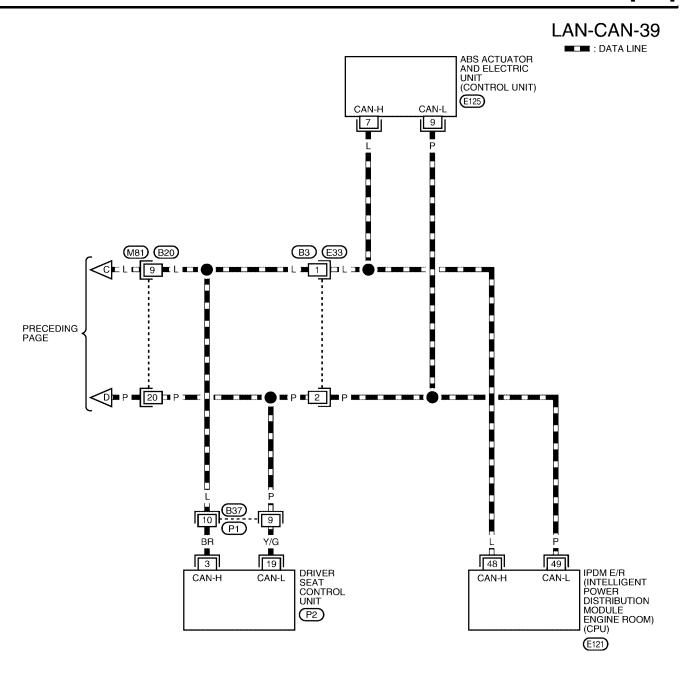
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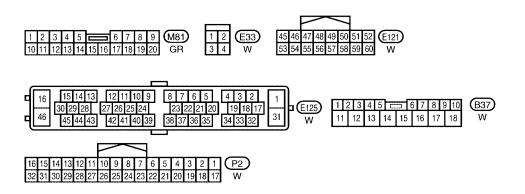
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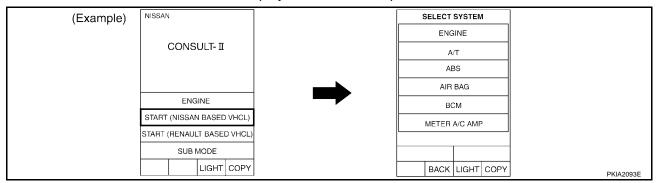




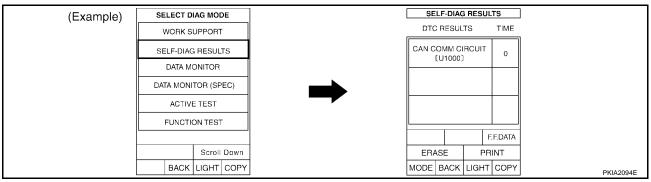
BKWA0631E

Work Flow

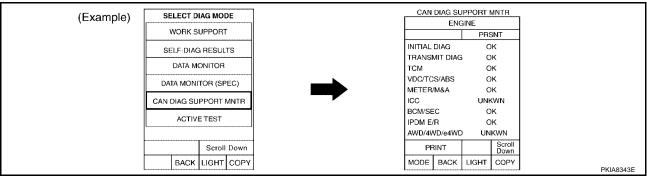
1. When there are no indications of "TRANSMISSION", "METER A/C AMP", "BCM", "AUTO DRIVE POS." or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



2. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



4. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks onto the items with "No indication", "NG", or "UNKWN" in the check sheet table.

							SUPPORT MNTE					
SELECT SYST	TEM screen	Initial	Transmit		g		Receive	diagnosis	,		· · · · · · · · · · · · · · · · · · ·	
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R	
ENGINE		NG	UNKWN		UNKWN		UNKWN		UNKWN	UNKWN	UNKWN	
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN		
Display unit	-	CAN COMM	CAN 1	CAN 3	-	-	CAN 5	-	GAN 2	-	CAN /	
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN			UNKWN	UNKWN	UNKWN	
BCM	No indication	NG	NG	UNKWN	UNKWN			UNKWN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-	
ABS		NG	UNKWN	UNKWN	UNKWN			UNKWN				
IPDM E/R	No indication		UNKWN	UNKWN	1				UNKWN			

#### 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]

- The "CAN DIAG SUPPORT MNTR" items which are not in check sheet table are not related to diagnostic procedure on service manual.
  - Therefore, it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- 5. Check CAN communication line of the integrated display system. Refer to AV-90, "AV Communication Line Check".
- Mark the "NG" or "UNKWN" item of the check sheet table from the result of CAN DIAG SUPPORT MONI-TOR check sheet.

#### NOTE:

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

7. According to the Check Sheet Results, start inspection.

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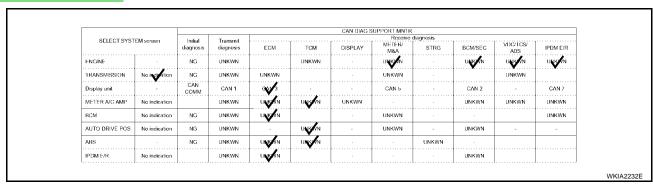
### **CHECK SHEET RESULTS (EXAMPLE)**

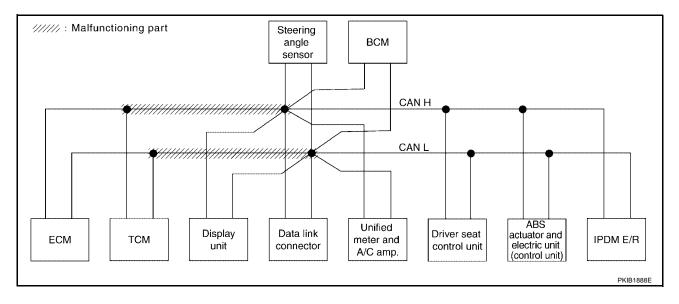
#### NOTE:

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

#### Case 1

Check harness between TCM and data link connector. Refer to <u>LAN-388</u>, "Circuit Check Between TCM and <u>Data Link Connector"</u>.





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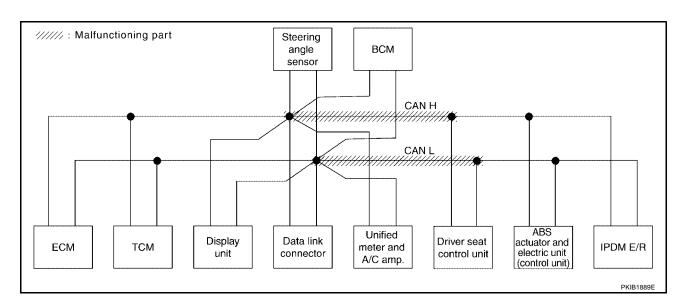
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Case 2

Check harness between data link connector and driver seat control unit. Refer to <u>LAN-388</u>, "Circuit Check <u>Between Data Link Connector and Driver Seat Control Unit"</u>.

						CAN DIAG S	SUPPORT MNTR				
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	DISPLAY	Receive METER/ M&A	diagnosis STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN		UNKWN	UNKAN	UNKAN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			UNKVN	
Display unit	-	CAN COMM	CAN 1	CAN 3	-	-	CAN 5	-	CAN 2	-	<b>₩</b>
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN			UNKWN	UNK VN	DNRAN
всм	No indication	NG	UNKWN	UNKWN			UNKWN				DARAN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNKAN	UNKVN			UNKVN			
IPDM E/R	No inclination		UNKWN	UNKWN					UNKWN		

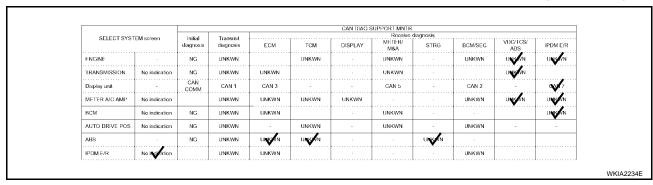


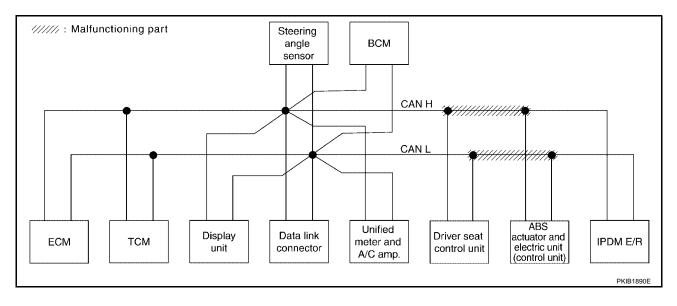
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Case 3

Check harness between driver seat control unit and ABS actuator and electric unit (control unit). Refer to <u>LAN-389</u>, "Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric Unit (Control Unit)".





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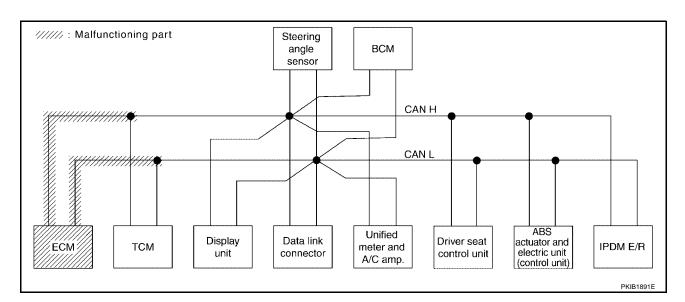
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Case 4
Check ECM circuit. Refer to <u>LAN-389</u>, "ECM Circuit Check".

						CAN DIAG S	SUPPORT MNTE				
SELECT SYS	TEM screen	Initial	Transmit		,	· · · · · · · · · · · · · · · · · · ·	Receive	diagnosis	,		· • · · · · · · · · · · · · · · · · · ·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNIKOVN		UNKAYN		UNKAN		UNKVN	UNKAN	UNKAN
TRANSMISSION	No indication	NG	UNKWN	UNKVN			UNKWN			UNKWN	
Display unit	-	CAN COMM	CAN 1	ovy∕3	-	-	CAN 5	-	GAN 2	-	CAN /
METER A/C AMP	No indication		UNKWN	UNKAN	UNKWN	UNKWN			UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKVN			UNKWN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNKAN	UNKWN			UNKWN			
IPDM E/R	No indication		UNKWN	UNKAN					UNKWN		

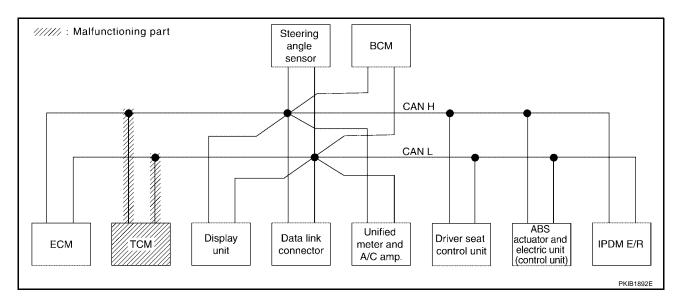


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Case 5
Check TCM circuit. Refer to <u>LAN-390, "TCM Circuit Check"</u>.

				1			SUPPORT MNTR				
SELECT SYS	EM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Receive METER/ M&A	STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKAN		UNKWN		UNKWN	UNKWN	UNKWN
TRANSMISSION	No too cation	NG	UNKWN	UNKWN			UNKWN			UNKWN	
Display unit	-	CAN COMM	CAN 1	CAN 3		-	CAN 5	-	CAN 2	-	CAN /
METER A/C AMP	No indication		UNKWN	UNKWN	UNKVIN	UNKWN			UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKOVN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKAN			UNKWN			
IPDM E/R	No indication		UNKWN	UNKWN					UNKWN		



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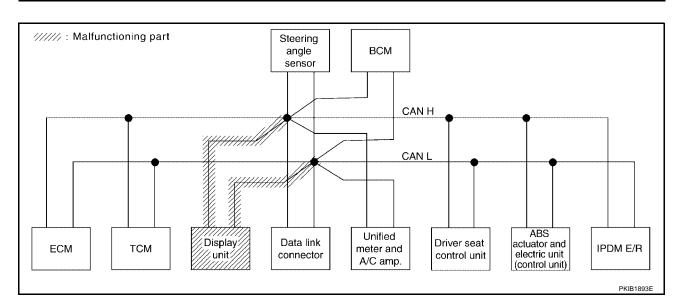
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Case 6
Check display unit circuit. Refer to <u>LAN-390</u>, "<u>Display Unit Circuit Check"</u>.

						CAN DIAG 5	SUPPORT MNTR				
SELECT SYS	TEM screen	Initial	Transmit		g		Receive	diagnosis	,		· · · · · · · · · · · · · · · · · · ·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN		UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN	
Display unit	-	CAN COMM	O <b>(4)</b> 1	ON/3	-	-	<b>QV</b> 5	-	<b>₩</b> 2	-	<b>₩</b>
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKVN			UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN			UNKWN			
IPDM E/R	No indication		UNKWN	UNKWN					UNKWN		

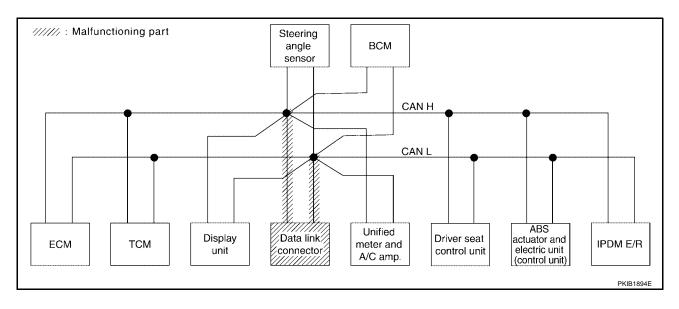


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Case 7
Check data link connector circuit. Refer to <u>LAN-391</u>, "<u>Data Link Connector Circuit Check"</u>.

						CAN DIAG S	SUPPORT MNTR	diagnosis			
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	DISPLAY	METER/ M&A	STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
FNGINE		NG	UNKWN		UNKWN		UNKWN		UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN	
Display unit	-	CAN	CAN 1	CAN 3	-	-	CAN 5	-	CAN 2	-	CAN /
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN			UNKWN	UNKWN	UNKWN
BCM	No inclination	NG	UNKWN	UNKWN			UNKWN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN			UNKWN			
IPDM E/R	No indication		UNKWN	UNKWN					UNKWN		



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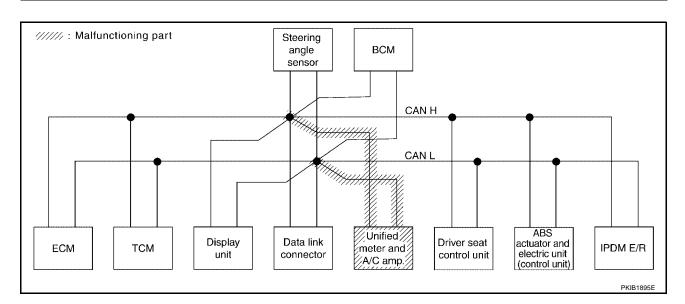
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Case 8

Check unified meter and A/C amp. circuit. Refer to LAN-391, "Unified Meter and A/C Amp. Circuit Check" .

						CAN DIAG S	SUPPORT MNTR				
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	DISPLAY	Receive METER/ M&A	diagnosis STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNK VN		UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKVN			UNKWN	
Display unit		CAN COMM	CAN 1	CAN 3	-	-	ay/s	-	CAN 2	-	CAN /
METER A/C AMP	No inclination		UNKWN	UNKWN	UNKWN	UNKWN			UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKAN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKAN	-	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN			UNKWN			
IPDM E/R	No indication		UNKWN	UNKWN					UNKWN		

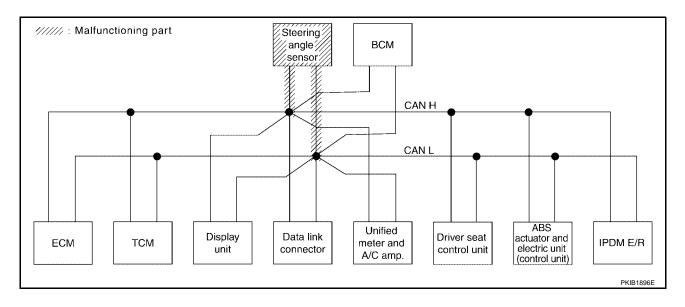


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Case 9
Check steering angle sensor circuit. Refer to <u>LAN-392</u>, "Steering Angle Sensor Circuit Check".

		L				CAN DIAG S	SUPPORT MNTR				
SELECT SYST	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Receive METER/ M&A	diagnosis STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
FNGINE		NG	UNKWN		UNKWN		UNKWN		UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN	
Display unit	-	CAN COMM	CAN 1	CAN 3	-	-	CAN 5	-	CAN 2	-	CAN /
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN			UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN			UNKAN			
IPDM E/R	No indication		UNKWN	UNKWN					UNKWN		



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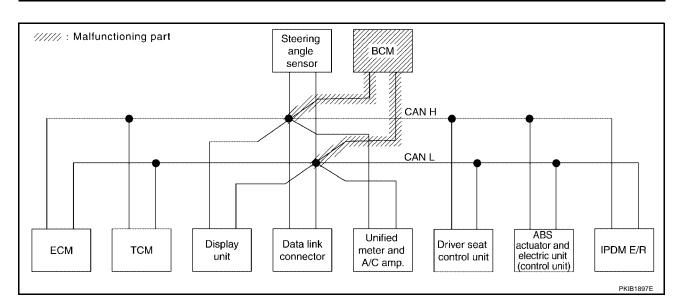
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Case 10

Check BCM circuit. Refer to LAN-392, "BCM Circuit Check" .

						CAN DIAG S	SUPPORT MNTR				
SELECT SYS	TEM screen	Initial	Transmit		r · · · · · · · · · · · · · · ·	r	Receive METER/	diagnosis	r	VDC/TCS/	1
		diagnosis	diagnosis	ECM	TCM	DISPLAY	M&A	STRG	BCM/SEC	ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN		UNKVN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN	
Display unit	-	CAN COMM	CAN 1	CAN 3	-	-	CAN 5	-	<b>W</b> 2	-	CAN /
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN			UNKVN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKVN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN			UNKWN			
IPDM E/R	No indication		UNKWN	UNKWN					<b>DINK A</b> N		

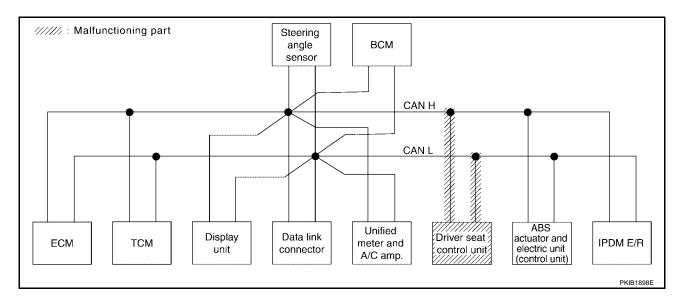


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Case 11
Check driver seat control unit circuit. Refer to <u>LAN-393</u>, "<u>Driver Seat Control Unit Circuit Check</u>".

				1		CAN DIAG S	SUPPORT MNTH				
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	METER/ M&A	diagnosis STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
FNGINE		NG	UNKWN		UNKWN		UNKWN		UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN	
Display unit	-	CAN COMM	CAN 1	CAN 3	-	-	CAN 5	-	CAN 2	-	CAN /
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN			UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN			UNKWN			
IPDM E/R	No indication		UNKWN	UNKWN					UNKWN		



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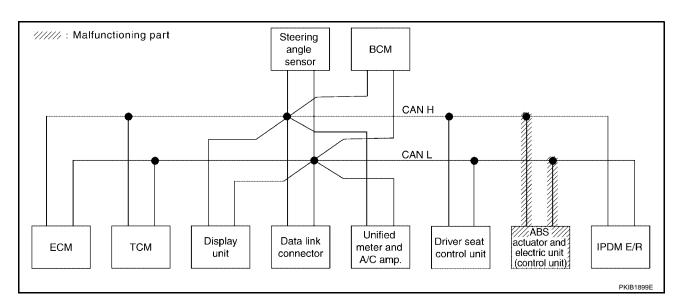
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Case 12

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-393</u>, "ABS Actuator and Electric Unit (Control Unit) Circuit Check".

						CAN DIAG S	SUPPORT MNTR				
SELECT SYS	TEM screen	Initial	Transmit		T	r	Receive METER/		٠٢٠٠٠٠٠٠٠	VDC/TCS/	1
		diagnosis	diagnosis	ECM	TCM	DISPLAY	M&A	STRG	BCM/SEC	ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN		UNKWN	UNKVN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			UNKVN	
Display unit	-	CAN COMM	CAN 1	CAN 3	-	-	CAN 5	-	CAN 2	-	CAN /
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN			UNKWN	UNKVN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKVN	UNKAN	UNKAN			UNKAN			
IPDM E/R	No indication		UNKWN	UNKWN					UNKWN		

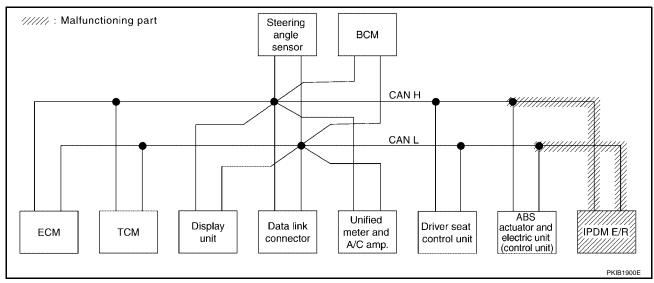


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Case 13
Check IPDM E/R circuit. Refer to LAN-394, "IPDM E/R Circuit Check".

						CAN DIAG S	SUPPORT MNTE				
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Receive METER/ M&A	diagnosis STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN		UNKWN	UNKWN	UNKVN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN	
Display unit	-	CAN COMM	CAN 1	CAN 3	-	-	CAN 5	-	GAN 2	-	<b>W</b> /
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN			UNKWN	UNKWN	UNKVN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN				DWR N
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN			UNKWN			
IPDM E/R	No incidation		UNKWN	UNKWN					UNKWN		



Case 14
Check CAN communication circuit. Refer to <u>LAN-394</u>, "CAN Communication Circuit Check" .

		CAN DIAG SUPPORT MNTR									
SELECT SYS	SELECT SYSTEM screen		Transmit diagnosis	Receive diagnosis VIIC/ICS/ PRIMERO							
		diagnosis		ECM	TCM	DISPLAY	M&A	STRG	BCM/SEC	ABS	IPDM E/R
ENGINE		NG	UNK W		UNKVIN		UNKVN		UNIKAN	UNKVIN	UNKAN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN	
Display unit	-	CAN COMM	ow/	<b>000/</b> 3	-	-	CAN 5	-	<b>3√2</b>	-	<b>₩</b> /
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN			UNKWN	UNKWN	UNKWN
всм	No indication	NG	UNKWN	UNKWN			UNKWN				UNKWN
AUTO DRIVE POS	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKVN	DAIRWN	UNKAN			UNKVN			
IPDM E/R	No indication		UNKWN	UNKWN					UNKWN		

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#### Case 15

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to  $\underline{\text{LAN-395}}$ , "IPDM E/R Ignition Relay  $\underline{\text{Circuit Check}}$ ".

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									
		Initial diagnosis	Transmit	Receive diagnosis							
			diagnosis	ECM	TCM	DISPLAY	METER/ M&A	STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
FNGINE		NG	UNKWN		UNKAYN		UNKWN		UNKWN	UNKVN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN	
Display unit	-	CAN COMM	CAN 1	CAN 3		-	CAN 5	-	CAN 2	-	CAN 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKVN	UNKWN			UNKWN	D <b>NK</b> NN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKVN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN			UNKWN			
IPDM E/R	No indication		UNKWN	UNKWN					UNKWN		

#### Case 16

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to <u>LAN-395, "IPDM E/R Ignition Relay Circuit Check"</u> .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	TCM	DISPLAY	METER/ M&A	STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN		UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNIKAN			UNKVN			UNKWN	
Display unit	-	CAN COMM	CAN 1	CAN 3	-	-	CAN 5	-	CAN 2	-	CAN /
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN			UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNKAN	UNKWN			UNKVN			
IPDM E/R	No indication		UNKWN	UNKWN					UNKWN		

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### Circuit Check Between TCM and Data Link Connector

### 1. CONNECTOR INSPECTION

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- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect TCM connector F56 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between TCM connector F56 terminals 3 (L), 4 (P) and data link connector M22 terminals 6 (L), 14 (P).

3 (L) - 6 (L)

: Continuity should exist.

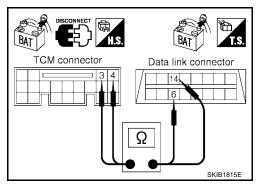
4 (P) - 14 (P)

: Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-372, "Work Flow".

NG >> Repair harness.



### Circuit Check Between Data Link Connector and Driver Seat Control Unit

EKS00FRI

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect driver seat control unit connector P2 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

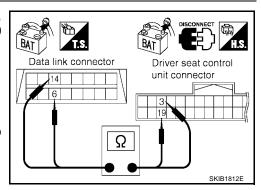
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G).

6 (L) - 3 (BR) : Continuity should exist. 14 (P) - 19 (Y/G) : Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-372, "Work Flow".

NG >> Repair harness.



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# Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric Unit (Control Unit)

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect driver seat control unit connector P2, ABS actuator and electric unit (control unit) connector E125 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G) and ABS actuator and electric unit (control unit) connector E125 terminals 7 (L), 9 (P).

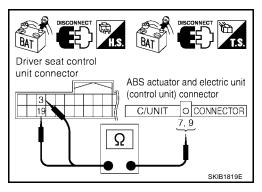
3 (BR) - 7 (L) 19 (Y/G) - 9 (P) : Continuity should exist.

: Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-372, "Work Flow".

NG >> Repair harness.



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#### **ECM Circuit Check**

### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between ECM connector M82 terminal 94 (L) and terminal 86 (P).

94 (L) - 86 (P) : Approx.  $108 - 132 \Omega$ 

#### OK or NG

OK >> Replace ECM.

NG >> Repair harness between ECM connector M82 and TCM connector F56.

ECM CONNECTOR

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86

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Revision: July 2005 LAN-389 2005 Maxima

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**TCM Circuit Check** 

### 1. CONNECTOR INSPECTION

Turn ignition switch OFF.

- 2. Disconnect the negative battery terminal.
- Disconnect TCM connector F56.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. check harness for open circuit

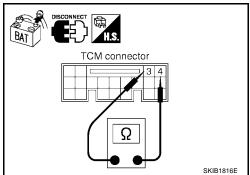
Check resistance between TCM connector F56 terminal 3 (L) and terminal 4 (P).

**3 (L) - 4 (P)** : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

>> Replace TCM. OK

>> Repair harness between TCM connector F56 and ECM NG connector M82.



# **Display Unit Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect display unit connector M93.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### $2.\,$ check harness for open circuit

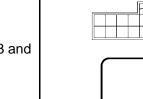
Check resistance between display unit connector M93 terminal 14 (L) and terminal 16 (P).

14 (L) - 16 (P) : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace display unit.

NG >> Repair harness between display unit connector M93 and data link connector M22.



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**Data Link Connector Circuit Check** 

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check data link connector M22 terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

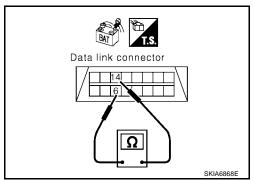
# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M22 terminal 6 (L) and terminal 14 (P).

#### OK or NG

OK >> Diagnose again. Refer to LAN-372, "Work Flow".

NG >> Repair harness between data link connector M22 and BCM connector M18.



Unified Meter and A/C Amp. Circuit Check

1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect unified meter and A/C amp. connector M49.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

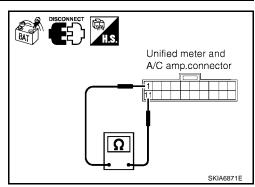
Check resistance between unified meter and A/C amp. connector M49 terminal 1 (L) and terminal 11 (P).

**1 (L) - 11 (P)** : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace unified meter and A/C amp.

NG >> Repair harness between unified meter and A/C amp. connector M49 and data link connector M22.



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### **Steering Angle Sensor Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect steering angle sensor connector M47.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. check harness for open circuit

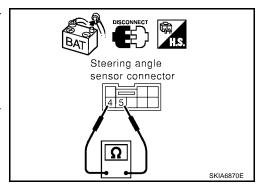
Check resistance between steering angle sensor connector M47 terminal 4 (L) and terminal 5 (P).

**4 (L) - 5 (P)** : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

OK >> Replace steering angle sensor.

NG >> Repair harness between steering angle sensor connector M47 and data link connector M22.



### **BCM Circuit Check**

EKS00FRQ

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect BCM connector M18.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between BCM connector M18 terminal 39 (L) and terminal 40 (P).

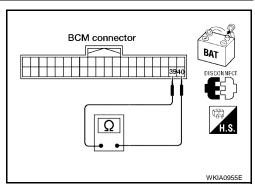
**39 (L) - 40 (P)** : Approx. 54 - 66 
$$\Omega$$

#### OK or NG

>> Replace BCM. OK

NG

>> Repair harness between BCM connector M18 and data link connector M22.



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### **Driver Seat Control Unit Circuit Check**

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

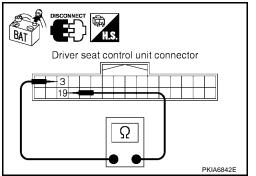
Check resistance between driver seat control unit connector P2 terminal 3 (BR) and terminal 19 (Y/G).

: Approx. 54 - 66  $\Omega$ 

#### OK or NG

OK >> Replace driver seat control unit.

NG >> Repair harness between driver seat control unit connector P2 and data link connector M22.



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

#### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ABS actuator and electric unit (control unit) connector E125.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

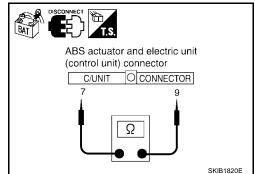
Check resistance between ABS actuator and electric unit (control unit) connector E125 terminal 7 (L) and terminal 9 (P).

: Approx. 54 - 66  $\Omega$ 

#### OK or NG

OK

- >> Replace ABS actuator and electric unit (control unit).
- NG >> Repair harness between ABS actuator and electric unit (control unit) connector E125 and IPDM E/R connector E121.



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#### **IPDM E/R Circuit Check**

### 1. CONNECTOR INSPECTION

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- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect IPDM E/R connector E121.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

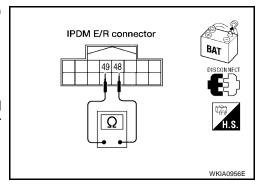
Check resistance between IPDM E/R connector E121 terminal 48 (L) and terminal 49 (P).

**48 (L) - 49 (P)** : Approx. 108 - 132 
$$\Omega$$

#### OK or NG

OK >> Replace IPDM E/R.

NG >> Repair harness between IPDM E/R connector E121 and ABS actuator and electric unit (control unit) connector E125.



### **CAN Communication Circuit Check**

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### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect the following module and control unit connectors and check terminals for deformation, disconnection, looseness or damage.
- ECM
- TCM (Transmission control module)
- Display unit
- Unified meter and A/C amp.
- Steering angle sensor
- BCM (Body control module)
- Driver seat control unit
- ABS actuator and electric unit (control unit)
- IPDM E/R (Intelligent power distribution module engine room)

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

# $\overline{2}$ . CHECK HARNESS FOR SHORTED CIRCUITS

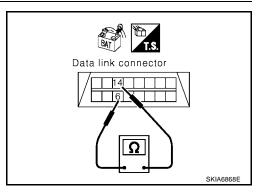
With all module and control unit connectors disconnected, check continuity between data link connector M22 terminals 6 (L) and 14 (P).

> 6 (L) - 14 (P) : Continuity should not exist.

OK or NG

OK >> GO TO 3.

NG >> Repair the harness.



# 3. CHECK HARNESS FOR SHORT TO GROUND

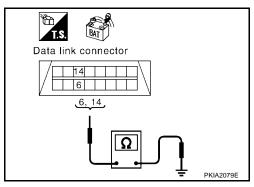
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ground.

> 6 (L) - Ground : Continuity should not exist. 14 (P) - Ground : Continuity should not exist.

OK or NG

OK >> Check ECM and IPDM E/R. Refer to LAN-395, "Component Inspection"

NG >> Repair the harness.



### IPDM E/R Ignition Relay Circuit Check

Check the following. If no malfunction is found, replace the IPDM E/R.

- IPDM E/R power supply circuit. Refer to PG-25, "IPDM E/R Power/Ground Circuit Inspection".
- Ignition power supply circuit. Refer to PG-12, "IGNITION POWER SUPPLY IGNITION SW. IN ON AND/OR START".

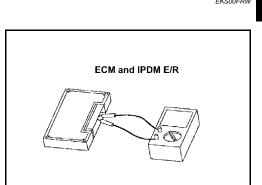
### Component Inspection ECM AND IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.

94 - 86 : Approx. 108 - 132  $\Omega$ 

Check resistance between IPDM E/R terminals 48 and 49.

: Approx. 108 - 132  $\Omega$ 48 - 49



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### **CAN SYSTEM (TYPE 16)**

PFP:23710

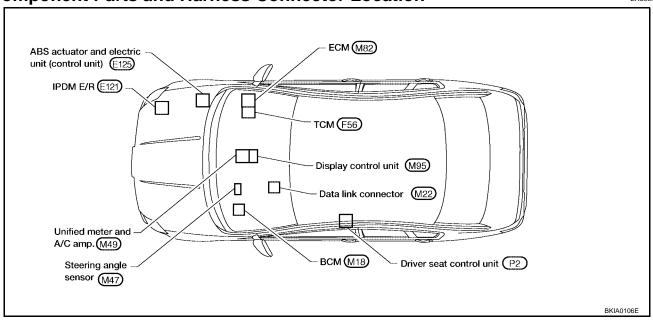
### **System Description**

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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.

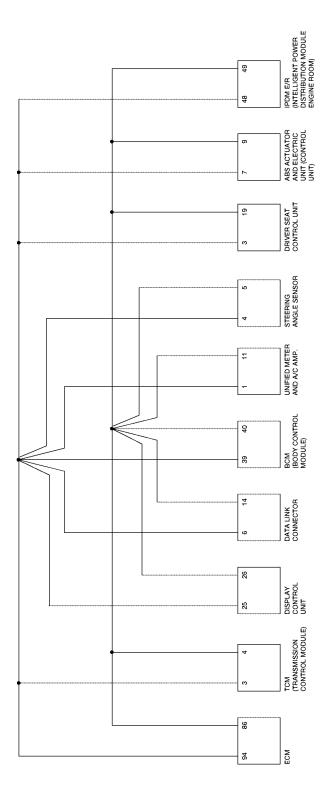
### **Component Parts and Harness Connector Location**

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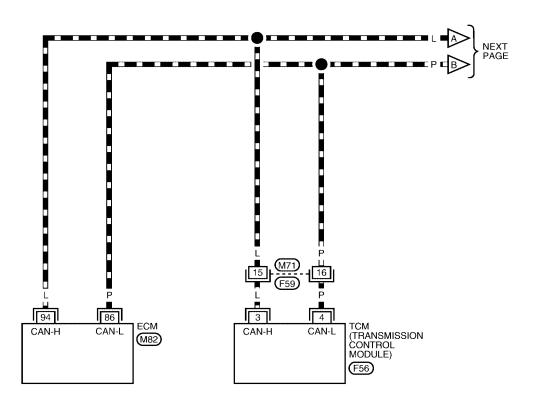
BKWA0327E

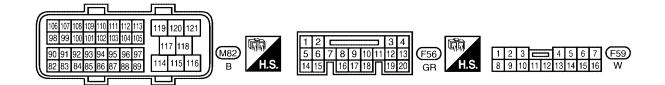
Wiring Diagram - CAN -

EKS00FQS

## LAN-CAN-40

: DATA LINE





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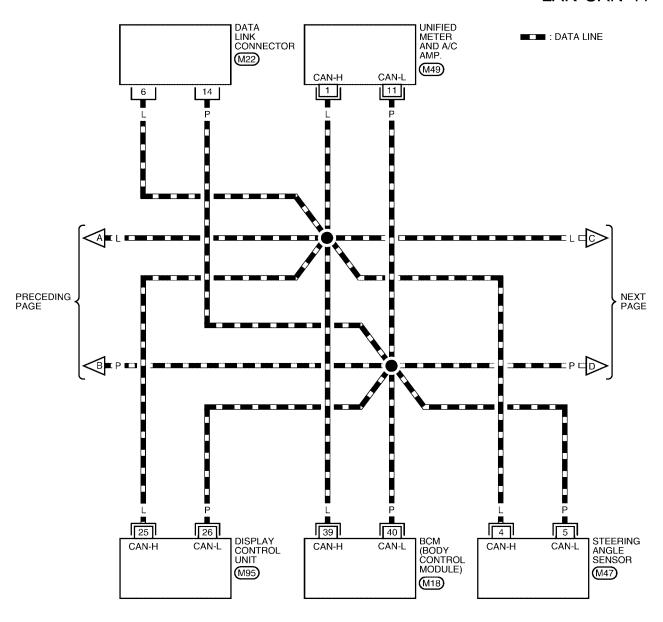
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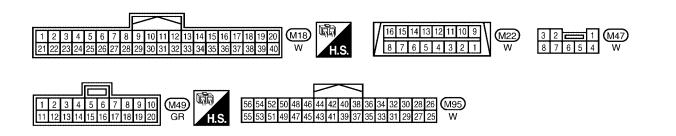
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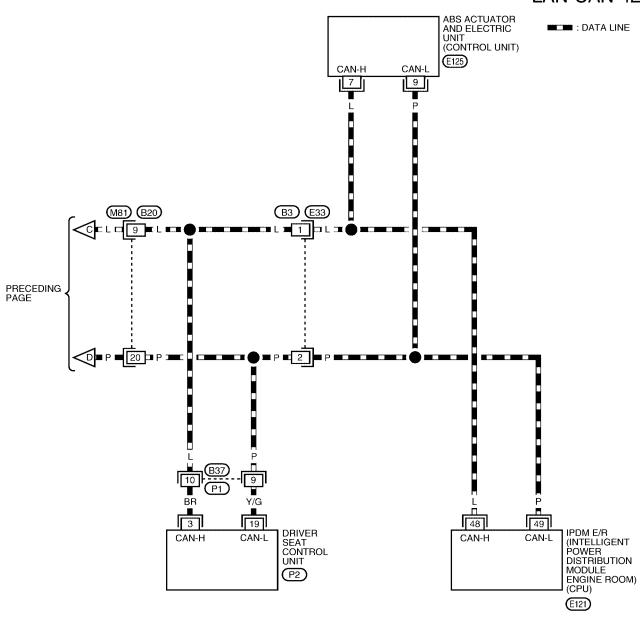
## LAN-CAN-41

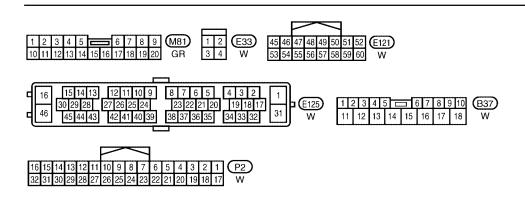




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### LAN-CAN-42



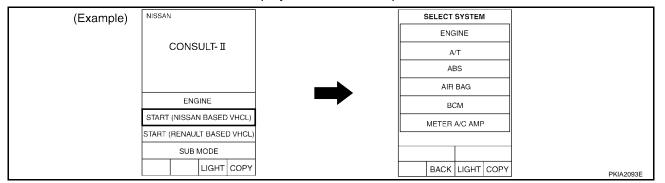


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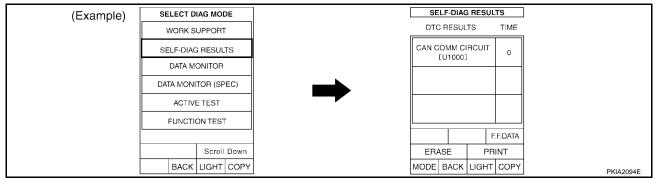
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Work Flow

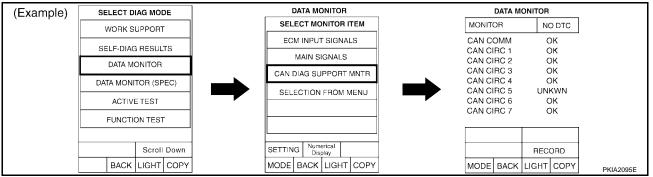
1. When there are no indications of "TRANSMISSION", "METER A/C AMP", "BCM", "AUTO DRIVE POS." or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



2. Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



3. Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "TRANSMISSION", "METER A/C AMP", "BCM", "AUTO DRIVE POS.", "ABS" and "IPDM E/R" displayed on CONSULT-II.



4. Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks onto the items with "No indication", "NG", or "UNKWN" in the check sheet table.

							SUPPORT MNTR				
SELECT SYST	EM screen	Initial	Transmit		,		Receive o	liagnosis			· · · · · · · · · · · · · · · · · · ·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN		UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN	
Display control unit	-	CAN COMM	CAN CIRC 1	CAN CIRC 3	-	-	CAN CIRC 5	-	CAN CIRC 2	-	CAN CIRC /
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN			UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN			UNKWN			
IPDM E/R	No indication		UNKWN	UNKWN					UNKWN		

#### NOTE:

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

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- The "CAN DIAG SUPPORT MNTR" items which are not in check sheet table are not related to diagnostic procedure on service manual.
  - Therefore, it is not necessary to check the status of the "CAN DIAG SUPPORT MNTR" items not in check sheet table.
- 5. Check CAN communication line of the navigation system.
- 6. Mark the "NG" or "UNKWN" item of the check sheet table from the result of CAN DIAG SUPPORT MONITOR check sheet.

### NOTE:

- If "NG" is displayed on "CAN COMM" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- 7. According to the Check Sheet Results, start inspection.

### **CHECK SHEET RESULTS (EXAMPLE)**

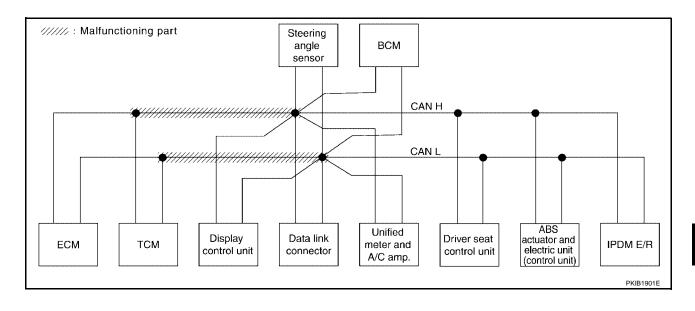
### NOTE:

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

### Case 1

Check harness between TCM and data link connector. Refer to <u>LAN-417</u>, "Circuit Check Between TCM and <u>Data Link Connector"</u>.

						CAN DIAG	SUPPORT MNTR				
SELECT SYST	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	METER/ M&A	diagnosis STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNIVENN		UNIVAN	UNION	UNIWN
TRANSMISSION	Noting cation	NG	UNKWN	UNKWN			UNKWN			UNKWN	
Display control unit	-	CAN COMM	CAN CIRC 1	CAN PIRC 3	-	-	CAN CIRC 5	-	CAN CIRC 2	-	CAN CIRC /
METER A/C AMP	No indication		UNKWN	UNIFON	UNIVAN	UNKWN			UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNIFON			UNKWN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNIVAN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNIFOVN	UNIFWN			UNKWN			
IPDM E/R	No indication		UNKWN	UNIVA					UNKWN		



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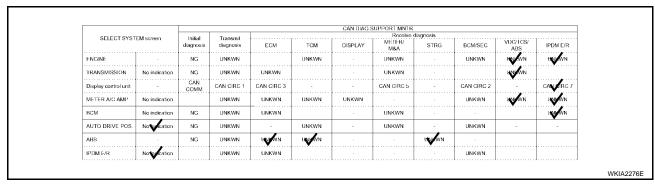
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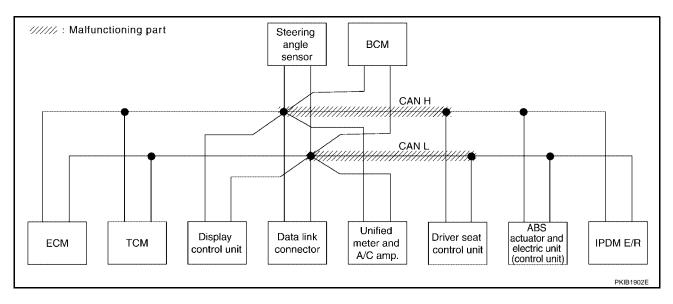
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Case 2

Check harness between data link connector and driver seat control unit. Refer to <u>LAN-417</u>, "Circuit Check <u>Between Data Link Connector and Driver Seat Control Unit"</u>.





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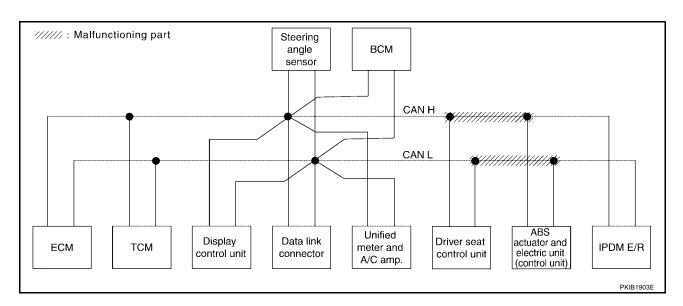
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Case 3

Check harness between driver seat control unit and ABS actuator and electric unit (control unit). Refer to <u>LAN-418</u>, "Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric Unit (Control Unit)".

						CAN DIAG S	SUPPORT MNTR				
SELECT SYS	TEM screen	Initial	Transmit			r	Receive of METER/	liagnosis	·	11117444444444	·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	M&A	STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
FNGINE		NG	UNKWN		UNKWN		UNKWN		UNKWN	UNIVERN	UNIVAN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			HNIKWN	
Display control unit	-	CAN COMM	CAN CIRC 1	CAN CIRC 3	-	-	CAN CIRC 5	-	CAN CIRC 2	-	CAN IRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN			UNKWN	LINIWN	LINIMAN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN				DNIAN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNIVAN	UNIFOVN			UNIVAN			
IPDM E/R	Notorication		UNKWN	UNKWN					UNKWN		

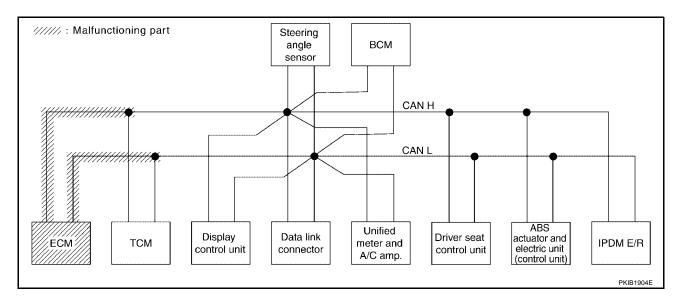


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Case 4
Check ECM circuit. Refer to <u>LAN-418</u>, "ECM Circuit Check" .

				1		CAN DIAG	SUPPORT MNTR Receive -				
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	METER/ M&A	STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	<b>NNRWN</b>		UNIVIN		HUMAN		BUNNAN	UNIKWN	UNIVN
TRANSMISSION	No indication	NG	UNKWN	TWRAN			UNKWN			UNKWN	
Display control unit	-	CAN COMM	CAN CIRC 1	CAN PRC 3	-	-	CAN CIRC 5	-	CAN CIRC 2	-	CAN CIRC /
METER A/C AMP	No indication		UNKWN	UNIVAN	UNKWN	UNKWN			UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNIVAN			UNKWN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNIVEN	UNKWN			UNKWN			
IPDM E/R	No indication		UNKWN	UNIVON					UNKWN		



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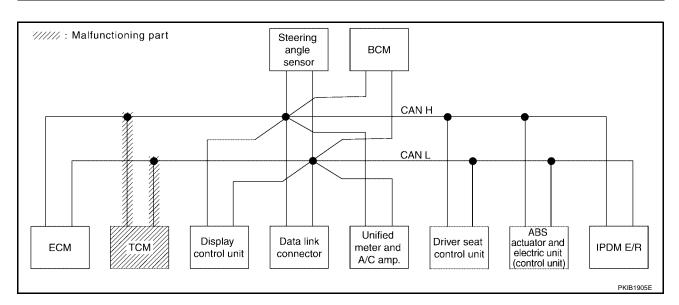
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Case 5
Check TCM circuit. Refer to <u>LAN-419</u>, "TCM Circuit Check" .

						CAN DIAG	SUPPORT MNTR				
SELECT SYST	EM screen	Initial	Transmit		,		Receive	diagnosis	,	,	·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
FNGINE		NG	UNKWN		UNIVAN		UNKWN		UNKWN	UNKWN	UNKWN
TRANSMISSION	No incidation	NG	UNKWN	UNKWN			UNKWN			UNKWN	
Display control unit	-	CAN COMM	CAN CIRC 1	CAN CIRC 3	-	-	CAN CIRC 5	-	CAN CIRC 2	-	CAN CIRC /
METER A/C AMP	No indication		UNKWN	UNKWN	LINEWN	UNKWN			UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNIVEN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	CHIMAN			UNKWN			
IPDM E/R	No indication		UNKWN	UNKWN					UNKWN		

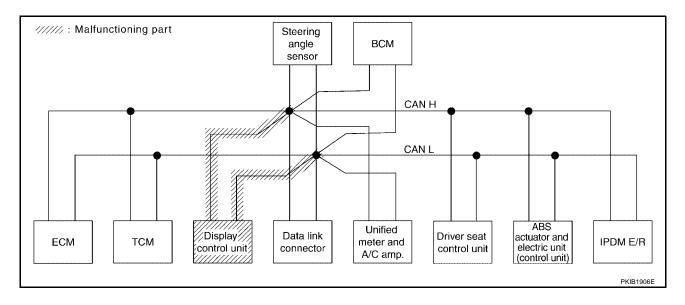


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Case 6
Check display control unit circuit. Refer to <u>LAN-419</u>, "<u>Display Control Unit Circuit Check"</u>.

						CAN DIAG S	SUPPORT MNTR				
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	DISPLAY	METER/ M&A	diagnosis STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
FNGINE		NG	UNKWN		UNKWN		UNKWN		UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN	
Display control unit	-	CAN	CAN O'RC 1	CAN FIRC 3	-	-	CAN PRC 5	-	CAN RC 2	-	CAN FIRE 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNIVAN			UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN			UNKWN			
IPDM E/R	No indication		UNKWN	UNKWN					UNKWN		



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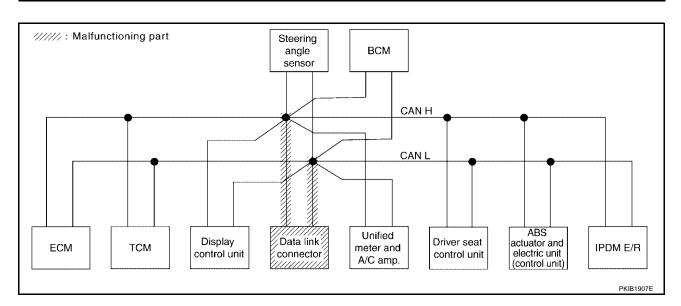
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Case 7
Check data link connector circuit. Refer to <u>LAN-420</u>, "<u>Data Link Connector Circuit Check</u>" .

						CAN DIAG 5	SUPPORT MNTR				
SELECT SYST	EM screen	Initial	Transmit			g	Receive	diagnosis		F1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
FNGINE		NG	UNKWN		UNKWN		UNKWN		UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN	
Display control unit	-	CAN COMM	CAN CIRC 1	CAN CIRC 3	-	-	CAN CIRC 5	-	CAN CIRC 2	-	CAN CIRC /
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN			UNKWN	UNKWN	UNKWN
BCM	No incidation	NG	UNKWN	UNKWN			UNKWN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN			UNKWN			
IPDM E/R	No No cation		UNKWN	UNKWN					UNKWN		

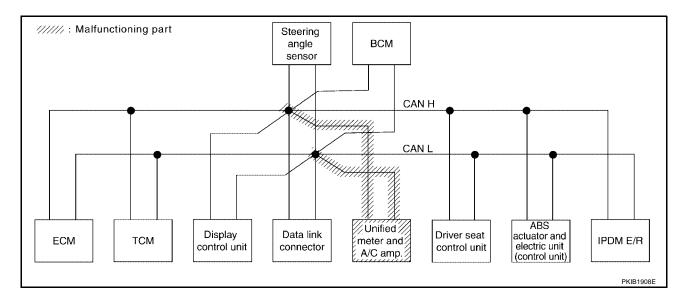


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Case 8
Check unified meter and A/C amp. circuit. Refer to LAN-420, "Unified Meter and A/C Amp. Circuit Check".

			1			CAN DIAG S	SUPPORT MNTR				
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	DISPLAY	Receive of METER/ M&A	STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNIVAN		UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNIKWN			UNKWN	
Display control unit	-	CAN COMM	CAN CIRC 1	CAN CIRC 3	-	-	CAN FIRC 5	-	CAN CIRC 2	-	CAN CIRC /
METER A/C AMP	No incidation		UNKWN	UNKWN	UNKWN	UNKWN			UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNIVEN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNIVAN	-	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNK₩N			UNKWN			
IPDM E/R	No indication		UNKWN	UNKWN					UNKWN		



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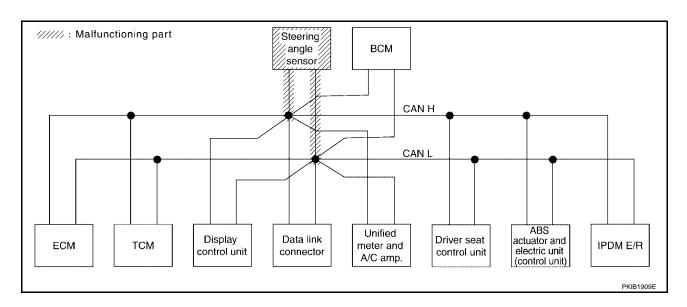
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Case 9

Check steering angle sensor circuit. Refer to LAN-421, "Steering Angle Sensor Circuit Check" .

						CAN DIAG S	SUPPORT MNTR				
SELECT SYS	TEM screen	Initial	Transmit		,			diagnosis	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
FNGINE		NG	UNKWN		UNKWN		UNKWN		UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN	
Display control unit	-	CAN COMM	CAN CIRC 1	CAN CIRC 3	-	-	CAN CIRC 5	-	CAN CIRC 2	-	CAN CIRC /
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN			UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN			MANAMA			
IPDM E/R	No indication		UNKWN	UNKWN					UNKWN		

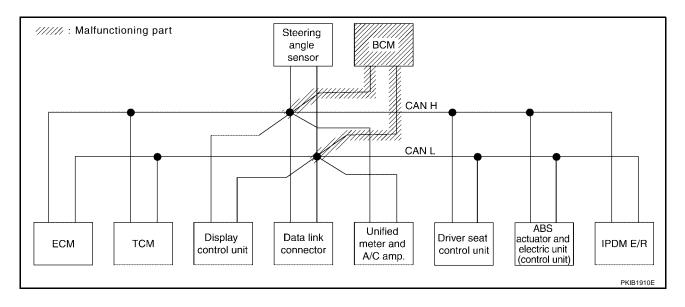


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Case 10
Check BCM circuit. Refer to <u>LAN-421</u>, "BCM Circuit Check".

						CAN DIAG S	SUPPORT MNTR				
SELECT SYST		Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Receive - METER/ M&A	diagnosis STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN		RMKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNK₩N			UNKWN			UNKWN	
Display control unit	-	CAN COMM	CAN CIRC 1	CAN CIRC 3	-	-	CAN CIRC 5	-	CAN IRC 2	-	CAN CIRC /
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN			PANTAN	UNKWN	UNKWN
BCM	No includion	NG	UNKWN	UNKWN			UNKWN				UNKWN
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNIVAN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN			UNKWN	· .		
IPDM E/R	No indication		UNKWN	UNKWN					UNIVVN		



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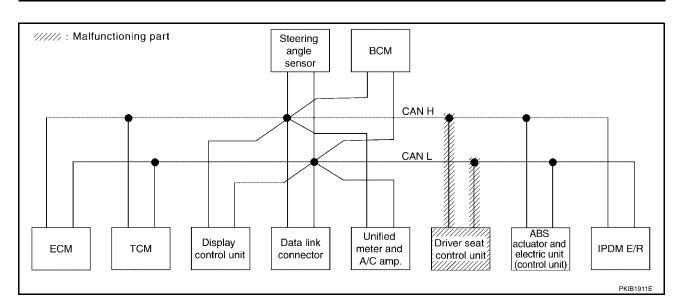
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Case 11
Check driver seat control unit circuit. Refer to <u>LAN-422</u>, "<u>Driver Seat Control Unit Circuit Check"</u>.

						CAN DIAG S	SUPPORT MNTR				
SELECT SYS	TEM screen	Initial	Transmit		,		Receive	diagnosis	,	,	· • · · · · · · · · · · · · · · · · · ·
		diagnosis	diagnosis	ECM	TCM	DISPLAY	METER/ M&A	STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNKWN		UNKWN		UNKWN		UNKWN	UNKWN	UNKWN
TRANSMISSION	No indication	NG	UNKWN	UNKWN			UNKWN			UNKWN	
Display control unit	-	CAN COMM	CAN CIRC 1	CAN CIRC 3	-	-	CAN CIRC 5	-	CAN GIRC 2	-	GAN CIRC /
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN			UNKWN	UNKWN	UNKWN
BCM	No indication	NG	UNKWN	UNKWN			UNKWN				UNKWN
AUTO DRIVE POS.	No turication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN			UNKWN			
IPDM E/R	No indication		UNKWN	UNKWN					UNKWN		

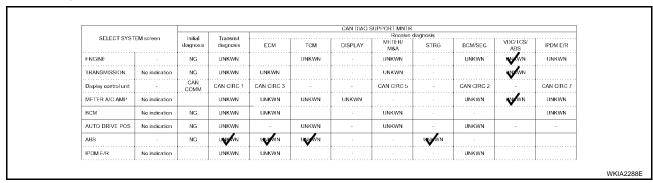


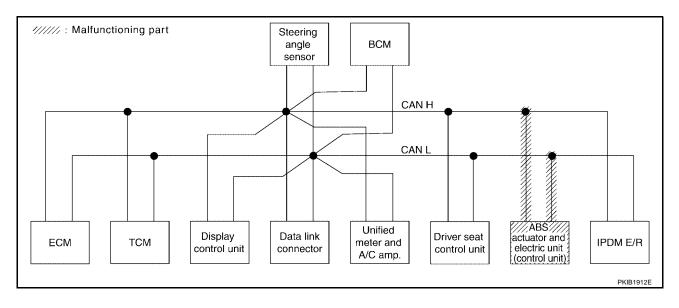
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Case 12

Check ABS actuator and electric unit (control unit) circuit. Refer to <u>LAN-422</u>, "ABS Actuator and Electric Unit (Control Unit) Circuit Check".





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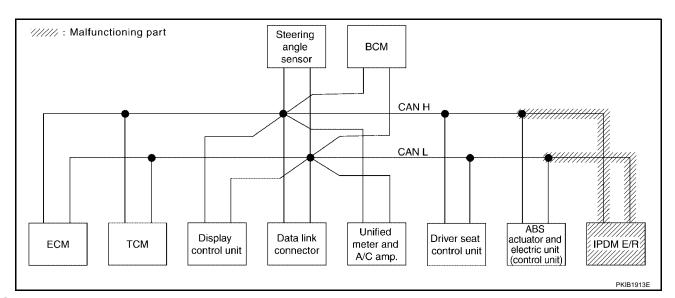
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Case 13

Check IPDM E/R circuit. Refer to LAN-423, "IPDM E/R Circuit Check" .

						CAN DIAG	SUPPORT MNTR				
SELECT SYST	EM screen	Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	Receive ( METER/ M&A	diagnosis STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
FNGINE		NG	UNKWN		UNKWN		UNKWN		UNKWN	UNKWN	RMKWN
TRANSMISSION	No indication	NG	UNKWN	UNK₩N			UNKWN			UNKWN	
Display control unit	-	CAN	CAN CIRC 1	CAN CIRC 3	-	-	CAN CIRC 5	-	CAN CIRC 2	-	CAN IRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN			UNKWN	UNKWN	UNITWN
всм	No indication	NG	UNKWN	UNKWN			UNKWN				DAIL
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-
ABS		NG	UNKWN	UNKWN	UNKWN			UNKWN			
IPDM E/R	Notorication		UNKWN	UNKWN					UNKWN		



Case 14

Check CAN communication circuit. Refer to LAN-423, "CAN Communication Circuit Check" .

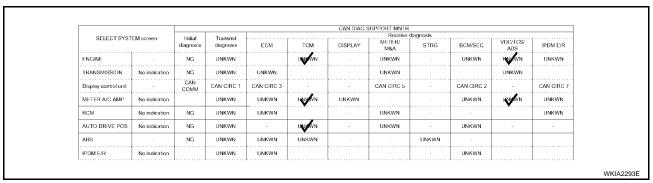
SELECT SYSTEM screen		CAN DIAG SUPPORT MYTR									
		Initial diagnosis	Transmit diagnosis	ECM	TCM	DISPLAY	METER/ M&A	STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R
ENGINE		NG	UNITWN		UNIVAN		UNIFWN		EMPWN	UNIVWN	HAVEWN
TRANSMISSION	Noting cation	NG	UNKWN	UNKWN			UNKWN			UNKWN	
Display control unit	-	CAN COMM	CAN SIRC 1	CAN FIRC 3	-	-	CAN PRC 5	-	CAN IRC 2	-	CAN FIRC 7
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN			UNKWN	UNKWN	UNKWN
BCM	Notopication	NG	UNKWN	UNKWN			UNKWN				UNKWN
AUTO DRIVE POS.	No incitation	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-
ABS	•	NG	UNIVAN	BUILDIN	UNIVAN			UNI WIN			
IPDM E/R	Notoscation		UNKWN	UNKWN					UNKWN		

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### Case 15

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-424, "IPDM E/R Ignition Relay Circuit Check"</u>.



### Case 16

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to LAN-424, "IPDM E/R Ignition Relay Circuit Check" .

		CAN DIAG SUPPORT MNTR										
SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	DISPLAY	METER/ M&A	STRG	BCM/SEC	VDC/TCS/ ABS	IPDM E/R	
ENGINE		NG	UNKWN		UNKWN		UNKWN		UNKWN	UNKWN	UNKWN	
TRANSMISSION	No indication	NG	UNKWN	UNIVAN			UNIFON			UNKWN		
Display control unit	-	CAN COMM	CAN CIRC 1	CAN CIRC 3	-	-	CAN CIRC 5	-	CAN CIRC 2	-	CAN CIRC /	
METER A/C AMP	No indication		UNKWN	UNKWN	UNKWN	UNKWN			UNKWN	UNKWN	UNKWN	
BCM	No indication	NG	UNKWN	UNKWN			UNKWN				UNKWN	
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	UNKWN	-	UNKWN	-	-	
ABS		NG	UNKWN	UNIVEN	UNKWN			UNIVAN				
IPDM E/R	No indication		UNKWN	UNKWN					UNKWN			

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## Circuit Check Between TCM and Data Link Connector

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect TCM connector F56 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between TCM connector F56 terminals 3 (L), 4 (P) and data link connector M22 terminals 6 (L), 14 (P).

3 (L) - 6 (L)

: Continuity should exist.

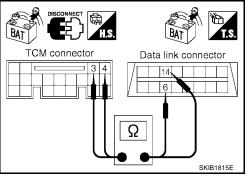
4 (P) - 14 (P)

: Continuity should exist.

### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-401, "Work Flow".

NG >> Repair harness.



### Circuit Check Between Data Link Connector and Driver Seat Control Unit

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between data link connector M22 terminals 6 (L), 14 (P) and driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G).

6 (L) - 3 (BR)

: Continuity should exist.

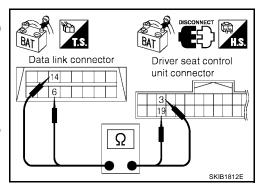
14 (P) - 19 (Y/G)

: Continuity should exist.

#### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-401, "Work Flow".

NG >> Repair harness.



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# Circuit Check Between Driver Seat Control Unit and ABS Actuator and Electric Unit (Control Unit)

## 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect driver seat control unit connector P2, ABS actuator and electric unit (control unit) connector E125 and ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

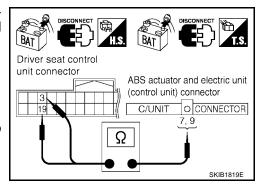
Check continuity between driver seat control unit connector P2 terminals 3 (BR), 19 (Y/G) and ABS actuator and electric unit (control unit) connector E125 terminals 7 (L), 9 (P).

3 (BR) - 7 (L) : Continuity should exist. 19 (Y/G) - 9 (P) : Continuity should exist.

### OK or NG

OK >> Connect all connectors and diagnose again. Refer to LAN-401, "Work Flow".

NG >> Repair harness.



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### **ECM Circuit Check**

## 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ECM connector M82.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between ECM connector M82 terminal 94 (L) and terminal 86 (P).

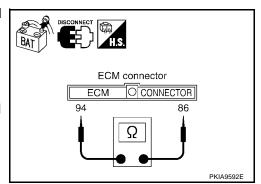
94 (L) - 86 (P) : Approx.  $108 - 132 \Omega$ 

## OK or NG

NG

OK >> Replace ECM.

>> Repair harness between ECM connector M82 and TCM connector F56.



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**TCM Circuit Check** 

### 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect TCM connector F56.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

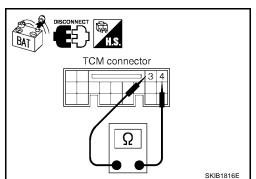
Check resistance between TCM connector F56 terminal 3 (L) and terminal 4 (P).

**3 (L) - 4 (P)** : Approx. **54 - 66** 
$$\Omega$$

### OK or NG

OK >> Replace TCM.

>> Repair harness between TCM connector F56 and ECM NG connector M82.



## **Display Control Unit Circuit Check**

## 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect display control unit connector M95.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between display control unit connector M95 terminal 25 (L) and terminal 26 (P).

**25 (L) - 26 (P)** : Approx. 54 - 66 
$$\Omega$$

### OK or NG

OK >> Replace display control unit.

NG >> Repair harness between display control unit connector M95 and data link connector M22.

Display control unit connector

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**Data Link Connector Circuit Check** 

### 1. CONNECTOR INSPECTION

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- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Check data link connector M22 terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

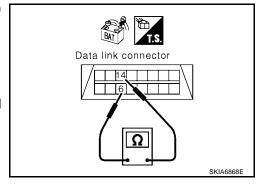
Check resistance between data link connector M22 terminal 6 (L) and terminal 14 (P).

: Approx. 54 - 66  $\Omega$ 

### OK or NG

OK >> Diagnose again. Refer to <u>LAN-401</u>, "Work Flow".

NG >> Repair harness between data link connector M22 and BCM connector M18.



## Unified Meter and A/C Amp. Circuit Check

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### 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect unified meter and A/C amp. connector M49.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

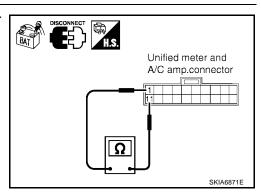
Check resistance between unified meter and A/C amp. connector M49 terminal 1 (L) and terminal 11 (P).

: Approx. 54 - 66  $\Omega$ 

### OK or NG

OK >> Replace unified meter and A/C amp.
NG >> Repair harness between unified me

>> Repair harness between unified meter and A/C amp. connector M49 and data link connector M22.



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## **Steering Angle Sensor Circuit Check**

## 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect steering angle sensor connector M47.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

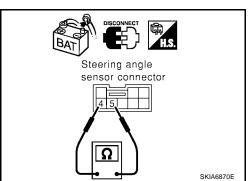
Check resistance between steering angle sensor connector M47 terminal 4 (L) and terminal 5 (P).

**4 (L) - 5 (P)** : Approx. **54 - 66** 
$$\Omega$$

### OK or NG

OK >> Replace steering angle sensor.

NG >> Repair harness between steering angle sensor connector M47 and data link connector M22.



## **BCM Circuit Check**

## 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect BCM connector M18.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between BCM connector M18 terminal 39 (L) and terminal 40 (P).

**39 (L) - 40 (P)** : Approx. 54 - 66 
$$\Omega$$

### OK or NG

OK >> Replace BCM.

NG >> Repair harness between BCM connector M18 and data link connector M22.

BCM connector Ω WKIA0955E

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**Driver Seat Control Unit Circuit Check** 

### 1. CONNECTOR INSPECTION

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- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect driver seat control unit connector P2.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between driver seat control unit connector P2 terminal 3 (BR) and terminal 19 (Y/G).

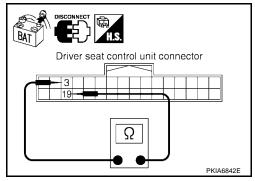
: Approx. 54 - 66  $\Omega$ 

### OK or NG

OK >> Replace driver seat control unit.

NG

>> Repair harness between driver seat control unit connector P2 and data link connector M22.



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

EKS00FR5

## 1. CONNECTOR INSPECTION

- Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect ABS actuator and electric unit (control unit) connector E125.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between ABS actuator and electric unit (control unit) connector E125 terminal 7 (L) and terminal 9 (P).

: Approx. 54 - 66  $\Omega$ 

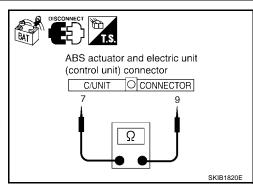
### OK or NG

OK

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

NG

>> Repair harness between ABS actuator and electric unit (control unit) connector E125 and IPDM E/R connector E121.



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### **IPDM E/R Circuit Check**

## 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- 3. Disconnect IPDM E/R connector E121.
- 4. Check the terminals for deformation, disconnection, looseness or damage.

### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between IPDM E/R connector E121 terminal 48 (L) and terminal 49 (P).

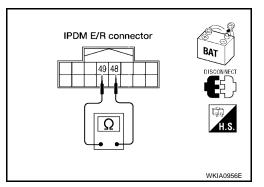
48 (L) - 49 (P) : Approx. 
$$108 - 132 \Omega$$

### OK or NG

NG

OK >> Replace IPDM E/R.

>> Repair harness between IPDM E/R connector E121 and ABS actuator and electric unit (control unit) connector E125.



### **CAN Communication Circuit Check**

## 1. CONNECTOR INSPECTION

- 1. Turn ignition switch OFF.
- 2. Disconnect the negative battery terminal.
- Disconnect the following module and control unit connectors and check terminals for deformation, disconnection, looseness or damage.
- ECM
- TCM (Transmission control module)
- Display control unit
- Unified meter and A/C amp.
- Steering angle sensor
- BCM (Body control module)
- Driver seat control unit
- ABS actuator and electric unit (control unit)
- IPDM E/R (Intelligent power distribution module engine room)

#### OK or NG

OK >> GO TO 2.

NG >> Repair or replace as necessary.

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## 2. CHECK HARNESS FOR SHORTED CIRCUITS

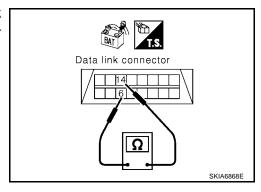
With all module and control unit connectors disconnected, check continuity between data link connector M22 terminals 6 (L) and 14 (P).

6 (L) - 14 (P) : Continuity should not exist.

OK or NG

OK >> GO TO 3.

NG >> Repair the harness.



## 3. CHECK HARNESS FOR SHORT TO GROUND

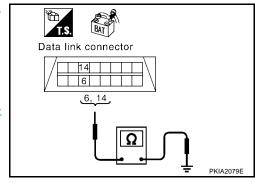
Check continuity between data link connector M22 terminals 6 (L), 14 (P) and ground.

6 (L) - Ground : Continuity should not exist. 14 (P) - Ground : Continuity should not exist.

OK or NG

OK >> Check ECM and IPDM E/R. Refer to <u>LAN-424, "Component Inspection"</u>.

NG >> Repair the harness.



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## IPDM E/R Ignition Relay Circuit Check

Check the following. If no malfunction is found, replace the IPDM E/R.

- IPDM E/R power supply 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 AND IPDM E/R INTERNAL CIRCUIT INSPECTION

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- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.

**94 - 86** : Approx. 108 - 132  $\Omega$ 

Check resistance between IPDM E/R terminals 48 and 49.

**48 - 49** : Approx.  $108 - 132 \Omega$ 

