SECTION LAN

LAN SYSTEM

CONTENTS

CAN

PRECAUTIONS

PFP:00001

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

UKS003L0

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

UKS003L1

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, "TROUBLE DIAGNOSES WORK FLOW" .

Precautions For Trouble Diagnosis

UKS003L2

CAN SYSTEM

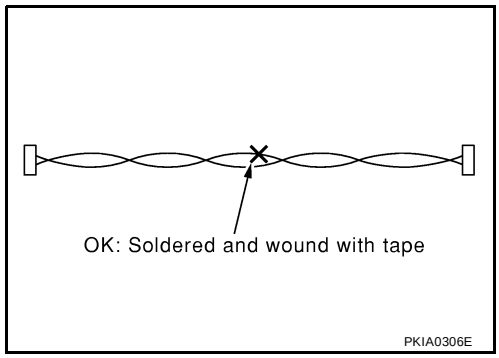
- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch off and disconnect negative battery terminal before checking the circuit.

Precautions For Harness Repair

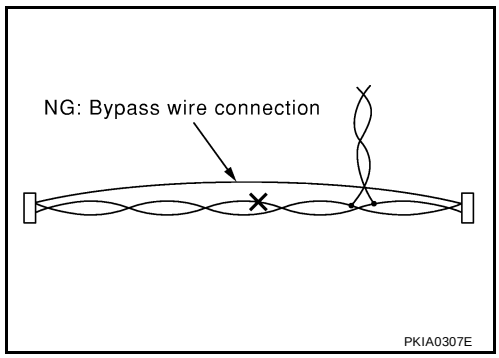
UKS003L3

CAN SYSTEM

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



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



TROUBLE DIAGNOSES WORK FLOW

PFP:00004

When Displaying CAN Communication System Errors

UKS003L4

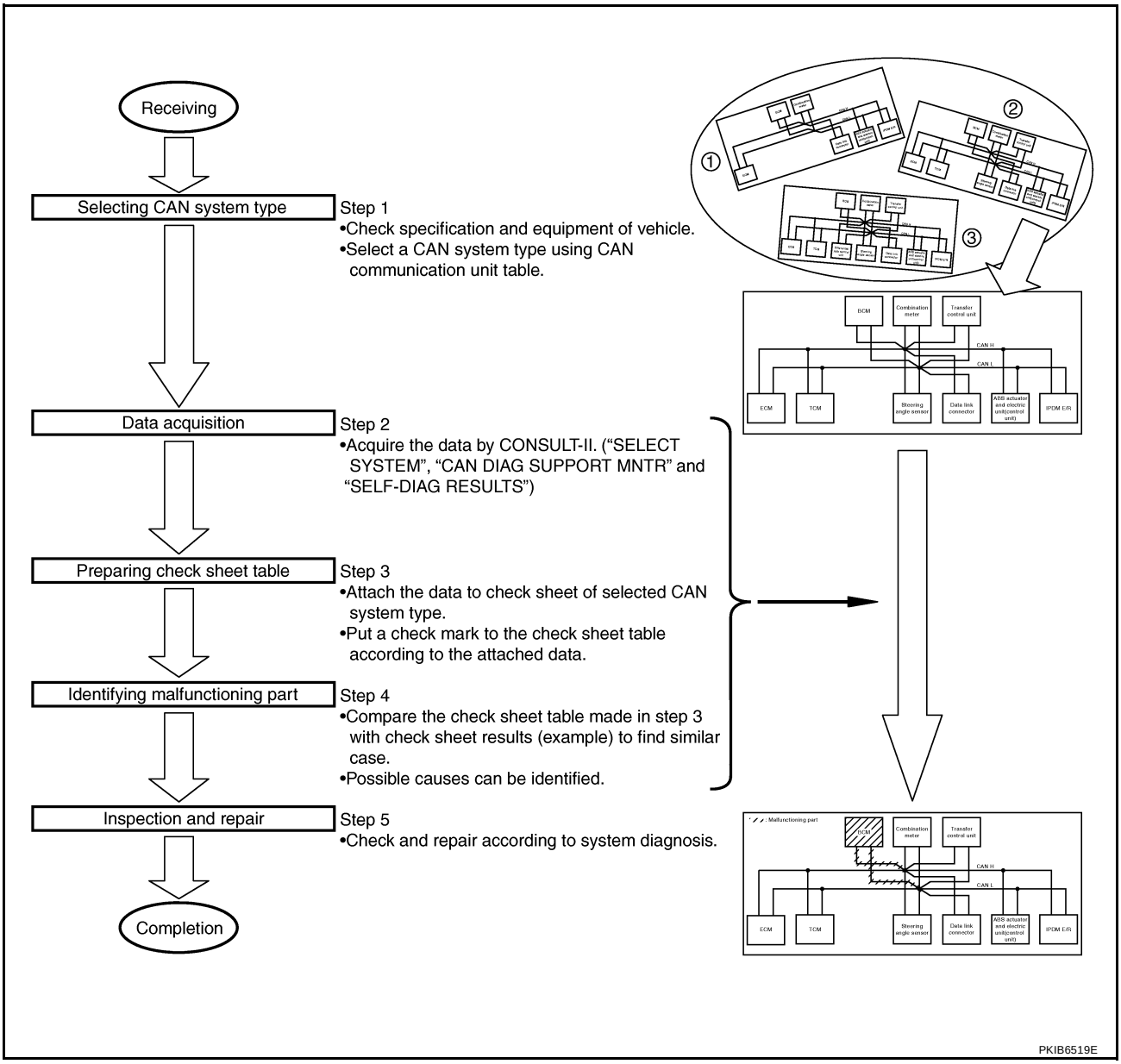
WHEN A MALFUNCTION IS DETECTED BY CAN COMMUNICATION SYSTEM

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

WHEN A MALFUNCTION IS DETECTED EXCEPT CAN COMMUNICATION SYSTEM

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

TROUBLE DIAGNOSIS FLOW CHART



- Step 1 : Refer to LAN-9, "SELECTING CAN SYSTEM TYPE (HOW TO USE SPECIFICATION TABLE)" .
- Step 2 : Refer to LAN-10, "ACQUISITION OF DATA BY CONSULT-II" .
- Step 3 : Refer to LAN-11, "HOW TO USE CHECK SHEET TABLE" .
- Step 4 : Refer to LAN-12, "Example of Filling in Check Sheet When Initial Conditions Are Reproduced" .
- Step 5 : Check and repair according to system diagnosis.

Diagnosis Procedure

UKS003L5

SELECTING CAN SYSTEM TYPE (HOW TO USE SPECIFICATION TABLE)

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

(Example) Truck/4WD/VQ40DE/AT/VDC/Without electronic locking rear differential

CAN Communication Unit

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

Body type	Truck														
Axle	2WD							4WD							
Engine	QR25DE		VQ40DE												
Transmission	M/T	A/T	M/T		A/T			M/T			A/T				
Brake control	ABS		ABS	ABLS	ABS	ABLS		ABS	ABLS		ABS	ABLS		VDC	
Electronic locking rear differential							×			×			×		×
CAN system type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CAN system trouble diagnosis															

×: Applicable

Check basic specification of the vehicle.

Select " × " if it is model with electronic locking rear differential.

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

In the case of this example:
It corresponds to type 14.

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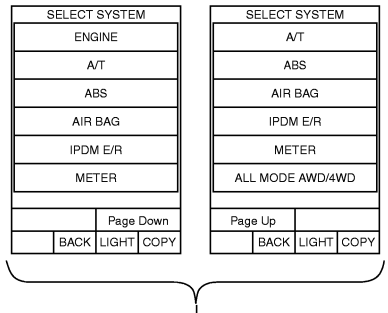
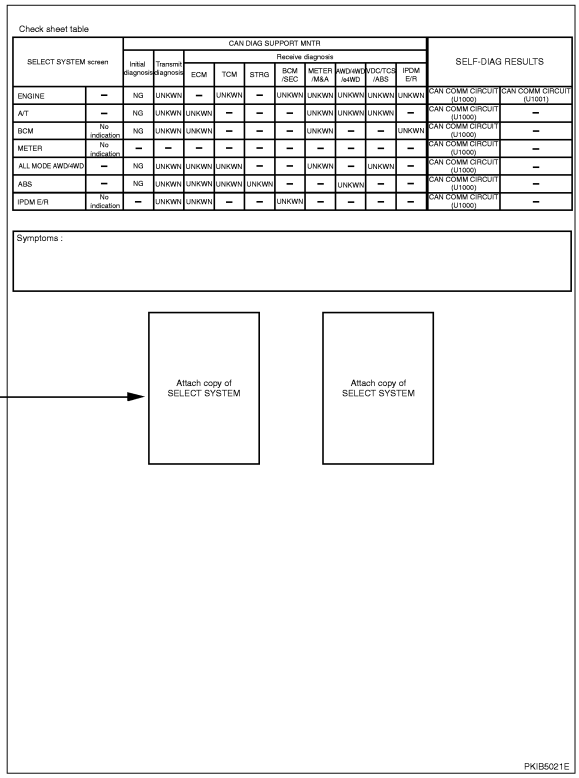
ACQUISITION OF DATA BY CONSULT-II

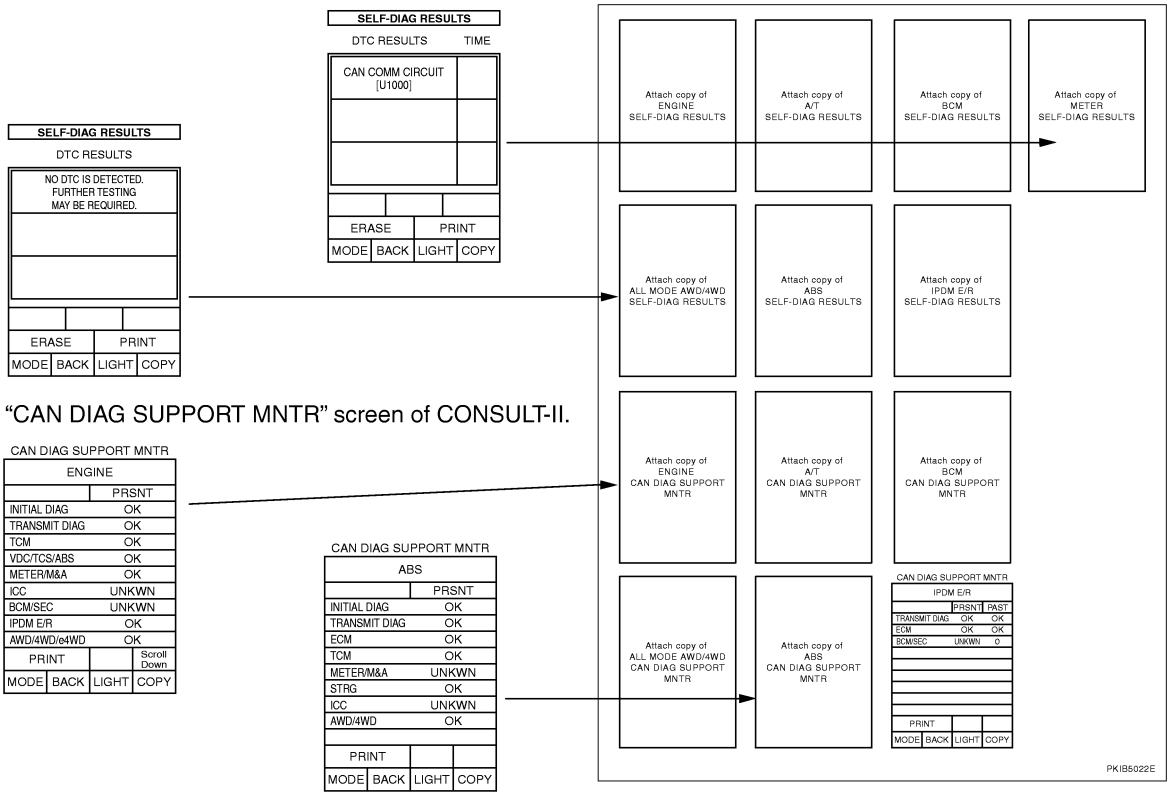
Attach the data acquired by CONSULT-II on the check sheet determined according to CAN system type.

Copy “SELECT SYSTEM” screen of CONSULT-II.





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



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

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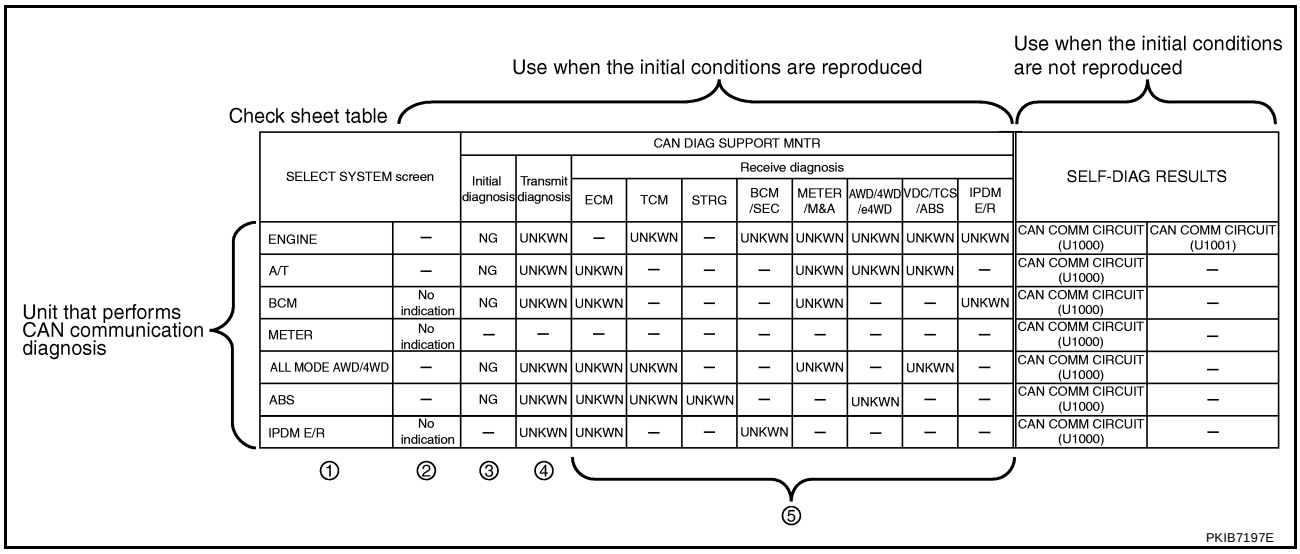
HOW TO USE CHECK SHEET TABLE

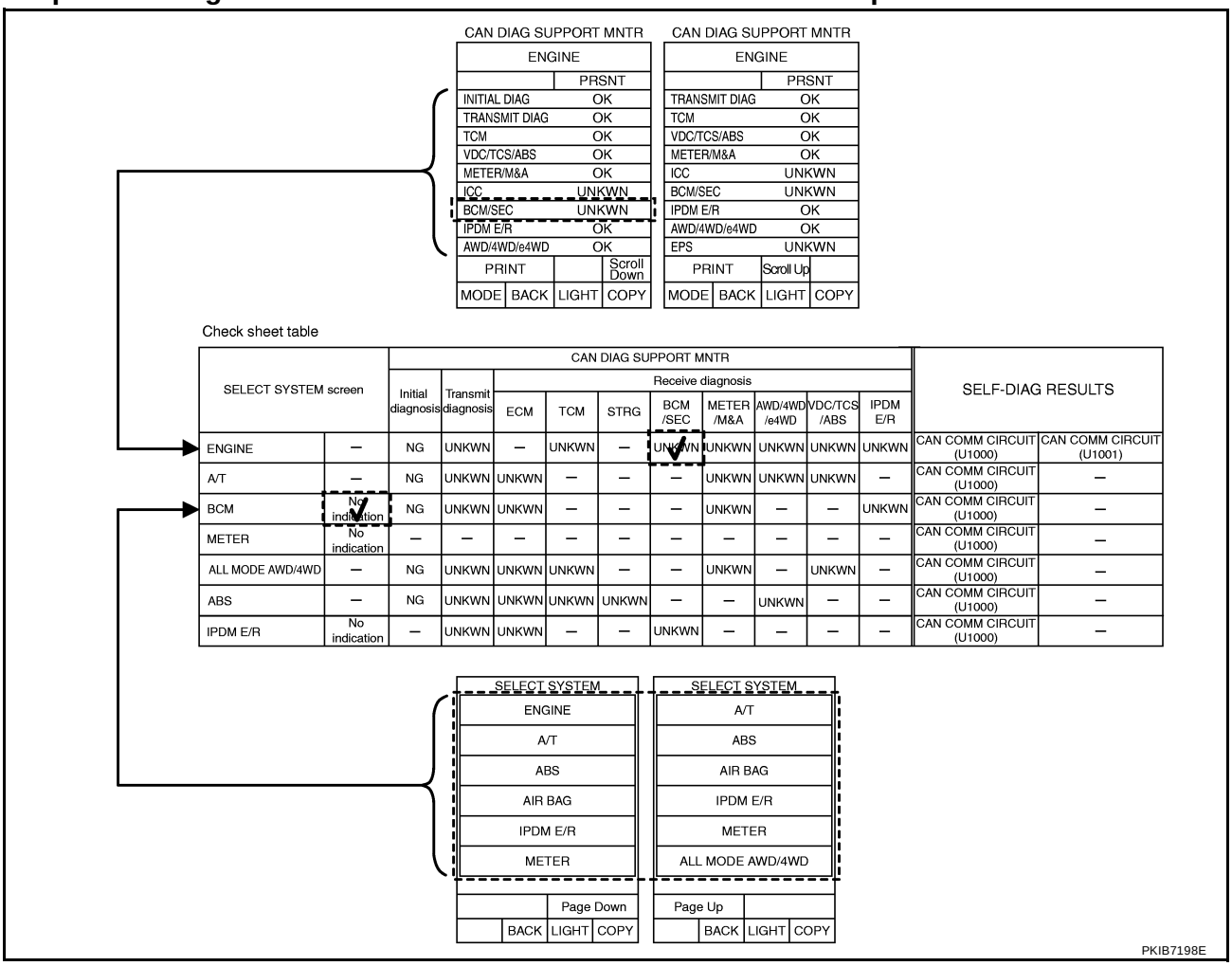


1. Unit names displayed on CONSULT-II.
2. “No indication” : Put a check mark to it if the unit name described in step 1 is not displayed on “SELECT SYSTEM” screen of CONSULT-II. (Unit communicating with CONSULT-II via CAN communication line)
   “–” : Column not used (Unit communicating with CONSULT-II excluding CAN communication line)
3. “NG” : Display “NG” when malfunction is detected in the initial diagnosis of the diagnosed unit. Replace the unit if “NG” is displayed.
   “–” : Column not used (Initial diagnosis is not performed.)
4. “UNKWN” : Display “UNKWN” when the diagnosed unit does not transmit the data normally. Put a check mark to it if “UNKWN” is displayed on CONSULT-II.
   “–” : Column not used (Transmit diagnosis is not performed.)
5. “UNKWN” : Display “UNKWN” when the diagnosed unit does not receive the data normally. Put a check mark to it if “UNKWN” is displayed on CONSULT-II.
   “–” : Column not used (It is not necessary for CAN communication trouble diagnosis.)

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

- When the initial conditions are reproduced. Refer to LAN-12, "Example of Filling in Check Sheet When Initial Conditions Are Reproduced" .
- When the initial conditions are not reproduced. Refer to LAN-15, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced" .

Example of Filling in Check Sheet When Initial Conditions Are Reproduced



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	UNKWN
IPDM E/R	OK
AWD/4WD/e4WD	OK

PRINT | Scroll Down

MODE | BACK | LIGHT | COPY

CAN DIAG SUPPORT MNTR

ENGINE	PRSNT
TRANSMIT DIAG	OK
TCM	OK
VDC/TCS/ABS	OK
METER/M&A	OK
ICC	UNKWN
BCM/SEC	UNKWN
IPDM E/R	OK
AWD/4WD/e4WD	OK
EPS	UNKWN

PRINT | Scroll Up

MODE | BACK | LIGHT | COPY

Check sheet table

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR: Initial diagnosis	Transmit diagnosis	Receive diagnosis: ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R	SELF-DIAG RESULTS	
ENGINE	–	NG	UNKWN	–	UNKWN	–	UNKWN ✓	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	–	NG	UNKWN	UNKWN	–	–	–	UNKWN	UNKWN	UNKWN	–	CAN COMM CIRCUIT (U1000)	–
BCM	No indication ✓	NG	UNKWN	UNKWN	–	–	–	UNKWN	–	–	UNKWN	CAN COMM CIRCUIT (U1000)	–
METER	No indication	–	–	–	–	–	–	–	–	–	–	CAN COMM CIRCUIT (U1000)	–
ALL MODE AWD/4WD	–	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN	–	UNKWN	–	CAN COMM CIRCUIT (U1000)	–
ABS	–	NG	UNKWN	UNKWN	UNKWN	UNKWN	–	–	UNKWN	–	–	CAN COMM CIRCUIT (U1000)	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	–	UNKWN	–	–	–	–	CAN COMM CIRCUIT (U1000)	–

SELECT SYSTEM

ENGINE
A/T
ABS
AIR BAG
IPDM E/R
METER

Page Down

BACK | LIGHT | COPY

SELECT SYSTEM

A/T
ABS
AIR BAG
IPDM E/R
METER
ALL MODE AWD/4WD

Page Up

BACK | LIGHT | COPY

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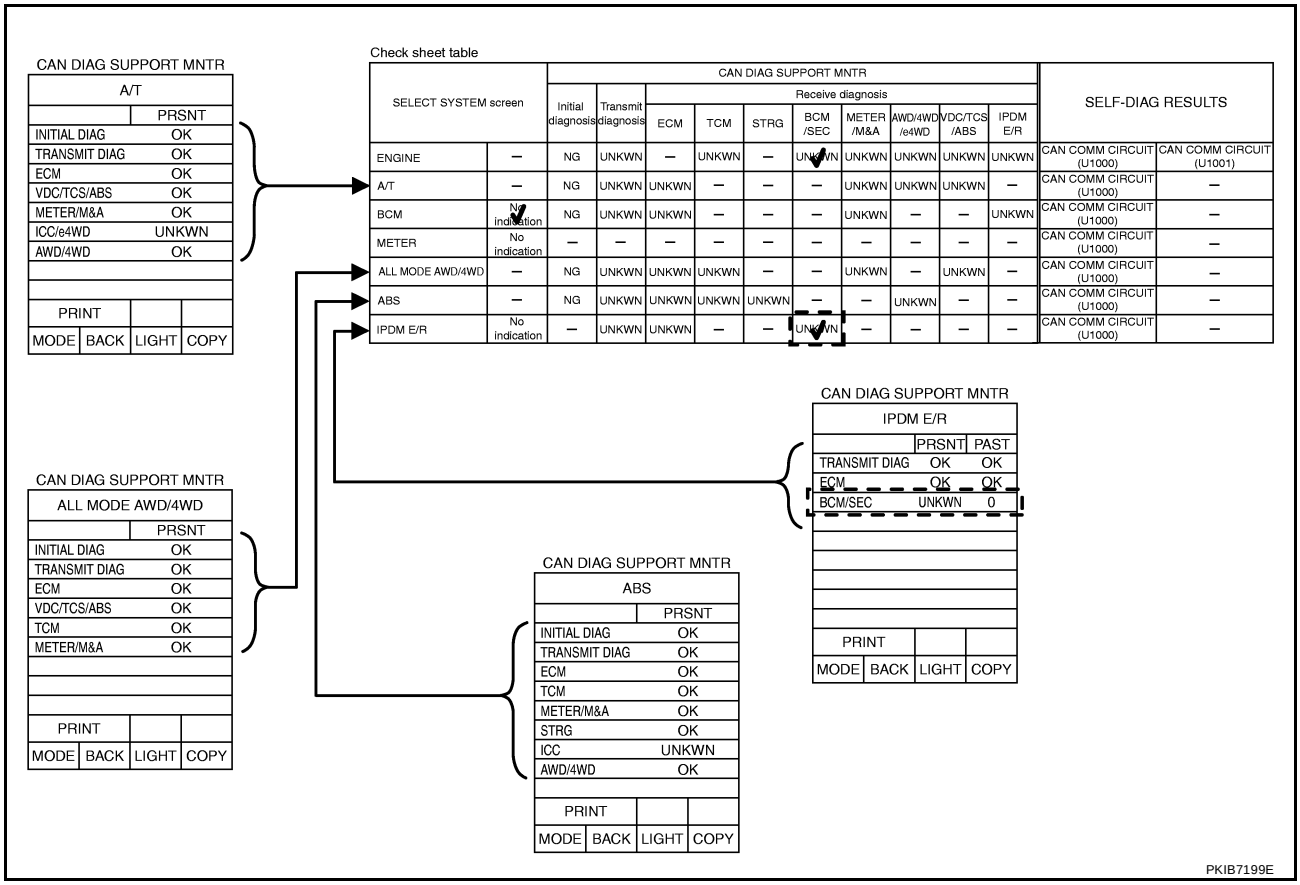
1. Put a check mark to “No indication” if some of unit names listed on the column of diagnosis system selection screen of a check sheet table are not displayed on “SELECT SYSTEM” screen attached to the check sheet.

   NOTE:
   Put a check mark to “No indication” of BCM because BCM is not displayed on “SELECT SYSTEM” screen.

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

   NOTE:
   In “CAN DIAG SUPPORT MNTR” screen, “UNKWN” is displayed on “ICC”, “BCM/SEC” and “EPS”. But put a check mark to “BCM/SEC” because “UNKWN” is listed on the column of reception diagnosis of the check sheet table.



3. Confirm the unit name that “UNKWN” is displayed on the copy of “CAN DIAG SUPPORT MNTR” screen of “A/T”, “ALL MODE AWD/4WD”, “ABS” and “IPDM E/R” as well as “ENGINE”. And then, put a check mark to the check sheet table.

NOTE:

- For “A/T”, “UNKWN” is displayed on “ICC/e4WD”. But, do not put a check mark to their columns of reception diagnosis of the check sheet table because “UNKWN” is not listed.
- For “ALL MODE AWD/4WD”, “UNKWN” is not displayed“. Do not put a check mark to it.
- For “ABS”, “UNKWN” is displayed on “ICC”. But, do not put a check mark to their columns of reception diagnosis of the check sheet table because “UNKWN” is not listed.
- For “IPDM E/R”, “UNKWN” is displayed on “BCM/SEC”. Put a check mark to it.

The arranged results of CAN diagnosis support monitor

Check sheet table

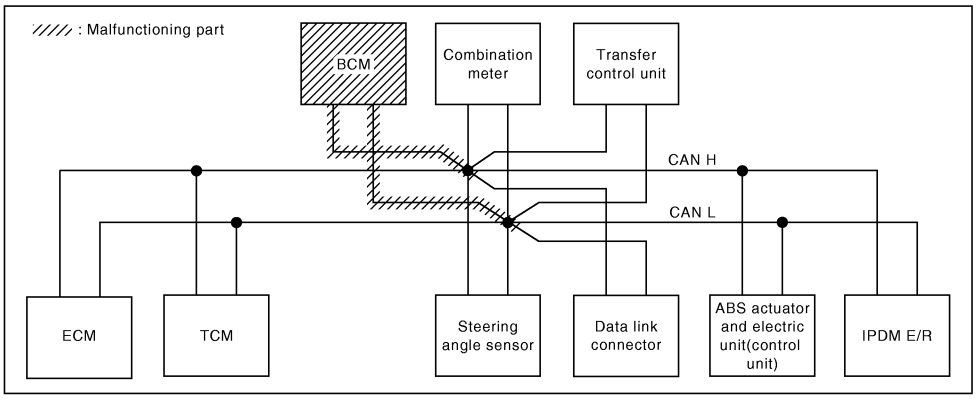
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	–	NG	UNKWN	–	UNKWN	–	UNKWN ✓	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	–	NG	UNKWN	UNKWN	–	–	–	UNKWN	UNKWN	UNKWN	–	CAN COMM CIRCUIT (U1000)	–
BCM	No indication ✓	NG	UNKWN	UNKWN	–	–	–	UNKWN	–	–	UNKWN	CAN COMM CIRCUIT (U1000)	–
METER	No indication	–	–	–	–	–	–	–	–	–	–	CAN COMM CIRCUIT (U1000)	–
ALL MODE AWD/4WD	–	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN	–	UNKWN	–	CAN COMM CIRCUIT (U1000)	–
ABS	–	NG	UNKWN	UNKWN	UNKWN	UNKWN	–	–	UNKWN	–	–	CAN COMM CIRCUIT (U1000)	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	–	UNKWN ✓	–	–	–	–	CAN COMM CIRCUIT (U1000)	–

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

Case 7
Check BCM circuit.

Check sheet results (example)

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	–	NG	UNKWN	–	UNKWN	–	UNKWN ✓	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	–	NG	UNKWN	UNKWN	–	–	–	UNKWN	UNKWN	UNKWN	–	CAN COMM CIRCUIT (U1000)	–
BCM	No indication ✓	NG	UNKWN	UNKWN	–	–	–	UNKWN	–	–	UNKWN	CAN COMM CIRCUIT (U1000)	–
METER	No indication	–	–	–	–	–	–	–	–	–	–	CAN COMM CIRCUIT (U1000) ✓	–
ALL MODE AWD/4WD	–	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN	–	UNKWN	–	CAN COMM CIRCUIT (U1000)	–
ABS	–	NG	UNKWN	UNKWN	UNKWN	UNKWN	–	–	UNKWN	–	–	CAN COMM CIRCUIT (U1000)	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	–	UNKWN ✓	–	–	–	–	CAN COMM CIRCUIT (U1000) ✓	–



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

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

Start CAN system trouble diagnosis if this procedure can be confirmed. Refer to LAN-22, "CAN Communication Unit" .

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

Check sheet table

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

SYSTEM ENGINE

SELF-DIAG RESULTS

DTC RESULTS	TIME
CAN COMM CIRCUIT [U1001]	1t

SYSTEM A/T

SELF-DIAG RESULTS

DTC RESULTS	TIME
NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED.	

SYSTEM BCM

SELF-DIAG RESULTS

DTC RESULTS	TIME
NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED.	

SYSTEM METER

SELF-DIAG RESULTS

DTC RESULTS	TIME
CAN COMM CIRCUIT [U1000]	2

SYSTEM ALL MODE AWD/4WD

SELF-DIAG RESULTS

DTC RESULTS	TIME
NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED.	

SYSTEM ABS

SELF-DIAG RESULTS

DTC RESULTS	TIME
NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED.	

SYSTEM IPDM E/R

SELF-DIAG RESULTS

DTC RESULTS	TIME
CAN COMM CIRCUIT [U1000]	PAST

PKIB7201E

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

NOTE:

- For “ENGINE”, “CAN COMM CIRCUIT [U1001]” are displayed. Put a check mark to it.
- For “A/T”, “NO DTC IS DETECTED” is displayed. Do not put a check mark to it.
- For “BCM”, “NO DTC IS DETECTED” is displayed. Do not put a check mark to it.
- For “METER”, “CAN COMM CIRCUIT [U1000]” is displayed. Put a check mark to it.
- For “ALL MODE AWD/4WD”, “NO DTC IS DETECTED” is displayed. Do not put a check mark to it.
- For “ABS”, “NO DTC IS DETECTED” is displayed. Do not put a check mark to it.
- For “IPDM E/R”, “CAN COMM CIRCUIT [U1000]” is displayed. Put a check mark to it.

The arranged results of self-diagnosis

Check sheet table

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR: Initial diagnosis	Transmit diagnosis	Receive diagnosis: ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /eWD	VDC/TCS /ABS	IPDM E/R	SELF-DIAG RESULTS	
ENGINE	–	NG	UNKWN	–	UNKWN	–	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	–	NG	UNKWN	UNKWN	–	–	–	UNKWN	UNKWN	UNKWN	–	CAN COMM CIRCUIT (U1000)	–
BCM	No indication	NG	UNKWN	UNKWN	–	–	–	UNKWN	–	–	UNKWN	CAN COMM CIRCUIT (U1000)	–
METER	No indication	–	–	–	–	–	–	–	–	–	–	CAN COMM CIRCUIT (U1000)	–
ALL MODE AWD/4WD	–	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN	–	UNKWN	–	CAN COMM CIRCUIT (U1000)	–
ABS	–	NG	UNKWN	UNKWN	UNKWN	UNKWN	–	–	UNKWN	–	–	CAN COMM CIRCUIT (U1000)	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	–	UNKWN	–	–	–	–	CAN COMM CIRCUIT (U1000)	–

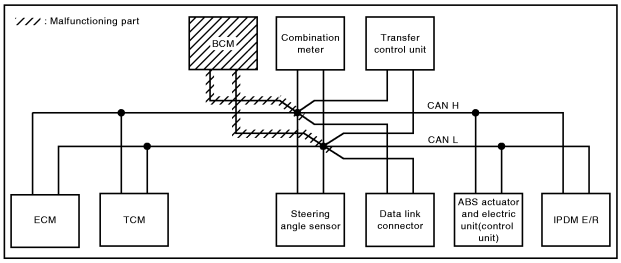
When the arranged results of self-diagnosis and check sheet results (example) are corresponding, possible causes can be selected.

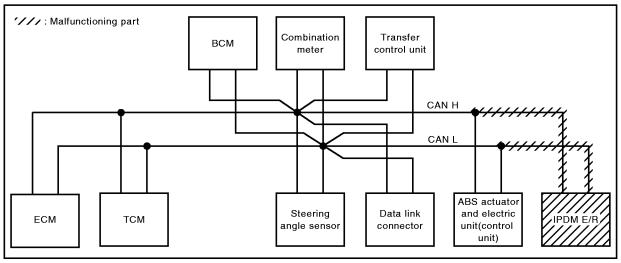
Case 7
Check BCM circuit.

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR: Initial diagnosis	Transmit diagnosis	Receive diagnosis: ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /eWD	VDC/TCS /ABS	IPDM E/R	SELF-DIAG RESULTS	
ENGINE	–	NG	UNKWN	–	UNKWN	–	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	–	NG	UNKWN	UNKWN	–	–	–	UNKWN	UNKWN	UNKWN	–	CAN COMM CIRCUIT (U1000)	–
BCM	No indication	NG	UNKWN	UNKWN	–	–	–	UNKWN	–	–	UNKWN	CAN COMM CIRCUIT (U1000)	–
METER	No indication	–	–	–	–	–	–	–	–	–	–	CAN COMM CIRCUIT (U1000)	–
ALL MODE AWD/4WD	–	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN	–	UNKWN	–	CAN COMM CIRCUIT (U1000)	–
ABS	–	NG	UNKWN	UNKWN	UNKWN	UNKWN	–	–	UNKWN	–	–	CAN COMM CIRCUIT (U1000)	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	–	UNKWN	–	–	–	–	CAN COMM CIRCUIT (U1000)	–

Case 11
Check IPDM E/R circuit.

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR: Initial diagnosis	Transmit diagnosis	Receive diagnosis: ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /eWD	VDC/TCS /ABS	IPDM E/R	SELF-DIAG RESULTS	
ENGINE	–	NG	UNKWN	–	UNKWN	–	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	–	NG	UNKWN	UNKWN	–	–	–	UNKWN	UNKWN	UNKWN	–	CAN COMM CIRCUIT (U1000)	–
BCM	No indication	NG	UNKWN	UNKWN	–	–	–	UNKWN	–	–	UNKWN	CAN COMM CIRCUIT (U1000)	–
METER	No indication	–	–	–	–	–	–	–	–	–	–	CAN COMM CIRCUIT (U1000)	–
ALL MODE AWD/4WD	–	NG	UNKWN	UNKWN	UNKWN	–	–	UNKWN	–	UNKWN	–	CAN COMM CIRCUIT (U1000)	–
ABS	–	NG	UNKWN	UNKWN	UNKWN	UNKWN	–	–	UNKWN	–	–	CAN COMM CIRCUIT (U1000)	–
IPDM E/R	No indication	–	UNKWN	UNKWN	–	–	UNKWN	–	–	–	–	CAN COMM CIRCUIT (U1000)	–





PKIB7202E

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

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

CAN Diagnostic Support Monitor

UKS003L6

DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN FOR ECM

(Example)

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

CAN DIAG SUPPORT MNTR

ENGINE	
	PRSNT
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
EPS	UNKWN

PRINT		Scroll Up	
MODE	BACK	LIGHT	COPY

SKIB0591E

"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present
ENGINE	INITIAL DIAG	Make sure that microcomputer in ECU works normally.	OK/NG
	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN
	TCM	Make sure of normal reception from TCM.	OK/UNKWN
	VDC/TCS/ABS	Make sure of normal reception from ABS actuator and electric unit (control unit).	OK/UNKWN
	METER/M&A	Make sure of normal reception from combination meter.	OK/UNKWN
	ICC	ICC is not diagnosed.	UNKWN
	BCM/SEC	Make sure of normal reception from BCM.	OK/UNKWN
	IPDM E/R	Make sure of normal reception from IPDM E/R.	OK/UNKWN
	AWD/4WD/e4WD	Make sure of normal reception from transfer control unit.	OK/UNKWN
	EPS	EPS is not diagnosed.	UNKWN

Display Results (Present)

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

DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN FOR TCM

(Example)

CAN DIAG SUPPORT MNTR

A/T	
	PRSNT
INITIAL DIAG	OK
TRANSMIT DIAG	OK
ECM	OK
VDC/TCS/ABS	OK
METER/M&A	OK
ICC/e4WD	UNKWN
AWD/4WD	OK
PRINT	
MODE BACK LIGHT COPY	

SKIB2335E

"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present
A/T	INITIAL DIAG	Make sure that microcomputer in ECU works normally.	OK/NG
	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN
	ECM	Make sure of normal reception from ECM.	OK/UNKWN
	VDC/TCS/ABS	Make sure of normal reception from ABS actuator and electric unit (control unit).	OK/UNKWN
	METER/M&A	Make sure of normal reception from combination meter.	OK/UNKWN
	ICC/e4WD	ICC/e4WD is not diagnosed.	UNKWN
	AWD/4WD	Make sure of normal reception from transfer control unit.	OK/UNKWN

Display Results (Present)

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

DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN FOR DIFFERENTIAL LOCK CONTROL UNIT

(Example)

CAN DIAG SUPPORT MNTR

DIFF LOCK	
	PRSNT
INITIAL DIAG	OK
TRANSMIT DIAG	OK
ECM	OK
VDC/TCS/ABS	OK
AWD/4WD	OK
PRINT	
MODE BACK LIGHT COPY	

PKIB7196E

"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present
DIFF LOCK	INITIAL DIAG	Make sure that microcomputer in ECU works normally.	OK/NG
	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN
	ECM	Make sure of normal reception from ECM.	OK/UNKWN
	VDC/TCS/ABS	Make sure of normal reception from ABS actuator and electric unit (control unit).	OK/UNKWN
	AWD/4WD	Make sure of normal reception from transfer control unit.	OK/UNKWN

Display Results (Present)

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

DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN FOR BCM

(Example)

CAN DIAG SUPPORT MNTR

BCM	
	PRSNT
INITIAL DIAG	OK
TRANSMIT DIAG	OK
ECM	OK
IPDM E/R	OK
METER/M&A	UNKWN
I-KEY	OK
PRINT	
MODE / BACK / LIGHT / COPY	

SKIB0593E

"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present
BCM	INITIAL DIAG	Make sure that microcomputer in ECU works normally.	OK/NG
	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN
	ECM	Make sure of normal reception from ECM.	OK/UNKWN
	IPDM E/R	Make sure of normal reception from IPDM E/R.	OK/UNKWN
	METER/M&A	Make sure of normal reception from combination meter.	OK/UNKWN
	I-KEY	I-KEY is not diagnosed.	OK

Display Results (Present)

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

DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN FOR TRANSFER CONTROL UNIT

(Example)

CAN DIAG SUPPORT MNTR

ALL MODE AWD/4WD	
	PRSNT
INITIAL DIAG	OK
TRANSMIT DIAG	OK
ECM	OK
VDC/TCS/ABS	OK
TCM	UNKWN
METER/M&A	OK
PRINT	
MODE / BACK / LIGHT / COPY	

PKIB5232E

"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present
ALL MODE AWD/ 4WD	INITIAL DIAG	Make sure that microcomputer in ECU works normally.	OK/NG
	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN
	ECM	Make sure of normal reception from ECM.	OK/UNKWN
	VDC/TCS/ABS	Make sure of normal reception from ABS actuator and electric unit (control unit).	OK/UNKWN
	TCM	Make sure of normal reception from TCM.	OK/UNKWN
	METER/M&A	Make sure of normal reception from combination meter.	OK/UNKWN

Display Results (Present)

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

DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN FOR ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

(Example)

CAN DIAG SUPPORT MNTR

ABS	
	PRSNT
INITIAL DIAG	OK
TRANSMIT DIAG	OK
ECM	OK
TCM	OK
METER/M&A	UNKWN
STRG	OK
ICC	UNKWN
AWD/4WD	OK
DIFF LOCK	OK
PRINT	

MODE | BACK | LIGHT | COPY

PKIB7433E

"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present
ABS	INITIAL DIAG	Make sure that microcomputer in ECU works normally.	OK/NG
	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN
	ECM	Make sure of normal reception from ECM.	OK/UNKWN
	TCM	Make sure of normal reception from TCM.	OK/UNKWN
	METER/M&A	METER/M&A is not diagnosed.	UNKWN
	STRG	Make sure of normal reception from steering angle sensor.	OK/UNKWN
	ICC	ICC is not diagnosed.	UNKWN
	AWD/4WD	Make sure of normal reception from transfer control unit.	OK/UNKWN
	DIFF LOCK	Make sure of normal reception from differential lock control unit.	OK/UNKWN

Display Results (Present)

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

DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN FOR IPDM E/R

(Example)

CAN DIAG SUPPORT MNTR

IPDM E/R		
	PRSNT	PAST
TRANSMIT DIAG	OK	OK
ECM	OK	OK
BCM/SEC	OK	OK
PRINT		

MODE | BACK | LIGHT | COPY

SKIB0595E

"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present	Past
IPDM E/R	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN/–	OK/0/1~39/–
	ECM	Make sure of normal reception from ECM.	OK/UNKWN/–	
	BCM/SEC	Make sure of normal reception from BCM.	OK/UNKWN/–	

Display Results (Present)

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

Display Results (Past)

- OK : Normal
- 0 : There is malfunction now.

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

CAN COMMUNICATION

PFP:23710

System Description

UKS0030X

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

UKS003GN

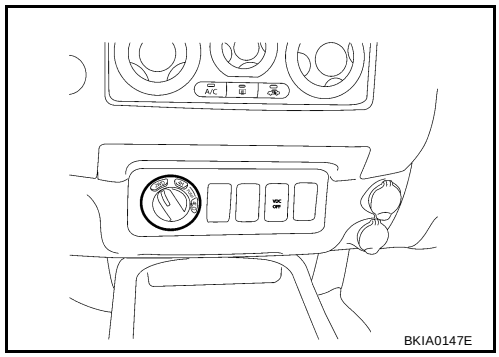
Go to CAN system, when selecting your CAN system type from the following table.

Body type	Truck														
Axle	2WD							4WD							
Engine	QR25DE		VQ40DE												
Transmission	M/T	A/T	M/T		A/T			M/T			A/T				
Brake control	ABS		ABS	ABLS	ABS	ABLS		ABS	ABLS		ABS	ABLS		VDC	
Electronic locking rear differential							×			×			×		×
CAN system type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CAN system trouble diagnosis	LAN-41	LAN-64	LAN-91	LAN-114	LAN-137	LAN-164	LAN-191	LAN-220	LAN-244	LAN-268	LAN-294	LAN-323	LAN-352	LAN-382	LAN-412

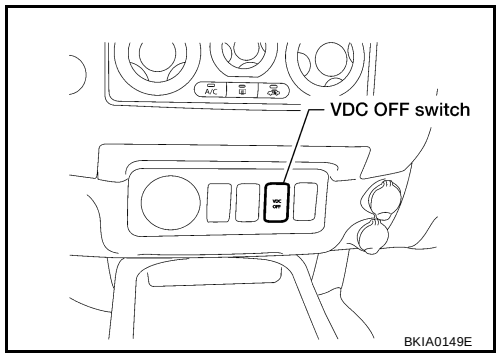
×: Applicable

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

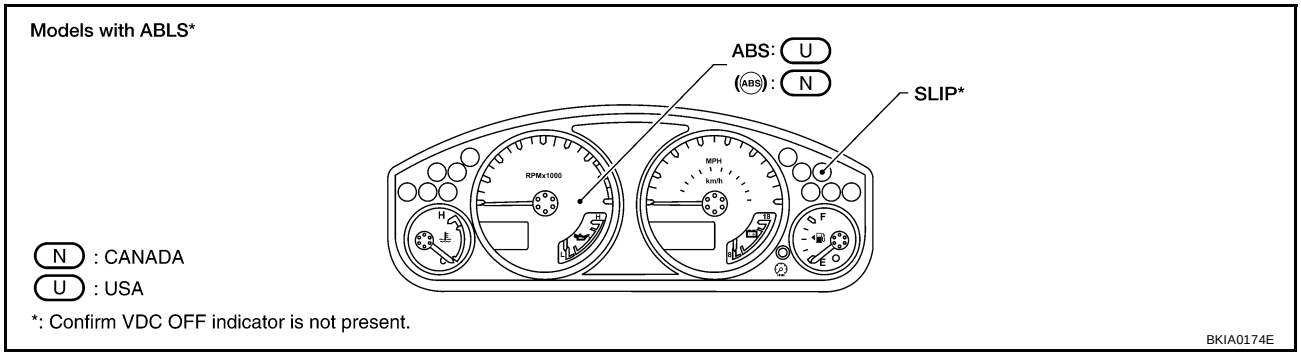
- Models with 4WD



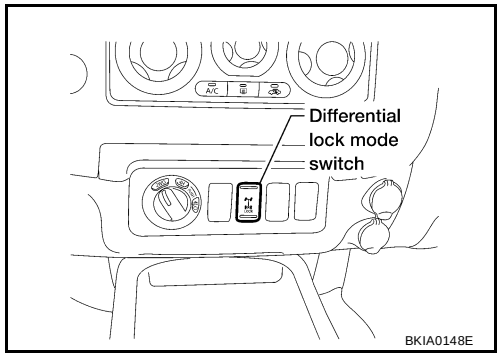
- Models with VDC



- Models with ABLS



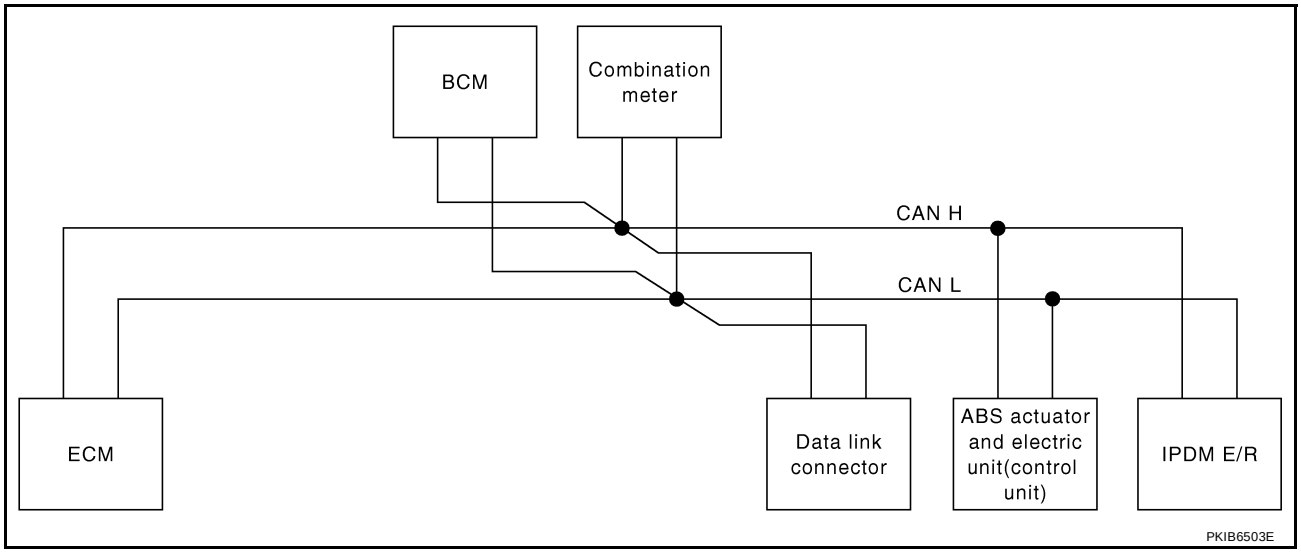
- Models with electronic locking rear differential



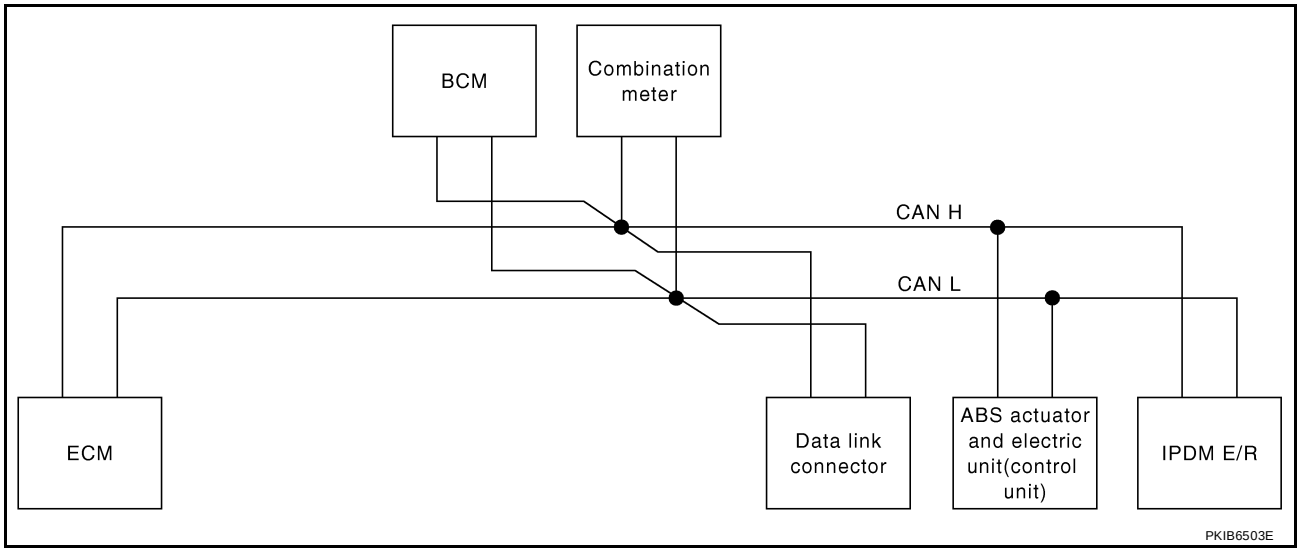
TYPE 1/ TYPE 3

System diagram

- Type 1



- Type 3



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	BCM	Combination meter	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T		R		
Engine status signal	T	R			
Engine coolant temperature signal	T		R		
Accelerator pedal position signal	T				
A/C switch signal	R	T			
A/C compressor request signal	T				R
Blower fan motor switch signal	R	T			
Cooling fan speed request signal*	T				R
Low beam request signal		T			R
Low beam status signal	R				T
High beam request signal		T	R		R
High beam status signal	R				T
Position light request signal		T			R
Front fog light request signal		T	R		R
Day time running light request signal		T			R
Sleep wake up signal		T	R		R
Door switch signal		T	R		R
Seat belt buckle switch signal		R	T		
Ignition switch signal		T			R
Theft warning horn request signal		T			R
Horn chirp 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
Buzzer output signal		T	R		
Fuel consumption monitor signal	T		R		

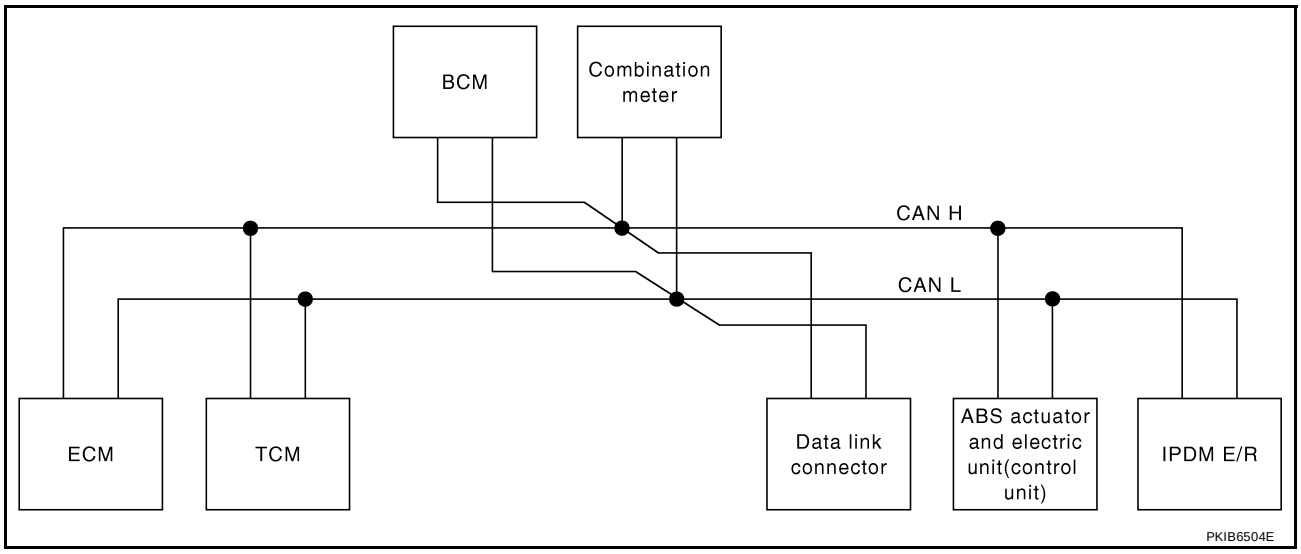
Signals	ECM	BCM	Combination meter	ABS actuator and electric unit (control unit)	IPDM E/R
Fuel level sensor signal	R		T		
Turn indicator signal		T	R		
Brake warning lamp signal			R	T	
ABS warning lamp signal			R	T	
Malfunction indicator lamp signal	T		R		
ASCD CRUISE lamp signal	T		R		
ASCD SET lamp signal	T		R		
Stop lamp switch signal		R	T		
Vehicle speed signal	R		R	T	
	R	R	T		
Power generation command value signal	T				R

*: VQ engine models only.

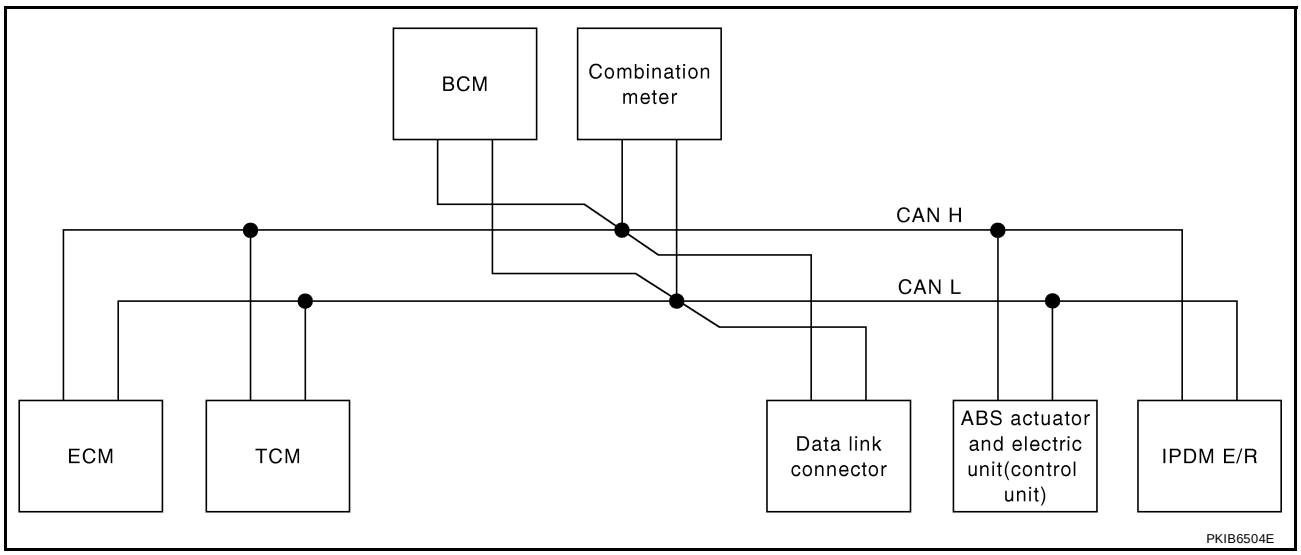
TYPE 2/ TYPE 5

System diagram

- Type 2



- Type 5



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	TCM	BCM	Combination meter	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R		
Engine status signal	T		R			
Engine coolant temperature signal	T			R		
Accelerator pedal position signal	T	R				
Closed throttle position signal	T	R				
Wide open throttle position signal	T	R				
Battery voltage signal	T	R				
A/T self-diagnosis signal	R	T				
Turbine revolution signal	R	T				
Output shaft revolution signal	R	T				
A/C switch signal	R		T			
A/C compressor request signal	T	R				R
Blower fan motor switch signal	R		T			
Cooling fan speed request signal	T					R
Low beam request signal			T			R
Low beam status signal	R					T
High beam request signal			T	R		R
High beam status signal	R					T
Position light request signal			T			R
Front fog light request signal			T	R		R
Day time running light request signal			T			R
Sleep wake up signal			T	R		R
Door switch signal			T	R		R
Seat belt buckle switch signal			R	T		
Ignition switch signal			T			R
Theft warning horn request signal			T			R
Horn chirp 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
Buzzer output signal			T	R		
Fuel consumption monitor signal	T			R		
Fuel level sensor signal	R			T		
Turn indicator signal			T	R		
Brake warning lamp signal				R	T	
ABS warning lamp signal				R	T	
Malfunction indicator lamp signal	T			R		
ASCD CRUISE lamp signal	T			R		
ASCD SET lamp signal	T			R		
ASCD operation signal	T	R				

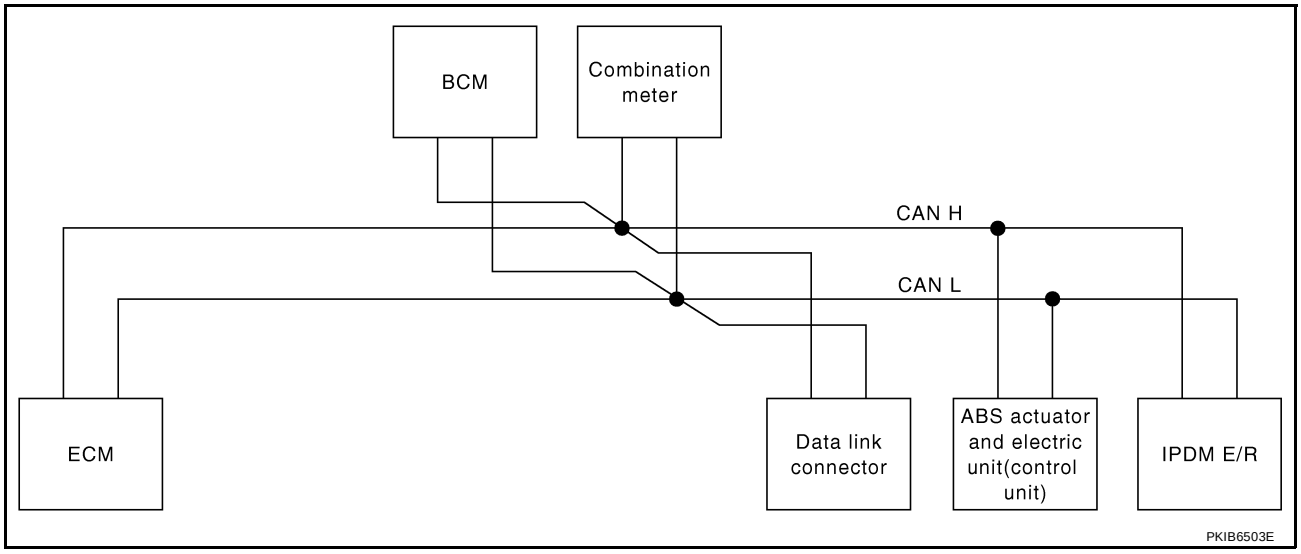
Signals	ECM	TCM	BCM	Combination meter	ABS actuator and electric unit (control unit)	IPDM E/R
ASCD OD cancel request	T	R				
A/T fluid temperature sensor signal	R	T		R		
A/T position indicator lamp signal	R	T		R		
O/D OFF indicator signal		T		R		
Overdrive control switch signal		R		T		
1st position switch signal		R		T		
Stop lamp switch signal		R	R	T		
Vehicle speed signal	R			R	T	
	R	R	R	T		
Power generation command value signal	T					R

*: VQ engine models only.

TYPE 4

System diagram

- Type 4



Input/output signal chart

T: Transmit R: Receive

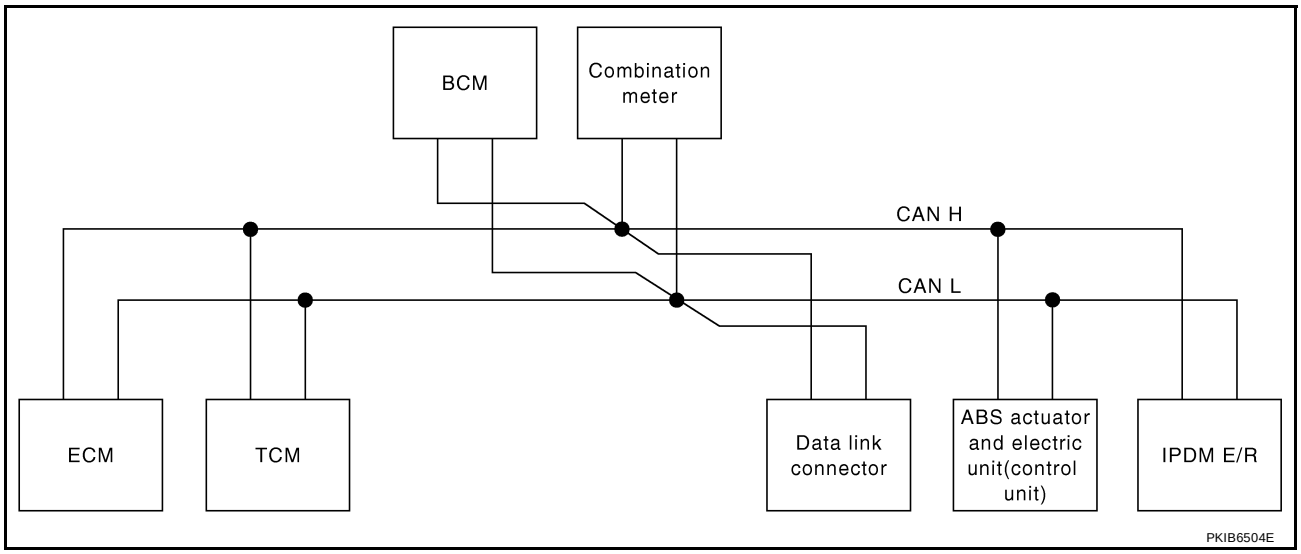
Signals	ECM	BCM	Combination meter	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T		R	R	
Engine status signal	T	R			
Engine coolant temperature signal	T		R		
Accelerator pedal position signal	T			R	
A/C switch signal	R	T			
A/C compressor request signal	T				R
Blower fan motor switch signal	R	T			
Cooling fan speed request signal	T				R
Low beam request signal		T			R
Low beam status signal	R				T

Signals	ECM	BCM	Combination meter	ABS actuator and electric unit (control unit)	IPDM E/R
High beam request signal		T	R		R
High beam status signal	R				T
Position light request signal		T			R
Front fog light request signal		T	R		R
Day time running light request signal		T			R
Sleep wake up signal		T	R		R
Door switch signal		T	R		R
Seat belt buckle switch signal		R	T		
Ignition switch signal		T			R
Theft warning horn request signal		T			R
Horn chirp 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
Buzzer output signal		T	R		
Fuel consumption monitor signal	T		R		
Fuel level sensor signal	R		T		
Turn indicator signal		T	R		
Brake warning lamp signal			R	T	
ABS warning lamp signal			R	T	
SLIP indicator lamp signal			R	T	
Malfunction indicator lamp signal	T		R		
ASCD CRUISE lamp signal	T		R		
ASCD SET lamp signal	T		R		
Stop lamp switch signal		R	T		
Vehicle speed signal	R		R	T	
	R	R	T		
Power generation command value signal	T				R

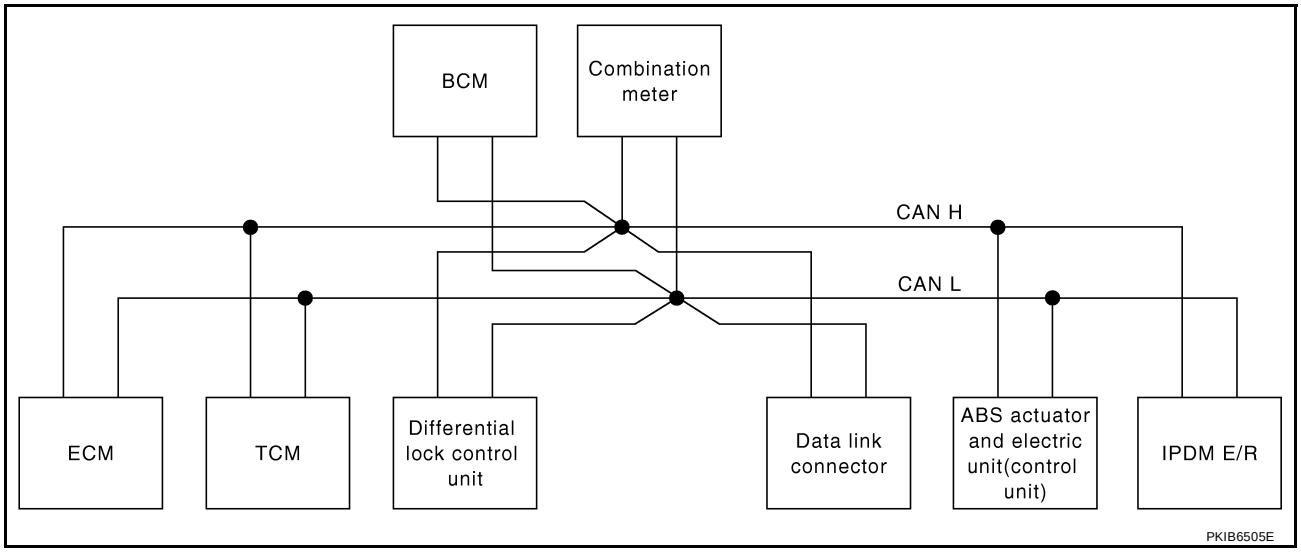
TYPE 6/ TYPE 7

System diagram

- Type 6



- Type 7



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	TCM	Differential lock control unit	BCM	Combination meter	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R			R	R	
Engine status signal	T			R			
Engine coolant temperature signal	T				R		
Accelerator pedal position signal	T	R				R	
Closed throttle position signal	T	R					
Wide open throttle position signal	T	R					
Battery voltage signal	T	R					
A/T self-diagnosis signal	R	T					
Turbine revolution signal	R	T					

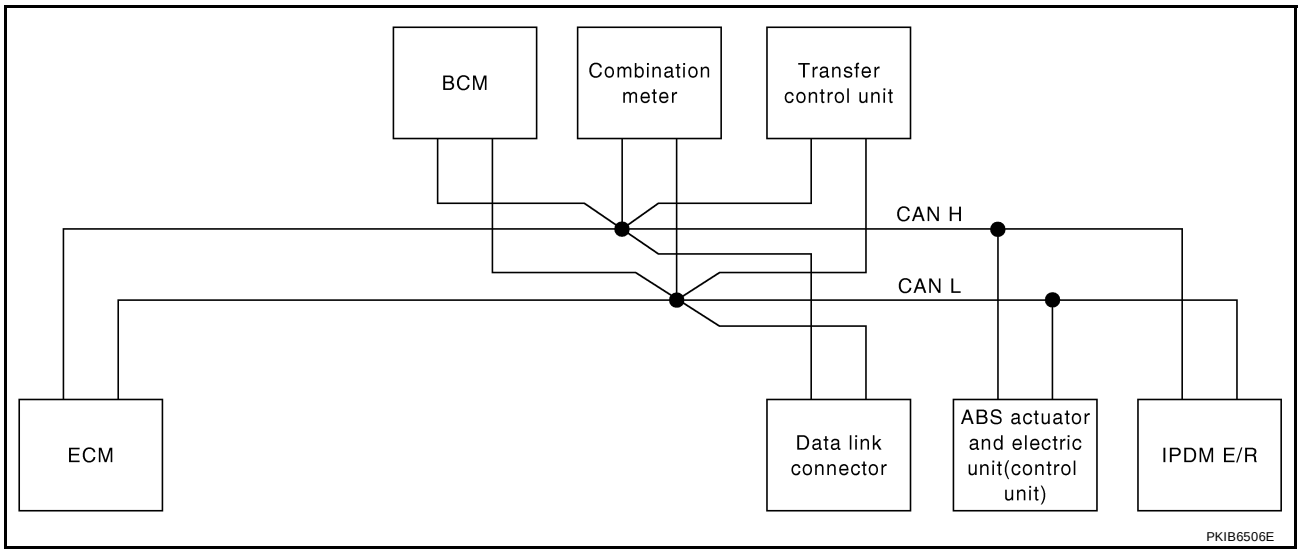
Signals	ECM	TCM	Differential lock control unit	BCM	Combination meter	ABS actuator and electric unit (control unit)	IPDM E/R
Output shaft revolution signal	R	T					
A/C switch signal	R			T			
A/C compressor request signal	T	R					R
Blower fan motor switch signal	R			T			
Cooling fan speed request signal	T						R
Low beam request signal				T			R
Low beam status signal	R						T
High beam request signal				T	R		R
High beam status signal	R						T
Position light request signal				T			R
Front fog light request signal				T	R		R
Day time running light request signal				T			R
Sleep wake up signal				T	R		R
Door switch signal				T	R		R
Seat belt buckle switch signal				R	T		
Ignition switch signal				T			R
Theft warning horn request signal				T			R
Horn chirp 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
Buzzer output signal				T	R		
Fuel consumption monitor signal	T				R		
Fuel level sensor signal	R				T		
Turn indicator signal				T	R		
Brake warning lamp signal					R	T	
ABS warning lamp signal					R	T	
SLIP indicator lamp signal					R	T	
Malfunction indicator lamp signal	T				R		
ASCD CRUISE lamp signal	T				R		
ASCD SET lamp signal	T				R		
ASCD operation signal	T	R					
ASCD OD cancel request	T	R					
A/T fluid temperature sensor signal	R	T			R		
A/T position indicator lamp signal	R	T			R	R	
P range signal		T				R	
O/D OFF indicator signal		T			R		
Overdrive control switch signal		R			T	R	
1st position switch signal		R			T		
Stop lamp switch signal		R		R	T		

Signals	ECM	TCM	Differential lock control unit	BCM	Combination meter	ABS actuator and electric unit (control unit)	IPDM E/R
Vehicle speed signal	R				R	T	
	R	R		R	T		
Differential lock switch signal			T			R	
Differential lock indicator signal			T			R	
Power generation command value signal	T						R

TYPE 8

System diagram

- Type 8



Input/output signal chart

T: Transmit R: Receive

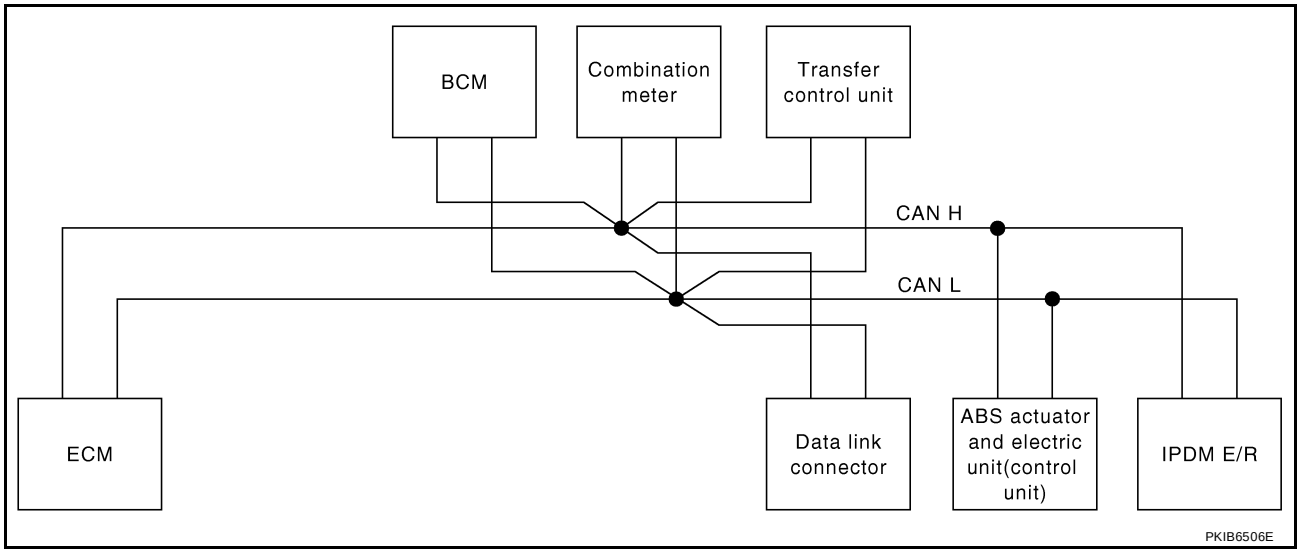
Signals	ECM	BCM	Combination meter	Transfer control unit	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T		R	R		
Engine status signal	T	R				
Engine coolant temperature signal	T		R			
Accelerator pedal position signal	T					
A/C switch signal	R	T				
A/C compressor request signal	T					R
Blower fan motor switch signal	R	T				
Cooling fan speed request signal	T					R
Low beam request signal		T				R
Low beam status signal	R					T
High beam request signal		T	R			R
High beam status signal	R					T
Position light request signal		T				R
Front fog light request signal		T	R			R

Signals	ECM	BCM	Combination meter	Transfer control unit	ABS actuator and electric unit (control unit)	IPDM E/R
Day time running light request signal		T				R
Sleep wake up signal		T	R			R
Door switch signal		T	R			R
Seat belt buckle switch signal		R	T			
Ignition switch signal		T				R
Theft warning horn request signal		T				R
Horn chirp 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
Buzzer output signal		T	R			
Fuel consumption monitor signal	T		R			
Fuel level sensor signal	R		T			
Turn indicator signal		T	R			
Brake warning lamp signal			R		T	
ABS warning lamp signal			R		T	
Malfunction indicator lamp signal	T		R			
ASCD CRUISE lamp signal	T		R			
ASCD SET lamp signal	T		R			
Stop lamp switch signal				R	T	
		R	T			
Vehicle speed signal	R		R		T	
	R	R	T	R		
Power generation command value signal	T					R

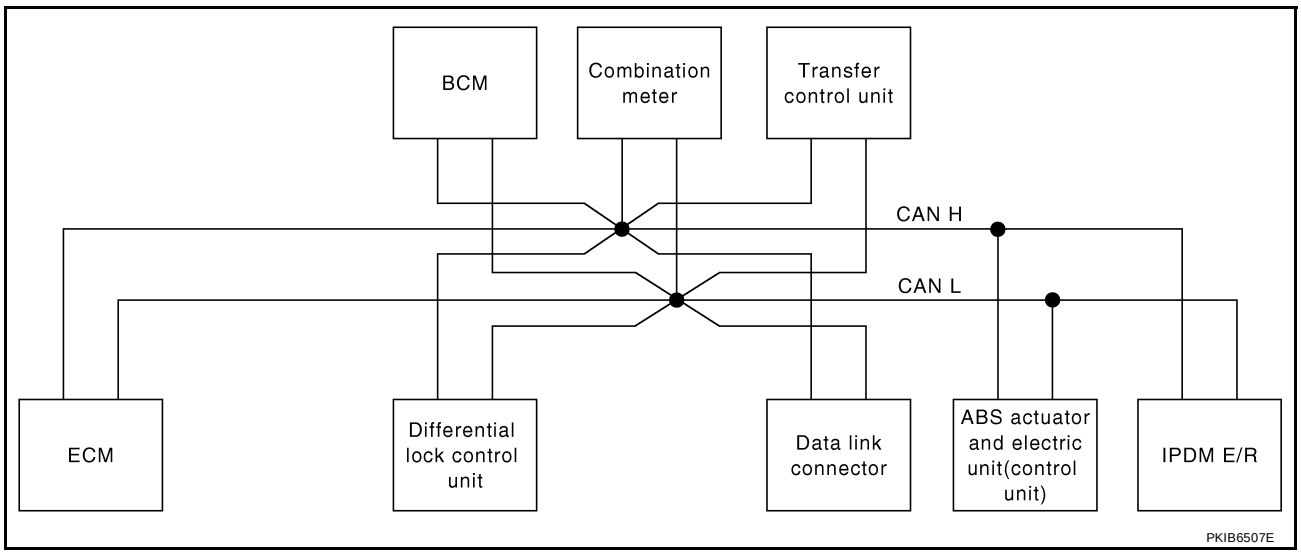
TYPE 9/ TYPE 10

System diagram

- Type 9



- Type 10



Input/output signal chart

T: Transmit R: Receive

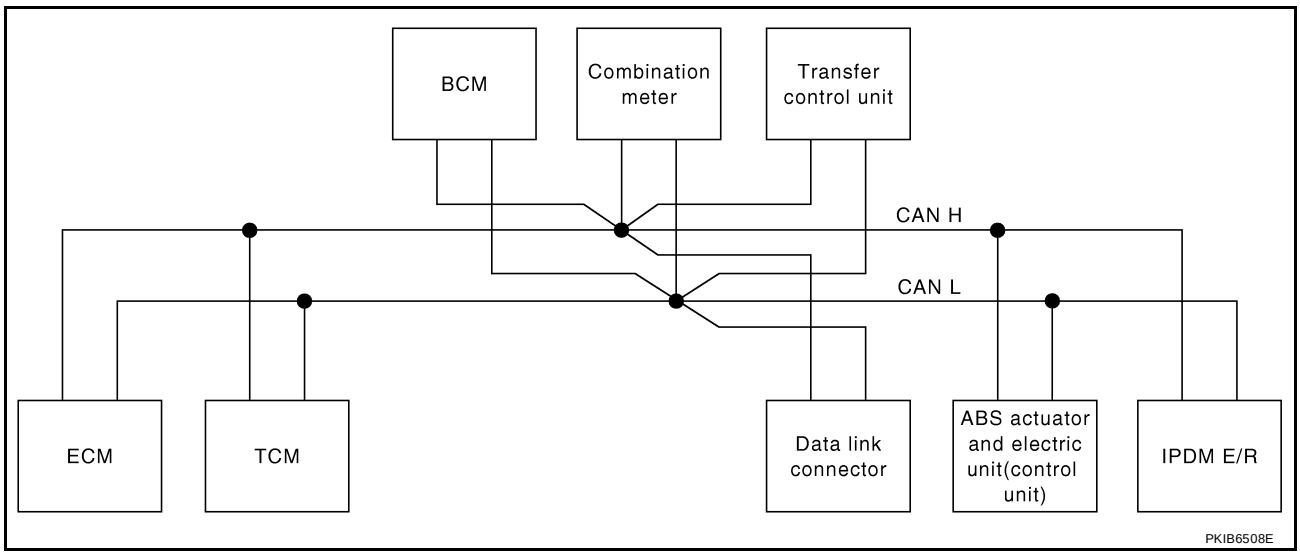
Signals	ECM	Differential lock control unit	BCM	Combination meter	Transfer control unit	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T			R	R	R	
Engine status signal	T		R				
Engine coolant temperature signal	T			R			
Accelerator pedal position signal	T					R	
A/C switch signal	R		T				
A/C compressor request signal	T						R
Blower fan motor switch signal	R		T				
Cooling fan speed request signal	T						R
Low beam request signal			T				R
Low beam status signal	R						T
High beam request signal			T	R			R
High beam status signal	R						T
Position light request signal			T				R
Front fog light request signal			T	R			R
Day time running light request signal			T				R
Sleep wake up signal			T	R			R
Door switch signal			T	R			R
Seat belt buckle switch signal			R	T			
Ignition switch signal			T				R
Theft warning horn request signal			T				R
Horn chirp 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
Buzzer output signal			T	R			

Signals	ECM	Differential lock control unit	BCM	Combination meter	Transfer control unit	ABS actuator and electric unit (control unit)	IPDM E/R
Fuel consumption monitor signal	T			R			
Fuel level sensor signal	R			T			
Turn indicator signal			T	R			
Brake warning lamp signal				R		T	
ABS warning lamp signal				R		T	
SLIP indicator lamp signal				R		T	
Malfunction indicator lamp signal	T			R			
ASCD CRUISE lamp signal	T			R			
ASCD SET lamp signal	T			R			
Stop lamp switch signal					R	T	
			R	T			
Vehicle speed signal	R			R		T	
	R		R	T	R		
Differential lock switch signal		T				R	
Differential lock indicator signal		T				R	
4WD shift switch signal	R	R			T	R	
Power generation command value signal	T						R

TYPE 11

System diagram

- Type 11



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	TCM	BCM	Combination meter	Transfer control unit	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R		R	R		
Engine status signal	T		R				

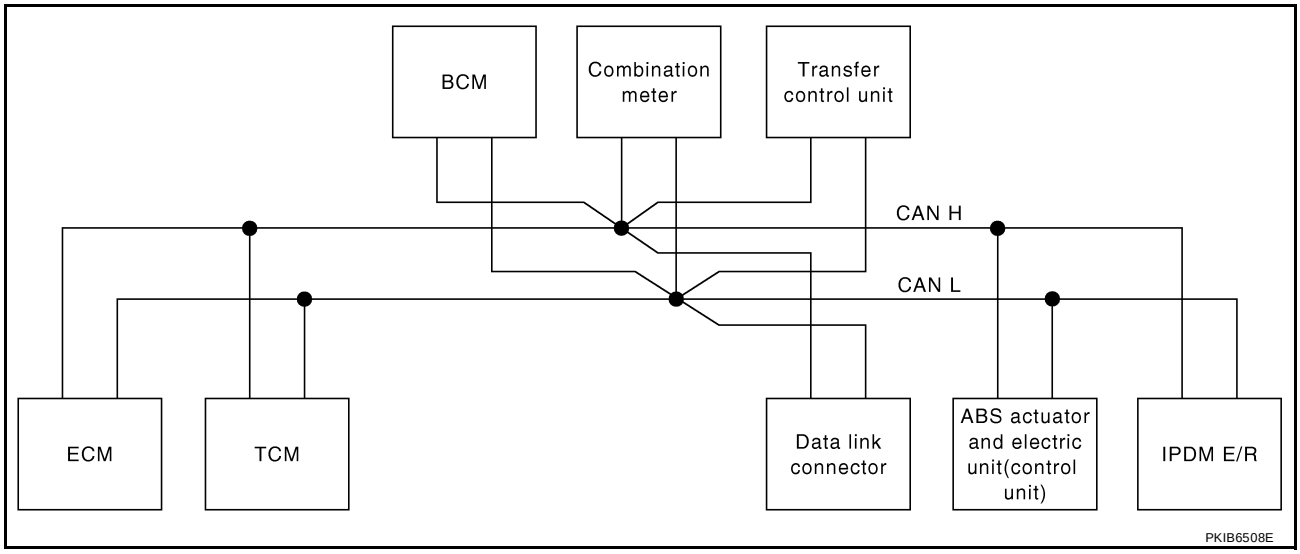
Signals	ECM	TCM	BCM	Combination meter	Transfer control unit	ABS actuator and electric unit (control unit)	IPDM E/R
Engine coolant temperature signal	T			R			
Accelerator pedal position signal	T	R					
Closed throttle position signal	T	R					
Wide open throttle position signal	T	R					
Battery voltage signal	T	R					
A/T self-diagnosis signal	R	T					
Turbine revolution signal	R	T					
Output shaft revolution signal	R	T			R		
A/C switch signal	R		T				
A/C compressor request signal	T	R					R
Blower fan motor switch signal	R		T				
Cooling fan speed request signal	T						R
Low beam request signal			T				R
Low beam status signal	R						T
High beam request signal			T	R			R
High beam status signal	R						T
Position light request signal			T				R
Front fog light request signal			T	R			R
Day time running light request signal			T				R
Sleep wake up signal			T	R			R
Door switch signal			T	R			R
Seat belt buckle switch signal			R	T			
Ignition switch signal			T				R
Theft warning horn request signal			T				R
Horn chirp 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
Buzzer output signal			T	R			
Fuel consumption monitor signal	T			R			
Fuel level sensor signal	R			T			
Turn indicator signal			T	R			
Brake warning lamp signal				R		T	
ABS warning lamp signal				R		T	
Malfunction indicator lamp signal	T			R			
ASCD CRUISE lamp signal	T			R			
ASCD SET lamp signal	T			R			
ASCD operation signal	T	R					
ASCD OD cancel request	T	R					
A/T fluid temperature sensor signal	R	T		R			
A/T position indicator lamp signal	R	T		R	R		

Signals	ECM	TCM	BCM	Combination meter	Transfer control unit	ABS actuator and electric unit (control unit)	IPDM E/R
O/D OFF indicator signal		T		R			
Overdrive control switch signal		R		T			
1st position switch signal		R		T			
Stop lamp switch signal		R	R	T			
					R	T	
Vehicle speed signal	R			R		T	
	R	R	R	T	R		
Power generation command value signal	T						R

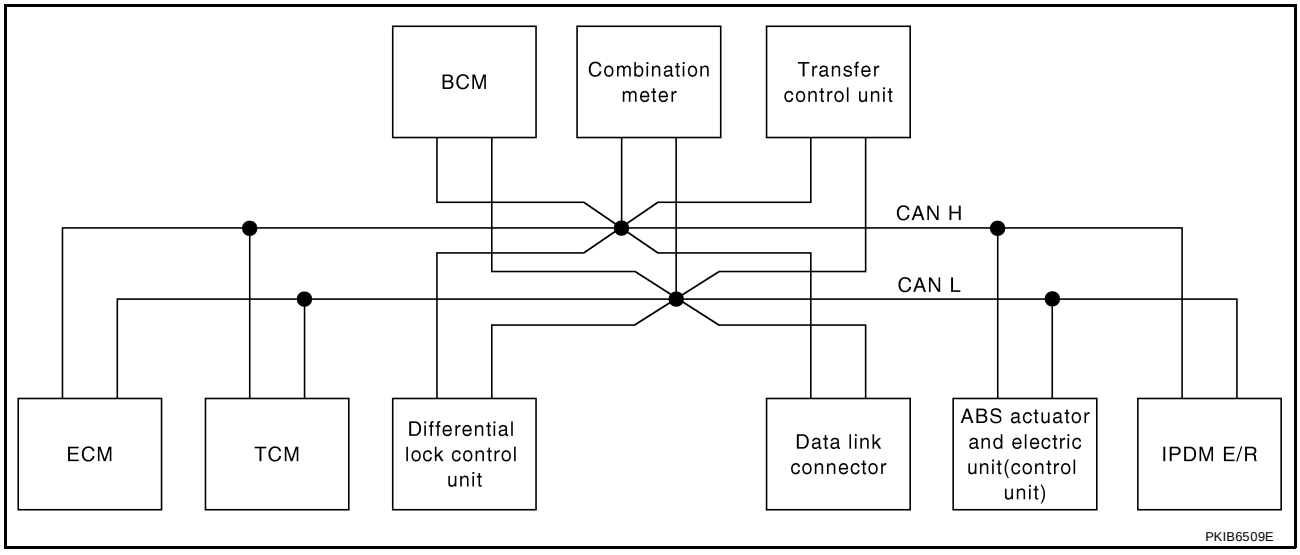
TYPE 12/ TYPE 13

System diagram

- Type 12



- Type 13



Input/output signal chart

T: Transmit R: Receive

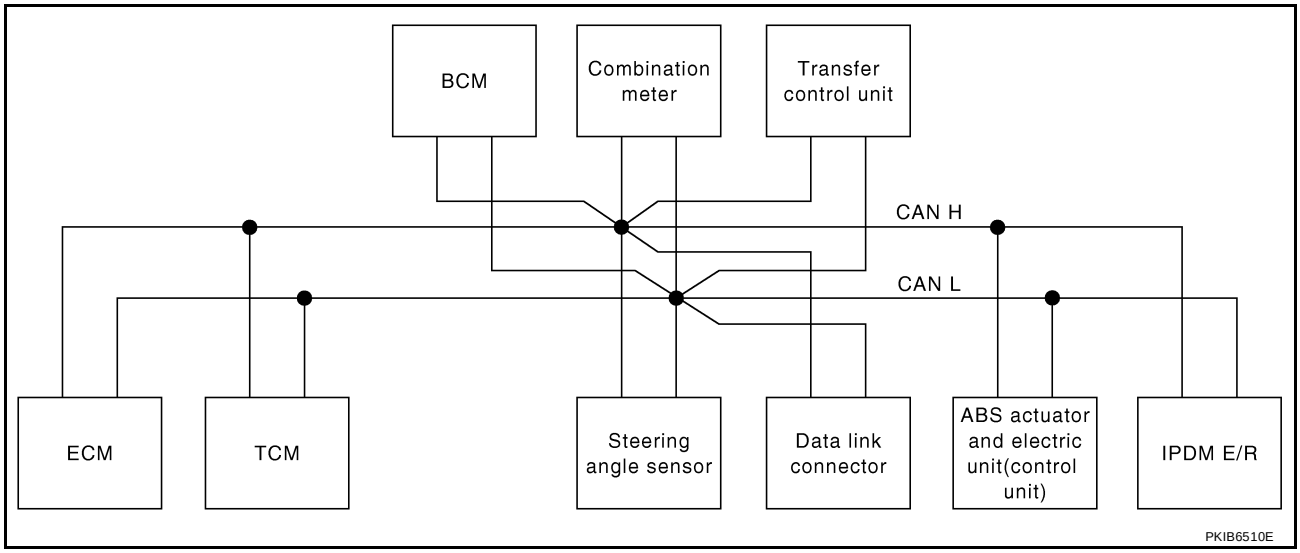
Signals	ECM	TCM	Differential lock control unit	BCM	Combination meter	Transfer control unit	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R			R	R	R	
Engine status signal	T			R				
Engine coolant temperature signal	T				R			
Accelerator pedal position signal	T	R					R	
Closed throttle position signal	T	R						
Wide open throttle position signal	T	R						
Battery voltage signal	T	R						
A/T self-diagnosis signal	R	T						
Turbine revolution signal	R	T						
Output shaft revolution signal	R	T				R		
A/C switch signal	R			T				
A/C compressor request signal	T	R						R
Blower fan motor switch signal	R			T				
Cooling fan speed request signal	T							R
Low beam request signal				T				R
Low beam status signal	R							T
High beam request signal				T	R			R
High beam status signal	R							T
Position light request signal				T				R
Front fog light request signal				T	R			R
Day time running light request signal				T				R
Sleep wake up signal				T	R			R
Door switch signal				T	R			R
Seat belt buckle switch signal				R	T			
Ignition switch signal				T				R
Theft warning horn request signal				T				R
Horn chirp 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
Buzzer output signal				T	R			
Fuel consumption monitor signal	T				R			
Fuel level sensor signal	R				T			
Turn indicator signal				T	R			
Brake warning lamp signal					R		T	
ABS warning lamp signal					R		T	
SLIP indicator lamp signal					R		T	
Malfunction indicator lamp signal	T				R			

Signals	ECM	TCM	Differential lock control unit	BCM	Combination meter	Transfer control unit	ABS actuator and electric unit (control unit)	IPDM E/R
ASCD CRUISE lamp signal	T				R			
ASCD SET lamp signal	T				R			
ASCD operation signal	T	R						
ASCD OD cancel request	T	R						
A/T fluid temperature sensor signal	R	T			R			
A/T position indicator lamp signal	R	T			R	R	R	
O/D OFF indicator signal		T			R			
Overdrive control switch signal		R			T		R	
1st position switch signal		R			T			
Stop lamp switch signal		R		R	T			
						R	T	
Vehicle speed signal	R				R		T	
	R	R		R	T	R		
Differential lock switch signal			T				R	
Differential lock indicator signal			T				R	
4WD shift switch signal	R	R	R			T	R	
Power generation command value signal	T							R

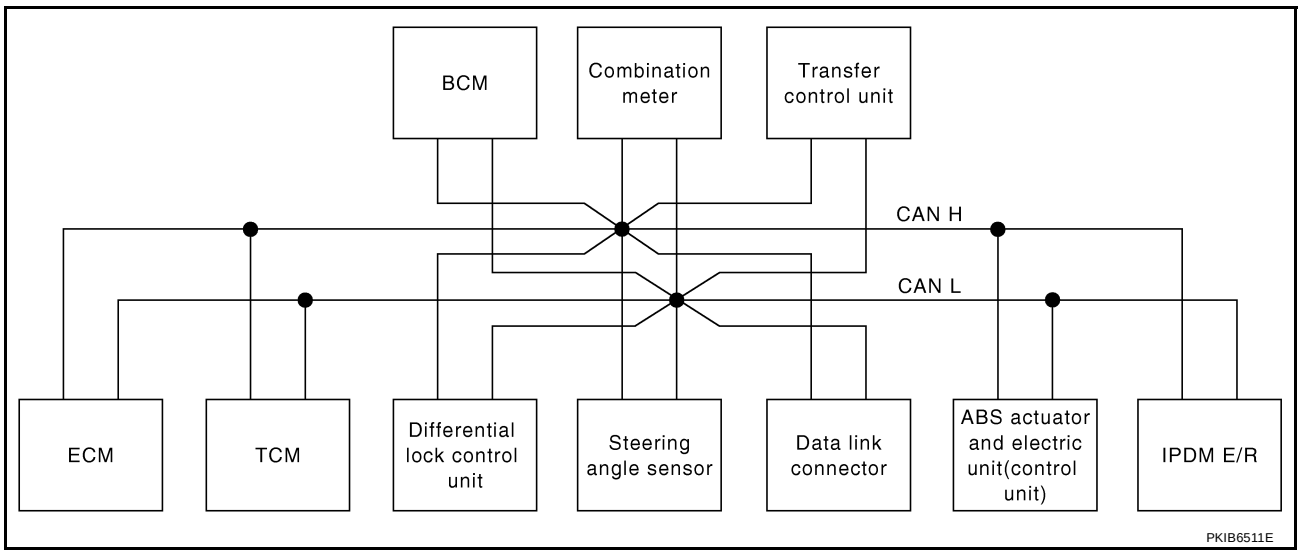
TYPE 14/ TYPE 15

System diagram

- Type 14



- Type 15



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	TCM	Differential lock control unit	Steering angle sensor	BCM	Combination meter	Transfer control unit	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R				R	R	R	
Engine status signal	T				R				
Engine coolant temperature signal	T					R			
Accelerator pedal position signal	T	R						R	
Closed throttle position signal	T	R							
Wide open throttle position signal	T	R							
Battery voltage signal	T	R							
A/T self-diagnosis signal	R	T							
Turbine revolution signal	R	T							
Output shaft revolution signal	R	T					R		
A/C switch signal	R				T				
A/C compressor request signal	T	R							R
Blower fan motor switch signal	R				T				
Cooling fan speed request signal	T								R
Low beam request signal					T				R
Low beam status signal	R								T
High beam request signal					T	R			R
High beam status signal	R								T
Position light request signal					T				R
Front fog light request signal					T	R			R
Day time running light request signal					T				R
Sleep wake up signal					T	R			R
Door switch signal					T	R			R
Seat belt buckle switch signal					R	T			

Signals	ECM	TCM	Differential lock control unit	Steering angle sensor	BCM	Combination meter	Transfer control unit	ABS actuator and electric unit (control unit)	IPDM E/R
Ignition switch signal					T				R
Theft warning horn request signal					T				R
Horn chirp 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
Buzzer output signal					T	R			
Fuel consumption monitor signal	T					R			
Fuel level sensor signal	R					T			
Turn indicator signal					T	R			
Brake warning lamp signal						R		T	
ABS warning lamp signal						R		T	
VDC OFF indicator lamp signal						R		T	
SLIP indicator lamp signal						R		T	
HDC indicator lamp signal						R		T	
Malfunction indicator lamp signal	T					R			
ASCD CRUISE lamp signal	T					R			
ASCD SET lamp signal	T					R			
ASCD operation signal	T	R							
ASCD OD cancel request	T	R							
A/T fluid temperature sensor signal	R	T				R			
A/T position indicator lamp signal	R	T				R	R	R	
O/D OFF indicator signal		T				R			
Overdrive control switch signal		R				T		R	
1st position switch signal		R				T			
Stop lamp switch signal		R			R	T			
							R	T	
Vehicle speed signal	R					R		T	
	R	R			R	T	R		
Steering angle sensor signal				T			R	R	
Differential lock switch signal			T					R	
Differential lock indicator signal			T					R	
4WD shift switch signal	R	R	R				T		
Power generation command value signal	T								R

CAN SYSTEM (TYPE 1)

PFP:23710

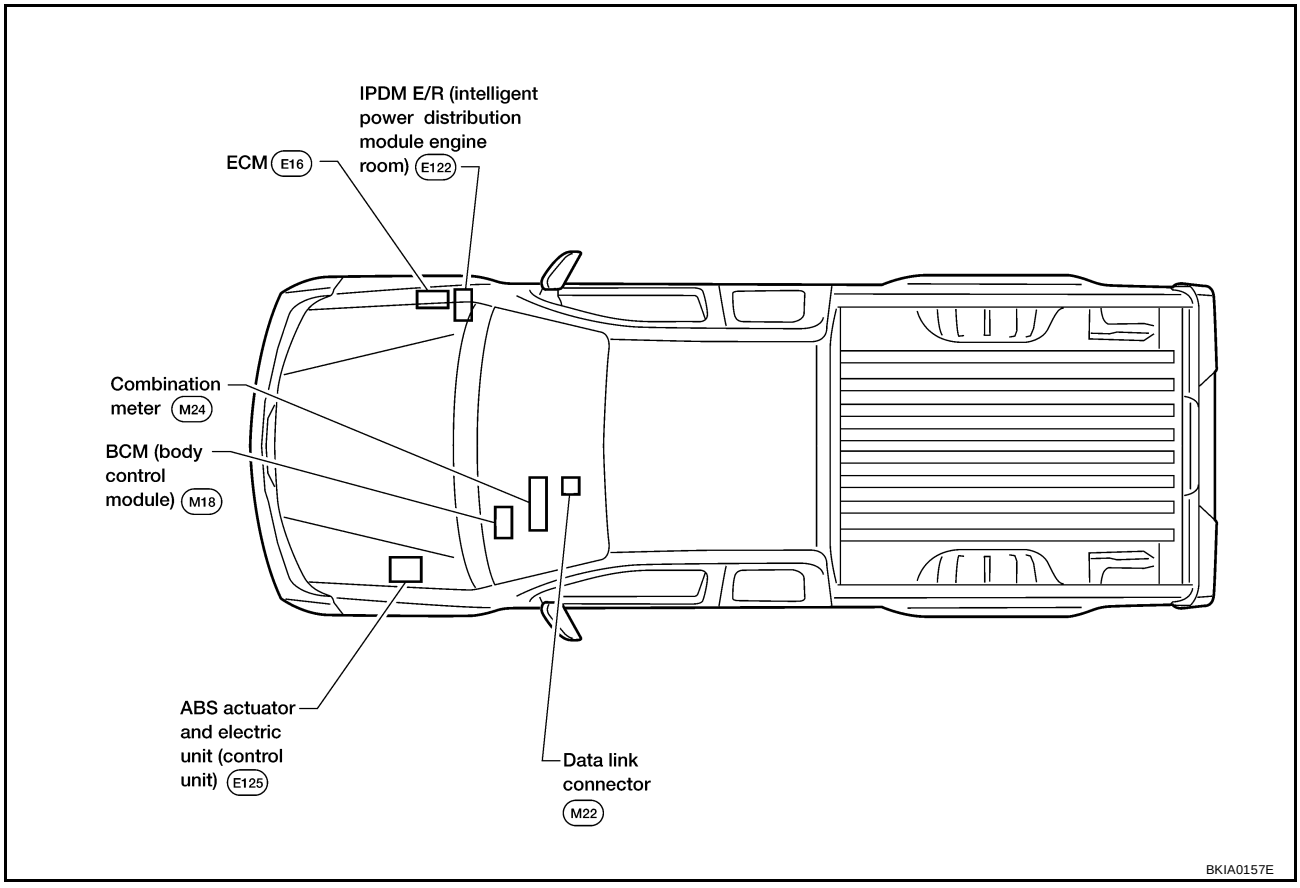
System Description

UKS003RO

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.

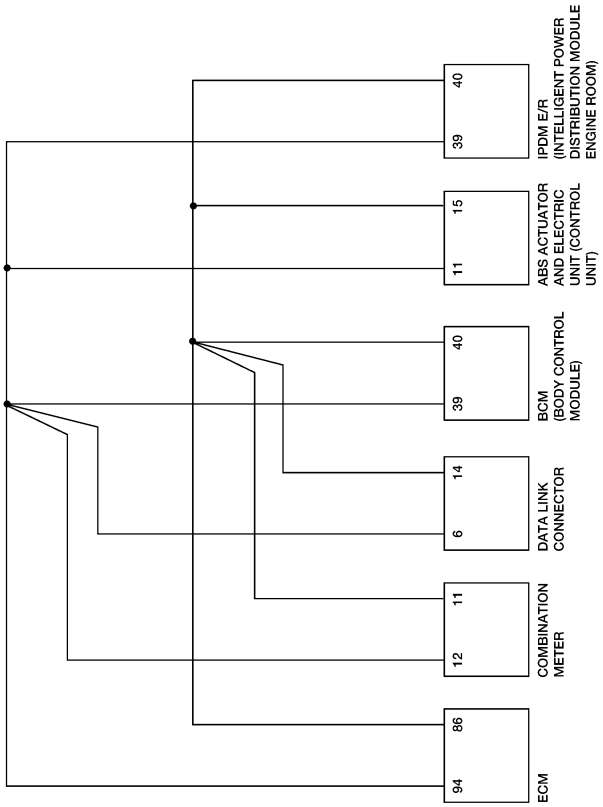
Component Parts and Harness Connector Location

UKS003RP



Schematic

UKS003RQ



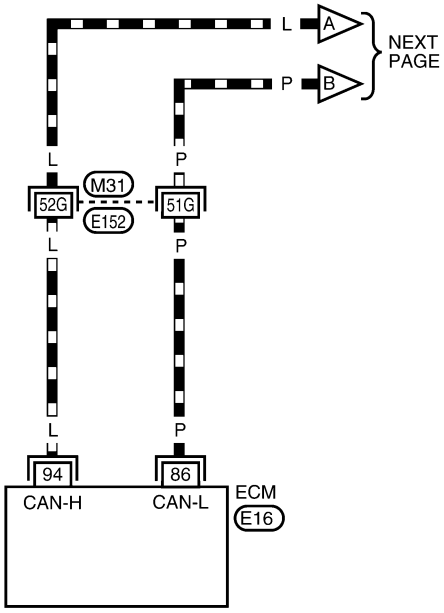
BKWA0479E

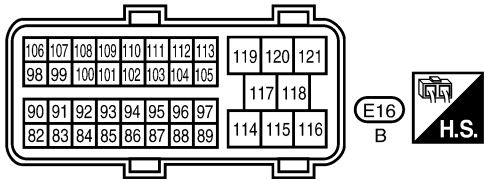
Wiring Diagram — CAN —

UKS003RR

LAN-CAN-01

: DATA LINE

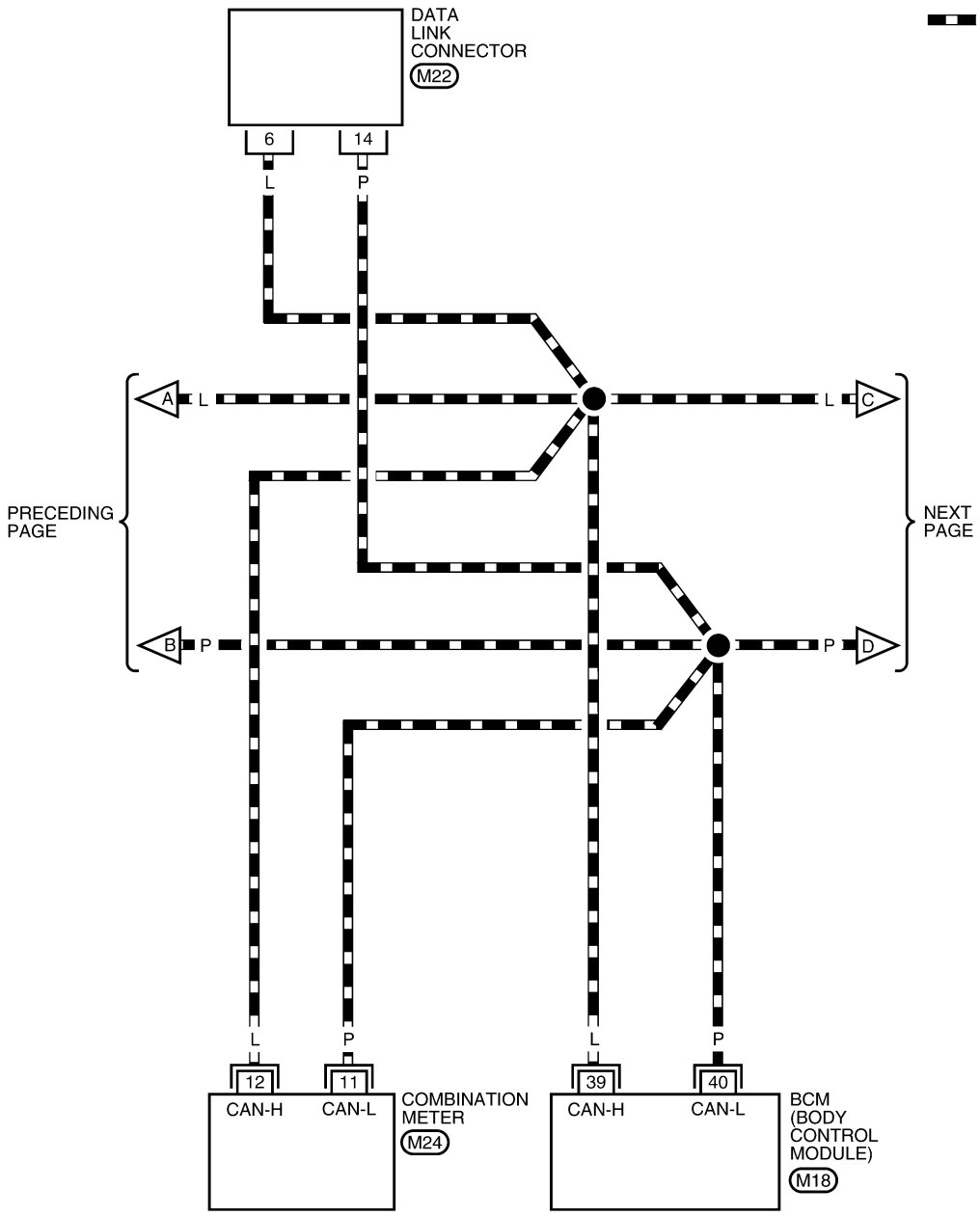


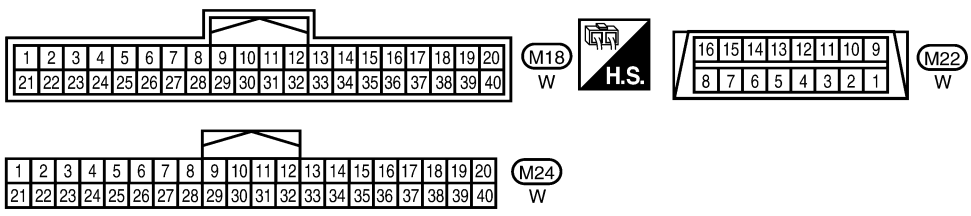


REFER TO THE FOLLOWING.
M31 - SUPER MULTIPLE JUNCTION (SMJ)

BKWA0480E

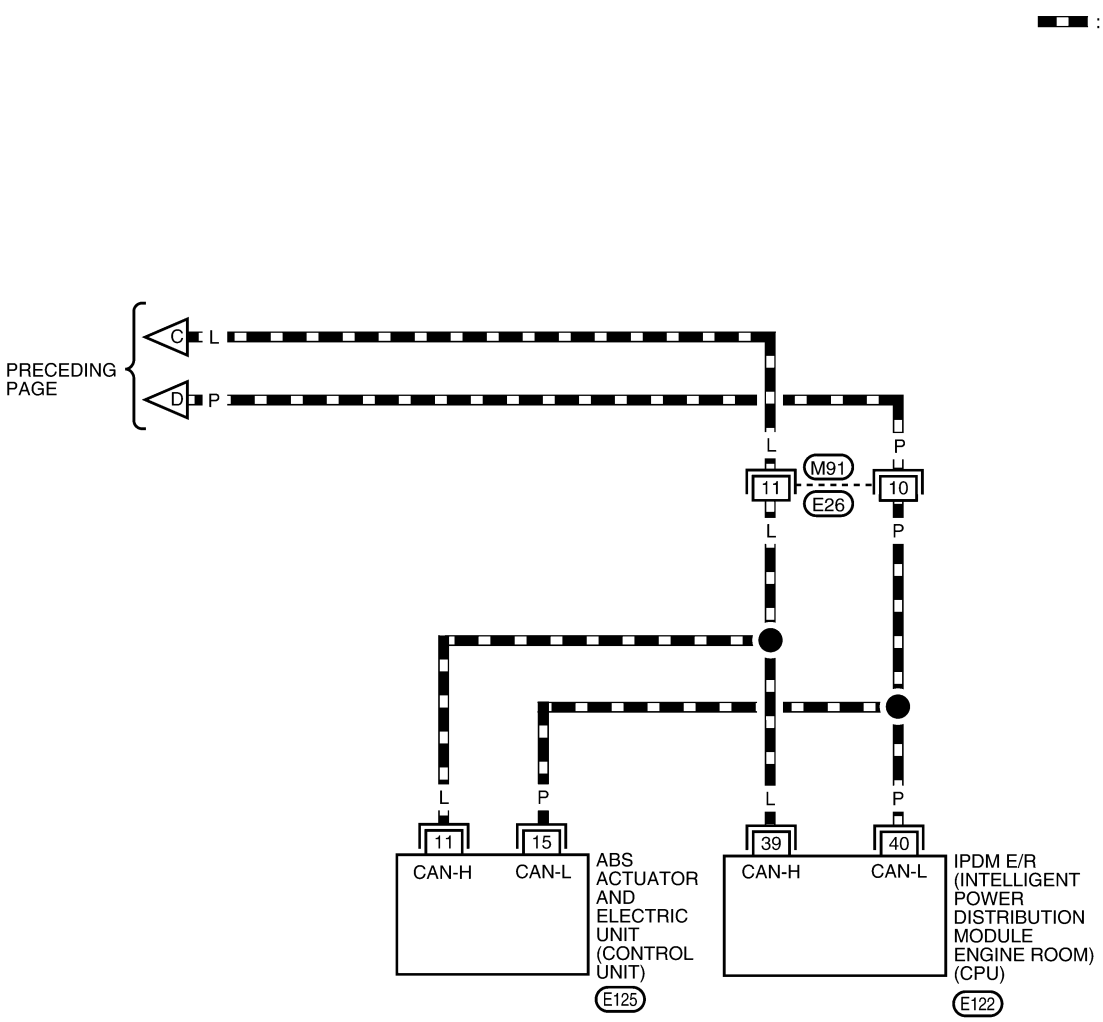
LAN-CAN-02

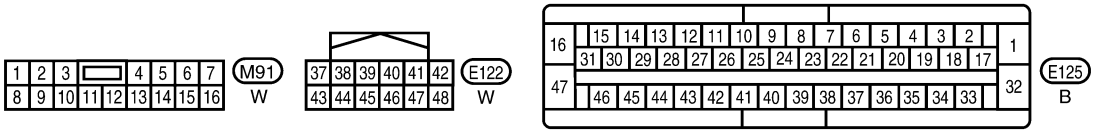




BKWA0481E

LAN-CAN-03





BKWA0482E

CHECK SHEET

UKS003RS

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

Check sheet table

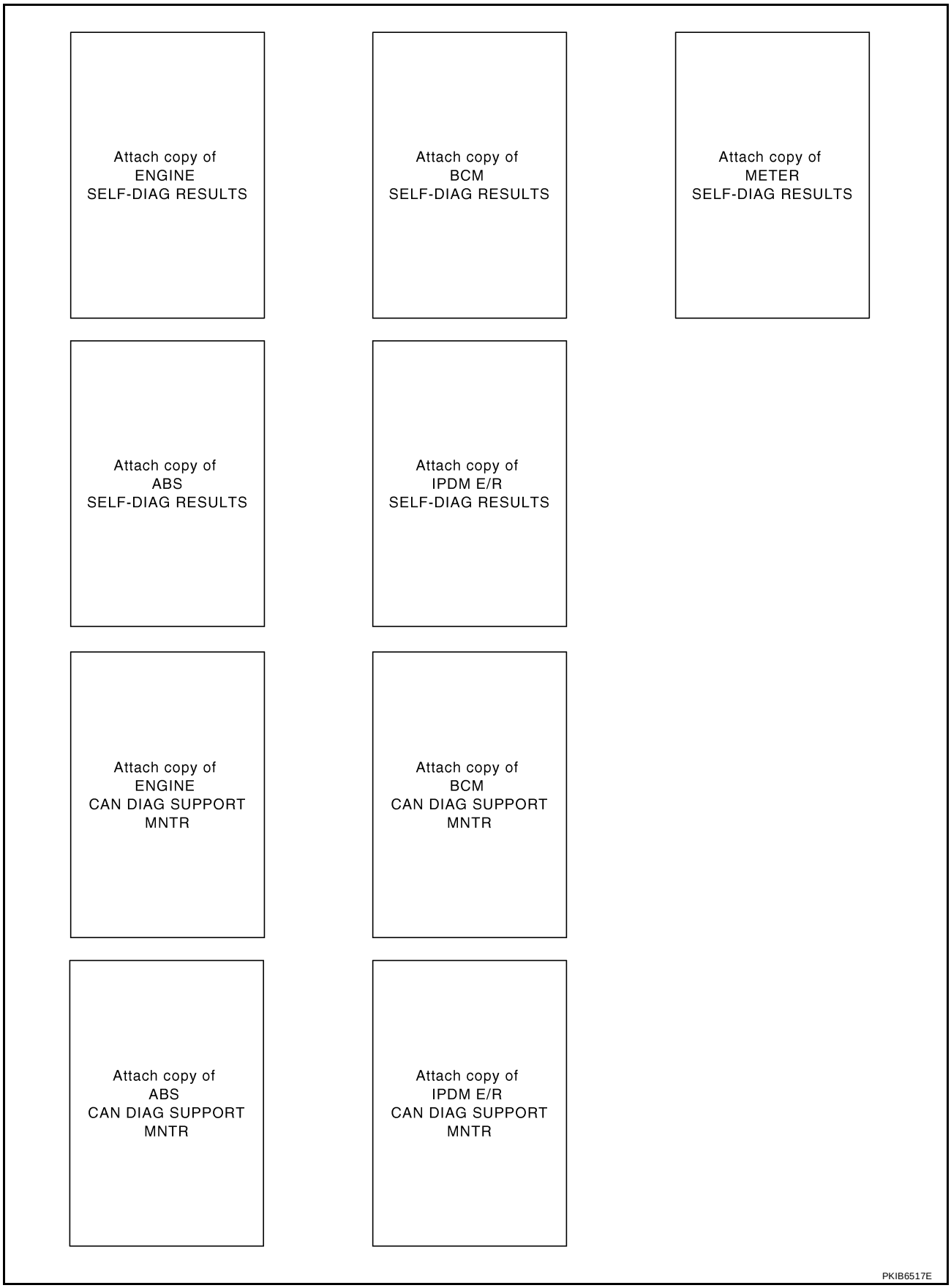
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIB6516E


Attach copy of
ENGINE
SELF-DIAG RESULTS
Attach copy of
BCM
SELF-DIAG RESULTS
Attach copy of
METER
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
BCM
CAN DIAG SUPPORT
MNTR
Attach copy of
ABS
CAN DIAG SUPPORT
MNTR
Attach copy of
IPDM E/R
CAN DIAG SUPPORT
MNTR
PKIB6517E

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

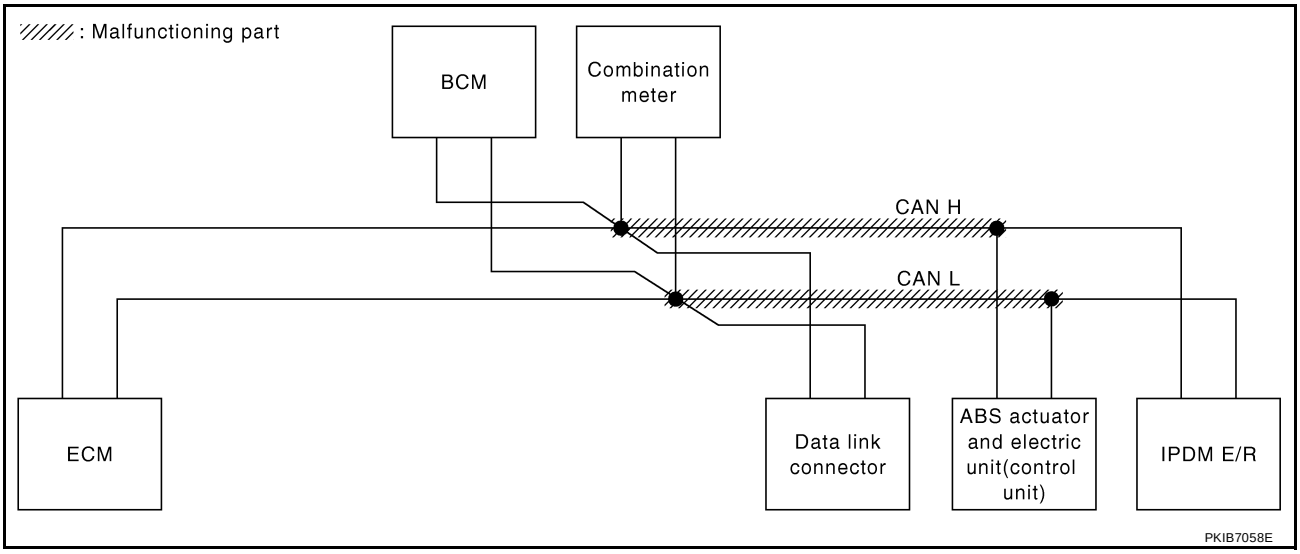
If a check mark is put on “NG” on “INITIAL DIAG (Initial diagnosis)”, replace the control unit.

Case 1

Check harness between data link connector and ABS actuator and electric unit (control unit) circuit. Refer to LAN-55, "Inspection Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Circuit" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN ✓	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN ✓	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7252E

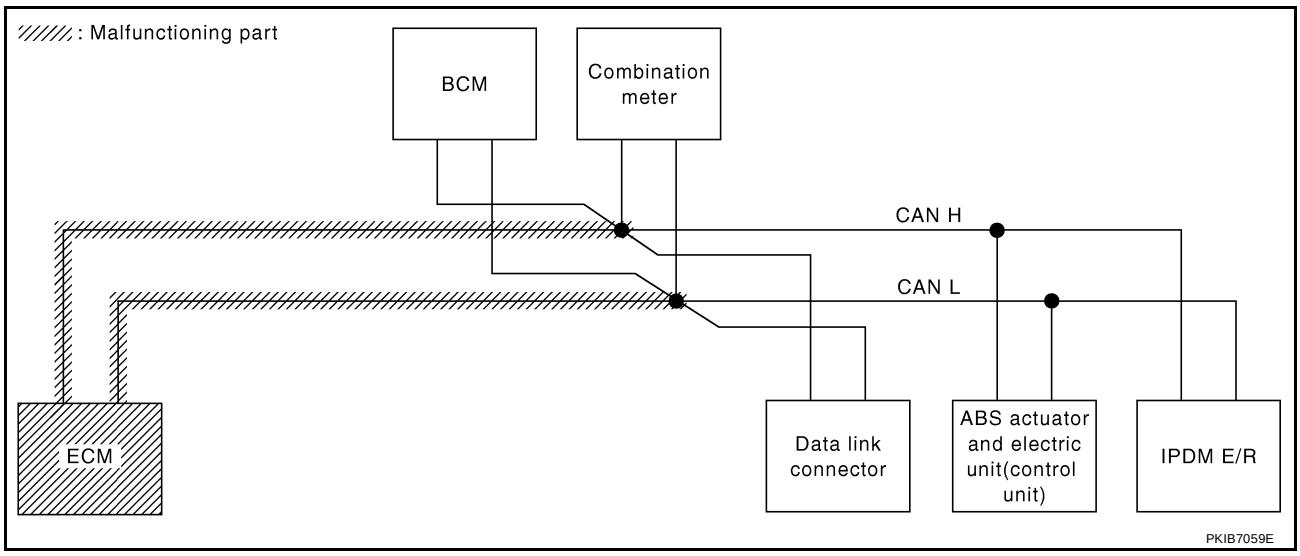


Case 2

Check ECM circuit. Refer to LAN-56, "ECM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7253E



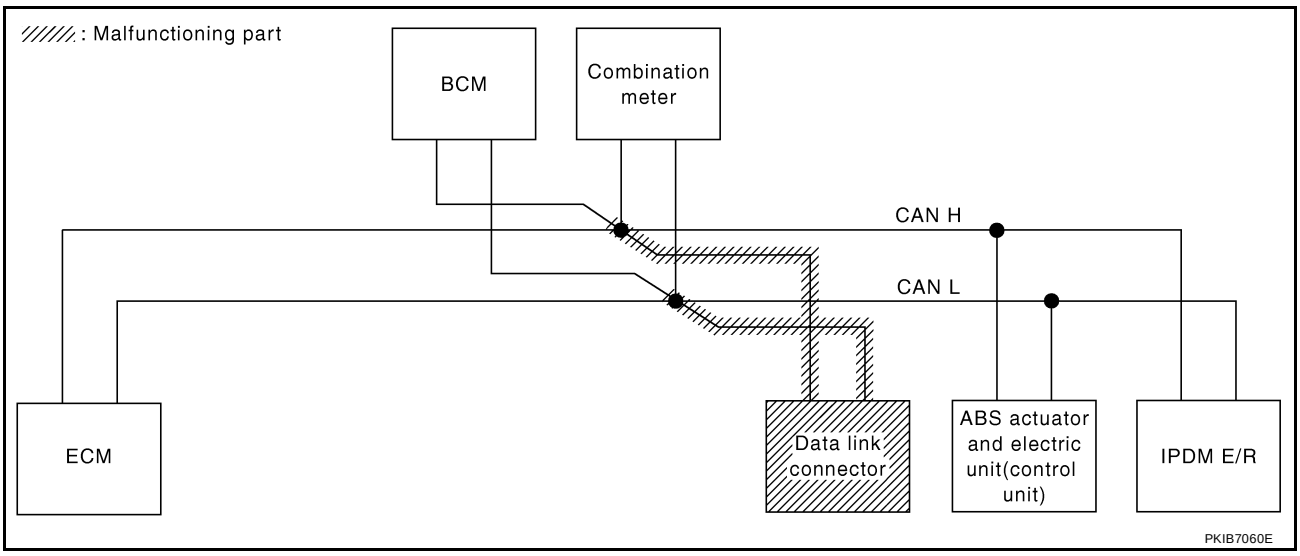
PKIB7059E

Case 3

Check data link connector circuit. Refer to LAN-57, "Data Link Connector Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7254E



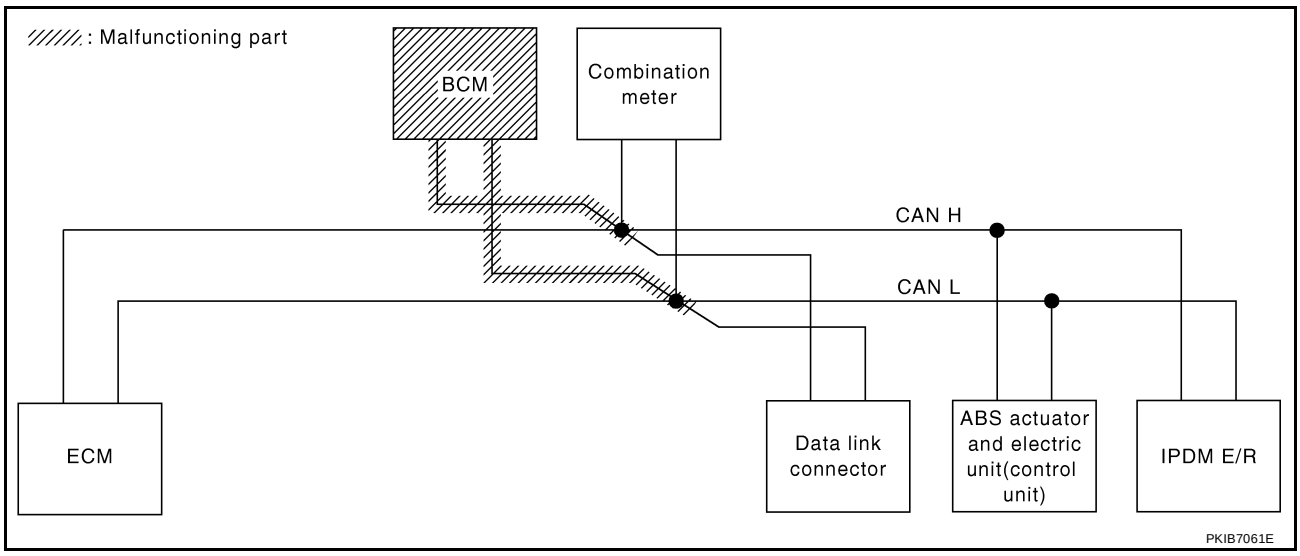
PKIB7060E

Case 4

Check BCM circuit. Refer to LAN-57, "BCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7255E



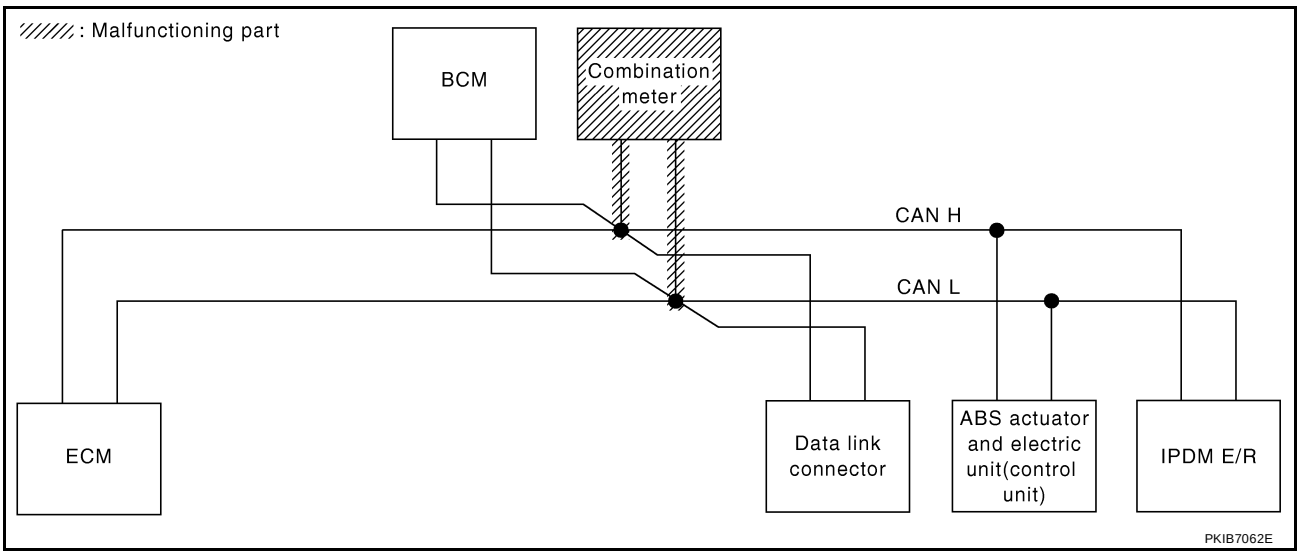
PKIB7061E

Case 5

Check combination meter circuit. Refer to LAN-58, "Combination Meter Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7256E

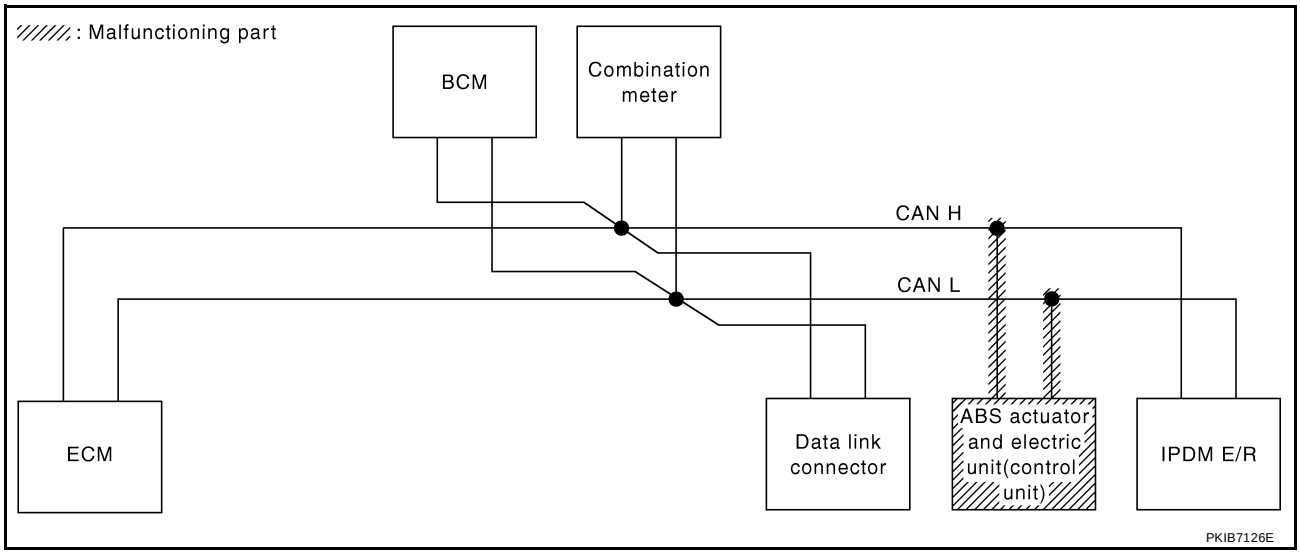


Case 6

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-58, "ABS Actuator and Electric Unit (Control Unit) Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7257E



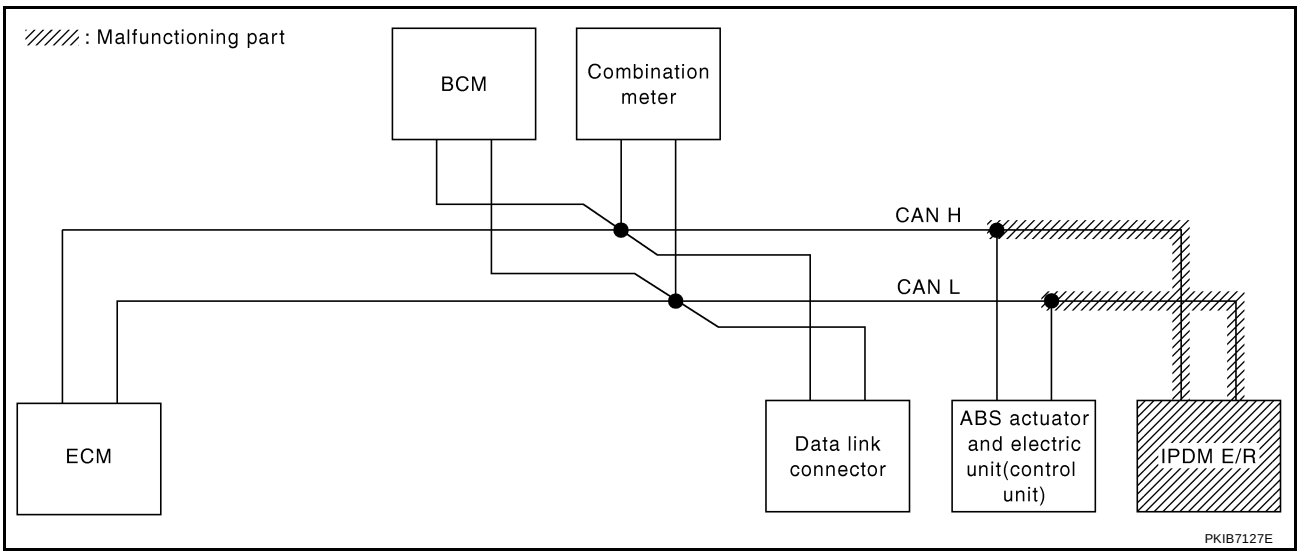
PKIB7126E

Case 7

Check IPDM E/R circuit. Refer to LAN-59, "IPDM E/R Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7258E



PKIB7127E

Case 8

Check CAN communication circuit. Refer to LAN-60, "CAN Communication Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7259E

Case 9

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-63, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7260E

Case 10

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-63, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7261E

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

UKS003RT

1. CHECK CONNECTOR

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

- Harness connector M91
- Harness connector E26

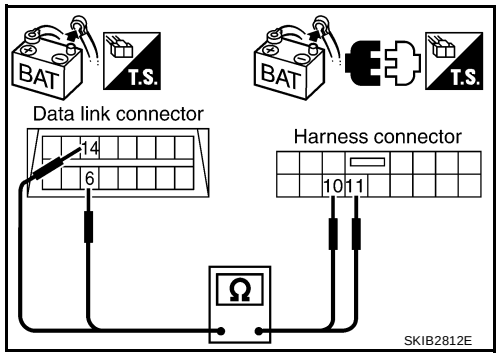
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M91.
2. Check continuity between data link connector M22 terminals 6 (L), 14 (P) and harness connector M91 terminals 11 (L), 10 (P).

6 (L) – 11 (L) : Continuity should exist.
14 (P) – 10 (P) : Continuity should exist.



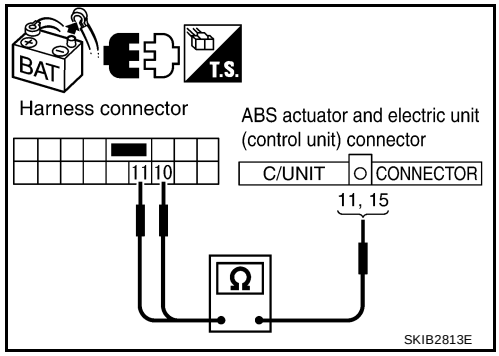
OK or NG

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 E26 terminals 11 (L), 10 (P) and ABS actuator and electric unit (control unit) harness connector E125 terminals 11 (L), 15 (P).

11 (L) – 11 (L) : Continuity should exist.
10 (P) – 15 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.

ECM Circuit Inspection

UKS003RU

1. CHECK CONNECTOR

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

- ECM connector
- Harness connector E152
- Harness connector M31

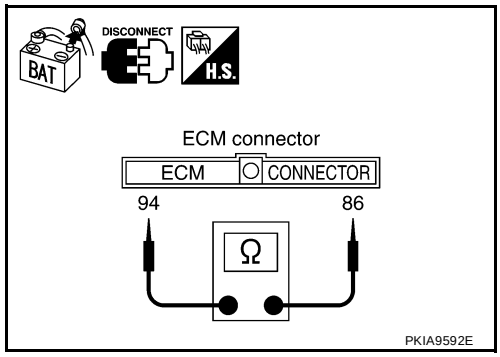
OK or NG

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 E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Approx. 108 – 132 Ω



OK or NG

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

Data Link Connector Circuit Inspection

UKS003RV

1. CHECK CONNECTOR

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

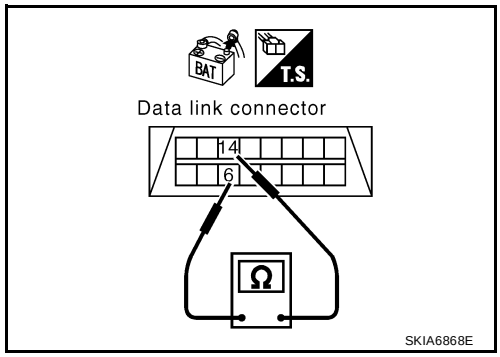
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

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

6 (L) – 14 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness between data link connector and BCM.

BCM Circuit Inspection

UKS003RW

1. CHECK CONNECTOR

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

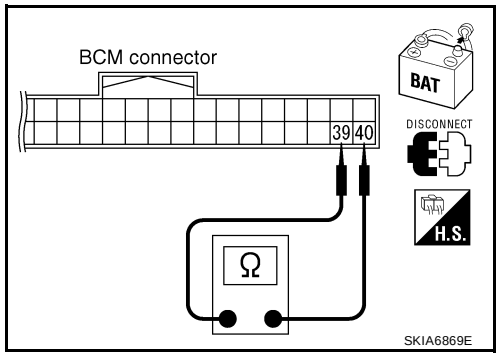
OK or NG

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 M18 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace BCM. Refer to BCS-19, "Removal and Installation of BCM" .
NG >> Repair harness between BCM and data link connector.

Combination Meter Circuit Inspection

UKS003RX

1. CHECK CONNECTOR

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

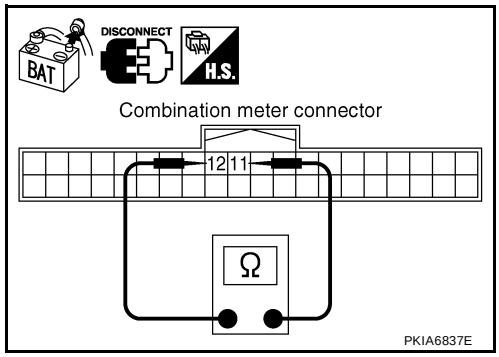
OK or NG

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 M24 terminals 12 (L) and 11 (P).

12 (L) – 11 (P) : Approx. 54 – 66 Ω



OK or NG

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

ABS Actuator and Electric Unit (Control Unit) Circuit Inspection

UKS003RY

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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).

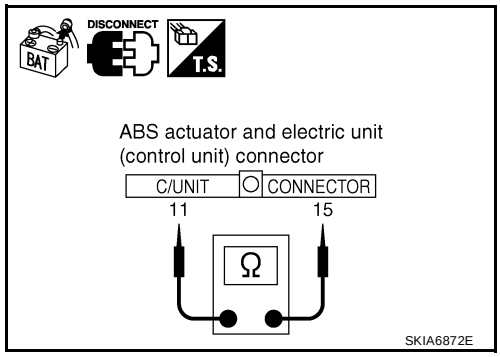
OK or NG

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 E125 terminals 11 (L) and 15 (P).

11 (L) – 15 (P) : Approx. 54 – 66 Ω



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 Inspection

UKS003RZ

1. CHECK CONNECTOR

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

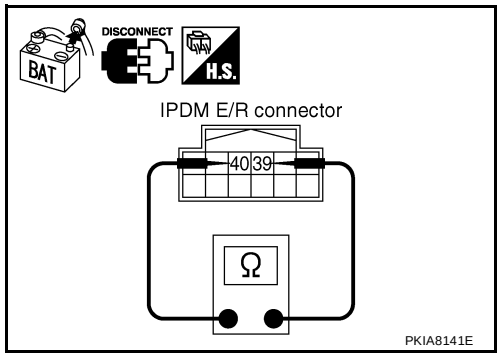
OK or NG

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 E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 108 – 132 Ω



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 Inspection

UKS003S0

1. CHECK CONNECTOR

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

- ECM
- BCM
- Combination meter
- 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.

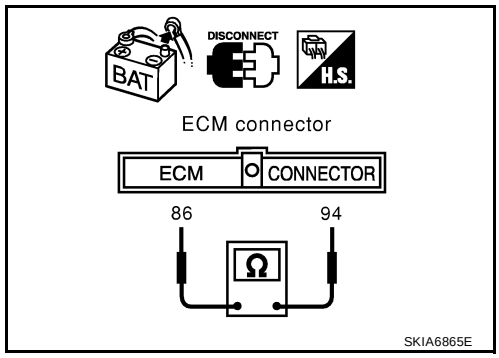
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E152.
2. Check continuity between ECM harness connector E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Continuity should not exist.

OK or NG

OK >> GO TO 3.
NG >> Repair harness between ECM and harness connector E152.



3. CHECK HARNESS FOR SHORT CIRCUIT

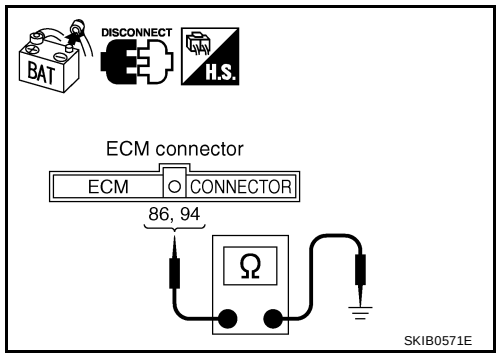
Check continuity between ECM harness connector E16 terminals 94 (L), 86 (P) and ground.

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

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

OK or NG

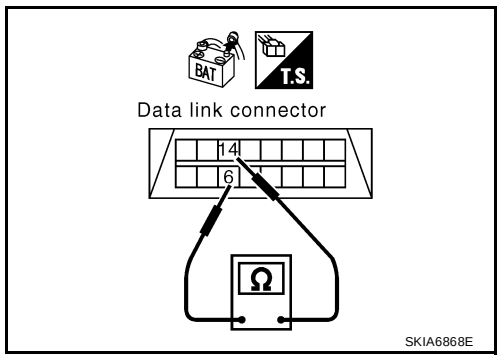
OK >> GO TO 4.
NG >> Repair harness between ECM and harness connector E152.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
- BCM connector
- Combination meter connector
- Harness connector M91
2. Check continuity between data link connector M22 terminals 6 (L) and 14 (P).

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



OK or NG

OK >> GO TO 5.

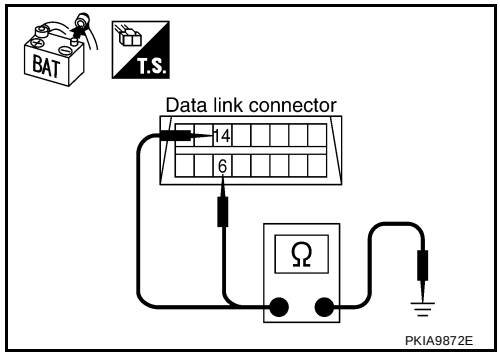
NG >> Check the following harnesses. If any harness is damaged, repair the harness.
- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and harness connector M91

5. CHECK HARNESS FOR SHORT CIRCUIT

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

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

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



OK or NG

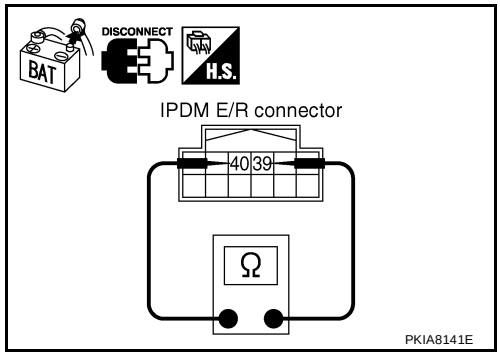
OK >> GO TO 6.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.
- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and harness connector M91

6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 7.

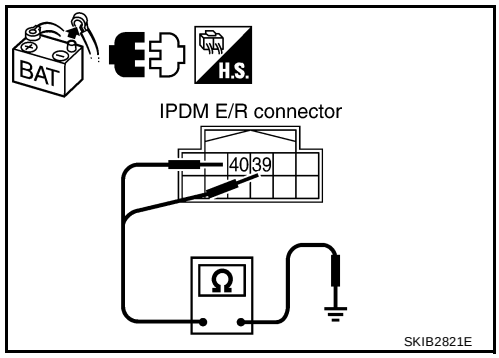
NG >> Check the following harnesses. If any harness is damaged, repair the harness.
- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E122 terminals 39 (L), 40 (P) and ground.

39 (L) – Ground : Continuity should not exist.

40 (P) – 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 IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

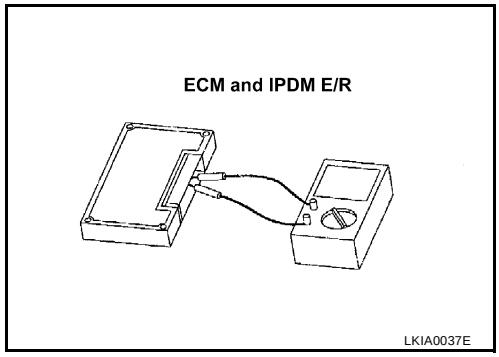
8. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

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

94 – 86 : Approx. 108 – 132 Ω

3. Check resistance between IPDM E/R terminals 39 and 40.

39 – 40 : Approx. 108 – 132 Ω



OK or NG

OK >> GO TO 9.

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

9. CHECK SYMPTOM

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

OK or NG

OK >> GO TO 10.

NG >> Refer to LAN-15, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced".

10. CHECK UNIT REPRODUCIBILITY

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

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

- BCM
- Combination meter
- ABS actuator and electric unit (control unit)
- ECM
- IPDM E/R

Inspection results

Reproduced>>Install removed unit, and then check the other unit.

Not reproduced>>Replace removed unit.

IPDM E/R Ignition Relay Circuit Inspection

UKS003S1

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

- IPDM E/R power supply circuit. Refer to PG-27, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition power supply circuit. Refer to PG-14, "IGNITION POWER SUPPLY — IGNITION SW. IN ON AND/OR START" .

CAN SYSTEM (TYPE 2)

PFP:23710

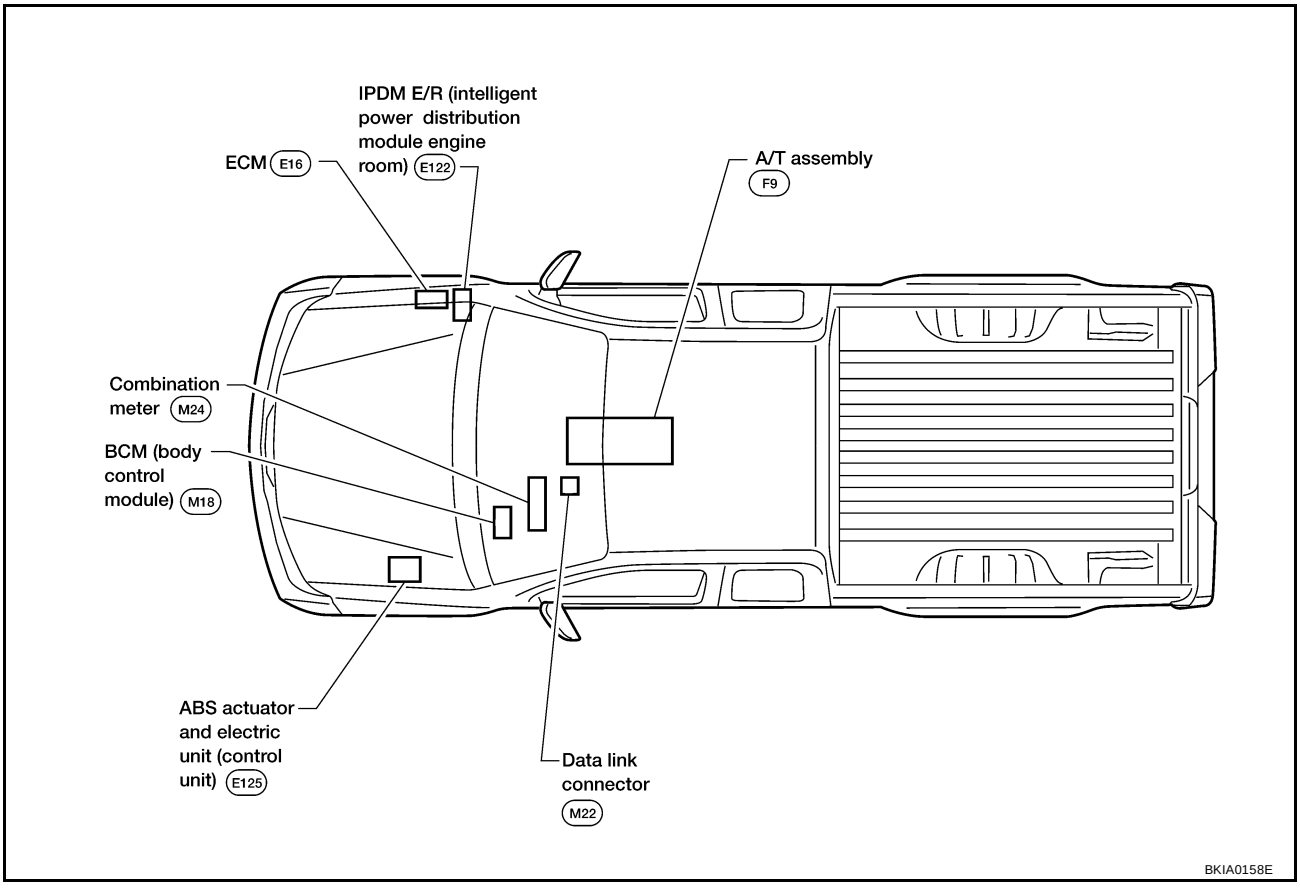
System Description

UKS003R8

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.

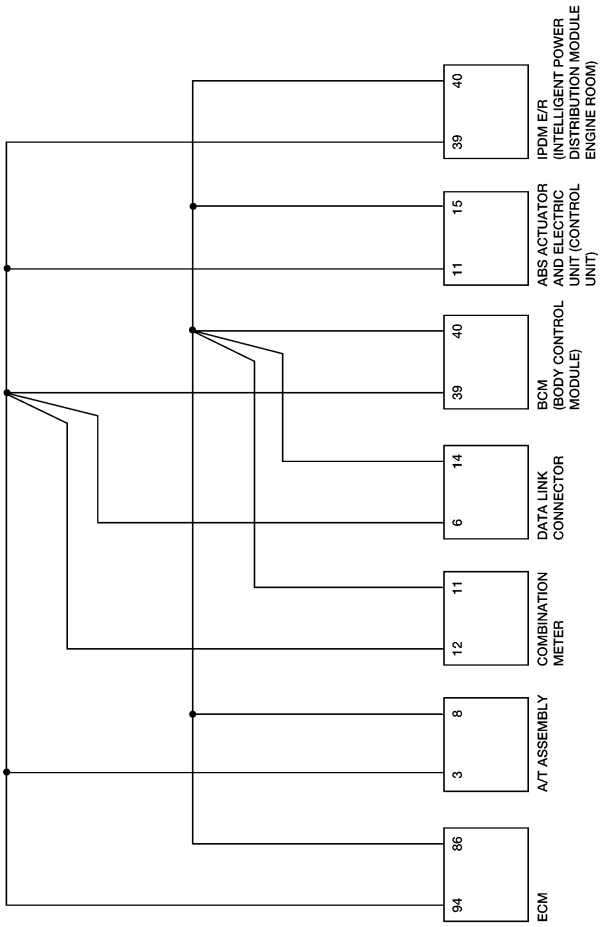
Component Parts and Harness Connector Location

UKS003R9



Schematic

UKS003RA

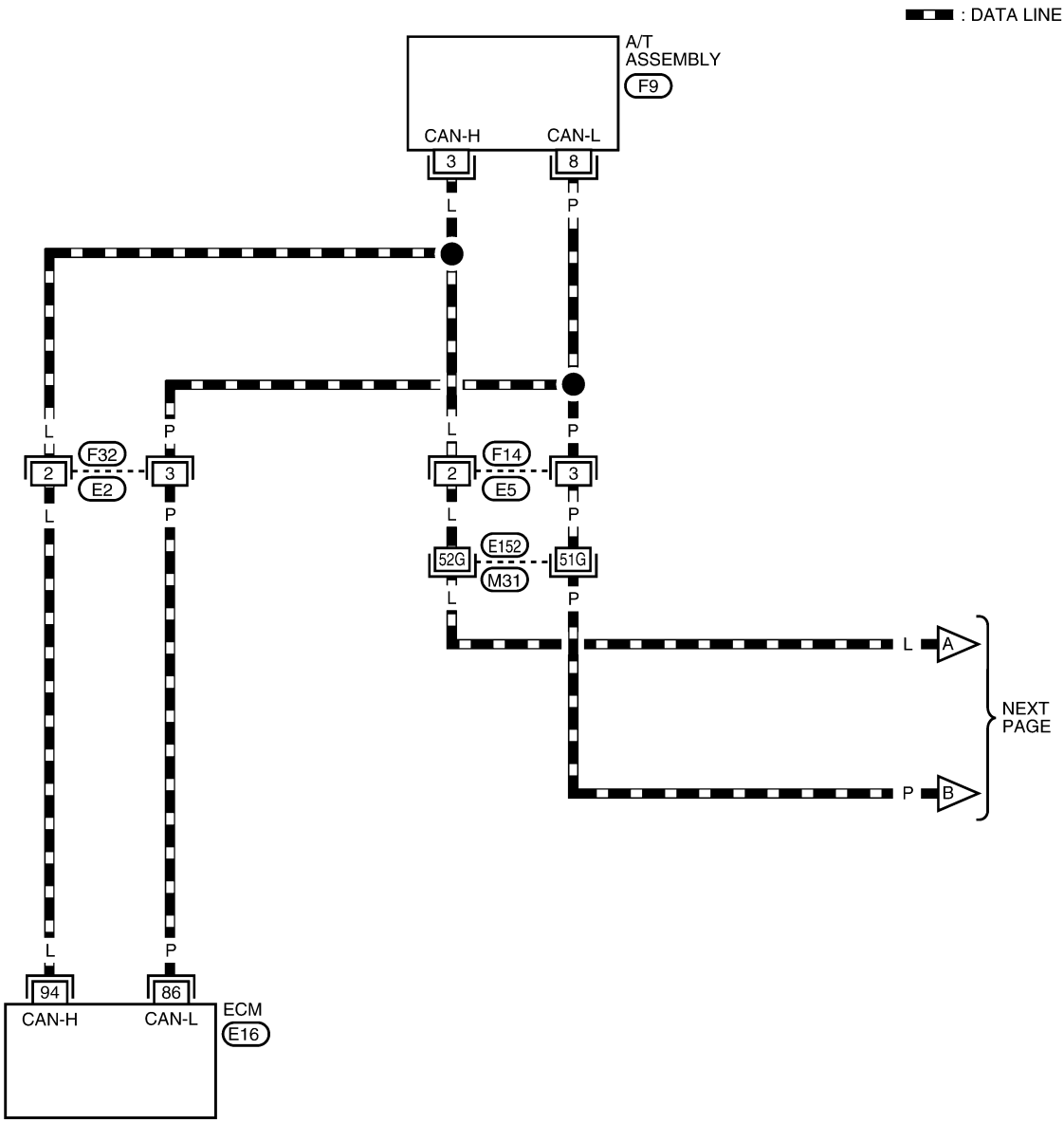


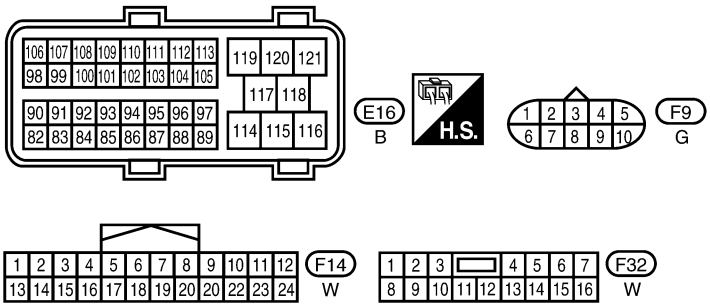
BKWA0483E

Wiring Diagram — CAN —

UKS003RB

LAN-CAN-04

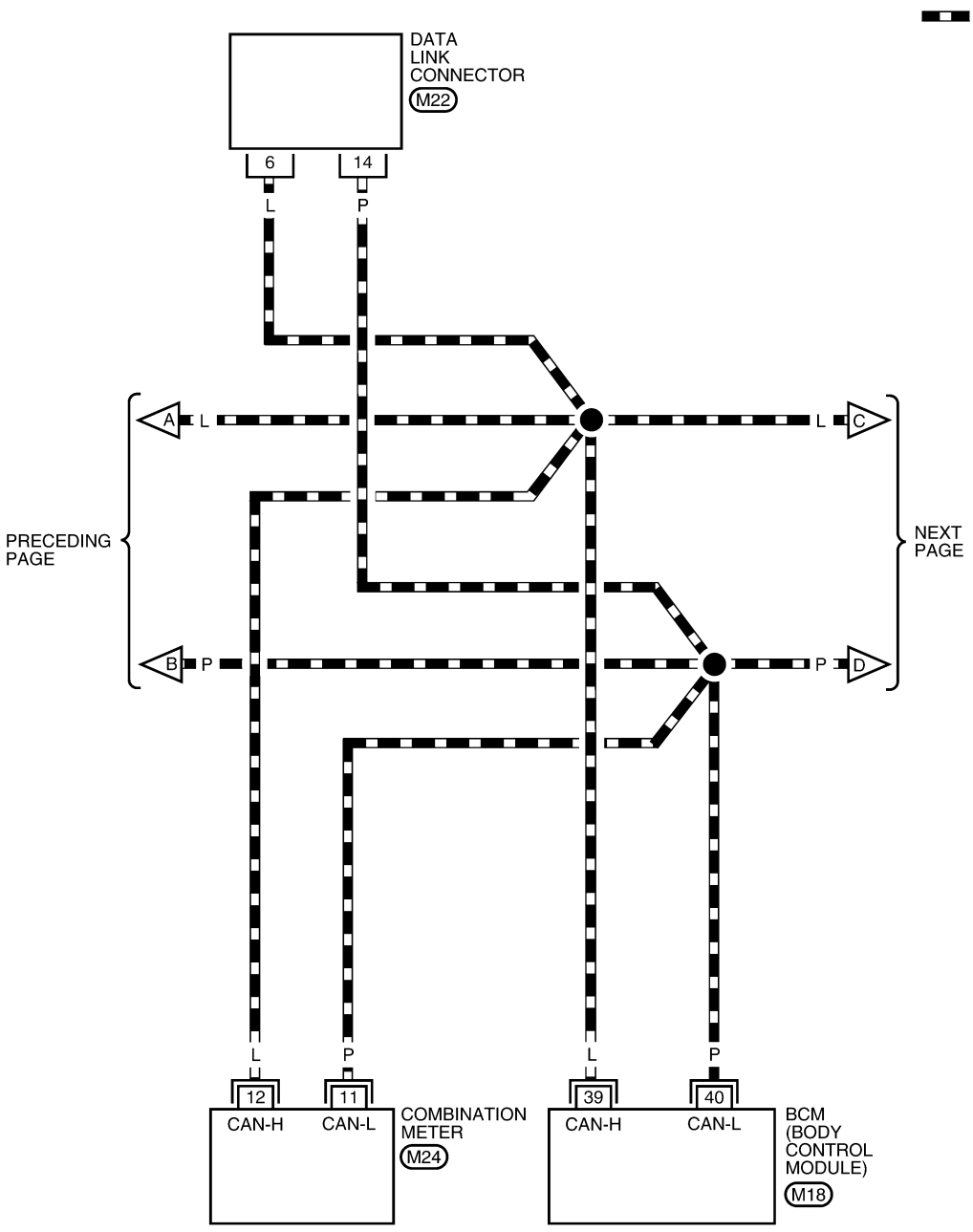


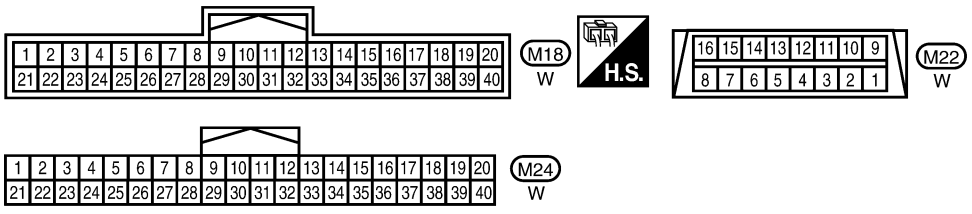


REFER TO THE FOLLOWING.
M31 - SUPER MULTIPLE JUNCTION (SMJ)

BKWA0484E

LAN-CAN-05





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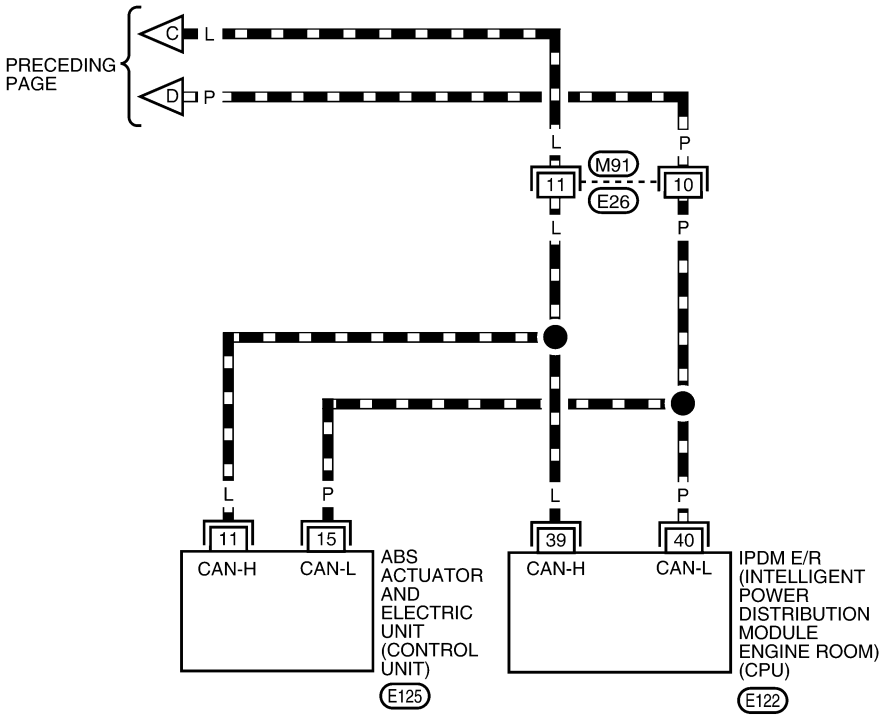
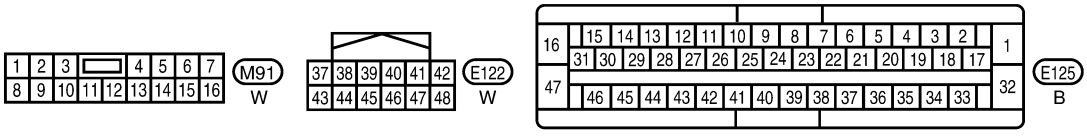

: DATA LINE
PRECEDING PAGE
C
L
D
P
L
P
M91
11
E26
10
L
P
L
P
L
P
11
15
39
40
CAN-H
CAN-L
CAN-H
CAN-L
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
E125
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) (CPU)
E122


1 2 3 4 5 6 7
8 9 10 11 12 13 14 15 16
M91
W
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E122
W
16
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1
31 30 29 28 27 26 25 24 23 22 21 20 19 18 17
47
46 45 44 43 42 41 40 39 38 37 36 35 34 33
32
E125
B

BKWA0486E

CHECK SHEET

UKS003RC

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

Check sheet table

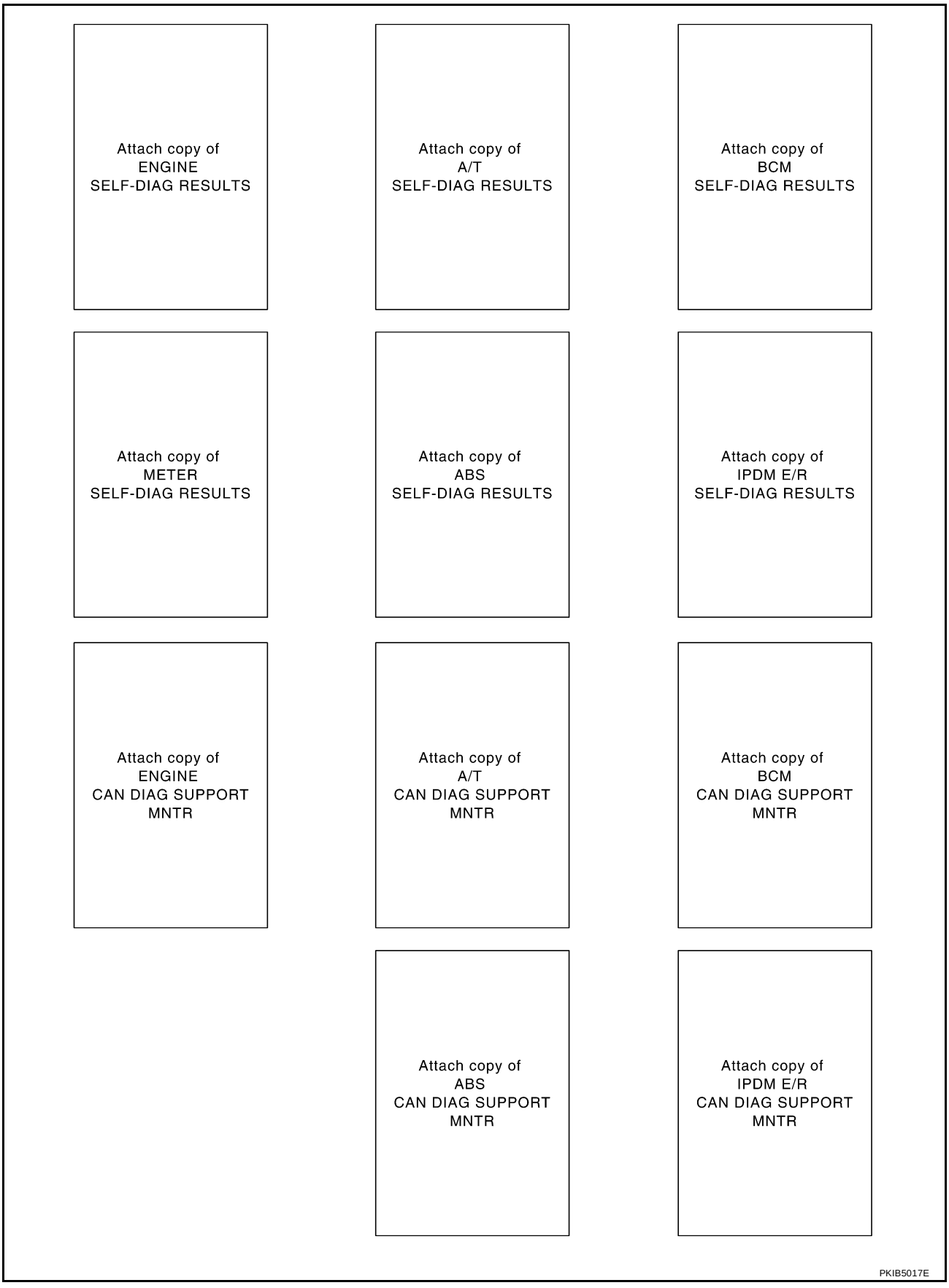
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIB6518E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ENGINE
SELF-DIAG RESULTS
Attach copy of
A/T
SELF-DIAG RESULTS
Attach copy of
BCM
SELF-DIAG RESULTS
Attach copy of
METER
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
A/T
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
PKIB5017E

CHECK SHEET RESULTS (EXAMPLE)

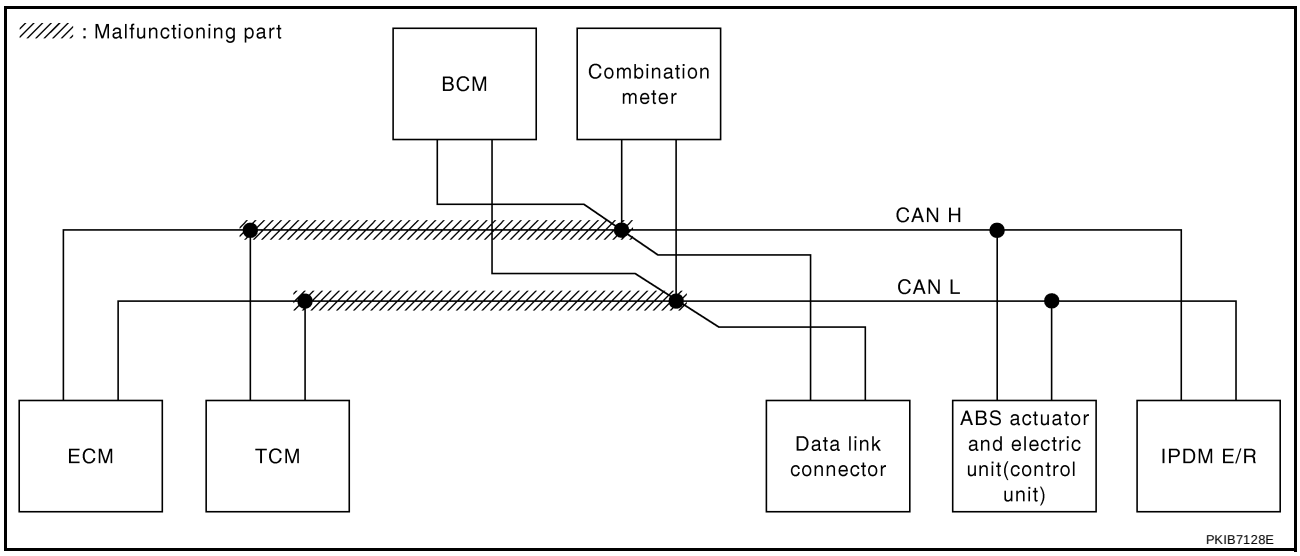
NOTE:
If a check mark is put on “NG” on “INITIAL DIAG (Initial diagnosis)”, replace the control unit.

Case 1

Check harness between TCM and data link connector circuit. Refer to LAN-80, "Inspection Between TCM and Data Link Connector Circuit" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN ✓	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN ✓	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN ✓	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7272E



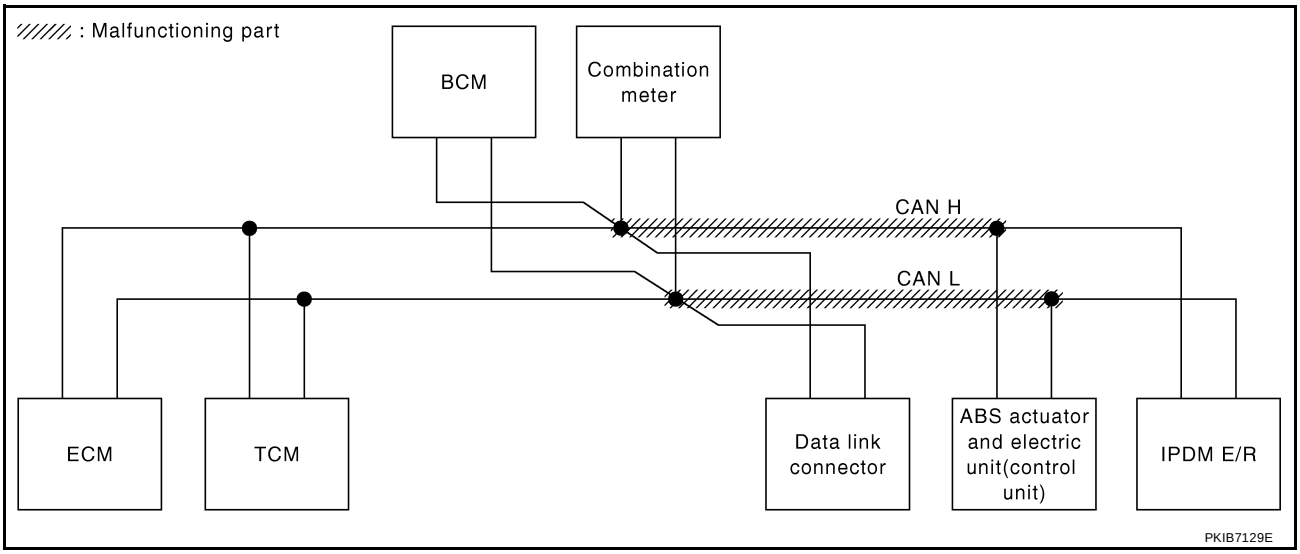
PKIB7128E

Case 2

Check harness between data link connector and ABS actuator and electric unit (control unit) circuit. Refer to LAN-81, "Inspection Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Circuit" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN ✓	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7273E

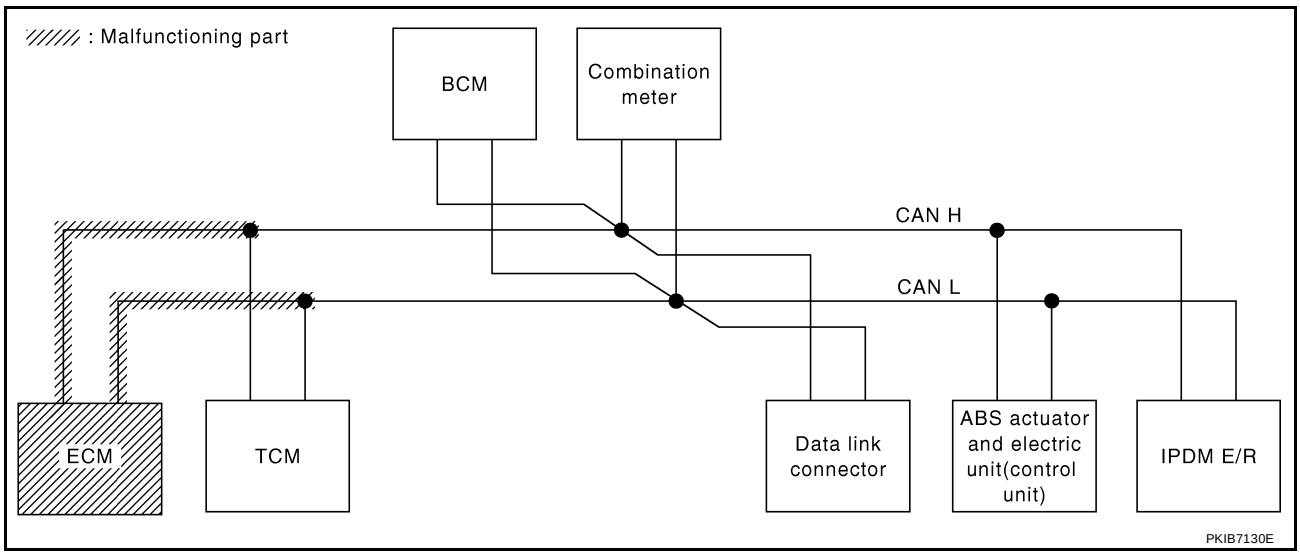


Case 3

Check ECM circuit. Refer to LAN-82, "ECM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7274E



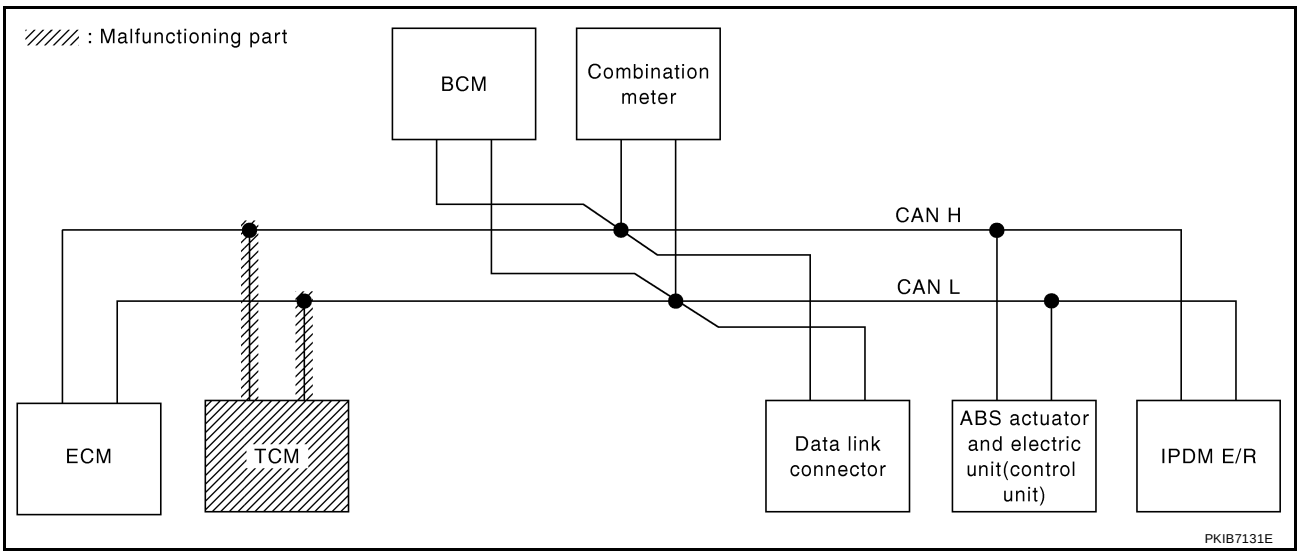
PKIB7130E

Case 4

Check TCM circuit. Refer to LAN-83, "TCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN ✓	—	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7275E



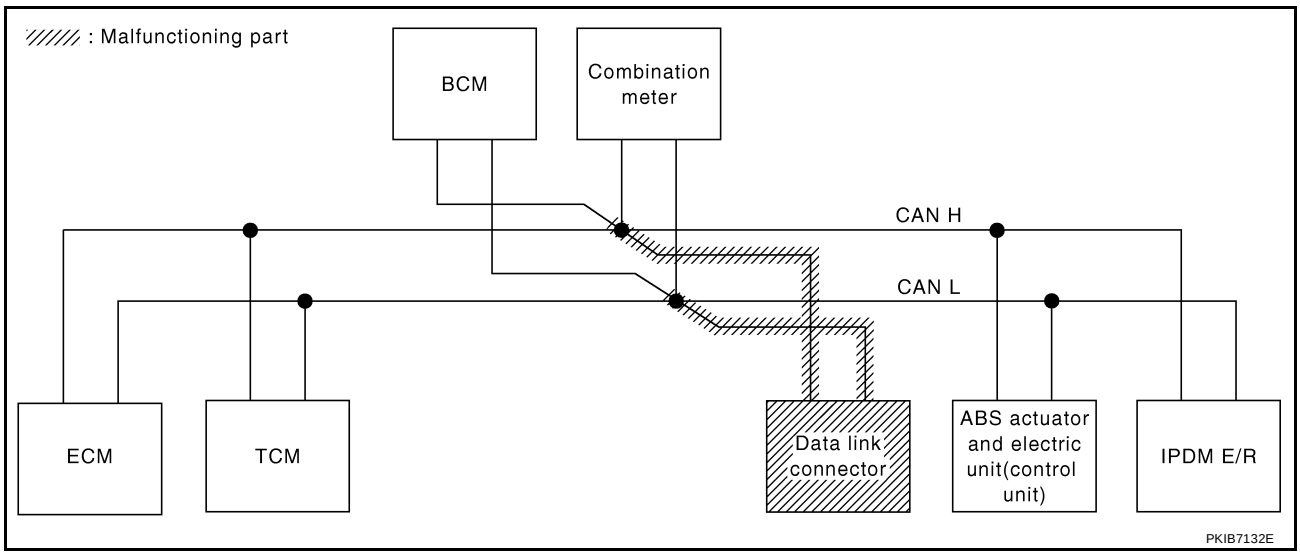
PKIB7131E

Case 5

Check data link connector circuit. Refer to LAN-83, "Data Link Connector Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7276E



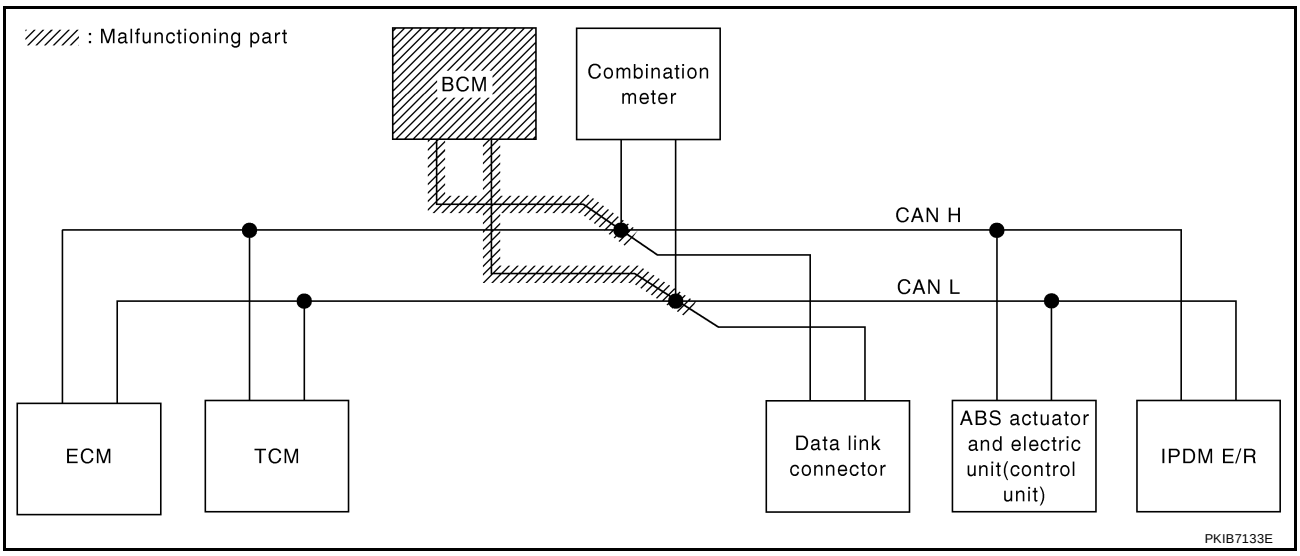
PKIB7132E

Case 6

Check BCM circuit. Refer to LAN-84, "BCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN ✓	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication ✓	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN ✓	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7277E



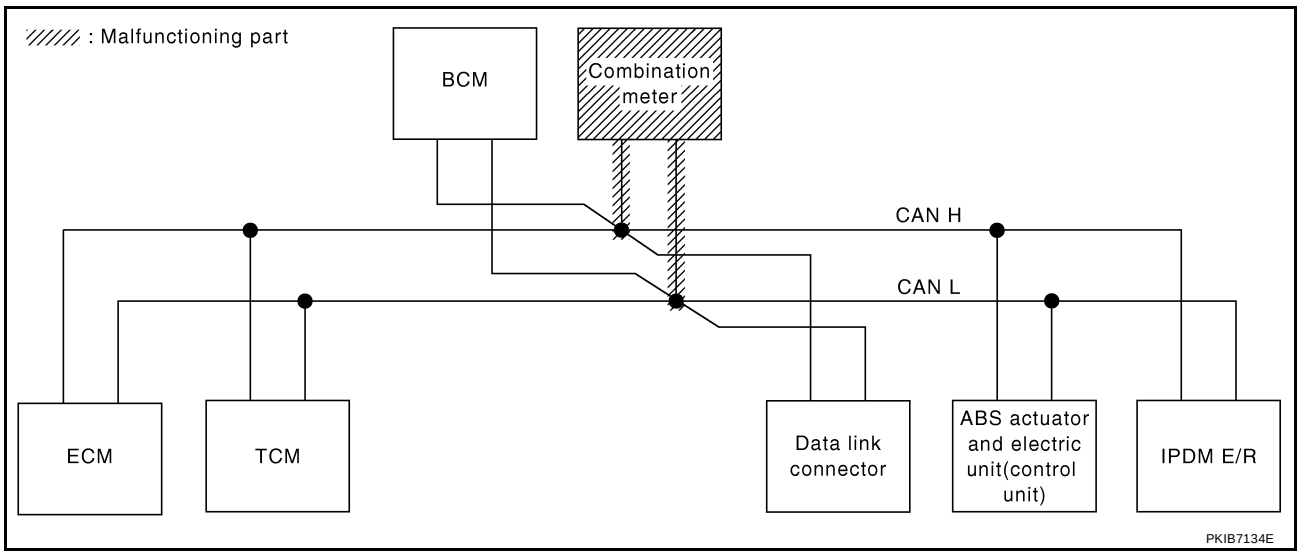
PKIB7133E

Case 7

Check combination meter circuit. Refer to LAN-84, "Combination Meter Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7278E



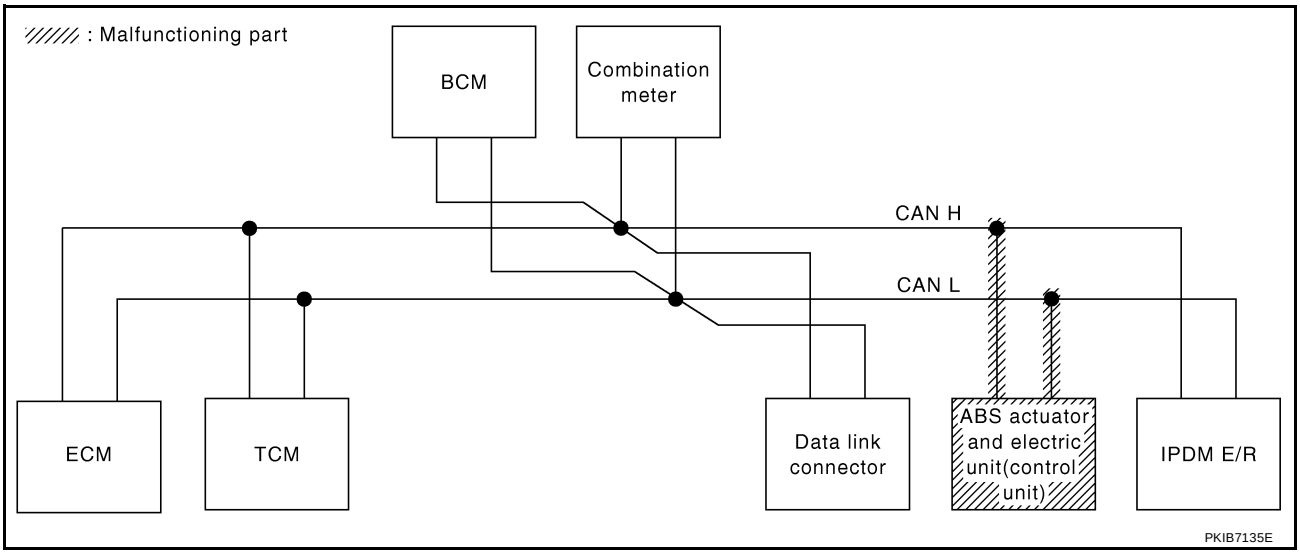
PKIB7134E

Case 8

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-85, "ABS Actuator and Electric Unit (Control Unit) Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7279E



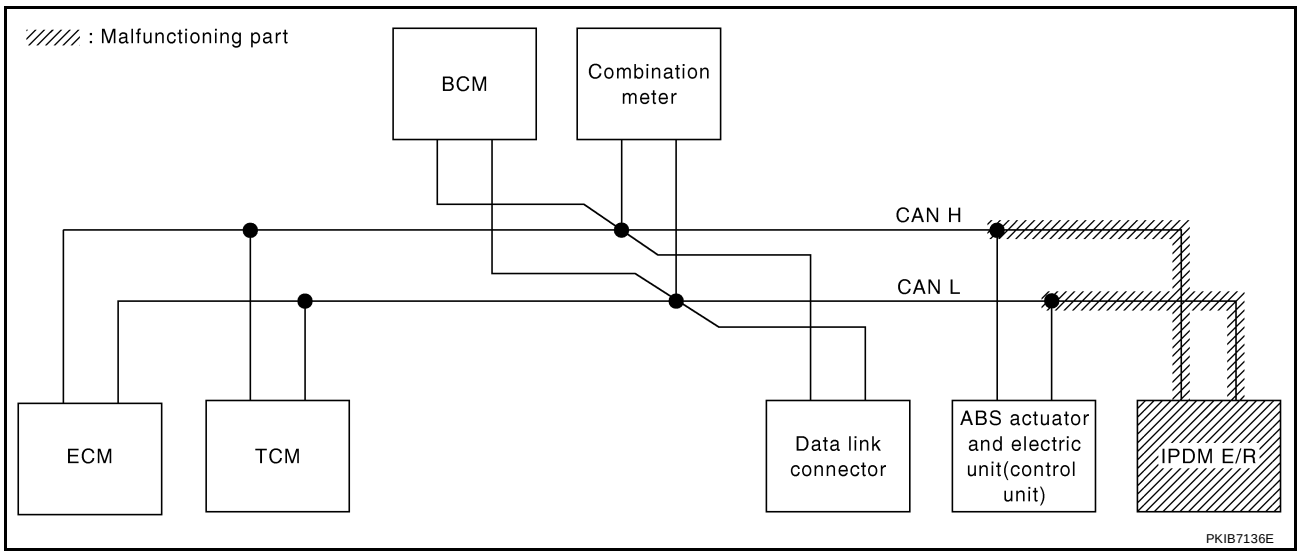
PKIB7135E

Case 9

Check IPDM E/R circuit. Refer to LAN-85, "IPDM E/R Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN ✓	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7280E



PKIB7136E

Case 10

Check CAN communication circuit. Refer to LAN-86, "CAN Communication Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN ✓	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN ✓	—	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication ✓	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG ✓	UNKWN ✓	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7281E

Case 11

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-90, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN ✓	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7282E

Case 12

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-90, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7283E

Inspection Between TCM and Data Link Connector Circuit

UKS003RD

1. CHECK CONNECTOR

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

- Harness connector F14
- Harness connector E5
- Harness connector E152
- Harness connector M31

OK or NG

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

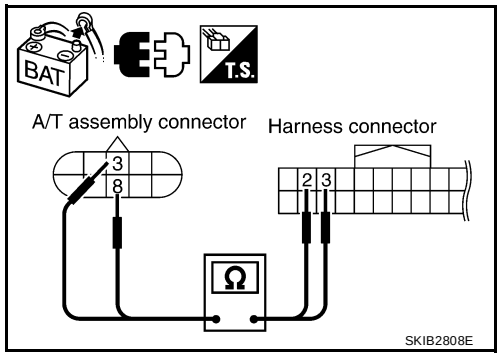
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect A/T assembly connector and harness connector F14.
2. Check continuity between A/T assembly harness connector F9 terminals 3 (L), 8 (P) and harness connector F14 terminals 2 (L), 3 (P).

3 (L) – 2 (L) : **Continuity should exist.**
8 (P) – 3 (P) : **Continuity should exist.**

OK or NG

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



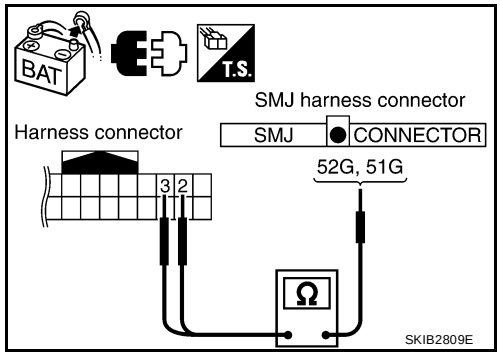
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector E152.
2. Check continuity between harness connector E5 terminals 2 (L), 3 (P) and harness connector E152 terminals 52G (L), 51G (P).

2 (L) – 52G (L) : **Continuity should exist.**
3 (P) – 51G (P) : **Continuity should exist.**

OK or NG

OK >> GO TO 4.
NG >> Repair harness.



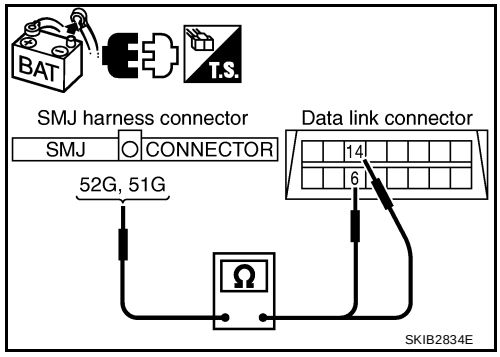
4. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between harness connector M31 terminals 52G (L), 51G (P) and Data Link Connector M22 terminals 6 (L), 14 (P).

52G (L) – 6 (L) : **Continuity should exist.**
51G (P) – 14 (P) : **Continuity should exist.**

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.



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

UKS003RE

1. CHECK CONNECTOR

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

- Harness connector M91
- Harness connector E26

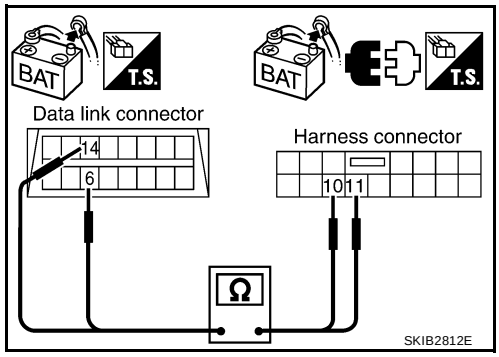
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M91.
2. Check continuity between data link connector M22 terminals 6 (L), 14 (P) and harness connector M91 terminals 11 (L), 10 (P).

6 (L) – 11 (L) : Continuity should exist.
14 (P) – 10 (P) : Continuity should exist.



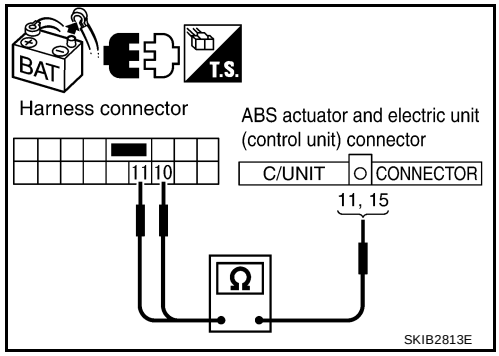
OK or NG

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 E26 terminals 11 (L), 10 (P) and ABS actuator and electric unit (control unit) harness connector E125 terminals 11 (L), 15 (P).

11 (L) – 11 (L) : Continuity should exist.
10 (P) – 15 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.

ECM Circuit Inspection

UKS003RF

1. CHECK CONNECTOR

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

- ECM connector
- Harness connector E2
- Harness connector F32

OK or NG

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

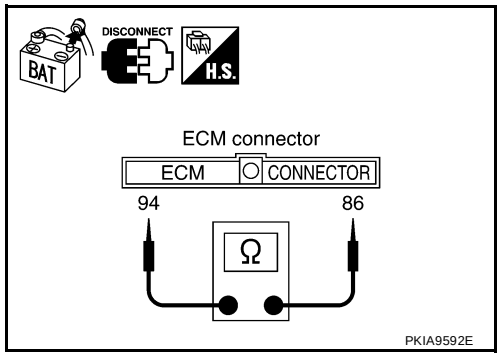
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) **: Approx. 108 – 132 Ω**

OK or NG

OK >> Replace ECM.
NG >> Repair harness between ECM and A/T assembly.



TCM Circuit Inspection

UKS003RG

1. CHECK CONNECTOR

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

OK or NG

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

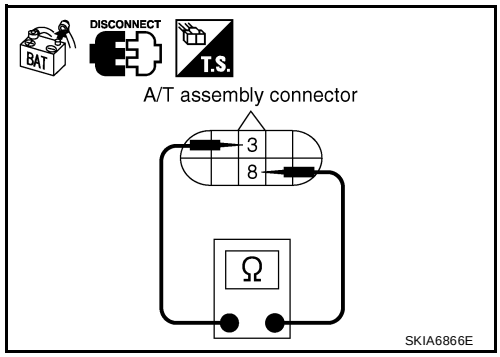
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect A/T assembly connector.
2. Check resistance between A/T assembly harness connector F9 terminals 3 (L) and 8 (P).

3 (L) – 8 (P) **: Approx. 54 – 66 Ω**

OK or NG

OK >> Replace control valve with TCM.
NG >> Repair harness between A/T assembly and harness connector F14.



Data Link Connector Circuit Inspection

UKS003RH

1. CHECK CONNECTOR

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

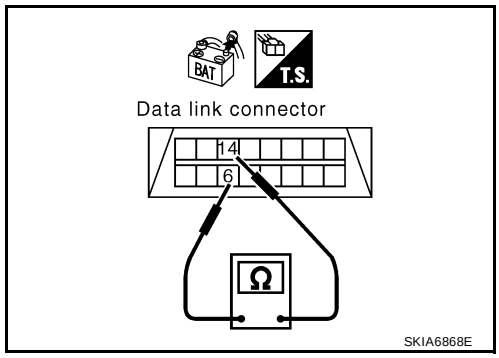
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

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

6 (L) – 14 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .

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

BCM Circuit Inspection

UKS003RI

1. CHECK CONNECTOR

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

OK or NG

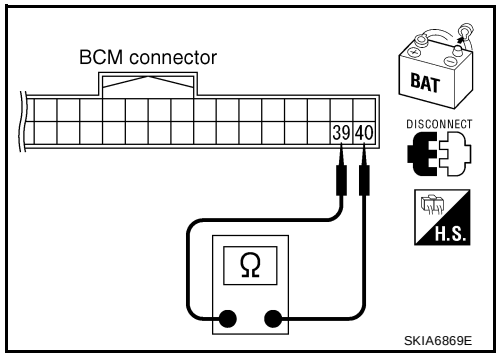
OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M18 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace BCM. Refer to BCS-19, "Removal and Installation of BCM" .

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

Combination Meter Circuit Inspection

UKS003RJ

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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.

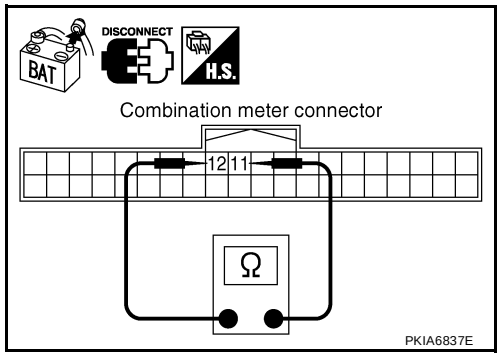
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M24 terminals 12 (L) and 11 (P).

12 (L) – 11 (P) : Approx. 54 – 66 Ω

OK or NG

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



ABS Actuator and Electric Unit (Control Unit) Circuit Inspection

UKS003RK

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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.

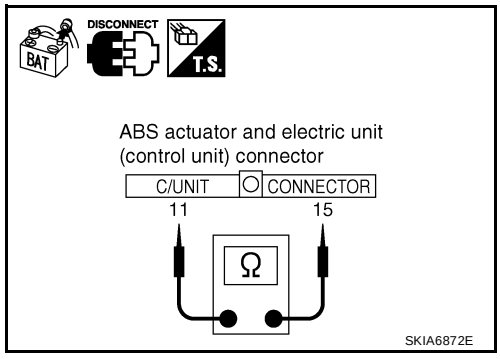
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E125 terminals 11 (L) and 15 (P).

11 (L) – 15 (P) : Approx. 54 – 66 Ω

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 Inspection

UKS003RL

1. CHECK CONNECTOR

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

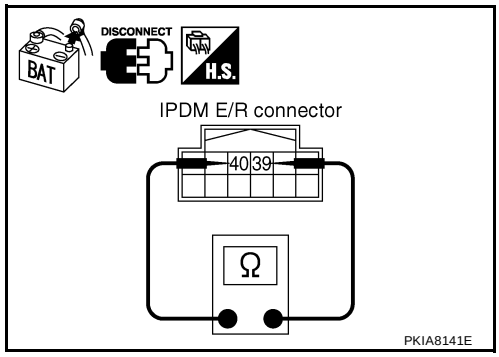
OK or NG

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 E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 108 – 132 Ω



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 Inspection

UKS003RM

1. CHECK CONNECTOR

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

- ECM
- TCM
- BCM
- Combination meter
- ABS actuator and electric unit (control unit)
- IPDM E/R
- Between ECM and IPDM E/R

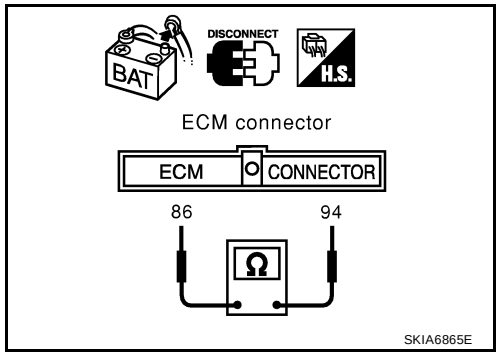
OK or NG

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

2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E2.
2. Check continuity between ECM harness connector E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 3.
NG >> Repair harness between ECM and harness connector E2.

3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector E16 terminals 94 (L), 86 (P) and ground.

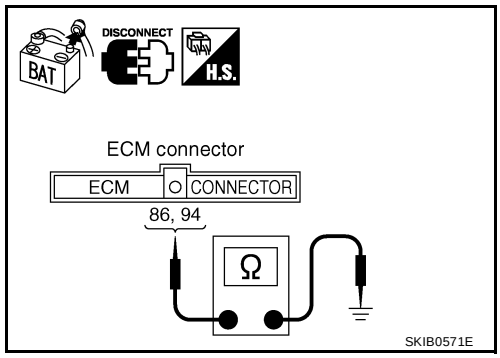
94 (L) – Ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector E2.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect A/T assembly connector and harness connector F14.
2. Check continuity between A/T assembly harness connector F9 terminals 3 (L) and 8 (P).

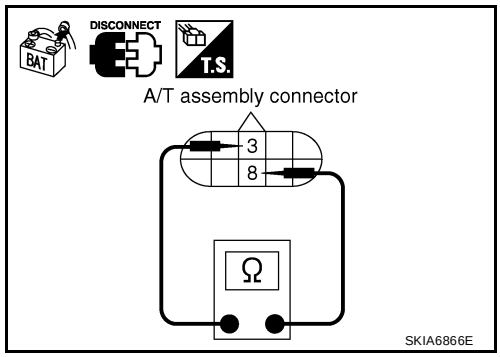
3 (L) – 8 (P) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

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

- Harness between A/T assembly and harness connector F32
- Harness between A/T assembly and harness connector F14



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between A/T assembly harness connector F9 terminals 3 (L), 8 (P) and ground.

3 (L) – Ground : Continuity should not exist.

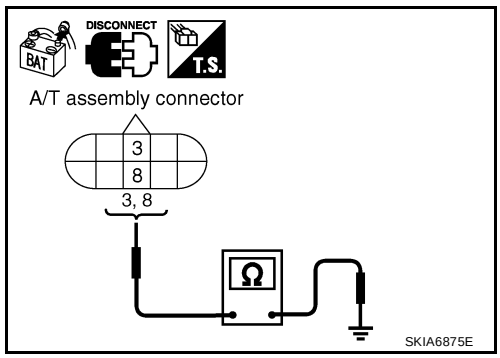
8 (P) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

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

- Harness between A/T assembly and harness connector F32
- Harness between A/T assembly and harness connector F14



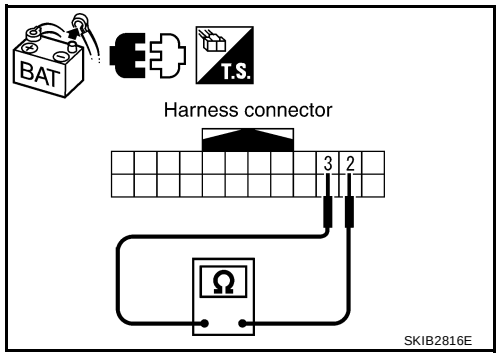
6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect harness connector E152.
2. Check continuity between harness connector E5 terminals 2 (L) and 3 (P).

2 (L) – 3 (P) : Continuity should not exist.

OK or NG

OK >> GO TO 7.
NG >> Repair harness between harness connector E5 and harness connector E152.



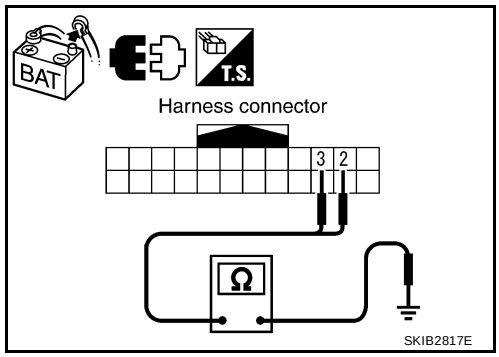
7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector E5 terminals 2 (L), 3 (P) and ground.

2 (L) – Ground : Continuity should not exist.
3 (P) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 8.
NG >> Repair harness between harness connector E5 and harness connector E152.



8. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.

- BCM connector
- Combination meter connector
- Harness connector M91

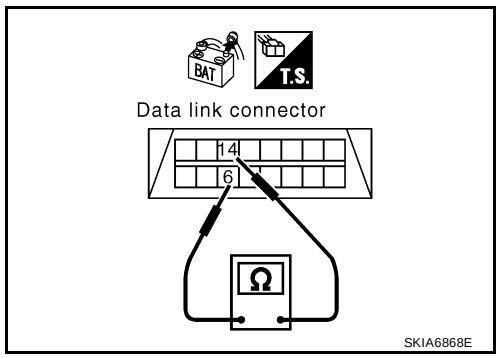
2. Check continuity between data link connector M22 terminals 6 (L) and 14 (P).

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

OK or NG

OK >> GO TO 9.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and harness connector M91

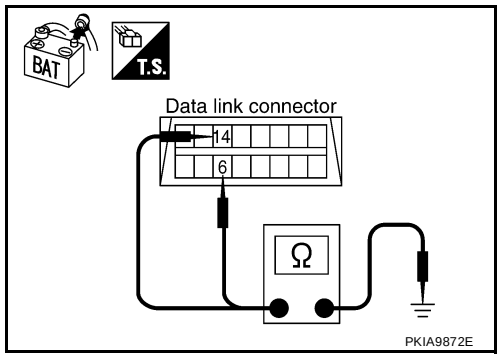


9. CHECK HARNESS FOR SHORT CIRCUIT

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

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

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



OK or NG

OK >> GO TO 10.

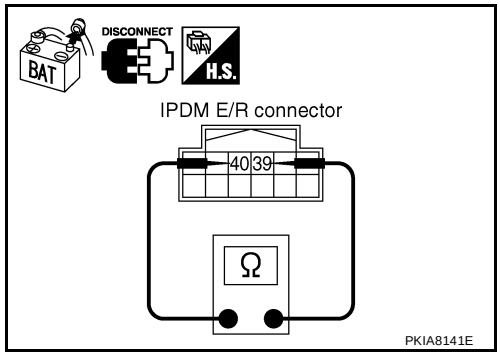
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and harness connector M91

10. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 11.

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

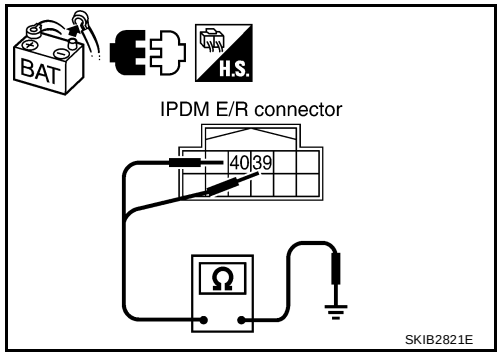
- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

11. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E122 terminals 39 (L), 40 (P) and ground.

39 (L) – Ground : Continuity should not exist.

40 (P) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 12.

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

- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

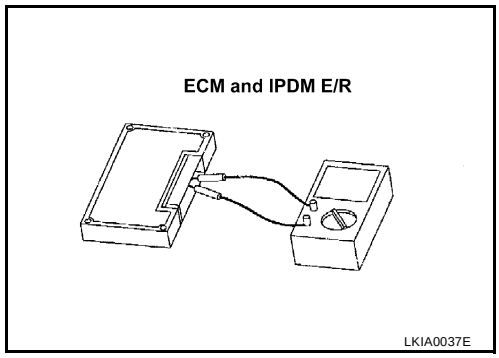
12. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

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

94 – 86 : Approx. 108 – 132 Ω

3. Check resistance between IPDM E/R terminals 39 and 40.

39 – 40 : Approx. 108 – 132 Ω



OK or NG

OK >> GO TO 13.
NG >> Replace ECM and/or IPDM E/R.

13. CHECK SYMPTOM

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

OK or NG

OK >> GO TO 14.
NG >> Refer to LAN-15, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced" .

14. CHECK UNIT REPRODUCIBILITY

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

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

- TCM
- BCM
- Combination meter
- ABS actuator and electric unit (control unit)
- ECM
- IPDM E/R

Inspection results

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

IPDM E/R Ignition Relay Circuit Inspection

UKS003RN

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

- IPDM E/R power supply circuit. Refer to PG-27, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition power supply circuit. Refer to PG-14, "IGNITION POWER SUPPLY — IGNITION SW. IN ON AND/OR START" .

CAN SYSTEM (TYPE 3)

PFP:23710

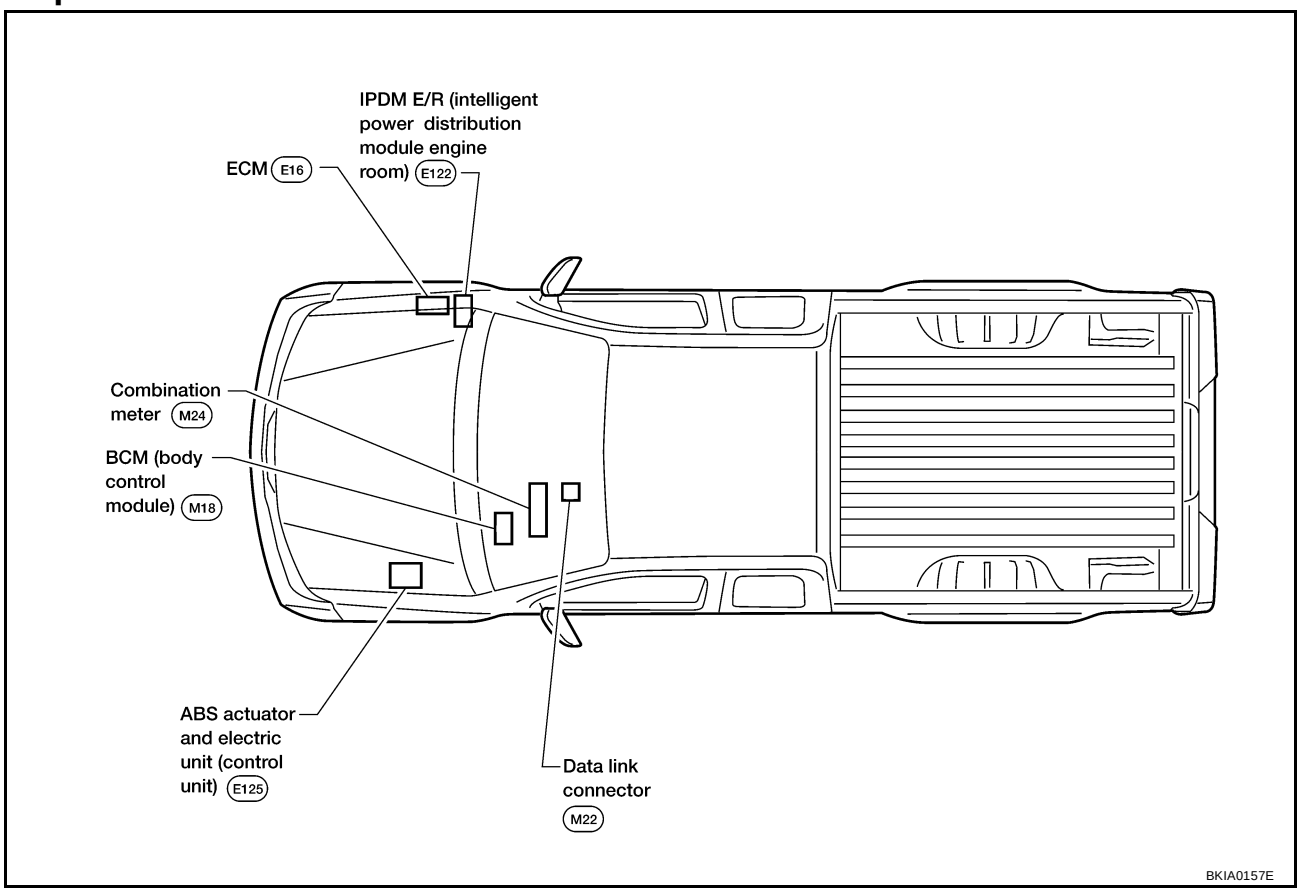
System Description

UKS003QT

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.

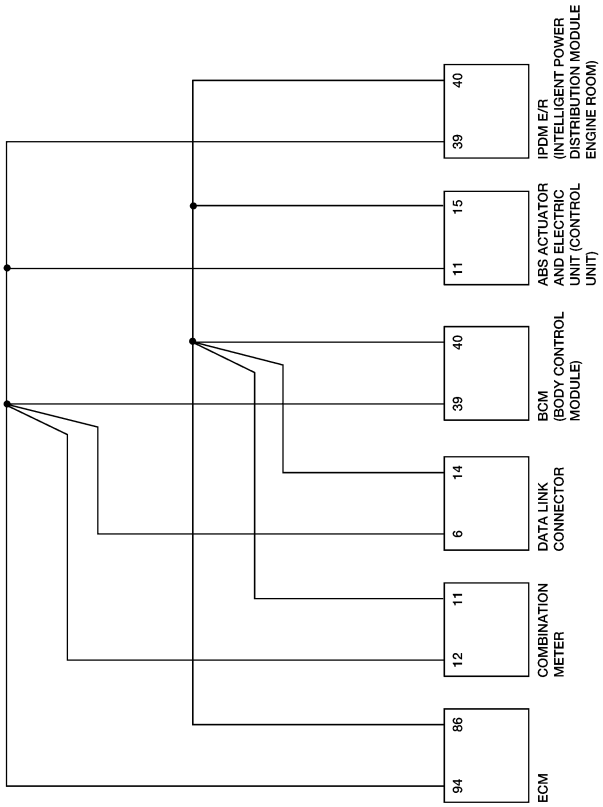
Component Parts and Harness Connector Location

UKS003QU



Schematic

UKS003QV



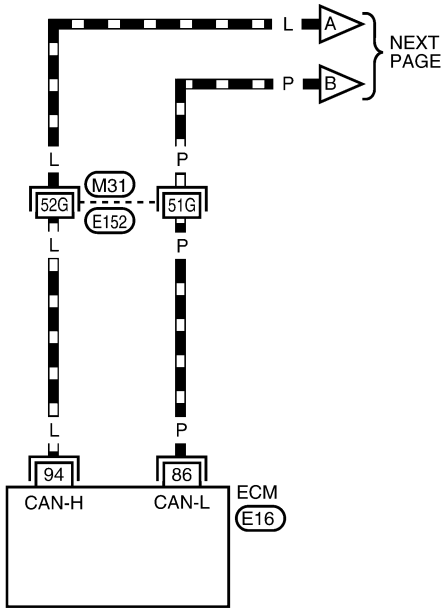
BKWA0479E

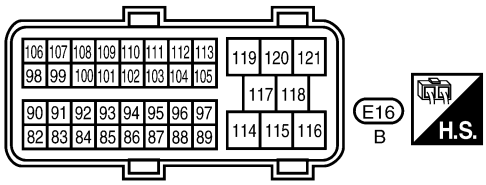
Wiring Diagram — CAN —

UKS003QW

LAN-CAN-07

: DATA LINE

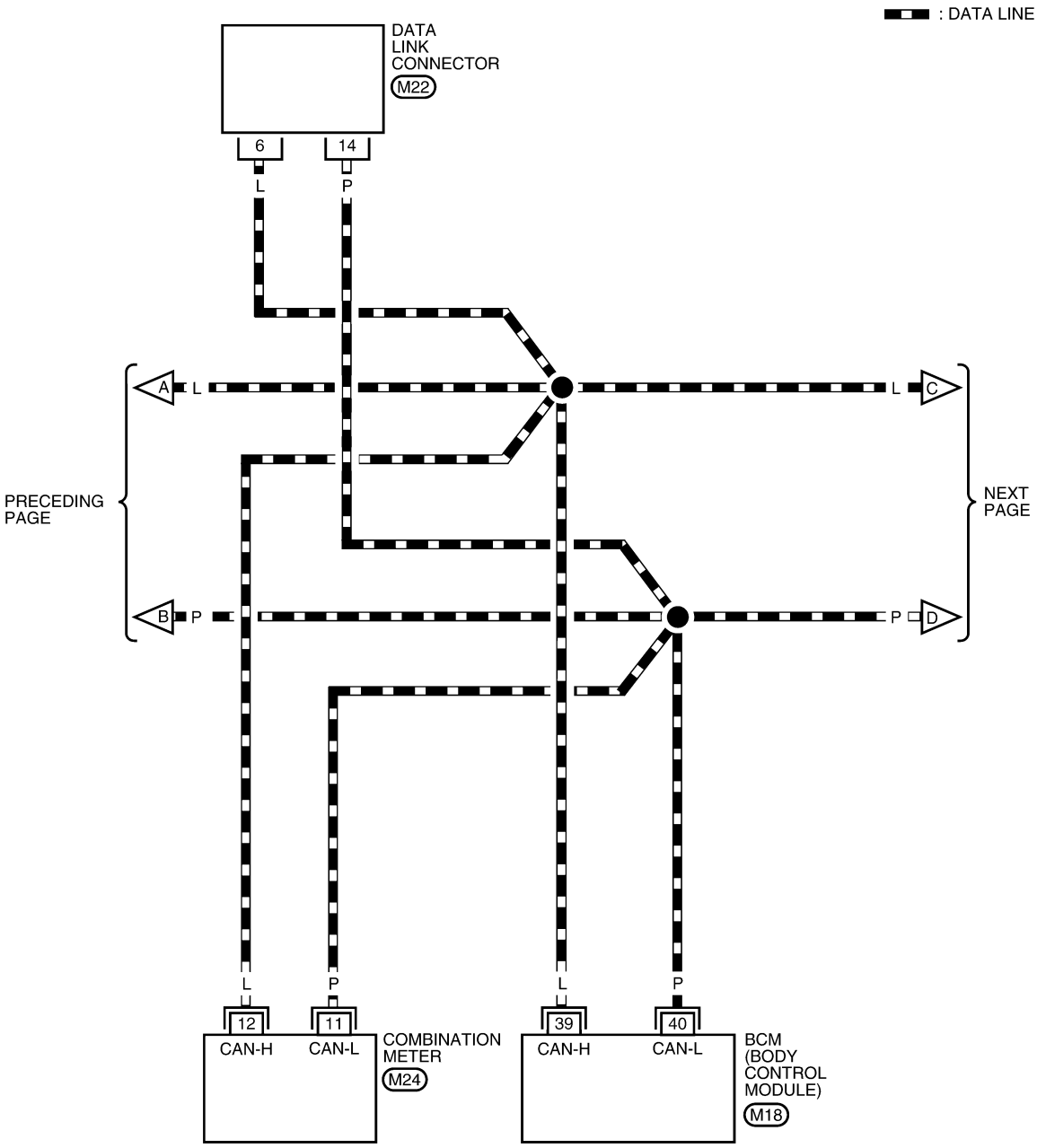


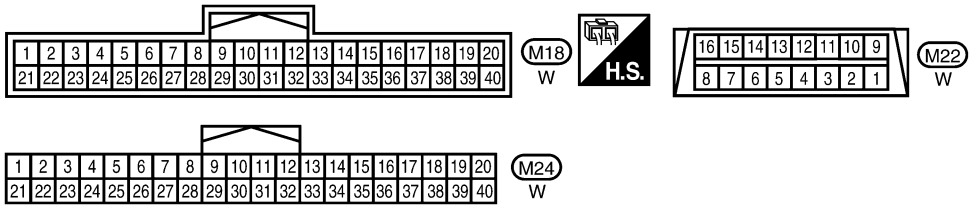


REFER TO THE FOLLOWING.
M31 - SUPER MULTIPLE JUNCTION (SMJ)

BKWA0487E

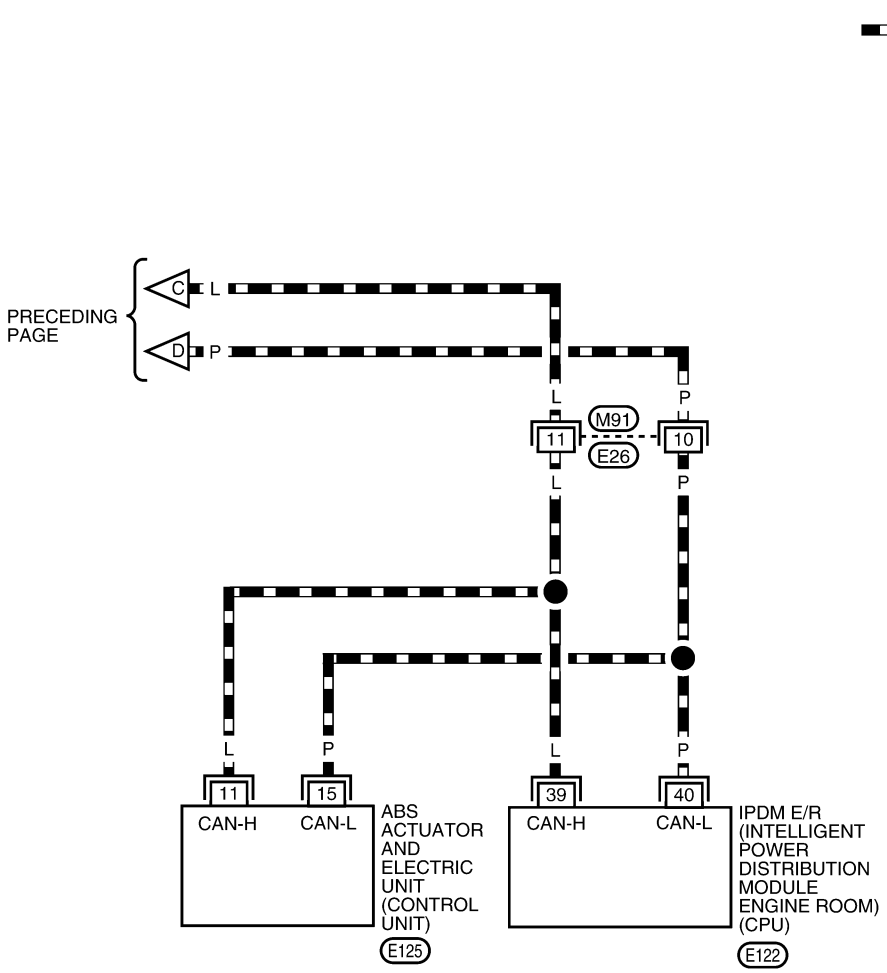
LAN-CAN-08

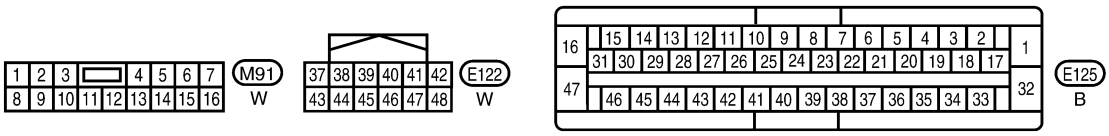




BKWA0488E

LAN-CAN-09





BKWA0489E

CHECK SHEET

UKS003R7

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

Check sheet table

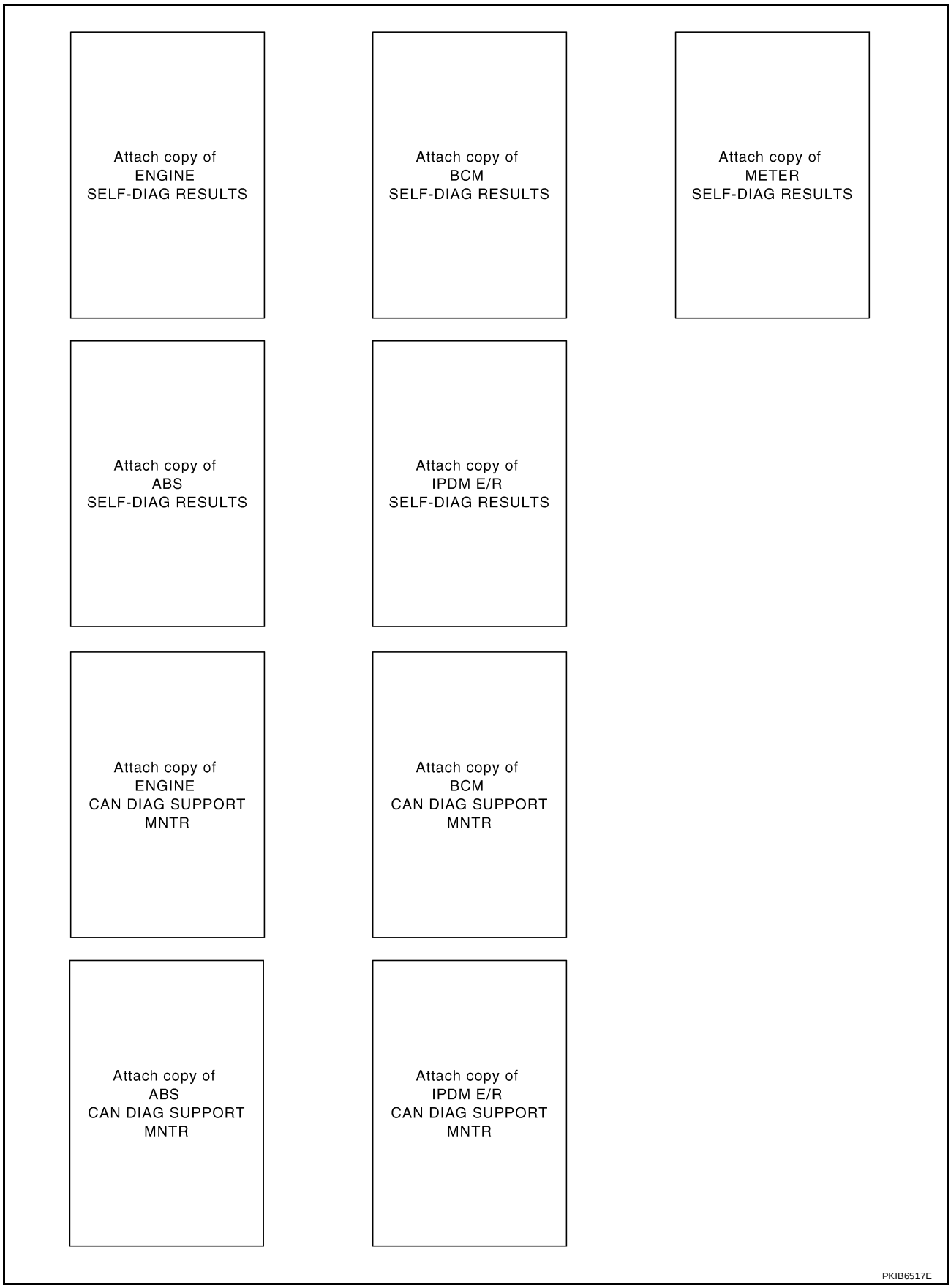
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIB6516E


Attach copy of
ENGINE
SELF-DIAG RESULTS
Attach copy of
BCM
SELF-DIAG RESULTS
Attach copy of
METER
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
BCM
CAN DIAG SUPPORT
MNTR
Attach copy of
ABS
CAN DIAG SUPPORT
MNTR
Attach copy of
IPDM E/R
CAN DIAG SUPPORT
MNTR
PKIB6517E

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

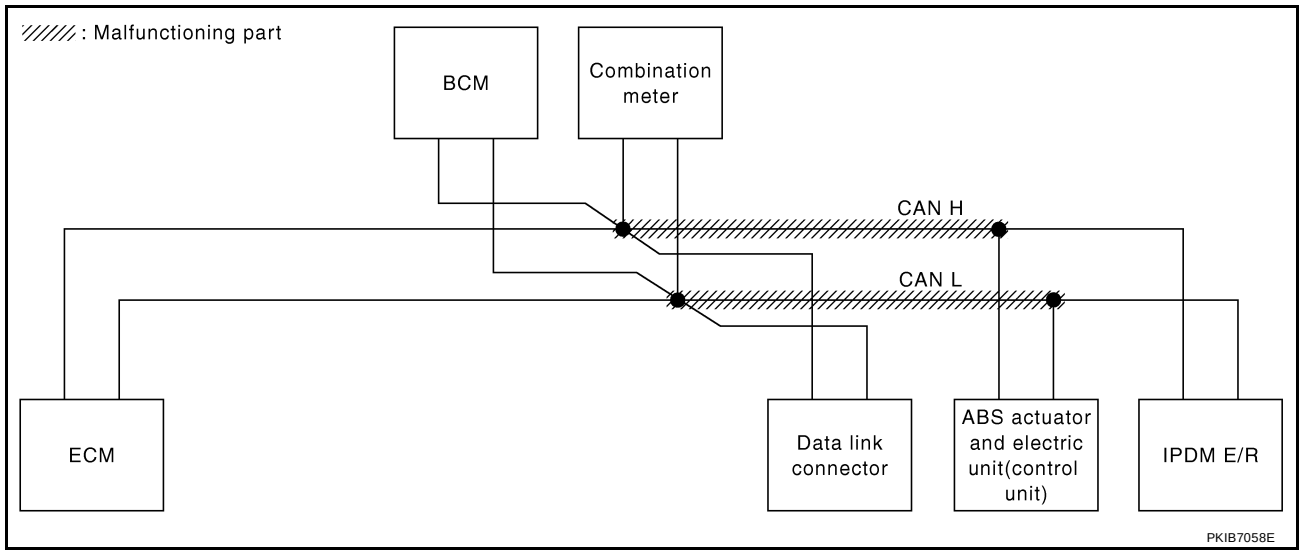
If a check mark is put on “NG” on “INITIAL DIAG (Initial diagnosis)”, replace the control unit.

Case 1

Check harness between data link connector and ABS actuator and electric unit (control unit) circuit. Refer to LAN-105, "Inspection Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Circuit".

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN ✓	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN ✓	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7252E



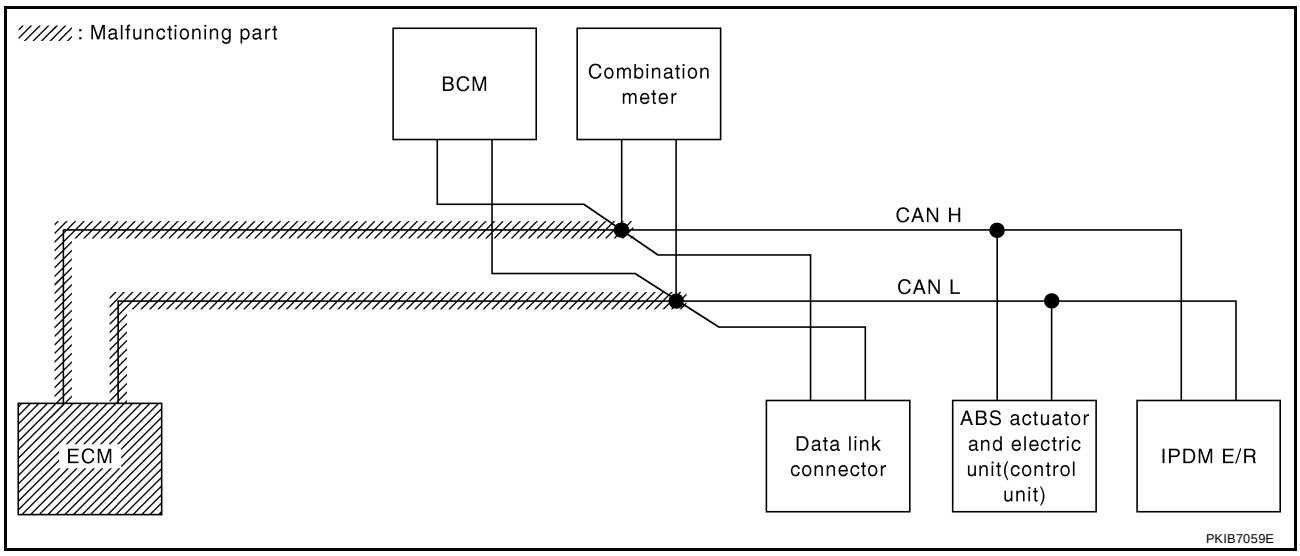
PKIB7058E

Case 2

Check ECM circuit. Refer to LAN-106, "ECM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7253E



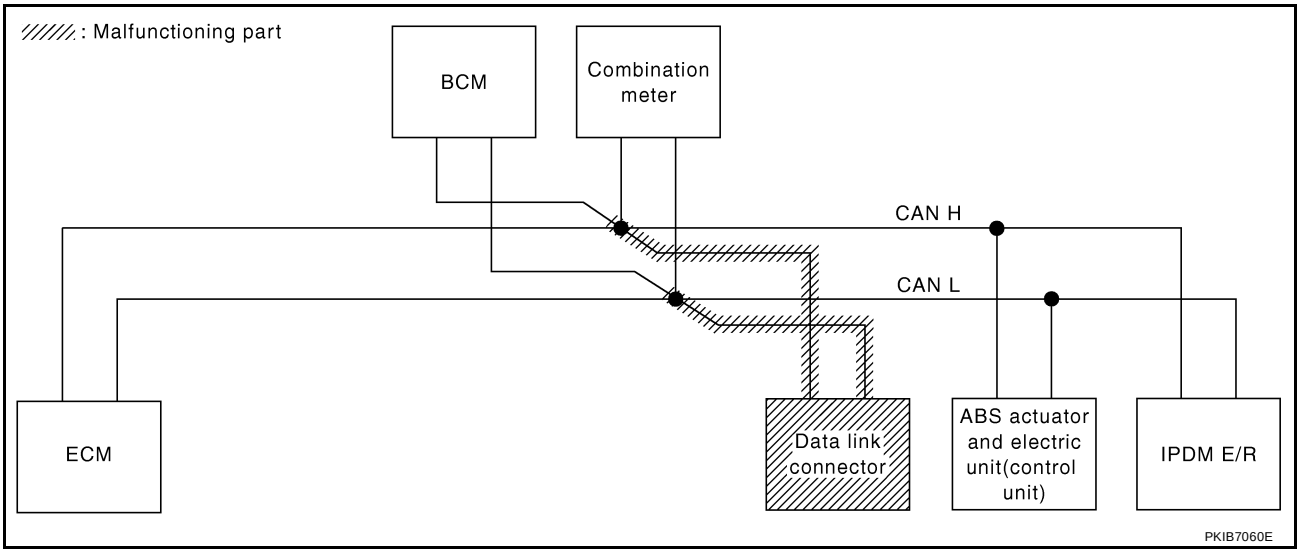
PKIB7059E

Case 3

Check data link connector circuit. Refer to LAN-107, "Data Link Connector Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7254E



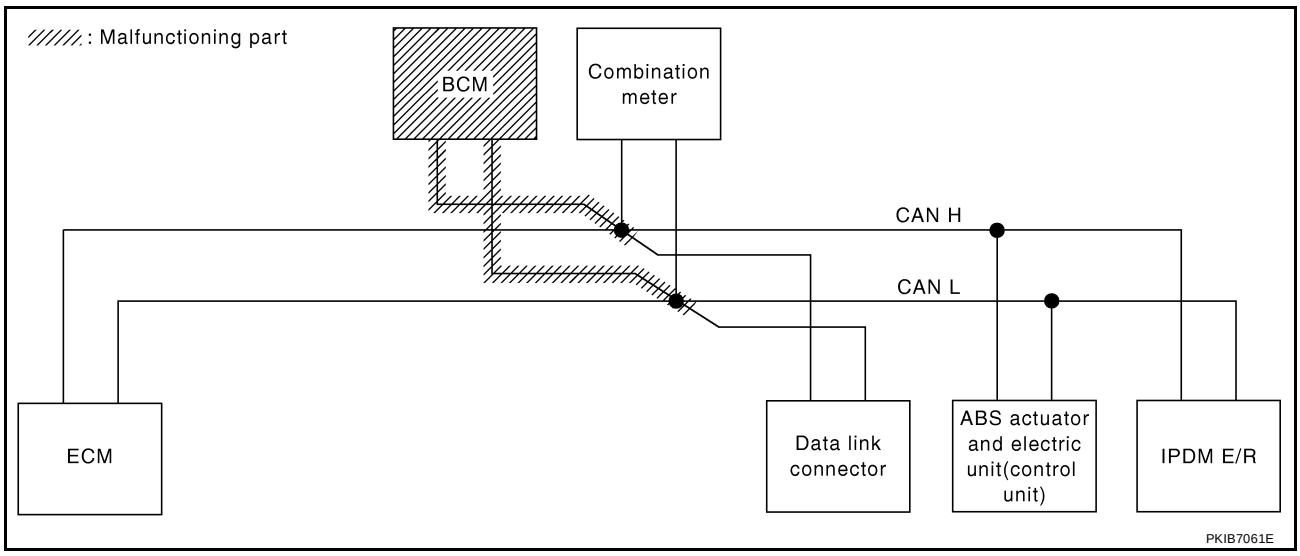
PKIB7060E

Case 4

Check BCM circuit. Refer to LAN-107, "BCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7255E



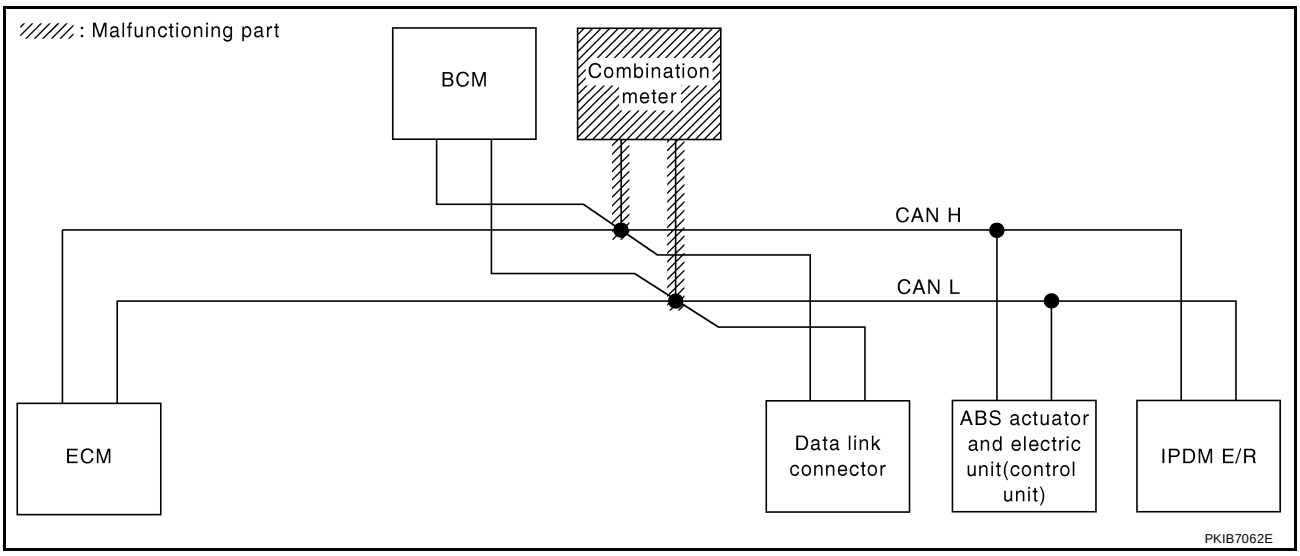
PKIB7061E

Case 5

Check combination meter circuit. Refer to LAN-108, "Combination Meter Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7256E



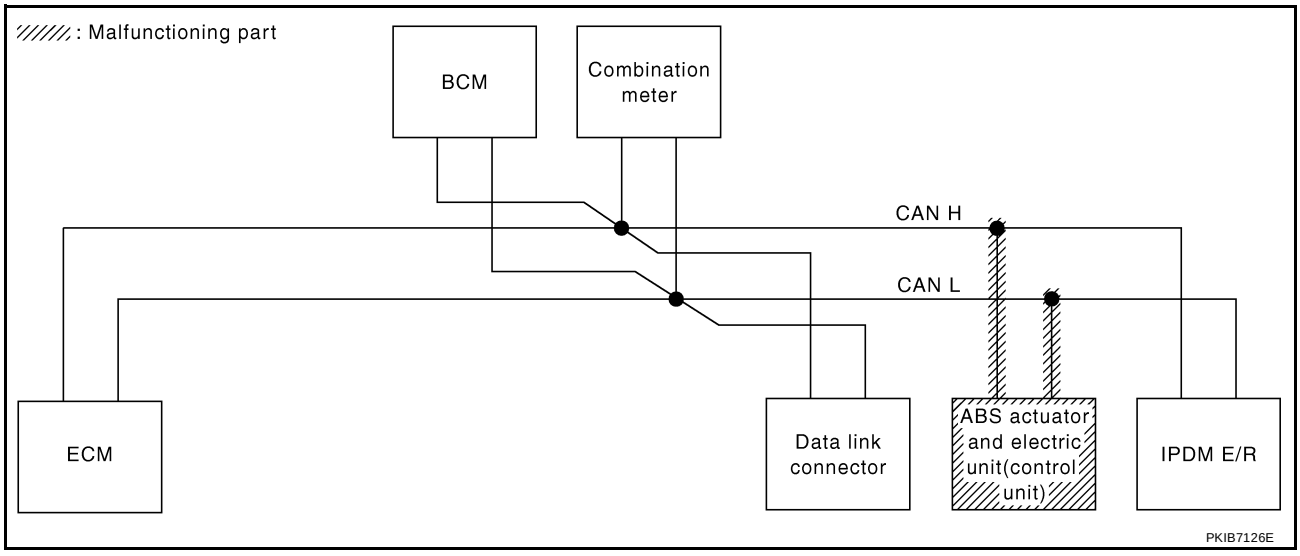
PKIB7062E

Case 6

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-108, "ABS Actuator and Electric Unit (Control Unit) Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7257E

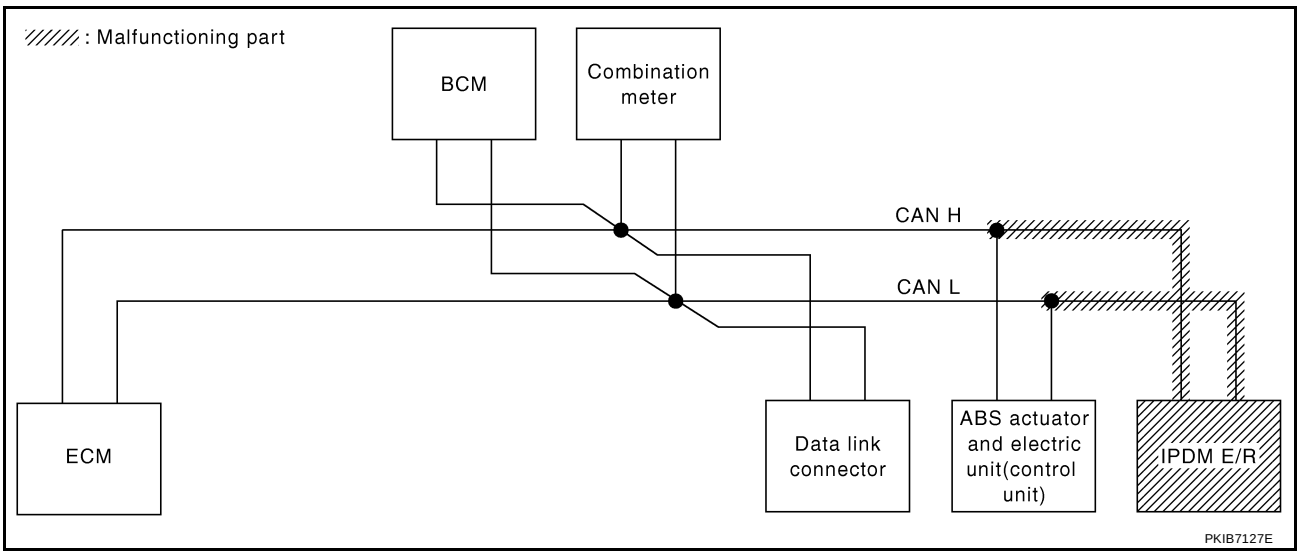


Case 7

Check IPDM E/R circuit. Refer to LAN-109, "IPDM E/R Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7258E



PKIB7127E

Case 8

Check CAN communication circuit. Refer to LAN-110, "CAN Communication Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7259E

Case 9

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-113, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7260E

Case 10

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-113, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR						SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis					
				ECM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7261E

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

UKS003QY

1. CHECK CONNECTOR

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

- Harness connector M91
- Harness connector E26

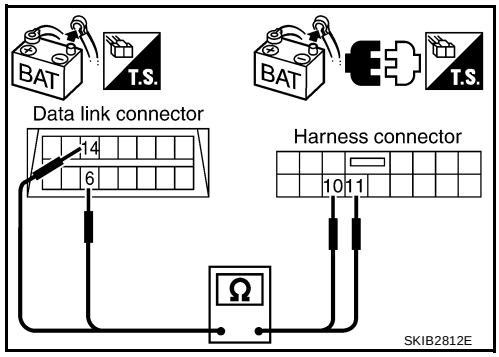
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M91.
2. Check continuity between data link connector M22 terminals 6 (L), 14 (P) and harness connector M91 terminals 11 (L), 10 (P).

6 (L) – 11 (L) : Continuity should exist.
14 (P) – 10 (P) : Continuity should exist.



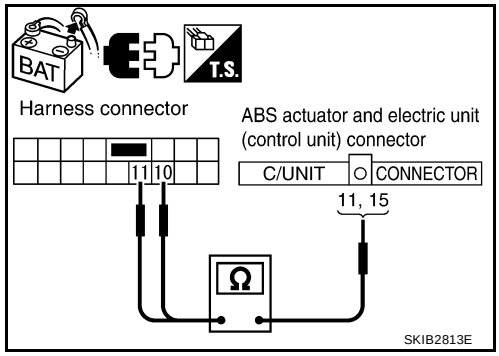
OK or NG

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 E26 terminals 11 (L), 10 (P) and ABS actuator and electric unit (control unit) harness connector E125 terminals 11 (L), 15 (P).

11 (L) – 11 (L) : Continuity should exist.
10 (P) – 15 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.

ECM Circuit Inspection

UKS003QZ

1. CHECK CONNECTOR

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

- ECM connector
- Harness connector E152
- Harness connector M31

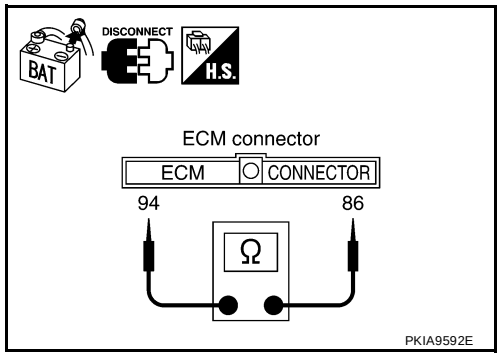
OK or NG

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 E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Approx. 108 – 132 Ω



OK or NG

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

Data Link Connector Circuit Inspection

UKS003R0

1. CHECK CONNECTOR

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

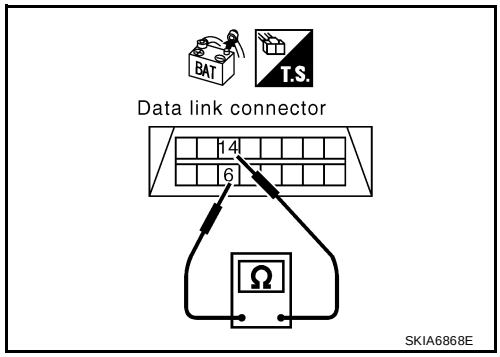
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

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

6 (L) – 14 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness between data link connector and BCM.

BCM Circuit Inspection

UKS003R1

1. CHECK CONNECTOR

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

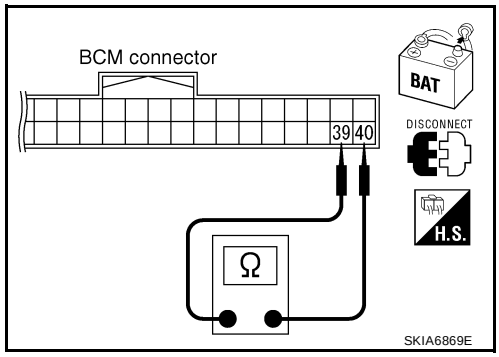
OK or NG

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 M18 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace BCM. Refer to BCS-19, "Removal and Installation of BCM" .
NG >> Repair harness between BCM and data link connector.

Combination Meter Circuit Inspection

UKS003R2

1. CHECK CONNECTOR

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

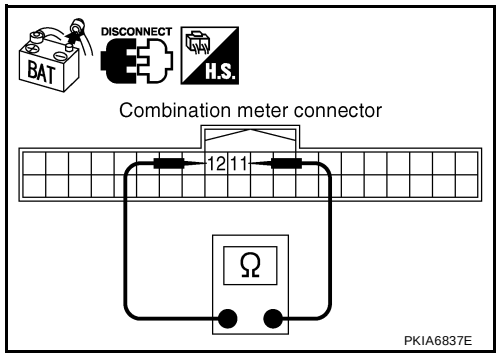
OK or NG

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 M24 terminals 12 (L) and 11 (P).

12 (L) – 11 (P) : Approx. 54 – 66 Ω



OK or NG

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

ABS Actuator and Electric Unit (Control Unit) Circuit Inspection

UKS003R3

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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).

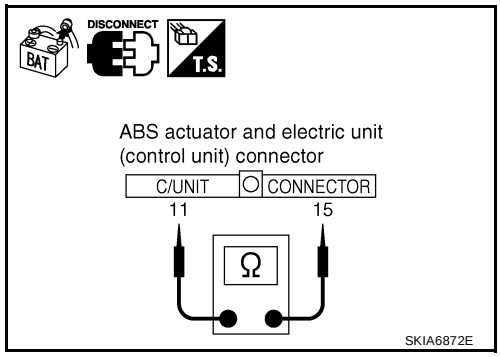
OK or NG

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 E125 terminals 11 (L) and 15 (P).

11 (L) – 15 (P) : Approx. 54 – 66 Ω



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 Inspection

UKS003R4

1. CHECK CONNECTOR

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

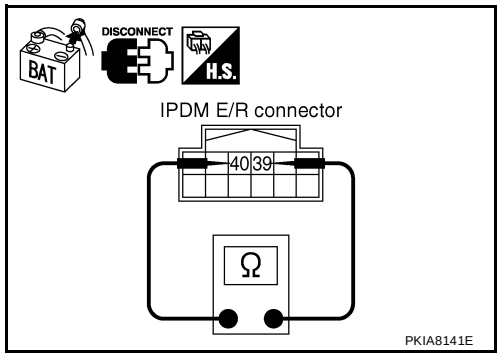
OK or NG

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 E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 108 – 132 Ω



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 Inspection

UKS003R5

1. CHECK CONNECTOR

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

- ECM
- BCM
- Combination meter
- 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.

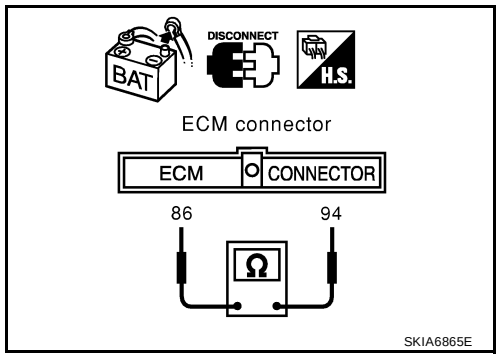
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E152.
2. Check continuity between ECM harness connector E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Continuity should not exist.

OK or NG

OK >> GO TO 3.
NG >> Repair harness between ECM and harness connector E152.



3. CHECK HARNESS FOR SHORT CIRCUIT

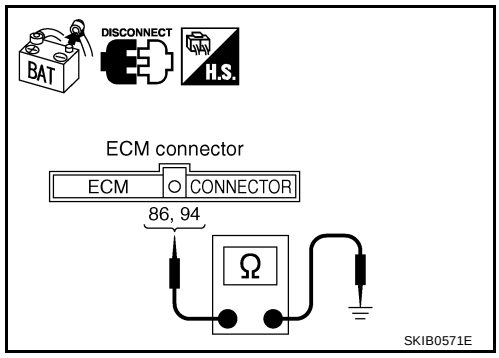
Check continuity between ECM harness connector E16 terminals 94 (L), 86 (P) and ground.

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

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

OK or NG

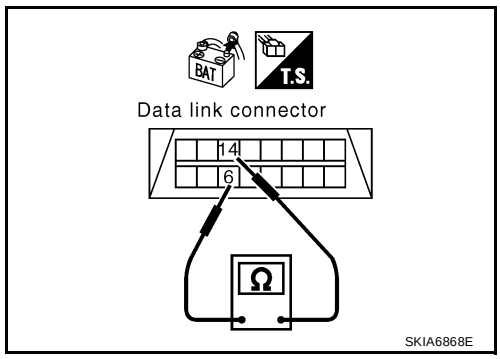
OK >> GO TO 4.
NG >> Repair harness between ECM and harness connector E152.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
- BCM connector
- Combination meter connector
- Harness connector M91
2. Check continuity between data link connector M22 terminals 6 (L) and 14 (P).

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



OK or NG

OK >> GO TO 5.

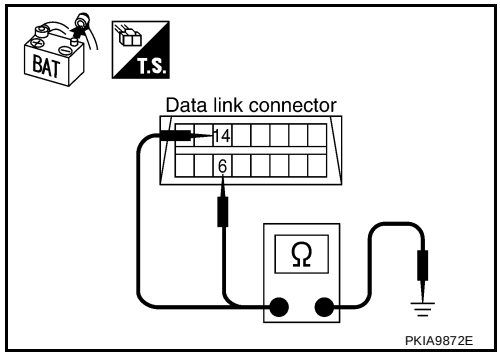
NG >> Check the following harnesses. If any harness is damaged, repair the harness.
- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and harness connector M91

5. CHECK HARNESS FOR SHORT CIRCUIT

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

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

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



OK or NG

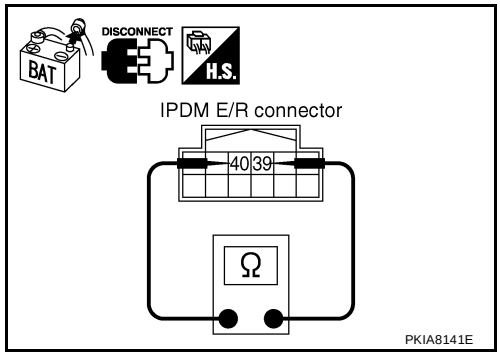
OK >> GO TO 6.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.
- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and harness connector M91

6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 7.

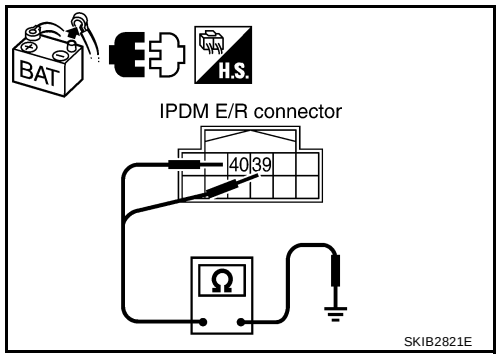
NG >> Check the following harnesses. If any harness is damaged, repair the harness.
- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E122 terminals 39 (L), 40 (P) and ground.

39 (L) – Ground : Continuity should not exist.

40 (P) – 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 IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

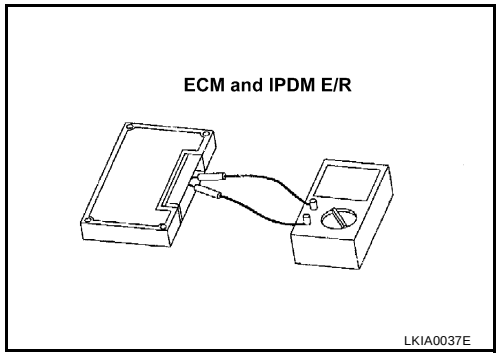
8. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

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

94 – 86 : Approx. 108 – 132 Ω

3. Check resistance between IPDM E/R terminals 39 and 40.

39 – 40 : Approx. 108 – 132 Ω



OK or NG

OK >> GO TO 9.

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

9. CHECK SYMPTOM

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

OK or NG

OK >> GO TO 10.

NG >> Refer to LAN-15, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced".

10. CHECK UNIT REPRODUCIBILITY

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

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

- BCM
- Combination meter
- ABS actuator and electric unit (control unit)
- ECM
- IPDM E/R

Inspection results

Reproduced>>Install removed unit, and then check the other unit.

Not reproduced>>Replace removed unit.

IPDM E/R Ignition Relay Circuit Inspection

UKS003R6

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

- IPDM E/R power supply circuit. Refer to PG-27, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition power supply circuit. Refer to PG-14, "IGNITION POWER SUPPLY — IGNITION SW. IN ON AND/OR START" .

CAN SYSTEM (TYPE 4)

PFP:23710

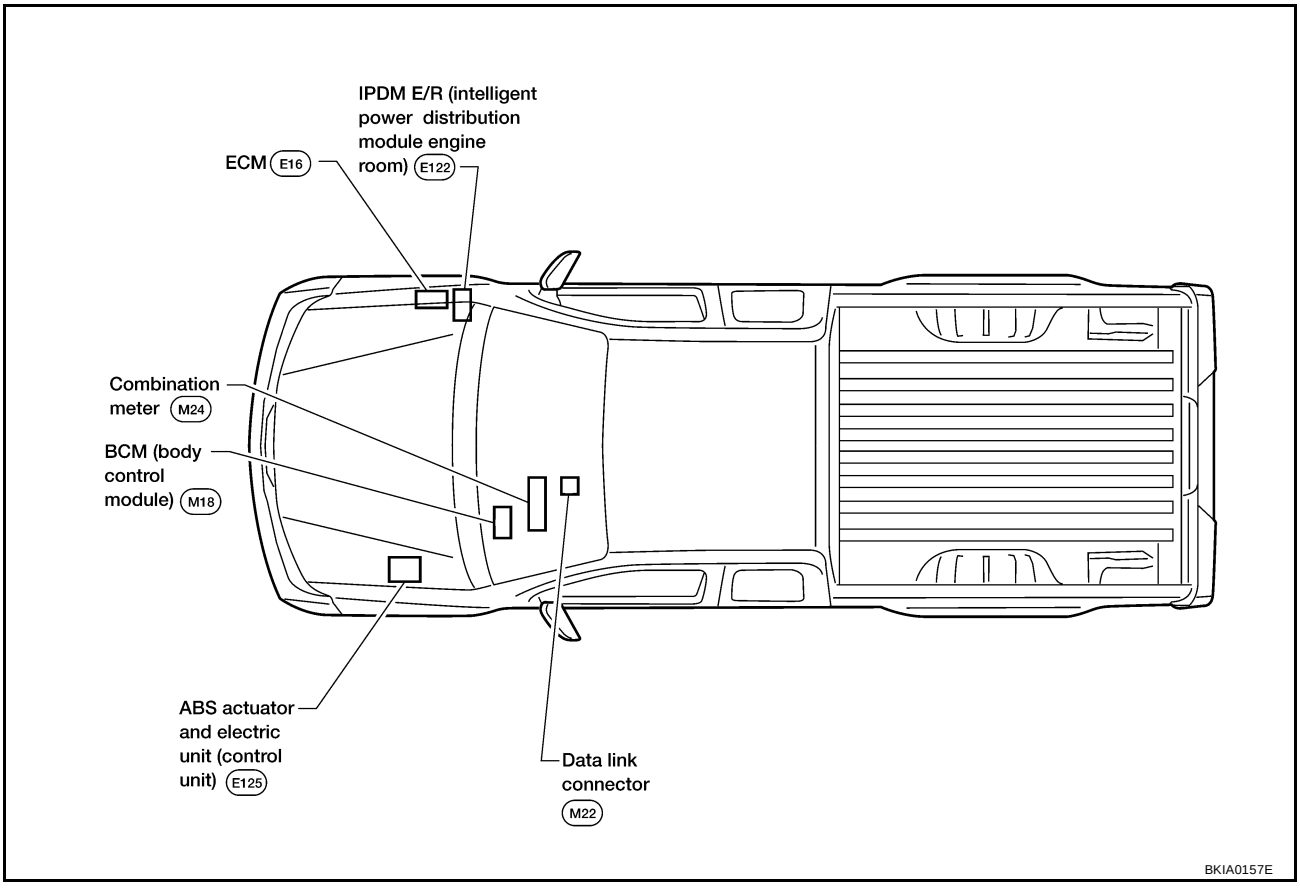
System Description

UKS003QF

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.

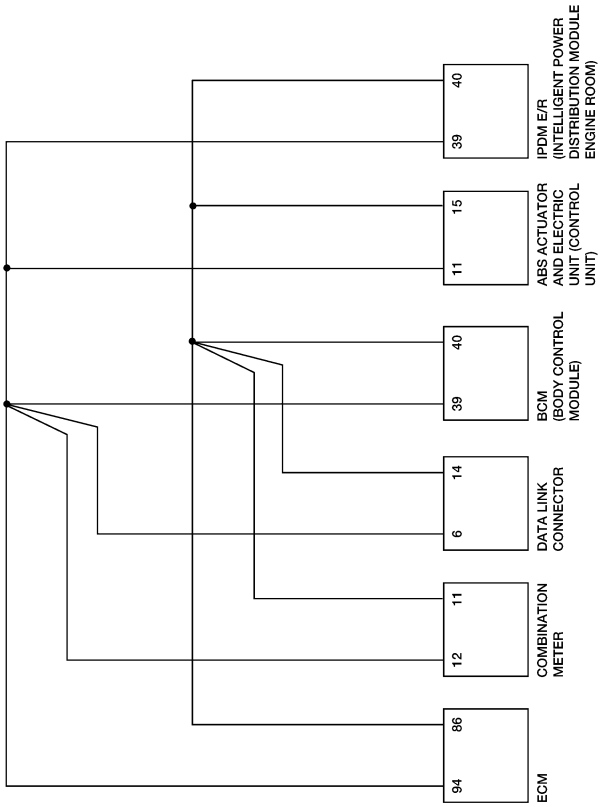
Component Parts and Harness Connector Location

UKS003QG



Schematic

UKS003QH



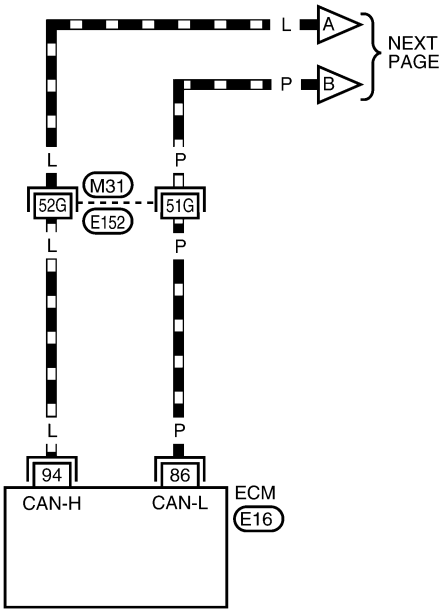
BKWA0479E

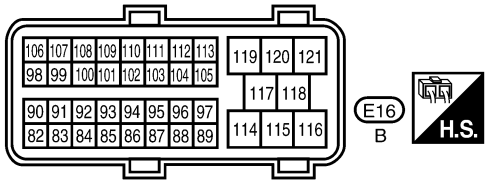
Wiring Diagram — CAN —

UKS003QI

LAN-CAN-10

: DATA LINE

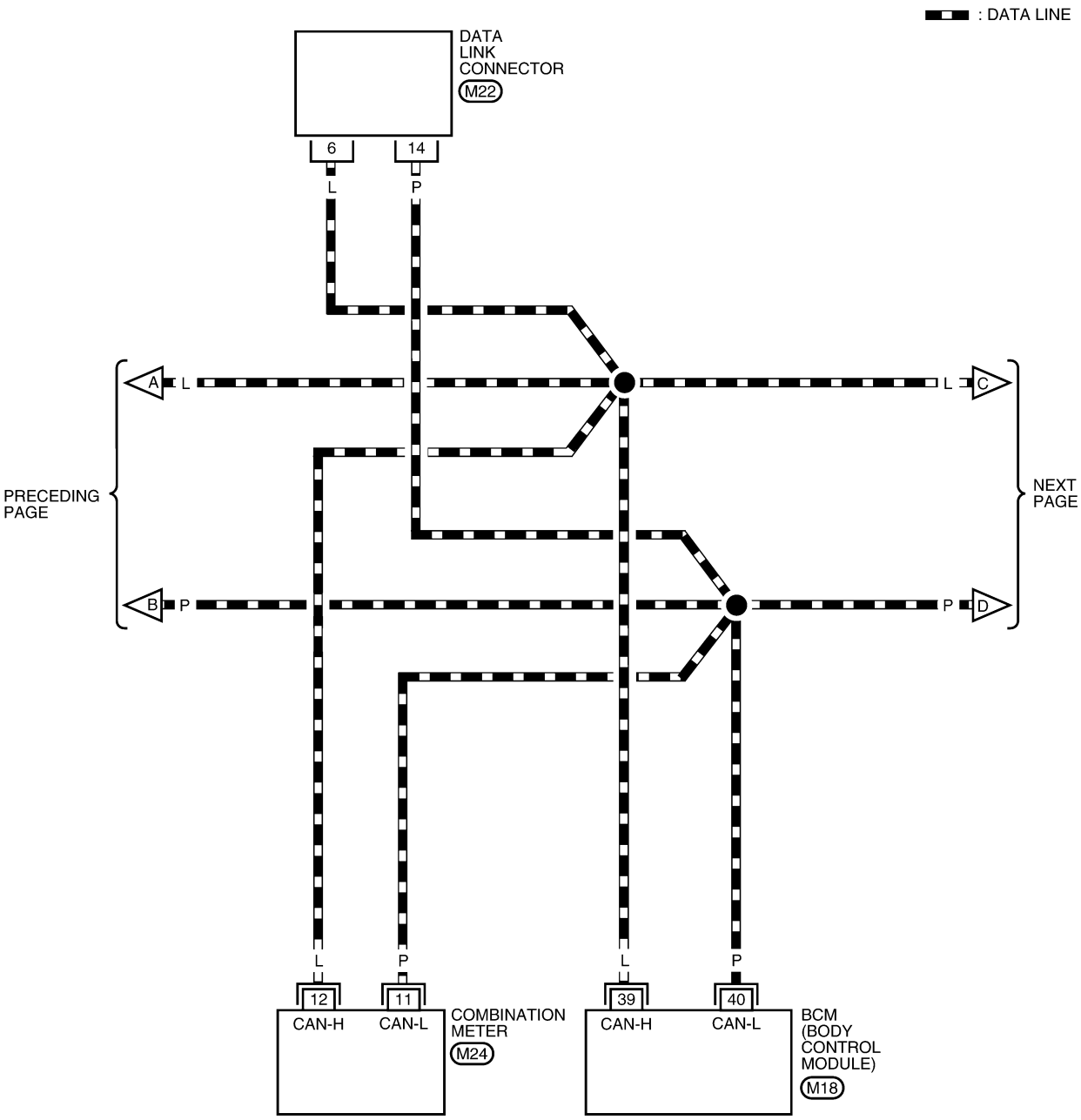


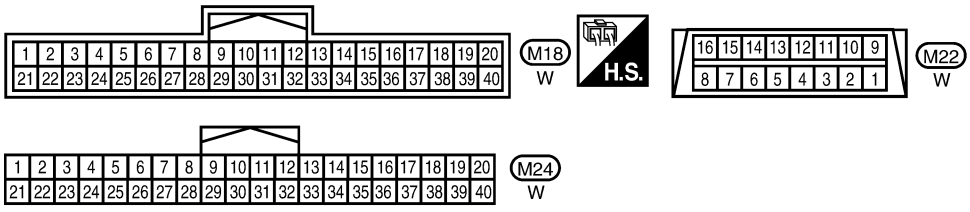


REFER TO THE FOLLOWING.
M31 - SUPER MULTIPLE JUNCTION (SMJ)

BKWA0490E

LAN-CAN-11

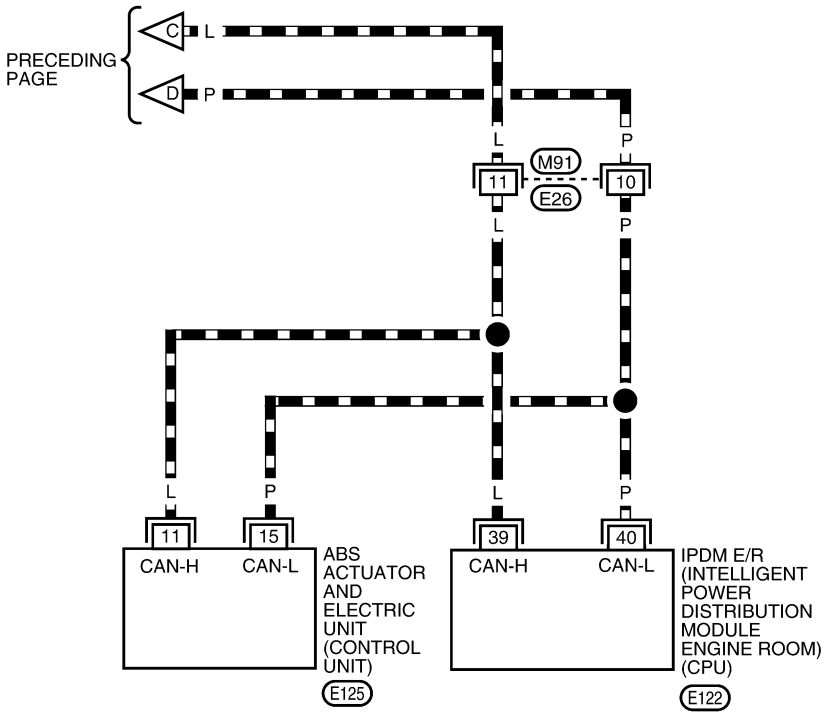


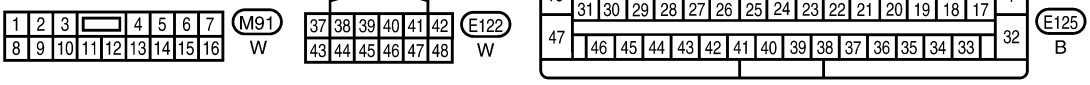


BKWA0491E

LAN-CAN-12

: DATA LINE





BKWA0492E

CHECK SHEET

UKS003QJ

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

Check sheet table

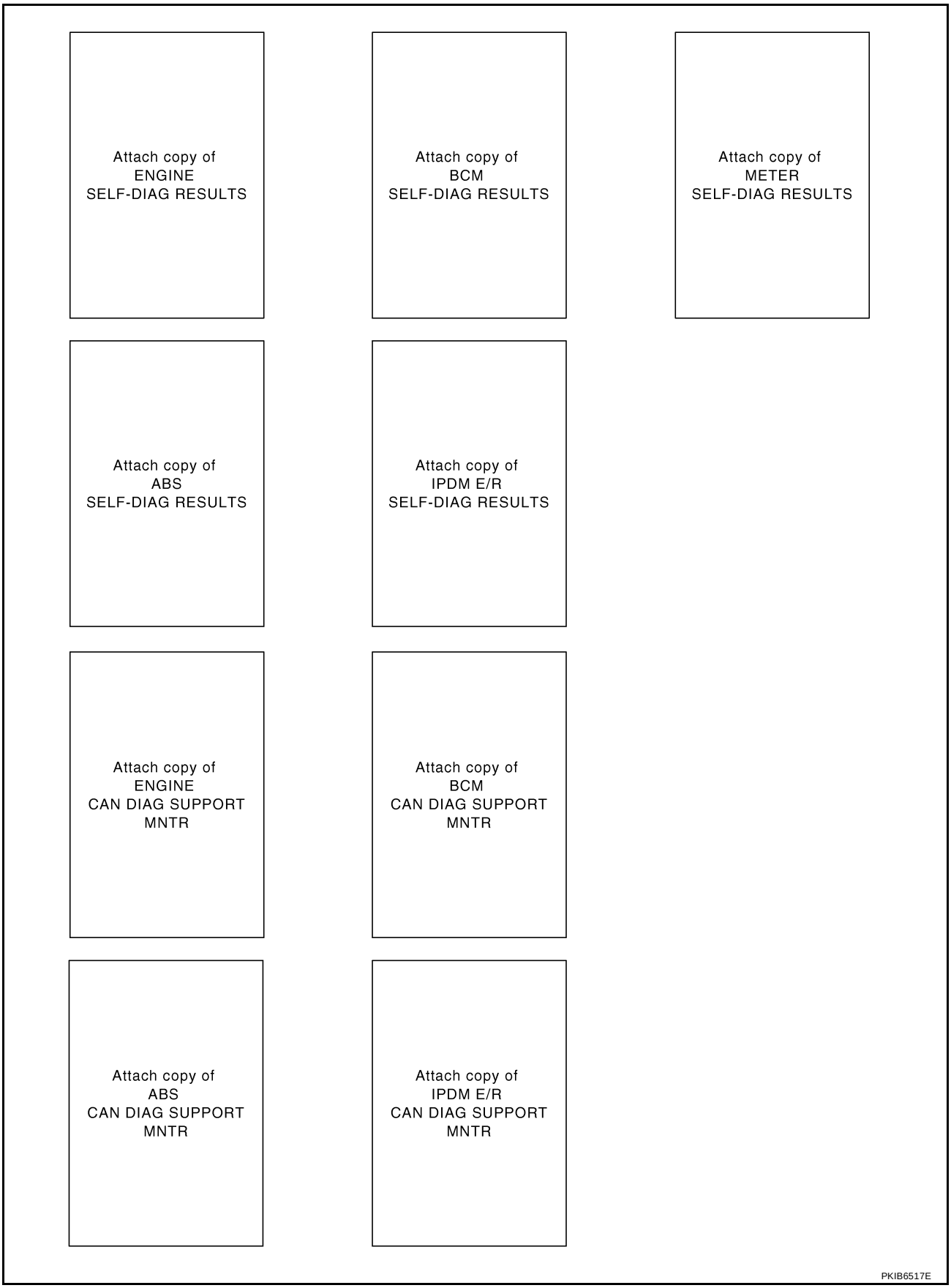
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIB6520E


Attach copy of
ENGINE
SELF-DIAG RESULTS
Attach copy of
BCM
SELF-DIAG RESULTS
Attach copy of
METER
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
BCM
CAN DIAG SUPPORT
MNTR
Attach copy of
ABS
CAN DIAG SUPPORT
MNTR
Attach copy of
IPDM E/R
CAN DIAG SUPPORT
MNTR
PKIB6517E

CHECK SHEET RESULTS (EXAMPLE)

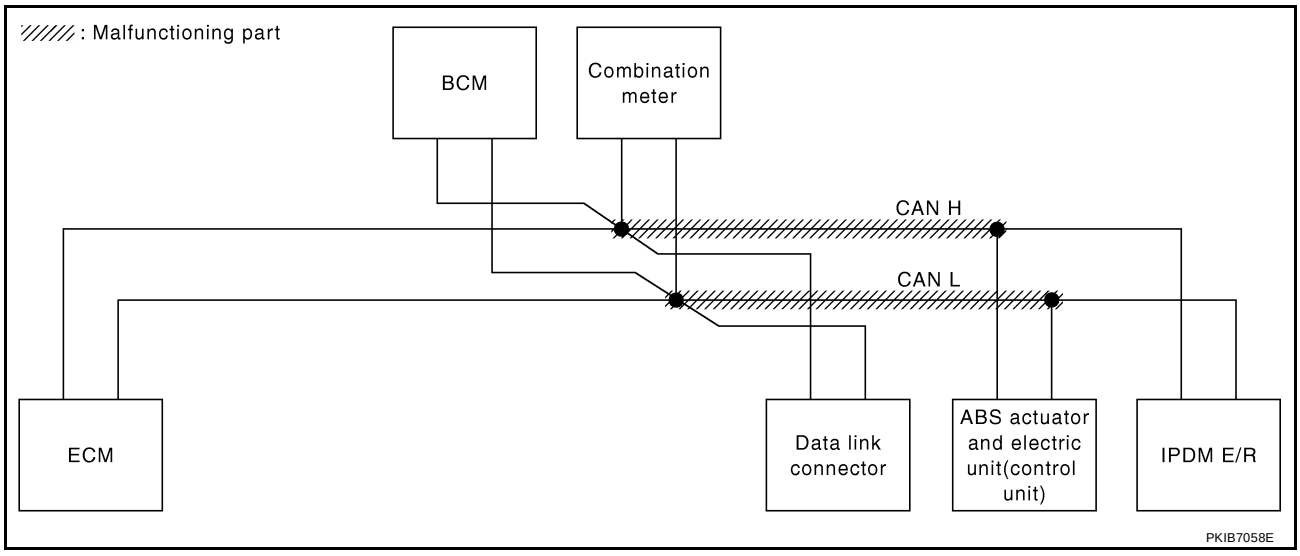
NOTE:
If a check mark is put on “NG” on “INITIAL DIAG (Initial diagnosis)”, replace the control unit.

Case 1

Check harness between data link connector and ABS actuator and electric unit (control unit) circuit. Refer to LAN-128, "Inspection Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Circuit"
.

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	✓ UNKWN	✓ UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	✓ UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	✓ UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	✓ No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7262E

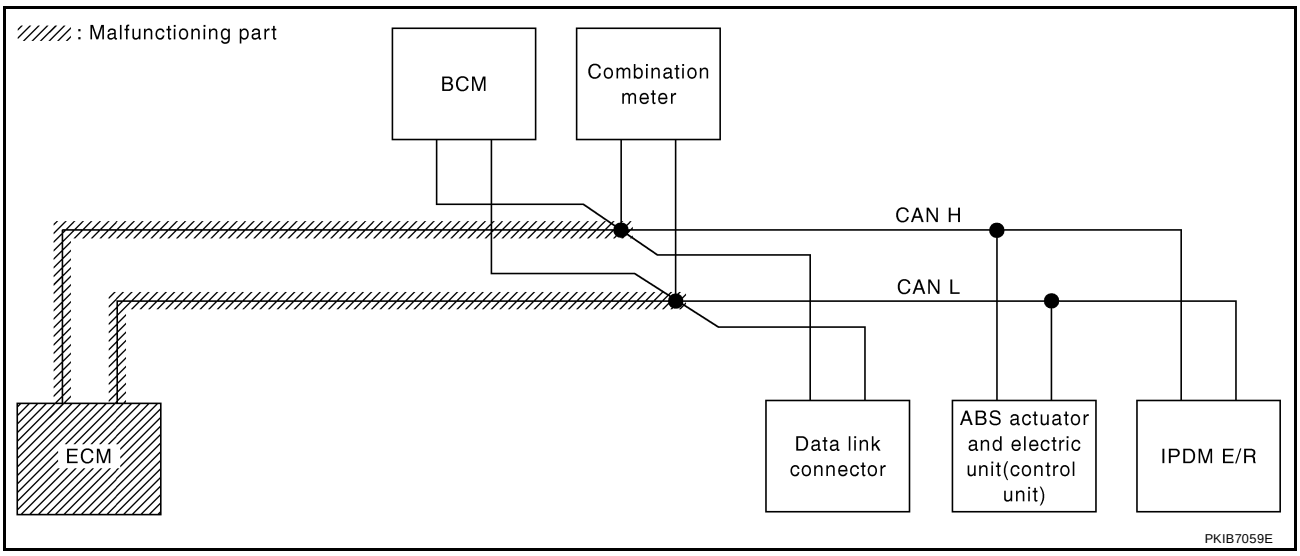


Case 2

Check ECM circuit. Refer to LAN-129, "ECM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN ✓	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
BCM	No indication	NG	UNKWN	UNKWN ✓	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN ✓	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7263E

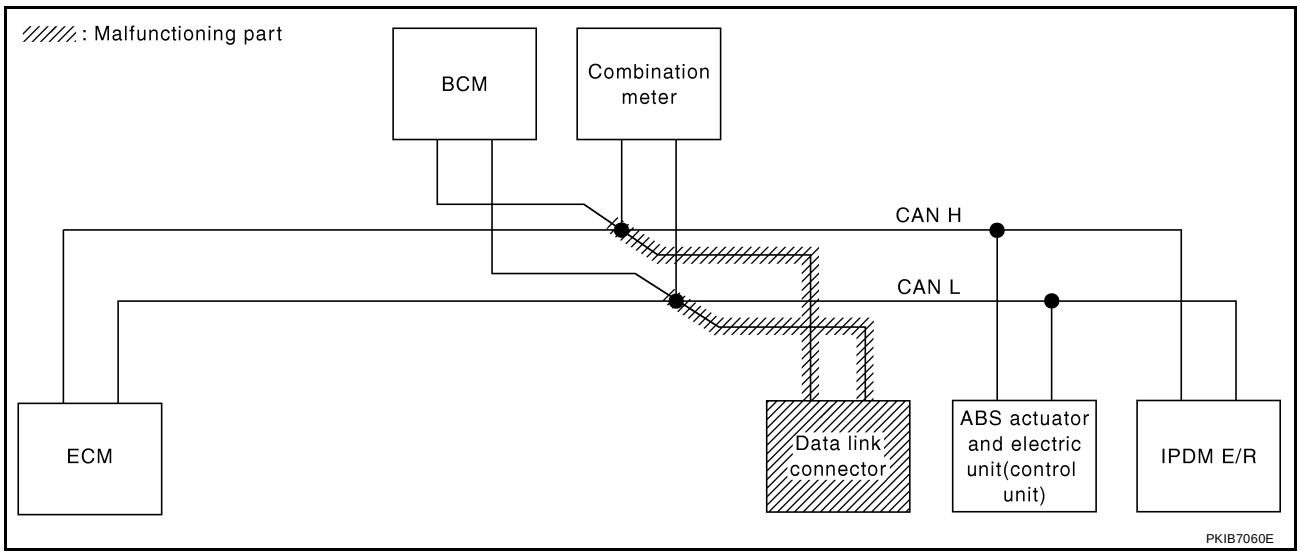


Case 3

Check data link connector circuit. Refer to LAN-130, "Data Link Connector Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7264E



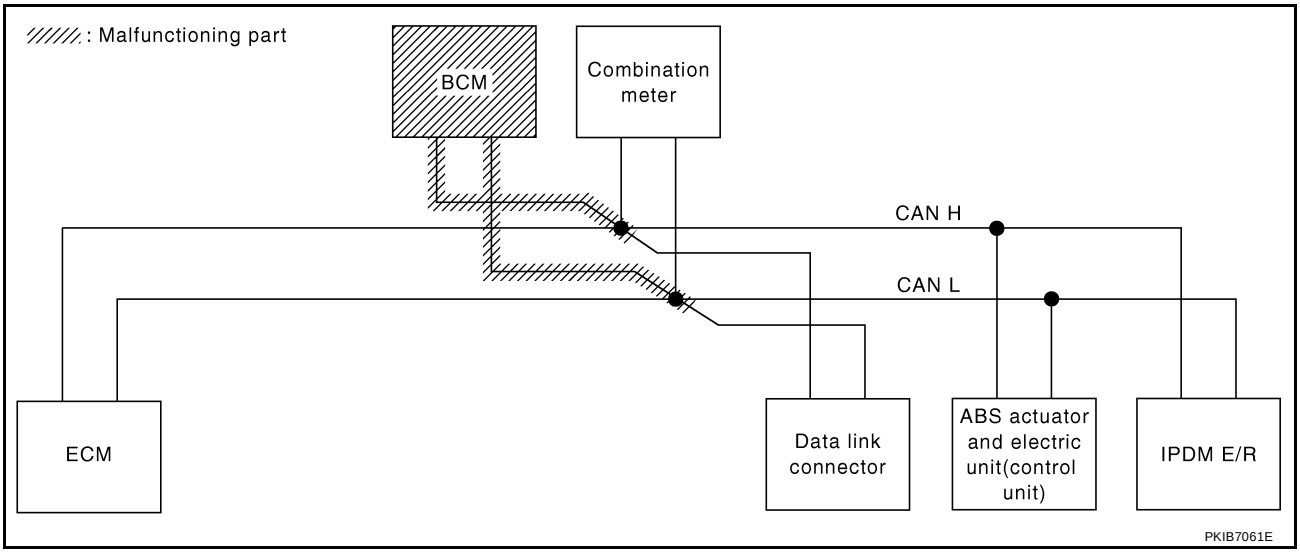
PKIB7060E

Case 4

Check BCM circuit. Refer to LAN-130, "BCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7265E

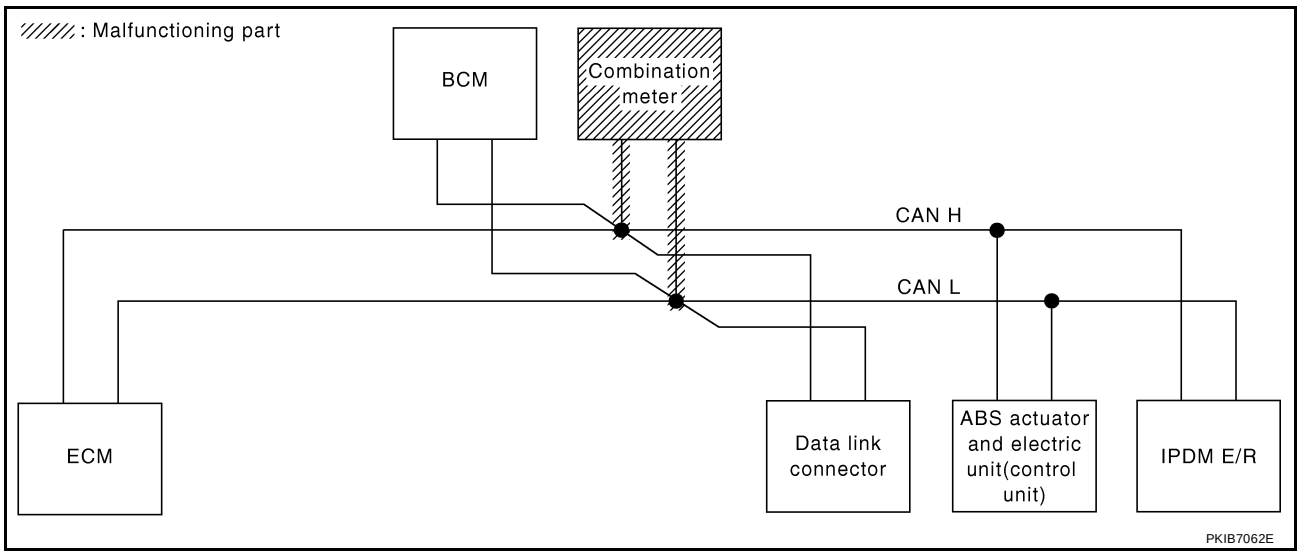


Case 5

Check combination meter circuit. Refer to LAN-131, "Combination Meter Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7266E



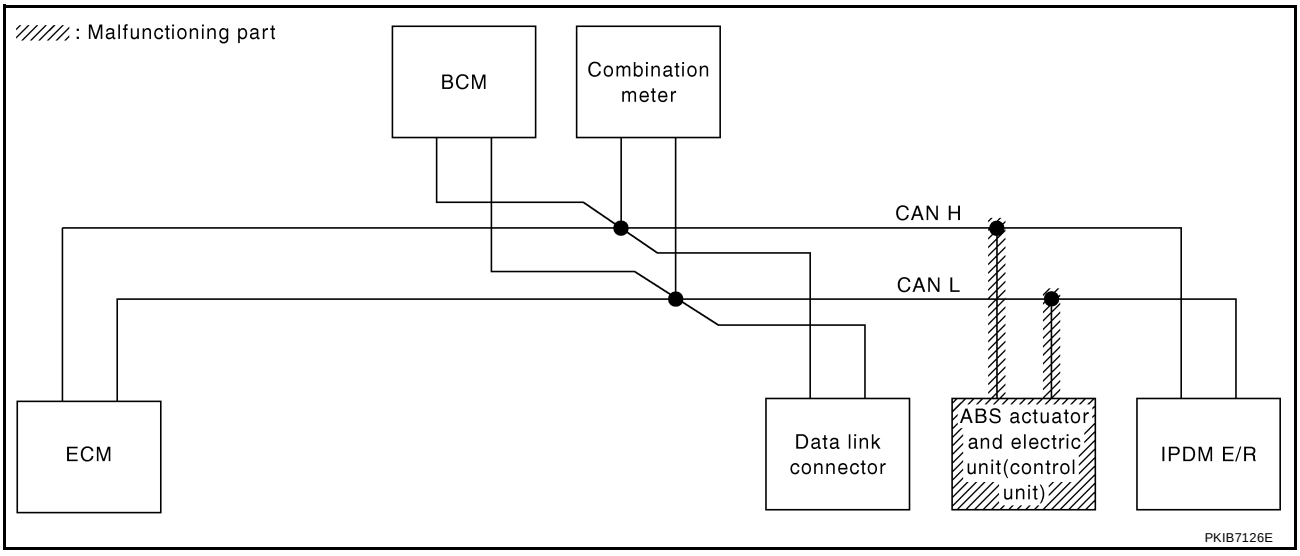
PKIB7062E

Case 6

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-131, "ABS Actuator and Electric Unit (Control Unit) Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG ✓	UNKWN ✓	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7267E

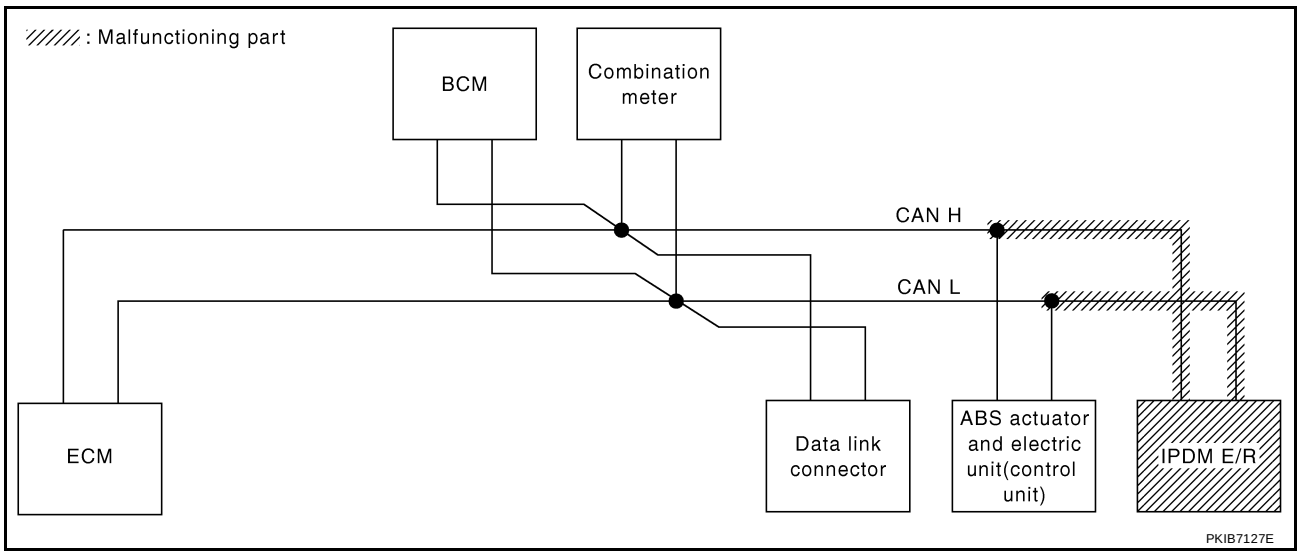


Case 7

Check IPDM E/R circuit. Refer to LAN-132, "IPDM E/R Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN ✓	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7268E



PKIB7127E

Case 8

Check CAN communication circuit. Refer to LAN-133, "CAN Communication Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN ✓	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
BCM	No indication ✓	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG ✓	UNKWN ✓	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7269E

Case 9

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-136, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7270E

Case 10

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-136, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7271E

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

UKS003QK

1. CHECK CONNECTOR

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

- Harness connector M91
- Harness connector E26

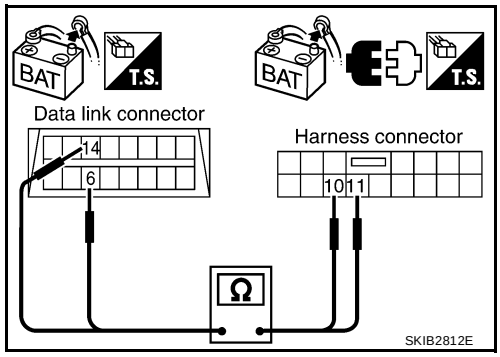
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M91.
2. Check continuity between data link connector M22 terminals 6 (L), 14 (P) and harness connector M91 terminals 11 (L), 10 (P).

6 (L) – 11 (L) : Continuity should exist.
14 (P) – 10 (P) : Continuity should exist.



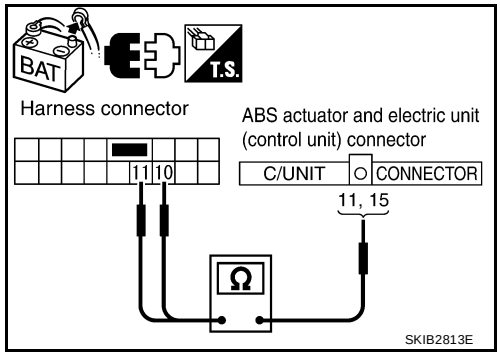
OK or NG

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 E26 terminals 11 (L), 10 (P) and ABS actuator and electric unit (control unit) harness connector E125 terminals 11 (L), 15 (P).

11 (L) – 11 (L) : Continuity should exist.
10 (P) – 15 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.

ECM Circuit Inspection

UKS003QL

1. CHECK CONNECTOR

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

- ECM connector
- Harness connector E152
- Harness connector M31

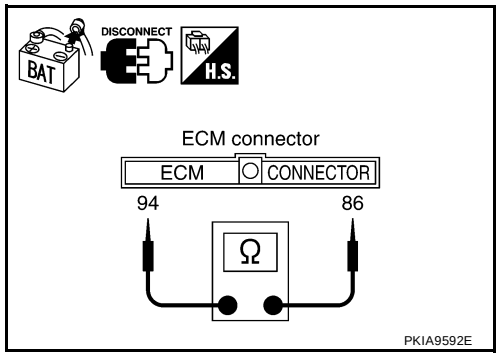
OK or NG

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 E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Approx. 108 – 132 Ω



OK or NG

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

Data Link Connector Circuit Inspection

UKS003QM

1. CHECK CONNECTOR

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

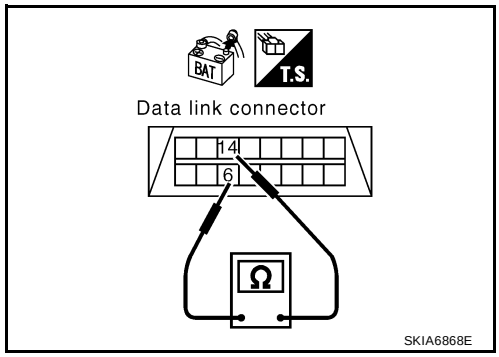
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

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

6 (L) – 14 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness between data link connector and BCM.

BCM Circuit Inspection

UKS003QN

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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

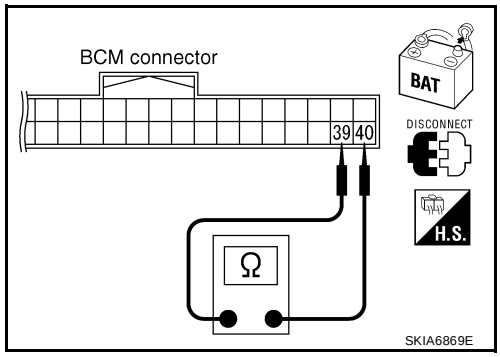
1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M18 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 54 – 66 Ω

OK or NG

OK >> Replace BCM. Refer to BCS-19, "Removal and Installation of BCM" .

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



Combination Meter Circuit Inspection

UKS003QO

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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

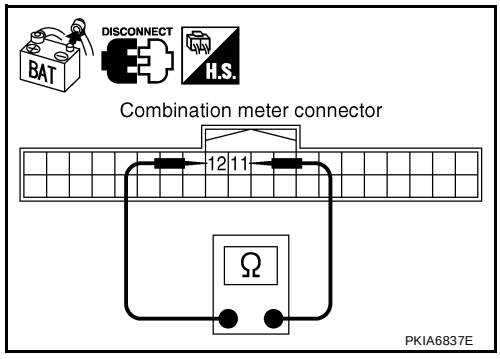
1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M24 terminals 12 (L) and 11 (P).

12 (L) – 11 (P) : Approx. 54 – 66 Ω

OK or NG

OK >> Replace combination meter.

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



ABS Actuator and Electric Unit (Control Unit) Circuit Inspection

UKS003QP

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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

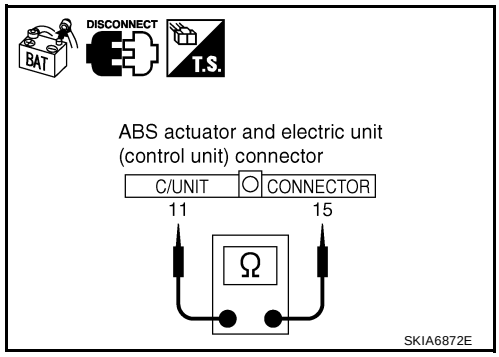
OK >> GO TO 2.

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 E125 terminals 11 (L) and 15 (P).

11 (L) – 15 (P) : Approx. 54 – 66 Ω



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 Inspection

UKS003QQ

1. CHECK CONNECTOR

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

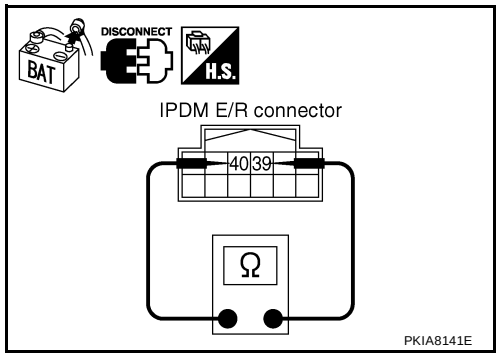
OK or NG

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 E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 108 – 132 Ω



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 Inspection

UKS003QR

1. CHECK CONNECTOR

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

- ECM
- BCM
- Combination meter
- 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.

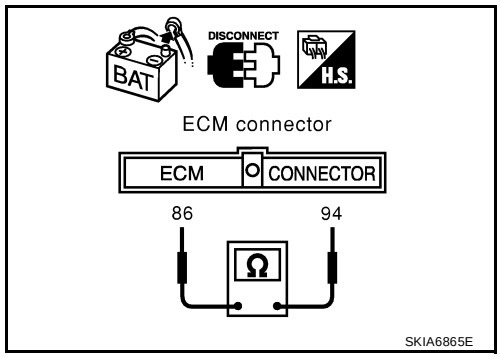
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E152.
2. Check continuity between ECM harness connector E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Continuity should not exist.

OK or NG

OK >> GO TO 3.
NG >> Repair harness between ECM and harness connector E152.



3. CHECK HARNESS FOR SHORT CIRCUIT

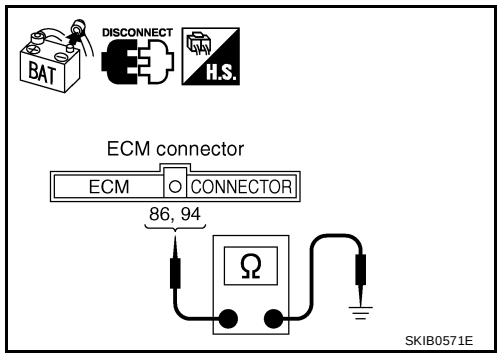
Check continuity between ECM harness connector E16 terminals 94 (L), 86 (P) and ground.

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

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

OK or NG

OK >> GO TO 4.
NG >> Repair harness between ECM and harness connector E152.

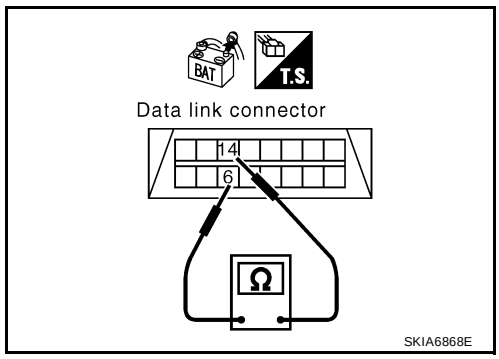


4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
- BCM connector
- Combination meter connector
- Harness connector M91

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

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



OK or NG

OK >> GO TO 5.

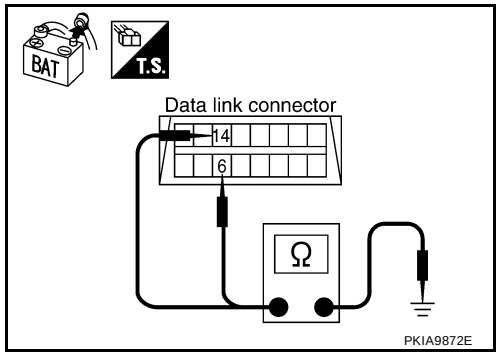
NG >> Check the following harnesses. If any harness is damaged, repair the harness.
- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and harness connector M91

5. CHECK HARNESS FOR SHORT CIRCUIT

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

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

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



OK or NG

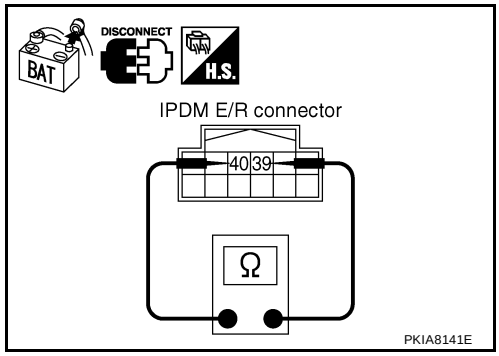
OK >> GO TO 6.

NG >> Check the following harnesses. If any harness is damaged, repair the harness.
- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and harness connector M91

6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 7.

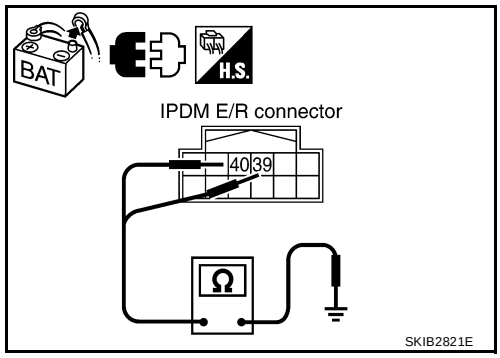
NG >> Check the following harnesses. If any harness is damaged, repair the harness.
- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E122 terminals 39 (L), 40 (P) and ground.

39 (L) – Ground : Continuity should not exist.

40 (P) – 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 IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

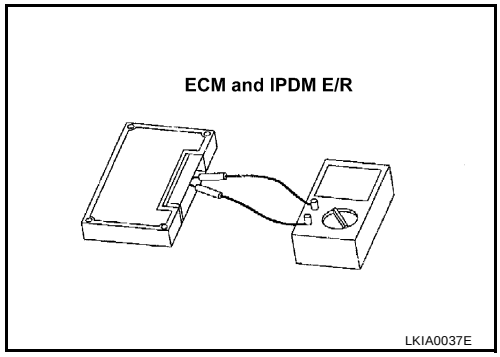
8. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

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

94 – 86 : Approx. 108 – 132 Ω

3. Check resistance between IPDM E/R terminals 39 and 40.

39 – 40 : Approx. 108 – 132 Ω



OK or NG

OK >> GO TO 9.

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

9. CHECK SYMPTOM

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

OK or NG

OK >> GO TO 10.

NG >> Refer to LAN-15, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced".

10. CHECK UNIT REPRODUCIBILITY

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

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

- BCM
- Combination meter
- ABS actuator and electric unit (control unit)
- ECM
- IPDM E/R

Inspection results

Reproduced>>Install removed unit, and then check the other unit.

Not reproduced>>Replace removed unit.

IPDM E/R Ignition Relay Circuit Inspection

UKS003QS

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

- IPDM E/R power supply circuit. Refer to PG-27, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition power supply circuit. Refer to PG-14, "IGNITION POWER SUPPLY — IGNITION SW. IN ON AND/OR START" .

CAN SYSTEM (TYPE 5)

PFP:23710

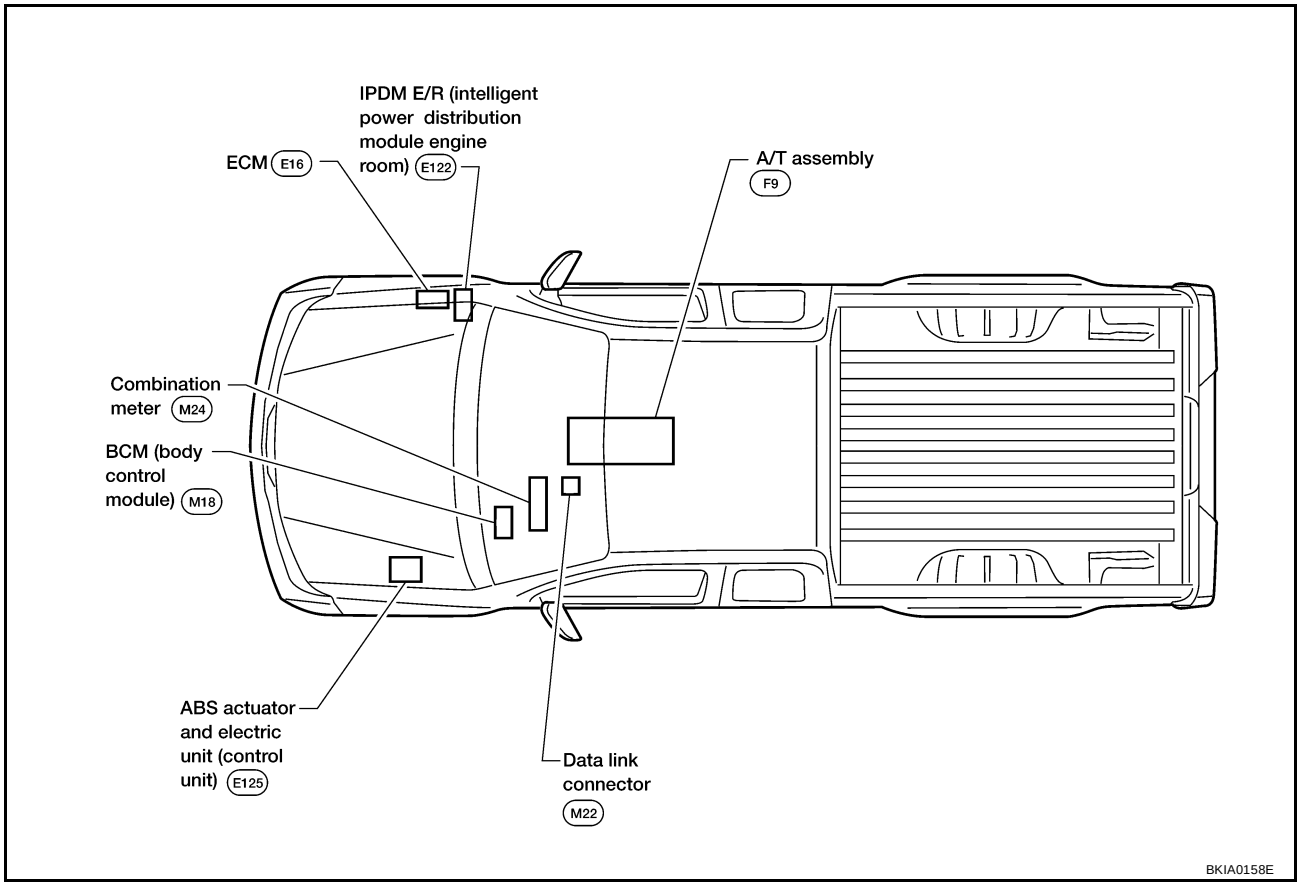
System Description

UKS003PW

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.

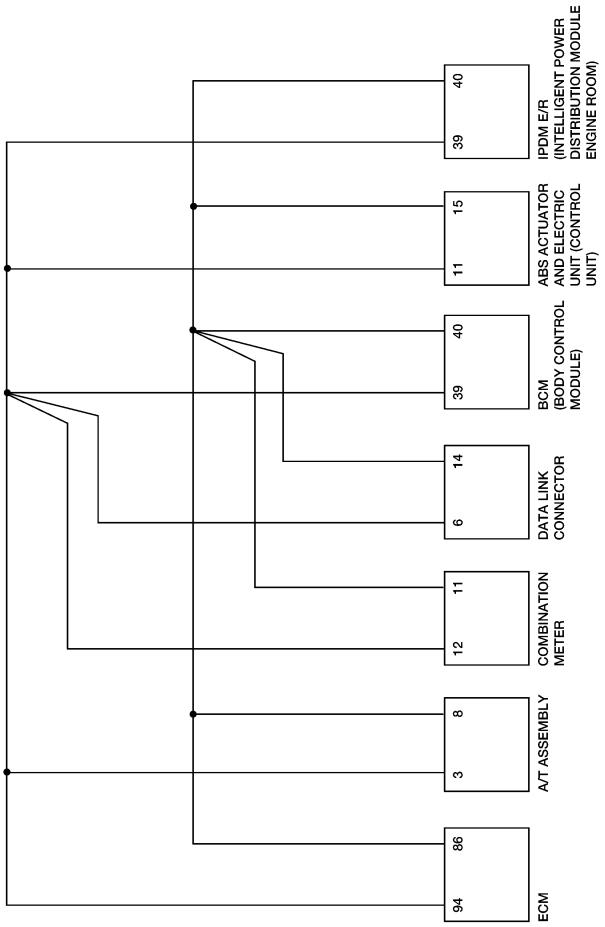
Component Parts and Harness Connector Location

UKS003PX



Schematic

UKS003PY

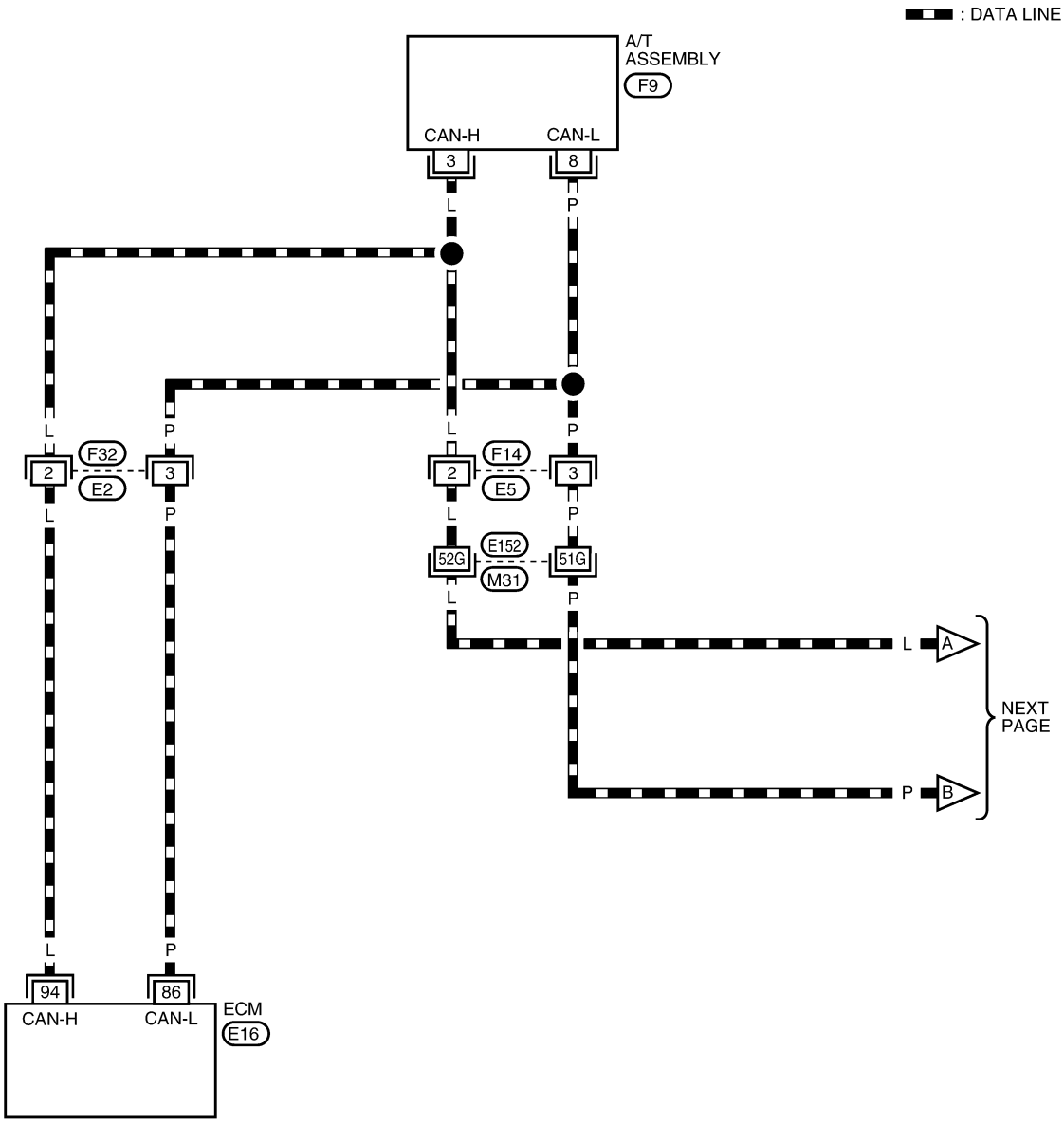


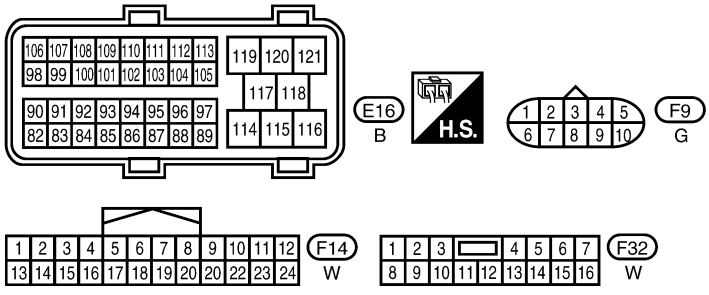
BKWA0483E

Wiring Diagram — CAN —

UKS003PZ

LAN-CAN-13

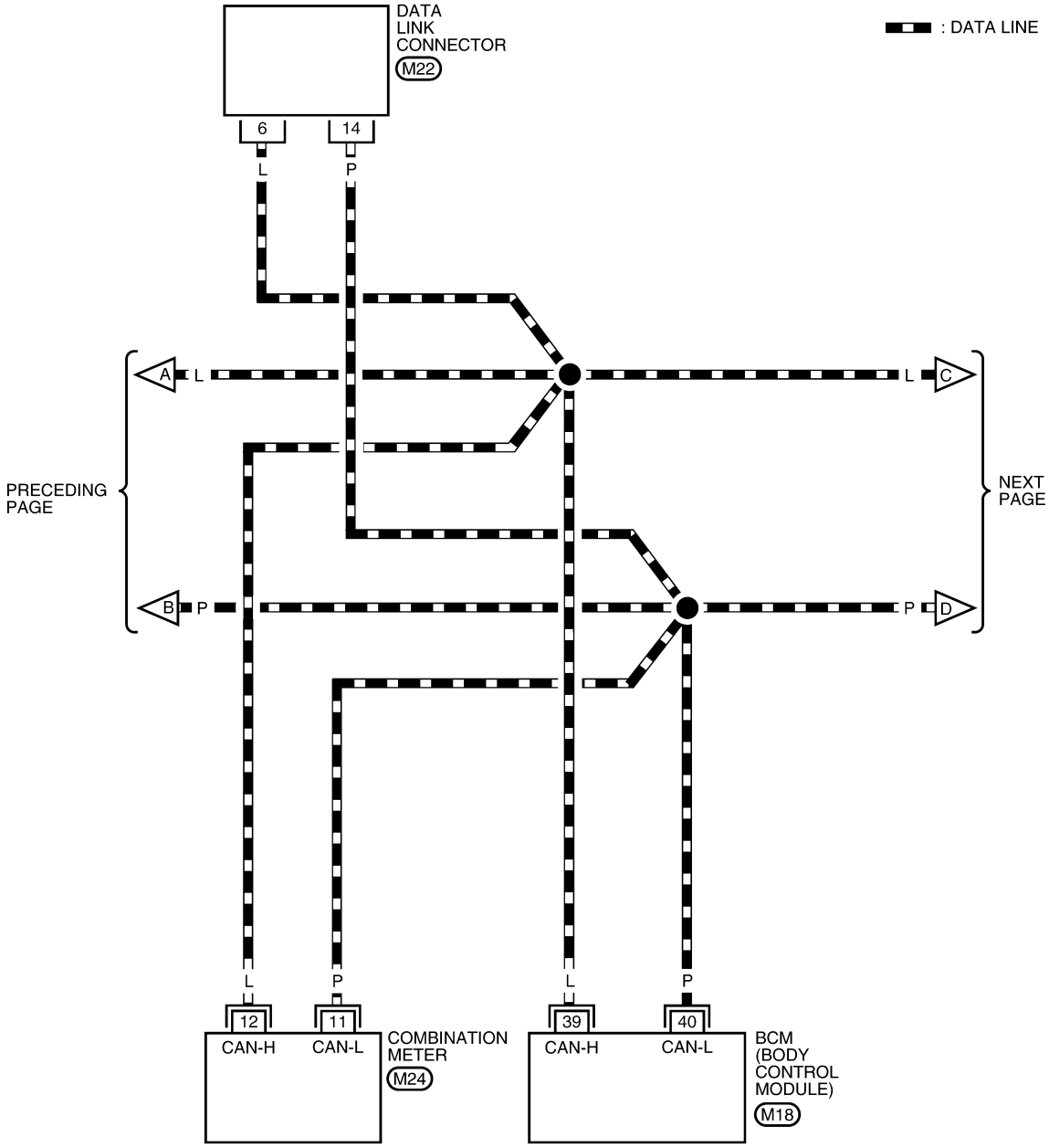


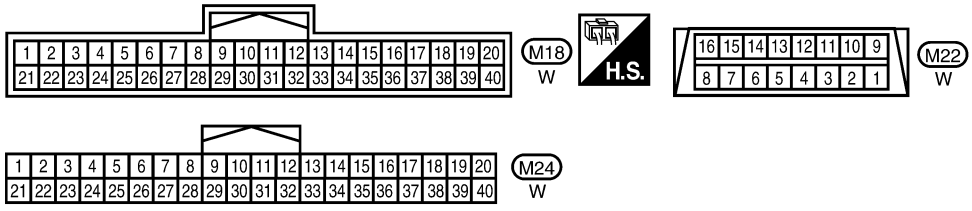


REFER TO THE FOLLOWING.
M31 - SUPER MULTIPLE JUNCTION (SMJ)

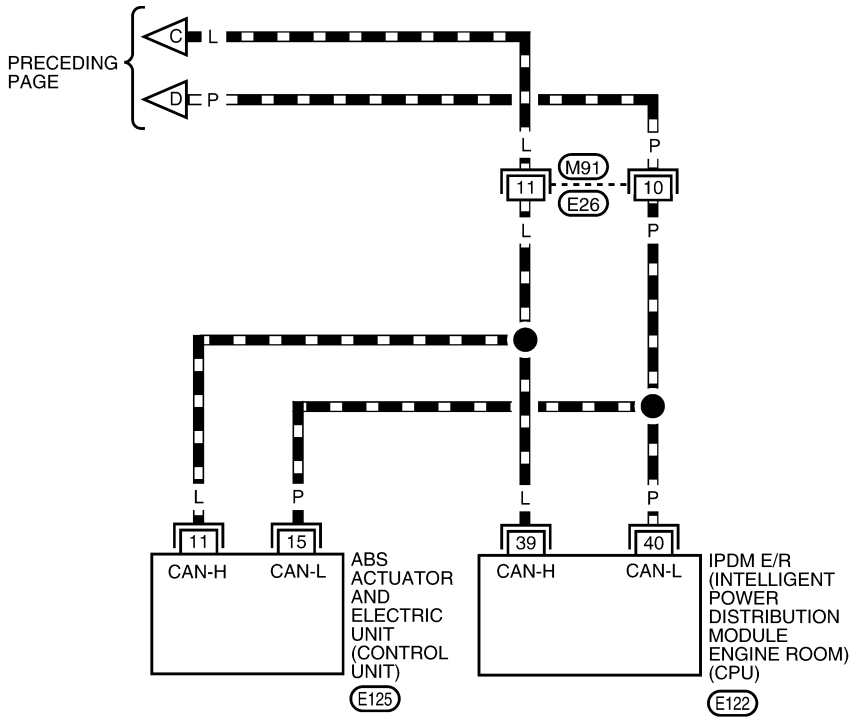
BKWA0493E

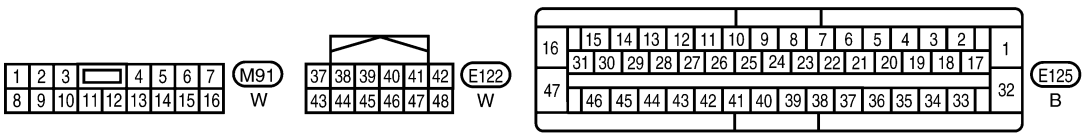
LAN-CAN-14





BKWA0494E


: DATA LINE
PRECEDING PAGE
C
D
L
P
M91
E26
11
10
15
39
40
CAN-H
CAN-L
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
E125
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) (CPU)
E122


M91
W
E122
W
E125
B

BKWA0495E

CHECK SHEET

UKS003QE

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

Check sheet table

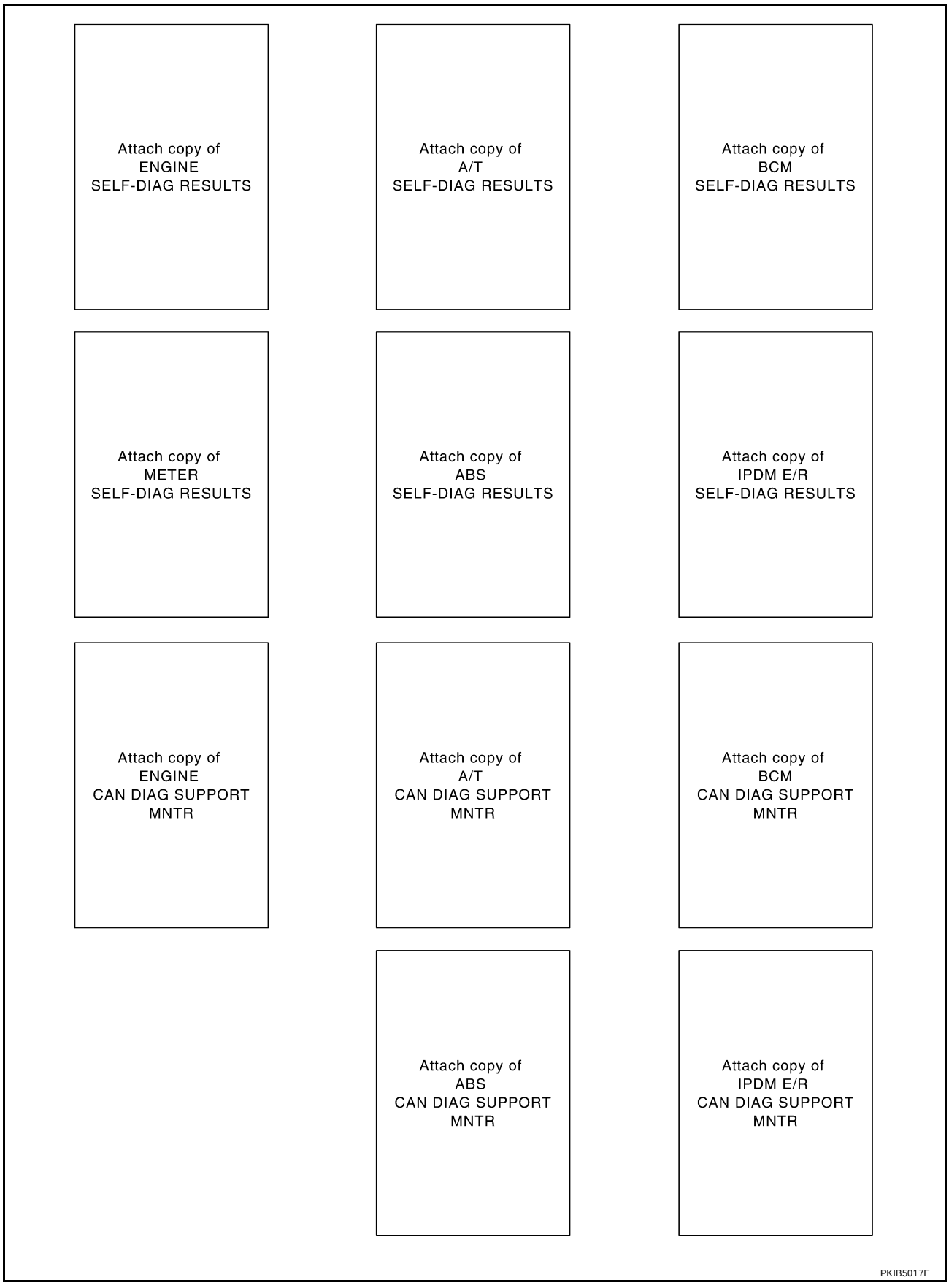
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIB6518E


Attach copy of
ENGINE
SELF-DIAG RESULTS
Attach copy of
A/T
SELF-DIAG RESULTS
Attach copy of
BCM
SELF-DIAG RESULTS
Attach copy of
METER
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
A/T
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
PKIB5017E

CHECK SHEET RESULTS (EXAMPLE)

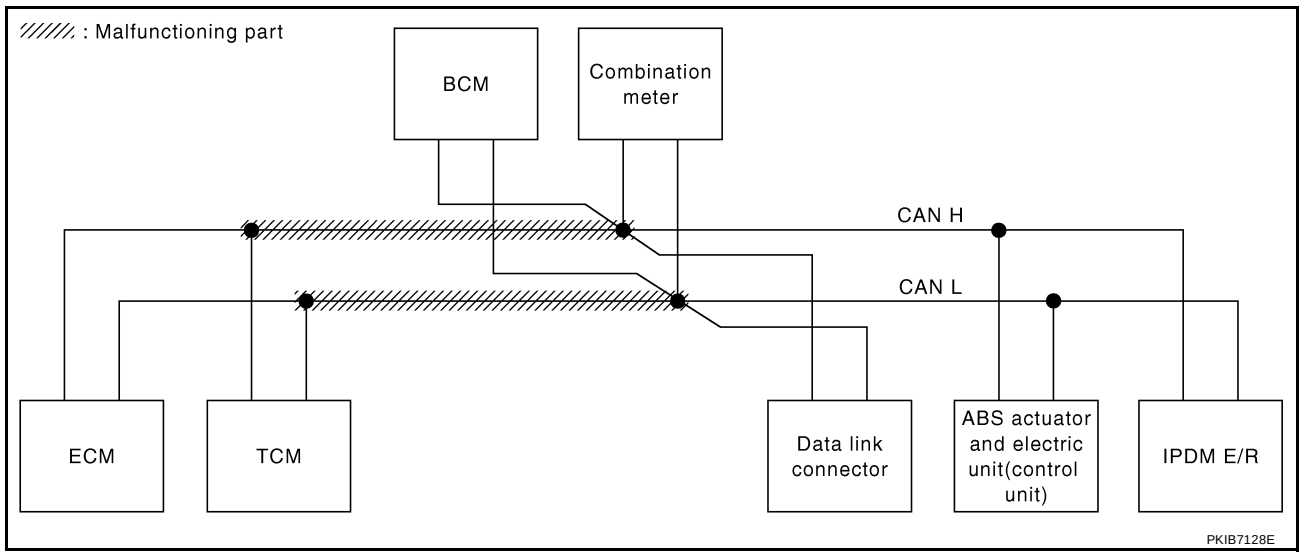
NOTE:
If a check mark is put on “NG” on “INITIAL DIAG (Initial diagnosis)”, replace the control unit.

Case 1

Check harness between TCM and data link connector circuit. Refer to LAN-153, "Inspection Between TCM and Data Link Connector Circuit" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN ✓	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN ✓	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN ✓	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7272E



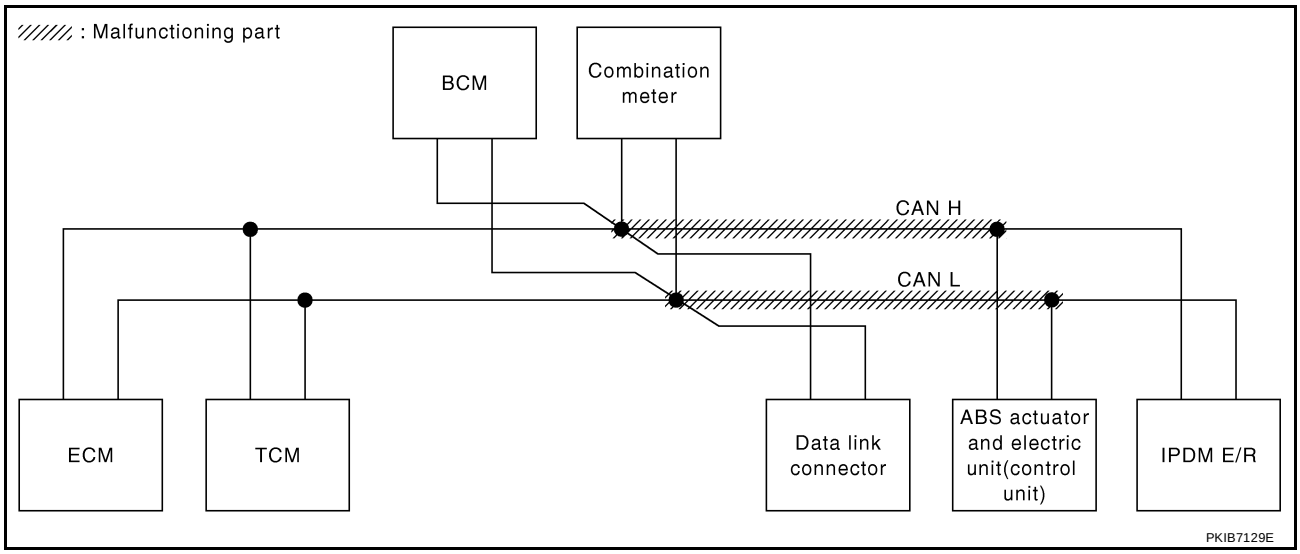
PKIB7128E

Case 2

Check harness between data link connector and ABS actuator and electric unit (control unit) circuit. Refer to LAN-154, "Inspection Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Circuit"
.

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN ✓	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7273E



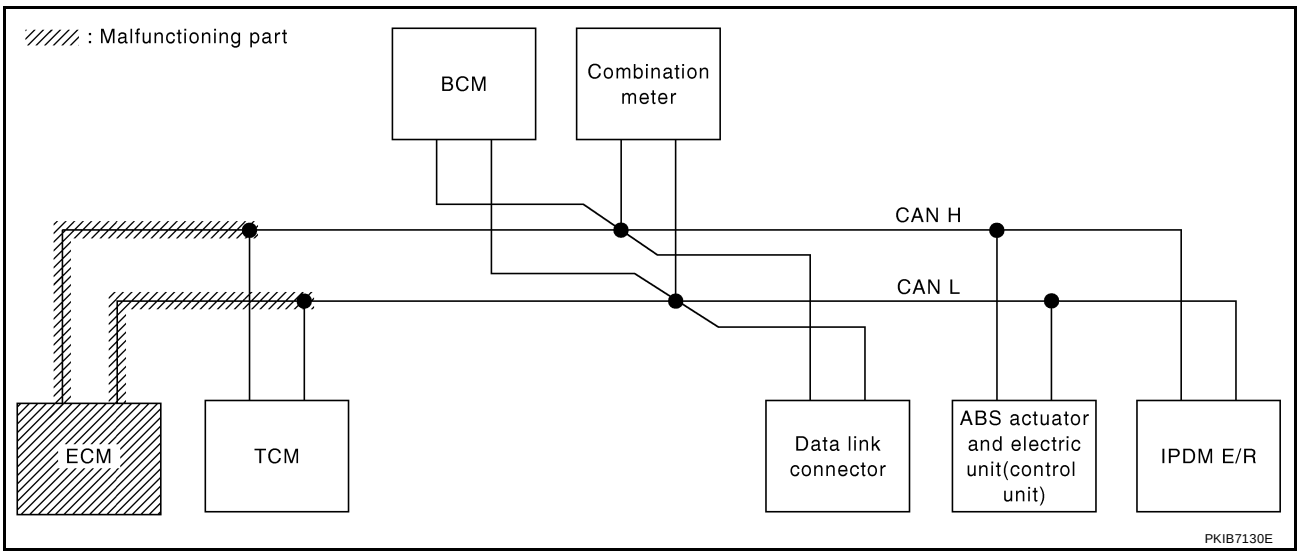
PKIB7129E

Case 3

Check ECM circuit. Refer to LAN-155, "ECM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7274E



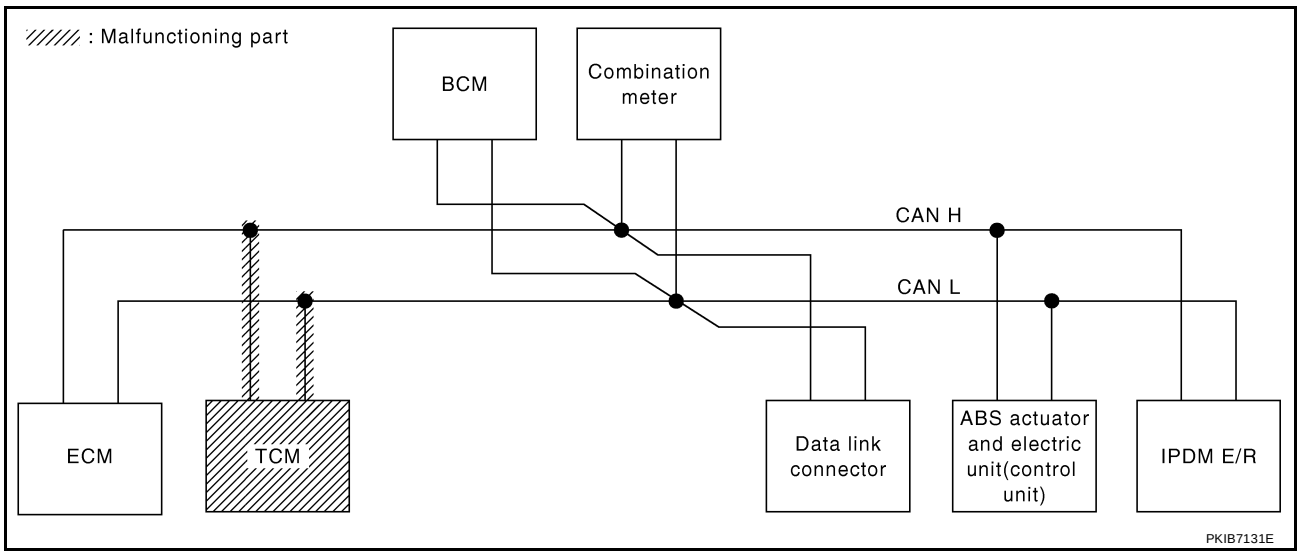
PKIB7130E

Case 4

Check TCM circuit. Refer to LAN-156, "TCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN ✓	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN ✓	—	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7275E



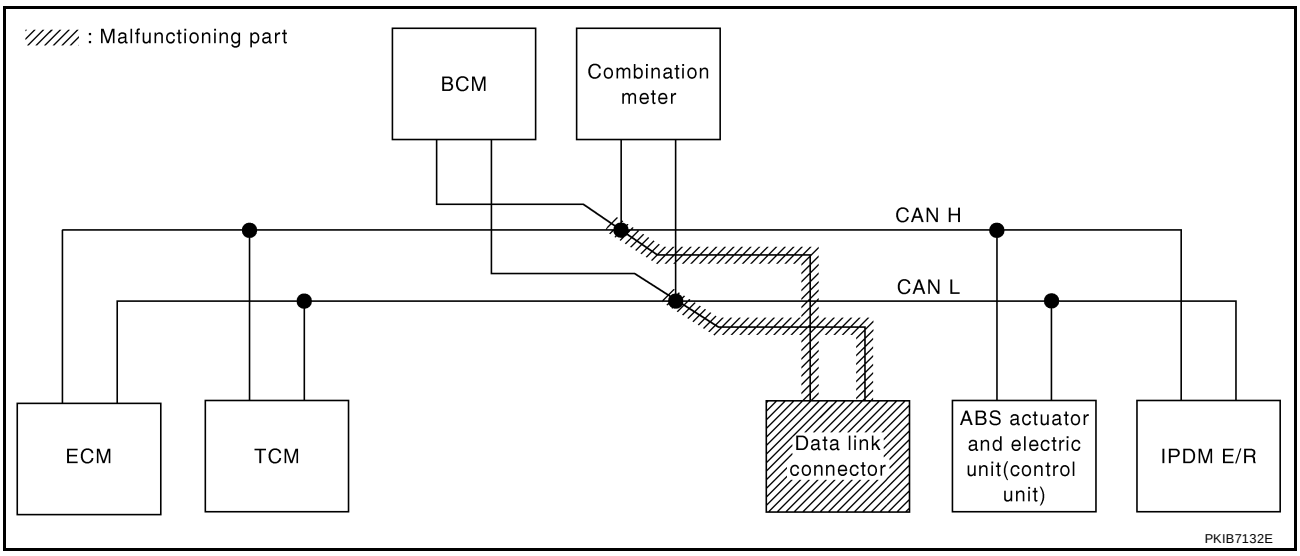
PKIB7131E

Case 5

Check data link connector circuit. Refer to LAN-156, "Data Link Connector Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7276E



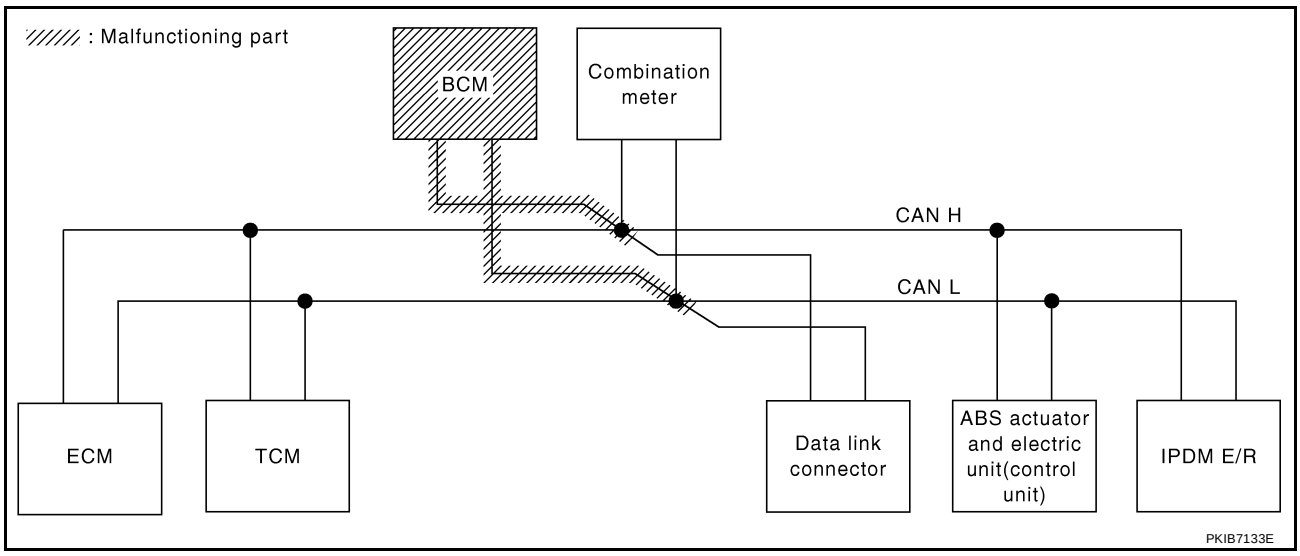
PKIB7132E

Case 6

Check BCM circuit. Refer to LAN-157, "BCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN ✓	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication ✓	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN ✓	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7277E



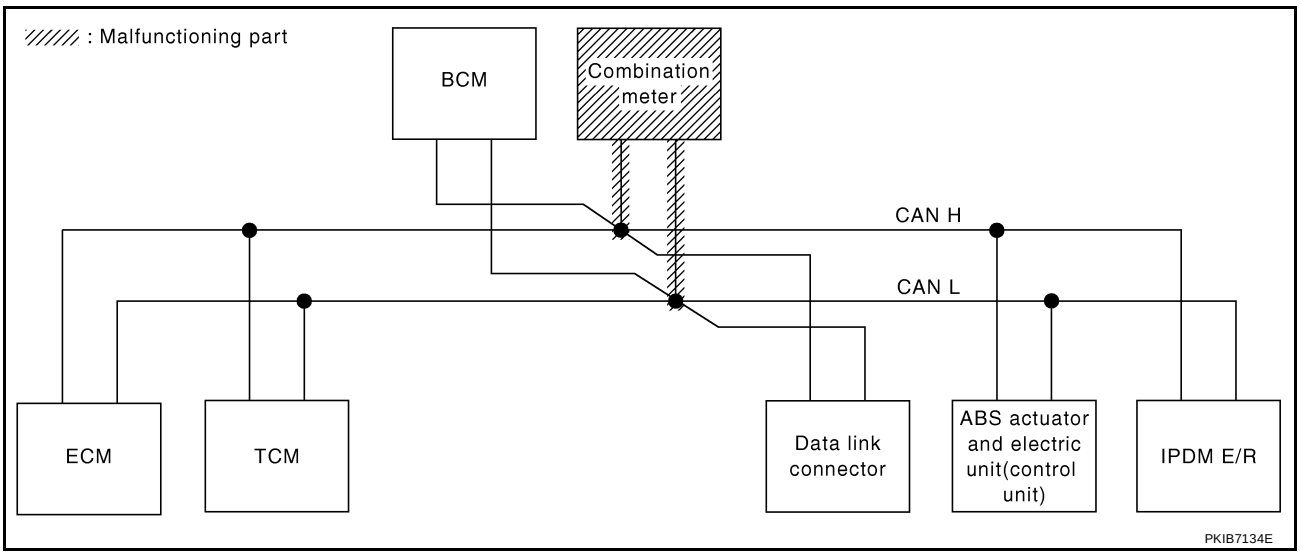
PKIB7133E

Case 7

Check combination meter circuit. Refer to LAN-157, "Combination Meter Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7278E



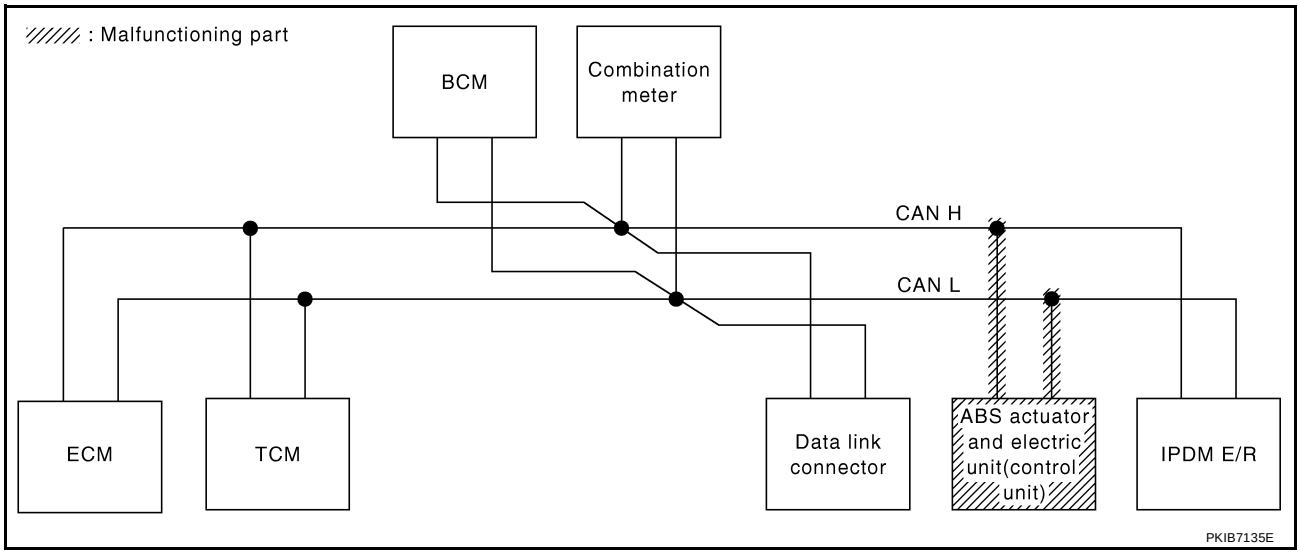
PKIB7134E

Case 8

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-158, "ABS Actuator and Electric Unit (Control Unit) Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG ✓	UNKWN ✓	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7279E



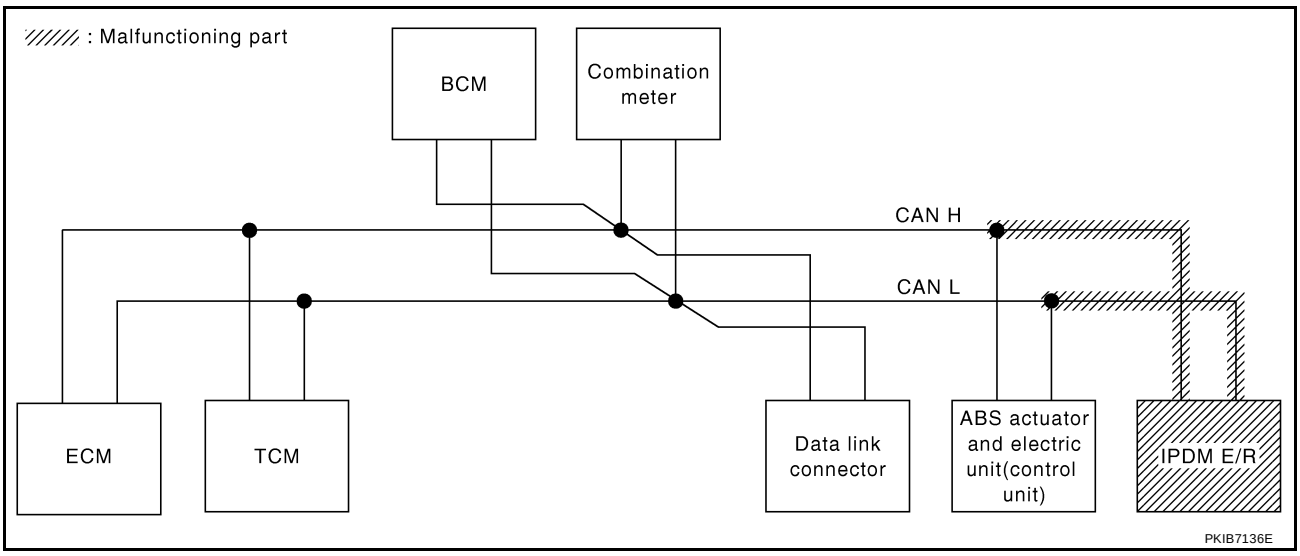
PKIB7135E

Case 9

Check IPDM E/R circuit. Refer to LAN-158, "IPDM E/R Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN ✓	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7280E



PKIB7136E

Case 10

Check CAN communication circuit. Refer to LAN-159, "CAN Communication Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN ✓	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN ✓	—	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication ✓	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG ✓	UNKWN ✓	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7281E

Case 11

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-163, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN ✓	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7282E

Case 12

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-163, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR							SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis						
				ECM	TCM	BCM /SEC	METER /M&A	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7283E

Inspection Between TCM and Data Link Connector Circuit

UKS003Q1

1. CHECK CONNECTOR

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

- Harness connector F14
- Harness connector E5
- Harness connector E152
- Harness connector M31

OK or NG

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

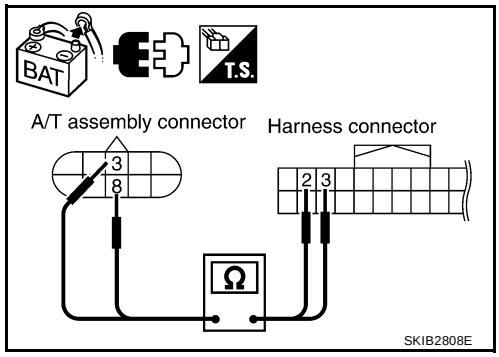
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect A/T assembly connector and harness connector F14.
2. Check continuity between A/T assembly harness connector F9 terminals 3 (L), 8 (P) and harness connector F14 terminals 2 (L), 3 (P).

3 (L) – 2 (L) : Continuity should exist.
8 (P) – 3 (P) : Continuity should exist.

OK or NG

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



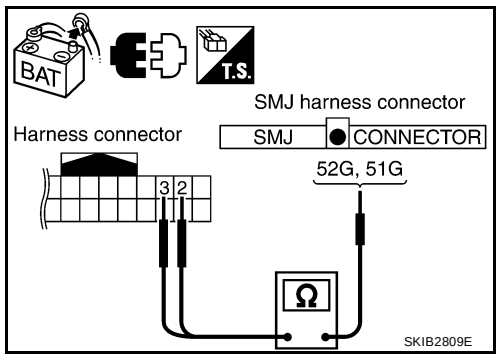
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector E152.
2. Check continuity between harness connector E5 terminals 2 (L), 3 (P) and harness connector E152 terminals 52G (L), 51G (P).

2 (L) – 52G (L) : Continuity should exist.
3 (P) – 51G (P) : Continuity should exist.

OK or NG

OK >> GO TO 4.
NG >> Repair harness.



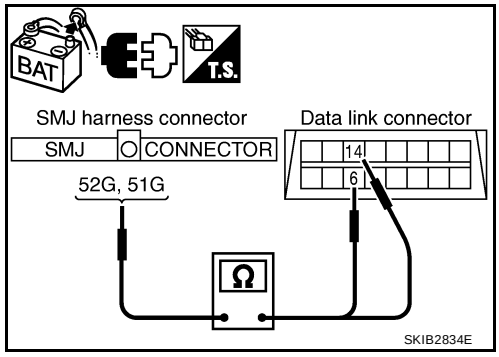
4. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between harness connector M31 terminals 52G (L), 51G (P) and data link connector M22 terminals 6 (L), 14 (P).

52G (L) – 6 (L) : Continuity should exist.
51G (P) – 14 (P) : Continuity should exist.

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.



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

UKS003Q2

1. CHECK CONNECTOR

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

- Harness connector M91
- Harness connector E26

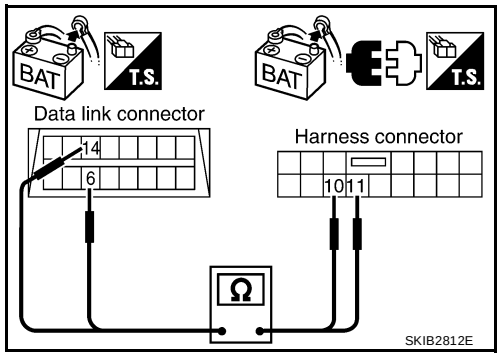
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M91.
2. Check continuity between data link connector M22 terminals 6 (L), 14 (P) and harness connector M91 terminals 11 (L), 10 (P).

6 (L) – 11 (L) : Continuity should exist.
14 (P) – 10 (P) : Continuity should exist.



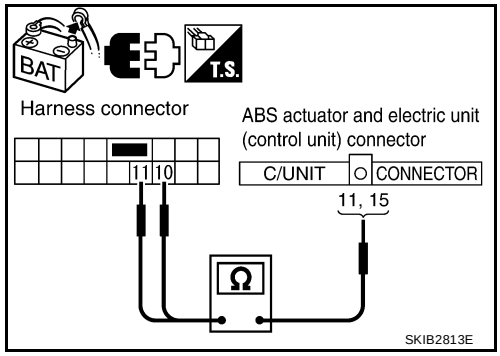
OK or NG

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 E26 terminals 11 (L), 10 (P) and ABS actuator and electric unit (control unit) harness connector E125 terminals 11 (L), 15 (P).

11 (L) – 11 (L) : Continuity should exist.
10 (P) – 15 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.

ECM Circuit Inspection

UKS003Q3

1. CHECK CONNECTOR

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

- ECM connector
- Harness connector E2
- Harness connector F32

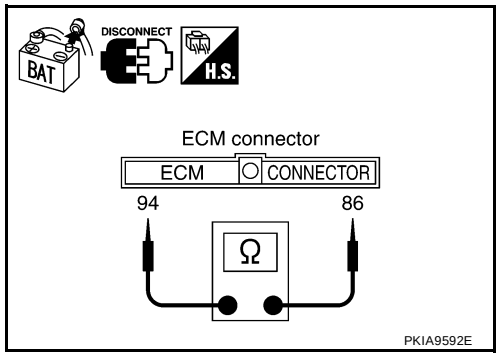
OK or NG

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 E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Approx. 108 – 132 Ω



OK or NG

OK >> Replace ECM.
NG >> Repair harness between ECM and A/T assembly.

TCM Circuit Inspection

UKS003Q4

1. CHECK CONNECTOR

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

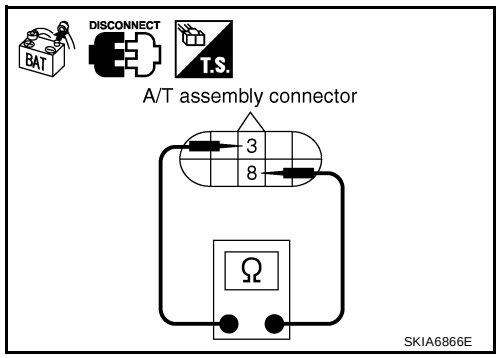
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect A/T assembly connector.
2. Check resistance between A/T assembly harness connector F9 terminals 3 (L) and 8 (P).

3 (L) – 8 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace control valve with TCM.
NG >> Repair harness between A/T assembly and harness connector F14.

Data Link Connector Circuit Inspection

UKS003Q5

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connector of data link connector 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

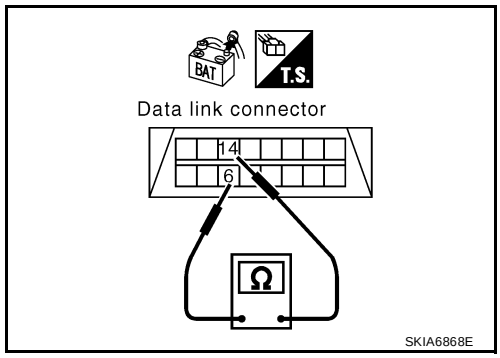
Check resistance between data link connector M22 terminals 6 (L) and 14 (P).

6 (L) – 14 (P) : Approx. 54 – 66 Ω

OK or NG

OK >> Diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .

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



BCM Circuit Inspection

UKS003Q6

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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

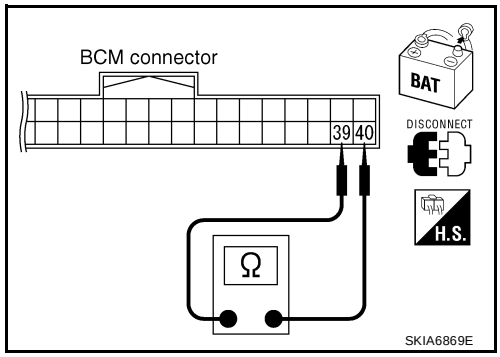
1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M18 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 54 – 66 Ω

OK or NG

OK >> Replace BCM. Refer to BCS-19, "Removal and Installation of BCM" .

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



Combination Meter Circuit Inspection

UKS003Q7

1. CHECK CONNECTOR

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

OK or NG

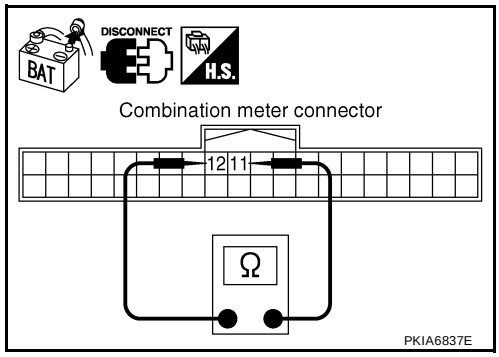
OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M24 terminals 12 (L) and 11 (P).

12 (L) – 11 (P) : Approx. 54 – 66 Ω



OK or NG

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

ABS Actuator and Electric Unit (Control Unit) Circuit Inspection

UKS003Q8

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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).

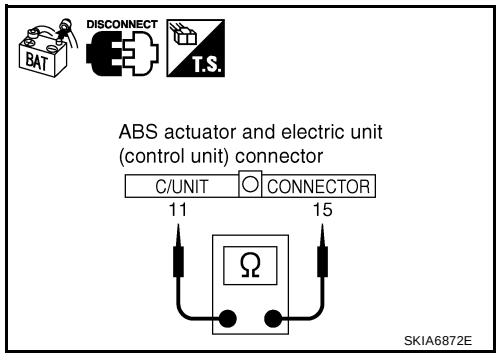
OK or NG

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 E125 terminals 11 (L) and 15 (P).

11 (L) – 15 (P) : Approx. 54 – 66 Ω



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 Inspection

UKS003Q9

1. CHECK CONNECTOR

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

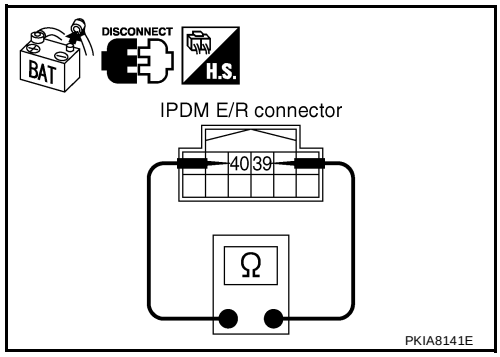
OK or NG

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 E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 108 – 132 Ω



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 Inspection

UKS003QA

1. CHECK CONNECTOR

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

- ECM
- TCM
- BCM
- Combination meter
- ABS actuator and electric unit (control unit)
- IPDM E/R
- Between ECM and IPDM E/R

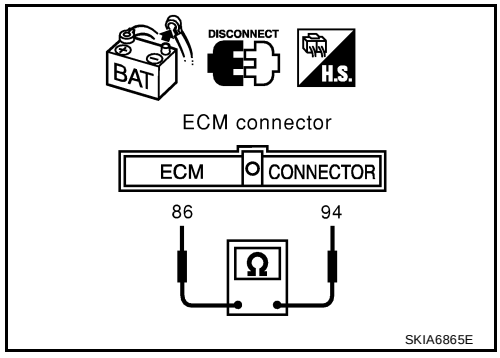
OK or NG

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

2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E2.
2. Check continuity between ECM harness connector E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Continuity should not exist.



OK or NG

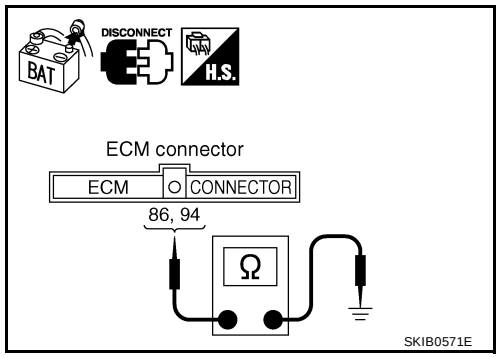
OK >> GO TO 3.
NG >> Repair harness between ECM and harness connector E2.

3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector E16 terminals 94 (L), 86 (P) and ground.

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

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



OK or NG

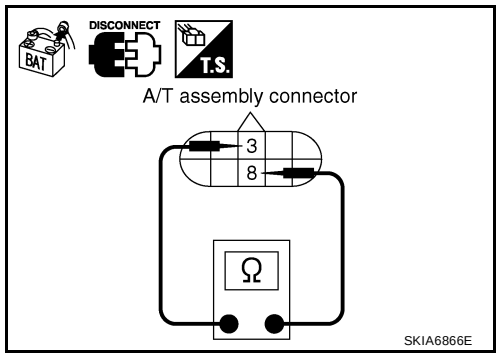
OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector E2.

4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect A/T assembly connector and harness connector F14.
2. Check continuity between A/T assembly harness connector F9 terminals 3 (L) and 8 (P).

3 (L) – 8 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 5.

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

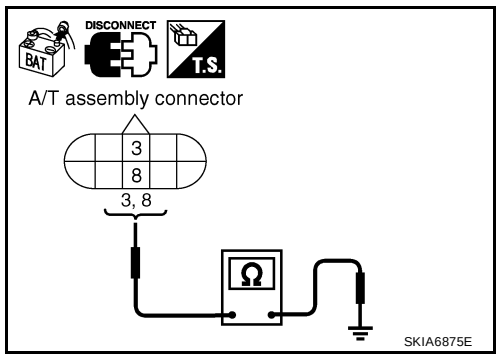
- Harness between A/T assembly and harness connector F32
- Harness between A/T assembly and harness connector F14

5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between A/T assembly harness connector F9 terminals 3 (L), 8 (P) and ground.

3 (L) – Ground : Continuity should not exist.

8 (P) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 6.

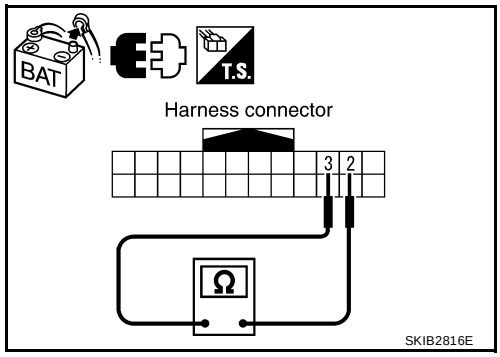
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between A/T assembly and harness connector F32
- Harness between A/T assembly and harness connector F14

6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect harness connector E152.
2. Check continuity between harness connector E5 terminals 2 (L) and 3 (P).

2 (L) – 3 (P) : Continuity should not exist.



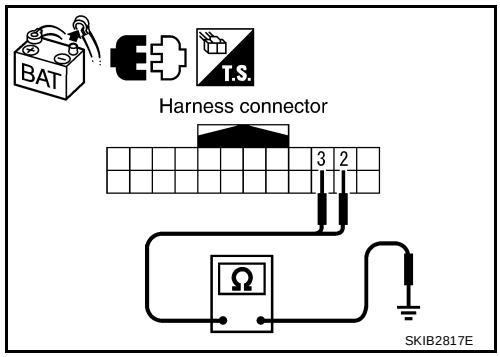
OK or NG

OK >> GO TO 7.
NG >> Repair harness between harness connector E5 and harness connector E152.

7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector E5 terminals 2 (L), 3 (P) and ground.

2 (L) – Ground : Continuity should not exist.
3 (P) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 8.
NG >> Repair harness between harness connector E5 and harness connector E152.

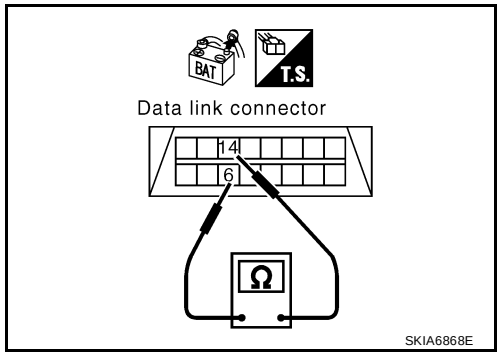
8. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.

- BCM connector
- Combination meter connector
- Harness connector M91

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

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



OK or NG

OK >> GO TO 9.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

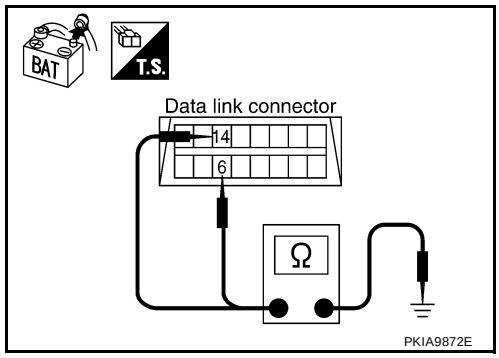
- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and harness connector M91

9. CHECK HARNESS FOR SHORT CIRCUIT

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

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

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



OK or NG

OK >> GO TO 10.

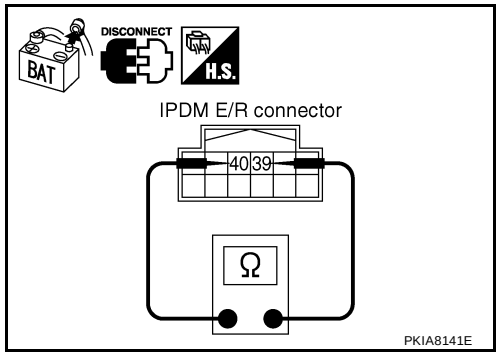
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and harness connector M91

10. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 11.

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

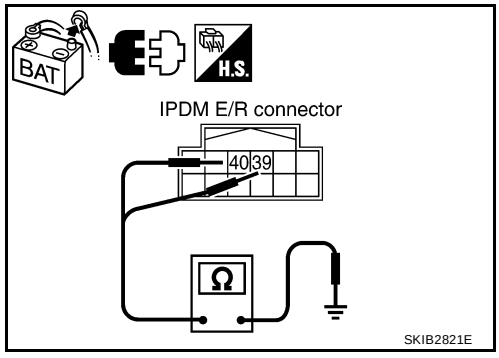
- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

11. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E122 terminals 39 (L), 40 (P) and ground.

39 (L) – Ground : Continuity should not exist.

40 (P) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 12.

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

- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

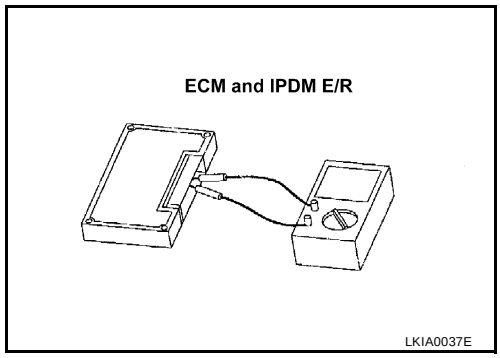
12. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

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

94 – 86 : Approx. 108 – 132 Ω

3. Check resistance between IPDM E/R terminals 39 and 40.

39 – 40 : Approx. 108 – 132 Ω



OK or NG

OK >> GO TO 13.
NG >> Replace ECM and/or IPDM E/R.

13. CHECK SYMPTOM

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

OK or NG

OK >> GO TO 14.
NG >> Refer to LAN-15, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced" .

14. CHECK UNIT REPRODUCIBILITY

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

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

- TCM
- BCM
- Combination meter
- ABS actuator and electric unit (control unit)
- ECM
- IPDM E/R

Inspection results

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

IPDM E/R Ignition Relay Circuit Inspection

UKS003QB

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

- IPDM E/R power supply circuit. Refer to PG-27, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition power supply circuit. Refer to PG-14, "IGNITION POWER SUPPLY — IGNITION SW. IN ON AND/OR START" .

CAN SYSTEM (TYPE 6)

PFP:23710

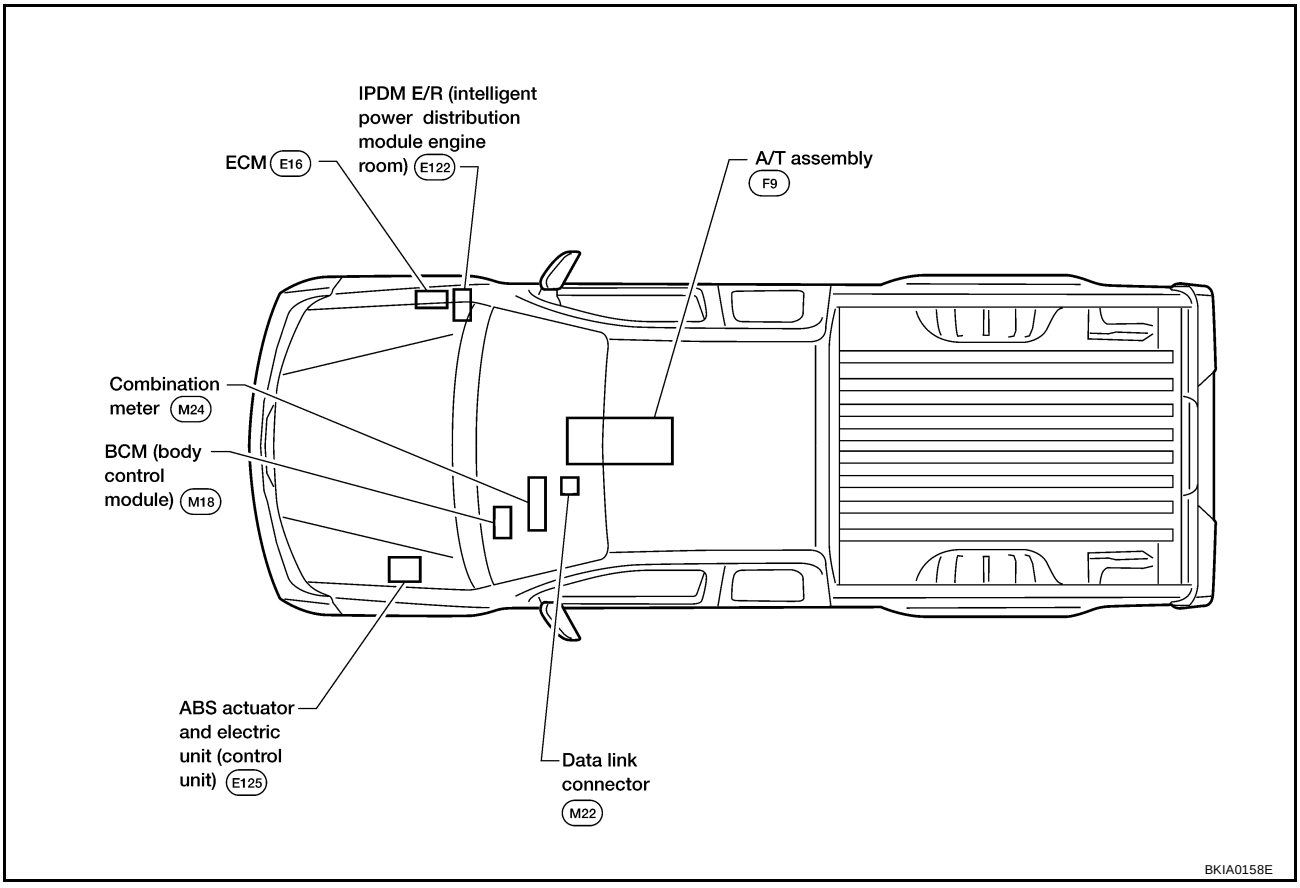
System Description

UKS003PG

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.

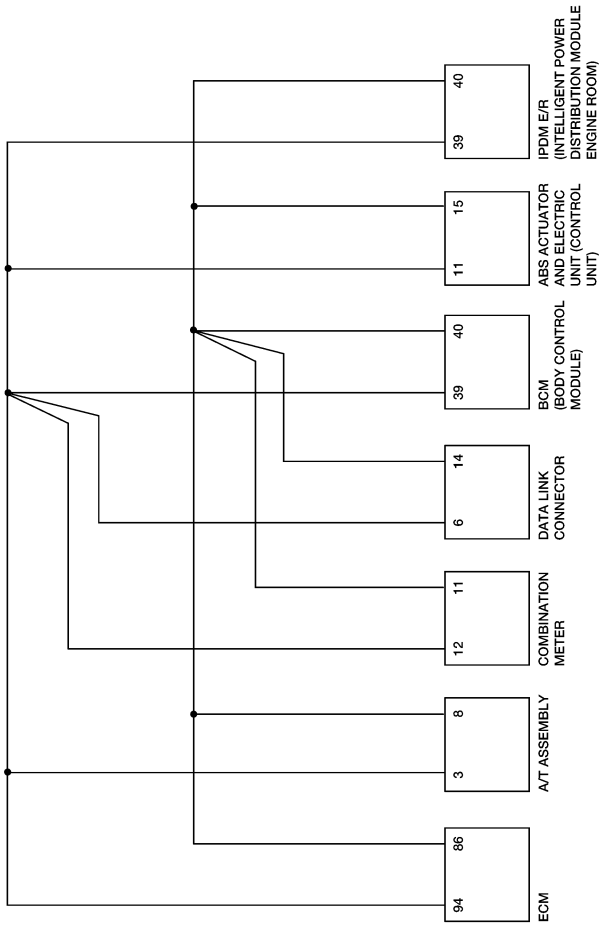
Component Parts and Harness Connector Location

UKS003PH



Schematic

UKS003PI

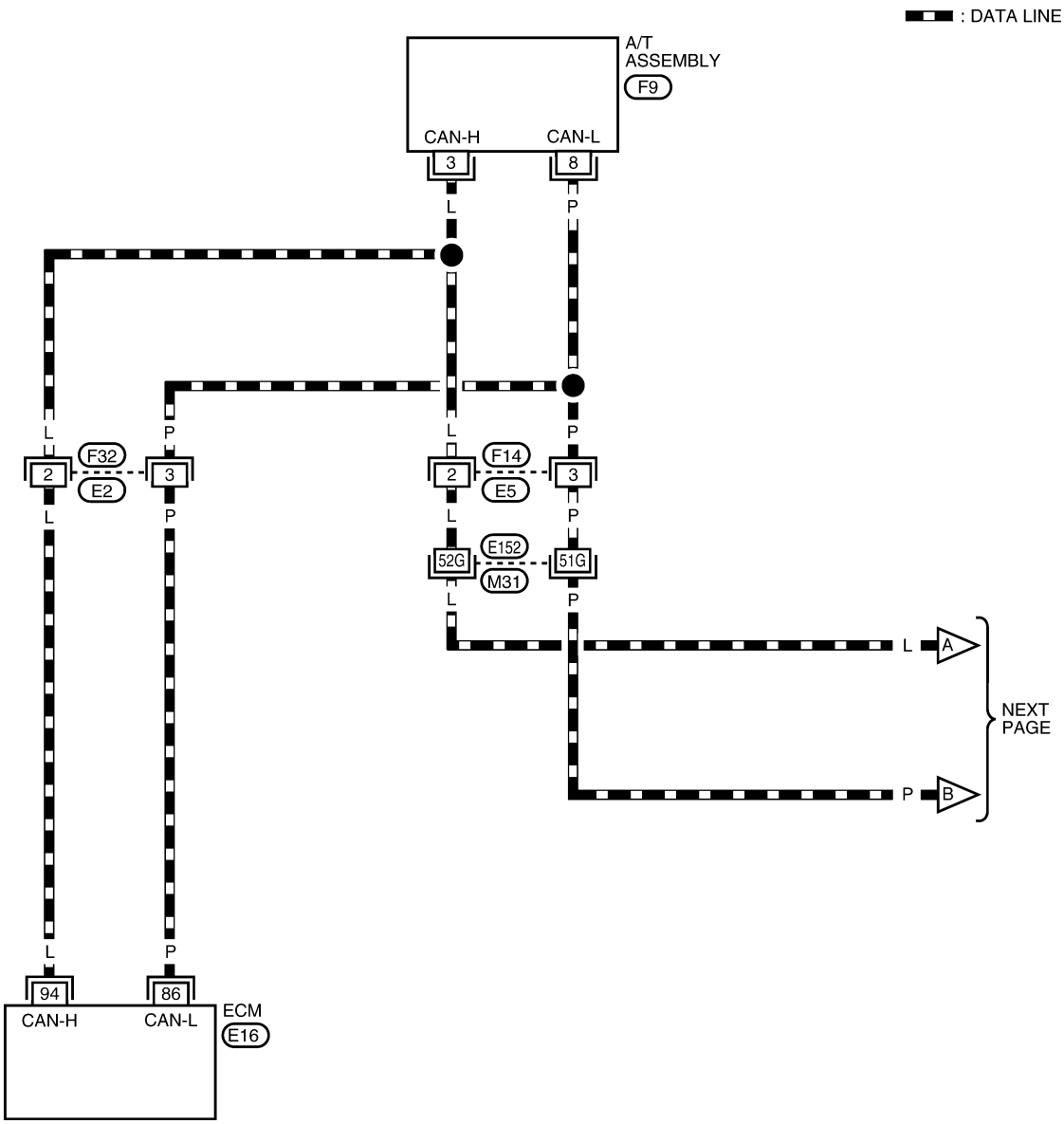


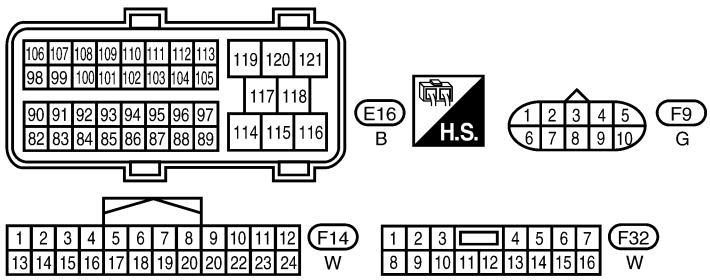
BKWA0483E

Wiring Diagram — CAN —

UKS003PJ

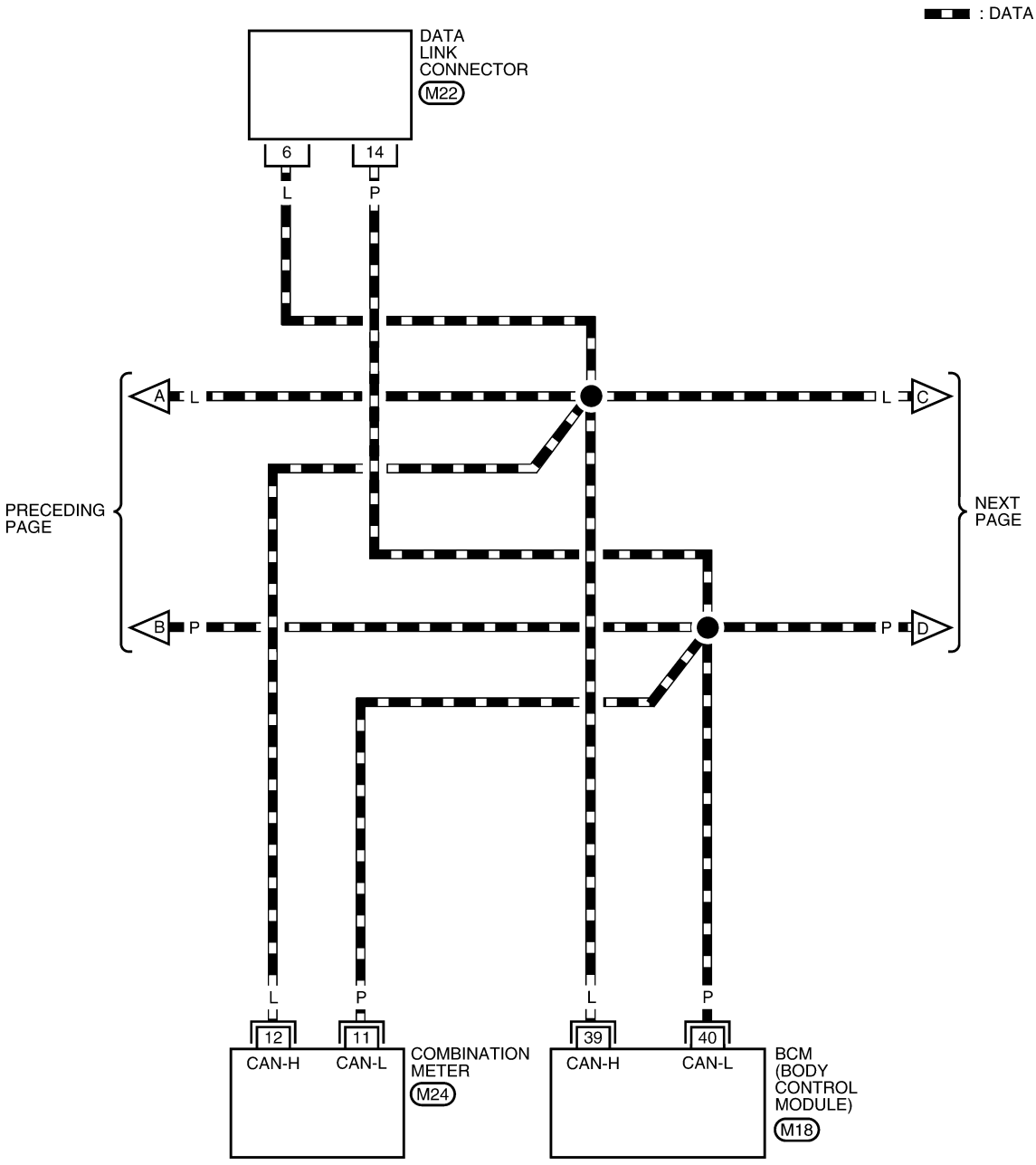
LAN-CAN-16

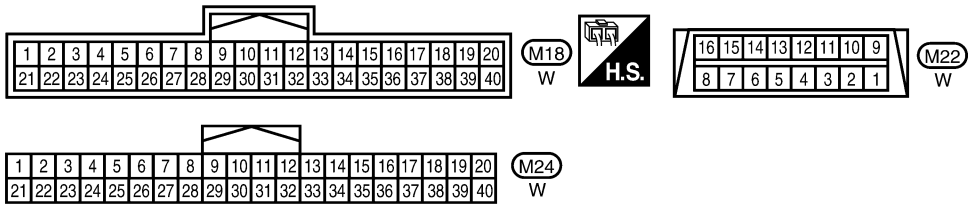




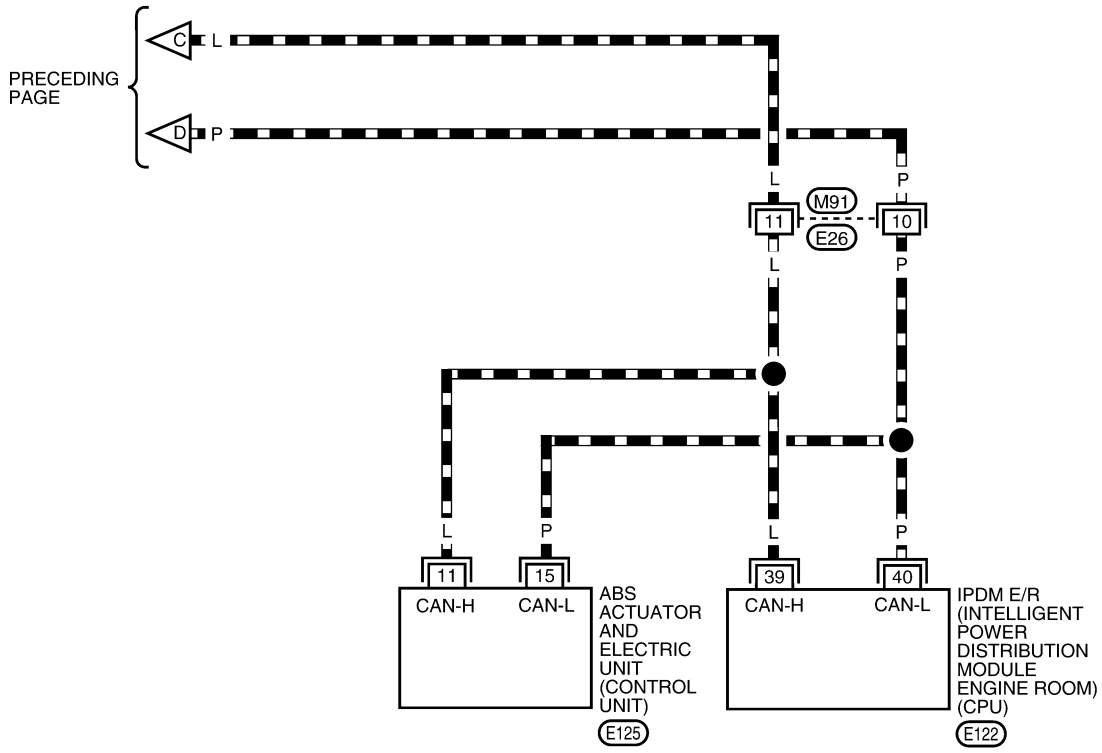
REFER TO THE FOLLOWING.
M31 - SUPER MULTIPLE JUNCTION (SMJ)

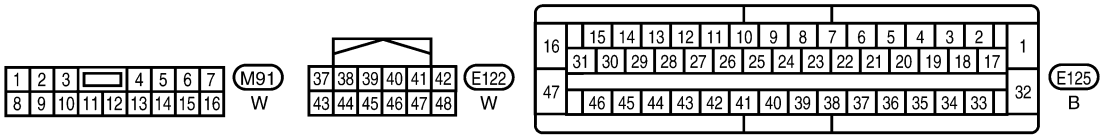
BKWA0497E


: DATA LINE
DATA LINK CONNECTOR
M22
6
14
L
P
A
L
C
L
PRECEDING PAGE
NEXT PAGE
B
P
D
P
L
P
L
P
12
11
39
40
CAN-H
CAN-L
CAN-H
CAN-L
COMBINATION METER
M24
BCM (BODY CONTROL MODULE)
M18


M18
W
H.S.
M22
W
M24
W

BKWA0498E


: DATA LINE
PRECEDING PAGE
C
L
D
P
L
P
M91
11
10
E26
L
P
L
P
L
P
11
15
39
40
CAN-H
CAN-L
CAN-H
CAN-L
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
E125
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) (CPU)
E122


1 2 3 4 5 6 7
8 9 10 11 12 13 14 15 16
M91
W
37 38 39 40 41 42
43 44 45 46 47 48
E122
W
16
15 14 13 12 11 10 9 8 7 6 5 4 3 2
1
31 30 29 28 27 26 25 24 23 22 21 20 19 18 17
47
46 45 44 43 42 41 40 39 38 37 36 35 34 33
32
E125
B

BKWA0499E

CHECK SHEET

UKS003PK

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

Check sheet table

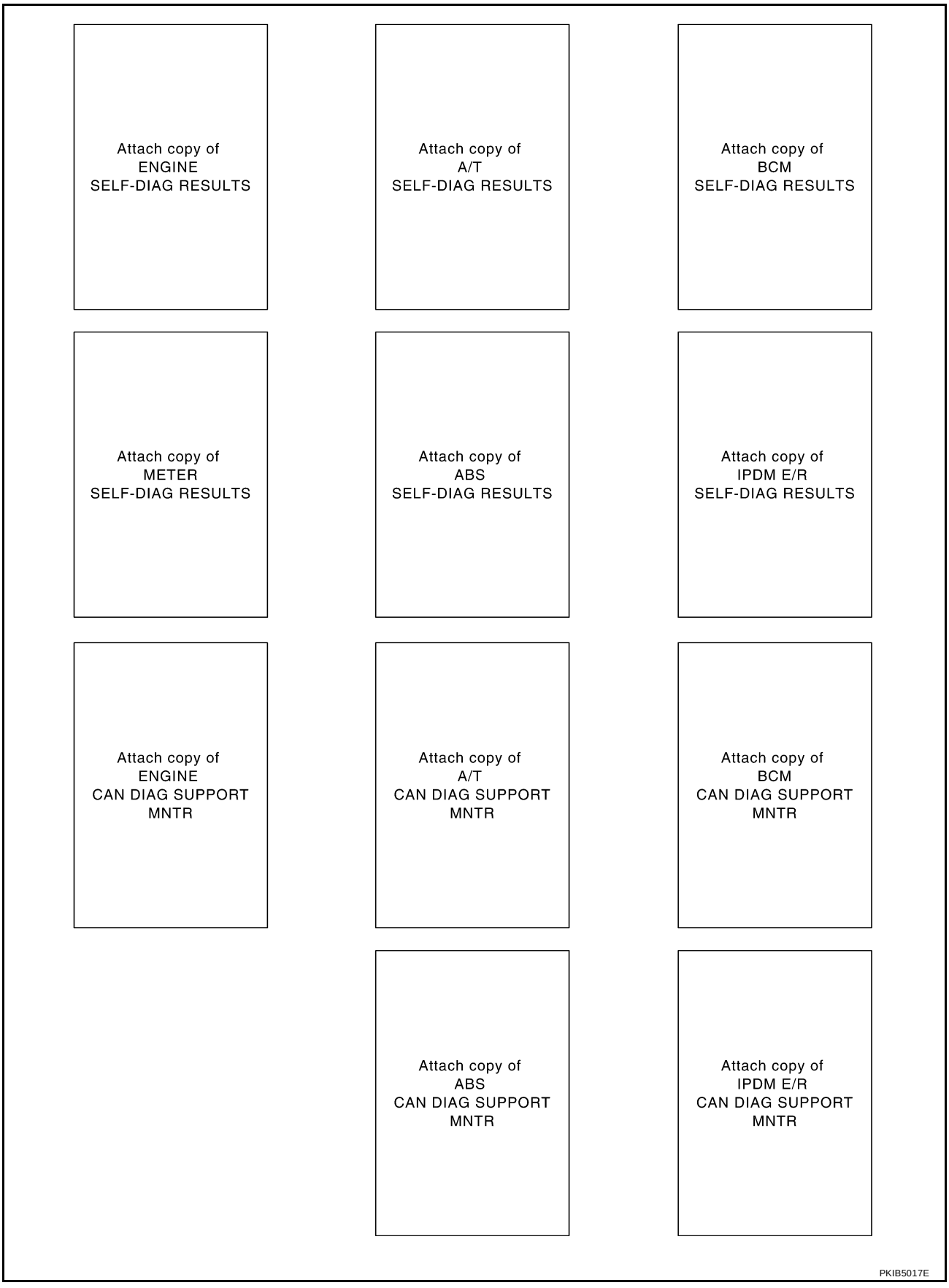
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	TCM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIB6521E


Attach copy of
ENGINE
SELF-DIAG RESULTS
Attach copy of
A/T
SELF-DIAG RESULTS
Attach copy of
BCM
SELF-DIAG RESULTS
Attach copy of
METER
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
A/T
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
PKIB5017E

CHECK SHEET RESULTS (EXAMPLE)

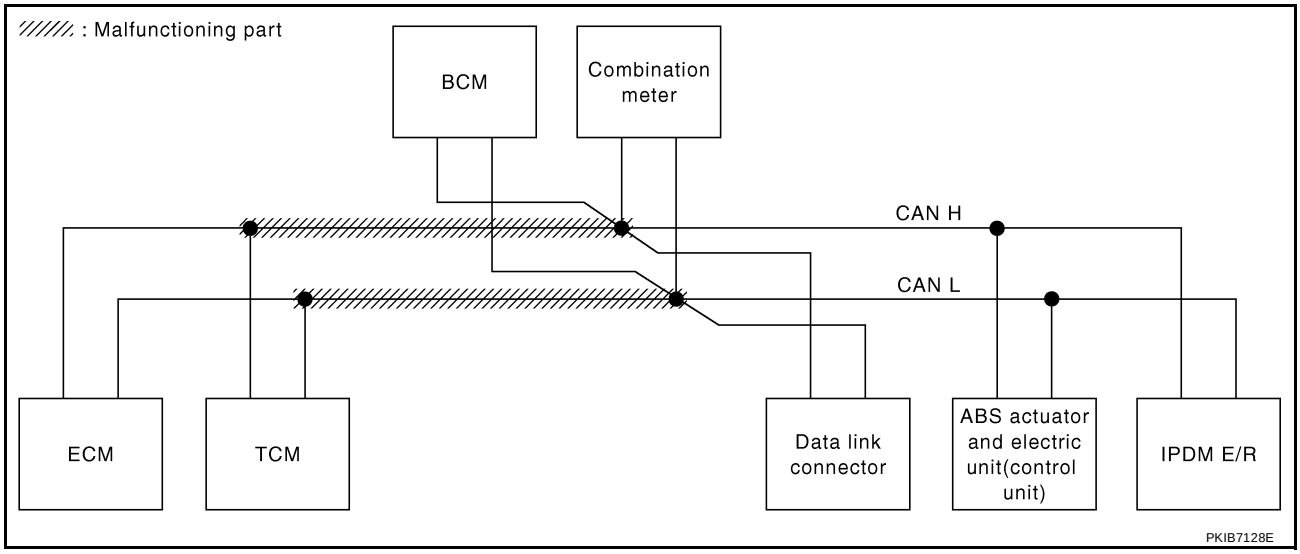
NOTE:
If a check mark is put on “NG” on “INITIAL DIAG (Initial diagnosis)”, replace the control unit.

Case 1

Check harness between TCM and data link connector circuit. Refer to LAN-180, "Inspection Between TCM and Data Link Connector Circuit" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	TCM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN ✓	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN ✓	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN ✓	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN ✓	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7284E



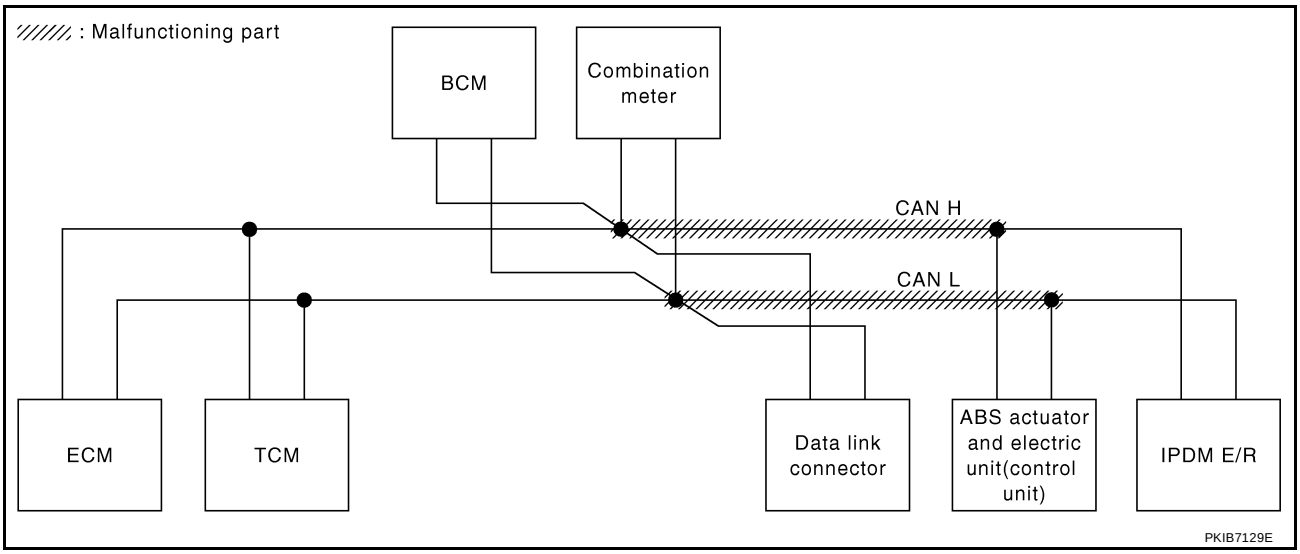
PKIB7128E

Case 2

Check harness between data link connector and ABS actuator and electric unit (control unit) circuit. Refer to LAN-181, "Inspection Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Circuit" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	TCM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	✓	✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	✓	—	✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	✓	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	✓	—
ABS	—	NG	UNKWN	✓	✓	—	—	—	—	✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	✓	—

PKIB7285E

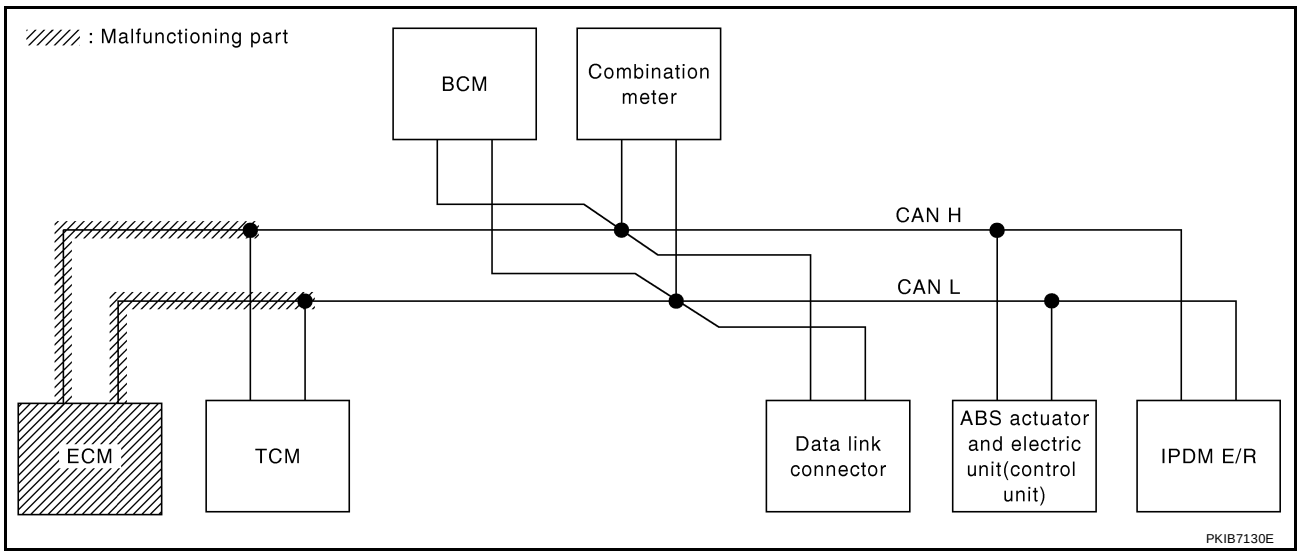


Case 3

Check ECM circuit. Refer to LAN-182, "ECM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	TCM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN ✓	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN ✓	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN ✓	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000) ✓	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN ✓	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN ✓	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7286E



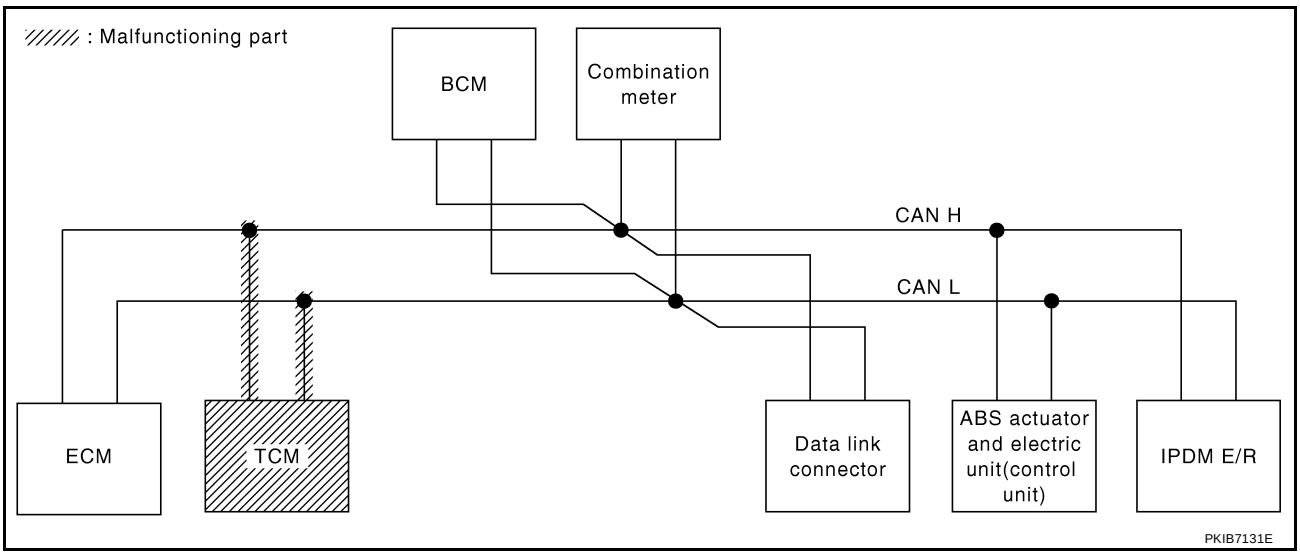
PKIB7130E

Case 4

Check TCM circuit. Refer to LAN-183, "TCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	TCM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7287E



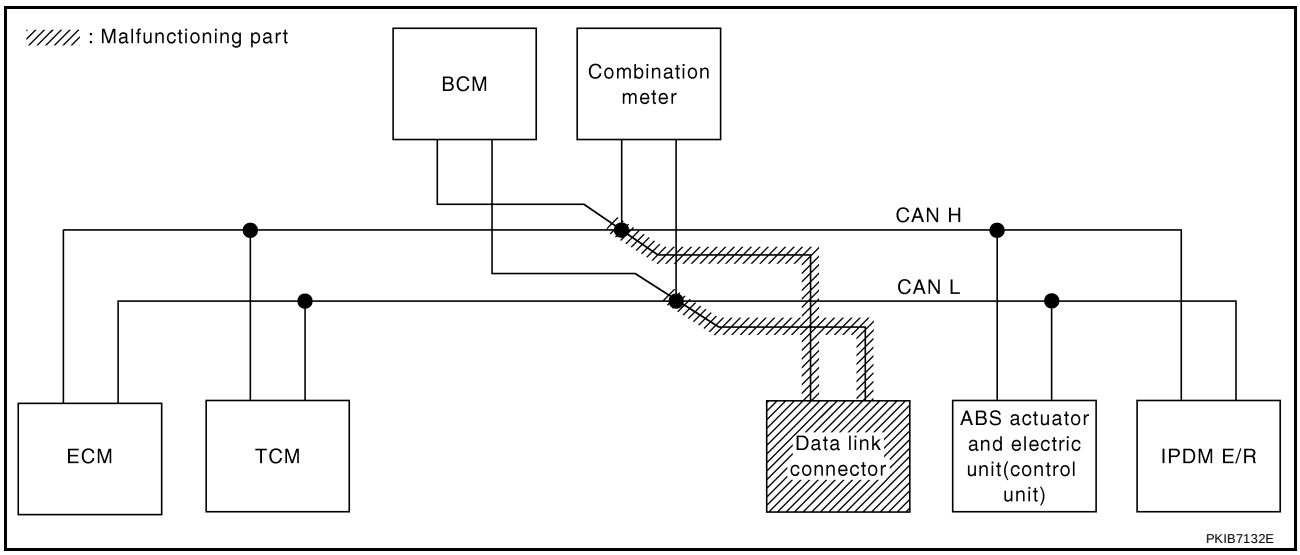
PKIB7131E

Case 5

Check data link connector circuit. Refer to LAN-183, "Data Link Connector Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	TCM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7288E



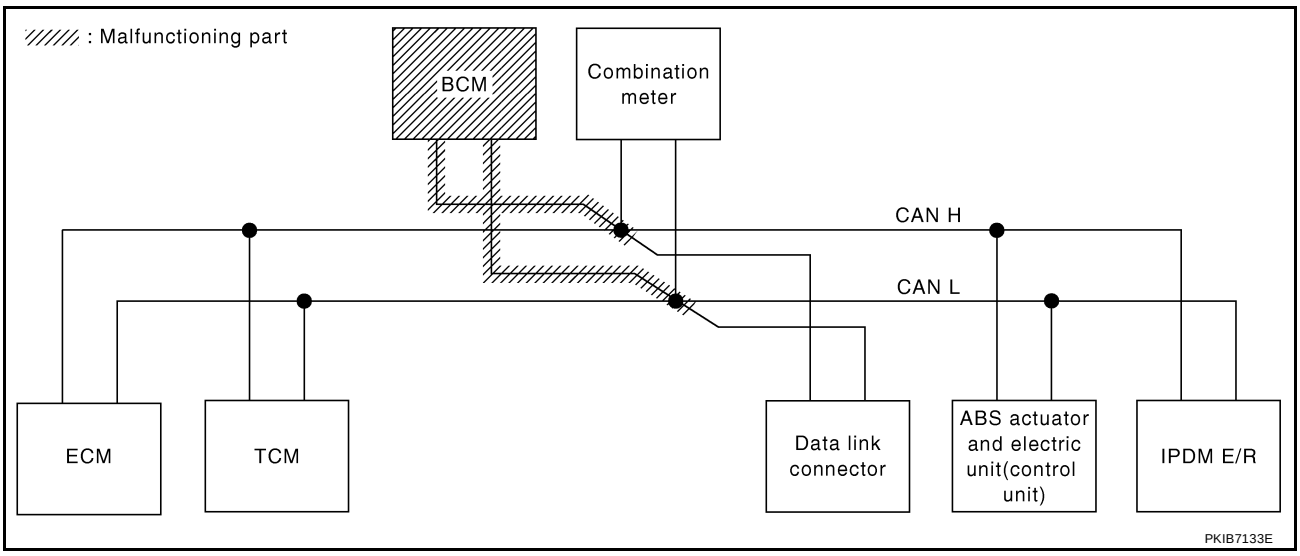
PKIB7132E

Case 6

Check BCM circuit. Refer to LAN-184, "BCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	TCM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7289E



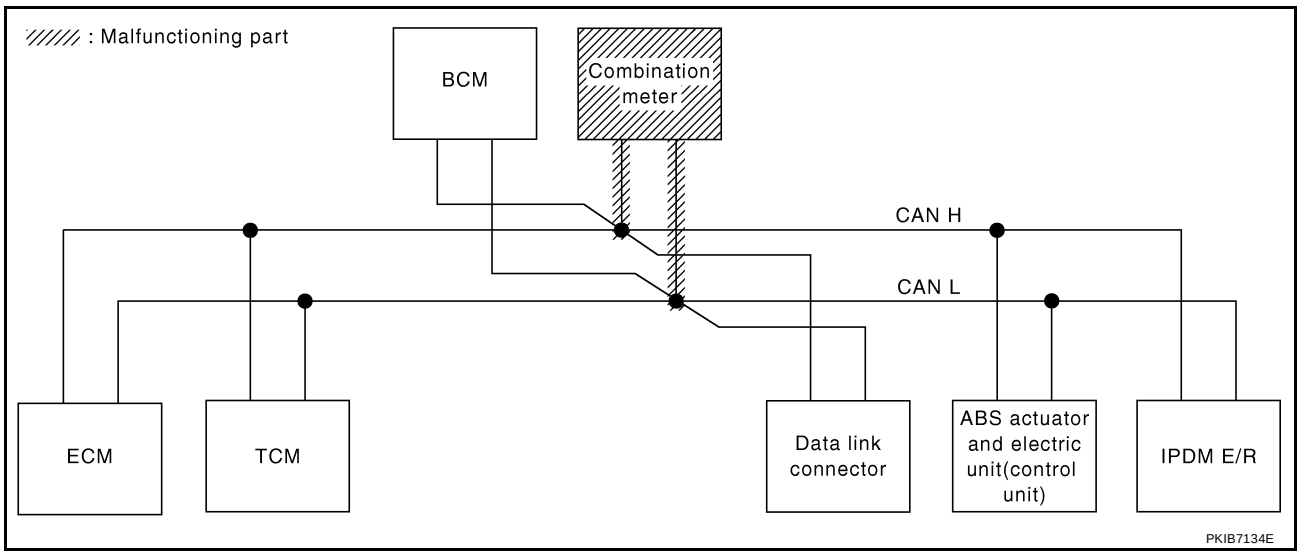
PKIB7133E

Case 7

Check combination meter circuit. Refer to LAN-184, "Combination Meter Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	TCM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN ✓	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN ✓	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN ✓	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7290E



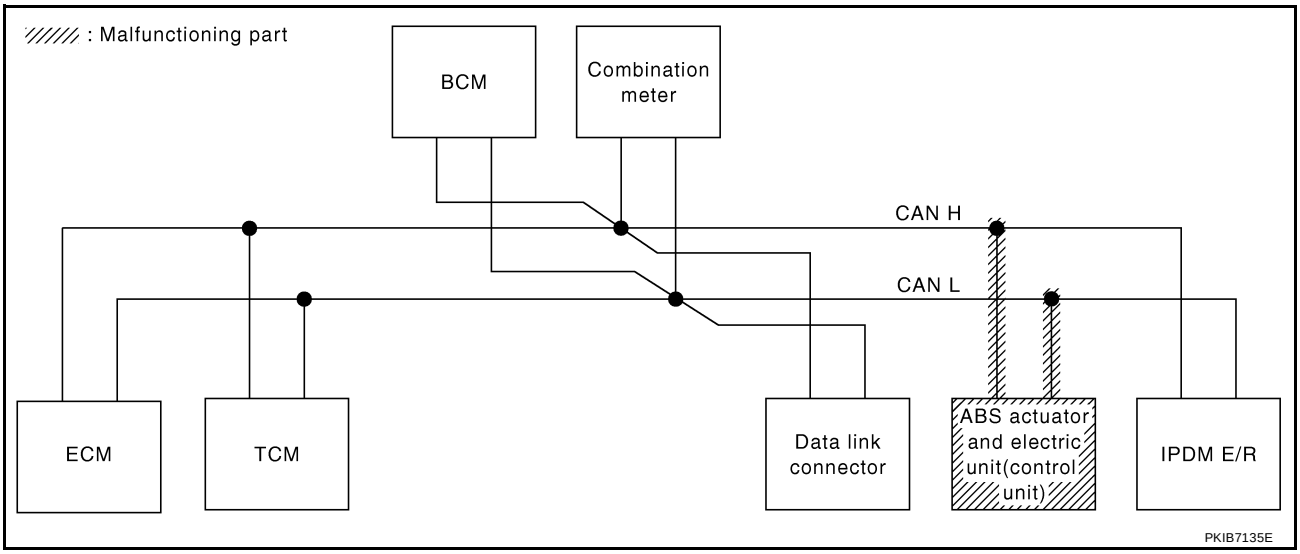
PKIB7134E

Case 8

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-185, "ABS Actuator and Electric Unit (Control Unit) Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	TCM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	✓ UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	✓ CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	✓ UNKWN	—	✓ CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	✓ CAN COMM CIRCUIT (U1000)	—
ABS	—	✓ NG	✓ UNKWN	✓ UNKWN	✓ UNKWN	—	—	—	—	✓ CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7291E



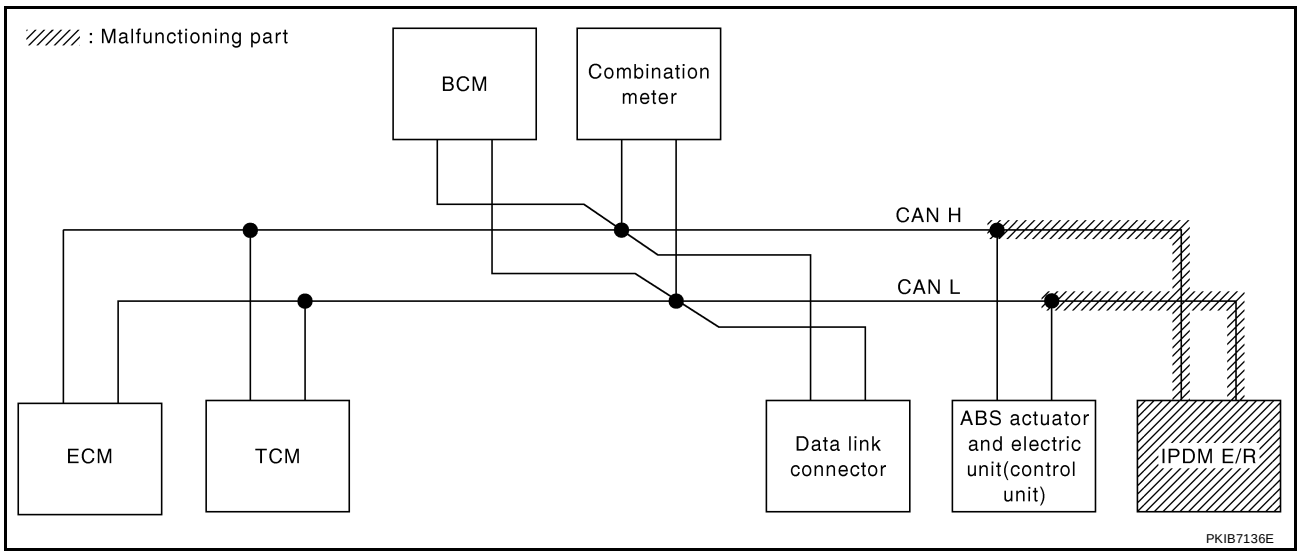
PKIB7135E

Case 9

Check IPDM E/R circuit. Refer to LAN-185, "IPDM E/R Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	TCM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN ✓	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7292E



PKIB7136E

Case 10

Check CAN communication circuit. Refer to LAN-186, "CAN Communication Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	TCM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN ✓	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN ✓	—	—	UNKWN ✓	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication ✓	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7293E

Case 11

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-190, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	TCM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN ✓	UNKWN	UNKWN	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7294E

Case 12

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-190, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	TCM	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	—	—	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7295E

Inspection Between TCM and Data Link Connector Circuit

UKS003PL

1. CHECK CONNECTOR

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

- Harness connector F14
- Harness connector E5
- Harness connector E152
- Harness connector M31

OK or NG

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

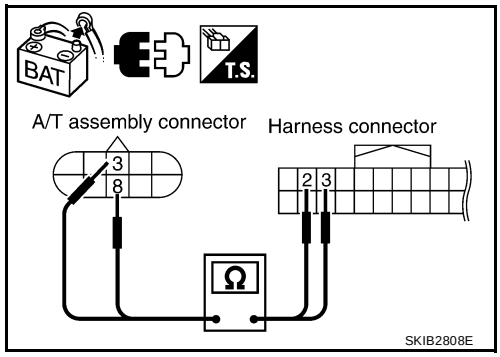
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect A/T assembly connector and harness connector F14.
2. Check continuity between A/T assembly harness connector F9 terminals 3 (L), 8 (P) and harness connector F14 terminals 2 (L), 3 (P).

3 (L) – 2 (L) : **Continuity should exist.**
8 (P) – 3 (P) : **Continuity should exist.**

OK or NG

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



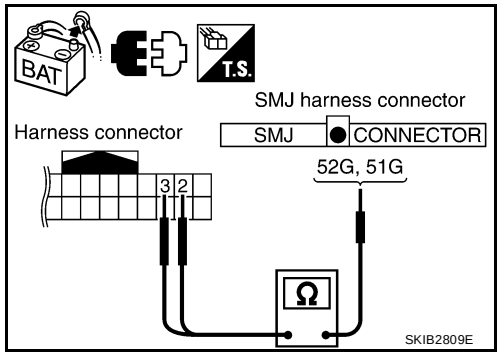
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector E152.
2. Check continuity between harness connector E5 terminals 2 (L), 3 (P) and harness connector E152 terminals 52G (L), 51G (P).

2 (L) – 52G (L) : **Continuity should exist.**
3 (P) – 51G (P) : **Continuity should exist.**

OK or NG

OK >> GO TO 4.
NG >> Repair harness.



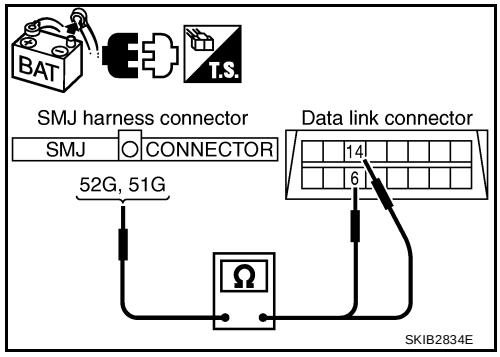
4. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between harness connector M31 terminals 52G (L), 51G (P) and data link connector M22 terminals 6 (L), 14 (P).

52G (L) – 6 (L) : **Continuity should exist.**
51G (P) – 14 (P) : **Continuity should exist.**

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.



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

UKS003PM

1. CHECK CONNECTOR

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

- Harness connector M91
- Harness connector E26

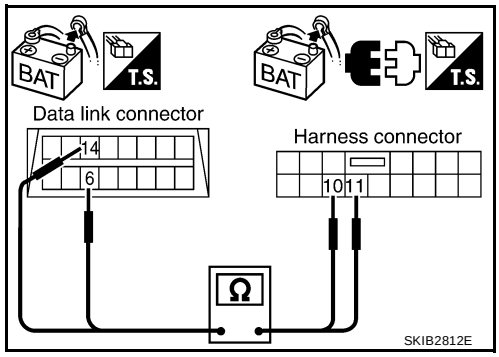
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M91.
2. Check continuity between data link connector M22 terminals 6 (L), 14 (P) and harness connector M91 terminals 11 (L), 10 (P).

6 (L) – 11 (L) : Continuity should exist.
14 (P) – 10 (P) : Continuity should exist.



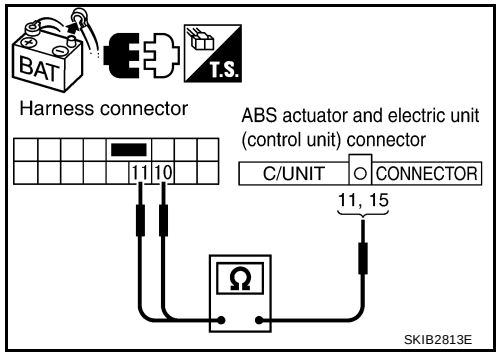
OK or NG

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 E26 terminals 11 (L), 10 (P) and ABS actuator and electric unit (control unit) harness connector E125 terminals 11 (L), 15 (P).

11 (L) – 11 (L) : Continuity should exist.
10 (P) – 15 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.

ECM Circuit Inspection

UKS003PN

1. CHECK CONNECTOR

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

- ECM connector
- Harness connector E2
- Harness connector F32

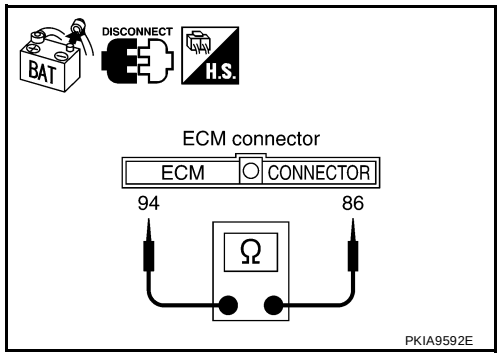
OK or NG

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 E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) **: Approx. 108 – 132 Ω**



OK or NG

OK >> Replace ECM.
NG >> Repair harness between ECM and A/T assembly.

TCM Circuit Inspection

UKS003PO

1. CHECK CONNECTOR

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

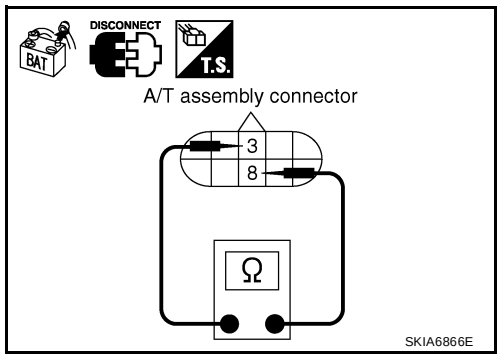
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect A/T assembly connector.
2. Check resistance between A/T assembly harness connector F9 terminals 3 (L) and 8 (P).

3 (L) – 8 (P) **: Approx. 54 – 66 Ω**



OK or NG

OK >> Replace control valve with TCM.
NG >> Repair harness between A/T assembly and harness connector F14.

Data Link Connector Circuit Inspection

UKS003PP

1. CHECK CONNECTOR

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

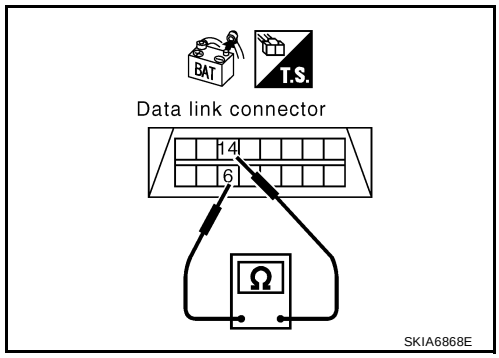
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

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

6 (L) – 14 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .

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

BCM Circuit Inspection

UKS003PQ

1. CHECK CONNECTOR

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

OK or NG

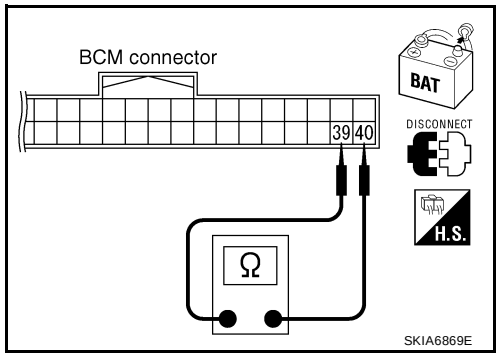
OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M18 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace BCM. Refer to BCS-19, "Removal and Installation of BCM" .

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

Combination Meter Circuit Inspection

UKS003PR

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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.

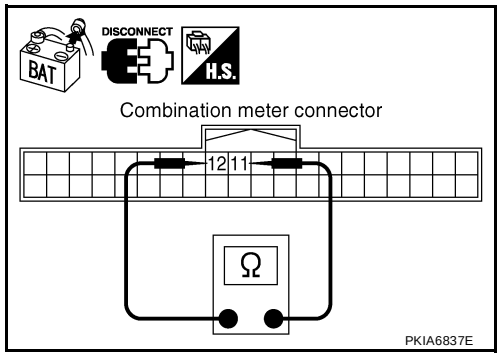
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M24 terminals 12 (L) and 11 (P).

12 (L) – 11 (P) : Approx. 54 – 66 Ω

OK or NG

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



ABS Actuator and Electric Unit (Control Unit) Circuit Inspection

UKS003PS

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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.

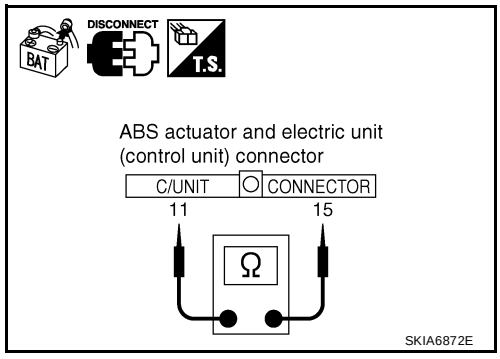
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E125 terminals 11 (L) and 15 (P).

11 (L) – 15 (P) : Approx. 54 – 66 Ω

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 Inspection

UKS003PT

1. CHECK CONNECTOR

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

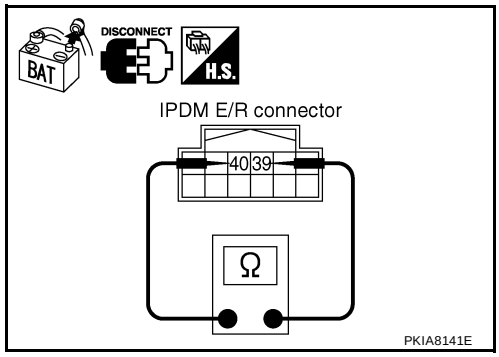
OK or NG

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 E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 108 – 132 Ω



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 Inspection

UKS003PU

1. CHECK CONNECTOR

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

- ECM
- TCM
- BCM
- Combination meter
- ABS actuator and electric unit (control unit)
- IPDM E/R
- Between ECM and IPDM E/R

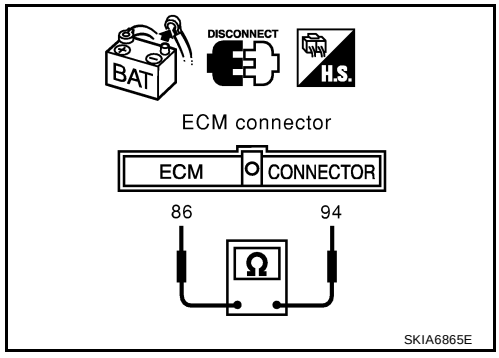
OK or NG

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

2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E2.
2. Check continuity between ECM harness connector E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 3.
NG >> Repair harness between ECM and harness connector E2.

3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector E16 terminals 94 (L), 86 (P) and ground.

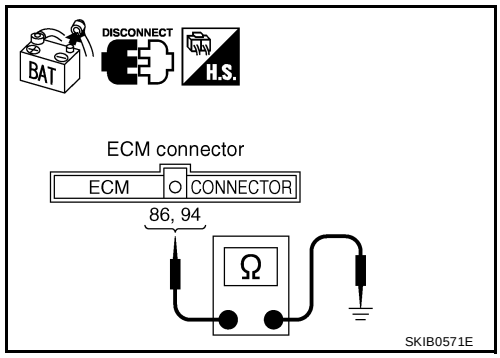
94 (L) – Ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector E2.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect A/T assembly connector and harness connector F14.
2. Check continuity between A/T assembly harness connector F9 terminals 3 (L) and 8 (P).

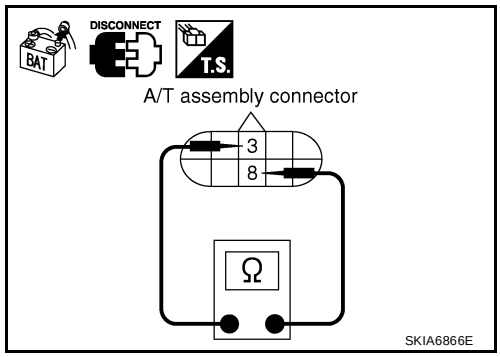
3 (L) – 8 (P) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

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

- Harness between A/T assembly and harness connector F32
- Harness between A/T assembly and harness connector F14



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between A/T assembly harness connector F9 terminals 3 (L), 8 (P) and ground.

3 (L) – Ground : Continuity should not exist.

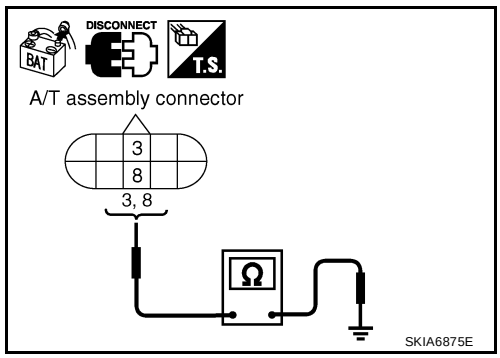
8 (P) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

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

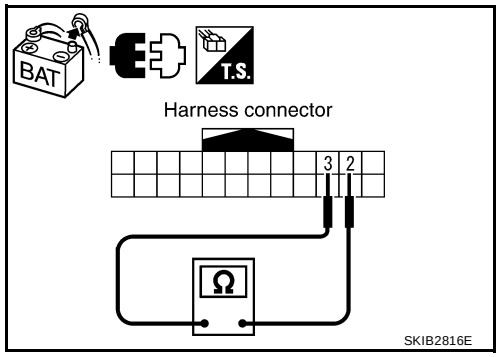
- Harness between A/T assembly and harness connector F32
- Harness between A/T assembly and harness connector F14



6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect harness connector E152.
2. Check continuity between harness connector E5 terminals 2 (L) and 3 (P).

2 (L) – 3 (P) : Continuity should not exist.



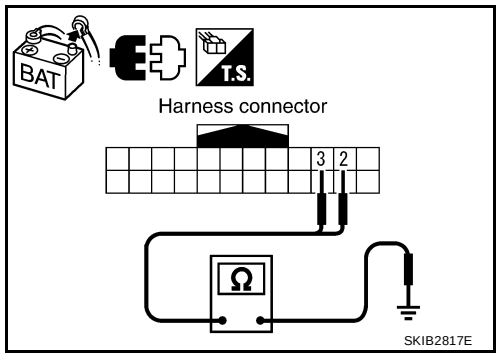
OK or NG

OK >> GO TO 7.
NG >> Repair harness between harness connector E5 and harness connector E152.

7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector E5 terminals 2 (L), 3 (P) and ground.

2 (L) – Ground : Continuity should not exist.
3 (P) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 8.
NG >> Repair harness between harness connector E5 and harness connector E152.

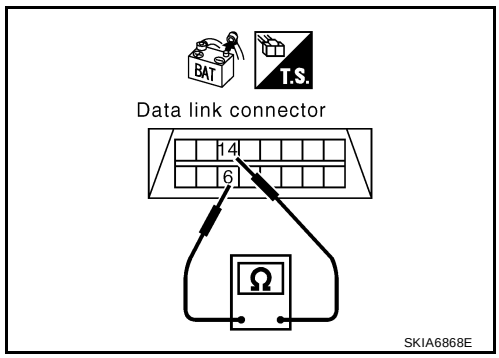
8. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.

- BCM connector
- Combination meter connector
- Harness connector M91

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

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



OK or NG

OK >> GO TO 9.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

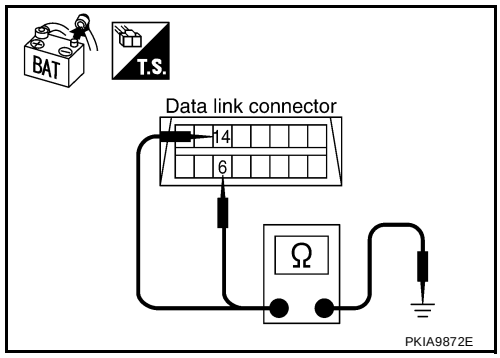
- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and harness connector M91

9. CHECK HARNESS FOR SHORT CIRCUIT

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

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

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



OK or NG

OK >> GO TO 10.

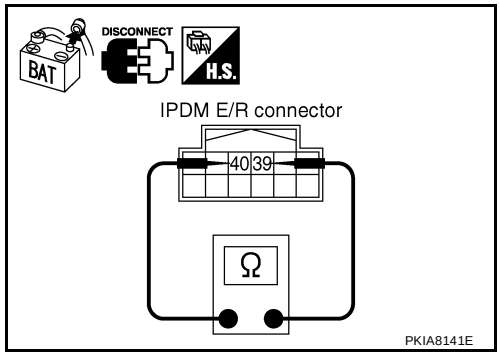
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and harness connector M91

10. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 11.

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

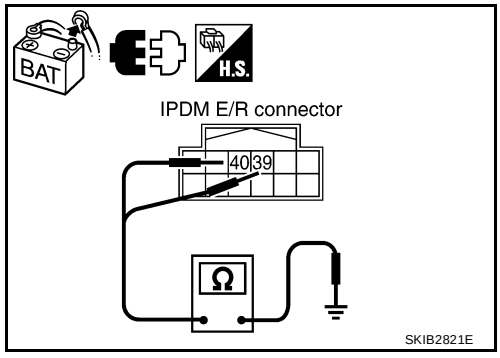
- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

11. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E122 terminals 39 (L), 40 (P) and ground.

39 (L) – Ground : Continuity should not exist.

40 (P) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 12.

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

- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

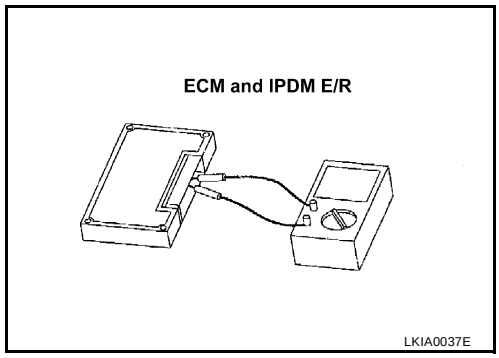
12. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

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

94 – 86 : Approx. 108 – 132 Ω

3. Check resistance between IPDM E/R terminals 39 and 40.

39 – 40 : Approx. 108 – 132 Ω



OK or NG

OK >> GO TO 13.
NG >> Replace ECM and/or IPDM E/R.

13. CHECK SYMPTOM

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

OK or NG

OK >> GO TO 14.
NG >> Refer to LAN-15, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced" .

14. CHECK UNIT REPRODUCIBILITY

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

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

- TCM
- BCM
- Combination meter
- ABS actuator and electric unit (control unit)
- ECM
- IPDM E/R

Inspection results

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

IPDM E/R Ignition Relay Circuit Inspection

UKS003PV

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

- IPDM E/R power supply circuit. Refer to PG-27, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition power supply circuit. Refer to PG-14, "IGNITION POWER SUPPLY — IGNITION SW. IN ON AND/OR START" .

CAN SYSTEM (TYPE 7)

PFP:23710

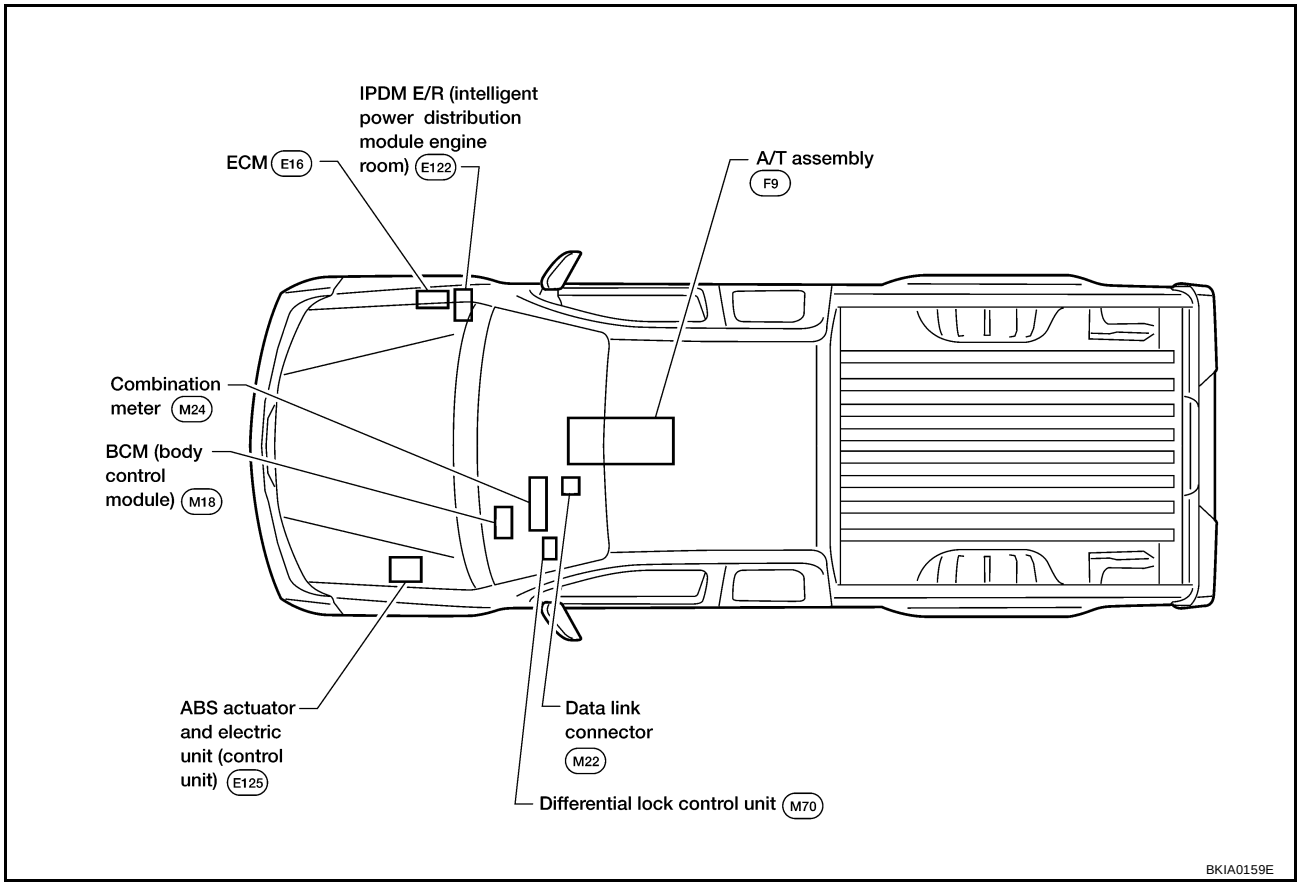
System Description

UKS003P0

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.

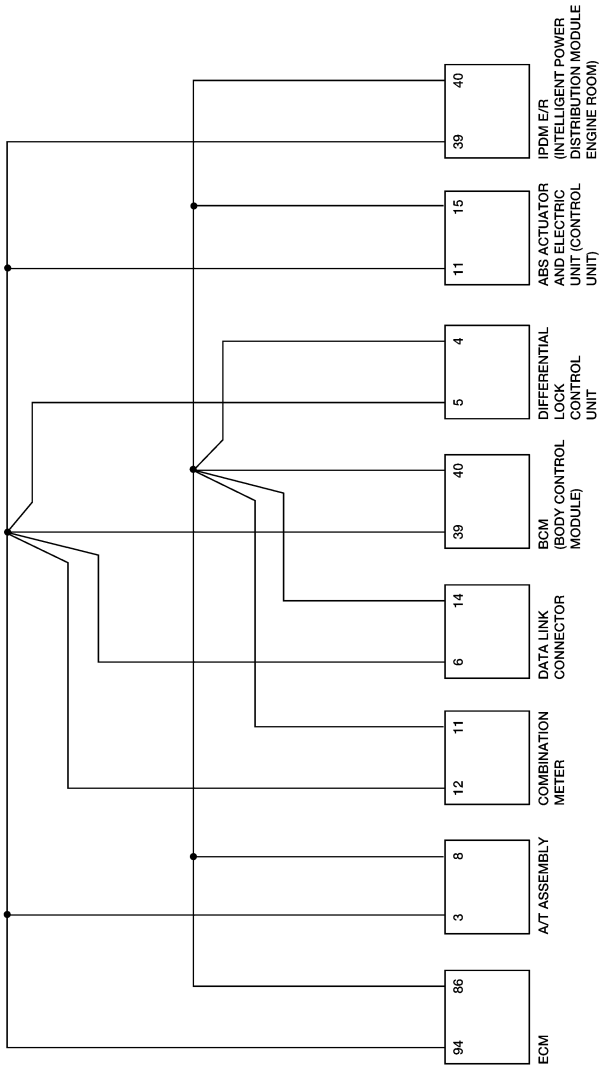
Component Parts and Harness Connector Location

UKS003P1



Schematic

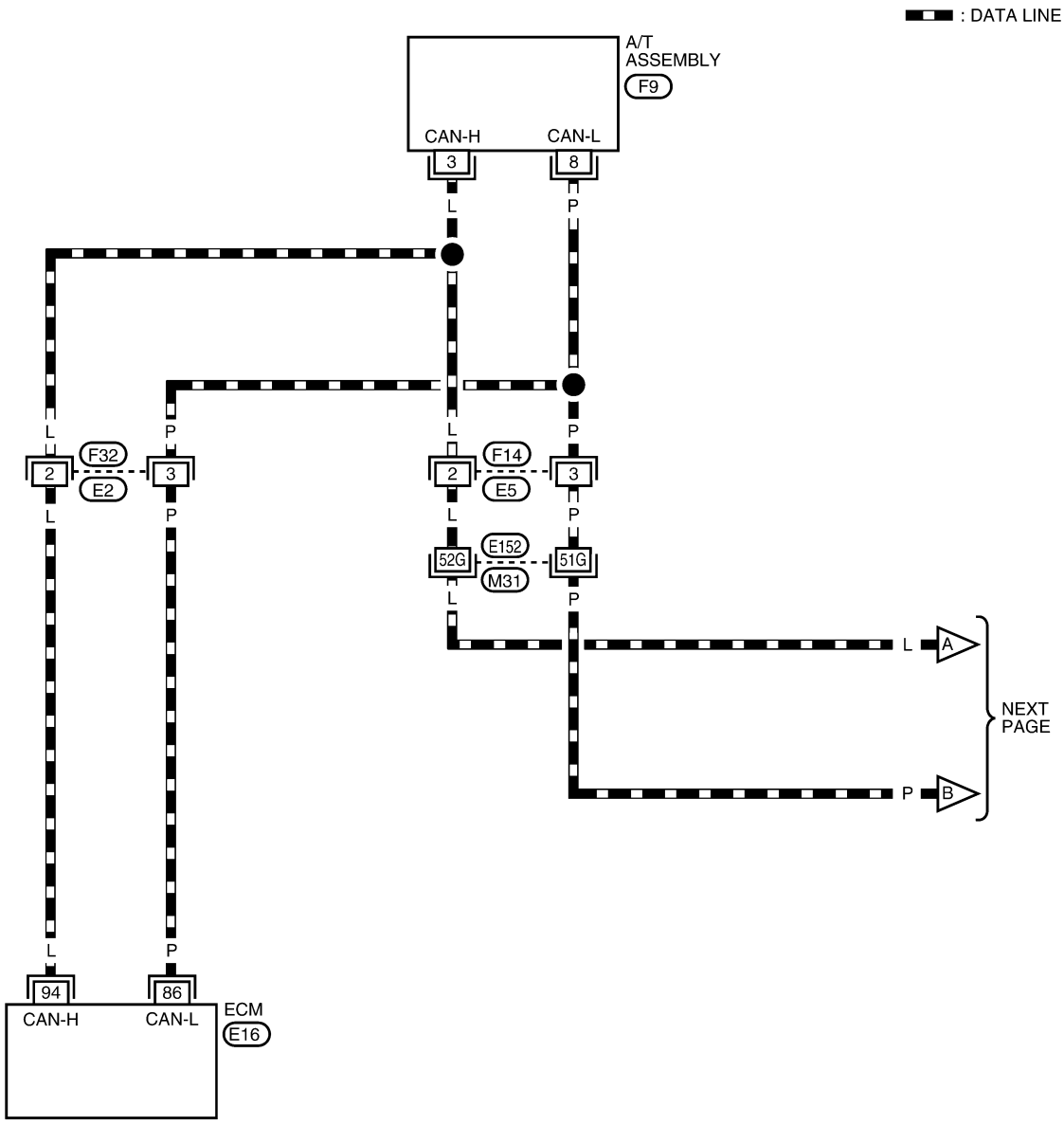
UKS003P2

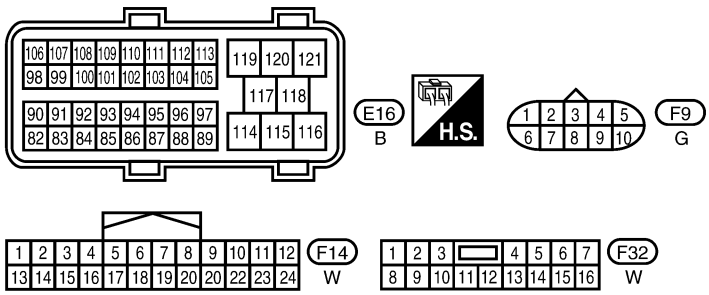


BKWA0496E

Wiring Diagram — CAN —

UKS003P3

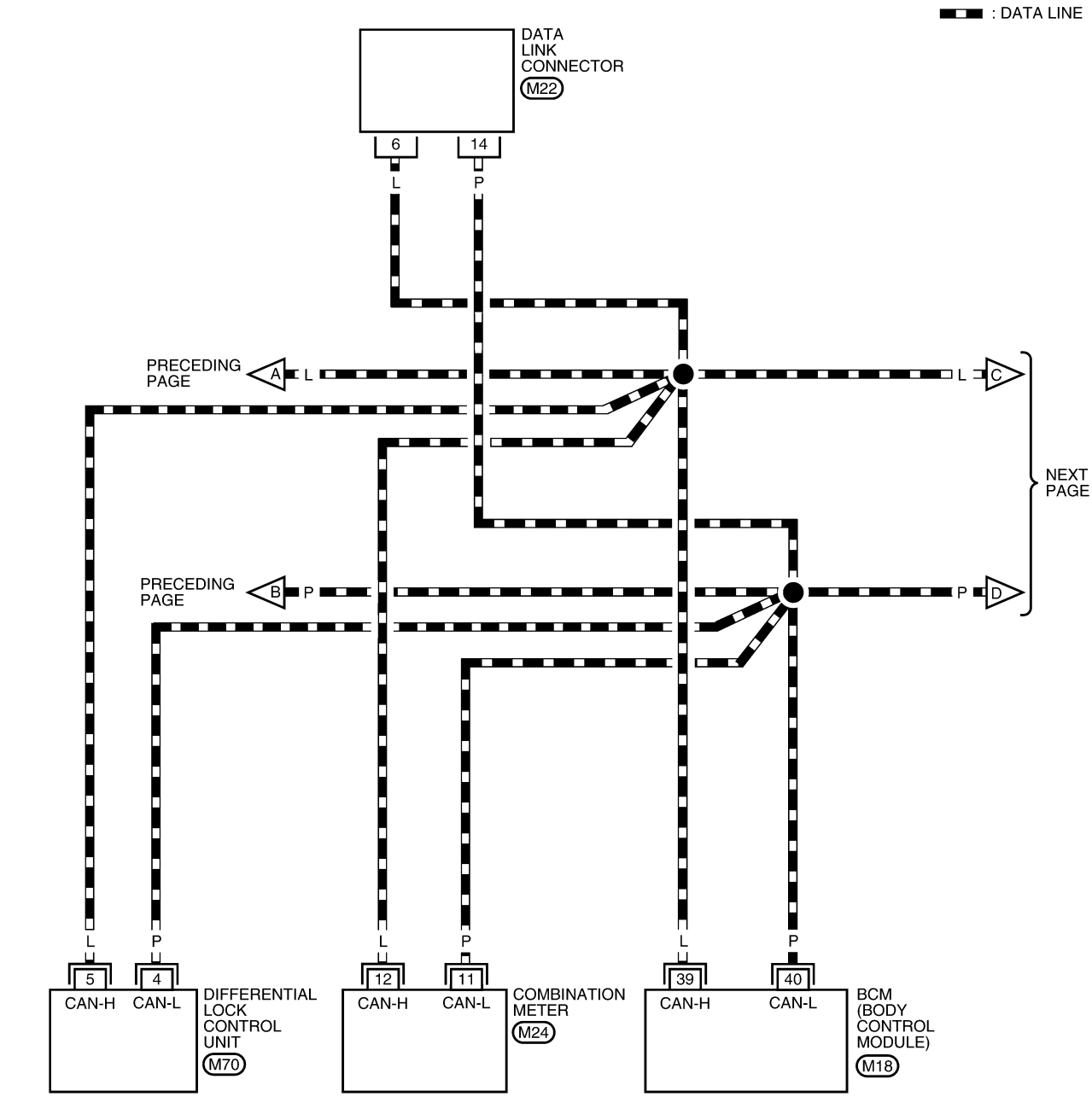


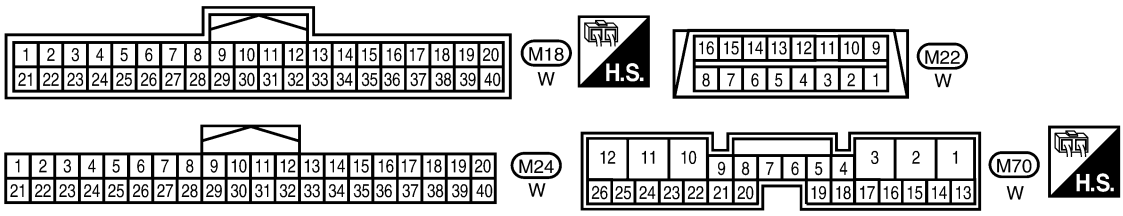


REFER TO THE FOLLOWING.
M31 - SUPER MULTIPLE JUNCTION (SMJ)

BKWA0500E

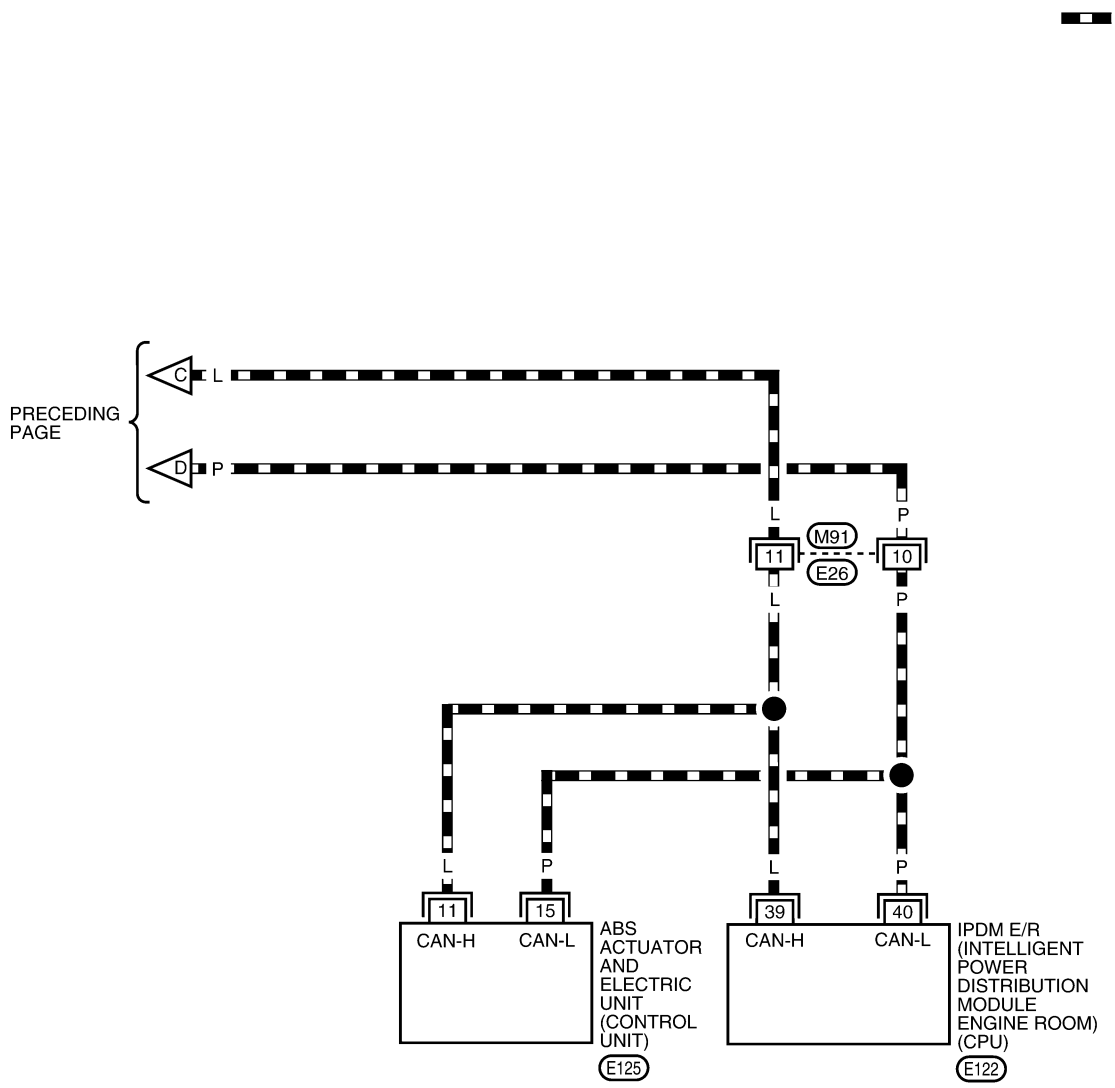
LAN-CAN-20

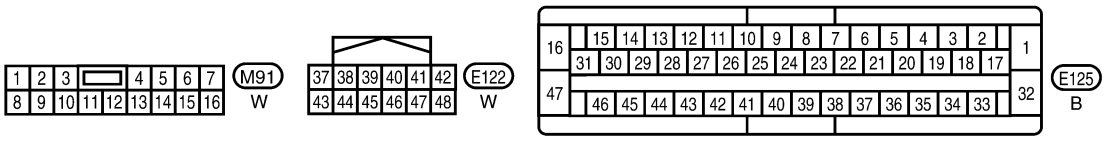




BKWA0501E

LAN-CAN-21





BKWA0502E

CHECK SHEET

UKS003P4

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

Check sheet table

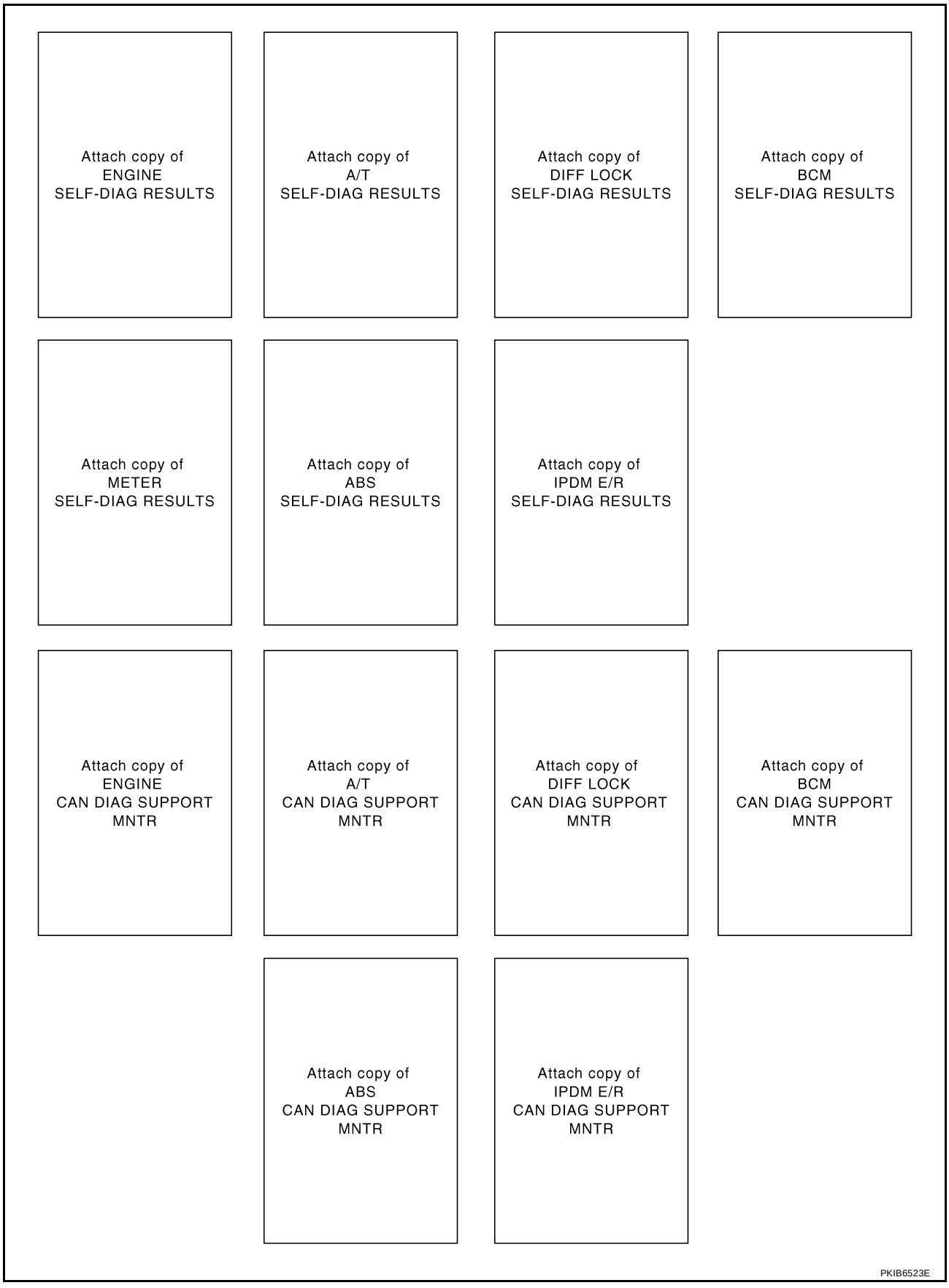
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIB6522E


Attach copy of
ENGINE
SELF-DIAG RESULTS
Attach copy of
A/T
SELF-DIAG RESULTS
Attach copy of
DIFF LOCK
SELF-DIAG RESULTS
Attach copy of
BCM
SELF-DIAG RESULTS
Attach copy of
METER
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
A/T
CAN DIAG SUPPORT
MNTR
Attach copy of
DIFF LOCK
CAN DIAG SUPPORT
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BCM
CAN DIAG SUPPORT
MNTR
Attach copy of
ABS
CAN DIAG SUPPORT
MNTR
Attach copy of
IPDM E/R
CAN DIAG SUPPORT
MNTR
PKIB6523E

CHECK SHEET RESULTS (EXAMPLE)

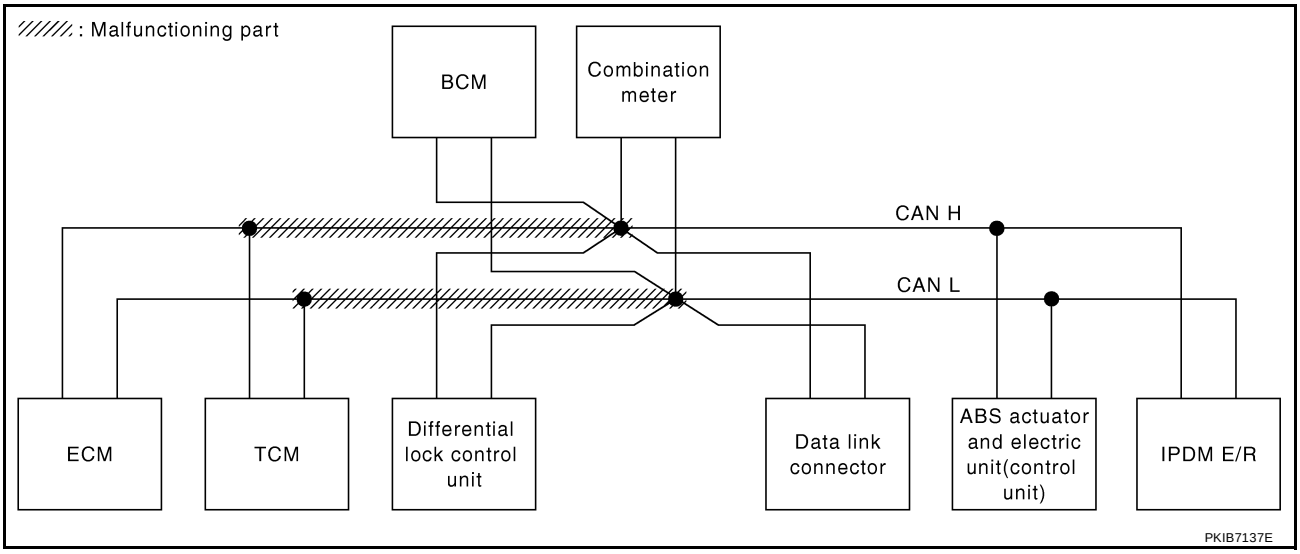
NOTE:
If a check mark is put on “NG” on “INITIAL DIAG (Initial diagnosis)”, replace the control unit.

Case 1

Check harness between TCM and data link connector circuit. Refer to LAN-208, "Inspection Between TCM and Data Link Connector Circuit" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN ✓	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
DIFF LOCK	—	NG	UNKWN	UNKWN ✓	—	—	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN ✓	—	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN ✓	UNKWN ✓	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN ✓	—	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7296E

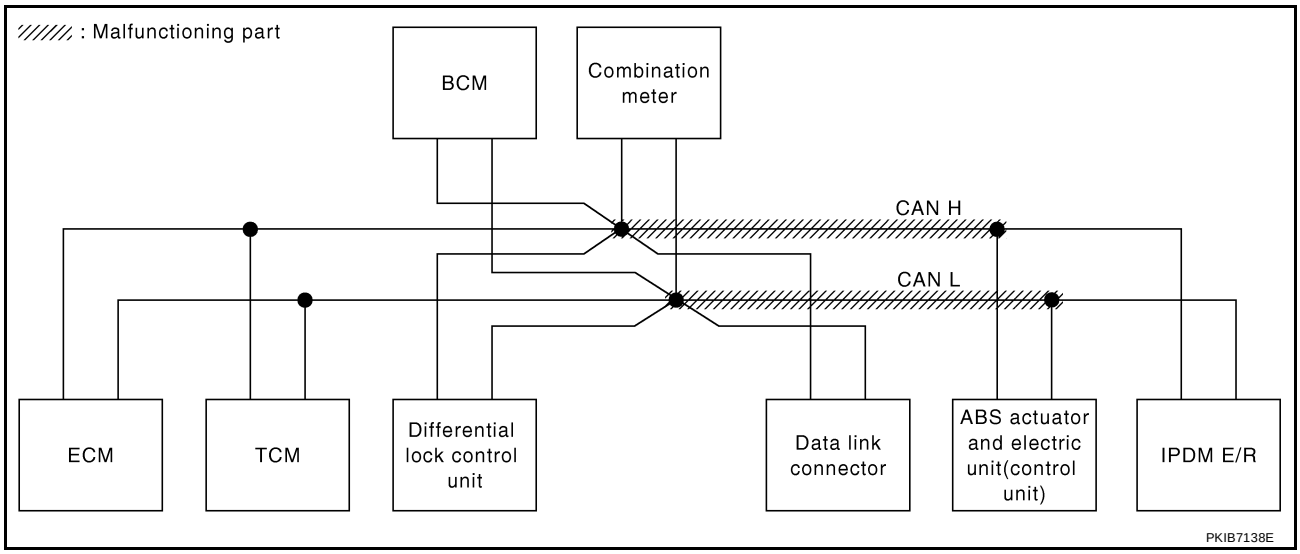


Case 2

Check harness between data link connector and ABS actuator and electric unit (control unit) circuit. Refer to LAN-209, "Inspection Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Circuit"
.

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN ✓	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7297E



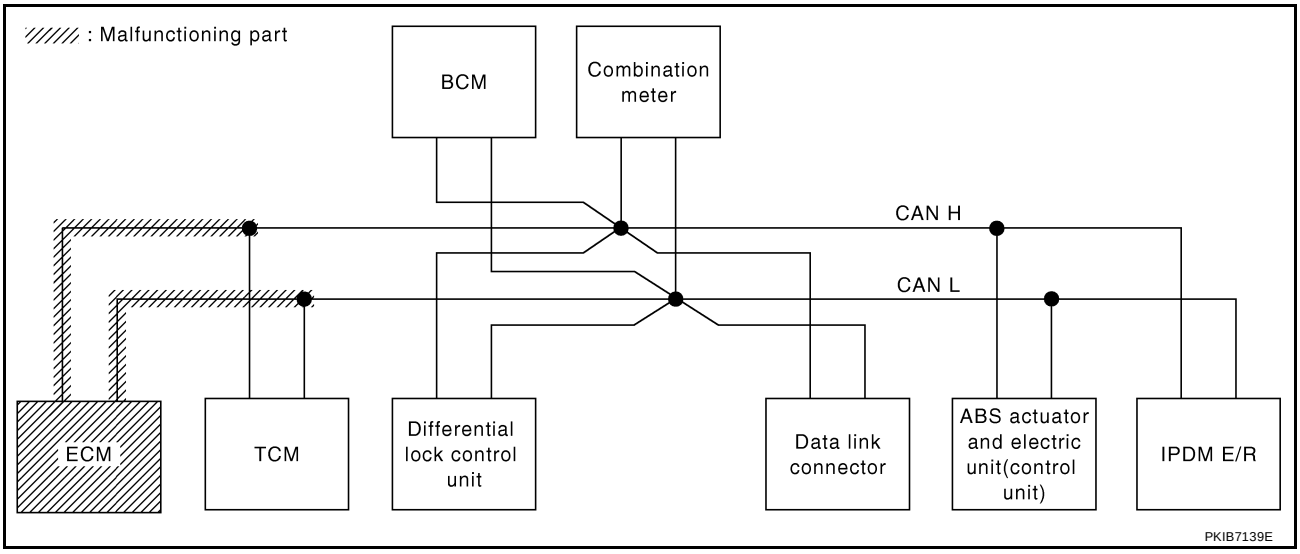
PKIB7138E

Case 3

Check ECM circuit. Refer to LAN-210, "ECM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN ✓	—	UNKWN ✓	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN ✓	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
DIFF LOCK	—	NG	UNKWN	UNKWN ✓	—	—	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN ✓	—	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN ✓	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN ✓	—	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7298E



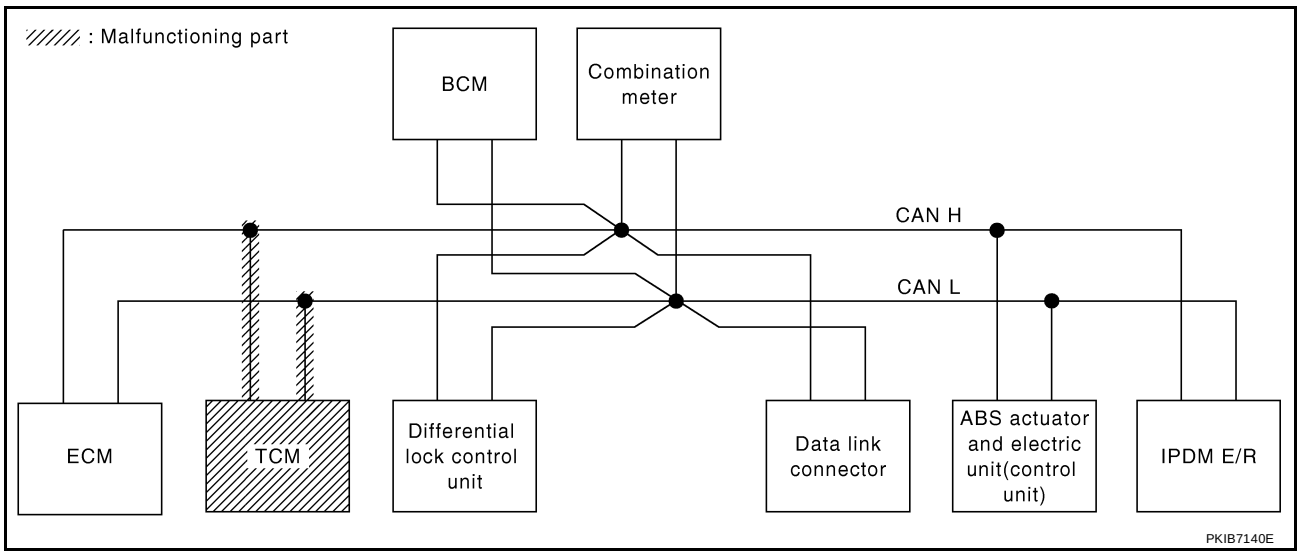
PKIB7139E

Case 4

Check TCM circuit. Refer to LAN-211, "TCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN ✓	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN ✓	—	—	—	UNKWN ✓	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	UNKWN ✓	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7299E



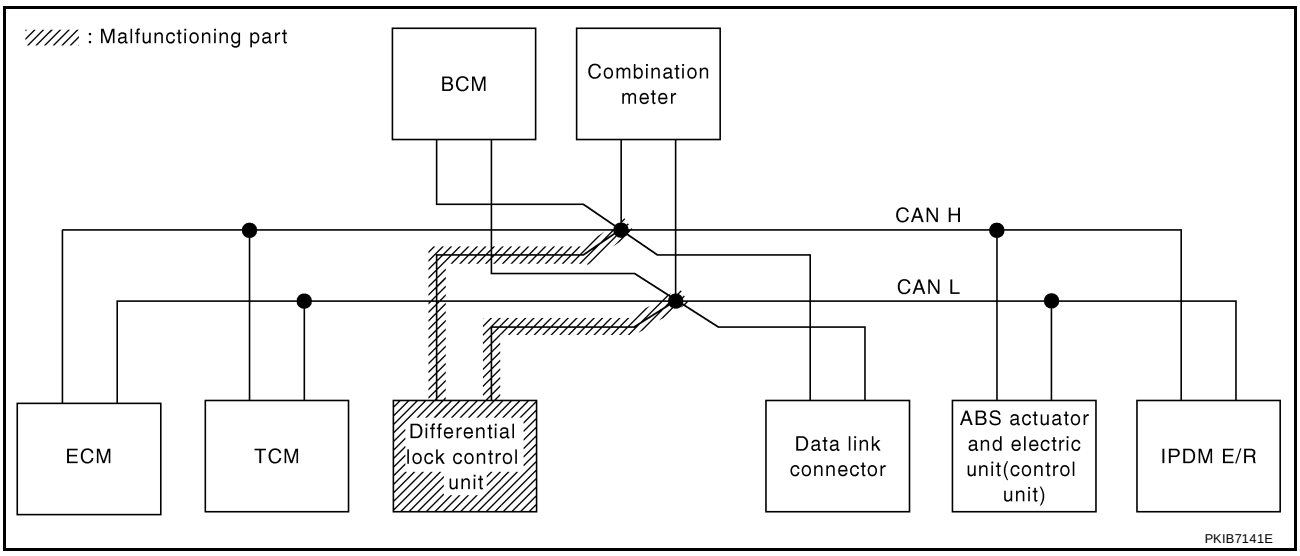
PKIB7140E

Case 5

Check differential lock control unit circuit. Refer to LAN-211, "Differential Lock Control Unit Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN ✓	UNKWN ✓	—	—	—	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7300E



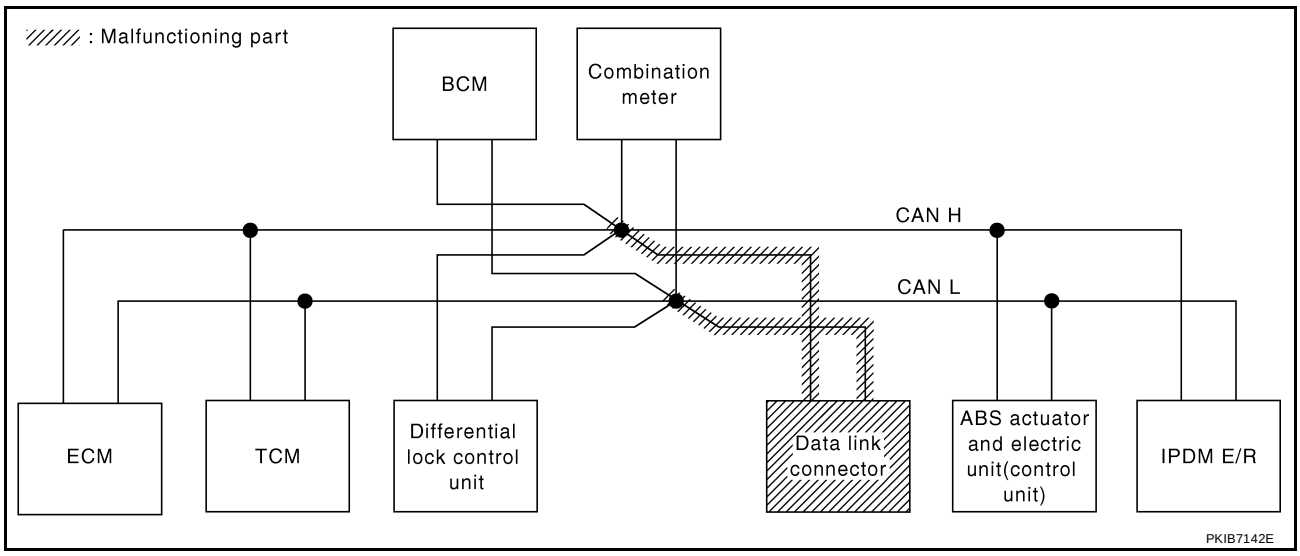
PKIB7141E

Case 6

Check data link connector circuit. Refer to LAN-212, "Data Link Connector Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication ✓	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7301E



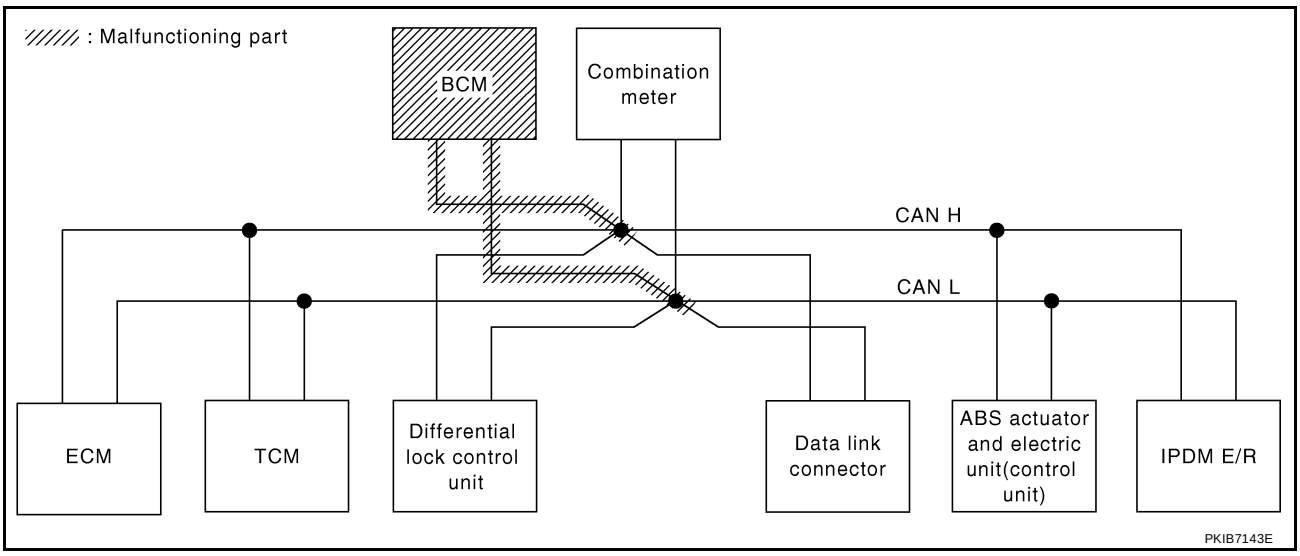
PKIB7142E

Case 7

Check BCM circuit. Refer to LAN-212, "BCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7302E

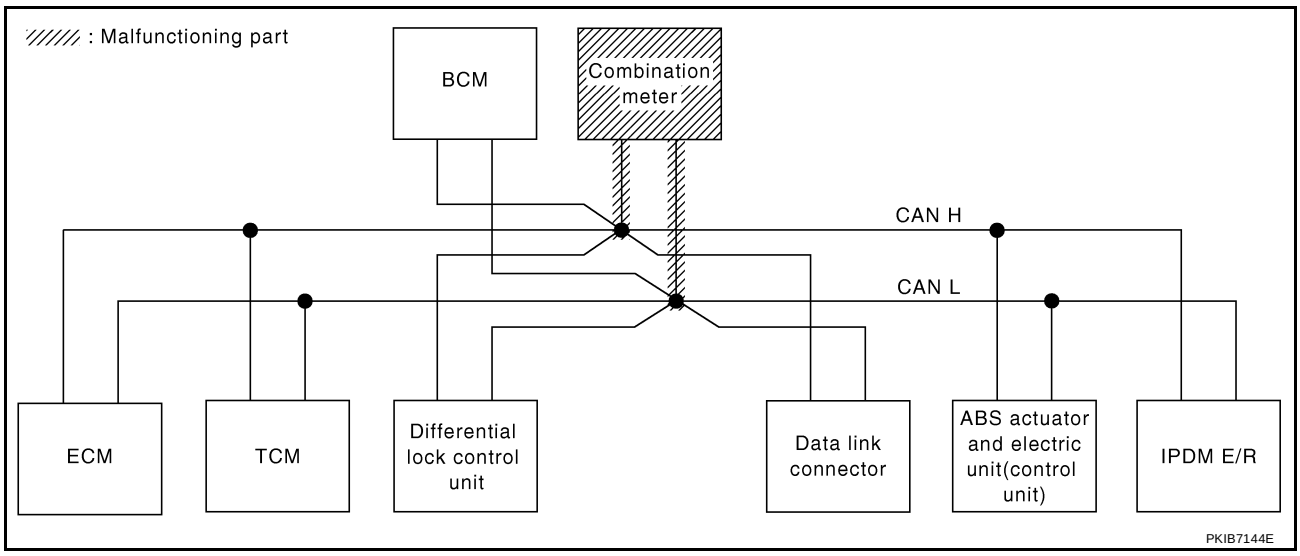


Case 8

Check combination meter circuit. Refer to LAN-213, "Combination Meter Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN ✓	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN ✓	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN ✓	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7303E



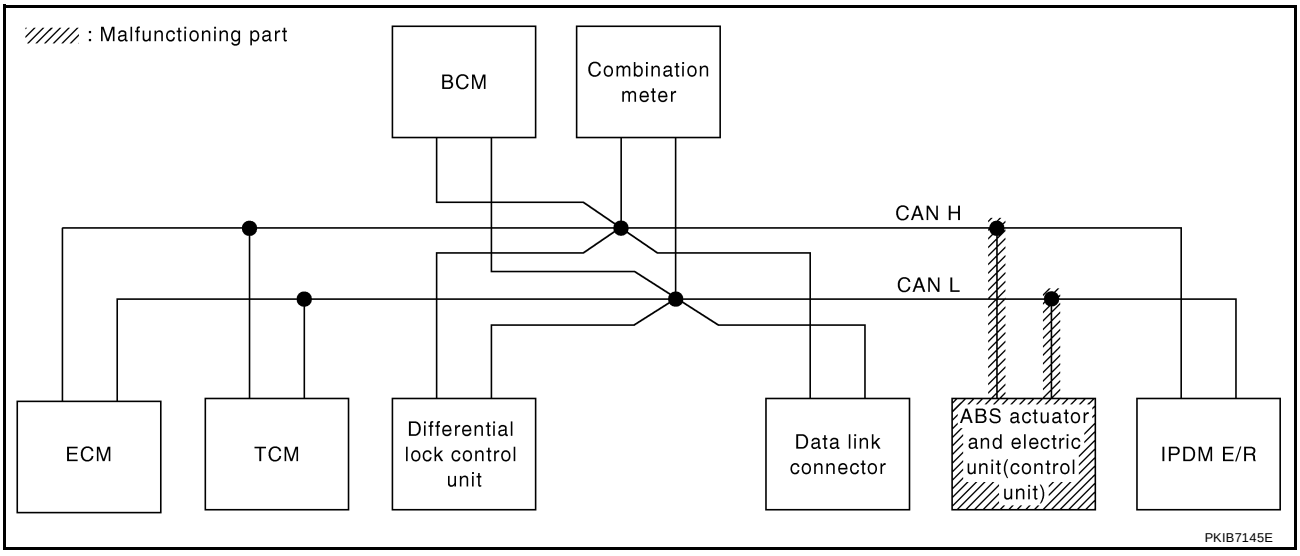
PKIB7144E

Case 9

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-213, "ABS Actuator and Electric Unit (Control Unit) Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7304E

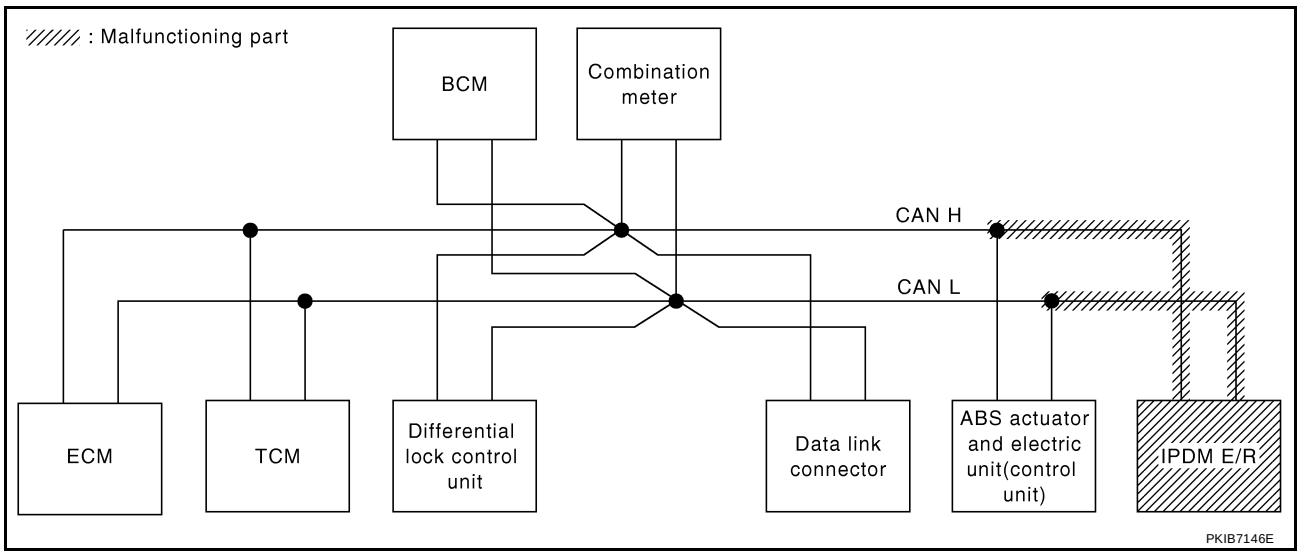


Case 10

Check IPDM E/R circuit. Refer to LAN-214, "IPDM E/R Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN ✓	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7305E



PKIB7146E

Case 11

Check CAN communication circuit. Refer to LAN-215, "CAN Communication Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN ✓	—	UNKWN ✓	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN ✓	—	—	—	UNKWN ✓	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
DIFF LOCK	—	NG	UNKWN ✓	UNKWN ✓	—	—	—	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication ✓	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7306E

Case 12

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-219, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN ✓	—	UNKWN	UNKWN	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7307E

Case 13

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-219, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	—	—	—	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	—	UNKWN	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7308E

Inspection Between TCM and Data Link Connector Circuit

UKS003P5

1. CHECK CONNECTOR

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

- Harness connector F14
- Harness connector E5
- Harness connector E152
- Harness connector M31

OK or NG

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

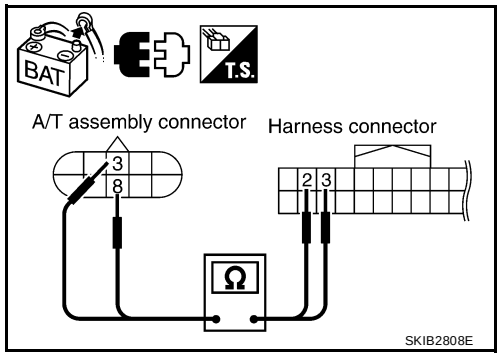
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect A/T assembly connector and harness connector F14.
2. Check continuity between A/T assembly harness connector F9 terminals 3 (L), 8 (P) and harness connector F14 terminals 2 (L), 3 (P).

3 (L) – 2 (L) : **Continuity should exist.**
8 (P) – 3 (P) : **Continuity should exist.**

OK or NG

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



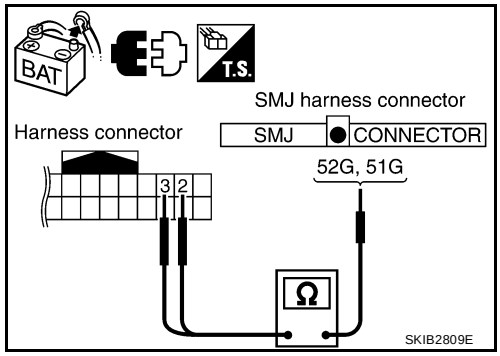
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector E152.
2. Check continuity between harness connector E5 terminals 2 (L), 3 (P) and harness connector E152 terminals 52G (L), 51G (P).

2 (L) – 52G (L) : **Continuity should exist.**
3 (P) – 51G (P) : **Continuity should exist.**

OK or NG

OK >> GO TO 4.
NG >> Repair harness.



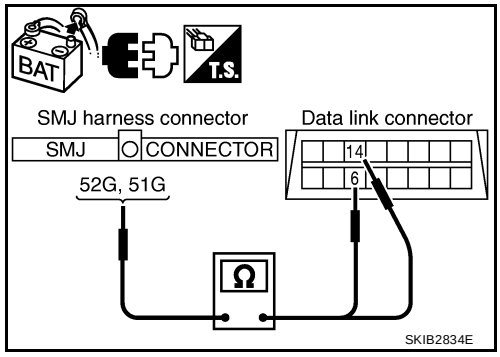
4. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between harness connector M31 terminals 52G (L), 51G (P) and data link connector M22 terminals 6 (L), 14 (P).

52G (L) – 6 (L) : **Continuity should exist.**
51G (P) – 14 (P) : **Continuity should exist.**

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.



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

UKS003P6

1. CHECK CONNECTOR

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

- Harness connector M91
- Harness connector E26

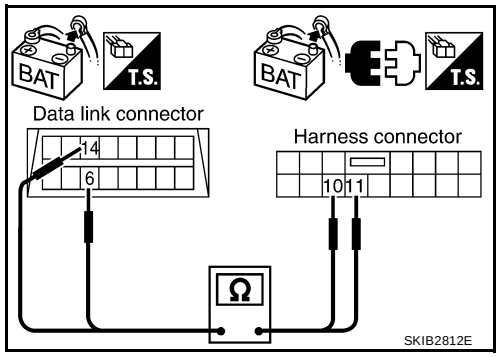
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M91.
2. Check continuity between data link connector M22 terminals 6 (L), 14 (P) and harness connector M91 terminals 11 (L), 10 (P).

6 (L) – 11 (L) : Continuity should exist.
14 (P) – 10 (P) : Continuity should exist.



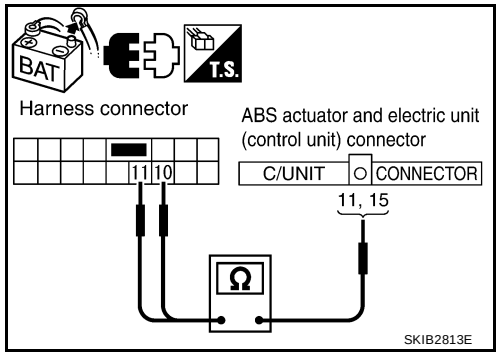
OK or NG

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 E26 terminals 11 (L), 10 (P) and ABS actuator and electric unit (control unit) harness connector E125 terminals 11 (L), 15 (P).

11 (L) – 11 (L) : Continuity should exist.
10 (P) – 15 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.

ECM Circuit Inspection

UKS003P7

1. CHECK CONNECTOR

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

- ECM connector
- Harness connector E2
- Harness connector F32

OK or NG

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

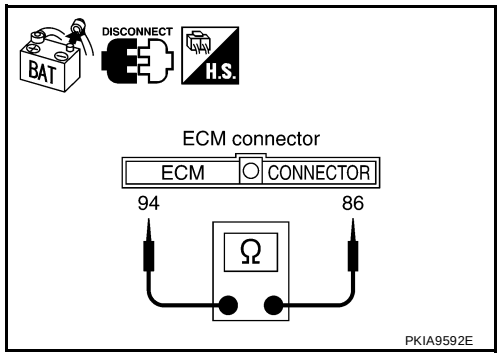
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) **: Approx. 108 – 132 Ω**

OK or NG

OK >> Replace ECM.
NG >> Repair harness between ECM and A/T assembly.



UKS003P8

TCM Circuit Inspection

1. CHECK CONNECTOR

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

OK or NG

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

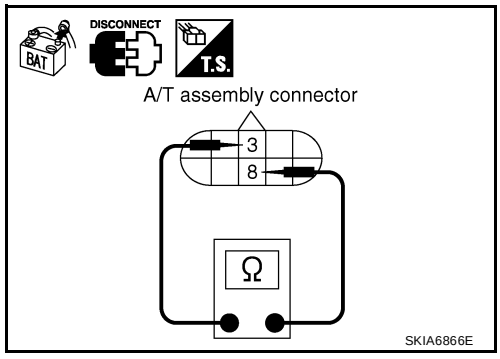
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect A/T assembly connector.
2. Check resistance between A/T assembly harness connector F9 terminals 3 (L) and 8 (P).

3 (L) – 8 (P) **: Approx. 54 – 66 Ω**

OK or NG

OK >> Replace control valve with TCM.
NG >> Repair harness between A/T assembly and harness connector F14.



Differential Lock Control Unit Circuit Inspection

UKS003QC

1. CHECK CONNECTOR

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

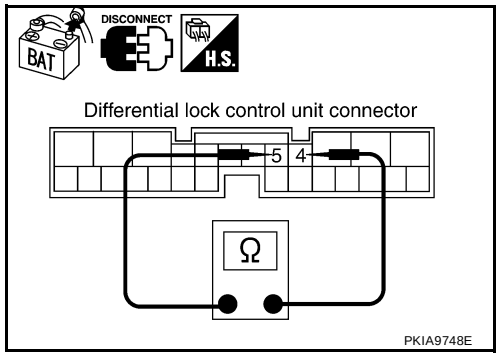
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect differential lock control unit connector.
2. Check resistance between differential lock control unit harness connector M70 terminals 5 (L) and 4 (P).

5 (L) – 4 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace differential lock control unit.
NG >> Repair harness between differential lock control unit and data link connector.

Data Link Connector Circuit Inspection

UKS003P9

1. CHECK CONNECTOR

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

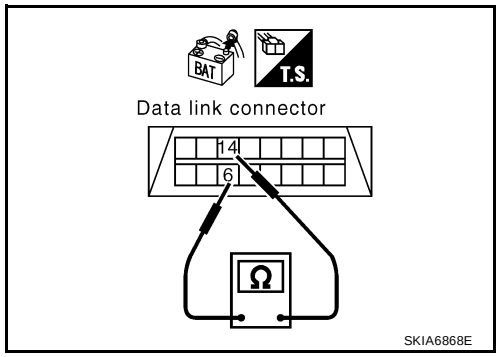
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

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

6 (L) – 14 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness between data link connector and BCM.

BCM Circuit Inspection

UKS003PA

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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

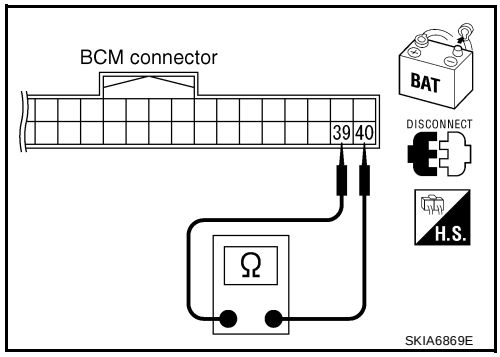
1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M18 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 54 – 66 Ω

OK or NG

OK >> Replace BCM. Refer to BCS-19, "Removal and Installation of BCM" .

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



UKS003PB

Combination Meter Circuit Inspection

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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

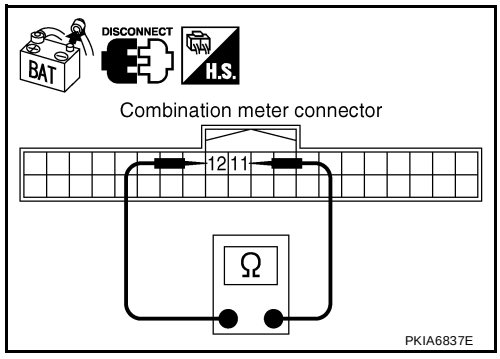
1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M24 terminals 12 (L) and 11 (P).

12 (L) – 11 (P) : Approx. 54 – 66 Ω

OK or NG

OK >> Replace combination meter.

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



ABS Actuator and Electric Unit (Control Unit) Circuit Inspection

UKS003PC

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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

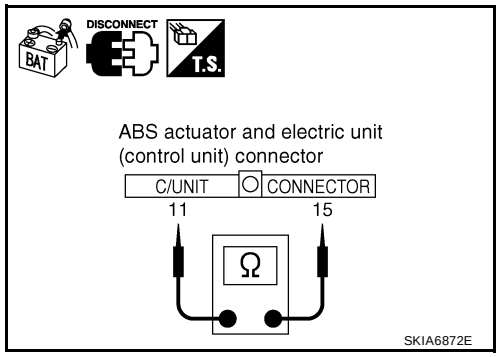
OK >> GO TO 2.

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 E125 terminals 11 (L) and 15 (P).

11 (L) – 15 (P) : Approx. 54 – 66 Ω



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 Inspection

UKS003PD

1. CHECK CONNECTOR

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

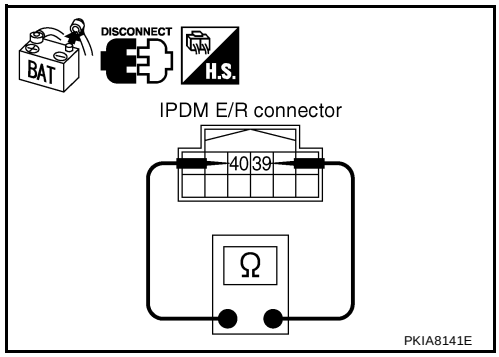
OK or NG

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 E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 108 – 132 Ω



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 Inspection

UKS003QD

1. CHECK CONNECTOR

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

- ECM
- TCM
- Differential lock control unit
- BCM
- Combination meter
- 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.

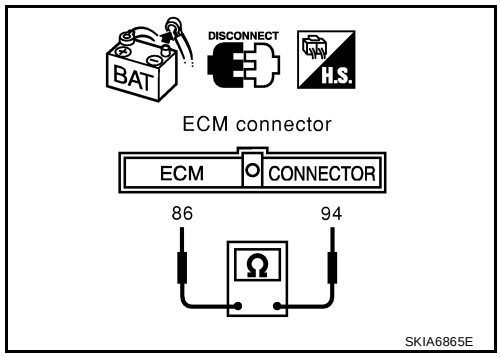
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E2.
2. Check continuity between ECM harness connector E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Continuity should not exist.

OK or NG

OK >> GO TO 3.
NG >> Repair harness between ECM and harness connector E2.



3. CHECK HARNESS FOR SHORT CIRCUIT

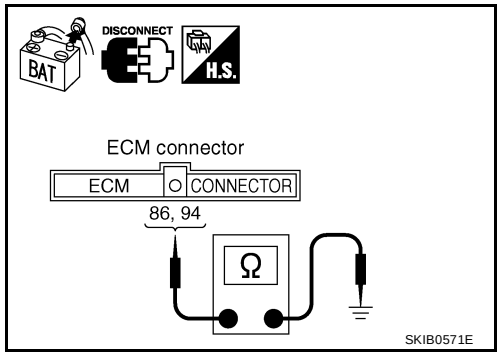
Check continuity between ECM harness connector E16 terminals 94 (L), 86 (P) and ground.

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

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

OK or NG

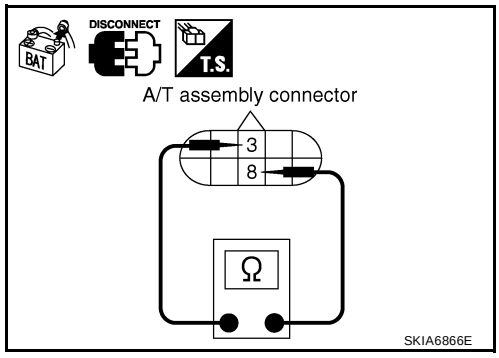
OK >> GO TO 4.
NG >> Repair harness between ECM and harness connector E2.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect A/T assembly connector and harness connector F14.
2. Check continuity between A/T assembly harness connector F9 terminals 3 (L) and 8 (P).

3 (L) – 8 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 5.

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

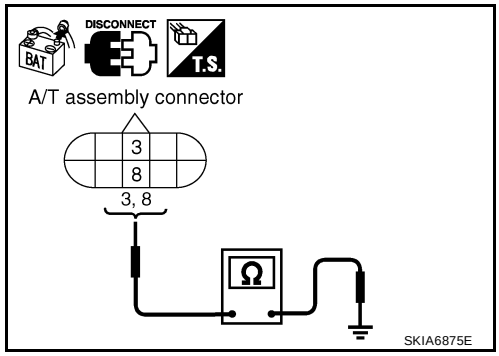
- Harness between A/T assembly and harness connector F32
- Harness between A/T assembly and harness connector F14

5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between A/T assembly harness connector F9 terminals 3 (L), 8 (P) and ground.

3 (L) – Ground : Continuity should not exist.

8 (P) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 6.

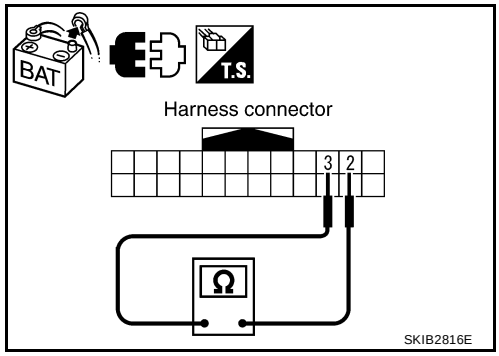
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between A/T assembly and harness connector F32
- Harness between A/T assembly and harness connector F14

6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect harness connector E152.
2. Check continuity between harness connector E5 terminals 2 (L) and 3 (P).

2 (L) – 3 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 7.

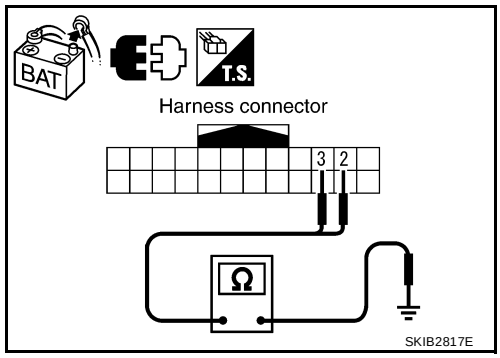
NG >> Repair harness between harness connector E5 and harness connector E152.

7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector E5 terminals 2 (L), 3 (P) and ground.

2 (L) – Ground : Continuity should not exist.

3 (P) – Ground : Continuity should not exist.



OK or NG

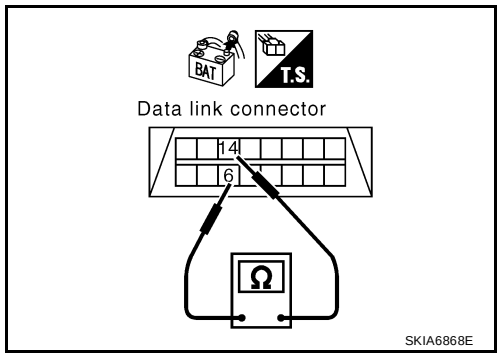
OK >> GO TO 8.

NG >> Repair harness between harness connector E5 and harness connector E152.

8. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
   - Differential lock control unit connector
   - BCM connector
   - Combination meter connector
   - Harness connector M91
2. Check continuity between data link connector M22 terminals 6 (L) and 14 (P).

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



OK or NG

OK >> GO TO 9.

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

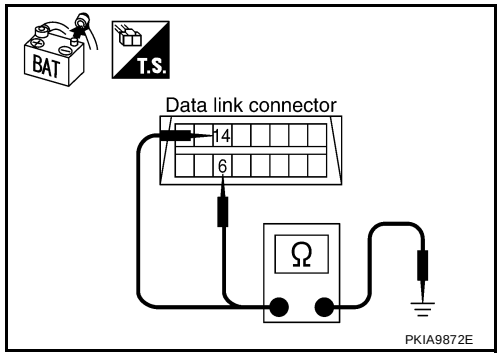
- Harness between data link connector and harness connector M31
- Harness between data link connector and differential lock control unit
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and harness connector M91

9. CHECK HARNESS FOR SHORT CIRCUIT

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

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

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



OK or NG

OK >> GO TO 10.

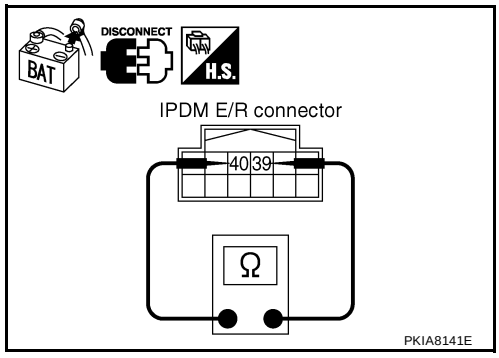
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M31
- Harness between data link connector and differential lock control unit
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and harness connector M91

10. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Continuity should not exist.



OK or NG

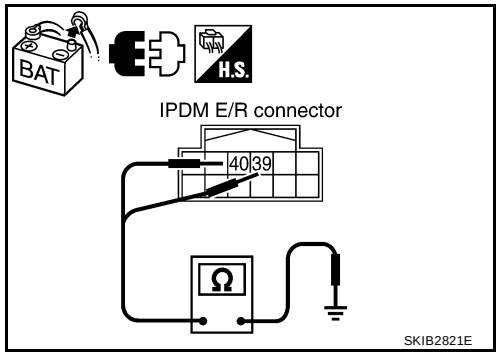
OK >> GO TO 11.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

11. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E122 terminals 39 (L), 40 (P) and ground.

39 (L) – Ground : Continuity should not exist.
40 (P) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 12.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

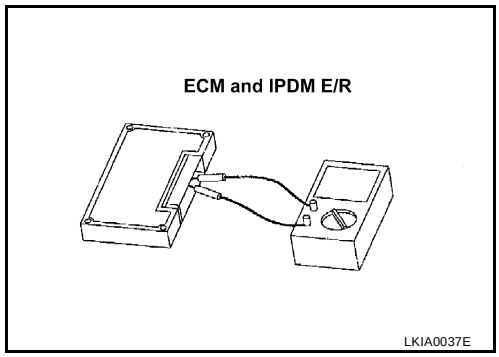
12. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

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

94 – 86 : Approx. 108 – 132 Ω

3. Check resistance between IPDM E/R terminals 39 and 40.

39 – 40 : Approx. 108 – 132 Ω



OK or NG

OK >> GO TO 13.
NG >> Replace ECM and/or IPDM E/R.

13. CHECK SYMPTOM

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

OK or NG

OK >> GO TO 14.
NG >> Refer to LAN-15, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced"
.

14. CHECK UNIT REPRODUCIBILITY

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

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

- TCM
- Differential lock control unit
- BCM
- Combination meter
- ABS actuator and electric unit (control unit)
- ECM
- IPDM E/R

Inspection results

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

IPDM E/R Ignition Relay Circuit Inspection

UKS003PF

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

- IPDM E/R power supply circuit. Refer to PG-27, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition power supply circuit. Refer to PG-14, "IGNITION POWER SUPPLY — IGNITION SW. IN ON AND/OR START" .

CAN SYSTEM (TYPE 8)

PFP:23710

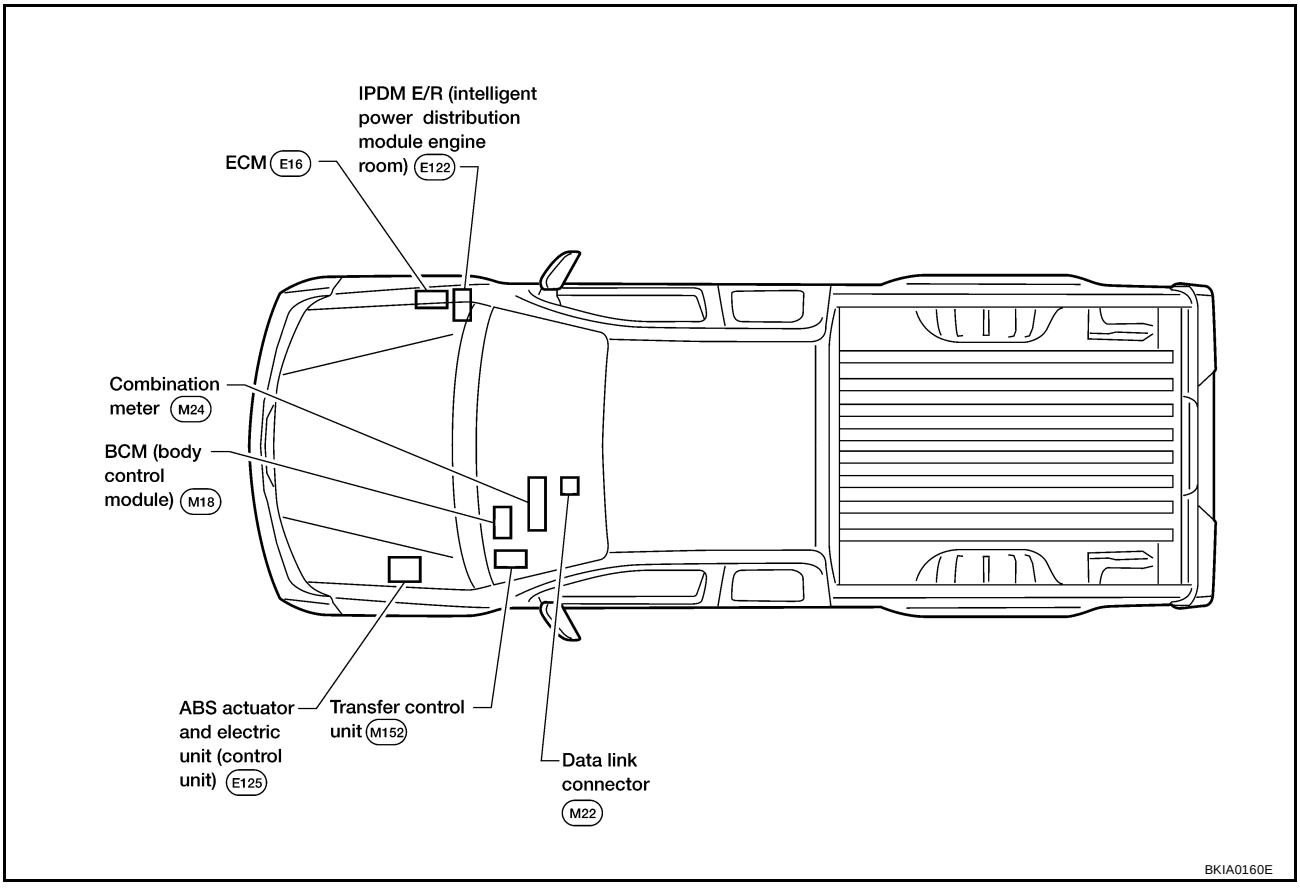
System Description

UKS003OK

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.

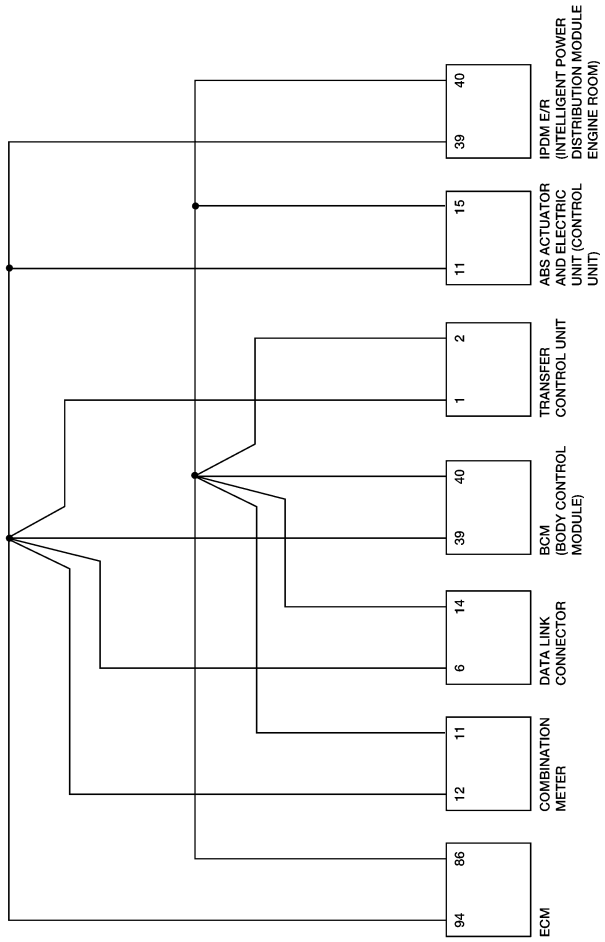
Component Parts and Harness Connector Location

UKS003OL



Schematic

UKS003OM



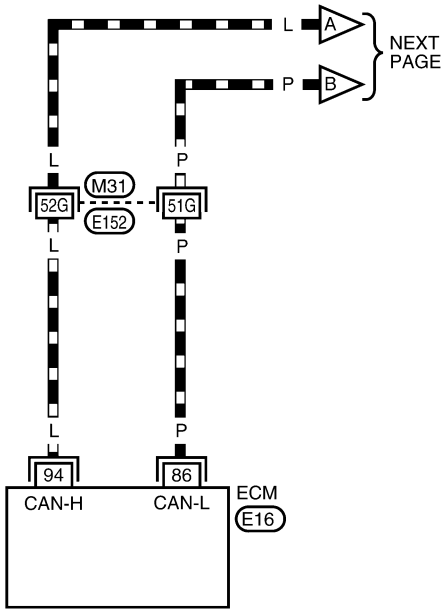
BKWA0503E

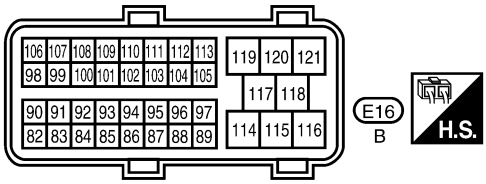
Wiring Diagram — CAN —

UKS003ON

LAN-CAN-22

: DATA LINE

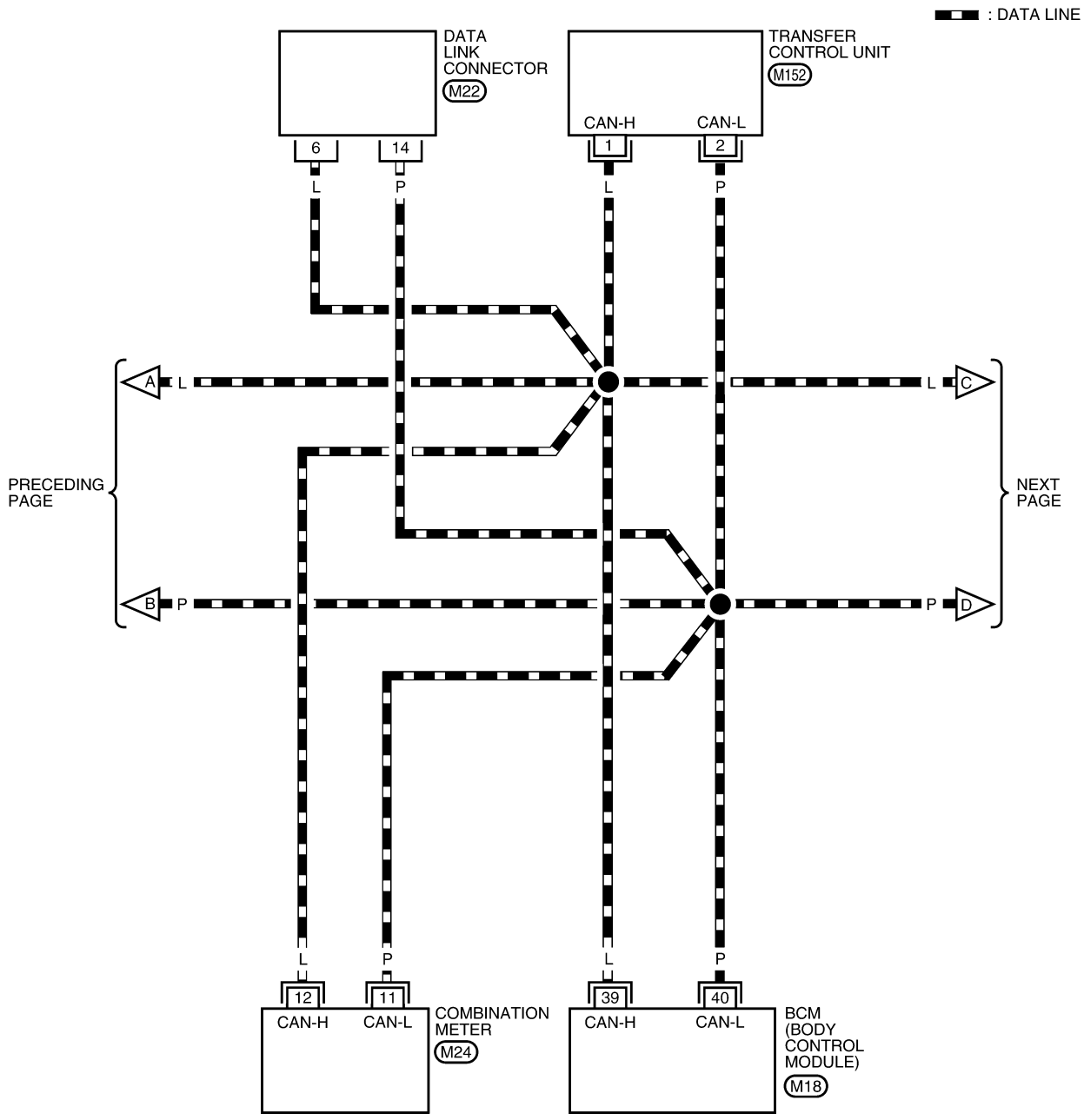


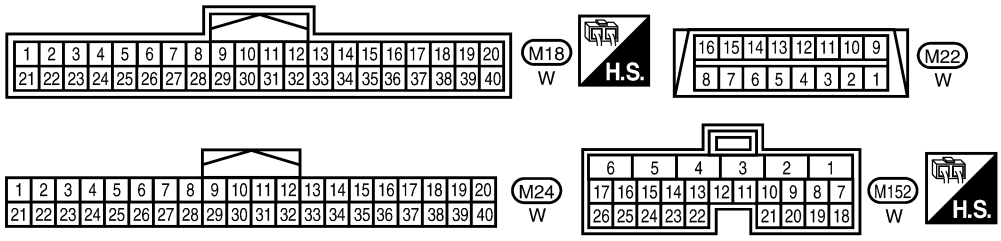


REFER TO THE FOLLOWING.
M31 - SUPER MULTIPLE JUNCTION (SMJ)

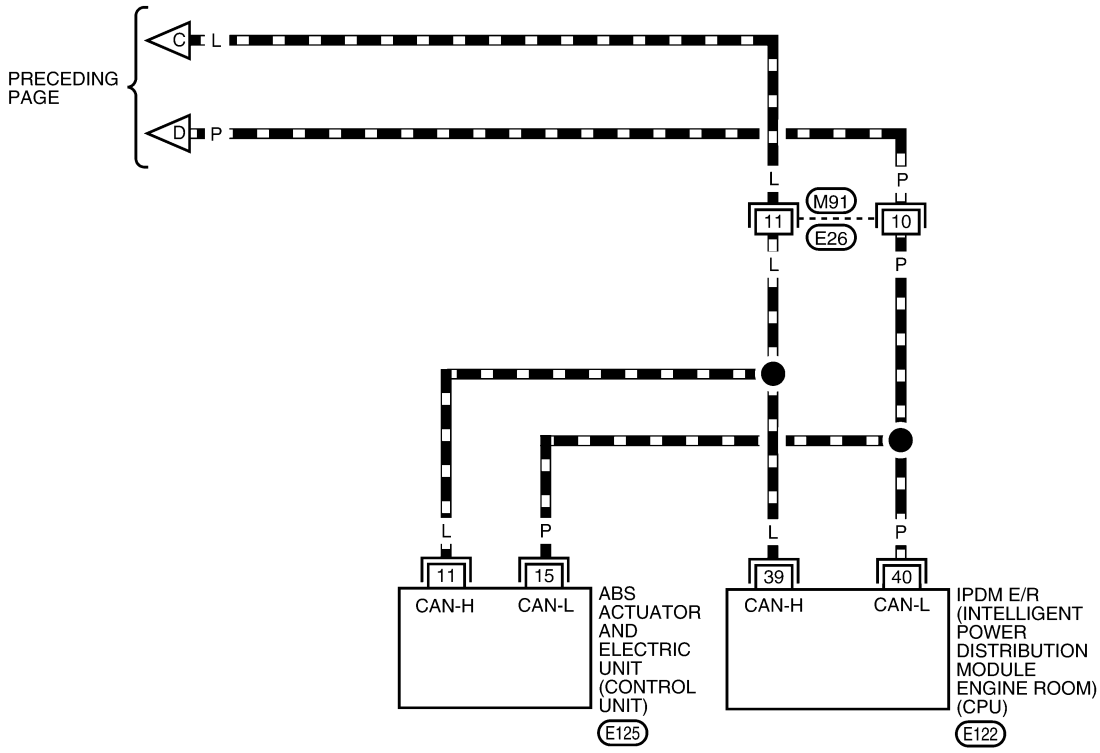
BKWA0504E

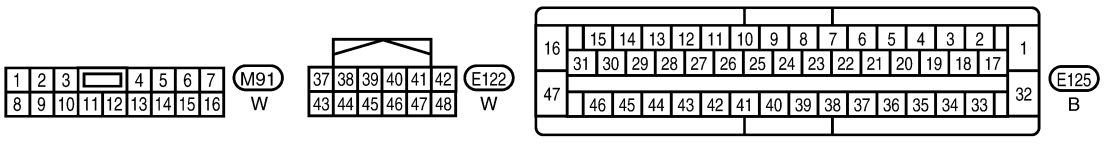
LAN-CAN-23





BKWA0505E


: DATA LINE
PRECEDING PAGE
C
L
D
P
M91
E26
11
10
CAN-H
CAN-L
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
E125
39
40
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) (CPU)
E122


M91
W
E122
W
E125
B

BKWA0506E

CHECK SHEET

UKS003OZ

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

Check sheet table

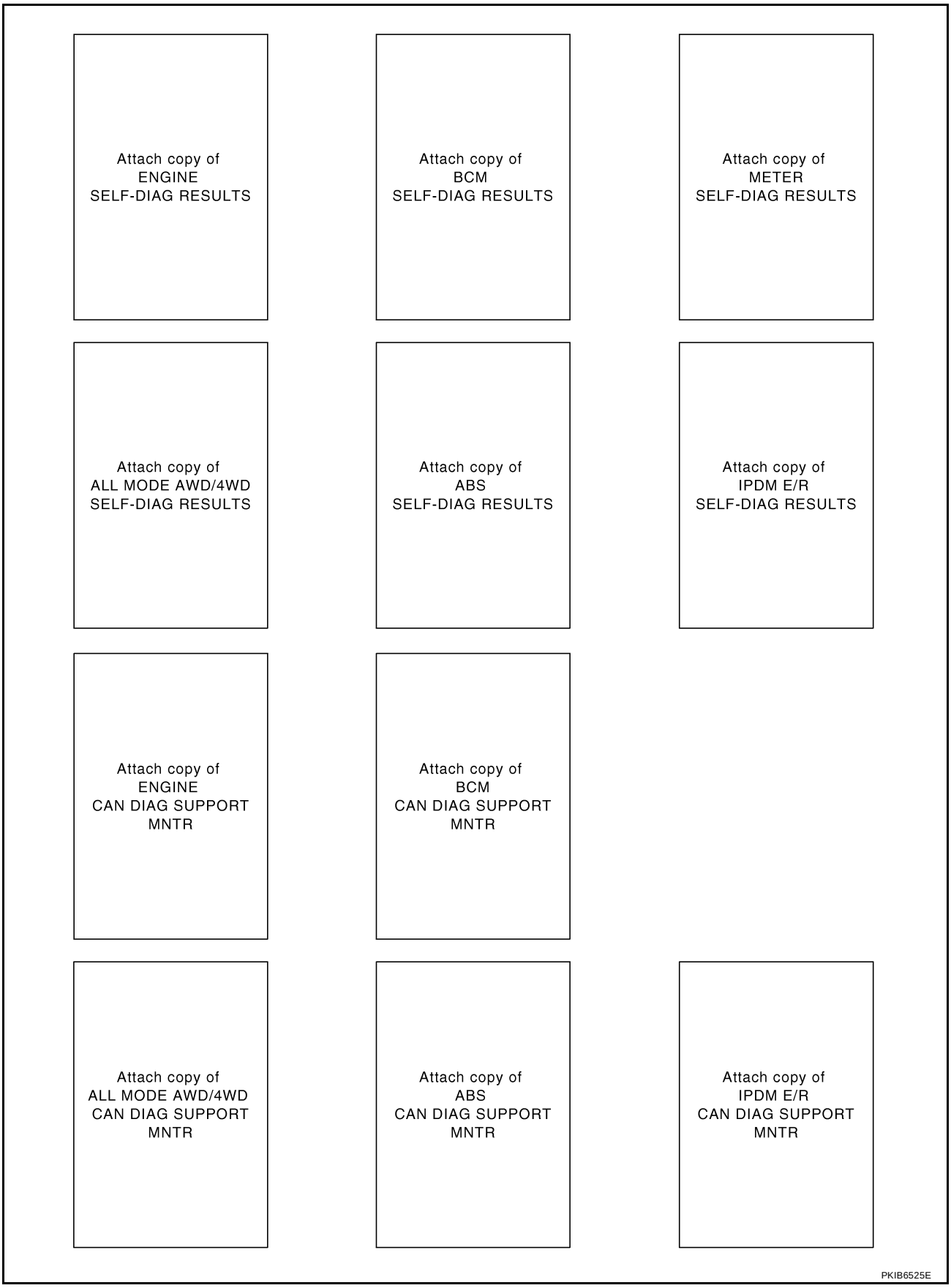
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIB6524E


Attach copy of
ENGINE
SELF-DIAG RESULTS
Attach copy of
BCM
SELF-DIAG RESULTS
Attach copy of
METER
SELF-DIAG RESULTS
Attach copy of
ALL MODE AWD/4WD
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
BCM
CAN DIAG SUPPORT
MNTR
Attach copy of
ALL MODE AWD/4WD
CAN DIAG SUPPORT
MNTR
Attach copy of
ABS
CAN DIAG SUPPORT
MNTR
Attach copy of
IPDM E/R
CAN DIAG SUPPORT
MNTR
PKIB6525E

CHECK SHEET RESULTS (EXAMPLE)

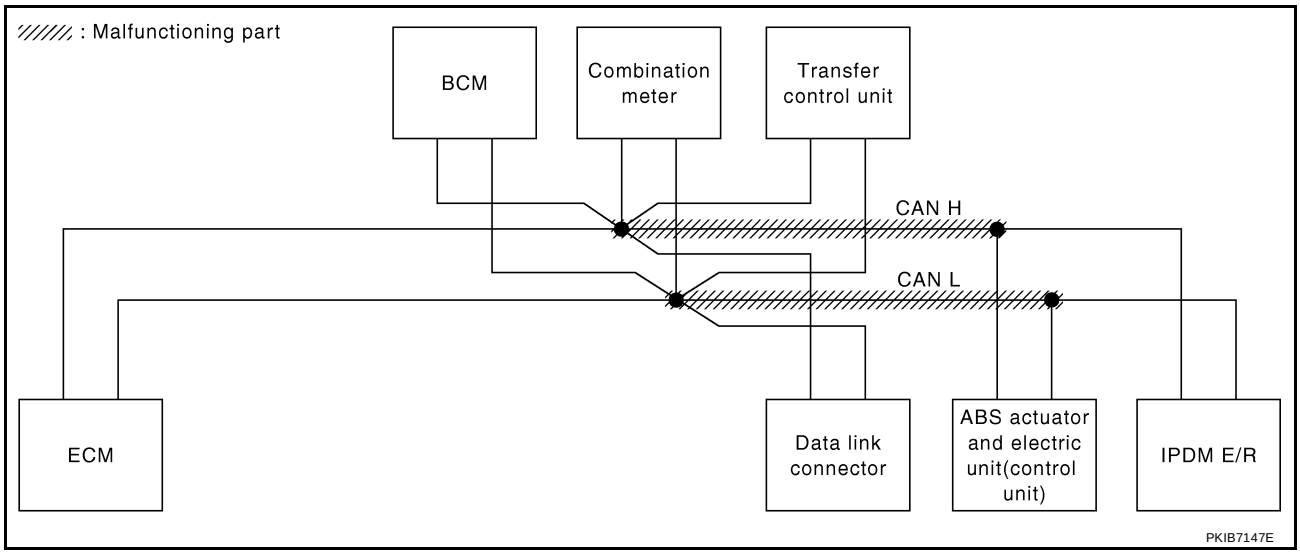
NOTE:
If a check mark is put on “NG” on “INITIAL DIAG (Initial diagnosis)”, replace the control unit.

Case 1

Check harness between data link connector and ABS actuator and electric unit (control unit) circuit. Refer to LAN-235, "Inspection Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Circuit"
.

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	✓ UNKWN	CAN COMM CIRCUIT (U1000)	✓ CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	✓ UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	✓ CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	✓ UNKWN	—	✓ CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	✓ UNKWN	—	—	—	—	—	✓ CAN COMM CIRCUIT (U1000)	—
IPDM E/R	✓ No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	✓ CAN COMM CIRCUIT (U1000)	—

PKIB7309E

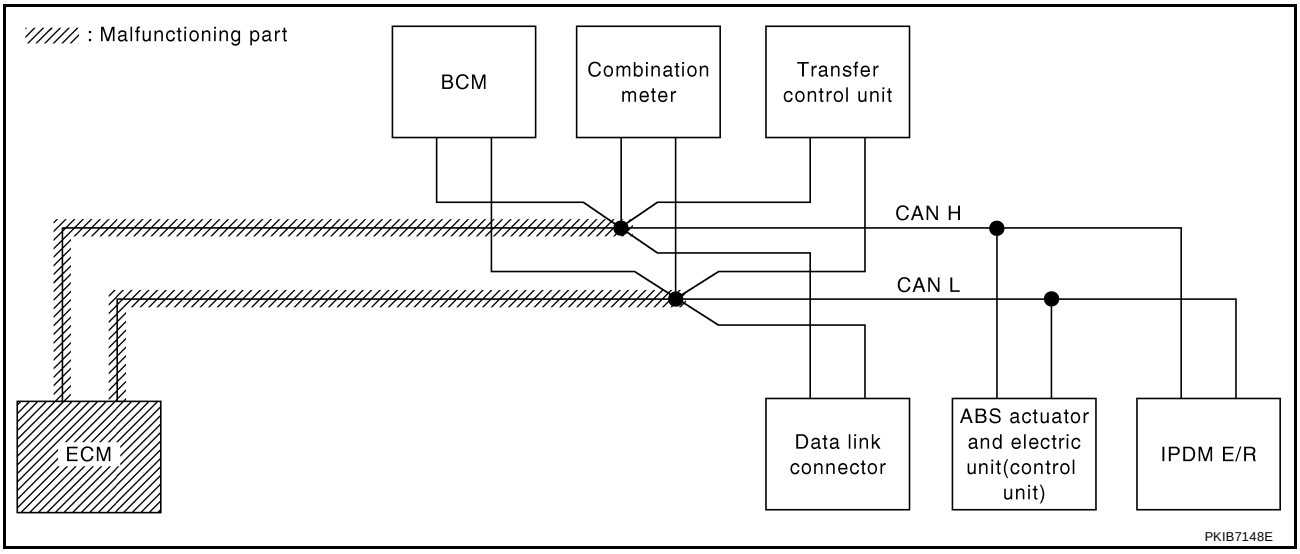


Case 2

Check ECM circuit. Refer to LAN-236, "ECM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7310E



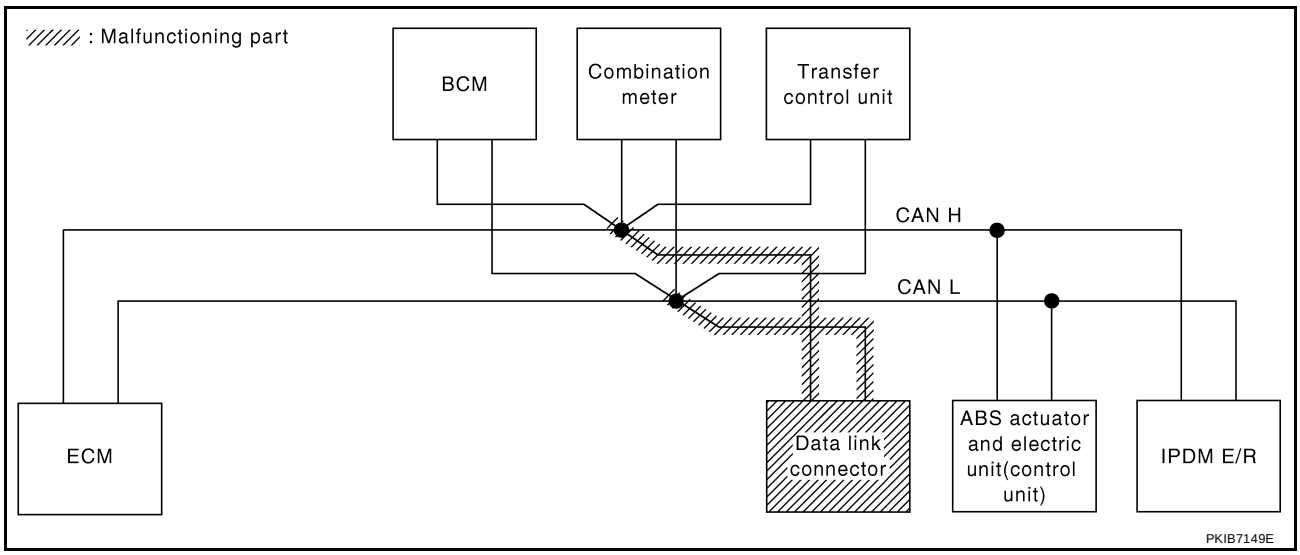
PKIB7148E

Case 3

Check data link connector circuit. Refer to LAN-237, "Data Link Connector Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication ✓	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7311E



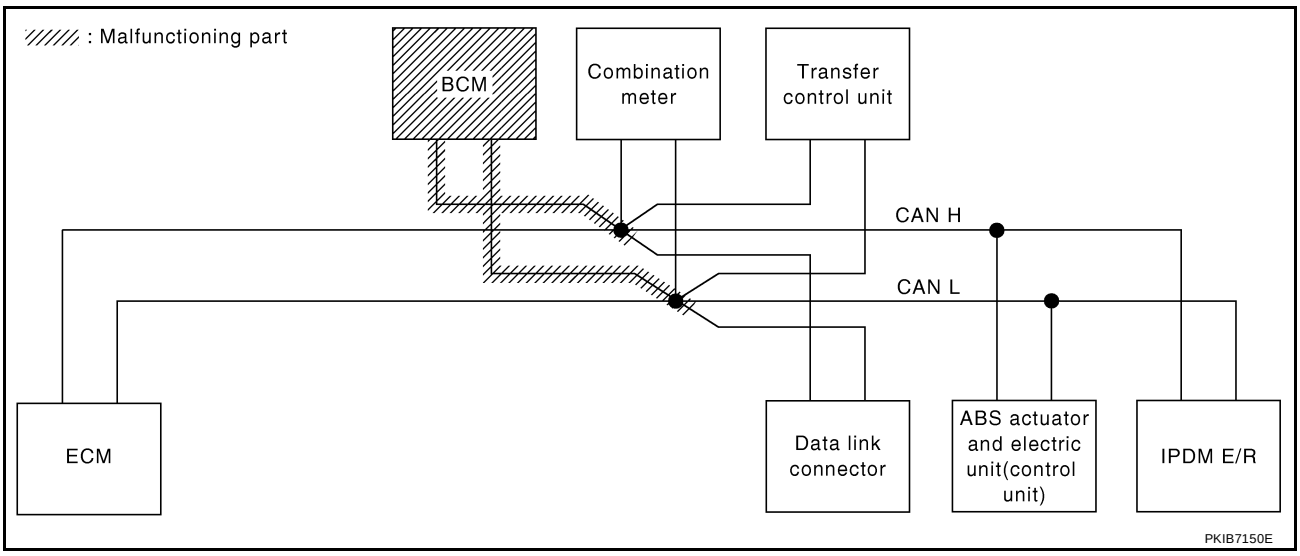
PKIB7149E

Case 4

Check BCM circuit. Refer to LAN-237, "BCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7312E



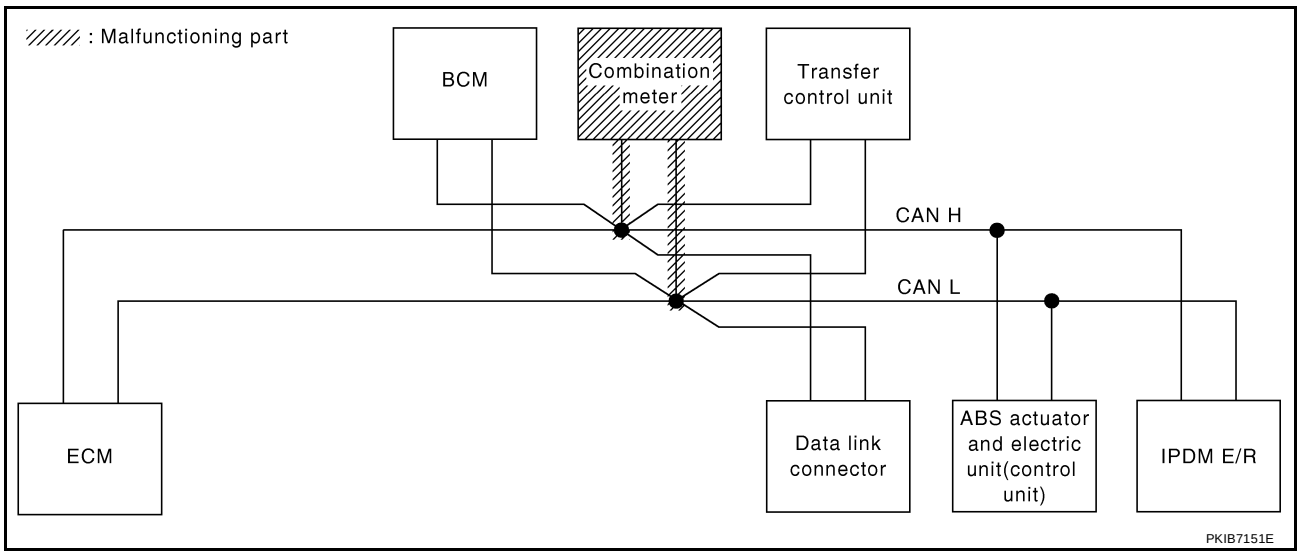
PKIB7150E

Case 5

Check combination meter circuit. Refer to LAN-238, "Combination Meter Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN ✓	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN ✓	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN ✓	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7313E



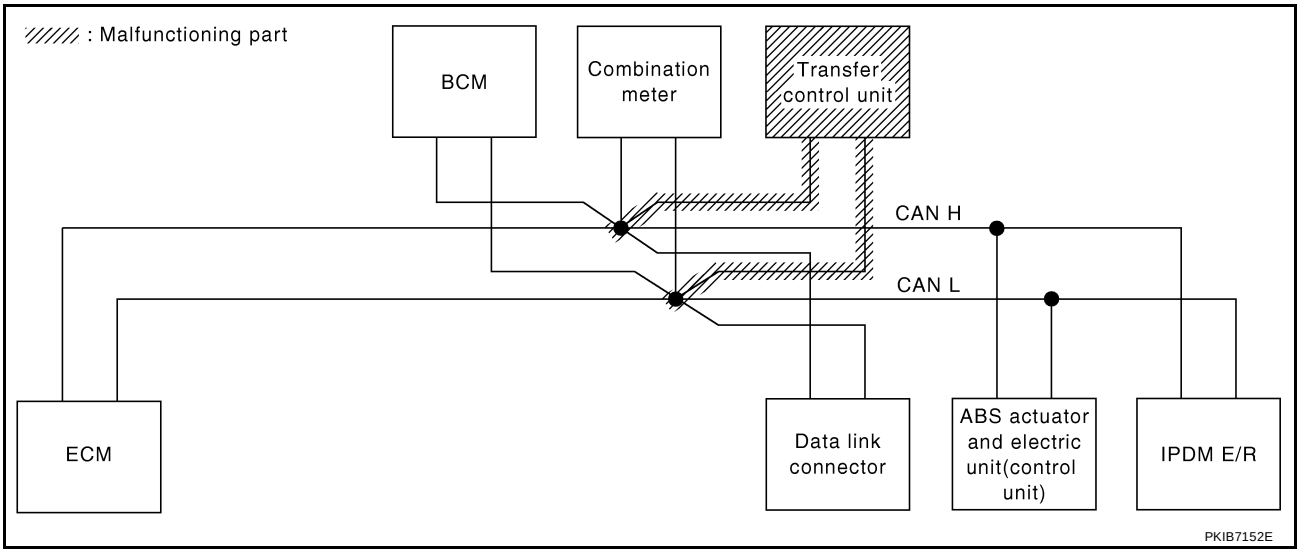
PKIB7151E

Case 6

Check transfer control unit circuit. Refer to LAN-238, "Transfer Control Unit Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN ✓	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN ✓	UNKWN ✓	—	UNKWN ✓	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7314E



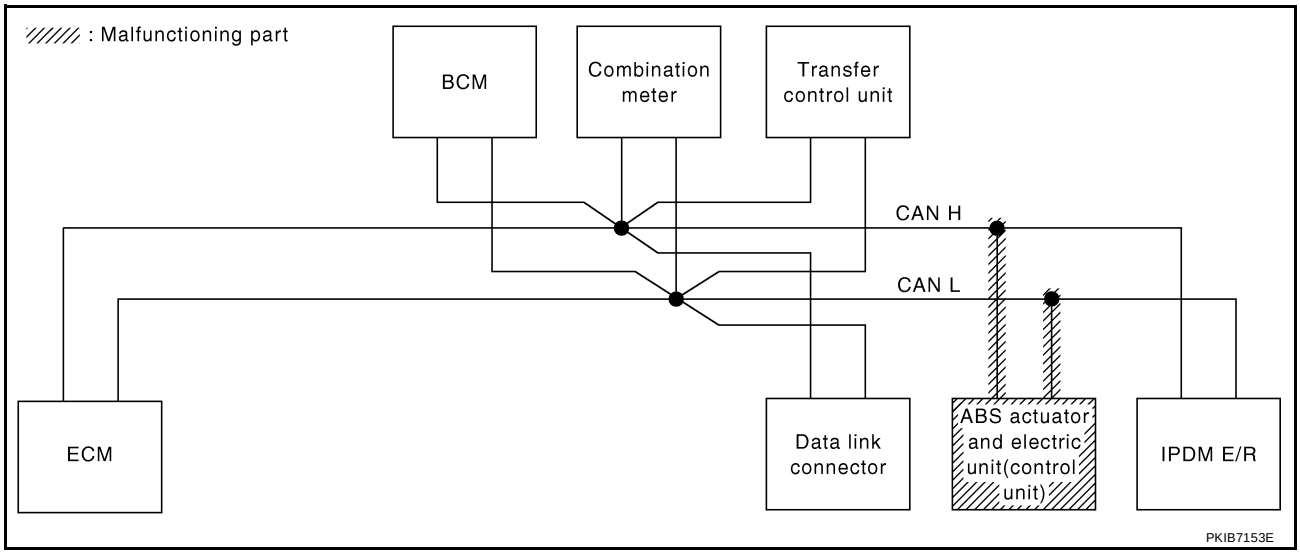
PKIB7152E

Case 7

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-239, "ABS Actuator and Electric Unit (Control Unit) Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7315E

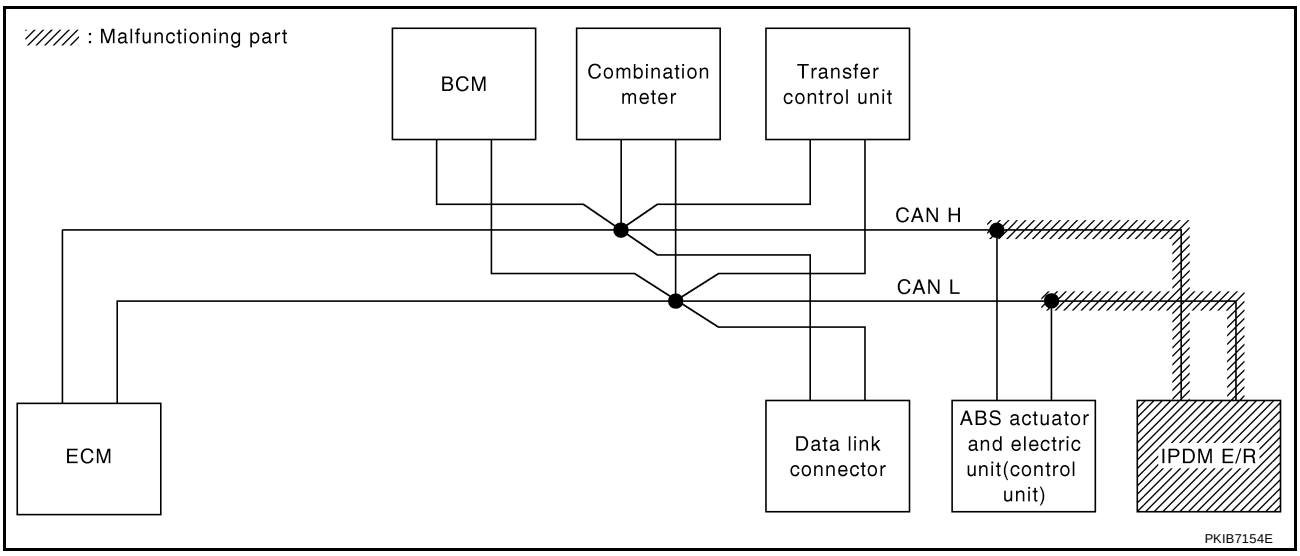


Case 8

Check IPDM E/R circuit. Refer to LAN-239, "IPDM E/R Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7316E



PKIB7154E

Case 9

Check CAN communication circuit. Refer to LAN-240, "CAN Communication Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7317E

Case 10

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-243, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7318E

Case 11

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-243, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7319E

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

UKS003OP

1. CHECK CONNECTOR

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

- Harness connector M91
- Harness connector E26

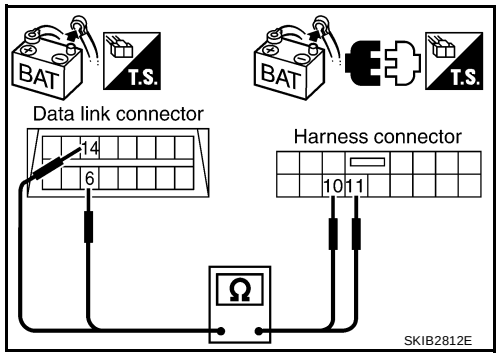
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M91.
2. Check continuity between data link connector M22 terminals 6 (L), 14 (P) and harness connector M91 terminals 11 (L), 10 (P).

6 (L) – 11 (L) : Continuity should exist.
14 (P) – 10 (P) : Continuity should exist.



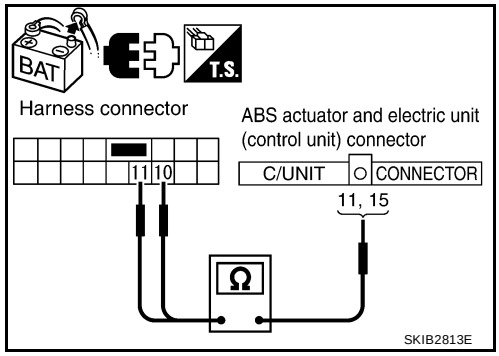
OK or NG

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 E26 terminals 11 (L), 10 (P) and ABS actuator and electric unit (control unit) harness connector E125 terminals 11 (L), 15 (P).

11 (L) – 11 (L) : Continuity should exist.
10 (P) – 15 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.

ECM Circuit Inspection

UKS003OQ

1. CHECK CONNECTOR

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

- ECM connector
- Harness connector E152
- Harness connector M31

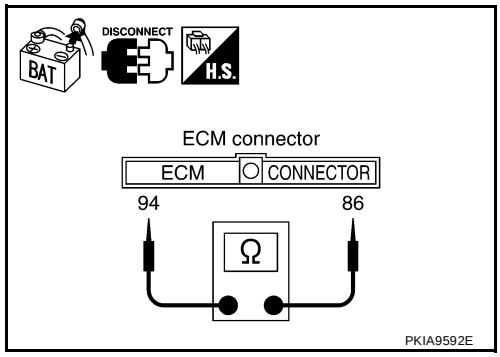
OK or NG

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 E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Approx. 108 – 132 Ω



OK or NG

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

Data Link Connector Circuit Inspection

UKS003OR

1. CHECK CONNECTOR

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

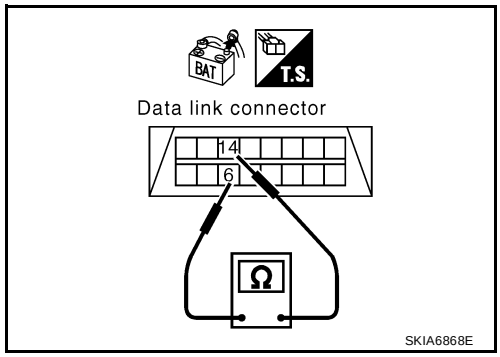
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

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

6 (L) – 14 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness between data link connector and BCM.

BCM Circuit Inspection

UKS003OS

1. CHECK CONNECTOR

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

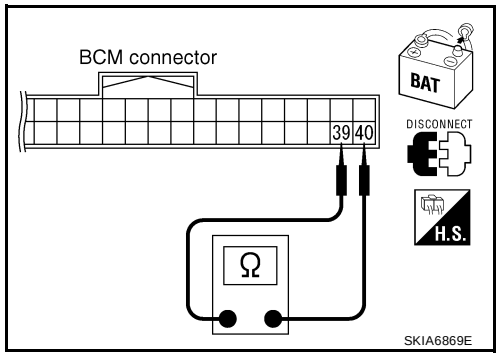
OK or NG

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 M18 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace BCM. Refer to BCS-19, "Removal and Installation of BCM" .
NG >> Repair harness between BCM and data link connector.

Combination Meter Circuit Inspection

UKS003OT

1. CHECK CONNECTOR

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

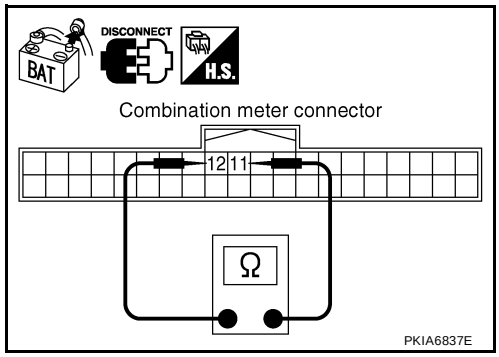
OK or NG

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 M24 terminals 12 (L) and 11 (P).

12 (L) – 11 (P) : Approx. 54 – 66 Ω



OK or NG

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

Transfer Control Unit Circuit Inspection

UKS003OU

1. CHECK CONNECTOR

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

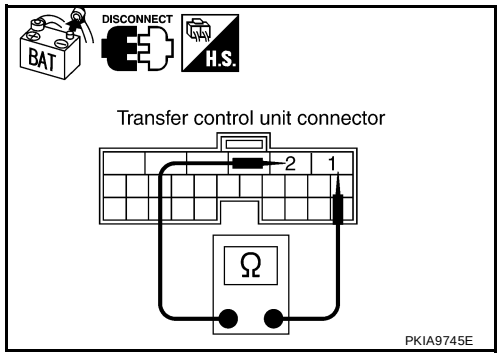
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect transfer control unit connector.
2. Check resistance between transfer control unit harness connector M152 terminals 1 (L) and 2 (P).

1 (L) – 2 (P) : Approx. 54 – 66 Ω



OK or NG

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

ABS Actuator and Electric Unit (Control Unit) Circuit Inspection

UKS003OV

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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).

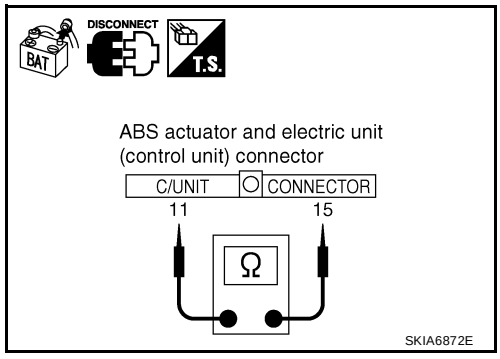
OK or NG

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 E125 terminals 11 (L) and 15 (P).

11 (L) – 15 (P) : Approx. 54 – 66 Ω



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 Inspection

UKS003OW

1. CHECK CONNECTOR

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

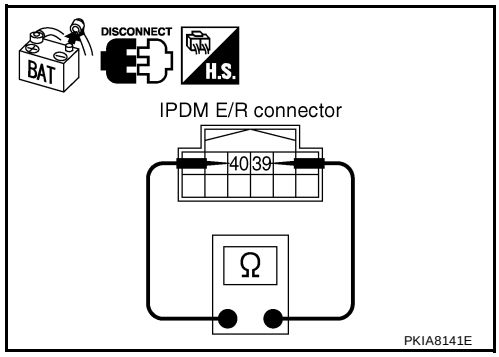
OK or NG

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 E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 108 – 132 Ω



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 Inspection

UKS003OX

1. CHECK CONNECTOR

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

- ECM
- BCM
- Combination meter
- Transfer control unit
- ABS actuator and electric unit (control unit)
- IPDM E/R
- Between ECM and IPDM E/R

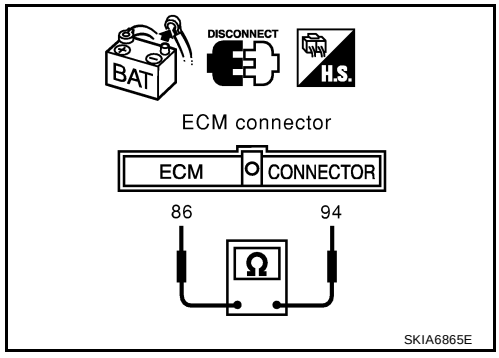
OK or NG

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

2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E152.
2. Check continuity between ECM harness connector E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Continuity should not exist.



OK or NG

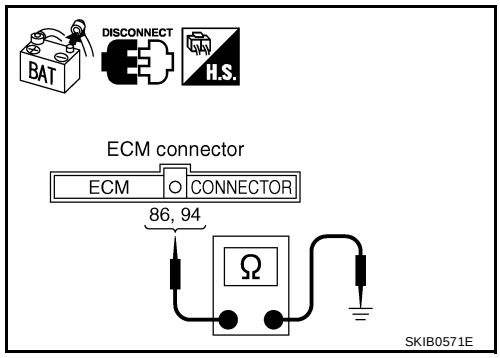
OK >> GO TO 3.
NG >> Repair harness between ECM and harness connector E152.

3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector E16 terminals 94 (L), 86 (P) and ground.

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

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



OK or NG

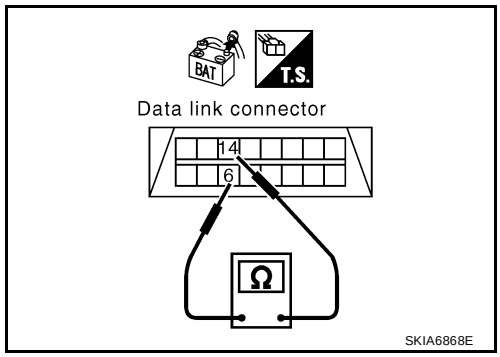
OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector E152.

4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
- BCM connector
- Combination meter connector
- Transfer control unit connector
- Harness connector M91
2. Check continuity between data link connector M22 terminals 6 (L) and 14 (P).

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



OK or NG

OK >> GO TO 5.

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

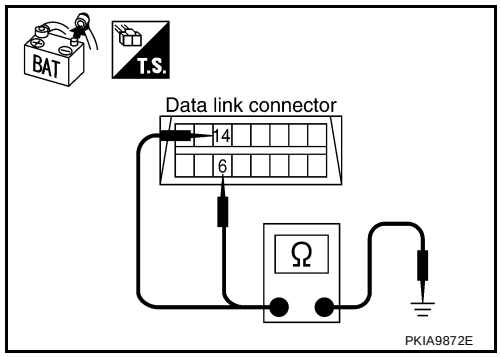
- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and transfer control unit
- Harness between data link connector and harness connector M91

5. CHECK HARNESS FOR SHORT CIRCUIT

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

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

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



OK or NG

OK >> GO TO 6.

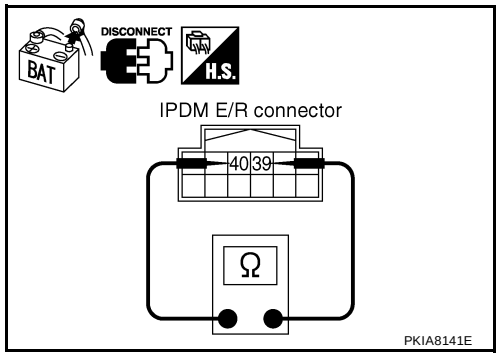
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and transfer control unit
- Harness between data link connector and harness connector M91

6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Continuity should not exist.



OK or NG

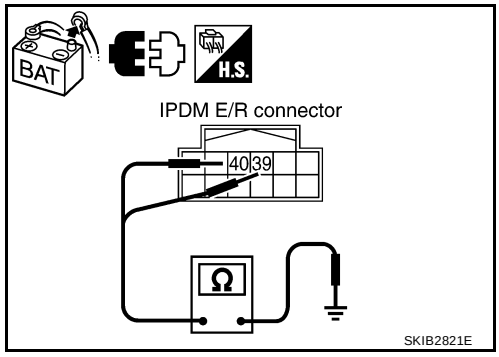
OK >> GO TO 7.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E122 terminals 39 (L), 40 (P) and ground.

39 (L) – Ground : Continuity should not exist.
40 (P) – 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 IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

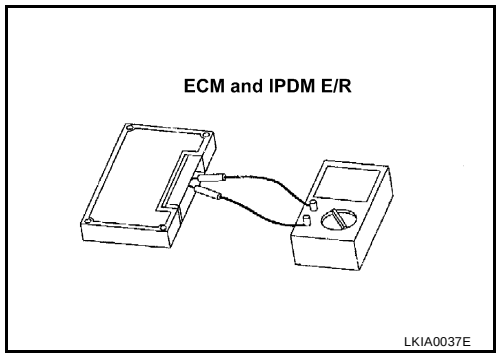
8. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

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

94 – 86 : Approx. 108 – 132 Ω

3. Check resistance between IPDM E/R terminals 39 and 40.

39 – 40 : Approx. 108 – 132 Ω



OK or NG

OK >> GO TO 9.
NG >> Replace ECM and/or IPDM E/R.

9. CHECK SYMPTOM

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

OK or NG

OK >> GO TO 10.
NG >> Refer to LAN-15, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced"
.

10. CHECK UNIT REPRODUCIBILITY INSPECTION

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

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

- BCM
- Combination meter
- Transfer control unit
- ABS actuator and electric unit (control unit)
- ECM
- IPDM E/R

Inspection results

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

IPDM E/R Ignition Relay Circuit Inspection

UKS003OY

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

- IPDM E/R power supply circuit. Refer to PG-27, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition power supply circuit. Refer to PG-14, "IGNITION POWER SUPPLY — IGNITION SW. IN ON AND/OR START" .

CAN SYSTEM (TYPE 9)

PFP:23710

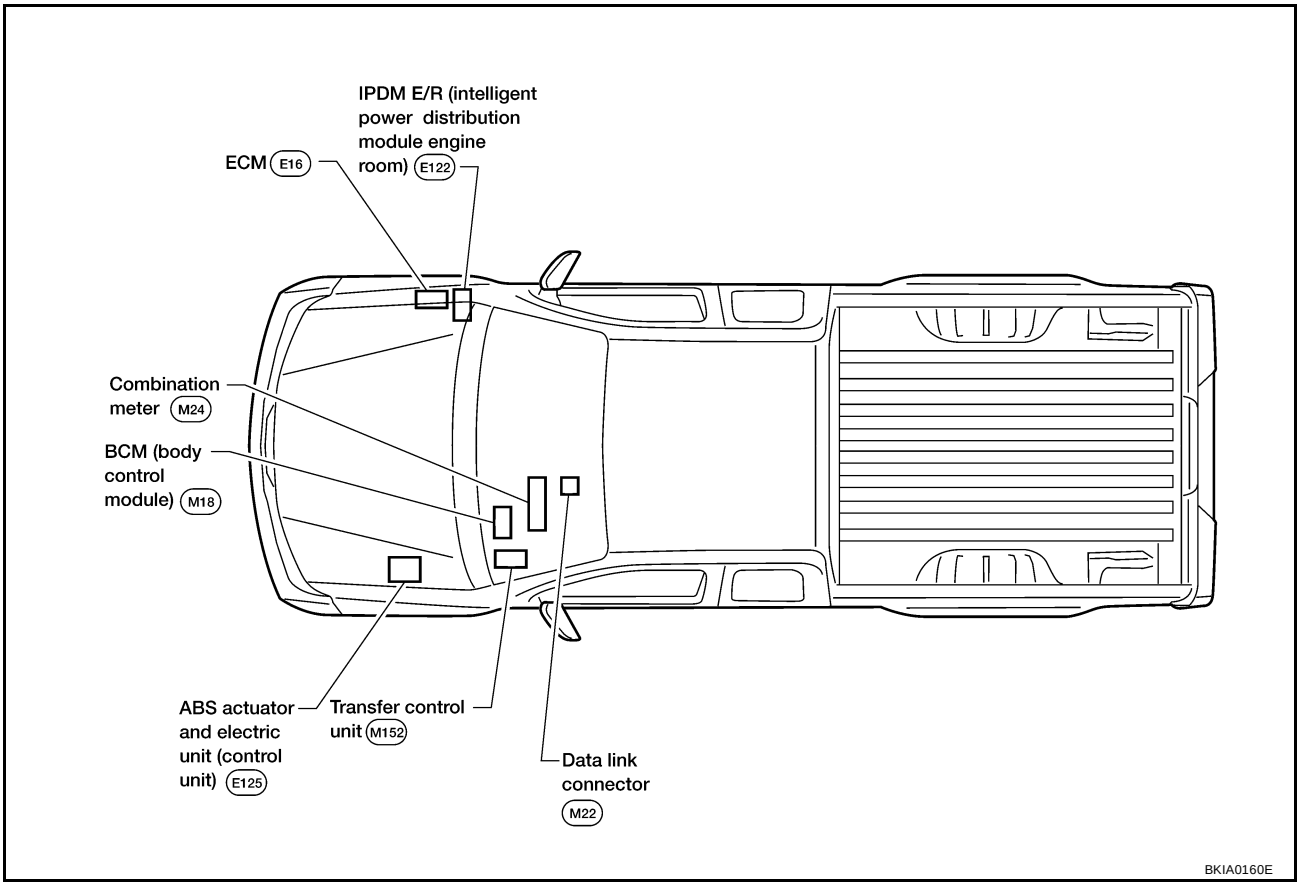
System Description

UKS003O5

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.

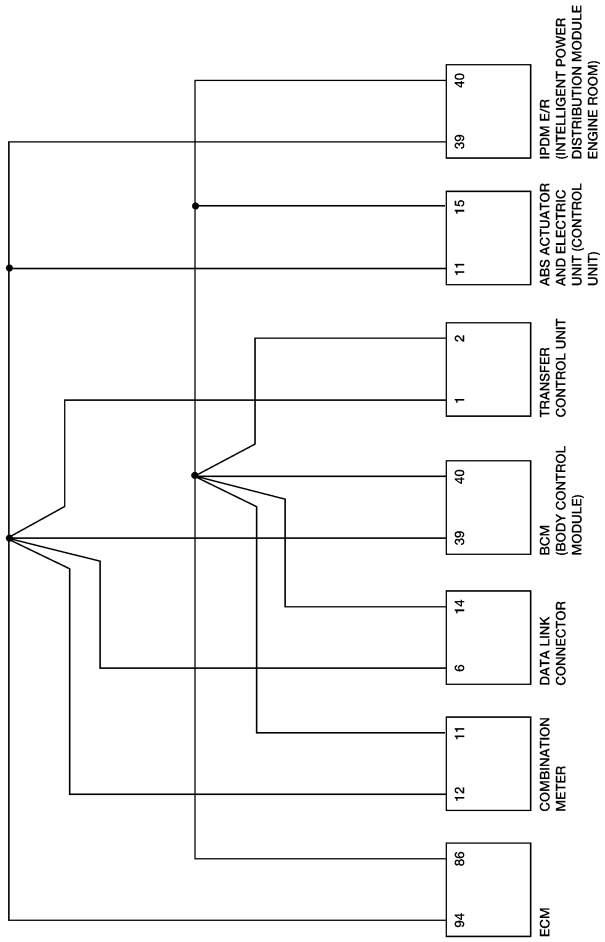
Component Parts and Harness Connector Location

UKS003O6



Schematic

UKS003O7



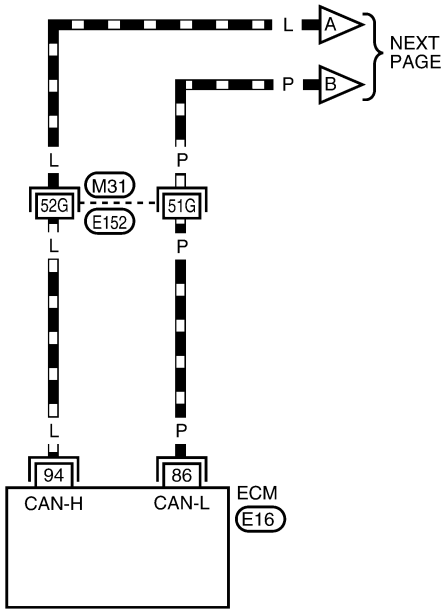
BKWA0503E

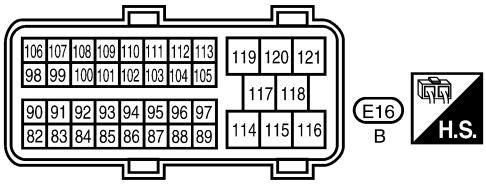
Wiring Diagram — CAN —

UKS003O8

LAN-CAN-25

: DATA LINE

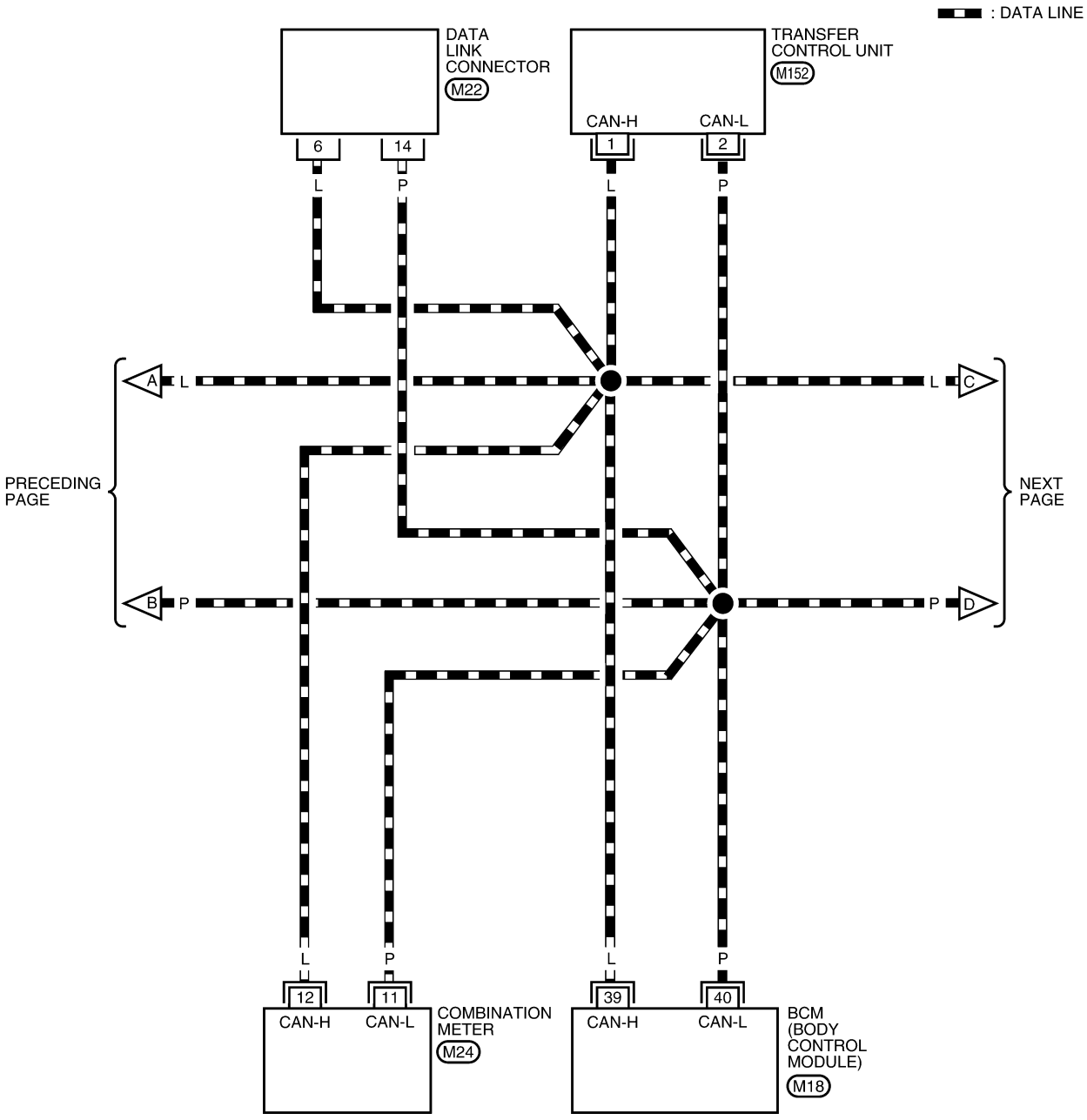


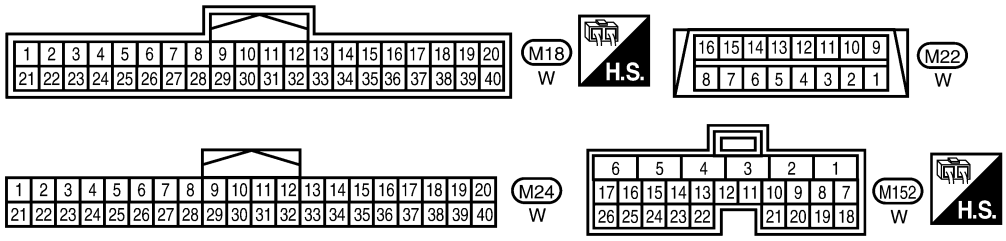


REFER TO THE FOLLOWING.
M31 - SUPER MULTIPLE JUNCTION (SMJ)

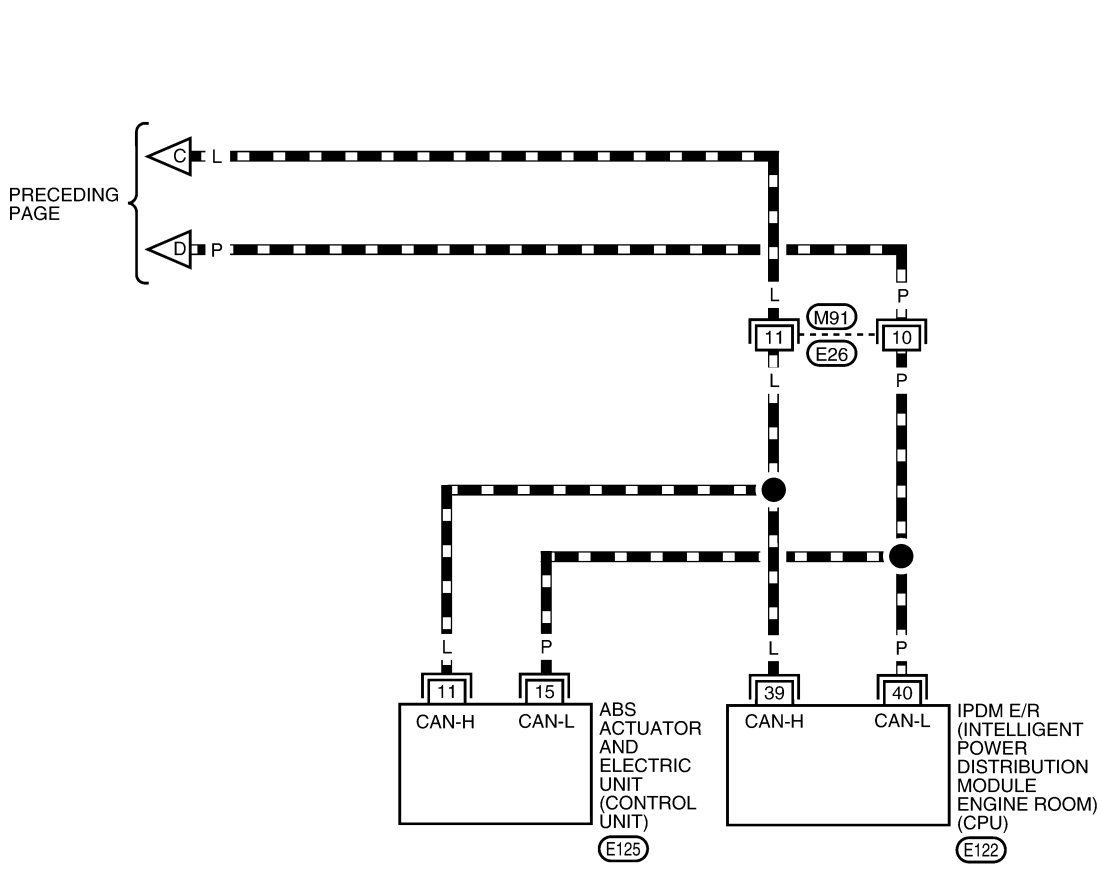
BKWA0507E

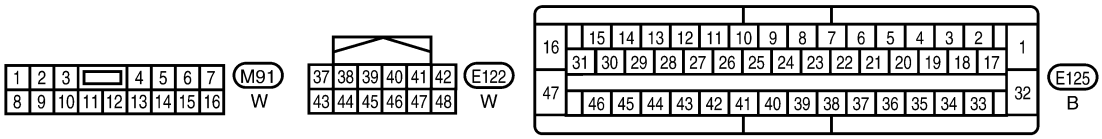
LAN-CAN-26





BKWA0508E


: DATA LINE
PRECEDING PAGE
C
L
D
P
L
P
M91
11
10
E26
L
P
L
P
L
P
11
15
39
40
CAN-H
CAN-L
CAN-H
CAN-L
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
E125
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) (CPU)
E122


1 2 3 4 5 6 7
8 9 10 11 12 13 14 15 16
M91
W
37 38 39 40 41 42
43 44 45 46 47 48
E122
W
16
15 14 13 12 11 10 9 8 7 6 5 4 3 2
1
31 30 29 28 27 26 25 24 23 22 21 20 19 18 17
47
32
46 45 44 43 42 41 40 39 38 37 36 35 34 33
E125
B

BKWA0509E

CHECK SHEET

UKS003O9

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

Check sheet table

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIB6526E

Attach copy of
ENGINE
SELF-DIAG RESULTS

Attach copy of
BCM
SELF-DIAG RESULTS

Attach copy of
METER
SELF-DIAG RESULTS

Attach copy of
ALL MODE AWD/4WD
SELF-DIAG RESULTS

Attach copy of
ABS
SELF-DIAG RESULTS

Attach copy of
IPDM E/R
SELF-DIAG RESULTS

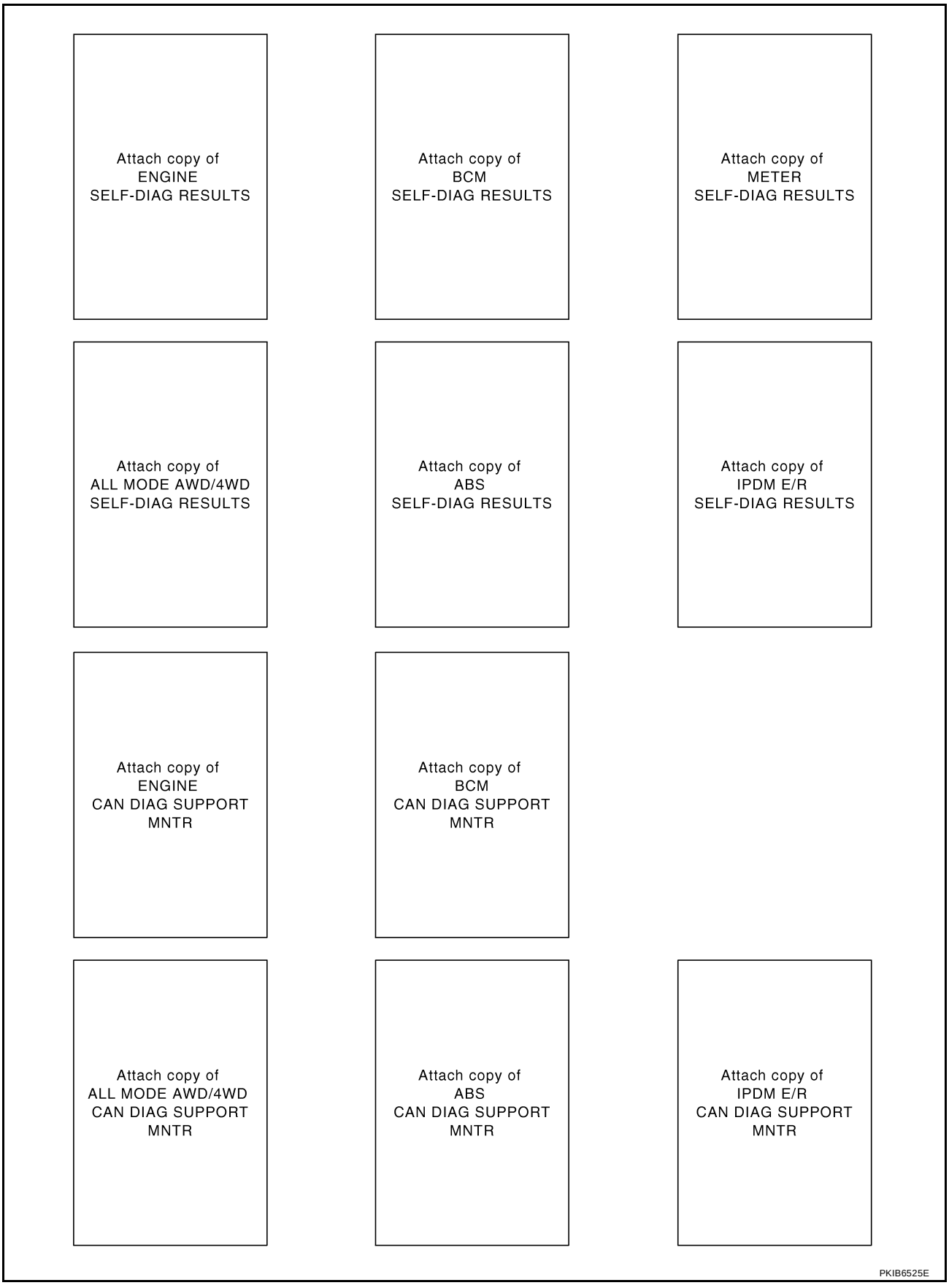
Attach copy of
ENGINE
CAN DIAG SUPPORT
MNTR

Attach copy of
BCM
CAN DIAG SUPPORT
MNTR

Attach copy of
ALL MODE AWD/4WD
CAN DIAG SUPPORT
MNTR

Attach copy of
ABS
CAN DIAG SUPPORT
MNTR

Attach copy of
IPDM E/R
CAN DIAG SUPPORT
MNTR



CHECK SHEET RESULTS (EXAMPLE)

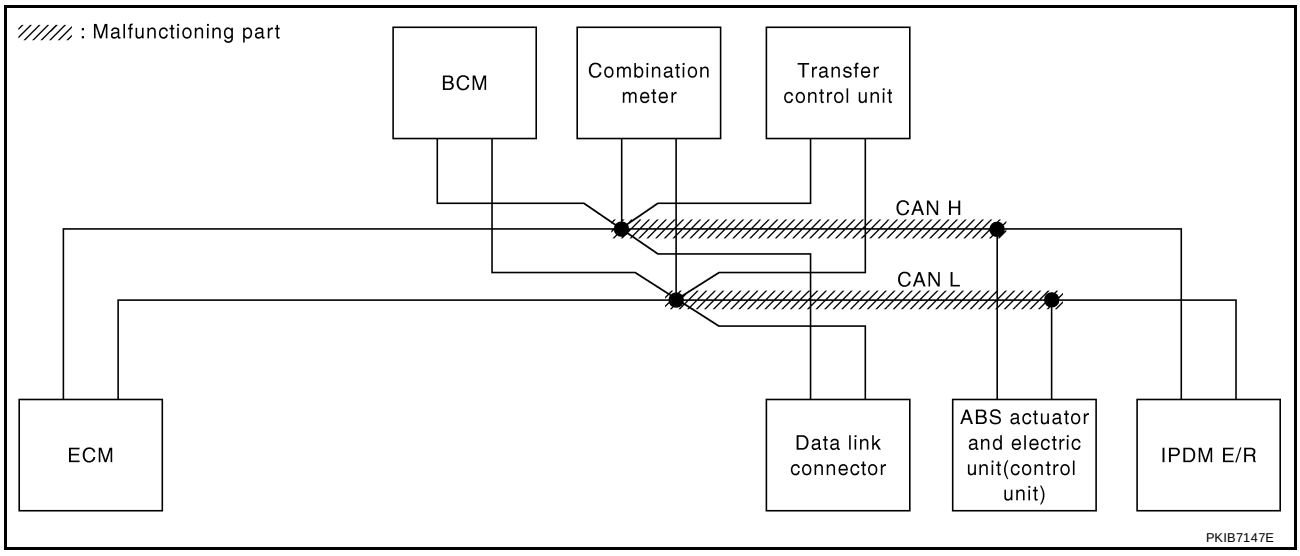
NOTE:
If a check mark is put on “NG” on “INITIAL DIAG (Initial diagnosis)”, replace the control unit.

Case 1

Check harness between data link connector and ABS actuator and electric unit (control unit) circuit. Refer to LAN-259, "Inspection Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Circuit"
.

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	✓ UNKWN	✓ UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	✓ UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	✓ UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	✓ UNKWN	—	—	✓ UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	✓ No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7320E



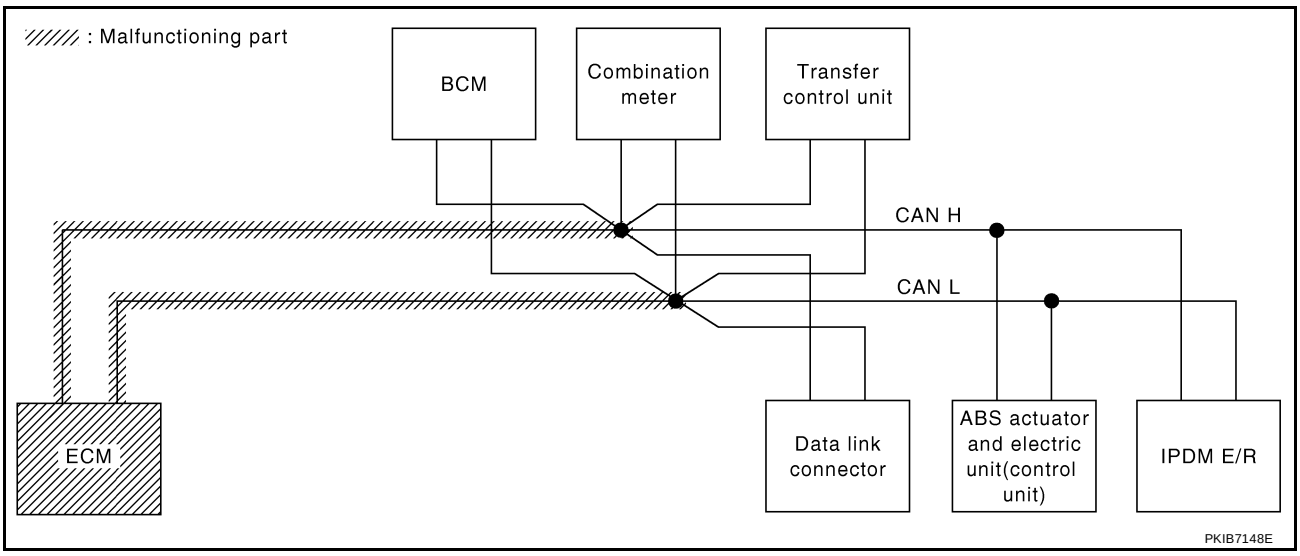
PKIB7147E

Case 2

Check ECM circuit. Refer to LAN-260, "ECM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7321E



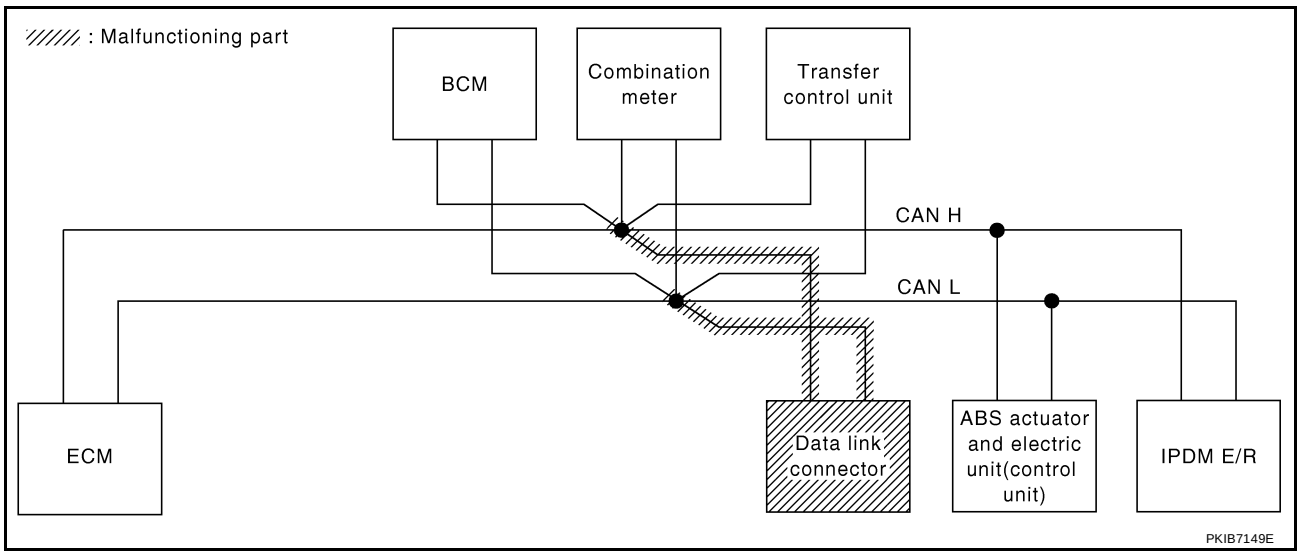
PKIB7148E

Case 3

Check data link connector circuit. Refer to LAN-261, "Data Link Connector Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication ✓	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7322E



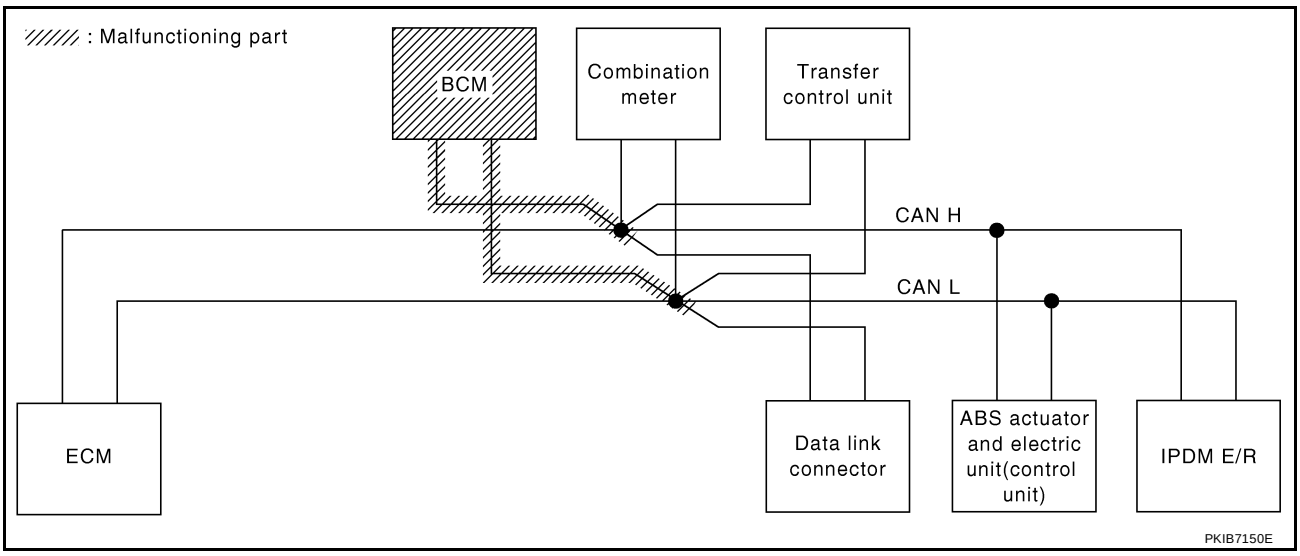
PKIB7149E

Case 4

Check BCM circuit. Refer to LAN-261, "BCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7323E



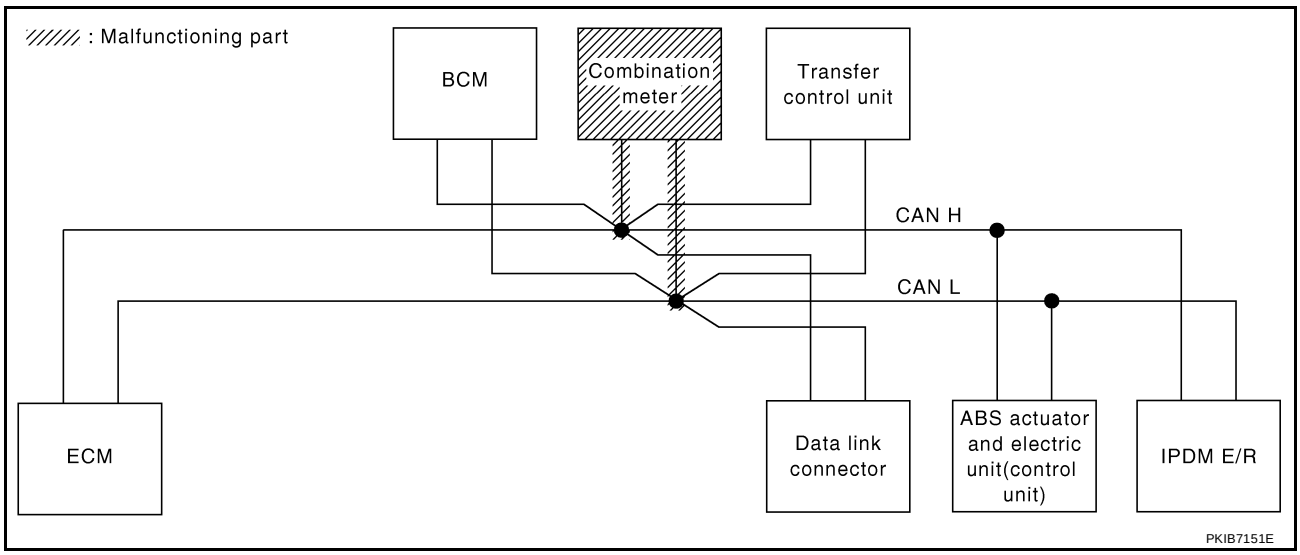
PKIB7150E

Case 5

Check combination meter circuit. Refer to LAN-262, "Combination Meter Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN ✓	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN ✓	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN ✓	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7324E



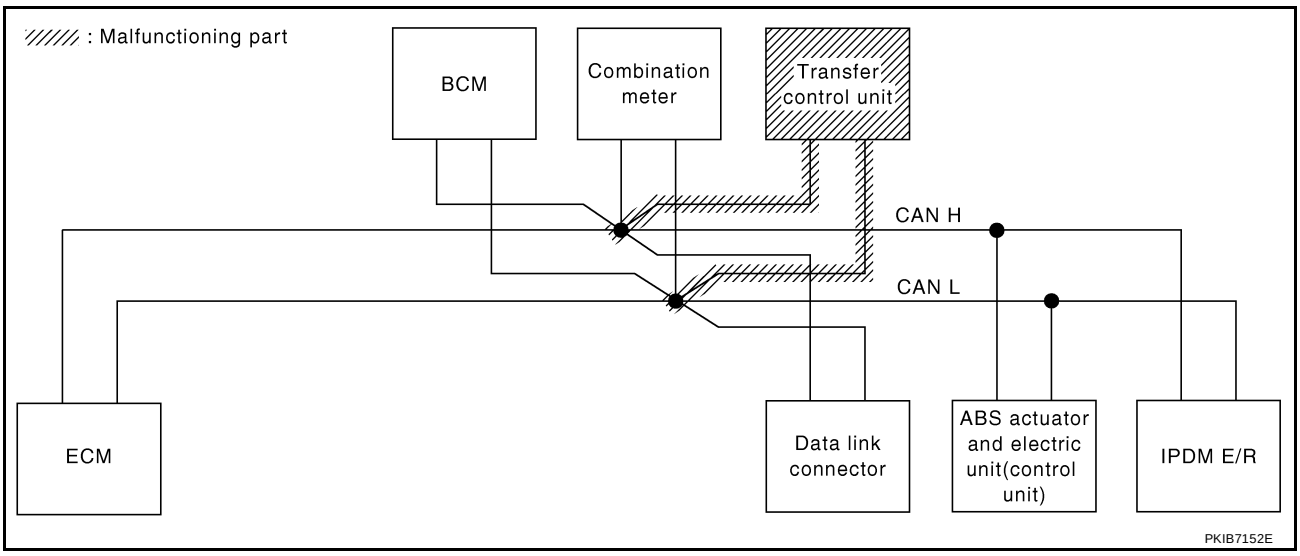
PKIB7151E

Case 6

Check transfer control unit circuit. Refer to LAN-262, "Transfer Control Unit Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN ✓	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN ✓	UNKWN ✓	—	UNKWN ✓	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	UNKWN ✓	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7325E



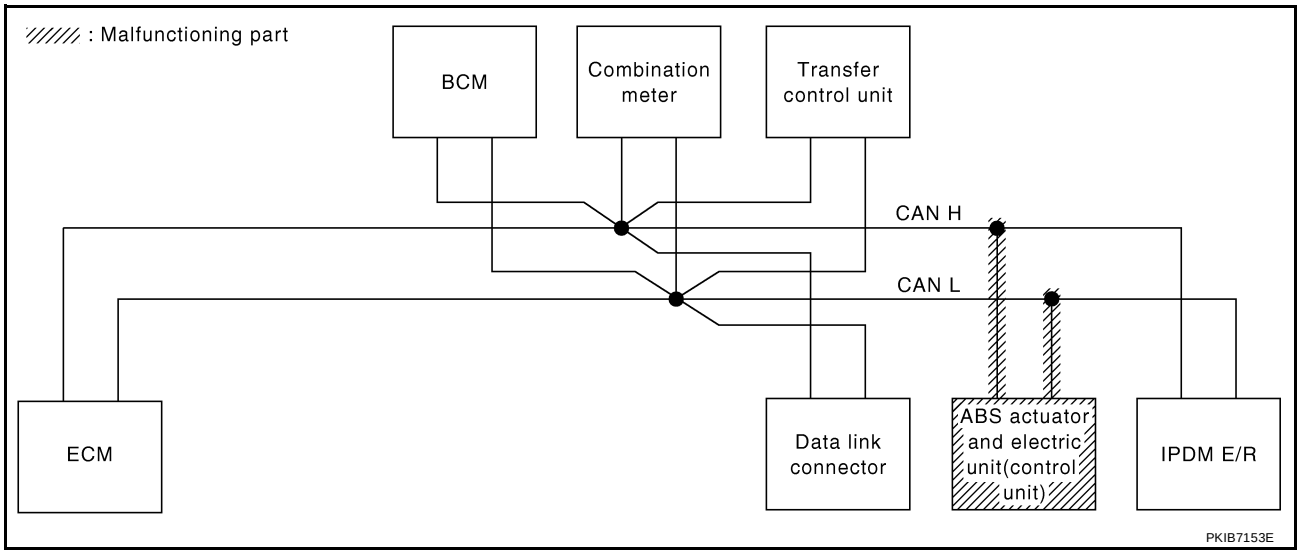
PKIB7152E

Case 7

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-263, "ABS Actuator and Electric Unit (Control Unit) Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	✓	UNKWN	CAN COMM CIRCUIT (U1000)	✓ CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	✓ CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	✓	—	✓ CAN COMM CIRCUIT (U1000)	—
ABS	—	✓	✓	✓	—	—	✓	—	—	✓ CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7326E

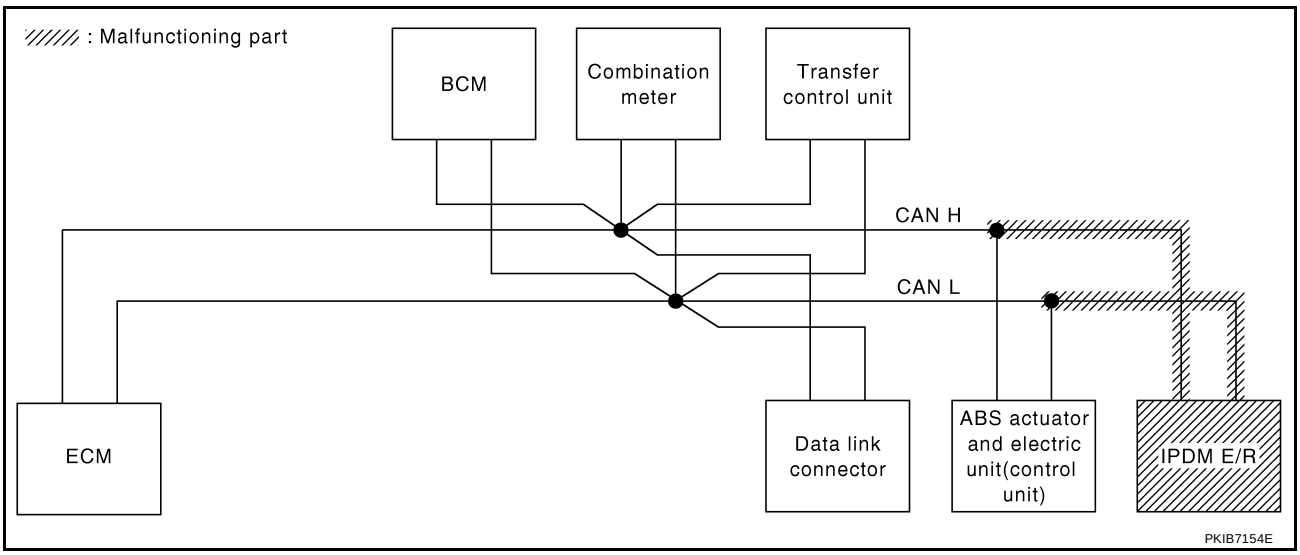


Case 8

Check IPDM E/R circuit. Refer to LAN-263, "IPDM E/R Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7327E



PKIB7154E

Case 9

Check CAN communication circuit. Refer to LAN-264, "CAN Communication Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7328E

Case 10

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-267, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7329E

Case 11

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-267, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR								SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7330E

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

UKS003OA

1. CHECK CONNECTOR

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

- Harness connector M91
- Harness connector E26

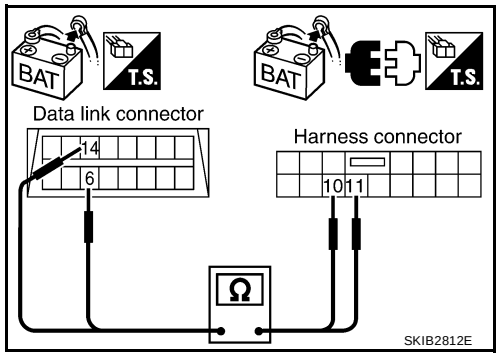
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M91.
2. Check continuity between data link connector M22 terminals 6 (L), 14 (P) and harness connector M91 terminals 11 (L), 10 (P).

6 (L) – 11 (L) : Continuity should exist.
14 (P) – 10 (P) : Continuity should exist.



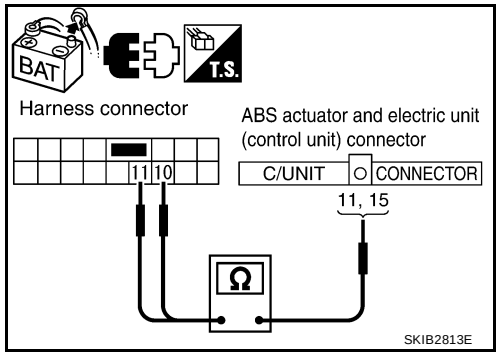
OK or NG

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 E26 terminals 11 (L), 10 (P) and ABS actuator and electric unit (control unit) harness connector E125 terminals 11 (L), 15 (P).

11 (L) – 11 (L) : Continuity should exist.
10 (P) – 15 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.

ECM Circuit Inspection

UKS003OB

1. CHECK CONNECTOR

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

- ECM connector
- Harness connector E152
- Harness connector M31

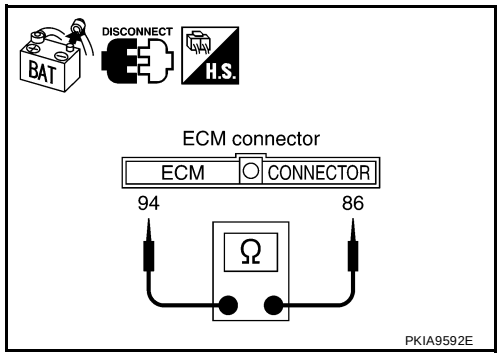
OK or NG

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 E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Approx. 108 – 132 Ω



OK or NG

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

Data Link Connector Circuit Inspection

UKS003OC

1. CHECK CONNECTOR

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

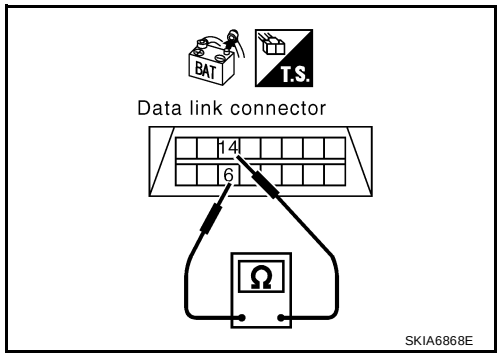
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

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

6 (L) – 14 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness between data link connector and BCM.

BCM Circuit Inspection

UKS003OD

1. CHECK CONNECTOR

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

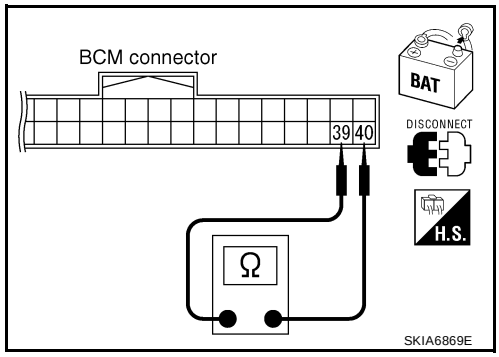
OK or NG

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 M18 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace BCM. Refer to BCS-19, "Removal and Installation of BCM" .
NG >> Repair harness between BCM and data link connector.

Combination Meter Circuit Inspection

UKS003OE

1. CHECK CONNECTOR

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

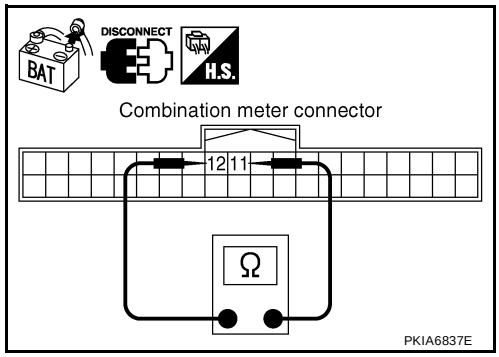
OK or NG

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 M24 terminals 12 (L) and 11 (P).

12 (L) – 11 (P) : Approx. 54 – 66 Ω



OK or NG

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

Transfer Control Unit Circuit Inspection

UKS003OF

1. CHECK CONNECTOR

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

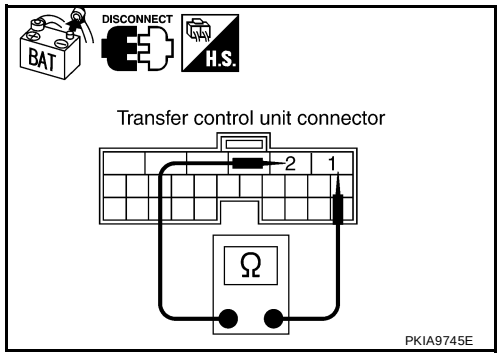
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect transfer control unit connector.
2. Check resistance between transfer control unit harness connector M152 terminals 1 (L) and 2 (P).

1 (L) – 2 (P) : Approx. 54 – 66 Ω

OK or NG

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



ABS Actuator and Electric Unit (Control Unit) Circuit Inspection

UKS003OG

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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.

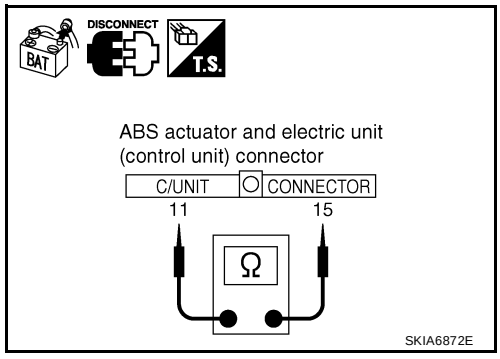
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector.
2. Check resistance between ABS actuator and electric unit (control unit) harness connector E125 terminals 11 (L) and 15 (P).

11 (L) – 15 (P) : Approx. 54 – 66 Ω

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 Inspection

UKS003OH

1. CHECK CONNECTOR

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

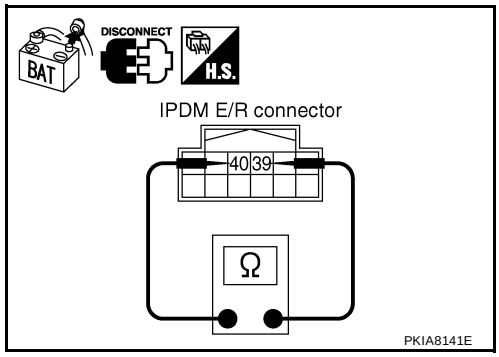
OK or NG

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 E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 108 – 132 Ω



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 Inspection

UKS003OI

1. CHECK CONNECTOR

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

- ECM
- BCM
- Combination meter
- Transfer control unit
- 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.

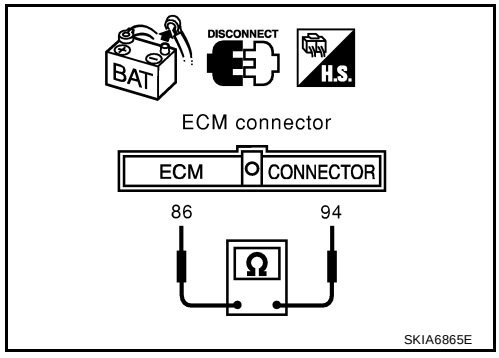
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E152.
2. Check continuity between ECM harness connector E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Continuity should not exist.

OK or NG

OK >> GO TO 3.
NG >> Repair harness between ECM and harness connector E152.

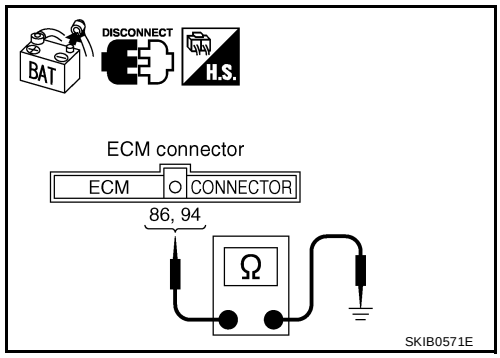


3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector E16 terminals 94 (L), 86 (P) and ground.

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

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



OK or NG

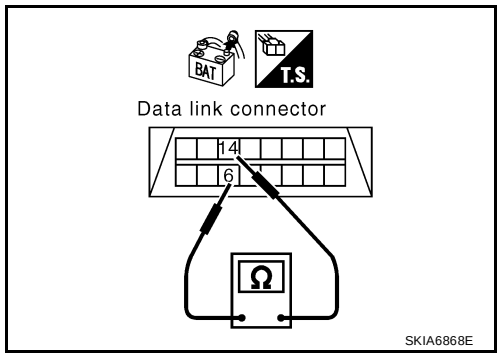
OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector E152.

4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
- BCM connector
- Combination meter connector
- Transfer control unit connector
- Harness connector M91
2. Check continuity between data link connector M22 terminals 6 (L) and 14 (P).

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



OK or NG

OK >> GO TO 5.

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

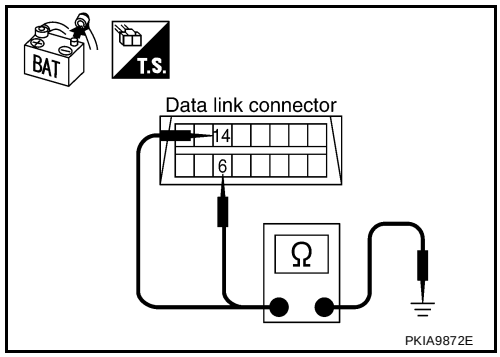
- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and transfer control unit
- Harness between data link connector and harness connector M91

5. CHECK HARNESS FOR SHORT CIRCUIT

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

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

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



OK or NG

OK >> GO TO 6.

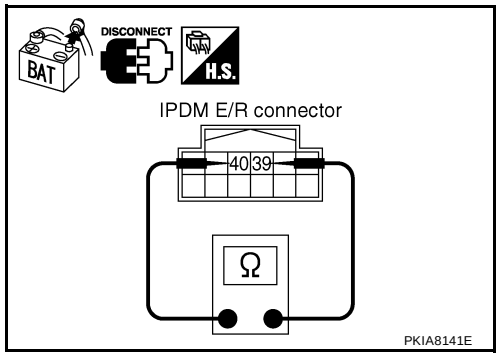
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and transfer control unit
- Harness between data link connector and harness connector M91

6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Continuity should not exist.



OK or NG

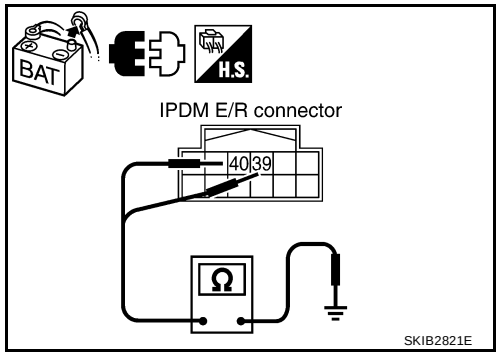
OK >> GO TO 7.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E122 terminals 39 (L), 40 (P) and ground.

39 (L) – Ground : Continuity should not exist.
40 (P) – 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 IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

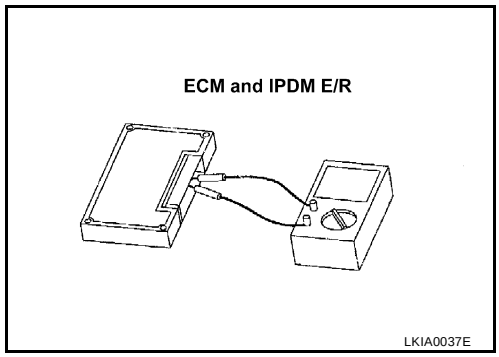
8. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

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

94 – 86 : Approx. 108 – 132 Ω

3. Check resistance between IPDM E/R terminals 39 and 40.

39 – 40 : Approx. 108 – 132 Ω



OK or NG

OK >> GO TO 9.
NG >> Replace ECM and/or IPDM E/R.

9. CHECK SYMPTOM

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

OK or NG

OK >> GO TO 10.
NG >> Refer to LAN-15, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced"
.

10. CHECK UNIT REPRODUCIBILITY

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

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

- BCM
- Combination meter
- Transfer control unit
- ABS actuator and electric unit (control unit)
- ECM
- IPDM E/R

Inspection results

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

IPDM E/R Ignition Relay Circuit Inspection

UKS003OJ

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

- IPDM E/R power supply circuit. Refer to PG-27, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition power supply circuit. Refer to PG-14, "IGNITION POWER SUPPLY — IGNITION SW. IN ON AND/OR START" .

CAN SYSTEM (TYPE 10)

PFP:23710

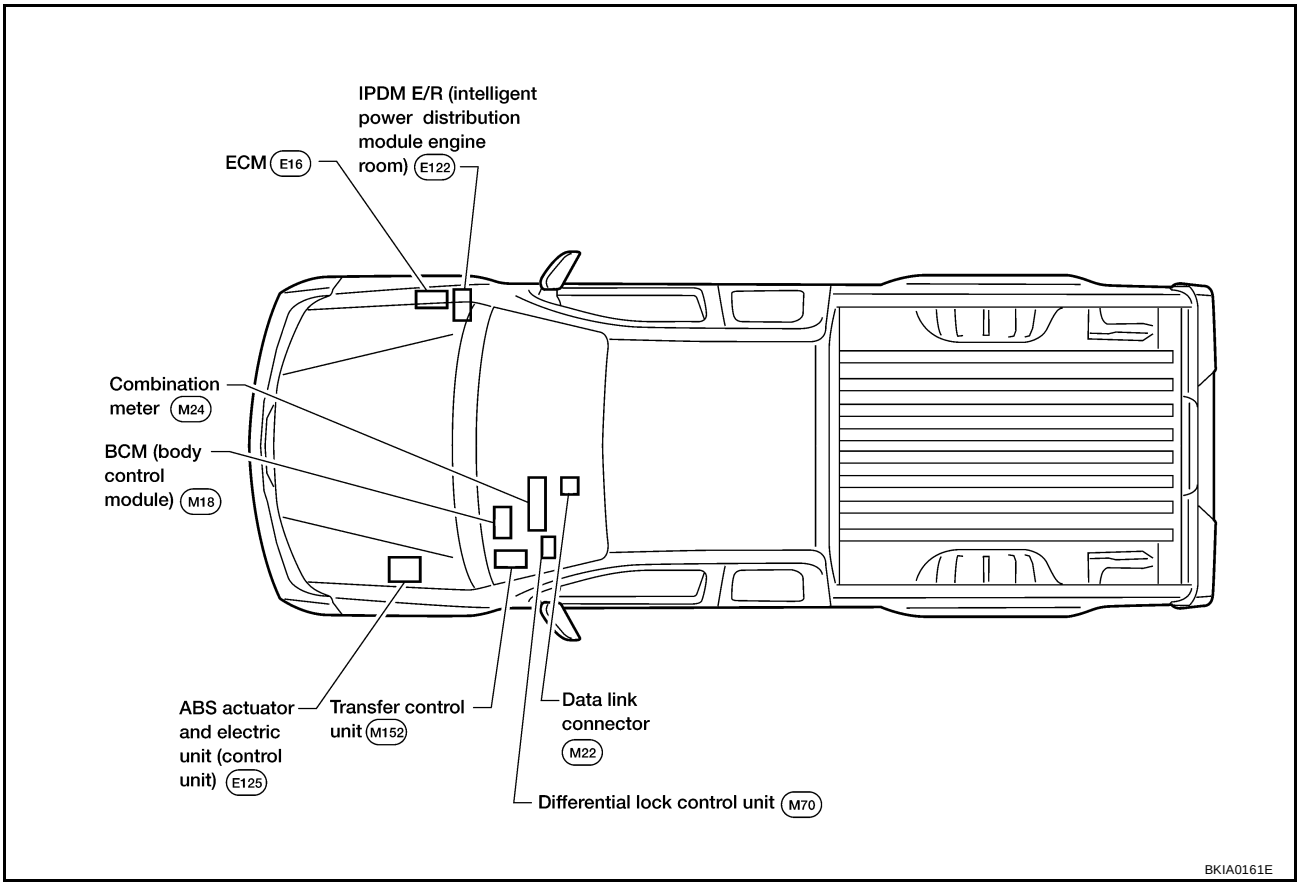
System Description

UKS003NP

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.

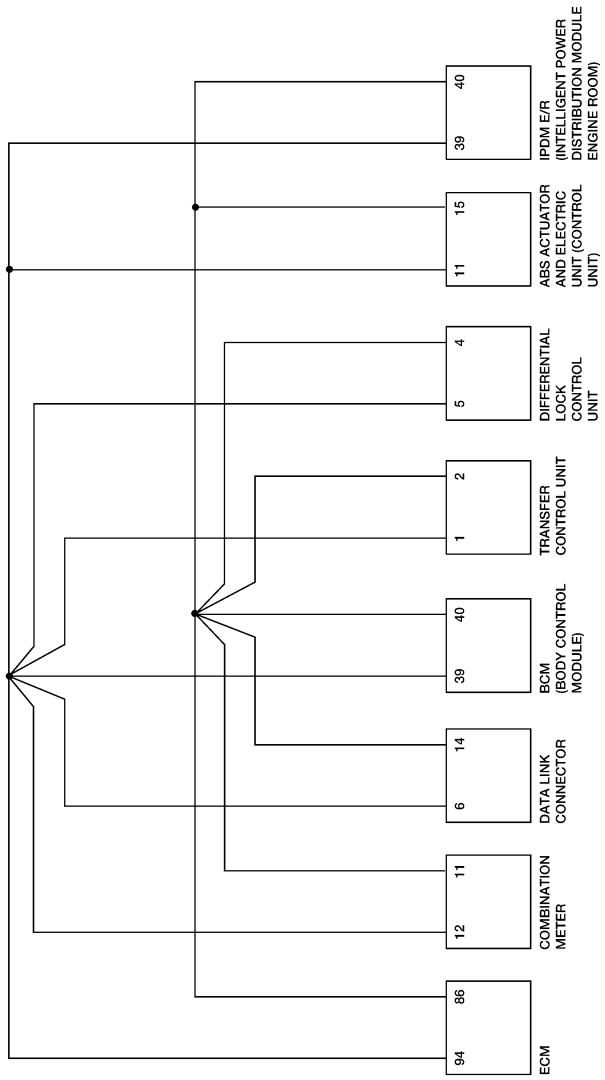
Component Parts and Harness Connector Location

UKS003NQ



Schematic

UKS003NR



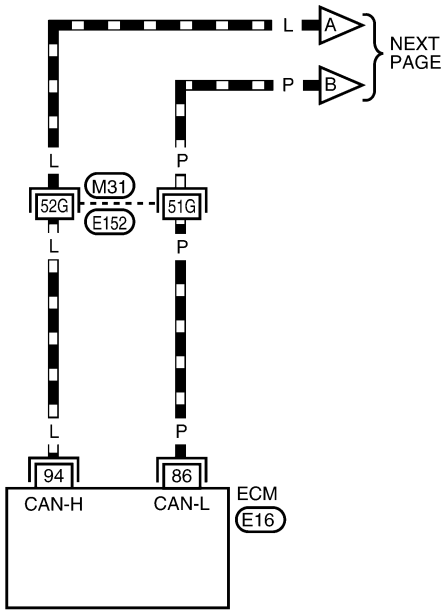
BKWA0510E

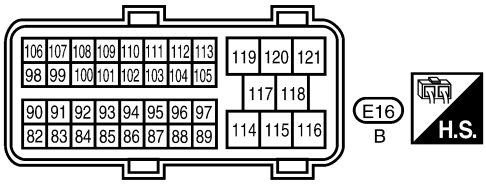
Wiring Diagram — CAN —

UKS003NS

LAN-CAN-28

: DATA LINE

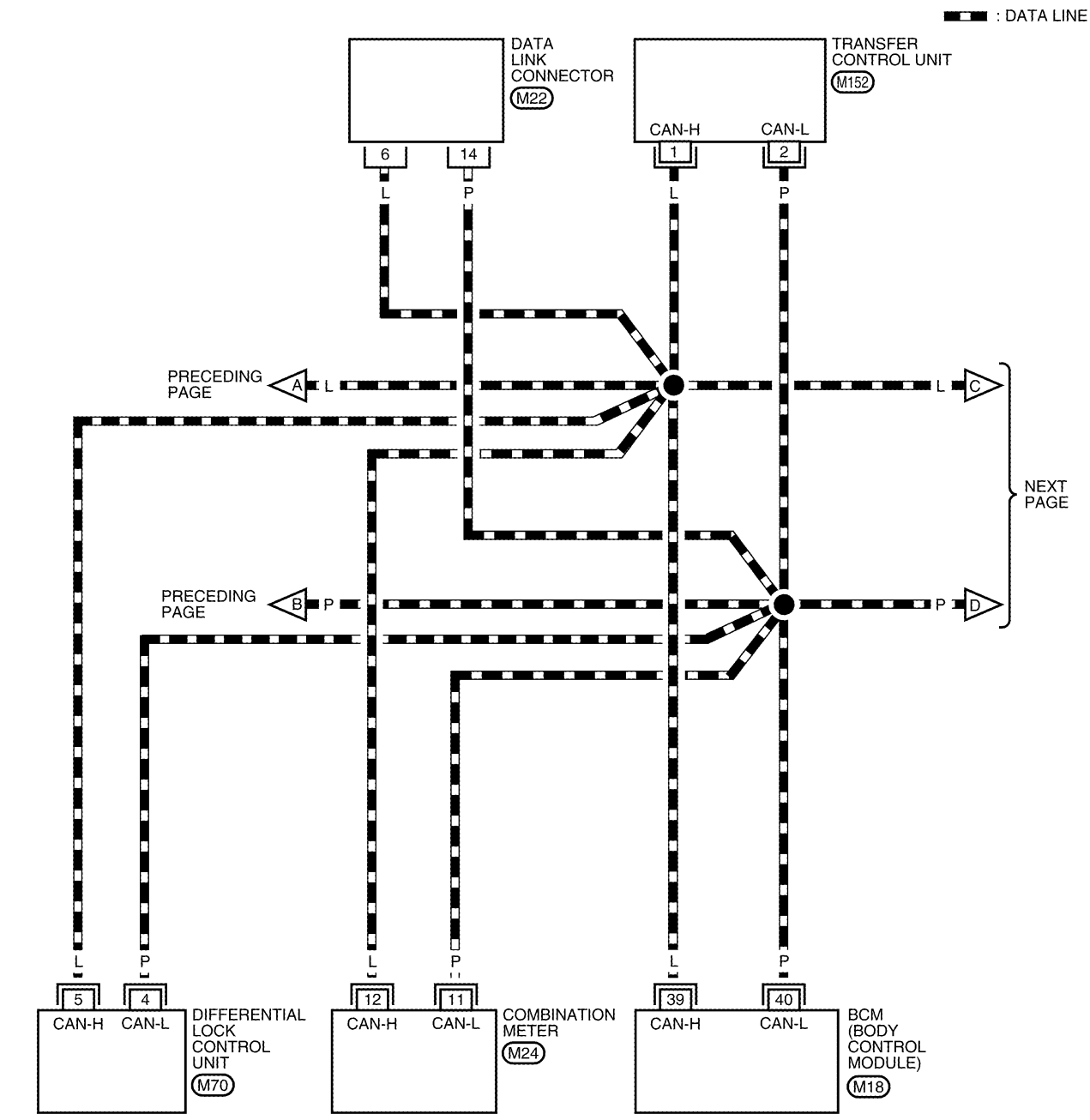


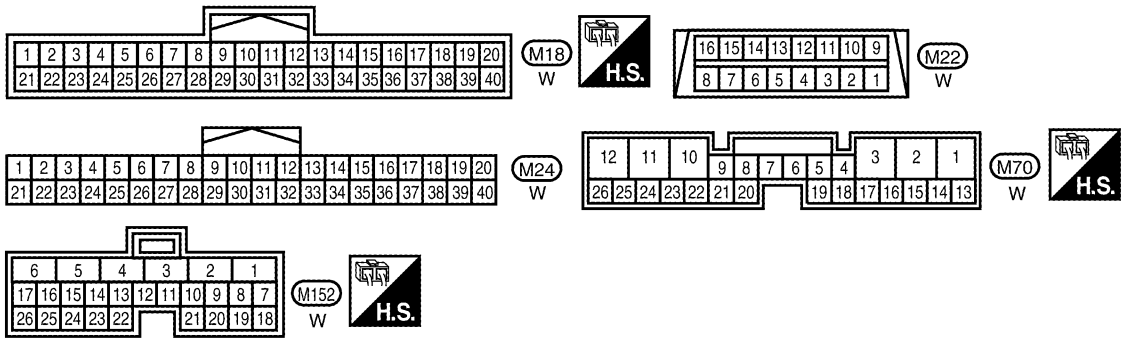


REFER TO THE FOLLOWING.
M31 - SUPER MULTIPLE JUNCTION (SMJ)

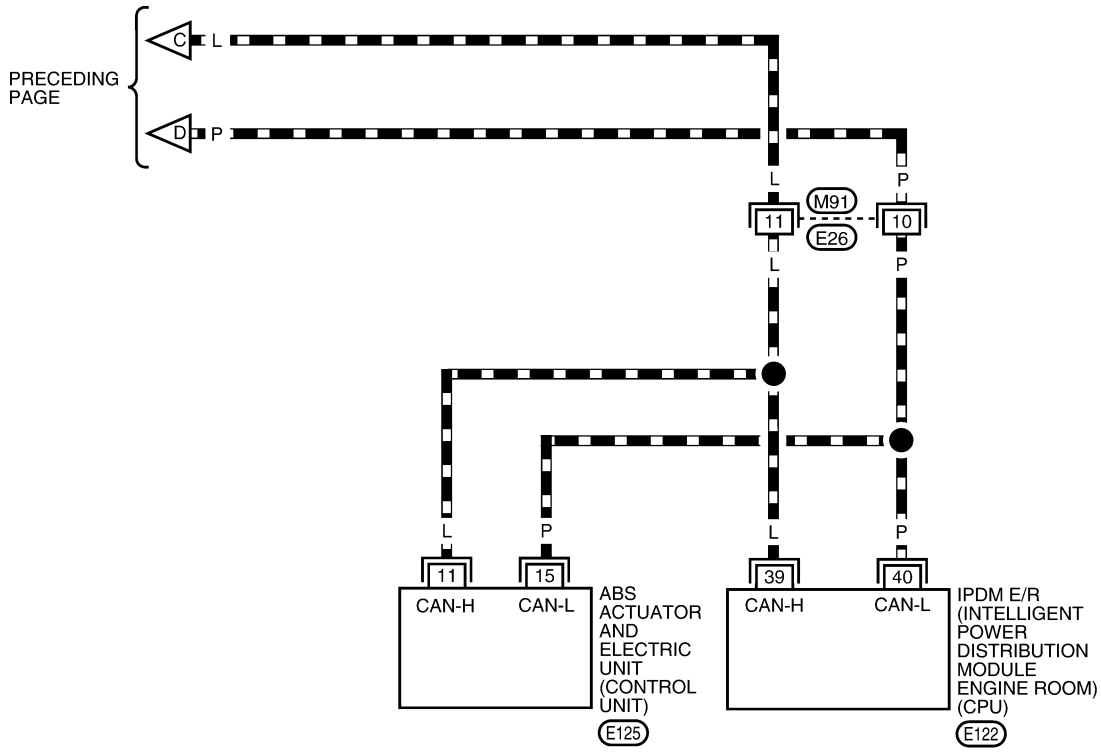
BKWA0511E

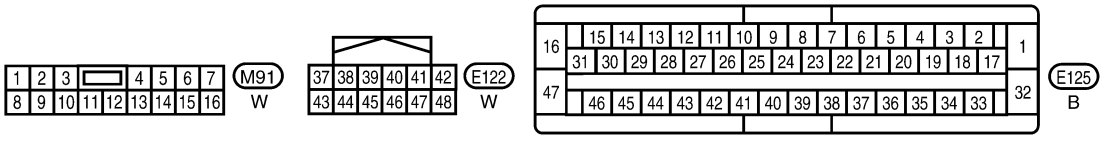
LAN-CAN-29





BKWA0592E


: DATA LINE
PRECEDING PAGE
C
L
D
P
L
P
M91
11
10
E26
L
P
L
P
L
P
11
15
39
40
CAN-H
CAN-L
CAN-H
CAN-L
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
E125
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) (CPU)
E122


1 2 3 4 5 6 7
8 9 10 11 12 13 14 15 16
M91
W
37 38 39 40 41 42
43 44 45 46 47 48
E122
W
16
15 14 13 12 11 10 9 8 7 6 5 4 3 2
1
31 30 29 28 27 26 25 24 23 22 21 20 19 18 17
47
46 45 44 43 42 41 40 39 38 37 36 35 34 33
32
E125
B

BKWA0513E

CHECK SHEET

UKS003NT

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

Check sheet table

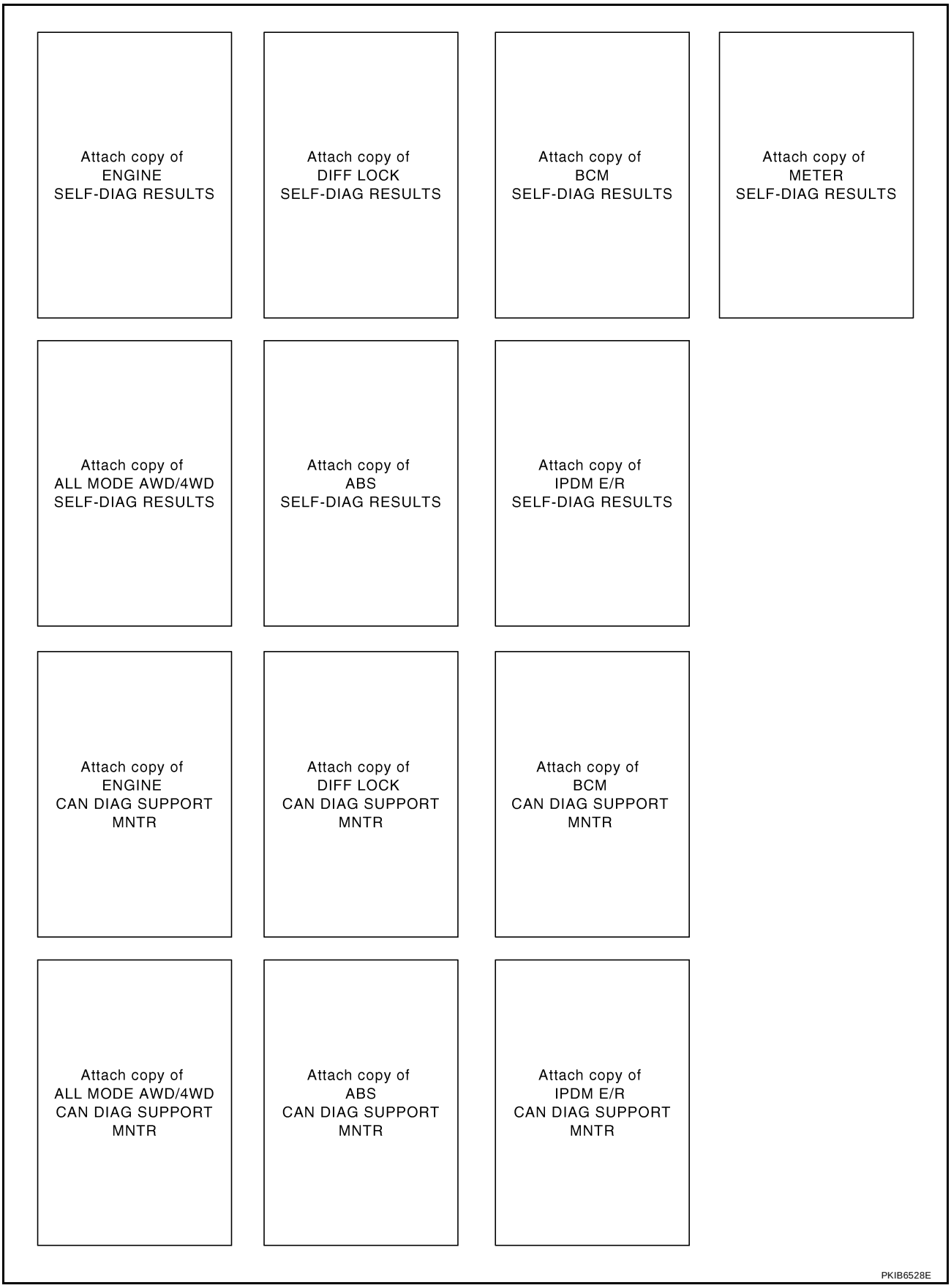
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIB6527E


Attach copy of
ENGINE
SELF-DIAG RESULTS
Attach copy of
DIFF LOCK
SELF-DIAG RESULTS
Attach copy of
BCM
SELF-DIAG RESULTS
Attach copy of
METER
SELF-DIAG RESULTS
Attach copy of
ALL MODE AWD/4WD
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
DIFF LOCK
CAN DIAG SUPPORT
MNTR
Attach copy of
BCM
CAN DIAG SUPPORT
MNTR
Attach copy of
ALL MODE AWD/4WD
CAN DIAG SUPPORT
MNTR
Attach copy of
ABS
CAN DIAG SUPPORT
MNTR
Attach copy of
IPDM E/R
CAN DIAG SUPPORT
MNTR
PKIB6528E

CHECK SHEET RESULTS (EXAMPLE)

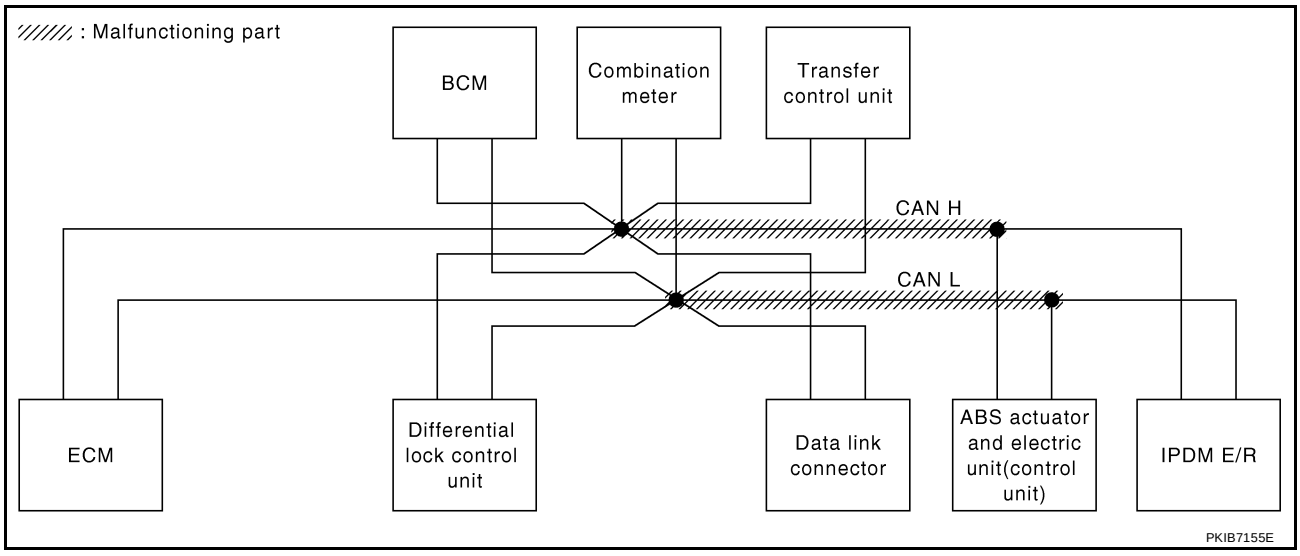
NOTE:
If a check mark is put on “NG” on “INITIAL DIAG (Initial diagnosis)”, replace the control unit.

Case 1

Check harness between data link connector and ABS actuator and electric unit (control unit) circuit. Refer to LAN-284, "Inspection Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Circuit"
.

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	✓ UNKWN	✓ UNKWN	CAN COMM CIRCUIT (U1000)	✓ CAN COMM CIRCUIT (U1001)
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	✓ UNKWN	—	✓ CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	✓ UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	✓ CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	✓ UNKWN	—	✓ CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	✓ UNKWN	✓ UNKWN	—	—	✓ UNKWN	—	—	✓ CAN COMM CIRCUIT (U1000)	—
IPDM E/R	✓ No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	✓ CAN COMM CIRCUIT (U1000)	—

PKIB7331E



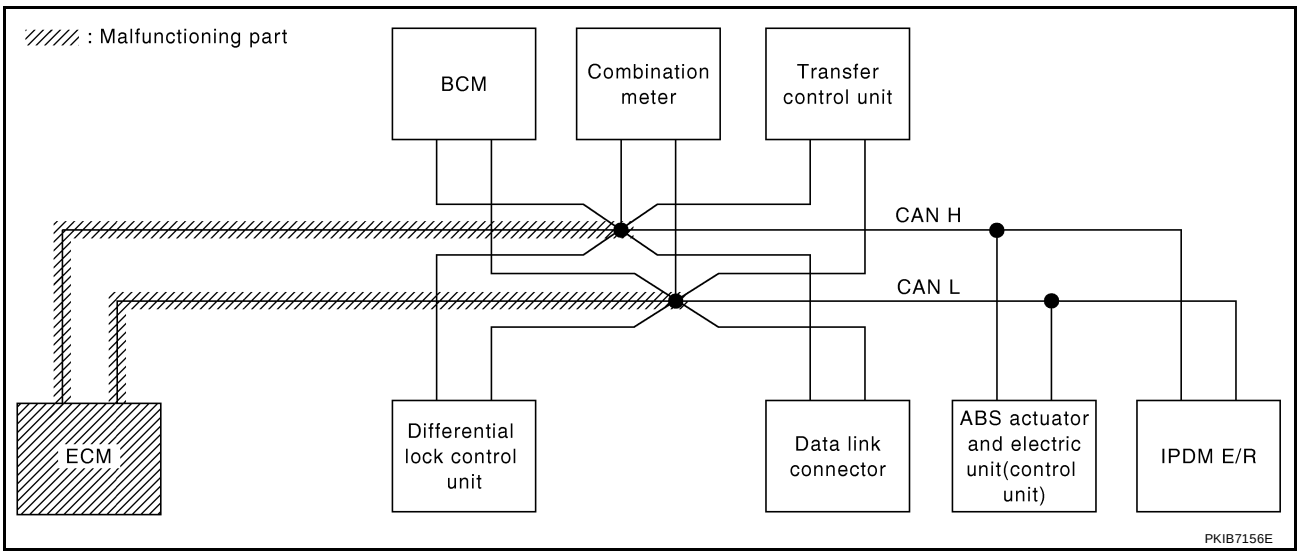
PKIB7155E

Case 2

Check ECM circuit. Refer to LAN-285, "ECM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7332E

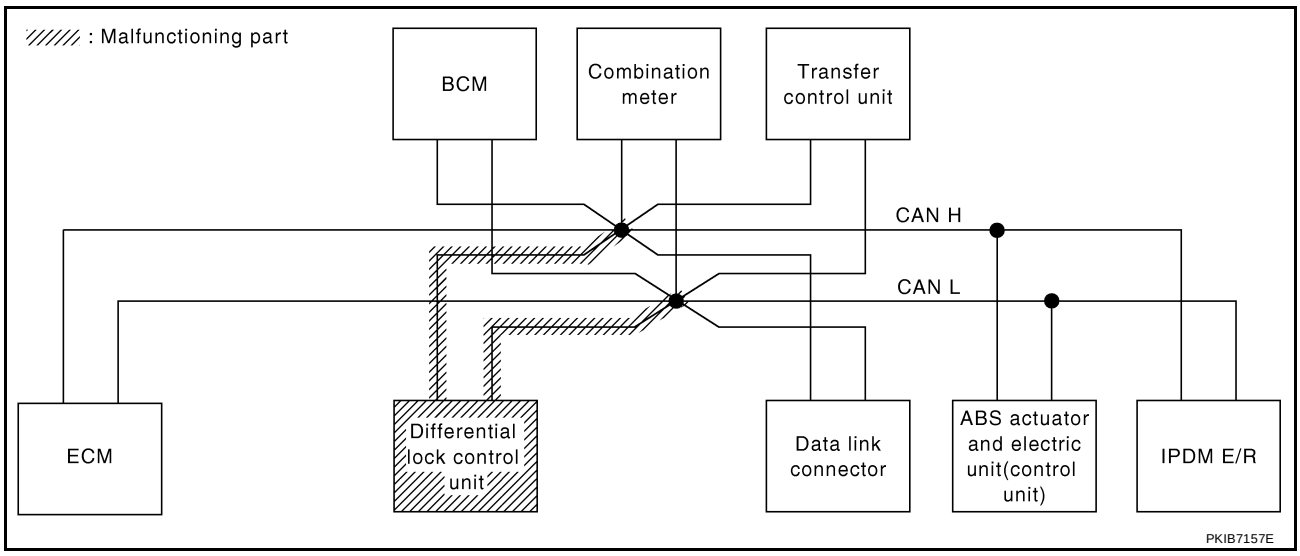


Case 3

Check differential lock control unit circuit. Refer to LAN-286, "Differential Lock Control Unit Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
DIFF LOCK	—	NG	UNKWN ✓	UNKWN ✓	—	—	—	UNKWN ✓	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN ✓	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7333E

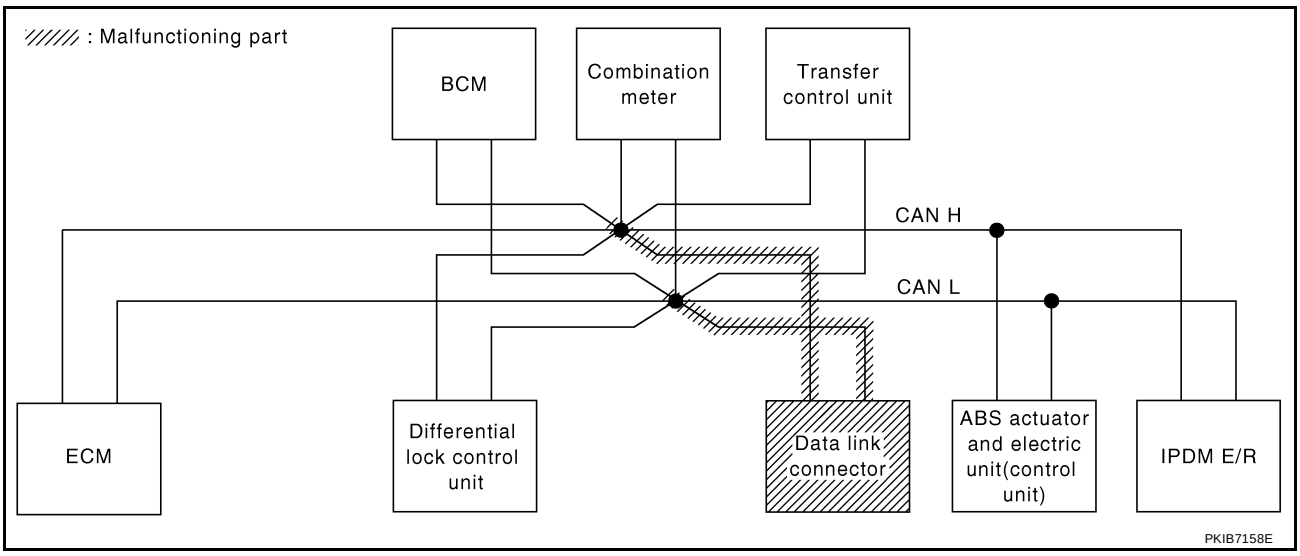


Case 4

Check data link connector circuit. Refer to LAN-286, "Data Link Connector Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7334E

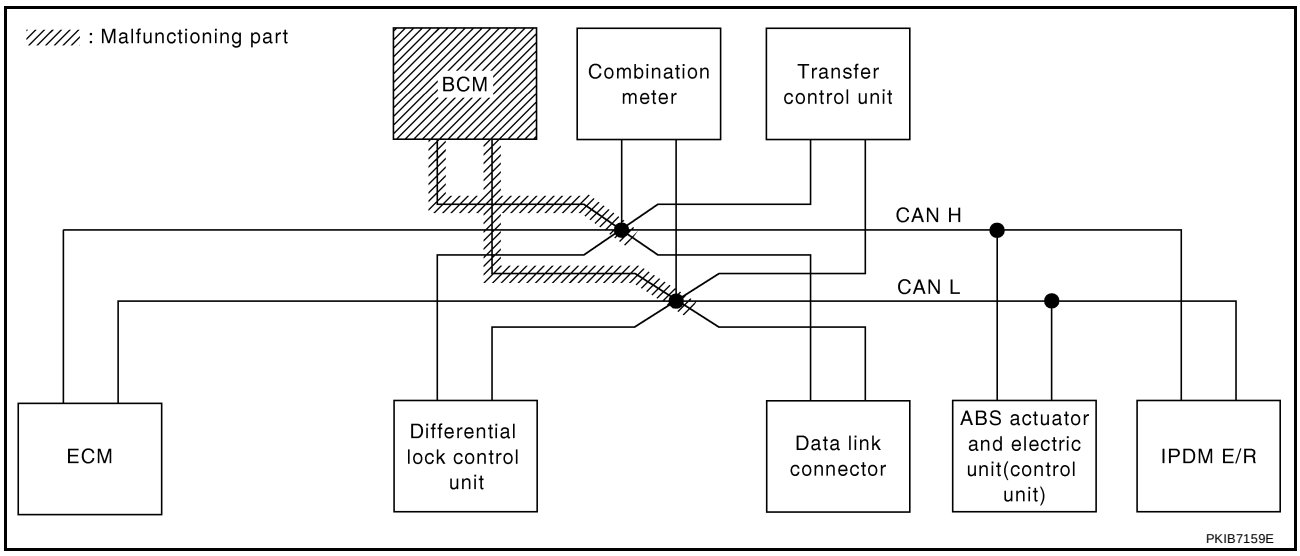


Case 5

Check BCM circuit. Refer to LAN-287, "BCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	—	UNKWN ✓	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication ✓	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7335E



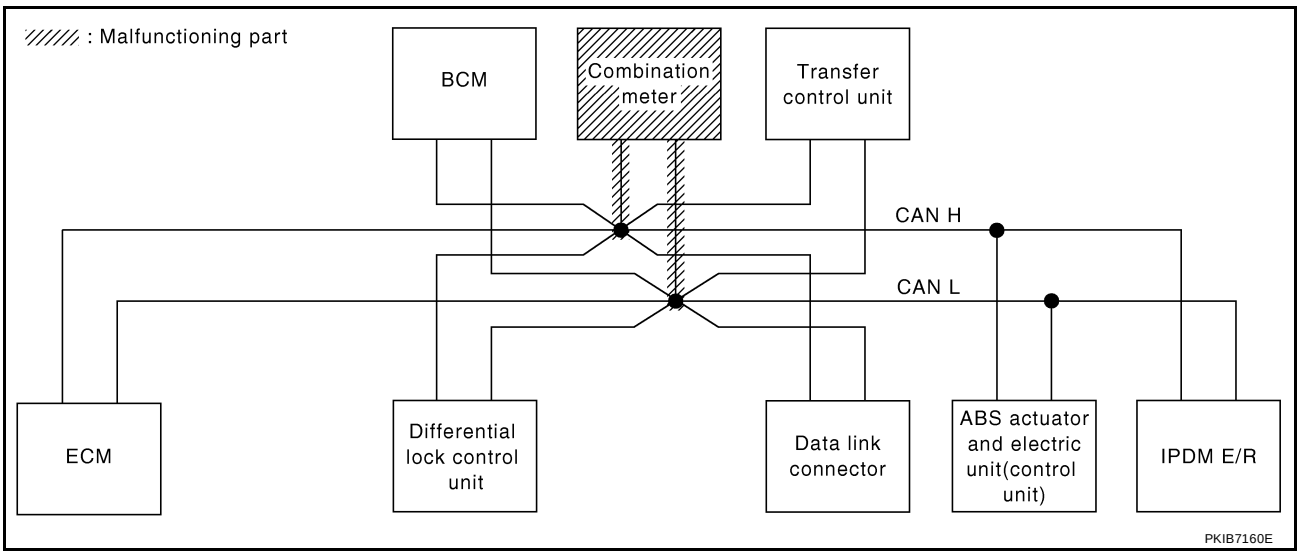
PKIB7159E

Case 6

Check combination meter circuit. Refer to LAN-287, "Combination Meter Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN ✓	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN ✓	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	—	UNKWN ✓	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7336E

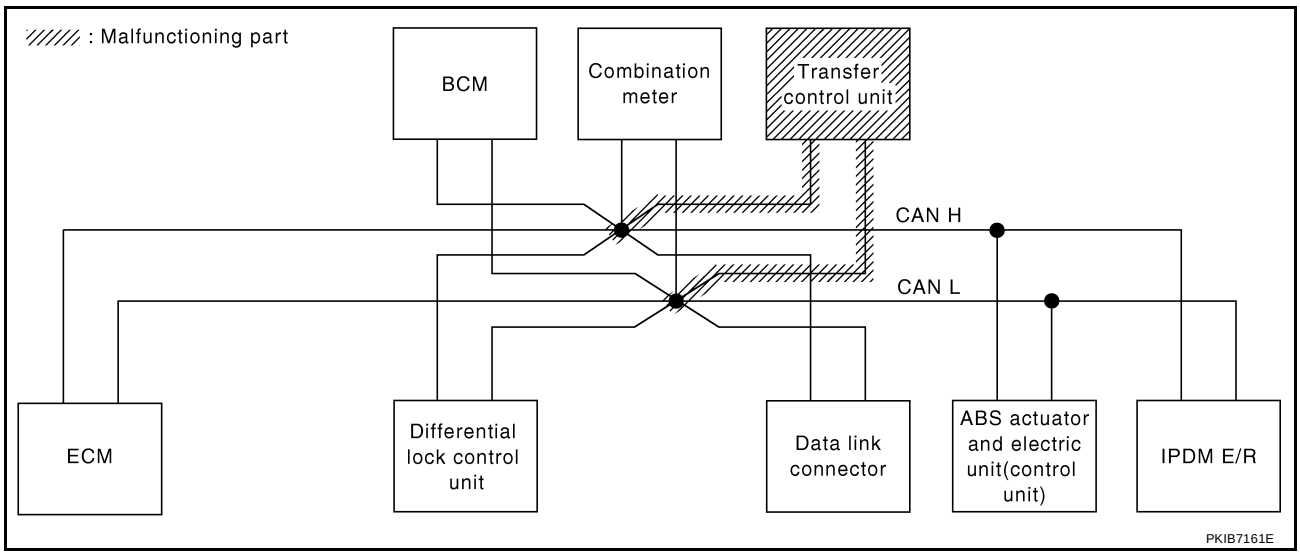


Case 7

Check transfer control unit circuit. Refer to LAN-288, "Transfer Control Unit Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN ✓	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	UNKWN ✓	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN ✓	UNKWN ✓	—	—	UNKWN ✓	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN ✓	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7337E



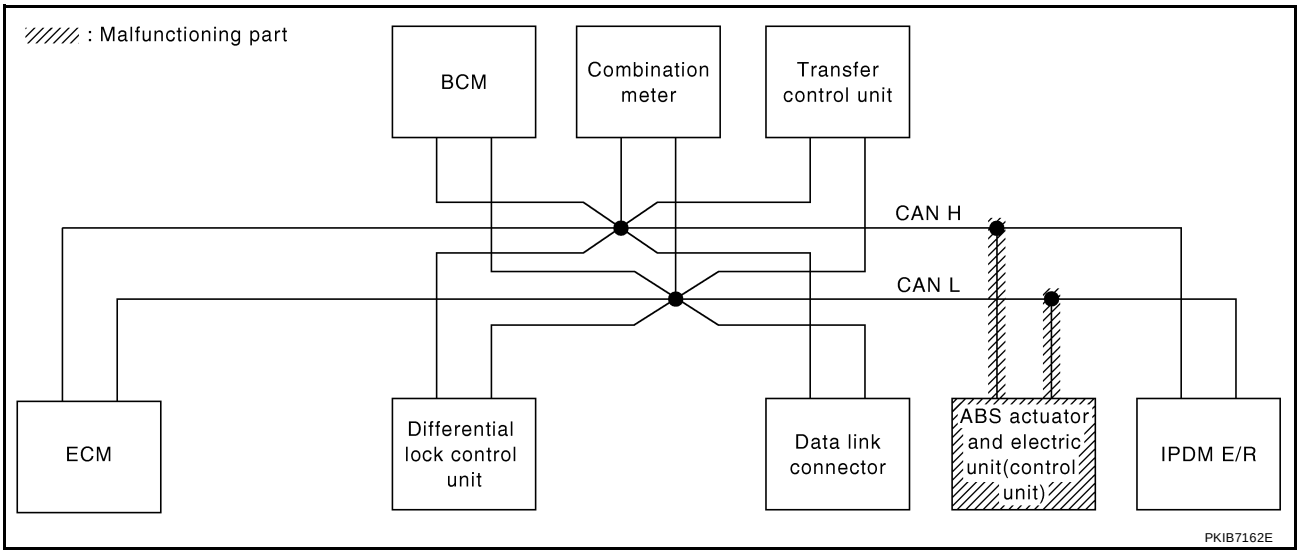
PKIB7161E

Case 8

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-288, "ABS Actuator and Electric Unit (Control Unit) Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	—	UNKWN ✓	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7338E

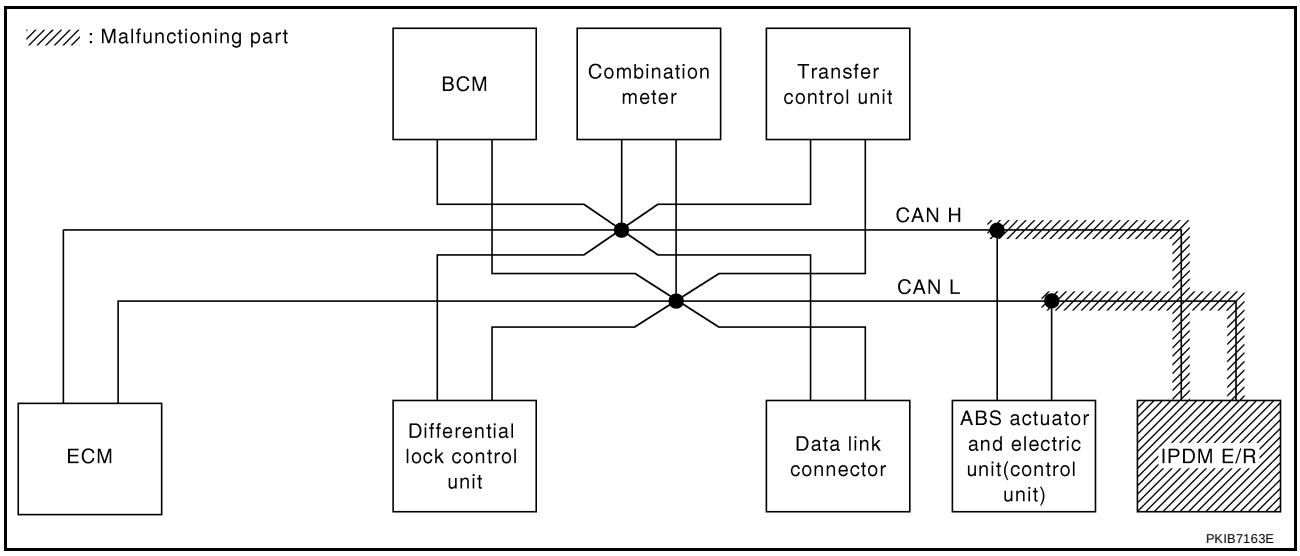


Case 9

Check IPDM E/R circuit. Refer to LAN-289, "IPDM E/R Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN ✓	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7339E



PKIB7163E

Case 10

Check CAN communication circuit. Refer to LAN-290, "CAN Communication Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN ✓	—	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
DIFF LOCK	—	NG	UNKWN ✓	UNKWN ✓	—	—	—	UNKWN ✓	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication ✓	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN ✓	UNKWN ✓	—	—	UNKWN ✓	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	—	UNKWN ✓	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7340E

Case 11

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-293, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7341E

Case 12

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-293, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7342E

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

UKS003NU

1. CHECK CONNECTOR

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

- Harness connector M91
- Harness connector E26

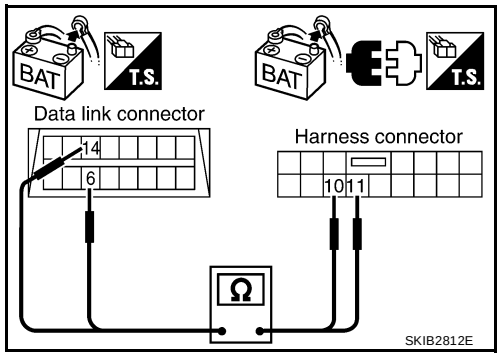
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M91.
2. Check continuity between data link connector M22 terminals 6 (L), 14 (P) and harness connector M91 terminals 11 (L), 10 (P).

6 (L) – 11 (L) : Continuity should exist.
14 (P) – 10 (P) : Continuity should exist.



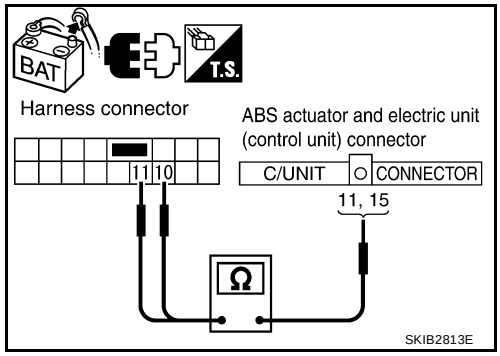
OK or NG

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 E26 terminals 11 (L), 10 (P) and ABS actuator and electric unit (control unit) harness connector E125 terminals 11 (L), 15 (P).

11 (L) – 11 (L) : Continuity should exist.
10 (P) – 15 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.

ECM Circuit Inspection

UKS003NV

1. CHECK CONNECTOR

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

- ECM connector
- Harness connector E152
- Harness connector M31

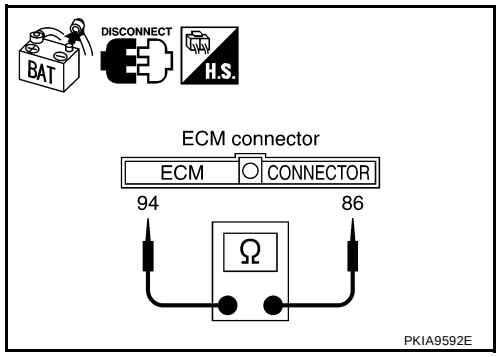
OK or NG

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 E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Approx. 108 – 132 Ω



OK or NG

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

Differential Lock Control Unit Circuit Inspection

UKS003NW

1. CHECK CONNECTOR

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

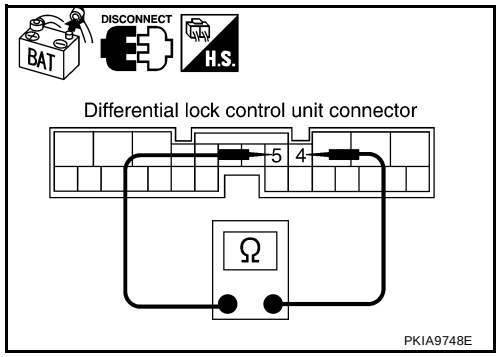
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect differential lock control unit connector.
2. Check resistance between differential lock control unit harness connector M70 terminals 5 (L) and 4 (P).

5 (L) – 4 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace differential lock control unit.
NG >> Repair harness between differential lock control unit and data link connector.

Data Link Connector Circuit Inspection

UKS003NX

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connector of data link connector 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

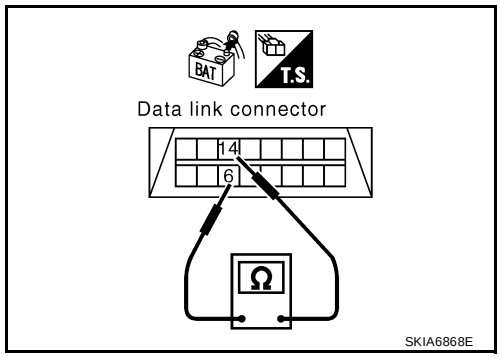
Check resistance between data link connector M22 terminals 6 (L) and 14 (P).

6 (L) – 14 (P) : Approx. 54 – 66 Ω

OK or NG

OK >> Diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .

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



BCM Circuit Inspection

UKS003NY

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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

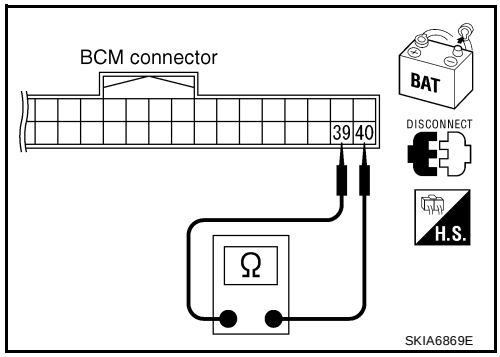
1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M18 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 54 – 66 Ω

OK or NG

OK >> Replace BCM. Refer to BCS-19, "Removal and Installation of BCM" .

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



Combination Meter Circuit Inspection

UKS003NZ

1. CHECK CONNECTOR

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

OK or NG

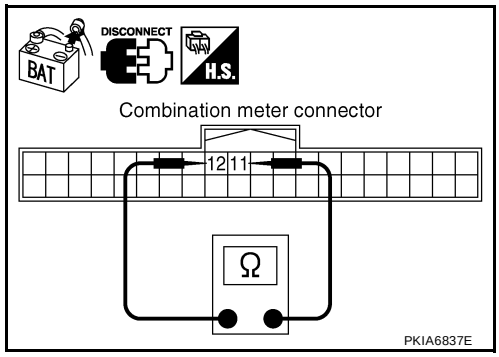
OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M24 terminals 12 (L) and 11 (P).

12 (L) – 11 (P) : Approx. 54 – 66 Ω



OK or NG

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

Transfer Control Unit Circuit Inspection

UKS003O0

1. CHECK CONNECTOR

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

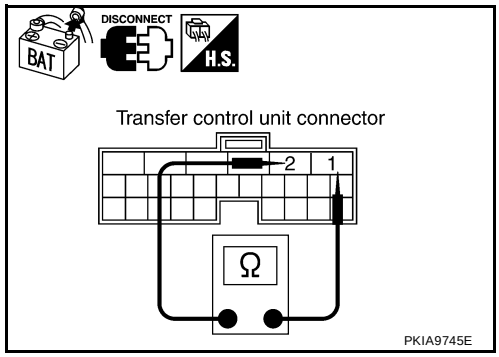
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect transfer control unit connector.
2. Check resistance between transfer control unit harness connector M152 terminals 1 (L) and 2 (P).

1 (L) – 2 (P) : Approx. 54 – 66 Ω



OK or NG

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

ABS Actuator and Electric Unit (Control Unit) Circuit Inspection

UKS003O1

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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).

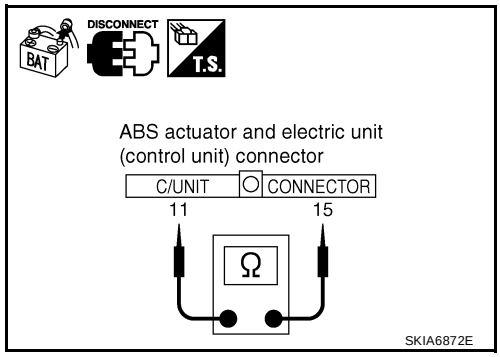
OK or NG

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 E125 terminals 11 (L) and 15 (P).

11 (L) – 15 (P) : Approx. 54 – 66 Ω



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 Inspection

UKS003O2

1. CHECK CONNECTOR

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

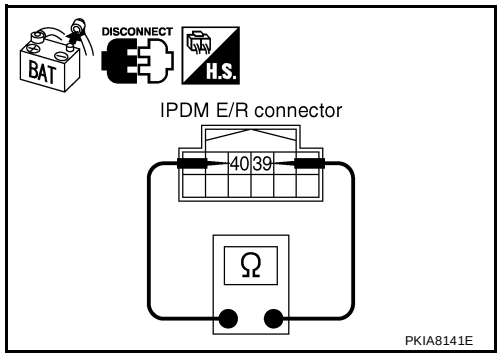
OK or NG

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 E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 108 – 132 Ω



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 Inspection

UKS003O3

1. CHECK CONNECTOR

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

- ECM
- Differential lock control unit
- BCM
- Combination meter
- Transfer control unit
- 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.

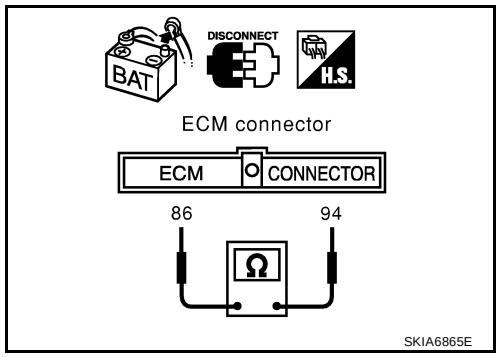
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E152.
2. Check continuity between ECM harness connector E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Continuity should not exist.

OK or NG

OK >> GO TO 3.
NG >> Repair harness between ECM and harness connector E152.



3. CHECK HARNESS FOR SHORT CIRCUIT

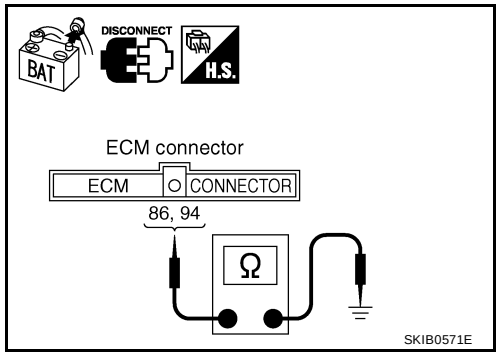
Check continuity between ECM harness connector E16 terminals 94 (L), 86 (P) and ground.

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

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

OK or NG

OK >> GO TO 4.
NG >> Repair harness between ECM and harness connector E152.

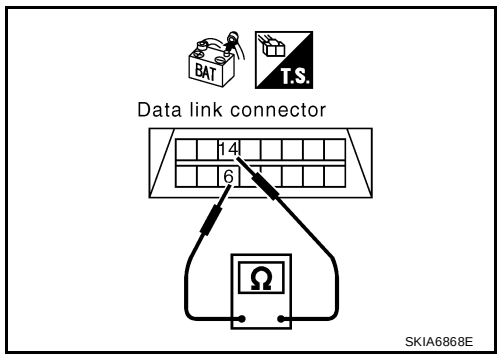


4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
- Differential lock control unit connector
- BCM connector
- Combination meter connector
- Transfer control unit connector
- Harness connector M91

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

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



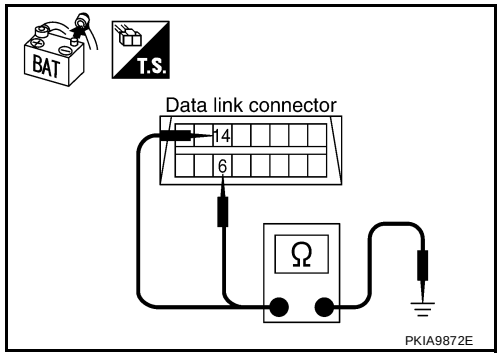
OK or NG

OK >> GO TO 5.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.
- Harness between data link connector and harness connector M31
- Harness between data link connector and differential lock control unit
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and transfer control unit
- Harness between data link connector and harness connector M91

5. CHECK HARNESS FOR SHORT CIRCUIT

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

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



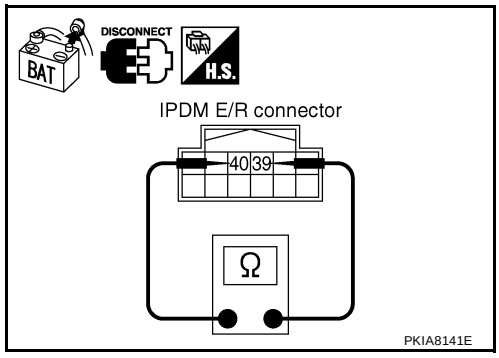
OK or NG

OK >> GO TO 6.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.
- Harness between data link connector and harness connector M31
- Harness between data link connector and differential lock control unit
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and transfer control unit
- Harness between data link connector and harness connector M91

6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Continuity should not exist.



OK or NG

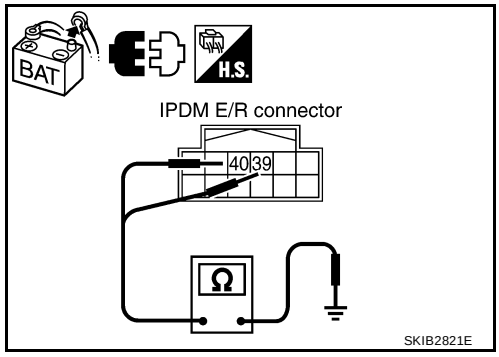
OK >> GO TO 7.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E122 terminals 39 (L), 40 (P) and ground.

39 (L) – Ground : Continuity should not exist.
40 (P) – 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 IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

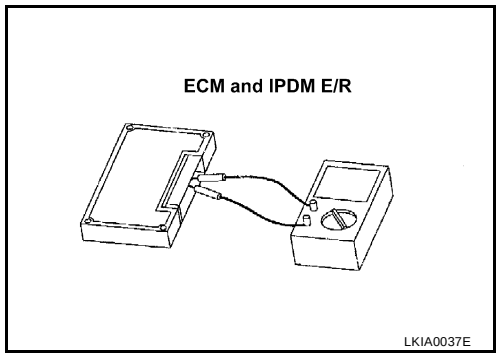
8. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

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

94 – 86 : Approx. 108 – 132 Ω

3. Check resistance between IPDM E/R terminals 39 and 40.

39 – 40 : Approx. 108 – 132 Ω



OK or NG

OK >> GO TO 9.
NG >> Replace ECM and/or IPDM E/R.

9. CHECK SYMPTOM

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

OK or NG

OK >> GO TO 10.
NG >> Refer to LAN-15, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced"
.

10. CHECK UNIT REPRODUCIBILITY

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

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

- Differential lock control unit
- BCM
- Combination meter
- Transfer control unit
- ABS actuator and electric unit (control unit)
- ECM
- IPDM E/R

Inspection results

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

IPDM E/R Ignition Relay Circuit Inspection

UKS003O4

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

- IPDM E/R power supply circuit. Refer to PG-27, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition power supply circuit. Refer to PG-14, "IGNITION POWER SUPPLY — IGNITION SW. IN ON AND/OR START" .

CAN SYSTEM (TYPE 11)

PFP:23710

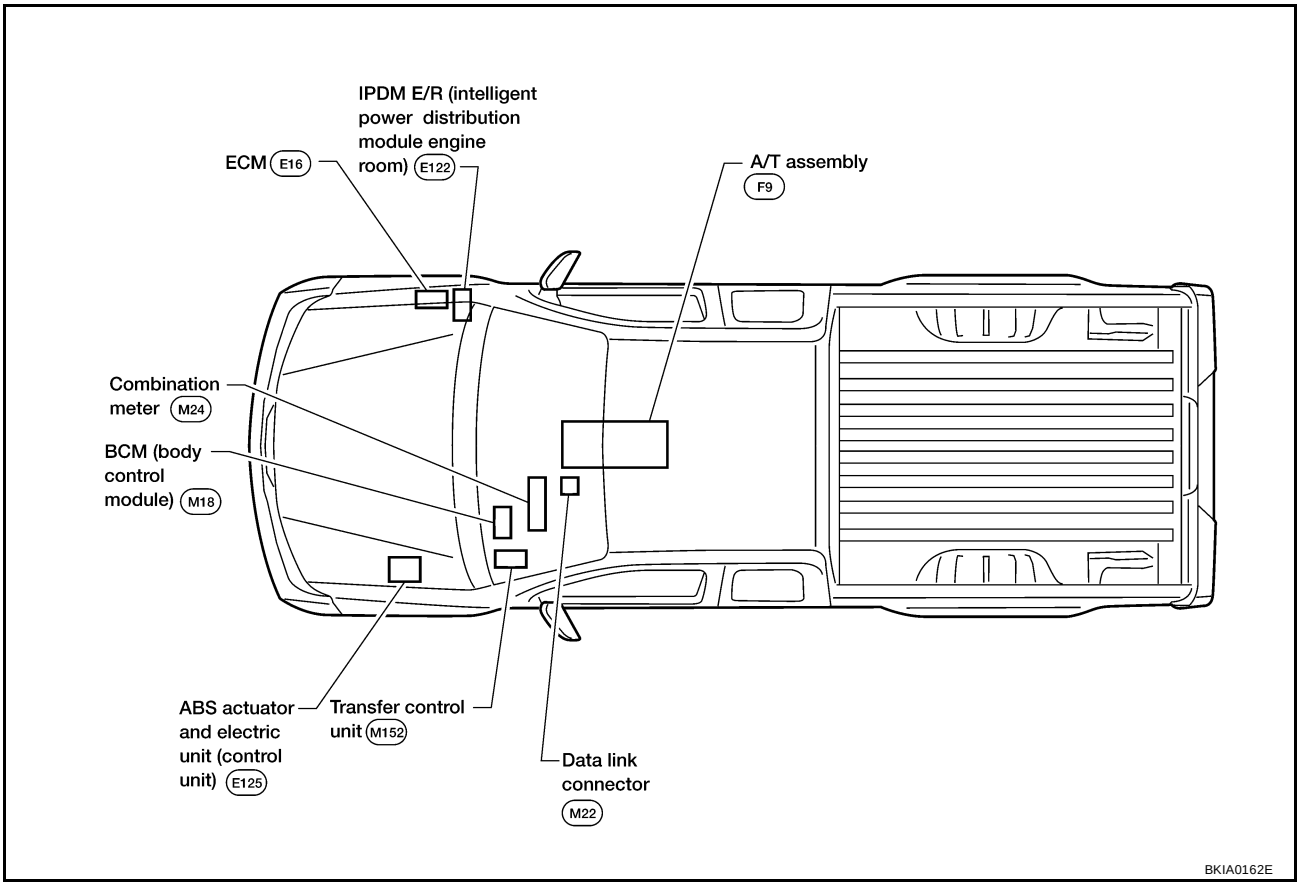
System Description

UKS003N7

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.

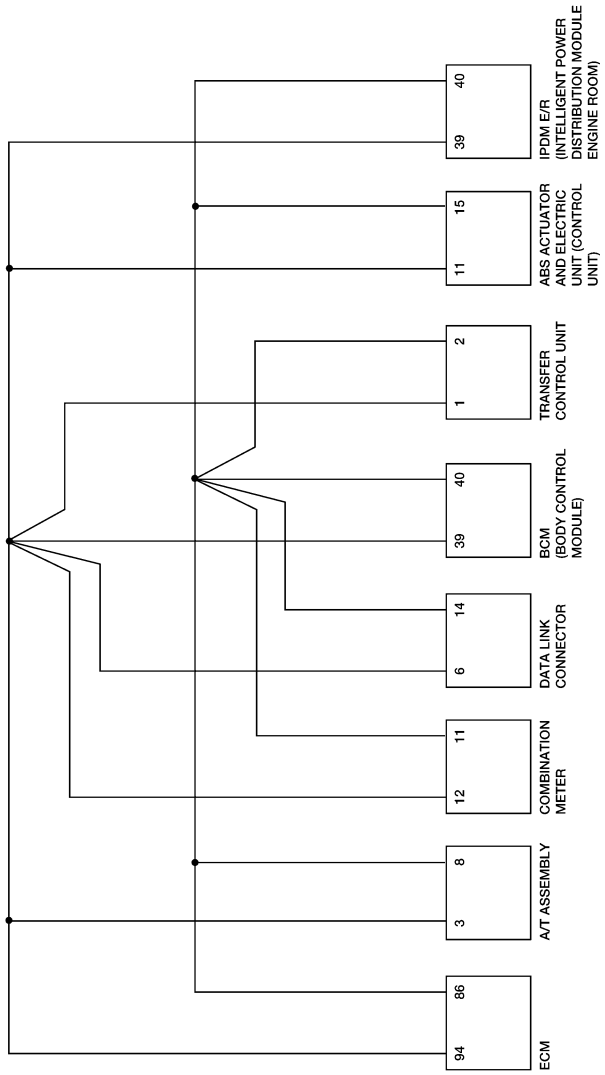
Component Parts and Harness Connector Location

UKS003N8



Schematic

UKS003N9

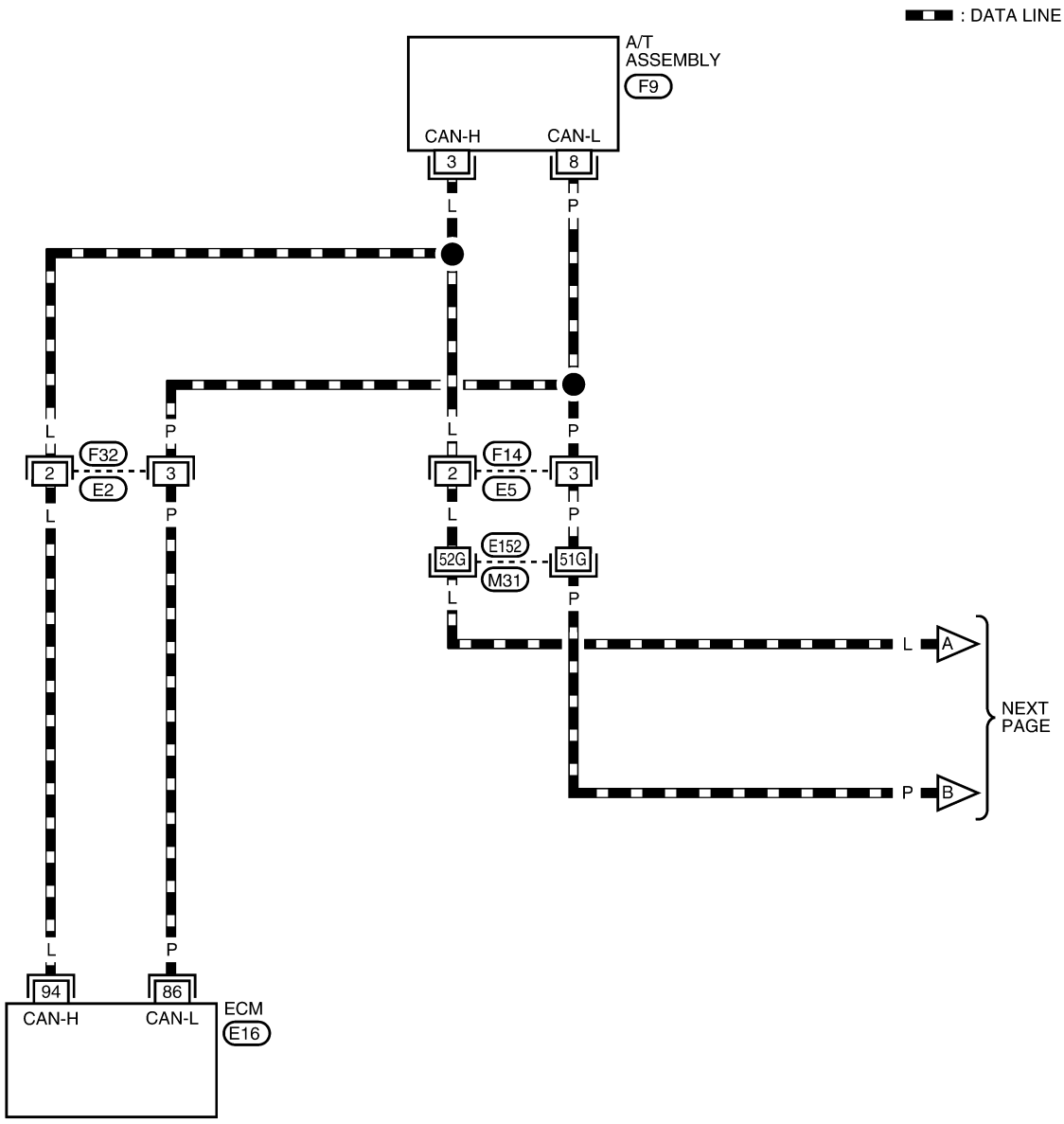


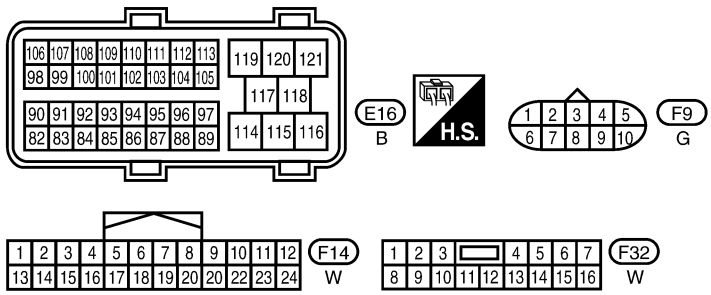
BKWA0514E

Wiring Diagram — CAN —

UKS003NA

LAN-CAN-31

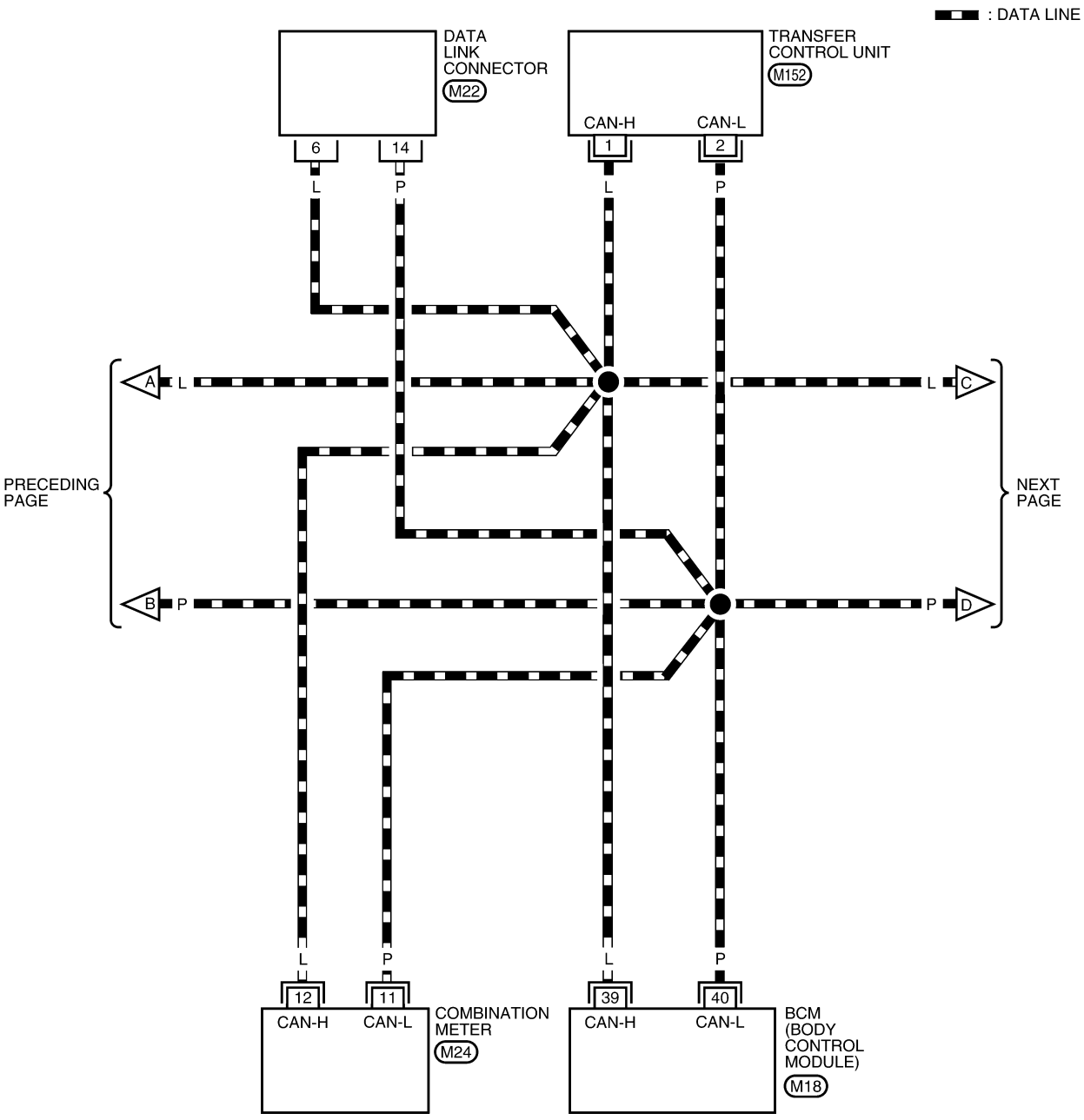


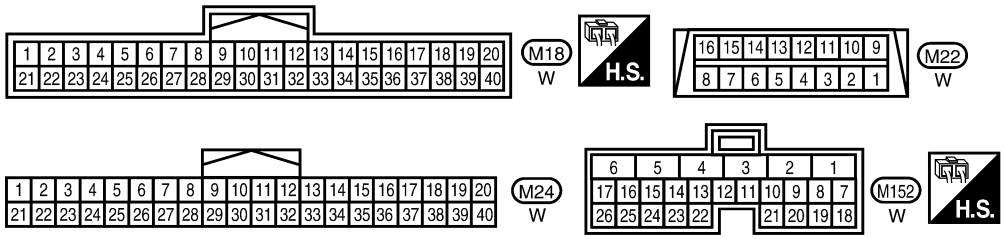


REFER TO THE FOLLOWING.
M31 - SUPER MULTIPLE JUNCTION (SMJ)

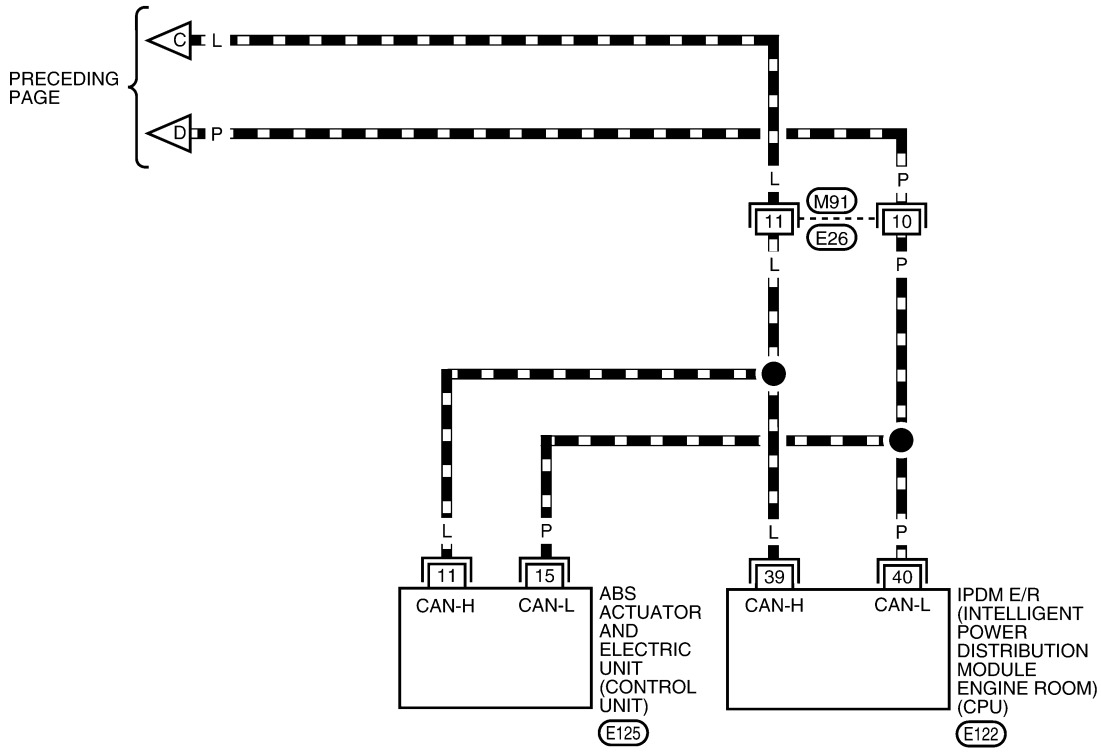
BKWA0515E

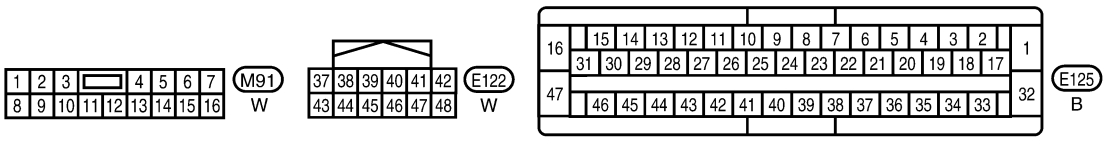
LAN-CAN-32





BKWA0516E


: DATA LINE
PRECEDING PAGE
C
L
D
P
L
P
M91
11
10
E26
L
P
L
P
L
P
11
15
39
40
CAN-H
CAN-L
CAN-H
CAN-L
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
E125
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) (CPU)
E122


1 2 3 4 5 6 7
8 9 10 11 12 13 14 15 16
M91
W
37 38 39 40 41 42
43 44 45 46 47 48
E122
W
16
47
15 14 13 12 11 10 9 8 7 6 5 4 3 2
31 30 29 28 27 26 25 24 23 22 21 20 19 18 17
46 45 44 43 42 41 40 39 38 37 36 35 34 33
1
32
E125
B

BKWA0517E

CHECK SHEET

UKS003NO

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

Check sheet table

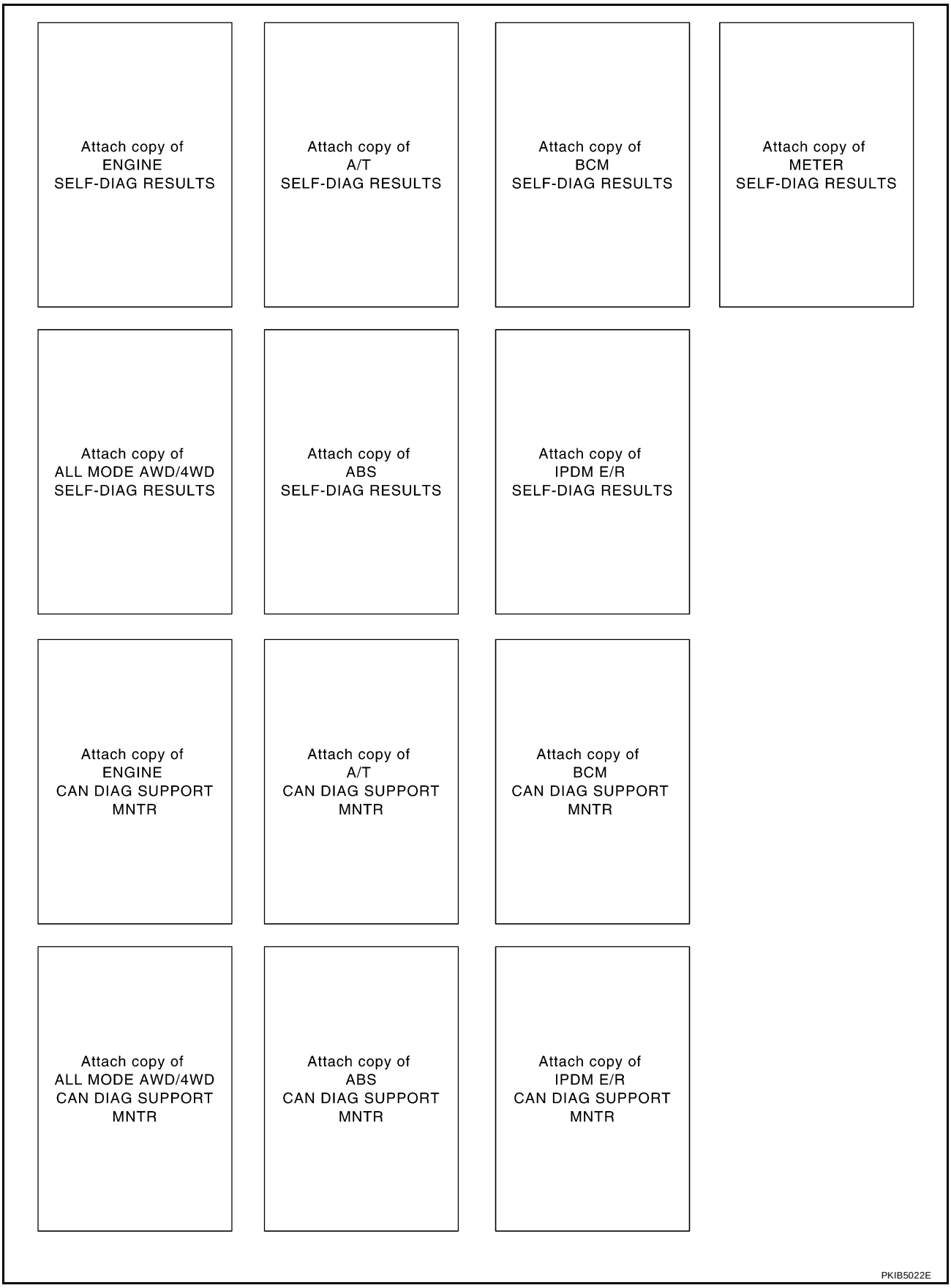
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIB6529E


Attach copy of
ENGINE
SELF-DIAG RESULTS
Attach copy of
A/T
SELF-DIAG RESULTS
Attach copy of
BCM
SELF-DIAG RESULTS
Attach copy of
METER
SELF-DIAG RESULTS
Attach copy of
ALL MODE AWD/4WD
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
A/T
CAN DIAG SUPPORT
MNTR
Attach copy of
BCM
CAN DIAG SUPPORT
MNTR
Attach copy of
ALL MODE AWD/4WD
CAN DIAG SUPPORT
MNTR
Attach copy of
ABS
CAN DIAG SUPPORT
MNTR
Attach copy of
IPDM E/R
CAN DIAG SUPPORT
MNTR
PKIB5022E

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

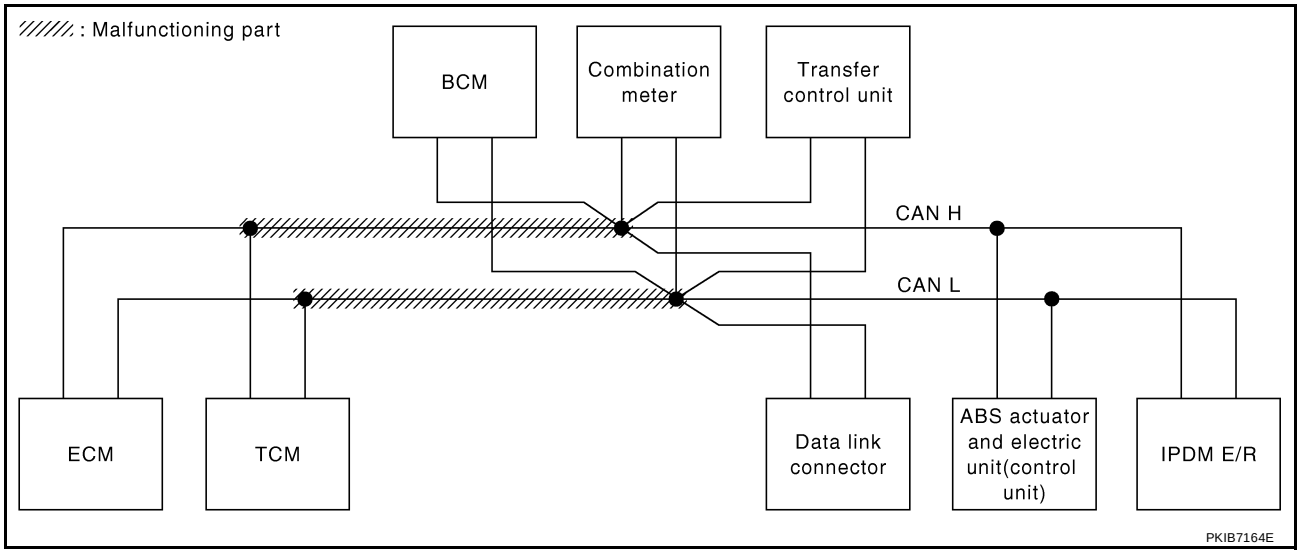
If a check mark is put on “NG” on “INITIAL DIAG (Initial diagnosis)”, replace the control unit.

Case 1

Check harness between TCM and data link connector circuit. Refer to LAN-311, "Inspection Between TCM and Data Link Connector Circuit" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN ✓	UNKWN ✓	—	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN ✓	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN ✓	UNKWN ✓	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN ✓	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN ✓	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7045E



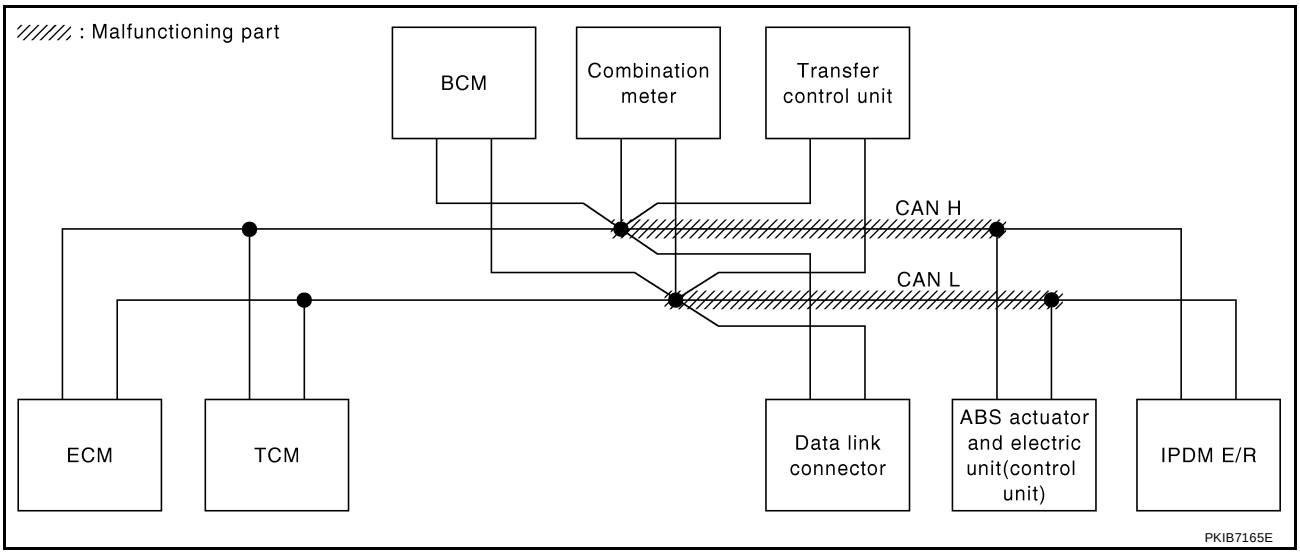
PKIB7164E

Case 2

Check harness between data link connector and ABS actuator and electric unit (control unit) circuit. Refer to LAN-312, "Inspection Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Circuit" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN ✓	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN ✓	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7046E

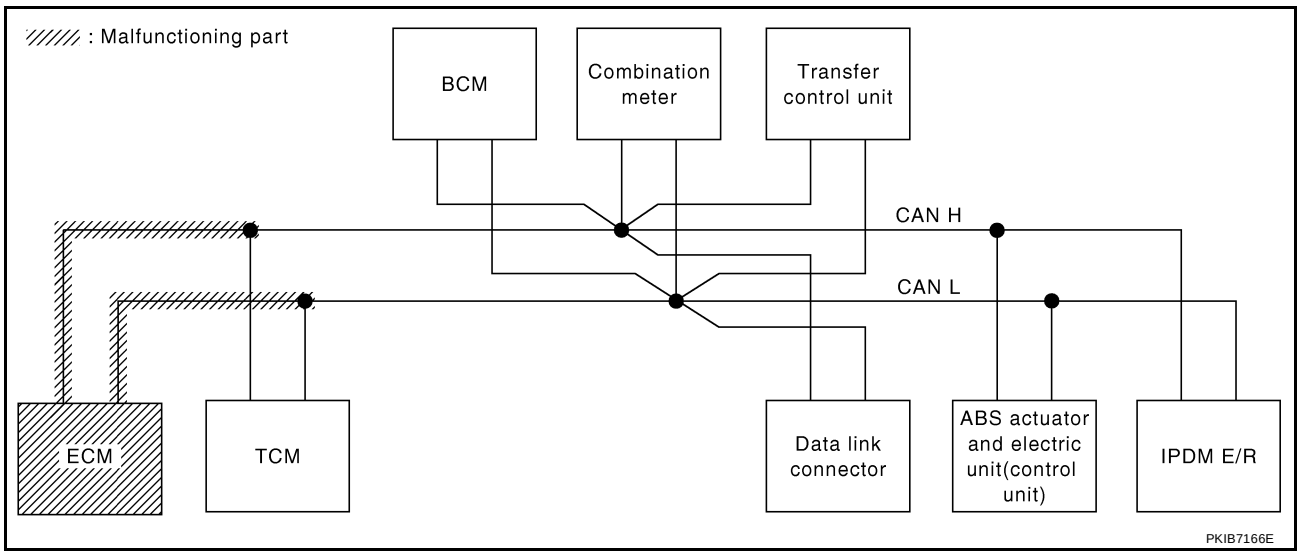


Case 3

Check ECM circuit. Refer to LAN-313, "ECM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7047E



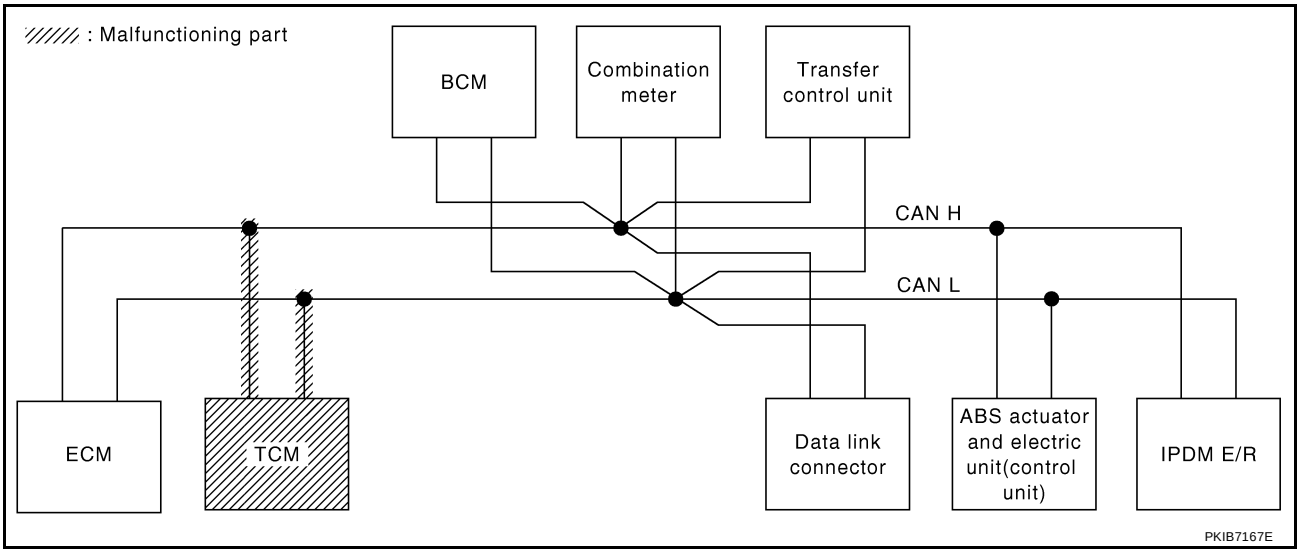
PKIB7166E

Case 4

Check TCM circuit. Refer to LAN-314, "TCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN ✓	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN ✓	—	—	UNKWN ✓	UNKWN ✓	—	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN ✓	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7048E

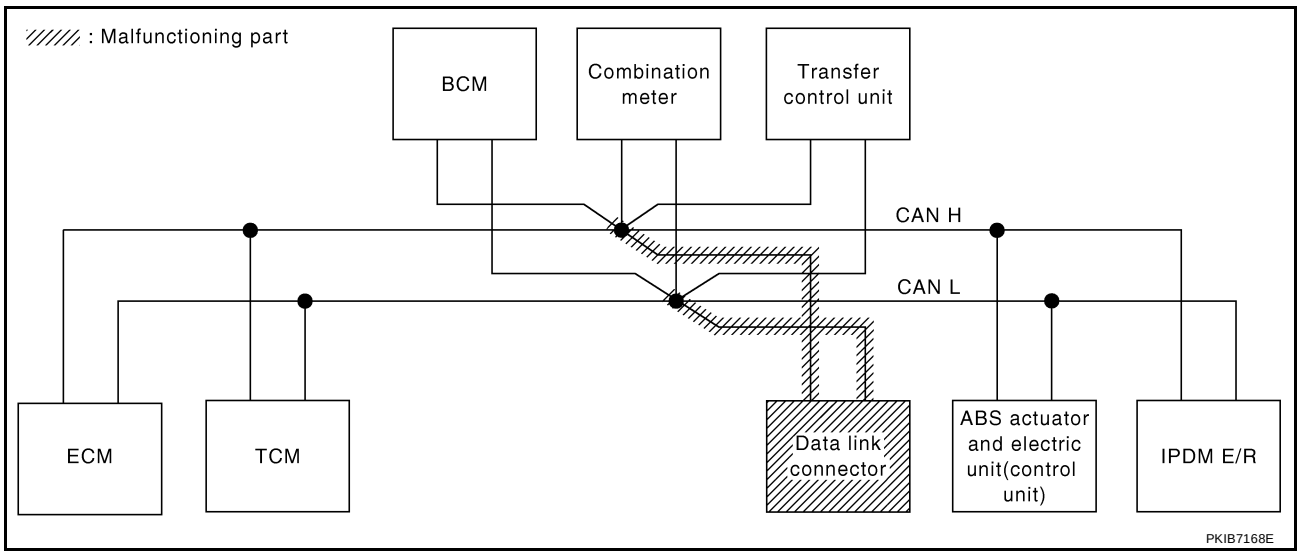


Case 5

Check data link connector circuit. Refer to LAN-314, "Data Link Connector Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7049E



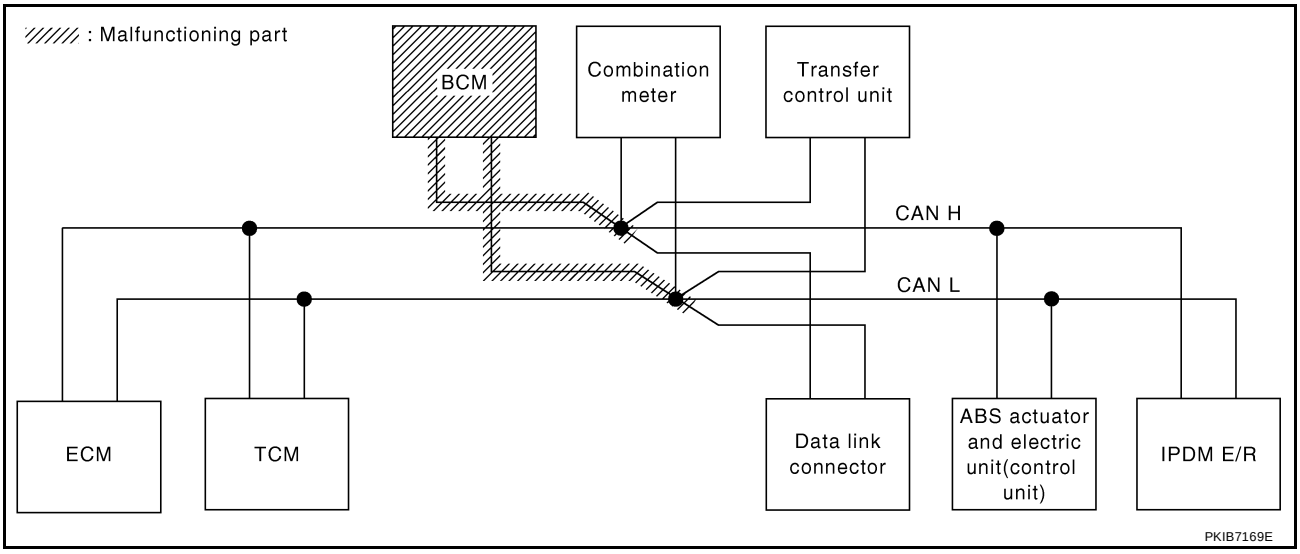
PKIB7168E

Case 6

Check BCM circuit. Refer to LAN-315, "BCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN ✓	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication ✓	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7050E



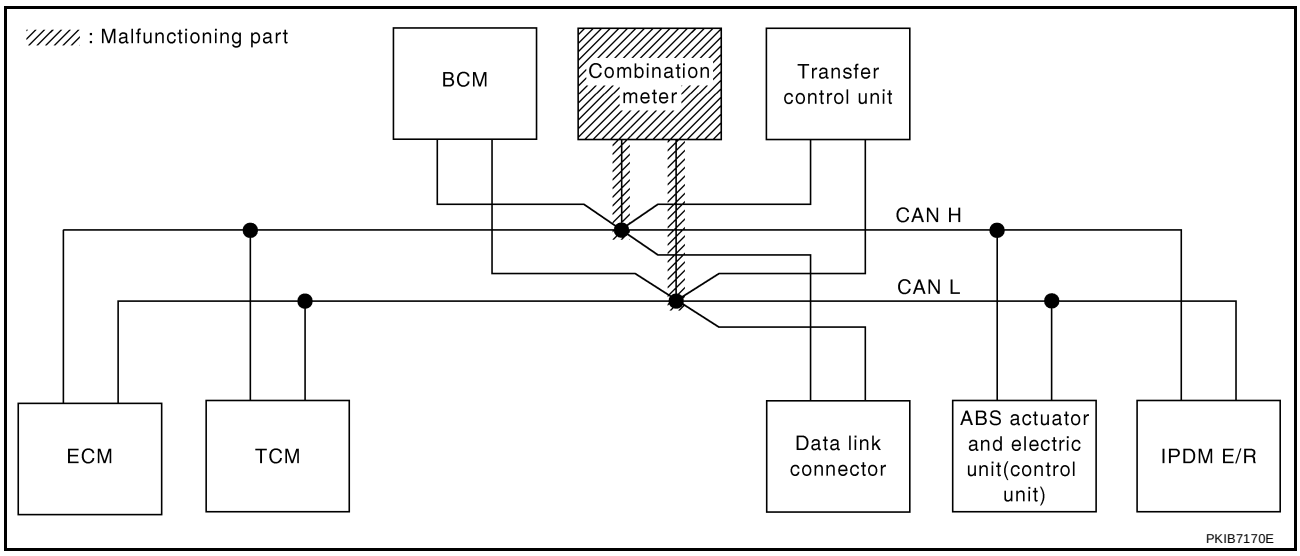
PKIB7169E

Case 7

Check combination meter circuit. Refer to LAN-315, "Combination Meter Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN ✓	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN ✓	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN ✓	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	UNKWN ✓	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7051E



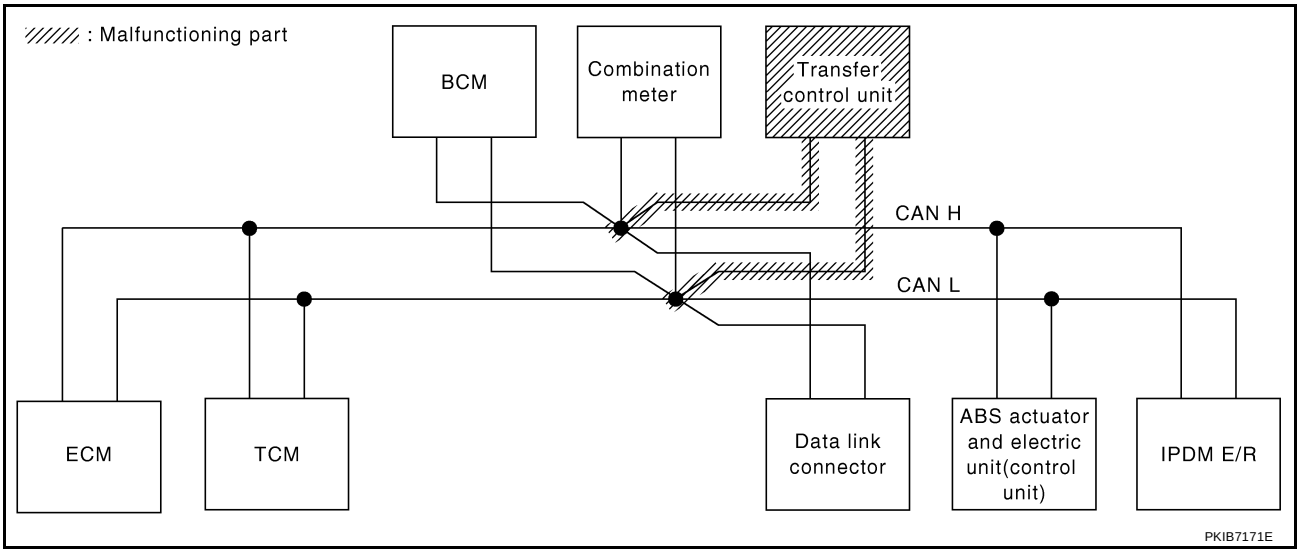
PKIB7170E

Case 8

Check transfer control unit circuit. Refer to LAN-316, "Transfer Control Unit Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN ✓	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN ✓	—	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	UNKWN ✓	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7052E

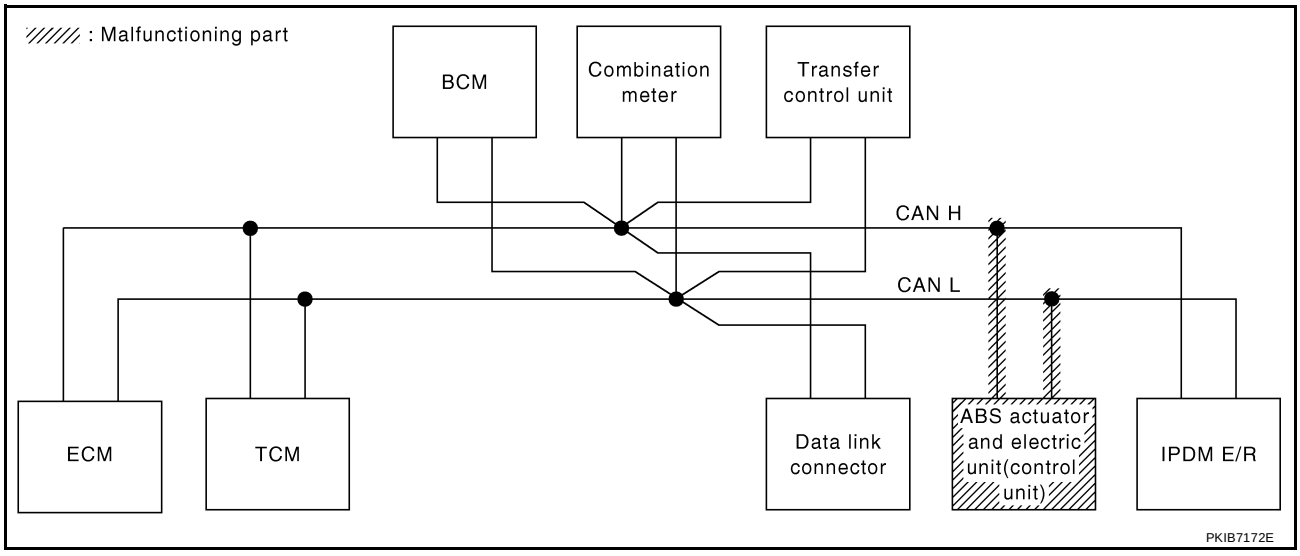


Case 9

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-316, "ABS Actuator and Electric Unit (Control Unit) Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7053E



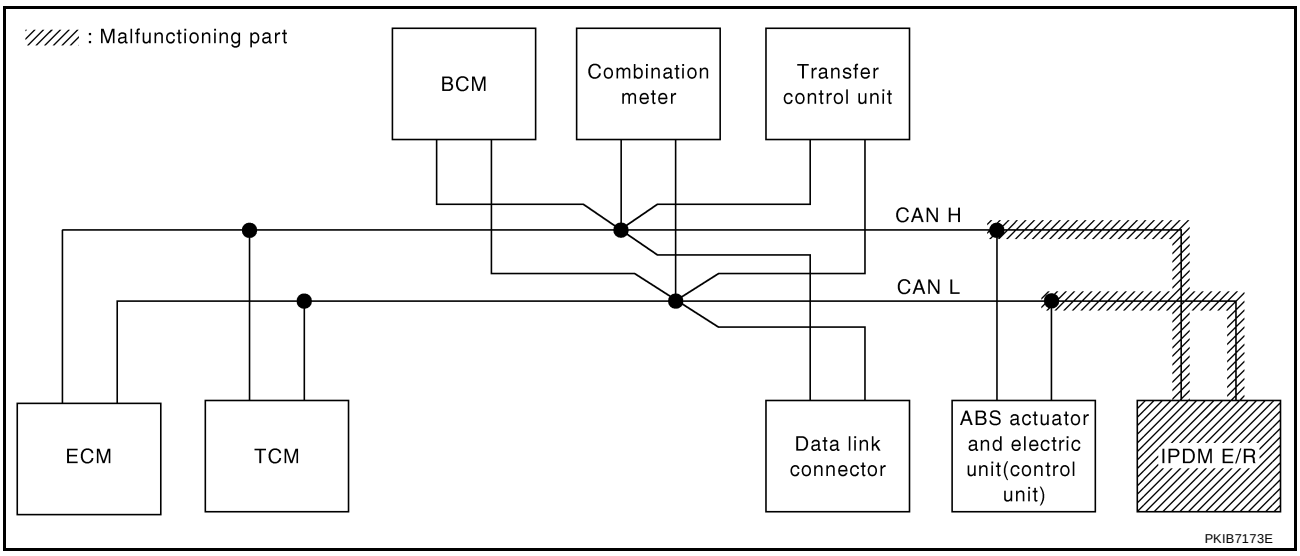
PKIB7172E

Case 10

Check IPDM E/R circuit. Refer to LAN-317, "IPDM E/R Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7054E



PKIB7173E

Case 11

Check CAN communication circuit. Refer to LAN-318, "CAN Communication Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7055E

Case 12

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-322, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN ✓	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN ✓	—	UNKWN	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7056E

Case 13

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-322, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7057E

Inspection Between TCM and Data Link Connector Circuit

UKS003NC

1. CHECK CONNECTOR

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

- Harness connector F14
- Harness connector E5
- Harness connector E152
- Harness connector M31

OK or NG

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

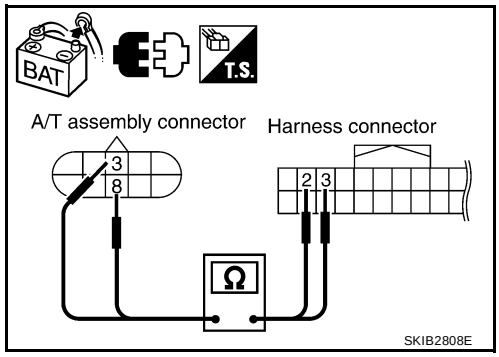
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect A/T assembly connector and harness connector F14.
2. Check continuity between A/T assembly harness connector F9 terminals 3 (L), 8 (P) and harness connector F14 terminals 2 (L), 3 (P).

3 (L) – 2 (L) : Continuity should exist.
8 (P) – 3 (P) : Continuity should exist.

OK or NG

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



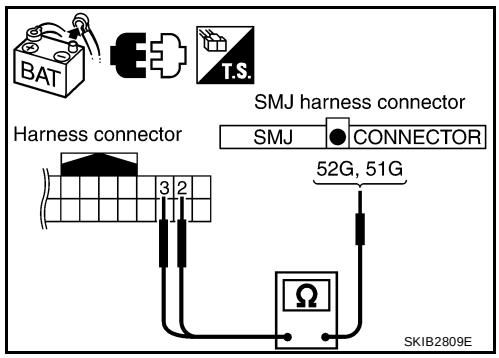
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector E152.
2. Check continuity between harness connector E5 terminals 2 (L), 3 (P) and harness connector E152 terminals 52G (L), 51G (P).

2 (L) – 52G (L) : Continuity should exist.
3 (P) – 51G (P) : Continuity should exist.

OK or NG

OK >> GO TO 4.
NG >> Repair harness.



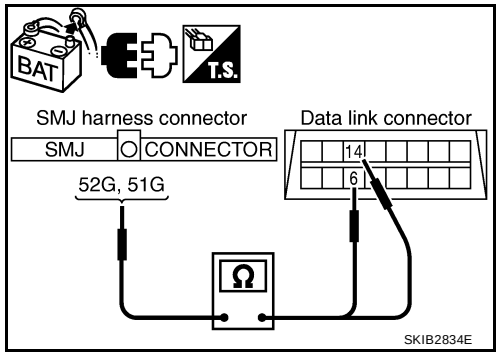
4. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between harness connector M31 terminals 52G (L), 51G (P) and data link connector M22 terminals 6 (L), 14 (P).

52G (L) – 6 (L) : Continuity should exist.
51G (P) – 14 (P) : Continuity should exist.

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.



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

UKS003ND

1. CHECK CONNECTOR

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

- Harness connector M91
- Harness connector E26

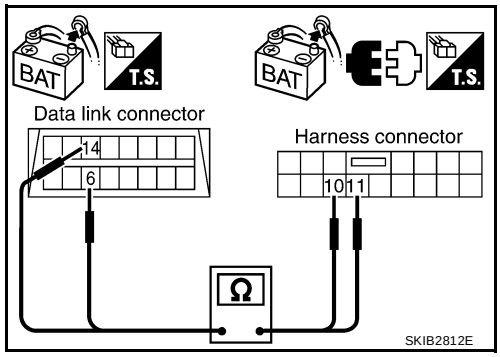
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M91.
2. Check continuity between data link connector M22 terminals 6 (L), 14 (P) and harness connector M91 terminals 11 (L), 10 (P).

6 (L) – 11 (L) : Continuity should exist.
14 (P) – 10 (P) : Continuity should exist.



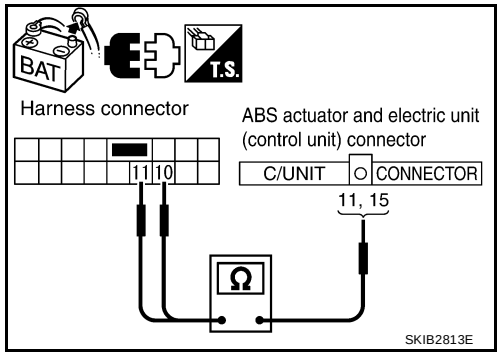
OK or NG

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 E26 terminals 11 (L), 10 (P) and ABS actuator and electric unit (control unit) harness connector E125 terminals 11 (L), 15 (P).

11 (L) – 11 (L) : Continuity should exist.
10 (P) – 15 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.

ECM Circuit Inspection

UKS003NE

1. CHECK CONNECTOR

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

- ECM connector
- Harness connector E2
- Harness connector F32

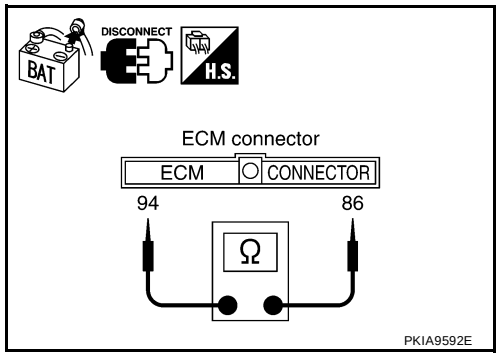
OK or NG

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 E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Approx. 108 – 132 Ω



OK or NG

OK >> Replace ECM.
NG >> Repair harness between ECM and A/T assembly.

TCM Circuit Inspection

UKS003NF

1. CHECK CONNECTOR

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

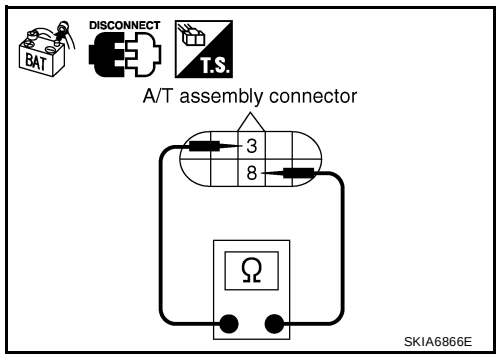
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect A/T assembly connector.
2. Check resistance between A/T assembly harness connector F9 terminals 3 (L) and 8 (P).

3 (L) – 8 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace control valve with TCM.
NG >> Repair harness between A/T assembly and harness connector F14.

Data Link Connector Circuit Inspection

UKS003NG

1. CHECK CONNECTOR

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

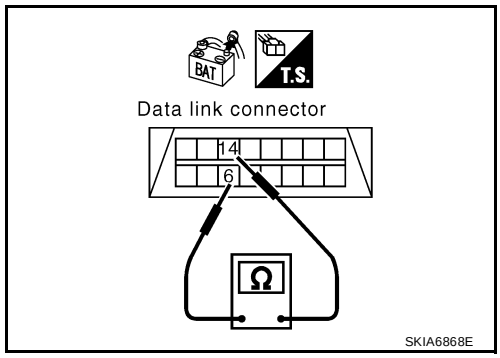
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

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

6 (L) – 14 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .

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

BCM Circuit Inspection

UKS003NH

1. CHECK CONNECTOR

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

OK or NG

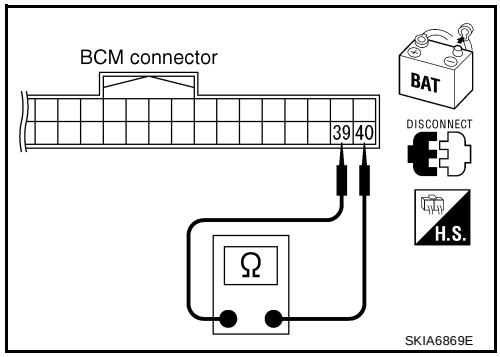
OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M18 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace BCM. Refer to BCS-19, "Removal and Installation of BCM" .

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

Combination Meter Circuit Inspection

UKS003NI

1. CHECK CONNECTOR

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

OK or NG

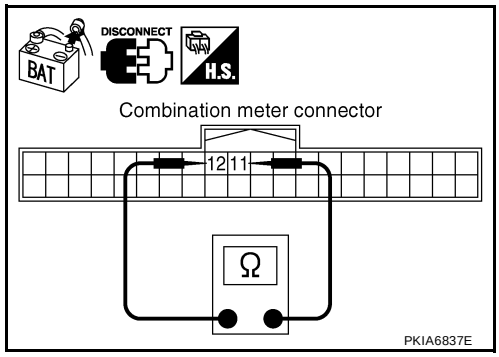
OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M24 terminals 12 (L) and 11 (P).

12 (L) – 11 (P) : Approx. 54 – 66 Ω



OK or NG

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

Transfer Control Unit Circuit Inspection

UKS003NJ

1. CHECK CONNECTOR

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

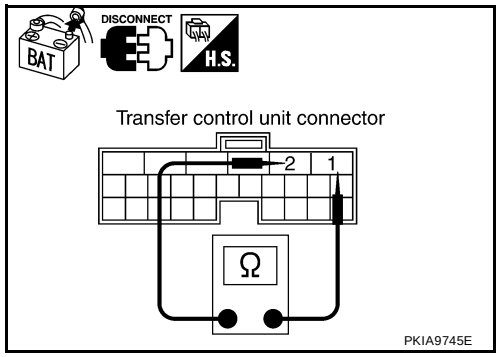
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect transfer control unit connector.
2. Check resistance between transfer control unit harness connector M152 terminals 1 (L) and 2 (P).

1 (L) – 2 (P) : Approx. 54 – 66 Ω



OK or NG

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

ABS Actuator and Electric Unit (Control Unit) Circuit Inspection

UKS003NK

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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).

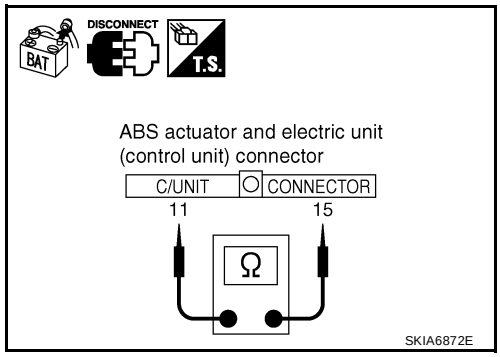
OK or NG

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 E125 terminals 11 (L) and 15 (P).

11 (L) – 15 (P) : Approx. 54 – 66 Ω



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 Inspection

UKS003NL

1. CHECK CONNECTOR

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

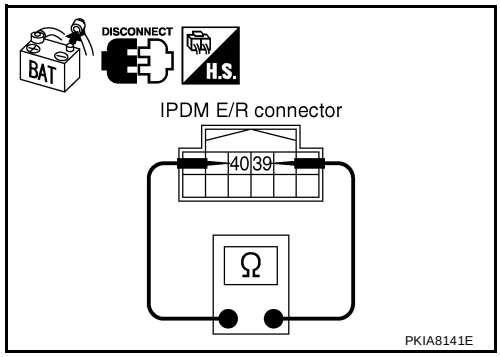
OK or NG

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 E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 108 – 132 Ω



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 Inspection

UKS003NM

1. CHECK CONNECTOR

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

- ECM
- TCM
- BCM
- Combination meter
- Transfer control unit
- 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.

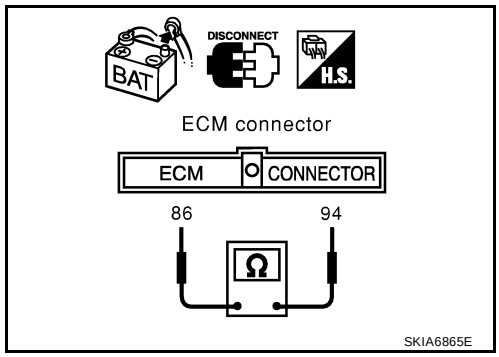
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E2.
2. Check continuity between ECM harness connector E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Continuity should not exist.

OK or NG

OK >> GO TO 3.
NG >> Repair harness between ECM and harness connector E2.



3. CHECK HARNESS FOR SHORT CIRCUIT

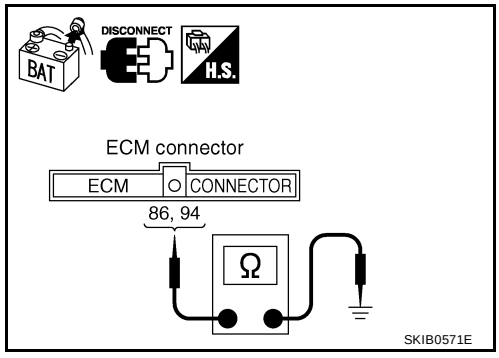
Check continuity between ECM harness connector E16 terminals 94 (L), 86 (P) and ground.

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

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

OK or NG

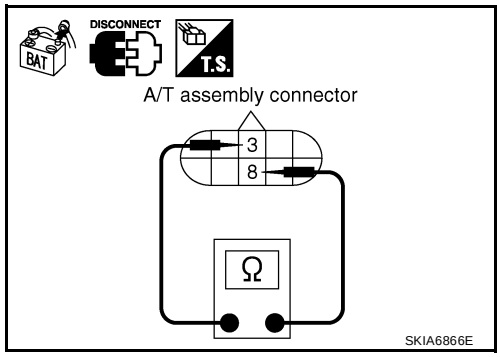
OK >> GO TO 4.
NG >> Repair harness between ECM and harness connector E2.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect A/T assembly connector and harness connector F14.
2. Check continuity between A/T assembly harness connector F9 terminals 3 (L) and 8 (P).

3 (L) – 8 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 5.

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

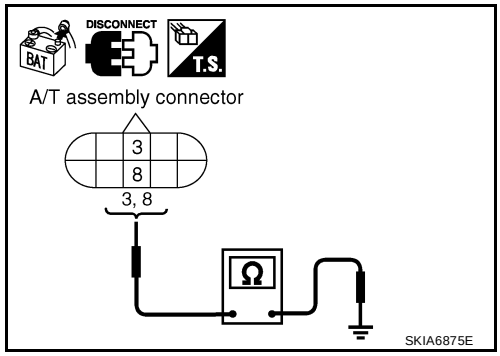
- Harness between A/T assembly and harness connector F32
- Harness between A/T assembly and harness connector F14

5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between A/T assembly harness connector F9 terminals 3 (L), 8 (P) and ground.

3 (L) – Ground : Continuity should not exist.

8 (P) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 6.

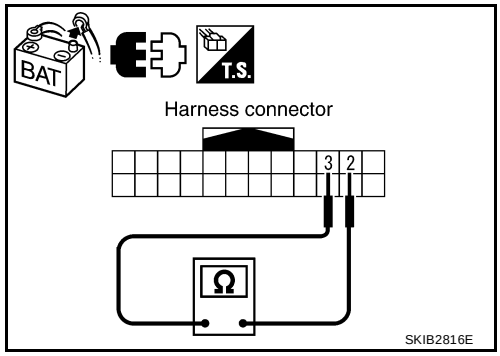
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between A/T assembly and harness connector F32
- Harness between A/T assembly and harness connector F14

6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect harness connector E152.
2. Check continuity between harness connector E5 terminals 2 (L) and 3 (P).

2 (L) – 3 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 7.

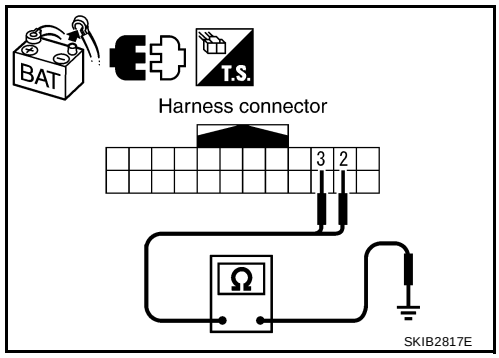
NG >> Repair harness between harness connector E5 and harness connector E152.

7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector E5 terminals 2 (L), 3 (P) and ground.

2 (L) – Ground : Continuity should not exist.

3 (P) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 8.

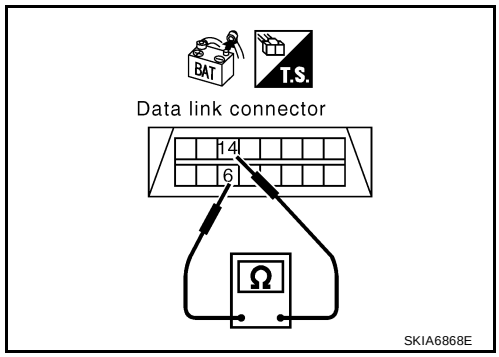
NG >> Repair harness between harness connector E5 and harness connector E152.

8. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
- BCM connector
- Combination meter connector
- Transfer control unit connector
- Harness connector M91

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

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



OK or NG

OK >> GO TO 9.

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

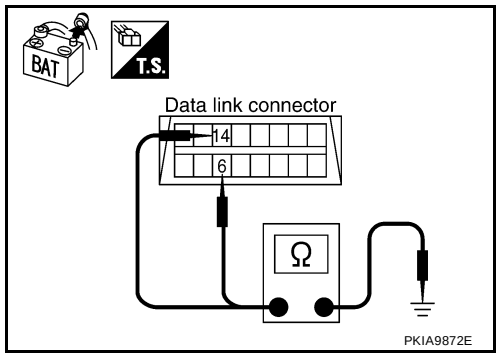
- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and transfer control unit
- Harness between data link connector and harness connector M91

9. CHECK HARNESS FOR SHORT CIRCUIT

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

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

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



OK or NG

OK >> GO TO 10.

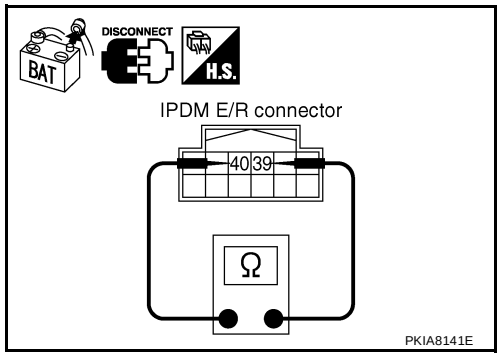
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and transfer control unit
- Harness between data link connector and harness connector M91

10. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Continuity should not exist.



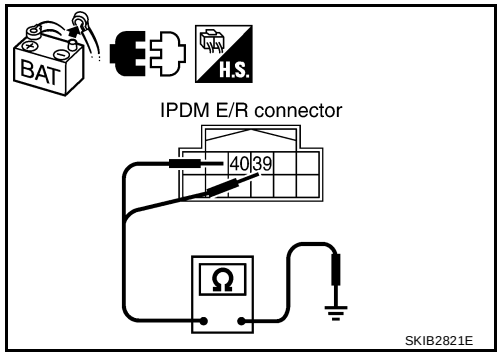
OK or NG

OK >> GO TO 11.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.
- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

11. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E122 terminals 39 (L), 40 (P) and ground.

39 (L) – Ground : Continuity should not exist.
40 (P) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 12.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.
- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

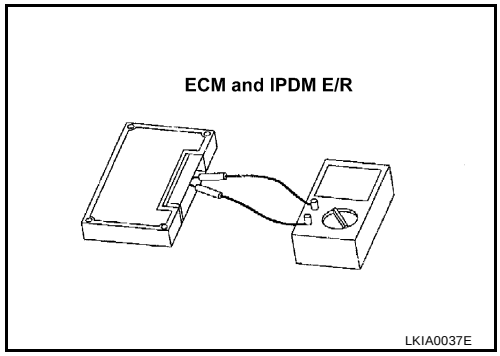
12. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

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

94 – 86 : Approx. 108 – 132 Ω

3. Check resistance between IPDM E/R terminals 39 and 40.

39 – 40 : Approx. 108 – 132 Ω



OK or NG

OK >> GO TO 13.
NG >> Replace ECM and/or IPDM E/R.

13. CHECK SYMPTOM

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

OK or NG

OK >> GO TO 14.
NG >> Refer to LAN-15, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced".

14. CHECK UNIT REPRODUCIBILITY

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

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

- TCM
- BCM
- Combination meter
- Transfer control unit
- ABS actuator and electric unit (control unit)
- ECM
- IPDM E/R

Inspection results

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

IPDM E/R Ignition Relay Circuit Inspection

UKS003NN

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

- IPDM E/R power supply circuit. Refer to PG-27, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition power supply circuit. Refer to PG-14, "IGNITION POWER SUPPLY — IGNITION SW. IN ON AND/OR START" .

CAN SYSTEM (TYPE 12)

PFP:23710

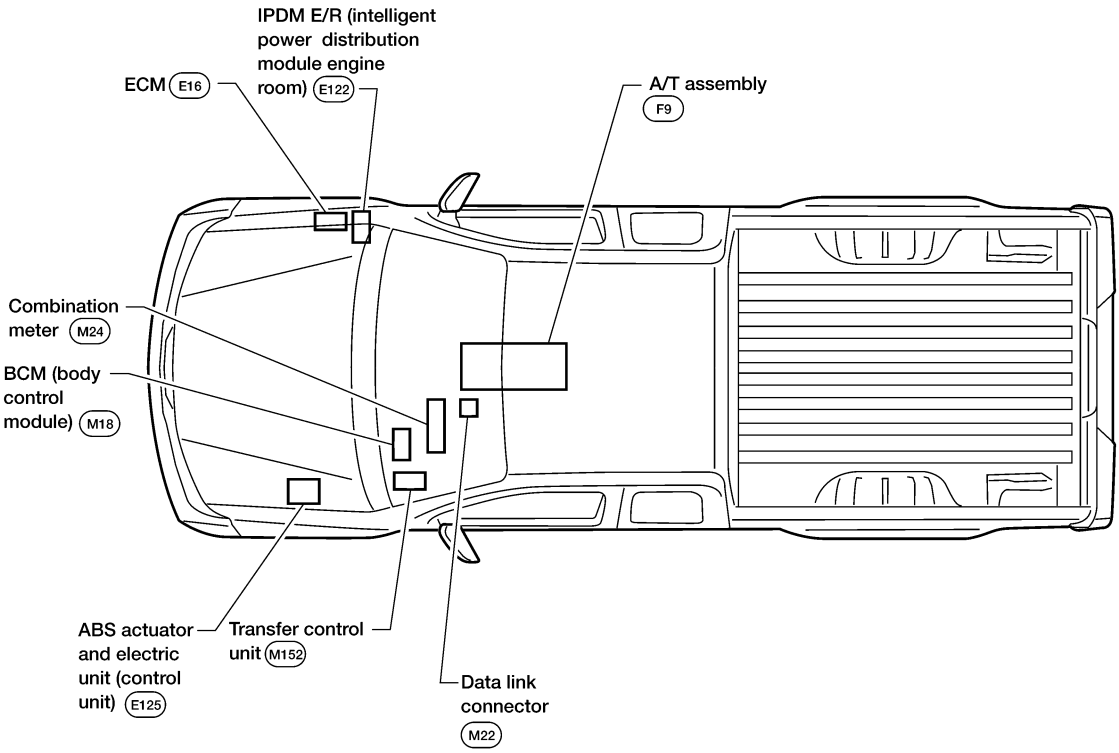
System Description

UKS003MQ

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.

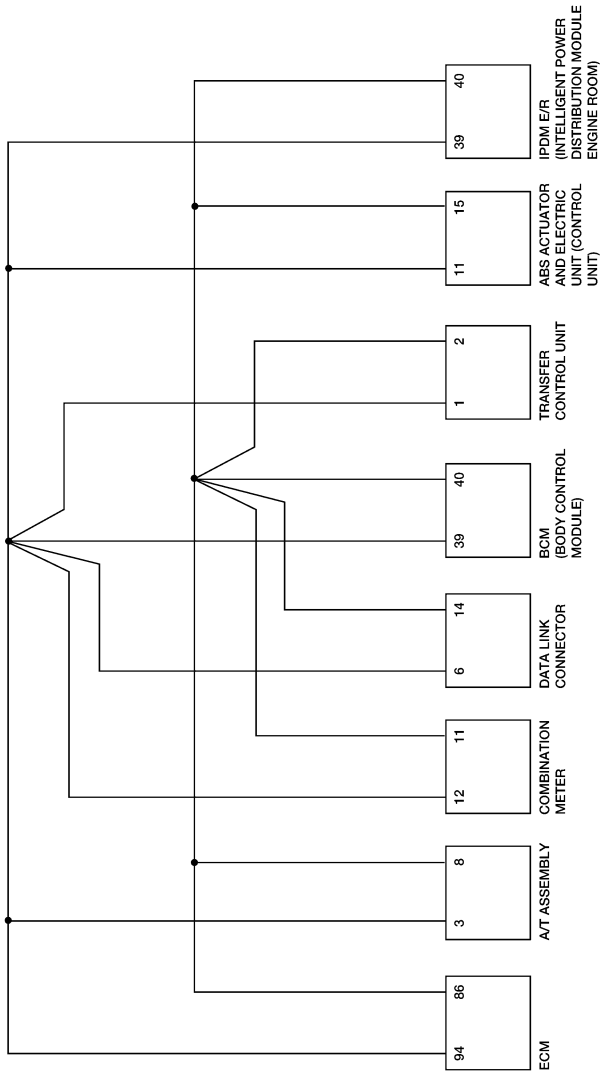
Component Parts and Harness Connector Location

UKS003MR



Schematic

UKS003MS

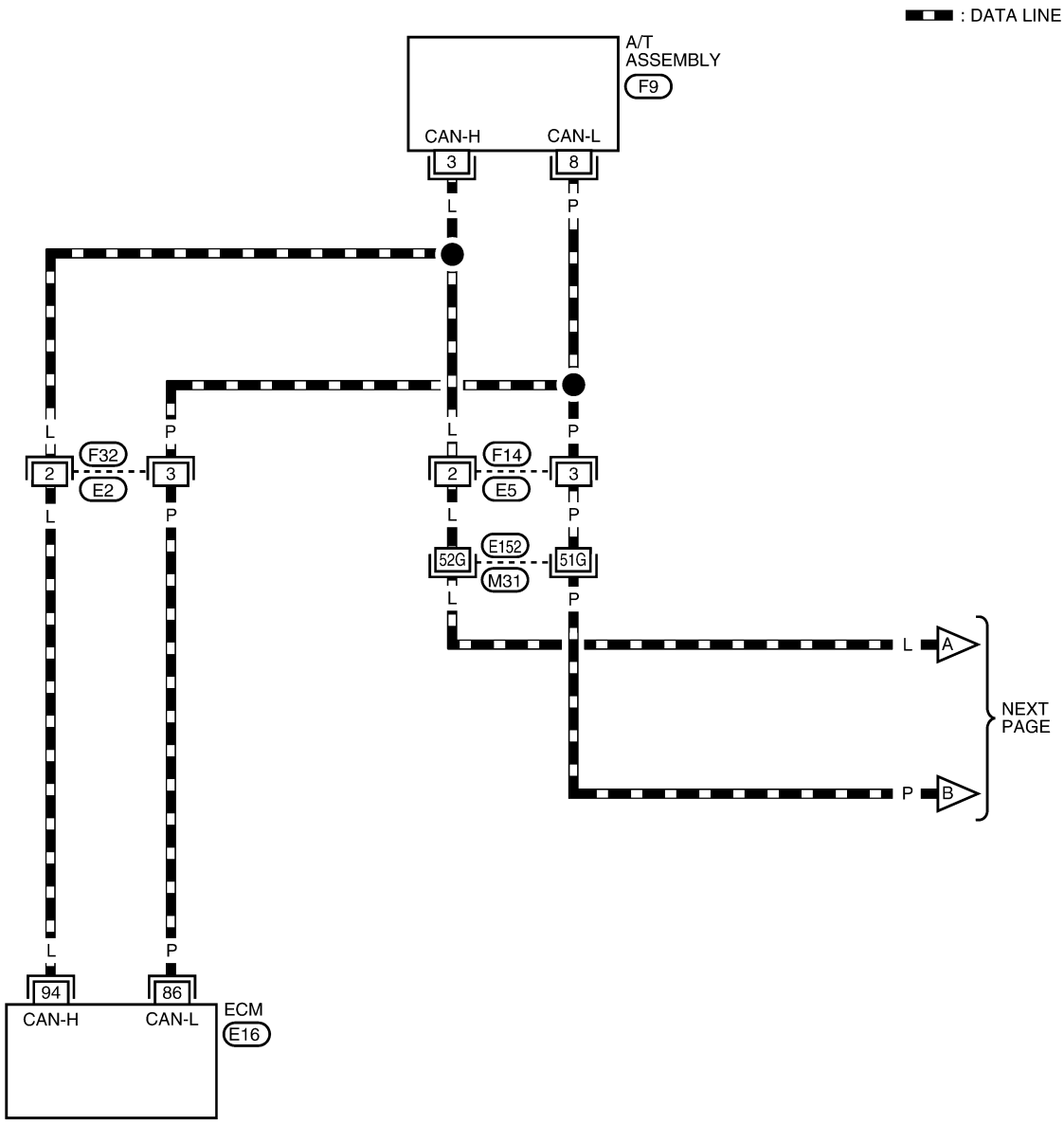


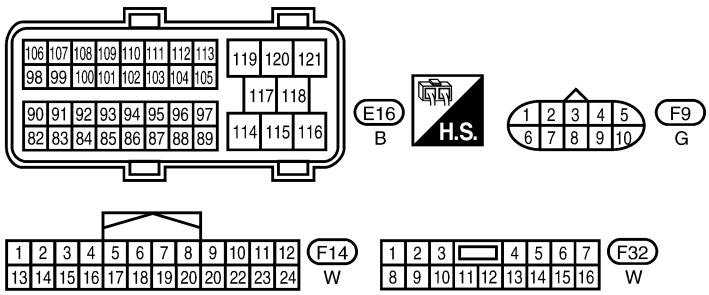
BKWA0514E

Wiring Diagram — CAN —

UKS003MT

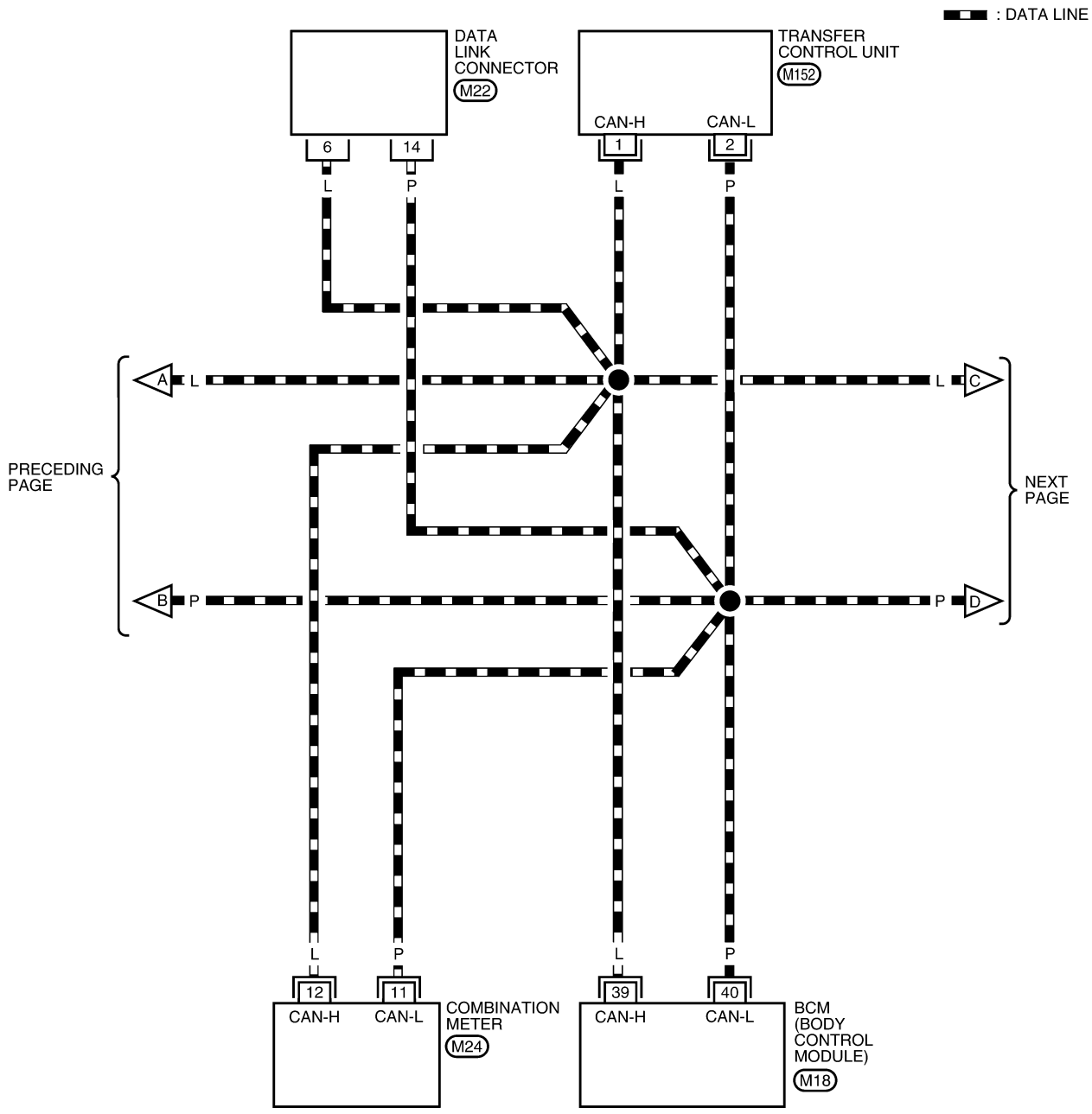
LAN-CAN-34

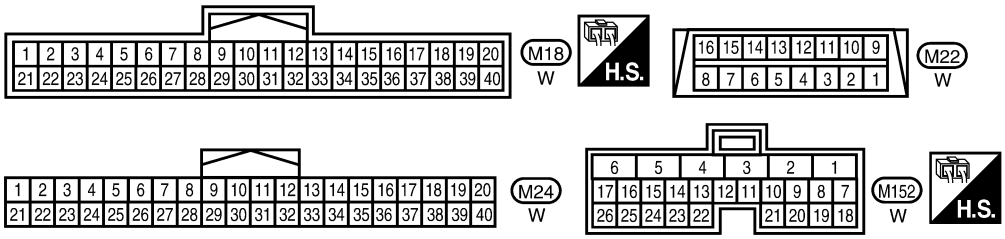




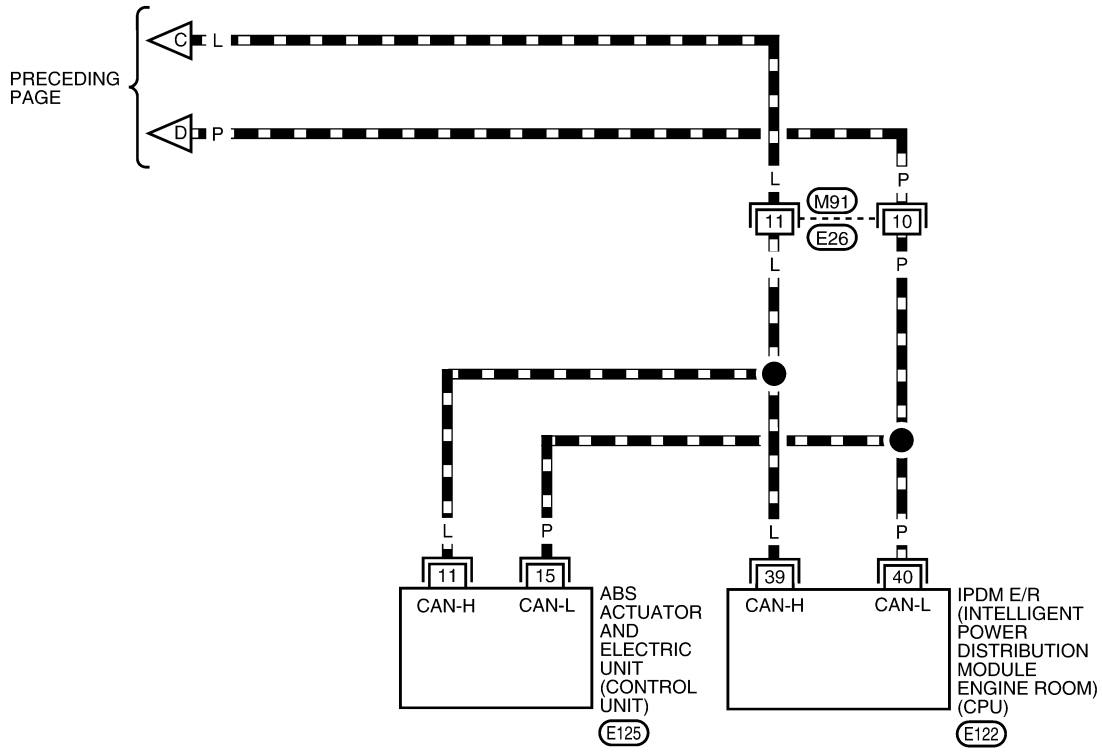
REFER TO THE FOLLOWING.
M31 - SUPER MULTIPLE JUNCTION (SMJ)

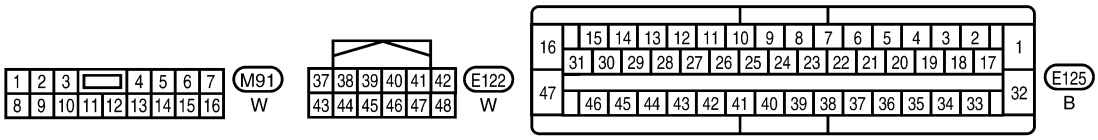
BKWA0519E


: DATA LINE
DATA LINK CONNECTOR
M22
TRANSFER CONTROL UNIT
M152
CAN-H
CAN-L
6
14
1
2
L
P
A
B
C
D
PRECEDING PAGE
NEXT PAGE
12
11
39
40
COMBINATION METER
M24
BCM (BODY CONTROL MODULE)
M18


M18
W
H.S.
M22
W
M24
W
M152
W
H.S.

BKWA0520E


: DATA LINE
PRECEDING PAGE
C
L
D
P
M91
E26
11
10
L
P
11
15
39
40
CAN-H
CAN-L
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
E125
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) (CPU)
E122


M91
W
E122
W
E125
B

BKWA0521E

CHECK SHEET

UKS003MU

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

Check sheet table

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIB6531E

Attach copy of ENGINE SELF-DIAG RESULTS	Attach copy of A/T SELF-DIAG RESULTS	Attach copy of BCM SELF-DIAG RESULTS	Attach copy of METER SELF-DIAG RESULTS
Attach copy of ALL MODE AWD/4WD 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 A/T CAN DIAG SUPPORT MNTR	Attach copy of BCM CAN DIAG SUPPORT MNTR	
Attach copy of ALL MODE AWD/4WD CAN DIAG SUPPORT MNTR	Attach copy of ABS CAN DIAG SUPPORT MNTR	Attach copy of IPDM E/R CAN DIAG SUPPORT MNTR	

PKIB5022E

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

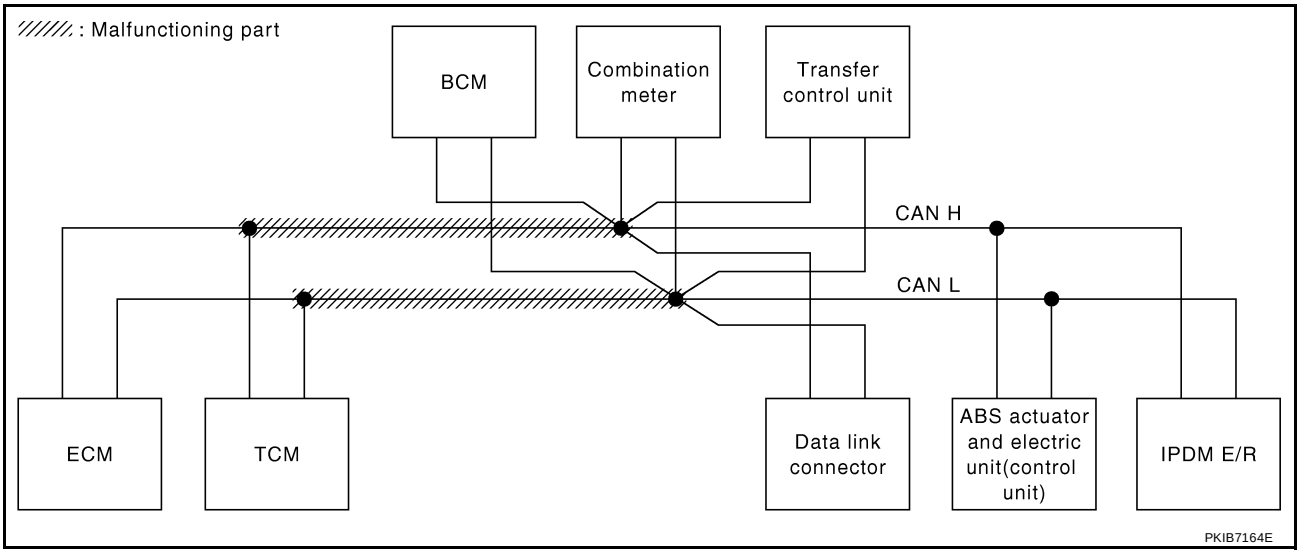
If a check mark is put on “NG” on “INITIAL DIAG (Initial diagnosis)”, replace the control unit.

Case 1

Check harness between TCM and data link connector circuit. Refer to LAN-340, "Inspection Between TCM and Data Link Connector Circuit" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN ✓	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000) ✓	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN ✓	UNKWN ✓	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN ✓	UNKWN ✓	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN ✓	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7032E

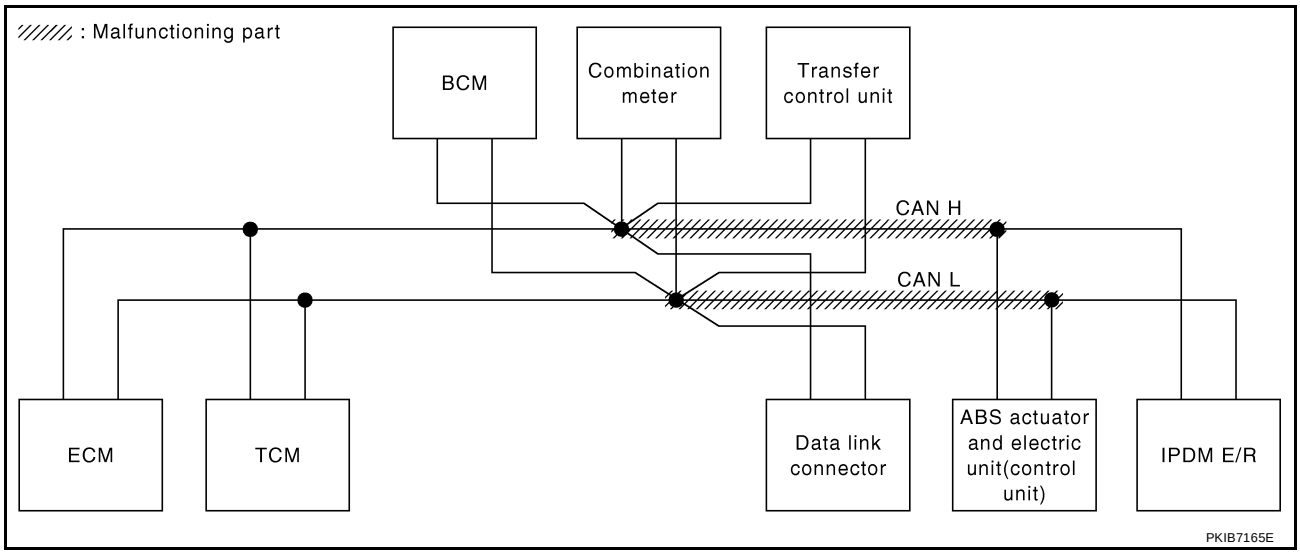


Case 2

Check harness between data link connector and ABS actuator and electric unit (control unit) circuit. Refer to LAN-341, "Inspection Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Circuit"
.

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	✓ UNKWN	✓ UNKWN	CAN COMM CIRCUIT (U1000)	✓ CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	✓ UNKWN	—	✓ CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	✓ UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	✓ CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	✓ UNKWN	—	✓ CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	✓ UNKWN	✓ UNKWN	—	—	✓ UNKWN	—	—	✓ CAN COMM CIRCUIT (U1000)	—
IPDM E/R	✓ No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	✓ CAN COMM CIRCUIT (U1000)	—

PKIB7033E



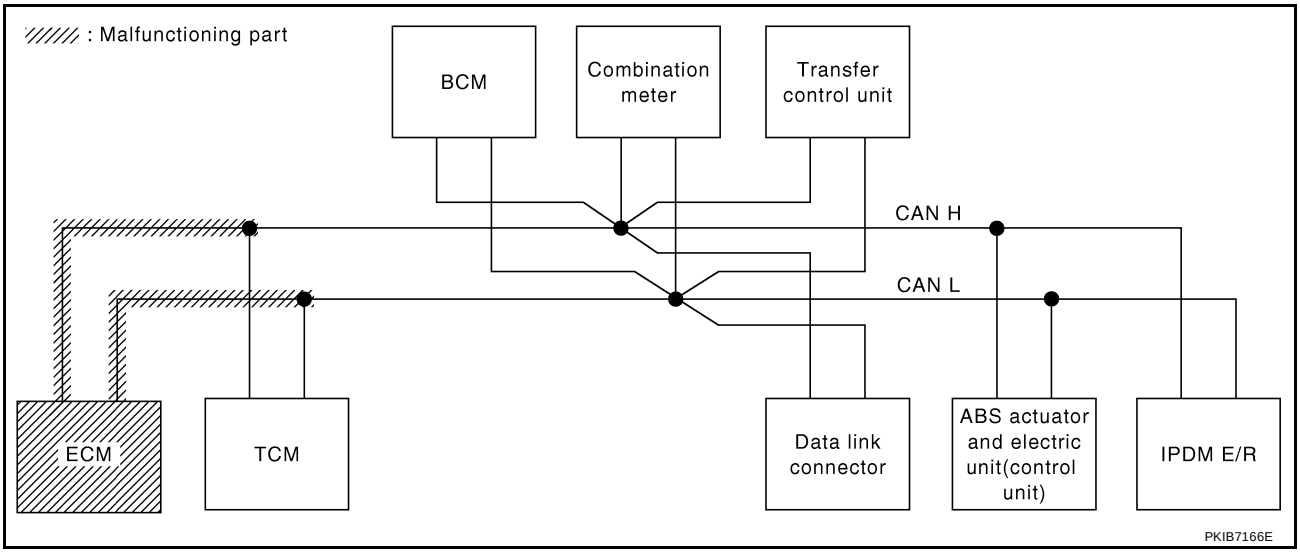
PKIB7165E

Case 3

Check ECM circuit. Refer to LAN-342, "ECM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7034E



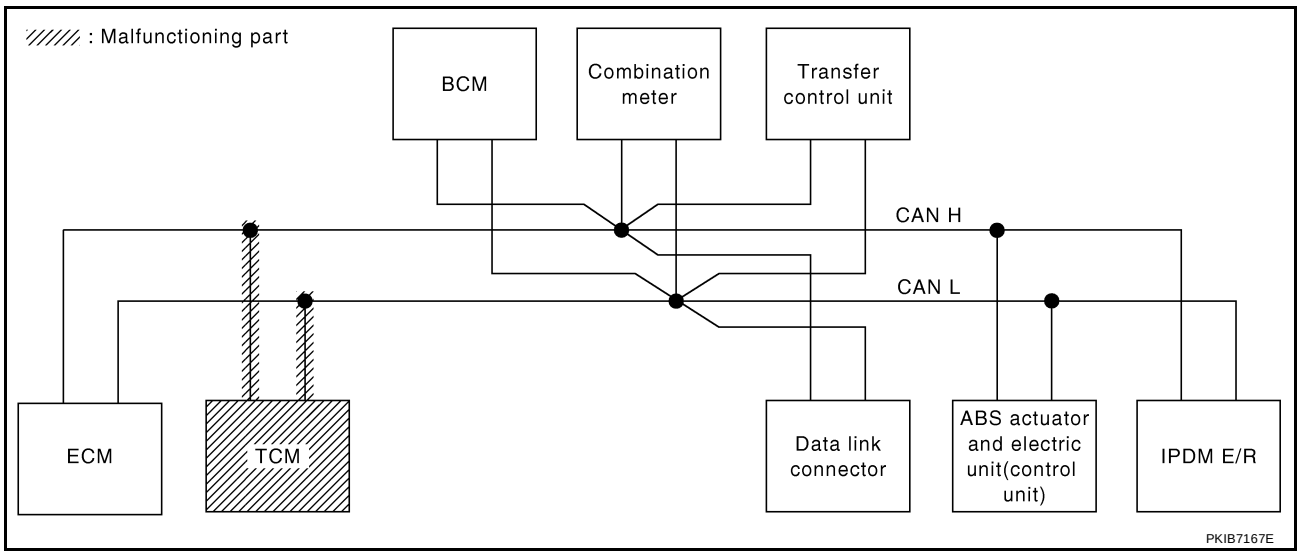
PKIB7166E

Case 4

Check TCM circuit. Refer to LAN-343, "TCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN ✓	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN ✓	—	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN ✓	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	UNKWN ✓	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7035E



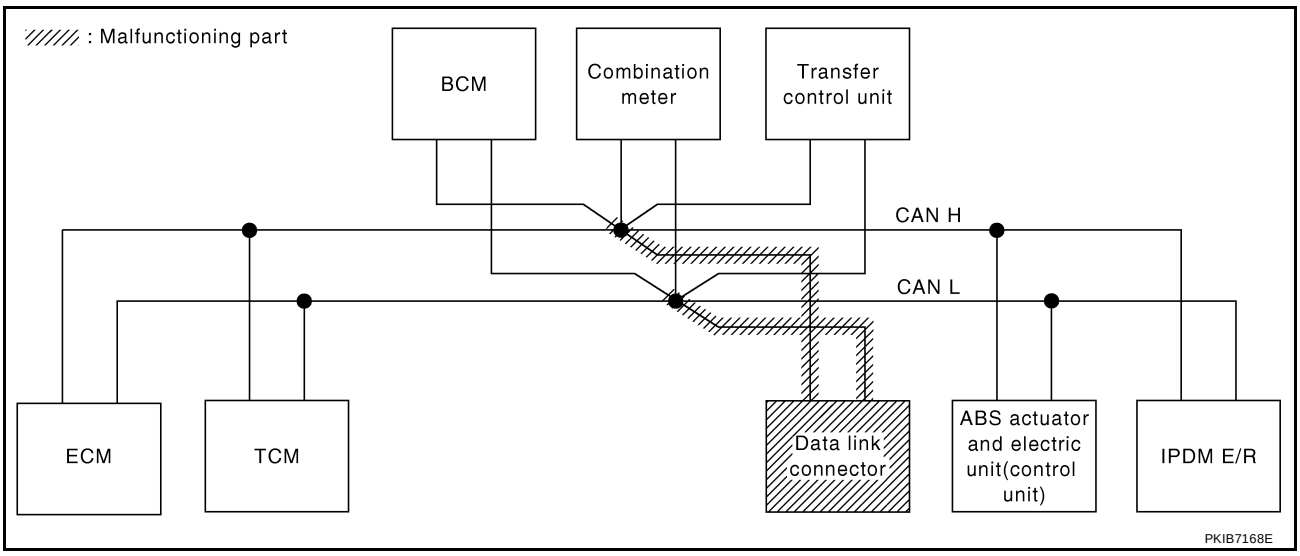
PKIB7167E

Case 5

Check data link connector circuit. Refer to LAN-343, "Data Link Connector Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7036E



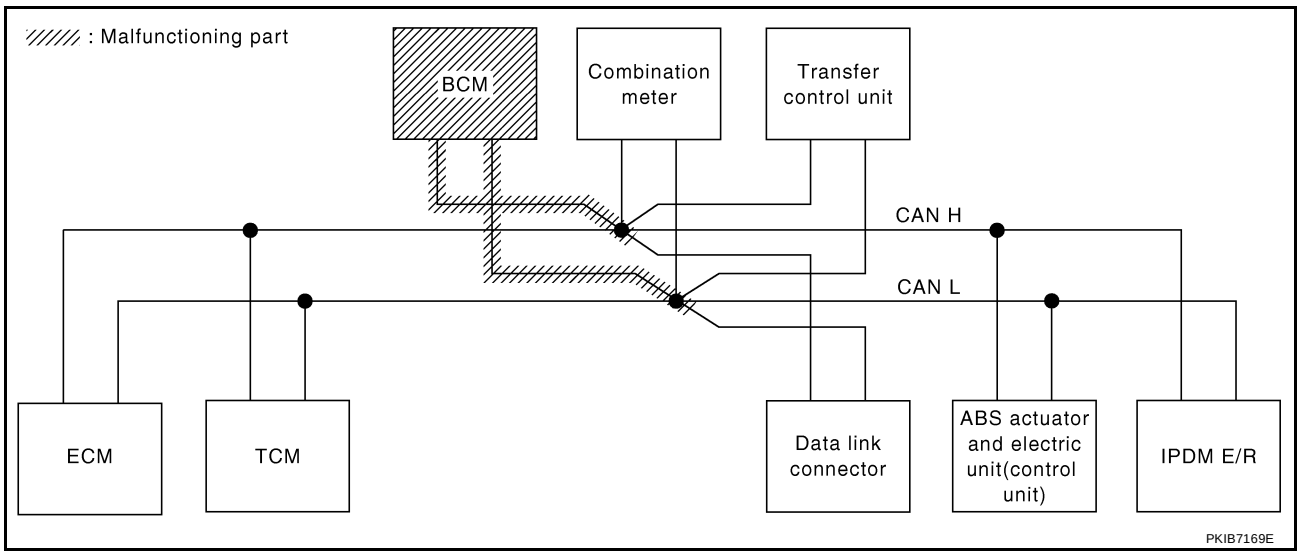
PKIB7168E

Case 6

Check BCM circuit. Refer to LAN-344, "BCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN ✓	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication ✓	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7037E



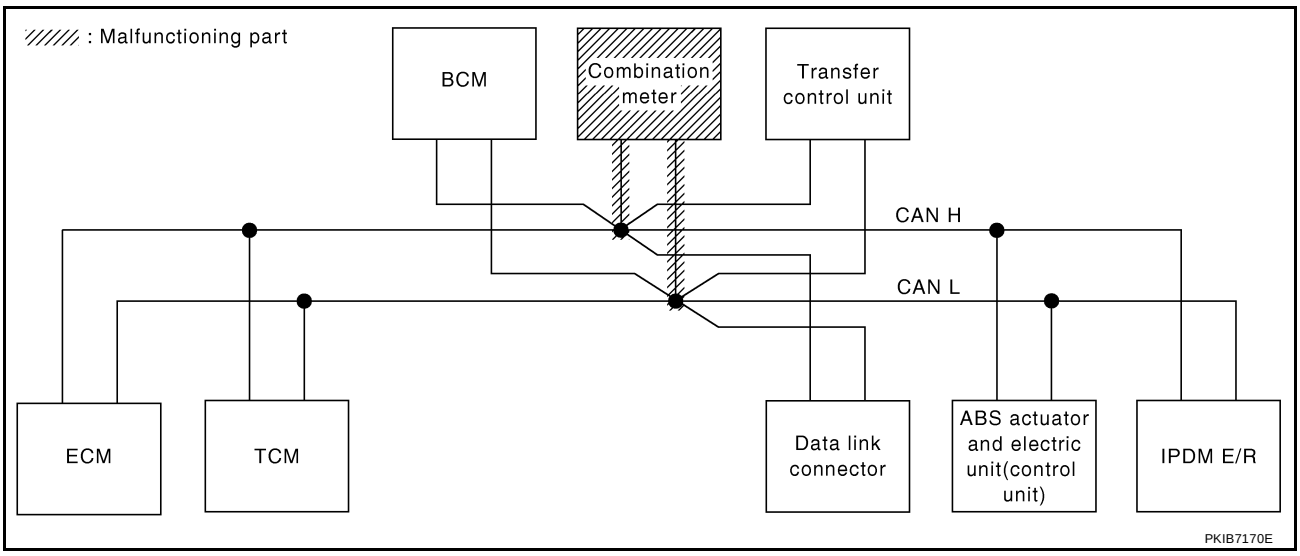
PKIB7169E

Case 7

Check combination meter circuit. Refer to LAN-344, "Combination Meter Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7038E



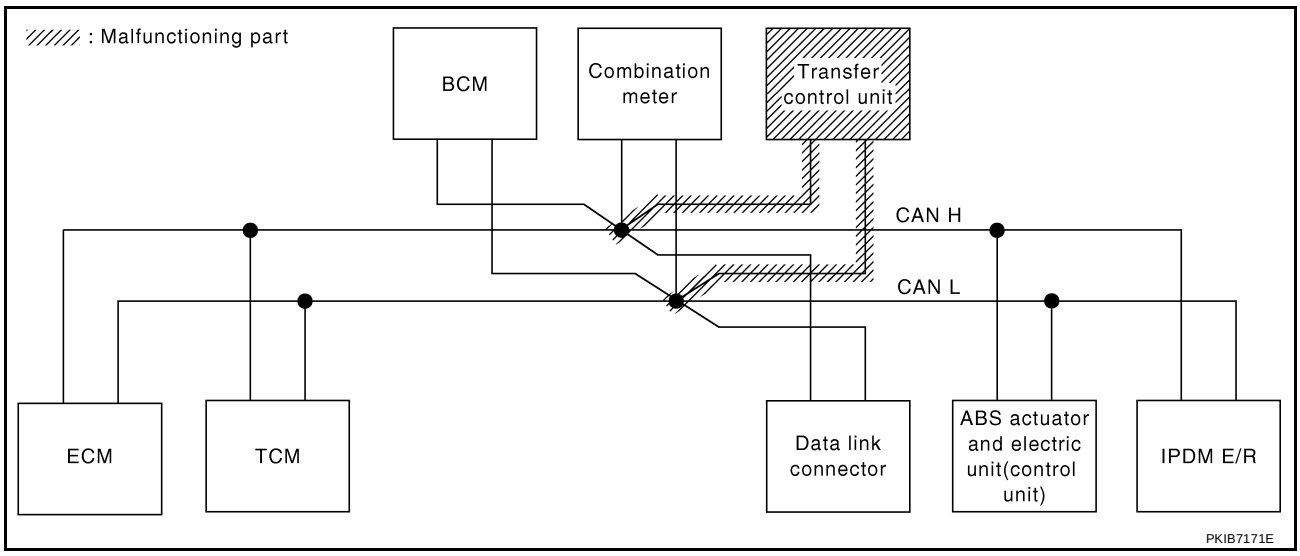
PKIB7170E

Case 8

Check transfer control unit circuit. Refer to LAN-345, "Transfer Control Unit Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN ✓	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN ✓	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	UNKWN ✓	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN ✓	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7039E



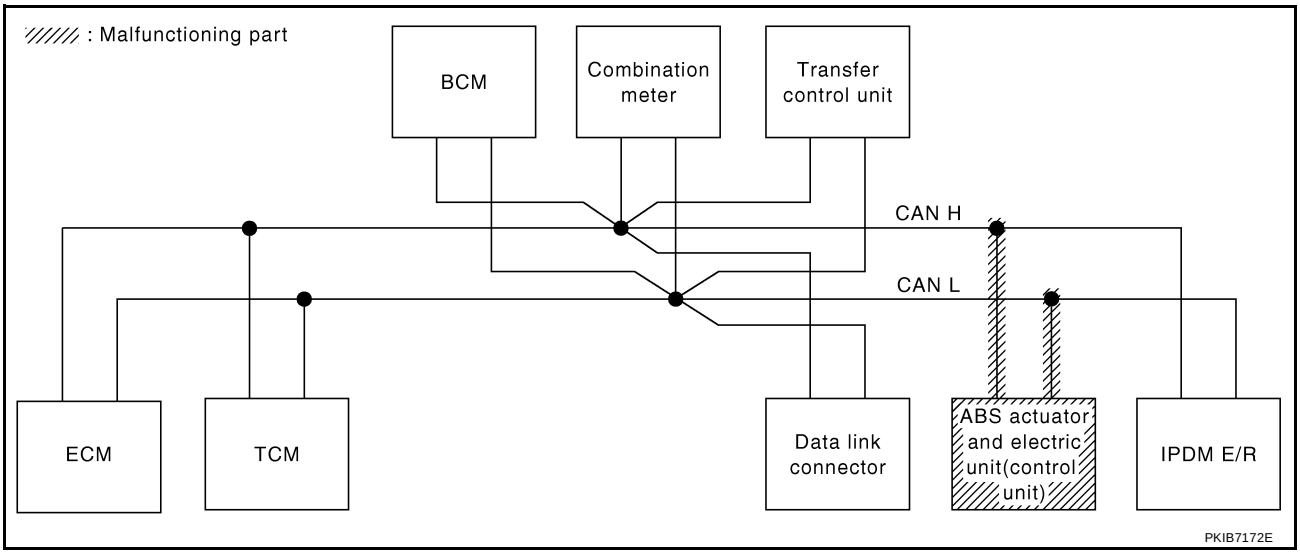
PKIB7171E

Case 9

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-345, "ABS Actuator and Electric Unit (Control Unit) Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	—	UNKWN ✓	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7040E

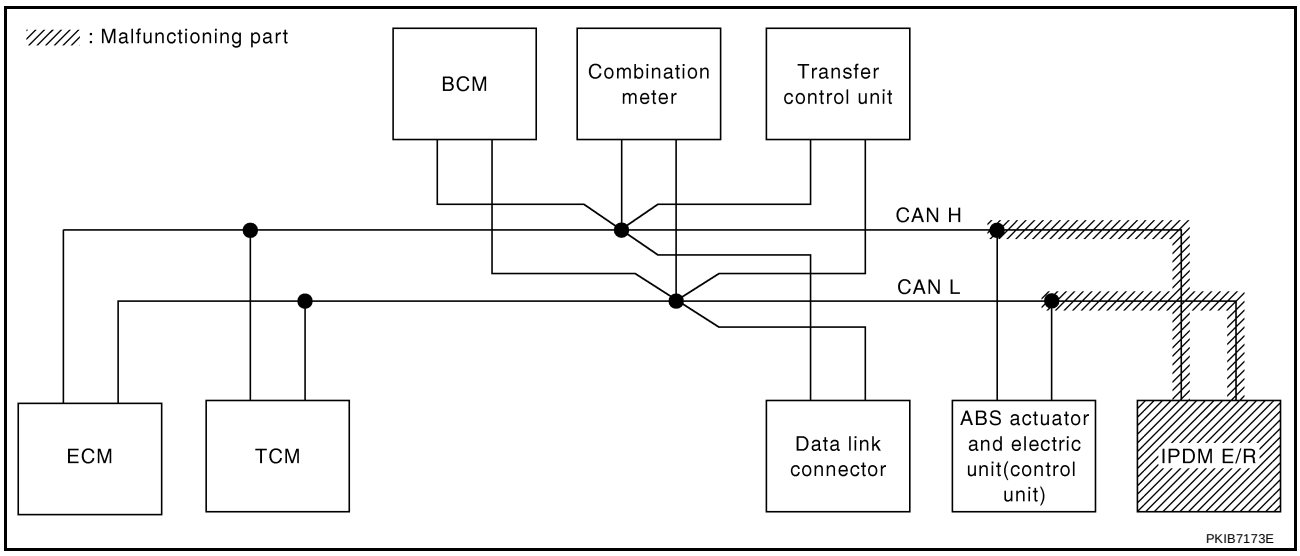


Case 10

Check IPDM E/R circuit. Refer to LAN-346, "IPDM E/R Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN ✓	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN ✓	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7041E



PKIB7173E

Case 11

Check CAN communication circuit. Refer to LAN-347, "CAN Communication Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN ✓	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN ✓	—	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication ✓	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	UNKWN ✓	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	—	UNKWN ✓	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7042E

Case 12

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-351, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN ✓	UNKWN	UNKWN	UNKWN	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN ✓	—	UNKWN	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7043E

Case 13

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-351, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis								
				ECM	TCM	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	—	—	—	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	—	UNKWN	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7044E

Inspection Between TCM and Data Link Connector Circuit

UKS003MV

1. CHECK CONNECTOR

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

- Harness connector F14
- Harness connector E5
- Harness connector E152
- Harness connector M31

OK or NG

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

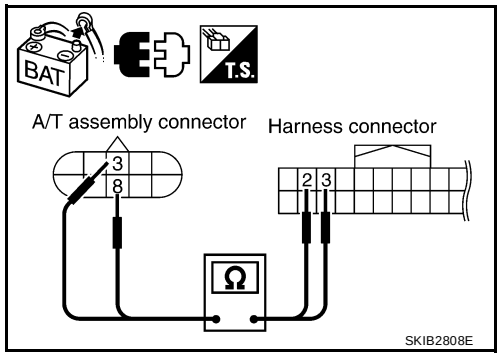
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect A/T assembly connector and harness connector F14.
2. Check continuity between A/T assembly harness connector F9 terminals 3 (L), 8 (P) and harness connector F14 terminals 2 (L), 3 (P).

3 (L) – 2 (L) : Continuity should exist.
8 (P) – 3 (P) : Continuity should exist.

OK or NG

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



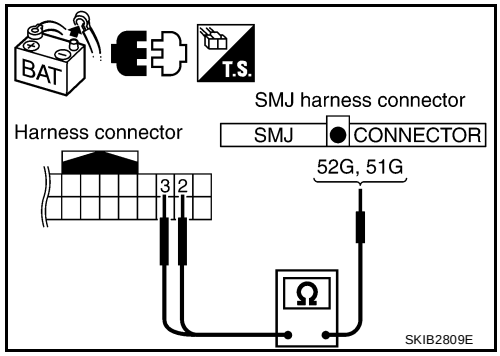
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector E152.
2. Check continuity between harness connector E5 terminals 2 (L), 3 (P) and harness connector E152 terminals 52G (L), 51G (P).

2 (L) – 52G (L) : Continuity should exist.
3 (P) – 51G (P) : Continuity should exist.

OK or NG

OK >> GO TO 4.
NG >> Repair harness.



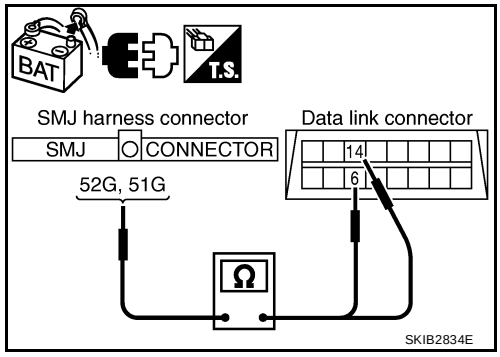
4. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between harness connector M31 terminals 52G (L), 51G (P) and data link connector M22 terminals 6 (L), 14 (P).

52G (L) – 6 (L) : Continuity should exist.
51G (P) – 14 (P) : Continuity should exist.

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.



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

UKS003MW

1. CHECK CONNECTOR

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

- Harness connector M91
- Harness connector E26

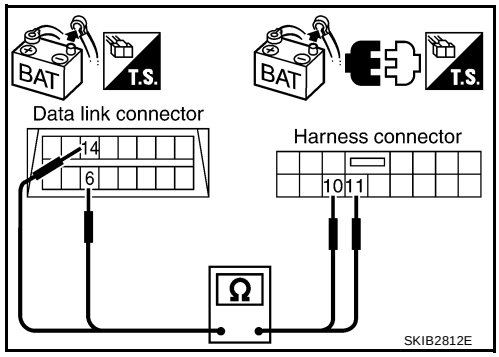
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M91.
2. Check continuity between data link connector M22 terminals 6 (L), 14 (P) and harness connector M91 terminals 11 (L), 10 (P).

6 (L) – 11 (L) : Continuity should exist.
14 (P) – 10 (P) : Continuity should exist.



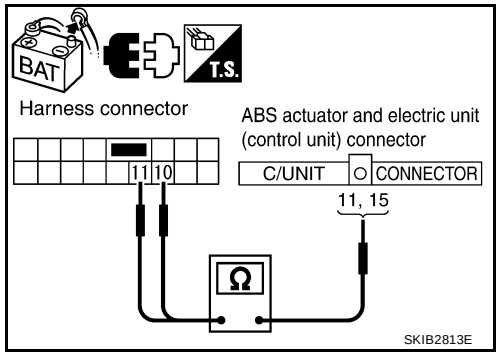
OK or NG

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 E26 terminals 11 (L), 10 (P) and ABS actuator and electric unit (control unit) harness connector E125 terminals 11 (L), 15 (P).

11 (L) – 11 (L) : Continuity should exist.
10 (P) – 15 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.

ECM Circuit Inspection

UKS003MX

1. CHECK CONNECTOR

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

- ECM connector
- Harness connector E2
- Harness connector F32

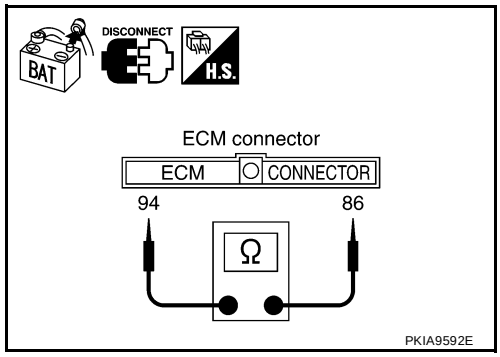
OK or NG

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 E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) **: Approx. 108 – 132 Ω**



OK or NG

OK >> Replace ECM.
NG >> Repair harness between ECM and A/T assembly.

TCM Circuit Inspection

UKS003MY

1. CHECK CONNECTOR

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

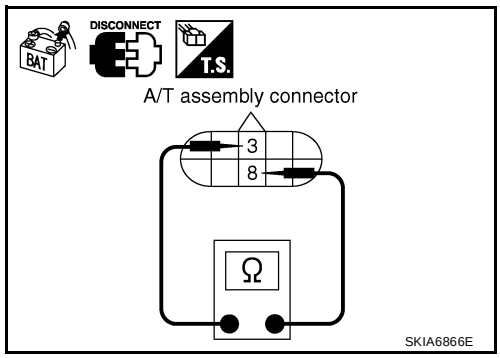
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect A/T assembly connector.
2. Check resistance between A/T assembly harness connector F9 terminals 3 (L) and 8 (P).

3 (L) – 8 (P) **: Approx. 54 – 66 Ω**



OK or NG

OK >> Replace control valve with TCM.
NG >> Repair harness between A/T assembly and harness connector F14.

Data Link Connector Circuit Inspection

UKS003MZ

1. CHECK CONNECTOR

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

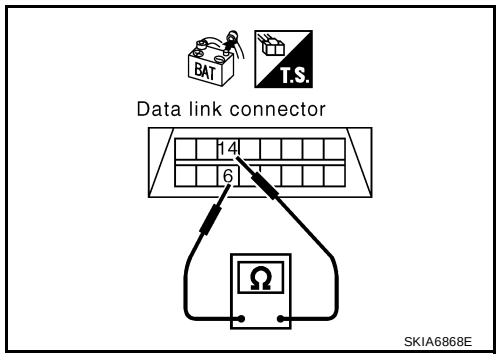
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

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

6 (L) – 14 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .

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

BCM Circuit Inspection

UKS003N0

1. CHECK CONNECTOR

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

OK or NG

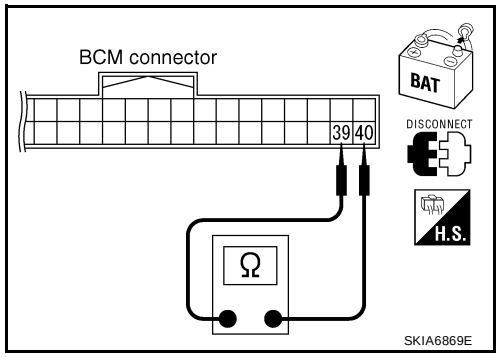
OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M18 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace BCM. Refer to BCS-19, "Removal and Installation of BCM" .

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

Combination Meter Circuit Inspection

UKS003N1

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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.

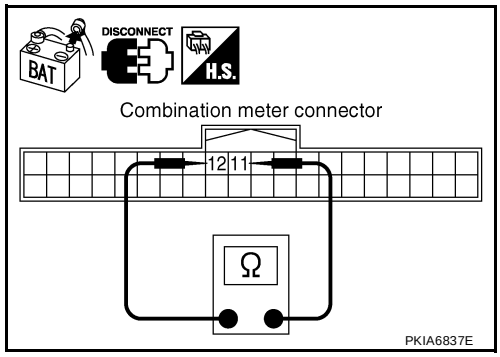
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M24 terminals 12 (L) and 11 (P).

12 (L) – 11 (P) : Approx. 54 – 66 Ω

OK or NG

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



Transfer Control Unit Circuit Inspection

UKS003N2

1. CHECK CONNECTOR

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

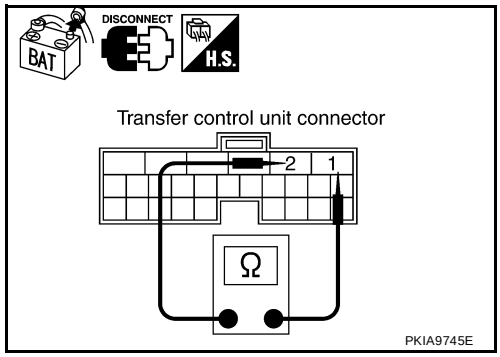
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect transfer control unit connector.
2. Check resistance between transfer control unit harness connector M152 terminals 1 (L) and 2 (P).

1 (L) – 2 (P) : Approx. 54 – 66 Ω

OK or NG

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



ABS Actuator and Electric Unit (Control Unit) Circuit Inspection

UKS003N3

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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).

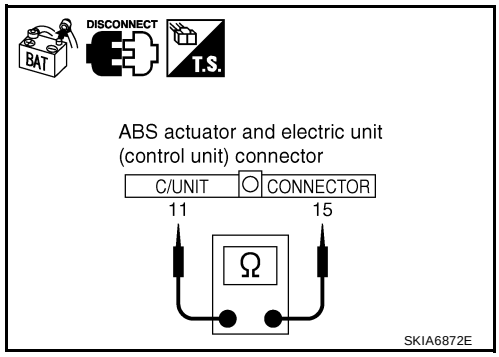
OK or NG

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 E125 terminals 11 (L) and 15 (P).

11 (L) – 15 (P) : Approx. 54 – 66 Ω



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 Inspection

UKS003N4

1. CHECK CONNECTOR

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

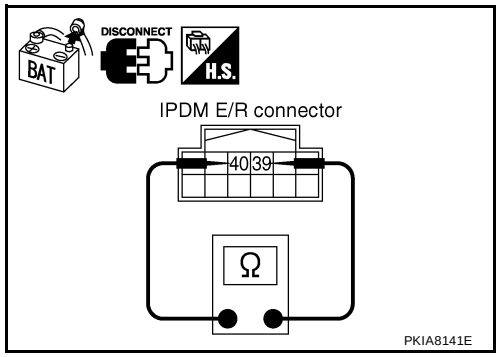
OK or NG

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 E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 108 – 132 Ω



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 Inspection

UKS003N5

1. CHECK CONNECTOR

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

- ECM
- TCM
- BCM
- Combination meter
- Transfer control unit
- 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.

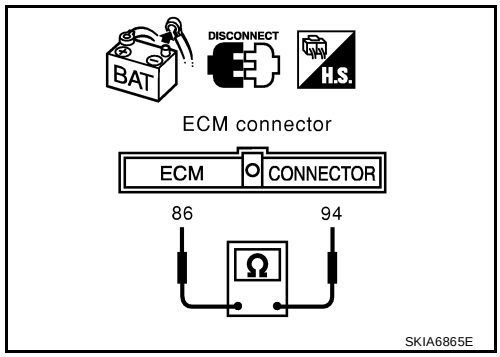
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E2.
2. Check continuity between ECM harness connector E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Continuity should not exist.

OK or NG

OK >> GO TO 3.
NG >> Repair harness between ECM and harness connector E2.



3. CHECK HARNESS FOR SHORT CIRCUIT

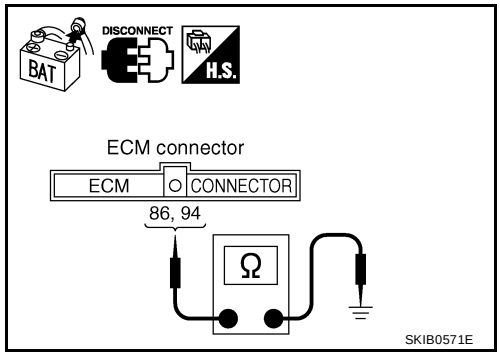
Check continuity between ECM harness connector E16 terminals 94 (L), 86 (P) and ground.

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

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

OK or NG

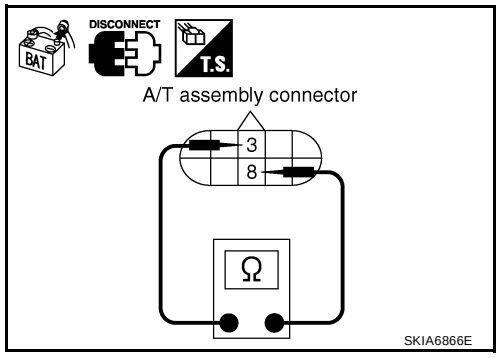
OK >> GO TO 4.
NG >> Repair harness between ECM and harness connector E2.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect A/T assembly connector and harness connector F14.
2. Check continuity between A/T assembly harness connector F9 terminals 3 (L) and 8 (P).

3 (L) – 8 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 5.

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

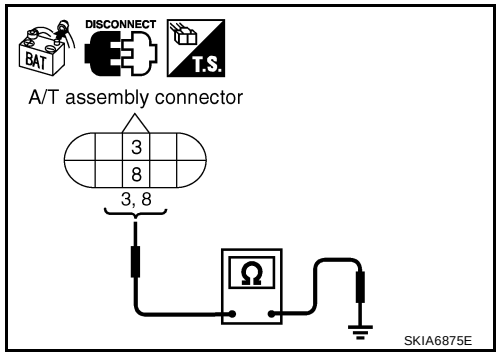
- Harness between A/T assembly and harness connector F32
- Harness between A/T assembly and harness connector F14

5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between A/T assembly harness connector F9 terminals 3 (L), 8 (P) and ground.

3 (L) – Ground : Continuity should not exist.

8 (P) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 6.

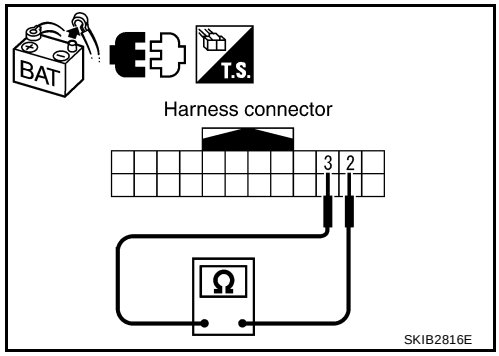
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between A/T assembly and harness connector F32
- Harness between A/T assembly and harness connector F14

6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect harness connector E152.
2. Check continuity between harness connector E5 terminals 2 (L) and 3 (P).

2 (L) – 3 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 7.

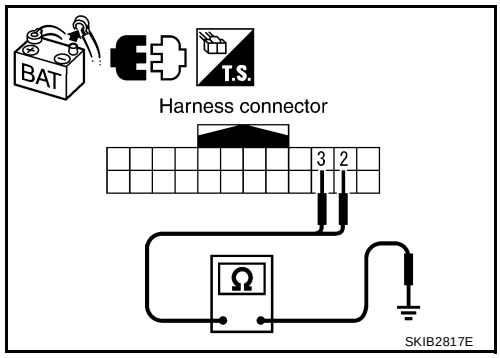
NG >> Repair harness between harness connector E5 and harness connector E152.

7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector E5 terminals 2 (L), 3 (P) and ground.

2 (L) – Ground : Continuity should not exist.

3 (P) – Ground : Continuity should not exist.



OK or NG

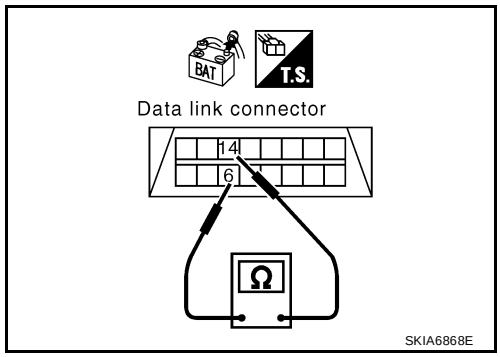
OK >> GO TO 8.

NG >> Repair harness between harness connector E5 and harness connector E152.

8. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
- BCM connector
- Combination meter connector
- Transfer control unit connector
- Harness connector M91
2. Check continuity between data link connector M22 terminals 6 (L) and 14 (P).

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



OK or NG

OK >> GO TO 9.

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

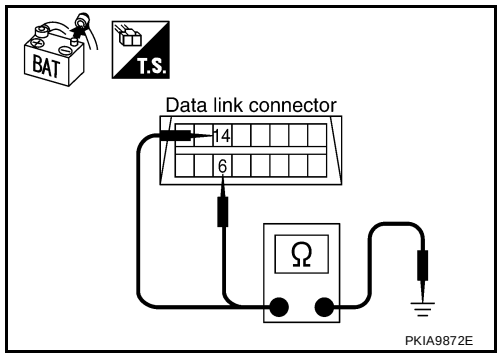
- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and transfer control unit
- Harness between data link connector and harness connector M91

9. CHECK HARNESS FOR SHORT CIRCUIT

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

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

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



OK or NG

OK >> GO TO 10.

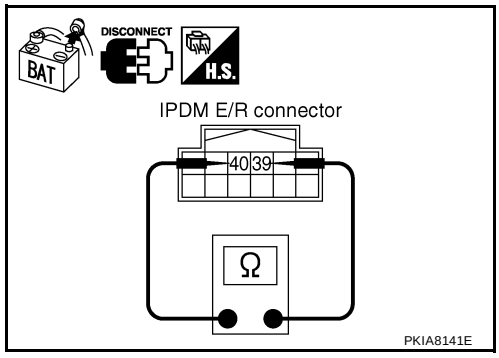
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M31
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and transfer control unit
- Harness between data link connector and harness connector M91

10. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Continuity should not exist.



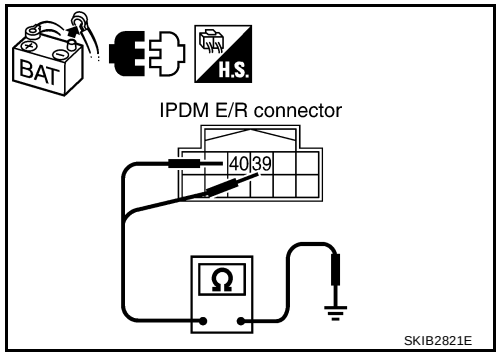
OK or NG

OK >> GO TO 11.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.
- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

11. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E122 terminals 39 (L), 40 (P) and ground.

39 (L) – Ground : Continuity should not exist.
40 (P) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 12.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.
- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

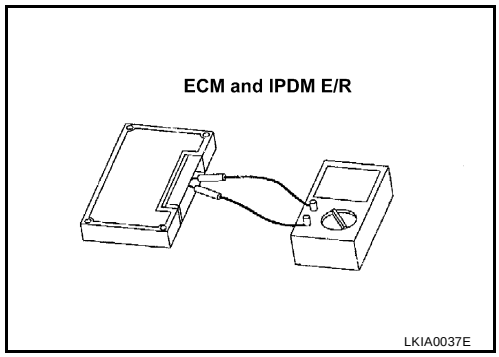
12. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

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

94 – 86 : Approx. 108 – 132 Ω

3. Check resistance between IPDM E/R terminals 39 and 40.

39 – 40 : Approx. 108 – 132 Ω



OK or NG

OK >> GO TO 13.
NG >> Replace ECM and/or IPDM E/R.

13. CHECK SYMPTOM

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

OK or NG

OK >> GO TO 14.
NG >> Refer to LAN-15, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced".

14. CHECK UNIT REPRODUCIBILITY

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

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

- TCM
- BCM
- Combination meter
- Transfer control unit
- ABS actuator and electric unit (control unit)
- ECM
- IPDM E/R

Inspection results

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

IPDM E/R Ignition Relay Circuit Inspection

UKS003N6

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

- IPDM E/R power supply circuit. Refer to PG-27, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition power supply circuit. Refer to PG-14, "IGNITION POWER SUPPLY — IGNITION SW. IN ON AND/OR START" .

CAN SYSTEM (TYPE 13)

PFP:23710

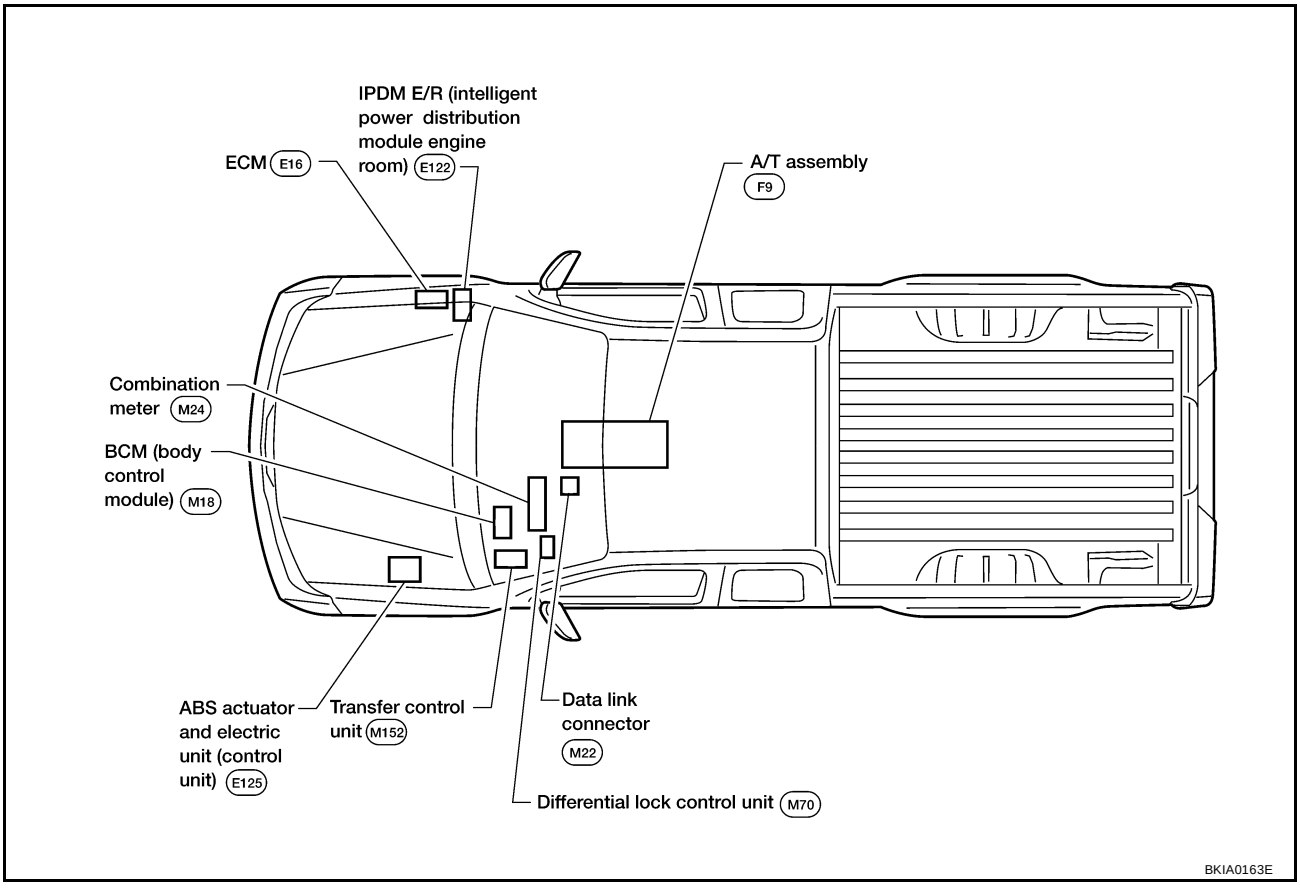
System Description

UKS003M8

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.

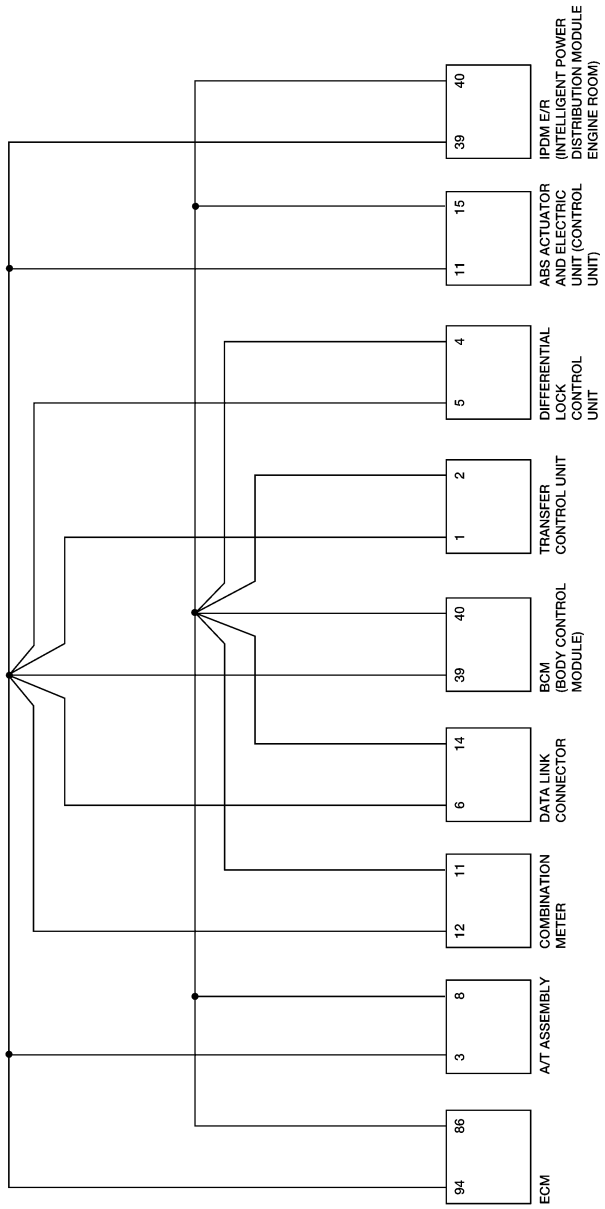
Component Parts and Harness Connector Location

UKS003M9



Schematic

UKS003MA

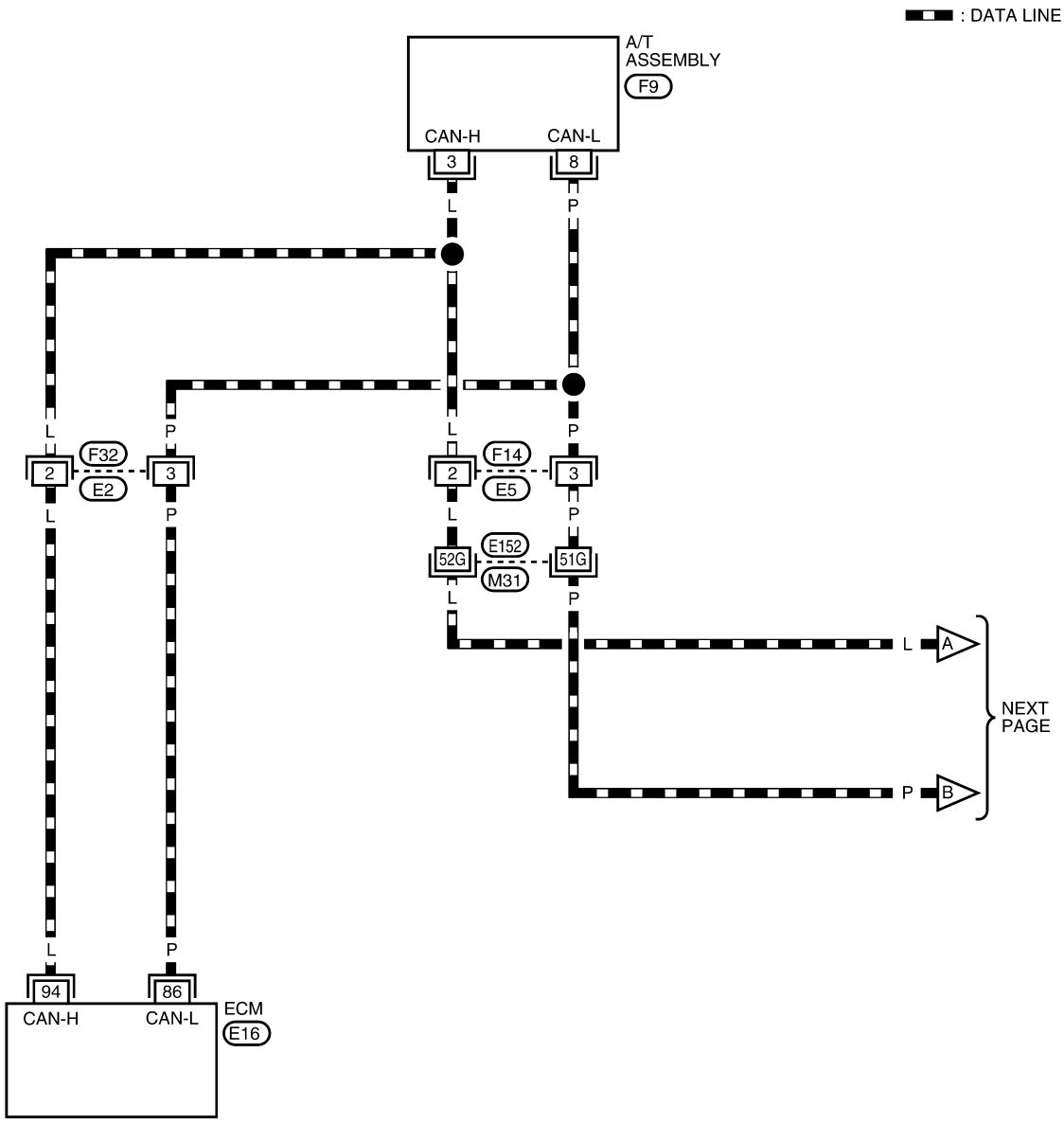


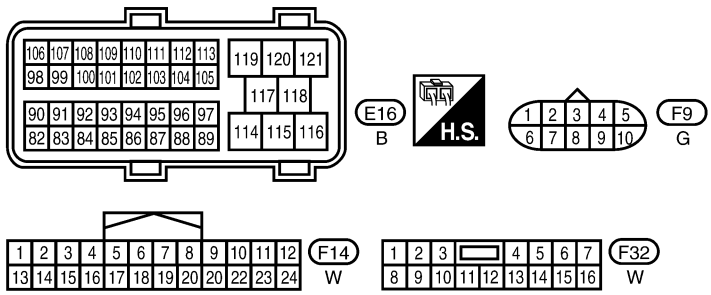
BKWA0518E

Wiring Diagram — CAN —

UKS003MB

LAN-CAN-37



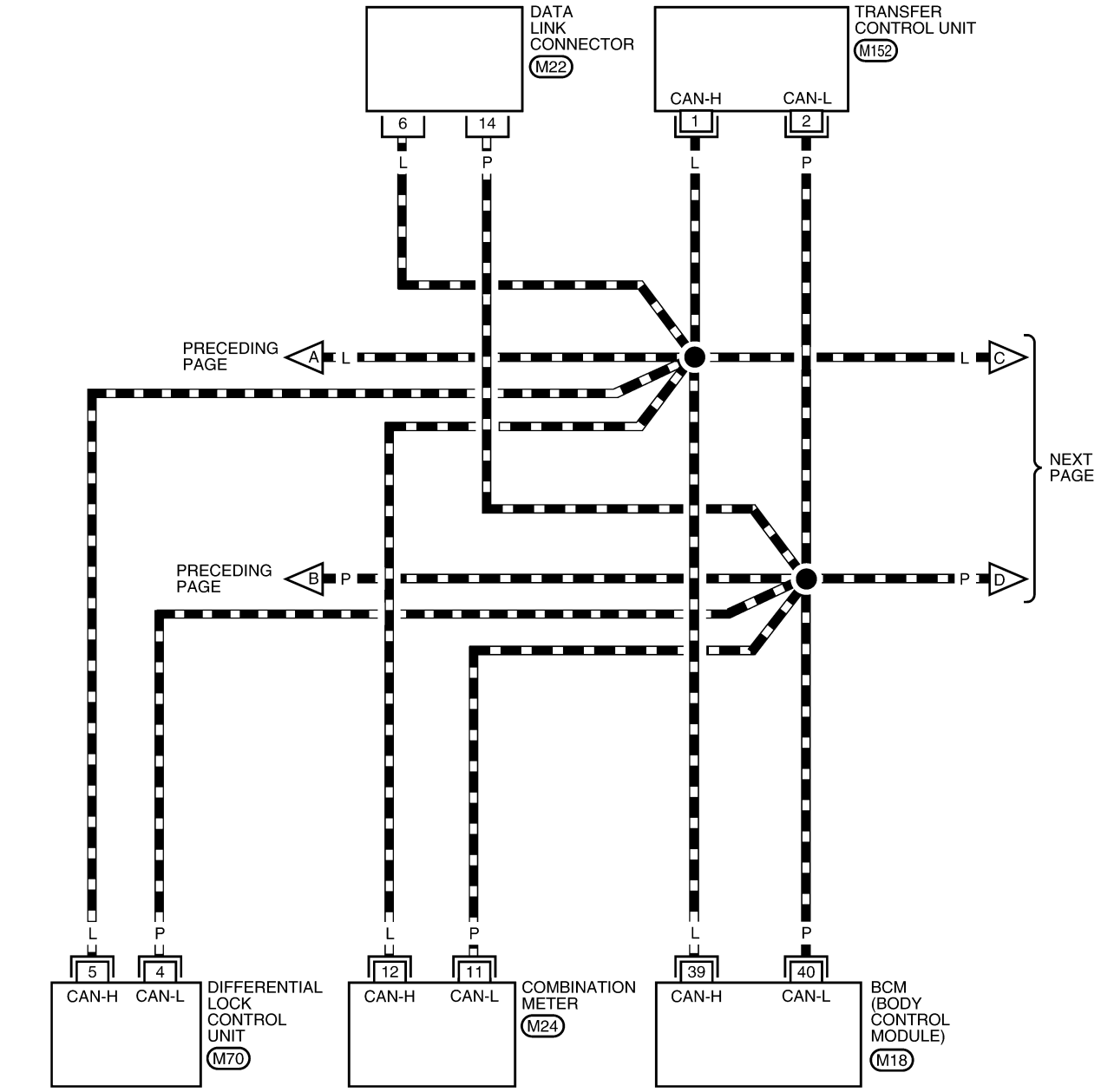


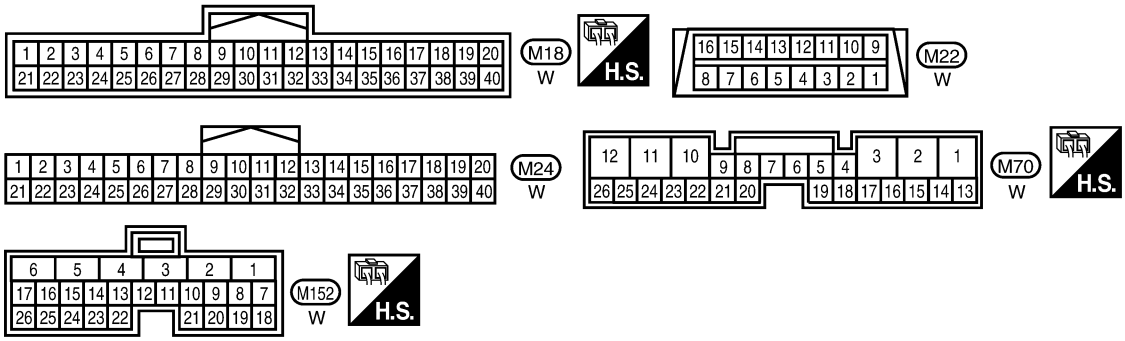
REFER TO THE FOLLOWING.
M31 - SUPER MULTIPLE JUNCTION (SMJ)

BKWA0522E

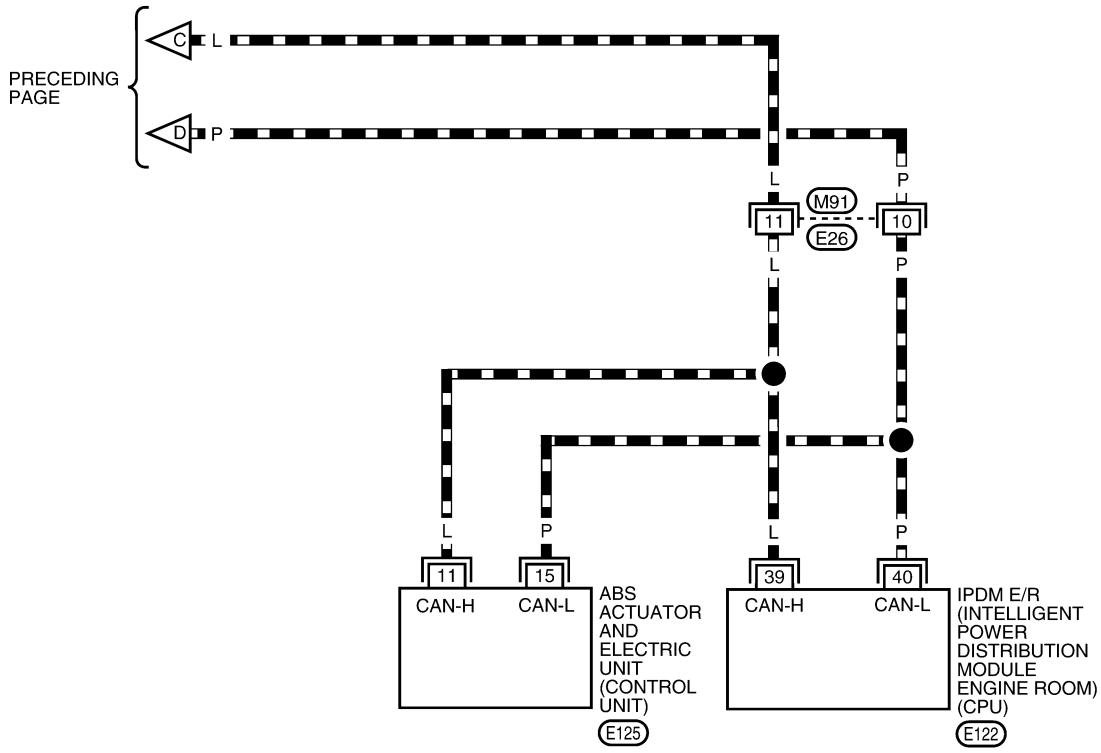
LAN-CAN-38

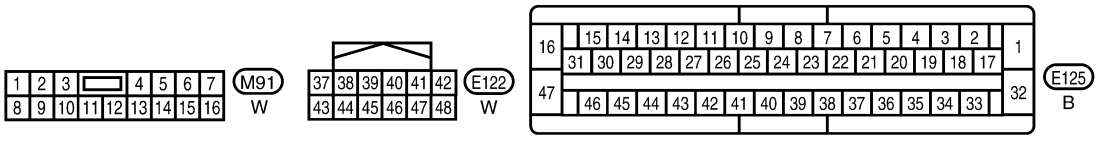
: DATA LINE





BKWA0523E


: DATA LINE
PRECEDING PAGE
C
L
D
P
L
P
M91
11
10
E26
L
P
L
P
L
P
11
15
39
40
CAN-H
CAN-L
CAN-H
CAN-L
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
E125
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) (CPU)
E122


1 2 3 4 5 6 7
8 9 10 11 12 13 14 15 16
M91
W
37 38 39 40 41 42
43 44 45 46 47 48
E122
W
16
15 14 13 12 11 10 9 8 7 6 5 4 3 2
1
31 30 29 28 27 26 25 24 23 22 21 20 19 18 17
47
46 45 44 43 42 41 40 39 38 37 36 35 34 33
32
E125
B

BKWA0524E

CHECK SHEET

UKS003MC

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

Check sheet table

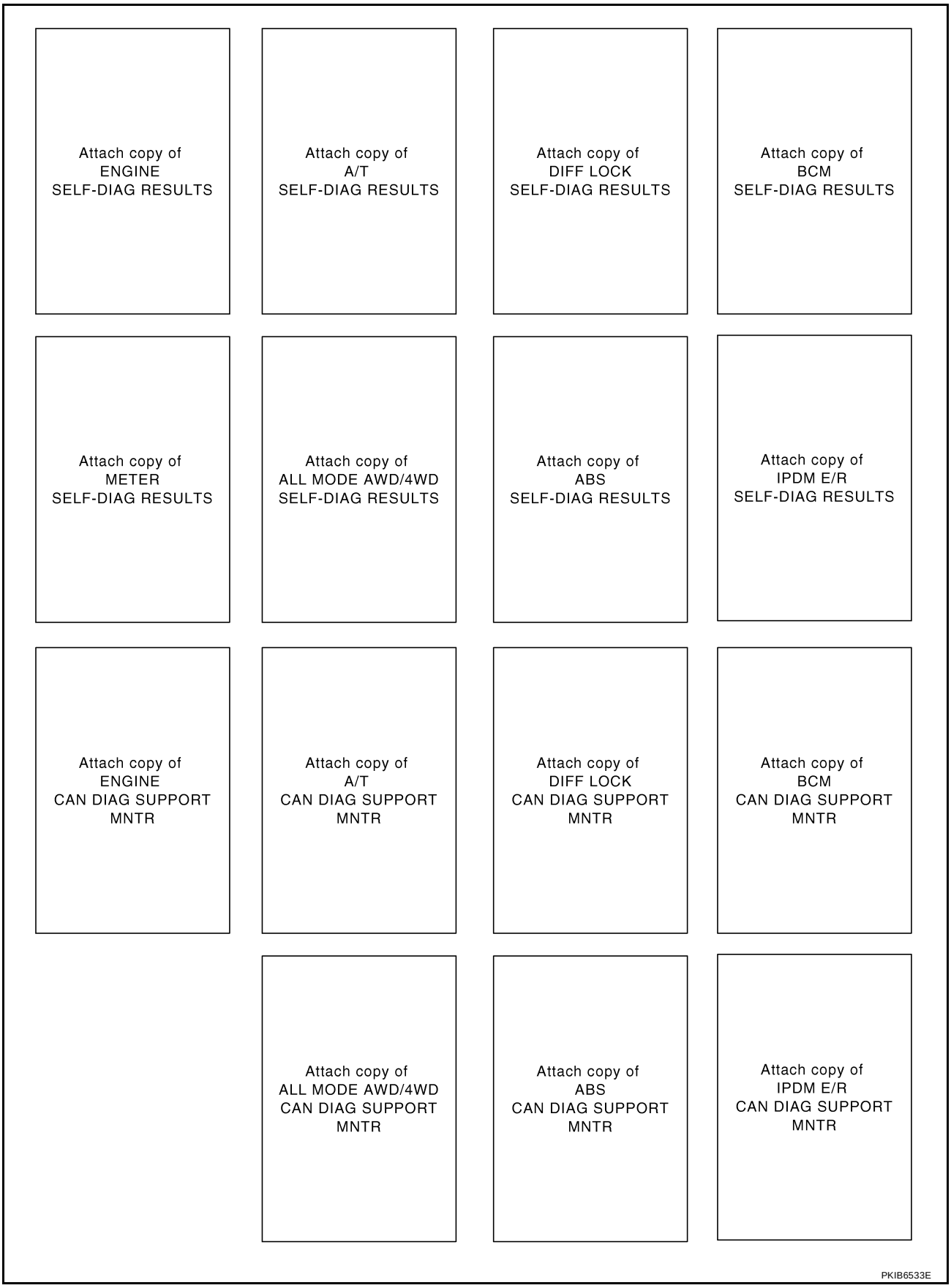
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIB6532E


Attach copy of
ENGINE
SELF-DIAG RESULTS
Attach copy of
A/T
SELF-DIAG RESULTS
Attach copy of
DIFF LOCK
SELF-DIAG RESULTS
Attach copy of
BCM
SELF-DIAG RESULTS
Attach copy of
METER
SELF-DIAG RESULTS
Attach copy of
ALL MODE AWD/4WD
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
A/T
CAN DIAG SUPPORT
MNTR
Attach copy of
DIFF LOCK
CAN DIAG SUPPORT
MNTR
Attach copy of
BCM
CAN DIAG SUPPORT
MNTR
Attach copy of
ALL MODE AWD/4WD
CAN DIAG SUPPORT
MNTR
Attach copy of
ABS
CAN DIAG SUPPORT
MNTR
Attach copy of
IPDM E/R
CAN DIAG SUPPORT
MNTR
PKIB6533E

CHECK SHEET RESULTS (EXAMPLE)

NOTE:

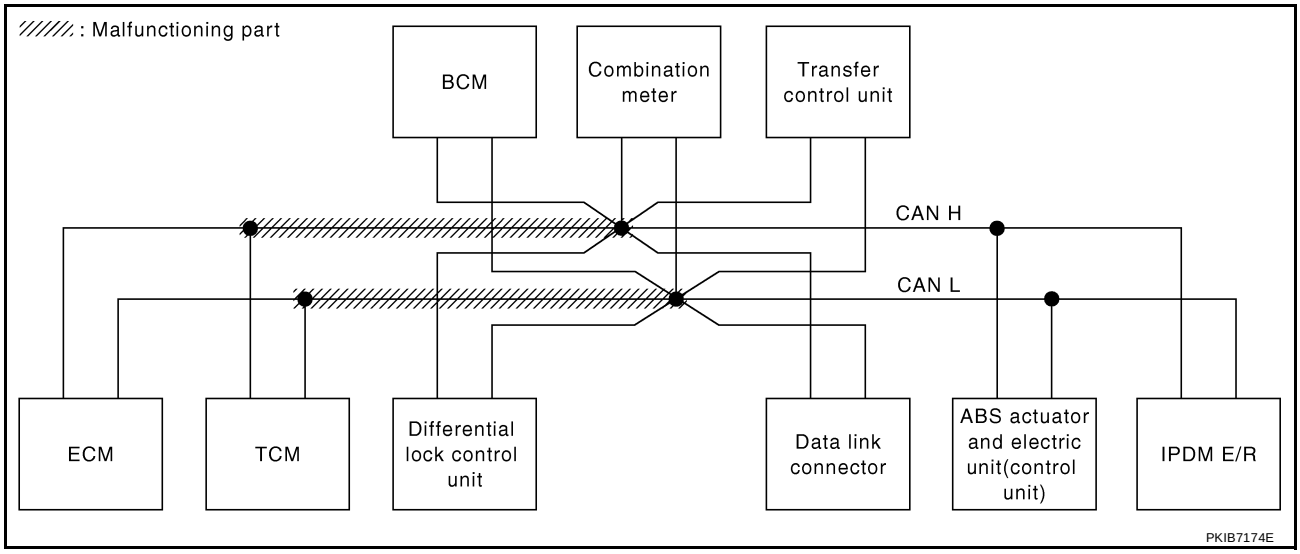
If a check mark is put on “NG” on “INITIAL DIAG (Initial diagnosis)”, replace the control unit.

Case 1

Check harness between TCM and data link connector circuit. Refer to LAN-370, "Inspection Between TCM and Data Link Connector Circuit" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7018E



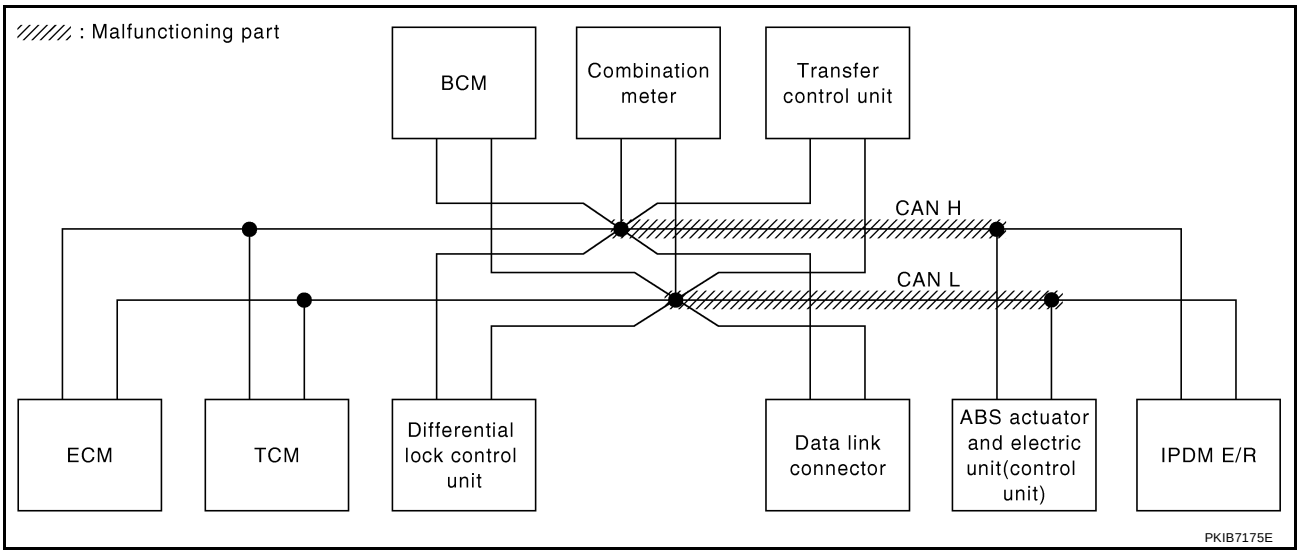
PKIB7174E

Case 2

Check harness between data link connector and ABS actuator and electric unit (control unit) circuit. Refer to LAN-371, "Inspection Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Circuit"
.

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7019E

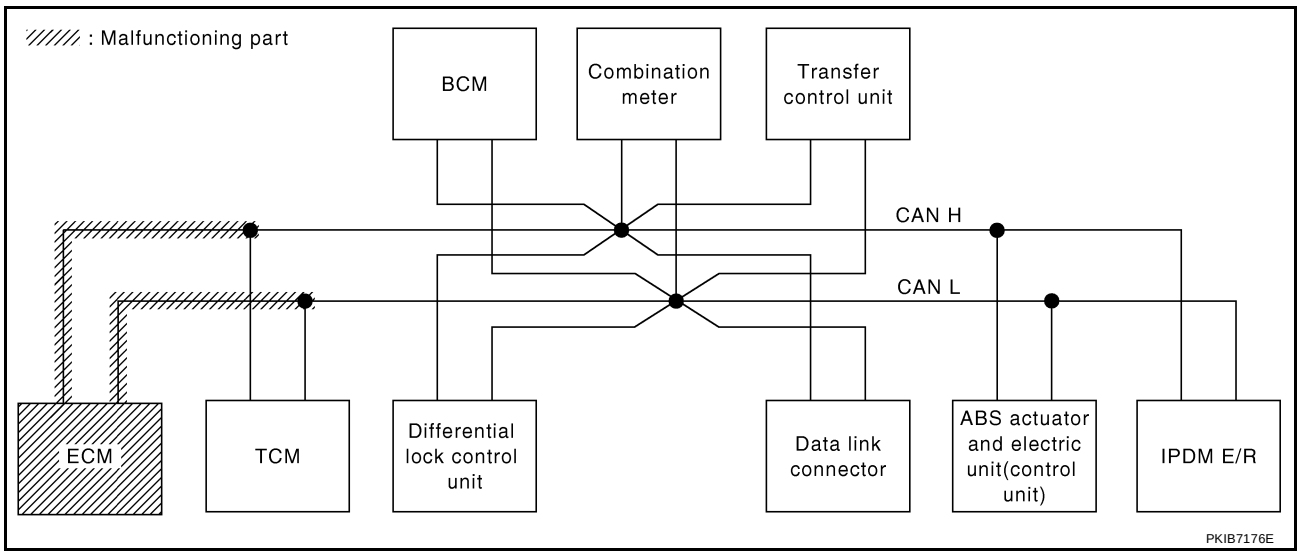


Case 3

Check ECM circuit. Refer to LAN-372, "ECM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN ✓	—	UNKWN ✓	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN ✓	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
DIFF LOCK	—	NG	UNKWN	UNKWN ✓	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN ✓	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN ✓	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN ✓	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN ✓	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7020E



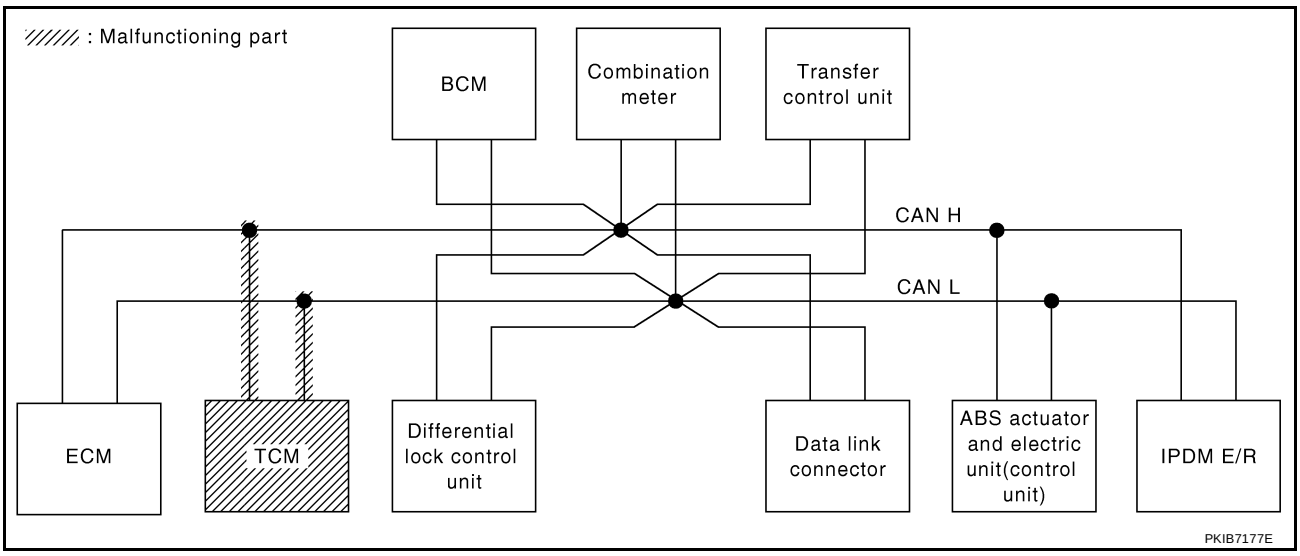
PKIB7176E

Case 4

Check TCM circuit. Refer to LAN-373, "TCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN ✓	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN ✓	—	—	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN ✓	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	UNKWN ✓	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7021E

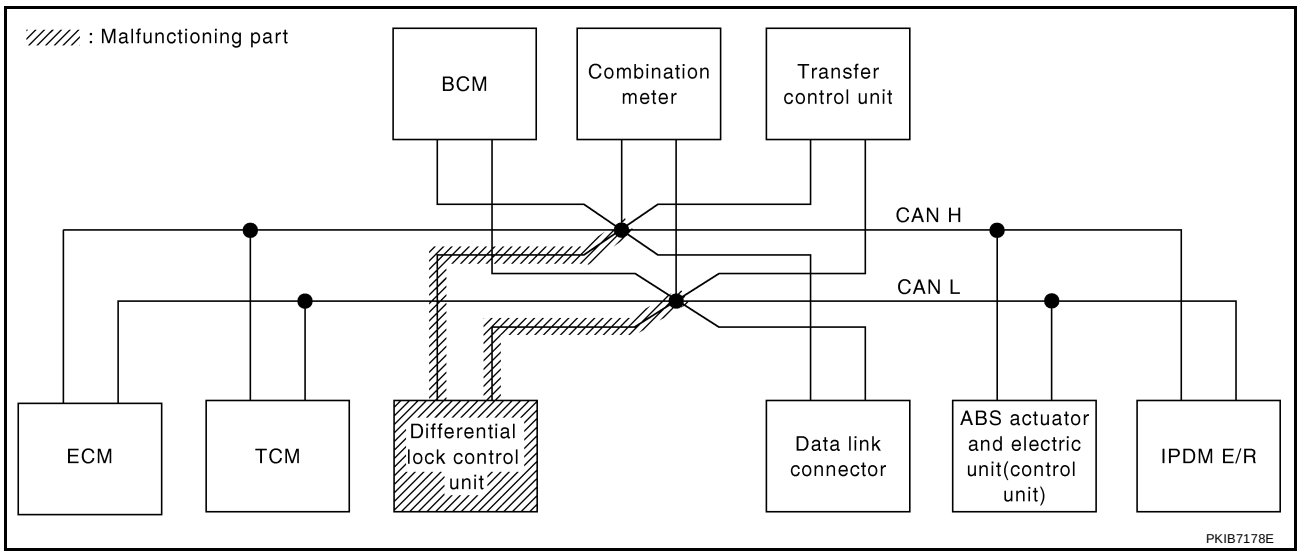


Case 5

Check differential lock control unit circuit. Refer to LAN-373, "Differential Lock Control Unit Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN ✓	UNKWN ✓	—	—	—	—	UNKWN ✓	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN ✓	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7022E



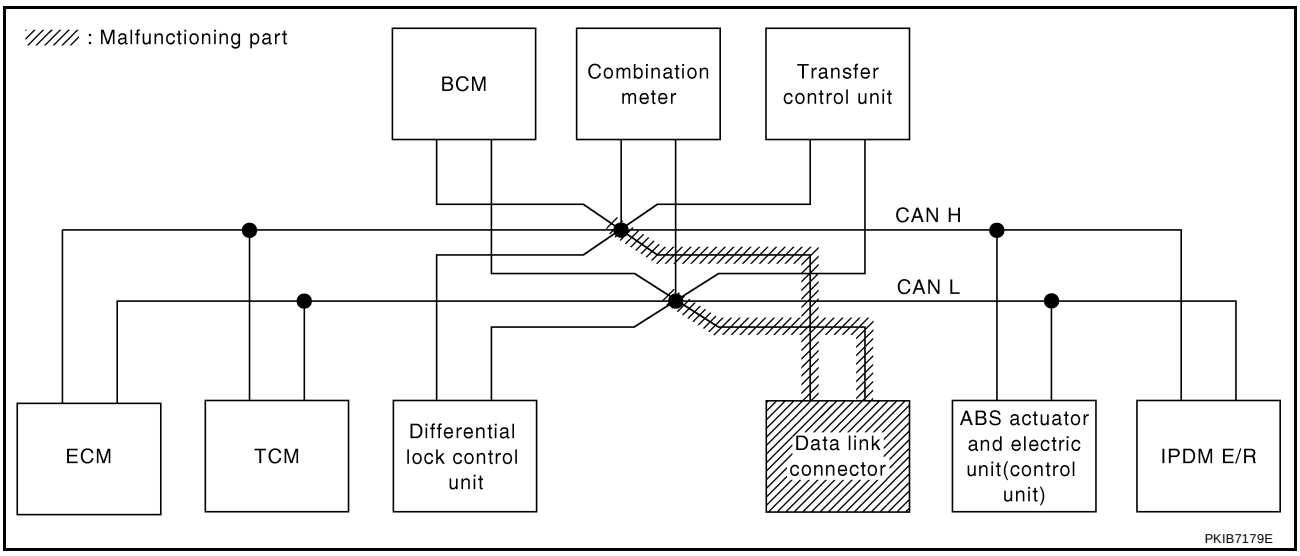
PKIB7178E

Case 6

Check data link connector circuit. Refer to LAN-374, "Data Link Connector Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication ✓	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7023E



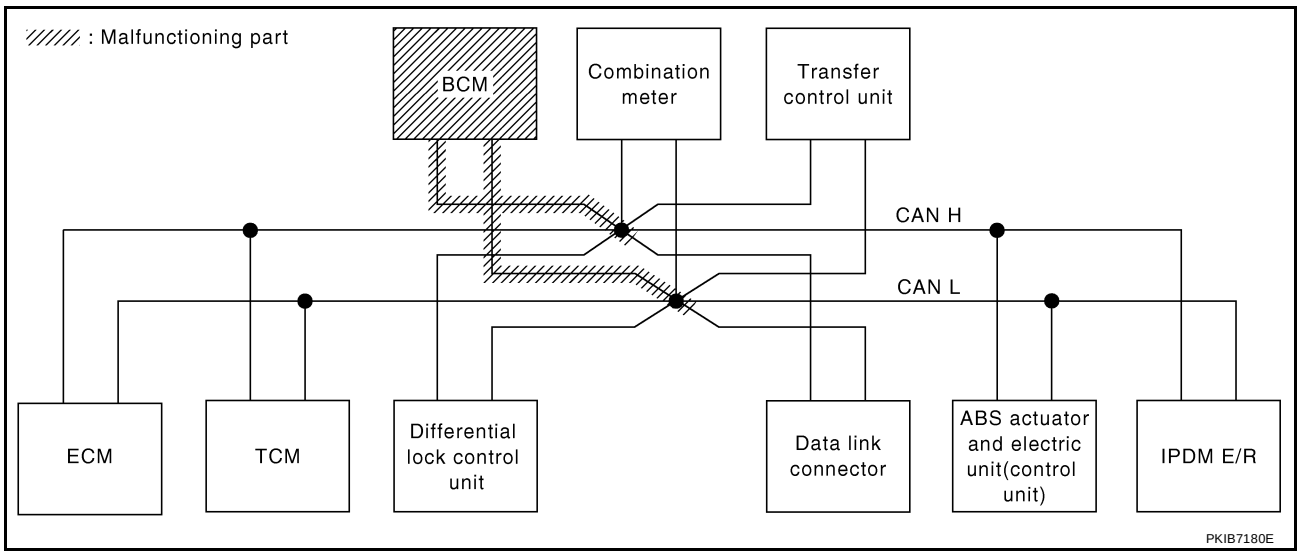
PKIB7179E

Case 7

Check BCM circuit. Refer to LAN-374, "BCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN ✓	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication ✓	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN ✓	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7024E



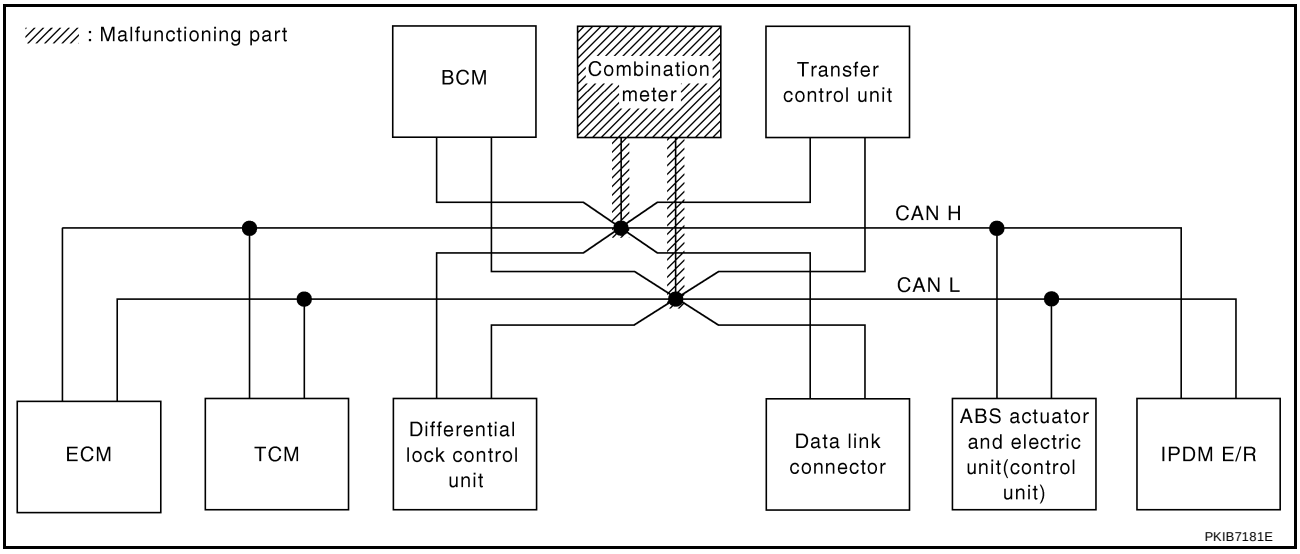
PKIB7180E

Case 8

Check combination meter circuit. Refer to LAN-375, "Combination Meter Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7025E



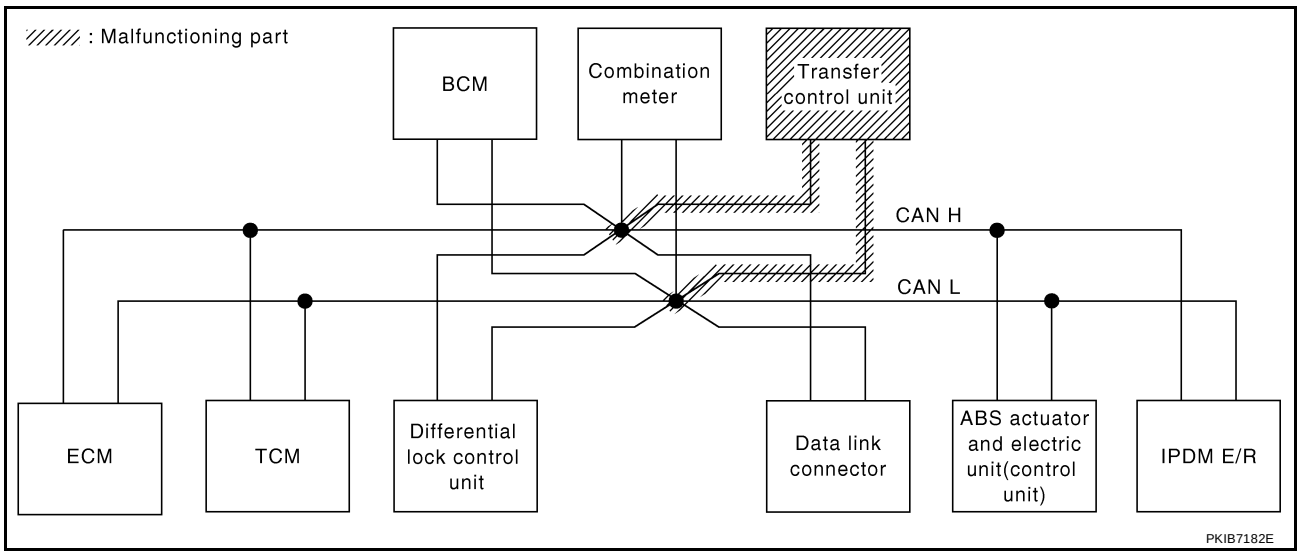
PKIB7181E

Case 9

Check transfer control unit circuit. Refer to LAN-375, "Transfer Control Unit Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN ✓	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN ✓	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN ✓	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	—	UNKWN ✓	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN ✓	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7026E



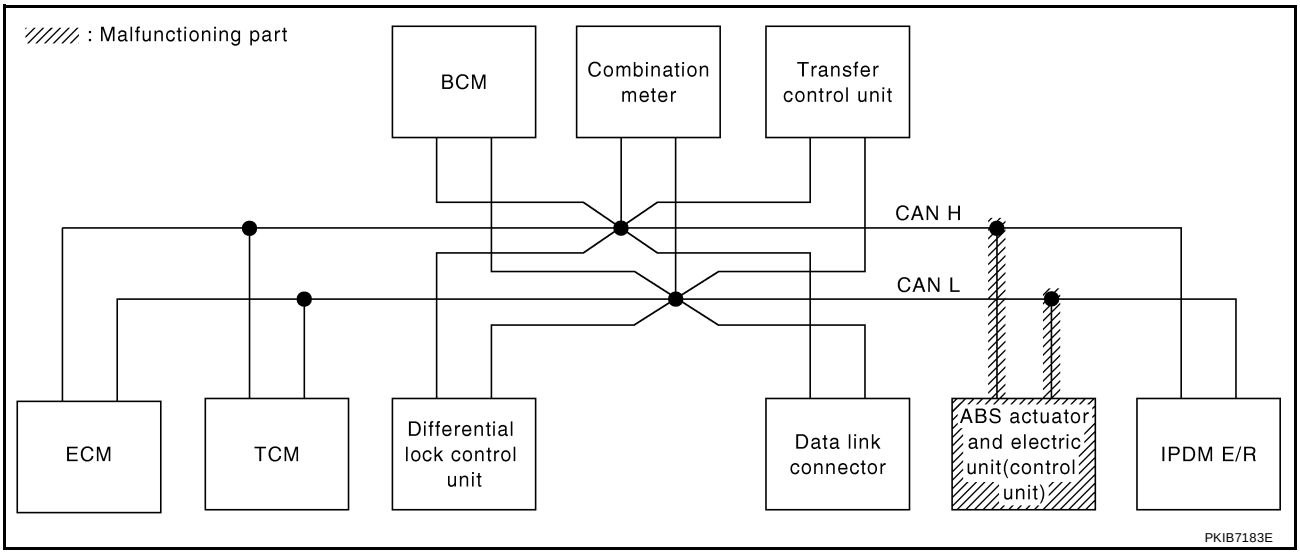
PKIB7182E

Case 10

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-376, "ABS Actuator and Electric Unit (Control Unit) Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	—	UNKWN ✓	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7027E

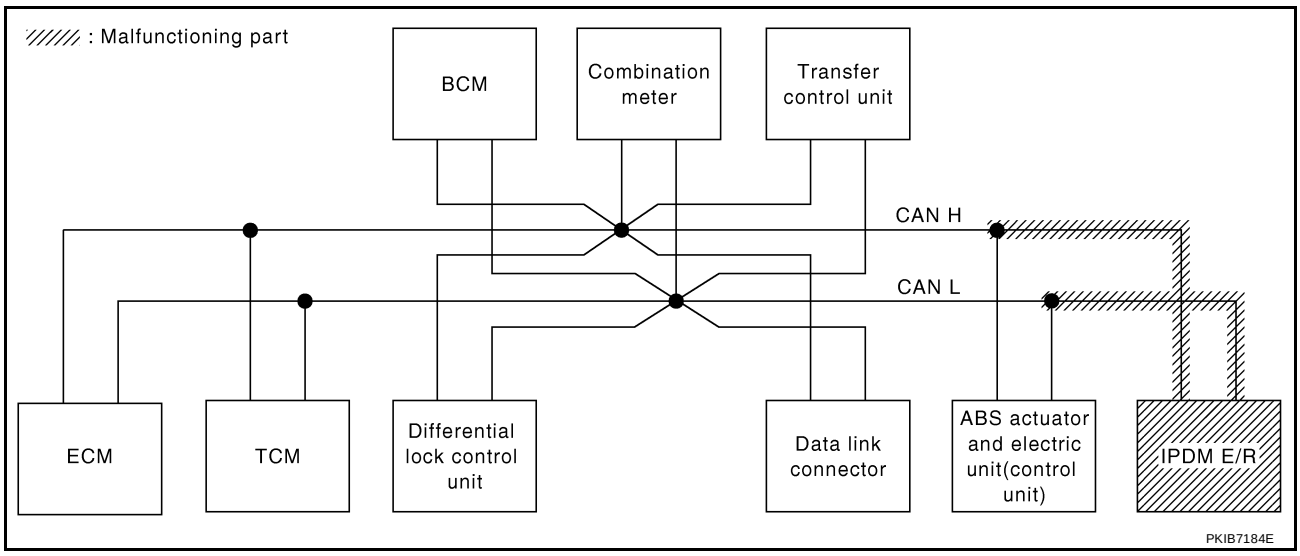


Case 11

Check IPDM E/R circuit. Refer to LAN-376, "IPDM E/R Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7028E



PKIB7184E

Case 12

Check CAN communication circuit. Refer to LAN-377, "CAN Communication Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7029E

Case 13

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-381, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN ✓	—	UNKWN	UNKWN	UNKWN	UNKWN ✓	UNKWN	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN ✓	—	—	UNKWN	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7030E

Case 14

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-381, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	DIFF LOCK	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	—	—	—	—	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	—	UNKWN	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7031E

Inspection Between TCM and Data Link Connector Circuit

UKS003MD

1. CHECK CONNECTOR

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

- Harness connector F14
- Harness connector E5
- Harness connector E152
- Harness connector M31

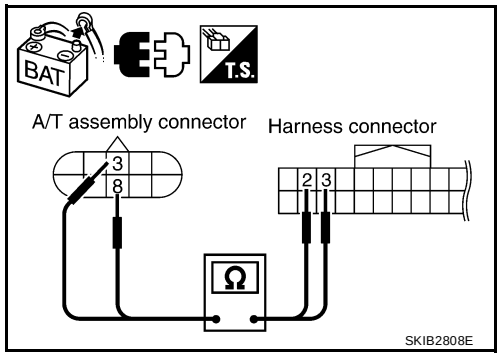
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect A/T assembly connector and harness connector F14.
2. Check continuity between A/T assembly harness connector F9 terminals 3 (L), 8 (P) and harness connector F14 terminals 2 (L), 3 (P).

3 (L) – 2 (L) : **Continuity should exist.**
8 (P) – 3 (P) : **Continuity should exist.**



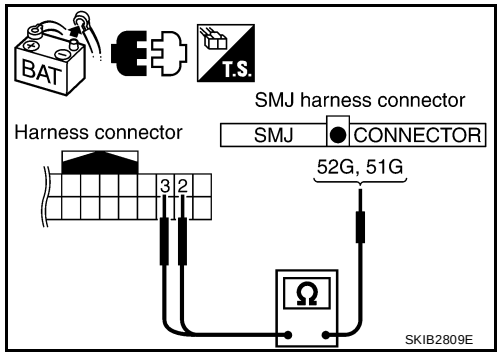
OK or NG

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

3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector E152.
2. Check continuity between harness connector E5 terminals 2 (L), 3 (P) and harness connector E152 terminals 52G (L), 51G (P).

2 (L) – 52G (L) : **Continuity should exist.**
3 (P) – 51G (P) : **Continuity should exist.**



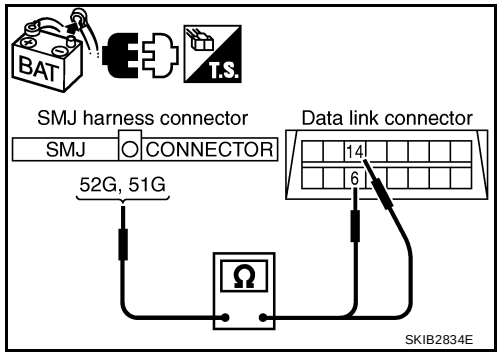
OK or NG

OK >> GO TO 4.
NG >> Repair harness.

4. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between harness connector M31 terminals 52G (L), 51G (P) and data link connector M22 terminals 6 (L), 14 (P).

52G (L) – 6 (L) : **Continuity should exist.**
51G (P) – 14 (P) : **Continuity should exist.**



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.

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

UKS003ME

1. CHECK CONNECTOR

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

- Harness connector M91
- Harness connector E26

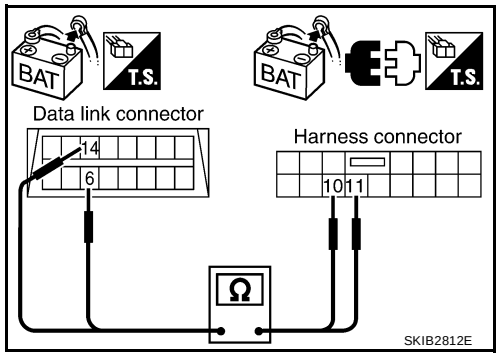
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M91.
2. Check continuity between data link connector M22 terminals 6 (L), 14 (P) and harness connector M91 terminals 11 (L), 10 (P).

6 (L) – 11 (L) : Continuity should exist.
14 (P) – 10 (P) : Continuity should exist.



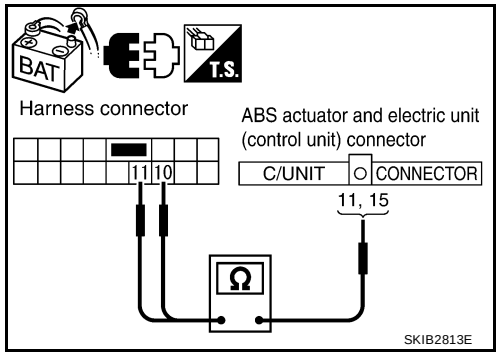
OK or NG

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 E26 terminals 11 (L), 10 (P) and ABS actuator and electric unit (control unit) harness connector E125 terminals 11 (L), 15 (P).

11 (L) – 11 (L) : Continuity should exist.
10 (P) – 15 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.

ECM Circuit Inspection

UKS003MF

1. CHECK CONNECTOR

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

- ECM connector
- Harness connector E2
- Harness connector F32

OK or NG

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

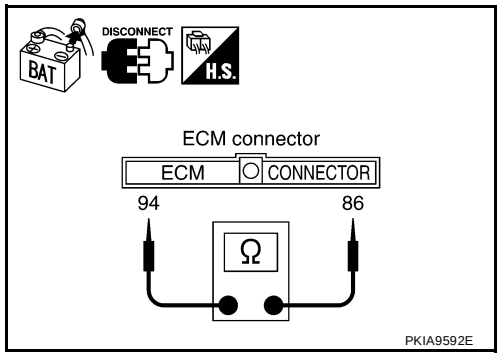
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) **: Approx. 108 – 132 Ω**

OK or NG

OK >> Replace ECM.
NG >> Repair harness between ECM and A/T assembly.



TCM Circuit Inspection

UKS003MG

1. CHECK CONNECTOR

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

OK or NG

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

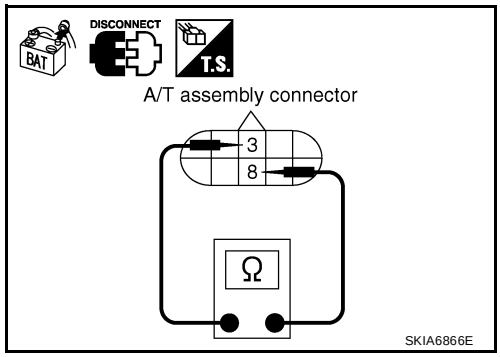
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect A/T assembly connector.
2. Check resistance between A/T assembly harness connector F9 terminals 3 (L) and 8 (P).

3 (L) – 8 (P) **: Approx. 54 – 66 Ω**

OK or NG

OK >> Replace control valve with TCM.
NG >> Repair harness between A/T assembly and harness connector F14.



Differential Lock Control Unit Circuit Inspection

UKS003MH

1. CHECK CONNECTOR

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

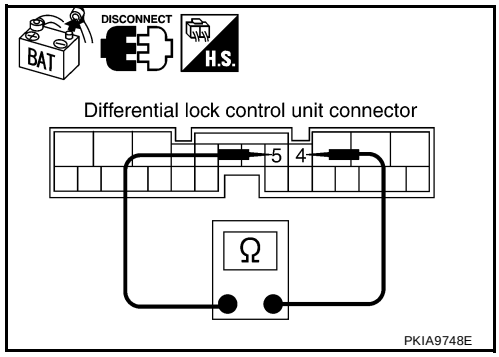
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect differential lock control unit connector.
2. Check resistance between differential lock control unit harness connector M70 terminals 5 (L) and 4 (P).

5 (L) – 4 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace differential lock control unit.
NG >> Repair harness between differential lock control unit and data link connector.

Data Link Connector Circuit Inspection

UKS003MI

1. CHECK CONNECTOR

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

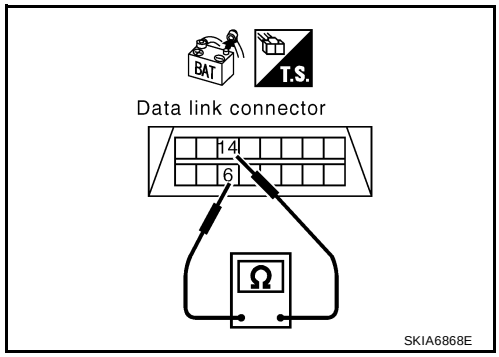
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

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

6 (L) – 14 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness between data link connector and BCM.

BCM Circuit Inspection

UKS003MJ

1. CHECK CONNECTOR

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

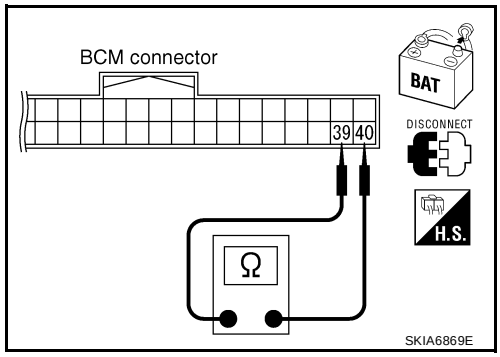
OK or NG

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 M18 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace BCM. Refer to BCS-19, "Removal and Installation of BCM" .

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

Combination Meter Circuit Inspection

UKS003MK

1. CHECK CONNECTOR

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

OK or NG

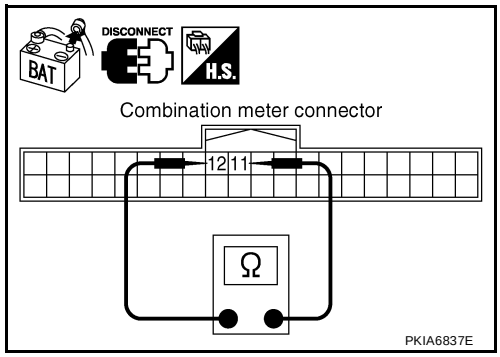
OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M24 terminals 12 (L) and 11 (P).

12 (L) – 11 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace combination meter.

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

Transfer Control Unit Circuit Inspection

UKS003ML

1. CHECK CONNECTOR

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

OK or NG

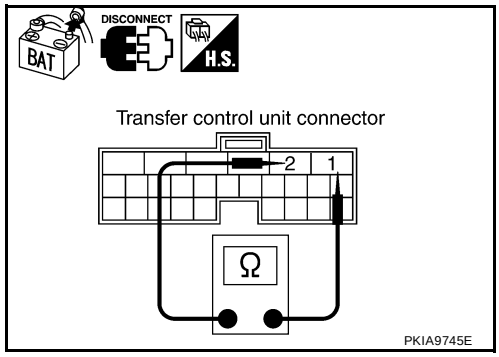
OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect transfer control unit connector.
2. Check resistance between transfer control unit harness connector M152 terminals 1 (L) and 2 (P).

1 (L) – 2 (P) : Approx. 54 – 66 Ω



OK or NG

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

ABS Actuator and Electric Unit (Control Unit) Circuit Inspection

UKS003MM

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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).

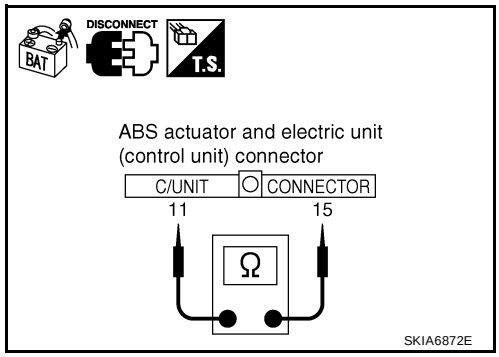
OK or NG

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 E125 terminals 11 (L) and 15 (P).

11 (L) – 15 (P) : Approx. 54 – 66 Ω



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 Inspection

UKS003MN

1. CHECK CONNECTOR

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

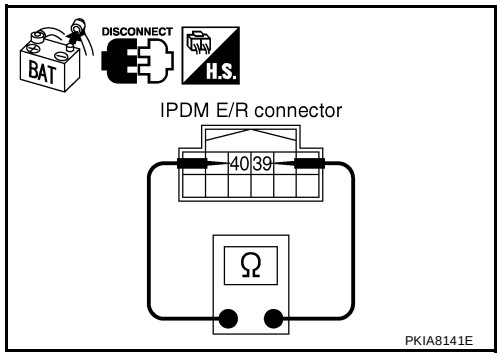
OK or NG

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 E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 108 – 132 Ω



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 Inspection

UKS003MO

1. CHECK CONNECTOR

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

- ECM
- TCM
- Differential lock control unit
- BCM
- Combination meter
- Transfer control unit
- ABS actuator and electric unit (control unit)
- IPDM E/R
- Between ECM and IPDM E/R

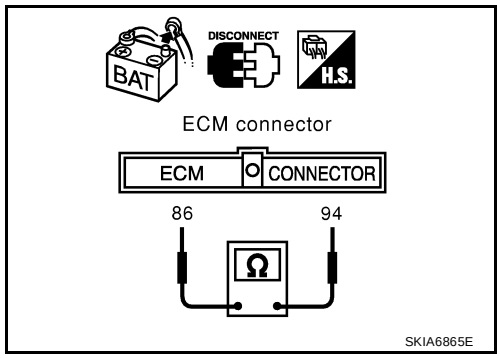
OK or NG

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

2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E2.
2. Check continuity between ECM harness connector E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 3.
NG >> Repair harness between ECM and harness connector E2.

3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector E16 terminals 94 (L), 86 (P) and ground.

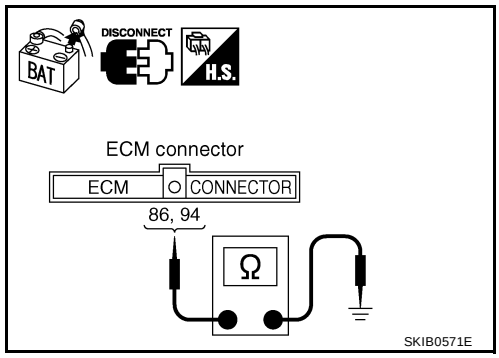
94 (L) – Ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector E2.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect A/T assembly connector and harness connector F14.
2. Check continuity between A/T assembly harness connector F9 terminals 3 (L) and 8 (P).

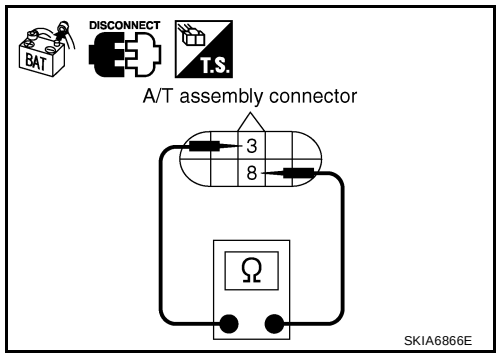
3 (L) – 8 (P) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

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

- Harness between A/T assembly and harness connector F32
- Harness between A/T assembly and harness connector F14



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between A/T assembly harness connector F9 terminals 3 (L), 8 (P) and ground.

3 (L) – Ground : Continuity should not exist.

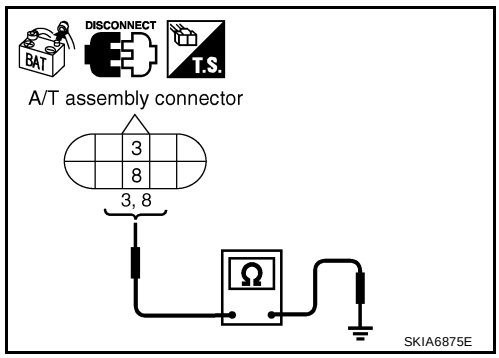
8 (P) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

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

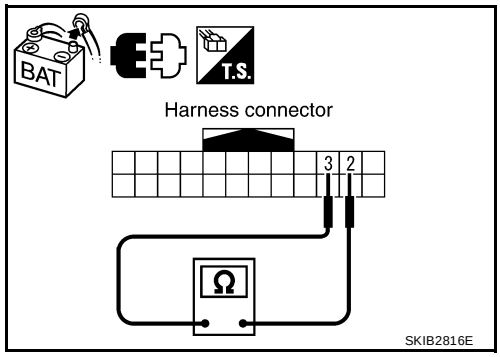
- Harness between A/T assembly and harness connector F32
- Harness between A/T assembly and harness connector F14



6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect harness connector E152.
2. Check continuity between harness connector E5 terminals 2 (L) and 3 (P).

2 (L) – 3 (P) : Continuity should not exist.



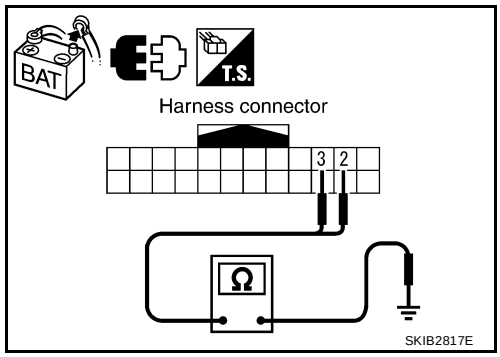
OK or NG

OK >> GO TO 7.
NG >> Repair harness between harness connector E5 and harness connector E152.

7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector E5 terminals 2 (L), 3 (P) and ground.

2 (L) – Ground : Continuity should not exist.
3 (P) – Ground : Continuity should not exist.



OK or NG

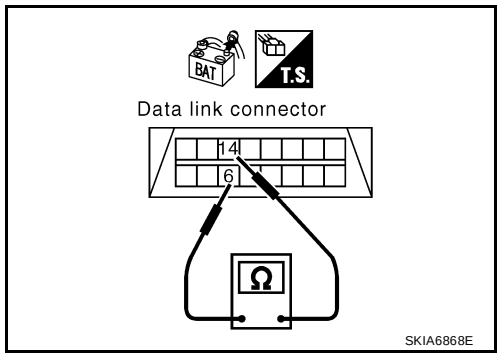
OK >> GO TO 8.
NG >> Repair harness between harness connector E5 and harness connector E152.

8. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
- Differential lock control unit connector
- BCM connector
- Combination meter connector
- Transfer control unit connector
- Harness connector M91

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

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



OK or NG

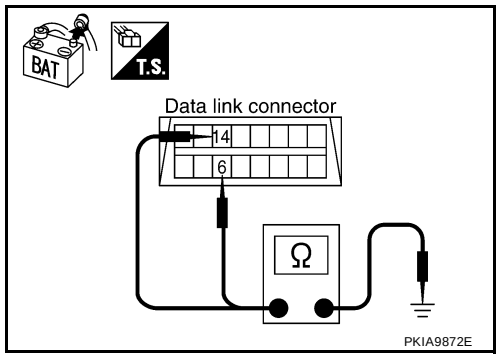
OK >> GO TO 9.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.
- Harness between data link connector and harness connector M31
- Harness between data link connector and differential lock control unit
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and transfer control unit
- Harness between data link connector and harness connector M91

9. CHECK HARNESS FOR SHORT CIRCUIT

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

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

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



OK or NG

OK >> GO TO 10.

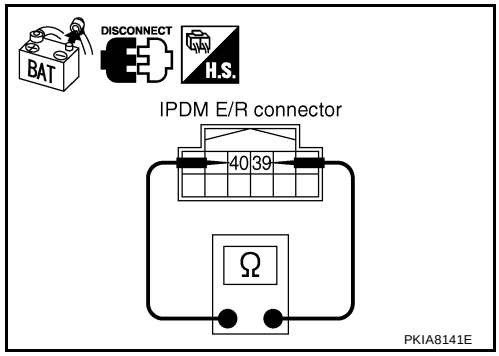
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M31
- Harness between data link connector and differential lock control unit
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and transfer control unit
- Harness between data link connector and harness connector M91

10. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 11.

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

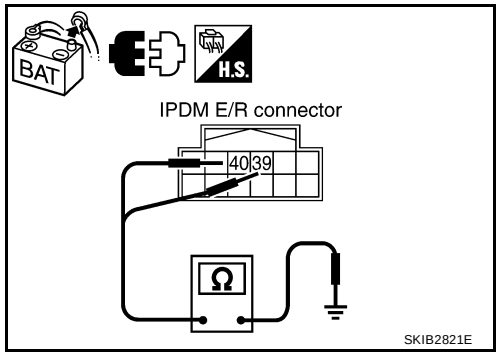
- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

11. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E122 terminals 39 (L), 40 (P) and ground.

39 (L) – Ground : Continuity should not exist.

40 (P) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 12.

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

- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

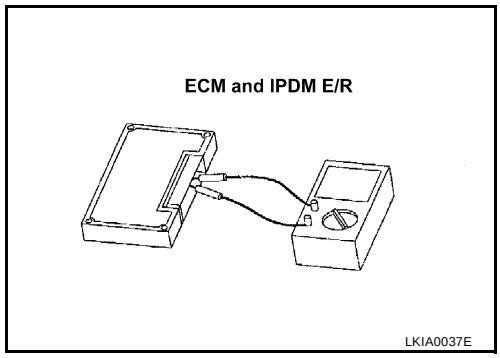
12. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

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

94 – 86 : Approx. 108 – 132 Ω

3. Check resistance between IPDM E/R terminals 39 and 40.

39 – 40 : Approx. 108 – 132 Ω



OK or NG

OK >> GO TO 13.
NG >> Replace ECM and/or IPDM E/R.

13. CHECK SYMPTOM

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

OK or NG

OK >> GO TO 14.
NG >> Refer to LAN-15, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced" .

14. CHECK UNIT REPRODUCIBILITY

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

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

- TCM
- Differential lock control unit
- BCM
- Combination meter
- Transfer control unit
- ABS actuator and electric unit (control unit)
- ECM
- IPDM E/R

Inspection results

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

IPDM E/R Ignition Relay Circuit Inspection

UKS003MP

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

- IPDM E/R power supply circuit. Refer to PG-27, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition power supply circuit. Refer to PG-14, "IGNITION POWER SUPPLY — IGNITION SW. IN ON AND/OR START" .

CAN SYSTEM (TYPE 14)

PFP:23710

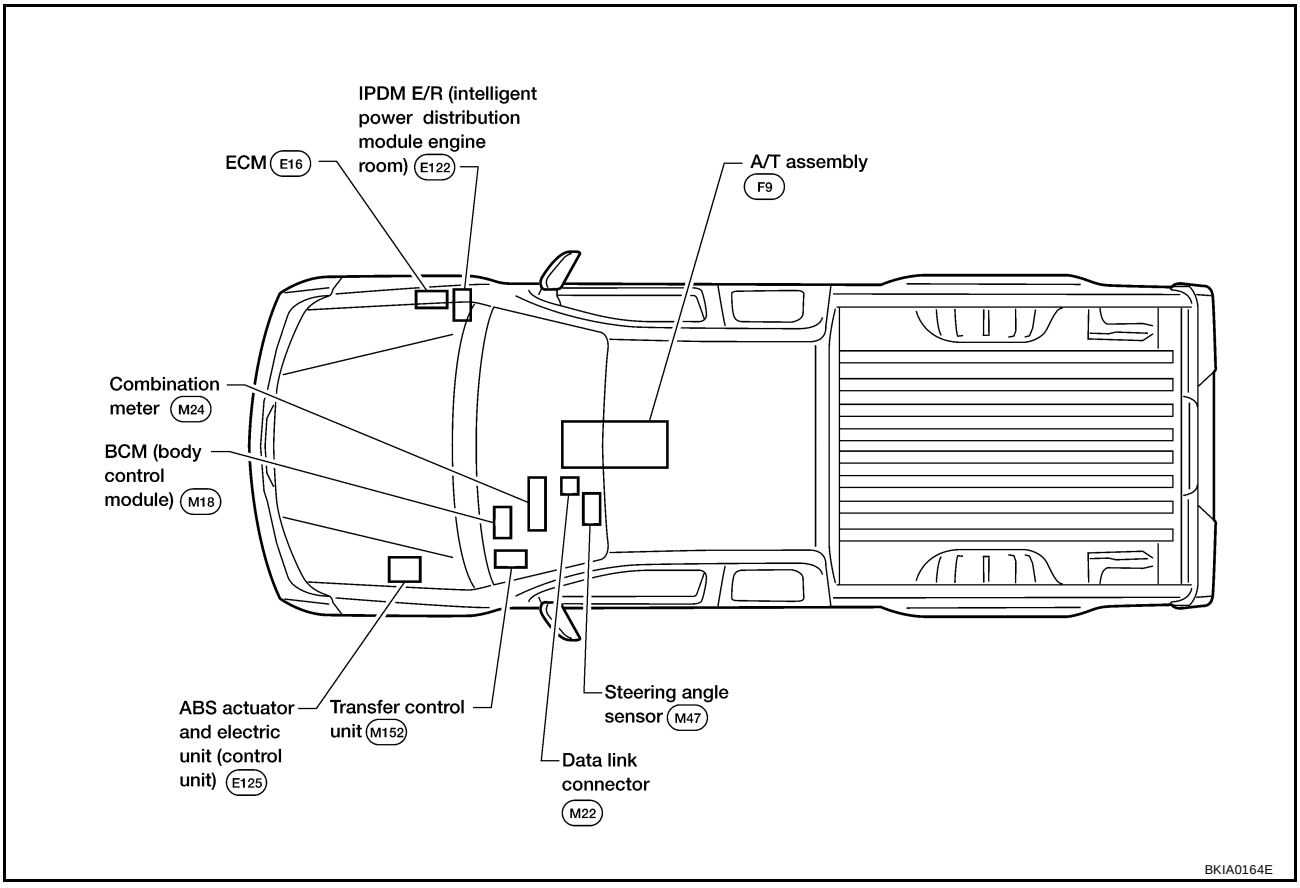
System Description

UKS003L7

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.

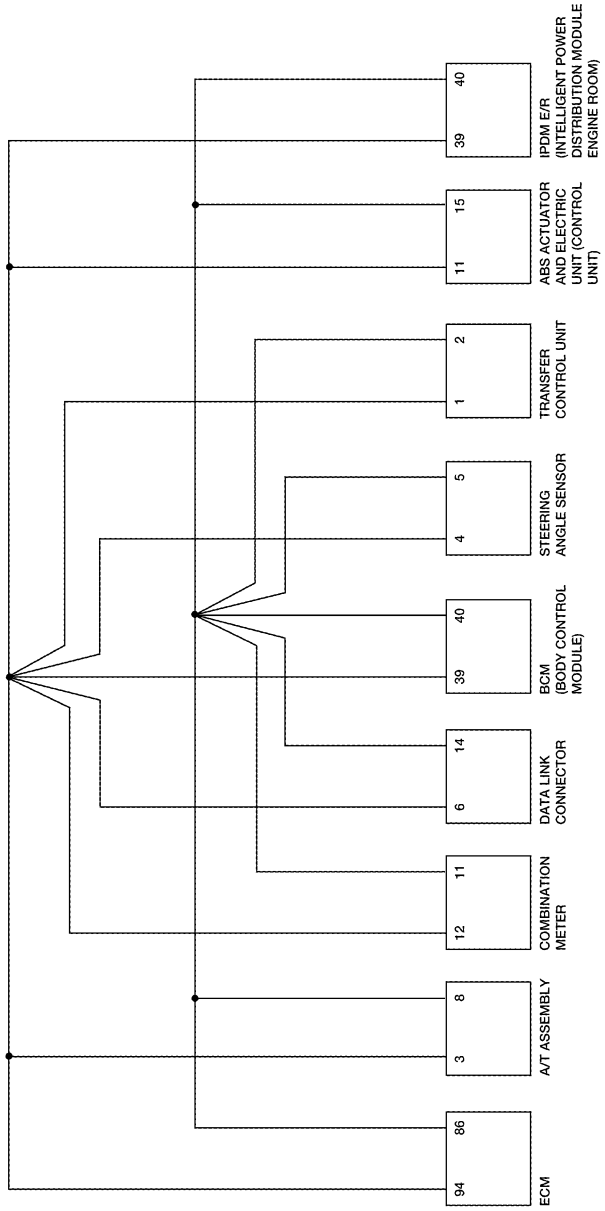
Component Parts and Harness Connector Location

UKS003L8



Schematic

UKS003L9

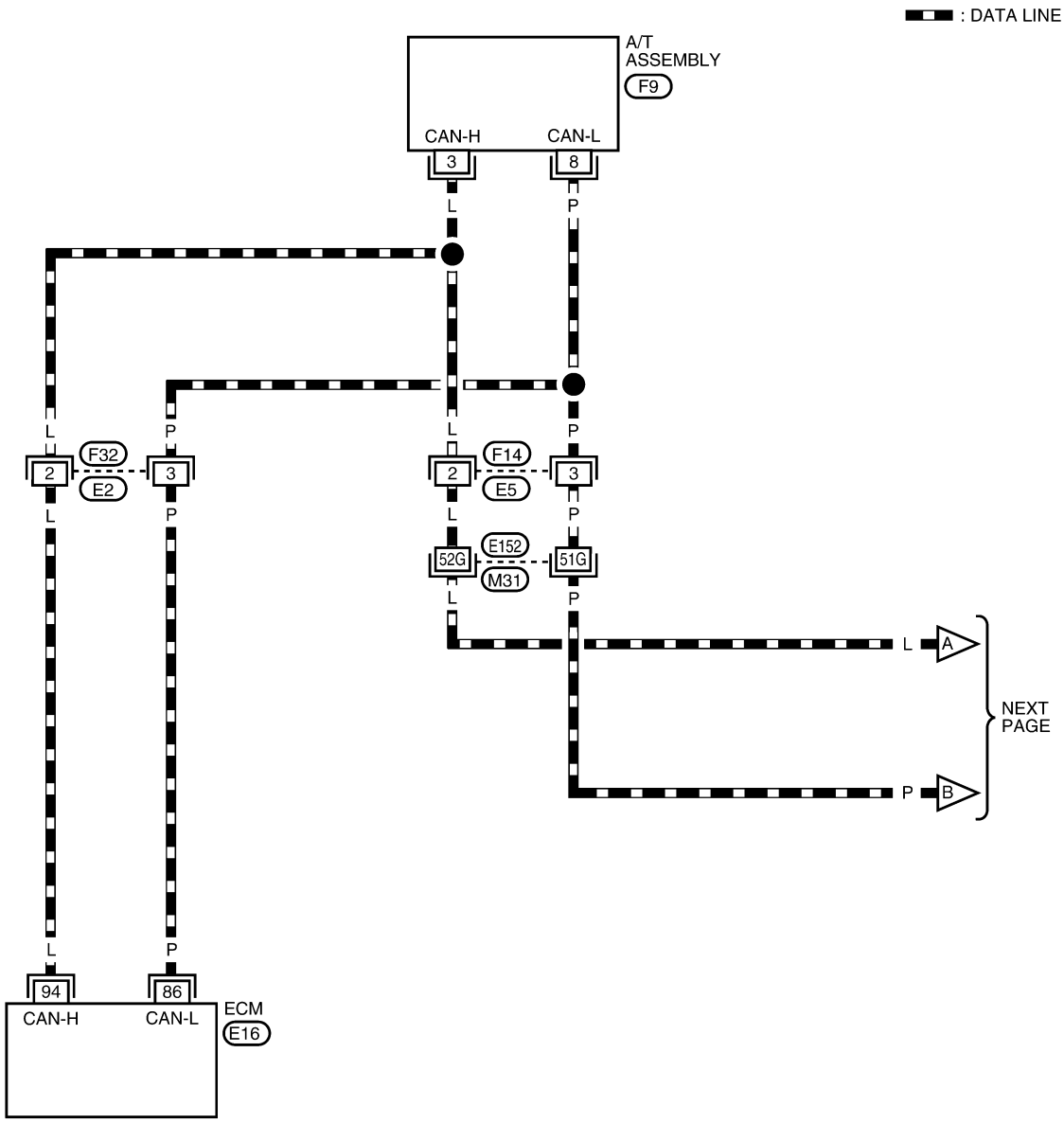


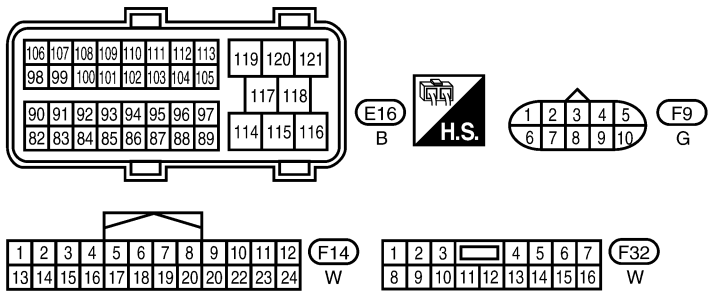
BKWA0593E

Wiring Diagram — CAN —

UKS003LA

LAN-CAN-40

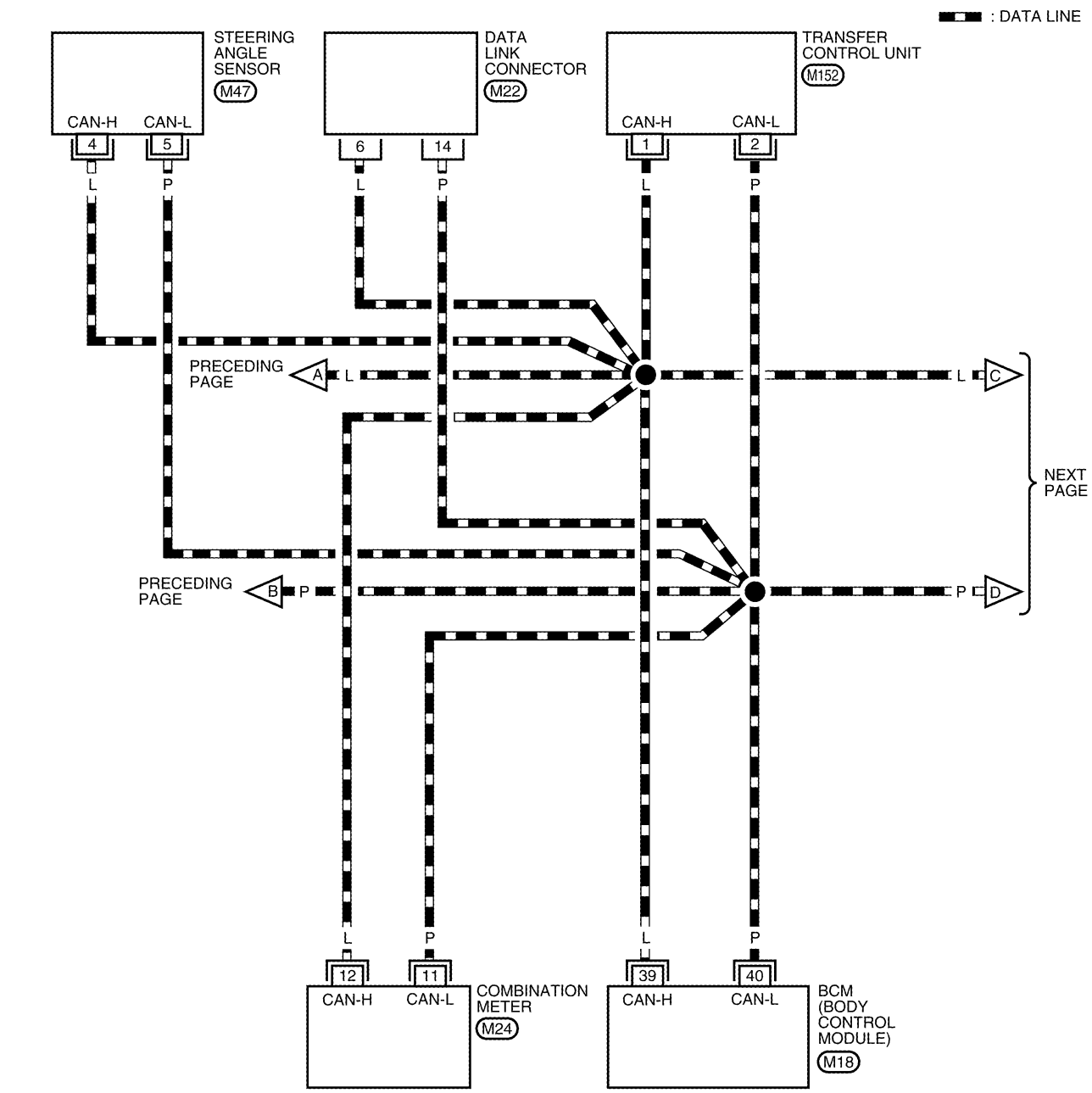


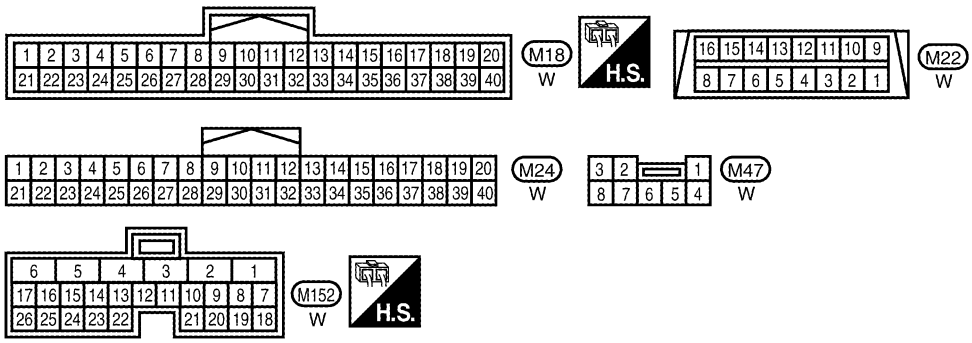


REFER TO THE FOLLOWING.
M31 - SUPER MULTIPLE JUNCTION (SMJ)

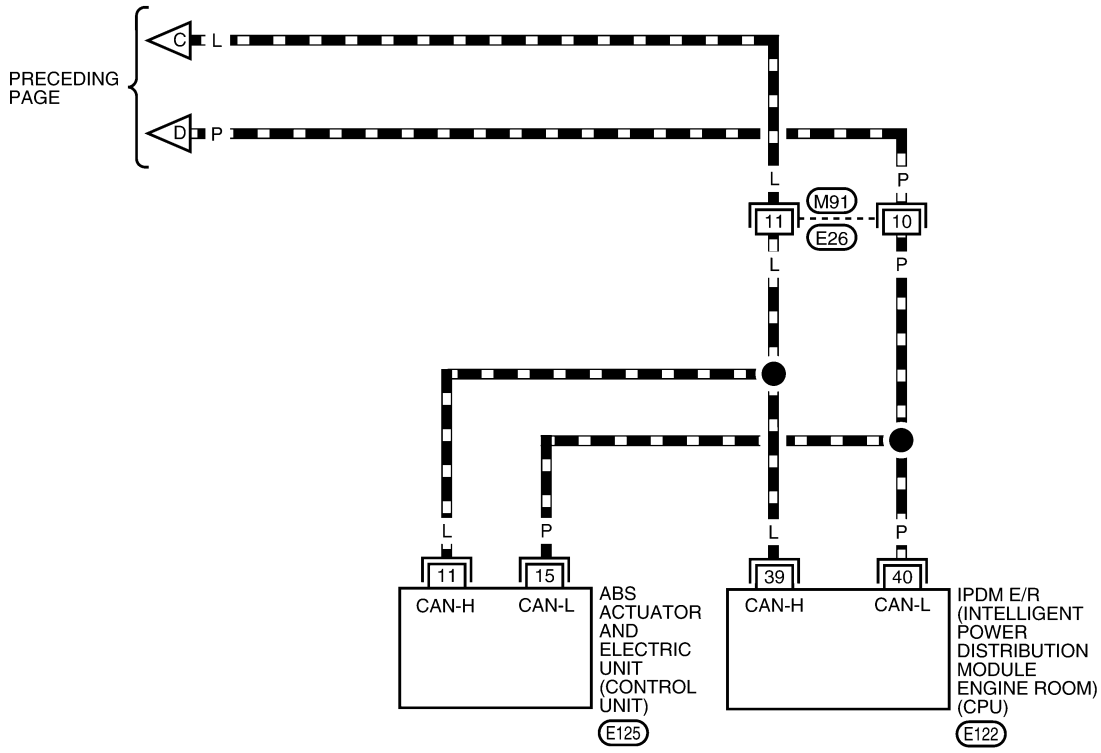
BKWA0526E

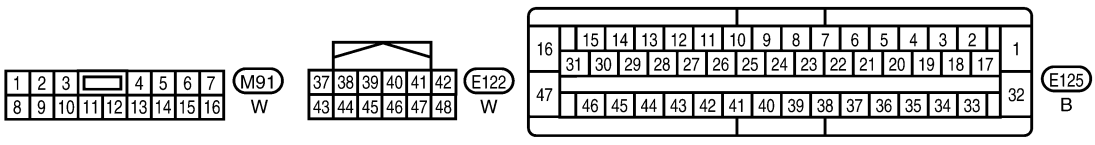
LAN-CAN-41





BKWA0594E


: DATA LINE
PRECEDING PAGE
C
L
D
P
L
P
M91
11
10
E26
L
P
L
P
L
P
11
15
39
40
CAN-H
CAN-L
CAN-H
CAN-L
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
E125
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) (CPU)
E122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8 9 10 11 12 13 14 15 16
M91
W
37 38 39 40 41 42
43 44 45 46 47 48
E122
W
16
15 14 13 12 11 10 9 8 7 6 5 4 3 2
31 30 29 28 27 26 25 24 23 22 21 20 19 18 17
1
47
46 45 44 43 42 41 40 39 38 37 36 35 34 33
32
E125
B

BKWA0528E

CHECK SHEET

UKS003LB

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

Check sheet table

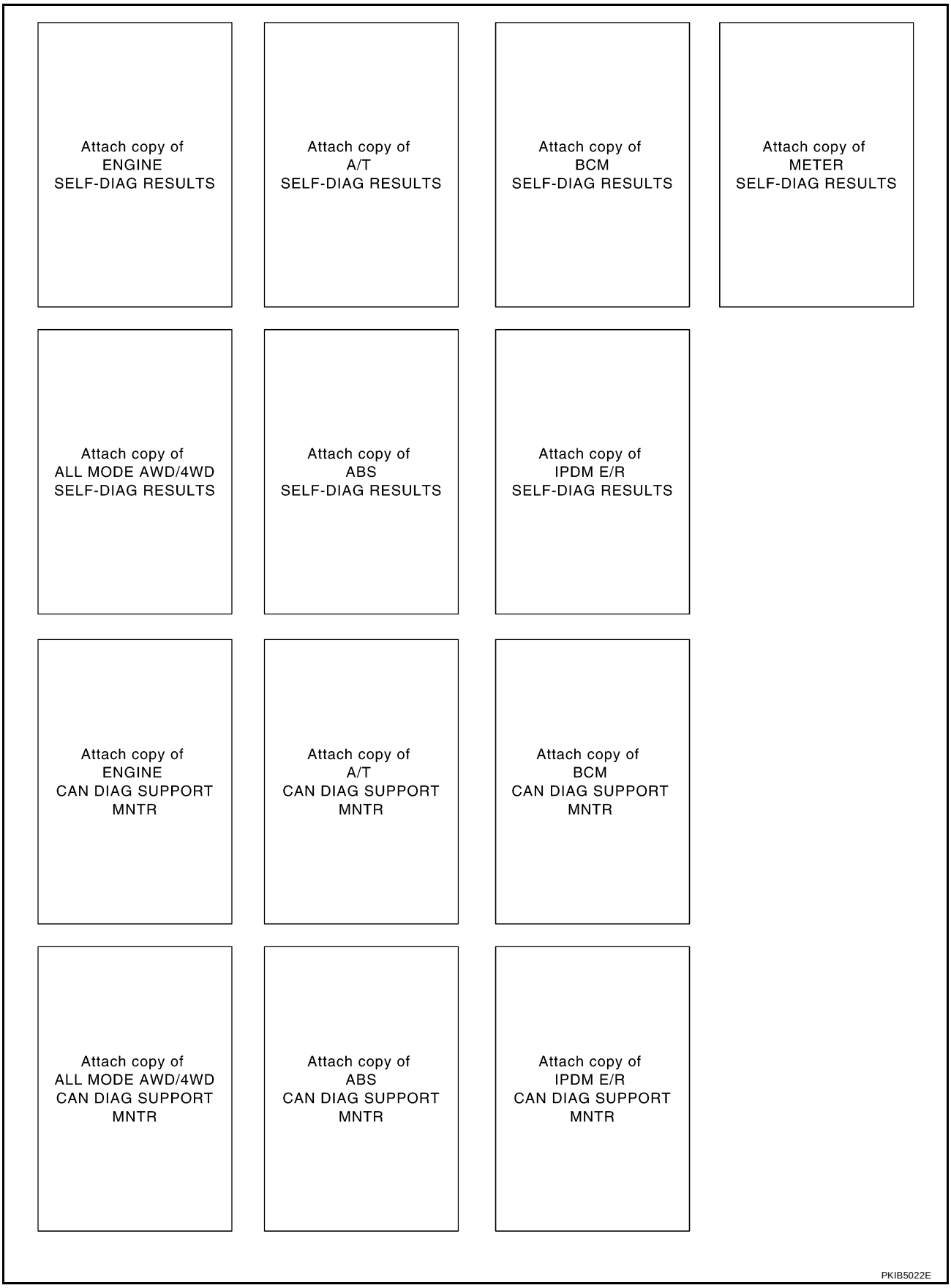
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIB5021E


Attach copy of
ENGINE
SELF-DIAG RESULTS
Attach copy of
A/T
SELF-DIAG RESULTS
Attach copy of
BCM
SELF-DIAG RESULTS
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METER
SELF-DIAG RESULTS
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ALL MODE AWD/4WD
SELF-DIAG RESULTS
Attach copy of
ABS
SELF-DIAG RESULTS
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SELF-DIAG RESULTS
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ALL MODE AWD/4WD
CAN DIAG SUPPORT
MNTR
Attach copy of
ABS
CAN DIAG SUPPORT
MNTR
Attach copy of
IPDM E/R
CAN DIAG SUPPORT
MNTR
PKIB5022E

CHECK SHEET RESULTS (EXAMPLE)

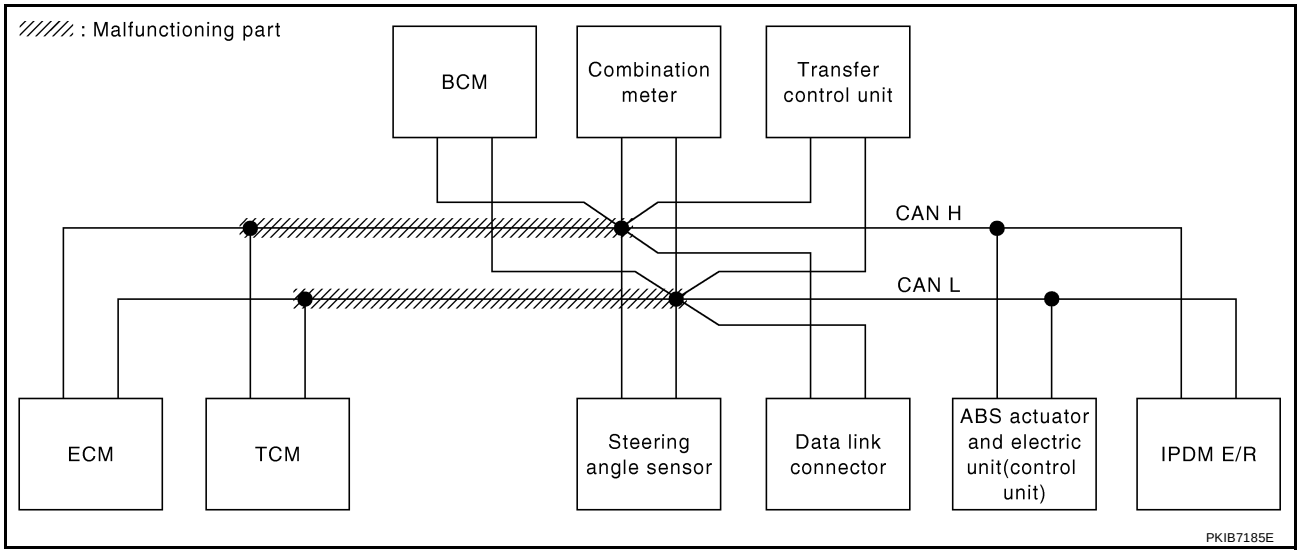
NOTE:
If a check mark is put on “NG” on “INITIAL DIAG (Initial diagnosis)”, replace the control unit.

Case 1

Check harness between TCM and data link connector circuit. Refer to LAN-400, "Inspection Between TCM and Data Link Connector Circuit" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB5127E



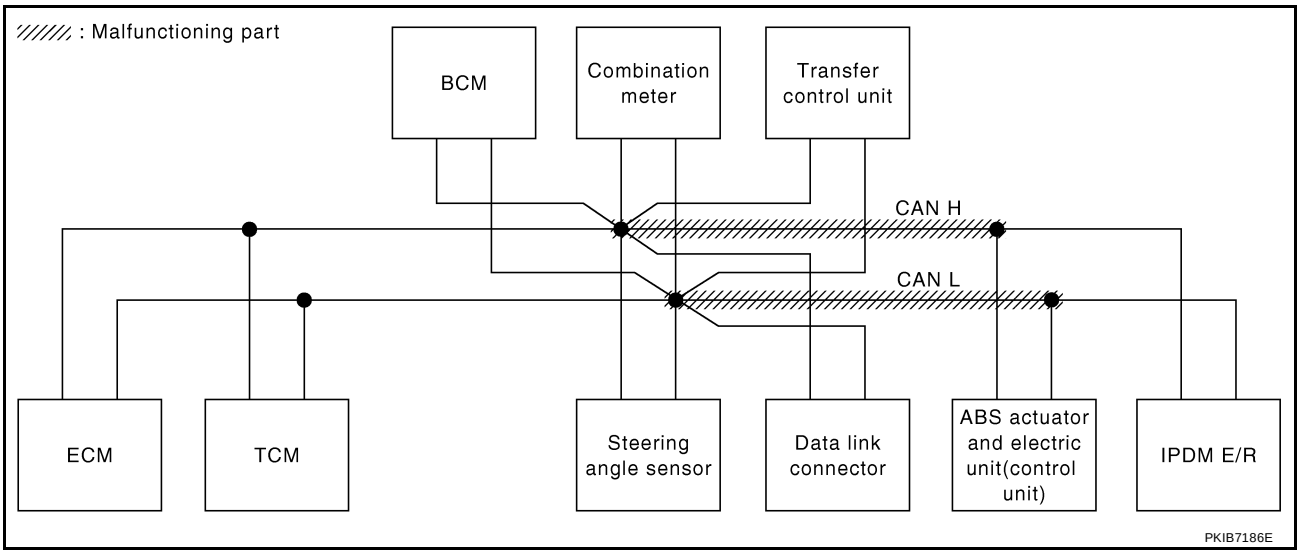
PKIB7185E

Case 2

Check harness between data link connector and ABS actuator and electric unit (control unit) circuit. Refer to LAN-401, "Inspection Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Circuit"
.

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB5128E



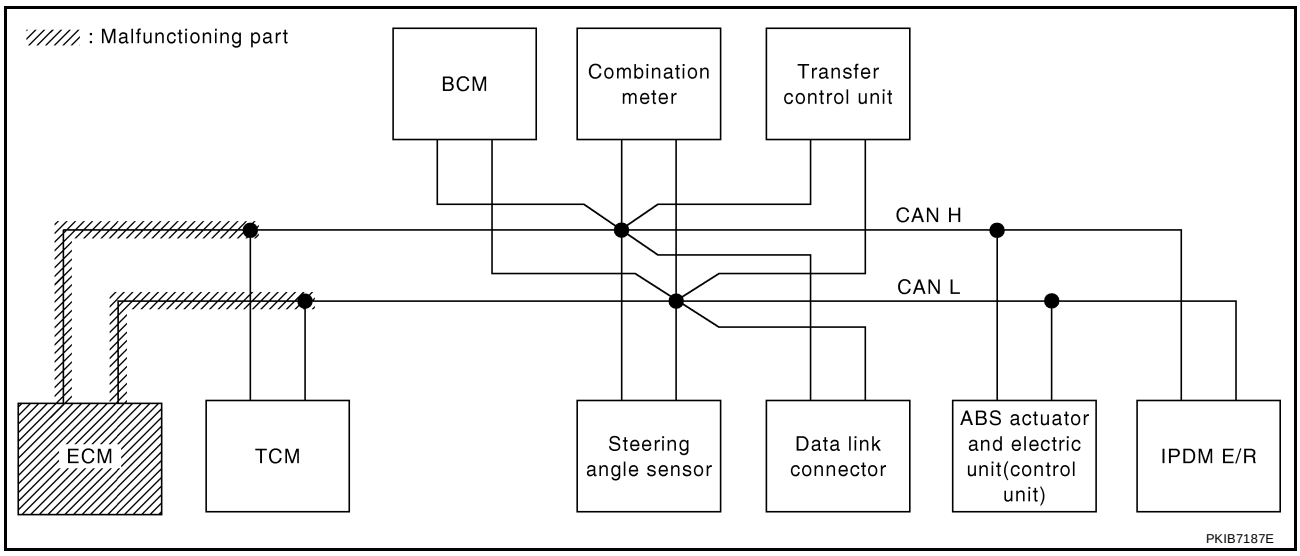
PKIB7186E

Case 3

Check ECM circuit. Refer to LAN-402, "ECM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB5129E



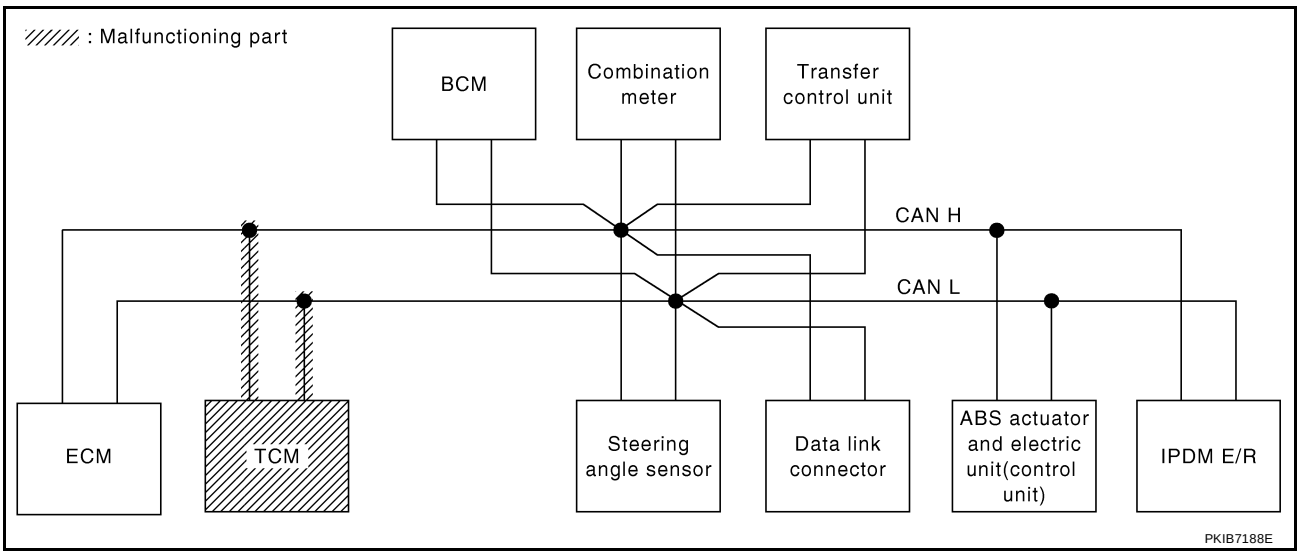
PKIB7187E

Case 4

Check TCM circuit. Refer to LAN-403, "TCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN ✓	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN ✓	—	—	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN ✓	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	UNKWN ✓	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB5130E

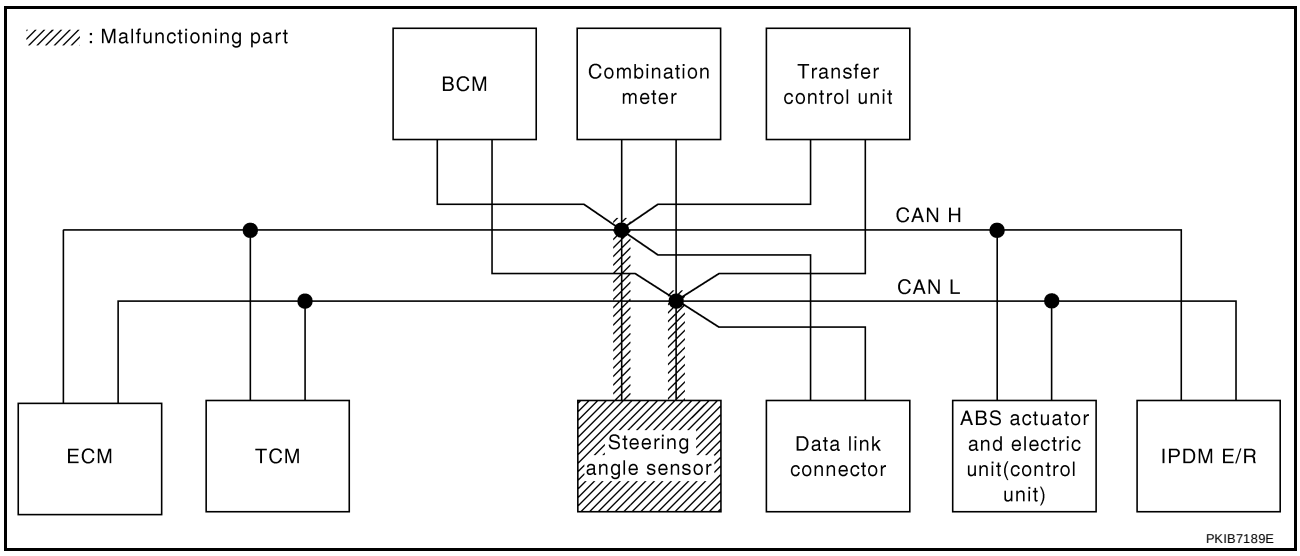


Case 5

Check steering angle sensor circuit. Refer to LAN-403, "Steering Angle Sensor Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB5131E



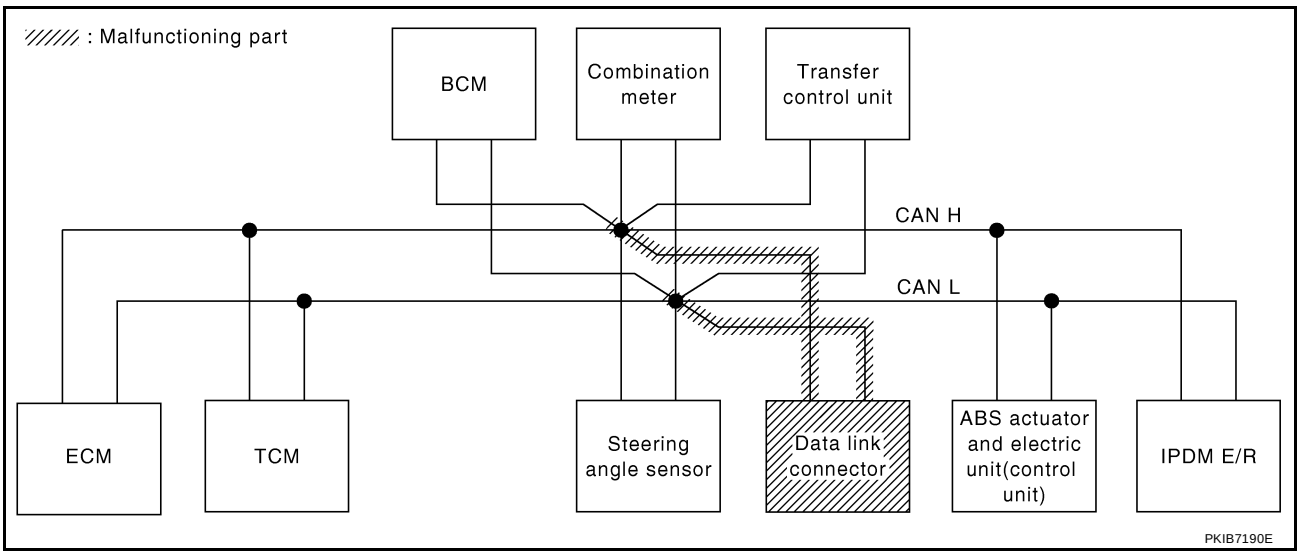
PKIB7189E

Case 6

Check data link connector circuit. Refer to LAN-404, "Data Link Connector Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB5132E



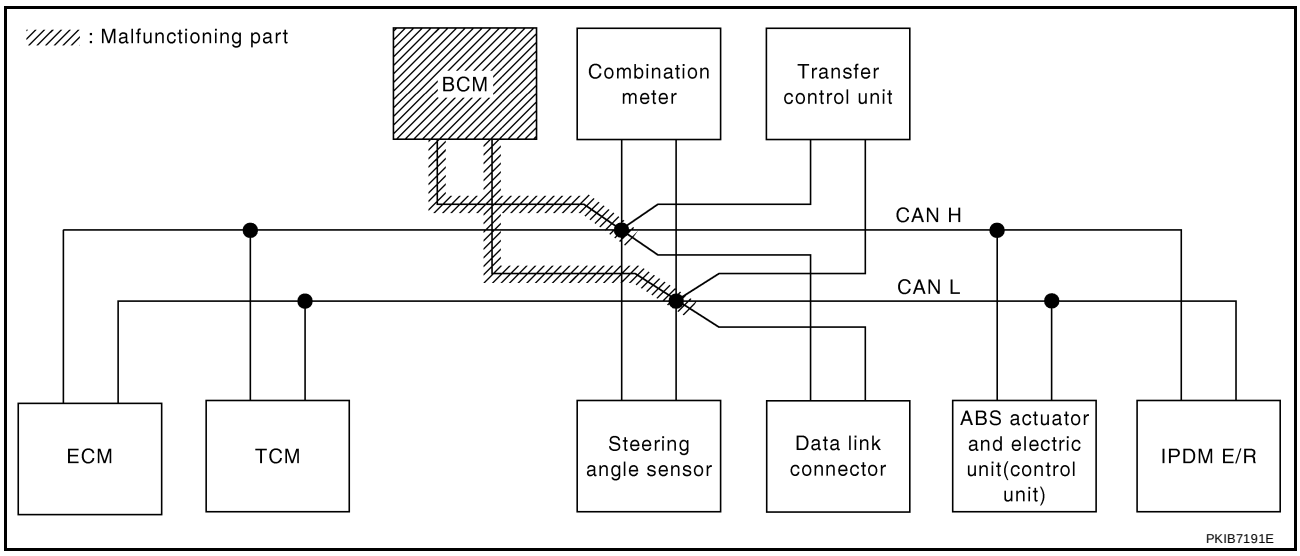
PKIB7190E

Case 7

Check BCM circuit. Refer to LAN-404, "BCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB5133E

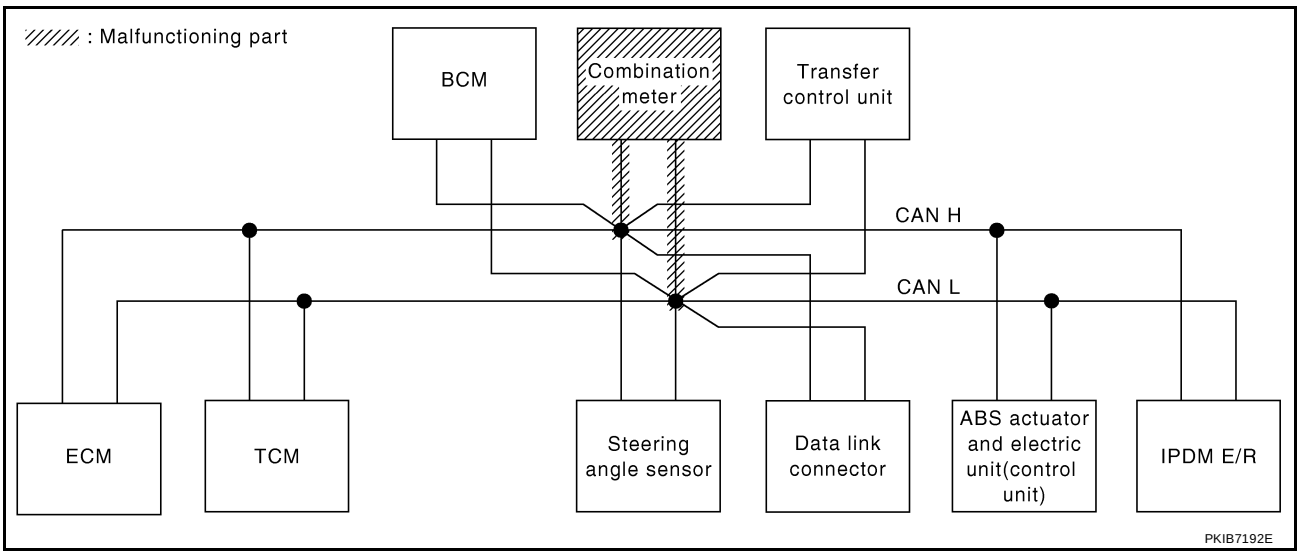


Case 8

Check combination meter circuit. Refer to LAN-405, "Combination Meter Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN ✓	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN ✓	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN ✓	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN ✓	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB5134E



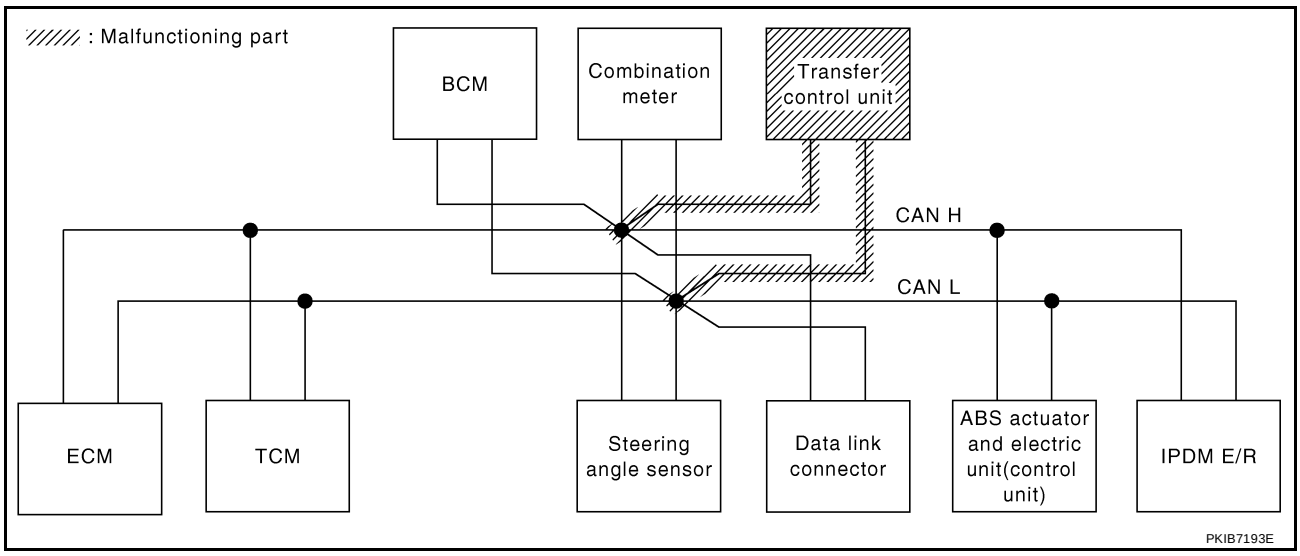
PKIB7192E

Case 9

Check transfer control unit circuit. Refer to LAN-405, "Transfer Control Unit Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB5135E



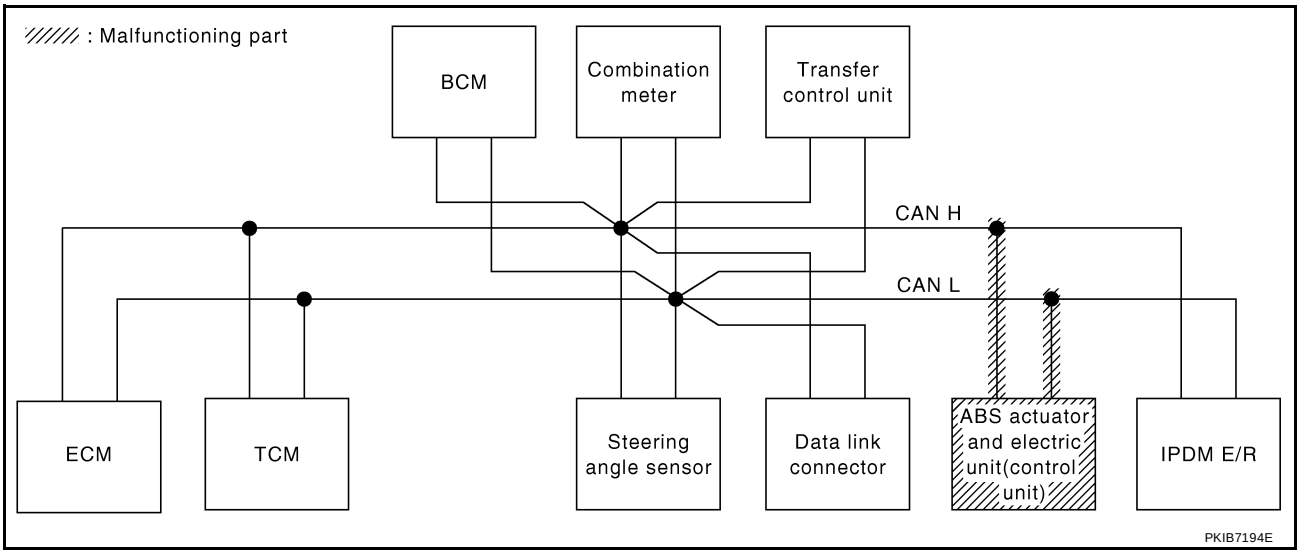
PKIB7193E

Case 10

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-406, "ABS Actuator and Electric Unit (Control Unit) Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB5136E



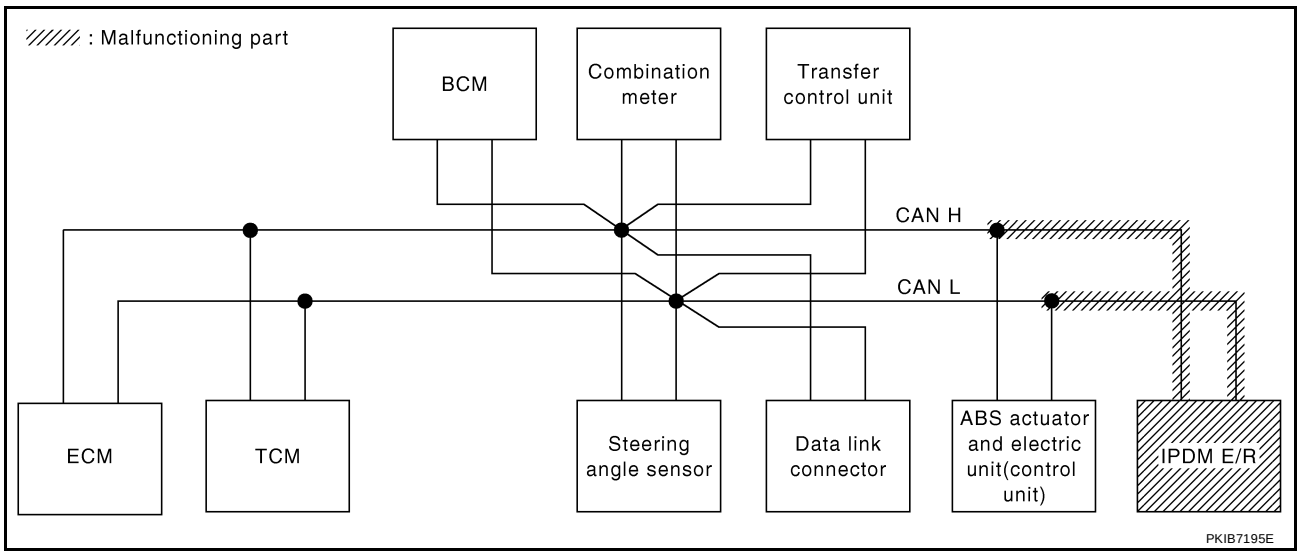
PKIB7194E

Case 11

Check IPDM E/R circuit. Refer to LAN-406, "IPDM E/R Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN ✓	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN ✓	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB5137E



PKIB7195E

Case 12

Check CAN communication circuit. Refer to LAN-407, "CAN Communication Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN ✓	—	UNKWN ✓	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN ✓	—	—	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication ✓	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	—	UNKWN ✓	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	—	UNKWN ✓	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB5138E

Case 13

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-411, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB5139E

Case 14

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-411, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR										SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis									
				ECM	TCM	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	—	—	—	—	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	—	UNKWN	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB5140E

Inspection Between TCM and Data Link Connector Circuit

UKS003LC

1. CHECK CONNECTOR

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

- Harness connector F14
- Harness connector E5
- Harness connector E152
- Harness connector M31

OK or NG

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

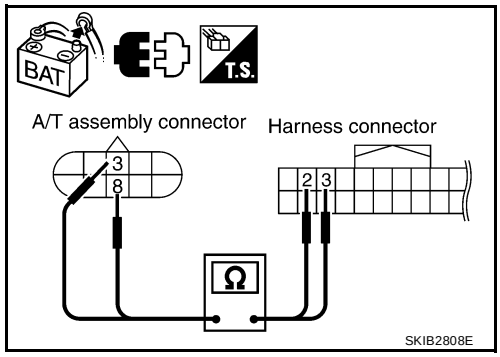
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect A/T assembly connector and harness connector F14.
2. Check continuity between A/T assembly harness connector F9 terminals 3 (L), 8 (P) and harness connector F14 terminals 2 (L), 3 (P).

3 (L) – 2 (L) : **Continuity should exist.**
8 (P) – 3 (P) : **Continuity should exist.**

OK or NG

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



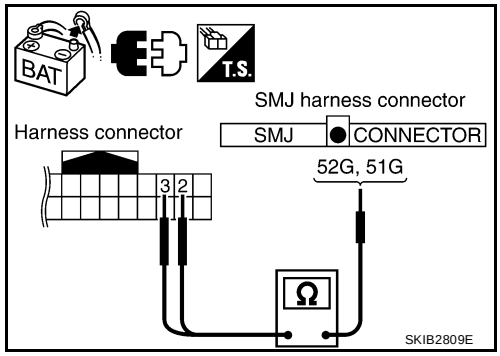
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector E152.
2. Check continuity between harness connector E5 terminals 2 (L), 3 (P) and harness connector E152 terminals 52G (L), 51G (P).

2 (L) – 52G (L) : **Continuity should exist.**
3 (P) – 51G (P) : **Continuity should exist.**

OK or NG

OK >> GO TO 4.
NG >> Repair harness.



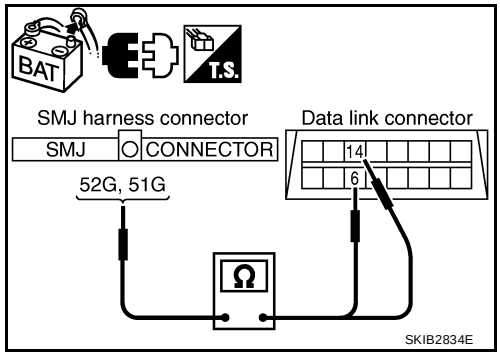
4. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between harness connector M31 terminals 52G (L), 51G (P) and data link connector M22 terminals 6 (L), 14 (P).

52G (L) – 6 (L) : **Continuity should exist.**
51G (P) – 14 (P) : **Continuity should exist.**

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.



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

UKS003LD

1. CHECK CONNECTOR

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

- Harness connector M91
- Harness connector E26

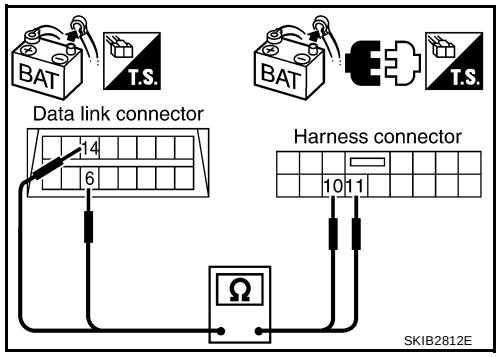
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M91.
2. Check continuity between data link connector M22 terminals 6 (L), 14 (P) and harness connector M91 terminals 11 (L), 10 (P).

6 (L) – 11 (L) : Continuity should exist.
14 (P) – 10 (P) : Continuity should exist.



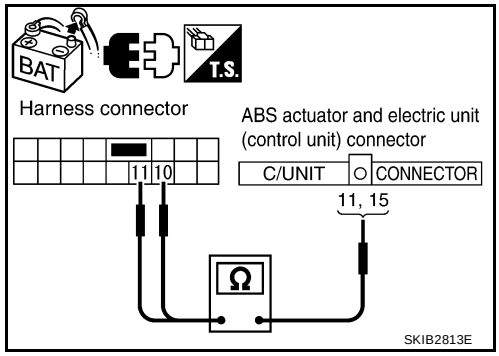
OK or NG

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 E26 terminals 11 (L), 10 (P) and ABS actuator and electric unit (control unit) harness connector E125 terminals 11 (L), 15 (P).

11 (L) – 11 (L) : Continuity should exist.
10 (P) – 15 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.

ECM Circuit Inspection

UKS003LE

1. CHECK CONNECTOR

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

- ECM connector
- Harness connector E2
- Harness connector F32

OK or NG

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

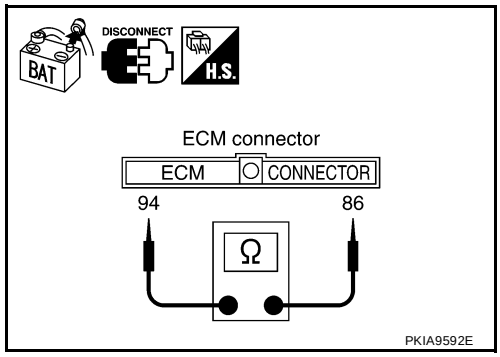
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) **: Approx. 108 – 132 Ω**

OK or NG

OK >> Replace ECM.
NG >> Repair harness between ECM and A/T assembly.



TCM Circuit Inspection

UKS003LF

1. CHECK CONNECTOR

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

OK or NG

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

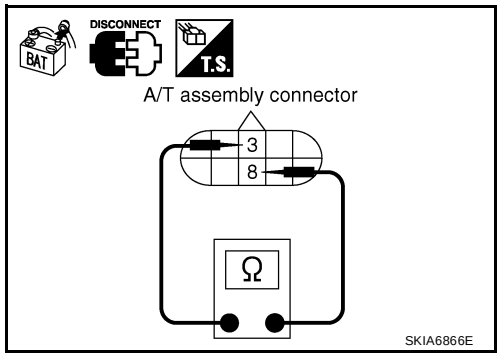
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect A/T assembly connector.
2. Check resistance between A/T assembly harness connector F9 terminals 3 (L) and 8 (P).

3 (L) – 8 (P) **: Approx. 54 – 66 Ω**

OK or NG

OK >> Replace control valve with TCM.
NG >> Repair harness between A/T assembly and harness connector F14.



Steering Angle Sensor Circuit Inspection

UKS003LG

1. CHECK CONNECTOR

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

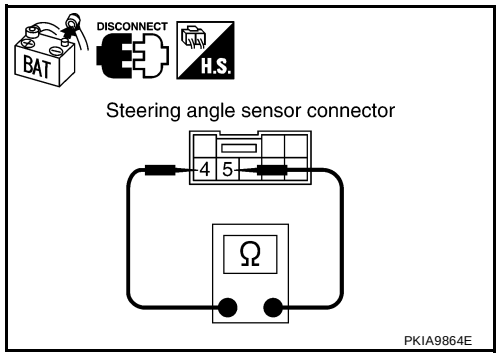
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M47 terminals 4 (L) and 5 (P).

4 (L) – 5 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace steering angle sensor.
NG >> Repair harness between steering angle sensor and data link connector.

Data Link Connector Circuit Inspection

UKS003LH

1. CHECK CONNECTOR

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

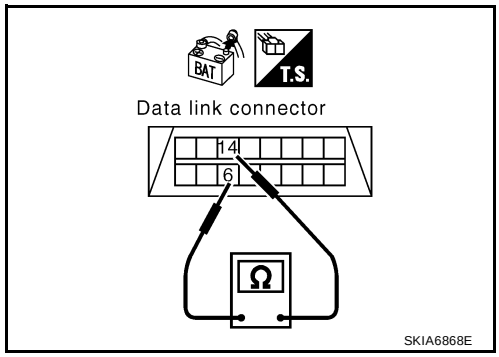
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

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

6 (L) – 14 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness between data link connector and BCM.

BCM Circuit Inspection

UKS003LI

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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

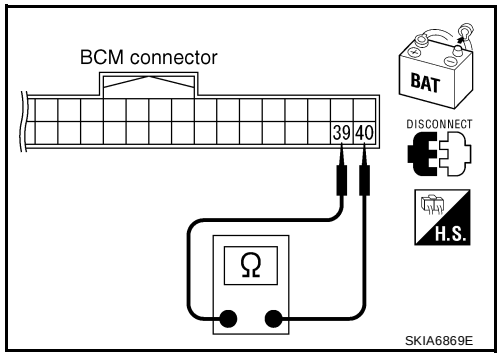
1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M18 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 54 – 66 Ω

OK or NG

OK >> Replace BCM. Refer to BCS-19, "Removal and Installation of BCM" .

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



UKS003LJ

Combination Meter Circuit Inspection

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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

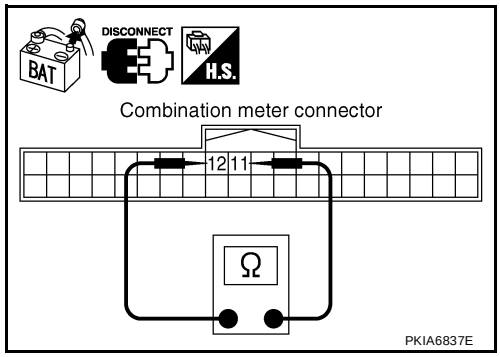
1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M24 terminals 12 (L) and 11 (P).

12 (L) – 11 (P) : Approx. 54 – 66 Ω

OK or NG

OK >> Replace combination meter.

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



UKS003LK

Transfer Control Unit Circuit Inspection

1. CHECK CONNECTOR

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

OK or NG

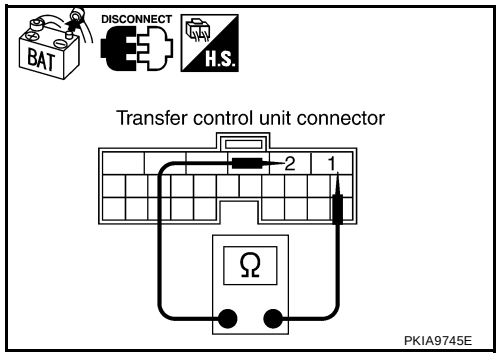
OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect transfer control unit connector.
2. Check resistance between transfer control unit harness connector M152 terminals 1 (L) and 2 (P).

1 (L) – 2 (P) : Approx. 54 – 66 Ω



OK or NG

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

ABS Actuator and Electric Unit (Control Unit) Circuit Inspection

UKS003LL

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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).

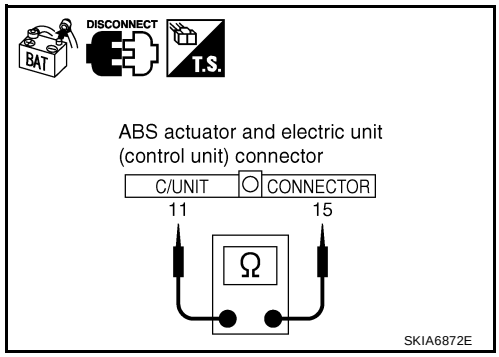
OK or NG

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 E125 terminals 11 (L) and 15 (P).

11 (L) – 15 (P) : Approx. 54 – 66 Ω



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 Inspection

UKS003LM

1. CHECK CONNECTOR

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

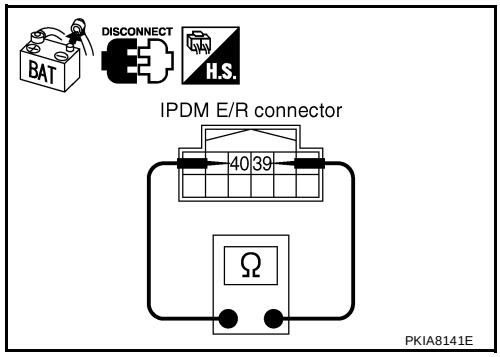
OK or NG

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 E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 108 – 132 Ω



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 Inspection

UKS003LN

1. CHECK CONNECTOR

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

- ECM
- TCM
- Steering angle sensor
- BCM
- Combination meter
- Transfer control unit
- ABS actuator and electric unit (control unit)
- IPDM E/R
- Between ECM and IPDM E/R

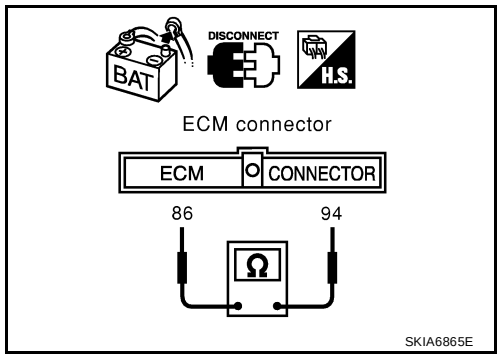
OK or NG

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

2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E2.
2. Check continuity between ECM harness connector E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 3.
NG >> Repair harness between ECM and harness connector E2.

3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector E16 terminals 94 (L), 86 (P) and ground.

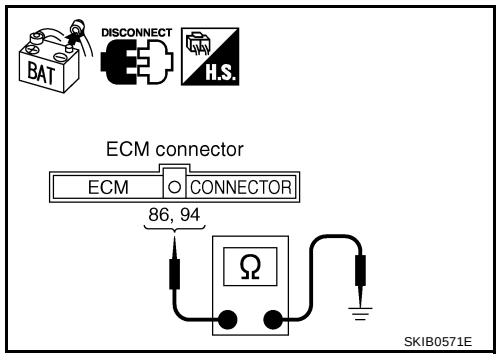
94 (L) – Ground : Continuity should not exist.

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

OK or NG

OK >> GO TO 4.

NG >> Repair harness between ECM and harness connector E2.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect A/T assembly connector and harness connector F14.
2. Check continuity between A/T assembly harness connector F9 terminals 3 (L) and 8 (P).

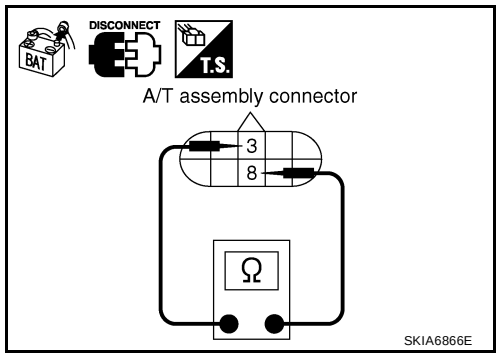
3 (L) – 8 (P) : Continuity should not exist.

OK or NG

OK >> GO TO 5.

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

- Harness between A/T assembly and harness connector F32
- Harness between A/T assembly and harness connector F14



5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between A/T assembly harness connector F9 terminals 3 (L), 8 (P) and ground.

3 (L) – Ground : Continuity should not exist.

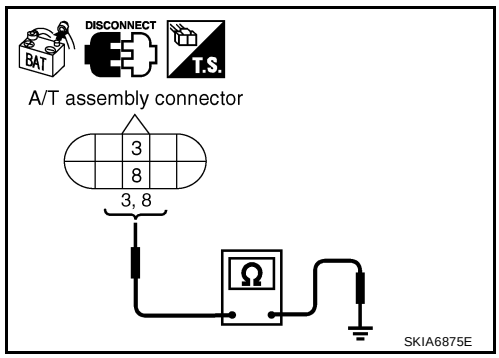
8 (P) – Ground : Continuity should not exist.

OK or NG

OK >> GO TO 6.

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

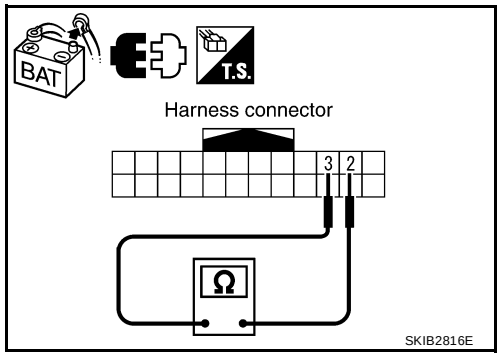
- Harness between A/T assembly and harness connector F32
- Harness between A/T assembly and harness connector F14



6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect harness connector E152.
2. Check continuity between harness connector E5 terminals 2 (L) and 3 (P).

2 (L) – 3 (P) : Continuity should not exist.



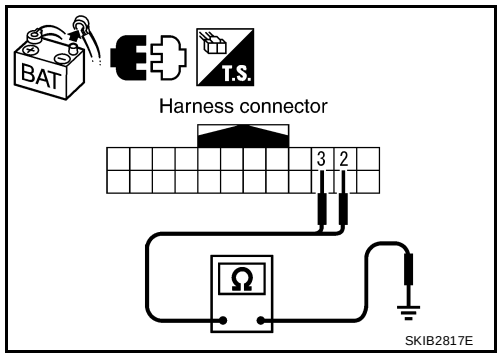
OK or NG

OK >> GO TO 7.
NG >> Repair harness between harness connector E5 and harness connector E152.

7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector E5 terminals 2 (L), 3 (P) and ground.

2 (L) – Ground : Continuity should not exist.
3 (P) – Ground : Continuity should not exist.



OK or NG

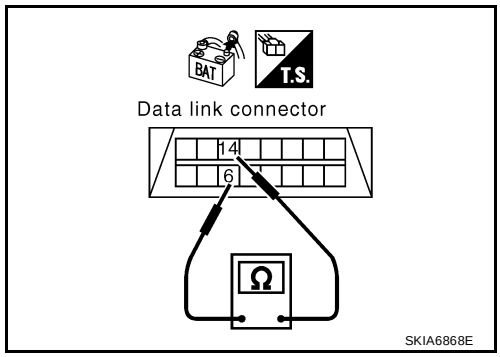
OK >> GO TO 8.
NG >> Repair harness between harness connector E5 and harness connector E152.

8. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
- Steering angle sensor connector
- BCM connector
- Combination meter connector
- Transfer control unit connector
- Harness connector M91

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

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



OK or NG

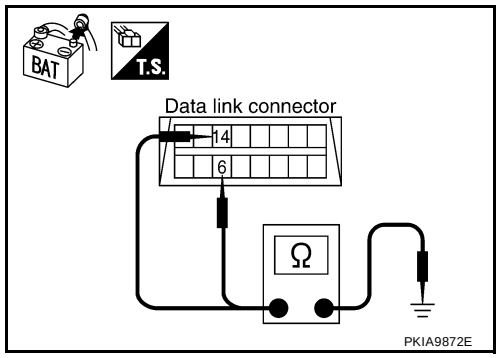
OK >> GO TO 9.
NG >> Check the following harnesses. If any harness is damaged, repair the harness.
- Harness between data link connector and harness connector M31
- Harness between data link connector and steering angle sensor
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and transfer control unit
- Harness between data link connector and harness connector M91

9. CHECK HARNESS FOR SHORT CIRCUIT

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

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

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



OK or NG

OK >> GO TO 10.

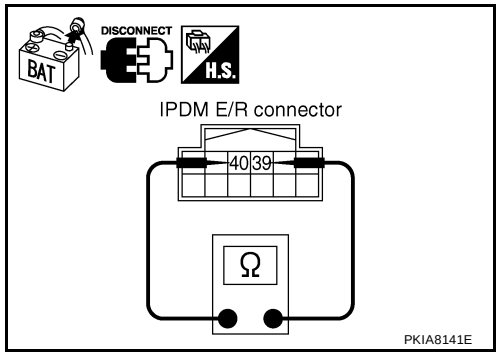
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M31
- Harness between data link connector and steering angle sensor
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and transfer control unit
- Harness between data link connector and harness connector M91

10. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 11.

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

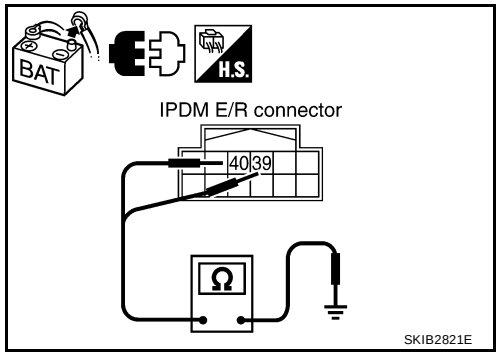
- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

11. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E122 terminals 39 (L), 40 (P) and ground.

39 (L) – Ground : Continuity should not exist.

40 (P) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 12.

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

- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

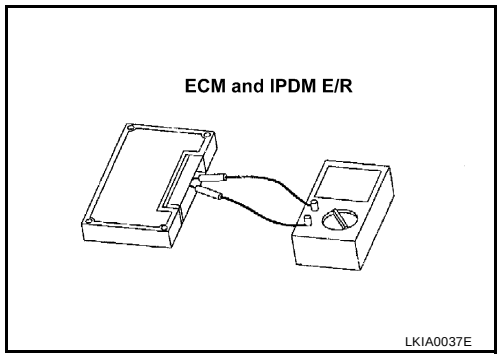
12. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

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

94 – 86 : Approx. 108 – 132 Ω

3. Check resistance between IPDM E/R terminals 39 and 40.

39 – 40 : Approx. 108 – 132 Ω



OK or NG

OK >> GO TO 13.
NG >> Replace ECM and/or IPDM E/R.

13. CHECK SYMPTOM

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

OK or NG

OK >> GO TO 14.
NG >> Refer to LAN-15, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced" .

14. CHECK UNIT REPRODUCIBILITY

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

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

- TCM
- Steering angle sensor
- BCM
- Combination meter
- Transfer control unit
- ABS actuator and electric unit (control unit)
- ECM
- IPDM E/R

Inspection results

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

IPDM E/R Ignition Relay Circuit Inspection

UKS003LO

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

- IPDM E/R power supply circuit. Refer to PG-27, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition power supply circuit. Refer to PG-14, "IGNITION POWER SUPPLY — IGNITION SW. IN ON AND/OR START" .

CAN SYSTEM (TYPE 15)

PFP:23710

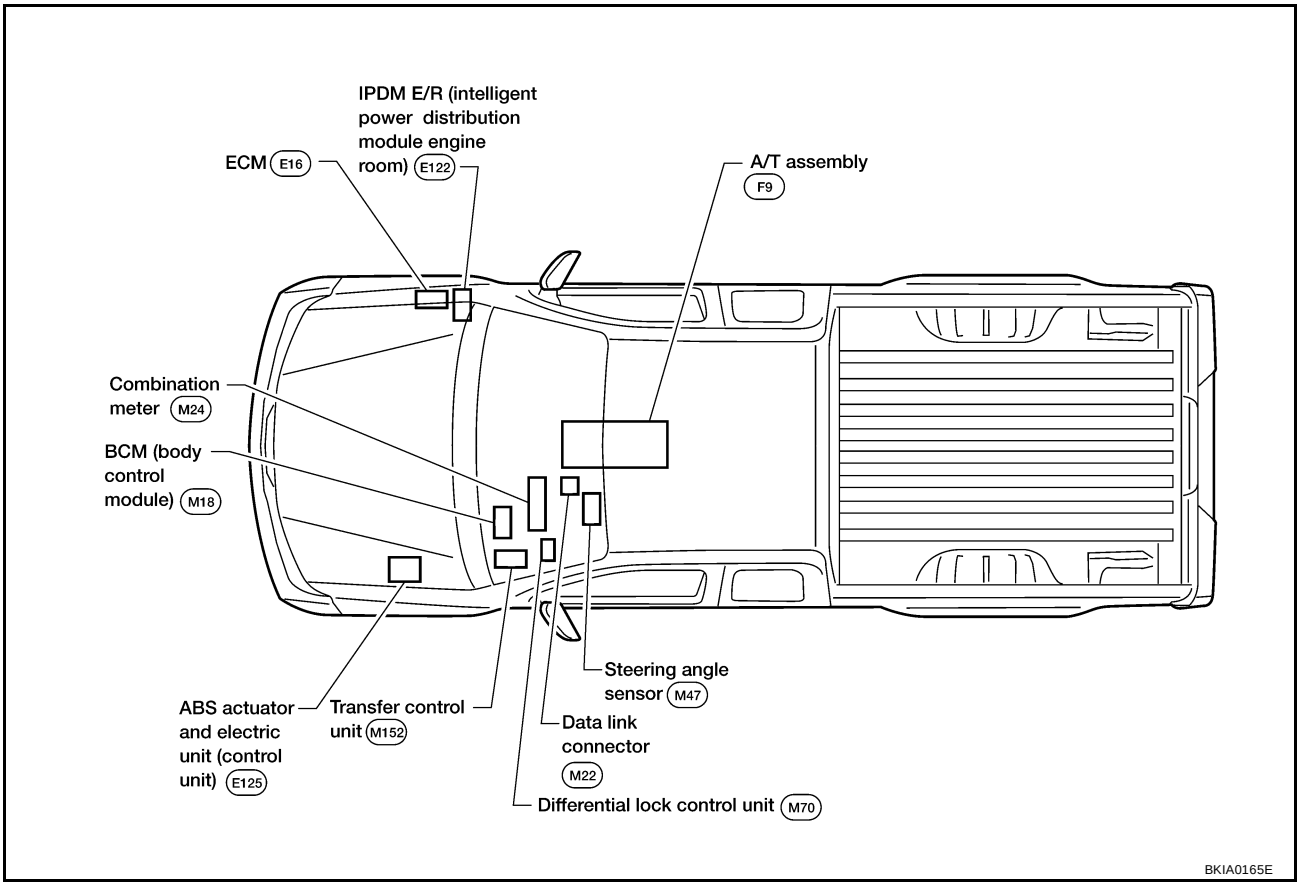
System Description

UKS003LP

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.

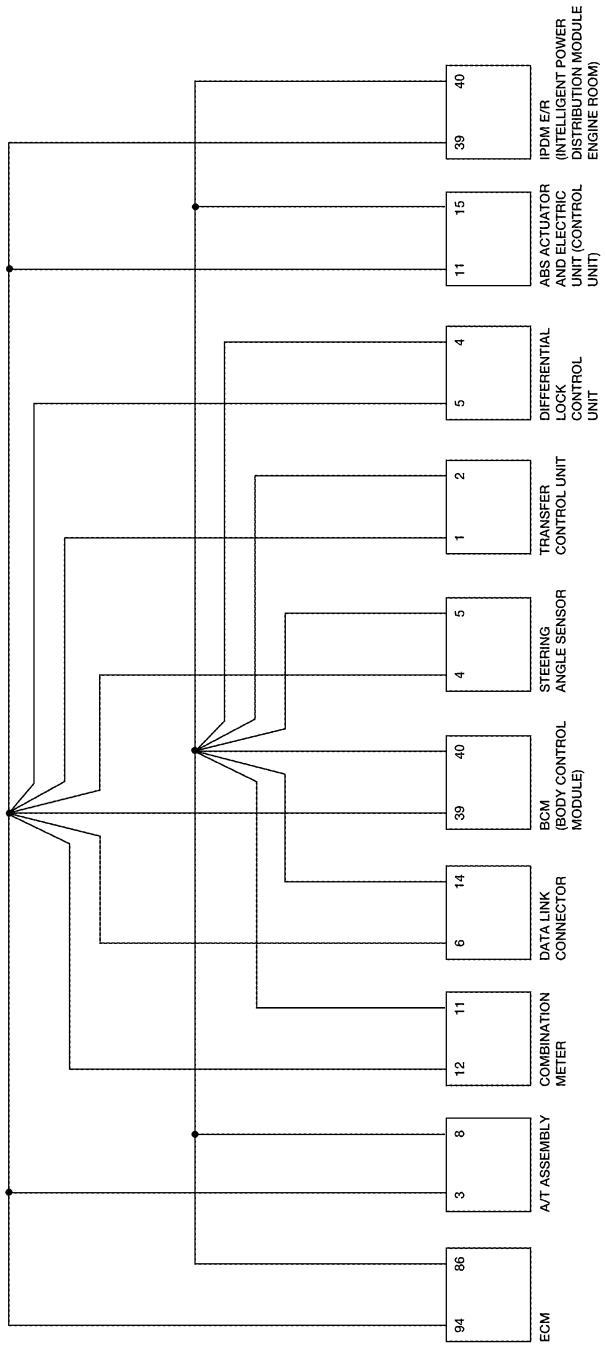
Component Parts and Harness Connector Location

UKS003LQ



Schematic

UKS003LR

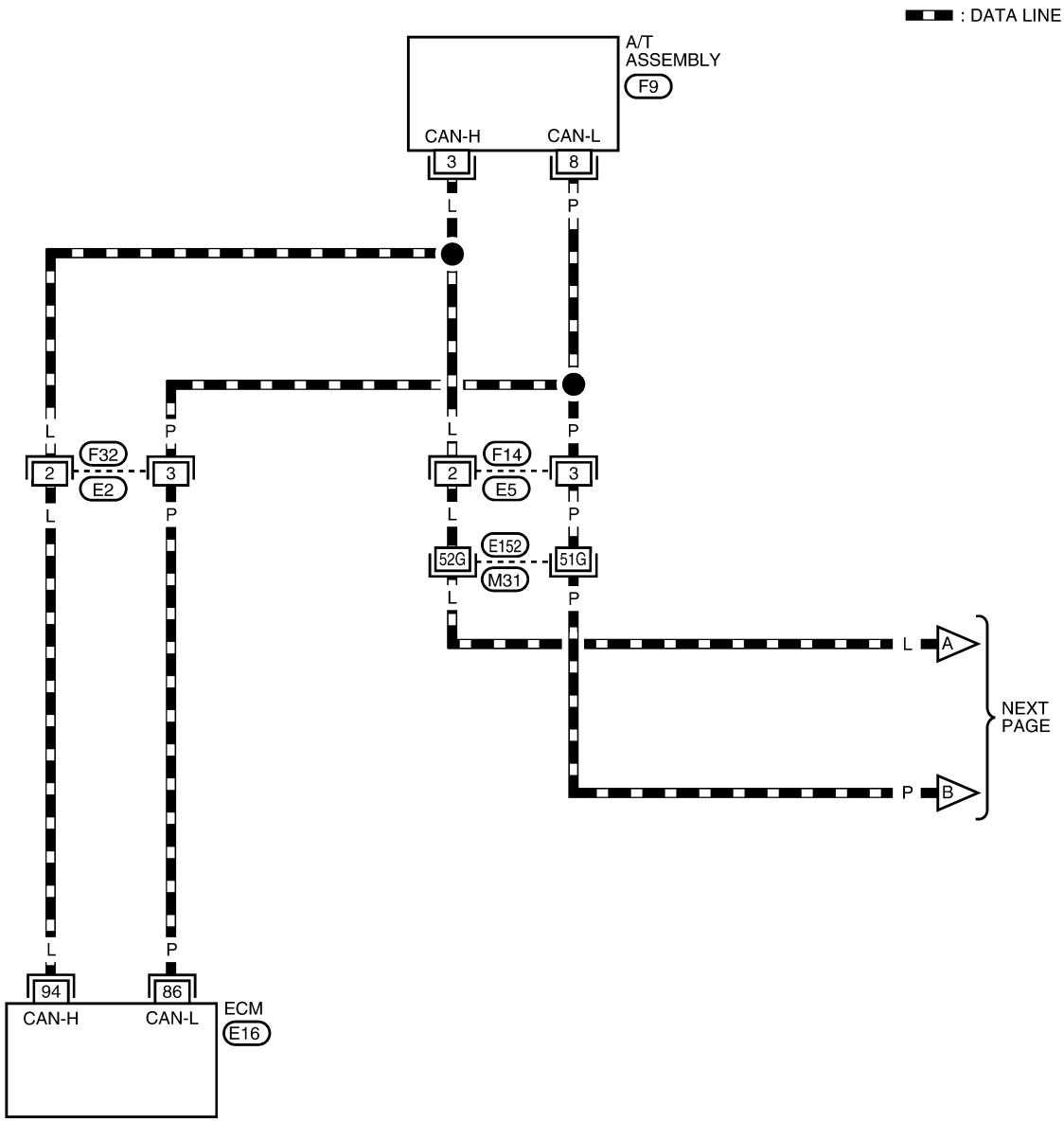


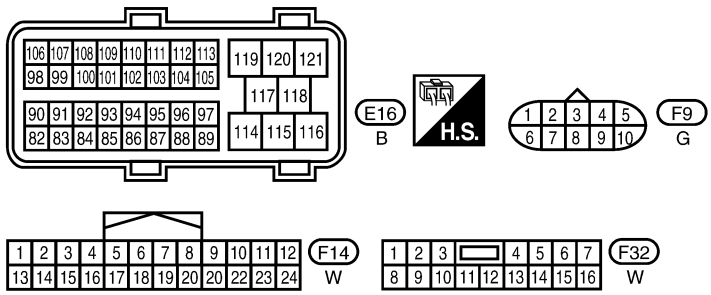
BKWA0595E

Wiring Diagram — CAN —

UKS003LS

LAN-CAN-43



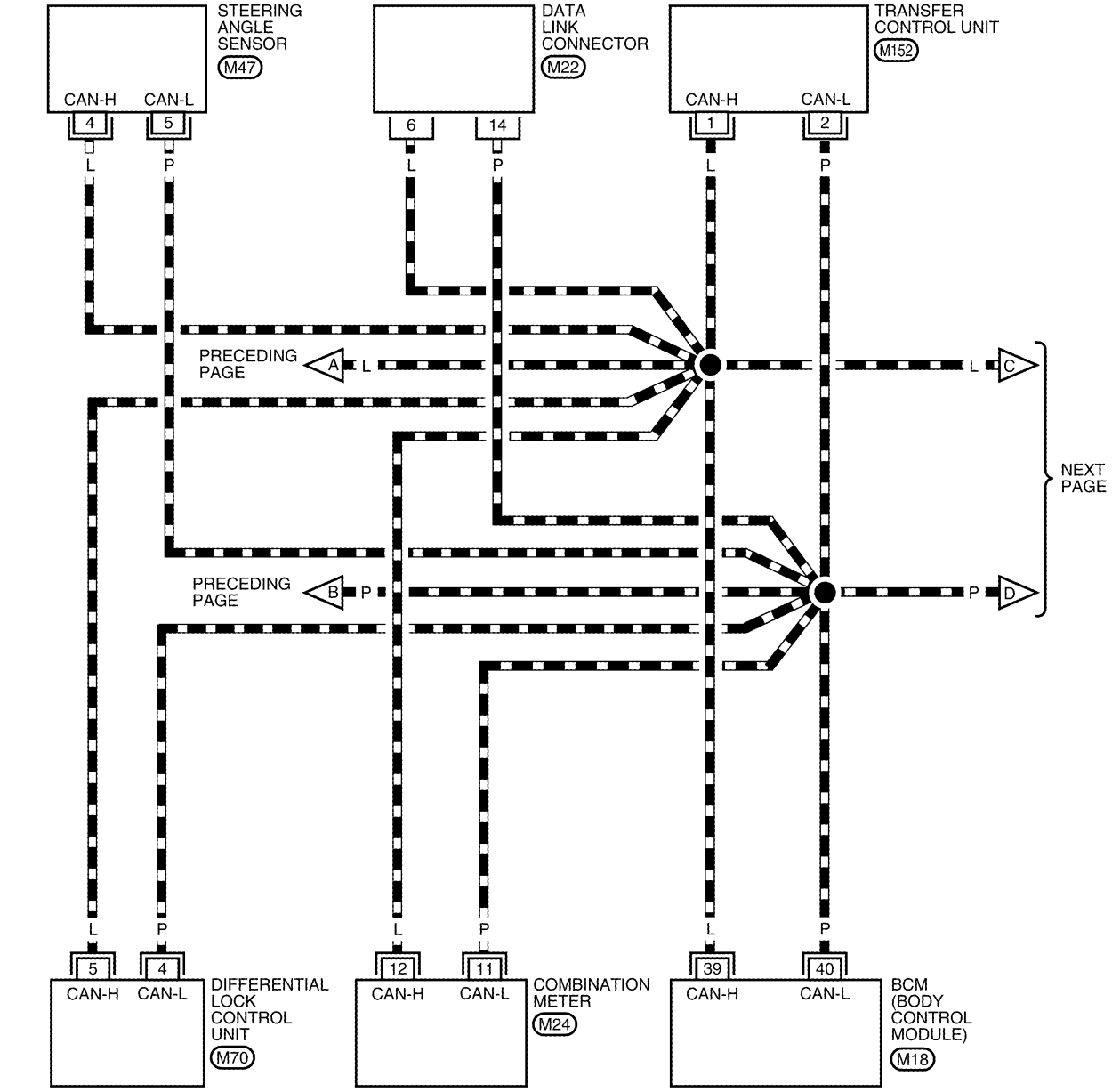


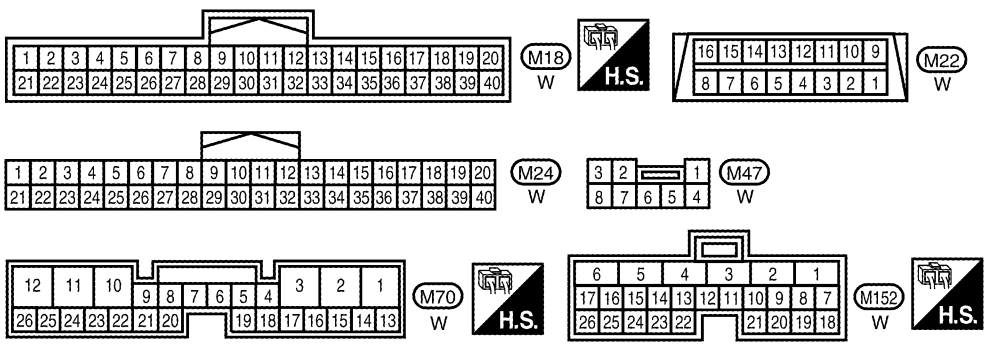
REFER TO THE FOLLOWING.
M31 - SUPER MULTIPLE JUNCTION (SMJ)

BKWA0530E

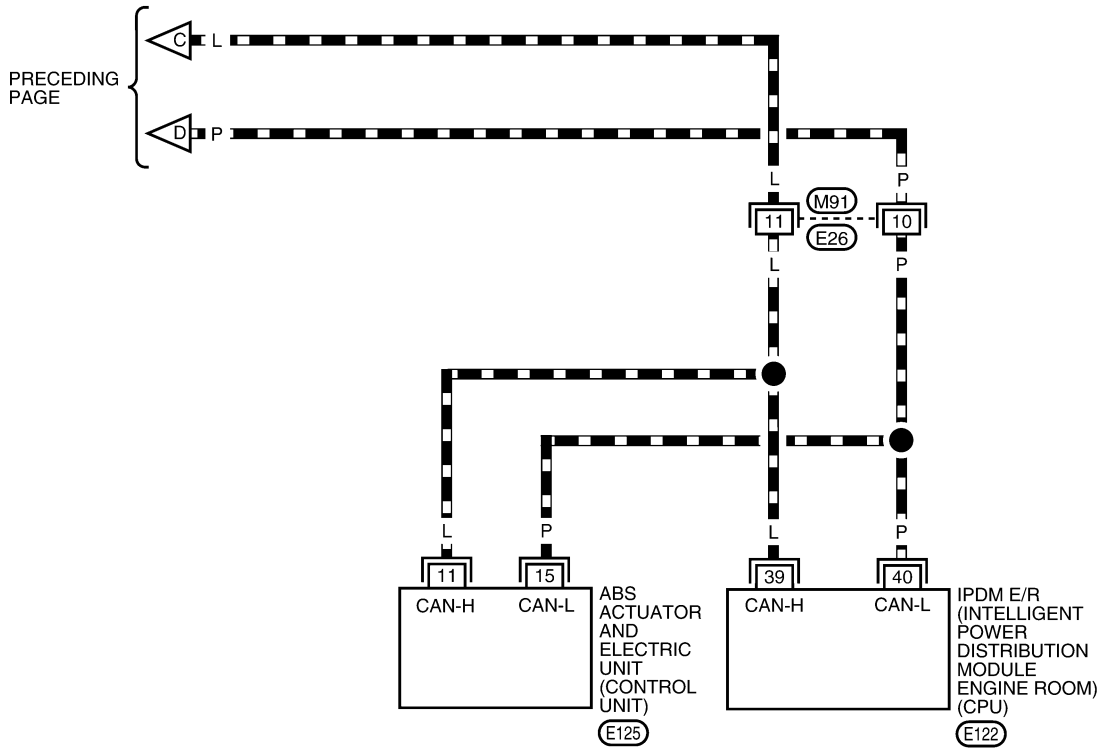
LAN-CAN-44

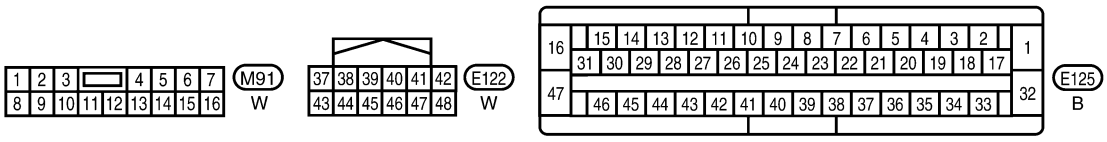
: DATA LINE





BKWA0596E


: DATA LINE
PRECEDING PAGE
C
L
D
P
L
P
M91
11
10
E26
L
P
L
P
L
P
11
15
39
40
CAN-H
CAN-L
CAN-H
CAN-L
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
E125
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) (CPU)
E122


1 2 3 4 5 6 7
8 9 10 11 12 13 14 15 16
M91
W
37 38 39 40 41 42
43 44 45 46 47 48
E122
W
16
15 14 13 12 11 10 9 8 7 6 5 4 3 2
31 30 29 28 27 26 25 24 23 22 21 20 19 18 17
1
47
46 45 44 43 42 41 40 39 38 37 36 35 34 33
32
E125
B

BKWA0532E

CHECK SHEET

UKS003LT

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

Check sheet table

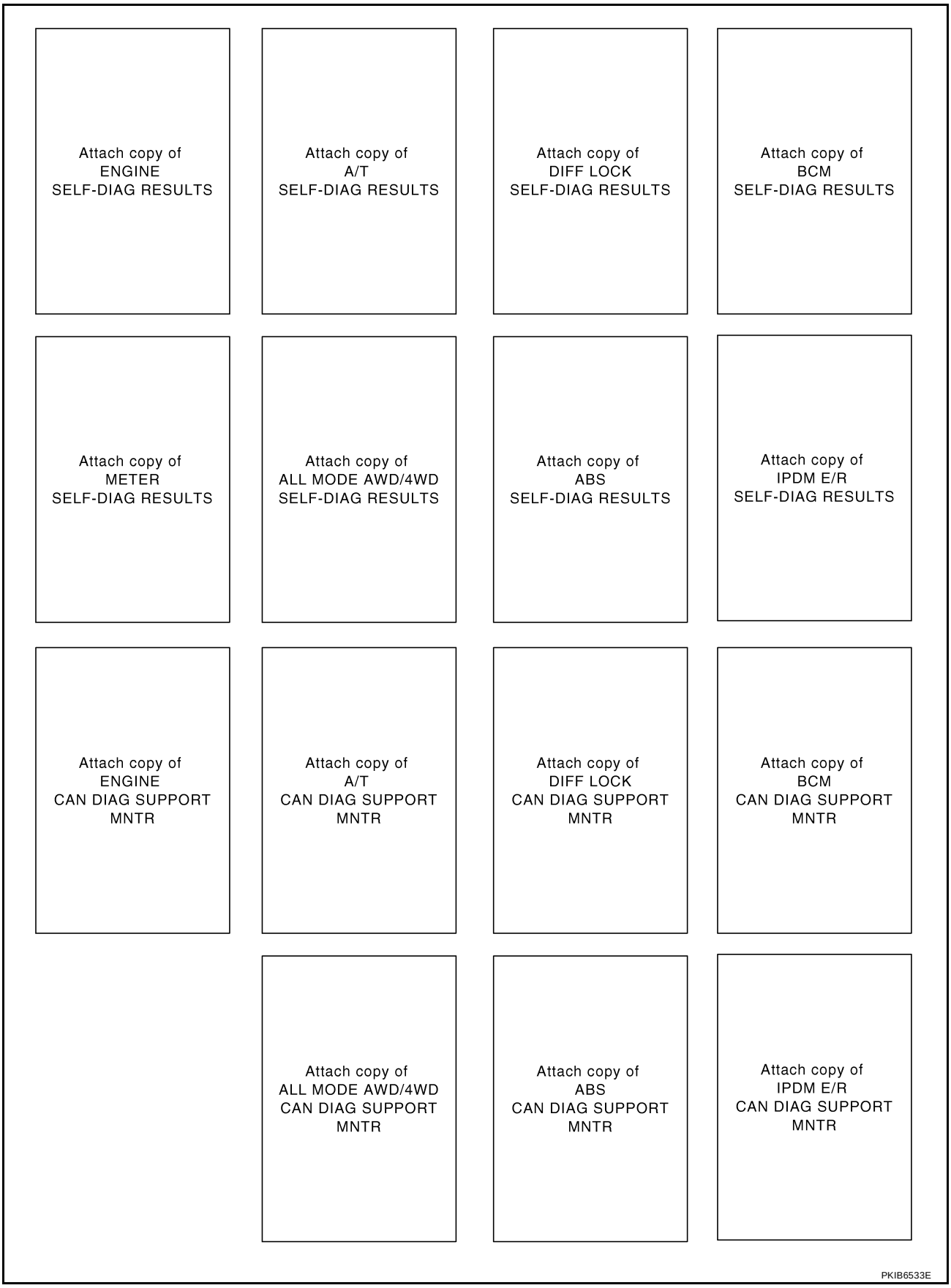
SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR											SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis										
				ECM	TCM	DIFF LOCK	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

Symptoms :

Attach copy of SELECT SYSTEM

Attach copy of SELECT SYSTEM

PKIB6535E


Attach copy of
ENGINE
SELF-DIAG RESULTS
Attach copy of
A/T
SELF-DIAG RESULTS
Attach copy of
DIFF LOCK
SELF-DIAG RESULTS
Attach copy of
BCM
SELF-DIAG RESULTS
Attach copy of
METER
SELF-DIAG RESULTS
Attach copy of
ALL MODE AWD/4WD
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
A/T
CAN DIAG SUPPORT
MNTR
Attach copy of
DIFF LOCK
CAN DIAG SUPPORT
MNTR
Attach copy of
BCM
CAN DIAG SUPPORT
MNTR
Attach copy of
ALL MODE AWD/4WD
CAN DIAG SUPPORT
MNTR
Attach copy of
ABS
CAN DIAG SUPPORT
MNTR
Attach copy of
IPDM E/R
CAN DIAG SUPPORT
MNTR
PKIB6533E

CHECK SHEET RESULTS (EXAMPLE)

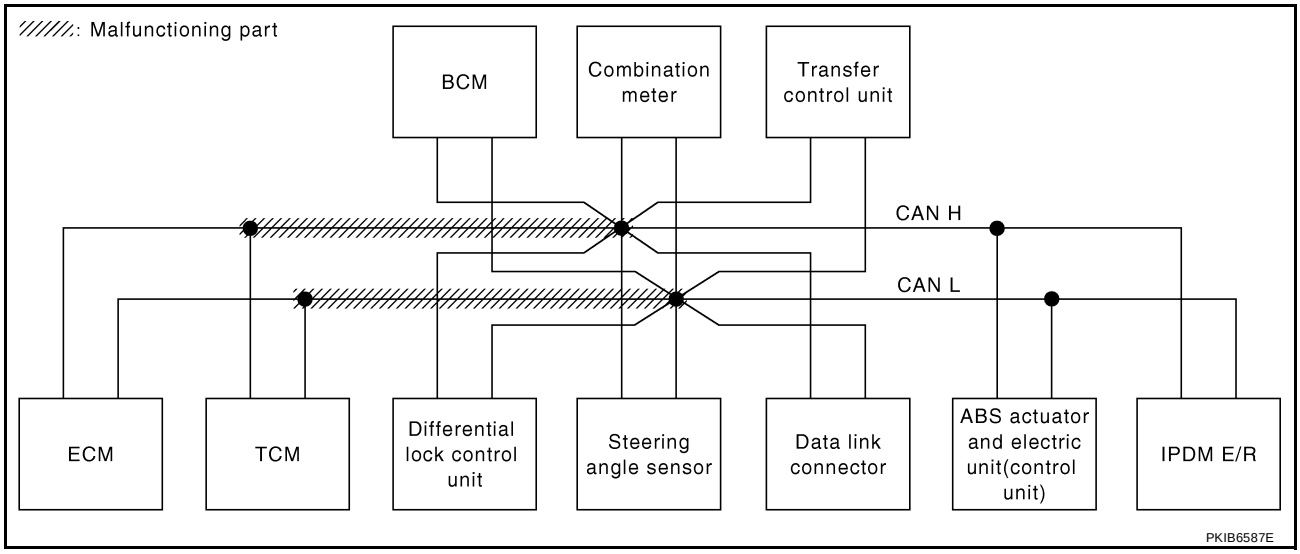
NOTE:
If a check mark is put on “NG” on “INITIAL DIAG (Initial diagnosis)”, replace the control unit.

Case 1

Check harness between TCM and data link connector circuit. Refer to LAN-431, "Inspection Between TCM and Data Link Connector Circuit" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR											SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis										
				ECM	TCM	DIFF LOCK	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7003E

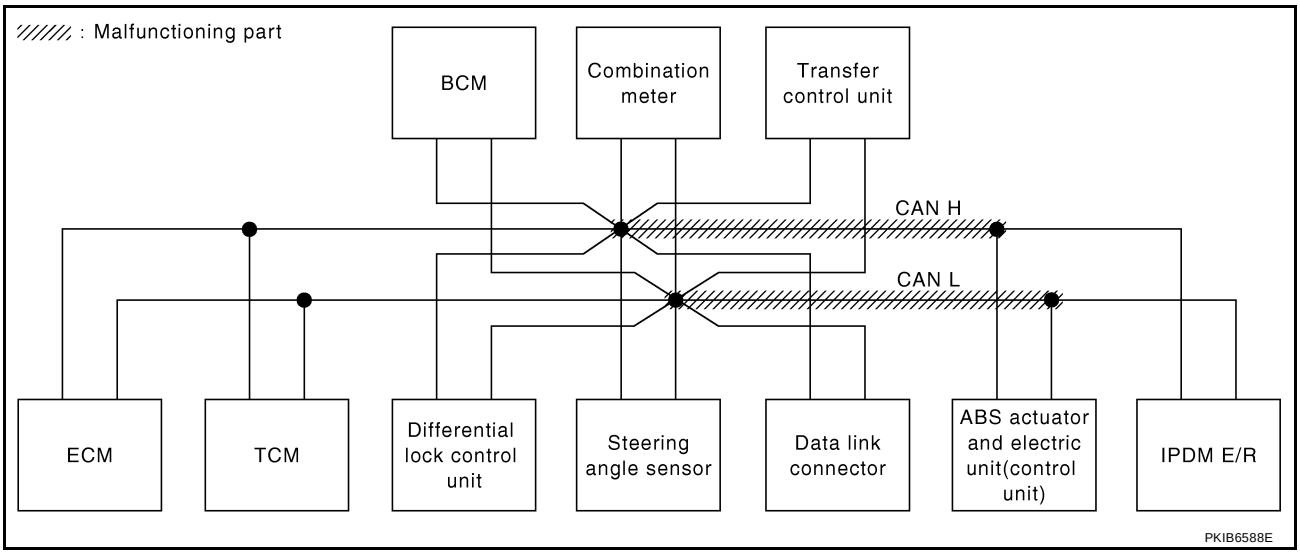


Case 2

Check harness between data link connector and ABS actuator and electric unit (control unit) circuit. Refer to LAN-432, "Inspection Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Circuit" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR											SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis										
				ECM	TCM	DIFF LOCK	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN ✓	UNKWN ✓	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	—	UNKWN	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	UNKWN ✓	CAN COMM CIRCUIT (U1000) ✓	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN ✓	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	—	UNKWN ✓	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication ✓	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—

PKIB7004E

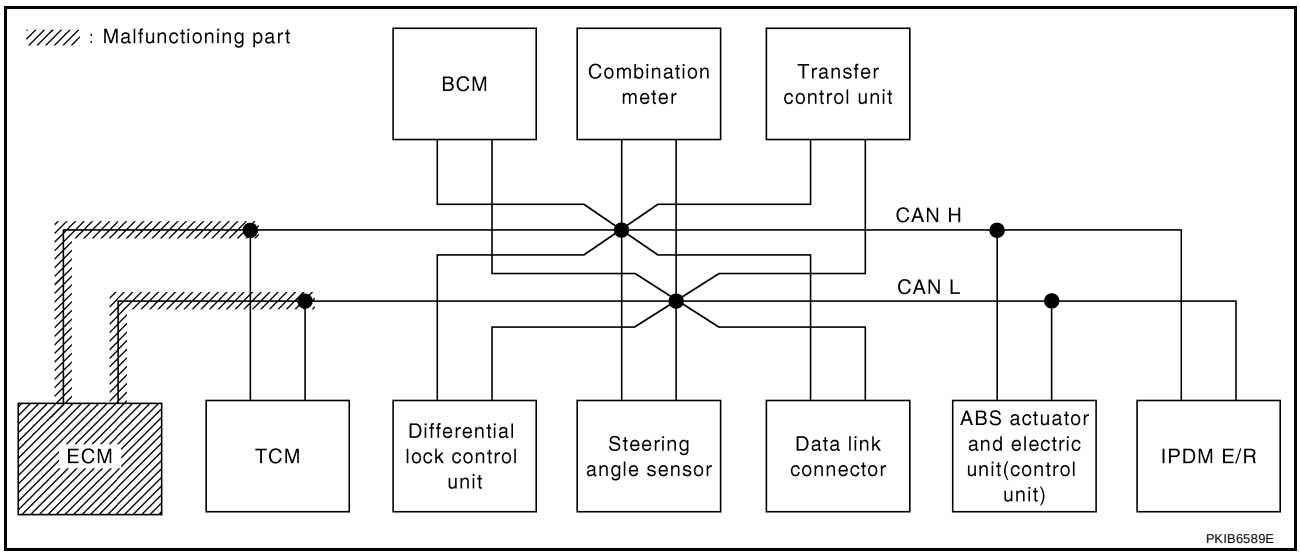


Case 3

Check ECM circuit. Refer to LAN-433, "ECM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR											SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis										
				ECM	TCM	DIFF LOCK	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7005E



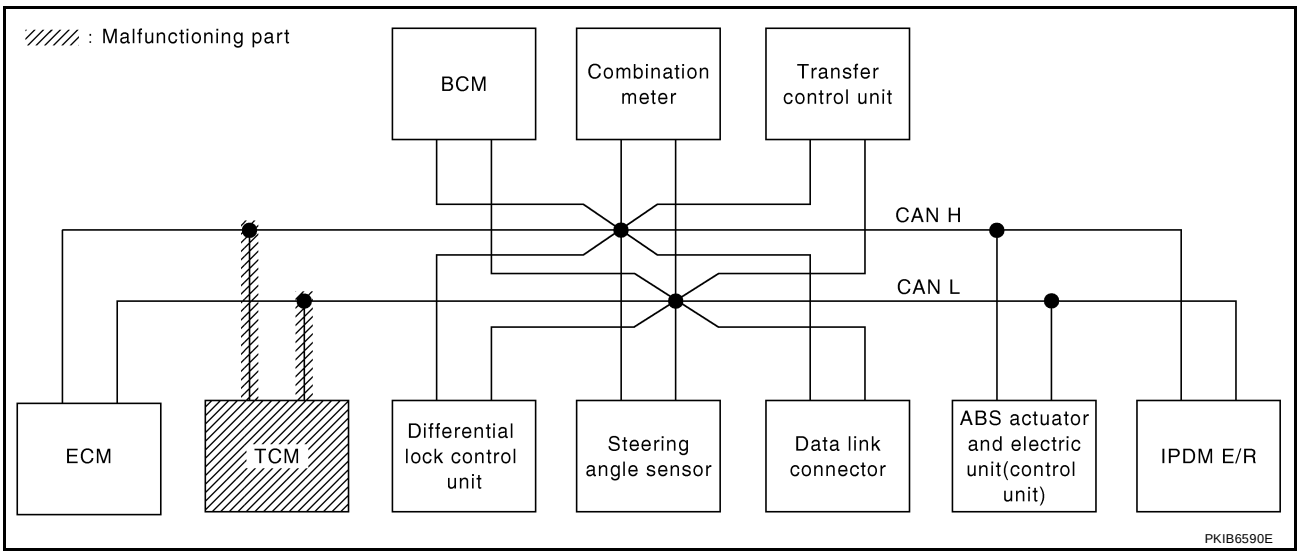
PKIB6589E

Case 4

Check TCM circuit. Refer to LAN-434, "TCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR											SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis										
				ECM	TCM	DIFF LOCK	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN ✓	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000) ✓	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN ✓	—	—	—	—	UNKWN ✓	UNKWN ✓	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN ✓	—	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	NG	UNKWN	UNKWN	UNKWN ✓	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB9491E



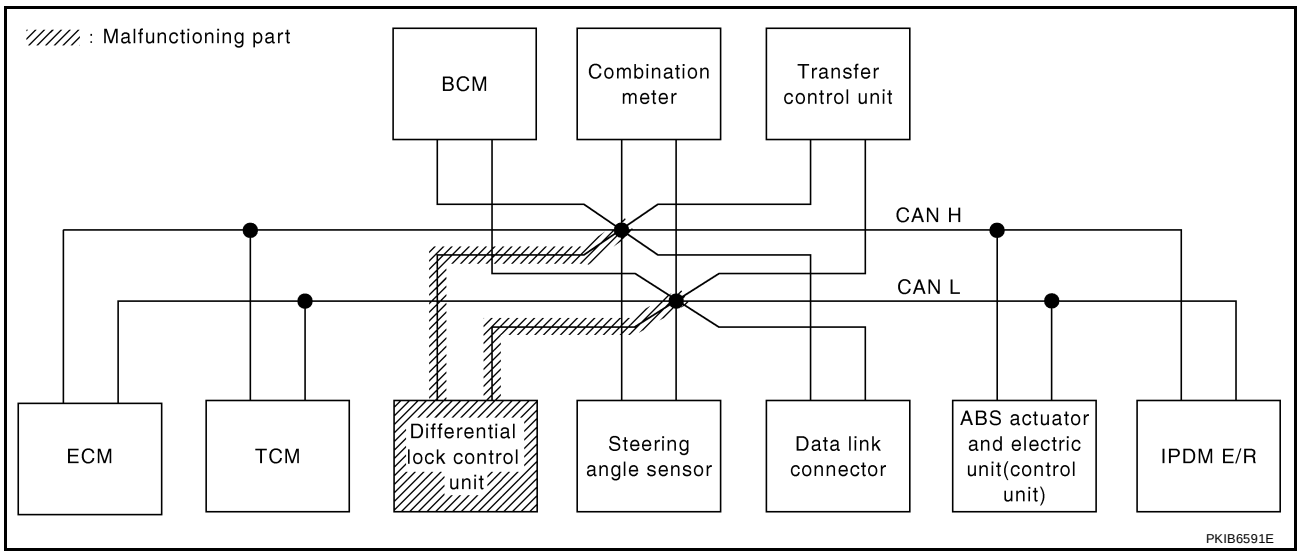
PKIB6590E

Case 5

Check differential lock control unit circuit. Refer to LAN-434, "Differential Lock Control Unit Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR											SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis										
				ECM	TCM	DIFF LOCK	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN ✓	UNKWN ✓	—	—	—	—	—	UNKWN ✓	UNKWN ✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN ✓	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7007E



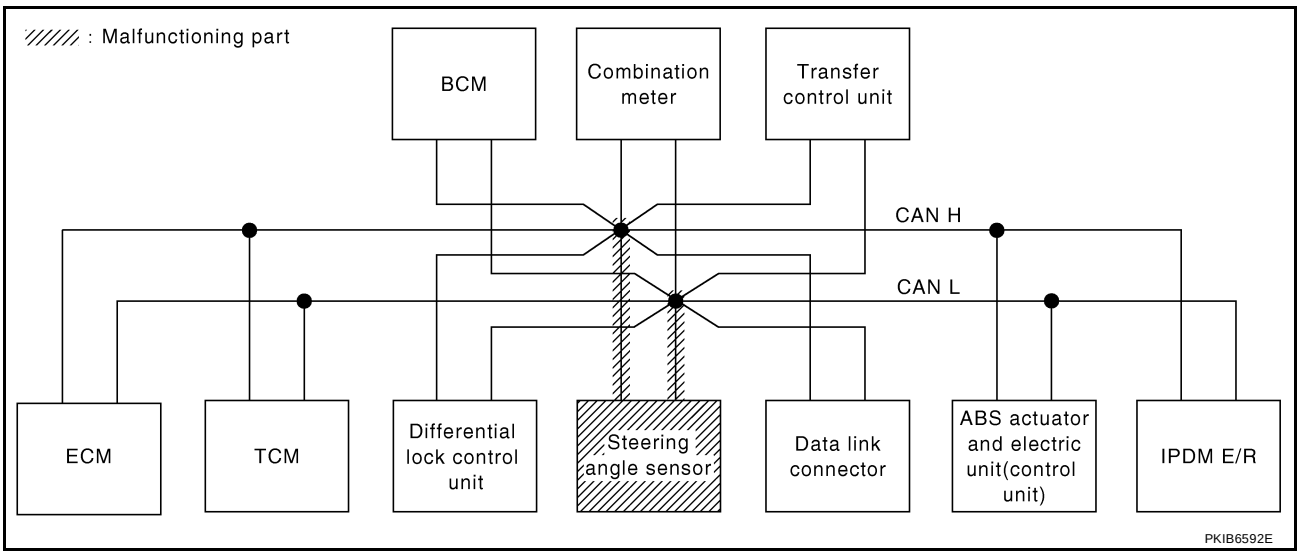
PKIB6591E

Case 6

Check steering angle sensor circuit. Refer to LAN-435, "Steering Angle Sensor Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR											SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis										
				ECM	TCM	DIFF LOCK	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7008E



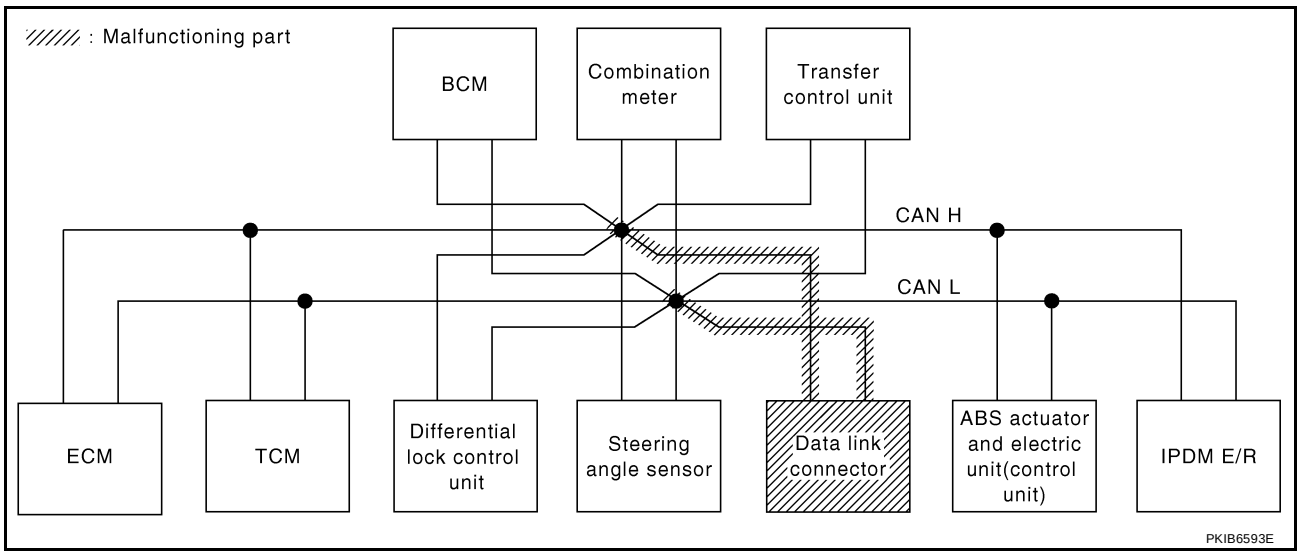
PKIB6592E

Case 7

Check data link connector circuit. Refer to LAN-435, "Data Link Connector Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR											SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis										
				ECM	TCM	DIFF LOCK	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7009E



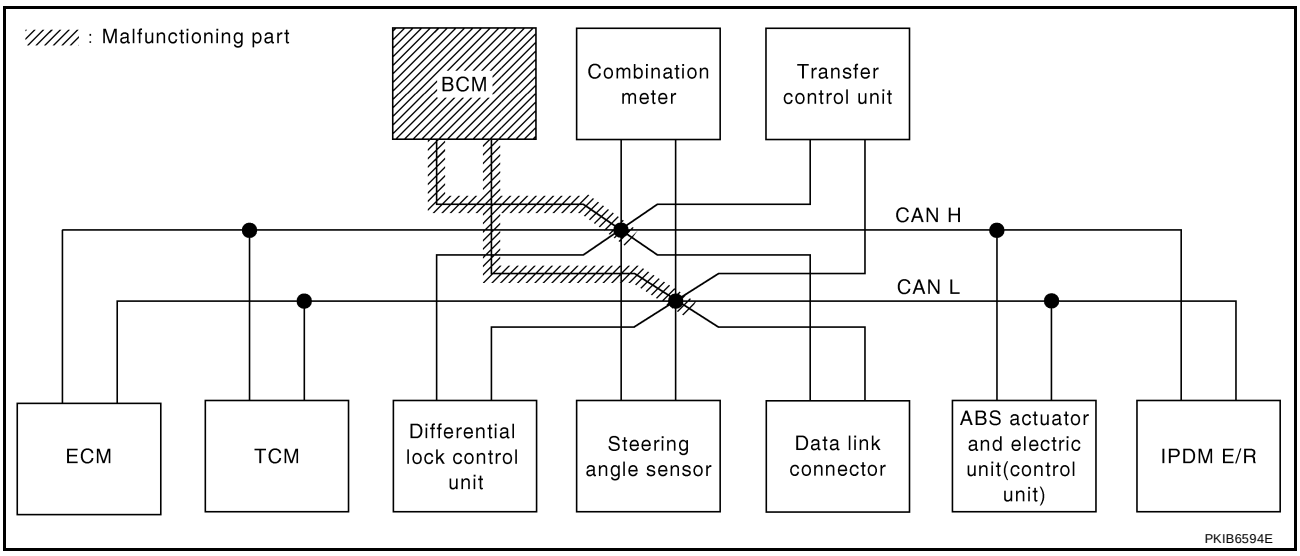
PKIB6593E

Case 8

Check BCM circuit. Refer to LAN-436, "BCM Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR											SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis										
				ECM	TCM	DIFF LOCK	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7010E



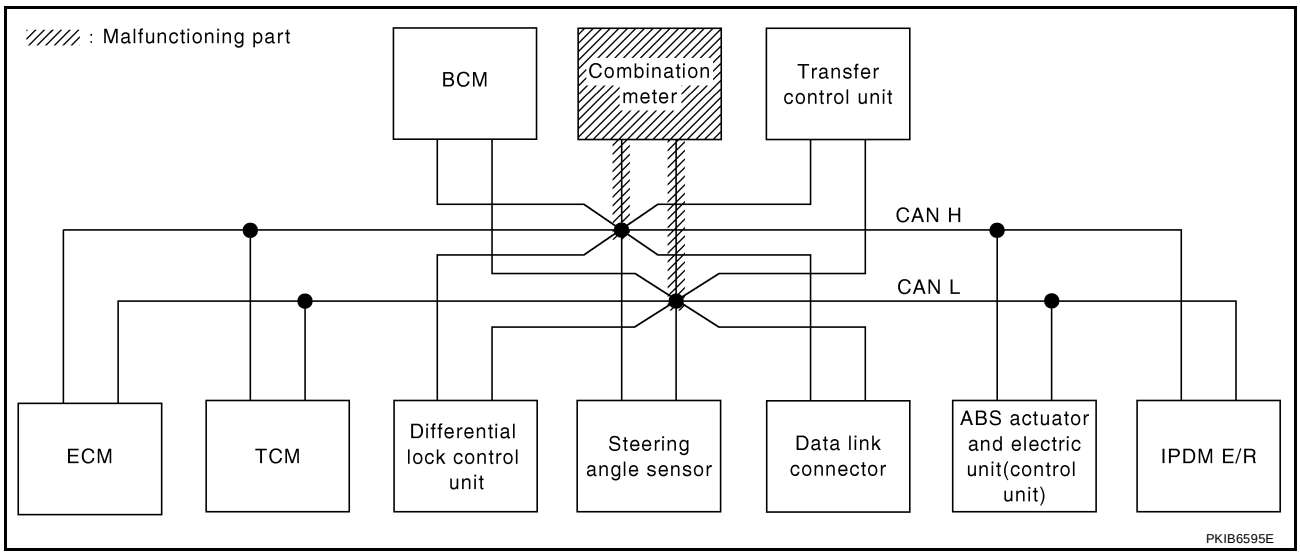
PKIB6594E

Case 9

Check combination meter circuit. Refer to LAN-436, "Combination Meter Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR											SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis										
				ECM	TCM	DIFF LOCK	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	—	UNKWN	UNKWN ✓	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN ✓	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000) ✓	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	UNKWN ✓	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication ✓	—	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN ✓	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7011E



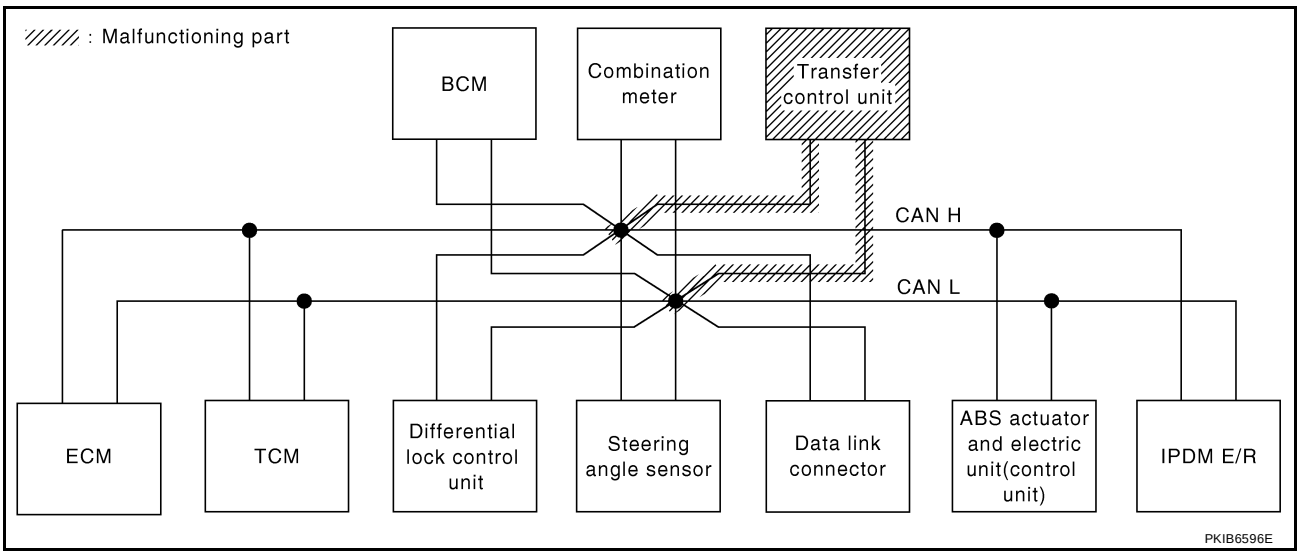
PKIB6595E

Case 10

Check transfer control unit circuit. Refer to LAN-437, "Transfer Control Unit Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR											SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis										
				ECM	TCM	DIFF LOCK	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7012E



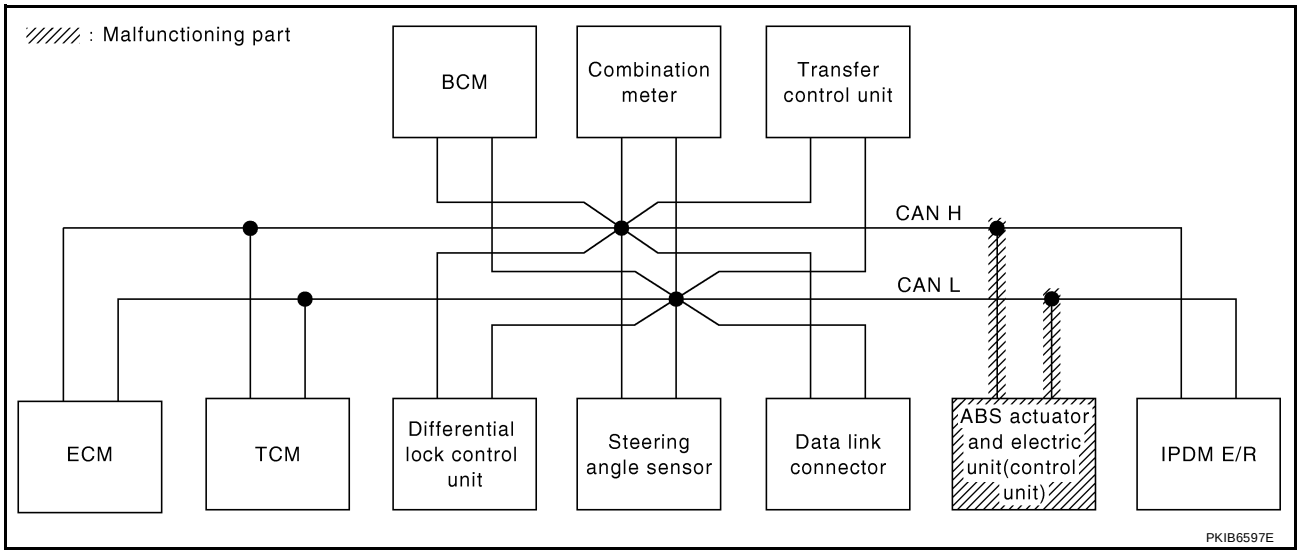
PKIB6596E

Case 11

Check ABS actuator and electric unit (control unit) circuit. Refer to LAN-437, "ABS Actuator and Electric Unit (Control Unit) Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR											SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis										
				ECM	TCM	DIFF LOCK	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	✓	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001) ✓
A/T	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	✓	—	CAN COMM CIRCUIT (U1000) ✓	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	—	UNKWN	✓	—	CAN COMM CIRCUIT (U1000) ✓	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000) ✓	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—	✓	—	CAN COMM CIRCUIT (U1000) ✓	—
ABS	—	✓	✓	✓	✓	✓	✓	—	—	✓	—	—	CAN COMM CIRCUIT (U1000) ✓	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7013E



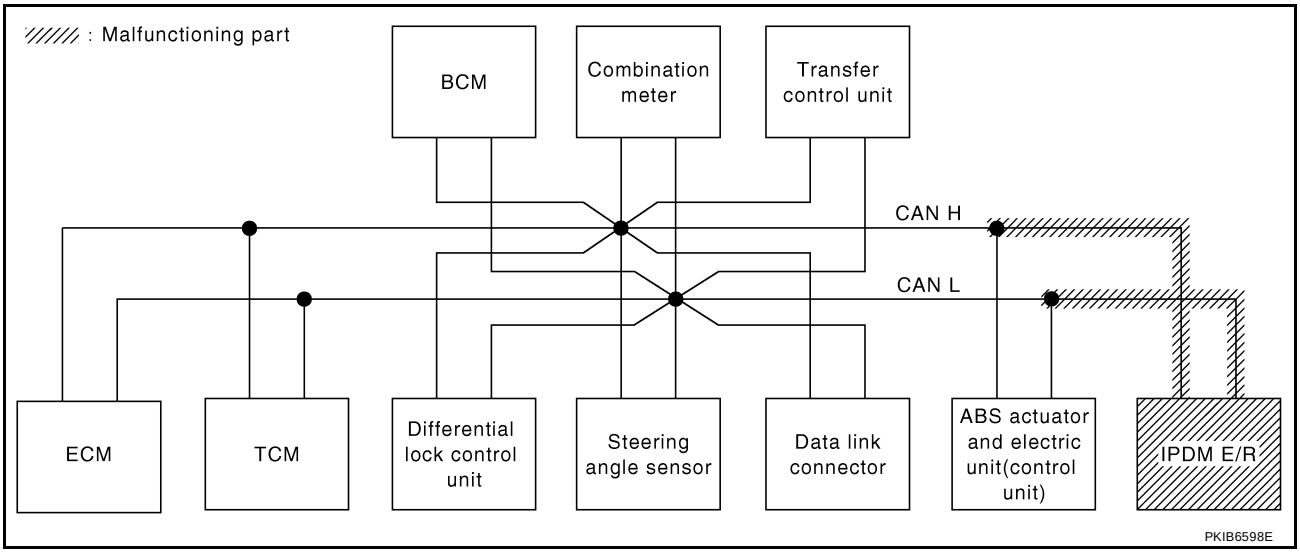
PKIB6597E

Case 12

Check IPDM E/R circuit. Refer to LAN-438, "IPDM E/R Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR											SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis										
				ECM	TCM	DIFF LOCK	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7014E



PKIB6598E

Case 13

Check CAN communication circuit. Refer to LAN-439, "CAN Communication Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR											SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis										
				ECM	TCM	DIFF LOCK	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7015E

Case 14

Check IPDM E/R ignition relay circuit continuously sticks “OFF”. Refer to LAN-443, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR											SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis										
				ECM	TCM	DIFF LOCK	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	—	—	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7016E

Case 15

Check IPDM E/R ignition relay circuit continuously sticks “ON”. Refer to LAN-443, "IPDM E/R Ignition Relay Circuit Inspection" .

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR											SELF-DIAG RESULTS	
		Initial diagnosis	Transmit diagnosis	Receive diagnosis										
				ECM	TCM	DIFF LOCK	STRG	BCM /SEC	METER /M&A	AWD/4WD /e4WD	VDC/TCS /ABS	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	—	—	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	—	—	—	—	—	—	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
DIFF LOCK	—	NG	UNKWN	UNKWN	—	—	—	—	—	UNKWN	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	—	—	—	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
METER	No indication	—	—	—	—	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	UNKWN	—	—	—	UNKWN	—	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ABS	—	NG	UNKWN	—	UNKWN	—	—	—	—	—	—	—	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	—	—	—	CAN COMM CIRCUIT (U1000)	—

PKIB7017E

Inspection Between TCM and Data Link Connector Circuit

UKS003LU

1. CHECK CONNECTOR

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

- Harness connector F14
- Harness connector E5
- Harness connector E152
- Harness connector M31

OK or NG

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

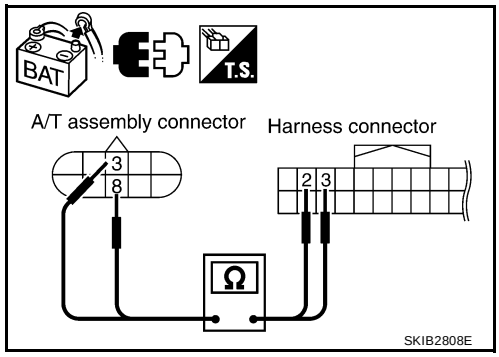
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect A/T assembly connector and harness connector F14.
2. Check continuity between A/T assembly harness connector F9 terminals 3 (L), 8 (P) and harness connector F14 terminals 2 (L), 3 (P).

3 (L) – 2 (L) : Continuity should exist.
8 (P) – 3 (P) : Continuity should exist.

OK or NG

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



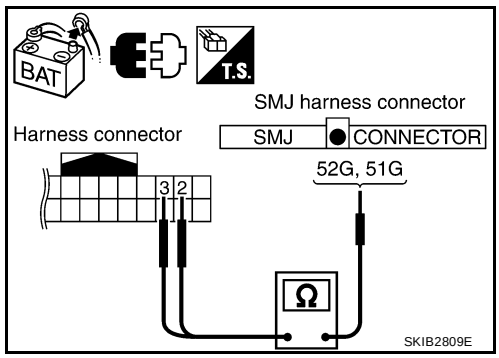
3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector E152.
2. Check continuity between harness connector E5 terminals 2 (L), 3 (P) and harness connector E152 terminals 52G (L), 51G (P).

2 (L) – 52G (L) : Continuity should exist.
3 (P) – 51G (P) : Continuity should exist.

OK or NG

OK >> GO TO 4.
NG >> Repair harness.



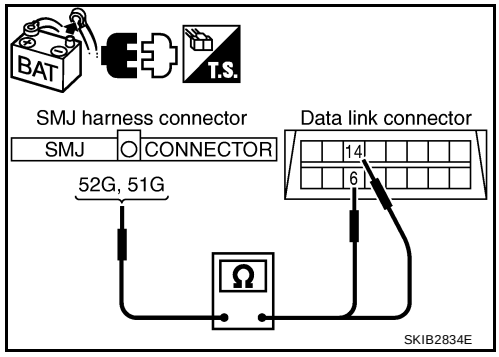
4. CHECK HARNESS FOR OPEN CIRCUIT

Check continuity between harness connector M31 terminals 52G (L), 51G (P) and data link connector M22 terminals 6 (L), 14 (P).

52G (L) – 6 (L) : Continuity should exist.
51G (P) – 14 (P) : Continuity should exist.

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.



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

UKS003LV

1. CHECK CONNECTOR

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

- Harness connector M91
- Harness connector E26

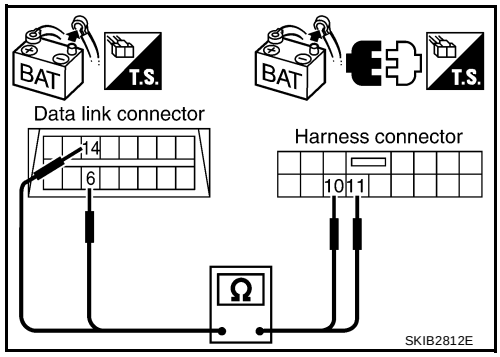
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect harness connector M91.
2. Check continuity between data link connector M22 terminals 6 (L), 14 (P) and harness connector M91 terminals 11 (L), 10 (P).

6 (L) – 11 (L) : Continuity should exist.
14 (P) – 10 (P) : Continuity should exist.



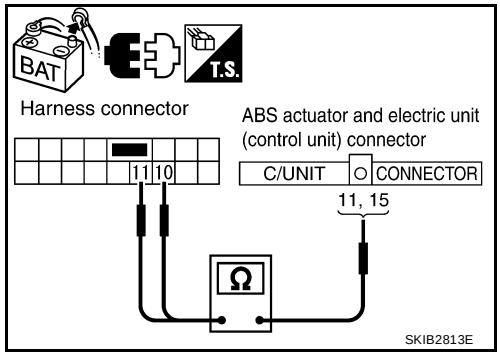
OK or NG

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 E26 terminals 11 (L), 10 (P) and ABS actuator and electric unit (control unit) harness connector E125 terminals 11 (L), 15 (P).

11 (L) – 11 (L) : Continuity should exist.
10 (P) – 15 (P) : Continuity should exist.



OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .
NG >> Repair harness.

ECM Circuit Inspection

UKS003LW

1. CHECK CONNECTOR

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

- ECM connector
- Harness connector E2
- Harness connector F32

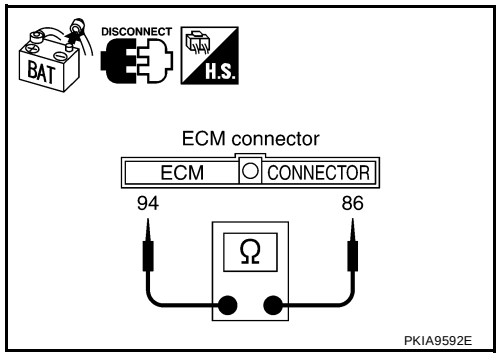
OK or NG

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 E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Approx. 108 – 132 Ω



OK or NG

OK >> Replace ECM.
NG >> Repair harness between ECM and A/T assembly.

TCM Circuit Inspection

UKS003LX

1. CHECK CONNECTOR

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

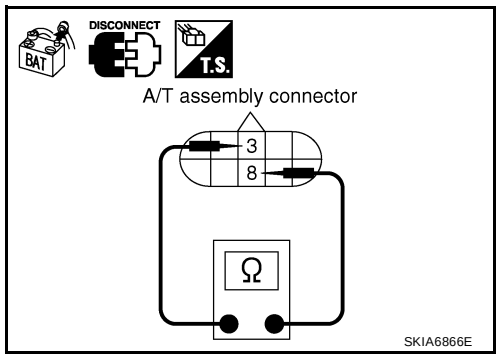
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect A/T assembly connector.
2. Check resistance between A/T assembly harness connector F9 terminals 3 (L) and 8 (P).

3 (L) – 8 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace control valve with TCM.
NG >> Repair harness between A/T assembly and harness connector F14.

Differential Lock Control Unit Circuit Inspection

UKS003LY

1. CHECK CONNECTOR

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

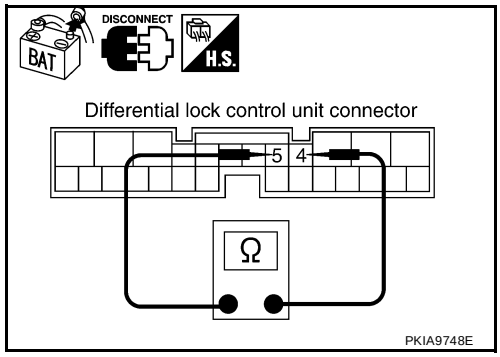
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect differential lock control unit connector.
2. Check resistance between differential lock control unit harness connector M70 terminals 5 (L) and 4 (P).

5 (L) – 4 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace differential lock control unit.
NG >> Repair harness between differential lock control unit and data link connector.

Steering Angle Sensor Circuit Inspection

UKS003LZ

1. CHECK CONNECTOR

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

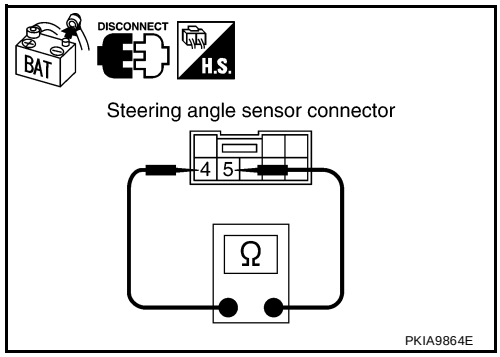
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect steering angle sensor connector.
2. Check resistance between steering angle sensor harness connector M47 terminals 4 (L) and 5 (P).

4 (L) – 5 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace steering angle sensor.
NG >> Repair harness between steering angle sensor and data link connector.

Data Link Connector Circuit Inspection

UKS003M0

1. CHECK CONNECTOR

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

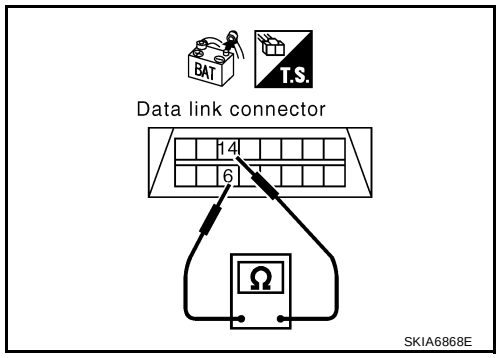
OK or NG

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

2. CHECK HARNESS FOR OPEN CIRCUIT

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

6 (L) – 14 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Diagnose again. Refer to LAN-7, "TROUBLE DIAGNOSES WORK FLOW" .

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

BCM Circuit Inspection

UKS003M1

1. CHECK CONNECTOR

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

OK or NG

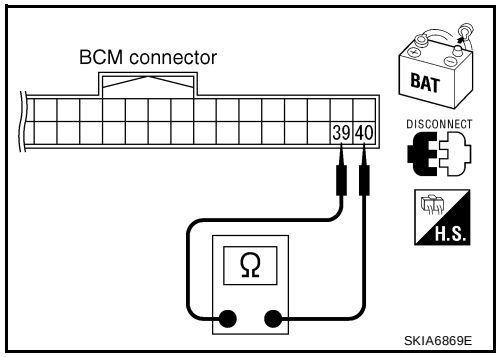
OK >> GO TO 2.

NG >> Repair terminal or connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check resistance between BCM harness connector M18 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 54 – 66 Ω



OK or NG

OK >> Replace BCM. Refer to BCS-19, "Removal and Installation of BCM" .

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

Combination Meter Circuit Inspection

UKS003M2

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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.

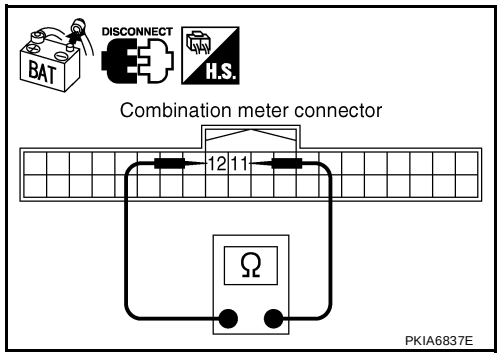
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect combination meter connector.
2. Check resistance between combination meter harness connector M24 terminals 12 (L) and 11 (P).

12 (L) – 11 (P) : Approx. 54 – 66 Ω

OK or NG

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



UKS003M3

Transfer Control Unit Circuit Inspection

1. CHECK CONNECTOR

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

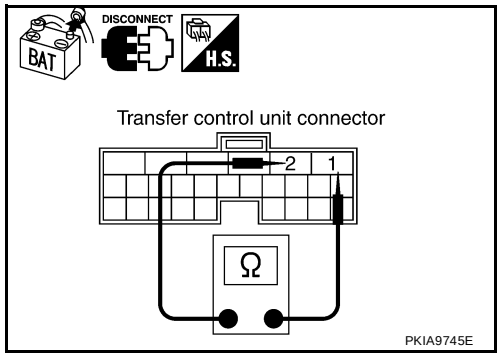
2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect transfer control unit connector.
2. Check resistance between transfer control unit harness connector M152 terminals 1 (L) and 2 (P).

1 (L) – 2 (P) : Approx. 54 – 66 Ω

OK or NG

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



ABS Actuator and Electric Unit (Control Unit) Circuit Inspection

UKS003M4

1. CHECK CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect the battery cable from the negative 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).

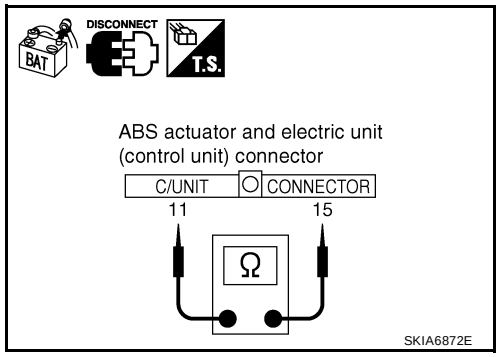
OK or NG

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 E125 terminals 11 (L) and 15 (P).

11 (L) – 15 (P) : Approx. 54 – 66 Ω



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 Inspection

UKS003M5

1. CHECK CONNECTOR

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

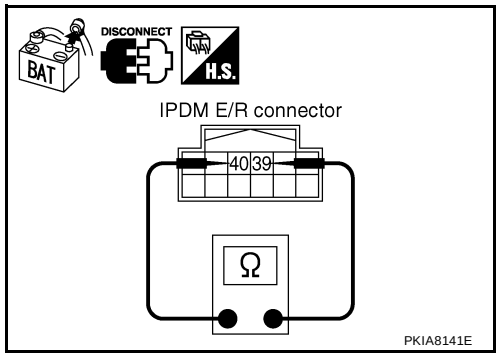
OK or NG

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 E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Approx. 108 – 132 Ω



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 Inspection

UKS003M6

1. CHECK CONNECTOR

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

- ECM
- TCM
- Differential lock control unit
- Steering angle sensor
- BCM
- Combination meter
- Transfer control unit
- 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.

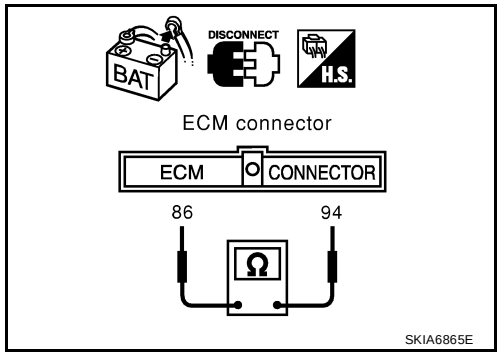
2. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ECM connector and harness connector E2.
2. Check continuity between ECM harness connector E16 terminals 94 (L) and 86 (P).

94 (L) – 86 (P) : Continuity should not exist.

OK or NG

OK >> GO TO 3.
NG >> Repair harness between ECM and harness connector E2.



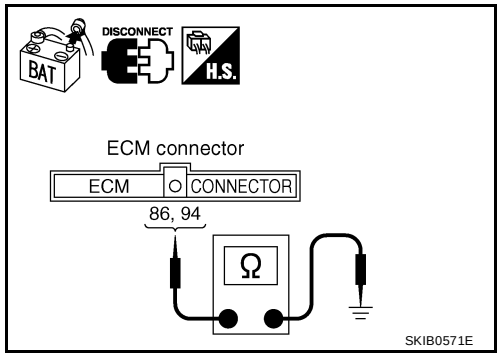
3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector E16 terminals 94 (L), 86 (P) and ground.

94 (L) – Ground : Continuity should not exist.
86 (P) – Ground : Continuity should not exist.

OK or NG

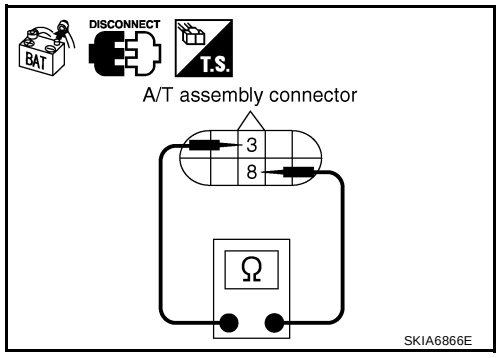
OK >> GO TO 4.
NG >> Repair harness between ECM and harness connector E2.



4. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect A/T assembly connector and harness connector F14.
2. Check continuity between A/T assembly harness connector F9 terminals 3 (L) and 8 (P).

3 (L) – 8 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 5.

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

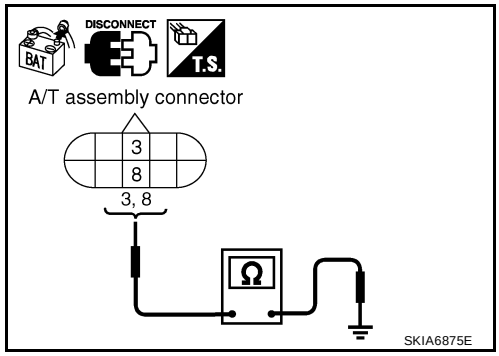
- Harness between A/T assembly and harness connector F32
- Harness between A/T assembly and harness connector F14

5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between A/T assembly harness connector F9 terminals 3 (L), 8 (P) and ground.

3 (L) – Ground : Continuity should not exist.

8 (P) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 6.

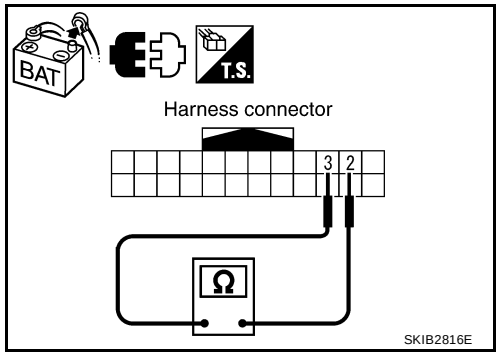
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between A/T assembly and harness connector F32
- Harness between A/T assembly and harness connector F14

6. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect harness connector E152.
2. Check continuity between harness connector E5 terminals 2 (L) and 3 (P).

2 (L) – 3 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 7.

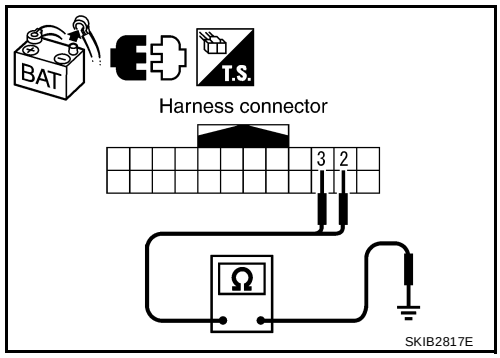
NG >> Repair harness between harness connector E5 and harness connector E152.

7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector E5 terminals 2 (L), 3 (P) and ground.

2 (L) – Ground : Continuity should not exist.

3 (P) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 8.

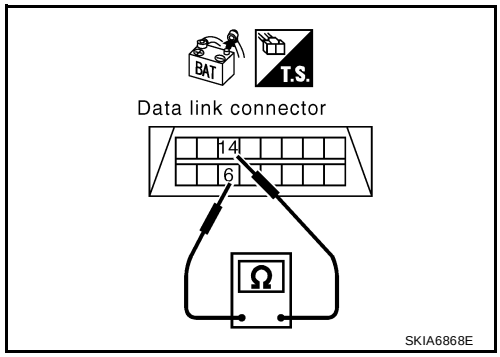
NG >> Repair harness between harness connector E5 and harness connector E152.

8. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect following connectors.
- Differential lock control unit connector
- Steering angle sensor connector
- BCM connector
- Combination meter connector
- Transfer control unit connector
- Harness connector M91

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

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



OK or NG

OK >> GO TO 9.

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

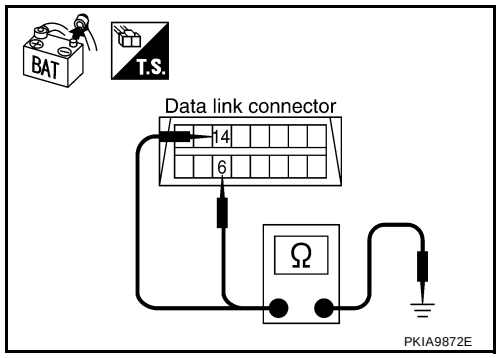
- Harness between data link connector and harness connector M31
- Harness between data link connector and differential lock control unit
- Harness between data link connector and steering angle sensor
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and transfer control unit
- Harness between data link connector and harness connector M91

9. CHECK HARNESS FOR SHORT CIRCUIT

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

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

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



OK or NG

OK >> GO TO 10.

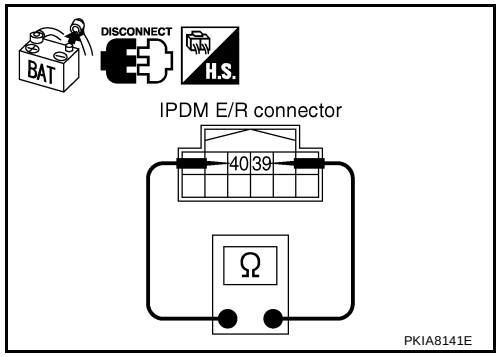
NG >> Check the following harnesses. If any harness is damaged, repair the harness.

- Harness between data link connector and harness connector M31
- Harness between data link connector and differential lock control unit
- Harness between data link connector and steering angle sensor
- Harness between data link connector and BCM
- Harness between data link connector and combination meter
- Harness between data link connector and transfer control unit
- Harness between data link connector and harness connector M91

10. CHECK HARNESS FOR SHORT CIRCUIT

1. Disconnect ABS actuator and electric unit (control unit) connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector E122 terminals 39 (L) and 40 (P).

39 (L) – 40 (P) : Continuity should not exist.



OK or NG

OK >> GO TO 11.

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

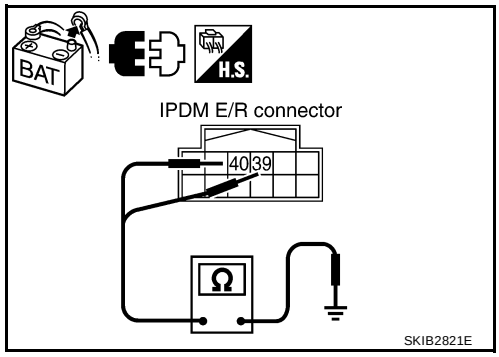
- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

11. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E122 terminals 39 (L), 40 (P) and ground.

39 (L) – Ground : Continuity should not exist.

40 (P) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 12.

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

- Harness between IPDM E/R and ABS actuator and electric unit (control unit)
- Harness between IPDM E/R and harness connector E26

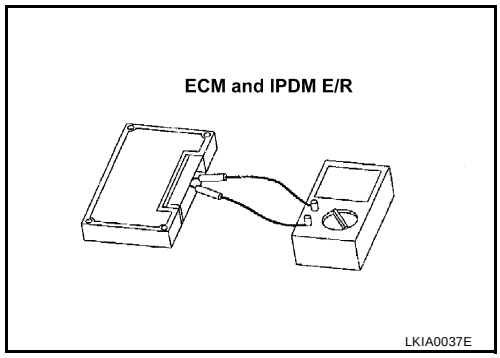
12. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

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

94 – 86 : Approx. 108 – 132 Ω

3. Check resistance between IPDM E/R terminals 39 and 40.

39 – 40 : Approx. 108 – 132 Ω



OK or NG

OK >> GO TO 13.
NG >> Replace ECM and/or IPDM E/R.

13. CHECK SYMPTOM

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

OK or NG

OK >> GO TO 14.
NG >> Refer to LAN-15, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced" .

14. CHECK UNIT REPRODUCIBILITY

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

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

- TCM
- Differential lock control unit
- Steering angle sensor
- BCM
- Combination meter
- Transfer control unit
- ABS actuator and electric unit (control unit)
- ECM
- IPDM E/R

Inspection results

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

IPDM E/R Ignition Relay Circuit Inspection

UKS003M7

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

- IPDM E/R power supply circuit. Refer to PG-27, "IPDM E/R Power/Ground Circuit Inspection" .
- Ignition power supply circuit. Refer to PG-14, "IGNITION POWER SUPPLY — IGNITION SW. IN ON AND/OR START" .