# SECTION LAN SYSTEM

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## < PRECAUTION > PRECAUTION А PRECAUTIONS **Precautions for Trouble Diagnosis** INFOID:000000008273399 В **CAUTION:** • Never apply 7.0 V or more to the measurement terminal. • Use a tester with open terminal voltage of 7.0 V or less. Turn the ignition switch OFF and disconnect the battery cable from the negative terminal when checking the harness. D Precautions for Harness Repair INFOID:00000008273400 • Solder the repaired area and wrap tape around the soldered area. NOTE: Ε A fray of twisted lines must be within 110 mm (4.33 in). F OK: Soldered and taped SKIB8766E Н Bypass connection is never allowed at the repaired area. NOTE: Bypass connection may cause CAN communication error. The spliced wire becomes separated and the characteristics of twisted NG: Bypass connection line are lost. X Κ SKIB8767E L Replace the applicable harness as an assembly if error is detected on the shield lines of CAN communication line.

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## < SYSTEM DESCRIPTION >

# SYSTEM DESCRIPTION

# SYSTEM

CAN COMMUNICATION SYSTEM

**CAN COMMUNICATION SYSTEM : System Description** 

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. DIAG ON CAN

# DIAG ON CAN : Description

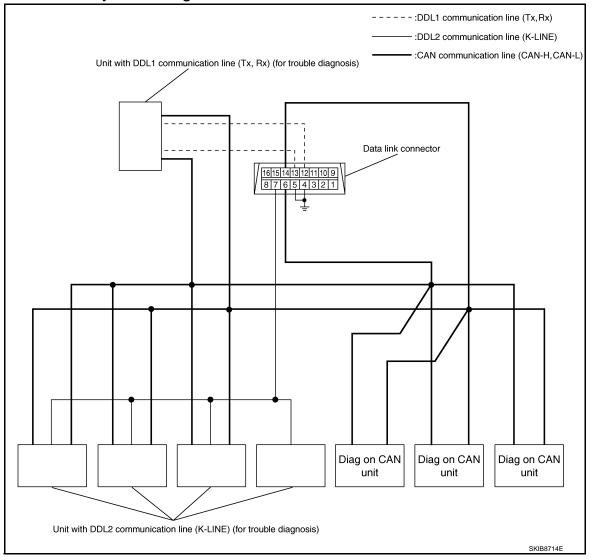
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INFOID:000000008273401

"Diag on CAN" is a diagnosis method which uses the CAN communication line for the communication between the control unit and the diagnostic tool.

# DIAG ON CAN : System Diagram



## < SYSTEM DESCRIPTION >

# [CAN FUNDAMENTAL]

Name	Harness	Description	
DDL1	Tx Rx	For communications with the diagnostic tool. (CAN-H and CAN-L are used for control- ling)	A
DDL2	K-LINE	For communications with the diagnostic tool. (CAN-H and CAN-L are used for control- ling)	В
Diag on CAN	CAN-H CAN-L	For communications with the diagnostic tool. (CAN-H and CAN-L are also used for con- trol and diagnoses.)	
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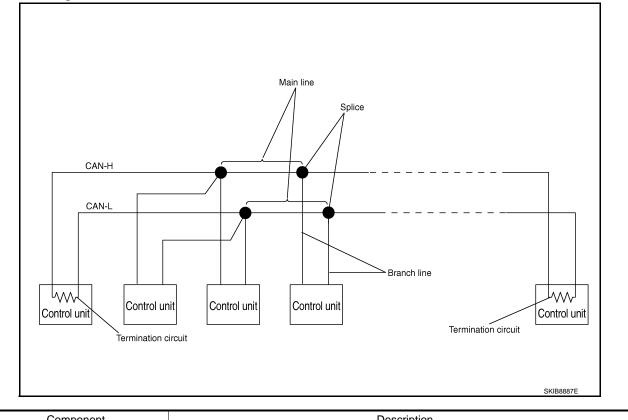
## < SYSTEM DESCRIPTION >

# **TROUBLE DIAGNOSIS**

[CAN FUNDAMENTAL]

INFOID:000000008273404

System Diagram



Component	Description
Main line	CAN communication line between splices
Branch line	CAN communication line between splice and a control unit
Splice	A point connecting a branch line with a main line
Termination circuit	Circuit connected across the CAN communication system. (Resistor)

# Condition of Error Detection

INFOID:000000008273405

DTC (e.g. U1000 and U1001) of CAN communication is indicated on SELF-DIAG RESULTS on CONSULT if a CAN communication signal is not transmitted or received between units for 2 seconds or more.

## CAN COMMUNICATION SYSTEM ERROR

- CAN communication line open (CAN-H, CAN-L, or both)
- CAN communication line short (ground, between CAN communication lines, other harnesses)
- Error of CAN communication control circuit of the unit connected to CAN communication line

# WHEN DTC OF CAN COMMUNICATION IS INDICATED EVEN THOUGH CAN COMMUNICATION SYSTEM IS NORMAL

- Removal/installation of parts: Error may be detected when removing and installing CAN communication unit and related parts while turning the ignition switch ON. (A DTC except for CAN communication may be detected.)
- Fuse blown out (removed): CAN communication of the unit may cease.
- Voltage drop: Error may be detected if voltage drops due to discharged battery when turning the ignition switch ON (Depending on the control unit which carries out CAN communication).
- Error may be detected if the power supply circuit of the control unit, which carries out CAN communication, malfunctions (Depending on the control unit which carries out CAN communication).
- Error may be detected if reprogramming is not completed normally.

CAUTION:

#### < SYSTEM DESCRIPTION >

[CAN FUNDAMENTAL]

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CAN communication system is normal if DTC of CAN communication is indicated on SELF-DIAG RESULTS of CONSULT under the above conditions. Erase the memory of the self-diagnosis of each unit.

## Symptom When Error Occurs in CAN Communication System

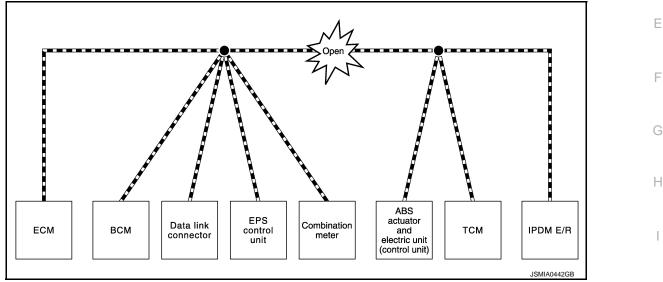
In CAN communication system, multiple units mutually transmit and receive signals. Each unit cannot transmit and receive signals if any error occurs on CAN communication line. Under this condition, multiple control units related to the root cause malfunction or go into fail-safe mode.

## ERROR EXAMPLE

#### NOTE:

Each vehicle differs in symptom of each unit under fail-safe mode and CAN communication line wiring.

Example: Main Line Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Open Circuit

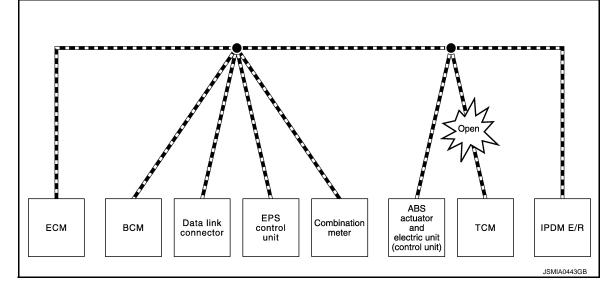


Unit name	Major symptom	
ECM	Engine torque limiting is affected, and shift harshness increases.	
ВСМ	<ul> <li>Reverse warning chime does not sound.</li> <li>The front wiper moves under continuous operation mode even though the front wiper switch being in the intermittent position.</li> </ul>	
EPS control unit	The steering effort increases.	
Combination meter	<ul> <li>The shift position indicator and OD OFF indicator turn OFF.</li> <li>The speedometer is inoperative.</li> <li>The odo/trip meter stops.</li> </ul>	1
ABS actuator and electric unit (control unit)	Normal operation.	
ТСМ	No impact on operation.	
IPDM E/R	<ul><li>When the ignition switch is ON,</li><li>The headlamps (Lo) turn ON.</li><li>The cooling fan continues to rotate.</li></ul>	

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## < SYSTEM DESCRIPTION >

## Example: TCM Branch Line Open Circuit



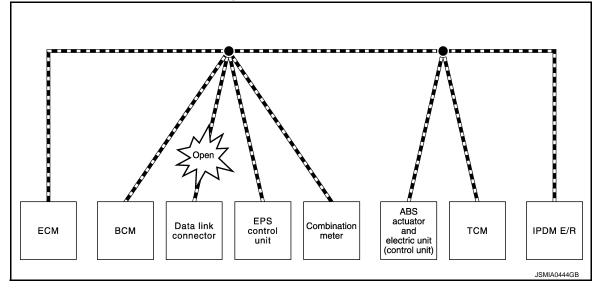
Unit name	Major symptom
ECM	Engine torque limiting is affected, and shift harshness increases.
BCM	Reverse warning chime does not sound.
EPS control unit	Normal operation.
Combination meter	<ul><li>Shift position indicator and O/D OFF indicator turn OFF.</li><li>Warning lamps turn ON.</li></ul>
ABS actuator and electric unit (control unit)	Normal operation.
ТСМ	No impact on operation.
IPDM E/R	Normal operation.

#### NOTE:

The model (all units on CAN communication system are Diag on CAN) cannot perform CAN diagnosis with CONSULT if the following error occurs. The error is judged by the symptom.

Error	Difference of symptom		
Data link connector branch line open circuit	Normal operation.		
CAN-H, CAN-L harness short-circuit	Most of the units which are connected to the CAN communication system enter fail-safe mode or are deactivated.		

Example: Data Link Connector Branch Line Open Circuit



## < SYSTEM DESCRIPTION >

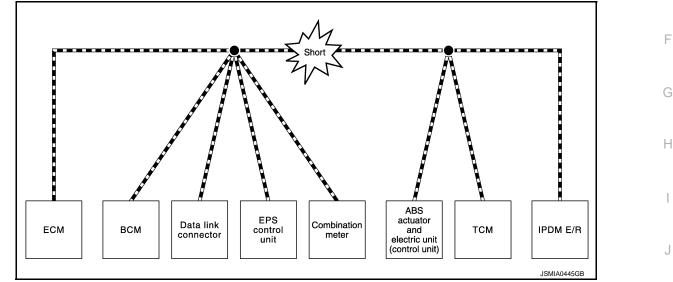
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Unit name	Major symptom	A
ECM		
BCM		_
EPS control unit		В
Combination meter	Normal operation.	
ABS actuator and electric unit (control unit)		C
ТСМ		_
IPDM E/R		
		D

## NOTE:

When data link connector branch line is open, transmission and reception of CAN communication signals are not affected. Therefore, no symptoms occur. However, be sure to repair malfunctioning circuit.

Example: CAN-H, CAN-L Harness Short Circuit



Unit name	Major symptom	K
ECM	<ul><li>Engine torque limiting is affected, and shift harshness increases.</li><li>Engine speed drops.</li></ul>	
	<ul> <li>Reverse warning chime does not sound.</li> <li>The front wiper moves under continuous operation mode even though the front wiper switch being in the intermittent position.</li> </ul>	L
BCM	<ul> <li>The room lamp does not turn ON.</li> <li>The engine does not start (if an error or malfunction occurs while turning the ignition switch OFF.)</li> <li>The steering lock does not release (if an error or malfunction occurs while turning</li> </ul>	LA
	the ignition switch OFF.)	Ν
EPS control unit	The steering effort increases.	
Combination meter	<ul> <li>The tachometer and the speedometer do not move.</li> <li>Warning lamps turn ON.</li> <li>Indicator lamps do not turn ON.</li> </ul>	0
ABS actuator and electric unit (control unit)	Normal operation.	
ТСМ	No impact on operation.	Ρ
IPDM E/R	<ul><li>When the ignition switch is ON,</li><li>The headlamps (Lo) turn ON.</li><li>The cooling fan continues to rotate.</li></ul>	

# CAN Diagnosis with CONSULT

CAN diagnosis on CONSULT extracts the root cause by receiving the following information.

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## < SYSTEM DESCRIPTION >

• Response to the system call

- Control unit diagnosis information
- Self-diagnosis
- CAN diagnostic support monitor

## Self-Diagnosis

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If communication signals cannot be transmitted or received among units communicating via CAN communication line, CAN communication-related DTC is displayed on the CONSULT "Self Diagnostic Result" screen. **NOTE:** 

The following table shows examples of CAN communication-related DTC. For other DTC, refer to the applicable sections.

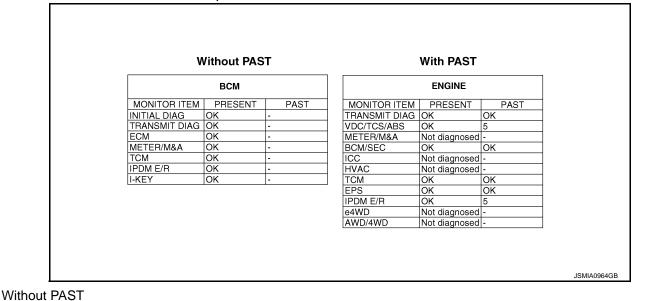
DTC	Self-diagnosis item (CONSULT indication)		DTC detection condition	Inspection/Action
U1000	CAN COMM CIRCUIT	ECM	When ECM is not transmitting or receiving CAN communication signal of OBD (emission-related diagnosis) for 2 seconds or more.	
01000		Except for ECM	When a control unit (except for ECM) is not transmitting or receiving CAN communication signal for 2 seconds or more.	Start the inspection. Re- fer to the applicable sec- tion of the indicated
U1001	CAN COMM CIRCUIT	cation sig	M is not transmitting or receiving CAN communi- nal other than OBD (emission-related diagnosis) onds or more.	control unit.
U1002	SYSTEM COMM		control unit is not transmitting or receiving CAN cation signal for 2 seconds or less.	
U1010	CONTROL UNIT(CAN)		error is detected during the initial diagnosis for troller of each control unit.	Replace the control unit indicating "U1010".

# CAN Diagnostic Support Monitor

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# MONITOR ITEM (CONSULT)

## Example: CAN DIAG SUPPORT MNTR indication



 Item
 PRESENT
 Description

 Initial diagnosis
 OK
 Normal at present

 NG
 Control unit error (Except for some control units)

## < SYSTEM DESCRIPTION >

# [CAN FUNDAMENTAL]

Item	PRESENT	Description			
	OK	Normal at present	A		
Transmission diagnosis	UNKWN	Unable to transmit signals for 2 seconds or more.			
	UNKWN	Diagnosis not performed	В		
	OK	Normal at present			
Control unit name		Unable to receive signals for 2 seconds or more.			
(Reception diagnosis)	UNKWN	Diagnosis not performed			
		No control unit for receiving signals. (No applicable optional parts)			

## With PAST

Item	PRESENT	PAST	Description							
		OK	Normal at present and in the past							
Transmission diagnosis	ОК	1 – 39	Normal at present, but unable to transmit signals for 2 seconds or more in the past. (The number indicates the number of ignition switch cycles from OFF to ON.)							
	UNKWN	0	Unable to transmit signals for 2 seconds or more at present.							
		OK	Normal at present and in the past							
Control unit name	ок	1 – 39	Normal at present, but unable to receive signals for 2 seconds or more in the past. (The number indicates the number of ignition switch cycles from OFF to ON.)							
(Reception diagnosis)	UNKWN	0	Unable to receive signals for 2 seconds or more at present.							
	Not diagnood		Diagnosis not performed.							
	Not diagnosed	-	No control unit for receiving signals. (No applicable optional parts)							

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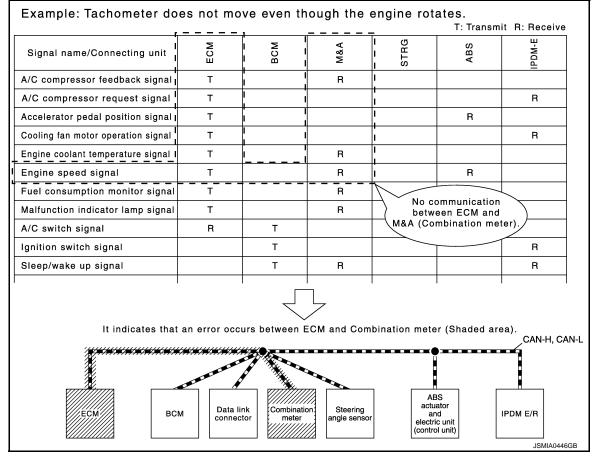
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## < SYSTEM DESCRIPTION >

# How to Use CAN Communication Signal Chart

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The CAN communication signal chart lists the signals needed for trouble diagnosis. It is useful for detecting the root cause by finding a signal related to the symptom, and by checking transmission and reception unit.



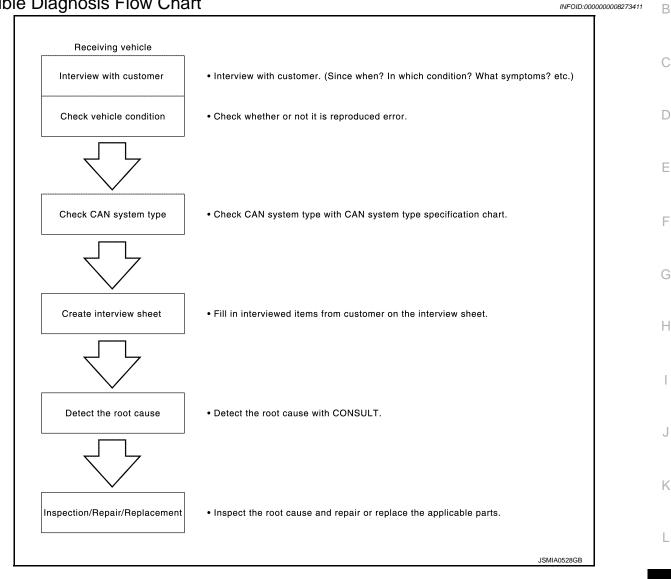
## < BASIC INSPECTION >

# [CAN FUNDAMENTAL]

# **BASIC INSPECTION** DIAGNOSIS AND REPAIR WORKFLOW

# **Trouble Diagnosis Flow Chart**

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# **Trouble Diagnosis Procedure**

## INTERVIEW WITH CUSTOMER

Ν Interview with the customer is important to detect the root cause of CAN communication system errors and to understand vehicle condition and symptoms for proper trouble diagnosis.

Points in interview

- What: Parts name, system name
- When: Date, Frequency
- Where: Road condition, Place
- In what condition: Driving condition/environment
- Result: Symptom

## Notes for checking error symptoms:

- Check normal units as well as error symptoms.
- Example: Circuit between ECM and the combination meter is judged normal if the customer indicates tachometer functions normally.
- When a CAN communication system error is present, multiple control units may malfunction or go into failsafe mode.



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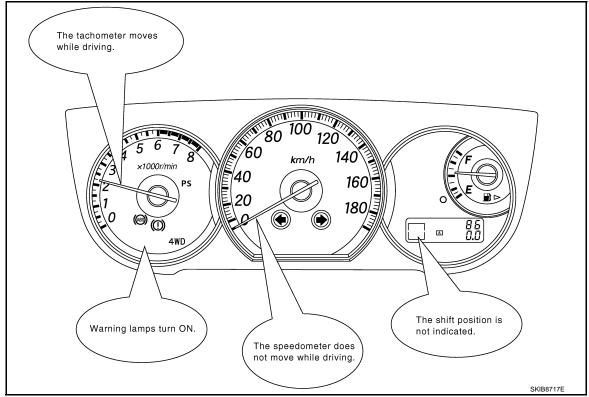
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## < BASIC INSPECTION >

## [CAN FUNDAMENTAL]

• Indication of the combination meter is important to detect the root cause because it is the most obvious to the customer, and it performs CAN communication with many units.



# INSPECTION OF VEHICLE CONDITION

Check whether the symptom is reproduced or not.

## NOTE:

Do not turn the ignition switch OFF or disconnect the battery cable while reproducing the error. The error may temporarily correct itself, making it difficult to determine the root cause.

CHECK OF CAN SYSTEM TYPE (HOW TO USE CAN SYSTEM TYPE SPECIFICATION CHART) Determine CAN system type based on vehicle equipment.

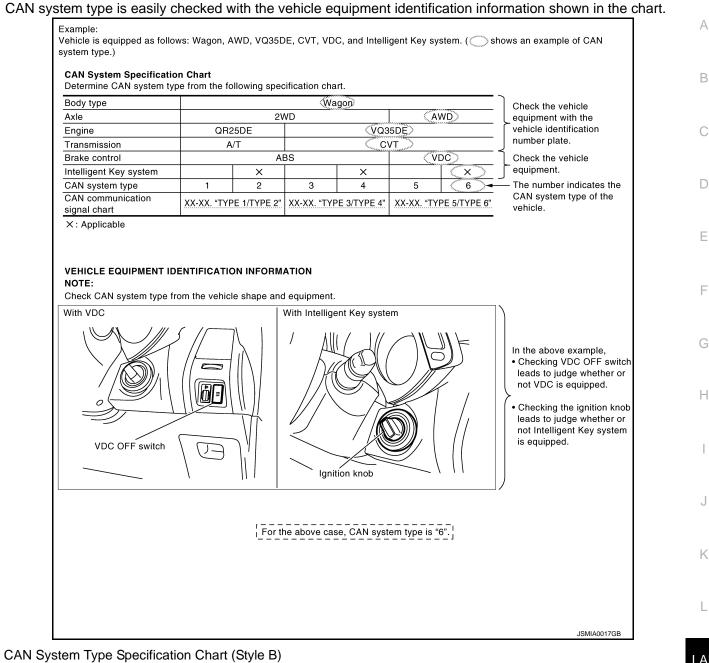
## NOTE:

- This chart is used if CONSULT does not automatically recognize CAN system type.
- There are two styles for CAN system type specification charts. Depending on the number of available system types, either style A or style B may be used.

CAN System Type Specification Chart (Style A) **NOTE:** 

## < BASIC INSPECTION >

## [CAN FUNDAMENTAL]

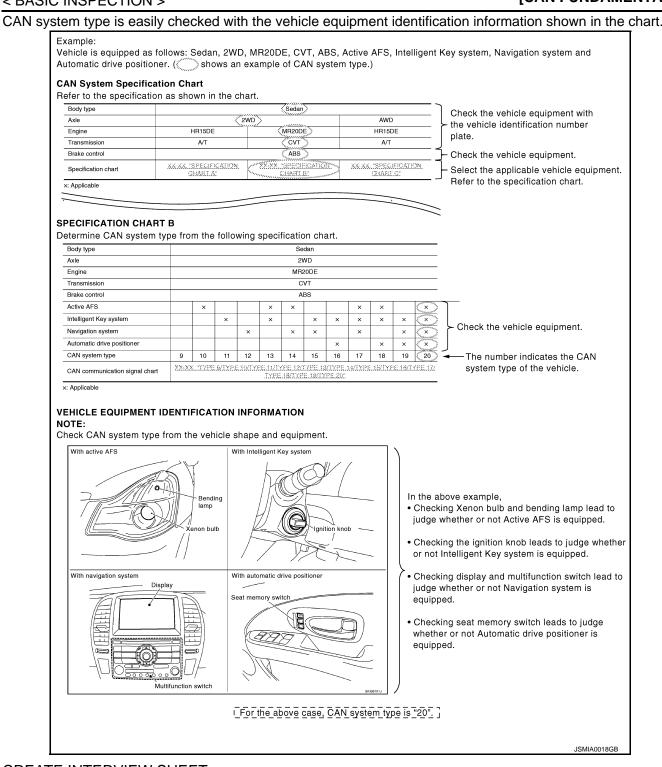


CAN System Type Specification Chart (Style B NOTE:

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#### < BASIC INSPECTION >



## **CREATE INTERVIEW SHEET**

Fill out the symptom described by the customer, vehicle condition, and CAN system type on the interview sheet.

## < BASIC INSPECTION >

[CAN FUNDAMENTAL]

Interview Sheet (Example) А CAN Communication System Diagnosis Interview Sheet В Date received: 3, Feb. 2006 Type: DBA-KG11 VIN No.: KG11-005040 BDRARGZ397EDA-E-J-Model: D First registration: 10, Jan. 2001 Mileage: 62,140 Е CAN system type: Type 19 Symptom (Results from interview with customer) F ·Headlamps suddenly turn ON while driving the vehicle. •The engine does not restart after stopping the vehicle and turning the ignition switch OFF. ·The cooling fan continues rotating while turning the ignition switch ON. Н Condition at inspection Error Symptom: (Present) / Past The engine does not start. While turning the ignition switch ON, • The headlamps (Lo) turn ON, and the cooling fan continues rotating. Κ • The interior lamp does not turn ON. L JSMIA0019GB

## DETECT THE ROOT CAUSE

CAN diagnosis function of CONSULT detects the root cause.

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# HOW TO USE THIS MANUAL HOW TO USE THIS SECTION

## Caution

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[CAN]

• This section describes information peculiar to a vehicle and inspection procedures.

• For trouble diagnosis procedure, refer to LAN-15, "Trouble Diagnosis Procedure".

## Abbreviation List

INFOID:000000008273414

Unit name abbreviations in CONSULT CAN diagnosis and in this section are as per the following list.

Abbreviation	Unit name					
4WD	AWD control module					
A-BAG	Air bag diagnosis sensor unit					
ABS	ABS actuator and electric unit (control unit)					
BCM	BCM					
DLC	Data link connector					
ECM	ECM					
EPS	EPS control unit					
HVAC	A/C auto amp.					
IPDM-E	IPDM E/R					
M&A	Combination meter					
MDU	Multi display unit					
STRG	Steering angle sensor					
ТСМ	ТСМ					

# < PRECAUTION > PRECAUTION PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT **PRE-TENSIONER**" INFOID:000000008273415

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 D 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 AIR BAG" and "SEAT BELT" of this Service Manual.

## WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that 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 "SRS AIR BAG".
- Never 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 POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

## WARNING:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

## Precautions for Trouble Diagnosis

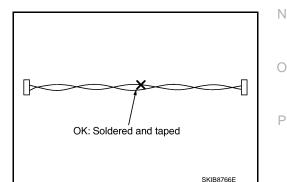
## CAUTION:

- Never apply 7.0 V or more to the measurement terminal.
- Use a tester with open terminal voltage of 7.0 V or less.
- Turn the ignition switch OFF and disconnect the battery cable from the negative terminal when checking the harness.

## Precautions for Harness Repair

 Solder the repaired area and wrap tape around the soldered area. NOTE:

A fray of twisted lines must be within 110 mm (4.33 in).



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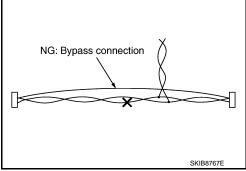
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# PRECAUTIONS

## < PRECAUTION >

Bypass connection is never allowed at the repaired area.
 NOTE:
 Bypass connection may cause CAN communication error

Bypass connection may cause CAN communication error. The spliced wire becomes separated and the characteristics of twisted line are lost.



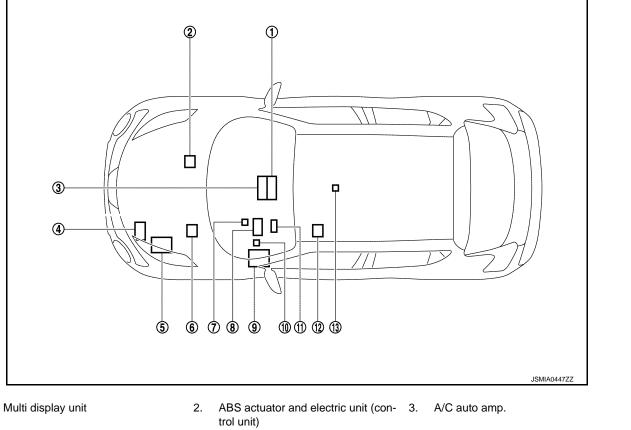
• Replace the applicable harness as an assembly if error is detected on the shield lines of CAN communication line.

# **COMPONENT PARTS**

## < SYSTEM DESCRIPTION >

# SYSTEM DESCRIPTION COMPONENT PARTS

**Component Parts Location** 



4. ECM

1.

- 7. EPS control unit
- 10. Data link connector
- 13. Air bag diagnosis sensor unit
- 5. IPDM E/R
- 8. Combination meter
- 11. Steering angle sensor
- 6. TCM
- 9. BCM
- S. DOW
- 12. AWD control module

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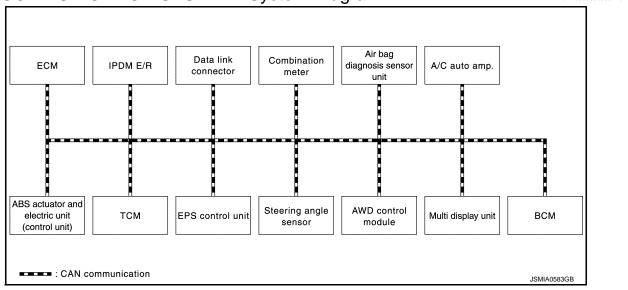
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INFOID:00000008273419

# SYSTEM CAN COMMUNICATION SYSTEM

CAN COMMUNICATION SYSTEM : System Diagram

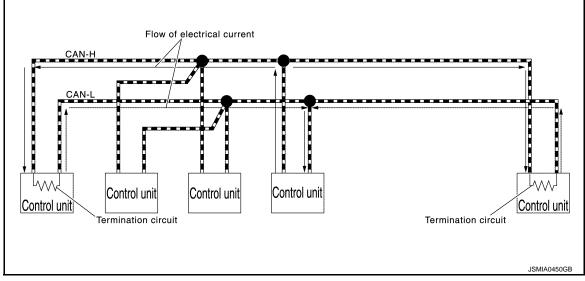


# CAN COMMUNICATION SYSTEM : System Description

INFOID:000000008273420

## Description

- 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.
- Termination circuits (resistors) are connected across the CAN communication system. When transmitting a CAN communication signal, each control unit passes a current to the CAN-H line and the current returns to the CAN-L line. The current flows separately into the termination circuits connected across the CAN communication system and the termination circuits drop voltage to generate a potential difference between the CAN-H line and the CAN-L line. The system produces digital signals for signal communications, by using the potential difference.



# **CAN Communication Line**

## < SYSTEM DESCRIPTION >

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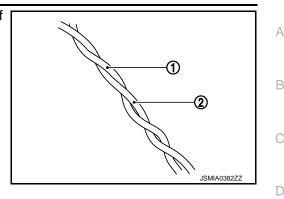
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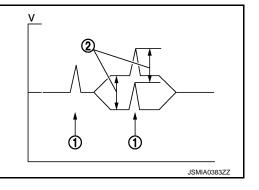
The CAN communication line is a twisted pair wire consisting of strands of CAN-H (1) and CAN-L (2) and has noise immunity.



#### NOTE:

The CAN communication system has the characteristics of noise-resistant because this system produces digital signals by using the potential difference between the CAN-H line and the CAN-L line and has the twisted pair wire structure.

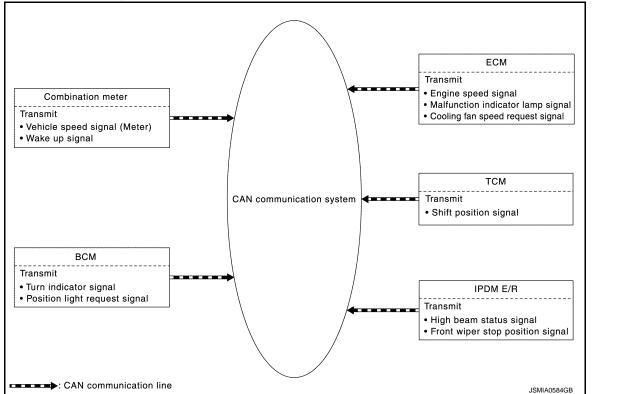
Since the CAN-H line and the CAN-L line are always adjacent to each other, the same degree of noise occurs, respectively, when a noise (1) occurs. Although the noise changes the voltage, the potential difference (2) between the CAN-H line and the CAN-L line is insensitive to noise. Therefore, noise-resistant signals can be obtained.



## **CAN Signal Communications**

Each control unit of the CAN communication system transmits signals through the CAN communication control circuit included in the control unit and receives only necessary signals from each control unit to perform various kinds of control.

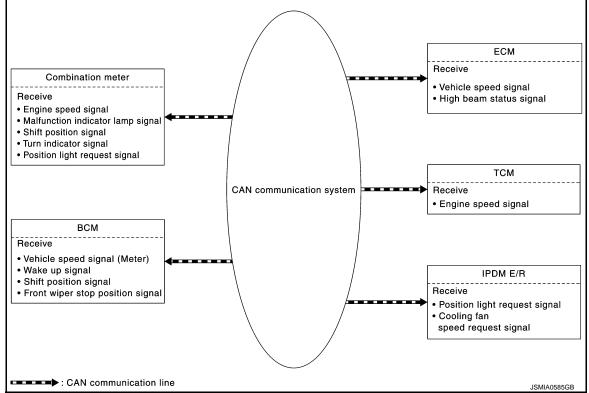
Example: Transmitted signals





## < SYSTEM DESCRIPTION >

#### • Example: Received signals

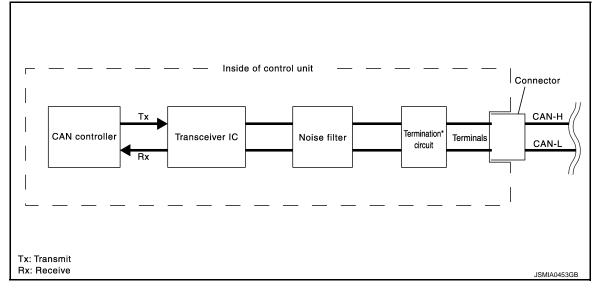


#### NOTE:

The above signal names and signal communications are provided for reference purposes. For CAN communications signals of this vehicle, refer to <u>LAN-28</u>, <u>"CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"</u>.

CAN COMMUNICATION SYSTEM : CAN Communication Control Circuit

CAN communication control circuit is incorporated into the control unit and transmits/receives CAN communication signals.



Component	System description
CAN controller	It controls CAN communication signal transmission and reception, error detection, etc.
Transceiver IC	It converts digital signal into CAN communication signal, and CAN communication signal into digital signal.

## < SYSTEM DESCRIPTION >

INFOID:000000008273422

Component	System description	^
Noise filter	It eliminates noise of CAN communication signal.	A
Termination circuit <sup>*</sup> (Resistance of approx. 120 $\Omega$ )	Generates a potential difference between CAN-H and CAN-L.	В

\*: These are the only control units wired with both ends of CAN communication system.

# CAN COMMUNICATION SYSTEM : CAN System Specification Chart

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# Determine CAN system type from the following specification chart. **NOTE:**

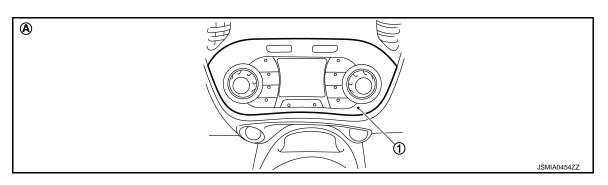
## Refer to LAN-15, "Trouble Diagnosis Procedure" for how to use CAN system specification chart.

Body type	Hatch back								
Axle		2'	AWD						
Engine			MR1	6DDT					
Transmission	Μ	/T		C'	VT				
Brake control			V	00					
Integrated Control system		×		×		×			
CAN system type	1	2	3	4	5	6			
L	CAN co	ommunication	unit						
ECM	×	×	×	×	×	×			
AWD control module					×	×			
ABS actuator and electric unit (control unit)	×	×	×	×	×	×			
IPDM E/R	×	×	×	×	×	×			
ТСМ			×	×	×	×			
Data link connector	×	×	×	×	×	×			
EPS control unit	×	×	×	×	×	×			
Combination meter	×	×	×	×	×	×			
Steering angle sensor	×	×	×	×	×	×			
Air bag diagnosis sensor unit	×	×	×	×	×	×			
A/C auto amp.		×		×		×			
Multi display unit		×		×		×			
BCM	×	×	×	×	×	×			

×: Applicable

# VEHICLE EQUIPMENT IDENTIFICATION INFORMATION NOTE:

Check CAN system type from the vehicle shape and equipment.



- 1. Multi display unit
- A. With Integrated Control system

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## < SYSTEM DESCRIPTION >

# CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart

Refer to <u>LAN-14, "How to Use CAN Communication Signal Chart"</u> for how to use CAN communication signal chart.

NOTE:

Refer to <u>LAN-20, "Abbreviation List"</u> for the abbreviations of the connecting units.

T: Transmit R: Receive

									I: Irans	mit R:	Receive
Signal name/Connecting unit	ECM	4WD	ABS	IPDM-E	TCM	EPS	M&A	STRG	HVAC	NDM	BCM
A/C compressor request signal	Т			R							
Accelerator pedal position signal	Т	R	R		R						
ASCD status signal	Т						R				
Boost pressure signal	Т									R	
Closed throttle position signal	Т				R						
Cooling fan speed request signal	Т			R							
Engine and CVT integrated control signal	T R				R T						
Engine coolant temperature signal	т						R		R		
Engine speed signal	T	R	R		R		R			R	
Engine status signal	T					R	R			R	R
Engine torque signal	T	R								R	
Fuel consumption monitor signal	Т						R			R	
Malfunctioning indicator signal	T						R				
Oil pressure warning lamp signal	т						R				
Power generation command value signal	т			R							
Speed limiter operation signal	Т						R				
Starter motor relay cut off signal	Т			R							R
AWD mode indicator signal		Т					R				
AWD warning lamp signal		Т					R				
Current AWD mode signal		Т	R								
Target engine torque signal	R	Т									
Torque vectoring indicator signal		Т					R				
ABS malfunction signal			т		R						
ABS operation signal		R	Т		R		R				
ABS warning lamp signal			т				R				
Brake warning lamp signal			т				R				
Decel G sensor signal		R	т							R	
Request drive torque signal		R	т								
Side G sensor signal		R	Т							R	
Stop lamp switch signal		R	Т		R						т
Target throttle position signal	R		т								
TCS malfunction signal		R	Т								
TCS operation signal		R	т		R						
VDC malfunction signal		R	Т								
VDC OFF indicator lamp signal			Т				R				

## < SYSTEM DESCRIPTION >

	1	û		û	û	û		û	û	-		
Signal name/Connecting unit	ECM	4WD	ABS	IPDM-E	TCM	EPS	M&A	STRG	HVAC	MDU	BCM	A
VDC operation signal		R	Т		R							
VDC warning lamp signal			Т				R					В
Vehicle speed signal (ABS)	R	R	Т		R	R	R				R	
Yaw rate signal		R	Т									C
Back-up lamp switch signal <sup>*1</sup>				Т							R	0
Detention switch signal				т							R	
Front wiper stop position signal				Т							R	D
High beam status signal	R			Т								
Ignition switch ON signal				Т							R	Е
				R							Т	
Ignition switch signal				Т							R	_
Interlock/PNP switch signal				Т							R	F
				R							Т	
Low beam status signal	R			Т								G
Push-button ignition switch status signal				Т							R	
Sleep-ready signal							Т				R	
				Т							R	Η
Starter control relay signal				Т							R	
				R							Т	I
Starter relay status signal				T R							R T	
Starter motor relay/Starter motor control relay con-	R			т								J
trol signal	IN .			1								
ATF temperature signal		R			Т							
Current gear position signal		R	R		Т							K
CVT indicator signal					Т		R					
CVT ratio signal		R			Т							L
Input shaft revolution signal	R	R			Т							
N rage signal			R		Т							
Next gear position signal			R		Т							LAN
Output shaft revolution signal	R	R			Т							
P range signal			R		Т							Ν
R range signal			R		Т							14
Shift position signal			R <sup>*2</sup>		Т		R				R	
Vehicle speed signal (TCM)					Т						R	0
Drive mode select signal <sup>*3</sup>	R				Т							
EPS operation signal	R					Т						P
EPS warning lamp signal						Т	R					F
Brake fluid level switch signal			R				Т					
Manual mode shift down signal					R		Т					
Manual mode shift up signal					R		Т					
Manual mode signal					R		Т					
Non-manual mode signal					R		Т					
		•		•			•				·	

Revision: 2014 February

[CAN]

## < SYSTEM DESCRIPTION >

Signal name/Connecting unit	ECM	4WD	ABS	IPDM-E	TCM	EPS	M&A	STRG	HVAC	MDU	BCM
Odometer signal							Т			R	R
Parking brake switch signal		R	R				Т				
Seat belt buckle switch signal (driver side) signal							Т				R
Vehicle speed signal (Meter)	R		R	R		R	Т			R	R
Wake up signal							Т				R
Steering angle sensor malfunction signal		R						Т			
Steering angle sensor signal		R	R					Т			
Steering calibration signal			R					Т			
ECO mode signal					R	R			R	Т	
NORMAL mode signal					R	R				Т	
SPORT mode signal					R	R				Т	
A/C display signal									Т	R	
A/C ECO setting signal									R	Т	
A/C operation signal									R	Т	
Rear window defogger switch signal <sup>*4</sup>										Т	R
Idle up request signal	R										Т
A/C ON signal	R										Т
Blower fan ON signal	R										Т
Buzzer output signal							R				Т
Daytime running light request signal <sup>*5</sup>				R							Т
Door switch signal				R			R				Т
Engine start operation indicator lamp signal							R				Т
Front fog light request signal				R							Т
Front wiper request signal				R							Т
Front wiper service position signal				R							Т
High beam request signal				R			R				Т
Horn reminder signal				R							Т
Key warning lamp signal							R				Т
LOCK warning lamp signal							R				Т
Low beam request signal				R							Т
Low tire pressure warning lamp signal							R				Т
Position light request signal				R			R			R	Т
				R							Т
Rear window defogger control signal	R			Т						R*4	
Shift P warning lamp signal							R				Т
Sleep wake up signal				R			R			R	т
Theft warning horn request signal				R							т
TPMS malfunction warning lamp signal							R				Т
Turn indicator signal							R				Т

\*1: M/T models

\*2: CVT models

\*3: With Integrated Control System

\*4: With automatic air conditioning

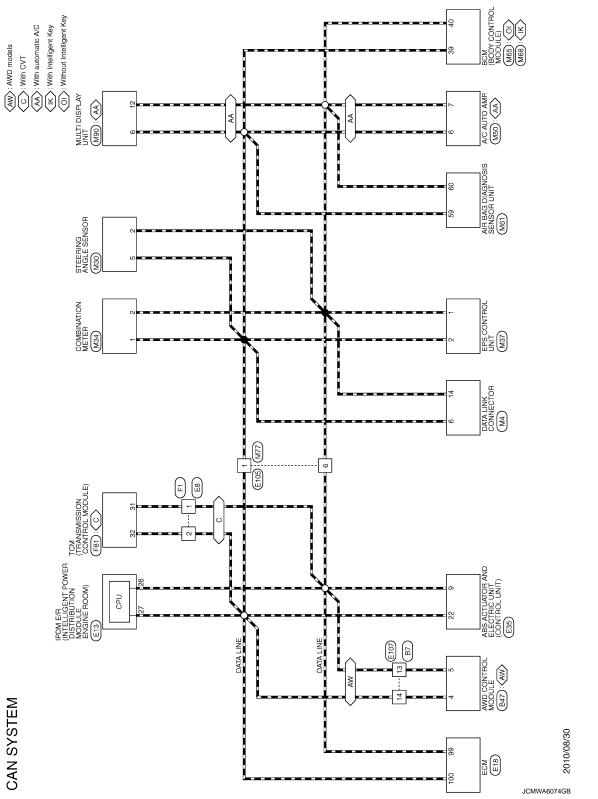
< SYSTEM DESCRIPTION >	[CAN]
5: With daytime running light system <b>NOTE:</b>	
AN data of the air bag diagnosis sensor unit is not used by usual service work, thus it is omitted.	

# WIRING DIAGRAM CAN SYSTEM

# Wiring Diagram

INFOID:000000008273424

For connector terminal arrangements, harness layouts, and alphabets in a  $\bigcirc$  (option abbreviation; if not described in wiring diagram), refer to <u>GI-12, "Connector Information"</u>.



DIAGNOSIS AND REPAIR WORKFLOW	
< BASIC INSPECTION >	[CAN]
BASIC INSPECTION	
DIAGNOSIS AND REPAIR WORKFLOW	
Interview Sheet	INFOID:000000008273425
<b>NOTE:</b> Refer to <u>LAN-15, "Trouble Diagnosis Procedure"</u> for how to use interview sheet.	
CAN Communication System Diagnosis Interview Sheet	
Date received:	
Type: VIN No.:	
Model:	
First registration: Mileage:	
CAN system type:	
Symptom (Results from interview with customer)	
Condition at inspection	
Error symptom : Present / Past	
	SKIB8898E

# < DTC/CIRCUIT DIAGNOSIS >

# DTC/CIRCUIT DIAGNOSIS MALFUNCTION AREA CHART

# Main Line

INFOID:000000008273426

Malfunction area	Reference
Main line between IPDM E/R and data link connector	LAN-35, "Diagnosis Procedure"
Main line between data link connector and air bag diagnosis sensor unit	LAN-36, "Diagnosis Procedure"
Main line between data link connector and multi display unit	LAN-37, "Diagnosis Procedure"

# **Branch Line**

INFOID:000000008273427

Malfunction area	Reference
ECM branch line circuit	LAN-38, "Diagnosis Procedure"
AWD control module branch line circuit	LAN-39, "Diagnosis Procedure"
ABS actuator and electric unit (control unit) branch line circuit	LAN-40. "Diagnosis Procedure"
IPDM E/R branch line circuit	LAN-41. "Diagnosis Procedure"
TCM branch line circuit	LAN-42, "Diagnosis Procedure"
Data link connector branch line circuit	LAN-43, "Diagnosis Procedure"
EPS control unit branch line circuit	LAN-44, "Diagnosis Procedure"
Combination meter branch line circuit	LAN-45, "Diagnosis Procedure"
Steering angle sensor branch line circuit	LAN-46, "Diagnosis Procedure"
Air bag diagnosis sensor unit branch line circuit	LAN-47, "Diagnosis Procedure"
A/C auto amp. branch line circuit	LAN-48, "Diagnosis Procedure"
Multi display unit branch line circuit	LAN-49, "Diagnosis Procedure"
BCM branch line circuit	LAN-50. "Diagnosis Procedure"

# Short Circuit

INFOID:000000008273428

Malfunction area	Reference	
CAN communication circuit	LAN-51, "Diagnosis Procedure"	

#### MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT [CAN] < DTC/CIRCUIT DIAGNOSIS > MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT А **Diagnosis** Procedure INFOID:00000008273429 1.CHECK CONNECTOR В 1. Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. 2. 3. Check the following terminals and connectors for damage, bend and loose connection (connector side С and harness side). Harness connector E105 Harness connector M77 D Is the inspection result normal? YES >> GO TO 2. NO >> Repair the terminal and connector. Е 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT) 1. Disconnect the following harness connectors. F IPDM E/R Harness connectors E105 and M77 2. Check the continuity between the IPDM E/R harness connector and the harness connector. IPDM E/R harness connector Harness connector Continuity Terminal No. Terminal No. Connector No. Connector No. 27 1 Existed Н E13 E105 26 6 Existed Is the inspection result normal? YES >> GO TO 3. NO >> Repair the main line between the IPDM E/R and the harness connector E105.

## **3.**CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Continuity	Data link connector		Harness connector	
- Continuity	Terminal No.	Connector No.	Terminal No.	Connector No.
Existed	6	M4	1	M77
Existed	14		6	

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the data link connector.

NO >> Repair the main line between the harness connector M77 and the data link connector.

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# MAIN LINE BETWEEN DLC AND A-BAG CIRCUIT

## < DTC/CIRCUIT DIAGNOSIS >

# MAIN LINE BETWEEN DLC AND A-BAG CIRCUIT

## **Diagnosis Procedure**

INFOID:000000008273430

[CAN]

1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect the BCM harness connector.
- 4. Check the continuity between the data link connector and the BCM harness connector.
- With Intelligent Key system

Data link connector		BCM harness connector		- Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
M4 –	6	M68	39	Existed
	14		40	Existed

#### Without Intelligent Key system

Data link connector		BCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
M4	6	M65	39	Existed
	14		COIVI	40

## Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

- YES (Past error)>>Error was detected in the main line between the data link connector and the air bag diagnosis sensor unit.
- NO >> Repair the main line between the data link connector and the air bag diagnosis sensor unit.

<ol> <li>Disconnect the battery cable from the negative terminal.</li> <li>Disconnect the following harness connectors.</li> <li>ECM</li> <li>Multi display unit</li> </ol>	<pre>dtc/circuit diag</pre>		WEEN DLC AND	MDU CIRCUIT	[CAN]
1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)         1. Turn the ignition switch OFF.         2. Disconnect the battery cable from the negative terminal.         3. Disconnect the following harness connectors.         - ECM         • Multi display unit         4. Check the continuity between the data link connector and the multi display unit harness connector. <ul> <li>Data link connector</li> <li>Multi display unit harness connector</li> <li>Connector No.</li> <li>Terminal No.</li> <li>Connector No.</li> <li>Terminal No.</li> <li>Continuity</li> <li>M4</li> <li>6</li> <li>M90</li> <li>6</li> <li>Existed</li> </ul> Is the inspection result normal?         YES (Present error)>>Check CAN system type decision again.         YES (Past error)>>Error was detected in the main line between the the data link connector and the multi display unit.	MAIN LINE BET	WEEN DLC A	ND MDU CIRCI	JIT	
<ol> <li>Turn the ignition switch OFF.</li> <li>Disconnect the battery cable from the negative terminal.</li> <li>Disconnect the following harness connectors.</li> <li>ECM</li> <li>Multi display unit</li> <li>Check the continuity between the data link connector and the multi display unit harness connector.</li> <li>         Data link connector Multi display unit harness connector         Connector No. Terminal No. Connector No. Terminal No.         May 6         May 6         Existed         Is the inspection result normal?         YES (Present error)&gt;&gt;Check CAN system type decision again.         YES (Past error)&gt;&gt;Error was detected in the main line between the the data link connector and the multi display unit.     </li> </ol>	Diagnosis Proced	Jre			INFOID:00000008273431
<ul> <li>2. Disconnect the battery cable from the negative terminal.</li> <li>3. Disconnect the following harness connectors.</li> <li>ECM</li> <li>Multi display unit</li> <li>4. Check the continuity between the data link connector and the multi display unit harness connector.</li> </ul> <u>Data link connector</u> <u>Multi display unit harness connector</u> <u>Continuity</u> <u>Connector No.</u> <u>Terminal No.</u> <u>Connector No.</u> <u>Terminal No.</u> <u>M4</u> <u>6</u> <u>M90</u> <u>6</u> <u>Existed</u> <u>Is the inspection result normal?</u> YES (Present error)>>Check CAN system type decision again.         YES (Past error)>>Error was detected in the main line between the the data link connector and the multi display unit.	1.CHECK HARNESS	CONTINUITY (OPEN	N CIRCUIT)		
Connector No.       Terminal No.       Connector No.       Terminal No.       Continuity         M4       6       M90       6       Existed         Is the inspection result normal?       YES (Present error)>>Check CAN system type decision again.       YES (Past error)>>Error was detected in the main line between the the data link connector and the multi display unit.	<ol> <li>Disconnect the bat</li> <li>Disconnect the following of t</li></ol>	tery cable from the ne owing harness conne	ctors.	multi display unit harr	ness connector.
Connector No.       Terminal No.       Connector No.       Terminal No.         M4       6       M90       6       Existed         Is the inspection result normal?       YES (Present error)>>Check CAN system type decision again.       YES (Past error)>>Error was detected in the main line between the the data link connector and the multi display unit.	Data link o	connector	Multi display unit h	ulti display unit harness connector	
M4     M90     12     Existed       Is the inspection result normal?     YES (Present error)>>Check CAN system type decision again.     YES (Past error)>>Error was detected in the main line between the the data link connector and the multi display unit.	Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
14     12     Existed       Is the inspection result normal?     YES (Present error)>>Check CAN system type decision again.       YES (Past error)>>Error was detected in the main line between the the data link connector and the multi display unit.	MA	6	MOO	6	Existed
YES (Present error)>>Check CAN system type decision again. YES (Past error)>>Error was detected in the main line between the the data link connector and the multi dis- play unit.	101-4	14	10190	12	Existed
	YES (Present error)>> YES (Past error)>>Error)>>Error play unit.	Check CAN system ror was detected in the ror was detected in the	e main line between t		

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# ECM BRANCH LINE CIRCUIT

#### Diagnosis Procedure

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.

2. Check the resistance between the ECM harness connector terminals.

	ECM harness connector	Resistance (Ω)	
Connector No.	Terminal No.		
E18	100	99	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

**3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to <u>EC-158, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to EC-542, "Removal and Installation".

YES (Past error)>>Error was detected in the ECM branch line.

### **4WD BRANCH LINE CIRCUIT**

4WD BRANCH LINE CIRCUIT				
Diagnosis Procedure  I.CHECK CONNECTOR  I. Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side). AWD control module Harness connector B7 Harness connector B7 Harness connector E107 Is the inspection result normal? YES >> GO TO 2. NO >> Repair the terminal and connector. Connector No. AWD control module harness connector terminals.  AWD control module harness connector terminals.  AWD control module control module harness connector terminals.  AWD control module harness connector  AWD control module harness connector terminals.  AWD control module harness connector  AWD control module harness connector terminals.  AWD control module harness connector  Connector No.  AWD control module harness connector  AWD control module harness connector  Connector No.  AWD control module harness connector  AWD control module harness connector  Connector No.  AWD control module harness connector  AWD control module harness connector  Connector No.  AWD control module harness connector  Connector No.  AWD control module branch line.  Connector No.  AWD control module branch line.  Check the power supply and the ground circuit of the AWD control module. Refer to DLN-37, "Diagnosis P cedure".  Is the inspection result normal?  YES (Present error)>>Replace the AWD control module. Refer to DLN-37, "Removal an				[CAN]
1. CHECK CONNECTOR         1. Turn the ignition switch OFF.         2. Disconnect the battery cable from the negative terminal.         3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).         - AWD control module         - Harness connecotor B7         - Harness connecotor E107         Is the inspection result normal?         YES         YES         > GO TO 2.         NO       > Repair the terminal and connector.         2. CHECK HARNESS FOR OPEN CIRCUIT         1. Disconnect the connector of AWD control module.         2. Check the resistance between the AWD control module harness connector terminals. <ul> <li>MWD control module harness connector</li> <li>Resistance (Ω)</li> <li>B47</li> <li>4</li> <li>5</li> <li>Approx.54 - 66</li> </ul> Is the measurement value within the specification?         YES       > GO TO 3.         NO       >> Repair the AWD control module branch line.         3. CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the AWD control module. Refer to DLN-73, "Diagnosis P cedure".         Is the inspection result normal?         YES (Present error)>>Replace the AWD control module. Refer to DLN-87, "Removal and Installation".	4WD BRANCH LINE C	IRCUIT		
<ul> <li>Turn the ignition switch OFF.</li> <li>Disconnect the battery cable from the negative terminal.</li> <li>Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).</li> <li>AWD control module</li> <li>Harness connecotor B7</li> <li>Harness connecotor E107</li> <li>Is the inspection result normal?</li> <li>YES &gt;&gt; GO TO 2.</li> <li>NO &gt;&gt; Repair the terminal and connector.</li> <li>Check the resistance between the AWD control module harness connector terminals.</li> </ul> <i>AWD</i> control module harness connector terminals. <u>AWD</u> control module the AWD control module. <u>AWD</u> control module harness connector terminals. <u>AWD control module harness connector terminals.               <u>AWD control module harness connector terminals.               <u>AWD control module harness connector terminals.               <u>AWD control module harness connector terminals.               <u>AWD control module harness connector terminals.               <u>AWD control module harness connector terminals.               <u>AWD control module harness connector terminals.               <u>AWD control module harness connector terminals.               <u>AWD control module harness connector terminals.               <u>AWD control module harness connector terminals.               <u>AWD control module harness connector terminals.               <u>AWD control module harness connector terminals.                 <u>AWD control module harness connector terminals.                <u>B47             4             5           </u></u></u></u></u></u></u></u></u></u></u></u></u></u>	Diagnosis Procedure			INFOID:0000000827343
<ul> <li>Turn the ignition switch OFF.</li> <li>Disconnect the battery cable from the negative terminal.</li> <li>Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).</li> <li>AWD control module</li> <li>Harness connecotor B7</li> <li>Harness connecotor E107</li> <li>Is the inspection result normal?</li> <li>YES &gt;&gt; GO TO 2.</li> <li>NO &gt;&gt; Repair the terminal and connector.</li> <li>Check the resistance between the AWD control module harness connector terminals.</li> </ul> <i>AWD</i> control module harness connector terminals. <u>AWD</u> control module harness connector <u>Resistance (Ω)</u> <u>B47             4             5           </u>				
<ul> <li>2. Disconnect the battery cable from the negative terminal.</li> <li>3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).</li> <li>AWD control module</li> <li>Harness connecotor B7</li> <li>Harness connector E107</li> <li>Is the inspection result normal?</li> <li>YES &gt;&gt; GO TO 2.</li> <li>NO &gt;&gt; Repair the terminal and connector.</li> <li>2. CHECK HARNESS FOR OPEN CIRCUIT</li> <li>1. Disconnect the connector of AWD control module harness connector terminals.</li> </ul> AWD control module harness connector terminals. AWD control module harness connector Resistance (Ω) B47 4 5 Approx.54 - 66 Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the AWD control module branch line. 3.CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the AWD control module. Refer to DLN-73, "Diagnosis P cedure". Is the inspection result normal? YES (Present error)>>Replace the AWD control module. Refer to DLN-87, "Removal and Installation". YES (Past error)>>Error was detected in the AWD control module branch line.				
<ul> <li>Harness connecotor E107         Is the inspection result normal?         YES &gt;&gt; GO TO 2.         NO &gt;&gt; Repair the terminal and connector.         2.CHECK HARNESS FOR OPEN CIRCUIT     </li> <li>Disconnect the connector of AWD control module.</li> <li>Check the resistance between the AWD control module harness connector terminals.</li> </ul> <li>AWD control module harness connector         <ul> <li>AWD control module harness connector terminals.</li> </ul> </li> <li>AWD control module harness connector         <ul> <li>Resistance (Ω)</li> <li>Connector No.</li> <li>Terminal No.</li> <li>B47</li> <li>4</li> <li>5</li> <li>Approx.54 - 66</li> </ul> </li> <li>Is the measurement value within the specification?</li> <li>YES &gt;&gt; GO TO 3.</li> <li>NO &gt;&gt; Repair the AWD control module branch line.</li> <li>CHECK POWER SUPPLY AND GROUND CIRCUIT</li> <li>Check the power supply and the ground circuit of the AWD control module. Refer to DLN-73, "Diagnosis P cedure".</li> <li>Is the inspection result normal?</li> <li>YES (Present error)&gt;&gt;Replace the AWD control module. Refer to DLN-87, "Removal and Installation". YES (Past error)&gt;&gt;Error was detected in the AWD control module branch line.</li>	<ol> <li>Disconnect the battery cable</li> <li>Check the following terminal nector side).</li> </ol>	from the negative		nnection (unit side and con-
Is the inspection result normal?         YES       >> GO TO 2.         NO       >> Repair the terminal and connector.         2.CHECK HARNESS FOR OPEN CIRCUIT         1. Disconnect the connector of AWD control module.         2. Check the resistance between the AWD control module harness connector terminals.         AWD control module harness connector         Resistance (Ω)         Connector No.         B47       4         5       Approx. 54 - 66         Is the measurement value within the specification?         YES       >> GO TO 3.         NO       >> Repair the AWD control module branch line.         3.CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the AWD control module. Refer to DLN-73. "Diagnosis P cedure".         Is the inspection result normal?         YES (Present error)>>Replace the AWD control module. Refer to DLN-87. "Removal and Installation". YES (Past error)>>Error was detected in the AWD control module branch line.				
YES       >> GO TO 2.         NO       >> Repair the terminal and connector.         2.CHECK HARNESS FOR OPEN CIRCUIT         1. Disconnect the connector of AWD control module.         2. Check the resistance between the AWD control module harness connector terminals.         AWD control module harness connector         Resistance (Ω)         B47       4         5       Approx. 54 - 66         Is the measurement value within the specification?         YES       >> GO TO 3.         NO       >> Repair the AWD control module branch line.         3.CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the AWD control module. Refer to DLN-73, "Diagnosis P cedure".         Is the inspection result normal?         YES (Present error)>>Replace the AWD control module. Refer to DLN-87, "Removal and Installation". YES (Past error)>>Error was detected in the AWD control module branch line.				
2.CHECK HARNESS FOR OPEN CIRCUIT         1. Disconnect the connector of AWD control module.         2. Check the resistance between the AWD control module harness connector terminals.         AWD control module harness connector         Resistance (Ω)         B47       4         5       Approx. 54 - 66         Is the measurement value within the specification?         YES       >> GO TO 3.         NO       >> Repair the AWD control module branch line.         3.CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the AWD control module. Refer to DLN-73, "Diagnosis P cedure".         Is the inspection result normal?         YES (Present error)>>Replace the AWD control module. Refer to DLN-87, "Removal and Installation". YES (Past error)>>Error was detected in the AWD control module branch line.	YES >> GO TO 2.	and connector.		
<ol> <li>Disconnect the connector of AWD control module.</li> <li>Check the resistance between the AWD control module harness connector terminals.</li> <li>AWD control module harness connector         <ul> <li>AWD control module harness connector</li> <li>Resistance (Ω)</li> </ul> </li> <li><u>AWD control module harness connector</u> <ul> <li><u>Connector No.</u></li> <li><u>Terminal No.</u></li> <li><u>B47</u></li> <li><u>Approx. 54 - 66</u></li> </ul> </li> <li><u>Is the measurement value within the specification?</u> <ul> <li>YES &gt;&gt; GO TO 3.</li> <li>NO &gt;&gt; Repair the AWD control module branch line.</li> <li><u>CHECK POWER SUPPLY AND GROUND CIRCUIT</u></li> </ul> </li> <li>Check the power supply and the ground circuit of the AWD control module. Refer to <u>DLN-73, "Diagnosis P cedure"</u>.</li> <li>Is the inspection result normal?</li> <li>YES (Present error)&gt;&gt;Replace the AWD control module. Refer to <u>DLN-87, "Removal and Installation"</u>. YES (Past error)&gt;&gt;Error was detected in the AWD control module branch line.</li> </ol>				
Connector No.       Terminal No.         B47       4       5       Approx. 54 – 66         Is the measurement value within the specification?         YES       >> GO TO 3.         NO       >> Repair the AWD control module branch line.         3.CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the AWD control module. Refer to DLN-73, "Diagnosis P cedure".         Is the inspection result normal?         YES (Present error)>>Replace the AWD control module. Refer to DLN-87, "Removal and Installation".         YES (Past error)>>Error was detected in the AWD control module branch line.				
Is the measurement value within the specification?         YES       >> GO TO 3.         NO       >> Repair the AWD control module branch line.         3.CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the AWD control module. Refer to DLN-73, "Diagnosis P cedure".         Is the inspection result normal?         YES (Present error)>>Replace the AWD control module. Refer to DLN-87, "Removal and Installation".         YES (Past error)>>Error was detected in the AWD control module branch line.	Connector No.	Terminal No.		
YES       >> GO TO 3.         NO       >> Repair the AWD control module branch line.         3.CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the AWD control module. Refer to DLN-73, "Diagnosis P cedure".         Is the inspection result normal?         YES (Present error)>>Replace the AWD control module. Refer to DLN-87, "Removal and Installation".         YES (Past error)>>Error was detected in the AWD control module branch line.	B47	4	5	Approx. 54 – 66
<u>cedure"</u> . <u>Is the inspection result normal?</u> YES (Present error)>>Replace the AWD control module. Refer to <u>DLN-87, "Removal and Installation"</u> . YES (Past error)>>Error was detected in the AWD control module branch line.	YES >> GO TO 3. NO >> Repair the AWD cor <b>3.</b> CHECK POWER SUPPLY AN	trol module branch	UIT	to DI N-73 "Diagnosis Pro-
YES (Present error)>>Replace the AWD control module. Refer to <u>DLN-87, "Removal and Installation"</u> . YES (Past error)>>Error was detected in the AWD control module branch line.	<u>cedure"</u> .			10 DEN-13, DIAVINOSIS FIU-
	YES (Present error)>>Replace YES (Past error)>>Error was de	etected in the AWD	control module branch line.	oval and Installation".

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## **ABS BRANCH LINE CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

# ABS BRANCH LINE CIRCUIT

#### Diagnosis Procedure

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of ABS actuator and electric unit (control unit).
- Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)	
Connector No.	Termir	rminal No.		
E35	22	9	Approx. 54 – 66	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### $\mathbf{3}$ . Check power supply and ground circuit

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to <u>BRC-108, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-132, "Removal</u> <u>and Installation"</u>.

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

# **IPDM-E BRANCH LINE CIRCUIT**

< DTC/CIRCUIT DIAGNOSIS	>		[CAN]
IPDM-E BRANCH LIN	E CIRCUIT		
Diagnosis Procedure			INFOID:00000008273435
1.CHECK CONNECTOR			
<ol> <li>Turn the ignition switch OFF</li> <li>Disconnect the battery cable</li> </ol>		ninal	
3. Check the terminals and co			loose connection (unit side
and connector side).		-	
Is the inspection result normal?			
YES >> GO TO 2. NO >> Repair the terminal	and connector		
2.CHECK HARNESS FOR OP			
<ol> <li>Disconnect the connector of</li> <li>Check the resistance between</li> </ol>		ess connector terminals	
IPE	DM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Termin	erminal No.	
E13	27	26	Approx. 54 – 66
Is the measurement value within	the specification?		
YES >> GO TO 3. NO >> Repair the IPDM E	P branch ling		
3.CHECK POWER SUPPLY A			
<ul><li>Check the power supply and the</li><li>Models with Intelligent Key system</li></ul>			wing.
<ul> <li>Models with intelligent Key system</li> <li>Models without Intelligent Key</li> </ul>			
Is the inspection result normal?			
YES (Present error)>>Replace			
		35. "Removal and Installati	
YES (Past error)>>Error was d		<u>CS-62, "Removal and Insta</u> R branch line.	<u>nation</u>
NO >> Repair the power su			

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# TCM BRANCH LINE CIRCUIT

#### **Diagnosis** Procedure

1.CHECK CONNECTOR

- Disconnect the battery cable from the negative terminal. 2.
- Check the following terminals and connectors for damage, bend and loose connection (unit side and con-3. nector side).
- TCM
- Harness connecotor F1
- Harness connecotor E8

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.

Check the resistance between the TCM harness connector terminals. 2.

TCM harness connector			Resistance (Ω)	
Connector No.	Terminal No.			
F81	32	31	Approx. 54 – 66	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

 ${f 3}.$ CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-180, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to TM-226, "Removal and Installation".

YES (Past error)>> Error was detected in the TCM branch line.

### **DLC BRANCH LINE CIRCUIT**

< DTC/CIRCUIT DIAGNOSIS > [CAN]	
DLC BRANCH LINE CIRCUIT	0
Diagnosis Procedure	A
1.CHECK CONNECTOR	В
<ol> <li>Turn the ignition switch OFF.</li> <li>Disconnect the battery cable from the negative terminal.</li> <li>Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).</li> </ol>	С
<u>Is the inspection result normal?</u> YES >> GO TO 2. NO >> Repair the terminal and connector.	D
2. CHECK HARNESS FOR OPEN CIRCUIT	_
Check the resistance between the data link connector terminals.	E
Data link connector	

		Data link connector		Resistance (Ω)	_
	Connector No.	Termi	nal No.		F
_	M4	6	14	Approx. 54 – 66	-
ls	Is the measurement value within the specification?				G

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# **EPS BRANCH LINE CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

## **EPS BRANCH LINE CIRCUIT**

#### **Diagnosis Procedure**

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of EPS control unit.
- 2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M37	2	1	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

**3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to <u>STC-18, "Diagnosis Proce-</u> dure".

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to ST-9, "Removal and Installation".

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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### **M&A BRANCH LINE CIRCUIT**

	MIGA DIVANOLI		
< DTC/CIRCUIT DIAGNOSIS >	>		[CAN]
M&A BRANCH LINE C	IRCUIT		
Diagnosis Procedure			INFOID:00000008273439
1.CHECK CONNECTOR			
1. Turn the ignition switch OFF			
2. Disconnect the battery cable	e from the negative terr		
3. Check the terminals and co (unit side and connector side		nation meter for damage, I	pend and loose connection
Is the inspection result normal?	5).		
YES >> GO TO 2.			
NO >> Repair the terminal a			
2.CHECK HARNESS FOR OPI	EN CIRCUIT		
1. Disconnect the connector of		tar harraaa aannaatar tarm	ingle
2. Check the resistance betwee	en the complination me	ter namess connector term	inais.
Combin	ombination meter harness connector		Posistance (O)
Connector No.	Termir	nal No.	Resistance ( $\Omega$ )
M34	1	2	Approx. 54 – 66
Is the measurement value within	the specification?		
YES >> GO TO 3. NO >> Repair the combinat	ion meter branch line		
3.CHECK POWER SUPPLY AN		-	
Check the power supply and the METER : Diagnosis Procedure".		combination meter. Refer to	MINI-42, COMBINATION
Is the inspection result normal?			
YES (Present error)>>Replace			al and Installation".
YES (Past error)>>Error was d			
NO >> Repair the power su	pply and the ground cli	rcuit.	

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### STRG BRANCH LINE CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

# STRG BRANCH LINE CIRCUIT

#### Diagnosis Procedure

1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

#### 1. Disconnect the connector of steering angle sensor.

2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

#### **3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to <u>BRC-51, "Wiring Dia-gram"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to <u>BRC-135, "Removal and Installation"</u>.

YES (Past error)>>Error was detected in the steering angle sensor branch line.

# **A-BAG BRANCH LINE CIRCUIT**

< DTC/CIRCUIT DIAGNOSIS > [CAN]
A-BAG BRANCH LINE CIRCUIT
Diagnosis Procedure
<ul> <li>WARNING:</li> <li>Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)</li> <li>Never use unspecified tester or other measuring device.</li> <li>CHECK CONNECTOR</li> </ul>
<ol> <li>Turn the ignition switch OFF.</li> <li>Disconnect the battery cable from the negative terminal.</li> <li>Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).</li> </ol>
Is the inspection result normal?
YES >> GO TO 2. NO >> Replace the main harness.
2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT
Check the air bag diagnosis sensor unit. Refer to <u>SRC-25, "Work Flow"</u> .
<u>Is the inspection result normal?</u> YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

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### **HVAC BRANCH LINE CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

# HVAC BRANCH LINE CIRCUIT

#### Diagnosis Procedure

1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the terminals and connectors of the A/C auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of A/C auto amp.
- 2. Check the resistance between the A/C auto amp. harness connector terminals.

	Resistance ( $\Omega$ )		
Connector No.	Termi		
M50	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the A/C auto amp. branch line.

#### **3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to <u>HAC-67, "A/C AUTO AMP. :</u> <u>Diagnosis Procedure</u>".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-85, "Removal and Installation".

YES (Past error)>>Error was detected in the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

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### **MDU BRANCH LINE CIRCUIT**

< DTC/CIRCUIT DIAGNOS	ilS >		[CAN]
MDU BRANCH LIN	E CIRCUIT		
Diagnosis Procedure			INFOID:00000008273443
1.CHECK CONNECTOR			
<ol> <li>Turn the ignition switch</li> <li>Disconnect the battery of</li> </ol>	OFF. able from the negative terr	ninal	
			d and loose connection (unit
side and connector side			Υ.
Is the inspection result norm	<u>al?</u>		
YES >> GO TO 2. NO >> Repair the termi	nal and connector		
2.CHECK HARNESS FOR			
1. Disconnect the connect		t harnaga agangatar tarmin	
2. Check the resistance be	tween the multi display uni	t namess connector termin	1815.
Ν	lulti display unit harness connecto	or	Resistance (Ω)
Connector No.	Termir	nal No.	
M90	6	12	Approx. 54 – 66
Is the measurement value w	ithin the specification?		
YES >> GO TO 3.			
•	display unit branch line.		
3.CHECK POWER SUPPL			
Check the power supply an		multi display unit. Refer to	o <u>AV-161, "MULTI DISPLAY</u>
UNIT : Diagnosis Procedure			
Is the inspection result norm YES (Present error)>>Repl		Pofor to DMS 12 "Pomovo	and Installation"
YES (Past error)>>Error wa			
	er supply and the ground ci		

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#### **BCM BRANCH LINE CIRCUIT**

# BCM BRANCH LINE CIRCUIT

#### Diagnosis Procedure

**1.**CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of BCM.
- 2. Check the resistance between the BCM harness connector terminals.
- Models with Intelligent Key system

	BCM harness connector			
Connector No.	Termi	Resistance ( $\Omega$ )		
M68	39 40		Approx. 108 – 132	

Models without Intelligent Key system

BCM harness connector			Resistance ( $\Omega$ )
Connector No.	Termi		
M65	39	40	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the BCM branch line.

 $\mathbf{3}$ . Check power supply and ground circuit

Check the power supply and the ground circuit of the BCM. Refer to the following.

- Models with Intelligent Key system: <u>BCS-74, "Diagnosis Procedure"</u>
- Models without Intelligent Key system: <u>BCS-135, "Diagnosis Procedure"</u>

#### Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to the following.

- Models with Intelligent Key system: <u>BCS-81, "Removal and Installation"</u>
- Models without Intelligent Key system: <u>BCS-142, "Removal and Installation"</u>
- YES (Past error)>>Error was detected in the BCM branch line.
- NO >> Repair the power supply and the ground circuit.

### **CAN COMMUNICATION CIRCUIT**

< DTC/CIRCUIT DIAGNOS			[CAN]
CAN COMMUNICA	TION CIRCUIT		
Diagnosis Procedure			INFOID:0000000827344
1.CONNECTOR INSPECT	ON		
1. Turn the ignition switch			
<ol> <li>Disconnect the battery c</li> <li>Disconnect all the unit c</li> </ol>			
		bend and loose connection.	
Is the inspection result norm	<u>al?</u>		
YES >> GO TO 2. NO >> Repair the termi	nal and connector		
2. CHECK HARNESS CON			
Check the continuity betwee			
			1
Connector No.	Data link connector	erminal No.	Continuity
M4	6	14	Not existed
Is the inspection result norm	al?		
YES >> GO TO 3.			
•	ess and repair the root		
3.CHECK HARNESS CON	TINUITY (SHORT CIR	CUIT)	
Check the continuity betwee	n the data link connect	or and the ground.	
Data link o	connector		Continuity
Connector No.	Terminal No.	Ground	Continuity
M4	6		Not existed
	14		Not existed
Is the inspection result norm	<u>al?</u>		
YES >> GO TO 4. NO >> Check the harne	ess and repair the root	cause.	
4. CHECK ECM AND BCM	•		
1. Remove the ECM and the			
2. Check the resistance be		als.	
ECM			
Terminal No.	Resistan	ce (Ω)	
100 9	9 Approx. 10	08 - 132	
3. Check the resistance be			
BCM	Posistan	co(0)	
Terminal No.	Resistan		
39 4	0 Approx. 10	08 – 132	
Is the measurement value w YES >> GO TO 5.	ithin the specification?		
YES >> GO TO 5. NO >> Replace the EC	M and/or the BCM.		
5. CHECK SYMPTOM			
	Chook if the summer	a described in the "Symptom	(Doculto from interview

Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

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< DTC/CIRCUIT DIAGNOSIS >

#### Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

**6.**CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect one of the unit connectors of CAN communication system. **NOTE:**

ECM and BCM have a termination circuit. Check other units first.

 Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.
 NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure. Non-reproduced>>Replace the unit whose connector was disconnected.

< DTC/CIRCUIT DIA			D DLC CIRCUI	T N SYSTEM (TYPE 1)]
DTC/CIRCU		SIS	[OAI	
		E AND DLC CIR	CUIT	
Diagnosis Proced	lure			INFOID:00000008273446
1.CHECK CONNECT	OR			
<ol> <li>Check the followin and harness side)</li> <li>Harness connector</li> <li>Harness connector</li> <li>Is the inspection result YES &gt;&gt; GO TO 2. NO &gt;&gt; Repair the</li> <li>CHECK HARNESS</li> <li>Disconnect the fol</li> <li>IPDM E/R</li> <li>Harness connector</li> </ol>	ttery cable from the non- ng terminals and conn- or E105 or M77 <u>t normal?</u> e terminal and connect cONTINUITY (OPEN lowing harness conne- ors E105 and M77	nectors for damage, be tor. N CIRCUIT) ctors.		
	-	E/R harness connecto	r and the harness co	onnector.
	ness connector	Harness co		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	Eviated
E13	27 26	E105	1 6	Existed
• ·	e main line between th CONTINUITY (OPEN			05.
	etween the harness c	onnector and the data i		
Check the continuity b			pagetor	
Check the continuity b	etween the harness c connector Terminal No.	Data link co Connector No.	onnector Terminal No.	Continuity
Check the continuity b Harness Connector No.	connector	Data link co Connector No.		Continuity Existed
Check the continuity b	connector Terminal No. 1 6	Data link co	Terminal No.	

#### MAIN LINE BETWEEN DLC AND A-BAG CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

# MAIN LINE BETWEEN DLC AND A-BAG CIRCUIT

#### **Diagnosis** Procedure

INFOID:000000008273447

[CAN SYSTEM (TYPE 1)]

# 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect the BCM harness connector.
- 4. Check the continuity between the data link connector and the BCM harness connector.
- With Intelligent Key system

Data link	connector	BCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
M4	6	M68	39	Existed
1014	14	Ινίοο	40	Existed

#### Without Intelligent Key system

Data link	connector	BCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
M4	6	MOS	39	Existed
1014	14	M65 -	40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

- YES (Past error)>>Error was detected in the main line between the data link connector and the air bag diagnosis sensor unit.
- NO >> Repair the main line between the data link connector and the air bag diagnosis sensor unit.

#### ECM BRANCH LINE CIRCUIT

# [CAN SYSTEM (TYPE 1)]

Diagnosis Procedure			INFOID:00000008273444
<b>1.</b> CHECK CONNECTOR			
	able from the negative ter	minal. for damage, bend and loos	e connection (unit side and
Is the inspection result norm YES >> GO TO 2. NO >> Repair the termi	nal and connector.		
2.CHECK HARNESS FOR			
<ol> <li>Disconnect the connector</li> <li>Check the resistance be</li> </ol>	or of ECM. tween the ECM harness of	connector terminals.	
	ECM harness connector		Resistance (Ω)
Connector No. E18	100	inal No.	
	100	99	Approx. 108 – 132
-	ithin the specification?		
Is the measurement value w YES >> GO TO 3. NO >> Repair the ECM <b>3.</b> CHECK POWER SUPPL	branch line. Y AND GROUND CIRCUI		gnosis Procedure".
Is the measurement value w YES >> GO TO 3. NO >> Repair the ECM <b>3.</b> CHECK POWER SUPPL Check the power supply and Is the inspection result norm	branch line. Y AND GROUND CIRCUI the ground circuit of the I <u>al?</u>	ECM. Refer to <u>EC-158, "Dia</u>	
Is the measurement value w YES >> GO TO 3. NO >> Repair the ECM <b>3.</b> CHECK POWER SUPPL Check the power supply and Is the inspection result norm YES (Present error)>>Repl YES (Past error)>>Error wa	branch line. Y AND GROUND CIRCUI the ground circuit of the B al? ace the ECM. Refer to EC	ECM. Refer to <u>EC-158, "Diar</u> C-542, "Removal and Installa anch line.	
Is the measurement value w YES >> GO TO 3. NO >> Repair the ECM <b>3.</b> CHECK POWER SUPPL Check the power supply and Is the inspection result norm YES (Present error)>>Repl YES (Past error)>>Error wa	branch line. Y AND GROUND CIRCUI the ground circuit of the B al? ace the ECM. Refer to <u>EC</u> as detected in the ECM br	ECM. Refer to <u>EC-158, "Diar</u> C-542, "Removal and Installa anch line.	
Is the measurement value w YES >> GO TO 3. NO >> Repair the ECM <b>3.</b> CHECK POWER SUPPL Check the power supply and Is the inspection result norm YES (Present error)>>Repl YES (Past error)>>Error wa	branch line. Y AND GROUND CIRCUI the ground circuit of the B al? ace the ECM. Refer to <u>EC</u> as detected in the ECM br	ECM. Refer to <u>EC-158, "Diar</u> C-542, "Removal and Installa anch line.	
Is the measurement value w YES >> GO TO 3. NO >> Repair the ECM <b>3.</b> CHECK POWER SUPPL Check the power supply and Is the inspection result norm YES (Present error)>>Repl YES (Past error)>>Error wa	branch line. Y AND GROUND CIRCUI the ground circuit of the B al? ace the ECM. Refer to <u>EC</u> as detected in the ECM br	ECM. Refer to <u>EC-158, "Diar</u> C-542, "Removal and Installa anch line.	

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< DTC/CIRCUIT DIAGNOSIS >

# ABS BRANCH LINE CIRCUIT

#### Diagnosis Procedure

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of ABS actuator and electric unit (control unit).
- Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E35	22	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### $\mathbf{3}$ . Check power supply and ground circuit

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to <u>BRC-108, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-132, "Removal</u> <u>and Installation"</u>.

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

INFOID:00000008273449

#### **IPDM-E BRANCH LINE CIRCUIT**

# [CAN SYSTEM (TYPE 1)]

Diagnosis Procedure			INFOID:00000008273450
<b>1</b> .CHECK CONNECTOR			
<ol> <li>Check the terminals and and connector side).</li> <li><u>s the inspection result norm</u></li> </ol>	cable from the negative tern d connectors of the IPDM	minal. E/R for damage, bend and	loose connection (unit side
YES >> GO TO 2. NO >> Repair the termi	nal and connector.		
2. CHECK HARNESS FOR			
<ol> <li>Disconnect the connect</li> <li>Check the resistance be</li> </ol>	or of IPDM E/R. etween the IPDM E/R harn	ess connector terminals.	
	IPDM E/R harness connector		Resistance (Ω)
Connector No.	Termi	nal No.	
E13 s the measurement value w	27 ithin the specification?	26	Approx. 54 – 66
s the measurement value w YES >> GO TO 3. NO >> Repair the IPDM CHECK POWER SUPPL Check the power supply and Models with Intelligent Key	ithin the specification? I E/R branch line. Y AND GROUND CIRCUI I the ground circuit of the II y system: <u>PCS-34, "Diagno</u>	C PDM E/R. Refer to the follo sis Procedure"	
s the measurement value w YES >> GO TO 3. NO >> Repair the IPDM CHECK POWER SUPPL Check the power supply and Models with Intelligent Key Models without Intelligent I s the inspection result norm YES (Present error)>>Repl • Models with In	ithin the specification? I E/R branch line. Y AND GROUND CIRCUIT the ground circuit of the IF y system: <u>PCS-34, "Diagno</u> Key system: <u>PCS-61, "Diagno</u> key system: <u>PCS-61, "Diagno</u> lace the IPDM E/R. Refer the itelligent Key system: <u>PCS</u>	C PDM E/R. Refer to the follor sis Procedure" gnosis Procedure" to the following. -35, "Removal and Installati	wing.
s the measurement value w YES >> GO TO 3. NO >> Repair the IPDM CHECK POWER SUPPL Check the power supply and Models with Intelligent Key Models without Intelligent I s the inspection result norm YES (Present error)>>Repl • Models withou YES (Past error)>>Error was	ithin the specification? I E/R branch line. Y AND GROUND CIRCUIT the ground circuit of the IF y system: <u>PCS-34, "Diagno</u> Key system: <u>PCS-61, "Diag</u> all? lace the IPDM E/R. Refer totelligent Key system: <u>PCS</u> it Intelligent Key system: <u>PCS</u>	PDM E/R. Refer to the follo sis Procedure" anosis Procedure" to the following. -35, "Removal and Installati CS-62, "Removal and Insta /R branch line.	wing.
s the measurement value w YES >> GO TO 3. NO >> Repair the IPDM CHECK POWER SUPPL Check the power supply and Models with Intelligent Key Models without Intelligent I s the inspection result norm YES (Present error)>>Repl • Models withou YES (Past error)>>Error was	ithin the specification? I E/R branch line. Y AND GROUND CIRCUIT the ground circuit of the II y system: <u>PCS-34, "Diagno</u> Key system: <u>PCS-61, "Diagno</u> Key system: <u>PCS-61, "Diagno</u> lace the IPDM E/R. Refer intelligent Key system: <u>PCS</u> it Intelligent Key system: <u>PCS</u> as detected in the IPDM E	PDM E/R. Refer to the follo sis Procedure" anosis Procedure" to the following. -35, "Removal and Installati CS-62, "Removal and Insta /R branch line.	wing.

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< DTC/CIRCUIT DIAGNOSIS >

< DTC/CIRCUIT DIAGNOSIS >

# DLC BRANCH LINE CIRCUIT

#### Diagnosis Procedure

INFOID:000000008273451

[CAN SYSTEM (TYPE 1)]

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

	Data link connector		
Connector No.	Termi	Resistance ( $\Omega$ )	
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

### **EPS BRANCH LINE CIRCUIT**

### [CAN SYSTEM (TYPE 1)]

	ECIRCUIT		
Diagnosis Procedure			INFOID:00000008273452
.CHECK CONNECTOR			
Check the terminals an side and connector side	cable from the negative tern d connectors of the EPS co e).		d and loose connection (unit
the inspection result norm YES >> GO TO 2. NO >> Repair the term CHECK HARNESS FOR	inal and connector.		
Disconnect the connect Check the resistance be	tor of EPS control unit. etween the EPS control uni		als.
	EPS control unit harness connecte		- Resistance (Ω)
Connector No. M37	2	nal No. 1	Approx. 54 – 66
NO >> Repair the EPS CHECK POWER SUPPL heck the power supply an ure".	-		STC-18, "Diagnosis Proce-
NO >> Repair the EPS CHECK POWER SUPPL heck the power supply an <u>ure"</u> . the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	Y AND GROUND CIRCUI	EPS control unit. Refer to Refer to <u>ST-9, "Removal ar</u> trol unit branch line.	

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#### < DTC/CIRCUIT DIAGNOSIS >

# M&A BRANCH LINE CIRCUIT

#### Diagnosis Procedure

INFOID:000000008273453

[CAN SYSTEM (TYPE 1)]

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

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

Co	Combination meter harness connector			
Connector No.	Termi	Resistance ( $\Omega$ )		
M34	1	Approx. 54 – 66		

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

### **3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to <u>MWI-42, "COMBINATION</u> <u>METER : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-53, "Removal and Installation".

YES (Past error)>>Error was detected in the combination meter branch line.

#### STRG BRANCH LINE CIRCUIT

# [CAN SYSTEM (TYPE 1)]

Diagnosis Procedure			INFOID:00000008273454
1.CHECK CONNECTOR			
	able from the negative terr I connectors of the steering side). <u>al?</u> nal and connector.		, bend and loose connection
<ol> <li>Check the resistance be</li> </ol>	or of steering angle sensor. tween the steering angle s ering angle sensor harness conne	ensor harness connector t	erminals.
Connector No.		nal No.	Resistance (Ω)
M30	5	2	A
	ithin the specification?	2	Approx. 54 – 66
<b>3.</b> CHECK POWER SUPPL' Check the power supply and gram".	ing angle sensor branch lir Y AND GROUND CIRCUIT d the ground circuit of the	ie. -	Approx. 54 – 66
YES >> GO TO 3. NO >> Repair the steer 3.CHECK POWER SUPPLY Check the power supply and gram". s the inspection result norm YES (Present error)>>Repl YES (Past error)>>Error wa	ing angle sensor branch lir Y AND GROUND CIRCUIT d the ground circuit of the <u>al?</u> ace the steering angle sen	ie. - steering angle sensor. Re sor. Refer to <u>BRC-135, "R</u> angle sensor branch line.	efer to <u>BRC-51, "Wiring Dia-</u>

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< DTC/CIRCUIT DIAGNOSIS >

# **A-BAG BRANCH LINE CIRCUIT**

[CAN SYSTEM (TYPE 1)]

#### Diagnosis Procedure

INFOID:000000008273455

#### WARNING:

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-25, "Work Flow".

Is the inspection result normal?

- YES >> Replace the main harness.
- NO >> Replace parts whose air bag system has a malfunction.

#### **BCM BRANCH LINE CIRCUIT**

DTC/CIRCUIT DIAGNOS	ilS >		[CAN SYSTEM (TYPE 1)]
BCM BRANCH LINE	E CIRCUIT		
Diagnosis Procedure			INFOID:00000008273456
CHECK CONNECTOR			
<ul> <li>B. Check the terminals and connector side).</li> <li><u>s the inspection result norm</u></li> <li>YES &gt;&gt; GO TO 2.</li> <li>NO &gt;&gt; Repair the termi</li> <li><b>2.</b>CHECK HARNESS FOR</li> <li>I. Disconnect the connector</li> <li>2. Check the resistance be</li> </ul>	cable from the negative termi d connectors of the BCM for <u>al?</u> nal and connector. OPEN CIRCUIT or of BCM. etween the BCM harness con	damage, bend and lo	bose connection (unit side and
Models with Intelligent K			
	BCM harness connector	N1.	Resistance (Ω)
Connector No. M68	Terminal 39	No. 40	Approx. 108 – 132
Models without Intelliger		-0	Αφρίολ. 100 - 152
	BCM harness connector		
Connector No.	Terminal	No.	Resistance (Ω)
M65	39	40	Approx. 108 – 132
Models with Intelligent Key Models without Intelligent I s the inspection result norm YES (Present error)>>Repl • Models with In	branch line. Y AND GROUND CIRCUIT I the ground circuit of the BC y system: <u>BCS-74, "Diagnosis</u> Key system: <u>BCS-135, "Diag</u> al? ace the BCM. Refer to the fo itelligent Key system: <u>BCS-8</u>	<u>s Procedure"</u> nosis Procedure" Ilowing. 1, "Removal and Instal	llation"
YES (Past error)>>Error wa	It Intelligent Key system: <u>BCs</u> as detected in the BCM brance ar supply and the ground circ	ch line.	nstallation"

# CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000008273457

[CAN SYSTEM (TYPE 1)]

#### **1**.CONNECTOR INSPECTION

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect all the unit connectors on CAN communication system.
- 4. Check terminals and connectors for damage, bend and loose connection.

#### Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

	Data link connector			
Connector No.	Termi	Continuity		
M4	6	Not existed		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause.

# **3.**CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link	Data link connector		Continuity
Connector No.	Terminal No.	Ground	Continuity
M4	6	Ground	Not existed
1014	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause.

#### **4.**CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.

2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)	
Termi	nal No.	- Resistance (12)	
100	99	Approx. 108 – 132	

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)	
Termi	nal No.		
39	40	Approx. 108 – 132	

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

5. CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

#### **LAN-64**

#### **CAN COMMUNICATION CIRCUIT**

< DTC/CIRCUIT DIAGNOSIS >

#### Inspection result А Reproduced>>GO TO 6. Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected. 6.CHECK UNIT REPRODUCTION В Perform the reproduction test as per the following procedure for each unit. 1. Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. С 2. 3. Disconnect one of the unit connectors of CAN communication system. NOTE: ECM and BCM have a termination circuit. Check other units first. D 4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced. NOTE: Е Although unit-related error symptoms occur, do not confuse them with other symptoms. Inspection result Reproduced>>Connect the connector. Check other units as per the above procedure. F Non-reproduced>>Replace the unit whose connector was disconnected.

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#### MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

# DTC/CIRCUIT DIAGNOSIS MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

#### **Diagnosis Procedure**

INFOID:000000008273458

#### 1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
- Harness connector E105
- Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

# 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- IPDM E/R
- Harness connectors E105 and M77
- 2. Check the continuity between the IPDM E/R harness connector and the harness connector.

IPDM E/R har	ness connector	Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
E13	27	E105	1	Existed
LIS	26	L 103	6	Existed

#### Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E105.

#### ${ m 3.}$ CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		connector Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity		
M77	1	M4	6	Existed		
	6	1014	14	Existed		

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the data link connector.

NO >> Repair the main line between the harness connector M77 and the data link connector.

	GNOSIS >		[CAN	SYSTEM (TYPE 2)]
	WEEN DLC A	ND MDU CIRCU	JIT	
iagnosis Proced	ure			INFOID:00000008273459
.CHECK HARNESS		N CIRCUIT)		
Disconnect the foll ECM Multi display unit	ttery cable from the n lowing harness conne		multi display unit harr	ness connector.
Data link	connector	Multi display unit h	arness connector	<b>0</b> <i>i i i</i>
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
M4	6	M90	6	Existed
1014	14	10190	12	Existed
			and the multi display u	ınit.
			and the multi-display t	ınit.
				ınit.
				ınit.
				ınit.

MAIN LINE BETWEEN DLC AND MDU CIRCUIT

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# ECM BRANCH LINE CIRCUIT

#### Diagnosis Procedure

INFOID:000000008273460

[CAN SYSTEM (TYPE 2)]

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.

2. Check the resistance between the ECM harness connector terminals.

	ECM harness connector		
Connector No.	Termi	Resistance ( $\Omega$ )	
E18	100	99	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

**3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to <u>EC-158, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to EC-542, "Removal and Installation".

YES (Past error)>>Error was detected in the ECM branch line.

### **ABS BRANCH LINE CIRCUIT**

### [CAN SYSTEM (TYPE 2)]

	CIRCUIT			
Diagnosis Procedure				
1.CHECK CONNECTOR				
<ol> <li>Check the terminals and and loose connection (us the inspection result norm YES &gt;&gt; GO TO 2.</li> <li>NO &gt;&gt; Repair the terminals and and loose connection (us the terminals and loose connection)</li> </ol>	able from the negative termin I connectors of the ABS actua nit side and connector side). <u>al?</u> nal and connector.		ntrol unit) for damage, bend	
2. CHECK HARNESS FOR	OPEN CIRCUIT			
<ol> <li>Check the resistance be nals.</li> </ol>	or of ABS actuator and electric etween the ABS actuator and	electric unit (control un	it) harness connector termi-	
ABS actuator and electric unit (control unit) harness connector		Resistance (Ω)		
Connector No.	Terminal			
E35	22	9	Approx. 54 – 66	
YES >> GO TO 3. NO >> Repair the ABS 3.CHECK POWER SUPPL	actuator and electric unit (cor Y AND GROUND CIRCUIT	ntrol unit) branch line.		
BRC-108, "Diagnosis Proce Is the inspection result norm	al? ace the ABS actuator and ele			

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< DTC/CIRCUIT DIAGNOSIS >

# **IPDM-E BRANCH LINE CIRCUIT**

#### Diagnosis Procedure

INFOID:000000008273462

[CAN SYSTEM (TYPE 2)]

#### 1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.

2. Check the resistance between the IPDM E/R harness connector terminals.

	IPDM E/R harness connector		
Connector No.	Terminal No.		Resistance ( $\Omega$ )
E13	27	26	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

**3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to the following.

Models with Intelligent Key system: <u>PCS-34, "Diagnosis Procedure"</u>

Models without Intelligent Key system: <u>PCS-61, "Diagnosis Procedure"</u>

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to the following.

- Models with Intelligent Key system: PCS-35, "Removal and Installation"
- Models without Intelligent Key system: PCS-62, "Removal and Installation"
- YES (Past error)>>Error was detected in the IPDM E/R branch line.

# **DLC BRANCH LINE CIRCUIT**

# [CAN SYSTEM (TYPE 2)]

CITC/CIRCUIT DIAGNOSIS	>		
OLC BRANCH LINE C	CIRCUIT		
Diagnosis Procedure			INFOID:0000000827346
CHECK CONNECTOR			
	F		
<ul> <li>Turn the ignition switch OFI</li> <li>Disconnect the battery cabl</li> </ul>		erminal.	
. Check the terminals and co	onnectors of the data		, bend and loose connectior
(connector side and harnes the inspection result normal?			
YES >> GO TO 2.			
NO >> Repair the terminal			
CHECK HARNESS FOR OP	PEN CIRCUIT		
heck the resistance between t	the data link connecto	or terminals.	
	Data link connector		– Resistance (Ω)
Connector No.	Ter	minal No.	
M4 the measurement value within	6	14	Approx. 54 – 66

< DTC/CIRCUIT DIAGNOSIS >

# **EPS BRANCH LINE CIRCUIT**

#### Diagnosis Procedure

INFOID:000000008273464

[CAN SYSTEM (TYPE 2)]

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of EPS control unit.
- 2. Check the resistance between the EPS control unit harness connector terminals.

E	Resistance (Ω)		
Connector No.	Terminal No.		
M37	2	1	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

**3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to <u>STC-18, "Diagnosis Proce-</u> dure".

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to ST-9, "Removal and Installation".

YES (Past error)>>Error was detected in the EPS control unit branch line.

## **M&A BRANCH LINE CIRCUIT**

## [CAN SYSTEM (TYPE 2)]

Diagnosis Procedure			INFOID:00000008273465
.CHECK CONNECTOR			
	cable from the negative term d connectors of the combin		pend and loose connection
the inspection result norm	al?		
YES >> GO TO 2. NO >> Repair the term	inal and connector		
CHECK HARNESS FOR			
	or of combination meter.		
	etween the combination meter	er harness connector term	inals.
Co	ombination meter harness connecto	pr	
Connector No.	Termina	Il No.	Resistance ( $\Omega$ )
M34	1	2	Approx. 54 – 66
the measurement value w	vithin the specification?		
YES >> GO TO 3.	·		
YES >> GO TO 3. NO >> Repair the coml	pination meter branch line.		
YES >> GO TO 3. NO >> Repair the com CHECK POWER SUPPL heck the power supply an	pination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the c	ombination meter. Refer to	D <u>MWI-42, "COMBINATION</u>
YES >> GO TO 3. NO >> Repair the com CHECK POWER SUPPL Check the power supply an IETER : Diagnosis Procedu	pination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the c ure".	ombination meter. Refer to	D <u>MWI-42, "COMBINATION</u>
YES >> GO TO 3. NO >> Repair the com CHECK POWER SUPPL check the power supply an <u>IETER : Diagnosis Procedu</u> the inspection result norm YES (Present error)>>Rep	bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the c <u>ure"</u> . hal? lace the combination meter.	Refer to <u>MWI-53, "Remov</u>	
YES >> GO TO 3. NO >> Repair the com CHECK POWER SUPPL heck the power supply an ETER : Diagnosis Procedu the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the c <u>ure"</u> . hal? lace the combination meter. as detected in the combinati	Refer to <u>MWI-53, "Remov</u> on meter branch line.	
YES >> GO TO 3. NO >> Repair the com CHECK POWER SUPPL heck the power supply an ETER : Diagnosis Procedu the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the c <u>ure"</u> . hal? lace the combination meter.	Refer to <u>MWI-53, "Remov</u> on meter branch line.	
YES >> GO TO 3. NO >> Repair the com CHECK POWER SUPPL heck the power supply an ETER : Diagnosis Procedu the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the c <u>ure"</u> . hal? lace the combination meter. as detected in the combinati	Refer to <u>MWI-53, "Remov</u> on meter branch line.	
YES >> GO TO 3. NO >> Repair the com CHECK POWER SUPPL heck the power supply an ETER : Diagnosis Procedu the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the c <u>ure"</u> . hal? lace the combination meter. as detected in the combinati	Refer to <u>MWI-53, "Remov</u> on meter branch line.	
YES >> GO TO 3. NO >> Repair the com CHECK POWER SUPPL Check the power supply an <u>AETER : Diagnosis Procedu</u> the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the c <u>ure"</u> . hal? lace the combination meter. as detected in the combinati	Refer to <u>MWI-53, "Remov</u> on meter branch line.	
NO >> Repair the com CHECK POWER SUPPL Check the power supply an <u>AETER : Diagnosis Procedu</u> <u>s the inspection result norm</u> YES (Present error)>>Rep YES (Past error)>>Error w	bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the c <u>ure"</u> . hal? lace the combination meter. as detected in the combinati	Refer to <u>MWI-53, "Remov</u> on meter branch line.	

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## STRG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:000000008273466

[CAN SYSTEM (TYPE 2)]

## 1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of steering angle sensor.
- 2. Check the resistance between the steering angle sensor harness connector terminals.

Ste	Steering angle sensor harness connector			
Connector No.	Terminal No.		Resistance (Ω)	
M30	5	2	Approx. 54 – 66	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

### **3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to <u>BRC-51, "Wiring Dia-gram"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to <u>BRC-135, "Removal and Installation"</u>.

YES (Past error)>>Error was detected in the steering angle sensor branch line.

## [CAN SYSTEM (TYPE 2)]

#### A-BAG BRANCH LINE CIRCUIT А **Diagnosis** Procedure INFOID:00000008273467 WARNING: В Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.) • Never use unspecified tester or other measuring device. С 1. CHECK CONNECTOR 1. Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. 2. D Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose con-3. nection (unit side and connector side). Is the inspection result normal? Е YES >> GO TO 2. NO >> Replace the main harness. 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT F Check the air bag diagnosis sensor unit. Refer to SRC-25, "Work Flow". Is the inspection result normal? YES >> Replace the main harness. NO >> Replace parts whose air bag system has a malfunction. Н

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## HVAC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:000000008273468

[CAN SYSTEM (TYPE 2)]

## 1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the terminals and connectors of the A/C auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of A/C auto amp.
- 2. Check the resistance between the A/C auto amp. harness connector terminals.

	A/C auto amp. harness connector			
Connector No.	Termi	Resistance ( $\Omega$ )		
M50	6	7	Approx. 54 – 66	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the A/C auto amp. branch line.

## **3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to <u>HAC-67, "A/C AUTO AMP. :</u> <u>Diagnosis Procedure</u>".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-85, "Removal and Installation".

YES (Past error)>>Error was detected in the A/C auto amp. branch line.

## **MDU BRANCH LINE CIRCUIT**

	CIRCUIT		
Diagnosis Procedure			INFOID:00000008273469
1.CHECK CONNECTOR			
<ol> <li>Turn the ignition switch OFF</li> <li>Disconnect the battery cable</li> <li>Check the terminals and corside and connector side).</li> </ol>	e from the negative term		d and loose connection (unit
Is the inspection result normal? YES >> GO TO 2. NO >> Repair the terminal a			
2.CHECK HARNESS FOR OPI			
<ol> <li>Disconnect the connector of</li> <li>Check the resistance between</li> </ol>		harness connector termin	nals.
Multi d	isplay unit harness connector		Resistance (Ω)
Connector No.	Termina		
M90	6	12	Approx. 54 – 66
Is the measurement value within YES >> GO TO 3. NO >> Repair the multi disp			
3.CHECK POWER SUPPLY AN	ND GROUND CIRCUIT		
Check the power supply and the UNIT : Diagnosis Procedure".	e ground circuit of the r	nulti display unit. Refer t	o <u>AV-161, "MULTI DISPLAY</u>
Is the inspection result normal? YES (Present error)>>Replace YES (Past error)>>Error was de NO >> Repair the power su		lay unit branch line.	al and Installation".
YES (Present error)>>Replace YES (Past error)>>Error was de	etected in the multi displ	lay unit branch line.	al and Installation".
YES (Present error)>>Replace YES (Past error)>>Error was d	etected in the multi displ	lay unit branch line.	al and Installation".
YES (Present error)>>Replace YES (Past error)>>Error was d	etected in the multi displ	lay unit branch line.	al and Installation".

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## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000008273470

[CAN SYSTEM (TYPE 2)]

### **1.**CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of BCM.
- 2. Check the resistance between the BCM harness connector terminals.
- Models with Intelligent Key system

	BCM harness connector			
Connector No.	Terminal No.		Resistance ( $\Omega$ )	
M68	39	40	Approx. 108 – 132	

Models without Intelligent Key system

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	39	40	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the BCM branch line.

 $\mathbf{3}$ . Check power supply and ground circuit

Check the power supply and the ground circuit of the BCM. Refer to the following.

- Models with Intelligent Key system: <u>BCS-74, "Diagnosis Procedure"</u>
- Models without Intelligent Key system: <u>BCS-135, "Diagnosis Procedure"</u>

#### Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to the following.

- Models with Intelligent Key system: <u>BCS-81, "Removal and Installation"</u>
- Models without Intelligent Key system: <u>BCS-142</u>, "Removal and Installation"
- YES (Past error)>>Error was detected in the BCM branch line.
- NO >> Repair the power supply and the ground circuit.

## **CAN COMMUNICATION CIRCUIT**

[CAN SYSTEM (TYPE 2)]

CAN COMMUNICAT	TION CIRCUIT		
Diagnosis Procedure			INFOID:00000008273471
1.CONNECTOR INSPECTI	ON		
<ol><li>Disconnect all the unit contact and the second sec</li></ol>	able from the negative terr onnectors on CAN commu inectors for damage, bend al?	nication system.	
2. CHECK HARNESS CON		T)	
Check the continuity between	n the data link connector te	erminals.	
,	Data link connector		Continuity
Connector No.	Termir	nal No.	Continuity
M4 Is the inspection result norma	6	14	Not existed
YES >> GO TO 3. NO >> Check the harne 3.CHECK HARNESS CON Check the continuity between		Т)	
Data link c	onnector		Oractionity
Connector No.	Terminal No.	Ground	Continuity
M4	6		Not existed
s the inspection result normal         YES       >> GO TO 4.         NO       >> Check the harne <b>1.</b> CHECK ECM AND BCM         1. Remove the ECM and the	ss and repair the root caus	se.	
2. Check the resistance be	tween the ECM terminals.		
ECM Terminal No.	Resistance (Ω	2)	
100 99		32	
<ol> <li>Check the resistance be</li> </ol>	tween the BCM terminals.		
BCM	Decistore - //		
Terminal No.	Resistance (Ω	2) 	
39 40		32	
s the measurement value wi YES >> GO TO 5. NO >> Replace the ECI O.CHECK SYMPTOM			

< DTC/CIRCUIT DIAGNOSIS >

## **LAN-79**

< DTC/CIRCUIT DIAGNOSIS >

#### Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

**6.**CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect one of the unit connectors of CAN communication system. **NOTE:**

ECM and BCM have a termination circuit. Check other units first.

 Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.
 NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure. Non-reproduced>>Replace the unit whose connector was disconnected.

< DTC/CIRCUIT DIA			D DLC CIRCUI	T I SYSTEM (TYPE 3)]
DTC/CIRCU		SIS	[0/11	
		E AND DLC CIR	CUIT	
Diagnosis Procec	lure			INFOID:00000008273472
1.CHECK CONNECT				
<ol> <li>Check the followi and harness side)</li> <li>Harness connector</li> <li>Harness connector</li> <li>Is the inspection result</li> <li>YES &gt;&gt; GO TO 2.</li> <li>NO &gt;&gt; Repair the</li> <li>CHECK HARNESS</li> <li>Disconnect the following</li> <li>IPDM E/R</li> <li>Harness connector</li> </ol>	attery cable from the non- ng terminals and con- br E105 or M77 <u>t normal?</u> e terminal and connect 5 CONTINUITY (OPEN llowing harness conne- ors E105 and M77	nectors for damage, be tor. N CIRCUIT)		
	mess connector			
Connector No.	Terminal No.	Harness co Connector No.	Terminal No.	Continuity
E13	27	E105	1	Existed
	26	2100	6	Existed
• ·	e main line between th CONTINUITY (OPEN			05.
	etween the harness c			
Check the continuity b	connector	Data link co	onnector	
Check the continuity b			onnector Terminal No.	Continuity
Check the continuity b	connector Terminal No. 1	Data link co	Terminal No. 6	Existed
Check the continuity b Harness Connector No. M77 Is the inspection resul	connector Terminal No. 1 6	Data link co Connector No. M4	Terminal No.	-

## MAIN LINE BETWEEN DLC AND A-BAG CIRCUIT

### < DTC/CIRCUIT DIAGNOSIS >

## MAIN LINE BETWEEN DLC AND A-BAG CIRCUIT

### **Diagnosis** Procedure

INFOID:000000008273473

[CAN SYSTEM (TYPE 3)]

# 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect the BCM harness connector.
- 4. Check the continuity between the data link connector and the BCM harness connector.
- With Intelligent Key system

Data link	connector	BCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
M4	6	M68	39	Existed
1014	14	ΟΟΙνΙ	40	Existed

#### Without Intelligent Key system

Data link	connector	BCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
M4	6	M65	39	Existed
1014	14	COIVI	40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

- YES (Past error)>>Error was detected in the main line between the data link connector and the air bag diagnosis sensor unit.
- NO >> Repair the main line between the data link connector and the air bag diagnosis sensor unit.

## ECM BRANCH LINE CIRCUIT

## [CAN SYSTEM (TYPE 3)]

Diagnosis Procedure			INFOID:00000008273474
1.CHECK CONNECTOR			
	DFF. able from the negative term d connectors of the ECM fo		e connection (unit side and
Is the inspection result norm YES >> GO TO 2. NO >> Repair the termi	nal and connector.		
2. CHECK HARNESS FOR	OPEN CIRCUIT		
<ol> <li>Disconnect the connect</li> <li>Check the resistance be</li> </ol>	or of ECM. tween the ECM harness co	nnector terminals.	
	ECM harness connector		Resistance ( $\Omega$ )
Connector No.	Termina		
E18	100	99	Approx. 108 – 132
Is the measurement value w YES >> GO TO 3. NO >> Repair the ECM 3.CHECK POWER SUPPL	branch line. Y AND GROUND CIRCUIT		anosis Procedure"
	the around aircuit of the $E($		<u>unosis Procedure</u> .
Check the power supply and	-	JM. Refer to <u>EC-158</u> , "Diag	
Check the power supply and <u>Is the inspection result norm</u> YES (Present error)>>Repl YES (Past error)>>Error wa	al? ace the ECM. Refer to <u>EC-</u> :	542, "Removal and Installa	<u>tion"</u> .
Check the power supply and <u>Is the inspection result norm</u> YES (Present error)>>Repl YES (Past error)>>Error wa	al? ace the ECM. Refer to <u>EC-3</u> as detected in the ECM brar	542, "Removal and Installa	<u>tion"</u> .
Check the power supply and <u>Is the inspection result norm</u> YES (Present error)>>Repl YES (Past error)>>Error wa	al? ace the ECM. Refer to <u>EC-3</u> as detected in the ECM brar	542, "Removal and Installa	<u>ition"</u> .
Check the power supply and <u>Is the inspection result norm</u> YES (Present error)>>Repl YES (Past error)>>Error wa	al? ace the ECM. Refer to <u>EC-3</u> as detected in the ECM brar	542, "Removal and Installa	<u>tion"</u> .

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# ABS BRANCH LINE CIRCUIT

## Diagnosis Procedure

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of ABS actuator and electric unit (control unit).
- 2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator	Resistance (Ω)		
Connector No.	Terminal No.		
E35	22	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ABS actuator and electric unit (control unit) branch line.

## **3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to <u>BRC-108, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-132, "Removal</u> <u>and Installation"</u>.

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

### **IPDM-E BRANCH LINE CIRCUIT**

## [CAN SYSTEM (TYPE 3)]

1. CHECK CONNECTOR         1. Turn the ignition switch OFF.         2. Disconnect the battery cable from the negative terminal.         3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit and connector side).         Is the inspection result normal?         YES       > GO TO 2.         NO       >> Repair the terminal and connector.         2.CHECK HARNESS FOR OPEN CIRCUIT         1. Disconnect the connector of IPDM E/R.         2. Check the resistance between the IPDM E/R harness connector terminals.         Image: the terminal and connector.         2.CHECK HARNESS FOR OPEN CIRCUIT         1. Disconnect the connector of IPDM E/R.         2. Check the resistance between the IPDM E/R harness connector terminals.         Image: terminal No.       Resistance (Ω)         Connector No.       Terminal No.         E13       27       26         Approx. 54 – 66       Is the measurement value within the specification?         YES       > GO TO 3.       NO         NO       >> Repair the IPDM E/R branch line.         3.CHECK POWER SUPPLY AND GROUND CIRCUIT       Check the power supply and the ground circuit of the IPDM E/R. Refer to the following.         • Models with Intelligent Key system: PCS-31. "Diagnosis Procedure"       Is the inspection result normal?         YES (Pasent	Diagnosis Procedure			INFOID:0000000827347
<ul> <li>2. Disconnect the battery cable from the negative terminal.</li> <li>3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit and connector side).</li> <li>Is the inspection result normal?</li> <li>YES &gt;&gt; GO TO 2.</li> <li>NO &gt;&gt; Repair the terminal and connector.</li> <li>2. CHECK HARNESS FOR OPEN CIRCUIT</li> <li>1. Disconnect the connector of IPDM E/R.</li> <li>2. Check the resistance between the IPDM E/R harness connector terminals.</li> </ul> IPDM E/R harness connector Resistance (Ω) Connector No. Terminal No. Resistance (Ω) E13 27 26 Approx.54 - 66 Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the IPDM E/R branch line. 3. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the IPDM E/R. Refer to the following. • Models with Intelligent Key system: PCS-34. "Diagnosis Procedure" • Models with Intelligent Key system: PCS-35. "Removal and Installation" <ul> <li>• Models with Intelligent Key system: PCS-35. "Removal and Installation"</li> <li>• Models with Intelligent Key system: PCS-32. "Removal and Installation"</li> <li>• Models with Intelligent Key system: PCS-32. "Removal and Installation"</li> <li>• Models with Intelligent Key system: PCS-32. "Removal and Installation"</li> <li>• Models with Intelligent Key system: PCS-32. "Removal and Installation"</li> <li>• Models with Intelligent Key system: PCS-32. "Removal and Installation"</li> <li>• Models with Intelligent Key system: PCS-32. "Removal and Installation"</li> <li>• Models with Intelligent Key system: PCS-32. "Removal and Installation"</li> <li>• Models with Intelligent Key system: PCS-32. "Removal and Installation"</li> <li>• Models with Intelligent Key system: PCS-32. "Removal and Installation"</li> <li>• Models without Intelligent Key system: PCS-32. "Removal and Installation"</li> </ul>	1.CHECK CONNECTOR			
YES       >> GO TO 2.         NO       >> Repair the terminal and connector.         2.CHECK HARNESS FOR OPEN CIRCUIT         1. Disconnect the connector of IPDM E/R.         2. Check the resistance between the IPDM E/R harness connector terminals.         IPDM E/R harness connector         Resistance ( $\Omega$ )         E13       27         26       Approx. 54 - 66         Is the measurement value within the specification?         YES       >> GO TO 3.         NO       >> Repair the IPDM E/R branch line.         3.CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the IPDM E/R. Refer to the following.         • Models with Intelligent Key system: PCS-34. "Diagnosis Procedure"         • Models without Intelligent Key system: PCS-35. "Removal and Installation"         • Models with Intelligent Key system: PCS-35. "Removal and Installation"         • Models with Intelligent Key system: PCS-62. "Removal and Installation"         • Models with Intelligent Key system: PCS-62. "Removal and Installation"         • Models with Intelligent Key system: PCS-62. "Removal and Installation"         • Models with Intelligent Key system: PCS-62. "Removal and Installation"         • Models with Intelligent Key system: PCS-62. "Removal and Installation"         • Models with Intelligent Key system: PCS-62. "Removal and Installation" <td><ol> <li>Disconnect the battery c</li> <li>Check the terminals and and connector side).</li> </ol></td> <td>able from the negative terr I connectors of the IPDM</td> <td></td> <td>loose connection (unit side</td>	<ol> <li>Disconnect the battery c</li> <li>Check the terminals and and connector side).</li> </ol>	able from the negative terr I connectors of the IPDM		loose connection (unit side
1. Disconnect the connector of IPDM E/R.         2. Check the resistance between the IPDM E/R harness connector terminals.         IPDM E/R harness connector         Resistance (Ω)         Connector No.         ETTIMINO.         Resistance (Ω)         Connector No.         Terminal No.         Connector No.         Repain the IPDM E/R branch line.         Stock the measurement value within the specification?         YES (Preck the power supply and the ground circuit of the IPDM E/R. Refer to the following.         Models with Intelligent Key system: PCS-61, "Diagnosis Procedure"	YES >> GO TO 2. NO >> Repair the termi	nal and connector.		
<ul> <li>2. Check the resistance between the IPDM E/R harness connector terminals.</li> <li>IPDM E/R harness connector</li> <li>Connector No.</li> <li>E13</li> <li>27</li> <li>26</li> <li>Approx. 54 - 66</li> <li>s the measurement value within the specification?</li> <li>YES &gt;&gt; GO TO 3.</li> <li>NO &gt;&gt; Repair the IPDM E/R branch line.</li> <li>3. CHECK POWER SUPPLY AND GROUND CIRCUIT</li> <li>Check the power supply and the ground circuit of the IPDM E/R. Refer to the following.</li> <li>Models with Intelligent Key system: PCS-34, "Diagnosis Procedure"</li> <li>Models without Intelligent Key system: PCS-61, "Diagnosis Procedure"</li> <li>S the inspection result normal?</li> <li>YES (Present error)&gt;&gt;Replace the IPDM E/R. Refer to the following.</li> <li>Models with Intelligent Key system: PCS-35, "Removal and Installation"</li> <li>Models without Intelligent Key system: PCS-62, "Removal and Installation"</li> <li>YES (Past error)&gt;&gt;Error was detected in the IPDM E/R branch line.</li> </ul>				
Connector No.       Terminal No.       Resistance (Ω)         E13       27       26       Approx. 54 – 66         s the measurement value within the specification?       YES       >> GO TO 3.       NO       >> Repair the IPDM E/R branch line.         3. CHECK POWER SUPPLY AND GROUND CIRCUIT       Check the power supply and the ground circuit of the IPDM E/R. Refer to the following.       • Models with Intelligent Key system: PCS-34, "Diagnosis Procedure"         • Models without Intelligent Key system: PCS-61. "Diagnosis Procedure"       • Models without Intelligent Key system: PCS-61. "Diagnosis Procedure"         * Sthe inspection result normal?       YES (Present error)>>Replace the IPDM E/R. Refer to the following.       • Models with Intelligent Key system: PCS-62, "Removal and Installation"         • Models without Intelligent Key system: PCS-62, "Removal and Installation"       • Models without Intelligent Key system: PCS-62, "Removal and Installation"         • Models without Intelligent Key system: PCS-62, "Removal and Installation"       • Models without Intelligent Key system: PCS-62, "Removal and Installation"			ess connector terminals.	
Connector No.       Terminal No.         E13       27       26       Approx. 54 – 66         is the measurement value within the specification?         YES       >> GO TO 3.         NO       >> Repair the IPDM E/R branch line.         3.CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the IPDM E/R. Refer to the following.         • Models with Intelligent Key system: PCS-34, "Diagnosis Procedure"         • Models without Intelligent Key system: PCS-61, "Diagnosis Procedure"         Is the inspection result normal?         YES (Present error)>>Replace the IPDM E/R. Refer to the following.         • Models with Intelligent Key system: PCS-35, "Removal and Installation"         • Models without Intelligent Key system: PCS-62, "Removal and Installation"         • Models without Intelligent Key system: PCS-62, "Removal and Installation"         • Models without Intelligent Key system: PCS-62, "Removal and Installation"         • Models without Intelligent Key system: PCS-62, "Removal and Installation"         • YES (Past error)>>Error was detected in the IPDM E/R branch line.		IPDM E/R harness connector		$Resistance\left(\Omega\right)$
Is the measurement value within the specification?         YES       >> GO TO 3.         NO       >> Repair the IPDM E/R branch line.         3.CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the IPDM E/R. Refer to the following.         • Models with Intelligent Key system: PCS-34, "Diagnosis Procedure"         • Models without Intelligent Key system: PCS-61, "Diagnosis Procedure"         Is the inspection result normal?         YES (Present error)>>Replace the IPDM E/R. Refer to the following.         • Models with Intelligent Key system: PCS-35, "Removal and Installation"         • Models without Intelligent Key system: PCS-62, "Removal and Installation"         • YES (Past error)>>Error was detected in the IPDM E/R branch line.	Connector No.	Termir	nal No.	
YES >> GO TO 3. NO >> Repair the IPDM E/R branch line. 3.CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the IPDM E/R. Refer to the following. Models with Intelligent Key system: PCS-34, "Diagnosis Procedure" Models without Intelligent Key system: PCS-61, "Diagnosis Procedure" s the inspection result normal? YES (Present error)>>Replace the IPDM E/R. Refer to the following. • Models with Intelligent Key system: PCS-35, "Removal and Installation" • Models without Intelligent Key system: PCS-62, "Removal and Installation" YES (Past error)>>Error was detected in the IPDM E/R branch line.				
<ul> <li>Models without Intelligent Key system: <u>PCS-61, "Diagnosis Procedure"</u> <u>is the inspection result normal?</u></li> <li>YES (Present error)&gt;&gt;Replace the IPDM E/R. Refer to the following.         <ul> <li>Models with Intelligent Key system: <u>PCS-35, "Removal and Installation"</u></li> <li>Models without Intelligent Key system: <u>PCS-62, "Removal and Installation"</u></li> <li>YES (Past error)&gt;&gt;Error was detected in the IPDM E/R branch line.</li> </ul> </li> </ul>	-		26	Approx. 54 – 66
<ul> <li>YES (Present error)&gt;&gt;Replace the IPDM E/R. Refer to the following.</li> <li>Models with Intelligent Key system: <u>PCS-35, "Removal and Installation"</u></li> <li>Models without Intelligent Key system: <u>PCS-62, "Removal and Installation"</u></li> <li>YES (Past error)&gt;&gt;Error was detected in the IPDM E/R branch line.</li> </ul>	Is the measurement value wi YES >> GO TO 3. NO >> Repair the IPDN 3.CHECK POWER SUPPLY Check the power supply and	ithin the specification? I E/R branch line. Y AND GROUND CIRCUIT the ground circuit of the IF	DM E/R. Refer to the follo	
YES (Past error)>>Error was detected in the IPDM E/R branch line.	Is the measurement value with YES >> GO TO 3. NO >> Repair the IPDW 3.CHECK POWER SUPPLY Check the power supply and • Models with Intelligent Key • Models without Intelligent Key	ithin the specification? I E/R branch line. Y AND GROUND CIRCUIT the ground circuit of the IF system: <u>PCS-34, "Diagno</u> Key system: <u>PCS-61, "Diag</u>	PDM E/R. Refer to the follo	
	Is the measurement value wi YES >> GO TO 3. NO >> Repair the IPDN 3.CHECK POWER SUPPLY Check the power supply and Models with Intelligent Key Models without Intelligent Key Models without Intelligent Key YES (Present error)>>Repl • Models with In	ithin the specification? I E/R branch line. Y AND GROUND CIRCUIT the ground circuit of the IF system: <u>PCS-34, "Diagno</u> Key system: <u>PCS-61, "Diag</u> al? ace the IPDM E/R. Refer to telligent Key system: <u>PCS</u>	PDM E/R. Refer to the follo sis Procedure" gnosis Procedure" to the following. -35, "Removal and Installat	wing.
	Is the measurement value wi YES >> GO TO 3. NO >> Repair the IPDW 3.CHECK POWER SUPPLY Check the power supply and • Models with Intelligent Key • Models without Key • Models without Key • Models without Key • Models without Key • Mode	ithin the specification? I E/R branch line. Y AND GROUND CIRCUIT the ground circuit of the If system: <u>PCS-34, "Diagno</u> Key system: <u>PCS-61, "Diag</u> ace the IPDM E/R. Refer to telligent Key system: <u>PCS</u> t Intelligent Key system: <u>PCS</u> as detected in the IPDM E/R.	PDM E/R. Refer to the follo sis Procedure" gnosis Procedure" to the following. -35. "Removal and Installat CS-62, "Removal and Instal /R branch line.	wing.

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## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000008273477

[CAN SYSTEM (TYPE 3)]

## 1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
- TCM
- Harness connecotor F1
- Harness connecotor E8

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

## 2.check harness for open circuit

- 1. Disconnect the connector of TCM.
- 2. Check the resistance between the TCM harness connector terminals.

TCM harness connector		Resistance (Ω)	
Connector No.	Terminal No.		
F81	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

 $\mathbf{3}$ . Check power supply and ground circuit

Check the power supply and the ground circuit of the TCM. Refer to <u>TM-180, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to TM-226, "Removal and Installation".

YES (Past error)>>Error was detected in the TCM branch line.

## **DLC BRANCH LINE CIRCUIT**

## [CAN SYSTEM (TYPE 3)]

DLC BRANCH LINE CIRCUIT Diagnosis Procedure 1.check CONNECTOR	
.CHECK CONNECTOR	
.CHECK CONNECTOR	INFOID:0000000827347
Turn the ignition switch OFF	
<ul> <li>Turn the ignition switch OFF.</li> <li>Disconnect the battery cable from the negative terminal.</li> </ul>	
. Check the terminals and connectors of the data link connector for damage, bend an	d loose connectior
(connector side and harness side).	
YES >> GO TO 2.	
NO >> Repair the terminal and connector.	
CHECK HARNESS FOR OPEN CIRCUIT	
heck the resistance between the data link connector terminals.	
Data link connector	
Connector No. Terminal No.	Resistance ( $\Omega$ )
M4 6 14 A	pprox. 54 – 66

## **EPS BRANCH LINE CIRCUIT**

## Diagnosis Procedure

INFOID:000000008273479

[CAN SYSTEM (TYPE 3)]

## 1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of EPS control unit.
- 2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M37	2	1	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

**3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to <u>STC-18, "Diagnosis Proce-</u> dure".

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to ST-9, "Removal and Installation".

YES (Past error)>>Error was detected in the EPS control unit branch line.

## **M&A BRANCH LINE CIRCUIT**

## [CAN SYSTEM (TYPE 3)]

Diagnosis Procedure			INFOID:00000008273480
<b>1.</b> CHECK CONNECTOR			
	cable from the negative terr d connectors of the combi		bend and loose connection
the inspection result norm YES >> GO TO 2. NO >> Repair the term CHECK HARNESS FOR	inal and connector.		
. Disconnect the connect	or of combination meter.	ter harness connector term	inals.
Co	ombination meter harness connect	tor	Pasistanas (O)
Connector No.	Termir	nal No.	Resistance ( $\Omega$ )
M34	1	2	Approx. 54 – 66
CHECK POWER SUPPL Check the power supply an <u>METER : Diagnosis Procedu</u> s the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	d the ground circuit of the <u>ure"</u> . <u>al?</u> lace the combination meter as detected in the combina	combination meter. Refer to Refer to <u>MWI-53, "Remov</u> tion meter branch line.	o MWI-42, "COMBINATION
NO >> Repair the powe	er supply and the ground ci	rcuit.	

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## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000008273481

[CAN SYSTEM (TYPE 3)]

## 1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of steering angle sensor.
- 2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

### **3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to <u>BRC-51, "Wiring Dia-gram"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to <u>BRC-135, "Removal and Installation"</u>.

YES (Past error)>>Error was detected in the steering angle sensor branch line.

## [CAN SYSTEM (TYPE 3)]

#### A-BAG BRANCH LINE CIRCUIT А Diagnosis Procedure INFOID:00000008273482 WARNING: В Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.) • Never use unspecified tester or other measuring device. С 1. CHECK CONNECTOR 1. Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. 2. D Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose con-3. nection (unit side and connector side). Is the inspection result normal? Е YES >> GO TO 2. NO >> Replace the main harness. 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT F Check the air bag diagnosis sensor unit. Refer to SRC-25, "Work Flow". Is the inspection result normal? YES >> Replace the main harness. NO >> Replace parts whose air bag system has a malfunction. Н

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## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000008273483

[CAN SYSTEM (TYPE 3)]

### **1.**CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of BCM.
- 2. Check the resistance between the BCM harness connector terminals.
- Models with Intelligent Key system

BCM harness connector		Resistance ( $\Omega$ )	
Connector No.	Terminal No.		
M68	39	40	Approx. 108 – 132

Models without Intelligent Key system

BCM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M65	39	40	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the BCM branch line.

 $\mathbf{3}$ . Check power supply and ground circuit

Check the power supply and the ground circuit of the BCM. Refer to the following.

- Models with Intelligent Key system: <u>BCS-74, "Diagnosis Procedure"</u>
- Models without Intelligent Key system: <u>BCS-135, "Diagnosis Procedure"</u>

#### Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to the following.

- Models with Intelligent Key system: <u>BCS-81, "Removal and Installation"</u>
- Models without Intelligent Key system: <u>BCS-142</u>, "Removal and Installation"
- YES (Past error)>>Error was detected in the BCM branch line.
- NO >> Repair the power supply and the ground circuit.

## **CAN COMMUNICATION CIRCUIT**

[CAN SYSTEM (TYPE 3)]

CAN COMMUNICA	TION CIRCUIT		
Diagnosis Procedure			INFOID:00000008273484
1.CONNECTOR INSPECT	ION		
<ol> <li>Disconnect all the unit c</li> <li>Check terminals and co</li> </ol>	cable from the negative terr onnectors on CAN commu nnectors for damage, benc	inication system.	
s the inspection result norm YES >> GO TO 2. NO >> Repair the termi 2.CHECK HARNESS CON	nal and connector.	T)	
Check the continuity betwee			
	Data link connector		
Connector No.	Termi	nal No.	Continuity
M4	6	14	Not existed
YES >> GO TO 3. NO >> Check the harne <b>3.</b> CHECK HARNESS CON Check the continuity betwee	-	T)	
Data link	connector		
Connector No.	Terminal No.	Ground	Continuity
M4	6	Giodila	Not existed
s the inspection result norm	14		Not existed
YES >> GO TO 4.	ess and repair the root cau	se.	
<b>4.</b> CHECK ECM AND BCM	TERMINATION CIRCUIT		
<ol> <li>Remove the ECM and the ECM and the resistance be</li> </ol>	he BCM. htween the ECM terminals.		
ECM Terminal No.	Resistance (	2)	
	9 Approx. 108 – 1	132	
<ol> <li>Check the resistance be</li> </ol>	etween the BCM terminals.		
BCM	Desistence //		
Terminal No.	Resistance (		
	0 Approx. 108 – 1	132	
s the measurement value w YES >> GO TO 5. NO >> Replace the EC D.CHECK SYMPTOM			
	Choole if the every true 1	energian in the "Ormania" /	
Connect all the connectors. customer)" are reproduced.	Check if the symptoms de	escribed in the "Symptom (	Results from interview with

< DTC/CIRCUIT DIAGNOSIS >

## LAN-93

< DTC/CIRCUIT DIAGNOSIS >

#### Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

**6.**CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect one of the unit connectors of CAN communication system. **NOTE:**

ECM and BCM have a termination circuit. Check other units first.

 Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.
 NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure. Non-reproduced>>Replace the unit whose connector was disconnected.

		VEEN IPDM-E AN		T N SYSTEM (TYPE 4)]
< DTC/CIRCUIT DIAC		SIS		
		E AND DLC CIR	CUIT	
Diagnosis Proced	lure			INFOID:00000008273485
1.CHECK CONNECT	OR			
<ol> <li>Check the followin and harness side)</li> <li>Harness connecto</li> <li>Harness connecto</li> <li>Harness connecto</li> <li>Is the inspection result</li> <li>YES &gt;&gt; GO TO 2.</li> <li>NO &gt;&gt; Repair the</li> <li>CHECK HARNESS</li> <li>Disconnect the fol</li> <li>IPDM E/R</li> <li>Harness connecto</li> </ol>	ttery cable from the non- ng terminals and conn r E105 or M77 t normal? e terminal and connect c CONTINUITY (OPEN lowing harness conne	nectors for damage, b tor. N CIRCUIT)		ection (connector side
	ness connector	Harness connector		
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
E13	27	E105	1	Existed
E13	26	E 105	6	Existed
3. CHECK HARNESS	e main line between th CONTINUITY (OPEN	e IPDM E/R and the hand the hand the hand the hand the hand the hand the data		05.
Harness	connector	Data link c	connector	Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M77	1	M4	6	Existed
s the inspection result	6		14	Existed
YES (Past error)>>E		type decision again. he main line between th e harness connector N		

### MAIN LINE BETWEEN DLC AND MDU CIRCUIT

### < DTC/CIRCUIT DIAGNOSIS >

# MAIN LINE BETWEEN DLC AND MDU CIRCUIT

### Diagnosis Procedure

INFOID:000000008273486

[CAN SYSTEM (TYPE 4)]

# 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect the following harness connectors.
- ECM
- Multi display unit
- 4. Check the continuity between the data link connector and the multi display unit harness connector.

Data link	connector	Multi display unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
M4	6	M90	6	Existed
1714	14	10190	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

NO >> Repair the main line between the data link connector and the multi display unit.

YES (Past error)>>Error was detected in the main line between the the data link connector and the multi display unit.

## ECM BRANCH LINE CIRCUIT

## [CAN SYSTEM (TYPE 4)]

<ul> <li>1. CHECK CONNECTOR</li> <li>1. Turn the ignition switch OFF.</li> <li>2. Disconnect the battery cable from the negative terminal.</li> <li>3. Check the terminals and connectors of the ECM for damage, bend a connector side).</li> <li>Is the inspection result normal?</li> <li>YES &gt;&gt; GO TO 2.</li> <li>NO &gt;&gt; Repair the terminal and connector.</li> </ul>	d loose connection (unit side and
<ol> <li>Disconnect the battery cable from the negative terminal.</li> <li>Check the terminals and connectors of the ECM for damage, bend a connector side).</li> <li>Is the inspection result normal?</li> <li>YES &gt;&gt; GO TO 2.</li> </ol>	d loose connection (unit side and
YES >> GO TO 2.	
2. CHECK HARNESS FOR OPEN CIRCUIT	
<ol> <li>Disconnect the connector of ECM.</li> <li>Check the resistance between the ECM harness connector terminals.</li> </ol>	
ECM harness connector	Resistance ( $\Omega$ )
Connector No.     Terminal No.       E18     100     99	Approx. 108 – 132
Is the measurement value within the specification?	Αμριολ. 100 – 132
YES >> GO TO 3. NO >> Repair the ECM branch line. 3.CHECK POWER SUPPLY AND GROUND CIRCUIT	
Check the power supply and the ground circuit of the ECM. Refer to <u>EC-15</u> Is the inspection result normal?	<ol> <li>"Diagnosis Procedure".</li> </ol>
YES (Present error)>>Replace the ECM. Refer to <u>EC-542</u> , " <u>Removal and</u> YES (Past error)>>Error was detected in the ECM branch line. NO >> Repair the power supply and the ground circuit.	<u>nstallation"</u> .

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# ABS BRANCH LINE CIRCUIT

## Diagnosis Procedure

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of ABS actuator and electric unit (control unit).
- 2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E35	22 9		Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ABS actuator and electric unit (control unit) branch line.

## $\mathbf{3}$ . Check power supply and ground circuit

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to <u>BRC-108, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-132, "Removal</u> <u>and Installation"</u>.

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

Revision: 2014 February

### **IPDM-E BRANCH LINE CIRCUIT**

## [CAN SYSTEM (TYPE 4)]

<ul> <li>Disconnect the battery cable from the negative terminal.</li> <li>Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit sid and connector side).</li> <li><u>a the inspection result normal?</u></li> <li>YES &gt;&gt; GO TO 2.</li> <li>NO &gt;&gt; Repair the terminal and connector.</li> <li><u>CHECK HARNESS FOR OPEN CIRCUIT</u></li> <li>Disconnect the connector of IPDM E/R.</li> <li>Check the resistance between the IPDM E/R harness connector terminals.</li> </ul> IPDM E/R harness connector Resistance (Ω) Connector No. E13 <ul> <li>27</li> <li>26</li> <li>Approx.54 - 66</li> </ul> Sthe measurement value within the specification? YES >> GO TO 3. NO >> Repair the IPDM E/R branch line. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the IPDM E/R. Refer to the following. Models with Intelligent Key system: PCS-34, "Diagnosis Procedure" Models without Intelligent Key system: PCS-61. "Diagnosis Procedure"	iagnosis Procedure			INFOID:00000008273489
<ul> <li>2. Disconnect the battery cable from the negative terminal.</li> <li>3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit sid and connector side).</li> <li>3. the inspection result normal?</li> <li>YES &gt;&gt; GO TO 2.</li> <li>NO &gt;&gt; Repair the terminal and connector.</li> <li>2. CHECK HARNESS FOR OPEN CIRCUIT</li> <li>1. Disconnect the connector of IPDM E/R.</li> <li>2. Check the resistance between the IPDM E/R harness connector terminals.</li> </ul> IPDM E/R harness connector Resistance (Ω) Connector No. IPDM E/R harness connector Resistance (Ω) Connector No. Terminal No. E13 27 26 Approx.54 - 66 S the measurement value within the specification? YES >> GO TO 3. NO >> Repair the IPDM E/R branch line. 3. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the IPDM E/R. Refer to the following. Models with Intelligent Key system: PCS-34. "Diagnosis Procedure" Models without Intelligent Key system: PCS-61. "Diagnosis Procedure" s the inspection result normal?	.CHECK CONNECTOR			
2. Check the resistance between the IPDM E/R harness connector terminals.         IPDM E/R harness connector         Resistance (Ω)         Connector No.         Terminal No.         E13       27       26       Approx. 54 – 66         S the measurement value within the specification?         YES       >> GO TO 3.       NO       >> Repair the IPDM E/R branch line.         CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the IPDM E/R. Refer to the following.         Models with Intelligent Key system: PCS-34, "Diagnosis Procedure"         Models without Intelligent Key system: PCS-61, "Diagnosis Procedure"         s the inspection result normal?	<ul> <li>Disconnect the battery of Check the terminals and and connector side).</li> <li>the inspection result norm YES &gt;&gt; GO TO 2.</li> <li>NO &gt;&gt; Repair the term</li> </ul>	cable from the negative terr d connectors of the IPDM I <u>nal?</u> inal and connector.		oose connection (unit side
Connector No.       Terminal No.         E13       27       26       Approx. 54 – 66         a the measurement value within the specification?         YES       >> GO TO 3.         NO       >> Repair the IPDM E/R branch line.         J.CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the IPDM E/R. Refer to the following.         Models with Intelligent Key system: PCS-34, "Diagnosis Procedure"         Models without Intelligent Key system: PCS-61, "Diagnosis Procedure"         as the inspection result normal?		etween the IPDM E/R harn	ess connector terminals.	
s the measurement value within the specification?         YES       >> GO TO 3.         NO       >> Repair the IPDM E/R branch line.         B.CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the IPDM E/R. Refer to the following.         Models with Intelligent Key system: PCS-34, "Diagnosis Procedure"         Models without Intelligent Key system: PCS-61, "Diagnosis Procedure"         s the inspection result normal?	Connector No.		nal No.	Resistance ( $\Omega$ )
YES       >> GO TO 3.         NO       >> Repair the IPDM E/R branch line.         3. CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the IPDM E/R. Refer to the following.         Models with Intelligent Key system: PCS-34, "Diagnosis Procedure"         Models without Intelligent Key system: PCS-61, "Diagnosis Procedure"         s the inspection result normal?	<b>E</b> 40	07		
<ul> <li>Models with Intelligent Key system: <u>PCS-35, "Removal and Installation"</u></li> <li>Models without Intelligent Key system: <u>PCS-62, "Removal and Installation"</u></li> <li>YES (Past error)&gt;&gt;Error was detected in the IPDM E/R branch line.</li> </ul>	s the measurement value v		26	Approx. 54 – 66

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## TCM BRANCH LINE CIRCUIT

### **Diagnosis** Procedure

INFOID:00000008273490

[CAN SYSTEM (TYPE 4)]

## 1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- Disconnect the battery cable from the negative terminal. 2.
- Check the following terminals and connectors for damage, bend and loose connection (unit side and con-3. nector side).
- TCM
- Harness connecotor F1
- Harness connecotor E8

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

## 2.check harness for open circuit

- 1. Disconnect the connector of TCM.
- Check the resistance between the TCM harness connector terminals. 2.

TCM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
F81	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

 ${f 3}.$ CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-180, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to TM-226, "Removal and Installation".

YES (Past error)>>Error was detected in the TCM branch line.

## **DLC BRANCH LINE CIRCUIT**

## [CAN SYSTEM (TYPE 4)]

< DTC/CIRCUIT DIAGNOSIS	>	[(	CAN SYSTEM (TYPE 4)]
DLC BRANCH LINE (	CIRCUIT		
Diagnosis Procedure			INFOID:00000008273491
1. CHECK CONNECTOR			
<ol> <li>Check the terminals and o (connector side and harne)</li> </ol>	ble from the negative terminal. connectors of the data link co ss side).		end and loose connection
Is the inspection result normal? YES >> GO TO 2. NO >> Repair the termina	-		
2.CHECK HARNESS FOR O			
Check the resistance between		nals.	
	Data link connector		
Connector No.	Terminal No.		Resistance ( $\Omega$ )
M4	6	14	Approx. 54 – 66

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## **EPS BRANCH LINE CIRCUIT**

## Diagnosis Procedure

INFOID:000000008273492

[CAN SYSTEM (TYPE 4)]

## 1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

### **2.**CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of EPS control unit.
- 2. Check the resistance between the EPS control unit harness connector terminals.

E	EPS control unit harness connector			
Connector No.	Termi	Resistance ( $\Omega$ )		
M37	2	Approx. 54 – 66		

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

**3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to <u>STC-18, "Diagnosis Proce-</u> dure".

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to ST-9, "Removal and Installation".

YES (Past error)>>Error was detected in the EPS control unit branch line.

## **M&A BRANCH LINE CIRCUIT**

## [CAN SYSTEM (TYPE 4)]

Diagnosis Procedure			INFOID:00000008273493
.CHECK CONNECTOR			
	cable from the negative terr d connectors of the combi		pend and loose connection
<u>s the inspection result norm</u> YES >> GO TO 2. NO >> Repair the termi			
2.check harness for	OPEN CIRCUIT		
<ol> <li>Disconnect the connect</li> <li>Check the resistance be</li> </ol>		ter harness connector term	inals.
Co	ombination meter harness connec	tor	Resistance ( $\Omega$ )
Connector No.	Termir	al No.	
M34	1	2	Approx. 54 – 66
<u>s the measurement value w</u>	ithin the specification?		
YES >> GO TO 3. NO >> Repair the comb CHECK POWER SUPPL Check the power supply and METER : Diagnosis Procedu	bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the o ure".		D <u>MWI-42, "COMBINATION</u>
YES >> GO TO 3. NO >> Repair the comb 3.CHECK POWER SUPPL Check the power supply and METER : Diagnosis Procedu Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error wa	bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the ource". al? lace the combination meter	combination meter. Refer to . Refer to <u>MWI-53, "Remov</u> tion meter branch line.	
NO >> Repair the comb 3.CHECK POWER SUPPL Check the power supply and <u>METER : Diagnosis Procedu</u> Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error was	Dination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the output are". al? lace the combination meter as detected in the combination	combination meter. Refer to . Refer to <u>MWI-53, "Remov</u> tion meter branch line.	

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## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000008273494

[CAN SYSTEM (TYPE 4)]

## 1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of steering angle sensor.
- 2. Check the resistance between the steering angle sensor harness connector terminals.

Ste	Steering angle sensor harness connector		
Connector No.	Terminal No.		Resistance (Ω)
M30	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

### **3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to <u>BRC-51, "Wiring Dia-gram"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to <u>BRC-135, "Removal and Installation"</u>.

YES (Past error)>>Error was detected in the steering angle sensor branch line.

## [CAN SYSTEM (TYPE 4)]

#### A-BAG BRANCH LINE CIRCUIT А Diagnosis Procedure INFOID:000000008273495 WARNING: В Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.) • Never use unspecified tester or other measuring device. С 1. CHECK CONNECTOR 1. Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. 2. D Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose con-3. nection (unit side and connector side). Is the inspection result normal? Е YES >> GO TO 2. NO >> Replace the main harness. 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT F Check the air bag diagnosis sensor unit. Refer to SRC-25, "Work Flow". Is the inspection result normal? YES >> Replace the main harness. NO >> Replace parts whose air bag system has a malfunction. Н

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## HVAC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:000000008273496

[CAN SYSTEM (TYPE 4)]

## 1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the terminals and connectors of the A/C auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of A/C auto amp.
- 2. Check the resistance between the A/C auto amp. harness connector terminals.

	A/C auto amp. harness connector			
Connector No.	Termi	Resistance ( $\Omega$ )		
M50	6	Approx. 54 – 66		

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the A/C auto amp. branch line.

## **3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to <u>HAC-67, "A/C AUTO AMP.</u>: <u>Diagnosis Procedure</u>".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-85, "Removal and Installation".

YES (Past error)>>Error was detected in the A/C auto amp. branch line.

## **MDU BRANCH LINE CIRCUIT**

	E CIRCUIT		
Diagnosis Procedure			INFOID:00000008273497
CHECK CONNECTOR Turn the ignition switch of Disconnect the battery of Check the terminals and side and connector side the inspection result norm YES >> GO TO 2.	able from the negative tern I connectors of the multi dis ). <u>al?</u>		nd and loose connection (unit
NO >> Repair the termi CHECK HARNESS FOR			
<ul><li>Disconnect the connect</li><li>Check the resistance be</li></ul>	or of multi display unit. Hween the multi display uni		nals.
	lulti display unit harness connecto		Resistance (Ω)
Connector No. M90	Termin 6	al No. 12	
the measurement value w	-	12	Approx. 54 – 66
	tunin the specification:		
YES >> GO TO 3. NO >> Repair the multi CHECK POWER SUPPL theck the power supply an NIT : Diagnosis Procedure	display unit branch line. Y AND GROUND CIRCUIT d the ground circuit of the		to <u>AV-161, "MULTI DISPLAY</u>
YES >> GO TO 3. NO >> Repair the multi CHECK POWER SUPPL check the power supply an NIT : Diagnosis Procedure the inspection result norm YES (Present error)>>Repl YES (Past error)>>Error wa	display unit branch line. Y AND GROUND CIRCUIT d the ground circuit of the	multi display unit. Refer Refer to <u>DMS-13, "Remov</u> play unit branch line.	

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## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000008273498

[CAN SYSTEM (TYPE 4)]

### **1.**CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of BCM.
- 2. Check the resistance between the BCM harness connector terminals.
- Models with Intelligent Key system

	BCM harness connector		
Connector No.	Terminal No.		Resistance ( $\Omega$ )
M68	39 40		Approx. 108 – 132

Models without Intelligent Key system

BCM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M65	39 40		Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the BCM branch line.

**3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to the following.

- Models with Intelligent Key system: <u>BCS-74, "Diagnosis Procedure"</u>
- Models without Intelligent Key system: <u>BCS-135, "Diagnosis Procedure"</u>

#### Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to the following.

- Models with Intelligent Key system: <u>BCS-81, "Removal and Installation"</u>
- Models without Intelligent Key system: <u>BCS-142</u>, "Removal and Installation"
- YES (Past error)>>Error was detected in the BCM branch line.
- NO >> Repair the power supply and the ground circuit.

#### **CAN COMMUNICATION CIRCUIT**

[CAN SYSTEM (TYPE 4)]

CAN COMMUNICA			
Diagnosis Procedure			INFOID:00000008273499
. Turn the ignition switch			
<ol> <li>Disconnect the battery</li> <li>Disconnect all the unit of</li> </ol>	cable from the negative ter connectors on CAN commu- onnectors for damage, benc	nication system.	
s the inspection result norn	•		
YES >> GO TO 2.			
	ninal and connector.		
	TINUITY (SHORT CIRCU		
Check the continuity betwee	en the data link connector t	erminals.	
	Data link connector		Continuity
Connector No.	-	nal No.	
M4	6	14	Not existed
<u>s the inspection result norn</u> YES >> GO TO 3.	<u>nar?</u>		
	ess and repair the root cau	se.	
<b>3.</b> CHECK HARNESS COM	TINUITY (SHORT CIRCU	Т)	
	en the data link connector a		
Connector No.	connector Terminal No.		Continuity
	6	Ground	Not existed
M4	14		Not existed
s the inspection result norn	nal?		
YES >> GO TO 4.			
A	ess and repair the root cau	se.	
LCHECK ECM AND BCM			
<ol> <li>Remove the ECM and the control of the</li></ol>	the BCM. etween the ECM terminals.		
ECM	Resistance (	))	
Terminal No.		<u> </u>	
	99 Approx. 108 –	132	
3. Check the resistance b	etween the BCM terminals.		
BCM			
BCM Terminal No.	Resistance (	2)	
Terminal No.	40 Approx. 108 –		
Terminal No.	40 Approx. 108 –		
Terminal No. 39 s the measurement value v YES >> GO TO 5.	40 Approx. 108 –		
Terminal No. 39 s the measurement value v YES >> GO TO 5.	40 Approx. 108 – vithin the specification?		

< DTC/CIRCUIT DIAGNOSIS >

# LAN-109

< DTC/CIRCUIT DIAGNOSIS >

#### Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

**6.**CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect one of the unit connectors of CAN communication system. **NOTE:**

ECM and BCM have a termination circuit. Check other units first.

 Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.
 NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure. Non-reproduced>>Replace the unit whose connector was disconnected.

< DTC/CIRCUIT DIA			D DLC CIRCUI	I SYSTEM (TYPE 5)]
DTC/CIRCU		SIS	[on	
		E AND DLC CIR	CUIT	
Diagnosis Procec	lure			INFOID:00000008273500
1.CHECK CONNECT	OR			
<ol> <li>Check the followin and harness side)</li> <li>Harness connector</li> <li>Harness connector</li> <li>Is the inspection result</li> <li>YES &gt;&gt; GO TO 2.</li> <li>NO &gt;&gt; Repair the</li> <li>CHECK HARNESS</li> <li>Disconnect the following</li> <li>IPDM E/R</li> <li>Harness connector</li> </ol>	attery cable from the no ng terminals and con or E105 or M77 <u>t normal?</u> e terminal and connect 5 CONTINUITY (OPEN lowing harness conne ors E105 and M77	nectors for damage, be tor. N CIRCUIT) ectors.		
	-	E/R harness connecto	r and the harness co	onnector.
	ness connector	Harness co		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	Existed
E13	26	E105	6	Existed
• ·		e IPDM E/R and the ha N CIRCUIT)		05.
		onnector and the data I	ink connector.	
Check the continuity b	etween the harness c			
Check the continuity b		onnector and the data I Data link co Connector No.		Continuity
Check the continuity b Harness Connector No.	etween the harness c	Data link co Connector No.	onnector	Continuity Existed
Check the continuity b	etween the harness c connector Terminal No. 1 6	Data link co	onnector Terminal No.	-

#### MAIN LINE BETWEEN DLC AND A-BAG CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

# MAIN LINE BETWEEN DLC AND A-BAG CIRCUIT

#### **Diagnosis** Procedure

INFOID:000000008273501

[CAN SYSTEM (TYPE 5)]

# 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect the BCM harness connector.
- 4. Check the continuity between the data link connector and the BCM harness connector.
- With Intelligent Key system

Data link	connector	BCM harness connector Connector No. Terminal No.		Continuity
Connector No.	Terminal No.			Continuity
M4	6	Mco	39	Existed
1014	14	M68	40	Existed

#### Without Intelligent Key system

Data link	connector	BCM harness connector Connector No. Terminal No.		Continuity
Connector No.	Terminal No.			Continuity
M4	6	MOS	39	Existed
1014	14	M65	40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

- YES (Past error)>>Error was detected in the main line between the data link connector and the air bag diagnosis sensor unit.
- NO >> Repair the main line between the data link connector and the air bag diagnosis sensor unit.

#### ECM BRANCH LINE CIRCUIT

# [CAN SYSTEM (TYPE 5)]

Diagnosis Procedure			INFOID:00000008273502
1.CHECK CONNECTOR			
	DFF. able from the negative termina I connectors of the ECM for da		se connection (unit side and
Is the inspection result norma YES >> GO TO 2. NO >> Repair the termir	nal and connector.		
2.CHECK HARNESS FOR		_	
<ol> <li>Disconnect the connecto</li> <li>Check the resistance bet</li> </ol>	r of ECM. ween the ECM harness conne	ctor terminals.	
	ECM harness connector		- Resistance (Ω)
Connector No.	Terminal No	No.	
E18	100	99	Approx. 108 – 132
S the measurement value with YES >> GO TO 3. NO >> Repair the ECM	·		
		Refer to EC-158, "Dia	agnosis Procedure".
	the ground circuit of the ECM.	Refer to EC-158, "Dia	agnosis Procedure".
Check the power supply and Is the inspection result norma YES (Present error)>>Repla YES (Past error)>>Error wa	the ground circuit of the ECM.	. "Removal and Install line.	-
Check the power supply and Is the inspection result norma YES (Present error)>>Repla YES (Past error)>>Error wa	the ground circuit of the ECM. al? ace the ECM. Refer to <u>EC-542</u> s detected in the ECM branch	. "Removal and Install line.	-
Check the power supply and Is the inspection result norma YES (Present error)>>Repla YES (Past error)>>Error wa	the ground circuit of the ECM. al? ace the ECM. Refer to <u>EC-542</u> s detected in the ECM branch	. "Removal and Install line.	-
Check the power supply and Is the inspection result norma YES (Present error)>>Repla YES (Past error)>>Error wa	the ground circuit of the ECM. al? ace the ECM. Refer to <u>EC-542</u> s detected in the ECM branch	. "Removal and Install line.	-

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# 4WD BRANCH LINE CIRCUIT

#### Diagnosis Procedure

INFOID:000000008273503

[CAN SYSTEM (TYPE 5)]

# 1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
- AWD control module
- Harness connecotor B7
- Harness connecotor E107

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

#### 1. Disconnect the connector of AWD control module.

2. Check the resistance between the AWD control module harness connector terminals.

AM	AWD control module harness connector			
Connector No.	Termi	Resistance (Ω)		
B47	4	4 5		

#### Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the AWD control module branch line.

**3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control module. Refer to <u>DLN-73, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the AWD control module. Refer to DLN-87, "Removal and Installation".

YES (Past error)>>Error was detected in the AWD control module branch line.

## **ABS BRANCH LINE CIRCUIT**

### [CAN SYSTEM (TYPE 5)]

Diagnosis Procedure			INF0ID:00000008273504
.CHECK CONNECTOR			
. Check the terminals and	able from the negative term I connectors of the ABS act nit side and connector side) <u>al?</u> nal and connector.	uator and electric unit (cor	ntrol unit) for damage, bend
Check the resistance be nals.		nd electric unit (control uni	t) harness connector termi-
	and electric unit (control unit) harne		
	· · · ·		Resistance ( $\Omega$ )
Connector No.	Termina	al No.	Resistance (Ω)
Connector No. E35 s the measurement value w	Termina 22		Resistance (Ω) Approx. 54 – 66
Connector No. E35 the measurement value w YES >> GO TO 3. NO >> Repair the ABS CHECK POWER SUPPL heck the power supply and RC-108. "Diagnosis Proceed the inspection result norm YES (Present error)>>Repl and Installation"	Termina 22 ithin the specification? actuator and electric unit (co Y AND GROUND CIRCUIT d the ground circuit of the A dure". al? ace the ABS actuator and e	al No. 9 ontrol unit) branch line. ABS actuator and electric lectric unit (control unit). R	Approx. 54 – 66 unit (control unit). Refer to efer to <u>BRC-132, "Removal</u>

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# **IPDM-E BRANCH LINE CIRCUIT**

#### Diagnosis Procedure

INFOID:000000008273505

[CAN SYSTEM (TYPE 5)]

#### 1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.

2. Check the resistance between the IPDM E/R harness connector terminals.

	IPDM E/R harness connector		
Connector No.	Termi	Resistance (Ω)	
E13	27	26	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

**3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to the following.

Models with Intelligent Key system: <u>PCS-34, "Diagnosis Procedure"</u>

Models without Intelligent Key system: <u>PCS-61, "Diagnosis Procedure"</u>

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to the following.

- Models with Intelligent Key system: PCS-35, "Removal and Installation"
- Models without Intelligent Key system: PCS-62, "Removal and Installation"
- YES (Past error)>>Error was detected in the IPDM E/R branch line.
- NO >> Repair the power supply and the ground circuit.

#### **TCM BRANCH LINE CIRCUIT**

## [CAN SYSTEM (TYPE 5)]

TCM BRANCH LINE	ECIRCUIT		
Diagnosis Procedure			INFOID:00000008273506
1.CHECK CONNECTOR			
	cable from the negative terr		nnection (unit side and con-
- Harness connecotor E8			
Is the inspection result normYES>> GO TO 2.NO>> Repair the term			
2. CHECK HARNESS FOR	OPEN CIRCUIT		
<ol> <li>Disconnect the connect</li> <li>Check the resistance be</li> </ol>	or of TCM. Stween the TCM harness co TCM harness connector	onnector terminals.	
Connector No.		nal No.	Resistance ( $\Omega$ )
F81	32	31	Approx. 54 – 66
YES (Past error)>>Error wa	branch line. Y AND GROUND CIRCUIT I the ground circuit of the T hal? lace the TCM. Refer to TM	CM. Refer to <u>TM-180, "Diac</u> - <u>226, "Removal and Installa</u> nch line.	

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< DTC/CIRCUIT DIAGNOSIS >

# DLC BRANCH LINE CIRCUIT

#### Diagnosis Procedure

INFOID:000000008273507

[CAN SYSTEM (TYPE 5)]

### 1.CHECK CONNECTOR

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

YES >> GO TO 2.

NO >> Repair the terminal and connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

	Data link connector			
Connector No.	Termi	Resistance (Ω)		
M4	6	14	Approx. 54 – 66	

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

### **EPS BRANCH LINE CIRCUIT**

### [CAN SYSTEM (TYPE 5)]

	ECIRCUIT		
Diagnosis Procedure			INFOID:00000008273508
.CHECK CONNECTOR			
	cable from the negative terr d connectors of the EPS co		and loose connection (unit
· ·	inal and connector.		
2.CHECK HARNESS FOR	OPEN CIRCUIT		
<ol> <li>Disconnect the connect</li> <li>Check the resistance be</li> </ol>		t harness connector termina	als.
	EPS control unit harness connecto		Resistance (Ω)
Connector No. M37	Termir 2	nal No. 1	Approx. 54 – 66
	Y AND GROUND CIRCUI		STC-18, "Diagnosis Proce-
YES (Past error)>>Error w			d Installation".

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#### < DTC/CIRCUIT DIAGNOSIS >

# M&A BRANCH LINE CIRCUIT

#### Diagnosis Procedure

INFOID:000000008273509

[CAN SYSTEM (TYPE 5)]

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

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

Co	Resistance (Ω)		
Connector No.	Termi		
M34	1	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

#### **3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to <u>MWI-42, "COMBINATION</u> <u>METER : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-53, "Removal and Installation".

YES (Past error)>>Error was detected in the combination meter branch line.

#### STRG BRANCH LINE CIRCUIT

# [CAN SYSTEM (TYPE 5)]

STRG BRANCH LIN	IE CIRCUIT		
Diagnosis Procedure			INFOID:00000008273510
1.CHECK CONNECTOR			
	able from the negative terr I connectors of the steering side). <u>al?</u> nal and connector.		, bend and loose connection
Check the resistance be	or of steering angle sensor. tween the steering angle s	ensor harness connector to	erminals.
Connector No.	6 6	nal No.	Resistance ( $\Omega$ )
M30	5	2	Approx. 54 – 66
<b>3.</b> CHECK POWER SUPPL Check the power supply and <u>gram</u> ".	d the ground circuit of the	F	fer to <u>BRC-51, "Wiring Dia-</u>
s the inspection result norm YES (Present error)>>Repl YES (Past error)>>Error wa NO >> Repair the powe	ace the steering angle sen	angle sensor branch line.	emoval and Installation".

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< DTC/CIRCUIT DIAGNOSIS >

# A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000008273511

[CAN SYSTEM (TYPE 5)]

#### WARNING:

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-25, "Work Flow".

Is the inspection result normal?

- YES >> Replace the main harness.
- NO >> Replace parts whose air bag system has a malfunction.

#### **BCM BRANCH LINE CIRCUIT**

J. CHECK CONNECTOR         1. Turn the ignition switch OFF.         2. Disconnect the battery cable from the negative terminal.         3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).         18 the inspection result normal?         YES       >> GO TO 2.         NO       >> Repair the terminal and connector.         2. CHECK HARNESS FOR OPEN CIRCUIT         1. Disconnect the connector of BCM.         2. Check the resistance between the BCM harness connector terminals.         Models with Intelligent Key system         BCM harness connector       Resistance (Ω)         M88       33       40       Approx. 108 – 132         - Models without Intelligent Key system       BCM harness connector       Resistance (Ω)         M88       39       40       Approx. 108 – 132         - Models without Intelligent Key system       BCM harness connector       Resistance (Ω)         M85       39       40       Approx. 108 – 132         Is the measurement value within the specification?       YES       >> GO TO 3.         NO       >> Repair the BCM branch line.       Check the power supply and the ground circuit of the BCM. Refer to the following.         3. Check POWER SUPPLY AND GROUND CIRCUIT       Check the power supply and the ground circuit of the BCM.		
1. CHECK CONNECTOR         1. Turn the ignition switch OFF.         2. Disconnect the battery cable from the negative terminal.         3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).         Is the inspection result normal?         YES       >> GO TO 2.         NO       >> Repair the terminal and connector.         2.CHECK HARNESS FOR OPEN CIRCUIT         1. Disconnect the connector of BCM.         2. Check the resistance between the BCM harness connector terminals.         Models with Intelligent Key system         BCM harness connector       Resistance (Ω)         M68       39       40       Approx. 108 – 132         - Models without Intelligent Key system       BCM harness connector       Resistance (Ω)         M68       39       40       Approx. 108 – 132         - Models without Intelligent Key system       BCM harness connector       Resistance (Ω)         M65       39       40       Approx. 108 – 132         Is the measurement value within the specification?       YES       >> GO TO 3.         NO       >> Repair the BCM branch line.       Check the power supply and the ground circuit of the BCM. Refer to the following.         Models with Intelligent Key system: BCS-142, "Diagnosis Procedure"       Models with Intelligent Key system		
Turn the ignition switch OFF.         Disconnect the battery cable from the negative terminal.         Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).         Is the inspection result normal?         YES       >> GO TO 2.         NO       >> Repair the terminal and connector.         2. CHECK HARNESS FOR OPEN CIRCUIT         1. Disconnect the connector of BCM.         2. Check the resistance between the BCM harness connector terminals.         Models with Intelligent Key system         BCM harness connector       Resistance (Ω)         M68       39       40       Approx. 108 – 132         Models without Intelligent Key system       BCM harness connector       Resistance (Ω)         M68       39       40       Approx. 108 – 132         Models without Intelligent Key system       BCM harness connector       Resistance (Ω)         M65       39       40       Approx. 108 – 132         Is the measurement value within the specification?       YES       > GO TO 3.         NO       > Repair the BCM branch line.       CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the BCM. Refer to the following.       Models with Intelligent Key system: BCS-74. "Diagnosis Procedure"         Is the inspection result norma	agnosis Procedure	INFOID:00000008273512
2. Disconnect the battery cable from the negative terminal.         3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).         Is the inspection result normal?         YES       >> GO TO 2.         NO       >> Repair the terminal and connector.         2. CHECK HARNESS FOR OPEN CIRCUIT         1. Disconnect the connector of BCM.         2. Check the resistance between the BCM harness connector terminals.         Models with Intelligent Key system         BCM harness connector       Resistance (Ω)         Connector No.       Terminal No.         M68       39       40         Approx. 108 – 132       Models without Intelligent Key system         BCM harness connector       Resistance (Ω)         Connector No.       Terminal No.         M65       39       40         Approx. 108 – 132       Sthe measurement value within the specification?         YES       >> GO TO 3.         NO       >> Repair the BCM branch line.         3. CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the BCM. Refer to the following.         Models with Intelligent Key system: BCS-135, "Diagnosis Procedure"         Is the inspection result normal?         YES (Present error)>>-Replace the B	CHECK CONNECTOR	
BCM harness connector       Resistance ( $\Omega$ )         Connector No.       Terminal No.         M68       39       40       Approx. 108 – 132         Models without Intelligent Key system       BCM harness connector       Resistance ( $\Omega$ )         Connector No.       Terminal No.       Resistance ( $\Omega$ )         M65       39       40       Approx. 108 – 132         s the measurement value within the specification?       YES       >> GO TO 3.         NO       >> Repair the BCM branch line.       S.CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the BCM. Refer to the following.       Models with Intelligent Key system: BCS-74. "Diagnosis Procedure"         Models without Intelligent Key system: BCS-74. "Diagnosis Procedure"       YES (Present error)>>Replace the BCM. Refer to the following.         YES (Present error)>>Replace the BCM. Refer to the following.       • Models with Intelligent Key system: BCS-142. "Removal and Installation"	Disconnect the battery cable from the negative terminal. Check the terminals and connectors of the BCM for damage, bend and le connector side). <u>he inspection result normal?</u> ES >> GO TO 2. O >> Repair the terminal and connector. CHECK HARNESS FOR OPEN CIRCUIT Disconnect the connector of BCM.	oose connection (unit side and
Connector No.       Terminal No.       Resistance (Ω)         M68       39       40       Approx. 108 – 132         Models without Intelligent Key system       BCM harness connector       Resistance (Ω)         Connector No.       Terminal No.       Resistance (Ω)         M65       39       40       Approx. 108 – 132         Sthe measurement value within the specification?       Resistance (Ω)       Resistance (Ω)         YES       >> GO TO 3.       Approx. 108 – 132       Resistance (Ω)         NO       >> Repair the BCM branch line.       Scheck the power supply and the ground circuit of the BCM. Refer to the following.         Models with Intelligent Key system: BCS-74. "Diagnosis Procedure"       Models without Intelligent Key system: BCS-135. "Diagnosis Procedure"         Sthe inspection result normal?       YES (Present error)>> Replace the BCM. Refer to the following.       Models with Intelligent Key system: BCS-81, "Removal and Installation"         YES (Present error)>> Replace the BCM. Refer to the following.       Models without Intelligent Key system: BCS-142, "Removal and Installation"		
Connector No.       Terminal No.         M68       39       40       Approx. 108 – 132         Models without Intelligent Key system       BCM harness connector       Resistance (Ω)         Connector No.       Terminal No.       Resistance (Ω)         M65       39       40       Approx. 108 – 132         s the measurement value within the specification?       YES       >> GO TO 3.       NO         NO       >> Repair the BCM branch line.       3.       CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the BCM. Refer to the following.       Models without Intelligent Key system: BCS-74. "Diagnosis Procedure"         Models without Intelligent Key system: BCS-135, "Diagnosis Procedure"       Models with Intelligent Key system: BCS-135, "Diagnosis Procedure"         YES (Present error)>> Replace the BCM. Refer to the following.       • Models with Intelligent Key system: BCS-142, "Removal and Installation"         • Models without Intelligent Key system: BCS-142, "Removal and Installation"       • Models without Intelligent Key system: BCS-142, "Removal and Installation"		Resistance (Ω)
Models without Intelligent Key system         BCM harness connector       Resistance (Ω)         Connector No.       Terminal No.         M65       39       40         Approx. 108 – 132       sthe measurement value within the specification?         YES       >> GO TO 3.         NO       >> Repair the BCM branch line.         3.CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the BCM. Refer to the following.         Models with Intelligent Key system: BCS-74. "Diagnosis Procedure"         Models without Intelligent Key system: BCS-135, "Diagnosis Procedure"         S the inspection result normal?         YES (Present error)>>Replace the BCM. Refer to the following.         • Models with Intelligent Key system: BCS-81, "Removal and Installation"         • Models without Intelligent Key system: BCS-142, "Removal and Installation"		
BCM harness connector       Resistance (Ω)         Connector No.       Terminal No.         M65       39       40         Approx. 108 – 132         Sthe measurement value within the specification?         YES       >> GO TO 3.         NO       >> Repair the BCM branch line.         CHECK POWER SUPPLY AND GROUND CIRCUIT         Check the power supply and the ground circuit of the BCM. Refer to the following.         Models with Intelligent Key system: BCS-74, "Diagnosis Procedure"         Models without Intelligent Key system: BCS-135, "Diagnosis Procedure"         * the inspection result normal?         YES (Present error)>>Replace the BCM. Refer to the following.         • Models with Intelligent Key system: BCS-81, "Removal and Installation"         • Models without Intelligent Key system: BCS-142, "Removal and Installation"		Approx. 108 – 132
Connector No.       Terminal No.       Resistance (Ω)         M65       39       40       Approx. 108 – 132         as the measurement value within the specification?       YES >> GO TO 3.       Presson         NO       >> Repair the BCM branch line.       Sector       Sector         Check the power supply and the ground circuit of the BCM. Refer to the following.       Note the system: BCS-74, "Diagnosis Procedure"         Models with Intelligent Key system: BCS-135, "Diagnosis Procedure"       Sector       Sector         Stein inspection result normal?       YES (Present error)>>Replace the BCM. Refer to the following.       • Models with Intelligent Key system: BCS-142, "Removal and Installation"         • Models without Intelligent Key system: BCS-142, "Removal and Installation"       • Models without Intelligent Key system: BCS-142, "Removal and Installation"	Nodels without Intelligent Key system	
Connector No.       Terminal No.         M65       39       40       Approx. 108 – 132         a the measurement value within the specification?         YES       >> GO TO 3.         NO       >> Repair the BCM branch line.         CHECK POWER SUPPLY AND GROUND CIRCUIT         Scheck the power supply and the ground circuit of the BCM. Refer to the following.         Models with Intelligent Key system: BCS-74, "Diagnosis Procedure"         Models without Intelligent Key system: BCS-135, "Diagnosis Procedure"         * the inspection result normal?         YES (Present error)>>Replace the BCM. Refer to the following.         • Models with Intelligent Key system: BCS-81, "Removal and Installation"         • Models without Intelligent Key system: BCS-142, "Removal and Installation"	BCM harness connector	Resistance (O)
a the measurement value within the specification?         YES       >> GO TO 3.         NO       >> Repair the BCM branch line.         CHECK POWER SUPPLY AND GROUND CIRCUIT         Sheck the power supply and the ground circuit of the BCM. Refer to the following.         Models with Intelligent Key system: BCS-74, "Diagnosis Procedure"         Models without Intelligent Key system: BCS-135, "Diagnosis Procedure"         a the inspection result normal?         YES (Present error)>>Replace the BCM. Refer to the following.         • Models with Intelligent Key system: BCS-81, "Removal and Installation"         • Models without Intelligent Key system: BCS-142, "Removal and Installation"	Connector No. Terminal No.	
<ul> <li>YES &gt;&gt; GO TO 3.</li> <li>NO &gt;&gt; Repair the BCM branch line.</li> <li>CHECK POWER SUPPLY AND GROUND CIRCUIT</li> <li>Check the power supply and the ground circuit of the BCM. Refer to the following.</li> <li>Models with Intelligent Key system: <u>BCS-74</u>, "Diagnosis Procedure" Models without Intelligent Key system: <u>BCS-135</u>, "Diagnosis Procedure"</li> <li>Sthe inspection result normal?</li> <li>YES (Present error)&gt;&gt;Replace the BCM. Refer to the following.</li> <li>Models with Intelligent Key system: <u>BCS-81</u>, "Removal and Installation"</li> <li>Models without Intelligent Key system: <u>BCS-142</u>, "Removal and Installation"</li> </ul>	M65 39 40	Approx. 108 – 132
NO >> Repair the power supply and the ground circuit.	<ul> <li>O &gt;&gt; Repair the BCM branch line.</li> <li>CHECK POWER SUPPLY AND GROUND CIRCUIT</li> <li>eck the power supply and the ground circuit of the BCM. Refer to the following and the ground circuit of the BCM. Refer to the following and the ground circuit of the BCM. Refer to the following and the ground circuit of the BCM. Refer to the following.</li> <li>ES (Present error)&gt;&gt;Replace the BCM. Refer to the following.</li> <li>Models with Intelligent Key system: BCS-142, "Removal and Instate on Models without Intelligent Key system: BCS-142, "Removal and Instate S (Past error)&gt;&gt;Error was detected in the BCM branch line.</li> </ul>	<u>illation"</u>

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# CAN COMMUNICATION CIRCUIT

#### Diagnosis Procedure

INFOID:00000008273513

[CAN SYSTEM (TYPE 5)]

#### **1**.CONNECTOR INSPECTION

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect all the unit connectors on CAN communication system.
- 4. Check terminals and connectors for damage, bend and loose connection.

#### Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

	Data link connector		
Connector No.	Termi	Continuity	
M4	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause.

# **3.**CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link	Data link connector		Continuity
Connector No.	Terminal No.	Ground	Continuity
M4	6	Ground	Not existed
1014	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause.

#### **4.**CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.

2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)	
Termi	Terminal No.		
100	99	Approx. 108 – 132	

3. Check the resistance between the BCM terminals.

B	CM	Resistance ( $\Omega$ )
Termi	nal No.	
39	40	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

#### LAN-124

#### **CAN COMMUNICATION CIRCUIT**

< DTC/CIRCUIT DIAGNOSIS >

#### Inspection result А Reproduced>>GO TO 6. Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected. 6.CHECK UNIT REPRODUCTION В Perform the reproduction test as per the following procedure for each unit. 1. Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. С 2. 3. Disconnect one of the unit connectors of CAN communication system. NOTE: ECM and BCM have a termination circuit. Check other units first. D Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom 4. (Results from interview with customer)" are reproduced. NOTE: Е Although unit-related error symptoms occur, do not confuse them with other symptoms. Inspection result Reproduced>>Connect the connector. Check other units as per the above procedure. F Non-reproduced>>Replace the unit whose connector was disconnected.

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#### MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

# DTC/CIRCUIT DIAGNOSIS MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

#### **Diagnosis Procedure**

INFOID:000000008273514

#### 1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
- Harness connector E105
- Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

# 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- IPDM E/R
- Harness connectors E105 and M77
- 2. Check the continuity between the IPDM E/R harness connector and the harness connector.

IPDM E/R har	ness connector	Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
E13	27	E105	1	Existed
LIS	26	L 103	6	Existed

#### Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E105.

#### ${ m 3.}$ CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		tor Data link conn		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity		
M77	1	M4	6	Existed		
	6	1014	14	Existed		

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the data link connector.

NO >> Repair the main line between the harness connector M77 and the data link connector.

DTC/CIRCUIT DIAC	SNOSIS >		[CAN	SYSTEM (TYPE 6)]
MAIN LINE BET	WEEN DLC A	ND MDU CIRCI	JIT	
Diagnosis Proced	ure			INFOID:00000008273515
.CHECK HARNESS	CONTINUITY (OPE	N CIRCUIT)		
<ul> <li>Disconnect the fol ECM Multi display unit</li> </ul>	ttery cable from the n lowing harness conne		multi display unit harr	ness connector.
Data link	connector	Multi display unit h	arness connector	Operationsity
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
M4	6	M90	6	Existed
101-4	14	10130	12	Existed

MAIN LINE BETWEEN DLC AND MDU CIRCUIT

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# ECM BRANCH LINE CIRCUIT

#### Diagnosis Procedure

INFOID:000000008273516

[CAN SYSTEM (TYPE 6)]

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.

2. Check the resistance between the ECM harness connector terminals.

	ECM harness connector		
Connector No.	Terminal No.		Resistance ( $\Omega$ )
E18	100	99	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

**3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to <u>EC-158, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to EC-542, "Removal and Installation".

YES (Past error)>>Error was detected in the ECM branch line.

#### **4WD BRANCH LINE CIRCUIT**

# [CAN SYSTEM (TYPE 6)]

Diagnosis Procedure				INFOID:00000008273517
1.CHECK CONNECTOR				
2. CHECK HARNESS FOR	cable from the negativ minals and connectors 107 <u>nal?</u> ninal and connector.	for damage, bend and	l loose connect	ion (unit side and con-
2. Check the resistance b		ol module harness cor	nnector termina	ls.
Connector No.		Terminal No.		Resistance ( $\Omega$ )
B47	4	5		Approx. 54 – 66
YES >> GO TO 3. NO >> Repair the AWI CHECK POWER SUPPI	D control module brand _Y AND GROUND CIR	RCUIT	ule. Refer to DL	N-73, "Diagnosis Pro-
<u>cedure"</u> Is the inspection result norn	nal?			and Installation"
Check the power supply an <u>cedure"</u> . <u>Is the inspection result norn</u> YES (Present error)>>Rep YES (Past error)>>Error w NO >> Repair the pow	nal? place the AWD control	module. Refer to <u>DLN-</u> D control module bran	<u>87, "Removal a</u>	and Installation".

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# ABS BRANCH LINE CIRCUIT

#### Diagnosis Procedure

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of ABS actuator and electric unit (control unit).
- 2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E35	22	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### **3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to <u>BRC-108, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-132, "Removal</u> <u>and Installation"</u>.

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

Revision: 2014 February

INFOID:000000008273518

#### **IPDM-E BRANCH LINE CIRCUIT**

# [CAN SYSTEM (TYPE 6)]

Diagnosis Procedure			INFOID:0000000827351
1.CHECK CONNECTOR			
<ol> <li>Check the terminals and and connector side).</li> </ol>	able from the negative term d connectors of the IPDM E		nd loose connection (unit side
Is the inspection result normative of the second seco	al?		
NO >> Repair the termin	nal and connector.		
2. CHECK HARNESS FOR	OPEN CIRCUIT		
<ol> <li>Disconnect the connector</li> <li>Check the resistance be</li> </ol>	or of IPDM E/R. tween the IPDM E/R harne	ss connector terminals.	
	IPDM E/R harness connector		Resistance (Ω)
Connector No.	Termina	l No.	
E13	27	26	Approx. 54 – 66
s the measurement value will YES >> GO TO 3.			
Check the power supply and <ul> <li>Models with Intelligent Key</li> </ul>	Y AND GROUND CIRCUIT the ground circuit of the IPI system: <u>PCS-34, "Diagnos</u>	s Procedure"	llowing.
NO >> Repair the IPDN 3.CHECK POWER SUPPLY Check the power supply and • Models with Intelligent Key • Models without Intelligent F Is the inspection result normal	Y AND GROUND CIRCUIT the ground circuit of the IPI system: <u>PCS-34, "Diagnos</u> Key system: <u>PCS-61, "Diagn</u>	s Procedure"	llowing.
3.CHECK POWER SUPPL Check the power supply and • Models with Intelligent Key • Models without Intelligent H Is the inspection result norm YES (Present error)>>Repl • Models with In • Models withou	Y AND GROUND CIRCUIT the ground circuit of the IPI system: <u>PCS-34, "Diagnos</u> Key system: <u>PCS-61, "Diagnal?</u> ace the IPDM E/R. Refer to telligent Key system: <u>PCS-3</u> t Intelligent Key system: <u>PCS-3</u>	is Procedure" nosis Procedure" the following. 5. "Removal and Instal S-62, "Removal and Instal	lation"
3.CHECK POWER SUPPLY Check the power supply and • Models with Intelligent Key • Models without Intelligent H Is the inspection result norm YES (Present error)>>Repl • Models with In • Models withou YES (Past error)>>Error wa	Y AND GROUND CIRCUIT the ground circuit of the IPI system: <u>PCS-34, "Diagnos</u> Key system: <u>PCS-61, "Diagnal?</u> ace the IPDM E/R. Refer to telligent Key system: <u>PCS-3</u>	the following. <u>S. "Removal and Instal</u> <u>S.62, "Removal and Instal</u> <u>S.62, "Removal and Instal</u>	lation"

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# TCM BRANCH LINE CIRCUIT

#### Diagnosis Procedure

INFOID:000000008273520

[CAN SYSTEM (TYPE 6)]

### 1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
- TCM
- Harness connecotor F1
- Harness connecotor E8

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of TCM.
- 2. Check the resistance between the TCM harness connector terminals.

TCM harness connector			Resistance ( $\Omega$ )
Connector No.	Termi	Terminal No.	
F81	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

**3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to <u>TM-180, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to <u>TM-226, "Removal and Installation"</u>.

YES (Past error)>>Error was detected in the TCM branch line.

## **DLC BRANCH LINE CIRCUIT**

# [CAN SYSTEM (TYPE 6)]

INFOID:0000000827				C/CIRCUIT DIAGN
INFOID:0000000827		IT	VE CIRC	BRANCH LI
			е	nosis Procedur
			ł	IECK CONNECTO
				urn the ignition swit
ester for demons band and loose connecti			y cable fror	isconnect the batte
ector for damage, bend and loose connecti	Ink connector for			connector side and
			rmal?	inspection result no
		nector.	rminal and (	>> GO TO 2. >> Repair the te
				IECK HARNESS F
<u> </u>	terminals.	link connector	veen the da	the resistance bet
		nk connector	Dat	
Resistance (Ω)	nal No.			Connector No.
14 Approx. 54 – 66	14	6		M4

# **EPS BRANCH LINE CIRCUIT**

#### Diagnosis Procedure

INFOID:000000008273522

[CAN SYSTEM (TYPE 6)]

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### **2.**CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of EPS control unit.
- 2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Termi	nal No.	
M37	2	1	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

**3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to <u>STC-18, "Diagnosis Proce-</u> dure".

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to ST-9, "Removal and Installation".

YES (Past error)>>Error was detected in the EPS control unit branch line.

#### **M&A BRANCH LINE CIRCUIT**

## [CAN SYSTEM (TYPE 6)]

			INFOID:00000008273523
.CHECK CONNECTOR			
	cable from the negative termind connectors of the combination		pend and loose connection
s the inspection result norm YES >> GO TO 2. NO >> Repair the term	inal and connector.		
2.CHECK HARNESS FOR	OPEN CIRCUIT		
<ol> <li>Disconnect the connect</li> <li>Check the resistance be</li> </ol>	or of combination meter. Stween the combination meter	harness connector term	inals.
Co	ombination meter harness connector		Resistance (Ω)
Connector No.	Terminal	No.	Resistance (22)
M34	1	2	Approx. 54 – 66
	bination meter branch line. Y AND GROUND CIRCUIT		
<u>IETER : Diagnosis Procedu</u> s the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	al? lace the combination meter. R as detected in the combinatio	Refer to <u>MWI-53, "Remov</u> n meter branch line.	
METER : Diagnosis Procedu Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	<u>ure"</u> . <u>lal?</u> lace the combination meter. R	Refer to <u>MWI-53, "Remov</u> n meter branch line.	

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# STRG BRANCH LINE CIRCUIT

#### Diagnosis Procedure

INFOID:000000008273524

[CAN SYSTEM (TYPE 6)]

### 1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of steering angle sensor.
- 2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Termi	nal No.	
M30	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

#### **3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to <u>BRC-51, "Wiring Dia-gram"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to <u>BRC-135, "Removal and Installation"</u>.

YES (Past error)>>Error was detected in the steering angle sensor branch line.

### [CAN SYSTEM (TYPE 6)]

#### A-BAG BRANCH LINE CIRCUIT А Diagnosis Procedure INFOID:000000008273525 WARNING: В Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.) • Never use unspecified tester or other measuring device. С 1. CHECK CONNECTOR 1. Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. 2. D Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose con-3. nection (unit side and connector side). Is the inspection result normal? Е YES >> GO TO 2. NO >> Replace the main harness. 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT F Check the air bag diagnosis sensor unit. Refer to SRC-25, "Work Flow". Is the inspection result normal? YES >> Replace the main harness. NO >> Replace parts whose air bag system has a malfunction. Н

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# HVAC BRANCH LINE CIRCUIT

#### Diagnosis Procedure

INFOID:000000008273526

[CAN SYSTEM (TYPE 6)]

### 1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the terminals and connectors of the A/C auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of A/C auto amp.
- 2. Check the resistance between the A/C auto amp. harness connector terminals.

A/C auto amp. harness connector			Resistance ( $\Omega$ )
Connector No.	Termi	nal No.	Tresistance (12)
M50	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the A/C auto amp. branch line.

### **3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to <u>HAC-67, "A/C AUTO AMP. :</u> <u>Diagnosis Procedure</u>".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-85, "Removal and Installation".

YES (Past error)>>Error was detected in the A/C auto amp. branch line.

#### **MDU BRANCH LINE CIRCUIT**

	ECIRCUIT		
Diagnosis Procedure			INFOID:00000008273527
1.CHECK CONNECTOR			
<ol><li>Check the terminals and side and connector side)</li></ol>	able from the negative term connectors of the multi dis .		nd and loose connection (unit
<u>s the inspection result norma</u> YES >> GO TO 2. NO >> Repair the termin	nal and connector.		
2. CHECK HARNESS FOR	OPEN CIRCUIT		
<ol> <li>Disconnect the connector</li> <li>Check the resistance be</li> </ol>	r of multi display unit. tween the multi display unit	harness connector termi	nals.
	ulti display unit harness connecto	r	– Resistance (Ω)
Connector No.	Termina		
M90	6	12	Approx. 54 – 66
s the measurement value wi	<u>unin the specification?</u>		
• ·	display unit branch line.		
NO >> Repair the multi 3.CHECK POWER SUPPLY Check the power supply and UNIT : Diagnosis Procedure	AND GROUND CIRCUIT		to <u>AV-161, "MULTI DISPLAY</u>
NO >> Repair the multi 3.CHECK POWER SUPPLY Check the power supply and <u>UNIT : Diagnosis Procedure'</u> Is the inspection result normation YES (Present error)>>Replay YES (Past error)>>Error wat	AND GROUND CIRCUIT the ground circuit of the r al? ace the multi display unit. R	multi display unit. Refer Refer to <u>DMS-13, "Remov</u> lay unit branch line.	
NO >> Repair the multi 3.CHECK POWER SUPPLY Check the power supply and <u>UNIT : Diagnosis Procedure'</u> Is the inspection result normation YES (Present error)>>Replay YES (Past error)>>Error wat	AND GROUND CIRCUIT the ground circuit of the r al? ace the multi display unit. R s detected in the multi disp	multi display unit. Refer Refer to <u>DMS-13, "Remov</u> lay unit branch line.	
NO >> Repair the multi CHECK POWER SUPPLY Check the power supply and JNIT : Diagnosis Procedure' s the inspection result normation YES (Present error)>>Replay YES (Past error)>>Error was	AND GROUND CIRCUIT the ground circuit of the r al? ace the multi display unit. R s detected in the multi disp	multi display unit. Refer Refer to <u>DMS-13, "Remov</u> lay unit branch line.	

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# BCM BRANCH LINE CIRCUIT

#### Diagnosis Procedure

INFOID:000000008273528

[CAN SYSTEM (TYPE 6)]

#### **1.**CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of BCM.
- 2. Check the resistance between the BCM harness connector terminals.
- Models with Intelligent Key system

	BCM harness connector		
Connector No.	Termi	nal No.	Resistance ( $\Omega$ )
M68	39 40		Approx. 108 – 132

Models without Intelligent Key system

BCM harness connector			Resistance ( $\Omega$ )
Connector No.	Termi	nal No.	
M65	39	40	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the BCM branch line.

**3.**CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to the following.

- Models with Intelligent Key system: <u>BCS-74, "Diagnosis Procedure"</u>
- Models without Intelligent Key system: <u>BCS-135, "Diagnosis Procedure"</u>

#### Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to the following.

- Models with Intelligent Key system: <u>BCS-81, "Removal and Installation"</u>
- Models without Intelligent Key system: <u>BCS-142</u>, "Removal and Installation"
- YES (Past error)>>Error was detected in the BCM branch line.
- NO >> Repair the power supply and the ground circuit.

#### **CAN COMMUNICATION CIRCUIT**

[CAN SYSTEM (TYPE 6)]

CAN COMMUNICA	TION CIRCUIT		
Diagnosis Procedure			INFOID:00000008273529
1.CONNECTOR INSPECT	ION		
<ol> <li>Disconnect all the unit c</li> <li>Check terminals and co</li> </ol>	cable from the negative term onnectors on CAN commu nnectors for damage, benc	nication system.	
Is the inspection result norm YES >> GO TO 2. NO >> Repair the termi 2.CHECK HARNESS CON	nal and connector.	T)	
Check the continuity betwee			
	Data link connector		
Connector No.	Termi	nal No.	Continuity
M4	6	14	Not existed
YES >> GO TO 3. NO >> Check the harne <b>3.</b> CHECK HARNESS CON Check the continuity betwee		T)	
Data link	connector		
Connector No.	Terminal No.	Ground	Continuity
M4	6		Not existed
s the inspection result norm			Not existed
YES >> GO TO 4.	ess and repair the root cau	se.	
<b>4.</b> CHECK ECM AND BCM	TERMINATION CIRCUIT		
<ol> <li>Remove the ECM and the ECM and the resistance be</li> </ol>	he BCM. etween the ECM terminals.		
ECM Terminal No.	Resistance (	2)	
	9 Approx. 108 – 1	132	
<ol> <li>Check the resistance be</li> </ol>	etween the BCM terminals.		
BCM	Resistance (	))	
Terminal No.			
	0 Approx. 108 – 1	132	
Is the measurement value w YES >> GO TO 5. NO >> Replace the EC 5.CHECK SYMPTOM			
		· · · · · · · · · · · · · · · · · · ·	
Connect all the connectors. customer)" are reproduced.	Check if the symptoms de	escribed in the "Symptom (I	Results from interview with

< DTC/CIRCUIT DIAGNOSIS >

# LAN-141

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#### Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

**6.**CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect one of the unit connectors of CAN communication system. **NOTE:**

ECM and BCM have a termination circuit. Check other units first.

 Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.
 NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure. Non-reproduced>>Replace the unit whose connector was disconnected.