

SECTION **LAN**
LAN SYSTEM

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PRECAUTIONS

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

EKS00890

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SRS and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SRS section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

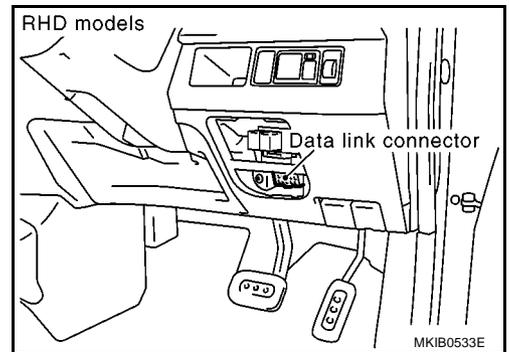
Precautions When Using CONSULT-II

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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 Trouble Diagnosis CAN SYSTEM

EKS0073I

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

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LAN

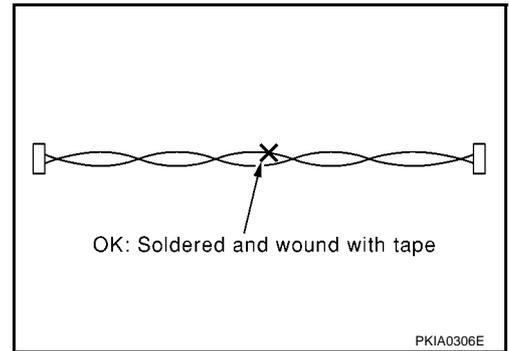
PRECAUTIONS

[CAN]

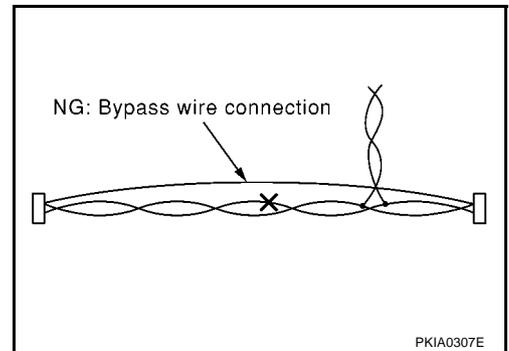
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Precautions For Harness Repair CAN SYSTEM

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



- Do not perform bypass wire connections for the repair parts. (The spliced wire will become separated and the characteristics of twisted line will be lost.)



Maintenance Information

If any of following part is replaced, always replace with new* one.
If it's not (or fail to do so), the electrical system may not be operated properly.
*: New one means a virgin control unit that has never been energized on-board.

EKS008WQ

RHD MODELS

- BCM (Models without Intelligent Key system)
- Intelligent Key unit (Models with Intelligent Key system)
- ECM
- IPDM E/R
- Combination meter
- EPS control unit

LHD MODELS

- BCM (Models without Intelligent Key system)
- Intelligent Key unit (Models with Intelligent Key system)
- ECM

CAN COMMUNICATION

[CAN]

CAN COMMUNICATION

PFP:23710

System Description

EKS007UG

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

EKS007UH

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

Body type	3door/5door		3door/5door/C+C				3door/5door		3door/5door/C+C				3door/5door	
Axle	2WD													
Engine	CR12DE/CR14DE				HR16DE		CR12DE/CR14DE				HR16DE		K9K	
Handle	LHD/RHD													
Brake control	ABS						ESP						ABS	
Transmission	A/T		M/T				A/T		M/T					
Intelligent Key system	×		×		×		×		×		×		×	
CAN communication unit														
ECM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Intelligent Key unit	×		×		×		×		×		×		×	
EPS control unit	×	×	×	×	×	×	×	×	×	×	×	×	×	×
BCM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCM	×	×					×	×						
IPDM E/R	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CAN communication type	LAN-8. "TYPE 1/ TYPE 2"		LAN-11. "TYPE 3/TYPE 4/ TYPE 5/TYPE 6"				LAN-13. "TYPE 7/ TYPE 8"		LAN-16. "TYPE 9/TYPE 10/ TYPE 11/TYPE 12"				LAN-18. "TYPE 13/ TYPE 14"	
CAN system trouble diagnosis	LAN-20. "CAN SYS- TEM (TYP E 1)"	LAN-51. "CAN SYS- TEM (TYP E 2)"	LAN-80. "CAN SYS- TEM (TYP E 3)"	LAN-109. "CAN SYS- TEM (TYP E 4)"	LAN-136. "CAN SYS- TEM (TYP E 5)"	LAN-165. "CAN SYS- TEM (TYP E 6)"	LAN-192. "CAN SYS- TEM (TYP E 7)"	LAN-223. "CAN SYS- TEM (TYP E 8)"	LAN-252. "CAN SYS- TEM (TYP E 9)"	LAN-281. "CAN SYS- TEM (TYP E 10)"	LAN-308. "CAN SYS- TEM (TYP E 11)"	LAN-337. "CAN SYS- TEM (TYP E 12)"	LAN-364. "CAN SYS- TEM (TYP E 13)"	LAN-393. "CAN SYS- TEM (TYP E 14)"

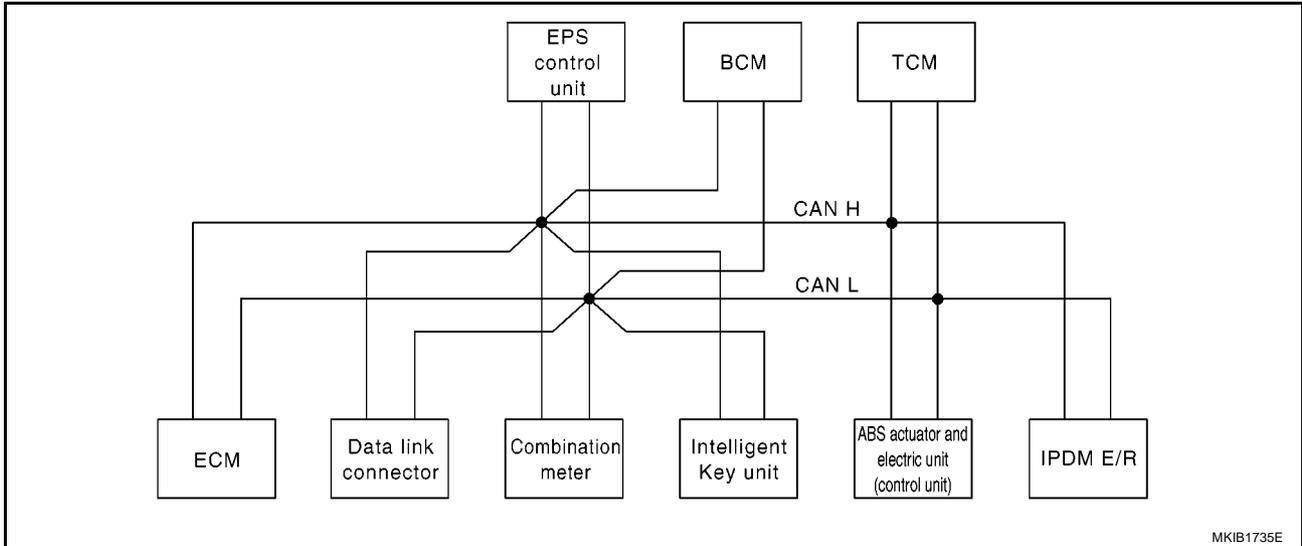
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CAN COMMUNICATION

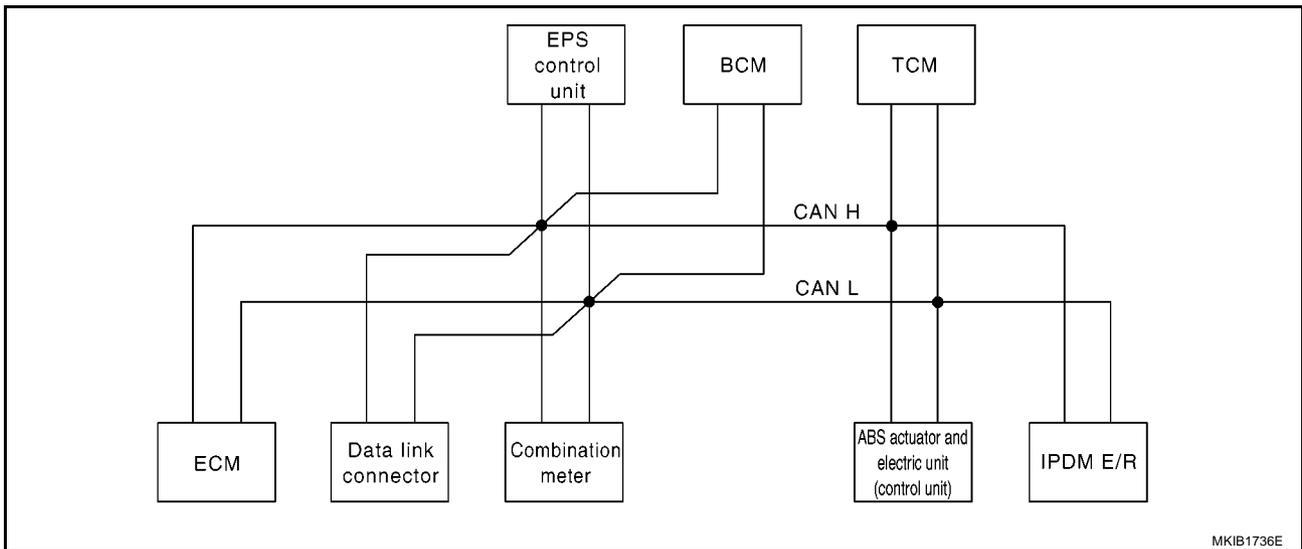
[CAN]

TYPE 1/TYPE 2 System diagram

- Type 1



- Type 2



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
Engine speed signal	T	R						
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T						R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	

CAN COMMUNICATION

[CAN]

Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/T position indicator signal		R					T	
Stop lamp switch signal		T					R	
O/D OFF indicator signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				

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CAN COMMUNICATION

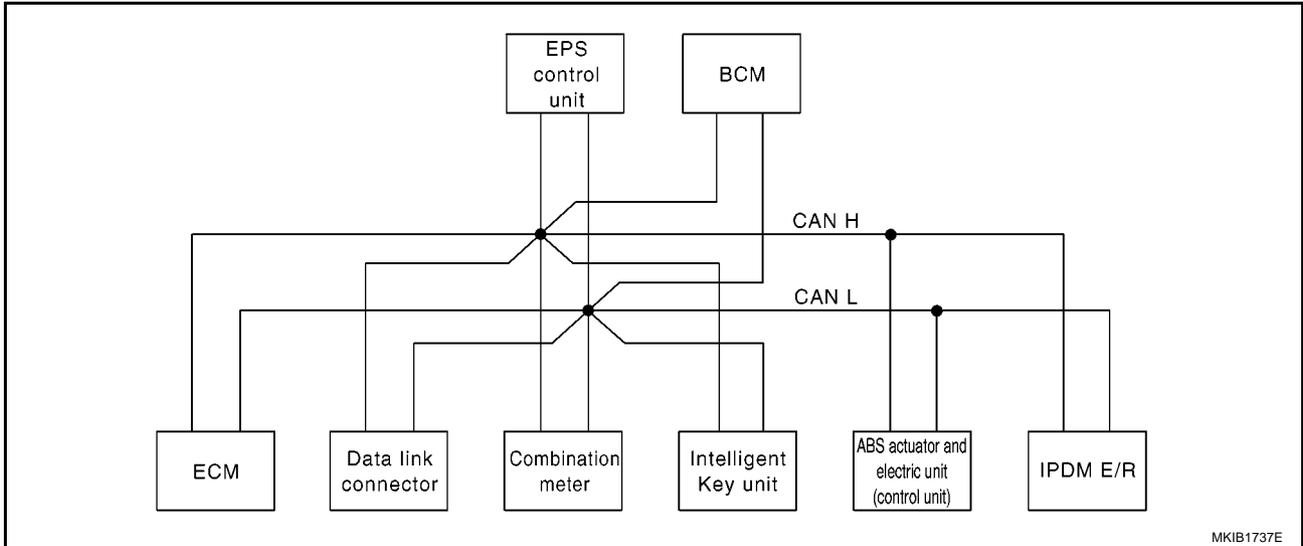
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Signals	ECM	Combination meter.	Intelligent Key unit	EPS control unit	BCM	ABS actuator and electric unit (control unit)	TCM	IPDM E/R
A/C switch signal	R				T			
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

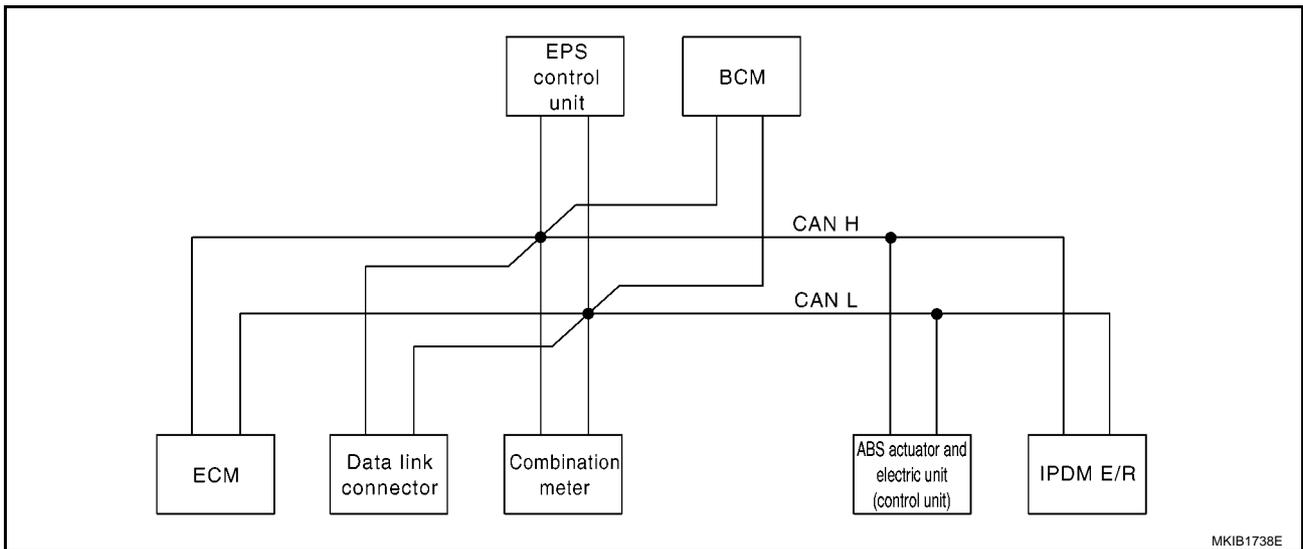
TYPE 3/TYPE 4/TYPE 5/TYPE 6

System diagram

- Type 3/Type 5



- Type 4/Type 6



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combina- tion meter.	Intelligent Key unit	EPS con- trol unit	BCM	ABS actu- ator and electric unit (con- trol unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R

CAN COMMUNICATION

[CAN]

Signals	ECM	Combina- tion meter.	Intelligent Key unit	EPS con- trol unit	BCM	ABS actu- ator and electric unit (con- trol unit)	IPDM E/R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

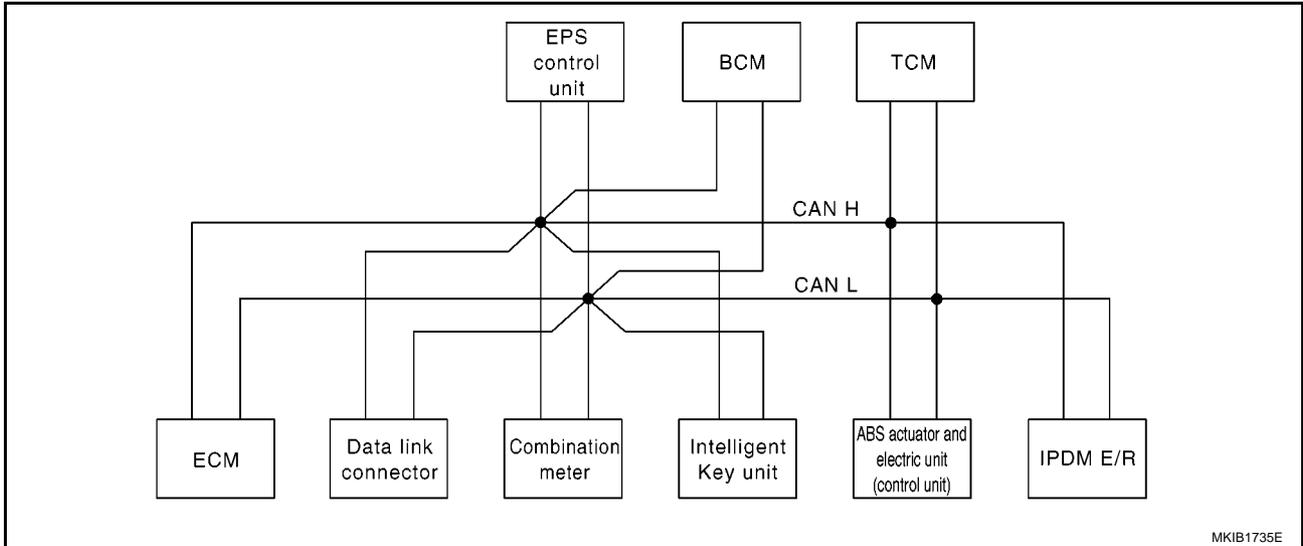
*: C+C only

CAN COMMUNICATION

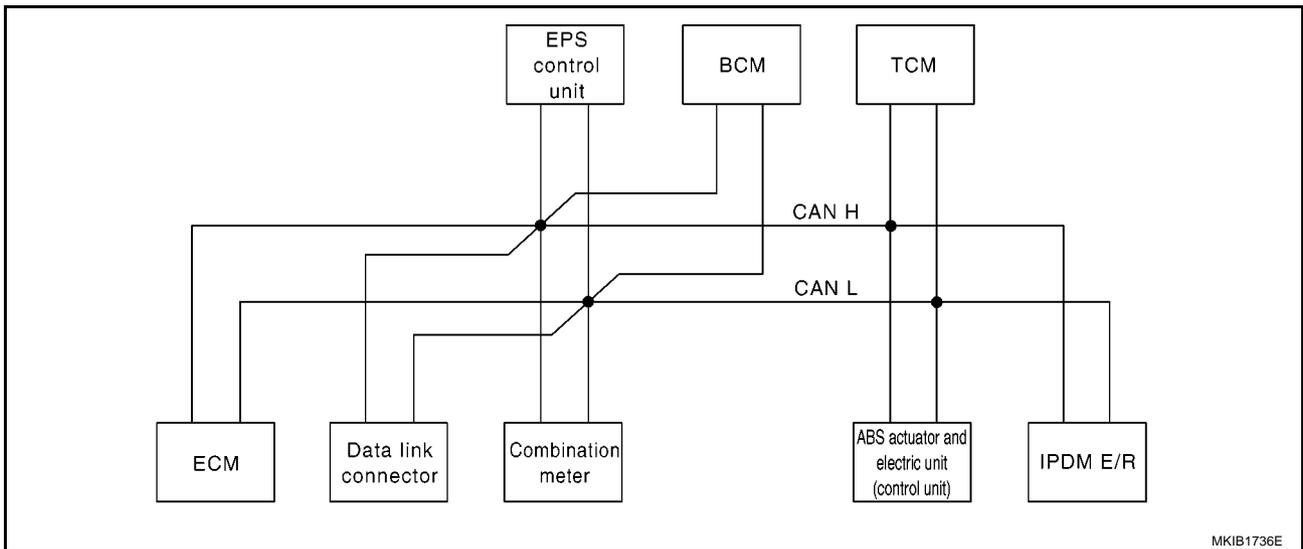
[CAN]

TYPE 7/TYPE 8 System diagram

- Type 7



- Type 8



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combina- tion meter.	Intelli- gent Key unit	EPS con- trol unit	BCM	ABS actuator and elec- tric unit (control unit)	TCM	IPDM E/ R
Engine speed signal	T	R				R		
Engine coolant temperature signal	T	R						
A/T self-diagnosis signal	R						T	
Output shaft revolution signal	R						T	
Accelerator pedal position signal	T					R	R	
Closed throttle position signal	T						R	
Wide open throttle position signal	T						R	
Overdrive control switch signal		T					R	
A/T position indicator signal		R					T	

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CAN COMMUNICATION

[CAN]

Signals	ECM	Combina- tion meter.	Intelli- gent Key unit	EPS con- trol unit	BCM	ABS actuator and elec- tric unit (control unit)	TCM	IPDM E/ R
A/T shift schedule change demand signal						T	R	
Stop lamp switch signal		T					R	
O/D OFF indicator lamp signal		R					T	
Engine and A/T integrated control signal	T						R	
	R						T	
Fuel consumption monitor signal	T	R						
Oil pressure switch signal		R						T
A/C compressor request signal	T							R
Heater fan switch signal	R				T			
Cooling fan speed request signal	T							R
Position lights request signal		R			T			R
Low beam request signal					T			R
Low beam status signal	R							T
High beam request signal		R			T			R
High beam status signal	R							T
Day time light request signal					T			R
Vehicle speed signal	R	R		R		T		
	R	T	R	R	R			
Sleep/wake up signal		R	R		T			R
Door switch signal		R	R		T			R
Turn indicator signal		R			T			
Buzzer output signal		R			T			
		R	T					
MI signal	T	R						
Front wiper request signal					T			R
Front wiper stop position signal					R			T
Rear window defogger switch signal					T			R
Rear window defogger control signal	R							T
EPS warning lamp signal		R		T				
ABS warning lamp signal		R				T		
ESP warning lamp signal		R				T		
ESP OFF indicator signal		R				T		
SLIP indicator lamp signal		R				T		
Steering angle signal				T		R		
Brake warning lamp signal		R				T		
Back-up lamp signal				R	T			
Front fog lamp request signal		R			T			R
Rear fog lamp status signal		R			T			
Headlamp washer request signal					T			R
Door lock/unlock request signal			T		R			

CAN COMMUNICATION

[CAN]

Signals	ECM	Combina- tion meter.	Intelli- gent Key unit	EPS con- trol unit	BCM	ABS actuator and elec- tric unit (control unit)	TCM	IPDM E/ R
Door lock/unlock status signal			R		T			
KEY indicator signal		R	T					
LOCK indicator signal		R	T					
Engine status signal	T			R				
A/C switch signal	R				T			
A/T torque signal						R	T	
Brake system malfunction signal		T		R				
Parking brake switch signal		T		R				
R range signal					R			T

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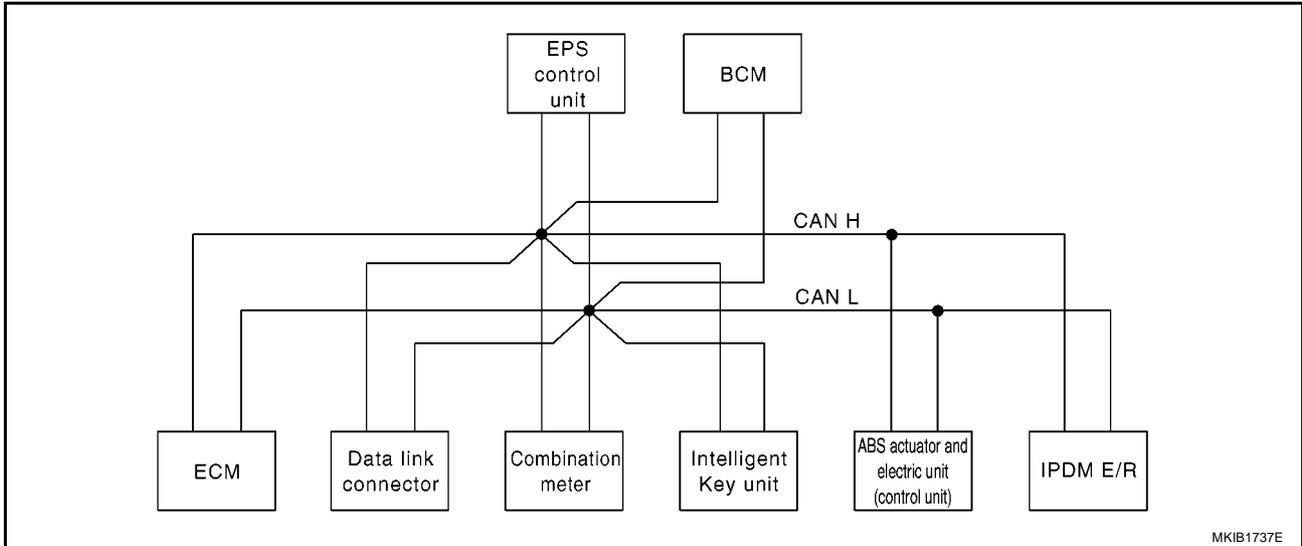
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TYPE 9/TYPER 10/TYPER 11/TYPER 12

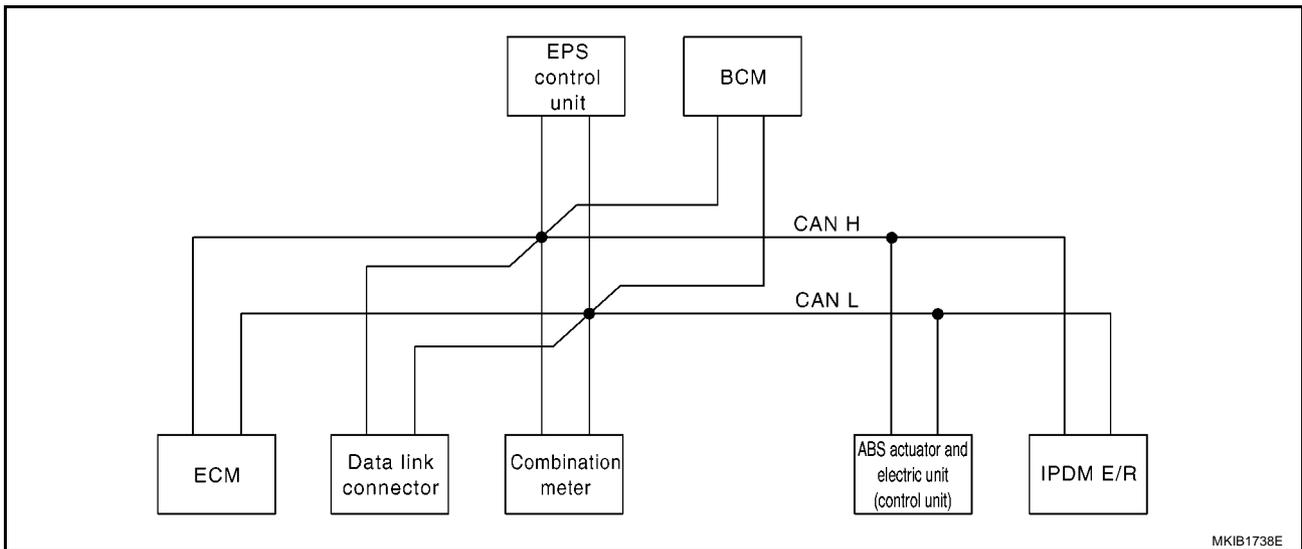
System diagram

- Type 9/Type 11



MKIB1737E

- Type 10/Type 12



MKIB1738E

Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combina- tion meter.	Intelligent Key unit	EPS con- trol unit	BCM	ABS actu- ator and electric unit (con- trol unit)	IPDM E/R
Engine speed signal	T	R				R	
Engine coolant temperature signal	T	R					
Fuel consumption monitor signal	T	R					
Accelerator pedal position signal	T					R	
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R

CAN COMMUNICATION

[CAN]

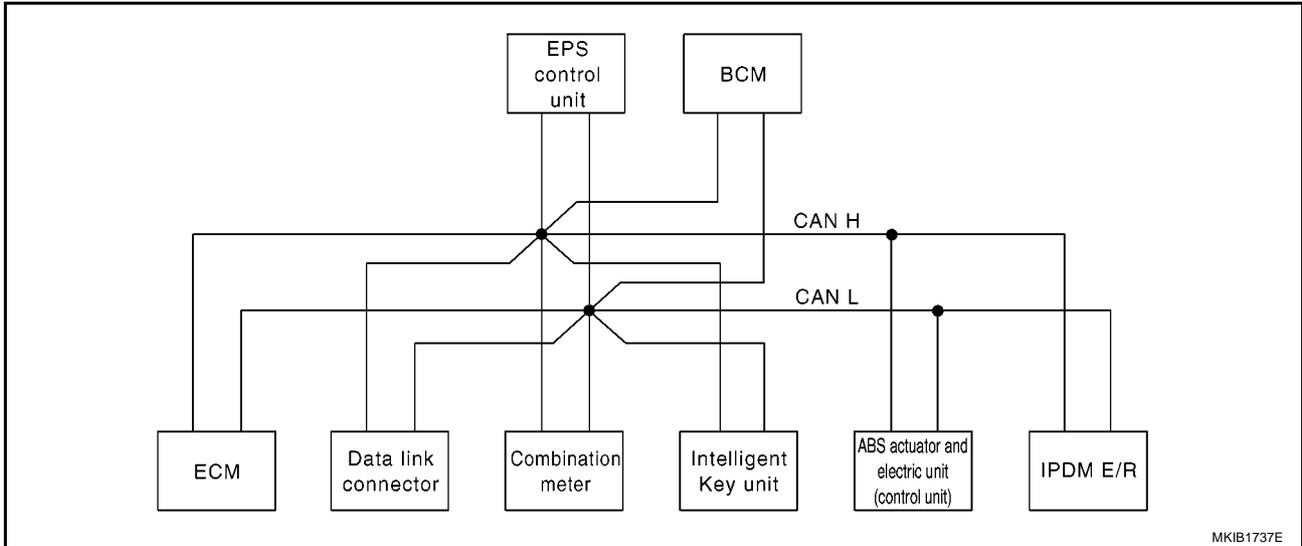
Signals	ECM	Combina- tion meter.	Intelligent Key unit	EPS con- trol unit	BCM	ABS actu- ator and electric unit (con- trol unit)	IPDM E/R
Low beam request signal					T		R
Low beam status signal	R						T
High beam request signal		R			T		R
High beam status signal	R						T
Day time light request signal					T		R
Vehicle speed signal	R	R		R		T	
	R	T	R	R	R		
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
Rear window defogger control signal	R						T
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
ESP warning lamp signal		R				T	
ESP OFF indicator signal		R				T	
SLIP indicator lamp signal		R				T	
Steering angle signal				T		R	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
A/C switch signal	R				T		
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
R range signal					R		T
Retractable hard top warning lamp signal*		R			T		

*: C+C only

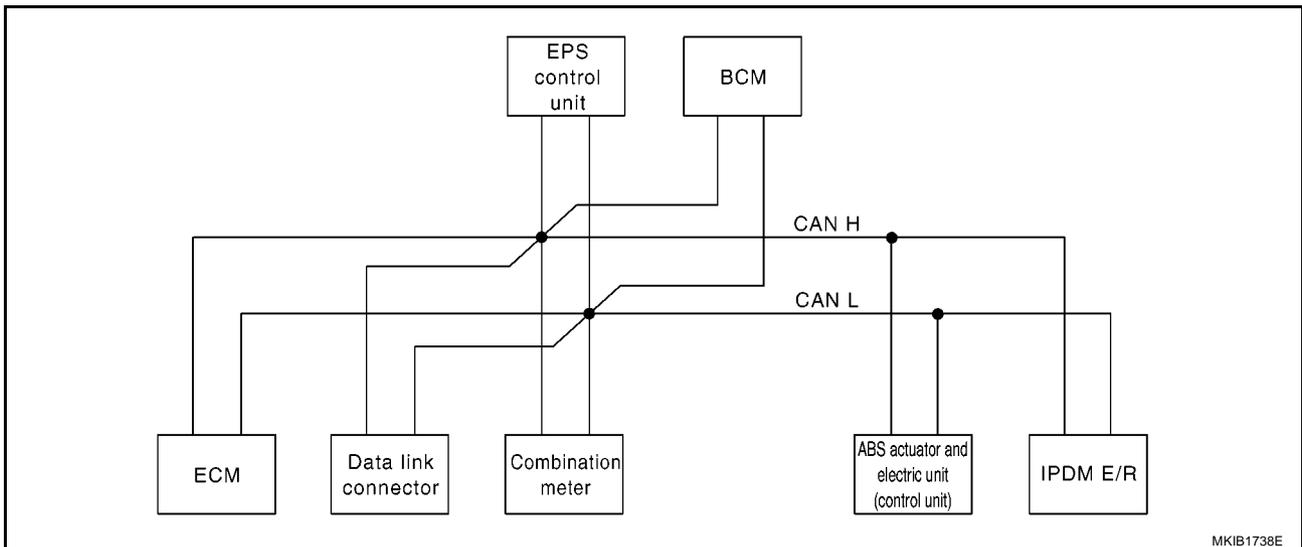
TYPE 13/TYPE 14

System diagram

- Type 13



- Type 14



CAN COMMUNICATION

[CAN]

Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Combina- tion meter.	Intelligent Key unit	EPS con- trol unit	BCM	ABS actu- ator and electric unit (con- trol unit)	IPDM E/R
Engine speed signal	T	R					
Engine coolant temperature signal	T	R			R		
Fuel consumption monitor signal	T	R					
Oil pressure switch signal		R					T
A/C compressor request signal	T						R
Heater fan switch signal	R				T		
Cooling fan speed request signal	T						R
Position lights request signal		R			T		R
Low beam request signal					T		R
High beam request signal		R			T		R
Day time light request signal					T		R
Vehicle speed signal	R	R		R	R	T	
	R	T	R	R			
Sleep/wake up signal		R	R		T		R
Door switch signal		R	R		T		R
Turn indicator signal		R			T		
Buzzer output signal		R			T		
		R	T				
MI signal	T	R					
Front wiper request signal					T		R
Front wiper stop position signal					R		T
Rear window defogger switch signal					T		R
EPS warning indicator signal		R		T			
ABS warning lamp signal		R				T	
Brake warning lamp signal		R				T	
Back-up lamp signal				R	T		
Front fog lamp request signal		R			T		R
Rear fog lamp status signal		R			T		
Headlamp washer request signal					T		R
Door lock/unlock request signal			T		R		
Door lock/unlock status signal			R		T		
KEY indicator signal		R	T				
LOCK indicator signal		R	T				
Engine status signal	T			R			
Brake system malfunction signal		T		R			
Parking brake switch signal		T		R			
Glow indicator signal	T	R					
R range signal					R		T

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CAN SYSTEM (TYPE 1)

PFP:23710

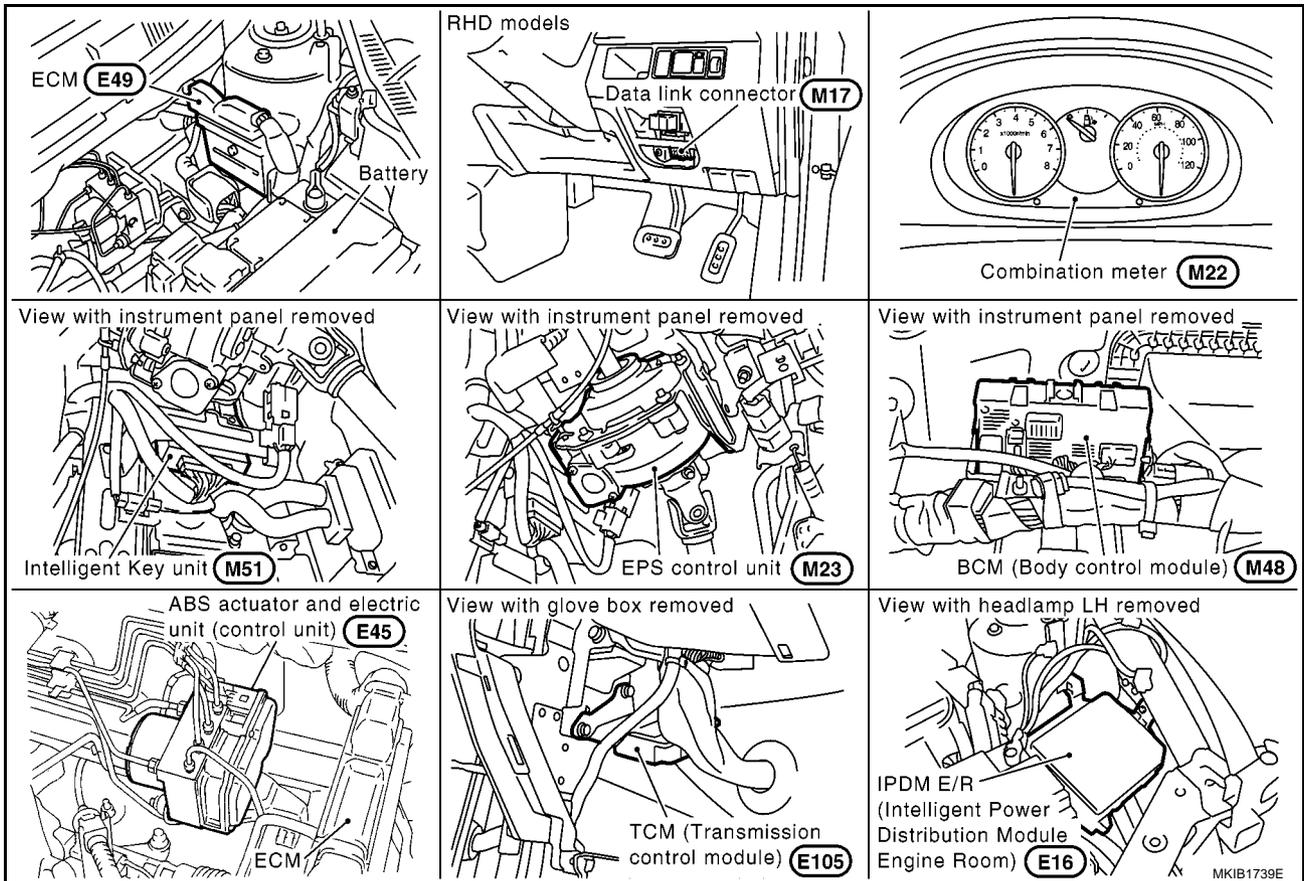
System Description

EKS0073M

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

EKS0073N



CAN SYSTEM (TYPE 1)

[CAN]

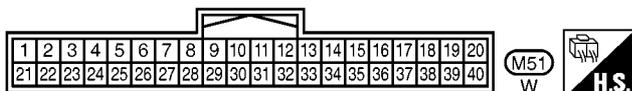
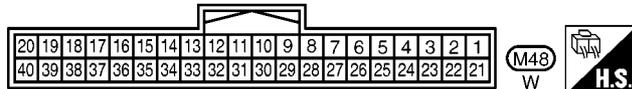
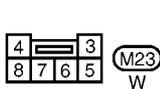
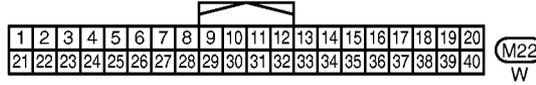
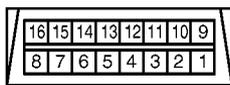
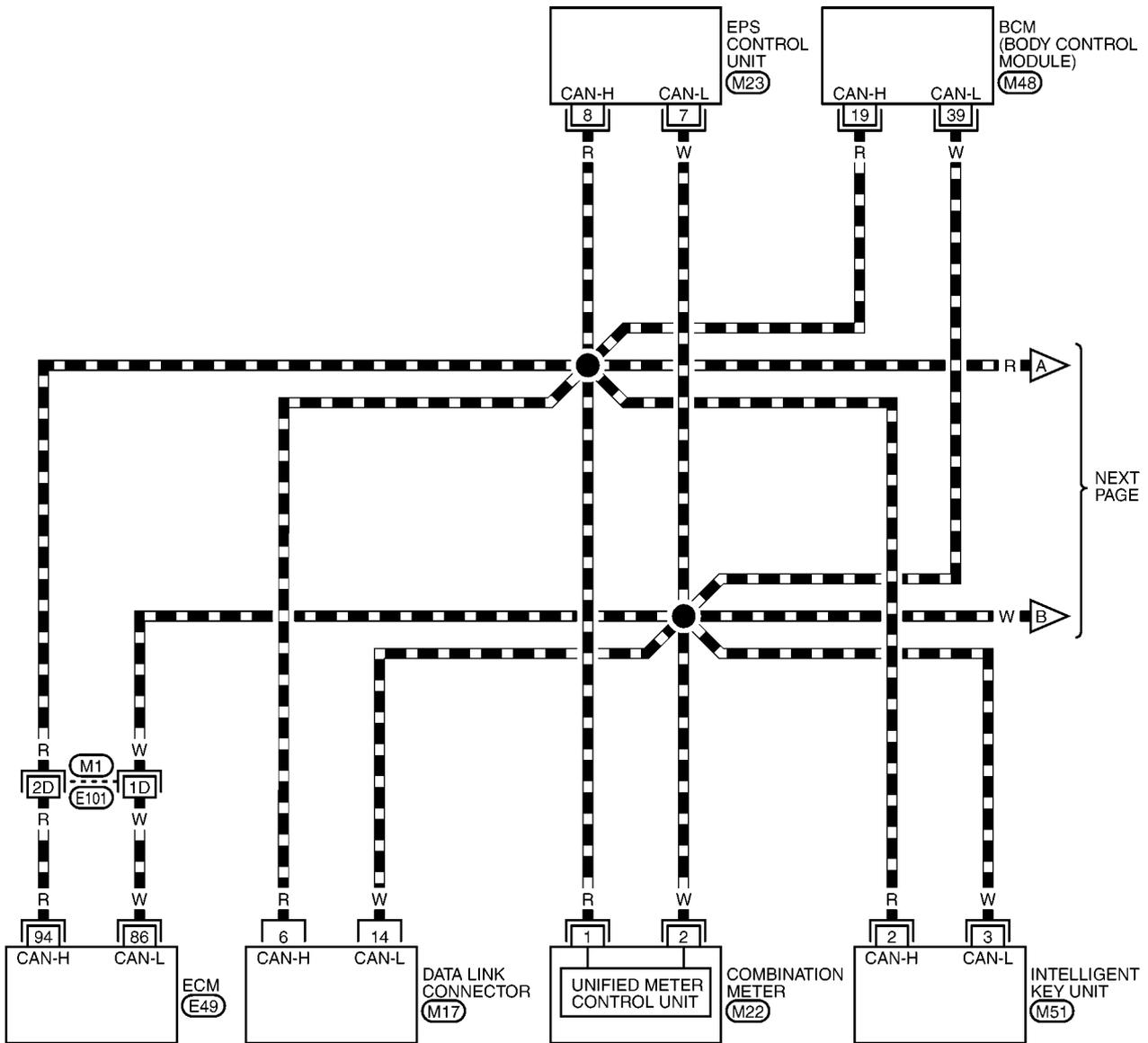
Wiring Diagram — CAN —

EKS00730

LAN-CAN-01

— : DATA LINE

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REFER TO THE FOLLOWING.

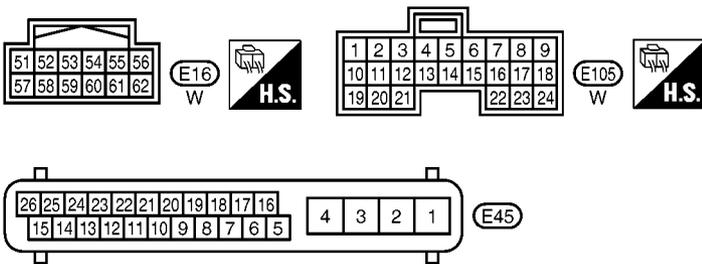
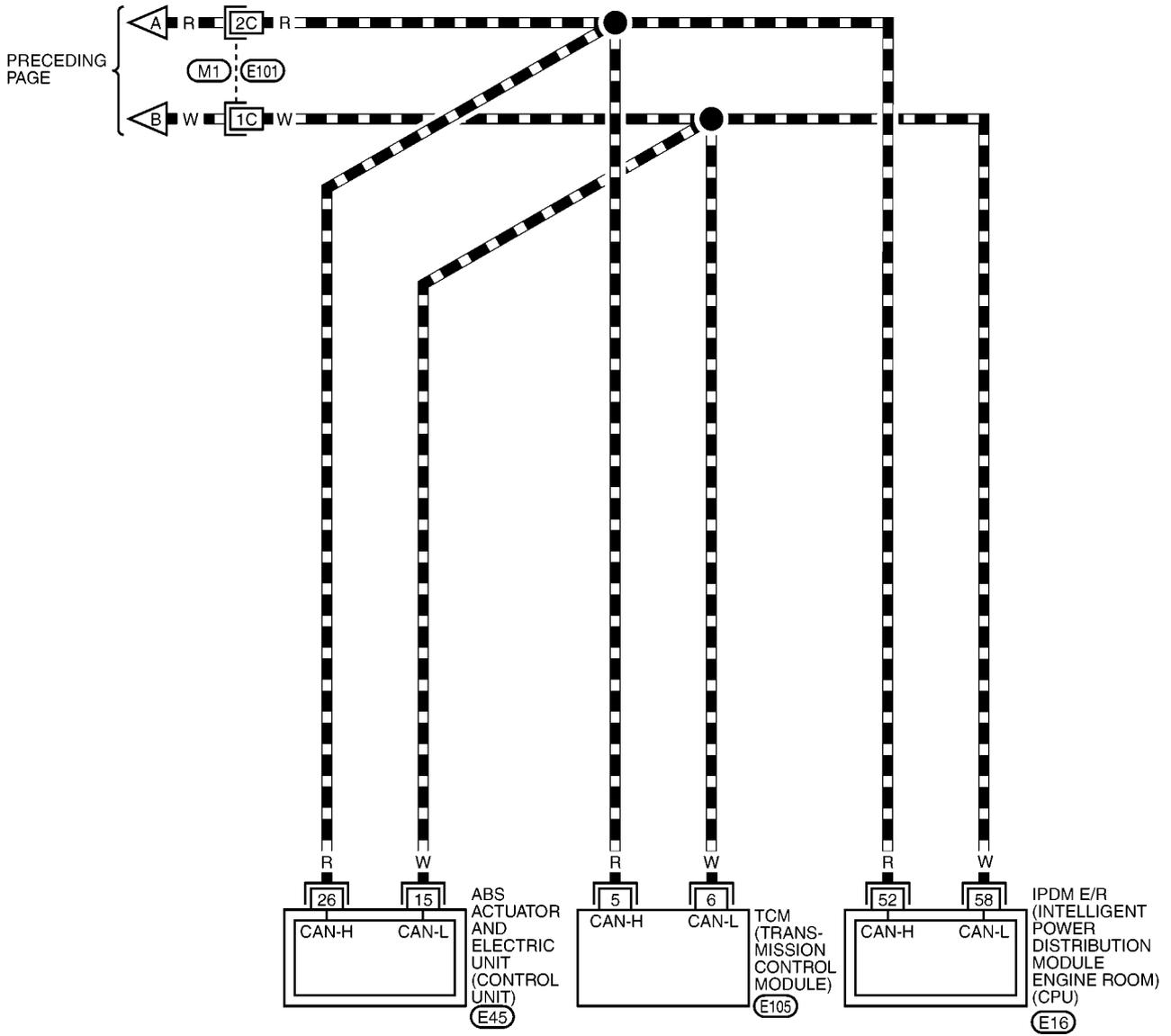
(M1) -SUPER MULTIPLE JUNCTION (SMJ)

(E49) -ELECTRICAL UNITS

LAN

LAN-CAN-02

▬ : DATA LINE



REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

CAN SYSTEM (TYPE 1)

[CAN]

CHECK SHEET

Check sheet table

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

Symptoms:

Attach copy of
SELECT SYSTEM

Attach copy of
SELECT SYSTEM

CAN SYSTEM (TYPE 1)

[CAN]

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Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
INTELLIGENT KEY
SELF-DIAG RESULTS

Attach copy of
EPS
SELF-DIAG RESULTS

Attach copy of
BCM
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

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A/T
SELF-DIAG RESULTS

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IPDM E/R
SELF-DIAG RESULTS

Attach copy of
ENGINE
CAN DIAG SUPPORT
MNTR

Attach copy of
INTELLIGENT KEY
CAN DIAG SUPPORT
MNTR

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EPS
CAN DIAG SUPPORT
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BCM
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IPDM
CAN DIAG SUPPORT
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MKIB2188E

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

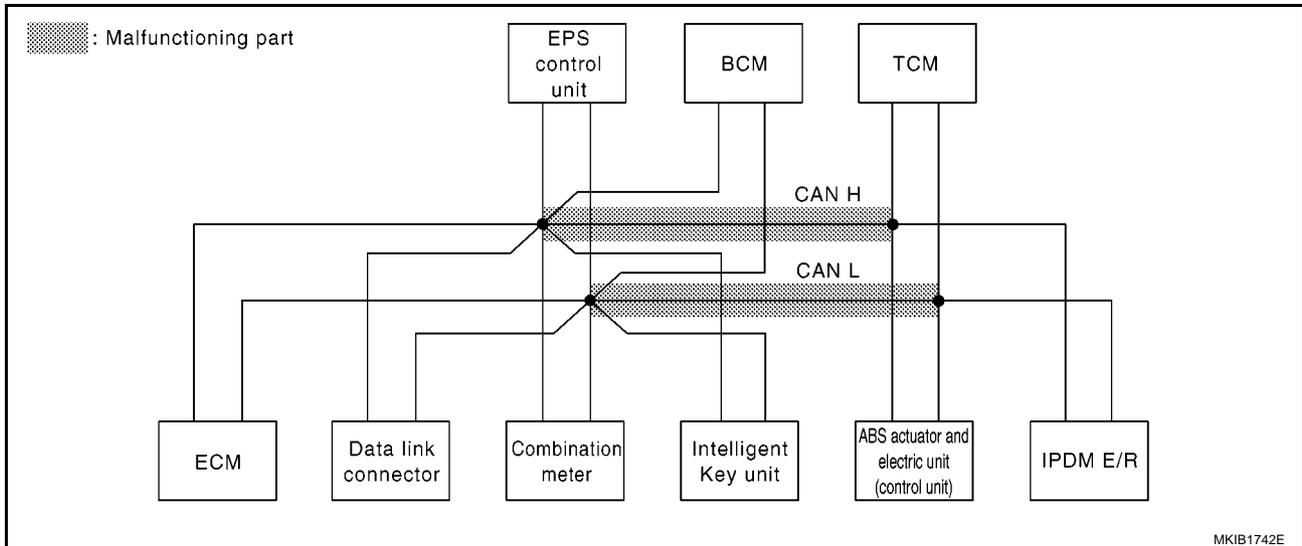
If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

Case 1

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to [LAN-37, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit \(Control Unit\)"](#).

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

MKIB2035E



CAN SYSTEM (TYPE 1)

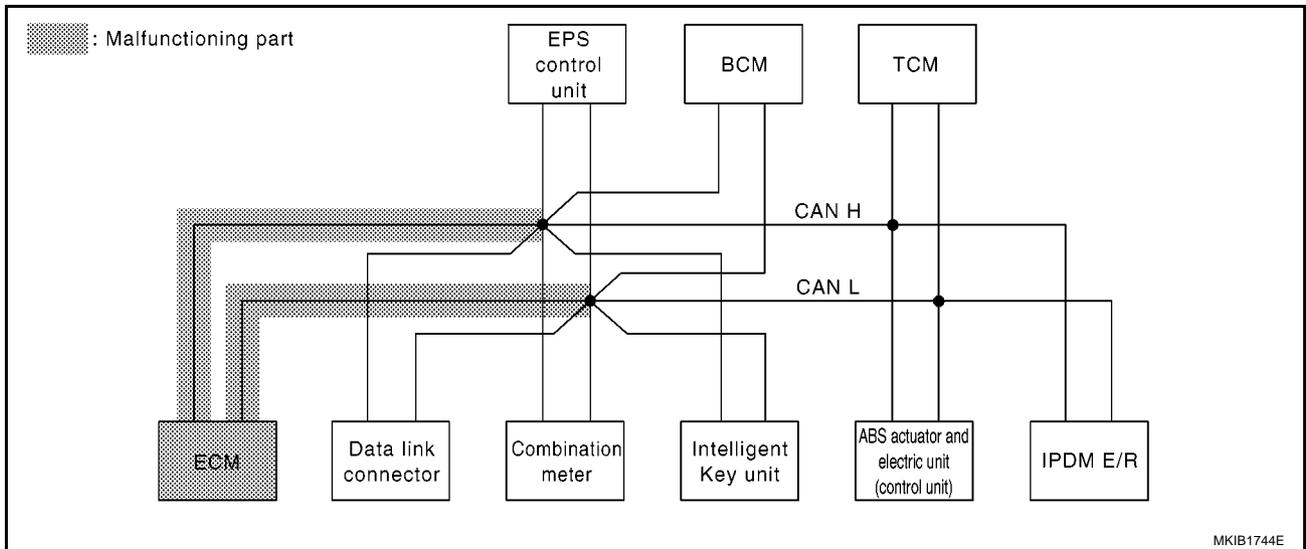
[CAN]

Case 2

Check ECM circuit. Refer to [LAN-38, "ECM Circuit Check"](#).

SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	Receive diagnosis								
			ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R	
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	—	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

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CAN SYSTEM (TYPE 1)

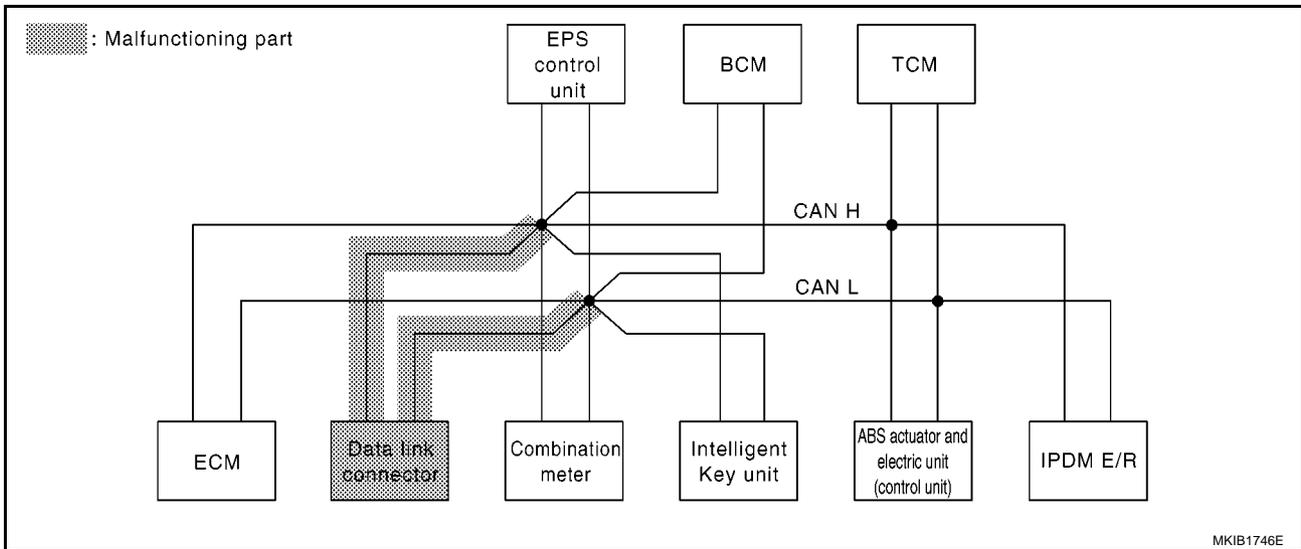
[CAN]

Case 3

Check data link connector circuit. Refer to [LAN-39, "Data Link Connector Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication ✓	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication ✓	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication ✓	NG	—	UNKWN	—	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

MKIB2037E



MKIB1746E

CAN SYSTEM (TYPE 1)

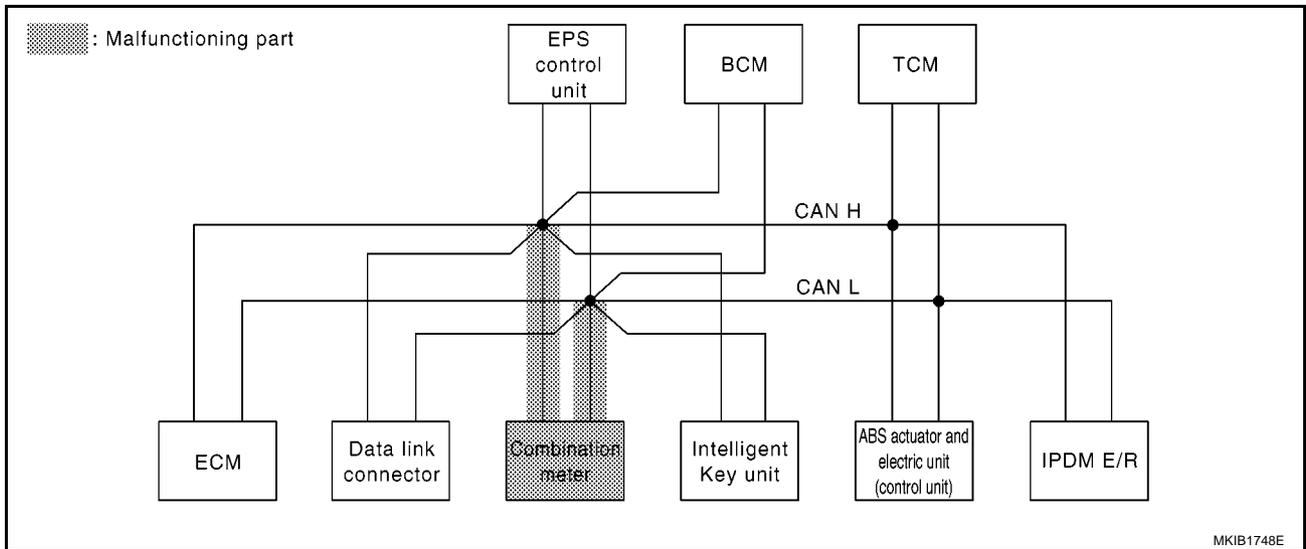
[CAN]

Case 4

Check combination meter circuit. Refer to [LAN-40, "Combination Meter Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

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CAN SYSTEM (TYPE 1)

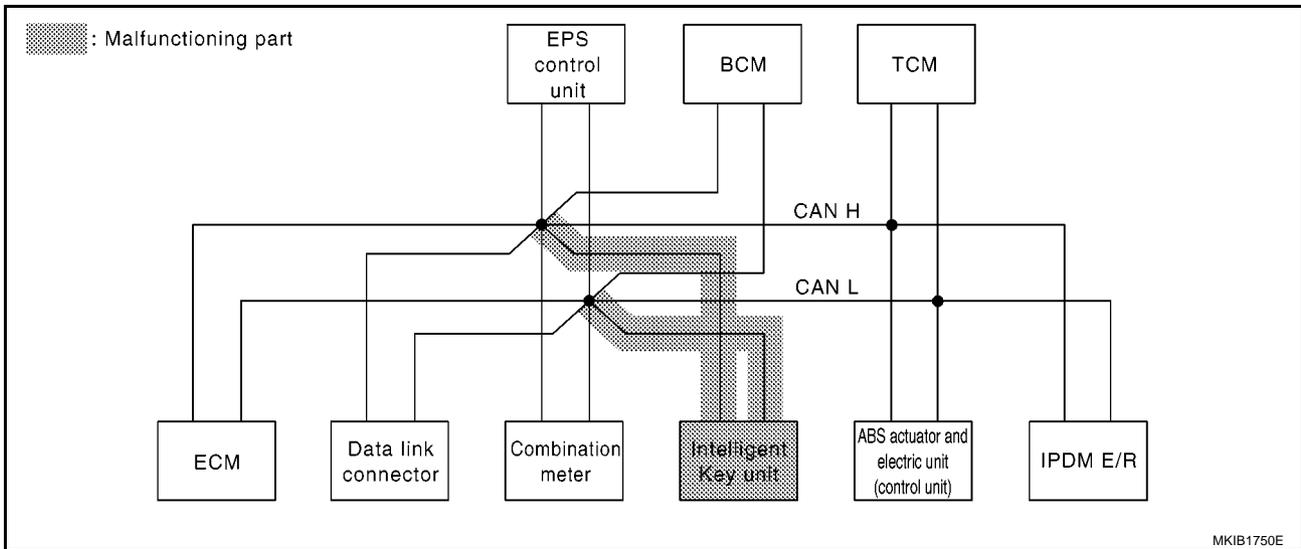
[CAN]

Case 5

Check Intelligent Key unit circuit. Refer to [LAN-41, "Intelligent Key Unit Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication ✓	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN ✓	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

MKIB2039E



MKIB1750E

CAN SYSTEM (TYPE 1)

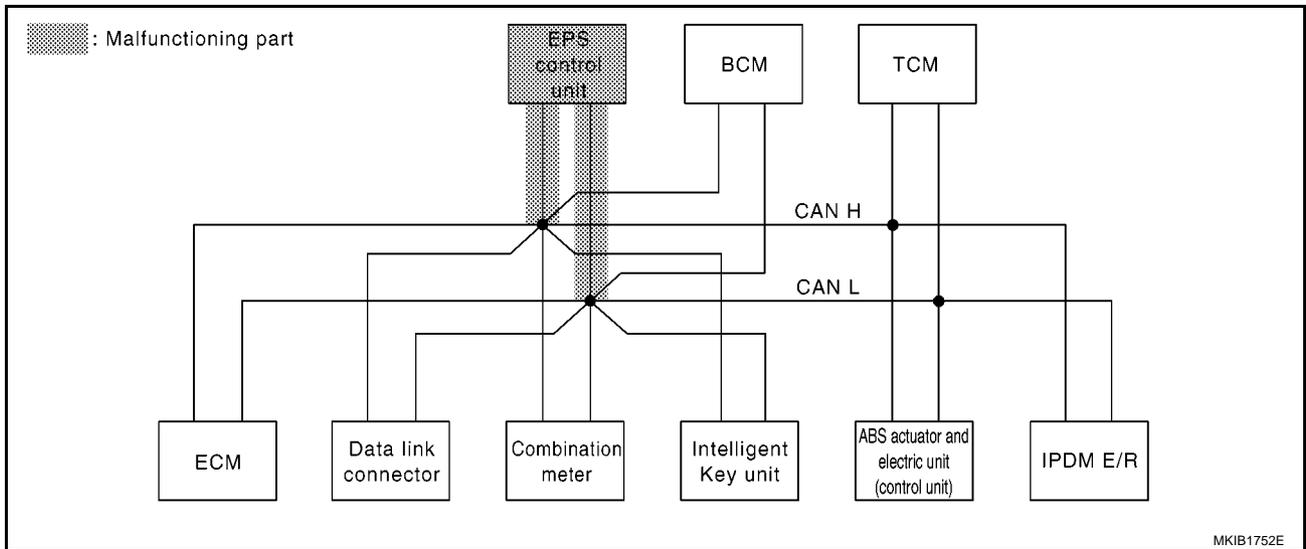
[CAN]

Case 6

Check EPS control unit circuit. Refer to [LAN-42, "EPS Control Unit Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

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CAN SYSTEM (TYPE 1)

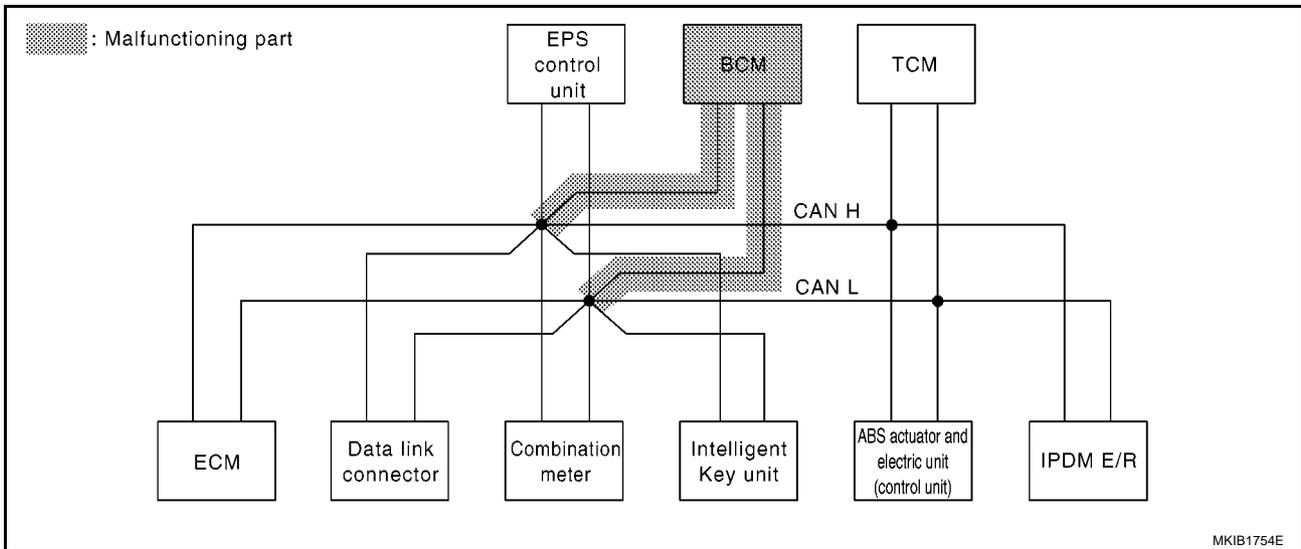
[CAN]

Case 7

Check BCM circuit. Refer to [LAN-43, "BCM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication ✓	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication ✓	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

MKIB2041E



MKIB1754E

CAN SYSTEM (TYPE 1)

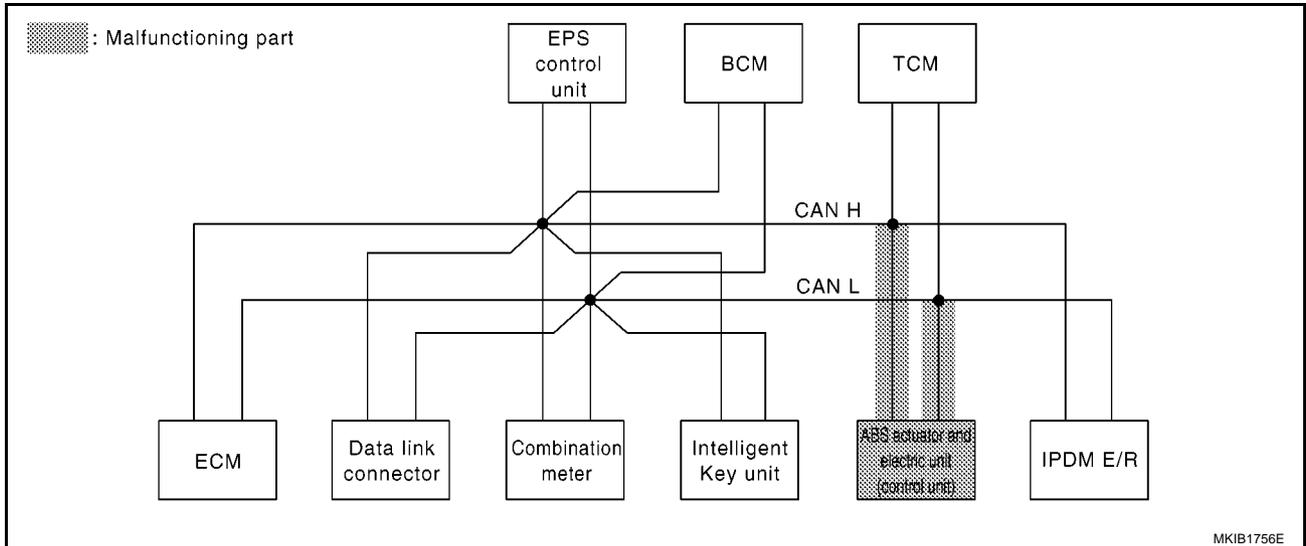
[CAN]

Case 8

Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-44, "ABS Actuator and Electric Unit \(Control Unit\) Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

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LAN

CAN SYSTEM (TYPE 1)

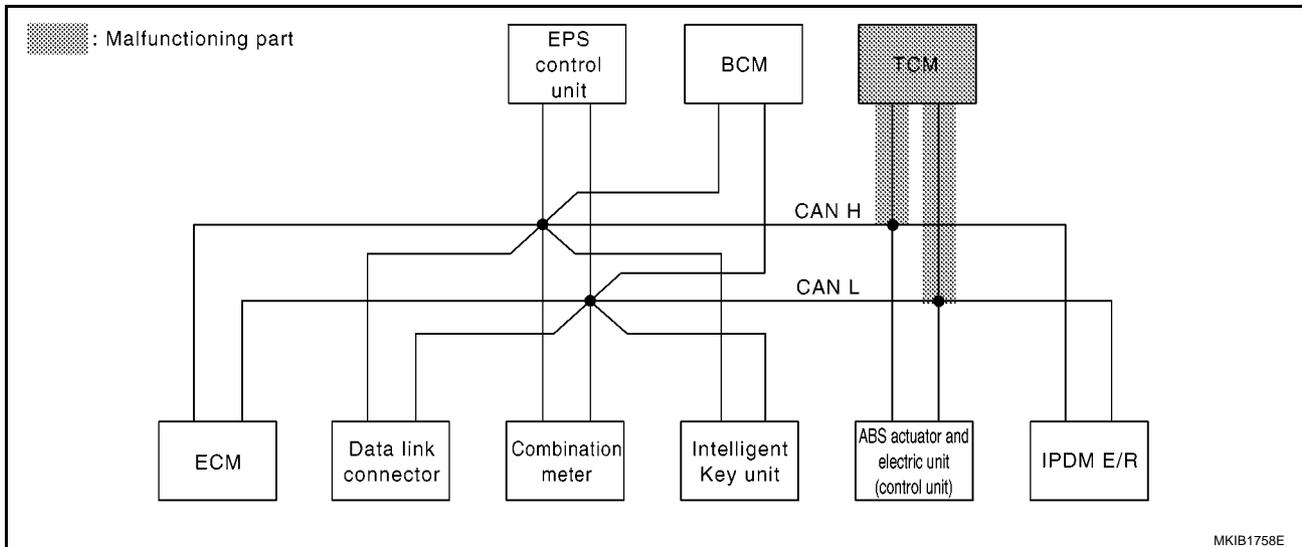
[CAN]

Case 9

Check TCM circuit. Refer to [LAN-45, "TCM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

MKIB2043E



MKIB1758E

CAN SYSTEM (TYPE 1)

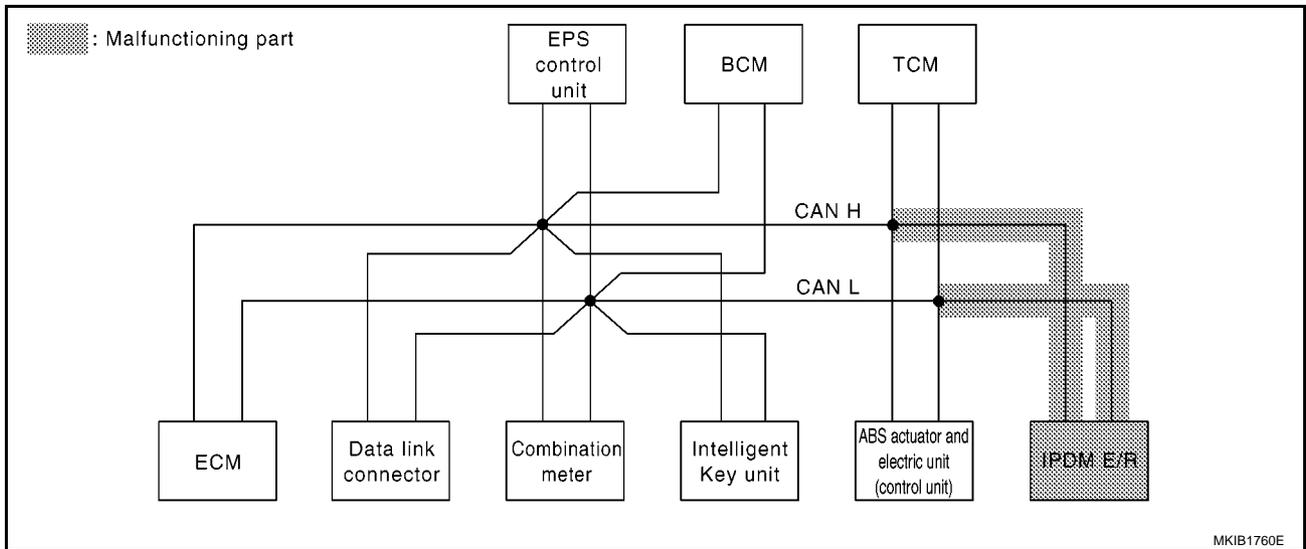
[CAN]

Case 10

Check IPDM E/R circuit. Refer to [LAN-46. "IPDM E/R Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

MKIB2044E



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CAN SYSTEM (TYPE 1)

[CAN]

Case 11

Check CAN communication circuit. Refer to [LAN-47, "CAN Communication Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

MKIB2045E

Case 12

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to [LAN-50, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

MKIB2046E

Case 13

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to [LAN-50, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	UNKWN	—	UNKWN	—	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

MKIB2047E

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

EKS0073Q

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M1
 - Harness connector E101

OK or NG

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

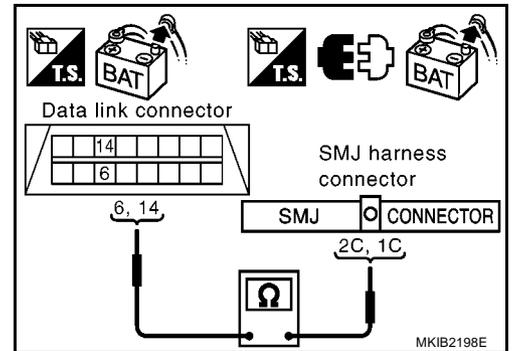
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect following connector.
 - Harness connector M1
2. Check continuity between data link connector M17 terminals 6 (R), 14 (W) and harness connector M1 terminals 2C (R), 1C (W).

6 (R) – 2C (R) : Continuity should exist.
14 (W) – 1C (W) : Continuity should exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness.



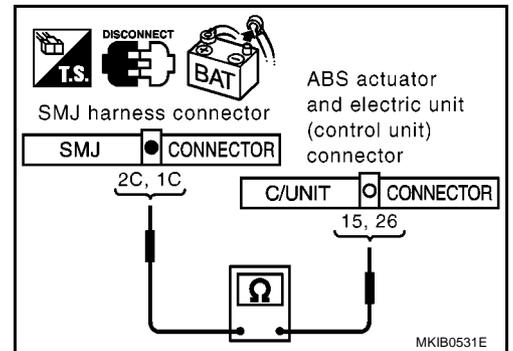
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between harness connector E101 terminals 2C (R), 1C (W) and ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R), 15 (W).

2C (R) – 26 (R) : Continuity should exist.
1C (W) – 15 (W) : Continuity should exist.

OK or NG

- OK >> Connect all the connectors and diagnosis again. Refer to [LAN-23, "Work Flow"](#) .
 NG >> Repair harness.



ECM Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
 - ECM connector
 - Harness connector M1
 - Harness connector E101

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

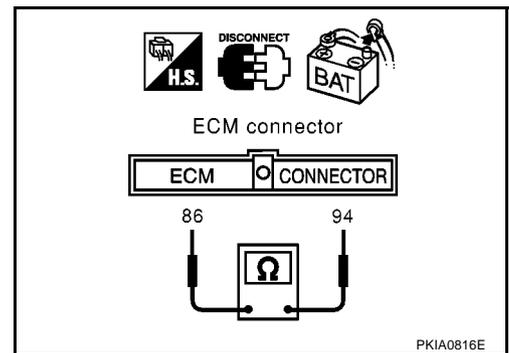
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E49 terminals 94 (R) and 86 (W).

94 (R) – 86 (W)**: Approx. 108 – 132Ω**OK or NG

OK >> Replace ECM.

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



Data Link Connector Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check data link connector and terminals for damage, bend and loose connection (connector side and harness side).

OK or NG

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

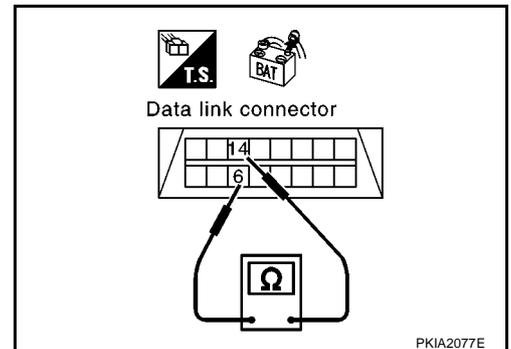
2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M17 terminals 6 (R) and 14 (W).

6 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Diagnosis again. Refer to [LAN-23, "Work Flow"](#) .
 NG >> Repair harness between data link connector and combination meter



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

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of combination meter for damage, bend and loose connection (meter side and harness side).

OK or NG

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

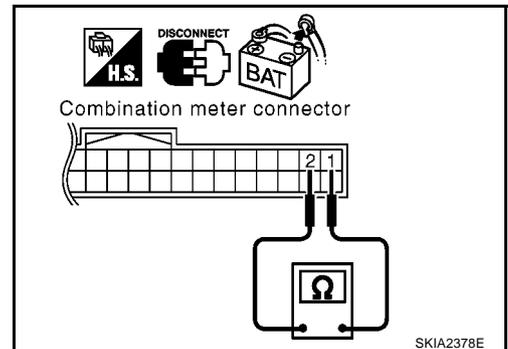
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M22 terminals 1 (R) and 2 (W).

1 (R) – 2 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace combination meter
 NG >> Repair harness between combination meter and data link connector.



Intelligent Key Unit Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of Intelligent Key unit for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

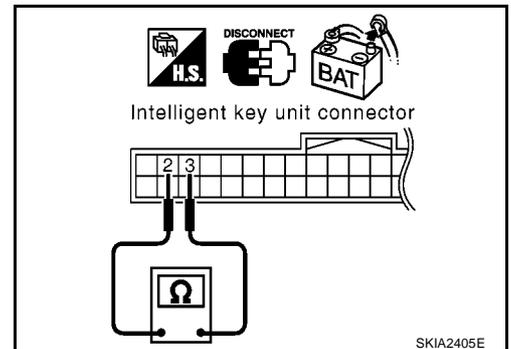
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect Intelligent Key unit connector.
2. Check resistance between Intelligent Key unit harness connector M51 terminals 2 (R) and 3 (W).

2 (R) – 3 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace Intelligent Key unit.
 NG >> Repair harness between Intelligent Key unit and data link connector.



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EPS Control Unit Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

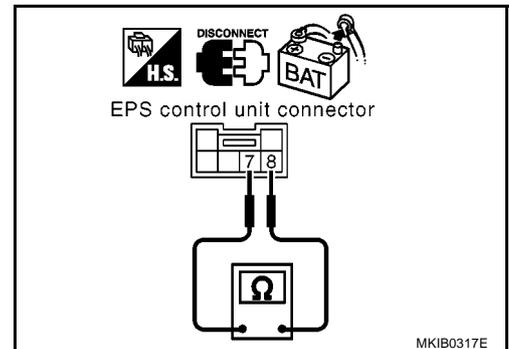
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect EPS control unit connector.
2. Check resistance between EPS control unit harness connector M23 terminals 8 (R) and 7 (W).

8 (R) – 7 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace EPS control unit.
 NG >> Repair harness between EPS control unit and data link connector.



MKIB0317E

BCM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

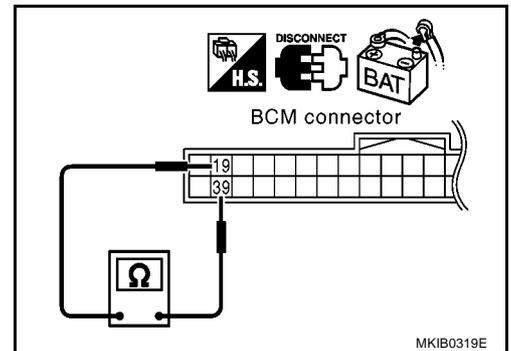
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M48 terminals 19 (R) and 39 (W).

19 (R) – 39 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace BCM. Refer to [BCS-30, "Removal and Installation of BCM"](#) .
 NG >> Repair harness between BCM and data link connector.



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ABS Actuator and Electric Unit (Control Unit) Circuit Check

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1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ABS actuator and electric unit (control unit) for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

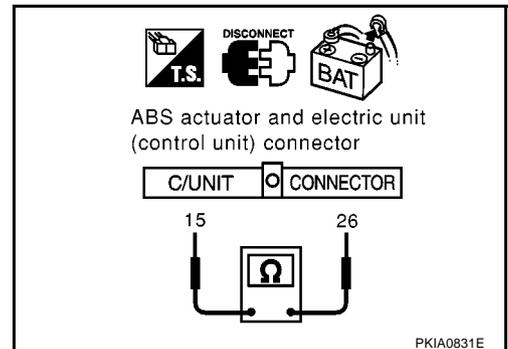
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R) and 15 (W).

26 (R) – 15 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace ABS actuator and electric unit (control unit).
 NG >> Repair harness between ABS actuator and electric unit (control unit) and TCM.



TCM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

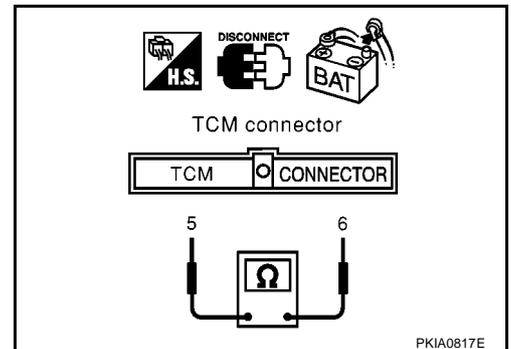
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector E105 terminals 5 (R) and 6 (W).

5 (R) – 6 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace TCM.
 NG >> Repair harness between TCM and IPDM E/R.



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IPDM E/R Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

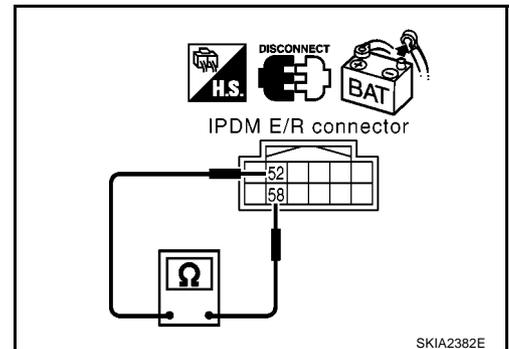
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check resistance between IPDM E/R harness connector E16 terminals 52 (R) and 58 (W).

52 (R) – 58 (W) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace IPDM E/R.
 NG >> Repair harness between IPDM E/R and TCM.



CAN Communication Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

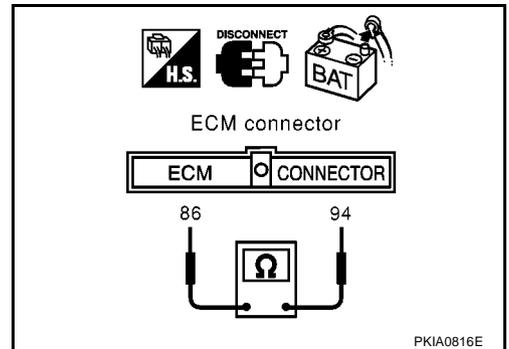
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E101.
2. Check continuity between ECM harness connector E49 terminals 94 (R) and 86 (W).

94 (R) – 86 (W) : Continuity should not exist.

OK or NG

- OK >> GO TO 3.
- NG >> Repair harness between ECM and harness connector E101.



3. CHECK HARNESS FOR SHORT CIRCUIT

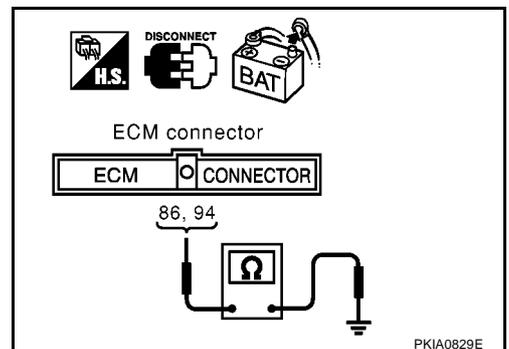
Check continuity between ECM harness connector E49 terminals 94 (R), 86 (W) and ground.

94 (R) – Ground : Continuity should not exist.

86 (W) – Ground : Continuity should not exist.

OK or NG

- OK >> GO TO 4.
- NG >> Repair harness between ECM and harness connector E101.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - ABS actuator and electric unit (control unit) connector
 - TCM connector
 - IPDM E/R connector
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R) and 15 (W).

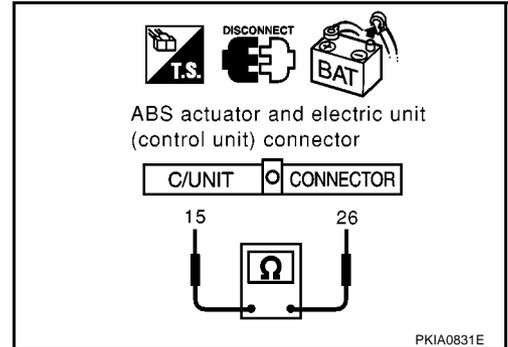
26 (R) – 15 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and TCM
- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R), 15 (W) and ground.

26 (R) – Ground : Continuity should not exist.

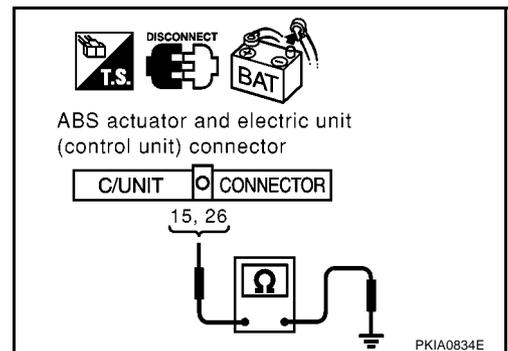
15 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and TCM
- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - Combination meter connector
 - Intelligent Key unit connector
 - EPS control unit connector
 - BCM connector
2. Check continuity between data link connector M17 terminals 6 (R) and 14 (W).

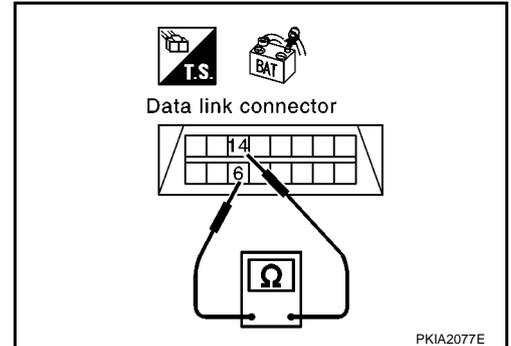
6 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and Intelligent Key unit
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M17 terminals 6 (R), 14 (W) and ground.

6 (R) – Ground : Continuity should not exist.

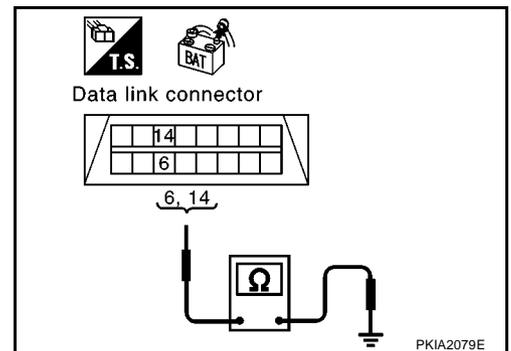
14 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and Intelligent Key unit
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-50. "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION"](#) .

OK or NG

OK >> Connect all the connectors and diagnosis again. Refer to [LAN-23. "Work Flow"](#) .

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

IPDM E/R Ignition Relay Circuit Check

EKS00742

Perform the self-diagnosis for IPDM E/R. Refer to [PG-49, "Inspection With CONSULT-II \(Self-Diagnosis\)"](#) . If the result is OK, carry out following inspections.

- IPDM E/R power supply circuit. Refer to [PG-50, "IPDM E/R Power Supply and Ground Circuit Check"](#) .
- Ignition power supply circuit. Refer to [PG-13, "IGNITION POWER SUPPLY — IGNITION SW. IN "ON" AND/OR "START""](#) .

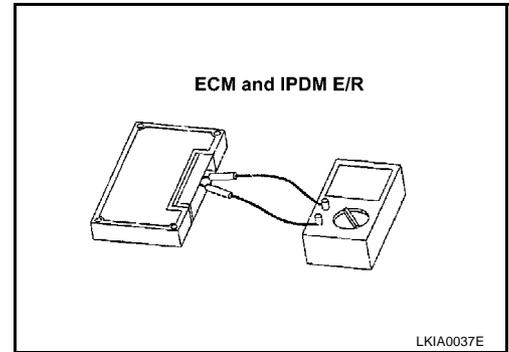
Component Inspection

EKS00743

ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between IPDM E/R terminals 52 and 58.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	94 – 86	108 - 132
IPDM E/R	52 – 58	



CAN SYSTEM (TYPE 2)

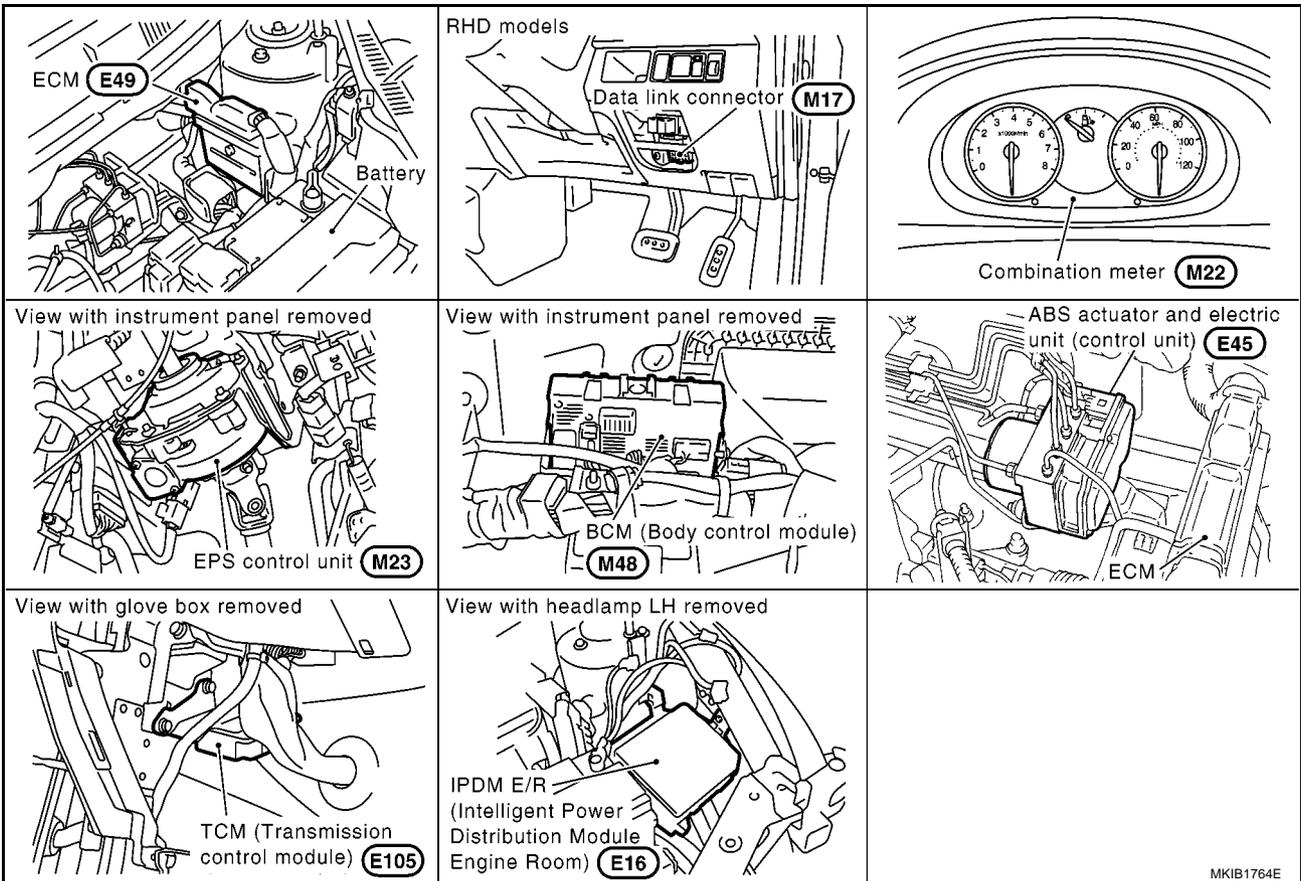
System Description

EKS00744

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

EKS00745



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CAN SYSTEM (TYPE 2)

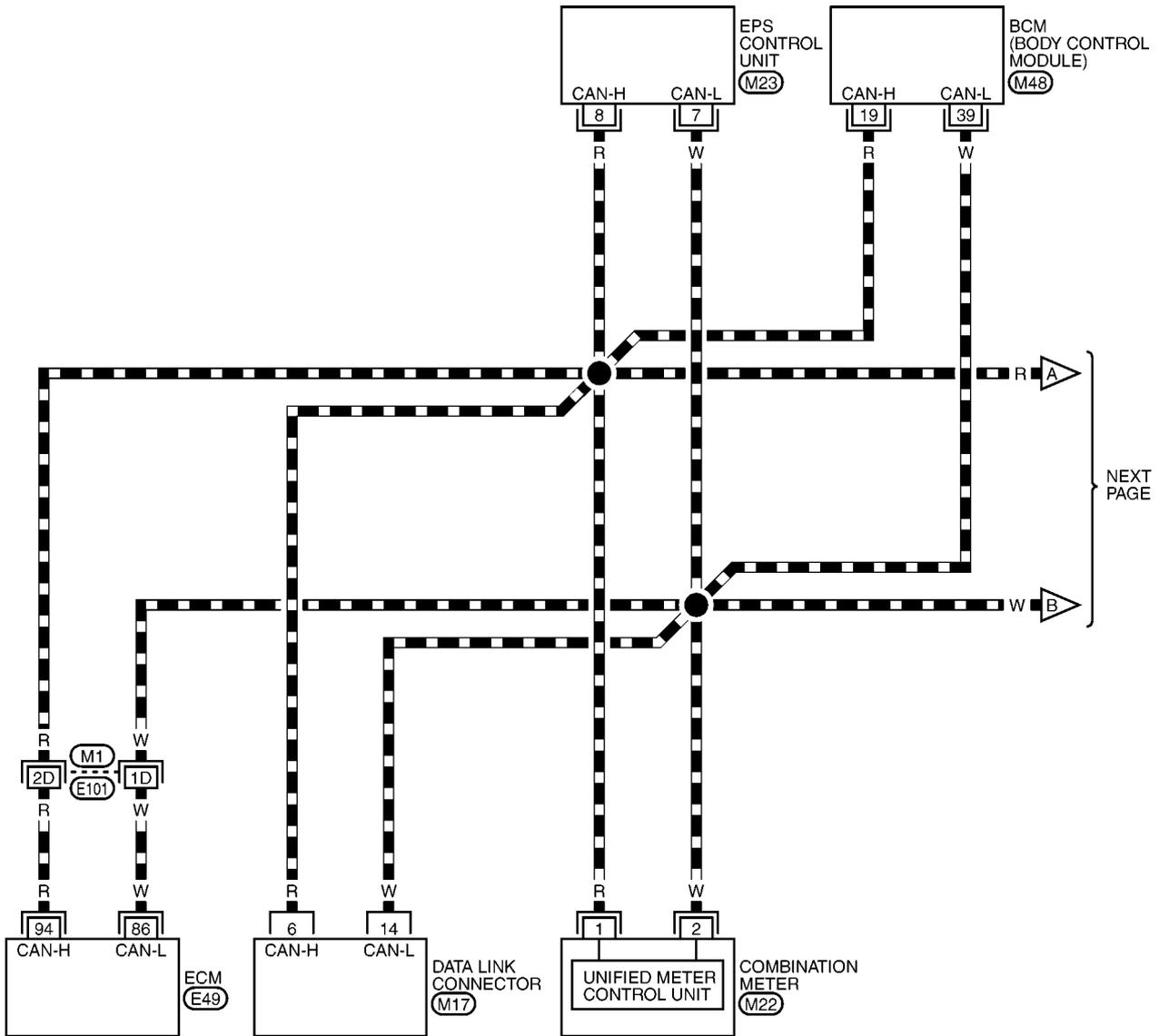
[CAN]

Wiring Diagram — CAN —

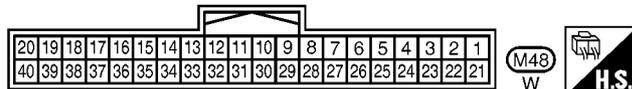
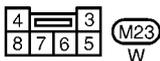
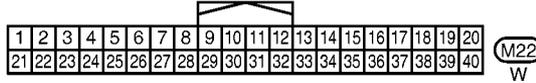
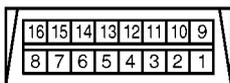
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LAN-CAN-03

▬ : DATA LINE



NEXT PAGE



REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

(E49) -ELECTRICAL UNITS

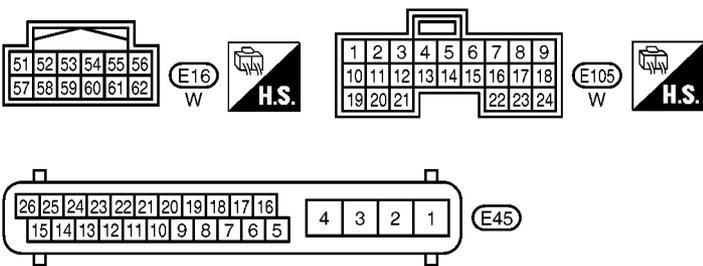
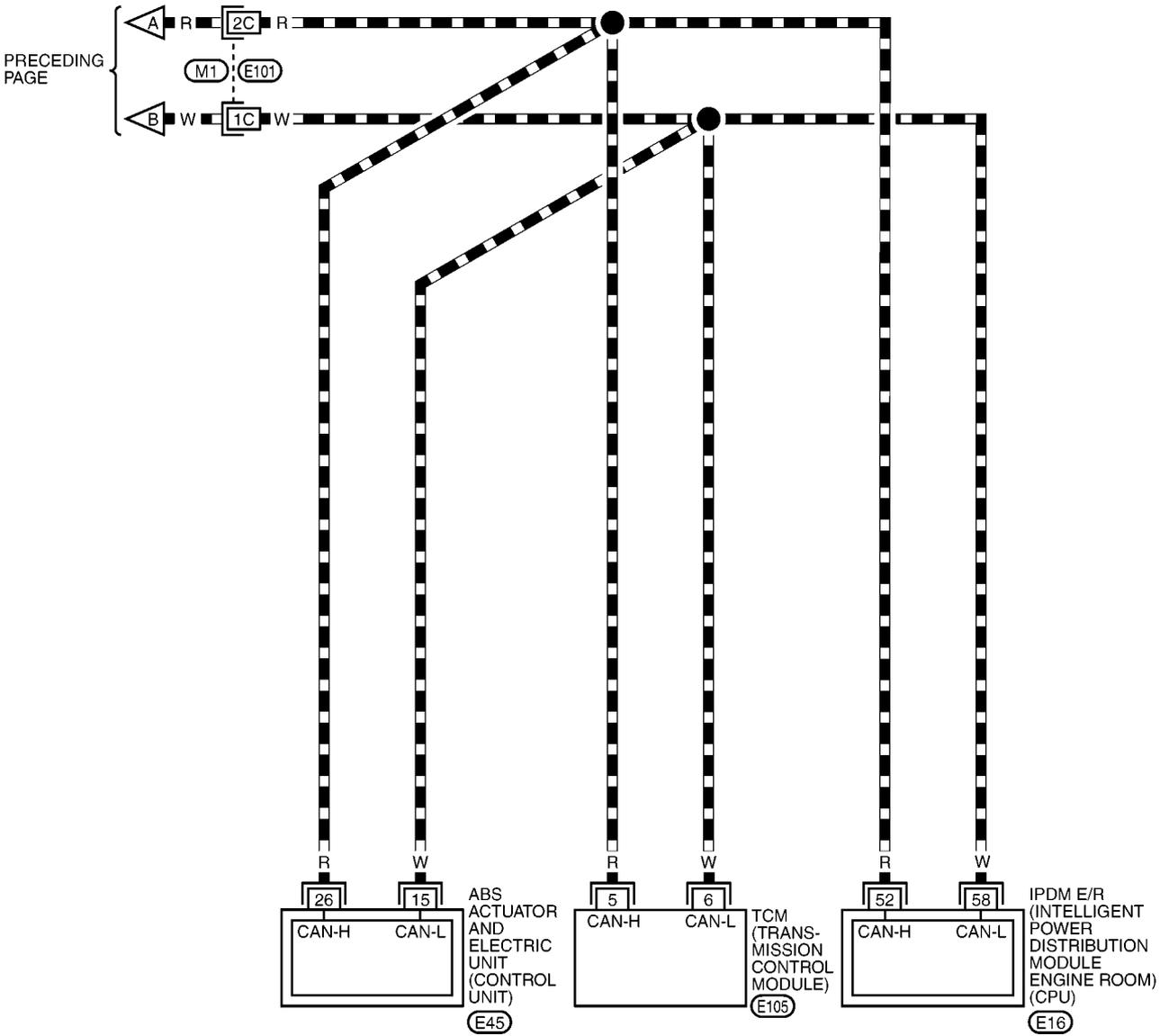
MKWA3496E

CAN SYSTEM (TYPE 2)

[CAN]

LAN-CAN-04

▬ : DATA LINE



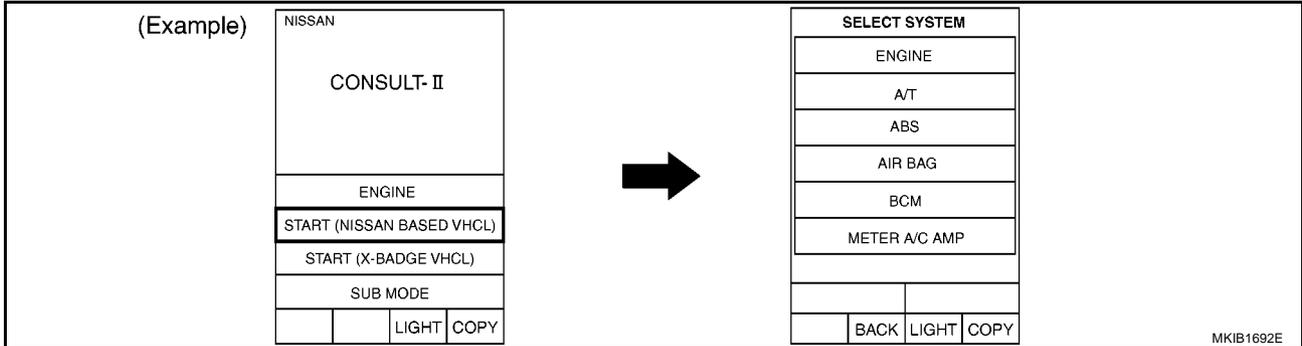
REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

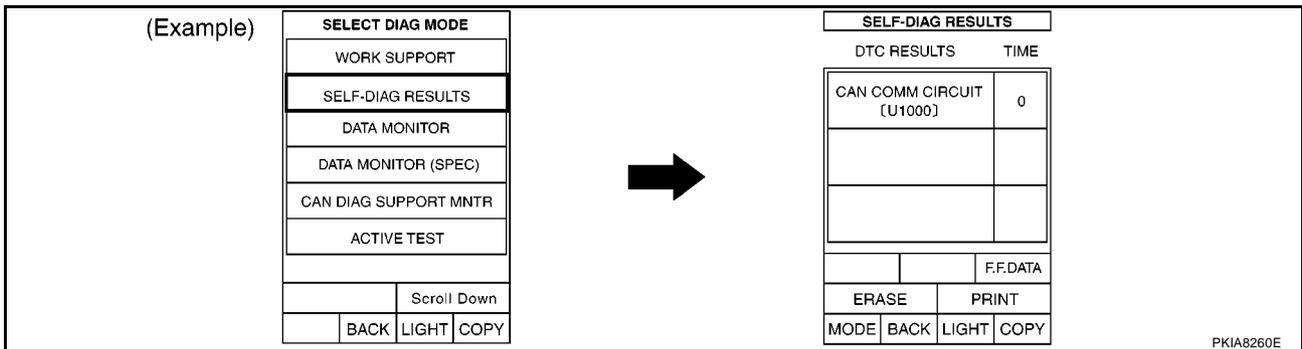
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Work Flow

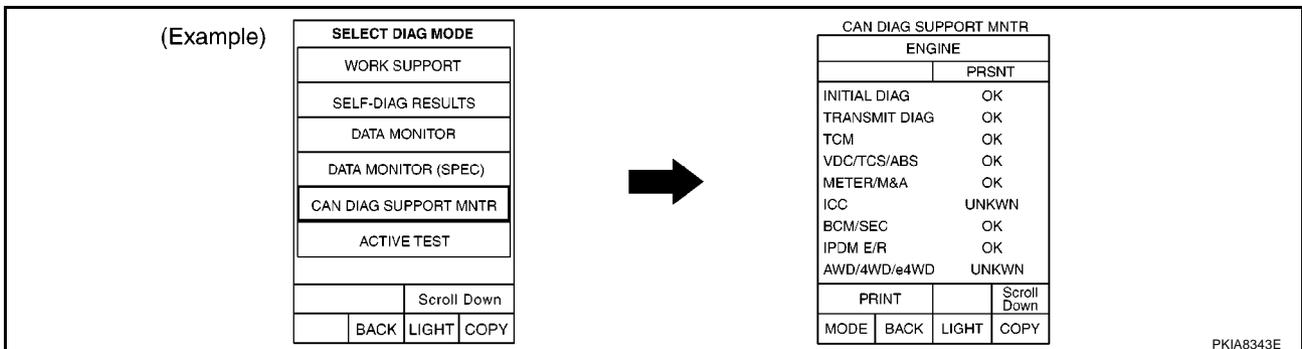
- When there are no indications of “EPS”, “BCM” or “IPDM E/R” on “SELECT SYSTEM” display of CONSULT-II, print the “SELECT SYSTEM”.



- Print all the data of “SELF-DIAG RESULTS” for “ENGINE”, “EPS”, “BCM”, “ABS”, “A/T” and “IPDM E/R” displayed on CONSULT-II.



- Print all the data of “CAN DIAG SUPPORT MNTR” for “ENGINE”, “EPS”, “BCM”, “ABS”, “A/T” and “IPDM E/R” displayed on CONSULT-II.



- Attach the printed sheet of “SELECT SYSTEM”, “SELF-DIAG RESULTS” and “CAN DIAG SUPPORT MNTR” onto the check sheet. Refer to [LAN-55, "CHECK SHEET"](#) .

- Based on the indications of “SELECT SYSTEM” and the results of “CAN DIAG SUPPORT MNTR”, put marks “v” onto the items with “No indication”, “NG”, or “UNKWVN” in the check sheet table. Refer to [LAN-55, "CHECK SHEET"](#) .

NOTE:

- If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)” as “CAN DIAG SUPPORT MNTR” for the diagnosed control unit, replace the control unit.
- The “CAN DIAG SUPPORT MNTR” items, which are not in check sheet table, are not related to diagnostic procedure on service manual.
So it is not necessary to check the status of “CAN DIAG SUPPORT MNTR” items which are not indicated in check sheet table.

- According to the check sheet results (example), start inspection. Refer to [LAN-57, "CHECK SHEET RESULTS \(EXAMPLE\)"](#) .

CAN SYSTEM (TYPE 2)

[CAN]

CHECK SHEET

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Check sheet table

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—

Symptoms:

Attach copy of
SELECT SYSTEM

Attach copy of
SELECT SYSTEM

CAN SYSTEM (TYPE 2)

[CAN]

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
EPS
SELF-DIAG RESULTS

Attach copy of
BCM
SELF-DIAG RESULTS

Attach copy of
ABS
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Attach copy of
A/T
SELF-DIAG RESULTS

Attach copy of
IPDM E/R
SELF-DIAG RESULTS

Attach copy of
ENGINE
CAN DIAG SUPPORT
MNTR

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EPS
CAN DIAG SUPPORT
MNTR

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BCM
CAN DIAG SUPPORT
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ABS
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A/T
CAN DIAG SUPPORT
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Attach copy of
IPDM E/R
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MNTR

MKIB2189E

CAN SYSTEM (TYPE 2)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

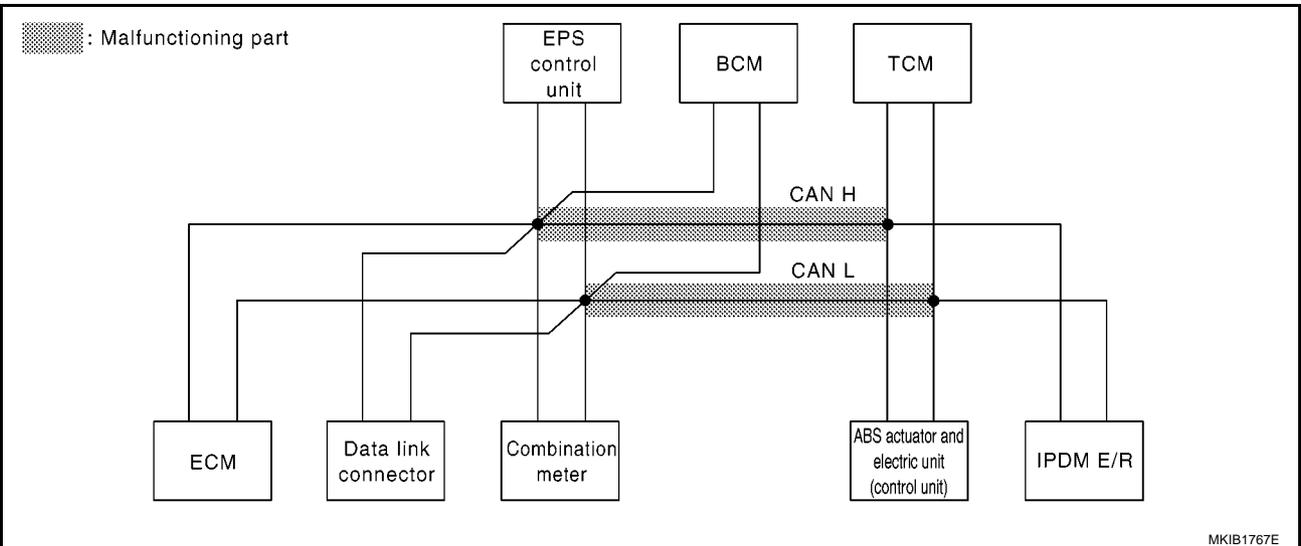
If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

Case 1

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to [LAN-67, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit \(Control Unit\)"](#).

SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	Receive diagnosis							
			ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R	
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—

MKIB2049E



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CAN SYSTEM (TYPE 2)

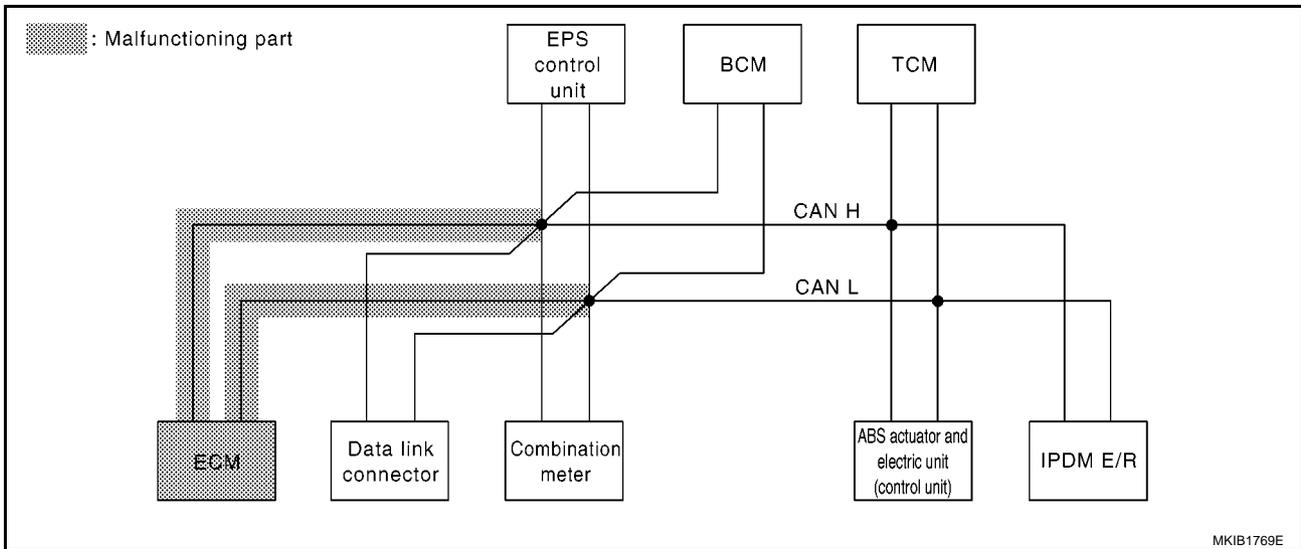
[CAN]

Case 2

Check ECM circuit. Refer to [LAN-68, "ECM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	✓	—	UNKWN	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—

MKIB2050E



CAN SYSTEM (TYPE 2)

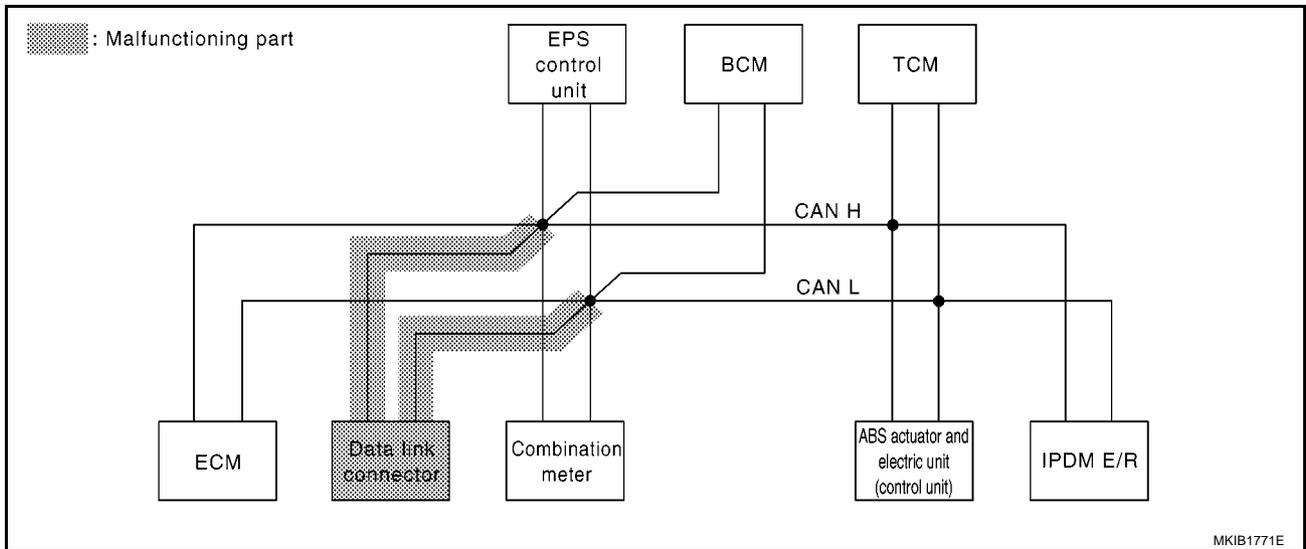
[CAN]

Case 3

Check data link connector circuit. Refer to [LAN-69, "Data Link Connector Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—

MKIB2051E



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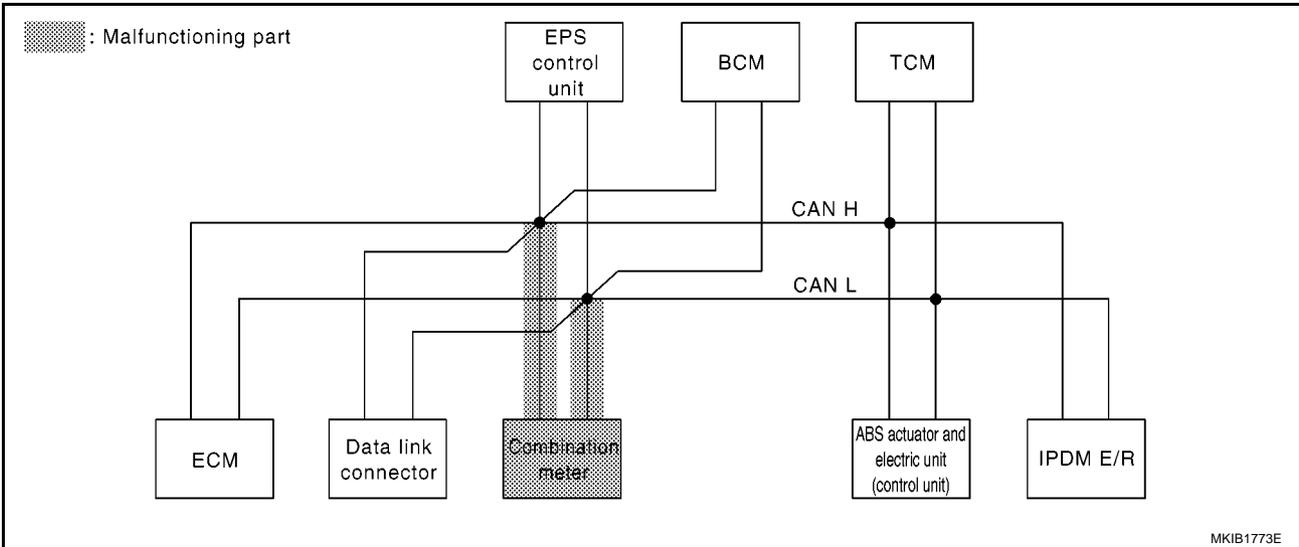
[CAN]

Case 4

Check combination meter circuit. Refer to [LAN-70, "Combination Meter Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—

MKIB2052E



CAN SYSTEM (TYPE 2)

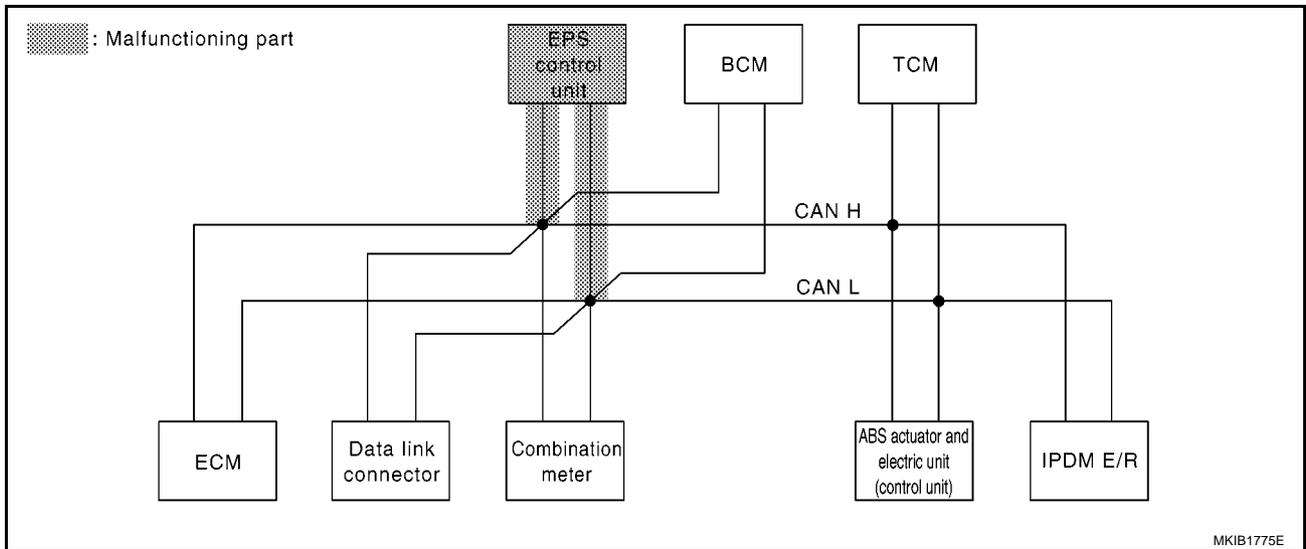
[CAN]

Case 5

Check EPS control unit circuit. Refer to [LAN-71, "EPS Control Unit Circuit Check"](#).

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—

MKIB2053E



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CAN SYSTEM (TYPE 2)

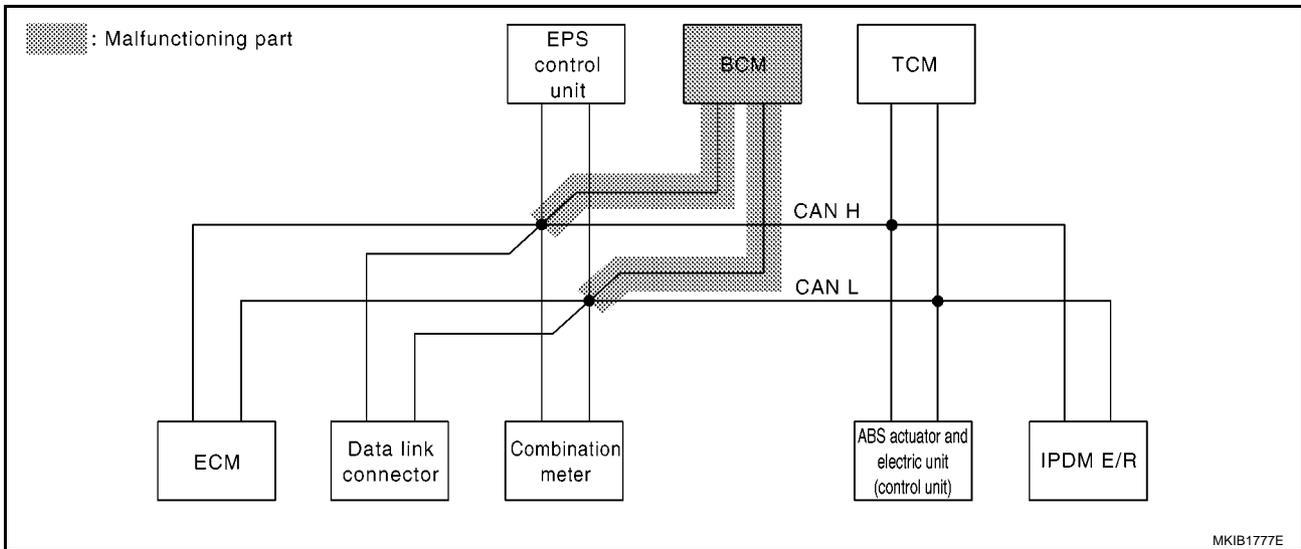
[CAN]

Case 6

Check BCM circuit. Refer to [LAN-72, "BCM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—

MKIB2054E



MKIB1777E

CAN SYSTEM (TYPE 2)

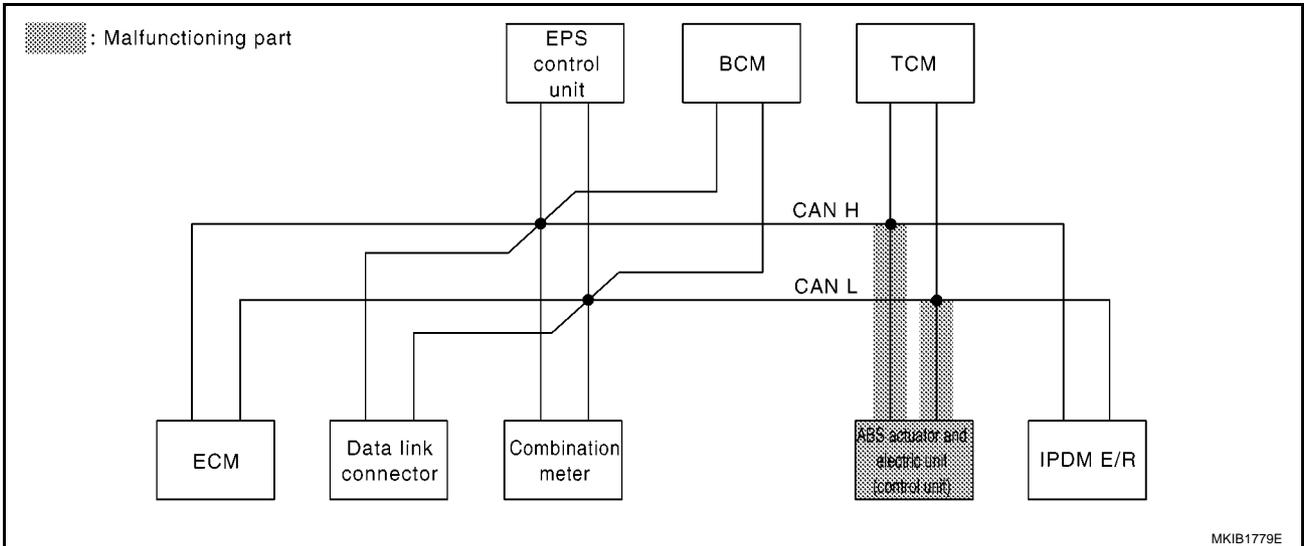
[CAN]

Case 7

Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-73, "ABS Actuator and Electric Unit \(Control Unit\) Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	UNKWN	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—

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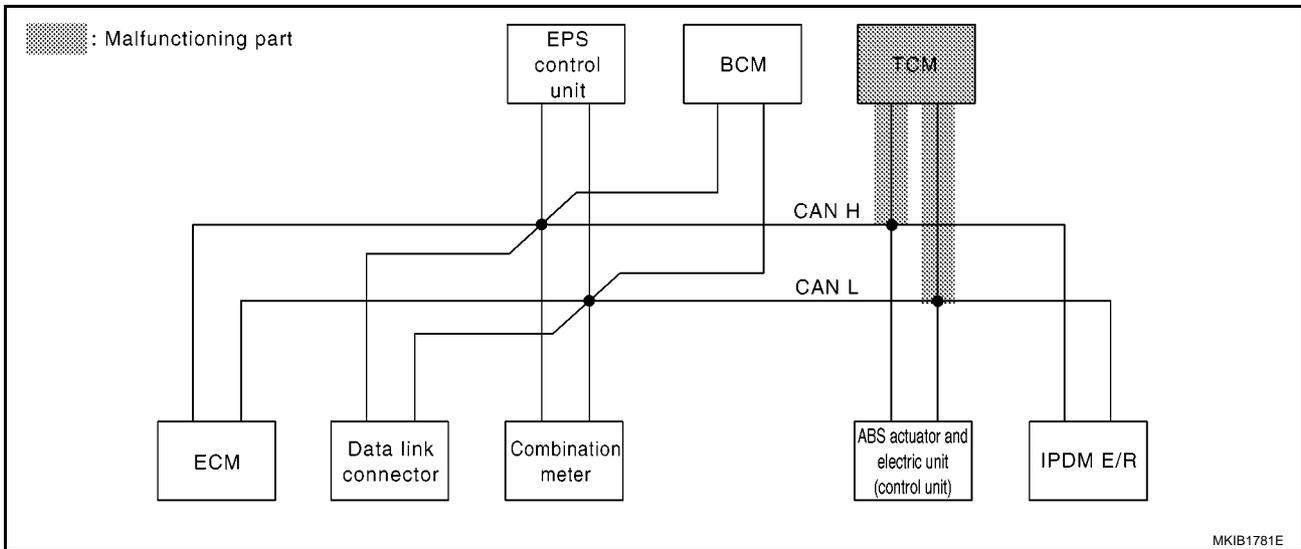
[CAN]

Case 8

Check TCM circuit. Refer to [LAN-74, "TCM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—

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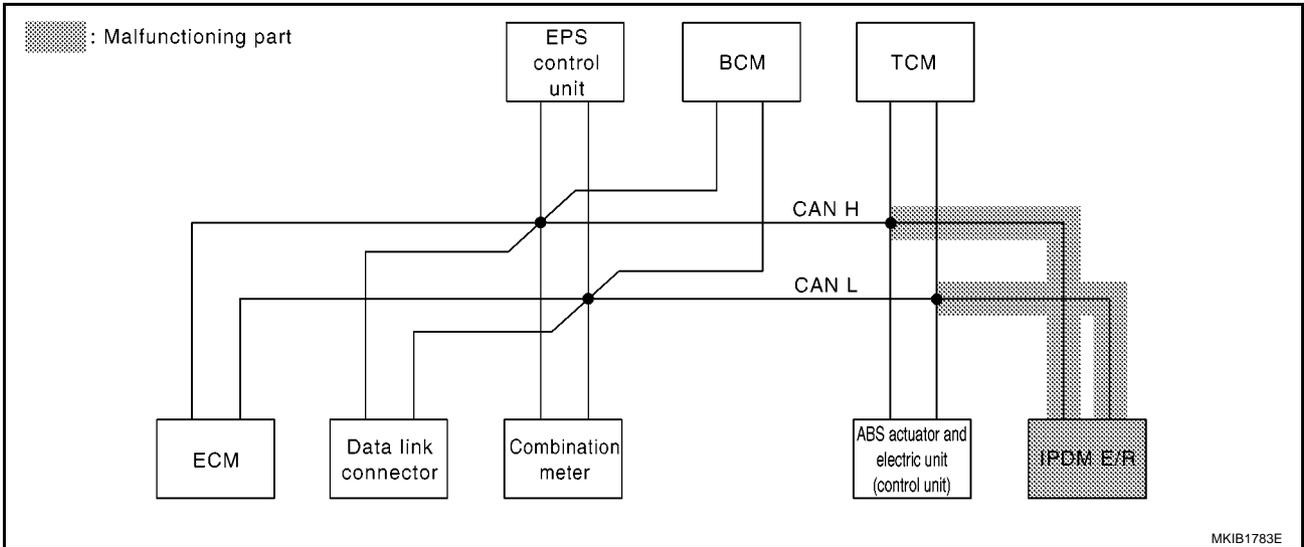
[CAN]

Case 9

Check IPDM E/R circuit. Refer to [LAN-75, "IPDM E/R Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R	
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN ✓
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN ✓
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—

MKIB2057E



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CAN SYSTEM (TYPE 2)

[CAN]

Case 10

Check CAN communication circuit. Refer to [LAN-76, "CAN Communication Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	-	NG	UNKW N	-	-	UNKW N				
EPS	No indication	-	UNKW N	UNKW N	UNKW N	-	UNKW N	UNKW N	-	-
BCM	No indication	-	UNKW N	UNKW N	UNKW N	-	-	UNKW N	-	UNKW N
ABS	No indication	NG	-	UNKW N	-	-	-	-	-	-
A/T	-	NG	UNKW N	UNKW N	UNKW N	-	-	-	-	-
IPDM E/R	No indication	-	UNKW N	UNKW N	-	-	UNKW N	-	-	-

MKIB2058E

Case 11

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to [LAN-79, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	-	NG	UNKW N	-	-	UNKW N				
EPS	No indication	-	UNKW N	UNKW N	UNKW N	-	UNKW N	UNKW N	-	-
BCM	No indication	-	UNKW N	UNKW N	UNKW N	-	-	UNKW N	-	UNKW N
ABS	No indication	NG	-	UNKW N	-	-	-	-	-	-
A/T	-	NG	UNKW N	UNKW N	UNKW N	-	-	-	-	-
IPDM E/R	No indication	-	UNKW N	UNKW N	-	-	UNKW N	-	-	-

MKIB2059E

Case 12

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to [LAN-79, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	-	NG	UNKW N	-	-	UNKW N				
EPS	No indication	-	UNKW N	UNKW N	UNKW N	-	UNKW N	UNKW N	-	-
BCM	No indication	-	UNKW N	UNKW N	UNKW N	-	-	UNKW N	-	UNKW N
ABS	No indication	UNKW N	-	UNKW N	-	-	-	-	-	-
A/T	-	NG	UNKW N	UNKW N	UNKW N	-	-	-	-	-
IPDM E/R	No indication	-	UNKW N	UNKW N	-	-	UNKW N	-	-	-

MKIB2060E

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

EKS00811

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M1
 - Harness connector E101

OK or NG

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

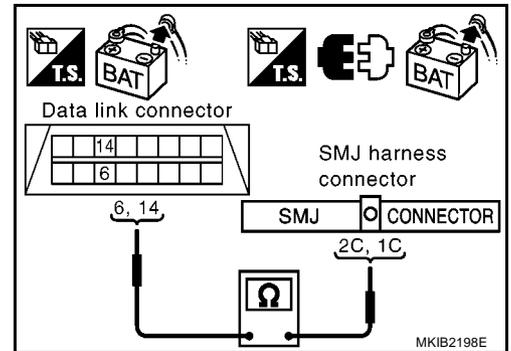
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect following connector.
 - Harness connector M1
2. Check continuity between data link connector M17 terminals 6 (R), 14 (W) and harness connector M1 terminals 2C (R), 1C (W).

6 (R) – 2C (R) : Continuity should exist.
14 (W) – 1C (W) : Continuity should exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness.



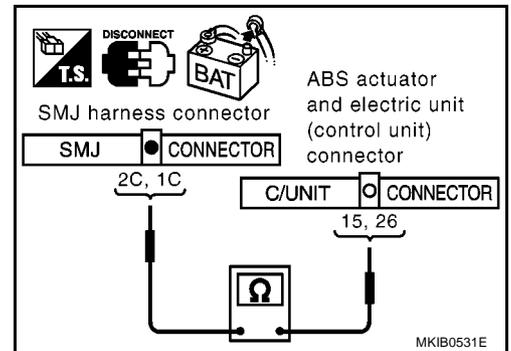
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between harness connector E101 terminals 2C (R), 1C (W) and ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R), 15 (W).

2C (R) – 26 (R) : Continuity should exist.
1C (W) – 15 (W) : Continuity should exist.

OK or NG

- OK >> Connect all the connectors and diagnosis again. Refer to [LAN-54, "Work Flow"](#) .
 NG >> Repair harness.



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ECM Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
 - ECM connector
 - Harness connector M1
 - Harness connector E101

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

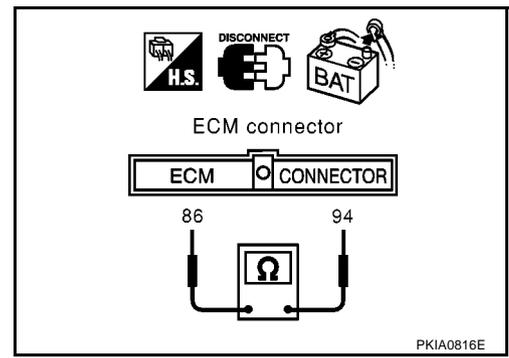
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E49 terminals 94 (R) and 86 (W).

94 (R) – 86 (W)**: Approx. 108 – 132Ω**OK or NG

OK >> Replace ECM.

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



Data Link Connector Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check data link connector and terminals for damage, bend and loose connection (connector side and harness side).

OK or NG

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

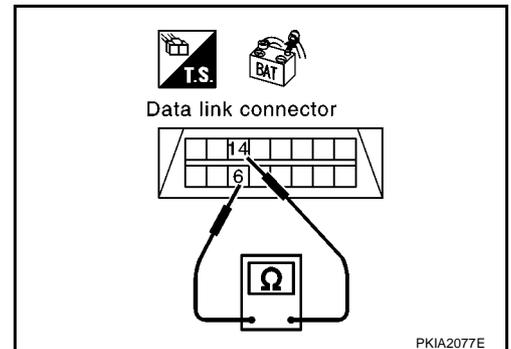
2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M17 terminals 6 (R) and 14 (W).

6 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Diagnosis again. Refer to [LAN-54, "Work Flow"](#) .
 NG >> Repair harness between data link connector and combination meter



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Combination Meter Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of combination meter for damage, bend and loose connection (meter side and harness side).

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M22 terminals 1 (R) and 2 (W).

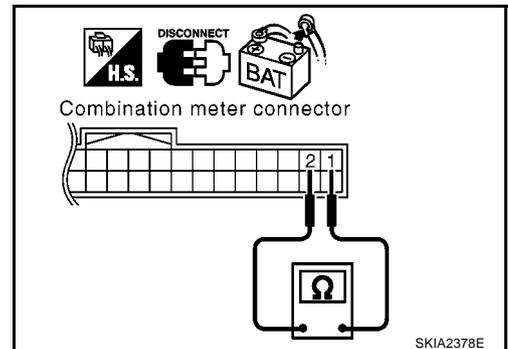
1 (R) – 2 (W)

: Approx. 54 – 66Ω

OK or NG

OK >> Replace combination meter

NG >> Repair harness between combination meter and data link connector.



EPS Control Unit Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

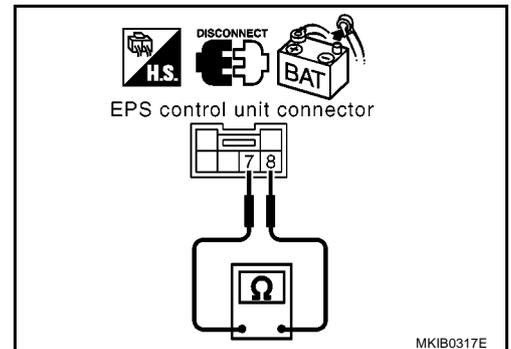
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect EPS control unit connector.
2. Check resistance between EPS control unit harness connector M23 terminals 8 (R) and 7 (W).

8 (R) – 7 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace EPS control unit.
 NG >> Repair harness between EPS control unit and data link connector.



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BCM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

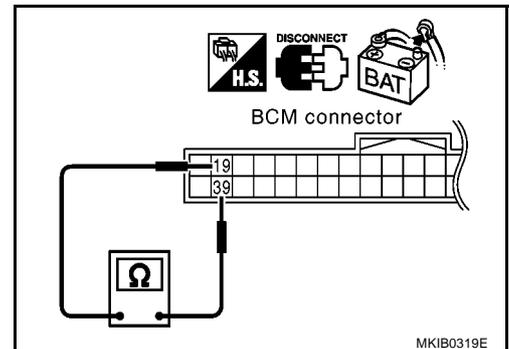
1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M48 terminals 19 (R) and 39 (W).

19 (R) – 39 (W) : Approx. 54 – 66Ω

OK or NG

OK >> Replace BCM. Refer to [BCS-30, "Removal and Installation of BCM"](#) .

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



ABS Actuator and Electric Unit (Control Unit) Circuit Check

EKS00817

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ABS actuator and electric unit (control unit) for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

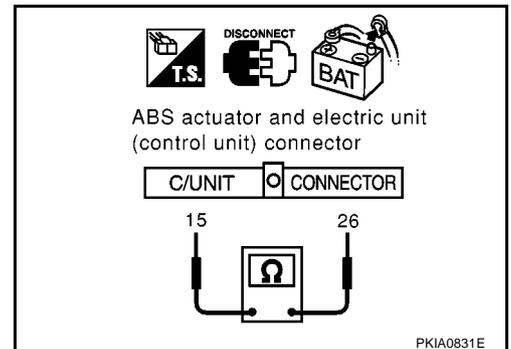
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R) and 15 (W).

26 (R) – 15 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace ABS actuator and electric unit (control unit).
 NG >> Repair harness between ABS actuator and electric unit (control unit) and TCM.

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TCM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

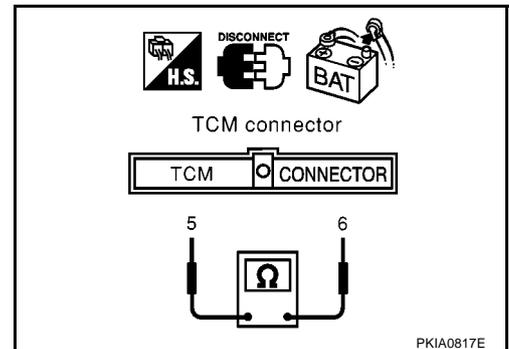
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector E105 terminals 5 (R) and 6 (W).

5 (R) – 6 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace TCM.
 NG >> Repair harness between TCM and IPDM E/R.



IPDM E/R Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

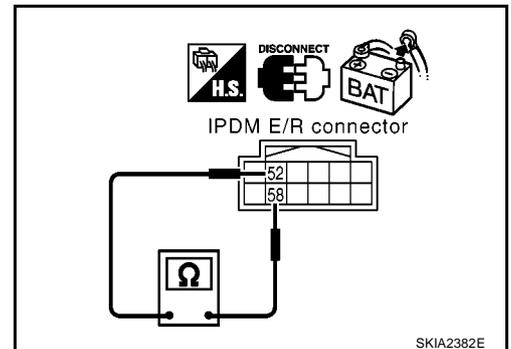
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check resistance between IPDM E/R harness connector E16 terminals 52 (R) and 58 (W).

52 (R) – 58 (W) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace IPDM E/R.
 NG >> Repair harness between IPDM E/R and TCM.



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CAN Communication Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

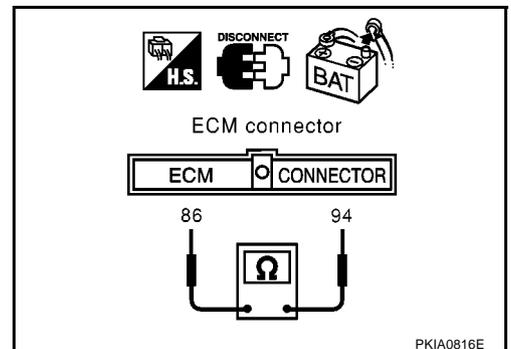
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E101.
2. Check continuity between ECM harness connector E49 terminals 94 (R) and 86 (W).

94 (R) – 86 (W) : Continuity should not exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness between ECM and harness connector E101.



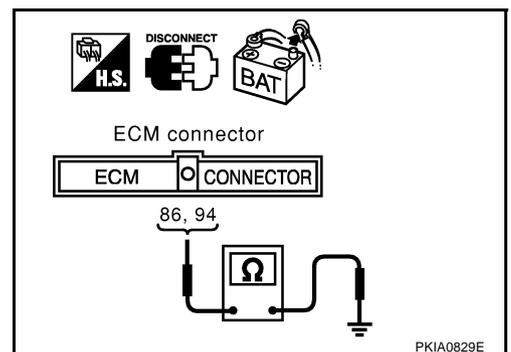
3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector E49 terminals 94 (R), 86 (W) and ground.

94 (R) – Ground : Continuity should not exist.
86 (W) – Ground : Continuity should not exist.

OK or NG

- OK >> GO TO 4.
 NG >> Repair harness between ECM and harness connector E101.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - ABS actuator and electric unit (control unit) connector
 - TCM connector
 - IPDM E/R connector
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R) and 15 (W).

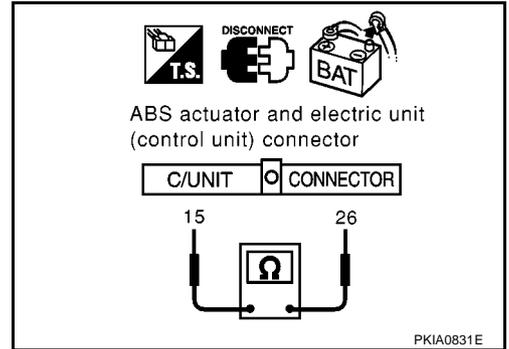
26 (R) – 15 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and TCM
- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R), 15 (W) and ground.

26 (R) – Ground : Continuity should not exist.

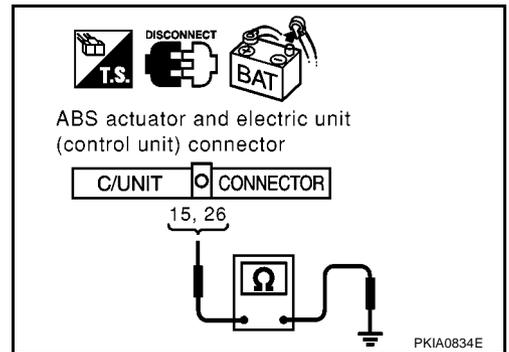
15 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and TCM
- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



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6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - Combination meter connector
 - EPS control unit connector
 - BCM connector
2. Check continuity between data link connector M17 terminals 6 (R) and 14 (W).

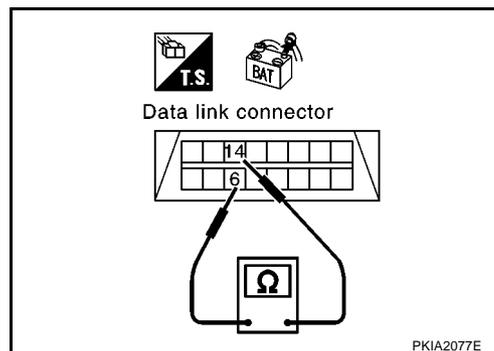
6 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M17 terminals 6 (R), 14 (W) and ground.

6 (R) – Ground : Continuity should not exist.

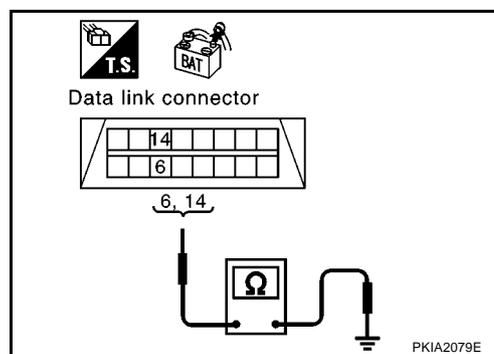
14 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM.



8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-79, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

OK >> Connect all the connectors and diagnosis again. Refer to [LAN-54, "Work Flow"](#).

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

IPDM E/R Ignition Relay Circuit Check

EKS0081B

Perform the self-diagnosis for IPDM E/R. Refer to [PG-49, "Inspection With CONSULT-II \(Self-Diagnosis\)"](#) . If the result is OK, carry out following inspections.

- IPDM E/R power supply circuit. Refer to [PG-50, "IPDM E/R Power Supply and Ground Circuit Check"](#) .
- Ignition power supply circuit. Refer to [PG-13, "IGNITION POWER SUPPLY — IGNITION SW. IN "ON" AND/OR "START" "](#) .

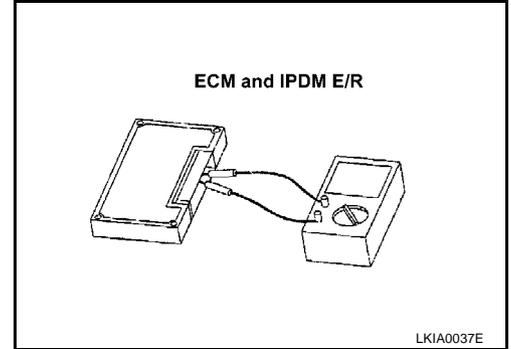
Component Inspection

EKS0081C

ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between IPDM E/R terminals 52 and 58.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	94 – 86	108 - 132
IPDM E/R	52 – 58	



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CAN SYSTEM (TYPE 3)

PFP:23710

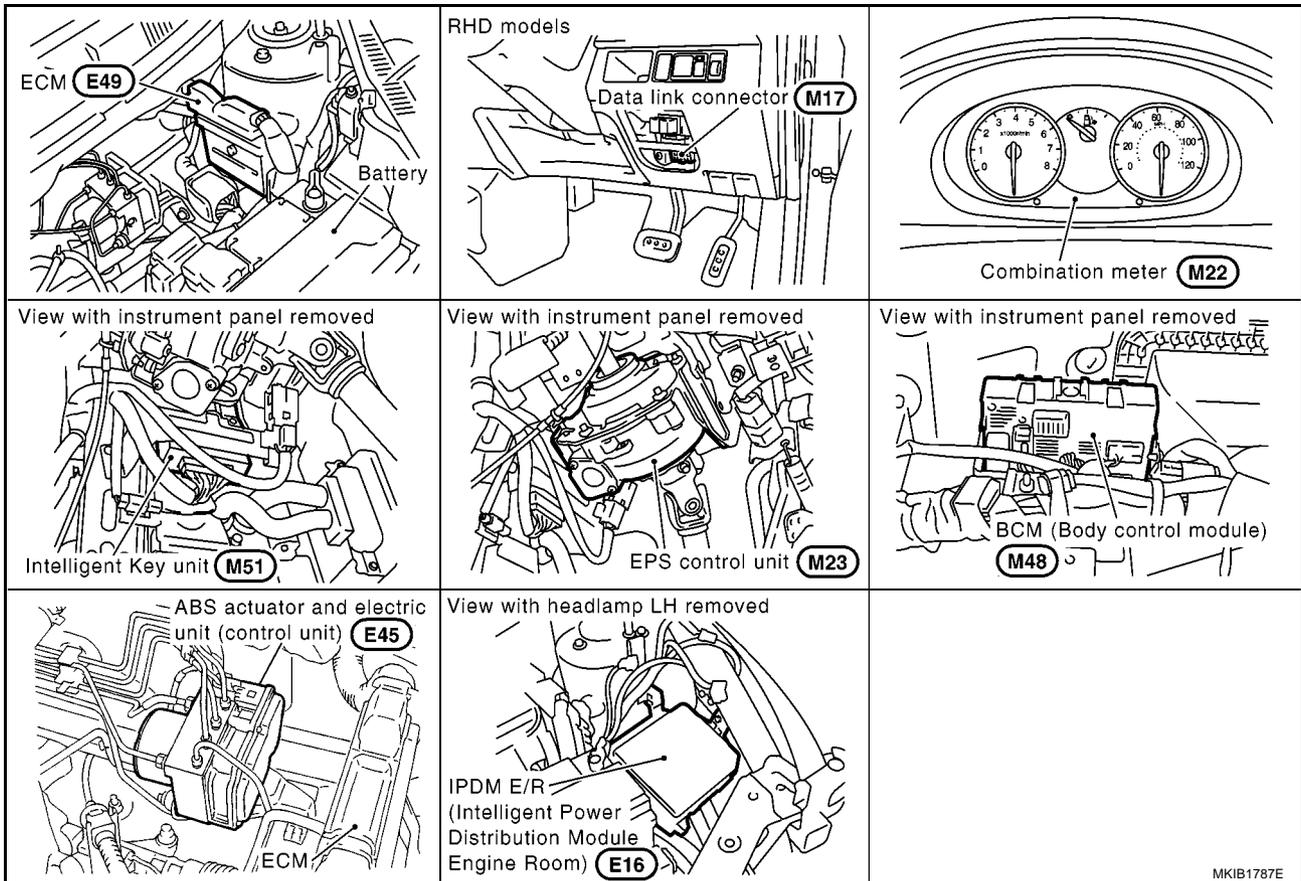
System Description

EKS0074L

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

EKS0074M



MKIB1787E

CAN SYSTEM (TYPE 3)

[CAN]

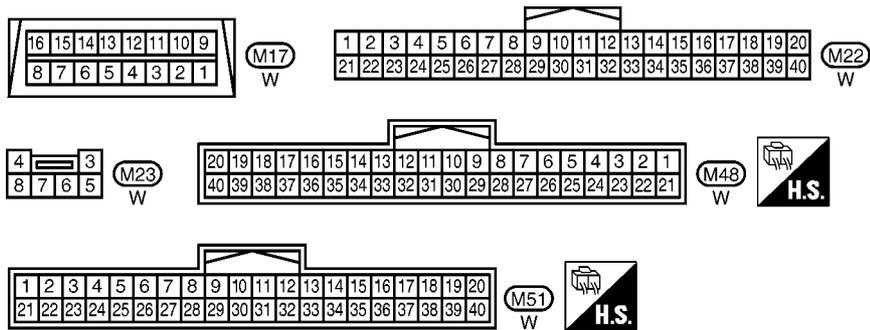
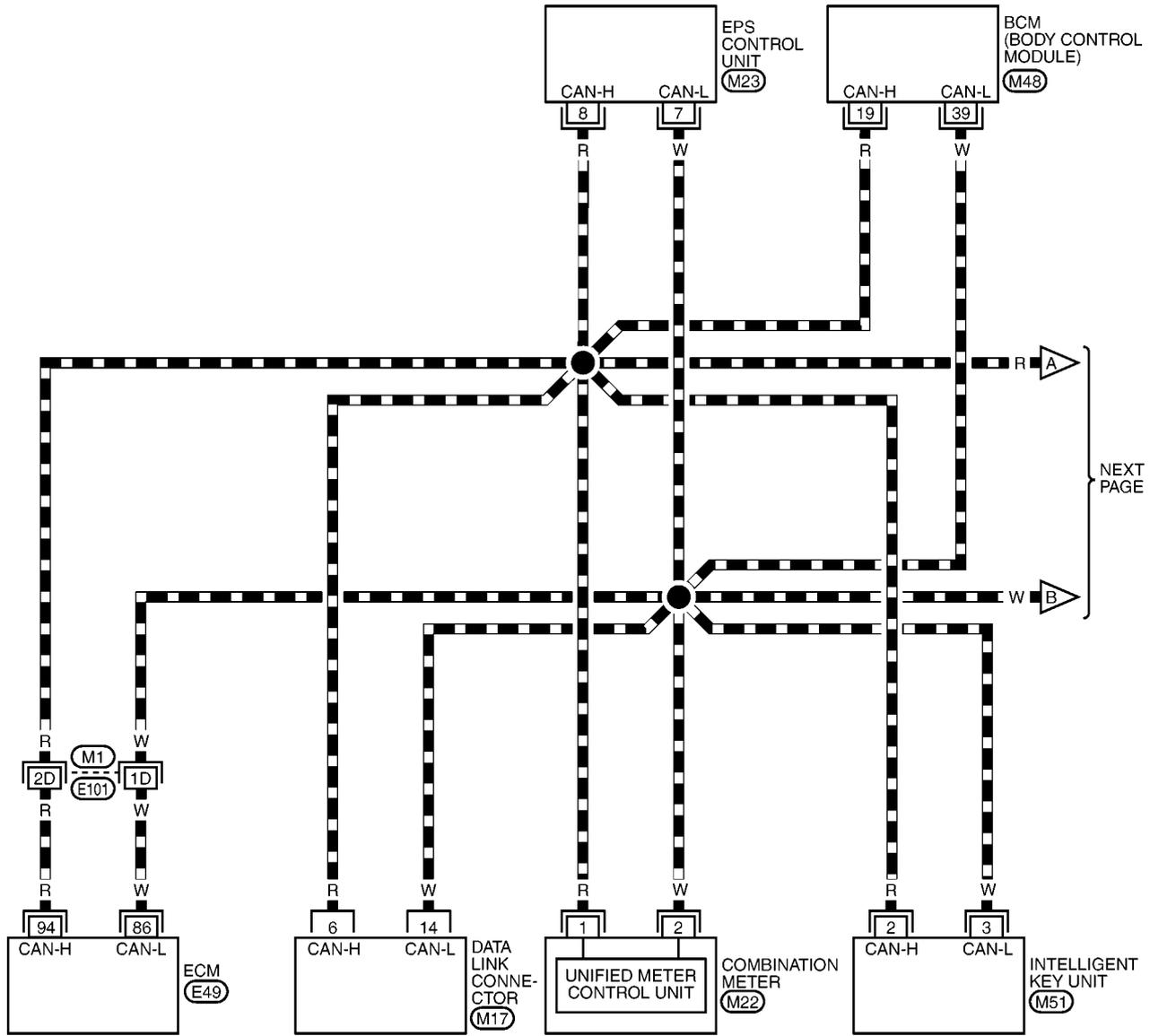
Wiring Diagram — CAN —

EKS007YF

LAN-CAN-05

▬ : DATA LINE

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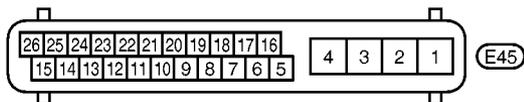
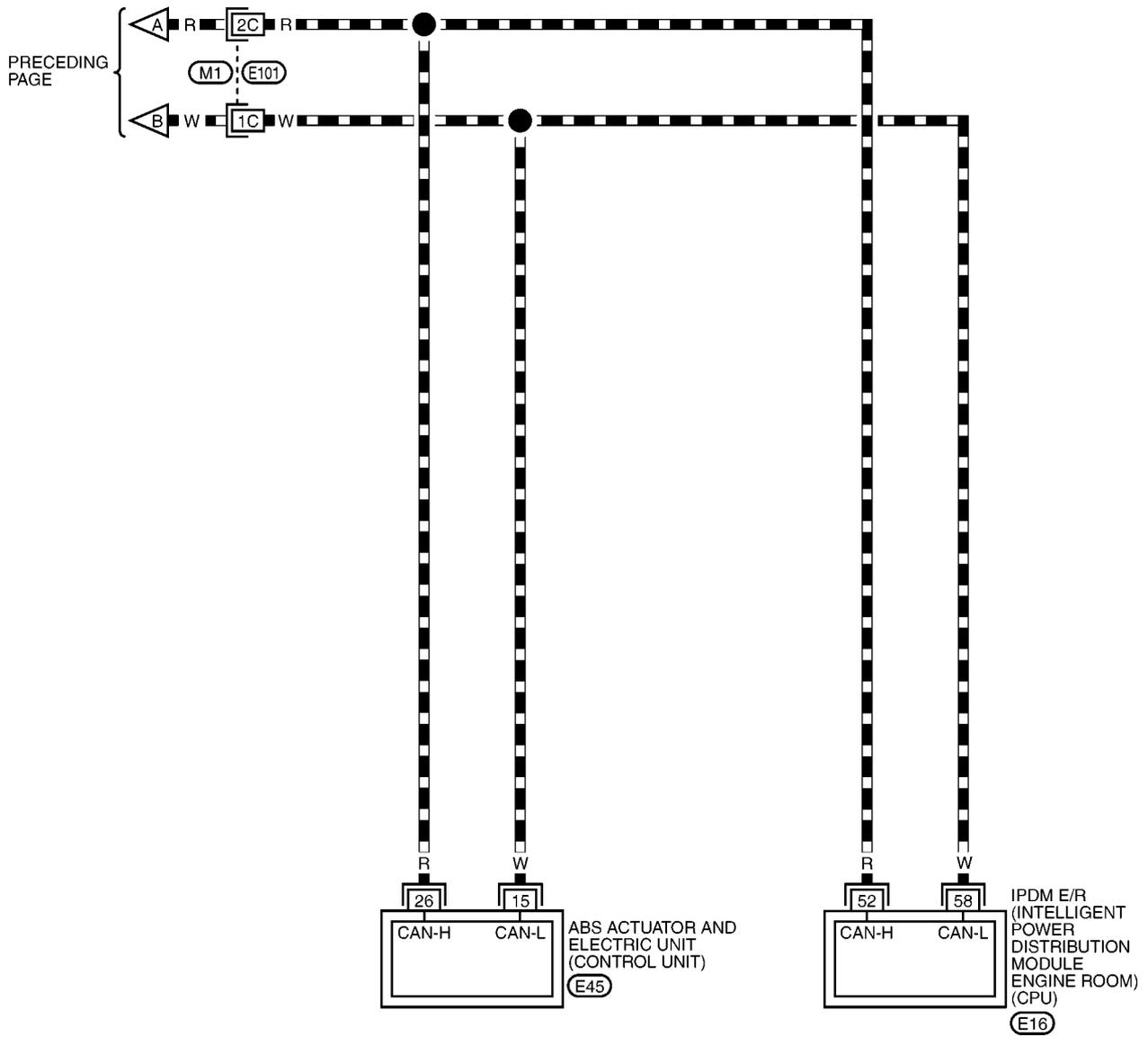
REFER TO THE FOLLOWING.

- (M1) -SUPER MULTIPLE JUNCTION (SMJ)
- (E49) -ELECTRICAL UNITS

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LAN-CAN-06

▬ : DATA LINE



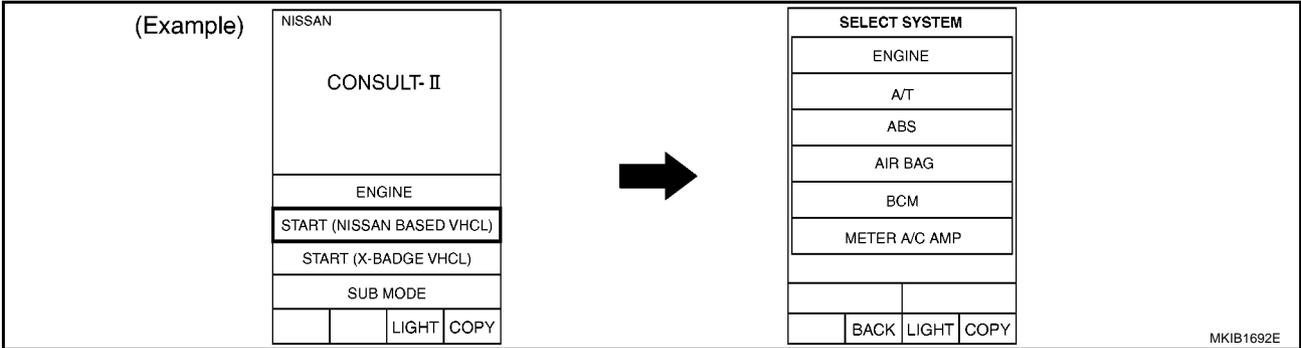
REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

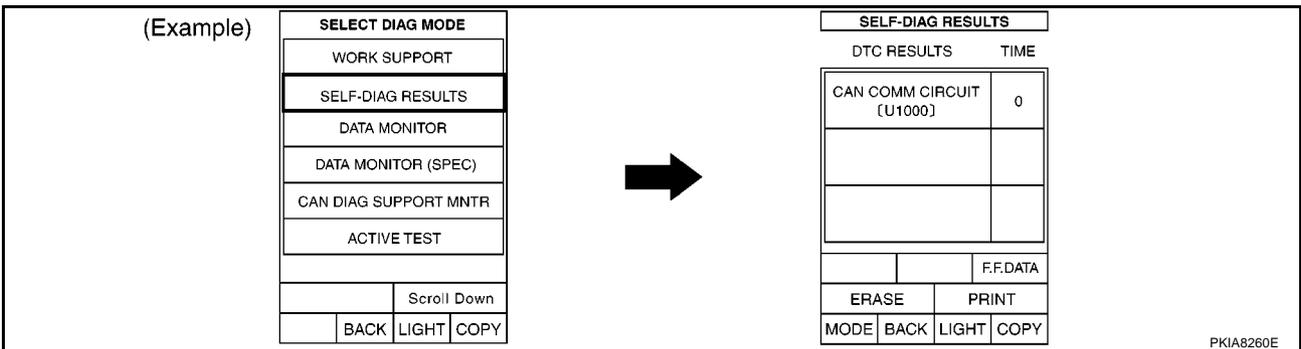
Work Flow

EKS0081D

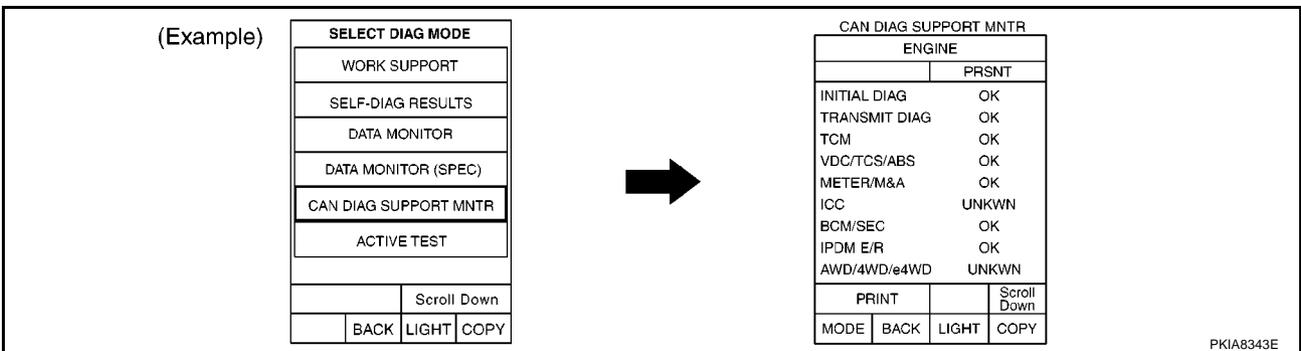
- When there are no indications of "INTELLIGENT KEY", "EPS", "BCM" or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



- Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "INTELLIGENT KEY", "EPS", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



- Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "INTELLIGENT KEY", "EPS", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



- Attach the printed sheet of "SELECT SYSTEM", "SELF-DIAG RESULTS" and "CAN DIAG SUPPORT MNTR" onto the check sheet. Refer to [LAN-84, "CHECK SHEET"](#) .
- Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks "v" onto the items with "No indication", "NG", or "UNKWVN" in the check sheet table. Refer to [LAN-84, "CHECK SHEET"](#) .

NOTE:

- If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- The "CAN DIAG SUPPORT MNTR" items, which are not in check sheet table, are not related to diagnostic procedure on service manual. So it is not necessary to check the status of "CAN DIAG SUPPORT MNTR" items which are not indicated in check sheet table.

- According to the check sheet results (example), start inspection. Refer to [LAN-86, "CHECK SHEET RESULTS \(EXAMPLE\)"](#) .

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CAN SYSTEM (TYPE 3)

[CAN]

CHECK SHEET

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	-	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	-	-	UNKWN	-	-
EPS	No indication	-	UNKWN	UNKWN	UNKWN	-	-	UNKWN	UNKWN	-
BCM	No indication	-	UNKWN	UNKWN	UNKWN	UNKWN	-	-	UNKWN	UNKWN
ABS	No indication	NG	-	UNKWN	-	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-

Symptoms:

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SELECT SYSTEM

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SELECT SYSTEM

CAN SYSTEM (TYPE 3)

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SELF-DIAG RESULTS

Attach copy of
INTELLIGENT KEY
SELF-DIAG RESULTS

Attach copy of
EPS
SELF-DIAG RESULTS

Attach copy of
BCM
SELF-DIAG RESULTS

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ABS
SELF-DIAG RESULTS

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IPDM E/R
SELF-DIAG RESULTS

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INTELLIGENT KEY
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EPS
CAN DIAG SUPPORT
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ABS
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IPDM
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MKIB2190E

CAN SYSTEM (TYPE 3)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

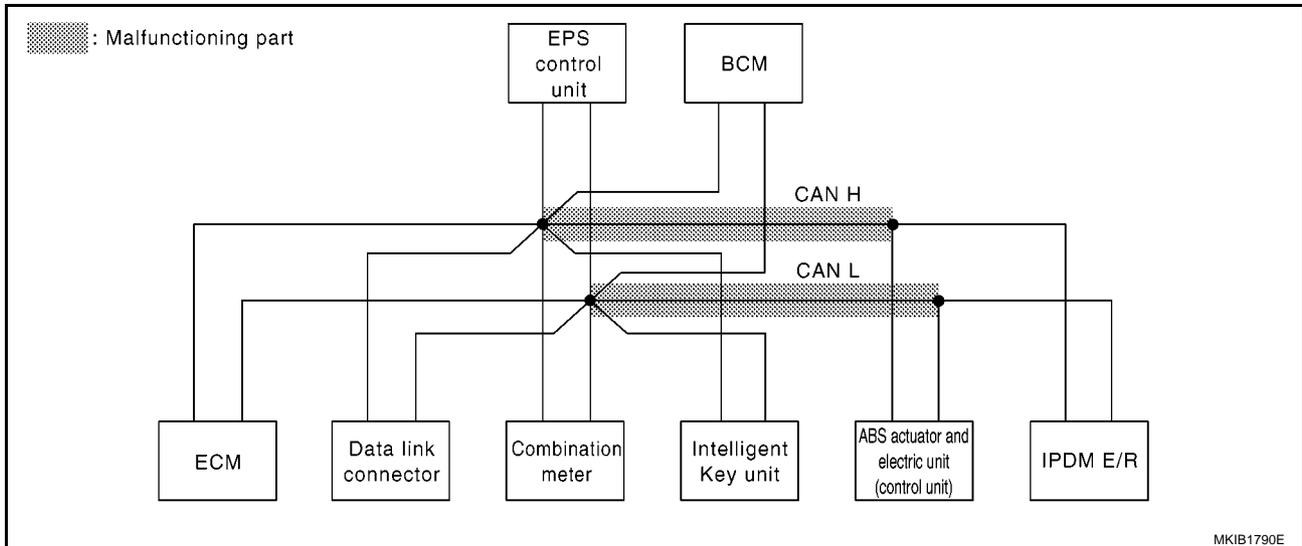
If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

Case 1

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to [LAN-96, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit \(Control Unit\)"](#).

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2062E



CAN SYSTEM (TYPE 3)

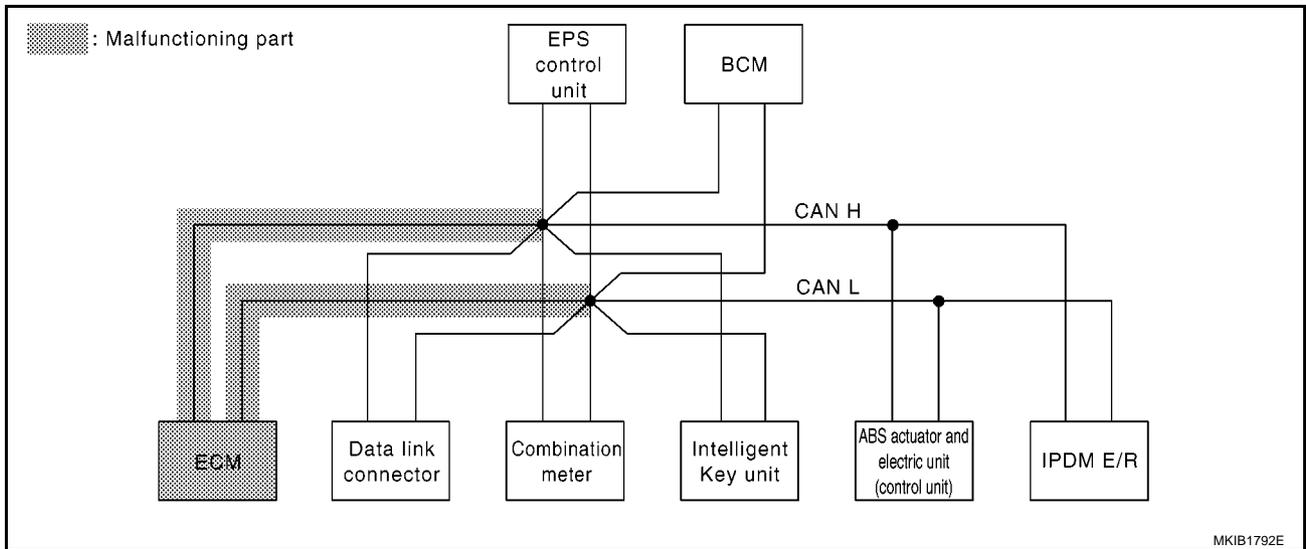
[CAN]

Case 2

Check ECM circuit. Refer to [LAN-97, "ECM Circuit Check"](#).

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	✓	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 3)

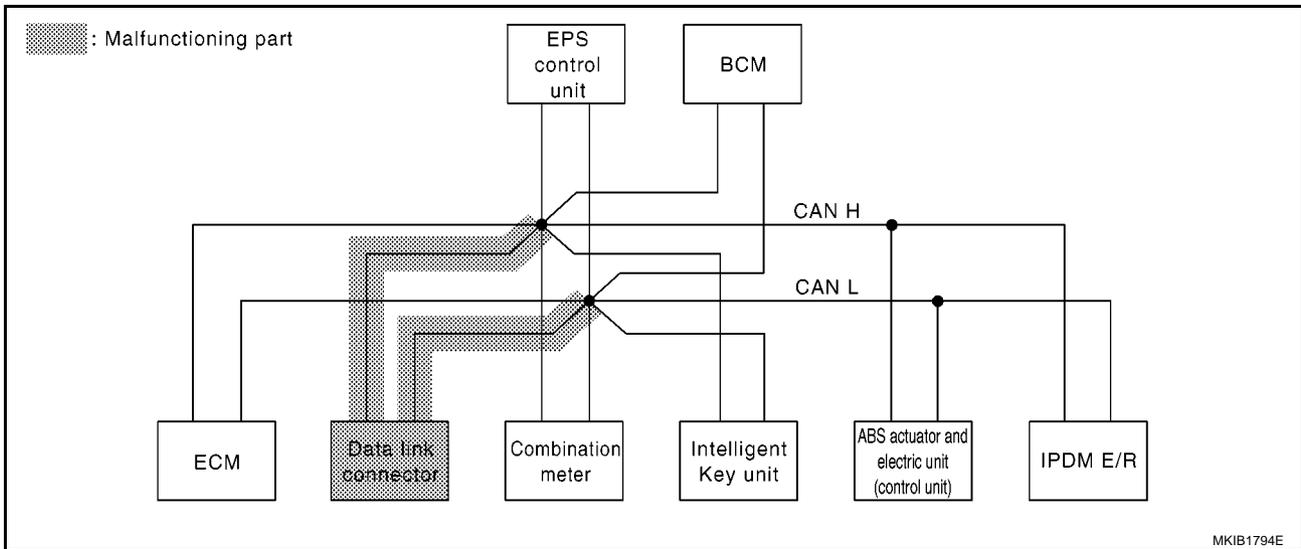
[CAN]

Case 3

Check data link connector circuit. Refer to [LAN-98, "Data Link Connector Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 3)

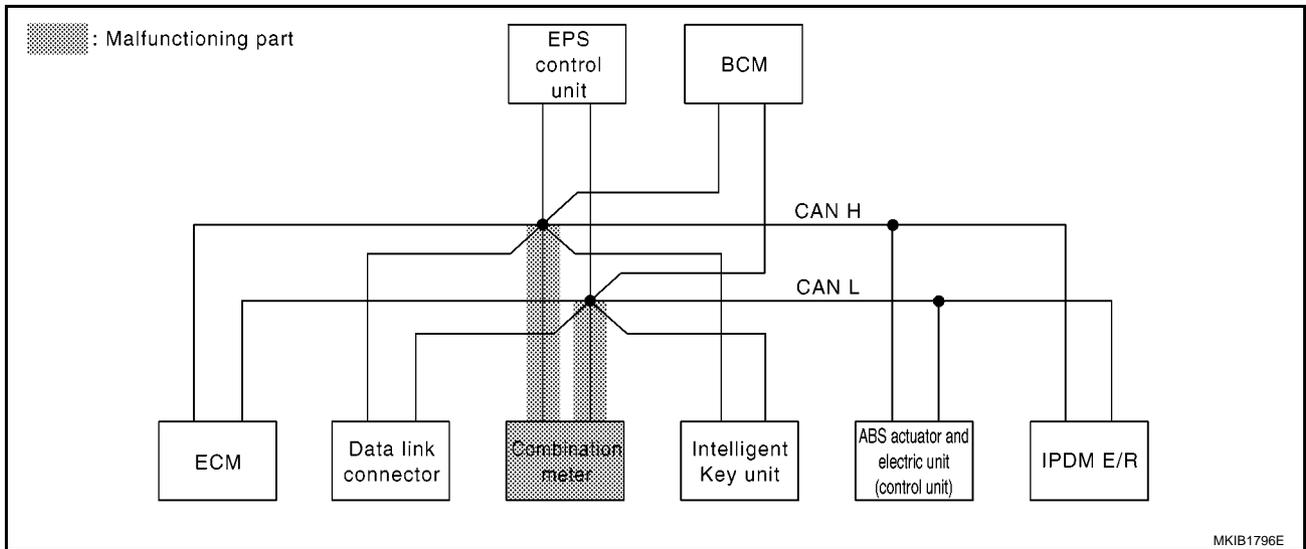
[CAN]

Case 4

Check combination meter circuit. Refer to [LAN-99, "Combination Meter Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 3)

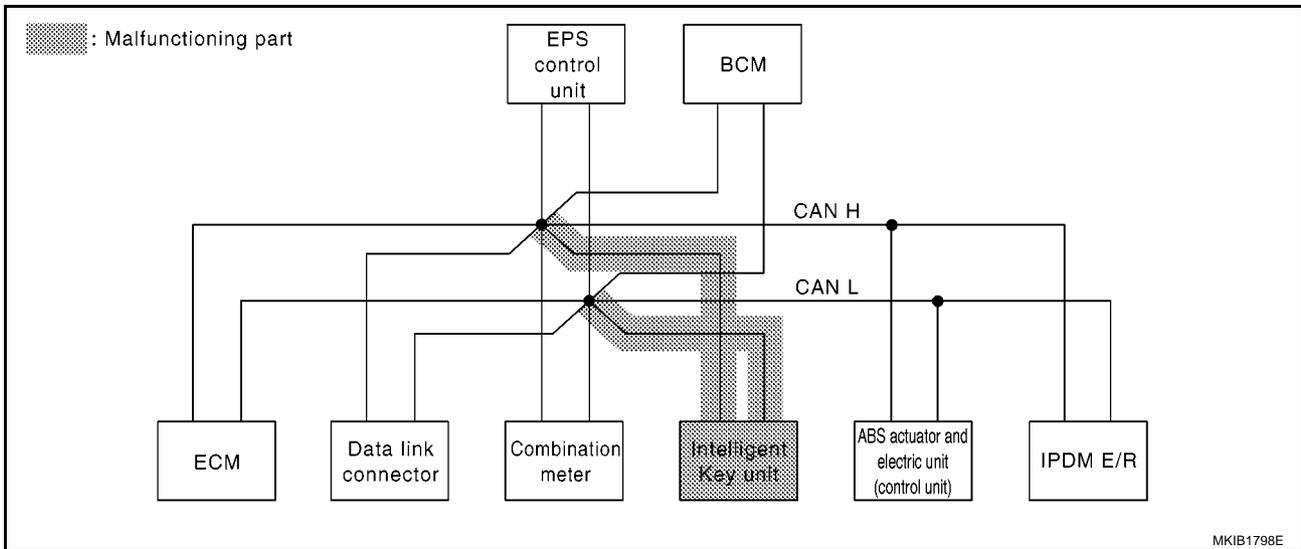
[CAN]

Case 5

Check Intelligent Key unit circuit. Refer to [LAN-100, "Intelligent Key Unit Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 3)

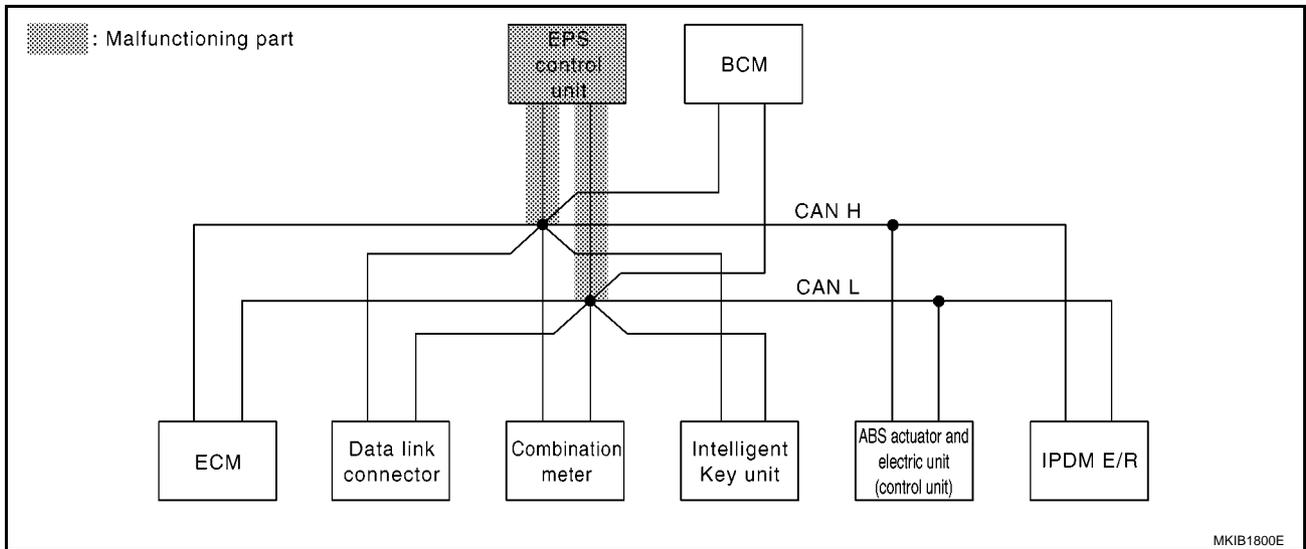
[CAN]

Case 6

Check EPS control unit circuit. Refer to [LAN-101, "EPS Control Unit Circuit Check"](#).

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 3)

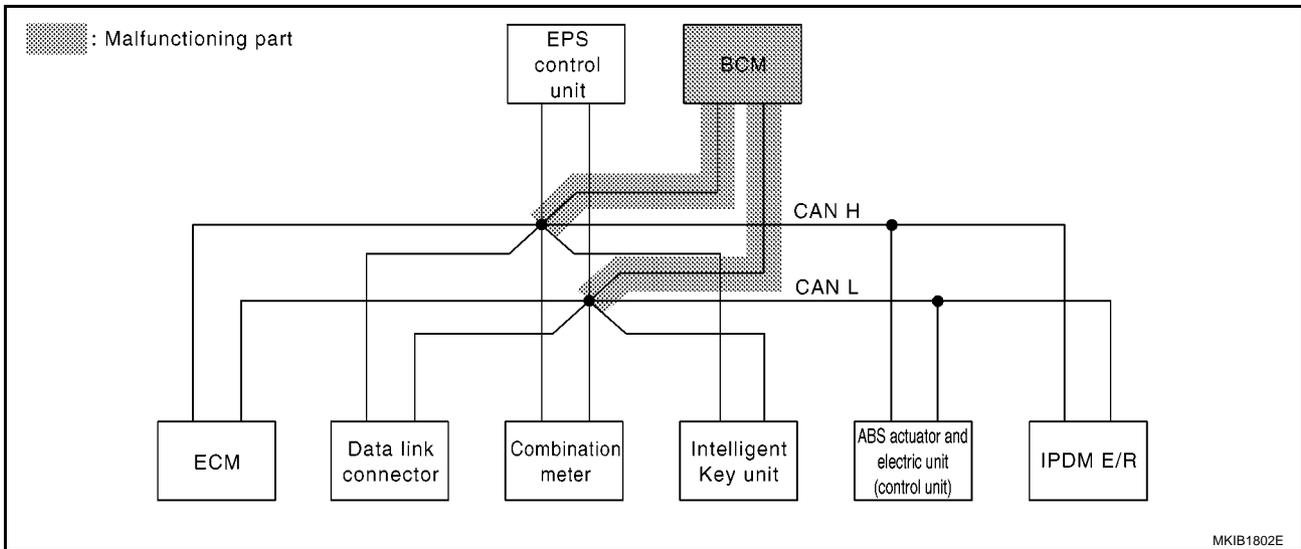
[CAN]

Case 7

Check BCM circuit. Refer to [LAN-102, "BCM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2068E



CAN SYSTEM (TYPE 3)

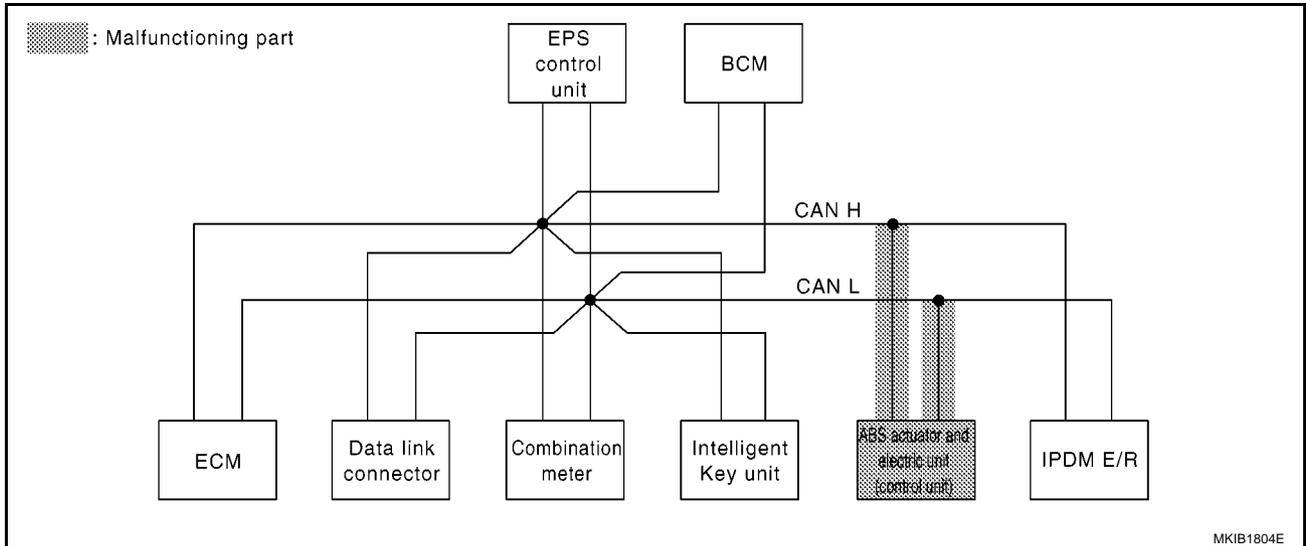
[CAN]

Case 8

Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-103, "ABS Actuator and Electric Unit \(Control Unit\) Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2069E



LAN

CAN SYSTEM (TYPE 3)

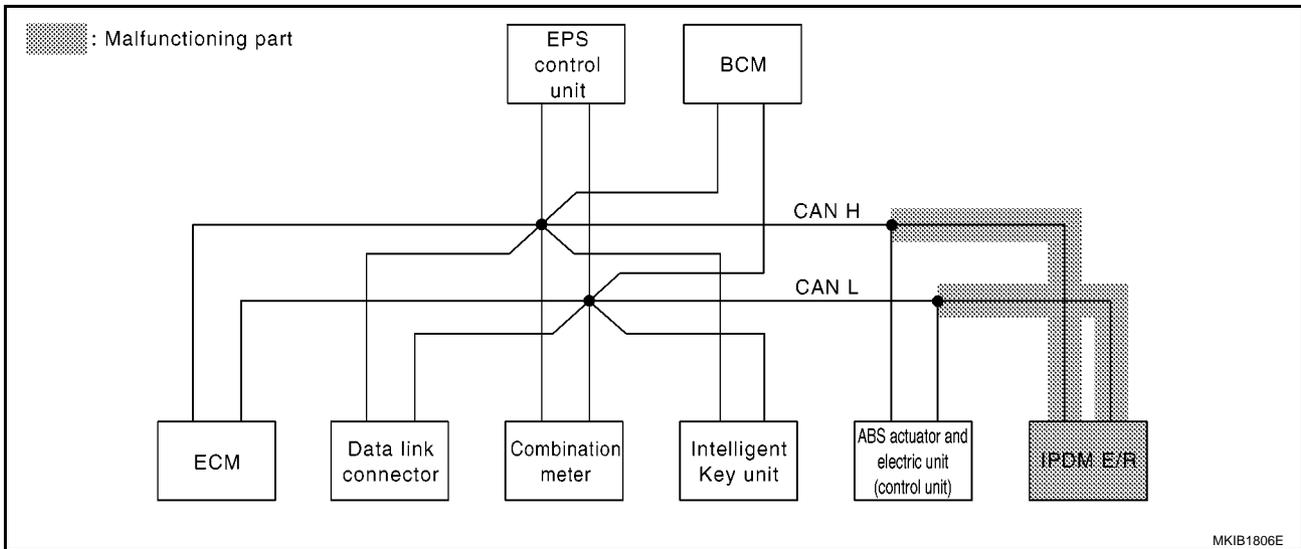
[CAN]

Case 9

Check IPDM E/R circuit. Refer to [LAN-104, "IPDM E/R Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2070E



CAN SYSTEM (TYPE 3)

[CAN]

Case 10

Check CAN communication circuit. Refer to [LAN-105, "CAN Communication Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2071E

Case 11

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to [LAN-108, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2072E

Case 12

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

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2073E

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LAN

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

EKS0081E

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M1
 - Harness connector E101

OK or NG

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

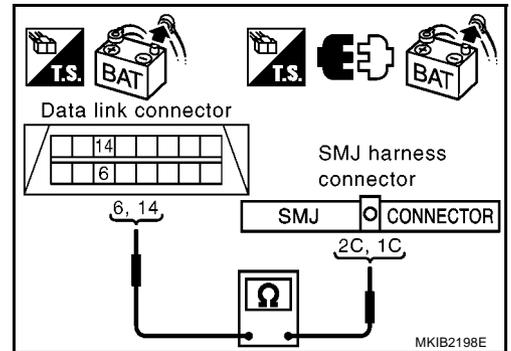
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect following connector.
 - Harness connector M1
2. Check continuity between data link connector M17 terminals 6 (R), 14 (W) and harness connector M1 terminals 2C (R), 1C (W).

6 (R) – 2C (R) : Continuity should exist.
14 (W) – 1C (W) : Continuity should exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness.



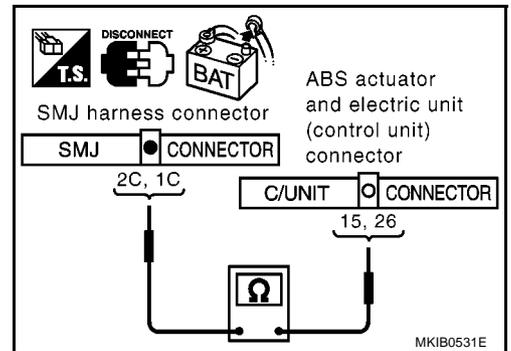
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between harness connector E101 terminals 2C (R), 1C (W) and ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R), 15 (W).

2C (R) – 26 (R) : Continuity should exist.
1C (W) – 15 (W) : Continuity should exist.

OK or NG

- OK >> Connect all the connectors and diagnosis again. Refer to [LAN-83. "Work Flow"](#) .
 NG >> Repair harness.



ECM Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
 - ECM connector
 - Harness connector M1
 - Harness connector E101

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

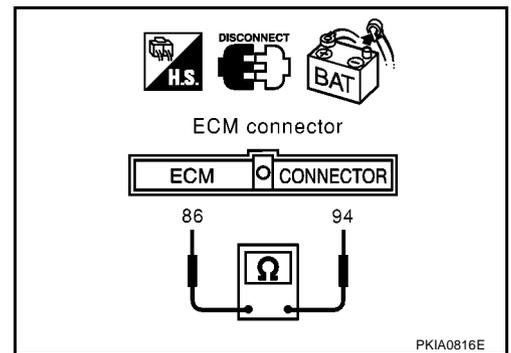
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E49 terminals 94 (R) and 86 (W).

94 (R) – 86 (W)**: Approx. 108 – 132Ω****OK or NG**

OK >> Replace ECM.

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



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Data Link Connector Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check the data link connector and terminals for damage, bend and loose connection (connector side and harness side).

OK or NG

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

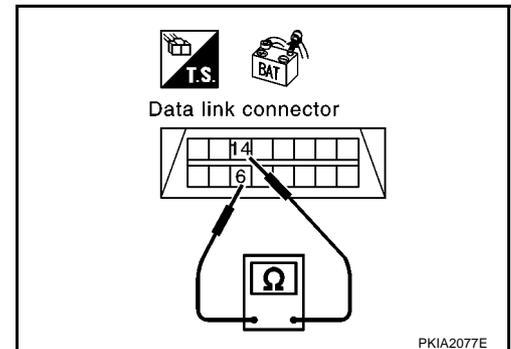
2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M17 terminals 6 (R) and 14 (W).

6 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Diagnosis again. Refer to [LAN-83, "Work Flow"](#) .
 NG >> Repair harness between data link connector and combination meter



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

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of combination meter for damage, bend and loose connection (meter side and harness side).

OK or NG

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

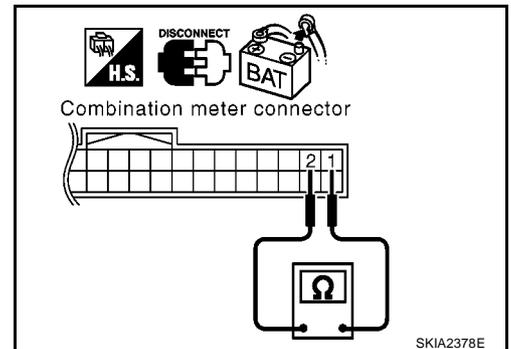
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M22 terminals 1 (R) and 2 (W).

1 (R) – 2 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between combination meter and data link connector.



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Intelligent Key Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of Intelligent Key unit for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

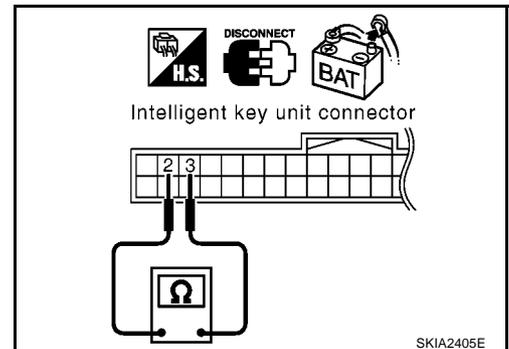
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect Intelligent Key unit connector.
2. Check resistance between Intelligent Key unit harness connector M51 terminals 2 (R) and 3 (W).

2 (R) – 3 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace Intelligent Key unit.
 NG >> Repair harness between Intelligent Key unit and data link connector.



EPS Control Unit Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

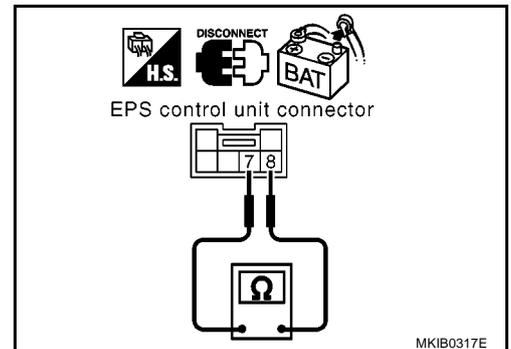
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect EPS control unit connector.
2. Check resistance between EPS control unit harness connector M23 terminals 8 (R) and 7 (W).

8 (R) – 7 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace EPS control unit.
 NG >> Repair harness between EPS control unit and data link connector.



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BCM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

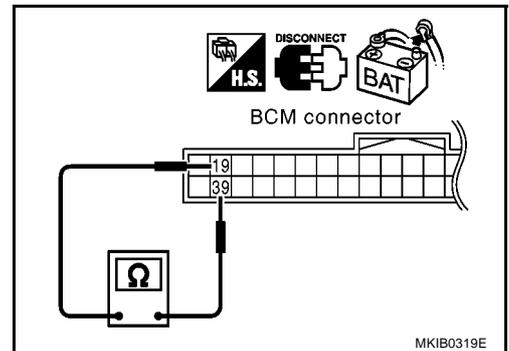
1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M48 terminals 19 (R) and 39 (W).

19 (R) – 39 (W) : Approx. 54 – 66Ω

OK or NG

OK >> Replace BCM. Refer to [BCS-30, "Removal and Installation of BCM"](#) .

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



ABS Actuator and Electric Unit (Control Unit) Circuit Check

EKS0081L

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ABS actuator and electric unit (control unit) for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

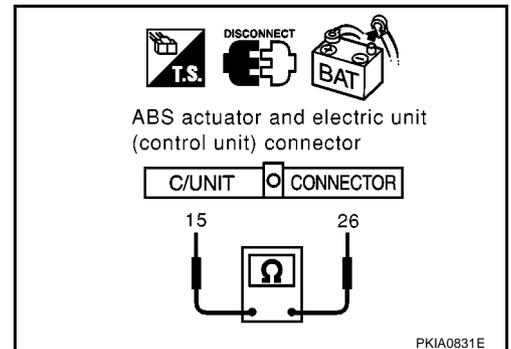
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R) and 15 (W).

26 (R) – 15 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace ABS actuator and electric unit (control unit).
 NG >> Repair harness between ABS actuator and electric unit (control unit) and IPDM E/R.



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IPDM E/R Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

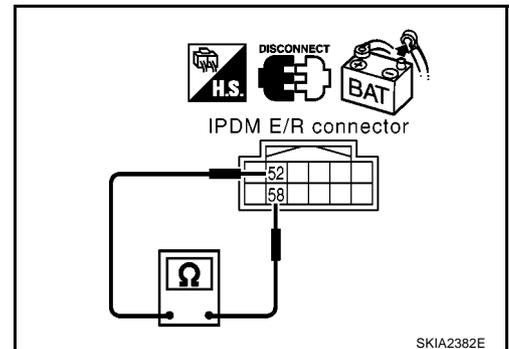
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check resistance between IPDM E/R harness connector E16 terminals 52 (R) and 58 (W).

52 (R) – 58 (W) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace IPDM E/R.
 NG >> Repair harness between IPDM E/R and ABS actuator and electric unit (control unit).



CAN Communication Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side, meter side, control unit side and harness side).
 - ECM
 - Combination meter
 - Intelligent Key unit
 - EPS control unit
 - BCM
 - ABS actuator and electric unit (control unit)
 - IPDM E/R
 - Between ECM and IPDM E/R

OK or NG

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

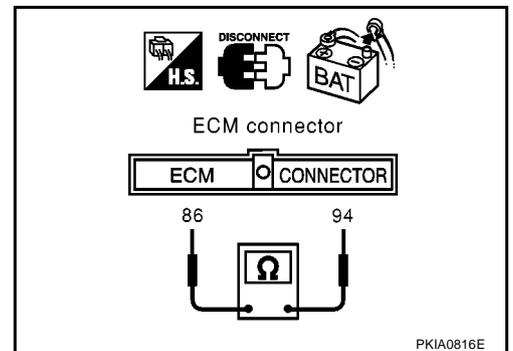
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E101.
2. Check continuity between ECM harness connector E49 terminals 94 (R) and 86 (W).

94 (R) – 86 (W) : Continuity should not exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness between ECM and harness connector E101.



3. CHECK HARNESS FOR SHORT CIRCUIT

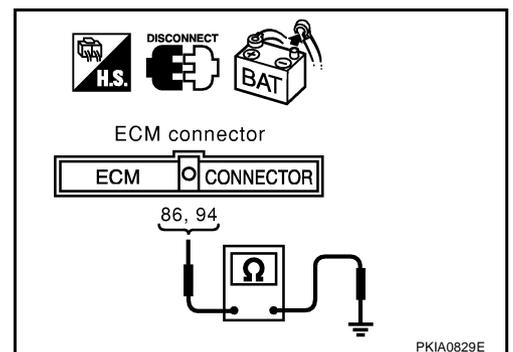
Check continuity between ECM harness connector E49 terminals 94 (R), 86 (W) and ground.

94 (R) – Ground : Continuity should not exist.

86 (W) – Ground : Continuity should not exist.

OK or NG

- OK >> GO TO 4.
 NG >> Repair harness between ECM and harness connector E101.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - ABS actuator and electric unit (control unit) connector
 - IPDM E/R connector
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R) and 15 (W).

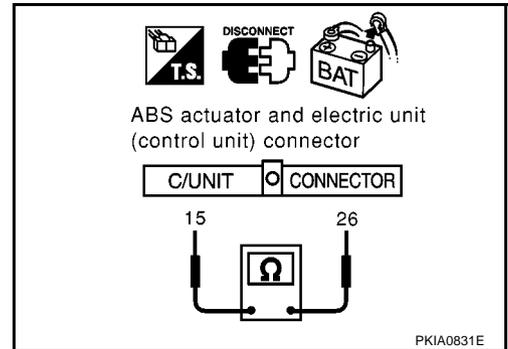
26 (R) – 15 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R), 15 (W) and ground.

26 (R) – Ground : Continuity should not exist.

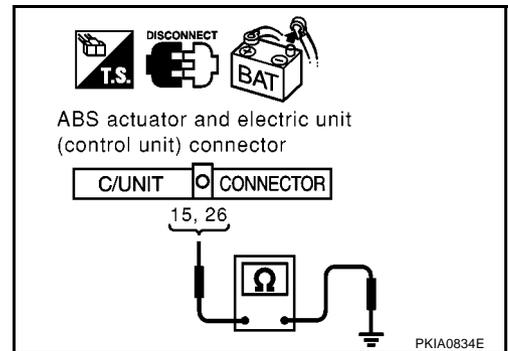
15 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - Combination meter connector
 - Intelligent Key unit connector
 - EPS control unit connector
 - BCM connector
2. Check continuity between data link connector M17 terminals 6 (R) and 14 (W).

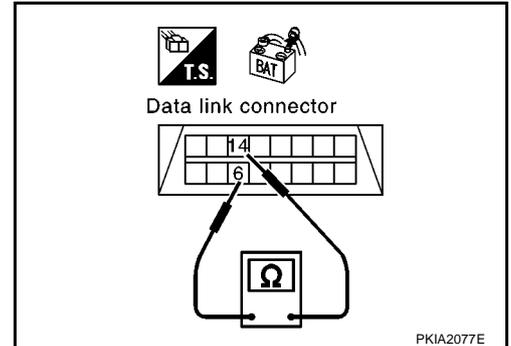
6 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and Intelligent Key unit
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M17 terminals 6 (R), 14 (W) and ground.

6 (R) – Ground : Continuity should not exist.

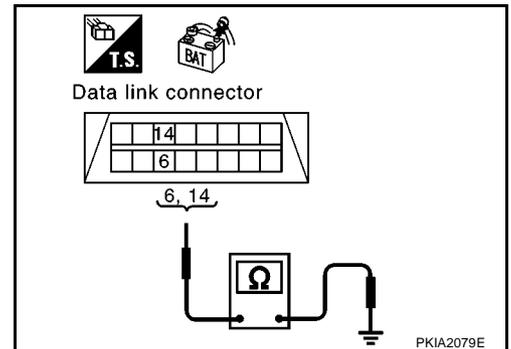
14 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and Intelligent Key unit
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-108, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION"](#) .

OK or NG

OK >> Connect all the connectors and diagnosis again. Refer to [LAN-83, "Work Flow"](#) .

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

IPDM E/R Ignition Relay Circuit Check

EKS0081O

Perform the self-diagnosis for IPDM E/R. Refer to [PG-49, "Inspection With CONSULT-II \(Self-Diagnosis\)"](#) . If the result is OK, carry out following inspections.

- IPDM E/R power supply circuit. Refer to [PG-50, "IPDM E/R Power Supply and Ground Circuit Check"](#) .
- Ignition power supply circuit. Refer to [PG-13, "IGNITION POWER SUPPLY — IGNITION SW. IN "ON" AND/OR "START""](#) .

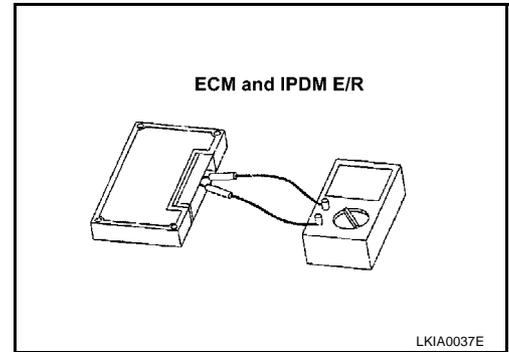
Component Inspection

EKS0081P

ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between IPDM E/R terminals 52 and 58.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	94 – 86	108 - 132
IPDM E/R	52 – 58	



CAN SYSTEM (TYPE 4)

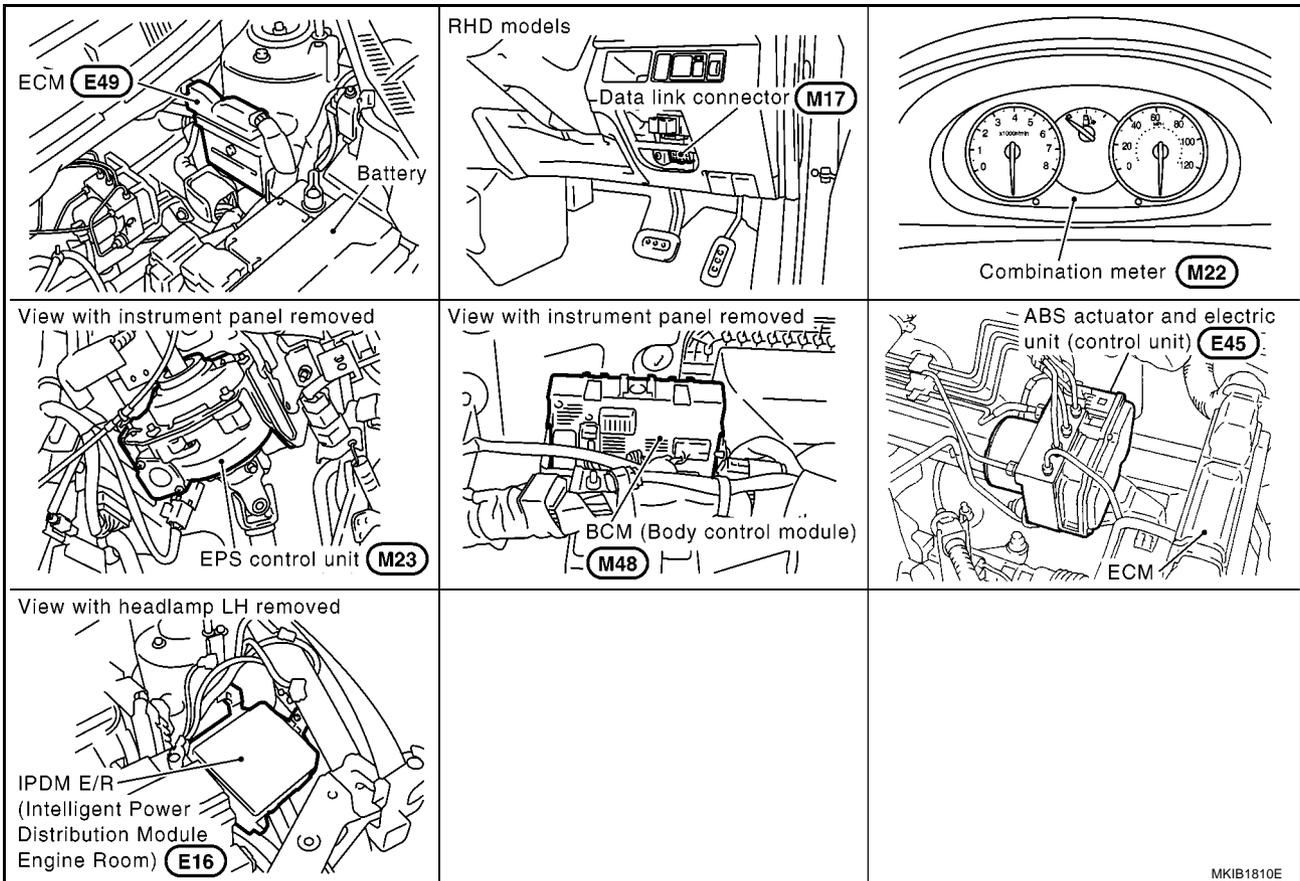
System Description

EKS00754

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

EKS00755



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CAN SYSTEM (TYPE 4)

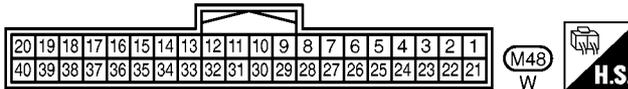
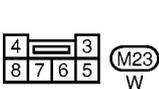
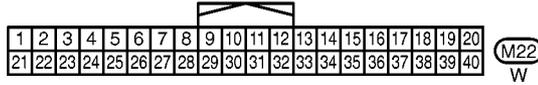
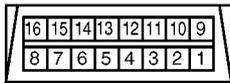
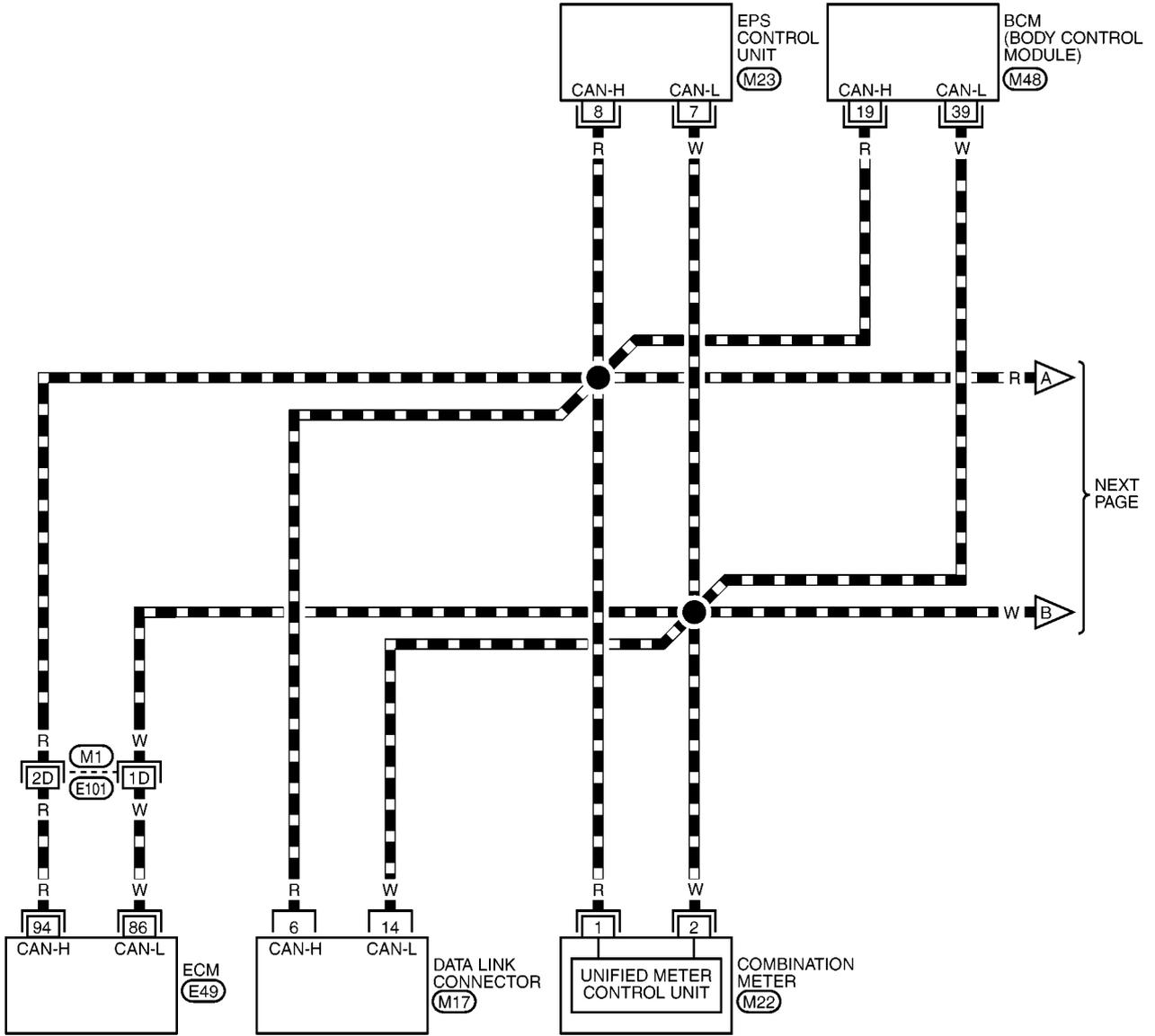
[CAN]

EKS007YU

Wiring Diagram — CAN —

LAN-CAN-07

▬ : DATA LINE



REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

(E49) -ELECTRICAL UNITS

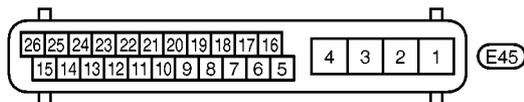
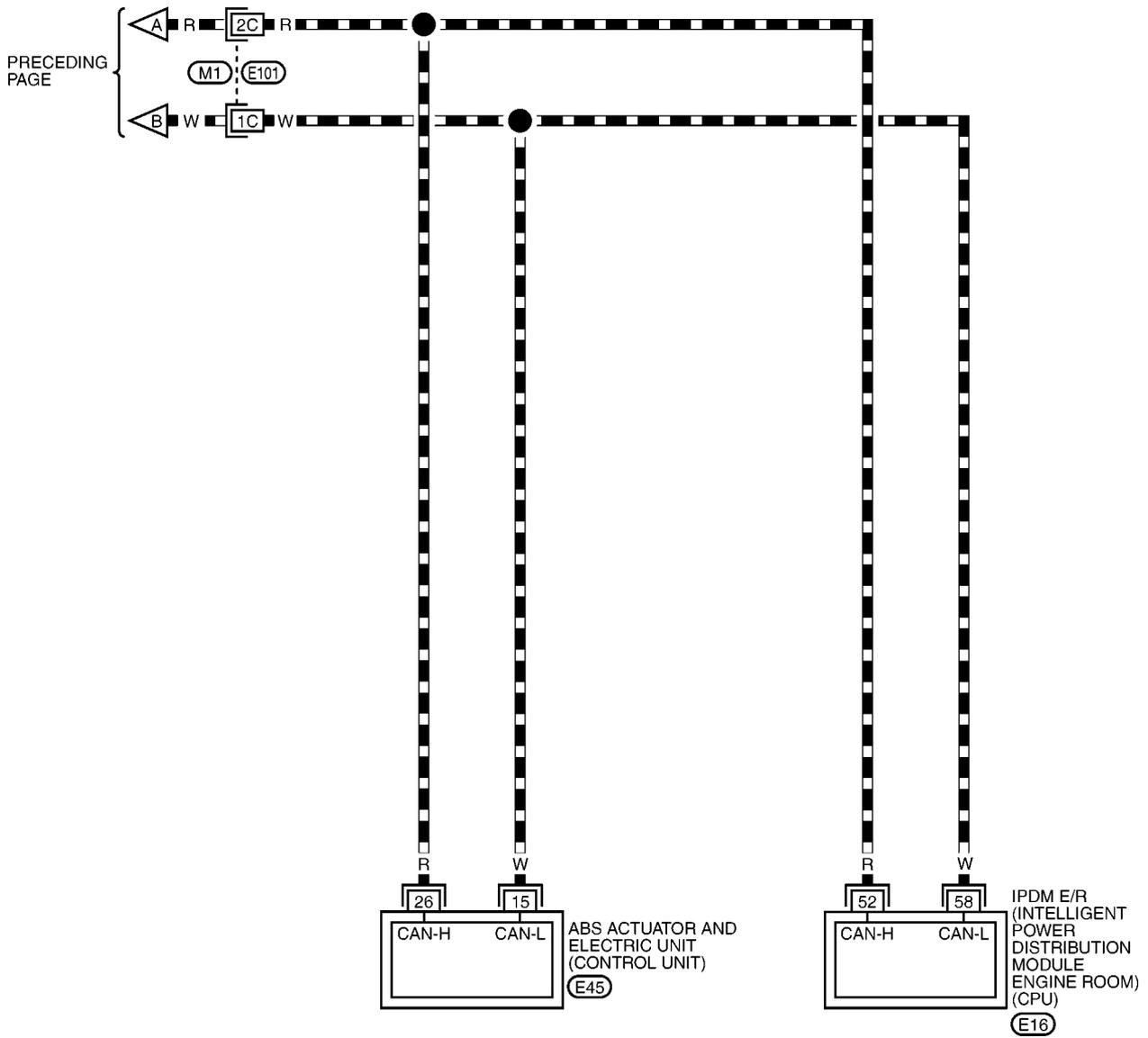
CAN SYSTEM (TYPE 4)

[CAN]

LAN-CAN-08

▬ : DATA LINE

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REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

MKWA1311E

Work Flow

- When there are no indications of “EPS”, “BCM” or “IPDM E/R” on “SELECT SYSTEM” display of CONSULT-II, print the “SELECT SYSTEM”.

(Example)

	NISSAN CONSULT- II ENGINE START (NISSAN BASED VHCL) START (X-BADGE VHCL) SUB MODE LIGHT COPY	→	SELECT SYSTEM ENGINE A/T ABS AIR BAG BCM METER A/C AMP BACK LIGHT COPY
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MKIB1692E

- Print all the data of “SELF-DIAG RESULTS” for “ENGINE”, “EPS”, “BCM”, “ABS” and “IPDM E/R” displayed on CONSULT-II.

(Example)

	SELECT DIAG MODE WORK SUPPORT SELF-DIAG RESULTS DATA MONITOR DATA MONITOR (SPEC) CAN DIAG SUPPORT MNTR ACTIVE TEST Scroll Down BACK LIGHT COPY	→	SELF-DIAG RESULTS DTC RESULTS TIME CAN COMM CIRCUIT [U1000] 0 F.F.DATA ERASE PRINT MODE BACK LIGHT COPY
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PKIA8260E

- Print all the data of “CAN DIAG SUPPORT MNTR” for “ENGINE”, “EPS”, “BCM”, “ABS” and “IPDM E/R” displayed on CONSULT-II.

(Example)

	SELECT DIAG MODE WORK SUPPORT SELF-DIAG RESULTS DATA MONITOR DATA MONITOR (SPEC) CAN DIAG SUPPORT MNTR ACTIVE TEST Scroll Down BACK LIGHT COPY	→	CAN DIAG SUPPORT MNTR ENGINE PRSNT INITIAL DIAG OK TRANSMIT DIAG OK TCM OK VDC/TCS/ABS OK METER/M&A OK ICC UNKWN BCM/SEC OK IPDM E/R OK AWD/4WD/e4WD UNKWN PRINT Scroll Down MODE BACK LIGHT COPY
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PKIA8343E

- Attach the printed sheet of “SELECT SYSTEM”, “SELF-DIAG RESULTS” and “CAN DIAG SUPPORT MNTR” onto the check sheet. Refer to [LAN-113, "CHECK SHEET"](#) .
- Based on the indications of “SELECT SYSTEM” and the results of “CAN DIAG SUPPORT MNTR”, put marks “v” onto the items with “No indication”, “NG”, or “UNKWN” in the check sheet table. Refer to [LAN-113, "CHECK SHEET"](#) .

NOTE:

- If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)” as “CAN DIAG SUPPORT MNTR” for the diagnosed control unit, replace the control unit.
 - The “CAN DIAG SUPPORT MNTR” items, which are not in check sheet table, are not related to diagnostic procedure on service manual. So it is not necessary to check the status of “CAN DIAG SUPPORT MNTR” items which are not indicated in check sheet table.
- According to the check sheet results (example), start inspection. Refer to [LAN-115, "CHECK SHEET RESULTS \(EXAMPLE\)"](#) .

CAN SYSTEM (TYPE 4)

[CAN]

CHECK SHEET

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Check sheet table

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	-	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	-
BCM	No indication	-	UNKWN	UNKWN	UNKWN	-	-	UNKWN	UNKWN
ABS	No indication	NG	-	UNKWN	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-

Symptoms:

Attach copy of
SELECT SYSTEM

Attach copy of
SELECT SYSTEM

CAN SYSTEM (TYPE 4)

[CAN]

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
EPS
SELF-DIAG RESULTS

Attach copy of
BCM
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
IPDM E/R
SELF-DIAG RESULTS

Attach copy of
ENGINE
CAN DIAG SUPPORT
MNTR

Attach copy of
EPS
CAN DIAG SUPPORT
MNTR

Attach copy of
BCM
CAN DIAG SUPPORT
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Attach copy of
ABS
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Attach copy of
IPDM E/R
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CHECK SHEET RESULTS (EXAMPLE)

NOTE:

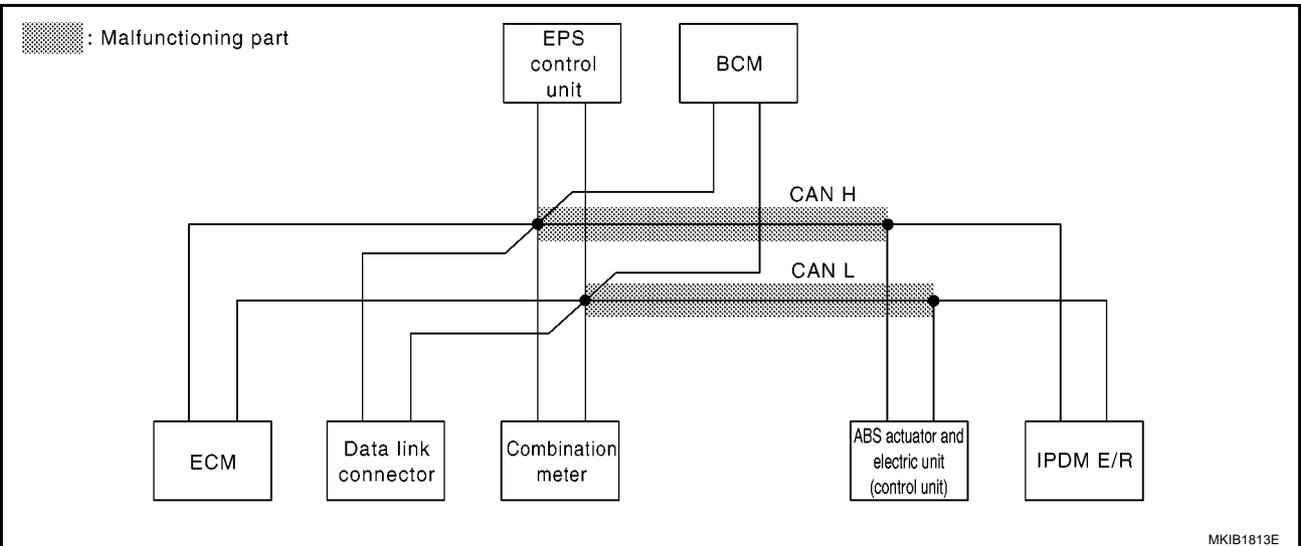
If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

Case 1

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to [LAN-124, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit \(Control Unit\)"](#).

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	-	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	-	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	-
BCM	No indication	-	UNKWN	UNKWN	UNKWN	-	-	UNKWN	UNKWN
ABS	No indication	NG	-	UNKWN	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-

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CAN SYSTEM (TYPE 4)

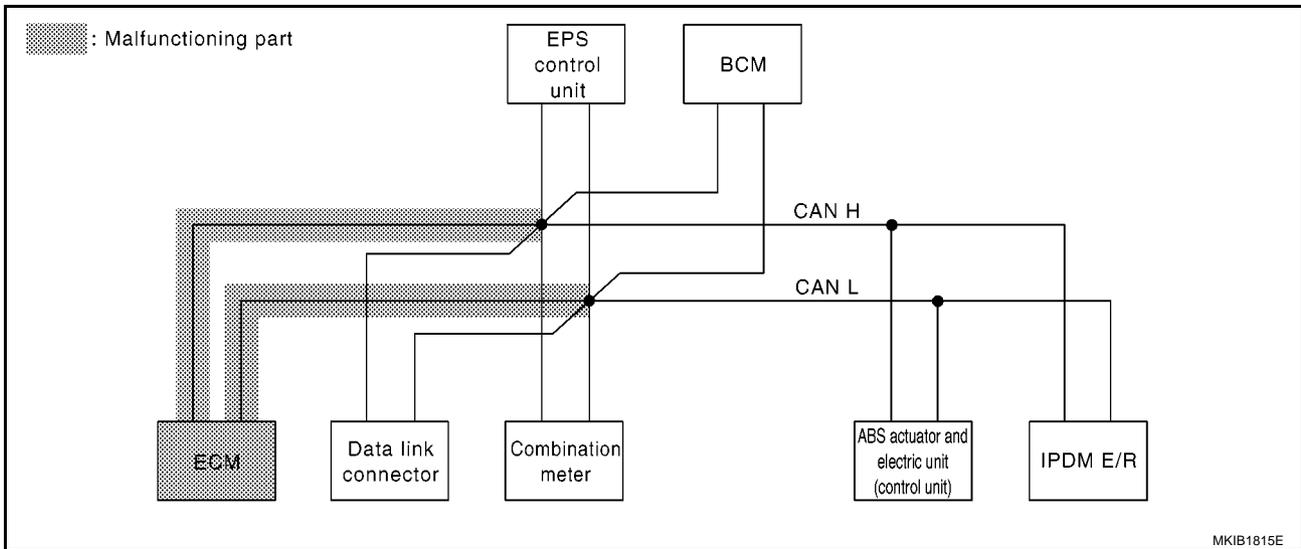
[CAN]

Case 2

Check ECM circuit. Refer to [LAN-125, "ECM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN ✓	—	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓
EPS	No indication	—	UNKWN	UNKWN ✓	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN ✓	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	✓	—	UNKWN ✓	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN ✓	—	—	UNKWN	—	—

MKIB2076E



CAN SYSTEM (TYPE 4)

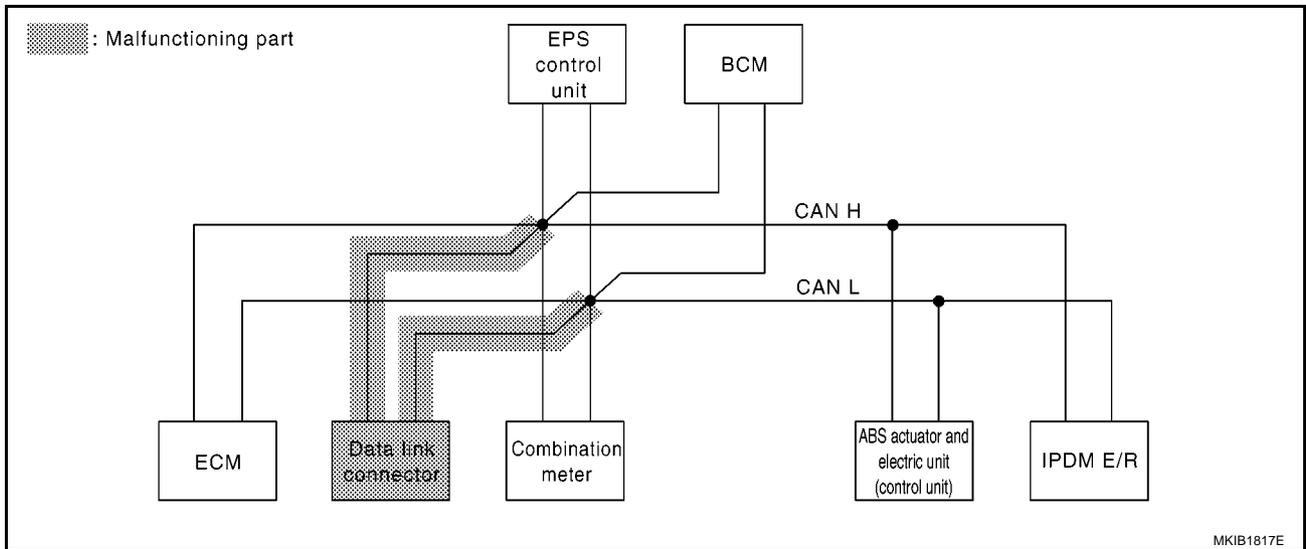
[CAN]

Case 3

Check data link connector circuit. Refer to [LAN-126, "Data Link Connector Circuit Check"](#) .

SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R	
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication ✓	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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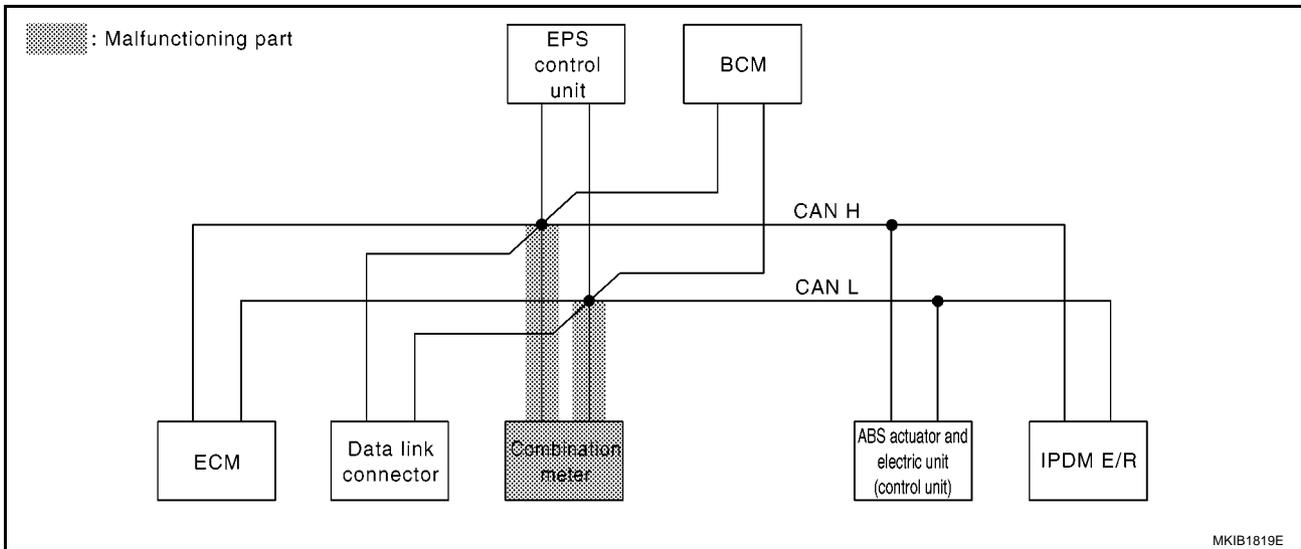
[CAN]

Case 4

Check combination meter circuit. Refer to [LAN-127, "Combination Meter Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN ✓	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN ✓	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 4)

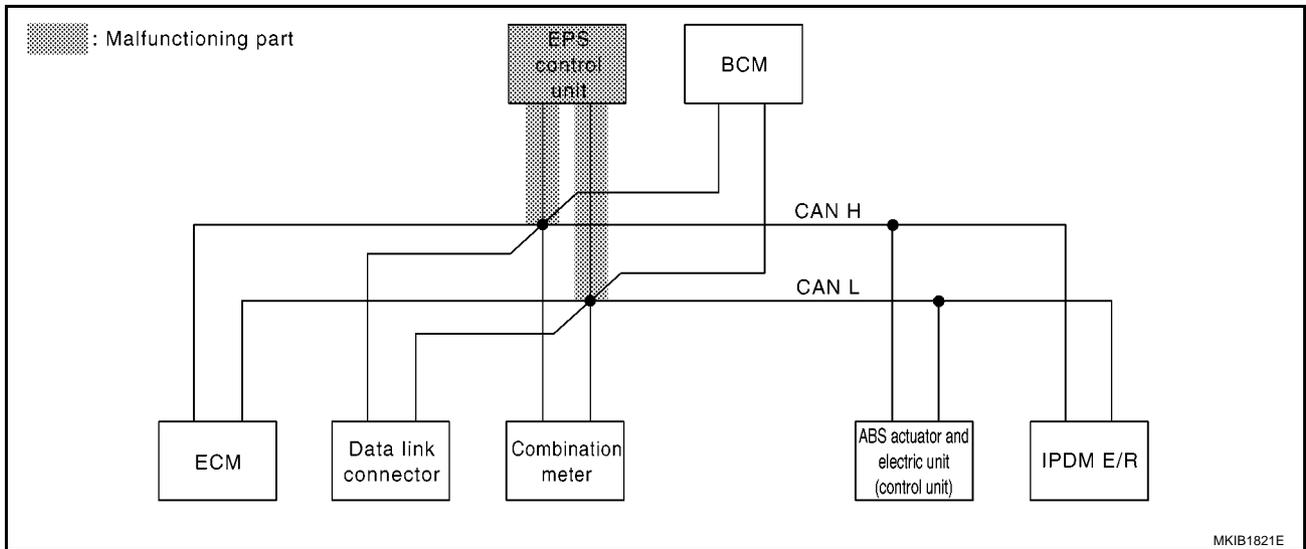
[CAN]

Case 5

Check EPS control unit circuit. Refer to [LAN-128, "EPS Control Unit Circuit Check"](#).

SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R	
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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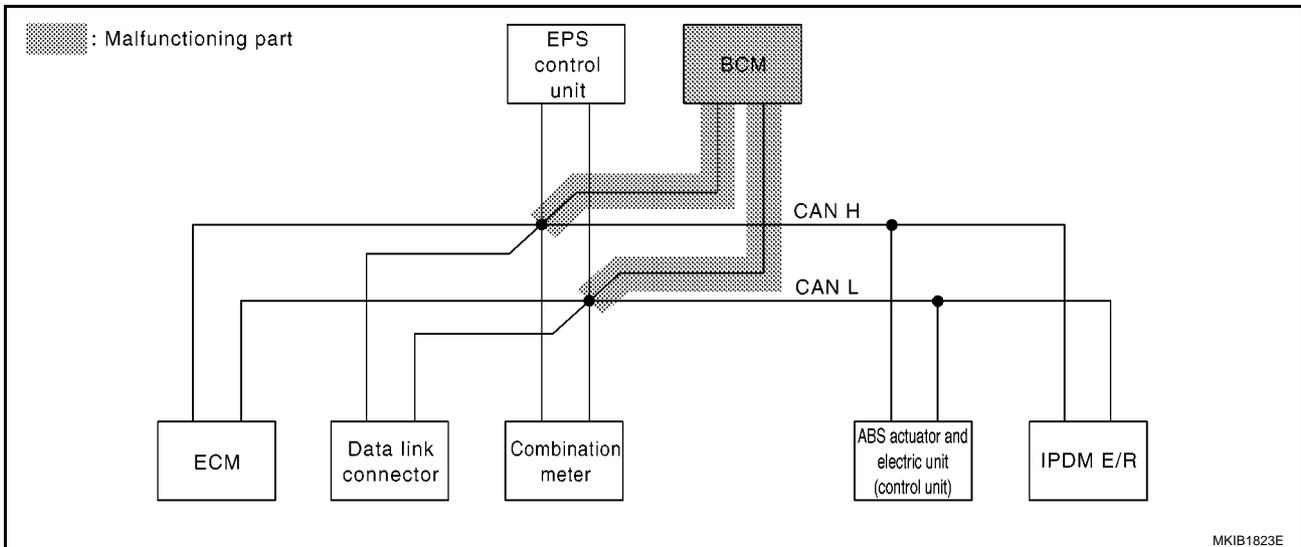
[CAN]

Case 6

Check BCM circuit. Refer to [LAN-129, "BCM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

MKIB2080E



CAN SYSTEM (TYPE 4)

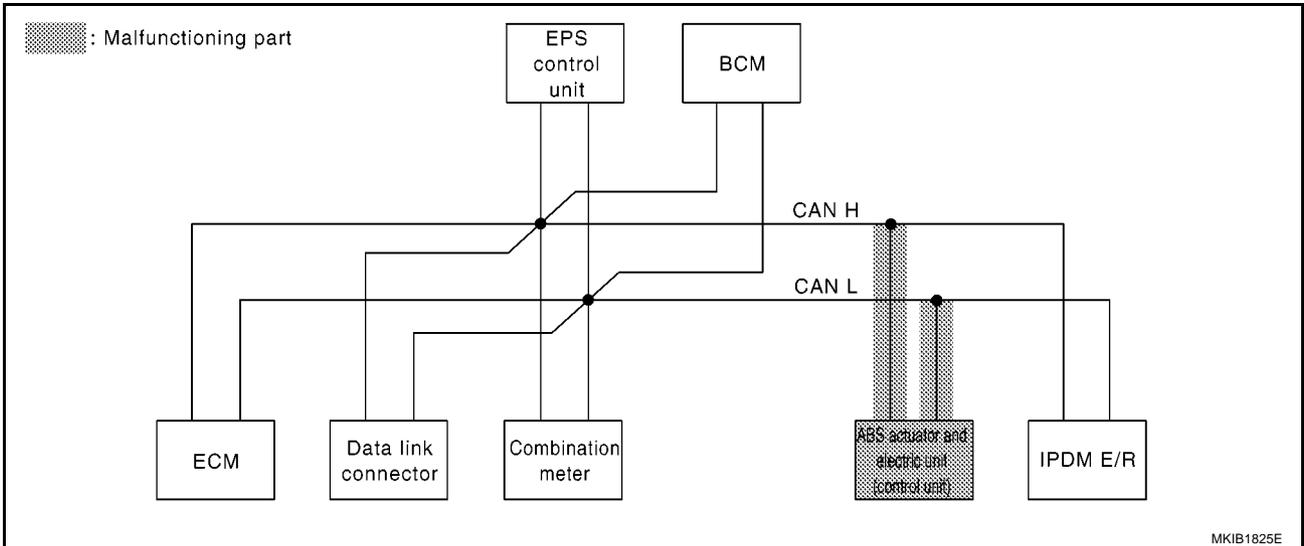
[CAN]

Case 7

Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-130, "ABS Actuator and Electric Unit \(Control Unit\) Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN ✓	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN ✓	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN ✓	UNKWN
ABS	No indication ✓	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 4)

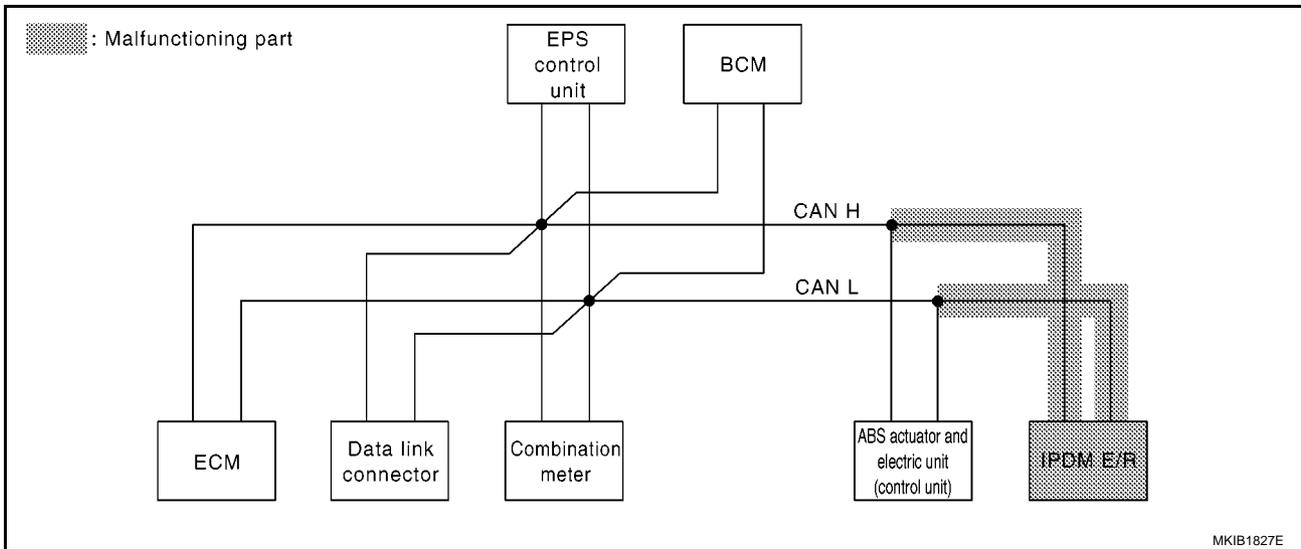
[CAN]

Case 8

Check IPDM E/R circuit. Refer to [LAN-131, "IPDM E/R Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN ✓
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN ✓
ABS	No indication	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 4)

[CAN]

Case 9

Check CAN communication circuit. Refer to [LAN-132, "CAN Communication Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKW N	—	—	UNKW N	UNKW N	UNKW N	UNKW N
EPS	No indication	—	UNKW N	UNKW N	UNKW N	—	UNKW N	UNKW N	—
BCM	No indication	—	UNKW N	UNKW N	UNKW N	—	—	UNKW N	UNKW N
ABS	No indication	NG	—	UNKW N	—	—	—	—	—
IPDM E/R	No indication	—	UNKW N	UNKW N	—	—	UNKW N	—	—

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Case 10

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to [LAN-135, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKW N	—	—	UNKW N	UNKW N	UNKW N	UNKW N
EPS	No indication	—	UNKW N	UNKW N	UNKW N	—	UNKW N	UNKW N	—
BCM	No indication	—	UNKW N	UNKW N	UNKW N	—	—	UNKW N	UNKW N
ABS	No indication	NG	—	UNKW N	—	—	—	—	—
IPDM E/R	No indication	—	UNKW N	UNKW N	—	—	UNKW N	—	—

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Case 11

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to [LAN-135, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKW N	—	—	UNKW N	UNKW N	UNKW N	UNKW N
EPS	No indication	—	UNKW N	UNKW N	UNKW N	—	UNKW N	UNKW N	—
BCM	No indication	—	UNKW N	UNKW N	UNKW N	—	—	UNKW N	UNKW N
ABS	No indication	NG	—	UNKW N	—	—	—	—	—
IPDM E/R	No indication	—	UNKW N	UNKW N	—	—	UNKW N	—	—

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

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M1
 - Harness connector E101

OK or NG

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

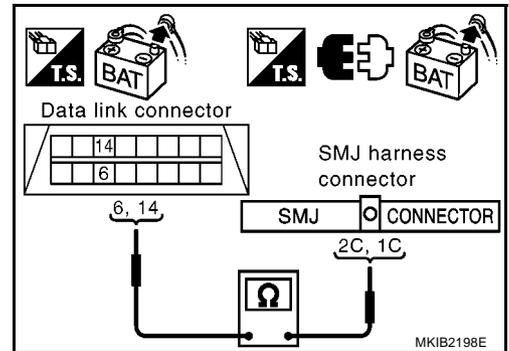
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect following connector.
 - Harness connector M1
2. Check continuity between data link connector M17 terminals 6 (R), 14 (W) and harness connector M1 terminals 2C (R), 1C (W).

6 (R) – 2C (R) : Continuity should exist.
14 (W) – 1C (W) : Continuity should exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness.



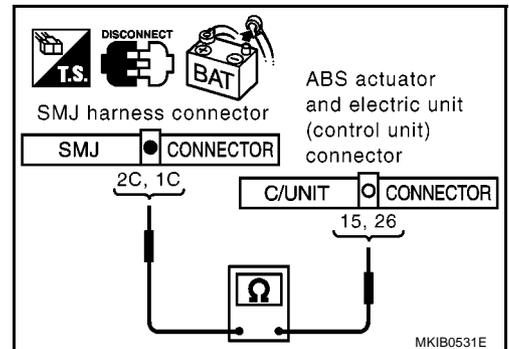
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between harness connector E101 terminals 2C (R), 1C (W) and ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R), 15 (W).

2C (R) – 26 (R) : Continuity should exist.
1C (W) – 15 (W) : Continuity should exist.

OK or NG

- OK >> Connect all the connectors and diagnosis again. Refer to [LAN-112, "Work Flow"](#) .
 NG >> Repair harness.



ECM Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
 - ECM connector
 - Harness connector M1
 - Harness connector E101

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

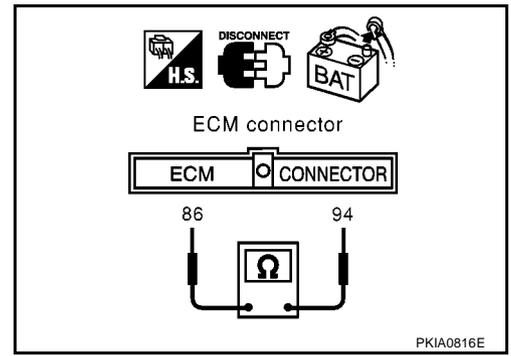
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E49 terminals 94 (R) and 86 (W).

94 (R) – 86 (W)**: Approx. 108 – 132Ω****OK or NG**

OK >> Replace ECM.

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



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Data Link Connector Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check data link connector and terminals for damage, bend and loose connection (connector side and harness side).

OK or NG

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

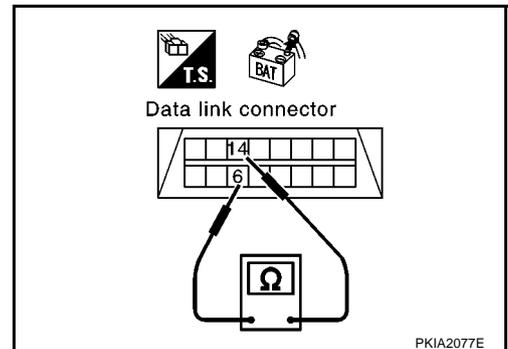
2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M17 terminals 6 (R) and 14 (W).

6 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Diagnosis again. Refer to [LAN-112, "Work Flow"](#) .
 NG >> Repair harness between data link connector and combination meter



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

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of combination meter for damage, bend and loose connection (meter side and harness side).

OK or NG

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

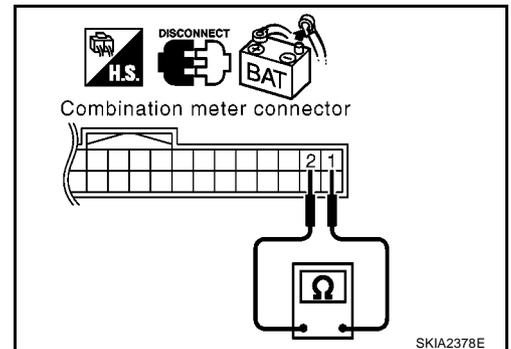
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M22 terminals 1 (R) and 2 (W).

1 (R) – 2 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace combination meter
 NG >> Repair harness between combination meter and data link connector.



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EPS Control Unit Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

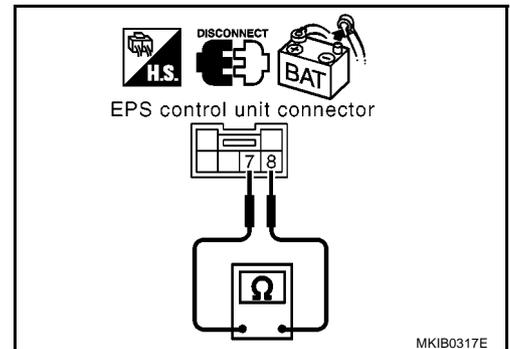
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect EPS control unit connector.
2. Check resistance between EPS control unit harness connector M23 terminals 8 (R) and 7 (W).

8 (R) – 7 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace EPS control unit.
 NG >> Repair harness between EPS control unit and data link connector.



BCM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

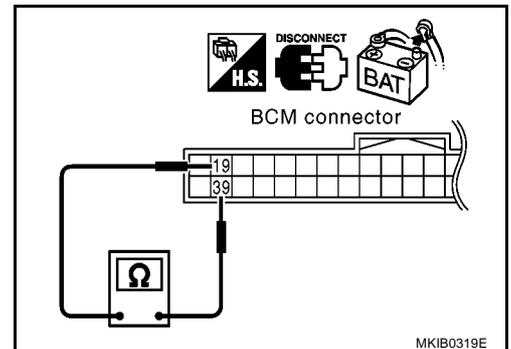
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M48 terminals 19 (R) and 39 (W).

19 (R) – 39 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace BCM. Refer to [BCS-30, "Removal and Installation of BCM"](#) .
 NG >> Repair harness between BCM and data link connector.



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ABS Actuator and Electric Unit (Control Unit) Circuit Check

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1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ABS actuator and electric unit (control unit) for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

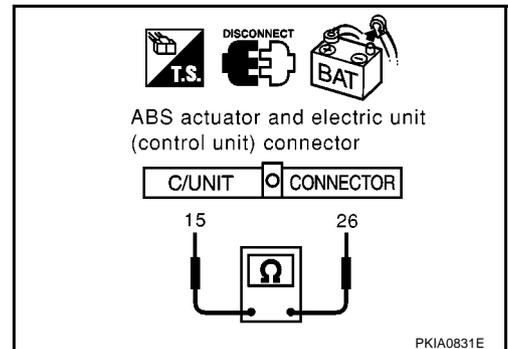
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R) and 15 (W).

26 (R) – 15 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace ABS actuator and electric unit (control unit).
 NG >> Repair harness between ABS actuator and electric unit (control unit) and IPDM E/R.



IPDM E/R Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

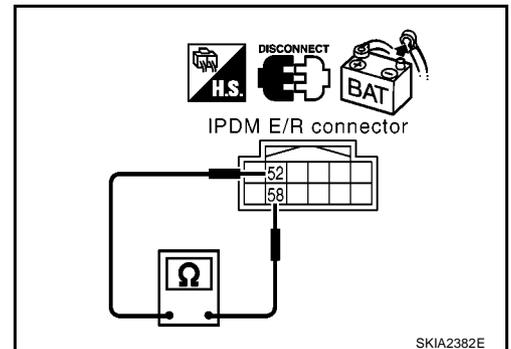
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check resistance between IPDM E/R harness connector E16 terminals 52 (R) and 58 (W).

52 (R) – 58 (W) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace IPDM E/R.
 NG >> Repair harness between IPDM E/R and ABS actuator and electric unit (control unit).



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CAN Communication Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

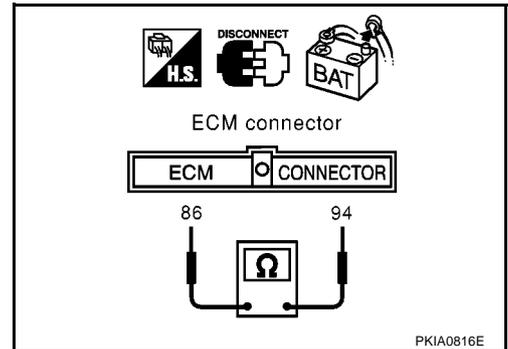
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E101.
2. Check continuity between ECM harness connector E49 terminals 94 (R) and 86 (W).

94 (R) – 86 (W) : Continuity should not exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness between ECM and harness connector E101.



3. CHECK HARNESS FOR SHORT CIRCUIT

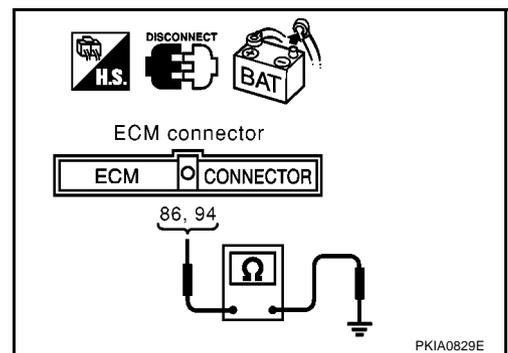
Check continuity between ECM harness connector E49 terminals 94 (R), 86 (W) and ground.

94 (R) – Ground : Continuity should not exist.

86 (W) – Ground : Continuity should not exist.

OK or NG

- OK >> GO TO 4.
 NG >> Repair harness between ECM and harness connector E101.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - ABS actuator and electric unit (control unit) connector
 - IPDM E/R connector
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R) and 15 (W).

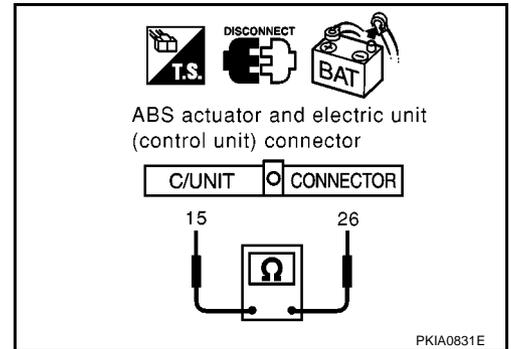
26 (R) – 15 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector E45 terminals 26 (R), 15 (W) and ground.

26 (R) – Ground : Continuity should not exist.

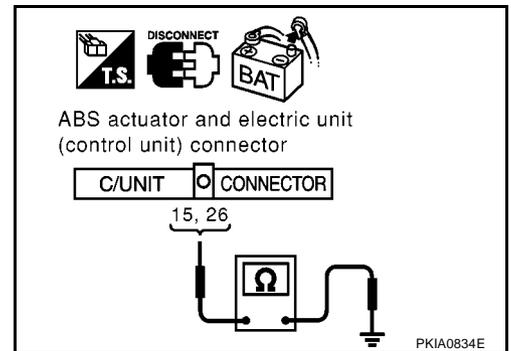
15 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - Combination meter connector
 - EPS control unit connector
 - BCM connector
2. Check continuity between data link connector M17 terminals 6 (R) and 14 (W).

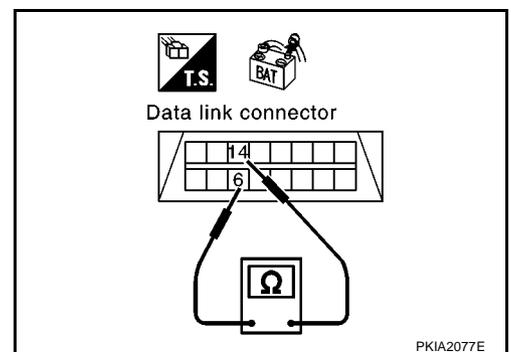
6 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M17 terminals 6 (R), 14 (W) and ground.

6 (R) – Ground : Continuity should not exist.

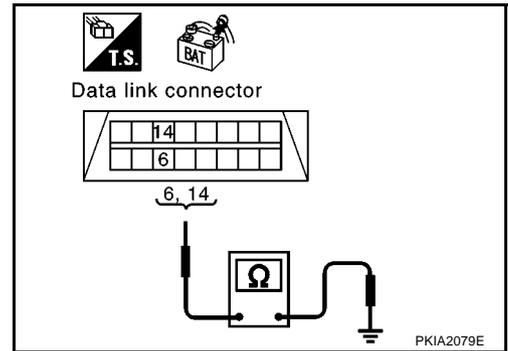
14 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-135, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

OK >> Connect all the connectors and diagnosis again. Refer to [LAN-112, "Work Flow"](#).

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

IPDM E/R Ignition Relay Circuit Check

EKS00820

Perform the self-diagnosis for IPDM E/R. Refer to [PG-49, "Inspection With CONSULT-II \(Self-Diagnosis\)"](#) . If the result is OK, carry out following inspections.

- IPDM E/R power supply circuit. Refer to [PG-50, "IPDM E/R Power Supply and Ground Circuit Check"](#) .
- Ignition power supply circuit. Refer to [PG-13, "IGNITION POWER SUPPLY — IGNITION SW. IN "ON" AND/OR "START" "](#) .

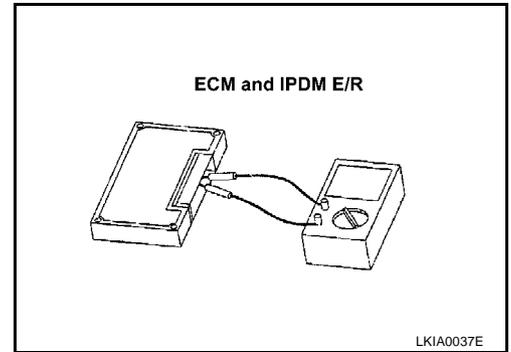
Component Inspection

EKS00821

ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between IPDM E/R terminals 52 and 58.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	94 – 86	108 - 132
IPDM E/R	52 – 58	



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CAN SYSTEM (TYPE 5)

PFP:23710

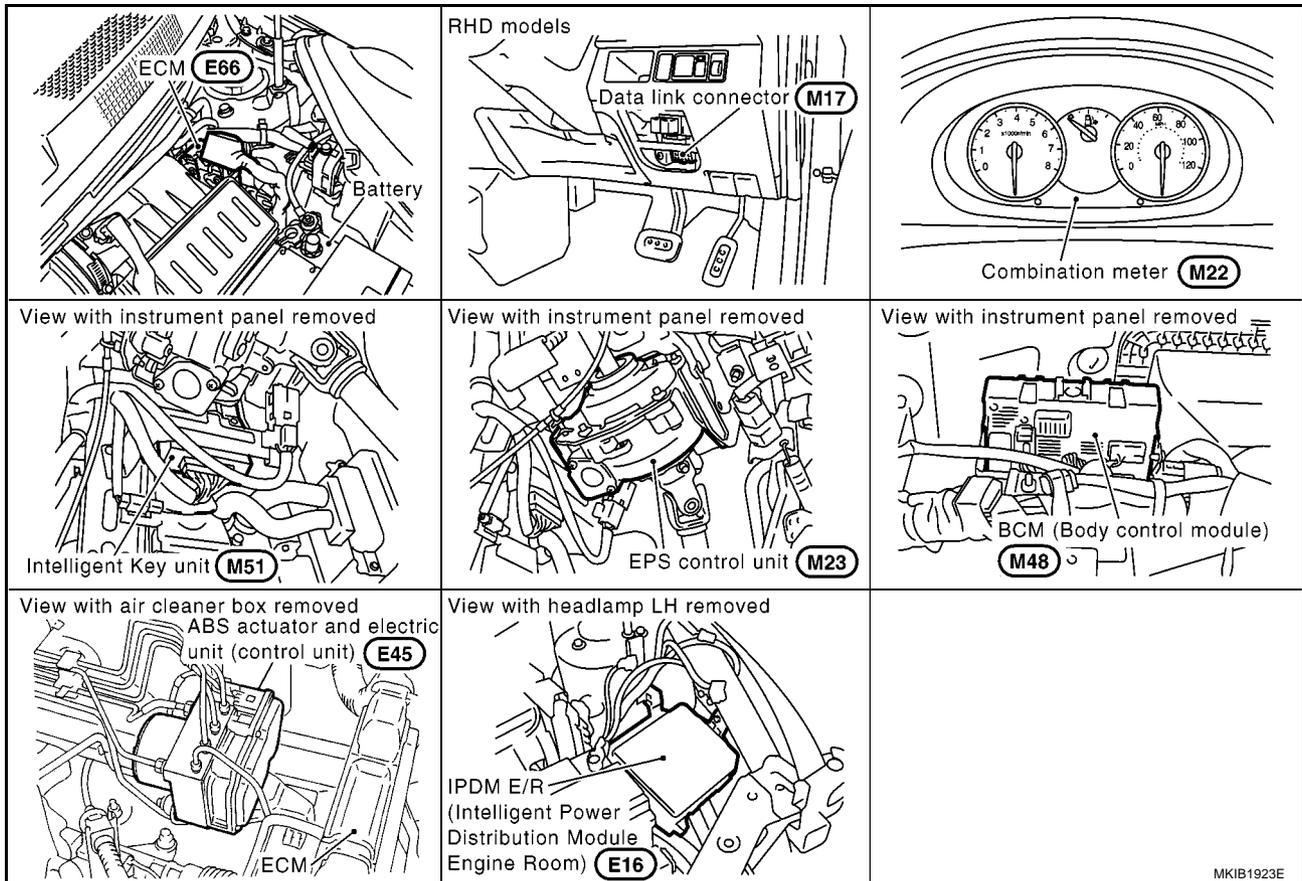
System Description

EKS00PAR

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

EKS00PAS



CAN SYSTEM (TYPE 5)

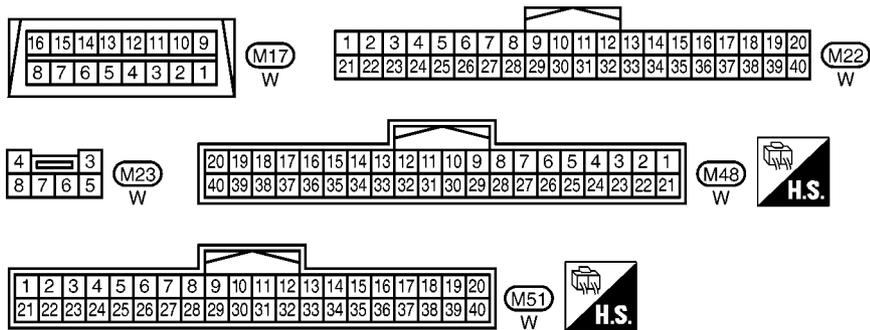
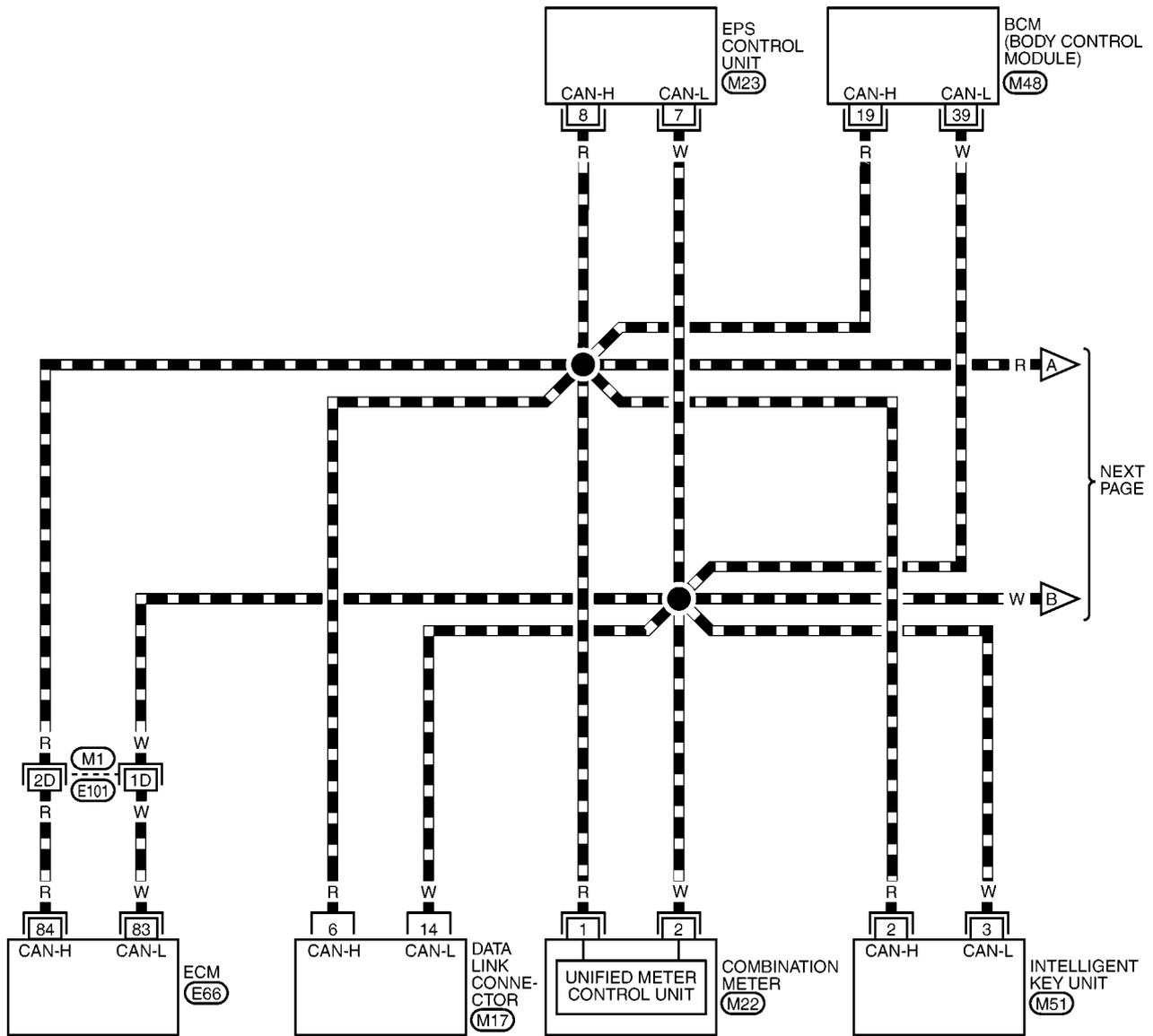
[CAN]

Wiring Diagram — CAN —

EKS00PAT

LAN-CAN-09

▬ : DATA LINE



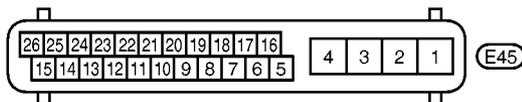
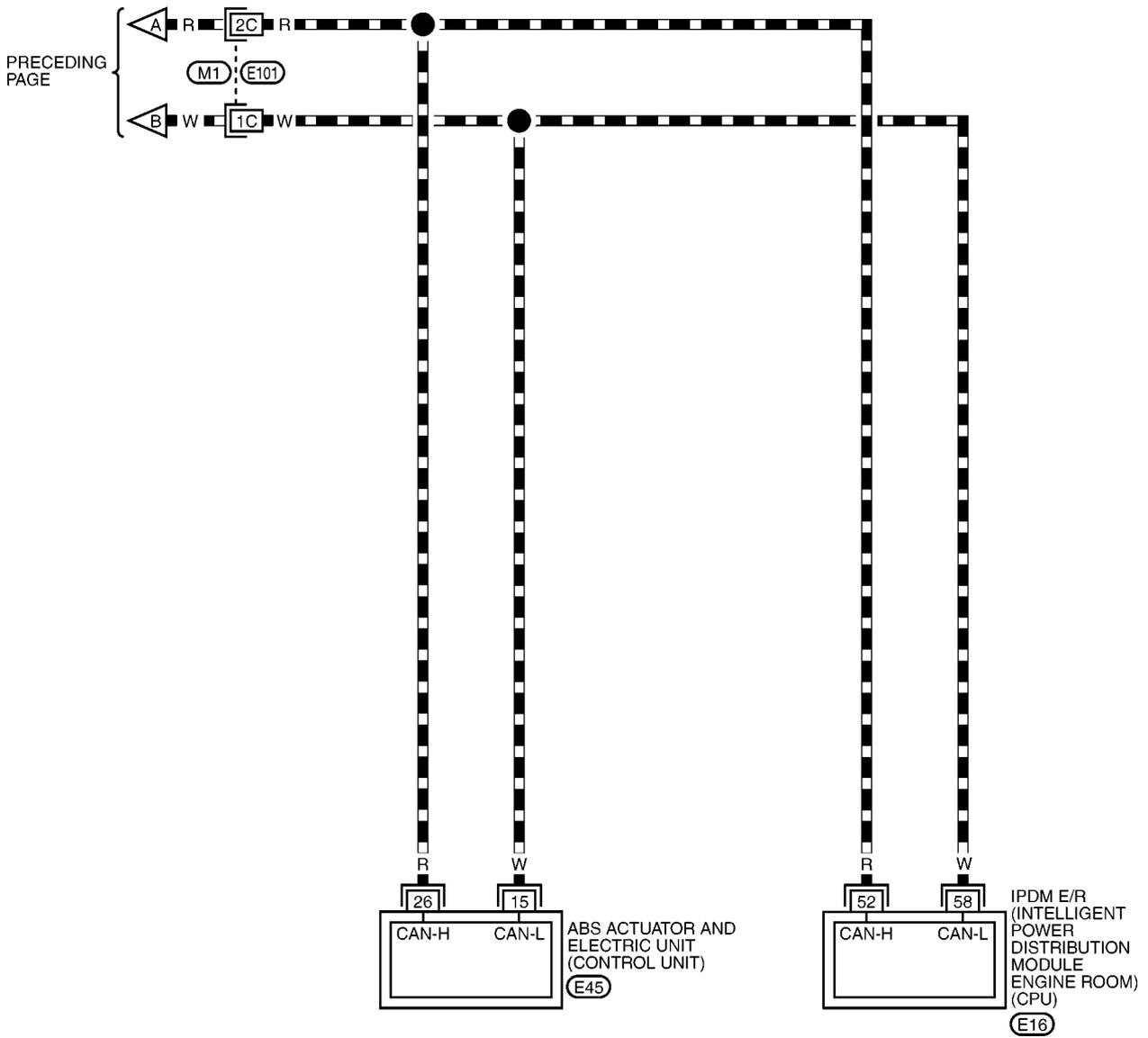
REFER TO THE FOLLOWING.

- (M1) -SUPER MULTIPLE JUNCTION (SMJ)
- (E66) -ELECTRICAL UNITS

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LAN-CAN-10

▬ : DATA LINE

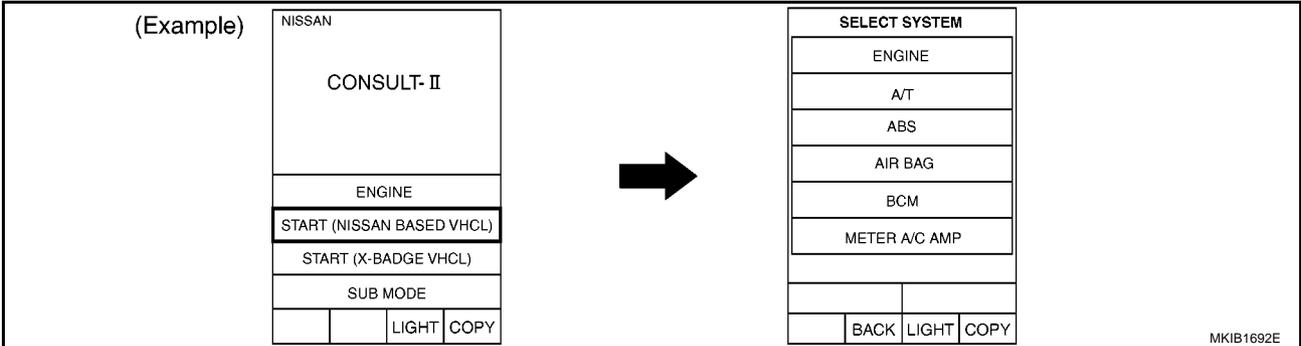


REFER TO THE FOLLOWING.

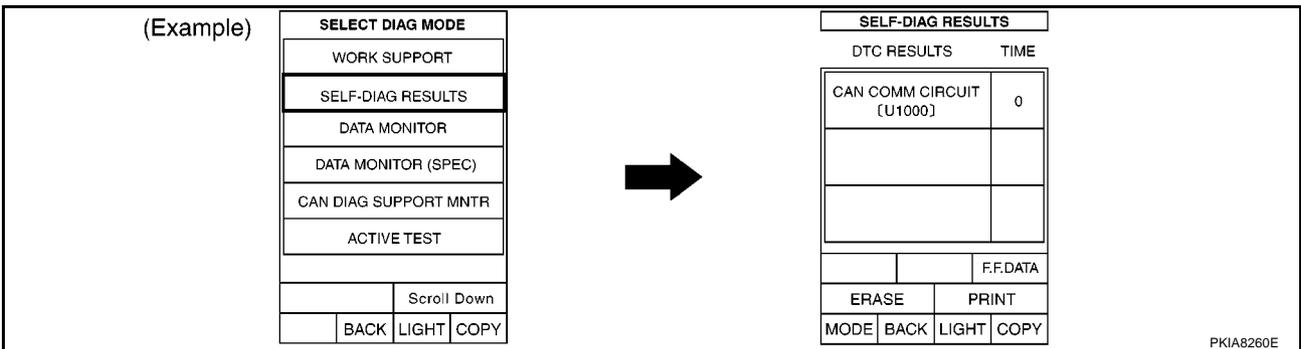
(M1) -SUPER MULTIPLE JUNCTION (SMJ)

Work Flow

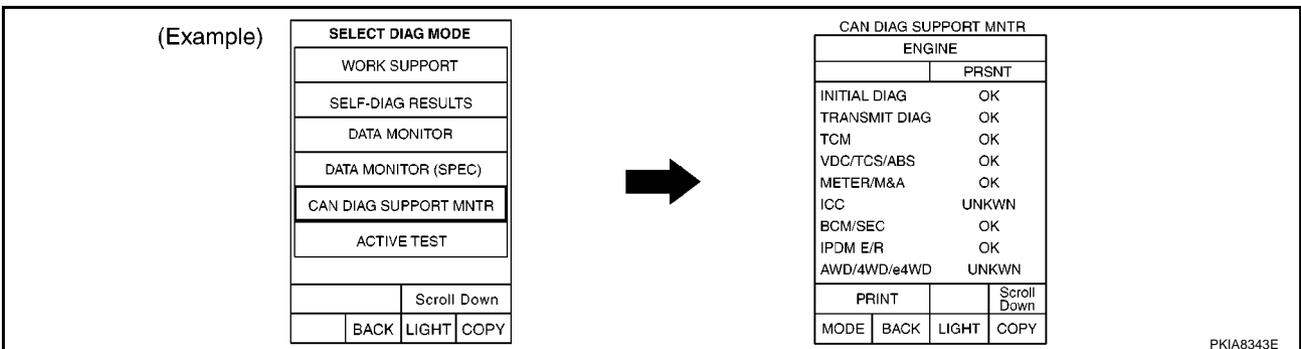
- When there are no indications of "INTELLIGENT KEY", "EPS", "BCM" or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



- Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "INTELLIGENT KEY", "EPS", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



- Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "INTELLIGENT KEY", "EPS", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



- Attach the printed sheet of "SELECT SYSTEM", "SELF-DIAG RESULTS" and "CAN DIAG SUPPORT MNTR" onto the check sheet. Refer to [LAN-140, "CHECK SHEET"](#).
- Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks "v" onto the items with "No indication", "NG", or "UNKWVN" in the check sheet table. Refer to [LAN-140, "CHECK SHEET"](#).

NOTE:

- If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- The "CAN DIAG SUPPORT MNTR" items, which are not in check sheet table, are not related to diagnostic procedure on service manual. So it is not necessary to check the status of "CAN DIAG SUPPORT MNTR" items which are not indicated in check sheet table.

- According to the check sheet results (example), start inspection. Refer to [LAN-142, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

CAN SYSTEM (TYPE 5)

[CAN]

CHECK SHEET

Check sheet table				Receive diagnosis						
SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	-	-	UNKWN	-	-	-	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	-	-	UNKWN	-	-
EPS	No indication	-	UNKWN	UNKWN	UNKWN	-	-	UNKWN	UNKWN	-
BCM	No indication	-	UNKWN	UNKWN	UNKWN	UNKWN	-	-	UNKWN	UNKWN
ABS	No indication	NG	-	UNKWN	-	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-

Symptoms:

Attach copy of
SELECT SYSTEM

Attach copy of
SELECT SYSTEM

MKIB2086E

CAN SYSTEM (TYPE 5)

[CAN]

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Attach copy of
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SELF-DIAG RESULTS

Attach copy of
INTELLIGENT KEY
SELF-DIAG RESULTS

Attach copy of
EPS
SELF-DIAG RESULTS

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BCM
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IPDM E/R
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ABS
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CAN SYSTEM (TYPE 5)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

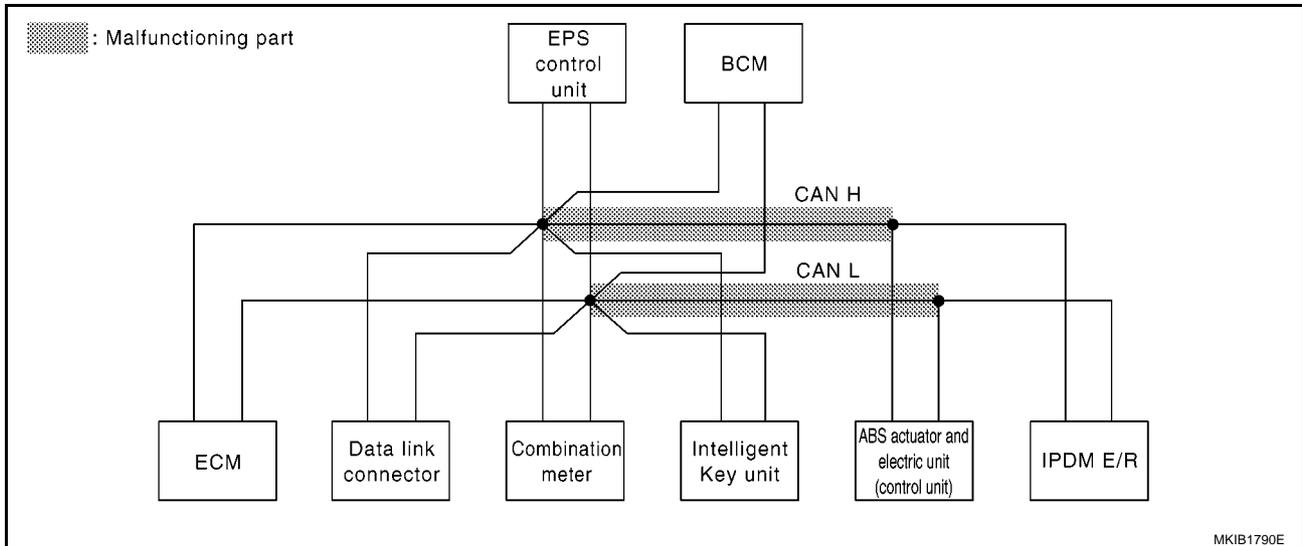
If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

Case 1

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to [LAN-152, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit \(Control Unit\)"](#).

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2087E



CAN SYSTEM (TYPE 5)

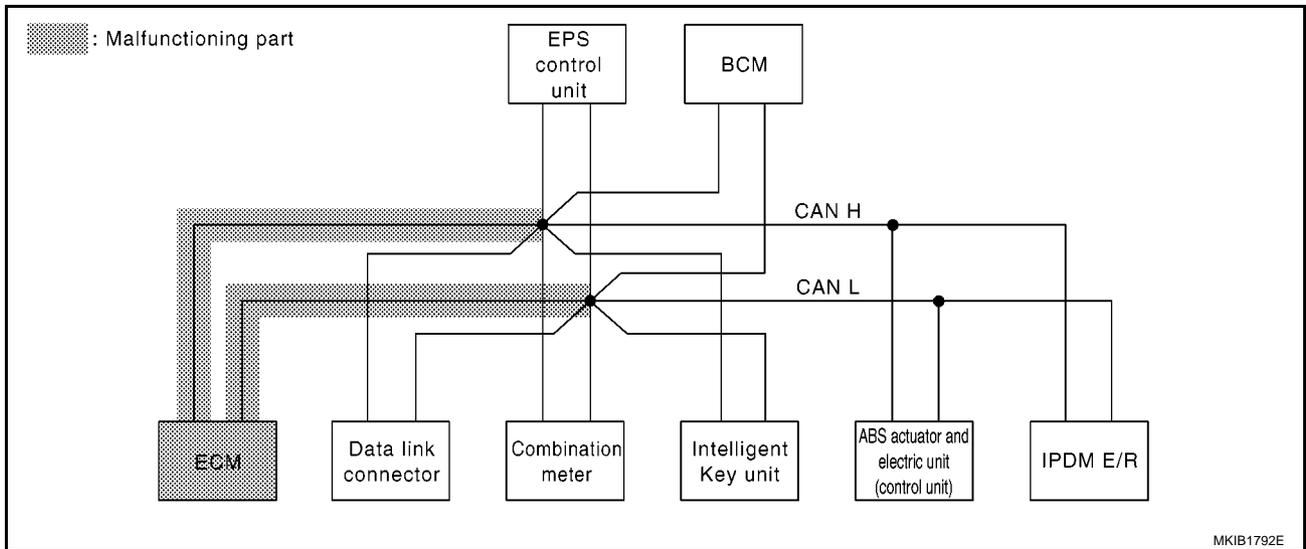
[CAN]

Case 2

Check ECM circuit. Refer to [LAN-153, "ECM Circuit Check"](#).

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	✓	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 5)

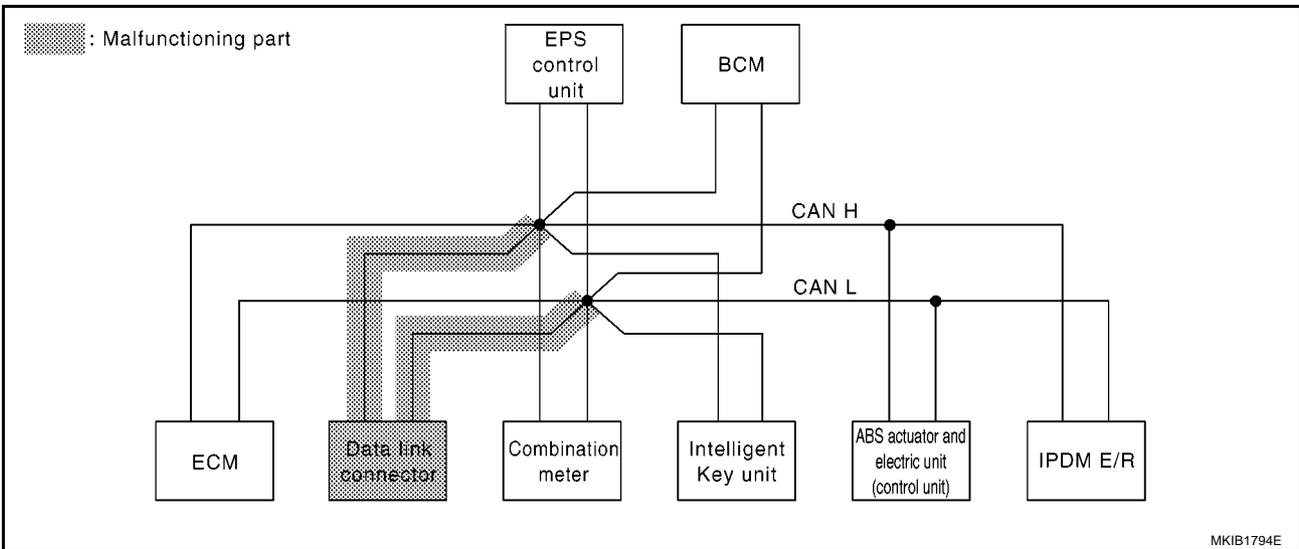
[CAN]

Case 3

Check data link connector circuit. Refer to [LAN-154, "Data Link Connector Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2089E



CAN SYSTEM (TYPE 5)

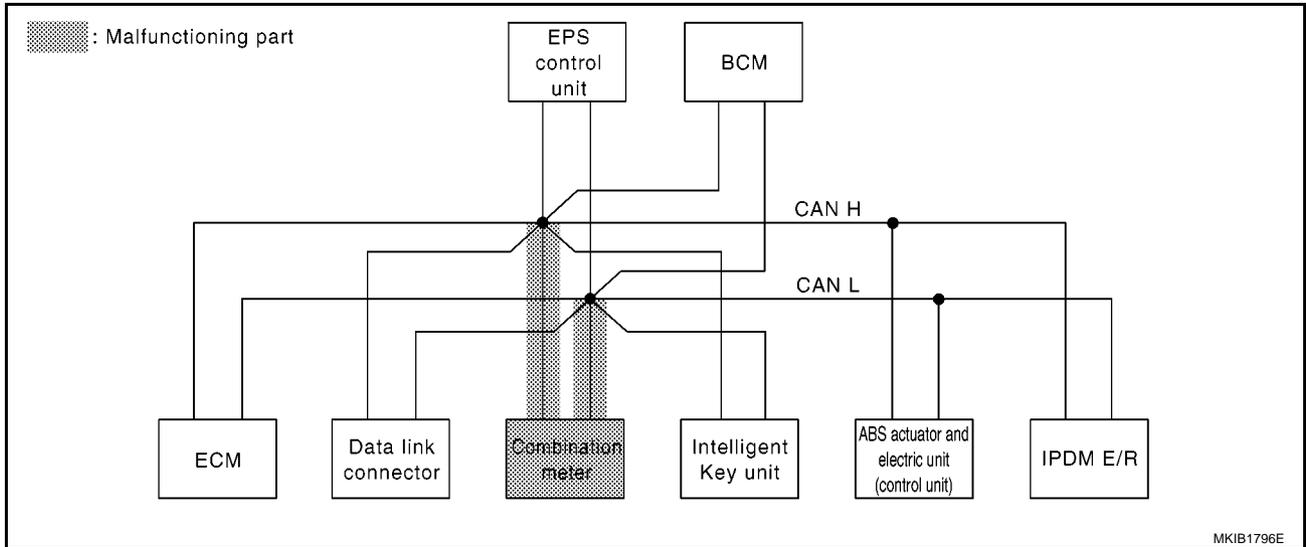
[CAN]

Case 4

Check combination meter circuit. Refer to [LAN-155, "Combination Meter Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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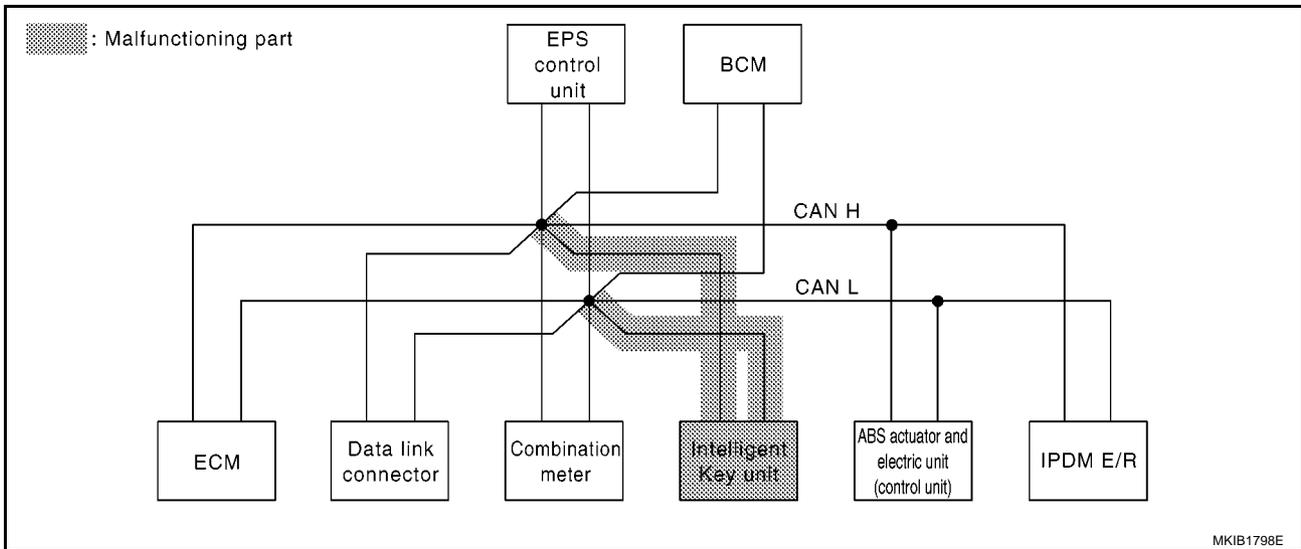
[CAN]

Case 5

Check Intelligent Key unit circuit. Refer to [LAN-156, "Intelligent Key Unit Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 5)

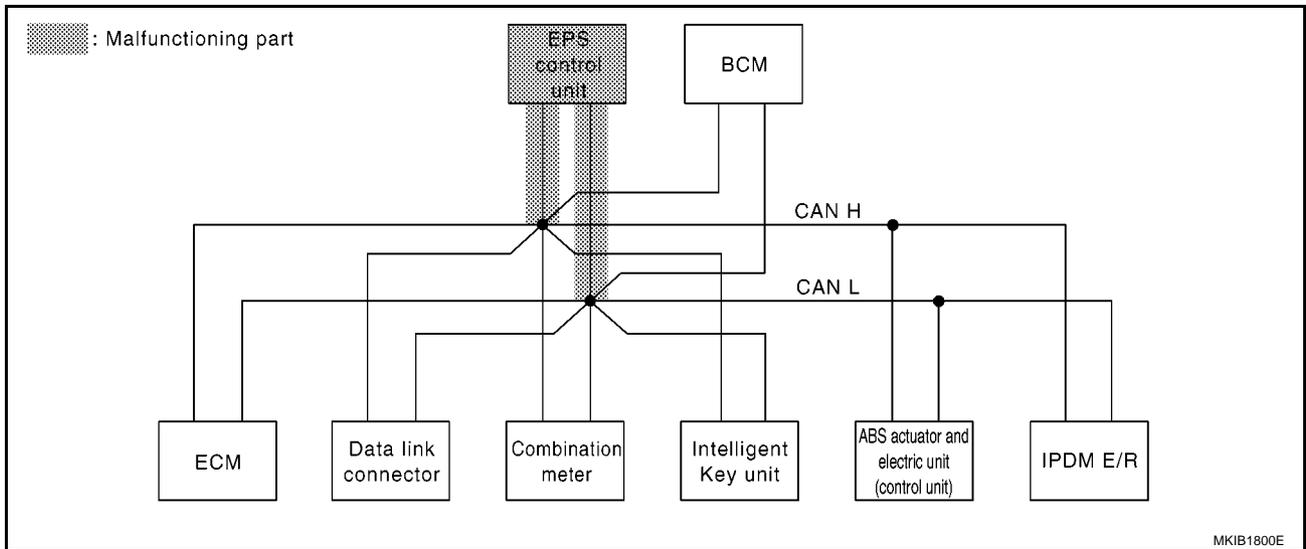
[CAN]

Case 6

Check EPS control unit circuit. Refer to [LAN-157, "EPS Control Unit Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 5)

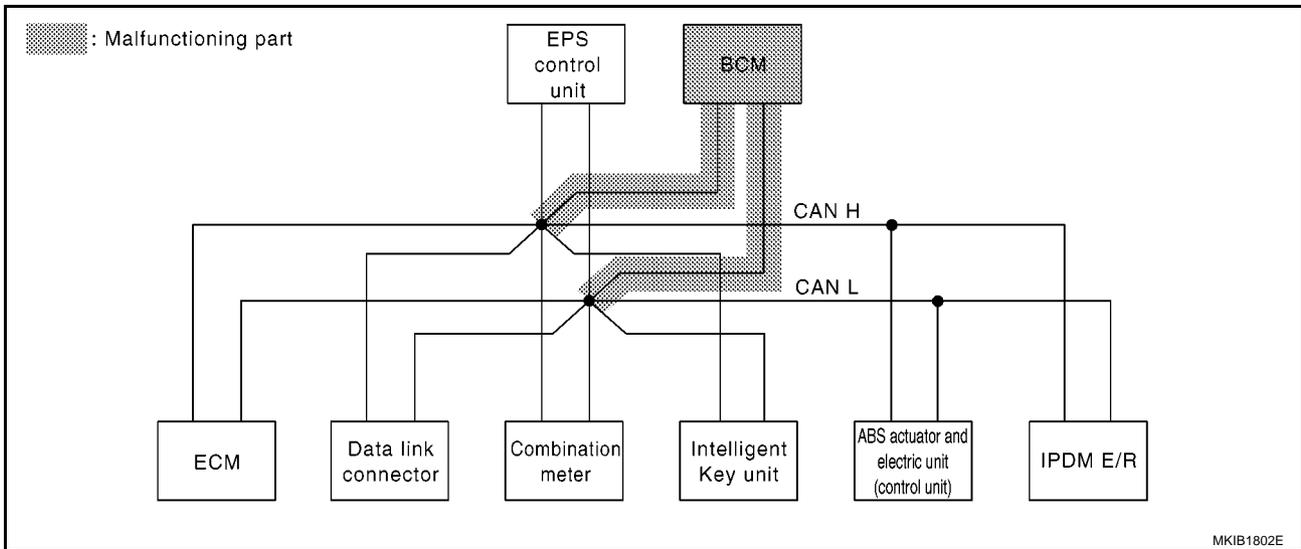
[CAN]

Case 7

Check BCM circuit. Refer to [LAN-158, "BCM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 5)

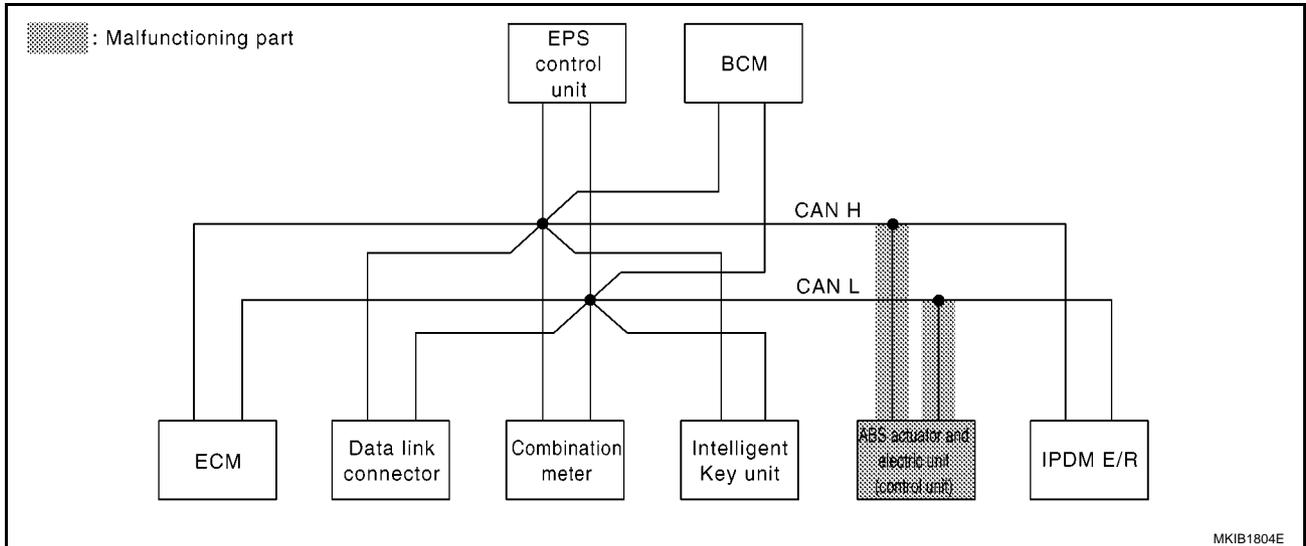
[CAN]

Case 8

Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-159, "ABS Actuator and Electric Unit \(Control Unit\) Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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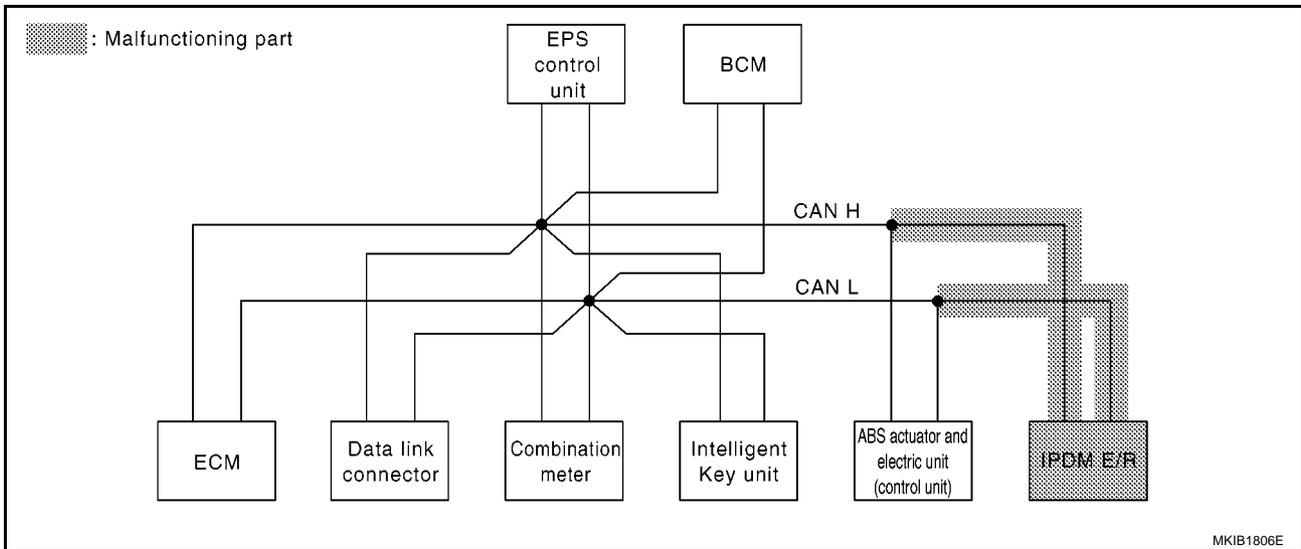
[CAN]

Case 9

Check IPDM E/R circuit. Refer to [LAN-160, "IPDM E/R Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 5)

[CAN]

Case 10

Check CAN communication circuit. Refer to [LAN-161, "CAN Communication Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2096E

Case 11

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to [LAN-164, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2097E

Case 12

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to [LAN-164, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2098E

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LAN

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

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M1
 - Harness connector E101

OK or NG

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

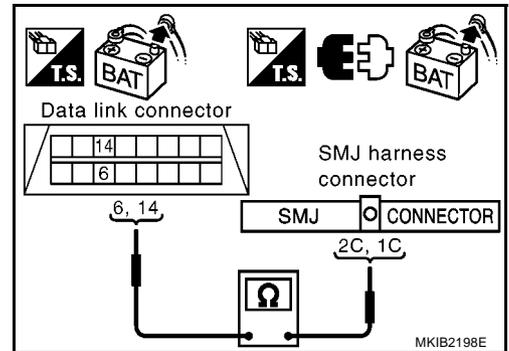
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect following connector.
 - Harness connector M1
2. Check continuity between data link connector M17 terminals 6 (R), 14 (W) and harness connector M1 terminals 2C (R), 1C (W).

6 (R) – 2C (R) : Continuity should exist.
14 (W) – 1C (W) : Continuity should exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness.



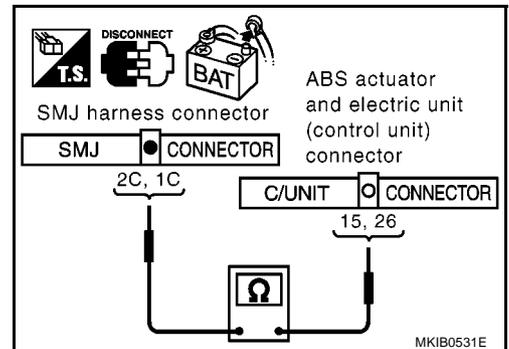
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between harness connector E101 terminals 2C (R), 1C (W) and ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R), 15 (W).

2C (R) – 26 (R) : Continuity should exist.
1C (W) – 15 (W) : Continuity should exist.

OK or NG

- OK >> Connect all the connectors and diagnosis again. Refer to [LAN-139. "Work Flow"](#) .
 NG >> Repair harness.



ECM Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
 - ECM connector
 - Harness connector M1
 - Harness connector E101

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

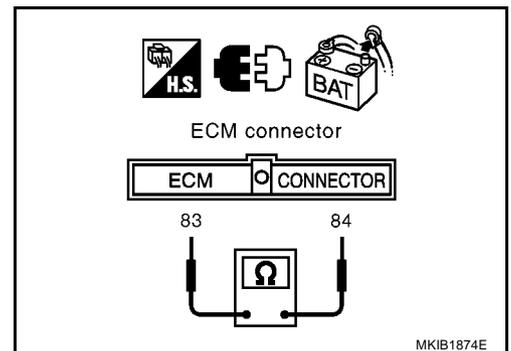
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E66 terminals 84 (R) and 83 (W).

84 (R) – 83 (W)**: Approx. 108 – 132Ω**OK or NG

OK >> Replace ECM.

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

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Data Link Connector Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check the data link connector and terminals for damage, bend and loose connection (connector side and harness side).

OK or NG

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

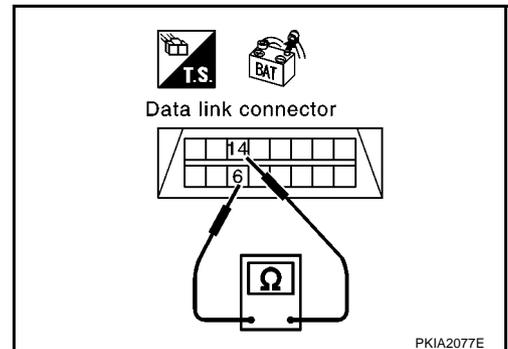
2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M17 terminals 6 (R) and 14 (W).

6 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Diagnosis again. Refer to [LAN-139, "Work Flow"](#) .
NG >> Repair harness between data link connector and combination meter



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

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of combination meter for damage, bend and loose connection (meter side and harness side).

OK or NG

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

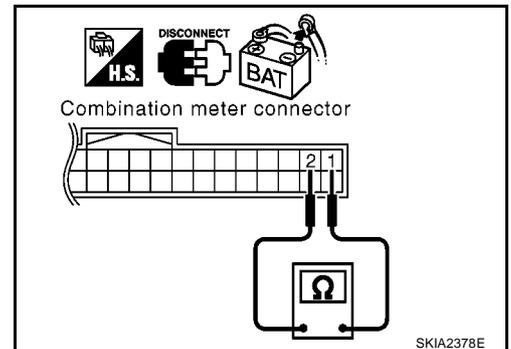
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M22 terminals 1 (R) and 2 (W).

1 (R) – 2 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between combination meter and data link connector.



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Intelligent Key Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of Intelligent Key unit for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

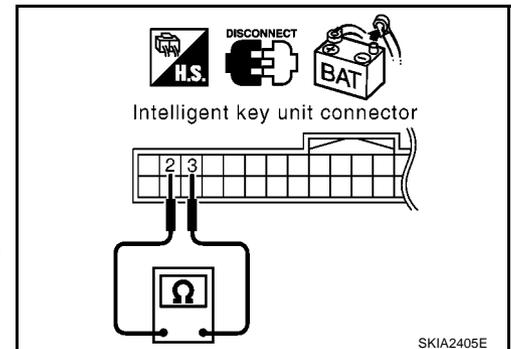
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect Intelligent Key unit connector.
2. Check resistance between Intelligent Key unit harness connector M51 terminals 2 (R) and 3 (W).

2 (R) – 3 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace Intelligent Key unit.
 NG >> Repair harness between Intelligent Key unit and data link connector.



EPS Control Unit Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

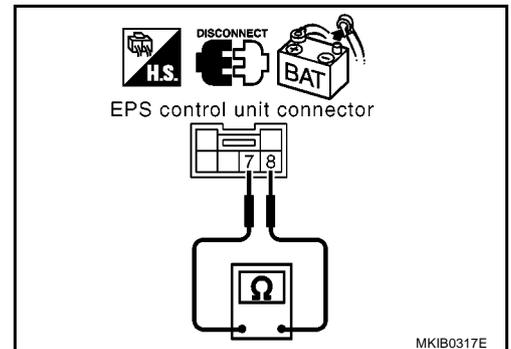
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect EPS control unit connector.
2. Check resistance between EPS control unit harness connector M23 terminals 8 (R) and 7 (W).

8 (R) – 7 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace EPS control unit.
 NG >> Repair harness between EPS control unit and data link connector.



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BCM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

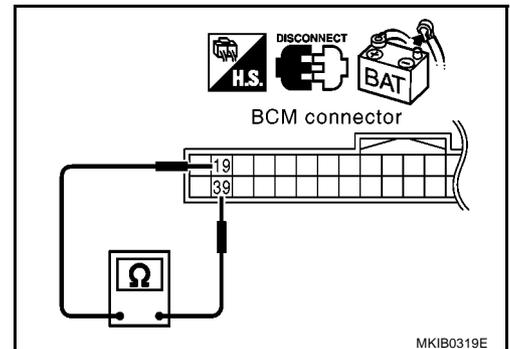
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M48 terminals 19 (R) and 39 (W).

19 (R) – 39 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace BCM. Refer to [BCS-30, "Removal and Installation of BCM"](#) .
 NG >> Repair harness between BCM and data link connector.



ABS Actuator and Electric Unit (Control Unit) Circuit Check

EKS00PB2

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ABS actuator and electric unit (control unit) for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

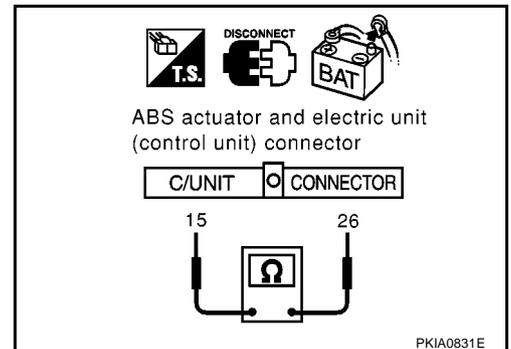
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R) and 15 (W).

26 (R) – 15 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace ABS actuator and electric unit (control unit).
 NG >> Repair harness between ABS actuator and electric unit (control unit) and IPDM E/R.

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IPDM E/R Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

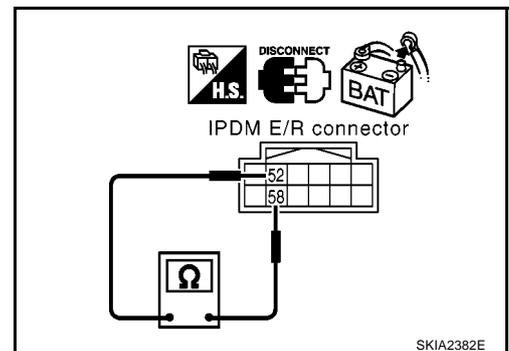
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check resistance between IPDM E/R harness connector E16 terminals 52 (R) and 58 (W).

52 (R) – 58 (W) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace IPDM E/R.
 NG >> Repair harness between IPDM E/R and ABS actuator and electric unit (control unit).



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

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side, meter side, control unit side and harness side).
 - ECM
 - Combination meter
 - Intelligent Key unit
 - EPS control unit
 - BCM
 - ABS actuator and electric unit (control unit)
 - IPDM E/R
 - Between ECM and IPDM E/R

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

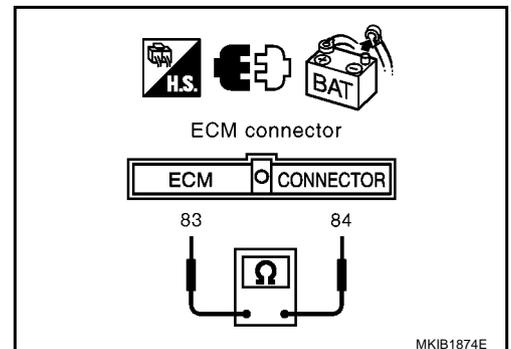
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E101.
2. Check continuity between ECM harness connector E66 terminals 84 (R) and 83 (W).

84 (R) – 83 (W) : Continuity should not exist.OK or NG

OK >> GO TO 3.

NG >> Repair harness between ECM and harness connector E101.

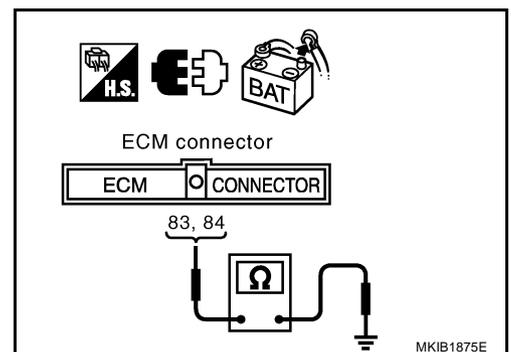
**3. CHECK HARNESS FOR SHORT CIRCUIT**

Check continuity between ECM harness connector E66 terminals 84 (R), 83 (W) and ground.

84 (R) – Ground : Continuity should not exist.**83 (W) – Ground : Continuity should not exist.**OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector E101.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - ABS actuator and electric unit (control unit) connector
 - IPDM E/R connector
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R) and 15 (W).

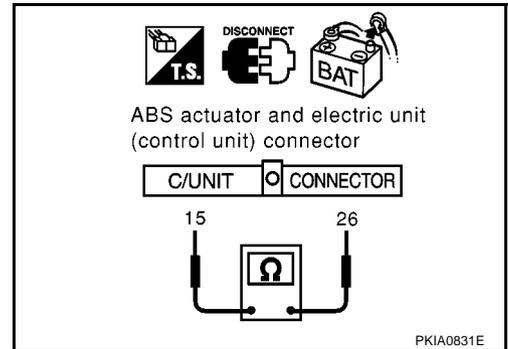
26 (R) – 15 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R), 15 (W) and ground.

26 (R) – Ground : Continuity should not exist.

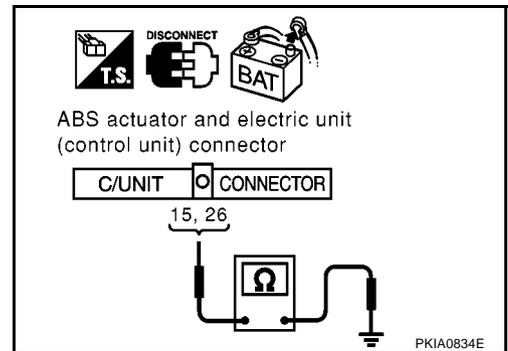
15 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



6. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect following connectors.
 - Combination meter connector
 - Intelligent Key unit connector
 - EPS control unit connector
 - BCM connector
- Check continuity between data link connector M17 terminals 6 (R) and 14 (W).

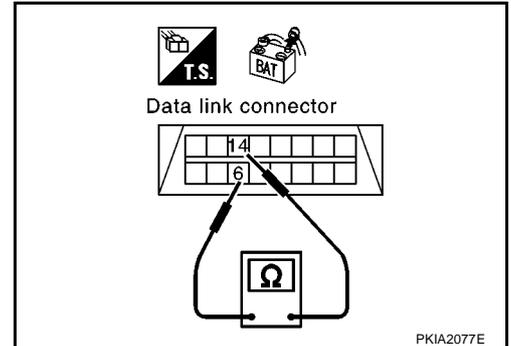
6 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and Intelligent Key unit
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M17 terminals 6 (R), 14 (W) and ground.

6 (R) – Ground : Continuity should not exist.

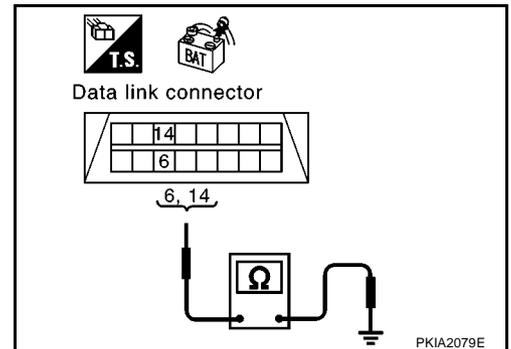
14 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and Intelligent Key unit
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-164, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION"](#) .

OK or NG

OK >> Connect all the connectors and diagnosis again. Refer to [LAN-139, "Work Flow"](#) .

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

IPDM E/R Ignition Relay Circuit Check

EKS00PB5

Perform the self-diagnosis for IPDM E/R. Refer to [PG-49, "Inspection With CONSULT-II \(Self-Diagnosis\)"](#) . If the result is OK, carry out following inspections.

- IPDM E/R power supply circuit. Refer to [PG-50, "IPDM E/R Power Supply and Ground Circuit Check"](#) .
- Ignition power supply circuit. Refer to [PG-13, "IGNITION POWER SUPPLY — IGNITION SW. IN "ON" AND/OR "START""](#) .

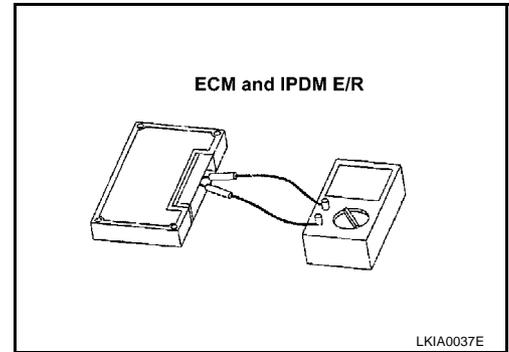
Component Inspection

EKS00PB6

ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 84 and 83.
- Check resistance between IPDM E/R terminals 52 and 58.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	84 – 83	108 - 132
IPDM E/R	52 – 58	



CAN SYSTEM (TYPE 6)

PFP:23710

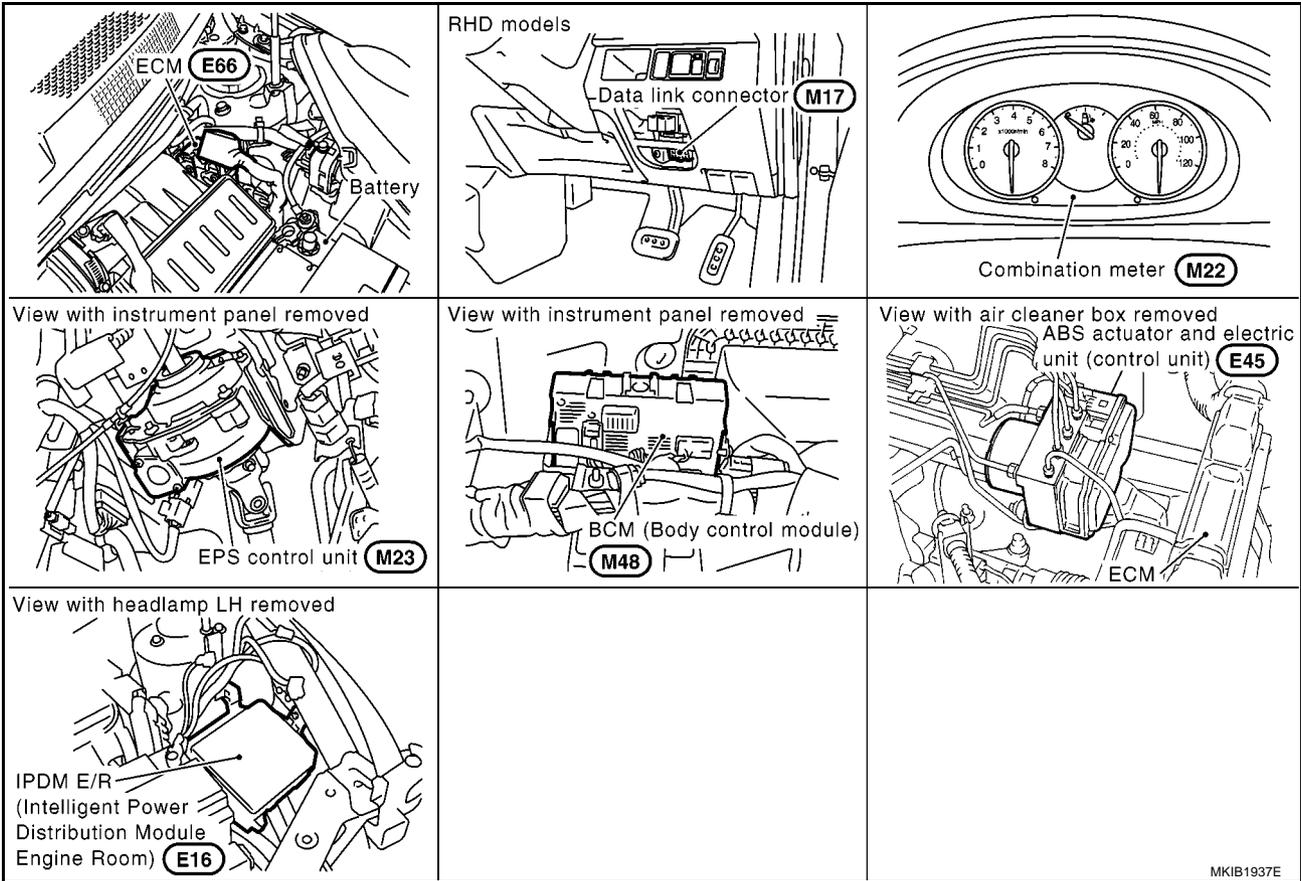
System Description

EKS00PB7

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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CAN SYSTEM (TYPE 6)

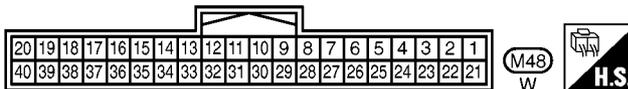
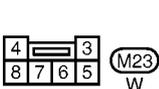
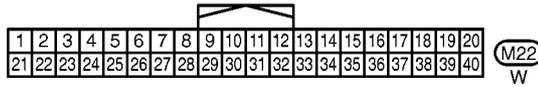
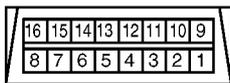
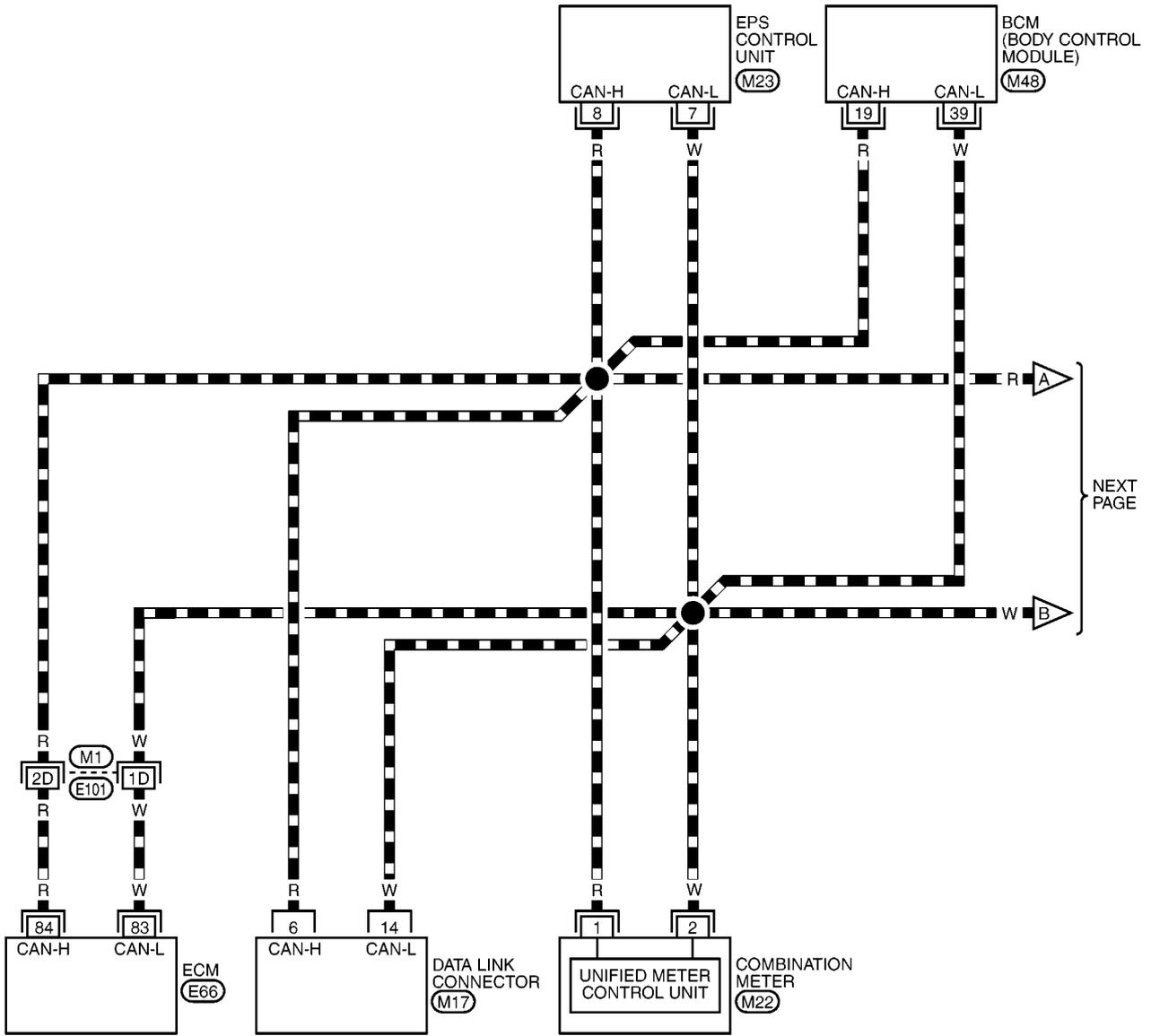
[CAN]

EKS00PB9

Wiring Diagram — CAN —

LAN-CAN-11

▬ : DATA LINE



REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

(E66) -ELECTRICAL UNITS

CAN SYSTEM (TYPE 6)

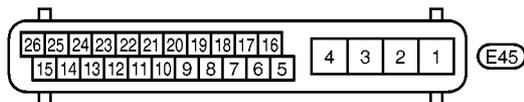
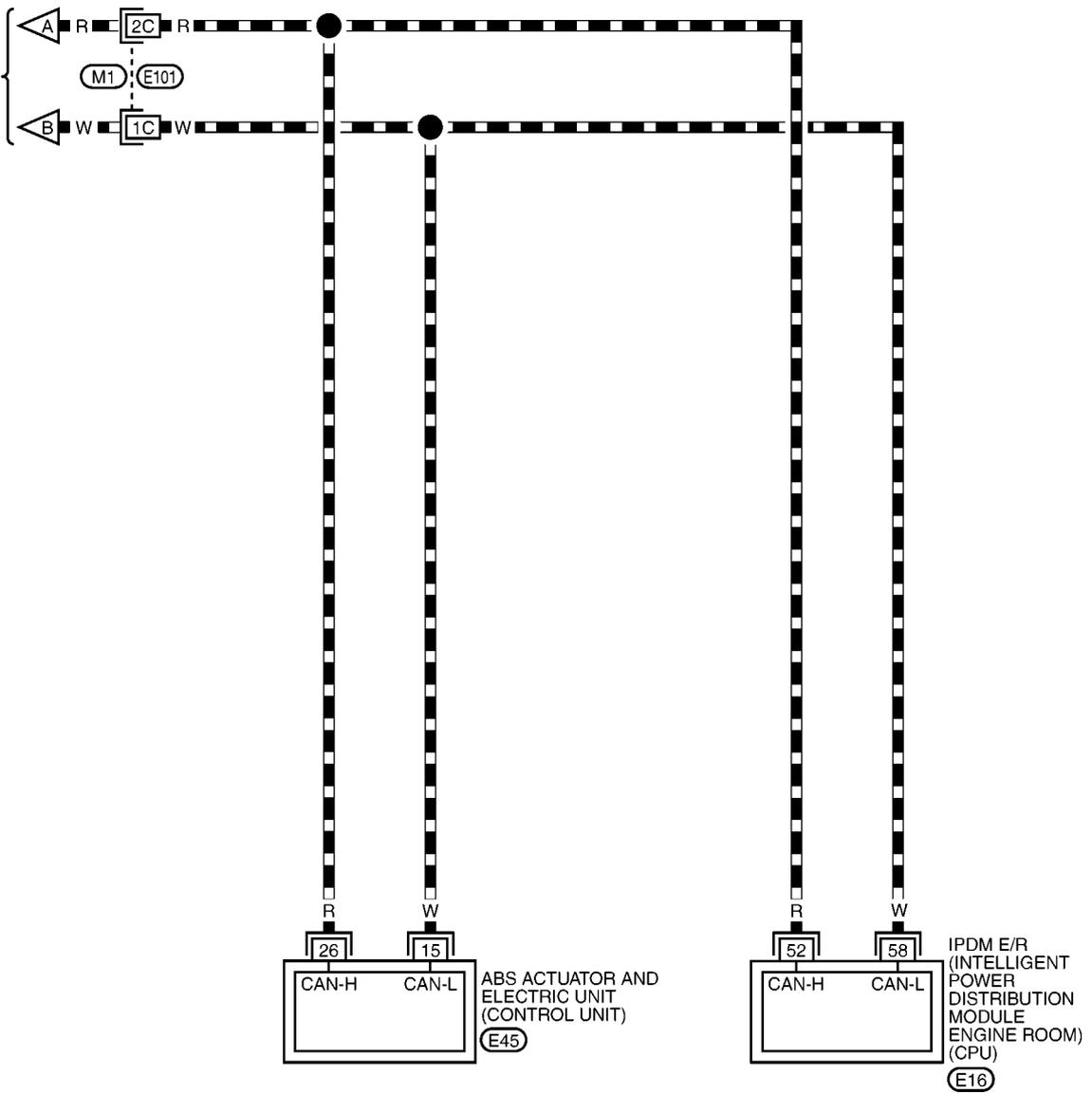
[CAN]

LAN-CAN-12

▬ : DATA LINE

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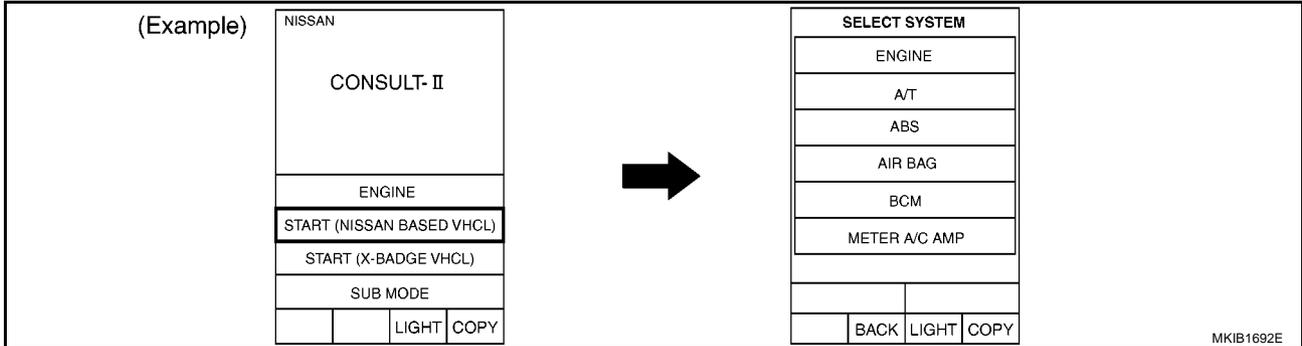
REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

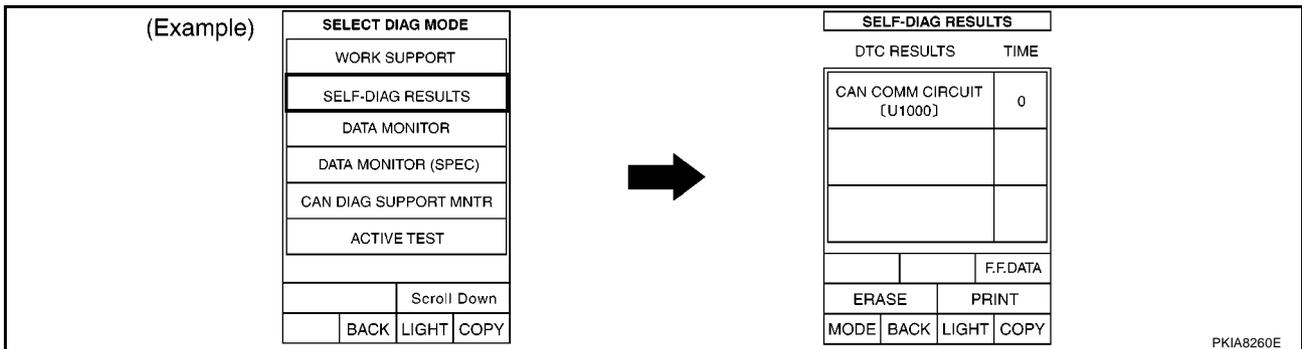
MKWA3788E

Work Flow

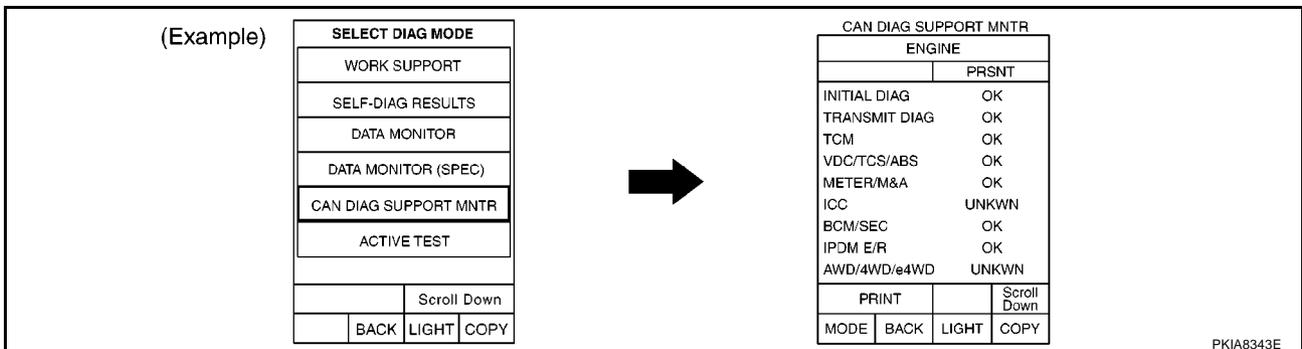
- When there are no indications of “EPS”, “BCM” or “IPDM E/R” on “SELECT SYSTEM” display of CONSULT-II, print the “SELECT SYSTEM”.



- Print all the data of “SELF-DIAG RESULTS” for “ENGINE”, “EPS”, “BCM”, “ABS” and “IPDM E/R” displayed on CONSULT-II.



- Print all the data of “CAN DIAG SUPPORT MNTR” for “ENGINE”, “EPS”, “BCM”, “ABS” and “IPDM E/R” displayed on CONSULT-II.



- Attach the printed sheet of “SELECT SYSTEM”, “SELF-DIAG RESULTS” and “CAN DIAG SUPPORT MNTR” onto the check sheet. Refer to [LAN-169, "CHECK SHEET"](#) .

- Based on the indications of “SELECT SYSTEM” and the results of “CAN DIAG SUPPORT MNTR”, put marks “v” onto the items with “No indication”, “NG”, or “UNKWVN” in the check sheet table. Refer to [LAN-169, "CHECK SHEET"](#) .

NOTE:

- If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)” as “CAN DIAG SUPPORT MNTR” for the diagnosed control unit, replace the control unit.
- The “CAN DIAG SUPPORT MNTR” items, which are not in check sheet table, are not related to diagnostic procedure on service manual.
So it is not necessary to check the status of “CAN DIAG SUPPORT MNTR” items which are not indicated in check sheet table.

- According to the check sheet results (example), start inspection. Refer to [LAN-171, "CHECK SHEET RESULTS \(EXAMPLE\)"](#) .

CAN SYSTEM (TYPE 6)

[CAN]

CHECK SHEET

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Check sheet table

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

Symptoms:

Attach copy of
SELECT SYSTEM

Attach copy of
SELECT SYSTEM

CAN SYSTEM (TYPE 6)

[CAN]

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
EPS
SELF-DIAG RESULTS

Attach copy of
BCM
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

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IPDM E/R
SELF-DIAG RESULTS

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CHECK SHEET RESULTS (EXAMPLE)

NOTE:

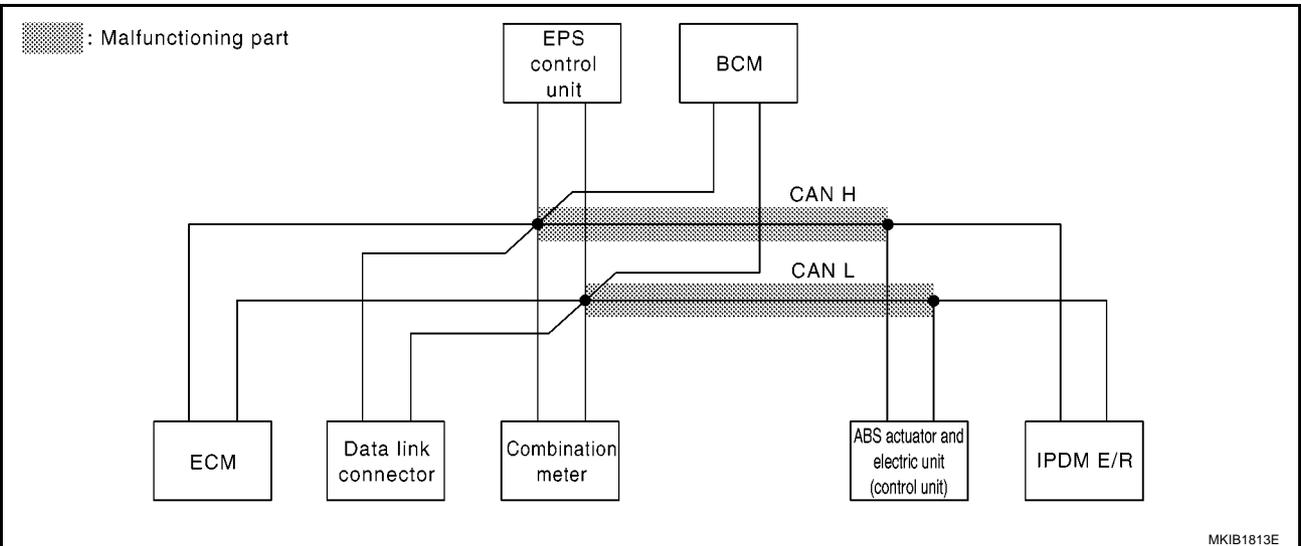
If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

Case 1

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to [LAN-180, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit \(Control Unit\)"](#).

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	-	-	UNKWN	-	-	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	-	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	-
BCM	No indication	-	UNKWN	UNKWN	UNKWN	-	-	UNKWN	UNKWN
ABS	No indication	NG	-	UNKWN	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-

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CAN SYSTEM (TYPE 6)

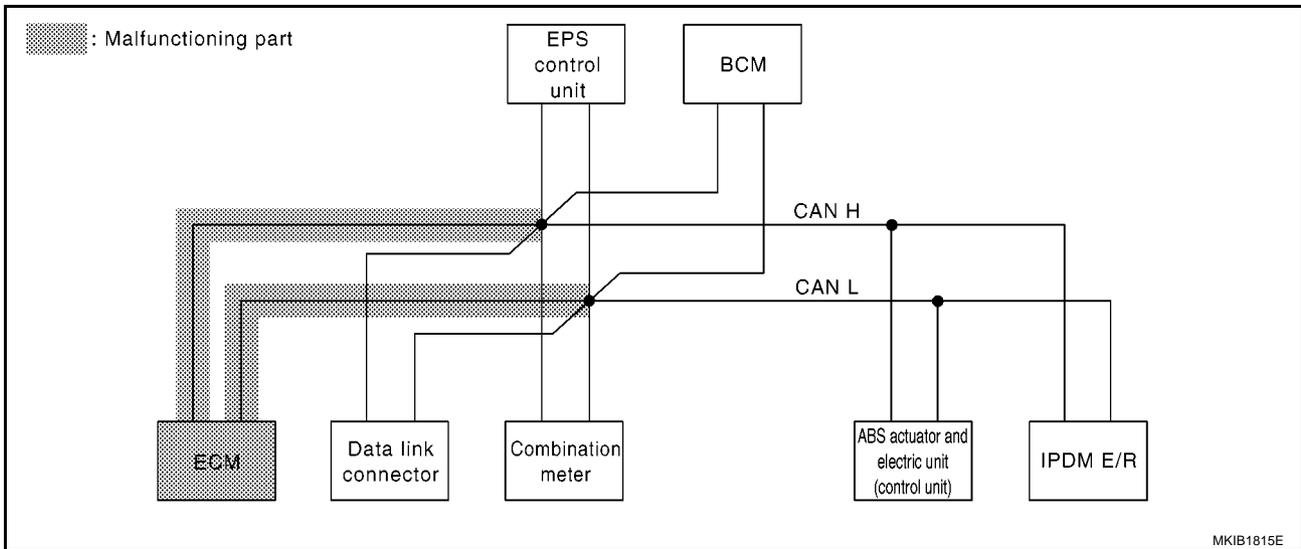
[CAN]

Case 2

Check ECM circuit. Refer to [LAN-181, "ECM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN ✓	—	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓
EPS	No indication	—	UNKWN	UNKWN ✓	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN ✓	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	✓	—	UNKWN ✓	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN ✓	—	—	UNKWN	—	—

MKIB2101E



CAN SYSTEM (TYPE 6)

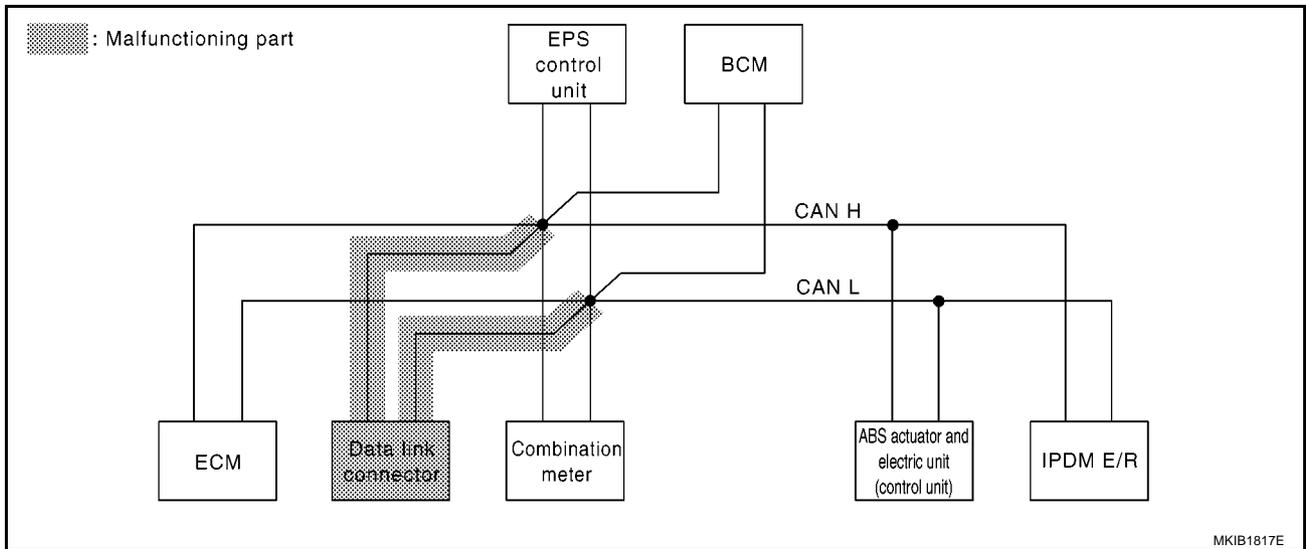
[CAN]

Case 3

Check data link connector circuit. Refer to [LAN-182, "Data Link Connector Circuit Check"](#) .

SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R	
ENGINE	—	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication ✓	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 6)

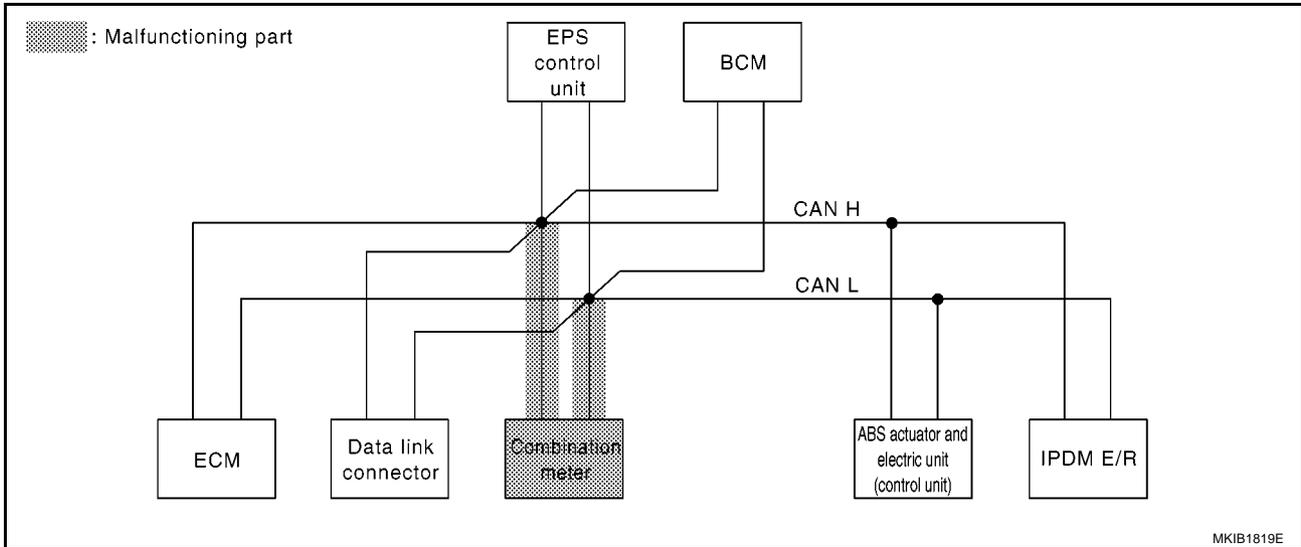
[CAN]

Case 4

Check combination meter circuit. Refer to [LAN-183, "Combination Meter Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN ✓	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN ✓	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 6)

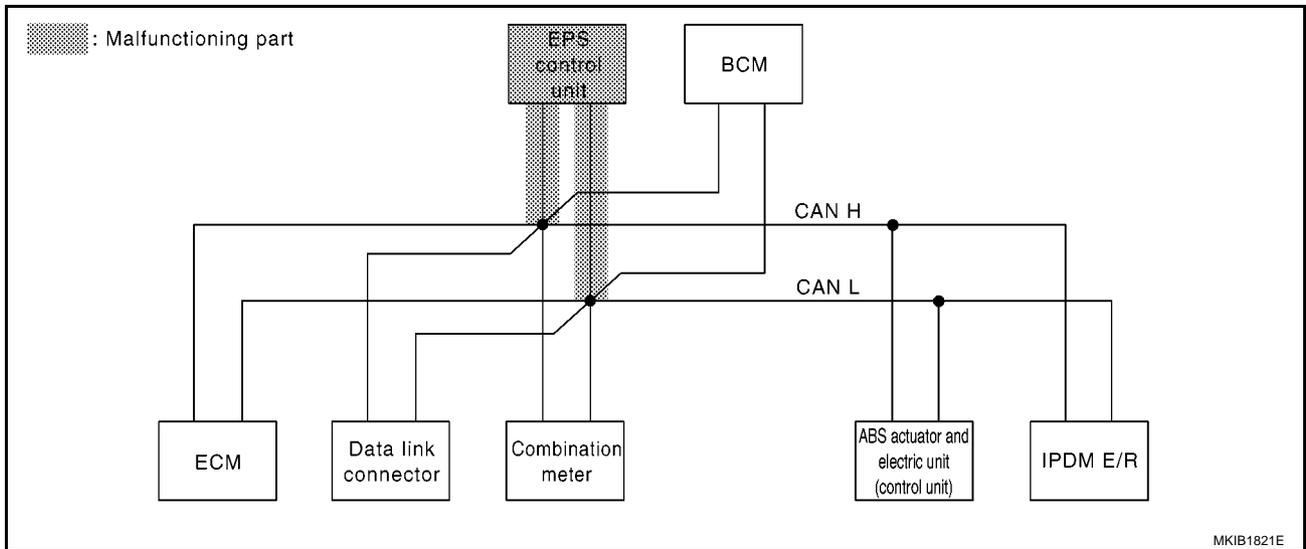
[CAN]

Case 5

Check EPS control unit circuit. Refer to [LAN-184, "EPS Control Unit Circuit Check"](#).

SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R	
ENGINE	—	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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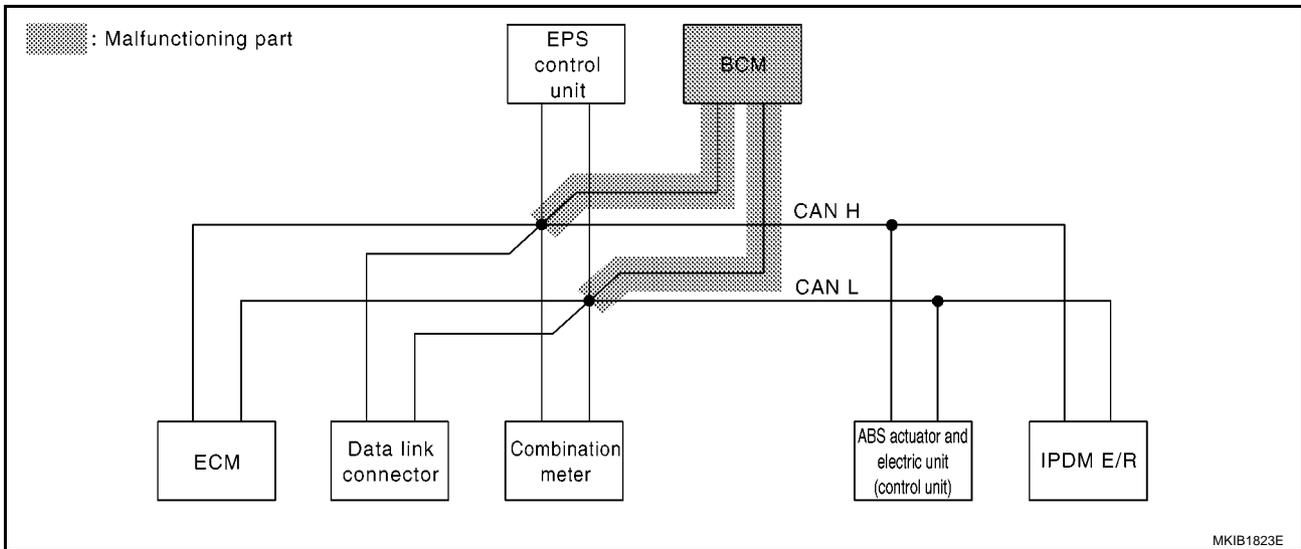
[CAN]

Case 6

Check BCM circuit. Refer to [LAN-185, "BCM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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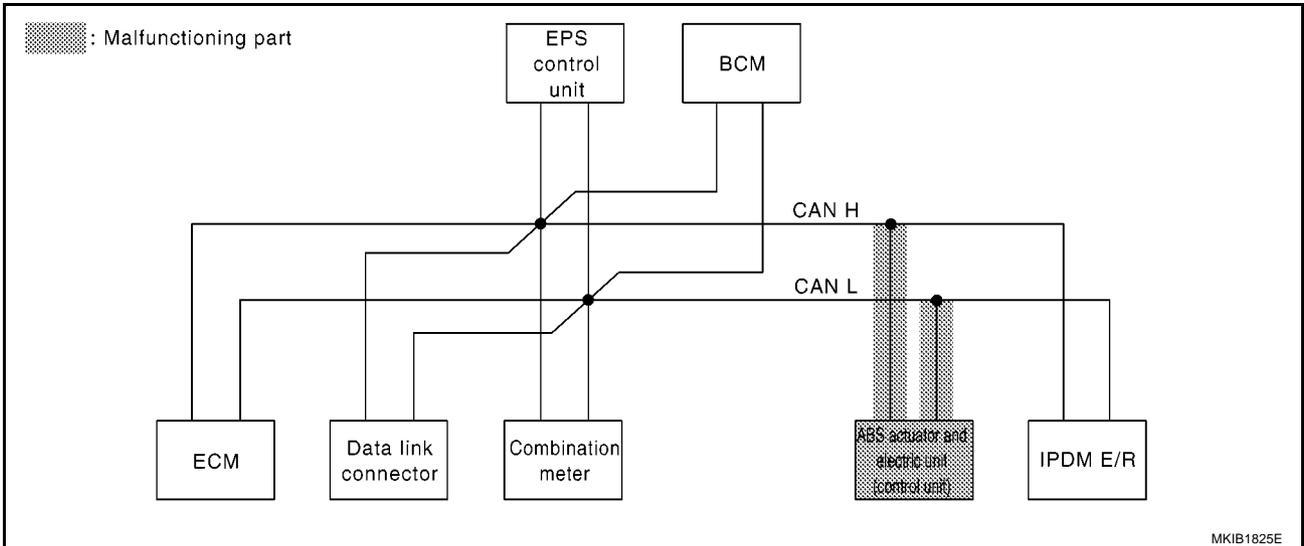
[CAN]

Case 7

Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-186, "ABS Actuator and Electric Unit \(Control Unit\) Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN ✓	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN ✓	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN ✓	UNKWN
ABS	No indication ✓	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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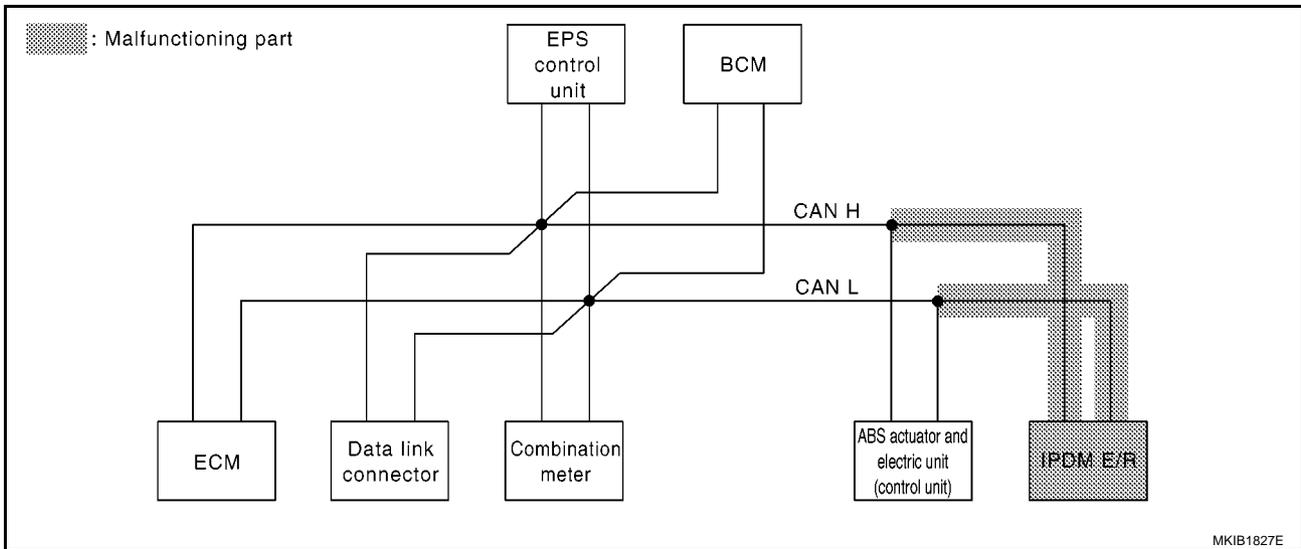
[CAN]

Case 8

Check IPDM E/R circuit. Refer to [LAN-187, "IPDM E/R Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN ✓
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN ✓
ABS	No indication	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 6)

[CAN]

Case 9

Check CAN communication circuit. Refer to [LAN-188, "CAN Communication Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKW N	—	—	UNKW N	UNKW N	UNKW N	UNKW N
EPS	No indication	—	UNKW N	UNKW N	UNKW N	—	UNKW N	UNKW N	—
BCM	No indication	—	UNKW N	UNKW N	UNKW N	—	—	UNKW N	UNKW N
ABS	No indication	NG	—	UNKW N	—	—	—	—	—
IPDM E/R	No indication	—	UNKW N	UNKW N	—	—	UNKW N	—	—

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Case 10

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to [LAN-191, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKW N	—	—	UNKW N	UNKW N	UNKW N	UNKW N
EPS	No indication	—	UNKW N	UNKW N	UNKW N	—	UNKW N	UNKW N	—
BCM	No indication	—	UNKW N	UNKW N	UNKW N	—	—	UNKW N	UNKW N
ABS	No indication	NG	—	UNKW N	—	—	—	—	—
IPDM E/R	No indication	—	UNKW N	UNKW N	—	—	UNKW N	—	—

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Case 11

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to [LAN-191, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKW N	—	—	UNKW N	UNKW N	UNKW N	UNKW N
EPS	No indication	—	UNKW N	UNKW N	UNKW N	—	UNKW N	UNKW N	—
BCM	No indication	—	UNKW N	UNKW N	UNKW N	—	—	UNKW N	UNKW N
ABS	No indication	NG	—	UNKW N	—	—	—	—	—
IPDM E/R	No indication	—	UNKW N	UNKW N	—	—	UNKW N	—	—

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

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M1
 - Harness connector E101

OK or NG

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

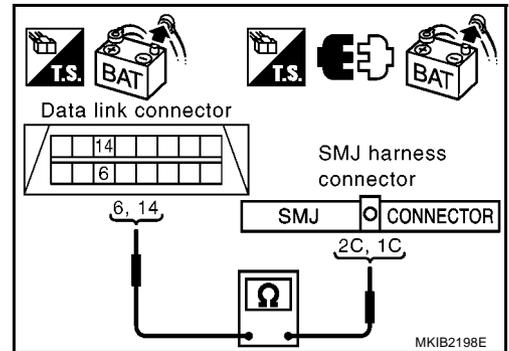
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect following connector.
 - Harness connector M1
2. Check continuity between data link connector M17 terminals 6 (R), 14 (W) and harness connector M1 terminals 2C (R), 1C (W).

6 (R) – 2C (R) : Continuity should exist.
14 (W) – 1C (W) : Continuity should exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness.



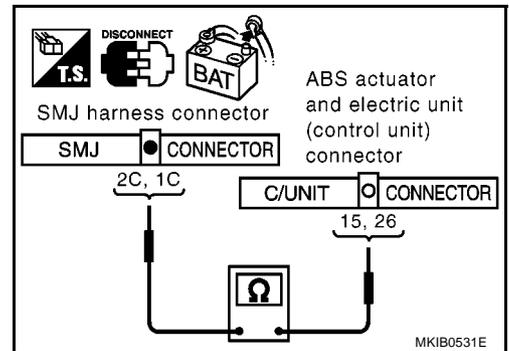
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between harness connector E101 terminals 2C (R), 1C (W) and ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R), 15 (W).

2C (R) – 26 (R) : Continuity should exist.
1C (W) – 15 (W) : Continuity should exist.

OK or NG

- OK >> Connect all the connectors and diagnosis again. Refer to [LAN-168. "Work Flow"](#) .
 NG >> Repair harness.



ECM Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
 - ECM connector
 - Harness connector M1
 - Harness connector E101

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

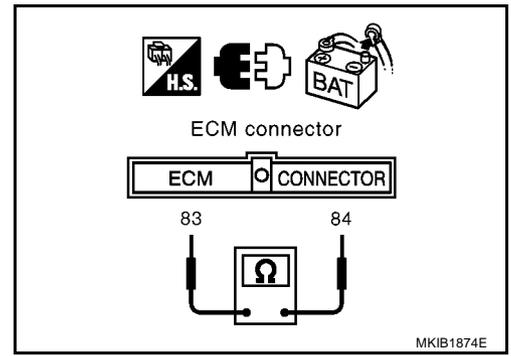
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E66 terminals 84 (R) and 83 (W).

84 (R) – 83 (W)**: Approx. 108 – 132Ω**OK or NG

OK >> Replace ECM.

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



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Data Link Connector Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check data link connector and terminals for damage, bend and loose connection (connector side and harness side).

OK or NG

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

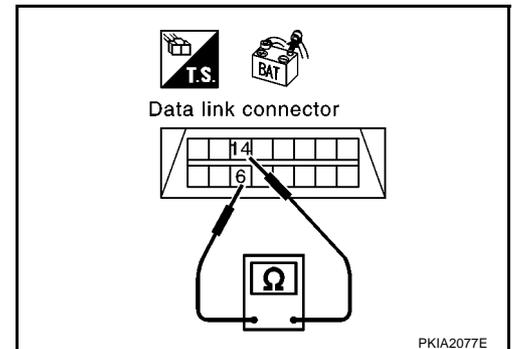
2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M17 terminals 6 (R) and 14 (W).

6 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Diagnosis again. Refer to [LAN-168, "Work Flow"](#) .
 NG >> Repair harness between data link connector and combination meter



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

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of combination meter for damage, bend and loose connection (meter side and harness side).

OK or NG

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

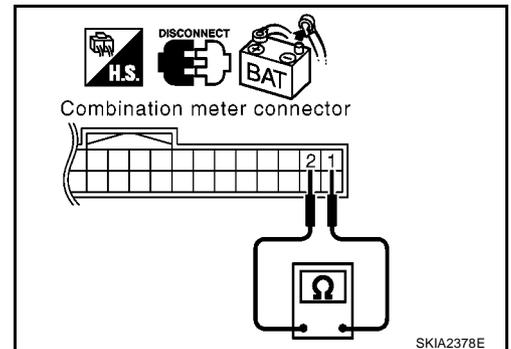
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M22 terminals 1 (R) and 2 (W).

1 (R) – 2 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace combination meter
 NG >> Repair harness between combination meter and data link connector.



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EPS Control Unit Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

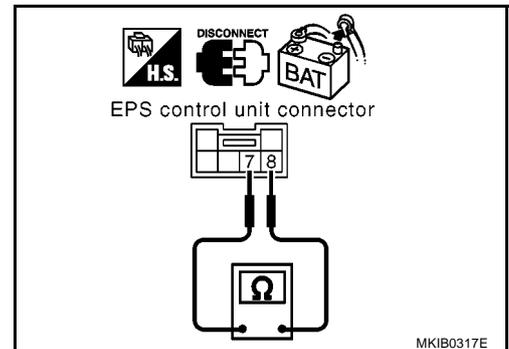
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect EPS control unit connector.
2. Check resistance between EPS control unit harness connector M23 terminals 8 (R) and 7 (W).

8 (R) – 7 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace EPS control unit.
 NG >> Repair harness between EPS control unit and data link connector.



BCM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

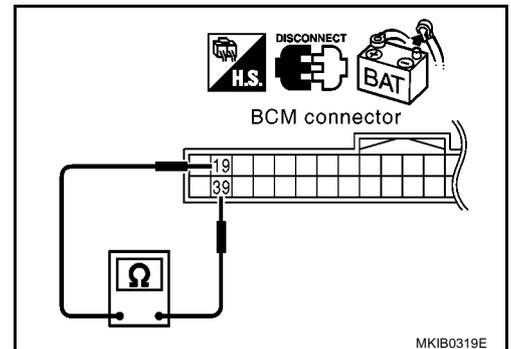
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M48 terminals 19 (R) and 39 (W).

19 (R) – 39 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace BCM. Refer to [BCS-30, "Removal and Installation of BCM"](#) .
 NG >> Repair harness between BCM and data link connector.



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ABS Actuator and Electric Unit (Control Unit) Circuit Check

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1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ABS actuator and electric unit (control unit) for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

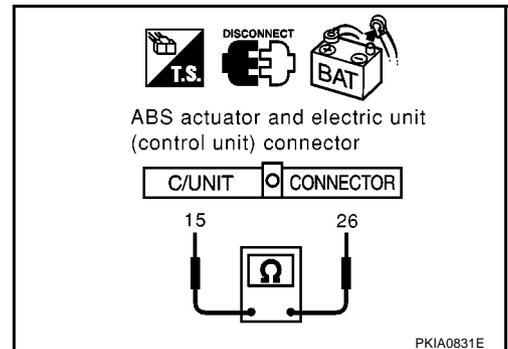
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R) and 15 (W).

26 (R) – 15 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace ABS actuator and electric unit (control unit).
 NG >> Repair harness between ABS actuator and electric unit (control unit) and IPDM E/R.



IPDM E/R Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

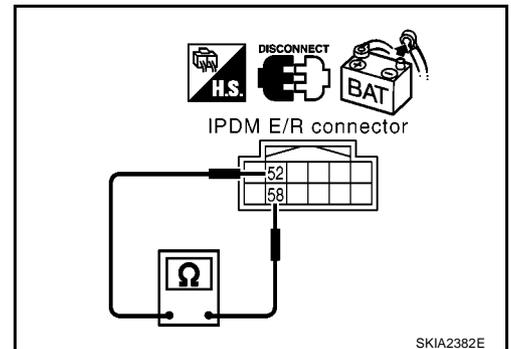
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check resistance between IPDM E/R harness connector E16 terminals 52 (R) and 58 (W).

52 (R) – 58 (W) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace IPDM E/R.
 NG >> Repair harness between IPDM E/R and ABS actuator and electric unit (control unit).



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CAN Communication Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

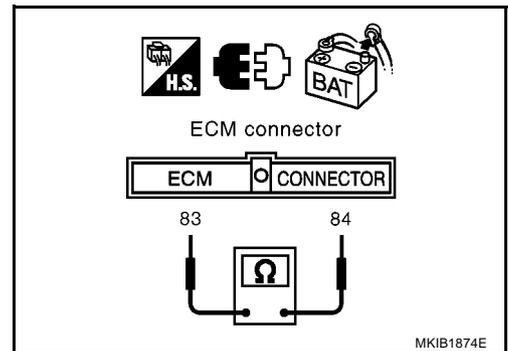
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E101.
2. Check continuity between ECM harness connector E66 terminals 84 (R) and 83 (W).

84 (R) – 83 (W) : Continuity should not exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness between ECM and harness connector E101.



3. CHECK HARNESS FOR SHORT CIRCUIT

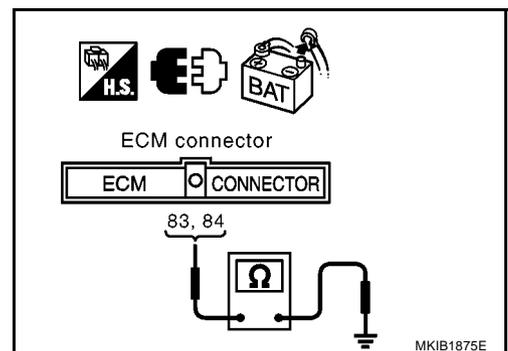
Check continuity between ECM harness connector E66 terminals 84 (R), 83 (W) and ground.

84 (R) – Ground : Continuity should not exist.

83 (W) – Ground : Continuity should not exist.

OK or NG

- OK >> GO TO 4.
 NG >> Repair harness between ECM and harness connector E101.



4. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect following connectors.
 - ABS actuator and electric unit (control unit) connector
 - IPDM E/R connector
- Check continuity between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R) and 15 (W).

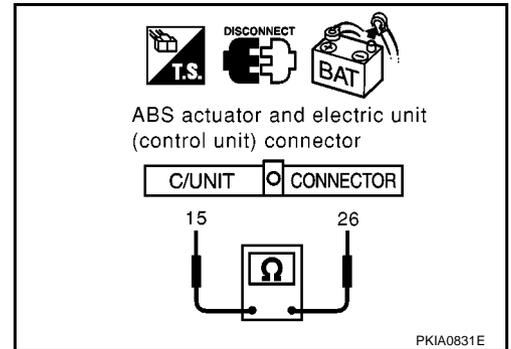
26 (R) – 15 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R), 15 (W) and ground.

26 (R) – Ground : Continuity should not exist.

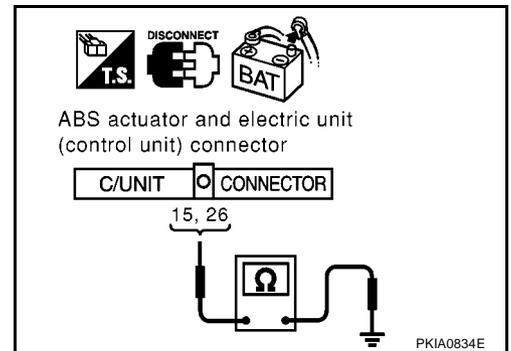
15 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



6. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect following connectors.
 - Combination meter connector
 - EPS control unit connector
 - BCM connector
- Check continuity between data link connector M17 terminals 6 (R) and 14 (W).

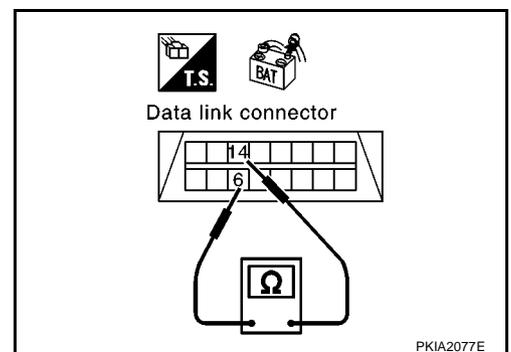
6 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M17 terminals 6 (R), 14 (W) and ground.

6 (R) – Ground : Continuity should not exist.

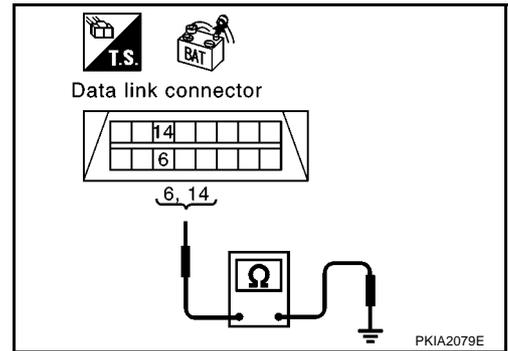
14 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-191, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

OK >> Connect all the connectors and diagnosis again. Refer to [LAN-168, "Work Flow"](#).

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

IPDM E/R Ignition Relay Circuit Check

EKS00PBK

Perform the self-diagnosis for IPDM E/R. Refer to [PG-49, "Inspection With CONSULT-II \(Self-Diagnosis\)"](#) . If the result is OK, carry out following inspections.

- IPDM E/R power supply circuit. Refer to [PG-50, "IPDM E/R Power Supply and Ground Circuit Check"](#) .
- Ignition power supply circuit. Refer to [PG-13, "IGNITION POWER SUPPLY — IGNITION SW. IN "ON" AND/OR "START""](#) .

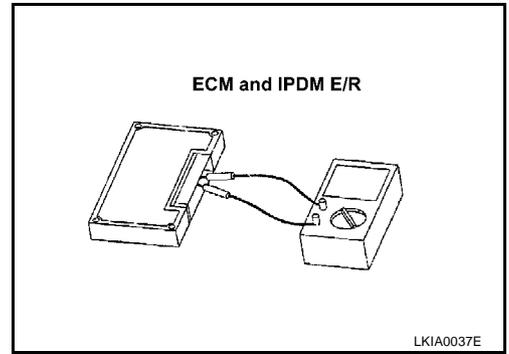
Component Inspection

EKS00PBL

ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 84 and 83.
- Check resistance between IPDM E/R terminals 52 and 58.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	84 – 83	108 - 132
IPDM E/R	52 – 58	



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CAN SYSTEM (TYPE 7)

PFP:23710

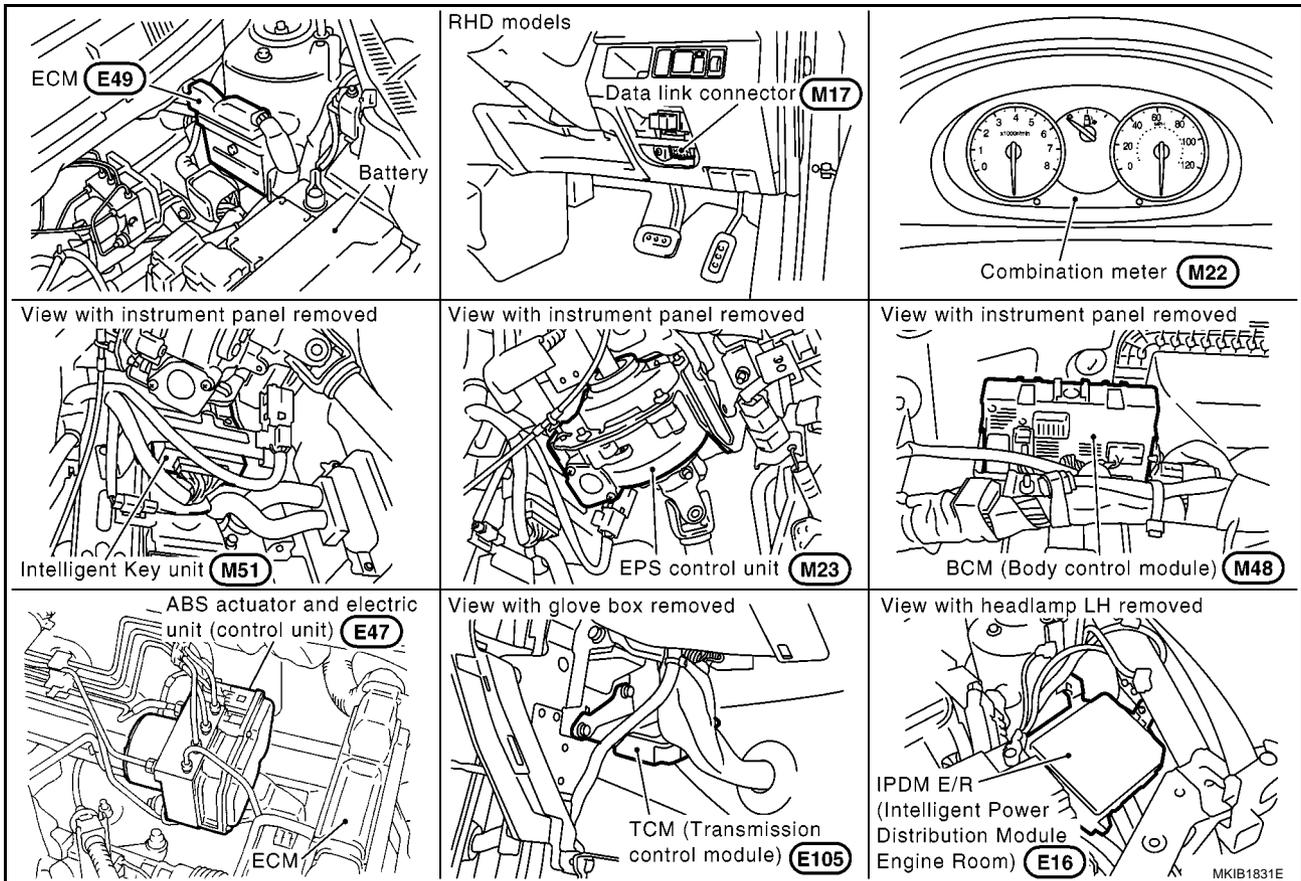
System Description

EKS00J05

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

EKS00J06



CAN SYSTEM (TYPE 7)

[CAN]

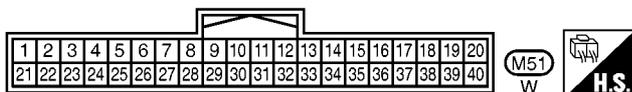
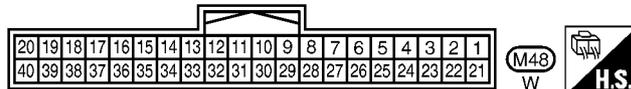
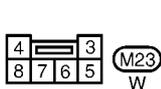
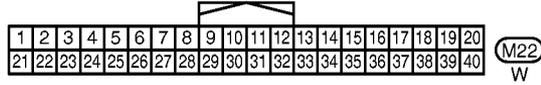
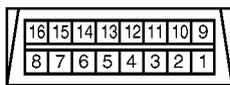
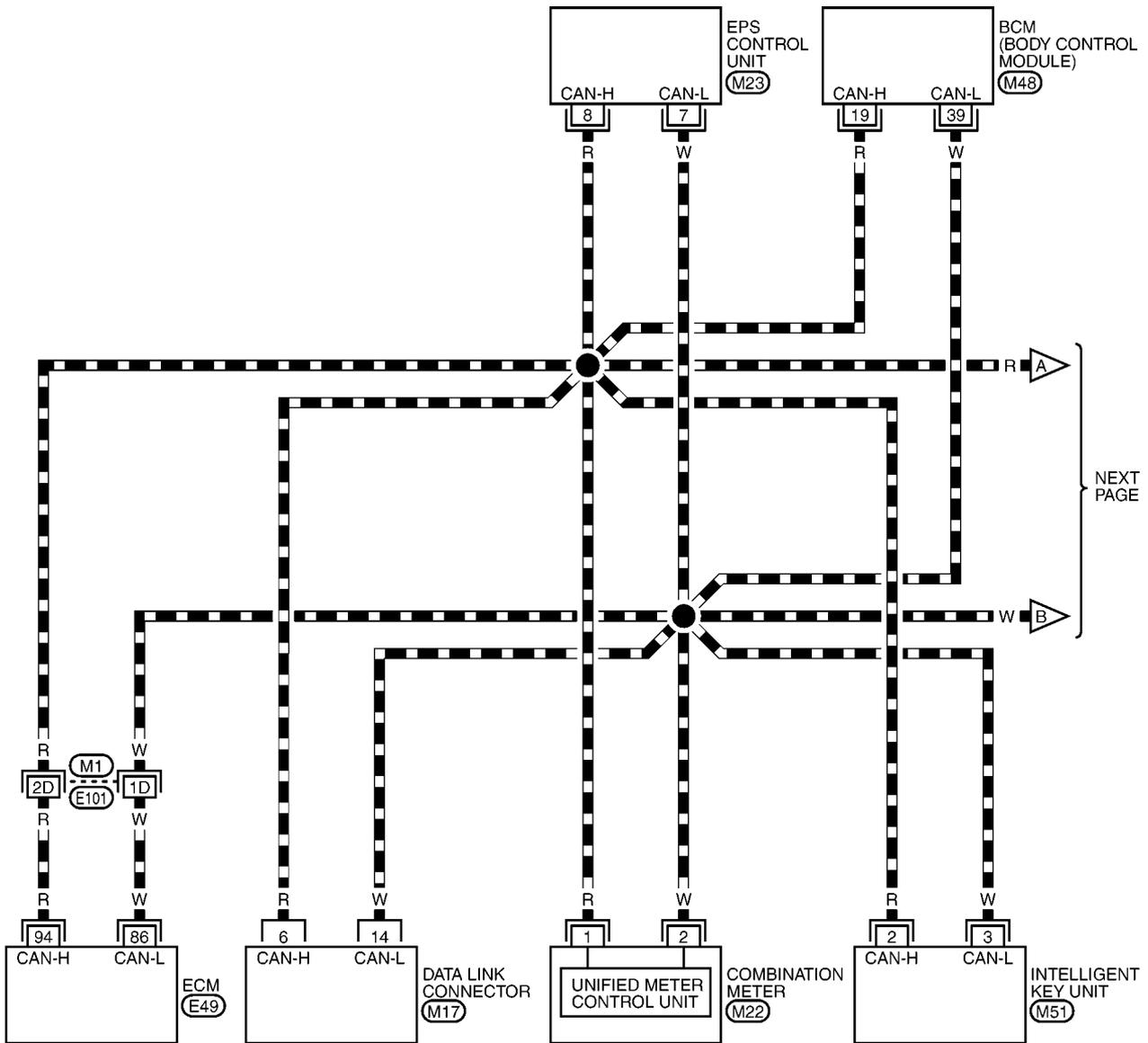
Wiring Diagram — CAN —

EKS00J07

LAN-CAN-13

— : DATA LINE

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REFER TO THE FOLLOWING.

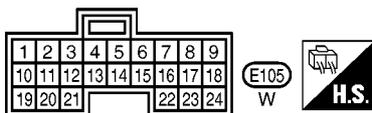
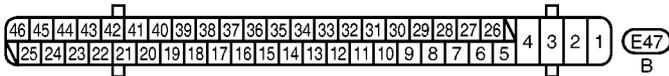
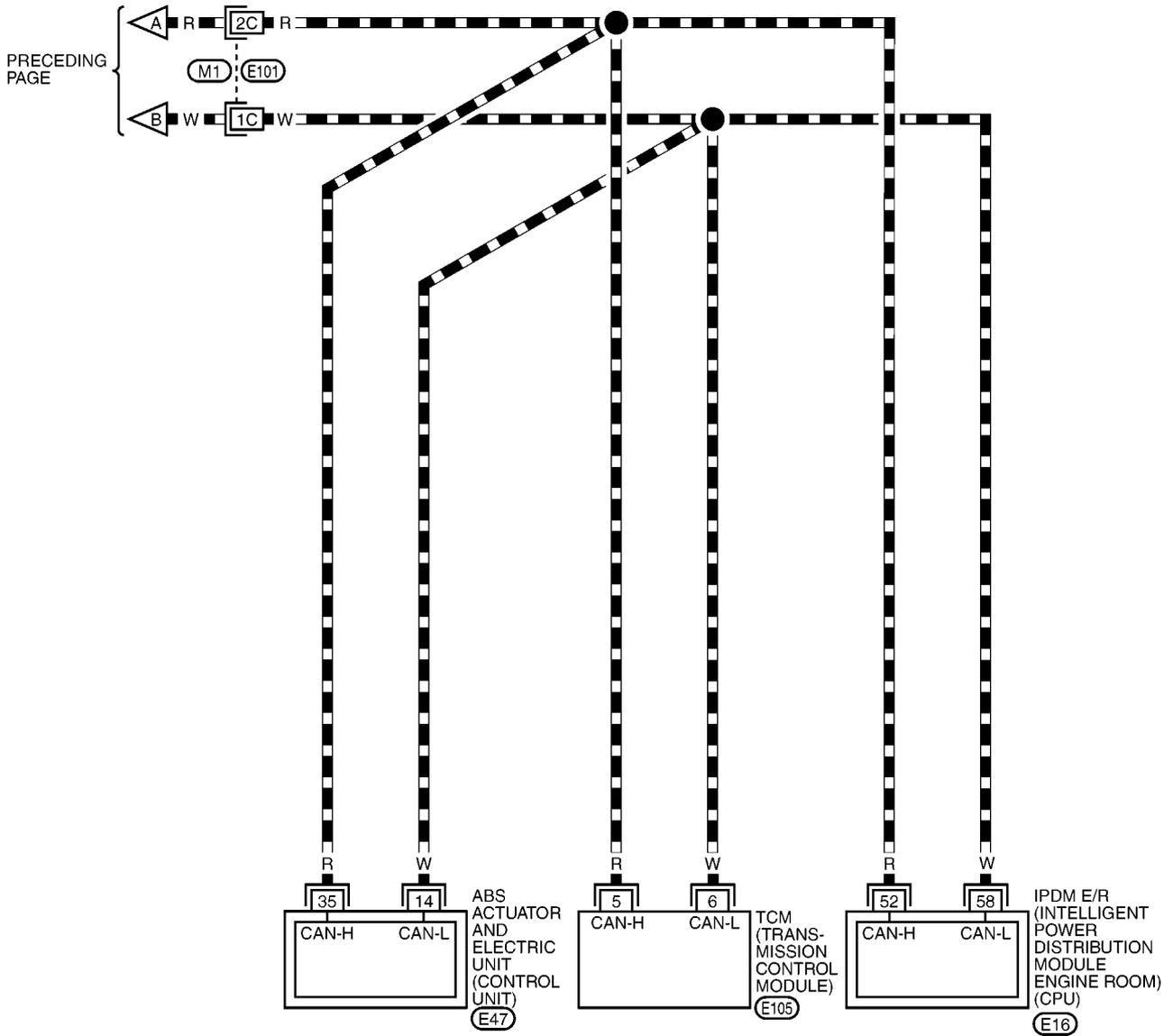
(M1) -SUPER MULTIPLE JUNCTION (SMJ)

(E49) -ELECTRICAL UNITS

LAN

LAN-CAN-14

▬ : DATA LINE



REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

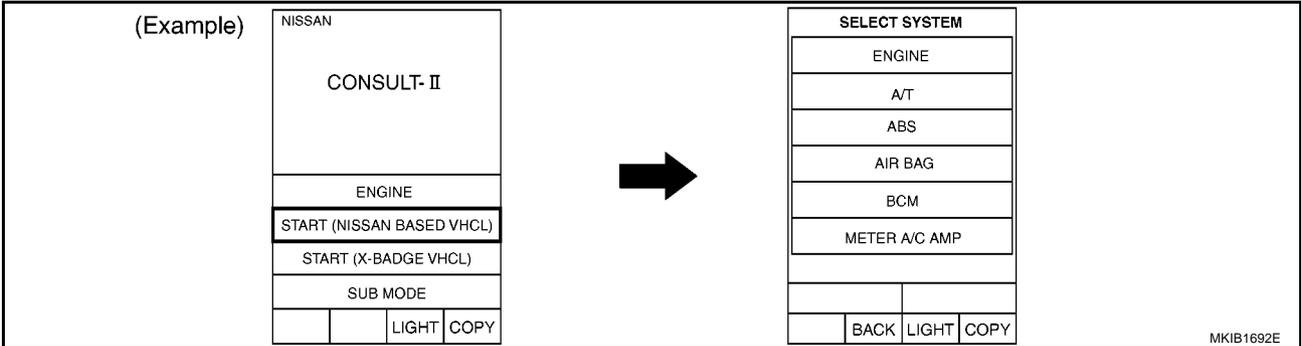
CAN SYSTEM (TYPE 7)

[CAN]

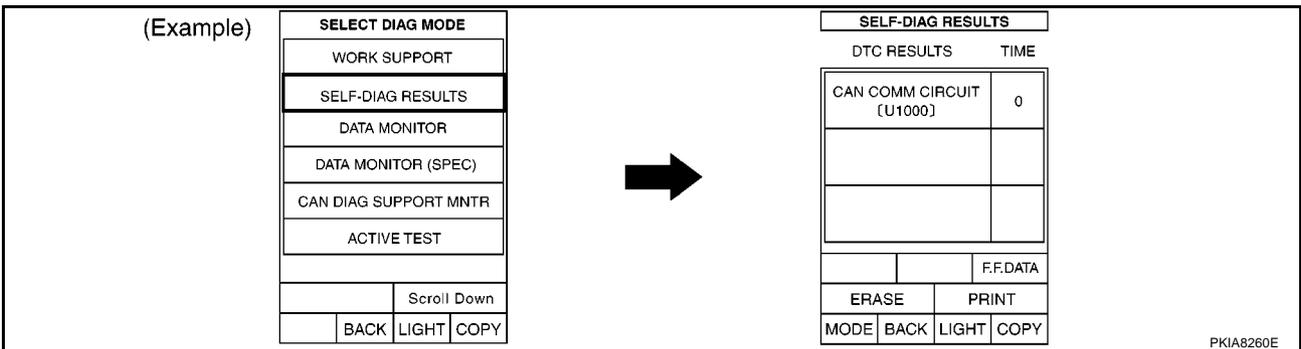
EKS00J08

Work Flow

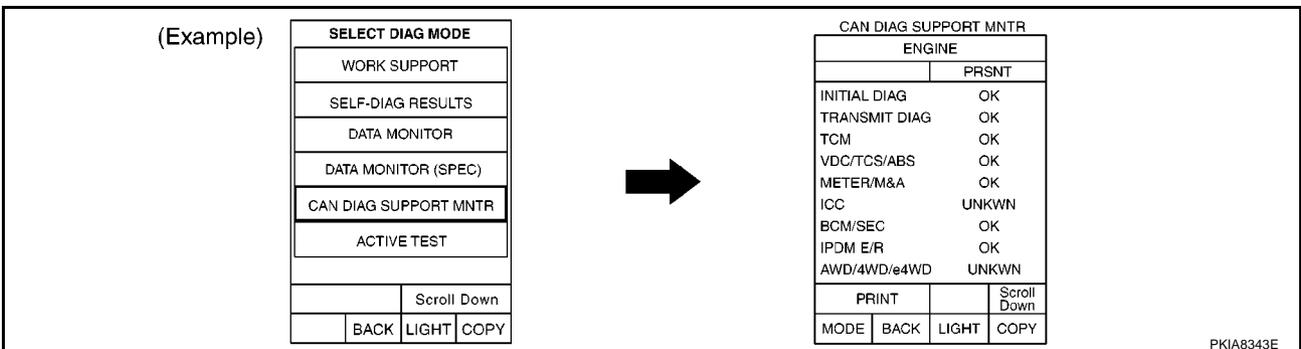
- When there are no indications of "INTELLIGENT KEY", "EPS", "BCM" or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



- Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "INTELLIGENT KEY", "EPS", "BCM", "ABS", "A/T" and "IPDM E/R" displayed on CONSULT-II.



- Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "INTELLIGENT KEY", "EPS", "BCM", "ABS", "A/T" and "IPDM E/R" displayed on CONSULT-II.



- Attach the printed sheet of "SELECT SYSTEM", "SELF-DIAG RESULTS" and "CAN DIAG SUPPORT MNTR" onto the check sheet. Refer to [LAN-196, "CHECK SHEET"](#).
- Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks "v" onto the items with "No indication", "NG", or "UNKWVN" in the check sheet table. Refer to [LAN-196, "CHECK SHEET"](#).

NOTE:

- If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- The "CAN DIAG SUPPORT MNTR" items, which are not in check sheet table, are not related to diagnostic procedure on service manual. So it is not necessary to check the status of "CAN DIAG SUPPORT MNTR" items which are not indicated in check sheet table.

- According to the check sheet results (example), start inspection. Refer to [LAN-198, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

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CAN SYSTEM (TYPE 7)

[CAN]

CHECK SHEET

Check sheet table

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R	
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—	—

Symptoms:

Attach copy of
SELECT SYSTEM

Attach copy of
SELECT SYSTEM

MKIB2111E

CAN SYSTEM (TYPE 7)

[CAN]

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Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
INTELLIGENT KEY
SELF-DIAG RESULTS

Attach copy of
EPS
SELF-DIAG RESULTS

Attach copy of
BCM
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Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
A/T
SELF-DIAG RESULTS

Attach copy of
IPDM E/R
SELF-DIAG RESULTS

Attach copy of
ENGINE
CAN DIAG SUPPORT
MNTR

Attach copy of
INTELLIGENT KEY
CAN DIAG SUPPORT
MNTR

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EPS
CAN DIAG SUPPORT
MNTR

Attach copy of
BCM
CAN DIAG SUPPORT
MNTR

Attach copy of
ABS
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MNTR

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A/T
CAN DIAG SUPPORT
MNTR

Attach copy of
IPDM
CAN DIAG SUPPORT
MNTR

MKIB2188E

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

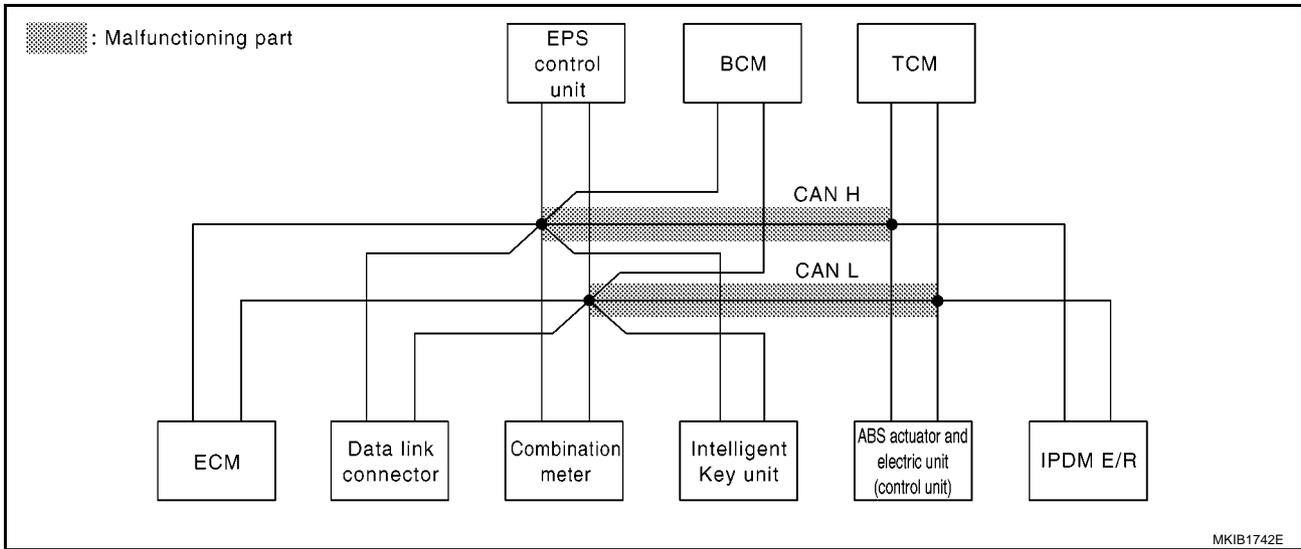
If "NG" is displayed on "CAN COMM" as "DATA MONITOR (CAN DIAG SUPPORT MNTR)" for the diagnosed control unit, replace the control unit.

Case1

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to [LAN-209, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit \(Control Unit\)"](#).

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

MKIB2112E



CAN SYSTEM (TYPE 7)

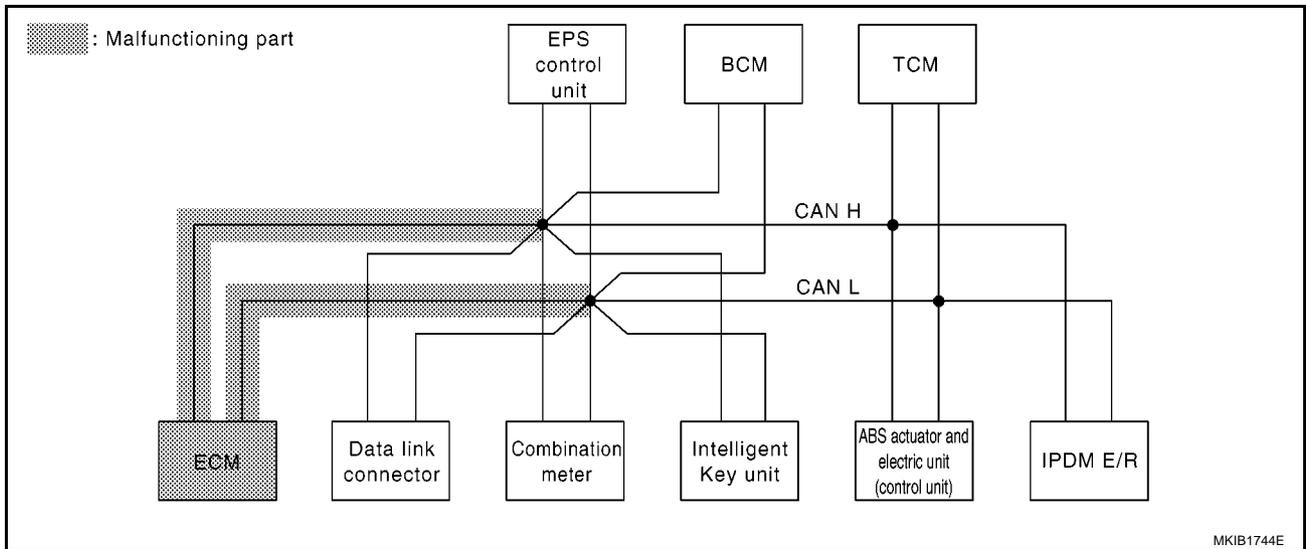
[CAN]

Case2

Check ECM circuit. Refer to [LAN-210, "ECM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

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CAN SYSTEM (TYPE 7)

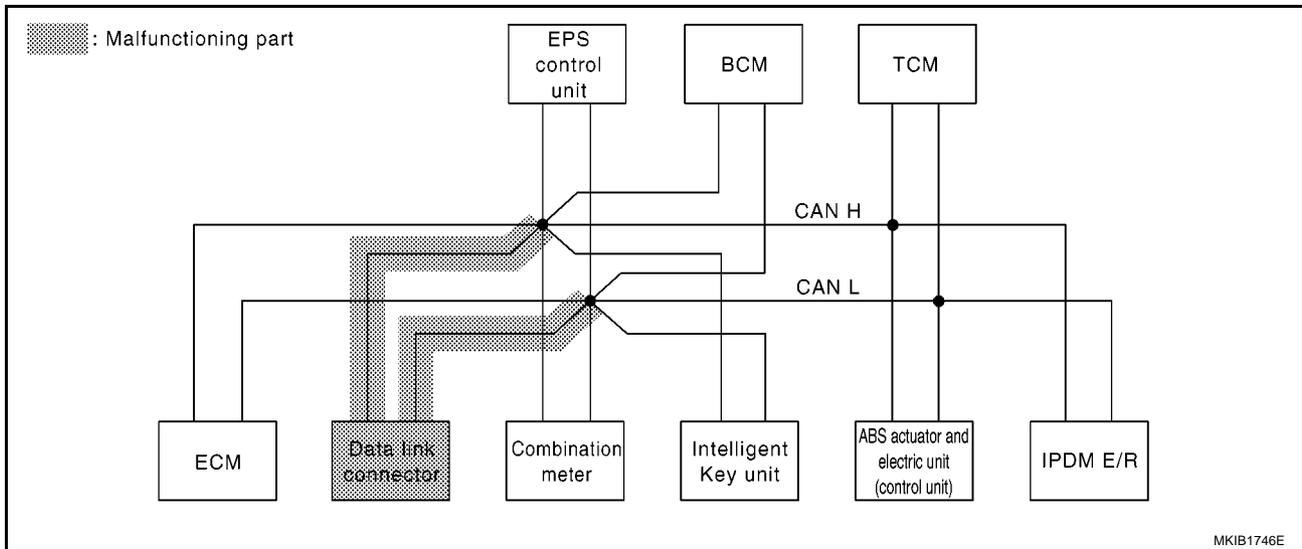
[CAN]

Case3

Check data link connector circuit. Refer to [LAN-211, "Data Link Connector Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication ✓	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication ✓	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

MKIB2114E



MKIB1746E

CAN SYSTEM (TYPE 7)

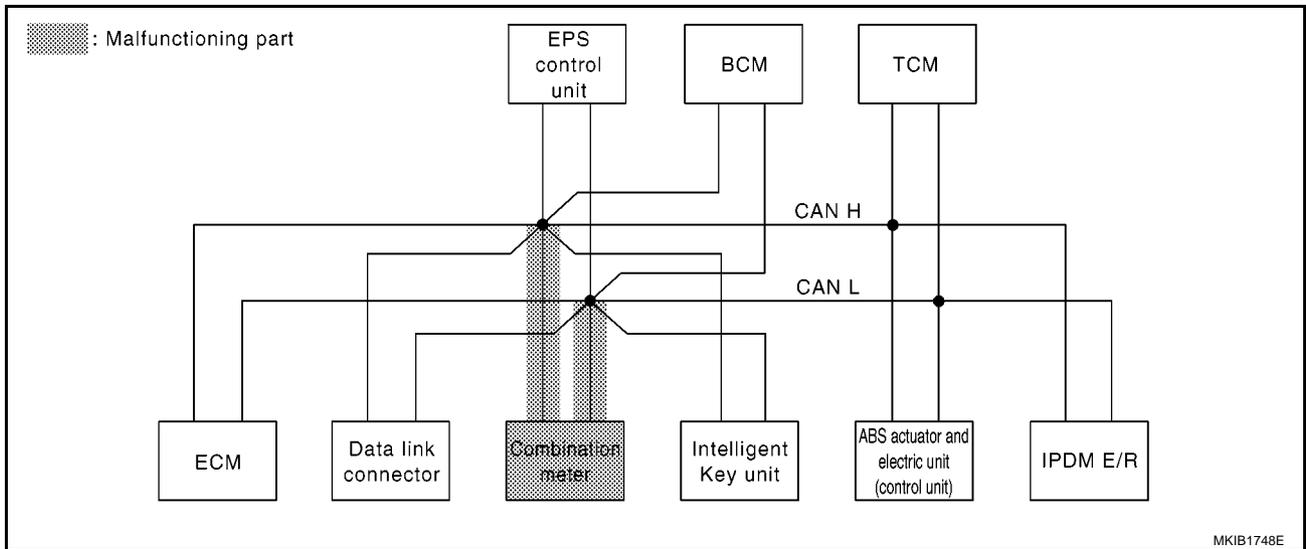
[CAN]

Case4

Check combination meter circuit. Refer to [LAN-212, "Combination Meter Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

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CAN SYSTEM (TYPE 7)

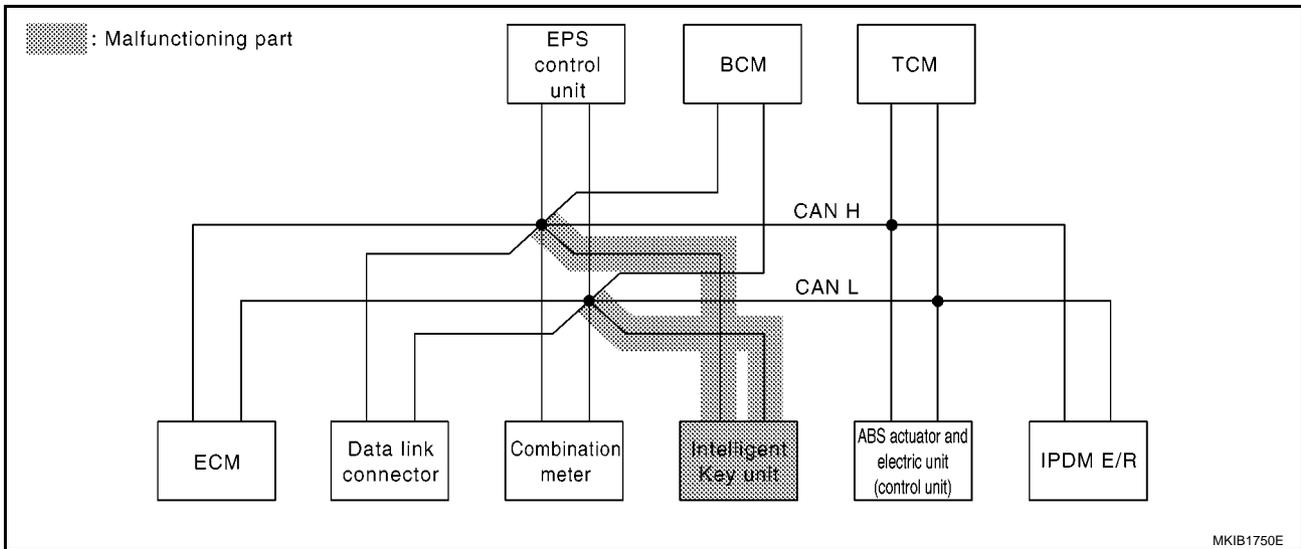
[CAN]

Case5

Check Intelligent Key unit circuit. Refer to [LAN-213, "Intelligent Key Unit Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication ✓	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN ✓	—	—	UNKWN	—	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

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CAN SYSTEM (TYPE 7)

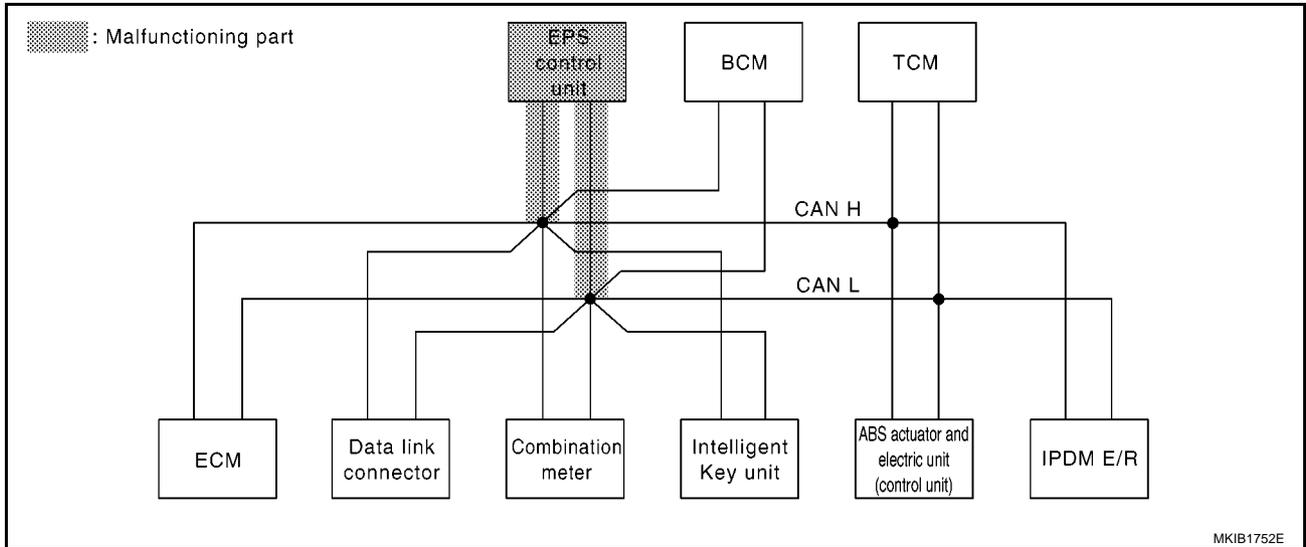
[CAN]

Case6

Check EPS control unit circuit. Refer to [LAN-214, "EPS Control Unit Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

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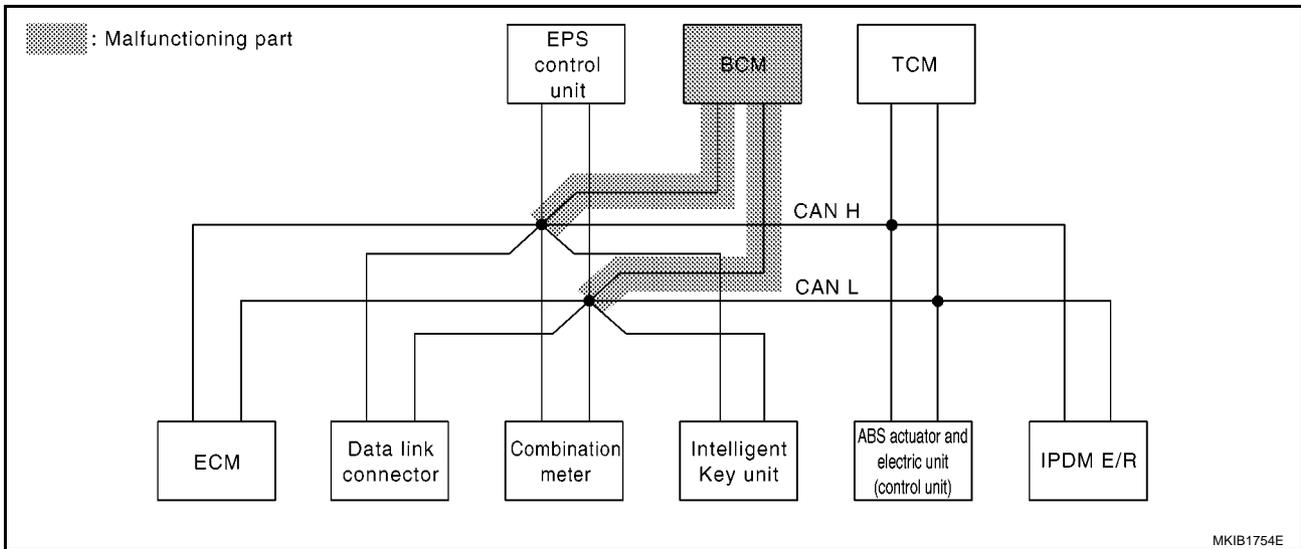
[CAN]

Case7

Check BCM circuit. Refer to [LAN-215, "BCM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication ✓	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication ✓	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

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CAN SYSTEM (TYPE 7)

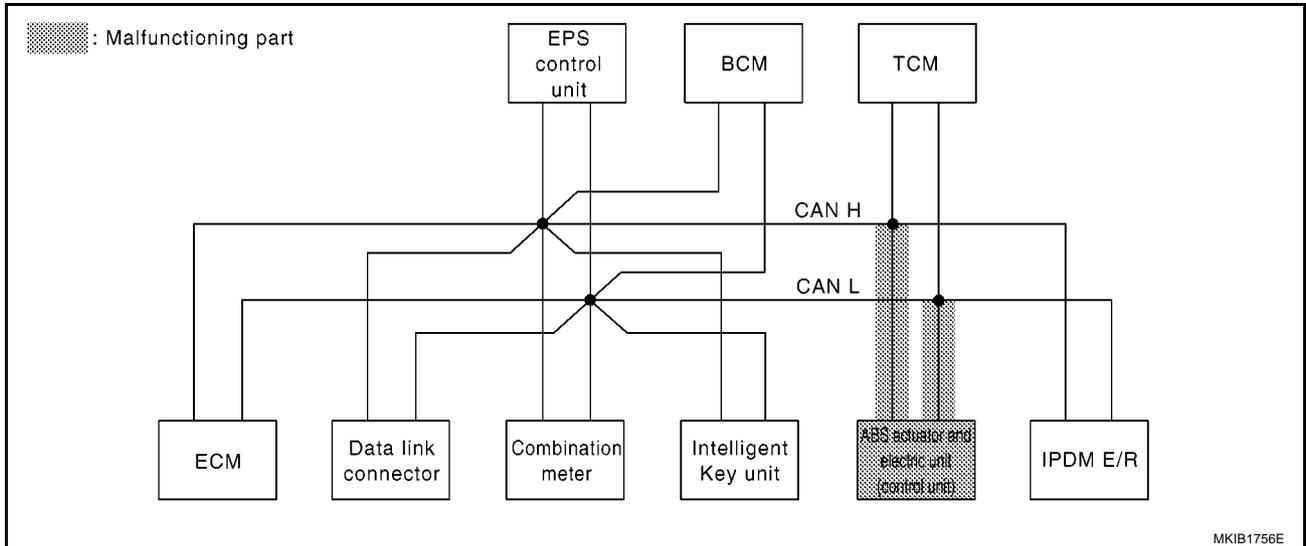
[CAN]

Case8

Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-216, "ABS Actuator and Electric Unit \(Control Unit\) Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

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CAN SYSTEM (TYPE 7)

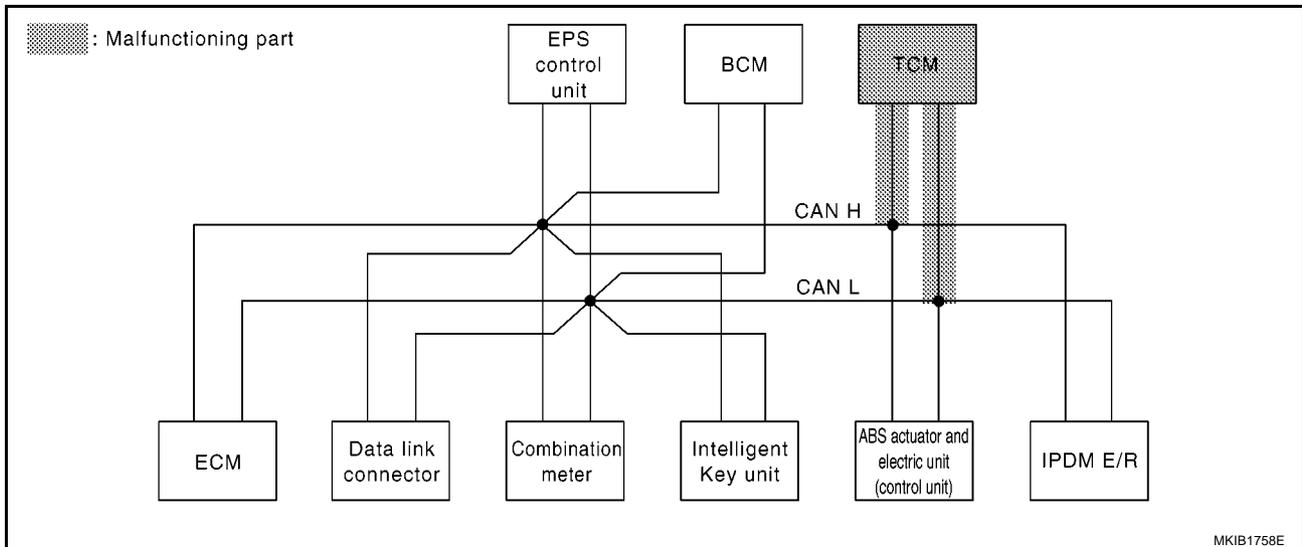
[CAN]

Case9

Check TCM circuit. Refer to [LAN-217, "TCM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

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CAN SYSTEM (TYPE 7)

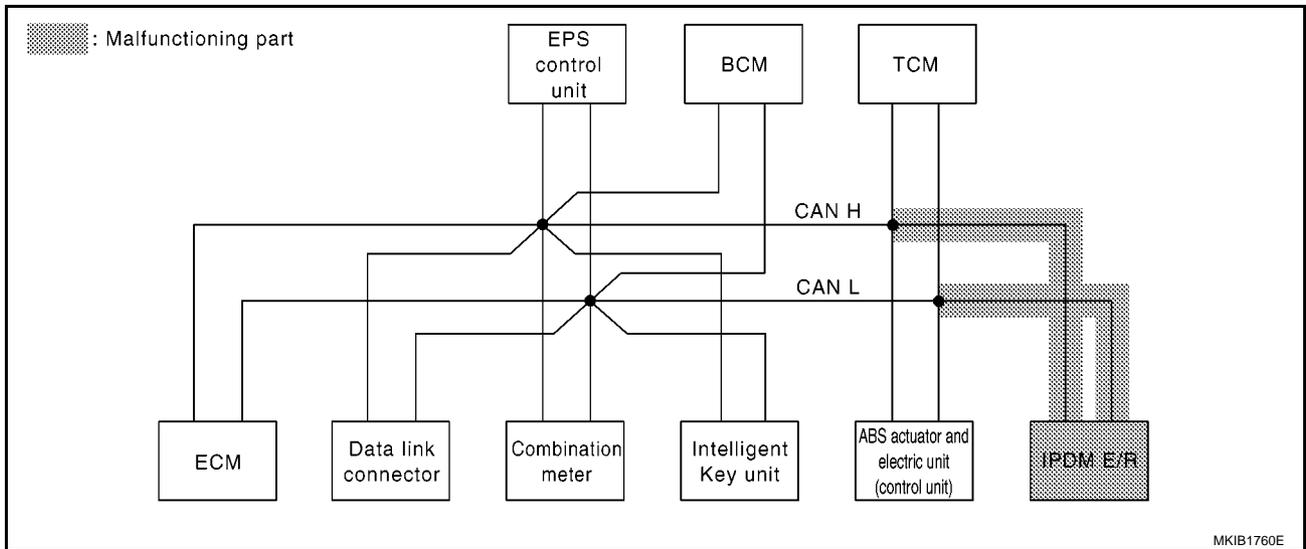
[CAN]

Case10

Check IPDM E/R circuit. Refer to [LAN-218, "IPDM E/R Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

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CAN SYSTEM (TYPE 7)

[CAN]

Case11

Check CAN communication circuit. Refer to [LAN-219, "CAN Communication Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKW	—	UNKW	—	UNKW	UNKW	UNKW	UNKW	UNKW
INTELLIGENT KEY	No indication	NG	UNKW	UNKW	UNKW	—	—	UNKW	—	—	—
EPS	No indication	—	UNKW	UNKW	UNKW	—	—	UNKW	UNKW	—	—
BCM	No indication	—	UNKW	UNKW	UNKW	UNKW	—	—	UNKW	—	UNKW
ABS	No indication	—	UNKW	UNKW	UNKW	—	UNKW	—	—	UNKW	—
A/T	—	NG	UNKW	UNKW	UNKW	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKW	UNKW	—	—	—	UNKW	—	—	—

MKIB2122E

Case12

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to [LAN-222, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKW	—	UNKW	—	UNKW	UNKW	UNKW	UNKW	UNKW
INTELLIGENT KEY	No indication	NG	UNKW	UNKW	UNKW	—	—	UNKW	—	—	—
EPS	No indication	—	UNKW	UNKW	UNKW	—	—	UNKW	UNKW	—	—
BCM	No indication	—	UNKW	UNKW	UNKW	UNKW	—	—	UNKW	—	UNKW
ABS	No indication	—	UNKW	UNKW	UNKW	—	UNKW	—	—	UNKW	—
A/T	—	NG	UNKW	UNKW	UNKW	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKW	UNKW	—	—	—	UNKW	—	—	—

MKIB2123E

Case13

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to [LAN-222, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKW	—	UNKW	—	UNKW	UNKW	UNKW	UNKW	UNKW
INTELLIGENT KEY	No indication	NG	UNKW	UNKW	UNKW	—	—	UNKW	—	—	—
EPS	No indication	—	UNKW	UNKW	UNKW	—	—	UNKW	UNKW	—	—
BCM	No indication	—	UNKW	UNKW	UNKW	UNKW	—	—	UNKW	—	UNKW
ABS	No indication	—	UNKW	UNKW	UNKW	—	UNKW	—	—	UNKW	—
A/T	—	NG	UNKW	UNKW	UNKW	—	—	—	—	—	—
IPDM E/R	No indication	—	UNKW	UNKW	—	—	—	UNKW	—	—	—

MKIB2124E

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

EKS00J09

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M1
 - Harness connector E101

OK or NG

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

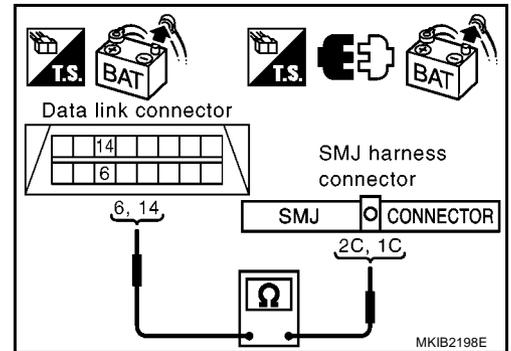
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect following connector.
 - Harness connector M1
2. Check continuity between data link connector M17 terminals 6 (R), 14 (W) and harness connector M1 terminals 2C (R), 1C (W).

6 (R) – 2C (R) : Continuity should exist.
14 (W) – 1C (W) : Continuity should exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness.



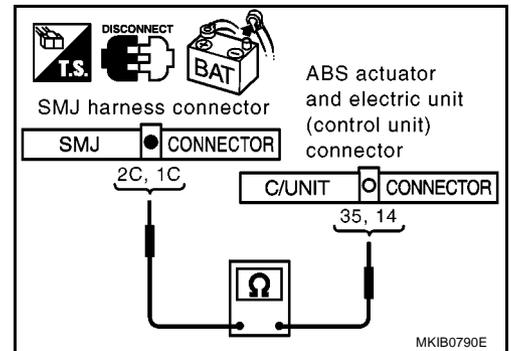
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between harness connector E101 terminals 2C (R), 1C (W) and ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R), 14 (W).

2C (R) – 35 (R) : Continuity should exist.
1C (W) – 14 (W) : Continuity should exist.

OK or NG

- OK >> Connect all the connectors and diagnosis again. Refer to [LAN-195, "Work Flow"](#) .
 NG >> Repair harness.



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ECM Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
 - ECM connector
 - Harness connector M1
 - Harness connector E101

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

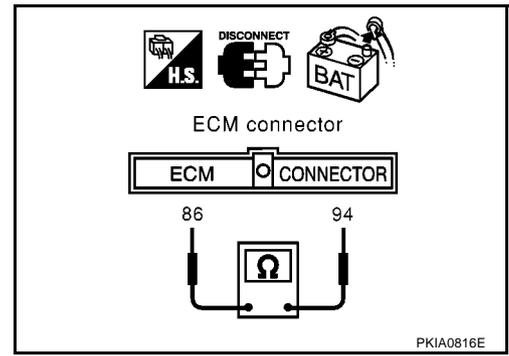
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E49 terminals 94 (R) and 86 (W).

94 (R) – 86 (W)**: Approx. 108 – 132Ω**OK or NG

OK >> Replace ECM.

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



Data Link Connector Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check data link connector and terminals for damage, bend and loose connection (connector side and harness side).

OK or NG

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

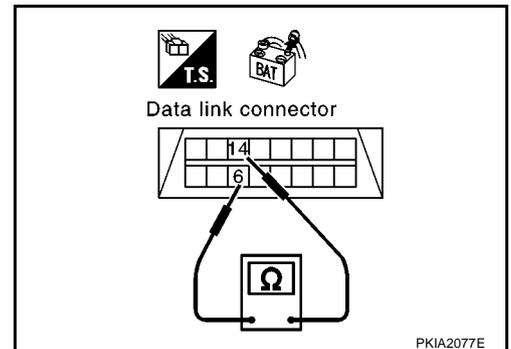
2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M17 terminals 6 (R) and 14 (W).

6 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Diagnosis again. Refer to [LAN-195, "Work Flow"](#) .
 NG >> Repair harness between data link connector and combination meter



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

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of combination meter for damage, bend and loose connection (meter side and harness side).

OK or NG

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

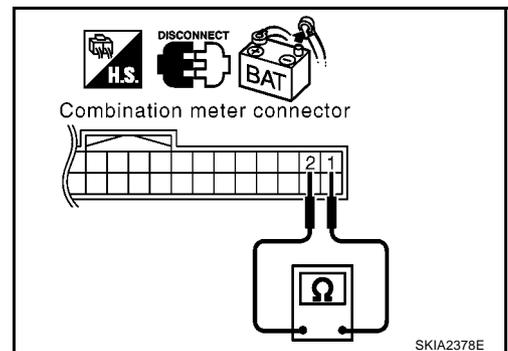
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M22 terminals 1 (R) and 2 (W).

1 (R) – 2 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace combination meter
 NG >> Repair harness between combination meter and data link connector.



Intelligent Key Unit Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of Intelligent Key unit for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

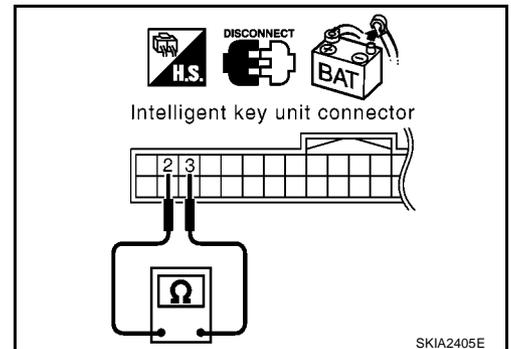
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect Intelligent Key unit connector.
2. Check resistance between Intelligent Key unit harness connector M51 terminals 2 (R) and 3 (W).

2 (R) – 3 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace Intelligent Key unit.
 NG >> Repair harness between Intelligent Key unit and data link connector.



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EPS Control Unit Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

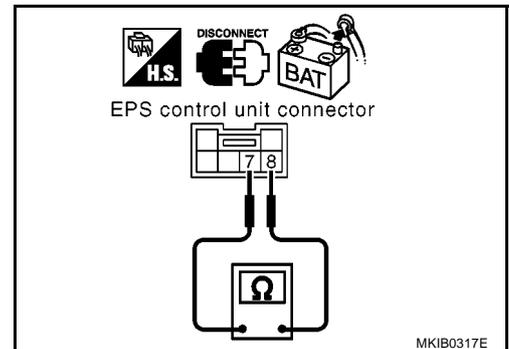
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect EPS control unit connector.
2. Check resistance between EPS control unit harness connector M23 terminals 8 (R) and 7 (W).

8 (R) – 7 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace EPS control unit.
 NG >> Repair harness between EPS control unit and data link connector.



BCM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

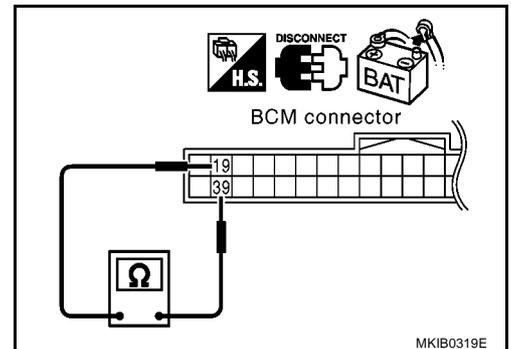
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M48 terminals 19 (R) and 39 (W).

19 (R) – 39 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace BCM. Refer to [BCS-30, "Removal and Installation of BCM"](#) .
 NG >> Repair harness between BCM and data link connector.



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ABS Actuator and Electric Unit (Control Unit) Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ABS actuator and electric unit (control unit) for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

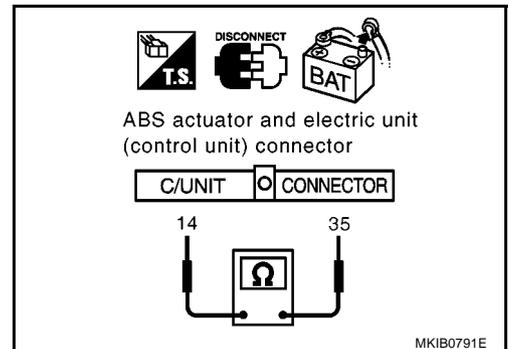
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R) and 14 (W).

35 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace ABS actuator and electric unit (control unit).
 NG >> Repair harness between ABS actuator and electric unit (control unit) and TCM.



TCM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

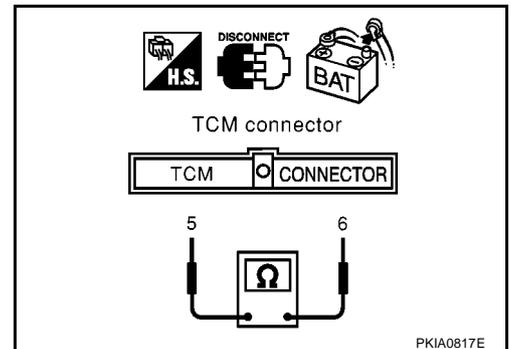
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector E105 terminals 5 (R) and 6 (W).

5 (R) – 6 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace TCM.
 NG >> Repair harness between TCM and IPDM E/R.



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IPDM E/R Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

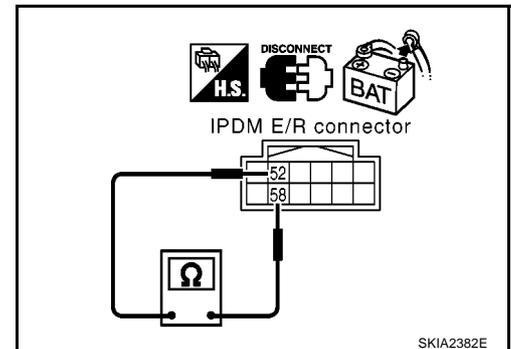
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check resistance between IPDM E/R harness connector E16 terminals 52 (R) and 58 (W).

52 (R) – 58 (W) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace IPDM E/R.
 NG >> Repair harness between IPDM E/R and TCM.



CAN Communication Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

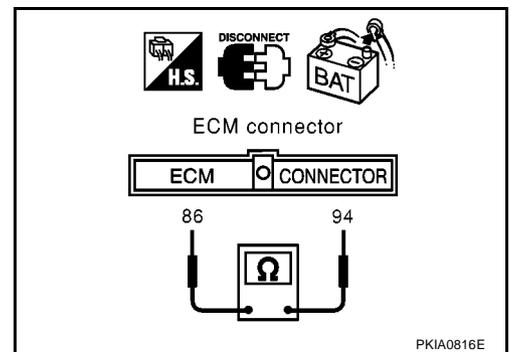
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E101.
2. Check continuity between ECM harness connector E49 terminals 94 (R) and 86 (W).

94 (R) – 86 (W) : Continuity should not exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness between ECM and harness connector E101.



3. CHECK HARNESS FOR SHORT CIRCUIT

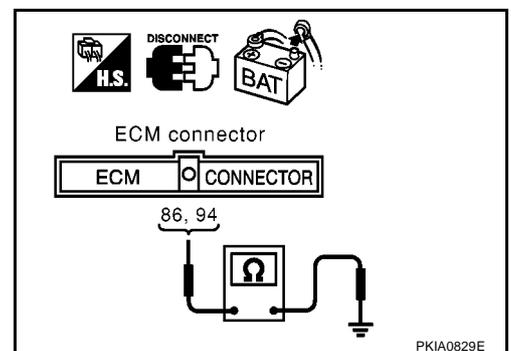
Check continuity between ECM harness connector E49 terminals 94 (R), 86 (W) and ground.

94 (R) – Ground : Continuity should not exist.

86 (W) – Ground : Continuity should not exist.

OK or NG

- OK >> GO TO 4.
 NG >> Repair harness between ECM and harness connector E101.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - ABS actuator and electric unit (control unit) connector
 - TCM connector
 - IPDM E/R connector
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R) and 14 (W).

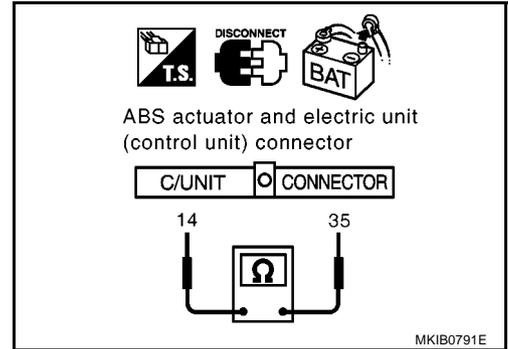
35 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and TCM
- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R), 14 (W) and ground.

35 (R) – Ground : Continuity should not exist.

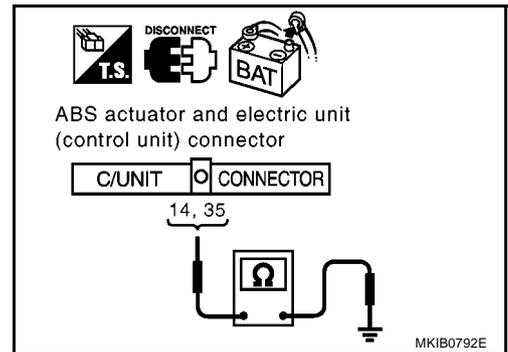
14 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and TCM
- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - Combination meter connector
 - Intelligent Key unit connector
 - EPS control unit connector
 - BCM connector
2. Check continuity between data link connector M17 terminals 6 (R) and 14 (W).

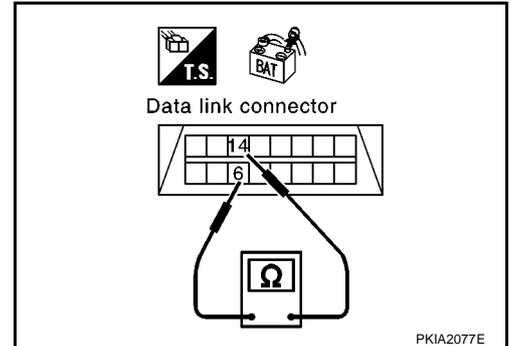
6 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and Intelligent Key unit
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M17 terminals 6 (R), 14 (W) and ground.

6 (R) – Ground : Continuity should not exist.

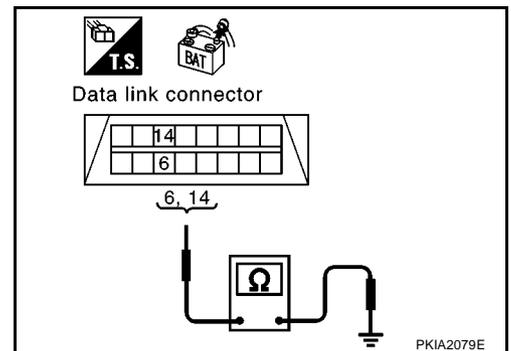
14 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and Intelligent Key unit
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-222, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION"](#) .

OK or NG

OK >> Connect all the connectors and diagnosis again. Refer to [LAN-195, "Work Flow"](#) .

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

IPDM E/R Ignition Relay Circuit Check

EKS00JOK

Perform the self-diagnosis for IPDM E/R. Refer to [PG-49, "Inspection With CONSULT-II \(Self-Diagnosis\)"](#) . If the result is OK, carry out following inspections.

- IPDM E/R power supply circuit. Refer to [PG-50, "IPDM E/R Power Supply and Ground Circuit Check"](#) .
- Ignition power supply circuit. Refer to [PG-13, "IGNITION POWER SUPPLY — IGNITION SW. IN "ON" AND/OR "START""](#) .

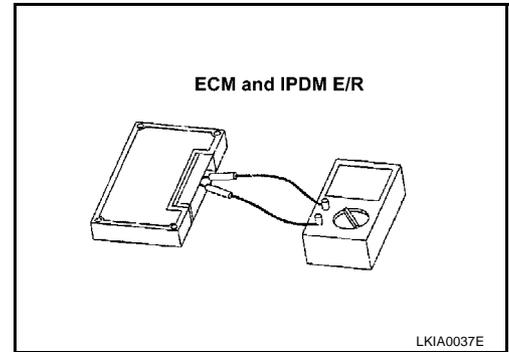
Component Inspection

EKS00JOL

ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between IPDM E/R terminals 52 and 58.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	94 – 86	108 - 132
IPDM E/R	52 – 58	



CAN SYSTEM (TYPE 8)

PFP:23710

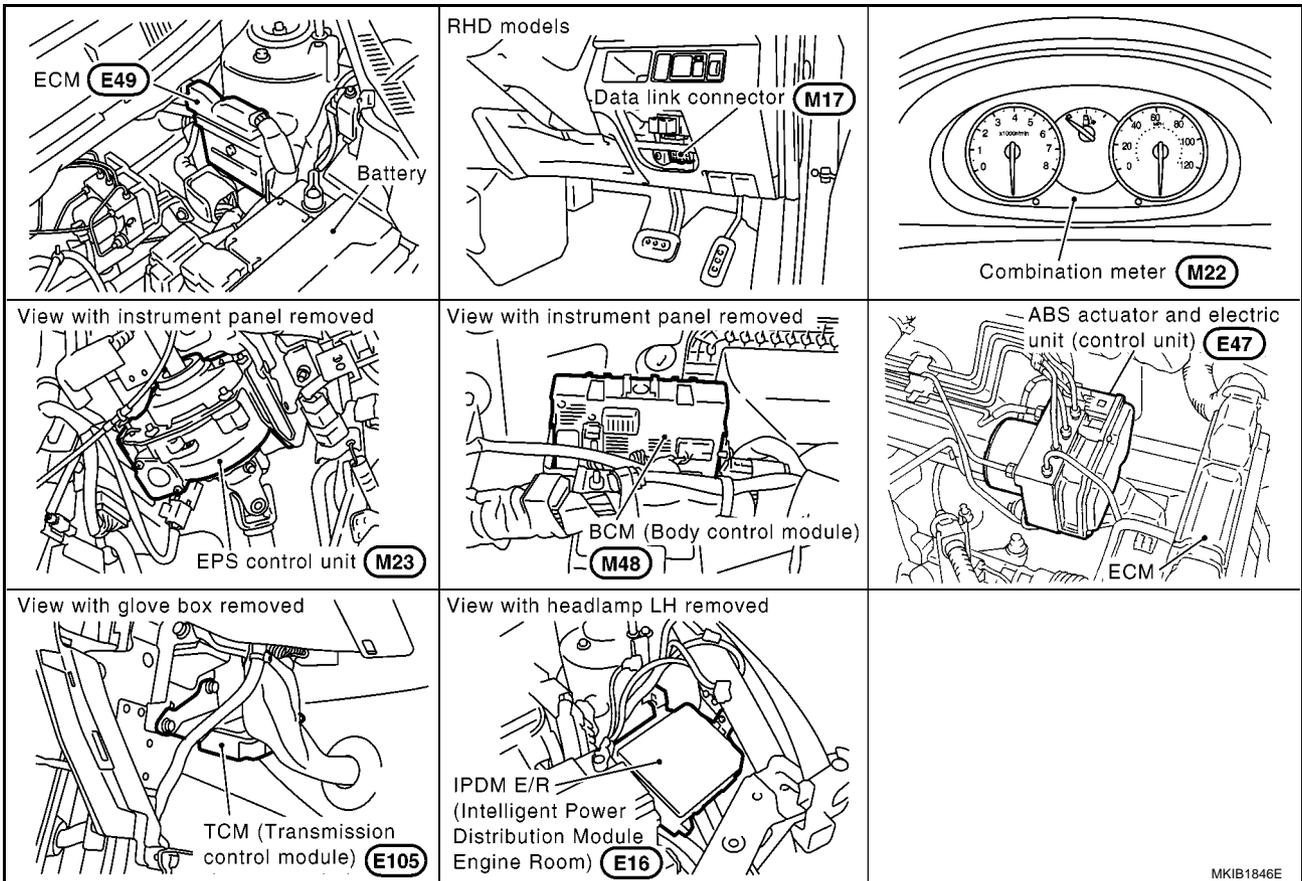
System Description

EKS00JOM

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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CAN SYSTEM (TYPE 8)

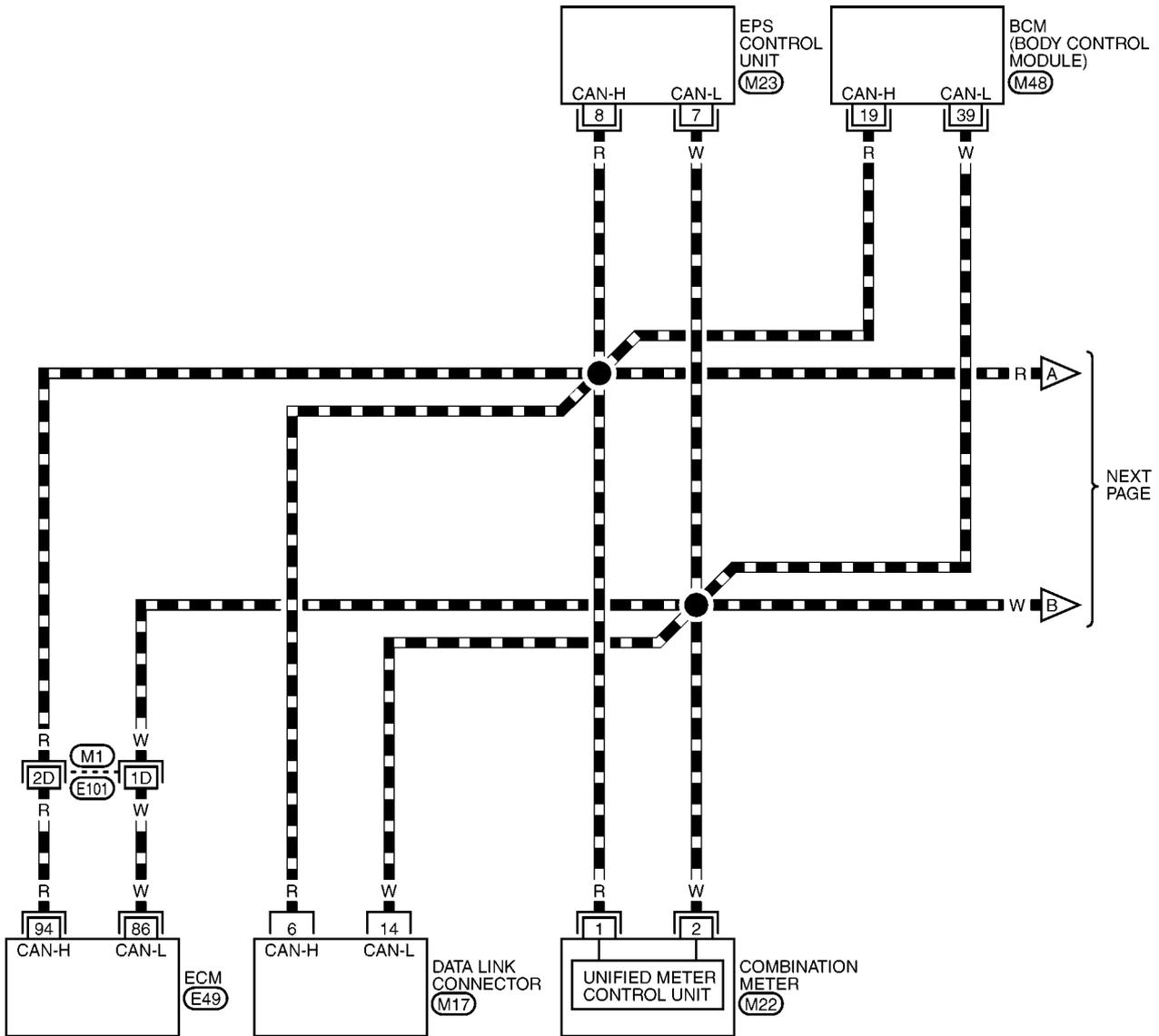
[CAN]

EKS00J00

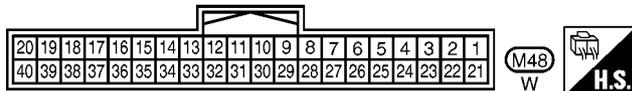
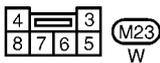
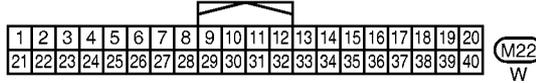
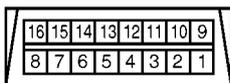
Wiring Diagram — CAN —

LAN-CAN-15

▬ : DATA LINE



NEXT PAGE



REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

(E49) -ELECTRICAL UNITS

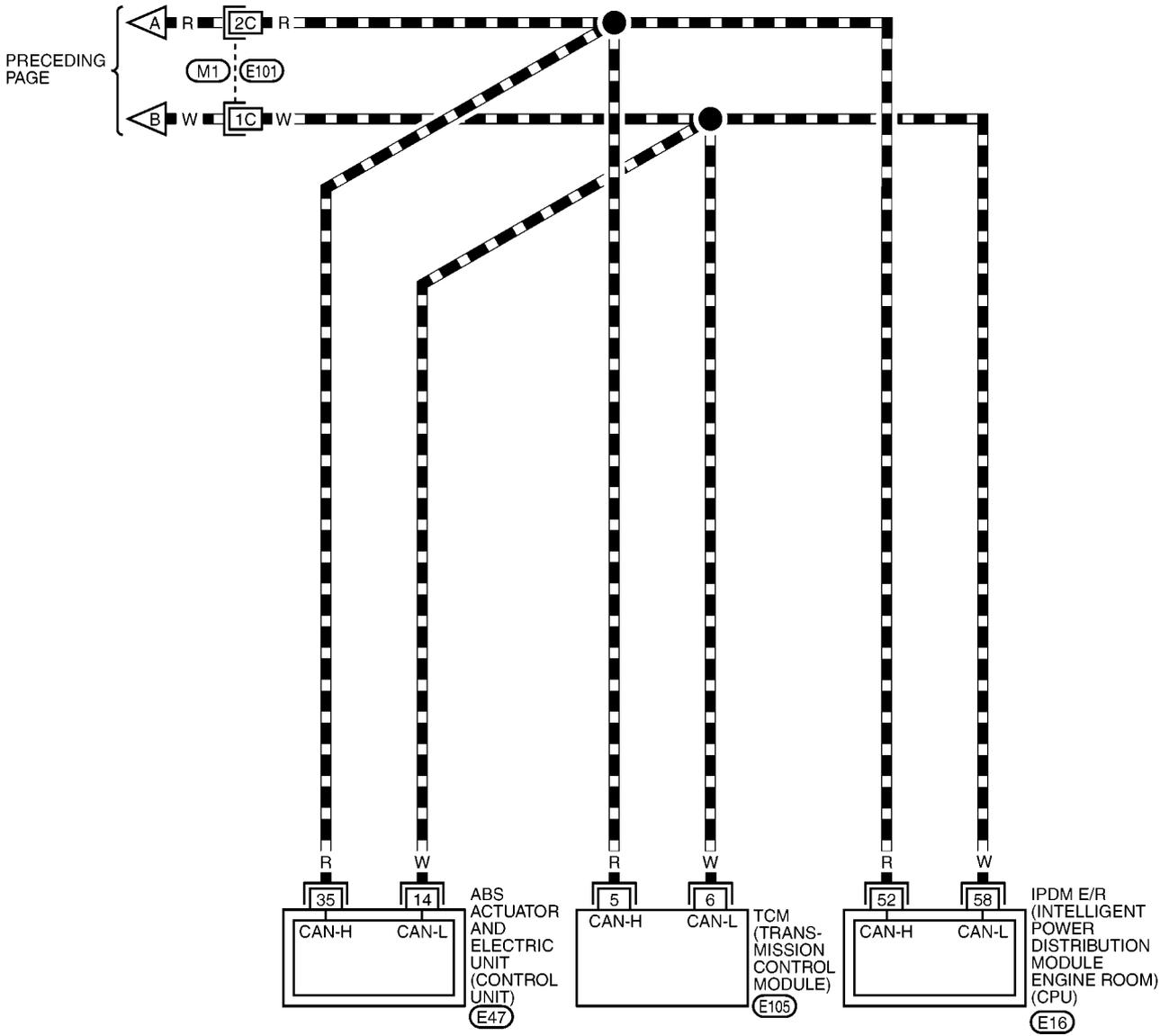
MKWA3791E

CAN SYSTEM (TYPE 8)

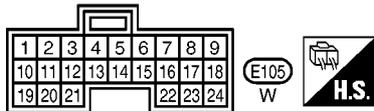
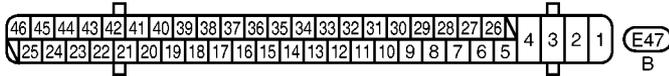
[CAN]

LAN-CAN-16

▬ : DATA LINE



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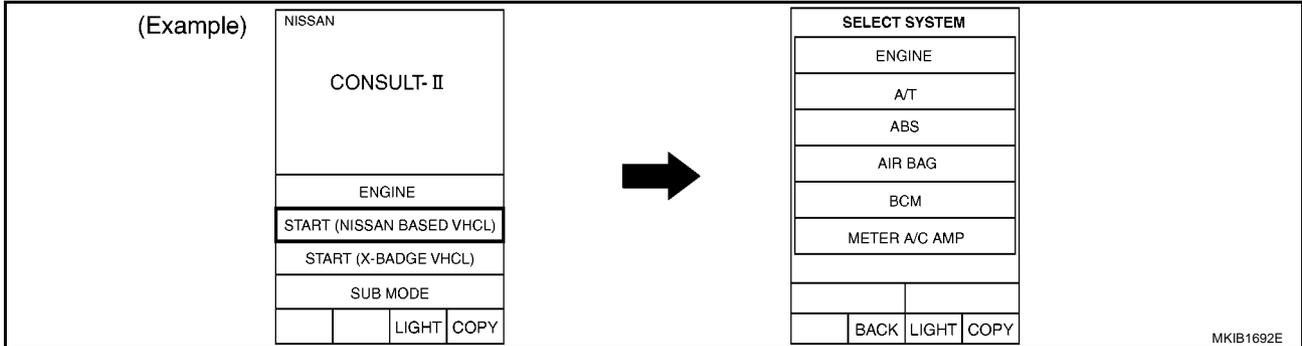
REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

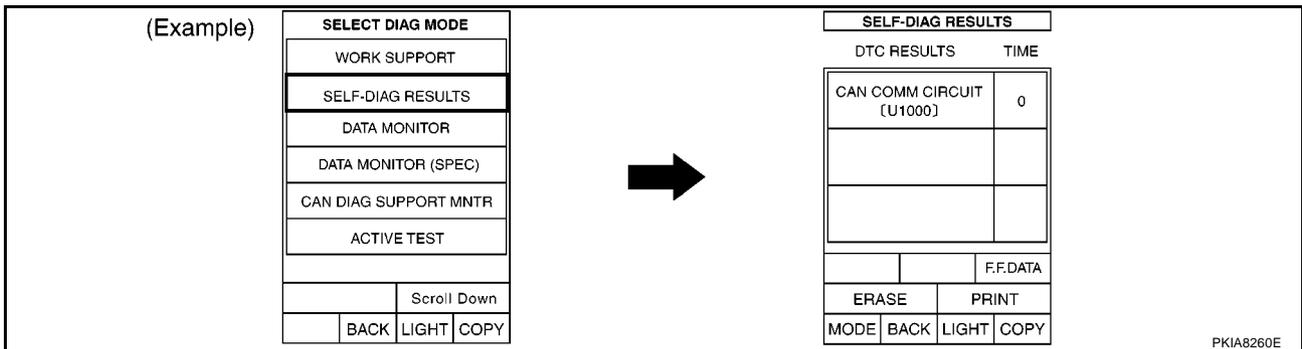
MKWA3792E

Work Flow

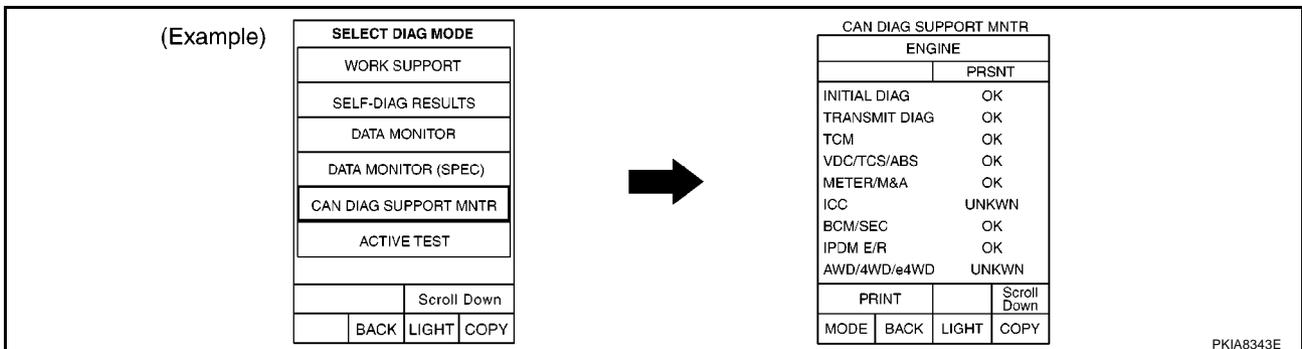
- When there are no indications of “EPS”, “BCM” or “IPDM E/R” on “SELECT SYSTEM” display of CONSULT-II, print the “SELECT SYSTEM”.



- Print all the data of “SELF-DIAG RESULTS” for “ENGINE”, “EPS”, “BCM”, “ABS”, “A/T” and “IPDM E/R” displayed on CONSULT-II.



- Print all the data of “CAN DIAG SUPPORT MNTR” for “ENGINE”, “EPS”, “BCM”, “ABS”, “A/T” and “IPDM E/R” displayed on CONSULT-II.



- Attach the printed sheet of “SELECT SYSTEM”, “SELF-DIAG RESULTS” and “CAN DIAG SUPPORT MNTR” onto the check sheet. Refer to [LAN-227, "CHECK SHEET"](#) .

- Based on the indications of “SELECT SYSTEM” and the results of “CAN DIAG SUPPORT MNTR”, put marks “v” onto the items with “No indication”, “NG”, or “UNKWN” in the check sheet table. Refer to [LAN-227, "CHECK SHEET"](#) .

NOTE:

- If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)” as “CAN DIAG SUPPORT MNTR” for the diagnosed control unit, replace the control unit.
- The “CAN DIAG SUPPORT MNTR” items, which are not in check sheet table, are not related to diagnostic procedure on service manual.
So it is not necessary to check the status of “CAN DIAG SUPPORT MNTR” items which are not indicated in check sheet table.

- According to the check sheet results (example), start inspection. Refer to [LAN-229, "CHECK SHEET RESULTS \(EXAMPLE\)"](#) .

CAN SYSTEM (TYPE 8)

[CAN]

CHECK SHEET

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SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	-	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	-	-
BCM	No indication	-	UNKWN	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN
ABS	No indication	-	UNKWN	UNKWN	UNKWN	UNKWN	-	-	UNKWN	-
A/T	-	NG	UNKWN	UNKWN	UNKWN	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-	-

Symptoms:

Attach copy of
SELECT SYSTEM

Attach copy of
SELECT SYSTEM

CAN SYSTEM (TYPE 8)

[CAN]

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
EPS
SELF-DIAG RESULTS

Attach copy of
BCM
SELF-DIAG RESULTS

Attach copy of
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IPDM E/R
SELF-DIAG RESULTS

Attach copy of
ENGINE
CAN DIAG SUPPORT
MNTR

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MNTR

MKIB2189E

CAN SYSTEM (TYPE 8)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

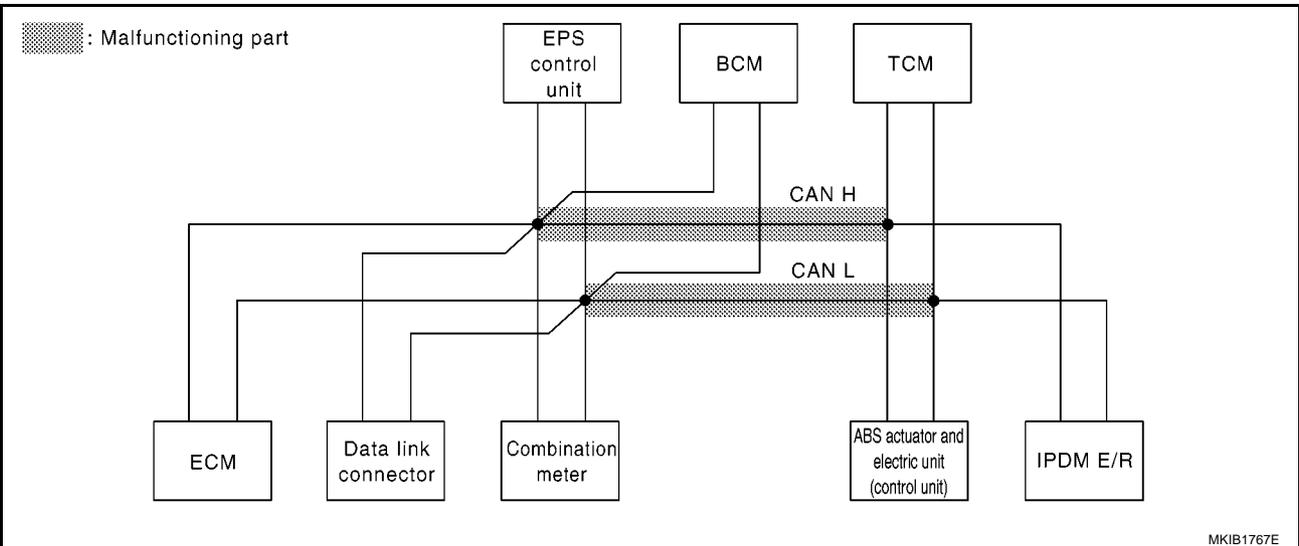
If "NG" is displayed on "CAN COMM" as "DATA MONITOR (CAN DIAG SUPPORT MNTR)" for the diagnosed control unit, replace the control unit.

Case1

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to [LAN-239, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit \(Control Unit\)"](#).

SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	Receive diagnosis							
			ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R	
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—

MKIB2126E



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CAN SYSTEM (TYPE 8)

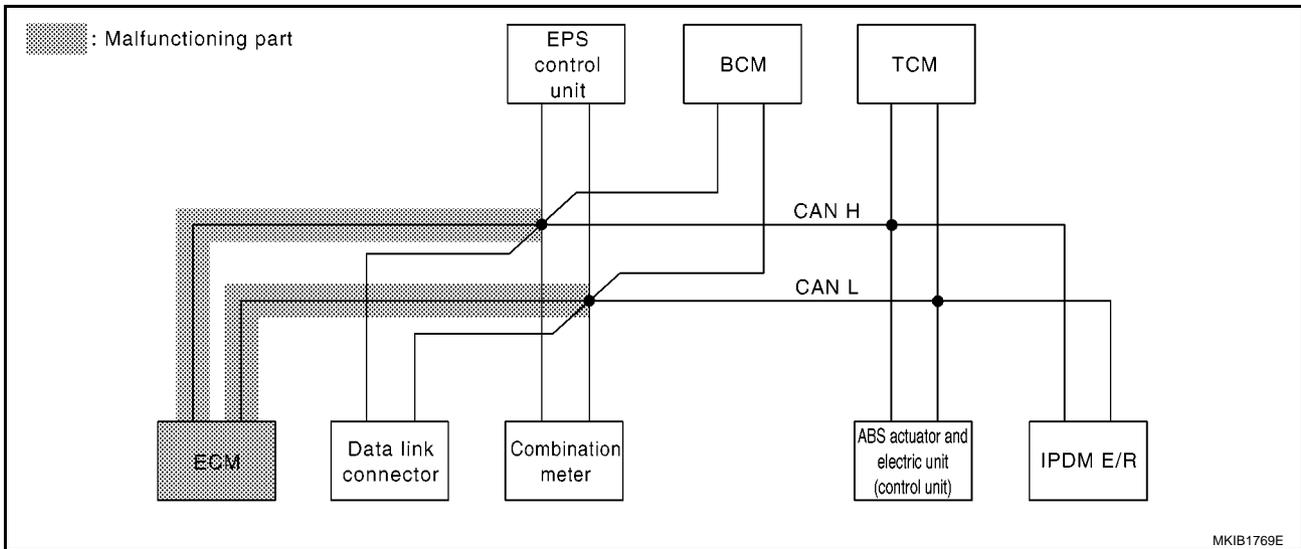
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Case2

Check ECM circuit. Refer to [LAN-240, "ECM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—

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CAN SYSTEM (TYPE 8)

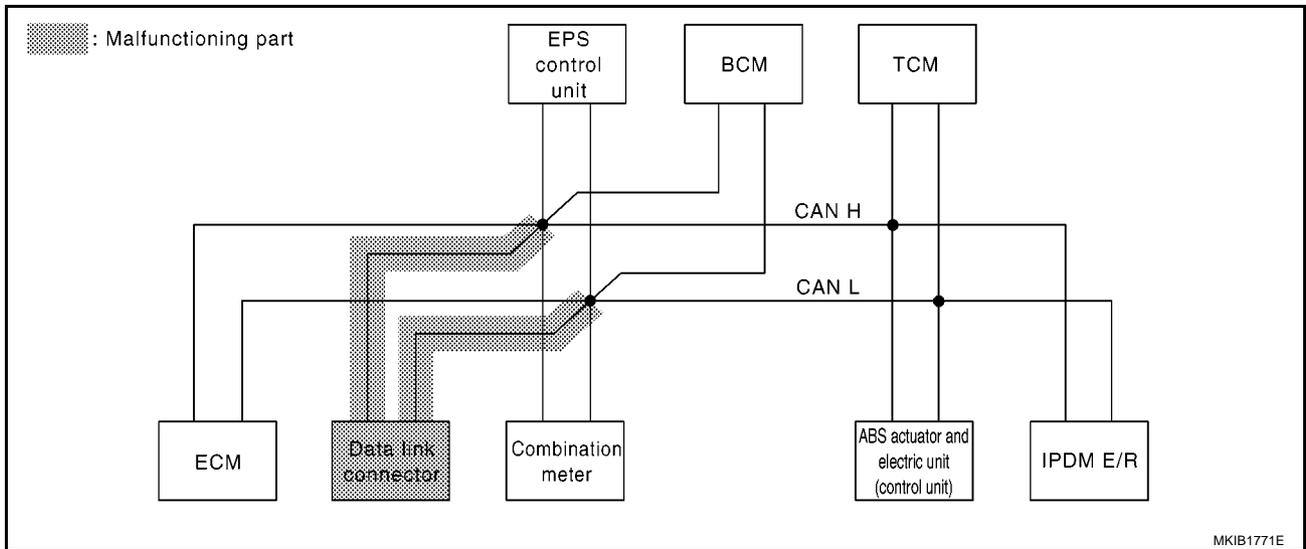
[CAN]

Case3

Check data link connector circuit. Refer to [LAN-241, "Data Link Connector Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—

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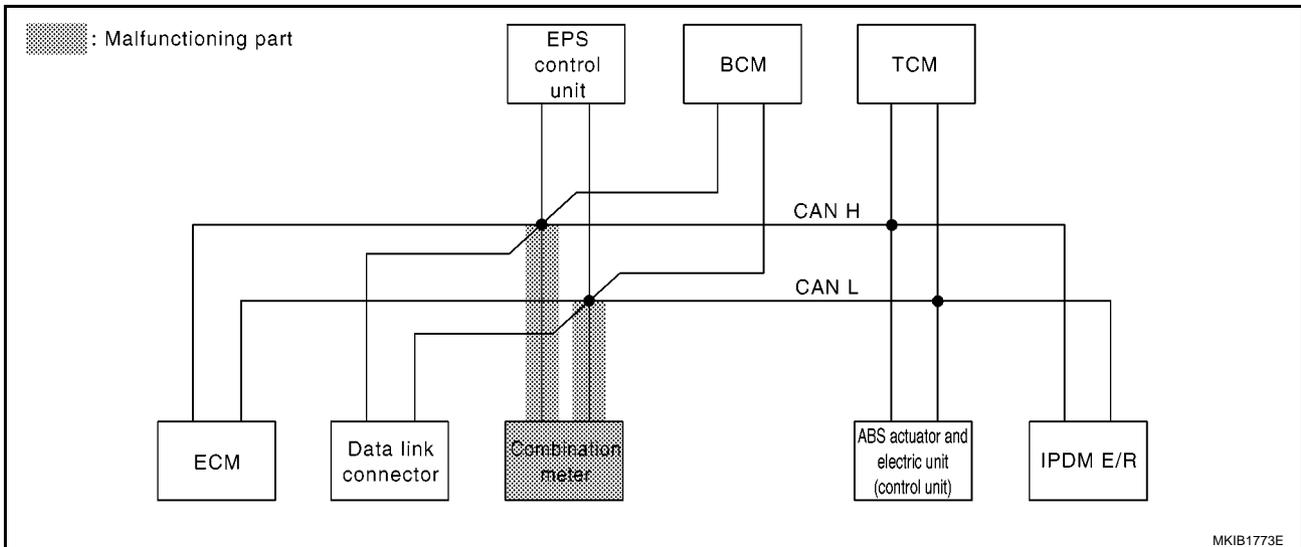
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Case4

Check combination meter circuit. Refer to [LAN-242, "Combination Meter Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—

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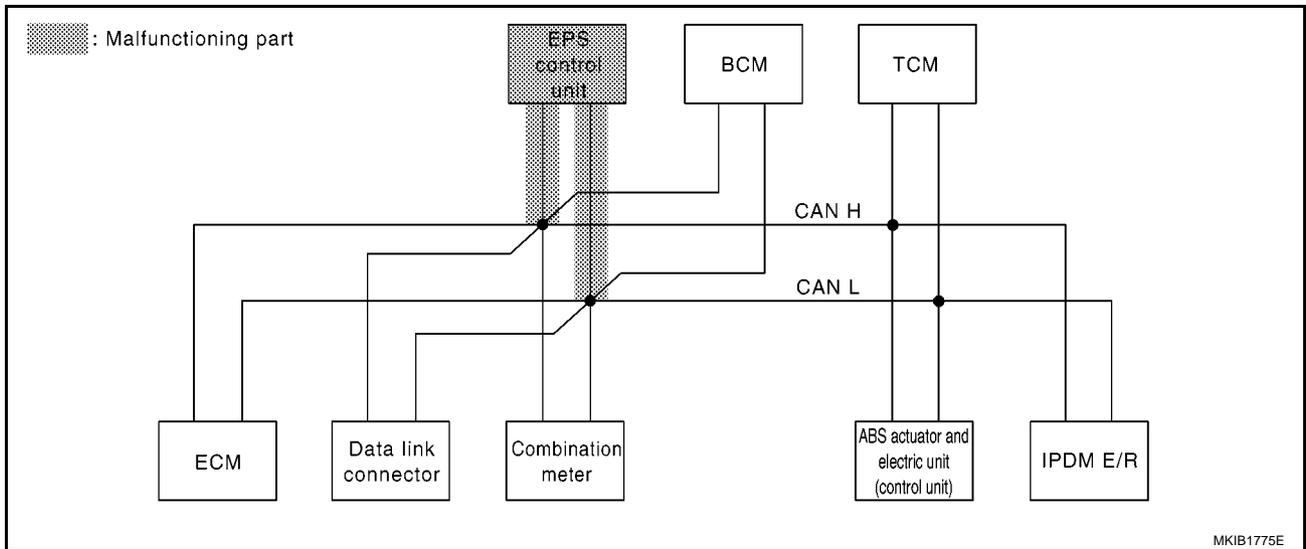
[CAN]

Case5

Check EPS control unit circuit. Refer to [LAN-243, "EPS Control Unit Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—

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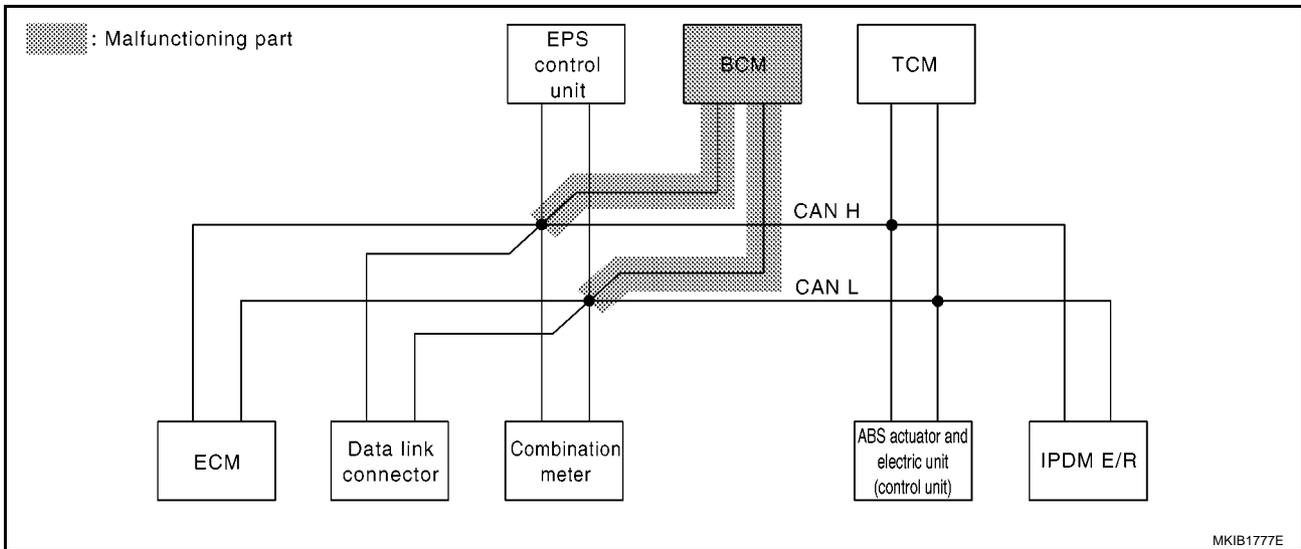
[CAN]

Case6

Check BCM circuit. Refer to [LAN-244, "BCM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—

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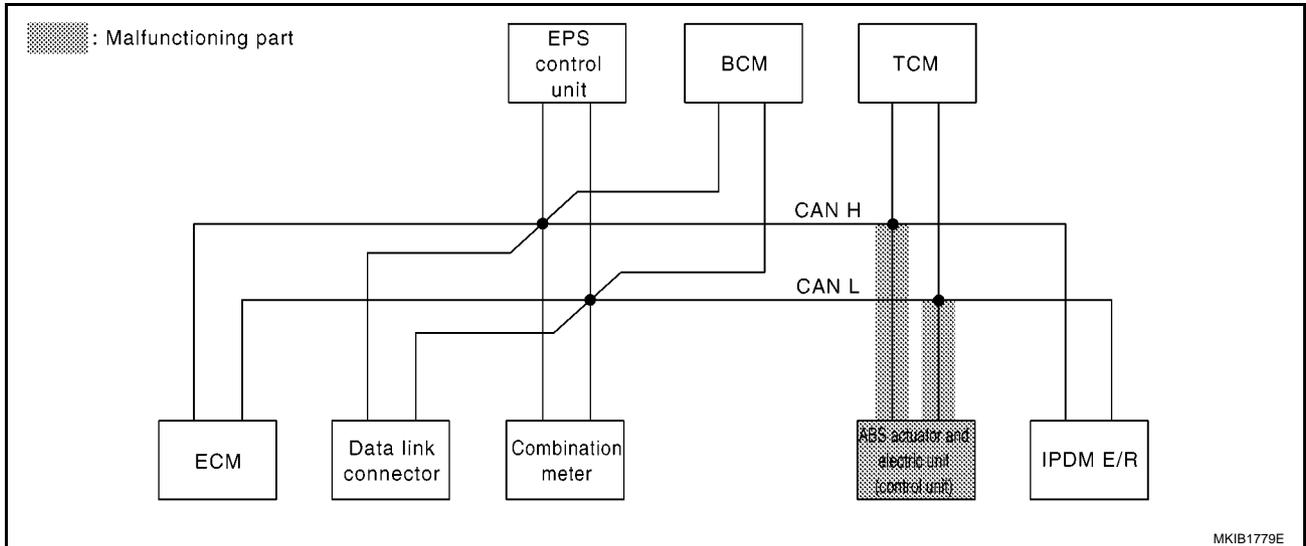
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Case7

Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-245, "ABS Actuator and Electric Unit \(Control Unit\) Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	—	UNKWN
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—

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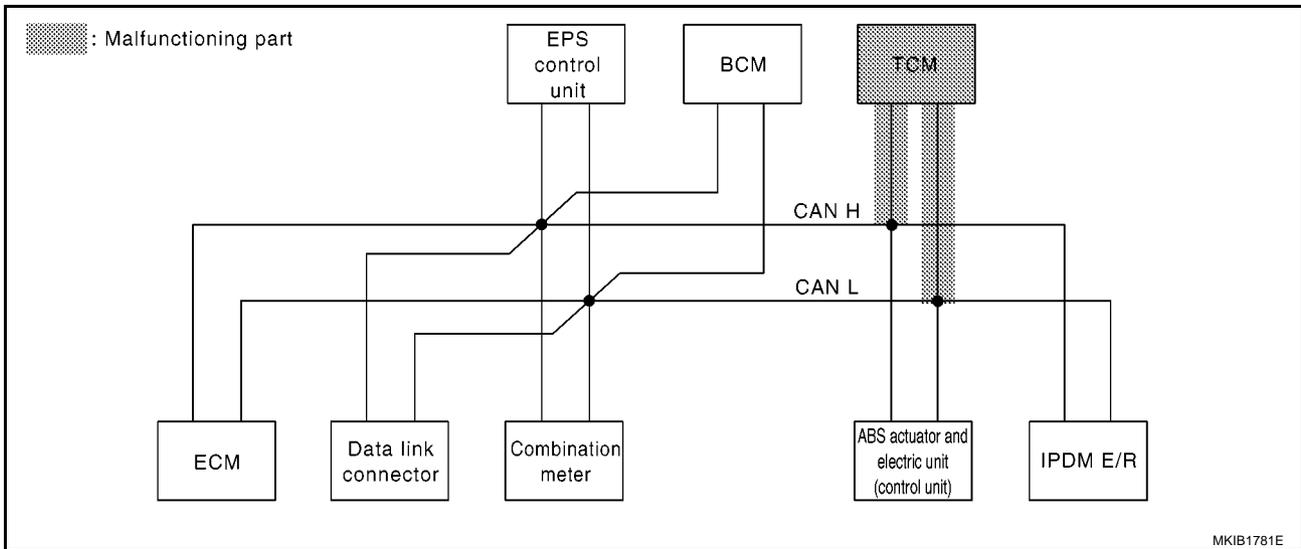
[CAN]

Case8

Check TCM circuit. Refer to [LAN-246, "TCM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—

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CAN SYSTEM (TYPE 8)

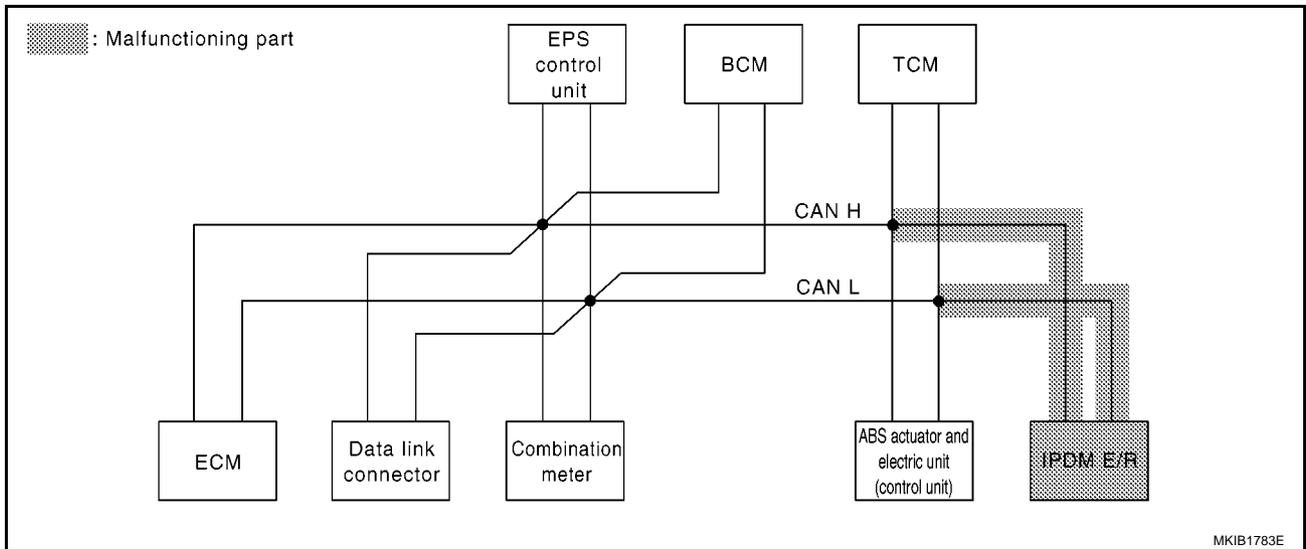
[CAN]

Case9

Check IPDM E/R circuit. Refer to [LAN-247, "IPDM E/R Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R	
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN ✓
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—	—	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN ✓
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—
A/T	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	—	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—

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Case10

Check CAN communication circuit. Refer to [LAN-248, "CAN Communication Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	-	✓	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	-	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	-	-
BCM	No indication	-	UNKWN	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN
ABS	No indication	-	UNKWN	UNKWN	UNKWN	UNKWN	-	-	UNKWN	-
A/T	-	✓	UNKWN	UNKWN	UNKWN	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-	-

MKIB2135E

Case11

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to [LAN-251, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	-	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	-	-
BCM	No indication	-	UNKWN	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN
ABS	No indication	-	UNKWN	UNKWN	UNKWN	UNKWN	-	-	UNKWN	-
A/T	-	NG	UNKWN	UNKWN	UNKWN	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-	-

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Case12

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to [LAN-251, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	TCM	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	-	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	-	-
BCM	No indication	-	UNKWN	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN
ABS	No indication	-	UNKWN	UNKWN	UNKWN	UNKWN	-	-	UNKWN	-
A/T	-	NG	UNKWN	UNKWN	UNKWN	-	-	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-	-

MKIB2137E

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

EKS00J00

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M1
 - Harness connector E101

OK or NG

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

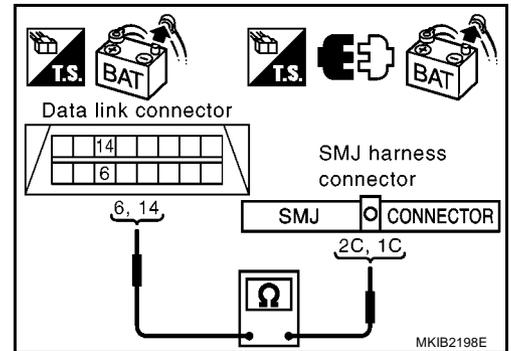
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect following connector.
 - Harness connector M1
2. Check continuity between data link connector M17 terminals 6 (R), 14 (W) and harness connector M1 terminals 2C (R), 1C (W).

6 (R) – 2C (R) : Continuity should exist.
14 (W) – 1C (W) : Continuity should exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness.



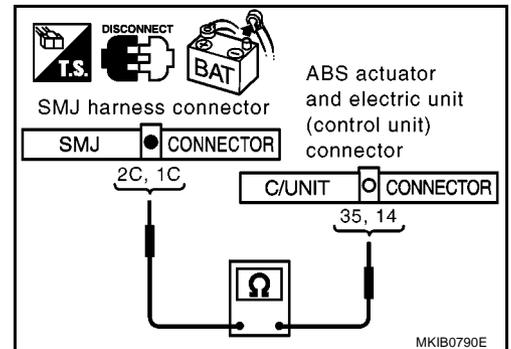
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between harness connector E101 terminals 2C (R), 1C (W) and ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R), 14 (W).

2C (R) – 35 (R) : Continuity should exist.
1C (W) – 14 (W) : Continuity should exist.

OK or NG

- OK >> Connect all the connectors and diagnosis again. Refer to [LAN-226, "Work Flow"](#) .
 NG >> Repair harness.



ECM Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
 - ECM connector
 - Harness connector M1
 - Harness connector E101

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

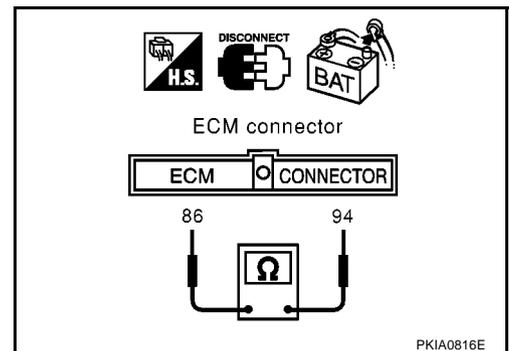
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E49 terminals 94 (R) and 86 (W).

94 (R) – 86 (W)**: Approx. 108 – 132Ω**OK or NG

OK >> Replace ECM.

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



Data Link Connector Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check data link connector and terminals for damage, bend and loose connection (connector side and harness side).

OK or NG

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

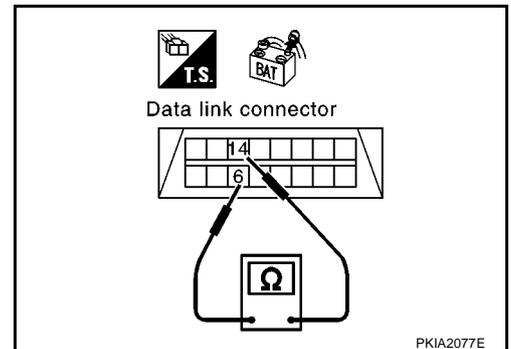
2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M17 terminals 6 (R) and 14 (W).

6 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Diagnosis again. Refer to [LAN-226, "Work Flow"](#) .
 NG >> Repair harness between data link connector and combination meter



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

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of combination meter for damage, bend and loose connection (meter side and harness side).

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M22 terminals 1 (R) and 2 (W).

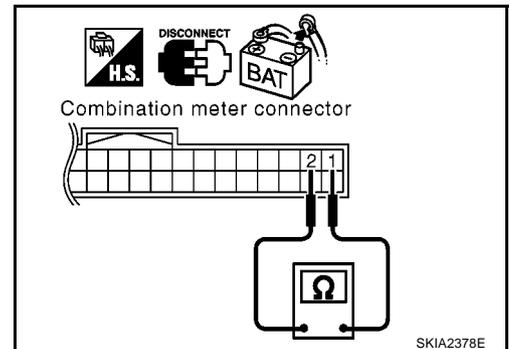
1 (R) – 2 (W)

: Approx. 54 – 66Ω

OK or NG

OK >> Replace combination meter

NG >> Repair harness between combination meter and data link connector.



EPS Control Unit Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

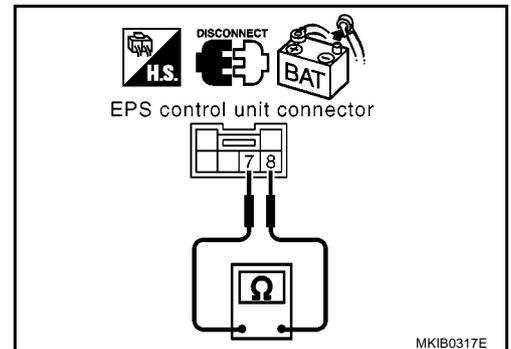
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect EPS control unit connector.
2. Check resistance between EPS control unit harness connector M23 terminals 8 (R) and 7 (W).

8 (R) – 7 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace EPS control unit.
 NG >> Repair harness between EPS control unit and data link connector.



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BCM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

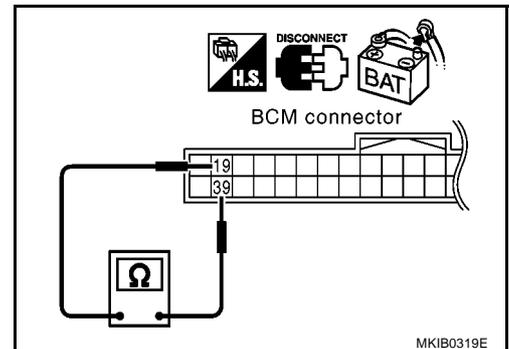
1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M48 terminals 19 (R) and 39 (W).

19 (R) – 39 (W) : Approx. 54 – 66Ω

OK or NG

OK >> Replace BCM. Refer to [BCS-30, "Removal and Installation of BCM"](#) .

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



ABS Actuator and Electric Unit (Control Unit) Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ABS actuator and electric unit (control unit) for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

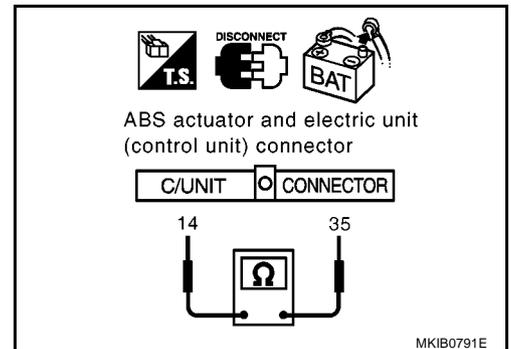
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R) and 14 (W).

35 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace ABS actuator and electric unit (control unit).
 NG >> Repair harness between ABS actuator and electric unit (control unit) and TCM.



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TCM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

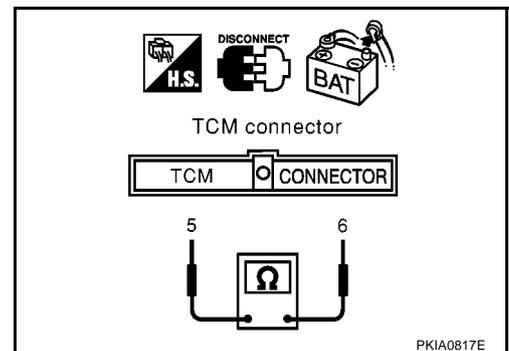
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector E105 terminals 5 (R) and 6 (W).

5 (R) – 6 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace TCM.
 NG >> Repair harness between TCM and IPDM E/R.



IPDM E/R Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

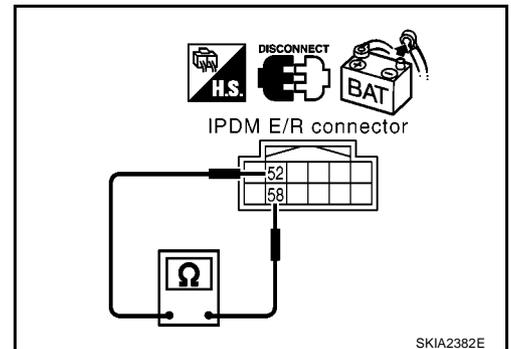
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check resistance between IPDM E/R harness connector E16 terminals 52 (R) and 58 (W).

52 (R) – 58 (W) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace IPDM E/R.
 NG >> Repair harness between IPDM E/R and TCM.



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CAN Communication Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

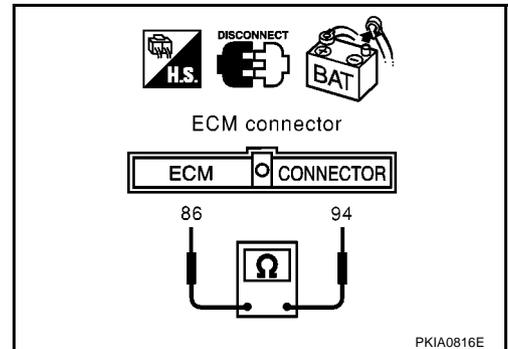
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E101.
2. Check continuity between ECM harness connector E49 terminals 94 (R) and 86 (W).

94 (R) – 86 (W) : Continuity should not exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness between ECM and harness connector E101.



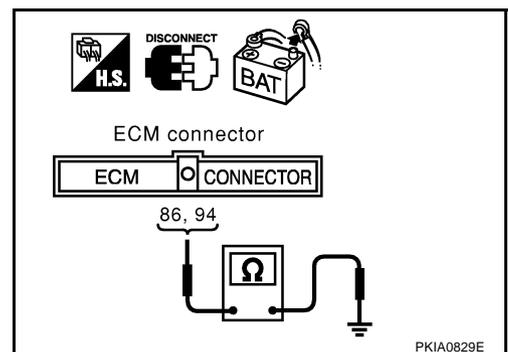
3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector E49 terminals 94 (R), 86 (W) and ground.

94 (R) – Ground : Continuity should not exist.
86 (W) – Ground : Continuity should not exist.

OK or NG

- OK >> GO TO 4.
 NG >> Repair harness between ECM and harness connector E101.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - ABS actuator and electric unit (control unit) connector
 - TCM connector
 - IPDM E/R connector
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R) and 14 (W).

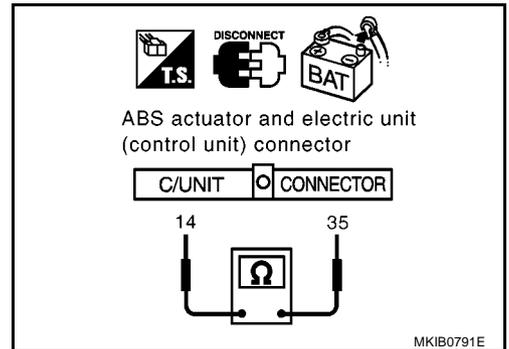
35 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and TCM
- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R), 14 (W) and ground.

35 (R) – Ground : Continuity should not exist.

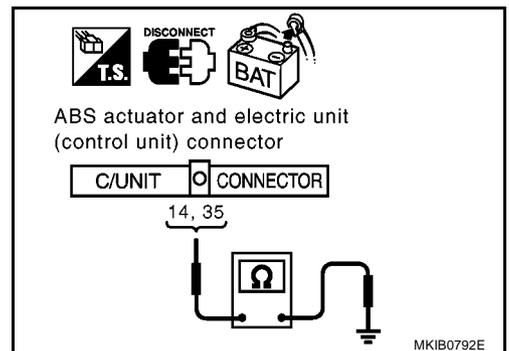
14 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and TCM
- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - Combination meter connector
 - EPS control unit connector
 - BCM connector
2. Check continuity between data link connector M17 terminals 6 (R) and 14 (W).

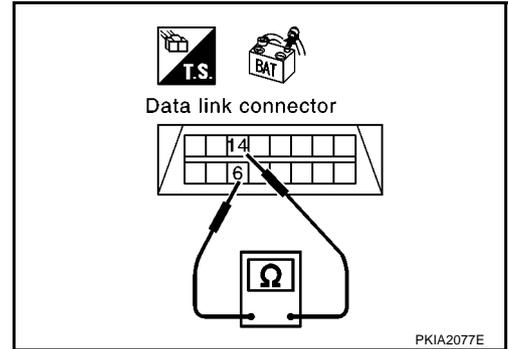
6 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM.



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M17 terminals 6 (R), 14 (W) and ground.

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

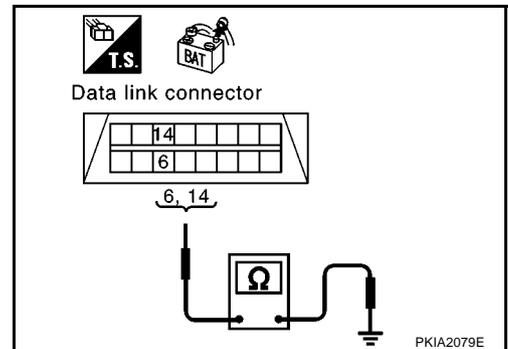
14 (W) – ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM.



8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-251, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

OK >> Connect all the connectors and diagnosis again. Refer to [LAN-226, "Work Flow"](#).

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

IPDM E/R Ignition Relay Circuit Check

EKS00JP0

Perform the self-diagnosis for IPDM E/R. Refer to [PG-49, "Inspection With CONSULT-II \(Self-Diagnosis\)"](#) . If the result is OK, carry out following inspections.

- IPDM E/R power supply circuit. Refer to [PG-50, "IPDM E/R Power Supply and Ground Circuit Check"](#) .
- Ignition power supply circuit. Refer to [PG-13, "IGNITION POWER SUPPLY — IGNITION SW. IN "ON" AND/OR "START" "](#) .

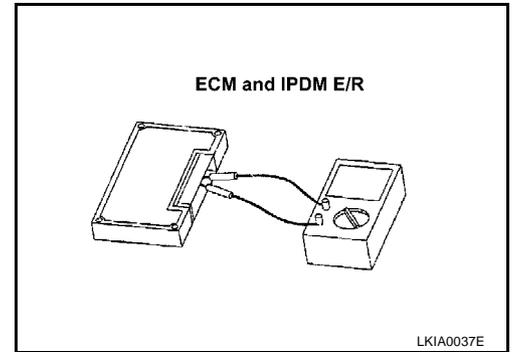
Component Inspection

EKS00JP1

ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between IPDM E/R terminals 52 and 58.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	94 – 86	108 - 132
IPDM E/R	52 – 58	



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CAN SYSTEM (TYPE 9)

PFP:23710

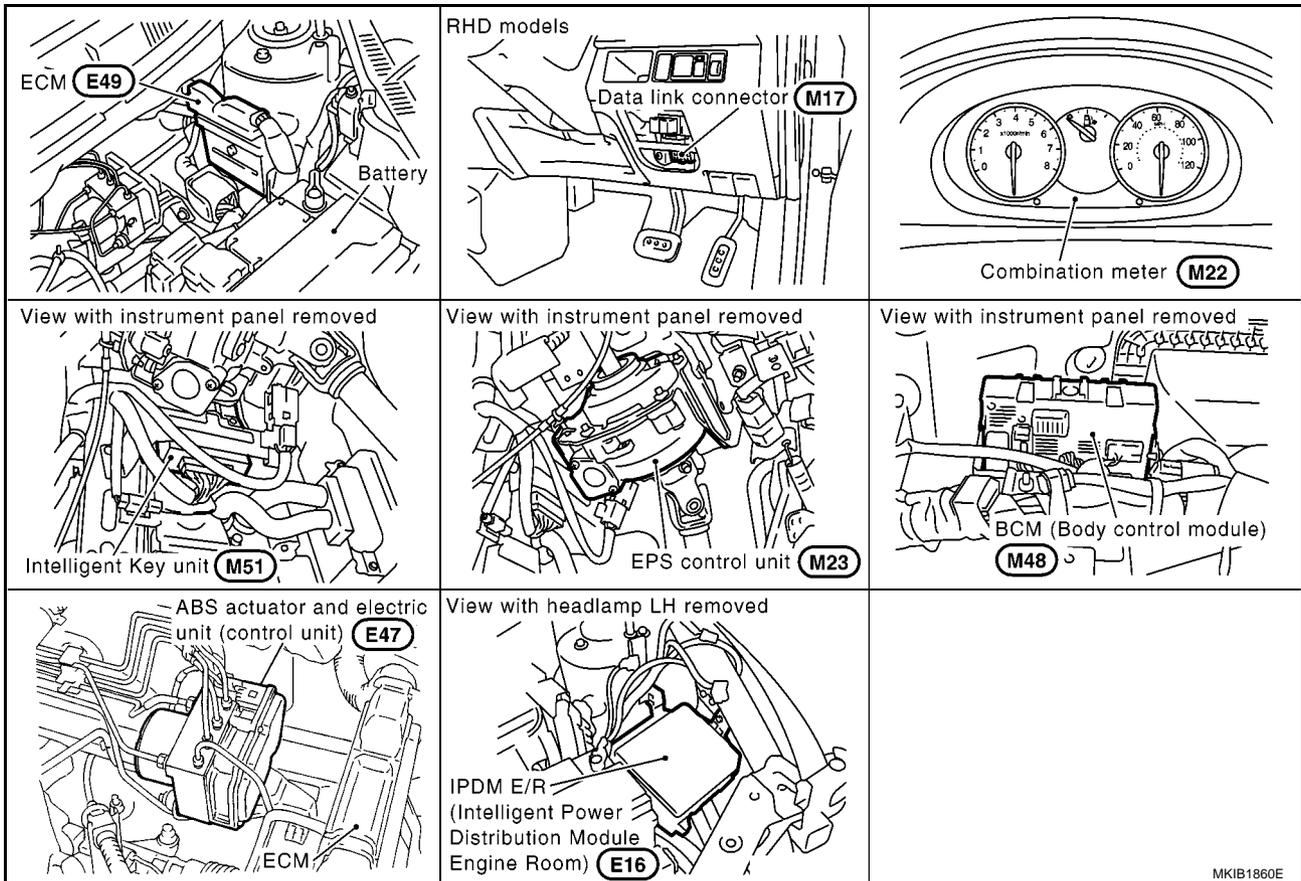
System Description

EKS00JP2

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

EKS00JP3



CAN SYSTEM (TYPE 9)

[CAN]

Wiring Diagram — CAN —

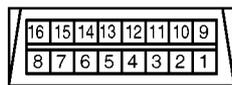
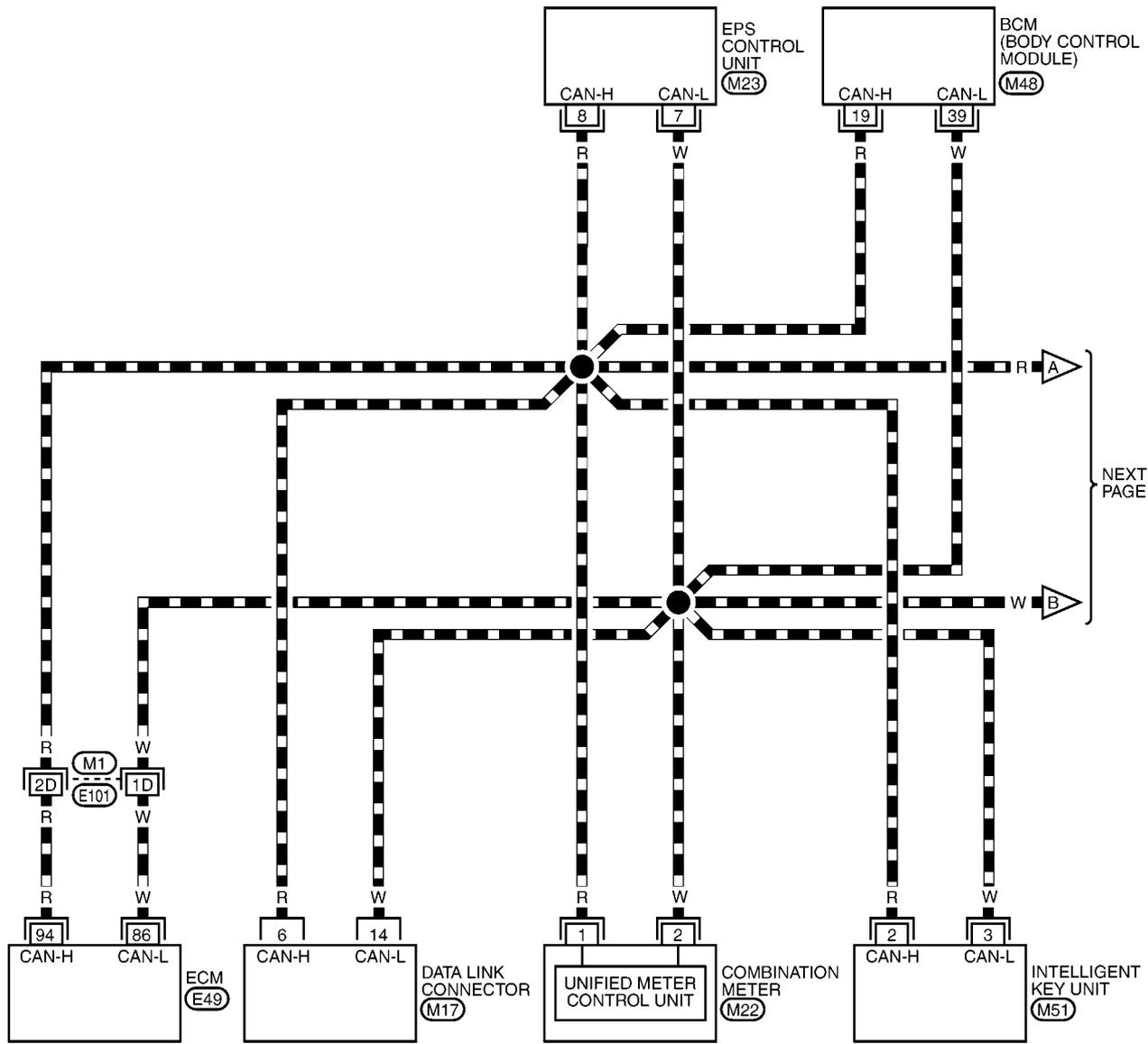
EKS00JP4

LAN-CAN-17

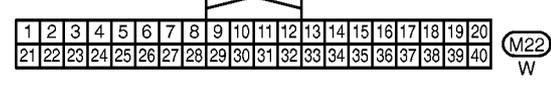
▬ : DATA LINE

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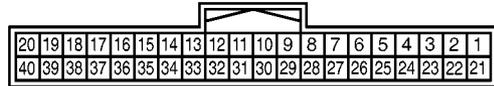
(M17)
W



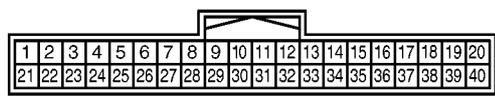
(M22)
W



(M23)
W



(M48)
W



(M51)
W



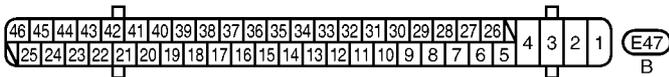
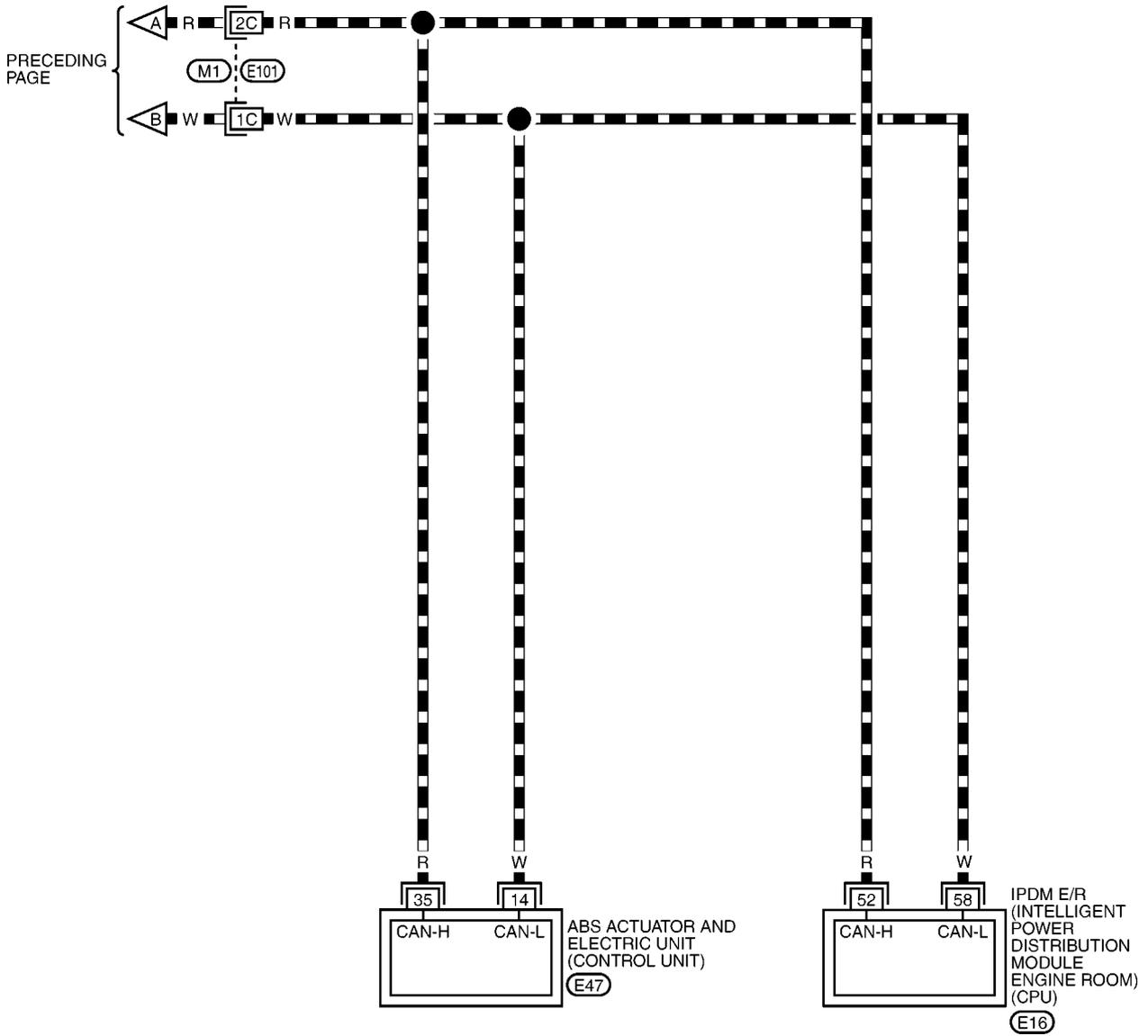
REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

(E49) -ELECTRICAL UNITS

LAN-CAN-18

▬ : DATA LINE



REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

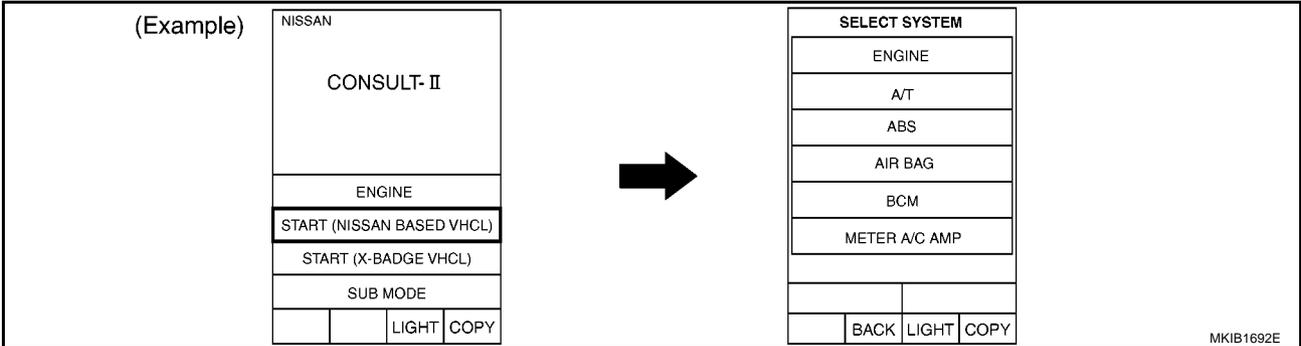
CAN SYSTEM (TYPE 9)

[CAN]

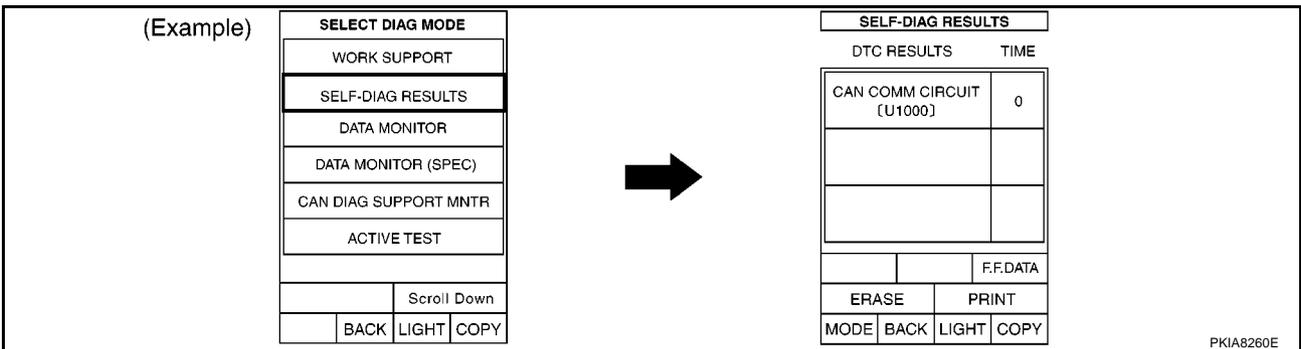
EKS00JP5

Work Flow

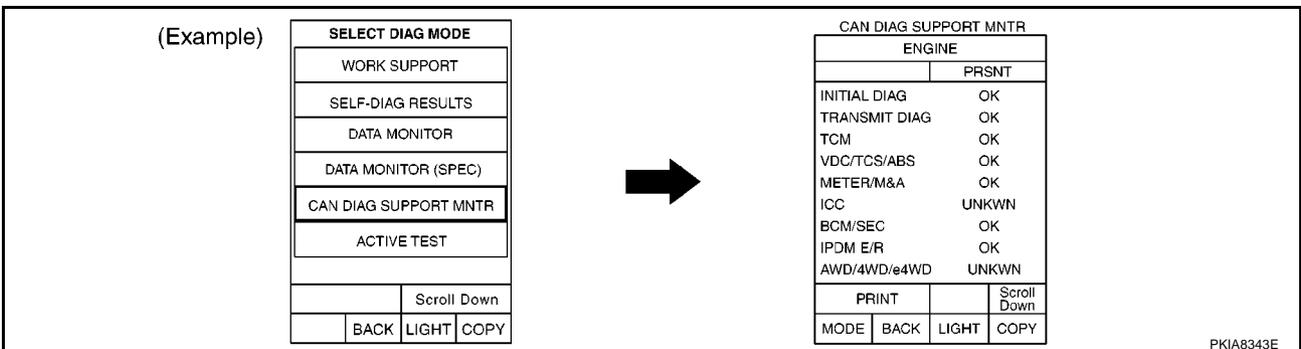
- When there are no indications of "INTELLIGENT KEY", "EPS", "BCM" or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



- Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "INTELLIGENT KEY", "EPS", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



- Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "INTELLIGENT KEY", "EPS", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



- Attach the printed sheet of "SELECT SYSTEM", "SELF-DIAG RESULTS" and "CAN DIAG SUPPORT MNTR" onto the check sheet. Refer to [LAN-256, "CHECK SHEET"](#) .
- Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks "v" onto the items with "No indication", "NG", or "UNKWVN" in the check sheet table. Refer to [LAN-256, "CHECK SHEET"](#) .

NOTE:

- If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- The "CAN DIAG SUPPORT MNTR" items, which are not in check sheet table, are not related to diagnostic procedure on service manual. So it is not necessary to check the status of "CAN DIAG SUPPORT MNTR" items which are not indicated in check sheet table.

- According to the check sheet results (example), start inspection. Refer to [LAN-258, "CHECK SHEET RESULTS \(EXAMPLE\)"](#) .

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CAN SYSTEM (TYPE 9)

[CAN]

CHECK SHEET

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	-	-	UNKWN	-	-
EPS	No indication	-	UNKWN	UNKWN	UNKWN	-	-	UNKWN	UNKWN	-
BCM	No indication	-	UNKWN	UNKWN	UNKWN	UNKWN	-	-	UNKWN	UNKWN
ABS	No indication	-	UNKWN	UNKWN	UNKWN	-	UNKWN	-	-	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	-	-

Symptoms:

Attach copy of
SELECT SYSTEM

Attach copy of
SELECT SYSTEM

MKIB2138E

CAN SYSTEM (TYPE 9)

[CAN]

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Attach copy of
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INTELLIGENT KEY
SELF-DIAG RESULTS

Attach copy of
EPS
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BCM
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ABS
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IPDM E/R
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Attach copy of
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MNTR

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INTELLIGENT KEY
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EPS
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BCM
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ABS
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MKIB2190E

CAN SYSTEM (TYPE 9)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

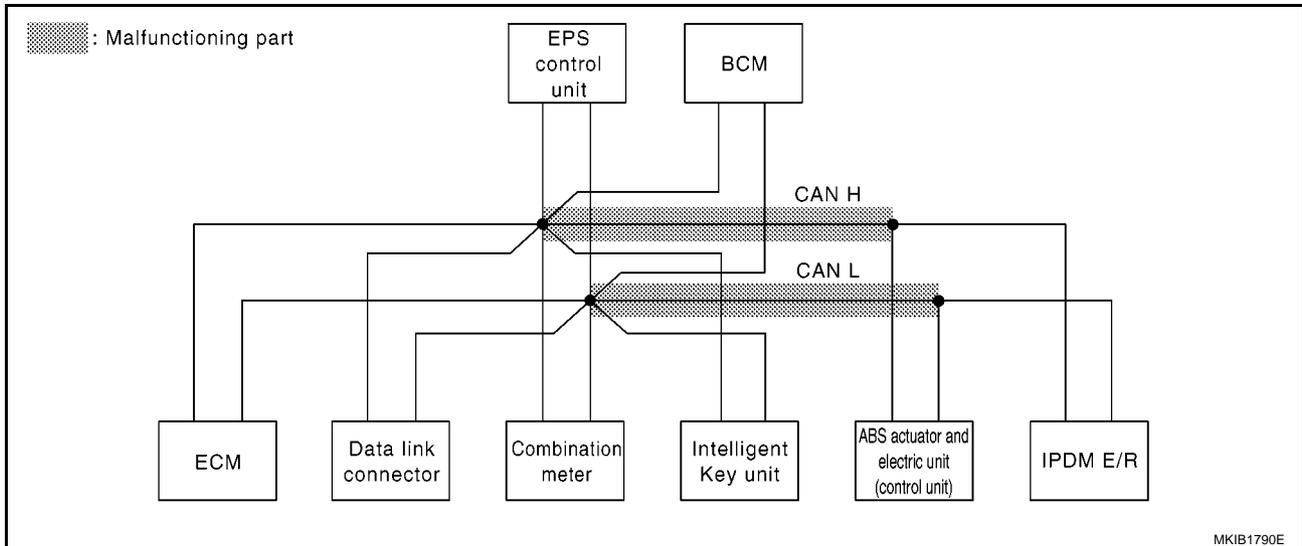
If "NG" is displayed on "CAN COMM" as "DATA MONITOR (CAN DIAG SUPPORT MNTR)" for the diagnosed control unit, replace the control unit.

Case1

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to [LAN-268, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit \(Control Unit\)"](#).

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2139E



CAN SYSTEM (TYPE 9)

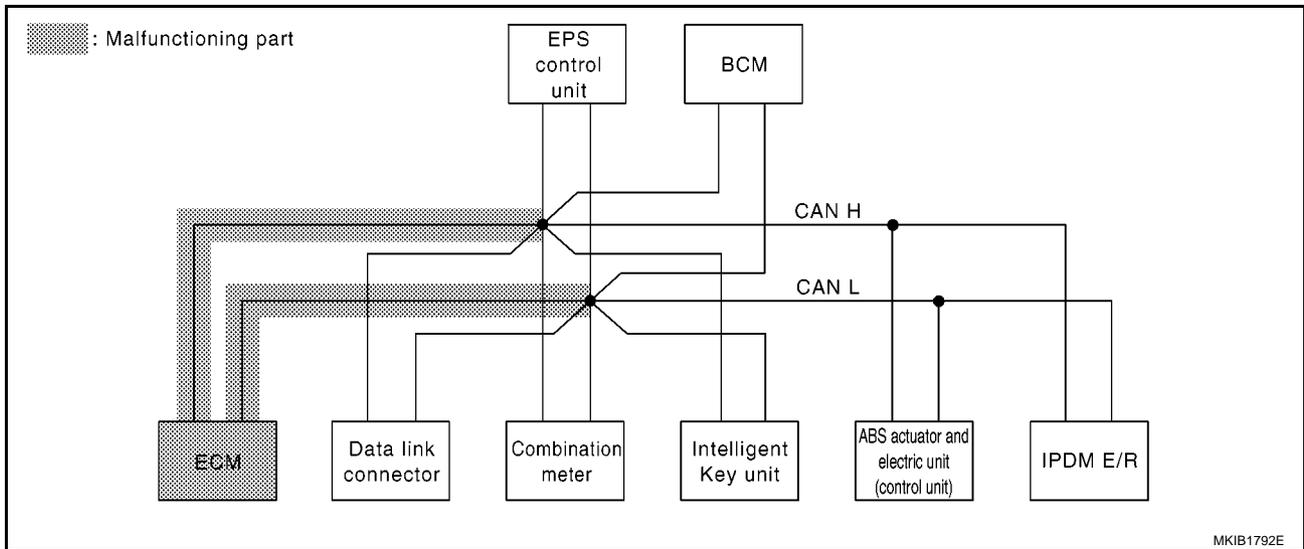
[CAN]

Case2

Check ECM circuit. Refer to [LAN-269, "ECM Circuit Check"](#).

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 9)

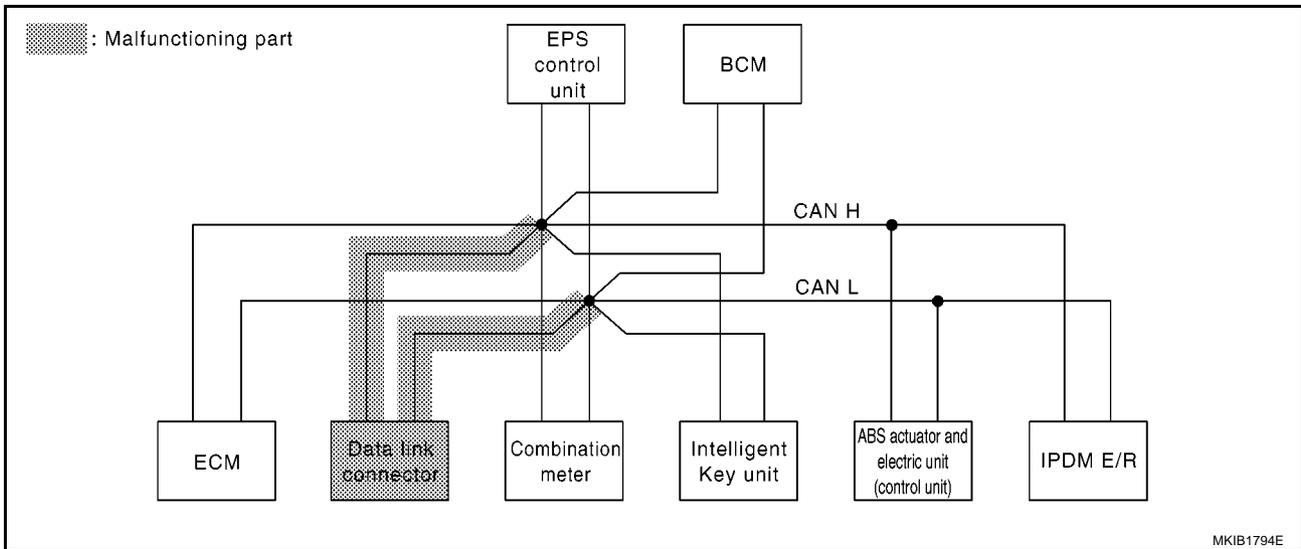
[CAN]

Case3

Check data link connector circuit. Refer to [LAN-270, "Data Link Connector Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2141E



CAN SYSTEM (TYPE 9)

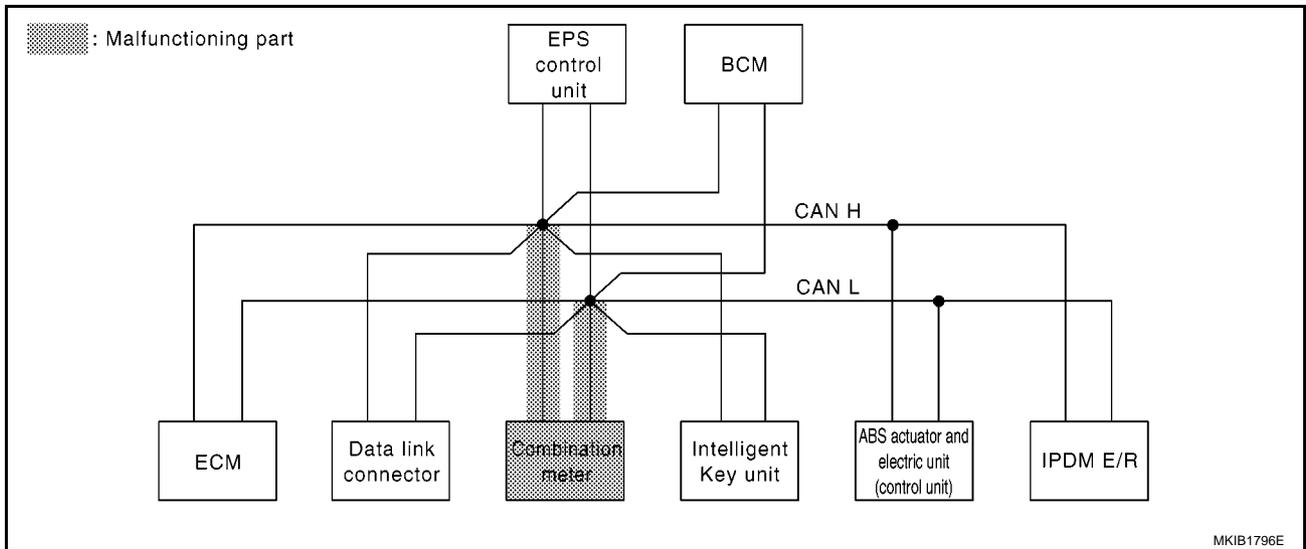
[CAN]

Case4

Check combination meter circuit. Refer to [LAN-271, "Combination Meter Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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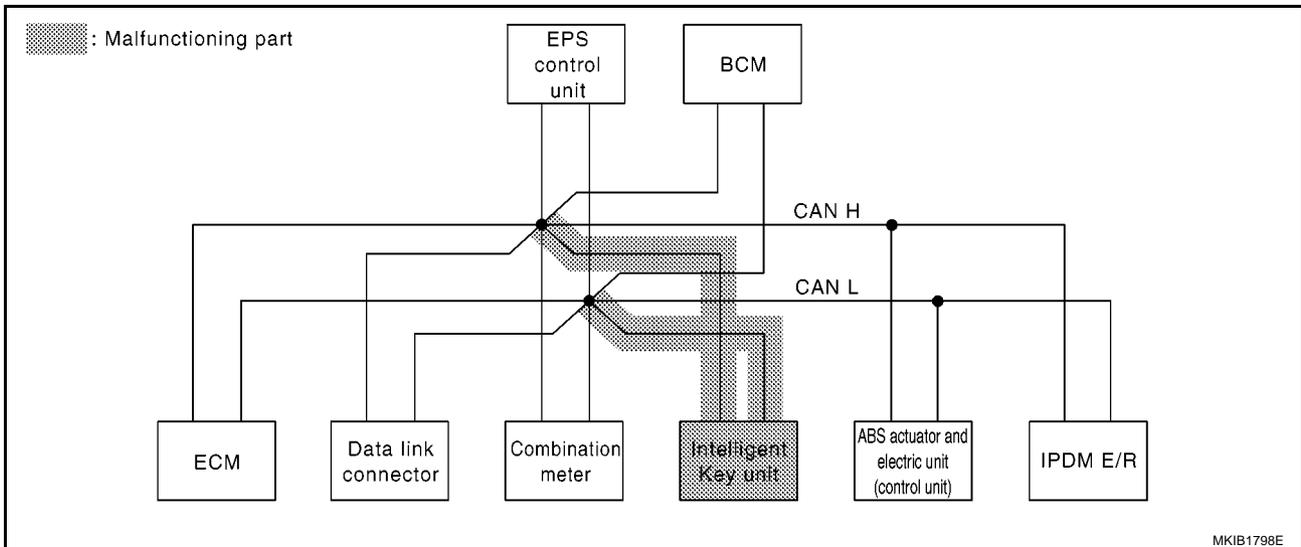
[CAN]

Case5

Check Intelligent Key unit circuit. Refer to [LAN-272, "Intelligent Key Unit Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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MKIB1798E

CAN SYSTEM (TYPE 9)

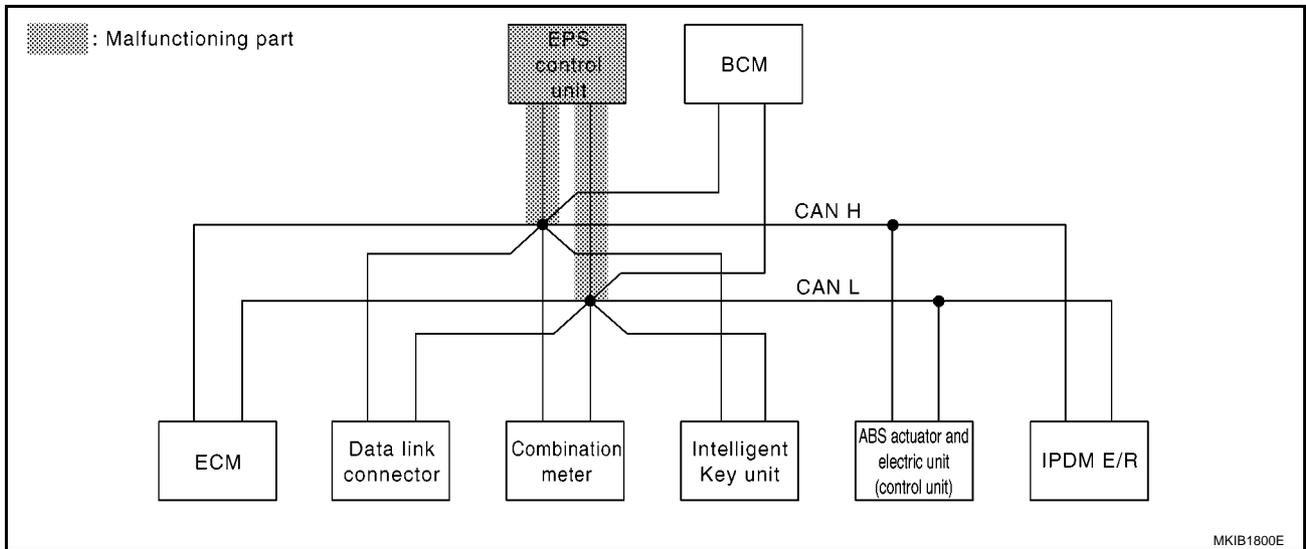
[CAN]

Case6

Check EPS control unit circuit. Refer to [LAN-273, "EPS Control Unit Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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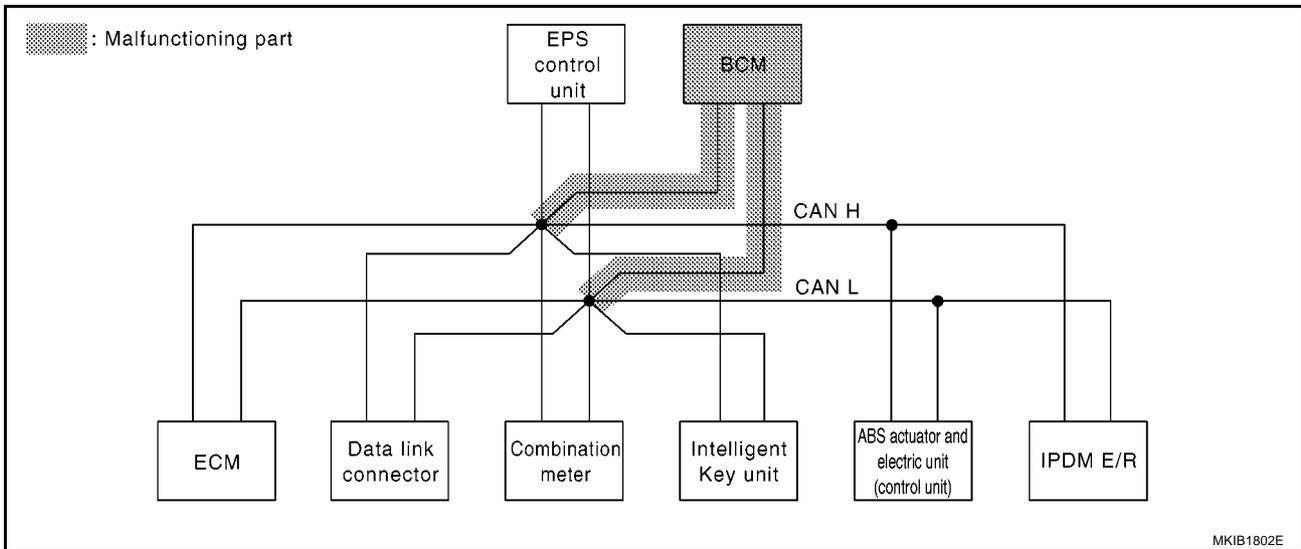
[CAN]

Case7

Check BCM circuit. Refer to [LAN-274, "BCM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2145E



CAN SYSTEM (TYPE 9)

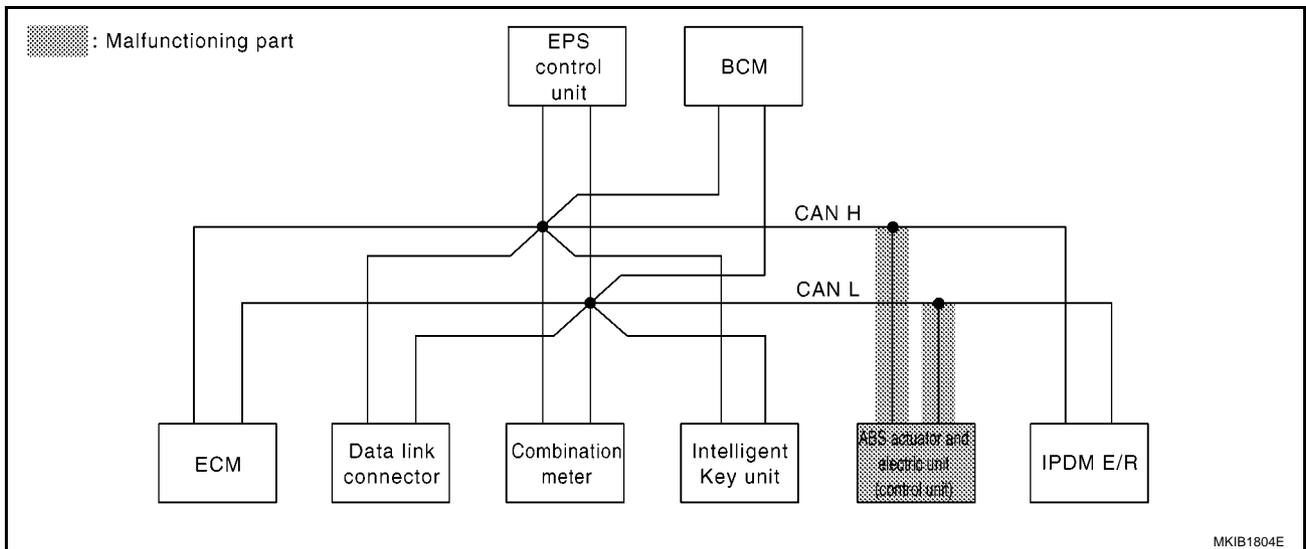
[CAN]

Case8

Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-275, "ABS Actuator and Electric Unit \(Control Unit\) Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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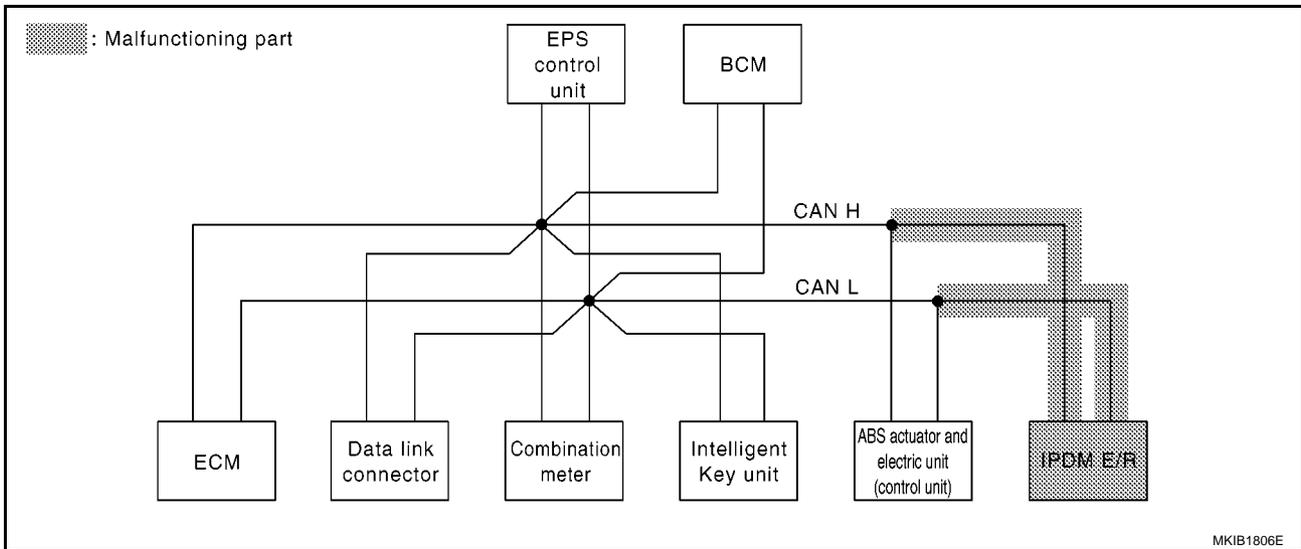
[CAN]

Case9

Check IPDM E/R circuit. Refer to [LAN-276, "IPDM E/R Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R	
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

MKIB2147E



MKIB1806E

CAN SYSTEM (TYPE 9)

[CAN]

Case10

Check CAN communication circuit. Refer to [LAN-277, "CAN Communication Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	✓	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2148E

Case11

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to [LAN-280, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2149E

Case12

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to [LAN-280, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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

EKS00JP6

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M1
 - Harness connector E101

OK or NG

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

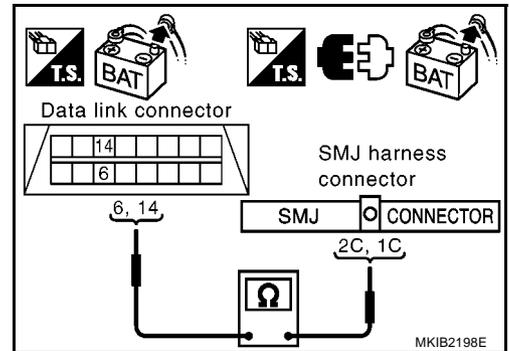
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect following connector.
 - Harness connector M1
2. Check continuity between data link connector M17 terminals 6 (R), 14 (W) and harness connector M1 terminals 2C (R), 1C (W).

6 (R) – 2C (R) : Continuity should exist.
14 (W) – 1C (W) : Continuity should exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness.



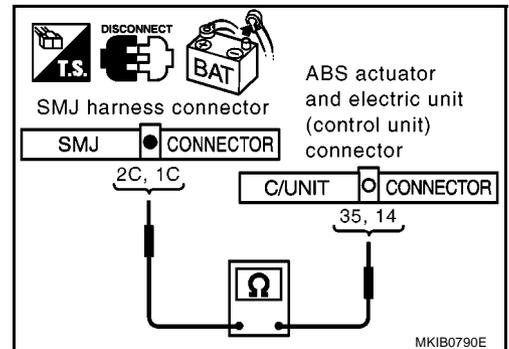
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between harness connector E101 terminals 2C (R), 1C (W) and ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R), 14 (W).

2C (R) – 35 (R) : Continuity should exist.
1C (W) – 14 (W) : Continuity should exist.

OK or NG

- OK >> Connect all the connectors and diagnosis again. Refer to [LAN-255. "Work Flow"](#) .
 NG >> Repair harness.



ECM Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
 - ECM connector
 - Harness connector M1
 - Harness connector E101

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

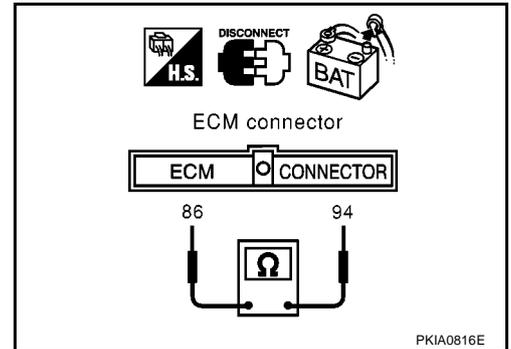
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E49 terminal 94 (R) and 86 (W)

94 (R) – 86 (W)**: Approx. 108 – 132 Ω**OK or NG

OK >> Replace ECM.

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



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Data Link Connector Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check the data link connector and terminals for damage, bend and loose connection (connector side and harness side).

OK or NG

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

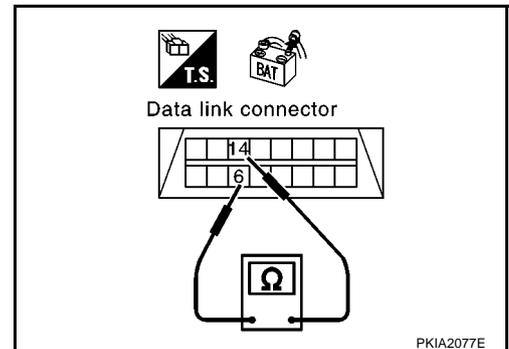
2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M17 terminals 6 (R) and 14 (W).

6 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Diagnosis again. Refer to [LAN-255, "Work Flow"](#) .
NG >> Repair harness between data link connector and combination meter



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

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of combination meter for damage, bend and loose connection (meter side and harness side).

OK or NG

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

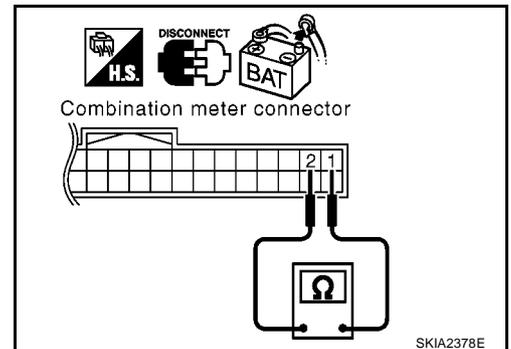
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M22 terminals 1 (R) and 2 (W).

1 (R) – 2 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between combination meter and data link connector.



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Intelligent Key Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of Intelligent Key unit for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

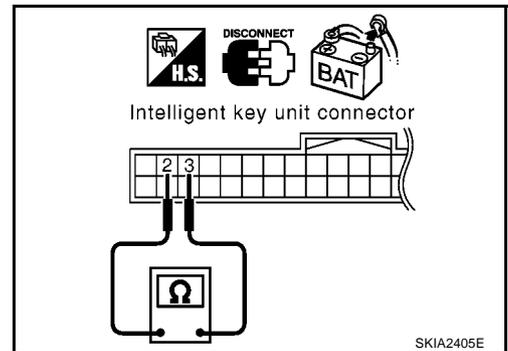
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect Intelligent Key unit connector.
2. Check resistance between Intelligent Key unit harness connector M51 terminals 2 (R) and 3 (W).

2 (R) – 3 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace Intelligent Key unit.
 NG >> Repair harness between Intelligent Key unit and data link connector.



EPS Control Unit Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

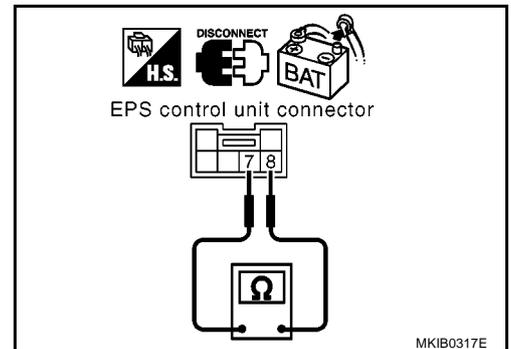
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect EPS control unit connector.
2. Check resistance between EPS control unit harness connector M23 terminals 8 (R) and 7 (W).

8 (R) – 7 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace EPS control unit.
 NG >> Repair harness between EPS control unit and data link connector.



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BCM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

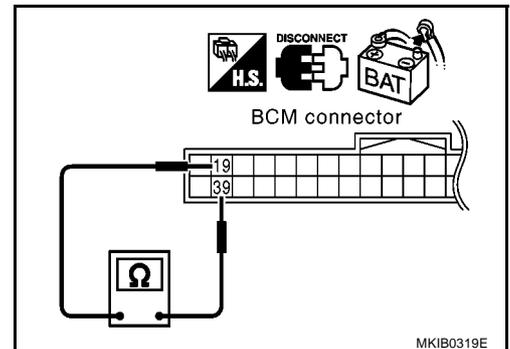
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M48 terminals 19 (R) and 39 (W).

19 (R) – 39 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace BCM. Refer to [BCS-30, "Removal and Installation of BCM"](#) .
 NG >> Repair harness between BCM and data link connector.



ABS Actuator and Electric Unit (Control Unit) Circuit Check

EKS00JPD

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ABS actuator and electric unit (control unit) for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

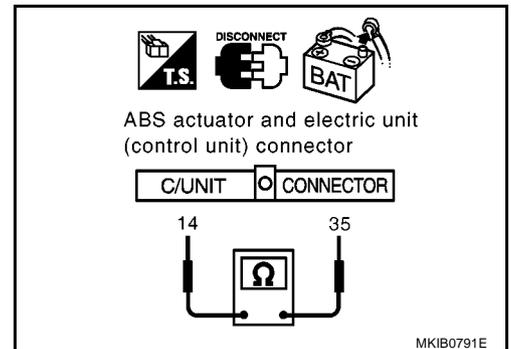
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R) and 14 (W).

35 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace ABS actuator and electric unit (control unit).
 NG >> Repair harness between ABS actuator and electric unit (control unit) and IPDM E/R.

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IPDM E/R Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

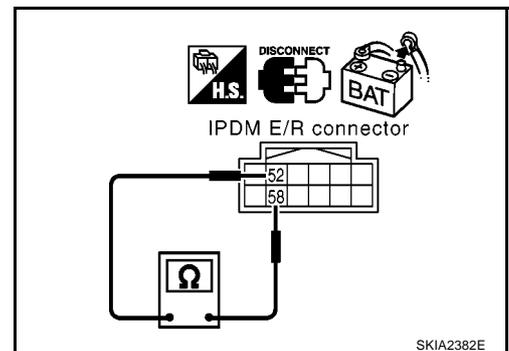
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check resistance between IPDM E/R harness connector E16 terminals 52 (R) and 58 (W).

52 (R) – 58 (W) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace IPDM E/R.
 NG >> Repair harness between IPDM E/R and ABS actuator and electric unit (control unit).



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

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side, meter side, control unit side and harness side).
 - ECM
 - Combination meter
 - Intelligent Key unit
 - EPS control unit
 - BCM
 - ABS actuator and electric unit (control unit)
 - IPDM E/R
 - Between ECM and IPDM E/R

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

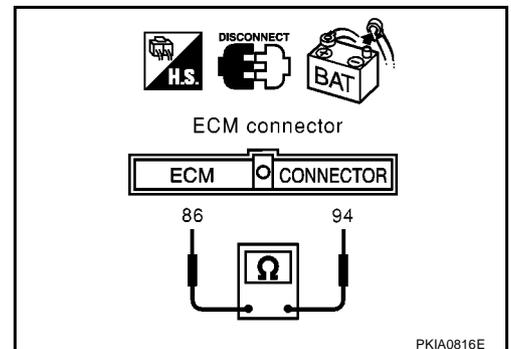
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E101.
2. Check continuity between ECM harness connector E49 terminal 94 (R) and 86 (W)

94 (R) – 86 (W) : Continuity should not exist.OK or NG

OK >> GO TO 3.

NG >> Repair harness between ECM and harness connector E101.

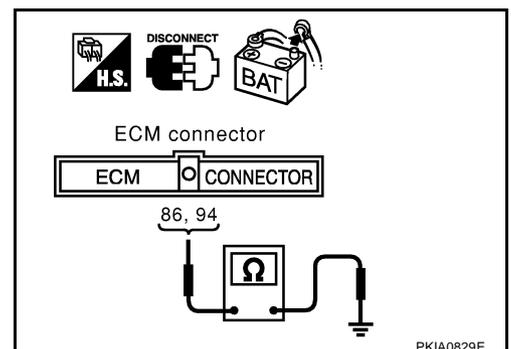
**3. CHECK HARNESS FOR SHORT CIRCUIT**

Check continuity between ECM harness connector E49 terminal 94 (R), 86 (W) and ground

94 (R) – Ground : Continuity should not exist.**86 (W) – Ground : Continuity should not exist.**OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector E101.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - ABS actuator and electric unit (control unit) connector
 - IPDM E/R connector
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R) and 14 (W).

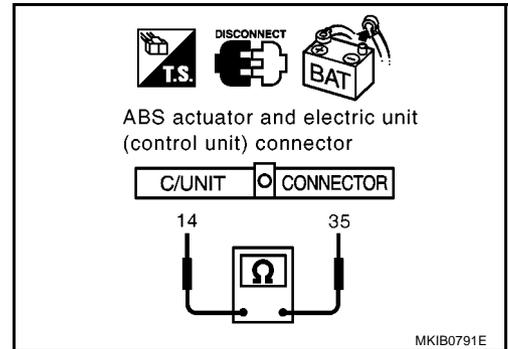
35 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R), 14 (W) and ground.

35 (R) – Ground : Continuity should not exist.

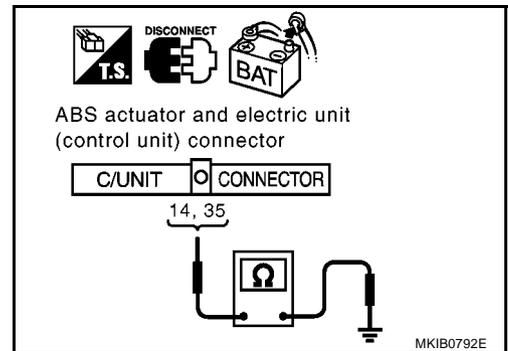
14 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - Combination meter connector
 - Intelligent Key unit connector
 - EPS control unit connector
 - BCM connector
2. Check continuity between data link connector M17 terminals 6 (R) and 14 (W).

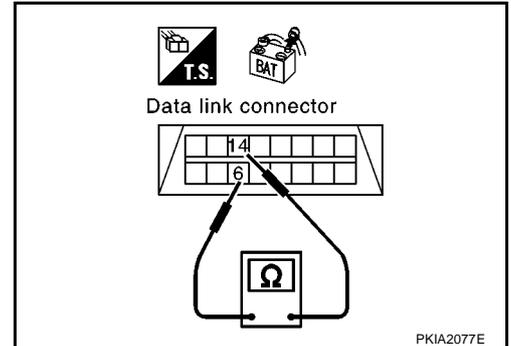
6 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and Intelligent Key unit
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M17 terminals 6 (R), 14 (W) and ground.

6 (R) – Ground : Continuity should not exist.

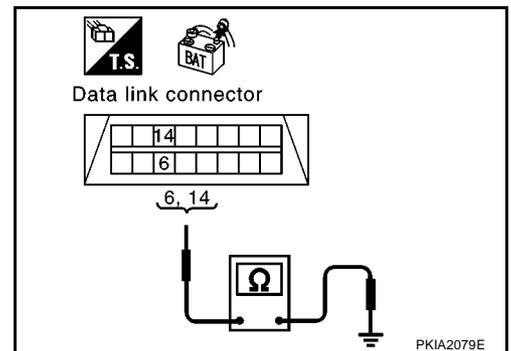
14 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and Intelligent Key unit
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-280. "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION"](#) .

OK or NG

OK >> Connect all the connectors and diagnosis again. Refer to [LAN-255. "Work Flow"](#) .

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

IPDM E/R Ignition Relay Circuit Check

EKS00JPG

Perform the self-diagnosis for IPDM E/R. Refer to [PG-49, "Inspection With CONSULT-II \(Self-Diagnosis\)"](#) . If the result is OK, carry out following inspections.

- IPDM E/R power supply circuit. Refer to [PG-50, "IPDM E/R Power Supply and Ground Circuit Check"](#) .
- Ignition power supply circuit. Refer to [PG-13, "IGNITION POWER SUPPLY — IGNITION SW. IN "ON" AND/OR "START""](#) .

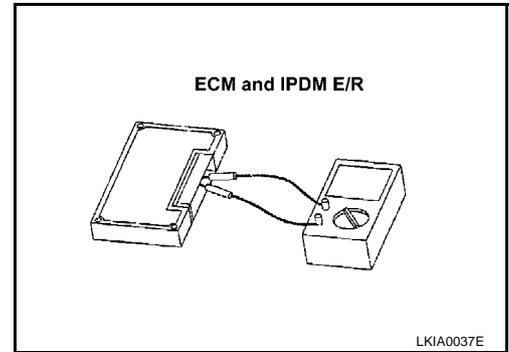
Component Inspection

EKS00JPH

ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between IPDM E/R terminals 52 and 58.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	94 – 86	108 - 132
IPDM E/R	52 – 58	



CAN SYSTEM (TYPE 10)

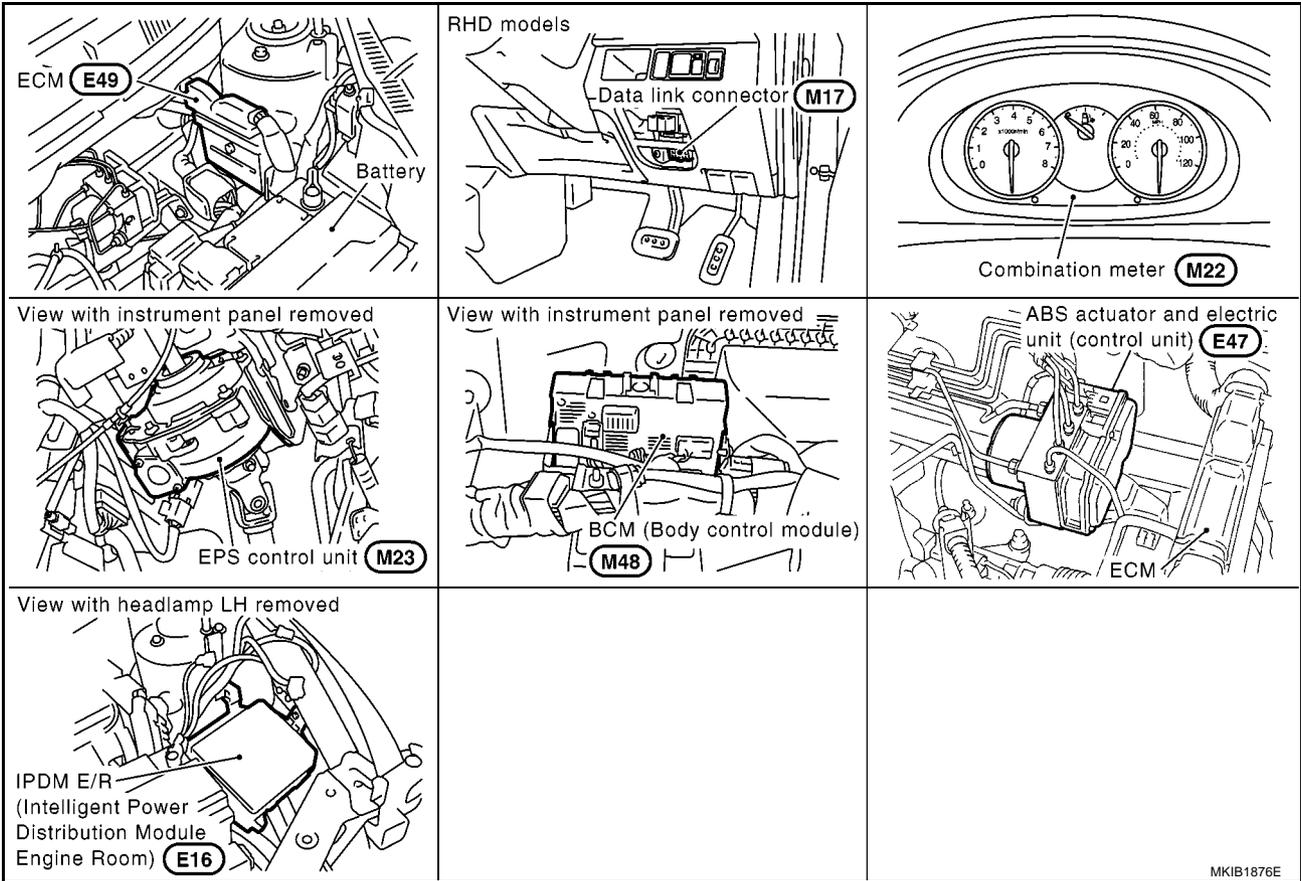
System Description

EKS00JP1

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

EKS00JPJ



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CAN SYSTEM (TYPE 10)

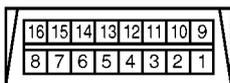
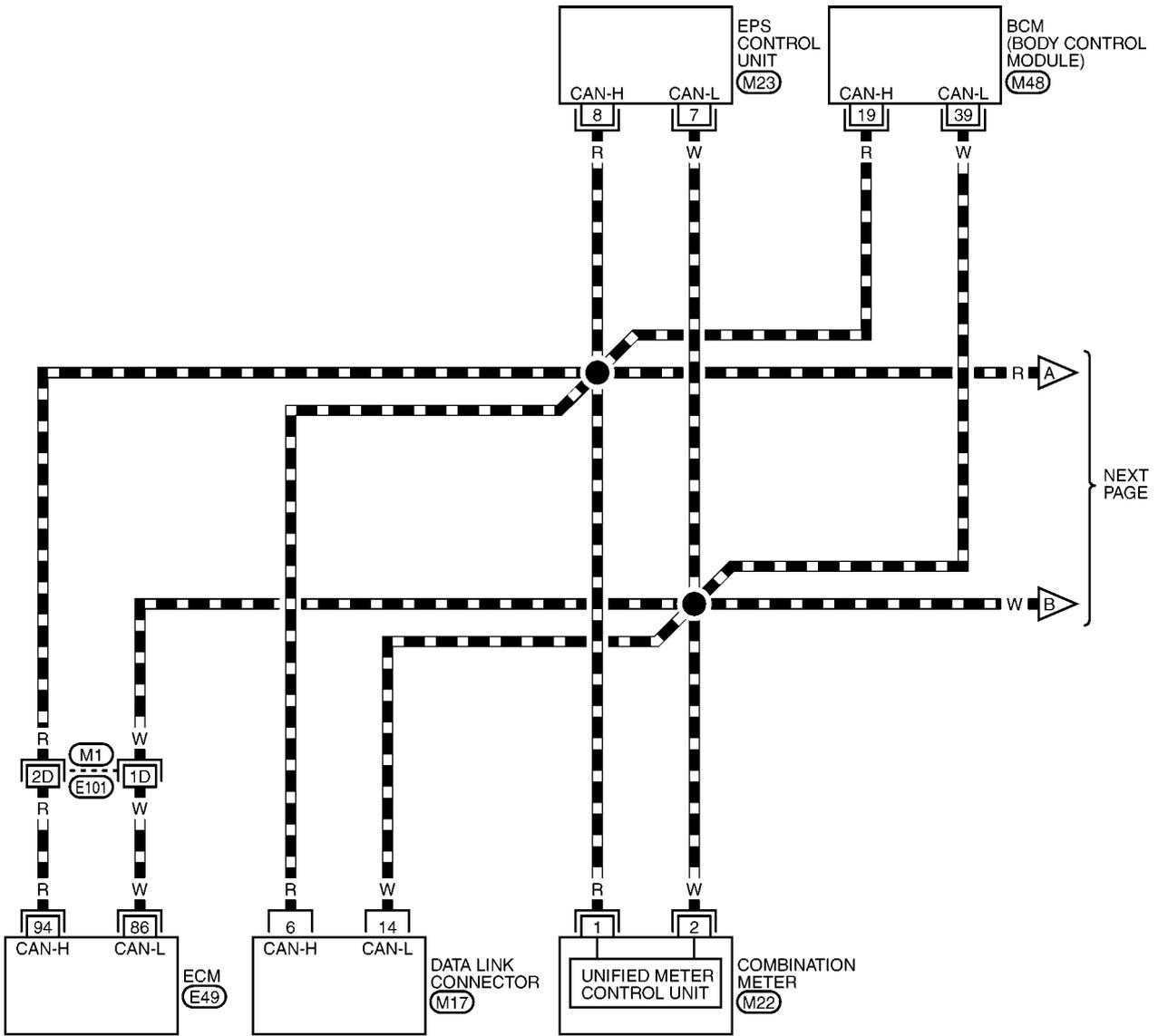
[CAN]

EKS00JPK

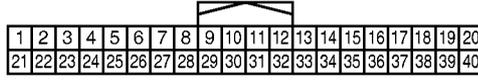
Wiring Diagram — CAN —

LAN-CAN-19

▬ : DATA LINE



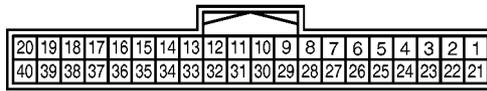
(M17)
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(M22)
W



(M23)
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(M48)
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REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

(E49) -ELECTRICAL UNITS

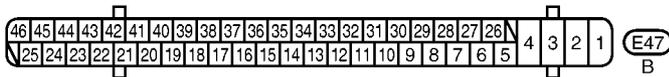
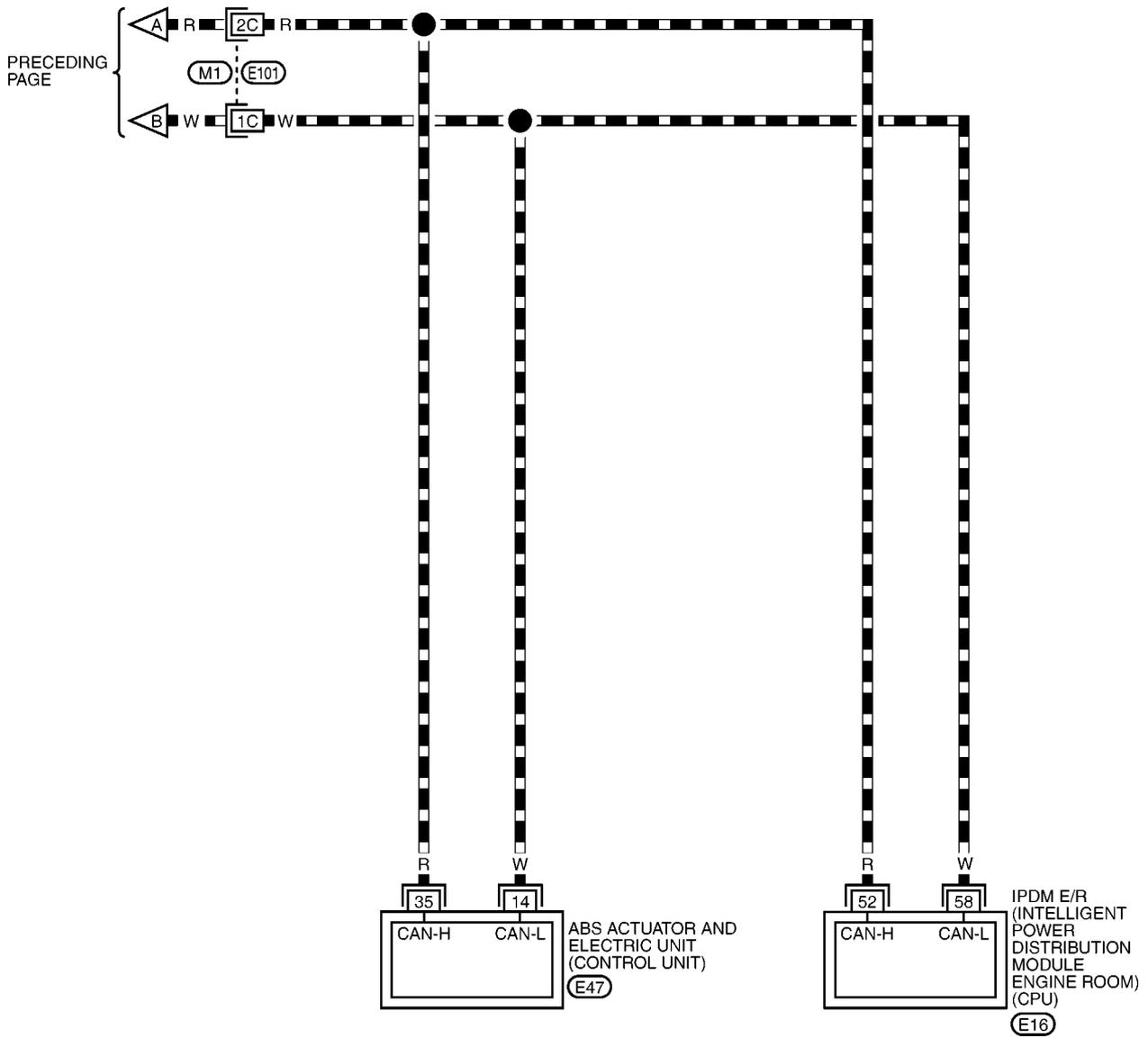
CAN SYSTEM (TYPE 10)

[CAN]

LAN-CAN-20

▬ : DATA LINE

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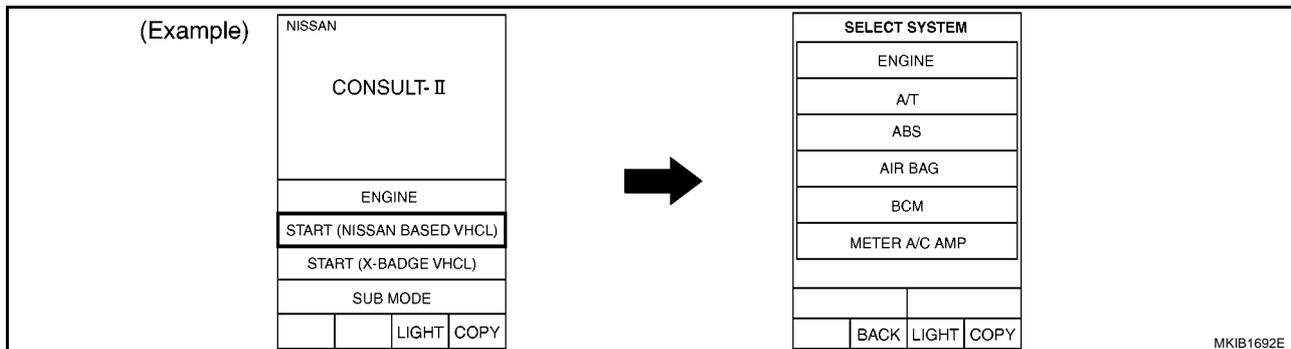
REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

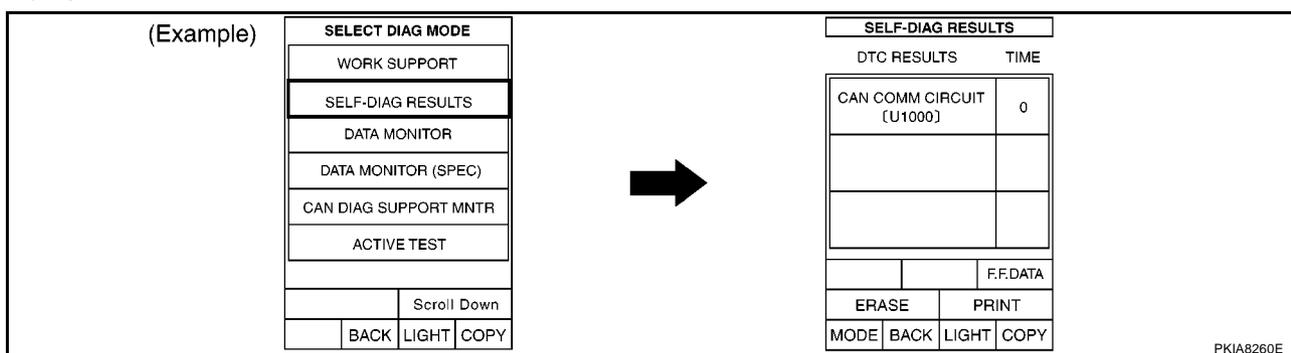
MKWA3796E

Work Flow

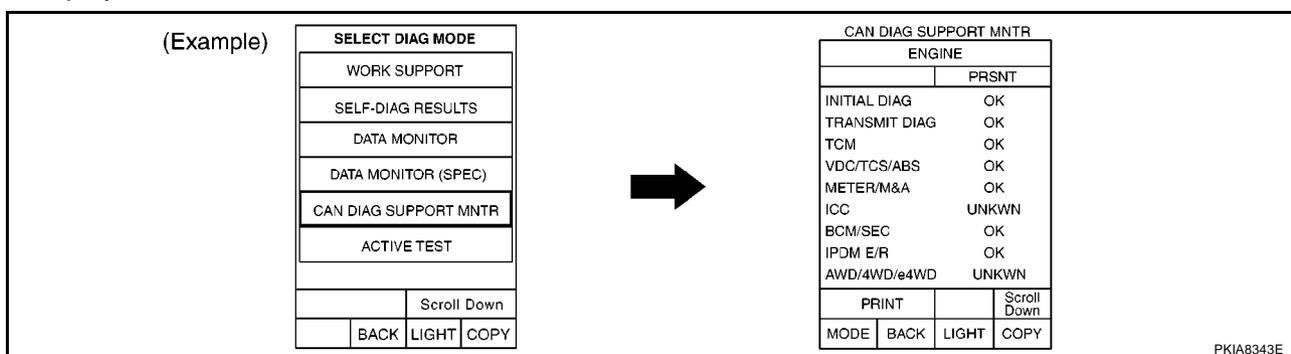
- When there are no indications of “EPS”, “BCM” or “IPDM E/R” on “SELECT SYSTEM” display of CONSULT-II, print the “SELECT SYSTEM”.



- Print all the data of “SELF-DIAG RESULTS” for “ENGINE”, “EPS”, “BCM”, “ABS” and “IPDM E/R” displayed on CONSULT-II.



- Print all the data of “CAN DIAG SUPPORT MNTR” for “ENGINE”, “EPS”, “BCM”, “ABS” and “IPDM E/R” displayed on CONSULT-II.



- Attach the printed sheet of “SELECT SYSTEM”, “SELF-DIAG RESULTS” and “CAN DIAG SUPPORT MNTR” onto the check sheet. Refer to [LAN-285, "CHECK SHEET"](#) .
- Based on the indications of “SELECT SYSTEM” and the results of “CAN DIAG SUPPORT MNTR”, put marks “v” onto the items with “No indication”, “NG”, or “UNKWVN” in the check sheet table. Refer to [LAN-285, "CHECK SHEET"](#) .

NOTE:

- If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)” as “CAN DIAG SUPPORT MNTR” for the diagnosed control unit, replace the control unit.
- The “CAN DIAG SUPPORT MNTR” items, which are not in check sheet table, are not related to diagnostic procedure on service manual. So it is not necessary to check the status of “CAN DIAG SUPPORT MNTR” items which are not indicated in check sheet table.

- According to the check sheet results (example), start inspection. Refer to [LAN-287, "CHECK SHEET RESULTS \(EXAMPLE\)"](#) .

CAN SYSTEM (TYPE 10)

[CAN]

CHECK SHEET

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Check sheet table

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

Symptoms:

Attach copy of
SELECT SYSTEM

Attach copy of
SELECT SYSTEM

CAN SYSTEM (TYPE 10)

[CAN]

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
EPS
SELF-DIAG RESULTS

Attach copy of
BCM
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
IPDM E/R
SELF-DIAG RESULTS

Attach copy of
ENGINE
CAN DIAG SUPPORT
MNTR

Attach copy of
EPS
CAN DIAG SUPPORT
MNTR

Attach copy of
BCM
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Attach copy of
ABS
CAN DIAG SUPPORT
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Attach copy of
IPDM E/R
CAN DIAG SUPPORT
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CAN SYSTEM (TYPE 10)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

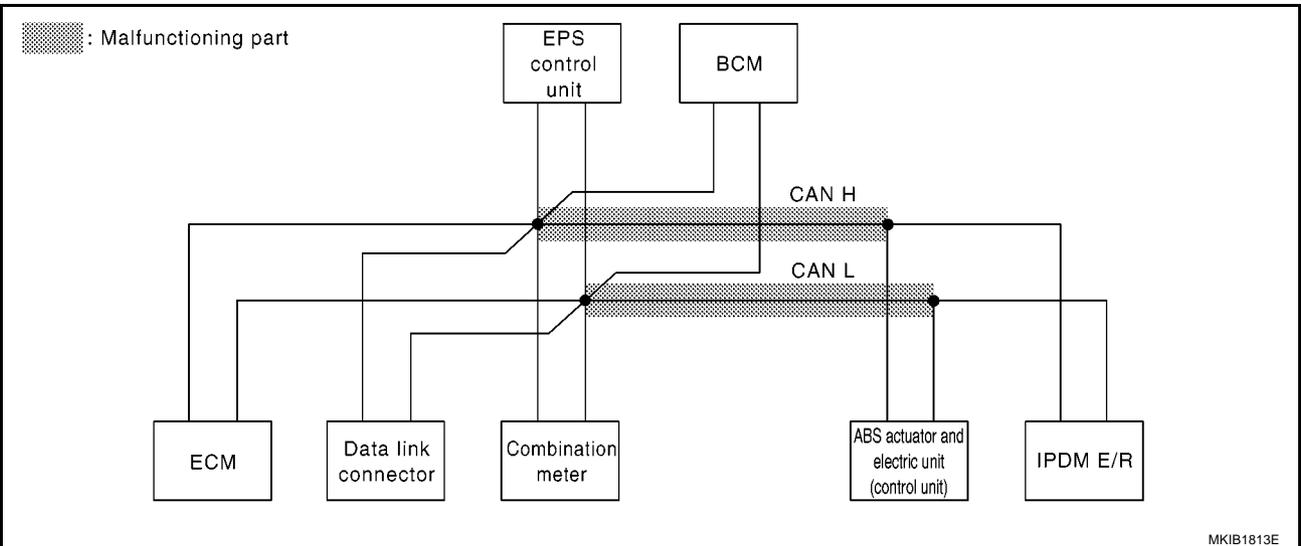
If "NG" is displayed on "CAN COMM" as "DATA MONITOR (CAN DIAG SUPPORT MNTR)" for the diagnosed control unit, replace the control unit.

Case1

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to [LAN-296, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit \(Control Unit\)"](#).

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

MKIB2152E



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CAN SYSTEM (TYPE 10)

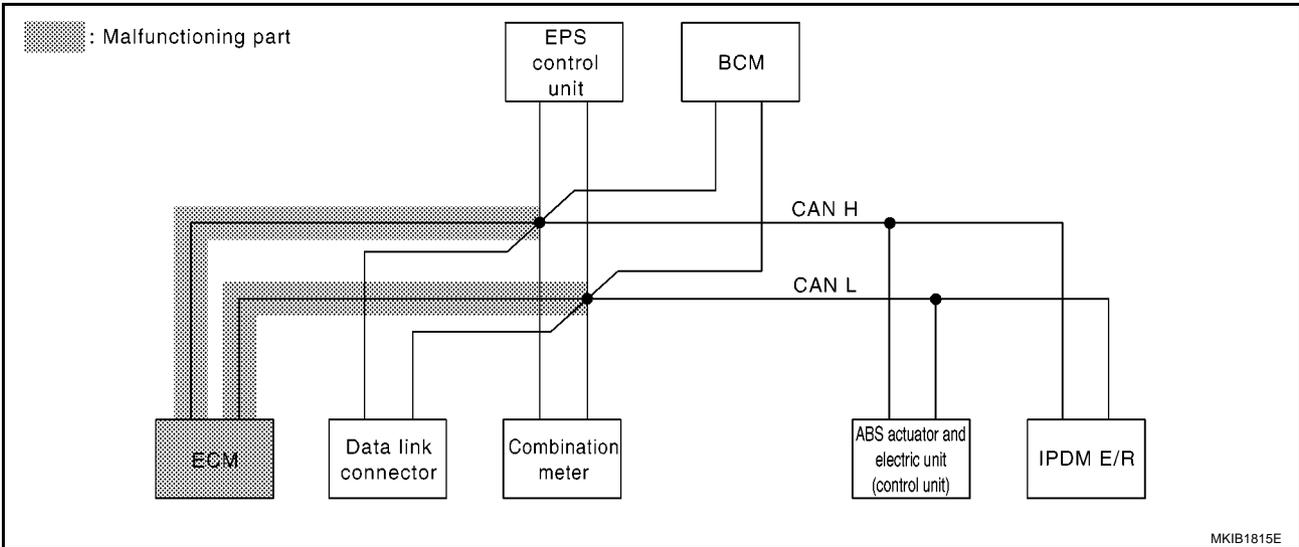
[CAN]

Case2

Check ECM circuit. Refer to [LAN-297, "ECM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN ✓	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓
EPS	No indication	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	UNKWN ✓	UNKWN ✓	—
BCM	No indication	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	—	UNKWN ✓	UNKWN ✓
ABS	No indication	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	—	—
IPDM E/R	No indication	—	UNKWN ✓	UNKWN ✓	—	—	UNKWN ✓	—	—

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CAN SYSTEM (TYPE 10)

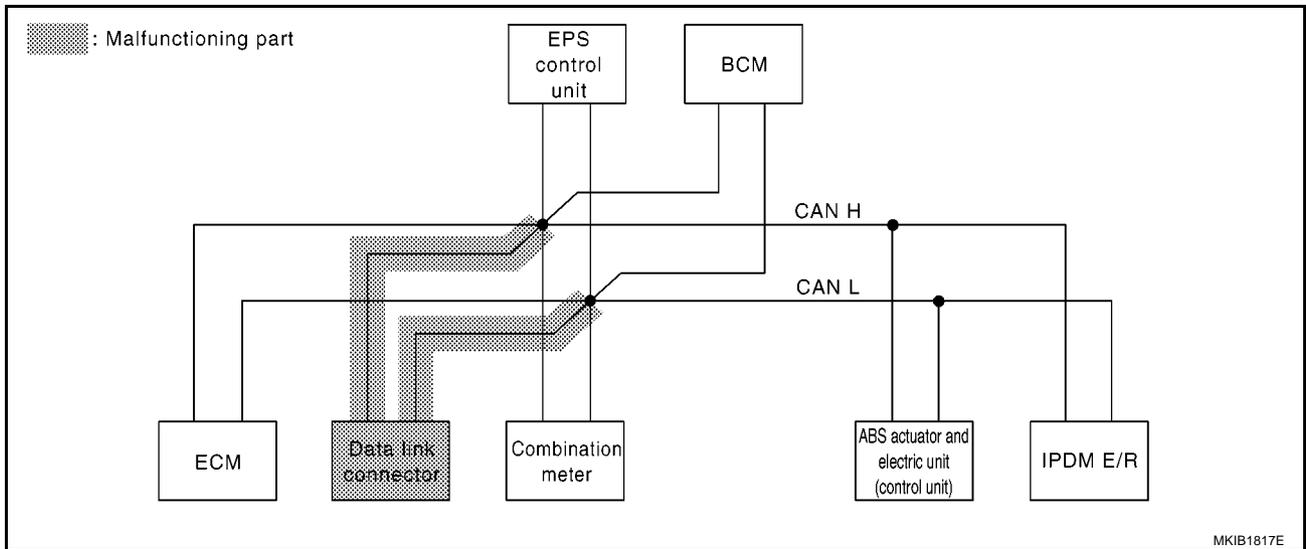
[CAN]

Case3

Check data link connector circuit. Refer to [LAN-298, "Data Link Connector Circuit Check"](#) .

SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R	
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication ✓	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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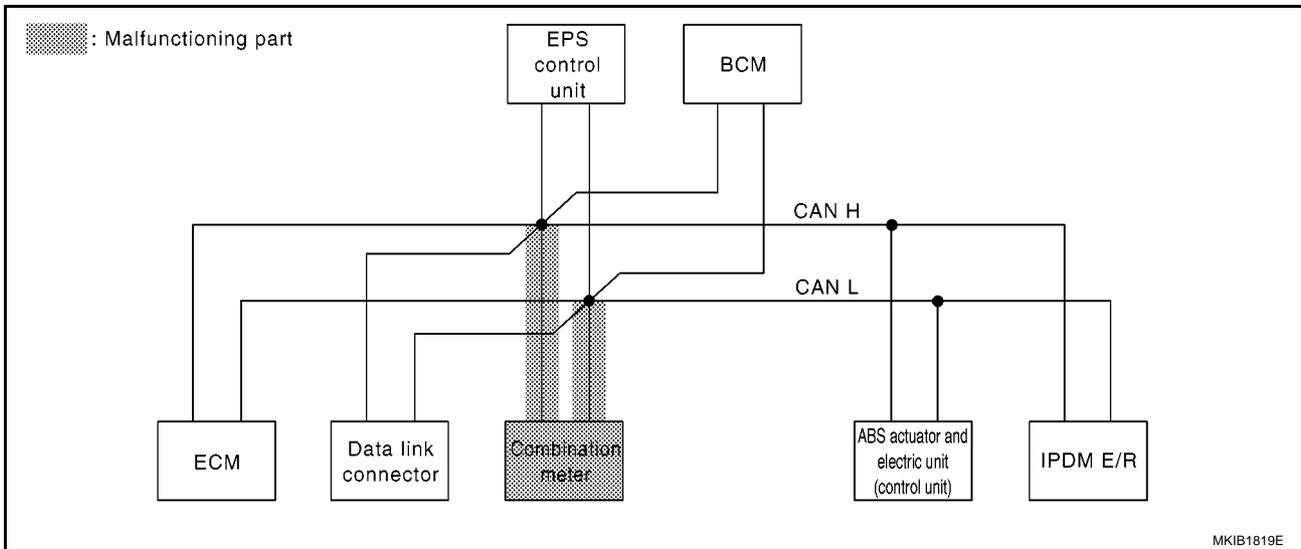
[CAN]

Case4

Check combination meter circuit. Refer to [LAN-299, "Combination Meter Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN ✓	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN ✓	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN ✓	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 10)

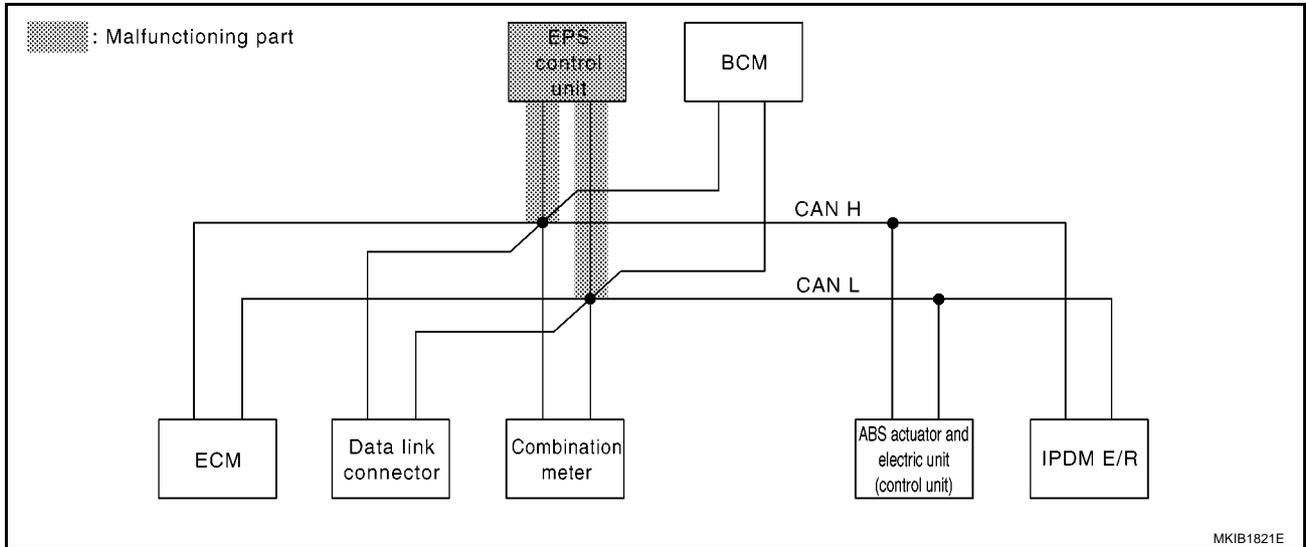
[CAN]

Case5

Check EPS control unit circuit. Refer to [LAN-300, "EPS Control Unit Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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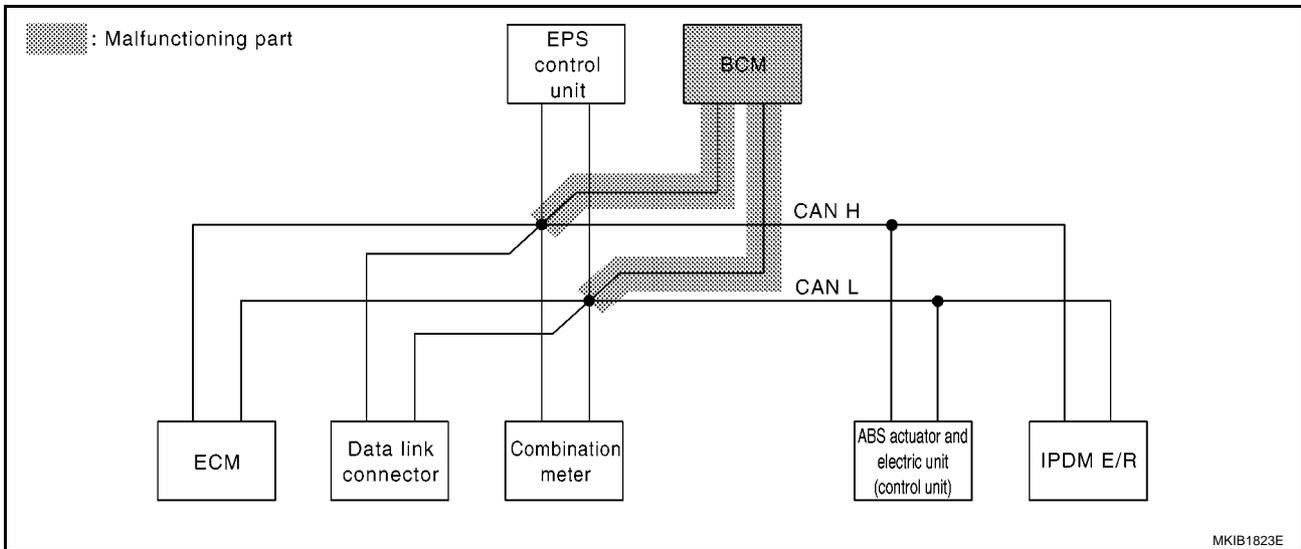
[CAN]

Case6

Check BCM circuit. Refer to [LAN-301, "BCM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 10)

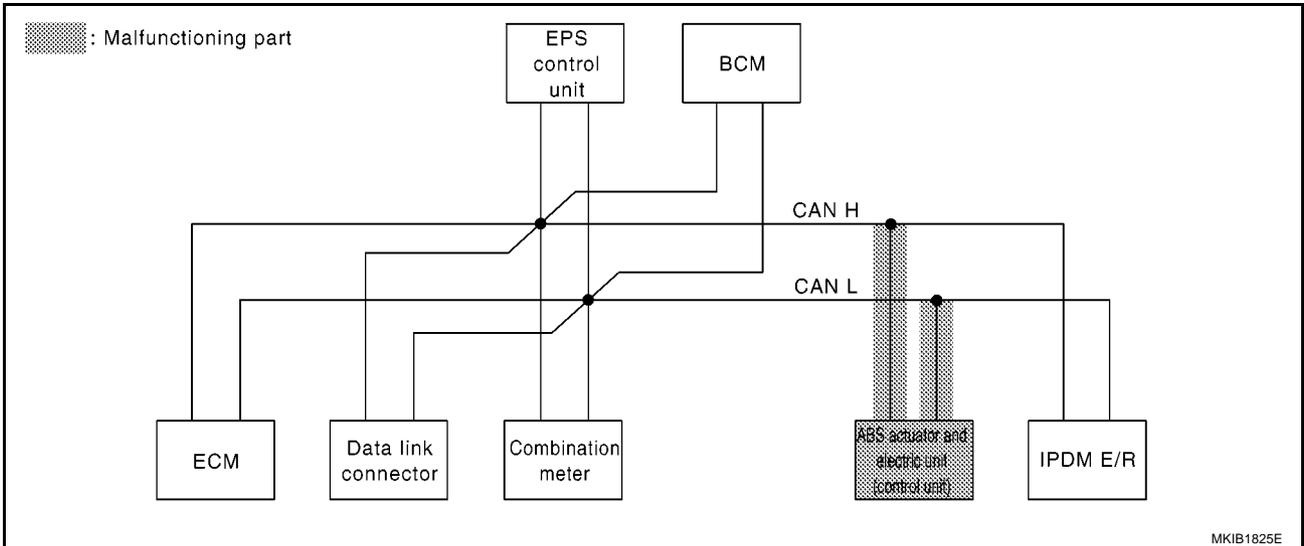
[CAN]

Case7

Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-302, "ABS Actuator and Electric Unit \(Control Unit\) Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN ✓	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN ✓	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN ✓	UNKWN
ABS	No indication ✓	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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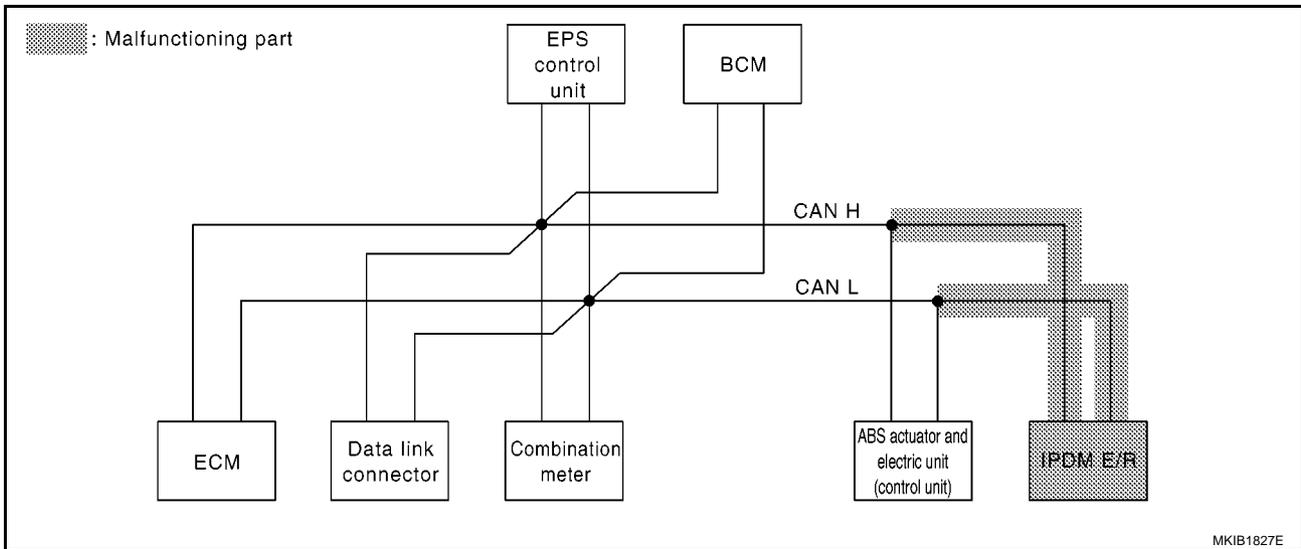
[CAN]

Case8

Check IPDM E/R circuit. Refer to [LAN-303, "IPDM E/R Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN ✓
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN ✓
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 10)

[CAN]

Case9

Check CAN communication circuit. Refer to [LAN-304, "CAN Communication Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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Case10

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to [LAN-307, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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Case11

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to [LAN-307, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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

EKS00JPM

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M1
 - Harness connector E101

OK or NG

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

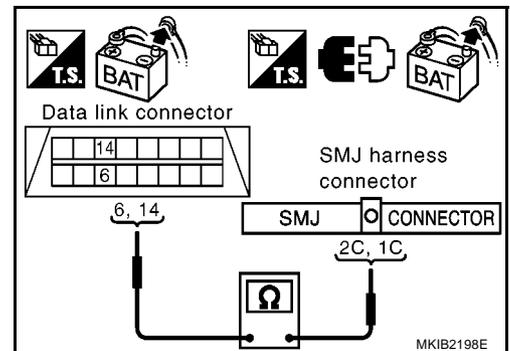
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect following connector.
 - Harness connector M1
2. Check continuity between data link connector M17 terminals 6 (R), 14 (W) and harness connector M1 terminals 2C (R), 1C (W).

6 (R) – 2C (R) : Continuity should exist.
14 (W) – 1C (W) : Continuity should exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness.



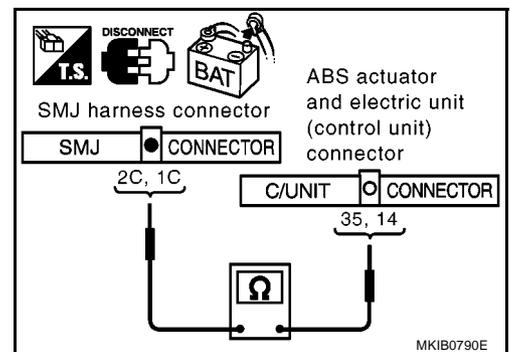
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between harness connector E101 terminals 2C (R), 1C (W) and ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R), 14 (W).

2C (R) – 35 (R) : Continuity should exist.
1C (W) – 14 (W) : Continuity should exist.

OK or NG

- OK >> Connect all the connectors and diagnosis again. Refer to [LAN-284, "Work Flow"](#) .
 NG >> Repair harness.



ECM Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
 - ECM connector
 - Harness connector M1
 - Harness connector E101

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

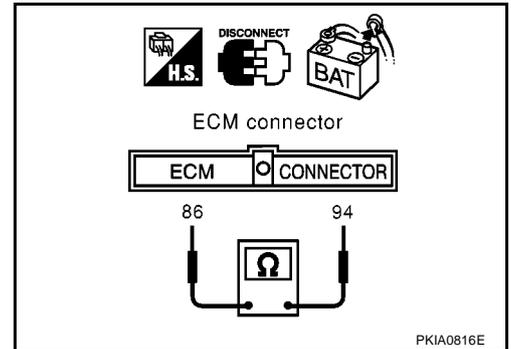
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E49 terminal 94 (R) and 86 (W)

94 (R) – 86 (W)**: Approx. 108 – 132 Ω****OK or NG**

OK >> Replace ECM.

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



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Data Link Connector Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check data link connector and terminals for damage, bend and loose connection (connector side and harness side).

OK or NG

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

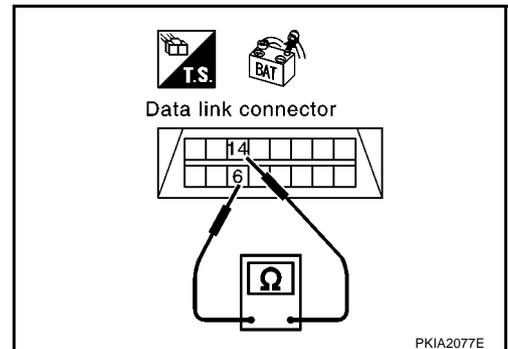
2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M17 terminals 6 (R) and 14 (W).

6 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Diagnosis again. Refer to [LAN-284, "Work Flow"](#) .
 NG >> Repair harness between data link connector and combination meter



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

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of combination meter for damage, bend and loose connection (meter side and harness side).

OK or NG

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

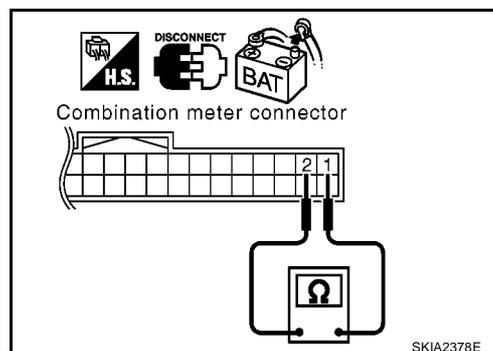
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M22 terminals 1 (R) and 2 (W).

1 (R) – 2 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace combination meter
 NG >> Repair harness between combination meter and data link connector.



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EPS Control Unit Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

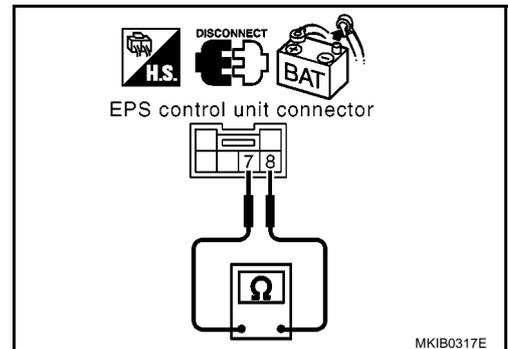
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect EPS control unit connector.
2. Check resistance between EPS control unit harness connector M23 terminals 8 (R) and 7 (W).

8 (R) – 7 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace EPS control unit.
 NG >> Repair harness between EPS control unit and data link connector.



BCM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

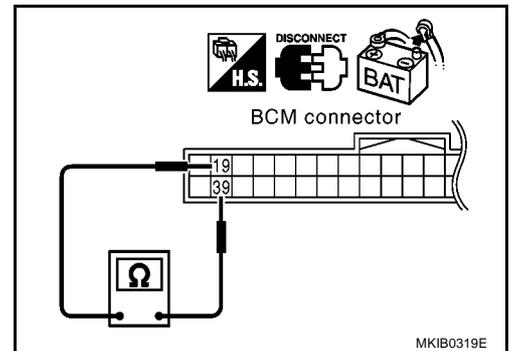
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M48 terminals 19 (R) and 39 (W).

19 (R) – 39 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace BCM. Refer to [BCS-30, "Removal and Installation of BCM"](#) .
 NG >> Repair harness between BCM and data link connector.



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ABS Actuator and Electric Unit (Control Unit) Circuit Check

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1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ABS actuator and electric unit (control unit) for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

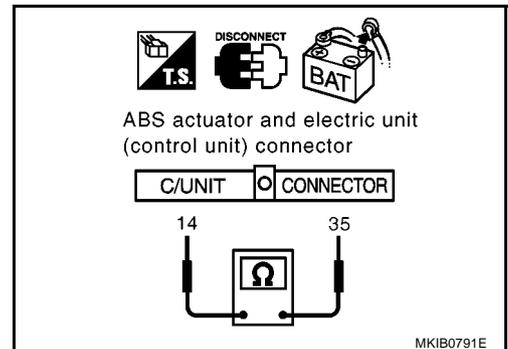
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R) and 14 (W).

35 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace ABS actuator and electric unit (control unit).
 NG >> Repair harness between ABS actuator and electric unit (control unit) and IPDM E/R.



IPDM E/R Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

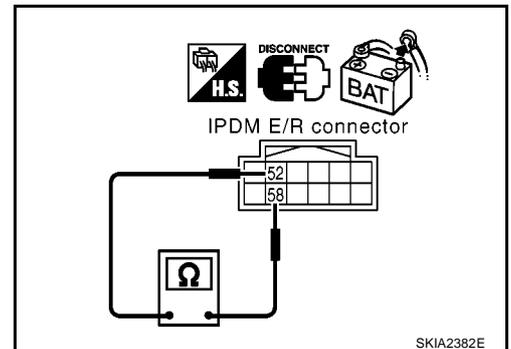
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check resistance between IPDM E/R harness connector E16 terminals 52 (R) and 58 (W).

52 (R) – 58 (W) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace IPDM E/R.
 NG >> Repair harness between IPDM E/R and ABS actuator and electric unit (control unit).



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CAN Communication Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

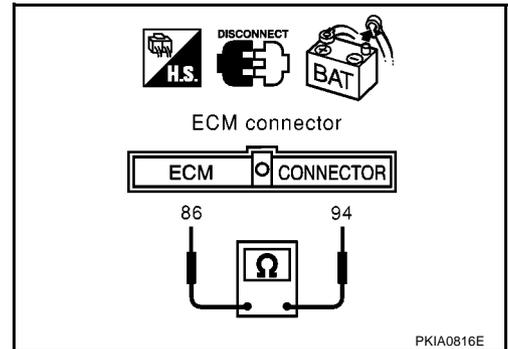
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E101.
2. Check continuity between ECM harness connector E49 terminal 94 (R) and 86 (W)

94 (R) – 86 (W) : Continuity should not exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness between ECM and harness connector E101.



3. CHECK HARNESS FOR SHORT CIRCUIT

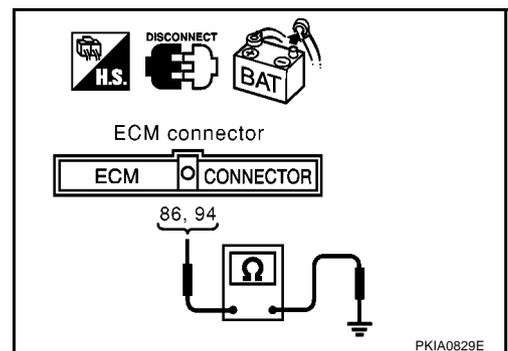
Check continuity between ECM harness connector E49 terminal 94 (R), 86 (W) and ground

94 (R) – Ground : Continuity should not exist.

86 (W) – Ground : Continuity should not exist.

OK or NG

- OK >> GO TO 4.
 NG >> Repair harness between ECM and harness connector E101.



4. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect following connectors.
 - ABS actuator and electric unit (control unit) connector
 - IPDM E/R connector
- Check continuity between ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R) and 14 (W).

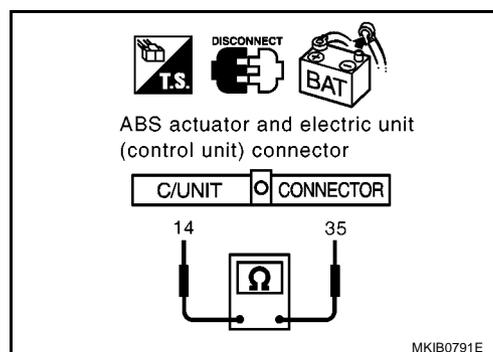
35 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R), 14 (W) and ground.

35 (R) – Ground : Continuity should not exist.

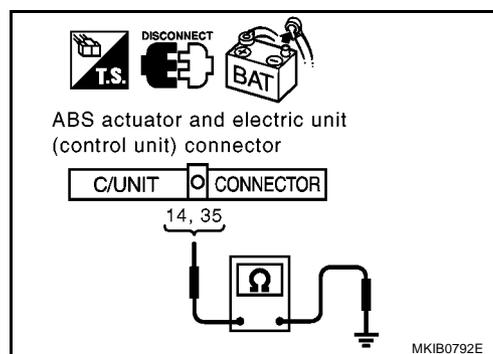
14 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



6. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect following connectors.
 - Combination meter connector
 - EPS control unit connector
 - BCM connector
- Check continuity between data link connector M17 terminals 6 (R) and 14 (W).

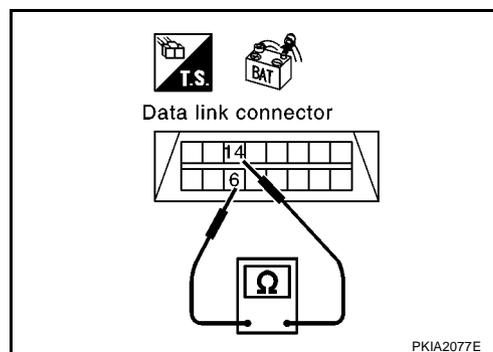
6 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M17 terminals 6 (R), 14 (W) and ground.

6 (R) – Ground : Continuity should not exist.

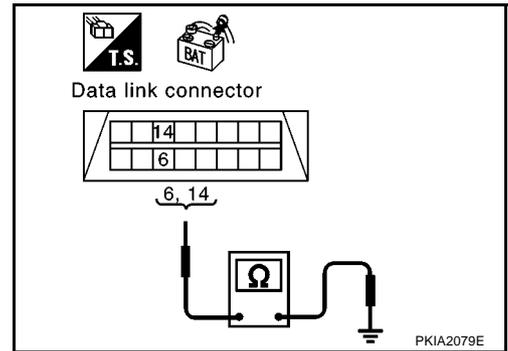
14 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-307, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

OK >> Connect all the connectors and diagnosis again. Refer to [LAN-284, "Work Flow"](#).

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

IPDM E/R Ignition Relay Circuit Check

EKS00JPV

Perform the self-diagnosis for IPDM E/R. Refer to [PG-49, "Inspection With CONSULT-II \(Self-Diagnosis\)"](#) . If the result is OK, carry out following inspections.

- IPDM E/R power supply circuit. Refer to [PG-50, "IPDM E/R Power Supply and Ground Circuit Check"](#) .
- Ignition power supply circuit. Refer to [PG-13, "IGNITION POWER SUPPLY — IGNITION SW. IN "ON" AND/OR "START""](#) .

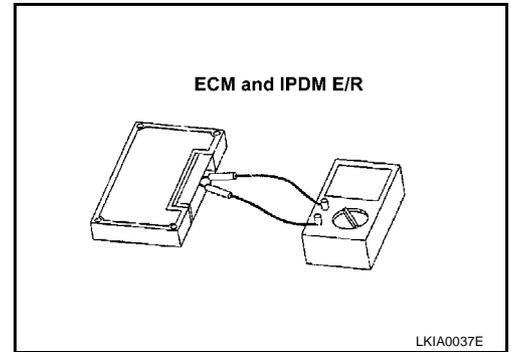
Component Inspection

EKS00JPW

ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 94 and 86.
- Check resistance between IPDM E/R terminals 52 and 58.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	94 – 86	108 - 132
IPDM E/R	52 – 58	



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CAN SYSTEM (TYPE 11)

PFP:23710

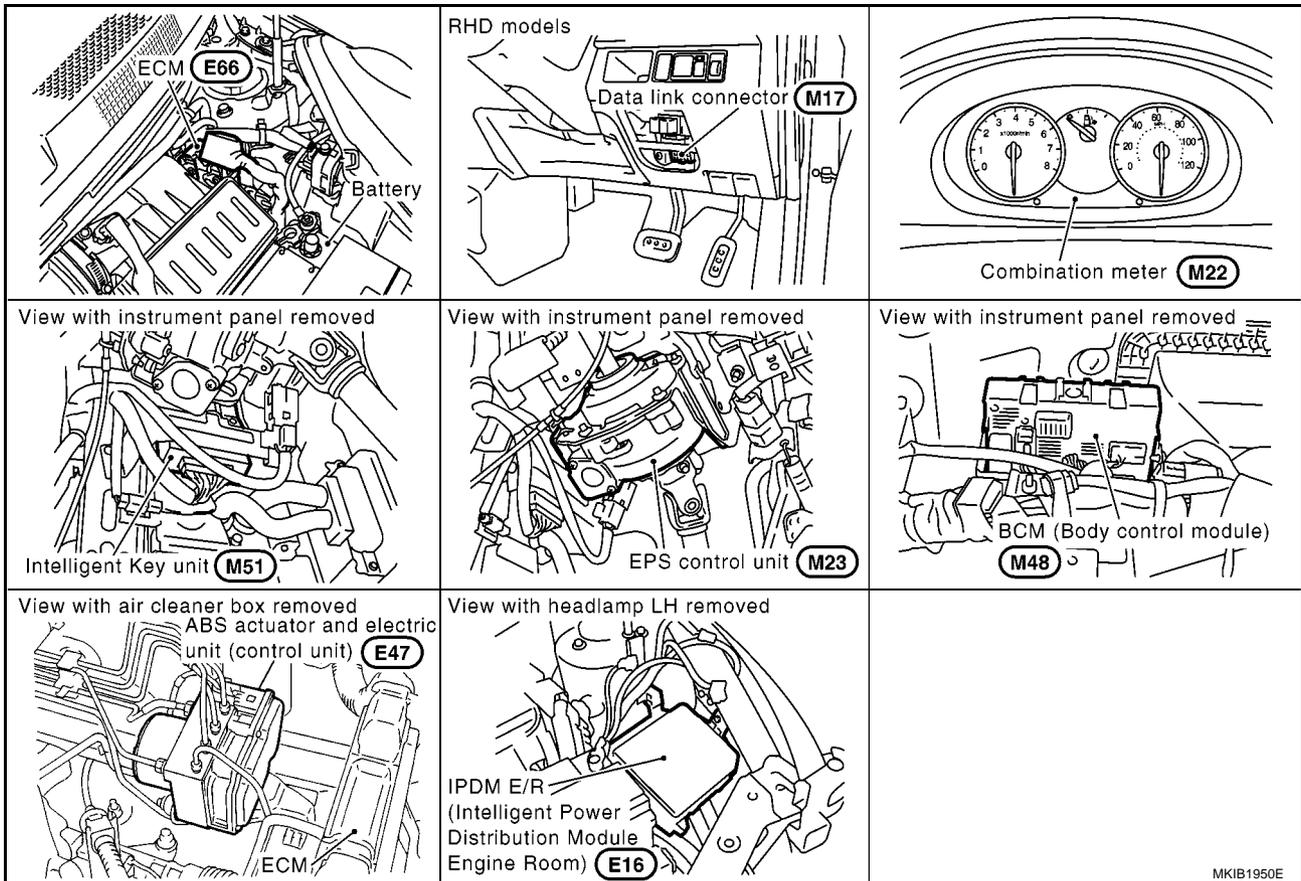
System Description

EKS00PBM

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

EKS00PBN



MKIB1950E

CAN SYSTEM (TYPE 11)

[CAN]

EKS00PBO

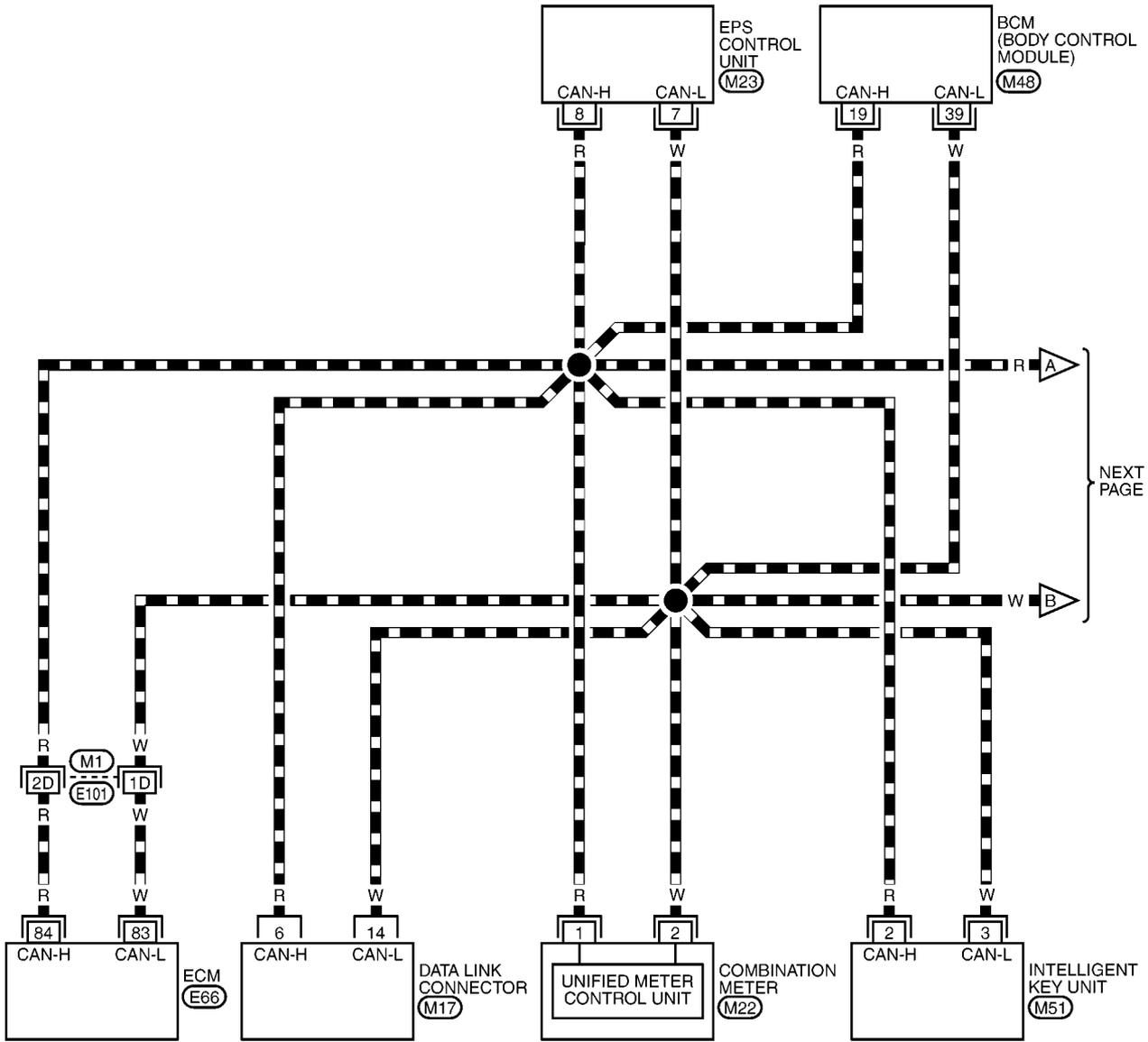
Wiring Diagram — CAN —

LAN-CAN-21

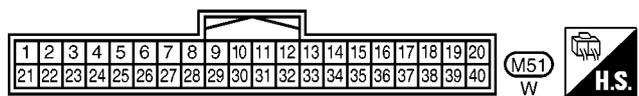
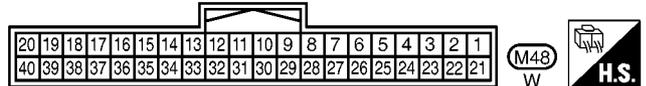
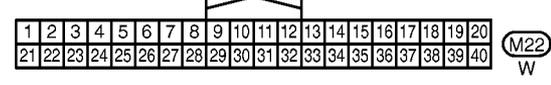
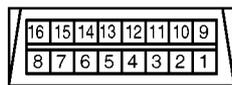
▬ : DATA LINE

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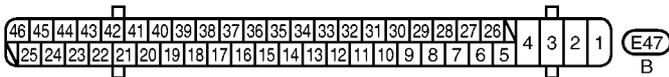
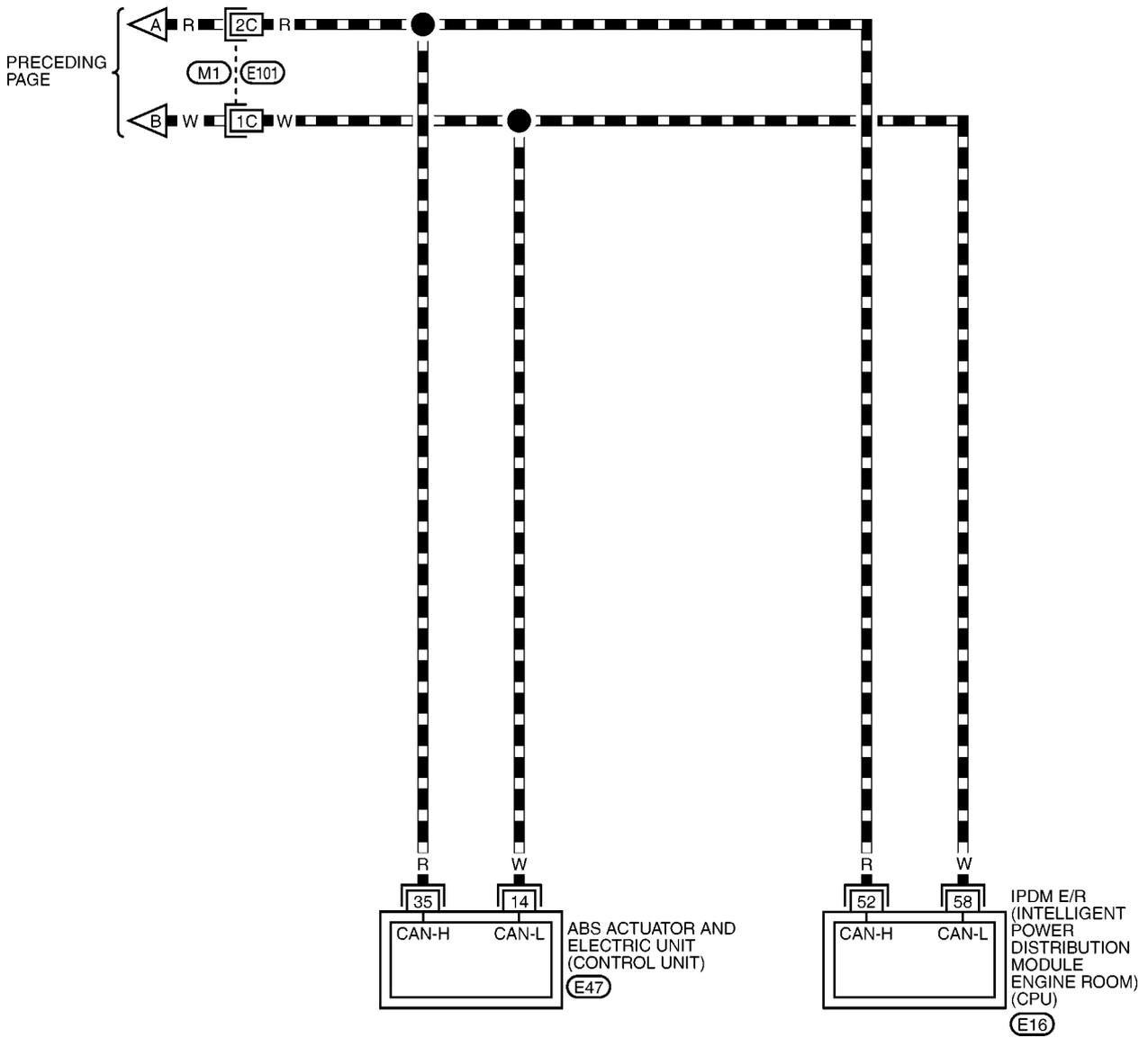


REFER TO THE FOLLOWING.

- (M1) -SUPER MULTIPLE JUNCTION (SMJ)
- (E66) -ELECTRICAL UNITS

LAN-CAN-22

▬ : DATA LINE



REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

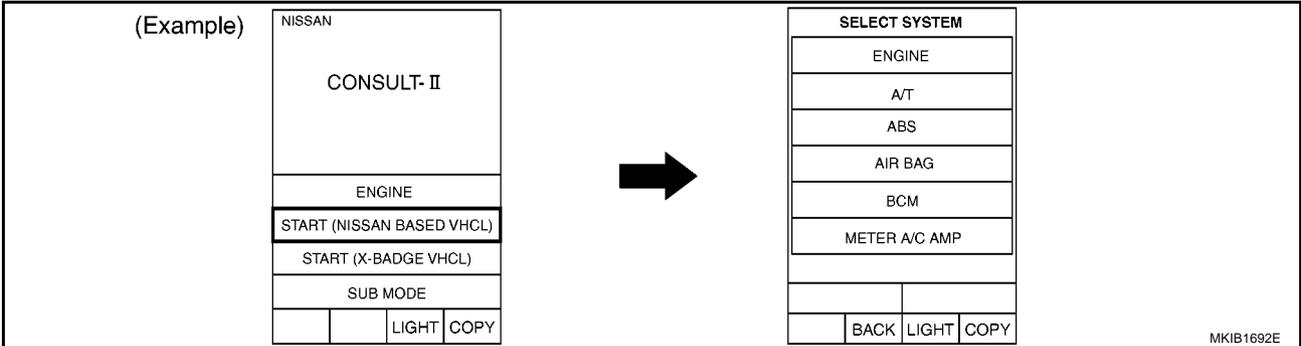
CAN SYSTEM (TYPE 11)

[CAN]

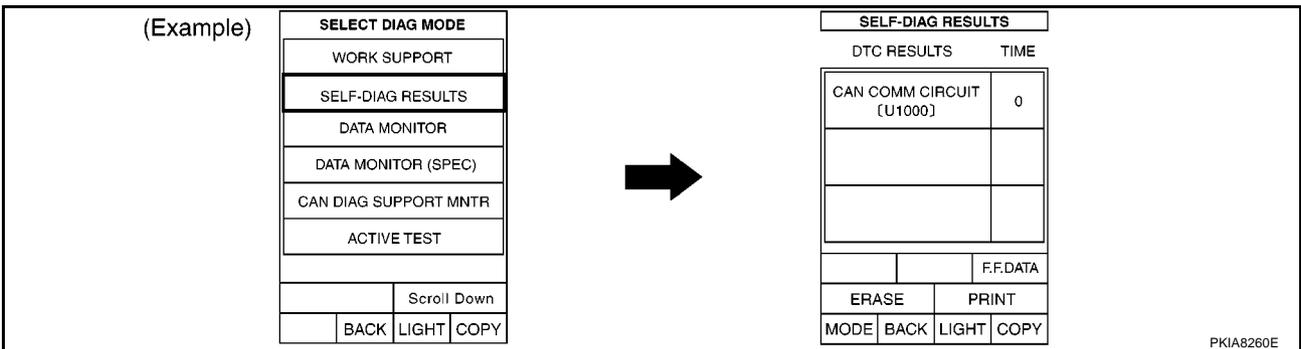
EKS00PBP

Work Flow

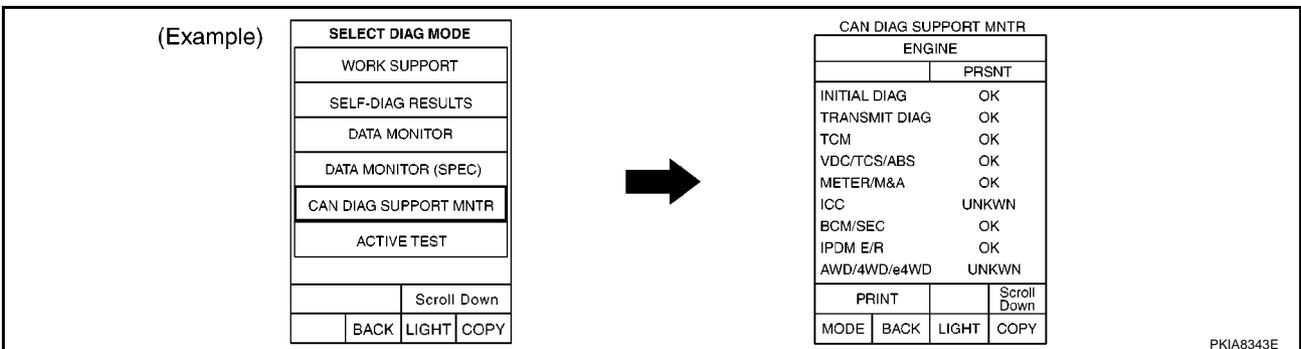
- When there are no indications of "INTELLIGENT KEY", "EPS", "BCM" or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



- Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "INTELLIGENT KEY", "EPS", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



- Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "INTELLIGENT KEY", "EPS", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



- Attach the printed sheet of "SELECT SYSTEM", "SELF-DIAG RESULTS" and "CAN DIAG SUPPORT MNTR" onto the check sheet. Refer to [LAN-312, "CHECK SHEET"](#).
- Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks "v" onto the items with "No indication", "NG", or "UNKWN" in the check sheet table. Refer to [LAN-312, "CHECK SHEET"](#).

NOTE:

- If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- The "CAN DIAG SUPPORT MNTR" items, which are not in check sheet table, are not related to diagnostic procedure on service manual. So it is not necessary to check the status of "CAN DIAG SUPPORT MNTR" items which are not indicated in check sheet table.

- According to the check sheet results (example), start inspection. Refer to [LAN-314, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

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CAN SYSTEM (TYPE 11)

[CAN]

CHECK SHEET

Check sheet table

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

Symptoms:

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SELECT SYSTEM

Attach copy of
SELECT SYSTEM

MKIB2163E

CAN SYSTEM (TYPE 11)

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Attach copy of
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INTELLIGENT KEY
SELF-DIAG RESULTS

Attach copy of
EPS
SELF-DIAG RESULTS

Attach copy of
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SELF-DIAG RESULTS

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IPDM E/R
SELF-DIAG RESULTS

Attach copy of
ENGINE
CAN DIAG SUPPORT
MNTR

Attach copy of
INTELLIGENT KEY
CAN DIAG SUPPORT
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CAN SYSTEM (TYPE 11)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

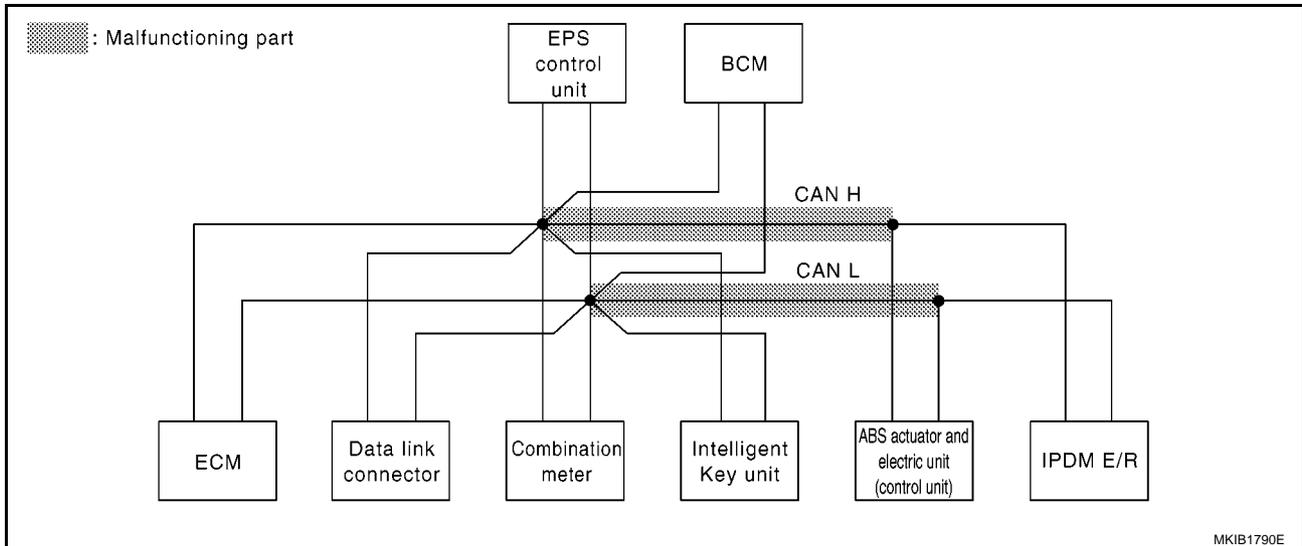
If "NG" is displayed on "CAN COMM" as "DATA MONITOR (CAN DIAG SUPPORT MNTR)" for the diagnosed control unit, replace the control unit.

Case1

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to [LAN-324, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit \(Control Unit\)"](#).

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2164E



CAN SYSTEM (TYPE 11)

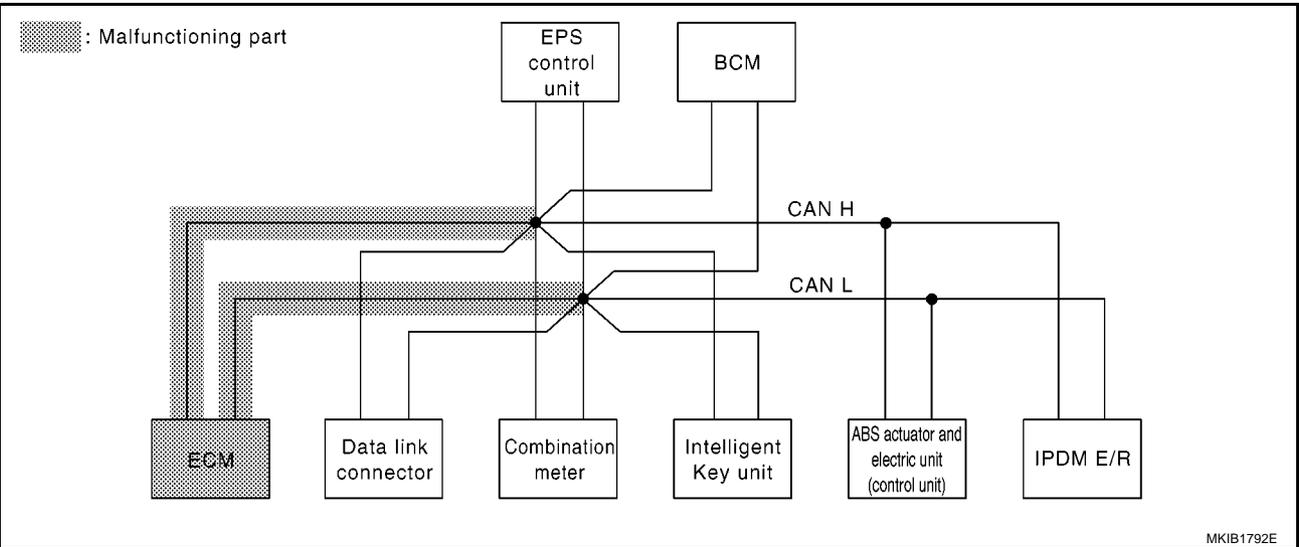
[CAN]

Case2

Check ECM circuit. Refer to [LAN-325, "ECM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 11)

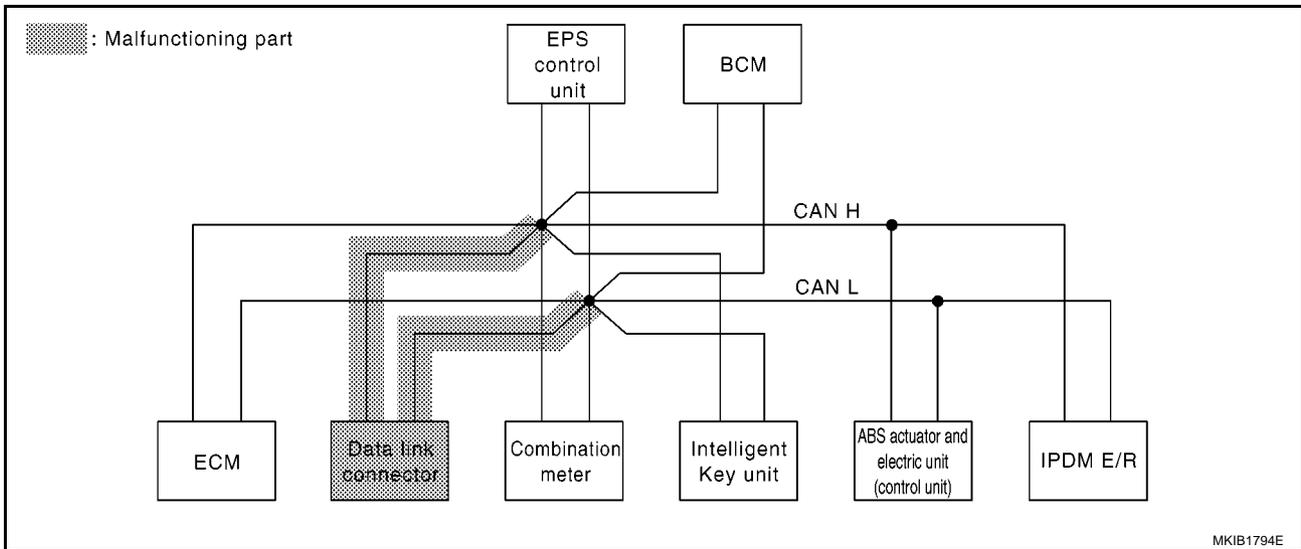
[CAN]

Case3

Check data link connector circuit. Refer to [LAN-326, "Data Link Connector Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2166E



CAN SYSTEM (TYPE 11)

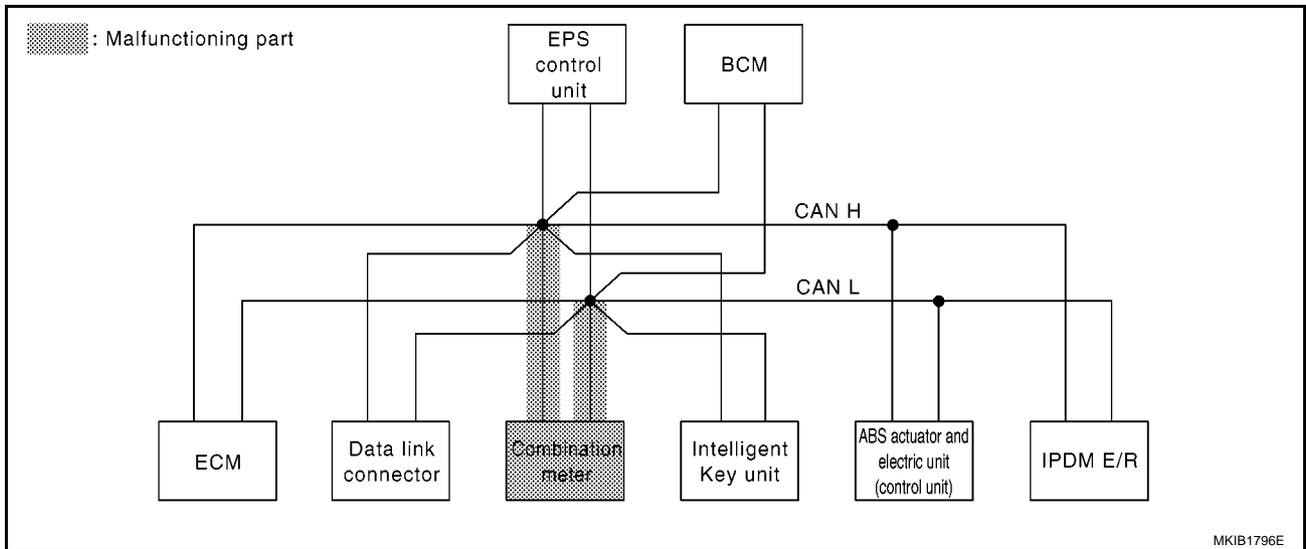
[CAN]

Case4

Check combination meter circuit. Refer to [LAN-327, "Combination Meter Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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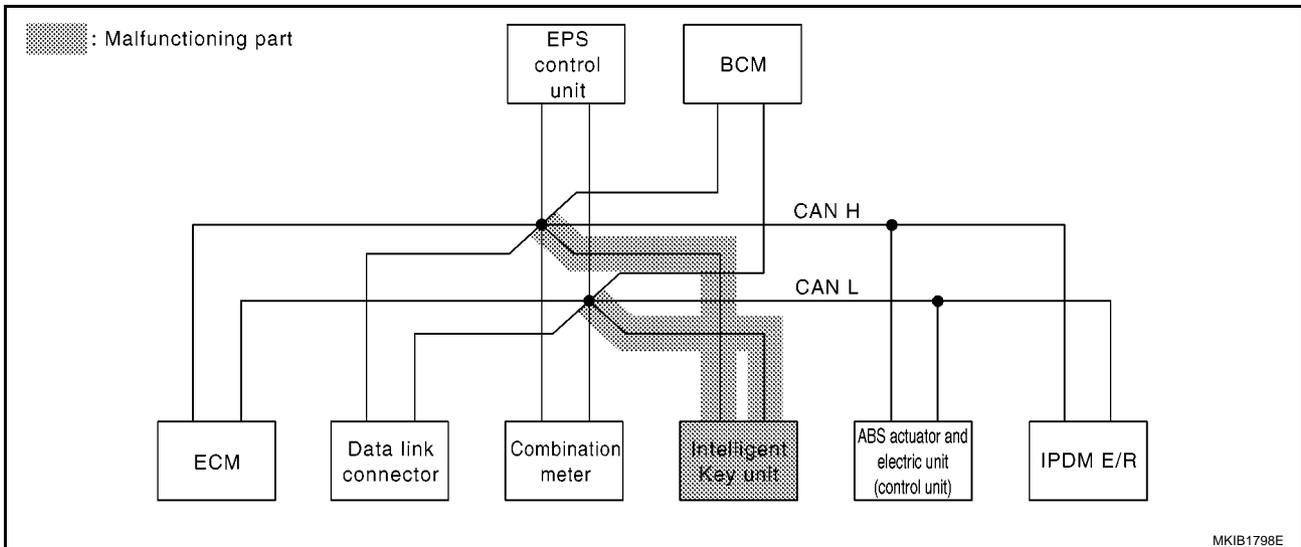
[CAN]

Case5

Check Intelligent Key unit circuit. Refer to [LAN-328, "Intelligent Key Unit Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 11)

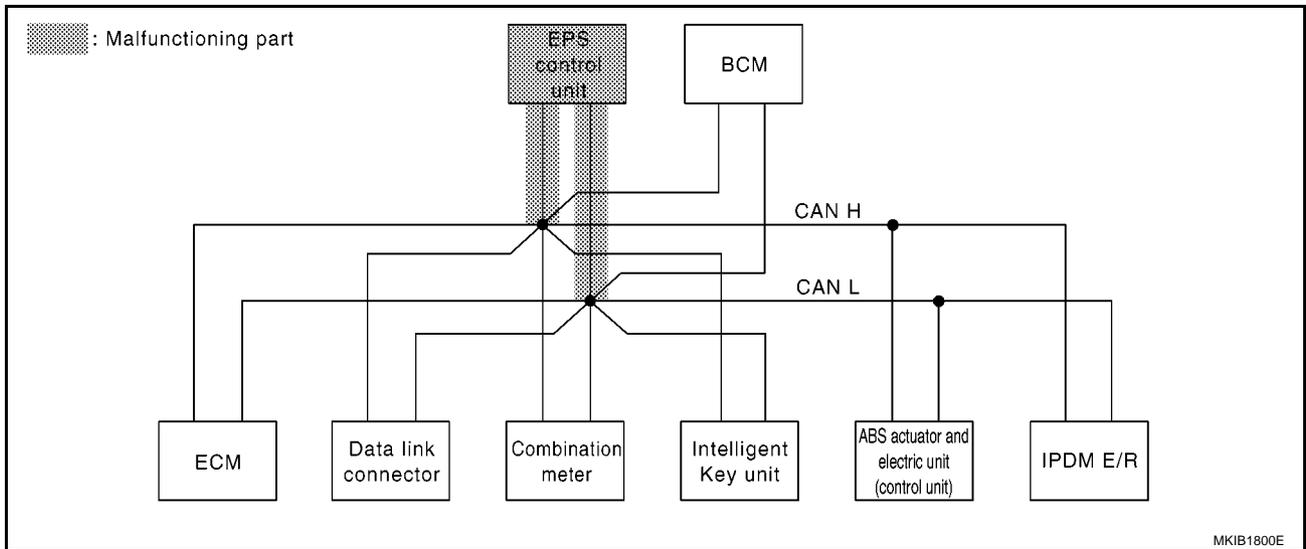
[CAN]

Case6

Check EPS control unit circuit. Refer to [LAN-329, "EPS Control Unit Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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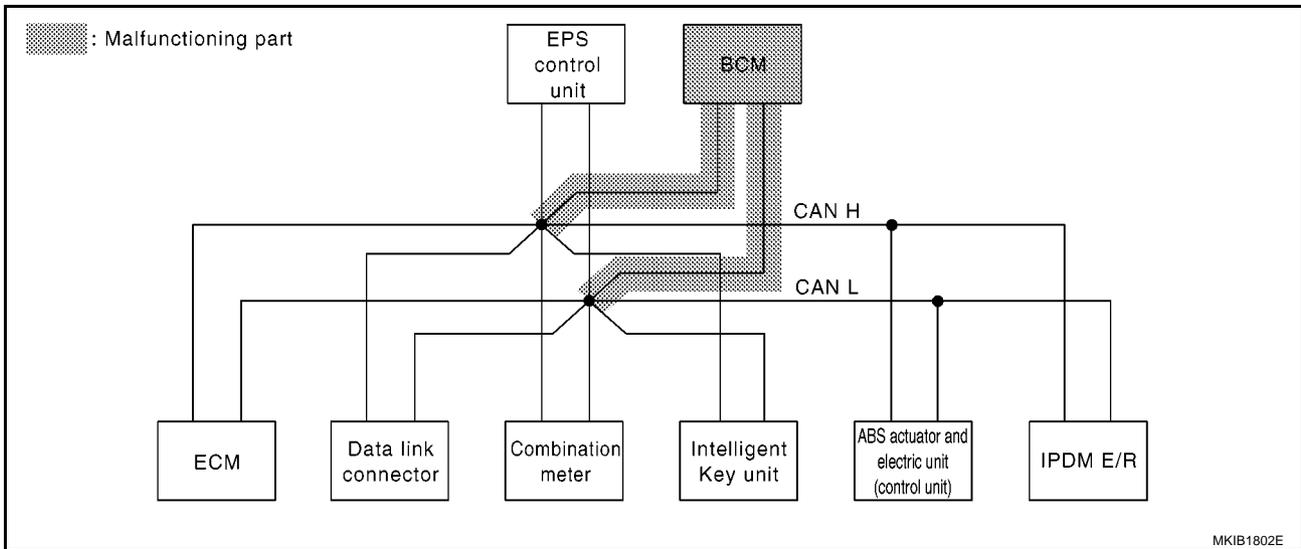
[CAN]

Case7

Check BCM circuit. Refer to [LAN-330, "BCM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2170E



CAN SYSTEM (TYPE 11)

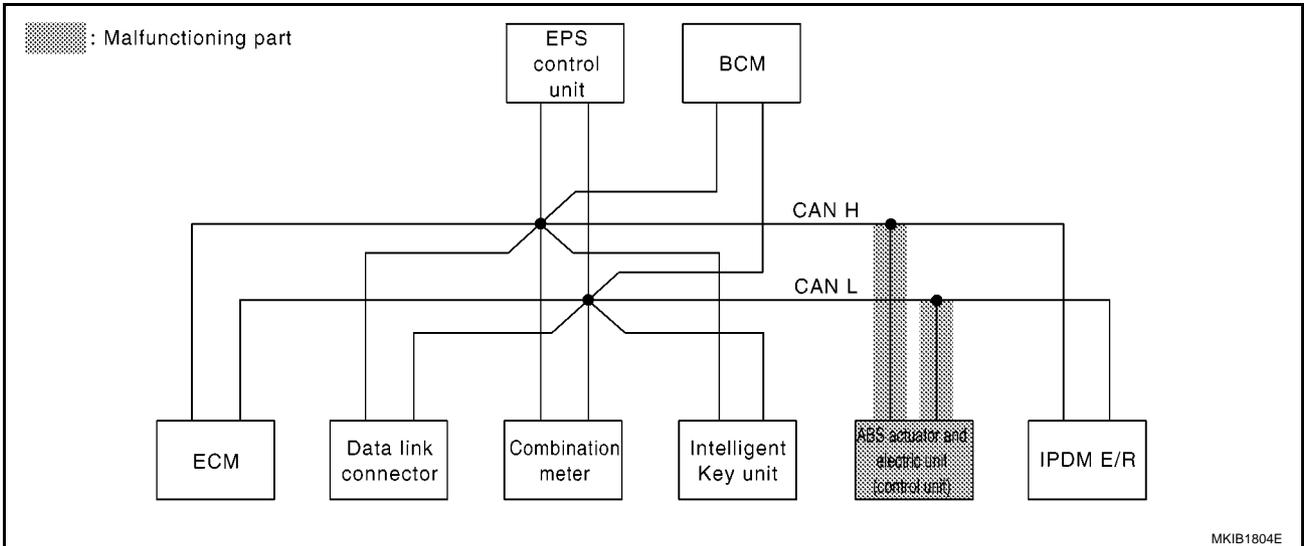
[CAN]

Case8

Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-331, "ABS Actuator and Electric Unit \(Control Unit\) Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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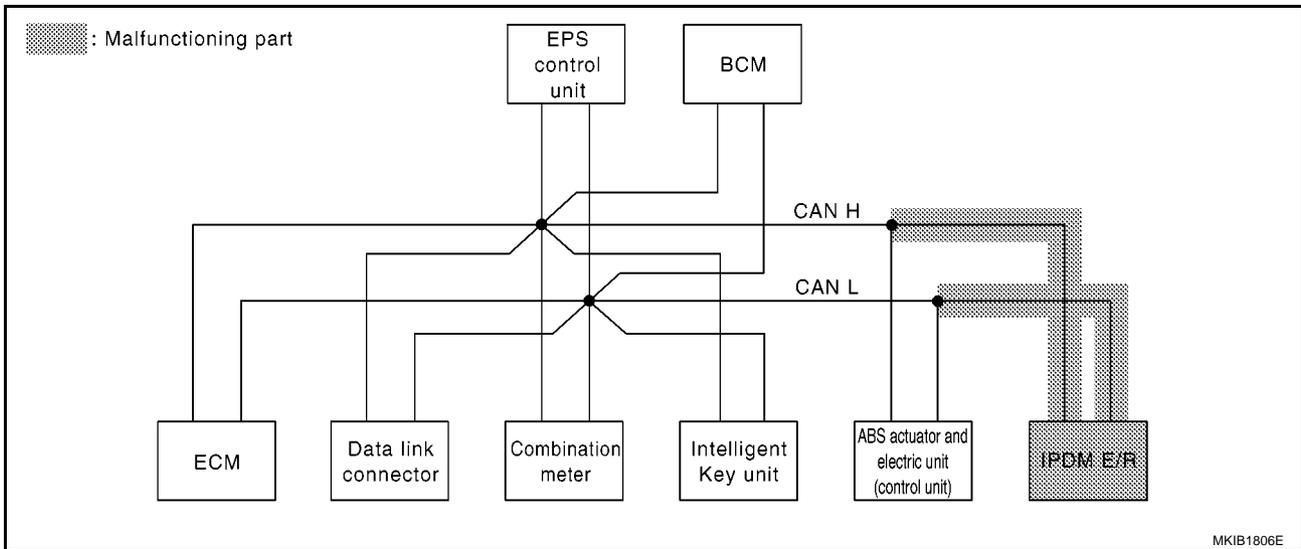
[CAN]

Case9

Check IPDM E/R circuit. Refer to [LAN-332, "IPDM E/R Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R	
ENGINE	—	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—

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MKIB1806E

CAN SYSTEM (TYPE 11)

[CAN]

Case10

Check CAN communication circuit. Refer to [LAN-333, "CAN Communication Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

MKIB2173E

Case11

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to [LAN-336, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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Case12

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to [LAN-336, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	METER /M&A	I-KEY	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—

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

EKS00PBO

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M1
 - Harness connector E101

OK or NG

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

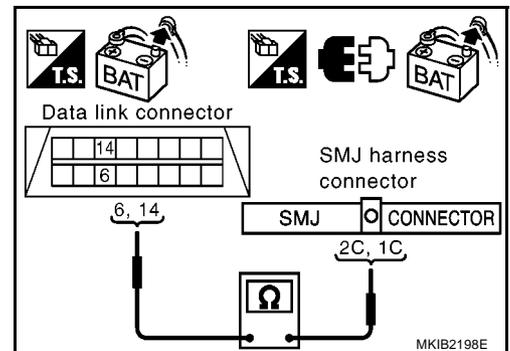
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect following connector.
 - Harness connector M1
2. Check continuity between data link connector M17 terminals 6 (R), 14 (W) and harness connector M1 terminals 2C (R), 1C (W).

6 (R) – 2C (R) : Continuity should exist.
14 (W) – 1C (W) : Continuity should exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness.



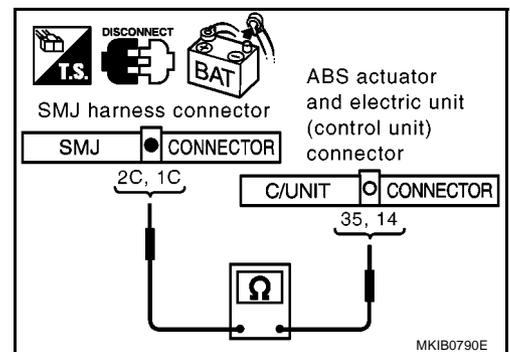
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between harness connector E101 terminals 2C (R), 1C (W) and ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R), 14 (W).

2C (R) – 35 (R) : Continuity should exist.
1C (W) – 14 (W) : Continuity should exist.

OK or NG

- OK >> Connect all the connectors and diagnosis again. Refer to [LAN-311, "Work Flow"](#) .
 NG >> Repair harness.



ECM Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
 - ECM connector
 - Harness connector M1
 - Harness connector E101

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

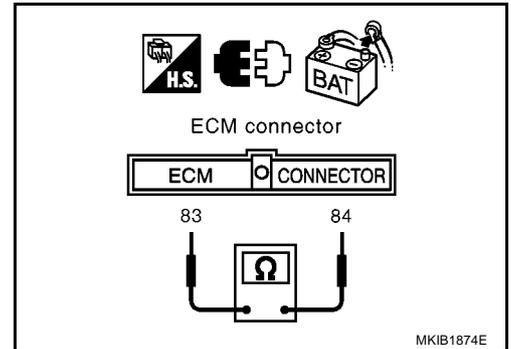
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E66 terminal 84 (R) and 83 (W)

84 (R) – 83 (W)**: Approx. 108 – 132 Ω****OK or NG**

OK >> Replace ECM.

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



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Data Link Connector Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check the data link connector and terminals for damage, bend and loose connection (connector side and harness side).

OK or NG

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

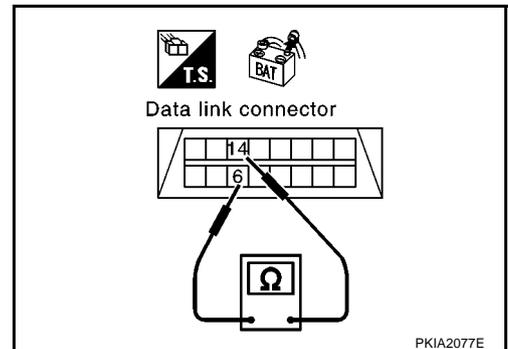
2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M17 terminals 6 (R) and 14 (W).

6 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Diagnosis again. Refer to [LAN-311, "Work Flow"](#) .
 NG >> Repair harness between data link connector and combination meter



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

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of combination meter for damage, bend and loose connection (meter side and harness side).

OK or NG

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

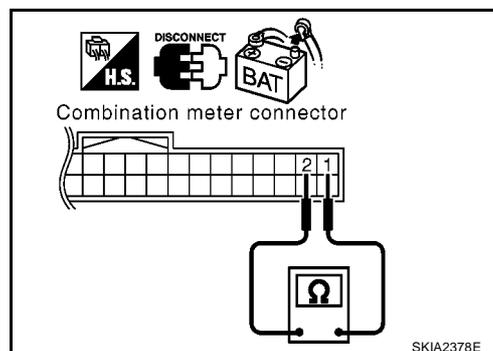
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M22 terminals 1 (R) and 2 (W).

1 (R) – 2 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between combination meter and data link connector.



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Intelligent Key Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of Intelligent Key unit for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

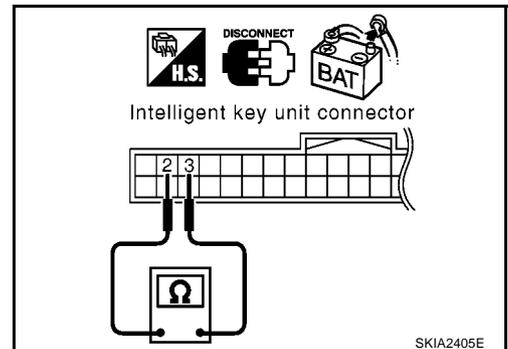
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect Intelligent Key unit connector.
2. Check resistance between Intelligent Key unit harness connector M51 terminals 2 (R) and 3 (W).

2 (R) – 3 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace Intelligent Key unit.
 NG >> Repair harness between Intelligent Key unit and data link connector.



EPS Control Unit Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

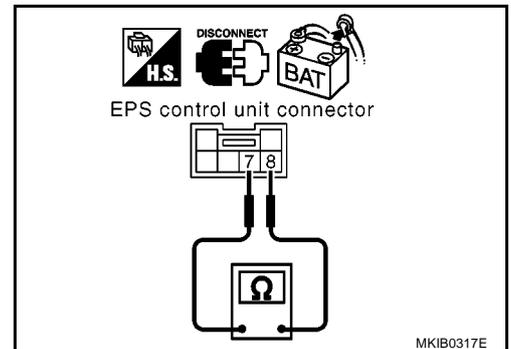
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect EPS control unit connector.
2. Check resistance between EPS control unit harness connector M23 terminals 8 (R) and 7 (W).

8 (R) – 7 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace EPS control unit.
 NG >> Repair harness between EPS control unit and data link connector.



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BCM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

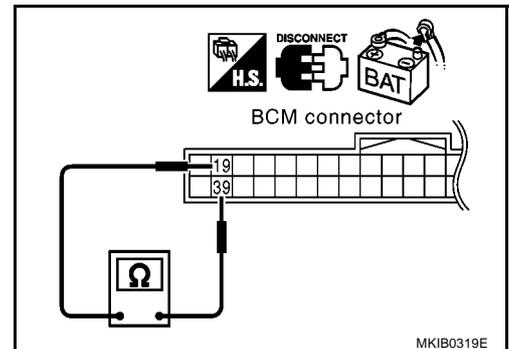
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M48 terminals 19 (R) and 39 (W).

19 (R) – 39 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace BCM. Refer to [BCS-30, "Removal and Installation of BCM"](#) .
 NG >> Repair harness between BCM and data link connector.



ABS Actuator and Electric Unit (Control Unit) Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ABS actuator and electric unit (control unit) for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

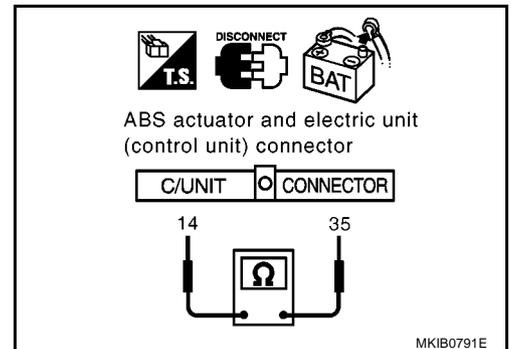
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R) and 14 (W).

35 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace ABS actuator and electric unit (control unit).
 NG >> Repair harness between ABS actuator and electric unit (control unit) and IPDM E/R.



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IPDM E/R Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

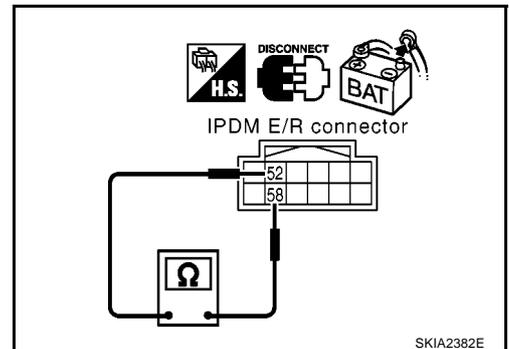
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check resistance between IPDM E/R harness connector E16 terminals 52 (R) and 58 (W).

52 (R) – 58 (W) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace IPDM E/R.
 NG >> Repair harness between IPDM E/R and ABS actuator and electric unit (control unit).



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

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side, meter side, control unit side and harness side).
 - ECM
 - Combination meter
 - Intelligent Key unit
 - EPS control unit
 - BCM
 - ABS actuator and electric unit (control unit)
 - IPDM E/R
 - Between ECM and IPDM E/R

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

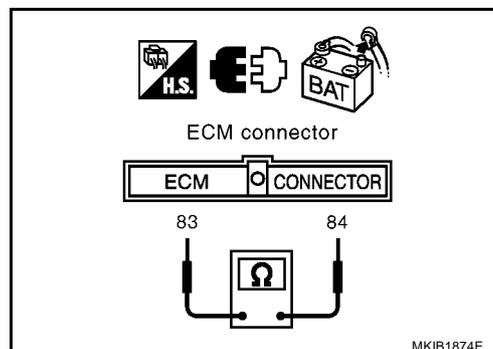
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E101.
2. Check continuity between ECM harness connector E66 terminal 84 (R) and 83 (W)

84 (R) – 83 (W) : Continuity should not exist.OK or NG

OK >> GO TO 3.

NG >> Repair harness between ECM and harness connector E101.

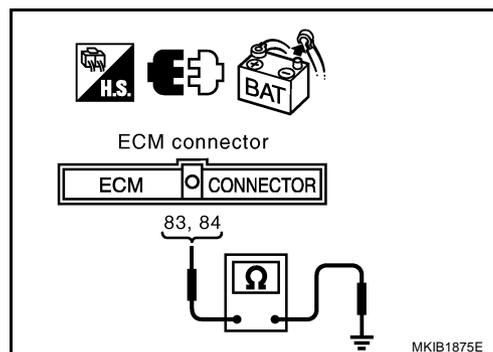
**3. CHECK HARNESS FOR SHORT CIRCUIT**

Check continuity between ECM harness connector E66 terminal 84 (R), 83 (W) and ground

84 (R) – Ground : Continuity should not exist.**83 (W) – Ground : Continuity should not exist.**OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector E101.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - ABS actuator and electric unit (control unit) connector
 - IPDM E/R connector
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R) and 14 (W).

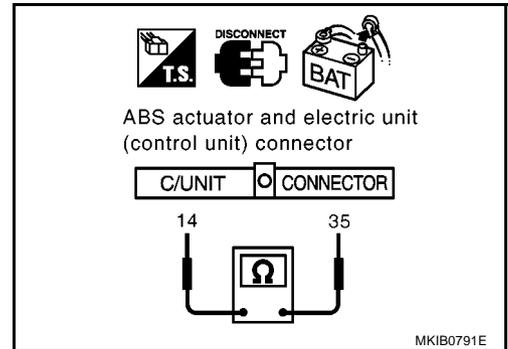
35 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R), 14 (W) and ground.

35 (R) – Ground : Continuity should not exist.

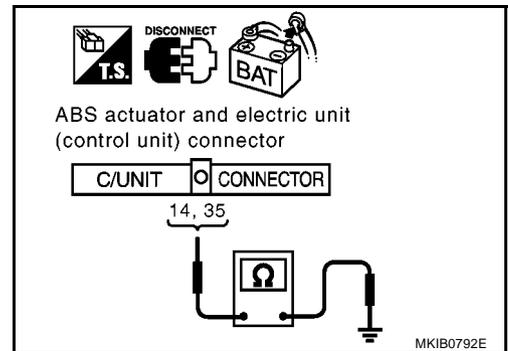
14 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - Combination meter connector
 - Intelligent Key unit connector
 - EPS control unit connector
 - BCM connector
2. Check continuity between data link connector M17 terminals 6 (R) and 14 (W).

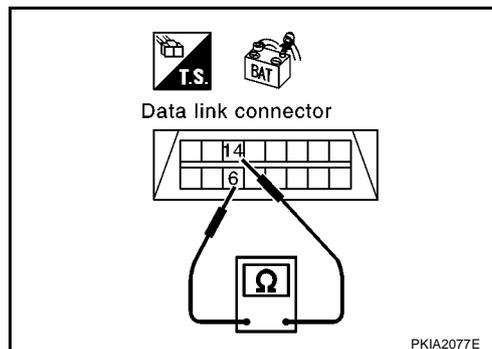
6 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and Intelligent Key unit
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M17 terminals 6 (R), 14 (W) and ground.

6 (R) – Ground : Continuity should not exist.

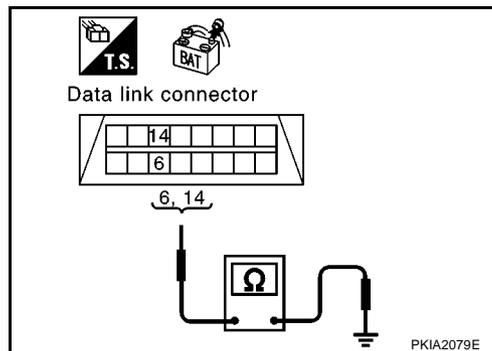
14 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and Intelligent Key unit
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-336, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION"](#) .

OK or NG

OK >> Connect all the connectors and diagnosis again. Refer to [LAN-311, "Work Flow"](#) .

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

IPDM E/R Ignition Relay Circuit Check

EKS00PC0

Perform the self-diagnosis for IPDM E/R. Refer to [PG-49, "Inspection With CONSULT-II \(Self-Diagnosis\)"](#) . If the result is OK, carry out following inspections.

- IPDM E/R power supply circuit. Refer to [PG-50, "IPDM E/R Power Supply and Ground Circuit Check"](#) .
- Ignition power supply circuit. Refer to [PG-13, "IGNITION POWER SUPPLY — IGNITION SW. IN "ON" AND/OR "START""](#) .

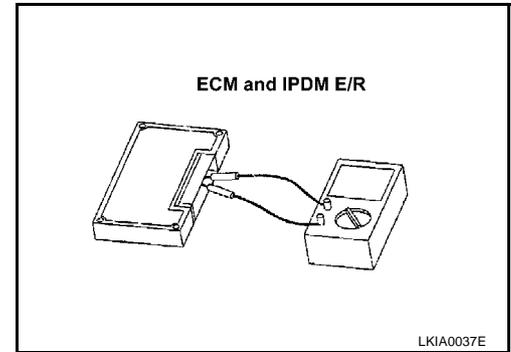
Component Inspection

EKS00PC1

ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 84 and 83.
- Check resistance between IPDM E/R terminals 52 and 58.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	84 – 83	108 - 132
IPDM E/R	52 – 58	



CAN SYSTEM (TYPE 12)

PFP:23710

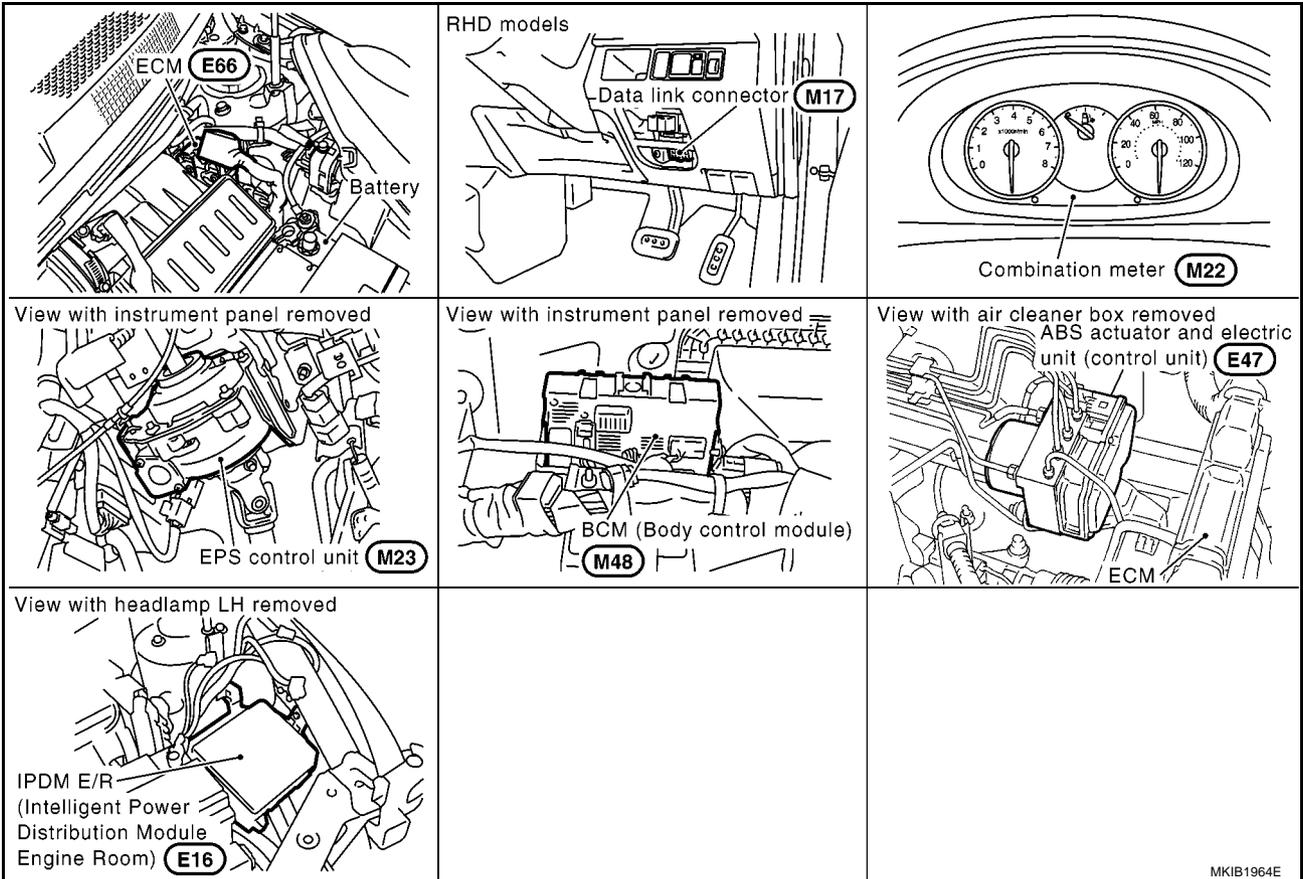
System Description

EKS00PC2

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

EKS00PC3



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CAN SYSTEM (TYPE 12)

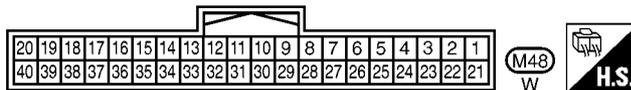
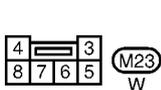
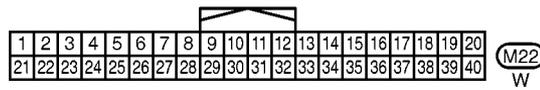
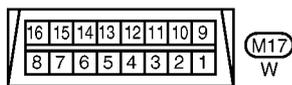
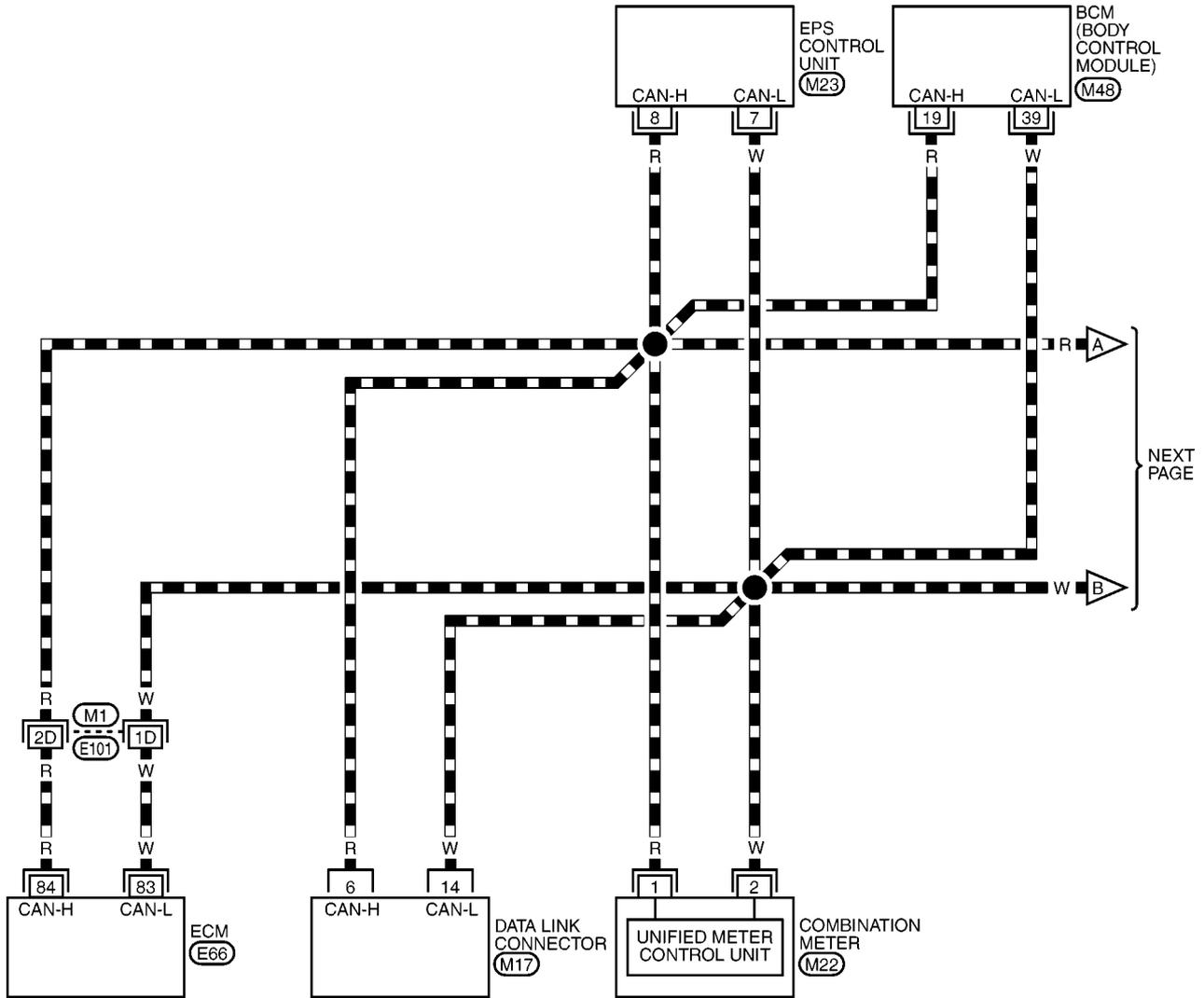
[CAN]

Wiring Diagram — CAN —

EKS00PC4

LAN-CAN-23

▬ : DATA LINE



REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

(E66) -ELECTRICAL UNITS

MKWA3799E

CAN SYSTEM (TYPE 12)

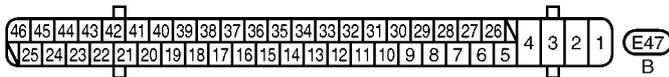
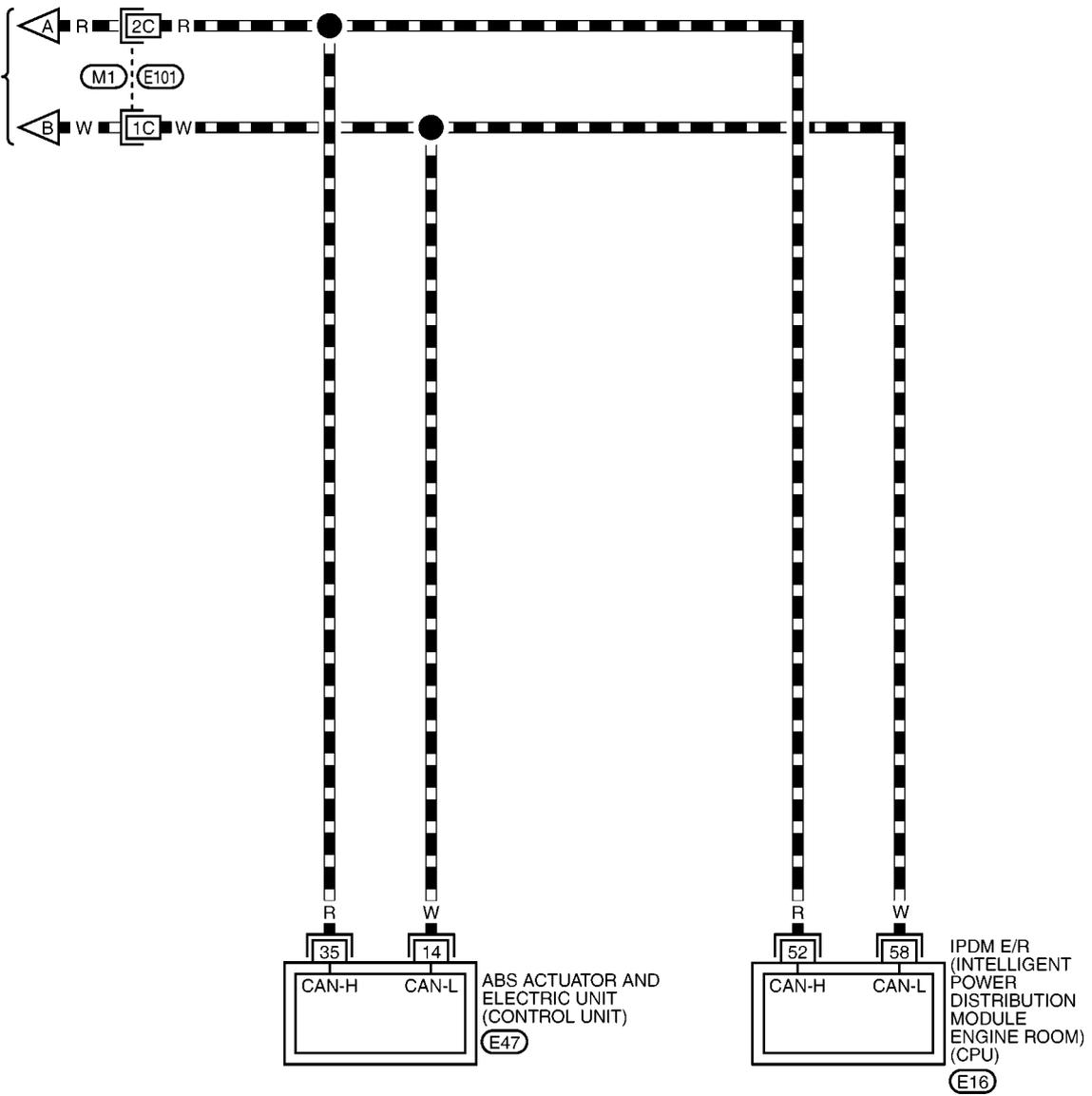
[CAN]

LAN-CAN-24

▬ : DATA LINE

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PRECEDING PAGE



REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

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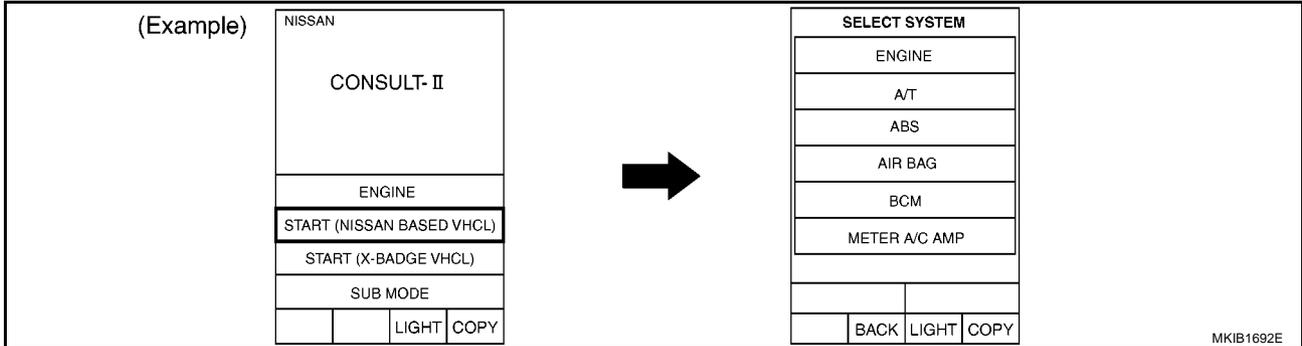
CAN SYSTEM (TYPE 12)

[CAN]

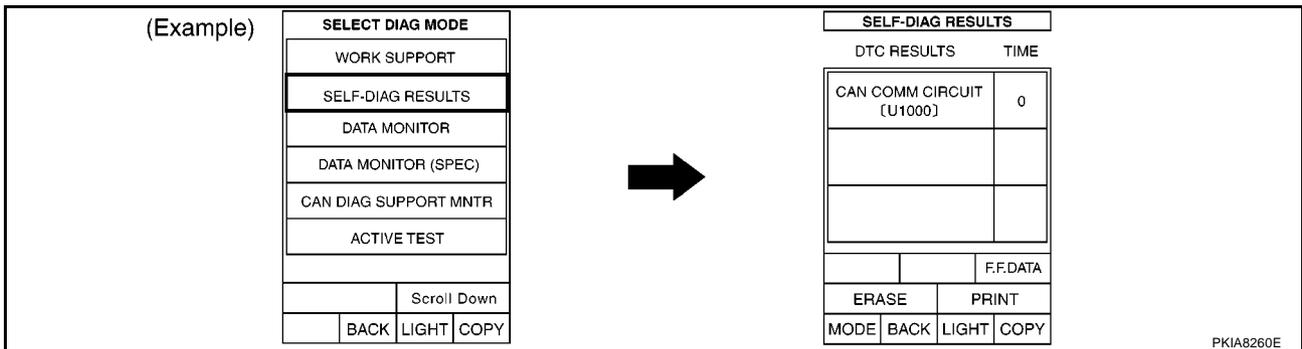
EKS00PC5

Work Flow

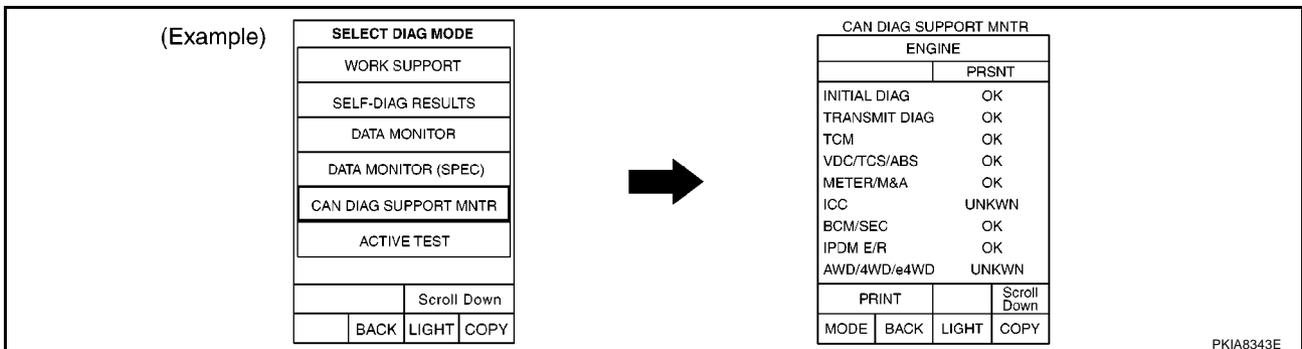
- When there are no indications of “EPS”, “BCM” or “IPDM E/R” on “SELECT SYSTEM” display of CONSULT-II, print the “SELECT SYSTEM”.



- Print all the data of “SELF-DIAG RESULTS” for “ENGINE”, “EPS”, “BCM”, “ABS” and “IPDM E/R” displayed on CONSULT-II.



- Print all the data of “CAN DIAG SUPPORT MNTR” for “ENGINE”, “EPS”, “BCM”, “ABS” and “IPDM E/R” displayed on CONSULT-II.



- Attach the printed sheet of “SELECT SYSTEM”, “SELF-DIAG RESULTS” and “CAN DIAG SUPPORT MNTR” onto the check sheet. Refer to [LAN-341, "CHECK SHEET"](#) .

- Based on the indications of “SELECT SYSTEM” and the results of “CAN DIAG SUPPORT MNTR”, put marks “v” onto the items with “No indication”, “NG”, or “UNKWN” in the check sheet table. Refer to [LAN-341, "CHECK SHEET"](#) .

NOTE:

- If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)” as “CAN DIAG SUPPORT MNTR” for the diagnosed control unit, replace the control unit.
- The “CAN DIAG SUPPORT MNTR” items, which are not in check sheet table, are not related to diagnostic procedure on service manual. So it is not necessary to check the status of “CAN DIAG SUPPORT MNTR” items which are not indicated in check sheet table.

- According to the check sheet results (example), start inspection. Refer to [LAN-343, "CHECK SHEET RESULTS \(EXAMPLE\)"](#) .

CAN SYSTEM (TYPE 12)

[CAN]

CHECK SHEET

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Check sheet table

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

Symptoms:

Attach copy of
SELECT SYSTEM

Attach copy of
SELECT SYSTEM

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CAN SYSTEM (TYPE 12)

[CAN]

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
EPS
SELF-DIAG RESULTS

Attach copy of
BCM
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
IPDM E/R
SELF-DIAG RESULTS

Attach copy of
ENGINE
CAN DIAG SUPPORT
MNTR

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ABS
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CAN SYSTEM (TYPE 12)

[CAN]

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

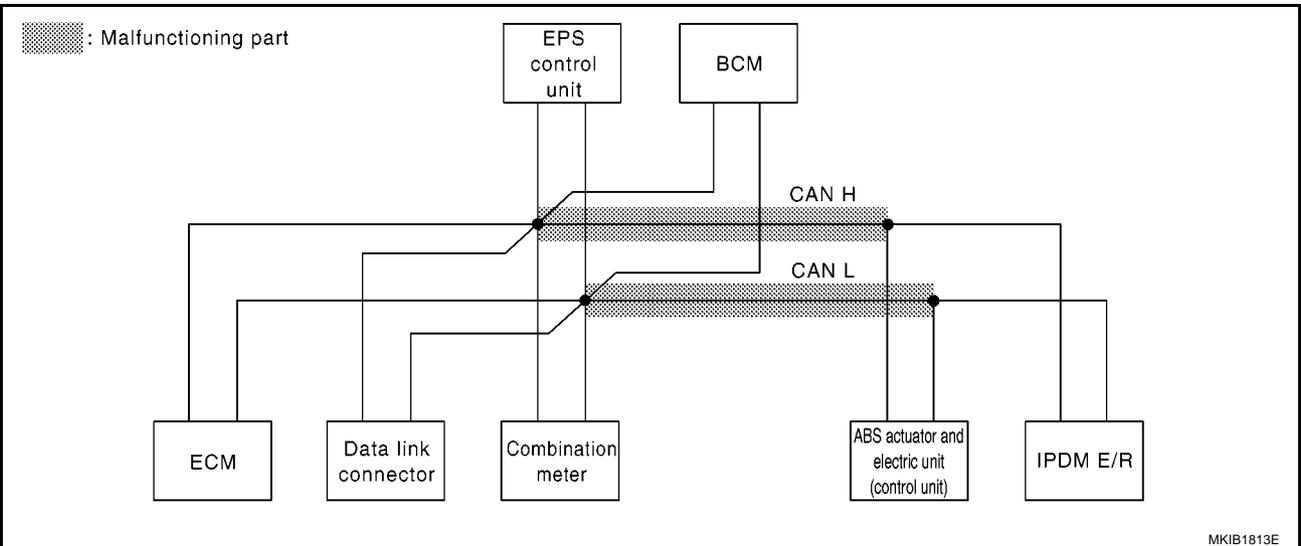
If "NG" is displayed on "CAN COMM" as "DATA MONITOR (CAN DIAG SUPPORT MNTR)" for the diagnosed control unit, replace the control unit.

Case1

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to [LAN-352, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit \(Control Unit\)"](#).

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

MKIB217E



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CAN SYSTEM (TYPE 12)

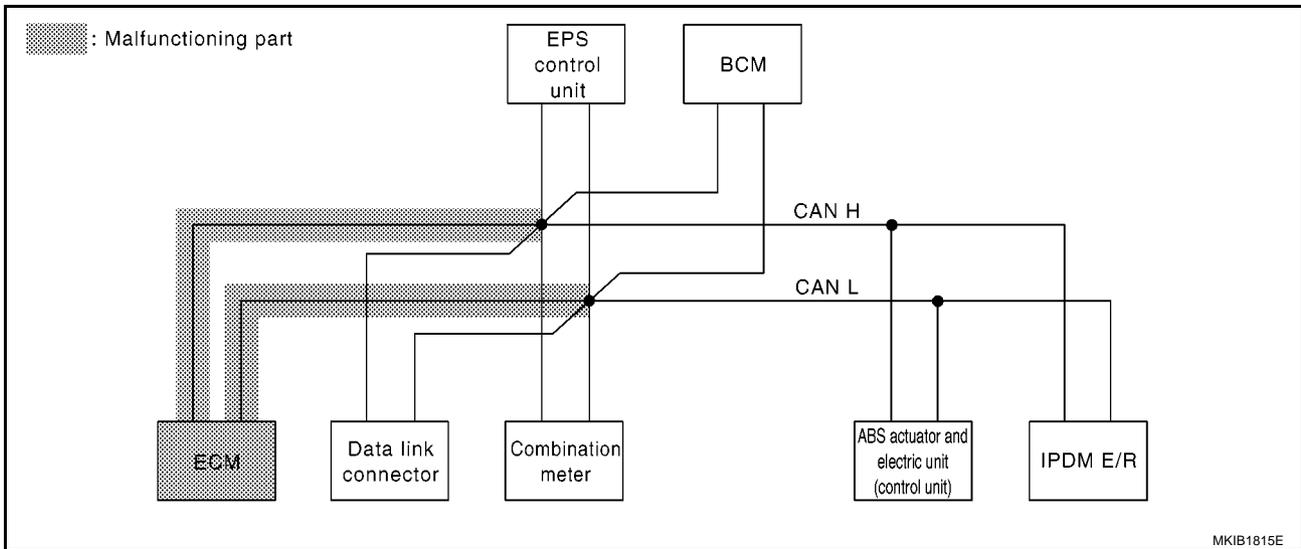
[CAN]

Case2

Check ECM circuit. Refer to [LAN-353, "ECM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 12)

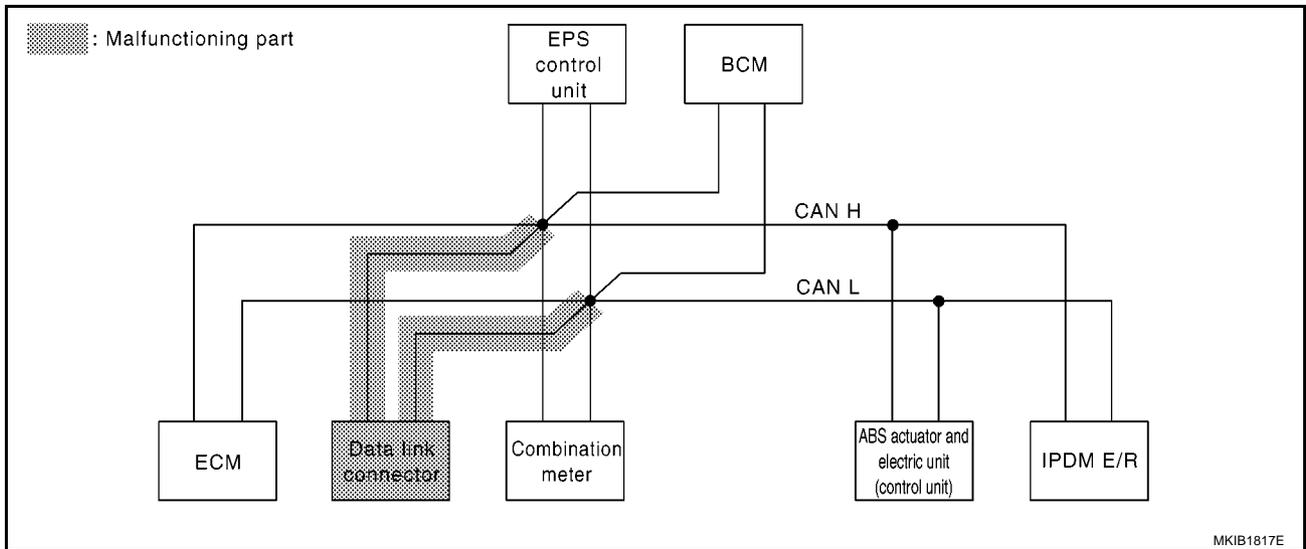
[CAN]

Case3

Check data link connector circuit. Refer to [LAN-354, "Data Link Connector Circuit Check"](#) .

SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R	
ENGINE	—	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication ✓	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 12)

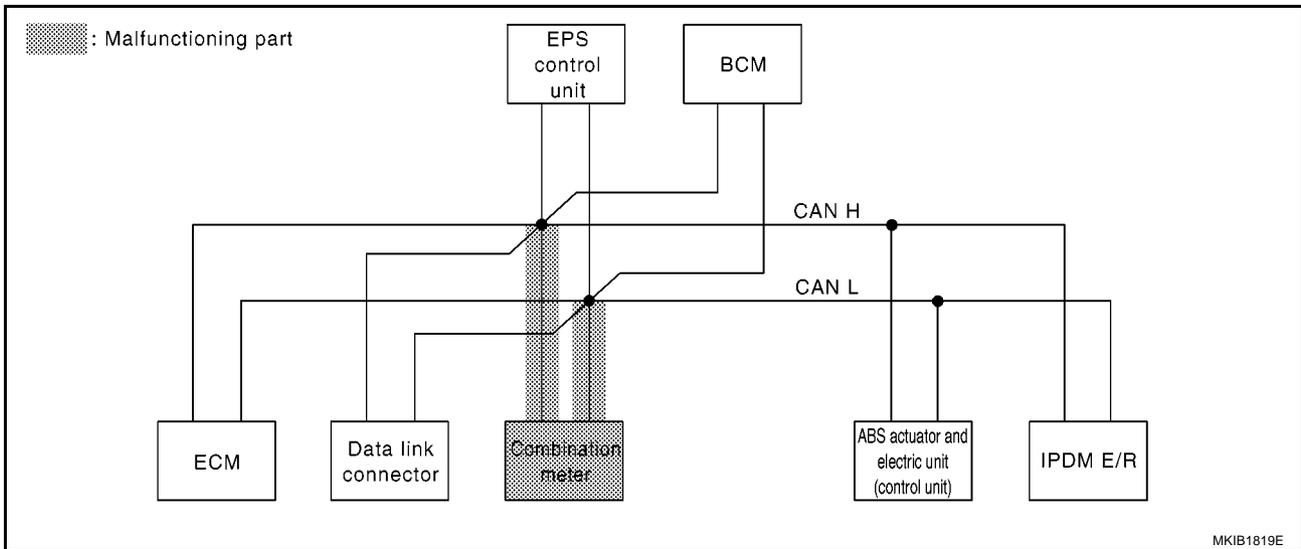
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Case4

Check combination meter circuit. Refer to [LAN-355, "Combination Meter Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 12)

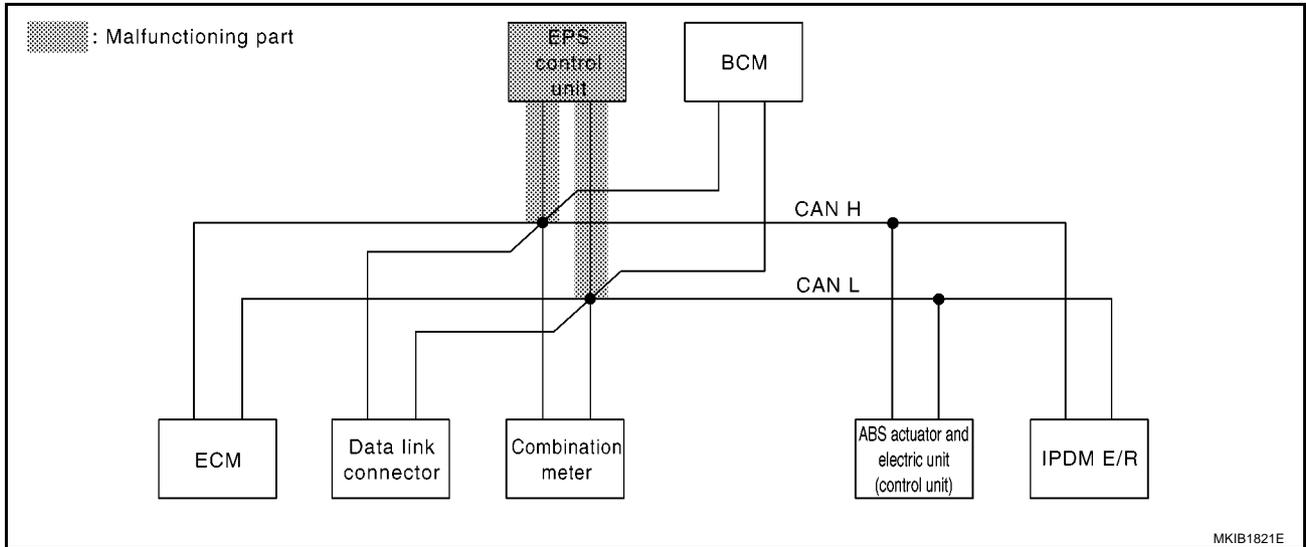
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Case5

Check EPS control unit circuit. Refer to [LAN-356, "EPS Control Unit Circuit Check"](#) .

SELECT SYSTEM screen	Initial diagnosis	Transmit diagnosis	Receive diagnosis						
			ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R	
ENGINE	—	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 12)

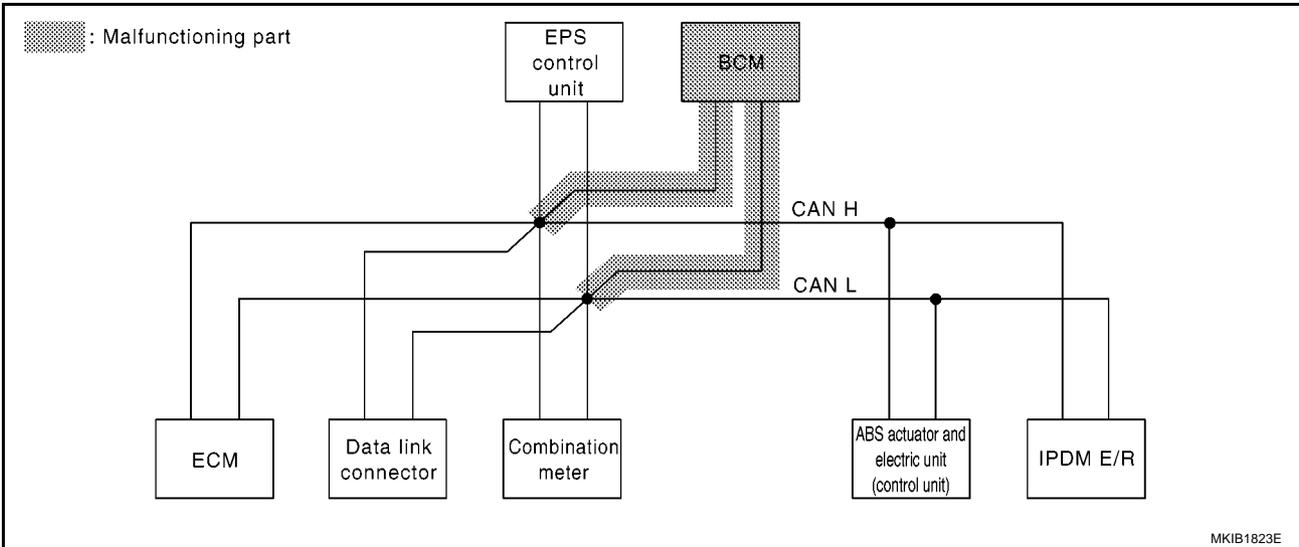
[CAN]

Case6

Check BCM circuit. Refer to [LAN-357, "BCM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 12)

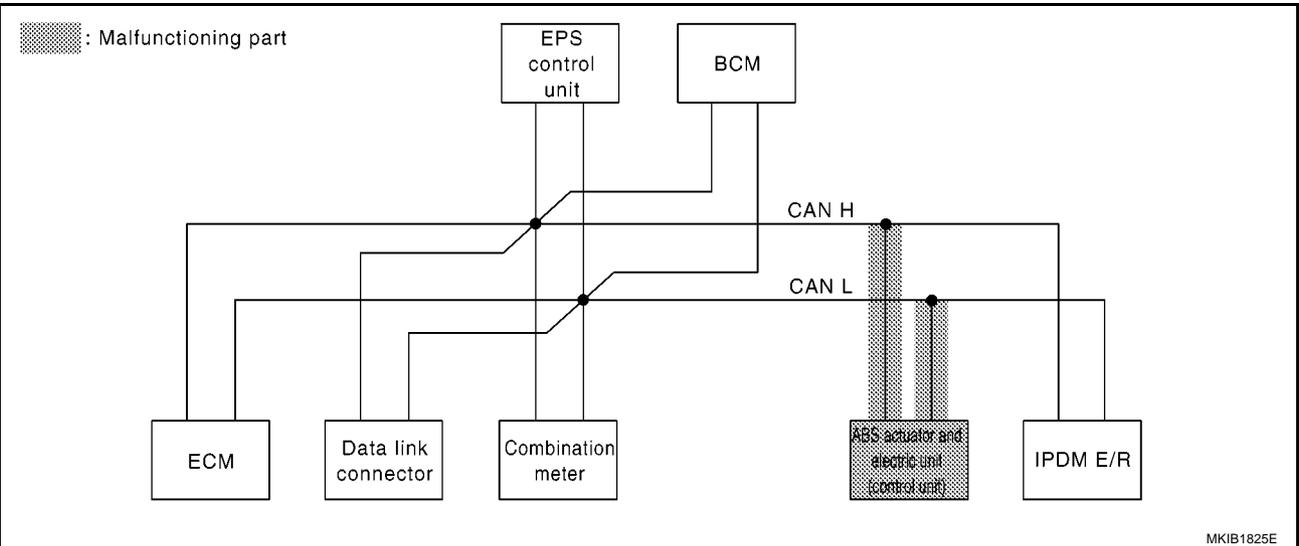
[CAN]

Case7

Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-358, "ABS Actuator and Electric Unit \(Control Unit\) Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN ✓	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN ✓	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN ✓	UNKWN
ABS	No indication ✓	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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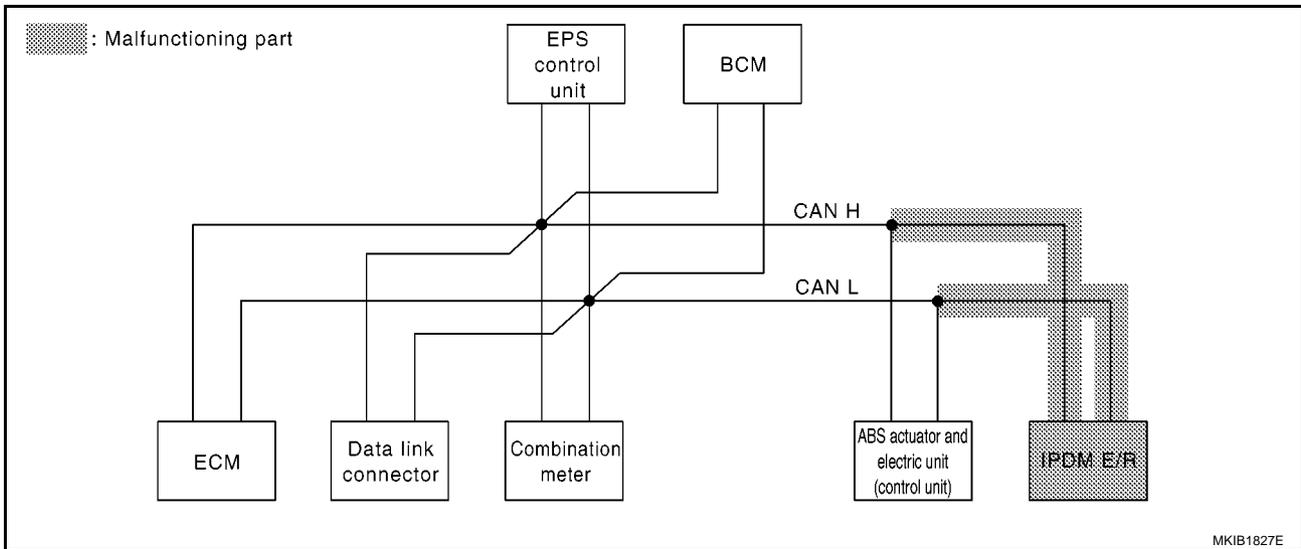
[CAN]

Case8

Check IPDM E/R circuit. Refer to [LAN-359, "IPDM E/R Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN ✓
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN ✓
ABS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 12)

[CAN]

Case9

Check CAN communication circuit. Refer to [LAN-360, "CAN Communication Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKW N	—	UNKW N				
EPS	No indication	—	UNKW N	UNKW N	UNKW N	—	UNKW N	UNKW N	—
BCM	No indication	—	UNKW N	UNKW N	UNKW N	—	—	UNKW N	UNKW N
ABS	No indication	—	UNKW N	UNKW N	UNKW N	UNKW N	—	—	—
IPDM E/R	No indication	—	UNKW N	UNKW N	—	—	UNKW N	—	—

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Case10

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to [LAN-363, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKW N	—	UNKW N				
EPS	No indication	—	UNKW N	UNKW N	UNKW N	—	UNKW N	UNKW N	—
BCM	No indication	—	UNKW N	UNKW N	UNKW N	—	—	UNKW N	UNKW N
ABS	No indication	—	UNKW N	UNKW N	UNKW N	UNKW N	—	—	—
IPDM E/R	No indication	—	UNKW N	UNKW N	—	—	UNKW N	—	—

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Case11

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to [LAN-363, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	EPS	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	—	—	UNKW N	—	UNKW N				
EPS	No indication	—	UNKW N	UNKW N	UNKW N	—	UNKW N	UNKW N	—
BCM	No indication	—	UNKW N	UNKW N	UNKW N	—	—	UNKW N	UNKW N
ABS	No indication	—	UNKW N	UNKW N	UNKW N	UNKW N	—	—	—
IPDM E/R	No indication	—	UNKW N	UNKW N	—	—	UNKW N	—	—

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

EKS00PC6

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M1
 - Harness connector E101

OK or NG

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

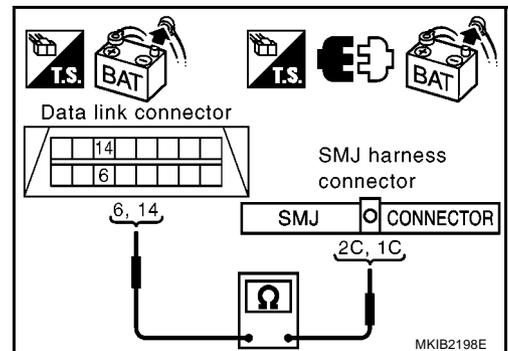
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect following connector.
 - Harness connector M1
2. Check continuity between data link connector M17 terminals 6 (R), 14 (W) and harness connector M1 terminals 2C (R), 1C (W).

6 (R) – 2C (R) : Continuity should exist.
14 (W) – 1C (W) : Continuity should exist.

OK or NG

- OK >> GO TO 3.
NG >> Repair harness.



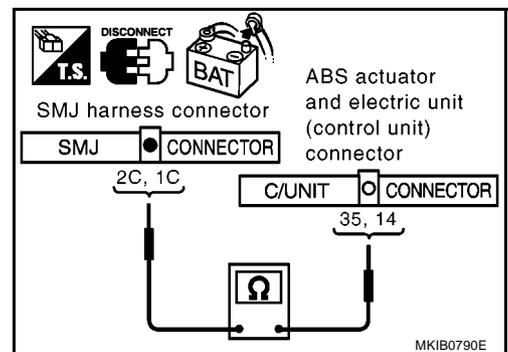
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between harness connector E101 terminals 2C (R), 1C (W) and ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R), 14 (W).

2C (R) – 35 (R) : Continuity should exist.
1C (W) – 14 (W) : Continuity should exist.

OK or NG

- OK >> Connect all the connectors and diagnosis again. Refer to [LAN-340. "Work Flow"](#) .
NG >> Repair harness.



ECM Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
 - ECM connector
 - Harness connector M1
 - Harness connector E101

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

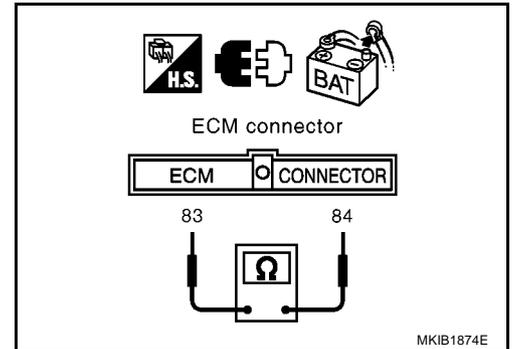
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E66 terminal 84 (R) and 83 (W)

84 (R) – 83 (W)**: Approx. 108 – 132 Ω****OK or NG**

OK >> Replace ECM.

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

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Data Link Connector Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check data link connector and terminals for damage, bend and loose connection (connector side and harness side).

OK or NG

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

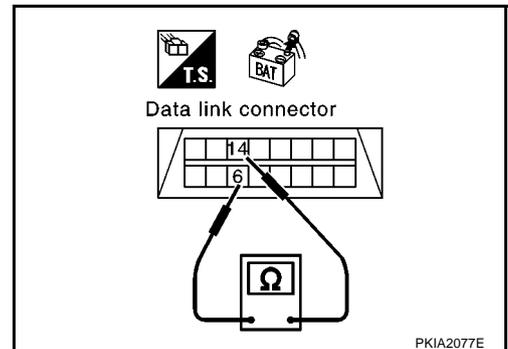
2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M17 terminals 6 (R) and 14 (W).

6 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Diagnosis again. Refer to [LAN-340, "Work Flow"](#) .
 NG >> Repair harness between data link connector and combination meter



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

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of combination meter for damage, bend and loose connection (meter side and harness side).

OK or NG

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

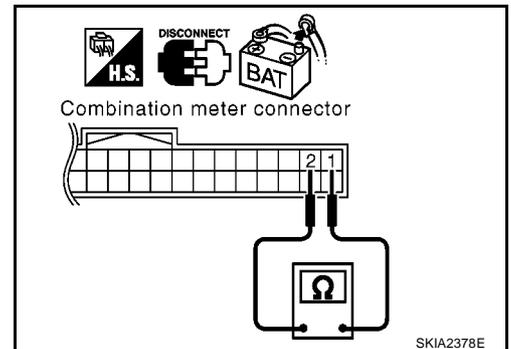
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M22 terminals 1 (R) and 2 (W).

1 (R) – 2 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace combination meter
 NG >> Repair harness between combination meter and data link connector.



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EPS Control Unit Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

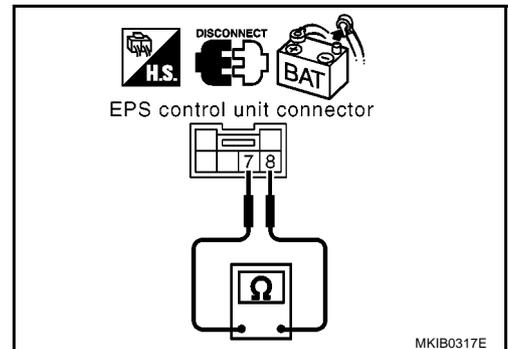
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect EPS control unit connector.
2. Check resistance between EPS control unit harness connector M23 terminals 8 (R) and 7 (W).

8 (R) – 7 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace EPS control unit.
 NG >> Repair harness between EPS control unit and data link connector.



BCM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

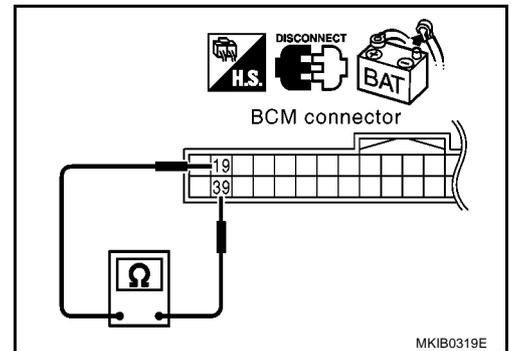
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M48 terminals 19 (R) and 39 (W).

19 (R) – 39 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace BCM. Refer to [BCS-30, "Removal and Installation of BCM"](#) .
 NG >> Repair harness between BCM and data link connector.



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ABS Actuator and Electric Unit (Control Unit) Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ABS actuator and electric unit (control unit) for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

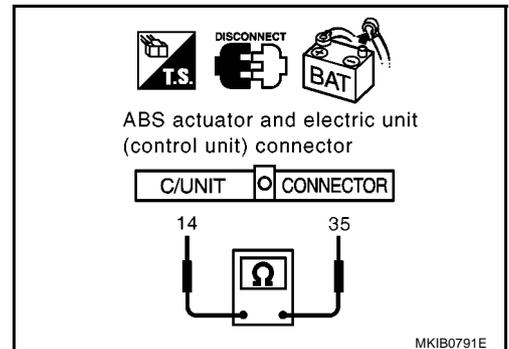
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R) and 14 (W).

35 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace ABS actuator and electric unit (control unit).
 NG >> Repair harness between ABS actuator and electric unit (control unit) and IPDM E/R.



IPDM E/R Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

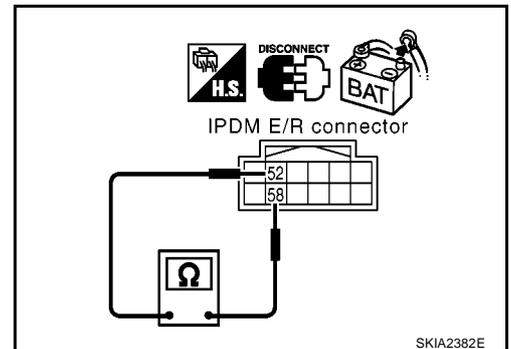
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check resistance between IPDM E/R harness connector E16 terminals 52 (R) and 58 (W).

52 (R) – 58 (W) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace IPDM E/R.
 NG >> Repair harness between IPDM E/R and ABS actuator and electric unit (control unit).



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CAN Communication Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

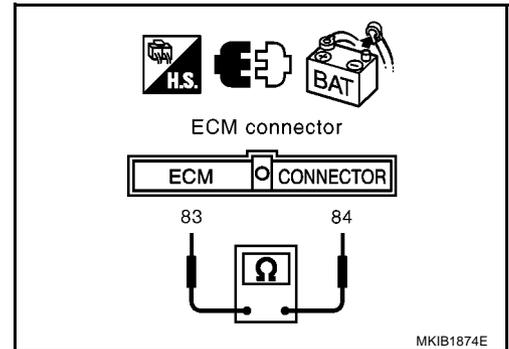
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E101.
2. Check continuity between ECM harness connector E66 terminal 84 (R) and 83 (W)

84 (R) – 83 (W) : Continuity should not exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness between ECM and harness connector E101.



3. CHECK HARNESS FOR SHORT CIRCUIT

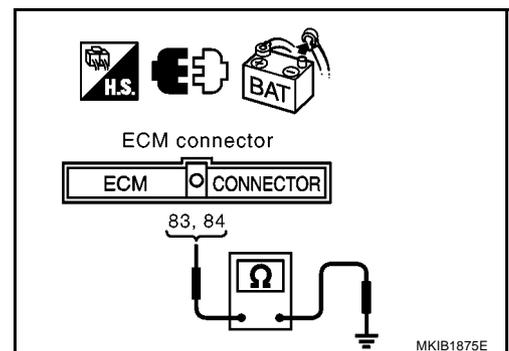
Check continuity between ECM harness connector E66 terminal 84 (R), 83 (W) and ground

84 (R) – Ground : Continuity should not exist.

83 (W) – Ground : Continuity should not exist.

OK or NG

- OK >> GO TO 4.
 NG >> Repair harness between ECM and harness connector E101.



4. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect following connectors.
 - ABS actuator and electric unit (control unit) connector
 - IPDM E/R connector
- Check continuity between ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R) and 14 (W).

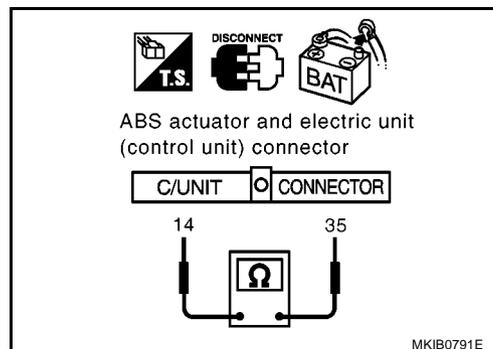
35 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E47 terminals 35 (R), 14 (W) and ground.

35 (R) – Ground : Continuity should not exist.

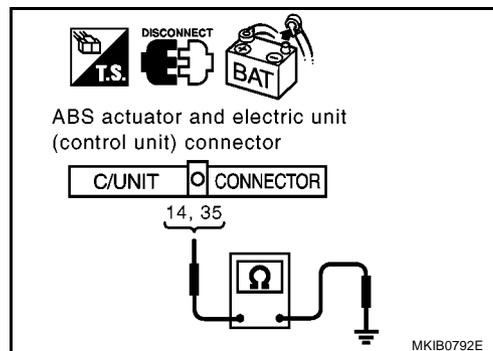
14 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



6. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect following connectors.
 - Combination meter connector
 - EPS control unit connector
 - BCM connector
- Check continuity between data link connector M17 terminals 6 (R) and 14 (W).

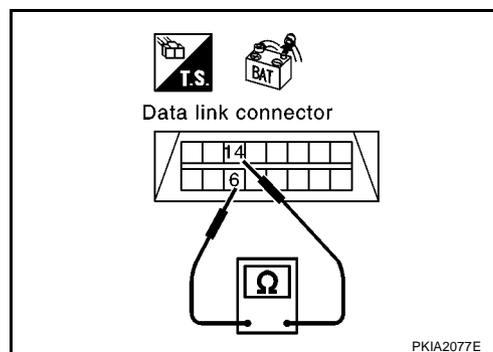
6 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M17 terminals 6 (R), 14 (W) and ground.

6 (R) – Ground : Continuity should not exist.

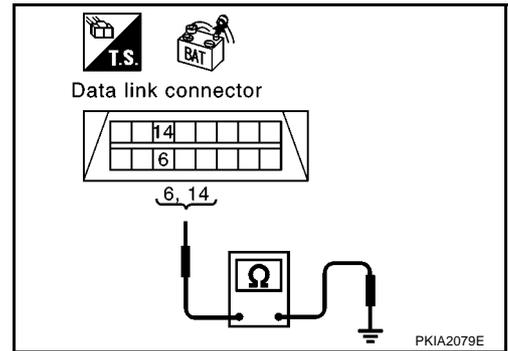
14 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-363, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

OK >> Connect all the connectors and diagnosis again. Refer to [LAN-340, "Work Flow"](#).

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

IPDM E/R Ignition Relay Circuit Check

EKS00PCF

Perform the self-diagnosis for IPDM E/R. Refer to [PG-49, "Inspection With CONSULT-II \(Self-Diagnosis\)"](#) . If the result is OK, carry out following inspections.

- IPDM E/R power supply circuit. Refer to [PG-50, "IPDM E/R Power Supply and Ground Circuit Check"](#) .
- Ignition power supply circuit. Refer to [PG-13, "IGNITION POWER SUPPLY — IGNITION SW. IN "ON" AND/OR "START""](#) .

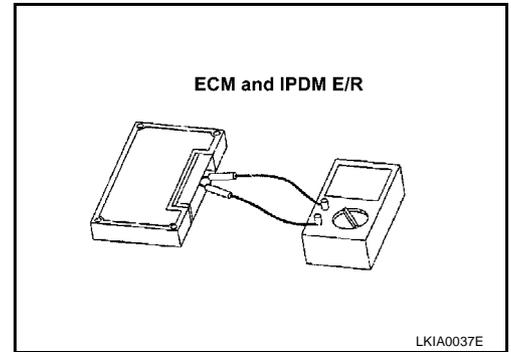
Component Inspection

EKS00PCG

ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 84 and 83.
- Check resistance between IPDM E/R terminals 52 and 58.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	84 – 83	108 - 132
IPDM E/R	52 – 58	



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CAN SYSTEM (TYPE 13)

PFP:23710

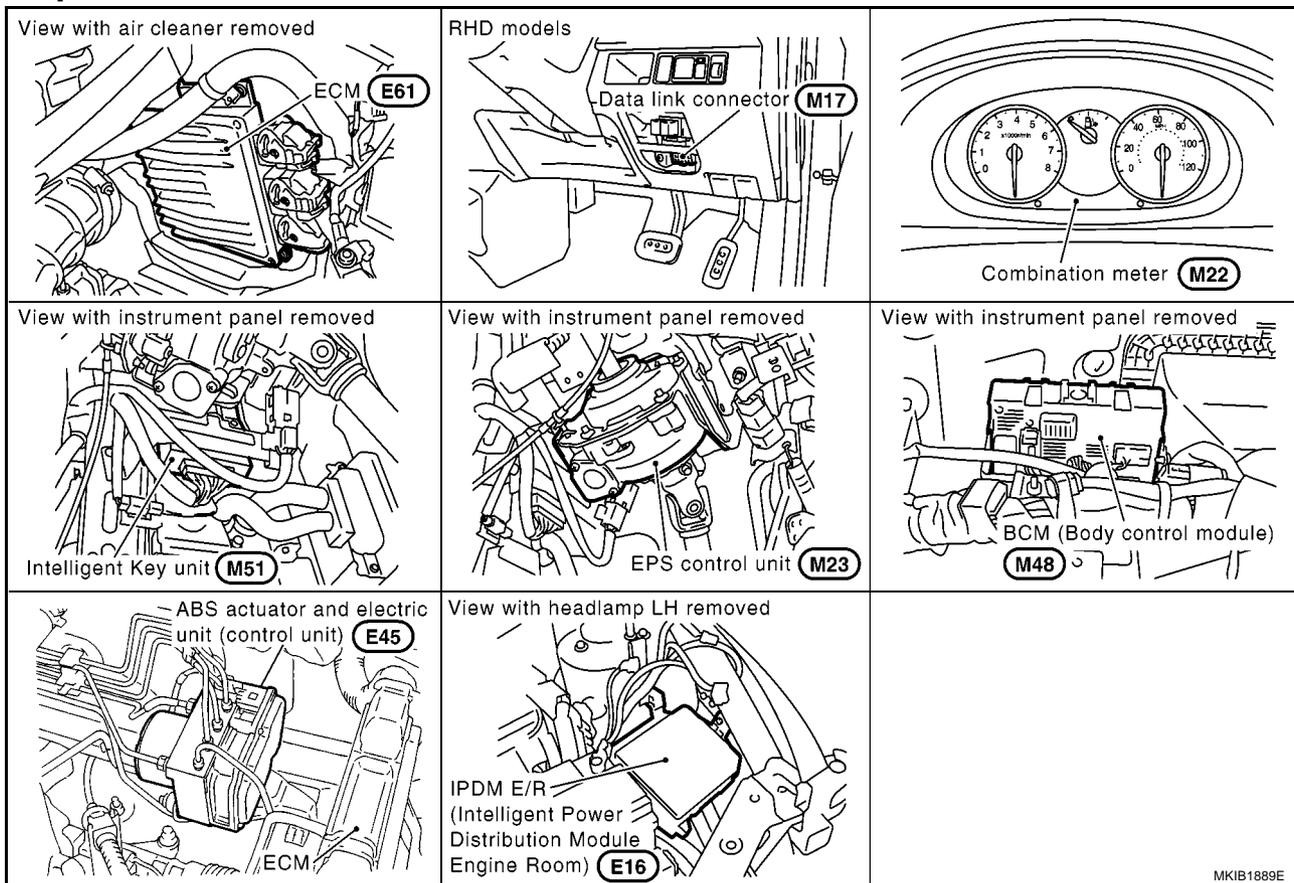
System Description

EKS00JPX

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

EKS00JPY



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CAN SYSTEM (TYPE 13)

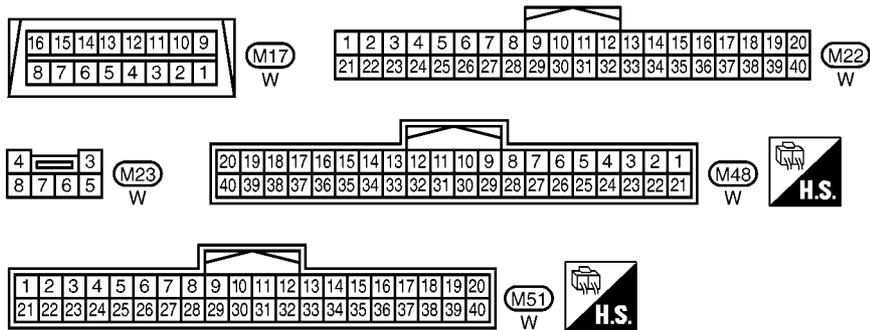
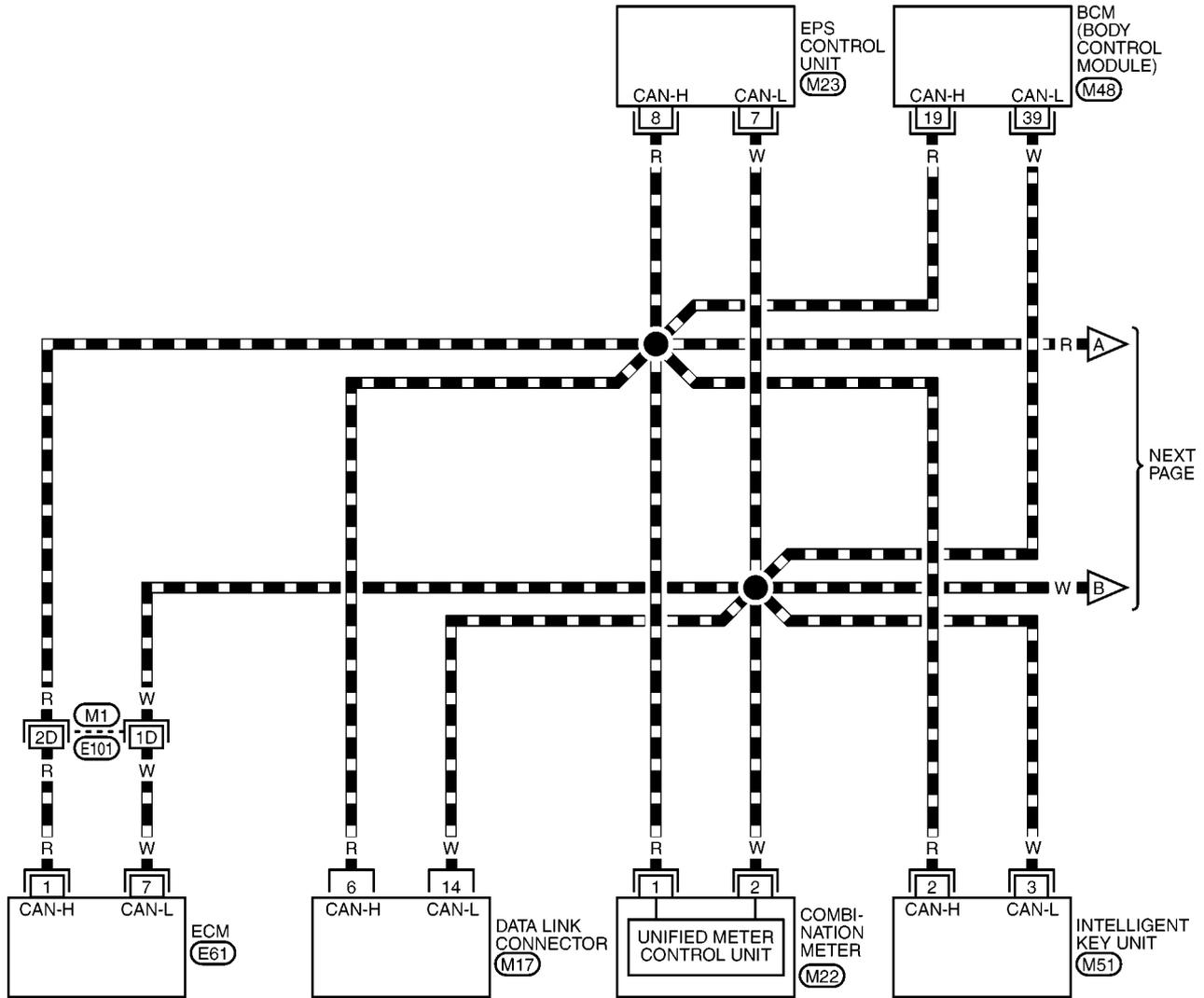
[CAN]

Wiring Diagram — CAN —

EKS00JPZ

LAN-CAN-25

▬ : DATA LINE

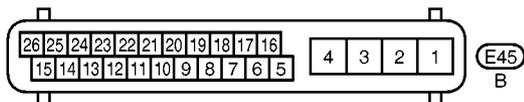
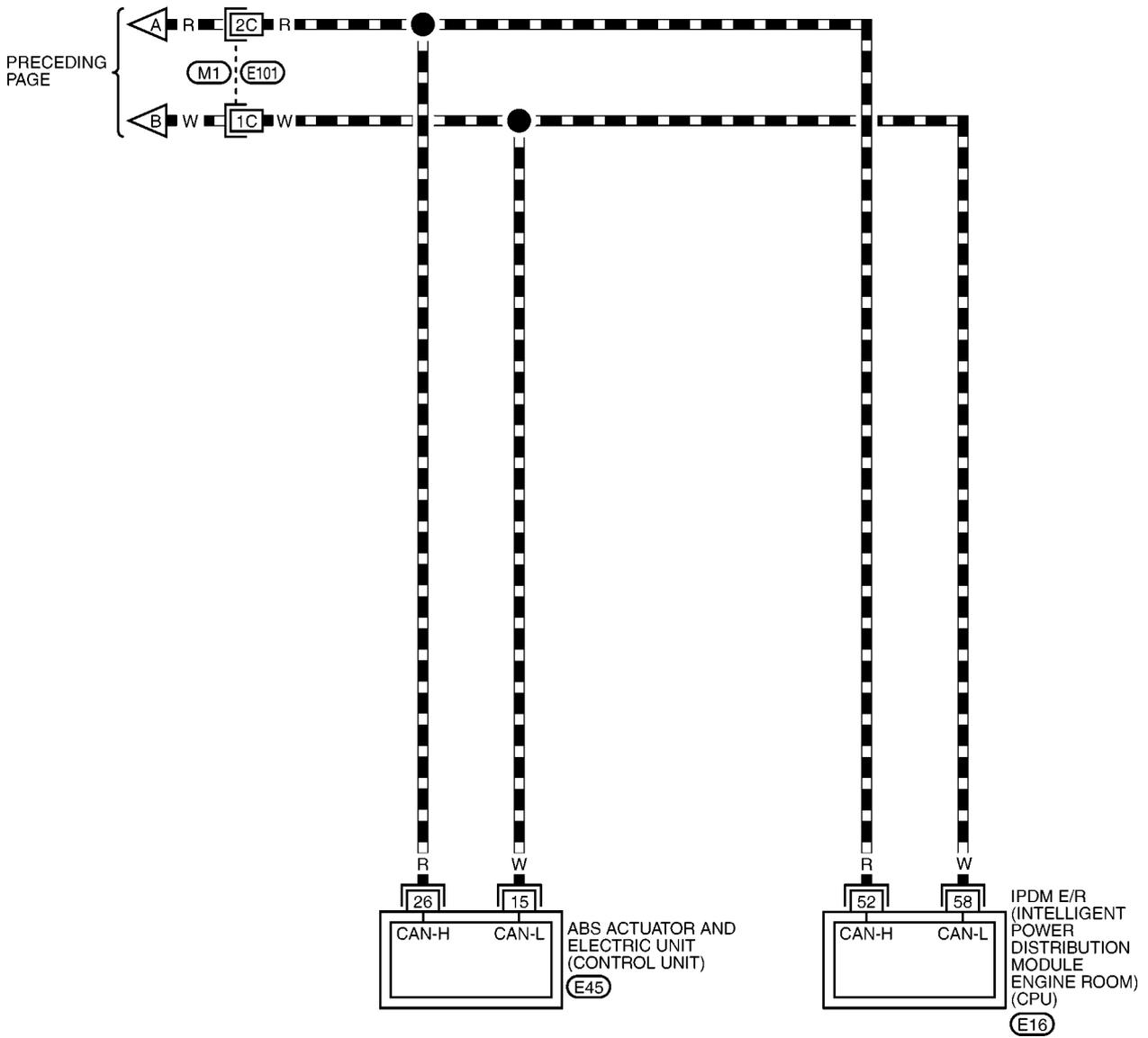


REFER TO THE FOLLOWING.
 (M1) -SUPER MULTIPLE JUNCTION (SMJ)
 (E61) -ELECTRICAL UNITS

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LAN-CAN-26

▬ : DATA LINE



REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

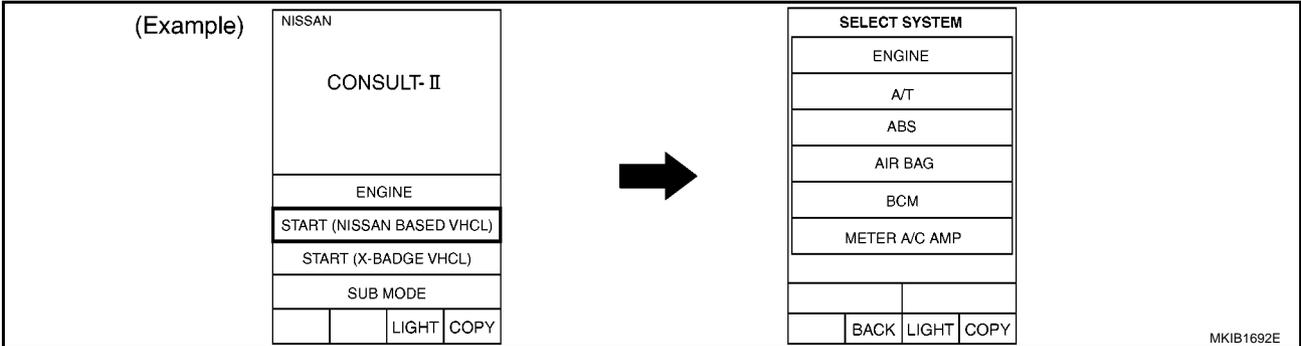
CAN SYSTEM (TYPE 13)

[CAN]

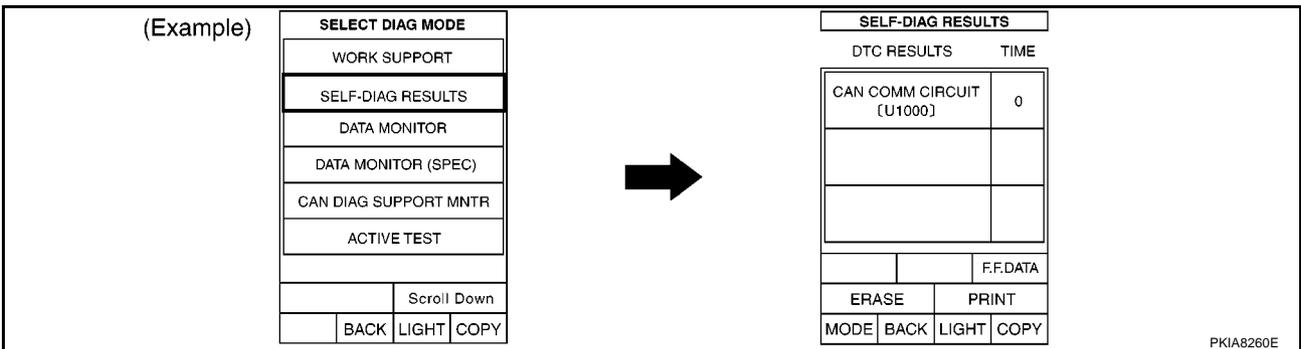
EKS00JQ0

Work Flow

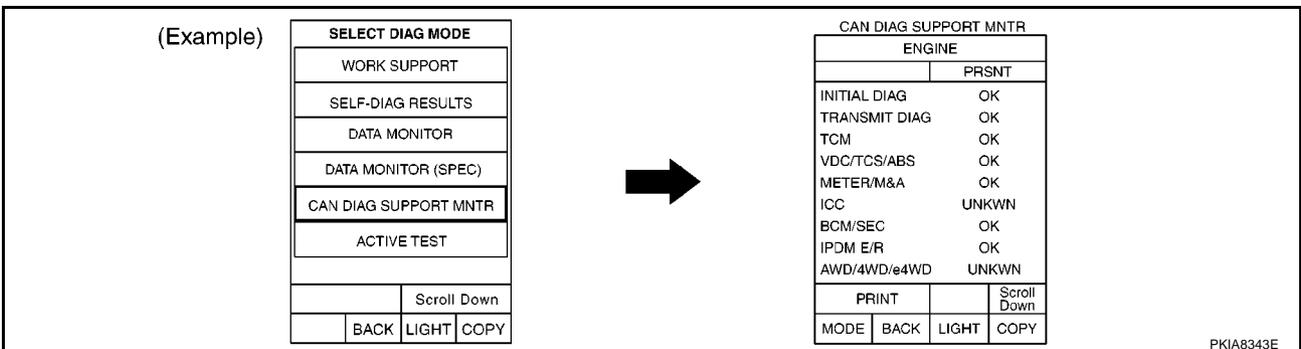
- When there are no indications of "ENGINE", "INTELLIGENT KEY", "EPS", "BCM" or "IPDM E/R" on "SELECT SYSTEM" display of CONSULT-II, print the "SELECT SYSTEM".



- Print all the data of "SELF-DIAG RESULTS" for "ENGINE", "INTELLIGENT KEY", "EPS", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



- Print all the data of "CAN DIAG SUPPORT MNTR" for "ENGINE", "INTELLIGENT KEY", "EPS", "BCM", "ABS" and "IPDM E/R" displayed on CONSULT-II.



- Attach the printed sheet of "SELECT SYSTEM", "SELF-DIAG RESULTS" and "CAN DIAG SUPPORT MNTR" onto the check sheet. Refer to [LAN-368, "CHECK SHEET"](#).
- Based on the indications of "SELECT SYSTEM" and the results of "CAN DIAG SUPPORT MNTR", put marks "v" onto the items with "No indication", "NG", or "UNKWN" in the check sheet table. Refer to [LAN-368, "CHECK SHEET"](#).

NOTE:

- If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.
- The "CAN DIAG SUPPORT MNTR" items, which are not in check sheet table, are not related to diagnostic procedure on service manual. So it is not necessary to check the status of "CAN DIAG SUPPORT MNTR" items which are not indicated in check sheet table.

- According to the check sheet results (example), start inspection. Refer to [LAN-370, "CHECK SHEET RESULTS \(EXAMPLE\)"](#).

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CAN SYSTEM (TYPE 13)

[CAN]

CHECK SHEET

Check sheet table

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	I-KEY	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	—	UNKWN	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—

Symptoms:

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Attach copy of
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CAN SYSTEM (TYPE 13)

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Attach copy of
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SELF-DIAG RESULTS

Attach copy of
INTELLIGENT KEY
SELF-DIAG RESULTS

Attach copy of
EPS
SELF-DIAG RESULTS

Attach copy of
BCM
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
IPDM E/R
SELF-DIAG RESULTS

Attach copy of
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CHECK SHEET RESULTS (EXAMPLE)

NOTE:

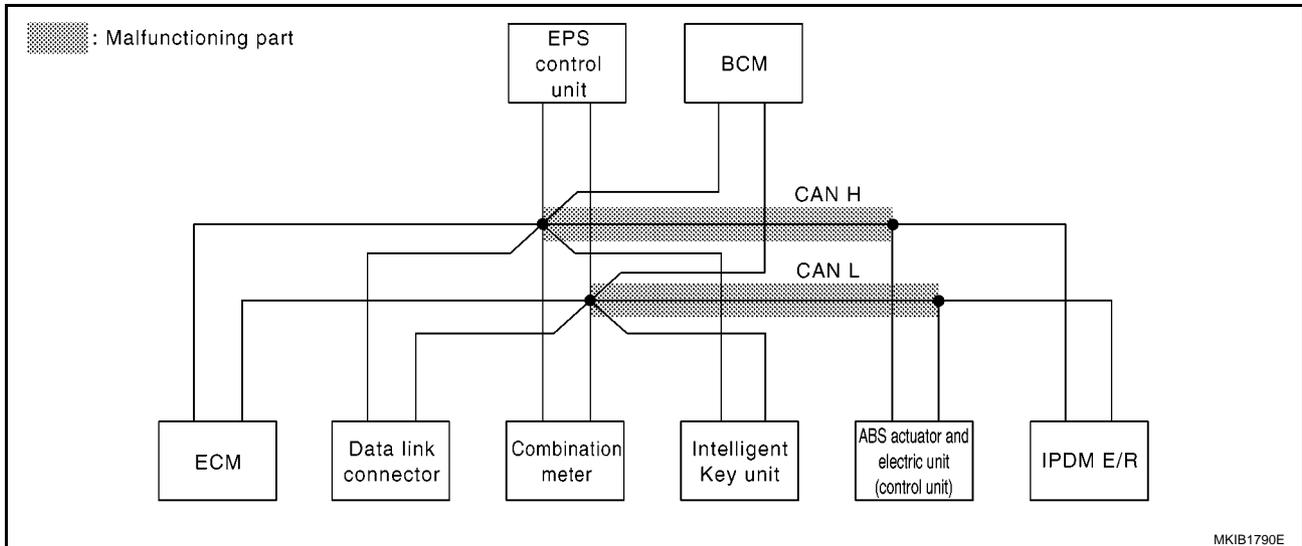
If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

Case 1

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to [LAN-380, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit \(Control Unit\)"](#).

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	I-KEY	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication	—	UNKWN	—	UNKWN	—	UNKWN	UN KN ✓WN	UN KN ✓WN
INTELLIGENT KEY	No indication	NG	UNKWN	—	UNKWN	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UN KN ✓WN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UN KN ✓WN
ABS	—	NG	—	UN KN ✓WN	—	—	—	—	—
IPDM E/R	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 13)

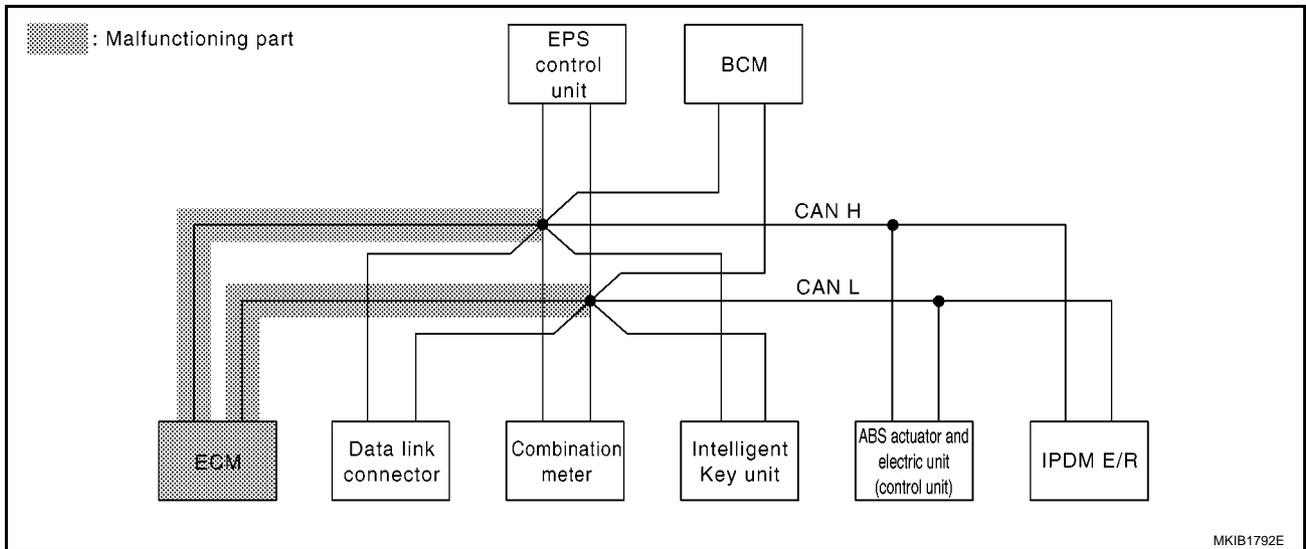
[CAN]

Case 2

Check ECM circuit. Refer to [LAN-381, "ECM Circuit Check"](#).

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	I-KEY	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication ✓	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	—	UNKWN	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN ✓	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN ✓	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	—	UNKWN ✓	—	—	—	—	—
IPDM E/R	No indication	NG	UNKWN	UNKWN ✓	—	—	UNKWN	—	—

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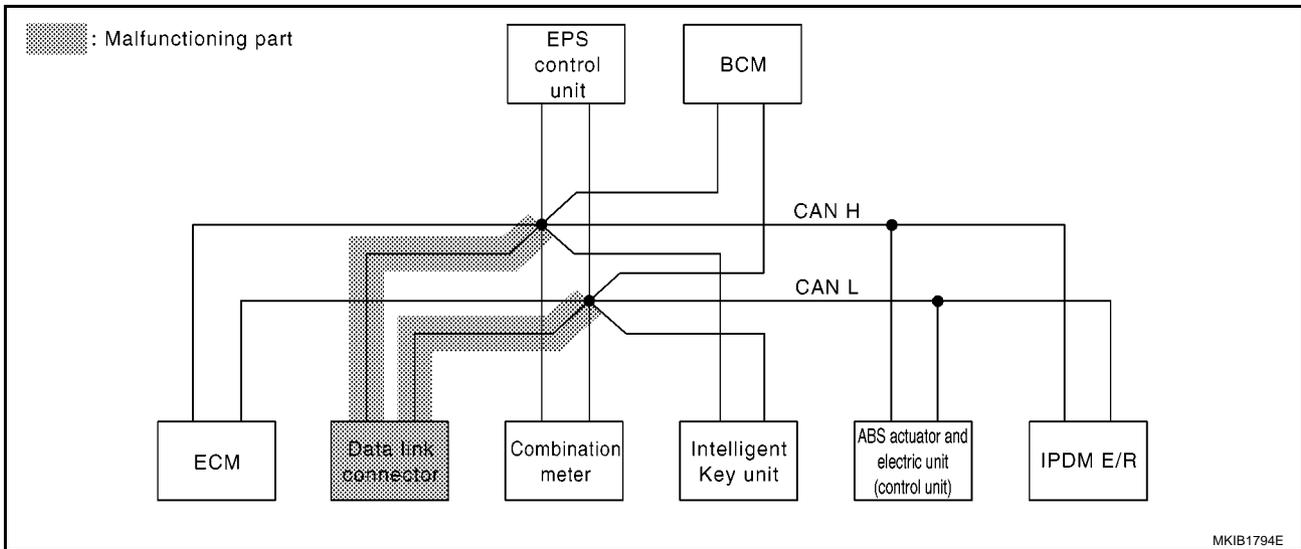
[CAN]

Case 3

Check data link connector circuit. Refer to [LAN-382, "Data Link Connector Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	I-KEY	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication ✓	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication ✓	NG	UNKWN	—	UNKWN	—	UNKWN	—	—
EPS	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication ✓	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication ✓	NG	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 13)

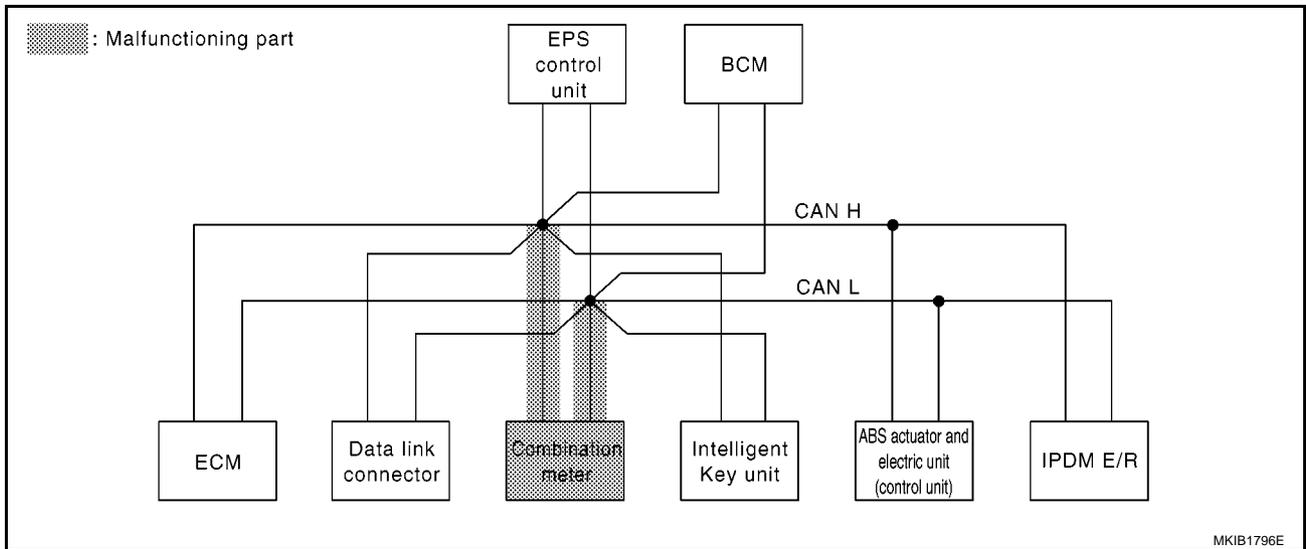
[CAN]

Case 4

Check combination meter circuit. Refer to [LAN-383, "Combination Meter Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	I-KEY	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	—	UNKWN	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—

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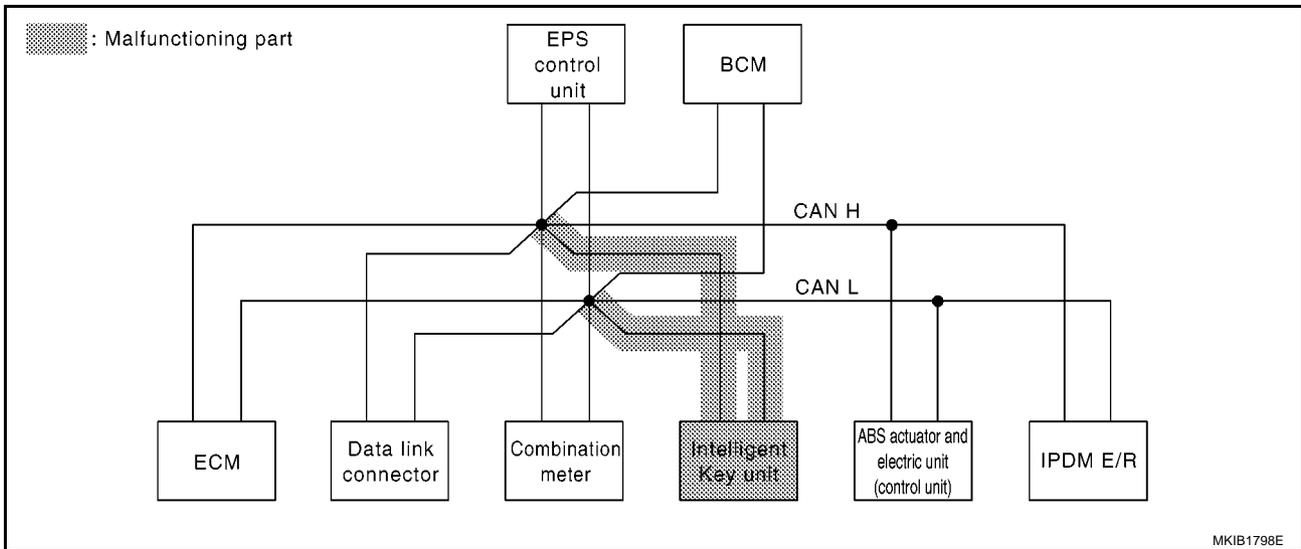
[CAN]

Case 5

Check Intelligent Key unit circuit. Refer to [LAN-384, "Intelligent Key Unit Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	I-KEY	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication ✓	NG	UNKWN	—	UNKWN	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN ✓	—	—	UNKWN
ABS	—	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 13)

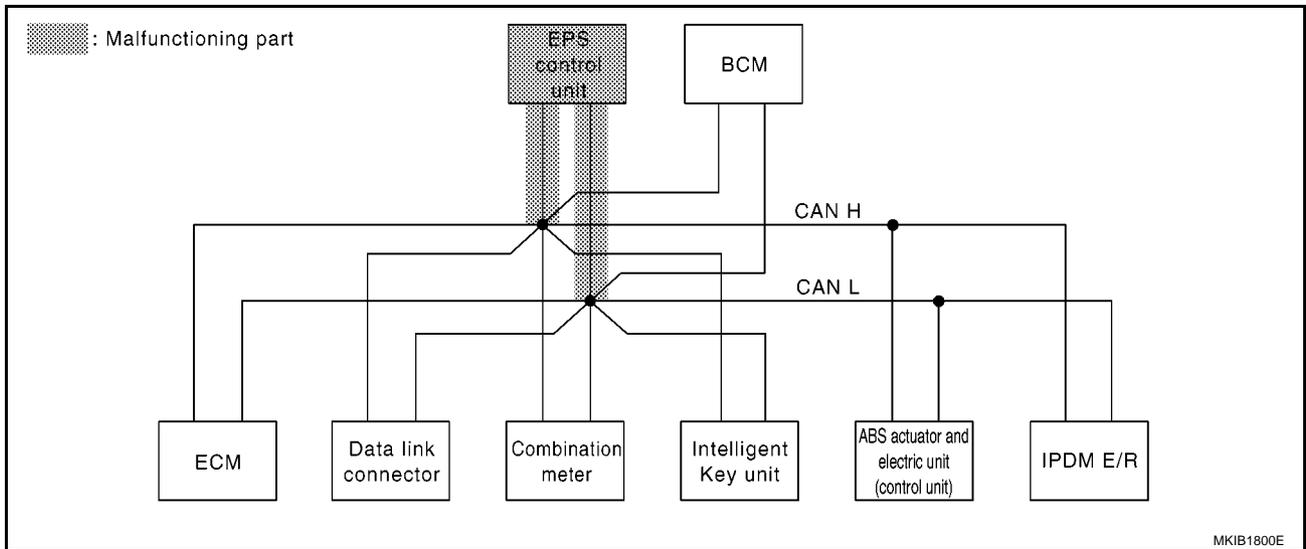
[CAN]

Case 6

Check EPS control unit circuit. Refer to [LAN-385, "EPS Control Unit Circuit Check"](#).

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	I-KEY	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	—	UNKWN	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—

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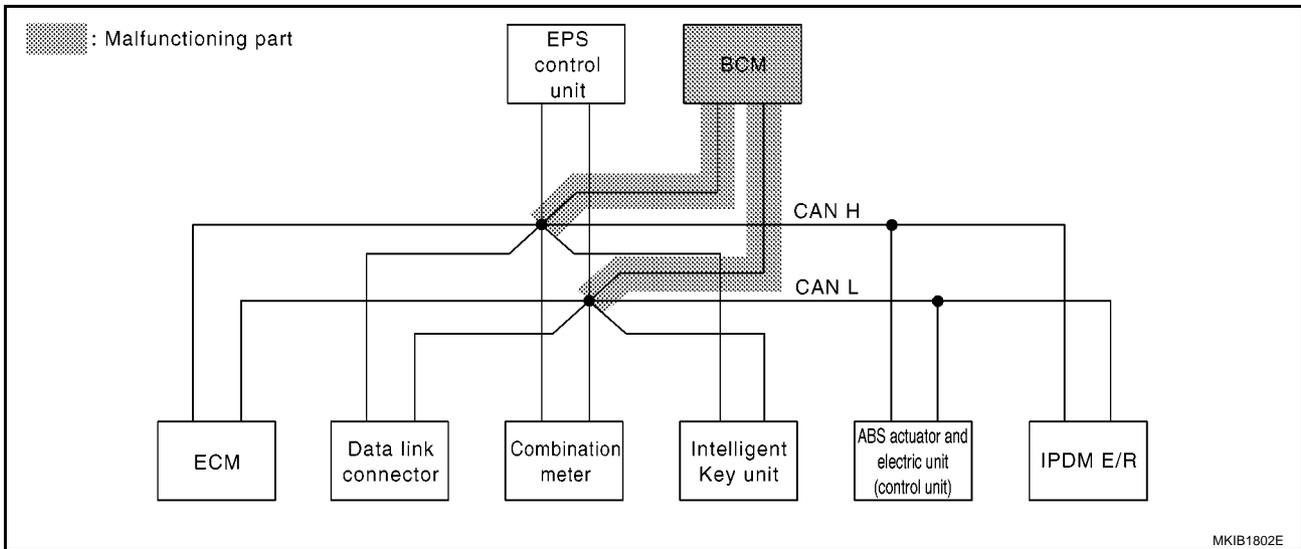
[CAN]

Case 7

Check BCM circuit. Refer to [LAN-386, "BCM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	I-KEY	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	—	UNKWN	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 13)

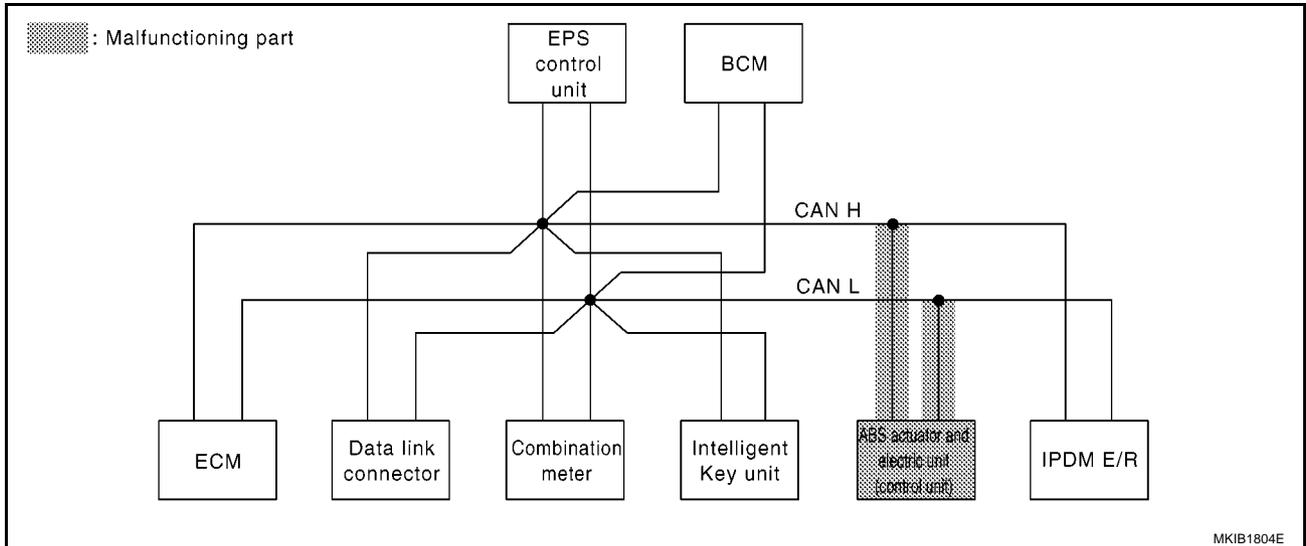
[CAN]

Case 8

Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-387, "ABS Actuator and Electric Unit \(Control Unit\) Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	I-KEY	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	—	UNKWN	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—

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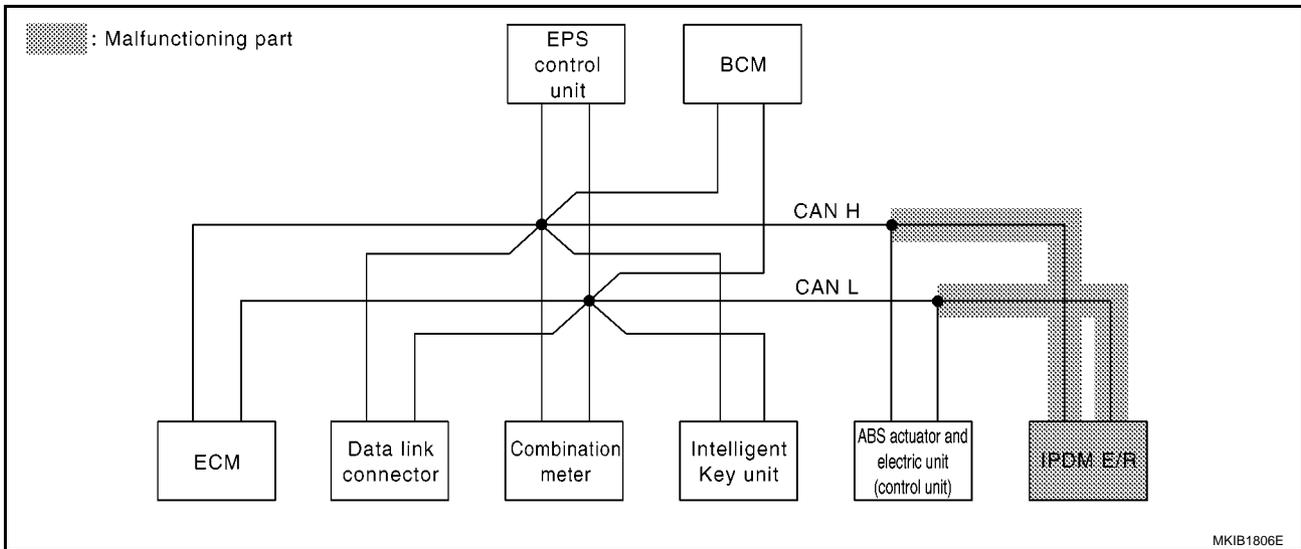
[CAN]

Case 9

Check IPDM E/R circuit. Refer to [LAN-388, "IPDM E/R Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	I-KEY	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	—	UNKWN	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—

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CAN SYSTEM (TYPE 13)

[CAN]

Case 10

Check CAN communication circuit. Refer to [LAN-389, "CAN Communication Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	I-KEY	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication ✓	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication ✓	NG	UNKWN	—	UNKWN	—	UNKWN	—	—
EPS	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication ✓	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG ✓	—	UNKWN ✓	—	—	—	—	—
IPDM E/R	No indication ✓	NG	UNKWN	UNKWN	—	—	UNKWN	—	—

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Case 11

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to [LAN-392, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	I-KEY	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN ✓	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	—	UNKWN	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN ✓	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	—	UNKWN	—	—	—	—	—
IPDM E/R	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—

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Case 12

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to [LAN-392, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	METER /M&A	I-KEY	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication	—	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN
INTELLIGENT KEY	No indication	NG	UNKWN	—	UNKWN	—	UNKWN	—	—
EPS	No indication	—	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	—	UNKWN ✓	—	—	—	—	—
IPDM E/R	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—

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

EKS00JQ1

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M1
 - Harness connector E101

OK or NG

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

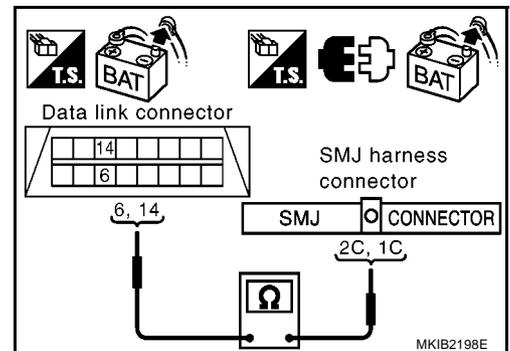
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect following connector.
 - Harness connector M1
2. Check continuity between data link connector M17 terminals 6 (R), 14 (W) and harness connector M1 terminals 2C (R), 1C (W).

6 (R) – 2C (R) : Continuity should exist.
14 (W) – 1C (W) : Continuity should exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness.



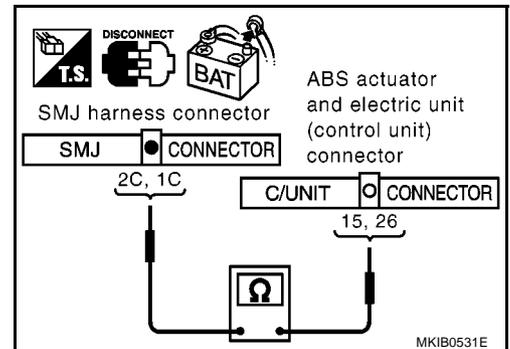
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between harness connector E101 terminals 2C (R), 1C (W) and ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R), 15 (W).

2C (R) – 26 (R) : Continuity should exist.
1C (W) – 15 (W) : Continuity should exist.

OK or NG

- OK >> Connect all the connectors and diagnosis again. Refer to [LAN-367, "Work Flow"](#) .
 NG >> Repair harness.



ECM Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
 - ECM connector
 - Harness connector M1
 - Harness connector E101

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

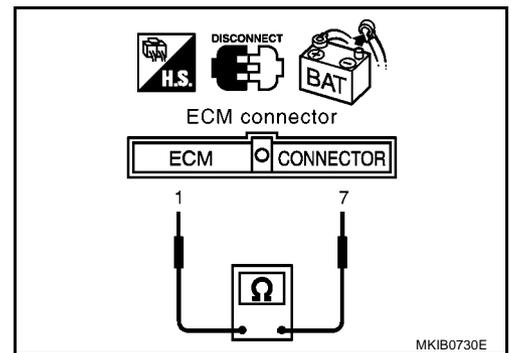
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E61 terminals 1 (R) and 7 (W).

1 (R) – 7 (W)**: Approx. 108 – 132Ω****OK or NG**

OK >> Replace ECM.

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



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Data Link Connector Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check the data link connector and terminals for damage, bend and loose connection (connector side and harness side).

OK or NG

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

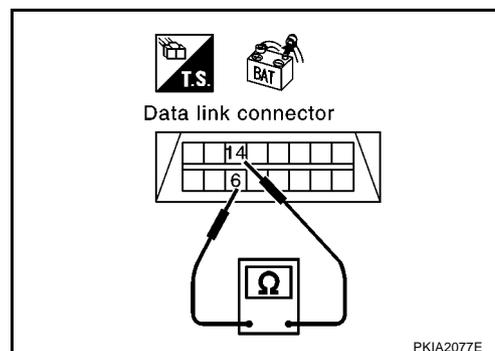
2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M17 terminals 6 (R) and 14 (W).

6 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Diagnosis again. Refer to [LAN-367, "Work Flow"](#) .
 NG >> Repair harness between data link connector and combination meter



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

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of combination meter for damage, bend and loose connection (meter side and harness side).

OK or NG

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

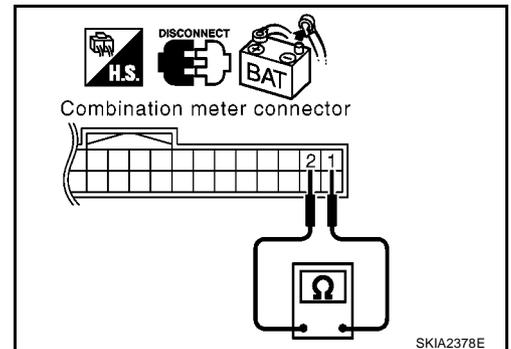
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M22 terminals 1 (R) and 2 (W).

1 (R) – 2 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace combination meter.
 NG >> Repair harness between combination meter and data link connector.



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Intelligent Key Unit Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of Intelligent Key unit for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

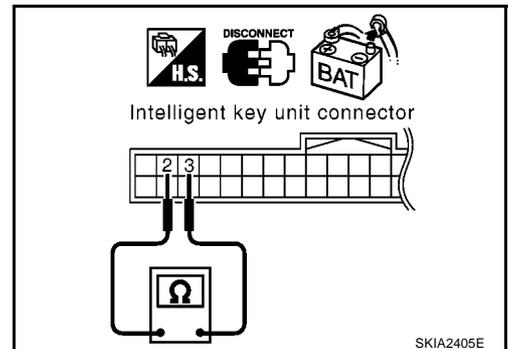
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect Intelligent Key unit connector.
2. Check resistance between Intelligent Key unit harness connector M51 terminals 2 (R) and 3 (W).

2 (R) – 3 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace Intelligent Key unit.
 NG >> Repair harness between Intelligent Key unit and data link connector.



EPS Control Unit Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

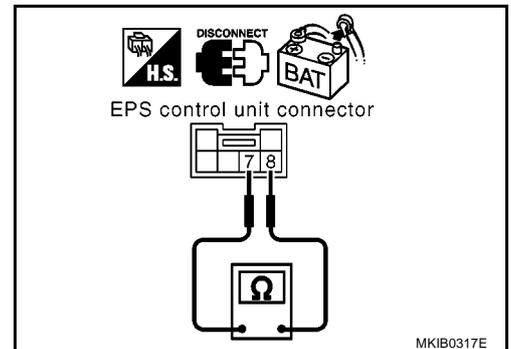
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect EPS control unit connector.
2. Check resistance between EPS control unit harness connector M23 terminals 8 (R) and 7 (W).

8 (R) – 7 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace EPS control unit.
 NG >> Repair harness between EPS control unit and data link connector.



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BCM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

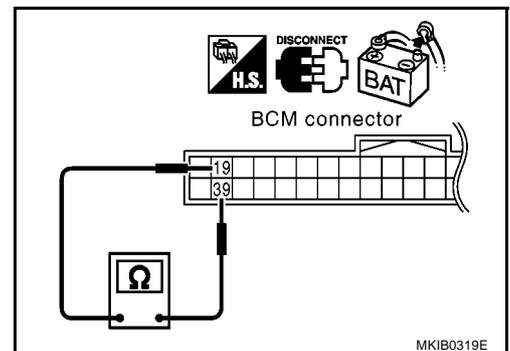
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M48 terminals 19 (R) and 39 (W).

19 (R) – 39 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace BCM. Refer to [BCS-30, "Removal and Installation of BCM"](#) .
 NG >> Repair harness between BCM and data link connector.



ABS Actuator and Electric Unit (Control Unit) Circuit Check

EKS00JQ8

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ABS actuator and electric unit (control unit) for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

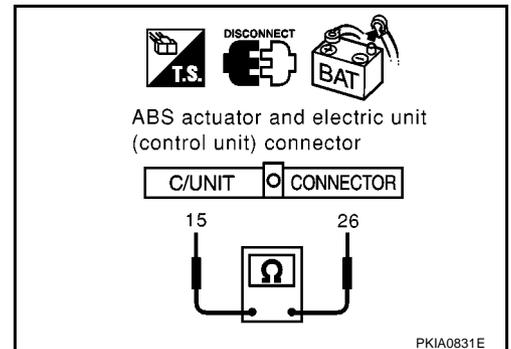
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R) and 15 (W).

26 (R) – 15 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace ABS actuator and electric unit (control unit).
 NG >> Repair harness between ABS actuator and electric unit (control unit) and IPDM E/R.

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IPDM E/R Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

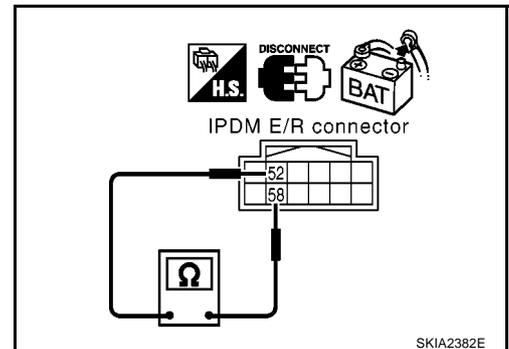
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check resistance between IPDM E/R harness connector E16 terminals 52 (R) and 58 (W).

52 (R) – 58 (W) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace IPDM E/R.
 NG >> Repair harness between IPDM E/R and ABS actuator and electric unit (control unit).



CAN Communication Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side, meter side, control unit side and harness side).
 - ECM
 - Combination meter
 - Intelligent Key unit
 - EPS control unit
 - BCM
 - ABS actuator and electric unit (control unit)
 - IPDM E/R
 - Between ECM and IPDM E/R

OK or NG

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

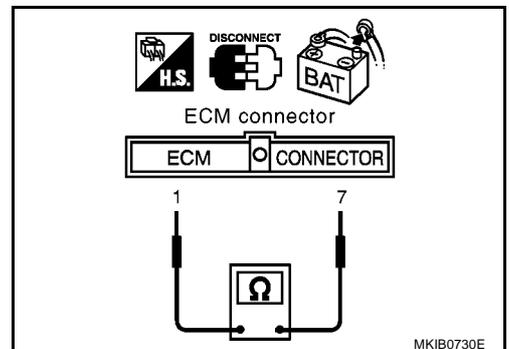
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E101.
2. Check continuity between ECM harness connector E61 terminals 1 (R) and 7 (W).

1 (R) – 7 (W) : Continuity should not exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness between ECM and harness connector E101.



3. CHECK HARNESS FOR SHORT CIRCUIT

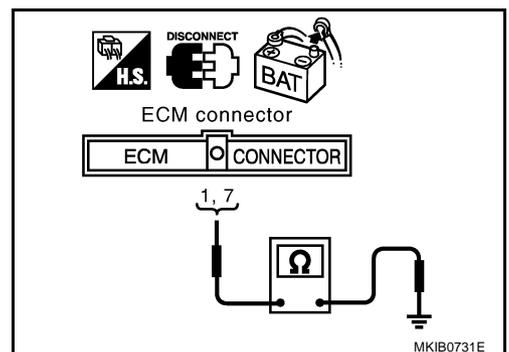
Check continuity between ECM harness connector E61 terminals 1 (R), 7 (W) and ground.

1 (R) – Ground : Continuity should not exist.

7 (W) – Ground : Continuity should not exist.

OK or NG

- OK >> GO TO 4.
 NG >> Repair harness between ECM and harness connector E101.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - ABS actuator and electric unit (control unit) connector
 - IPDM E/R connector
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R) and 15 (W).

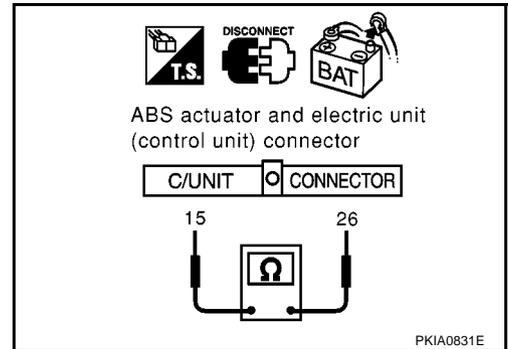
26 (R) – 15 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R), 15 (W) and ground.

26 (R) – Ground : Continuity should not exist.

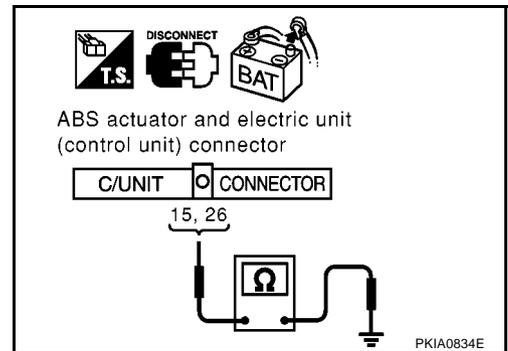
15 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - Combination meter connector
 - Intelligent Key unit connector
 - EPS control unit connector
 - BCM connector
2. Check continuity between data link connector M17 terminals 6 (R) and 14 (W).

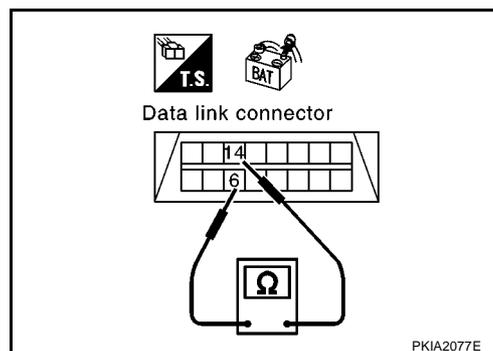
6 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and Intelligent Key unit
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M17 terminals 6 (R), 14 (W) and ground.

6 (R) – Ground : Continuity should not exist.

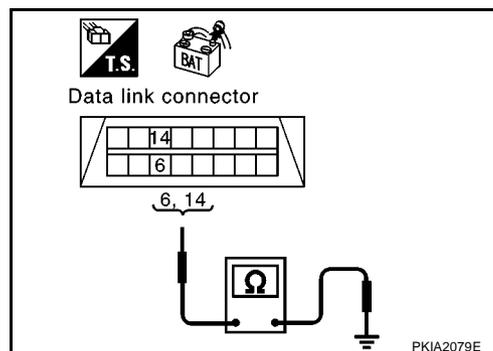
14 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and Intelligent Key unit
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-392. "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION"](#) .

OK or NG

OK >> Connect all the connectors and diagnosis again. Refer to [LAN-367. "Work Flow"](#) .

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

IPDM E/R Ignition Relay Circuit Check

EKS00JQB

Perform the self-diagnosis for IPDM E/R. Refer to [PG-49, "Inspection With CONSULT-II \(Self-Diagnosis\)"](#) . If the result is OK, carry out following inspections.

- IPDM E/R power supply circuit. Refer to [PG-50, "IPDM E/R Power Supply and Ground Circuit Check"](#) .
- Ignition power supply circuit. Refer to [PG-13, "IGNITION POWER SUPPLY — IGNITION SW. IN "ON" AND/OR "START""](#) .

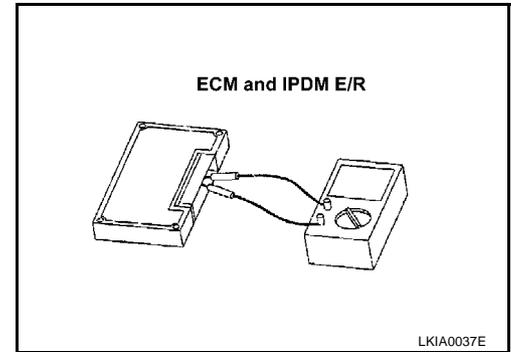
Component Inspection

EKS00JQC

ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 1 and 7.
- Check resistance between IPDM E/R terminals 52 and 58.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	1 - 7	108 - 132
IPDM E/R	52 - 58	



CAN SYSTEM (TYPE 14)

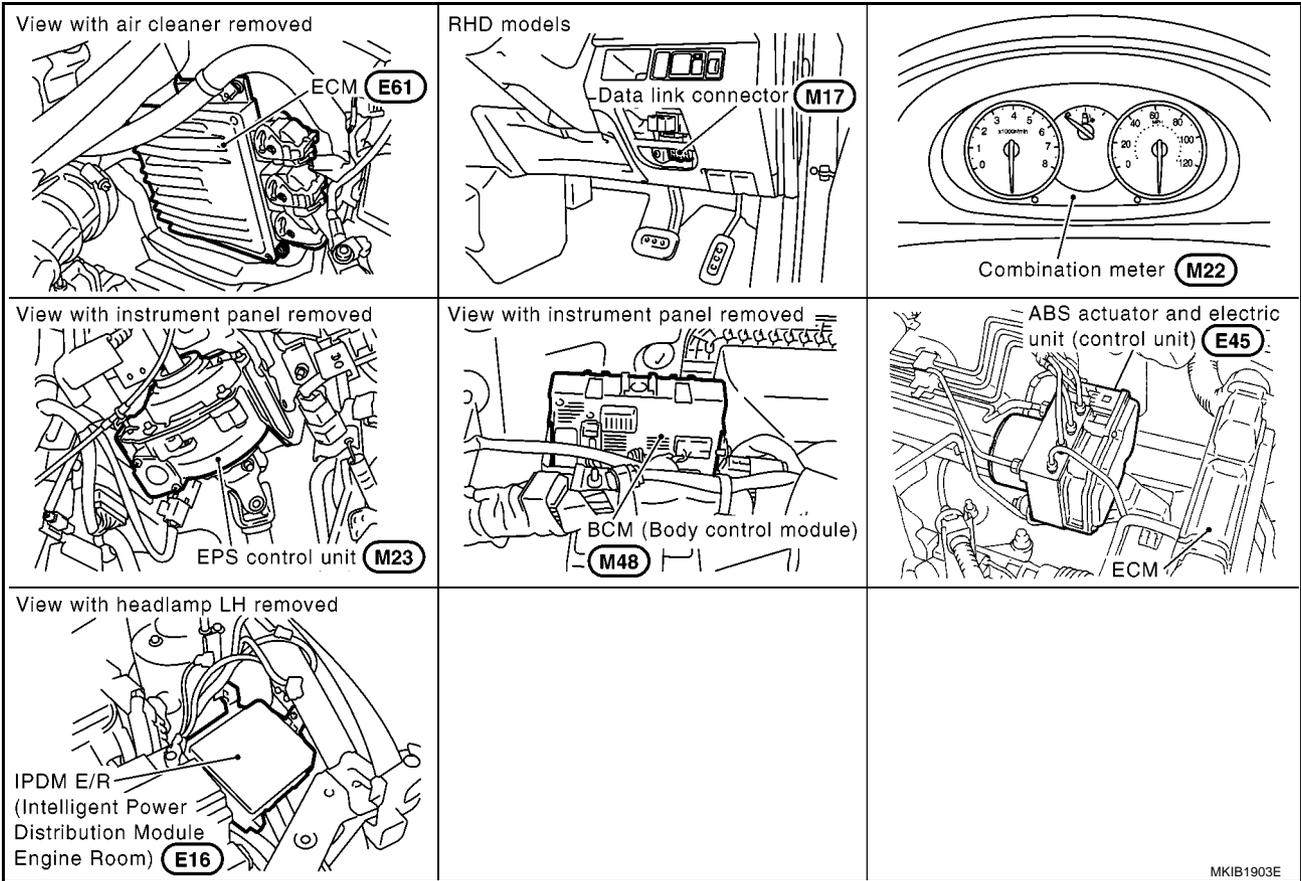
System Description

EKS00JQD

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

EKS00JQE



MKIB1903E

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CAN SYSTEM (TYPE 14)

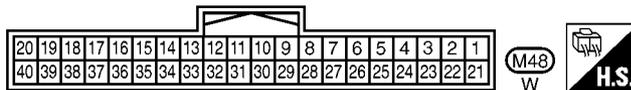
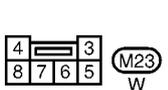
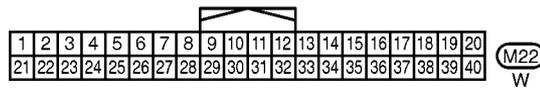
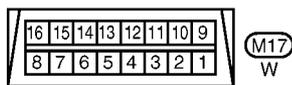
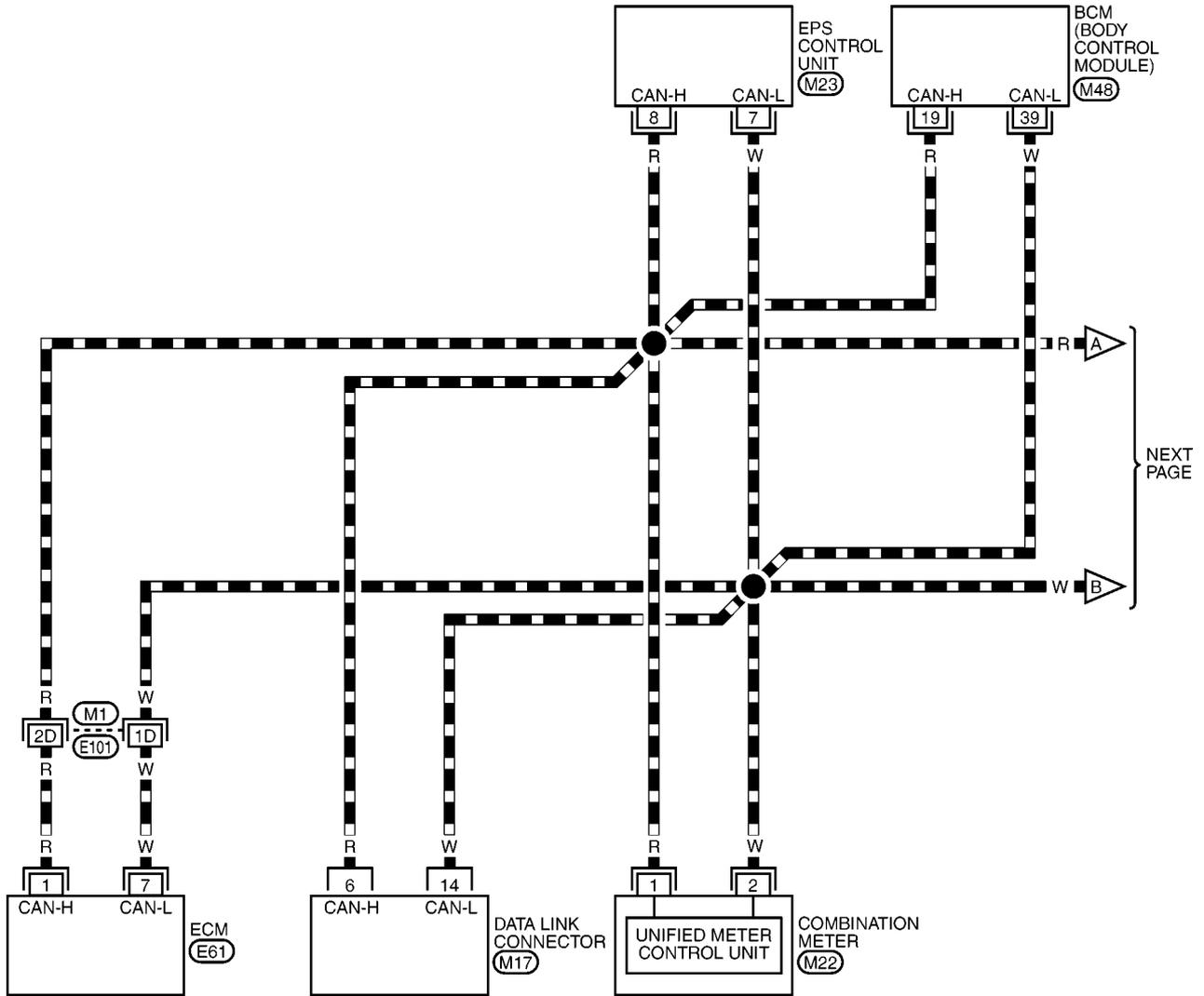
[CAN]

Wiring Diagram — CAN —

EKS00JQF

LAN-CAN-27

▬ : DATA LINE



REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

(E61) -ELECTRICAL UNITS

CAN SYSTEM (TYPE 14)

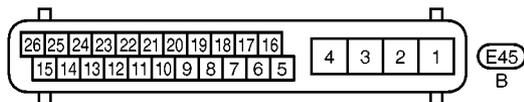
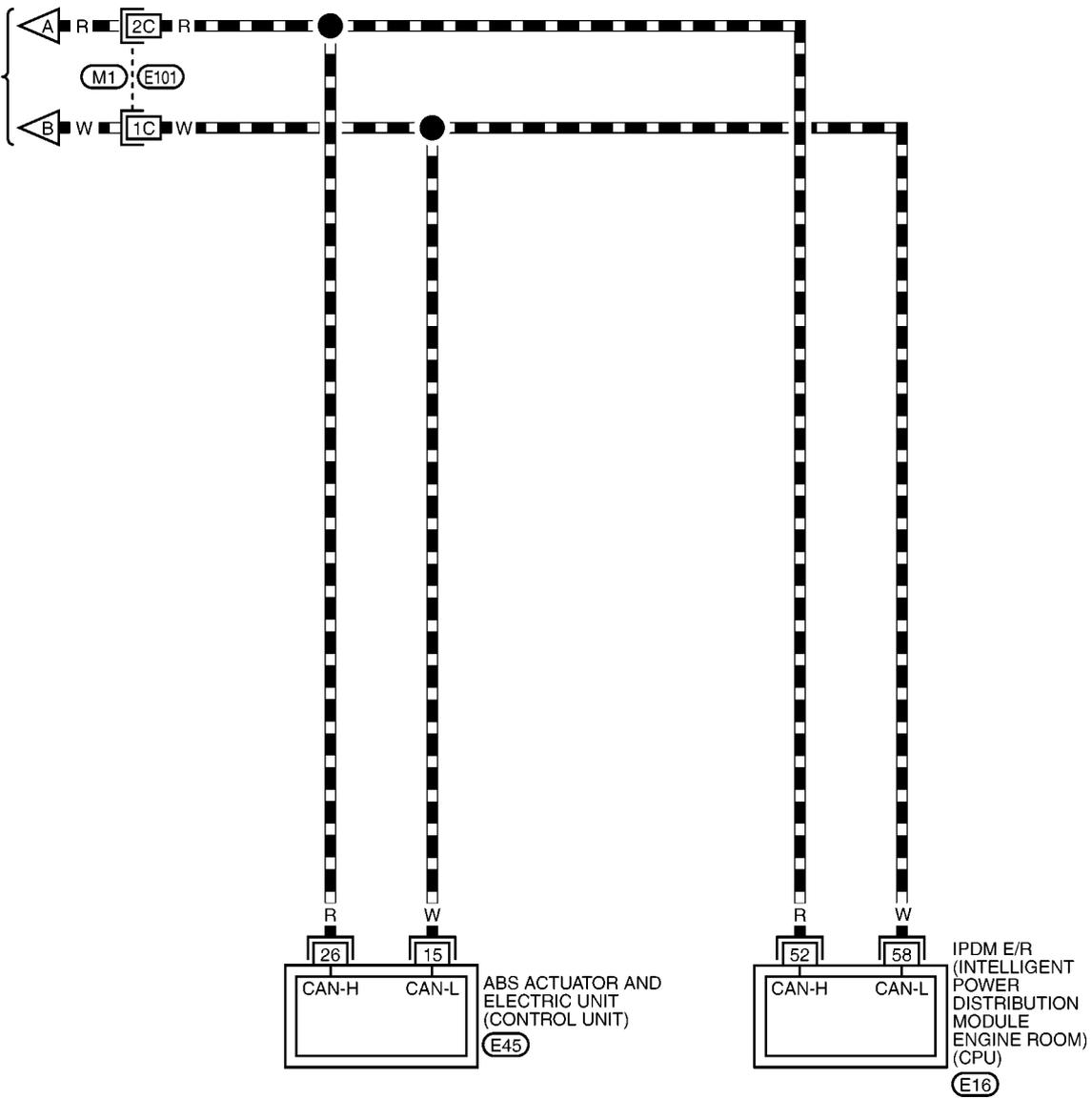
[CAN]

LAN-CAN-28

▬ : DATA LINE

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PRECEDING PAGE



REFER TO THE FOLLOWING.

(M1) -SUPER MULTIPLE JUNCTION (SMJ)

MKWA3804E

Work Flow

- When there are no indications of “ENGINE”, “EPS”, “BCM” or “IPDM E/R” on “SELECT SYSTEM” display of CONSULT-II, print the “SELECT SYSTEM”.

(Example)

	NISSAN CONSULT-II ENGINE START (NISSAN BASED VHCL) START (X-BADGE VHCL) SUB MODE LIGHT COPY	➔	SELECT SYSTEM ENGINE A/T ABS AIR BAG BCM METER A/C AMP BACK LIGHT COPY
--	---	---	---

MKIB1692E

- Print all the data of “SELF-DIAG RESULTS” for “ENGINE”, “EPS”, “BCM”, “ABS” and “IPDM E/R” displayed on CONSULT-II.

(Example)

	SELECT DIAG MODE WORK SUPPORT SELF-DIAG RESULTS DATA MONITOR DATA MONITOR (SPEC) CAN DIAG SUPPORT MNTR ACTIVE TEST Scroll Down BACK LIGHT COPY	➔	SELF-DIAG RESULTS DTC RESULTS TIME <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">CAN COMM CIRCUIT [U1000]</td> <td style="width: 30%;">0</td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> </table> F.F.DATA ERASE PRINT MODE BACK LIGHT COPY	CAN COMM CIRCUIT [U1000]	0				
CAN COMM CIRCUIT [U1000]	0								

PKIA8260E

- Print all the data of “CAN DIAG SUPPORT MNTR” for “ENGINE”, “EPS”, “BCM”, “ABS” and “IPDM E/R” displayed on CONSULT-II.

(Example)

	SELECT DIAG MODE WORK SUPPORT SELF-DIAG RESULTS DATA MONITOR DATA MONITOR (SPEC) CAN DIAG SUPPORT MNTR ACTIVE TEST Scroll Down BACK LIGHT COPY	➔	CAN DIAG SUPPORT MNTR ENGINE <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">ENGINE</th> <th style="width: 40%;">PRSNT</th> </tr> </thead> <tbody> <tr><td>INITIAL DIAG</td><td>OK</td></tr> <tr><td>TRANSMIT DIAG</td><td>OK</td></tr> <tr><td>TCM</td><td>OK</td></tr> <tr><td>VDC/TCS/ABS</td><td>OK</td></tr> <tr><td>METER/M&A</td><td>OK</td></tr> <tr><td>ICC</td><td>UNKWN</td></tr> <tr><td>BCM/SEC</td><td>OK</td></tr> <tr><td>IPDM E/R</td><td>OK</td></tr> <tr><td>AWD/4WD/e4WD</td><td>UNKWN</td></tr> </tbody> </table> PRINT Scroll Down MODE BACK LIGHT COPY	ENGINE	PRSNT	INITIAL DIAG	OK	TRANSMIT DIAG	OK	TCM	OK	VDC/TCS/ABS	OK	METER/M&A	OK	ICC	UNKWN	BCM/SEC	OK	IPDM E/R	OK	AWD/4WD/e4WD	UNKWN
ENGINE	PRSNT																						
INITIAL DIAG	OK																						
TRANSMIT DIAG	OK																						
TCM	OK																						
VDC/TCS/ABS	OK																						
METER/M&A	OK																						
ICC	UNKWN																						
BCM/SEC	OK																						
IPDM E/R	OK																						
AWD/4WD/e4WD	UNKWN																						

PKIA8343E

- Attach the printed sheet of “SELECT SYSTEM”, “SELF-DIAG RESULTS” and “CAN DIAG SUPPORT MNTR” onto the check sheet. Refer to [LAN-397, "CHECK SHEET"](#) .

- Based on the indications of “SELECT SYSTEM” and the results of “CAN DIAG SUPPORT MNTR”, put marks “v” onto the items with “No indication”, “NG”, or “UNKWN” in the check sheet table. Refer to [LAN-397, "CHECK SHEET"](#) .

NOTE:

- If “NG” is displayed on “INITIAL DIAG (Initial diagnosis)” as “CAN DIAG SUPPORT MNTR” for the diagnosed control unit, replace the control unit.
- The “CAN DIAG SUPPORT MNTR” items, which are not in check sheet table, are not related to diagnostic procedure on service manual. So it is not necessary to check the status of “CAN DIAG SUPPORT MNTR” items which are not indicated in check sheet table.

- According to the check sheet results (example), start inspection. Refer to [LAN-399, "CHECK SHEET RESULTS \(EXAMPLE\)"](#) .

CAN SYSTEM (TYPE 14)

[CAN]

CHECK SHEET

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Check sheet table

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis				
				ECM	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	—	UNKWN	—	—	—	—
IPDM E/R	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—

Symptoms:

Attach copy of
SELECT SYSTEM

Attach copy of
SELECT SYSTEM

MKIB1904E

CAN SYSTEM (TYPE 14)

[CAN]

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
EPS
SELF-DIAG RESULTS

Attach copy of
BCM
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
IPDM E/R
SELF-DIAG RESULTS

Attach copy of
ENGINE
CAN DIAG SUPPORT
MNTR

Attach copy of
EPS
CAN DIAG SUPPORT
MNTR

Attach copy of
BCM
CAN DIAG SUPPORT
MNTR

Attach copy of
ABS
CAN DIAG SUPPORT
MNTR

Attach copy of
IPDM E/R
CAN DIAG SUPPORT
MNTR

MKIB2191E

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

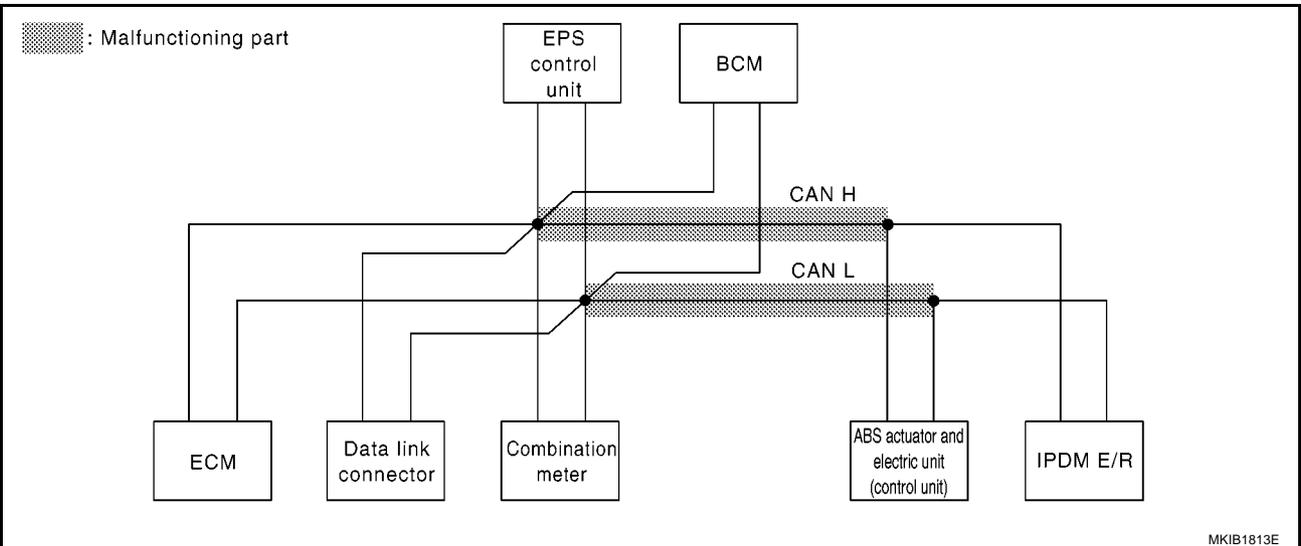
If "NG" is displayed on "INITIAL DIAG (Initial diagnosis)" as "CAN DIAG SUPPORT MNTR" for the diagnosed control unit, replace the control unit.

Case 1

Check harness between BCM and ABS actuator and electric unit (control unit). Refer to [LAN-408, "Circuit Check Between Data Link Connector and ABS Actuator and Electric Unit \(Control Unit\)"](#).

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis				
				ECM	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	—	UNKWN	—	—	—	—
IPDM E/R	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—

MKIB1905E



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CAN SYSTEM (TYPE 14)

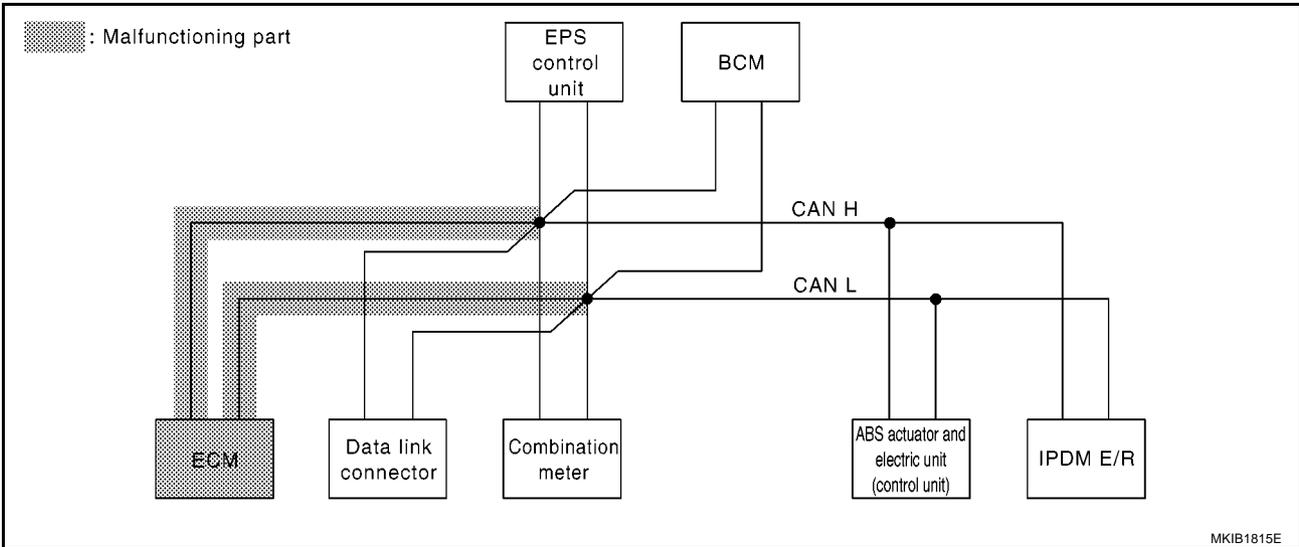
[CAN]

Case 2

Check ECM circuit. Refer to [LAN-409, "ECM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis				
				ECM	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication ✓	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN ✓	UNKWN	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN ✓	UNKWN	—	—	UNKWN
ABS	—	NG	—	UNKWN ✓	—	—	—	—
IPDM E/R	No indication	NG	UNKWN	UNKWN ✓	—	UNKWN	—	—

MKIB1906E



CAN SYSTEM (TYPE 14)

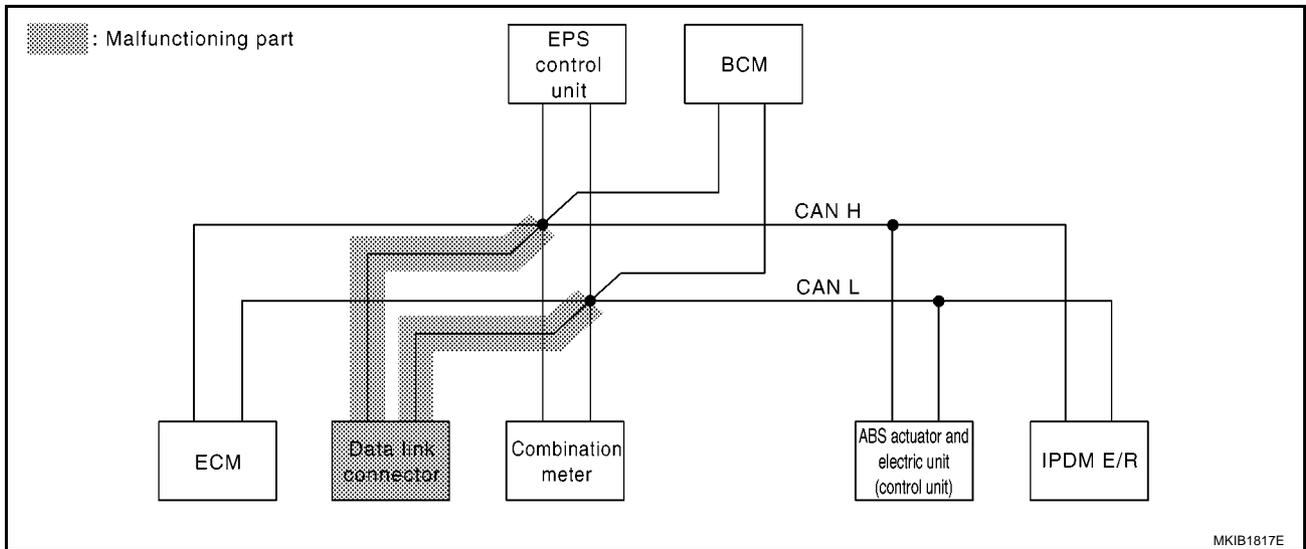
[CAN]

Case 3

Check data link connector circuit. Refer to [LAN-410, "Data Link Connector Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis				
				ECM	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication ✓	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication ✓	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—
BCM	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	—	UNKWN	—	—	—	—
IPDM E/R	No indication ✓	NG	UNKWN	UNKWN	—	UNKWN	—	—

MKIB1907E



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CAN SYSTEM (TYPE 14)

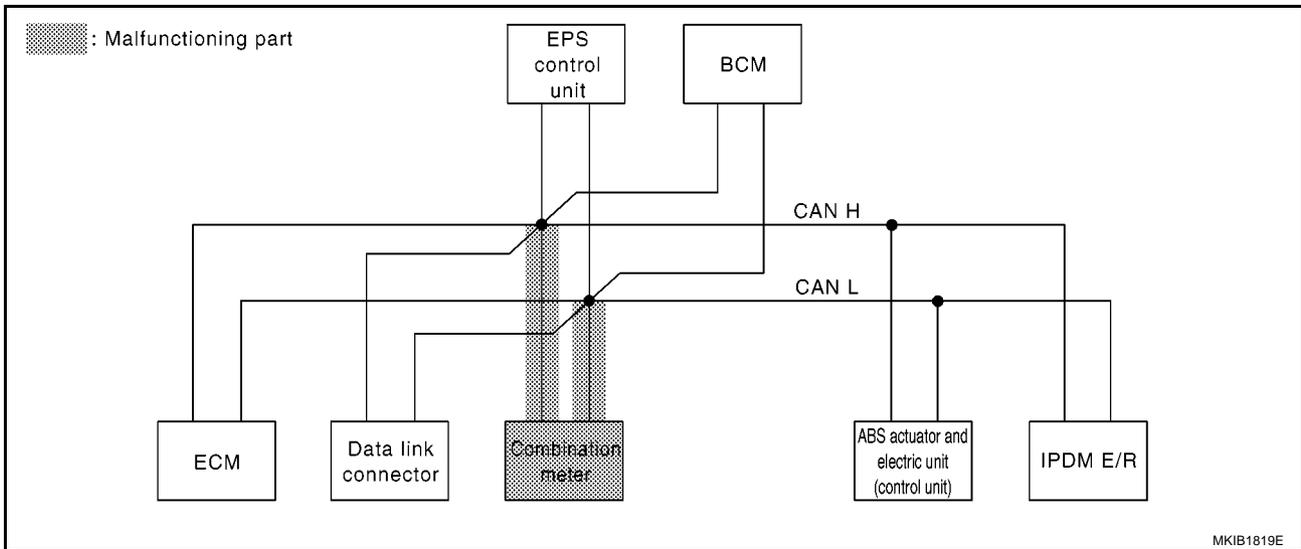
[CAN]

Case 4

Check combination meter circuit. Refer to [LAN-411, "Combination Meter Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis				
				ECM	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	—	UNKWN	—	—	—	—
IPDM E/R	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—

MKIB1908E



MKIB1819E

CAN SYSTEM (TYPE 14)

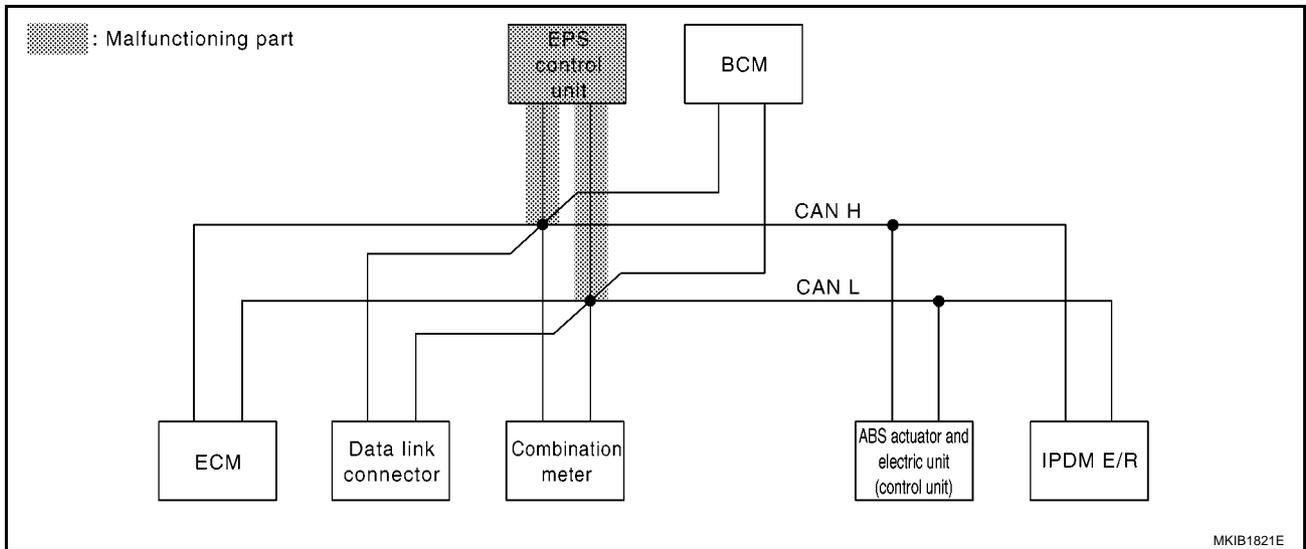
[CAN]

Case 5

Check EPS control unit circuit. Refer to [LAN-412, "EPS Control Unit Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis				
				ECM	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	—	UNKWN	—	—	—	—
IPDM E/R	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—

MKIB1909E



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CAN SYSTEM (TYPE 14)

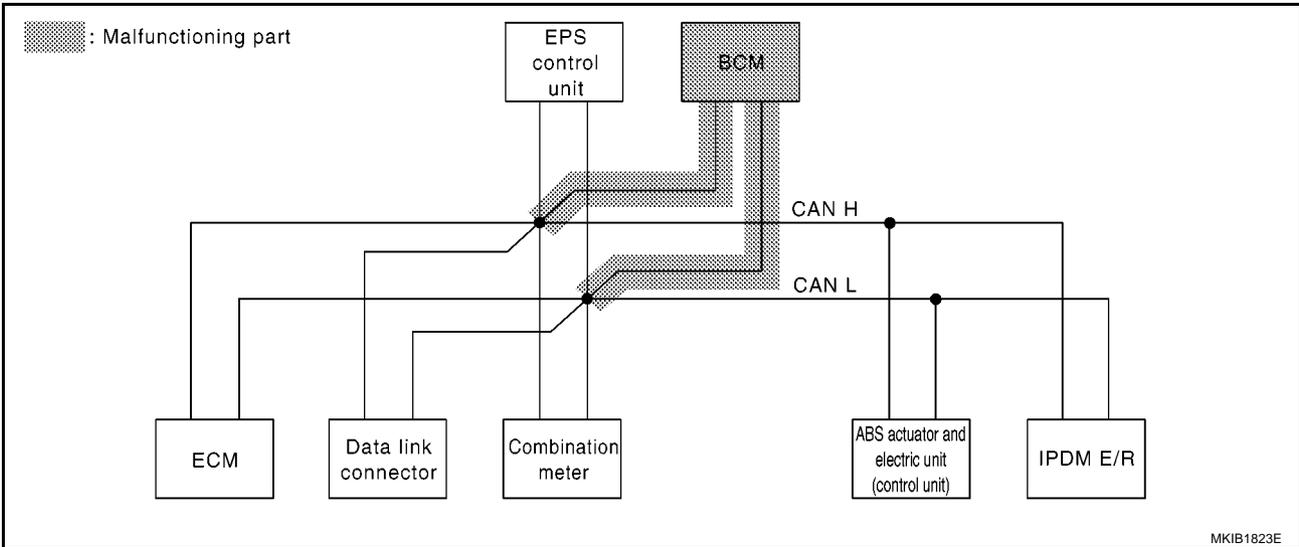
[CAN]

Case 6

Check BCM circuit. Refer to [LAN-413, "BCM Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis				
				ECM	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	—	UNKWN	—	—	—	—
IPDM E/R	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—

MKIB1910E



CAN SYSTEM (TYPE 14)

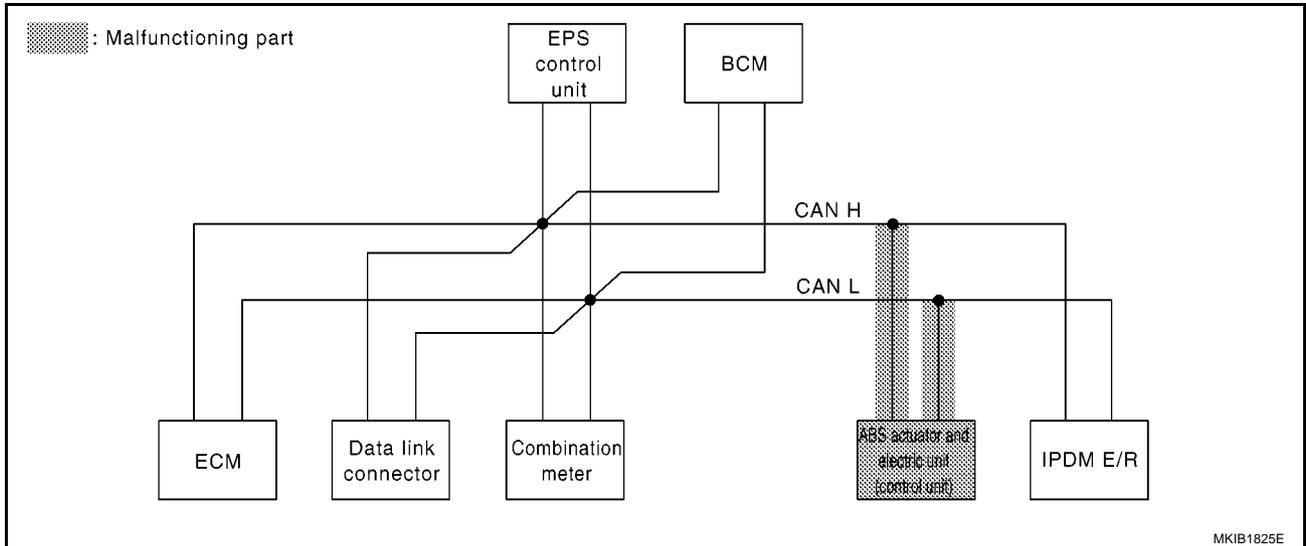
[CAN]

Case 7

Check ABS actuator and electric unit (control unit) circuit. Refer to [LAN-414, "ABS Actuator and Electric Unit \(Control Unit\) Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis				
				ECM	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN
EPS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN
ABS	—	NG	—	UNKWN	—	—	—	—
IPDM E/R	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—

MKIB1911E



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CAN SYSTEM (TYPE 14)

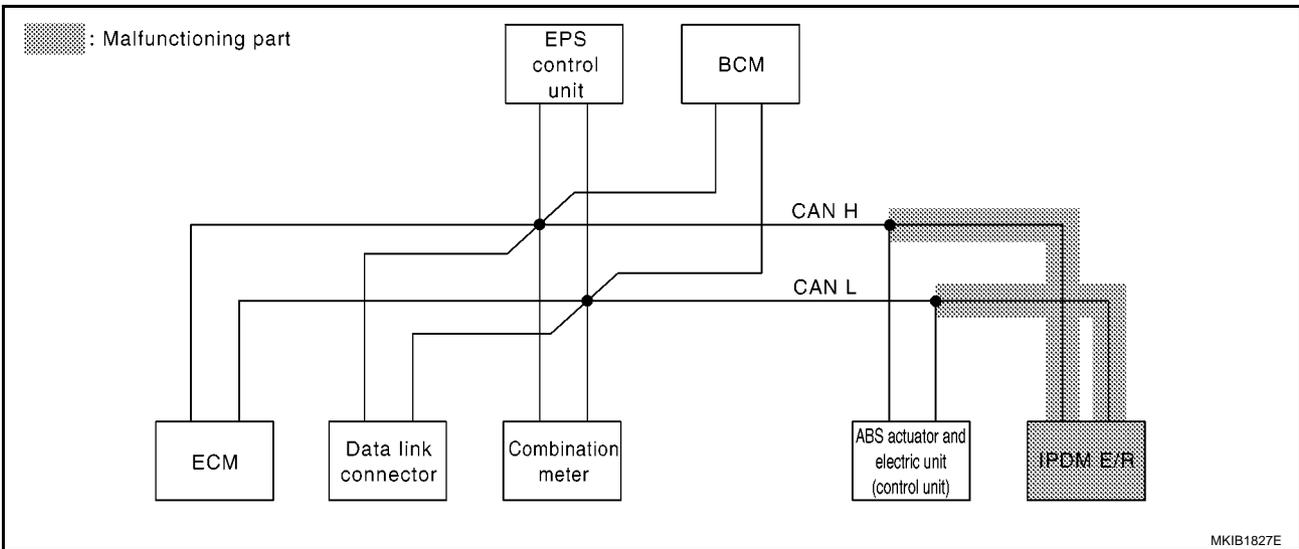
[CAN]

Case 8

Check IPDM E/R circuit. Refer to [LAN-415, "IPDM E/R Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis				
				ECM	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN ✓
EPS	No indication	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—
BCM	No indication	—	UNKWN	UNKWN	UNKWN	—	—	UNKWN ✓
ABS	—	NG	—	UNKWN	—	—	—	—
IPDM E/R	No indication ✓	NG	UNKWN	UNKWN	—	UNKWN	—	—

MKIB1912E



CAN SYSTEM (TYPE 14)

[CAN]

Case 9

Check CAN communication circuit. Refer to [LAN-416, "CAN Communication Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis				
				ECM	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication ✓	—	UNKW	—	UNKW	UNKW	UNKW	UNKW
EPS	No indication ✓	—	UNKW	UNKW	UNKW	UNKW	UNKW	—
BCM	No indication ✓	—	UNKW	UNKW	UNKW	—	—	UNKW
ABS	—	NG ✓	—	UNKW ✓	—	—	—	—
IPDM E/R	No indication ✓	NG	UNKW	UNKW	—	UNKW	—	—

MKIB1913E

Case 10

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to [LAN-419, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis				
				ECM	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication	—	UNKW	—	UNKW	UNKW	UNKW ✓	UNKW
EPS	No indication	—	UNKW	UNKW	UNKW	UNKW	UNKW ✓	—
BCM	No indication	—	UNKW	UNKW	UNKW	—	—	UNKW
ABS	—	NG	—	UNKW	—	—	—	—
IPDM E/R	No indication	NG	UNKW	UNKW	—	UNKW	—	—

MKIB1914E

Case 11

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to [LAN-419, "IPDM E/R Ignition Relay Circuit Check"](#) .

SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis				
				ECM	METER /M&A	BCM/SEC	VDC/TCS /ABS	IPDM E/R
ENGINE	No indication	—	UNKW	—	UNKW	UNKW	UNKW	UNKW
EPS	No indication	—	UNKW	UNKW	UNKW	UNKW	UNKW	—
BCM	No indication	—	UNKW	UNKW	UNKW	—	—	UNKW
ABS	—	NG	—	UNKW ✓	—	—	—	—
IPDM E/R	No indication	NG	UNKW	UNKW	—	UNKW	—	—

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

EKS00JQH

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M1
 - Harness connector E101

OK or NG

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

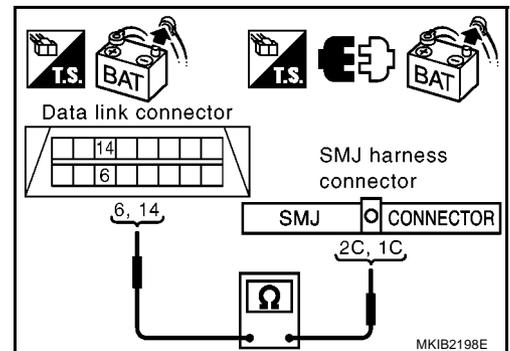
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect following connector.
 - Harness connector M1
2. Check continuity between data link connector M17 terminals 6 (R), 14 (W) and harness connector M1 terminals 2C (R), 1C (W).

6 (R) – 2C (R) : Continuity should exist.
14 (W) – 1C (W) : Continuity should exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness.



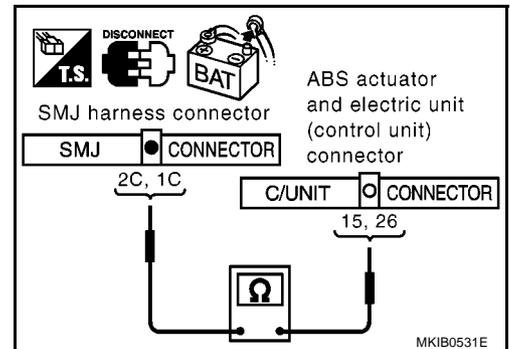
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check continuity between harness connector E101 terminals 2C (R), 1C (W) and ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R), 15 (W).

2C (R) – 26 (R) : Continuity should exist.
1C (W) – 15 (W) : Continuity should exist.

OK or NG

- OK >> Connect all the connectors and diagnosis again. Refer to [LAN-396. "Work Flow"](#) .
 NG >> Repair harness.



ECM Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
 - ECM connector
 - Harness connector M1
 - Harness connector E101

OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

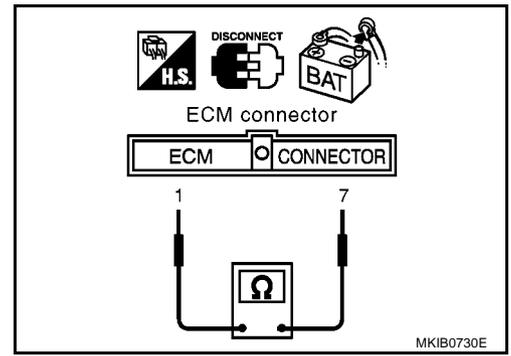
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E61 terminals 1 (R) and 7 (W).

1 (R) – 7 (W)**: Approx. 108 – 132Ω****OK or NG**

OK >> Replace ECM.

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



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Data Link Connector Circuit Check

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check data link connector and terminals for damage, bend and loose connection (connector side and harness side).

OK or NG

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

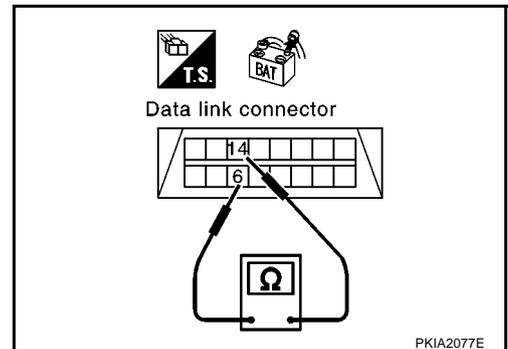
2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M17 terminals 6 (R) and 14 (W).

6 (R) – 14 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Diagnosis again. Refer to [LAN-396, "Work Flow"](#) .
NG >> Repair harness between data link connector and combination meter



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

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of combination meter for damage, bend and loose connection (meter side and harness side).

OK or NG

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

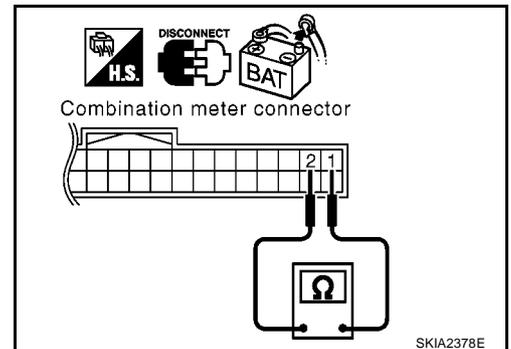
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M22 terminals 1 (R) and 2 (W).

1 (R) – 2 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace combination meter
 NG >> Repair harness between combination meter and data link connector.



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EPS Control Unit Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

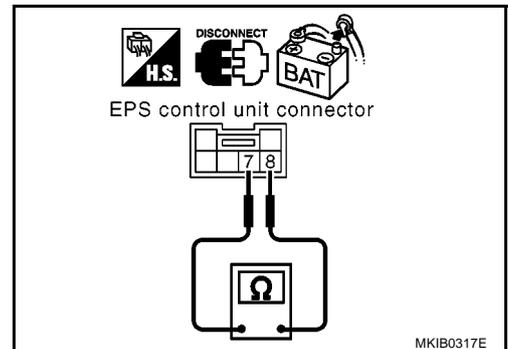
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect EPS control unit connector.
2. Check resistance between EPS control unit harness connector M23 terminals 8 (R) and 7 (W).

8 (R) – 7 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace EPS control unit.
 NG >> Repair harness between EPS control unit and data link connector.



BCM Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

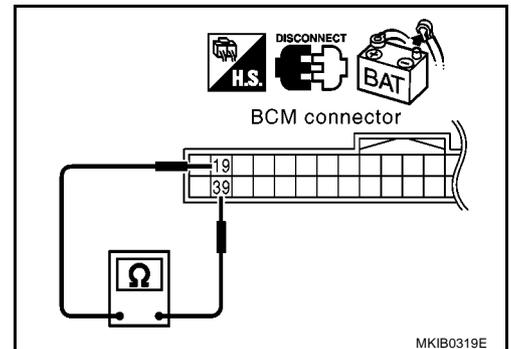
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M48 terminals 19 (R) and 39 (W).

19 (R) – 39 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace BCM. Refer to [BCS-30, "Removal and Installation of BCM"](#) .
 NG >> Repair harness between BCM and data link connector.



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ABS Actuator and Electric Unit (Control Unit) Circuit Check**1. CHECK CONNECTOR**

1. Turn ignition switch OFF.
2. Disconnect the negative battery terminal.
3. Check terminals and connector of ABS actuator and electric unit (control unit) for damage, bend and loose connection (control unit side and harness side).

OK or NG

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

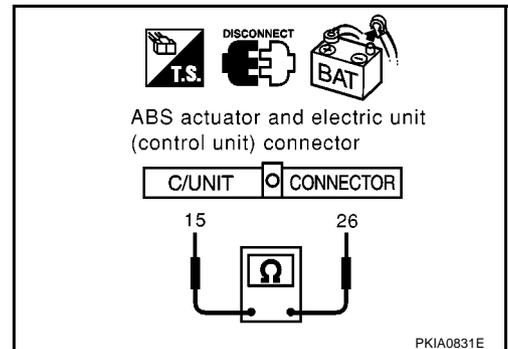
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R) and 15 (W).

26 (R) – 15 (W) : Approx. 54 – 66Ω

OK or NG

- OK >> Replace ABS actuator and electric unit (control unit).
 NG >> Repair harness between ABS actuator and electric unit (control unit) and IPDM E/R.



IPDM E/R Circuit Check**1. CHECK CONNECTOR**

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

OK or NG

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

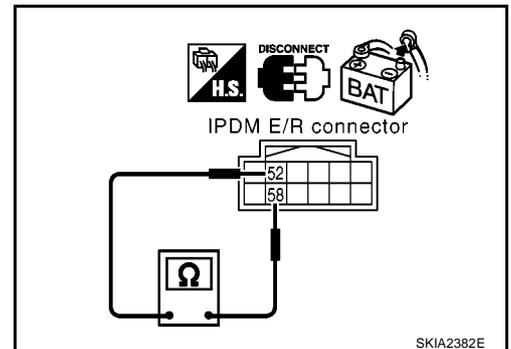
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check resistance between IPDM E/R harness connector E16 terminals 52 (R) and 58 (W).

52 (R) – 58 (W) : Approx. 108 – 132Ω

OK or NG

- OK >> Replace IPDM E/R.
 NG >> Repair harness between IPDM E/R and ABS actuator and electric unit (control unit).



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CAN Communication Circuit Check

1. CHECK CONNECTOR

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

OK or NG

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

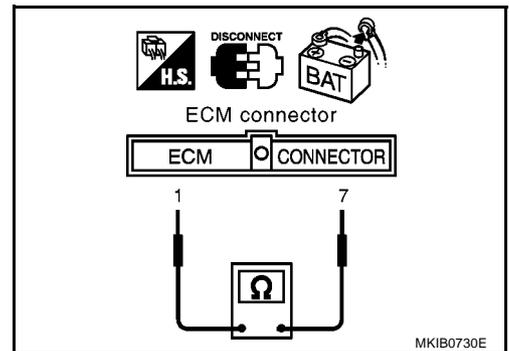
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E101.
2. Check continuity between ECM harness connector E61 terminals 1 (R) and 7 (W).

1 (R) – 7 (W) : Continuity should not exist.

OK or NG

- OK >> GO TO 3.
 NG >> Repair harness between ECM and harness connector E101.



3. CHECK HARNESS FOR SHORT CIRCUIT

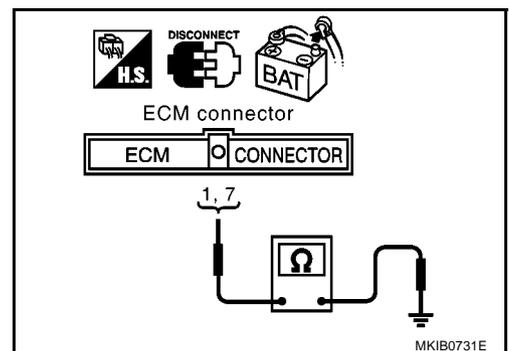
Check continuity between ECM harness connector E61 terminals 1 (R), 7 (W) and ground.

1 (R) – Ground : Continuity should not exist.

7 (W) – Ground : Continuity should not exist.

OK or NG

- OK >> GO TO 4.
 NG >> Repair harness between ECM and harness connector E101.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - ABS actuator and electric unit (control unit) connector
 - IPDM E/R connector
2. Check continuity between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R) and 15 (W).

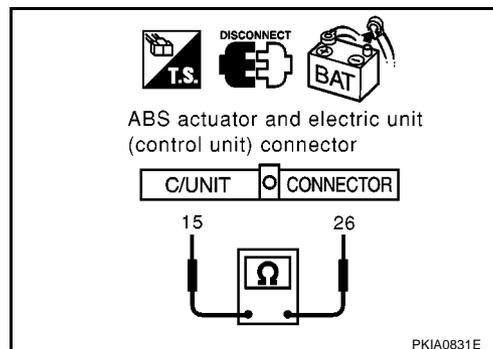
26 (R) – 15 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E45 terminals 26 (R), 15 (W) and ground.

26 (R) – Ground : Continuity should not exist.

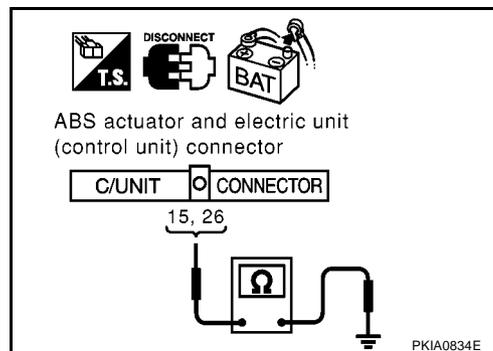
15 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between ABS actuator and electric unit (control unit) and harness connector E101
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R



6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
 - Combination meter connector
 - EPS control unit connector
 - BCM connector
2. Check continuity between data link connector M17 terminals 6 (R) and 14 (W).

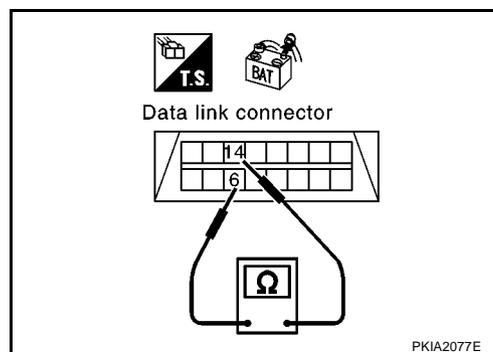
6 (R) – 14 (W) : Continuity should not exist.

OK or NG

OK >> GO TO 7.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M17 terminals 6 (R), 14 (W) and ground.

6 (R) – Ground : Continuity should not exist.

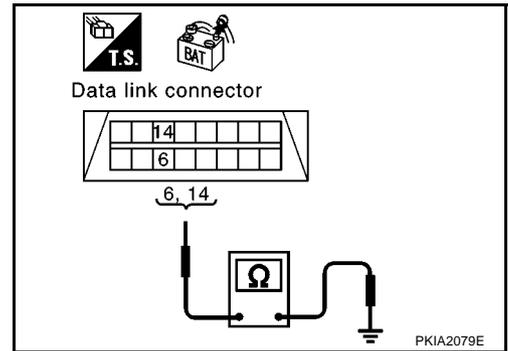
14 (W) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M1
- Harness between data link connector and combination meter
- Harness between data link connector and EPS control unit
- Harness between data link connector and BCM



8. ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

Check components inspection. Refer to [LAN-419, "ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION"](#).

OK or NG

OK >> Connect all the connectors and diagnosis again. Refer to [LAN-396, "Work Flow"](#).

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

IPDM E/R Ignition Relay Circuit Check

EKS00JQQ

Perform the self-diagnosis for IPDM E/R. Refer to [PG-49, "Inspection With CONSULT-II \(Self-Diagnosis\)"](#) . If the result is OK, carry out following inspections.

- IPDM E/R power supply circuit. Refer to [PG-50, "IPDM E/R Power Supply and Ground Circuit Check"](#) .
- Ignition power supply circuit. Refer to [PG-13, "IGNITION POWER SUPPLY — IGNITION SW. IN "ON" AND/OR "START""](#) .

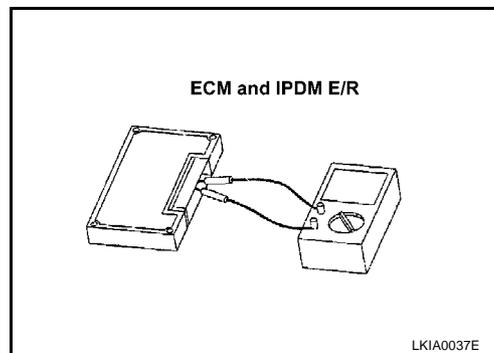
Component Inspection

EKS00JQR

ECM/IPDM E/R INTERNAL CIRCUIT INSPECTION

- Remove ECM and IPDM E/R from vehicle.
- Check resistance between ECM terminals 1 and 7.
- Check resistance between IPDM E/R terminals 52 and 58.

Unit	Terminal	Resistance value (Ω) (Approx.)
ECM	1 – 7	108 - 132
IPDM E/R	52 – 58	



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